FORTUNA
SILVER MINES INC.

Fortuna Silver Mines Inc.: Caylloma Mine, Caylloma District, Peru

Technical Report
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Prepared by

Eric Chapman
Senior Vice President of Technical Services - Fortuna Silver Mines Inc.

Paul Weedon
Senior Vice President of Exploration - Fortuna Silver Mines Inc.

Raul Espinoza
Director of Technical Services - Fortuna Silver Mines Inc.

Mathieu Veillette
Director, Geotechnical, Tailings and Water - Fortuna Silver Mines Inc.

Patricia Gonzalez
Director of Operations – Compania Minera Cuzcatlan S.A. de C.V.

Suite 650, 200 Burrard Street, Vancouver, BC, V6C 3L6 Tel: (604) 484 4085, Fax: (604) 484 4029

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1.1 Introduction

Fortuna Silver Mines Inc. (Fortuna) has compiled a Technical Report (the Report) on the Caylloma Mine (the Caylloma Project or Project) located in the Caylloma District, Peru.

The Caylloma Mine ownership is 100 % held by Fortuna.

The mineral rights of the Caylloma Mine are held by Compania Minera Bateas S.A.C. (Bateas). Bateas is a Peruvian subsidiary that is 100 % indirectly owned by Fortuna and is responsible for running the underground silver-lead-zinc mine.

The Report discloses updated Mineral Resource and Mineral Reserve estimates for the Project.

Costs are in US dollars (US$) unless otherwise indicated.

1.2 Property description, location and access

The Caylloma Mine is located in the Puna region of Peru at an altitude of between 4,300 and 5,000 meters above sea level (masl). Surface topography is generally steep with vegetation being primarily comprised of grasses and small shrubs common at high altitudes. The mine facilities are located at approximately 4,400 masl.

Access to the Caylloma Mine is by a combination of sealed and gravel road. The mine is located 225 road kilometers from Arequipa, a city of approximately a million people that includes an international airport and requires a trip of approximately five hours by vehicle. Access is available to all concessions via a network of unsealed roads.

The Caylloma Mine is an operating underground mine located in the Caylloma Mining District, 14 km northwest of the town of Caylloma at the UTM grid location of 8192263E, 8321387N, (WGS84, UTM Zone 19S).

1.3 Mineral tenure, surface rights and royalties

The Caylloma Project consists of mineral rights for 74 mining concessions for a total surface area of 35,622 hectares (ha) and one beneficiation concession comprising 91.12 ha. Tenure is held in the name of Bateas with all mining concessions having an expiry date beyond the expected mine life.

Bateas has signed 22 surface right or easement contracts covering a total of 8,311 ha with landowners to cover the surface area needed for the operation and tailings facilities.

The Caylloma Mine is not subject to any back-in rights, liens, payments or encumbrances.

There are royalties attached to the mineral concessions, however, the only royalties that affect the Mineral Reserves and have been considered in the economic analysis are:

- A 2 % royalty on silver production to Nueva Granada Gold Ltd. (formerly Lemuria Royalties Corp.).
- A 1 % royalty or an effective rate based on operating profit (whichever is greater) to the Peruvian Government has been taken into account in predicting cash flows.

- A Special Tax on Mining based on the quarterly operating profit of the mining concession holder.

1.4 History

The earliest documented mining activity in the Caylloma District dates back to that of Spanish miners in 1620. English miners carried out activities in the late 1800s and early 1900s. Numerous companies have been involved in mining the district of Caylloma but limited records are available to detail these activities.

The Caylloma Mine was acquired by Compania Minera Arcata S.A. (CMA), a wholly owned subsidiary of Hochschild Mining plc in 1981. Fortuna acquired the mine from CMA in 2005.

CMA focused exploration on identifying high-grade silver vein structures. Exploration was concentrated in the northern portion of the district and focused on veins including Bateas, El Toro, Paralela, San Pedro, San Cristobal, San Carlos, Don Luis, La Plata, and Apostles.

Production prior to 2005 came primarily from the San Cristobal vein, as well as from the Bateas, Santa Catalina and the northern silver veins (including Paralela, San Pedro, and San Carlos) with production focused on silver ores and no payable credits for base metals. While under CMA management production parameters fluctuated during the late 1990s, as reserves were depleted. Owing to low metal prices, funds were not available to develop the Mineral Resources at depth or extend along the strike of the veins. Ultimately this resulted in production being halted in 2002.

Production under Bateas management focused on the development of polymetallic veins producing lead and zinc concentrates with silver and gold credits. Total production since October 2006 through December 31, 2023, is estimated at 23.4 Moz of silver, 36 koz of gold, 193 kt of lead, and 272 kt of zinc.

1.5 Geology and mineralization

The mine is within the historical mining district of Caylloma, northwest of the Caylloma caldera complex and southwest of the Chonta caldera complex. Host rocks at the Caylloma Mine are volcanic in nature, belonging to the Tacaza Group. Mineralization is in the form of low to intermediate sulfidation epithermal vein systems.

Epithermal veins at the Caylloma Mine are characterized by minerals such as pyrite, sphalerite, galena, chalcopyrite, marcasite, native gold, stibnite, argentopyrite, and silver-bearing sulfosalts (tetrahedrite, polybasite, pyrargyrite, stephanite, stromeyerite, jalpite, miargyrite and bournonite). These are accompanied by gangue minerals, such as quartz, rhodonite, rhodochrosite, johannsenite (manganese-pyroxene) and calcite.

There are two different types of mineralization at Caylloma; the first is comprised of silver-rich veins with low concentrations of base metals and includes the Bateas, Bateas Piso, Bateas Techo, La Plata, Cimoide La Plata, San Cristobal, Pilar, Patricia, San Pedro, San Carlos, Paralela, Ramal Piso Carolina, and Don Luis II veins. The second type of vein is polymetallic in nature with elevated lead, zinc, copper, silver and gold grades and includes the Animas, Animas NE, Comoide ASNE, Ramal Techo ASNE, Rosita, Nancy Santa Catalina, Silvia and Soledad veins.

Underground operations are presently focused on mining the Animas, Animas NE, Nancy and associated splay veins.

1.6 Exploration, drilling and sampling

CMA implemented a series of exploration programs to complement their mining activities prior to the closure of the operation in 2002. There is no reliable information available to detail the exploration conducted by CMA at the Caylloma Mine. Bateas were able to recover and validate information on 47 diamond drill holes totaling 8,177.67 m drilled by CMA between 1981 and 2003 at the Caylloma Mine.

Since Fortuna took ownership of the property in 2005, the principal exploration conducted at the deposit has been surface and underground drilling, to explore the numerous vein structures identified through surface mapping or geophysical surveys conducted by Bateas, or for infill purposes to increase the confidence level of the Mineral Resource estimates.

As of June 30, 2023, Bateas had completed 1,658 drill holes on the Caylloma Project totaling 283,593.30 m since the company took ownership in 2005 and represents all data compiled as of the data cut-off date used for Mineral Resource estimation. All holes are diamond drill holes and include 565 from the surface totaling 160,521.80 m, and 1,093 from underground totaling 123,071.50 m. It is important to note that not all the holes presented encountered mineralization and only drill holes in areas where reasonable geological continuity of mineralized structures could be established were used in defining and ultimately estimating Mineral Resources.

Bateas has used a number of different drilling contractors to carry out exploration and definition drilling since it took ownership of the mine in 2005. Both HQ (63.5 mm) and NQ (47.6 mm) diameter core were obtained, depending on the depth of the hole. Ground conditions are generally good with core recovery averaging 94 % and higher in mineralized zones.

Proposed surface and underground drill hole collar coordinates, azimuths and inclinations were designed based on the known orientation of the veins and the planned depth of vein intersection using geological plan maps and sections as a guide. For surface holes, the location of the collar is located in the field using differential global positioning system (GPS) instruments. The drill pad is then prepared at this marked location. Upon completion of the drill hole, a survey of the collar is performed using Total Station equipment, with results reported in the collar coordinates using reference Datum WGS84, UTM Zone 19S. For underground drill holes, once the drill station has been established, the location of the collar is located using Total Station instruments based on previously surveyed control points.

The geologist in charge of drilling is responsible for orienting the azimuth and inclination of the hole at the collar using a compass clinometer. Downhole surveys are completed by the drilling contractor using survey equipment such as a Flexit or Reflex tool at approximately 50 m intervals for all surface drill holes and for underground drill holes greater than 100 m in length. Bateas assesses the downhole survey measurements as a component of data validation.

Drill holes are typically drilled on sections spaced 40 to 60 m apart along the strike of the vein with surface drilling focusing on exploring the extents of the Animas, Animas NE, Bateas and Nancy veins and underground drilling used for a mix of exploration and resource definition. The extent of drilling varies for each vein with those having the greatest coverage having drill holes extending over 3 km of the vein's strike length (Animas/Animas NE), to exploration prospects having only a few drill holes extending over just 50 m (Antimonio).

The relationship between the sample intercept lengths and the true width of the mineralization varies in relation to the intersect angle between the steeply dipping zone of mineralized veins and the inclined nature of the diamond core holes. Calculated estimated true widths (ETWs) are always reported together with actual sample lengths by taking into account the angle of intersection between drill hole and the mineralized structure.

In 2018, all logging became digital, being incorporated daily into the Maxwell Datashed database system. Data were recorded initially with Excel templates, and later with the Maxwell LogChief application using essentially the same structure. Both input methods used picklists and data validation rules to ensure consistency between loggers. Separate pages were designed to capture, lithology, alteration, veins, sulfide-oxide zones, minerals, structure (contacts, fractures, veins, and faults with attitudes to core axis), magnetic susceptibility, and special data (samples collected for geochemistry, thin section examinations, the core library, density, etc.). Intensity of alteration phases was recorded using a numeric 1 to 4 scale (weak, moderate, strong, very strong); abundance of veins and most other minerals were estimated in volume percent.

Geotechnical logging is conducted prior to cutting of the core and involves the collection of drill core recovery and rock-quality designation (RQD) data. Information is recorded in the field using the Maxwell LogChief application.

The sampling methodology, preparation, and analyses differ depending on whether it is drill core or a channel sample. All samples are collected by geological staff of Bateas with sample preparation and analysis being conducted either at the onsite Bateas Laboratory or transported to the ALS Global preparation facility in Arequipa prior to being sent on for analysis at their laboratory in Lima.

The Bateas Laboratory operated by Bateas is not independent and does not hold an internationally recognized accreditation.

ALS Global is an independent, privately-owned analytical laboratory group. The preparation laboratory in Arequipa and the analytical laboratory in Lima are supported by a Quality Management System (QMS) framework which is designed to highlight data inconsistencies sufficiently early in the process to enable corrective action to be taken in time to meet reporting deadlines. The QMS framework follows the most appropriate ISO Standard for the service at hand i.e. ISO 9001:2015 for survey/inspection activity and ISO 17025:2005 UKAS ref 4028 for laboratory analysis.

Channel samples are collected from the faces of underground workings. The entire process is carried out under the geology department's supervision. Sampling is carried out at 2 m intervals within the drifts of all veins and 3 m intervals in stopes (except for Bateas and Soledad, where due to the thickness of the vein, sampling is carried out every 2 m in stopes). The channel lengths and orientations are identified using paint in the underground working and by painting the channel number on the footwall. The channel is between 20 cm to 30 cm wide and approximately 2 cm deep, with each individual sample being no longer than 1.5 m.

Drill core is laid out for sampling and logging at the core logging facility at the camp. Sample intervals are marked on the core and depths recorded on the appropriate box. A geologist is responsible for determining and marking the drill core intervals to be sampled, selecting them based on geological and structural logging. The sample length must not exceed 1.2 m or be less than 30 cm.

The elements of silver, copper, lead and zinc are assayed using either; atomic absorption (AA); inductively coupled plasma atomic emission spectroscopy (ICP-AES); or for high lead and zinc grades volumetric/titration techniques (VOL); or for high silver grades gravimetric techniques (GRAV) depending on the laboratory and assay value. Assay results and certificates are reported electronically by e-mail.

Bulk density samples have been primarily sourced from drill core with a limited number being sampled from underground workings. Bulk density measurements are performed at the ALS Global Laboratory in Lima using the OA-GRA09A methodology.

Sample collection and transportation of drill core and channel samples is the responsibility of Brownfields exploration and the Bateas mine geology departments and must follow strict security and chain of custody requirements established by Fortuna. Samples are retained in accordance with the Fortuna corporate sample retention policy.

Implementation of a quality assurance/quality control (QAQC) program is current industry best practice and involves establishing appropriate procedures and the routine insertion of certified reference material (CRMs), blanks, and duplicates to monitor the sampling, sample preparation and analytical process. Fortuna implemented a full QAQC program to monitor the sampling, sample preparation and analytical process for all drilling campaigns in accordance with its companywide procedures. The program involved the routine insertion of CRMs, blanks, and duplicates. Evaluation of the QAQC data indicates that the data are sufficiently accurate and precise to support Mineral Resource estimation.

1.7 Data verification

Data verification programs performed by the QPs on the data collected by Bateas are adequate to support Mineral Resource and Mineral Reserve estimation.

1.8 Mineral processing and metallurgical testing

It is the opinion of the QP that the Caylloma Mine has an extensive body of metallurgical investigation comprising several phases of testwork as well as an extensive history of treating ore at the operation since 2006. In the opinion of the QP, the Caylloma metallurgical samples tested and the ore that is presently treated in the plant is representative of the material included in the life-of-mine (LOM) in respect to grade and metallurgical response.

Metallurgical recovery values forecast in the LOM for sulfide material averages 82 % for silver, 22 % for gold, 89 % for lead, and 89 % for zinc with the exception of gold rich veins (> 1 g/t Au) where testwork has demonstrated that minor adjustments in the processing plant can achieve metallurgical recovery rates of 85 % for silver, 55 % for gold, 87 % for lead and 89 % for zinc.

Until 2012, ore identified as containing high zinc oxide content was classified as not amenable for flotation. Laboratory and plant tests conducted since 2013 include metallurgical testing of material from the different levels of the Animas vein. The main conclusion was that zinc oxide contents greater than 0.20 % within the ore were related to lower metallurgical recoveries. In order to include this type of material without affecting the metallurgical recoveries blending has to be performed to limit the oxide material content to no more than 11 % of the plant feed. This has been considered in the LOM plan.

Beyond the blending consideration for oxide material, as described above, there are no additional deleterious elements that require special treatment in the plant as of the effective date of this Report.

1.9 Mineral Resources

The 2023 Mineral Resource update has relied on channel and drill hole sample information obtained by Bateas since 2005. Mineralized domains identifying potentially economically extractable 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.

Resource confidence classification considers a number of aspects affecting confidence in the resource estimation including; geological continuity and complexity; data density and orientation; data accuracy and precision; and grade continuity. Mineral Resources are categorized as Measured, Indicated or Inferred. The criteria used for classification includes the number of samples, spatial distribution, distance to block centroid, kriging efficiency (KE) and slope of regression (ZZ).

Mineral Resources are reported based on underground mining within mineable stope shapes based on actual operational costs and mining equipment sizes using net smelter return (NSR) values in the block model calculated based on the projected long-term metal prices, commercial terms, and actual metallurgical recoveries experienced in the plant.

Veins classified as wide, being on average greater than two meters, are amenable to extraction by semi-mechanized mining methods with a mine to mill cost reported as US$ 89.78/t. Taking into account a 15% upside in metal prices for the evaluation of long-term resources a US$ 75/t NSR cut-off value is applied to the wide veins including Animas, Animas NE, Ramal Techo ASNE, Cimoide ASNE, Nancy, Rosita, and San Cristobal.

Veins classified as narrow, being on average less than 2 m, are amenable to extraction by conventional mining methods with a mine to mill cost estimated as US$ 170/t. Taking into account a 15% upside in metal prices for the evaluation of long term resources a US$135 /t NSR cut-off value is applied to the narrow veins including Bateas, Bateas Piso, Bateas Techo, La Plata, Cimoide La Plata, Soledad, Santa Catalina, Silvia, Ramal Piso Carolina, Paralela, San Carlos, San Pedro, Patricia, Pilar, and Don Luis II.

By the application of a NSR value taking into consideration the average metallurgical recovery and long-term metal prices for each metal, and the determination of a reasonable cut-off value using actual operating costs, as well as the exclusion of Mineral Resources identified as being isolated or economically unviable using a floating stope optimizer, the Mineral Resources have ‘reasonable prospects for eventual economic extraction’.

Mineral Resources exclusive of Mineral Reserves for the Caylloma Mine are reported as of December 31, 2023, and detailed in Table 1.1.

Table 1.1 Mineral Resources as of December 31, 2023

Category	Tonnes (000)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Contained Metal			
						Ag (koz)	Au (koz)	Pb (kt)	Zn (kt)
Measured	**524**	**98**	**0.30**	**2.09**	**3.16**	**1,646**	**5**	**11**	**17**
Indicated	**1,262**	**82**	**0.21**	**1.47**	**2.54**	**3,338**	**9**	**19**	**32**
Measured + Indicated	**1,786**	**87**	**0.24**	**1.65**	**2.72**	**4,983**	**14**	**29**	**49**
Inferred	**4,505**	**99**	**0.43**	**2.43**	**3.70**	**14,382**	**63**	**110**	**167**

Notes on Mineral Resources

- Mineral Resources are reported in situ, as defined by the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.
- Mineral Resources as reported exclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- Mineral Resources are reported as of December 31, 2023.
- Mr. Eric Chapman P.Geo., a Fortuna employee, is the Qualified Person for the estimate.
- Point metal values (taking into account metal price, concentrate recovery, smelter cost, metallurgical recovery) used for NSR evaluation are US$ 0.49/g for silver, US$ 15.40/% for lead, and US$ 15.58/% for zinc with the exception of gold rich veins that used US$ 0.51/g for silver, US$ 24.69/g for gold, US$ 14.88/% for lead, and US$ 15.48/% for zinc, based on metal prices of US$ 21/oz for silver, US$ 1,600/oz for gold, US$ 2,000/t for lead and US $2,600/t for zinc, and metallurgical recovery values of 82 % for silver, 22 % for gold, 89 % for lead, and 89 % for zinc, with the exception of gold rich veins that used 85 % for silver, 55 % for gold, 87 % for lead, and 89 % for zinc.
- Mineral Resources for veins classified as wide (Anima, Animas NE, Cimoide ASNE, Nancy, Rosita, and San Cristobal) are reported above an NSR cut-off value of US$ 75/t. Mineral Resources for veins classified as narrow (all other veins) are reported above an NSR cut-off value of US$ 135/t based on actual and projected mining costs and a 15% upside in metal prices.
- Mineral Resource tonnes are rounded to the nearest thousand.
- Totals may not add due to rounding.

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

1.10 Mineral Reserves

Mineral Reserves were converted from Measured and Indicated Mineral Resources. Inferred Mineral Resources were set to waste.

Mineral Reserves assume overhand cut and fill or sublevel stoping mining methods.

The overall mining recovery is approximately 94 % which takes into account the presence of pillars in wide veins and crown pillars for each main level of the mine.

Two sources of dilution were considered, operational dilution and mucking dilution. Operational dilution for cut and fill (mechanized – breasting) averages 17 % if a zero grade for the waste material is applied and this represents 91 % of the total reserves estimated. Other mining methods applied in less tonnage are cut and fill (mechanized – enhanced) averages 21 %, cut and fill (semi-mechanized) average 22 % and conventional cut and fill averages 34 %. For Sublevel longhole stoping, the calculation of the mining width estimated is 0.8 m (0.6 m for hangingwall and 0.2 m for footwall) with a minimum mining width of 0.8, then minimum stope shape dimension of 1.6m.

Metal prices used for Mineral Reserve estimation were determined as of June 2023 by the corporate financial department of Fortuna based on market consensus.

Metallurgical recoveries were based on metallurgical test work and operational results at the plant from July 2022 to June 2023.

Net smelter return (NSR) values were dependent on various parameters including metal prices, metallurgical recovery, price deductions, refining charges and penalties.

A breakeven cut-off grade was determined based on all variable and fixed costs applicable to the operation. These include exploitation and treatment costs, general expenses and administrative and commercialization costs (including concentrate transportation). The breakeven cut-off grade was determined to be US$ 89.78/t for mechanized (breasting); US$ 79.70/t for mechanized (enhanced); US$ 88.81/t for sub-level stoping (SLS); US$ 93.27/t for semi-mechanized; and US$ 170/t conventional.

Mechanized (breasting) cut and fill mining will be used for 91 % of the total Mineral Reserves, with the other methods representing the remainder.

Mineral Reserves as of December 31, 2023, are reported in Table 1.2.

Table 1.2 Mineral Reserves as of December 31, 2023

Category	Tonnes (000)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Contained Metal			
						Ag (koz)	Au (koz)	Pb (kt)	Zn (kt)
Proven	**20**	**261**	**0.94**	**2.23**	**2.62**	**165**	**0.6**	**0.4**	**0.5**
Probable	**2,269**	**81**	**0.13**	**2.79**	**4.06**	**5,924**	**9.3**	**63.2**	**92.0**
Proven +Probable	**2,288**	**83**	**0.13**	**2.78**	**4.04**	**6,089**	**9.9**	**63.6**	**92.5**

Notes on Mineral Reserves

- Mineral Reserves are reported at the point of delivery to the process plant using the 2014 CIM Definition Standards.
- Mineral Reserves are reported as of December 31, 2023.
- Raul Espinoza, FAusIMM (CP), a Fortuna employee, is the Qualified Person for the estimate.
- Mineral Reserves are reported based on underground mining within optimized stope designs using an NSR breakeven cut-off for extraction including; mechanized (breasting) at US$ 89.78/t; mechanized (enhanced) at US$ 79.70/t; sub-level stoping (SLS) at US$88.81/t; semi-mechanized at US$ 93.27/t; and conventional at US$ 170/t.
- Metal prices used in the NSR evaluation are US$ 21/oz for silver, US$ 1,600/oz for gold, US$ 2,000/t for lead, and US$ 2,600/t for zinc.
- Metallurgical recovery rates used for NSR values are 82% for Ag, 22% for Au, 89% for Pb and 89% for Zn except for gold rich veins (>1 g/t Au) that use 85% for Ag, 55% for Au, 87% for Pb and 89% for Zn and include the Soledad, Cimoide La Plata, La Plata, Pilar, San Pedro, and Ramal Piso Carolina veins.
- Mining, processing and administrative costs used to determine NSR cut-off values were estimated based on second half of 2022 and first half of 2023 actual operating costs.
- Mining recovery is estimated to average 94 % with mining dilution ranging from 10 % to 34 % depending on the mining methodology.

- Tonnes are rounded to the nearest thousand.
- Totals may not add due to rounding.

1.11 Mining methods

The mining method employed at the Caylloma Mine is primarily cut-and-fill, which is commonly used in the mining of steeply dipping orebodies in stable rock masses. Cut-and-fill is a bottom-up mining method that consists of removing ore in horizontal slices, starting from a bottom undercut and advancing upwards. The operation bases its mining plan on a mix of mechanized, semi-mechanized, and conventional extraction methods based on vein width and rock quality.

Geotechnical recommendations used in mine design are based on a combination of rock mass rating and geotechnical strength index data.

Water inflows are currently managed using three pumping stations installed at different levels of the mine. Main pumping station at level 17 is under construction and expected to be completed in January 2024 with testing and commissioning in February 2024.

The mining production period extends from 2024 to 2028, almost 5 years. At full production the planned mining rate is 1,500 tpd (543,000 tonnes per annum). Planned LOM production is 2.3 Mt at an average silver grade of 83 g/t, gold grade of 0.14 g/t, lead grade of 2.79 %, and zinc grade of 4.03 %.

Access to the Caylloma underground mine is from surface through a main ramp. The Caylloma Mine has been designed with a separation of 100 m between levels primarily to limit blast vibration but also to assist with hanging wall and footwall stability.

Transportation of ore and waste is done via trucks with a 15 m^3 of capacity through the main and secondary ramps.

The ventilation requirements for the Animas underground mine to produce 1,500 tpd is 345,100 cfm based on the utilization of the planned mining equipment. Air intake is through the RB 509 N and the main access ramp for levels 7 (NE), 8, 9 and 12 which represents an estimated 356,855 cfm. Ventilation is controlled by three principal fans, two operating at 120,000 cfm and one at 100,000 cfm.

The mine uses two kinds of backfill; waste rock backfill generated during underground mining and hydraulic backfill.

The mobile equipment fleet is based on the current mining operations, which are known to achieve the production targets set out in the LOM.

Mine infrastructure and supporting facilities are sufficient for the remaining LOM.

1.12 Processing and recovery methods

The process design is based on metallurgical testwork completed on samples from the deposit. The design and equipment are conventional.

The process plant design is split into four principal stages including: crushing; milling; flotation; and thickening, filtering and shipping. The plant has a 1,500 tpd throughput rate.

Energy requirements at the operation are provided by a state power line of 15 kV. The maximum power demand for the plant is 2300 kW.

The processing plant water consumption is 2.45 m^3/t to process one tonne of ore. Approximately 74 % (1.82 m^3/t) is recovered from the tailings facility and pumped back to the plant to be re-used in the process along with 26 % (0.63 m^3/t) fresh water collected from the mine and pumped to Level 9 to send it to the plant.

The plant uses conventional reagents, including a frother, collectors, flocculant and a depressor.

1.13 Project infrastructure

All mine and process infrastructure and supporting facilities are in place at the operation with only an increase in tailings storage facility in 2026 and designation of underground waste disposal area required to meet the needs of the mine plan and production rate beyond 2025.

The Caylloma Mine has infrastructure consisting primarily of the concentration plant, electrical power station, water storage facilities, tailings facilities, stockpiles, and workshop facilities, all connected by unsealed roads. Additional structures located at the mine include offices, dining hall, laboratory, core logging and core storage warehouses. The mine site infrastructure has a footprint of 91.12 ha associated with the Huayllacho beneficiation concession.

All process buildings, offices, and camp facilities for operating the mine have been constructed.

The current tailings storage facility (TSF N° 3) is located approximately 4 km to the south of the concentration plant. The tailings facility has a current incremental capacity of 921,000 m^3, sufficient to handle tailings until the end of 2026 based on current production levels, with an expansion required for completion in 2026 to provide sufficient capacity for the LOM.

The mine currently has a single surface waste stockpile used for storing waste material that could not be effectively disposed of underground. There is sufficient remaining capacity for LOM requirements based on the currently defined underground waste disposal areas that are sufficient to the end of 2025 and the identification of an additional waste storage area on Level 8 of the Animas vein.

The mine currently has one ore stockpile which is used for blending or plant feed if underground mining is temporarily stopped.

The maximum power demand for the operation is 7800 kW provided mainly through the national power grid and three diesel generators on site to cover the shortfall and provide backup.

Water demand at the Caylloma Mine is 60 l/s, including 10 l/s for the camp. Approximately 70 % of the processing plant total water consumption is recovered from tailings facility N° 3 with the other 30 % from fresh water provided by the Santiago River.

1.14 Market studies and contracts

Since the operation commenced production in October 2006, a corporate decision was made to sell the concentrate on the open market. In order to get the best commercial terms for the concentrates, it is Fortuna's policy to sign contracts for periods no longer than one year. All commercial terms entered between the buyer and Bateas are regarded confidential, but are considered to be within standard industry norms.

Fortuna established the metal pricing for Mineral Resources and Mineral Reserves using a consensus approach based on long-term analyst and bank forecasts prepared in May 2023. A long-term price estimate of US$ 21/oz for silver and US$ 1,600/oz for gold has been applied, based on the mean consensus prices from 2024 to 2026 of US$ 24.00/oz of silver and US$ 1,788/oz for gold weighted at 40 % and the 10-year historical average of US$ 19.1/oz for silver and US$ 1,452/oz for gold weighted at 60 %.

Bateas has used a Peruvian sol exchange rate of 3.6 soles to the US dollar for financial analysis purposes, which conforms with general industry-consensus.

Bateas has eight major contracts for services relating to operations at the mine regarding: mining activities, ground support, raise boring, drilling, transportation, electrical installations, plant and mine maintenance, explosives and civil works. The costs of such contracts are accounted for in the capital and operating expenditures depending on work performed. Contracts are negotiated and renewed as needed. Contract terms are typical of similar contracts in Peru that Fortuna is familiar with.

The QP has reviewed the information provided by Fortuna on marketing, contracts, metal price projections and exchange rate forecasts and notes that the information provided support for the assumptions used in this Report and are consistent with the source documents, and that the information is consistent with what is publicly available within industry norms.

1.15 Environmental studies and permitting

The mining operation has been developed under strict compliance of norms and permits required by public institutions associated with the mining sector. Furthermore, all work follows quality and safety international norms as set out in ISO 14001 and OHSAS 18000.

In addition to these norms and permits obtained from the environmental department, the operation also ensures that all environmental activities are regularly monitored and recorded as part of the quality control measures that are presented to the Ministry of Energy and Mining (MEM) and other legal regulatory organizations.

Of particular importance is monitoring of the quality of river water in the area. This activity involves monitoring the Santiago River, being the main river that passes through the property, employing people from the local communities to verify the results.

Bateas has a very strong commitment to the development of neighboring communities of the Caylloma Mine. In this respect, Bateas is committed to sustainable projects, direct support and partnerships that build company engagement in local communities while respecting local values, customs and traditions. The company aims to develop projects or programs based on respect for ethno-cultural diversity, open communication and effective interaction with local stakeholders that improve education, health and infrastructure.

Mine closure is included in the environmental program. For 2024 a total of US$ 471,000 has been budgeted for the ongoing closure plan and environmental liabilities. The closure plan is performed to ensure compliance with the programs and plans submitted to the MEM. Budgeted mine closure costs for the LOM total US$ 16.1 million.

1.16 Sustaining capital and operating costs

Capital and operating cost estimates are based on established cost experience gained from current operations, projected budget data and quotes from manufacturers and suppliers.

The capital and operating cost provisions for the LOM plan that supports Mineral Reserves have been reviewed. The basis for the estimates is appropriate for the known mineralization, mining and production schedules, marketing plans, and equipment replacement and maintenance requirements.

The QP considers the capital and operating costs estimated for the Caylloma Mine as reasonable based on industry-standard practices and actual costs observed for 2023.

All remaining capital costs are considered to be sustaining capital costs.

Capital costs include all investments in ongoing mine development, infill drilling, mine equipment overhaul and components, infrastructure necessary to sustain the continuity of the operation. The capital costs are split into three areas: mine development; equipment and infrastructure; and mine closure and site rehabilitation.

Mine development includes the main development and infrastructure of the mine through the generation of ramps, ventilation raises, and extraction levels. Infill delineation drilling is included under mine development costs as this activity has the objective of increasing the confidence in currently defined Mineral Resources, and Brownfields exploration drilling is included regarding planned activities for the coming year.

Equipment and infrastructure costs are attributed to mine infrastructure in the Animas NE vein and energy capacity expansion for the plant and other minor equipment acquisition and spare parts.

Mine closure costs are attributed to site rehabilitation costs required to remediate the area where the mine is located and to meet mine closure requirements.

The capital cost estimate is summarized in Table 1.3

Table 1.3 Summary of projected major capital costs for the LOM

Capital Cost Item (MUS$)	2024	2025	2026	2027	2028
Development	3.61	5.89	2.52	2.87	0.00
Brownfields	0.24	0.00	0.00	0.00	0.00
Infill drilling	0.74	0.50	0.50	0.50	0.50
Mine Development & Brownfields	**4.59**	**6.39**	**3.02**	**3.37**	**0.50**
Mine	6.07	0.98	1.32	4.08	0.00
Plant	0.36	0.13	0.09	0.03	0.00
Tailings dam	0.44	3.61	5.41	0.31	0.00
Maintenance and Energy	6.18	1.68	0.23	0.00	0.00
General services	1.07	2.89	0.15	0.23	0.00
Equipment and Infrastructure	**14.11**	**9.29**	**7.20**	**4.64**	**0.00**
Mine Closure & Site Rehabilitation	**0.47**	**0.07**	**2.10**	**1.90**	**11.52**
Total Capital Expenditure*	**19.17**	**15.75**	**12.32**	**9.91**	**12.02**
*Numbers may not add due to rounding					

Long-term projected operating costs are based on the LOM mining and processing requirements, as well as historical information regarding performance, operational and administrative support demands.

Operating costs include site costs and operating expenses to maintain the operation. These operating costs are analyzed on a functional basis and the cost structure is not similar to the operating costs reported by the financial statements published by Fortuna.

Site costs relate to activities performed on the property including mine, plant, general services, and administrative service costs. Other operating expenses include costs associated with concentrate transportation and community support activities.

Projected operating costs for the LOM are detailed in Table 1.4.

Table 1.4 Life-of-mine operating costs

Area	Units	2024	2025	2026	2027	2028
Mine	US$/t	45.3	44.1	42.4	41.9	43.2
Plant	US$/t	15.7	12.2	12.2	12.2	12.2
General Services	US$/t	16.4	16.4	16.4	16.4	16.4
Administrative Services	US$/t	12.0	12.1	12.1	12.1	12.0
Management Fee	US$/t	1.7	1.8	1.8	1.8	1.7
Distribution	US$/t	7.4	7.1	7.3	7.1	7.2
Community Support Activities	US$/t	1.2	1.2	1.2	1.2	1.2
Total	**US$/t**	**99.8**	**94.8**	**93.3**	**92.6**	**93.9**

1.17 Economic analysis

Fortuna is using the provision for producing issuers, whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material expansion in production is planned.

Mineral Reserve declaration is supported by a positive cashflow for the period set out in the LOM based on the assumptions detailed in this Report.

1.18 Conclusions

An economic analysis was performed in support of the estimation of Mineral Reserves. This indicated a positive cash flow using the assumptions and parameters detailed in this Report.

1.19 Risks, and opportunities

Opportunities include:

- Reduction in overall pumping costs through improvements to the mine dewatering system resulting in reduced power consumption and maintenance requirements.
- Potential to expand the ore processing capacity at the plant. The conceptual study indicates a possible business case to increase production to 2,200 tpd and requires further studies to confirm its feasibility.
- Potential to expand current resources through exploration of the Animas NE vein with mineralization remaining open to the northeast and at depth.

Risks include:

- An expansion of the current tailings storage facility TSF N° 3 will be required for stage (3C) to cover the current production levels up to LOM requirements.

A permit will be required for the expansion, and although there is no guarantee this will be granted, Bateas is confident that if the application is submitted in a timely manner, the permit should be granted based on previous permit applications.

- Bateas management occasionally receives requests from local authorities and/or civil organizations regarding unrealistic social expectations. Bateas are mitigating the risk of conflict regarding these demands by working with local authorities, landowners, and communities to address expectation levels and to take requests into account in preparing its annual community relations work program and budget.
- TSF N° 2 provides a small capacity (two months) as a contingency plan for tailings storage. It is currently being used as a temporary cyclone / tailings classification facility. TSF N° 2 is planned for decommissioning in 2025 when a new cyclone plant is planned to be operational adjacent to the mill. A site investigation study was conducted in the third quarter of 2023 to sample foundation materials and laboratory testing is planned for January 2024. Engineering trade off analysis is expected to be completed by the end of the second quarter 2024 to determine closure costs associated with this facility. TSF N° 2 closure costs are currently unknown.

1.20 Recommendations

Recommendations for the next phase of work have been broken into those related to ongoing exploration activities and those related to additional technical and operational studies. Recommended work programs are independent of each other and can be conducted concurrently unless otherwise stated. The exploration phase is estimated to cost $ 980,000 with an additional technical studies phase estimated to cost $ 180,000. Depending on results from these phases a plant expansion pre-feasibility study phase may be executed at an estimated cost of approximately $ 1,000,000.

1.20.1 Exploration

- **Exploration**. It is recommended that Bateas continue surface mapping of key areas of interest including Antacollo, Condorcoto, Santa Rosa and Antimonio, as well as geophysical surveys at Llocococha to identify potential future drill targets. The budgeted cost of the surface mapping activities is $ 244,000 (excluding personnel costs).
- **Delineation (infill) drilling**. Bateas is planning to continue the delineation drilling from underground in 2024 focusing on the lower levels of ore shoot 3 in the Animas NE vein. A total of 20 drill holes totaling 4,027 m is planned at a budgeted total cost of $ 736,000.

1.20.2 Technical and operational studies

- **Review of mining methodology.** The width of mineralization and rock quality varies greatly throughout the deposit. It is recommended that an evaluation of mining method be conducted to assess potential implementation of the SLS mining method applied to high grade Au-Ag veins, additionally to review an increment on the bench height of the SLS stopes from 13.5 m to 20 m. The study could be conducted in-house or externally, with an external cost estimated at $ 80,000.

- **Review of mine cost optimization.** It is proposed to do a cost optimization study in order to identify operational bottlenecks where savings can be found both in mine, auxiliary services and plant. The estimated cost of the study is $ 100,000.
- **Plant expansion pre-feasibility study.** A pre-feasibility study is recommended to assess if the production rate at the Caylloma plant could be increased to 2,200 tpd. The estimated cost of the study is approximately $ 1,000,000.
- **Density estimation.** It is recommended that the number of bulk density measurements be increased in veins that lack sufficient values for meaningful statistical analysis. This will be completed utilizing the operations resources and part of normal operating cost.

2 Introduction

2.1 Report purpose

This Technical Report (the Report) was prepared by Mr. Eric Chapman, P.Geo., Mr. Paul Weedon, MAIG, Mr. Raul Espinoza, FAusIMM (CP), Mr. Mathieu Veillette, P.Eng., and Ms. Patricia Gonzalez, MMSA (QP), for Fortuna on the Caylloma Mine (Caylloma Project or Project) in accordance with the disclosure requirements of Canadian National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101).

The mineral rights of the Caylloma Mine are held by Bateas. Bateas is a Peruvian subsidiary that is 100 % indirectly owned by Fortuna and is responsible for operating the Caylloma Mine.

The Report discloses updated Mineral Resource and Mineral Reserve estimates for the Caylloma Mine.

Mineral Resource and Mineral Reserve estimates are reported using the 2014 CIM Definition Standards - for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards).

Costs are in US dollars (US$) unless otherwise indicated.

2.2 Qualified Persons

The following Qualified Persons are responsible for the preparation of this Report:

Mr. Eric Chapman, P.Geo., Senior Vice President of Technical Services – Fortuna Silver Mines Inc.

Mr. Paul Weedon, MAIG, Senior Vice President of Exploration – Fortuna Silver Mines Inc.

Raul Espinoza, FAusIMM (CP), Director of Technical Services – Fortuna Silver Mines Inc.

Mr. Mathieu Veillette, P.Eng., Director, Geotechnical, Tailings and Water – Fortuna Silver Mines Inc.

Ms. Patricia Gonzalez, MMSA (QP), Director of Operations – Compania Minera Cuzcatlan S.A. de C.V.

2.3 Scope of personal inspection

Mr. Eric Chapman has visited the property on multiple occasions, the most recent being November 18 to 19, 2023. During his site visits Mr. Chapman has reviewed data collection, drill core, storage facilities, database integrity, procedures, and geological model construction. Discussions on geology and mineralization were held with Bateas personnel, and field site inspections were performed including a review of underground geology, and inspection of operating underground drill machines. He worked with site geological personnel reviewing aspects of data storage (database) and analytical quality control.

Mr. Paul Weedon has visited the mine on multiple occasions, most recently from August 11 to 13, 2023. During these visits, Mr. Weedon has reviewed drilling performance, sample and data collection, site QAQC records and geological model development for the Caylloma Mine mineralization.

Mr. Raul Espinoza visited the property most recently on November 18 to 19, 2023. During this visit Mr. Espinoza reviewed geotechnical observations, mine and plant infrastructure, mining methods, Mineral Reserve estimates, LOM and scheduling plans, and discussed environmental, social, permitting, operating and capital expenditure requirements with Bateas personnel.

Mr. Mathieu Veillette has visited the property on multiple occasions, most recently from May 30 to 31, 2023 where he performed a field visit on the tailings storage facilities, underground operation, waste dumps and water management facilities. He also reviewed and discussed with Bateas site personnel, designs and procedures for the tailings storage facilities, waste dumps, geotechnical model and water balance.

Ms. Patricia Gonzalez last visited the property in 2017 where she inspected the processing facilities, reviewed metallurgical performance records and held discussions with the Bateas metallurgical and processing personnel. In late 2023 and early 2024, Ms. Gonzalez reviewed historical plant performance records, and metallurgical testwork reports for mineralized material projected for future processing.

2.4 Effective dates

The Report has a number of effective dates, as follows:

- June 30, 2023: date of database cut-off for assays used in the Mineral Resource estimate for the Caylloma Mine.
- December 31, 2023: date of the Mineral Resource and Mineral Reserve estimate for the Caylloma Mine, taking into account production related depletion to this date.
- December 31, 2023: date to which drilling has been reported.

The overall effective date of the Report is the date of the most recent supply of information on the ongoing drilling program, and the date of the Mineral Resource and Mineral Reserve estimates, which is December 31, 2023.

2.5 Previous technical reports

Fortuna has previously filed the following technical reports on the Caylloma Mine, listed in reverse chronological order:

- Chapman, E.N., & Sinuhaji, A., 2019. Technical Report on the Caylloma Mine, Caylloma District, Peru, prepared for Fortuna Silver Mines Inc., effective date March 8, 2019.
- Chapman, E.N., & Gutierrez, E., 2017. Amended Technical Report on the Caylloma Property, Caylloma District, Peru, prepared for Fortuna Silver Mines Inc., effective date August 31, 2016.
- Chapman, E.N., & Kelly, T.E.M., 2013. Amended Technical Report on the Caylloma Property, Caylloma District, Peru, prepared for Fortuna Silver Mines Inc., effective date March 22, 2013.

- Chapman, E.N., & Acosta, E.V., 2012. Amended Technical Report on the Caylloma Property, Caylloma District, Peru, prepared for Fortuna Silver Mines Inc., effective date May 7, 2012.
- Nielsen, R.L., Milne, S., & Sandefur, R.L., 2009. Technical Review (NI 43-101), Caylloma Project, Peru, prepared by Chlumsky, Armbrust & Meyer, LLC. for Fortuna Silver Mines Inc., effective date August 11, 2009.
- Sandefur, R.L., 2006. Technical Report, Caylloma Project, Arequipa, Peru, prepared by Chlumsky, Armbrust & Meyer, LLC. for Fortuna Silver Mines Inc., effective date October 3, 2006.
- Armbrust, G.A., Kilpatrick, L.R., & Sandefur, R.L., 2005. Technical Report, Caylloma Project, Arequipa, Peru, prepared by Chlumsky, Armbrust & Meyer, LLC. for Fortuna Silver Mines Inc., effective date April 22, 2005.

2.6 Information sources and references

The main information sources referenced in this Report is the 2019 technical report:

- Chapman, E.N., & Sinuhaji, A., 2019. Technical Report on the Caylloma Mine, Caylloma District, Peru, prepared by Fortuna Silver Mines Inc., effective date March 8, 2019.

Additional information was obtained from Bateas site personnel including metallurgical input from Marco Flores (Plant Superintendent) and social, environmental and permitting guidance from Eduardo Asmat (Director of Corporate Affairs and Sustainability.

2.7 Acronyms

Some of the more commonly used acronyms used in the Report are detailed in Table 2.1.

Table 2.1 Acronyms

Acronym	Description
Ag	silver
Au	gold
cfm	cubic foot per minute
cm	centimeters
COG	cut-off grade
Cu	copper
g	grams
g/t	grams per tonne
ha	hectares
kg	kilograms
km	kilometers
kV	kilovolts
kW	kilowatts
lbs	pounds
l	liter
LOM	life-of-mine
m	meters
Ma	millions of years

Acronym	Description
masl	meters above sea level
Moz	million troy ounces
Mn	manganese
Mt	million metric tonnes
MVA	megavolt ampere
MW	megawatt
n/a	not applicable
NI	national instrument
NN	nearest neighbor
nr	not recorded
NSR	net smelter return
OK	ordinary kriging
oz	troy ounce
ppm	parts per million
Pb	lead
psi	pounds per square inch
QAQC	quality assurance/quality control
RMR	rock mass rating
RQD	rock-quality designation
s	second
t	metric tonne
t/m^3	metric tonnes per cubic meter
tpd	metric tonnes per day
yd	yard
yr	year
Zn	zinc
US$/t	United States dollars per tonne
US$/g	US dollars per gram
US$/%	US dollars per percent

3 Reliance on Other Experts

The QPs have not independently reviewed ownership of the Caylloma Mine or any underlying agreements, mineral tenure, surface rights, or royalties. The QPs have fully relied upon, and disclaim responsibility for, information derived from Fortuna and legal experts retained by Fortuna for this information through the following documents:

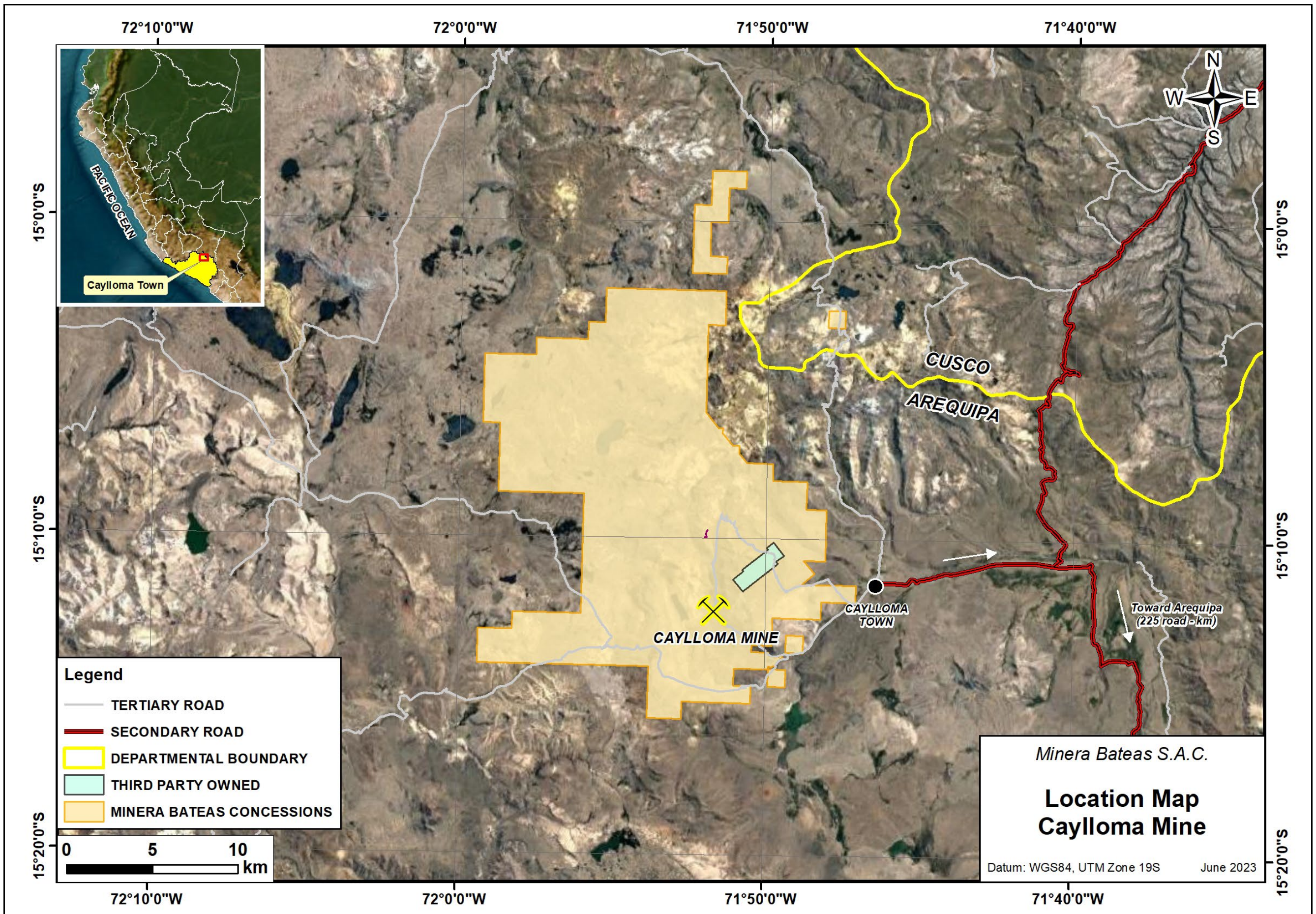
- Rubio Leguia Normand., 2024. Legal Opinion prepared by Rubio Leguia Normand for Fortuna Silver Mines Inc. dated January 2024, 78 p.

This information is used in Section 4 of the Report. The information is also used in support of the Mineral Resource estimate in Section 14 and the Mineral Reserve estimate in Section 15.

4 Property Description and Location

The Caylloma Mine is located in the Caylloma District, 225 road-kilometers north-northwest of Arequipa, Peru. The property is 14 km northwest of the town of Caylloma at the UTM grid location of 8192263E, 8321387N, (WGS84, UTM Zone 19S). The location of the mine is shown in Figure 4.1.

Figure 4.1 Map showing the location of the Caylloma Mine



4.1 Mineral tenure

Fortuna acquired a 100 % interest in the Caylloma Mine in June 2005. The property comprises mining concessions; surface rights; a permitted 1,500 tpd flotation plant; connection to the national electric power grid; permits for camp facilities for 890 persons; and the infrastructure necessary to sustain mining operations.

4.1.1 Mining claims and concessions

The Caylloma Mine consists of mineral rights for 74 mining concessions for a total surface area of 35,622 hectares (ha). A list of the mining concessions showing the names, areas in hectares, and title details are presented in Table 4.1. In addition to the mining concessions, the Huayllacho mill-site (processing plant) has a titled beneficiation concession comprising 91.12 ha.

In Peru, mining concessions do not have expiration dates, but an annual fee must be paid to retain the concessions in good standing. Bateas states that all fees are up to date and the concessions listed in Table 4.1 are all in good standing.

Table 4.1 Mining concessions owned by Bateas

No.	Concession Name	Area (ha)*	Title Resolution
1	Acumulacion Cailloma No. 1	989.53	R.J. No. 522-00-RPM
2	Acumulacion Cailloma No. 2	920.41	R.D. No. 355-90/EM/DCMDE
3	Acumulacion Cailloma No. 3	979.28	R.D. No. 410-90/EM/DCMDE
4	Corona de Antimonio No.2	84.00	R.J. No. 8642-96-RPM
5	Cailloma 4	865.39	R.J. No. 01391-2002-INACC/J
6	Cailloma 5	514.19	R.J. No. 01405-2002-INACC/J
7	Cailloma 6	678.88	R.J. No. 1401-2002-INACC/J
8	Eureka 88	4.46	R.J. No. 2782-99-RPM
9	Sandra No. 5	6.00	R.J. No. 6917-94-RPM
10	Sandra No. 6	4.00	R.J. No. 6920-94-RPM
11	Sandra No. 7	2.00	R.J. No. 7054-94-RPM
12	Sandra No. 9	9.00	R.J. No. 6919-94-RPM
13	Sandra No. 102-A	124.99	R.J. No. 2811-2000-RPM
14	Sandra 106	724.00	R.J. No. 404-91-RPM
15	Sandra 107	794.00	R.D. No. 764-90-EM-DGM-DCM
16	Sandra 108	614.00	R.D. No. 72-91-EM-DGM-DCM
17	Sandra 120	4.00	R.D. No. 086-88-EM-DG-DCM
18	Sandra 121	4.00	R.D. No. 173-88-EM-DGM-DCM
19	Sandra 123	90.00	R.J. No. 1769-99-RPM
20	S.P. No.16	0.12	R.M. No 2142
21	Cristobal R1	300.00	R.P. No. 4573-2009-INGEMMET/PCD/PM
22	Sandra 106-A	276.00	R.P. No. 1546-2010-INGEMMET/PCD/PM
23	Sandra 107-A	206.00	R.P. No. 0685-2010-INGEMMET/PCD/PM
24	Sandra 108-A	386.00	R.P. No. 1282-2010-INGEMMET/PCD/PM
25	Sandra 108-B	3.58	R.P. No. 1767-2013-INGEMMET/PCD/PM
26	Sandra 108-C	9.25	R.P. No. 1704-2013-INGEMMET/PCD/PM
27	Cailloma 11	96.35	R.P. No. 2165-2010-INGEMMET/PCD/PM
28	Cailloma 12	100.00	R.P. No. 2056-2010-INGEMMET/PCD/PM
29	Cailloma 14	282.27	R.P. No. 2180-2010-INGEMMET/PCD/PM
30	Cailloma 15	371.31	R.P. No. 2436-2010-INGEMMET/PCD/PM
31	Cailloma 16	954.08	R.P. No. 2259-2010-INGEMMET/PCD/PM
32	Cailloma 17	337.26	R.P. No. 3561-2010-INGEMMET/PCD/PM
33	Cailloma 18	219.65	R.P. No. 4711-2010-INGEMMET/PCD/PM
34	Cailloma 19	102.04	R.P. No. 2514-2010-INGEMMET/PCD/PM
35	Cailloma 20	112.69	R.P. No. 2754-2010-INGEMMET/PCD/PM
36	Cailloma 21	100.00	R.P. No. 3193-2010-INGEMMET/PCD/PM
37	Cailloma 22	854.75	R.P. No. 2334-2012-INGEMMET/PCD/PM
38	Cailloma 23	1,000.00	R.P. No. 0348-2012-INGEMMET/PCD/PM
39	Cailloma 24	1,000.00	R.P. No. 1014-2012-INGEMMET/PCD/PM
40	Cailloma 25	1,000.00	R.P. No. 0932-2012-INGEMMET/PCD/PM
41	Cailloma 26	1,000.00	R.P. No. 3218-2012-INGEMMET/PCD/PM
42	Cailloma 27	1,000.00	R.P. No. 1882-2012-INGEMMET/PCD/PM
43	Cailloma 28	1,000.00	R.P. No. 1816-2012-INGEMMET/PCD/PM
44	Cailloma 29	200.00	R.P. No. 0930-2012-INGEMMET/PCD/PM
45	Cailloma 30	1,000.00	R.P. No. 0346-2012-INGEMMET/PCD/PM
46	Cailloma 38**	1,000.00	R.P. No. 0616-2012-INGEMMET/PCD/PM
47	Cailloma 39**	400.00	R.P. No. 0419-2012-INGEMMET/PCD/PM

No.	Concession Name	Area (ha)*	Title Resolution
48	Cailloma 40**	1,000.00	R.P. No. 0227-2012-INGEMMET/PCD/PM
49	Cailloma 41**	1,000.00	R.P. No. 0507-2012-INGEMMET/PCD/PM
50	Cailloma 42**	1,000.00	R.P. No. 0498-2012-INGEMMET/PCD/PM
51	Cailloma 43	200.00	R.P. No. 0949-2012-INGEMMET/PCD/PM
52	Cailloma 44	1,000.00	R.P. No. 1521-2012-INGEMMET/PCD/PM
53	Cailloma 45	1,000.00	R.P. No. 0497-2012-INGEMMET/PCD/PM
54	Cailloma 46	1,000.00	R.P. No. 0638-2012-INGEMMET/PCD/PM
55	Cailloma 47	1,000.00	R.P. No. 0640-2012-INGEMMET/PCD/PM
56	Cailloma 48	700.00	R.P. No. 0909-2012-INGEMMET/PCD/PM
57	Cailloma 49	1,000.00	R.P. No. 0989-2012-INGEMMET/PCD/PM
58	Cailloma 50	1,000.00	R.P. No. 1074-2012-INGEMMET/PCD/PM
59	Cailloma 51	5.35	R.P. No. 1718-2013-INGEMMET/PCD/PM
60	Cailloma 52	11.98	R.P. No. 1740-2013-INGEMMET/PCD/PM
61	Cailloma 10A	999.97	R.P. No. 1859-2012-INGEMMET/PCD/PM
62	Gaya 9	1,000.00	R.P. No. 3114-2010-INGEMMET/PCD/PM
63	Gaya 8	1,000.00	R.P. No. 2970-2010-INGEMMET/PCD/PM
64	Gaya 22	27.14	R.P. No. 2163-2012-INGEMMET/PCD/PM
65	Gaya 7-A	55.39	R.P. No. 2699-2010-INGEMMET/PCD/PM
66	Gaya 10	900.00	R.P. No. 0890-2013-INGEMMET/PCD/PM
67	Cailloma 33	23.80	R.P. No. 2118-2019-INGEMMET/PCD/PM
68	Cailloma 31	32.58	R.P. No. 3623-2018-INGEMMET/PCD/PM
69	Cailloma 13	536.51	R.P. No. 1372-2019-INGEMMET/PCD/PM
70	Cailloma 32	204.54	R.P. No. 1541-2020-INGEMMET/PCD/PM
71	Cailloma 55	46.75	R.P. No. 2032-2020-INGEMMET/PCD/PM
72	Cailloma 57	108.23	R.P. No. 2033-2020-INGEMMET/PCD/PM
73	Cailloma 56	38.55	R.P. No. 3733-2021-INGEMMET/PCD/PM
74	Cailloma 58	7.61	R.P. No. 3150-2021-INGEMMET/PCD/PM
Total		**35,621.88**	

*Areas of mining concessions (including the five leased) have been rounded down to take into account mining concessions that overlap.
** Leased to Compania de Minas Cerro Hablador SAC until October 29, 2026

Pursuant to an agreement dated June 21, 2021, Bateas has leased five of the mining concessions ("Cailloma 38", "Cailloma 39", "Cailloma 40", "Cailloma 41" and "Cailloma 42") to Compañía de Minas Cerro Hablador SAC, with the term of the lease expiring on October 29, 2026. The concessions are located to the south of the Caylloma Mine (Figure 4.2). There are no known Mineral Resources or Mineral Reserves located in these concessions as of the effective date of this Report.

