Exhibit 96.7

SEC Technical Report Summary
Pre-Feasibility Study
Uchucchacua

Effective Date: December 31, 2023

Report Date: February 15, 2024

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
Peru

SRK Project Number: 23M05003.

SRK Consulting (Peru) S.A.
Avenida La Paz 1227
Miraflores, Lima, 15074
Perú

+51 1 206 5900 oficina

srk@srk.com.pe
www.srk.com

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, 2023 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 Uchucchacua" (the "Technical Report Summary"), with a report date of February 15th, 2024, 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 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, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25 and Appendixes.

Angel Mondragon
SRK Consulting (Peru) S.A. | Director

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

Table of contents

List of Tables

List of Figures

Abbreviations

The table below contains definitions of symbols, units, abbreviations and terminology that may be unfamiliar to the reader.

[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	Degrees Centigrade
µm	Micron or microns
AA	Atomic absorption
acQuire	Systematic database program
Ag	Silver
ANA	National Water Authority
ANFO	Ammonium nitrate fuel oil
As	Arsenic
ASTM	American Society of Testing and Materials
Au	Gold
BF	Pulp blanks
BG	Coarse blanks
BGS	British Geological Survey
Bi	Bismuth
Buenaventura	Compañía de Minas Buenaventura S.A.A.
BVN	Buenaventura
Cd	Cadmium
CDA	Canadian Dam Association
CER	Certimin Laboratory
CIRA	A certificate of non-existence of archeological remains
cm	Centimeter
cm^3	Cubic centimeter

Abbreviation	Unit or Term
Coimolache	Compañía Minera Coimolache S.A.
CONENHUA	Consorcio Energetico de Huancavelica S.A.
CRD	Carbonate replacement deposits
Cu	Copper
CuEq	Equivalent Copper
CuT	Total Copper
CV	Coefficient of Variation
d/y	days per year
DDH	Diamond drill holes
DF	Pulp duplicates
DG	Coarse duplicates
DME	Sterile Material Deposit
DSO	Deswik stope optimizer
EDA	Exploratory Data Analysis
EIA	Environmental Impact Study
ELOS	Equivalent linear overbreak/slough
FA	Fire assay
g	Gram
g/t	Grams per tonne
GM	Twin samples
Ha	Hectares
Hg	Mercury
HS	High Sulfidation
ICP	Inductively couple plasma
ID	Inverse distance
Ingemmet	Institute of Geology, Mining and Metallurgy
ISO	International Organization for Standarization
ITS	Supporting Technical Report
km	Kilometer
koz	Thousand troy ounce
kt/d	Thousand tonnes per day
kV	kilo Volts
lb	Pound
LIMS	Laboratory Information Management System
LOM	Life of Mine
LPD	Practical Limit of Detection
LVA	Locally Varying Anisotropy
M	Mass
m	Meter

Abbreviation	Unit or Term
m3	cubic meter
masl	Meters above sea level
MCE	Maximum Credible Earthquake
MINEM	Ministerio de Energía y Minas / Ministry of Energy and Mines
mm	Millimeter
mm/y	Millimeters per year
MS	Mass Spectrometry
Mt	Million tonnes
MW	Moment Magnitude
My	Million years
NF	Non-fluorescent
NN	Nearest Neighbor
NSR	Net Smelter Return
OCF	Overhand Cut & Fill
OEFA	Environmental Evaluation and Oversight Agency
OES	Optical Emission spectroscopy
OK	Ordinary Kriging
OKV	Ordinary Kriging Variance
OR	Orange red fluorescence
Osinergmin	Supervisory Agency for Investment in Energy and Mining
oz	Troy ounce
Pb	Lead
ppb	Parts per billion
ppm	Parts per million
QA/QC	Quality assurance/quality control
QKNA	Quantitative Kriging Neighborhood Analysis
QP	Qualified Person
R2	Coefficient of determination
RE	Relative Error
RF	Revenue Factor
ROM	Run-of-Mine
RPEEE	Reasonable Prospects for Eventual Economic Extraction
RQD	Rock quality description
RQD	Rock quality designation
RSE	Relative Standard Error
RSE	Relative Standard Error
SARC	Overhand Sublevel Stoping with Cemented Backfill
Sb	Antimony
SEC	U.S. securities & exchange commission

Abbreviation	Unit or Term
SENACE	National environmental certification authority
SENAMHI	Servicio Nacional de Meterorología e Hidrología del Perú
SIGEO	Buenaventura internal database software
SLS	Sublevel stoping
SMEB	Sociedad Minera El Brocal S.A.A.
SPCC	Southern Peru Copper Corporation
SRK	SRK Consulting Perú S.A.
SRM	Standard Reference Material
STD	Standard
t	Tonne (metric tonne) (2,204.6 pounds)
t/d	Tonnes per day
TRS	Technical Report Summary
UCH	Uchucchacua Internal Laboratory
UIT	One tax unit
UTM	Universal Transverse Mercator
V	Volume
VAR	Variance
y	Year
Zn	Zinc

1 Executive Summary

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

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. The operation 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, Yumpag was incorporated into the 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. Yumpag is located 5 km NE of Uchucchacua and is considered part of the mining unit.

The Uchucchacua mining unit, which includes the Yumpag area, is formed by veins and replacement bodies associated with structural systems, including the Uchucchacua, Socorro-Cachipampa, Rosa and Sandra faults, among others.

Uchucchacua resumed operations in September 2023, after halting operations for almost two years (October 2021 to September 2023) due to a combination of technical and social issues. Yumpaq's exploitation program began when operations resumed at Uchucchacua.

There are currently two (02) main mines in operation: Socorro and Camila, which are within Uchucchacua and Yumpag respectively. The Tomasa structure within the Yumpag area is under exploration.

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/da, but which produced only 1,000 tonnes/day (approx.) in 2017-2020. To improve the value of its production, manganese was removed by acid leaching the Uchucchacua's concentrates at Río Seco Refinery, a satellite processing facility located in Huaral, department of Lima.

1.1 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, and the mine is located 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 Lima - Sayán - Churín – Oyón – Uchucchacua road and total travel distance is approximately 322 km. The second access is via the Lima - La Oroya - Cerro de Pasco – Uchucchacua road, for a total travel distance of approximately 390 km.

1.2 Land tenure

The Uchucchacua mining unit, including Yumpag, is comprised of 28 mining concessions. Mining and exploration activities are conducted at these concessions, which cover approximately 46,000 hectares (Ha).

1.3 History

Uchucchacua was discovered during the Spanish viceroyalty and many workings from this period can be found in the areas of Nazareno, Mercedes, Huantajalla and Casualidad. At the beginning of 1960, Cia. de Minas Buenaventura started prospecting exploration in the area. In 1969-1973, 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 main mines, Socorro in the Uchucchacua area and Camila in Yumpag, are operating fully. Uchucchacua has a treatment capacity of 4,200 metric tons per day, which is processed through two treatment circuits.

1.4 Geological and Mineralization

The geology consists of sedimentary rocks from the Upper Cretaceous carbonate sequence. At the base, limestones from 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 were eventually 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 from the Upper Cretaceous Jumasha Formation.

The Yumpag area consists of a folded and thrust Mesozoic sedimentary basin, which is intruded by granodioritic, dioritic and subvolcanic stocks of rhyolite-dacite-diorite composition that generate an aureole of skarn and marble on the periphery.

Yumpag is located 7 km NE of the Uchucchacua Mining Unit. To date, two parallel mineralized structures with a N60° direction of significant economic interest have been identified: Camila and Tomasa.

1.5 Exploration Status

SRK notes that the property is an active mining operation with a long history. The 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.

In 2009, exploration began with diamond drilling wich were directed to the Tomasa, Luzmila and other veins, and to a lesser extent Camila.

Since 2021, Buenaventura has focused its efforts on exploring the Camila and Tomasa structures in the Yumpag area. A total of 44,424 m has been explored through 155 drillholes (surface drilling and mine drilling). Exploratory work through different drilling campaigns helped refine the sub-horizontal mantle-type geometry of the replacement bodies in Camila, which are corroborated by a strong banding parallel to the stratification with a black pyrite phase. alabandite-fluid bitumen, indicating replacement.

1.6 Mineral Resource Estimation

1.6.1 Uchucchacua

The 2023 Mineral Resource Update was based on channel sample and drill hole information obtained by Buenaventura.

SRK conducted a comprehensive review of available QA/QC data from 2021 – 2023 period from the Uchucchacua and believes that QA/QC protocols are consistent with the best practices accepted in the industry.

SRK believes that there are no significant issues related to contamination, and precision for sampling, subsampling, and analytical processes at Uchucchacua. Analytical accuracy is within acceptable limits, and SRK find that the Certimin laboratory performs better than Uchucchacua's internal laboratory. The interlaboratory bias (SGS vs Certimin/Uchucchacua Lab.) results are acceptable when outliers are excluded for all elements (Ag, Pb, Zn and Fe), except for Mn.

SRK reviewed the integrity of the Uchucchacua provided by Buenaventura, which includes sampling information, grades, bulk density and drillhole logs and found no significant issues. SRK considers that the databases are consistent and acceptable for the mineral resource estimate.

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 consider 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 are reported as of December 31, 2023, and are detailed in Table 1-1.

Table 1-1: Summary of Uchucchacua Mineral Resources

Classification	Tonnes	Ag	Pb	Zn	Mn	Fe	NSR	AgEq	Onz Equiv	Width
	(kt)	oz/t	%	%	%	%	US$/t	oz/t	Moz/t	m
Measured	869	9.08	1.27	2.41	7.82	6.76	144.62	12.04	10.47	2.25
Indicated	2,321	8.35	1.38	2.57	8.29	8.04	138.00	11.52	26.74	2.75
Measured & Indicated	3,190	8.55	1.35	2.52	8.16	7.69	139.80	11.66	37.20	2.61
Inferred	4,910	10.62	1.69	2.72	7.63	8.63	172.50	14.18	69.63	2.46

Notes on mineral resources:

[1] Mineral Resources are defined by the SEC Definition Rules for Mineral Resources and Mineral Reserves.

[2] Mineral Resources are exclusive of Mineral Reserves

[3] Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability

[4] The reference point for the Mineral Resources estimate is insitu. Mineral Resources were estimated as of June 30,2023. The estimate has an effective date of 31 December 2023. The Qualified Person Firm responsible for the resource estimate is SRK Consulting (Peru) S.A.

[5] Mineral Resources are reported above a differentiated NSR cut-off grade for structures based on actual operating costs

[6] Metal prices used in the NSR assessment are US$23.00 per ounce Ag, US$2,100/t per Mt Pb and US$2,600 Mt Zn.

[7] Extraction, processing and administrative costs used to determine NSR cut-off values were estimated based on actual operating costs as of 2023.

[8] Tones are rounded to the nearest thousand.

[9] Totals may not add due to rounding.

[10] The database was of June 30, 2023, and the depletion was of December 31, 2023. Therefore, the effective date was December 31, 2023.

Source: (Buenaventura, 2023)

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.

1.6.2 Yumpag

The 2023 Mineral Resource Update was based on drill hole information obtained by Buenaventura.

In Yumpag, SRK considers there are no significant issues related to contamination, accuracy, and precision for sampling, subsampling and analytical processes. The interlaboratory bias (SGS vs Certimin) results were acceptable for all elements (Ag, Pb, Zn, Fe, and Mn).

SRK reviewed the integrity of the Yumpag provided by Buenaventura, which includes sampling information, grades, bulk density and drillhole logs and no found significant issues. SRK considers that the databases are consistent and acceptable for the mineral resource estimate.

Mineralized domains identifying potentially economically mineable material were modeled for each structure and used to code drillholes 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 December 31, 2023, and are detailed in Table 1-2.

Table 1-2: Summary of Yumpag Mineral Resources

Classification	Tonnes	Ag	Pb	Zn	Mn	Fe	NSR	AgEq	Onz Equiv	Width
	(kt)	oz/t	%	%	%	%	US$/t	oz/t	Moz/t	m
Measured	54	17.32	0.41	0.76	3.52	21.01	232.98	17.32	0.93	14.25
Indicated	362	17.01	0.43	0.58	2.75	12.18	244.52	17.01	6.16	13.78
Measured & Indicated	416	17.05	0.43	0.61	2.85	13.32	243.03	17.05	7.10	13.84
Inferred	1,634	26.52	0.57	0.94	3.55	13.36	395.32	26.52	43.34	21.27

Notes on mineral resources:

[1] Mineral Resources are defined by the SEC Definition Rules for Mineral Resources and Mineral Reserves.

[2] Mineral Resources are exclusive of Mineral Reserves

[3] Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability

[4] Mineral Resources were estimated as of June 30, 2023, and reported as of December 31, 2023, taking into account production-related depletion for the period through December 31, 2023.

[5] Mineral Resources are reported above a differentiated NSR cut-off grade for structures based on actual operating costs

[6] Metal prices used in the NSR assessment are US$23.00 per ounce Ag, US$2,100/t per Mt Pb and US$2,600 Mt Zn

[7] Extraction, processing and administrative costs used to determine NSR cut-off values were estimated based on actual operating costs as of 2023.

[8] Tonnes are rounded to the nearest thousand.
[9] Totals may not add due to rounding.
Source: (Buenaventura, 2023)

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.

1.7 Changes to Mineral Resources between 2021 and 2023

1.7.1 Uchucchacua

Mineral resources were reported for the first time under new Regulation S-K 1300 for the fiscal year ended December 31st, 2021.

A comparison of the findings filed for Regulation S-K 1300 as of December 31st, 2021 (Table 1-3) and the declaration in S-K 1300 as of December 30, 2023 (Table 1-4) indicates that the primary differences are in the Inferred category. The main factors that generated a change in the declarations of mineral resources between the years 2021 and 2023 were the infill drilling programs in the Socorro and Carmen areas in 2021 and the infill drilling program in 2022 in the Huantajalla sector. Both programs aimed to transform inferred resources into measured-indicated resources. The reduction of inferred resources is largely linked to infill drilling programs, but also reflects updating of areas that are not accessible or not extractable via mining processes.

Table 1-3: Mineral resource report as of December 31st, 2021

Classification	Tonnes	Ag	Pb	Zn	Mn	Fe	NSR	AgEq	Onz Equiv	Width
	(kt)	oz/t	%	%	%	%	US$/t	oz/t	Moz/t	m
Measured	620	7.95	1.06	1.69	6.94	3.96	136.38	9.51	5.9	1.71
Indicated	1,607	7.86	1.1	1.85	6.85	5.61	136.71	9.53	15.32	2.04
Measured & Indicated	2,227	7.88	1.09	1.8	6.87	5.15	136.62	9.53	21.22	1.95
Inferred	7,029	11.73	1.49	2.2	6.58	6.57	203.9	13.84	97.24	2.96

Source: (Buenaventura, 2023)

Table 1-4: Mineral resource report as of December 31st, 2023

Classification	Tonnes	Ag	Pb	Zn	Mn	Fe	NSR	AgEq	Onz Equiv	Width
	(kt)	oz/t	%	%	%	%	US$/t	oz/t	Moz/t	m
Measured	869	9.08	1.27	2.41	7.82	6.76	144.62	12.04	10.47	2.25
Indicated	2,321	8.35	1.38	2.57	8.29	8.04	138.00	11.52	26.74	2.75
Measured & Indicated	3,190	8.55	1.35	2.52	8.16	7.69	139.80	11.66	37.20	2.61
Inferred	4,910	10.62	1.69	2.72	7.63	8.63	172.50	14.18	69.63	2.46

Source: (Buenaventura, 2023)

1.7.2 Yumpag

Mineral resources were reported for the first time under new Regulation S-K 1300 for the fiscal year ended December 31st, 2021.

A comparison of the findings filed for Regulation S-K 1300 as of December 31st, 2021 (Table 1-5) and the declaration in Regulation S-K 1300 as of December 30, 2023 (Table 1-6) indicates that the main differences are in the Inferred category. The main factors that generated an increase in mineral resources were the drilling program in the Tomasa area (0.9 Mt), and the infill drilling program in the Camila area, which spurred a change in the geometry of the mineralized body (from a vein model by mantos) and extended high-grade silver mineralization by 450 meters in this section of Camila.

Table 1-5: Mineral resource report as of December 31st, 2021

Classification	Tonnes	Ag	Pb	Zn	Fe	Mn	NSR
	(kt)	oz/t	%	%	%	%	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, 2023)

Table 1-6: Mineral resource report as of December 31st, 2023

Classification	Tonnes	Ag	Pb	Zn	Fe	Mn	NSR
	(kt)	oz/t	%	%	%	%	US$/t
Measured	54	17.32	0.41	0.76	3.52	21.01	232.98
Indicated	362	17.01	0.43	0.58	2.75	12.18	244.52
Measured & Indicated	416	17.05	0.43	0.61	2.85	13.32	243.03
Inferred	1,634	26.52	0.57	0.94	3.55	13.36	395.32

Source: (Buenaventura, 2023)

1.8 Mineral Reserve Estimation

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, 2023

Cost estimations are based on the historic cost of years 2019, 2020 and 2021. There is no historical cost information for 2022 and 2023, given that activities were suspended at mining unit during these periods. 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.

Mineral reserves are reported above the 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 1-7.

Table 1-7: Uchucchacua Underground Summary Mineral Reserve Statement as of December 31st, 2023

Mining Method	Confidence Category	Tonnage (t)	Silver Grade (oz/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)
Uchucchacua Bench & Fill	Proven	267,305	6.43	2.35	3.87	2.48
	Probable	1,796,815	6.42	2.39	4.15	2.65
	Sub-total Proven & Probable	2,064,120	6.42	2.38	4.12	2.63
Uchucchacua Overhand Cut & Fill OCF_RM *	Proven	211,447	14.33	1.08	1.37	9.34
	Probable	613,081	13.22	1.14	1.47	7.45
	Sub-total Proven & Probable	824,528	13.51	1.12	1.45	7.94
Uchucchacua Overhand Cut & Fill OCF_RC **	Proven	31,134	12.1	2.22	2.24	4.2
	Probable	43,757	12.24	1.76	1.83	3.66
	Sub-total Proven & Probable	74,891	12.18	1.95	2	3.88

Mining Method	Confidence Category	Tonnage (t)	Silver Grade (oz/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)
Uchucchacua Overhand Cut & Fill OCF_BM *	Proven	6,186	10.28	0.36	0.38	34.11
	Probable	58,765	11.03	0.24	0.29	27.39
	Sub-total Proven & Probable	64,951	10.96	0.25	0.3	28.03
Uchucchacua Overhand Cut & Fill OCF_BSM ****	Proven	-	-	-	-	-
	Probable	23,676	13.94	0.79	0.92	6.99
	Sub-total Proven & Probable	23,676	13.94	0.79	0.92	6.99
Yumpag Bench & Fill	Proven	811	20.87	0.37	0.82	22.75
	Probable	137,852	17.05	0.28	0.53	10.97
	Sub-total Proven & Probable	138,663	17.07	0.28	0.53	11.04
Yumpag Overhand Drift & Fill	Proven	21,495	20.23	0.38	0.56	21.57
	Probable	43,484	15.9	0.36	0.73	16.03
	Sub-total Proven & Probable	64,979	17.33	0.36	0.67	17.86
Yumpag Sub Level Stoping	Proven	109,414	16.31	0.38	0.81	17.63
	Probable	1,957,199	22.8	0.56	0.82	11.12
	Sub-total Proven & Probable	2,066,613	22.45	0.55	0.82	11.46
TOTAL	Proven	647,791	11.46	1.51	2.31	8.32
	Probable	4,674,629	14.72	1.34	2.18	7.54
	Sub-total Proven & Probable	5,322,420	14.32	1.36	2.2	7.63

(*) OCF Realce/Circado (Mechanized) Mukif 10'

(**) OCF Realce/Circado (Captive) Stoper 8'

(***) OCF Breasting (Mechanized) Jumbo

(****) OCF Breasting (Semi-Mechanized) Jackleg

[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, 2023 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 lon- term prices of silver price of 23.00 US$/oz, lead price of 2,100 US$/t, zinc price of 2,600 US$/t
b) Variable metallurgical recoveries are accounted for in the NSR calculations and defined according to recovery functions, which average recoveries are 86% for silver, 92% for lead and 79% for zinc for the Uchucchacua zone. While for the Yumpag area, silver recovery reaches 85% on average.
c) Mineral reserves are reported above a marginal net smelter return cut-off of:
   - Uchucchacua Zone: 58.84 US$/t for bench & fill; 75.42 US$/t for OCF Breasting (Mechanized); 82.89 US$/t for OCF Breasting (Semi-Mechanized); 86.43 US$/t for OCF Realce (Mechanized) and 97.11 US$/t for OCF Realce (Captive) mining methods;
   - Yumpag Zone: 111.09 US$/t for overhand drift & fill, 113.70 US$/t for bench & fill and 114.70 US$/t for sublevel stoping (SARC) 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 and as such, numbers may not add up exactly to the same figure found in the table above.

Source: (Buenaventura, 2023)

1.9 Mining Methods

The Uchucchacua mining unit applies two underground mining methods:

Bench & Fill with long holes, which entails sublevel stoping (SLS) and longitudinal mining of the vein. Lower and upper sublevels are built, and ore bench is left between them and subsequently mined through long-hole drilling. As the ore is broken from the bench on one face and 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, which 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. Currently, since the reopening of the mine, it is only being filled with detrital material. This backfill serves as a work floor for overhand mining. In each ore cut, support work must be performed to ensure the stability and safeguard personnel and equipment.

In Uchucchacua, OCF method is used in four variants, which are listed below:

- Mechanized with upward drilling (OCF RM)
- Semi-mechanized with captive equipment (OCF RC)
- Mechanized with horizontal drilling (OCF BM)
- Semi-mechanized with horizontal drilling (OCF BSM)

The Yumpag mining unit applies the following mining methods:

Bench&Fill (B&F), Overhand Drift & Fill (ODF), and SLS in its variant Overhand Sublevel Stoping with Cemented Backfill (SARC). These mining methods are defined based on the thickness of structures:

- Thicknesses greater than 10 m: The mining method entails crosscutting sublevel stoping (SARC) 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 detrital fill.

1.10 Processing and Recovery Methods

Uchucchacua operates a conventional crushing-grinding-flotation concentration operation that processes polymetallic ores to produce mineral concentrates of varying quality.

The information developed in this chapter is as of July 3, 2023.

The processing plant consists of two parallel processing lines:

- Circuito 1 with nominal capacity of 3,000 tonnes per day of fresh feed that in 2017-2019, this circuit operated at only 2,600 tpd approximately.

- Circuito 2 with nominal capacity is 1,200 tonnes/day that operated at approximately 1,000 tpd in 2017-2019.

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, Pb-Ag concentrate, and Pb-Ag concentrate with high manganese content that will be processed at the Rio Seco plant. 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 of solutions and gases. Final products are trucked off site to Callao Port and local clients.

1.11 Infrastructure

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

- Mine Operations Support Facilities
  - Underground workshop
  - Two pumping system (Uchucchacua and Yumpag)
  - Mine administration 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 pumping from lagoons
- Waste Water Treatment and Solid Water Disposal
- Tailing facility
- Uchucchacua: Four waste rock management facility (Colquicocha, Huantajalla Lvl 360, Uchucchacua and Huantajalla Lvl500)
- Yumpag: DME Yumpag, has an approved cumulative capacity of 549,000 m3.

1.12 Market Studies

The market study is based on the previous analysis developed by CRU during 2021-2022 and The market study is based on the previous analysis developed by CRU during 2021-2022 and complemented by consensus information from different banks and financial entities used by Buenaventura for its official price forecast.

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 60% of production for 2024. Conversations with current buyers are on-going and contracts for future production are likely to be secured.

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.

Based on the previous analysis developed by CRU in 2021 and consensus information from different banks and investment entities, the following price forecast represents Buenaventura's forecast as of July 2023:

Table 1-8: Metal prices forecast

Price	Unit	2023	2024	2025	2026	Long Term
Zn	USD/lb	1.21	1.21	1.22	1.24	1.19
Pb	USD/lb	0.95	0.94	0.94	0.94	0.94
Ag	USD/oz	23.62	23.85	23.52	23.02	22.60

Source: (Buenaventura, 2023)

1.13 Environmental and Closure Plan

Uchucchacua Mining Unit has provided evidence of compliance with the environmental standards, permits, and legal regulations as required by the Peruvian authority, specifically under R.D. 637-2014-MEM-DGAAM. The operations at the mine and processing plant, along with the activities related to the Yumpaq mine, adhere to the regulations set by the Ministry of Energy and Mines (MINEM) of Peru and the environmental certification body (SENACE). Additionally, the activities at the Río Seco Industrial Processor fall under the jurisdiction of the Ministry of Production (PRODUCE) of Peru.

Yumpag received approval for its Environmental Impact Study (EIA) from SENACE on September 6, 2023, and is currently in the process of securing mining operation permits from the Ministry of Energy and Mines (MINEM).

For the Río Seco Industrial Processor, SRK reviewed the updated EIA for the manganese sulfate monohydrate production plant, which was initially approved on February 21, 2019. In August 2023, the company submitted a Supporting Technical Report (ITS) to revise and expand the plant's auxiliary components, leading to increased storage for samples, equipment, materials, documents, and uniforms. This amendment was approved on December 15, 2023.

The company has submitted progress reports on the closure plan, which include monitoring of water quality at the mine, plant, and external water bodies. The recommendations from the Technical Memorandum by J. Parshley (SRK) emphasized the need for studies to comply with closure cost estimates for pre-feasibility studies, as per SK-1300. These recommendations were specific to the mine and plant closure plan, with additional guidance on completing studies related to mine access, hydrogeology, surface water management, monitoring of chemical elements like manganese, potential water treatment requirements, and the physical stability of tailings pits and dumps; however, it was noted that the progress in implementing these studies could not be verified.

The closure plans for Yumpag and Río Seco, which are in the conceptual stage and approved by the Peruvian authority, will need to be aligned with the recommendations in the SK-1300.

1.14 Capital and Operating Cost Estimates

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

- Historical operating costs from 2019 to 2021, including a detailed analysis of the cost database and compilation of costs for forecast estimation. There is no historical cost information for 2022 and 2023, given that mining activities were suspended during these periods.

- Projected capital cost for the LOM of Uchucchacua, including sustaining CAPEX.

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.

The summary estimated cost is shown in the Table 1-9.

Table 1-9: Operating Cost Estimated

Item **	Units	Estimated cost * (Inc. 10% Conting)
Mining Uchucchacua		
Bench & Fill (B&F)	US$ / t ore	53.48
OCF Breasting (Mechanized)	US$ / t ore	67.53
OCF Breasting (Semi-Mechanized)	US$ / t ore	74.32
OCF Realce/Circado (Mechanized)	US$ / t ore	77.53
OCF Realce/Circado (Captive)	US$ / t ore	87.25
Mining Yumpag		
Over Drift & Fill (ODF)	US$ / t ore	58.76
Bench & Fill (B&F)	US$ / t ore	61.13
Overhand Sublevel Stoping (SARC) **	US$ / t ore	62.03
Services		
Uchucchacua	US$ / t ore	22.94
Yumpag	US$ / t ore	59.59
Plant Processing		
Plant (Uchucchacua and Yumpag)	US$ / t processed	12.07
G&A Mine Operations		
Uchucchacua	US$ / t processed	5.22
Yumpag	US$ / t processed	5.22
Sustaining CAPEX		
Processing	US$ / t processed	13.71
Off Site Cost (Corporate) * **	US$ / t processed	1.21

* Contingencies: item considers 10% of the sum of the costs of Mine, Plant, Services and Sustaining CAPEX.

** 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.

Source: (Buenaventura, 2023)

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 1-10. SRK does not have any additional details about the yearly amounts to support or conduct a detailed analysis on specific infrastructure or components.

Table 1-10: Capital cost estimation

Year	Capital Cost *	
	Uchucchacua + Yumpag (MUS$)	Río Seco Plant ** (MUS$)
2024	45.56	2.71
2025	22.81	0.72
2026	15.63	0.72
2027	2.98	0.40
2028	-	0.30
Total	**86.98**	**4.85**

* It does not include contingency

** Corresponds to the capital costs of the Río Seco manganese treatment plant

Source: (Buenaventura, 2023)

Buenaventura has formulated an estimated cost for the three stages of the mine closure process, as well as for the water treatment system. These stages include progressive closure, final closure, and post-closure activities, along with the costs associated with water treatment. To accommodate any unforeseen factors or variations, a contingency of 15% has been added to the closure cost estimates. The total cost for closing the mine, which is slated to be distributed until the year 2051, amounts to $72.38 million US dollars, excluding contingency and selling taxes. The specifics of these closure costs are detailed in Table 1-11.

Table 1-11: Summary Closure Cost

Year	Progressive closure		Final Closure		Post Closure		Water treatment		Cont.	S.T.
	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	CAPEX (M US$)	OPEX (M US$)	15%	18%
2024	2.99	0.52							0.53	
2025	2.99	0.52							0.53	
2026	2.99	0.52							0.53	
2027	2.99	0.52							0.53	
2028	2.99	0.52							0.53	
2029			2.99	1.58			4.78		1.4	
2030			2.99	1.58			4.78		1.4	
2031			2.99	1.58			4.78		1.4	
2032			2.99	1.58	0.02	0.01		2.5	1.07	

Year	Progressive closure		Final Closure		Post Closure		Water treatment		Cont.	S.T.
	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	CAPEX (M US$)	OPEX (M US$)	15%	18%
2033			2.99	1.58	0.02	0.01		2.5	1.07	
2034					0.02	0.01		2.5	0.38	
2035					0.02	0.01		2.5	0.38	
2036					0.02	0.01		2.5	0.38	
2037					0.02	0.01		2.5	0.38	
2038					0.02	0.01		0.45	0.07	
2039					0.02	0.01		0.45	0.07	0.1
2040					0.02	0.01		0.45	0.07	0.1
2041					0.02	0.01		0.45	0.07	0.1
2042					0.02	0.01		0.02	0.01	0.01
2043					0.02	0.01		0.02	0.01	0.01
2044					0.02	0.01		0.02	0.01	0.01
2045					0.02	0.01		0.02	0.01	0.01
2046					0.02	0.01		0.02	0.01	0.01
2047					0.02	0.01		0.02	0.01	0.01
2048					0.02	0.01		0.02	0.01	0.01
2049					0.02	0.01		0.02	0.01	0.01
2050					0.02	0.01		0.02	0.01	0.01
2051					0.02	0.01		0.02	0.01	0.01
Total	14.96	2.58	14.96	7.91	0.44	0.18	14.34	17	10.86	0.4

Source: (Buenaventura, 2023)

1.15 Economic Analysis

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

The economic analysis metrics are prepared on an annual after-tax basis in US$. The results of the analysis are presented in Table 1-12. The results indicate that the operation returns an aftertax NPV@7.86% of MUS$ 319.79 (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 1-12: Indicative Economic Results

	Units	Value
LOM Cash Flow (Unfinanced)		
Total Net Sales	M US$	1,494.32
Total Operating cost	M US$	777.14
Total Operating Income	M US$	453.39
Income Taxes Paid	M US$	57.53
EBITDA		
Free Cash Flow	M US$	667.84
NPV @ 7.86%	M US$	524.46
After Tax		
Free Cash Flow	M US$	397.62
NPV @ 7.86%	M US$	319.79

Source: (Buenaventura, 2023)

1.16 Qualified Person's Conclusions and Recommendations

1.16.1 Conclusions

Geology and Mineralization

- 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 intrusive 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 intrusive.
- Yumpag area 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.

Yumpag

- SRK has used relevant and available data sources to accompany to 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.

Sample Preparation, Analysis and Security

Uchucchacua

- SRK conducted a comprehensive review of available QA/QC data from 2021 – 2023 period and believes that QA/QC protocols are consistent with the best practices accepted in the industry. SRK is of the opinion that sample preparation, chemical analysis, quality control, and the security procedures from 2021 – 2023 samples are sufficient to provide reliable data to support the mineral resource estimation and mineral reserve estimation and considers that quality control evaluation results have improved in comparison to the results obtained in the previous SEC Technical Report Summary Pre-Feasibility Study of the Uchucchacua mining unit (SRK, 2022).
- SRK finds that the insertion rate of control samples for drillhole and channel samples in 2021 – 2023 period were adequate.
- SRK believes that there is no evidence of significant contamination for Ag, Fe, Mn, Pb and Zn.
- Overall, SRK believes there is good precision in sampling, sub-sampling, and analytical processes for drillhole and channel samples.
- The bias evaluation results from SRMs showed that analytical accuracy for Ag, Pb and Zn is within acceptable limits. Accuracy evaluation results from drillholes samples analyzed at Certimin laboratory are better than drillhole and channel samples analyzed at Uchucchacua internal laboratory.
- In the external control samples evaluation, inter-laboratory bias results for Ag, Pb, Zn and Fe from drillhole and channel samples (SGS vs Uchucchacua, SGS vs Certimin and Certimin vs Uchucchacua) are acceptable when outliers were excluded. In the case of Mn, the inter-laboratory bias results (SGS vs Uchucchacua and SGS vs Certimin) are not within acceptable limits.

- SRK considers that the results of quality control evaluation from drillhole and channel samples in 2021 – 2023 period do not represent a risk to the mineral resource estimate.

Yumpag

- SRK conducted a comprehensive review of available QA/QC data from 2021 – 2023 period and believes that QA/QC protocols are consistent with the practices accepted in the industry. SRK is of the opinion that sample preparation, chemical analysis, quality control, and the security procedures from 2021 – 2023 samples are sufficient to provide reliable data to support the mineral resource estimation and mineral reserve estimation.
- SRK finds that the insertion rate for control samples from 2021 - 2023 period should improve and align with Buenaventura's Quality Control Protocol (2020) and best practices in the industry; this entails increasing the insertion of pulp blanks, pulp duplicates, low, medium and high-grade standards and external control samples.
- SRK found that there is no evidence of significant contamination for Ag, Fe, Mn, Pb and Zn in drillhole samples.
- SRK found that sampling, sub-sampling and analytical precision were good for Certimin and Uchucchacua laboratories.
- The bias evaluation results from SRMs showed that analytical accuracy for Ag, Pb, and Zn in Certimin and Uchucchacua were within acceptable limits.
- SRK found that inter-laboratory bias results (SGS versus Certimin) were within acceptable limits for Ag, Fe, Mn, Pb, and Zn.
- SRK believes that the results of quality control evaluation from 2021 – 2023 drilling campaigns do not represent a risk to the mineral resource estimate for the Yumpag Project.

Database Verification

- SRK found that Uchucchacua Mine and Yumpag Project databases had only minor findings that correspond mainly to historical data.
- SRK considers that mining channels and drillholes samples databases from the Uchucchacua Mine and Yumpag Project to be consistent and acceptable for the mineral resources estimate.

Mineral Resource Estimation

Uchucchacua

- The mineral resources have been estimated by 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

- The mineral resources have been estimated by 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.

Mineral Reserve Estimation

- Mineral reserves effective date is December 31st, 2023.
- Based on available technical studies and information provided by Buenaventura, no fatal flaw is present. In the QP's opinion, the mineral reserves estimation is reasonable.

Mining Methods

It should be noted that Yumpag is a mining unit within the Uchucchacua MU. Yumpag is located 1 km northeast of Uchucchacua's current operations.

The considerations that Buenaventura used to determine mining methods for both Uchucchacua and Yumpag, differ for each. The following descriptions will discuss these considerations separately by area. SRK believes that the mining methods used for exploitation are both mines are adequate.

Uchucchacua is an operating mine that uses conventional underground methods to extract mineral reserves. The underground mining methods used are:

- Uchucchacua Zone; Bench & Fill (B&F) and Overhand Cut & Fill (OCF). The latter employs the following variants: Breasting (Mechanized) Jumbo, Breasting (Semi-Mechanized) Jackleg, Realce/Circado (Mechanized)[1] Mukif 10' and Realce/Circado (Captive) [2]Stoper 8'.
- Yumpag Zone; Over Drift & Fill (ODF), Bench & Fill (B&F) and Overhand Sublevel Stoping (SARC).

According to the estimated reserves as of December 2023, the LOM is five years.

Table 1-13: Uchucchacua Mine - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	460,300	706,000	774,430	677,400	434,036	**3,052,166**
Ag grade (oz/t)	5.89	7.76	9.33	10.67	8.51	**8.63**
Pb grade (%)	3.33	2.39	1.54	1.47	1.44	**1.97**
Zn grade (%)	4.77	3.76	2.69	2.22	3.31	**3.24**
Mn grade (%)	1.65	3.23	5.47	7.31	4.64	**4.67**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	365	365	366	**1,827**
Treatment Days	354	353	353	353	354	**1,767**
Plant Shutdown	12	12	12	12	12	**60**
Treatment per day	1,300	2,000	2,194	1,919	1,226	

Source: (Buenaventura, 2023)

Table 1-14: Yumpag Mine - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	335,792	423,600	355,170	452,200	703,492	**2,270,254**
Ag grade (oz/t)	25.91	22.75	18.43	21.18	21.94	**21.98**
Pb grade (%)	0.63	0.53	0.43	0.59	0.49	**0.53**
Zn grade (%)	1.17	0.98	0.75	0.67	0.62	**0.80**
Mn grade (%)	16.53	17.69	15.39	6.27	7.15	**11.62**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	308	275	366	**1,680**
Treatment Days	354	353	296	266	354	**1,623**
Plant Shutdown	12	12	12	9	12	**57**
Treatment per day	949	1,200	1,200	1,700	1,987	

Source: (Buenaventura, 2023)

[1] This mining method is a variant of "overhand cut and fill" which consists of Drilling is carried out on elevation with jumbo electro-hydraulic rigs.

[2] In this variant, mining is semi-mechanized with captive equipment; drilling is carried out on elevation with stoper-type equipment.

Table 1-15: Uchucchacua + Yumpag Mines - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	796,092	1,129,600	1,129,600	1,129,600	1,137,528	**5,322,420**
Ag grade (oz/t)	14.33	13.39	12.19	14.88	16.82	**14.32**
Pb grade (%)	2.19	1.69	1.19	1.12	0.85	**1.36**
Zn grade (%)	3.25	2.72	2.08	1.60	1.65	**2.20**
Mn grade (%)	7.93	8.66	8.59	6.89	6.19	**7.63**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	365	365	366	**1,827**
Treatment Days	265	353	353	353	350	**1,675**
Plant Shutdown	12	12	12	12	12	**60**
Treatment per day	3,000	3,200	3,200	3,200	3,248	

Source: (Buenaventura, 2023)

Table 1-16: Development and preparation works – Uchucchacua LOM

Work (m)	2024	2025	2026	2027	2028	Total
Development	-	342	342	342	114	**1,140**
Preparation	12,075	17,635	17,609	17,472	4,135	**68,926**
Exploration	1,380	2,000	2,000	2,000	2,000	**9,380**
Total advances	13,455	19,977	19,951	19,814	6,249	**79,446**
RB (m)	320	-	-	-	-	**320**

Source: (Buenaventura, 2023)

Table 1-17: Development and preparation works – Yumpag LOM

Work (m)	2024	2025	2026	2027	2028	Total
Development	794	777	1,400	821	215	**4,007**
Preparation	5,290	4,725	7,460	2,632	-	**20,106**
Exploration	-	-	8	1,133	842	**1,983**
Total advances	6,084	5,502	8,869	4,586	1,056	**26,097**
RB (m)	125	199	347	319	-	**991**

Source: (Buenaventura, 2023)

Processing and Recovery Methods

In 2021, drillholes YUM21-198 and YUM21-199 in the Tomasa deposit were used to produce four (4) composite samples for metallurgical testing. The results were evaluated along with information on the geochemistry, geology, mineralogy, and geomechanics of the Tomasa deposit. The respective tests were carried out in the Plenge laboratory (Lima, Peru).

SRK has found that the samples tested suggest that the Tomasa deposit is amenable to flotation processing. The high manganese content in some samples suggests that some of the final concentrates will require further reprocessing at the Río Seco refinery to achieve commercial quality and/or to maximize sale value. Tomasa's testing results are comparable to those found for the Camila structure.

Therefore, the metallurgical recovery mathematical formulas used for Camila (Yumpag area) are also applicable to the Tomasa deposit.

Infrastructure

Waste rock facilities- Uchucchacua

- 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. The facility's design extends over 1.44 hectares and has storage capacity for 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 and 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). The facility's 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.

  Detailed engineering for the facility was conducted by OM Ingeniería y Laboratorio (OM) in 2014. In this case, the facility extended over 4 hectares; had a storage capacity of 567,000 m^3 and an estimated useful life of 4 months.

- Uchucchacua Lvl 600 is similar in configuration to the 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. In this case, the facility extended over 1 Ha; had a storage capacity of 48,800 m^3 of waste rock; and an estimated useful life of 2 months.

Waste rock facility – Yumpag

- Currently, the Yumpag sterile material deposit (DME) has an approved cumulative capacity of 549,000 m^3 for exploration. The assessment for DME expansion indicates that the disposal area for sterile material will entail no more than a 20% increase in the area approved for the DME.

Tailings

Buenaventura has been granted a construction permit allowing to raise the dams up to 4,416.0 meters above sea level (masl). Plans were in place to proceed with dam elevation, but in October 15, 2021, Buenaventura suspended activities at the Uchucchacua Unit until September 2023 due to disputes with local communities.

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, the objective is to eventually reach an 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. Expansion will increase the operation's capacity to receive larger amounts of reserves. At the end of the operation, the final capacity of Tailings Dam 3 will be 26.27 Mt. The estimated density of conventional tailings stands at 1.26 t/m³, while thickened tailings are expected to situate at 1.6 t/m³; discharge of thickened tailings will begin in 2024.

Market Studies

The market study is based on the previous evaluation carried out by CRU, in the years 2021 and 2022, and has been complemented with consensus information from several banks and financial institutions; Buenaventura relies on these entities to develop its official projections for commodity prices. SRK believes that the current price predictions provided by Buenaventura are reasonable.

The projected prices, long-term, are: Zn 1.19 US$/lb, Pb 0.94 US$/lb and Ag 22.60 US$/oz.

Capital and operating costs

Operation and capital costs, according to good industry practices, must consider contingency percentages in their structure to cover any unpredictable factors. This is even more important when assessments to determine values are not at the pre-feasibility level. SRK believes that it is reasonable for Uchucchacua to use the following factors in its cost calculations:

- OPEX: 10%
- CAPEX: 15
- Closure costs: 15%

1.16.2 Recommendations

Sample Preparation, Analysis and Security

- In Uchucchacua Mine, SRK recommends that in the future the number of SRMs used be limited (three or four at the most during the same period) as the use of multiple SRMs makes it difficult to evaluate accuracy.
- In Yumpag Project, SRK recommends that Buenaventura increase the insertion rate of pulp blanks, pulp duplicates, standards, and external control samples, as established in its Quality Control Protocol (2020). Sending external control samples to the secondary laboratory must

include a review of the granulometry in 10% of the samples, as well as the insertion of pulp blanks and SRMs in said lots.

- SRK suggests frequently reviewing the behavior of the quality control results and informing the laboratory about any problems detected to opportunely establish corrective measures.

Data Verification

- SRK recommends that Buenaventura periodically monitor and/or review drillhole recovery results. SRK considers a recovery percentage greater than 90% acceptable.
- SRK recommends that the minimum and maximum drillhole sampling length indicated in the Buenaventura Sampling Protocol (2020) be respected in future drilling campaigns.
- SRK recommends in future drilling programs, bulk density sampling to be performed in all drillholes and areas that are important for mineral resource estimation.
- SRK recommends that the number of decimal places assigned in the database and those indicated in the laboratories' certificates of analysis coincide (given that this reflects the precision of the methods used by each laboratory).
- SRK suggests frequently reviewing and validating the control sample database and checking that duplicates and external control samples are correctly associated with the corresponding primary samples.

Geological and Mineral Resources

Uchucchacua

- SRK recommends developing a detailed geological and structural model to further support the geological modeling of the deposit.
- Not all structures have bulk density information, SRK recommends that systematic density sampling programs be carried out that cover all veins, appropriately distributed along and up the veins.
- The QAQC results throughout the life of the mine have not been optimal, SRK recommends continuing to carry out an adequate quality control program as in the last two years, the inadequate results in previous years generated the non-declaration of measured resources in some veins.
- In SRK's opinion, it is necessary to implement a Minzone model with the objective of identifying areas with potential problems due to high Mn contents and optimizing geo-mining-metallurgical planning.
- SRK recommends implementing a reconciliation program that includes the different types of mineral resource models, reserves, mine plans and plant results.

Yumpag

- SRK recommends developing a detailed structural model to further support the geological modeling of the reservoir.

- Bulk density information for mineral resource estimation was insufficient; SRK recommends that systematic density sampling programs be carried out for all structures assessed and density estimates be made in future mineral resource updates.
- SRK recommends implementing a reconciliation program that includes the different types of mineral resource models, reserves, mine plans and plant results.

Mining and Mineral Reserve Estimation

Uchucchacua is a mining unit that restarted operations after a 2-yr shutdown. As such, Buenaventura has not been in the position to optimally develop all the recommendations made by SRK in its audit of mineral reserves as of December 2021. Nonetheless, the company is engaged in implementing recommendations as it begins a new operating phase. It is important to note that recommendations that follow have been made with the impact of the shutdown in mind.

- 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 of mine operations: geology, mine planning and processing plant under an structured plan of implementation.
- Geotechnical monitoring of underground operations and implement feedback process to incorporate the monitoring results into the geotechnical model used for underground design purposes.
- Continue with studies in the Tomasa body area, to consolidate its contribution to the reserves through studies relative to geomechanics, hydrogeology, and metallurgical recovery.

Processing and Recovery Methods

- The number of test results for the Tomasa deposit is preliminary, limited and not optimized; however, the available results are positive, suggesting acceptable mineralization for conventional flotation concentration. Metallurgical testing assays must include the complete set of base metals, precious metals and harmful elements.
- A good practice that will facilitate timely evaluation of business potential would be to execute metallurgical tests immediately after the release of DDH geochemical data.
- Some repairs to the plant were carried out between the months of April and August 2023 and operations began in September 2023. Among the repairs, Circuit 1 and some cells of Circuit 2 were activated with a total investment of one million dollars. A treatment capacity of 3,000 tpd was achieved. SRK's main recommendation in the last audit, however, entailed comprehensive remodeling with an investment investment of 5-10 million dollars. Buenaventura must continue efforts to achieve improvements at the processing plant.

Market Studies

The commodity prices projected by Buenaventura are based on the analysis previously developed by CRU in the years 2021 and 2022 and on consensus information from different banks and financial entities such as: JP Morgan, Deutsche Bank, Morgan Stanley, BNP Paribas, BMO. SRK finds the projection reasonable but strongly recommends updating the market study in the short-term to match the detail found in the CRU report.

Environment and Closure Plan

In the last audit carried out by SRK in 2022, the main recommendations focused on the Mine and Plant Closure Plan. Both were approved by the Peruvian authority and entailed studies related to:

- Closure of mine access activities.
- Study of hydrogeology and surface waters, due to the high flows generated by these operations.
- Monitoring of chemical elements (manganese) at stations and points, in particular in relation to discharges into the environment and external water bodies.
- Evaluation of potential requirements for water treatment plants.
- Study the physical stability of waste rock and tailings deposits.

It has not been possible to verify the progress that has been made in implementing these studies. SRK recommends, in the short term, implementing the aforementioned studies.

In the case of Yumpag and Río Seco, the closure plans included in their EIS are currently at a conceptual level. SRK urges Buenaventura to align plans with the requirements set by S-K1300.

Capital and Operating Costs, and Economic Analysis

- Additional technical studies for the mine closure process should be developed to improve the accuracy of the estimation of capital and operating costs. SRK believes there are opportunities to improve the integrity of these costs, supported by technical studies.
- Contingencies in a cost structure help cover unforeseen expenses. Although the CAPEX, OPEX and closure costs include this contingency, this is not the case with Río Seco's capital costs. SRK believes that in future economic evaluations, a contingency should be included in Río Seco’s capital cost calculation.
- Additional support for traceability of cash flow input values.

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) and covers the Uchucchacua-Yumpag area. Buenaventura is 100% owner of Uchucchacua-Yumpag.

2.2 Terms of Reference and Purpose of the Report

SRK has examined the information, conclusions and estimates provided by Buenaventura and developed its own conclusions and recommendations 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 are 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.

The effective date of this report is December 31, 2023.

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 memorandum, 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.

2.4 Details of Inspection

Table 2-1 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 made.

Table 2-1: Site Visits

Expertise	Date(s) of Visit	Details of Inspection	Reason why a personal inspection has not been completed
Geology/Resources	October, 2023	Meetings were held with the areas involved in the QA/QC, Information Management, Sampling, Logging and Chemical Analysis processes to minimize potential observations in updating resources to SK-1300 standards. A review and verification of the current in-situ processes of the Uchucchacua and Yumpag Geology and Laboratory area was included.	
Metallurgy	March, 2023	All process areas from the delivery of ROM ore to the final product ready for shipment- These areas include the chemical metallurgical laboratory, as well as the precious metal smelting and refinery area.	
Mining	January, 2023	Visit to the underground mine, including production and development areas. The visit to the production stopes 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 long term plans.	

Source: (SRK, 2023)

2.5 Report Version Update

This Technical Report Summary is an update of a previously filed Technical Report Summary published on March 15, 2022.

3 Accessibility, Climate, Local Resources, Infrastructure and Physiography

3.1 Topography, Elevation and Vegetation

The Uchucchacua mining unit is located on the western flank of the Andes at 4,450 masl. Its morphology is glacial, whit 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).

3.2 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); total of approximately 322 km.
- Second, via the road Lima - La Oroya - Cerro de Pasco (320 km) and Cerro de Pasco - Uchucchacua (70 km); total of approximately 390 km.

3.3 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) belong to the National Service of Meteorology and Hydrology of Peru (SENAMHI); two (2) to Electroandes; and one (1) to 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).

3.4 Infrastructure Availability and Sources

3.4.1 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 Table 3-1 (Buenaventura, 2021).

Table 3-1: Water sources consumption 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, 2022)

3.4.2 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). Two (2) transformers are operating: 18-22MW Mine and 12MW concentrator plant. Power consumption in the camps is approximately 0.8MW (Buenaventura, 2021).

3.4.3 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 uses this pool to fill laborer positions.

3.4.4 Supplies

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

4 Property Description

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

4.1 Property Location

Extracted from: "Cartografiado Geológico-Estructural superficial de la mina Uchucchacua y alrededores" (BISA, 2018).

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

In terms of straight-line distance, the Uchucchacua mine is 180 km from the city of Lima, 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.

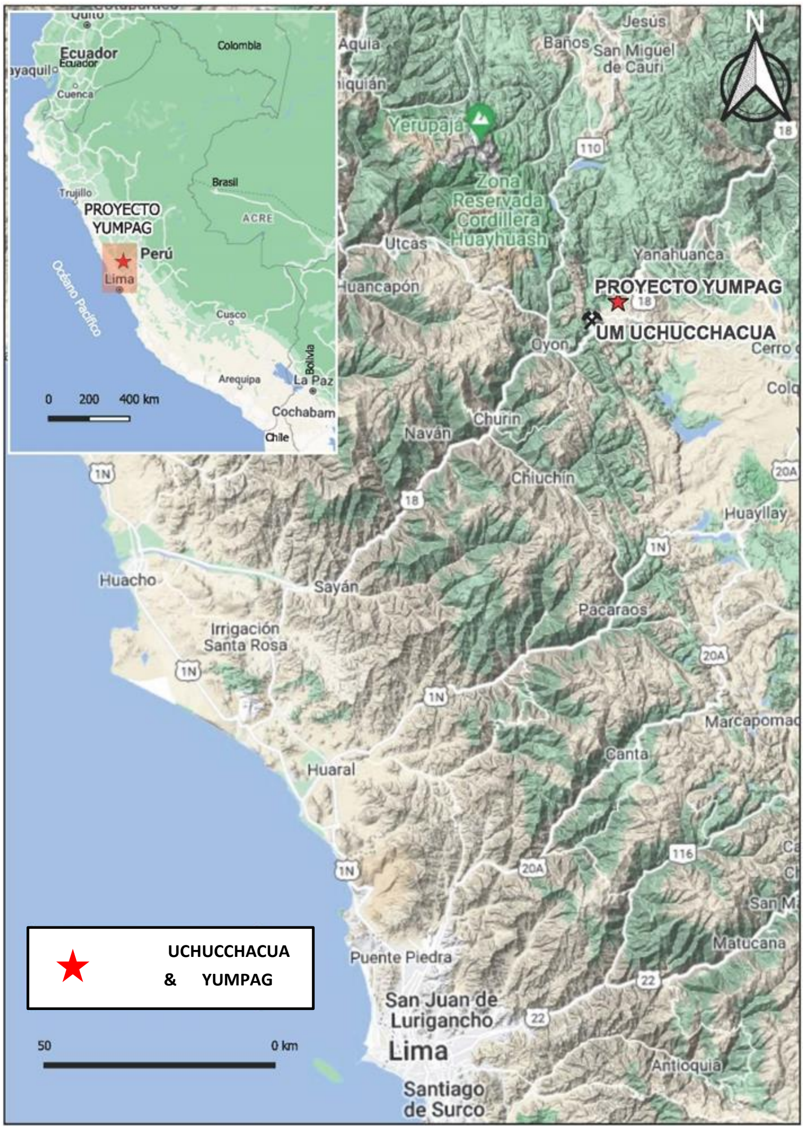


Figure 4-1: Uchucchacua Location Map

Source: (BISA, 2018)

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

The Uchucchacua mining unit, including Yumpag, is comprised of 28 mining concessions. These 28 concessions are home to both mining and exploration projects. Mining and exploration activities are carried out within these mining concessions, which occupy approximately 46,000 hectares (Ha). If statutory duties are paid in a timely manner, the leases for these concessions remain in effect.

SRK reports that all of the mineral resources and reserves presented in this report are within these concessions (Table 4-1 and Figure 4-2), which are 100% controlled by Buenaventura.

Table 4-1: Uchucchacua and Yumpag Tenure Table

Code	Name	Year	Owner	Type of agreement	Comments
010000120L	ACUMULACION UCHUCCHACUA	14/02/2020	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010000220L	ACUMULACION YUMPAG	14/02/2020	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010819395	CALIZA	09/08/1995	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
04013326X01	CHACUA 103	19/12/1985	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010401818	CHACUA 106	23/10/2018	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010401718	CHACUA 107	23/10/2018	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010416518	CHACUA 108	05/11/2018	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010207519	CHACUA 109	03/06/2019	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010207619	CHACUA 110	03/06/2019	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010207719	CHACUA 111	03/06/2019	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010297316	CHACUA 2016	11/11/2016	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010127117	CHACUA 2016-1	02/01/2017	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010360197	CHACUA 32	03/10/1997	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010034303	CHACUA 43	03/03/2003	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010069912	CHACUA 56	06/01/2012	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
04013470X01	CHACUA N° 104	02/05/1989	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
04013434X01	LASUNA I	02/05/1988	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010036303	MAJADA 15 B	03/03/2003	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010036403	MAJADA 15A	03/03/2003	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010036503	MAJADA 16C	03/03/2003	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
04013406X01	PISTAG	01/06/1987	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
11017886X01	TALLENGA	03/06/1965	S.M.R.L. TALLENGA	Property	Buenaventura owns 50% of the shares and rights of the company.
010170217	YUM 01	30/01/2017	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	

Code	Name	Year	Owner	Type of agreement	Comments
010170317	YUM 02	30/01/2017	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010170417	YUM 03	30/01/2017	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010170517	YUM 04	30/01/2017	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010170617	YUM 05	30/01/2017	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010170717	YUM 06	30/01/2017	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010170817	YUM 07	30/01/2017	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010239521	CHACUA 112	02/11/2021	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010242121	CHACUA 113	02/11/2021	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	
010242221	CHACUA 114	02/11/2021	COMPAÑIA DE MINAS BUENAVENTURA S.A.A.	Property	

Source: (Buenaventura,2023)

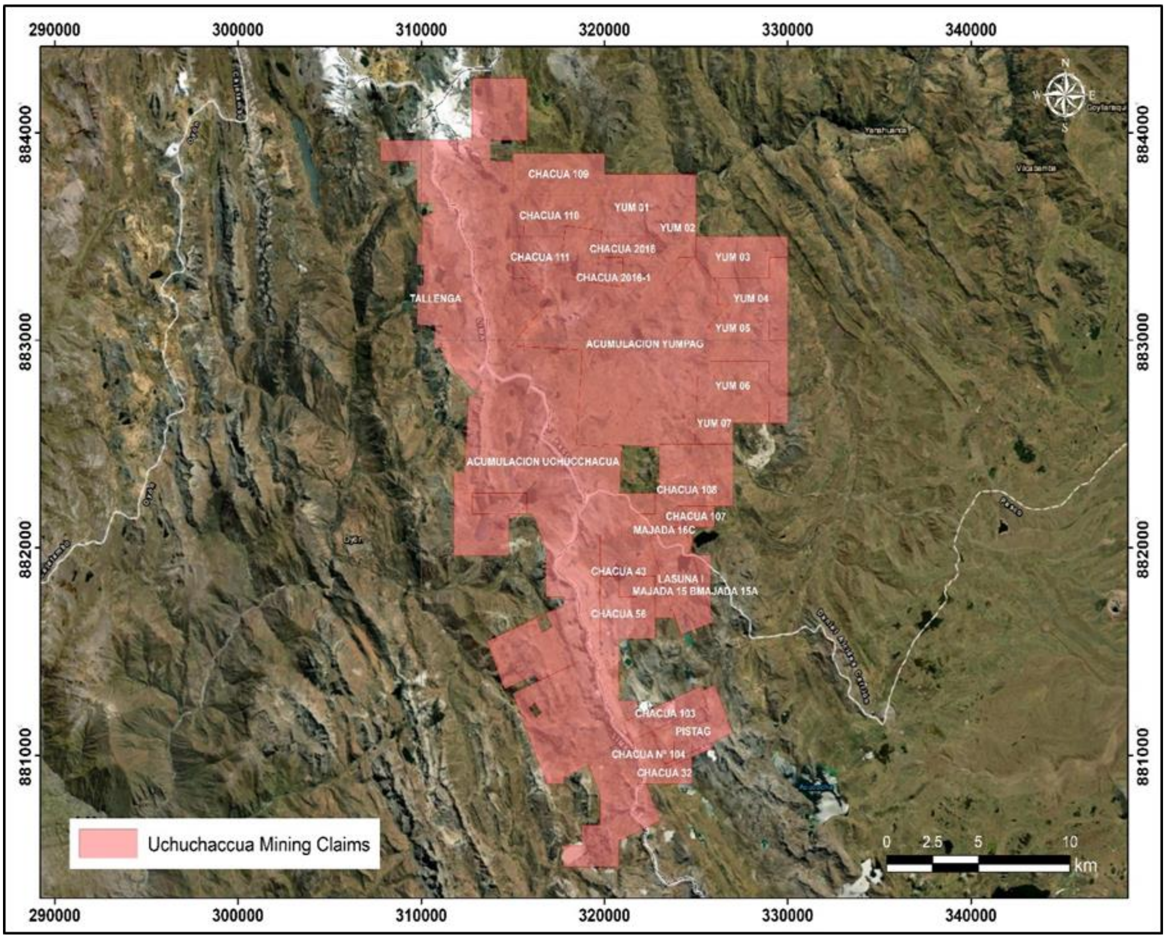


Figure 4-2: Uchucchacua-Yumpag mining claims (Buenaventura)

Source: (Buenaventura, 2023)

4.3 Mineral Rights Description and How They Were Obtained

4.3.1 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 cancellation of the mining concession.
- Meets minimum expenditure commitments or production levels. Minimum are divided into two classes:
  - Achieve "Minimum Annual Production" by the first semester of Year 11 counting 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 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 by 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 that were granted before December 2008 will be obligated to pay the penalty as of 2019 if they failed to 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 those applicable to 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 will cause the holder to lose the beneficiation concession.

Permits

To initiate 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 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 archaeological 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 archaeologist.

Other Considerations

Producing mining companies must submit, and receive approval for, an environmental impact study that includes a community 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 must obtain separately water rights from the National Water Authority and surface lands rights from individual landowners.

4.4 Encumbrances

SRK has no knowledge of any material encumbrances that may affect the current resources or reserves 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.

4.5 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.

4.6 Royalties or Similar Interest

There are no royalties associated with Uchucchacua that are leased. Buenaventura is majority owner of the property and does not hold any royalty other than its economic interest.

5 History

Extracted from Buenaventura´s Internal Reports (Buenaventura, 2021).

Uchucchacua is a silver deposit in the central highlands that was discovered during the Spanish viceroyalty. Evidence of workings from this period have been found in Nazareno, Mercedes, Huantajalla and Casualidad. Exploitation continued in the 20th century with small-scale works and some ore was mined in Uchucpaton and Otuto, where vestiges of old processing mills can be found.

At the beginning of 1960, Buenaventura started prospecting-exploration in the area under difficult conditions given that Oyón-Chacua road was not built until 1965 and later extended to Yanahuanca. In the period from 1969-1973, Buenaventura operated 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. Today, the Socorro, Carmen and Casualidad mines are operating at full capacity while.

Yumpag was recently discovered in limestone of the Superior Jumasha formation. The Uchucchacua deposit, in contrast, was discovered decades earlier and since 1975, has produced 378 Moz Ag: 258 Moz and 120 Moz in reserves + resources (both of which are hosted in structures and mantles in different carbonate levels of the Middle Jumasha).

In 2009, exploration began with diamond drilling which were directed to the Tomasa, Luzmila and other veins, and to a lesser extent Camila.

Since 2014, Buenaventura has focused its efforts on exploring the Camila structure. A total of 62,935.5 m has been explored through 168 drillholes (surface drilling and in-mine drilling). To estimate indicated and measured resources, an Infill Drilling campaign, which was executed inside the mine at the prospective Beta level, was initiated in 2018 and completed in May 2019. The exploratory drilling carried out in previous years also cut at the level of Gastropods and to the roof of Middle Jumasha. According to Buenaventura, Camila's body is irregular in shape; in some sectors it has a vein-like geometry and in others, a mantle type, the exploitation of Camila's body began in September, 2023.

6 Geological Setting, Mineralization, and Deposit

6.1 Regional, Local and Property Geology

Extracted from "Cartografiado Geológico-Estructural superficial de la mina Uchucchacua y alrededores" (BISA, 2018).

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

This district 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 series, 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 depicted in Figure 6-1.

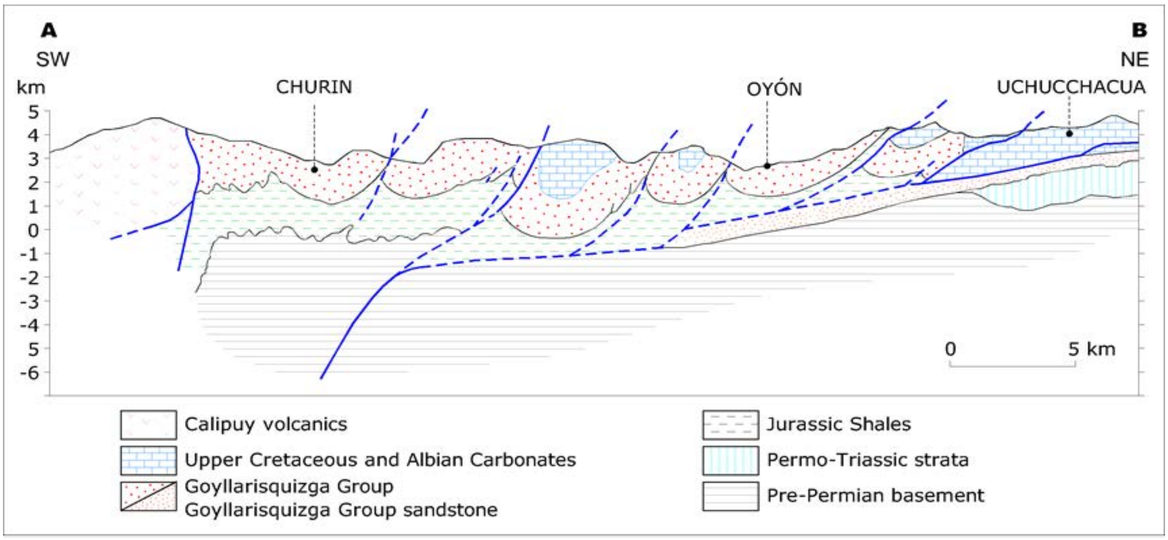


Figure 6-1: Regional geological section

Source: modified from (Megard, 1984) by (Bussell, y otros, 1990)

(Bussell, y otros, 1990) describes the following:

Gravimetric modeling studies suggest that these Terciary intrusions extend upward from a deeper mass of granite (Bussell & Wilson, 1985) and igneous rock samples from Churin and Raura have yielded ages of 13 My (Cobbing, y otros, 1981) and 10 My (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 My (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 My) 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, Clark, Rainbow, & Montgomery, 2015) 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 My) and resulted in the emplacement of dacitic domes and granodioritic intrusions; the extrusion of dacitic to andesitic lavas; and emplacement of skarn-type mineralization at Milpo and Atacocha (SRK, 2017).

A regional geology map is provided in Figure 6-2. Subsequent sections describe the local stratigraphy of the Uchucchacua area. A stratigraphic column is included in Figure 6-3.

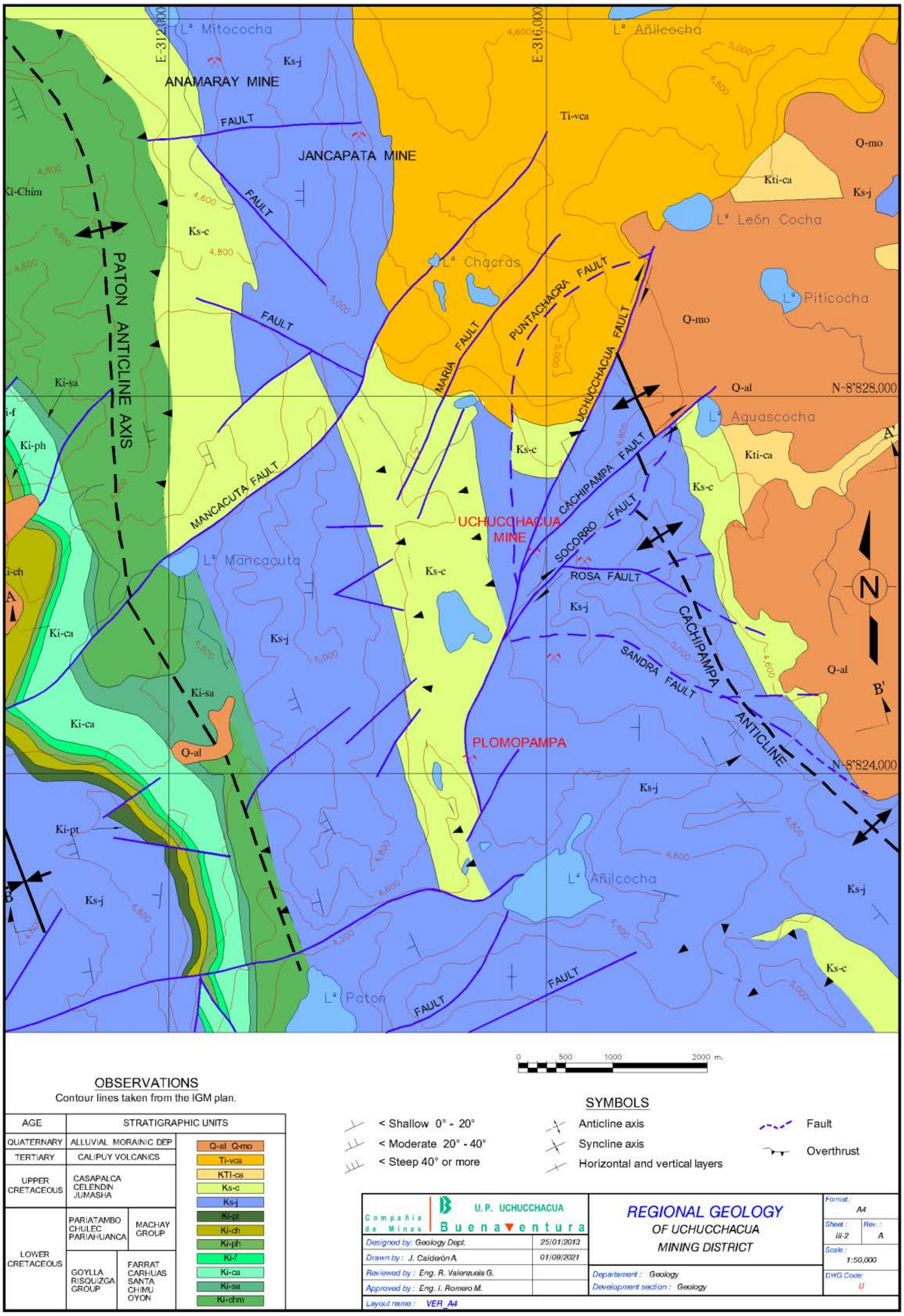


Figure 6-2: Regional Geology Map

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

The regional geology (Extracted form “Technical Report Yumpag-Carama. Internal Reports”; (Buenaventura, 2021)) is described as follows:

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 while 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 the majority of the 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, Pulsaciones Magmáticas en la alta cordillera occidental entre 10°30' y 10°50' mineralogía, petrología y geoquímica, 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 My (Upper Oligocene) by D. Noble in 1980. The mineralization generated by this intrusive is a poorly developed Pb-Zn skarn.

The 10 My 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 My by Romaní (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 My, respectively (Romaní, Géologie de la région miniére Uchucchacua, 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).

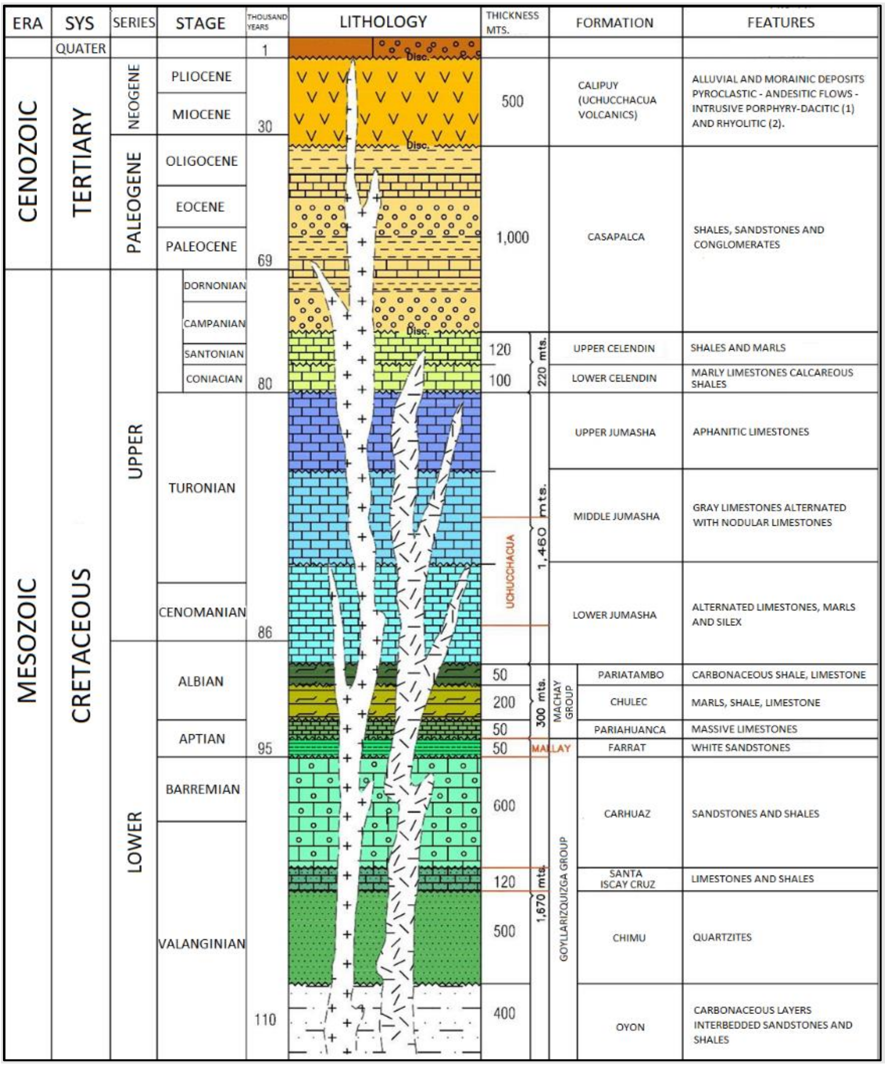


Figure 6-3: Regional Stratigraphic Column

Source: (Buenaventura, 2021)

6.2 Local Geology

Extracted from "Cartografiado Geológico-Estructural superficial de la mina Uchucchacua y alrededores" (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; 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 and Sandra-Marion fault; other faults of minor importance or whose activity has not been defined are Caballo Cocha, Puntachacra and Añilcocha.

(Bussell, y otros, 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 Figure 6-4 and Figure 6-5, respectively.

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

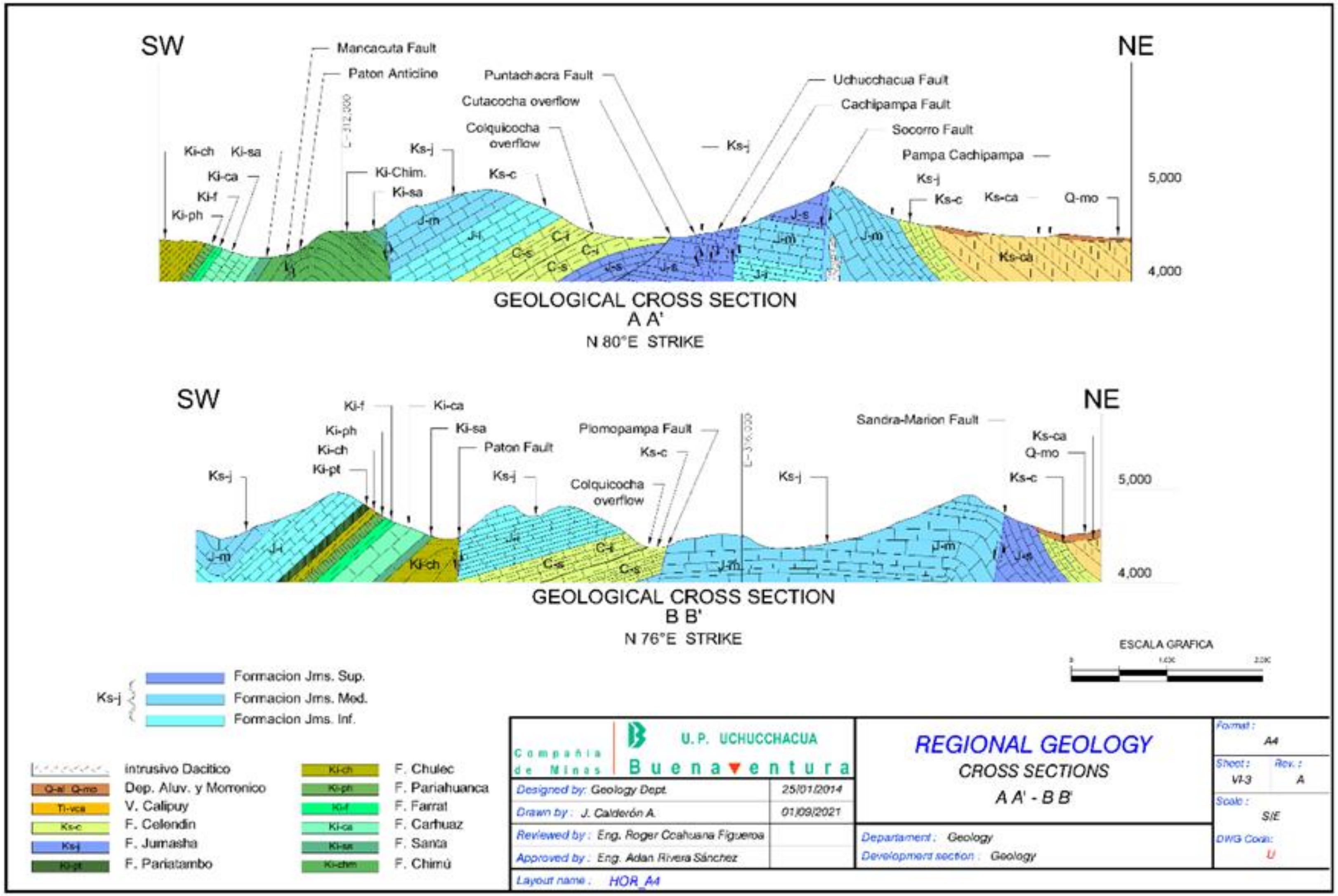


Figure 6-4: Map of the geological sections of Uchucchacua Unit and surroundings

Source: (Buenaventura, 2021)

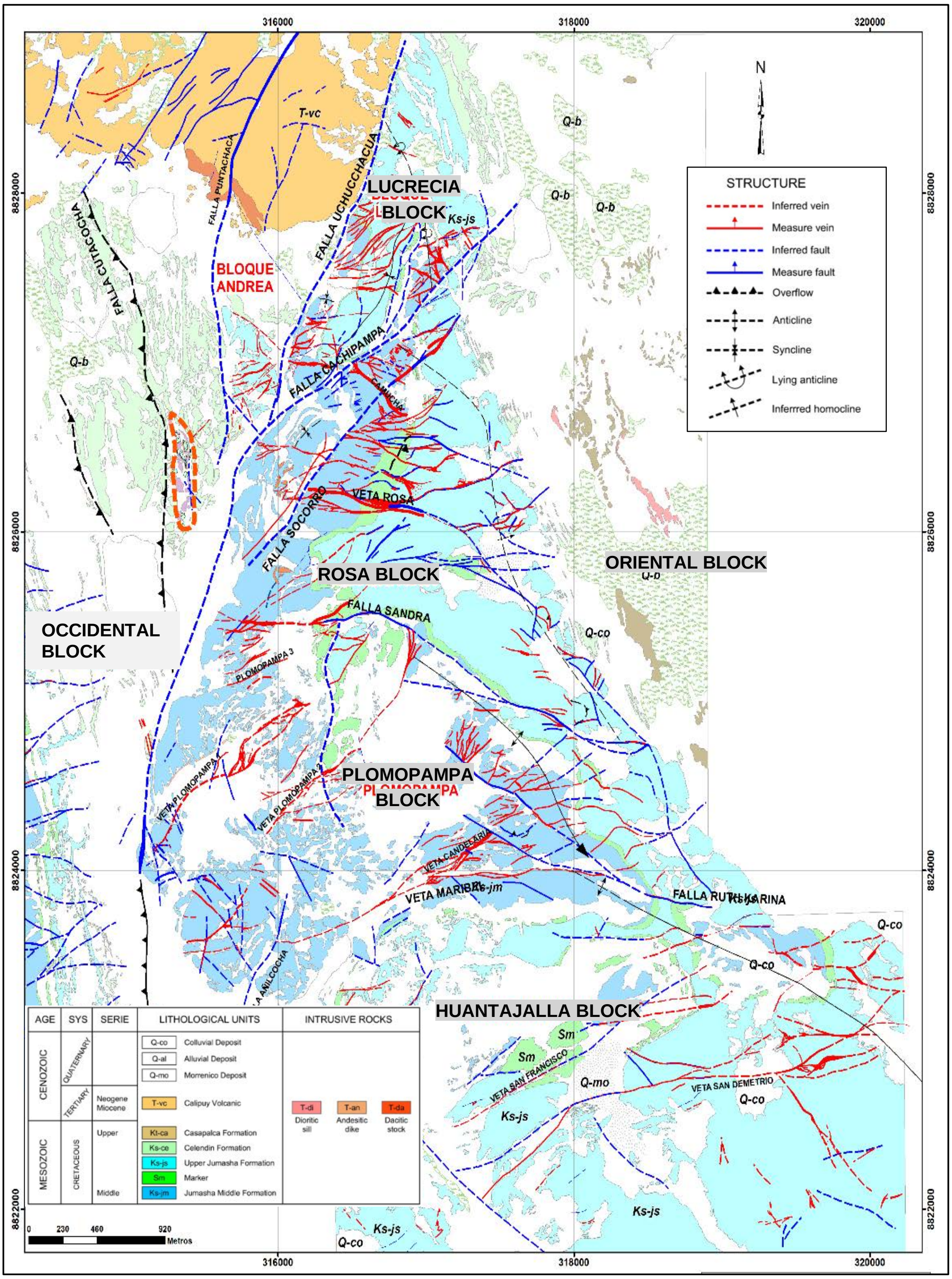


Figure 6-5: Local Geological Map (Uchucchacua Mine)

Source: (BISA, 2018)

6.3 Structural Geology

Extracted from “Cartografiado Geológico-Estructural superficial de la mina Uchucchacua y alrededores” (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) & (Quispe, y otros, 2008)). A geology map with the main structural elements is provided as Figure 6-6.

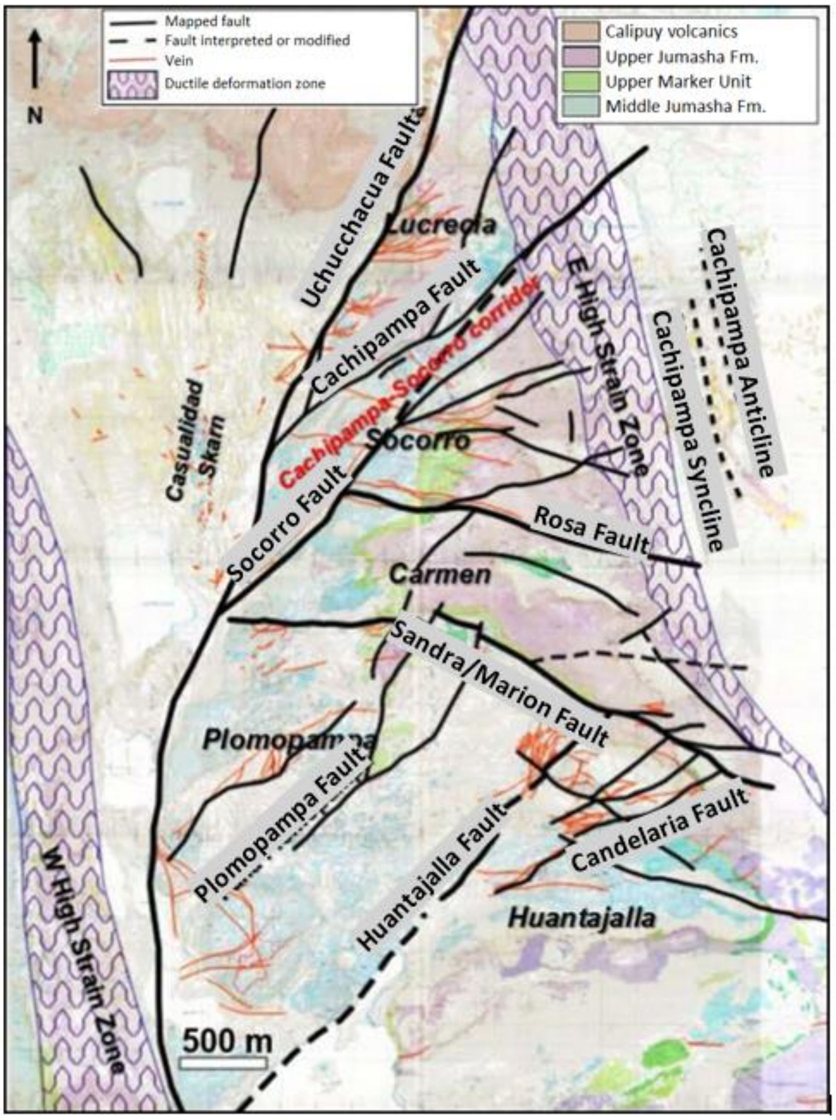


Figure 6-6: Geology of Uchucchacua Mine mapped at 1:2 000 scale (BISA, 2017), highlighting the main structural elements mapped and interpreted

Source: (SRK, 2017)

6.3.1 Deformation events

SRK interprets that three deformation events affected the Uchucchacua Mine sector (Figure 6-7). Additional pre-deformation deformations are recognized locally.

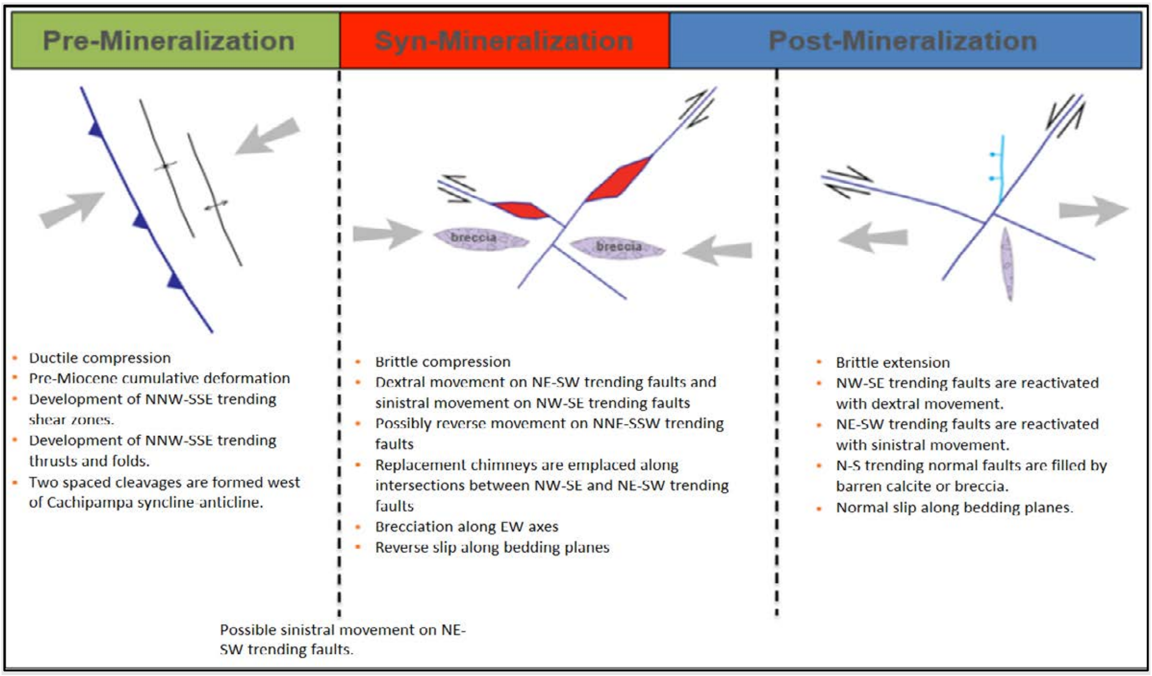


Figure 6-7: Summary of deformation events interpreted in relation to the mineralizing event at Uchucchacua mine

Source: (SRK, 2017)

The main structural elements of Uchucchacua Mine that have been mapped or interpreted by SRK are the following "Elaboración del Modelo Geológico Estructural de la Unidad Minera Uchucchacua" (SRK, 2017).

6.3.2 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 (Figure 6-8).

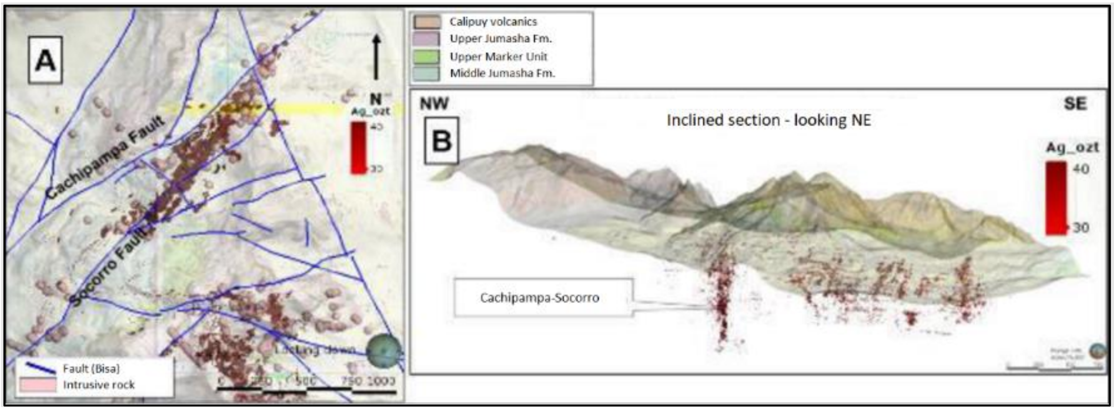


Figure 6-8: A) Geology of Uchucchacua Mine mapped at 1:2 000 scale by BISA (2017); B) NW-SE tilted section perpendicular to Cachipampa-Socorro structural corridor, and Ag>25 oz/t

Source: (SRK, 2017)

6.3.3 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.

6.3.4 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.

6.3.5 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 Figure 6-9.

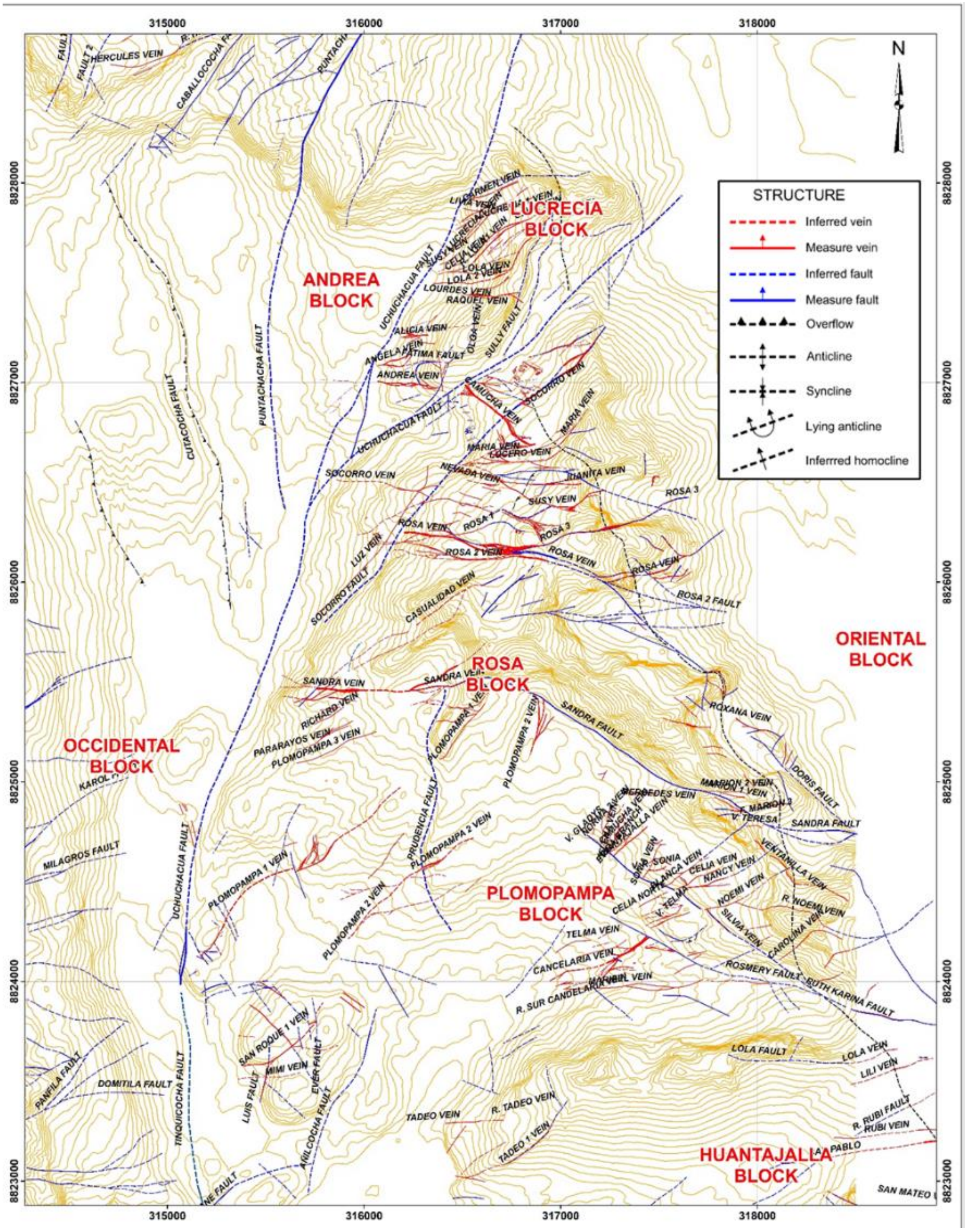


Figure 6-9: Uchucchacua major fault architecture

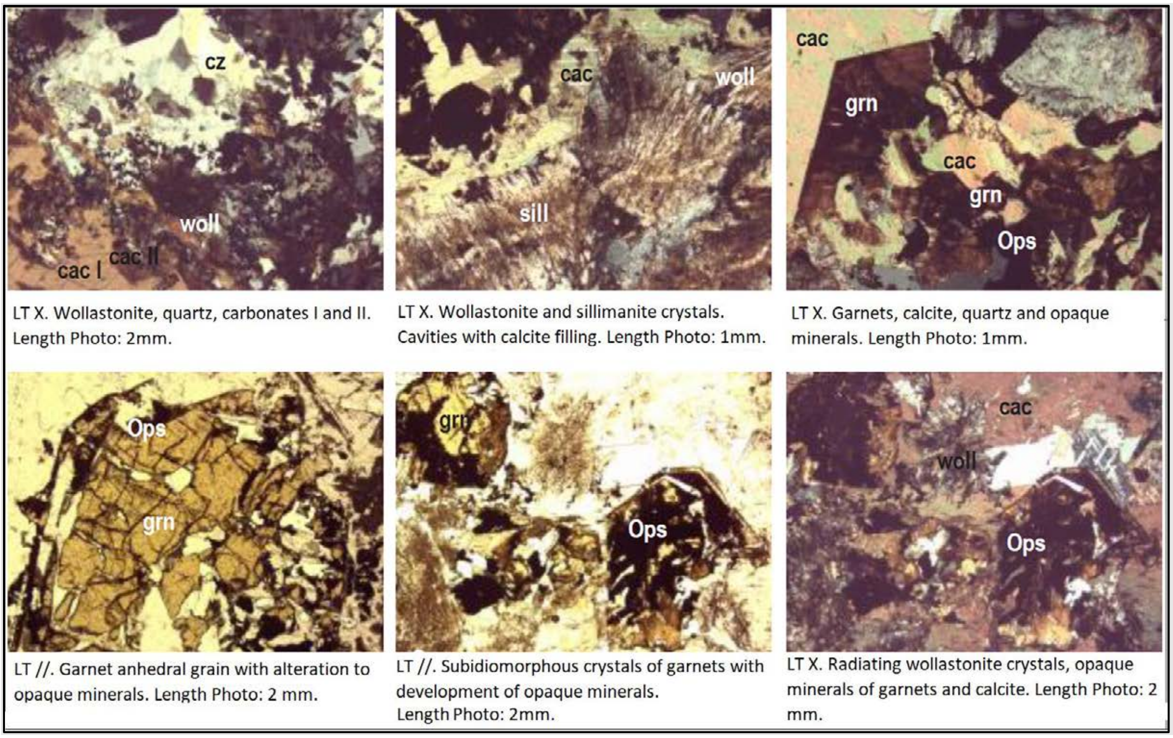
Source: (BISA, 2018)

6.4 Mineralization

Excerpted from “Cartografiado Geológico-Estructural superficial de la mina Uchucchacua y alrededores” (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, Realgar, Benavidesite, Tephroite and Gypsum. Thin sections of mineralization are shown in Figure 6-10.



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 6-10: Thin sections of mineralization at Uchucchacua

Source: (BISA, 2018)

A paragenetic sequence for the mineralization at Uchucchacua is portrayed in Figure 6-11.

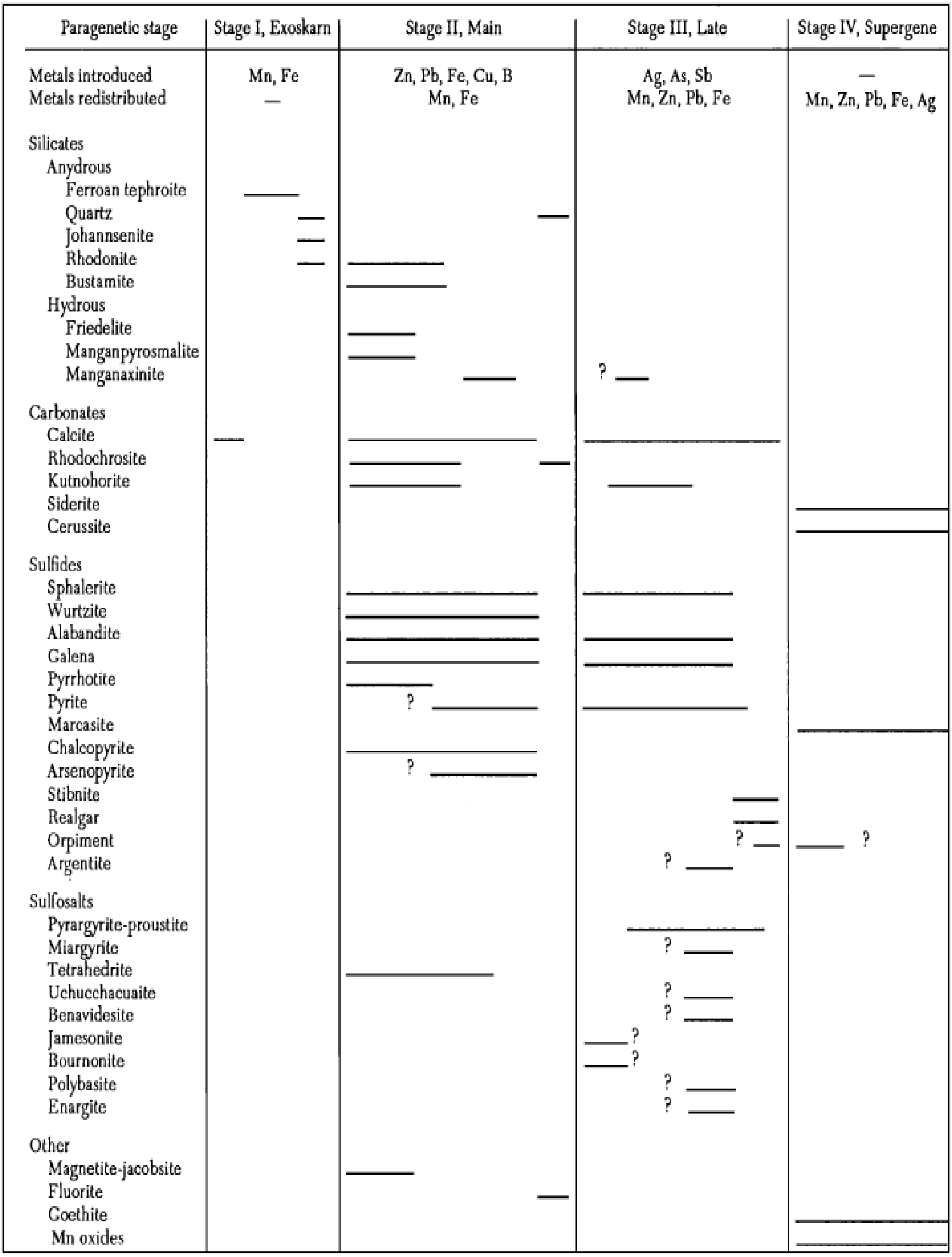


Figure 6-11: Paragenetic sequence for the Uchucchacua vein and replacement deposit (except endoskarn minerals).

Source: (Bussell, y otros, 1990)

The style of mineralization, in general, is given by fracture filling and metasomatic replacement. Figure 6-11 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

Extracted from "Geología del Yacimiento Minero de Uchucchacua. Reportes Internos" (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 when exploring of this type of deposit.

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 6-12).

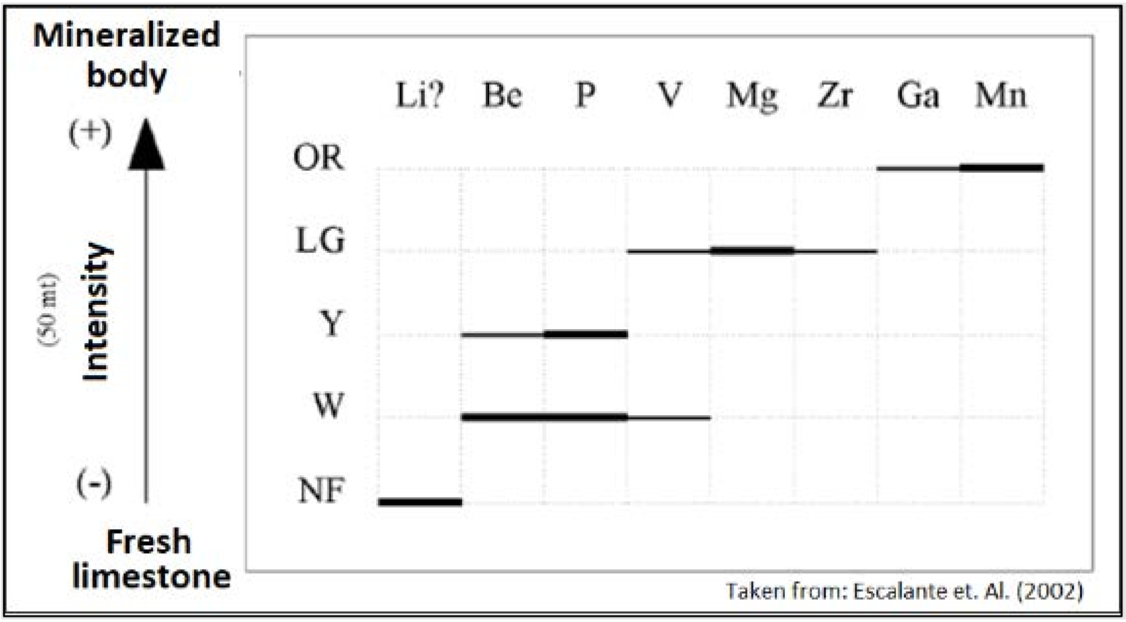


Figure 6-12: Calcite fluorescence.

Source: Escalante et al. (2002)

SRK performed (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.

Sampling of Lucrecia, Socorro, Carmen and Plomopampa zones has not been representative; however, 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

Extracted from “Deposit type, internal report” (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 6-13).

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, y otros, 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.

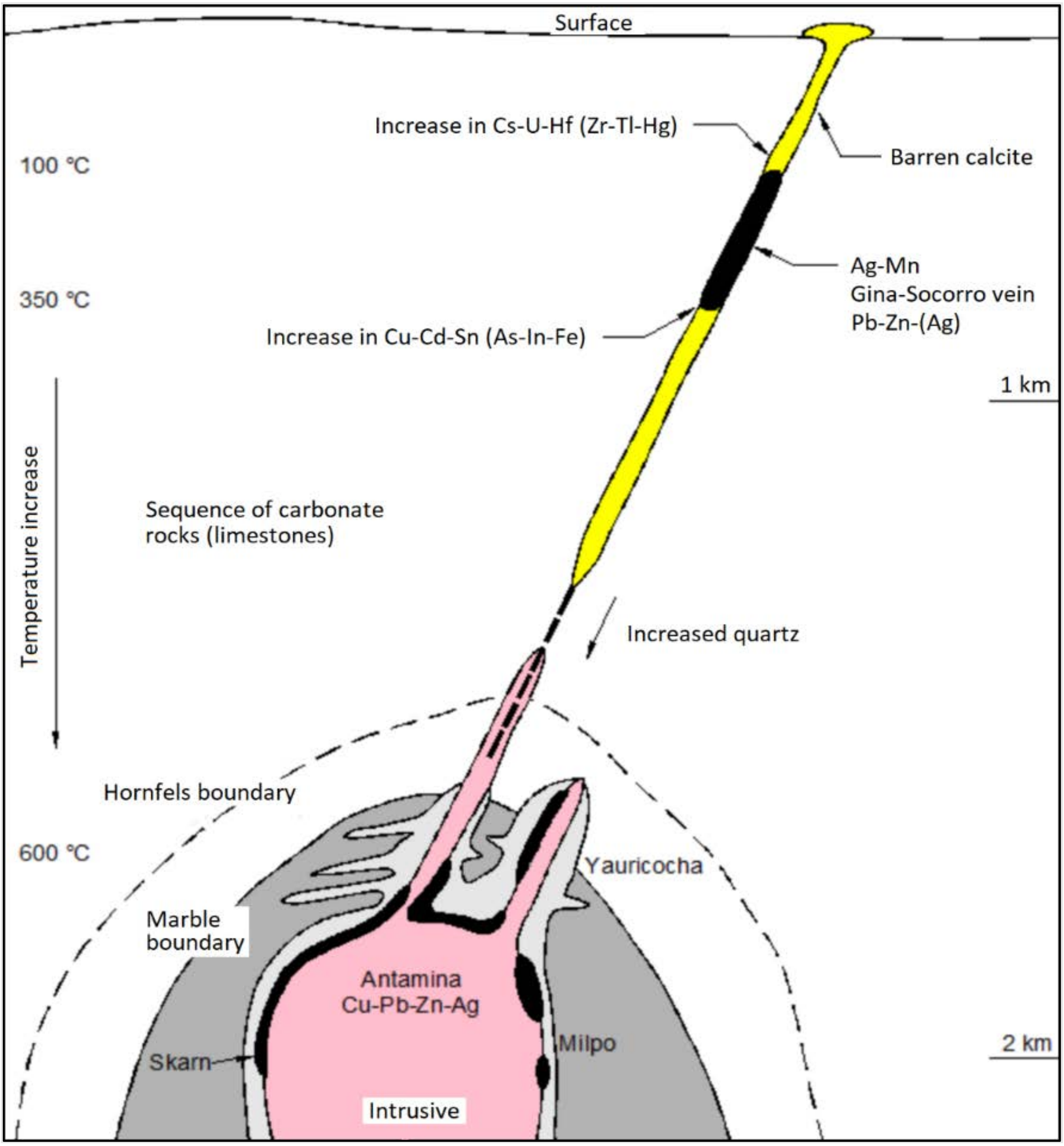


Figure 6-13: Diagram showing the type of deposit at Uchucchacua mine

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. Zones with potential mineralization of porphyry Cu (Mo) – Cu (Au) type, polymetallic skarn, CRD-Ag, as well as Veins-Ag have been identified.

7.1 Exploration Work (Other Than Drilling)

7.1.1 Geological Mapping

Recent exploration near the Uchucchacua Mine led to the discovery of the Yumpag deposit, located 5 km NE of Uchucchacua (Figure 7-1). This find has been subjected to 1:2000 scale mapping; sampling; and 59,400m of diamond drilling. Development in the area has also included building a 2.4 km ramp (Buenaventura, 2021).

7.1.2 Petrology, Mineralogy, and Research Studies

Some studies carried out in Uchucchacua are the following:

- 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) and chemical analysis by X-ray fluorescence (XRF), carried out by BISA in 2007 and 2008;
- Mineralogical and petrographic study; scanning electron microscopy studies; and XRD mineralogical analysis and XRF chemical analysis by BISA in 2009, 2012, 2013, 2014; and
- Mineralogical study with a 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 has moved beyond the exploration stage; interpretation of exploration results is generally supported by data from extensive drilling and active mining of the orebody via multiple underground works.

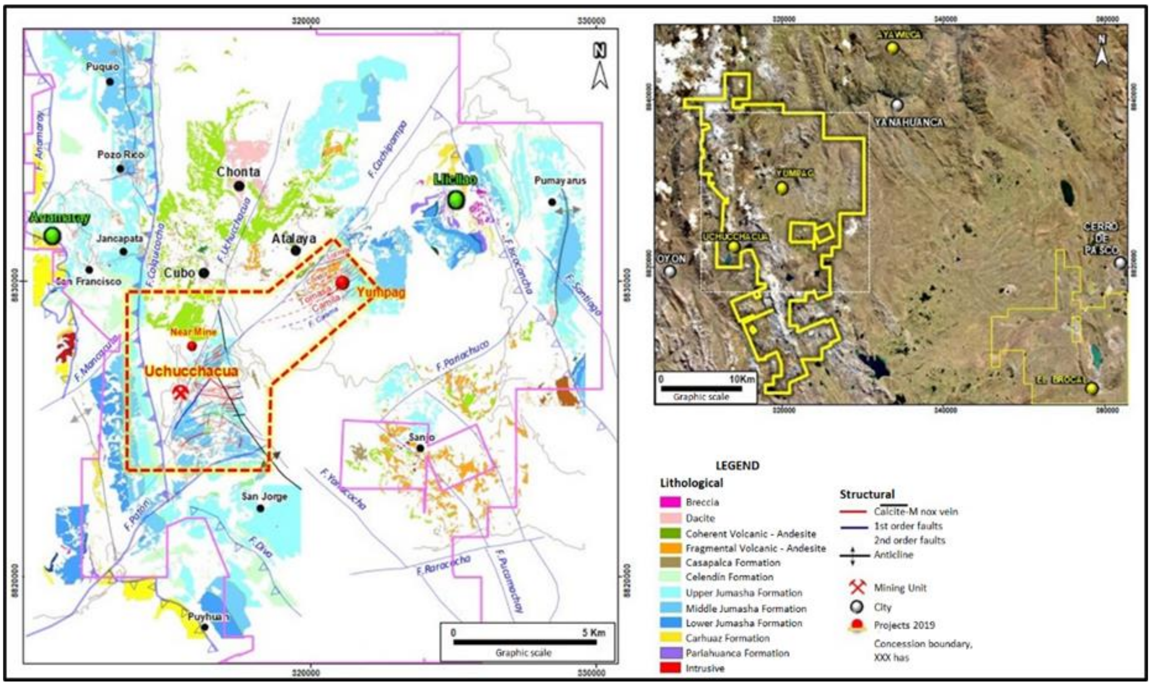


Figure 7-1: Location of the Uchucchacua Mining District, and Yumpag Prospect

Source: (Buenaventura, 2021)

7.2 Exploration Target Areas

7.2.1 Yumpag Project

Excerpted from “Technical Report Yumpag-Carama. Internal Reports” (Buenaventura, 2021).

In Uchucchacua, at the confluence of Colquicocha and Cachipampa faults (Figure 7-2) and at the end of the Oligocene and the beginning of the Quechua 1 tectonic phase, different dacitic porphyry stocks were emplaced. This generated Pb-Zn-(Cu) skarns, where the ages of zircon U/Pb have been found to range from 26.68 ± 0.34 My (Luz stock) to 25.08 ± 0.21 My (West stock), confirming the U/Pb age of 25.28 ± 0.44 My (Sandra dike) found by Bissig et al. (2008). This is virtually contemporaneous with the emplacement at Yumpag of the 27.97 ± 1.1 My barren microdiorite laccolith channeled by the Cachipampa fault, which is the main structure of the mining district from a mineralization point of view. This large trans-Andean crustal fault (N40 strike) controls mineralization at both Uchucchacua and Yumpag.

In Yumpag, the fault is associated with multiple R-type N60 tension structures of dextral strike and other R1-type E-W structures, which are more sinistral; this allowed the emplacement of veins and mineralized bodies. Camila is the most important body 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 (Figure 7-2).

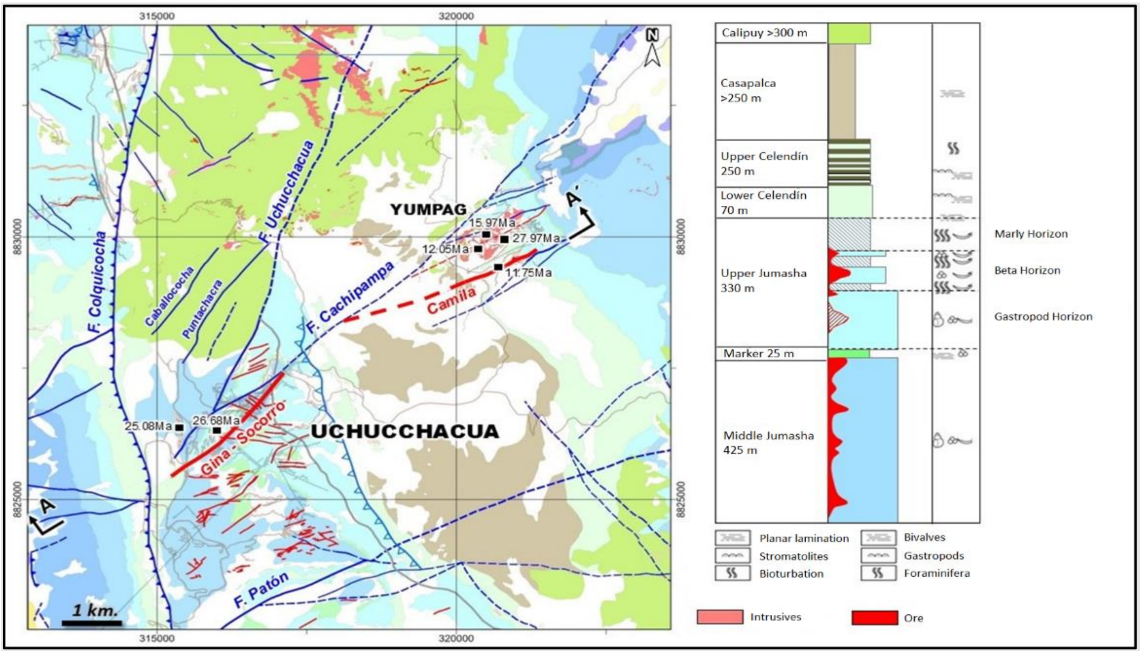


Figure 7-2: Location of the main structures (Camila) in Yumpag Target

Source: (Buenaventura, 2021)

At Uchucchacua, most of the mineralization is located in limestones of the Middle Jumasha, which has historically been considered the host of mineralization in the District. However, in Yumpag, the Camilla Body's 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's mineralization. This area is characterized by intercalations of clean mudstone-wackestone limestones with foraminifera and shell fragments and massive black marly, nodular marly limestones and 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 that develop in the βeta and gastropod horizons of the upper Jumasha and are 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. (Figure 7-3 and Figure 7-4).

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

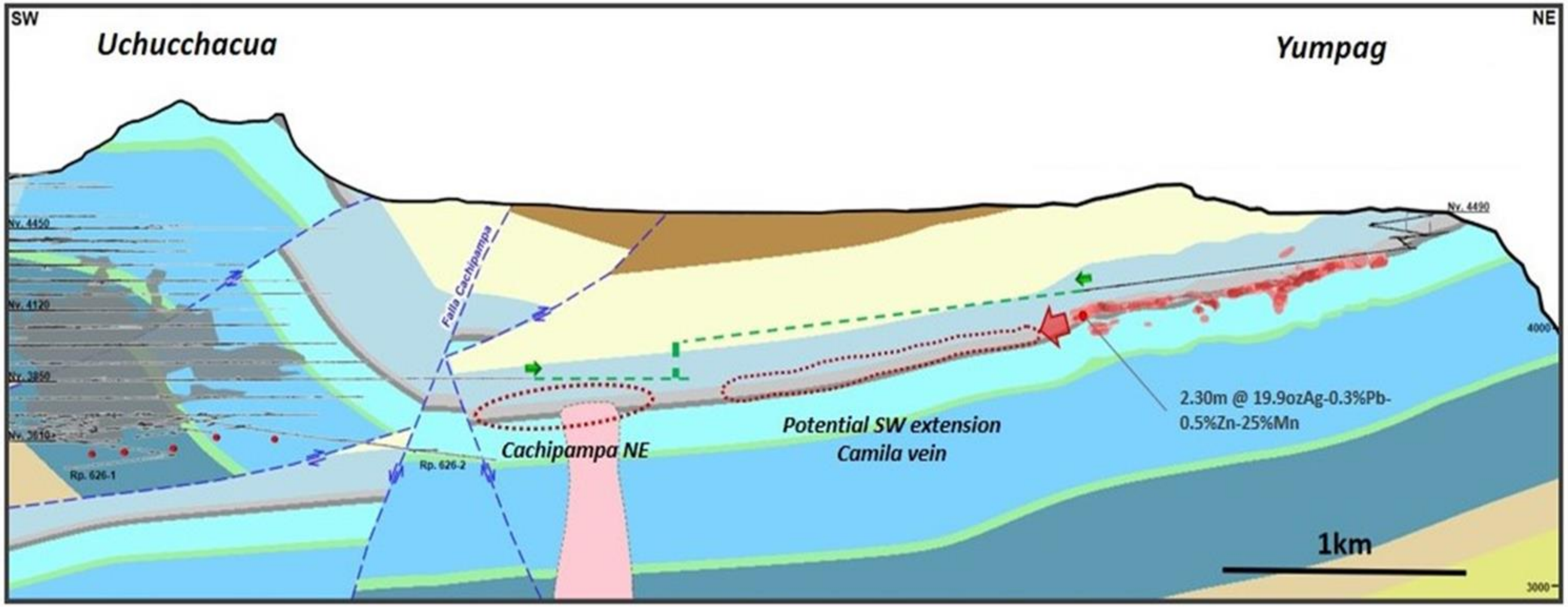


Figure 7-3: Uchucchacua – Yumpag geological section

Source: (Buenaventura, 2021)

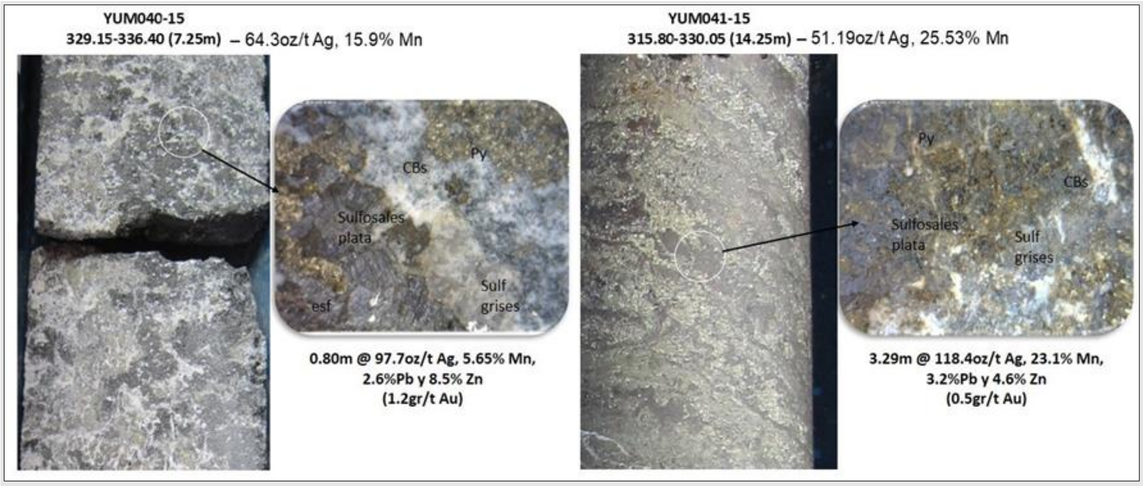


Figure 7-4: Mineralization in Camila structure (Yumpag)

Source: (Buenaventura, 2021)

The Uchucchacua Mining District - where the Yumpag project is found - is located in a segment of the Marañón thrust and fold belt, in the XX Metallogenetic Belt of Pb-Zn-Cu-Ag skarn deposits, Cu-Ag porphyries, Mo-Au and polymetallic deposits related to Miocene intrusives. The area consists of a folded and thrust Mesozoic sedimentary basin, which is intruded by granodioritic, dioritic and subvolcanic stocks of rhyolite-dacite-diorite composition that generate an aureole of skarn and marble on the periphery.

Yumpag is located 7 km NE of the Uchucchacua Mining Unit. To date, two parallel mineralized structures with a N60° direction of significant economic interest have been identified: Camila and Tomasa.

Tomasa is a new discovery and to date consists of a N60° structure that runs parallel 500 m northwest of Camila; via drilling beginning at the end of 2020, 750 m of continuous high-grade Ag-(Pb-Zn) mineralization have been recognized at the intersection of a system of interlocking structures with the Beta and Gastropod prospect horizons within the upper Jumasha limestones, which also host mineralization at Camila.

Two larger bodies (“bolons”) with high silver grade have been recognized within these systems. These “bolons” seem to be associated with favorable zones at the intersection with NNE-SSW transverse faults (Andean fault system).

The location of the project is shown on Figure 7-5.

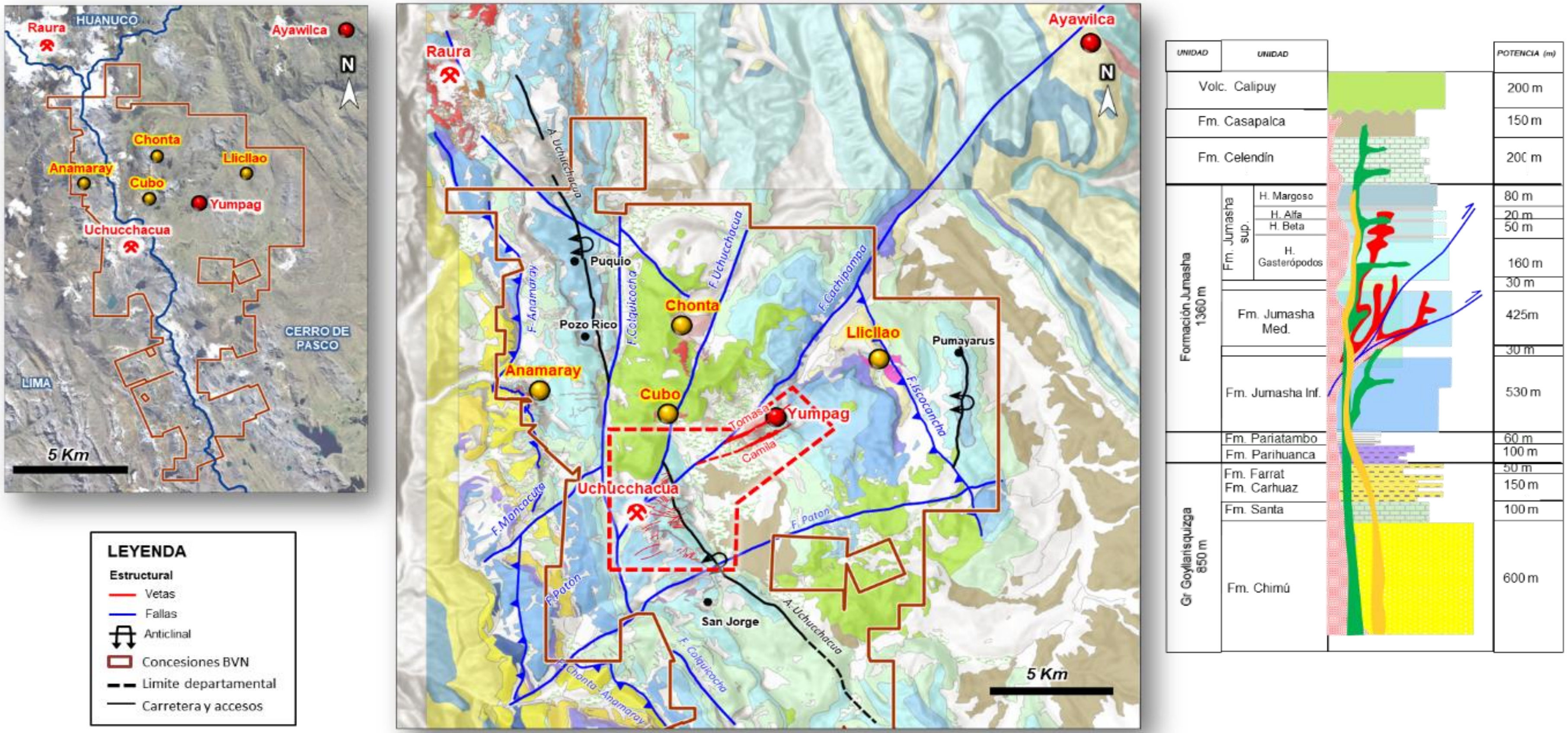


Figure 7-5: Location plane

Source: (Buenaventura, 2023)

The Tomasa corridor corresponds to an intertwined system of mantle-type mineralized structures and bodies (“bolones”) with economic high-grade Ag-(Pb-Zn) mineralization, with azimuth between N60° and N65° that is hosted in the Beta horizons and Gastropods from the upper Jumasha.

Drilling work for Tomasa from 2021 to the end of 2022 covered a total of 22,144 m of a 23,000 m program, distributed in 35 holes that were arranged to follow the continuity of mineralization towards the SW at its intersection with the Cachipampa fault while delimiting the two large high-grade bodies or “bolones” at the eastern end and center of Tomasa. Regarding the operational infrastructure, the Mine Operations and Planning areas are currently working on increasing the depth of Ramp 4490 and are building works (Crucero and Rampa Tomasa) where infill Drilling and exploration campaigns will be carried out in the 2023.

The 2022 drilling campaign (11,659 m) ratified the high-grade Ag-(Pb-Zn) mineralized system in Tomasa in area extending 750 m, with 200 m of field and an average width of 60 m; an average power of 12 m mineralized cuts was used. Two very important cuts stand out from others (see Figure 7-6 and Figure 7-7).

- YUM22-237: 45.95 m at 88.2 oz/t Ag, 13.1% Mn (521.85 m - 567.80 m); includes:
  - 15.44m at 191.8 oz/t Ag, 11.1% Mn.
- YUM22-239: 70.86 m at 20.8 oz/t Ag, 17.5% Mn (398.87 m - 469.73 m).

The economic mineralization consists mainly of Ag–alabandite sulfosalts, with galena–sphalerite content. They show a northeastern gradation with a higher alabandite content that decreases toward the southwest. The location of the mineralization in the northeastern sector is concentrated - and has been explored in the Beta horizon. To the west, larger mineralized cuts have been defined in the “Gasteropodos” horizon, which is replicated in the two bodies and contain larger volumes of mineralization, such as “Bolon 1,” located in the Beta horizon, and “Bolon 2,” located in the “Gasteropodos” horizon. The identified mineralization shows Ag sulfosalts, red silvers, galena, sphalerite and pyrite- which increases toward the southwest end, where an increase in iron is also recorded in the ferric sphalerite, (without constituting marmatite).

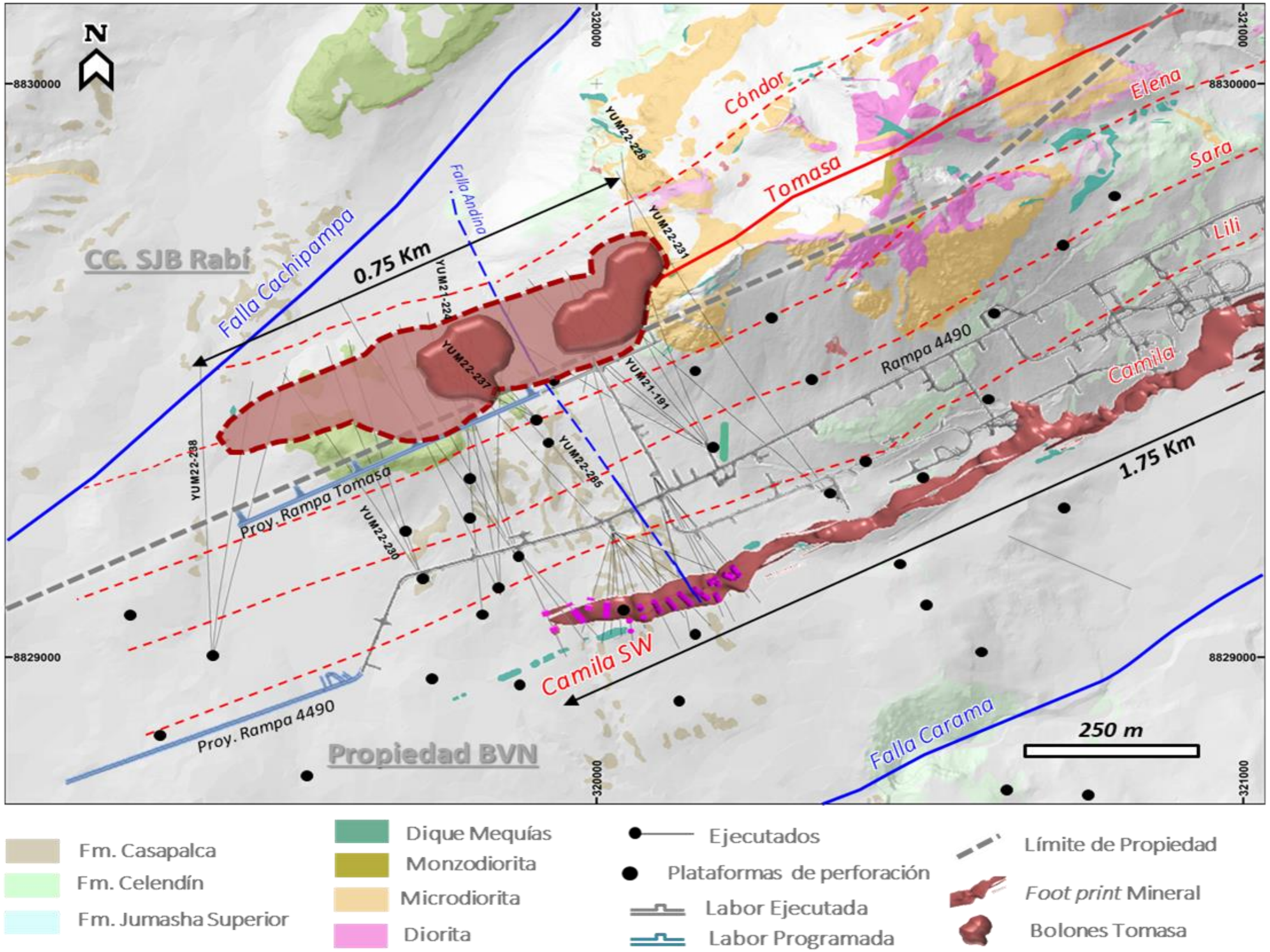


Figure 7-6: Location of platforms and drillings executed

Source: (Buenaventura, 2023)

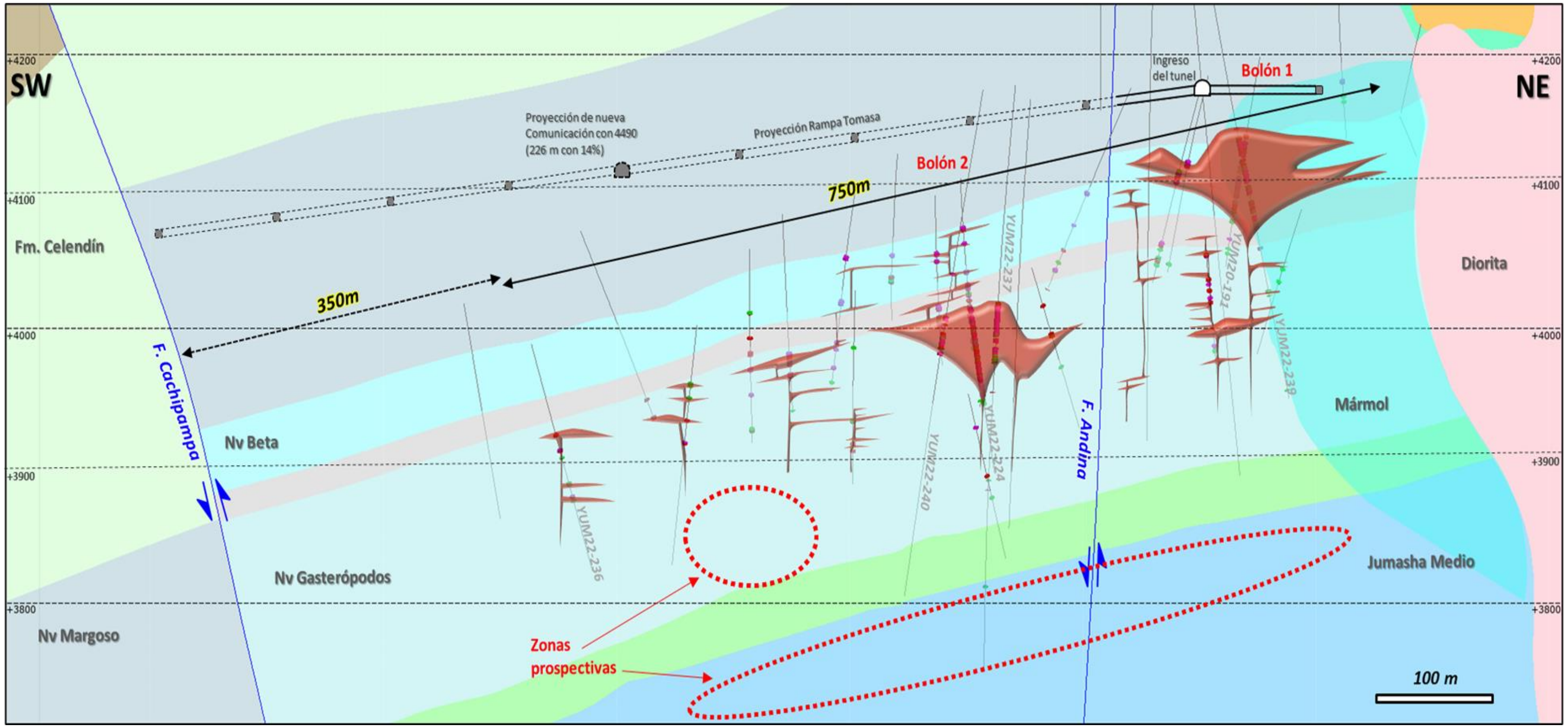


Figure 7-7: Tomasa Longitudinal Section with current cuts. Note the two bodies with the greatest volume Bolón 1 and Bolón 2

Source: (Buenaventura, 2023)

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 (Table 7-1). In summary, exploration activities have been carried out at Uchucchacua with 6,571 drill holes for a total of 966,684 meters drilled.

In the case of Yumpag, 100,768 m of diamond drilling has been conducted.

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

Year	Drillholes	Length (m)	Samples
1997	44	4,599	453
1998	46	4,240	354
1999	81	11,063	638
2000	137	17,000	2,190
2001	171	18,444	2,292
2002	185	22,649	2,593
2003	232	19,570	2,309
2005	7	390	81
2006	136	17,023	3,033
2007	209	25,701	4,289
2008	369	46,511	6,750
2009	325	47,709	7,292
2010	364	47,014	13,938
2011	360	46,648	12,921
2012	321	51,614	13,673
2013	310	42,977	9,809
2014	287	44,928	7,929
2015	271	42,804	7,030
2016	349	53,395	5,857
2017	470	71,108	9,502
2018	479	95,251	17,787
2019	448	57,404	18,111
2020	228	30,146	8,308
2021	229	37,595	8,054
2022	329	78,731	19,174
2023	184	32,170	7,906
Total	**6,571**	**966,684**	**192,273**

Source: (Buenaventura, 2023)

Table 7-2: Summary of Drilling campaigns in Yumpag since 2009

Year	Drilling	Length (m)	Samples
2009	4	1,393	156
2014	12	4,265	373
2015	21	8,427	1,079
2016	15	6,952	684
2017	8	4,253	512
2018	29	9,359	2,712
2019	69	19,344	4,517
2020	5	2,351	689
2021	35	15,701	3,248
2022	68	25,175	5,644
2023	15	3,548	2,044
Total	**281**	**100,768**	**21,658**

Source: (Buenaventura, 2023)

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 kept in the core box.

7.3.3 Downhole Surveying

Buenaventura downhole survey holes use a Reflex (magnetic) survey instrument or a gyroscope, which can also be used to validate 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 Uchucchacua's 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; 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 at 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 accompanies the sample to the laboratory, while the other remains in the core box.
- A unique sample value is assigned to each sample. This is the sole identifier throughout the sampling, 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 detailed logging form.
- The core is cut with an electric saw.
- Samples are divided in two halves: one of them is sent to the laboratory for assay, while 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 international codes.

8 Sample Preparation, Analysis and Security

8.1 Uchucchacua Mine

SRK's current audit evaluated the quality control of the mining channel and drillholes drilled from January 2021 to July 2023 and the results obtained are described throughout this Chapter.

In addition, SRK audited the database and Mineral Resources estimate of the Uchucchacua Mine in 2021 to develop a declaration of Mineral Resources, where it assessed the quality control of the samples analyzed to June 2021. The results obtained are described in the SEC Technical Report Summary Pre-Feasibility Study of the Uchucchacua mining unit (SRK, 2022) and are summarized in Table 8-1.

Table 8-1: Summary of Quality Control evaluation results for Ag, Fe, Mn, Pb and Zn from Uchucchacua Mining Unit (Historical Data – June 2021)

Sample type	Laboratory	Evaluation	SRK Comments	Primary samples distribution by laboratory	Primary samples distribution by laboratory (%)
Drillhole	**Uchucchacua Internal Laboratory** (1997-2012)	Contamination	Quality control evaluation could not be performed because control samples were not inserted.	70,818	43.9%
		Precision			
		Accuracy			
	Uchucchacua Internal Laboratory (2013-2021)	Contamination	Pulp blanks and coarse blanks results for Ag, Zn, Fe and Mn were not within acceptable limits, this mainly occurred in samples prior to 2017. Pulp blanks and coarse blanks results for Pb were within acceptable limits.	88,319	54.8%
		Precision	Duplicate results for Fe and Mn were within acceptable limits. However, pulp duplicates and coarse duplicates results for Pb and Zn were not within acceptable limits. Ag precision was within acceptable limits only for coarse duplicates and twin samples.		
		Accuracy	Analytical accuracy for Pb was within acceptable limits. However, analytical accuracy for Ag and Zn was poor; the "UCH-04", "UCH-05" and "UCH-06" results for Ag and Zn were not within acceptable limits. Bias results were within acceptable limits in Ag, Pb and Zn.		

Sample type	Laboratory	Evaluation	SRK Comments	Primary samples distribution by laboratory	Primary samples distribution by laboratory (%)
	ALS (2020)	Contamination	There was no evidence of cross contamination.	442	0.3%
		Precision	Overall, duplicate results for Ag, Fe, Mn, Pb and Zn were within acceptable limits.		
		Accuracy	Overall, analytical accuracy was within acceptable limits for Ag, Pb and Zn.		
	Certimin (2020-2021)	Contamination	There was no evidence of cross contamination.	1,684	1.0%
		Precision	Duplicates results for Ag, Fe, Mn, Pb and Zn were within acceptable limits, except Fe twin samples, where results were close to acceptable limits (83% samples within parameters).		
		Accuracy	Analytical accuracy was within acceptable limits for Ag, Pb and Zn, except SRM UCH-05 Zn results (27% of total Certimin samples) that were not within acceptable limits.		
			Subtotal drillhole samples	**161,263**	**100.0%**
Mining channel	**Uchucchacua Internal Laboratory** (1963-2006)	Contamination	Quality control evaluation could not be performed because control samples were not inserted.	45,536	21.8%
		Precision			
		Accuracy			
	Uchucchacua Internal Laboratory (2007-2021)	Contamination	Pulp blanks and coarse blanks results for Ag, Zn, Fe and Mn were not within acceptable limits; this mainly occurred with samples prior to 2017. Pulp and coarse blanks result for Pb were within acceptable limits.	163,277	78.2%
		Precision	Pulp duplicates, coarse duplicates, and field duplicates results were within acceptable limits.		
		Accuracy	Overall, analytical accuracy for Pb was within acceptable limits. However, analytical accuracy for Ag and Zn were poor; the "UCH-04", "UCH-05" and "UCH-06" results for Ag		

Sample type	Laboratory	Evaluation	SRK Comments	Primary samples distribution by laboratory	Primary samples distribution by laboratory (%)
			and Zn were not within acceptable limits. Bias results were within acceptable limits in Ag, Pb and Zn.		
			Subtotal mining channel samples	**208,813**	**100.0%**

Source: (SRK, 2022)

8.1.1 Sample Preparation Methods and Quality Control Measures

Sampling

Sampling is supervised by the Field Geologist and/or the Ore Control Geologist and is carried out at the core warehouse, located on the mining unit site.

Drillholes

The core is removed from core barrels at the rig or drilling chamber and placed into plastic core boxes. At the end of each drilling shift, the core boxes are transported to the logging facility where the sample is taken, according to the following procedure:

- The core is cut lengthwise into two halves by a diamond disc core saw, following the cutting line that has been marked by the geologist.
- One half of the core is sampled for chemical analysis and the other half is returned into the box.
- Sampling is carried out at intervals no less than 0.3 m and no more than 1.5 m.
- The sample is labelled using 3 tickets containing the code sample, sample interval and quality control code; they are placed in polyethylene bags and sealed.
- The bagged samples are placed in sacks for their transportation to the Uchucchacua internal laboratory or sent to the Certimin laboratory for sample preparation and subsequent chemical analysis.

Mining channels

Mining channel sampling is performed according to the following procedure:

- The sampling area is washed, and the channels are located by measuring their distance from a reference point and marking their location with red paint.
- Individual channel samples are delimited and marked. The channel samples have a minimum thickness of 0.1 m, a minimum sample length of 0.3 m, and a maximum length of 1.5 m.
- In areas with poor rock quality, samples are taken with a sledgehammer and chisel. In areas with good rock quality conditions, samples are taken with percussion equipment. In both cases, the rock fragments are collected in a receptacle.

- Subsequently, the rock fragments are placed in a sampling bag and the samples are tagged, bagged, and sealed.
- Finally, the samples are placed in sacks and transferred to the internal sample preparation laboratory at Uchucchacua.

Bulk Density

Bulk density sampling of drillholes and mining channels is carried out according to the following procedure:

- Representative bulk density samples are selected considering the geology and mineralization of the deposit.
- Samples have a length of 15 cm to 20 cm and are taken at 5 m intervals, regardless of whether the interval represents a mineralized zone.
- The samples are wrapped in plastic film and then tagged.
- A photograph of the sample out of its storage box is taken.
- Later, the sample is sent to the laboratory for bulk density determination.
- Finally, the results obtained are uploaded in the database.

Sample Preparation

The Uchucchacua internal laboratory performs the following sample preparation process Figure 8-1:

- First, the tagged samples are received; the list is verified against the samples to ensure a match.
- Then, the samples are registered and labeled with an internal laboratory code.
- Subsequently, they are transferred to trays containing kraft paper for drying at a temperature between 60°C - 100°C.
- Samples are crushed until 90%, passing # 10 ASTM mesh (2 mm).
- Then, the samples are homogenized and split by using a Jones riffle splitter to obtain a sample of approximately 400 g.
- Samples are pulverized until 95% passing # 140 Tyler mesh (106 µm).
- Finally, the pulverized sample is divided into two subsamples of 200 g each; one is sent for chemical analysis and the other is stored as pulp to be returned to the geology department for storage.

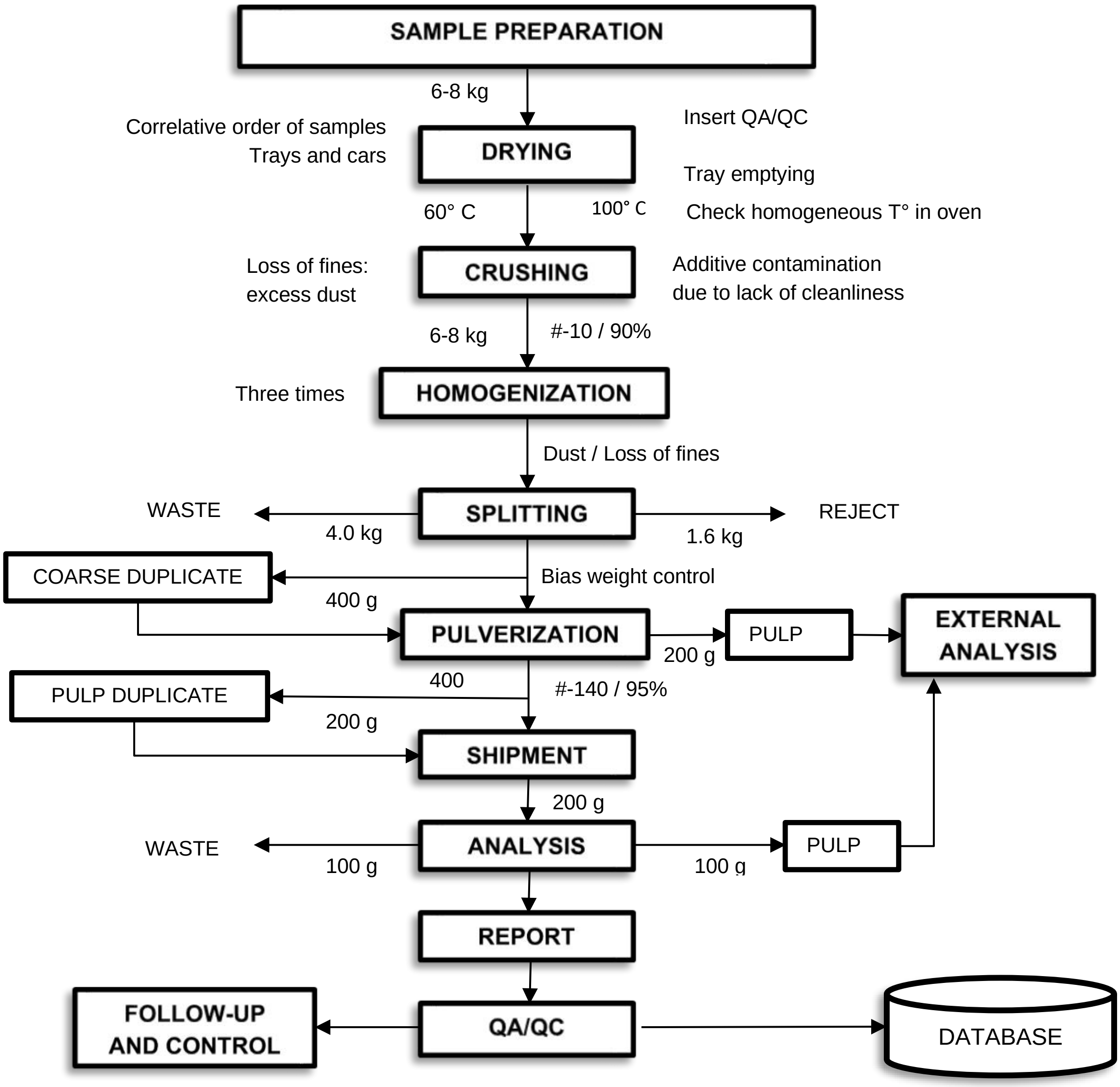


Figure 8-1: Sample Preparation Flowchart of the Uchucchacua Internal Laboratory

Source: (Buenaventura, 2020)

The Certimin Laboratory (current external laboratory) performs the following sample preparation process Figure 8-2:

- The supervisor receives, orders and checks the samples (quantity, state of bags, codes, etc.) according to the analysis request.
- A batch code is created, and the data described in the service request is entered.
- Samples are weighed and registered in the LIMS (Laboratory Information Management System and/or in a weighing format.
- Samples are dried at a temperature of 100°C +/- 10°C or 60°C +/- 10°C.
- Later, samples have a primary crushing until 90% passing a 1/4" mesh (6.3 mm).
- Next, samples are subjected to secondary crushing to 90%, passing the # 10 ASTM mesh (2mm).

- Then, the samples are split using a riffle splitter to obtain a sample weight of 200 g to 300 g. The rest of the sample is labeled and stored as coarse reject.
- Later, the samples are pulverized to 85%, passing the # 200 Tyler mesh (75 µm).
- Finally, the laboratory reviews the results of the internal quality control in sample preparation and, if the results are satisfactory, the pulps are stored in envelopes for the respective chemical analysis.

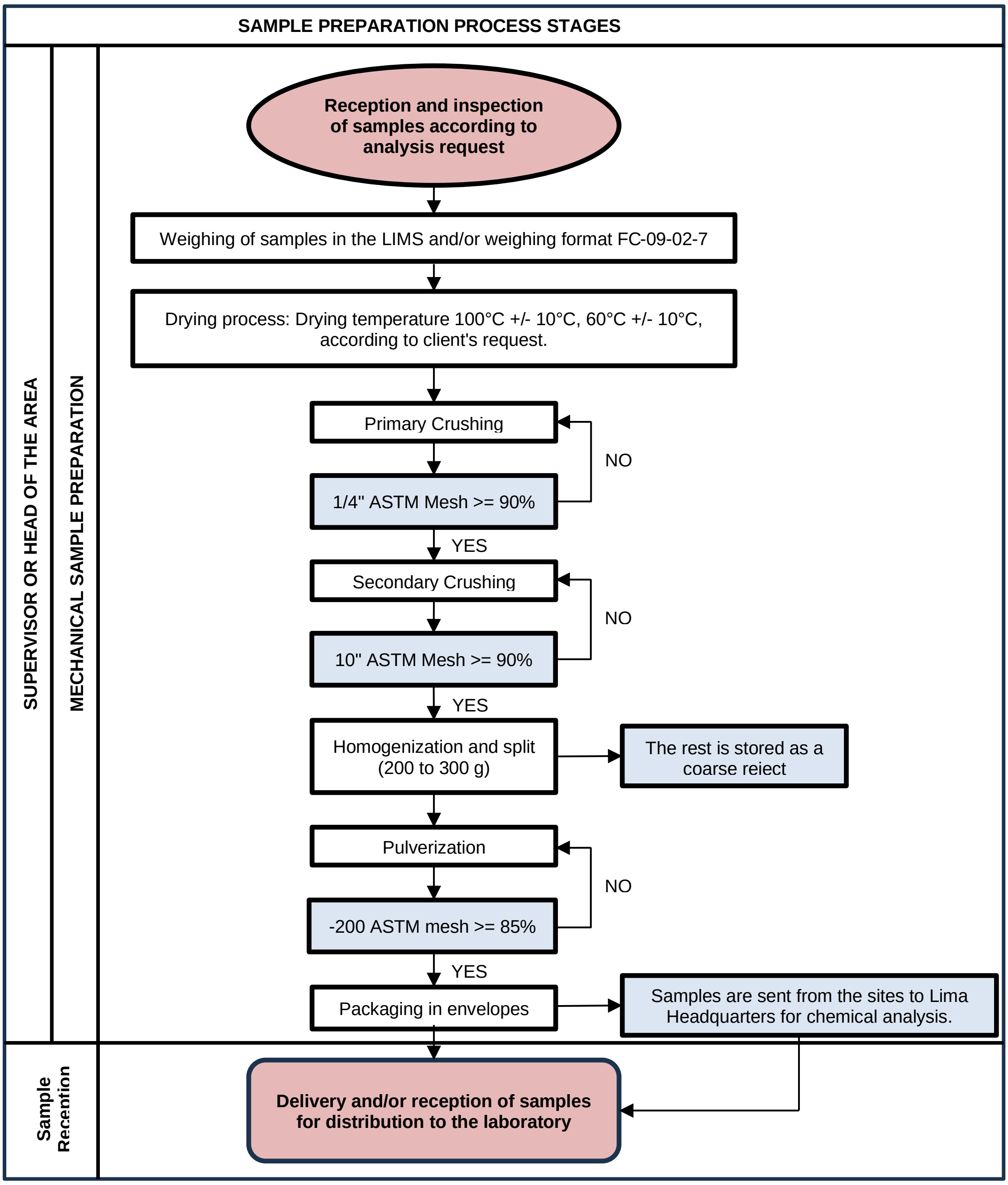


Figure 8-2: Certimin Laboratory Sample Preparation Flowchart

Source: (Certimin, 2020)

In the Certimin laboratory, bulk density determination is also performed; sample preparation includes the following processes:

- Calibration of the electronic balance.
- Recording of the initial weight of the samples.
- Samples are placed in the drying oven at a temperature of 105°C.
- Samples are weighed every 30 minutes until a constant weight is obtained (thus obtaining the drying time).
- Buenaventura uses the paraffin method to determine bulk density.

Chain of Custody

The chain of custody is supervised by mine geologists and consists of the following procedure:

- The samples are grouped in consecutive order and placed into sacks to be transported to the laboratory.
- The samples are delivered to the internal and/or external laboratory with a sample submission and chain of custody forms, which are signed by the person responsible for receiving the samples.
- The results are issued by the laboratory through digital reports and are received by the mining unit's database administrator, who will validate this information before it is uploaded in the database.

8.1.2 Sample Preparation and Analysis Procedures

Samples from mining channels and from the drilling campaigns from 2021 to 2023 were analyzed at the onsite Uchucchacua internal laboratory (UCH) and at the external laboratory Certimin (CER), as summarized in Table 8-2.

Table 8-2: Distribution of Uchucchacua samples according to laboratory and period

Sample Type	Laboratory	1963 - 2020	2021	2022	2023	Total samples
Drillhole	Uchucchacua	156,192	5,309	12,310	3,875	177,686
	Certimin	505	2,745	6,864	4,031	14,145
	ALS	442	0	0	0	442
Channel	Uchucchacua	207,460	2,443	2,780	1,009	213,692
	Certimin	0	9	0	21	30
Total		**364,599**	**10,506**	**19,174**	**8,936**	**405,995**

Source: (SRK, 2023)

Uchucchacua internal laboratory is located in the Uchucchacua mining unit (Lima, Oyón province), and has obtained ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 certifications.

Samples sent to Certimin external laboratory are prepared and chemically analyzed at the main headquarters located in Lima. This laboratory has obtained NTP-ISO/IEC 17025 accreditation and ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 certifications.

The Certimin and ALS laboratories are external and independent of Compañía de Minas Buenaventura S.A.A.

Sample Analysis

The analytical methods and limits of detection from the laboratories for the 2021-2023 period, are shown in the Table 8-3.

Table 8-3: Analytical methods and detection limits by laboratory

Laboratory	Method	Element (unit)	Lower limit	Upper limit	Method Description
Uchucchacua	AASR-1	Ag (oz/t)	0.02	50	Atomic Absorption Spectroscopy, Aqua regia digestion
		Fe (%)	0.02	60	
		Mn (%)	0.009	60	
		Pb (%)	0.008	60	
		Zn (%)	0.002	60	
	FAG	Ag (oz/t)	50	1,000	Fire Assay, Gravimetric finish
Certimin	IC-VH-59	Ag (oz/t)	0.003215	3.215	Multielemental Determination by ICP-OES/MS, Multi-acid digestion (HF, HClO4, HNO3 and HCl)
		Fe (%)	0.01	15	
		Mn (%)	0.0002	1	
		Pb (%)	0.00005	1	
		Zn (%)	0.00005	1	
	IC-VH-13	Ag (oz/t)	0.3215	32.15	Multielemental Determination by Atomic Absorption Spectroscopy, Multi-acid digestion (HF, HClO4, HNO3 and HCl)
		Fe (%)	0.01	50	
		Mn (%)	0.01	50	
		Pb (%)	0.01	30	
		Zn (%)	0.01	30	
	IC-EF-15	Ag (oz/t)	3.22	321.51	Fire Assay, Gravimetric finish

Source: (SRK, 2023)

8.1.3 Quality Control / Quality Assurance (QA/QC) Procedures

Control Sample Insertion Rate

The Quality Control program implemented in the 2021-2023 period for drillhole, and channel samples presented an overall insertion rate of 23% and 25% respectively and consisted of blanks, duplicates, standard reference material (SRM) and external control samples.

Table 8-4 and Table 8-5 summarize the insertion rate of control samples on drillhole and channel samples in the 2021-2023 period; and Table 8-6 summarizes the insertion rate according to the type of control sample.

Table 8-4: Control sample insertion rate in drillhole samples

Year	Laboratory	Primary samples	Control samples*							Total control samples	Insertion rate
			Blanks		Duplicates			SRM	External control samples		
			BF	BG	DF	DG	GM	STD			
2021	CER	2,745	64	74	79	73	77	159	137	663	24%
	UCH	5,309	111	133	132	139	135	328	285	1,263	24%
2022	CER	6,864	135	139	162	169	160	356	251	1,372	20%
	UCH	12,310	282	324	344	339	344	785	917	3,335	27%
2023	CER	4,031	82	100	108	87	111	233	50	771	19%
	UCH	3,875	74	120	87	85	139	215	96	816	21%
Total		**35,134**	**748**	**890**	**912**	**892**	**966**	**2,076**	**1,736**	**8,220**	**23%**

*Control samples: BF=Pulp blanks, BG=Coarse blanks, DF=Pulp duplicates, DG=Coarse duplicates, GM=Twin samples, SRM=Standard Reference Material

Source: (SRK, 2023)

Table 8-5: Control sample insertion rate in channel samples

Year	Laboratory	Primary samples	Control samples*							Total control samples	Insertion rate
			Blanks		Duplicates			SRM	External control samples		
			BF	BG	DF	DG	GM	STD			
2021	CER	9			1					1	11%
	UCH	2,443	62	61	55	54	60	176	99	567	23%
2022	UCH	2,780	95	84	61	75	158	185	122	780	28%
2023	CER	21	1				1	1		3	14%
	UCH	1,009	24	29	20	16	46	56	29	220	22%
Total		**6,262**	**182**	**174**	**137**	**145**	**265**	**418**	**250**	**1,571**	**25%**

*Control samples: BF=Pulp blanks, BG=Coarse blanks, DF=Pulp duplicates, DG=Coarse duplicates, GM=Field duplicates, SRM=Standard Reference Material

Source: (SRK, 2023)

Table 8-6: Uchucchacua control samples insertion rate summary

Samples	Drillholes		Channels	
	Total	Insertion rate	Total	Insertion rate
Primary samples	**35,134**		**6,262**	
Blanks				
Coarse blanks	890	2.5%	174	2.8%
Pulp blanks	748	2.1%	182	2.9%
Subtotal	**1,638**	**4.7%**	**356**	**5.7%**
Duplicates				
Twin samples / Field duplicates	966	2.7%	265	4.2%
Coarse duplicates	892	2.5%	145	2.3%
Pulp duplicates	912	2.6%	137	2.2%
Subtotal	**2,770**	**7.9%**	**547**	**8.7%**

Samples	Drillholes		Channels	
	Total	Insertion rate	Total	Insertion rate
Standard Reference Material				
PLSUL48	66	0.2%	10	0.2%
PLSUL49	61	0.2%	13	0.2%
PLSUL50	51	0.1%	18	0.3%
UCH-04	12	0.0%	6	0.1%
UCH-05	32	0.1%	51	0.8%
UCH-06	30	0.1%	28	0.4%
UCH-07	713	2.0%	118	1.9%
UCH-08	574	1.6%	101	1.6%
UCH-09	537	1.5%	73	1.2%
Subtotal	**2,076**	**5.9%**	**418**	**6.7%**
External Control Samples				
External control samples	1,736	4.9%	250	4.0%
Subtotal	**1,736**	**4.9%**	**250**	**4.0%**
Total Control Samples*	**8,220**	**23.4%**	**1,571**	**25.1%**

* 67 control samples were not considered due to inconsistencies in the control sample database (certificates without primary samples, control samples associated to primary samples that do not belong to the current database, multiple duplicates control samples associated to the same primary sample).

Source: (SRK, 2023)

SRK believes that the use of multiple SRMs makes it difficult to evaluate accuracy and suggests that in the future, this number be limited (three or four at the most during the same period). The insertion rate of blanks, duplicates and external control samples is adequate.

SRK believes that the annual insertion rate of control samples at the Uchucchacua mining unit is adequate for the 2021-2023 period.

Contamination Evaluation

SRK evaluated the Ag, Fe, Mn, Pb and Zn content in the pulp and coarse blanks inserted in diamond drill holes and channel samples. These blank samples were certified by Target Rocks Peru and during 2021 – 2023 period they were analyzed at the Uchucchacua internal laboratory (UCH) and at Certimin laboratory (CER). Table 8-7 presents the insertion of blank samples in 2021 - 2023 campaigns.

Table 8-7: Summary of blank samples inserted in 2021 – 2023 campaigns

Laboratory	Sample type	Blank code	Drillhole Samples		Channel Samples	
			Total	Insertion rate	Total	Insertion rate
Target Rocks	Pulp blanks	BLKF-TR-17129	604	1.7%	159	2.5%
		BLKF-TR-22145	144	0.4%	23	0.4%
	Coarse blanks	BLKG-TR-17131	717	2.0%	152	2.4%
		BLKG-TR-22146	173	0.5%	22	0.4%
		Subtotal	**1,638**	**4.7%**	**356**	**5.7%**

Source: (SRK, 2023)

When evaluating results, SRK considers that there is no evidence of significant contamination when at least 90% of the samples have a blank control value under three times the practical limit of detection of the element (LPD)[3] for pulp blanks; and in the case of coarse blanks, when the value of the blank does not exceed five times this limit.

The LPD values defined by SRK for contamination and precision evaluations are summarized in Table 8-8.

Table 8-8: Practical Detection Limits used for Certimin and Uchucchacua laboratories

Laboratory	Element	LPD
Uchucchacua	Ag (oz/t)	0.2
	Fe (%)	0.2
	Mn (%)	0.3
	Pb (%)	0.1
	Zn (%)	0.02
Certimin	Ag (oz/t)	0.05
	Fe (%)	0.5
	Mn (%)	0.05
	Pb (%)	0.0015
	Zn (%)	0.0015

Source: (SRK, 2023)

The results of the contamination evaluation in drillhole and channel samples are listed in Table 8-9 and Table 8-10, respectively.

Table 8-9: Contamination evaluation results for Uchucchacua drillhole samples

Laboratory	Control Sample	Element	Samples	Samples within parameters	Samples within parameters (%)
Uchucchacua	Pulp blanks	Ag (oz/t)	467	467	100%
		Fe (%)	467	467	100%
		Mn (%)	467	465	100%
		Pb (%)	467	467	100%
		Zn (%)	467	467	100%
	Coarse blanks	Ag (oz/t)	577	577	100%
		Fe (%)	577	577	100%
		Mn (%)	577	576	100%
		Pb (%)	577	577	100%
		Zn (%)	577	575	100%
Certimin	Pulp blanks	Ag (oz/t)	281	279	99%
		Fe (%)	281	280	100%

[3] The LPD is conventionally estimated, through a relative error plot against the average of the original-duplicate value, considering the value under which the relative error of the original-duplicate pairs tends to suffer a sudden increase and/or approaches the value of 100%.

Laboratory	Control Sample	Element	Samples	Samples within parameters	Samples within parameters (%)
		Mn (%)	281	280	100%
		Pb (%)	281	280	100%
		Zn (%)	281	279	99%
	Coarse blanks	Ag (oz/t)	313	312	100%
		Fe (%)	313	312	100%
		Mn (%)	313	310	99%
		Pb (%)	313	311	99%
		Zn (%)	313	311	99%

Source: (SRK, 2023)

Table 8-10: Contamination evaluation results for Uchucchacua channel samples

Laboratory	Control Sample	Element	Samples	Samples within parameters	Samples within parameters (%)
Uchucchacua	Pulp blanks	Ag (oz/t)	181	180	99%
		Fe (%)	180	179	99%
		Mn (%)	180	179	99%
		Pb (%)	181	180	99%
		Zn (%)	181	180	99%
	Coarse blanks	Ag (oz/t)	174	173	99%
		Fe (%)	174	173	99%
		Mn (%)	174	173	99%
		Pb (%)	174	174	100%
		Zn (%)	174	173	99%
Certimin	Pulp blanks	Ag (oz/t)	1	1	100%
		Fe (%)	1	1	100%
		Mn (%)	1	1	100%
		Pb (%)	1	1	100%
		Zn (%)	1	1	100%

Source: (SRK, 2023)

Based on these results, SRK considers that there is no evidence of significant contamination in the elements evaluated for drillhole and channel samples.

Precision evaluation

To evaluate precision, SRK reviewed the results of twin samples (or field duplicates for channels), coarse duplicates, and pulp duplicates inserted into drillhole and channel samples. These samples were analyzed at Certimin laboratory and at Uchucchacua internal laboratory.

SRK used the hyperbolic method (Simón, 2004) in its precision analysis to incorporate the effect of distortions generated by low precision levels at values close to the detection limit. This method entails calculating the relative error (RE), which is obtained as the absolute value of the difference between the values of the original sample and the duplicate, divided by the average of the two values.

Each pair of samples is then evaluated using the quadratic equation of a hyperbola:

$$y^2 = m^2x^2 + b^2$$

Where:

- y: Maximum value of the pair of samples (original – duplicate)
- x: Lower value of the pair of samples (original – duplicate)
- m: Constant according to type of duplicate based on ER limit values of 10%, 20% and 30% for pulp and coarse duplicates, and twin samples (or field duplicates), respectively.
- b: Constant according to Practical Limit of Detection (LPD) and type of duplicate (Table 8-11).

The hyperbola hereto defined is considered as the acceptance limit of duplicate pairs. For SRK, at least 90% of the samples must be within acceptable limits.

Table 8-11: Constants used in the hyperbolic method quadratic equation

Duplicate Type	Constant	
	m	b
GM	~1.35	10 x LPD
DG	~1.22	5 x LPD
DF	~1.11	3 x LPD

Source: (SRK, 2023)

Table 8-12 and Table 8-13 summarize the results of precision evaluation for drillhole and channel samples, respectively.

Table 8-12: Duplicates evaluation results for Uchucchacua drillhole samples

Laboratory	Control Sample	Element (unit)	Samples	Samples within parameters	Samples within parameters (%)
Uchucchacua	Pulp duplicates	Ag (oz/t)	563	561	100%
		Fe (%)	563	560	99%
		Mn (%)	563	562	100%
		Pb (%)	563	561	100%
		Zn (%)	563	560	99%
	Coarse duplicates	Ag (oz/t)	563	562	100%
		Fe (%)	563	562	100%
		Mn (%)	563	562	100%
		Pb (%)	563	562	100%
		Zn (%)	563	562	100%
	Twin Samples	Ag (oz/t)	618	581	94%
		Fe (%)	618	604	98%
		Mn (%)	618	595	96%

Laboratory	Control Sample	Element (unit)	Samples	Samples within parameters	Samples within parameters (%)
		Pb (%)	618	599	97%
		Zn (%)	618	564	91%
Certimin	Pulp duplicates	Ag (oz/t)	349	347	99%
		Fe (%)	349	349	100%
		Mn (%)	349	348	100%
		Pb (%)	349	349	100%
		Zn (%)	349	349	100%
	Coarse duplicates	Ag (oz/t)	329	327	99%
		Fe (%)	329	328	100%
		Mn (%)	329	326	99%
		Pb (%)	329	327	99%
		Zn (%)	329	327	99%
	Twin samples	Ag (oz/t)	348	322	93%
		Fe (%)	348	345	99%
		Mn (%)	348	331	95%
		Pb (%)	348	260	**75%**
		Zn (%)	348	277	**80%**

Source: (SRK, 2023)

Table 8-13: Duplicates evaluation results for Uchucchacua channel samples

Laboratory	Control samples	Element (unit)	Samples	Samples within parameters	Samples within parameters (%)
Uchucchacua	Pulp duplicates	Ag (oz/t)	136	134	99%
		Fe (%)	136	133	98%
		Mn (%)	136	135	99%
		Pb (%)	136	136	100%
		Zn (%)	136	130	96%
	Coarse duplicates	Ag (oz/t)	145	144	99%
		Fe (%)	144	142	99%
		Mn (%)	144	143	99%
		Pb (%)	145	145	100%
		Zn (%)	145	144	99%
	Field duplicates	Ag (oz/t)	264	242	92%
		Fe (%)	264	257	97%
		Mn (%)	264	254	96%
		Pb (%)	264	250	95%
		Zn (%)	264	233	**88%**
Certimin	Pulp duplicates	Ag (oz/t)	1	1	100%
		Fe (%)	1	1	100%

Laboratory	Control samples	Element (unit)	Samples	Samples within parameters	Samples within parameters (%)
		Mn (%)	1	1	100%
		Pb (%)	1	1	100%
		Zn (%)	1	1	100%
	Field duplicates	Ag (oz/t)	1	1	100%
		Fe (%)	1	1	100%
		Mn (%)	1	1	100%
		Pb (%)	1	0	**0%**
		Zn (%)	1	1	100%

Source: (SRK, 2023)

In drillhole samples analyzed in Certimin laboratory, the results for pulp duplicates, coarse duplicates, and twin samples (Ag, Fe and Mn) were acceptable; however, the precision of Pb and Zn for twin samples were not within acceptable limits. In the case of the drillhole samples analyzed in Uchucchacua internal laboratory, the results were within acceptable limits for all duplicate types.

In channel samples analyzed in Certimin laboratory, the results are not representative given the limited number of samples. In channel samples analyzed in Uchucchacua internal laboratory, the results for pulp duplicates, coarse duplicates and field duplicates were found to be acceptable with the exception of the results for Zn in field duplicates samples, whose results are close to acceptable limits in 2022 (note that in 2021, the results or these elements were not within acceptable limits).

Overall, SRK found that sampling, sub-sampling and analytical processes precision were good in drillhole and channel samples.

Accuracy Evaluation

Standard Reference Materials

The Standard Reference Materials (SRMs) inserted during 2021-2023 campaigns were certified by Target Rocks. Table 8-14 displays a summary of SRM certificate values for Ag, Pb, and Zn.

Table 8-14: Summary of SRM certificates for Ag, Pb and Zn

Laboratory	Insertion year	SRM	Ag (oz/t)		Pb (%)		Zn (%)	
			Best Value	Std. Dev.	Best Value	Std. Dev.	Best Value	Std. Dev.
Target Rocks	2021-2022	UCH-04	11.188	0.129	0.81	0.03	1.17	0.01
	2021	UCH-05	16.751	0.257	0.92	0.02	1.38	0.15
	2021-2022	UCH-06	50.541	0.723	0.71	0.015	0.93	0.015
	2021-2023	UCH-07	4.051	0.129	0.76	0.015	1.38	0.025
	2021-2023	UCH-08	10.320	0.241	0.81	0.015	1.12	0.02
	2021-2023	UCH-09	30.511	0.563	0.88	0.025	1.13	0.01
	2022-2023	PLSUL48	6.003	0.077	2.351	0.022	1.745	0.024
	2022-2023	PLSUL49	1.154	0.047	0.164	0.011	2.303	0.042

Laboratory	Insertion year	SRM	Ag (oz/t)		Pb (%)		Zn (%)	
			Best Value	Std. Dev.	Best Value	Std. Dev.	Best Value	Std. Dev.
	2022-2023	PLSUL50	2.488	0.116	1.87	0.07	6.04	0.08

Source: (SRK, 2023)

To evaluate accuracy, SRK utilizes bias analysis (once outlier values have been excluded) as the main acceptance criterion. The bias must be within acceptable limits as follows:

- Good: |Bias| < 5%
- Questionable: 5% ≤ |Bias| ≤ 10%
- Unacceptable: |Bias| > 10%

In addition, to review the standards results, SRK uses the limit conventionally accepted by the industry, meaning that all SRMs outside the range of best value (BV) ± 3 standard deviations (SD), as well as contiguous samples between the limits of BV+3SD and BV+2SD, or between BV-3SD and BV-2SD, are considered as falling outside the boundaries of acceptable limits. For SRK, 90% of the samples must be within acceptable limits.

Table 8-15 and Table 8-16 show a summary of the SRMs results for Ag, Pb and Zn for drillhole and channel samples, respectively.

Table 8-15: Summary of SRM results for drillhole samples

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
Certimin	Ag (oz/t)	PLSUL48	44	44	6.03	6.00	0.5%	1.3%	44	100%
		PLSUL49	46	46	1.15	1.15	-0.5%	3.1%	46	100%
		PLSUL50	39	39	2.43	2.49	-2.2%	3.9%	39	100%
		UCH-05	13	13	16.40	16.75	-2.1%	0.2%	13	100%
		UCH-06	13	13	50.83	50.54	0.6%	0.3%	13	100%
		UCH-07	229	229	4.06	4.05	0.2%	1.8%	230	100%
		UCH-08	203	202	10.27	10.32	-0.5%	1.4%	203	100%
		UCH-09	160	160	30.44	30.51	-0.2%	1.2%	160	100%
	Pb (%)	PLSUL48	44	44	2.36	2.35	0.4%	1.2%	44	100%
		PLSUL49	46	46	0.16	0.16	-2.6%	4.1%	46	100%
		PLSUL50	39	39	1.87	1.87	0.2%	2.8%	39	100%
		UCH-05	13	13	0.87	0.92	**-5.2%**	0.1%	13	100%
		UCH-06	13	13	0.71	0.71	0.1%	0.1%	13	100%
		UCH-07	229	228	0.75	0.76	-1.3%	2.1%	226	99%
		UCH-08	203	203	0.81	0.81	-0.4%	2.0%	203	100%
		UCH-09	160	160	0.87	0.88	-0.8%	2.8%	160	100%
	Zn (%)	PLSUL48	44	44	1.77	1.75	1.2%	1.8%	44	100%
		PLSUL49	46	46	2.33	2.30	1.1%	1.5%	46	100%
		PLSUL50	39	39	6.11	6.04	1.1%	1.2%	39	100%
		UCH-05	13	13	1.34	1.38	-2.6%	0.6%	13	100%
		UCH-06	13	13	0.89	0.93	-4.0%	0.1%	13	100%
		UCH-07	229	229	1.38	1.38	-0.3%	1.2%	230	100%
		UCH-08	203	203	1.12	1.12	0.1%	1.4%	204	100%

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
		UCH-09	160	160	1.12	1.13	-0.5%	1.2%	159	99%
Uchucchacua	Ag (oz/t)	PLSUL48	22	22	6.00	6.00	0.0%	2.0%	21	95%
		PLSUL49	15	15	1.20	1.15	3.8%	3.0%	15	100%
		PLSUL50	12	11	2.58	2.49	3.5%	2.2%	11	100%
		UCH-04	11	11	11.07	11.19	-1.1%	2.8%	9	**82%**
		UCH-05	19	19	17.06	16.75	1.9%	2.3%	17	**89%**
		UCH-06	17	17	51.40	50.54	1.7%	2.6%	14	**82%**
		UCH-07	484	482	4.01	4.05	-1.1%	2.5%	481	100%
		UCH-08	371	370	10.22	10.32	-1.0%	2.7%	367	99%
		UCH-09	377	375	30.22	30.51	-1.0%	2.0%	370	99%
	Pb (%)	PLSUL48	22	22	2.37	2.35	0.9%	1.3%	21	95%
		PLSUL49	15	15	0.18	0.16	**8.8%**	3.5%	15	100%
		PLSUL50	12	12	1.95	1.87	4.5%	2.4%	12	100%
		UCH-04	11	11	0.84	0.81	3.9%	3.7%	11	100%
		UCH-05	19	19	0.92	0.92	0.0%	2.2%	19	100%
		UCH-06	17	17	0.69	0.71	-2.5%	2.9%	17	100%
		UCH-07	484	483	0.76	0.76	-0.4%	2.6%	471	98%
		UCH-08	371	369	0.82	0.81	1.6%	2.8%	340	92%
		UCH-09	377	373	0.90	0.88	1.7%	2.7%	370	99%
	Zn (%)	PLSUL48	22	22	1.76	1.75	0.7%	1.4%	22	100%
		PLSUL49	15	15	2.28	2.30	-1.2%	1.8%	15	100%
		PLSUL50	12	12	6.00	6.04	-0.7%	1.2%	12	100%
		UCH-04	11	11	1.18	1.17	0.8%	3.1%	7	**64%**
		UCH-05	19	19	1.37	1.38	-0.9%	2.5%	19	100%
		UCH-06	17	17	0.90	0.93	-3.1%	2.5%	13	**76%**

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
		UCH-07	484	480	1.41	1.38	1.9%	2.2%	451	94%
		UCH-08	371	368	1.14	1.12	1.5%	2.4%	349	95%
		UCH-09	377	375	1.13	1.13	0.0%	2.3%	283	**75%**

Source: (SRK, 2023)

Table 8-16: Summary of SRM results for channel samples

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
Uchucchacua	Ag (oz/t)	PLSUL48	10	10	5.94	6.00	-1.1%	3%	9	90%
		PLSUL49	12	12	1.22	1.15	5.4%	3%	12	100%
		PLSUL50	18	17	2.58	2.49	3.9%	2%	17	100%
		UCH-04	6	6	11.09	11.19	-0.9%	2%	6	100%
		UCH-05	51	50	16.97	16.75	1.3%	3%	44	**88%**
		UCH-06	28	28	51.74	50.54	2.4%	3%	21	**75%**
		UCH-07	118	116	4.01	4.05	-0.9%	2%	116	100%
		UCH-08	101	100	10.16	10.32	-1.6%	2%	98	98%
		UCH-09	73	72	30.18	30.51	-1.1%	2%	72	100%
	Pb (%)	PLSUL48	10	10	2.42	2.35	2.8%	1%	5	**50%**
		PLSUL49	12	12	0.18	0.16	**10.1%**	7%	12	100%
		PLSUL50	18	18	1.95	1.87	4.4%	2%	18	100%
		UCH-04	6	6	0.81	0.81	-0.5%	2%	6	100%
		UCH-05	51	50	0.92	0.92	0.3%	3%	50	100%
		UCH-06	28	28	0.71	0.71	-0.2%	5%	24	**86%**
		UCH-07	118	117	0.76	0.76	-0.1%	3%	113	97%

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
		UCH-08	101	100	0.82	0.81	1.5%	3%	91	91%
		UCH-09	73	72	0.90	0.88	1.7%	3%	71	99%
	Zn (%)	PLSUL48	10	10	1.76	1.75	0.8%	1%	10	100%
		PLSUL49	12	12	2.29	2.30	-0.4%	3%	12	100%
		PLSUL50	18	17	6.01	6.04	-0.6%	2%	16	94%
		UCH-04	6	6	1.16	1.17	-1.1%	2%	4	**67%**
		UCH-05	51	51	1.37	1.38	-0.4%	2%	51	100%
		UCH-06	28	27	0.91	0.93	-2.3%	2%	26	96%
		UCH-07	118	118	1.40	1.38	1.6%	2%	111	94%
		UCH-08	101	100	1.13	1.12	1.3%	3%	98	98%
		UCH-09	73	73	1.12	1.13	-0.5%	3%	48	**66%**

Source: (SRK, 2023)

Bias results for drillhole samples ranged from -5.2% to 8.8% (see Table 8-15). The main findings of SRK accuracy evaluation for drillhole samples are detailed below:

In the case of Certimin laboratory, analytical accuracy for Ag, Pb and Zn was within acceptable limits.

For Uchucchacua internal laboratory, the average Ag value for SRMs "UCH-04", "UCH-05" (low grade) and "UCH-06" (high grade) were not within acceptable limits in the control charts; however, their biases were acceptable (-1%, 2%, and 2%, respectively). The average Pb value for SRM "PLSUL49" (mean grade) has a 9% bias, outside the acceptable limit, and in the control chart for SRM UCH-08, SRK observed variable behavior during the period 2021-2023 (Figure 8-3). The average Zn value for SRMs "UCH-04" (low grade), "UCH-06" (high grade) and "UCH-09" (low grade) (Figure 8-4) were not within acceptable limits in the control charts; however, their biases were acceptable (1%, -3%, and 0%, respectively).

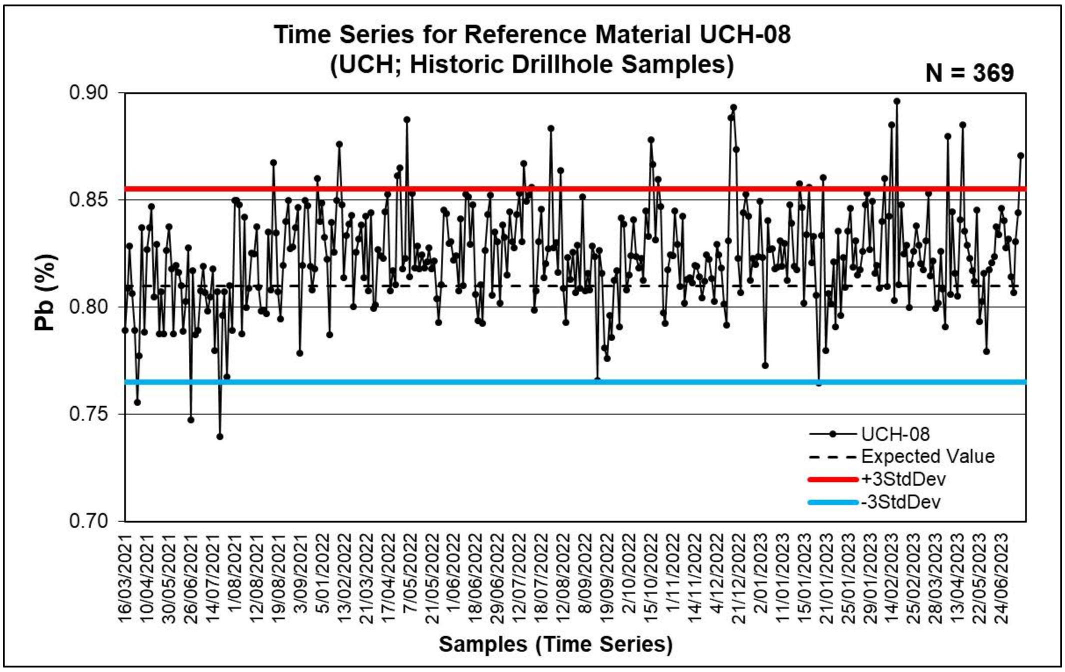


Figure 8-3: Control chart for SRM UCH-08 – Pb (%) in drillhole samples from Uchucchacua Internal Laboratory

Source: (SRK, 2023)

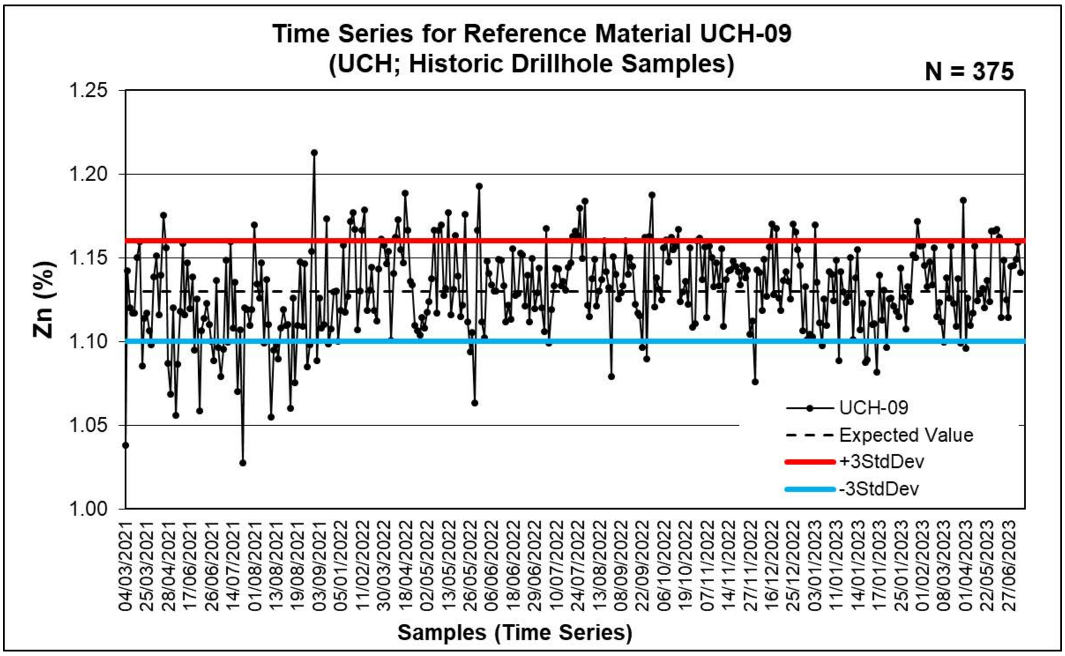


Figure 8-4: Control chart for SRM UCH-09 - Zn (%) in drillhole samples from Uchucchacua Internal Laboratory

Source: (SRK, 2023)

Bias results for channel samples ranged from -2.3% to 10.1% (see Table 8-16). The main findings of SRK accuracy evaluation for channel samples analyzed at the Uchucchacua internal laboratory are detailed bellow:

The average Ag value for SRMs "UCH-05" (high grade) and "UCH-06" (low grade) were not within acceptable limits in the control charts; however, their biases are acceptable. In Pb, the average value for SRMs "PLSUL48" and "UCH-06" (low grades) were not within acceptable limits in the control charts; however, their biases are acceptable. In Zn, the average value for SRMs "UCH-04" and "UCH-09" (low grades) are not within acceptable limits in the control charts; however, their biases are acceptable. Examples of SRK accuracy evaluation are shown in Figure 8-5 and Figure 8-6.

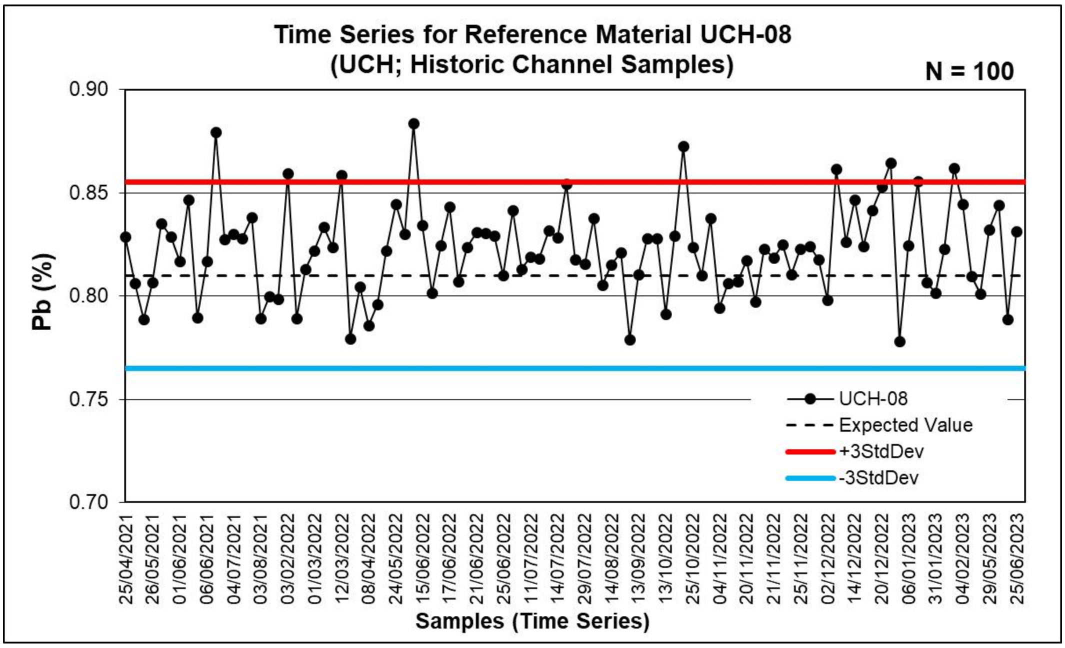


Figure 8-5: Control chart for SRM UCH-08 - Zn (%) in channel samples from Uchucchacua Internal Laboratory

Source: (SRK, 2023)

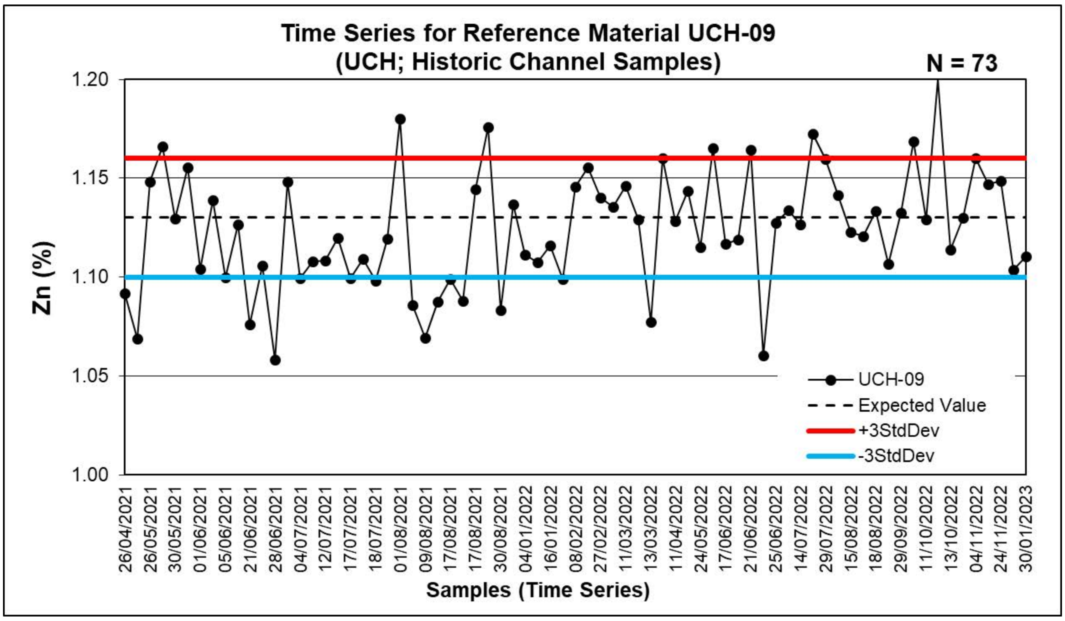


Figure 8-6: Control chart for SRM UCH-09 - Zn (%) in channel samples from Uchucchacua Internal Laboratory

Source: (SRK, 2023)

Overall, SRK found that analytical accuracy for Ag, Pb and Zn in drillhole and channel samples were within acceptable limits. SRK found that the results generated by the Certimin laboratory and the Uchucchacua internal laboratory were within acceptable limits (some minor difficulties were detected in the case of the latter- none of which impacted acceptability).

SRK recommends frequently reviewing SRMs results, especially those that are analyzed in Uchucchacua internal laboratory, given that performance proved to be variable throughout 2021 – 2023 period.

External Control Samples

Buenaventura sent 1,986 external control samples for drillhole and channels samples from 2021-2023 period, which represented a 3.6% insertion rate; this rate should be higher according to established in Buenaventura Quality Control Protocol (2020). These external control samples batches included an adequate proportion of control samples (Table 8-17).

For drillhole samples, the primary laboratories for this analysis were Uchucchacua and Certimin, and the secondary laboratory was SGS. For channel samples, the primary laboratory was Uchucchacua, and the secondary laboratories were Certimin (2021) and SGS (2021-2023). The analytical methods of Uchucchacua and Certimin laboratories are summarized in Table 8-3; the methods used by the SGS laboratory are summarized in Table 8-18.

Table 8-17: Controls insertion in external control samples batches in 2021-2023 period

Sample type	Primary laboratory	Secondary laboratory	Year	External control samples	Pulp blanks		Coarse blanks		SRMs		Total control samples
					#	%	#	%	#	%	
Drillholes	UCH	SGS	2021-2023	1,298	110	8.5%			157	12.1%	267
	CER	SGS	2021-2023	438	31	7.1%			52	11.9%	83
Channels	UCH	CER	2021	93	5	5.4%	1	1.1%	12	12.9%	18
	UCH	SGS	2021-2023	157	12	7.6%	0	0.0%	20	12.7%	32
		Total		**1,986**	**158**	**8.0%**	**1**	**0.1%**	**241**	**12.1%**	**400**

Source: (SRK, 2023)

Table 8-18: Analytical methods of SGS secondary laboratory

Laboratory	Year	Method	Element (unit)	Lower limit	Upper limit	Method Description
SGS	2021-2022	ICP12V	Ag (oz/t)	0.032	128.60	ICP-OES Aqua regia digestion
			Fe (%)	0.01	80	
			Mn (%)	0.005	40	
			Pb (%)	0.005	50	
			Zn (%)	0.005	50	
	2023	ICM40B	Ag (oz/t)	0.0006	1.61	ICP-MS Multi-acid digestion (HF, HClO4, HNO3 and HCl)
			Pb (%)	0.00005	1	
			Fe (%)	0.01	15	
			Mn (%)	0.0005	1	
		AAS42C	Ag (oz/t)	0.01	16.08	Atomic Absorption Spectroscopy Multi-acid digestion (HF, HClO4, HNO3 and HCl)
		AAS41B	Ag (oz/t)	0.10	128.60	

Laboratory	Year	Method	Element (unit)	Lower limit	Upper limit	Method Description
			Pb (%)	0.01	20	Ore Atomic Absorption Spectroscopy Multi-acid digestion (HF, HClO4, HNO3 and HCl)
			Zn (%)	0.01	20	
			Mn (%)	0.01	20	

Source: (SRK, 2023)

SRK reviewed the external control samples database and found that some samples lacked an overlimit analysis; these samples were excluded from the assessment of external control sample (Table 8-19).

Table 8-19: Proportion of samples without overlimit analysis

Sample type	Secondary laboratory	Element	Total samples	Samples without overlimit analysis	Samples without overlimit analysis (%)
Drillholes	SGS	Ag (oz/t)	1,736	1	0.1%
		Pb (%)	1,736	5	0.3%
		Zn (%)	1,736	2	0.1%
		Fe (%)	1,736	155	8.9%
		Mn (%)	1,736	340	19.6%
Channels	Certimin	Fe (%)	92	44	47.8%
		Mn (%)	92	44	47.8%
	SGS	Pb (%)	157	3	1.9%
		Zn (%)	157	1	0.6%
		Fe (%)	157	21	13.4%
		Mn (%)	157	25	15.9%

Source: (SRK, 2023)

Subsequently, SRK evaluated the Ag, Pb, Zn, Fe and Mn results by performing a regression analysis using the RMA "Reduced Major Axis" method (Long, 2005). This method facilitates the calculation of a coefficient of determination (R2), which is an indicator of the goodness of fit of the regression between both laboratories (secondary laboratory versus primary laboratory). In addition, the bias of the primary laboratory in relation to the secondary laboratory is determined after removing erratic values (outliers). For SRK, the bias is acceptable if the absolute value of the same is less than 5%. Table 8-20 and Table 8-21 summarize the evaluation results for drillhole samples, and Table 8-22 and Table 8-23 summarize the evaluation results for channel samples.

Table 8-20: External control sample evaluation of drillhole samples (2021-2023), utilizing the RMA method (SGS vs UCH)

Uchucchacua – RMA Parameters – SGS vs. UCH Drillholes – Total Data								
Element	R2	N (total)	Pairs	m	Error (m)	b	Error (b)	Bias
Ag (oz/t)	0.981	1,295	1,295	1.100	0.004	-1.656	0.393	**-10.0%**
Pb (%)	0.941	1,279	1,279	1.009	0.007	-0.037	0.061	**-0.9%**
Zn (%)	0.985	1,266	1,266	1.001	0.003	0.000	0.026	**-0.1%**
Fe (%)	0.951	1,182	1,182	0.929	0.006	0.049	0.079	**7.1%**
Mn (%)	0.949	1,040	1,040	0.741	0.005	1.232	0.151	**25.9%**

Uchucchacua – RMA Parameters – SGS vs. UCH Drillholes – No Outliers									
Element	R2	Accepted	Outliers	Outliers (%)	m	Error (m)	b	Error (b)	Bias
Ag (oz/t)	0.993	1,290	5	0.4%	1.001	0.002	-0.314	0.127	**-0.1%**
Pb (%)	0.996	1,272	7	0.6%	0.979	0.002	-0.018	0.014	**2.1%**
Zn (%)	0.995	1,257	9	0.7%	0.995	0.002	0.009	0.015	**0.5%**
Fe (%)	0.976	1,168	14	1.2%	0.925	0.004	0.059	0.053	**7.5%**
Mn (%)	0.965	1,024	16	1.6%	0.745	0.004	1.228	0.123	**25.5%**

Source: (SRK, 2023)

Table 8-21: External control sample evaluation of drillhole samples (2021-2023), utilizing the RMA method (SGS vs CER)

Uchucchacua - RMA Parameters - SGS vs.CER Drillholes - Total Data								
Element	R2	N (total)	Pairs	m	Error (m)	b	Error (b)	Bias
Ag (oz/t)	0.994	437	437	0.970	0.004	-0.040	0.175	**3.0%**
Pb (%)	0.995	431	431	0.969	0.003	0.013	0.029	**3.1%**
Zn (%)	0.978	428	428	0.964	0.007	-0.002	0.062	**3.6%**
Fe (%)	0.944	399	399	0.963	0.011	0.196	0.179	**3.7%**
Mn (%)	0.987	356	356	0.829	0.005	0.438	0.152	**17.1%**

Uchucchacua - RMA Parameters - SGS vs. CER Drillholes - No Outliers									
Element	R2	Accepted	Outliers	Outliers (%)	m	Error (m)	b	Error (b)	Bias
Ag (oz/t)	0.996	433	4	0.9%	0.981	0.003	-0.116	0.133	**1.9%**
Pb (%)	0.998	428	3	0.7%	0.968	0.002	0.009	0.021	**3.2%**
Zn (%)	0.999	425	3	0.7%	0.966	0.002	0.011	0.014	**3.4%**
Fe (%)	0.991	393	6	1.5%	0.984	0.005	0.158	0.068	**1.6%**
Mn (%)	0.989	349	7	2.0%	0.831	0.005	0.431	0.134	**16.9%**

Source: (SRK, 2023)

Table 8-22: External control sample evaluation of channel samples (2021), utilizing the RMA method (CER vs UCH)

Uchucchacua - RMA Parameters - CER vs. UCH Channels - Total Data								
Element	**R2**	**N (total)**	**Pairs**	**m**	**Error (m)**	**b**	**Error (b)**	**Bias**
Ag (oz/t)	0.921	93	93	1.032	0.030	-0.516	2.142	**-3.2%**
Pb (%)	0.989	93	93	1.017	0.011	-0.001	0.118	**-1.7%**
Zn (%)	0.987	93	93	0.986	0.012	-0.006	0.117	**1.4%**
Fe (%)	0.834	48	48	1.020	0.060	-0.009	1.524	**-2.0%**
Mn (%)	0.622	48	48	1.067	0.095	-0.050	1.479	**-6.7%**

Uchucchacua - RMA Parameters - CER vs. UCH Channels - No Outliers									
Element	**R2**	**Accepted**	**Outliers**	**Outliers (%)**	**m**	**Error (m)**	**b**	**Error (b)**	**Bias**
Ag (oz/t)	0.999	91	2	2.2%	1.032	0.003	-0.511	0.245	**-3.2%**
Pb (%)	0.999	91	2	2.2%	1.018	0.003	-0.002	0.031	**-1.8%**
Zn (%)	0.998	91	2	2.2%	0.986	0.005	-0.005	0.048	**1.4%**
Fe (%)	0.997	38	10	26.3%	0.976	0.008	-0.021	0.190	**2.4%**
Mn (%)	0.998	42	6	14.3%	0.965	0.006	0.062	0.073	**3.5%**

Source: (SRK, 2023)

Table 8-23: External control sample evaluation of channel samples (2021-2023), utilizing the RMA method (SGS vs UCH)

Uchucchacua - RMA Parameters – SGS vs. UCH Channels - Total Data								
Element	**R2**	**N (total)**	**Pairs**	**m**	**Error (m)**	**b**	**Error (b)**	**Bias**
Ag (oz/t)	0.976	156	156	0.941	0.012	0.291	0.824	**5.9%**
Pb (%)	0.997	153	153	0.990	0.004	-0.041	0.046	**1.0%**
Zn (%)	0.995	155	155	1.013	0.006	0.001	0.064	**-1.3%**
Fe (%)	0.969	136	136	0.893	0.013	0.205	0.181	**10.7%**
Mn (%)	0.978	132	132	0.736	0.009	1.079	0.307	**26.4%**

Uchucchacua - RMA Parameters – SGS vs. UCH Channels - No Outliers									
Element	**R2**	**Accepted**	**Outliers**	**Outliers (%)**	**m**	**Error (m)**	**b**	**Error (b)**	**Bias**
Ag (oz/t)	0.996	151	5	3.3%	0.987	0.005	-0.374	0.244	**1.3%**
Pb (%)	0.999	152	1	0.7%	0.974	0.003	-0.018	0.029	**2.6%**
Zn (%)	0.995	155	0	0.0%	1.013	0.006	0.001	0.064	**-1.3%**
Fe (%)	0.993	127	9	7.1%	0.935	0.007	0.106	0.083	**6.5%**
Mn (%)	0.983	124	8	6.5%	0.766	0.009	0.843	0.256	**23.4%**

Source: (SRK, 2023)

With regard to drillhole samples, the SGS versus Uchucchacua inter-laboratory bias results for Ag, Pb, Zn and Fe were acceptable when outliers were excluded; however, for Mn was not within acceptable limits. The SGS versus Certimin inter-laboratory bias results were acceptable for all elements when outliers were excluded, except for Mn.

In channel samples, the Certimin versus Uchucchacua inter-laboratory bias results were acceptable for all elements when outliers were excluded. The SGS versus Uchucchacua inter-laboratory bias results for Ag, Pb, Zn and Fe were acceptable when outliers were excluded; however, for Mn was not within acceptable limits.

In addition, SRK performed the evaluation for control samples inserted into the external control samples batches.

Contamination evaluation was performed for Ag, Pb, Zn, Fe and Mn, according to the criteria explained in item “Contamination Evaluation”. The results obtained are summarized in Table 8-24 and Table 8-25. SRK found that there is no evidence of significant contamination in the elements evaluated, with the exception of Mn in drillhole samples sent to SGS laboratory. The latter, however, were close to acceptable limits.

Table 8-24: Contamination evaluation results for external control samples from drillholes (2021- 2023)

Control sample	Laboratory	Element	Total Samples	Samples within parameters	Samples within parameters (%)
Pulp blanks	SGS	Ag (oz/t)	141	140	99%
		Pb (%)	141	134	95%
		Zn (%)	141	136	96%
		Fe (%)	141	140	99%
		Mn (%)	141	122	87%

Source: (SRK, 2023)

Table 8-25: Contamination evaluation results for external control samples from channels (2021- 2023)

Control sample	Laboratory	Element	Total Samples	Samples within parameters	Samples within parameters (%)
Pulp blanks	SGS	Ag (oz/t)	12	12	100%
		Pb (%)	12	12	100%
		Zn (%)	12	12	100%
		Fe (%)	12	12	100%
		Mn (%)	12	12	100%
	Certimin	Ag (oz/t)	5	4	80%
		Pb (%)	5	4	80%
		Zn (%)	5	4	80%
		Fe (%)	2	2	100%
		Mn (%)	2	2	100%

Source: (SRK, 2023)

SRK performed the accuracy evaluation for Ag, Pb and Zn according to the criteria explained in item “Accuracy Evaluation”. The results obtained are shown in Table 8-26 and Table 8-27. Overall, SRK believes that bias results acceptable.

Table 8-26: Summary of SRMs results for external control samples from drillholes (2021-2023)

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
SGS	Ag (oz/t)	PLSUL48	3	3	5.804	6.003	-3.3%	0.8%	2	**67%**
		PLSUL49	5	5	1.184	1.154	2.6%	0.3%	5	100%
		PLSUL50	4	4	2.545	2.488	2.3%	1.3%	4	100%
		UCH-04	3	3	10.963	11.188	-2.0%	0.5%	3	100%
		UCH-07	72	71	4.000	4.051	-1.2%	3.0%	71	99%
		UCH-08	63	61	10.377	10.320	0.6%	2.2%	61	97%
		UCH-09	59	58	30.549	30.511	0.1%	2.2%	56	95%
	Pb (%)	PLSUL48	3	3	2.327	2.351	-1.0%	1.5%	3	100%
		PLSUL49	5	5	0.163	0.164	-0.8%	4.2%	5	100%
		PLSUL50	4	4	1.695	1.870	-9.3%	1.6%	4	100%
		UCH-04	3	3	0.843	0.810	4.1%	1.3%	3	100%
		UCH-07	72	72	0.730	0.760	-3.9%	4.3%	50	69%
		UCH-08	63	62	0.799	0.810	-1.4%	4.3%	50	79%
		UCH-09	59	58	0.873	0.880	-0.8%	4.8%	54	92%
	Zn (%)	PLSUL48	3	3	1.715	1.745	-1.7%	1.5%	3	100%
		PLSUL49	5	5	2.231	2.303	-3.1%	1.9%	4	80%
		PLSUL50	4	4	5.871	6.040	-2.8%	1.3%	4	100%
		UCH-04	3	3	1.156	1.170	-1.2%	1.8%	2	**67%**
		UCH-07	72	70	1.383	1.380	0.2%	2.2%	70	97%
		UCH-08	63	62	1.122	1.120	0.2%	1.8%	62	98%
		UCH-09	59	57	1.134	1.130	0.4%	1.7%	53	90%

Source: (SRK, 2023)

Table 8-27: Summary of SRMs results for external control samples from channels (2021-2023)

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
SGS	Ag (oz/t)	PLSUL48	2	2	5.898	6.003	-1.7%	0.0%	2	100%
		PLSUL50	2	2	2.530	2.488	1.7%	1.1%	2	100%
		UCH-07	3	3	3.961	4.051	-2.2%	1.4%	3	100%
		UCH-08	7	7	10.345	10.320	0.2%	2.2%	7	100%
		UCH-09	6	6	29.354	30.511	-3.8%	3.7%	4	67%
	Pb (%)	PLSUL48	2	2	2.328	2.351	-1.0%	0.4%	2	100%
		PLSUL50	2	2	1.784	1.870	-4.6%	8.9%	2	100%
		UCH-07	3	3	0.699	0.760	-8.1%	7.6%	1	33%
		UCH-08	7	7	0.810	0.810	0.0%	4.0%	6	86%
		UCH-09	6	6	0.869	0.880	-1.3%	4.7%	6	100%
	Zn (%)	PLSUL48	2	2	1.747	1.745	0.1%	0.1%	2	100%
		PLSUL50	2	2	5.914	6.040	-2.1%	2.7%	1	50%
		UCH-07	3	3	1.384	1.380	0.3%	1.6%	3	100%
		UCH-08	7	7	1.112	1.120	-0.7%	1.5%	7	100%
		UCH-09	6	6	1.066	1.130	-5.6%	5.7%	3	50%
Certimin	Ag (oz/t)	UCH-05	1	1	16.429	16.751	-1.9%	1.6%	1	100%
		UCH-07	4	4	4.059	4.051	0.2%	0.8%	4	100%
		UCH-08	3	3	10.235	10.320	-0.8%	0.5%	3	100%
		UCH-09	4	4	30.125	30.511	-1.3%	0.2%	4	100%
	Pb (%)	UCH-05	1	1	0.930	0.920	1.1%	2.2%	1	100%
		UCH-07	4	4	0.757	0.760	-0.4%	0.5%	4	100%
		UCH-08	3	3	0.812	0.810	0.3%	2.1%	3	100%
		UCH-09	4	4	0.890	0.880	1.2%	1.3%	4	100%
	Zn (%)	UCH-05	1	1	1.360	1.380	-1.4%	11.0%	1	100%
		UCH-07	4	4	1.378	1.380	-0.2%	1.1%	4	100%

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
		UCH-08	3	3	1.117	1.120	-0.3%	0.5%	3	100%
		UCH-09	4	4	1.118	1.130	-1.1%	0.9%	4	100%

Source: (SRK, 2023)

In conclusion, SRK believes that inter-laboratory bias results for Ag, Pb, Zn and Fe from drillhole and channel samples (SGS vs Uchucchacua, SGS vs Certimin and Certimin vs Uchucchacua) are acceptable when outliers are excluded. In the case of Mn, the inter-laboratory bias results (SGS vs Uchucchacua and SGS vs Certimin) were not within acceptable limits.

8.1.4 Conclusions

SRK conducted a comprehensive review of available QA/QC data from 2021 – 2023 period and believes that QA/QC protocols are consistent with the best practices accepted in the industry. SRK is of the opinion that sample preparation, chemical analysis, quality control, and the security procedures from 2021 – 2023 samples are sufficient to provide reliable data to support the mineral resource estimation and mineral reserve estimation and considers that quality control evaluation results have improved in comparison to the results obtained in the previous SEC Technical Report Summary Pre-Feasibility Study of the Uchucchacua mining unit (SRK, 2022).

SRK finds that the insertion rate of control samples for drillhole and channel samples in 2021 – 2023 period were adequate.

SRK believes that there is no evidence of significant contamination for Ag, Fe, Mn, Pb and Zn.

Overall, SRK believes there is good precision in sampling, sub-sampling, and analytical processes for drillhole and channel samples.

The bias evaluation results from SRMs showed that analytical accuracy for Ag, Pb and Zn is within acceptable limits. Accuracy evaluation results from drillholes samples analyzed at Certimin laboratory are better than drillhole and channel samples analyzed at Uchucchacua internal laboratory.

In the external control samples evaluation, inter-laboratory bias results for Ag, Pb, Zn and Fe from drillhole and channel samples (SGS vs Uchucchacua, SGS vs Certimin and Certimin vs Uchucchacua) are acceptable when outliers were excluded. In the case of Mn, the inter-laboratory bias results (SGS vs Uchucchacua and SGS vs Certimin) are not within acceptable limits.

8.1.5 Potential Impacts

SRK considers that the results of quality control evaluation from drillhole and channel samples in 2021 – 2023 period do not represent a risk to the mineral resource estimate.

8.1.6 Recommendations

SRK recommends that in the future the number of SRMs used be limited (three or four at the most during the same period) as the use of multiple SRMs makes it difficult to evaluate accuracy.

SRK suggests frequently reviewing the behavior of the quality control results and informing the laboratory about any problems detected to opportunely establish corrective measures.

8.2 Yumpag Project

SRK's current audit evaluated the quality control of drillholes samples from January 2021 to August 2023 and the results obtained are described throughout this Chapter.

In addition, SRK audited the database and Mineral Resources estimate of the Yumpag Project in 2021 to develop a declaration of Mineral Resources, where it assessed the quality control of the samples analyzed to June 2021. The results obtained are described in the SEC Technical Report Summary Pre-Feasibility Study of the Uchucchacua mining unit (SRK, 2022) and summarized in Table 8-28.

Table 8-28: Summary of Quality Control evaluation results for Ag, Fe, Mn, Pb and Zn from Yumpag Project (Historical Data – June 2021)

Sample type	Laboratory	Evaluation	SRK Comments	Primary samples distribution by laboratory	Primary samples distribution by laboratory (%)
Drillhole	**ALS** (2009-2010, 2012)	Contamination	Quality control evaluation could not be performed because control samples were not inserted.	554	3.6%
		Precision			
		Accuracy			
	ALS (2011, 2014, 2018-2020)	Contamination	There was no evidence of cross- contamination.	8,206	52.8%
		Precision	Coarse duplicates and twin samples results were within acceptable limits.		
		Accuracy	Analytical accuracy for Pb was within acceptable limits. However, analytical accuracy results for Ag and Zn in the MREs "UCH-04" and "UCH-05" were close to acceptable limits in 2018 – 2019 period (80% - 85% of total samples within parameters). Bias results were within acceptable limits in Ag, Pb and Zn.		
	Certimin (2014-2018, 2020-2021)	Contamination	There was no evidence of cross contamination for Ag, Fe, Mn and Pb. Nonetheless, coarse blank results for Zn were not within acceptable limits; this occurred with 2015-2018 samples.	6,779	43.6%
		Precision	Duplicates results for Fe, Mn and Zn were within acceptable limits. However, coarse duplicate results for Ag and Pb were not within acceptable limits.		
		Accuracy	Analytical accuracy was within acceptable limits for Ag, Pb and Zn, except SRM MLL-01 Ag results (17% of total Certimin samples) that were not within acceptable limits.		
				15,539	**100.0%**

Source: (SRK, 2023)

8.2.1 Sample Preparation Methods and Quality Control Measures

Sampling

Sampling is supervised by the Exploration Geologist and is carried out at the core warehouse, located in the mining project.

Drillholes

The core is removed from core barrels at the rig or drilling chamber and placed in plastic core boxes. At the end of each drilling shift, the core boxes are transported to the logging facility where the sample is taken, according to the following procedure:

- The core is cut lengthwise into two halves by a diamond disc core saw, following the cutting line that has been marked by the geologist.
- One half of the core is sampled for chemical analysis and the other half is returned into the box.
- Sampling is carried out at intervals no less than 0.3 m and no more than 1.5 m.
- The sample is labelled using 3 tickets containing the code sample, sample interval and quality control; then they are placed in polyethylene bags and sealed.
- The bagged samples are placed in sacks for their transportation to Certimin laboratory for sample preparation and subsequent chemical analysis.

Bulk Density

Bulk density sampling of drillholes samples is carried out according to the following procedure:

- Representative bulk density samples are selected considering the geology and mineralization of the deposit.
- Samples have a length of 15 cm to 20 cm and are taken at 5 m intervals, regardless of whether the interval represents a mineralized zone.
- The samples are wrapped in plastic film and then tagged.
- A photograph of the sample out of its storage box is taken.
- Later, the sample is sent to the laboratory for bulk density determination.
- Finally, the results obtained are uploaded in the database.

Sample Preparation

The external Certimin laboratory performs the following sample preparation process (Figure 8-2):

- The supervisor receives, orders and checks the samples (quantity, state of bags, codes, etc.) according to the analysis request.
- A batch code is created, and the data described in the service request is entered.
- Samples are weighed and registered in the LIMS (Laboratory Information Management System and/or in a weighing format.