The Mineral Rights are located in the districts of Caylloma, Choco, Tapay, Lari, Chachas and Suyckutambo, provinces of Caylloma, Castilla y Espinar, of the departments of Arequipa and Cusco in Peru. The location of each of the Mineral Rights is fixed, for all legal purposes, by Universal Transversal Mercator (UTM) coordinates (WGS 84) of their vertices.

Figure 4.2 Location of mining concessions at the Caylloma Mine

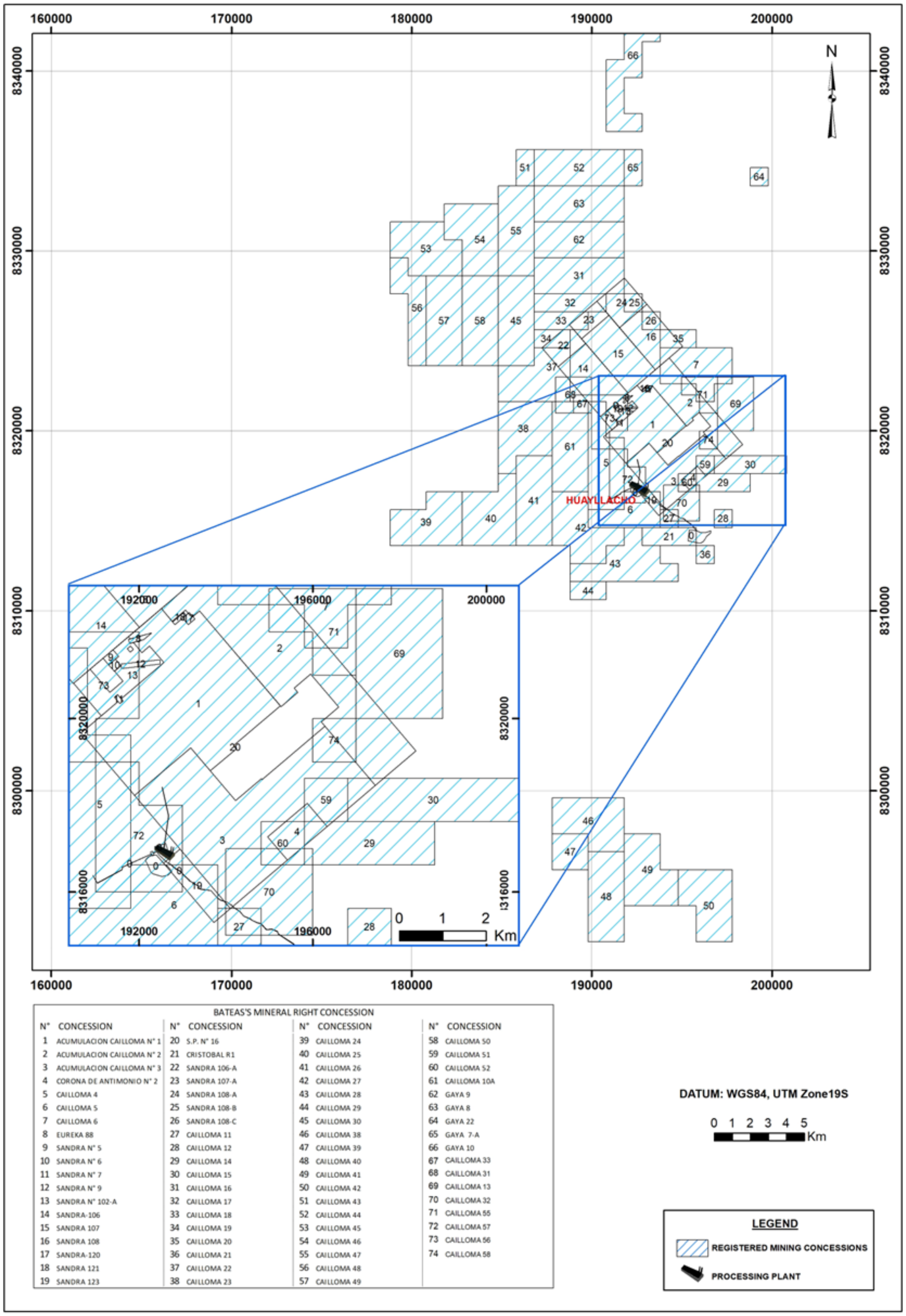


Figure prepared by Bateas, 2023

4.2 Surface rights

Surface rights and easements held by Bateas at Caylloma are detailed in Table 4.2.

Table 4.2 Surface rights for operations held by Bateas at Caylloma

No.	Name	Area (ha)*	Type
1	Bahia Electrica	0.13	Surface Right
2	Anexo Talta Huarahuarco – Sección A	40.37	Surface Right
3	Anexo Talta Huarahuarco – Sección B	1.04	Surface Right
		0.02	Easement
		0.11	Easement
		0.0004	Easement
4	Hichoccollo - Huarahuarco	20.00	Surface Right
5	Fundo Huayllacho - Bateas	186.73	Surface Right
		0.13	Easement
6	Animas	214.41	Surface Right
7	Putusi - Chico	0.03	Easement
		0.02	Easement
		0.02	Easement
		0.06	Easement
8	Palcacucho	1.48	Easement
		0.62	Easement
		1.06	Easement
		0.63	Easement
		1.00	Easement
		0.80	Easement
		1.37	Easement
		17.53	Easement
		38.13	Easement
		42.81	Easement
		67.28	Easement
9	Anchaca	0.44	Easement
		4.83	Easement
		9.66	Easement
10	Chulla Raccay Pampa	1.22	Easement
		2.44	Easement
11	Cuchuquipa	17.49	Easement
		0.62	Easement
		14.74	Easement
		0.40	Easement
		16.87	Easement
		16.62	Easement
12	Jururuni	258.90	Easement
13	Huaraco Sahunana	1,200.00	Easement
14	Michihuasi	192.85	Easement
		65.92	Easement
15	Tayayaque Trinidad	89.23	Easement
		351.77	Easement
16	Vilafro	1,047.49	Easement
		38.67	Easement
		1.50	Easement
17	Pumanota-Antocollo	322.60	Surface Right
18	Parcela 105 – Predio "San Ignacio"	0.15	Easement
		0.15	Easement

No.	Name	Area (ha)*	Type
19	Componentes	4.70	Easement
20	Pumpuyo	2,744.30	Easement
21	Culluhuire Giro Amayccoto	1,135.40	Easement
22	Hatun Hausi El Toro Kculi	136.25	Easement
*Total area of land subject to easements/surface rights does not take into account overlapping easements.			

Regarding the current situation of the surface rights it is important to note the following:

- Peruvian legislation considers mining concessions as a right separate from the surface land where it is located.
- According to Peruvian Mining Law, a mining concessionaire requires a previous authorization from the surface owner or possessor of the land to undertake mining activities.

The majority of the surface right easements detailed in Table 4.2 are not registered and were signed by landholders (owners or possessors) that may or may not have legal titles. The agreements signed by Bateas have all been formalized through Public Deeds or the proceedings to access state-owned lands have been fulfilled, that to the best of Bateas' knowledge provide sufficient rights to operate.

Fresh water supply for the Caylloma Mine is provided by the Santiago River which runs through the property, with a permanent water permit granted by the Ministry of Autoridad Nacional de Agua.

4.3 Royalties

The Caylloma Mine is subject to the following royalties:

- Pursuant to a royalty agreement between Bateas and Minera Arcata, dated May 2, 2005, a royalty of 2 % of the NSR which will apply after not less than a total of 21 million ounces of silver have been recovered from certain mineral concessions processed through any mill. This contract is a permanent condition and will remain in total validity as long as a valid mining concession exists. This royalty was subsequently assigned by Minera Arcata to Nueva Granada Gold Ltd. (formerly Lemuria Royalties Corp.). Bateas surpassed the silver ounce limit and commenced paying the 2 % NSR royalty on silver production to Nueva Granada Gold Ltd. on February 16, 2022.
- Holders of mineral concessions are obliged to pay to the Peruvian Government, a mining royalty, as a consideration for the exploitation of the metallic and non-metallic natural resources. The mining royalty is calculated based on the quarterly operating profit of the concession holder.

  In order to obtain the rate of the mining royalty, an effective rate (determined by law) is applied to the operating profit. This effective rate is variable and progressive, and it depends on the operating margin in the quarter for the concession holder.

  The amount paid as the mining royalty is the greater amount calculated when comparing the effective rate and 1 % of income generated by sales in the quarter.

- In addition, the mineral concession holders are obliged to pay the Special Tax on Mining (Impuesto Especial a la Minería), which taxes their operating income arising from the sale of metallic natural resources on or originating from the estate in which they operate. The tax base of the Special Tax on Mining is from the quarterly operating profit of the mining concession holder.

Other than these royalties, the concessions are not subject to any other encumbrances or back-in rights.

4.4 Environmental aspects, permits and social considerations

Bateas is in compliance with Environmental Regulations and Standards set out in Peruvian Law and has complied with all laws, regulations, norms and standards at every stage of operation of the mine.

Environmental aspects including water rights, approved permits and social considerations are set out in Section 20 of this Report.

The Caylloma area has a long history of mining activity, including small-scale and artisan operations dating back to the 1600s. There is an expectation that some environmental damage will have resulted from these activities.

Bateas is responsible for environmental liabilities in respect of "Acumulación Cailloma N° 1", "Acumulación Cailloma N° 2", "Cailloma 6", "Cailloma 9" and "Sandra N° 102-A", whose remediation has been added to and included in the Closure Plan for Mining Environmental Liabilities of the Caylloma Mining Unit.

4.4.1 Mine closure

Bateas has an environmental commitment related to the remediation of the current mining facilities located on its concessions. Bateas is to set aside US$ 16 million to cover remediation and closure requirements. These programs are ongoing with funds assigned to various projects on an annual basis. Further details of the mine closure plan are included in Section 20.

4.5 Comment on Section 4

In the opinion of the QPs:

- Fortuna was provided with an independent legal opinion that supported that the mining tenure held by Bateas for the Caylloma Mine is valid and that Bateas has a legal right to mine the deposit.

- Fortuna was provided with a legal opinion that supported the fact that the surface rights held by Bateas for the Caylloma Mine are in good standing. The surface rights are sufficient in area for the mining operation infrastructure and tailings facilities.

- Fortuna was provided with a legal opinion that outlined royalties payable for the concessions held by Bateas.

Fortuna advised that to the extent known, there are no other significant factors and risks that may affect access, title or right or ability to perform work at the mine.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Access

Access to the Caylloma Mine is by a combination of sealed and gravel roads. The mine is located 225 road kilometers from Arequipa, a city of approximately a million people that includes an international airport and requires a trip of approximately five hours by vehicle. Access is available to all concessions via a network of unsealed roads.

5.2 Climate

The climate in the area is characteristic of the puna, with rain and snow between December and March, followed by a dry season from April through September. The average precipitation on site per year is approximately 820 mm with 1,300 mm of evaporation. The climate allows for year-round mining and processing, although surface exploration can be disrupted between December and March due to electrical storms, snow or heavy rainfall.

5.3 Topography, elevation and vegetation

The Caylloma Mine is located in the puna region of Peru at an altitude of between 4,300 and 5,000 meters above sea level (masl). Surface topography is generally steep with vegetation being primarily comprised of grasses and small shrubs common at high altitudes. The mine facilities are located at approximately 4,400 masl.

5.4 Infrastructure

The mine has been in operation intermittently for over 400 years. Since 2011, several new buildings have been constructed to replace aging infrastructure including a laboratory, offices, accommodation blocks, recreation areas, mess hall, core logging and core storage warehouses.

Experienced underground miners live in the nearby town of Caylloma and other local towns in the district and are transported to the mine by bus.

The camp and process facilities are located on the relatively flat valley floor while the entrance to the underground operations is via portals in the steep side of the valley. Ore is transported by a combination of rail, rubber-tired scoops and ore haulage trucks.

Sufficient make-up water for the process plant and mining operations is available from the Santiago River that crosses the property.

The mine facilities are connected to the Electro Sur del Perú electric system, which supplies sufficient power for the operation.

More detailed information regarding the mine infrastructure is provided in Section 18.

5.5 Sufficiency of surface rights

The Caylloma Mine infrastructure has a limited footprint as detailed in Section 18 of this Report. The mine's processing facility and supporting infrastructure is located well within the area of the surface rights and mineral tenements (as detailed in Section 4) owned by Bateas.

5.6 Comment on Section 5

In the opinion of the QPs, the existing infrastructure, availability of staff, the existing power, water, and communications facilities, the methods whereby goods are transported to and from the mine site, and any planned modifications or supporting studies are well-established, or the requirements to establish such, are well understood by Fortuna, and support the declaration of Mineral Resources and Mineral Reserves and the proposed life of mine (LOM) plan with mining operations conducted on a year-round basis.

6 History

6.1 Ownership history

The Caylloma Mine is located in the Puna region of Peru. The earliest documented mining activity in the Caylloma District dates back to that of Spanish miners in 1620. English miners carried out activities in the late 1800s and early 1900s. Numerous companies have been involved in mining the district of Caylloma but limited records are available to detail these activities.

The Caylloma Mine was acquired by Compania Minera Arcata S.A. (CMA), a wholly owned subsidiary of Hochschild Mining plc in 1981. Fortuna acquired the mine from CMA in 2005.

6.2 Exploration history

CMA focused exploration on identifying high-grade silver vein structures. Exploration was concentrated in the northern portion of the district and focused on veins including Bateas, El Toro, Paralela, San Pedro, San Cristobal, San Carlos, Don Luis, La Plata, and Apostles.

Extensive exploration and development were conducted on the Bateas vein due to its high silver content; however, exploration did not extend to the northeast due to the identification of a fault structure that was thought to truncate the mineralized vein.

Animas was one of the first vein structures identified by CMA. However, the mineralization style was identified as polymetallic in nature, rather than the high-grade silver veins CMA was seeking. Subsequently no further exploration or development was undertaken of this vein until Fortuna took ownership in 2005.

Table 6.1 details the drilling and channel information by vein produced by CMA that was validated by Bateas.

Table 6.1 Exploration by drill hole and channels conducted by CMA

Vein	Drill Holes	Channels
Paralela	-	624
San Pedro	8	1,939
San Cristóbal	20	3,833
San Carlos	-	221
Santa Catalina	-	735
Don Luis	1	-
Don Luis I	2	-
Elisa	2	-
La Plata	9	371
Cimoide La Plata	-	311
Ramal San Pedro	1	-
San Miguel	2	
Ursula	2	

6.3 Production history

Historically the Caylloma area has been known as a silver producer. Past production has been from several vein systems that ranged from centimeters, up to 20 m in width. Individual ore shoots can strike for hundreds of meters with vertical depths ranging up to 300 m. Mining has historically taken place between the 4,380 masl and 5,000 masl. No reliable production records are available for the early mining activities.

6.3.1 Compania Minera Arcata

Production prior to 2005 came primarily from the San Cristobal vein, as well as from the Bateas, Santa Catalina and the northern silver veins (including Paralela, San Pedro, and San Carlos) with production focused on silver ores and no payable credits for base metals. During CMA management, production parameters fluctuated during the late 1990s as reserves were depleted. Owing to low metal prices, funds were not available to develop the Mineral Resources at depth or extend along the strike of the veins. Ultimately this resulted in production being halted in 2002. A summary of the production records at Caylloma under CMA management from 1998 through 2002 are included in Table 6.2. Production figures prior to 1998 are unavailable.

Table 6.2 Production figures during CMA management of Caylloma

Production	1998	1999	2000	2001	2002	Total
Ore processed (t)	125,509	129,187	167,037	180,059	164,580	766,372
Head grade Ag (g/t)	308	331	373	405	572	406
Head grade Au (g/t)	1.27	0.89	0.67	0.60	0.23	0.69
Recovery Ag (%)	85.1	87.7	87.0	87.2	87.4	86.9
Recovery Au (%)	78.9	72.9	61.6	68.2	55.2	66.5
Concentrate produced (t)	4,623	4,756	6,698	7,725	6,735	30,537
Concentrate grade Ag (g/t)	7,115	7,913	8,097	8,235	12,209	6,280
Concentrate grade Au (g/t)	27.29	17.68	10.31	9.45	3.05	8,821
Production Ag (oz)	1,057,535	1,207,550	1,743,535	2,045,398	2,643,788	8,697,806
Production Au (oz)	4,051	2,697	2,218	2,347	659	11,973

6.3.2 Bateas

Production under Bateas management focused on the development of polymetallic veins producing lead and zinc concentrates with silver and gold credits. A summary of total production figures since the mine reopened in October 2006 are detailed in Table 6.3 with production rates increased at the operation in 2011 from 1,000 tpd to 1,300 tpd and again in May 2016 to approximately 1,500 tpd.

Table 6.3 Production figures during Bateas management of Caylloma (2006-2023)

Production	2006#	2007	2008	2009	2010	2011	2012	2013	2014
Ore processed (t)	33,460	250,914	331,381	395,561	434,656	448,866	462,222	458,560	464,823
Head grade Ag (g/t)	76	73	95	155	159	171	177	173	174
Head grade Au (g/t)	0.37	0.66	0.45	0.47	0.40	0.36	0.40	0.36	0.31
Head grade Pb (%)	1.12	1.70	2.48	3.10	2.44	2.15	1.99	1.92	1.70
Head grade Zn (%)	2.33	2.93	3.65	3.66	3.10	2.68	2.56	2.83	2.97
Production Ag (koz)*	56	443	805	1,685	1,906	2,008	2,039	2,104	2,203
Production Au (oz)*	166	3,328	2,197	2,747	2,556	2,393	2,781	2,212	1,820
Production Pb (t)	309	3,771	7,485	11,400	9,695	8,926	8,113	8,065	7,326
Production Zn (t)	603	6,300	10,561	12,900	11,855	10,625	10,158	11,436	12,411

* Recovery of silver and gold from lead and zinc concentrate
\# Commercial production commenced in October 2006

Production	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total (2006-2023)
Ore processed (t)	466,286	514,828	529,704	534,773	531,307	510,047	539,779	546,186	543,876	**7,997,229**
Head grade Ag (g/t)	136	90	66	63	66	72	76	80	85	**110**
Head grade Au (g/t)	0.26	0.20	0.18	0.18	0.23	0.41	0.49	0.14	0.24	**0.32**
Head grade Pb (%)	2.47	3.06	2.81	2.62	2.72	3.00	3.16	3.27	3.74	**2.66**
Head grade Zn (%)	3.84	4.25	4.21	4.28	4.36	4.61	4.56	4.32	5.11	**3.83**
Production Ag (koz)*	1,696	1,256	943	911	941	968	1,074	1,145	1,227	**23,410**
Production Au (oz)*	1,163	533	491	693	1,645	4,109	6,086	777	513	**36,210**
Production Pb (t)	10,811	14,820	13,552	12,816	13,039	13,439	14,964	15,689	18,530	**192,750**
Production Zn (t)	16,252	19,597	20,115	20,631	20,684	20,659	21,568	20,945	24,975	**272,275**

* Recovery of silver and gold from lead and zinc concentrate

7 Geological Setting and Mineralization

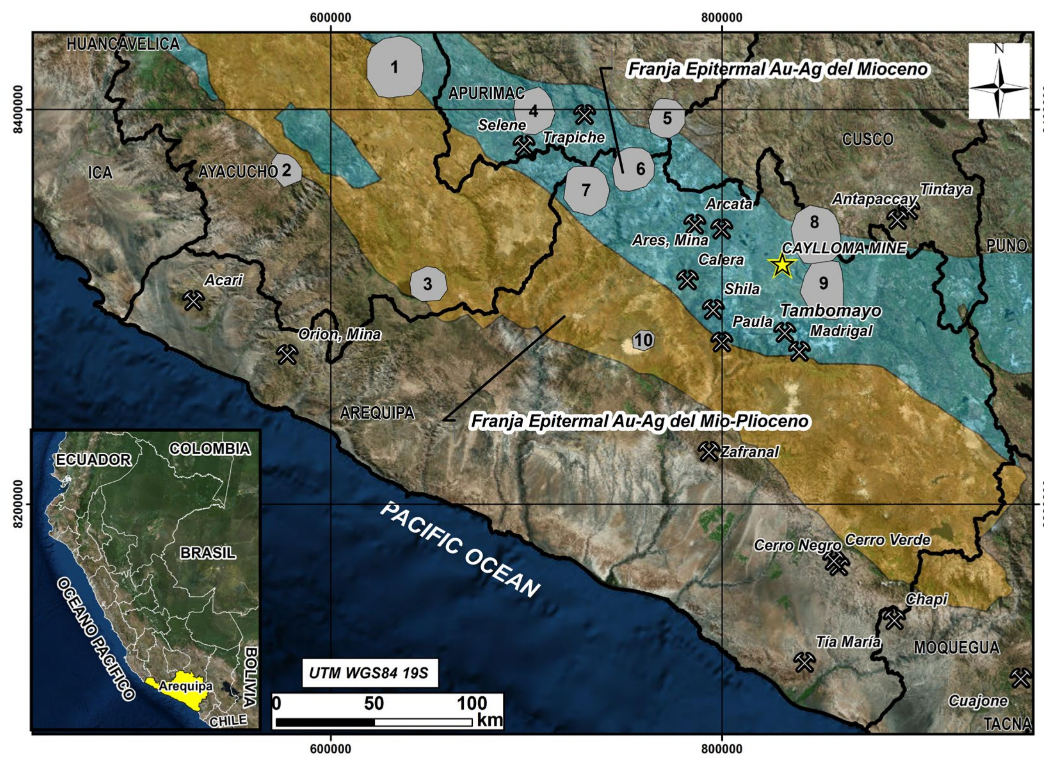
7.1 Regional geology

The Caylloma District is located in the Neogene volcanic arc that forms part of the Cordillera Occidental of southern Peru. This portion of the volcanic arc developed over a thick continental crust consisting of deformed Paleozoic and Mesozoic rocks.

Following the late Eocene to early Oligocene Incaic orogeny there was a period of erosion and magmatic inactivity prior to the eruption of the principal host rocks in the Caylloma District. Crustal thickening and uplift occurred between 22 Ma and 17 Ma accompanied by volcanism, faulting and mineralization in the Caylloma District.

The volcanic belt in the Caylloma District contains large, locally superimposed calderas (Figure 7.1) of early Miocene to Pliocene age comprising calc-alkaline andesitic to rhyolitic flows, ignimbrites, laharic deposits, and volcanic domes that unconformably overlie a folded marine sequence of quartzite, shale, and limestone of the Jurassic Yura Group.

Figure 7.1 Location map of the Caylloma District



Key

Principal Neogene calderas (grey) and epithermal deposits of the region:
1 = Ccarhuarazo; 2 = Pampa Galeras; 3 = Parinacocha; 4 = Tumiri; 5 = Teton; 6 = San Martín; 7 = Esquillay; 8 = Chonta; 9 = Caylloma; and 10 = Coropuna.
Black line = political (department) boundaries.

The Caylloma Mine is the only mine operated by Bateas, all other mines shown are operated by third parties.

Figure prepared by Bateas, 2023 after Noble et al (1989)

7.2 Local geology

The mining district of Caylloma is located northwest of the Caylloma caldera complex (Figure 7.2).

Figure 7.2 Local geologic map of Caylloma District

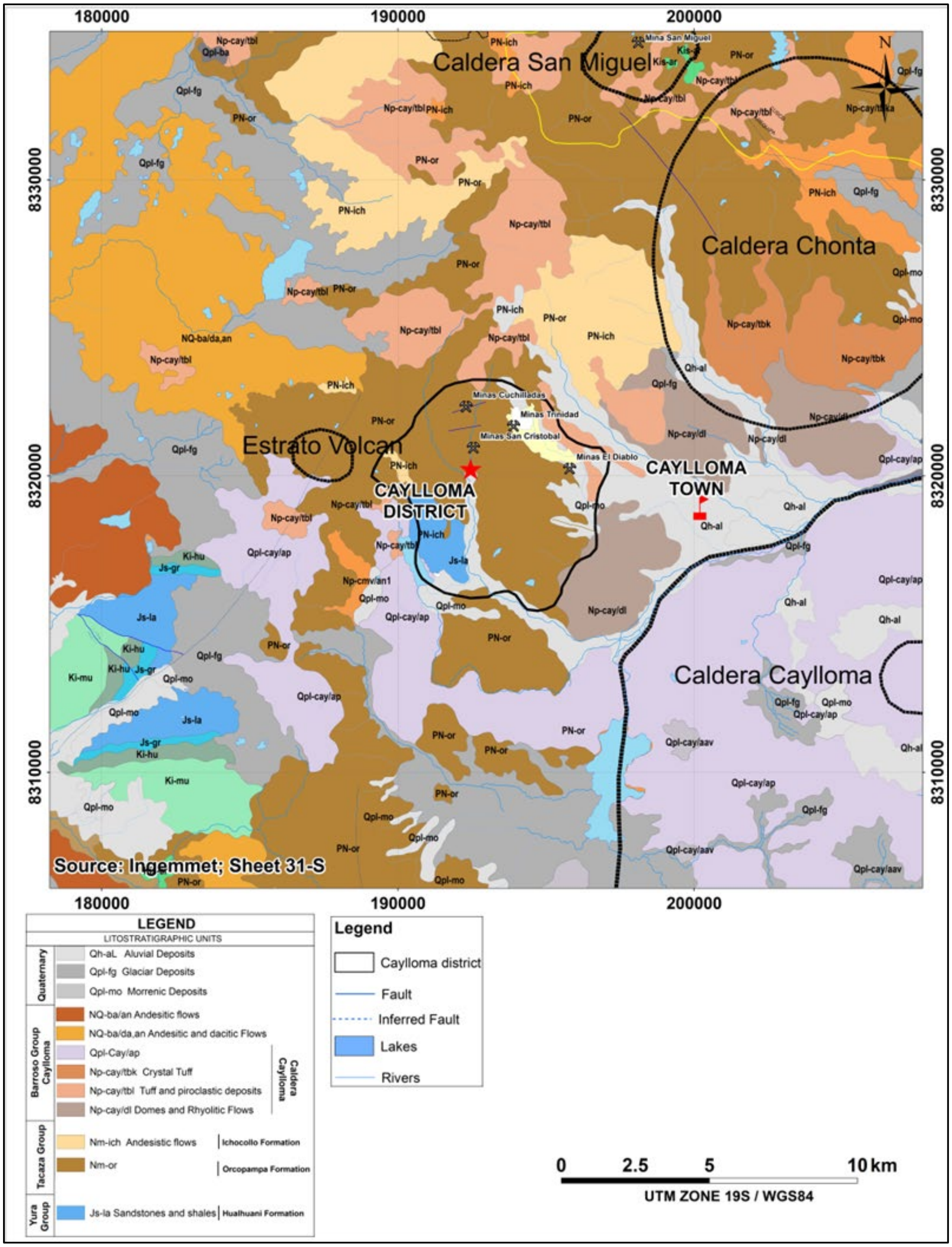
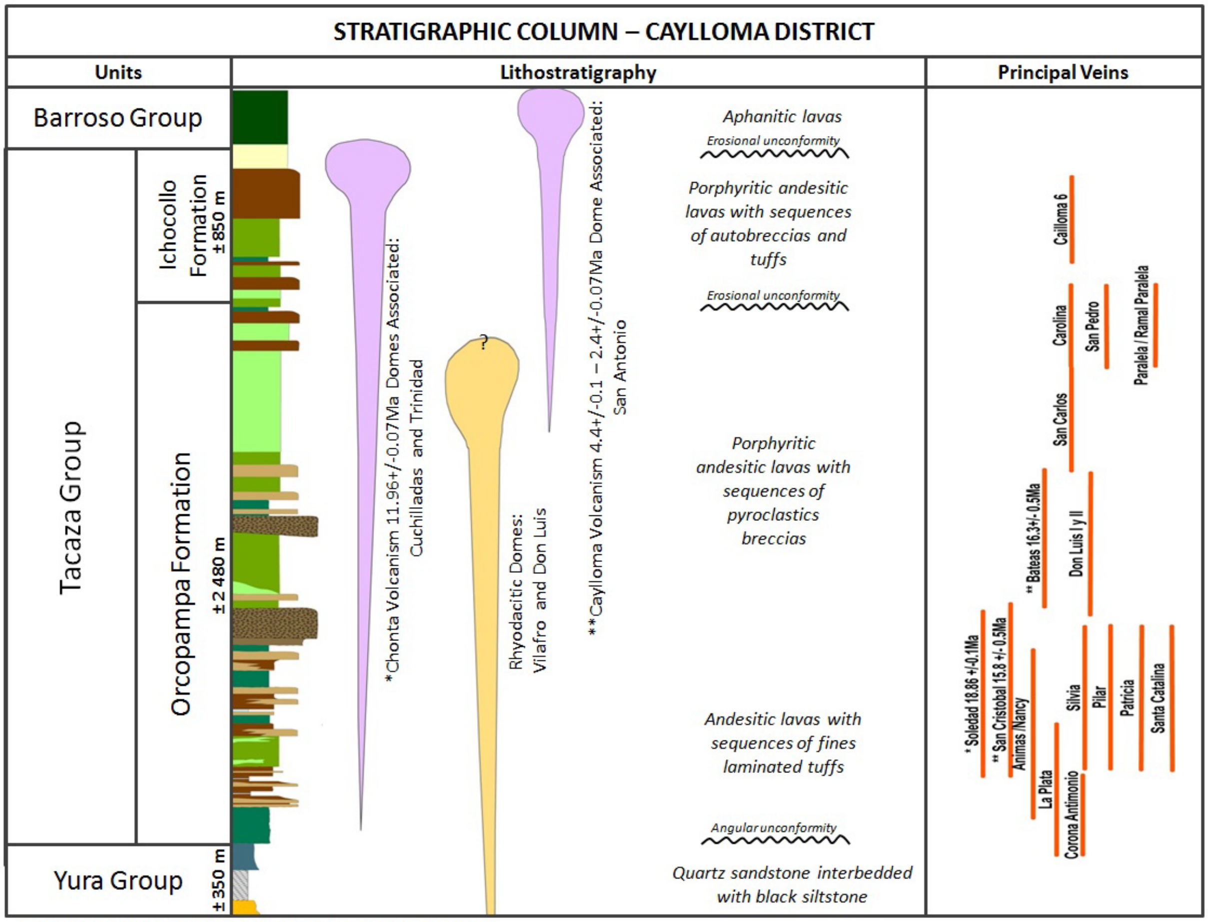


Figure prepared by Bateas, 2023 from the Geological, Mining, and Metallurgical Institute of Peru's (INGEMMET) Sheet 31-S

The host rock of the mineralized veins is volcanic in nature, belonging to the Tacaza Group (Figure 7.3). The volcanic units of the Tacaza Group lie unconformably over a sedimentary sequence of orthoquartzites and lutites of the Yura Group. Portions of the property are covered by variable thicknesses of post-mineral Pliocene-Pleistocene volcanic rocks of the Barroso Group and recent glacial and alluvial sediments.

Figure 7.3 Stratigraphic column of Caylloma District



** Echavarria, L. Geology and Mineralization Caylloma District, 2003 p.12.*
*** Peterson et al. (1983), Silberman et al. (1985), McKee y Noble (1989) y Noble (1981a y 1981b) Geochronology of the host rocks and mineralization Caylloma District*

Figure prepared by Bateas, 2023

7.2.1 Yura Group

The oldest rocks exposed in the Caylloma District belong to the Yura Group, and comprise white to gray ortho-quartzites, dark gray siltstones, and blackish greywackes, intercalated with thin layers of black lutites. The overall thickness of the group is approximately 400 m.

Outcrop evidence indicates Yura Group strata are strongly deformed with the presence of recumbent kink folds with straight limbs and narrow hinges. However, strain in the Yura Group is locally weaker at depth, as only open folds have been identified in the Caylloma Mine area (Echavarria et al., 2006).

Drilling conducted in 2021 encountered limestone at depth, which is thought to belong to the Gramadal Formation.

7.2.2 Tacaza Group

The Tacaza Group consists of a sequence of effusive lavas and tuff breccias intercalated with tuff horizons that lie in angular unconformity and in fault contact with rocks of the Yura Group.

The Tacaza volcanic group comprises lavas of intermediate to silicic composition with a porphyritic texture. The dominant color is reddish-brown changing to greenish in areas of chloritic alteration. These volcanic rocks locally include a horizon of limestone that grades laterally to siltstone.

Estimated thickness of the Tacaza Group is 3,100 m, with some sequences showing thinning of volcanic horizons along strike and down dip. The Tacaza Group is of Lower Miocene age.

The Tacaza Group includes the Orcopampa and Ichocollo Formations. The Orcopampa Formation (Bulletin 40 – Cailloma Quadrangle, Sheet 31-S, INGEMMET) unconformably overlies the Mesozoic sedimentary sequence of the Yura Group and is comprised of volcaniclastics, volcanic breccias and greenish to purplish gray lavas of andesitic composition. The Ichocollo Formation unconformably overlies the Orcopampa Formation and is considered to represent the final stage of Tacaza volcanism. The Ichocollo Formation is exposed near San Miguel and Sukuytambo, located to the northeast of the Caylloma District, and consists of lavas and dacitic domes in the basal section and andesitic to basaltic andesite flows in the upper section. The lavas are dark gray to gray in color and noticeably porphyritic.

7.2.3 Tertiary volcanic deposits

Overlying the Tacaza Group with unconformable contacts are andesitic lavas, rhyolites, dacites and tuffs belonging to the Barroso Group. They are generally present in prominent outcrops with sub-horizontal stratification and are Plio-Pleistocene in age.

7.2.4 Recent clastic deposits

Quaternary clastic deposits locally cover portions of the Caylloma property. The valley floors and lower slopes are covered by alluvial material as well as glacial moraines, colluvium, and fluvio-glacial material.

7.2.5 Intrusive igneous rocks

The sedimentary and volcanic rocks in the Caylloma District have been intruded by post-mineral, fault-controlled rhyolitic domes (Cuchilladas and Trinidad domes) and dikes of the Chonta caldera sequence, characterized by coarse-grained quartz and sanidine phenocrysts, spherulites, and lithophysae, and well-developed laminations (Echavarria et al., 2006). In addition, recent mapping has identified outcrops of a rhyodacitic dome in the Vilafro area (Vilafro Dome) that host large alunite veins.

7.3 Project geology

The Caylloma Mine is characterized predominantly by a series of faulted fissure vein structures trending in a northeast-southwest direction (Figure 7.4). Locally northwest-southeast trending veins are also present (for example, the Don Luis veins).

Figure 7.4 Geology map of Caylloma Mine showing major vein systems

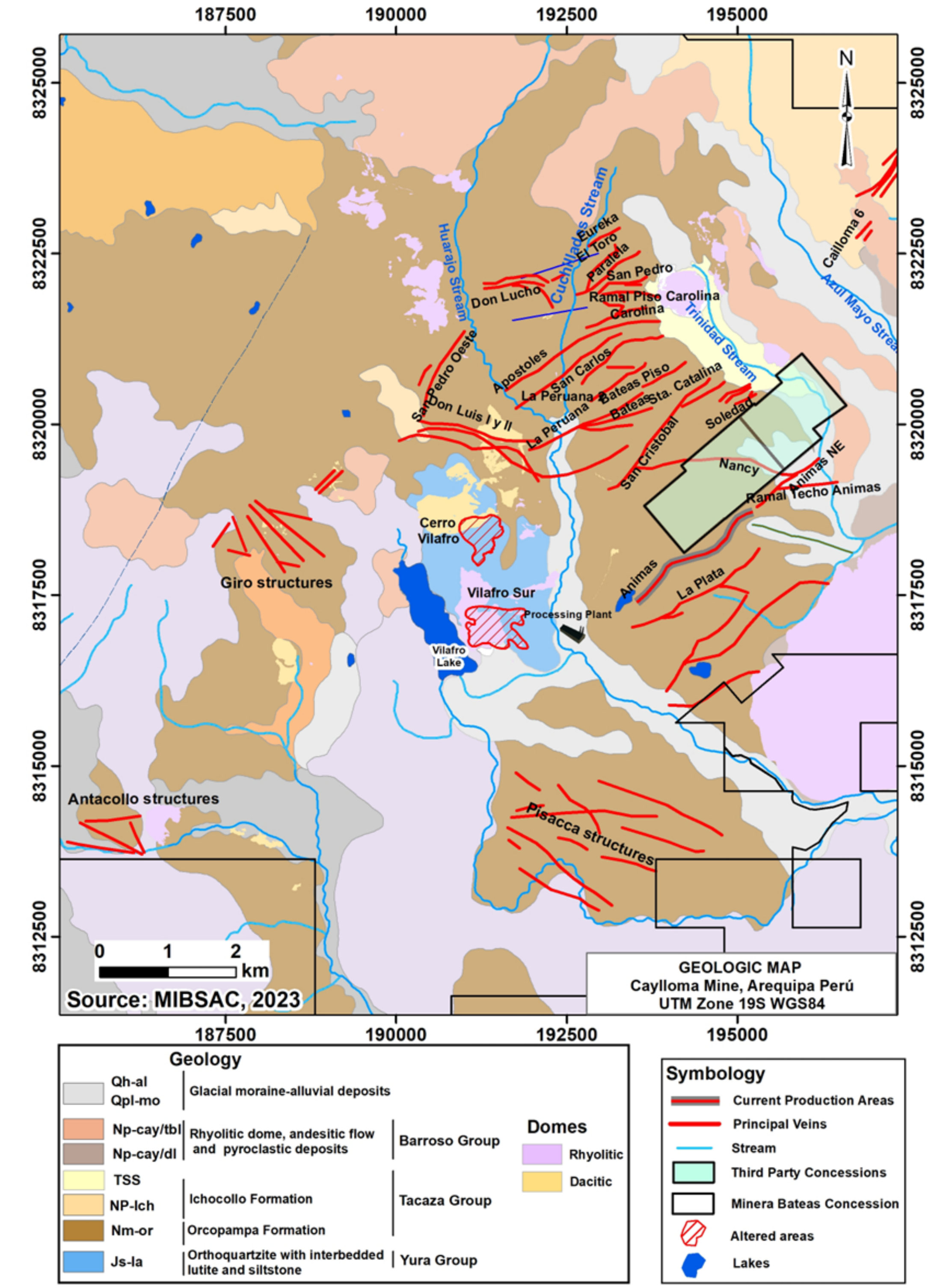


Figure prepared by Bateas, 2023

7.3.1 Structural setting

Veins in the Caylloma District show structural patterns and controls typical of other vein systems hosted by Tertiary volcanic rocks in the western Peruvian Andean range. The Caylloma District vein system was developed as a set of dilatational structures as a consequence of tension generated during the main compressional event of the Andes. Veins are persistent along strike and dip. Locally, veins are displaced by post-mineral faulting along a north-northwest bearing. Horizontal displacement along these faults is minor and ranges from centimeters up to a few meters. No significant vertical displacement is observed on the structures. The vein system is not affected by any folding.

7.3.2 Alteration

Three types of hydrothermal alteration have been identified at the Caylloma Mine: (1) quartz-adularia; (2) quartz-illite; and (3) propylitic. The quartz-adularia (+pyrite +/-illite) alteration is restricted to the margins of the veins, with the thickness of the altered zone being generally proportional to the thickness of the vein. The width varies from a few centimeters to a few meters. Quartz replaces the volcanic matrix in the rocks, and quartz plus adularia occur as small veinlets or colloform bands. Pyrite is disseminated in the veinlets and in iron-manganese minerals in the wall rock. Illite is a product of alteration of the plagioclase and matrix of the volcanic host rocks. Quartz-adularia is absent in the upper parts of the vein systems. The alteration assemblage in the upper portions of the vein systems consists of a narrow selvage of quartz-illite near the vein. Quartz-illite grades into quartz-adularia at depth. Propylitic alteration is widespread throughout the property and may be regional in nature and unrelated to mineralizing events. The propylitic alteration is a fine aggregate of chlorite, epidote, calcite and pyrite.

7.3.3 Mineralization

There are two distinct types of mineralization at the Caylloma Mine, one with predominantly elevated silver values (Bateas, Bateas Piso, Bateas Techo, La Plata, Cimoide La Plata, San Cristobal, San Pedro, San Carlos, Paralela, Carolina, Don Luis II veins), and the other being polymetallic with elevated silver, lead, zinc, copper, and gold values (Animas, Animas Techo, Animas NE, Animas NE Techo, Cimoide ASNE, Ramal Techo ASNE, Santa Catalina, Soledad, Silvia, Pilar, Patricia, Nancy and Rosita veins).

A supergene oxide horizon has been identified which contains the following secondary minerals: psilomelane, pyrolusite, goethite, hematite, chalcocite, covelite and realgar (Corona and Antimonio veins). The oxide zone is thin, with no evidence of secondary silver enrichment.

Veins are tabular in nature, with open spaces filled by episodic deposition of metallic sulfides and gangue minerals. According to Echavarria et al., (2006) most of the minerals, both silver and base metals, are related to the deposition of manganese mineralization occurring in bands, comprised of quartz, rhodonite, rhodochrosite and sulfides.

Vein systems at the Caylloma Mine have a general northeast-southwest bearing and predominant southeast dip. Host rocks are pyroclastic breccias, effusive andesitic lavas and volcaniclastics of the Tacaza volcanic group.

There are two different types of mineralization at Caylloma; the first is comprised of silver-rich veins with low concentrations of base metals. The second type of vein is polymetallic in nature with elevated silver, lead, zinc, copper, and gold grades.

Mineralization in these vein systems occurs in steeply dipping ore shoots ranging up to several hundred meters long with vertical extents of over 400 m. Veins range in thickness from a few centimeters to 20 m, averaging approximately 1.5 m for silver veins and 2.5 m for polymetallic veins.

7.3.4 Silver veins

The silver vein systems outcrop in the central and northern portions of the Caylloma District, with the best exposures of mineralization between the Santiago River, Chuchilladas and Trinidad streams. The mineralization is composed primarily of colloform banded rhodochrosite, rhodonite, and milky quartz, with silver sulfosalts present in certain veins. Vein systems extend to the eastern flank of the Huarajo Stream. Exposures in this area consist of quartz-calcite with low concentrations of manganese oxides. Silver veins can be sub-divided into two groups, 1) those that have sufficient geological information to support Mineral Resource estimates and 2) those that have been identified as exploration targets.

1) Bateas/Bateas Piso/Bateas Techo, La Plata/Cimoide La Plata, San Cristobal, San Pedro, San Carlos, Paralela/Ramal Paralela, Carolina, and Don Luis II
2) Eureka, El Toro, San Pedro Oeste, Apostoles, Santa Rosa, La Peruana, Vilafro Sur, Cerro Vilafro, Cailloma 6, Condorcoto, Llocococha, Pampuyo-Pumanuta, Giro, Antacollo

A more detailed description of the more important silver veins presently being exploited or explored is presented below.

Bateas/Bateas Piso & Bateas Techo

The Bateas vein splits into two branches, Bateas Techo is the southern branch, and Bateas is the northern branch. The vein outcrops on surface extend for approximately 900 m and can be traced from the escarpment of the Loma de Vilafro Hill extending to the northeast, at the summit of the hill the vein is covered by younger volcanic ash. The Bateas vein has been defined over 400 m down-dip and has an average thickness of 0.6 m. The Bateas Techo vein extends for 375 m along strike, 125 m down-dip and averages 0.4 m in thickness. Host rock is a volcaniclastic andesite with minor dacite and latite portions. The vein has a strike of 070º and dip of 82º to the southeast.

Polymetallic mineralization is present in two very well-defined zones. In the northeast, the vein contains chalcedonic and opaline quartz with disseminated silver sulfosalts, pyrite, and calcite. The southwestern end of the vein is characterized by a gangue of quartz, rhodonite and rhodochrosite containing veinlets of sphalerite, galena, chalcopyrite, and disseminated pyrite.

The northern branch of the Bateas vein is known as the Bateas Piso vein being defined over 110 m along strike, 250 m down-dip with an average thickness of 0.4 m and dipping at 52º to the northwest with a strike parallel to the Bateas Techo vein. At its most northeastern extent it opens into a cymoid loop. Mineralization in the vein is characterized by base metal sulfides, sphalerite, galena, and disseminated pyrite in a gangue of quartz, calcite, rhodonite, and rhodochrosite.

La Plata & Cimoide La Plata

The La Plata vein is associated with fracture filling along a regional fault extending for more than 2 km. The most representative part extends over approximately 400 m along strike, 180 m down-dip with an average vein thickness of 1.4 m and consists of quartz, calcite, rhodonite, and abundant manganese oxides in its central portion. The eastern portion of the vein consists of quartz with disseminated pyrite, and ruby silver stained with manganese oxides. The vein has been explored from surface downwards to level 7 (4,745 masl). A splay of the La Plata vein has been identified, referred to as the Cimoide La Plata vein. It has the same characteristics as the La Plata vein with the vein being composed of gray silica with associated stibnite, pyrite and tetrahedrite. This cymoid has primarily been explored between level 7 and level 8 (4,745 masl and 4,695 masl).

San Cristobal

The San Cristóbal vein has a recognized strike length of 4 km with a 035° to 055° northeast strike, and 50 to 80° dip to the southeast. The vein has been modeled over a 2 km strike length, 100 m down-dip with an average thickness of 1.5 m. The primary sulfides in the vein are sphalerite, galena, polybasite, pyrargyrite, chalcopyrite and tetrahedrite distributed in gangue of pyrite, quartz, rhodonite and calcite. This is the most extensively developed structure on the property. The silver values are highly variable along the strike and throughout the thickness of the vein, forming localized enrichments. Silver values have a tendency to decrease gradually at depth, as can be observed at levels 4,600 masl (level 10), 4,540 masl (level 11), and 4,500 masl (level 12). Drilling conducted in 2021 identified a transition from precious metal rich to base metal rich mineralization at depth.

San Pedro

The San Pedro vein outcrops extend for 900 m on surface, has been defined over 100 m down-dip with a general strike of 045º and dipping at 85º to the southeast. The thickness of the vein averages 0.8 m and shows banded mineralization consisting of quartz, rhodonite, and manganese and iron oxides, with concentrations of ruby silver and native silver. This vein has been traced and mined down to 4,610 masl (level 10 of the mine). The distribution of silver values in the vein shows a gradual decrease with depth.

San Carlos

The San Carlos vein outcrops extend for approximately 300 m on surface; and has been defined over 480 m along strike, 50 m down-dip, having a strike direction of 045° and dip of 75° to the southeast. The thickness of the vein averages 0.4 m. The vein consists of tabular, open-space fillings with episodic periods of deposition. Most of the metals are related to the deposition of manganese minerals that occur in bands of quartz, rhodonite, and sulfides.

Paralela & Ramal Paralela

The Paralela and Ramal Paralela veins outcrop extend for 320 m on surface with a general strike of 040°, and dip at 72° to the southeast for 175 m. The thickness of the veins average 0.9 m. The veins consist of tabular, open-space fillings with episodic periods of deposition. Most of the metals are related to the deposition of manganese minerals.

Ramal Piso Carolina

The Ramal Piso Carolina vein outcrops extend for 435 m on surface with a general strike of 075° and dipping at 73° for 255 m to the southeast. The thickness of the vein ranges from 1.2 to 2 m, averaging 1.9m, and was recognized and partially exploited with underground workings by CMA in 3 levels (4800, 4750 and 4700 masl). In the southwest, the vein has a banded and colloform texture, with assemblages of rhodonite, quartz, calcite and Ag sulfosalts; to the northeast the vein has a brecciated texture with assemblages of quartz, calcite, Mn oxides and Ag sulfosalts.

During the development of the 2012 exploration program, potential mineralization was identified over 900 m along strike and extending to approximately 300 m in depth (level 4600 masl).

Don Luis II

The Don Luis I & II veins outcrop extend for 1,000 m at the surface, with a general strike between 95° to 115° and dipping at 40° and 68° to the southwest. The Don Luis II vein extends for 435 m along strike, 200m down-dip with an average vein thickness of 1.8 m, ranging from 1.5 to 2 m and have a brecciated texture composed of fragments of gray silica, tetrahedrite and stibnite.

Only limited exploration of the Don Luis veins was carried out by CMA and exploitation was restricted to minor workings on level 2 (4500 masl). Drilling carried out as part of the 2012-2014 exploration program demonstrated a mineralized column as described above for the Don Luis II vein.

7.3.5 Polymetallic veins

A series of polymetallic veins has been identified in the southern and central portions of the Caylloma Mine. These vein systems tend to be greater in strike length and thickness when compared to the silver vein systems. The main metallic minerals associated with the polymetallic veins are galena, sphalerite, pyrite, chalcopyrite, and in some zones pyrargyrite. The polymetallic veins can also be sub-divided into two groups, 1) those that have sufficient geological information to support Mineral Resource estimates and 2) those that have been identified as exploration targets.

1) Animas, Animas Techo, Animas NE, Animas NE Techo, Cimoide ASNE, Ramal Techo ASNE, Santa Catalina, Soledad, Silvia, Pilar, Patricia, Nancy, and Rosita veins.
2) El Diablo and Antimonio veins.

More detailed descriptions of the more important polymetallic veins presently being exploited or explored are presented below.

Animas & Animas NE

The Animas vein is one of the most prominent and well-defined structures in the southern portion of the Caylloma Mine. It is a base metal-rich polymetallic vein that is divided into two parts based on a fault structure that disrupts the vein's continuity. The vein to the southwest of the fault is known as Animas whereas to the northeast of the fault the vein is referred to as Animas NE. Splay structures are also present in each of the Animas and Animas NE structures referred to as the Techo or Cimoide veins.

The Animas/Animas NE polymetallic vein is present from level 5 (4,850 masl) to below level 18 (4,237 masl) in the mine. Several wide zones (over 12 to 14 m in thickness) are observed in levels 6, 9, 10, 12, 16, 17 and 18 (4,800 masl, 4,645 masl, 4,595 masl, 4,495 masl, 4,290 masl, 4,240 masl and 4,190 masl respectively), especially in lateral exploration cross-cuts. The total vein outcrops extend along 1.5 km with silicified exposures stained with manganese oxides and has been identified through diamond drilling over a total strike length of 3.3 km as well as extending for at least 690 m down-dip. Vein thickness ranges up to 16 m but averages approximately 4 to 5 m. Current exploitation has identified widths of up to 16 m in level 9 (4,650 masl) and 10 m in level 12 (4,500 masl) and 20 m in level 18(4237 masl) where it forms a sigmoidal loop approximately 300 m in length with widths between 2.5 to 12.40 m in the extreme northeast and 4 to 20 m at depth to level 18 (4,237 masl).

Vein mineralogy includes argentiferous galena, sphalerite, marmatite, and chalcopyrite accompanied by minor tetrahedrite and ruby silver. Gangue minerals are pyrite, quartz, calcite, rhodonite, rhodochrosite, and iron-manganese oxides displaying banded, colloform, and brecciated textures.

Cimoide ASNE

The Cimoide ASNE vein does not outcrop as there is 40-60 m of glacial moraine cover. The vein has been identified over a strike length of approximately 550 m and a down-dip length of 420 m through underground workings on level 12 (4,495 masl) of the mine. The strike of the vein varies between 30˚ to 210˚ while dipping 60˚ to 75˚ to the southeast. The width of the vein averaged 2 to 2.5 m. Mineralization is polymetallic in a gangue consisting of quartz/rhodonite. Minerals of economic importance include galena, sphalerite and chalcopyrite. The Cimoide ASNE vein has been explored to level 16 (4,290 masl) of the mine via diamond drilling.

Ramal Techo ASNE

The Ramal Techo ASNE vein also does not outcrop at surface due to the same glacial moraine cover as described above. The vein extends for approximately 225 m along strike and 185 m down-dip, having been exploited to level 12 (4,495 masl) of the underground mine. The strike of the vein ranges between 80˚ to 260˚ while dipping 47˚ to 52˚ to the southeast. Vein width ranges from 2.0 to 2.5 m with polymetallic mineralization consisting primarily of galena, sphalerite and chalcopyrite located in a gangue of quartz and rhodonite.

Santa Catalina

The Santa Catalina vein has been defined over a distance of 385 m along a strike of between 245° to 260º, dipping for 150 m at 65º to 80º to the northwest with an average thickness of 1.8 m. The vein contains silver sulfosalts (pyrargyrite and proustite), sphalerite, galena and chalcopyrite in a gangue of quartz, calcite, rhodonite, and rhodochrosite. The host rock is an andesite that exhibits pseudo-stratification flow banding and massive coherent structures. Tectonic breccias are present in the footwall and hanging wall of the vein. Bateas has mined to 4,720 masl, below level 8, and diamond drilling has intercepted the vein to 4,773 masl (level 9), where polymetallic mineralization is present in well-defined fault-controlled zones. A base-metal-rich zone is present between 4,720 masl (level 8) and 4,773 masl (level 9). The average thickness of the vein is 2.5 m.

Soledad

The Soledad vein is partially exposed at the surface for approximately 250 m, being located to the northeast of the Santa Catalina vein. It has a defined strike length of 835 m along 248º to 251º and extends for 255 m down-dip at 76º to the northwest. The average thickness of the vein at the surface is 0.5 m. During 2012, the vein was exploited between level 6 (4,820 masl) to below level 7 (4,750 masl). Exploration through diamond drilling and underground mine workings has confirmed that the vein continues down to at least level 8 (4,720 masl). The vein has an average thickness at depth of 1.0 m. The mineralization is polymetallic in nature, containing silver sulfosalts, sphalerite, galena, chalcopyrite, gray copper (enargite) and disseminated pyrite. The vein is banded with two recognized events: (1) an early phase, rich in base metal sulfides and elevated gold values in banded rhodonite, and (2) a second phase of quartz, rhodochrosite, with disseminated silver minerals and veinlets. The host rock is flow banded andesite with intercalated volcanic sediments.