- Samples are dried at a temperature of 100°C +/- 10°C or 60°C +/- 10°C.
- Later, samples have a primary crushing until 90% passing a 1/4" mesh (6.3 mm).
- Next, samples are subjected to secondary crushing until 90% passing the # 10 ASTM mesh (2 mm).
- Then, the samples are split using a riffle splitter to obtain a sample weight of 200 g to 300 g. The rest of the sample is labeled and stored as coarse reject.
- Later, the samples are pulverized until 85%, passing the # 200 Tyler mesh (75 µm).
- Finally, the laboratory reviews the results of the internal quality control in sample preparation and, if the results are satisfactory, the pulps are stored in envelopes for the respective chemical analysis.

In the Certimin laboratory, bulk density determination is also performed; sample preparation includes the following processes:

- Calibration of the electronic balance.
- Recording of the initial weight of the samples.
- Samples are placed in the drying oven at a temperature of 105°C.
- Samples are weighed every 30 minutes until a constant weight is obtained (thus obtaining the drying time).
- Buenaventura uses the paraffin method to determine bulk density.

Chain of Custody

The chain of custody is supervised by the project's geologists and consists of the following procedure:

- The samples are grouped in consecutive order and placed into sacks to be transported to the laboratory.
- The samples are delivered to the external laboratory with a sample submission and chain of custody forms, which are signed by the project's geologists and the person responsible for receiving the samples.
- The results are issued by the laboratory through digital reports and are received by the mining unit's database administrator, who will validate this information before it is uploaded in the database.

8.2.2 Sample Preparation and Analysis Procedures

Samples from the drilling campaigns from 2021 to 2023 were analyzed at the external laboratory Certimin (CER) and at the onsite Uchucchacua internal laboratory (UCH), as summarized in Table 8-29.

Table 8-29: Distribution of Yumpag samples according to laboratory and period

Laboratory	2009 - 2020	2021	2022	2023	Total samples
Certimin	2,998	3,248	5,246	2,044	13,536
ALS	7,724	0	0	0	7,724
Uchucchacua	0	0	398	0	398
Total	**10,722**	**3,248**	**5,644**	**2,044**	**21,658**

Source: (SRK, 2023)

In the 2021 – 2023 period, the samples were generally sent to Certimin laboratory at the main headquarters located in Lima, where sample preparation and chemical analysis took place. This laboratory has obtained NTP-ISO/IEC 17025 accreditation and ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 certifications.

The Certimin and ALS laboratories are external and independent of Compañía de Minas Buenaventura S.A.A.

Sample analysis

The analytical methods and limits of detection from the laboratories for the 2021-2023 period, are shown in Table 8-30.

Table 8-30: Analytical methods and detection limits by laboratory

Laboratory	Method	Element (unit)	Lower limit	Upper limit	Method Description
Certimin	IC-VH-17	Ag (oz/t)	0.00643	3.22	Multi-elemental Determination by ICP-OES, Multi-acid digestion (HF, HClO4, HNO3 and HCl)
		Fe (%)	0.01	50	
		Mn (%)	0.0002	1	
		Pb (%)	0.0002	1	
		Zn (%)	0.00005	1	
	IC-VH-14	Ag (oz/t)	3.22	32.15	Ores: Multi-elemental Determination by ICP-OES, Multi-acid digestion (HF, HClO4, HNO3 and HCl)
		Mn (%)	0.01	60	
		Pb (%)	0.001	20	
		Zn (%)	0.001	30	
	IC-EF-15	Ag (oz/t)	3.22	321.51	Fire Assay, Gravimetric finish
Uchucchacua	AASR-1	Ag (oz/t)	0.02	50	Atomic Absorption Spectroscopy, Aqua regia digestion
		Fe (%)	0.02	60	
		Mn (%)	0.009	60	
		Pb (%)	0.008	60	
		Zn (%)	0.002	60	
	FAG	Ag (oz/t)	50	1,000	Fire Assay, Gravimetric finish

Source: (SRK, 2023)

8.2.3 Quality Control and Quality Assurance (QA/QC) Procedures

Control Sample Insertion Rate

The Quality Control program implemented in the 2021-2023 period for drillhole samples presented an overall insertion rate of 22% and consisted of blanks, duplicates, standard reference materials (SRM) and external control samples. Table 8-31 summarizes the insertion rate of control samples on drillhole samples in 2021-2023 period; and Table 8-32 summarizes the insertion rate according to the type of control sample.

Table 8-31: Control sample insertion rate in drillhole samples

Year	Laboratory	Primary samples	Control samples*							Total control samples	Insertion rate
			Blanks		Duplicates			SRM	External Control		
			BF	BG	DF	DG	GM	STD			
2021	Certimin	3,248		254		148	158	94	156	810	25%
2022	Certimin	5,246		336		252	255	156	166	1,165	22%
	Uchucchacua	398	14	14	10	13	21	27		99	25%
2023	Certimin	2,044	39	39	40	42	38	121		319	16%
	Total	**10,936**	**53**	**643**	**50**	**455**	**472**	**398**	**322**	**2,393**	**22%**

*Control samples: BF=Pulp blanks, BG=Coarse blanks, DF=Pulp duplicates, DG=Coarse duplicates, GM=Twin samples, SRM= Standard Reference Material

Source: (SRK, 2023)

Table 8-32: Control samples insertion rate summary

Samples	Total	Insertion rate
Primary Samples	10,936	
Blank		
Coarse blanks	643	5.9%
Pulp blanks	53	0.5%
Subtotal	**696**	**6.4%**
Duplicate		
Twin samples	472	4.3%
Coarse duplicates	455	4.2%
Pulp duplicates	50	0.5%
Subtotal	**977**	**8.9%**
Standard Reference Material		
MLL-01	121	1.1%
MLL-02	124	1.1%
MLL-03	126	1.2%
UCH-07	10	0.1%
UCH-08	8	0.1%
UCH-09	9	0.1%

Samples	Total	Insertion rate
Subtotal	398	3.6%
External Control Samples		
External Control Samples	322	2.9%
Subtotal	**322**	**2.9%**
Total Control Samples	**2,393**	**21.9%**

Source: (SRK, 2023)

SRK believes that the control sample insertion rate for the period from 2021 - 2023 should improve to align with Buenaventura's Quality Control Protocol (2020) and best practices in the industry; this entails increasing the insertion of pulp blanks, pulp duplicates, low, medium and high-grade standards and external control samples.

Contamination Evaluation

SRK evaluated the Ag, Fe, Mn, Pb and Zn content in the pulp and coarse blanks inserted in diamond drill hole samples. These blank samples were certified by Target Rocks Peru and during 2021 – 2023 period and were analyzed at Certimin laboratory (CER) and at the Uchucchacua internal laboratory (UCH). Table 8-33 presents the insertion of blank samples in 2021 - 2023 campaigns.

Table 8-33: Summary of blank samples inserted in 2021 – 2023 campaigns

Laboratory	Sample type	Blank code	Drill Hole Samples	
			Total	Insertion rate
Target Rocks	Pulp blanks	BLKF-TR-17129	14	0.1%
		TR-22145	39	0.4%
	Coarse blanks	BLKG-TR-17131	14	0.1%
		TR-17130	1	0.0%
		TR-17131	7	0.1%
		TR-18136	538	4.9%
		TR-19138	46	0.4%
		TR-22146	37	0.3%
		Subtotal	**696**	**6.4%**

Source: (SRK, 2023)

When evaluating results, SRK finds that there is no evidence of significant contamination when at least 90% of the samples have a blank control value under three times the practical limit of detection of the element (LPD)[4] for pulp blanks; and in the case of coarse blanks, when the value of the blank does not exceed five times this limit.

4 The LPD is conventionally estimated, through a relative error plot against the average of the original-duplicate value, considering the value under which the relative error of the original-duplicate pairs tends to suffer a sudden increase and/or approaches the value of 100%.

The LPD values defined by SRK for contamination and precision evaluations are summarized in Table 8-34.

Table 8-34: Practical Detection Limits used for Certimin and Uchucchacua laboratories

Laboratory	Element	LPD
Certimin	Ag (oz/t)	0.05
	Fe (%)	0.35
	Mn (%)	0.0005
	Pb (%)	0.0025
	Zn (%)	0.0025
Uchucchacua	Ag (oz/t)	0.06
	Fe (%)	0.05
	Mn (%)	0.04
	Pb (%)	0.03
	Zn (%)	0.03

Source: (SRK, 2023)

The results of the contamination evaluation in drillhole samples are listed in Table 8-35.

Table 8-35: Contamination evaluation results for Yumpag drillhole samples

Laboratory	Control Sample	Element	Samples	Samples within parameters	Samples within parameters (%)
Certimin	Pulp blanks	Ag (oz/t)	39	39	100%
		Fe (%)	39	39	100%
		Mn (%)	39	38	97%
		Pb (%)	39	39	100%
		Zn (%)	39	39	100%
	Coarse blanks	Ag (oz/t)	629	629	100%
		Fe (%)	629	628	100%
		Mn (%)	629	625	99%
		Pb (%)	629	629	100%
		Zn (%)	629	629	100%
Uchucchacua	Pulp blanks	Ag (oz/t)	14	14	100%
		Fe (%)	14	14	100%
		Mn (%)	14	14	100%
		Pb (%)	14	14	100%
		Zn (%)	14	14	100%
	Coarse blanks	Ag (oz/t)	14	14	100%
		Fe (%)	14	14	100%
		Mn (%)	14	14	100%
		Pb (%)	14	14	100%

Laboratory	Control Sample	Element	Samples	Samples within parameters	Samples within parameters (%)
		Zn (%)	14	14	100%

Source: (SRK, 2023)

From these results, SRK considers that there is no evidence of significant contamination in the elements evaluated for drillhole samples.

Precision Evaluation

To evaluate precision, SRK reviewed the results of twin samples, coarse duplicates and pulp duplicates inserted into drillhole samples from 2021 – 2023 period. These samples were analyzed in Certimin laboratory and Uchucchacua internal laboratory.

SRK used the hyperbolic method (Simón, 2004) in its precision analysis to incorporate the effect of distortions generated by low precision levels at values close to the detection limit. This method entails calculating the relative error (RE), which is obtained as the absolute value of the difference between the values of the original sample and the duplicate, divided by the average of the two values.

Each pair of samples is then evaluated using the quadratic equation of a hyperbola:

$$y^2 = m^2x^2 + b^2$$

Where:

- y: Maximum value of the pair of samples (original – duplicate)
- x: Lower value of the pair of samples (original – duplicate)
- m: Constant according to type of duplicate based on ER limit values of 10%, 20% and 30% for pulp and coarse duplicates, and twin samples (or field duplicates), respectively.
- b: Constant according to Practical Limit of Detection (LPD) and type of duplicate (Table 8-36).

The hyperbola hereto defined is considered as the acceptance limit of duplicate pairs. For SRK, at least 90% of the samples must be within acceptable limits.

Table 8-36: Constants used in the hyperbolic method quadratic equation

Duplicate Type	Constant	
	m	b
GM	~1.35	10 x LPD
DG	~1.22	5 x LPD
DF	~1.11	3 x LPD

Source: (SRK, 2023)

Table 8-37 summarize the results of precision evaluation for drillhole samples.

Table 8-37: Duplicates evaluation results for Yumpag drillhole samples

Laboratory	Control sample	Element (unit)	Samples	Samples within parameters	Samples within parameters (%)
Certimin	Pulp duplicates	Ag (oz/t)	40	39	98%
		Fe (%)	40	40	100%
		Mn (%)	40	40	100%
		Pb (%)	40	40	100%
		Zn (%)	40	40	100%
	Coarse duplicates	Ag (oz/t)	442	422	95%
		Fe (%)	442	441	100%
		Mn (%)	442	418	95%
		Pb (%)	442	419	95%
		Zn (%)	442	416	94%
	Twin Samples	Ag (oz/t)	451	434	96%
		Fe (%)	451	451	100%
		Mn (%)	451	431	96%
		Pb (%)	451	434	96%
		Zn (%)	451	428	95%
Uchucchacua	Pulp duplicates	Ag (oz/t)	10	10	100%
		Fe (%)	10	10	100%
		Mn (%)	10	10	100%
		Pb (%)	10	10	100%
		Zn (%)	10	10	100%
	Coarse duplicates	Ag (oz/t)	13	12	92%
		Fe (%)	13	12	92%
		Mn (%)	13	12	92%
		Pb (%)	13	12	92%
		Zn (%)	13	11	85%
	Twin Samples	Ag (oz/t)	21	20	95%
		Fe (%)	21	19	90%
		Mn (%)	21	20	95%
		Pb (%)	21	19	90%
		Zn (%)	21	20	95%

Source: (SRK, 2023)

In Certimin laboratory, the results for pulp duplicates, coarse duplicates, and twin samples for Ag, Fe, Mn, Pb, and Zn were within acceptable limits.

In the case of Uchucchacua internal laboratory, the results for pulp duplicates, coarse duplicates, and twin samples were acceptable for Ag, Fe, Mn, Pb and Zn, except for Zn in coarse duplicates who had an 85% of accepted samples; nonetheless, this could not be considered as a low level of precision as it consisted only in 13 samples and is not sufficiently representative.

In conclusion, SRK found that sampling, sub-sampling and analytical precision were good for Certimin and Uchucchacua laboratories.

Accuracy Evaluation

Standard Reference Materials

The Standard Reference Materials (SRMs) inserted during 2021-2023 drilling campaigns were certified by Target Rocks. Table 8-38 displays a summary of SRM certificate values for Ag, Pb, and Zn.

Table 8-38: Summary of SRM certificates for Ag, Pb and Zn

Laboratory	Insertion year	SRM	Ag (oz/t)		Pb (%)		Zn (%)	
			Best Value	Std. Dev.	Best Value	Std. Dev.	Best Value	Std. Dev.
Target Rocks	2021-2023	MLL-01	4.95	0.06	4.15	0.11	5.22	0.12
		MLL-02	15.95	0.42	8.92	0.195	12.65	0.245
		MLL-03	31.22	0.40	15.31	0.315	10.46	0.22
	2022	UCH-07	4.05	0.13	0.76	0.01	1.38	0.02
		UCH-08	10.32	0.24	0.81	0.01	1.12	0.02
		UCH-09	30.51	0.56	0.88	0.02	1.13	0.01

Source: (SRK, 2023)

To evaluate accuracy, SRK utilizes bias analysis (once outlier values have been excluded) as the main acceptance criterion. The bias must be within acceptable limits as follows:

- Good: |Bias| < 5%
- Questionable: 5% ≤ |Bias| ≤ 10%
- Unacceptable: |Bias| > 10%

In addition, to review the standards results, SRK uses the limit conventionally accepted by the industry, meaning that, all SRMs outside the range of best value (BV) ± 3 standard deviations (SD), as well as contiguous samples between the limits of BV+3SD and BV+2SD, or between BV-3SD and BV-2SD, are considered as falling out of the bounds of acceptable limits. For SRK, 90% of the samples must be within acceptable limits.

Table 8-39 shows a summary of the SRMs results for Ag, Pb and Zn for drillhole samples.

Table 8-39: Summary of SRM results for Yumpag drillhole samples

Laboratory	Element	SRM	Samples	Samples without outliers	Mean	Best Value	Bias (%)	Coefficient of Variation (%)	Samples within parameters	Samples within parameters (%)
Certimin	Ag (ppm)	MLL-01	121	121	5.01	4.95	1.3%	1.6%	116	96%
		MLL-02	124	123	16.10	15.95	0.9%	1.5%	123	100%
		MLL-03	126	125	31.30	31.22	0.3%	0.9%	125	100%
	Pb (%)	MLL-01	121	121	4.16	4.15	0.3%	1.7%	121	100%
		MLL-02	124	123	8.96	8.92	0.4%	1.6%	123	100%
		MLL-03	126	124	15.46	15.31	1.0%	1.1%	124	100%
	Zn (%)	MLL-01	121	120	5.28	5.22	1.1%	1.2%	120	100%
		MLL-02	124	123	12.76	12.65	0.9%	1.7%	123	100%
		MLL-03	126	125	10.62	10.46	1.6%	1.9%	125	100%
Uchucchacua	Ag (ppm)	UCH-07	10	10	4.04	4.05	-0.3%	1.4%	10	100%
		UCH-08	8	8	10.40	10.32	0.8%	2.4%	8	100%
		UCH-09	9	9	30.94	30.51	1.4%	1.5%	9	100%
	Pb (%)	UCH-07	10	10	0.76	0.76	-0.4%	2.4%	9	90%
		UCH-08	8	8	0.82	0.81	1.0%	2.6%	7	88%
		UCH-09	9	9	0.89	0.88	1.6%	2.2%	9	100%
	Zn (%)	UCH-07	10	10	1.41	1.38	2.3%	2.1%	9	90%
		UCH-08	8	8	1.12	1.12	0.0%	1.0%	8	100%
		UCH-09	9	9	1.12	1.13	-0.6%	2.2%	6	67%

Source: (SRK, 2023)

In the case of Certimin laboratory, analytical accuracy for Ag, Pb, and Zn was within acceptable limits. The biases ranged from 0.3% to 1.3%.

For the Uchucchacua internal laboratory, analytical accuracy for Ag, Pb, and Zn was within acceptable limits with biases ranged from -0.6% to 2.3%. In the control charts for Pb (UCH-08) and Zn (UCH-09, the proportion of accepted samples were not within acceptable limits; however, these results are not representative given the limited number of samples.

SRK found that analytical accuracy for Ag, Pb, and Zn in Certimin and Uchucchacua laboratories were within acceptable limits.

External Control Samples

Buenaventura sent 322 external control samples for drillhole samples from 2021-2022 period, which represented a 2.9% insertion rate; this rate should increase according to Buenaventura's Quality Control Protocol (2020) and best practices in the industry. Nonetheless, these external control samples batches included an adequate proportion of control samples (Table 8-40).

The primary laboratory was Certimin and the secondary laboratory was SGS. The analytical methods used the Certimin laboratory are shown in Table 8-30; the methods used by the SGS laboratory are summarized in Table 8-41.

Table 8-40: Controls insertion in Yumpag external control samples batches in 2021-2022 period

Primary laboratory	Secondary laboratory	Year	External control samples	Pulp blanks		SRMs		Total Control Samples
				#	%	#	%	
Certimin	**SGS**	2021	156	7	4.5%	8	5.1%	15
		2022	166	8	4.8%	9	5.4%	17
	Total		322	15	4.7%	17	5.3%	32

Source: (SRK, 2023)

Table 8-41: Analytical methods of SGS secondary laboratory

Laboratory	Method	Element	Lower Limit	Upper limit	Method Description
SGS	ICM40B	Ag (oz/t)	0.001	1.608	ICP-MS Multi-acid digestion (HF, HClO4, HNO3 and HCl)
		Fe (%)	0.01	15	
		Mn (ppm)	5	10,000	
		Pb (ppm)	0.5	10,000	
		Zn (ppm)	1	10,000	
	AAS41B	Ag (oz/t)	0.096	128.603	Atomic Absorption Spectroscopy Multi-acid digestion (HF, HClO4, HNO3 and HCl)
		Mn (%)	0.01	20	
		Pb (%)	0.002	20	
		Zn (%)	0.002	20	

Source: (SRK, 2023)

SRK reviewed the external control samples database and found that some samples lacked an overlimit analysis; these samples were excluded from the assessment of external control samples (see Table 8-42).

Table 8-42: Proportion of samples without overlimit analysis

Laboratory	Element	Upper limit	Samples without overlimit analysis	Samples without overlimit analysis (%)
SGS	Ag (oz/t)	128.603	6	1.9%
	Fe (%)	15	11	3.4%
	Mn (%)	20	139	43.1%

Source: (SRK, 2023)

Subsequently, SRK evaluated the Ag, Pb, Zn, Fe and Mn results by performing a regression analysis using the RMA "Reduced Major Axis" method (Long, 2005). This method facilitates the calculation of a coefficient of determination (R2), which is an indicator of the goodness of fit of the regression between both laboratories (secondary laboratory versus primary laboratory). In addition, the bias of the primary laboratory in relation to the secondary laboratory is determined after removing erratic values (outliers). Table 8-43 summarizes the evaluation results for drillhole samples.

Table 8-43: External control sample evaluation of drillhole samples (2021-2022), utilizing the RMA method (SGS vs Certimin)

Yumpag Project - RMA Parameters - SGS vs. Certimin Drillholes - Total Data								
Element	**R2**	**N (total)**	**Pairs**	**m**	**Error (m)**	**b**	**Error (b)**	**Bias**
Ag (oz/t)	0.992	316	316	0.984	0.005	-0.182	8.392	**1.6%**
Fe (%)	0.989	311	311	0.972	0.006	0.159	0.043	**2.8%**
Mn (%)	0.986	183	183	0.979	0.009	0.270	0.119	**2.1%**
Pb (%)	0.997	322	322	0.918	0.003	0.015	0.017	**8.2%**
Zn (%)	0.996	322	322	0.950	0.003	0.011	0.016	**5.0%**

Yumpag Project - RMA Parameters - SGS vs. Certimin Drillholes - No Outliers									
Element	**R2**	**Accepted**	**Outliers**	**Outliers (%)**	**m**	**Error (m)**	**b**	**Error (b)**	**Bias**
Ag (oz/t)	0.995	313	3	1.0%	0.990	0.004	-0.255	0.217	**1.0%**
Fe (%)	0.992	307	4	1.3%	0.980	0.005	0.142	0.036	**2.0%**
Mn (%)	0.991	177	6	3.4%	0.983	0.007	0.253	0.090	**1.7%**
Pb (%)	0.996	318	4	1.3%	0.971	0.003	-0.013	0.008	**2.9%**
Zn (%)	0.998	319	3	0.9%	0.962	0.003	0.005	0.011	**3.8%**

Source: (SRK, 2023)

The inter-laboratory bias results (SGS versus Certimin) were within acceptable limits for Ag, Fe, Mn, Pb, and Zn when outliers were excluded.

In addition, SRK performed the evaluation for control samples inserted into the external control samples batches:

Contamination evaluation was performed for Ag, Pb, Zn, Fe and Mn according to the criteria explained in item “Contamination Evaluation”. SRK found that there is no evidence of significant contamination in the evaluated element and all results were within acceptable limits (Table 8-44).

Table 8-44: Contamination evaluation results for external control samples from drillholes (2021- 2022)

Control sample	Laboratory	Element	Total Samples	Samples within parameters	Samples within parameters (%)
Pulp blanks	SGS	Ag (ppm)	15	15	100%
		Fe (%)	15	15	100%
		Mn (%)	15	15	100%
		Pb (%)	15	15	100%
		Zn (%)	15	14	93%

Source: (SRK, 2023)

SRK performed the accuracy evaluation for Ag, Pb and Zn according to the criteria explained in item “Accuracy Evaluation”. SRK believes bias results were within acceptable limits (Table 8-45).

Table 8-45: Summary of SRMs results for external control samples from drillholes (2021-2022)

Element	SRM	Samples	Mean	Best Value	Standard deviation	Bias (%)	Coefficient of variation (%)	Samples within parameters	Samples within parameters (%)
Ag (ppm)	MLL-01	5	153.6	154	3.85	-0.3%	2.5%	5	100.0%
	MLL-02	6	513.5	496	4.72	3.5%	0.9%	6	100.0%
	MLL-03	6	1005	971	8.49	3.5%	0.8%	4	66.7%
Pb (%)	MLL-01	5	4.13	4.15	0.02	-0.5%	0.5%	5	100.0%
	MLL-02	6	8.67	8.92	0.09	-2.8%	1.0%	6	100.0%
	MLL-03	6	14.88	15.31	0.32	-2.8%	2.2%	6	100.0%
Zn (%)	MLL-01	5	5.2	5.22	0.09	-0.4%	1.7%	5	100.0%
	MLL-02	6	12.28	12.65	0.12	-2.9%	1.0%	6	100.0%
	MLL-03	6	10.17	10.46	0.1	-2.8%	1.0%	6	100.0%

Source: (SRK, 2023)

In conclusion, SRK believes that inter-laboratory bias results (SGS versus Certimin) were within acceptable limits for Ag, Fe, Mn, Pb, and Zn.

8.2.4 Conclusions

SRK conducted a comprehensive review of available QA/QC data from 2021 – 2023 period and believes that QA/QC protocols are consistent with the practices accepted in the industry. SRK is of the opinion that sample preparation, chemical analysis, quality control, and the security procedures from 2021 – 2023 samples are sufficient to provide reliable data to support the mineral resource estimation and mineral reserve estimation.

SRK finds that the insertion rate for control samples from 2021 - 2023 period should improve to align with Buenaventura's Quality Control Protocol (2020) and best practices in the industry; this entails increasing the insertion of pulp blanks, pulp duplicates, low, medium and high-grade standards and external control samples.

SRK found that there is no evidence of significant contamination for Ag, Fe, Mn, Pb and Zn in drillhole samples.

SRK found that sampling, sub-sampling and analytical precision were good for Certimin and Uchucchacua laboratories.

The bias evaluation results from SRMs showed that analytical accuracy for Ag, Pb, and Zn in Certimin and Uchucchacua were within acceptable limits.

SRK found that inter-laboratory bias results (SGS versus Certimin) were within acceptable limits for Ag, Fe, Mn, Pb, and Zn.

8.2.5 Potential Impacts

SRK believes that the results of quality control evaluation from 2021 – 2023 drilling campaigns do not represent a risk to the mineral resource estimate.

8.2.6 Recommendations

SRK recommends that Buenaventura increase the insertion of pulp blanks, pulp duplicates, standards, and external control samples, as established in its Quality Control Protocol (2020). Sending external control samples to the secondary laboratory must include a review of the granulometry in 10% of the samples, as well as the insertion of pulp blanks and SRMs in said lots.

SRK suggests frequently reviewing the behavior of the quality control results and informing the laboratory about any problems detected to opportunely establish corrective measures.

9 Database verification

9.1 Uchucchacua Mine

SRK reviewed the drillhole and channel samples from the Uchucchacua Mine database provided by Buenaventura, which consisted of CSV files with collar, survey, assay, density, QA/QC, and geology records information (Table 9-1). Buenaventura also provided SRK with certificates of collar and survey measurements, chemical analysis, and control samples (blanks and SRM). The Uchucchacua Mine database has an effective date of July 15th, 2023.

Table 9-1: Summary of files provided by Buenaventura

N	Table	File
1	Collar	UCH_CM_COLLAR_07072023.csv
		UCH_SD_COLLAR_07072023.csv
2	Survey	UCH_CM_SURVEY_07072023.csv
		UCH_SD_SURVEY_07072023.csv
3	Assay + control samples	UCH_CM_ASSAY_CONTROL_07072023.csv
		UCH_SD_ASSAY_CONTROL_07072023.csv
4	External control samples	UCH_CM_CHECK_21072023.csv
		UCH_SD_CHECK_21072023.csv
5	Density	UCH_densidad_18072023.csv
6	Lithology	UCH_Litologia_07072023.csv
7	Alteration	UCH_Alteracion_07072023.csv
8	Mineralization	UCH_Mineralizacion_07072023.csv
9	Structural data	UCH_Estructural_07072023.csv
10	RQD & Recovery	UCH_RQD_07072023.csv
11	Diameter	UCH_Diametro_07072023.csv

Source: (SRK, 2023)

9.1.1 Internal data validation

Buenaventura uses a systematic database management program (acQuire) to ensure data integrity and reduce (Buenaventura internal database software) and GVMapper software; the geologist in charge performs a visual validation prior to data entry. However, Buenaventura has no documentation of the internal database verification procedure. SRK suggests developing a procedure that restricts data entry to permitted codes and identifies inconsistencies or errors, especially in the control sample database.

9.1.2 External data validation

External validations are carried out through audits by independent external consultants. At the end of 2021, SRK developed the report "SEC Technical Report Summary – Uchucchacua" (SRK, 2022), which included a review of the relevant information for resource estimation derived from the collar, surveys, assay, cross-validation, QA/QC, etc. relative to mining channels and diamond drilling campaigns executed to early 2021. SRK utilized data verification routines to validate overlapping intervals; negative intervals; drillholes lacking important information, such as lithology, recovery, density or sampling; detection of intervals that are greater than the total depth of the drillhole; among other factors.

9.1.3 Database verification procedures

The verification of the resource estimation database was carried out considering the following processes:

- Reception of information provided by Buenaventura.
- Organizing information into a database in Microsoft Access.
- Data modeling (assignment of relationships among tables).
- Construction of Samples Tracking table (sample shipments control table for chemical analysis).
- Compilation of laboratory assay reports and link with the samples database.
- Cross-validation between the database and laboratory assay reports, and creation of occurrence tables.
- Report significant findings such as empty records, variations, and inconsistencies or errors.
- Validation of other aspects:
  - Empty Collar coordinates.
  - Collar without deviation measurements.
  - Deviation measurements greater than the total length of the drillhole.
  - The downhole survey data deviates greater than 10 degrees (azimuth and inclination).
  - Overlapping intervals.
  - Negative values.
  - Intervals greater (from the Assay or logging tables) than the total length of the drillhole.
  - Log data that does not extend to the total length of the drillhole.
  - No downhole data.

Uchucchacua Mine Database

The Uchucchacua Mine total database consisted of 192,273 drillhole samples and 213,722 channel samples. Diamond drilling was executed from 1997 to 2023 and consisted of 6,571 drillholes with 966,684 meters of drilling. Table 9-2 and Table 9-3 summarize the drillhole and channel samples database by year. Figure 9-1 and Figure 9-2 show the spatial distribution of diamond drilling and channels by year, respectively.

Table 9-2: Drilling database summary

Year	Drillholes	Length (m)	Samples
1997	44	4,599	453
1998	46	4,240	354
1999	81	11,063	638
2000	137	17,000	2,190
2001	171	18,444	2,292
2002	185	22,649	2,593
2003	232	19,570	2,309
2005	7	390	81
2006	136	17,023	3,033
2007	209	25,701	4,289
2008	369	46,511	6,750
2009	325	47,709	7,292
2010	364	47,014	13,938
2011	360	46,648	12,921
2012	321	51,614	13,673
2013	310	42,977	9,809
2014	287	44,928	7,929
2015	271	42,804	7,030
2016	349	53,395	5,857
2017	470	71,108	9,502
2018	479	95,251	17,787
2019	448	57,404	18,111
2020	228	30,146	8,308
2021	229	37,595	8,054
2022	329	78,731	19,174
2023	184	32,170	7,906
TOTAL	**6,571**	**966,684**	**192,273**

Source: (SRK, 2023)

Table 9-3: Channel database summary

Year	Channels	Length (m)	Samples
1963 - 1999	18,767	25,250	28,708
2000	6,389	8,596	9,579
2001	544	791	823
2002	646	1,290	1,221
2003	543	892	918
2004	623	799	939
2005	307	383	475
2006	1,754	2,787	2,903
2007	2,176	3,855	4,710
2008	4,584	7,784	9,803
2009	4,935	8,648	10,881
2010	6,066	10,640	13,001
2011	4,792	9,074	11,015
2012	4,252	7,243	8,643
2013	5,534	9,665	11,941
2014	3,607	7,063	8,586
2015	4,252	8,512	10,540
2016	7,669	17,549	21,285
2017	7,307	21,553	24,294
2018	5,701	16,893	19,385
2019	1,764	6,153	6,102
2020	539	1,628	1,708
2021	732	2,451	2,452
2022	658	2,595	2,780
2023	222	1,093	1,030
TOTAL	**94,363**	**183,190**	**213,722**

Source: (SRK, 2023)

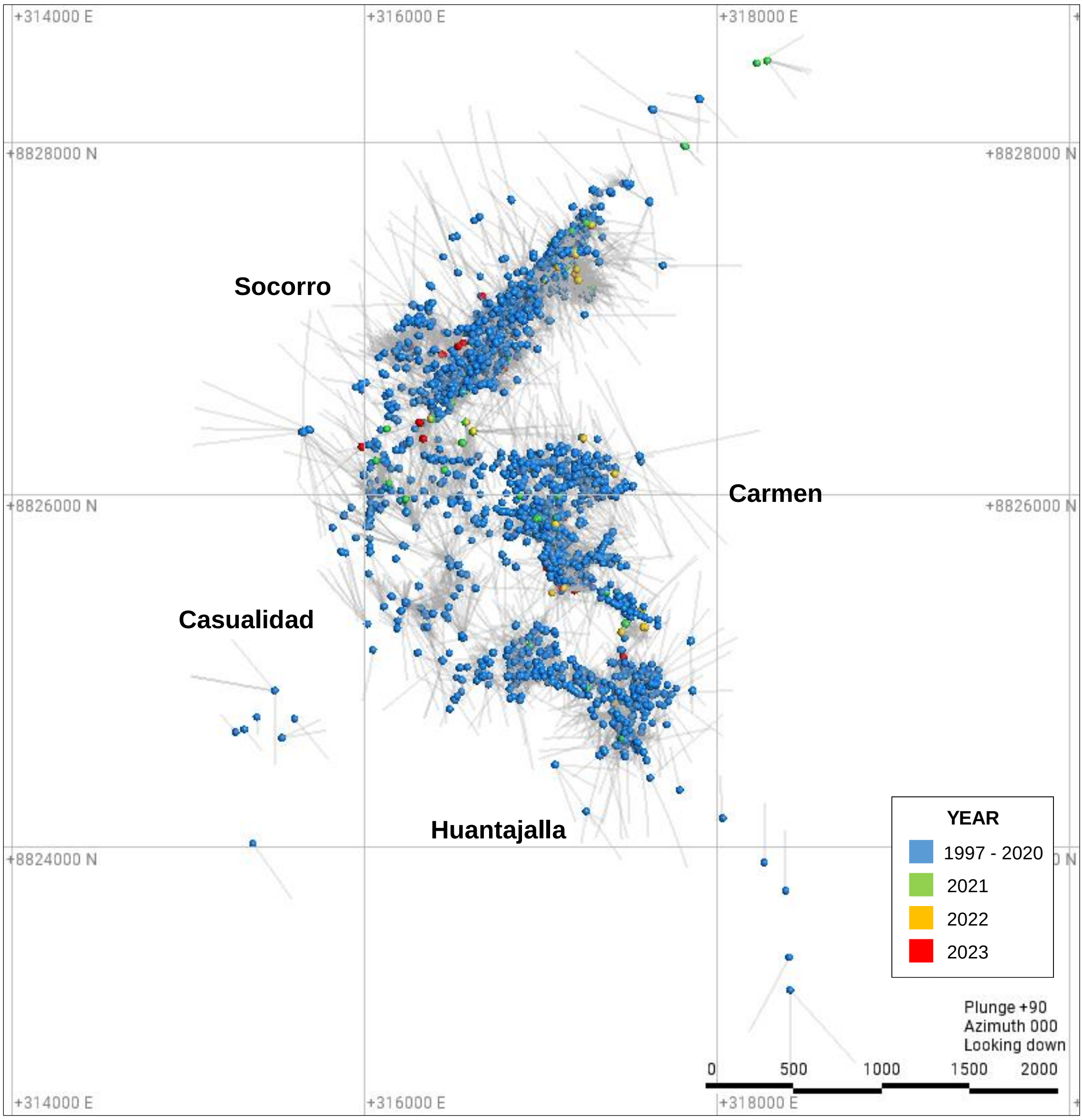


Figure 9-1: Spatial distribution of diamond drilling in Uchucchacua Mine

Source: (SRK, 2023)

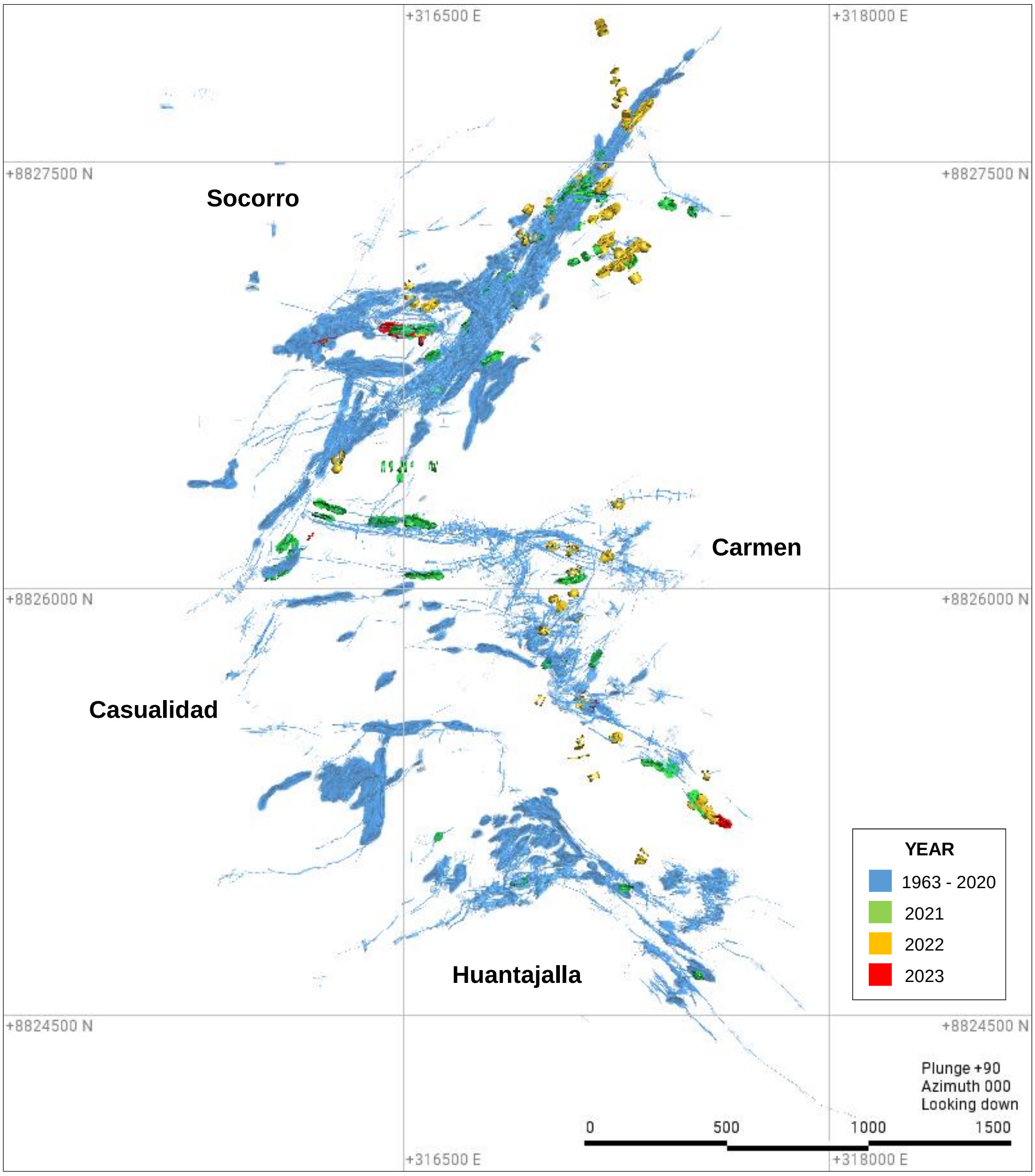


Figure 9-2: Spatial distribution of mining channels in Uchucchacua Mine

Source: (SRK, 2023)

Database verification results

SRK performed the validation of Uchucchacua database. Table 9-4 shows a summary of the occurrences found in the database verification process.

Table 9-4: Database verification summary

Table	Comments
Collar	▪ No problems found. However, SRK recommends that in future audit processes, the info in the collar table include the “Drilling start date” and “Drilling end date” fields.
Survey	▪ 4,404 drillholes (67% of the total) had a single deviation measurement record. This occurs mainly in drillholes drilled until 2021.
Assay	▪ 7 samples had duplicate records in "Sample_Id" field, which correspond to control samples belonging to 2014 – 2015 period. ▪ 8 samples with negative Mn values, and 2 samples with Pb negative values. Both cases correspond to historical data from channel samples. ▪ One drillhole sample (UCSD00077316) had a 1,000% Mn value. ▪ Assay cross-validation of the database against the laboratory certificates presented acceptable results. (See in page 129) ▪ 39,496 drillhole samples are less than 0.3 m length (20.5% of the total) and 2,684 drillhole samples are more than 1.5 m length (1.4% of the total). From these, in 2021 – 2023 period: 1,467 samples are less than 0.3 m length, and 143 samples are longer than 1.5 m. ▪ 6,069 channel samples are less than 0.3 m length (3.5% of the total), and 3,972 channel samples are more than 1.5 m length (1.9% of the total). From these, in 2021 – 2023 period: 79 samples are less than 0.3 m length, and 212 samples are longer than 1.5 m.
Lithology	▪ No problems found.
Alteration	▪ 1,050 records (6.9% of the total) indicate no alterations ("No Alt") in the "TYPE" field; however, they present records of main alteration mineral in the "MINERAL1" field. ▪ 1,392 records (9.1% of the total) indicate having alteration ("Alt") in the "TYPE" field; however, they do not present data on minerals and/or intensities. ▪ 68 records (0.4% of the total) indicate having weak intensity ("Deb") or moderate intensity ("Mod") in the "INTENSITY 1" field; however, they present strong intensity ("Fte") in the "INTENSITY 2" or "INTENSITY 3" fields.
Mineralization	▪ No problems found.
Structural data	▪ No problems found.
RQD & Recovery	▪ 2,225 drillholes do not contain recovery information (33.9% of the total) and belong to the years 1997 to 2020. ▪ 140 drillholes have less than 90% recovery (2.1% of the total), four drillholes belong to 2021 and the others correspond to historical data.
Diameter	▪ No problems found.

Source: (SRK, 2023)

SRK found that the database had only minor findings, which correspond mainly to historical data. SRK believes that drillhole and channel samples database from 2021 – 2023 period are consistent and acceptable for the mineral resource estimate.

Assay cross-validation (Assay table versus laboratory certificates)

SRK cross-validated the Assay table data from the estimation database with the assay certificates from the Uchucchacua (UCH) and Certimin (CER) laboratories. This evaluation was performed only for primary samples from channels and drillholes drilled from January 2021 to July 2023. Samples prior to 2021 were audited and validated by SRK; the results were within acceptable limits and were included in the SEC Technical Report Summary Pre-Feasibility Study of the Uchucchacua mining unit (SRK, 2022).

Table 9-5 and Table 9-6 summarized the cross-validation results for Ag, Pb, Zn, Fe, and Mn by laboratory for drillhole and channel samples, respectively.

Table 9-5: Cross-validation results for drillholes samples

Laboratory	Element	Total data	Data not validated		Inconsistencies	
			N°	(%)	N°	(%)
Uchucchacua	Ag (oz/t)	21,494	1,690	7.9%	0	0.0%
	Pb (%)	21,494	1,690	7.9%	0	0.0%
	Zn (%)	21,494	1,690	7.9%	0	0.0%
	Fe (%)	21,493	1,690	7.9%	1	0.0%
	Mn (%)	21,494	1,690	7.9%	1	0.0%
Certimin	Ag (oz/t)	13,640	0	0.0%	0	0.0%
	Pb (%)	13,640	0	0.0%	0	0.0%
	Zn (%)	13,640	0	0.0%	0	0.0%
	Fe (%)	13,640	0	0.0%	0	0.0%
	Mn (%)	13,640	0	0.0%	1	0.0%

Source: (SRK, 2023)

Table 9-6: Cross-validation results for channel samples

Laboratory	Element	Total data	Data not validated		Inconsistencies	
			N°	(%)	N°	(%)
Uchucchacua	Ag (oz/t)	6,232	567	9.1%	0	0.0%
	Pb (%)	6,232	567	9.1%	0	0.0%
	Zn (%)	6,232	567	9.1%	0	0.0%
	Fe (%)	6,201	567	9.1%	18	0.3%
	Mn (%)	6,219	567	9.1%	0	0.0%
Certimin	Ag (oz/t)	30	0	0.0%	0	0.0%
	Pb (%)	30	0	0.0%	0	0.0%
	Zn (%)	30	0	0.0%	0	0.0%
	Fe (%)	30	0	0.0%	0	0.0%
	Mn (%)	30	0	0.0%	0	0.0%
	As (%)	30	0	0.0%	0	0.0%

Source: (SRK, 2023)

The findings obtained in the cross-validation are detailed below:

- The database had more decimal places than the Uchucchacua internal laboratory certificates. SRK had to standardize the number of decimal places in the database to perform cross-validation.

- Cross validation could not be performed on 1,690 drillhole samples (7.9% of the total) and 567 channel samples (9.1% of the total) because the client did not provide assay certificates for testing done at the Uchucchacua internal laboratory; said samples are from the first half of 2021.
- Fe values from the database do not match the assay certificates for 18 channel samples analyzed at Uchucchacua internal laboratory because null values were registered for these samples in the database.

SRK considers that the database information does not represent a risk in resource estimation and the assay cross-validation results are within acceptable limits.

Bulk Density

The Uchucchacua Mine bulk density database consisted of 974 drillhole samples and 1,544 channels samples (See Table 9-7) which have been analyzed at ALS, Certimin (CER), Plenge (PLE) and SGS laboratories through the Archimedes method. Figure 9-3 shows the spatial distribution of bulk density sampling for drillholes and channels.

Table 9-7: Uchucchacua bulk density samples

Sample type	Laboratory	Bulk density Samples	Bulk density Total samples
Drilling	Certimin	974	974
Channels	SGS	1,090	1,544
	Plenge	235	
	ALS	187	
	Certimin	32	

Source: (SRK, 2023)

In 2021 – 2023 period, only 48% of drillholes had bulk density sampling (See Table 9-8). SRK recommends that in future drilling programs, bulk density sampling be performed for all drillholes and areas that are important for mineral resource estimation.

Table 9-8: Bulk density sampling in drillholes by year

Drilling campaign	Drillholes		
	Bulk density sampling	No bulk density sampling	Total
1997 - 2020	0	5,829	5,829
2021 - 2023	357	385	742
Subtotal	357	6,214	6,571

Source: (SRK, 2023)

SRK found bulk density samples with bulk density measures outside of the commonly acceptable limits (mean +/- 2 * standard deviation) (Table 9-9).

Table 9-9: Bulk density samples not within acceptable limits

Sample Type	Acceptable Limits		Total
	Mean – 2SD*	Mean + 2SD*	
Drillholes	0	58	58
Channels	6	41	47

*SD: Standard deviation

Source: (SRK, 2023)

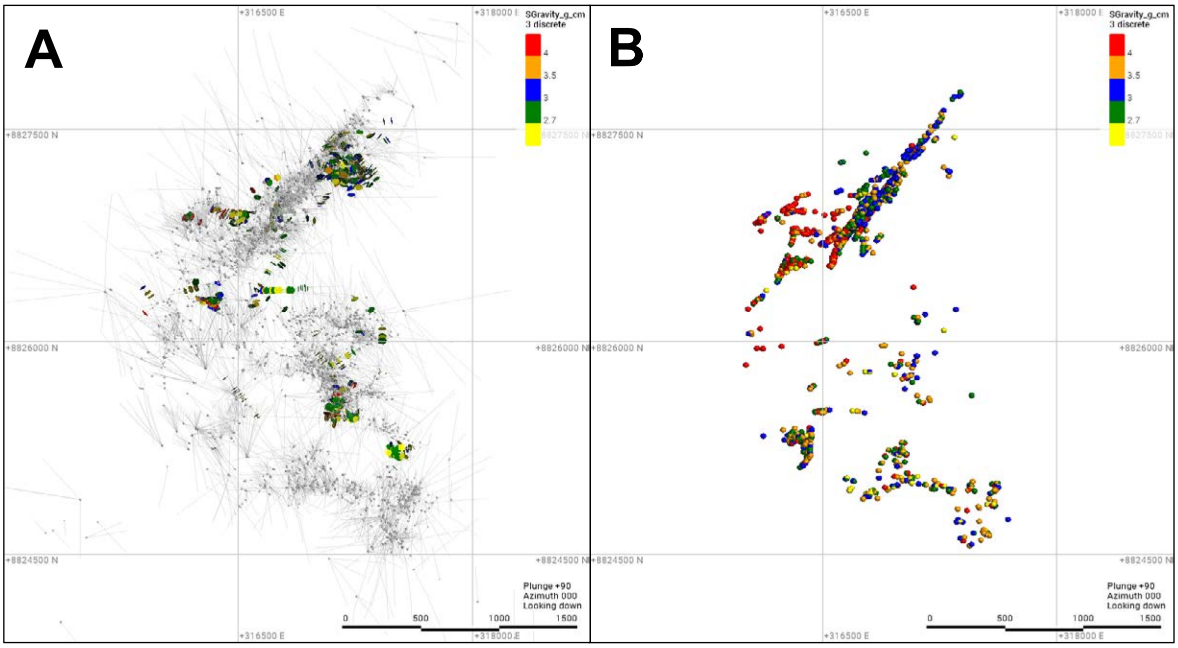


Figure 9-3: Spatial distribution of bulk density samples from drillholes (A) and channels (B)

Source: (SRK, 2023)

9.1.4 Limitations

Cross validation could not be performed on 1,690 drillhole samples (7.9% of the total) and 567 channel samples (9.1% of the total) from Uchucchacua internal laboratory because the client did not provide the corresponding assay certificates.

9.1.5 Opinions and recommendations on data quality

SRK found that the database had only minor findings, which correspond mainly to historical data.

SRK believes that drillhole and channel samples database from 2021 – 2023 period are consistent and acceptable for the mineral resource estimate.

SRK recommends that Buenaventura periodically monitor and/or review drillhole recovery results. SRK considers a recovery percentage greater than 90% acceptable.

SRK recommends that the minimum and maximum drillhole sampling length indicated in the Buenaventura Sampling Protocol (2020) be respected in future drilling campaigns.

SRK recommends that the number of decimal places assigned in the database and those indicated in the laboratories' certificates of analysis coincide (given that this reflects the precision of the methods used by each laboratory).

Finally, SRK suggests frequently reviewing and validating the control sample database and checking that duplicates and external control samples are correctly associated with the corresponding primary samples.

9.2 Yumpag Project

SRK reviewed the Yumpag Project drillhole database, provided by Buenaventura, which consisted in CSV files with collar, survey, assay, density, QA/QC, and geology log information (Table 9-10). Buenaventura also provided SRK with the certificates of collar and survey measurements, chemical analysis, and control samples (blanks and SRM). The Yumpag Project database has an effective date of August 08th, 2023.

Table 9-10: Summary of files provided by Buenaventura

N	Table	File
1	Collar	YUM_Collar_20032023.csv
		YUM_Collar_09082023.csv
2	Survey	YUM_Survey_20032023.csv
		YUM_Survey_09082023.csv
3	Assay	YUM_Assay_20032023.csv
4	Assay + control samples	YUM_Assay_Controles_20032023.csv
		YUM_Assay_Controles_09082023.csv
5	Density	YUM_Densidad_20032023.csv
6	Lithology	YUM_Litologia_20032023.csv
		YUM_litologia_09082023.csv
7	Alteration	YUM_Alteracion_20032023.csv
		YUM_Alteracion_09082023.csv
8	Mineralization	YUM_Mineralizacion_20032023.csv
		YUM_Mineralizacion_09082023.csv
9	Structural data	YUM_Estructural_20032023.csv
		YUM_Estructural_09082023.csv
10	Recovery & RQD	YUM_RQD_23032023_V2.csv
		YUM_RQD_09082023.csv
11	Diameter	YUM_Diametro_13042023_V2.csv
		YUM_diametro_09082023.csv

Source: (SRK, 2023)

9.2.1 Internal data validation

Buenaventura uses a systematic database management program (acQuire) to ensure data integrity and reduce data entry errors through requirements and procedures to properly record data using SIGEO (Buenaventura internal database software) and GVMapper software; the geologist in charge performs a visual validation prior to data entry. However, Buenaventura has no documentation of the internal database verification procedure. SRK suggests developing a procedure that restricts data entry to permitted codes and identifies inconsistencies or errors, especially in the control sample database.

9.2.2 External data validation

External validations are carried out through audits by independent external consultants. At the end of 2021, SRK developed the report "SEC Technical Report Summary – Uchucchacua" (SRK, 2022), which included a review relevant information for resource estimation of the Yumpag Project, derived from collar, survey, assay, cross-validation, QA/QC, etc. relative to diamond drilling campaigns executed to early 2021. SRK utilized data verification routines to validate overlapping intervals; negative intervals; drillholes lacking important information, such as lithology, recovery, density, or sampling; detection of intervals that are greater than the total depth of the drillhole; among other factors.

9.2.3 Database Review Procedures

The verification of the resource estimation database was carried out considering the following processes:

- Reception of information provided by Buenaventura.
- Organizing information into a database in Microsoft Access.
- Data modeling (assignment of relationships among tables).
- Construction of Samples Tracking table (sample shipments control table for chemical analysis).
- Compilation of laboratory assay reports and link with the samples database.
- Cross-validation between the database and laboratory assay reports, and creation of occurrences table.
- Report significant findings such as empty records, variations, and inconsistencies or errors.
- Validation of other aspects:
  - Empty Collar coordinates.
  - Collar without deviation measurements.
  - Deviation measurements greater than the total length of the drillhole.
  - The downhole survey data deviates greater than 10 degrees (azimuth and inclination).
  - Overlapping intervals.
  - Negative values.
  - Intervals greater (from the Assay or logging tables) than the total length of the drillhole.

- Log data that does not extend to the total length of the drillhole.
- No downhole data.

Yumpag Project Estimation Database

Buenaventura applied the filter "VF_HLC_ESTIMACION = 1" in the collar table to obtain the database for mineral resource estimation and the drillholes that belong to Camila and Tomasa zones. The estimation database consists of 281 drillholes, 100,758 meters of drilling, and 21,658 samples.

Table 9-11 summarized the drillhole database by year. Figure 9-4 show the spatial distribution of diamond drilling used for the mineral resource estimation by year.

Table 9-11: Drilling database summary

Year	Drilling	Length (m)	Samples
2009	4	1,393	156
2014	12	4,265	373
2015	21	8,427	1,079
2016	15	6,952	684
2017	8	4,253	512
2018	29	9,359	2,712
2019	69	19,344	4,517
2020	5	2,351	689
2021	35	15,701	3,248
2022	68	25,175	5,644
2023	15	3,548	2,044
Total	**281**	**100,768**	**21,658**

Source: (SRK, 2023)

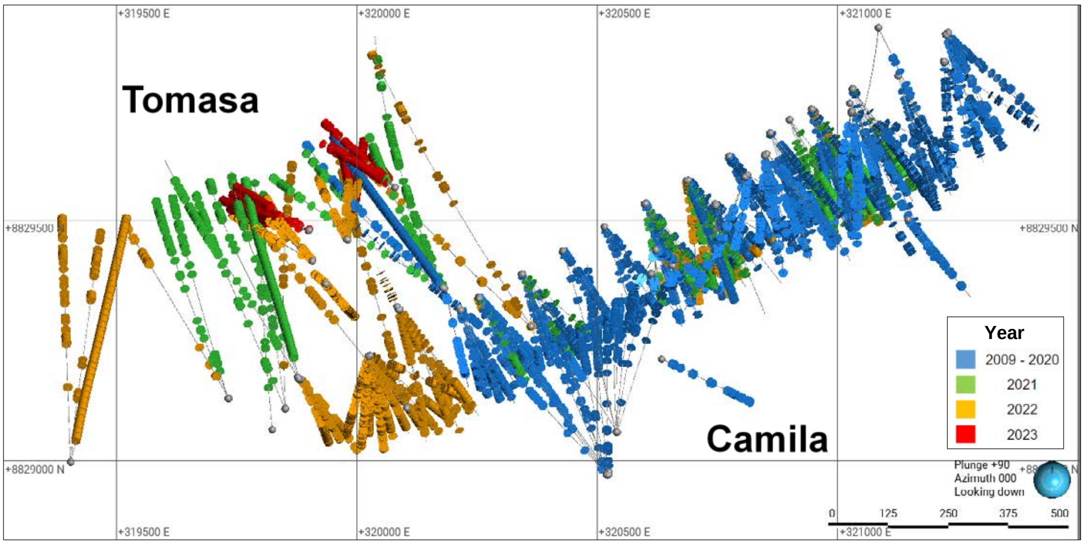


Figure 9-4: Spatial distribution of diamond drilling from Yumpag Project

Source: (SRK, 2023)

Database verification results

SRK performed the validation of Yumpag database. Table 9-12 displays a summary of the occurrences found in the database verification process.

Table 9-12: Yumpag database verification summary

Table	Comments
Collar	▪ No problems found.
Survey	▪ 10 non-vertical drillholes* (3.5% of the total) have a single deviation measurement record; 8 of these drillholes exceed 100 m in length. ▪ YUM22-264 drillhole has an azimuth deviation greater than 10°.
Assay	▪ Assay cross-validation of the database against the laboratory certificates presented acceptable results. (See page 137). ▪ 5,942 samples (27.4% of the total) are less than 0.3 m length. Small sampling lengths generate more errors in analytical results, less continuity in variographic scopes, and more uncertainty in resource estimation. ▪ 2,535 samples (11.7% of the total) are more than 1.5 m length.
Lithology	▪ No problems found.
Alteration	▪ 56 records (1.1% of the total) indicate having weak intensity ("Deb") in the "INTENSITY 1" field; however, they present moderate ("Mod") or strong ("Fte") intensities in the "INTENSITY 2" or "INTENSITY 3" fields.
Mineralization	▪ No problems found.
Structural data	▪ No problems found.
Recovery & RQD	▪ 03 drillholes (1.1% of total) do not contain Recovery & RQD information (YUM14-19, YUM14-20, and YUM14-21) and belong to 2014. ▪ 01 drill hole (YUM22-275) from 2022 had less than 90% recovery.

* A drillhole is considered vertical if its maximum inclination value is less than or equal to -75°.

Source: (SRK, 2023)

SRK found that the database had only a few minor findings that correspond mainly to historical data. SRK considers that drillholes database from 2021 – 2023 period to be consistent and acceptable for the mineral resource estimate.

Assay cross-validation (Assay table versus laboratory certificates)

SRK cross-validated the Assay table data from the estimation database with the assay certificates from the Certimin (CER) and Uchucchacua (UCH) laboratories. This evaluation was performed only for primary samples from drilling campaigns from January 2021 to August 2023. Samples prior to 2021 were audited and validated by SRK, the results were within acceptable limits and are reflected in the SEC Technical Report Summary Pre-Feasibility Study of the Uchucchacua mining unit (SRK, 2022).

Table 9-13 summarized the cross-validation results for Ag, Fe, Mn, Pb and Zn by laboratory.

Table 9-13: Yumpag cross-validation results for drillholes samples

Laboratory	Element	Total data	Data not validated		Inconsistencies	
			N°	(%)	N°	(%)
Uchucchacua	Ag (oz/t)	398	0	0.00%	0	0.00%
	Pb (%)	398	0	0.00%	0	0.00%
	Zn (%)	398	0	0.00%	0	0.00%
	Fe (%)	398	0	0.00%	0	0.00%
	Mn (%)	398	0	0.00%	0	0.00%
Certimin	Ag (oz/t)	10,538	41	0.40%	2	0.00%
	Pb (%)	10,538	41	0.40%	0	0.00%
	Zn (%)	10,538	41	0.40%	0	0.00%
	Fe (%)	10,538	41	0.40%	0	0.00%
	Mn (%)	10,538	41	0.40%	0	0.00%

Source: (SRK, 2023)

The findings obtained in the cross-validation are detailed below:

- The database has more decimal places than those indicated in the laboratory certificates. SRK had to standardize the number of decimal places in the database to perform cross-validation.
- Cross validation could not be performed on 41 drillhole samples from Certimin laboratory because Buenaventura did not provide certificate "MAY0222M01.
- SRK found that all assay cross-validation results were within acceptable limits.

Bulk Density

Yumpag Project bulk density database consisted of 307 bulk density measurements that had been analyzed in Certimin and ALS laboratories through the Archimedes method.

In 2021 – 2023 period, only 15 % of drillholes had bulk density sampling. (See Table 9-14) SRK recommends that in future drilling programs, bulk density sampling be performed in all drillholes and areas that are important for mineral resource estimation.

Table 9-14: Yumpag bulk density sampling in drillholes by year

Drilling campaign	Drilling		
	Bulk density sampling	No bulk density sampling	Total
2009 - 2020	48	115	163
2021 - 2023	18	100	118
Subtotal	**66**	**215**	**281**

Source: (SRK, 2023)

Buenaventura provided bulk density measurement certificates for 91% of the samples. Certificate “AGO0243. R22” from the Certimin laboratory was not provided.

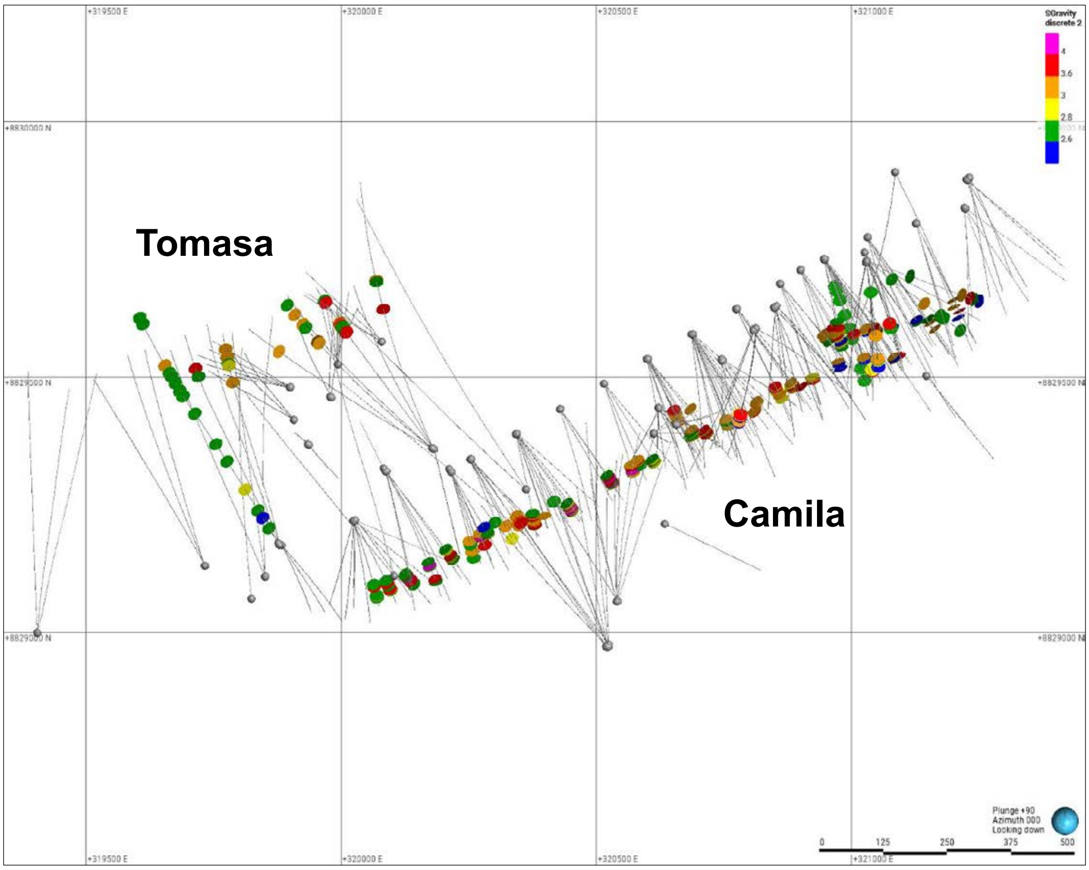


Figure 9-5: Spatial distribution of bulk density samples from drillholes

Source: (SRK,2023)

9.2.4 Limitations

SRK experienced no limitations during the revision of Yumpag Project estimation database.

9.2.5 Opinions and recommendations on data quality

SRK found that the database had only minor findings that correspond mainly to historical data.

SRK considers that drillhole samples database from 2021 – 2023 period to be consistent and acceptable for the mineral resource estimate.

SRK recommends that Buenaventura periodically monitor and/or review drillhole recovery results. SRK considers a recovery percentage greater than 90% acceptable.

SRK recommends that the minimum and maximum drillhole sampling length indicated in the Buenaventura sampling protocol (2020) be respected in future drilling campaigns.

SRK recommends in future drilling programs, bulk density sampling to be performed in all drillholes and areas that are important for mineral resource estimation.

SRK recommends that the number of decimal places assigned in the database and those indicated in the laboratories' certificates of analysis coincide (given that this reflects the precision of the methods used by each laboratory).

Finally, SRK suggests frequently reviewing and validating the control sample database and checking that duplicates and external control samples are correctly associated with the corresponding primary sample.

10 Mineral Processing and Metallurgical Testing

The Uchucchacua site stopped operating in late 2021 due to a combination of technical and social issues, and has restarted operations in September 2023. Consequently, the mineral processing analysis presented in this document reflects operating time from 2017 to 2020 at Uchucchacua's processing facilities. The Río Seco Refinery facilities operated until early 2021 with remaining mineral concentrates stored at Uchucchacua site. The information developed in this chapter is as of July 3, 2023.

Following the operational shutdown in 2021, Buenaventura has been developing drilling and metallurgical testing of two satellite deposits, Camila and Tomasa (Yumpag zone), with the purpose of eventually increase mineral reserves.

Uchucchacua sources its ore from multiple vein systems, namely Carmen, Casualidad, Huantajalla, Cancha Superficie, Socorro Alto, Socorro Bajo. Typically, the mining operation uses dump trucks, and to a lesser degree rail cars, to deliver 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 plant using front-end loaders.

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

Uchucchacua operates a conventional concentration plant that processes polymetallic ores to produce mineral concentrates of varying quality. The 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 Río Seco Refinery, and from Río Seco Refinery to Callao Port.

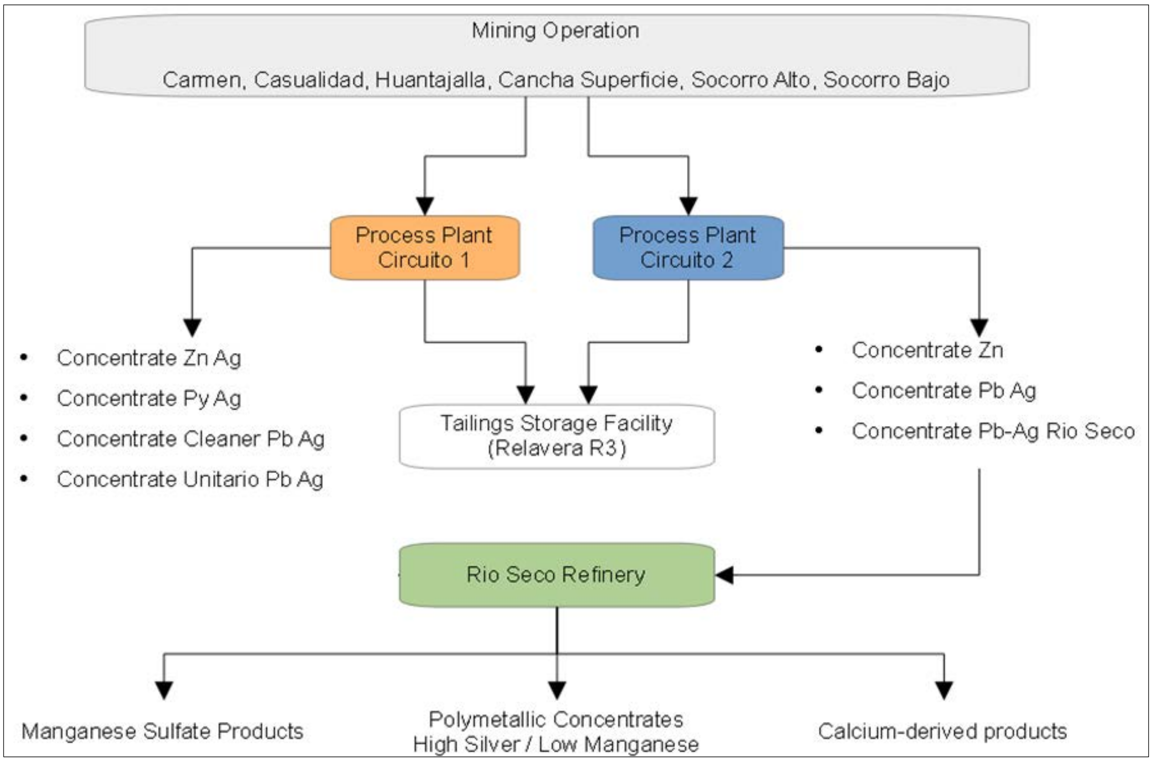


Figure 10-1: Uchucchacua, Simplified Block Flow Diagram

Source: (Buenaventura, 2021)

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.

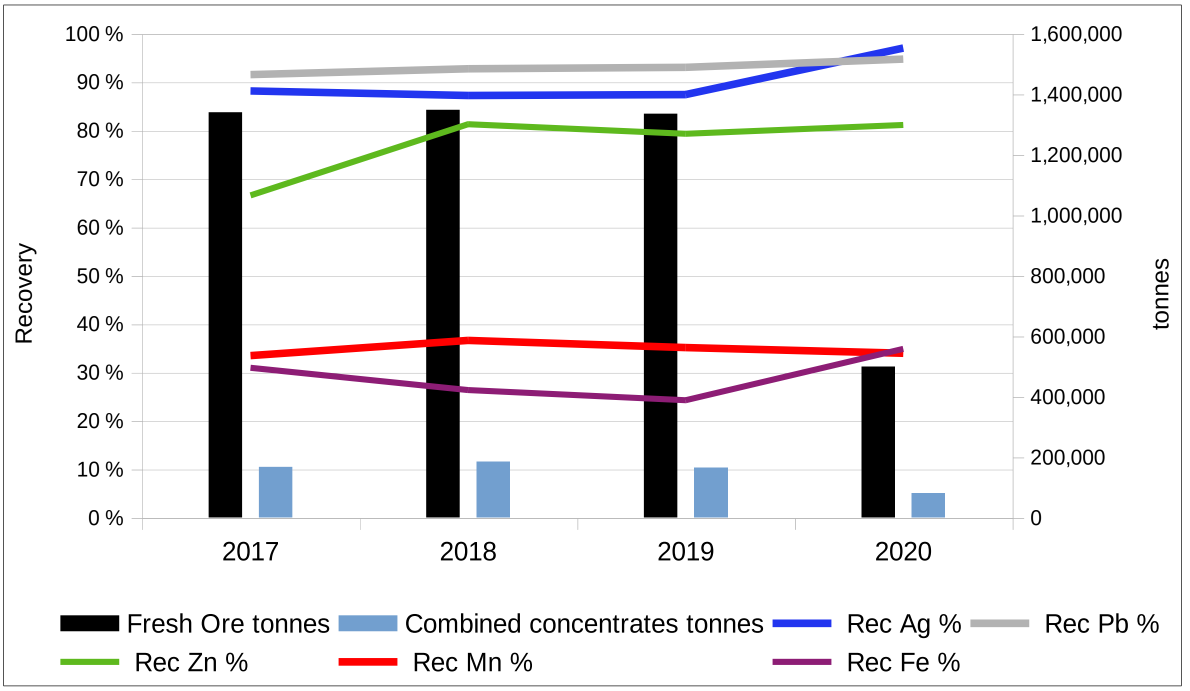


Figure 10-2: Uchucchacua Annual Process Plant Performance

Source: (Buenaventura, 2021)

Table 10-1: Uchucchacua Annual Processing Performance

Stream	Parameter	2017	2018	2019	2020	Total
Fresh Ore	tonnes	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 tonnes	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 %**
	Fe tonnes	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%**

Stream	Parameter	2017	2018	2019	2020	Total
	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 tonnes	16,354	18,829	18,193	4,758	**58,134**
	Zn tonnes	15,857	23,792	23,279	6,249	**69,177**
	Mn tonnes	31,642	30,085	22,354	10,200	**94,281**
	Fe tonnes	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: (Buenaventura, 2021)

10.2 Río Seco Metallurgical Processing Facilities

Río 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. Río Seco's main ancillary facility includes an acid plant to generate sulfuric acid for the leaching stage. See flowsheet in Figure 10-3.

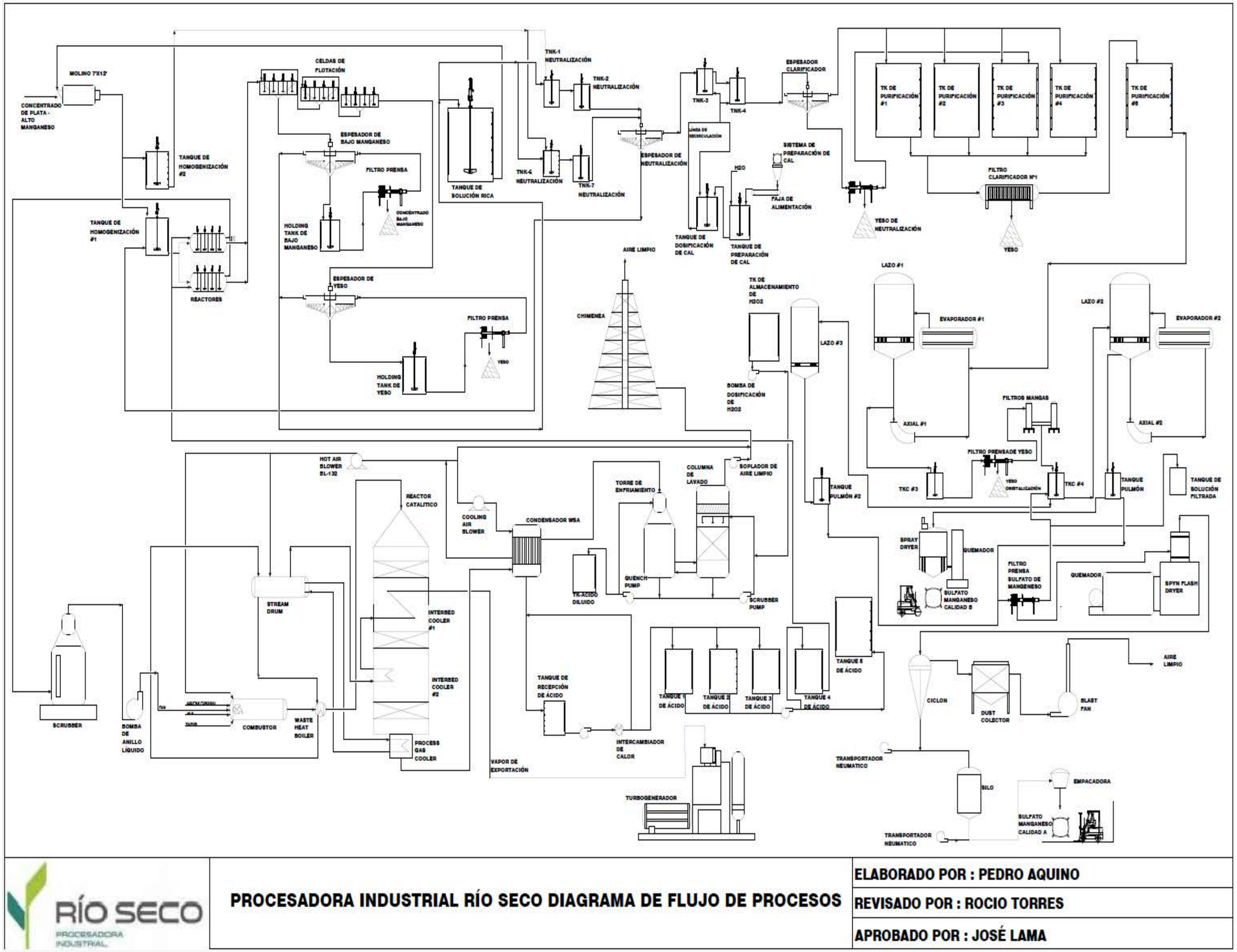


Figure 10-3: Río Seco Flowsheet

Source: (Buenaventura, 2021)

Production figures for Río 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 is consistent with its feed grade. In 2017, grades reached 20.4 Ag x10 oz/tonne and then consistently dropped to approximately 10 Ag x 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: Río Seco Annual Processing Performance

Year	Concentrate, tonnes	Moisture %	Ag (oz/t)	Pb%	Mn%	Fe%	Ca%	As%	Sb%	Zn%
2017	17,778	11.0	204	16.6	6.0					
2018	19,035	11.1	163	22.1	3.2					
2019	12,561	10.9	104	18.2	3.0	20.7	1.7	1.8	0.6	3.7
2020	9,485	10.4	97	12.5	2.8	21.6	2.1	2.1	0.5	4.3
2021	6,290	9.9	109	13.0	1.4	23.9	1.1	2.3	0.7	4.1
Total	**65,148**	**10.8**	**148**	**17.6**	**3.7**	**21.7**	**1.7**	**2.0**	**0.6**	**4.0**

Source: (Buenaventura, 2021)

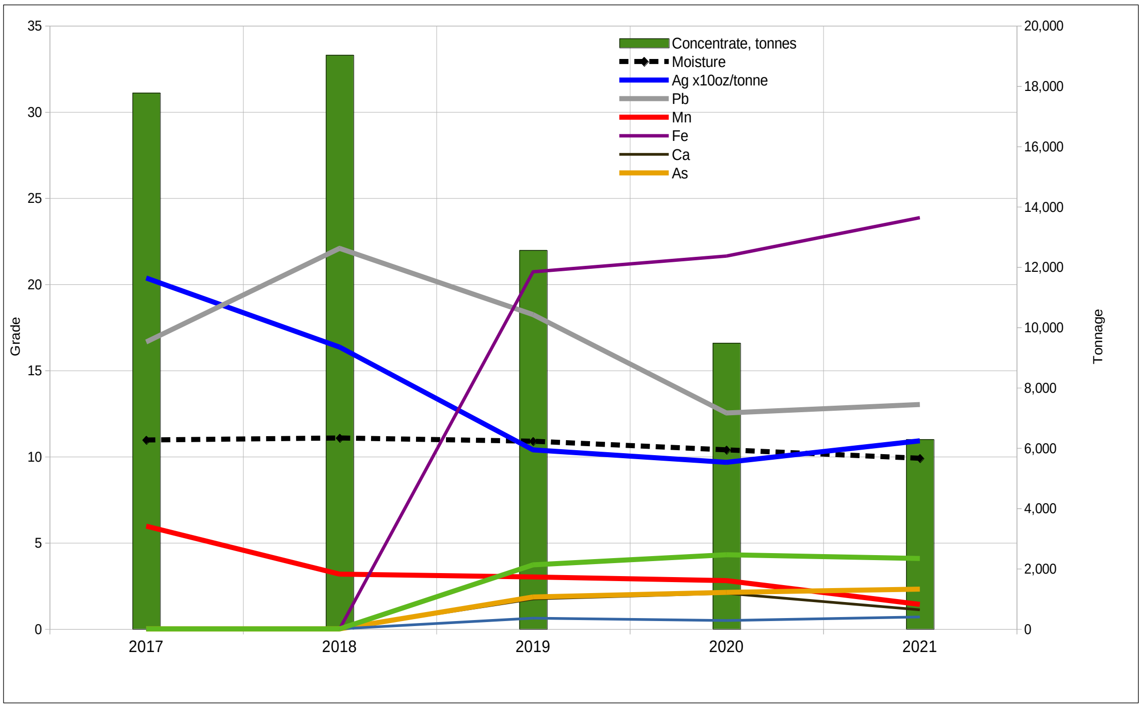


Figure 10-4: Río Seco, Processing Plant Performance

Source: (Buenaventura, 2021)

10.3 Metallurgical Testing

Samples from multiples deposits have been obtained and subject to metallurgical testing as follows:

- Samples from Uchucchacua's current veins systems.
- Samples from the Yumpag deposit showed comparable lithology, mineralogy and metallurgical performance to that historically processed at Uchucchacua.
- Samples from the Tomasa deposit also appeared comparable and showed similar metallurgical performance to those observed from Uchucchacua and Yumpag.

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 10-5 to Figure 10-8 and 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.

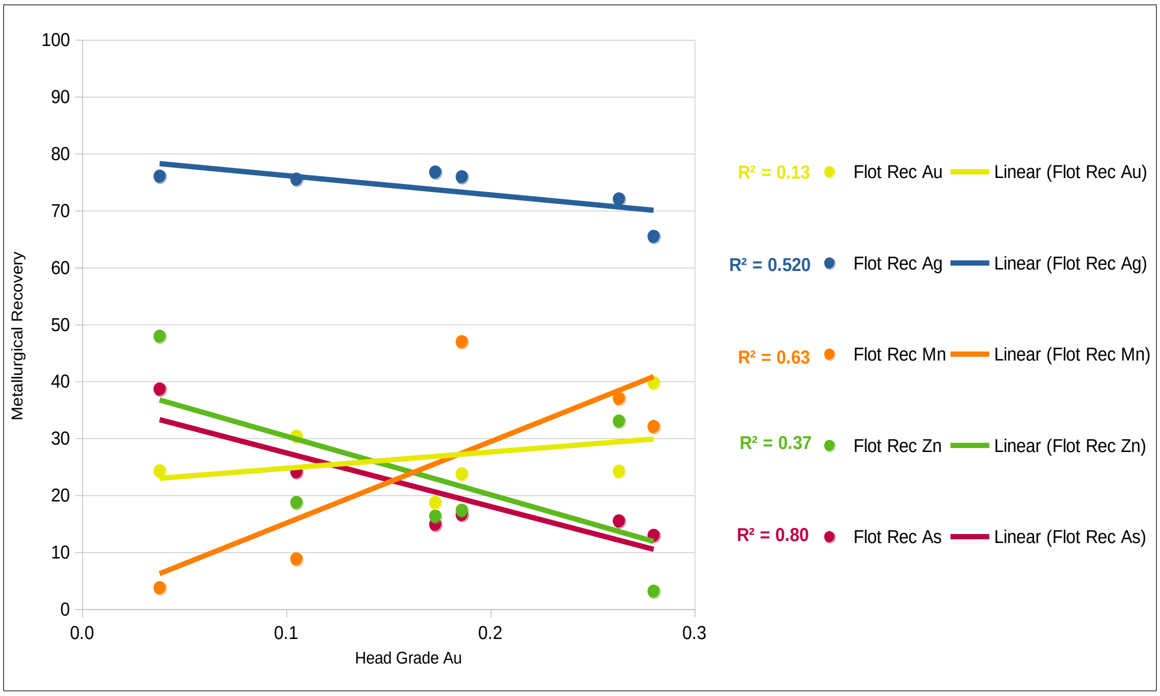


Figure 10-5: Uchucchacua, Metallurgical Testing, Recovery v/s Head Grade Au g/t

Source: (Buenaventura, 2021)

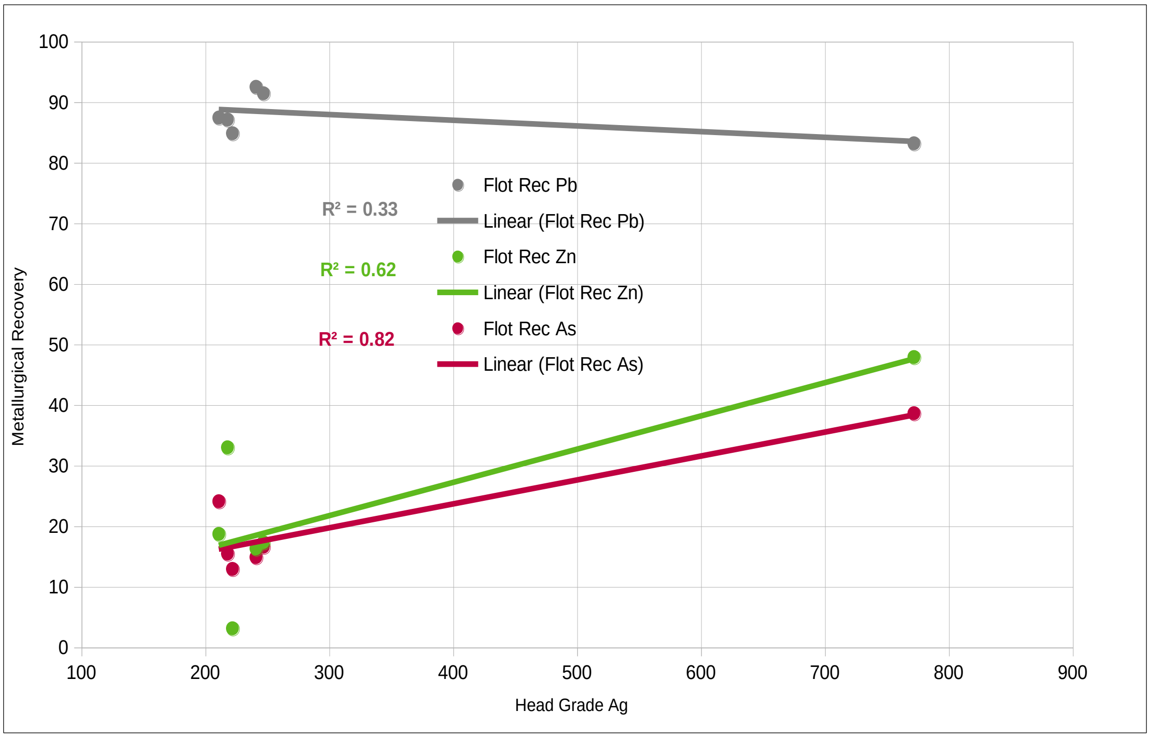


Figure 10-6: Uchucchacua, Metallurgical Testing, Recovery v/s Head Grade Ag g/t

Source: (Buenaventura, 2021)

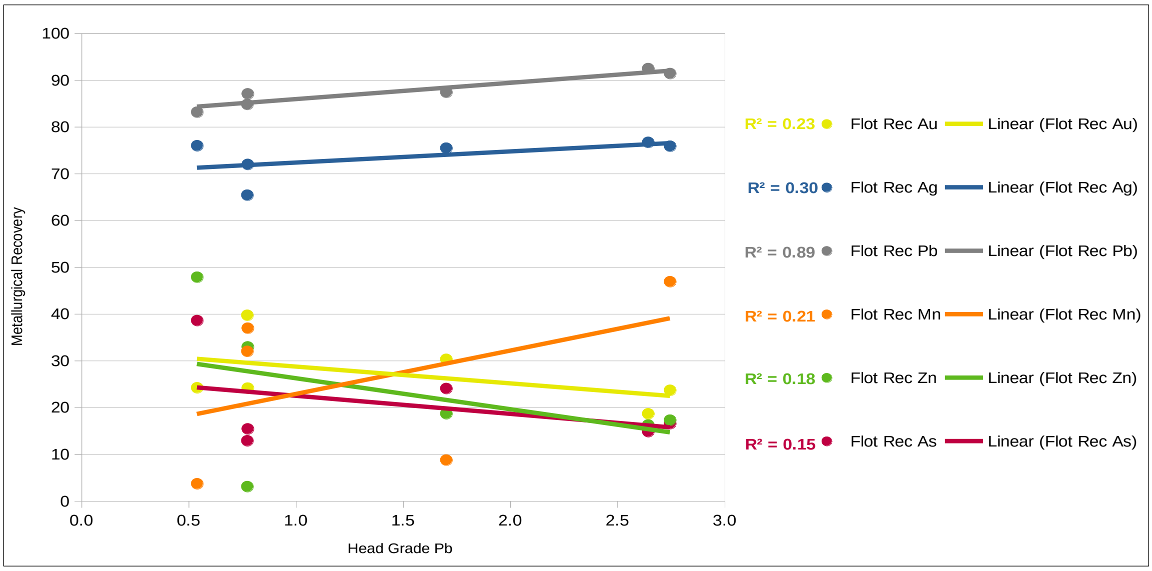


Figure 10-7: Uchucchacua, Metallurgical Testing, Recovery v/s Head Grade Pb%

Source: (Buenaventura, 2021)

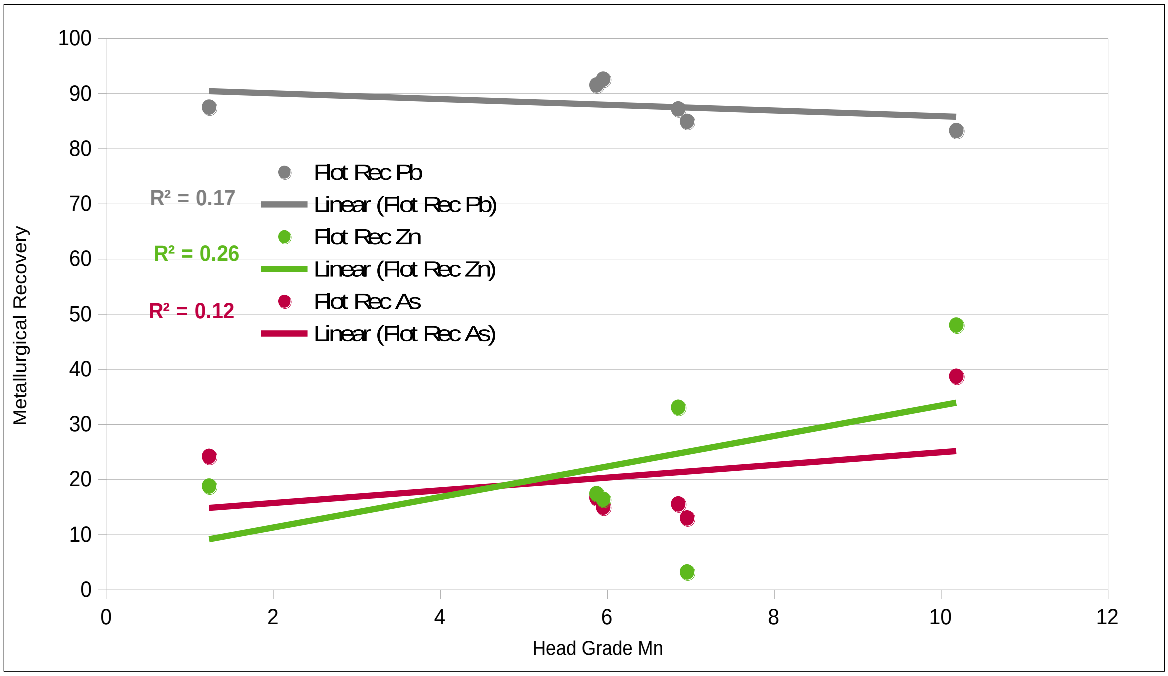


Figure 10-8: Uchucchacua, Metallurgical Testing, Recovery v/s Head Grade Mn g/t

Source: (Buenaventura, 2021)

10.3.2 Metallurgical Testing Yumpag Deposit

In 2021, multiple metallurgical tests were executed on samples obtained from the Yumpag deposit. It is SRK's understanding that mine development works are being executed in the Yumpag zone to prepare for start of operations.

Test results for Yumpag are preliminary, limited in number and scope, and not optimized; nevertheless, available results suggest amenable mineralization for 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 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: (Buenaventura, 2021)

Head grade correlation analysis is presented in Figure 10-9 to Figure 10-15. The correlation coefficients suggest the following:

- 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.

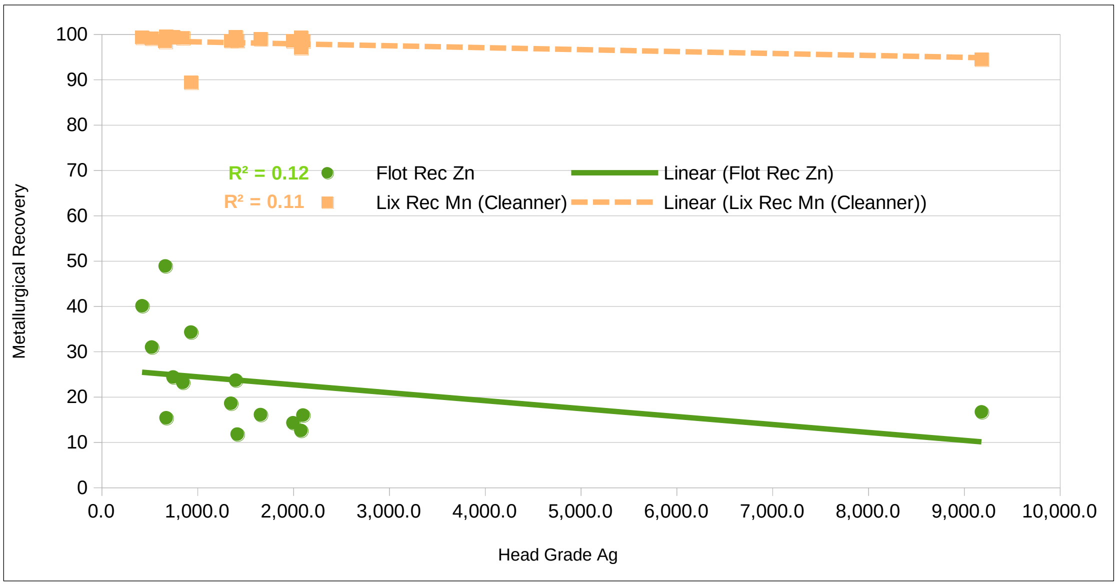


Figure 10-9: Yumpag, Recovery v/s Ore Ag g/t

Source: (Buenaventura, 2021)

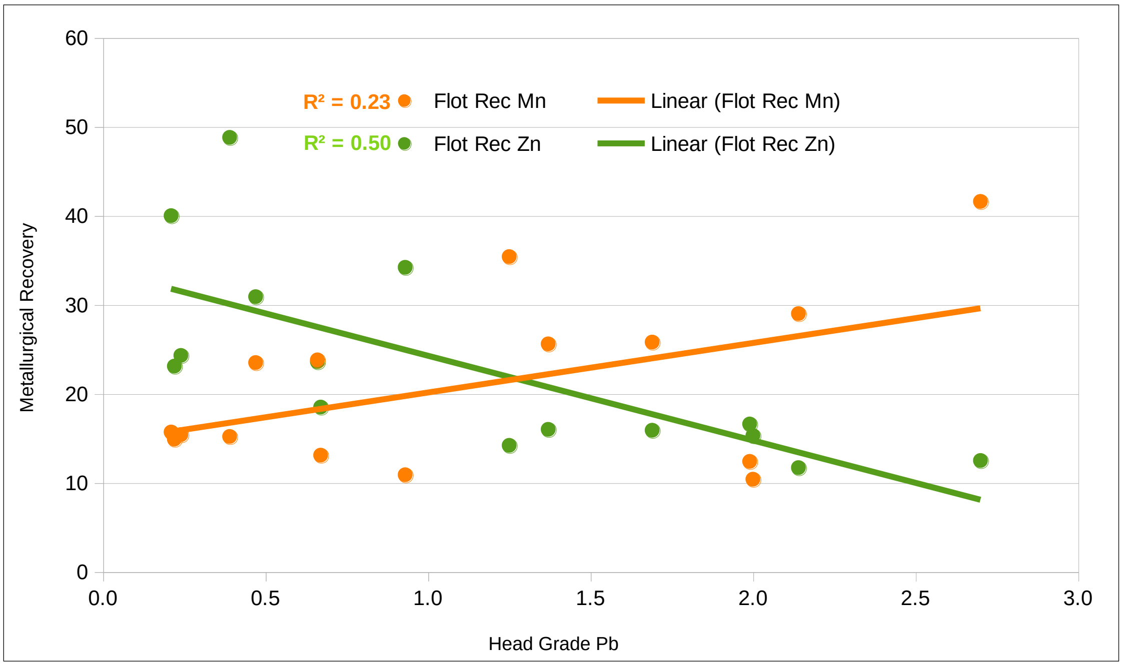


Figure 10-10: Yumpag, Recovery vs Ore Pb%

Source: (Buenaventura, 2021)

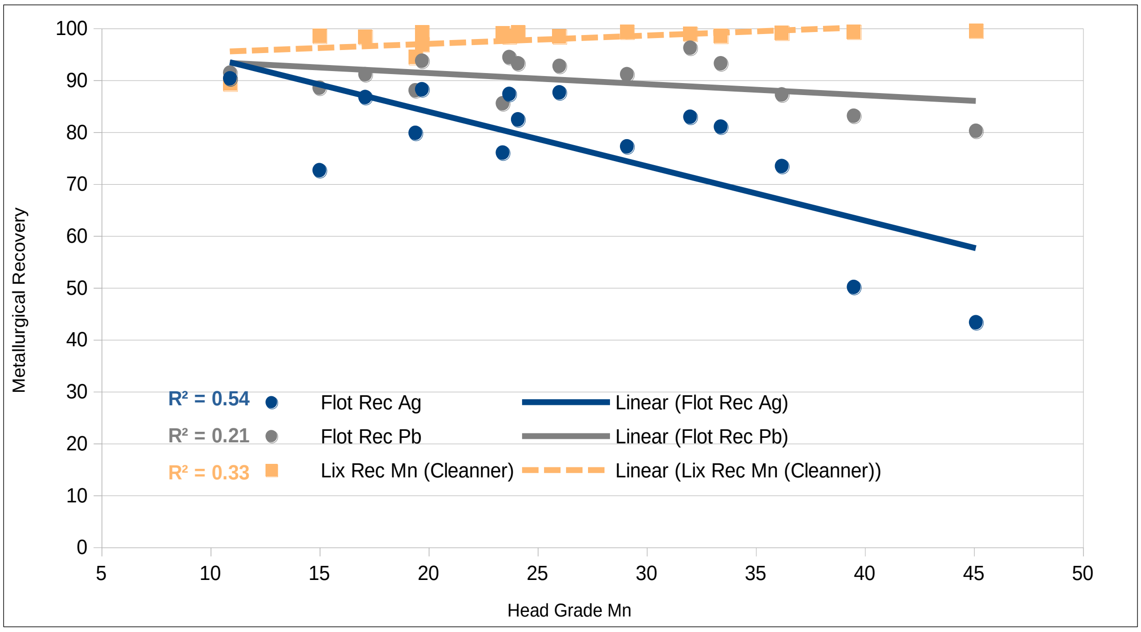


Figure 10-11: Yumpag, Recovery v/s Ore Mn%

Source: (Buenaventura, 2021)

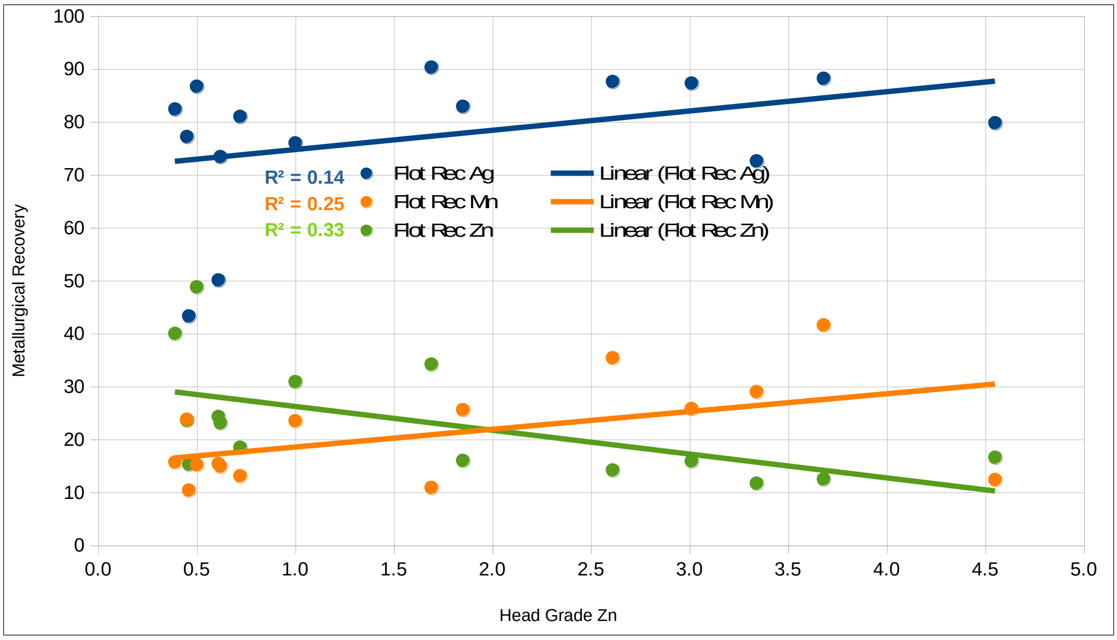


Figure 10-12: Yumpag, Recovery v/s Ore Zn%

Source: (Buenaventura, 2021)

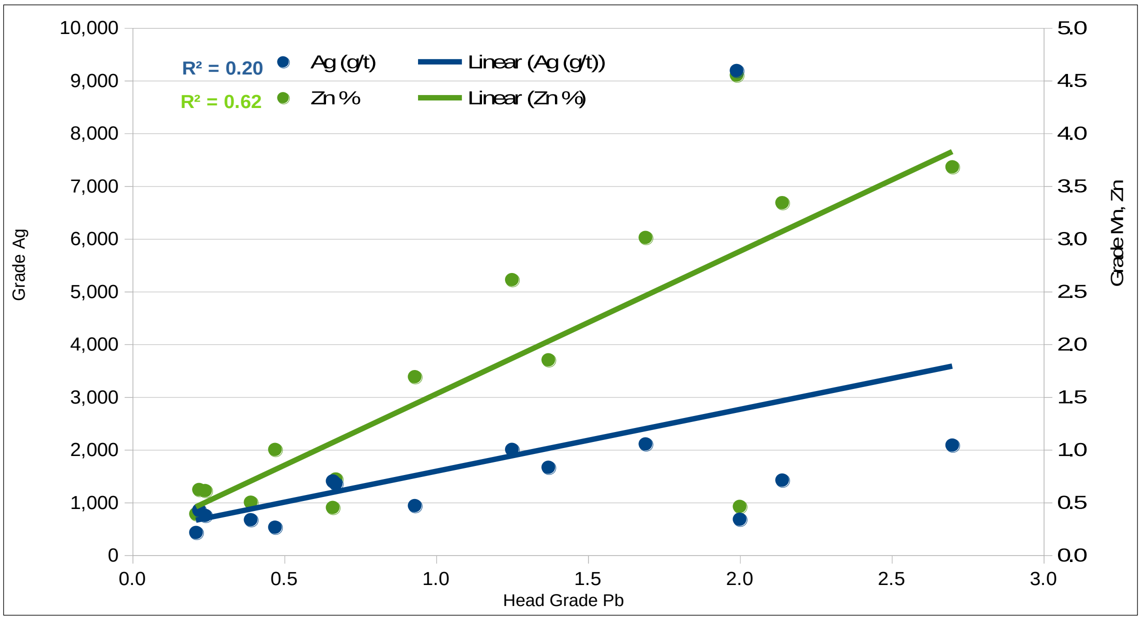


Figure 10-13: Yumpag, Head Grade v/s Ore Pb%

Source: (Buenaventura, 2021)

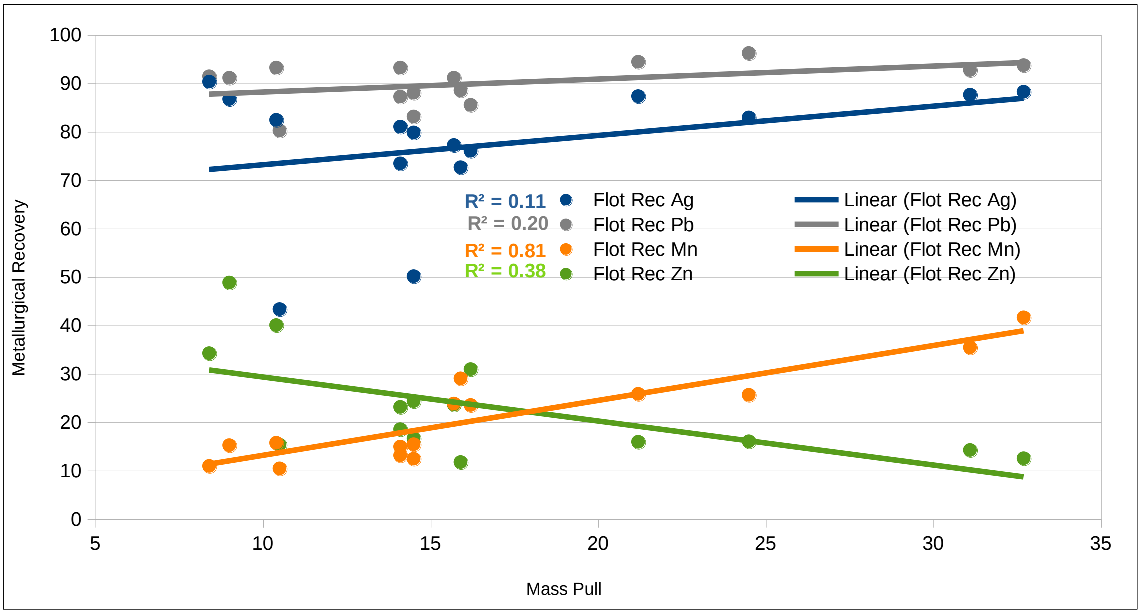


Figure 10-14: Yumpag, Recovery v/s Ore Mass Pull

Source: (Buenaventura, 2021)

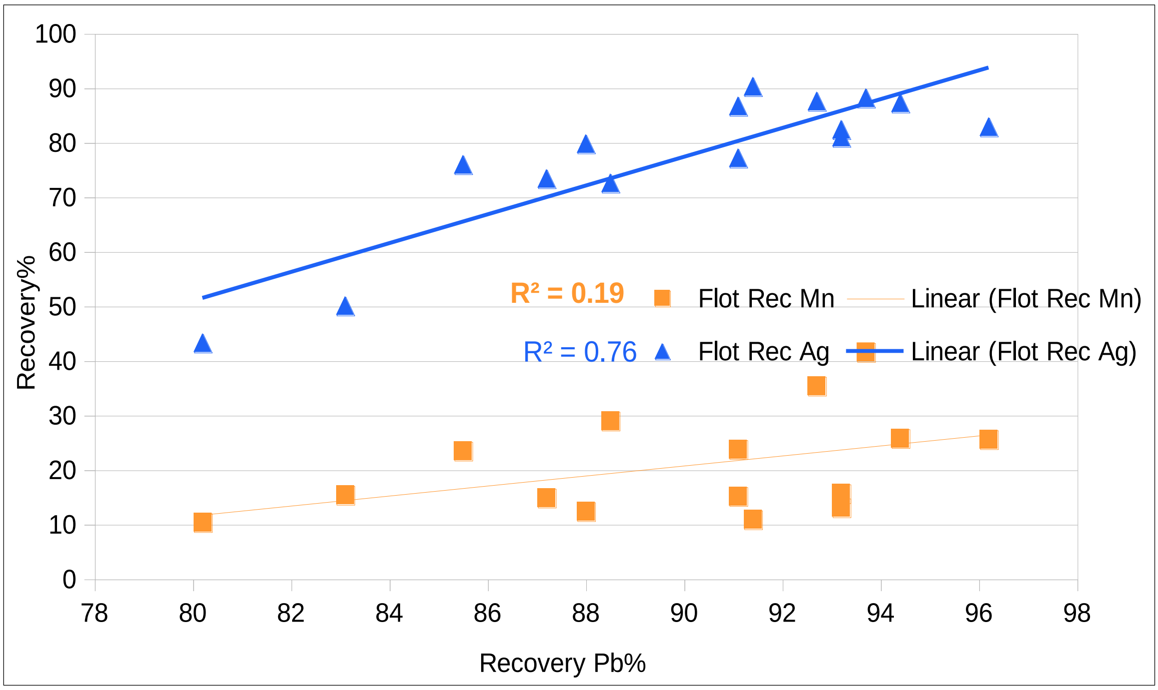


Figure 10-15: Yumpag Testing, Recovery v/s Recovery Pb

Source: (Buenaventura, 2021)

10.3.3 Metallurgical Testing Tomasa Deposit

In 2021, drill holes YUM21-198 and YUM21-199 in the Tomasa deposit were used to produce four (4) composite samples for metallurgical testing. Its results were evaluated along with the geochemistry, geology, mineralogy, and geomechanics information for the Tomasa deposit.