Silvia

The Silvia vein is discontinuously exposed on the surface and has been defined over a strike distance of approximately 500 m and down-dip over 170 m. The thickness of the vein ranges from 0.8 to 1.8 m, averaging 1.3 m and the strike ranges between 250º and 262º. The vein dips to the northwest between 65º and 82º. Mineralization is polymetallic, with sphalerite, galena, chalcopyrite, and silver sulfosalts (pyrargyrite) present in a gangue of quartz, calcite, rhodonite, and rhodochrosite. The vein has a banded to massive texture with bands of base-metal sulfides of variable thickness. The host rock is an andesitic volcanic rock with propylitic-chloritic alteration.

Pilar

The Pilar vein is considered to be part of the San Cristóbal system. The vein has been identified over a strike length of 252 m, having originally been exposed in a gallery at level 8 of the San Cristóbal underground workings. It appears to be a tensional feature of the San Cristóbal vein with banded rhodonite and quartz texture with disseminated sulfides of sphalerite, galena, and silver sulfosalts. The vein is thought to extend for approximately 110 m down-dip with an average vein thickness of 0.7 m, a strike direction of 153° and dipping at 48° to the southwest.

Patricia

The Patricia vein is a fissure-type structure, composed primarily of banded rhodonite, quartz, and rhodochrosite with mineralization present as veins and lenses in the bands of quartz/rhodonite, as well as being associated with fault zone structures and hydrothermal alteration in the host rock. The vein has been defined over a strike length of 380 m along strike, 130 m down-dip with an average thickness of 0.6 m. The vein is located between the San Cristobal and Santa Catalina veins and was discovered from underground. Mineralization is comprised of silver sulfosalts such as tetrahedrite, proustite-pyrargyrite and veinlets of sphalerite, galena, pyrite and chalcopyrite set in a matrix of quartz rhodonite. The vein strikes towards 045˚ while dipping steeply at 85˚ to the northwest.

Nancy

The Nancy vein is thought to outcrop discontinuously over a distance of approximately 1,000 m. The strike of the vein ranges between 110˚ to 120˚ while dipping 60˚ to 70˚ to the southwest. The width of the vein ranges from 0.5 to 4.5 m, averaging 3.3 m, being wider near its intersection with the Animas vein. Mineralization is polymetallic in a gangue consisting of quartz and iron and manganese oxides. The metallic minerals of economic importance are galena, sphalerite and chalcopyrite. During 2012, the Nancy vein was defined by diamond drilling over approximately 360 m of its strike length and to a depth of approximately 260 m (elevation 4,420 masl). Mining of the Nancy vein commenced in January 2018 and has been explored to level 16 (4,290 masl) of the mine via underground workings with similar characteristics displayed as seen in the upper levels.

Rosita

The Rosita vein is polymetallic in nature, being characterized by sphalerite, galena, pyrite, and chalcopyrite in a quartz-calcite matrix exhibiting a brecciated texture and hosted in andesitic volcanics. The vein strikes approximately east-west, dipping at 52° to the south.

The vein was a blind discovery made while drilling underground holes to explore the northwest extension of the Nancy vein. Mining of the Rosita vein commenced in January 2018.

7.3.6 Oxidation

The mineralization present in all veins is sulfide with the exception of the uppermost portions of the Animas/Animas NE veins (Figure 7.5). The Animas vein has been explored close to surface and a supergene oxide horizon has been identified extending to a variable depth based on the presence of iron oxides and lesser amounts of manganese and zinc oxides. The location of elevated zinc oxide zones has been highlighted as this material reduces recovery in the plant.

Figure 7.5 Long section of Animas vein showing sulfide/oxide/zinc oxide zones

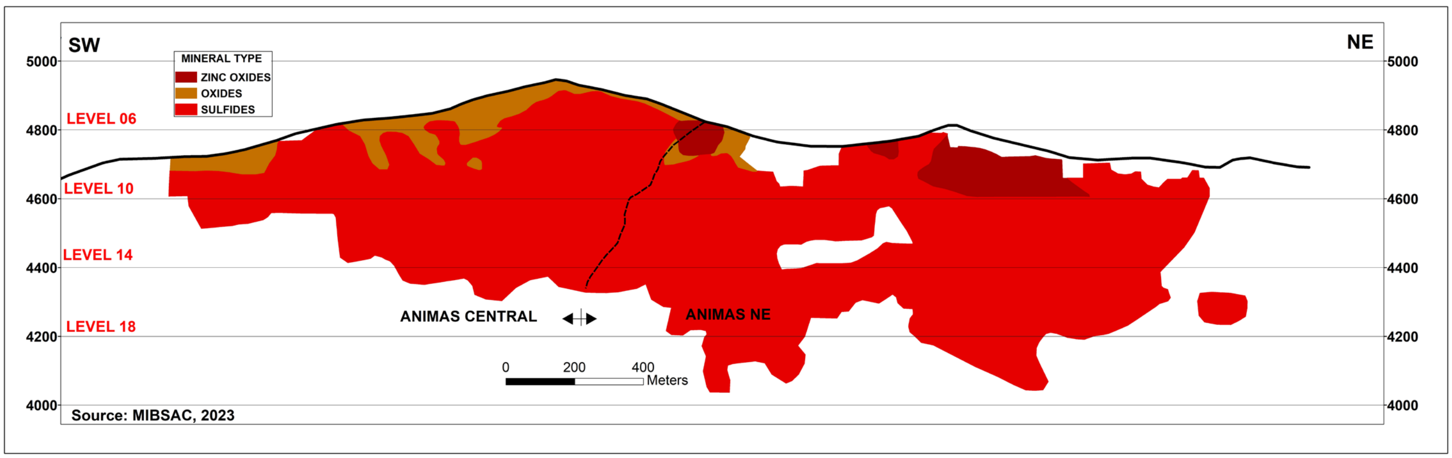


Figure prepared by Bateas, 2023

7.4 Geologic sections

The Animas/Animas NE vein is the primary source of mill feed at present at the Caylloma Mine. Representative sections displaying the geological interpretations of the Animas vein have been included in Section 10.

7.5 Comment on Section 7

In the opinion of the QPs, knowledge of the silver and polymetallic veins, the settings, the lithologies, as well as the structural and alteration controls on mineralization is sufficiently understood to support Mineral Resource and Mineral Reserve estimation.

8 Deposit Types

8.1 Mineral deposit type

The Caylloma polymetallic and silver-gold rich veins are characteristic of a typical low sulfidation epithermal deposit according to the classification of Corbett (2002) having formed in a relatively low temperature, shallow crustal environment (Figure 8.1). The epithermal veins in the Caylloma District are characterized by minerals such as pyrite, sphalerite, galena, chalcopyrite, marcasite, native gold, stibnite, argentopyrite, and various silver sulfosalts (tetrahedrite, polybasite, pyrargyrite, stephanite, stromeyerite, jalpite, miargyrite and bournonite). These are accompanied by gangue minerals such as quartz, rhodonite, rhodochrosite, johannsenite (Mn-pyroxene) and calcite.

Figure 8.1 Idealized section displaying the classification of epithermal and base metal deposits sourced

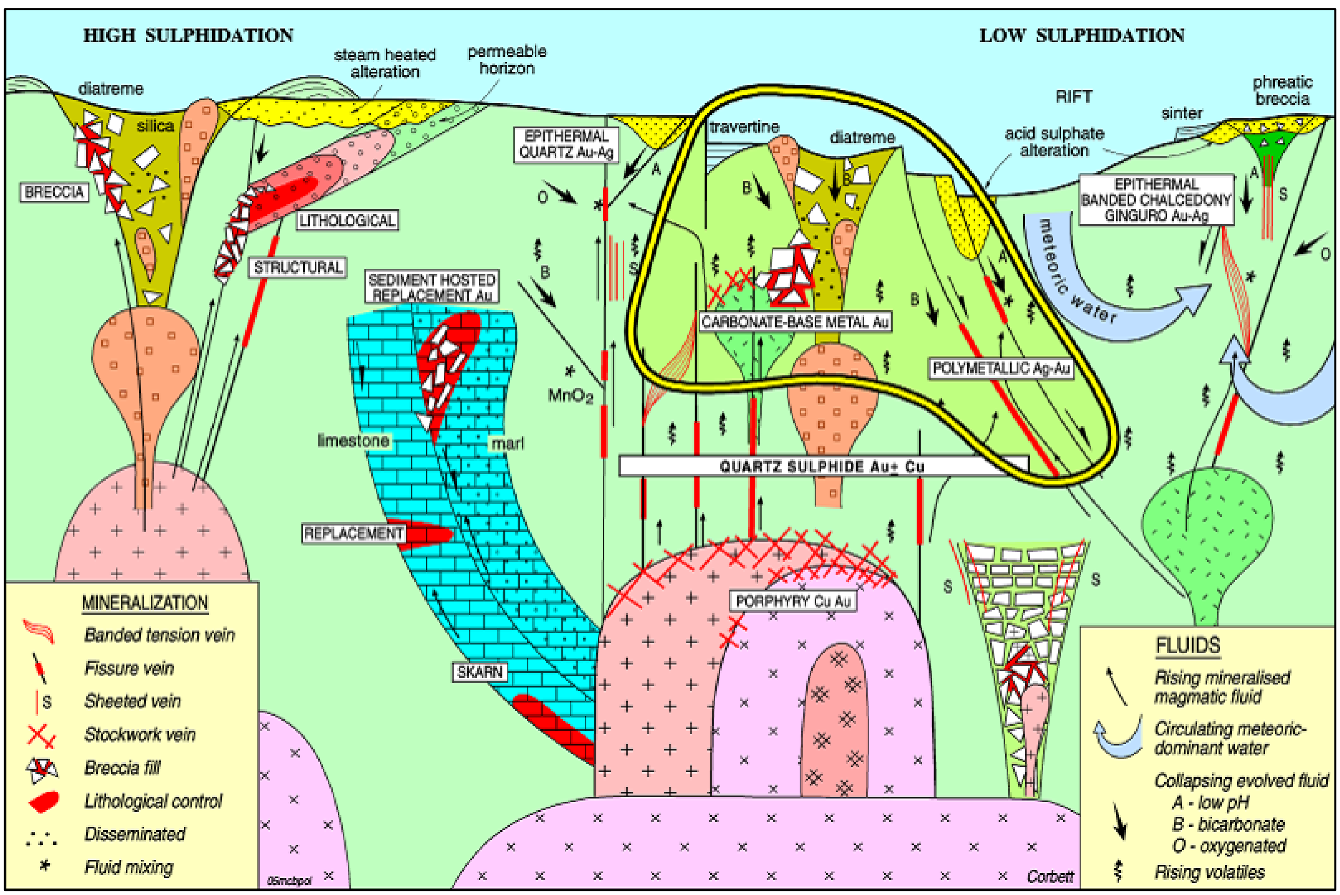


Figure prepared by Bateas, 2023, from Corbett (2002)

The characteristics described above have resulted in the Caylloma veins being classified as belonging to the low sulfidation epithermal group of precious metals in quartz-adularia veins similar to those at Creede, Colorado; Casapalca, Peru; Pachuca, Mexico and other volcanic districts of the late Tertiary (Cox and Singer, 1992). They are characterized by Ag sulfosalts and base metal sulfides in a banded gangue of colloform quartz, adularia with carbonates, rhodonite and rhodochrosite (Echavarria et al., 2006). Host rock alteration adjacent to the veins is characterized by illite and widespread propylitic alteration.

8.2 Comment on Section 8

The Caylloma Mine is considered an example of a low sulfidation epithermal-style deposit, based on the following:

- Mineralization is present in veins in the form of Ag sulfosalts and base metal sulfides including pyrite, sphalerite, galena, chalcopyrite, marcasite, stibnite, and argentopyrite.
- Gangue minerals present in the form of banded colloform quartz, adularia with carbonates, rhodonite, rhodochrosite, and johannsenite (Mn-pyroxene).

The QP's understanding of the geological setting and model concept of the Caylloma silver and base metal rich veins is adequate to provide guidance for mining exploitation and ongoing exploration.

9 Exploration

CMA implemented a series of exploration programs to complement their mining activities prior to the closure of the operation in 2002. Fortuna acquired the mine in 2005 and has continued to conduct exploration of the property since the acquisition.

9.1 Exploration conducted by Compania Minera Arcata

There is no reliable information available to detail the exploration conducted by CMA at the Caylloma Mine.

9.2 Exploration conducted by Bateas

9.2.1 Geophysics

In 2007, induced polarization (IP) and resistivity studies were conducted by Arce Geophysics over the Nancy and Animas NE veins covering an area of 7 km^2. The survey was performed using an IRIS ELREC Pro receptor with a symmetrical configuration poly pole array with a spacing of 50 m between electrodes.

Results of the geophysical studies identified three coincident zones of low IP potential associated with high chargeability and resistivity. The three geophysical anomalies were investigated through a targeted drilling campaign.

In 2012, magnetometry, IP and resistivity studies were carried out by Quantec Geoscience over Cerro Vilafro and Vilafro South, covering an area of 17 km^2 using a pole-dipole array configuration with spacing of 50 m between electrodes and 31.6 km lines in magnetometry studies. The surveys successfully identified coincident chargeability and resistivity anomalies in the Cerro Vilafro area.

In 2015, controlled-source audio-frequency magnetotellurics (CSAMT) geophysical surveys were completed covering the northeastern projection of the San Pedro and Paralela veins. Similar CSAMT geophysical surveys were completed in 2016 covering the Pisacca exploration target area, the extension of the Animas vein, and other important structure such as the San Cristobal vein to the northeast. In all areas, the CSAMT surveys were successful in identifying resistivity anomalies spatially associated with the projections of mapped vein structures. The 2015 and 2016 geophysical surveys were carried out by Quantec GeoScience.

9.2.2 Surface channel sampling

Extensive surface channel samples have been taken along all principal mineralized structures identified in the Caylloma District.

Exploration has focused on the delineation of major vein structures such as the Animas, Bateas, Santa Catalina, Soledad and Silvia veins. Additional exploration has also been conducted to define the mineral potential of other veins on the property such as the Carolina, Don Luis and Nancy veins (Figure 9.1).

Surface channel samples are not used for Mineral Resource estimation but as a guide for exploration drilling and to identify the vein structure on surface.

Figure 9.1 Plan map showing principal exploration targets

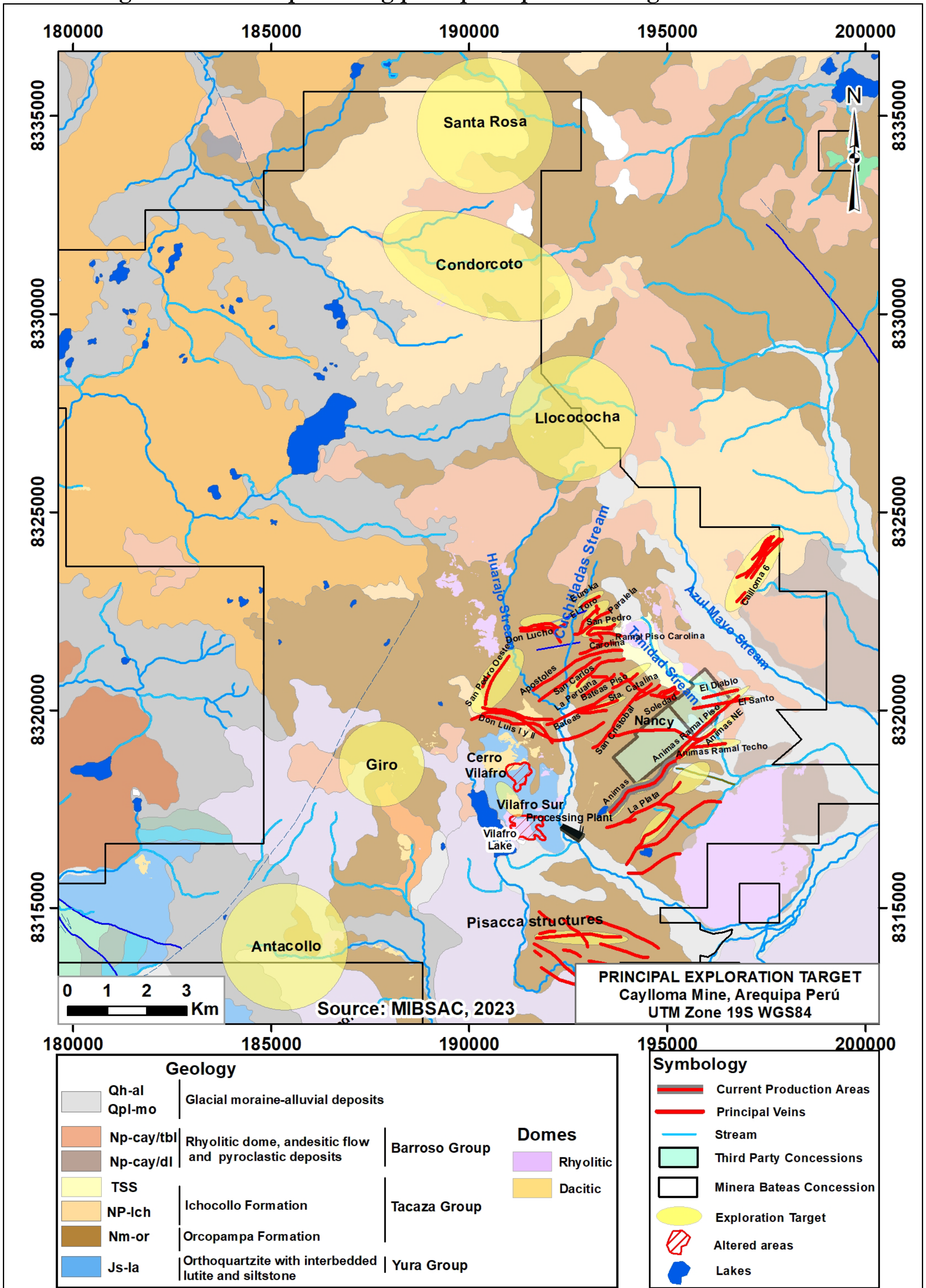


Figure prepared by Bateas, 2023

9.2.3 Geological mapping of major structures

Animas & Animas NE

During 2006 and early 2007, a surface mapping campaign of the Animas vein structure was conducted in the northeastern portion of the property at a scale of 1:1,000. The mapping identified discontinuous outcrops of vein quartz and occasional brecciated zones (quartz and rhodonite) covered by a manganese oxide cap. Surface mapping was complemented by a drilling campaign (described in Section 10) that confirmed the continuity of the Animas structure at depth.

Exploration activities of the Animas vein resumed in 2010, during underground development of level 6 (4,800 masl); brecciated mineralization was discovered with fragments of rhodochrosite and rhodonite in quartz and silica matrix, with disseminations and veinlets of galena and silver sulfosalts.

Exploration of the Animas vein led to the discovery of the Animas NE vein and two splay veins located in its hangingwall. The Cimoide ASNE vein located 200 m to the south of Animas NE and the Ramal Techo ASNE located a further 30 m to the south. Exploration of these splay veins has been based on drilling since 2004 that targeted Animas NE but extended to the south.

Bateas

Exploration by Fortuna of the Bateas vein has been ongoing since 2007. Initial work involved surface mapping and the sampling of outcrops that returned anomalous silver grades. Based on the initial results a diamond drill program from surface was conducted in late 2007 and early 2008. Exploration has been conducted from the surface as well as from underground workings of the mine.

Silvia

The Silvia vein outcrops on surface discontinuously over a distance of approximately 200 m and was mapped in 2013 at a scale of 1:1,000.

Soledad

The Soledad vein has been mapped on surface over a length of 250 m in 2013 at a scale of 1:1000, having been found to run parallel with the Santa Catalina vein, and displaying a similar strike (248° to 251º) and dip (76° to the northwest).

San Cristobal

There has been limited new exploration by Bateas of the San Cristóbal vein as significant information regarding the structure was available from historical underground workings. San Cristóbal is one of the most prominent veins of the Caylloma District and is known to have higher grade silver concentrations compared to other veins at the property. From 2006 to 2008, exploration drilling was conducted in order to explore the mineralization potential at depth. In 2011, underground exploration was conducted through 578 m of new mine workings on level 11, comprising 282 m of galleries with the remaining development comprising bypasses, cross-cuts, and chimneys. Underground observations identified a banded structure averaging 2.4 m in width and averaging 128 g/t Ag, consisting of quartz veinlets, calcite, and rhodonite with veinlet and disseminated silver sulfosalts.

During 2012, an additional 489 m of underground workings were executed on level 11.

Nancy

From 2006 to 2008, reconnaissance work and geological mapping were conducted over portions of the Nancy vein not covered by glacial moraine deposits. Surface samples returned anomalous values. In 2007, resistivity and IP geophysical surveys were conducted in the area, with high chargeability anomalies providing evidence of potential mineralization. Exploration drilling confirmed the presence of a major mineralized structure, open laterally and to depth.

La Plata

The La Plata vein is associated with infilling of a fault striking northeast and dipping 60° to the southeast. The vein has been mapped over a length of 1,400 m, having an average width of 2.5 m.

In the first half of 2011, exploration of the vein was carried out with geological mapping and geochemical surface sampling. This involved a reinterpretation of the structure and excavation of exploratory trenches in the far northeastern extension of the vein, and the taking of 160 channel samples.

9.2.4 Geological mapping of exploration targets

Antimonio

This Antimonio vein was first recognized in the 1980s with the mapping of approximately 300 m of outcropping vein, with an average surface thickness of 2 m and consisting of massive milky quartz with traces of stibnite. In 2006, the mapping was reviewed, and a limited drill program was executed. In 2011, as part of the Southern Sector Exploration Program of the Caylloma Mine, geological mapping at a scale of 1:1,000 and geochemical analysis identified the presence of the vein over a total distance of one kilometer striking in a northeast to southwest direction. The presence of stibnite in this vein suggests a later stage of mineralization.

Vilafro

In December 2005, samples were collected from the 900 ha Vilafro area in relation to silica-alunite anomalies identified in ASTER images. In mid-2006, a review of the Vilafro surface geology was performed followed by geologic mapping and sampling in 2007.

During 2012, geochemical information from previous campaigns was compiled and reinterpreted. Detailed geological mapping was carried out at a 1:1,000 scale and grid geochemical sampling and geophysical surveys of magnetics, chargeability and resistivity were completed. Based on the work executed, potential exploration targets were identified in the Cerro Vilafro and Vilafro Sur areas.

Cerro Vilafro

Detailed surface mapping and channel sampling in the Cerro Vilafro area, located proximal to the Caylloma plant site, identified strong silver and gold values associated with a northeast to southwest trending vein swarm. The mineralization is hosted by Cretaceous quartzites and was evaluated as a potential bulk-minable, open-pit target. Sampling reported high-grade gold and silver values over narrow widths of veins and hydrothermal breccias. Sampling of zones of quartz veinlets between the primary structures resulted in lower silver and gold values (Figure 9.2).

Figure 9.2 Plan map showing surface geology and geochemistry of Cerro Vilafro

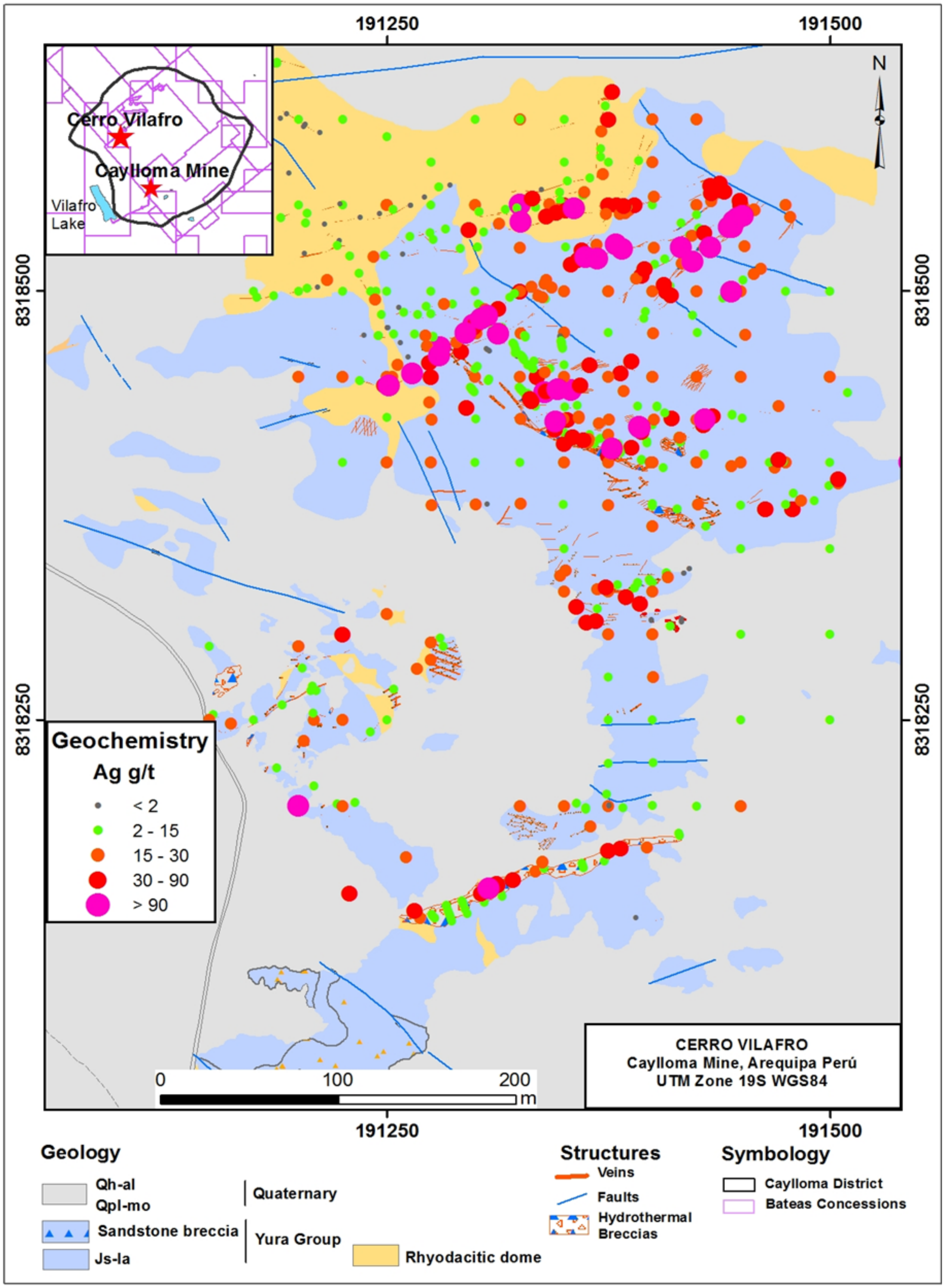


Figure prepared by Bateas, 2016

Vilafro Sur

The Vilafro Sur lithocap is characterized by advanced argillic alteration assemblages extending over 1,000 m in a northwest to southeast direction and ranging up to approximately 400 m in width. The lithocap is open to the northwest and may extend beneath the Laguna Vilafro. The main portion of the lithocap outcrops extend from approximately 4,700 to 4,860 masl.

Surface geochemical values indicate that the alunite-bearing lithocap is generally barren of significant metal or pathfinder elements.

The geochemical signature of the Vilafro Sur lithocap is similar to that found at certain high sulfidation style deposits.

Surface geological mapping of the Vilafro Sur area was conducted in 2017 at a scale of 1:2,000.

Cailloma 6

Detailed surface mapping and channel sampling in the Cailloma 6 concession area identified a prominent vein striking 035° and dipping 80-85° to the southeast (Figure 9.3). The length of the outcropping vein is approximately 1,650 m with widths ranging from 0.2 to 0.8 m. To the northeast, the vein forms a sigmoidal loop of 500 m length with three splits of 100 to 150 m length.

The mineralization is composed of veinlets and cavity fillings of quartz with crustiform texture, silver sulfosalts disseminations, hematite, goethite, and manganese oxides. The hydrothermal alteration bordering the vein consists of silicification with associated illite-pyrite mineralization ranging in width up to 3.5 m.

The Cailloma 6 veins are controlled by longitudinal faults with transverse faulting affecting the structure with small dextral and sinstral displacements.

Antacollo

The Antacollo project is located about 7 km from Caylloma mine and is formed by pyroclastic rocks and lava flows of the Sencca and Orcopampa formations (Tertiary volcanic). Mineralization is based on veins and breccia bodies; the veins are 0.3 m to 1.1 m wide displaying silver and gold mineralization. In addition, an IP geophysical survey carried out in May 2023 gave high chargeability results associated with geochemical anomalous surface samples which are currently being interpreted.

Giro

Preliminary exploration work at the Giro Project commenced in 2023. The Giro project is located about 4 km from the Caylloma mine, and geologically consists of andesitic domes and pyroclastic breccias. Towards the edges and upper parts of the project there are tuffs and lava flows. Mineralization occurs in hydrothermal conduits in the form of breccias and silicified ridges in a northwest and east-west direction, striking 200 to 300 m in length. Mineralization is of the low sulfidation epithermal type, gold-silver system, with channel and trench sampling returning anomalous values of arsenic, antimony, copper, molybdenum, lead and zinc.

Figure 9.3 Plan map showing surface geology and geochemistry of Cailloma 6

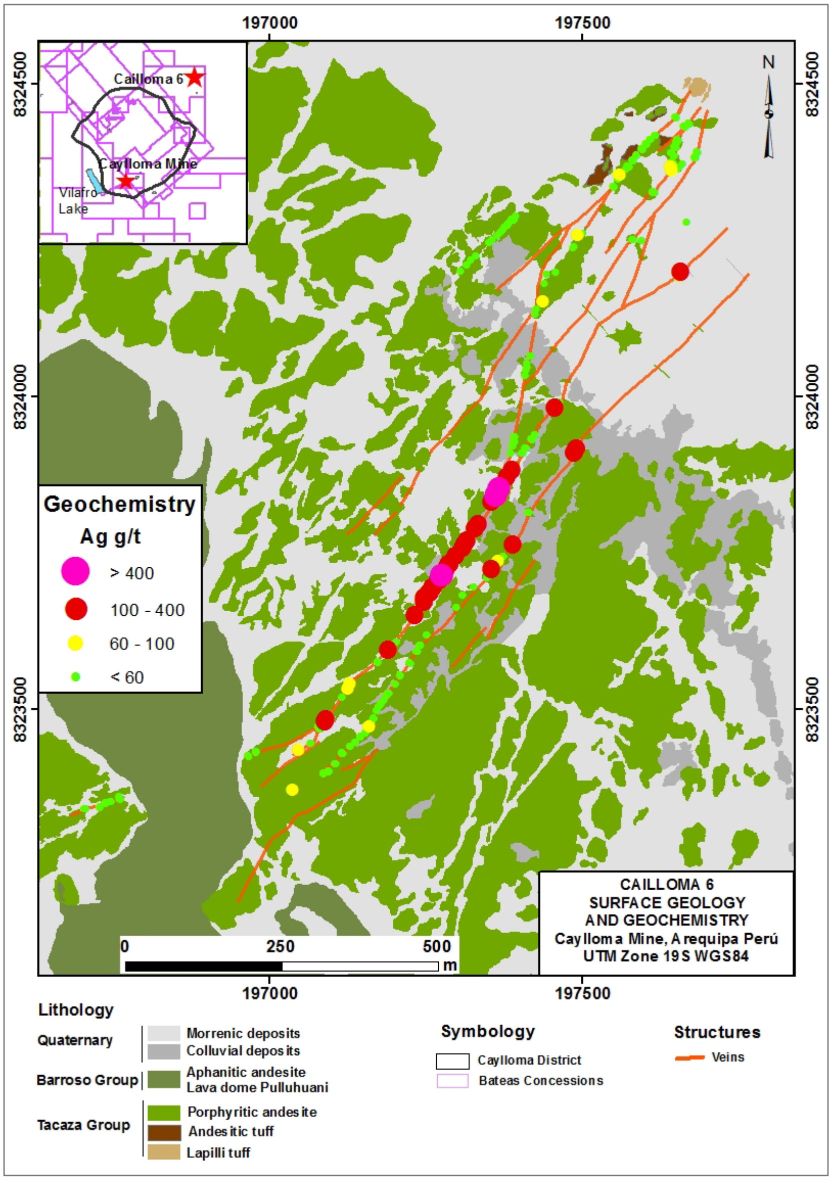


Figure prepared by Bateas, 2016

Condorcoto

The Condorcoto project is characterized by a lithocap cut by hydrothermal and crackle breccias with iron oxides (goethite > hematite) and pyrite traces emplaced in andesitic lavas with aphanitic texture. Channel sampling results range identified gold and copper anomalous grades. Also identified is a dacitic dome with sporadic sheeted quartz veins and iron oxide in the form of boxworks.

Llococha

The Llocococha project is comprised of hydrothermal breccia systems that are emplaced in andesitic lavas and have a crackle breccia envelope. In addition, a dacitic dome and a rhyodacitic stock have been identified in the south of the area.

9.3 Exploration potential

Bateas has identified exploration targets at the Caylloma Project (Figure 9.4) for further investigation. Planned exploration projects include:

- Santa Rosa area: Three vein systems traced along a strike length of 300 m on surface, striking 280° and dipping 70° to the northeast.
- Pampuyo-Pumanuta area: A tectonic breccia system with a dacitic dome intrusion.

Figure 9.4 Plan map showing the location of exploration targets

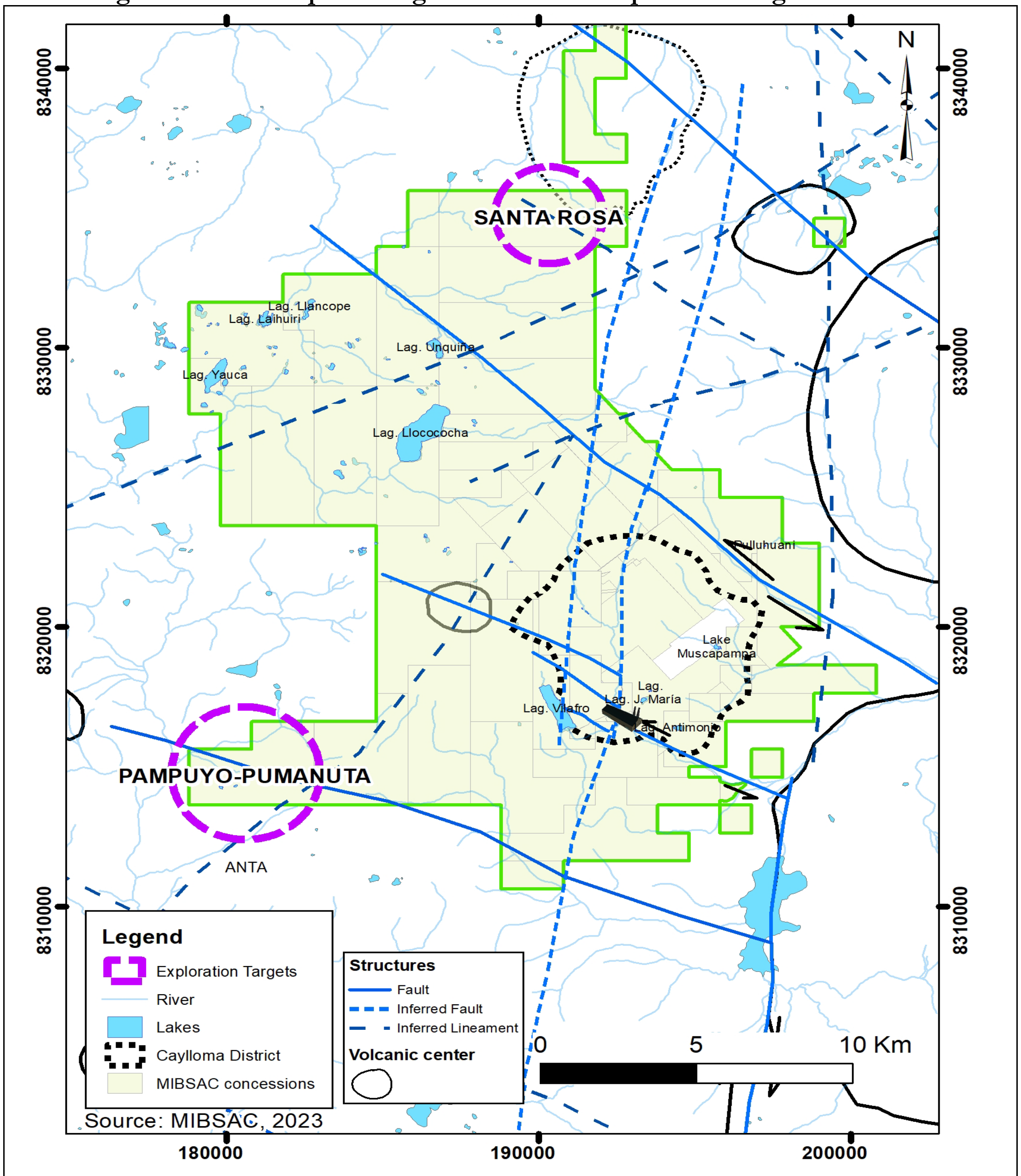


Figure prepared by Bateas, 2023

9.4 Comment on Section 9

In the opinion of the QP:

- The mineralization style and setting of the Caylloma Mine area is sufficiently well understood to support Mineral Resource and Mineral Reserve estimations.
- Exploration methods are consistent with industry practices and are adequate to support continuing exploration and Mineral Resource estimation.
- Exploration results support Fortuna's interpretation of the geological setting and mineralization.
- Continuing exploration may identify additional mineralization that could support Mineral Resource estimation.

10 Drilling

Exploration and definition drilling have been conducted at the Caylloma Mine by both CMA and Bateas. Diamond drilling has been the preferred methodology with other drilling techniques regarded as unsuitable due to the terrain and the required depths of exploration.

10.1 Drilling conducted by Compania Minera Arcata

Bateas were able to recover and validate information on 47 diamond drill holes totaling 8,177.67 m drilled by CMA between 1981 and 2003 at the Caylloma Mine. It is unlikely these are the only holes drilled over this period but data on additional drill holes could not be recovered and validated. Table 10.1 details the CMA exploration drilling information retrieved by Bateas.

Table 10.1 Exploration drilling conducted by CMA

Vein	Surface Drill holes		Underground Drill holes	
	Number	Meters	Number	Meters
San Pedro	-	-	8	1,252.85
San Cristóbal	2	882.65	18	1,903.20
San Miguel	2	367.25	-	-
Don Luis			1	130.87
Don Luis I	-	-	2	252.90
Elisa	-	-	2	239.10
La Plata	9	2,228.95	-	-
Ramal San Pedro	1	268.80	-	-
Ursula	2	651.10	-	-
TOTAL	**16**	**4,398.75**	**31**	**3,778.92**

10.2 Drilling conducted by Bateas

As of June 30, 2023, Bateas had completed 1,658 drill holes on the Caylloma Mine totaling 283,593.30 m since the company took ownership in 2005 (Table 10.2) and represents all data compiled as of the data cut-off date used for Mineral Resource estimation. All holes are diamond drill holes and include 565 from the surface totaling 160,521.80 m, and 1,093 from underground totaling 123,071.50 m. It is important to note that not all of the holes presented encountered mineralization and only drill holes in areas where reasonable geological continuity of mineralized structures could be established were used in defining and ultimately estimating Mineral Resources. The locations of surface drill holes drilled by Bateas at the Caylloma Mine are displayed in Figure 10.1.

Table 10.2 Exploration drilling conducted by Bateas

Vein	Year	Surface drilling		Underground drilling	
		Number	Meters	Number	Meters
Animas,	2005	0	0	94	2,028.00
Animas NE, Cimoide ASNE & Ramal Techo ASNE	2006	37	7,638.75	2	111.15
	2007	34	9,514.85	0	0
	2008	8	2,921.60	0	0
	2010	21	2,300.45	9	805.4
	2011	12	3,411.10	10	1,745.65
	2012	18	4,966.20	30	3,944.10
	2013	0	0	10	1,970.55
	2014	9	1,858.00	15	1,695.20
	2015	9	2,035.60	41	3,182.80

Vein	Year	Surface drilling		Underground drilling	
		Number	Meters	Number	Meters
	2016	26	8,130.60	93	11,733.85
	2017	48	24,825.95	87	10,453.40
	2018	27	11,164.25	63	6,802.20
	2019	0	0.00	77	7,776.50
	2020	0	0.00	35	3,503.45
	2021	16	4,161.10	106	17,692.40
	2022	0	0.00	69	10,299.05
	2023	0	0.00	23	5,280.50
Antimonio & Corona Antimonio	2006	5	1,117.50	0	0
Bateas	2007	9	3,605.40	0	0
	2008	2	774.9	0	0
	2009	0	0	10	829.50
	2010	0	0	9	510.20
	2011	3	1,040.85	38	2,714.10
	2012	18	5,006.65	28	2,596.90
	2013	0	0	49	4,318.70
	2014	32	4,351.40	1	152.10
	2015	16	2,791.30	11	1,666.40
Cailloma 6	2014	3	958.8	0	0
Carolina	2012	20	5,117.80	0	0
	2013	52	12,459.20	0	0
Corona	2011	1	344.6	0	0
Don Luis I & II	2010	12	2,265.40	0	0
	2012	6	2,487.00	0	0
	2013	21	7,133.80	0	0
	2014	3	666.9	0	0
El Toro	2012	1	177.7	0	0
Gaby	2013	2	382.5	0	0
La Plata & Cimoide La Plata	2005	1	152.55	10	450.40
	2006	10	2,109.75	8	547.85
	2011	12	2,495.85	1	257.40
	2012	0	0	3	812.05
	2013	0	0	1	199.20
	2021	0	0	3	2,370.00
Lucia	2012	0	0	8	1,300.20
Nancy	2006	1	86.6	0	0
	2007	6	1,205.50	0	0
	2008	12	3,094.00	1	83.30
	2012	5	1,432.50	2	768.00
	2013	5	935.5	0	0
	2017	5	2,600.70	10	1,087.20
	2018	0	0	22	2,663.25
	2019	0	0	1	72.80
	2020	0	0	5	391.80
	2022	0	0	3	259.00
Patricia	2010	0	0	7	682.80
	2011	0	0	12	981.80
Pilar	2011	0	0	2	143.50
San Antonio	2011	2	391.5	0	0
San Carlos &	2006	0	0	10	480.55
San Carlos I	2014	2	495.8	0	0

Vein	Year	Surface drilling		Underground drilling	
		Number	Meters	Number	Meters
San Cristóbal & Santa Catalina	2006	3	551	0	0
	2007	0	0	9	992.6
	2008	0	0	3	558.1
	2011	4	1,396.15	4	527.8
	2021	2	1,966.45	0	0
San Pedro	2012	6	2,456.00	0	0
San Pedro Oeste	2018	2	811.4	0	0
Silvia & Soledad	2008	0	0	7	967.75
	2009	0	0	12	1,426.15
	2010	7	923.8	15	1,010.30
	2011	0	0	7	591.3
	2012	0	0	17	1,634.30
Vilafro	2010	2	304.3	0	0
	2017	2	681.1	0	0
Wendy	2014	1	285.1	0	0
Pissaca	2021	4	2536.1	0	0
Total	**2005-23***	**565**	**160,521.80**	**1,093**	**123,071.50**
*Through June 30, 2023					

Figure 10.1 Map showing surface drill hole collar locations

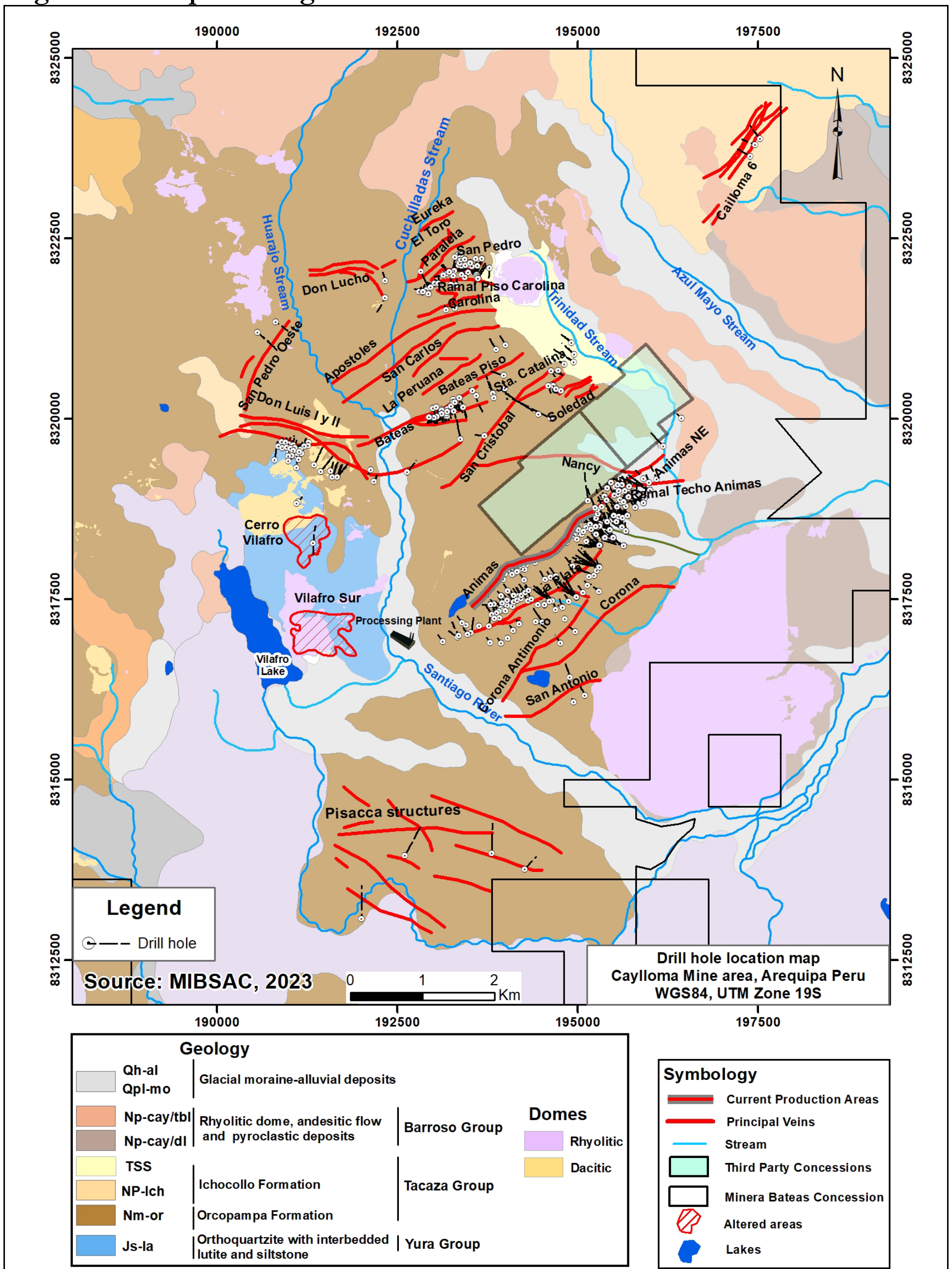


Figure prepared by Bateas, 2023

10.2.1 Drilling by vein

Animas and Animas NE

In 2005, 94 drill holes totaling 2,028.00 m were drilled from underground to evaluate the potential of the Animas structure at depth.

During 2006, 37 drill holes totaling 7,638.75 m were drilled from surface and two from underground in order to determine the continuity of the Animas vein to a depth of approximately 4,450 masl. Exploration of the Animas NE vein was directed towards the

4,800 masl and included nine drill holes, although only two holes intercepted any significant mineralization. Exploration drilling of the central Animas zone was focused between 4,700 masl (level 8) and 4,450 masl (level 13) and resulted in a number of significant intercepts. Drilling in the southwestern extension of the Animas vein included four drill holes.

In 2007, 34 drill holes totaling 9,514.85 m were drilled in the Animas structure. The objective was to verify the structural continuity and mineral content both horizontally and vertically from 4,600 masl to 4,500 masl in the central Animas area.

In 2008, the Animas structure was further explored through drilling of eight diamond drill holes including three drill holes to level 7 (4,595 masl) and one to level 12 (4,500 masl), where the structure was characterized by the presence of quartz breccia and rhodonite, with an average width of 4.7 m.

In 2010, a diamond drill program was designed to investigate the upper levels of the Animas vein between levels 5 (4,850 masl) and 6 (4,800 masl). Ten drill holes were completed resulting in the identification of high-grade silver mineralization in the upper portions of the Animas structure. Additional exploration drilling was also carried out in 2010 in the Animas Central area below 4,850 masl.

During 2011, 12 diamond drill holes totaling 3,411.10 m were drilled from surface to investigate the Animas NE vein between 4,650 masl and 4,500 masl. Results were positive with the identification of a new mineralized shoot.

In 2012, 16 diamond drill holes totaling 4,275.80 m were completed from surface in order to estimate the potential of the Animas NE shoot. Additionally, two diamond drill holes totaling 690.40 m were completed from the surface to evaluate the potential depth of Animas SW shoot.

From underground, 10 diamond drill holes totaling 2,649.40 m were completed in 2012 to evaluate the continuity of the Animas vein to the elevation of 4,390 masl (level 14), thereby further testing the continuity of shoots 2 and 3. Additional drilling was carried out from underground drill stations to provide information for ore control purposes.

During 2013, 10 drill holes totaling 1,970.55 m were drilled from underground for the purposes of potentially upgrading Inferred Mineral Resources estimated in the Animas NE area, between the elevations of 4,450 masl and 4,350 masl.

During 2014, nine drill holes totaling 1,858 m were drilled from surface for the purposes of potentially upgrading Inferred Mineral Resources in the Animas NE area between the elevations of 4,700 masl and 4,550 masl. In addition, 15 drill holes totaling 1,695.20 m were drilled from underground drill stations to support upgrading of Inferred Mineral Resources in the Animas and Animas NE areas.

From 2015 to June 2018, Bateas embarked on an extensive exploration and infill program to explore and improve the geological understanding of the Animas NE vein. Exploration drilling continued to explore the northeast end of the vein and the continuity of mineralization at depth, with most drilling between level 12 (4,495 masl) to below level 17 (4,240 masl). Exploration drilling identified two additional bands of mineralization in the Animas NE vein plunging steeply to the northeast. Infill drilling over the same period focused on providing support for upgrading Inferred Mineral Resources in Animas Central at depth. Over the 3.5-year period, 111 surface holes totaling 46,072.80 m and 268 underground holes totaling 30,600.85 were drilled. The exploration and infill programs were successful in expanding the resources in the Animas NE vein and increasing the confidence in the estimates to support upgrading of Inferred Mineral Resources, generally replacing the tonnes that were depleted through mining production over the same period.

Exploration drilling of the Animas NE vein has led to the discovery of two splay veins located in the hangingwall of the main Animas NE vein. The Cimoide ASNE vein is located 200 m to the south of Animas NE with the Ramal Techo ASNE located 230 m to the south. The Cimoide ASNE vein has been intersected by numerous drill holes drilled to investigate Animas NE between 2008 to 2023 with the majority of intercepts between 4,650 and 4,250 masl. The Ramal Techo ASNE vein was first intersected in 2004 and, similar to the Cimoide ASNE vein has been intercepted many times during the exploration of the Animas NE vein, particularly between 4,600 and 4,450 masl. Since 2021, exploration drilling has focused on defining the mineralization in the upper oxide levels of the mine from surface and confirming the continuation of mineralization at depth in the Animas NE vein.

Antimonio and Corona Antimonio

In 2006, a limited drill program was executed in the Antimonio and Corona Antimonio vein area with the drilling of five surface diamond drill holes totaling 1,117.50 m.

In 2021, three drill holes totaling 2,370 m were drilled from underground drill stations to test for mineralization potential in La Plata and further extended to intersect the Corona Antimonio vein.

Bateas

A diamond drill program involving 11 drill holes from surface was carried out to explore the Bateas vein in late 2007 and early 2008. The drilling confirmed the existence of a northeast-striking vein structure characterized by the presence of high-grade silver mineralization with manganese gangue minerals such as rhodonite, rhodochrosite, and alabandite.

In 2011, three diamond drill holes totaling 1,040.85 m were drilled from surface that successfully identified the continuity of the Bateas vein to the northeast. In addition, 38 drill holes totaling 2,714.10 m were completed from underground drill stations for ore definition and control purposes.

In 2012, 18 diamond drills totaling 5,006.65 m were completed from the surface with the objective of evaluating the resource potential from level 10 upwards to the surface. Underground drilling continued for ore definition and upgrading purposes with the drilling of 28 diamond holes totaling 2,596.90 m.

During 2013, 49 drill holes totaling 4,318.70 m were drilled from underground drill stations for purposes of supporting upgrading of Inferred Mineral Resources between the elevations of 4,650 masl and 4,450 masl.

During 2014, 32 surface drill holes totaling 4,351.40 m were drilled for the purpose of supporting upgrading of Inferred Resources between the elevations of 4,750 masl and 4,650 masl.

During 2015, 16 surface drill holes totaling 2,791.30 m were drilled to support upgrading of Inferred Mineral Resources in the Bateas and Bateas Ramal Piso veins between the elevations of 4,800 masl and 4,650 masl. An additional 12 drill holes totaling 1,818.50 m were drilled from late 2014 into 2015 from underground drill stations for the purposes of supporting upgrading of Inferred Resources between the elevations of 4,650 masl and 4,550 masl.

Cailloma 6

During 2014, three surface drill holes totaling 958.80 m were drilled to test the mineralization potential of the Cailloma 6 vein.

Carolina

In 2012, 20 diamond drill holes totaling 5,117.80 m were completed from the surface for the purpose of evaluating the potential of the Carolina vein structure and to define the morphology of the mineralized shoot.

In 2013, 52 additional surface drill holes totaling 12,459.20 m were completed to further define and upgrade mineralization in the Carolina vein.

Corona

During 2011, one surface drill hole was completed in order to test the mineralization potential of the Corona vein; however, no anomalous grades were intersected.

Don Luis I & II

In mid-2010, seven diamond drill holes were drilled from surface to explore the Don Luis II vein. Positive results were received, and the program was expanded to include five additional holes that were drilled prior to the end of 2010.

During 2012, six diamond drill holes totaling 2,487 m were completed from the surface to define the potential of this structure and to better understand the morphology of the mineralized shoot. The results were favorable with drilling identifying a mineralized vein structure up to 2.35 m in width.

In 2013 and 2014, saw an additional 24 surface drill holes totaling 7,800.70 m drilled to further define the mineralization potential of the Don Luis shoot.

El Toro

During 2012, one diamond drill hole totaling 177.70 m was completed from the surface for the purpose of exploring the potential of this vein to the east of the Cuchilladas creek. Anomalous silver values were intersected; however, due to other preferential targets, no follow-up drilling has been conducted of the El Toro structure as of the effective date of this Report.

Gaby

During 2013, two holes were drilled from surface totaling 382.50 m in order to test the mineralization potential of the Gaby vein. Narrow structures less than a meter in width were intercepted with anomalous silver grades.

La Plata and Cimoide La Plata

In 2005, 10 drill holes were drilled from underground drill stations and one from surface targeting the La Plata and Cimoide La Plata structures between the elevations of 4,745 masl (level 7) and 4,695 masl (level 8).

During 2006, 10 further drill holes were drilled from surface to confirm the continuity at the extreme western portion of the La Plata vein, between the elevations of 4,700 masl and 4,550 masl. Results confirmed the continuity of the vein with widths of 0.6 to 1.2 m.

Eight diamond drill holes were also drilled from underground targeting the La Plata vein at a depth of 4,695 masl (level 8) to investigate the continuity of the ore shoot at depth.

In 2011, the La Plata drill program included 12 drill holes from surface and one from underground targeting elevations between 4,700 masl and 4,600 masl.

In 2012 three diamond drill holes totaling 812.05 m were executed from underground for the purpose of evaluating the continuity of the mineralized shoot at the 4,600 masl level.

In 2013, one further drill hole totaling 199.20 m was drilled from an underground drill station for the purposes of testing the mineralization at the 4,500 masl level.

In 2021, three drill holes totaling 2,370 m were drilled to test for mineralization potential in the La Plata and Corona Antimonio veins from underground drill stations. No significant intercepts were encountered in the La Plata vein.

Lucia

In 2012, eight diamond drills totaling 1,300.20 m were executed from underground drill stations for the purpose of evaluating the potential of this newly identified structure. The results were not favorable, identifying only low-grade polymetallic mineralization.

Nancy

Exploration drilling from 2006 to 2007 included the drilling of seven diamond drill holes from surface totaling 1,292.10 m. The drilling identified a structure hosting a gray silica matrix and fragments of quartz with sulfides. In 2008, 12 additional drill holes were drilled from surface totaling 3,094.00 m that encountered a number of significant mineralized intercepts. In 2011, three drill holes designed to investigate the Animas NE vein also intercepted the Nancy vein, providing further information on the continuity and grade of the vein.

During 2012, five diamond drill holes totaling 1,432.50 m were completed from the surface.

In 2013, five further surface diamond drill holes totaling 935.50 m were completed.

As mining of the Animas NE vein progressed to the northeast during the 2014 to 2016 period, the potential to access the cross-cutting Nancy vein became apparent, resulting in the drilling of five further holes from surface totaling 2,600.70 m in 2017. In addition, 41 holes from underground totaling 4,474.05 m were drilled from 2017 to June 30, 2023, the database cut-off date to further define and confirm the extents of mineralization. Mining of the Nancy vein commenced in 2018.

Patricia

In 2010, exploration of the Patricia vein commenced from underground with the drilling of seven drill holes totaling 682.80 m designed to investigate the vein structure at the 4,725 masl level.

In 2011, an additional 12 drill holes totaling 981.80 m were completed from underground drill stations to evaluate the continuity of the Patricia vein.

Pilar

In 2011, two exploration drill holes were completed from the underground workings of the San Cristóbal vein to investigate the possible continuity of the Pilar vein. Both drill holes intersected the Pilar structure. At the point tested, the structure was approximately

1 m in thickness and comprised banded rhodochrosite, rhodonite, and quartz with veinlets of sphalerite, galena, chalcopyrite, and pyrite.

San Antonio

Drilling of the San Antonio vein commenced in 2011 with the drilling of two drill holes from surface to investigate the potential of the vein. The vein thickness ranges from 0.7 to 6.0 m with mineralization consisting of massive quartz, brecciated quartz, and boxwork quartz with infillings of limonite, quartz geodes displaying crustiform textures, pyrite and barite.

San Carlos

During 2014, two holes were drilled from surface totaling 495.80 m in order to test the mineralization potential of the northeast portion of the San Carlos vein. The drilling encountered narrow structures between 0.30 m to 0.75 m in thickness and high-grade silver values.

Santa Catalina

Exploration of the Santa Catalina vein by Bateas commenced in 2006 with a drilling program from surface focused on investigating the mineral potential above and below level 8 (4720 masl). In 2007, exploration continued through underground drilling to test the vein between level 8 (4720 masl) and level 7 (4773 masl) and resulted in the intersection of a narrow structure less than 5 m wide composed of banded rhodonite-rhodochrosite with calcite and disseminated silver sulfosalts. Exploration drilling of the Santa Catalina vein also resulted in the discovery of additional polymetallic veins, such as Soledad, Silvia, Patricia, and Pilar.

San Cristobal

From 2007 to 2008, drilling was performed from underground in order to explore the mineralization potential between level 11 (4540 masl) and level 12 (4500 masl). The drilling did not intersect any significant mineralization.

In 2011, a drilling campaign was conducted to test for the extension of the San Cristóbal vein to the northeast. Four drill holes totaling 1,396.15 m were drilled from surface with three of the holes intersecting the vein structure but displaying limited mineralization. The fourth hole failed to intersect the vein. Field reconnaissance conducted post-drilling traced the projection of the San Cristobal vein to the northeast and identified the structure on surface in the Cailloma 6 concession.

In 2021, a drilling campaign was conducted to test the San Cristobal vein at depth. Two drill holes totaling 1,966.45 m were drilled from surface. A transition zone was identified at depth between the precious metal and polymetallic phases.

San Pedro

During 2012, six diamond drill holes totaling 2,456.00 m were completed from the surface to potentially support Mineral Resource estimation and to further explore the structure at depth. The results were not favorable, intercepting lower values than previously encountered.

San Pedro Oeste

In 2018, exploration activities focused on the northwest of the property with the drilling of two holes from surface, totaling 811.40 m to investigate a mineralized structure identified on surface named San Pedro Oeste. The holes did not intersect any intervals of significant mineralization.

Silvia

In late 2007 and early 2008, a drilling program designed to investigate the Santa Catalina vein intersected mineralization averaging 0.6 m in width associated with the Silvia vein. Since 2008, underground development of the vein on level 7 (4750 masl) has increased the understanding of the style of mineralization.

During 2009, 12 drill holes totaling 1,426.15 m were drilled from underground drill stations to further test the mineral potential of the Silvia vein.

During 2010, 15 drill holes totaling 1,010.30 m were drilled from underground to investigate the mineralized shoot between 4800 masl to 4670 masl. Results proved the continuity of the mineralization.

Twenty-four drill holes totaling 2,225.60 m were drilled from underground drill stations during 2011 and 2012 to further define the mineralization in the Silvia vein.

Soledad

In 2007, drilling designed to investigate the Santa Catalina vein also intersected the Soledad vein with one drill hole intercepting 1.30 m of mineralization. In late 2008, a drill campaign was conducted from underground to confirm the continuity of the structure to level 9 (4650 masl).

In 2010, seven diamond drill holes totaling 923.8 m were drilled from surface to explore the Soledad vein to a depth of approximately 4800 masl. The drilling was successful at intersecting the mineralized structure.

Vilafro

In 2010 two surface drill holes totaling 304.30 m were completed in order to intersect fault structures associated with quartz veinlets and disseminated silver mineralization.

In late 2017, two surface drill holes totaling 681.10 m were drilled in order to intersect hydrothermal breccias hosted in sandstones of the Yura Group.

Wendy

In 2014, one drill hole totaling 285.10 m was drilled to test the mineralization potential of the Wendy vein. The hole intercepted a narrow vein of 0.42 m thickness.

Pisacca

In 2021, four surface drill holes totaling 2,536.10 m were completed to test the mineralization potential of structures identified on surface. One drill hole was lost due to the presence of underground water with another intersecting a mineralized structure of 0.88 m width.

10.2.2 Drilling since the Mineral Resource database cut-off date

As of the effective date of this Report, an additional twelve drill holes totaling 5,319.8 m were completed after the June 30, 2023, database cut-off date. All drilling was conducted from underground drill stations. Assay results for intercepts of interest are summarized in Table 10.3. The QP has reviewed the results against the block model and has determined that the new drilling would not materially change the Mineral Resources detailed in this Report.

Table 10.3 Drill intervals encountered post data cut-off date

Hole ID	Easting	Northing	Elevation	Azimuth (°) *	Dip (°)*	From (m)	To (m)	Int. (m)	ETW** (m)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Vein ID
ANIM100923	194983	8317705	4304.1	252	-38	269.4	270.1	0.70	0.45	45	0.09	3.33	9.38	Animas NE
ANIM101223	194983	8317705	4304.0	237	-50	287.5	289.3	1.75	1.36	76	0.08	5.28	4.68	Animas NE
ANIM101523	194984	8317705	4304.0	230	-46	361.4	363.1	1.65	0.97	66	0.06	4.71	5.72	Animas NE
ANIM101923	194984	8317705	4303.8	222	-57	330.1	333.1	3.05	1.93	43	0.08	2.21	3.63	Animas NE
ANIM102223	194984	8317705	4303.8	204	-61	399.7	403.2	3.50	2.18	51	0.24	2.45	3.57	Animas NE
ANIM102723	194984	8317705	4303.8	216	-52	466.7	467.5	0.80	0.47	30	0.04	1.24	2.66	Animas NE
ANIS100823	193806	8317098	4739.8	338	-46	288.8	289.3	0.50	0.47	86	0.27	4.80	17.30	Animas
ANIS101323	193806	8317097	4739.8	320	-45	297.6	298.2	0.60	0.59	17	0.15	0.44	1.35	Animas
ANIS101723	193806	8317097	4739.8	332	-56	328.55	328.95	0.40	0.36	18	0.26	0.31	2.77	Animas
ANIS102023	193806	8317097	4739.8	9	-68	432.85	433.2	0.30	0.24	157	0.27	8.49	13.40	Animas
ANIS102423	193806	8317097	4739.6	24	-73	450.5	452.45	1.95	1.36	27	0.13	1.27	2.08	Animas
ANIS102823	193806	8317097	4739.7	44	-71	498.9	499.5	0.60	0.42	90	0.10	4.88	2.63	Animas

*Azimuth and dip values taken at collar location

**ETW = Estimated True Width

10.3 Diamond drilling methods

Bateas has used a number of different drilling contractors to carry out exploration and definition drilling since it took ownership of the mine in 2005. During 2012, drilling was conducted by two drilling contractors, Geodrill and Explomin. Multiple drill rigs were used during the campaign, including two Longyear 44s, two Geo-3000, and one TEC DRILL H-200 for underground drilling. Both HQ (63.5 mm) and NQ (47.6 mm) diameter core were obtained, depending on the depth of the hole. From 2013 onwards, exploration and resource definition drilling has been carried out by drilling contractors, Geodrill and Explodrilling, as well as by Bateas-owned drill rigs.

Proposed surface drill hole collar coordinates, azimuths and inclinations were designed based on the known orientation of the veins and the planned depth of vein intersection using geological plan maps and sections as a guide.

Surface drilling platforms, together with its access road and sedimentation pit, were prepared using a D7 tractor. The dimensions of the drilling platform are clearly marked in advance of construction with flags indicating the limits for earth movement to minimize soil disturbance and comply with government directive D.S. N° 020-2008-EM regarding Environmental Regulations for Exploration Activities.

10.4 Geological and geotechnical logging procedures

The drill core is stored in either wooden or plastic boxes with each box storing up to 3.0 m of core. Prior to transportation, core boxes are verified to ensure correct, consecutive labeling, as well as clear and legible drill hole codes. The inside of the box is checked for a direction arrow indicating the start and end of the core sequence. The lid of the core box is labeled to clearly show the accrued length and each side of the lid details the previous accrued length (From), and current accrued length (To).

Drill core boxes are only handled and transported by personnel appointed to this task. Boxes are checked and secured prior to transportation to minimize the risk of shifting or mixing of core samples during transportation. Care is taken to ensure that core boxes arrive at the logging facilities with minimal disturbance to the core or the depth markers.

In the logging facilities, geologists and geotechnical technicians carry out geotechnical measurements, logging and sampling of mineralized core. Core is first examined to capture geological information. Initially, quick logging is performed to prepare a brief description of the mineralization intersects. The logging sheet allows the recording of essential information in the form of both graphics and written descriptions. A photographic record of the core is taken using a digital camera.

In January 2018, all logging became digital, being incorporated daily into the Maxwell Datashed database system. Data were recorded initially with Excel templates, and later with the Maxwell LogChief application using essentially the same structure. Both input methods used picklists and data validation rules to ensure consistency between loggers. Separate pages were designed to capture, lithology, alteration, veins, sulfide-oxide zones, minerals, structure (contacts, fractures, veins, and faults with attitudes to core axis), magnetic susceptibility, and special data (samples collected for geochemistry, thin section examinations, the core library, density, etc.). Intensity of alteration phases was recorded using a numeric 1 to 4 scale (weak, moderate, strong, very strong); abundance of veins and most other minerals were estimated in volume percent.

Geotechnical logging is conducted prior to the cutting of the core and involves the collection of drill core recovery and rock-quality designation (RQD) data. Information is recorded in the field using the Maxwell LogChief application.

10.5 Drill core recovery

Sample recovery for each drill interval is recorded by geotechnical technicians. Drill core recovery is generally good, on average greater than 94 % (Figure 10.2).

Figure 10.2 Graph of core recovery of Animas/Animas NE vein

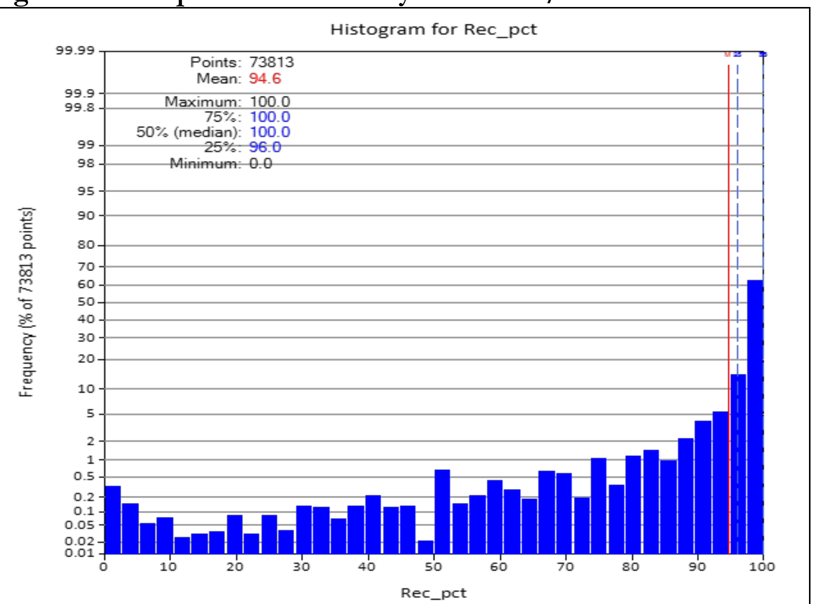


Figure prepared by Bateas, 2023

Recoveries can be lower near surface or when fault structures are encountered due to the more fragmented nature of the core. Recovery is generally excellent through mineralized vein structures. The core recovery values are used when considering the reliability of the sample for resource estimation purposes. The presence of bias due to core loss is detected by performing a correlation analysis on recovery and grade.

10.6 Extent of drilling

Drill holes are typically drilled on sections spaced 40 to 60 m apart along the strike of the vein with surface drilling focusing on exploring the extents of the Animas, Bateas and Nancy veins and underground drilling used for a mix of exploration and Mineral Resource and Mineral Reserve definition. The extent of drilling varies for each vein with those having the greatest coverage having drill holes extending over 4,000 m of the vein's strike length (Animas), to the exploration prospects having only a few drill holes extending over 50 m (Antimonio).

10.7 Drill hole collar surveys

The coordinates for the proposed drill hole collar location are determined through assessing the azimuth and inclination of the proposed drill hole to achieve the desired depth of intercept in cross sections. Once the coordinates have been determined, the location of surface collars are located in the field using differential global positioning system (DGPS) instruments. The drill pad is then prepared at this marked location. Upon completion of the surface drill hole, a survey of the collar is performed using Total Station equipment, with results reported in the collar coordinates using reference Datum WGS84, UTM Zone 19S. For underground drill holes, once the drill station has been established, the location of the collar is located using Total Station instruments based on previously surveyed control points.

10.8 Downhole surveys

The geologist in charge of drilling is responsible for orienting the azimuth and inclination of the hole at the collar using a compass clinometer. Downhole surveys are completed by the drilling contractor using survey equipment such as a Flexit or Reflex tool at approximately 50 m intervals for all surface drill holes and for underground drill holes greater than 100 m in length. Bateas assesses the downhole survey measurements as a component of data validation.

Drill holes recovered from CMA do not include downhole survey information and drill hole azimuths and inclinations recorded at the collar have been used to project the hole to its full depth. The lack of downhole surveys for the CMA drill holes has been taken into account during resource classification where interpretations relating to holes reliant in only CMA data being classified as Inferred, if classified.

10.9 Drill Sections

Representative drill sections displaying the geologic interpretation of the Animas vein are displayed in Figure 10.4 to Figure 10.7. A plan view showing the location of the sections is provided in Figure 10.3.

NSR values in US dollars (US$/t) indicated on the cross sections have been estimated for sulfides using US$ 0.49/g for Ag, US$ 15.4/% for Pb and US$ 15.58/% for Zn based on metal prices of US$ 21.00/oz for Ag, US$ 2,000/t for Pb and US$ 2,600/t for Zn, expected metallurgical recoveries and commercial terms. The NSR equation is discussed in more detail in Section 14.12.

Drill intercept values provided on the sections are for illustrative purposes and provide an overview of the ranges of thicknesses and grades that can be encountered in the veins.

Figure 10.3 Plan map showing orientation of geologic sections

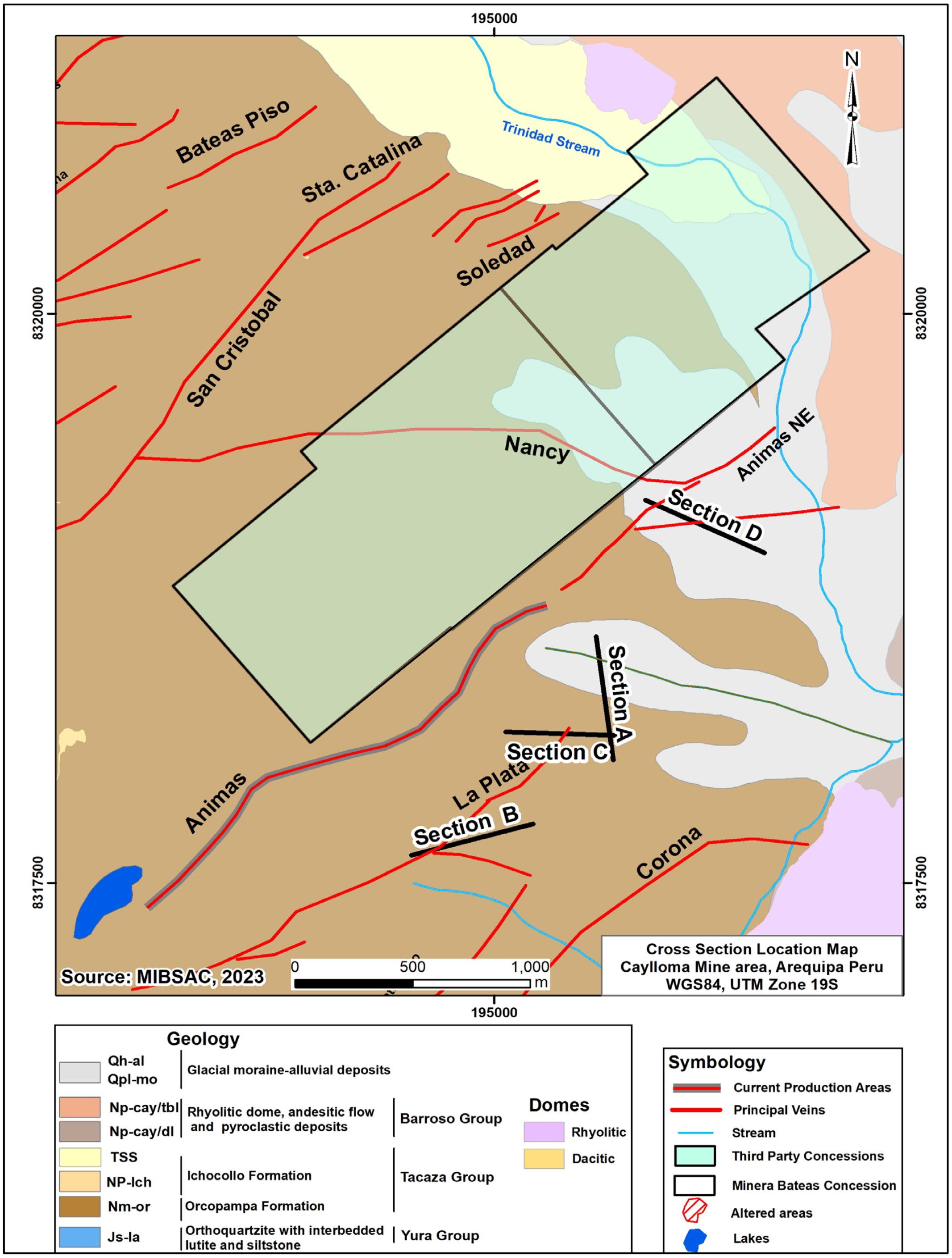


Figure prepared by Bateas, 2023

Figure 10.4 Geologic interpretation of Animas & Nancy vein (Section A)

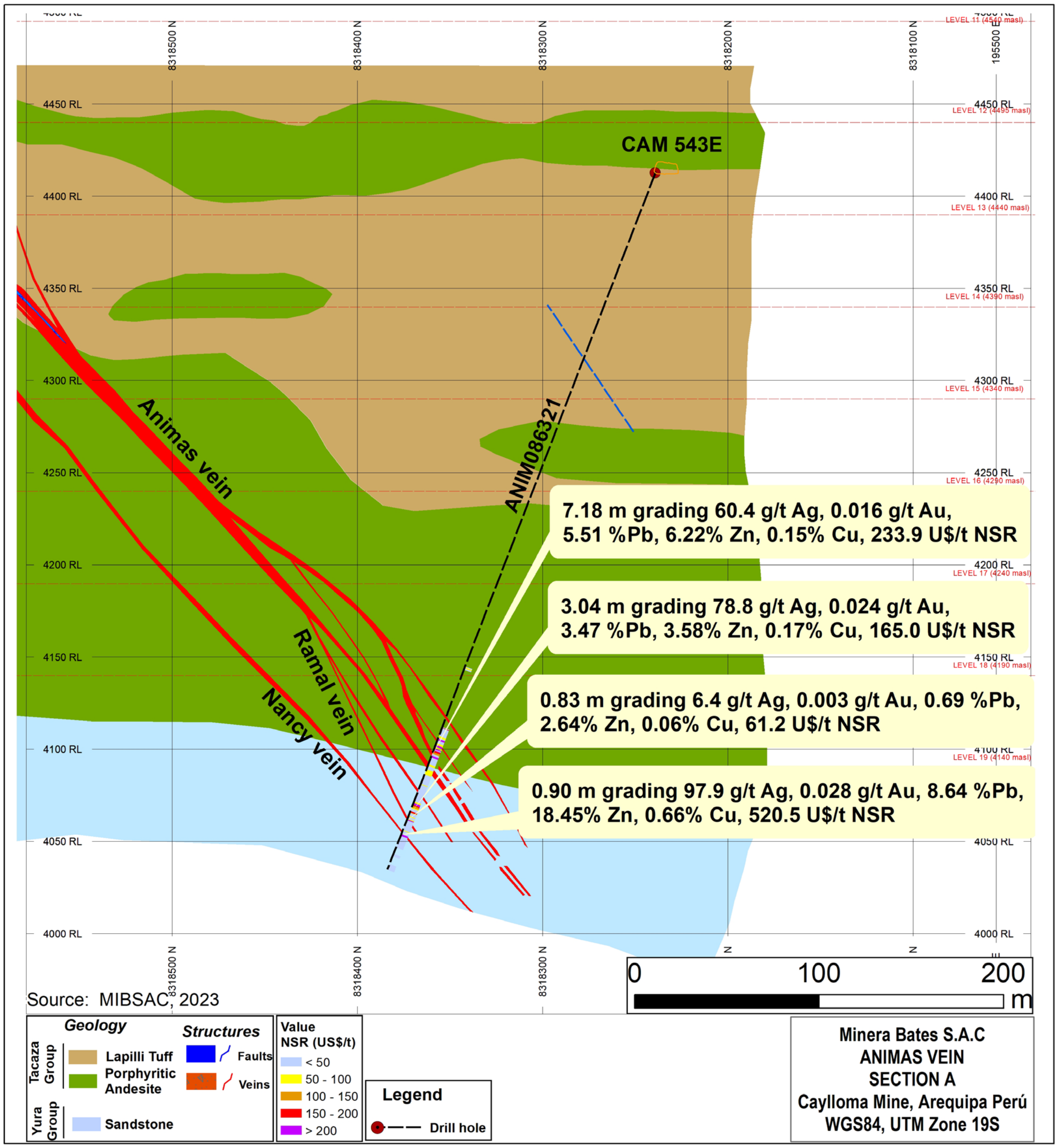


Figure prepared by Bateas, 2023

Figure 10.5 Geologic interpretation of Animas vein (Section B)

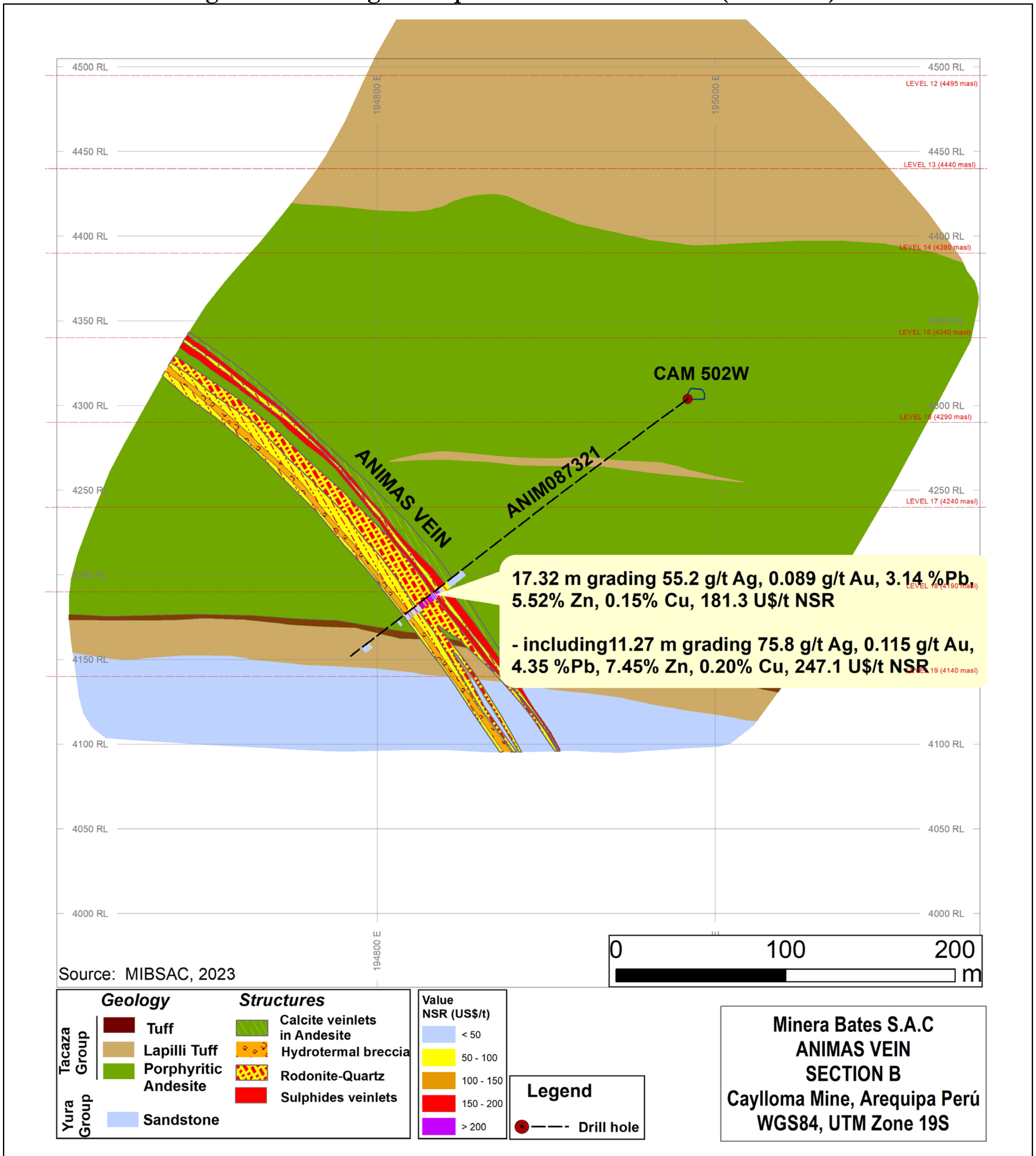


Figure prepared by Bateas, 2023

Figure 10.6 Geologic interpretation of Animas vein (Section C)

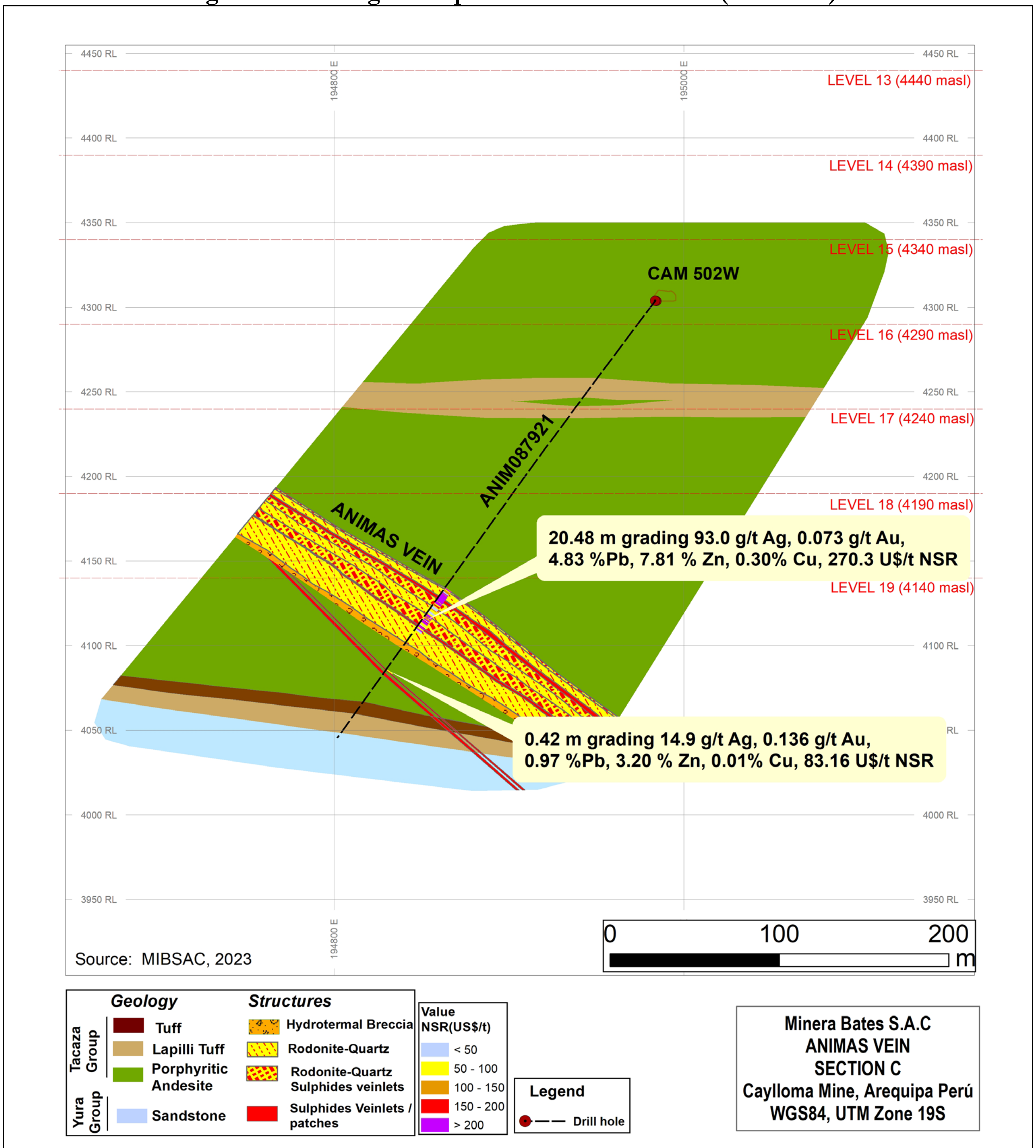


Figure prepared by Bateas, 2023

Figure 10.7 Geologic interpretation of Animas NE vein (Section D)

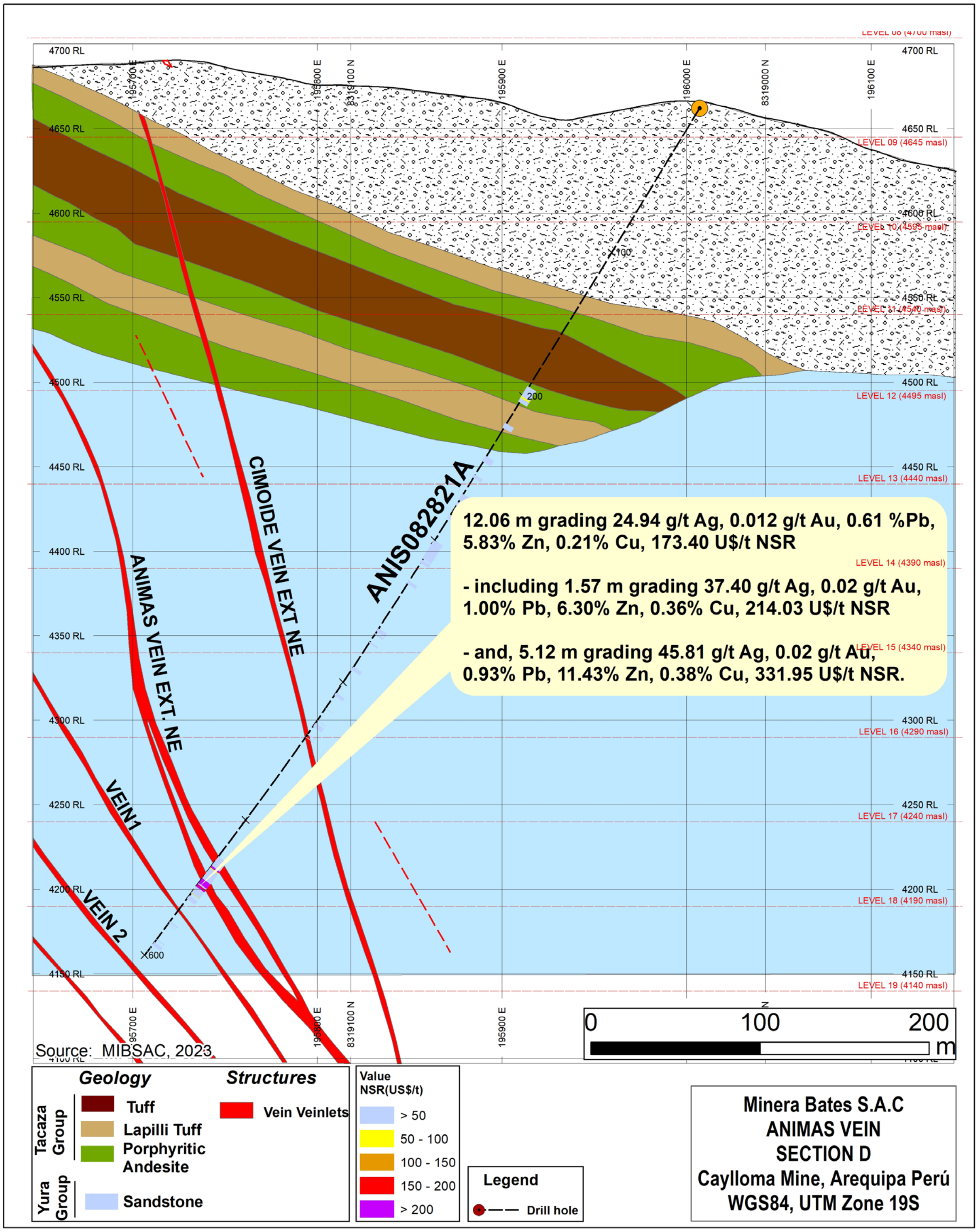


Figure prepared by Bateas, 2023

10.10 Sample length versus true thickness

The relationship between the sample intercept lengths and the true width of the mineralization varies in relation to the intersect angle between the steeply-dipping zone of mineralized veins and the inclined nature of the diamond core holes. Calculated estimated true widths (ETWs) are always reported together with actual sample lengths by taking into account the angle of intersection between drill hole and the mineralized structure. Exaggeration of the true width of the mineralization does not occur during modeling as the actual vein contacts are modeled in three-dimensional space to create vein solids.

10.11 Example drill intercepts

Table 10.4 provides a list of typical drill hole intercepts encountered at the Caylloma Mine. It should be noted that the intervals listed are a subset for reference purposes only and do not represent the total mineralized intervals encountered from the 1,658 drill holes drilled by Bateas at the Caylloma Mine as of June 30, 2023.

Table 10.4 Example of representative drill results at the Caylloma Mine

Hole ID	Easting	Northing	Elevation	Azimuth (°) *	Dip (°)*	From (m)	To (m)	Int. (m)	ETW** (m)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Vein
ANIS012707	192364	8319219	4376	324	-69	303.3	303.9	0.6	0.53	20	0.23	0.75	1.37	Animas
ANIM026114	192856	8319518	4491	0	-29	No significant mineralized intervals								
ANIS003306	192834	8319664	4369	297	-90	292.5	295.5	3	1.85	68	0.21	1.94	2.71	
ANIM013110	193639	8317315	4605	159	-28	72.85	79.75	6.9	6.27	99	0.33	4.39	3.01	
including						75.25	76.15	0.9	0.82	221	0.41	10.51	7.49	
ANIS016510	192681	8319842	4165	321	-52	86.1	88.8	2.7	2.56	323	0.29	7.95	3.24	
ANIS011307	192809	8319496	4474	325	-66	402.8	409.4	6.6	5.88	125	0.16	5.52	6.26	
ANIM019611	193409	8319758	4643	1	-56	220	223	3	2.19	19	0.05	1.25	1.42	Animas NE
ANIS033116	193740	8320461	4188	312	-12	192.6	195.9	3.3	2.67	86	0.38	3.8	4.33	
ANIS055917	193767	8320119	4492	279	-61	No significant mineralized intervals								
ANIS044416	194077	8320186	4507	309	-72	443.6	456.8	13.2	9.01	116	0.04	7.77	9.39	
ANIM019211	194726	8317867	4441	336	-19	171.35	178.9	7.55	6.8	172	0.12	9.11	5.73	
including						176.2	178.2	2	1.8	390	0.18	19.76	10.46	
ANIS063018	194086	8320285	4433	323	-74	365.3	365.9	0.6	0.34	335	0.05	4.66	13.65	
ANIM070419	194738	8317920	4374	147	-25	119.8	131.95	12.15	4.5	71	0.08	4.27	8.62	
ANIM074720	194868	8318040	4363	162	-25	141.75	156.1	14.35	5.4	62	0.04	1.66	1.46	
ANIM078321	194724	8317900	4316	148	-22	142.95	164.85	21.9	12.4	127	0.09	6.63	5.53	
ANIM093022	195340	8318522	4306	142	-34	123.1	135.4	12.3	5.5	113	0.03	8.93	14.32	
ANIM097523	195538	8318186	4412	12	-55	458	462.15	4.15	3.3	37	0.01	3.04	4.80	
NANS004417	196603	8320912	4539	306	-51	No significant mineralized intervals								Nancy
ANIM050717	195554	8318947	4459	328	-71	61.3	62.5	1.2	1.05	24	0.23	0.93	4.02	
including						61.6	61.9	0.3	0.26	54	0.64	2.25	9.57	
NANM003017	196413	8321018	4494	24	1	86.6	89	2.4	1.21	1	0.03	0.14	0.87	
NANM005818	196514	8321017	4455	54	23	78.9	91.8	12.9	3.26	27	0.1	1.11	4.1	
NANS003117	196539	8320934	4540	60	-49	231.2	233.3	1.9	1.84	71	0.19	4.7	10.86	

Hole ID	Easting	Northing	Elevation	Azimuth (°) *	Dip (°)*	From (m)	To (m)	Int. (m)	ETW** (m)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Vein
NANS002012	196547	8320984	4481	318	-60	130.6	140.5	9.9	6.88	91	0.07	5.3	7.62	
BATS008512	192654	8321323	4372	176	-44	137.5	138.7	1.2	0.81	61	0.02	0.02	0.06	Bateas
BATS018114	192676	8321306	4369	150	-69	136.9	137.5	0.6	0.22	752	0.3	0.34	0.48	
BATS016914	192697	8321382	4367	190	-57	98.9	99.8	0.9	0.41	3,629	0.59	0.5	0.81	
BATS019114	192529	8321266	4374	133	-44	No significant mineralized intervals								
BATM014813	192918	8321296	4358	299	-43	36.25	38.35	2.1	1.51	544	0.03	0.23	0.25	
BATS018514	193066	8319980	4665	159	-67	152.5	153.4	0.9	0.55	340	0.07	0.02	0.03	
including						152.8	153.1	0.3	0.18	988	0.19	0.05	0.06	
LPLS002506	193131	8318523	4706	332	-79	182.85	183.75	0.9	0.8	24	0.08	0.01	0.01	La Plata
LPLS002011	193763	8319019	4613	341	-50	190.55	190.95	0.4	0.35	70	0.57	0.01	0.04	
LPLS003411	195203	8317689	4543	305	-59	242.5	243.65	1.15	0.9	37	0.02	0.28	1.86	
including						242.9	243.15	0.25	0.2	58	0.01	0.23	2.48	
LPLS003011	194221	8319281	4588	325	-60	137.5	137.65	0.15	0.12	388	0.13	0.04	0.05	
LPLS003311	194465	8319414	4450	334	-46	No significant mineralized intervals								
LPLS001506	193621	8319019	4544	326	-64	105	109.65	4.65	3.7	498	0.19	0.1	0.69	
SCM-06-03	193308	8318734	4565	311	-85	47.8	48.8	1	0.65	21	0.16	0.01	0.04	San Cristobal
SCS000711	194867	8320977	4591	315	-45	No significant mineralized intervals								
SCS-08-02	193987	8319620	4535	311	-65	401	401.6	0.6	0.45	52	0.16	1.15	1.72	
SCM-3-02	193422	8318947	4568	357	-38	71.7	73.6	1.9	1.45	383	0.54	0.03	0.07	
SCM-04-02	190905	8321290	4767	83	-65	29.3	32.65	3.35	2.8	254	0.05	0.23	0.42	

*Azimuth and dip values taken at collar location **ETW = Estimated True Width

10.12 Comment on Section 10

The QP has the following observations and conclusions regarding drilling conducted at the Caylloma Mine since 2005:

- Data was collected using industry standard practices.
- Drill orientations are appropriate to the orientation of mineralization.
- Core logging meets industry standards for exploration of epithermal-style deposits.
- Geotechnical logging is sufficient to support Mineral Resource estimation.
- Collar surveys have been performed using industry-standard instrumentation.
- Downhole surveys performed by Bateas during the drill programs have been performed using industry-standard instrumentation.
- Drilling information is sufficient to support Mineral Reserve and Mineral Resource estimates.

11 Sample Preparation, Analyses, and Security

11.1 Sample preparation prior to dispatch of samples

11.1.1 Channel chip sampling

Channel samples are collected from the faces of underground workings. The entire process is carried out under the geology department's supervision.

Since February 2011, the location of each channel has been surveyed using Total Station equipment. Surveyors use an underground survey reference point to locate the starting coordinates of each channel. Prior to February 2011, this process was performed by compass and tape measure.

The sampling process consists of making a channel perpendicular to the structure at variable intervals along the strike of the structure. Sampling is conducted according to lithological or mineralogical characteristics. Care is taken to ensure samples are representative, homogeneous and free of contamination.

Sampling is carried out at 2 m intervals within the drifts of all veins and 3 m intervals in stopes (except for Bateas and Soledad, where due to the thickness of the vein, sampling is carried out every 2 m in stopes). The channel lengths and orientations are identified using paint in the underground working and by painting the channel number on the footwall. The channel is between 20 cm to 30 cm wide and approximately 2 cm deep, with each individual sample being no longer than 1.5 m.

The area to be sampled is washed down to provide a clean view of the vein. Channels are cleaned beforehand by removing a layer of approximately 2 cm of surface material, which tends to be highly weathered and not representative of the structure. The channel is sampled by taking a succession of chips in sequence from the hanging wall to the footwall perpendicular to the vein based on geology and mineralization.

Samples, comprised of fragments, chips and mineral dust, are extracted using a chisel and hammer, along the channel's length on a proportional basis. Proper marking of the channel is critical to ensuring that the proportions taken are representative.

For veins with narrow or reduced thickness (<0.20 m), the channel width is expanded to 0.40 m, thus providing the opportunity to obtain the necessary sample mass.

Sample collection is normally performed by two samplers, one using the hammer and pick, and the other holds the receptacle (cradle), to collect rock and ore fragments. Usually, the cradle consists of a sack, with the mouth kept open by a wire ring. Based on ongoing evaluations of precision and the equipment available in the Bateas Laboratory a sample mass of between 3 kg and 6 kg is generally collected.

Since August 2012, the entire sample has been placed in a plastic sample bag with a sampling card and assigned sample ID and taken to the laboratory for homogenization and splitting.

Prior to August 2012, samples were prepared prior to being bagged using a cone and quarter methodology. The process involved homogenizing the sample by overturning the sample numerous times within a plastic sampling sheet, while taking care not to lose any material. Once the sample had been homogenized it was divided into four equal quarters and a representative sample collected from opposite quarters, diagonally (the other two quarters are discarded). Splitting could be performed more than once to ensure a sample no heavier than 2.5 kg to 3 kg was collected, corresponding to a full sampling bag. The obtained sample was then deposited in a plastic sample bag with a sampling card and assigned sample ID. The cone and quarter methodology were regarded as being inappropriate for sample splitting, so the procedure was halted.

11.1.2 Core sampling

A geologist is responsible for determining and marking the intervals to be sampled, selecting intervals based on geological and structural logging. The sample length must not exceed 1.2 m or be less than 30 cm.

When the core is of moderate to good competency, splitting is performed by diamond saw. The geologist carefully determines the line of cutting, in such a way that both halves of the core are representative. The core cutting process is performed in a separate building adjacent to the core logging facilities.

When core is fractured or of poor competency, splitting is performed using a riffle splitter after the sample has been crushed and homogenized.

Once the core has been split, it is washed with half the sample being placed in a sample bag. A sampling card with the appropriate information is inserted with the core. The other half of the core is returned to the core tray.

11.1.3 Bulk density determination

Samples for bulk density analysis are collected underground using a hammer and chisel to obtain a single large sample of approximately 6 kg. The sample is always taken of mineralized material in the same locality as a channel sample. The coordinates of the closest channel sample are assigned to the density sample. The sample is brought to the surface and delivered to the core cutting shed where each side of the sample is cut using a diamond saw to produce a smooth sided cube. The bulk density sample is labeled and bagged prior to being stored in the storage facilities to await transportation with other samples to the ALS Global Laboratory in Arequipa prior to being sent to Lima.

Density tests are performed at the ALS Global Laboratory in Lima using the OA-GRA09A methodology. This test consists of firstly cutting, weighing (maximum of 6 kg) and coating the sample in paraffin wax. Samples are then slowly placed into the bulk density apparatus which is filled with water. The displaced water is collected into a graduated cylinder and measured. The bulk density calculations are corrected for air temperature and the density of the wax coating.

Results of this analysis are included in Section 14.9 of this Report.

11.2 Dispatch of samples, sample preparation, assaying and analytical procedures

11.2.1 Sample dispatch

Once samples have been collected, they are assigned a batch number and either submitted to the Bateas onsite laboratory or sent to the mine warehouse to await transportation (three times a week) to the ALS Global facility in Arequipa, and then on to the ALS Global Laboratory in Lima for analysis.

The primary laboratory (Bateas) uses similar sample preparation, assaying and analytical procedures as are performed at the umpire laboratory (ALS Global).

11.2.2 Sample preparation

Upon receipt of a sample batch the laboratory staff immediately verifies that sample bags are sealed and undamaged. Sample numbers and IDs are checked to ensure they match that as detailed in the submittal form provided by the geology department. If any damaged, missing, or extra samples are detected the sample batch is rejected and the geology department is contacted to investigate the discrepancy. If the sample batch is accepted the samples are sequentially coded and registered as received.

Accepted samples are then transferred to individual stainless-steel trays with their corresponding sample IDs for drying. The trays are placed in the oven for two to four hours at a temperature of 110°C.

Once samples have been dried, they are transferred to a separate ventilated room for crushing using a two-stage process. Firstly, the sample is fed into a terminator crusher to reduce the original particle size so that approximately 90 % passes ½ inch mesh sieve size. The entire sample is then fed to the secondary Rhino crusher so that the particle size is reduced to approximately 85 % passing a 10-mesh sieve size. The percentage passing is monitored daily to ensure these specifications are maintained. The crushing equipment is cleaned using compressed air and a barren quartz flush after each sample.

Once the sampling has been crushed it is reduced in size to 150 g ± 20 g using a single tier Jones riffle splitter. The reduced sample is returned to the sampling tray for pulverizing whereas the coarse reject material is returned to a labeled sample bag and temporarily placed in a separate storage room for transferal to the long-term storage facilities located adjacent to the core logging facilities.

Crushed samples are pulverized using a Rocklab standard ring mill so that 90 % of particles pass a 200-mesh sieve size. The pulp sample is carefully placed in an envelope along with the sample ID label. Envelopes are taken to the balance room where they are checked to ensure the samples registered as having been received and processed match those provided in the envelopes.

The Bateas Laboratory's preparation facilities have been inspected by Mr. Eric Chapman on various occasions, most recently in November 2023, and found to be clean and well organized. All weighing equipment is calibrated on a daily basis using in-house weights and externally calibrated once a year.

11.2.3 Assaying of silver, lead, copper and zinc

Upon receipt of samples in the analytical laboratory, all pulps are re-checked to ensure they match the list in the submittal form. Once completed, 0.5 g of the pulp is weighed and transferred into a 250 ml Teflon container. Added to this is 5 ml of HNO_3, 5 ml of HCl, 1 ml HF, and 1 ml of perchloric acid and the solution is placed in a small oven at 150°C to 200°C until the mixture becomes pasty in consistency. The paste is cooled before 25 % HCl is added to the container. This mixture is then boiled until it changes color. The solution is then transferred to a new vial, cooled and diluted with distilled water before being analyzed.

The elements of silver, copper, lead and zinc are assayed using either; atomic absorption (AA); inductively coupled plasma atomic emission spectroscopy (ICP-AES); or for high lead and zinc grades volumetric/titration techniques (VOL); or for high silver grades gravimetric techniques (GRAV) depending on the laboratory and assay value (see Section 11.4). An initial and duplicate reading is taken, and an internal standard is inserted every ten samples to monitor and calibrate the equipment.

11.2.4 Assaying of gold

After checking that the pulps match the submittal form, 30 g of the pulp is weighed and added to a crucible, along with 120 g of flux, and 1 g to 5 g of KNO_3 if it is a sulfide sample or 1.5 g to 2.0 g of flour if it is an oxide sample. The material is carefully homogenized before being covered by a thin layer of borax.

The mixture is placed in an oven for approximately one to two hours and heated to 1,150°C ± 50°C. Once the crucibles have cooled the slag material is separated and discarded with the remaining material being transferred to a ceramic cup and placed in an oven for 45 to 60 minutes at a temperature of between 950°C to 1,050°C to evaporate any lead and leave behind a clean doré (Ag/Au).

The doré is carefully transferred to a test tube and 1 ml of 15 % nitric acid is added before it is transferred to an oven and heated to 200°C ± 20°C and monitored until digestion is complete. The sample tubes are removed from the oven, cooled for five minutes before 2.5 ml of hydrochloric acid is added. The solution is heated once again until a pale-yellow solution is observed marking the end of the reaction and cooled once more for five minutes before 1 ml of 2 % aluminum nitrate. Distilled water is then added to the test tube to ensure the volume of solution is 5 ml, before it is covered and agitated. The test tubes are left to stand to allow sedimentation prior to analysis by AA or using GRAV if the grades exceed a set threshold.

11.3 Laboratory accreditation

The Bateas Laboratory operated by Bateas is not independent and does not hold an internationally recognized accreditation.

ALS Global is an independent, privately-owned analytical laboratory group. The preparation laboratory in Arequipa and the analytical laboratory in Lima are supported by a Quality Management System (QMS) framework which is designed to highlight data inconsistencies sufficiently early in the process to enable corrective action to be taken in time to meet reporting deadlines. The QMS framework follows the most appropriate ISO Standard for the service at hand i.e. ISO 9001:2015 for survey/inspection activity and ISO 17025:2005 UKAS ref 4028 for laboratory analysis.

11.4 Sample security and chain of custody

Sample collection and transportation of both drill hole and channel samples is the responsibility of the geology department.

Core boxes are sealed and carefully transported to the core logging facility constructed in 2012 where there is sufficient room to layout and examine several holes at a time. The core logging facility is located at the mine site and is locked when not in use.

Once logging and sampling have been performed, the remaining core is transferred to the core storage facilities located adjacent to the logging facilities. The storage facilities consist of a secure warehouse constructed in 2011 to replace the older facilities that were located a kilometer to the north of the mine camp. The warehouse is dry and well illuminated, with metal shelving with sufficient capacity to store all the historical drill core and plenty of space for the coming years.

The core is stored chronologically, and location plans of the warehouse provide easy access to all core collected by Bateas. The storage facility is managed by the Bateas

Brownfields Exploration Manager and the Geology Superintendent, and any removal of material must receive their approval.

Coarse reject material for drill core, channel and exploration samples are collected from the Bateas Laboratory every ten days and stored in a storage facility adjacent to the core storage facility. Storage of the core and exploration coarse rejects is the responsibility of the Bateas Brownfields Exploration Manager. Storage of channel sample rejects is the responsibility of the resource modeling department. All drill core rejects are presently retained indefinitely. Channel reject material is stored between three and twelve months depending on the sample location.

Pulps for drill core, channel and exploration samples are returned to the originator for storage in a separate building adjacent to the Bateas Laboratory. It is the responsibility of the originator to ensure these samples are stored in an organized and secure fashion. Samples are retained in accordance with the Fortuna corporate sample retention policy. All exploration drill core, coarse rejects, and pulps are stored for the life of mine. All underground infill drill core is retained until the stope from which the samples were collected has been mined, when the core that is located greater than 10 m from the mineralized vein can be disposed. Disposal of surface and underground channel coarse reject samples is performed after 90 days and is the responsibility of the Geology Superintendent.

11.5 Quality control measures

The routine insertion of certified reference material, blanks, and duplicates with sample submissions as part of a sample assay quality assurance/quality control (QAQC) program is current industry best practice. Analysis of QAQC data is performed monthly at the operation to assess the reliability of sample assay data and the confidence in the data used for estimation.

Bateas routinely inserts certified reference materials (CRMs), blanks, and field duplicates to the Bateas Laboratory and regularly sends preparation (coarse reject), and pulp duplicates along with CRMs and blanks to the umpire ALS Global Laboratory.

Results for the QC samples submitted with samples to the Bateas and ALS Global Laboratories are monitored on a continuous basis with a monthly report detailing results to management and actions taken if any issues are identified. In addition to statistical analysis, graphical analysis of the results is also conducted to assess trends and biases over time in the data.

Previous technical reports (Armbrust et al, 2005; Sandefur, 2006; and Nielsen et al, 2009; Chapman & Vilela, 2012; Chapman & Kelly, 2013; Chapman & Gutierrez, 2017; Chapman & Sinuhaji, 2019) have assessed the QAQC results from CMA and Bateas and reported them as acceptable. A full evaluation of all available QC results has been conducted by Fortuna as a component of the resource estimation process. An assessment was performed on all QC samples submitted to the Bateas Laboratory (responsible for preparation and assaying of underground channel samples and development drill core) and the ALS Global Laboratory (responsible for preparation and assaying of exploration drill core) up to the June 30, 2023, database cut-off date.