The four metallurgical samples were composited as follows (see Figure 10-16):

- Sample SD528157 obtained from drill hole YUM21-198 in the Bolon 1 area, and
- Samples SD528081, SD528082, and SD528083 obtained from YUM21-199 in the Bolon 2 area.

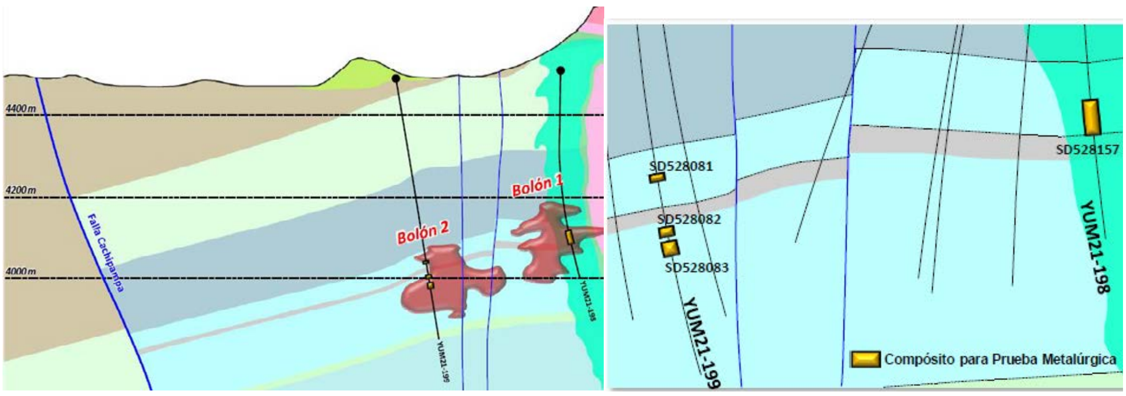


Figure 10-16: Uchucchacua's Tomasa Zone, Metallurgical Composites

Source: (Buenaventura, 2021)

The supplemental information available for Tomasa included:

- The available drill hole database for Tomasa containing a total of 49 drill holes, and 6757 intervals with corresponding chemical assays for: Au, Ag, Al, As, B, Ba, Be, Bi, C, Ca, Cd, Ce, Co, Cr, Cs, Cu, Cu, Cu, Cu, CuSS, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, Lu, Mg, Mn, Mn, Mo, Na, Nb, Ni, P, Pb, PbOx, Rb, Re, S, Sb, Se, Sc, Sn, Sr, Ta, Te, Tb, Th Ti, Tl, U, V, W, Y, Yb, Zn, ZnOx, Zr.
- A geomechanical evaluation of the Camila/Tomasa zone, prepared by DCR Ingenieros S.R. Ltda and dated August 2023.
- The 2022 Uchucchacua District Exploration Report by Buenaventura.
- Revision of Uchucchacua’s Mineralogical Zones by SRK, 2023 September.
- Uchucchacua’s Geology by Buenaventura, 2023 May.
- Drill hole database QA/QC Auditing by SRK, 2023 September.
- Yumpag Project’s Resource Estimation Auditing by SRK, 2023 May.
- Preliminary Metallurgical Testwork Report Results, Report# 18596 dated 2021 January to April by Laboratorio Plenge.

Tomasa drillholes database analysis – grade correlations

The analysis of the available geochemistry for Tomasa’s drill holes led SRK to the following conclusions:

- A positive correlation exists between between Au and Ag grades, see Figure 10-17.
- A positive head grade correlation exists between Ag and Mn, see Figure 10-18.
- A positive head grade correlation exists between Ag and Cu, see Figure 10-19.
- A positive head grade correlation exists between Mn and Cu, see Figure 10-20.
- Silver mineralization occurs simultaneously will all other sulfide minerals, as shown by the correlation between Ag and As+Co+Cu+Fe+Mn+Mo+Ni+Pb+Sn+Zn (see Figure 10-21).

In summary, SRK finds that the geochemistry clearly suggests that all minerals of interest for the purposes of flotation occur simultaneously.

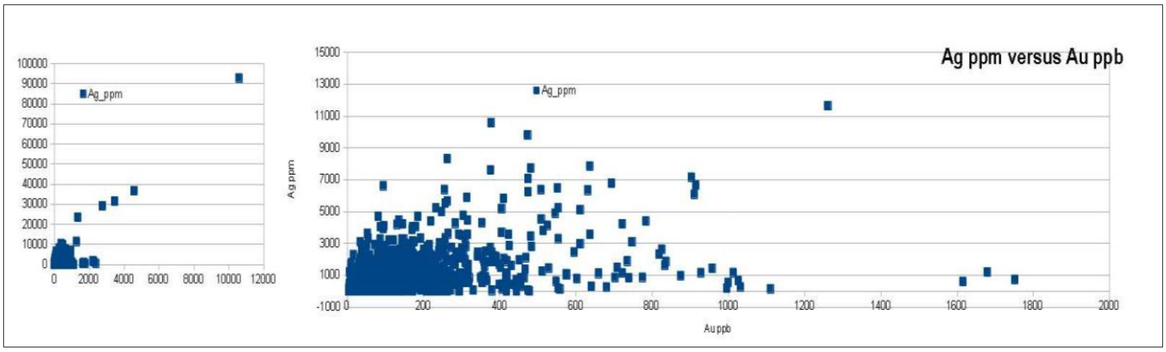


Figure 10-17: Drill holes geochemistry, Grade correlation between Au and Ag

Source: (Buenaventura, 2021)

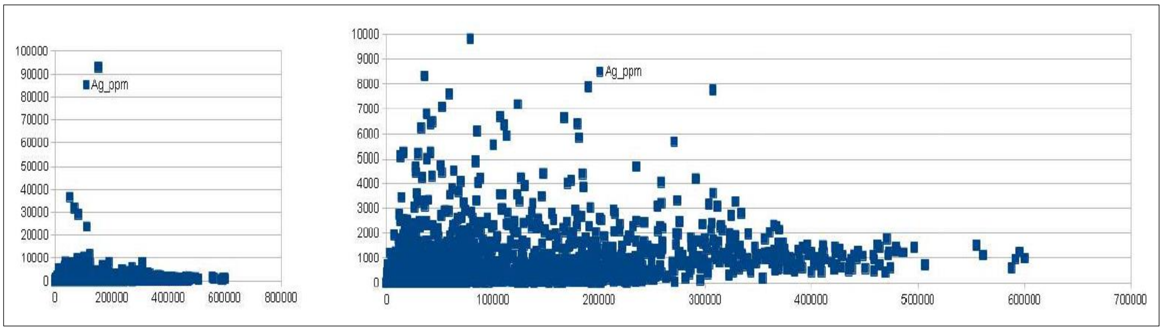


Figure 10-18: Drill holes geochemistry, Grade correlation between Ag and Mn

Source: (Buenaventura, 2021)

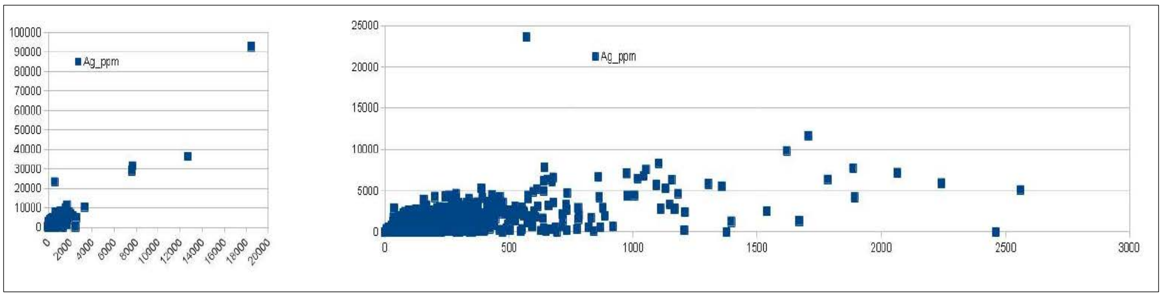


Figure 10-19: Drill holes geochemistry, Grade correlation between Ag and Cu

Source: (Buenaventura, 2021)

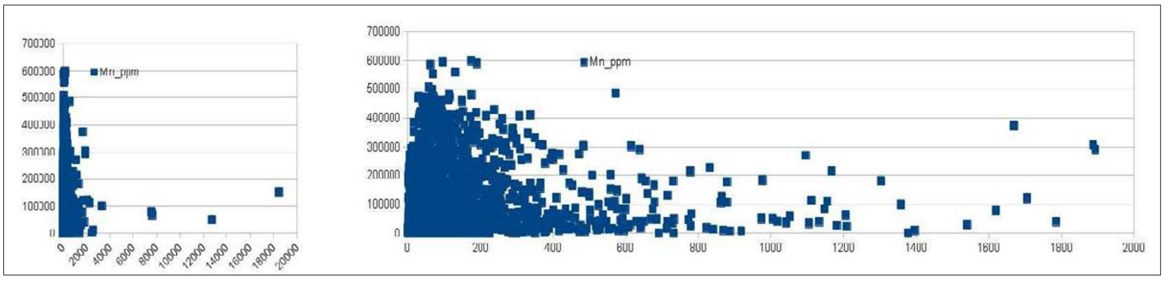


Figure 10-20: Drill holes geochemistry, Grade correlation between Cu and Mn

Source: (Buenaventura, 2021)

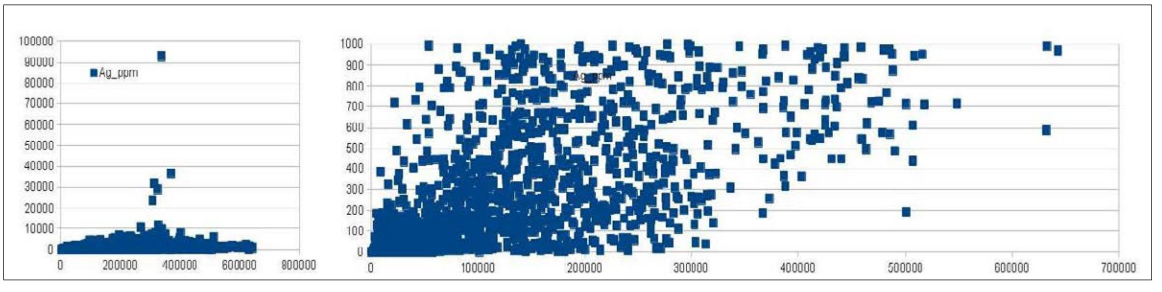


Figure 10-21: Drill hole geochemistry, Grade correlation between Ag and all other Sulfides combined

Source: (Buenaventura, 2021)

Tomasa metallurgical testing results

The metallurgical testing executed by Plenge laboratories included the followings:

- Three (3) samples from Tomasa's Bolon 1, and one (1) samples from Tomasa's Bolon 2.
- Four grinding kinetic tests.
- Five flotations test, 1 kilogram sample each.
- All test executed at P_{80}=43 micrometers.

The comparative analysis of head grade among all four samples can be seen in Figure 10-22, and key observations are as follows:

- All four samples suggest a comparable mineralogy.
- Sample BWSD528081 (YUM21-199, Bolon 1):
  - As is higher when compared to the other three simples.
  - Zn Oxide is higher when compared to the other three samples.
- Cd presents similar concentration in all samples.
- Bi presents similar concentration in all samples.
- Mn is higher for sample BWSD528157 from Bolon 2 in drill hole YUM21-198.

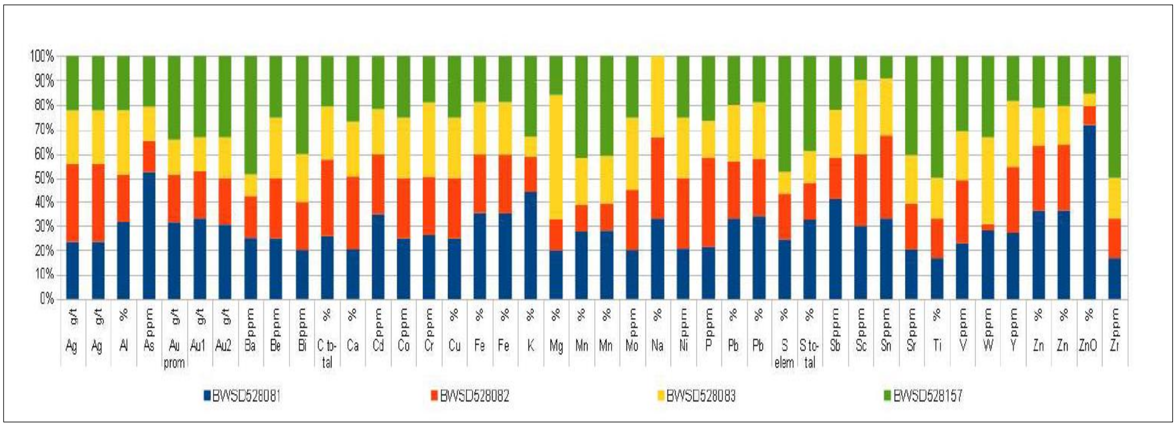


Figure 10-22: Tomasa samples – relative head grade comparison

Source: (Buenaventura, 2021)

Overall, SRK finds that samples from Bolon 1 and Bolon 2 appear comparable.

Flotation testing results are presented in Figure 10-23, Figure 10-24 and Figure 10-25. These preliminary testing results suggest that all samples have the potential to achieve commercial-quality concentrates for either direct sales or after being processed by the Río Seco Refinery. SRK also found that additional sampling, testing, and flotation optimizations are required to further refine future industrial scale processing.

Zona	Estructura	Sondaje	Muestra Id	Sector	Sample kg	Testing started	Cabeza Ag oz/t	Cabeza Ag g/t	Cabeza Mn %	Cabeza Pb %	Cabeza Zn %	Cabeza Fe %	Con Ag- Ag oz/t	Con Ag- Ag g/t	Con Ag-Mn %	Con Ag- Pb %	Con Ag- Zn %	Con Ag- Fe %	Rec Ag %	Re Mn %	Rec Pb %	Rec Zn %	Rec Fe %	Rel Ag oz/t	Rel Ag g/t
Tomasa	Bolon 2	YUM21-199	BWSD528081	Tomasa - Hor izonte Beta	5	04/16/21	30.0	933	18.0	1.0	1.9	8.5	231.2	7,191	28.6	7.9	1.5	14.2	78	18	83	8	18	1.7	53
Tomasa	Bolon 2	YUM21-199	BWSD528082	Almendra - Hor izonte Gasterópodos	10	04/16/21	40.4	1,257	7.2	0.7	1.4	5.8	1,120.6	34,855	1.5	19.5	13.7	18.3	88	1	87	29	10	2.3	72
Tomasa	Bolon 2	YUM21-199	BWSD528083	Coqueta - Hor izonte Gasterópodos	13.8	04/16/21	28.2	877	12.7	0.7	0.8	5.1	837.0	26,034	7.1	21.0	0.7	19.1	80	2	83	2	9	2.4	75
Tomasa	**Bolon 1**	**YUM21-198**	BWSD528157	Tomasa - Hor izonte Beta	122.1	04/21/21	28.0	871	27.0	0.6	1.1	4.5	478.6	14,886	28.3	22.3	0.9	6.2	65	23	93	13	19	2.4	75

Figure 10-23: Tomasa's flotation test results

Source: (Buenaventura, 2021)

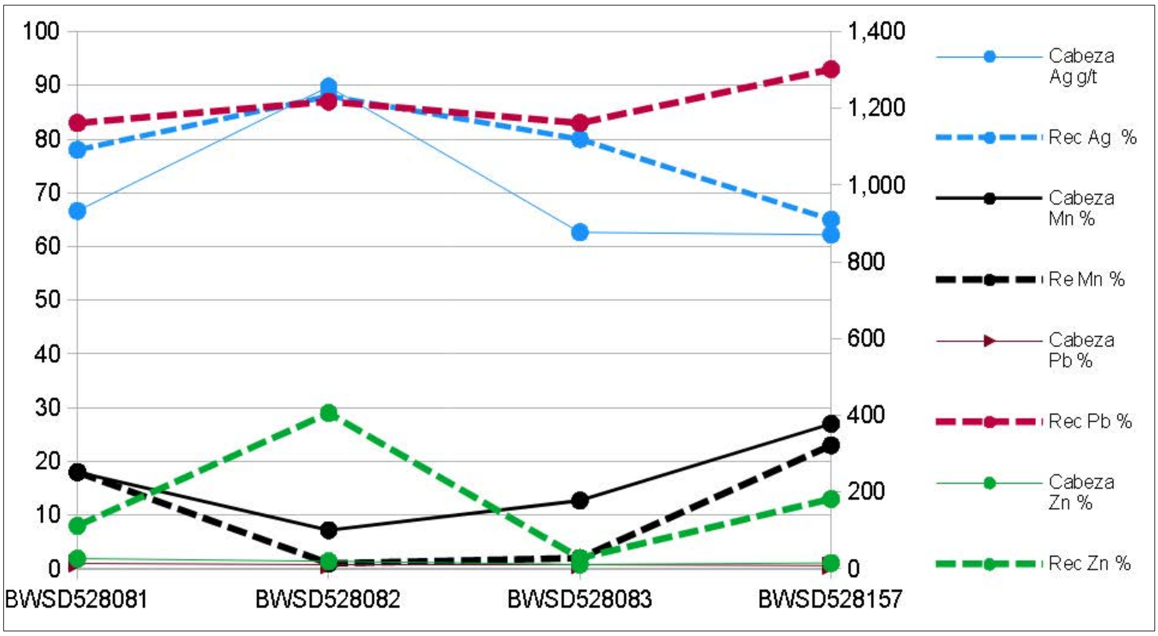


Figure 10-24: Tomasa testing, head grade and flotation recovery

Source: (Buenaventura, 2021)

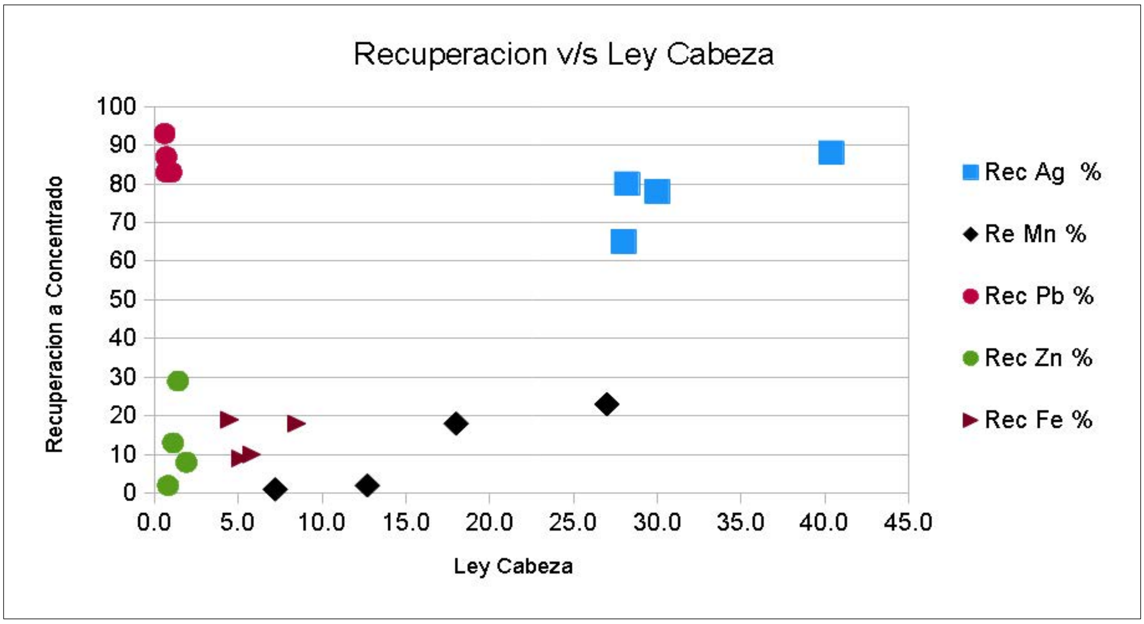


Figure 10-25: Tomasa testing, flotation recovery versus head grade

Source: (Buenaventura, 2021)

Overall, SRK finds that the samples tested suggest that the Tomasa deposit is amenable to flotation processing. The high manganese content in some samples suggests that some of the final concentrates will require further reprocessing at the Río Seco refinery to achieve commercial quality and/or to maximize sale value. Tomasa's testing results are comparable to those found for the Camila structure. Key aspects to consider for the next sampling and testing campaign include:

- Potential higher rock hardness, which if confirmed may impact operating cost.
- The presence of deleterious elements and their deportment to final concentrates.
- Obtain an adequate number of samples representing the deposit's variability (lithology, grade, mineralogy, alteration) to assess the processing capacity and demands at Uchucchacua and Río Seco.

11 Mineral Resource Estimation

11.1 Uchucchacua Unit

11.1.1 Key Assumptions, Parameters, and Methods Used

The 2023 Mineral Resource estimates at the Uchucchacua mine (Carmen, Casualidad, Huantajalla and Socorro zones) were prepared by Buenaventura and reviewed and audited by SRK. The estimation process validated by SRK entailed:

- 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, iron, manganese 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, Fe, Mn, Pb, Zn and sample length, assignment of density values.
- Validation of grade estimates against original data.
- Classification of estimates with respect to the SEC guidelines.
- Assignment of an NSR based on long-term metal prices, metallurgical recoveries, smelter costs, commercial contracts and average concentrate grades.
- Depletion of blocks identified as mined or inaccessible.
- Report of mineral resources based on NSR cut-off grades.

Buenaventura calculated NSR values for four separate zones of Uchucchacua (Carmen, Casualidad, Huantajalla and Socorro) based on a review of the estimation results, updated metal prices, recoveries, and costs. SRK subsequently validated this information.

Geological Model

The Uchucchacua deposit is a polymetallic deposit that is situated in carbonate rocks of the Upper Cretaceous, which are related to Miocene intrusions in the Andes of Central Peru. According to Maurice Romaní (1982), the deposit underwent two stages of mineralization. The first stage was linked to the dacite intrusion of the Casualidad mine of 25.3 My with poorly developed Pb-Zn mineralization. The second stage of mineralization was associated with Ag-Mn-(Pb-Zn) mineralization, which was related to the magmatism of 10 My and consistent with the formation of different deposits of central Peru.

Uchucchacua deposit comprises three types of mineralization, i.e., 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, contact metasomatism resulting in endoskarn and exoskarn, which are mineralized predominantly with Chalcopyrite and Galena.

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

The geological modeling conditions at Uchucchacua are well-established, an underground work has identified sharp contacts between mineralized vein structures and host rock in all veins. The domain boundaries were treated as hard boundaries, and coded samples within a vein were used to estimate blocks within that vein to ensure that host rock information is not included in samples extracted from veins.

The wireframes of mineralized structures were constructed by the Uchucchacua mine geology department with information from mine workings mapping, drillhole sections obtained from logging, and other geological controls. The model was built using Leapfrog implicit modeling tools. The modeling baseline database considered the chemical analyses (assays) of mine channels and diamond drill holes. The existing model only considers mineralized structures and geological models (lithology, alteration, and structural) are currently being developed.

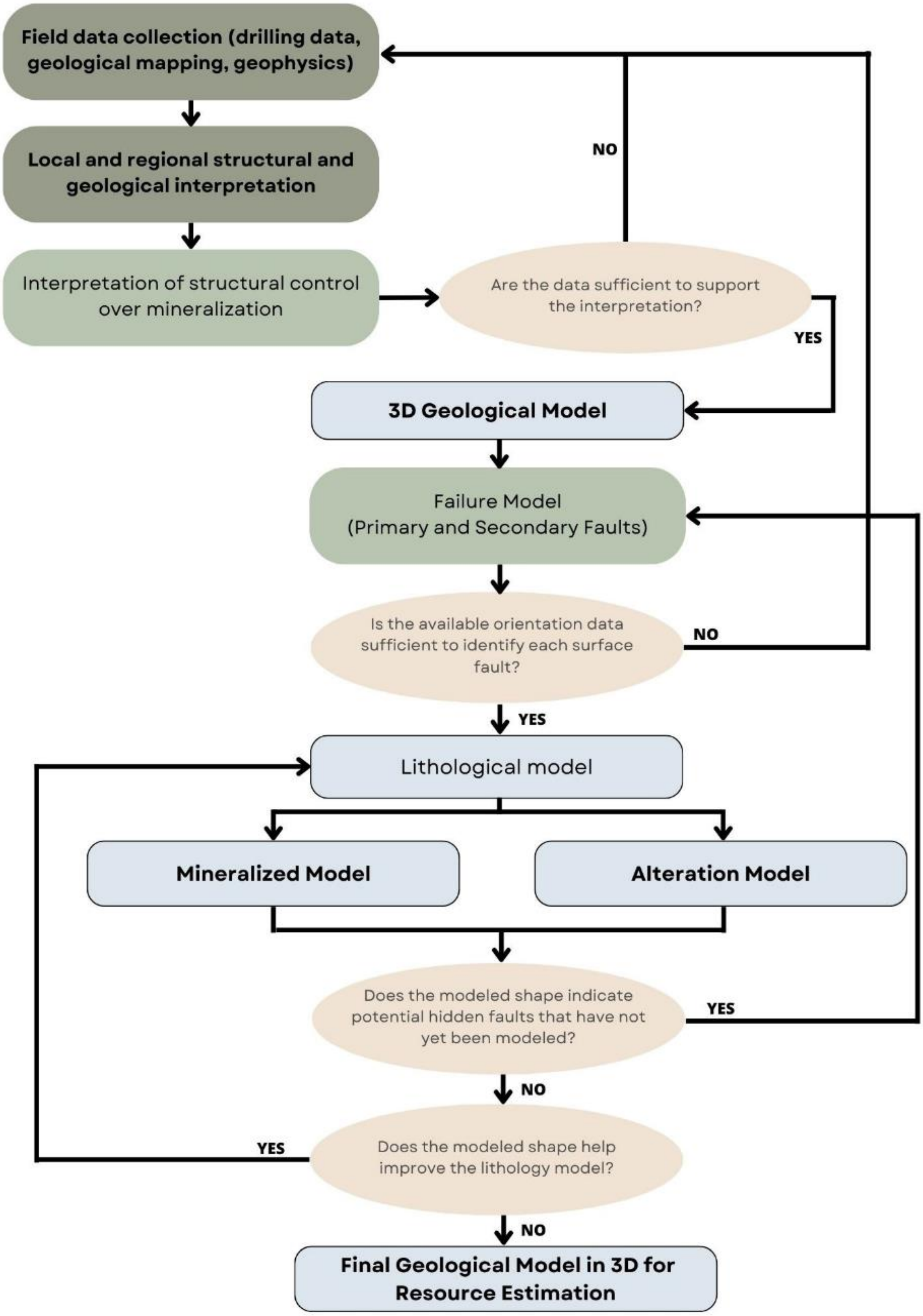


Figure 11-1: Implicit Modeling Flowchart

Source: (Buenaventura, 2023)

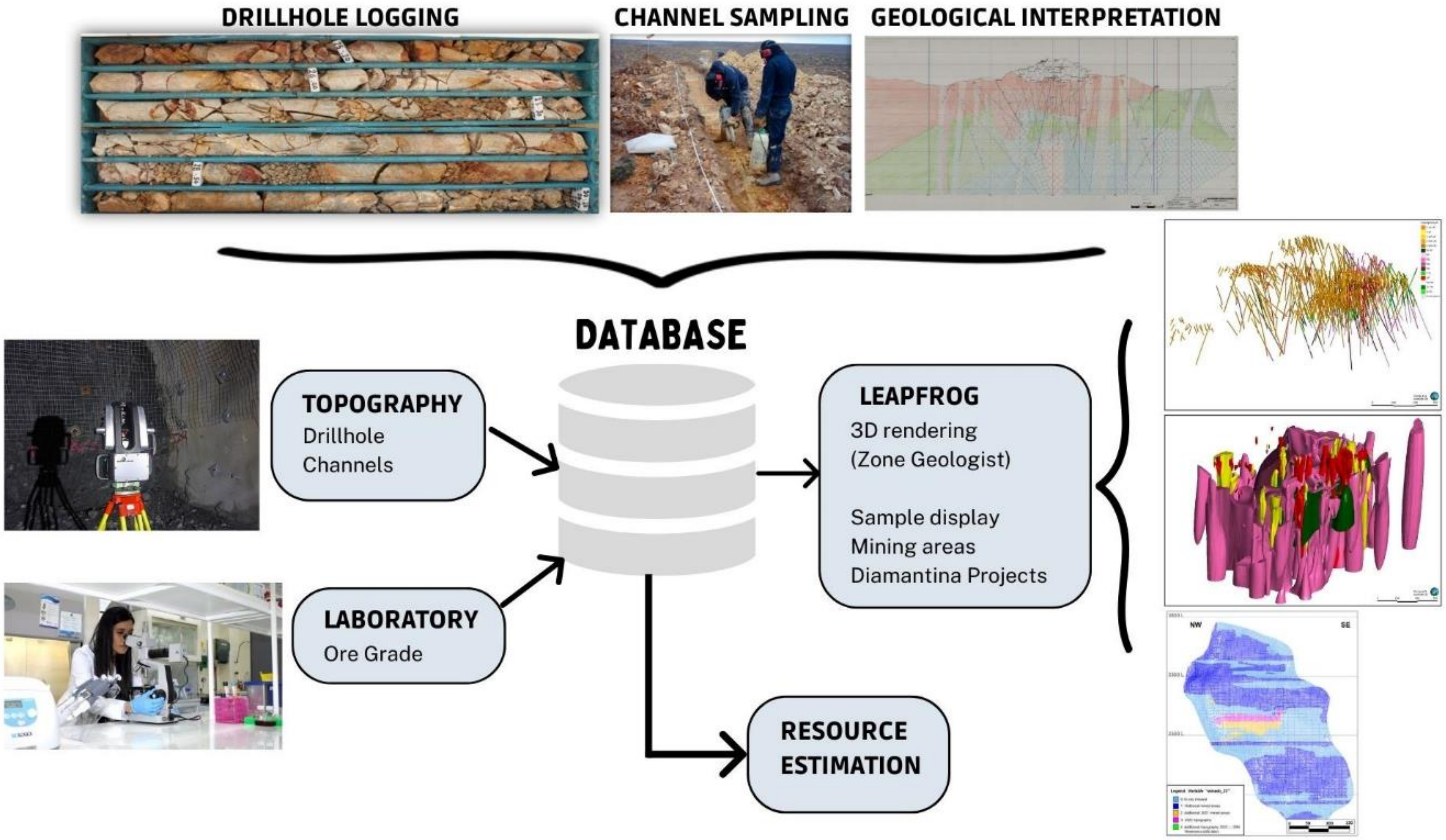


Figure 11-2: Structures Modeling Flowchart

Source: (Buenaventura, 2023)

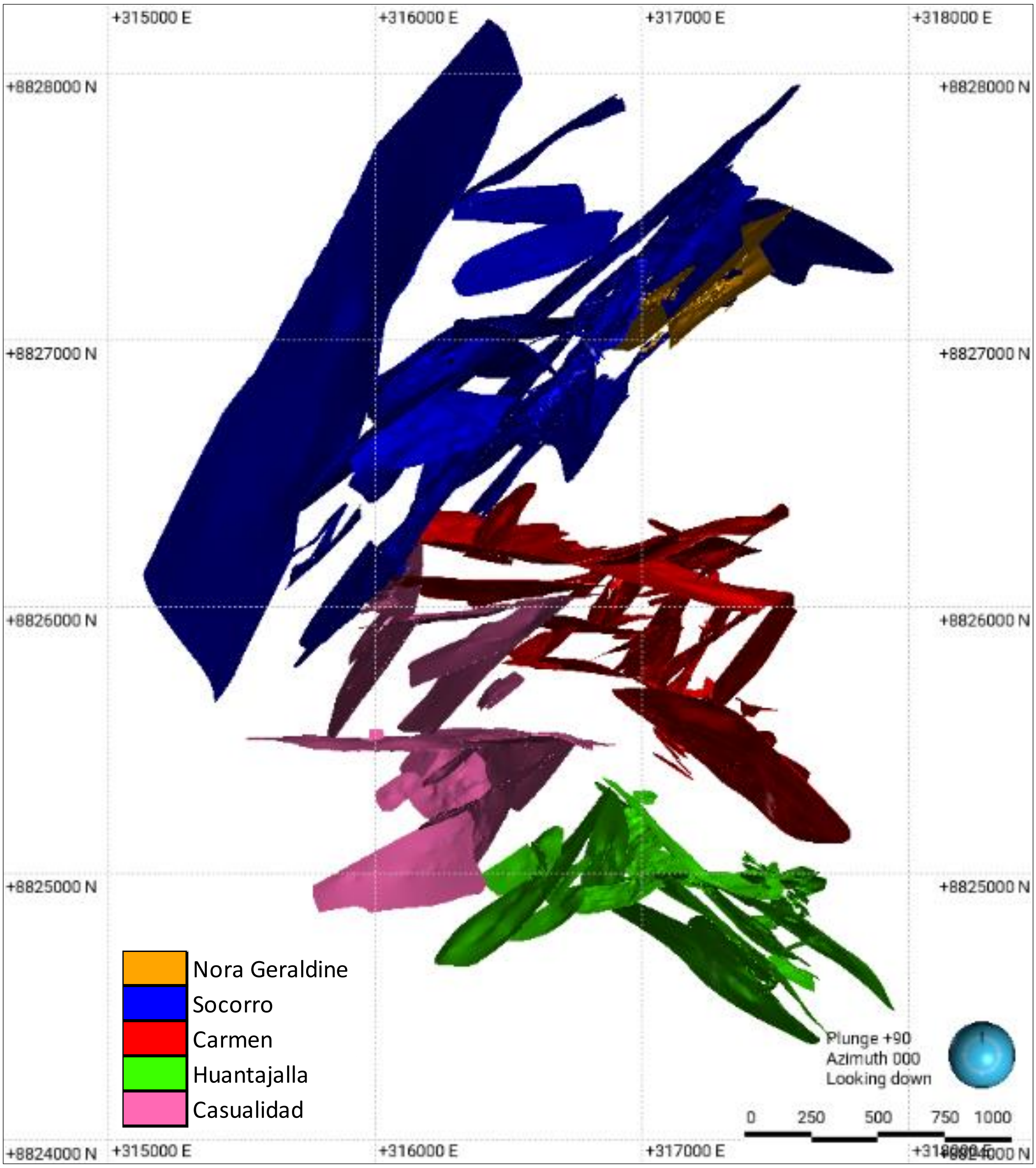


Figure 11-3: Modeled structures in the Uchucchacua Mine

Source: (Buenaventura, 2023)

Exploratory Data Analysis

At Buenaventura, sample length compositing was conducted to ensure that the samples used in statistical analysis and estimation have similar support. The length of the samples extracted from diamond drill holes and mine channels depends on the length of the intercepted geological features and the actual width of the vein structure. To ensure consistency, sample lengths were examined for each vein and composited according to the most frequently sampled length interval. The 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, and scatter plots, were conducted 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, which total 311 veins. Drillhole and channel samples were compared to determine the characteristics of different types of sampling with similar spatial coverage. The results showed a bias indicating that the grades obtained from the channel samples on average tend to be higher than the grades found for drillhole samples.

In most cases, channel samples were clustered around historical and current workings, while drilling focused on exploring the periphery of veins (which are located further from workings). Given that a limited number of drillhole and channel samples shared the same spatial coverage, it was difficult to compare results.

The estimate predominantly uses channel samples and drillhole samples were 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. A statistical study of the original samples (raw data) within each modeled domain for Ag, Pb, Zn, Fe, and Mn, separated by drillhole and channel diameters was performed as shown in Table 11-1.

Table 11-1: Statistical Summary of the Original Samples separated by Channel and Drilling (diameters)

Type	Grade	Unit	Diameter	Count	Mean	Minimum	Maximum	Variance	Standard deviation	CV
Channel	Ag	oz/t	-	162,659	18.64	0.01	1,181.46	988.41	31.44	1.69
Channel	Fe	pct	-	131,025	8.5	0.0001	66.30	98.64	9.93	1.17
Channel	Mn	pct	-	153,173	8.67	0.0001	71.09	79.53	8.92	1.03
Channel	Pb	pct	-	162,644	1.53	0.0001	56.10	8.41	2.9	1.89
Channel	Zn	pct	-	162,613	2.05	0.0001	58.20	9.33	3.05	1.49
Drillhole	Ag	oz/t	AQ	1,193	12.79	0.01	550.45	1,241.79	35.24	2.76
Drillhole	Fe	pct	AQ	1,193	8.23	0.03	56.49	109.49	10.46	1.27
Drillhole	Mn	pct	AQ	1,192	6.24	0.0001	46.10	68.84	8.3	1.33
Drillhole	Pb	pct	AQ	1,193	1.48	0.0001	33.55	8.67	2.95	2
Drillhole	Zn	pct	AQ	1,193	2.15	0.0001	24.16	12.96	3.6	1.67
Drillhole	Ag	oz/t	BQ	4,893	11.14	0.01	486.90	586.80	24.22	2.17
Drillhole	Fe	pct	BQ	4,857	9.1	0.01	52.44	128.99	11.36	1.25
Drillhole	Mn	pct	BQ	4,856	6.3	0.0001	53.76	102.65	10.13	1.61
Drillhole	Pb	pct	BQ	4,893	1.92	0.0001	38.48	13.97	3.74	1.94
Drillhole	Zn	pct	BQ	4,893	2.69	0.0001	32.60	16.87	4.11	1.53
Drillhole	Ag	oz/t	NQ	4,424	7.95	0.0001	702.55	339.74	18.43	2.32
Drillhole	Fe	pct	NQ	4,399	6.55	0.01	57.00	106.14	10.3	1.57
Drillhole	Mn	pct	NQ	4,400	13.3	0.0001	1,000.00	460.23	21.45	1.61
Drillhole	Pb	pct	NQ	4,424	1.09	0.0001	39.26	6.62	2.57	2.36
Drillhole	Zn	pct	NQ	4,424	1.73	0.0001	30.34	10.70	3.27	1.89
Drillhole	Ag	oz/t	HQ	769	5.52	0.01	188.58	139.47	11.81	2.14
Drillhole	Fe	pct	HQ	768	9.07	0.01	53.88	124.90	11.18	1.23
Drillhole	Mn	pct	HQ	768	8.88	0.0001	55.10	130.93	11.44	1.29
Drillhole	Pb	pct	HQ	769	2.04	0.0001	43.96	20.32	4.51	2.21
Drillhole	Zn	pct	HQ	769	2.56	0.0001	20.91	13.61	3.69	1.44
Drillhole	Ag	oz/t	IEW	18	17.56	0.02	135.68	1,106.01	33.26	1.89
Drillhole	Fe	pct	IEW	18	3.85	0.32	24.79	41.25	6.42	1.67
Drillhole	Mn	pct	IEW	18	10.01	0.19	48.10	199.14	14.11	1.41
Drillhole	Pb	pct	IEW	18	0.22	0.0001	1.31	0.12	0.35	1.55
Drillhole	Zn	pct	IEW	18	0.52	0.0001	4.07	0.98	0.99	1.9
Drillhole	Ag	oz/t	No diameter	11,772	14.08	0.01	746.15	776.90	27.87	1.98
Drillhole	Fe	pct	No diameter	9,117	5.63	0.01	58.10	66.50	8.15	1.45
Drillhole	Mn	pct	No diameter	11,705	7.97	0.0001	67.10	83.93	9.16	1.15
Drillhole	Pb	pct	No diameter	11,765	1.18	0.0001	52.50	6.85	2.62	2.23
Drillhole	Zn	pct	No diameter	11,757	1.49	0.0001	23.34	6.96	2.64	1.77

Source: (Buenaventura, 2023)

Outliers

At Buenaventura, top cutting is used to prevent overestimation in domains due to disproportionately high-grade samples. Top cuts of grade outliers are used to reduce the influence of extreme grades on the estimate and consequently, on estimation quality.

Prudent measures for addressing grade outliers serve to mitigate the potential for overestimation within domains, particularly when the presence of exceptionally high-grade data significantly skews the estimation outcomes.

If these outliers exhibit substantial correlation with surrounding data and are substantiated as genuine representatives of the sample population, they are not processed. Conversely, if these outliers are deemed extraneous to the sample population either due to their association with a distinct domain or the manifestation of inaccuracies, exclusion from the domain dataset is warranted. Moreover, if these outliers are recognized as a part of the sample population but are identified as potential threats to the estimation quality, typically due to inadequate support from neighboring values, it is recommended to implement a top cut strategy to reset all values exceeding a specified threshold to the predetermined upper- bound value.

Buenaventura conducted a comprehensive analysis of metal grades for Silver (Ag), Lead (Pb), Iron (Fe), Manganese (Mn), and Zinc (Zn) to identify the presence and characteristics of grade outliers. Sample histograms, logarithmic histograms, log probability plots, and a spatial assessment of outlier distribution were analyzed. The determination of top cut thresholds was based on a rigorous analysis of the same statistical plots and an evaluation of their impact on the sample data's mean, variance, and coefficient of variation (CV) and on an assessment of metal content loss (Figure 11-4 and Table 11-2) . The specific top cut thresholds implemented for each vein are documented in Table 11-3.

These thresholds were established within the 90th to the 98th percentile range for the respective domain's population. The objective was to select top cut values with metal content loss within the range of 25-30% while maintaining a coefficient of variation no higher than 2. Each domain underwent a meticulous assessment to determine the most suitable threshold value.

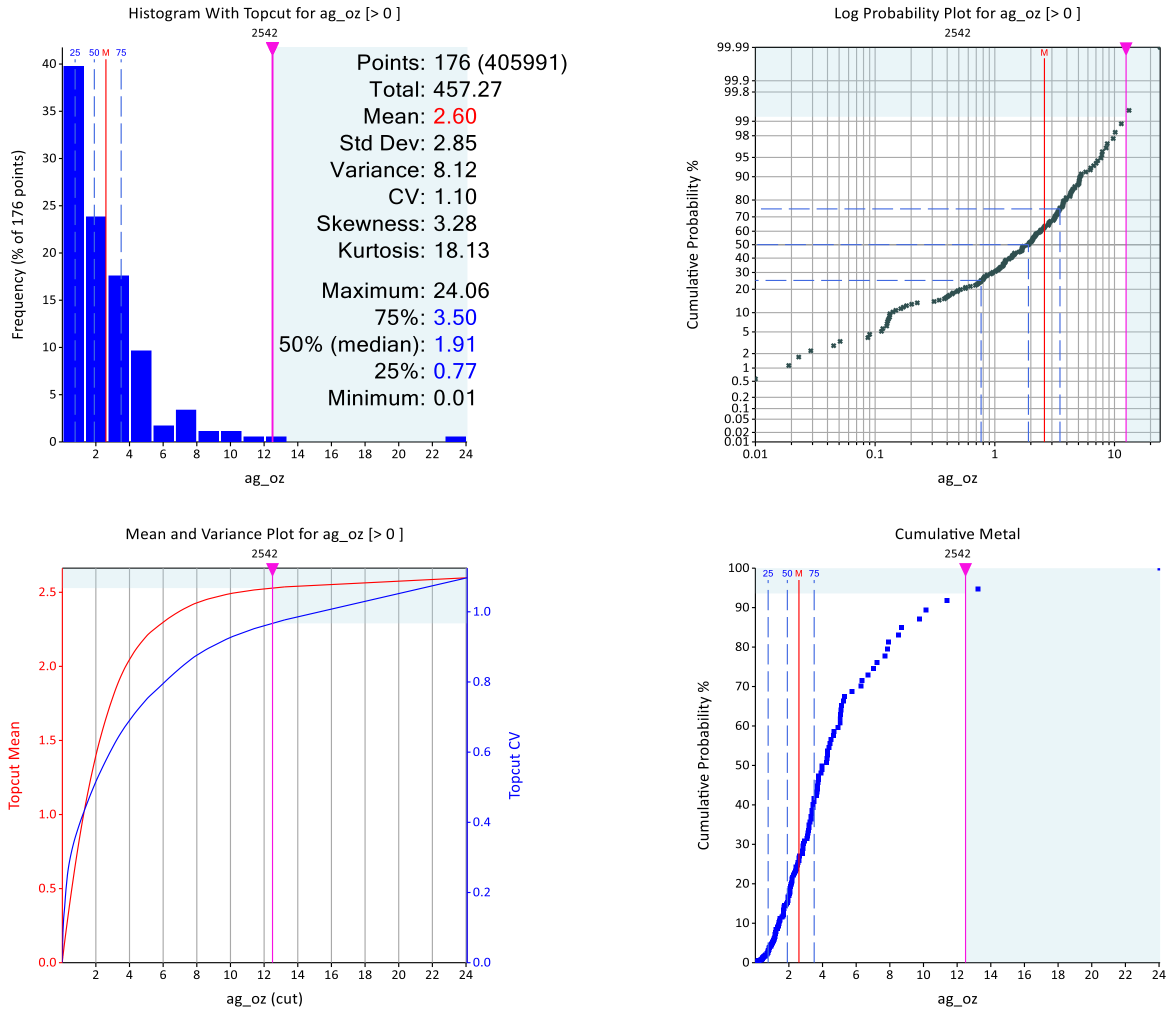


Figure 11-4: Top cut analysis for Ag oz in the Rubi_2 body (2542) - Cut at 12.5 Ag oz with 2.7% of lost metal content

Source: (Buenaventura, 2023)

Table 11-2: Comparison between statistics before and after applying top cut to the Rubi_2 body (2542)

Top Cut	12.5 oz (Ag)		
Statistics	**Raw Data**	**Top Cut**	**% Difference**
Mean	2.6	2.53	2.7%
Maximum	24.06	12.5	48.1%
SD	2.85	2.44	14.3%
CV	1.1	0.97	11.9%
Samples	176	174	1.1%
Num cut	-	2	-
Metal cut	-	2.7%	-

Source: (Buenaventura, 2023)

To determine the appropriate value for capping, metal loss and the coefficient of variation are analyzed. The number of samples capped is also recorded.

The number of samples capped and the percentage of metal reduction are shown in Table 11-3.

Table 11-3: Ag (oz) top cut values for updated veins

Vein	Metal	Unit	TopCut				
			CV	Metal cut	Samples cut	Samples Raw	Topcut value
1916	Ag	oz	0.98	7.30%	11	110	16
1916	Pb	pct	1.26	3.10%	2	110	0.3
1917	Ag	oz	1.40	10.20%	1	41	20
1917	Zn	pct	2.23	9.60%	2	40	0.75
1918	Pb	pct	1.10	5.80%	3	47	0.65
1919	Ag	oz	2.36	7.30%	2	60	80
1919	Pb	pct	2.96	7.00%	2	60	1.8
1919	Zn	pct	2.57	5.00%	2	60	1.8
1920	Ag	oz	0.78	3.10%	3	39	20
1920	Pb	pct	0.96	6.90%	1	39	0.6
2014	Pb	pct	1.30	0.60%	2	658	32
2261	Ag	oz	0.82	3.70%	1	21	11
2261	Pb	pct	0.92	3.00%	2	21	21
2262	Ag	oz	0.76	3.30%	4	75	6.5
2262	Pb	pct	0.92	3.70%	6	75	12
2263	Ag	oz	0.69	11.00%	3	63	9.5
2263	Pb	pct	0.81	17.10%	2	63	15
2263	Zn	pct	0.57	3.60%	3	63	18
2264	Ag	oz	0.56	3.30%	1	24	5.8
2264	Pb	pct	0.81	11.70%	1	24	13
2401	Ag	oz	1.83	6.20%	4	171	29
2401	Pb	pct	1.74	5.50%	2	171	25
2401	Zn	pct	1.22	0.30%	2	171	12
2542	Ag	oz	0.97	2.70%	2	176	12.5
2542	Pb	pct	1.09	1.40%	3	176	20
2542	Zn	pct	0.88	1.80%	5	154	18
2610	Ag	oz	1.04	7.50%	2	76	10.5
2610	Pb	pct	1.23	3.20%	2	76	16
2610	Zn	pct	0.68	2.90%	4	76	13.5

Note: The information of selected domains was included; for the remaining domains, please refer to the annexes.

Source: (Buenaventura, 2023)

Determination of the Regularized Length (Composite)

Buenaventura communicated to SRK that the analysis performed in 2021 was instrumental in defining the composition width, which was validated by an audit that same year conducted by SRK.

In the process to analyze various composite widths, Buenaventura carefully considered the following factors: the composited data was subjected to different lengths to determine a width that would minimally impact the mean and coefficient of variation. This examination spanned a spectrum of domains encompassing both high and low-grade zones.

The results indicated that the most appropriate composite length was 1.50 meters. This choice was substantiated by the fact that although the variations of the mean and coefficient of variation were noticeable at the 1.50-meter mark, said variations became more pronounced at the 2.00-meter composite length.

The graphical representations in Figure 11-5, Figure 11-6 and Figure 11-7 illustrate the outcomes achieved at varying composite lengths within the different domains. Furthermore, statistical data pertaining to these diverse composite lengths is systematically presented in Table 11-4, Table 11-5 and Table 11-6.

It is important to note that opting for a longer composite length, specifically 2.00 meters, led to more substantial changes, as evident in the figures. Conversely, the utilization of shorter composite lengths becomes counterproductive as it divides the samples, thus creating an artificial semblance of continuity in variography.

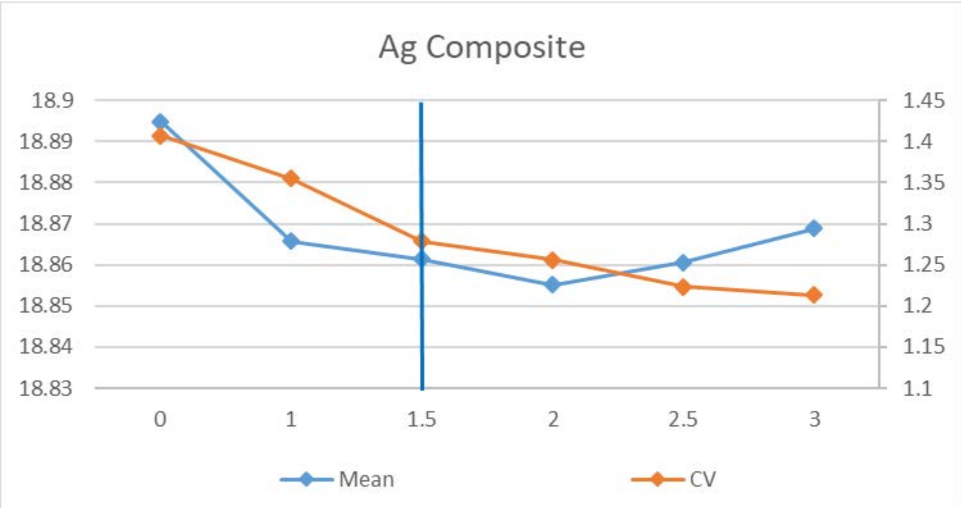


Figure 11-5: Plot of relative variations of mean and CV (Y-axis) vs. composite length (X-axis) for Ag

Source: (Buenaventura, 2023)

Table 11-4: Statistics of the composite for Ag

Comp Ag	0m	1m	1.5m	2m	2.5m	3m
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	3.96832	4.51948	4.9604	5.157572225	5.33739	5.406581168
Q2	11.13334	11.5070055	11.92782167	12.08473852	12.298432	12.34772
Q3	23.76582	23.745	23.87973333	23.92015	24.0844088	24.20067236
Maximum	944.16243	944.16243	664.0027433	614.896625	535.57	535.57

Source: (Buenaventura, 2023)

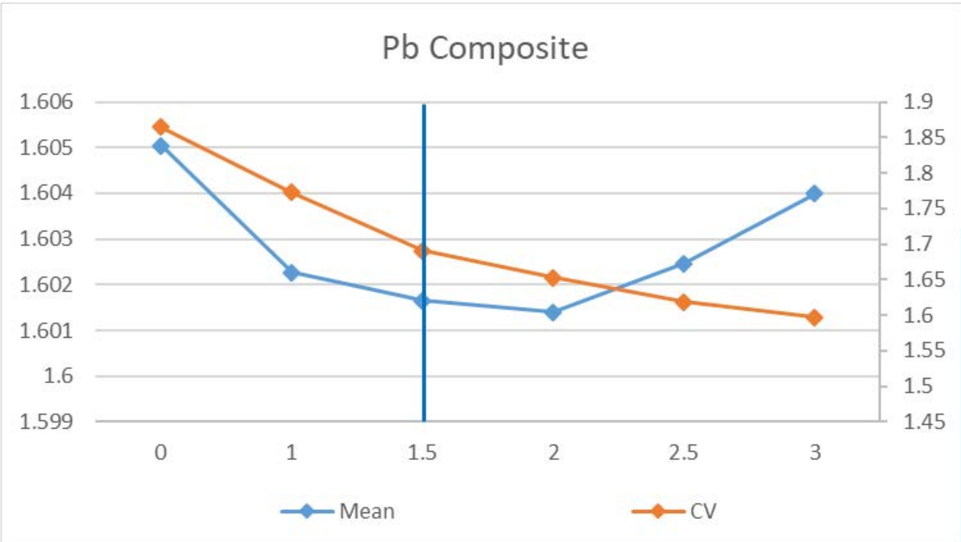


Figure 11-6: Plot of relative variations of mean and CV (Y-axis) vs. composite length (X-axis) for Pb

Source: (Buenaventura, 2023)

Table 11-5: Statistics of the composite for Pb

Comp Pb	0m	1m	1.5m	2m	2.5m	3m
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	0.19491344	0.2	0.209565217	0.21
Q2	0.47	0.51	0.55	0.568181818	0.5898018	0.597
Q3	1.64	1.72448	1.783333333	1.803815	1.827656	1.853333333
Maximum	56	42	45.024	36	36	36

Source: (Buenaventura, 2023)

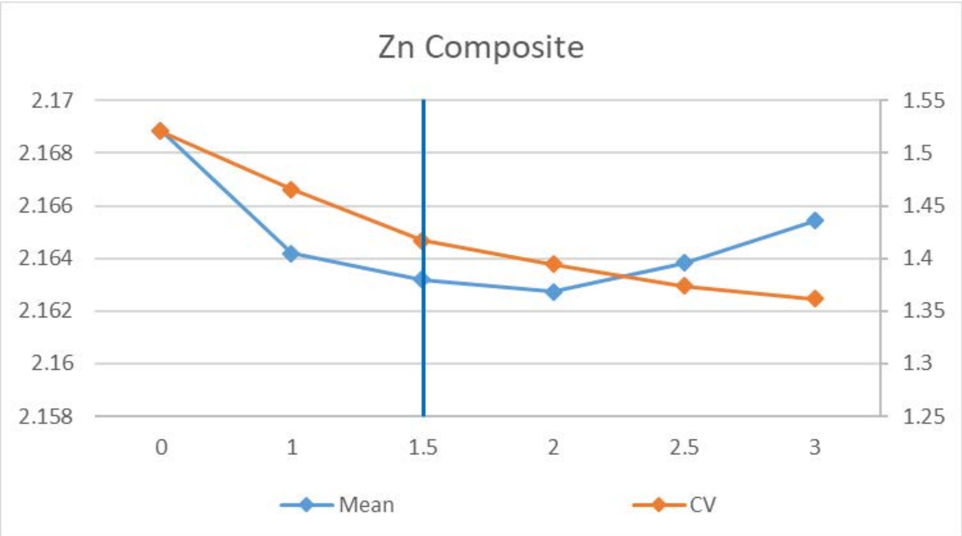


Figure 11-7: Plot of relative variations of mean and CV (Y-axis) vs. composite length (X-axis) for Zn

Source: (Buenaventura, 2023)

Table 11-6: Statistics of the composite for Zn

Comp Zn	0m	1m	1.5m	2m	2.5m	3m
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	0.25135	0.28	0.29	0.3	0.303771
Q2	0.72	0.79598	0.851266667	0.88	0.906	0.922340426
Q3	2.64049	2.69569	2.758571429	2.78	2.8028318	2.825
Maximum	51	51	40.864	38.94942	30.728	31.26661343

Source: (Buenaventura, 2023)

Grade distributions for Ag in 1.5 m composites are presented by structure in boxplots in Figure 11-8.

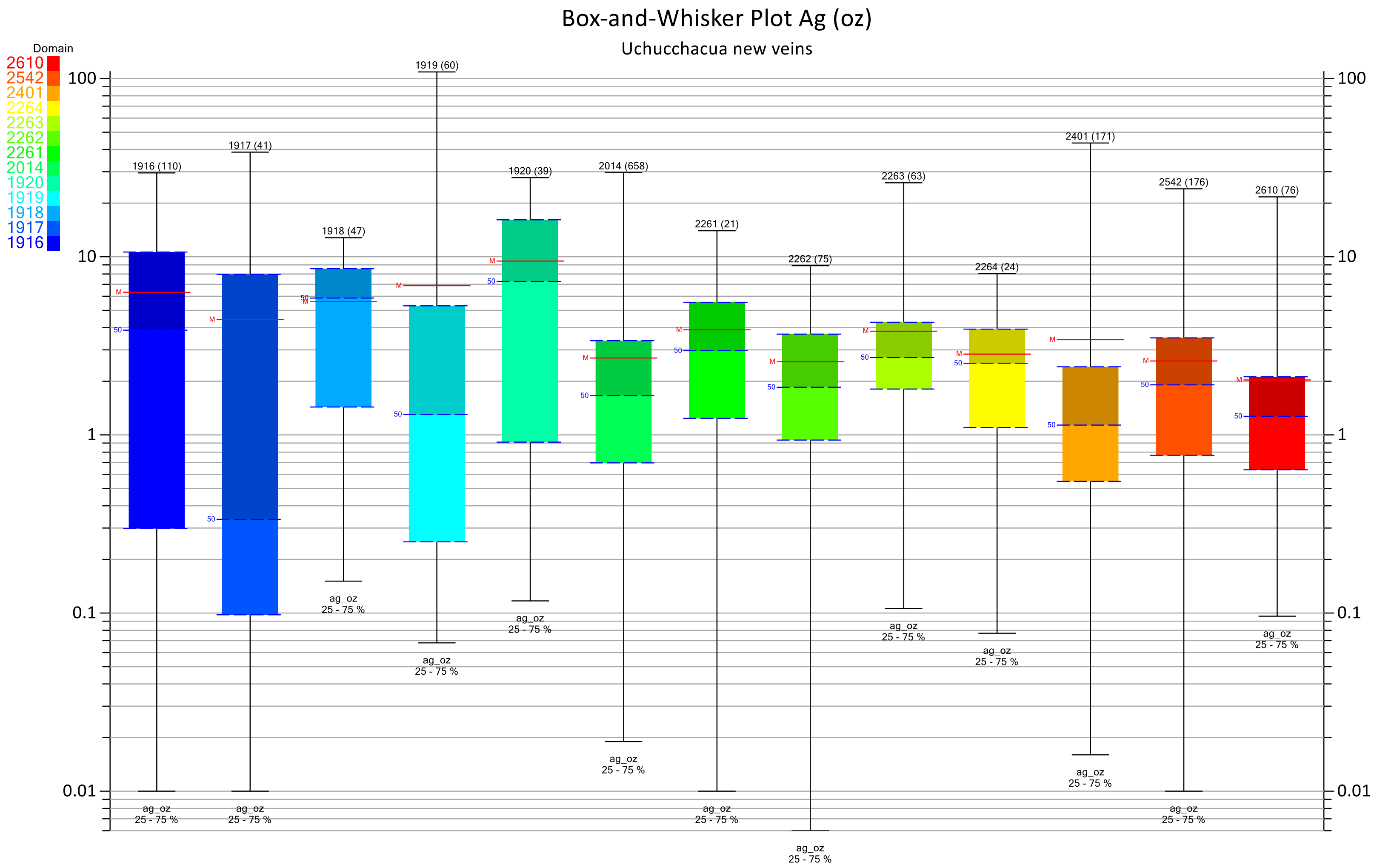


Figure 11-8: Example of Ag Box-plot for new veins

Source: (Buenaventura, 2023)

Table 11-7 shows the statistics of composites by domain and element. The coefficient of variation of silver values was relatively low (less than 4.0) given that the raw data contained few disperse values.

Table 11-7: Composite statistics for updated veins

Vein	Metal	Unit	Samples	Min	Max	Mean	Std. deviation	CV	Variance
1916	Ag	oz	65	0.010	16.000	5.100	4.910	0.960	24.060
1916	Pb	pct	65	0.001	0.204	0.048	0.050	1.042	0.002
1917	Ag	oz	22	0.010	16.730	3.920	4.750	1.210	22.550
1917	Pb	pct	22	0.001	0.970	0.070	0.199	2.825	0.040
1918	Ag	oz	24	0.010	11.640	5.680	3.160	0.560	9.960
1918	Pb	pct	24	0.010	0.650	0.191	0.183	0.955	0.033
1919	Ag	oz	28	0.010	55.320	6.340	13.180	2.080	173.610
1919	Pb	pct	28	0.002	0.954	0.113	0.244	2.155	0.060
1920	Ag	oz	21	0.120	20.000	9.660	5.610	0.580	31.470
1920	Pb	pct	21	0.005	0.465	0.157	0.116	0.738	0.013
2014	Ag	oz	363	0.010	20.830	2.740	2.900	1.060	8.430
2014	Pb	pct	363	0.007	22.155	3.225	3.543	1.098	12.550
2261	Ag	oz	9	1.010	10.260	3.910	2.690	0.690	7.250
2261	Pb	pct	9	1.328	20.092	7.339	5.692	0.776	32.394
2262	Ag	oz	36	0.020	5.320	2.270	1.520	0.670	2.320
2262	Pb	pct	36	0.009	9.936	3.749	3.159	0.843	9.981
2263	Ag	oz	29	1.570	8.740	3.550	1.900	0.540	3.620
2263	Pb	pct	29	1.776	13.491	4.947	2.914	0.589	8.490
2264	Ag	oz	12	1.270	4.660	2.960	1.020	0.340	1.050
2264	Pb	pct	12	2.183	10.464	4.619	2.764	0.598	7.639
2401	Ag	oz	97	0.050	25.090	3.380	5.100	1.510	25.960
2401	Pb	pct	97	0.070	21.672	2.310	3.186	1.379	10.149
2542	Ag	oz	80	0.030	7.520	2.480	1.620	0.650	2.610
2542	Pb	pct	80	0.022	14.614	3.747	3.030	0.809	9.181
2610	Ag	oz	40	0.180	8.690	2.050	1.900	0.930	3.610
2610	Pb	pct	40	0.349	12.345	3.099	3.297	1.064	10.869

Note: The information of selected domains was included; for the remaining domains, please refer to the annexes.

Source: (Buenaventura, 2023)

Table 11-9 shows a histogram and probability plot of Alisson 1 body for Ag (composites). A lower dispersion of information is observed. The evaluation of these plots also helps identify restriction values.

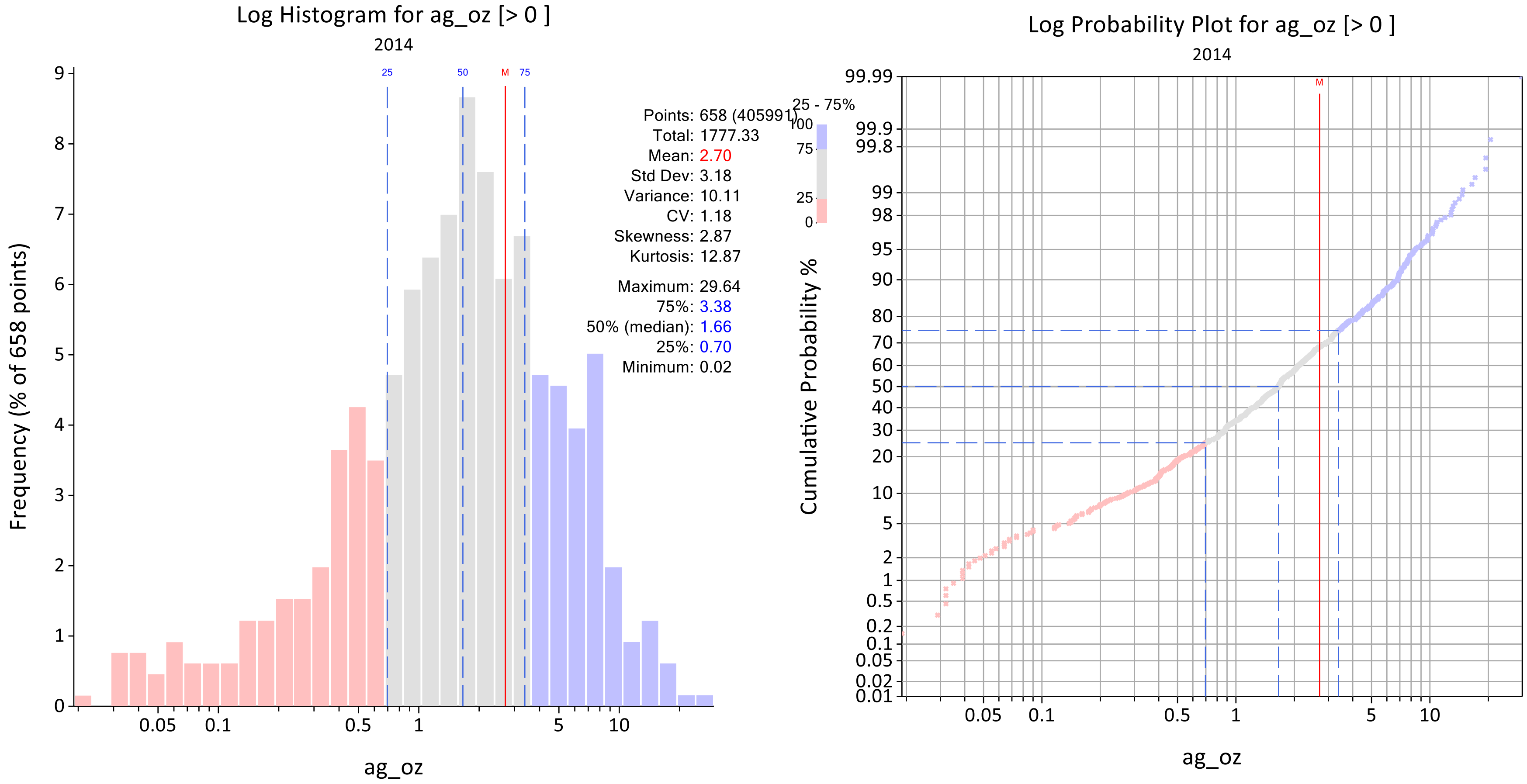


Figure 11-9: Histogram and Cumulative Probability Plot for Ag (oz) Composites Alisson 1 body (2014)

Source: Source: (Buenaventura, 2023)

Declustering

Due to the spatial arrangement of the data, Buenaventura used a declustering procedure to ensure equitable weighting between clustered and non-clustered data points. The rationale for this declustering approach focused on the distribution of drillhole data within each geological structure, with an emphasis on minimizing the mean value.

Table 11-10 depicts the range of mean values observed at various cell sizes. Notably, the lowest mean value, indicated by the purple marker, corresponds to a cell size of 20 meters by 20 meters by 20 meters.

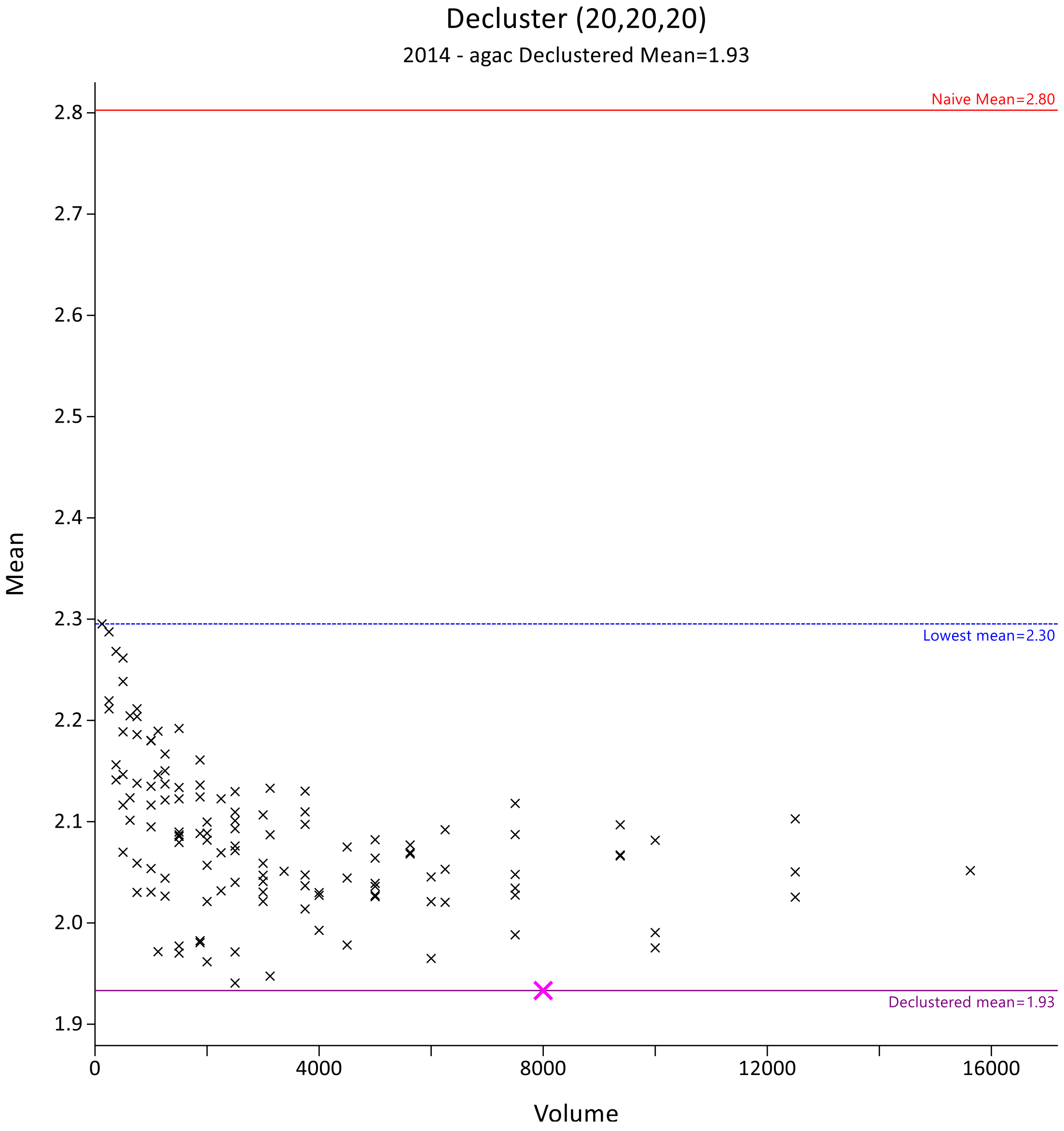


Figure 11-10: Declustering of composites in Alisson 1 body (2014)

Source: (Buenaventura, 2023)

Estimation Plan

Buenaventura conducted estimations for the following elements: Silver (Ag) in ounces; Lead (Pb) in percentage; Iron (Fe) in percentage; Manganese (Mn) in percentage; and Zinc (Zn) in percentage. Estimation domains were created for each element in accordance with the principles of stationarity.

The boundary conditions at the Uchucchacua site are well-defined and underground workings confirm robust contact between mineralized vein structures and the host rock within all veins. Consequently, these domain boundaries were treated as rigid and unyielding. Only samples specifically attributed to a given vein were employed to estimate blocks within that particular vein. This approach was adopted to prevent low-grade host rock from contaminating of high-grade samples and vice versa.

For estimation purposes, Buenaventura utilized a suite of software tools, including Supervisor® for statistical analysis; Leapfrog Geo® for structural modeling; and Vulcan® for resource estimation.

Variable Orientation Modeling

Continuity analysis involves assessing the spatial correlation of score values between pairs of samples to identify the principal axis of spatial continuity.

Given that the grade distribution follows a log-normal pattern, traditional experimental variograms often exhibit suboptimal quality. To mitigate this issue, Buenaventura transformed the data to achieve a normal score distribution before conducting a continuity analysis.

Buenaventura evaluated horizontal, cross-strike, and down-dip continuity maps, along with their corresponding variograms, for Silver (Ag), Lead (Pb), Iron (Fe), Manganese (Mn), and Zinc (Zn). The primary objective was to ascertain the directions of both maximum and minimum continuity.

The results of the continuity analysis affirmed that certain veins lacked adequate data to support variogram modeling. In such instances, the inverse distance (ID3) method was employed as an alternative estimation technique.

The subsequent phase entailed modeling variograms for the major, semi-major, and minor axes to establish a mathematical representation of spatial variance for the ordinary kriging algorithm. Among the key elements within the variogram model, the nugget effect and short-range characteristics are highly significant as they exert the most substantial influence on the estimation process.

The nugget effect denotes the variance observed between pairs of samples located in the same position (i.e., zero distance). It encompasses elements of intrinsic variability, sampling error, and analytical error. A heightened nugget effect implies a greater degree of randomness in the sample grades, indicating that samples from the same location can exhibit significant grade variations. The most effective way to determine the nugget effect value is to examine the downhole variogram, which is calculated with lags equal to the composite length.

After determining the nugget effect value, the subsequent step was to model directional variograms in the three principal directions for Silver (Ag), Lead (Pb), Iron (Fe), Manganese (Mn), and Zinc (Zn), guided by the directions identified from the variogram fan analysis. In cases in which it was not feasible to generate a variogram for minor axes, ranges were derived from downhole variograms that share a similar orientation perpendicular to the vein.

The results obtained from the modeled variograms were subsequently back-transformed to define the estimation parameters. Figure 11-11 presents the variographic analysis for domain 1130 (the Gina vein).

Table 11-8 shows the variography (by domain) of updated veins in each zone. While some structures were estimated using the Inverse Distance method, the variography of these structures was conducted to define search ellipsoids.

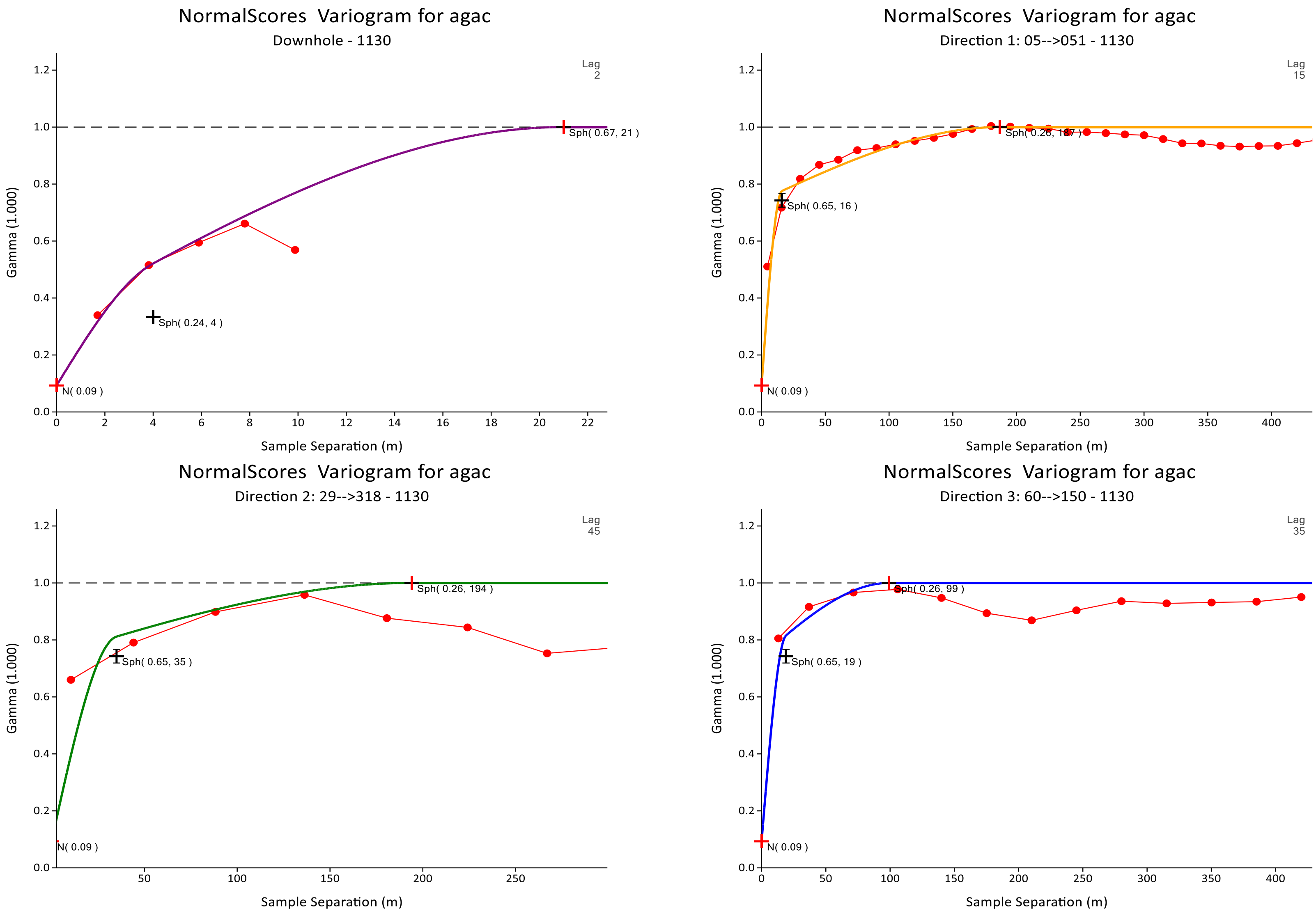


Figure 11-11: Variography of Gina Vein (1130)

Source: (Buenaventura, 2023)

Table 11-8: **Variography parameters in the estimation files for updated veins**

Vein	Metal	Unit	RotAlpha	RotZeta	RotBeta	Nugget	Str1 Sill	Mj Str1 Range	Sm Str1 Range	Mn Str1 Range	Str2 Sill	Mj Str2 Range	Sm Str2 Range	Mn Str2 Range
1916	Ag	oz	88	-39	-77	0.10	0.66	65	22	30	0.24	330	72	81
1916	Fe	pct	88	-39	-77	0.08	0.67	60	33	44	0.25	425	124	81
1916	Mn	pct	88	-39	-77	0.10	0.62	49	13	20	0.28	175	67	81
1916	Pb	pct	88	-39	-77	0.12	0.72	27	15	22	0.16	148	61	58
1916	Zn	pct	88	-39	-77	0.10	0.74	39	21	21	0.16	213	62	81
1917	Ag	oz	88	-39	-77	0.10	0.66	65	22	30	0.24	330	72	81
1917	Fe	pct	88	-39	-77	0.08	0.67	60	33	44	0.25	425	124	81
1917	Mn	pct	88	-39	-77	0.10	0.62	49	13	20	0.28	175	67	81
1917	Pb	pct	88	-39	-77	0.12	0.72	27	15	22	0.16	148	61	58
1917	Zn	pct	88	-39	-77	0.10	0.74	39	21	21	0.16	213	62	81
1918	Ag	oz	88	-39	-77	0.10	0.66	65	22	30	0.24	330	72	81
1918	Fe	pct	88	-39	-77	0.08	0.67	60	33	44	0.25	425	124	81
1918	Mn	pct	88	-39	-77	0.10	0.62	49	13	20	0.28	175	67	81
1918	Pb	pct	88	-39	-77	0.12	0.72	27	15	22	0.16	148	61	58
1918	Zn	pct	88	-39	-77	0.10	0.74	39	21	21	0.16	213	62	81
1919	Ag	oz	88	-39	-77	0.10	0.66	65	22	30	0.24	330	72	81
1919	Fe	pct	88	-39	-77	0.08	0.67	60	33	44	0.25	425	124	81
1919	Mn	pct	88	-39	-77	0.10	0.62	49	13	20	0.28	175	67	81
1919	Pb	pct	88	-39	-77	0.12	0.72	27	15	22	0.16	148	61	58
1919	Zn	pct	88	-39	-77	0.10	0.74	39	21	21	0.16	213	62	81
1920	Ag	oz	88	-39	-77	0.10	0.66	65	22	30	0.24	330	72	81
1920	Fe	pct	88	-39	-77	0.08	0.67	60	33	44	0.25	425	124	81
1920	Mn	pct	88	-39	-77	0.10	0.62	49	13	20	0.28	175	67	81
1920	Pb	pct	88	-39	-77	0.12	0.72	27	15	22	0.16	148	61	58

Vein	Metal	Unit	RotAlpha	RotZeta	RotBeta	Nugget	Str1 Sill	Mj Str1 Range	Sm Str1 Range	Mn Str1 Range	Str2 Sill	Mj Str2 Range	Sm Str2 Range	Mn Str2 Range
1920	Zn	pct	88	-39	-77	0.10	0.74	39	21	21	0.16	213	62	81
2014	Ag	oz	225	45	36	0.17	0.51	4	5	8	0.32	85	57	67
2014	Fe	pct	279	55	-7	0.13	0.41	5	3	6	0.45	23	23	23
2014	Mn	pct	279	55	-7	0.14	0.42	5	3	6	0.45	23	23	23
2014	Pb	pct	225	45	36	0.17	0.56	36	5	8	0.27	65	26	31
2014	Zn	pct	225	45	36	0.14	0.72	4	12	13	0.14	49	46	51
2261	Ag	oz	215	60	90	0.14	0.45	5	4	4	0.41	25	25	25
2261	Fe	pct	215	60	90	0.13	0.55	4	4	4	0.32	25	25	25
2261	Mn	pct	215	60	90	0.16	0.18	9	4	4	0.66	115	53	51
2261	Pb	pct	215	60	90	0.15	0.56	4	4	4	0.29	25	25	25
2261	Zn	pct	215	60	90	0.14	0.37	8	8	8	0.50	35	35	35
2262	Ag	oz	215	60	90	0.14	0.45	5	4	4	0.41	25	25	25
2262	Fe	pct	215	60	90	0.13	0.55	4	4	4	0.32	25	25	25
2262	Mn	pct	215	60	90	0.16	0.18	9	4	4	0.66	115	53	51
2262	Pb	pct	215	60	90	0.15	0.56	4	4	4	0.29	25	25	25
2262	Zn	pct	215	60	90	0.14	0.37	8	8	8	0.50	35	35	35
2263	Ag	oz	215	60	90	0.14	0.45	5	4	4	0.41	25	25	25
2263	Fe	pct	215	60	90	0.13	0.55	4	4	4	0.32	25	25	25
2263	Mn	pct	215	60	90	0.16	0.18	9	4	4	0.66	115	53	51
2263	Pb	pct	215	60	90	0.15	0.56	4	4	4	0.29	25	25	25
2263	Zn	pct	215	60	90	0.14	0.37	8	8	8	0.50	35	35	35
2264	Ag	oz	215	60	90	0.14	0.45	5	4	4	0.41	25	25	25
2264	Fe	pct	215	60	90	0.13	0.55	4	4	4	0.32	25	25	25
2264	Mn	pct	215	60	90	0.16	0.18	9	4	4	0.66	115	53	51
2264	Pb	pct	215	60	90	0.15	0.56	4	4	4	0.29	25	25	25
2264	Zn	pct	215	60	90	0.14	0.37	8	8	8	0.50	35	35	35

Vein	Metal	Unit	RotAlpha	RotZeta	RotBeta	Nugget	Str1 Sill	Mj Str1 Range	Sm Str1 Range	Mn Str1 Range	Str2 Sill	Mj Str2 Range	Sm Str2 Range	Mn Str2 Range
2401	Ag	oz	120	60	90	0.17	0.69	15	9	2	0.14	45	20	8
2401	Fe	pct	120	60	90	0.11	0.51	8	14	11	0.38	77	23	23
2401	Mn	pct	120	60	90	0.11	0.74	11	11	12	0.15	48	24	24
2401	Pb	pct	120	60	90	0.15	0.67	51	9	4	0.18	56	20	24
2401	Zn	pct	120	60	90	0.12	0.40	14	4	4	0.48	54	27	8
2542	Ag	oz	0	25	-100	0.11	0.55	14	10	8	0.34	73	27	61
2542	Fe	pct	161	59	108	0.11	0.75	29	23	11	0.14	58	54	23
2542	Mn	pct	161	59	108	0.11	0.57	7	36	14	0.32	95	50	52
2542	Pb	pct	161	59	108	0.13	0.59	29	8	2	0.28	58	34	8
2542	Zn	pct	2	35	-101	0.28	0.64	27	9	5	0.08	61	43	8
2610	Ag	oz	161	59	108	0.13	0.38	15	5	4	0.49	63	20	20
2610	Fe	pct	161	59	108	0.11	0.54	19	5	4	0.35	65	20	8
2610	Mn	pct	161	59	108	0.11	0.45	25	9	4	0.44	68	20	15
2610	Pb	pct	161	59	108	0.16	0.70	18	13	7	0.14	74	20	13
2610	Zn	pct	161	59	108	0.22	0.31	24	11	9	0.47	75	20	20

Note: The information of selected domains was included; for the remaining domains, please refer to the annexes.

Str1 Sill: Structure 1 Sill

Mj Str1 Range: Structure 1 major range

Sm Str1 Range: Structure 1 Semi-major range

Mn Str1 Range: Structure 1 minor range

RotAlpha, RotZeta and RotBeta are rotations in Vulcan software

Source: (Buenaventura, 2023)

Qualitative Kriging Neighborhood Analysis (QKNA)

A Kriging neighborhood analysis was conducted to establish the key estimation parameters, including the minimum and maximum number of samples; the maximum number of samples from the same drillhole; and search distances. Various scenarios with block sizes proximate to those used for constructing the block model were examined, based on values derived from the variographic analysis presented in the previous section. The objective was to ensure that kriging efficiency and regression slope attained acceptable levels.

Typically, a preliminary setup used a minimum of 2 samples and a maximum of 12; a constraint of no more than 2 samples per drillhole was used as a starting point. Based on this initial configuration, the appropriate parameters for each specific domain were determined.

Figure 11-12, Figure 11-13 and Figure 11-14 showcase the Supervisor environment used in the Kriging Neighborhood Analysis (KNA), which identified the optimal neighborhood for the Roxana body (2014).

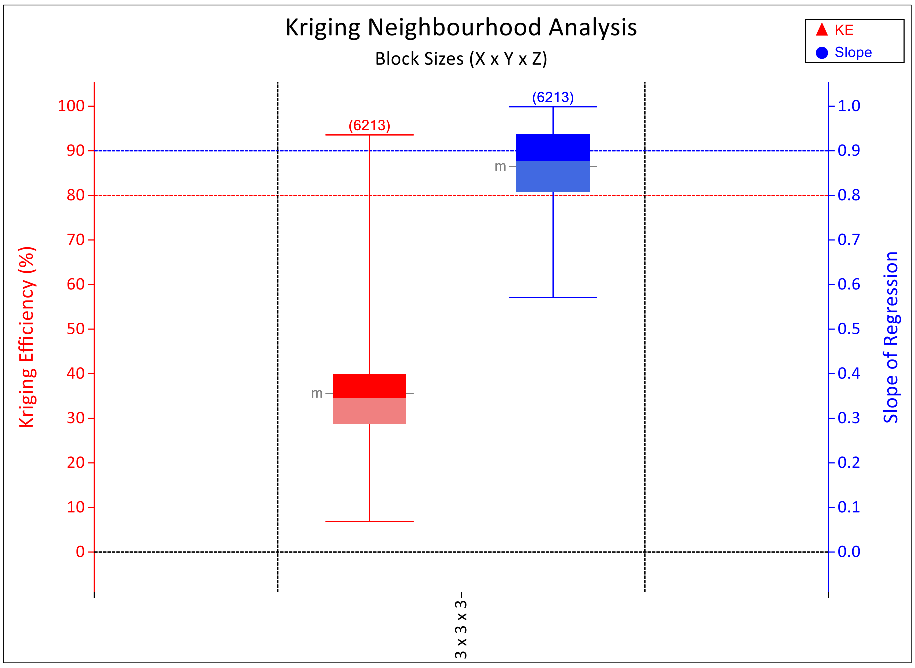


Figure 11-12: Determination of the block size in Roxana body domain (2014)

Source: (Buenaventura, 2023)

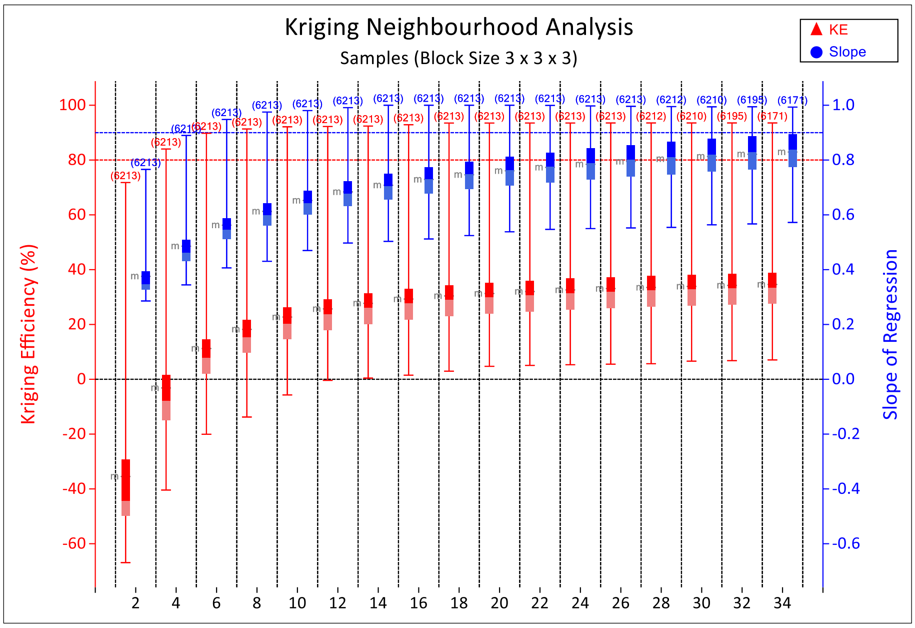


Figure 11-13: Behavior of KE and slope of regression, according to the number of samples.

Source: (Buenaventura, 2023)

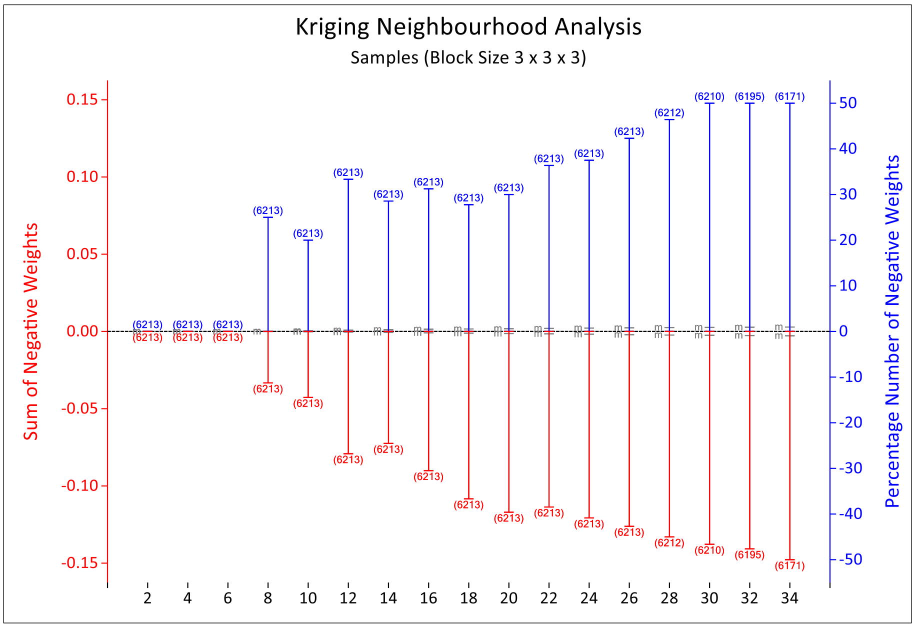


Figure 11-14: Negative weights according to number of samples on domain 2014.

Source: (Buenaventura, 2023)

Initially, the kriging plan (number of samples, scope) was defined with the QKNA methodology in Supervisor®. Next, it was adjusted with subsequent validations (visual, local and global).

Anisotropic Model

Given the challenges associated with determining the preferential orientation of mineralization continuity within intricate geological structures, Buenaventura assessed the feasibility of employing Vulcan's Locally Varying Anisotropy (LVA). LVA constructs an anisotropic model based on modeled geological structures and orientation variations over short distances can be introduced. This approach improves the precision of the orientation of mineralization continuity in the estimation process.

The anisotropic model developed via LVA facilitated the process to individually define rotation angles for each model cell, considering the local trend. The dimensions of the ellipsoid were held constant throughout the modeling process.

To implement LVA, a point file was created from the roof and floor surfaces of the geological structure, and each point was associated with values for dip and dip direction. These values represent the locally varying preferential direction over the extent of these surfaces.

Figure 11-15 provides a plan view of the calculated LVA values applied for the Cachipampa Vein model utilized in the estimation process.

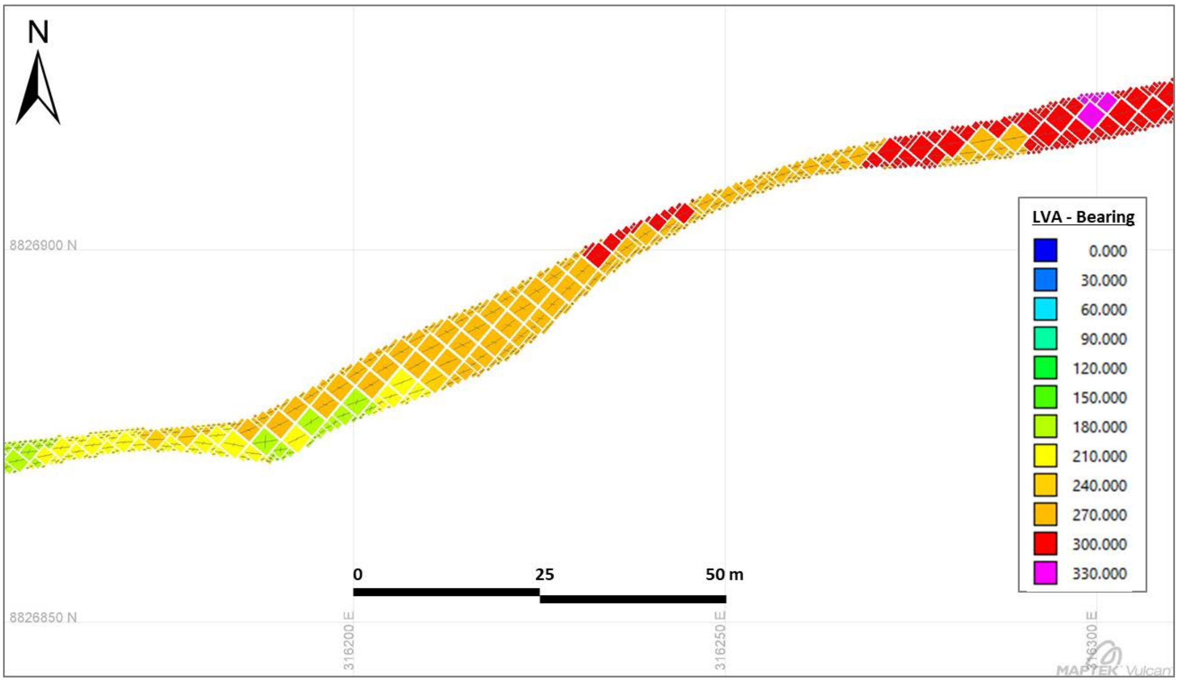


Figure 11-15: LVA-bearing in Cachipampa vein (Lv-3990)

Source: (Buenaventura, 2023)

Block Model

The block size was determined by the Planning area and was based on the extraction methods at the Uchucchacua mine. The dimensions of the cells were 3 m x 3 m x 3 m and the model were sub blocked in dimensions of 0.5 m x 0.5 m x 0.5 m. all these measurements 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 any information 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 can be reported.

Block Model Characteristics

Dimensions were based on the mining SMU, where cut-and-fill is the primary mining method. Cut-and-fill stoping is used in areas with higher rock quality while breasting is employed in areas with lower rock quality.

Four resource models were constructed with Vulcan software and based on the main structures of the mine (Carmen, Casualidad, Huantajalla, and Socorro), whose characteristics are presented below (Table 11-9).

Table 11-9: Block model dimensions

Zone	Origin X (m)	Origin Y (m)	Origin Z (m)	Bearing (°)	Plunge (°)	Dip (°)	Extension X	Extension Y	Extension Z	Size X (m)	Size Y (m)	Size Z (m)	Subcell X (m)	Subcell Y (m)	Subcell Z (m)
Carmen	318,650	8,826,200	3,600	282	0	0	2,901	1,602	1,701	3	3	3	0.5	0.5	0.5
Casualidad	315,900	8,824,300	3,700	50	0	0	2,220	1,500	1,500	3	3	3	0.5	0.5	0.5
Huantajalla	317,150	8,823,450	3,900	40	0	0	1,650	1,770	861	3	3	3	0.5	0.5	0.5
Socorro	316,025	8,824,820	3,000	40	0	0	4,098	2,301	2,109	3	3	3	0.5	0.5	0.5

Source: (Buenaventura, 2023)

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

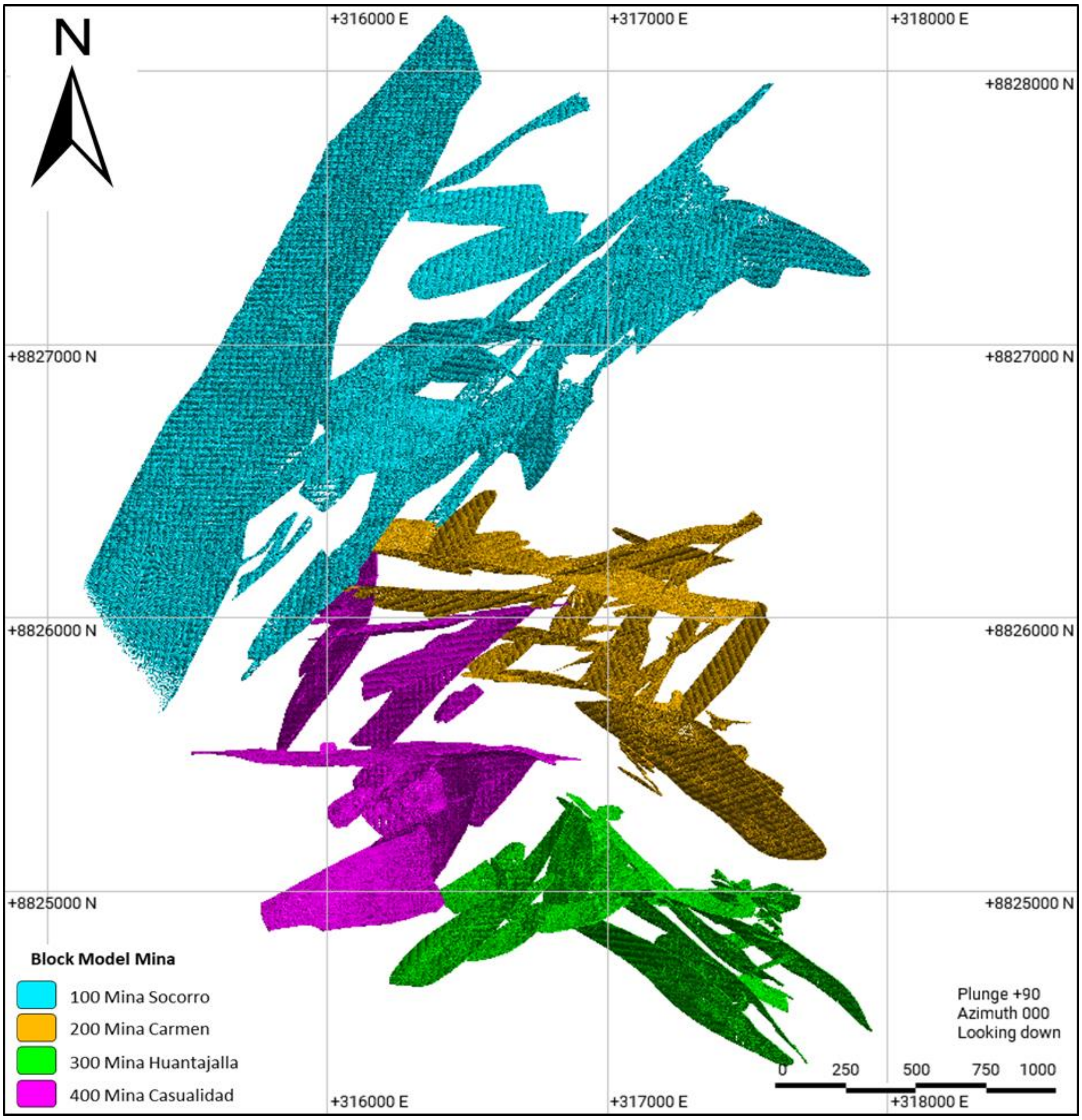


Figure 11-16: Distribution of Uchucchacua Block Models

Source: (Buenaventura, 2023)

Grade Interpolation

Buenaventura employed a range of estimation methods, including Ordinary Kriging (OK), Inverse Distance (ID3), and Nearest Neighbor (NN). OK and ID3 were selected for resource reporting and categorization, while NN was utilized as a validation tool to corroborate the interpolations achieved through OK and ID3 methods.

Estimation Parameters

Estimation parameters were determined by a combination of factors, including block size selection; optimization of search neighborhoods; and variogram modeling. Prior to estimation, sample data was composited and capped if necessary.

To facilitate the estimation process, sample data and blocks were categorized into mineralized domains. Each block was discretized to create a matrix of points, ensuring that the variability of scores is adequately represented within the block.

The estimation plan was designed with four passes utilizing incremental search radii, outlier restriction, specified minimum and maximum numbers of composites, minimum and maximum numbers of drillholes, and the number of composites per drillhole or channel. This approach was carefully orchestrated to ensure that the grade interpolation respected the composite information both locally and globally. The fourth pass was specifically intended to generate potential resource estimates (Table 11-10).

Table 11-10: Estimation Parameters for updated Veins

Vein	Metal	Unit	N° Pass	S Bearin Z	S Plunge Y	S Dip X	Mayor Axis	Semi major Axis	Minor Axis	Min Samples	Max Samples	DH Limit
1916	Ag	oz	1	0	0	0	50	20	14	2	10	2
1916	Ag	oz	2	0	0	0	100	40	28	2	6	2
1916	Ag	oz	3	0	0	0	150	60	42	2	4	2
1916	Ag	oz	4	0	0	0	200	80	56	1	4	2
1916	Pb	pct	1	0	0	0	56	18	14	2	10	2
1916	Pb	pct	2	0	0	0	84	27	21	2	8	2
1916	Pb	pct	3	0	0	0	112	36	28	2	6	2
1916	Pb	pct	4	0	0	0	224	72	56	1	4	2
1916	Zn	pct	1	0	0	0	56	18	14	2	10	2
1916	Zn	pct	2	0	0	0	84	27	21	2	8	2
1916	Zn	pct	3	0	0	0	112	36	28	2	6	2
1916	Zn	pct	4	0	0	0	224	72	56	1	4	2
1917	Ag	oz	1	0	0	0	50	20	14	2	10	2
1917	Ag	oz	2	0	0	0	100	40	28	2	6	2
1917	Ag	oz	3	0	0	0	150	60	42	2	4	2
1917	Ag	oz	4	0	0	0	200	80	56	1	4	2
1917	Pb	pct	1	0	0	0	56	18	14	2	10	2
1917	Pb	pct	2	0	0	0	84	27	21	2	8	2
1917	Pb	pct	3	0	0	0	112	36	28	2	6	2
1917	Pb	pct	4	0	0	0	224	72	56	1	4	2
1917	Zn	pct	1	0	0	0	56	18	14	2	10	2
1917	Zn	pct	2	0	0	0	84	27	21	2	8	2
1917	Zn	pct	3	0	0	0	112	36	28	2	6	2
1917	Zn	pct	4	0	0	0	224	72	56	1	4	2

Vein	Metal	Unit	N° Pass	S Bearin Z	S Plunge Y	S Dip X	Mayor Axis	Semi major Axis	Minor Axis	Min Samples	Max Samples	DH Limit
1918	Ag	oz	1	0	0	0	50	20	14	2	10	2
1918	Ag	oz	2	0	0	0	100	40	28	2	6	2
1918	Ag	oz	3	0	0	0	150	60	42	2	4	2
1918	Ag	oz	4	0	0	0	200	80	56	1	4	2
1918	Pb	pct	1	0	0	0	56	18	14	2	10	2
1918	Pb	pct	2	0	0	0	84	27	21	2	8	2
1918	Pb	pct	3	0	0	0	112	36	28	2	6	2
1918	Pb	pct	4	0	0	0	224	72	56	1	4	2
1918	Zn	pct	1	0	0	0	56	18	14	2	10	2
1918	Zn	pct	2	0	0	0	84	27	21	2	8	2
1918	Zn	pct	3	0	0	0	112	36	28	2	6	2
1918	Zn	pct	4	0	0	0	224	72	56	1	4	2
1919	Ag	oz	1	0	0	0	50	20	14	2	10	2
1919	Ag	oz	2	0	0	0	100	40	28	2	6	2
1919	Ag	oz	3	0	0	0	150	60	42	2	4	2
1919	Ag	oz	4	0	0	0	200	80	56	1	4	2
1919	Pb	pct	1	0	0	0	56	18	14	2	10	2
1919	Pb	pct	2	0	0	0	84	27	21	2	8	2
1919	Pb	pct	3	0	0	0	112	36	28	2	6	2
1919	Pb	pct	4	0	0	0	224	72	56	1	4	2
1919	Zn	pct	1	0	0	0	56	18	14	2	10	2
1919	Zn	pct	2	0	0	0	84	27	21	2	8	2
1919	Zn	pct	3	0	0	0	112	36	28	2	6	2
1919	Zn	pct	4	0	0	0	224	72	56	1	4	2
1920	Ag	oz	1	0	0	0	50	20	14	2	10	2
1920	Ag	oz	2	0	0	0	100	40	28	2	6	2

Vein	Metal	Unit	N° Pass	S Bearin Z	S Plunge Y	S Dip X	Mayor Axis	Semi major Axis	Minor Axis	Min Samples	Max Samples	DH Limit
1920	Ag	oz	3	0	0	0	150	60	42	2	4	2
1920	Ag	oz	4	0	0	0	200	80	56	1	4	2
1920	Pb	pct	1	0	0	0	56	18	14	2	10	2
1920	Pb	pct	2	0	0	0	84	27	21	2	8	2
1920	Pb	pct	3	0	0	0	112	36	28	2	6	2
1920	Pb	pct	4	0	0	0	224	72	56	1	4	2
1920	Zn	pct	1	0	0	0	56	18	14	2	10	2
1920	Zn	pct	2	0	0	0	84	27	21	2	8	2
1920	Zn	pct	3	0	0	0	112	36	28	2	6	2
1920	Zn	pct	4	0	0	0	224	72	56	1	4	2
2014	Ag	oz	1	0	0	0	40	30	20	2	16	2
2014	Ag	oz	2	0	0	0	80	60	40	2	10	2
2014	Ag	oz	3	0	0	0	120	90	60	2	6	2
2014	Ag	oz	4	0	0	0	160	120	80	1	4	2
2014	Pb	pct	1	0	0	0	33	13	13	2	16	2
2014	Pb	pct	2	0	0	0	66	26	26	2	10	2
2014	Pb	pct	3	0	0	0	99	39	39	2	6	2
2014	Pb	pct	4	0	0	0	132	52	52	1	4	2
2014	Zn	pct	1	0	0	0	25	23	23	2	12	2
2014	Zn	pct	2	0	0	0	50	46	46	2	8	2
2014	Zn	pct	3	0	0	0	75	69	69	2	6	2
2014	Zn	pct	4	0	0	0	100	92	92	1	4	2

*The information of selected domains was included; for the remaining domains, please refer to the annexes.