11.5.1 Certified reference material

CRMs are samples that are used to measure the accuracy of analytical processes and are composed of material that has been thoroughly analyzed to accurately determine its grade within known error limits. CRMs are inserted by the geologist into the sample stream, and the expected value is concealed from the laboratory, even though the laboratory will inevitably know that the sample is a CRM of some sort. By comparing the results of a laboratory's analysis of a CRM to its certified value, the accuracy of the result is monitored.

CRMs, whose true values are determined by a laboratory, have been placed into the sample stream by Bateas geologists to ensure sample accuracy throughout the sampling process. CRM results are assessed at the operation monthly using time series graphs to identify trends or biases.

Bateas Laboratory

CRMs are submitted to the Bateas Laboratory at a submission rate of approximately one in 20 samples. As described above, the Bateas Laboratory employs a four-acid digestion methodology with AA for assaying silver, lead and zinc, unless the grade is greater than 1,500 g/t for silver, or 13 % for lead, or 13 % for zinc. If the silver grade was found to be greater than 1,500 g/t it was re-assayed by fire assay using a gravimetric finish (FA-GRAV). If the lead or zinc grades were found to be higher than their upper limits, they were re-assayed by VOL. For gold, the sample is assayed using fire assay with atomic absorption finish (FA-AA) unless the gold grade is greater than 5 g/t Au, in which case the sample is re-assayed with FA-GRAV.

Submitted CRMs, indicate the Bateas Laboratory has acceptable levels of accuracy for silver, lead, zinc, and gold with all elements reporting greater than 99 % pass rates. The assay results for most CRMs demonstrate little or no bias.

ALS Global Laboratory

Drill core (exploration and infill) is sent to ALS Global for assaying. As described above, silver, zinc, and lead are assayed by ICP-AES, unless the grade is greater than 100 g/t for silver, or 1 % for lead or zinc, in which case the sample is re-assayed by aqua regia digestion with an AA finish up to a maximum of 1,500 g/t silver, 30 % lead, or 60 % zinc. If the silver grade is greater than 1,500 g/t it is re-assayed by fire assay using a gravimetric finish. If the lead or zinc grades are found to be higher than their upper limits, they are re-assayed by titration. CRMs have been submitted by Bateas with drill core to the ALS Global facilities at a submission rate of approximately 1 in 20 samples.

Results for CRMs submitted to the ALS Global Laboratory indicate a reasonable level of accuracy is maintained for the four elements of interest.

11.5.2 Blanks

Field blank samples are composed of material that is known to contain grades that are less than the detection limit of the analytical method in use (or in the case of Pb and Zn are known to be very low) and are inserted by the geologist in the field. Blank sample analysis is a method of determining sample switching and cross-contamination of samples during the sample preparation or analysis processes. Bateas uses coarse quartz sourced from outside the area and provided by an external supplier as their blank sample material. The blank is tested to ensure the material does not contain elevated values for the elements of interest.

Bateas Laboratory

The analysis focuses on the submission of blanks at a submission rate of approximately one in 20 channel samples. Results of the blanks submitted indicate that cross contamination and mislabeling are not material issues at the Bateas Laboratory with pass rates greater than 99 %.

ALS Global Laboratory

Blanks were submitted with core samples to the ALS Global Laboratory by Bateas covering all core submitted at a rate of one in 20 samples. A pass rate for blanks (set at two times the lower detection limit) of greater than 99 % was achieved for silver, gold, lead and zinc blank submissions. If two blanks failed in succession, all assay results for the batch were automatically reviewed and re-analyzed if deemed necessary. Blank results from ALS Global were regarded as acceptable indicating no significant sample switching or contamination.

11.5.3 Duplicates

The precision of sampling and analytical results can be measured by re-analyzing the same sample using the same methodology. The variance between the measured results is a measure of their precision. Precision is affected by mineralogical factors such as grain size and distribution and inconsistencies in the sample preparation and analysis processes. There are a number of different duplicate sample types which can be used to determine the precision for the entire sampling process. The terminologies for the duplicates employed by Fortuna at its operations are detailed Table 11.1.

Table 11.1 Terminology employed by Fortuna for duplicates

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

Numerous plots and graphs are used on a monthly basis to monitor precision and bias levels. A brief description of the plots employed in the analysis of duplicate data, is described below:

- Absolute relative difference (ARD) statistics: relative difference of the paired values divided by their average.
- Scatter plot: assesses the degree of scatter of the duplicate result plotted against the original value, which allows for bias characterization and regression calculations.
- Precision plot: half absolute difference (HAD) of the sample pairs against their mean.

- Ranked half absolute relative difference (HARD) of samples plotted against their rank percent value.

Duplicate results are reviewed monthly by Fortuna as part of an extensive quality assurance program and are regarded as demonstrating acceptable levels of precision.

Bateas Laboratory

Bateas inserts field, preparation, and laboratory duplicates as part of a comprehensive QAQC program. Reject assays and check assays are sent to the certified laboratory of ALS Global to provide an external monitor to the precision of the Bateas Laboratory. CRMs and blanks are also submitted with the reject and check assays to monitor the accuracy and contamination of the ALS results. Field duplicates, reject assays, duplicate assays, and check assays are required to be submitted at a rate of one in 40, whereas preparation and laboratory duplicates are submitted at a rate of one in 20. In the early years of the assaying program, submission rates were lower but have been increased to meet the requirements according to Fortuna's QAQC procedural manual.

Results relating to the HARD analysis for the various types of duplicates submitted to the Bateas Laboratory indicate reasonable precision levels with the majority of HARD values being less than the accepted threshold level. It should be noted that precision levels for gold assays are lower than for the other elements, particularly for the duplicate assays. This is because gold concentrations are much lower, and variability is higher. Gold is not an economic driver in the operation and therefore the cost associated with increasing sample mass to ensure higher precision levels is not justified.

Check assays sent to the umpire laboratory showed reasonable levels of precision between the two laboratories. Quality control samples included with the duplicates sent to the umpire laboratory showed acceptable levels of accuracy and no issues with sample switching or contamination.

ALS Chemex Laboratory

Prior to 2013, Bateas relied only on the insertion of preparation and laboratory duplicates by ALS Global to monitor precision levels of drill core samples submitted to the ALS facilities. The QAQC policy was revised in late 2012 and Brownfields exploration has since submitted the full array of blind duplicates with drill core since January 2013.

Results for duplicates submitted with drill core to the ALS Global Laboratory show acceptable levels of precision are maintained at the laboratory, with the exception of the field duplicates, which are occasionally slightly above the acceptance levels and tend to be related to the insertion of low grade or low mass samples. Gold assays also tend to show poorer precision levels when compared to the other metals due to the higher variability of this element but are not regarded as sufficiently elevated to be a concern.

11.5.4 Quality control measures employed by CMA

It is understood from the technical reports submitted by CAM (Armbrust et al, 2005; Sandefur, 2006; and Nielsen et al, 2009), that CMA employed a comprehensive QAQC program that was reviewed and validated by the authors of these reports. Fortuna has not been able to review this information but believes the findings of these independent reports are reliable.

The estimation of Animas, Animas NE, Bateas, Bateas Techo, Silvia, Soledad, Santa Catalina, Patricia, and Pilar do not rely on any CMA information. Estimates of La Plata, Cimoide La Plata, Paralela, San Carlos, San Cristóbal, and San Pedro use drill hole and channel samples obtained by both CMA and Bateas. Bateas has had limited access to the underground workings from where these samples were obtained to establish the reliability of the original results. Initial channel sample assays obtained by Bateas from the San Cristobal vein tend to be lower than from CMA drill hole and channel samples. However, the area investigated is not extensive enough to draw meaningful conclusions at this time.

11.6 Comment on Section 11

Analysis of CRMs and blanks submitted to both the Bateas Laboratory and the independent ALS Global facilities indicate acceptable levels of accuracy for silver, lead, zinc, and gold grades. The results of the blanks submitted indicate that contamination or mislabeling of samples is not a material issue at either of the laboratories. Precision levels are good for the Bateas Laboratory with the exception of gold which is slightly below the acceptance criteria. However, gold is not an economic driver in the operation and therefore the cost associated with increasing sample mass to ensure high precision levels is not justified. Precision levels are also acceptable for the ALS Global Laboratory.

It is the opinion of the QPs that the sample preparation, security, and analytical procedures used at the Caylloma Mine for samples sent to both the ALS Global and Bateas Laboratories have been conducted in accordance with acceptable industry standards and that assay results generated following these procedures are suitable for use in Mineral Resource and Mineral Reserve estimation.

The QPs are unable to verify the accuracy and precision of the CMA channel data with any certainty due to insufficient data. Assay results obtained by Bateas in a limited portion of the San Cristóbal vein tend to be lower than those reported by CMA and therefore areas estimated using samples obtained by CMA should be regarded with a lower level of confidence. This has been taken into account during resource confidence classification.

12 Data Verification

12.1 Introduction

12.1.1 Compania Minera Arcata

Data relating to drill hole and channel samples taken by CMA were collated in 2008 and 2009 through a careful data recovery process from historical documents and assay certificates. Bateas was able to recover and validate information on 47 diamond drill holes totaling 8,177.67 m drilled by CMA between 1981 and 2003. It is unlikely these are the only holes drilled over this period but data on additional drill holes could not be recovered and validated.

12.1.2 Bateas

Since taking ownership in 2005, Bateas mine site staff have adhered to a stringent set of procedures for data storage and validation, performing verification of data monthly for all data relating to drilling and channel samples. The operation employs a Database Administrator who is responsible for oversight of data entry, verification, and database maintenance.

Steps taken by the QP to verify the data used in the Mineral Resource and Mineral Reserve estimation process and detailed in this Report include evaluation of the following areas:

- Database.
- Collars and down-hole surveys.
- Geological logs and assays.
- Geotechnical and hydrology.
- Metallurgical recoveries.
- Mineral Resource estimation
- Mineral Reserve estimation.
- Mine reconciliation.

12.2 Database

Prior to 2018, Bateas data used for Mineral Resource estimation was stored in two SQL databases, while historical CMA data was stored in a Microsoft Access database. The databases were fully validated annually by Fortuna as part of the Mineral Resource estimation process.

In late 2017 and early 2018, Bateas worked with staff from Maxwell Geoservice to transfer all information into the commercial SQL database system, Datashed, employing a dedicated Data Manager to oversee the data transfer. All data must pass a series of validation checks prior to being imported into Datashed.

In addition, an independent audit of the database is conducted every quarter by a dedicated database auditor. A report is filed listing any discrepancies and Bateas staff are required to make the necessary corrections.

A further preliminary validation of the database was performed by the Bateas geology department in June 2023 prior to usage for resource updating.

The database was then reviewed and validated by Mr. Alexander Delgado (MAusIMM) and Mr. Chapman. The data verification procedure involved the following:

- Evaluation of minimum and maximum grade values.
- Investigation of minimum and maximum sample lengths.
- Randomly selecting assay data from the database and comparing the stored grades to the original assay certificates.
- Assessing for inconsistencies in spelling or coding (typographic and case sensitivity errors).
- Ensuring full data entry and that a specific data type (collar, survey, lithology, and assay) is not missing.
- Assessing for sample gaps or overlaps.

No significant inconsistencies were discovered.

12.3 Collars and downhole surveys

The QP checked randomly selected collar and downhole survey information for each campaign against source documentation. In addition, Mr. Chapman completed a hand-held GPS survey of randomly selected surface drill hole collars. The results showed a good correlation with locations recorded in the database.

Downhole surveys are taken using survey equipment such as a Flexit or Reflex tool. A validation of the readings is performed by Mr. Chapman by randomly selecting readings taken from individual holes and assessing the level of deviation between successive data points. If significant discrepancies (e.g. > 15%) exist between data points the information is flagged and follow up checks performed. Mr. Chapman is of the opinion that collar and downhole survey data has been determined using appropriate techniques and is suitable for usage in Mineral Resource and Mineral Reserve estimation.

12.4 Geologic logs and assays

In 2018, Bateas initiated the use of Maxwell LogChief software that supports the electronic collection of geologic and geotechnical information in the field using a standardized system of drop-down menus to promote consistency. In addition, all information is electronically transferred to the database thereby removing the risk of transcription errors.

For validation purposes, Mr. Weedon, during site visits, reviews the geological interpretation and drill core with Bateas exploration personnel.

Assays received by Bateas are reported in both Portable Document Format (pdf) and Microsoft Excel format. Both documents are compared and only imported into the database if they are in agreement. Importation is performed electronically without requiring transcription.

Assay data is verified using a full QAQC program including the insertion of CRMs, blanks and duplicates for assays reported by both Bateas and ALS Global laboratories. A full description of this program and its results is provided in Section 11.5.

To further verify the assay data, Mr. Chapman randomly selected assay data from the database and compared the assay results stored to that of the original assay certificates. Mr. Chapman is of the opinion that the geological and assay data stored in the database is representative of that reported from the laboratories and is suitable for usage in Mineral Resource and Mineral Reserve estimation.

12.5 Geotechnical and hydrology

Mr. Veillette helps coordinate and manage the Engineer of Record (EoR) for tailings storage facilities (TSF) and water management. Mr. Veillette also provides support for waste dump geotechnical aspects and has reviewed all technical documents related to the TSFs, water management and waste dumps detailed in this Report. During Mr. Veillette's most recent site visit (May, 2023), he performed an internal audit on the TSF, water management and waste dump. In addition, in April 2023, he spent 10 days on site training new Responsible Tailings Facility Engineers (RTFE) and providing support on waste dump design and stability.

12.6 Metallurgical recoveries

A daily log is produced by the Bateas plant that monitors the performance of the plant including metallurgical recovery achieved for each metal produced. This daily log is supplemented with a monthly metallurgical balance that reconciles the head grades with the concentrate and tailings grades to verify the recoveries being achieved at the processing plant. Ms. Gonzalez received a copy of the above information and has used this to determine that the proposed metallurgical recoveries set out in this Report are achievable and reasonable.

In addition to reviewing the plant performance the metallurgical QP also conducted reviews including:

- Existing mineralogical information.
- Metallurgical testwork results.
- Historic metallurgical plant performance.
- Teleconference meetings with the Caylloma plant manager.

12.7 Mineral Resource Estimation

The Mineral Resource estimation methodology followed by Bateas, as described in Section 14 of this Report, is based on CIM (2019) best practice guidelines.

Each step of the process is documented, and a checklist developed that is signed off by Bateas staff and the QP reviewer as it is completed.

The validation of data included reviews of:

- Site visit to review core, underground workings and discuss estimation methodology.
- The database (as described above).

- Wireframe modeling to define geological, structural and mineralization domains.
- Statistical evaluation to confirm domaining is appropriate and adheres to the geological interpretation.
- Variographic analysis to confirm modeled variograms correspond to experimental variography.
- Cross validation and reconciliation results.
- Statistical checks on each field contained in the resource block model to confirm minimum/maximum values are not exceeded.
- Mineral Resource classification.
- Depletion of mined out and remnant/isolated blocks from the model.
- Reported Mineral Resources correspond with block model.

The QP is of the opinion that the Mineral Resource estimation was performed using standard industry practices and is suitable for usage in Mineral Reserve estimation.

12.8 Mineral Reserve estimation

The Mineral Reserve estimation methodology followed by Bateas, as described in Section 15 of this Report, is based on CIM (2019) best practice guidelines.

Each step of the process is documented, and a checklist developed that is signed by Bateas staff and Mr. Espinoza.

Mr. Espinoza has visited the Caylloma Mine several times during 2022 and 2023 to verify the mine infrastructure, mine operating practices, as well as the conditions of the rock mass for overhand cut and fill. Mr. Espinoza holds regular virtual meetings with the Bateas operations management and technical services to review operational results on a monthly basis. Additionally, he is responsible for peer reviewing any technical studies relating to operational improvements associated with the mining methods.

Other reviews made to support the Mineral Reserve estimation process at the Caylloma Mine include:

- Ensuring all aspects of Mineral Reserve estimation and reporting adhere to Fortuna's "*Technical Information Policy*".
- Reviewing and confirming parameters used for NSR evaluation adhere to Fortuna's "*Procedure for NSR point value*".
- Reviewing and confirming parameters used for cut-off grade calculation adhere to Fortuna's "*Procedural Manual for COG determination*" and CIM best practices.
- Reviewing and confirming operational parameters used in the estimation of Mineral Reserves are based on current market and operational considerations and conform to CIM best practices.
- Reviewing historical mining dilution and recovery with Bateas technical services to verify parameters used in the estimation process are reasonable.
- Discussions regarding mineable shape optimization (MSO) results with the Bateas technical services and mine operations departments.

- Reviewing various LOM scenarios and their operational applicability to determine the optimal LOM based on Fortuna's strategic goals.
- Review of monthly mine reconciliation results (see below).

12.9 Mine reconciliation

Bateas performs a reconciliation of the resource and reserve block model estimates against production following a corporate procedural manual on a monthly basis and reports these results to Fortuna. The QPs are responsible for reviewing and validating the results reported and ensuring any discrepancies greater than 15 % are investigated and reasons for the variation explained.

Historical mine reconciliation results indicate that the estimation methodology is reasonable, and production has reconciled well with the estimates for the last five years.

12.10 Comment on Section 12

The QP's are of the opinion that the data verification programs performed on the data collected from the mine are adequate to support the geological interpretations, the analytical and database quality, and Mineral Resource and Mineral Reserve estimation at the Caylloma Mine and that, to the knowledge of the QPs, there are no limitations on or failure to conduct such verification that would materially impact the results. This conclusion is based on the following:

- Site visits conducted by all QP's to review data and observe operational activities relating to their area of expertise at the mine.
- No material sample biases were identified from the QAQC programs. Analytical data that were considered marginal were accounted for in the resource classifications.
- Sample data collected adequately reflect deposit dimensions, true widths of mineralization, and the style of the deposits.
- Quarterly reviews of the database producing independent assessments of the database quality. No significant problems with the database, sampling protocols, flowsheets, check analysis program, or data storage were noted.
- Bateas compiled and maintains a relational database (Datashed) for the Caylloma Mine which contains all collar, assay, density, survey and lithology information as well as all associated QAQC data.
- Drill hole and channel collar and downhole surveys are conducted using standard industry techniques.
- All geologic and assay data is electronically collected and imported into the database eliminating the potential for transcription errors.
- Geotechnical and hydrology data indicates that the mining method is suitable based on rock stability and the plant has sufficient access to water to meet its requirements.
- Metallurgical recoveries continue according to historical behavior.
- Metallurgical monitoring is conducted using tests, assays and mineralogical data.

- Drill data is verified prior to Mineral Resource estimation, by running a software program check.
- Mineral Resource estimation methodology is verified by the QP responsible for resources with each stage being reviewed and checklists completed.
- Mineral Reserve estimation methodology is verified by the QP responsible for reserves with each stage being reviewed and checklists completed.
- Quarterly mine reconciliation reports monitor the performance of the resource and reserve block model estimates and indicate a high level of accuracy with production results typically within ±15 %.

13 Mineral Processing and Metallurgical Testing

The Caylloma concentrator plant was purchased from CMA as part of the overall purchase of the Caylloma Mine. Major modifications have been made to the plant following the purchase of the mine by Fortuna.

13.1 Metallurgical tests

Numerous metallurgical tests and studies have been conducted in the concentrator plant since Bateas took over in order to optimize mineral processing.

Metallurgical recoveries for 2023 were 84.13 %, 91.30 %, and 90.20 % for silver, lead and zinc respectively. In the opinion of Ms. Gonzalez these recovery figures are representative of the deposit as a whole and similar numbers can be expected in the remaining LOM plan (with the exception of gold rich veins, as detailed below at point 5). Bateas conducts ongoing work to optimize mineral processing, focusing on metallurgical recoveries and throughput capacity. Studies or tests developed to achieve these goals include:

1. **Plant and metallurgical tests conducted on sulfide material**

   Until 2012, ore identified as containing high zinc oxide content was classified as not amenable for flotation.

   Different plant and laboratory tests were carried out during 2012 on the oxidized mineralized material. The maximum metallurgical recoveries achieved during the plant test work were 63.98 % for silver, 46.45 % for lead and 32.35 % for zinc.

   More laboratory and plant tests have been conducted since 2013 including metallurgical testing of material from different levels of the Animas vein. The main conclusion being that zinc oxide content greater than 0.20 % resulted in lower metallurgical recoveries. In order to include this type of material without affecting the metallurgical recoveries, blending has to be performed to limit the high zinc oxide content to no more than 11 % of the plant feed.

   Additional tests have included characterization of mine mineral samples (e.g. mechanical preparation of samples, grinding kinetics and soluble salts) as well as qualitative and quantitative microscopy studies.

   An annual bond work index (Wi) assessment is performed, which has demonstrated that as the mine has deepened the Wi has increased from 15.3 to 18 kWh/t, due to an increase in quartz content.

2. **Metallurgical tests on lead and zinc circuits**

   In June 2012, Bateas requested Blue Coast Metallurgy (BCM) to conduct a mineralogical study of concentrate and tailings products from the lead circuit. The study aimed to characterize the lead and silver mineral species in both products and identify the form(s) in which the lead and silver are recovered and lost in terms of size and liberation.

   Based on the studies and testing developed between 2013 and 2023 for the different stages of the process, some changes or adjustments have been implemented in the processing plant aimed at improving the metallurgical performance including:

- Adjustments to the grinding medium and size selection were made to achieve 58 % passing 75 µm as the final grinding product.
- The Z-11 and Z-6 collectors in the lead flotation circuit, which were previously added as a mixed solution, are now added independently ensuring a superior effect and avoiding alteration in their properties.
- The Z-11 collector was replaced with the Z-6 in the zinc circuit to improve recovery.
- Collector agent AP-3418 (6 g/t) has been added to improve the recovery of silver in the lead circuit.
- Sodium cyanide consumption, which is used as a lead and zinc depressor in the lead floatation circuit, was reduced from 20 to 6 g/t to improve silver and gold flotation.
- The Denver mill critical speed was increased from 69 % to 76 % increasing the reduction ratio, resulting in an increase in the treatment capacity by 10 tpd.
- The Magensa (6 foot by 6 foot) mill steel shell liners were changed to rubber increasing the reduction ratio from 1.2 to 1.6.
- Automatic pH control was installed to stabilize the process, particularly in the zinc circuit, reducing lime consumption by 25 %.
- Batch and locked cycle flotation tests are regularly carried out on material extracted from different levels of the mine and fed to the plant, in order to define the optimal operating parameters.
- Metallurgical tests to control the operational parameters used in milling and flotation (e.g. concentration of reagents, dosages, density controls, reduction ratios, granulometry controls and pH controls) are performed on a regular basis.
- Stabilization of the flotation process for lead and zinc was improved by improved control in reagent dosing.
- In 2018, the pH of ore fed to the plant increased due to added cement for underground support. The increase affected lead flotation, with subsequent metallurgical tests demonstrating carbon dioxide (32 g/t) usage could reduce the issue.
- As of 2019, the Aerofloat 242 secondary collector is used as a specific secondary collector for oxidized ore, which helped Bateas improve the metallurgical performance of Ag and Pb by increasing the contribution of oxide content in blending from 6 to 11%.
- As of 2023, the Aerofloat 242 collector is being used as a secondary collector in the Zn flotation, helping to stabilize metallurgical behavior.

3. **Mineralogical balance and performance study**

   Conducted by Metrix Plant Technologies in 2017, the study was designed to assess the performance of the Caylloma processing facility. Benchmarking analysis concluded that the chemical agents and doses used in the zinc flotation circuit are within standard norms. Silver losses in the tailings of the lead circuit are mostly fine grained acanthite (or low copper polybasite) that are problematic for recovery due to their close association with pyrite, sphalerite or quartz. Zinc content is primarily in the form of sphalerite and its recovery depends on activation in the lead circuit. For oxidize mineralization, the study concluded that galena makes up approximately 61% of the lead content with the rest being intercalated with non-floatable minerals, therefore lead recoveries are estimated to be no greater than 45% to 55%.

4. **Processing plant optimization**

Aiming to reduce the recirculating load within the grinding circuit by improving the size selection, pilot tests to replace cyclones with high frequency vibrating wet screens were run by the Derrick Plant in Buffalo, New York in November 2014.

During 2016, the crushing product was improved from 9.5 mm to 8 mm, which was achieved by changing the lining profile of the secondary crusher from EC to C type and replacing the screens from 9.25 to 8 mm.

In March 2016, a plant optimization project (POP) was implemented with the installation of high frequency slots for grinding, resulting in the reduction of the circulating load from 250 to 170 % as a result of a more efficient size classification which allowed the processing capacity of the plant to be increased from 1,300 to 1,500 tpd.

The POP also led to an upgraded lead flotation circuit, with six OK 20 cells and nine OK 3 cells replacing the agitair cells, thereby increasing the flotation time from 14 to 38 minutes and maintaining silver recoveries even though silver head grades have declined over time.

In 2018, a zinc concentrate dryer was implemented, reducing the moisture content in the concentrate by approximately one percent.

In 2019, two RCS 20 cells and one RCS 10 cell were installed to increase the float time of the Zn circuit, improving the quality of the concentrate from 50 to 54 %.

In 2021, the contribution of oxides was increased from 6 to 11 % due to the higher gold grade identified in the oxidized mineralized material. Increasing the proportion of oxide material did not have a detrimental impact of the recovery of other metals, establishing a new threshold for oxide feed to the plant.

In 2023, a modification of the grinding circuit was carried out, sending 100 % of the discharge from the primary mills to the SK-240 Flash Unit Cell, improving the recovery and quality of the Pb-Ag concentrate.

5. **Metallurgical testwork on material from elevated gold grade material**

Recovery rates for material sourced from elevated gold grade veins (averaging > 1 g/t Au), have been derived from historical plant performance. For example, in September 2021, ore with a head grade averaging 0.37 g/t Au and 70 g/t Ag was processed and recoveries of 56.99 % in Au and 78.92 % in Ag were achieved. Metallurgical tests performed in May 2023 on samples with average head grades of 0.37 g/t Au and 118 g/t Ag obtained recoveries of 50.5 % in Au and 86.2 %

in Ag. These recoveries are achieved in a gold and silver by-product recovery process after the lead and zinc flotation, providing a baseline for expected results.

Furthermore, metallurgical testwork has been performed on several bulk samples comprised of drill core intersecting the elevated gold rich vein of Ramal Piso Carolina, to assess the potential gold recovery if reagents were altered in the flotation process. In May 2013, a bulk sample comprising 50 samples averaging 5.7 g/t Au from 13 drill holes was sent to SGS for testing. In March 2015, a further three bulk samples comprising 14 drill core samples each were tested at the Bateas Laboratory. Batch flotation tests were conducted on these samples representing mineralized material from Ramal Piso Carolina averaging 4.67 g/t Au, 11.21 g/t Au, and 42.14 g/t Au. The samples were regarded as representative of the mineralization of the vein as a whole. Metallurgical recoveries of greater than 75 % for gold were achieved for all bulk samples tested.

Additional metallurgical tests of mineralized material from other veins with elevated gold values are recommended to confirm the recoveries are achievable from a range of different ore types.

13.2 Deleterious elements

Beyond the loss in metallurgical recovery related to elevated zinc oxide material that can be mitigated by blending, as described above, there are no additional deleterious elements that require special treatment in the plant as of the effective date of this Report.

13.3 Comments on Section 13

It is the opinion of the QP that the Caylloma Mine has an extensive body of metallurgical investigation comprising several phases of testwork as well as an extensive history of treating ore at the operation since 2006. In the opinion of the QP, the Caylloma metallurgical samples tested and the mineralized material that has been treated in the plant is representative of the future mineralization as a whole identified in the LOM in respect to grade variability and metallurgical response. Differences between vein systems are minimal with regard to recovery.

Metallurgical recovery values forecast in the LOM for sulfide material average 82 % for silver, 22 % for gold, 90 % for lead, and 89 % for zinc. Metallurgical recovery is forecast for mineralized material from veins with elevated gold grades (averaging > 1 g/t Au) to average 85 % for silver, 55 % for gold, 87 % for lead, and 89 % for zinc.

14 Mineral Resource Estimates

14.1 Introduction

The following sections describe in detail the Mineral Resource estimation methodology of the veins updated in 2023. These include the Animas, Animas Techo, Animas NE, Animas NE Techo, Cimoide ASNE, Ramal Techo ASNE, Rosita and Nancy veins.

If no new information for a vein was obtained since the previous estimate reported as of December 31, 2022, the previous result was retained, albeit with the application of new metal prices, recoveries, and cut-off grades. Veins that did not require updating included Bateas/Bateas Piso, Bateas Techo, Santa Catalina, Soledad, Silvia, Patricia, Pilar, Paralela, San Cristobal, San Carlos, San Pedro, La Plata/Cimoide La Plata, Ramal Piso Carolina, and Don Luis II. A summary of the estimation methodology used to estimate these veins has been included for completeness.

14.2 Disclosure

Mineral Resources were prepared by Sharon Duenas, an employee of Bateas, under the technical supervision of Alexander Delgado, MAusIMM. The estimation process was peer reviewed by Eric Chapman, P.Geo. Mr. Delgado and Mr. Chapman are Qualified Person's as defined in National Instrument 43-101 and employees of Fortuna.

Mineral Resource estimates have an effective date of June 30, 2023.

14.2.1 Known issues that materially affect Mineral Resources

Fortuna does not know of any issues that materially affect the Mineral Resource estimates. These conclusions are based on the following, as of the effective date of this Report.:

- **Environmental**: Bateas is in compliance with Environmental Regulations and Standards set in Peruvian Law and has complied with all laws, regulations, norms and standards at every stage of operation of the mine.
- **Permitting**: Bateas has represented that permits are in good standing.
- **Legal**: Bateas has represented that there are no outstanding legal issues; no legal action, and injunctions are pending against the mine.
- **Title**: Bateas has represented that the mineral and surface rights have secure title.
- **Taxation**: No known issues.
- **Socio-economic**: Bateas has represented that the mine has strong local community support.
- **Marketing**: No known issues.
- **Political**: Bateas believes that the current government is supportive of the mine.
- **Mining**: Bateas has been successfully operating a mining facility at Caylloma since 2006, which has included extraction from the Animas, Animas NE, Ramal Techo ASNE, Cimoide ASNE, Bateas, Soledad, Silvia, Santa Catalina, Nancy, and Rosita veins. Underground mining has also been successfully performed by CMA including extraction of mineralized material from the San Cristóbal, Bateas, Santa Catalina, San Pedro, Paralela, and San Carlos veins.

- **Metallurgical**: Bateas presently successfully treats ore extracted from the Caylloma Mine in the onsite processing plant to produce lead and zinc concentrates with gold and silver credits (Section 13).
- **Infrastructure**: No known issues.
- **Other relevant issues**: No known issues.

14.3 Assumptions, methods and parameters

The 2023 Mineral Resource estimates for those veins updated (Animas, Animas Techo, Animas NE, Animas NE Techo, Cimoide ASNE, Ramal Techo ASNE, Rosita and Nancy veins) were prepared in the following steps:

- Data validation as performed by Fortuna.
- Data preparation including importation to various software packages.
- Geological interpretation and modeling of mineralization domains.
- Coding of drill hole and channel data within mineralized domains.
- Sample length compositing of both drill holes and channel samples.
- Analysis of extreme data values and application of top cuts.
- Exploratory data analysis of the key constituents – silver, gold, lead, zinc, copper and density.
- Analysis of boundary conditions.
- Variogram analysis and modeling.
- Derivation of kriging plan.
- Kriging neighborhood analysis and creation of block models.
- Grade interpolation of Ag, Au, Pb, Zn, Cu, and sample length, assignment of density values.
- Validation of grade estimates against input sample data.
- Classification of estimates with respect to CIM guidelines.
- Assignment of an NSR based on long term metal prices, metallurgical recoveries, smelting costs, commercial contracts, and average concentrate grades.
- Depletion of blocks identified as extracted or inaccessible.
- Mineral Resource tabulation and reporting based on NSR cut-off grades.

If no new information for a vein was available since the previous Mineral Resource estimate, the grade values were not re-estimated. However, the methodology and results were reviewed, and updated metal prices, recoveries, and costs applied to the calculation of NSR values. This was the case for the Bateas/Bateas Piso, Bateas Techo, Santa Catalina, Soledad, Silvia, Patricia, Pilar, Paralela, San Cristobal, San Carlos, San Pedro, La Plata/Cimoide La Plata, Ramal Piso Carolina, and Don Luis II.

14.4 Supplied data, data transformations and data validation

Bateas information used in the 2023 estimation is sourced from the Maxwell Datashed industry standard database system.

Bateas supplied all available data as of June 30, 2023.

14.4.1 Data transformations

Historical assays recorded by CMA in paper format were in troy ounces per tonne and these were transformed to grams per tonne prior to entry into Datashed. The transformation was made by multiplying the troy ounces by 31.1035 to calculate the equivalent grams. No other data transformations were required.

14.4.2 Software

Mineral Resource estimates have relied on several software packages for undertaking modeling, statistical, geostatistical and grade interpolation activities. Wireframe modeling of the mineralized envelopes was performed in Leapfrog version 2023.1.1 Data preparation, block modeling and grade interpolations were performed in Datamine RM version 1.11.300. Statistical and variographic analysis was performed in Supervisor version 8.15.1.

14.4.3 Data preparation

Collar, survey, lithology, and assay data exported from Datashed provided by Bateas were imported into Datamine and used to build three dimensional representations of the drill holes and channels. Assay values at or below the detection limit were corrected to half the detection limit. The number of surface drill holes, underground drill holes and channels available for the geologic interpretation process is shown in Table 14.1.

Table 14.1 Drill holes and channels available for geologic interpretation

<table>
<tr><th rowspan="2">Vein</th><th colspan="2">Surface Drill holes</th><th colspan="2">Underground Drill holes</th><th colspan="2">Channels</th></tr>
<tr><th>Number</th><th>Meters</th><th>Number</th><th>Meters</th><th>Number</th><th>Meters</th></tr>
<tr><td>Animas</td><td>94</td><td>30,097</td><td>77</td><td>12,186</td><td>37,449</td><td>93,810</td></tr>
<tr><td>Animas NE</td><td>176</td><td>54,489</td><td>239</td><td>39,639</td><td>28,950</td><td>89,673</td></tr>
<tr><td>Animas Techo</td><td></td><td></td><td></td><td></td><td>117</td><td>160</td></tr>
<tr><td>Cimoide ASNE</td><td></td><td></td><td>7</td><td>978</td><td>1,917</td><td>6,542</td></tr>
<tr><td>Ramal Techo ASNE</td><td></td><td></td><td></td><td></td><td>916</td><td>2,874</td></tr>
<tr><td>Bateas</td><td>80</td><td>17,571</td><td>45</td><td>4,857</td><td>16,682</td><td>15,062</td></tr>
<tr><td>Bateas Techo</td><td></td><td></td><td></td><td></td><td>289</td><td>254</td></tr>
<tr><td>Silvia</td><td></td><td></td><td>17</td><td>1,725</td><td>1,176</td><td>1,872</td></tr>
<tr><td>Soledad</td><td>7</td><td>924</td><td>1</td><td>32</td><td>6,804</td><td>6,682</td></tr>
<tr><td>Santa Catalina</td><td>3</td><td>551</td><td>8</td><td>1,123</td><td>1,743</td><td>3,582</td></tr>
<tr><td>Patricia</td><td></td><td></td><td>7</td><td>683</td><td>36</td><td>32</td></tr>
<tr><td>Pilar</td><td></td><td></td><td></td><td></td><td>63</td><td>105</td></tr>
<tr><td>La Plata*#</td><td rowspan="2">26</td><td rowspan="2">5,765</td><td rowspan="2">15</td><td rowspan="2">4,116</td><td>373</td><td>292</td></tr>
<tr><td>Cimoide La Plata*</td><td>311</td><td>373</td></tr>
<tr><td>San Cristóbal*</td><td>6</td><td>3,363</td><td>7</td><td>770</td><td>5,201</td><td>10,030</td></tr>
<tr><td>Paralela</td><td></td><td></td><td></td><td></td><td>623</td><td>936</td></tr>
<tr><td>San Carlos/ San Carlos 1*</td><td>2</td><td>496</td><td>10</td><td>481</td><td>295</td><td>145</td></tr>
<tr><td>San Pedro*</td><td>6</td><td>2,456</td><td></td><td></td><td>2,006</td><td>2,646</td></tr>
<tr><td>San Pedro Oeste</td><td>2</td><td>811</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Santo Domingo</td><td></td><td></td><td></td><td></td><td>26</td><td>73</td></tr>
</table>

Vein	Surface Drill holes		Underground Drill holes		Channels	
	Number	Meters	Number	Meters	Number	Meters
Santa Rosa					6	13
Antimonio	3	594				
Caylloma 6	3	959				
Corona Antimonio	2	524				
Corona	1	345				
Elisa					7	7
Gabriela	2	383				
Lucia			8	1,300		
San Antonio	2	392				
El Toro	1	178				
Vilafro	4	985				
Wendy	1	285				
Nancy	34	9,355	32	4,354	1,571	4,983
Carolina	72	17,577			11	40
Ramal Piso Carolina					5	26
Don Luis II	42	12,553				
Pissaca	4	2,536				
Total	**573**	**163,186**	**473**	**72,243**	**106,577**	**240,213**

Notes: Some drill holes intersect multiple veins - number and meters are attributed to the primary target vein.
* Includes CMA channel samples.
# Drill holes intersect both La Plata and Cimoide La Plata veins.
Totals may not add due to rounding.

14.4.4 Data validation

An extensive data validation process was conducted by the Bateas operational staff and Mineral Resource groups of Fortuna prior to Mineral Resource estimation.

Validation checks were also performed upon importation into Datamine mining software and included searches for overlaps or gaps in sample and geology intervals, inconsistent drill hole identifiers, and missing data. No significant discrepancies were identified.

14.5 Geological interpretation and domaining

Caylloma is a low-sulfidation epithermal style deposit, primarily consisting of sulfosalts and silver sulfides and base metal sulfides. Mineralization is associated with distinct veins characterized by silver sulfosalts and base metal sulfides in a banded gangue of quartz, rhodonite and calcite. Host rocks adjacent to the veins are characterized by local illite and widespread propylitic alteration.

Major vein systems recognized at the Caylloma Mine, all have a general northeast to southwest strike orientation and dipping predominantly to the southeast. Host rocks are andesitic lavas, pyroclastics and volcaniclastics of the Tacaza volcanic group.

There are two different types of mineralization at Caylloma; the first is comprised of silver-rich veins with low concentrations of base metals. The second type of vein is polymetallic in nature with elevated silver, lead, zinc, copper, and gold grades.

Silver veins

- Bateas, Bateas Piso, Bateas Techo, La Plata, Cimoide La Plata, San Cristóbal, San Pedro, San Carlos, Paralela, Ramal Piso Carolina, and Don Luis II veins.

Polymetallic veins

- Animas, Animas Techo, Animas NE, Animas NE Techo, Cimoide ASNE, Ramal Techo ASNE, Rosita, Santa Catalina, Soledad, Silvia, Pilar, Patricia, and Nancy veins.

Mineralized envelopes were constructed by the Bateas mine geology department based on the interpretation of the deposit geology and refined using the drill hole, channel and underground mapping information. The mineralized wireframes were modeled in Leapfrog based on channel and drill hole intersections that have an average combined (Ag, Au, Pb, and Zn) NSR value greater than US$ 50 (regarded as mineralized). Prices used for determining the metal value were based on long term metal prices as summarized in Table 14.2.

Table 14.2 Metal prices used to define mineralized envelopes

Metal	Price
Ag	21.00 US$/oz
Au	1,600 US$/oz
Pb	2,000 US$/t
Zn	2,600 US$/t

14.6 Exploratory data analysis

14.6.1 Compositing of assay intervals

Compositing of sample lengths was undertaken so that the samples used in statistical analyses and estimations have similar support (i.e., length). Bateas sample drill holes and channels at varying interval lengths depending on the length of intersected geological features and the true thickness of the vein structure. Sample lengths were examined for each vein and composited according to the most frequently sampled length interval (Table 14.3). The composited and raw sample data were compared to ensure no sample length loss or metal loss had occurred.

Table 14.3 Composite length by vein

Vein	Composite length (m)
Animas/Animas Techo	2.5
Animas NE/Animas NE Techo	2.5
Ramal Techo ASNE	2
Cimoide ASNE	2
Bateas (inc. Techo & Piso)	1
Silvia	1.5
Soledad	1
Santa Catalina	2
Patricia	1
Pilar	1
La Plata	1
Cimoide La Plata	1
San Cristobal	2

Vein	Composite length (m)
Paralela	1
Rosita	2
San Carlos	1
San Pedro	1
Nancy	2
Ramal Piso Carolina	1
Don Luis II	1

The Datamine COMPDH downhole compositing process was used to composite the samples within the estimation domains (i.e. composites do not cross over the mineralized domain boundaries). The COMPDH parameter MODE was set to a value of one to allow adjusting of the composite length while keeping it as close as possible to the composite interval; this is done to minimize sample loss.

Due to the variable thickness of the veins, it was noted that composite lengths were still variable with a high proportion being less than the composite length. In previous estimates this composite length variation has been successfully dealt with by weighting the estimate by the composite length and therefore this methodology was employed in 2023.

14.6.2 Statistical analysis of composites

Exploratory data analysis was performed on composites identified in each geological vein (Table 14.4). Splays have been identified separately and samples composited within these domains as detailed below. Statistical and graphical analysis (including histograms, probability plots, scatter plots) were investigated for each vein to assess if additional sub-domaining was required to achieve stationarity.

High-grade domains have been identified in several of the veins. Bateas used probability assigned constrained kriging (PACK) to estimate the location of high-grade regions of the deposit. PACK was designed to define economic envelopes around mineralized zones digitally that are difficult to outline and delineate using more traditional and labor-intensive methods such as wireframing. Probabilistic envelopes are first generated using indicators to define the limits of the economic mineralization and then the envelopes are used in the resource estimation to confine the higher-grade assays from smearing into lower-grade zones and restrict lower-grade assays from diluting the higher-grade zones.

PACK models were constructed for the Animas, Animas Techo, Animas NE (except silver), Animas NE Techo (gold and zinc), Cimoide ASNE (silver, gold, and lead), Animas NE splay (silver only), the La Plata, Bateas Piso (silver only) and Nancy (silver, gold and lead) veins as follows:

- Indicator thresholds were selected for samples in the mineralized domain with grades above the threshold set to one and below to zero.
- Indicator values were estimated by inverse distance weighting into the block model.
- Upon completion of the estimate, all blocks with a probability value greater than or equal to 0.5 were assigned a code of one and blocks with a probability below 0.5 were assigned a code of zero.
- A wireframe was generated identifying the location of the block codes equal to one for each of the thresholds of interest (i.e. the high-grade domain).

The high-grade regions are domained separately so as to prevent smearing of the higher grades into the lower grade areas and vice versa during the estimation process by controlling the search neighborhoods, as described in Section 14.8.3.

Table 14.4 Univariate statistics of undeclustered composites by vein

Vein	Grade	Count	Minimum	Maximum	Mean	Variance	Std. Dev.
Animas High grade domain	Ag (g/t)	3,548	3.00	15,351	**513**	603,055	777
	Au (g/t)	3,444	0.00	168.36	**1.74**	38.07	6.17
	Pb (%)	5,089	0.02	45.39	**5.77**	15.27	3.91
	Zn (%)	10,393	0.01	31.13	**6.84**	14.21	3.77
Animas Low grade domain	Ag (g/t)	29,003	0.10	3,971	**84**	20,937	105
	Au (g/t)	29,105	0.00	172.18	**0.30**	2.45	1.56
	Pb (%)	27,461	0.00	36.06	**1.35**	2.33	1.53
	Zn (%)	22,159	0.00	26.92	**2.11**	3.68	1.92
Animas Techo High grade domain	Ag (g/t)	346	32.0	9,565	**697**	1,459,934	1,208
	Au (g/t)	231	0.05	44.99	**2.02**	25.16	5.02
	Pb (%)	623	0.04	44.04	**6.17**	21.48	4.63
	Zn (%)	1,345	0.02	27.93	**5.70**	12.00	3.47
Animas Techo Low grade domain	Ag (g/t)	3,293	0.10	4,288	**89**	23,205	152
	Au (g/t)	3,408	0.00	11.00	**0.23**	0.10	0.32
	Pb (%)	3,016	0.00	22.13	**1.04**	1.91	1.38
	Zn (%)	2,294	0.00	22.92	**1.42**	3.07	1.75
Animas NE	Ag (g/t)	28,949	0.10	4,164	**100**	11,024	105
Animas NE High grade domain	Au (g/t)	3,441	0.00	1,164	**2.29**	500	22.36
	Pb (%)	17,809	0.00	55.90	**5.46**	21.27	4.61
	Zn (%)	20,278	0.00	46.21	**6.49**	15.94	3.99
	Cu (%)	12,869	0.00	5.42	**0.43**	0.12	0.34
Animas NE Low grade domain	Au (g/t)	25,514	0.00	113.52	**0.18**	0.70	0.84
	Pb (%)	11,155	0.00	40.31	**1.33**	2.67	1.64
	Zn (%)	8,685	0.00	24.74	**2.01**	2.79	1.67
	Cu (%)	16,088	0.00	5.19	**0.12**	0.02	0.12
Animas NE Techo	Ag (g/t)	5,207	0.10	1,973	**119**	15,419	124
	Au High (g/t)	342	0.02	38.21	**0.78**	4.48	2.12
	Au Low (g/t)	4,867	0.00	7.25	**0.21**	0.04	0.20
	Pb (%)	5,207	0.00	49.73	**3.39**	13.94	3.73
	Zn High (%)	803	0.01	36.53	**10.83**	23.70	4.87
	Zn Low (%)	4,405	0.00	29.97	**3.81**	7.84	2.80
	Cu (%)	5,207	0.00	3.42	**0.34**	0.12	0.35
Ramal Techo Animas NE	Ag (g/t)	577	0.10	1,291	**227**	42,685	207
	Au (g/t)	577	0.00	5.69	**0.09**	0.06	0.24
	Pb (%)	577	0.00	29.56	**3.28**	15.37	3.92
	Zn (%)	577	0.00	17.98	**4.60**	9.47	3.08
	Cu (%)	577	0.00	3.94	**0.87**	0.51	0.72
Cimoide ASNE	Ag High (g/t)	88	12.50	1,999	**473**	95,167	308
	Ag Low (g/t)	2,982	0.10	2,848	**116**	13,017	114
	Au High (g/t)	599	0.02	2.77	**0.32**	0.09	0.29
	Au Low (g/t)	2,471	0.00	4.73	**0.13**	0.04	0.19
	Pb High (%)	817	0.02	45.01	**7.41**	24.07	4.91
	Pb Low (%)	2,253	0.00	39.46	**2.60**	6.85	2.62
	Zn (%)	3,070	0.00	35.16	**6.85**	22.91	4.79
	Cu (%)	3,070	0.00	10.54	**0.60**	0.47	0.68

Vein	Grade	Count	Minimum	Maximum	Mean	Variance	Std. Dev.
Rosita	Ag (g/t)	846	0.10	1,095	**96**	8,250	91
	Au (g/t)	846	0.00	11.71	**0.16**	0.17	0.41
	Pb (%)	846	0.00	23.97	**3.13**	8.58	2.93
	Zn (%)	846	0.00	38.12	**6.48**	20.24	4.50
	Cu (%)	846	0.00	10.66	**0.63**	0.94	0.97
Bateas	Ag (g/t)	13,629	0.10	31,294	**902**	2,675,047	1,636
	Au (g/t)	13,629	0.00	117.32	**0.32**	6.94	2.63
	Pb (%)	13,629	0.00	12.80	**0.61**	0.63	0.80
	Zn (%)	13,629	0.00	23.92	**0.93**	1.40	1.19
Bateas Piso	Ag High (g/t)	1,110	3.00	29,077	**1,762**	7,620,747	2,761
	Au (g/t)	1,110	0.01	49.50	**0.68**	6.73	2.59
	Pb (%)	1,110	0.00	2.82	**0.31**	0.12	0.35
	Zn (%)	1,110	0.01	5.54	**0.57**	0.40	0.64
Bateas Techo	Ag (g/t)	255	0.10	2,231	**241**	160,640	401
	Au (g/t)	255	0.00	2.56	**0.12**	0.08	0.28
	Pb (%)	255	0.00	1.84	**0.17**	0.08	0.28
	Zn (%)	255	0.00	3.00	**0.25**	0.18	0.42
Silvia	Ag (g/t)	1,037	0.10	2,408	**90**	16,659	129
	Au (g/t)	1,037	0.00	62.60	**0.59**	7.74	2.78
	Pb (%)	1,037	0.00	23.39	**1.70**	5.43	2.33
	Zn (%)	1,037	0.00	21.97	**2.54**	5.74	2.40
Soledad (Main)	Ag (g/t)	5,803	1.10	47,001	**473**	1,737,132	1,318
	Au (g/t)	5,803	0.00	97.65	**2.35**	28.27	5.32
	Pb (%)	5,803	0.00	17.70	**1.30**	2.55	1.60
	Zn (%)	5,803	0.01	26.14	**1.68**	2.20	1.48
Soledad (Splay)	Ag (g/t)	360	2.00	1,820	**152**	21,582	147
	Au (g/t)	360	0.02	46.75	**3.41**	32.44	5.70
	Pb (%)	360	0.02	19.73	**2.72**	5.03	2.24
	Zn (%)	360	0.03	17.97	**4.62**	10.02	3.17
Santa Catalina	Ag (g/t)	1,730	0.50	2,044	**130**	22,413	150
	Au (g/t)	1,712	0.00	80.11	**1.11**	13.10	3.62
	Pb (%)	1,711	0.00	29.65	**1.60**	3.49	1.87
	Zn (%)	1,711	0.00	15.74	**2.31**	3.49	1.87
Patricia	Ag (g/t)	62	6.00	1,948	**213**	107,040	327
	Au (g/t)	62	0.02	6.63	**0.68**	1.57	1.25
	Pb (%)	62	0.02	4.75	**0.47**	0.58	0.76
	Zn (%)	62	0.02	5.96	**0.68**	1.07	1.03
Pilar	Ag (g/t)	42	0.10	799	**113**	24,326	156
	Au (g/t)	42	0.00	3.51	**0.84**	0.75	0.87
	Pb (%)	42	0.00	3.68	**0.53**	0.57	0.76
	Zn (%)	42	0.00	7.19	**0.64**	1.34	1.16
La Plata (High grade)	Ag (g/t)	733	3.10	58,830	**3,308**	54,427,165	7,377
	Au (g/t)	678	0.00	267.78	**5.00**	350.20	18.71
La Plata (Low grade)	Ag (g/t)	69	0.37	2,646	**232**	244,163	494
	Au (g/t)	69	0.01	35.31	**1.45**	28.83	5.37
Cimoide La Plata	Ag (g/t)	378	4.04	22,144	**483**	2,369,246	1,539
	Au (g/t)	378	0.00	137.45	**2.42**	101.14	10.06
San Cristóbal	Ag (g/t)	3,334	1.35	17,471	**229**	422,299	650
	Au (g/t)	1,581	0.00	99.86	**0.64**	16.06	4.01
Paralela	Ag (g/t)	575	0.00	5,528	**264**	216,606	465

Vein	Grade	Count	Minimum	Maximum	Mean	Variance	Std. Dev.
	Au (g/t)	104	0.01	2.50	**0.38**	0.28	0.52
San Carlos	Ag (g/t)	294	15.55	3,060	**396**	327,777	572.52
	Au (g/t)	106	0.10	21.3	**0.70**	4.79	2.19
San Pedro	Ag (g/t)	2,385	3.11	18,000	**534**	1,304,900	1,142
	Au (g/t)	305	0.01	126	**3.89**	74.49	8.63
Nancy (High grade)	Ag (g/t)	808	3.00	772	**167**	10,290	101
	Au (g/t)	176	0.01	22.93	**1.68**	11.13	3.34
	Pb (%)	733	0.10	40.32	**7.42**	21.65	4.65
	Zn (%)	1,493	0.04	33.82	**7.54**	16.87	4.11
Nancy (Low grade)	Ag (g/t)	1,764	0.10	774	**51**	2,185	47
	Au (g/t)	2,395	0.00	127.45	**0.31**	11.11	3.33
	Pb (%)	1,838	0.00	40.45	**2.20**	5.22	2.29
	Zn (%)	1,078	0.00	22.31	**2.04**	3.59	1.89
Nancy	Cu (%)	2,571	0.00	2.85	**0.26**	0.07	0.26
Ramal Piso Carolina	Ag (g/t)	136	1.00	2,106	**99**	41,261	203
	Au (g/t)	136	0.02	45.32	**3.67**	49.54	7.04
Don Luis II (Main)	Ag (g/t)	68	20.11	1,461	**306**	137,216	370
	Au (g/t)	68	0.02	117.52	**2.74**	204.49	14.30
Don Luis II (Splay)	Ag (g/t)	18	0.93	181	**81**	3,011	54.87
	Au (g/t)	18	0.00	1.58	**0.24**	0.17	0.41

14.6.3 Sub-domaining

In addition to the high-grade domains explained above, the Animas and Animas NE veins have been explored closer to the surface than any of the other veins. Through the investigation of the mineralogy and grade characteristics a partially oxidized domain and a zinc oxide domain have been identified. Samples have been coded as oxide or sulfide for estimation purposes and areas of high zinc oxide (> 0.2 % ZnO) have been sub-domained in the block model as this material results in a decrease in metallurgical recovery when fed to the plant.

A number of veins are comprised of a main component and a separate splay vein, as detailed in Table 14.4. The main and splay veins have been domained and estimated separately to ensure grades are not smeared between the veins.

Internal waste was also identified as being present in the Animas/Animas NE vein and to a lesser degree in the Bateas vein. These areas of internal waste were sub-domained and samples identified within coded as waste for estimation purposes.

14.6.4 Extreme value treatment

Top cuts of extreme grade values prevent over-estimation in domains due to disproportionately high-grade samples. Whenever the domain contains an extreme grade value, this extreme grade will overly influence the estimated grade.

If the extreme values are supported by surrounding data, are a valid part of the sample population, and are not considered to pose a risk to estimation quality, then they can be left untreated. If the extreme values are not considered to be a valid part of the population (e.g., they belong in another domain or are simply erroneous), they should be removed from the domains data set. If the extreme values are considered a valid part of the population but are considered to pose a risk for estimation quality (e.g., because they are poorly supported by neighboring values), they should be top cut. Top cutting is the practice of resetting all values above a certain threshold value to the threshold value.

Fortuna examined the grades of all metals to be estimated (Ag, Pb, Zn, Cu, and Au) to identify the presence and nature of extreme grade values. This was done by examining the sample histogram, log histogram, log-probability plot, and by examining the spatial location of extreme values. Top cut thresholds were determined by examination of the same statistical plots and by examination of the effect of top cuts on the mean, variance, and coefficient of variation (CV) of the sample data. Top cut thresholds used for each vein are shown in Table 14.5. If insufficient data is present to determine appropriate top cut values for a splay vein the values from the main vein have been applied.