Source: (Buenaventura, 2023)

During interpolation, distance restriction was applied to values above the thresholds listed in Table 11-11. These values were determined with the Probability plot for each domain (by composites); restriction value for each population was within the 95-98th percentile; efforts were made to limit metal loss to no more than 20%. In a limited number of cases, as the table indicates, metal loss exceeded 20%.

Table 11-11: Table of restrictions for updated and new veins

Vein	Metal	Units	High Yield Restriction (HYR)					
			CV	Metal cut	Num cut	No. of Composites	HYR 2022	HYR 2023
1910	Ag	oz	0.56	4.20%	1	21	18	18
1910	Pb	pct	0.87	13.10%	1	21	0.3	0.3
1911	Ag	oz	1.41	1.60%	1	8	14	14
1912	Ag	oz	0.7	12.50%	4	22	13	13
1913	Ag	oz	1.39	11.30%	2	46	20.31	20.31
1913	Pb	pct	2.44	10.00%	1	46	1.01	1.5
1913	Fe	pct	1.01	7.80%	2	46	1.94	1.94
1914	Ag	oz	0.61	14.90%	1	11	7	7
1914	Pb	pct	1.54	16.70%	1	11	3.01	3.5
1914	Zn	pct	0.82	17.60%	1	11	0.8	0.8
1914	Fe	pct	0.54	1.20%	1	11	1.77	1.77
1915	Ag	oz	1.34	0.40%	1	30	15	15
1917	Pb	pct	2.3	23.90%	1	22	-	0.6
1917	Zn	pct	1.67	14.50%	2	22	-	0.4
1919	Ag	oz	1.78	16.90%	2	28	0	38
1919	Pb	pct	2.13	1.80%	2	28	-	0.9
2020	Ag	oz	2.07	0.10%	2	156	144	144
2020	Pb	pct	1.2	5.10%	8	156	5.95	5.95
2020	Zn	pct	1.24	5.30%	8	156	8.3	8.3
2170	Ag	oz	1.15	5.10%	10	350	93	93
2170	Pb	pct	1.52	2.00%	7	350	7.77	7.77
2260	Ag	oz	1.42	3.00%	34	1140	99	99
2260	Pb	pct	1.41	1.60%	17	1140	6.89	6.89
2260	Zn	pct	1.29	4.60%	26	1140	6.8	6.8
2290	Ag	oz	1.09	9.60%	11	99	66	66
2290	Pb	pct	1.15	1.30%	3	99	3.15	3.15
2290	Zn	pct	1.18	2.70%	5	99	4.5	4.5
2300	Ag	oz	0.94	5.60%	167	4754	42	42
2300	Pb	pct	1.54	0.80%	19	4754	9.34	9.34
2300	Zn	pct	1.11	1.30%	29	4754	8.31	8.31

*The information of selected domains was included; for the remaining domains, please refer to the annexes.

Source: (Buenaventura, 2023)

Validation

The validation procedures for the estimation process utilized several techniques, including a visual inspection of the model through plan, section, and 3D composites; cross validation; validation of global estimates through statistical comparisons of average estimated values per domain between Ordinary Kriging (OK) or Inverse Distance (ID3) and Nearest Neighbor (NN); as well as validation of local estimates via the creation of Swath Plots.

Cross Validation

To optimize the parameters of the estimation- which was based on modeled variograms, estimation methods, and search neighborhoods- a cross-validation exercise was conducted. This technique excludes a sample point and estimates a grade in its place using the remaining composite data.

At Uchucchacua, Buenaventura used multiple estimation techniques, search neighborhoods, and variogram models to determine the parameters that would yield the most accurate results. Cross-validation results indicated that Ordinary Kriging was a suitable estimation method when sufficient data was available for variogram analysis. In cases where veins had insufficient data, the Inverse Power of Distance technique emerged as a more effective estimation method. Furthermore, cross validation played a crucial role in refining the variogram and search neighborhood parameters to enhance estimation accuracy (Figure 11-17).

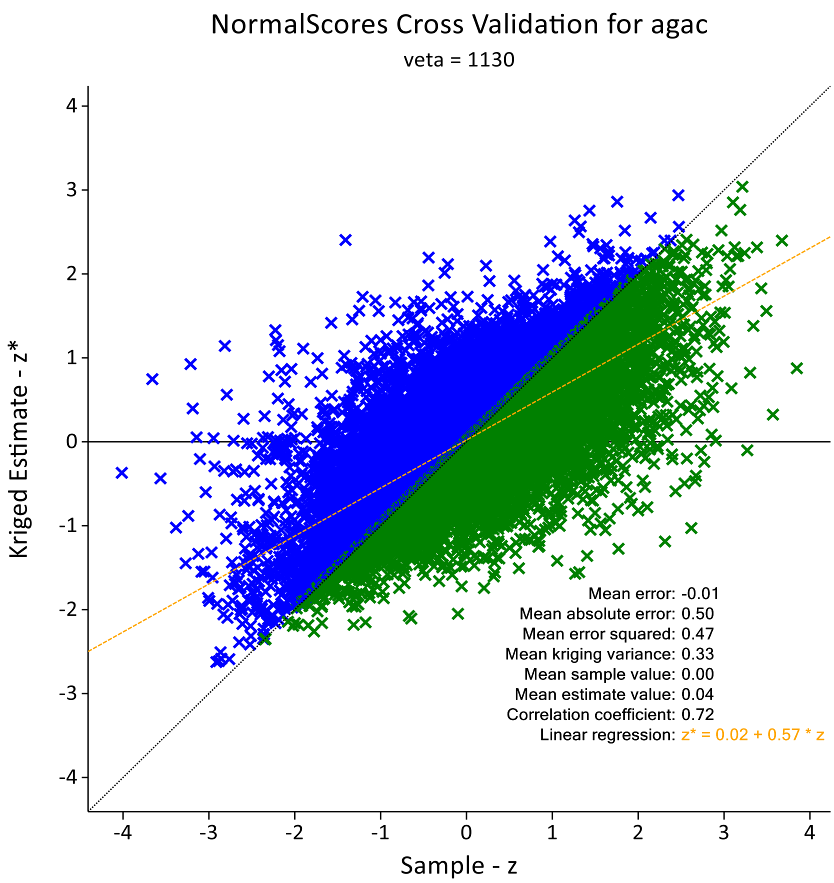


Figure 11-17: Cross validation of Ag for Gina Vein (1130), showing a correlation coefficient of 0.72.

Source: (Buenaventura, 2023)

Visual Inspection

Visual inspection played a critical role in the detection of spatial anomalies and was used to compare composite data and block grades. This step was essential to ensuring that the block model was aligned with the drillhole data and/or channel samples. The examination process considered a combination of composite data; information from the block model; and geological interpretations.

During the visual inspection, Buenaventura conducted a thorough review to verify the accuracy of both drillhole and block coding and ensured that the coding aligned with the geological interpretation. Additionally, an examination assessed whether the estimated grades demonstrated reasonable concordance between the samples and the block model, particularly in areas where a sufficient number of drillholes were available.

Figure 11-18 illustrates the variation of Silver (Ag) grades both horizontally (transversely) and vertically (longitudinally). This approach helped maintain the reliability of the estimation by containing the influence of data limitations in certain areas.

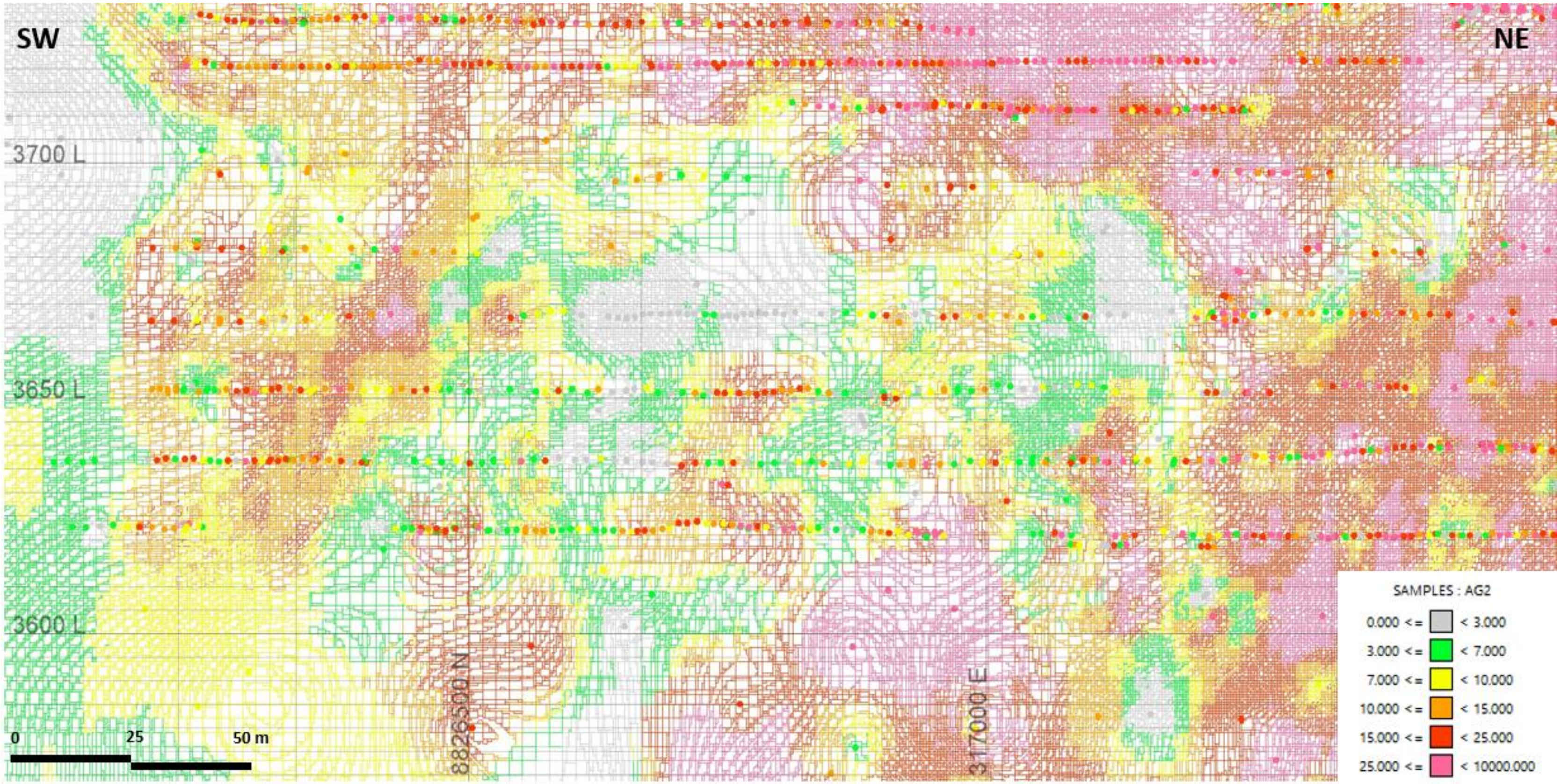


Figure 11-18: Gina-Socorro vein – Visual validation

Source: (Buenaventura, 2023)

Validation of the Global Estimate

In the evaluation of the estimation results at Uchucchacua, a comparative analysis was performed between models estimated with Ordinary Kriging or Inverse Distance and the Nearest Neighbor model. The outcomes of this comparison were generally found to be reasonable by SRK, with most differences falling below 5%. When differences exceeded this 5% threshold, they were typically attributed to one of two factors: overestimation by the Nearest Neighbor model due to the presence of isolated high-grade samples, or lower overall grade concentrations, especially in areas classified as inferred resources.

Table 11-12 provides an overview of the overall validation results, particularly within the Measured and Indicated categories. Notably, 90% of the results exhibited differences within the range of ±5%. However, there are instances where variations exceeding 10% observed. A closer examination of these structures revealed that they contain isolated high-grade samples within their domains. These high-grade values were deliberately restricted during the estimation process, which explains the variations observed in these specific cases.

Table 11-12: Global Validation for updated veins

Vein Code	Ag (oz)						Suggested method
	ID	NN	% diff (NN-ID)	OK	NN	% diff (NN-OK)	
1400	18.08	18.12	0.26	17.80	18.12	1.82	ID
1410	2.79	2.78	-0.38	2.76	2.78	0.71	ID
1411	7.87	7.86	-0.20	7.76	7.86	1.22	ID
1420	8.58	8.96	4.27	8.43	8.96	5.90	ID
1441	14.39	14.24	-1.01	14.04	14.24	1.41	ID
1540	11.94	12.39	3.63	11.86	12.39	4.31	ID
1590	1.41	1.57	10.15	1.44	1.57	8.76	OK
1610	1.93	1.95	0.62	1.86	1.95	4.18	ID
1630	2.50	2.53	1.38	2.49	2.53	1.71	ID
1650	3.32	3.37	1.45	3.34	3.37	0.97	OK
1800	1.56	1.50	-3.68	1.62	1.50	-7.54	ID
1900	9.50	8.74	-8.75	9.55	8.74	-9.30	ID
1901	8.79	8.61	-2.14	8.71	8.61	-1.21	OK
1903	5.39	5.15	-4.70	5.64	5.15	-9.54	ID
1906	1.84	2.10	12.05	1.94	2.10	7.35	OK
1907	10.45	10.48	0.35	10.59	10.48	-1.02	ID
1909	3.36	3.08	-9.12	4.96	3.08	-61.10	ID
1910	8.20	8.80	6.76	7.82	8.80	11.15	ID
1912	5.89	5.89	0.06	5.81	5.89	1.38	ID
1913	2.96	3.14	6.00	2.70	3.14	14.29	ID
1914	3.17	2.94	-7.72	3.13	2.94	-6.26	OK
1915	3.03	3.04	0.43	3.19	3.04	-4.77	ID

Vein Code	Ag (oz)						Suggested method
	ID	NN	% diff (NN-ID)	OK	NN	% diff (NN-OK)	
1916	5.66	5.47	-3.39	5.47	5.47	0.01	OK
1918	6.43	6.91	6.93	6.81	6.91	1.51	OK
1919	4.76	5.22	8.89	4.16	5.22	20.28	ID
1920	9.00	8.62	-4.38	9.07	8.62	-5.17	ID
2013	0.43	0.44	0.26	0.45	0.44	-3.33	ID
2014	2.04	2.06	0.86	2.01	2.06	2.60	ID
2020	5.51	6.10	9.70	5.27	6.10	13.65	ID
2170	13.14	13.11	-0.24	13.13	13.11	-0.21	OK
2260	8.76	8.95	2.18	8.70	8.95	2.79	ID
2262	1.82	1.83	0.09	1.84	1.83	-0.83	ID
2263	2.61	2.48	-5.08	2.63	2.48	-5.77	ID
2264	2.98	3.24	7.94	2.97	3.24	8.43	ID
2290	13.59	13.89	2.16	12.79	13.89	7.92	ID
2300	9.49	9.55	0.61	9.37	9.55	1.92	ID
2310	9.02	8.51	-5.95	9.03	8.51	-6.08	ID
2311	6.63	7.64	13.22	6.85	7.64	10.28	OK
2312	9.73	9.96	2.31	9.57	9.96	3.84	ID
2360	4.30	4.49	4.40	4.20	4.49	6.43	ID
2400	7.79	7.97	2.26	7.17	7.97	9.97	ID
2542	2.37	2.31	-2.77	2.39	2.31	-3.79	ID
2580	8.60	8.56	-0.49	8.33	8.56	2.61	ID
2610	2.09	1.96	-6.42	2.08	1.96	-5.87	OK

Source: (Buenaventura, 2023)

Local Validation

Buenaventura validated results by generating Swath Plots, which compared blocks estimated through Ordinary Kriging (OK) and Inverse Distance (ID3) to their respective Nearest Neighbor (NN) models. Additionally, declustered composites were used for each of the veins in the east, north, and elevation directions to validate the estimates on a local scale using an average bandwidth of 5 meters. Local estimate validation was instrumental in assessing each model to ensure that the estimation process did not introduce excessive or conditional bias and that an acceptable level of score variation was maintained.

The Swath Plots depicted good continuity between Ordinary Kriging estimates and declustered Nearest Neighbor estimates, signifying that the kriging process did not overly smooth the data. Areas with limited correlation, primarily at the extremities of veins, were typically associated with regions with a limited number of samples.

Based on the outcomes of these validation exercises, Buenaventura determined that Ordinary Kriging served was a suitable interpolation method, in that it provided reasonable results both locally and globally for all the economic metals under consideration. Figure 11-19 shows the swath plot of Cachipampa vein (1060) made in all 3 directions (X, Y and Z) and a cross strike of 160°. Except for the peaks, which correspond to unconcentrated high grades, it was observed that on average, the estimates by Inverse Distance (n=3) and Ordinary Kriging remain below the average of composites.

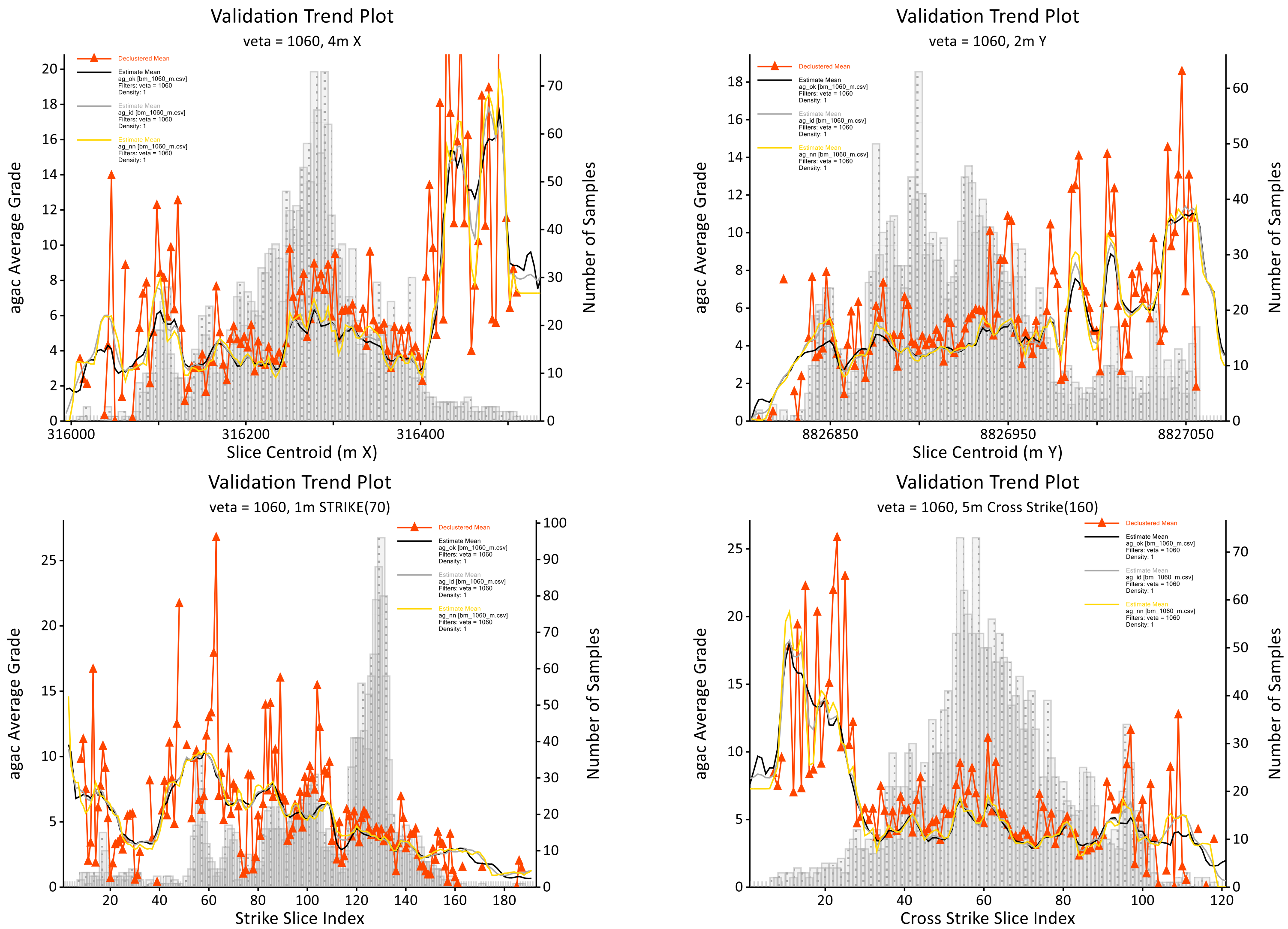


Figure 11-19: Swath Plot – Veins for Ag (g/t) – Cachipampa Vein – Axis X, Y, Z, and 160°

Source: (Buenaventura, 2023)

Depletion

Buenaventura used coding to identify mining zone 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.

Some material, including pillars and crown pillars or materials that were unextractable due to limitations during the mining process, often remain in the model. To isolate the impact of these areas in the estimation process, Buenaventura's planning department identifies areas that are fully mined and labels the remaining blocks in the block model with the code "Condition = 1, 2, 3 and 4" (Table 11-13); these areas are subsequently removed from reported Mineral Resources.

Table 11-13: 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)
	4	Crusts or Remnants (update)

Source: (Buenaventura, 2023)

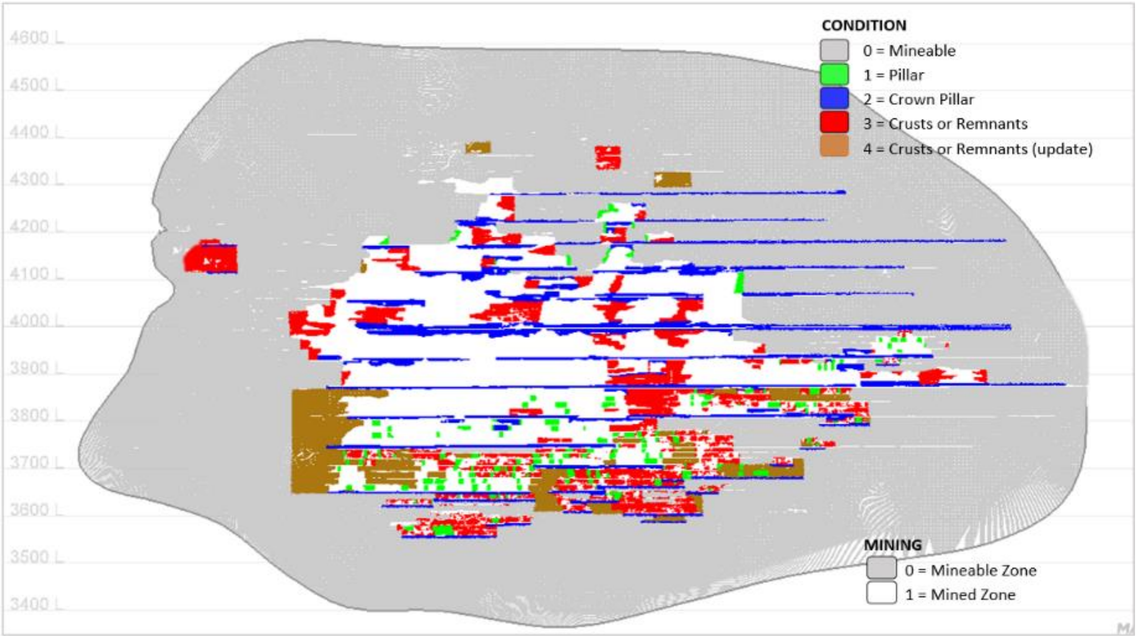


Figure 11-20: Classification by Mining and Condition variables in Gina vein

Source: (Buenaventura, 2023)

Finally, the exclusive mineral resources are reported based on the following conditions:

- Mined = 0
- Condition = 0
- Resource = 1
- Reserve = 0

Bulk Density

A total of 2,519 density measurements were conducted at the Uchucchacua unit; these density samples correspond to 190 veins representing 5 domains. Outliers that were not representative of the sample population were discarded, reducing the total density measurement numbers used in the analysis to 2,446. The veins that had no density sample information were associated according to their mineralogical characteristics, location, structural family and tectonic regime with veins that had density samples.

Buenaventura calculated overall statistics with data filtered by limits of Mean ± 2 Standard Deviation without Independent Veins (Gina and Lilia) (Table 11-14), then the statistics of data filtered by limits of Mean ± 2 Standard Deviation for Independent Veins were calculated (Table 11-15).

Table 11-14: Raw Density statistics

Zone	Domain	Average Density (g/cm³)	Sample count	Minimum (g/cm³)	Maximum (g/cm³)	Median (g/cm³)	Std. Dev.	CV
100_NoraGeraldine	Veta	3.35	132	2.70	3.88	3.38	0.30	0.09
	Veta (Resto de Vetas)	3.81	676	2.57	6.88	3.74	0.66	0.17
100_Socorro	Veta Gina (1130)	3.56	254	2.67	6.96	3.46	0.56	0.16
	Veta Lilia (1200)	3.61	85	2.71	4.60	3.55	0.50	0.14
200_Carmen	Veta	3.61	163	2.65	5.14	3.59	0.49	0.14
300_Huantajalla	Veta	3.62	140	2.38	4.54	3.63	0.36	0.10
400_Casualidad	Veta	3.52	148	2.62	5.22	3.55	0.53	0.15
	Oxidos_Asignado	2.39	7	2.15	2.65	2.43	0.16	0.07
	Oxidos_Flag	2.14	11	1.18	3.16	2.15	0.60	0.28
	Oxidos_Total	2.24	18	1.18	3.16	2.27	0.49	0.22
100_NoraGeraldine	RocaCaja	2.72	154	2.64	3.13	2.71	0.05	0.02
100_Socorro	RocaCaja	2.74	419	2.04	3.80	2.72	0.10	0.04
200_Carmen	RocaCaja	2.73	224	2.24	3.60	2.71	0.11	0.04
300_Huantajalla	RocaCaja	2.72	70	2.43	3.00	2.72	0.07	0.03
400_Casualidad	RocaCaja	2.74	35	2.53	3.08	2.75	0.11	0.04

Source: (Buenaventura, 2023)

Table 11-15: Density Statistics of Independent Veins with data filteres by Mean ± 2SD

Zone	Domain	Average Density 2023 (g/cm³)	Sample count	Minimum (g/cm³)	Maximum (g/cm³)	Median (g/cm³)	Std. Dev.	CV	Average Density 2022 (g/cm³)
100_NoraGeraldine	Veta	3.37	128	2.78	3.88	3.38	0.28	0.08	3.41
	Veta (Resto de Vetas)	3.75	654	2.57	5.12	3.70	0.58	0.16	3.74
100_Socorro	Veta Gina (1130)	3.52	248	2.67	4.64	3.45	0.48	0.14	3.55
	Veta Lilia (1200)	3.61	85	2.71	4.60	3.55	0.50	0.14	3.74
200_Carmen	Veta	3.57	158	2.65	4.46	3.58	0.44	0.12	3.5
300_Huantajalla	Veta	3.61	130	2.91	4.20	3.63	0.28	0.08	3.61
400_Casualidad	Veta	3.47	142	2.62	4.53	3.51	0.45	0.13	3.47
	Oxidos_Asignado	2.39	7	2.15	2.65	2.43	0.16	0.07	2.17
	Oxidos_Flag	2.14	11	1.18	3.16	2.15	0.60	0.28	2.17
	Oxidos_Total	2.37	16	1.86	3.16	2.34	0.32	0.14	2.17
100_NoraGeraldine	RocaCaja	2.71	148	2.64	2.81	2.71	0.02	0.01	2.71
100_Socorro	RocaCaja	2.73	405	2.55	2.93	2.72	0.06	0.02	2.75
200_Carmen	RocaCaja	2.71	215	2.52	2.94	2.71	0.04	0.02	2.71
300_Huantajalla	RocaCaja	2.72	66	2.64	2.79	2.72	0.04	0.01	2.72
400_Casualidad	RocaCaja	2.73	33	2.53	2.95	2.74	0.09	0.03	2.73

Source: (Buenaventura, 2023)

11.1.2 Resource Classification and Criteria

The Confidence Limits methodology was used to categorize the resources. First, the production volume for a given month is used to determine which panel will be evaluated (Table 11-16).

Table 11-16: 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, 2023)

A fictitious drilling pattern is defined every 10 meters. Based on EDA and variography, the Kriging variance (KV) and the Coefficient of variation (CV) of composites are determined. These two parameters are used to calculate the Relative Standard Error (RSE); subsequently a Confidence Limit at 90% was applied to the annual production volume (A90%) and to the quarterly production volume (Q90%). The calculation per spacing is shown in Table 11-17.

Table 11-17: 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: (Buenaventura, 2023)

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

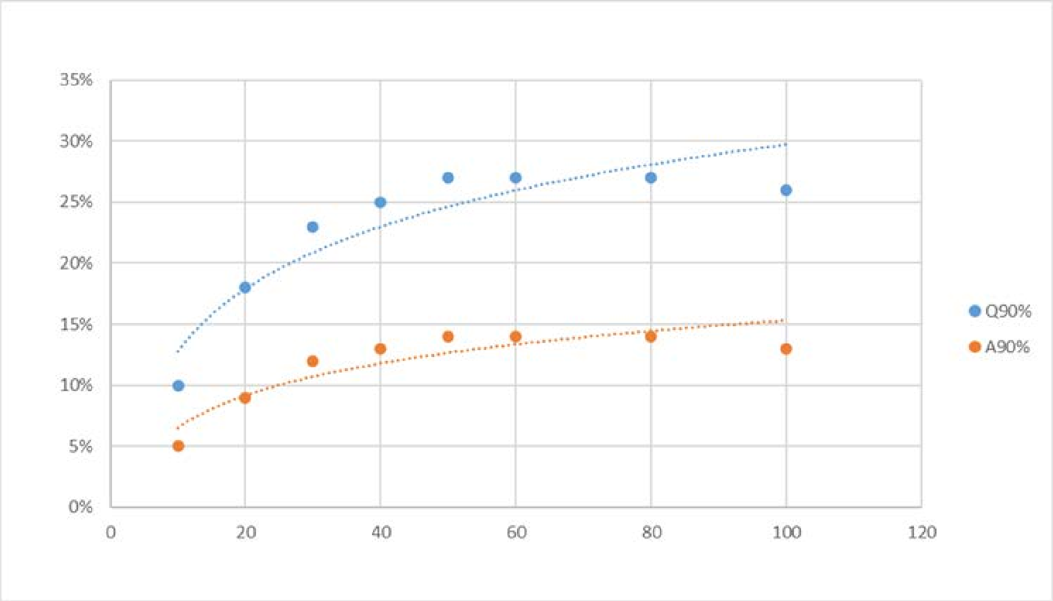


Figure 11-21: Spacing vs Error plot for Vein 2090

Source: (Buenaventura, 2023)

Finally, a resource is considered a Mineral Resource when the spacing error is less than or equal to 15% at Q90%. Indicated Resources, in turn, have spacing errors less than or equal to 15% at A90%. These values are calculated as indicated in the graph for Figure 11-21

The variable "d3h_avgdist_anisot" was calculated as the average anisotropic distance of the three closest drillholes. The aforementioned variable and number of holes used to estimate the block serve as the bases for categorization.

The estimation parameters at Uchucchacua Mine were simplified by Buenaventura, 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 to smooth categorization was defined to eliminate the risk of generating a "spotted dog" effect. Buenaventura generated polygons based on the initial categorization of measured and indicated resources to adequately manage the distribution of resource categorization and its continuity. Table 11-18 shows the summary criteria for distance between samples and the number of drillholes for each category.

Table 11-18: 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, 2023)

In addition to the aforementioned procedure, Buenaventura considered the following factors to classify resources, which may affect confidence in the estimate:

- 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 Buenaventura's property. Detailed surface mapping has identified vein structures; this mapping is supported by the results of extensive exploration drilling.

Buenaventura's exploration geologists record drill cores in detail, including textural, alteration, structural, geotechnical, mineralization, and lithological properties and develop and in-depth understanding of the geological controls that impact mineralization.

The company’s understanding of vein systems is firmly supported by extensive underground workings, which facilitate detailed geological 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. Buenaventura has explored veins with a drilling pattern that is spaced approximately 60 m 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 mineralization strike. Geological confidence and the 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 QA/QC programs, which assess the methods used to measure data and their results.

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; these findings, however, have had 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, which indicates that the precision of this metal has low variability. As such, in general, silver grades are thought to have good continuity over short distances, which leads to 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, which enhances confidence in the estimated grades.

Density Samples

SRK considers that density samples are not representative of the entire deposit; 190 veins out of a total of 311 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 that could generate an underestimation or overestimation in the average values used. Certain veins have limited information on density, which was one of the reasons that no measured resources were reported for these areas.

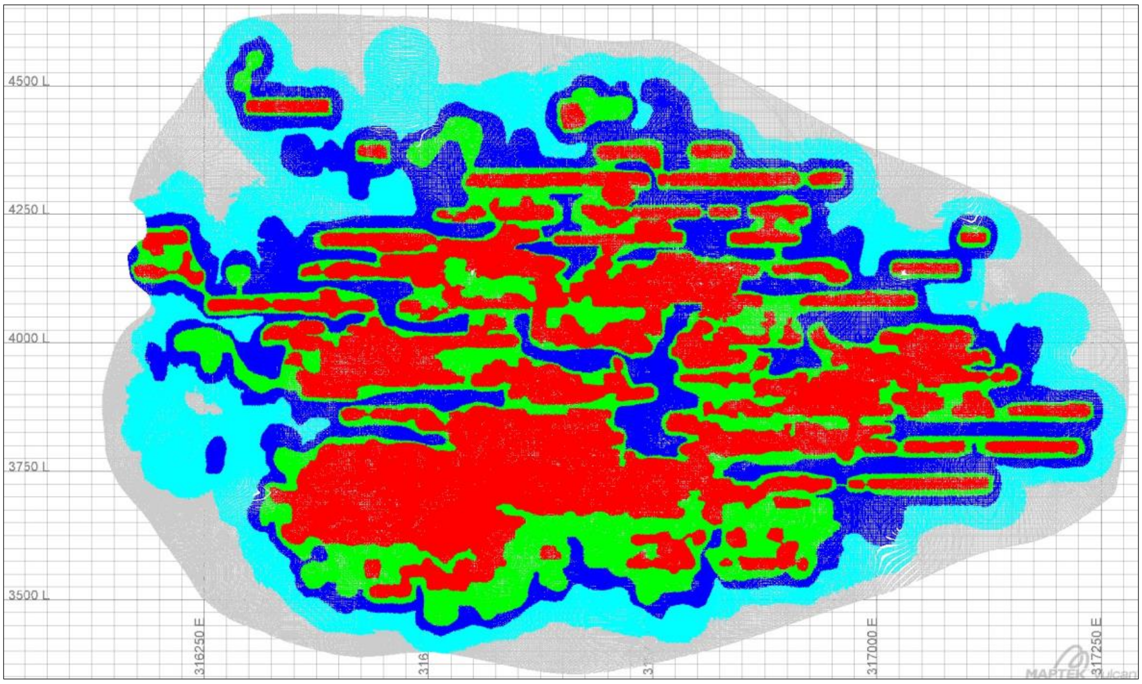


Figure 11-22: Block Classification of Gina-Socorro Vein

Source: (Buenaventura, 2023)

11.1.3 Cut-Off Grade Estimates

The cut-off value used to report mineral resources is based on the average operating costs which have been updated to 2023 considering the mining methods projected for Uchuchaccua, as well as medium and long-term operational projections. There are five extraction methods (Bench & Fill and Cut & Fill with their BM, BSM, RM and RC variants) as shown in Table 11-19, that have been taken into account to determine the value of Mineral Resources cutoff during 2023.

Table 11-19: Cut Off grade calculation for Resources

Description	Bench & Fill	OCF Breasting (Mechanized) Jumbo	OCF Breasting (Semi-Mechanized) Jackleg	OCF Realce/ Circado (Mechanized) Mukif 10'	OCF Realce/ Circado (Captive) Stoper 8'
	Variable (USD/t)	Variable (USD/t)	Variable (USD/t)	Variable (USD/t)	Variable (USD/t)
1. Mine	36	51	58	61	71
2. Plant	12	12	12	12	12
3. Services	4	4	4	4	4
Sub total Opex	**52**	**67**	**74**	**77**	**87**
5. Administrative costs	0	0	0	0	0
6. Off site costs	1	1	1	1	1
7. Sustaining CAPEX	0	0	0	0	0
9. Contingency (10%)	5	7	7	8	9
Marginal Cutoff Value	**59**	**75**	**83**	**86**	**97**

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

Source: (Buenaventura, 2023)

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

- 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.
- Resource: the resource variable provides this information where value 0 means “outside the resource stopes” and value 1 means “within the resource stopes”. For the report, the value used was value 1.
- Reserve: the resource variable provides this information where value 0 means “outside the reserve stopes” and value 1 means “within the reserve stopes”. For the report, the value used was value 0.
- Category: the category variable provides this information, where 1: measured, 2: indicated, 3: inferred.

NSR (Net Smelter Return) calculation considers variable metallurgical recoveries according to grade ranges and metal prices (Table 11-23) and the parameters used are listed in Table 11-20, Table 11-21 and Table 11-22.

Table 11-20: Metal Prices

Metal	Unit	US$
Silver	US$/Oz	**23**
Lead	US$/t	**2,100**
Zinc	US$/t	**2,600**

Source: (Buenaventura, 2023)

Table 11-21: NSR Uchucchacua

Metal	Payable	NSR
Silver ($/oz)	60.5%	13.9179
Lead ($/t)	58.6%	12.2959
Zinc ($/t)	40.9%	10.6228

Source: (Buenaventura, 2023)

Table 11-22: Metallurgical recovery models

Metal	Grade Range	Metallurgical Recovery
Rec Ag	<2.8	28.877*LeyAg
	>=2.8	4.22*Ln(LeyAg)+76.51
Rec Pb	<0.4	228.290*LeyPb
	>=0.4	0.24*LeyPb+91.22
Rec Zn	<0.55	111.224*LeyZn
	>=0.55	11.72*LN(LeyZn)+68.18

Source: (Buenaventura, 2023)

Table 11-23: NSR calculation formula

Unit	NSR Formula
Uchucchacua	(AgGrade*13.9179469600783*RecAg + PbGrade*12.2959414069225*RecPb + ZnGrade*10.622826189487*Rec Zn)/100

Source: (Buenaventura, 2023)

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."

11.1.4 Reasonable Potential for Eventual Economic Extraction (RPEEE)

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
- Cut-Off: Differentiated by Mining Method, as shown in the Table 11-24.

Table 11-24: Cut-Off differentiated by mining method

Mining method	B&F	OCF_BM	OCF_BSM	OCF_RM	OCF_RC
Marginal Cutoff (USD/t)	59	75	83	86	97

Source: (Buenaventura, 2023)

- 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
- Sub Shapes Stopes:
  - U: Fraction Length Stope
  - V: Fraction Height Stope

Table 11-25: Sub Shapes Stopes parameters

U min	U max	V min	V max
0	0.5	0	1
0.5	1	0	1

Source: (Buenaventura, 2023)

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.

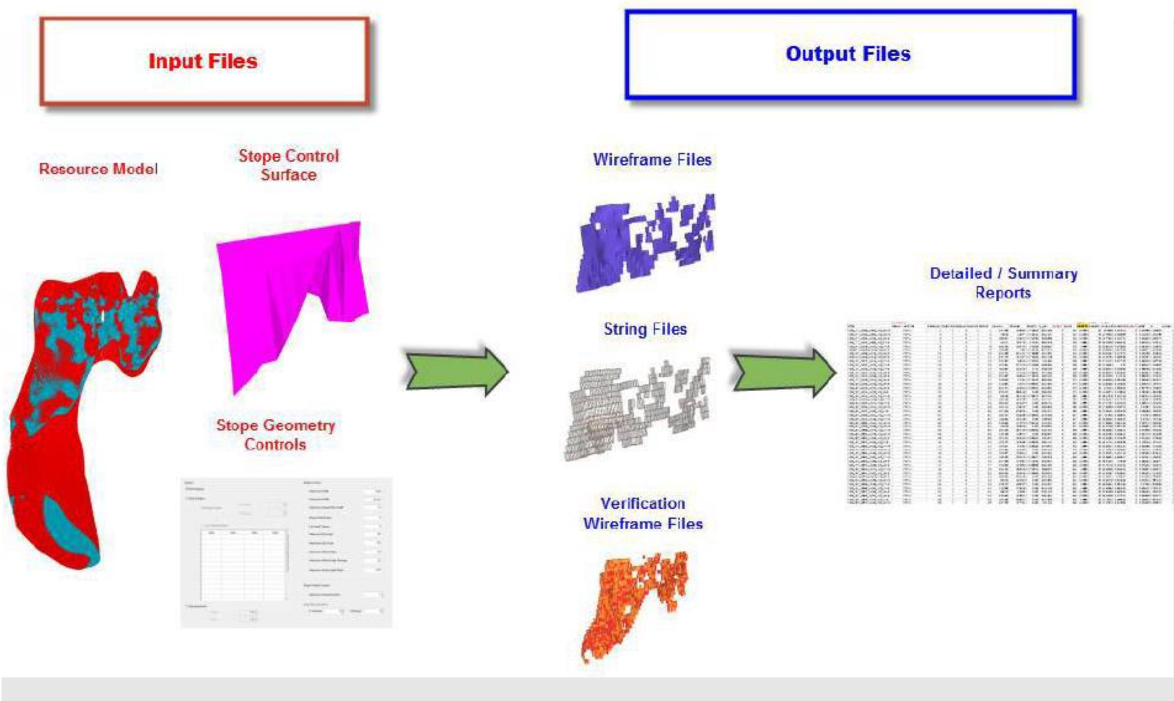


Figure 11-23: Input and output files after RPEE analysis

Source: (Buenaventura, 2023)

11.1.5 Mineral Resources Estimates

The following considerations were taken into account to report 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 11-26).

Table 11-26: NSR Calculation Formula

Unit	NSR Formula
Uchucchacua	Ley Ag (Oz/t)*16.799515*Recuperación Ag(Oz/t) + Ley Pb (%)*10.05312*Recuperación Pb(%)+ Ley Zn (%)*9.707668*Recuperación Zn(%)

Source: (Buenaventura, 2023)

The summary of variables and filters used in the report are listed in Table 11-27.

Table 11-27: 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
Resource	0: outside the resource stopes 1: within the resource stopes	0	Resource = 1
Reserve	0: outside the reserve stopes 1: within the reserve stopes	0	Reserve = 0
NSR (Cut-off)	Net Smelter Return in US$/t (considers variable recoveries)	0	NSR >= 70

Source: (Buenaventura, 2023)

Table 11-28: Resources Report Summary

Resources Report as of July 03, 2023

Unit: Uchucchacua Date: 24/12/2023 Cut-off: Differenciated

Zone	Category	Tonnage	Ag	Pb	Zn	Mn	Fe	NSR	AgEq	Onz Equiv	Width
		kt	Oz/t	%	%	%	%	US$/t	Oz/t	Moz	m
Carmen	Measured	193	11.50	1.07	1.62	8.04	4.17	164.85	13.68	2.64	1.44
	Indicated	501	9.43	1.60	2.49	8.00	8.55	153.11	12.74	6.38	3.54
	Measured & Indicated	694	10.01	1.45	2.25	8.01	7.33	156.38	13.00	9.02	2.95
	Inferred	1,246	14.24	1.38	1.95	7.99	6.10	207.55	16.95	21.11	2.55
Casualidad	Measured	22	8.33	1.78	2.00	3.81	8.95	137.06	11.42	0.25	1.61
	Indicated	131	7.15	1.65	3.28	3.80	10.48	133.38	11.11	1.46	1.83
	Measured & Indicated	153	7.32	1.67	3.10	3.80	10.26	133.91	11.16	1.71	1.80
	Inferred	416	8.74	2.35	3.85	3.81	11.97	167.86	13.76	5.73	2.30
Huantajalla	Measured	22	10.36	1.61	2.16	4.61	10.52	163.23	13.42	0.30	1.56
	Indicated	122	11.45	1.45	1.87	6.45	9.52	172.50	14.16	1.73	1.76
	Measured & Indicated	144	11.28	1.48	1.92	6.17	9.67	171.09	14.05	2.02	1.73
	Inferred	545	12.00	2.05	2.53	4.19	10.94	192.71	15.74	8.58	1.89
Socorro	Measured	632	8.33	1.31	2.67	8.00	7.34	138.05	11.52	7.28	2.55
	Indicated	1,567	7.86	1.27	2.59	8.90	7.56	130.87	10.96	17.17	2.65
	Measured & Indicated	2,199	7.99	1.28	2.61	8.65	7.50	132.93	11.12	24.45	2.62
	Inferred	2,702	8.96	1.65	2.94	8.74	8.81	152.99	12.66	34.21	2.56
Total	**Measured**	**869**	**9.08**	**1.27**	**2.41**	**7.82**	**6.76**	**144.62**	**12.04**	**10.47**	**2.25**
	Indicated	**2,321**	**8.35**	**1.38**	**2.57**	**8.29**	**8.04**	**138.00**	**11.52**	**26.74**	**2.75**
	Measured & Indicated	**3,190**	**8.55**	**1.35**	**2.52**	**8.16**	**7.69**	**139.80**	**11.66**	**37.20**	**2.61**
	Inferred	**4,910**	**10.62**	**1.69**	**2.72**	**7.63**	**8.63**	**172.50**	**14.18**	**69.63**	**2.46**

Note: Resources do not include reserves, no mineral loss or dilution has been included.

The prices used are US$23.00 per ounce Ag, US$ 2,100.00 per ton Pb, US$ 2,600.00 per ton Zn

Source: (Buenaventura, 2023)

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.

11.1.6 Uncertainty

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

- Database and QA/QC: the database is run by an MsSQL engine and the storage structure has been generated in Acquire software. For information management, an InHouse Buenaventura implementation is used, which ensures the traceability of information. SRK evaluated the documents supporting (certificates) this information and was able to identify that around 25% had no supporting documents, mainly for information collected prior to 2010. In the case of QA/QC, problems were identified with accuracy and precision (especially for duplicates).
- Density: 190 veins were sampled to obtain density measurements. SRK uses a clustering methodology to assign density values to unsampled veins based on their geological similarity to the 190 veins sampled. SRK recommends improving the distribution of density samples to cover the complete volume of the structures; in subsequent updates, the process should include density interpolations that are in line with industry best practices.
- Geological Model: the lithological and structural model for the deposit has a basic level of detail to identify the litho-structural domains present in the deposit. Also, Uchucchacua has defined solids that represent the deposit's mineralized structures. Definition is based on mapping, channel sampling, and drillhole information. Given the importance of this deposit structure, SRK recommends creating a structural model that can be periodically updated.
- Resource Estimation: the process was conducted according to SEC’s Best Practices for Resource Reporting. During the Exploratory Data Analysis, Buenaventura 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 highl 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 the three drillings closest to the estimated block. In SRK's opinion, the categorization is appropriate. Nonetheless, going forward, updates of mineral resources should

include QA/QC results (with a focus on accuracy and determining levels of contamination in samples) and ensure that sample support is available for the density of each reported vein.

- No reconciliation information is available to contrast estimates with actual ore processing results. For the next update, it is important to incorporate the results of a reconciliation of the main processes that includes results from resource models, mining plans, and metallurgical plant results into the resource and reserve model validation processes.

Given that adequate means are in place to address uncertainty in the estimation - categorization process, SRK believes that the stated mineral resources are appropriate and adequate for public disclosure.

11.1.7 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 operating costs which have been updated to 2023 considering the mining methods projected for Uchucchacua, as well as medium and long-term operational projections; is also based on 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'.

11.2 Yumpag Unit

11.2.1 Key Assumptions, Parameters, and Methods Used

This section describes the audit of the Yumpag Project mineral resource estimation process carried out by Buenaventura based on the database with a closing date of August 6, 2023. The effective date for the mineral resources report is July, 3 of 2023.

The estimate of mineral resources of the Yumpag project includes the estimate of the Camila and Tomasa ore bodies. Each was estimated separately and using a different block model. Figure 11-24 presents the spatial location of the mentioned areas.

For the resource model, Buenaventura followed the following steps, which were subsequently validated 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, iron, manganese 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, Fe, Mn, Pb, Zn and sample length, assignment of density values.
- Validation of grade estimates against original data.
- Classification of estimates with respect to the SEC guidelines.
- Assignment of an NSR based on long-term metal prices, metallurgical recoveries, smelter costs, commercial contracts and average concentrate grades.
- Depletion of blocks identified as mined or inaccessible.
- Report of mineral resources based on NSR cut-off grades.

The following sections describe SRK's findings after reviewing the methodology, procedures and results of Buenaventura's mineral resource estimation.

Geological Model

The Uchucchacua Mining District - where the Yumpag project is found - is located in a segment of the Marañón thrust and fold belt, in the XX Metallogenetic Belt of Pb-Zn-Cu-Ag skarn deposits, Cu-Ag porphyries, Mo-Au and polymetallic deposits related to Miocene intrusives. The area consists of a folded and thrust Mesozoic sedimentary basin, which is intruded by granodioritic, dioritic and subvolcanic stocks of rhyolite-dacite-diorite composition that generate an aureole of skarn and marble on the periphery.

Yumpag is located 7 km NE of the Uchucchacua Mining Unit. To date, two parallel mineralized structures with a N60° direction of significant economic interest have been identified: Camila and Tomasa.

Tomasa is a new discovery and to date consists of a N60° structure that runs parallel 500 m northwest of Camila; via drilling beginning at the end of 2020, 750 m of continuous high-grade Ag-(Pb-Zn) mineralization have been recognized at the intersection of a system of interlocking structures with the Beta and Gastropod prospect horizons within the upper Jumasha limestones, which also host mineralization at Camila.

Two larger bodies (“bolons”) with high silver grade have been recognized within these systems. These “bolons” seem to be associated with favorable zones at the intersection with NNE-SSW transverse faults (Andean fault system).

The location of the project is shown on Figure 11-24.

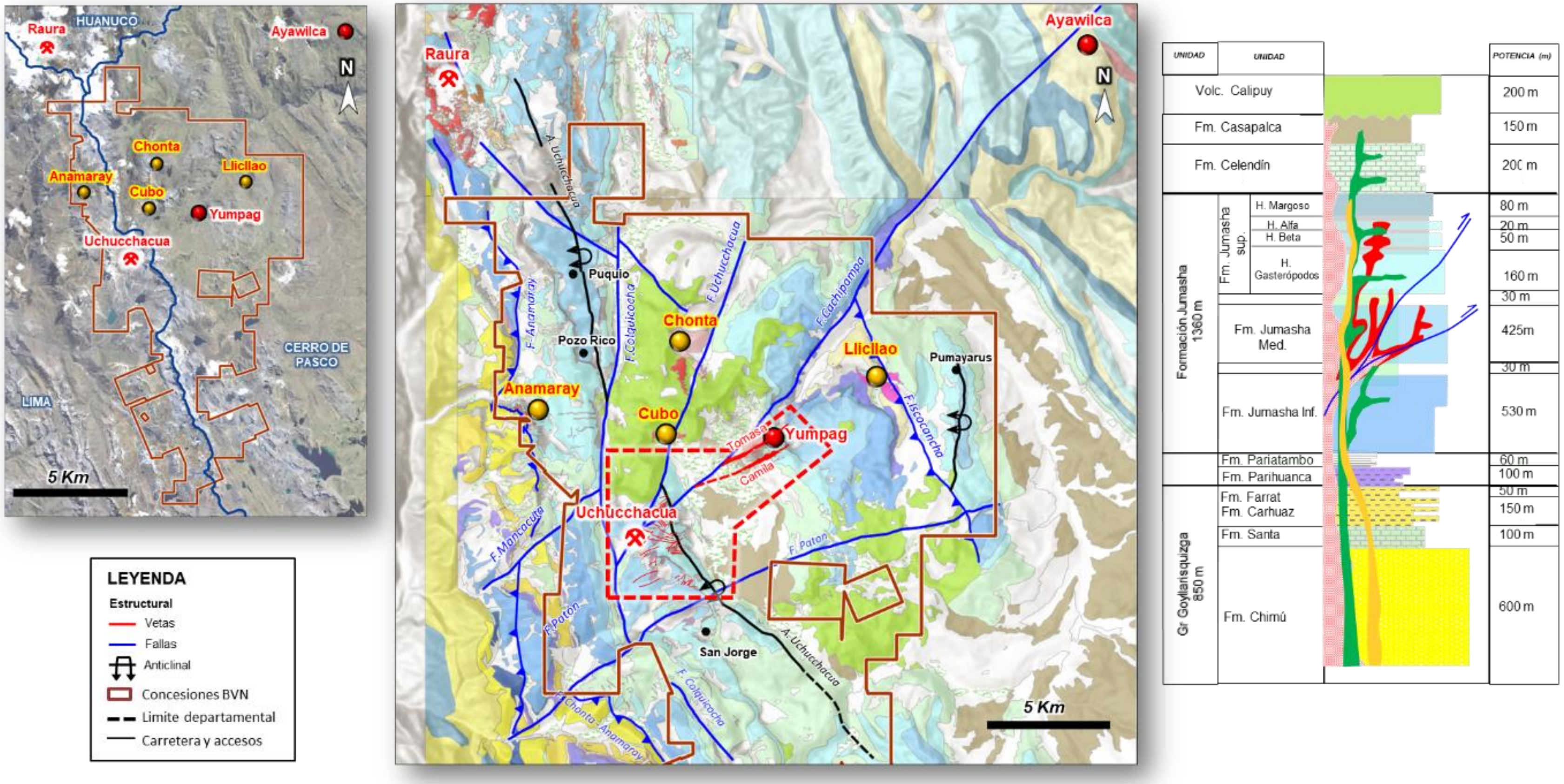


Figure 11-24: Location plane

Source: (Buenaventura, 2023)

The Tomasa corridor corresponds to an intertwined system of mantle-type mineralized structures and bodies (“bolones”) with economic high-grade Ag-(Pb-Zn) mineralization, with azimuth between N60° and N65° that is hosted in the Beta horizons and Gastropods from the upper Jumasha.

Drilling work for Tomasa from 2021 to the end of 2022 covered a total of 22,144 m of a 23,000 m program, distributed in 35 holes that were arranged to follow the continuity of mineralization towards the SW at its intersection with the Cachipampa fault while delimiting the two large high-grade bodies or “bolones” at the eastern end and center of Tomasa. Regarding the operational infrastructure, the Mine Operations and Planning areas are currently working on increasing the depth of Ramp 4490 and are building works (Crucero and Rampa Tomasa) where infill Drilling and exploration campaigns will be carried out in the 2023.

The 2022 drilling campaign (11,659 m) ratified the high-grade Ag-(Pb-Zn) mineralized system in Tomasa in area extending 750 m, with 200 m of field and an average width of 60 m; an average power of 12 m mineralized cuts was used. Two very important cuts stand out from others: (Figure 11-25 and Figure 11-26).

- YUM22-237: 45.95 m at 88.2 oz/t Ag, 13.1% Mn (521.85 m - 567.80 m); includes:
  - 15.44m at 191.8 oz/t Ag, 11.1% Mn.
- YUM22-239: 70.86 m at 20.8 oz/t Ag, 17.5% Mn (398.87 m - 469.73 m).

The economic mineralization consists mainly of Ag–alabandite sulfosalts, with galena–sphalerite content. They show a northeastern gradation with a higher alabandite content that decreases toward the southwest. The location of the mineralization in the northeastern sector is concentrated - and has been explored in the Beta horizon. To the west, larger mineralized cuts have been defined in the “Gasteropodos” horizon, which is replicated in the two bodies and contain larger volumes of mineralization, such as “Bolon 1,” located in the Beta horizon, and “Bolon 2,” located in the “Gasteropodos” horizon. The identified mineralization shows Ag sulfosalts, red silvers, galena, sphalerite and pyrite- which increases toward the southwest end, where an increase in iron is also recorded in the ferric sphalerite, (without constituting marmatite).

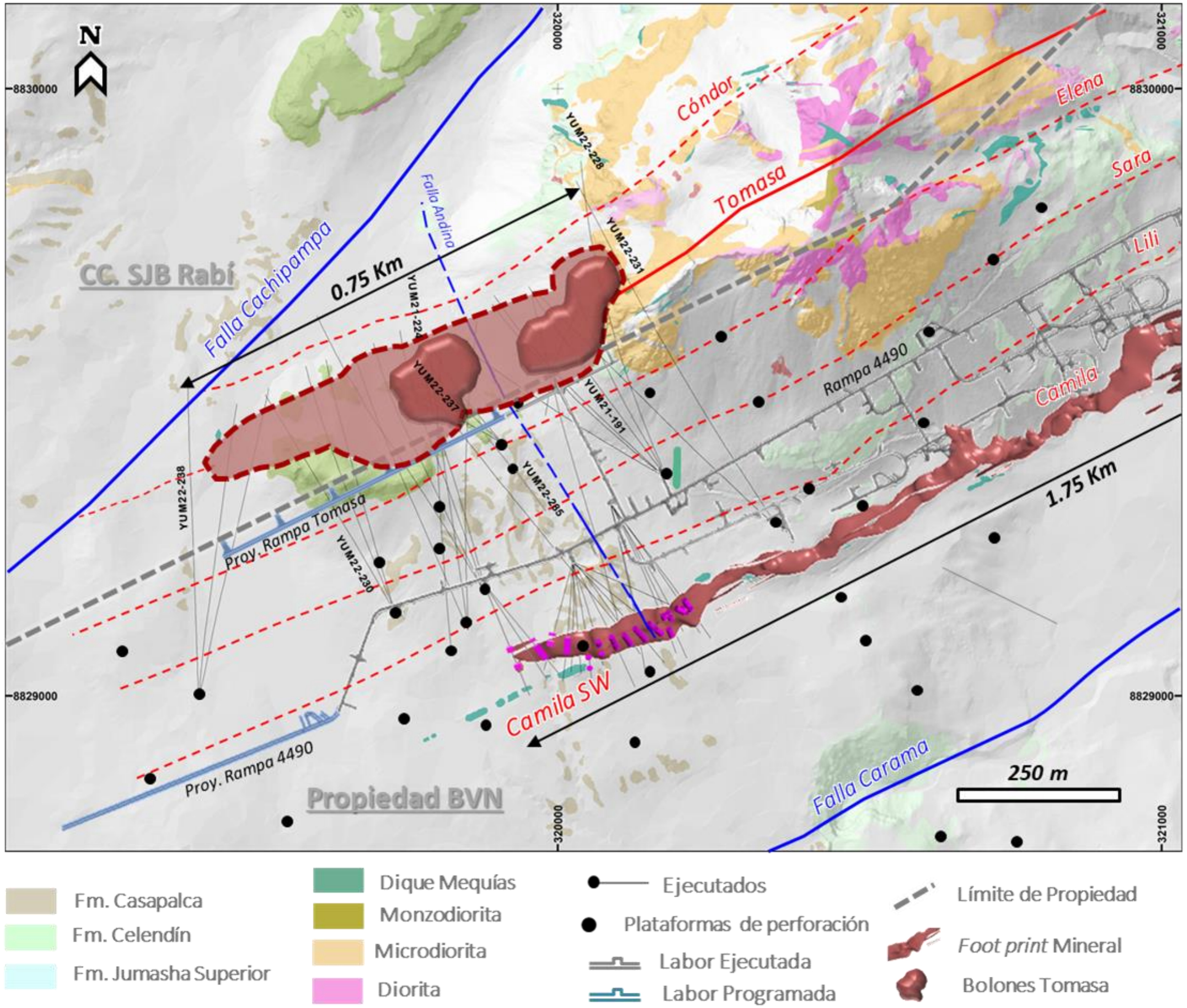


Figure 11-25: Location of platforms and drillings executed

Source: (Buenaventura, 2023)

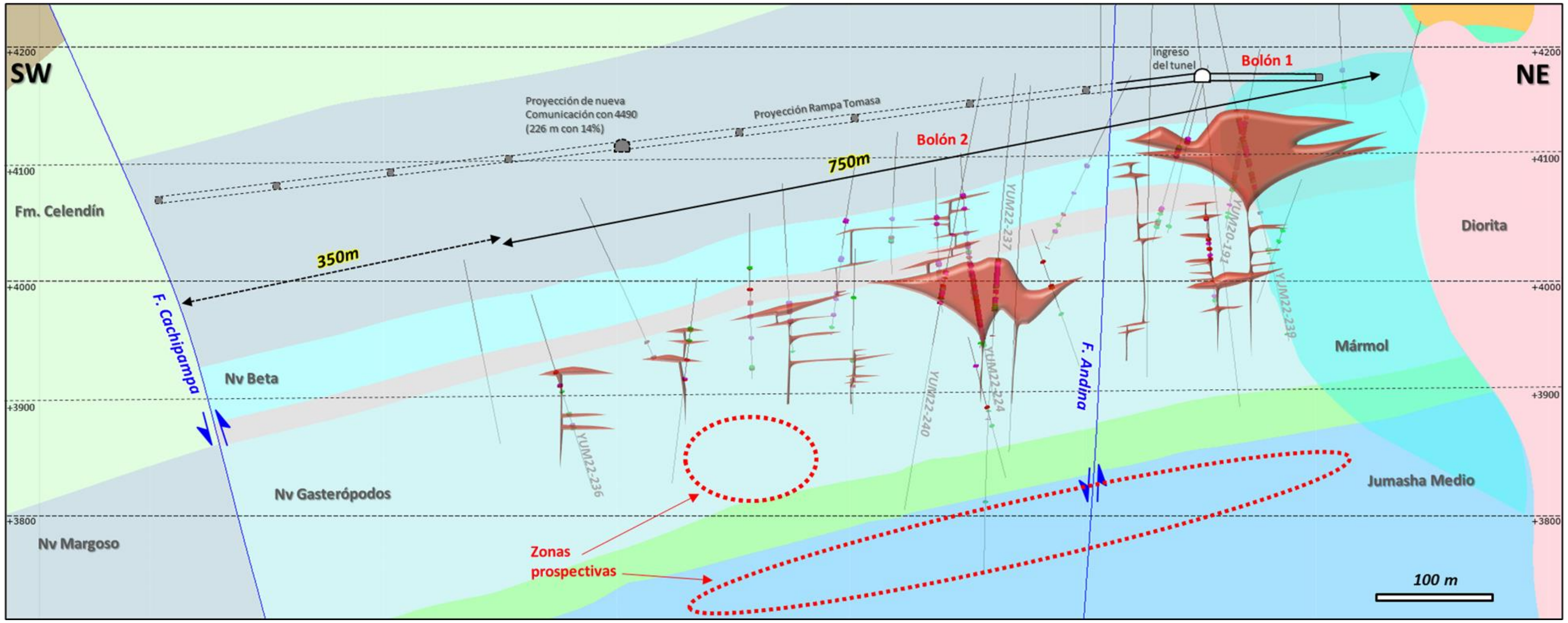


Figure 11-26: Tomasa Longitudinal Section with current cuts. Note the two bodies with the greatest volume Bolón 1 and Bolón 2

Source: (Buenaventura, 2023)

Conditions for geological modeling at Yumpag are well established and underground work has found 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 ensure that samples within veins contain no 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 Geo® implicit modeling tools (Figure 11-27). The modeling baseline database considered the chemical analyses (assays) of mine channels and diamond drill holes.

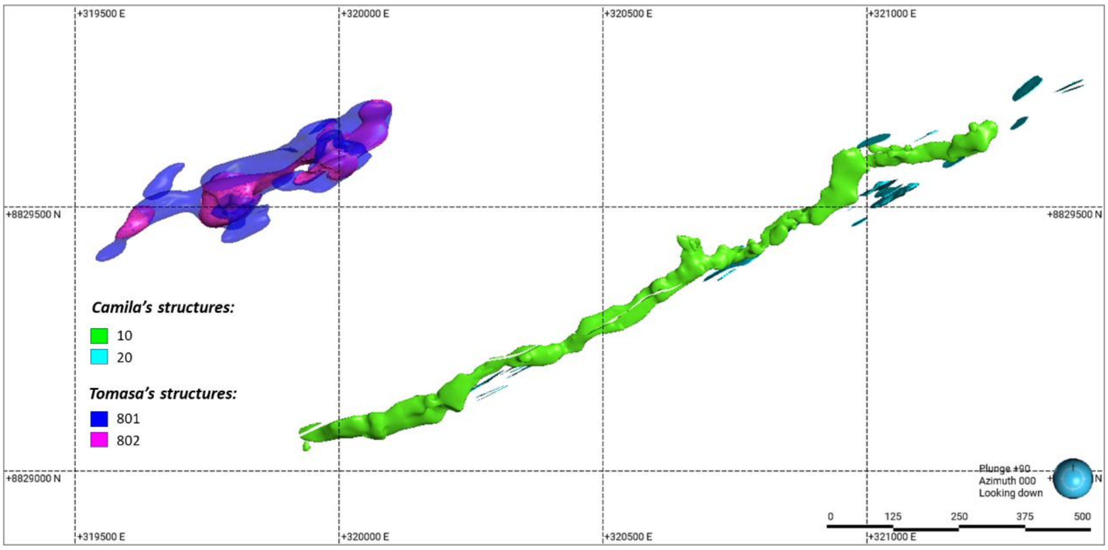


Figure 11-27: Plant view of the mineralized structures in the Camila and Tomasa zone

Source: (Buenaventura, 2023)

Exploratory Data Analysis

The estimation database provided by Buenaventura includes only the samples within wireframes and/or mineralized structures that enter the estimate and have been differentiated according to mineralized structures and estimation domain. In the case of Camila, the estimation domains were defined according to the type of mineralized structure of mantles and veins coded as 10 and 20, respectively. For Tomasa, this corresponds to independent vein-type structures coded with codes 801 and 802.

Table 11-29 and Table 11-30 summarizes the initial data statistics for Camila and Tomasa, respectively.

Table 11-29: Summary statistics of original Ag, Pb, Zn, Fe, and Mn samples by the mineralized structure of Camila

Domain	Element	Samples	Minimum	Maximun	Mean	SD	C.V.	VAR
10	Ag (oz/t)	3,076	0.01	401.08	29.73	36.65	1.23	1,342.94
	Pb (%)	3,076	0	29.71	0.72	1.51	2.09	2.28
	Zn (%)	3,076	0	13.41	1.23	1.89	1.54	3.57
	Fe (%)	3,076	0.19	38.39	4.83	5.54	1.15	30.71
	Mn (%)	3,076	0.02	60	22.62	14.53	0.64	211.19
20	Ag (oz/t)	518	0.01	242.1	15.83	22.87	1.44	522.88
	Pb (%)	518	0	5.42	0.25	0.49	1.95	0.24
	Zn (%)	518	0	9.53	0.49	1.01	2.05	1.02
	Fe (%)	518	0.15	22	2.58	2.98	1.16	8.91
	Mn (%)	518	0.02	56.2	13.04	13.81	1.06	190.71

Abbreviations: CV - Coefficient of Variation, SD - Standard Deviation, VAR - Variance

Source: (Buenaventura, 2023)

Table 11-30: Summary statistics of original Ag, Pb, Zn, Fe, and Mn by the mineralized structure of Tomasa

Domain	Element	Samples	Minimum	Maximun	Mean	SD	C.V.	VAR
801	Ag (oz/t)	1,217	0.01	168.5	2.42	9.74	4.03	94.84
	Pb (%)	1,131	0.001	7.92	0.13	0.49	3.69	0.24
	Zn (%)	1,172	0.001	10.91	0.21	0.83	3.99	0.69
	Fe (%)	1,217	0.01	25.58	1.1	2.49	2.27	6.19
	Mn (%)	1,193	0.02	43.62	2.67	6.31	2.36	39.85
802	Ag (oz/t)	1,518	0.01	2,987.32	23.62	77.29	3.27	5,973.86
	Pb (%)	1,492	0	30.68	0.61	1.29	2.14	1.67
	Zn (%)	1,498	0	12.83	0.8	1.5	1.88	2.25
	Fe (%)	1,518	0.01	31.9	3.01	3.77	1.25	14.19
	Mn (%)	1,510	0.03	60	8.74	11.7	1.34	136.88

Abbreviations: CV - Coefficient of Variation, SD - Standard Deviation, VAR - Variance

Source: (Buenaventura, 2023)

Outliers

Top cuts of grade outliers prevent 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 and pose no risk to estimation quality, they can be considered a valid part of the estimation population (no processing required). 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.

For the Yumpag Project, the grades of all the metals estimated (Ag, Pb, Zn, Fe and Mn) were examined to identify the presence and nature of grade outliers. This was done by examining the sample histogram, log histogram, log probability plot, and the spatial location of outliers. Top cut thresholds were determined by examining the same statistical plots and reviewing 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 Camila and Tomasa are shown in Table 11-31 and Table 11-32, respectively.

The limits were established between the 95th and 99th percentiles of the population of each domain; metal content loss must not exceed 5%, and the value of the coefficient of variation must be below 2; for this purpose, each domain was evaluated to calculate the most appropriate value.

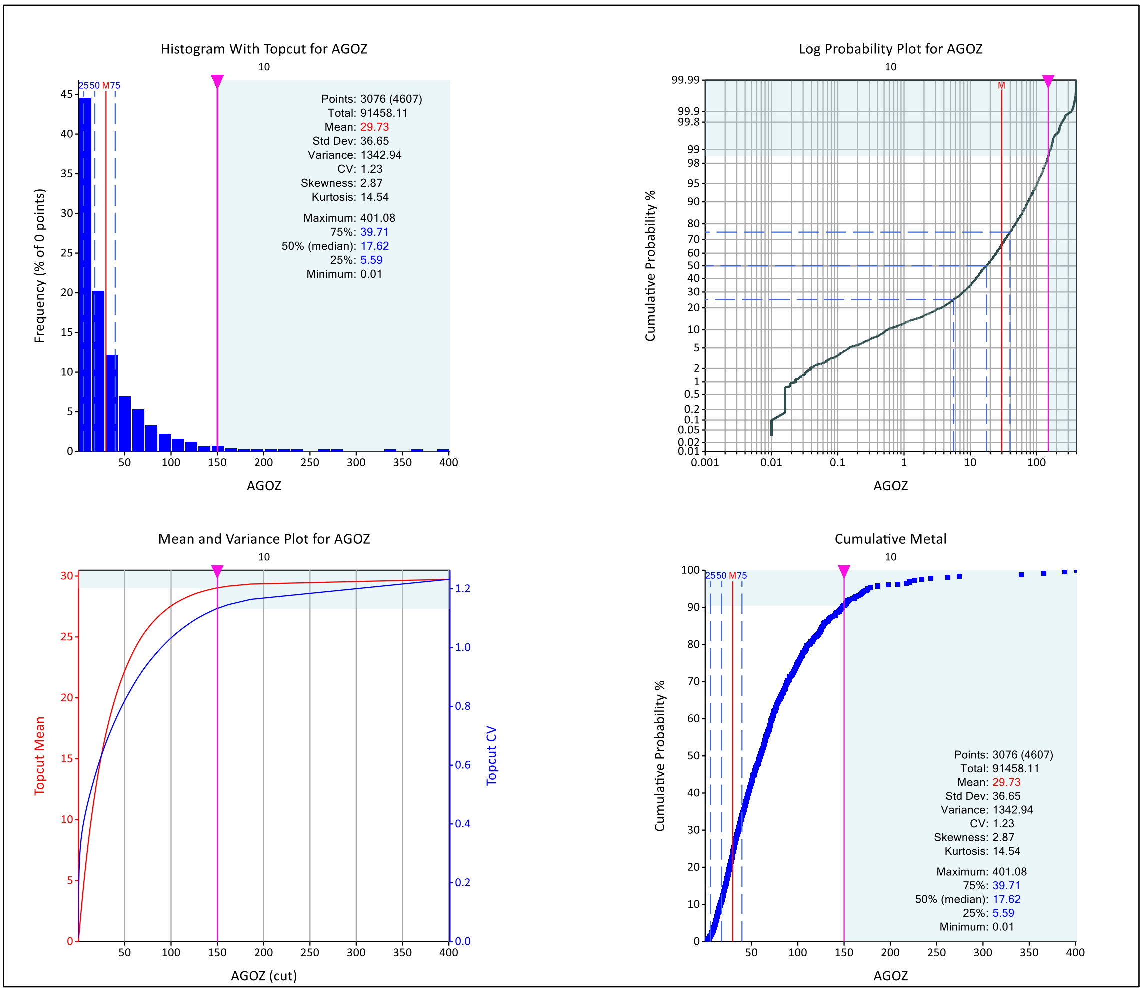


Figure 11-28: Top cut analysis of Ag oz in domain 10 of Camila. Cut at 150 Ag oz with 2.4% of metal content

Source: (Buenaventura, 2023)

Table 11-31: Summary statistics of original Ag, Pb, Zn, Fe, and Mn samples by the mineralized structure of Camila

Domain	Element	Total samples	Capping	N° cut samples	%MC reduction	Mean	CV
10	Ag (oz/t)	3,076	150	44	2.4	29.03	1.13
	Pb (%)	3,076	13	11	1.9	0.71	1.91
	Zn (%)	3,076	9	19	0.7	1.22	1.52
	Fe (%)	3,076	23	47	1.3	4.77	1.11
	Mn (%)	3,076	48	84	0.5	22.52	0.64
20	Ag (oz/t)	518	82	6	4.6	15.1	1.25
	Pb (%)	518	2.5	6	3.8	0.24	1.75
	Zn (%)	518	5	6	4.7	0.47	1.84
	Fe (%)	518	12	9	3.8	2.48	1.01
	Mn (%)	518	43	14	0.7	12.96	1.05

Abbreviations: CV - Coefficient of Variation, MC – Metal Content

Source: (Buenaventura, 2023)

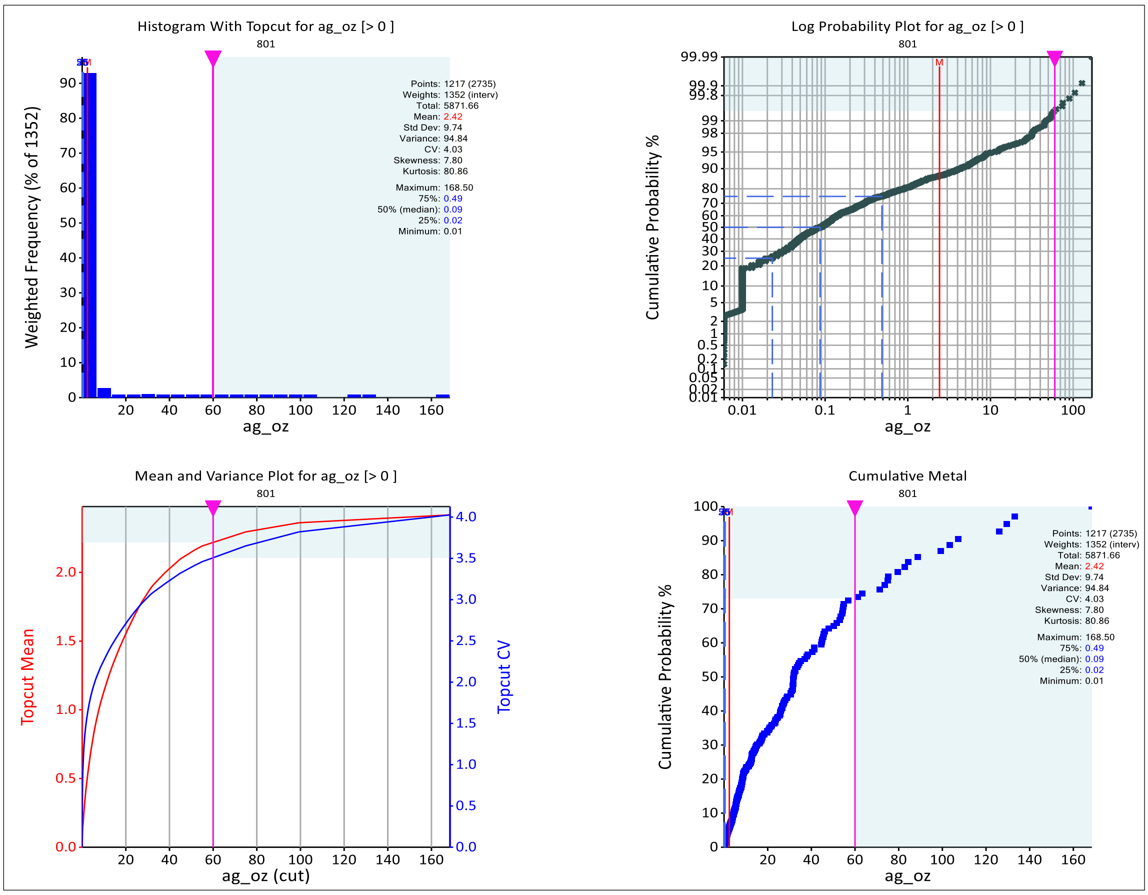


Figure 11-29: Top cut analysis of Ag oz in domain 801 of Tomasa. Cut at 60 Ag oz with 8% of metal content

Source: (Buenaventura, 2023)

Table 11-32: Summary of statistics when applying Top Cut analysis to the Assay data of Tomasa zone

Domain	Element	Total samples	Capping	N° cut samples	%MC red	Mean	CV
801	Ag (oz/t)	1,217	60	17	8	2.22	3.51
	Pb (%)	1,787	7	6	5.5	0.16	3.8
	Zn (%)	1,787	7	16	5.7	0.24	3.72
	Fe (%)	1,787	16	23	1.6	1.3	1.96
	Mn (%)	1,787	35	39	2.7	3.16	2.23
802	Ag (oz/t)	1,510	287	8	4.6	22.12	1.71
	Pb (%)	1,074	5	18	5.2	0.71	1.36
	Zn (%)	1,074	7	12	2	0.97	1.42
	Fe (%)	1,074	15	20	1.6	3.96	0.92
	Mn (%)	1,074	42	32	1.8	10.7	1.08

Abbreviations: CV - Coefficient of Variation, MC – Metal Content

Source: (Buenaventura, 2023)

Determination of Regularized Length (Composite)

Sample length compositing was performed by Buenaventura 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 (Figure 11-30). Data from composited and unprocessed samples were compared to ensure that no loss of sample length or loss of metal had occurred and to ensure that the mean and coefficient of variation were affected as little as possible.

The average was used for the composition. Given that most of the samples are separated by at least 1 m, this value was chosen as support for the composition.

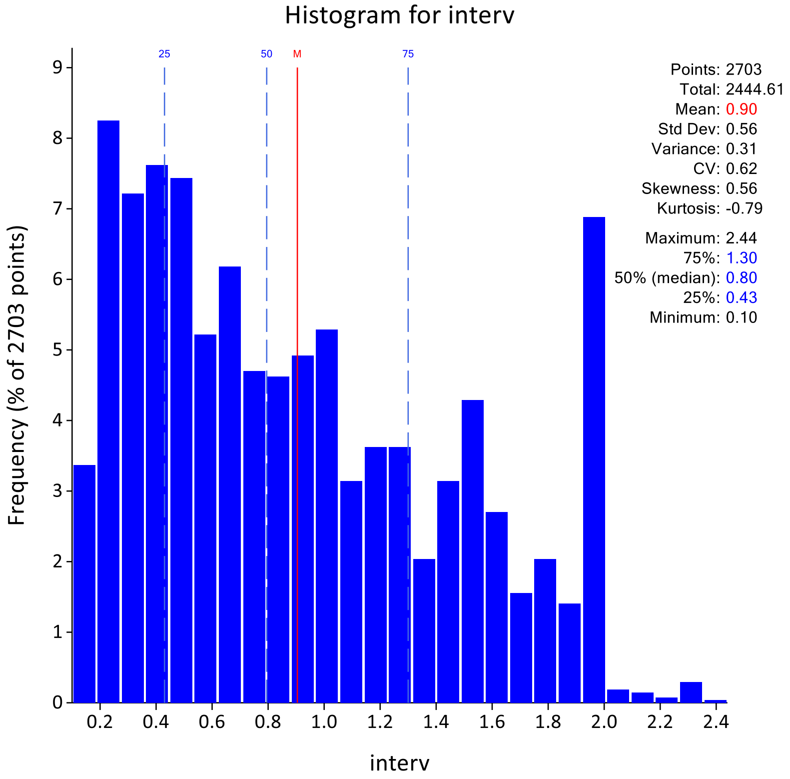


Figure 11-30: Histogram of Tomasa's drillhole width values

Source: (Buenaventura, 2023)

Table 11-33 and Table 11-34 shows the statistics of composites by zone, 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 2) in Camila, so that when estimating, there are fewer dispersed values than those seen in the raw data. In the case of Tomasa, the coefficient of variation was little higher (up to 3.6) and controlled by applying an additional high-grade restriction (see Table 11-38).

Table 11-33: Statistics of composites in Camila Structure

Domain	Element	Samples	Minimum	Maximum	Mean	SD	C.V.	VAR
10	Ag (oz/t)	1,956	0.01	150.00	26.39	28.16	1.07	792.92
	Pb (%)	1,920	0.0002	9.26	0.63	0.95	1.52	0.91
	Zn (%)	1,920	0.0007	9.00	1.15	1.65	1.44	2.73
	Fe (%)	1,920	0.2	23.00	4.58	4.95	1.08	24.49
	Mn (%)	1,920	0.02	48.00	21.55	13.95	0.65	194.7
20	Ag (oz/t)	289	0.01	82.00	13.93	16.13	1.16	260.04
	Pb (%)	288	0.0003	3.50	0.23	0.38	1.68	0.15
	Zn (%)	288	0.0012	6.10	0.45	0.83	1.83	0.69
	Fe (%)	288	0.15	15.38	2.41	2.45	1.01	5.98
	Mn (%)	288	0.04	42.31	12.51	12.41	0.99	154.1

Abbreviations: CV - Coefficient of Variation, SD - Standard Deviation, VAR - Variance

Source: (Buenaventura, 2023)

Table 11-34: Statistics of composites in Tomasa Structure

Domain	Element	Samples	Minimum	Maximum	Mean	SD	C.V.	VAR
801	Ag (oz/t)	1,355	0.01	60	2.22	6.68	3.00	44.56
	Pb (%)	1,355	0.0002	4.36	0.1	0.35	3.38	0.12
	Zn (%)	1,355	0.00005	7	0.17	0.6	3.55	0.36
	Fe (%)	1,355	0.01	16	1.08	2.11	1.95	4.45
	Mn (%)	1,355	0.0002	35	2.26	5.14	2.27	26.41
802	Ag (oz/t)	1,348	0.01	287	21.16	33.58	1.59	1,127.92
	Pb (%)	1,348	0.0002	5	0.53	0.82	1.56	0.68
	Zn (%)	1,348	0.00005	7	0.73	1.17	1.61	1.36
	Fe (%)	1,348	0.01	15	2.96	3.18	1.08	10.11
	Mn (%)	1,348	0.0002	42	8.23	10.14	1.23	102.78

Abbreviations: CV - Coefficient of Variation, SD - Standard Deviation, VAR - Variance

Source: (Buenaventura, 2023)

Estimation Plan

In the Yumpag Project, Buenaventura estimated 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 and strong contact has been identified between mineralized vein structures and host rock. 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 was used.

Variable Orientation Modelling

Grade distribution has a lognormal 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.

For the Yumpag Project, horizontal, transverse and downward continuity maps (and their underlying variograms) for Ag, Pb, Zn, Fe and Mn were examined to determine the directions of greatest and least continuity.

The next step was 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.

Figure 11-31 shows the variography for Ag of Camila structure's domain 10. To generate the Tomasa variography, Buenaventura used the data from domains 801 and 802. Results for Ag are shown in Figure 11-32.

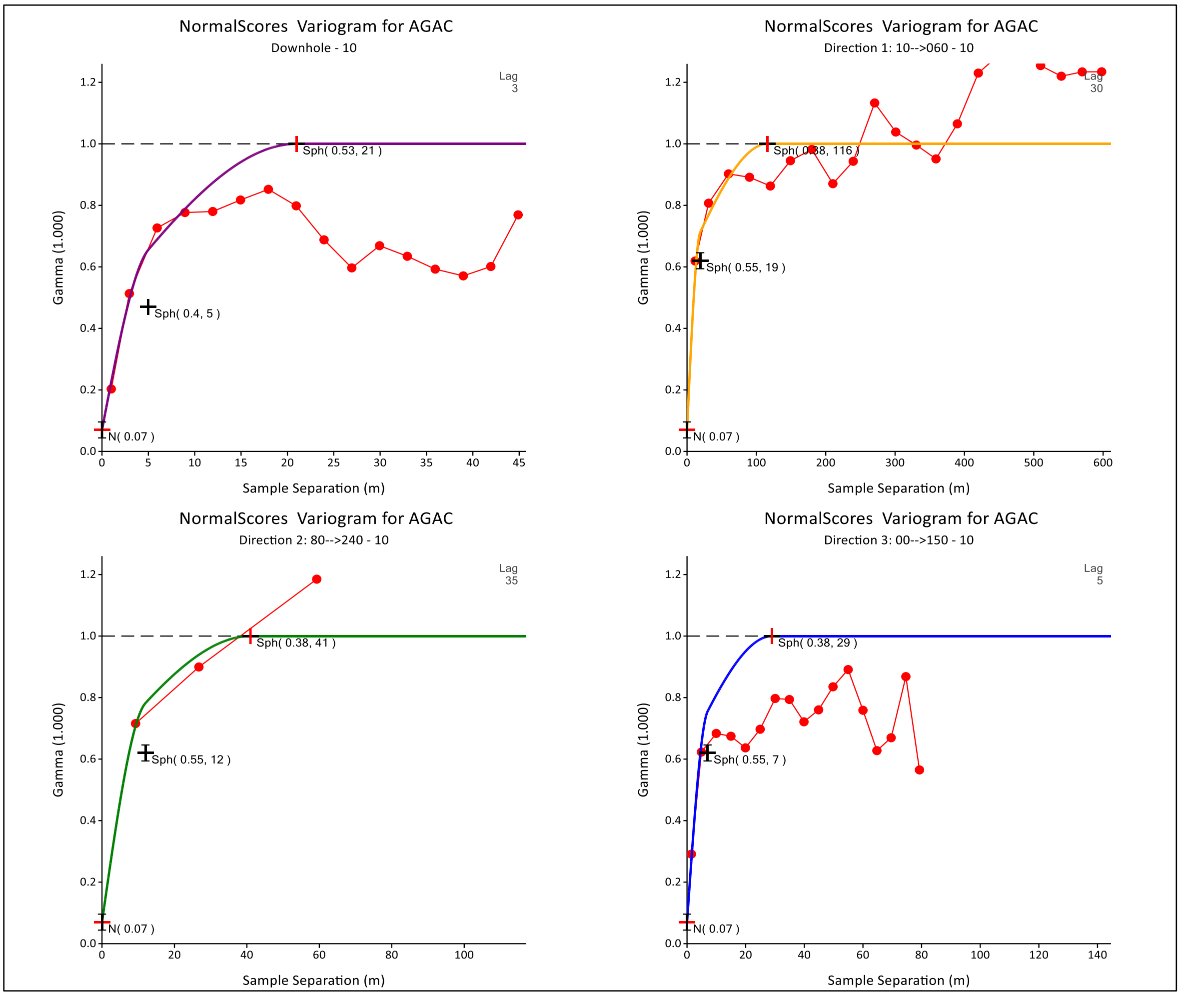


Figure 11-31: Variography of Camila Structure's domain 10

Source: (Buenaventura, 2023)

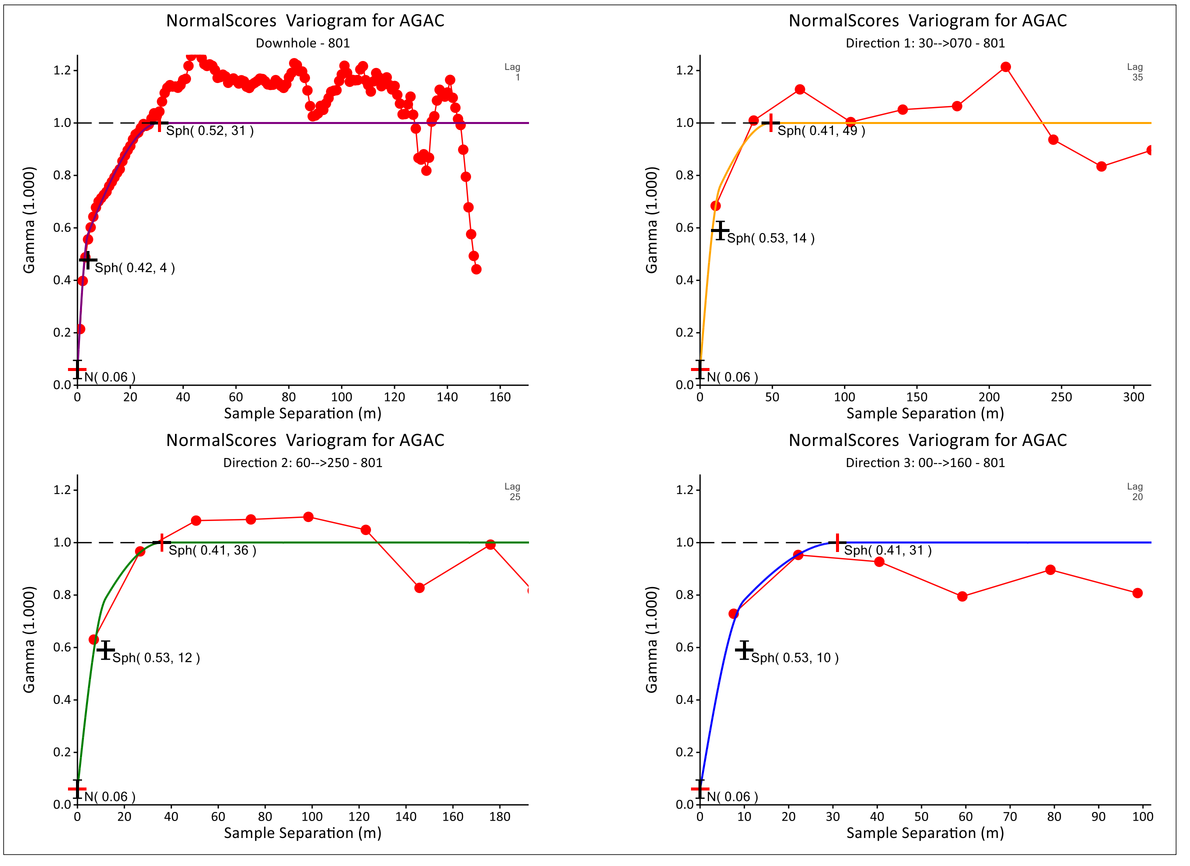


Figure 11-32: Variography of Tomasa Structure's domain 801

Source: (Buenaventura, 2023)

Table 11-35 shows the variography by domain per zone. While some structures were estimated using the Inverse Distance method, the variography of these structures was conducted to define search ellipsoids.

Table 11-35: Summary of the parameters of the variogram model for the Camila (10 and 20) and Tomasa (801 to 810) zones

Domain	Metal	Bearing	Plunge	Dip	RotAlpha	RotZeta	RotBeta	C0§	C1§	Ranges 1	C2§	Ranges 2
10	Ag	0	0	0	60	10	-90	0.8	0.59	19; 12; 7	0.33	116; 41; 29
	Fe	0	0	0	60	10	-90	0.8	0.59	19; 12; 7	0.33	116; 41; 29
	Mn	0	0	0	60	10	-90	0.8	0.59	19; 12; 7	0.33	116; 41; 29
	Pb	0	0	0	60	10	-90	0.8	0.59	19; 12; 7	0.33	116; 41; 29
	Zn	0	0	0	60	10	-90	0.8	0.59	19; 12; 7	0.33	116; 41; 29
20	Ag	0	0	0	107.45	35.9	37.45	0.17	0.61	22; 17; 7	0.23	49; 29; 21
	Fe	0	0	0	107.45	35.9	37.45	0.17	0.61	22; 17; 7	0.23	49; 29; 21
	Mn	0	0	0	107.45	35.9	37.45	0.17	0.61	22; 17; 7	0.23	49; 29; 21
	Pb	0	0	0	107.45	35.9	37.45	0.17	0.61	22; 17; 7	0.23	49; 29; 21
	Zn	0	0	0	107.45	35.9	37.45	0.17	0.61	22; 17; 7	0.23	49; 29; 21
801 - 802	Ag	70	30	-90	70	30	-90	0.0918	0.639	14; 12; 10	0.269	49; 36; 31
	Fe	0	0	0	50	30	-90	0.0804	0.72	17; 7; 4	0.199	107; 75; 40
	Mn	0	0	0	30	30	-90	0.0831	0.692	24; 11; 10	0.225	102; 53; 34
	Pb	0	0	0	70	30	-90	0.0893	0.655	13; 11; 8	0.255	49; 41; 31
	Zn	0	0	0	70	30	-90	0.0908	0.71	18; 8; 5	0.199	58; 53; 24

Note: RotAlpha, RotZeta and RotBeta are rotations in Vulcan software.

Source: (Buenaventura, 2023)

Qualitative Kriging Neighborhood Analysis (QKNA)

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

Data from the variographic analysis for previous sections was used to run multiple scenarios to determine block sizes. Steps were taken to ensure that kriging efficiency and the 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 which are the appropriate parameters for each domain.

Supervisor has an environment for KNA analysis that determines the appropriate neighborhood by domain. Figure 11-33 and Figure 11-34 show an example for Ag in the Tomasa 801 domain.

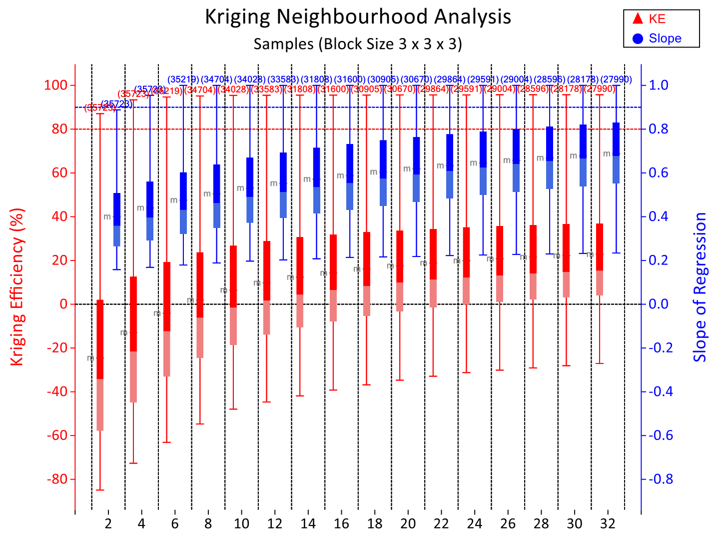


Figure 11-33: Determination of the minimum and maximum number of samples. The plots show the behavior of KE and slope of regression, according to the number of samples (top), and the negative weights generated (bottom)

Source: (Buenaventura, 2023)

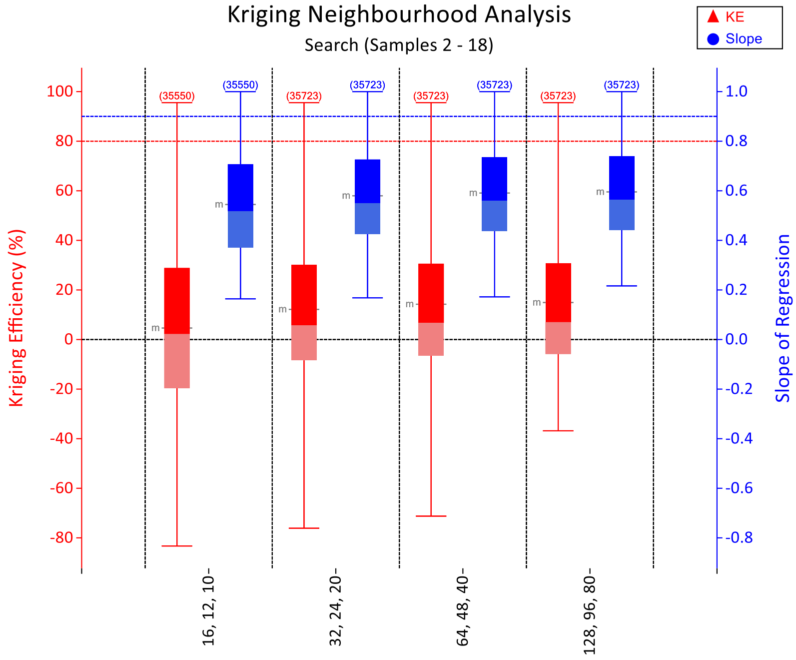


Figure 11-34: The plot shows the neighborhood that has the best values for KE and slope of regression

Source: (Buenaventura, 2023)

Initially, the kriging plan (number of samples, scope) was defined with the QKNA methodology in Supervisor®; this analysis was adjusted with subsequent validations (visual, local and global).

Block Model

The block size is determined by the Planning area and based on the mining methods used 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 describe and interpret the deposit; the entire block model or fraction thereof can be evaluated, and tonnage and grades reported.

The resource models were made using Vulcan®, based on the zones of the mine, Camila and Tomasa, whose characteristics are presented below:

Table 11-36: Definition of Block Models with Vulcan for the Camila and Tomasa areas

Zone	Origin X (m)	Origin Y (m)	Origin Z (m)	Bearing (°)	Plunge (°)	Dip (°)	Extension X	Extension Y	Extension Z	Size X (m)	Size Y (m)	Size Z (m)	Subcell X (m)	Subcell Y (m)	Subcell Z (m)
Camila	320,028	8,828,777	3,890	63	0	0	567	167	167	3	3	3	0.5	0.5	0.5
Tomasa	319,320	8,828,940	3,610	71	0	0	700	400	400	3	3	3	0.5	0.5	0.5

Source: (Buenaventura, 2023)

Figure 11-35 shows that each structure is independent, so they can be worked as separate block models.

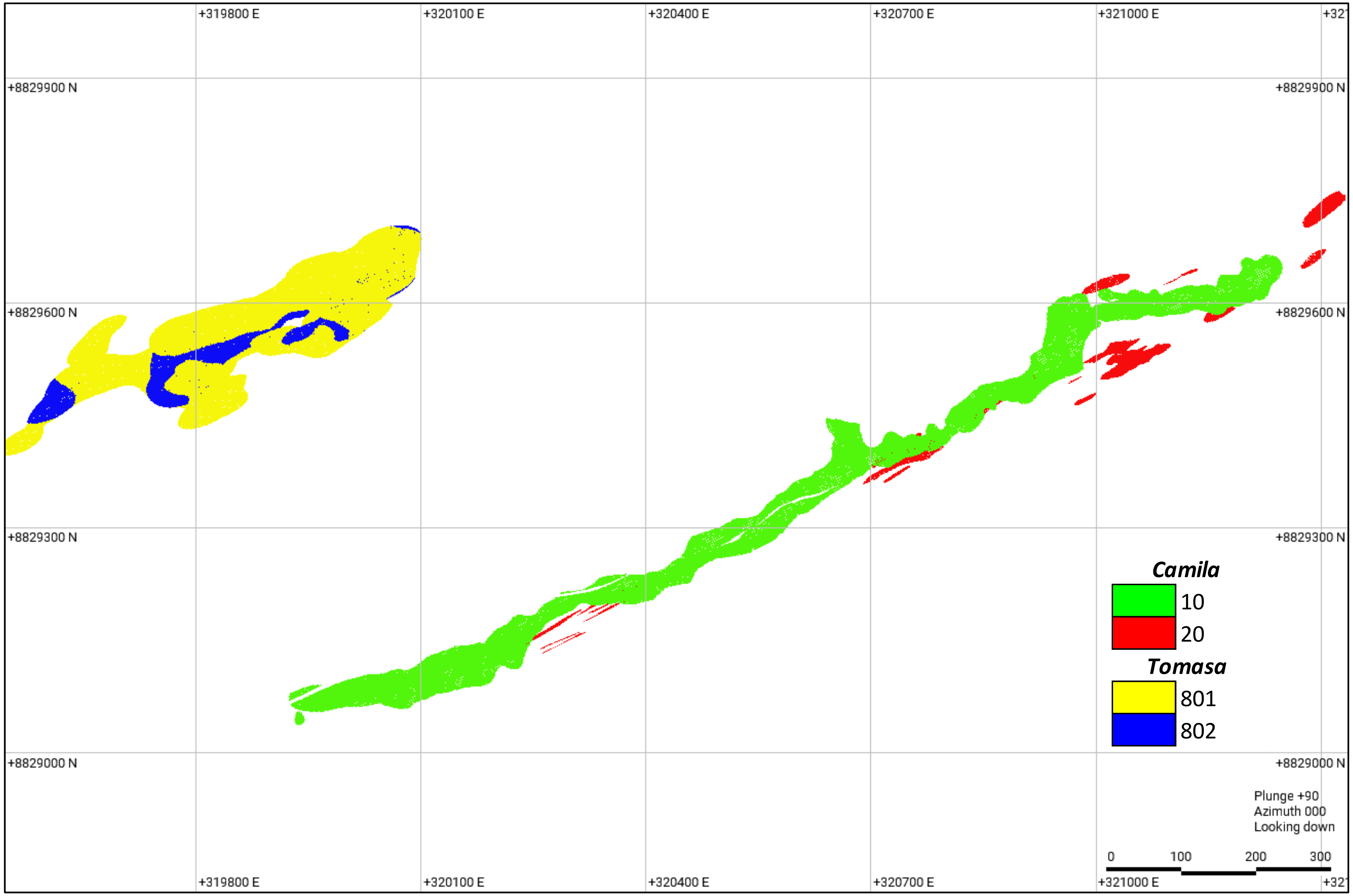


Figure 11-35: Distribution of Yumpag Block Models: Camila (A) and Tomasa (B)

Source: (Buenaventura, 2023)

Grade Interpolation

The methods used for estimations on the Yumpag Project include Ordinary Kriging (OK), Inverse Distance (ID3), and Nearest Neighbor (NN). The first two were used to report and categorize mineral resources; NN, due to its characteristics, was 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 radio 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 both locally and globally. The fourth pass is to generate potential resources.

Table 11-37: Summary of the Estimation parameters of the domains of the Camila (10 and 20) and Tomasa (801 and 802) zones

Domain	Element	Pass	1st Range (m)	2nd Range (m)	3rd Range (m)	Min Comps	Max Comps	Min Octant	Max Comps per Octant	Max Comps per drillhole
10	Ag	1	10	5	5	2	4	-	4	2
		2	45	30	30	3	8	-	4	2
		3	90	60	60	3	8	-	4	2
		4	160	80	80	1	10	-	2	2
	Fe	1	25	13	13	3	6	-	2	2
		2	50	25	25	3	8	-	2	2
		3	100	50	50	3	8	-	2	2
		4	200	100	100	1	10	-	2	2
	Mn	1	25	13	13	3	6	-	2	2
		2	50	25	25	3	8	-	2	2
		3	100	50	50	3	8	-	2	2
		4	200	100	100	1	10	-	2	2
	Pb	1	25	13	13	2	8	-	2	2
		2	50	25	25	3	12	-	2	2
		3	100	50	50	3	12	-	2	2
		4	200	100	100	1	12	-	2	2
	Zn	1	25	13	13	2	8	-	2	2

Domain	Element	Pass	1st Range (m)	2nd Range (m)	3rd Range (m)	Min Comps	Max Comps	Min Octant	Max Comps per Octant	Max Comps per drillhole
		2	50	25	25	3	12	-	2	2
		3	100	50	50	3	12	-	2	2
		4	200	100	100	1	12	-	2	2
20	Ag	1	20	20	5	3	6	-	2	2
		2	40	40	10	3	8	-	2	2
		3	80	80	20	3	8	-	2	2
		4	160	160	40	1	10	-	2	2
	Fe	1	20	20	5	3	6	-	2	2
		2	40	40	10	3	8	-	2	2
		3	80	80	20	3	8	-	2	2
		4	160	160	40	1	10	-	2	2
	Mn	1	20	20	5	3	6	-	2	2
		2	40	40	10	3	8	-	2	2
		3	80	80	20	3	8	-	2	2
		4	160	160	40	1	10	-	2	2
	Pb	1	20	20	5	2	8	-	2	2
		2	40	40	10	3	12	-	2	2
		3	80	80	20	3	12	-	2	2
		4	160	160	40	1	12	-	2	2
	Zn	1	20	20	5	2	8	-	2	2
		2	40	40	10	3	12	-	2	2
		3	80	80	20	3	12	-	2	2
		4	160	160	40	1	12	-	2	2
801 – 802	Ag	1	16	12	10	2	5	-	0	2
		2	32	24	20	4	8	-	3	2
		3	64	48	40	4	8	-	3	2
		4	96	72	60	4	8	-	3	2
	Pb	1	16	12	10	3	8	-	0	2
		2	32	24	20	3	8	-	0	2
		3	64	48	40	2	5	-	0	2
		4	128	96	80	2	5	-	0	2
	Zn	1	16	12	10	3	8	-	0	2
		2	32	24	20	3	8	-	0	2
		3	64	48	40	2	5	-	0	2
		4	128	96	80	2	5	-	0	2
	Fe	1	16	12	10	3	8	-	0	2
		2	32	24	20	3	8	-	0	2

Domain	Element	Pass	1st Range (m)	2nd Range (m)	3rd Range (m)	Min Comps	Max Comps	Min Octant	Max Comps per Octant	Max Comps per drillhole
		3	64	48	40	2	5	-	0	2
		4	128	96	80	2	5	-	0	2
	Mn	1	16	12	10	2	5	-	0	2
		2	32	24	20	4	8	-	3	2
		3	64	48	40	4	8	-	3	2
		4	128	96	80	4	8	-	3	2

Abbreviations: Comps - Composites

Source: (Buenaventura, 2023)

Table 11-38: Summary of restrictions with extreme values for all elements for the Camila and Tomasa zones

Ore	Domain	Element	HY Limit	HY Major	HY Semi	HY Minor
Camila	10	Ag (oz/t)	80	6	6	6
		Pb (%)	4	6	6	6
		Zn (%)	7	6	6	6
		Fe (%)	15	6	6	6
		Mn (%)	36	6	6	6
	20	Ag (oz/t)	50	6	6	6
		Pb (%)	1.5	6	6	6
		Zn (%)	3	6	6	6
		Fe (%)	7.5	6	6	6
		Mn (%)	34	6	6	6
Tomasa	801	Ag (oz/t)	20	9	6	3
		Pb (%)	2	21	15	9
		Zn (%)	4	21	15	9
		Fe (%)	12.5	21	15	9
		Mn (%)	12	9	6	3
	802	Ag (oz/t)	110	15	12	9
		Pb (%)	3.5	15	12	9
		Zn (%)	3	9	6	3
		Fe (%)	11.5	15	12	9
		Mn (%)	34	21	15	9

Abbreviations: HY – High Yield

Source: (Buenaventura, 2023)

Validation

Techniques to validate the estimation included visual inspecting the model with the 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. To optimize these values, across 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 searching neighborhood parameters (see Figure 11-36 and Figure 11-37).

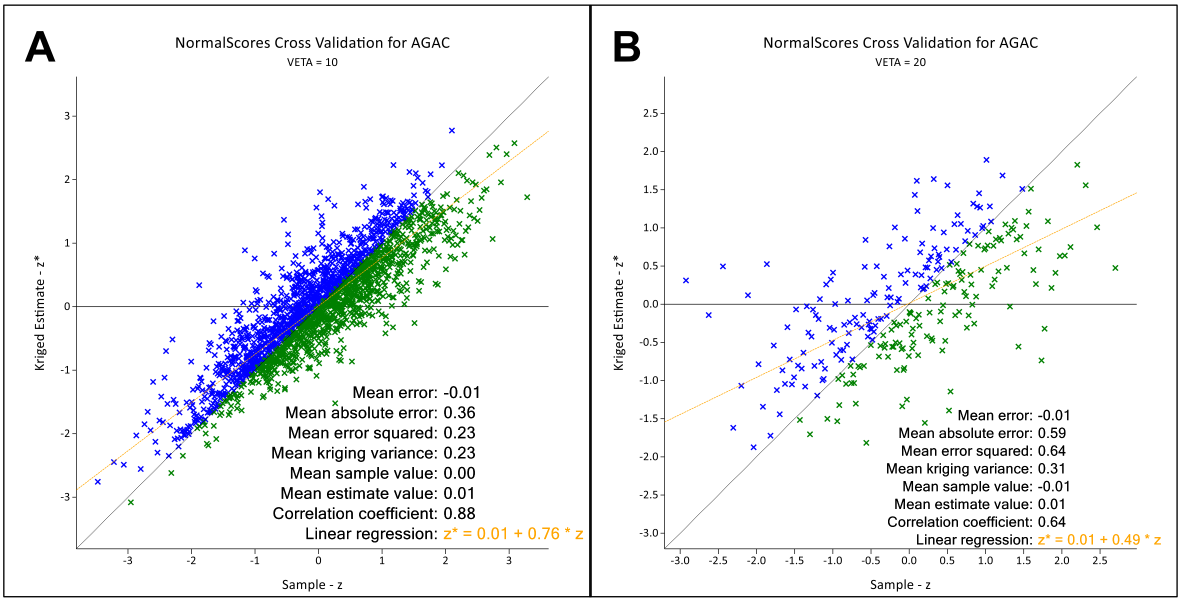


Figure 11-36: Cross Validation for Camila structure in domain 10 (A) and 20 (B) for Ag

Source: (Buenaventura, 2023)

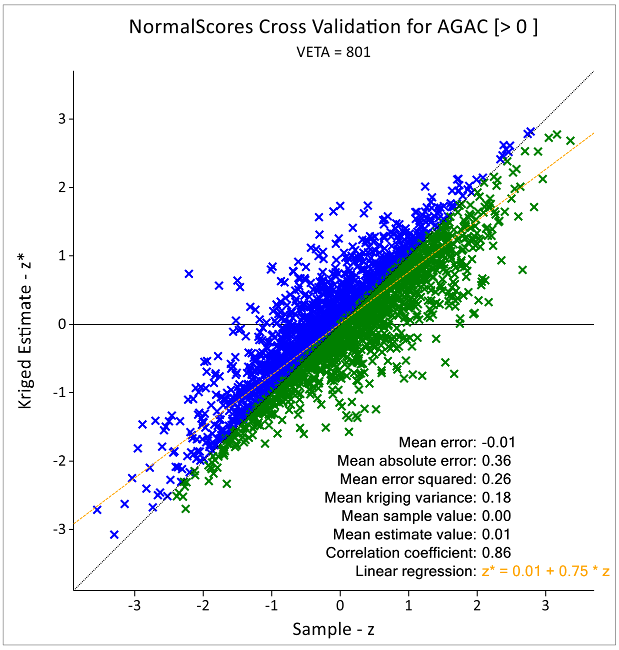


Figure 11-37: Cross Validation for Tomasa structure for Ag

Source: (Buenaventura, 2023)

Visual Inspection

Visual inspection is an important tool to detect spatial artifacts; it 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, this examination was carried out by Buenaventura.

Both drillhole and block coding were checked during the visual inspection to ensure that the coding is appropriate and respects the interpretation. Also, the estimated grades show a reasonable correspondence between samples and blocks, where we have a fair population of drillholes. Figure 11-38 shows the variation of Ag grades both transversely and longitudinally.

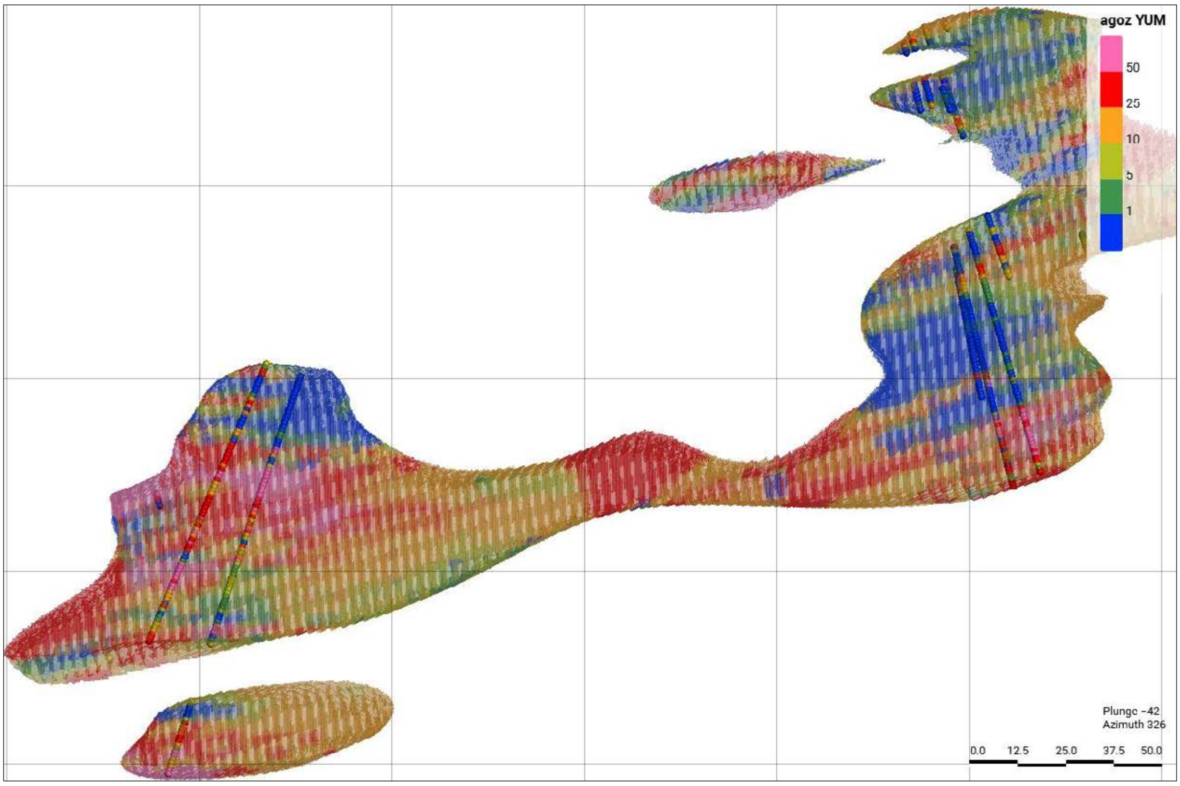


Figure 11-38: Tomasa Structure (802) - Visual Validation

Source: (Buenaventura, 2023)

Validation of the Global Estimate

For the Yumpag Project, Buenaventura compared the model estimated with Ordinary Kriging or Inverse Distance with that estimated through 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 location in areas classified as inferred resources.

Table 11-39 shows the overall validation results within the Measured and Indicated categories. As can be seen, 80% of results are below ±10%. Upon closer examination, these structures contain isolated high grades in their domains, which have been restricted in the estimation.

Table 11-39: Global Validation in Camila and Candela Structures

Ore	Domain	Element	Estimation Method			Global Validation (%)	
			ID	OK	NN	ID – NN	OK - NN
Camila	10	Ag (oz/t)	22.52	22.12	22.151	1.67	-0.14
		Pb (%)	0.52	0.52	0.49	6.12	6.12
		Zn (%)	0.94	0.95	0.89	5.62	6.74
		Fe (%)	3.55	3.55	3.43	3.5	3.5
		Mn (%)	19.89	19.45	19.83	0.3	-1.92

Ore	Domain	Element	Estimation Method			Global Validation (%)	
			ID	OK	NN	ID – NN	OK - NN
	20	Ag (oz/t)	10.49	10.56	10.15	3.35	4.04
		Pb (%)	0.16	0.17	0.16	0	6.25
		Zn (%)	0.28	0.3	0.28	0	7.14
		Fe (%)	2	2	1.97	1.52	1.52
		Mn (%)	10.55	10.16	9.84	7.22	3.25
Tomasa	801	Ag (oz/t)	2.06	2.02	2.07	-0.48	-2.42
		Pb (%)	0.1	0.11	0.09	11.11	22.22
		Zn (%)	0.15	0.17	0.14	7.14	21.43
		Fe (%)	1.03	1.07	1.08	-4.63	-0.93
		Mn (%)	1.99	1.99	2.12	-6.13	-6.13
	802	Ag (oz/t)	20.9	22.25	20.06	4.19	10.92
		Pb (%)	0.51	0.52	0.51	0	1.96
		Zn (%)	0.61	0.63	0.63	-3.17	0
		Fe (%)	2.91	2.99	2.88	1.04	3.82
		Mn (%)	7.62	7.49	7.82	-2.56	-4.22

Source: (Buenaventura, 2023)

Local Validation

Validations were generated using Swath Plots of blocks estimated by Ordinary Kriging (OK) and Inverse Distance (ID3) versus those estimated by Nearest Neighbor (NN) models, where composites were declustered 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 a limited number of samples. Based on the above results, Buenaventura concluded that ordinary kriging was an adequate interpolation method and provided reasonable global and local estimates for all economic metals.

Figure 11-39 to Figure 11-42 shows the swath plot of domain 10 and 20 of Camila and 801 and 802 of Tomasa in 3 directions, respectively. 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 for the composites.

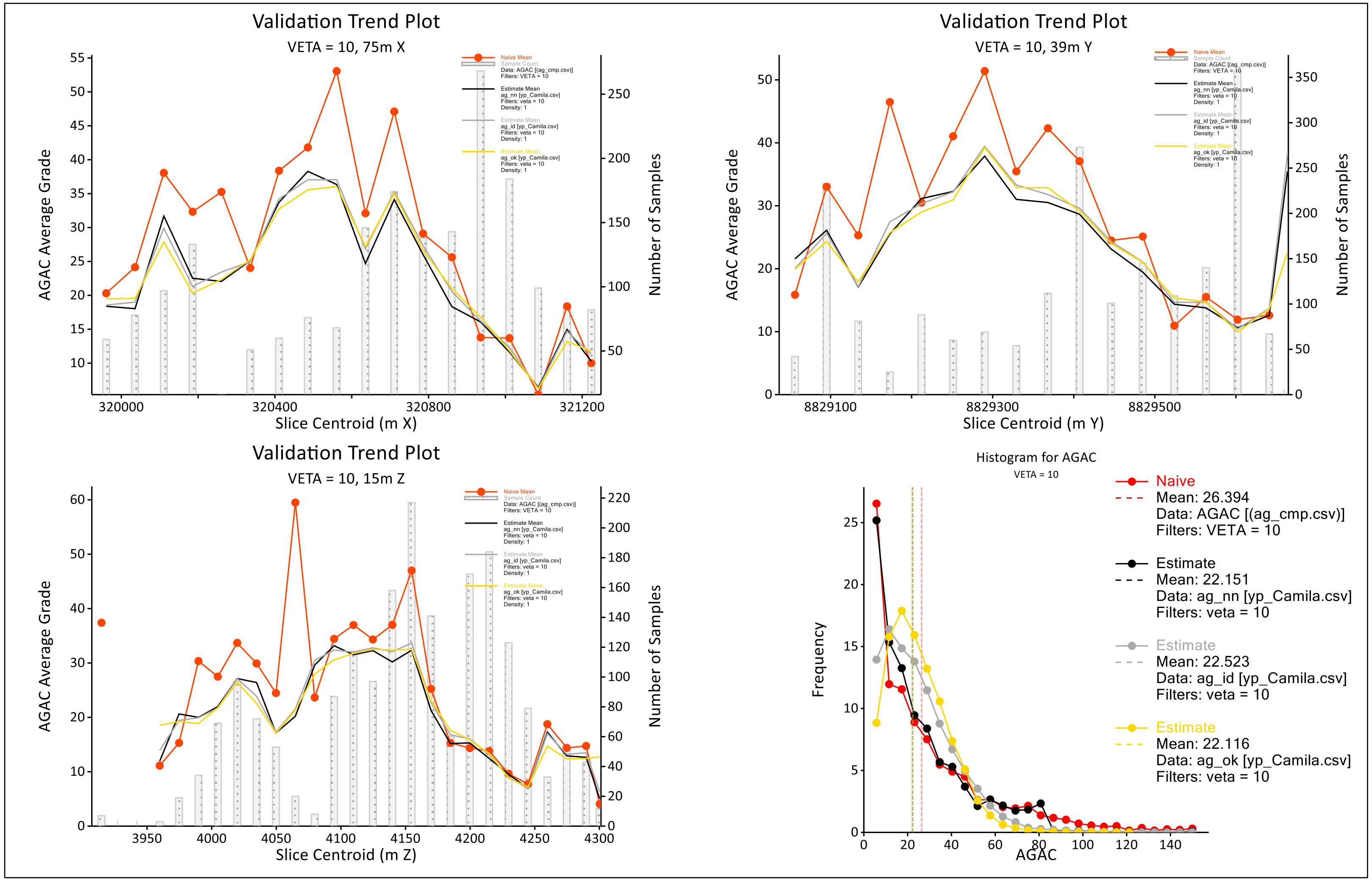


Figure 11-39: Swath Plot of domain 10 for Ag (oz/t) of the Camila zone

Source: (Buenaventura, 2023)

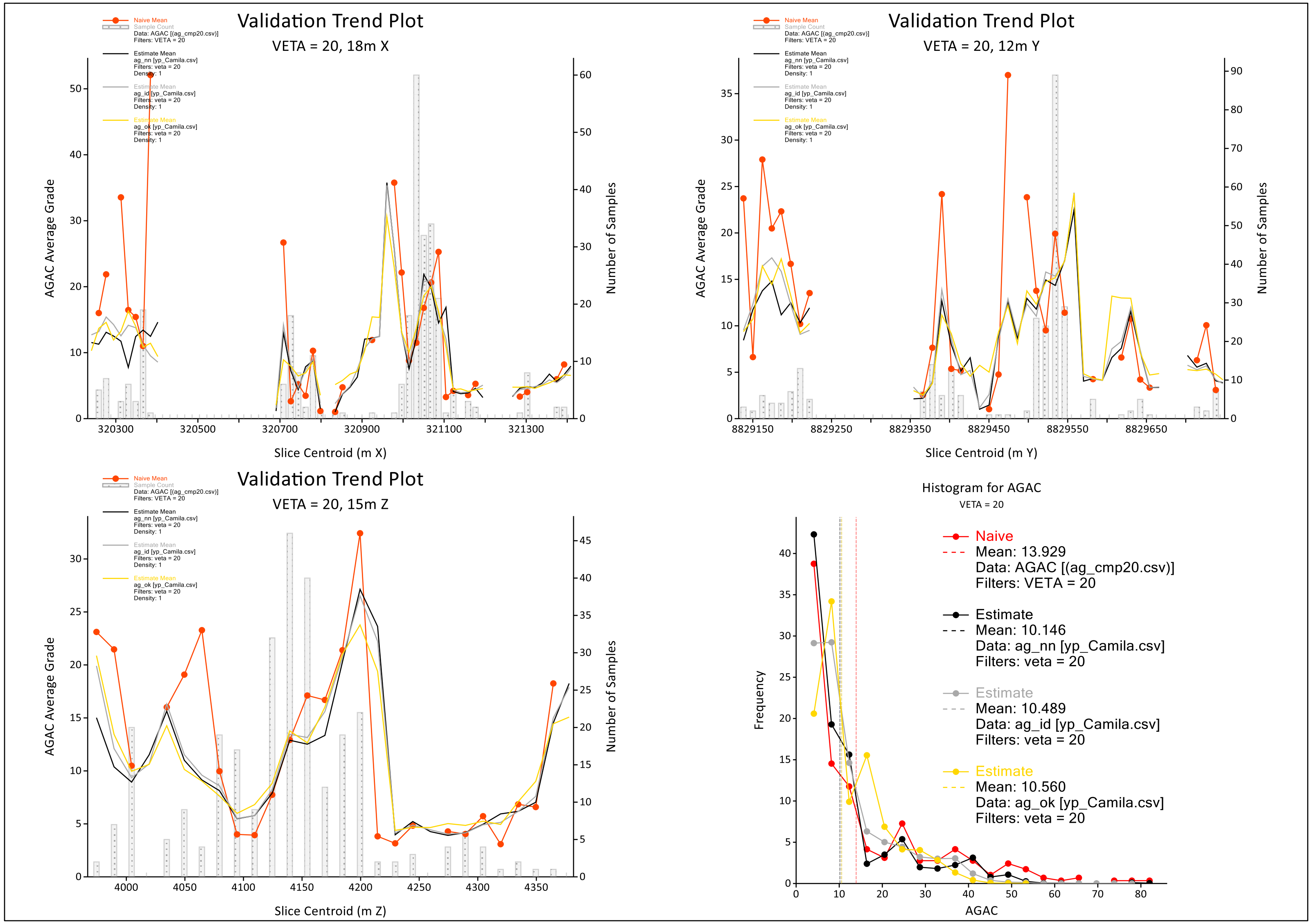


Figure 11-40: Swath Plot of domain 20 for Ag (oz/t) of the Camila zone

Source: (Buenaventura, 2023)

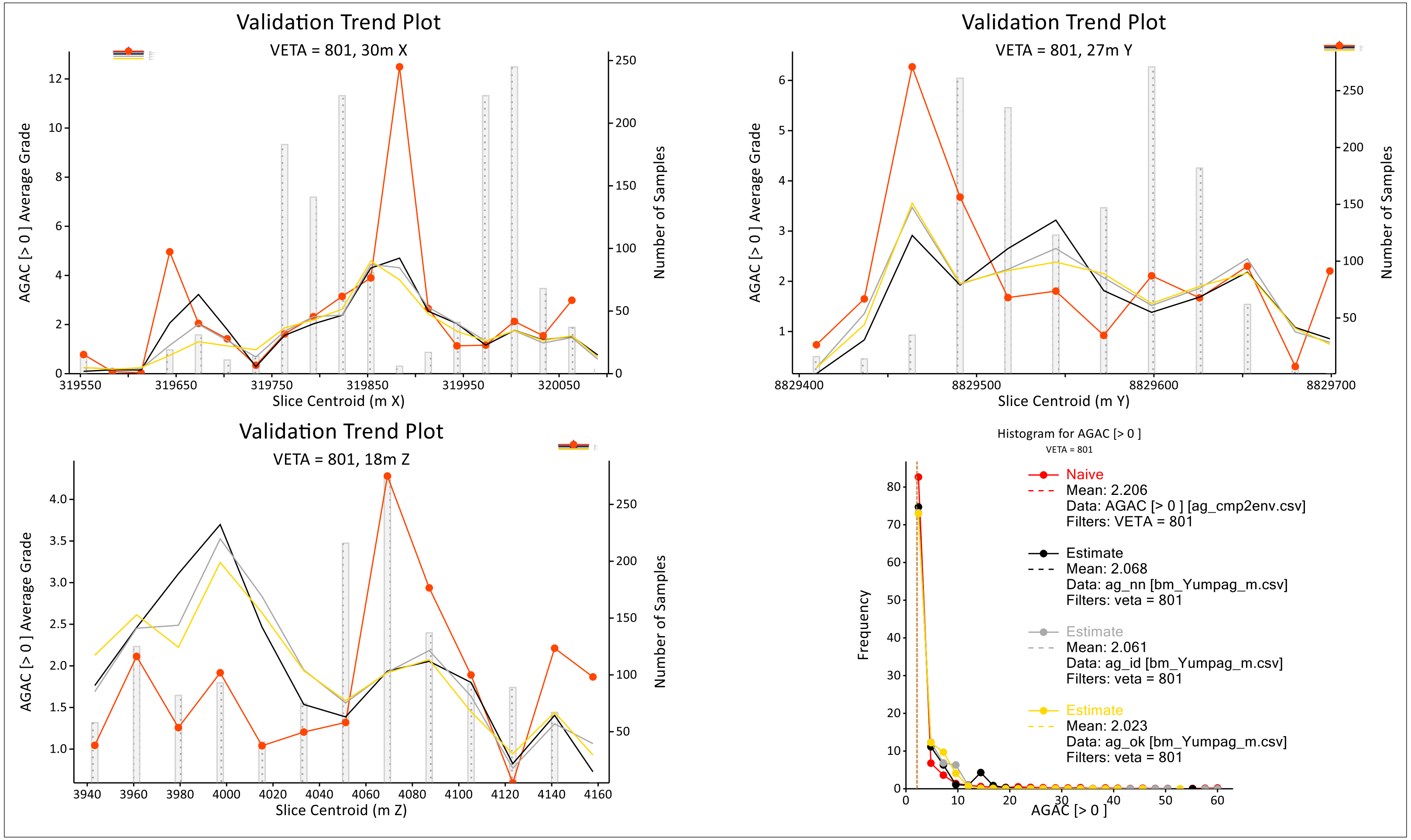


Figure 11-41: Swath Plot of domain 801 for Ag (oz/t) of the Tomasa zone

Source: (Buenaventura, 2023)

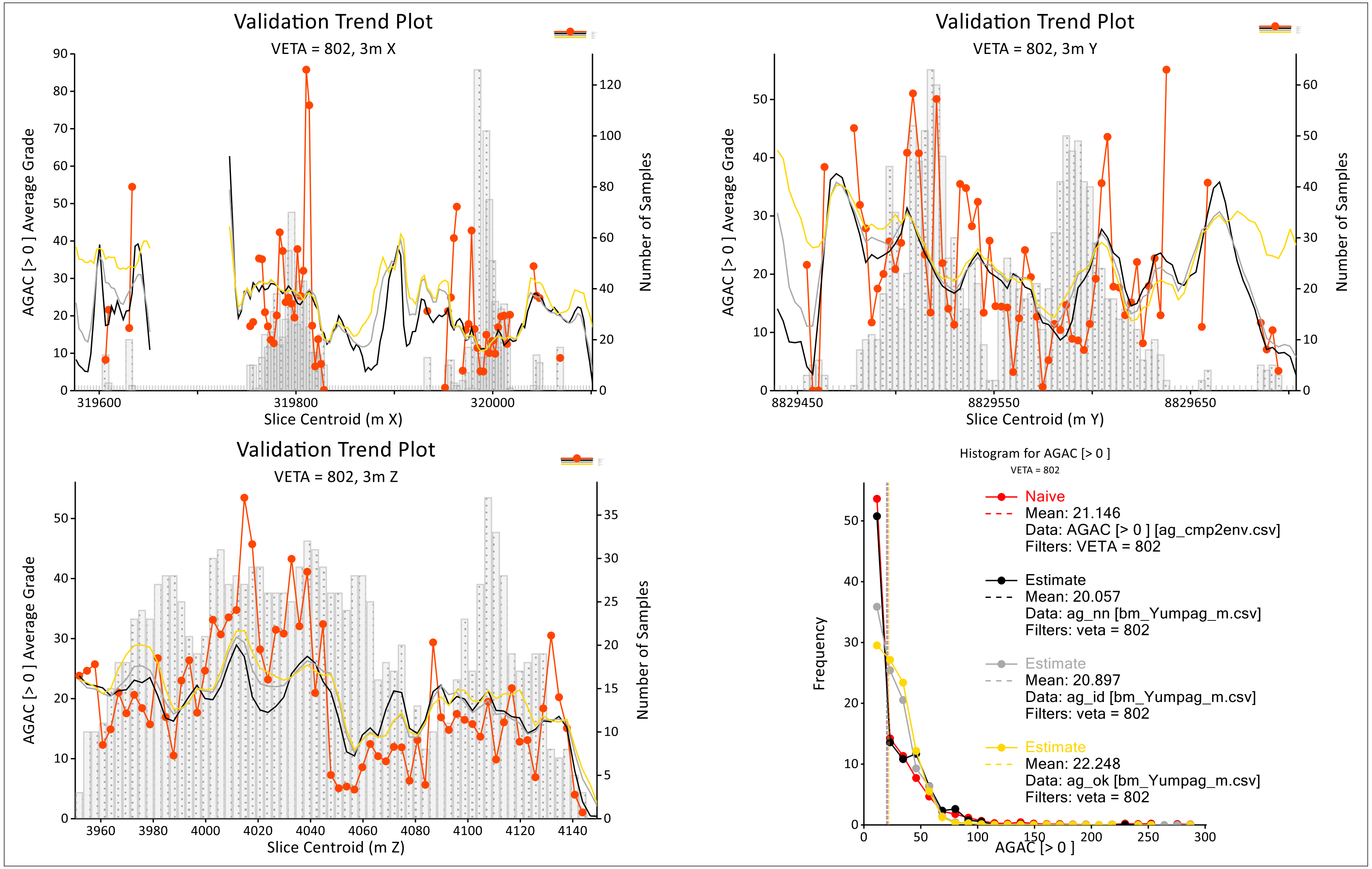


Figure 11-42: Swath Plot of domain 802 for Ag (oz/t) of the Tomasa zone

Source: (Buenaventura, 2023)

Bulk Density

In the Yumpag project, Buenaventura assigned density values by structure. In the case of the Camila zone (in domain 10 and 20), the apparent density value of 3.29 g/cm³ was assigned, while for the Tomasa zone (domain 801 and 802) an apparent density value of 3.23 g/cm³ was assigned (Table 11-40).

The procedure carried out by Buenaventura to determine the apparent density value consisted of calculating the general statistics of the density data. This analysis was then repeated without considering samples above the mean ± 2 Standard Deviation by zone (Camila and Tomasa). The average value obtained in this new analysis was used in resource estimation. SRK reviewed Buenaventura's procedures and results and agrees with its findings.

The Resource tonnage report is sensitive to changes in the apparent density assigned to each block. A density well above or below the true bulk density can have a significant impact on the reported tonnage. Therefore, SRK recommends improving the distribution of bulk density samples; covering the complete volume of structures; and including bulk density interpolations in line with industry best practices in subsequent updates.

Table 11-40: Summary of the apparent densities assigned for the mineralized zones of the Yumpag project

Ore	Domain	Apparent Density (g/cm³)
Camila	10	3.29
	20	3.29
Tomasa	801	3.23
	802	3.23

Note: Camila's domains with codes 10 and 20 correspond to the mantles and veins, respectively.

Source: (Buenaventura, 2023)

11.2.2 Resource Classification and Criteria

The Confidence Limits methodology was used to categorize resources. First, the monthly production volume was used to determine the panel to be evaluated (Table 11-41).

Table 11-41: 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: (Buenaventura, 2023)

A fictitious drilling pattern is defined every 10 meters. 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); subsequently a Confidence Limit at 90% was applied to the annual production volume (A90%) and to the quarterly production volume (Q90%).

Table 11-42: Calculation of A90% and Q90%, based on OKV and CV for each spacing

				Indicated	Measured			
Spacing	**CV Comp**	**OKV**	**RSE**	**A90%**	**Q90%**	**Slope**	**BDV**	**KV/BDV**
80x80	0.99	0.1071	0.32	16%	31%	0.88	0.17	0.63
60x60	0.99	0.1043	0.32	16%	31%	0.91	0.17	0.61
50x50	0.99	0.0951	0.31	15%	29%	0.92	0.17	0.56
40x40	0.99	0.0812	0.28	14%	27%	0.95	0.17	0.48
30x30	0.99	0.0542	0.23	11%	22%	0.98	0.17	0.32

Source: (Buenaventura, 2023)

A90% and Q90% values are plotted on a graph versus spacing (Figure 11-43).

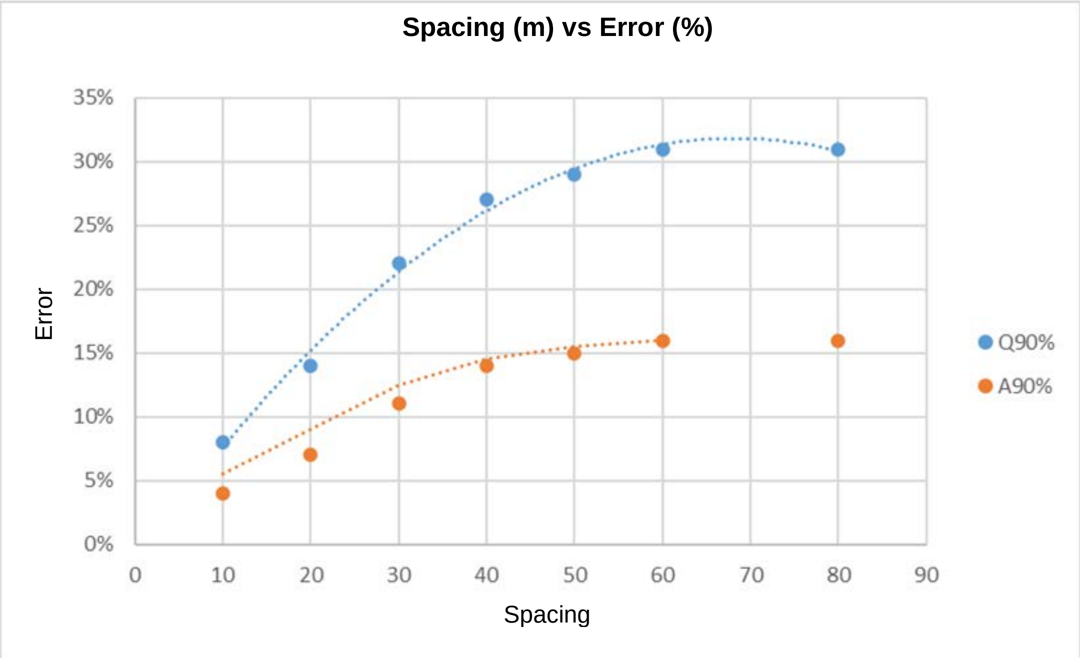


Figure 11-43: Spacing vs. error graph

Source: (Buenaventura, 2023)

Finally, a resource is considered a Measured Resource when the spacing error is less than or equal to 15% at Q90%. Indicated Resources, in turn, have spacing errors less than or equal to 15% at A90%. These values are calculated from the graph in Figure 11-43.

The variable "d3h_avgdist_anisot" was calculated as the average anisotropic distance of the three closest drillholes. Based on this variable and on the number of holes involved in the block estimation, categorization was performed according to Table 11-43.

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 was applied to smooth the categorization to eliminate any risk of generating a "spotted dog" effect. Buenaventura generated polygons for the Yumpaq project based on the initial categorization of measured and indicated resources to adequately manage the distribution of resource categorization and its continuity. Table 11-43 contains of a summary of the criteria used for distance between samples and number of drillholes for each category.

Table 11-43: 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, 2023)

Additional factors can affect confidence in the estimate to classify resources at the Yumpag Project, including:

- 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, which have identified vein structures, is supported by extensive exploration drilling.

Yumpag Project's exploration geologists record drill cores in detail, and include information on textural, alteration, structural, geotechnical, mineralization, and lithological properties. Work to develop in-depth understanding of the geological controls on mineralization is on-going.

Underground workings provide detailed geological mapping that feed geologists' understanding of vein systems.

Data density and orientation

These estimations are based on diamond drilling data. The Yumpag Project has explored structures using a drilling pattern that is spaced approximately 60 m apart along strike. Each drillhole is intended to intercept the structure perpendicular to the mineralization strike, but in most cases the actual intercept angle is between 75 and 90 degrees.

Geological confidence and the quality of estimation are closely dependent on 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 QA/QC programs, which analyze the methods used to measure data.

SRK has found the accuracy and precision results to be acceptable; nonetheless, control sample insertion rates are low. SRK recommends including a greater number 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, which leads to higher confidence in these estimated grades.

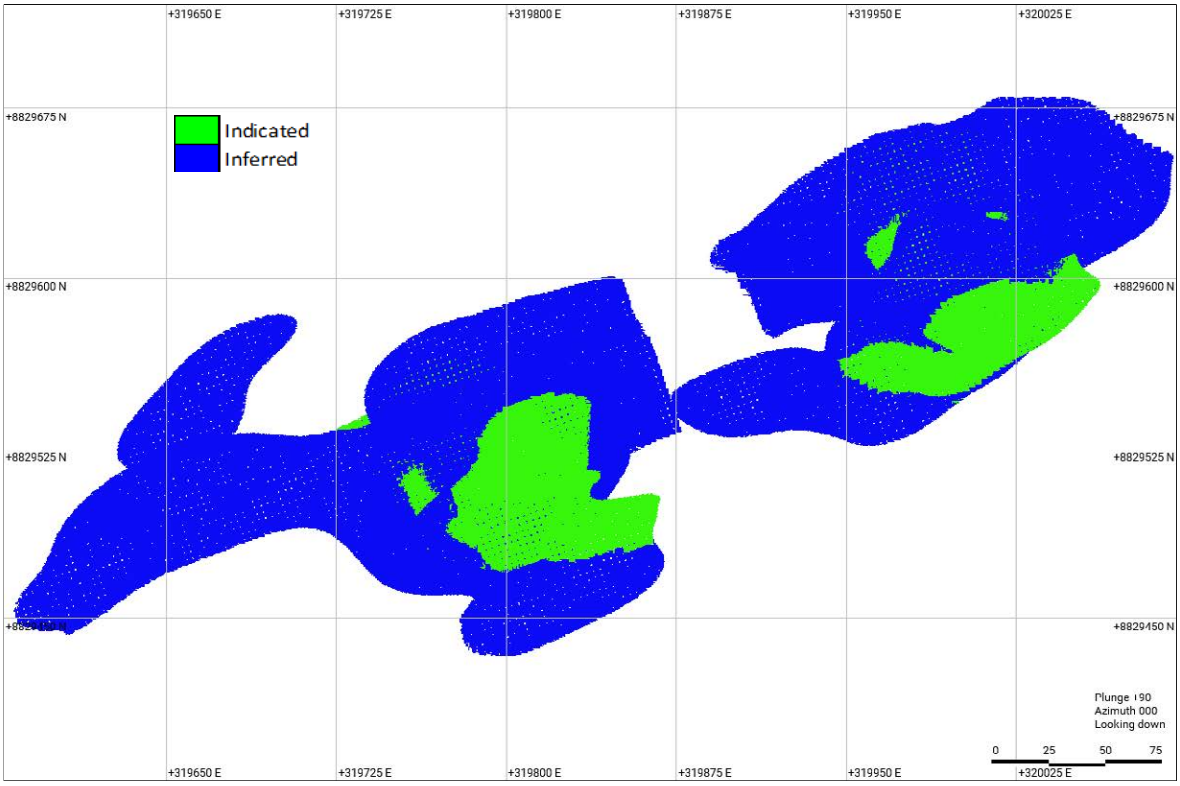


Figure 11-44: Tomasa structure Blocks Classification

Source: (Buenaventura, 2023)

11.2.3 Cut-Off Grade Estimates

The cut-off value used to report mineral resources is based on the average operating costs which have been updated to 2023 considering the mining methods projected for Yumpag, as well as medium and long-term operational projections. The value of Cut off is shown in Table 11-44 and the parameters used are listed in the tables.

Table 11-44: Cut Off grade calculation for Resources

DESCRIPTION	Sub Level Stoping (SARC) Variable (USD/t)
1. Mine	59
2. Plant	12
3. Services	32
Sub total Opex	**103**
5. Administrative costs	0
6. Off site costs	1
7. Sustaining CAPEX	0
9. Contingency (10%)	10
Marginal Cutoff Value	**115**

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

Source: (Buenaventura, 2023)

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.

NSR calculation considers variable metallurgical recoveries according to grade ranges and metal prices (Table 11-48) and the parameters used are listed in Table 11-45, Table 11-46 and Table 11-47

Table 11-45: Metal Prices

Metal	Unit	US$
Silver	US$/Oz	23
Lead	US$/t	2,100
Zinc	US$/t	2,600

Source: (Buenaventura, 2023)

Table 11-46: NSR Yumpag

Metal	Payable	Valor Punto
Silver ($/oz)	80.9%	18.6165

Source: (Buenaventura, 2023)

Table 11-47: Metallurgical recovery models

Metal	Grade Range		Metallurgical Recovery
Rec Ag	Ag<10	Mn<15%	8.142*LeyAg
		Mn>=15%	50.1
	Ag>=10 Ag<30	Mn<15	78.01+0.341*LeyAg
		Mn>=15% Mn<30%	96.01+0.341*LeyAg-1.2*LeyMn
		Mn>=30%	(-0.1583)*LeyMn+53.75
	Ag>=30	Mn<15%	88.24
		Mn>=15%	73.4

Source: (Buenaventura, 2023)

Table 11-48: NSR calculation formula

Unit	NSR Formula
Yumpag	AgGrade*18.616491632175*Rec Ag/100

Source: (Buenaventura, 2023)

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."

11.2.4 Reasonable Potential for Eventual Economic Extraction (RPEEE)

To prove reasonable perspectives for an economic extraction, Yumpag 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: 4.00 m
- Stope length: 4.00 m
- Minimum width: 0.60 m
- Optimization variable: NSR
- Marginal Cut-Off: 115.00 USD/t
- Measured, Indicated and Inferred Resources are considered within the optimization in the same process.

Additional terms Deswik

- Pillar Length: 0.01 m
- Sub Shapes Stopes:
  - U: Fraction Length Stope
  - V: Fraction Height Stope

Table 11-49: Sub Shapes Stopes parameters

U min	U max	V min	V max
0	0.5	0	1
0.5	1	0	1

Source: (Buenaventura, 2023)

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 11-45.

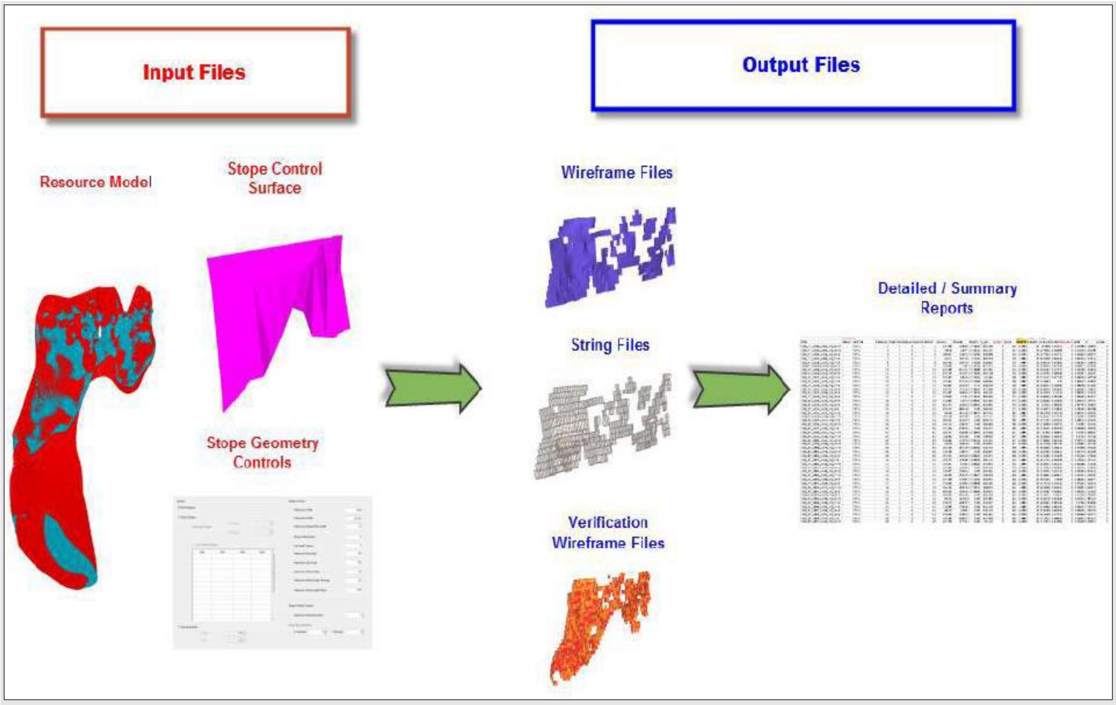


Figure 11-45: Input and output files after RPEEE analysis

Source: (Buenaventura, 2023)

11.2.5 Mineral Resources Estimates

A net smelter return (NSR) was calculated for each metal considering the expected commercial terms for 2021; average metallurgical recovery; average grade in concentrate; and long-term metal prices. Accordingly, 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 Uchucchacua plant.

The fields used for reporting are as follows:

Table 11-50: Report Fields

Item	Description
Tonnage	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, 2023)

NSR (Net Smelter Return) calculation considers variable metallurgical recoveries according to grade ranges and metal prices (Table 11-51).

Table 11-51: NSR Calculation Formula

Unit	NSR Formula
Yumpag	Ley Ag (Oz/t)*18.6576650157041*Recuperación Ag(Oz/t)

Source: (Buenaventura, 2023)

Table 11-52: Resources Report Summary

Resources Report as of July 03, 2023

Unit: Yumpag

Date: 24/12/2023

Resources Summary Cut-off: 115.0 US$/t

Zone	Category	Tonnage	Ag	Pb	Zn	Fe	Mn	NSR	AgEq	Onz Equiv	Width
		kt	Oz	%	%	%	%	US$/t	Oz	Moz	m
Camila	Measured	54	17.32	0.41	0.76	3.52	21.01	232.98	17.32	0.93	14.25
	Indicated	149	18.23	0.36	0.61	2.84	17.80	248.36	18.23	2.72	11.17
	Measured & Indicated	203	17.99	0.38	0.65	3.02	18.65	244.28	17.99	3.66	11.98
	Inferred	730	27.46	0.69	1.33	4.19	20.51	384.88	27.46	20.05	19.76
Tomasa	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Indicated	213	16.15	0.48	0.56	2.70	8.24	241.83	16.15	3.44	15.62
	Measured & Indicated	213	16.15	0.48	0.56	2.70	8.24	241.83	16.15	3.44	15.62
	Inferred	904	25.76	0.48	0.63	3.04	7.58	403.75	25.76	23.28	22.49
Total	**Measured**	**54**	**17.32**	**0.41**	**0.76**	**3.52**	**21.01**	**232.98**	**17.32**	**0.93**	**14.25**
	Indicated	**362**	**17.01**	**0.43**	**0.58**	**2.75**	**12.18**	**244.52**	**17.01**	**6.16**	**13.78**
	Measured & Indicated	**416**	**17.05**	**0.43**	**0.61**	**2.85**	**13.32**	**243.03**	**17.05**	**7.10**	**13.84**
	Inferred	**1,634**	**26.52**	**0.57**	**0.94**	**3.55**	**13.36**	**395.32**	**26.52**	**43.34**	**21.27**

Note: Resources include reserves; no mineral loss or dilution has been included.

No envelopes have been used to report the resource.

The prices used are US$ 23.00 per ounce Ag, US$ 2,100.00 per ton Pb, US$ 2,600.00 per ton Zn.

Source: (Buenaventura, 2023)

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.

11.2.6 Uncertainty

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

- Database and QA/QC: the database is in an MsSQL engine, and the storage structure has been generated in Acquire software. For information management, an InHouse Buenaventura implementation is used, which guarantees the traceability of information. In the case of QA/QC, control samples generally identify problems mainly in accuracy.
- Density: only the 3 most important structures have been sampled to obtain density measurements. Buenaventura has defined a methodology that assigns density value to unsampled structures based on a clustering, which reflects geological similarity to the 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; these 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 SEC; 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 on the quality of information used to estimate Mineral Resources, SRK considers that the geological confidence is substantiated on all the points reviewed above and that the uncertainty has been adequately defined through the categorization criteria applied.

11.2.7 Opinion On Influence for Economic Extraction

The QP is of the opinion that the Mineral Resources for Yumpag, 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 operating costs which have been updated to 2023 considering the mining methods projected for Yumpag, as well as medium and long-term operational projections; is also based on metallurgical test 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 Estimation

Uchucchacua resumed operations in September 2023, after halting operations for almost two years (October 2021 to September 2023). At the same time, Yumpag begins its exploitation program.

Due to this stoppage, some parameters utilized to estimate mineral reserves, including metallurgical recovery, dilutions (ELOS, operational dilution) and mine recovery were not updated. For this estimate, Buenaventura used the parameters of the last evaluation audited by SRK Peru (as of December 2022). SRK finds these assumptions consistent.

Uchucchacua is an operating mine that uses conventional underground methods to extract mineral reserves. The underground mining methods used are the following:

- Uchucchacua Zone; Bench & Fill (B&F) and Overhand Cut & Fill (OCF). The latter employs the following variants: Breasting (Mechanized) Jumbo, Breasting (Semi-Mechanized) Jackleg, [5]Realce/Circado (Mechanized) Mukif 10' and [6]Realce/Circado (Captive) Stoper 8'.
- Yumpag Zone; Over Drift & Fill (ODF), Bench & Fill (B&F) and Overhand Sublevel Stoping (SARC).

The underground mining areas and its facilities are located entirely on land owned by Buenaventura or in areas subject to surface use agreements. There are no royalties applicable to the areas included in reported 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 studies.

Mineral reserves effective date is December 31st, 2023.

12.1 Underground Mineral Reserves

12.1.1 Introduction

In September 2023, the Uchucchacua mining unit resumed operations, including development work and industrial metallurgical testing in the Yumpag area. The estimate of mineral reserves focuses on both areas.

The underground mine Uchucchacua is operated using two mining methods: Bench & Fill and Overhand Cut & Fill. Material is transported in up to three ways: hauled by truck, through vertical shafts and locomotives, from the underground zone to an existing crusher facility located in the processing plant zone. At Yumpag, operations are slated to begin in 2024.

[5] This mining method is a variant of "overhand cut and fill" which consists of Drilling is carried out on elevation with jumbo electro-hydraulic rigs.

[6] In this variant, mining is semi-mechanized with captive equipment; drilling is carried out on elevation with stoper-type equipment.

A block model sub-blocked, with a parent cell size of 3 m x 3 m x 3 m, is used to estimate underground mineral reserves. 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 ore materials, depending on 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 described in Section 13.

The determination of mineral reserves is contingent on the specifics of each mining method, and as such entails differentiated parameters and operating cost schemas. The mining methods considered are:

Uchucchacua:

- Bench & Fill (B&F)
- Overhand Cut & Fill and its four variants:
  - OCF Breasting (Mechanized) Jumbo
  - OCF Breasting (Semi-Mechanized) Jackleg
  - OCF Realce/Circado (Mechanized) Mukif 10'
  - OCF Realce/Circado (Captive) Stoper 8'

Yumpag:

- Bench & Fill (B&F)
- Over Drift & Fill (ODF)
- Overhand Sublevel Stoping (SARC)

Designed stopes and their internal materials consider the following criteria:

- The material inside the stope wireframe is considered a unique entity, and its calculation includes measurements of total tonnage, diluted grades and diluted NSR;
- The mineral resource category assigned to this material (as a unique entity) 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, consequently, 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 that stope wireframes that have been designed;

- Inferred and non-categorized material within the stope wireframes designed was treated as waste and given a zero value (grade and NSR).

The ELOS parameters used in the Deswik® DSO configuration, is shown in Table 12-1.

Table 12-1: ELOS parameters

Mining Method	ELOS parameter *	
	Hanging wall (m)	Footing wall (m)
Uchucchacua Zone		
Bench & Fill	0.20	0.20
Cut & Fill (and its four variants)	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

* Parameter applied to configure the Deswik DSO® module used for stope design.

** Overhand Sublevel Stoping with Cemented Backfill named as SARC by its Spanish acronym. It considers that diluting material adjacent to the stope is ore.

Source: (Buenaventura, 2023)

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 zones that are isolated or remote in distance from the main operating zones or in relation to the main 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 in 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 with 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 (and its four variants)	4%	95%
Yumpag Zone		
Over Drift & Fill (ODF)	4%	95%
Bench & Fill (BF)	10%	90%
Overhand Sublevel Stoping (SARC) *	4%	95%

* Overhand Sublevel Stoping with Cemented Backfill named SARC by its Spanish acronym. It considers that diluting material adjacent to the stope is ore.

Source: (Buenaventura, 2023)

12.1.4 Cut Off Grades

An NSR cut-off was used rather than a grade cut-off, given that Uchucchacua is a polymetallic mine that sells different types of concentrates. Valuable contents are: silver, lead and zinc.

The costs of UM Uchucchacua have been updated to the year 2023. This has been done considering the mining methods scheduled for Uchucchacua and Yumpag, and medium and long-term operational projections.

Cut-off grade definition is based on the historical cost for the years 2019, 2020 and 2021, prior to stoppage, 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 not related to mine operations;
- Estimation of sustaining CAPEX;
- Assessment of current and future conditions of mine operations.

For Uchucchacua underground mine, five 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

Item	UCHUCCHACUA – Unit costs by mining method (US$/t)				
	Bench & Fill	OCF Breasting (Mechanized) Jumbo	OCF Breasting (Semi-Mechanized) Jackleg	OCF Realce/ Circado (Mechanized) Mukif 10'	OCF Realce/ Circado (Captive) Stoper 8'
Mine	53.48	67.53	74.32	77.53	87.25
Plant	12.07	12.07	12.07	12.07	12.07
Services	22.94	22.94	22.94	22.94	22.94
Administratives expenses 20F	5.22	5.22	5.22	5.22	5.22
OffSite expenses	1.21	1.21	1.21	1.21	1.21
Sustaining CAPEX	13.71	13.71	13.71	13.71	13.71
Contingencies (*)	10.22	11.63	12.30	12.63	13.60

Item	YUMPAG Unit costs by mining method (US$/t)		
	Over Drift & Fill	Bench & Fill	Sub Level Stoping (SARC)**
Mine	58.76	61.13	62.03
Plant	12.07	12.07	12.07
Services	59.59	59.59	59.59
Administratives expenses 20F	5.22	5.22	5.22
OffSite expenses	1.21	1.21	1.21
Sustaining CAPEX	13.71	13.71	13.71
Contingencies (*)	14.41	14.65	14.74

* Contingencies: item considers 10% of the sum of the costs of Mine, Plant, Services and Sustaining CAPEX.

** Overhand Sublevel Stoping with Cemented Backfill named SARC by its Spanish acronym.

Source: (Buenaventura, 2023)

Table 12-4: UG NSR cut-off value for underground operations

		UCHUCCHACUA				
NSR Cut-off	Unit	Bench & Fill	OCF Breasting (Mechanized) Jumbo	OCF Breasting (Semi-Mechanized) Jackleg	OCF Realce/ Circado (Mechanized) Mukif 10'	OCF Realce/ Circado (Captive) Stoper 8'
Marginal	USD/t	58.84	75.42	82.89	86.43	97.11
Economic	USD/t	118.85	134.30	141.77	145.31	155.99

		YUMPAG		
NSR Cut-off	Unit	Overhand Drift & Fill	Bench & Fill	Sub Level Stoping (SARC)*
Marginal	USD/t	111.09	113.70	114.70
Economic	USD/t	164.97	167.58	168.58

** Overhand Sublevel Stoping with Cemented Backfill named SARC by its Spanish acronym.

Source: (Buenaventura, 2023)

12.2 Metallurgical Recovery

The mining unit 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 Río 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 years 2019, 2020 and 2021 of statistical data and metallurgical performance of the plant;
- Historical metallurgical testing results, and the results 2021 from the metallurgical testing campaign using representative samples collected from the mineral reserve sectors.

At the end of 2021, using the available information from the mining metallurgical disciplines, SRK developed specific mathematical expressions for metallurgical recovery. Data support and details on this analysis (formulas and graphic representation) can be found in chapters 10 and 14.

SRK believes that there is significant room to improve the precision of mathematical expressions for Uchucchacua, and strongly recommends continuing efforts to collect detailed operational data and perform 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 (t/d)	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

* Circuit 1 preferably treats the material with high manganese contents.

** Some concentrates from Circuit 2 can be sent to Río Seco plant to complete its capacity (36,000 t/year).

Source: (Buenaventura, 2021)

For material processed through processing plant, functions are described in Table 12-6; graphs are included in Figure 12-1, Figure 12-2 and Figure 12-3, differentiated by metal and grade ranges.

Table 12-6: Metallurgical recovery functions – Uchucchacua

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

Metal	Applicable Grade Range	Metallurgical Recovery function *
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

* Grades expressed as a percentage must be considered in the same units in the recovery functions.

Source: (Buenaventura, 2021)

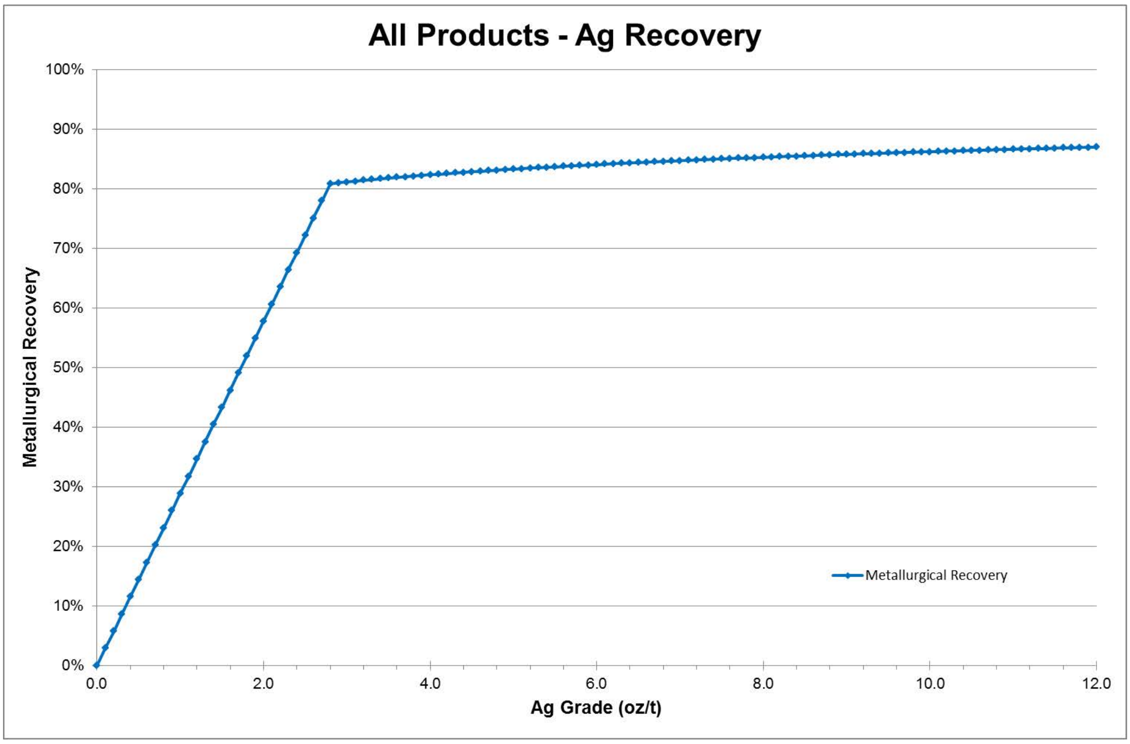


Figure 12-1: Ag recovery – Uchucchacua

Source: (SRK, 2021)

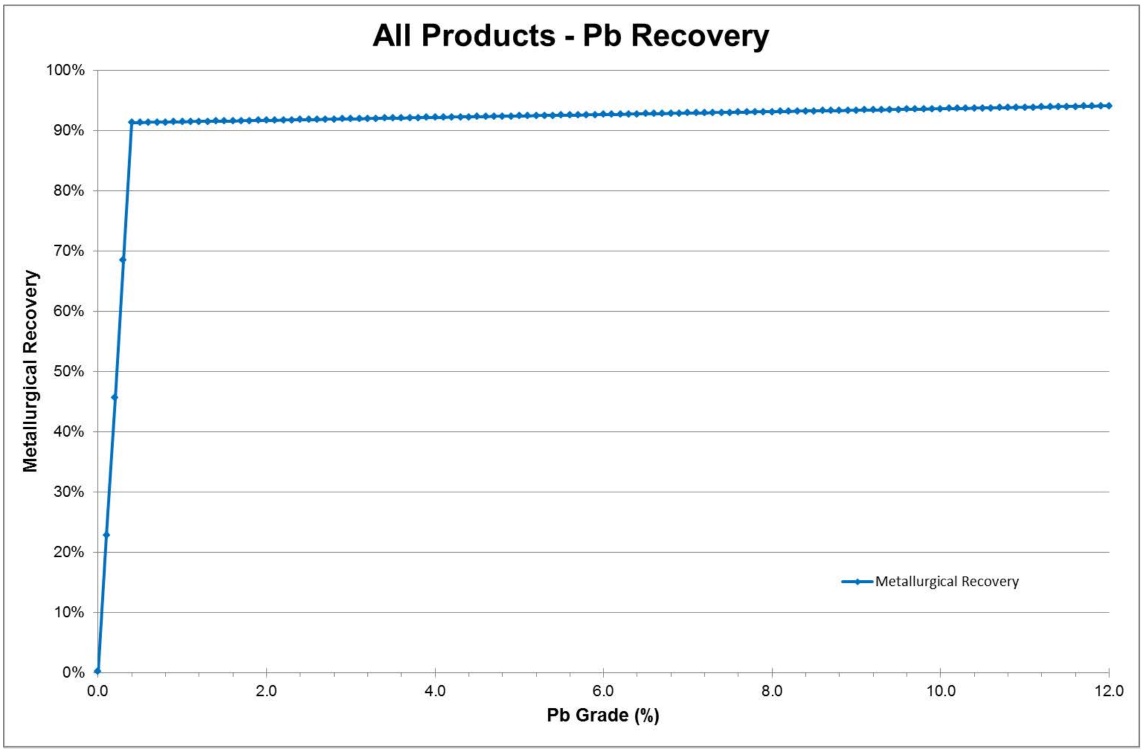


Figure 12-2: Pb recovery - Uchucchacua

Source: (SRK, 2021)

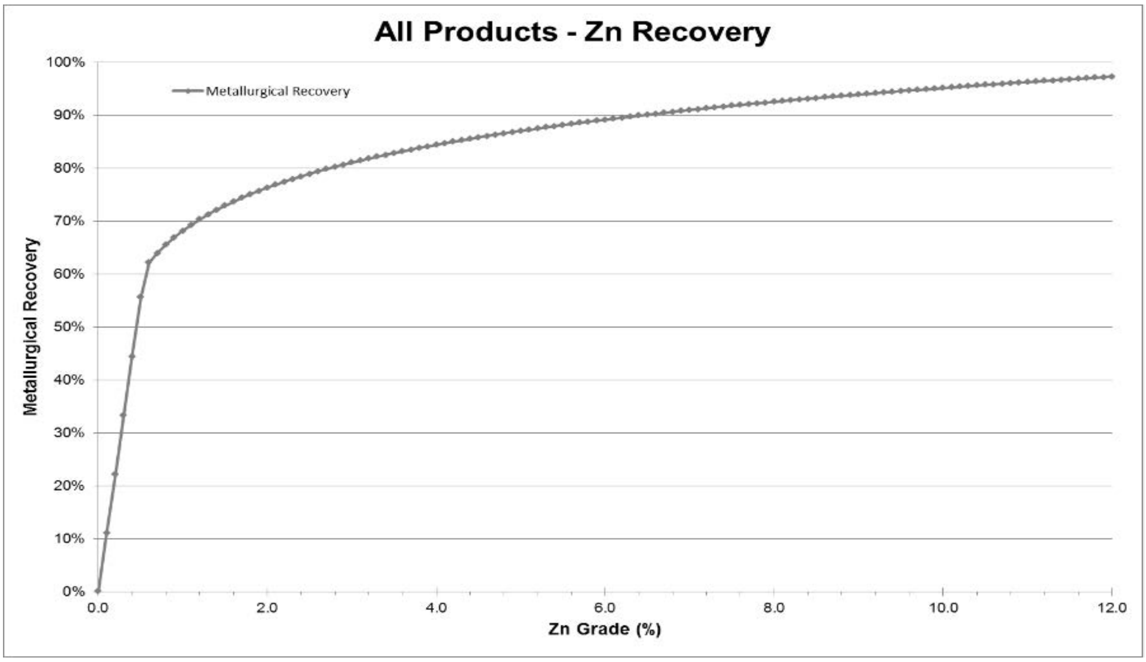


Figure 12-3: Zn recovery - Uchucchacua

Source: (SRK, 2021)

In the case of Yumpag, only Ag is recovered. All metallurgical recovery formulas depend on the Ag-Mn relationship.

The mathematical equations and respective graphs are detailed in Table 12-7.

Table 12-7: Metallurgical recovery functions - Yumpag

Range	Applicable Grade Range	Metallurgical Recovery function (Ag) *
R1	Ag Grade (oz/t) < 10	8.142 * Ag Grade (oz/t)
	Mn Grade (%) < 15	
R2	Ag Grade (oz/t) < 10	50.10%
	Mn Grade (%) > 15	
R3	Ag Grade (oz/t) > 10	96.01 + (0.341*Ag Grade (oz/t)) - (1.2*Mn Grade (%))
	Ag Grade (oz/t) < 30	
	Mn Grade (%) > 15	
	Mn Grade (%) < 30	
R4	Ag Grade (oz/t) >= 10	78.01 + (0.341 * Ag Grade (oz/t))
	Ag Grade (oz/t) < 30	
	Mn Grade (%) < 15	
R5	Ag Grade (oz/t) >= 30	73.40%
	Mn Grade (%) > 15	
R6	Ag Grade (oz/t) >= 30	88.24%
	Mn Grade (%) < 15	
R7	Ag Grade (oz/t) >= 10	(-0.1583 * Mn Grade (%)) + 53.75
	Ag Grade (oz/t) < 30	
	Mn Grade (%) > 30	

* Grades expressed as a percentage must be considered in the same units in the recovery functions.

Source: (Buenaventura, 2021)

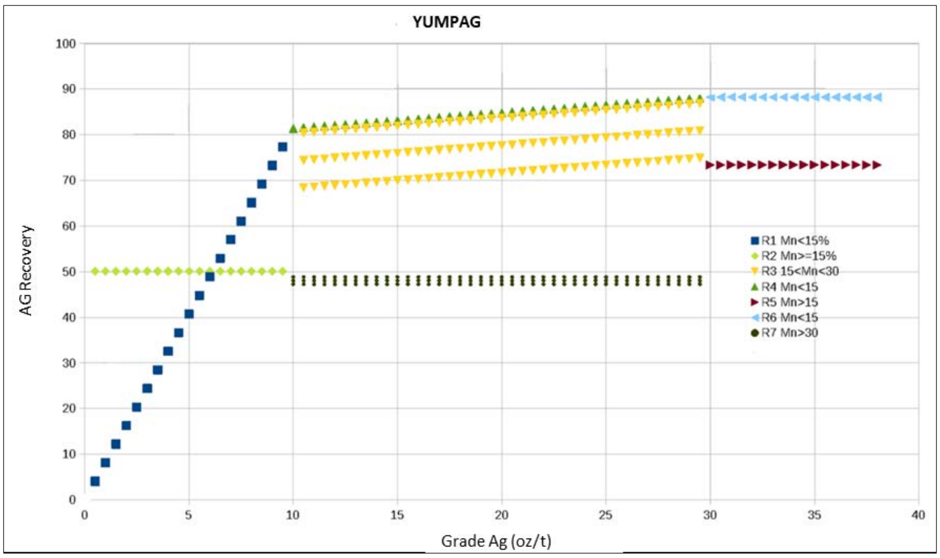


Figure 12-4: Ag recovery - Yumpag

Source: (SRK, 2021)

For the estimate of mineral resources and reserves considered in this report, Buenaventura included a mineralized body called “Tomasa”, located north of the Camila vein, to its estimates of Yumpag. For the purposes of this chapter, SRK reviewed the available information, which included four (04) metallurgical test samples, in addition to the geochemistry contained in the drilling database, multiple geological, mineralogical and geomechanical analyses. SRK concluded that Tomasa, at a preliminary level, uses the same models currently employed for Yumpag.

12.3 NSR value for blocks

Uchucchacua is a polymetallic mine operation that produces three types of products with three payable elements. Accordingly, the mineral reserves were estimated under the concept of multiple commodity ore.

Estimation of NSR value for blocks uses the following aspects to determine each commodity’s potential contributions to value in the sale of products:

- 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 series of “unit values” for each metal, each of which contributes to the value of saleable products. The “unit value” consolidates the following aspects in a unique factor: payable contents, commercial deductions and selling expenses.

Based on the previous analysis developed by CRU in 2021 and consensus information from different banks and investment entities, the following price forecast represents Buenaventura’s forecast as of July 2023 and are coherent with the results of Market Studies (Chapter 16).

Table 12-8: Metal Prices for mineral reserves definition

Metal and Units	Price
Silver (US$/oz)	23
Lead (US$/t)	2,100
Zinc (US$/t)	2,600

Source: (Buenaventura, 2023)

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 12-9.

Table 12-9: Estimated unit value by metal and type of concentrate

Saleable product	Grade Units **	Unit value by Metal (US$ / unit of grade) *	
		Uchucchacua Zone	Yumpag Zone
Ag	Ag (oz/t)	13.92	18.62
Pb	Pb (%)	12.3	--
Zn	Zn (%)	10.62	--

* Unit value is used as a factor (multiplied by recoverable content) to calculate the value contribution (US$/t). Also, the Unit value has been rounded to reflect the accuracy of the estimate.

** Grades must be expressed in the indicated units to use the formula.

Source: (Buenaventura, 2023)

12.4 Material Risks Associated with the Modifying Factors

SRK has identified the following material risks associated with the modifying factors:

- Re-start of operations

Uchucchacua could present challenges in its restart of operations, since some milestones in its planning could be contrary to reality, directly affecting operating costs and, consequently, the cut-off:

  - problems with labor reintegration or lack of labor;
  - the mechanical availability of their equipment due to lack of preventive maintenance and/or specialized personnel.

- Mining Dilution and Mining Recovery

SRK believes that the dilution and mine recovery, assumed by Buenaventura, is reasonable but requires deeper analysis; the lack of more in-depth analysis 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 volatility 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. From 2021 and on, these rates have varied considerably and their evolution down the line is unpredictable.

- Geotechnical Parameters

Geotechnical parameters used to estimate the mineral reserves can change as mining progresses.

- Metallurgical aspects

Some metallurgical aspects can impact the results of mineral reserve estimation. SRK believes that the following elements, in particular, must be adequately monitored and supported:

- Support for silver recovery in the different products.
- Improvements in the assignment of destination (circuit 1 and 2) for in situ material

Yumpag is part of the mineralized and exploitable zones of Uchucchacua. For this estimate of mineral reserves, the Yumpag zone has been added to these exploitable zones, which represent almost 50% of the mineral reserves with more than 1 Mt.; however, this addition is supported by a preliminary evaluation on metallurgical aspects based on very limited information. SRK suggests strengthening studies and evaluations, which could impact mineral reserves.

- Commercial aspects

Changes in the traceability and assignment of commercial conditions into the different saleable products could impact the value assignment and mineral reserve 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 will impact the mineral reserve 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 reserve estimation is reasonable based on available technical studies and information provided by Buenaventura. Table 12-10 shows the Uchucchacua mineral reserves as of December 31st, 2023.

Table 12-10: Uchucchacua Underground Summary Mineral Reserve Statement as of December 31st, 2023

Mining Method	Confidence Category	Tonnage (t)	Silver Grade (oz/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)
Uchucchacua Bench & Fill	Proven	267,305	6.43	2.35	3.87	2.48
	Probable	1,796,815	6.42	2.39	4.15	2.65
	Sub-total Proven & Probable	**2,064,120**	**6.42**	**2.38**	**4.12**	**2.63**
	Proven	211,447	14.33	1.08	1.37	9.34

Mining Method	Confidence Category	Tonnage (t)	Silver Grade (oz/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)
Uchucchacua Overhand Cut & Fill OCF_RM *	Probable	613,081	13.22	1.14	1.47	7.45
	Sub-total Proven & Probable	**824,528**	**13.51**	**1.12**	**1.45**	**7.94**
Uchucchacua Overhand Cut & Fill OCF_RC **	Proven	31,134	12.1	2.22	2.24	4.2
	Probable	43,757	12.24	1.76	1.83	3.66
	Sub-total Proven & Probable	**74,891**	**12.18**	**1.95**	**2**	**3.88**
Uchucchacua Overhand Cut & Fill OCF_BM ***	Proven	6,186	10.28	0.36	0.38	34.11
	Probable	58,765	11.03	0.24	0.29	27.39
	Sub-total Proven & Probable	**64,951**	**10.96**	**0.25**	**0.3**	**28.03**
Uchucchacua Overhand Cut & Fill OCF_BSM ******	Proven	-	-	-	-	-
	Probable	23,676	13.94	0.79	0.92	6.99
	Sub-total Proven & Probable	**23,676**	**13.94**	**0.79**	**0.92**	**6.99**
Yumpag Bench & Fill	Proven	811	20.87	0.37	0.82	22.75
	Probable	137,852	17.05	0.28	0.53	10.97
	Sub-total Proven & Probable	**138,663**	**17.07**	**0.28**	**0.53**	**11.04**
Yumpag Overhand Drift & Fill	Proven	21,495	20.23	0.38	0.56	21.57
	Probable	43,484	15.9	0.36	0.73	16.03
	Sub-total Proven & Probable	**64,979**	**17.33**	**0.36**	**0.67**	**17.86**
Yumpag Sub Level Stoping	Proven	109,414	16.31	0.38	0.81	17.63
	Probable	1,957,199	22.8	0.56	0.82	11.12
	Sub-total Proven & Probable	**2,066,613**	**22.45**	**0.55**	**0.82**	**11.46**
TOTAL	Proven	647,791	11.46	1.51	2.31	8.32
	Probable	4,674,629	14.72	1.34	2.18	7.54
	Sub-total Proven & Probable	**5,322,420**	**14.32**	**1.36**	**2.2**	**7.63**

[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, 2023 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 lon- term prices of silver price of 23.00 US$/oz, lead price of 2,100 US$/t, zinc price of 2,600 US$/t
b) Variable metallurgical recoveries are accounted for in the NSR calculations and defined according to recovery functions, which average 86% for silver, 92% for lead and 79% for zinc for the Uchucchacua zone. While for the Yumpag area, silver recovery reaches 85% on average.
c) Mineral reserves are reported above a marginal net smelter return cut-off of:
   - Uchucchacua Zone: 58.84 US$/t for bench & fill; 75.42 US$/t for OCF Breasting (Mechanized); 82.89 US$/t for OCF Breasting (Semi-Mechanized); 86.43 US$/t for OCF Realce (Mechanized) and 97.11 US$/t for OCF Realce (Captive) mining methods;
   - Yumpag Zone: 111.09 US$/t for overhand drift & fill, 113.70 US$/t for bench & fill and 114.70 US$/t for sublevel stoping (SARC) 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 and as such, numbers may not add up exactly to the same figure found in the table above.

Source: (Buenaventura, 2023)

13 Mining Methods

13.1 Introduction

It should be noted that Yumpag is part of the Uchucchacua Mine Unit, that is, it is within its scope as a mine. Yumpag is located 1 km northeast of the current Uchucchacua operations.

The considerations that Buenaventura used to determine mining methods for both Uchucchacua and Yumpag, differ for each. The following descriptions will discuss these considerations separately by area.

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, was determined by fracture filling and metasomatic replacement. Figure 13-1 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.

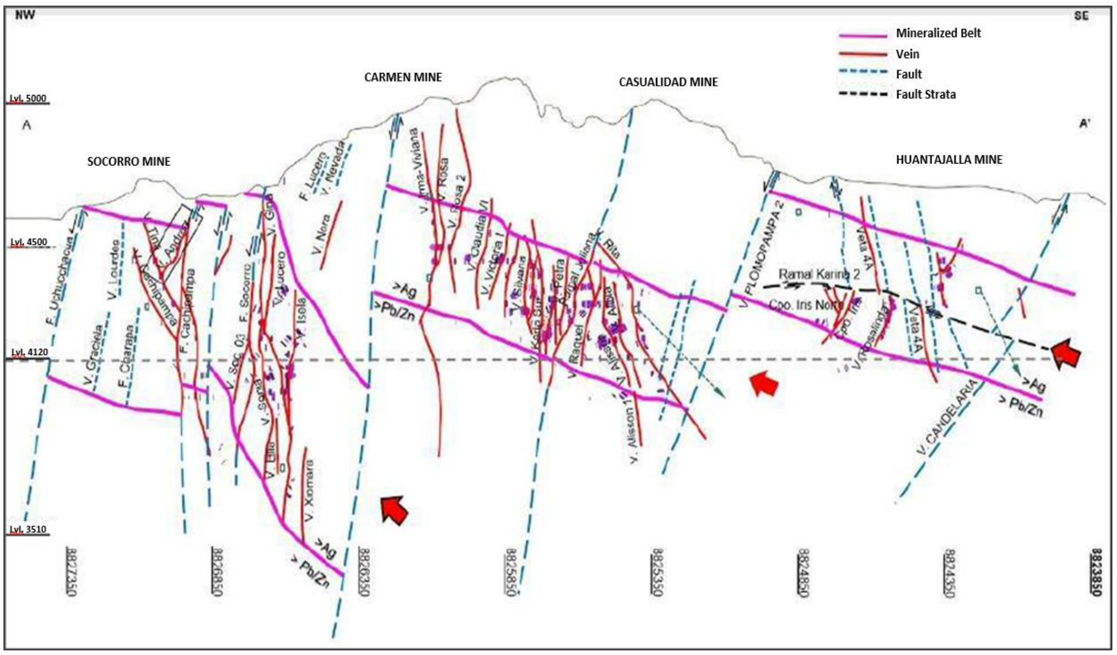


Figure 13-1: Cross section of Uchucchacua Mine

Source: (Buenaventura, 2021)

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 of approximately 15 meters.

In Yumpag there are several structures of the N60°E system with surface evidence of having channeled mineralizing fluids, such as, Carama, Camila, Natalia, Lili, Tomasa-Angélica, Cóndor, Luzmila-Zarela.

Camila structure is the best known, with high-grade silver minerals and characterized by a varied range of silver sulfosalts, where it is evident that the mineralizing fluids sometimes associated with Pebble dikes (when entering the prospective horizon) form mineralized bodies, which are anastomosed with a plunge of 15° to 20° to the SW; two jogs predominate at this point with lengths of approximately 250 to 300 m and widths between 25 and 1 m, which extend continuously for more than 1,300 m, leaving the mineralization open both at depth and in the direction of the plunge towards the SW (Figure 13-2).

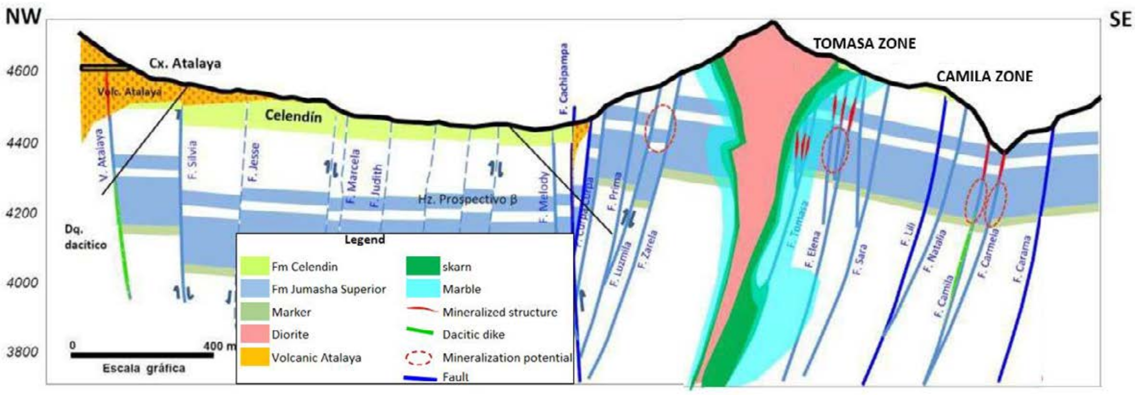


Figure 13-2: Cross section of the local geology of the Yumpag

Source: (Buenaventura, 2021)

At the operational level, the Uchucchacua mine is divided into five sectors, which are listed below:

- Socorro (“Bajo” and “Alto”)
- Casualidad
- Huantajalla
- Carmen

Yumpag mine, is divided into two sectors, Camila and Tomasa (Figure 13-3).

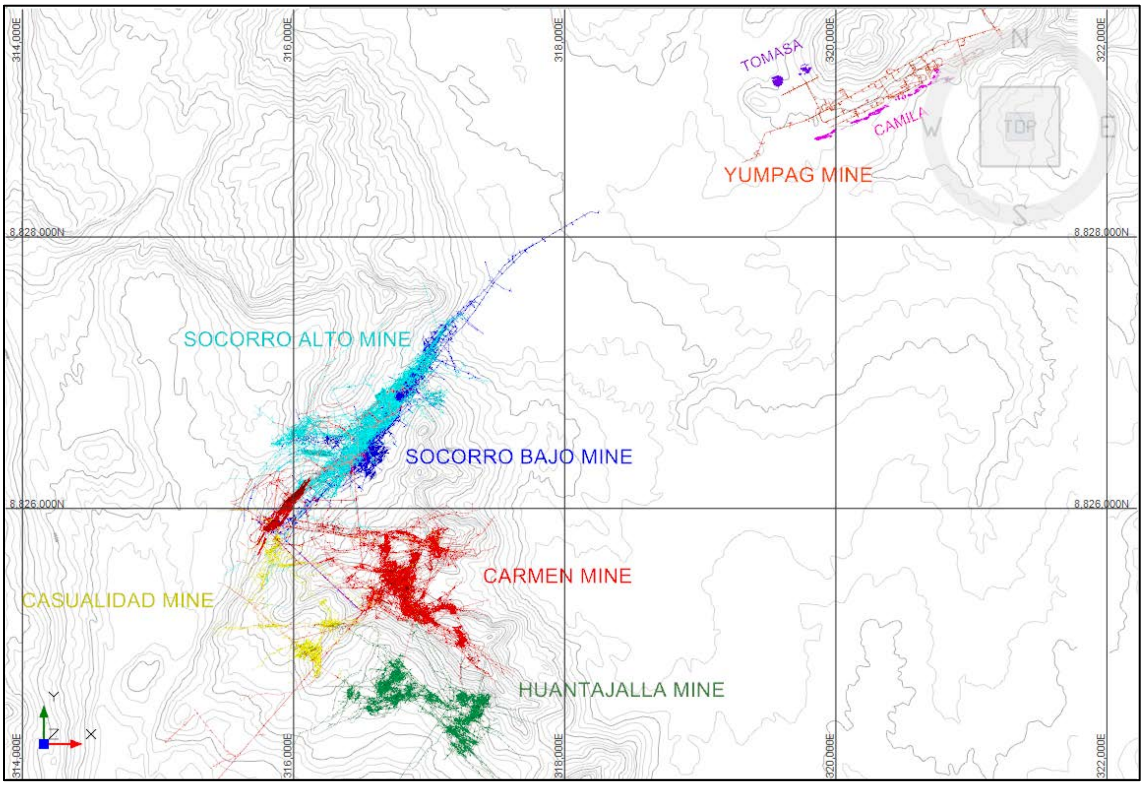


Figure 13-3: Uchucchacua mining areas

Source: (Buenaventura, 2021)

13.2 Mining methods - Uchucchacua

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

13.2.1 Bench & Fill (B&F)

Bench & fill entails longitudinal mining of the vein. A lower and upper sublevel are built, and an ore bench is left between both, 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.

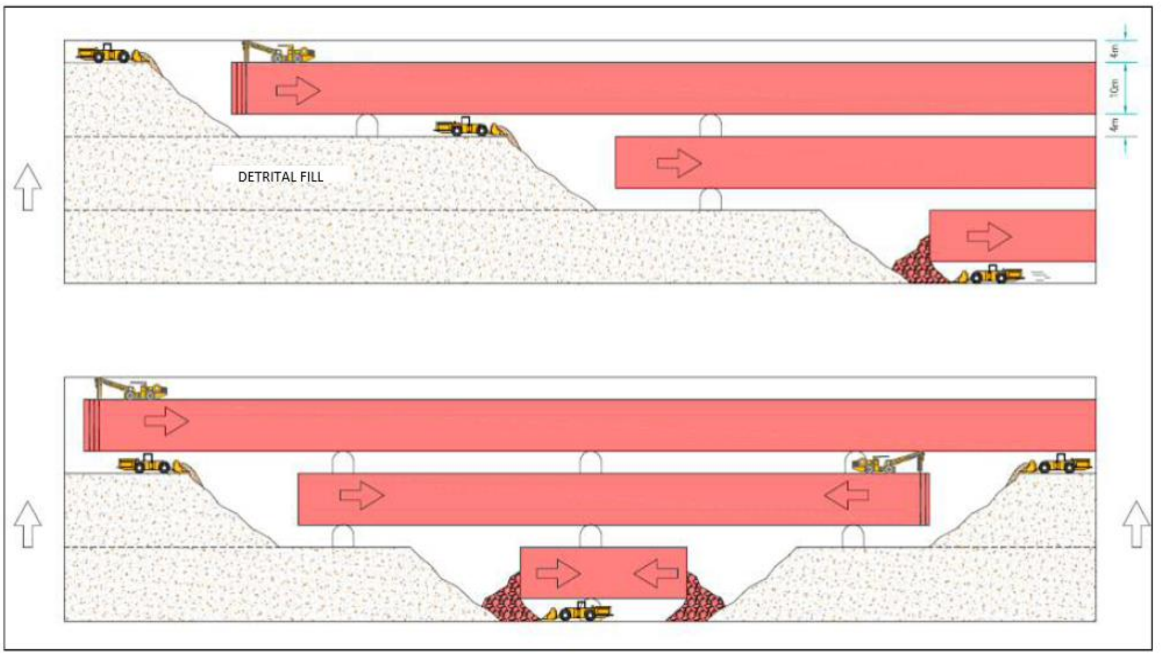


Figure 13-4: B&F mining diagram

Source: (Buenaventura, 2021)

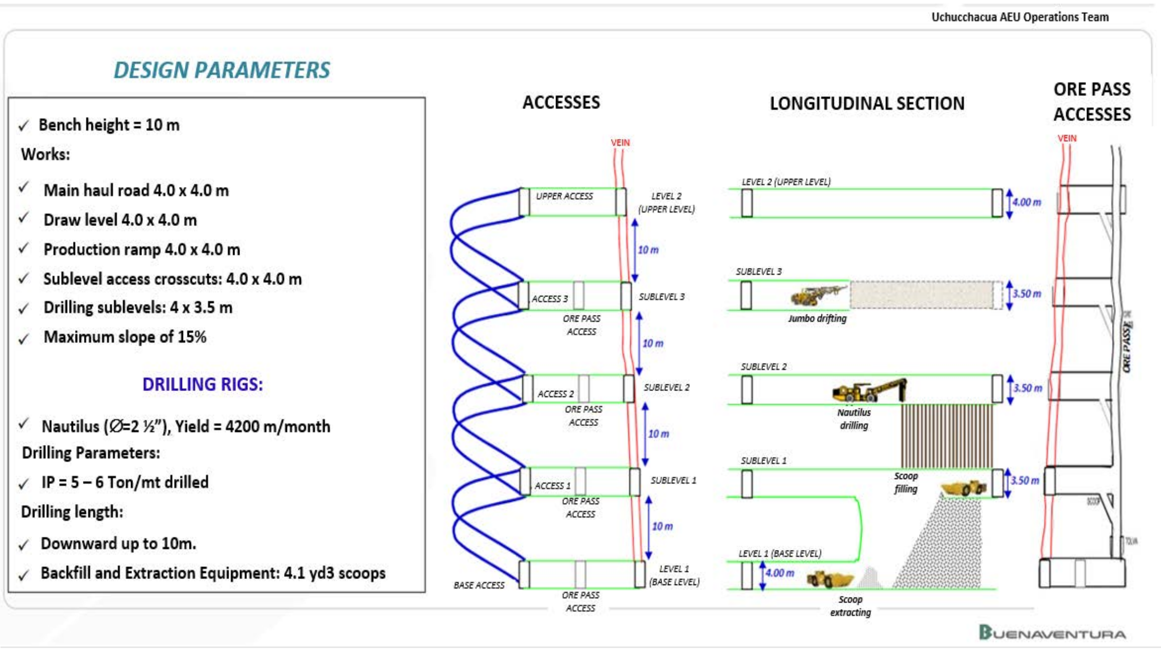


Figure 13-5: Bench & Fill method at Uchucchacua: Sequence

Source: (Buenaventura, 2021)

13.2.2 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. Currently, since the reopening of the mine, it is only being filled with detrital material. This backfill serves as a work floor for overhand mining. In each ore cut, support work must be performed to ensure the stability and safeguard personnel and equipment.

In Uchucchacua, OCF method is used in four variants, wich are listed below:

- Mechanized with upward drilling (OCF RM).
- Semi-mechanized with captive equipment (OCF RC).
- Mechanized with horizontal drilling (OCF BM).
- Semi-mechanized with horizontal drilling (OCF BSM).

OCF RM

Drilling is carried out with upward vertical holes using jumbo electro-hydraulic rigs (MUKI FF) that can work with drill rods up to 10 feet.

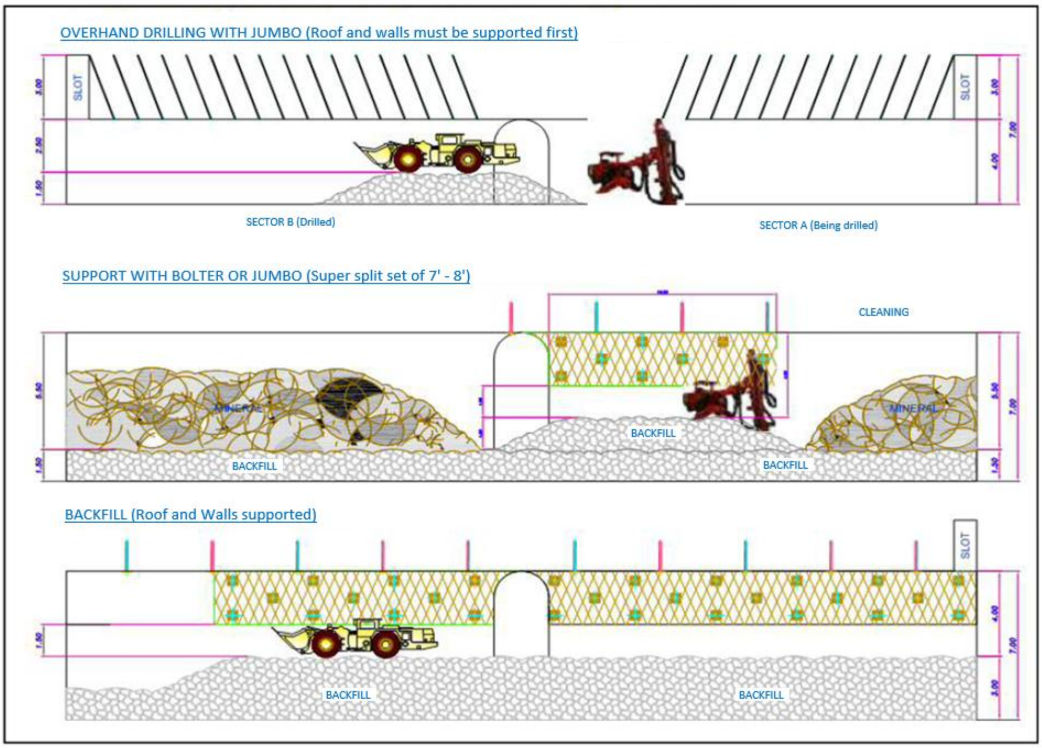


Figure 13-6: OCF RM mining cycle

Source: (Buenaventura, 2021)

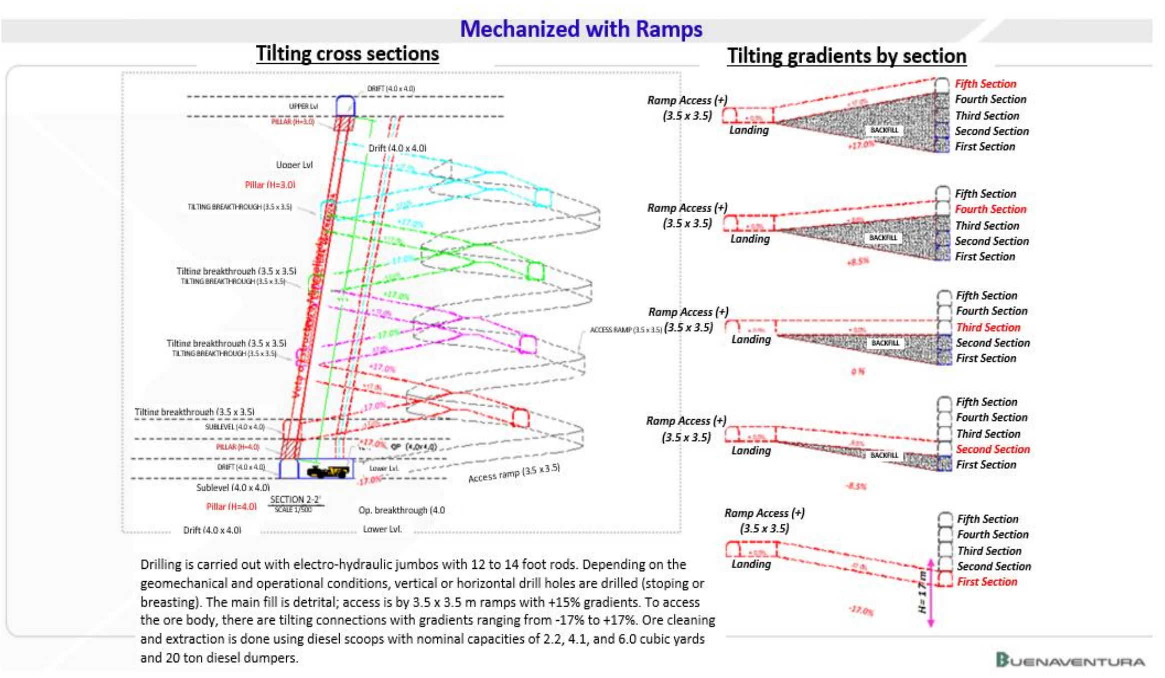


Figure 13-7: Mechanized Overhand Cut and Fill method at Uchucchacua: Sequence

Source: (Buenaventura, 2021)

OCF RC

In this variant, mining is semi-mechanized with captive equipment; drilling is carried out with upward vertical holes using stoper-type machines with 8-foot drill rods.

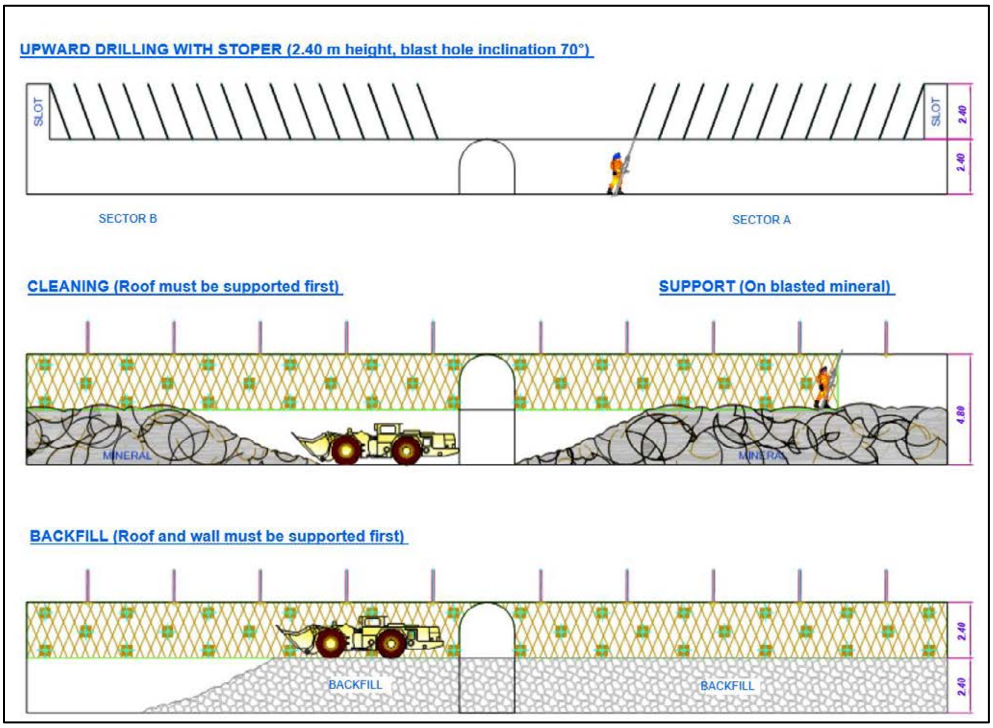


Figure 13-8: OCF RC mining cycle

Source: (Buenaventura, 2021)

OCF BM

In this variant, flat breast holes are drilled with jumbo machines.

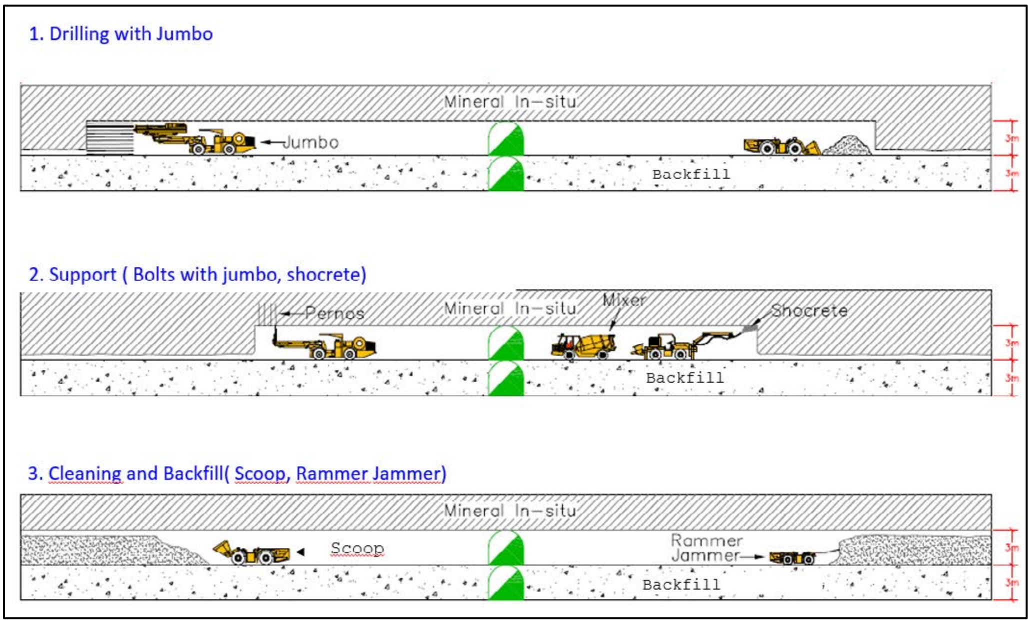


Figure 13-9: OCF BM mining cycle

Source: (Buenaventura, 2021)

OCF BSM

In this variant, drilling is carried out horizontally (breasting) utilizing jackleg-type equipment.

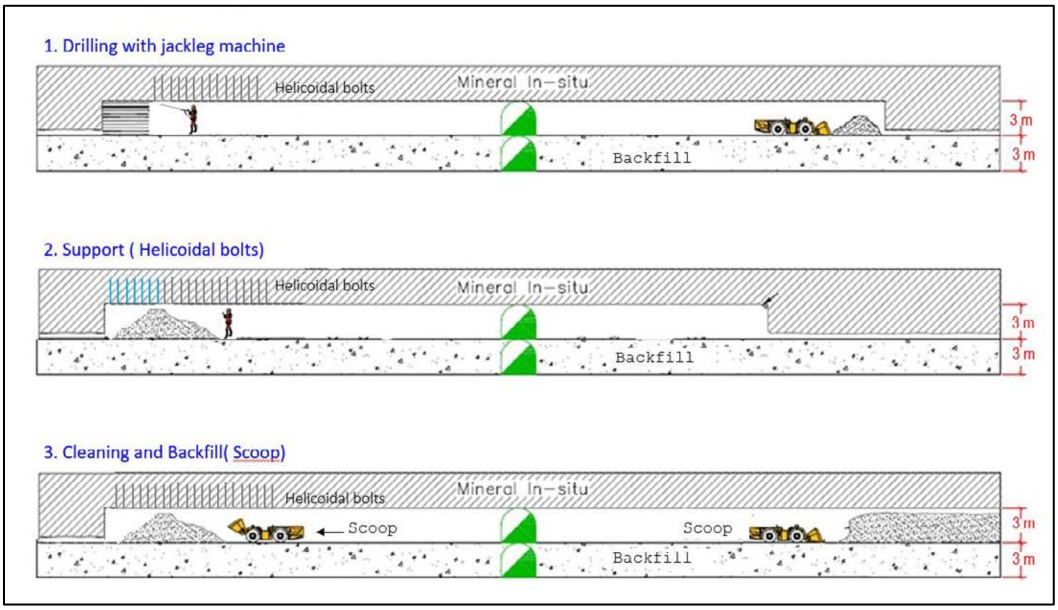


Figure 13-10: OCF BSM mining cycle

Source: (Buenaventura, 2021)

Table 13-1 shows the distribution of reserves according to mining methods at the Uchucchacua mining unit; this information corresponds to the mineral reserves for the year 2023.

Table 13-1: Distribution of UCH ore reserves according to mining methods applied

Mining Method	Tonnage (t)	Share (%)
B&F	2,064,120	68%
OCF RM	824,528	27%
OCF RC	74,891	2%
OCF BM	64,951	2%
OCF BSM	23,676	1%
TOTAL	**3,052,166**	**100%**

Source: (Buenaventura, 2021)

Based on the same distribution of reserves according to mining method, the share of each method in each zone and sector is detailed in Table 13-2.

Table 13-2: Distribution of ore reserves according to mining methods applied by Sector

Zone	Sector	Mining method	Tonnes (t)	Participation
1	Socorro Alto	B&F	956,128	31%
		OCF RM	164,798	6%
		OCF BM	64,951	2%

Zone	Sector	Mining method	Tonnes (t)	Participation
2	Socorro Bajo	B&F	744,996	24%
		OCF RM	287,258	9%
3	Carmen	B&F	145,906	5%
		OCF RM	338,802	11%
		OCF RC	74,891	2%
4	Huantajalla	B&F	68,356	2%
		OCF RM	30,838	1%
		OCF BSM	23,676	1%
5	Casualidad	B&F	148,733	5%
		OCF RM	2,832	< 1%
	TOTAL		**3,052,166**	**100%**

Source: (Buenaventura, 2021)

13.3 Mining methods - Yumpag

The Yumpag mine seeks to mine mainly Ag. 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 (SARC) 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.

13.3.1 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, working sublevel will be developed to facilitate entry. 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, 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, the primary panels must be 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.

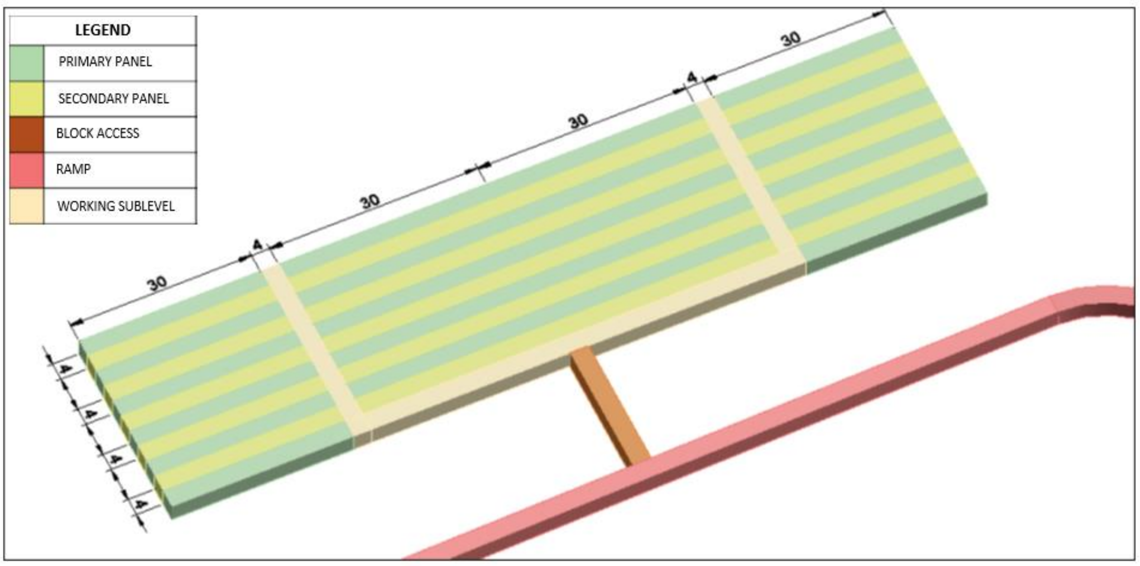


Figure 13-11: ODF mining method diagram

Source: (Buenaventura, 2021)

13.3.2 Bench & Fill (B&F)

As is the case at 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.

13.3.3 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 panels simultaneously as possible, the blocks have been classified into primary and secondary and are situated in an intercalated manner (Figure 13-12).

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.

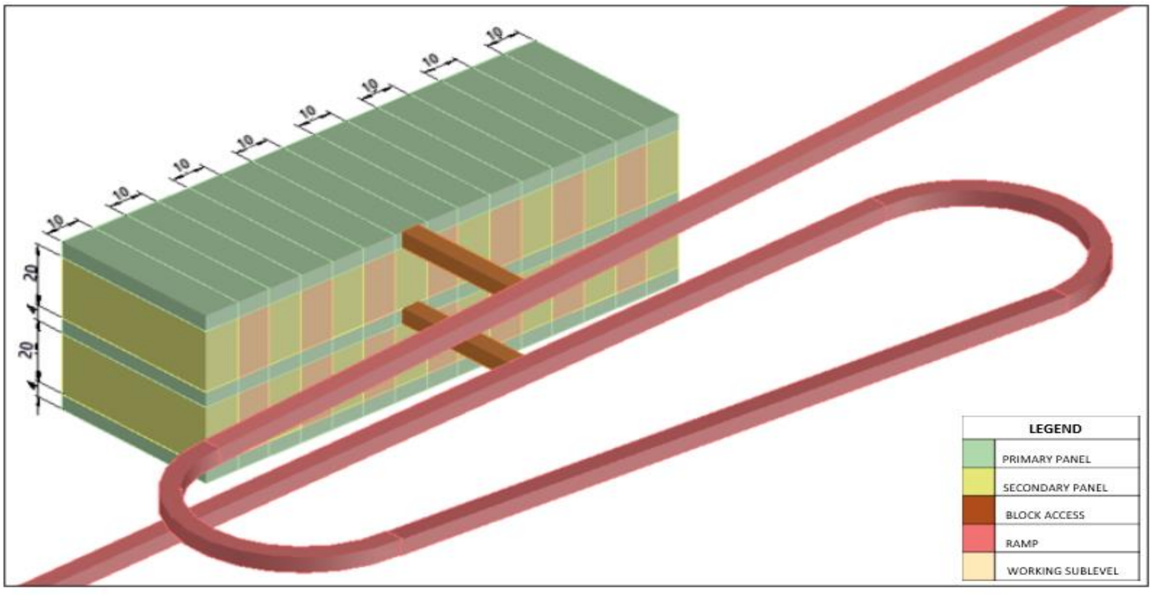


Figure 13-12: SARC mining method diagram

Source: (Buenaventura, 2021)

Table 13-3 shows the distribution of Yumpag ore reserves according to the mining methods applied.

Table 13-3: Distribution of Yumpag ore reserves according to mining methods applied

Zone	Sector	Mining method	Tonnes (t)	Participation
1	Camila	SARC	910,920	40%
		B&F	138,663	6%
		ODF	64,979	3%
2	Tomasa	SARC	1,155,692	51%
	TOTAL		**2,270,254**	**100%**

Source: (Buenaventura, 2021)

13.4 Parameters Relevant to Mine Designs and Plans

Uchucchacua mine maintains the geotechnical parameters considered in the mineral reserve estimates as of December 2022: Audit S-K 1300 “SEC Technical Report Summary (TRS) – Uchucchacua”, May 2022. This is due to the stoppage of mining activities from October 2021 to September 2023. The information has not been updated since then. In the case of Yumpag, an update was made and is detailed in chapter 13.4.8.