Table 14.5 Topcut thresholds by vein

Vein	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Cu (%)
Animas - High Grade	5,000	37	25	25	-
Animas - Low Grade	850	5	13	12	-
Animas Techo - High Grade	3,500	15	18	16	-
Animas Techo - Low Grade	600	1.5	10	10	-
Animas NE - High grade	900	25	36	32	3
Animas NE - Low grade		2.7	15.6	9.7	1
Animas NE Techo ASNE – High grade	900	2.5	22	28	2.2
Animas NE Techo ASNE – Low grade		0.6		8	
Ramal Techo ASNE	800	0.24	24	12	2.5
Cimoide ASNE - High Grade	930	1.3	25	24	4.6
Cimoide ASNE - Low Grade	110	0.8	8		
Bateas	12,500	35	6	7.5	-
Bateas Piso	20,000	15	2	3.5	-
Bateas Techo	1,200	1	1.4	1.5	-
Silvia	600	7	14	11	-
Soledad	7,000	30	12	8.5	-
Santa Catalina	850	11	11	10	-
Patricia	500	1.5	-	3	-
Pilar	-	-	-	-	-
La Plata - High grade	1,300	17	10	-	-
La Plata - Low grade	350	3.5	-	-	-
Cimoide La Plata	10,000	60	-	-	-
San Cristóbal	3,950	5	5	6	-
Paralela	1,750	1	-	-	-
San Carlos	3,000	18	-	-	-
San Pedro	8,000	20	-	-	-
Nancy - High grade	450	6	25	25	1.5
Nancy - Low grade	250	2	11.8	8.5	-
Ramal Piso Carolina	1,000	40	0.6	1	-
Rosita	300	0.8	11.4	21	2.7
Don Luis II	-	15	1	2	-

14.6.5 Boundary conditions

The boundary conditions at Caylloma are well established with underground workings identifying a sharp contact between the mineralized vein structures and the host rock in all veins. Subsequently domain boundaries were treated as hard boundaries. Only samples coded within a vein were used to estimate blocks within that vein, to prevent smearing of high-grade samples in the vein into the low-grade host rock, and vice versa.

The boundary conditions between oxide and sulfide material in the Animas/Animas NE veins is gradational in nature occurring over tens of meters. This boundary has been treated as a soft boundary with samples from either domain being used for estimation in the vein. This allows a gradational effect in the grade estimates.

The boundary between high- and low-grade areas is also gradational but less so than the oxide/sulfide boundary and is regarded as firm. To prevent high grades smearing into low grade areas a two-stage approach is used in the estimate where a small search ellipse is allowed to estimate grades across the boundary over short distances, but a larger search ellipse is restricted to selecting composites and estimating grades within the defined high- or low-grade domain.

14.6.6 Data declustering

Descriptive statistics of sample populations within a domain may be biased by the clustering of sample data in particular areas of the domain. To reduce any bias caused by clustering of sample data, Fortuna declustered the input sample data using a grid system. Declustered data statistics are used when comparing estimated grade values and input sample grades during model validation.

14.6.7 Sample type comparison

A comparison between drill hole and channel samples was conducted, comparing the different sampling types over a similar spatial coverage. The results showed a bias indicating that grades returned from channel samples on average tend to return higher values compared to grades from drill core samples.

However, in the majority of cases channel samples are clustered around historical and present-day workings, whereas drilling is focused on exploring the periphery of the veins and is therefore generally located away from the workings so finding examples where they share the same spatial coverage is difficult.

The estimation predominantly uses channel samples with drill hole samples generally only used to infer resources at the edge of the mineralized envelopes. Both sample types are required to provide a reasonable assessment of the deposit with reconciliation results supporting the usage of channels and drill holes.

14.7 Variogram analysis

14.7.1 Continuity analysis

Continuity analysis refers to the analysis of the spatial correlation of a grade value between sample pairs to determine the major axis of spatial continuity.

The grade distribution has a log-normal distribution therefore traditional experimental variograms tended to be poor in quality. To counteract this, data was transformed into a normal score distribution for continuity analysis.

Horizontal, across strike, and down dip continuity maps were examined (and their underlying variograms) for Ag, Au, Pb, Zn, and Cu to determine the directions of greatest and least continuity. As each vein has a distinct strike and dip direction analysis was only required to ascertain if a plunge direction was present.

Continuity analysis confirmed that some veins have insufficient data to allow variogram modeling, including the Patricia, Pilar, Paralela, San Cristóbal, San Carlos, San Pedro, Ramal Piso Carolina, Don Luis II and any splay veins. In the case of these veins inverse distance weighting was used as an alternative estimation technique.

14.7.2 Variogram modeling

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

The nugget effect is the variance between sample pairs at the same location (zero distance). 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 very 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 principal directions for Ag, Au, Pb, Zn, and Cu (where applicable) based on the directions chosen from the variogram fans. It was not always possible to produce a variogram for the minor axes, and in these cases the ranges for the minor axes were taken from the downhole variograms, which have a similar orientation (perpendicular to the vein) as the minor axes. Modeled variograms were back transformed from normal score as grade estimation is conducted without data manipulation. Variogram parameters are detailed in Table 14.6.

Table 14.6 Variogram model parameters

Vein	Metal	Major axis orientation	C_0§	C_1§	Ranges (m)†	C_2§	Ranges (m)†	C_3§	Ranges (m)†
Animas	Ag	-44° → 164°	0.38	0.19	8,9,3	0.22	24,32,4	0.22	400,260,30
	Au	-44° → 164°	0.60	0.20	12,11,4	0.12	38,26,8	0.06	108,103,8
	Pb	-44° → 150°	0.34	0.17	10,10,6	0.25	38,28,10	0.25	250,230,17
	Zn	-44° → 164°	0.27	0.18	12,13,3	0.20	46,27,13	0.34	340,370,37
	Cu	-44° → 164°	0.30	0.28	14,11,4	0.20	50,48,10	0.22	316,370,37
Animas NE	Ag	-45° → 145°	0.32	0.28	13,11,4	0.18	38,34,8	0.22	300,150,14
	Au	00° → 235°	0.31	0.29	8,10,3	0.12	22,38,6	0.28	650,400,16
	Pb	-45° → 145°	0.33	0.27	11,12,4	0.19	37,36,5	0.20	128,106,9
	Zn	-45° → 145°	0.30	0.21	6,8,2	0.26	24,27,7	0.24	500,240,16
	Cu	-45° → 145°	0.32	0.23	10,9,3	0.24	31,27,7	0.22	260,134,20
Ramal Techo ASNE	Ag	46° → 020°	0.23	0.32	8,6,6	0.28	25,33,10	0.18	94,54,16
	Au	08° → 074°	0.33	0.23	10,7,6	0.05	87,35,10	0.39	104,62,16
	Pb	08° → 074°	0.26	0.43	10,7,6	0.15	54,20,10	0.17	80,40,16
	Zn	48° → 327°	0.22	0.35	12,8,5	0.31	29,28,10	0.13	70,60,16
	Cu	42° → 032°	0.22	0.31	5,6,5	0.29	21,21,10	0.18	80,70,16
Cimoide ASNE	Ag	-09° → 212°	0.35	0.32	18,9,2	0.16	40,53,7	0.17	300,80,16
	Au	28° → 024°	0.42	0.31	10,6,5	0.11	101,31,9	0.16	160,76,10
	Pb	-09° → 207°	0.30	0.33	14,6,3	0.16	27,40,6	0.21	300,80,10
	Zn	-19° → 203°	0.31	0.28	9,7,3	0.24	28,40,74	0.16	150,100,10
	Cu	-09° → 207°	0.36	0.29	16,8,4	0.14	55,42,9	0.21	400,66,16
Bateas	Ag	-10° → 070°	0.20	0.49	17,19,3	0.31	330,70,4		
	Au	-45° → 070°	0.22	0.43	12,21,6	0.35	100,80,10		
	Pb	-10° → 070°	0.20	0.42	18,20,2	0.38	156,110,8		
	Zn	65° → 070°	0.08	0.63	9,19,2	0.29	392,97,9		
Silvia	Ag	-48° → 068°	0.10	0.42	4,6,2	0.48	45,40,3		
	Au	05° → 091°	0.10	0.33	6,5,2	0.57	150,40,4		
	Pb	-43° → 075°	0.10	0.53	8,7,1	0.37	60,35,2		

Vein	Metal	Major axis orientation	C_0§	C_1§	Ranges (m)†	C_2§	Ranges (m)†	C_3§	Ranges (m)†
	Zn	43° → 105°	0.15	0.39	3,6,1	0.46	125,30,2		
Soledad	Ag	19° → 075°	0.21	0.24	6,7,10	0.25	25,23,20	0.30	219,100,40
	Au	24° → 243°	0.32	0.09	3,15,20	0.26	24,26,40	0.33	236,89,60
	Pb	00° → 250°	0.21	0.27	10,10,10	0.29	35,32,20	0.23	257,170,40
	Zn	-48° → 267°	0.21	0.27	9,8,10	0.29	24,31,20	0.23	241,225,40
Santa Catalina	Ag	00° → 250°	0.11	0.35	6,5,1	0.13	14,34,2	0.41	141,48,5
	Au	00° → 250°	0.31	0.31	8,12,1	0.26	40,45,2	0.12	153,124,8
	Pb	09° → 245°	0.04	0.45	7,7,1	0.22	21,35,2	0.29	190,40,10
	Zn	-59° → 075°	0.04	0.26	2,3,6	0.28	14,30,2	0.42	215,32,10
La Plata	Ag	00° → 070°	0.25	0.24	6,20,20	0.51	204,164,40		
	Au	08° → 064°	0.02	0.76	9,4,6	0.22	48,14,10		
Cimoide	Ag	00° → 245°	0.42	0.36	5,7,3	0.21	33,13,5		
La Plata	Au	-55° → 155°	0.35	0.44	43,6,7	0.21	57,15,12		
Nancy	Ag	44° → 356°	0.28	0.25	7,7,4	0.15	18,24,8	0.33	130,110,10
	Au	39° → 007°	0.37	0.29	10,9,6	0.16	46,67,10	0.18	217,150,16
	Pb	44° → 006°	0.30	0.22	8,7,2	0.15	26,25,5	0.33	104,90,10
	Zn	42° → 343°	0.22	0.25	8,11,2	0.19	26,16,4	0.35	300,50,10
	Cu	44° → 006°	0.24	0.30	11,10,6	0.20	25,37,7	0.27	90,60,10
Rosita	Ag	54° → 344°	0.31	0.24	5,13,6	0.06	100,38,10	0.38	115,45,14
	Au	59° → 039°	0.23	0.36	13,5,6	0.18	38,18,10	0.24	150,62,14
	Pb	54° → 344°	0.38	0.12	4,18,6	0.24	12,28,10	0.27	130,38,16
	Zn	57° → 352°	0.27	0.29	11,9,6	0.23	31,57,10	0.22	121,71,16
	Cu	54° → 344°	0.16	0.35	11,9,6	0.27	83,25,10	0.23	100,70,16

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

14.8 Modeling and estimation

14.8.1 Block size selection

Block size was selected principally based on drill hole spacing, mineralized domain geometry, and the proposed mining method. Quantitative kriging neighborhood analysis (QKNA) was also used to assess the optimum block size based on kriging efficiency (KE) and slope of regression (ZZ) in the veins where variogram models had been established (Animas, Animas NE, Ramal Techo ASNE, Cimoide ASNE, Bateas, Santa Catalina, Silvia, Soledad, La Plata, Nancy and Rosita). Results were assessed from a centroid likely to be mined in the next 12 months.

The objective of QKNA is to determine the optimal combination of search neighborhood and block size that limits conditional bias and, subsequently provides the best possible estimation with the evaluable data (Vann et al, 2003).

The slope of regression is a measure of the regression between the theoretical actual and estimated values for blocks. The values should be from 0 to 1. Values close to one indicate low conditional bias.

Kriging efficiency indicates the degree of smoothing (averaging) in the estimation. Values close to 100 % are not smoothed very much and values close to 0 % are highly smoothed. Where the kriging efficiency is negative, the global mean is considered a better estimate of grade than the kriged estimate.

In conjunction with the QKNA process, the veins' geometry and the size of the equipment used in extraction are also considered. The narrow and undulating nature of the vein is a justification to subdivide the blocks into smaller subcells. This ensures the block model is volumetrically representative. The incremental block sizes selected for each vein are detailed in Table 14.7

14.8.2 Block model parameters

Vein structures are generally orientated in a northeast to southwest direction. Such an orientation can be problematic when filling the vein wireframes with blocks as these are orientated orthogonally which can result in large discrepancies in volumes. To counteract this each vein has been rotated so that the strike direction of the vein is orientated in an orthogonal direction (i.e. east to west) for block modeling. Splitting of the parent blocks was allowed to ensure a close fit to the wireframe, although estimation was applied to parent cells only (all sub-cells in a parent cell have the same grade). To ensure a successful estimation the drill hole and channel composites were also rotated to coincide with the veins. Table 14.7 gives the block model parameters for the 2023 Caylloma Mineral Resource models with coordinates using the WGS84, UTM Zone 19S system prior to rotation.

Each vein has been block modeled separately with care taken to ensure that overlapping blocks do not exist. Additionally, each block in the vein has been coded using the field name "TIPO" (Type) as being oxide (OXs), zinc oxide (OXz), sulfide (SFRs) or internal waste (RDN). This code corresponds to that assigned to the sample data and has been used for estimation and reporting purposes.

Table 14.7 Caylloma block model parameters by vein

Vein	Rotation	Direction	Minimum	Maximum	Increment
Animas	59	X	193266	194471	4
		Y	8317066	8318139	2
		Z	4296	4941	2
Animas Techo	59	X	193476	194454	4
		Y	8317244	8317917	2
		Z	4366	4898	2
Animas NE	59	X	194395	195816	4
		Y	8317534	8319178	2
		Z	3920	4821	2
Animas NE Techo	59	X	194437	195613	4
		Y	8317665	8318964	2
		Z	4140	4816	2
Ramal Techo ASNE	78	X	195604	195878	4
		Y	8318796	8319066	2
		Z	4384	4660	2
Cimoide ASNE	39	X	195626	195853	4
		Y	8318344	8319025	2
		Z	4177	4712	2
Bateas	70	X	192890	193738	4
		Y	8319893	8320224	2
		Z	4404	4829	2
Bateas Piso	70	X	193246	193339	4
		Y	8320079	8320160	2
		Z	4580	4829	2
Bateas Techo	70	X	193080	193475	4
		Y	8319971	8320056	2
		Z	4457	4740	2
Silvia	85	X	194245	194800	4

Vein	Rotation	Direction	Minimum	Maximum	Increment
		Y	8320220	8320571	2
		Z	4599	4908	2
Soledad	73	X	194271	195105	4
		Y	8320220	8320571	2
		Z	4631	4783	2
Santa Catalina	67	X	194446	194811	4
		Y	8320470	8320661	2
		Z	4631	4783	2
Patricia	75	X	194347	194861	4
		Y	8320330	8320514	2
		Z	4646	4854	2
Pilar	75	X	194296	194714	4
		Y	8320148	8320326	2
		Z	4599	4956	2
La Plata	60	X	193853	195305	4
		Y	8316821	8318144	2
		Z	4462	4868	2
Cimoide La Plata	60	X	194000	194490	4
		Y	8317051	8317517	2
		Z	4550	4829	2
San Cristobal	45	X	192873	194970	4
		Y	8318244	8321056	2
		Z	4484	4966	2
Paralela	45	X	192746	193403	4
		Y	8321599	8322403	2
		Z	4492	4876	2
San Carlos	50	X	192590	193403	4
		Y	8321599	8322403	2
		Z	4492	4876	2
San Pedro	60	X	195485	195880	4
		Y	8318600	8319179	2
		Z	4185	4698	2
Nancy	111	X	195485	195853	4
		Y	8318797	8319180	2
		Z	4378	4697	2
Ramal Piso Carolina	105	X	193196	193797	4
		Y	8321955	8322153	2
		Z	4530	4876	2
Rosita	100	X	195626	195853	4
		Y	8318788	8319016	2
		Z	4358	4610	2
Don Luis II	110	X	190787	191303	4
		Y	8319486	8319767	2
		Z	4496	4909	2

14.8.3 Sample search parameters

QKNA was undertaken on the Caylloma veins to determine the optimal search parameters for the Mineral Resource estimates. This study, which was consistent with Fortuna's experience with the deposit, showed that the best estimation results in terms of slope of regression, kriging efficiency, and kriging variance were obtained using the following search strategy:

- A search range of approximately 50 m to 60 m along strike and down dip and 10 m to 20 m across the vein, corresponding with the vein thickness.
- A minimum of 6 to 10 composites per estimate.
- A maximum of 12 to 24 composites per estimate.
- A maximum of two or three samples from a single channel or drill hole.

The search ellipsoid used to define the extents of the search neighborhood has the same orientation as the continuity directions observed in the variograms.

Distances used were designed to match the configuration of the drill hole data (i.e., areas of sparse drilling have larger ellipses than more densely drilled or sampled areas). This was achieved by using a dynamic search ellipsoid where a second search equal to two times the maximum variogram range and requiring a minimum of three to six composites was used wherever the first search did not encounter enough samples to perform an estimate. If sufficient samples were not encountered in the second search, a third search equal to three times (or five in the case of Animas NE) the primary search range and requiring one composite was used. The exception to this was for the Bateas, Nancy, Ramal Piso Carolina and Don Luis II veins that used a third search ellipse four (or five times in the case of Nancy) the primary search range with a minimum of three composites. The larger search ellipses were used in cases where peripheral sample numbers were low and using a single composite for estimation purposes was problematic. For blocks where the minimum number of samples required was not encountered, no estimate was made.

In the veins where a high-grade domain had been identified, the search neighborhood was used to control which composites were allowed to inform which domains to prevent smearing. The first (smallest) search ellipse as described above was allowed to use composites from both grade domains for estimation, whereas the second and third, were restricted to using composites to estimate grades into blocks from the same grade domain (i.e. high to high, or low to low).

14.8.4 Grade interpolation

Estimation of grades into blocks was performed using either ordinary kriging (OK) or inverse distance weighting (Table 14.8) based on the success of generating a variogram model and cross validation results as reported in Section 14.10.1.

Table 14.8 Estimation method by vein

Vein	Estimation Method
Animas	Ordinary Kriging
Animas Techo	Ordinary Kriging
Animas NE	Ordinary Kriging
Animas NE Techo	Ordinary Kriging
Ramal Techo ASNE	Ordinary Kriging
Cimoide ASNE	Ordinary Kriging
Bateas*	Ordinary Kriging*
Bateas Piso	Ordinary Kriging
Bateas Techo	Ordinary Kriging
Silvia	Ordinary Kriging
Soledad (Main)	Ordinary Kriging
Soledad (Splay)	Inverse distance weighting (power=2)
Santa Catalina	Ordinary Kriging

Vein	Estimation Method
Patricia	Inverse distance weighting (power=2)
Pilar	Inverse distance weighting (power=2)
La Plata	Inverse distance weighting (power=2)
Cimoide La Plata	Ordinary Kriging
San Cristóbal	Inverse distance weighting (power=2)
Paralela	Inverse distance weighting (power=2)
San Carlos	Inverse distance weighting (power=2)
San Pedro	Inverse distance weighting (power=2)
Nancy	Ordinary Kriging
Ramal Piso Carolina	Inverse distance weighting (power=2)
Rosita	Ordinary Kriging
Don Luis II	Inverse distance weighting (power=2)
*Gold grades estimated by inverse distance weighting (power=2)	

Parameters were derived from block size selection, search neighborhood optimization, and variogram modeling. The sample data were composited and, where necessary, top cut prior to estimation.

The sample data and the blocks were categorized into mineralized domains for the estimation. Each block is discretized (an array of points to ensure grade variability is represented within the block) and grade interpolated into parent cells (Datamine ESTIMA parameter PARENT=1).

Due to the variable lengths of the composites a weighting system has been employed to nullify this volume variance issue when estimating into the three-dimensional block models, which involves the following steps: -

1. Generation of a grade aggregate in the sample file by multiplying the grade of the composite by its length.
2. Estimation of the grade aggregate into the block model using the parameter files detailed above.
3. Estimation of the composite length into the block model by inverse distance weighting (power = 2) using the same search and estimation parameters as were used to estimate the grade aggregate.
4. Estimated aggregate grades are divided by the corresponding composite length estimate to provide the final grade.

This procedure was employed for the previous Mineral Resource estimates and reconciliation results indicated a positive result. The methodology has therefore been maintained for the 2023 Mineral Resource update.

14.9 Bulk density

There has been a total of 5,509 density measurements taken by Bateas as of June 30, 2023. Of these 4,607 were taken from underground and 467 from drill core. Density analysis was performed on each vein separately with twenty samples regarded as the minimum to ensure representative statistics. Extreme values that were thought not to be representative of the sample population were discarded reducing the total density measurement numbers used in the analysis to 5,250 (Table 14.9).

Table 14.9 Density statistics by vein

Vein	No. of samples	Mean (t/m³)	Minimum (t/m³)	Maximum (t/m³)	Variance
Animas/Animas NE (Sulfide)	3,530	**3.11**	2.33	3.93	0.11
Animas/Animas NE (Oxide)	198	**2.77**	1.73	3.88	0.25
Cimoide ASNE	148	**2.89**	2.29	3.63	0.09
Ramal Techo ASNE	20	**2.72**	2.49	3.01	0.03
Bateas	567	**3.01**	2.52	3.54	0.06
Bateas Techo	7	**2.67**	2.43	2.97	0.03
Silvia	84	**3.35**	2.57	4.19	0.11
Soledad	313	**3.09**	2.49	3.84	0.10
Santa Catalina	18	**3.09**	2.52	3.66	0.09
Pilar	3	**3.35**	3.29	4.23	0.18
La Plata	41	**2.59**	2.33	2.76	0.01
San Cristóbal	41	**2.75**	2.54	3.09	0.02
Rosita	29	**2.86**	2.11	3.74	0.16
Nancy	88	**2.85**	2.27	3.64	0.10
Ramal Piso Carolina	117	**2.55**	2.29	2.86	0.01
Don Luis II	46	**2.42**	2.03	2.76	0.02

Spatial coverage of density measurements is regarded as sufficient for estimation in the Animas and Animas NE veins. For other veins where insufficient samples have been taken to allow estimation of density, the mean density value has been applied to all blocks in that vein. In respect to veins that have insufficient samples to determine the density with confidence (<30) the following was applied:

- In the cases where veins splayed, the same density was applied to the splay as was assigned to the main vein (i.e. Ramal Soledad assigned the same density as Soledad)
- In the case of Ramal Techo ASNE and Rosita the vein structures are closely aligned and crosscut one another so a density of 2.79 t/m³, being the average of all density measurements taken from both veins was assigned.
- Pilar has similar geological characteristics as the Silvia vein so was assigned a density of 3.35 t/m³.
- San Pedro, San Carlos, Patricia and Paralela were assigned a density of 3.0 t/m³, being the global average density for all veins.

Density values applied to the block model for each vein are detailed in Table 14.10.

Table 14.10 Density assigned in the 2023 block models

Vein	Density assigned (t/m³)
Animas & Animas NE (Sulfide)	**Ordinary kriging**
Animas-Animas NE (Oxide)	**Ordinary kriging**
Ramal Techo ASNE	**2.79**
Cimoide ASNE	**2.89**
Bateas	**3.01**
Bateas Techo	**3.01**
Silvia	**3.35**
Soledad	**3.09**

Vein	Density assigned (t/m³)
Santa Catalina	**3.09**
Patricia	**3.00**
Pilar	**3.35**
La Plata	**2.59**
Cimoide La Plata	**2.59**
San Cristóbal	**2.75**
Paralela	**3.00**
San Carlos	**3.00**
San Pedro	**3.00**
Nancy	**2.85**
Ramal Piso Carolina	**2.55**
Rosita	**2.79**
Don Luis II	**2.42**

14.10 Model validation

The techniques for validation of the estimated tonnes and grades included visual inspection of the model and samples in plan, section, and in three-dimensions; cross-validation; global estimate validation through the comparison of declustered sample statistics with the average estimated grade per domain; and local estimate validation through the generation of slice validation plots.

14.10.1 Cross validation

In defining the modeled variograms, estimation and search neighborhoods there are a range of potential values that can be set. To optimize these values cross validation, or jack-knifing, 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 the composites being used for estimation and the average estimated grade is compared to the actual average grade of the composites (Table 14.11). Using this methodology, a variety of estimation techniques, search neighborhoods and variogram models were tested to establish the parameters that provided the most accurate result.

Table 14.11 Cross validation results by vein

Vein	Ag (g/t)		Au (g/t)		Pb (%)		Zn (%)	
	Composite	Estimate	Composite	Estimate	Composite	Estimate	Composite	Estimate
Animas	128	128	0.43	0.43	2.04	2.04	3.62	3.63
Animas Techo	100	100	0.30	0.30	3.87	3.89	5.14	5.16
Animas NE	136	137	0.31	0.31	1.90	1.90	2.99	3.00
Animas NE Techo	118	119	0.24	0.24	3.37	3.39	4.87	4.90
Ramal Techo ASNE	223	223	0.08	0.08	3.27	3.27	4.54	4.57
Cimoide ASNE	125	126	0.16	0.16	3.87	3.90	6.83	6.88
Rosita	95	96	0.14	0.14	3.04	3.07	6.42	6.46
Nancy	86	87	0.27	0.28	3.61	3.64	5.21	5.26
Bateas	902	904	0.29	0.30	0.61	0.61	0.93	0.93
Bateas Piso	1,766	1,786	0.62	0.63	0.31	0.32	0.57	0.57
Bateas Techo	237	239	0.10	0.10	0.18	0.17	0.24	0.24
Santa Cata	130	132	1.12	1.13	1.65	1.67	2.39	2.40
Soledad	442	443	2.24	2.25	1.30	1.30	1.67	1.67
Silvia	93	93	0.43	0.41	1.84	1.84	2.68	2.68
Cimoilde La Plata	446	443	2.10	2.13	0.01	0.01	0.02	0.02
La Plata 1*	892	890	3.06	3.14	2.22	2.32	0.05	0.06

Vein	Ag (g/t)		Au (g/t)		Pb (%)		Zn (%)	
	Composite	Estimate	Composite	Estimate	Composite	Estimate	Composite	Estimate
La Plata 2*	106	126	0.68	0.67	0.12	0.12	0.24	0.23
San Cristobal*	206	206	0.32	0.32	0.34	0.34	0.64	0.64
Pilar*	117	107	0.88	0.82	0.53	0.47	0.65	0.58
Patricia*	190	190	0.47	0.46	0.29	0.29	0.41	0.43
Paralela*	242	247	0.32	0.31	0.17	0.18	0.37	0.37
San Carlos*	369	388	0.11	0.11	-	-	0.01	0.01
San Pedro*	506	504	0.34	0.35	-	-	-	-
Ramal Piso Carolina*	91	90	3.72	3.75	0.05	0.04	0.07	0.06
Don Luis 2*	286	322	1.33	1.46	0.06	0.05	0.11	0.11

Results of the cross validation confirmed that ordinary kriging is a reasonable estimation method when sufficient data is available for variogram analysis (Animas, Animas Techo, Animas NE, Anima NE Techo, Ramal Techo ASNE, Cimoide ASNE, Bateas, Bateas Piso, Bateas Techo, Silvia, Soledad, Santa Catalina, Cimoide La Plata, Nancy, and Rosita). For veins that have insufficient data, inverse distance weighting proved a superior estimation technique (Patricia, Pilar, La Plata, San Cristobal, Paralela, San Carlos, San Pedro, Ramal Piso Carolina). Cross validation also assisted in the fine tuning of the variogram and search neighborhood parameters.

14.10.2 Global estimation validation

Global validation of the estimate involves comparing the mean ordinary kriged grade for each vein against the mean declustered grade generated using a nearest-neighbor (NN) estimation approach. Analysis was performed by classification to ensure low confidence areas do not distort the results from higher confidence regions (Table 14.12, Table 14.13, and Table 14.14). The results for blocks classified as Measured are regarded as reasonable, with differences being generally less than 5 %. Differences greater than 5 % are due to either the over-estimation of the NN grade due to the presence of isolated high-grade composites or due to low overall grade concentrations.

Table 14.12 Global validation statistics of Measured Resources at a zero cut-off grade (COG)

Vein	Ag (g/t)			Au (g/t)			Pb (%)			Zn (%)		
	OK	NN	Diff (%)	OK	NN	Diff (%)	OK	NN	Diff (%)	OK	NN	Diff (%)
Animas	126	127	**0.6**	0.38	0.39	**1.9**	1.70	1.71	**0.5**	3.14	3.15	**0.3**
Animas Techo	130	140	**6.7**	0.29	0.31	**5.2**	1.51	1.52	**0.9**	2.74	2.73	**-0.6**
Animas NE	98	99	**0.2**	0.32	0.32	**2.3**	3.80	3.81	**0.4**	5.06	5.06	**0.1**
Animas NE Techo	104	106	**1.8**	0.22	0.22	**-0.4**	2.90	2.90	**0.0**	4.35	4.28	**-1.5**
Ramal Techo ASNE	197	194	**-1.1**	0.09	0.09	**-0.8**	2.78	2.71	**-2.5**	4.70	4.75	**1.1**
Cimoide ASNE	127	126	**-0.4**	0.16	0.16	**0.2**	3.88	3.92	**1.0**	6.72	6.69	**-0.4**
Rosita	91	90	**-1.0**	0.14	0.14	**-2.4**	2.84	2.76	**-2.8**	5.94	5.74	**-3.4**
Nancy	81	80	**-1.1**	0.21	0.22	**2.5**	3.45	3.46	**0.2**	4.96	4.97	**0.2**
Bateas	762	748	**-1.8**	0.23	0.19	**-20.5**	0.58	0.58	**-0.6**	0.87	0.86	**-1.5**
Bateas Piso	1486	1490	**0.2**	0.54	0.50	**-8.3**	0.30	0.30	**1.8**	0.53	0.54	**1.3**
Santa Cata	127	128	**0.9**	1.08	1.07	**-1.4**	1.59	1.58	**-0.3**	2.32	2.33	**0.4**
Soledad	342	330	**-3.8**	1.84	1.80	**-1.9**	1.23	1.22	**-0.6**	1.59	1.57	**-1.2**
Silvia	96	95	**-1.1**	0.41	0.43	**5.6**	1.86	1.93	**3.6**	2.71	2.72	**0.1**
Note: OK = ordinary kriging; NN = nearest neighbor												

Results for blocks classified as Indicated and Inferred are also regarded as reasonable. Any large discrepancies (>10 %) were investigated and were generally attributed to low tonnages or isolated higher-grade values.

Table 14.13 Global validation statistics of Indicated Resources at a zero COG

Vein	Ag (g/t)			Au (g/t)			Pb (%)			Zn (%)		
	OK	NN	Diff (%)	OK	NN	Diff (%)	OK	NN	Diff (%)	OK	NN	Diff (%)
Animas	72	68	**-5.8**	0.30	0.31	**3.5**	1.03	0.98	**-5.0**	2.49	2.44	**-1.91**
Animas Techo	31	29	**-6.7**	0.18	0.17	**-7.0**	1.05	0.97	**-8.3**	2.52	2.28	**-10.83**
Animas NE	74	74	**-0.1**	0.14	0.14	**-2.9**	2.71	2.52	**-7.5**	3.91	3.84	**-1.92**
Animas NE Techo	54	58	**5.7**	0.09	0.10	**11.0**	1.85	2.04	**9.5**	3.01	3.23	**6.67**
Ramal Techo ASNE	139	164	**15.2**	0.08	0.08	**-6.0**	2.10	1.88	**-12.0**	4.29	4.10	**-4.50**
Cimoide ASNE	62	61	**-0.5**	0.11	0.11	**-0.1**	2.57	2.58	**0.2**	5.28	5.48	**3.52**
Rosita	84	83	**-1.3**	0.12	0.12	**-3.6**	2.91	2.75	**-5.9**	5.92	5.57	**-6.25**
Nancy	54	55	**1.9**	0.23	0.25	**8.0**	1.91	1.75	**-9.1**	3.78	3.62	**-4.15**
Bateas	261	241	**-8.4**	0.10	0.10	**1.5**	0.21	0.19	**-9.8**	0.33	0.31	**-4.10**
Bateas Piso	1,636	1,317	**-24.2**	0.35	0.21	**-65.5**	0.28	0.27	**-3.3**	0.47	0.44	**-6.50**
Santa Cata	76	72	**-4.7**	0.48	0.38	**-26.6**	0.88	0.84	**-5.5**	1.36	1.31	**-4.08**
Soledad	184	158	**-17.0**	1.32	1.53	**13.7**	1.08	1.02	**-6.0**	1.43	1.40	**-1.94**
Silvia	72	68	**-6.3**	0.65	0.57	**-13.7**	1.18	1.13	**-4.0**	2.12	2.05	**-3.47**
Cimoide La Plata	397	358	**-10.8**	2.03	1.11	**-82.7**	0.00	0.00	**-26.6**	0.01	0.01	**-29.83**
La Plata 1*	697	688	**-1.4**	2.39	2.34	**-2.3**	1.81	1.55	**-16.8**	0.02	0.02	**10.28**
San Cristobal*	300	304	**1.5**	0.63	0.66	**3.9**	0.30	0.29	**-2.7**	0.66	0.66	**-0.30**
Note: OK = ordinary kriging; NN = nearest neighbor *Estimated by inverse power of distance (power=2)												

Table 14.14 Global validation statistics of Inferred Resources at a zero COG

Vein	Ag (g/t)			Au (g/t)			Pb (%)			Zn (%)		
	OK-Ac	NN	Diff (%)	OK-Ac	NN	Diff (%)	OK-Ac	NN	Diff (%)	OK-Ac	NN	Diff (%)
Animas	55	52	**-6.0**	0.26	0.25	**-2.3**	0.98	0.97	**-0.4**	2.31	2.38	**3.1**
Animas Techo	91	59	**-53.7**	0.31	0.23	**-34.3**	0.62	0.45	**-38.0**	1.53	1.08	**-42.3**
Animas NE	62	60	**-3.7**	0.13	0.13	**1.2**	2.54	2.36	**-7.6**	3.75	3.61	**-3.8**
Animas NE Techo	38	35	**-6.7**	0.05	0.05	**-2.9**	1.24	1.20	**-3.6**	2.92	2.62	**-11.2**
Ramal Techo ASNE	102	92	**-11.2**	0.09	0.08	**-2.5**	2.10	1.97	**-6.5**	4.30	4.01	**-7.3**
Cimoide ASNE	48	47	**-3.4**	0.09	0.11	**16.3**	2.32	2.22	**-4.6**	4.53	4.19	**-8.1**
Rosita	84	77	**-8.6**	0.12	0.12	**-5.5**	2.68	2.39	**-12.3**	5.57	4.68	**-18.9**
Nancy	60	64	**5.6**	0.14	0.15	**8.1**	2.43	2.44	**0.4**	3.87	3.89	**0.3**
Bateas	284	313	**9.1**	0.11	0.12	**9.8**	0.15	0.14	**-9.3**	0.24	0.23	**-5.5**
Bateas Piso	994	737	**-35.0**	0.22	0.14	**-59.8**	0.13	0.09	**-52.7**	0.28	0.20	**-38.1**
Bateas Techo	171	214	**20.3**	0.13	0.16	**15.7**	0.05	0.05	**-0.4**	0.08	0.08	**1.3**
Santa Cata	62	57	**-8.8**	0.26	0.25	**-3.2**	0.45	0.43	**-4.2**	0.67	0.66	**-0.8**
Soledad	137	112	**-21.7**	0.82	0.93	**11.9**	0.80	0.69	**-15.7**	1.29	1.28	**-0.9**
Silvia	49	46	**-5.9**	0.59	0.49	**-20.7**	0.80	0.69	**-16.8**	1.37	1.28	**-7.0**
Cimoilde La Plata	145	179	**19.1**	0.75	0.68	**-10.8**	0.03	0.03	**3.0**	0.09	0.08	**-8.7**
La Plata 1*	189	188	**-0.5**	1.11	1.25	**11.9**	0.42	0.21	**-102.6**	0.03	0.03	**-4.8**
La Plata 2*	136	117	**-16.6**	0.75	0.82	**9.3**	0.14	0.14	**2.9**	0.28	0.29	**0.7**
San Cristobal*	212	204	**-3.8**	0.28	0.26	**-5.7**	0.18	0.18	**-5.0**	0.37	0.38	**2.5**
Pilar*	182	191	**4.9**	0.93	0.95	**2.1**	0.40	0.45	**11.9**	0.32	0.35	**8.1**
Patricia*	146	149	**2.0**	0.60	0.56	**-7.4**	0.35	0.33	**-6.3**	0.50	0.47	**-7.0**
Paralela*	337	287	**-17.4**	0.29	0.27	**-8.7**	0.21	0.14	**-54.1**	0.54	0.36	**-49.1**
San Carlos*	353	392	**10.1**	0.13	0.06	**-128.6**	0.04	0.04	**1.1**	0.22	0.21	**-0.9**
San Pedro*	568	626	**9.3**	2.04	2.48	**17.7**	-	-	-	-	-	-
Ramal Piso Carolina*	89	99	**9.8**	4.18	5.11	**18.1**	0.04	0.05	**8.7**	0.07	0.07	**10.9**
Don Luis 2*	267	217	**-23.0**	0.76	0.67	**-13.5**	0.04	0.03	**-21.9**	0.07	0.07	**-3.9**
Note: OK = ordinary kriging; NN = nearest neighbor *Estimated by inverse power of distance (power=2)												

14.10.3 Local estimation validation

Slice validation plots of estimated block grades and declustered input sample grades were generated for each of the veins by easting, northing, and elevation to validate the estimates on a local scale. Validation of the local estimates assesses each model to ensure over-smoothing or conditional bias is not being introduced by the estimation process and an acceptable level of grade variation is present. An example slice (or swath) plot for Animas is displayed in Figure 14.1.

Figure 14.1 Slice validation plot of the Animas NE vein

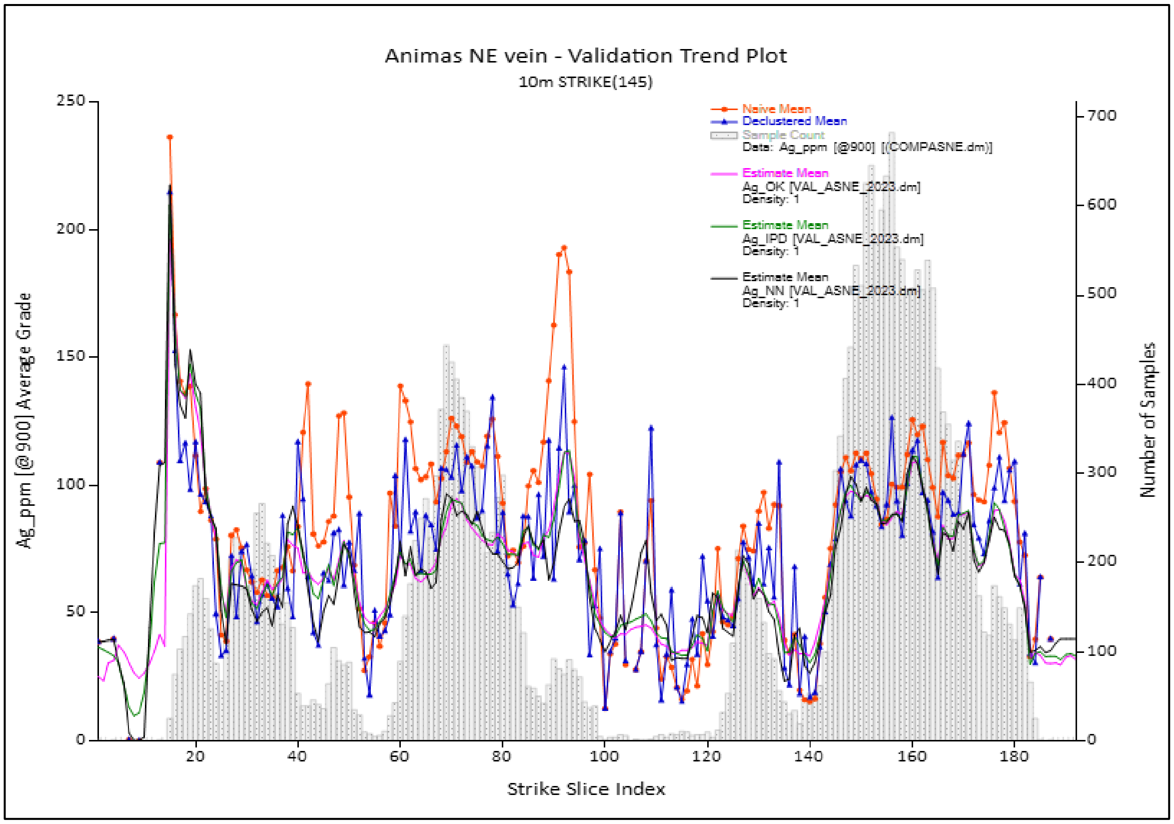


Figure prepared by Bateas, 2023

The slice plots display a good continuity between the ordinary kriged estimates and declustered nearest neighbor estimates indicating that the kriging is not over-smoothing. Areas that do not have a good correlation, such as the far west of the Animas vein are related to areas where sample numbers are limited. Based on the above results it was concluded that ordinary kriging was a suitable interpolation method and provided reasonable global and local estimates of all economical metals.

14.10.4 Mineral Resource reconciliation

The ultimate validation of the block model is to compare actual grades to predicted grades using the established estimation parameters. A comparison of the estimation against mineral in-situ (SMU blocks estimated as being above cut-off grade during extraction) is conducted monthly as part of the ongoing reconciliation program and demonstrates a good level of correlation with tonnes and grade generally within 10 % on a quarterly basis. Gold grades tend to be more erratic than other metals, but the metal is not an economic driver. In 2023, lead and zinc grades have tended to be higher than estimated due to wider than expected vein thicknesses and superior grades in the lowest levels of the Animas vein. The updated Mineral Resource estimate that uses data available as of June 30, 2023, has been shown to improve the estimates in the lower level.

14.10.5 Mineral Resource depletion

All underground development and stopes are regularly surveyed using Total Station methods at Caylloma as a component of monitoring the underground workings. The survey information is imported into Datamine and used to generate three dimensional solids defining the extracted regions of the mine. Each wireframe is assigned a date corresponding to when the material was extracted providing Bateas with a history of the progression of the mining since 2006.

The three-dimensional solids are used to identify resource blocks that have been extracted and assign a code that corresponds to the date of extraction. Table 14.15 details the codes stored in the resource block model and the date ranges that they represent. Blocks with a ZONA (Zone) code of one or greater are excluded from the reported Mineral Resources.

Removal of extracted material often results in remnant resource blocks being left in the model that will likely never be exploited. These represent inevitable components of mining such as pillars and sills, or lower grade peripheral material that was left behind. To take account of this, areas were identified by the mine planning department as being fully exploited, and any remnant blocks within these areas were identified in the block model using the code “RM = 1” and excluded from the reported Mineral Resources.

Table 14.15 Depletion codes stored in the resource block model

Zone	Description
0	Mineral In-situ (not extracted)
1	Mineral extracted prior to June 2022
2	Mineral extracted from July to December 2022
3	Mineral extracted from January to June 2023
4	Mineral extracted as developments (Galleries)
5	Mineral extracted from July to December 31, 2023

14.11 Mineral Resource classification

Resource classification considers a number of aspects affecting confidence in the estimation, such as:

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

14.11.1 Geological continuity

There is substantial geological information to support a good understanding of the geological continuity at the Caylloma Mine. Detailed surface mapping identifying vein structures are supported by extensive exploration drilling.

The Bateas exploration geologists log drill core in detail including textural, alteration, structural, geotechnical, mineralization, and lithological properties, and continue to develop a detailed understanding of the geological controls on mineralization.

Understanding of the vein systems is greatly increased by the presence of extensive underground workings allowing detailed mapping of the geology. Underground observations have greatly increased the ability to accurately model mineralization. The proximity of resources to underground workings has been taken into account during resource classification.

14.11.2 Data density and orientation

The estimation relies on two types of data, channel samples and drill holes. Bateas has explored the Caylloma veins using a drilling pattern spaced roughly 50 m apart along strike. Each hole attempts to intercept the vein perpendicular to the strike of mineralization but this is rarely the case, with the actual intercept angle being between 70 to 90 degrees.

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

14.11.3 Data accuracy and precision

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

Analysis of CRMs and blanks for the Bateas Laboratory indicate acceptable levels of accuracy for silver, lead, zinc, and gold grades. The results of the blanks submitted indicate that contamination or mislabeling of samples is not a material issue at the Bateas laboratory. Preparation and laboratory duplicates indicate acceptable levels of precision in the Bateas Laboratory for silver, lead, zinc, and gold grades.

The high levels of accuracy and lack of contamination indicate that grades reported from the Bateas Laboratory are suitable for Mineral Resource estimation.

Fortuna have been unable to verify the accuracy and precision of the CMA channel data used in the estimation of the Paralela, San Pedro, and San Carlos veins and therefore this has been taken into consideration during classification.

14.11.4 Spatial grade continuity

Spatial grade continuity, as indicated by the variogram, is an important consideration when assigning resource classification. Variogram characteristics strongly influence estimation quality parameters such as kriging efficiency and regression slope.

The nugget effect and short-range variance characteristics of the variogram are the most important measures of continuity. For the Caylloma veins, the variogram nugget variance for silver and gold is between 20 % and 60 % of the population variance, demonstrating the high variability of these precious metals. The variogram nugget variance for lead and zinc is lower, being generally 4 % to 38 %. This shows that in general the lead and zinc grades have good continuity at short distances which results in a higher confidence in these estimated grades.

14.11.5 Estimation quality

Estimation quality is influenced by the variogram, the scale of the estimation, and the data configuration. Estimations of small volumes have poorer quality than estimations of large volumes. Measures such as kriging efficiency, kriging variance, and regression slope quantify the quality of local estimations.

Fortuna used the estimation quality measures to aid in assignment of resource confidence classifications. The classification strategy has resulted in the expected progression from higher to lower quality estimates when going from Measured to Inferred Resources.

14.11.6 Classification

The Mineral Resource confidence classification of the Caylloma resource block models incorporated the confidence in the drill hole and channel data, the geological interpretation, geological continuity, data density and orientation, spatial grade continuity, and estimation quality. The resource models were coded as Inferred, Indicated, and Measured in accordance with the 2014 CIM standards. Classification was based on the following steps:

- Blocks estimated using primary search neighborhoods were considered for the Measured Resource category.
- Blocks estimated using secondary search neighborhoods were considered for the Indicated Resource category.
- Blocks estimated using tertiary search neighborhoods were considered as Inferred Resources.
- KE and ZZ values were assessed, and the classification adjusted to take into account this information.
- Perimeter strings were digitized in Studio RM and the block model coded as either CAT=1 (Measured), CAT=2 (Indicated) or CAT =3 (Inferred) based on the above steps.

The above criteria ensure a gradation in confidence making it impossible that Inferred blocks are adjacent to Measured. It also ensures that blocks considered as Measured are informed from at least three sides, blocks considered as Indicated from two sides, and blocks considered as Inferred from one side. An example of a classified vein is provided in Figure 14.2.

Figure 14.2 Longitudinal section showing Mineral Resource classification for the Animas vein

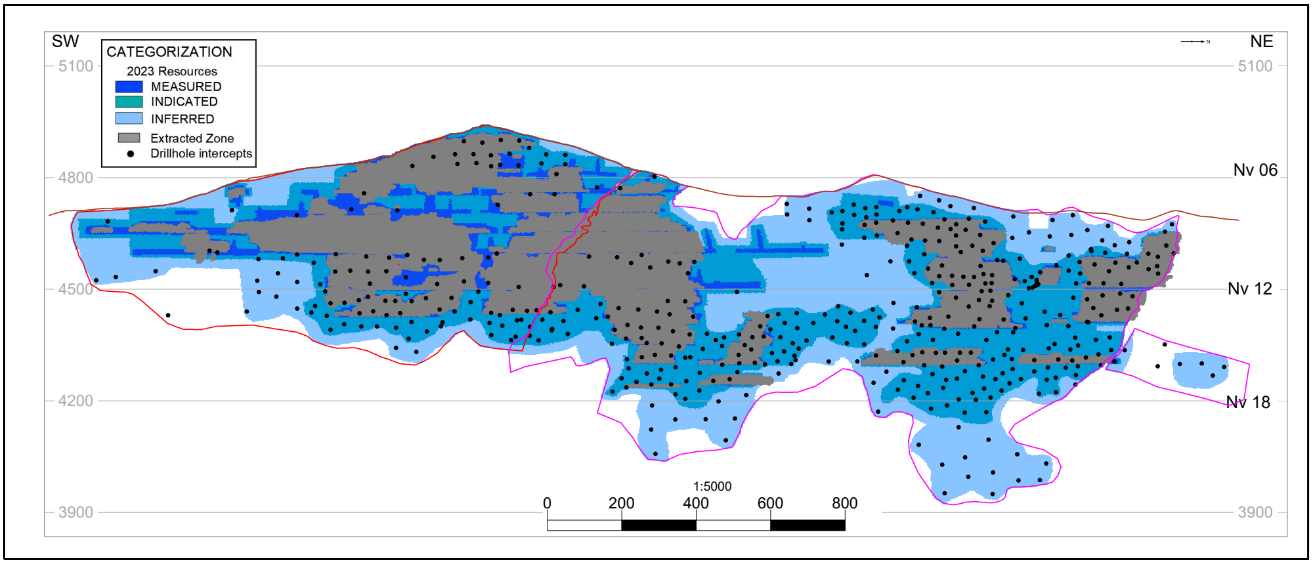


Figure prepared by Bateas, 2023

14.12 Mineral Resource reporting

14.12.1 Reasonable prospects for eventual economic extraction

Mineral Resources are reported based on underground mining within mineable stope shapes based on actual operational costs and mining equipment sizes using NSR values in the block model calculated based on the projected long-term metal prices, commercial terms, and actual metallurgical recoveries experienced in the plant. Details of the values for each parameter used in the NSR determination are displayed in Table 14.16.

Table 14.16 Parameters used in NSR estimation

Zinc and Lead			
Item	**Unit**	**Zinc**	**Lead**
Metal Price (a)	**US$/t**	**2,600**	**2,000**
Concentrate grade (b)	%	54	62
Deduction	%	85	95
Minimum deduction	%	8	3
Payable grade (e)	%	45.9	58.9
Payment per tonne (f)	**US$/t**	**1193**	**1178**
Smelting costs	US$/t	-248.29	-104.96
Escalator1	US$/t		
Escalator 2	US$/t		
Penalties	US$/t		
Total Charges (g)	**US$/t**	**-248**	**-105**
Concentrate value (h)	**US$/t**	**945**	**1073**
Met. recovery – (i)	**%**	**89**	**88**
Value – (j)	**US$/%**	**15.58**	**15.40**
Notes: $f = (a\ x\ e)/100$ $h = (f - g)$ $j = ((h\ x\ i)/(100\ x\ b))$			

Gold and Silver			
Item	**Unit**	**Silver**	**Gold**
Metal Price (a)	**US$/oz**	**21**	**1,600**
Deduction (b)	%	95	95
Refining Charges (c)	US$/oz	-0.99	-15
Escalator1	US$/oz	0	0
Royalty	US$/oz	-0.4	
Value after Met. Recovery (d)	US$/oz	17.22	352.00
Payable metal (e)	US$/oz	1265.60	-0.43
Met. recovery – (f)	**%**	**82**	**22**
Value – (h)	**US$/g**	**0.49**	**n/a**
Notes: $d = (a\ x\ f)/100$ $e = \left(d\ x\ b - (c\ x\ f\ x\ b)\right)/100$ $h = e/31.1035$			

Metallurgical parameters and concentrate characteristics have been based on historical recoveries observed in the plant from mid-2022 to mid-2023.

Metal prices were defined by Fortuna's financial department based on standard industry long term predictions. The proposed metal prices were reviewed and agreed upon by the company's Qualified Persons.

In the case of gold rich veins that include Soledad, Cimoide La Plata, La Plata, Pilar, San Pedro, and Ramal Piso Carolina, testwork suggested that adjustments could be made in the plant to maximize gold recovery and therefore a metallurgical recovery rate of 55 % for gold, 85 % for silver, and 87 % for lead were used being the equivalent of $24.69/g Au, $0.51/g Ag, and $14.88/% Pb in the NSR calculation for this vein.

Veins classified as wide, being on average greater than two meters, are amenable to extraction by semi-mechanized mining methods with a mine to mill cost reported as US$ 89.78/t. Taking into account a 15% upside in metal prices for the evaluation of long-term resources a US$ 75/t NSR cut-off value is applied to the wide veins including Animas, Animas NE, Ramal Techo ASNE, Cimoide ASNE, Nancy, Rosita, and San Cristobal.

Veins classified as narrow, being on average less than 2 m, are amenable to extraction by conventional mining methods with a mine to mill cost estimated as US$ 170/t. Taking into account a 15% upside in metal prices for the evaluation of long term resources a US$135 /t NSR cut-off value is applied to the narrow veins including Bateas, Bateas Piso, Bateas Techo, La Plata, Cimoide La Plata, Soledad, Santa Catalina, Silvia, Ramal Piso Carolina, Paralela, San Carlos, San Pedro, Patricia, Pilar, and Don Luis II.

14.12.2 Mineral Resource statement

Eric Chapman P. Geo. is the QP for the Mineral Resource estimate for the Caylloma Mine. Mineral Resources are reported insitu and have an effective date of December 31, 2023. Mineral Resources are summarized in Table 14.17. Mineral Resources are reported within mineable stope shapes accounting for operational dilution at the selective mining unit size using an either a US$ 75/t or US$ 135/t NSR value, depending on the vein thickness and proposed mining method (see above), in areas identified as accessible. The Measured and Indicated Mineral Resources are exclusive of those Mineral Resources modified to produce the Mineral Reserves through the process described in Section 15. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Table 14.17 Mineral Resources exclusive of Mineral Reserves

Category	Tonnes (000)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Contained Metal			
						Ag (Moz)	Au (koz)	Pb (kt)	Zn (kt)
Measured	524	98	0.30	2.09	3.16	1.6	5	11	17
Indicated	1,262	82	0.21	1.47	2.54	3.3	9	19	32
Measured + Indicated	1,786	87	0.24	1.65	2.72	5.0	14	29	49
Inferred	4,505	99	0.43	2.43	3.70	14.4	63	110	167

Notes on Mineral Resources

- Mineral Resources are reported in-situ, as defined by the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.
- Mineral Resources as reported exclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- Mineral Resources are reported as of December 31, 2023.
- Mr. Eric Chapman P.Geo., a Fortuna employee, is the Qualified Person for the estimate.

- Point metal values (taking into account metal price, concentrate recovery, smelter cost, metallurgical recovery) used for NSR evaluation are US$ 0.49/g for silver, US$ 15.40/% for lead, and US$ 15.58/% for zinc with the exception of gold rich veins that used US$ 0.51/g for silver, US$ 24.69/g for gold, US$ 14.88/% for lead, and US$ 15.48/% for zinc, based on metal prices of US$ 21/oz for silver, US$ 1,600/oz for gold, US$ 2,000/t for lead and US $2,600/t for zinc, and metallurgical recovery values of 82 % for silver, 22 % for gold, 89 % for lead, and 89 % for zinc, with the exception of gold rich veins that used 85 % for silver, 55 % for gold, 87 % for lead, and 89 % for zinc.
- Mineral Resources for veins classified as wide (Anima, Animas NE, Cimoide ASNE, Nancy, Rosita, and San Cristobal) are reported above an NSR cut-off value of US$ 75/t. Mineral Resources for veins classified as narrow (all other veins) are reported above an NSR cut-off value of US$ 135/t based on actual and projected mining costs and a 15% upside in metal prices.
- Mineral Resource tonnes are rounded to the nearest thousand.
- Totals may not add due to rounding.
- Mineral Resources in this table are not additive to the Mineral Resources reported in Table 14.18, Table 14.19, and Table 14.20.

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

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

14.12.3 Mineral Resources by key geologic attributes

The following section provides a breakdown of the Mineral Resources based on various key geologic attributes. It is important to note that all numbers presented in this section are not additive to the Mineral Resources presented in Table 14.17. A cornerstone of this analysis involves the evaluation of the Mineral Resource inclusive of Mineral Reserves for the Caylloma Mine, as summarized in Table 14.18. Mineral Resources are reported within mineable stope shapes accounting for operational dilution in-situ using either a US$ 75/t or US$ 135/t NSR value cut-off depending on vein width (see notes below).