SRK's evaluation is summarized in the following items.

13.4.1 Geotechnical

The Uchucchacua mine's database includes 62 drillholes with geomechanical information (6708 linear meters); 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, 28 simple compression tests, 15 triaxial tests, and 20 physical property tests were performed. Additional information from geomechanical zoning plans by levels, which was developed by Uchucchacua, was reviewed and incorporated. Figure 13-13 and Figure 13-14 shows the distribution of drillholes with geotechnical information for Uchucchacua and Yumpag respectively.

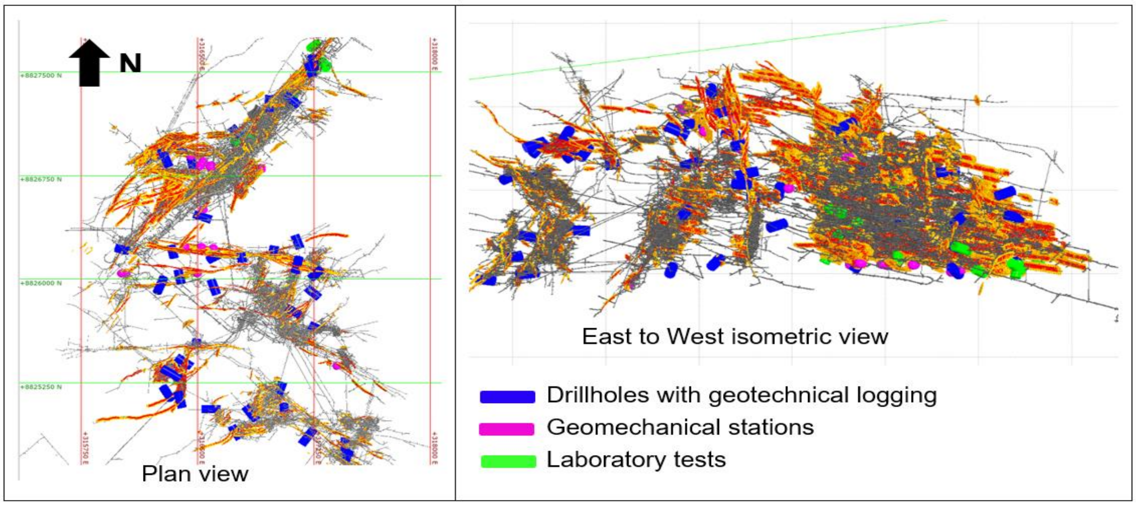


Figure 13-13: Distribution of drillholes and mapping with geotechnical information at the Uchucchacua mine

Source: (Buenaventura, 2021)

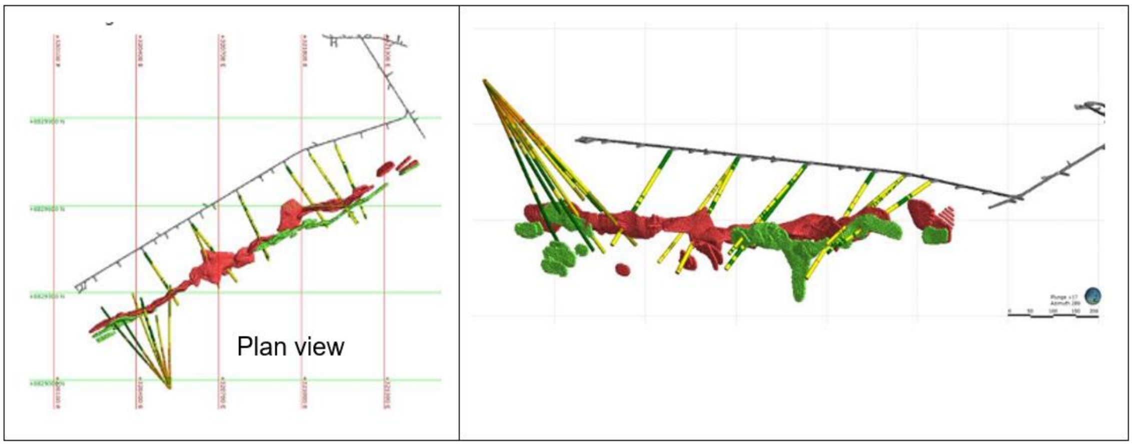


Figure 13-14: Distribution of drillholes and mapping with geotechnical information at the Yumpag mine

Source: (Buenaventura, 2021)

13.4.2 Geomechanical characterization

From the geotechnical investigations carried out at Uchucchacua for all structures, SRK 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 and is comprised of limestones; at Yumpag, the walls present 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: (Buenaventura, 2021)

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

Zone	Structure	RMR´76				
		DFW	CFW	Vein	CHW	DHW
	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
	Mantle	41	36	42	38	42
	Vein	45	38	38	42	43

Source: (Buenaventura, 2021)

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 significantly impact the stability of the stopes' hanging wall in the bench & fill mining method.

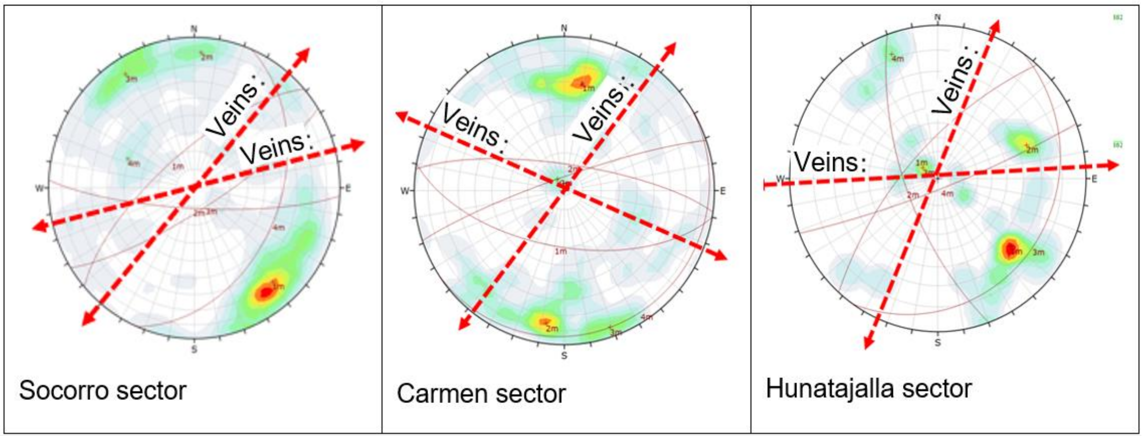


Figure 13-15: Stereographic analysis of discontinuities by sector

Source: (Buenaventura, 2021)

13.4.3 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° were 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°. Table 13-6 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	-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								
c	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
39.5	301.9	-59	21.8	151	-27.7	11.6	54.2	-12.8

Source: (Buenaventura, 2021)

Figure 13-16 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.

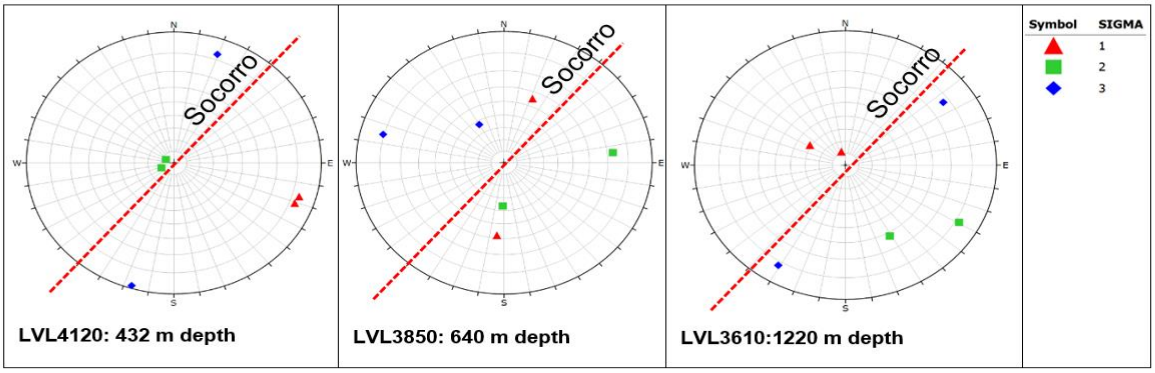


Figure 13-16: Orientation of in situ stresses measured at Uchucchacua

Source: (Buenaventura, 2021)

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, as well as infrastructure such as main ramps, shafts, and others. The stress levels induced in the perimeter of linear workings, between elevations 3600 to 3800, have generated 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; as such, a support formed by hydrabolt + double metallic mesh in the most critical and deepest zones could absorb the energy originated by the over stresses in the periphery of workings.

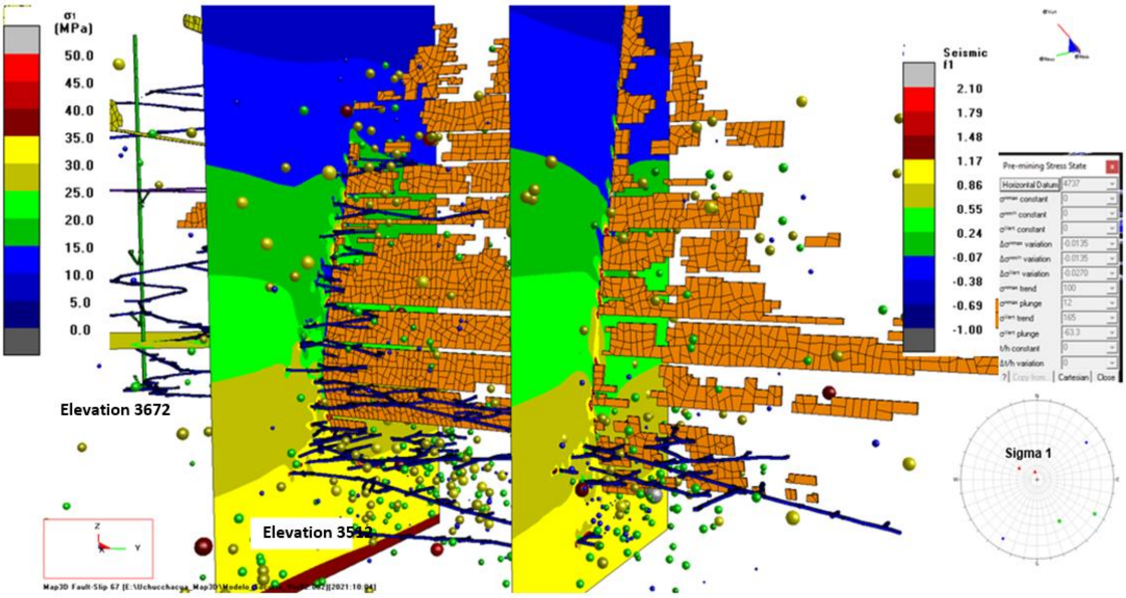


Figure 13-17: Isovalues of induced stresses at Socorro mine

Source: (Buenaventura, 2021)

13.4.4 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.

13.4.5 Dimensioning of B&F stopes for Uchucchacua Mine

SRK considers that the most appropriate 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.

13.4.6 Vein geometry

The process to determine the best mining method and stope sizing generated information on the incidence of horizontal width and dip of the mineralized structures. From the results, SRK 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: (Buenaventura, 2021)

13.4.7 Retro-analysis of stope sizing

To derminine the degree of stope wall sloughing required, 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 ten 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 (m²)	HR (m)	Broken volume (m³)	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: (Buenaventura, 2023)

Figure 13-8 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.

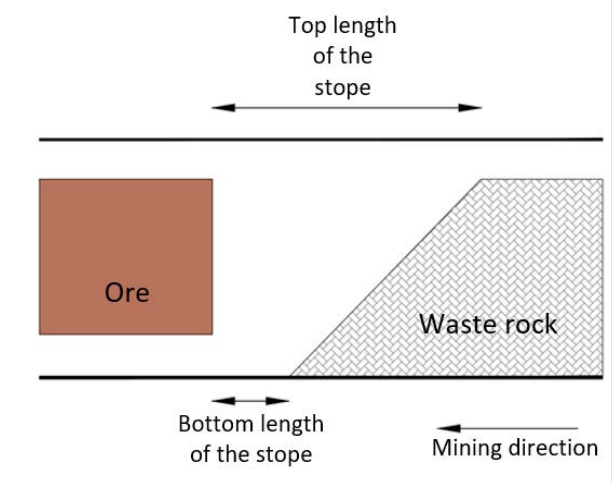


Figure 13-18: Bench & fill longitudinal mining diagram

Source: (Buenaventura, 2021)

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: (Buenaventura, 2023)

13.4.8 Dimensioning of stopes for Yumpag Mine

Orebody Camila

Based on the geometric characteristics and rock quality at Camila, SRK recomends the bench and fill (B&F) mining method for veins with widths under 10 m. For mining widths greater than 10 m, SRK recommends using the transverse sublevel stoping with cemented backfill (SARC); additionally, for bodies or mantles, the method of drift and fill (ODF) 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	0.6	4	25	5	-
6 - 10 m	42	0.8	1	0.3	8	2	0.6	4	30	10	Bolting cable to the hanging wall and stope walls

Source: (Buenaventura, 2023)

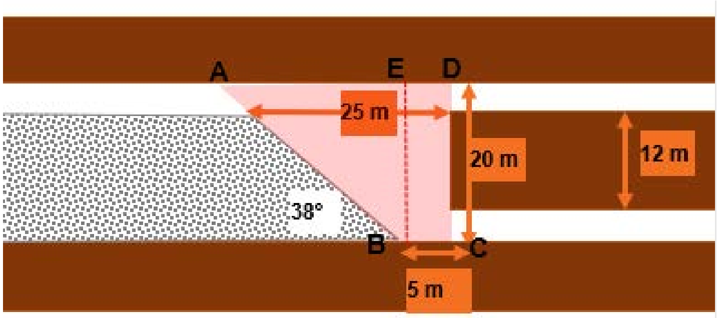


Figure 13-19: Longitudinal bench & fill mining scheme for a bench height of 12 m

Source: (Buenaventura, 2021)

For transverse sublevel stoping mining widths of 10 m and bench heights of 12 and 16 m were considered by Buenaventura; 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: (Buenaventura, 2023)

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 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 13-20 on the left shows a schematic of the transverse sublevel stoping mining method (SARC) and the image on the right shows the overdrift and fill (ODF) method by panels.

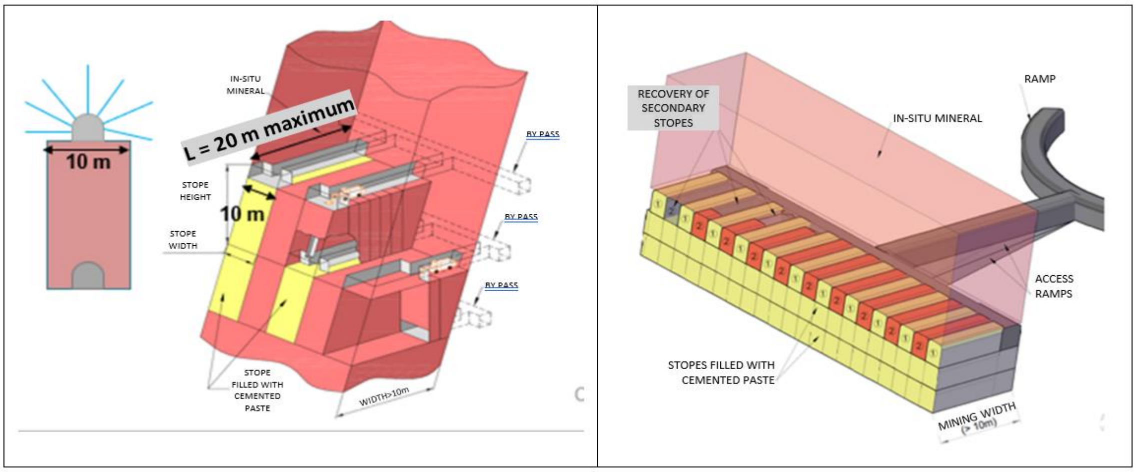


Figure 13-20: Diagram of the transverse sublevel stoping (SARC) on the left and drift and fill (ODF) on the right

Source: (Buenaventura, 2021)

Orebody Tomasa

SRK's geomechanical review of the report: "Geomechanical study of the rock mass associated with the Camila/Tomasa mineralized bodies of the Yumpag project 2023" found that the rock mass of the host rock and mineralized structure for the Tomasa body have RMR values between 50 and 55 (Rock type IIIA, regular). Therefore, considering the method of mining stopes by transverse sublevels with cemented fill with bench heights of up to 18 m and ELOS of 0.5 to 1.0 m, stope lengths up to 40 m are recommended.

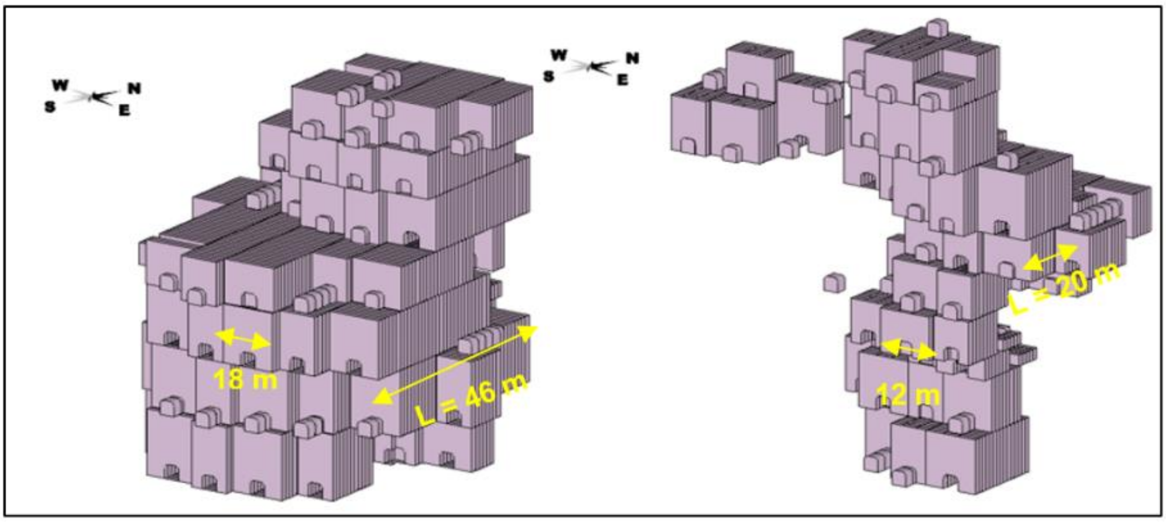


Figure 13-21: Transverse sublevel stoping in Tomasa orebody

Source: (Buenaventura, 2021)

13.4.9 Hydrogeological

Uchucchacua mine maintains the hydrogeological parameters considered in the mineral reserve estimates as of December 2022: Audit S-K 1300 “SEC Technical Report Summary (TRS) – Uchucchacua”, May 2022. This is due to the stoppage of mining activities from October 2021 to September 2023. The information has not been updated since then.

SRK's evaluation is summarized below.

In-mine water management system - Uchucchacua A.E.U.

The Uchucchacua A.E.U. currently has a pumping capacity of 1,350 l/s from the depths of the underground drifts; however, Buenaventura plans to expand capacity to 1,500 l/s (Figure 13-24) , but according to the conceptual groundwater balance that SRK performed, at maximum pumping capacities in the underground works, 4,708 l/s would be stored in the underground aquifer; this could cause the flooding of some underground workings. Therefore, an update of the groundwater balance must be conducted and based on current underground seepage. SRK also recommends instrumenting the Patón tunnel outlet channel to obtain a continuous and reliable record of the variation of evacuated flows.

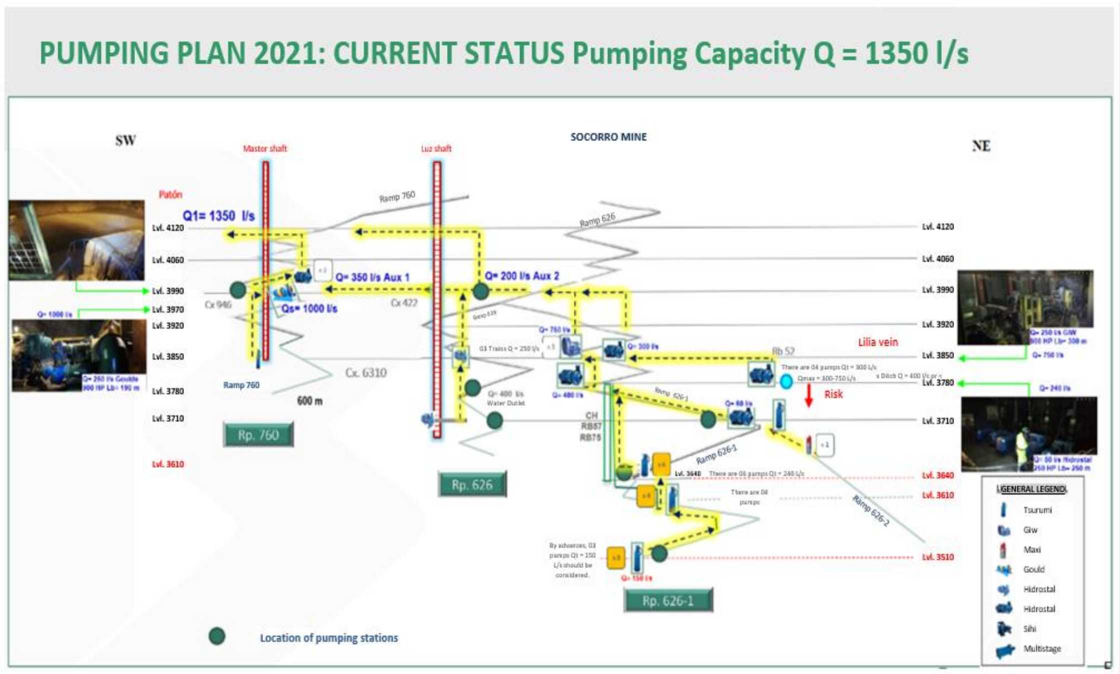


Figure 13-22: Current pumping system of Uchucchacua A.E.U.

Source: (Buenaventura, 2021)

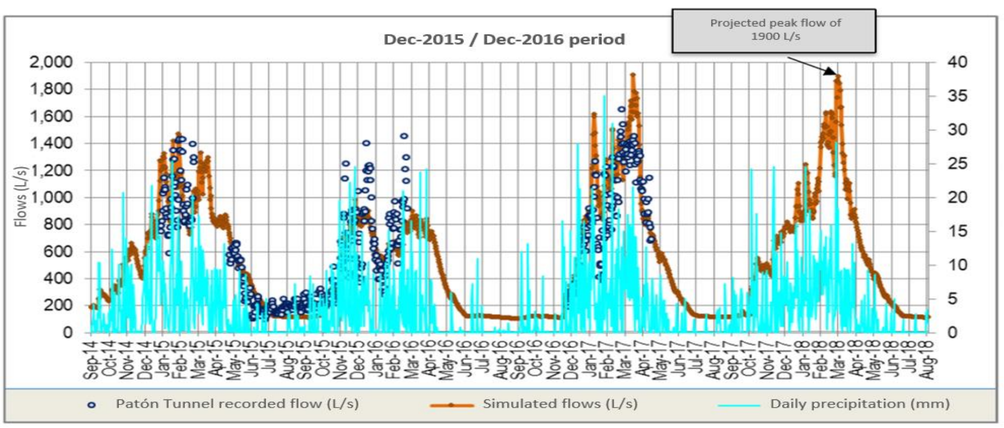


Figure 13-23: Paton tunnel discharge record (2014 - 2018)

Source: Hidroandes (2014) and WSP (2017)

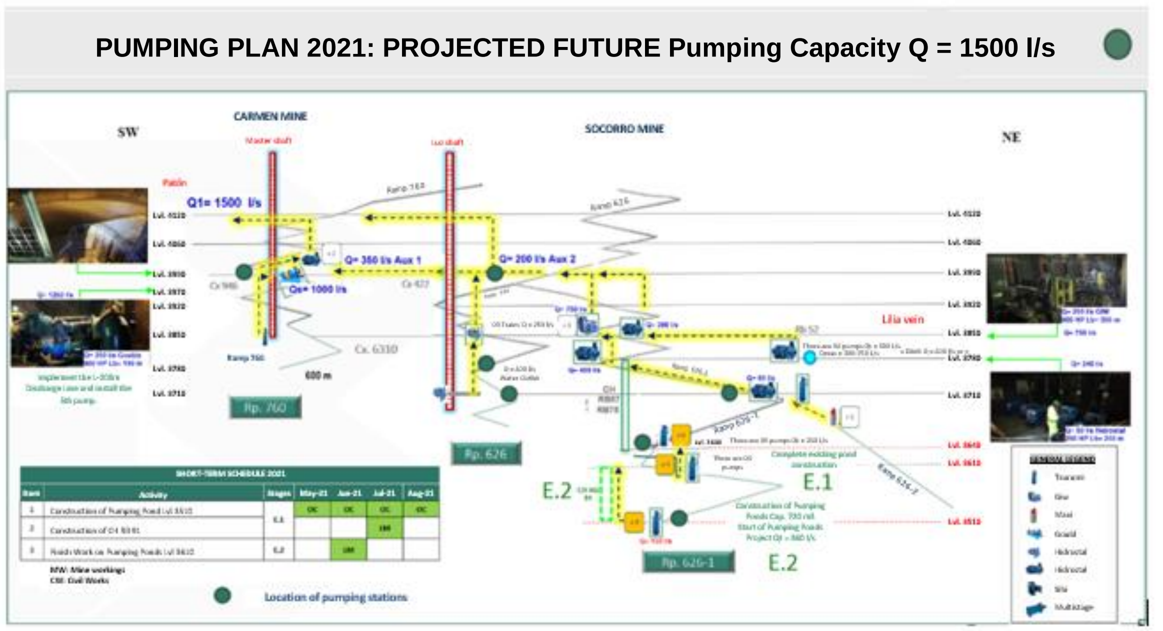


Figure 13-24: Projected future pumping system of the Uchucchacua A.E.U.

Source: (Buenaventura, 2021)

In-mine water management system - Yumpag

The Yumpag project has a pumping system that evacuates an effective flow of 38.98 L/s (Figure 13-25). 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 Buenaventura 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.

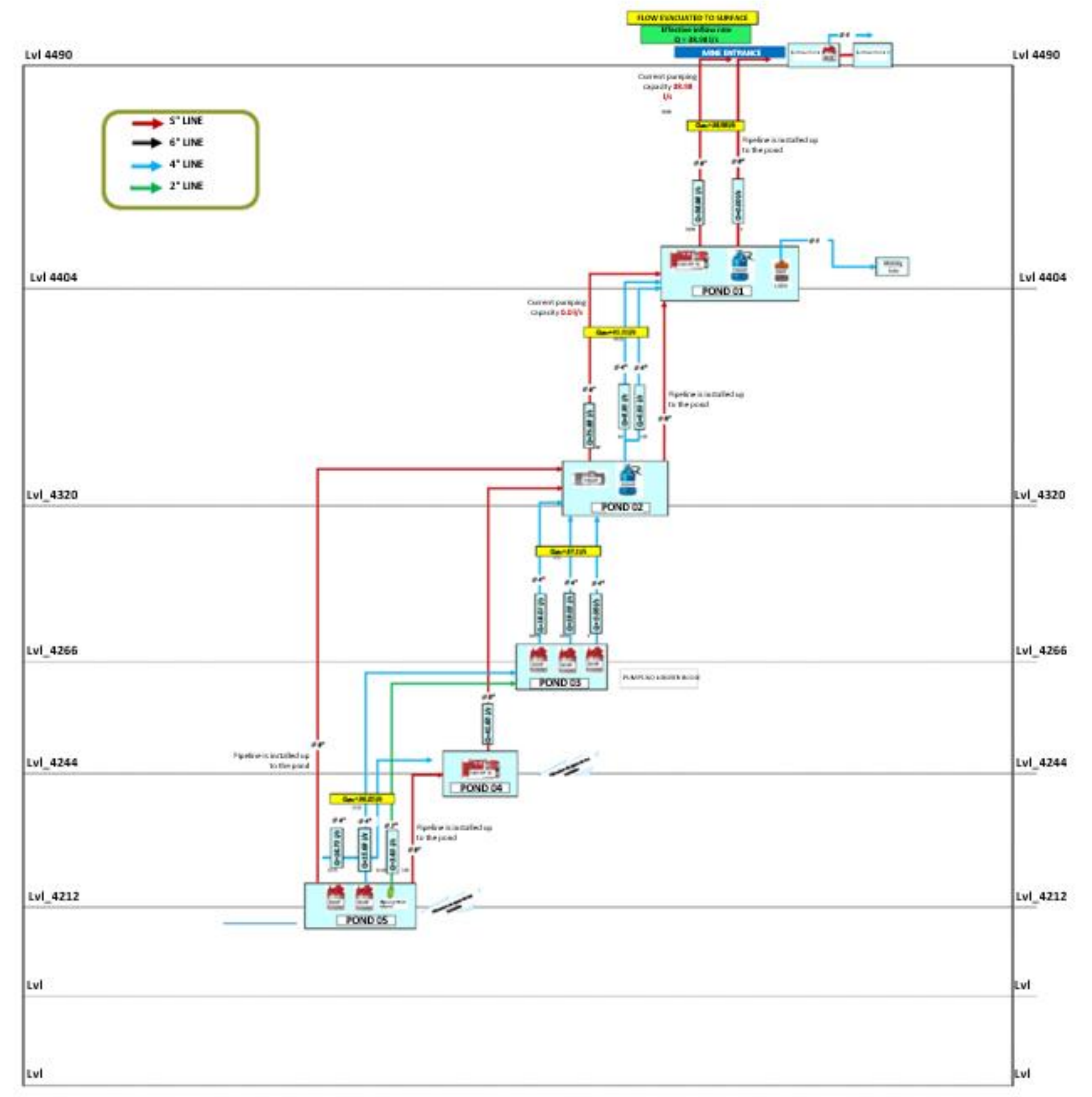


Figure 13-25: Current pumping system of Yumpag

Source: (Buenaventura, 2021)

13.5 Production Rate Expected Mine Life, Mining Unit Dimensions, and Mining Dilution and Recovery Factors

13.5.1 Production rate

Uchucchacua together with Yumpag produce an average of 3,100 t/d. By 2024, due to the restart of operations, production will reach a maximum of 2,200 t/d.

13.5.2 Life of Mine (LOM)

According to the estimated reserves as of December 2023, the LOM is five years.

Table 13-12: Uchucchacua Mine - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	460,300	706,000	774,430	677,400	434,036	**3,052,166**
Ag grade (oz/t)	5.89	7.76	9.33	10.67	8.51	**8.63**
Pb grade (%)	3.33	2.39	1.54	1.47	1.44	**1.97**
Zn grade (%)	4.77	3.76	2.69	2.22	3.31	**3.24**
Mn grade (%)	1.65	3.23	5.47	7.31	4.64	**4.67**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	365	365	366	**1,827**
Treatment Days	354	353	353	353	354	**1,767**
Plant Shutdown	12	12	12	12	12	**60**
Treatment per day	1,300	2,000	2,194	1,919	1,226	

Source: (Buenaventura, 2023)

Table 13-13: Yumpag Mine - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	335,792	423,600	355,170	452,200	703,492	**2,270,254**
Ag grade (oz/t)	25.91	22.75	18.43	21.18	21.94	**21.98**
Pb grade (%)	0.63	0.53	0.43	0.59	0.49	**0.53**
Zn grade (%)	1.17	0.98	0.75	0.67	0.62	**0.8**
Mn grade (%)	16.53	17.69	15.39	6.27	7.15	**11.62**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	308	275	366	**1,680**
Treatment Days	354	353	296	266	354	**1,623**
Plant Shutdown	12	12	12	9	12	**57**
Treatment per day	949	1,200	1,200	1,700	1,987	

Source: (Buenaventura, 2023)

Table 13-14: Uchucchacua + Yumpag Mines - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	796,092	1,129,600	1,129,600	1,129,600	1,137,528	**5,322,420**
Ag grade (oz/t)	14.33	13.39	12.19	14.88	16.82	**14.32**
Pb grade (%)	2.19	1.69	1.19	1.12	0.85	**1.36**
Zn grade (%)	3.25	2.72	2.08	1.6	1.65	**2.2**
Mn grade (%)	7.93	8.66	8.59	6.89	6.19	**7.63**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	365	365	366	**1,827**
Treatment Days	265	353	353	353	350	**1,675**
Plant Shutdown	12	12	12	12	12	**60**
Treatment per day	3,000	3,200	3,200	3,200	3,248	

Source: (Buenaventura, 2023)

13.5.3 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				
	B&F	OCF_RM	OCF_RC	OCF_BM	OCF_BSM
Minimum mining width (m)	0.8	0.5	0.5	2.6	1.6
Maximum mining width (m)	25	25	25	25	25
Stope height (m)	10 -15	2.5	2	3	2.5
Stope length (m)	3	3	3	2	2
Footwall dilution (m)	0.2	0.2	0.2	0.2	0.2
Hanging wall dilution (m)	0.2	0.2	0.2	0.2	0.2
Dip (º)	>60	>55	>55	>85	>85

Source: (Buenaventura, 2023)

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)	0.6	3	10
Maximum mining width (m)	10	--	14
Stope height (m)	10 - 14	4	8 - 27
Stope length (m)	1.5	4	10, 14
Footwall dilution (m)	0.3	0.2	0

Parameters	Mining Methods		
	Bench & Fill	Overhand Drift & Fill	SARC
Hanging wall dilution (m)	0.3	0.2	0
Dip (º)	>60	90	90

Source: (Buenaventura, 2023)

13.5.4 Dilution and Mining Recovery

The reserves stopes already consider dilution by cleaning and backfilling; mining recovery has also been defined (both based on 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.

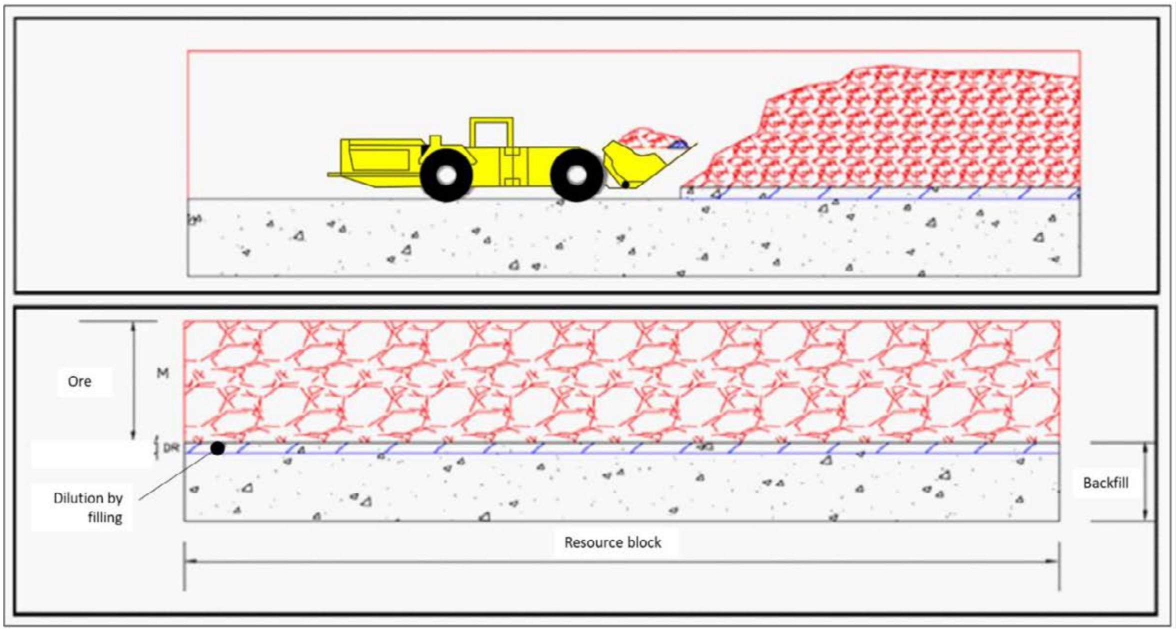


Figure 13-26: Diagram of dilution by cleaning

Source: (Buenaventura, 2021)

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.

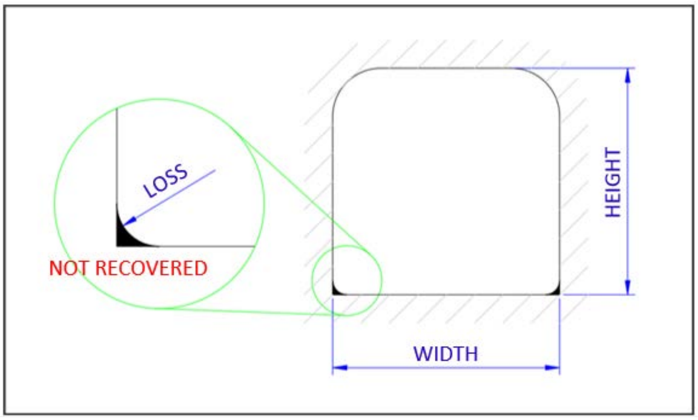


Figure 13-27: Mining recovery diagram

Source: (Buenaventura, 2021)

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: (Buenaventura, 2023)

13.6 Requirements for Stripping, Underground Development, and Backfilling

13.6.1 Developments and preparations

In accordance with the LOM 2023 presented by Buenaventura, 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 - Uchucchacua LOM

Work (m)	2024	2025	2026	2027	2028	Total
Development	-	342	342	342	114	**1,140**
Preparation	12,075	17,635	17,609	17,472	4,135	**68,926**
Exploration	1,380	2,000	2,000	2,000	2,000	**9,380**
Total advances	13,455	19,977	19,951	19,814	6,249	**79,446**
RB (m)	320	-	-	-	-	**320**

Source: (Buenaventura, 2023)

Table 13-19: Development and preparation works - Yumpag LOM

Work (m)	2024	2025	2026	2027	2028	Total
Development	794	777	1,400	821	215	**4,007**
Preparation	5,290	4,725	7,460	2,632	-	**20,106**

Work (m)	2024	2025	2026	2027	2028	Total
Exploration	-	-	8	1,133	842	**1,983**
Total advances	6,084	5,502	8,869	4,586	1,056	**26,097**
RB (m)	125	199	347	319	-	**991**

Source: (Buenaventura, 2023)

13.6.2 Mine backfill

The current process for preparing cemented backfill takes place on the surface and follows a traditional method. During this procedure, selected waste rock is carefully combined with a cement slurry.

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.

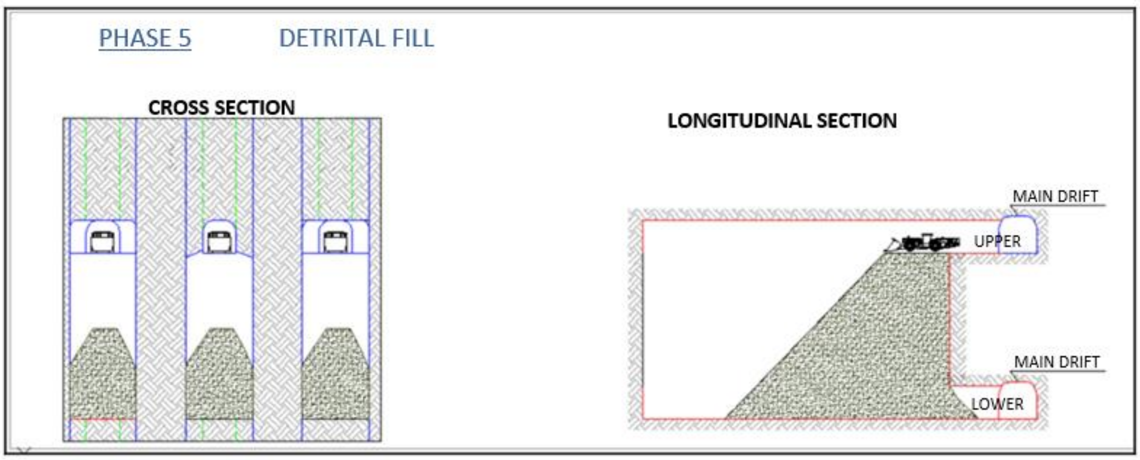


Figure 13-28: Backfill: Cross and longitudinal section

Source: (Buenaventura, 2021)

13.7 Required Mining Equipment Fleet and Machinery

Table 13-20: Uchucchacua´s equipment fleet and machinery

Fleet	Equipment	Brand	Model	Capacity
Truck	BAW-715	VOLVO	FMX 6x4R	12 m^3
Truck	BAW-739	VOLVO	FMX 6x4R	12 m^3
Scoop	SC-27	SANDVIK	LH 307	3.9 yd^3/3.0 m^3
Scoop	SC-28	CAT	R1300G	4.1 yd^3 / 3.1 m^3
Scoop	SC-22	CAT	R1600G	6.3 yd^3 / 4.8 m^3
Scoop	SC-31	CAT	R1300G	6.3 yd / 4.8 m^3
Scoop	SC-23	FAMBITION	ST4FL	2.0 m^3
Concrete pump	R 743	PUTZMEISTER	SPM 4210	20 m^3 / h
Mixer	M 732	PUTZMEISTER	MIXKRET 5	4 m^3
Skid steer loader	S600	Bob cat	S600	0.91 m^3
Skid steer loader	2	BOB CAT	S750	1.4 t
Skid steer loader	1	BOB CAT	S570	0.94 t
Skid steer loader	MC 702	CASE	440	0.99 t
Telehandler	MAN 01	MANITOU	MTX1030-ST	1 boom
Jumbo bolter	EMP-03	RESEMIN	BOLTER 88	1 boom
Jumbo	JUM-20	EPIROC	BOOMER T1D	1 boom
Jumbo	MUKI 10	RESEMIN	MUKI-FF	1 boom
Jumbo	JUM-19	EPIROC	SIMBA-S7C	1 boom
Jumbo	JUM-17	EPIROC	BOOMER T1D	1 boom
Jumbo	JUM-16	EPIROC	SIMBA-S7D	1 boom
Jumbo	JUM 18	EPIROC	SIMBA-S7C	1 boom
Jumbo	JUM-12	ATLAS COPCO	SIMBA S7C	1 boom
Dumper	DM 04	MT-2010	EPIROC	20 t
Dumper	DP-05	MT-2010	EPIROC	21 t
Scaler	SCA-04	PAUS	853-S8	-
Cement transporter	CEM-01	PUTZMEISTER	CEMKRET-8	8 t

Source: (Buenaventura, 2023)

Table 13-21: Yumpag´s equipment fleet and machinery

Fleet	Equipment	Brand	Model	Capacity	Company
Jumbo	2JF040	Epiroc	Boomer 282	2 booms	JRC
Jumbo	2JF041	Epiroc	Boomer 282	2 booms	JRC
Jumbo bolter	2JE035	Resemin	Bolter 99	1 boom	JRC
Jumbo bolter	2JE043	Resemin	Bolter 99	1 boom	JRC
Scoop	2SC086	Caterpillar	R1300G	4.1 yd^3 / 3.1 m^3	JRC
Scoop	2SC089	Caterpillar	R1600H	6.3 yd^3 / 4.8 m^3	JRC
Scoop	2SC090	Caterpillar	R1600H	6.3 yd / 4.8 m^3	JRC
Concrete pump	2LC008	Putsmeister	SPM 4210	20 m^3 / h	JRC
Concrete pump	2LC019	Putsmeister	WETKRET	20 m^3 / h	JRC
Mixer	2AH029	Putsmeister	MIXKRET	4 m^3	JRC
Mixer	2AH030	Putsmeister	MIXKRET	4 m^3	JRC
Scaler	2DR010	Paus	853.S8	1 boom	JRC
Scaler	2DR018	Normet	SCAMEC 2000 S	1 boom	JRC
Truck	2VQ087	Volvo	FMX 8X4	15 m^3	JRC
Truck	2VQ092	Volvo	FMX 8X4	15 m^3	JRC
Truck	2VQ095	Volvo	FMX 6X4	12 m^3	JRC
Truck	2VQ098	Volvo	FMX 6X4	12 m^3	JRC
Skid steer	2CF707	Caterpillar	246 D3	1.2 yd^3	JRC
Skid steer	2CF708	Caterpillar	246 D3	1.2 yd^3	JRC
Anfo charger	2CE002	Resemin	AC11	1 boom	JRC
Anfo charger	2CE003	Resemin	AC11	1 boom	JRC
Telehandler	2TH027	Komatsu	MTX 1033	1 boom	JRC
Scoop	BVN	Caterpillar	R1300G	4.1 yd / 3.1 m^3	BVN - Projected
Scoop	BVN	Caterpillar	R1600H	6.3 yd / 4.8 m^3	BVN - Projected
Jumbo bolter	BVN	Resemin	Bolter 99	1 boom	BVN - Projected
Jumbo	BVN	Epiroc	Boomer 282	1 boom	BVN - Projected
Telehandler	BVN	Komatsu	MTX 1033	1 boom	BVN - Projected
Jumbo long hole drilling	BVN	-	-	1 boom	BVN - Projected

Source: (Buenaventura, 2023)

13.8 Final Mine Outline Map

13.8.1 Plan of surface components

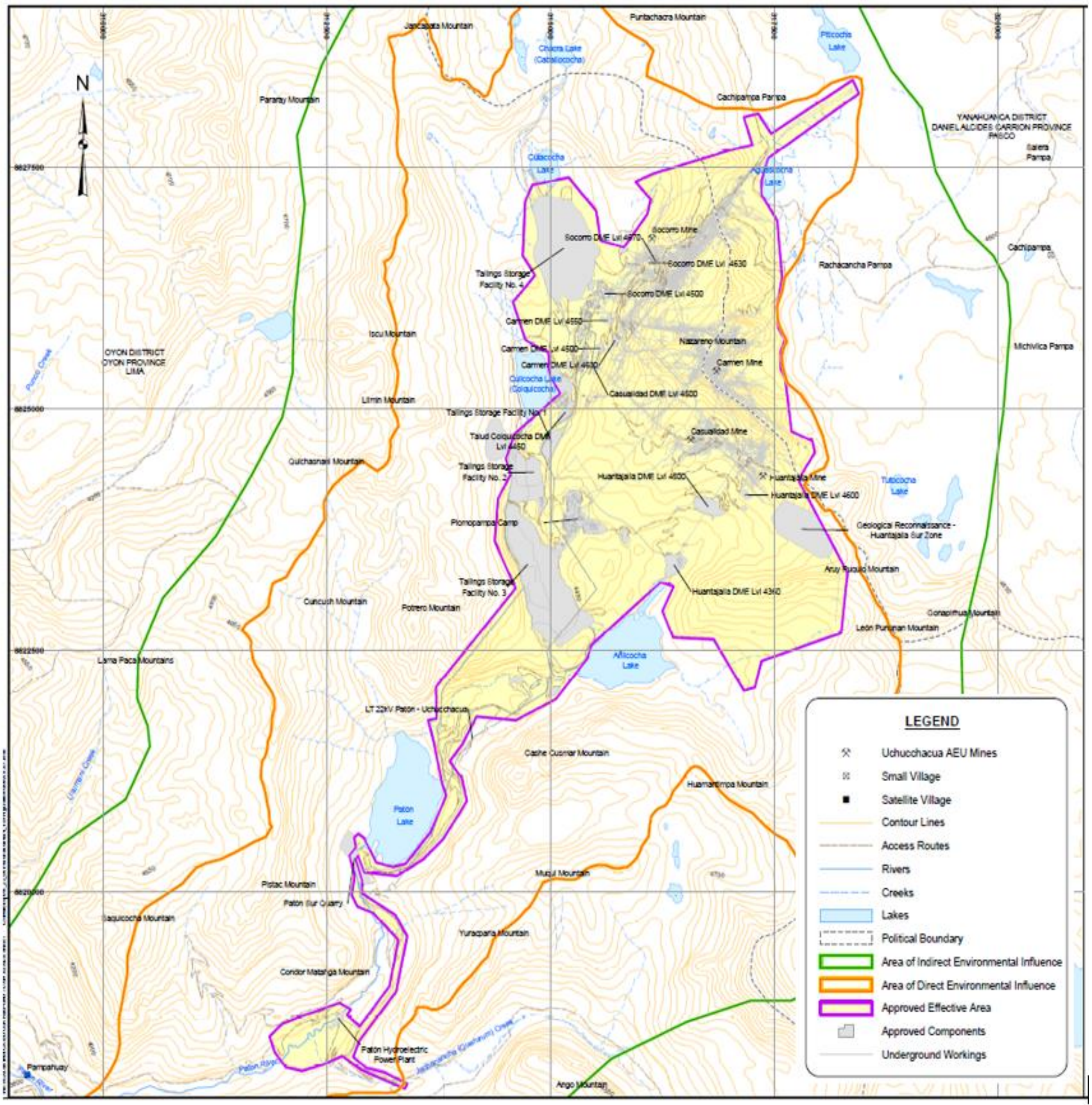


Figure 13-29: Drawing of underground mine surface components

Source: (Buenaventura, 2023)

13.8.2 Plan and isometric views

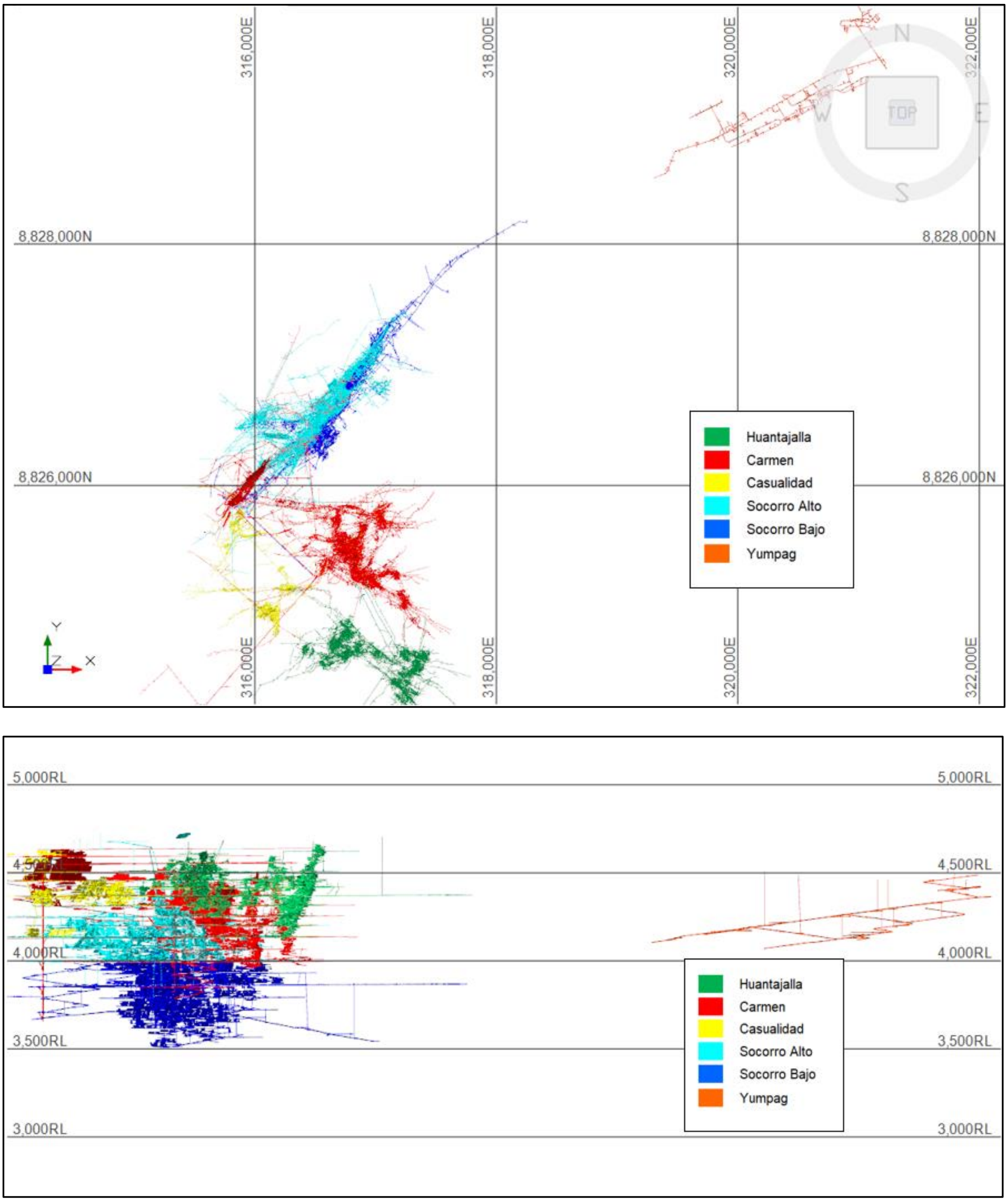


Figure 13-30: Plan and isometric drawings of underground mines

Source: (Buenaventura, 2023)

14 Processing and Recovery methods

The Uchucchacua site stopped operating in late 2021 due to a combination of technical and social issues and has restarted operations in September 2023. This restart is accompanied by exploitation of Camila deposit (Yumpag zone), whose characteristics are discussed in Section 10 of this report.

The analysis presented in this document covers operations from 2017 to 2020 at Uchucchacua's processing facilities. The Río Seco Refinery facilities operated until early 2021 and remaining mineral concentrates were stored at Uchucchacua site. The information developed in this chapter is as of July 3, 2023.

Ucchucchacua sourced its ore from multiple vein systems, namely Carmen, Casualidad, Huantajalla, Cancha Superficie, Socorro Alto, Socorro Bajo. Typically, the mining operation uses dump trucks, and to a lesser degree rail cars, to deliver 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 was largely deported to final concentrates. To improve the value of its production, manganese was removed by acid leaching the Uchucchacua's concentrates at Río Seco Refinery, a satellite processing facility located in Huaral.

Uchucchacua operates a conventional concentration plant that processed polymetallic ores to produce mineral concentrates of varying quality. The plant consists of two parallel processing lines namely Circuito 1 (C1) and Circuito 2 (C2), see Figure 14-1.

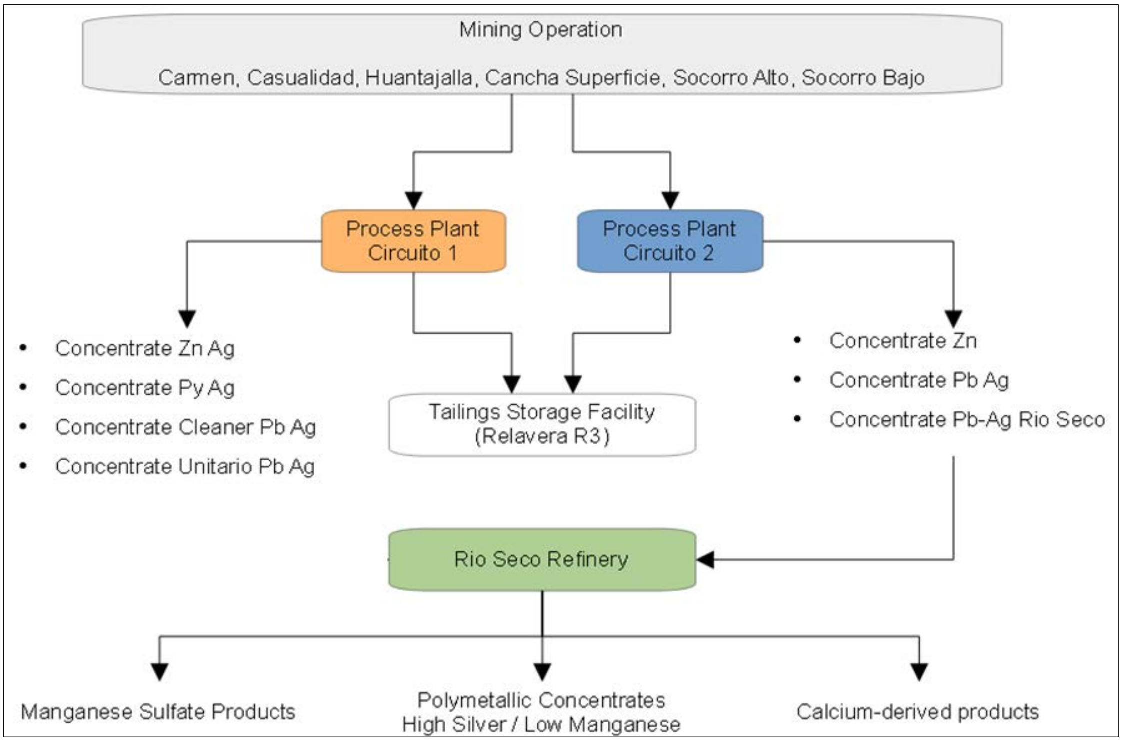


Figure 14-1: Uchuchaccua, Operation Overview

Source: (Buenaventura, 2021)

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, Río Seco Pb-Ag concentrate. Final tailings from both circuits were delivered to a common conventional tailing's storage facility. Dump trucks transported the final concentrates off site to Río Seco facilities for refining.

14.1 Fresh Ore Supply

The make-up of the ore supply and its veins for the 2017- 2020 period are presented in Figure 14-2, Figure 14-3, and Table 14-1.

- Socorro Bajo vein was 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 than the figure recorded in previous years when the range was between 700-800 kilo tonnes.
- The silver head grade suggests 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.
- The lead head grade shows a trend comparable to that of silver. In 2017-2019, the 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.
- The 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 was 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.
- The silver head grade suggests 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.
- The 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 was 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 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 %**
	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 %**

Ore Source		2017	2018	2019	2020	Total
	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: (Buenaventura, 2021)

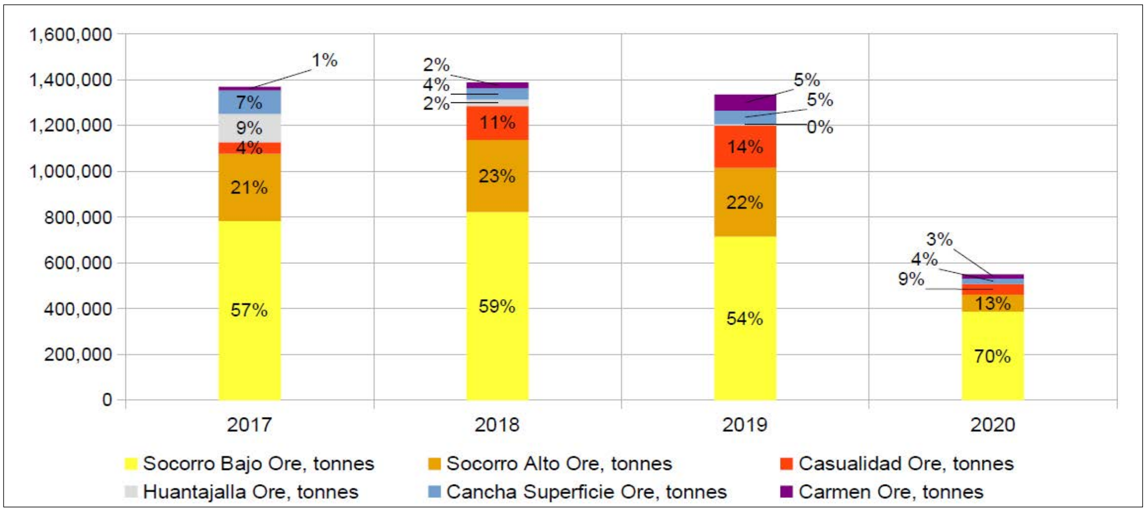


Figure 14-2: Uchuchaccua, Annual Ore Supply by Vein System

Source: (Buenaventura, 2021)

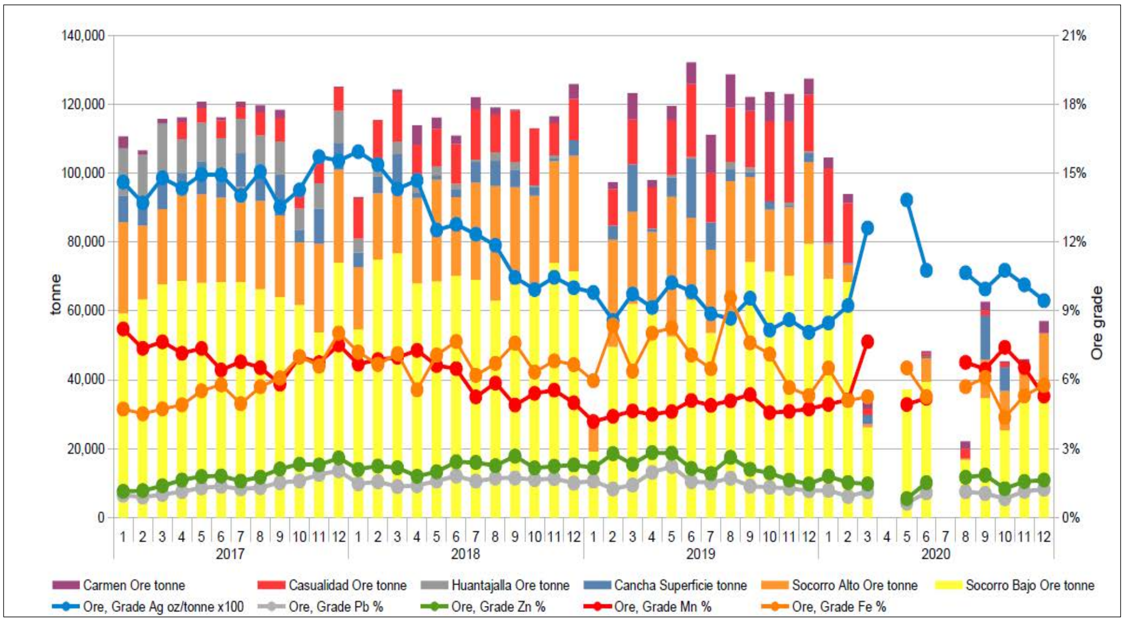


Figure 14-3: Uchuchaccua, Monthly Ore Supply by Vein System

Source: (Buenaventura, 2021)

14.2 Mine to Plant, Ore tonnage Reconciliation

The ore reconciliation between mine and plant over the 2017- 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 the only exception. SRK is of the opinion that reconciliation between major areas in a mining operation is critical to ensuring business efficiency; sound management practice entails developing practices and procedures to ensure tight reconciliation on a regular basis. Ideally, measurements should be recored no more than one month apart.

Table 14-2: Uchucchacua, Mine-to-Plant, Ore Reconciliation

Parameter	Mine	Plant	Difference
Ore tonnes	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 %	

Parameter	Mine	Plant	Difference
Fe tonne	299,745	288,893	3.8 %

Source: (Buenaventura, 2021)

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:

$$\text{Recovery\% (M1)} = \frac{100 \times \text{Concentrate tonnage} \times \text{Metal grade in Concentrate}}{\text{Metal in mill feed}}$$

- Method 2 (M2) calculated the recovery in terms of fresh feed and reported recovery as follows:

$$\text{Recovery\% (M2)} = \frac{100 \times \text{Ore tonnes} \times \text{Head grade} \times \text{Recovery}}{\text{Metal in mill feed}}$$

Results from the calculation are presented in Table 14-3, Table 14-4, and Table 14-5. The conclusions are as follows:

- Analysis of the combined C1+C2 circuit shows that using M1, zinc recovery significantly exceeds 100%, this is an inconsistency.
- 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 and the individual circuits.
- Based on these results, SRK decided that all further analysis will be performed using a single calculation criterion: 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 include the following at the very least:

- 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 and led to additional and unnecessary operating expenditures.
- 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: (Buenaventura, 2021)

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: (Buenaventura, 2021)

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: (Buenaventura, 2021)

14.4 Processing Plant Performance

Uchucchacua operated two parallel conventional flotation circuits namely Circuito 1 (C1) and Circuito 2 (C2) in the period evaluated; see simplified block flow diagrams and detailed flowsheet in Figure 14-4 to Figure 14-8.

Circuit 1's nominal capacity is 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.

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. Uchucchacua registered a major drop in ore processing in year 2020. In 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: (Buenaventura, 2021)

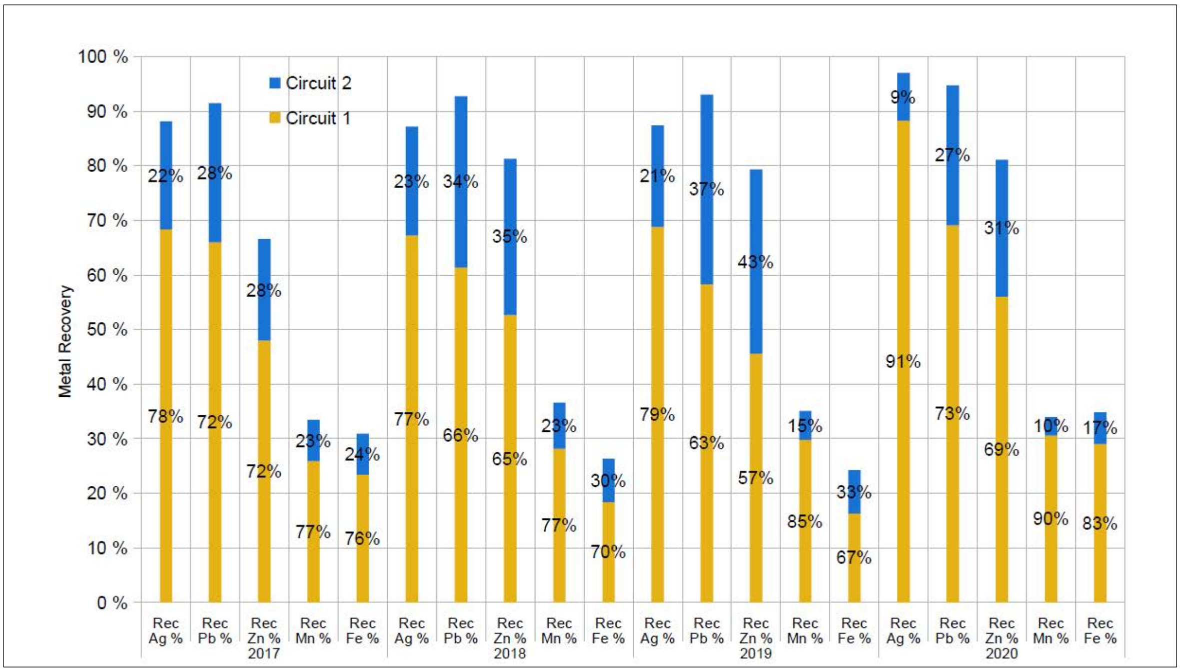


Figure 14-4: Uchuchaccua, Metal Recovery

Source: (Buenaventura, 2021)

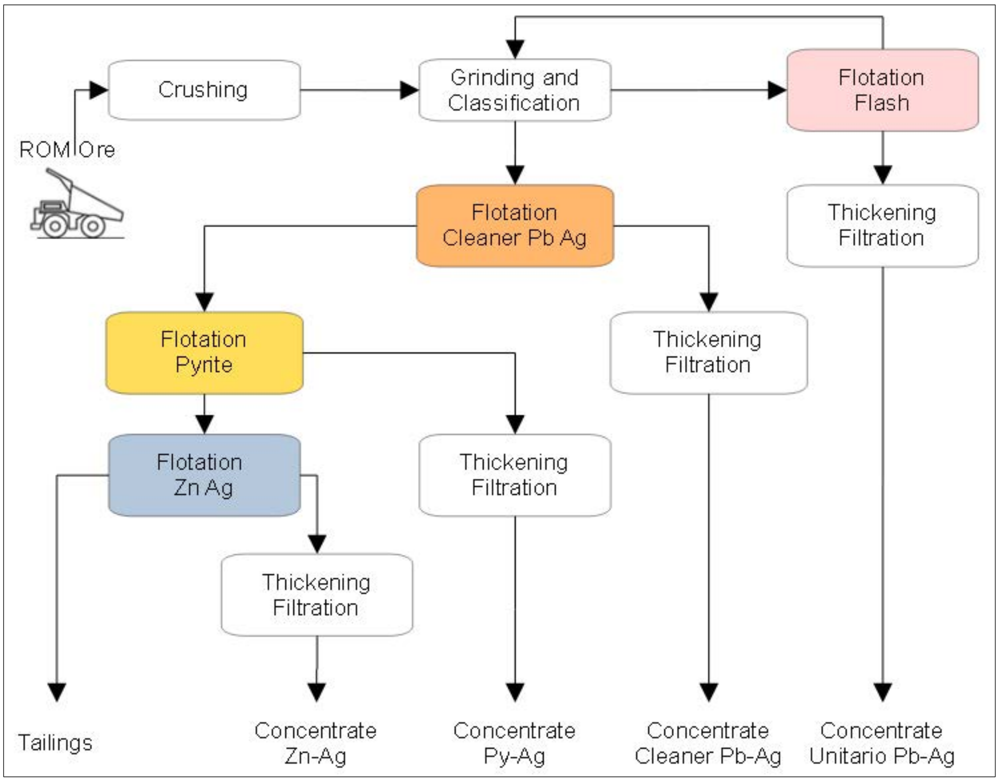


Figure 14-5: Uchucchacua, Processing Circuit 1, Block Flow Diagram

Source: (Buenaventura, 2021)

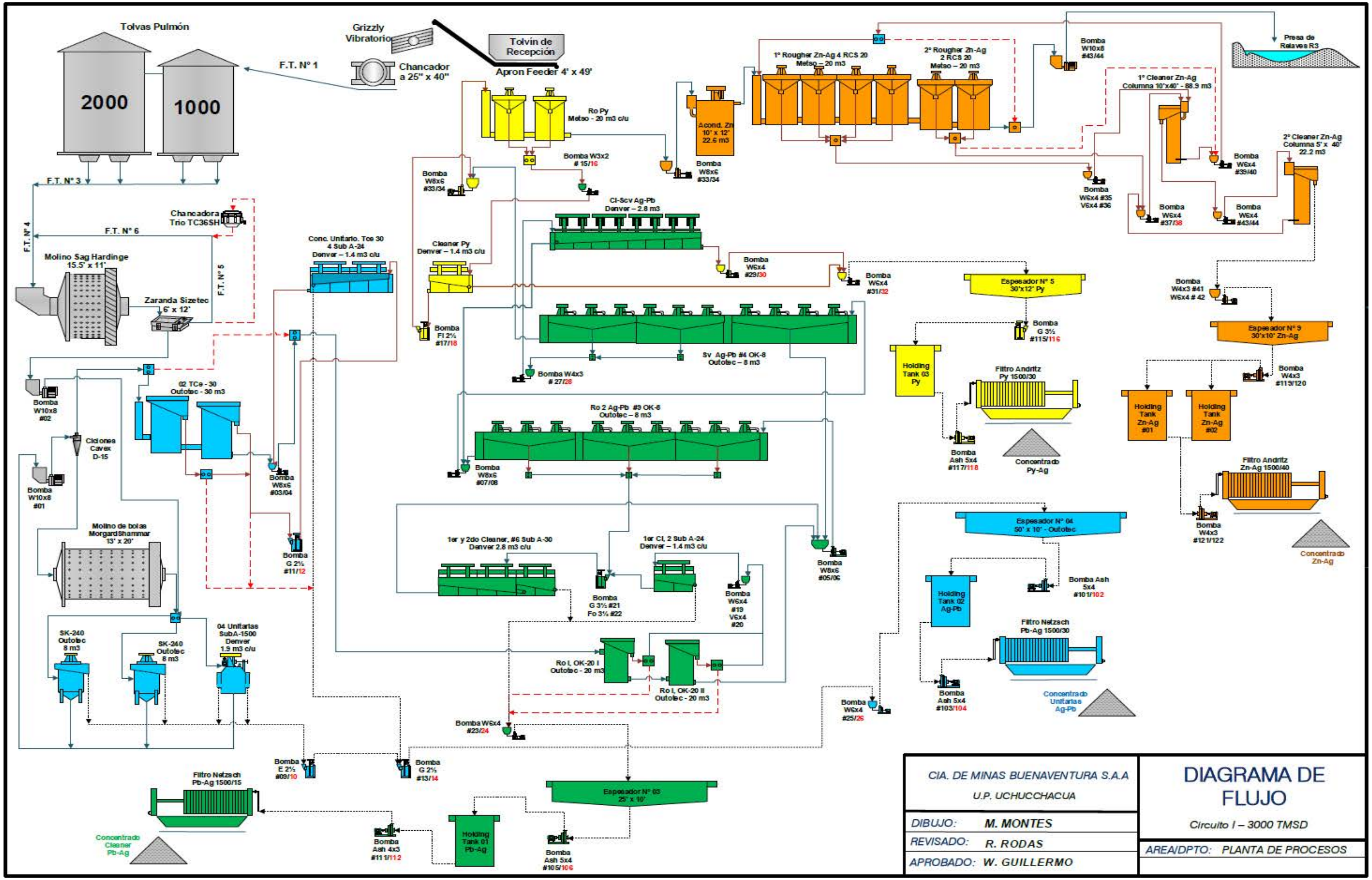


Figure 14-6: Uchucchacua, Processing Circuit 1, Flowsheet

Source: (Buenaventura, 2021)

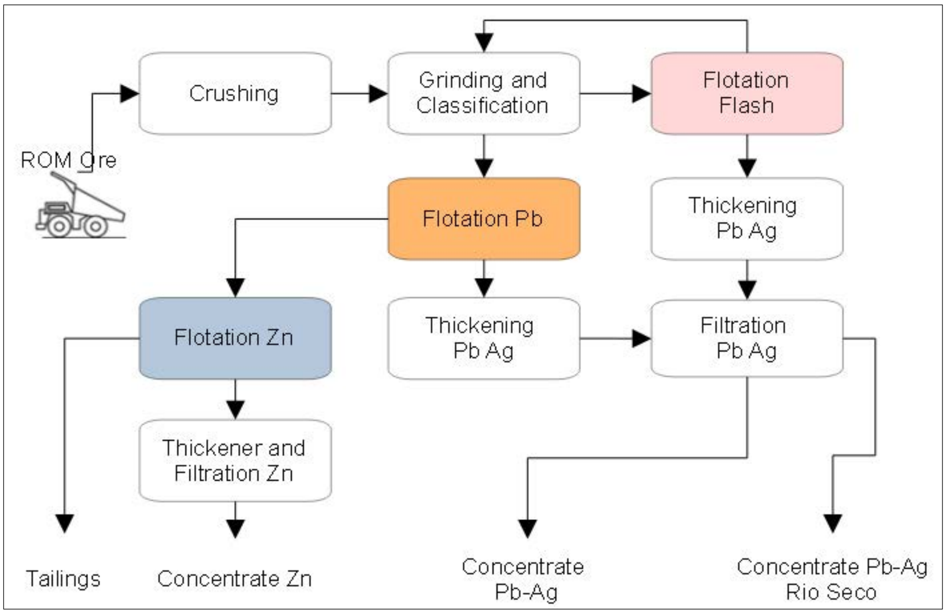


Figure 14-7: Uchucchacua, Processing Circuit 2, Block Flow Diagram

Source: (Buenaventura, 2021)

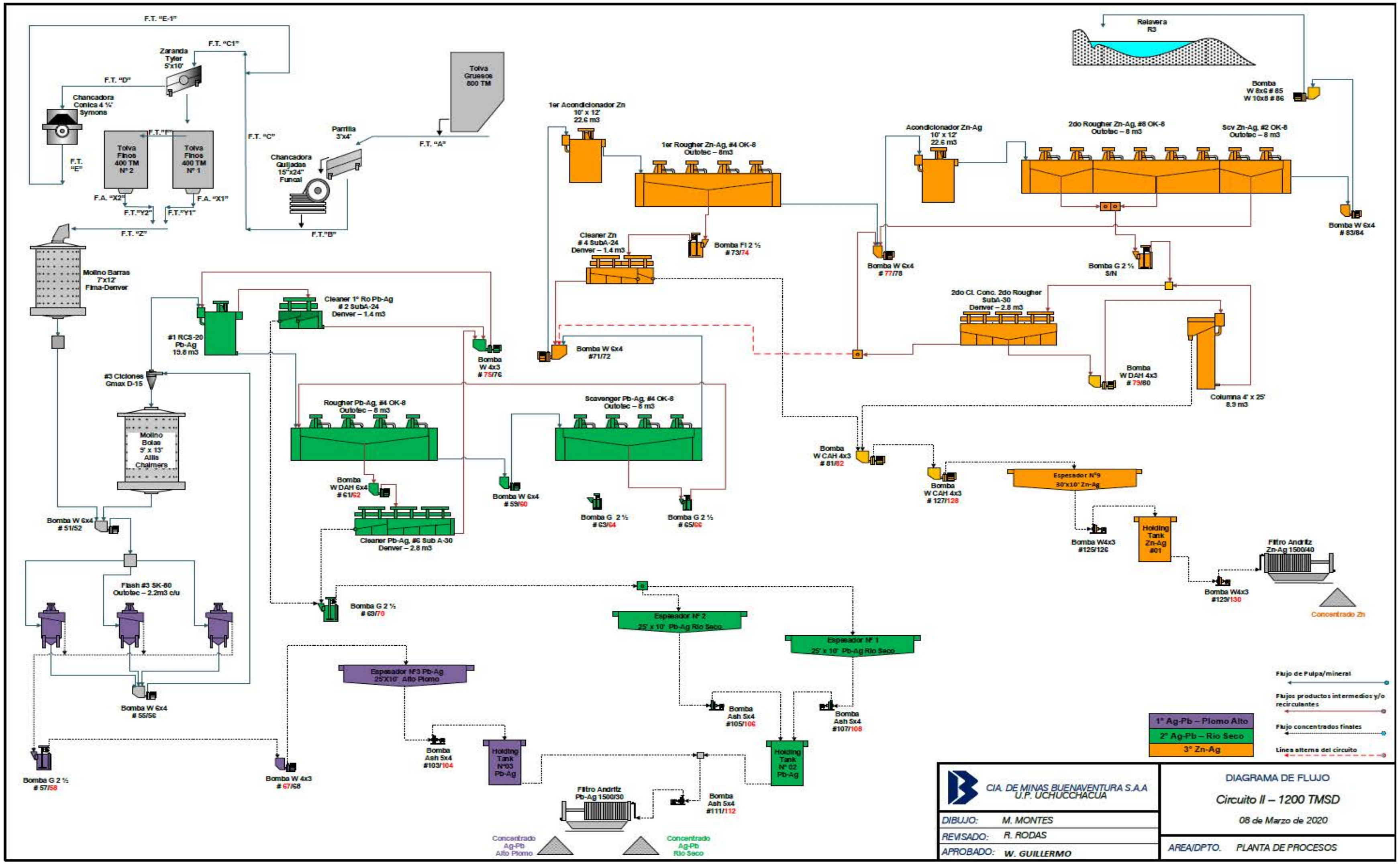


Figure 14-8: Uchucchacua, Processing Circuit 2, Flowsheet

Source: (Buenaventura, 2021)

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 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 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 manganese recovery.
- Iron achieved global recovery of 28%, or 79,755 tonnes in the 2017 to 2020 period. Circuit 1 produced 57,742 tonnes which represented 20% of total iron recovery. Circuit 2 produced 22,013 tonnes, which represented 8% of total iron 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 %**

Circuit / Metal	2017	2018	2019	2020	Total
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: (Buenaventura, 2021)

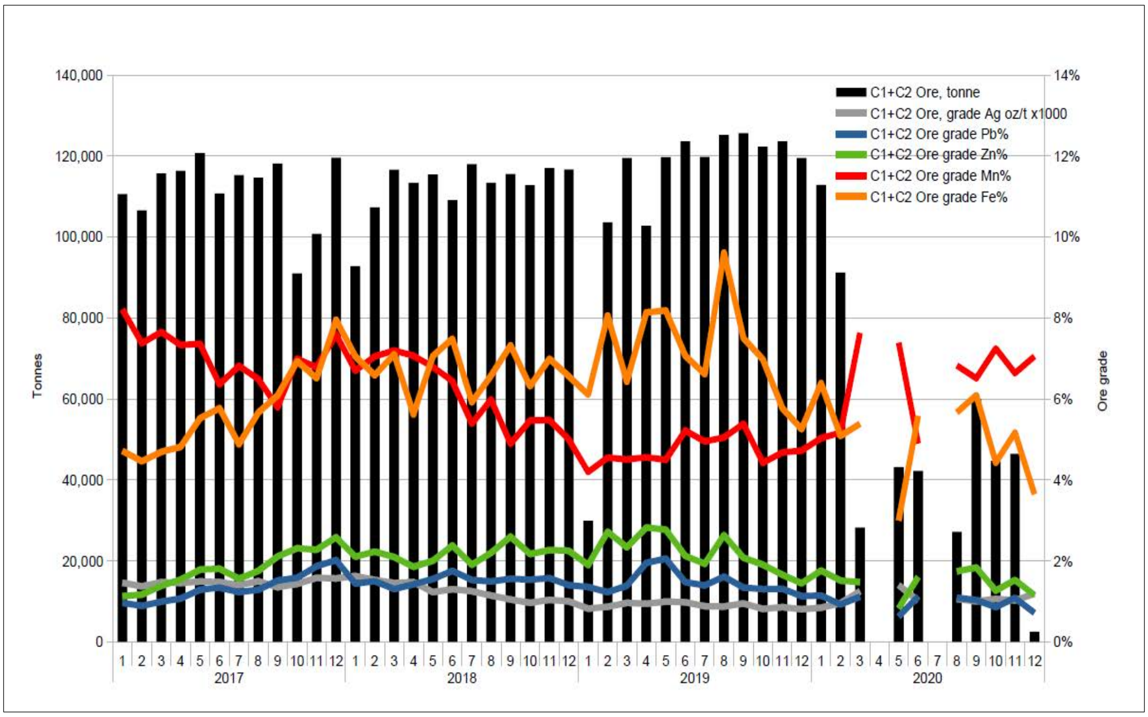


Figure 14-9: Uchucchacua, Overall Performance

Source: (Buenaventura, 2021)

Information on Uchucchacua's final concentrate quality for Circuit 1 and Circuit 2 is presented in Table 14-8 and Table 14-9 respectively. 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 Río 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 Río 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: (Buenaventura, 2021)

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 Río 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

Stream	Unit	Circuit 2 - 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 Río 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.

Source: (Buenaventura, 2021)

- Concentrate Cleaner registered the largest manganese concentration of 23.2.%; 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 inTable 14-10.

Table 14-10: Uchucchacua, Major Equipments List

Uchucchacua's 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"

Uchucchacua’s major equipment list		
	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	

Uchucchacua's major equipment list		
	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	
	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”

Uchucchacua's major equipment list		
	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	

Uchucchacua's major equipment list		
	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	
	Horizontal Pump Warman 3x2 C-AH	
	Vertical Pump Galigher N°70	2.5x48
	Vertical Pump Galigher	2.5x48
	Horizontal Pump Warman 3x2 C-AH	

Uchucchacua's major equipment list		
	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

Uchucchacua's major equipment list		
	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: (Buenaventura, 2023)

14.6 Río Seco Refinery

Río Seco's 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 Río 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.

Production from Río Seco for the 2017-2021 period 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 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, 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%.

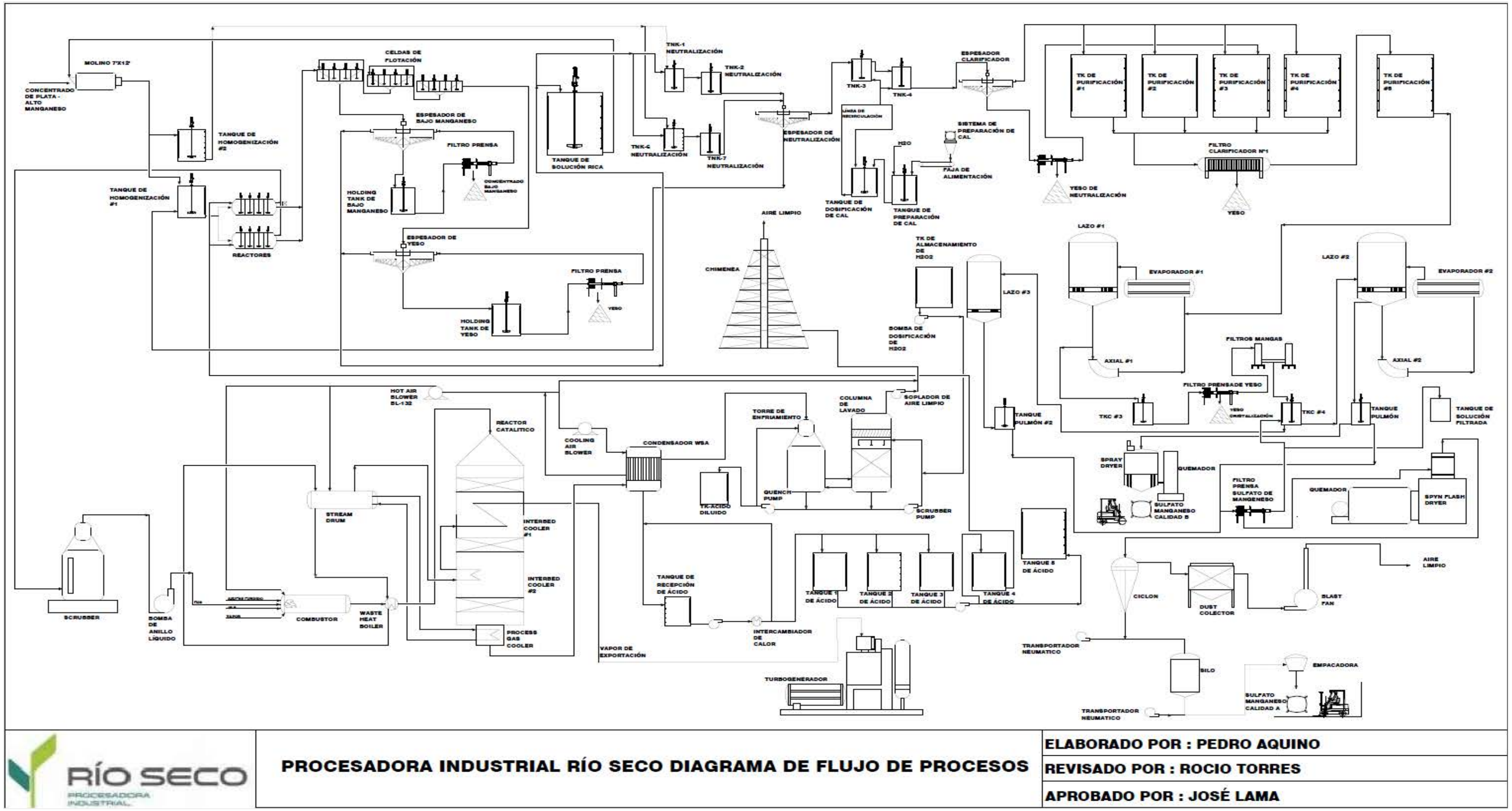


Figure 14-10: Río Seco Flowsheet

Source: (Buenaventura, 2021)

Table 14-11: Río Seco, Annual Concentrate Production

Year	Concentrate tonnes	Moisture %	Ag (oz/t)	Pb	Mn	Fe%	Ca%	As%	Sb%	Zn%
2017	17,778	11.0	204	16.6	6.0					
2018	19,035	11.1	163	22.1	3.2					
2019	12,561	10.9	104	18.2	3.0	20.7	1.7	1.8	0.6	3.7
2020	9,485	10.4	97	12.5	2.8	21.6	2.1	2.1	0.5	4.3
2021	6,290	9.9	109	13.0	1.4	23.9	1.1	2.3	0.7	4.1
Total	**65,148**	**10.8**	**148**	**17.6**	**3.7**	**21.7**	**1.7**	**2.0**	**0.6**	**4.0**

Source: (Buenaventura, 2021)

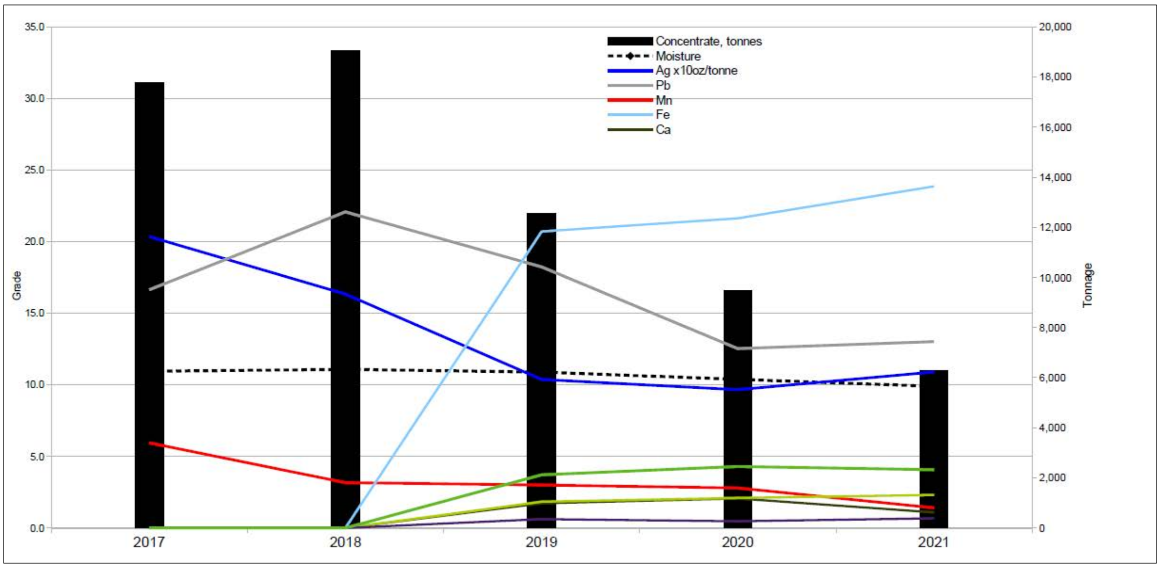


Figure 14-11: Río Seco, Annual Concentrate Production

Source: (Buenaventura, 2021)

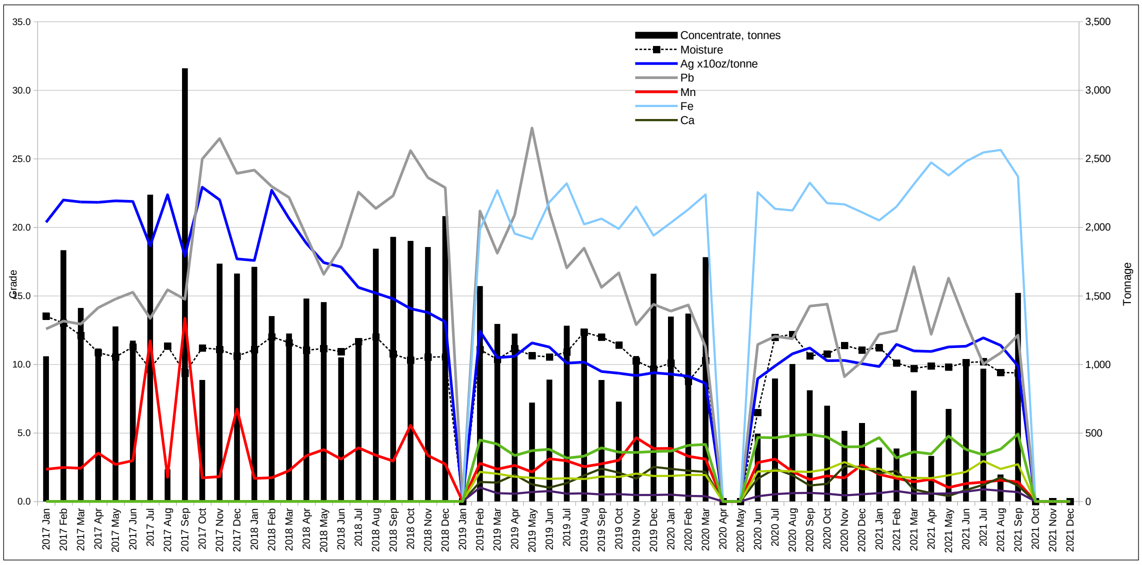


Figure 14-12: Río Seco, Monthly Concentrate Production, 2017 to 2021

Source: (Buenaventura, 2021)

15 Infrastructure

15.1 Waste Rock Management Facility

15.1.1 Uchucchacua

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 assessments for the restoration and management of the facility were conducted by OM Ingeniería y Laboratorio S.R.L. (OM) and Andes in 2010 and 2017, respectively. The design of the facility covers an area of 1.44 hectares with a storage capacity of 40,000 tonnes of temporary ore and 10,000 tonnes of waste rock.

The site's layout features a general slope of 2.5 horizontal to 1 vertical (2.5H:1V) with a peak elevation of 4,447 masl.

OM's geotechnical studies in 2017 built upon earlier studies conducted in 2010. The studies in 2017 contributed to characterizing the waste rock, ore, and the foundation upon which the facility is built. The foundation is comprised of historical tailings at the base, which influence the position of the adjacent water table. This proximity to the water table could potentially lead to liquefaction events.

The engineering design criteria are aligned with standard practices, and stability assessments for static, pseudo-static, and post-seismic conditions meet necessary standards. Nonetheless, in SRK´s opinion, the foundation analysis is somewhat limited, and further examination of the old tailings' residual behavior is advised, along with an update to the Seismic Hazard Study that currently relies on data up to 2005. Deformation analysis is also suggested given that old tailings exist below the facility.

Geochemical static testing found that the waste rock does not produce acid mine drainage, but given the limited number of tests, SRK considers, conduct dynamic leaching tests should be conducted to confirm environmental findings.

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.

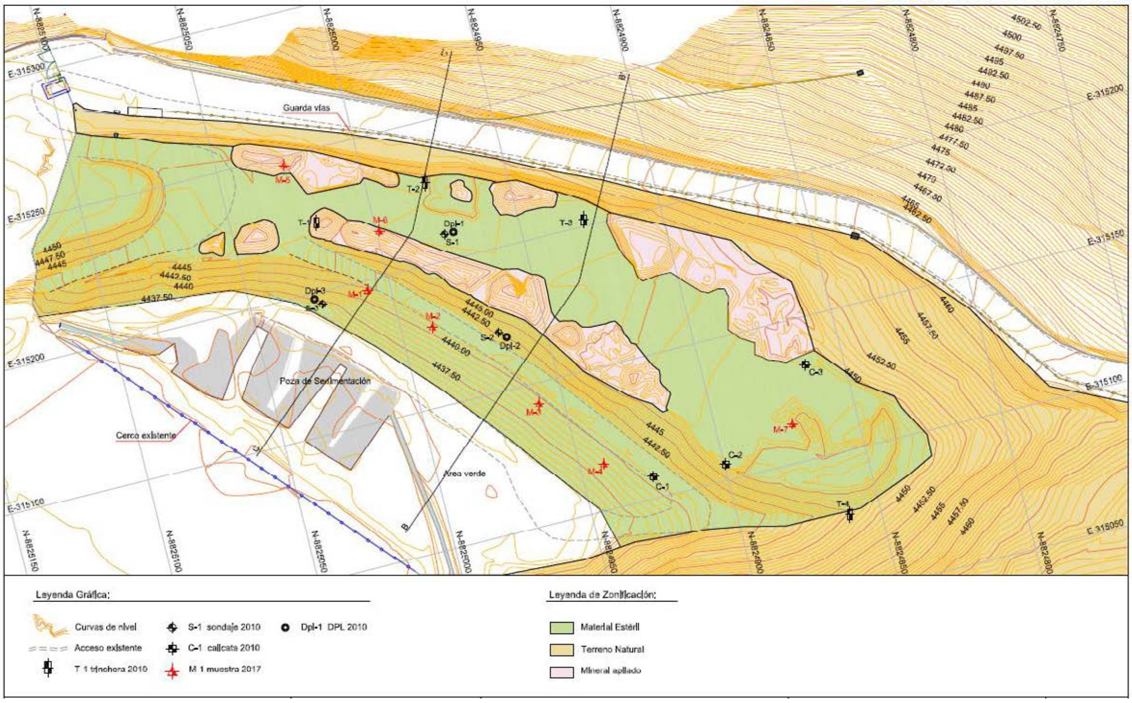


Figure 15-1: Colquicocha waste rock management facility

Source: (Buenaventura, 2021)

Huantajalla LVL360 JMF 2014

The waste rock management facility at LVL 360 in the Huantajalla Valley is situated downstream from the entrance of the Huantajalla mine, at elevations ranging from 4,340 to 4,390 masl.

JMF was responsible for the detailed engineering design in 2014, which planned a 40,950 square meter area to accommodate a total storage capacity of 745,000 m^3 of waste material with a density of 2.4 tons per cubic meter. The facility will be built in two phases: the initial phase will have a capacity of 288,500 m^3 (0.69 million tons), and the subsequent phase will expand this to 456,500 m^3 (1.79 million tons). The projected operational lifespan is 11.4 years for the first phase, and 29.3 years for the second phase.

The design of the facility includes benches that are 5 to 10 meters in height, with 6-meter-wide berms and an overall slope of 2.5H:1V, culminating at the maximum height of 4390 masl.

Geotechnical studies in the region were first conducted by SVS Ingenieros in 2009, with additional data provided by JMF in 2013 to further understanding of the foundation and the waste rock's characteristics. These studies indicated that the foundation appear to consist of rock outcrops and stable colluvial deposits and waste rock more than likely ranges in size from sand to blocks, with the largest blocks being up to 50 cm in diameter.

The geotechnical design criteria adhered to are aligned with global standards. The physical stability assessments of the waste dump indicated safety factors that surpassed the design requirements for both static and seismic conditions. The seismic analysis utilized the seismic hazard assessment conducted by Knight Piesold in 2009.

It should be noted that the eastern part of the facility will be built over an area that currently houses a sedimentation pond, which will be removed to make way for an expansion of the tailings management facility.

From an environmental perspective, geochemical testing has determined that the waste material does not pose a risk of acid drainage, as indicated by static tests from studies conducted in 2009 and 2014.

The design for the diversion of surface water includes channels and ditches designed to handle maximum rainfall over a 24-hour period with a recurrence interval of 500 years.

In SRK´s conclusion, while the document includes suggestions for the closure, post-closure, and monitoring of the facility, it does not provide detailed costs or schedules for these activities, which should be included in the Environmental Impact Study.

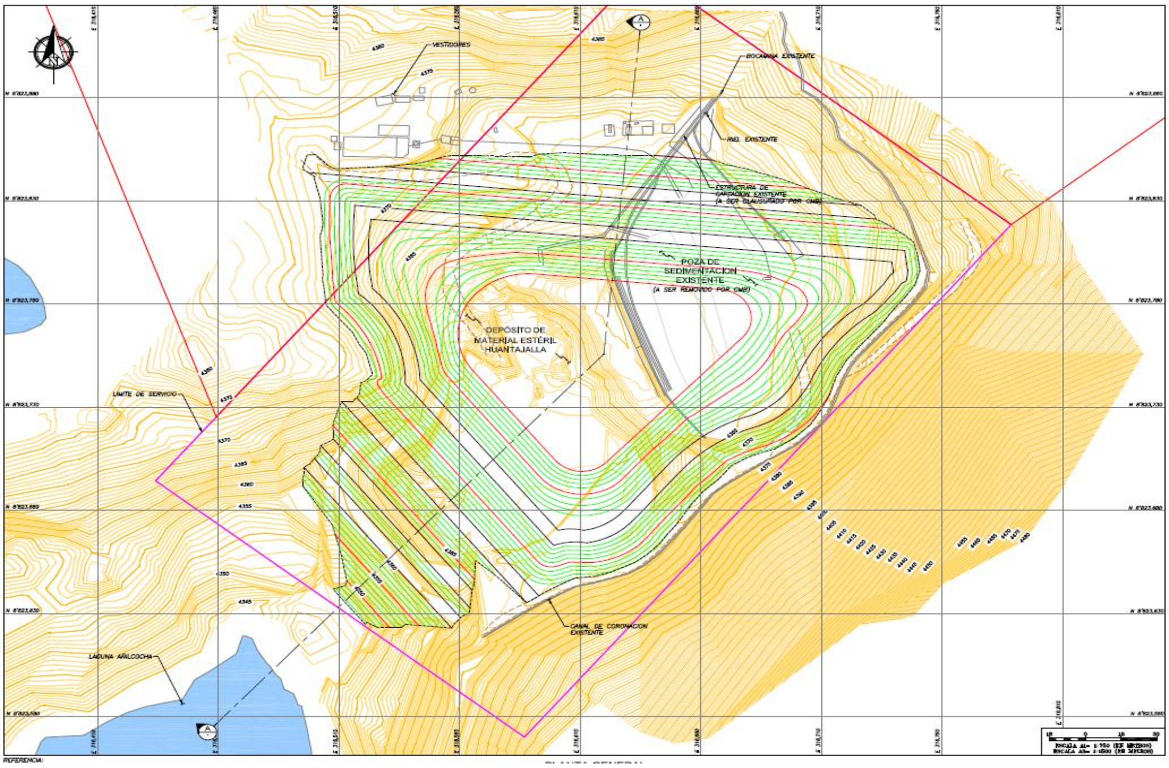


Figure 15-2: Huantajalla LVL 360 waste rock management facility

Source: (Buenaventura, 2021)

Huantajalla Lvl 500-2014

The Level 500 waste rock disposal area, which ipart of the Uchucchacua mining complex, is situated at the base of the mine’s level 500 entrance.

OM Ingeniería y Laboratorio (OM) completed a comprehensive engineering assessment of this site in 2014, which covers 4 hectares; has a total storage volume of 567,000 cubic meters; and adds approximately 4 months to the operational lifespan of the operation.

The structure's peak height is 35 meters, culminating at an elevation of 4,498 masl. It features slopes of 2.4H:1V and includes berms that are 8 meters wide. Additionally, there is a 2-meter-high gabion wall at the base, stretching 224.5 meters in length.

Geotechnical analysis by OM to assess the waste rock and underlying materials indicated the sporadic occurrence of highly moist silty soils, which led OM to recommend installing sub-drains.

Evaluations of the physical stability for the waste rock pile indicated safety factors exceeded design requirements for both static and pseudo-static scenarios.

Geochemical testing indicated that the waste rock does not produce acid rock drainage under static conditions; however, for SRK, the representativeness of the tests is somewhat limited.

To handle surface water runoff, perimeter ditches were planned on the northern and eastern boundaries, measuring 285.7 meters and 177.7 meters in length, respectively, and engineered to withstand maximum precipitation over 24 hours within a recurrence interval of 500 years.

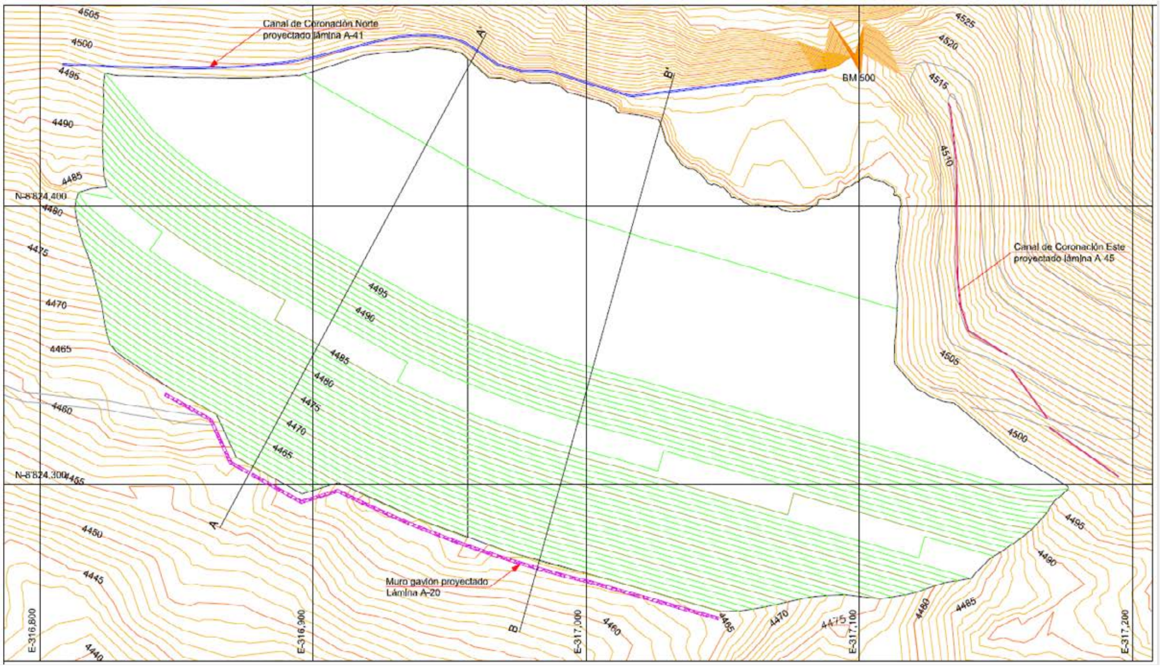


Figure 15-3: Huantajalla Lvl 500-2014 waste rock management facility

Source: (Buenaventura, 2021)

Uchucchacua Lvl 600

Similar to the Level 500 waste rock management facility (DME), this site is situated at the base of the Level 620 mine entry.

OM Ingeniería y Laboratorio (OM) carried out the comprehensive engineering of this facility in 2014. It spans 1 hectare, offering a storage volume of 48,800 cubic meters for waste rock, and it is projected to have a service life of two months.

The structure reaches a peak height of 13 meters and is designed with slopes of 2.4H:1V and terrace widths of 8 meters, culminating at a maximum elevation of 4,625 masl. Moreover, the facility will be equipped with a 2-meter-high gabion wall at its base, stretching 109 meters in length.

Geotechnical evaluations by OM to assess the foundation conditions identified loosely packed clayey gravels without the presence of fine soils, indicating that the location is suitable for the waste management facility.

The physical stability analysis of the waste rock pile indicated safety factors surpassing the standard design criteria for both static and pseudo-static scenarios. Geochemical testing indicated that the waste rock does not produce acid rock drainage under static conditions.

To handle surface water runoff, a 148-meter-long diversion ditch at the crest was planned, designed to accommodate the maximum 24-hour precipitation event with a return interval of 500 years.

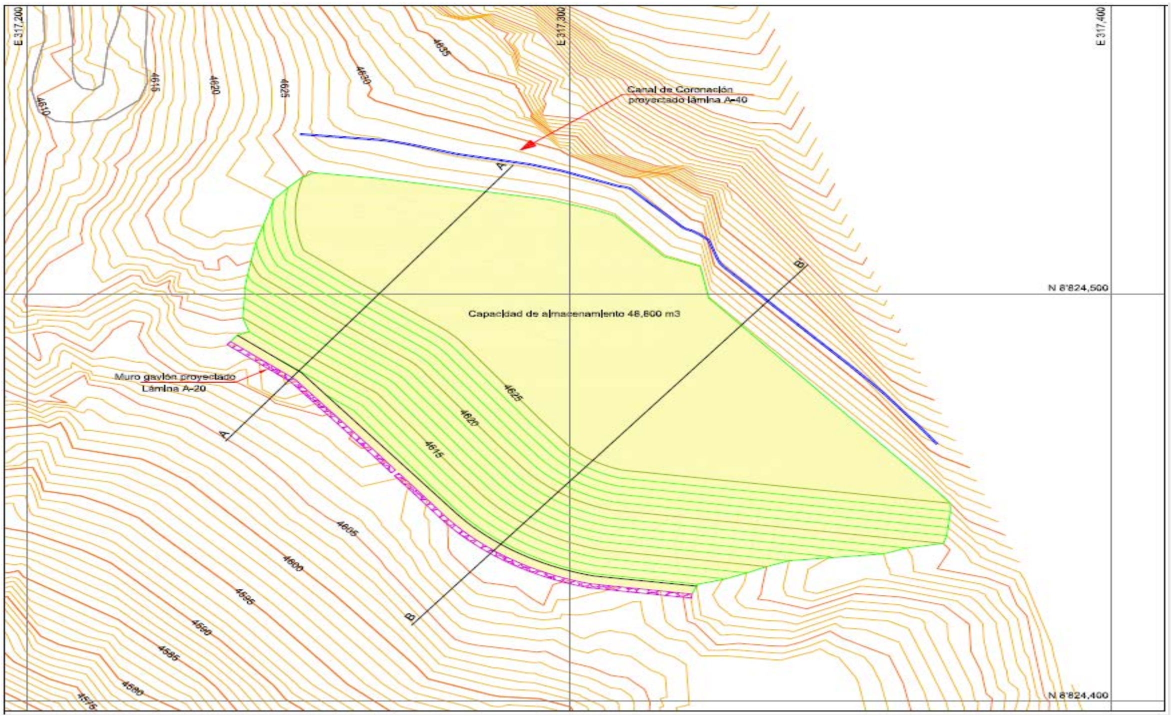


Figure 15-4: Huantajalla Lvl 600 waste rock management facility

Source: (Buenaventura, 2021)

15.1.2 Yumpag

Overview

Currently, the Yumpag sterile material deposit (DME) has an approved cumulative capacity of 549,000 m³ for exploration. The assessment for DME expansion indicates that the disposal area for sterile material will entail no more than a 20% increase in the area approved for the DME.

Buenaventura aims, in this aspect, to carry out the feasibility level design of the "Yumpag DME Expansion" maximizing its storage capacity.

Geotechnical Investigation

Regarding the geotechnical investigation to develop the feasibility level engineering update for Yumpag's DME expansion, Buenaventura, under the directions of JMF Ingeniería y Construcción SAC (hereinafter JMF), executed a complementary field investigation program in January 2022. This program mainly considered the execution of three (03) test pits in the existing DME and three (03) geomechanical stations in the rock outcrops adjacent to the DME (in the area of the future expansion), stimatped by CMB under the supervision of JMF.

It Is important to mention the fieldwork carried out in 2017 by JMF to conduct a geotechnical investigation program in two campaigns, in April and June of 2017, respectively.

In April 2017, JMF conducted the first campaign of the geotechnical investigation program, which consisted of the execution of four (04) test pits and the survey of five (05) geomechanical stations. These points were conveniently located around the current deposit in areas planned to host expansion with the exception of two test pits, which were excavated directly in the area of sterile material for characterization purposes.

The second campaign was carried out in June 2017, which consisted of supervision and geotechnical logging of two (02) geotechnical drillings, including core recovery and Lefranc and Lugeon permeability testing. In addition, two (02) open tube Casagrande piezometers were installed.

Regarding the geotechnical design, slope stability analyses have been performed to evaluate the physical stability of Yumpag's DME expansion. Some of the JMF´s conclusions are the following:

- The geotechnical parameters used in the geotechnical model implemented in Slide2 Software Version 6.0 have been characterized based on existing information from designs and laboratory test results from JMF (2022).
- The results of the stability analyses present safety factor values that are acceptable for what is established in the design criteria under static and pseudo-static load conditions.
- Finally, it should be mentioned that the information presented is based on existing information that attempts to represent as best as possible the characteristics of the study area, and some different conditions may be found during construction.

In terms of Instrumentation and Monitoring, during the operation of the Yumpag DME, monitoring points are expected to be implemented during the operation of Yumpaq DME, which foreseeably will including expanding existing piezometers and topographic control landmarks. The information and data obtained with this system will be reviewed and compared with the design assumptions.

Periodic observation and documentation of conditions that arise during operation will also be carried out. This method will help ensure timely recognition of conditions that vary from those assumed for the design. Subsequently, modifications can be made to the construction and operation to address these conditions. Below is a brief description geotechnical instrumentation equipment proposed.

Existing Piezometers

Piezometers are instruments used to monitor piezometric water levels. They are necessary to control placement of the fill material; predict slope stability; monitoring infiltration; and verify flow models.

Table 15-1: Summary of open tube Casagrande type

Name	Coordinates UTM (WGS-84)	
	East	North
YUM-P-01	321,023	8,829,668
YUM-P-02	321,044	8,829,492

Note: Piezometers inserted by JMF (2017)

Source: (Buenaventura, 2021)

Table 15-2: Summary of open tube Casagrande type

Name	Coordinates UTM (WGS-84)	
	East	North
PZ-01	321,087	8,829,714
PZ-02*	321,077	8,829,492

Note: Piezometers inserted by Buenaventura (2012)

Source: (Buenaventura, 2021)

Projected Topographic Landmarks

Topographic landmarks are instruments used to monitor displacements or movements that are expected to occur on the slopes and crown of the Yumpag DME expansion, providing three displacement measurements in the three main directions. Twenty-one (21) topographic landmarks are projected to be conveniently placed in the deposit.

Table 15-3: Summary of projected topographic landmarks

Name	Coordinates UTM (WGS-84)	
	East	North
HT-01	321,036.19	8,829,522.64
HT-02	321,035.87	8,829,545.72
HT-03	320,963.30	8,829,575.26
HT-04	321,035.89	8,829,569.77

Name	Coordinates UTM (WGS-84)	
	East	North
HT-05	321,115.73	8,829,605.04
HT-06	320,932.83	8,829,605.30
HT-07	321,035.98	8,829,593.84
HT-08	321,107.82	8,829,632.17
HT-09	320,944.73	8,829,627.80
HT-10	321,038.70	8,829,618.66
HT-11	321,087.64	8,829,645.85
HT-12	321,066.81	8,829,699.46
HT-13	320,895.25	8,829,673.36
HT-14	320,948.73	8,829,648.61
HT-15	321,036.21	8,829,641.81
HT-16	321,048.45	8,829,695.13
HT-17	320,914.40	8,829,690.34
HT-18	320,957.04	8,829,670.25
HT-19	321,028.32	8,829,690.43
HT-20	320,998.66	8,829,697.82
HT-21	320,932.08	8,829,719.25

Source: (Buenaventura, 2021)

The monitoring frequency will be quarterly. In the event of an occurrence such as an earthquake or a flood in the DMC, immediately after such events, an inspection will be organized under the direct supervision of the assigned personnel. The information collected through this control must be complemented with the control of topographic landmarks.

Waste Material Deposit Expansion

The design of the new expansion of the Yumpag DME considers maximizing the storage capacity initially estimated in July 2011 by the company Rosales y Martel Ingeniería Andina S.A.C (ROMA) at (65,000 m^3). Currently, the deposit has other expansions and presents 59,547 m^3 compacted in the DME.

The estimated design of the DME initially foresees a reconfiguration in the West zone, generating an increase in the stacking area. Estimates indicate maintaining the same slope (1.75H: 1V) and the same width of the berm (10 m) of the Deposit, expanding the capacity of the deposit by 80,000 m^3.

After that, the DME expansion will be carried out, which will be based on the last approved configuration. Said expansion has an approximate extension of 8,028 m^2 and has been configured to obtain an approximate capacity of 80,000 m^3, ensuring physical, chemical, and hydrological stability in operation and closure of the DME. With the new expansion, the total cumulative capacity of the Yumpag DME will be approximately 629,000 m^3. Its storage will reach a maximum height of 4,545 masl, with slopes of inclination of the order of 1.75H: 1V and maintaining a berm of 10.0 m at the front part of the DME.

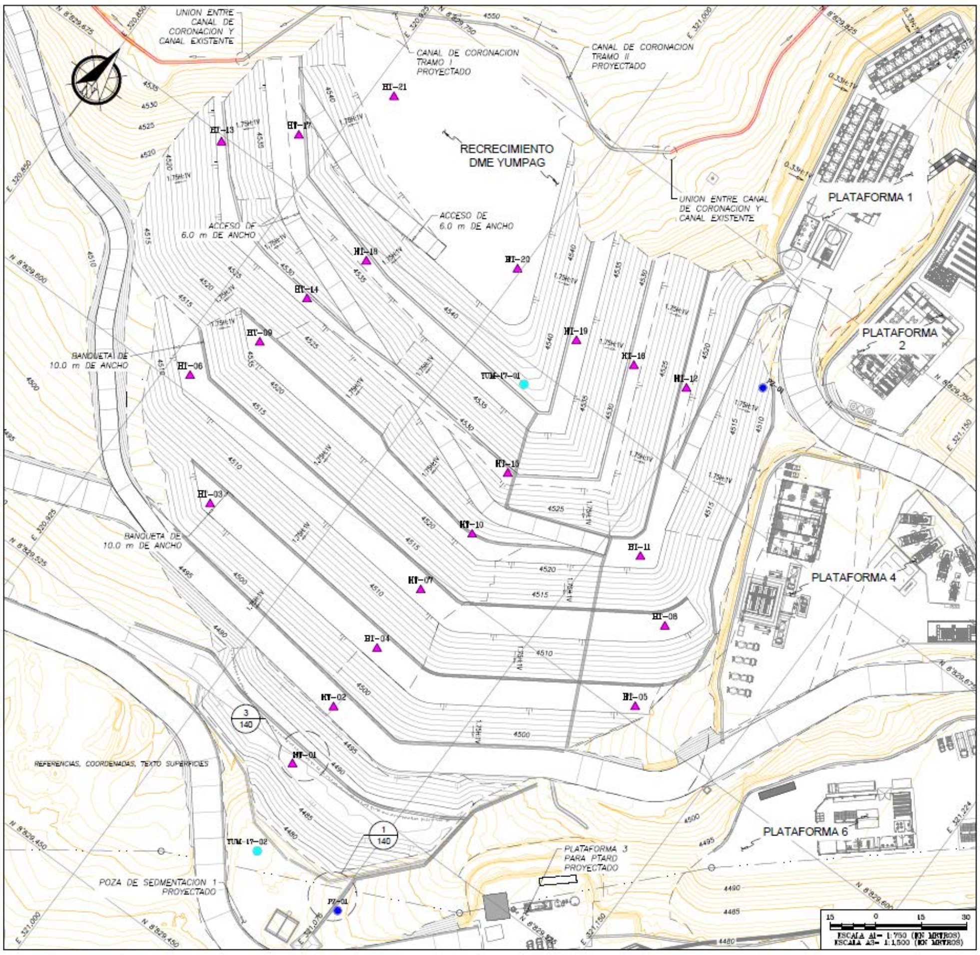


Figure 15-5: General arrangement – Yumpag DME

Source: (Buenaventura, 2023)

15.2 Tailings Management Facility

Compañía de Minas Buenaventura S.A.A., a Peruvian entity engaged in the exploration, mining, and sale of gold, silver, and other metals, is publicly traded on the stock exchanges of Peru since 1971 and New York since 1996.

The Uchucchacua Mining Unit is situated in the district and province of Oyon, within the department of Lima, at an elevation of 4,300 meters above sea level. Buenaventura operates four subterranean mines in this area: Socorro, Carmen, Huantajalla, and Casualidad, included Yumpag zone, which is 5 kilometers northeast of the main unit. These mines produce silver, lead, and zinc, with manganese also being recovered as a secondary product, which is then processed at the Río Seco industrial facility.

The Uchucchacua mine is known for its silver-rich deposits that also contain base metals and a significant amount of manganese within the carbonate rocks of the Jumasha formation from the Upper Cretaceous period, which are associated with Miocene-era intrusive rocks. The mineral composition found here is diverse and intricate, featuring silver in the form of sulfides and sulfosalts, along with a high presence of alabandite and manganese calcosilicates. The presence of lead and zinc is noted to increase near the intrusive rock areas. The metallurgical processing is divided into two streams: Circuit 1, which can handle 3,000 tonnes per day, and Circuit 2, with a capacity for processing 1,200 tonnes per day.

The metallurgical process produces tailings that are deposited at the Uchucchacua Tailings Storage Facility, also referred to as "Relavera 3". The engineering design for the various stages of this facility, along with certain aspects of construction supervision, Quality Assurance, and operational support, have been provided by Knight Piésold Consultores S.A. (Knight Piésold). Meanwhile, Buenaventura has overseen the remaining construction supervision and has been in charge of operations.

Situated in a glacial valley bordered by steep hills featuring significant rock outcrops, the Relavera 3 originally had two outlets. At these outlets, two dams were built according to the original design by Knight Piésold in 1995: the Main dam to the east and the Secondary dam to the west.

The initial design of Relavera 3 was predicated on seismic activity with a 500-year recurrence interval and a storm event with a 100-year recurrence interval, reflecting the standard design criteria of that era in Peru (1995). The anticipated operational lifespan for Relavera 3 was 20 years. However, starting with the first elevation in 2008, the design parameters were updated to align with the Canadian Dam Association (CDA) guidelines. Consequently, the Relavera 3 dams were classified as having "High" potential consequences in the event of a failure. Following a dam break analysis conducted in 2021, which was part of a feasibility study for further raising the Relavera 3 dams, the classification was revised to "Very High" potential consequences. As a result, the maximum credible earthquake (MCE) has been adopted for the design earthquake criteria, and the design flood estimation now utilizes a precipitation value that is two-thirds of the way between the 1000-year return period precipitation and the probable maximum precipitation.

Between 1995 and 2021, a total of seven geotechnical investigations were carried out to assess the materials in the dam foundations and those used in constructing the various structures (with additional investigations by other consultants). These site investigations included geotechnical drilling, excavation of test pits, cone penetration tests with pore pressure measurement (SCPTu), and geophysical tests. Furthermore, soil mechanics tests were conducted both on-site and in the laboratory. Detailed reports from these geotechnical investigations are available for review.

In 1995, the construction of the Principal Dam was carried out in two phases: initially, a starter dam was built to a level of 4,380.0 masl using compacted rockfill in layers with a maximum height of 10.0 meters; subsequently, the dam was extended downstream to an elevation of 4,392.0 masl using the coarser fractions of cyclone tailings. This extension did not achieve the intended design height of 4,395.0 masl, resulting in a total height of 22.0 meters. To prevent the movement of fine particles, filters were integrated into the design, and a drainage system with a rock foundation was installed to enhance the collection and reclamation of seepage water.

The Auxiliary Dam was planned to be constructed in multiple downstream stages, in line with operational needs, reaching a final height of 4,393.0 masl. The dam's structure was composed of rockfill, which was methodically placed and compacted. Similar to the Principal Dam, filters and a geotextile layer were used on the upstream face in contact with the tailings to hinder the migration of fines, and a rock-based drainage system was installed at the dam's foundation. Additionally, the construction of the east and west diversion channels, the tailings transportation system, and the system for decanting supernatant water were integral parts of the initial development of the Relavera 3 facility.

In 2008, the engineering firm Knight Piésold undertook the initial expansion of the Relavera 3 tailings storage facility, elevating it to a height of 4,397.0 masl. This expansion included not only the main and secondary dams but also the construction of four smaller dams situated between them. The western diversion channel was lengthened, a pond for collecting infiltrated water was established downstream of the secondary dam, and an emergency spillway was created to handle potential extreme rainfall events.

It was at this point, coinciding with the elevation increase to 4,397.0 masl, that Buenaventura ceased using the original decantation system, which had been in place since the facility's inception to prevent tailings water from being released into the surrounding environment. Instead, a pumping system was installed at the northern end of the dam complex. The original decantation system included a "quena" pipe that collected the clear water layer from the tailings and channeled it beneath the secondary dam through a robust HDPE pipe encased in a concrete block, traversing the dam's structure.

The "quena" pipe was eventually sealed, abandoned, and buried under the tailings. However, the downstream section of the pipe was extended further as the secondary dam was heightened to keep it functional due to a persistent trickle of water. Buenaventura has proposed to permanently decommission the old decant system in conjunction with the construction of a new secondary dam downstream from the current one.

Between the years 2014 and 2015, Knight Piésold planned a second elevation increase for Relavera 3, which was to be executed in two phases: the first phase reaching 4,401.0 masl and the second phase aiming for 4,416.0 masl, with the latter to be completed in four separate increments. However, the actual raising of the dams was carried out based on operational needs and did not always align with the intended design heights.

The first phase of the project increased the storage capacity by 2.52 million tonnes (Mt), and the second phase was intended to add a further 9.45 Mt. The design of the dam raises took into account a tailings production rate of 2,700 tonnes per day, which was expected to rise to 3,200 tonnes per day. Additionally, the design included a flood storage capacity for extreme events of 0.82 million cubic meters (Mm^3), an estimated wave run-up of 600 mm, and a safety margin (freeboard) of 1.0 meter.

During the elevation increase of the dams to 4,401.0 masl, the process of installing a smooth high-density polyethylene (HDPE) liner on the upstream slopes of the dams was initiated. This measure was taken to reduce seepage into the dams, as the presence of karst features was identified in the Jumasha limestone, specifically between the Main and Auxiliary Dams. The HDPE liner was also extended to the natural slopes of the basin situated between these two dams. The liner was anchored at the existing tailings level of 4,395.5 masl and to the tops of the dams as they were being raised. The lower levels did not receive the geomembrane as prior geotechnical studies had not indicated the presence of karst there.

With the dam elevation reaching 4,405.0 masl, it became necessary to reroute the public road that ran below the Main Dam and to construct the Plomopampa Dam, which is located 700 meters to the north of the Main Dam. This was done to prevent the Plomopampa camp from being inundated by tailings.

All the subsequent raises of the dams to their present height of 4,411.0 masl have been carried out using the downstream construction method, and it is anticipated that this method will be maintained. It was during this phase of construction that the HDPE liner was extended to the eastern side, between the Main and Plomopampa Dams, to block the seepage of tailings water due to the discovery of limestone dissolution. Before laying the geomembrane, the areas with dissolution were addressed by cleaning out the fissures and filling them with shotcrete. The plan is to continue extending the geomembrane on both the upstream slopes of the dam and in the eastern area until the dams reach their final height.

Buenaventura has been granted a construction permit allowing for the elevation of dams up to 4,416.0 masl. Plans are in place to proceed with the dam elevation. However, on October 15, 2021, Buenaventura suspended activities at the Uchucchacua Unit due to disputes with local communities, until September 2023. A drone flight in December 2021 captured the state of Tailings Storage Facility 3, as depicted in Figure 15-6.

The initial construction phase of the infrastructure for Tailings Storage Facility 3, reaching an elevation of 4,392.0 masl, was carried out directly by Buenaventura. This phase lacked the implementation of Quality Control and Quality Assurance (QC/QA) procedures, resulting in the absence of construction reports and "as built" documentation. Since 2008, Buenaventura Ingenieros S.A.A. (BISA) has overseen construction and QC activities, with Empresa Comunal de Servicios Multiples Oyon (ECOSERMO) serving as the construction contractor. ECOSERMO has also been in charge of QC for the last two construction phases, which increased elevations to 4,409.0 and 4,411.0 masl.

Knight Piésold was not involved in the initial construction of the Tailings Storage Facility 3 infrastructure and only addressed inquiries posed by Buenaventura, in addition to conducting some site visits. It was in 2008 that Knight Piésold was engaged to perform the QA for the dam raises from 4,409.0 to 4,411.0 masl, the current elevation. Knight Piésold did not participate in the construction that raised the embankments from 4,405.0 to 4,409.0 masl, during which BISA managed the QA. The construction reports and 'as-built' drawings for these stages are available.

While there is no record of the initial construction stages, it is acknowledged that the dam foundations were prepared by removing unsuitable materials until reaching a stable foundation. However, there is no record of whether treatment was required for karst areas. Documented evidence of foundation treatment exists for the stages where Knight Piésold provided QA oversight.

Information on the composition of the fill materials during the early construction stages is also missing. Nevertheless, later field investigations have verified that the compaction of the materials is satisfactory. Documented evidence from 2008 onwards indicates that the construction materials were placed in line with the technical specifications' requirements.

The mineral reserves at the Uchucchacua Mining Unit necessitate an expansion of the storage capacity of the existing Relavera 3 or the construction of new tailings storage facilities. In response to this need, Buenaventura engaged Knight Piésold in November 2019 to carry out feasibility engineering for the elevation of Relavera 3 to 4,429.0 masl. This study also encompasses a transition to a hybrid system for the deposition of both conventional and thickened tailings, a task assigned to Paterson & Cooke Chile S.P.A.

The proposed design for the elevation of the Relavera 3 embankments to 4,429.0 masl includes the construction of a new Auxiliary Dam situated slightly downstream following the dam's elevation to 4,016.0 masl. This realignment is crucial to ensure a more effective containment of the facility and to simplify the construction process. Initially, the design did not account for the Principal and Auxiliary Dams merging into a single structure, which resulted in a complex alignment.

At present, Relavera 3 has a remaining capacity of 0.25 million tonnes (Mt) up to an elevation of 4,411.0 masl, and it can accommodate up to 3.22 Mt up to an elevation of 4,416.0 masl. Although there are plans to elevate the dams to 4,413.0 masl and eventually to 4,416.0 masl, these plans will be resumed, as operations have restarted in September 2023. The current permissible elevation for construction is 4,416.0 masl.

Elevating the dam to 4,429.0 masl will grant Relavera 3 an additional storage capacity of 15.21 Mt, thereby prolonging the lifespan of the Uchucchacua Mining Unit until July 2032. Upon the cessation of operations, Relavera 3 will have reached a final capacity of 26.27 Mt, assuming a density of 1.26 tonnes per cubic meter (t/m^3) for conventional tailings and 1.6 t/m^3 for thickened tailings. The introduction of thickened tailings disposal is scheduled for 2027. All subsequent elevations will be carried out using the downstream construction method.

Safety assessments of the Principal and Auxiliary Dams have revealed safety factors that fall short of the required standards for seismic condition analysis. This is attributed to two main factors: (1) the presence of weak materials unsuitable for foundation surfaces beneath the raised sections of the Principal and Auxiliary Dams during the elevation to 4,409.0 masl, and (2) the updated seismic hazard study for the Uchucchacua Unit conducted by ZER Geosystem Perú S.A.C., which reported design accelerations exceeding those from previous studies.

Buenaventura has commissioned Knight Piésold to design reinforcement buttresses to enhance the stability of the Principal and Auxiliary Dams up to an elevation of 4,416.0 masl. The construction of these buttresses is slated for 2024. A significant constraint in designing the Principal Dam's buttress was the proximity of a public road, which cannot be relocated. Nevertheless, Knight Piésold's design accommodates the road's current position while still adhering to seismic design criteria. To elevate the Principal Dam beyond 4,416.0 masl, it will be necessary to relocate the public road well in advance. A preliminary cross-section of the Principal Dam is depicted in Figure 15-6.

The primary dam was initially constructed using cyclone tailings, and their potential for liquefaction is currently under review as part of the project's feasibility study. The location of these tailings is advantageous as they are confined both downstream and above. In the forthcoming detailed design phase for the elevation of 4,429.0 meters above sea level, Knight Piésold will carry out comprehensive dynamic deformation assessments of the dams when subjected to the Maximum Credible Earthquake (MCE) to ensure the long-term safety of the design against seismic activity. These analyses will be performed using FLAC (Fast Lagrangian Analysis of Continua) to verify that the entire dam structure, including the well-contained cyclone sand, will function properly.

Effective water management is crucial for the safe functioning of any tailings storage facility, and it is particularly significant for Relavera 3 to control pore pressures within and beneath the dams to safe levels, as well as to preserve sufficient flood storage capacity and freeboard. The watershed feeding into Relavera 3 is substantial, but the presence of the Colquicocha lagoon helps to mitigate surface water flow; Buenaventura controlled by keeping the level of the Colquicocha lagoon low inorder to avoid its overflowing. Nevertheless, the construction of the eastern diversion channel is still pending. The water balance models account for this diversion structure, which is essential during extreme weather events and for draining the Colquicocha lagoon. Despite the temporary halt in operations at the Uchucchacua Unit, current conditions are favorable for managing water during heavy rainfall. However, Buenaventura, in SRK´s opinion, is required to complete the eastern diversion channel; this will be executed in the Uchucchacua mine closure stage.

In 2019, intense rainfall caused the supernatant water pond to reach the main dam, leading to the emergence of significant springs and dampening of the dam's downstream slope (water ingress from the karst region on the eastern abutment is also a possibility). Such incidents have not recurred because Buenaventura has enhanced the management of tailings discharge, which has helped maintain a wide beach that prevents supernatant water from getting close to the dams during the wet season. Moreover, the increased elevation of the tailings discharge has extended the infiltration path for water to reach the anchored geomembrane at an elevation of 4,395.5 meters above sea level. Going forward, keeping a broad beach adjacent to the dams and extending the geomembrane up the remaining height of the facility will be critical components of the Relavera 3 strategy.

The geotechnical monitoring system at Relavera 3 includes Casagrande-type open tube piezometers and topographic benchmarks, which undergo regular checks. The piezometric readings at the dam foundations indicate that conditions are conducive to static slope stability, but not yet for seismic slope stability, pending the construction of buttresses. Furthermore, a number of piezometers and benchmarks were lost during various stages of construction. Therefore, it is necessary to update and expand the current geotechnical monitoring system at Relavera 3. It has been recommended to devise a plan that evaluates the trade-offs among the best available technologies to select the most suitable instruments for the needs of the Uchucchacua Unit.

The local community demonstrations occur with some frequency, leading to restricted access to the Uchucchacua Unit, which has posed challenges in monitoring the geotechnical instruments in place. Buenaventura is actively seeking solutions to these issues, and the move towards automated instrumentation is expected to alleviate the monitoring difficulties.

In summary, Knight Piésold's assessment is that the Relavera 3 tailings storage facility can be safely put back into service, expanded, and operated until 2032, reaching an elevation of 4,429.0 meters above sea level, under the condition that:

- Adequate downstream support structures are constructed against the existing embankments in 2022 before restarting operations.
- All subsequent raises of the embankment above these supports are carried out using the downstream construction method with well-drained, competent fill that is properly placed and compacted to ensure a dense and stable embankment.
- The geomembrane lining is extended on the upstream face of the embankments and the eastern side of the facility, adhering to high-quality installation standards.
- A new system for diverting water upstream of Relavera 3 is implemented as per its design plans.
- The water management strategy is projected into the future for the entire lifespan of the mine, incorporating an initial calibration and a probabilistic analysis, and is regularly updated throughout the mine's operation.

- All construction adheres to the design objectives and specifications, with rigorous quality oversight and QA/QC services, accompanied by thorough documentation.
- Operational focus is maintained on ensuring long, drained beaches of tailings against the dams at all times, keeping the supernatant water pond small and distant from the dams, in line with the tailings deposition strategy and revised water management needs.
- The surveillance and monitoring systems are enhanced and broadened to provide the necessary data to verify that Relavera 3 is meeting all stability and safety requirements, with regular and event-triggered reviews being performed.

Knight Piésold will supply the necessary designs, specifications, and engineering guidance to support these recommendations. SRK suggests that Uchucchacua take into account the schedule of these activities, due to the 2 years of paralysis.

Figure 15-6: Relavera 3, plan view

Source: (Buenaventura, 2021)

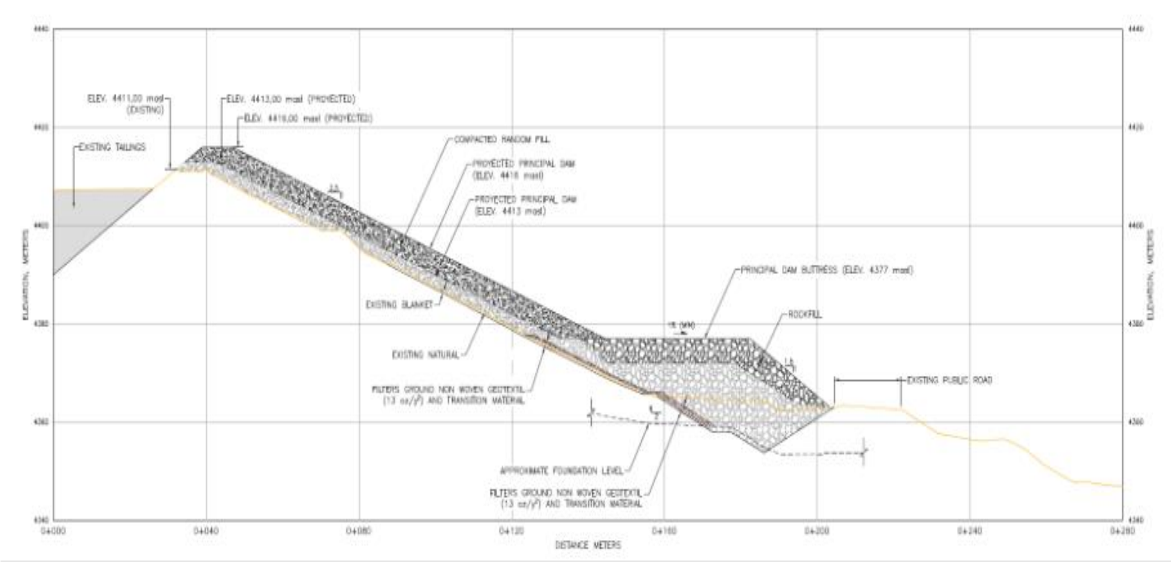


Figure 15-7: Principal Dam cross section (after buttress implementation)

Source: (Buenaventura, 2021)

15.3 Mine Operations Support Facilities

15.3.1 Underground Workshop

This area is designated for on-the-spot repairs and prompt support for machinery and is situated at Level 3920.

15.3.2 Pumping System

The mine's drainage utilizes two outflow systems to the surface: the Patón and Huantajalla tunnels. Water gathered from the lower depths is elevated to Level 4120, where the Patón tunnel is situated, which serves as the main drainage point for the mine.

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

Within the workshop, there are specialized zones such as the tire service area, lubrication station, truck maintenance space, welding section, and a truck cleansing unit.

Truck Fuel Facility

The refueling station boasts a storage capacity of 88,236 gallons and is managed by Primax.

Explosives Storage

The explosives storage facility is positioned at Level 3990 within the Socorro mine.

15.4 Processing Plant Support Facilities

15.4.1 Laboratory

The laboratory spans 578 square meters and is constructed with thermoacoustic panels for the roofing and walls. It comprises various sections including sample processing, assay, testing areas, storage, administrative offices, and restrooms with changing areas for both men and women.

15.4.2 Warehouse

This warehouse is situated near the processing plant and occupies 1,632 square meters.

15.5 Man Camp

The Plomopampa residential zone and executive lodgings are found in the Plomopampa sector. U.E.A Uchucchacua provides accommodation for up to 1,271 staff members and contractors. In the Patón sector, accommodations are available for seven workers, with additional rooms for guests. In total, the facilities can house 1,278 individuals.

15.6 Power Supply and Distribution

Electricity is sourced from the national grid at the Paragsha II substation in Cerro de Pasco. It is transmitted via the L-1123 line at 138 kV using 240 mm^2 aluminum conductors, supported by steel towers, over a distance of 47.8 km to the Uchucchacua substation. Here, the voltage is stepped down from 138 kV to 10 kV by an 18/22 MVA transformer.

An alternative power source for Uchucchacua operations is the Otuto hydroelectric station, which can generate up to 3,300 kW during the peak rainy season and 1,800 kW during the dry season.

Additionally, U.E.A Uchucchacua is equipped with a thermal power station that includes a CAT 3612 generator set with a nominal output of 2,400 kW and a Sulzer generator set rated at 1,100 kW, providing a combined effective generation capacity of 2,500 kW.

15.7 Water Supply

Water is sourced by pumping from various bodies of water including the Chacra or Caballococha, Cutacocha, Culicocha or Culquicocha, Patón lagoons, and the Qda. Jachacancha or Quererum. This water is utilized for both industrial and domestic purposes.

15.8 Waste Water Treatment and Solid Water Disposal

15.8.1 Waste Water Treatment

Industrial effluents, a byproduct of mining and metallurgical processes at U.E.A. Uchucchacua, are produced at a rate of 6,000 t/d. These originate 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 wastewater is treated at the Huantajalla office (15,768 m^3/year) and at the activated sludge facility (236,520 m^3/year) which processes effluents from the Plomopampa camp and the industrial area.

15.8.2 Solid Waste Disposal

Domestic Waste Disposal

The domestic waste site is located along the route from the Plomopampa Camp to the Huantajalla mining facilities. It features a ventilation and gas extraction system. All non-recyclable domestic waste from U.E.A Uchucchacua is disposed of here. The landfill uses a combined trench and area method for waste deposition, spanning roughly 0.40 hectares, and is designed to accommodate an estimated 13,000 m^3 of waste over ten years.

Industrial Waste Disposal

The final disposal site for hazardous waste, also known as the industrial landfill, is where hazardous materials from U.E.A Uchucchacua, including flammable, medical, and non-recyclable waste, are deposited after encapsulation. This landfill covers an area of about 0.60 hectares and is projected to store an estimated volume of 10,000 m^3 of industrial waste over 19 years.

16 Market Studies

The market study is based on the previous analysis developed by CRU during 2021-2022 and complemented by consensus information from different banks and financial entities used by Buenaventura for its official price forecast.

Consensus data from banks and financial institutions used by Buenaventura has been consolidated by CIBC Global Mining Group and includes entities such as: JP Morgan, Deutsche Bank, Morgan Stanley, BNP Paribas, BMO and other important entities related to the mining industry. CIBC notes that consolidated information does not pretend to be an expert opinion and it is recommended for internal purposes.

SRK finds reasonable the current price forecast stated by Buenaventura. However, SRK strongly recommends the update of the market study with a similar detail to the previous CRU report in the short term.

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 (Figure 16-1). 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.

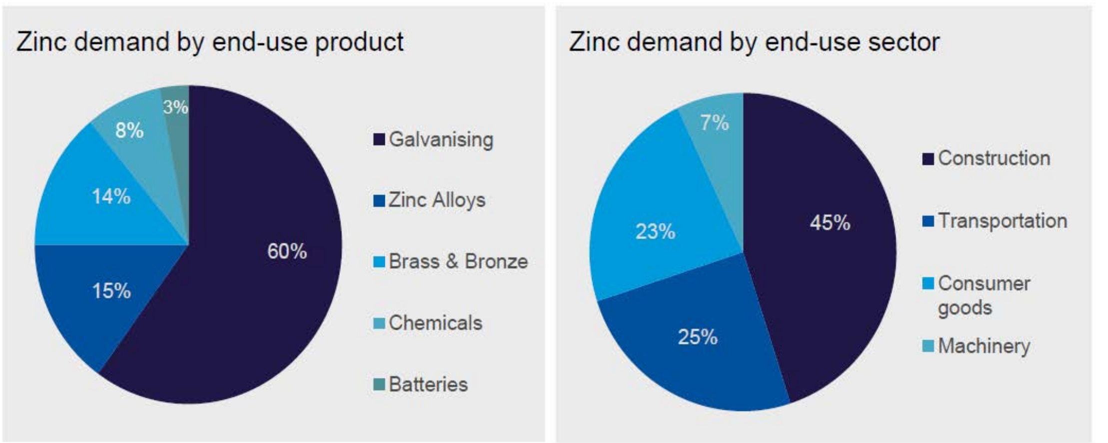


Figure 16-1: Global zinc demand by first-use sector and end-use sector

Source: (CRU, 2022)

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, SiO2 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.

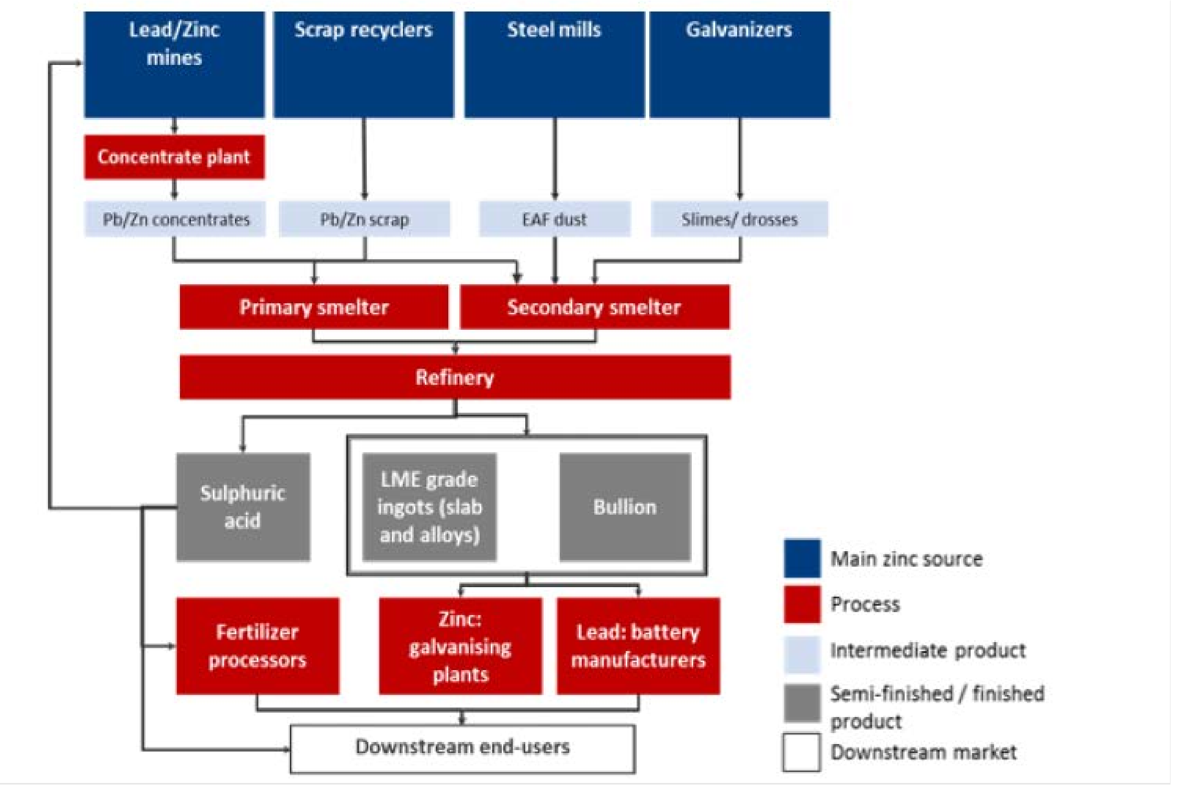


Figure 16-2: Zinc value chain

Source: (CRU, 2022)

Zinc value chain

Figure 16-3 shows a simplified version of the zinc value chain:

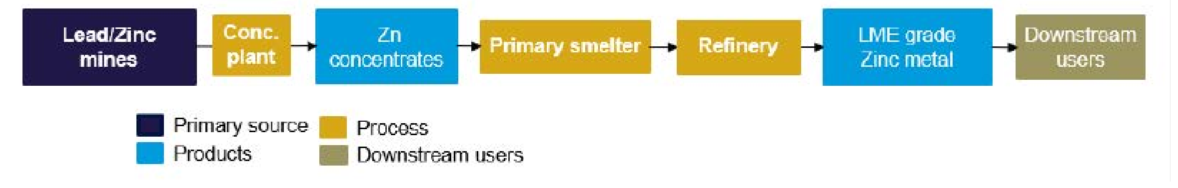


Figure 16-3: Simplified zinc value chain

Source: (CRU, 2022)

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 can 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 considered 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.

Most 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 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.

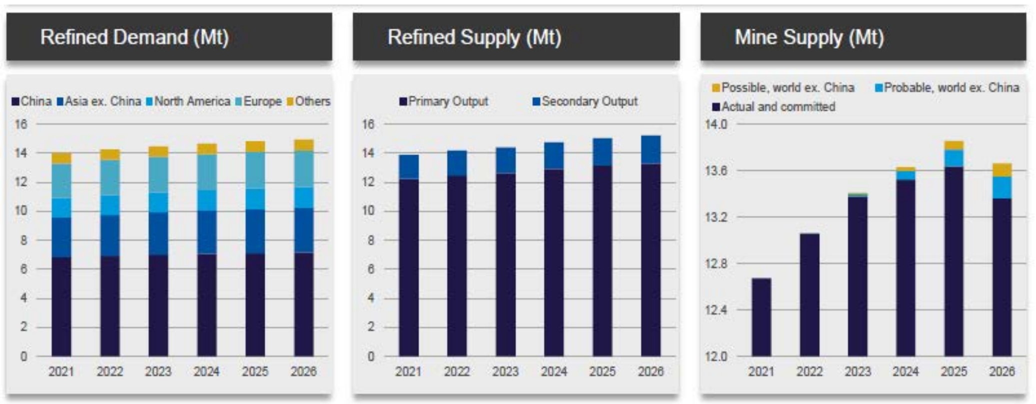


Figure 16-4: Zinc supply-demand gap analysis, 2021-2026, kt

Source: (CRU, 2022)

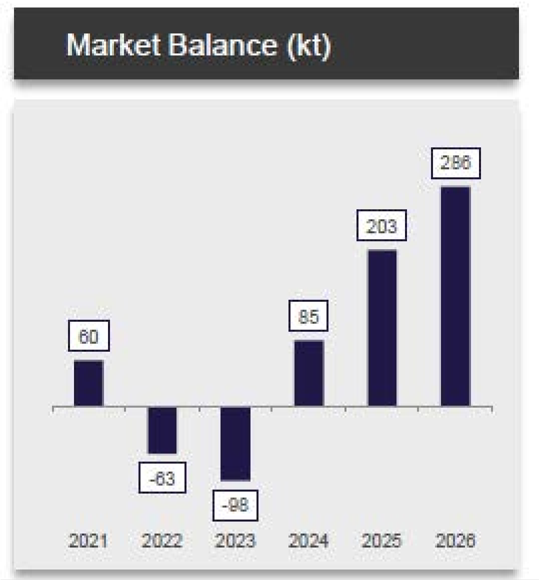


Figure 16-5: Zinc supply-demand gap analysis, 2021-2026, kt

Source: (CRU, 2022)

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. In 2022 CRU expected 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, in 2022 CRU expected 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 be corrected to rebalance the market, pushing prices up again in 2026, leaping up to $2,348 /t.

Based on the previous analysis developed by CRU in 2021 and consensus information from different banks and investment entities, the following price forecast represents Buenaventura's forecast as of July 2023.

Table 16-1: Buenaventura price forecast for Zinc

	2023	2024	2025	2026	Long Term
Zn Price (USD/lb)	1.21	1.21	1.22	1.24	1.19

Source: (Buenaventura, 2023)

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, galvanizing alloys and other less relevant uses is fast disappearing.

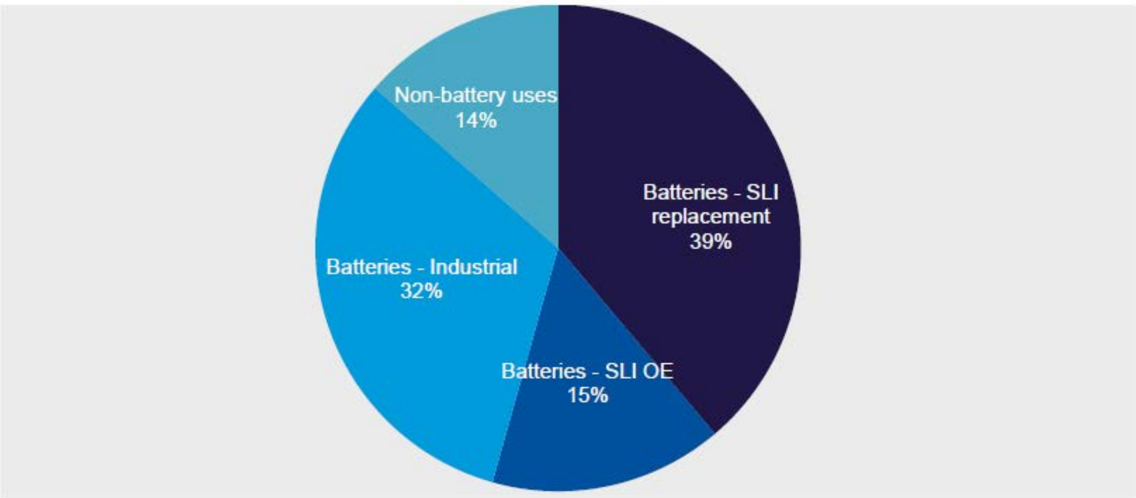


Figure 16-6: Lead demand by end-use sector

Source: (CRU, 2022)

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%.

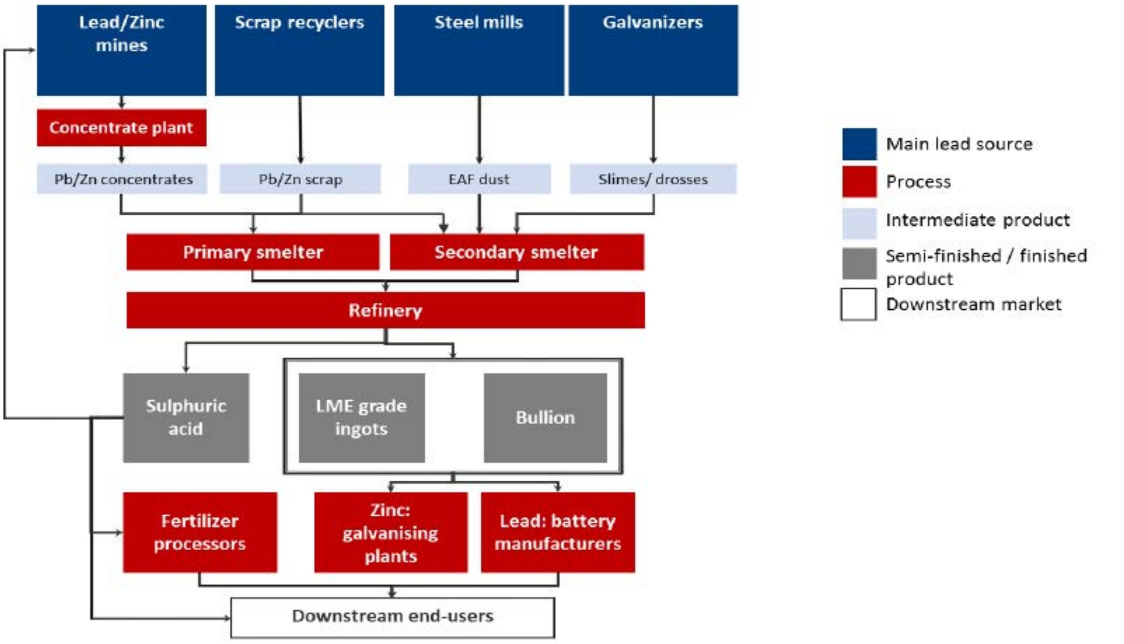


Figure 16-7: Lead industrial value chain

Source: (CRU, 2022)

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.

Figure 16-8 shows the value chain for lead production:

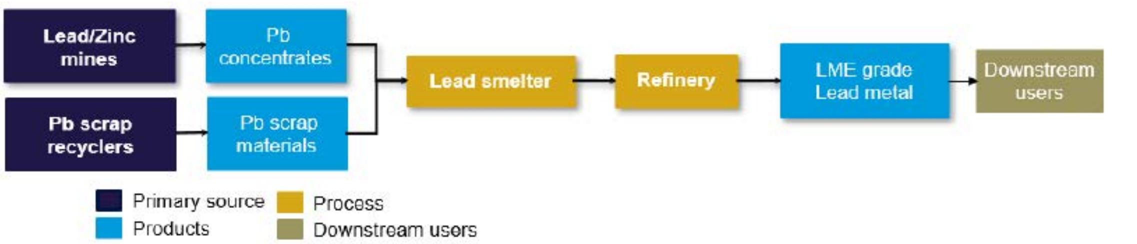


Figure 16-8: Simplified lead value chain

Source: (CRU, 2022)

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 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 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 expected 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, in 2022 CRU expected 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.

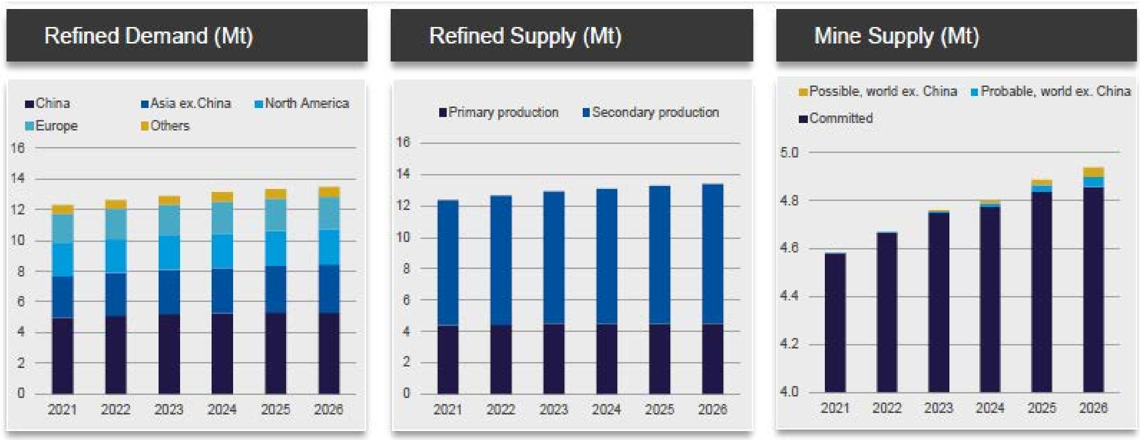


Figure 16-9: Lead supply-demand gap analysis, 2021-2026, kt

Source: (CRU, 2022)

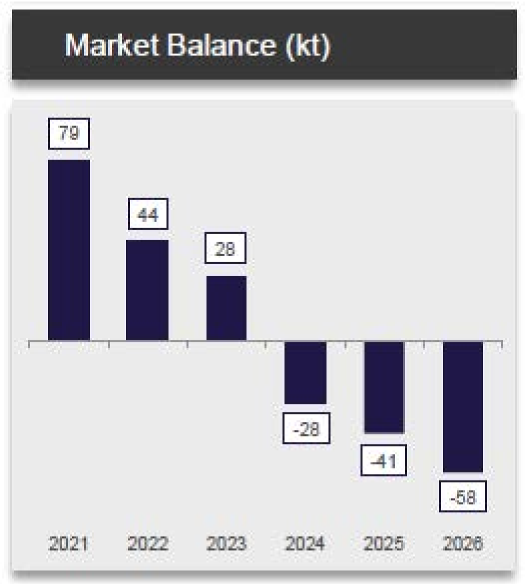


Figure 16-10: Lead Market Balance 2021-2026, kt

Source: (CRU, 2022)

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.

Based on the previous analysis developed by CRU in 2021 and consensus information from different banks and investment entities, the following price forecast represents Buenaventura's forecast as of July 2023.

Table 16-2: Buenaventura price forecast for Lead

	2023	2024	2025	2026	Long Term
Pb Price (USD/lb)	0.95	0.94	0.94	0.94	0.94

Source: (Buenaventura, 2023)

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.

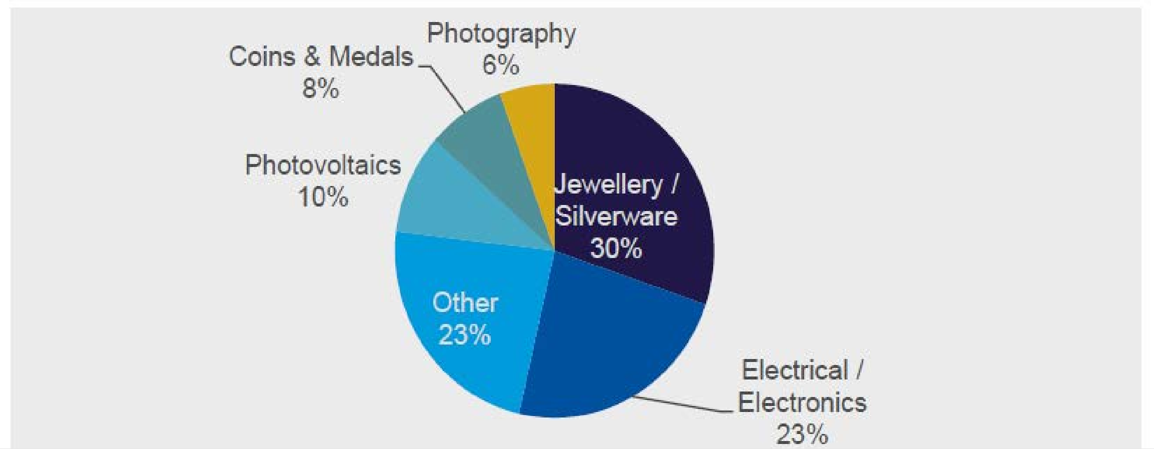


Figure 16-11: Silver demand by end-use

Source: (CRU, 2022)

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.

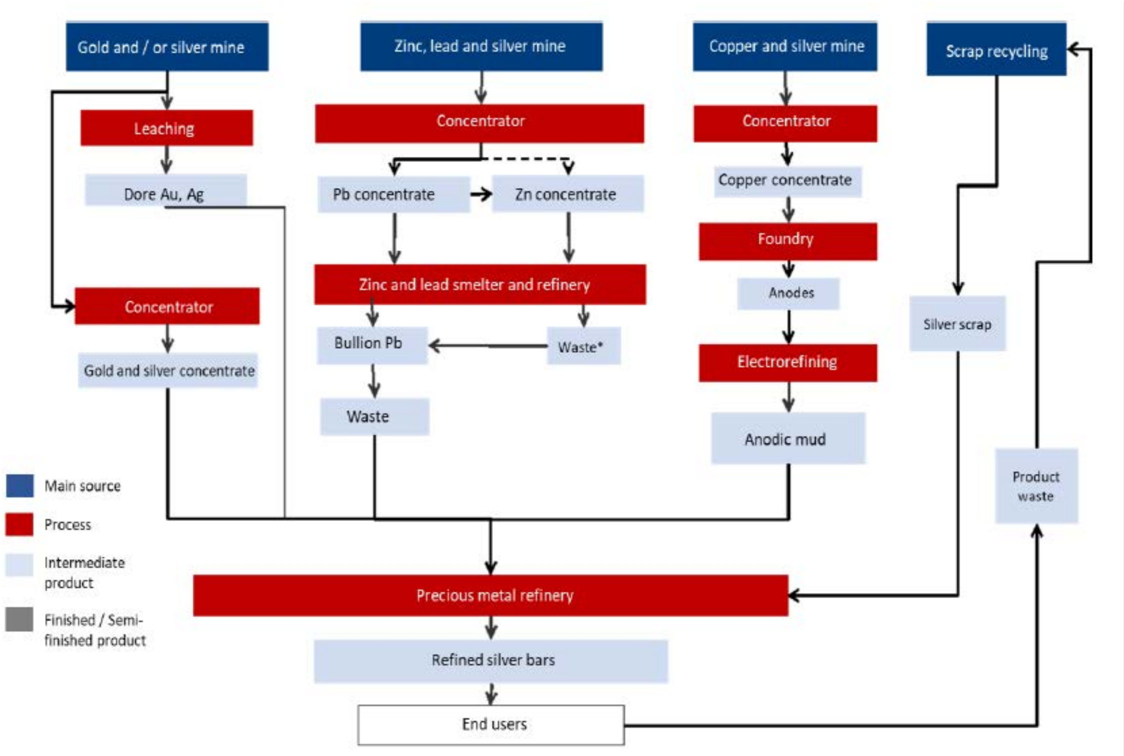


Figure 16-12: Silver value chain

Source: (CRU, 2022)

Silver market balance and price

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 16-13: Silver supply-demand gap analysis, 2021-2026, kt

Source: (CRU, 2022)

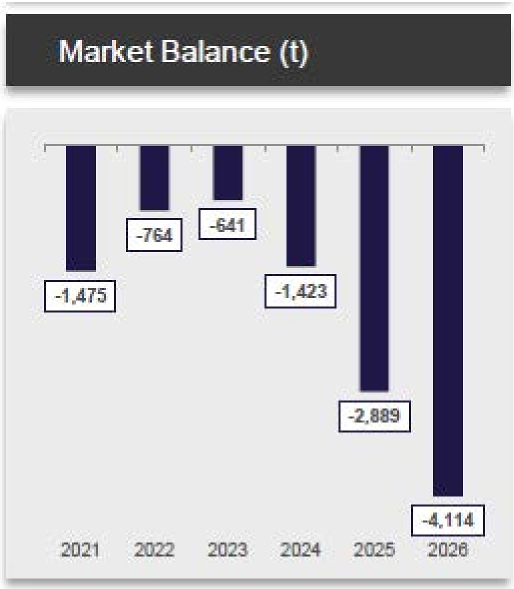


Figure 16-14: Silver Market Balance 2021-2016 (kt)

Source: (CRU, 2022)

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 did 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.

Based on the previous analysis developed by CRU in 2021 and consensus information from different banks and investment entities, the following price forecast represents Buenaventura's forecast as of July 2023.

Table 16-3: Buenaventura price forecast for Silver

	2023	2024	2025	2026	Long Term
Ag Price (USD/oz)	23.62	23.85	23.52	23.02	22.60

Source: (Buenaventura, 2023)

16.2 Uchucchacua products

16.2.1 Summary of Uchucchacua products

Figure 16-15 summarizes the main specifications and production of each concentrate and doré produced by Uchucchacua.

	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	

Figure 16-15: Typical specifications of Uchucchacua's concentrates

Note: A fraction of Uchucchacua´s "Cleaner" concentrate is sent to Río Seco plant in order to process it further and obtain the "Lixiviado" or leached material with low manganese content.

Source: (Buenaventura, 2021)

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:

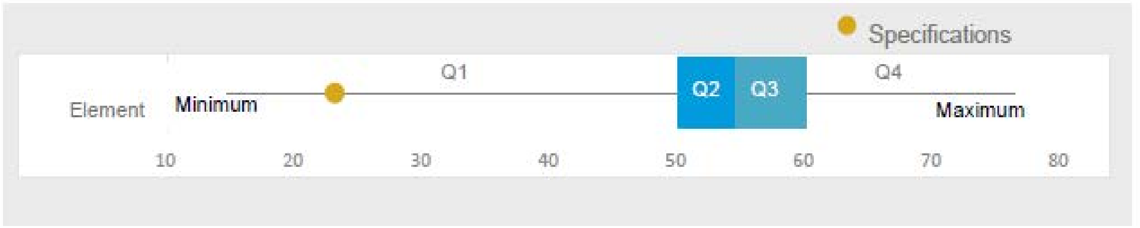


Figure 16-16: Sample boxplot

Source: (CRU, 2022)

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.

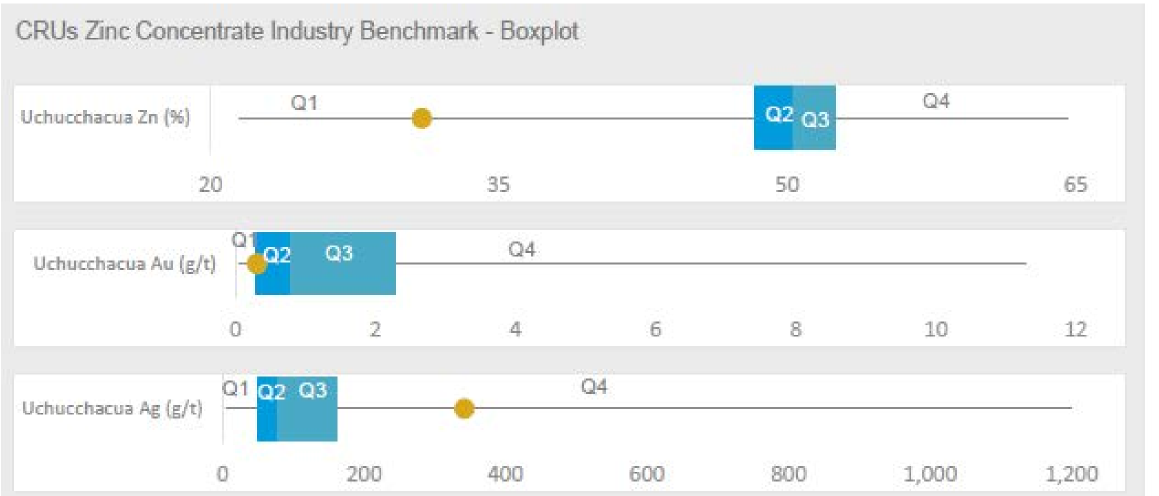


Figure 16-17: Zn concentrate of Uchucchacua mine

Note: Three mines have an Ag grade of over 1,200 g/t. They were omitted for graphic purposes.

Source: (CRU, 2022)

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 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 Río Seco plant for further processing, and the resulting material is called "lixiviado" or leached material with low manganese content. This product is also analyzed 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 16-18: Pb concentrate of Uchucchacua mine (1/2)

Source: (CRU, 2022)

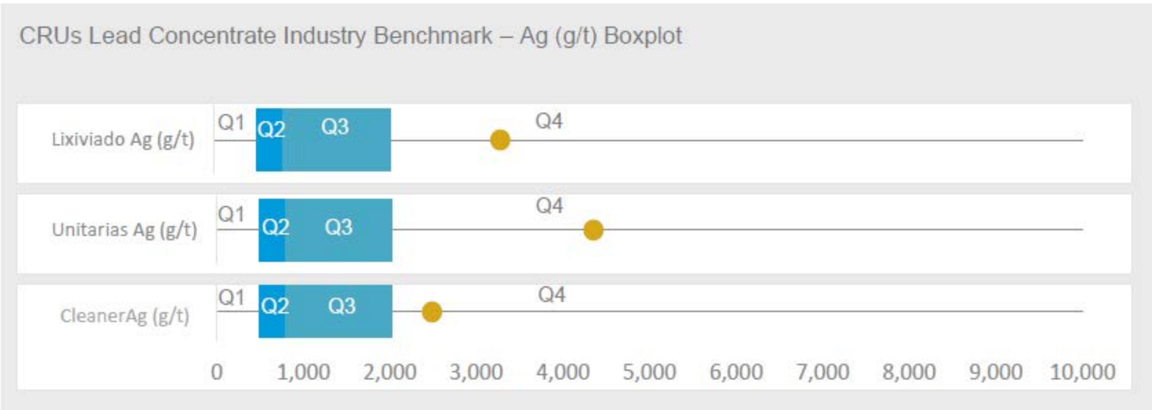


Figure 16-19: Pb concentrate of Uchucchacua mine (2/2)

Source: (CRU, 2022)

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 Río 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.

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 of Uchucchacua's production of its "lixiviado" material for 2024, under existing trader contracts. Conversations with current buyers are ongoing and future production is likely to be secured when the time comes.

17 Environment and Closure Plan

For the purposes of this report, the Uchucchacua Mining Unit of Buenaventura is comprised of:

1. The Current Mine and Processing Plant,
2. Yumpag Mining Project and
3. Río Seco Industrial Processor.

17.1 Environment

The Uchucchacua Mining Unit has provided documentation indicating that it has complied with requirements relative to the environmental standards, permits and legal norms as set forth by the Peruvian authority (R.D. 637-2014-MEM-DGAAM).

The activities conducted at the Mine and the Processing Plant, as well as those associated with the Yumpaq Project, are regulated by the norms stipulated by the Ministry of Energy and Mines (MINEM) of Peru and the environmental certification entity (SENACE). The activities performed at the Río Seco Industrial Processor are regulated by the Ministry of Production (PRODUCE) del Perú.

The Yumpag received approval of its Environmental Impact Study (EIA) from SENACE (Resolución Directoral N° 00120-2023-SENACE-PE/DEAR) on September 6, 2023. This project is currently in the process of obtaining permits for its Mining Operation from the Ministry of Energy and Mines (MINEM).

In the case of Río Seco Industrial Processor, SRK reviewed the “Update to the Environmental Impact Study of the manganese sulfate monohydrate production plant in Huaral,” which was approved by Resolución Directoral N° 180-2019- PRODUCE/ DVMYPE-I/DGAAMI on February 21, 2019. In August 2023, the company presented a Supporting Technical Report (ITS) to amend and expand the scope of reference for the plant’s auxiliary components, which increased storage space for exploration samples, equipment and materials, documents and uniforms; this document was approved on December 15, 2023 through Resolución Directoral Nº 00789-2023-PRODUCE/DGAAMI.

17.2 Closure Plan

To develop this section of the report, SRK reviewed a Technical Memorandum, dated March 5, 2022, which was prepared by a team led by Jeff Parshley (SRK). This report provides information on the progress that the company has made in implementing the recommendations of the aforementioned Memorandum.

The closure plan was approved by the Peruvian authority through R.D. N° 123-2009-MEM-AAM, while the current progressive closure plan was approved by R.D. N ° 142-2017-MEM / DGAAM. The last update to the Closure Plan (October 2020) was prepared by SNC Lavalin, and included two supporting technical reports, approved by R.D. No. 077-2017-SENACE / DCA y R.D. No. 056-2019-SENACE-PE / DEAR); these documents included additional components in the closure plan.

It is important to keep in mind that operations at the Uchucchacua Mining Unit (property of Compañía de Minas Buenaventura S.A.) were shut down by the company from October 15, 2021 to September 1st, 2023. During this period, operations focused solely on complying with the norms that are applicable under circumstances such as those affecting Uchucchacua and fulfilling corresponding commitments under the progressive closure plan.

The company has presented progress reports for the progressive closure plan to the Peruvian authority for assessment and determination of compliance. The activities covered in these reports correspond to monitoring and environmental oversight of water quality at the mine, plant and of external bodies of water.

The recommendations made in the Technical Memorandum presented by J. Parshley, dated March 5, 2022, focused on providing guidance to complete studies to comply with requirements for closure cost estimates for pre-feasibility studies as stipulated under SK-1300.

The aforementioned recommendations focused on the current closure plan for the mine and plant, which has been approved by the Peruvian authority. At the point of time that J. Parshley conducted his review, Yumpaq was still in a preliminary stage; the Río Seco Processor, in turn, was not included in the scope of the review.

Given the status of the operating units mentioned in the previous paragraph, recommendations were directed at completing studies relative to closure of mine access activities; a study of hydrogeology and surface waters due to the high flows generated by this operations; monitoring of chemical elements (manganese) at stations and points, particularly relative to discharges into the environment and external water bodies; assessing potential requirements for water treatment plants; and evaluating the physical stability of tailings pits and dumps.

Progress in implementing the studies pinpointed in the recommendations could not be verified.

In the case of Yumpaq, the closure plan included in the EIA approved by the Peruvian authority on September 6, 2023 is currently in the conceptual stage and will need to be aligned with the recommendations in the prior SK-1300.

In terms of Río Seco, the closure plan included in the EIA approved the Peruvian authority on February 21, 2019 is in the conceptual stage and will also need to be aligned with the prior SK-1300.

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 2019 to 2021, including a detailed analysis of the cost database and compilation of costs for forecast estimation. There is no historical cost information between 2022 and 2023, given that activities at the mining unit have been suspended;
- 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	Estimated cost * (Inc. 10% Conting)
Mining Uchucchacua		
Bench & Fill (B&F)	US$ / t ore	53.48
OCF Breasting (Mechanized)	US$ / t ore	67.53
OCF Breasting (Semi-Mechanized)	US$ / t ore	74.32
OCF Realce/Circado (Mechanized)	US$ / t ore	77.53
OCF Realce/Circado (Captive)	US$ / t ore	87.25
Mining Yumpag		
Over Drift & Fill (ODF)	US$ / t ore	58.76
Bench & Fill (B&F)	US$ / t ore	61.13
Overhand Sublevel Stoping (SARC) **	US$ / t ore	62.03
Services		
Uchucchacua	US$ / t ore	22.94
Yumpag	US$ / t ore	59.59
Plant Processing		

Item **	Units	Estimated cost * (Inc. 10% Conting)
Plant (Uchucchacua and Yumpag)	US$ / t processed	12.07
G&A Mine Operations		
Uchucchacua	US$ / t processed	5.22
Yumpag	US$ / t processed	5.22
Sustaining CAPEX		
Processing	US$ / t processed	13.71
Off Site Cost (Corporate) ***	US$ / t processed	1.21

* Contingencies: item considers 10% of the sum of the costs of Mine, Plant, Services and Sustaining CAPEX.

** 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.

Source: (Buenaventura, 2023)

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; however, Buenaventura does not apply it to the CAPEX of the Río Seco plant.

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 + Yumpag (MUS$)**	**Río Seco Plant ** (MUS$)**
2024	52.39	2.71
2025	26.23	0.72
2026	17.97	0.72
2027	3.43	0.40
2028	-	0.30
Total	**100.03**	**4.85**

* It does include contingency (15%)

** Corresponds to the capital costs of the Río Seco manganese treatment plant, Buenaventura does not apply the 15% contingency to this cost.

Source: (Buenaventura, 2023)

18.1.3 Closure Costs

Buenaventura 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. These costs are subject to selling taxes (IGV) of 18%. These apply from the year 2039. Compañía de Minas Buenaventura is a single company name with several operations; a single IGV declaration is made for the entire company and that tax can be recovered from closure costs, as long as there are sales in other units.

The total closure cost distributed up to the year 2051 is 83.64 M US$, includes contingency and selling taxes (S.T.). 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		Cont.	S.T.
	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	Direct (M US$)	Indirect (M US$)	CAPEX (M US$)	OPEX (M US$)	15%	18%
2024	2.99	0.52							0.53	
2025	2.99	0.52							0.53	
2026	2.99	0.52							0.53	
2027	2.99	0.52							0.53	
2028	2.99	0.52							0.53	
2029			2.99	1.58			4.78		1.40	
2030			2.99	1.58			4.78		1.40	
2031			2.99	1.58			4.78		1.40	
2032			2.99	1.58	0.02	0.01		2.50	1.07	
2033			2.99	1.58	0.02	0.01		2.50	1.07	
2034					0.02	0.01		2.50	0.38	
2035					0.02	0.01		2.50	0.38	
2036					0.02	0.01		2.50	0.38	
2037					0.02	0.01		2.50	0.38	
2038					0.02	0.01		0.45	0.07	
2039					0.02	0.01		0.45	0.07	0.10
2040					0.02	0.01		0.45	0.07	0.10
2041					0.02	0.01		0.45	0.07	0.10
2042					0.02	0.01		0.02	0.01	0.01
2043					0.02	0.01		0.02	0.01	0.01
2044					0.02	0.01		0.02	0.01	0.01
2045					0.02	0.01		0.02	0.01	0.01
2046					0.02	0.01		0.02	0.01	0.01
2047					0.02	0.01		0.02	0.01	0.01
2048					0.02	0.01		0.02	0.01	0.01

Year	Progressive closure		Final Closure		Post Closure		Water treatment		Cont.	S.T.
2049					0.02	0.01		0.02	0.01	0.01
2050					0.02	0.01		0.02	0.01	0.01
2051					0.02	0.01		0.02	0.01	0.01
Total	**14.96**	**2.58**	**14.96**	**7.91**	**0.44**	**0.18**	**14.34**	**17.00**	**10.86**	**0.40**

Source: (Buenaventura, 2023)

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, conditions on future operations will be similar to those found in current operations.

The following premises and criteria were considered for the operating cost estimation:

- A 2019-2021 cost database was used for the forecast cost estimation because activity was halted at the mining unit from September 2021 to October 2023;
- A non-inflation rate was considered in the cost estimation;
- There are no royalties applicable to the Uchucchacua mining operaton;
- Exploration costs related to brownfield targets are not included in the operating cost estimation;
- Differentiated costs for Uchucchacua and Yumpag were estimated;
- Cost estimations are based on the mine plan and mining method used to operate in 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	t/d	3,100
Plant Capacity		
Circuit 1 (High Mn)	t/d	3,000
Circuit 2	t/d	1,200

Source: (Buenaventura, 2023)

18.2.2 Basis and Premises for capital cost

The following premises and criteria were considered for the capital cost estimation:

- Yumpag´s capital cost for 2024 is 36.0 MUS$ and included: mine, energy, water, infrastructure and assets, without contingency.

According to references from Buenaventura, the estimated capital cost included expenses associated with:

- 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 and Yumpag's ore reserves on a real basis. This model was prepared on an annual basis from the effective date of mineral reserve estimation to the effective date projected for the exhaustion of mineral reserves. This section presents the main assumptions used in the cash flow model and the consequent indicative economics. The model's 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 is the case of forecasts for capital and operating costs, 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 operations.

According rules S-K 1300, all inputs to the economic analysis must be at least at a pre-feasibility level of confidence; have an accuracy level of ±25%; and a contingency range below 15%.

The financial analysis is based on an after-tax discount rate of 7.86%. All costs and prices are in unescalated "real" dollars expressed as Real US$ 2023. 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, 2024
Mine Life	5 years
Discount Rate	7.86%

Source: (Buenaventura, 2023)

The model continues after the 5th year to include the whole closure cost in the cash flow analysis.

Buenaventura set a discount rate of 7.86%.

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 previous analysis developed by CRU during 2021-2022 and complemented by consensus information from different banks and financial entities used by Buenaventura for its official price forecast (it is developed in the Market Study section of this report).

The financial model is based on Real 2023 US$ set price.

Table 19-2: Metal Prices forecast

Price	Unit	2023	2024	2025	2026	Long Term
Zn	USD/lb	1.21	1.21	1.22	1.24	1.19
Pb	USD/lb	0.95	0.94	0.94	0.94	0.94
Ag	USD/oz	23.62	23.85	23.52	23.02	22.60

Source: (Buenaventura, 2023)

Based on these projected prices, Buenaventura formalizes the finals considered for the estimation of mineral reserves:

- Silver: 23.00 US$/oz
- Lead: 2,100 US$/t
- Zinc: 2,600 US$/t

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 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

Life of Mine

Table 19-3: Uchucchacua Mining Plan

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	460,300	706,000	774,430	677,400	434,036	**3,052,166**
Ag grade (oz/t)	5.89	7.76	9.33	10.67	8.51	**8.63**
Pb grade (%)	3.33	2.39	1.54	1.47	1.44	**1.97**
Zn grade (%)	4.77	3.76	2.69	2.22	3.31	**3.24**
Mn grade (%)	1.65	3.23	5.47	7.31	4.64	**4.67**

Source: (Buenaventura, 2023)

Table 19-4: Yumpag Mining Plan

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	335,792	423,600	355,170	452,200	703,492	**2,270,254**
Ag grade (oz/t)	25.91	22.75	18.43	21.18	21.94	**21.98**
Pb grade (%)	0.63	0.53	0.43	0.59	0.49	**0.53**
Zn grade (%)	1.17	0.98	0.75	0.67	0.62	**0.80**
Mn grade (%)	16.53	17.69	15.39	6.27	7.15	**11.62**

Source: (Buenaventura, 2023)

Table 19-5: Uchucchacua + Yumpag Mining Plan

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	796,092	1,129,600	1,129,600	1,129,600	1,137,528	**5,322,420**
Ag grade (oz/t)	14.33	13.39	12.19	14.88	16.82	**14.32**
Pb grade (%)	2.19	1.69	1.19	1.12	0.85	**1.36**
Zn grade (%)	3.25	2.72	2.08	1.60	1.65	**2.20**
Mn grade (%)	7.93	8.66	8.59	6.89	6.19	**7.63**

Source: (Buenaventura, 2023)

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 19-6. 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 19-6: Indicative Economic Results

	Units	Value
LOM Cash Flow (Unfinanced)		
Total Net Sales	M US$	1,494.32
Total Operating cost	M US$	777.14
Total Operating Income	M US$	453.39
Income Taxes Paid	M US$	57.53
EBITDA		
Free Cash Flow	M US$	667.84
NPV @ 7.86%	M US$	524.46
After Tax		
Free Cash Flow	M US$	397.62
NPV @ 7.86%	M US$	319.79

Source: (Buenaventura, 2023)

Table 19-7: Cashflow Analysis on an Annualized Basis

Operational Indicators	2024	2025	2026	2027	2028
Ore Treated	796,092	1,129,600	1,129,600	1,129,600	1,137,528
Pb Head Grade (%)	2.19	1.69	1.19	1.12	0.85
Ag Head Grade (oz/tm)	14.33	13.39	12.19	14.88	16.82
Ag Fines (oz)	**11,409,639**	**15,120,482**	**13,773,451**	**16,807,229**	**19,128,116**
Operating Cost (US$/tm)	**181.2**	**145.69**	**153.64**	**144.04**	**116.09**
Mine Cost (US$/tm)	89.68	80.9	88.44	78.53	50.73
Plant Cost (US$/tm)	23.4	18.32	18.5	18.58	18.53
Services Cost (US$/tm)	68.12	46.48	46.7	46.93	46.83
D&A (US$/tm)	41.33	38.41	43.05	46.23	46.51
P&L (kUS$)	**2024**	**2025**	**2026**	**2027**	**2028**
Net Sales	252,812	320,547	265,068	307,388	348,507
Other Income (Lixiviation Río Seco)	6,953	6,953	6,953	6,953	6,953
Other Income (Mn Sulfate Río Seco)	11,164	12,128	11,271	11,292	10,853
Total Income	**270,929**	**339,628**	**283,292**	**325,633**	**366,313**
- Mine	-71,391	-91,383	-99,898	-88,710	-57,703
- Plant	-18,630	-20,689	-20,898	-20,984	-21,084
- Services (Includes Lixiviation at Río Seco)	-54,231	-52,502	-52,757	-53,012	-53,266
Operating Cost	**-144,252**	**-164,574**	**-173,552**	**-162,705**	**-132,054**
D&A Uchucchacua	**-32,904**	**-43,383**	**-48,628**	**-52,224**	**-52,910**
- Mn Sulfate Cost	-9,072	-9,855	-9,159	-9,176	-8,819
Operating Cost (Río Seco)	**-9,072**	**-9,855**	**-9,159**	**-9,176**	**-8,819**
D&A (Río Seco)	**-2,768**	**-2,768**	**-2,768**	**-2,768**	**-2,768**
Gross Income	**81,933**	**119,048**	**49,184**	**98,759**	**169,762**
Selling Expenses	-3,939	-5,943	-5,579	-5,728	-5,176
G&A	-4,154	-5,895	-5,895	-5,895	-5,936
Other Costs (Río Seco)	-1,283	-2,498	-2,464	-2,465	-2,448
Operating Income	**72,557**	**104,712**	**35,246**	**84,671**	**156,202**
Royalties	-4,432	-6,112	-3,391	-5,261	-10,247
FCF (kUS$)	**2024**	**2025**	**2026**	**2027**	**2028**
EBITDA	**103,797**	**144,752**	**83,252**	**134,402**	**201,634**
Workers Participation	-2,725	-3,944	-1,274	-3,176	-5,838
Income Tax	-9,245	-13,380	-4,323	-10,776	-19,806
Taxes Río Seco	-1,755	-	-	-4,130	-1,325
CAPEX	**-52,394**	**-26,228**	**-17,979**	**-3,427**	**-**
CAPEX (Río Seco)	**-2,712**	**-720**	**-720**	**-400**	**-300**
Mine Closure	**-4,034**	**-4,034**	**-4,034**	**-4,034**	**-4,034**

Operational Indicators	2024	2025	2026	2027	2028
Free Cash Flow (kUS$)*	**30,932**	**96,445**	**54,922**	**108,459**	**170,330**

NPV @7.86%	**319,788**

*** Cash flow and NPV calculation consider amounts up to 2051 to represent the post-closure period.

Source: (Buenaventura, 2023)

Details of closure costs after 2028 can be found in Table Closure Costs (Section 18).

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, y otros, 2009). Mines with similar geological and mineralization characteristics are currently in production in the vicinity of the Uchucchacua Mining Unit.

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 operation mines and processes copper, lead, silver and zinc concentrates. Currently, Raura has a treatment capacity of 2,880 tons per day (t/d), and an underground exploitation program of 48,000 tons per month.
- Iscaycruz is a polymetallic deposit located at an altitude of 4,700 masl, in the district of Pachangara, province of Oyón, department of Lima. Four mines in this area are currently mining ore to produce zinc, lead and to a lesser extent, copper concentrates: Limpe, Chupa, Tinyag 1, and Tinyag 2.

21 Other relevant data and information

This Chapter is not relevant to this Report.

22 Interpretation and conclusions

22.1 Geology and Mineralization

- 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 intrusive 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 intrusive.
- Yumpag area 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.

22.1.1 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.

22.1.2 Yumpag

- SRK has used relevant and available data sources to accompany to 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.

22.2 Sample Preparation, Analysis and Security

22.2.1 Uchucchacua

- SRK conducted a comprehensive review of available QA/QC data from 2021 – 2023 period and believes that QA/QC protocols are consistent with the best practices accepted in the industry. SRK is of the opinion that sample preparation, chemical analysis, quality control, and the security procedures from 2021 – 2023 samples are sufficient to provide reliable data to support the mineral resource estimation and mineral reserve estimation and considers that quality control evaluation results have improved in comparison to the results obtained in the previous SEC Technical Report Summary Pre-Feasibility Study of the Uchucchacua mining unit (SRK, 2022).
- SRK finds that the insertion rate of control samples for drillhole and channel samples in 2021 – 2023 period were adequate.
- SRK believes that there is no evidence of significant contamination for Ag, Fe, Mn, Pb and Zn.
- Overall, SRK believes there is good precision in sampling, sub-sampling, and analytical processes for drillhole and channel samples.
- The bias evaluation results from SRMs showed that analytical accuracy for Ag, Pb and Zn is within acceptable limits. Accuracy evaluation results from drillholes samples analyzed at Certimin laboratory are better than drillhole and channel samples analyzed at Uchucchacua internal laboratory.
- In the external control samples evaluation, inter-laboratory bias results for Ag, Pb, Zn and Fe from drillhole and channel samples (SGS vs Uchucchacua, SGS vs Certimin and Certimin vs Uchucchacua) are acceptable when outliers were excluded. In the case of Mn, the inter-laboratory bias results (SGS vs Uchucchacua and SGS vs Certimin) are not within acceptable limits.
- SRK considers that the results of quality control evaluation from drillhole and channel samples in 2021 – 2023 period do not represent a risk to the mineral resource estimate.

22.2.2 Yumpag

- SRK conducted a comprehensive review of available QA/QC data from 2021 – 2023 period and believes that QA/QC protocols are consistent with the practices accepted in the industry. SRK is of the opinion that sample preparation, chemical analysis, quality control, and the security procedures from 2021 – 2023 samples are sufficient to provide reliable data to support the mineral resource estimation and mineral reserve estimation.
- SRK finds that the insertion rate for control samples from 2021 - 2023 period should improve and align with Buenaventura's Quality Control Protocol (2020) and best practices in the industry; this entails increasing the insertion of pulp blanks, pulp duplicates, low, medium and high-grade standards and external control samples.
- SRK found that there is no evidence of significant contamination for Ag, Fe, Mn, Pb and Zn in drillhole samples.
- SRK found that sampling, sub-sampling and analytical precision were good for Certimin and Uchucchacua laboratories.

- The bias evaluation results from SRMs showed that analytical accuracy for Ag, Pb, and Zn in Certimin and Uchucchacua were within acceptable limits.
- SRK found that inter-laboratory bias results (SGS versus Certimin) were within acceptable limits for Ag, Fe, Mn, Pb, and Zn.
- SRK believes that the results of quality control evaluation from 2021 – 2023 drilling campaigns do not represent a risk to the mineral resource estimate for the Yumpag Project.

22.3 Database Verification

- SRK found that Uchucchacua Mine and Yumpag Project databases had only minor findings that correspond mainly to historical data.
- SRK considers that mining channels and drillholes samples databases from the Uchucchacua Mine and Yumpag Project to be consistent and acceptable for the mineral resources estimate.

22.3.1 Mineral Resource Estimation

Uchucchacua

- The mineral resources have been estimated by 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.

22.3.2 Yumpag

- The mineral resources have been estimated by 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.

22.4 Mineral Reserve Estimation

- Mineral reserves effective date is December 31st, 2023.
- Based on available technical studies and information provided by Buenaventura, no fatal flaw is present. In the QP's opinion, the mineral reserves estimation is reasonable.

Table 22-1: Uchucchacua Underground Summary Mineral Reserve Statement as of December 31st, 2023

Mining Method	Confidence Category	Tonnage (t)	Silver Grade (oz/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)
Uchucchacua Bench & Fill	Proven	267,305	6.43	2.35	3.87	2.48
	Probable	1,796,815	6.42	2.39	4.15	2.65
	Sub-total Proven & Probable	2,064,120	6.42	2.38	4.12	2.63
Uchucchacua Overhand Cut & Fill OCF_RM *	Proven	211,447	14.33	1.08	1.37	9.34
	Probable	613,081	13.22	1.14	1.47	7.45
	Sub-total Proven & Probable	824,528	13.51	1.12	1.45	7.94
Uchucchacua Overhand Cut & Fill OCF_RC **	Proven	31,134	12.1	2.22	2.24	4.2
	Probable	43,757	12.24	1.76	1.83	3.66
	Sub-total Proven & Probable	74,891	12.18	1.95	2	3.88
Uchucchacua Overhand Cut & Fill OCF_BM ***	Proven	6,186	10.28	0.36	0.38	34.11
	Probable	58,765	11.03	0.24	0.29	27.39
	Sub-total Proven & Probable	64,951	10.96	0.25	0.3	28.03
Uchucchacua Overhand Cut & Fill OCF_BSM ****	Proven	-	-	-	-	-
	Probable	23,676	13.94	0.79	0.92	6.99
	Sub-total Proven & Probable	23,676	13.94	0.79	0.92	6.99
Yumpag Bench & Fill	Proven	811	20.87	0.37	0.82	22.75
	Probable	137,852	17.05	0.28	0.53	10.97
	Sub-total Proven & Probable	138,663	17.07	0.28	0.53	11.04
Yumpag Overhand Drift & Fill	Proven	21,495	20.23	0.38	0.56	21.57
	Probable	43,484	15.9	0.36	0.73	16.03
	Sub-total Proven & Probable	64,979	17.33	0.36	0.67	17.86
Yumpag Sub Level Stoping	Proven	109,414	16.31	0.38	0.81	17.63
	Probable	1,957,199	22.8	0.56	0.82	11.12

Mining Method	Confidence Category	Tonnage (t)	Silver Grade (oz/t)	Lead Grade (%)	Zinc Grade (%)	Manganese Grade (%)
	Sub-total Proven & Probable	2,066,613	22.45	0.55	0.82	11.46
TOTAL	Proven	647,791	11.46	1.51	2.31	8.32
	Probable	4,674,629	14.72	1.34	2.18	7.54
	Sub-total Proven & Probable	5,322,420	14.32	1.36	2.2	7.63

(*) OCF Realce/Circado (Mechanized) Mukif 10'

(**) OCF Realce/Circado (Captive) Stoper 8'

(***) OCF Breasting (Mechanized) Jumbo

(****) OCF Breasting (Semi-Mechanized) Jackleg

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

[7] The reference point for the mineral reserve estimate is the point of delivery to the process plant.

[8] Mineral reserves are current as of December 31st, 2023 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.

[9] Key parameters used in mineral reserves estimate include:

a) Average lon- term prices of silver price of 23.00 US$/oz, lead price of 2,100 US$/t, zinc price of 2,600 US$/t
b) Variable metallurgical recoveries are accounted for in the NSR calculations and defined according to recovery functions, which average recoveries are 86% for silver, 92% for lead and 79% for zinc for the Uchucchacua zone. While for the Yumpag area, silver recovery reaches 85% on average.
c) Mineral reserves are reported above a marginal net smelter return cut-off of:
   - Uchucchacua Zone: 58.84 US$/t for bench & fill; 75.42 US$/t for OCF Breasting (Mechanized); 82.89 US$/t for OCF Breasting (Semi-Mechanized); 86.43 US$/t for OCF Realce (Mechanized) and 97.11 US$/t for OCF Realce (Captive) mining methods;
   - Yumpag Zone: 111.09 US$/t for overhand drift & fill, 113.70 US$/t for bench & fill and 114.70 US$/t for sublevel stoping (SARC) 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.

[10] Mineral reserves tonnage, grades and contained metal have been rounded and as such, numbers may not add up exactly to the same figure found in the table above.

Source: (Buenaventura, 2023)

22.5 Mining Methods

It should be noted that Yumpag is a mining unit within the Uchucchacua Mine Unit. Yumpag is located 1 km northeast of Uchucchacua's current operations.

The considerations that Buenaventura used to determine mining methods for both Uchucchacua and Yumpag, differ for each. The following descriptions will discuss these considerations separately by area. SRK believes that the mining methods used for exploitation are both mines are adequate.

Uchucchacua is an operating mine that uses conventional underground methods to extract mineral reserves. The underground mining methods used are:

- Uchucchacua Zone; Bench & Fill (B&F) and Overhand Cut & Fill (OCF). The latter employs the following variants: Breasting (Mechanized) Jumbo, Breasting (Semi-Mechanized) Jackleg, Realce/Circado (Mechanized)[7] Mukif 10' and Realce/Circado (Captive) [8]Stoper 8'.
- Yumpag Zone; Over Drift & Fill (ODF), Bench & Fill (B&F) and Overhand Sublevel Stoping (SARC).

According to the estimated reserves as of December 2023, the LOM is five years.

Table 22-2: Uchucchacua Mine - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	460,300	706,000	774,430	677,400	434,036	**3,052,166**
Ag grade (oz/t)	5.89	7.76	9.33	10.67	8.51	**8.63**
Pb grade (%)	3.33	2.39	1.54	1.47	1.44	**1.97**
Zn grade (%)	4.77	3.76	2.69	2.22	3.31	**3.24**
Mn grade (%)	1.65	3.23	5.47	7.31	4.64	**4.67**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	365	365	366	**1,827**
Treatment Days	354	353	353	353	354	**1,767**
Plant Shutdown	12	12	12	12	12	**60**
Treatment per day	1,300	2,000	2,194	1,919	1,226	

Source: (Buenaventura, 2023)

Table 22-3: Yumpag Mine - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	335,792	423,600	355,170	452,200	703,492	**2,270,254**
Ag grade (oz/t)	25.91	22.75	18.43	21.18	21.94	**21.98**
Pb grade (%)	0.63	0.53	0.43	0.59	0.49	**0.53**
Zn grade (%)	1.17	0.98	0.75	0.67	0.62	**0.8**
Mn grade (%)	16.53	17.69	15.39	6.27	7.15	**11.62**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	308	275	366	**1,680**
Treatment Days	354	353	296	266	354	**1,623**
Plant Shutdown	12	12	12	9	12	**57**
Treatment per day	949	1,200	1,200	1,700	1,987	

Source: (Buenaventura, 2023)

[7] This mining method is a variant of "overhand cut and fill" which consists of Drilling is carried out on elevation with jumbo electro-hydraulic rigs.

[8] In this variant, mining is semi-mechanized with captive equipment; drilling is carried out on elevation with stoper-type equipment.

Table 22-4: Uchucchacua + Yumpag Mines - LOM

Description	2024	2025	2026	2027	2028	Total
Ore treated (t)	796,092	1,129,600	1,129,600	1,129,600	1,137,528	**5,322,420**
Ag grade (oz/t)	14.33	13.39	12.19	14.88	16.82	**14.32**
Pb grade (%)	2.19	1.69	1.19	1.12	0.85	**1.36**
Zn grade (%)	3.25	2.72	2.08	1.6	1.65	**2.2**
Mn grade (%)	7.93	8.66	8.59	6.89	6.19	**7.63**
Calendar days	366	365	365	365	366	**1,827**
Production days	366	365	365	365	366	**1,827**
Treatment Days	265	353	353	353	350	**1,675**
Plant Shutdown	12	12	12	12	12	**60**
Treatment per day	3,000	3,200	3,200	3,200	3,248	

Source: (Buenaventura, 2023)

Table 22-5: Development and preparation works - Uchucchacua LOM

Work (m)	2024	2025	2026	2027	2028	Total
Development	-	342	342	342	114	**1,140**
Preparation	12,075	17,635	17,609	17,472	4,135	**68,926**
Exploration	1,380	2,000	2,000	2,000	2,000	**9,380**
Total advances	13,455	19,977	19,951	19,814	6,249	**79,446**
RB (m)	320	-	-	-	-	**320**

Source: (Buenaventura, 2023)

Table 22-6: Development and preparation works - Yumpag LOM

Work (m)	2024	2025	2026	2027	2028	Total
Development	794	777	1,400	821	215	**4,007**
Preparation	5,290	4,725	7,460	2,632	-	**20,106**
Exploration	-	-	8	1,133	842	**1,983**
Total advances	6,084	5,502	8,869	4,586	1,056	**26,097**
RB (m)	125	199	347	319	-	**991**

Source: (Buenaventura, 2023)

22.6 Processing and Recovery Methods

In 2021, drillholes YUM21-198 and YUM21-199 in the Tomasa deposit were used to produce four (4) composite samples for metallurgical testing. The results were evaluated along with information on the geochemistry, geology, mineralogy, and geomechanics of the Tomasa deposit. The respective tests were carried out in the Plenge laboratory (Lima, Peru).

SRK has found that the samples tested suggest that the Tomasa deposit is amenable to flotation processing. The high manganese content in some samples suggests that some of the final concentrates will require further reprocessing at the Río Seco refinery to achieve commercial quality and/or to maximize sale value. Tomasa's testing results are comparable to those found for the Camila structure.

Therefore, the metallurgical recovery mathematical formulas used for Camila (Yumpag area) are also applicable to the Tomasa deposit.

22.7 Infrastructure

22.7.1 Waste rock facilities- Uchucchacua

- 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. The facility's design extends over 1.44 hectares and has storage capacity for 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 and 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). The facility's 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.

  Detailed engineering for the facility was conducted by OM Ingeniería y Laboratorio (OM) in 2014. In this case, the facility extended over 4 hectares; had a storage capacity of 567,000 m^3 and an estimated useful life of 4 months.

- Uchucchacua Lvl 600 is similar in configuration to the 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. In this case, the facility extended over 1 Ha; had a storage capacity of 48,800 m^3 of waste rock; and an estimated useful life of 2 months.

22.7.2 Waste rock facility – Yumpag

- Currently, the Yumpag sterile material deposit (DME) has an approved cumulative capacity of 549,000 m^3 for exploration. The assessment for DME expansion indicates that the disposal area for sterile material will entail no more than a 20% increase in the area approved for the DME.

22.7.3 Tailings

Buenaventura has been granted a construction permit allowing to raise the dams up to 4,416.0 meters above sea level (masl). Plans were in place to proceed with dam elevation, but in October 15, 2021, Buenaventura suspended activities at the Uchucchacua Unit until September 2023 due to disputes with local communities.

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, the objective is to eventually reach an 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. Expansion will increase the operation’s capacity to receive larger amounts of reserves. At the end of the operation, the final capacity of Tailings Dam 3 will be 26.27 Mt. The estimated density of conventional tailings stands at 1.26 t/m^3, while thickened tailings are expected to situate at 1.6 t/m^3; discharge of thickened tailings will begin in 2024.

22.8 Market Studies

The market study is based on the previous evaluation carried out by CRU, in the years 2021 and 2022, and has been complemented with consensus information from several banks and financial institutions; Buenaventura relies on these entities to develop its official projections for commodity prices. SRK believes that the current price predictions provided by Buenaventura are reasonable.

The projected prices, long-term, are: Zn 1.19 US$/lb, Pb 0.94 US$/lb and Ag 22.60 US$/oz.

22.9 Capital and operating costs

Operation and capital costs, according to good industry practices, must consider contingency percentages in their structure to cover any unpredictable factors. This is even more important when assessments to determine values are not at the pre-feasibility level. SRK believes that it is reasonable for Uchucchacua to use the following factors in its cost calculations:

- OPEX: 10%
- CAPEX: 15
- Closure costs: 15%

23 Recommendations

Uchucchacua is a mining unit that restarts operations after 2 years of shutdown, and in this scenario, it has not been able to optimally develop all the recommendations made by SRK in the audit of mineral reserves as of December 2021; However, they have made important efforts for this new stage. Below, the recommendations in this chapter subscribe to this scenario.

23.1 Sample Preparation, Analysis and Security

- In Uchucchacua Mine, SRK recommends that in the future the number of SRMs used be limited (three or four at the most during the same period) as the use of multiple SRMs makes it difficult to evaluate accuracy.
- In Yumpag Project, SRK recommends that Buenaventura increase the insertion rate of pulp blanks, pulp duplicates, standards, and external control samples, as established in its Quality Control Protocol (2020). Sending external control samples to the secondary laboratory must include a review of the granulometry in 10% of the samples, as well as the insertion of pulp blanks and SRMs in said lots.
- SRK suggests frequently reviewing the behavior of the quality control results and informing the laboratory about any problems detected to opportunely establish corrective measures.

23.2 Data Verification

- SRK recommends that Buenaventura periodically monitor and/or review drillhole recovery results. SRK considers a recovery percentage greater than 90% acceptable.
- SRK recommends that the minimum and maximum drillhole sampling length indicated in the Buenaventura Sampling Protocol (2020) be respected in future drilling campaigns.
- SRK recommends in future drilling programs, bulk density sampling to be performed in all drillholes and areas that are important for mineral resource estimation.
- SRK recommends that the number of decimal places assigned in the database and those indicated in the laboratories' certificates of analysis coincide (given that this reflects the precision of the methods used by each laboratory).
- SRK suggests frequently reviewing and validating the control sample database and checking that duplicates and external control samples are correctly associated with the corresponding primary samples.

23.3 Geological and Mineral Resources

23.3.1 Uchucchacua

- SRK recommends developing a detailed geological and structural model to further support the geological modeling of the deposit.
- Not all structures have bulk density information, SRK recommends that systematic density sampling programs be carried out that cover all veins, appropriately distributed along and up the veins.

- The QAQC results throughout the life of the mine have not been optimal, SRK recommends continuing to carry out an adequate quality control program as in the last two years, the inadequate results in previous years generated the non-declaration of measured resources in some veins.
- In SRK's opinion, it is necessary to implement a Minzone model with the objective of identifying areas with potential problems due to high Mn contents and optimizing geo-mining-metallurgical planning.
- SRK recommends implementing a reconciliation program that includes the different types of mineral resource models, reserves, mine plans and plant results.

23.3.2 Yumpag

- SRK recommends developing a detailed structural model to further support the geological modeling of the reservoir.
- Bulk density information for mineral resource estimation was insufficient; SRK recommends that systematic density sampling programs be carried out for all structures assessed and density estimates be made in future mineral resource updates.
- SRK recommends implementing a reconciliation program that includes the different types of mineral resource models, reserves, mine plans and plant results.

23.4 Mining and Mineral Reserve Estimation

Uchucchacua is a mining unit that restarted operations after a 2-yr shutdown. As such, Buenaventura has not been in the position to optimally develop all the recommendations made by SRK in its audit of mineral reserves as of December 2021. Nonetheless, the company is engaged in implementing recommendations as it begins a new operating phase. It is important to note that recommendations that follow have been made with the impact of the shutdown in mind.

- 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 of mine operations: geology, mine planning and processing plant under an structured plan of implementation.
- Geotechnical monitoring of underground operations and implement feedback process to incorporate the monitoring results into the geotechnical model used for underground design purposes.
- Continue with studies in the Tomasa body area, to consolidate its contribution to the reserves through studies relative to geomechanics, hydrogeology, and metallurgical recovery.

23.5 Processing and Recovery Methods

- The number of test results for the Tomasa deposit is preliminary, limited and not optimized; however, the available results are positive, suggesting acceptable mineralization for conventional flotation concentration. Metallurgical testing assays must include the complete set of base metals, precious metals and harmful elements.
- A good practice that will facilitate timely evaluation of business potential would be to execute metallurgical tests immediately after the release of DDH geochemical data.
- Some repairs to the plant were carried out between the months of April and August 2023 and operations began in September 2023. Among the repairs, Circuit 1 and some cells of Circuit 2 were activated with a total investment of one million dollars. A treatment capacity of 3,000 tpd was achieved. SRK's main recommendation in the last audit, however, entailed comprehensive remodeling with an investment investment of 5-10 million dollars. Buenaventura must continue efforts to achieve improvements at the processing plant.

23.6 Market Studies

The commodity prices projected by Buenaventura are based on the analysis previously developed by CRU in the years 2021 and 2022 and on consensus information from different banks and financial entities such as: JP Morgan, Deutsche Bank, Morgan Stanley, BNP Paribas, BMO. SRK finds the projection reasonable but strongly recommends updating the market study in the short-term to match the detail found in the CRU report.

23.7 Environment and Closure Plan

In the last audit carried out by SRK in 2022, the main recommendations focused on the Mine and Plant Closure Plan. Both were approved by the Peruvian authority and entailed studies related to:

- Closure of mine access activities.
- Study of hydrogeology and surface waters, due to the high flows generated by these operations.
- Monitoring of chemical elements (manganese) at stations and points, in particular in relation to discharges into the environment and external water bodies.
- Evaluation of potential requirements for water treatment plants.
- Study the physical stability of waste rock and tailings deposits.

It has not been possible to verify the progress that has been made in implementing these studies. SRK recommends, in the short term, implementing the aforementioned studies.

In the case of Yumpag and Río Seco, the closure plans included in their EIS are currently at a conceptual level. SRK urges Buenaventura to align plans with the requirements set by S-K1300.

23.8 Capital and Operating Costs, and Economic Analysis

- Additional technical studies for the mine closure process should be developed to improve the accuracy of the estimation of capital and operating costs. SRK believes there are opportunities to improve the integrity of these costs, supported by technical studies.
- Contingencies in a cost structure help cover unforeseen expenses. Although the CAPEX, OPEX and closure costs include this contingency, this is not the case with Río Seco's capital costs. SRK believes that in future economic evaluations, a contingency should be included in Río Seco’s capital cost calculation.
- Additional support for traceability of cash flow input values.

24 References

BISA. (2018). *Cartografiado Geológico-Estructural superficial de la mina Uchucchacua y alrededores.*

Bissig, T., Clark, A. H., Rainbow, A., & Montgomery, A. (March de 2015). Physiographic and tectonic settings of high-sulfidation epithermal gold–silver deposits of the Andes and their controls on mineralizing processes. *Ore Geology Reviews, 65*, 327-364. doi:https://doi.org/10.1016/j.oregeorev.2014.09.027

Bissig, T., Ulrich, T. D., Tosdal, R. M., Friedman, R., & Ebert, S. (July de 2008). The time-space distribution of Eocene to Miocene magmatism in the central Peruvian polymetallic province and its metallogenetic implications. *Journal of South American Earth Sciences, 26*, 16-35. doi:https://doi.org/10.1016/j.jsames.2008.03.004

Buenaventura. (2021). *Deposit type, internal report.*

Buenaventura. (2021). *Geología del Yacimiento Minero de Uchucchacua. Reportes Internos.*

Buenaventura. (2021). *Internal Reports, History.*

Buenaventura. (2021). *Reporte de Sostenibilidad Ambiental 2020 - Unidad Minera Uchucchacua.*

Buenaventura. (2021). *Technical Report Yumpag-Carama. Internal Reports.*

Buenaventura. (2022). *Reporte de Sostenibilidad 2021.*

Bussell, A., Alpers, C., Petersen, U., Shepherd, T., Bermudez, C., & Baxter, A. (1990). The Ag-Mn-Pb-Zn Vein, Replacement, and Skarn Deposits of Uchucchacua, Peru: Studies of Structure, Mineralogy, Metal Zoning, Sr Isotopes, and Fluid Inclusion. *Economic Geology*, 1348-1383.

Bussell, M. A., & Wilson, C. D. (1985). A gravity traverse across the Coastal batholith of Peeru. *Journal of the Geological Society of London*, 633-641.

Carlotto, V., Quispe, J., Acosta, H., Rodríguez, R., Romero, D., Cerpa, L., . . . Cueva, E. (2009). Dominios geotectónicos y metalogénesis del Perú. *Sociedad Geológica del Perú SGP*, 1-89.

Cobbing, E. J., Pitcher, W. S., Wilson, J. J., Baldock, J., Taylor, W. P., McCourt, W. J., & Snelling, N. J. (1981). The geology of the Western Cordillera of Northern Peru. *Geological Society of London*, 143.

INGEMMET. (2021). *Plataforma digital única del Estado Peruano*. Obtenido de Concesiones Mineras: https://www.gob.pe/institucion/ingemmet/colecciones/1880-concesiones-mineras

Long, S. (2005). *Method of Reduction-to-Major-Axis (RMA). Discussion and References.* AMEC Mining & Metals: Internal Document.

Megard, F. (1984). The Andean orogenic period and its major structures in central and northern Peru. *Journal of the Geological Society*, 893-900.

MINAM. (2019). *Evaluación del Segundo Informe Técnico Sustentatorio de la Modificación del Estudio de Impacto Ambiental de la Unidad Económica Administrativa Uchucchacua presentado por Compañía de Minas Buenaventura S.A.A.*

Noble, D. C. (1980). *Potassium-argon determinations on rocks from Raura and Uchucchacua.* Lima, Perú.

Quispe, J., Carlotto, V., Acosta, J., Macharé, J., Chirif, H., Rivera, R., . . . Rodríguez, R. (2008). *Mapa Metalogenético del Perú 2008: Herramienta esencial para las exploraciones mineras.* Ingemmet.

Romaní, M. (1982). Géologie de la région miniére Uchucchacua. *Unpublished thesis*. France.

Romaní, M. (1983). Pulsaciones Magmáticas en la alta cordillera occidental entre 10°30' y 10°50' mineralogía, petrología y geoquímica. *Boletín Sociedad Geológica del Perú*, 323-337.

Scherrenberg, A. F. (2008). Structural framework of mineralisation, Marañón Fold-Thrust Belt, Perú. *Ph.D. thesis*. The University of Queensland.

Simón, A. (2004). *Evaluation of Twin and Duplicate Samples : The Hyperbolic Method.* AMEC Perú Ltda. Internal document.

SRK. (2017). *Elaboración del Modelo Geológico Estructural de la Unidad Minera Uchucchacua.*

SRK. (2022). *SEC Technical Report Summary Pre-Feasibility Study of the Uchucchacua mining unit.* Lima, Perú.

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.