Table 14.18 Mineral Resources inclusive of Mineral Reserves

Category	Tonnes (000)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Contained Metal			
						Ag (Moz)	Au (koz)	Pb (kt)	Zn (kt)
Measured	696	107	0.35	2.28	3.43	2.4	8	16	24
Indicated	3,779	89	0.18	2.56	3.86	10.8	22	97	146
Measured + Indicated	4,475	92	0.21	2.52	3.79	13.2	30	113	170
Inferred	4,505	99	0.43	2.43	3.70	14.4	63	110	167

Notes on Mineral Resources

- Mineral Resources are reported in-situ, as defined by the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.
- Mineral Resources as reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- Mineral Resources are reported as of December 31, 2023.

- Mr. Eric Chapman P.Geo., a Fortuna employee, is the Qualified Person for the estimate.
- Point metal values (taking into account metal price, concentrate recovery, smelter cost, metallurgical recovery) used for NSR evaluation are US$ 0.49/g for silver, US$ 15.40/% for lead, and US$ 15.58/% for zinc with the exception of gold rich veins that used US$ 0.51/g for silver, US$ 24.69/g for gold, US$ 14.88/% for lead, and US$ 15.48/% for zinc, based on metal prices of US$ 21/oz for silver, US$ 1,600/oz for gold, US$ 2,000/t for lead and US $2,600/t for zinc, and metallurgical recovery values of 82 % for silver, 22 % for gold, 89 % for lead, and 89 % for zinc, with the exception of gold rich veins that used 85 % for silver, 55 % for gold, 87 % for lead, and 89 % for zinc.
- Mineral Resources for veins classified as wide (Anima, Animas NE, Cimoide ASNE, Nancy, Rosita, and San Cristobal) are reported above an NSR cut-off value of US$ 75/t. Mineral Resources for veins classified as narrow (all other veins) are reported above an NSR cut-off value of US$ 135/t based on actual and projected mining costs and a 15% upside in metal prices.
- Mineral Resource tonnes are rounded to the nearest thousand.
- Totals may not add due to rounding.
- Mineral Resources in this table are not additive to the Mineral Resources reported in Table 14.17, Table 14.19, and Table 14.20.
- Above notes are applicable to both oxide (Table 14.19) and sulfide (Table 14.20) reported resources.

The Mineral Resource can be further assessed by examining the tonnes and grade associated with each vein for material identified as oxide (Table 14.19) and sulfide (Table 14.20).

Table 14.19 Mineral Resources inclusive of Mineral Reserves (Oxide)

Category	Vein	Tonnes	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)
Measured Resources	Animas	39,000	235	0.40	0.88	1.17
	Animas NE	59,000	134	0.97	3.08	3.12
	Cimoide ASNE	5,000	64	0.12	2.04	3.01
	Rosita	7,000	97	0.15	2.67	5.00
	Nancy	8,000	92	0.20	4.49	2.27
	Total	**118,000**	**159**	**0.64**	**2.38**	**2.53**
Indicated Resources	Animas	50,000	227	0.39	0.87	1.53
	Animas NE	324,000	112	0.58	2.88	1.73
	Cimoide ASNE	32,000	90	0.16	2.29	2.84
	Rosita	10,000	125	0.15	3.19	4.90
	Nancy	30,000	87	0.16	3.77	1.36
	Total	**446,000**	**122**	**0.49**	**2.68**	**1.83**
Measured + Indicated Resources	**Total**	**564,000**	**130**	**0.52**	**2.62**	**1.98**
Inferred Resources	Animas	12,000	86	0.33	1.26	2.80
	Animas NE	272,000	117	0.60	2.98	1.46
	Cimoide ASNE	24,000	85	0.21	2.07	2.49
	Rosita	15,000	105	0.13	2.74	4.56
	Nancy	65,000	96	0.19	4.20	0.88
	Total	**388,000**	**110**	**0.48**	**3.07**	**1.59**

Refer to notes on Mineral Resources below Table 14.18
Mineral Resources in Table 14.17, Table 14.18 and Table 14.20 are not additive to the Mineral Resources reported in this table

Table 14.20 Mineral Resources inclusive of Mineral Reserves (Sulfide)

Category	Vein Type	Vein	Tonnes	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)
Measured Resources	**Silver Veins**	Bateas	12,000	608	0.25	0.32	0.50
		Total	**12,000**	**608**	**0.25**	**0.32**	**0.50**
	Polymetallic Veins	Animas	198,000	66	0.30	1.75	3.43
		Animas NE	252,000	76	0.15	2.99	4.02
		Ramal Techo ASNE	9,000	116	0.07	1.47	3.36
		Cimoide ASNE	23,000	55	0.11	1.95	4.92
		Rosita	6,000	63	0.11	2.10	4.29
		Nancy	48,000	47	0.18	2.02	3.71
		Soledad	30,000	394	1.88	1.13	1.39
		Total	**567,000**	**86**	**0.29**	**2.30**	**3.68**
Total Measured Resources			**578,000**	**97**	**0.29**	**2.26**	**3.62**
Indicated Resources	**Silver Veins**	Bateas	39,000	419	0.10	0.18	0.27
		Bateas Piso	3,000	690	0.16	0.10	0.15
		Cimoide La Plata	25,000	549	3.13	0.01	0.01
		La Plata	14,000	591	2.89	1.41	0.02
		San Cristóbal	39,000	478	0.21	0.36	0.73
		Total	**120,000**	**492**	**1.09**	**0.34**	**0.34**
	Polymetallic Veins	Animas	252,000	52	0.29	1.38	3.61
		Animas NE	2,505,000	72	0.06	2.89	4.38
		Ramal Techo ASNE	21,000	114	0.07	1.79	3.69
		Cimoide ASNE	279,000	40	0.06	1.99	4.45
		Rosita	27,000	52	0.08	2.37	5.14
		Nancy	73,000	48	0.21	1.71	4.00
		Santa Catalina	3,000	199	1.43	1.89	2.39
		Soledad	43,000	232	1.53	1.35	1.54
		Silvia	9,000	155	0.46	3.25	4.09
		Total	**3,213,000**	**70**	**0.11**	**2.63**	**4.28**
Total Indicated Resources			**3,333,000**	**85**	**0.14**	**2.55**	**4.13**
Total Measured + Indicated Resources			**3,912,000**	**87**	**0.16**	**2.51**	**4.06**
Inferred Resources	**Silver Veins**	Bateas	23,000	471	0.08	0.08	0.16
		Bateas Piso	14,000	510	0.12	0.07	0.14
		Bateas Techo	5,000	319	0.10	0.08	0.16
		La Plata	28,000	305	2.02	0.75	0.37
		Cimoide La Plata	29,000	428	2.24	0.02	0.03
		San Cristóbal	24,000	406	0.15	0.23	0.50
		Paralela	39,000	426	0.36	0.23	0.59
		San Carlos	5,000	362	0.18	0.04	0.22
		San Pedro	63,000	668	2.52	0.00	0.00
		Ramal Piso Carolina	154,000	128	7.23	0.06	0.10
		Don Luis II	84,000	514	0.85	0.07	0.14
		Total	**467,000**	**371**	**3.18**	**0.12**	**0.17**
	Polymetallic Veins	Animas	56,000	73	0.23	1.25	2.67
		Animas NE	2,802,000	62	0.06	2.87	4.49
		Ramal Techo ASNE	82,000	92	0.07	1.90	3.87
		Cimoide ASNE	258,000	35	0.04	1.81	4.19
		Rosita	13,000	54	0.08	2.34	5.55
		Nancy	386,000	58	0.09	2.27	4.29
		Santa Catalina	2,000	204	0.66	1.15	1.84
		Soledad	23,000	210	1.16	1.35	1.89
		Silvia	9,000	158	0.61	3.59	3.89
		Pilar	19,000	358	1.29	0.50	0.41
		Total	**3,650,000**	**63**	**0.08**	**2.66**	**4.37**
Total Inferred Resources			**4,117,000**	**98**	**0.43**	**2.37**	**3.90**
Refer to notes on Mineral Resources below Table 14.18 Mineral Resources in Table 14.17, Table 14.18 and Table 14.19 are not additive to the Mineral Resources reported in this table							

14.12.4 Comparison to previous estimate

The primary reasons for the changes in the reported Mineral Resources compared to the previous estimate are due to:

- Infill drilling of the Animas NE, Ramal Techo ASNE, Cimoide ASNE, and Nancy veins.
- Exploration drilling of the Animas NE and Cimoide Animas NE veins.
- Production related depletion and sterilization of material mined out from the Animas NE, Ramal Techo ASNE, Cimoide ASNE, Nancy, and Rosita since the previous estimate.
- Geological reinterpretation.
- Changes in metal prices and projected commercial terms.

The most significant changes occurred in the Animas NE vein where infill and exploration drilling, and mineral extraction was focused.

14.13 Comment on Section 14

The QP is of the opinion that the Mineral Resources for the Caylloma Mine, which have been estimated using core drill and channel data, have been performed to industry best practices, and conform to the requirements of CIM (2019). Mineral Resources are acceptable to support declaration of Mineral Reserves.

Furthermore, it is the opinion of the QP that by Bateas performing an annual depletion exercise where material identified as inaccessible to underground mining due to economic or geotechnical reasons is sterilized, and that the resource evaluation is based on actual mining, processing and smelting costs; actual metallurgical recoveries achieved in the plant; reasonable long-term metal prices; and the application of a transparent cut-off grade, the Mineral Resources have 'reasonable prospects for eventual economic extraction'.

15 Mineral Reserve Estimates

15.1 Mineral Resource handover

The Mineral Resource is comprised of Measured, Indicated and Inferred categories.

Upon receipt of the block model a review was conducted to confirm the Mineral Resource was reported correctly and to validate the various fields in the block model.

For estimating Mineral Reserves, only Measured and Indicated Resources that are considered accessible have been considered. Inferred Mineral Resources were treated as waste material.

The Mineral Reserve estimation process considered the Mineral Resources above a US$ 75/t NSR value for veins such as Animas, Animas NE, Cimoide ASNE, Nancy and San Cristobal and US$ 135/t NSR value for all other veins.

15.2 Mineral Reserve methodology

The Mineral Reserve estimation procedure conducted by Bateas for the Caylloma deposit is defined as follows:

- Review of Mineral Resources.
- Identification and removal of inaccessible Mineral Resources to account for recovery based on current mining practices including crown pillars and isolated areas.
- Set Inferred Mineral Resources to waste.
- Dilution of tonnages and grades for each vein based on dilution factors calculated by the planning department based on operational observations from July 2022 to June 2023.
- After obtaining the Mineral Resources with diluted tonnages and grades, the value per tonne of each block is determined based on metal prices and metallurgical recoveries for each metal and recorded as a NSR value (US$/t).
- A breakeven cut-off grade is determined for each vein based on operational costs for mining, processing, administration, commercial, and general administrative costs (total operating cost in US$/t). If the NSR value of the block is higher than the breakeven cut-off grade, the block is considered a Mineral Reserve, otherwise it is considered as either Mineral Resource exclusive of reserve, or waste.
- Depletion of Mineral Reserves relating to operational extraction between July 1 and December 31, 2023.
- Reconciliation of the reserve block model against mine production between July 1 and December 31, 2023, to confirm estimation parameters.
- Mineral Reserve tabulation and reporting as of December 31, 2023.

Each vein has a different operating cost; therefore, Mineral Reserve evaluation was performed for each individual vein.

15.3 Key Mining Parameters

15.3.1 Mining Recovery

Mining recovery levels vary due to the geometry of the vein and geotechnical characteristics of the material being mined. Some mineralized material cannot be economically extracted due to its isolated location; thickness being below the minimum mineable width; or due to other technical or economic constraints.

Overall mining recovery is 94 %. Measured and Indicated Resources were reduced by 1.78 Mt representing material below the required breakeven cut-off for Mineral Reserves, 258,000 t due to crown pillars and 217,000 t due to non-accessible material based on stope designs. Mineral losses were estimated based on mine designs and specific analysis of isolated areas where mineral extraction is not viable due to technical difficulties or excessive operating cost demands at this time.

15.3.2 Dilution

Dilution refers to the waste material (below breakeven cut-off grade) that is not separated from the ore (above breakeven cut-off grade) during mining. The dilution factor considers operational (over-break) and mucking effects. Dilution factors for the wider veins and the alternative narrow veins have been assessed independently. The assumption was made that non-mineralized material is waste that carries no grade; therefore, waste material was set at a zero value for metal contents.

The Caylloma Mine considers two types of dilution: operational and mucking.

Operational dilution

The estimate of the operational dilution (*OP*) was based on the proportion of extracted mineral versus in-situ mineral obtained by reconciliation data for the previous 12 months. It includes both the planned and unplanned components displayed in Figure 15.1.

Planned dilution is caused by the inclusion of waste inside the planned mining section based on the minimum mining width allowed by the mechanized equipment. Within this mining width, it is not possible to differentiate waste material from ore. The unplanned dilution is caused by waste material located outside the defined mining area. This material is also difficult to avoid because of mining geometry, overbreak impacts from blasting activities or geotechnical conditions.

Figure 15.1 Conceptual diagram of operational dilution

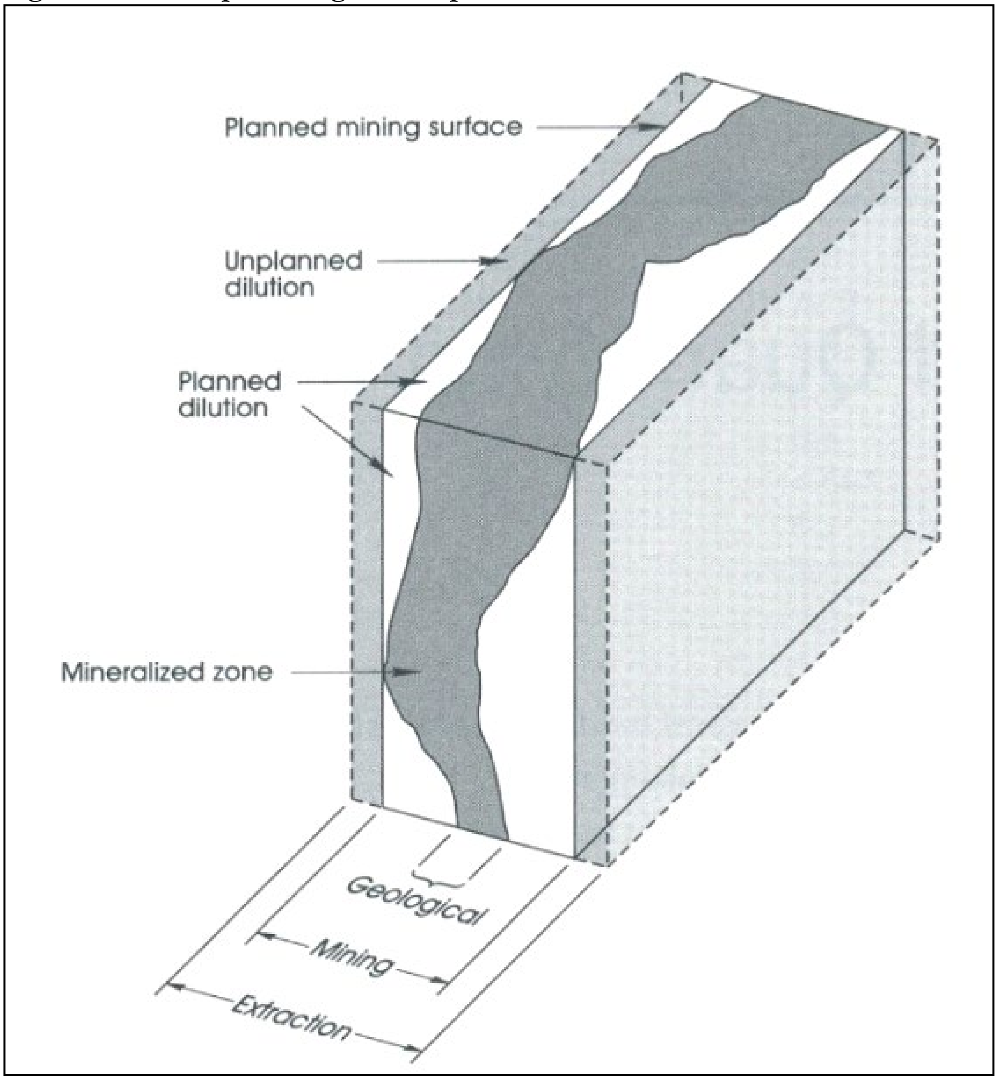


Figure prepared by Bateas, 2023 from William et al (2001)

The unplanned dilution was calculated based on underground surveys defining the mined volumes between July 2022 and June 2023, or total material encountered (ore and waste) at a zero-cut-off grade. The following formula was applied to calculate the total dilution, sourced from William et al (2001) dilution definitions, equation number 1.

EQ 1 Dilution = (Tonnes waste mined)/(Tonnes ore mined)

Based on the above a dilution factor was estimated for each vein in accordance with the vein width.

Mucking Dilution

The mucking dilution (*MD*) estimates the undesired waste material extracted as part of the mucking process and is based on operational experience for the twelve months prior to the reserve estimation.

$$MD = 4\ \%$$

Based on the above, the total dilution (*TD*) applied for the reserves estimate is defined by the following formula:

$$TD = OP + MD$$

The dilution factor applied varies according to the vein thickness, the proposed mining methodology and rock quality (for mechanized mining). The average dilution factor applied at the Caylloma Mine by proposed mining method is detailed in Table 15.1. Additionally, an estimated dilution factor was estimated for the sub level stoping (SLS) mining method based on the information for the latest trial done and rock conditions presented where the method is going to be applicable for a minimum mining width (MMW) of 0.8 m and external dilution as an ELOS for HW (hangingwall) and FW (footwall) for a mining final diluted stope shape width of 1.6m

Table 15.1 Average dilution factors for wide and narrow veins

Mining methodology	Rock Type	Average Dilution Factor (%)
Mechanized (breasting)	Type IV (RMR=21-40)	17
Mechanized (enhanced)	Type III (RMR=41-60)	21
Semi-mechanized	Type III (RMR=41-60)	22
Conventional	Type III (RMR=41-60)	34
Sublevel longhole stoping	Type III (RMR=41-60)	Based on a MMW 0.8 m and ELOS 0.6 m HW & 0.2 m FW. Minimum stope width as 1.6m

15.3.3 Metal prices, metallurgical recovery and NSR values

Metal prices used for Mineral Reserve estimation (Table 15.2) were determined as of June 2023 by the corporate financial department of Fortuna from market consensus.

Table 15.2 Metal prices

Metal	Price
Silver (US$/oz)	21.0
Gold (US$/oz)	1,600
Lead (US$/t)	2,000
Zinc (US$/t)	2,600

Metallurgical recoveries used for Mineral Reserve estimation are displayed in Table 15.3 and were based on achieved recoveries observed in the processing plant during the period July 2022 to June 2023. Mineralized material over this period was sourced from polymetallic veins that blended sulfide and oxide material. A maximum blend of 11.6 % has been defined for oxide material as above this level metallurgical recovery decreases. The blended polymetallic veins represent 97% of Mineral Reserves. High gold content veins (> 1 g/t Au) consider alternative recoveries (Table 15.3) to maximize silver and gold recovery at the expense of lead and represent 3% of the Mineral Reserves.

Table 15.3 Metallurgical recoveries

Metal	Metallurgical Recovery (%)	
	Polymetallic veins	High Au-Ag grade veins
Silver	82	85
Gold	22	55
Lead	89	87
Zinc	89	89

NSR values depend on various parameters including metal prices, metallurgical recovery, price deductions, refining charges and penalties. Methodology for NSR determination is the same as that described in Section 14.11. NSR values used for Mineral Reserve estimation are detailed in Table 15.4.

Table 15.4 NSR values

Metal	NSR Value	
	Polymetallic veins	High Au-Ag grade veins
Silver (US$/g)	0.49	0.51
Gold (US$/g)	0.00	24.69
Lead (US$/%)	15.40	14.88
Zinc (US$/%)	15.58	15.48

15.4 Cut-off grade determination

The breakeven cut-off values have been determined based on actual operating costs incurred in the period from July 2022 to June 2023 (Table 15.5). The principal mining method is the Mechanized (Breasting) cut and fill, which represents 91 % of Mineral Reserves. The same costs are applied to other mining methods used in specific periods of the LOM and operational considerations like dip, mining width, geomechanical conditions and economic criteria such as Mechanized (enhanced), Semi-mechanized, conventional and sublevel longhole stoping, and they represent 9 % of the total reserves.

Table 15.5 Operating costs by mining method

Area	Cost (US$/t)				
	Mechanized (Breasting)	Mechanized (enhanced)	Semi-mechanized	Conventional	Sublevel Longhole Stoping
Mine	41.65	25.35	45.07	104.60	33.97
Plant	13.69	15.03	14.81	15.39	14.82
General services	13.08	15.09	11.77	11.93	16.08
Administrative services	10.23	12.14	11.65	27.53	13.29
Concentrate transportation	7.58	7.57	7.39	7.53	7.81
Management fee	1.31	0.93	0.76	1.09	0.79
Community support activities	1.08	1.26	0.78	0.89	0.88
SG&A Expenses	1,18	2.34	1.05	1.05	1.18
Breakeven cut-off	**89.78**	**79.70**	**93.27**	**170.00**	**88.81**

15.5 Mineral Reserves

Mineral Reserves reported by vein as of December 31, 2023, are detailed in Table 15.6. Measured Resources have been converted to Proven Reserves and Indicated Resources have been converted to Probable Reserves.

Table 15.6 Mineral Reserves

Category	Vein	Tonnes	NSR (US$/t)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Contained Metal			
								Ag (koz)	Au (koz)	Pb (kt)	Zn (kt)
Proven	Animas (Sulfide)	2,000	127	36	0.17	2.03	5.02	2	0.0	0.0	0.1
	Animas NE (Oxide)	4,000	151	104	0.31	2.95	3.54	14	0.0	0.1	0.1
	Cimoide ASNE	2,000	158	91	0.17	2.91	4.38	6	0.0	0.1	0.1
	Nancy	4,000	125	56	0.13	3.89	2.43	7	0.0	0.2	0.1
	Soledad	7,000	378	583	2.20	0.77	0.94	136	0.5	0.1	0.1
	Total	**20,000**	**227**	**261**	**0.94**	**2.23**	**2.62**	**165**	**0.6**	**0.4**	**0.5**
Probable	Animas (Sulfide)	50,000	118	51	0.38	1.71	4.32	81	0.6	0.9	2.2
	Animas NE (Sulfide)	1,809,000	147	71	0.05	2.88	4.34	4,133	2.9	52.1	78.5
	Animas NE (Oxide)	187,000	123	113	0.52	2.91	1.48	679	3.1	5.4	2.8
	Cimoide ASNE	126,000	141	50	0.08	2.36	5.16	204	0.3	3.0	6.5
	Ramal Techo ASNE	5,000	133	132	0.04	1.62	2.80	22	0.0	0.1	0.1
	Nancy	20,000	127	79	0.15	3.64	2.08	50	0.1	0.7	0.4
	Rosita	24,000	150	76	0.09	2.69	4.61	58	0.1	0.6	1.1
	La Plata	2,000	426	642	3.00	1.60	0.00	39	0.2	0.0	0.0
	Cimoide La Plata	13,000	316	489	2.71	0.00	0.00	212	1.2	0.0	0.0
	San Cristóbal	15,000	304	589	0.18	0.30	0.73	276	0.1	0.0	0.1
	Soledad	18,000	223	286	1.26	1.48	1.56	170	0.7	0.3	0.3
	Total	**2,269,000**	**147**	**81**	**0.13**	**2.79**	**4.06**	**5,924**	**9.3**	**63.2**	**92.0**
Total Proven + Probable Reserves		**2,288,000**	**147**	**83**	**0.13**	**2.78**	**4.04**	**6,089**	**9.9**	**63.6**	**92.5**

Notes:

- Mineral Reserves are as defined by the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.
- Mineral Reserves are reported as of December 31, 2023.
- Mineral Reserves are reported above NSR breakeven cut-off values based on the proposed mining method for extraction including mechanized (breasting) at US$ 89.78/t; that represents 91 % of the total mineral reserves. Other mining methods applied are mechanized (enhanced) at US$ 79.30/t; semi-mechanized at US$ 93.27/t; conventional at US$ 170.00/t and Sublevel longhole stoping at US$ 88.81/t.
- Metal prices used in the NSR evaluation are US$ 21/oz for silver, US$ 1,600/oz for gold, US$ 2,000/t for lead and US$ 2,600/t for zinc.
- Metallurgical recovery values used in the NSR evaluation for polymetallic veins are 82 % for silver, 22 % for gold, 89 % for lead, and 89 %, and for high Au-Ag grade veins are 85 % for silver, 55 % for gold, 87 % for lead, and 89 % for zinc.
- Operating costs were estimated based on actual operating costs incurred from July 2022 through June 2023.
- Mining recovery is estimated to average 94 % with mining dilution ranging from 10 % to 40 % depending on the mining methodology.
- Raul Espinoza, FAusIMM (CP) is the Qualified Person for Mineral Reserves, being an employee of Fortuna Silver Mines Inc.
- Reserve tonnes are rounded to the nearest thousand.
- Totals may not add due to rounding.

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

There are no other known environmental, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that would materially affect the estimation of Mineral Reserves that are not discussed in this Report.

A long section showing the location of Mineral Reserves and the stope design is displayed in Figure 15.2.

Figure 15.2 Longitudinal section showing Proven and Probable Reserves, Mineral Resources exclusive of reserves and stope design for the Animas vein

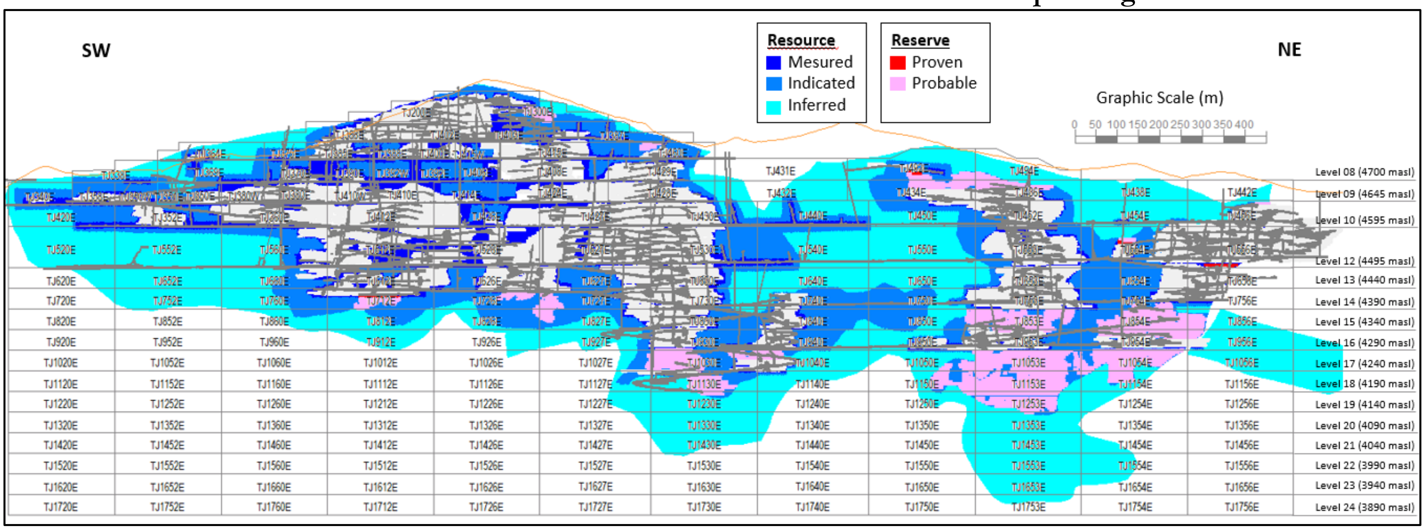


Figure prepared by Bateas, 2023

15.6 Comments on Section 15

Mineral Reserves are to be extracted primarily using an underground cut-and-fill mechanized mining method. Other mining methods such as semi-mechanized, conventional or SLS mining methods are used in specific cases depending on the vein geometry, geological and geomechanics conditions and economic viability. In the opinion of the QP, Mineral Reserves are reported appropriately with the application of reasonable mining recovery and dilution factors based on operational observations and transparent breakeven cut-off grades based on actual mining, processing and smelting costs; actual metallurgical recoveries achieved in the plant; and reasonable long-term metal prices based on market consensus.

The QP is of the opinion that the Proven and Probable Mineral Reserve estimate has been undertaken with reasonable care and has been classified using the 2014 CIM Definition Standards. Furthermore, it is the opinion of the QP that Mineral Reserves are unlikely to be materially affected by mining, metallurgical, infrastructure, permitting or other factors, as these have all been well established over the last 10 years of mining.

16 Mining Methods

16.1 Overview

This section summarizes the mine design and planning work completed to support the preparation of the Mineral Reserve statement. The predominant mining method applied in the exploitation of the main vein (Animas) is mechanized overhand cut-and-fill and will be used to mine 91 % of the Mineral Reserves. Other mining methods that represent 9 % of the Mineral Reserves include semi-mechanized, conventional cut and fill and SLS, which are used as an alternative to the mechanized depending on rock conditions such as geomechanics, dip and width of the veins. All mining is undertaken by contractors in a southwest to northeast direction following the strike of the vein. Production capacity at the mine is 1,500 tpd.

16.2 Hydrogeology

The hydrogeological study was carried out by SRK Consulting in November 2017 to characterize and quantify the penetration of groundwater into the underground workings. The model provides a tool for developing the conceptual understanding of the groundwater system and to quantify a range of possible dewatering rates to consider for mine design.

Based on the transient hydrogeological modeling, the estimated groundwater inflows to the present underground workings reach a nominal 120 l/s with a maximum depth of approximately 4400 masl. The area receiving the majority of inflow is approximately 250 m in length, and an estimated 300 m below the pre-mined groundwater table.

A hydrogeological study update was conducted in July 2020 by Rhind, using information from the Caylloma Mine from level 12 (4495 masl) to level 16 (Ramp 462), analyzing in-depth water flows during mining activities in Animas. For this study, one of the objectives was to develop a representative numerical model of groundwater flow up to level 16. The calculated flow for Ramp 462 is 70 l/s, while for the exit of level 12, it is 165 l/s.

In the extension of the model, the regional groundwater flow has a north-to-south direction, draining towards the area where the underground workings are located in Animas. In the area where Ramp 462 would be located, the flow direction is radial, and equipotential curves form a depression cone whose extension corresponds to an ellipsoid.

The ravines in the study area and Lake Vilafro seem to be connected to the general or main groundwater system. The upper lakes (Jesús Maria and Antimonio) appear to be isolated from the groundwater regime since no influence area is observed in the piezometric surface around them. This is partly because the water table passes below the bottom level of these lakes, partly due to underground workings. On the other hand, the Santiago River appears as a recharge and discharge zone in sections.

As the mine operations are going deeper, another updated report prepared by Rhind focusing on a diagnosis and recommendations for increasing water drainage at level 18 of the Animas vein delivered in November 2023. This update report by Rhind identifies the following flows in the mine: 35 l/s for level 16, 95 l/s for level 17, and 30 l/s for level 18, totaling 160 l/s. A volume projection of around 200 l/s was made, with the main ramp 462 capacity at level 12 being 250 l/s. It is expected that the flows at level 18 could potentially exceed 250 l/s, so the recommendation to expand the drainage system in the mine is necessary. Additionally, the recommendation is to define the surface water recharge system, with a detailed description of the Santiago River and the Trinidad stream to determine their influence on groundwater bodies that may have seepage towards the mining workings.

Dewatering requirements are discussed in Section 16.8.8.

16.3 Mine geotechnical

The Bateas Geotechnical Department continuously undertakes geotechnical evaluation through the classification of rock mass using RQD, rock mass rating (RMR) and Q (classification of rock mass quality for underground opening) systems. Results of the geotechnical evaluations for the presently mined Animas and Nancy veins indicate the quality of the rock mass ranges from regular to good (Table 16.1), which is consistent with the behavior observed underground.

Table 16.1 Classification of rock mass

Vein	RQD (%)	RMR	Q
Animas	40-60	30 - 55	0.05 – 2.15
Nancy	<40	20 - 40	0.05 – 0.25
Cimoide	40 - 60	35 - 60	0.1 – 4.65

The rock quality allows openings with dimensions of up to 11.5 m wide, 5.0 m high, and 50-80 m long in the Animas/Animas NE vein and 9.0 m wide, 4.5 m high, and 80 m long in the Nancy vein. Based on these values the mining method of overhand cut-and-fill (with hydraulic and waste backfill) is regarded as the most suitable. A bulk mining method, such as sub-level stoping, can be applied in the Cimoide ASNE vein, when the dip of the vein (70°- 80° average) would make feasible to use this mining method.

16.4 Mining methods

The mining method is cut-and-fill which is used in mining steeply dipping orebodies in stable rock masses. Cut-and-fill is a bottom up mining method that consists of removing ore in horizontal slices (known as breasting), starting from a bottom undercut and advancing upwards. The following describes the cut-and-fill mechanized, semi-mechanized, and conventional extraction methods.

16.4.1 Mechanized cut-and-fill

This is the main mining method applied at Minera Bateas. Mechanized mining uses a jumbo drill rig and scoop tram for loading. The ore haulage is performed by trucks. Rock support is applied through rock bolts and shotcrete. The average mining width ranges between 3.5 m and 17 m. Mechanized mining is regarded as only being suitable for the Animas, Animas NE and their associated splays, as well as the Nancy vein based on the geological structure and geotechnical studies (Section 16.4). The majority of production came from the Animas/Animas NE and associated splay veins in 2023. Mechanized cut-and-fill comprises 91 % of mining planned in the LOM. A less common variation of this methos is applied, known as "enhanced mechanized" and it is used for vertical drilling for the last cut of the stope in order to reach the bridge or pillar at the upper level.

The mechanized mining sequence is shown in Figure 16.1 and includes drilling (with a jumbo drill rig), blasting, support, loading (with a scoop tram) and haulage.

Figure 16.1 Schematic showing mechanized mining sequence

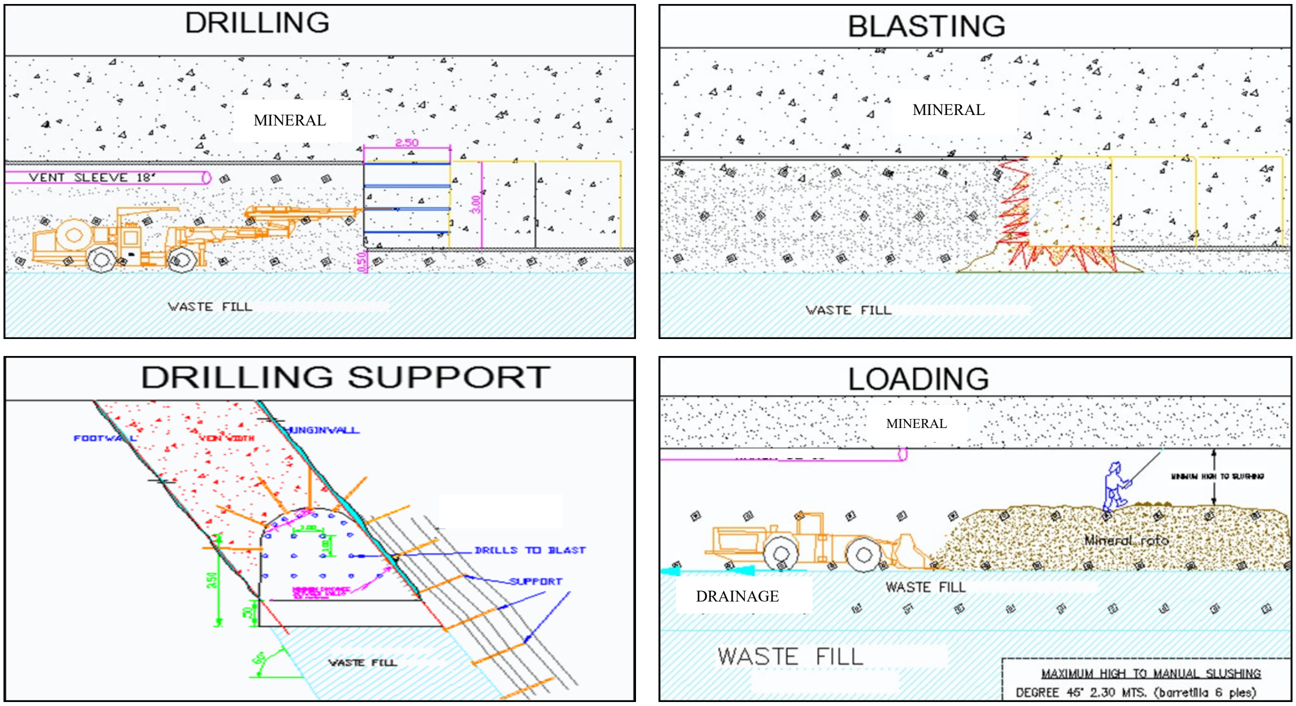


Figure prepared by Bateas, 2023

16.4.2 Semi-mechanized cut-and-fill

Semi-mechanized mining is performed using handheld drilling equipment (jacklegs) and scoops for loading. Mineral material haulage is performed by truck. Rock support is supplied using rock bolts installed using manual drilling and installation techniques. Semi-mechanized mining is applied in specific circumstances to narrow veins with average widths between 0.8 m and 2.0 m, dip between 70 to 80 degrees.

The semi-mechanized mining sequence involves drilling (with jacklegs), blasting, support, loading and haulage. Depending on vein width, once the mineralized material has been extracted the walls have to be drilled and blasted in order to allow the minimum working width, especially for the loading equipment.

16.4.3 Conventional cut-and-fill

Conventional mining is performed using handheld drilling equipment (jacklegs) and scrapers for loading. The ore haulage is done with trucks and the support is applied with rock bolts in manual form. This system is applied in narrow veins with average widths between 0.5 m and 0.8 m. This mining method is only applicable to the Bateas, La Plata, Cimoide La Plata and San Cristobal veins that are scheduled for mining in the final years of the LOM.

16.4.4 Sublevel Longhole Stoping (SLS)

The SLS mining method, specifically the Avoca method, will be implemented in early 2024. A trial test was conducted between June and September 2023, during which operational parameters and cost projections were established. This mining method is considered for veins in competent rock quality in RMR >=41 with widths ranging from 0.8 m to 3 m and a mining bench of 13.5 m height, initially focused on the Cimoide ASNE vein that is scheduled for mining for 2024.

The mining production period extends from 2024 to 2028, almost five years. At full production the planned mining rate is 1,500 tpd approximately (540,000 tonnes per year). Planned LOM production is 2.3 Mt at an average silver grade of 83 g/t, gold grade of 0.14 g/t, lead grade of 2.79 %, and zinc grade of 4.03 % (Table 16.2 and Table 16.3).

Table 16.2 Caylloma life-of-mine production schedule by vein

Vein	2024	2025	2026	2027	2028	Total
Animas NE	516,000	488,000	459,000	447,000	86,000	1,999,000
Cimoide ASNE	28,000	55,000	27,000	19,000	0	129,000
Nancy	0	0	7,000	17,000	0	24,000
Animas	0	0	30,000	7,000	16,000	52,000
Soledad	0	0	12,000	13,000	0	26,000
Rosita	0	0	8,000	16,000	0	24,000
San Cristobal	0	0	0	15,000	0	15,000
Ramal Techo ASNE	0	0	0	5,000	0	5,000
La Plata	0	0	0	2,000	0	2,000
Cimoide La Plata	0	0	0	1,000	12,000	13,000
Total	**544,000**	**542,000**	**542,000**	**542,000**	**114,000**	**2,288,000**

Note: Totals may not add due to rounding

16.5 Mine production schedule

Measured and Indicated Mineral Resources were converted to Mineral Reserves and any Inferred Resources in the mine design considered as waste. Table 16.3 details the annual production plant feed and concentrate production for the Caylloma Mine.

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

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

Table 16.3 Caylloma life-of-mine production schedule

Type	Item	2024	2025	2026	2027	2028	Total
Treatment	Tonnes	544,000	542,000	542,000	542,000	114,000	**2,288,000**
	Ag (g/t)	64	54	60	125	86	**83**
	Au (g/t)	0.18	0.15	0.16	0.29	0.10	**0.13**
	Pb (%)	2.53	2.04	1.80	1.96	2.25	**2.78**
	Zn (%)	3.87	3.67	3.58	3.41	3.93	**4.04**
Metallurgical Recovery	Ag (%)	82	81	82	83	86	**82**
	Au (%)	17	18	25	18	55	**25**
	Pb (%)	90	88	88	89	88	**89**
	Zn (%)	89	88	89	89	88	**88**
Concentrate	Pb (t)	24,000	21,000	21,000	22,000	4,000	**92,000**
	Zn (t)	37,000	35,000	38,000	37,000	7,000	**154,000**
Recovered Metal	Ag (oz)	1,111,000	996,000	1,106,000	1,442,000	373,000	**5,027,000**
	Au (oz)	330	360	680	390	740	**2,510**
	Pb (t)	15,000	13,000	13,000	13,000	3,000	**56,000**
	Zn (t)	20,000	18,000	20,000	19,000	4,000	**81,000**

Note: Totals may not add due to rounding

The dilution factor applied varies according to the vein thickness and the proposed mining methodology. The average dilution factor by vein applied at the Caylloma Mine varies between 10 and 34 %. Waste material is considered to contain no mineralization.

16.5.1 Stope design

The exploitation infrastructure required to service mechanized mining is similar to that used to service semi-mechanized mining. This includes a center ramp connecting to sub level development running parallel to the vein. A crosscut from the sub level is developed to intersect the vein perpendicularly and allow exploitation. Each cross cut allows the exploitation of a 150 m long stope by mechanized mining or a 90 m long stope by semi-mechanized mining. Additionally, development may include raises used for ventilation, service systems or as ore passes adjacent to stopes.

Conventional mining requires less development. A center raise is driven in the vein to allow access for exploitation and extraction, giving access to a 60 m long stope (30 m each side of the raise). Two additional raises allow for access, ventilation and services.

Sublevel longhole stoping mining requires a production ramp (if it already exists), otherwise a central ramp to the footwall of the vein must be excavated. From there, parallel sublevels will be developed along the vein, and crosscuts will be prepared intersecting the vein perpendicular to create a gallery at the base of the stope and prepare draw points for ore extraction. Above at 13.5 m as bench or height, another gallery or sublevel is excavated in the direction of the vein, accessed through crosscuts spaced 100 m apart. Mining in retreat will be carried out from one of these crosscuts, while on the opposite side, will be used for rock filling, leaving a maximum opening of 20 m between the production side and the rock filling side as per geomechanical recommendations.

16.6 Underground mine model

16.6.1 Mine layout

The mine plan includes a program for mine development which can be divided into three types: 1) development, 2) stope preparation and 3) exploration. In order to produce 1,500 tpd, approximately 470 m of new development is required each month. Development includes infrastructure such as ore passes, ramps, bypasses, and ventilation raises; preparation consists of all workings for exploitation purposes; and mine exploration is to assist with the exploration of the veins.

16.6.2 Lateral development

A summary of the lateral development requirements for the life-of-mine are detailed in Table 16.4.

Table 16.4 Summary of lateral development requirements for LOM

Activity	2024	2025	2026	2027	2028	Total
Bypass (m)	596	475		186		1,256
Drift (m)	1,208	1,313	1,400	889		4,811
Gallery (m)	410	816	485	835	60	2,606
Crosscut (m)	28	51	5			84
Ramp (m)	729	1,054	1,145	1,246		4,173
Sub Level (m)	1,099	866	1,866	1,117		4,949
Stope access (m)	1,224	1,235	1,206	948		4,613
Total (m)	**5,293**	**5,811**	**6,107**	**5,221**	**60**	**22,492**

Lateral development totals 22,492 m, equivalent to a development ratio of 120 t/m.

16.6.3 Raising requirements

Table 16.5 is a summary of LOM raising requirements. With vertical development totaling 4,170 m, all being ventilation raises.

Table 16.5 Summary of vertical development requirements for LOM

Activity	2024	2025	2026	2027	2028	Total
Vent. raises (m)	225	230	691	1,485	89	2,720
Raise borer (m)	175	939	182	155		1,451
Total	**401**	**1,169**	**872**	**1,639**	**89**	**4,170**

16.7 Development schedule

Development advance rates have been planned to take into account potential bottlenecks such as available ventilation, capacity to move muck, congestion in the main ramp, and the availability of trained operating and maintenance crews. Development meters required for production per year, in accordance with the production schedule is detailed in Table 16.6.

Table 16.6 LOM development schedule

Vein	Type	2024	2025	2026	2027	2028	Total
Animas	Horizontal (m)	2,612	2,258	3,430	1,543	0	9,842
	Incline (m)	1,648	1,472	2,278	1,240	0	6,638
	Vertical (m)	356	941	602	338	0	2,236
	Total (m)	**4,616**	**4,670**	**6,310**	**3,121**	**0**	**18,717**
Cimoide ASNE	Horizontal (m)	470	1,113	236	0	0	1,819
	Incline (m)	562	968	73	0	0	1,603
	Vertical (m)	45	228	30	0	0	303
	Total (m)	**1,077**	**2,309**	**339**	**0**	**0**	**3,726**
Cimoide La Plata	Horizontal (m)	0	0	0	415	60	475
	Incline (m)	0	0	0	415	0	415
	Vertical (m)	0	0	0	554	89	643
	Total (m)	**0**	**0**	**0**	**1,385**	**149**	**1,534**
Ramal Techo ASNE	Horizontal (m)	0	0	0	252	0	252
	Incline (m)	0	0	0	319	0	319
	Vertical (m)	0	0	0	0	0	0
	Total (m)	**0**	**0**	**0**	**571**	**0**	**571**
San Cristobal	Horizontal (m)	0	0	0	54	0	54
	Incline (m)	0	0	0	0	0	0
	Vertical (m)	0	0	0	325	0	325
	Total (m)	**0**	**0**	**0**	**379**	**0**	**379**
Soledad	Horizontal (m)	0	0	91	700	0	791
	Incline (m)	0	0	0	283	0	283
	Vertical (m)	0	0	240	422	0	662
	Total (m)	**0**	**0**	**331**	**1,405**	**0**	**1,736**
Total all veins (m)		**5,694**	**6,980**	**6,979**	**6,861**	**149**	**26,662**

16.8 Equipment, manpower, services, and infrastructure

16.8.1 Contractor development

The underground mine is operated by a mining contractor selected by Bateas based on a competitive bidding process. The scope of work for the mining contractor generally includes mine decline and raise development, stope preparation development, stoping, backfilling, and all related services required for the operation of a 1,500 tpd narrow vein silver-gold-lead-zinc mine.

16.8.2 Mining equipment

Table 16.7 shows Bateas' estimate of the mining fleet required to execute the mine plan including the supporting surface units. The maximum number of units is shown for each equipment type, as actual equipment requirements vary throughout the mine life.

Replacement equipment required during the mine life is not included in the list shown.

Table 16.7 Planned mining equipment

Equipment	Quantity	Type	Model	Capacity
Scoop	5	Caterpillar	R1300 LHD	4.2 yd^3
Scoop	2	Caterpillar	R1600	6.0 yd^3
Jumbo	3	Sandvik	DD311	1 arm
Jumbo	2	Sandvik	DD210	1 arm
Truck	9	Volvo	FMX500	15 m^3
Tractor	1	Caterpillar	962L	5.0 yd^3
Excavator	1	Caterpillar	329DL	2.4 m^3
Front-end loader	2	Komatsu	WA430-6	4.3 yd^3
Mixer	2	Putzmeister	Mixcret 4	4 m^3
Mixer	1	Putzmeister	Mixcret 4	4 m^3
Concrete sprayer	2	Putzmeister	SPM 4210	250 l
Scaler	2	Paus	852	n/a
Telehandler	2	ALO LIFT	FR02	n/a
Bolter	2	Resemin	Bolter 99	n/a
Bolter	1	Resemin	Small Bolter	n/a
Loader	1	CAT	246D	n/a

16.8.3 Mine manpower

Bateas estimates a total of 1,126 employees are required for mine-related activities in 2023, consisting of 746 contractors and 380 Bateas staff. The operating costs for the LOM are based on maintaining similar staffing numbers, although Fortuna has identified an opportunity to potentially reduce numbers in future years.

16.8.4 Production drilling

Mechanized

For mechanized drilling, Bateas uses a jumbo drilling machine, with the drilling taking place on horizontal benches (breasting) with an average advance of 2.8 m and vertical average advance of 2.5 m. The minimum mining width varies according to the thickness of the vein. Production starts from the lower level and proceeds to higher levels of the stope by leaving an intermediate 3 m crown pillar between stopes for safe operating conditions.

The production drill holes for breasting and vertical drilling use drill pipe of 10 ft length and drill bits of 51 mm and 45 mm.

The drilling pattern varies according to the hardness of the rock and type of cut.

Semi-mechanized

For semi-mechanized drilling, Bateas uses handheld drilling equipment (jacklegs). Similar to the mechanized drilling, the drilling takes place on horizontal benches (breasting) with average advances of 2.3 m and vertical advances averaging 1.8 m. The minimum mining width varies according to the thickness of the vein. Production starts from the lower level and proceeds to higher levels of the stope by leaving an intermediate 3 m crown pillar between stopes for safe operating conditions.

The production drill holes for breasting and vertical drilling use drill pipes of 8 and 6 ft lengths and drill bits of 41 mm.

The drilling pattern varies according to the hardness of the rock and type of cut.

Conventional

For conventional drilling, Bateas uses handheld drilling equipment (jacklegs). The drilling takes place with vertical advances averaging 1.6 m. The minimum mining width varies according to the thickness of the vein. Production starts from the lower level and proceeds to higher levels of the stope by leaving intermediate 3 m crown pillar between stopes for safe operating conditions.

Production drill holes for vertical drilling use drill pipes of 4 and 6 ft lengths and drill bits of 41 mm.

The drilling pattern varies according to the hardness of the rock and type of cut.

Sublevel longhole stoping

For longhole drilling, the use of a Simba equipment for vertical drilling is considered, with a burden of 0.7 m and a spacing of 0.8 m for the blast pattern, with a 5° inclination towards the free face.

The consideration of minimum vein width is 0.8 m of which an additional 0.8 m waste skin is added between the hanging wall and footwall to be able to extract a mining block no smaller than 1.6 m of mining width. The mineral extraction draw points will be at the lower gallery along the structure in the opposite direction to the mining and rock filling will be located 100m away from the extraction area.

The vertical drilling length (bench) is considered to be 13.2 m with a drill diameter of 64 mm.

16.8.5 Ore and waste handling

A combination of 4.2-yard load-haul-dump (LHD) units and 25 t trucks were selected as being the most economical option for ore and waste haulage. Broken ore from the stopes is mucked by LHDs to an ore pass or loaded directly into the 25 t trucks. Waste rock from development headings is mucked by LHDs directly to the trucks or to local waste storage areas. The waste rock is then hauled by truck to the surface storage facilities where it is classified and trucked to the hydraulic backfill plant.

16.8.6 Mine ventilation

The estimated air flow required for the Animas underground mine is 345,100 cfm for a production rate of 1,500 tpd based on the utilization of the planned mining equipment.

Air intake is through the RB 509 N and the main access ramp for levels 7 (NE), 8, 9 and 12 which represents an estimated 356,855 cfm.

Ventilation is controlled by three main fans (two of 120,000 cfm and two of 100,000 cfm) that draw in contaminated air from the underground levels, stopes, galleries, and raises and expels the air at surface.

Stopes in operation are ventilated via auxiliary fans (20,000 to 40,000 cfm) that move fresh air from the ramps with ducting along the level access crosscuts and along the vein to active work areas.

16.8.7 Backfill

Backfill required by the mine to complete the mining sequence is provided by waste rock and classified mill tailings. While waste rock backfill is generated by underground development, the quantity produced is generally insufficient to meet mine backfill requirements. To supplement the waste rock from development activities, classified mill tailings or hydraulic backfill is produced by a small plant on the surface. The proportion of waste and hydraulic backfill is 30 % and 70 %, respectively. The total volume of backfill required by the mine is estimated to be 190,000 m^3 per annum.

The construction of a new hydraulic fill pumping system is planned for the first quarter of 2024, with the goal of eliminating hydraulic backfill transportation through trucks, optimizing their operation, reducing dust generation, and being cost-effective. The project would commence operations in the fourth quarter of 2024. The hydraulic backfill system has a processing capacity of 224 m3/h using tailings with 23.4% solids and operates 24 hours a day to produce 31 m3/h of hydraulic backfill.

16.8.8 Mine dewatering system

The underground mine dewatering system has been designed to handle an estimated peak rate of 200 l/s. A new water pumping system is under construction, with a capacity of 225 l/s at level 17 to pump water from the deepest areas of the mine. The project is planned to be completed in January 2024 with testing and commissioning in February 2024.

The dewatering of the Animas vein is primarily through a series of sumps using pumps of 150 HP at auxiliary sumps and 450 HP pumps at the principal sumps located in the following stations:

- Auxiliary station sump at level 16, with one 150 HP pump with a flow rate of 30 l/s to 40 l/s of capacity
- Main station sump at Animas level 15 has two submersible pumps capable of handling up to 200 l/s. From level 15, water is pumped through the sediment's sumps located at level 12 (CAM 383).
- After undergoing treatment in CAM 383 (flocculation and coagulation), the mine water exits to the surface through the ditch channel.

On the surface, mine water undergoes additional treatment to avoid any environmental contamination prior to being discharged.

16.8.9 Maintenance facilities

Maintenance facilities for the underground mobile fleet consist of a surface maintenance shop for major failures of the equipment and two underground workshops for minor repairs and lubrication performed as part of the preventive maintenance program. An underground workstation was implemented in 2019 on level 14 of the Animas vein.

16.8.10 Electrical power distribution

Power to support the mine infrastructure is provided from the main site electrical substation via two lines of 15-kV connected to the national power grid line from Callalli via a 66-kV line. Bateas signed a contract with distribution company Statkraft for the electricity supplied.

Electrical energy requirements for the Bateas operation are as follows; plant concentrator 3,200 kilowatts; mine 3,900 kilowatts; and general services and camp 700 kilowatts, with a total of 34 electrical substations for mine and 21 electrical substations for surface areas.

Primary line

Bateas has two overhead 15 kV transmission lines, one of which is projected for 22.9kV from the Caylloma substation to the onsite substation located at the power distribution room.

Secondary line

The main onsite substation distributes electrical power to the main operational centers via overhead 15 kV lines to:

- Plant concentrator.
- Mine.
- Bateas camp.

There are three principal substations located on the surface, Substation N° 15, Substation No. 29, and Substation No. 37 that reduce electrical voltage from 15 kV to 4.16 kV and 3.2 kV and distribute electric power to production and mine development activities. With 31 additional substations, reducing voltage from 4.16 kV and 3.2 kV to 0.44 kV, are located on levels 10, 12, 14, 15, 16 and 17 of the mine, and distribute electric power to mine equipment such as fans, jumbos, and pumps. Substation No. 8, located on surface, distributes electric power with an overhead of 3.2 kV, via a transformer, to distribute 440 and 220 V electricity to the camp and administrative areas.

In addition, Bateas maintains three backup power sources to generate electric power by using diesel power generation to cover the Animas demand for ventilation and water pumps on the 13, 14, 15, 16. 17 and 18 levels as detailed below:

- GE05: Caterpillar, 6HN00653 of 2 MW (installed power), 1,200 kW (effective power).
- GE06: Caterpillar, 6HN00726 of 2 MW (installed power), 1,200 kW (effective power).
- GE03: Cummins GEC15 of 800 kW (installed power), and 600 kW (effective power).

16.8.11 Other services

Compressed air supply

Average compressed air consumption during mine production is estimated at approximately 1,000 cfm. The compressed air is supplied from the surface by air compressors (one electric and two diesel powered). These provide compressed air of

110 psi for the development and mining activities. Compressed air is used mainly to launch shotcrete to the working areas, for the jackleg drills to excavate raises and for loading explosives into the drillholes.

16.9 Comments on Section 16

The QP is of the opinion that:

- The mining methods being used are appropriate for the deposit being mined. The underground mine design, tailings facility design, and equipment fleet selection are appropriate to reach production targets.
- The mine plan is based on historically successful mining philosophy and planning and presents low risk.
- Inferred Resources are regarded as waste in the mine plan.
- Mining equipment requirements are based on actual operational conditions experienced at the Caylloma Mine producing 1,500 tpd.
- All mine infrastructure and supporting facilities meet the needs of the current mine plan and production rate with new infrastructure, such as underground workshops, being constructed as required.

17 Recovery Methods

17.1 Processing plant design

The Bateas processing plant is a typical flotation operation and consists of five stages: crushing; milling; flotation; thickening and filtering and tailings disposal. Each of the main stages is comprised of multiple sub-stages. A summary of each stage is as follows:

- **Crushing**: includes three stages, primary, secondary, and tertiary.
- **Milling**: includes two stages, primary and secondary.
- **Flotation**: consists of two operating flotation circuits (lead–silver, and zinc) and one copper flotation circuit on standby.
- **Thickening and filtering** are performed separately for the concentrates, which after filtering undergo a drying process before being placed in their respective storage bins to await transportation.
- **Tailings disposal**: Final tailings are classified through cyclones. The coarse fraction (underflow) is placed onto a concrete pad and transported to the mine to be used as hydraulic fill. The finer fraction (overflow) is pumped to the tailing's storage facility.

The Caylloma concentrator plant resumed operations in October 2006, treating 600 tpd of polymetallic mineral. Capacity increased progressively. With the installation of a 1.8 m by 2.4 m ball mill in 2009 the plant reached a treatment capacity of 1,300 tpd, and with the installation of two Derrick Stack Sizer vibrating wet screens the plant achieved a treatment capacity of 1,500 tpd at the end of March 2016. The treatment process is differential flotation. Initially, two concentrates were obtained: lead–silver and zinc. From late 2009 to January 2011, a copper–silver concentrate was also produced, but due to unfavorable commercial terms the production of copper concentrate was suspended, and the copper circuit put on standby.

17.1.1 Crushing and milling circuits

The crushing and milling circuits are shown in Figure 17.1. The crushing process is fed from the 10,000 t capacity stockpile used for ore storage and blending. The process commences with feed to the coarse hopper, which has a 450 t active capacity with 30 cm separation grates. The mineral is extracted from the coarse hopper through the apron feeder that feeds the vibrating grizzly with variable separation that, in turn, feeds the Kurimoto jaw crusher, resulting in a product size varying between 76 mm and 90 mm. The mineral is transported on two conveyor belts to the two-deck vibrating 6 by 14-foot (1.82 x 4.27 m) screen. The screen's undersize (100% -¾") is fed to the stockpile via conveyer belts with the oversize going to a Sandvik CH-420 secondary crusher, the product of which goes to the two-deck vibrating 5 by 14 foot (1.52 x 4.27 m) screen, the undersize of this screen feeds the stockpile. The oversize is fed through a conveyor belt to the Sandvik CH-430 tertiary crusher, the discharge of which returns to the initial conveyer belt, closing the circuit. The actual capacity of this circuit is 1800 tpd.

Figure 17.1 Crushing and milling circuits at the Caylloma processing plant

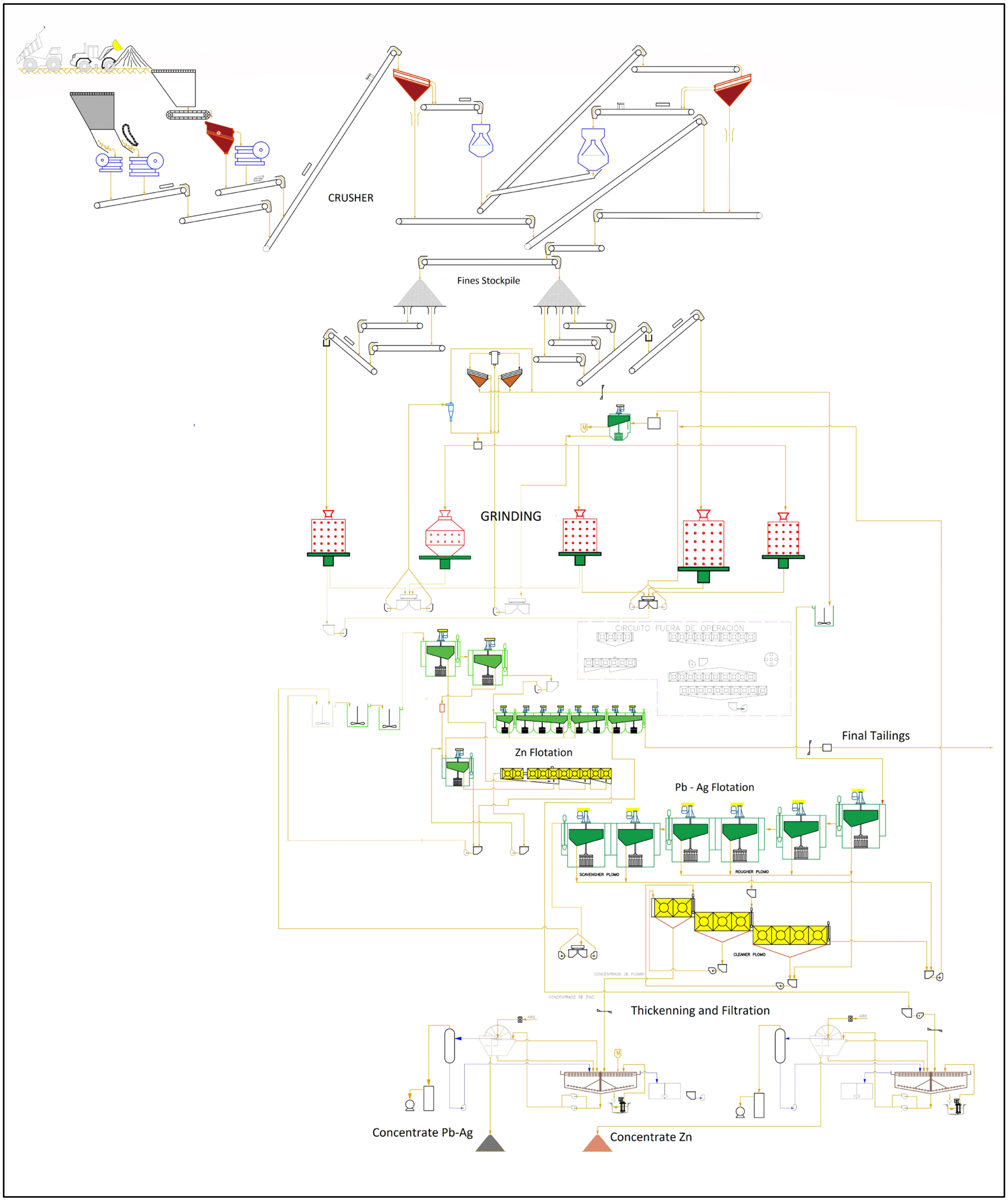


Figure prepared by Bateas, 2023

Additionally, there is a standby primary crushing circuit that starts at a 100 t capacity coarse hopper. From the hopper, the mineral is fed to a Kueken 24 by 36-inch (0.6 x 0.9 m) jaw crusher through a Ross chain feeder. The discharge from this crusher is transported via conveyors 19 and 20 to conveyor 2-A. There are three permanent magnets and one electromagnet on the conveyors to prevent the entry of tramp iron.

The grinding circuit has two stages. The primary stage operates in an open circuit, consisting of two ball mills (Comesa 2.4 m by 3.0 m and a Denver 2.1 m by 2.1 m). The secondary stage operates in closed circuit and consists of three ball mills, a Magensa 1.8 m by 1.8 m, a Hardinge 2.4 m by 0.9 m and a Liberty 1.8 m by 2.4 m. The final product of the grinding circuit is 55 % passing 130 µm.

The Comesa and Denver primary grinding mills are fed independently by conveyor belts. The discharge from the Comesa mill and the Denver Mill feeds a flash cell (SK 240) and the concentrate from the flash cell is sent to the lead thickener. Tailings are fed to a 6 by 6-inch (15 x 15 cm) horizontal pump which in turn feeds the Derrick Stack Sizer. The undersize goes to the flotation circuit and the oversize feeds the three secondary ball mills.

The discharge from the Hardinge and Magensa mills feeds a 6 by 4 inch (15 x 10 cm) horizontal pump, which in turn feeds the D-15 cyclone. The fine product from the cyclone passes to the flotation circuit and the coarse product returns to the three secondary ball mills. The discharge from the Liberty mill also feeds the flash cell (SK240).

17.2 Metallurgical treatment

Metallurgical treatment is through a process of differential flotation; the first step is the flotation of lead–silver followed by zinc flotation.

17.2.1 Lead-silver flotation circuit

The D-15 cyclone overflow and the Derrick Stack Sizers undersize are fed to a 10 m^3 conditioner before going to the TC-20-unit cell of 20 m^3 capacity. The unit cell tailings are fed to three TC-20 rougher cells. The unit cell concentrate together with the rougher concentrate are fed to the primary cleaner cells, consisting of four 3 m^3 OK-3 cells. The primary cleaner concentrate is fed to the secondary cleaner cells, consisting of three 3 m^3 OK-3 cells. The secondary cleaner concentrate is fed to the tertiary cleaner cells, consisting of two 3 m^3 OK-3 cells. Concentrate from the tertiary cleaner forms the final lead-silver concentrate. Tailings from the secondary and tertiary cleaner cells return to the head of the primary and secondary cleaner cells, respectively.

The rougher tailings feed the scavenger flotation bank, consisting of two TC-20 cells. The scavenger concentrate, as well as the primary cleaner tailings are pumped to join the Derrick Stack Sizers with oversize returning to the secondary grinding circuit. The scavenger tailings feed the zinc flotation circuit.

17.2.2 Zinc flotation circuit

The lead-silver flotation tailings are sent to three conditioners (two 10 m^3 and one 22 m^3). The conditioned pulp is fed to the zinc rougher flotation stage, consisting of two RCS 20 cells of 20 m^3 and six 8 m^3 OK8U cells working in series. The rougher concentrate is fed to the cleaner flotation circuit, comprised of four stages consisting of an RCS 10 cell of 10 m^3 and five, three and two 2.8 m^3 Sub-A30 cells for the primary, secondary and tertiary cleaner stages respectively. These stages work in series, the concentrate from the primary cleaner feeds the secondary cleaner, the secondary concentrate feeds the tertiary cleaner and the concentrate from this, feeds the fourth cleaning stage. The concentrate from the latter is the final product from the zinc flotation circuit. The zinc concentrate goes through an automatic sampler and is then sent to the zinc thickener.

The rougher tailings feed the scavenger flotation circuit that is comprised of two 8 m^3 OK8U cells. The scavenger concentrate is sent to a conditioner before returning it to the rougher circuit. The scavenger tailings are the final tailings of the whole process.

The flotation process in 2022 achieved metallurgical recoveries of 81.34 % for silver, 31.78 % for gold, 87.83 % for lead, and 88.75 % for zinc. Metallurgical recoveries of lead and zinc are affected due to the increase in treatment of the oxidized ore to 11% due to its higher gold head grade. Historical data show consistent achievable metallurgical recoveries of 90 % for lead, 81 % for silver (in the lead concentrate) and 88 % for zinc.

17.2.3 Concentrates thickening and filtration

The lead–silver concentrate is thickened in an Outotec 9.0 m diameter thickener; the underflow is pumped to a 1.8 m diameter disc filter (six discs). The filtered lead concentrate contains on average 7.5 % moisture.

The zinc concentrate is thickened in an Outotec 12.0 m diameter thickener; the underflow is pumped to a 1.8 m diameter disc filter (eight discs). The filtered zinc concentrate contains on average 9.0 % moisture.

Each filtered concentrate is discharged into a covered temporary storage area from where it is loaded by a front-end loader into trucks for transport to the concentrate purchaser's storage facilities in Matarani, Arequipa for the zinc concentrate and Callao, Lima for the lead-silver concentrate.

17.2.4 Tailings disposal

Tailings from the concentration process are pumped and classified through cyclones. The underflow is accumulated in a temporary storage area for later transportation to the mine as hydraulic backfill. Approximately 40 % of the tailings are used as backfill material in the mine.

The overflow is pumped to the tailing's facility for final disposal. The water collected from the tailing's impoundment is pumped back to the processing plant and reused in the process. Usage of the new tailing's storage facility (N° 3) commenced in January 2013, with the capacity increased to 921,000 m^3 in January 2022 (sufficient to handle tailings for 4 years at current production levels) with a further expansion planned in 2025.

17.3 Requirements for energy, water, and process materials

Electric power requirements are supplied through the Callalli substation from the national grid. The whole operation requires 7.8 MW of energy including 3.2 MW required by the processing plant. The operation also keeps two diesel generators on site as a backup power supply in case of emergencies.

The processing plant water consumption is 2.45 m^3/t. Approximately 74 % (1.82 m^3/t) is recovered from the tailings facility and pumped back to the plant to be re-used in the process along with 26 % (0.63 m^3/t) fresh water.

All process materials are available from Arequipa and Lima. Reagents are provided from local service representatives representing international reagent suppliers. Reagents and consumables used in the processing include sodium cyanide (10 g/t), copper sulphate

(239 g/t), zinc sulfate (954 g/t), xantato Z-11 (6 g/t), xantato Z-6 (16 g/t), calcium oxide (483 g/t), foaming agent MC 5 (94 g/t), steel balls (720 g/t).

17.4 Comment on Section 17

The QP considers process requirements to be well understood, and consistent based on the actual observed conditions in the operating plant. There is no indication that the characteristics of the material being mined will change, with the expectation of the high zinc oxide material that has been accounted for, and therefore the recovery assumptions applied for future mining are considered as reasonable for the LOM. The plant is of a conventional design and uses conventional consumables.

18 Project Infrastructure

18.1 Overview

The Caylloma Mine has a well-established infrastructure used to sustain the operation. The infrastructure includes a main access road from the city of Arequipa, mine access roads, tailing storage facilities, mine waste storage facilities, mine ore stockpiles, camp facilities, concentrate transportation, power generation, communications systems, concentrate production and transportation (Figure 18.1).

Figure 18.1 Plan view of mine infrastructure

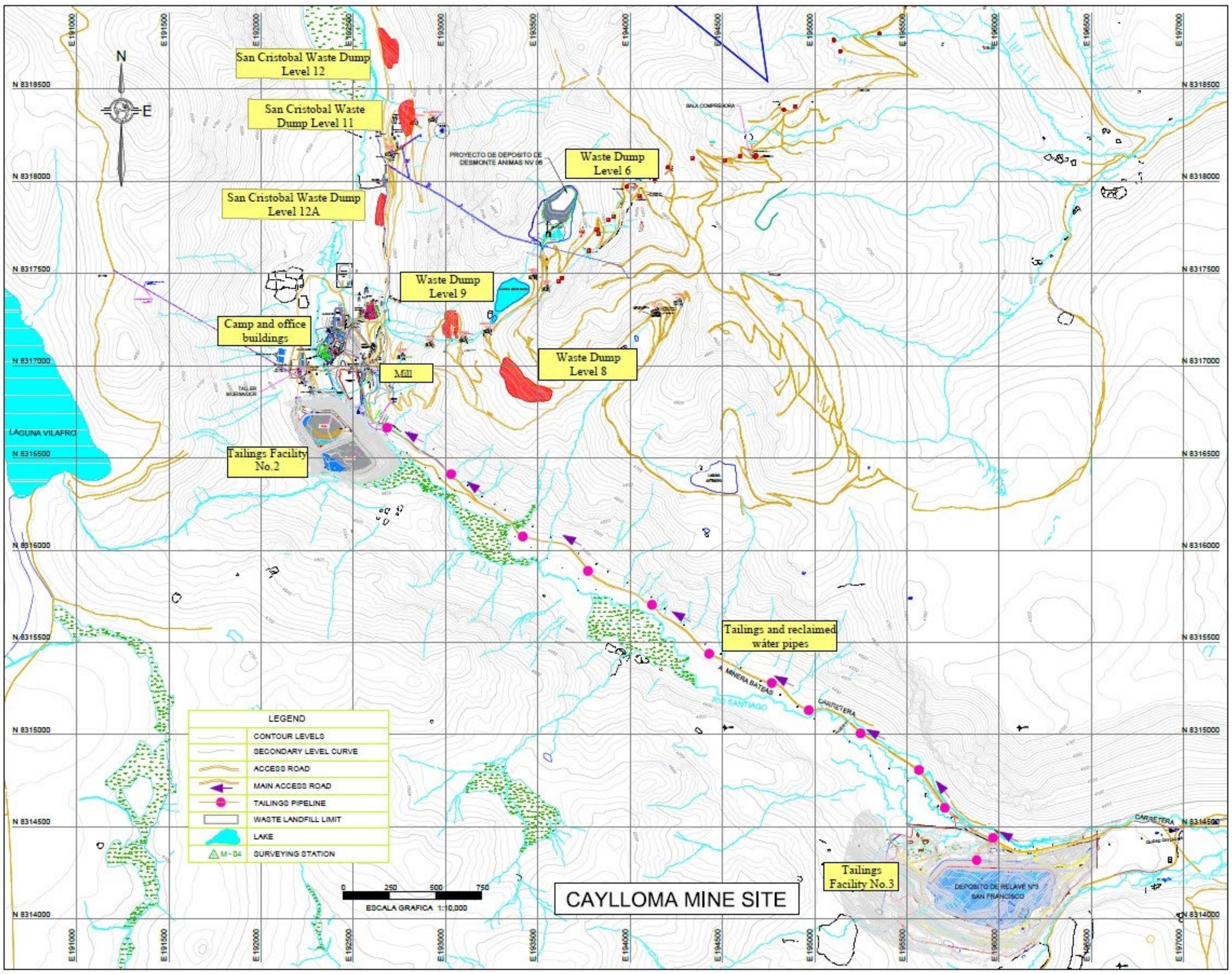


Figure prepared by Bateas, 2023

18.2 Roads

Roads on the property are shown in Figure 18.1. Access roads are unpaved but are in good condition due to regular maintenance. Water tankers are used in summer to dampen the roads to reduce dust pollution. Roads interconnect all the facilities on the property and allow access through various portals to the underground operations.

18.3 Tailing storage facilities

The mine currently operates two tailings storage facilities, TSF N° 3 and TSF N° 2 as a contingency.

The TSF N° 3 operation permit was issued by the Ministry of Energy and Mines in December 2012. Based on the 2019 plant treatment capacity of 1,500 tpd and mine backfill demand, the second stage facility (2A) completed in January 2019, with a tailing's embankment elevation of 4,419.5 masl, provided an additional capacity of three and a half years till mid-2022 (4,423.5 masl). The stage (2B) was constructed and provides capacity until the end of 2026, based on current production rates. Detailed engineering studies are in progress for the third expansion of stage (3C) which is going to cover tailings capacity for LOM requirements.

The south embankment of TSF N° 2 (4,474 masl) provides a small additional capacity (two months) as a contingency plan for tailings storage. TSF N° 2 is currently used as a cyclone (tailings classification) processing location. Coarse tailings (40% by volume) are sent back to the mine as mine backfill. The remainder of the tailings (finer overflow) is pumped to TSF N° 3.

18.4 Mine waste stockpiles

The mine currently operates a single waste stockpile, Bateas Level 12, which is used for storing waste material that could not be effectively disposed of underground. The waste stockpile capacity on Level 12 is sufficient until mid-2024 and the potential for expansion is being evaluated. Bateas has also obtained a permit for a new underground waste storage facility located at Animas Level 6 with an additional storage capacity of 18 months that has been prepared for usage when the waste stockpile at Level 12 reaches full capacity. Beyond this an internal study on waste management has identified Level 8 of the Animas vein as the best location for storing waste beyond 2025. A detailed engineering study to establish exact designs and construction costs is planned for late 2024, with estimated construction costs budgeted in the LOM plan.

18.5 Ore stockpiles

The mine currently has four ore stockpiles which store mine production of oversized, low grade and already crushed ore. The total stockpile capacity is approximately 60,000 t. The total stockpile tonnage as of December 31, 2023, was 29,521 t.

18.6 Concentrate production and transportation

In March 2015, the processing capacity was increased from 1,300 to 1,500 tpd by improving the grinding and flotation circuits. Concentrate transportation is carried out using 30 tonne capacity trucks. Before the trucks depart camp, they are weighed at the truck scale. In 2018, two RCS 20 cells of 20 m^3 and one RCS 10 cell of 10 m^3 were installed in the Zn circuit to improve the quality of the Zinc concentrate. The LOM is based on this 1,500 tpd capacity.

Concentrate transportation is carried out using 30 t capacity trucks. Before the trucks depart the camp, they are weighted at the truck scale. All trucks are systematically registered and controlled to ensure that the delivered concentrate weight at the storage port reconciles with the weight recorded when leaving the mine.

18.7 Power generation

The power demand on the whole operations is 3.9 MW on average, power supply is obtained mainly (87 %) through the national power grid. The mine site also maintains two diesel generators on site with a total capacity of 2 MW to cover the shortage (13 %) and also as backup.

In January 2016, Bateas increased the power supply capacity from 3.2 MW to 6.8 MW including a new 15kV power line and the installation of a new 7.5 MVA transformer to replace the 3.75 MVA transformer at the Caylloma substation. Currently, the power demand of the operation is slightly higher than the capacity of the transformer, this deficit is compensated for by the diesel generators.

Maximum power demand required is 7.8 MW, distributed for the Plant: 2.3 MW; for the Mine: 3.9 MW, and for the camp: 0.70 MW.

Additional information on power is provided in Section 16.8.10.

18.8 Communications systems

The Caylloma Mine site is equipped with cellular phones and internet connections provided by local suppliers. The cellular phone signal is delivered through optic fiber and an antenna located on the mine site; the signal is 4G with a coverage range of 3 km. The internet signal is provided through two main connections: the primary connection is delivered via optic fiber from Arequipa to Talta Site and the Caylloma Mine, with a bandwidth of 100 MB. The contingency connection is provided by Starlink through satellite, with a bandwidth of 100 MB. Along with the internet signal, the camp also has a landline telephone service and data link.

The communication system for the underground was implemented through a WiFi signal and a Push-to-Talk platform over cellular networks. This platform is managed in the cloud, and the communication system is digital, allowing connection to devices like pump sensors, weather sensors, fan sensors, etc.

18.9 Water supply

The fresh water supply for the Caylloma Mine is provided by the Santiago River which runs through the property. The permanent water permit was granted by the Ministry of Autoridad Nacional de Agua. Currently, the freshwater demand is 60 liters per second, including 10 liters per second for the camp.

Approximately 70 % of the processing plant total water consumption is recovered from the TSF N° 3 and pumped back to the plant for reuse in the process along with 30 % of fresh water.

18.10 Comments on Section 18

The majority of the infrastructure required to support the LOM plan is in place and is operational. Bateas is in the process of permitting a new underground waste storage facility. Increases in the capacity of the tailing's storage facility are in progress to support the LOM plan.

19 Market Studies and Contracts

19.1 Market studies

The Caylloma Mine is an operational mine with concentrate sales contracts in place for 2024. As a result, market studies are not relevant to the operation.

Bateas signed contracts with Trafigura Peru S.A.C. (Trafigura) for 2024 to supply lead and zinc concentrates. Contracts have been made with Trafigura to provide 26,000 wet tonnes of lead concentrate and 40,700 wet tonnes of zinc concentrate. The concentrate quantities represent the estimated production of the Caylloma Mine for 2024, with addendums to the contracts in case the quantities vary during the year. These contracts are reviewed annually and signed before the end of each year for the upcoming year.

Commercial terms used in projecting the NSR value and cut-off grade determination are based on 2023 contracts, with the application of average penalties from contracts signed by the operation over the previous 5 years, to remove short term variations. The contract terms signed for 2024 are not materially different to those signed for 2023.

Projected metal prices used in the LOM and economic analysis are based on consensus estimates from multiple financial institutions on price behavior over the next 3 years and 10-year historical prices.

Commercial terms entered between the buyer and Bateas are regarded as confidential but are considered to be within standard industry norms.

19.2 Commodity price projections

The Fortuna financial department provides Bateas with metal price projections to be used in their analysis and as used in the Report. Fortuna established the pricing using a consensus approach based on long-term analyst and bank forecasts prepared in May 2023.

Mr. Espinoza and Mr. Chapman have reviewed the key input information and consider that the data reflects a range of analyst predictions that are consistent with those used by industry peers. Based on these sources, price projections are considered acceptable as long-term consensus prices for use in mine planning and financial analyses for the Caylloma Mine in the context of this Report.

The long-term price forecasts that have been used in the estimation of Mineral Reserves and Mineral Resources at the Caylloma Mine are summarized in Table 19.1.

Table 19.1 Long-term concensus commodity price projections

Commodity	3 yr Projected (40% weight)	10 yr Historical (60% weight)	Weighted Average*
Silver (US$/oz)	24.0	19.1	21.0
Gold (US$/oz)	1,788	1,452	1,600
Lead (US$/t)	2,022	2,061	2,000
Zinc (US$/t)	2,780	2,557	2,600
*Rounded to two significant figures			

A long-term price estimate of US$21/oz for silver, US$1,600/oz for gold, US$2,000/t for lead and US$2,600/t for zinc has been applied, based on the mean 3-year projected consensus prices weighted at 40 % and the 10-year historical average weighted at 60 % and rounded to the nearest two significant figures.

Bateas has used a Peruvian nuevo sol exchange rate of 3.60 soles to the US dollar for financial analysis purposes, which conforms with general industry-consensus.

19.3 Contracts

19.3.1 Lead concentrate

Trafigura has stipulated the specifications for lead concentrate to be delivered from Bateas in 2024, which are regarded to be within standard industry norms.

All parameters in the lead concentrate were found to be at, or within, specification limits as of the effective date of this Report.

19.3.2 Zinc concentrate

Trafigura has stipulated the specifications for zinc concentrate to be delivered from Bateas in 2024, which are regarded to be within standard industry norms.

All parameters in the zinc concentrate were found to be at, or within, specification limits as of the effective date of this Report.

19.3.3 Operations

Bateas has eight major contracts for services relating to operations at the mine regarding mining activities, ground support, raise boring, drilling, transportation of personnel and concentrates, explosives and civil works. Contracts are negotiated and renewed as needed. Contract terms are typical of similar contracts in Peru with which Fortuna is familiar.

19.4 Comments on Section 19

The QPs have reviewed the information provided by Fortuna on marketing, contracts, metal price projections and exchange rate forecasts, and note that the information provided is consistent with the source documents used, and that the information is consistent with what is publicly available on industry norms. The information can be used in mine planning and financial analyses for the Caylloma Mine in the context of this Report.

Long-term metal price assumptions used in the Report are based on a consensus of price forecasts for those metals estimated by numerous analysts and major banks. The analyst and bank forecasts are based on many factors that include historical experience, current spot prices, expectations of future market supply, and perceived demand. Over a number of years, the actual metal prices can change, either positively or negatively, from what was earlier predicted. If the assumed long-term metal prices are not realized, this could have a negative impact on the operation's financial outcome. At the same time, higher than predicted metal prices could have a positive impact.

20 Environmental Studies, Permitting and Social or Community Impact

Information included in the following section is partially sourced from the Environmental Impact Assessment (EIA) report prepared by the consulting firm Asesores y Consultores Mineros S.A. (2011) and its subsequent updates submitted in 2013, 2017 and 2021 to the Ministry of Energy and Mines (MEM).

20.1 Regulation and permitting

In June 1997, the Ministry of Mines approved the Environmental Compliance and Management Program (PAMA) of the San Cristobal Economic Management Unit through Directorial Resolution N°. RD 087-97-97-EM/DGM, for compliance with the mining unit's environmental commitments.

In 2006, the PAMA identified a series of programs to be fulfilled for the operation to comply with norms and standards. The main projects foreseen in the PAMA program were the construction of a retaining wall and vegetation for TSF No. 2, the construction of a retaining wall at the base of tailings N°. 3, as well as the monitoring and treatment of mine wastewater.

The mine closure plan was approved by Executive Resolution N°. 365-2009-MEM/AAM dated November 13, 2009. On November 12, 2012, Bateas submitted a request to modify and update the mine closure plan in accordance with the mine closure regulations.

By Directorial Resolution 173-2011-MEM/AAM dated June 8, 2011, the Environmental Impact Study for the "Expansion of the Huayllacho Mine and processing plant from 1,030 tpd to 1,500 tpd" was approved.

On December 20, 2012, the Ministry of Energy and Mines, through Resolution N°. 0274-2012 MEM/DG, authorized the use of Tailings Deposit N°. 3 Stage 1A for tailings disposal up to 4,410 masl.

The updated mine closure plan was approved by Resolution N°. 085-2013-MEM-AAM dated March 22, 2013.

On September 2, 2013 by Resolution N°. 459-2013-MEM/AAM. the modification of the Environmental Impact Study "Huayllacho Mine and processing plant expansion, primary power line project SE Caylloma-Bateas 15 kV" was approved.

On September 30, 2014 by Resolution N°. 492-3014-MEM-DGAAM. the modification of the monitoring program - Water Tailings Monitoring Point, TSF N°3 of the San Cristobal EAU was approved.

On January 13, 2014, the Ministry of Energy and Mines, through Resolution N° 0015-2014-MEM-DGM/V., approved the elevation of the south side (from 4,470 to 4,474 masl) of TSF N° 2, pending the elevation and operation of the north side of the facility.

On June 15, 2014, the Ministry of Energy and Mines, through Resolution No. 0216-2014-MEM-DGM_V, authorized the elevation and use of Tailings Deposit No. 3 Stage 1B up to 4,415 masl.

On July 3, 2015, the Ministry of Energy and Mines, through Resolution No. 0750-2015-MEM/DGM, approved Bateas' request to expand the "Huayllacho" concession area from 73.63 to 91.12 Ha to include some additional facilities.

On December 1, 2014, the Ministry of Energy and Mines, through Resolution 588-2014-MEM-DGAAM, approved the closure of 25 environmental mining liabilities from former operations located within Bateas' mining concessions.

On August 21, 2015, the Ministry of Energy and Mines, through Resolution No. 327-2015-MEM/AAM, approved the modification of the Mine Closure Plan requested by Bateas.

On April 8, 2015, the National Water Authority (ANA) through R. D. N° 0048-2015-ANA/AAA.XI-PA updated the surface water use authorization covering the operational surface water demand.

On March 28, 2017, through Directorial Resolution N° 092-2017 MEM-DGAAM, the second modification of the Mine Closure Plan was approved.

On June 14, 2017, through Directorial Resolution No. 172-2017 MEM-DGAAM, the second modification of the Environmental Impact Study was approved, for the Huayllacho Plant and Mine Expansion Project from 1,030 tpd to 1,500 tpd.

On December 19, 2017, through Directorial Resolution No. 355-2017 MEM-DGAAM, the modification of 9 components to the Mining Environmental Liabilities Closure Plan was approved.

On December 7, 2018, through Directorial Resolution No. 224-2018 MEM-DGAAM, the third modification to the Mine Closure Plan was approved.

On November 17, 2021, through Directorial Resolution N° 220-2021 MINEM-DGAAM, the second update of the Mine Closure Plan was approved.

20.1.1 Environmental legislation

The environmental legislation relevant to Bateas is as follows:

- Law N° 28245 - Framework Law of the National Environmental Management System and its respective regulation approved by D.S. 008-2005-PCM. The purpose of this Law is to ensure the most efficient compliance with the environmental objectives of public entities; strengthen intersectoral mechanisms in environmental management, the role of the National Environmental Council - CONAM, and the sectoral, regional and local entities in the exercise of their environmental competencies in order to ensure that they comply with their functions and prevent overlaps, omissions, duplicities, gaps or conflicts in the exercise of the same. Supreme Decree No. 040-2014-EM, which approves the Protection Regulation and Environmental Management for the Activities of Exploitation, Benefit, General Labor, Transportation and Mining Storage. The purpose of this regulation is to ensure that mining activities in the national territory are carried out safeguarding the constitutional right to enjoy a balanced and adequate environment for the development of life, within the framework of free private initiative and the sustainable use of natural resources.
- Law No. 27446 - Law of the Environmental Impact Assessment System and its respective amendments by D.L. No. 1078. The purpose of this Law is: a) The creation of the National System of Environmental Impact Assessment (SEIA), as a unique and coordinated system of identification, prevention, supervision, control and early correction of the negative environmental impacts derived from human action expressed through the investment project. b) The establishment of a uniform process that includes the requirements, stages and scope of the

environmental impact assessments of investment projects. c) The establishment of mechanisms that ensure citizen participation in the environmental impact assessment process.

Other environmental legislation related to Bateas:

- The operating permit for the treatment plant was granted by Resolution No. 102-80-EM/DCFM, dated July 7, 1980. The permit is permanent.
- Authorization for direct discharge of solid effluents was granted on June 25, 2004, by Resolution No. 0744-2004-DIGESA/SA and is permanent.
- Authorization for the use of gasoline and diesel storage tanks was registered by resolution CDFJ No.001-04-2004, dated May 26, 2006. It is of a permanent nature.
- Authorization for the development of thermoelectric generation activities with energy greater than 500 kW was granted by Ministry of Mines Decree No. 391-2005-MEM/DM, dated September 12, 2005. The permit is permanent. The Tax Stability Agreement was granted for a period of ten years in relation to the investment plan detailed in the technical and economic feasibility study (tax stability) by Executive Resolution N°370-2006 mina MEM-DGM, dated August 21, 2006.
- The authorization to restart activities at the wastewater treatment plant was granted by resolution No.1078-2006-MEM-DGM/V, dated September 6, 2006. The permit is permanent.
- Directorial Resolution No. 1035-2007/DIGESA/SA dated March 22, 2007, authorizes the use of a sanitary system for the treatment and land disposal of domestic wastewater, with permanent effect.
- Authorization of TSF No. 2 in accordance with the mine closure plan approved by Resolution No. 351-2010-MEM-DGM/V.
- Authorization for the operation of the Huayllacho beneficiation plant was granted by resolution of the Ministry of Mines PB-0015-2010/MEM-DGM-DTM, dated January 14, 2010. The permit is permanent.
- The authorization to operate the concentrator plant with an expanded capacity of 1,030 tpd was granted by resolution N° 007-2010-MEM-DGM-DGM/V, dated January 14, 2010. Authorization for the development of a 15 kV transmission was granted by the order of the Ministry of Mines N° 052-2010-EM, of August 21, 2010. The permit is permanent.
- Authorization for the operation of TSF No. 3 (Stage 1A, 4,410 masl). Approved by Resolution No. 0274-2012 MEM/DG, dated December 20, 2012.
- Certificate of Non-existence of Archaeological Remains of various components of the Caylloma mining unit, approved by CIRA N° 2012-172/MC, dated May 17, 2012.
- Authorization for the elevation of the embankment of TSF No. 2 (From 4,470 to 4,474 masl) approved by Resolution No. 306-2013 MEM-DGM/V, dated August 9, 2013.

- Authorization for the elevation of the embankment of Tailings Deposit N° 2 (south side). Approved by Resolution N° 0015-2014 -MEM-DGM/V, dated January 13, 2014.
- Authorization for the operation of Tailings Deposit No. 3 (Stage 1B, 4,415 masl). Approved by Resolution No. 0216-2014 MEM-DGM_V, dated June 15, 2014.
- Authorization for discharge of water effluent sampling point E-03. Approved by Resolution No. 040-2015-ANA-DGCRH, dated February 13, 2015. The authorization has subsequently been renewed twice, most recently by Resolution No. 106-2021-ANA-DCERH valid until February 22, 2023. The company has submitted the required documentation to the Ministry to renew the permit for a further six years which is pending approval. Prior to approval being obtained, the company is entitled to continue with its discharges.
- Authorization for the use of fresh (surface) water. Approved by ANA (National Water Authority) with Directorial Resolution No. 0048-2015 ANA/AAA.XI-PA, dated April 8, 2015.
- Renewal of the authorizations of water effluent discharge sampling points EF-3 and E-05. Approved by Resolution No. 123-2015-ANA-DGCRH, dated May 11, 2015. Authorizations have subsequently been renewed twice, most recently by Resolution No. 0203-2021-ANA-DCERH issued on November 23, 2021 and are valid until May 30, 2024. The Company intends to apply for renewals of the authorizations within the appropriate timeframe prior to the expiration of the current term.
- Authorization for the construction and operation for the processing plant with increased capacity to 1,500 tpd. Approved by Resolution No. 0539-2015-MEM-DGM/V, dated November 4, 2015.
- Renewal of authorization of ANFO magazine by Resolution N°. 00614-2016-SUCAMEC/GEP, dated March 21, 2016. An updated resolution was approved in 2023.
- Renewal of authorization of water effluent sampling points E-04, E-08 and E-12. Approved by Resolution No. 083-2016-ANA-DGCRH, dated April 25, 2016. The authorizations were valid for four years and were renewed by Resolution No. 009-2020-ANA -DCERH until October 2021. An application to extend the authorizations was rejected as was the Company's subsequent appeal in November 2023. The Company may no longer discharge water effluents at points E-04, E-08 and E-12. To date the discharges are dry and do not generate an impact to the operation.
- Authorization for disposal of treated industrial wastewater from tailings pond No. 3, approved by Directorial Resolution No. 071-2018 ANA-DCERH, dated April 24, 2018. The authorization is valid for six years. The Company intends to apply for a renewal of the authorization within the appropriate timeframe prior to the expiration of the current term.
- On November 15, 2018, Mining Operation Certification (COM) N° 037-2019-C was approved.

- On February 1, 2023, a renewal of the authorization to acquire and use explosives and related materials was obtained by the issuance of Resolution No. 00507-2023-SUCAMEC/GEPP which is valid until February 2024. The Company filed an application for a new authorization for the acquisition and use of explosives and related materials for 2024 which was approved on January 18, 2024, and is valid until February 15, 2025.
- On November 10, 2017, Resolution N° 1061-2017 MEM/DGM/V granted Bateas the right to the civil works and auxiliary facilities required for the construction of the second stage of tailings deposit N° 3, with construction divided into two sub-stages (Stage 2A at an altitude of 4419.50 masl and Stage 2B at 4423.50 masl).
- On December 28, 2020, through Directorial Resolution N° 783-2020-MINEM/DGM, Bateas was granted the start of mining exploration activities for the mining project "3rd ITS Accumulation Caylloma 1, 2 and 3 Stage B-area 2".
- On November 17, 2021, through Directorial Resolution N° 220-2021-MINEM-DGAAM, the Second Update of the Mine Closure Plan for the Caylloma mine presented by Minera Bateas S.A.C. was approved.
- On June 17, 2022, through Directorial Resolution N° 093-2022-SENACE-PE/DEAR, the "Fifth Sustainable Technical Report of the Second “Modificatoria de Estudio de Impacto Ambiental” (MEIA)-d of the Huayllacho Mine Expansion Project and Beneficiation Plant from 1030 TMD to 1500 TMD" was approved.
- On March 20, 2023, through Directorial Resolution No. 139-2023-ANA-AAA-PA authorized the Installation of Measuring Instruments and Execution of Minimum Works in Natural Water Sources for the construction or installation of ten (10) Hydrometric Stations.

20.1.2 Environmental obligations

Law No. 27446, Law of the National System of Environmental Impact Assessment and these Regulations constitute the general rules on environmental impact assessment in the national territory. For these purposes, it is understood that any mention of the aforementioned Law refers to Law No. 27446. MINAM, as the national environmental authority, is the governing body of the SEIA; it also constitutes the technical-regulatory authority at the national level and, as such, issues the rules and establishes the procedures related to the SEIA.

MINAM carries out the Registry of Authorized Entities to prepare environmental studies. The Environmental Certification implies the pronouncement of the Competent Authority on the environmental viability of the project, in its entirety.

20.2 Environmental baseline

20.2.1 Location and access routes

The Caylloma Mine is located in the district and province of Caylloma, Arequipa Region. Geographically, it is located in the lower part of the confluence of the local Huarajo and Chilladas micro-basins, and its facilities are located on both banks of the Santiago River, a tributary of the Apurimac River.

The Caylloma Mine is accessible from the city of Lima to the city of Arequipa by air, then by paved road to the town of Sibayo, where the road is also paved and connects the city of Arequipa with the district of Caylloma. Bateas is located 14 km NW of the town of Caylloma, about 225 km from Arequipa, approximately four hours away by land. The Mine is located in the natural Puna region, at an altitude of 4,500 to 5,000 masl.

20.2.2 Climatology

The area of influence has a cold, dry climate throughout the year, with strong winds between August and September, and rain from December to March, as well as hailstorms and snowfall that cover the entire area.

The average temperature in the area is 8 °C, the average relative humidity is 65 %, and the predominant wind direction is from SW to NE with a range of speeds that vary between 2.1 to 3.6 m/s. Precipitation occurs mainly in the months of November to March, with a range of 150.5 to 558.7 mm.

Average monthly temperature data for the Santiago and Huarajo micro-basins show high values from January to April and October to December (ranging from 6 to 9ºC), and from May to August the temperature varies from 1 to 3 ºC (La Angostura, Caylloma and Cabanaconde stations).

Among the most important meteorological data, average annual rainfall is estimated at 774 mm/year, and annual evaporation is 1,550 mm/year. Bateas is located in the ecological zone known as the Humid Subalpine Tropical Paramo (Ph-Sat), whose average annual biotemperature varies between -3 °C and 10 °C. To estimate maximum precipitation and extreme hydrological events over the Bateas area, the maximum 24-hour precipitation for different return periods is based on annual maximum daily precipitation data.

20.2.3 Air quality

Climatic conditions in the area contribute to dust generation, including ultrafine dust particles generated by soil erosion. The characterization of air quality in the mining unit has considered the analysis of eleven monitoring stations approved in the Environmental Management Plan (EMP) with R.D. N° 172-2017-MEM-DGAAM.

The EIA analyzed air quality, the results of which indicate that for the selected pollutants, concentrations are below air quality standards. The air quality monitoring plan has been designed considering the environmental aspects of the Caylloma Mine, which may have a potential impact on air quality expected during the construction and operation stages of the Caylloma Mine.

This plan will allow Bateas to continue monitoring and recording air quality parameters to demonstrate compliance with environmental regulations and air ECAs. The results also correspond to the natural levels at the site, corresponding to the levels of pollutants from the activities carried out in the area at the time of the evaluation to the levels of particulate matter transported by the wind.

20.2.4 Water quality

Surface water quality monitoring is important for the diagnosis of the baseline conditions of water resources, since their use can be limited as a result of high contaminant concentrations, which are above the limit values of the parameters considered in the National Environmental Quality Standards for Water (D.S. N°-004-2017-MINAM). The results obtained were compared with the Environmental Quality Standards for Water, regulated according to D.S. N° 015-2015-MINAM and D.S. N°004-2017-MINAM, Categories 3: Irrigation of Vegetables, and Category 4: Conservation of the aquatic environment.

The main purpose of the water monitoring program is to ensure the quality of the receiving bodies, according to the Water Quality Standards. Natural water seepage into the Santiago River that may alter its composition is evaluated in the Comprehensive Plan. Water quality monitoring will verify the correct application of prevention and mitigation measures for possible impacts identified.

Likewise, the characterization of water quality, the fifteen water quality stations approved by R.D. 172-2017 MEM/DGAAM and one water quality station approved in the ITS PAMA by R.D. N° 206-2017 MEM/DGAAM have been taken into consideration.

20.2.5 Hydrology

The hydrological network of the mining unit is inscribed within the Caylloma quadrangle. The area where the Caylloma Mine is located is in a NE - SW direction, with the main rivers being the Apurimac, Hornillos and Molloco. The type of drainage is controlled by the Caylloma depression, two types have been distinguished:

The first type of drainage is developed over the area of the Caylloma depression, where the waters flow towards the lower parts, being the main collector the Apurímac river (where the rivers: Santiago, Lamamayo, Azulmayo, Chonta, Coñicmayo, Pausa Huaylo, Pescamayo and Chilamayo flow), and as a secondary collector the Hornillas river; at the junction of these two rivers a small canyon is formed in a north-south direction, where the waters of the Caylloma depression flow out.

The second type of drainage is a radial dendritic drainage; this drainage develops around the Caylloma depression, and the waters flow to the north or south, controlled by the Continental Divide. This hydrographic network carries out the work of incision and erosion of the pre-existing materials.

Water sources identified in the mine's area of environmental influence are the Vilafro, Jesús María, Antimonio and Muscapamp lagoons, the Santiago River and the Huarajo, Huancané, Cuchilladas, Trinidad, Santa Cata and Quello Apacheta streams.

20.2.6 Soil science

Soils are defined as natural, independent, three-dimensional and dynamic bodies, with their own intrinsic characteristics, product of the interaction of different edaphogenic processes and formation factors. The predominant soils are Andosols and Paramosols, with important variations, such as volcanic soils in the south. The soils in this macro-Andean region are generally incomplete, sandy or stony, with a very low content of organic matter, since this is produced in small quantities and takes a long time to decompose. Only in the few humid places are there peatland formations, which develop very slowly due to the prevailing conditions.

The methodology used for the description and characterization of the soils was based on the criteria and norms established in the Regulations for the Execution of Soil Surveys (D.S. N° 013-2010-AG), as well as in the Soil Survey Manual (Soil Survey Manual, 1993) of the United States Department of Agriculture (USDA).

In order to know the characteristics of soil quality in the area where the mining unit is located, information from the monitoring reports of the stations approved in the Second Modification of the Detailed Environmental Impact Study of the "Huayllacho" Mine and

Beneficiation Plant Expansion Project from 1030 TMD to 1500 TMD (R.D. N° 172-2017-MEM-DGAAM) was considered.

The analysis of the results obtained in the evaluated soil quality parameters during the environmental monitoring, corresponded with the values established in the Environmental Quality Standards for Soil approved in D.S. N° 002-2013-MINAM, and in a referential way with the National Environmental Quality Standard for Soil in force (D.S. N° 011-2017-MINAM).

20.2.7 Fauna and flora

Three life zones have been reported in the area, which are: Pluvial Tundra - Andean Subtropical (tp - AS), Very Humid Paramo - Sub-Andean Subtropical (PMH-SaS) and Subtropical Level (NS).

According to the EMP of the second MEIAd of the "Huayllacho Mine and Beneficiation Plant Expansion from 1030 to 1500 TMD" Project, three (03) vegetation units are considered for the monitoring area: Bofedal, Roquedal and Pajonal.

The evaluation of flora / vegetation and wildlife (birds, mammals, reptiles, amphibians and arthropods) was carried out in 21 monitoring stations defined according to the PMA of the second MEIAd of the "Huayllacho Mine and Beneficiation Plant Expansion from 1030 to 1500 TMD" Project and the Second Modification of the Semi-Detailed Environmental Impact Study (MEIA-sd) of the mining exploration project "Cailloma Accumulation 1, 2 and 3 Stage B".

From the records obtained in the monitoring, 29 species have been obtained in some category of conservation or endemic status for Peru.

Twenty-three (23) species are on the IUCN Red List (2021-3), of which 21 species are categorized as Least Concern (LC), one (1) as Endangered (NT) and one (1) as Vulnerable (VU). As for CITES, three (3) species of the Orchidaceae family are in Appendix II, which includes species whose populations have been greatly reduced, and although they are not in danger of extinction, the necessary controls must be applied for their commercialization.

20.2.8 Ecosystem characterization

The study area includes ecosystems typical of the Andean region, between terrestrial and aquatic, according to the National Map of ecosystems of Peru (MINAM, 2019), the following ecosystems are registered: Pajonal of dry puna, Bofedal, Periglacial Zone and glacier, lake and lagoon.

Terrestrial ecosystems

- Puna seca Pajonal: High Andean ecosystem with herbaceous vegetation, where Amazonian rains arrive with difficulty, occupies flat and undulating terrain or hills of gentle to moderate slope; with a marked climate.
- Bofedal: Andean hydromorphic ecosystem with herbaceous vegetation of hydrophilic type, which occurs in the Andes on flat land, in depressions or slightly inclined, permanently flooded or saturated with running water (poor drainage) with dense vegetation, evergreen and of almoadillado bearing.
- Periglacial and glacial zone: High Andean ecosystem, generally located above 4500 meters. Cryoturbed and uncovered soils with abundant quebradillas (product of thaw), with presence in certain areas of cryoturbed and dynamic

vegetation (frequently successional). Low and scattered vegetation (generally not higher than 30 or 40 cm), represented by scarce Gramineae, Asteraceae, lichens, cushion plants, among others.

Aquatic ecosystems

From the point of view of water resources, lakes and lagoons include all waters that do not present a continuous current and correspond to waters in a lentic state.

- Lakes are extensions of water of great size and depth, separated from the sea, and may contain fresh, brackish or salt water.
- Lagoons are natural water reservoirs of lesser depth than lakes of permanent or temporary regime and of different storage capacities.

Fragile ecosystems

According to the General Environmental Law (Law No. 28611), which amends Article 99 (Law No. 29895), fragile ecosystems include: deserts, semiarid lands, mountains, swamps, paramos, jalcas, wetlands, bays, small islands, wetlands, high Andean lagoons, coastal hills, cloud forests and relict forests.

Two types of fragile ecosystems have been identified in the study area: wetlands and high Andean lagoons and wetlands.

20.2.9 Identification of protected areas

The distance between the study area and the closest Natural Protected Areas (NPAs) is 55.66 km, being the Cotahuasi sub-basin Landscape Reserve. The distance to the buffer zone of this reserve is 44.77 km.

20.2.10 Archaeology

The Caylloma Mine has received Certificates of Non-existence of Archaeological Remains (CIRA) related to this area.

20.2.11 Environmental risks

Environmental factors are the set of components of the biotic and abiotic environment (air, soil, water, biota, etc.) and the social environment (social relations, economic activities, etc.), which are susceptible to changes, positive or negative, as a result of a given action or set of actions.

The environmental factors considered for the identification of potential impacts that could be produced by the Caylloma Mine's actions during the LOM are presented in Table 20.1.

Table 20.1 Environmental factors

Environment	Environmental/ Socioeconomic Component	Environmental/ Socioeconomic Factor	Effect on Environmental/ Socioeconomic Factor
Physical Environment	Geomorphology and Landscape	Local relief	Modification of local relief
		Visual quality of the landscape	Alteration of the visual quality of the landscape
	Soil	Edaphological capacity of the soil	Request for floor/ground restoration
		Soil Quality	Soil erosion
			Soil quality alteration

Environment	Environmental/ Socioeconomic Component	Environmental/ Socioeconomic Factor	Effect on Environmental/ Socioeconomic Factor
	Air	Air Quality (Particulate Matter)	Variation in the concentration of particulate matter
		Air quality (gases)	Variation in gas concentration
	Noise and Vibration	Noise quality	Noise level variation
		Vibrations	Variation of vibration levels
	Water	Surface water quality	Alteration of surface water quality
		Surface water quality	Alteration of surface water quality
		Groundwater quality	Alteration of groundwater quality
		Groundwater quality	Alteration of groundwater quality
Biological Environment	Flora	Vegetation cover and habitat-Flora	Disturbance and/or modification of vegetation cover and flora-habitat.
		Species diversity and abundance-Flora	Variation in the diversity and abundance of species-flora.
		Endangered species-Endangered	Disturbance of endangered species-Flora
	Fauna	Habitat-Fauna	Alteration of aquatic habitat
		Diversity and abundance-Fauna	Variation in the diversity and abundance of fauna species
		Endangered Species-Fauna	Disturbance of endangered species-Fauna
	Flora and fauna	Ecosystem functionality	Modification of the functionality of species in the ecosystem
	Hydrobiology	Aquatic habitat	Alteration of aquatic habitat
		Species diversity and abundance-Hydrobiology	Variation in species diversity and abundance
Economical	Goods and services	Procurement of goods and services	Continuity of procurement of goods and services
	Employment	Local Employment	Continuity of local job creation
	Economic activity	Economic revitalization	Continuity of economic dynamization
Social	Occupational health and safety of workers	Worker health and safety	Affecting worker health and safety
Cultural	Archaeological remains	Archaeological findings	-

The factors shown in the table correspond to those that could be affected as a result of the execution of operational activities, although most of them can be mitigated or reduced through the implementation of the activities of the EMP.

Environmental Impact Register

The initial step in the impact identification and evaluation process is the selection of the most significant actions. The operations area is divided into: San Pedro Zone, Bateas Zone, San Cristóbal Zone, San Ánimas Zone, Reserved Zone. In order to identify impacts on each sone more precisely, the activities for the construction stage, activities for the operation stage and activities for the closure stage have been identified, which will have a significant impact on environmental and social factors; this will allow a more adequate evaluation of the impacts.

Environmental Situation Analysis

Bateas' main concern is that the mining activities to be developed are carried out in an adequate manner, caring for and preserving the environment, applying appropriate standards and, above all, that such activities are also beneficial for the population.

It is worth mentioning that this same criterion was used for previous studies that the Caylloma Mine has carried out over time with the intention of increasing the life and operability of the mine. For each expansion and/or modification, the record of environmental impacts caused by the activities to be carried out was taken into account; these impacts were evaluated and subsequently controlled by a management plan whose main function is to prevent, minimize and mitigate negative impacts and enhance positive impacts.

Prior to the identification and evaluation of the possible impacts generated for the Environmental Impact Study Modification, the analysis of the previous environmental situation of the baseline will be taken into account, with the transformations that have taken place up to the present time. For the development of impact matrices, the participation of a multidisciplinary team of professionals is essential, since the multi-criteria analysis allows the impact assessment to be as less subjective as possible, which in turn will allow a closer approach to what may actually happen in the project-environment interaction and vice versa, thus facilitating the selection and sizing of the environmental measures that need to be applied to ensure that such interaction is as harmonious as possible.

For this reason, an analysis of the environmental situation of the area where the project is located is carried out, taking into account that the governing entities in the environmental sector, binding entities as well as regulatory entities in the mining sector have established reference standards for environmental components (water, air, noise, soil, effluents) in order to establish the level of concentration or degree of elements, substances or parameters that may be present. In such a way that the adequate quality of the component is maintained and safeguarded. Minera Bateas has been carrying out periodic environmental monitoring as part of its environmental commitments, duly reporting to the competent authorities.

Identification and evaluation of impacts

The following are the results of the identification and evaluation of the potential impacts presented by the Proprietor during the construction, operation and closure stages, using for the identification of impacts an adaptation of the cause-effect matrix of Leopold (1971) and the evaluation of environmental impacts using the methodology proposed by Vicente Conesa Fernández (2010).

The impact assessment methodology used by the Proprietor considers the calculation of the Impact Importance (I), represented by the arithmetic calculation made with the following attributes: Nature of the impact (N), Intensity (IN), Extent (EX), Momentum (MO), Persistence (PE), Reversibility (RV), Synergy (SI), Accumulation (AC), Effect (EF), Periodicity (PR) and Recoverability (MC); whose formula is as follows:

$$I = +/- (3IN + 2EX + MO + PE + RV + SI + AC + EF + PR + MC)$$

In this regard, Impact Importance value ranges are established, which are related to a level of importance (significance) of the impacts. The environmental components and/or subcomponents will not be impacted by the Caylloma Mine objectives, as described below:

Surface water - Activities conducted by the operation must not impact the quality of surface water bodies. To enhance protection a minimum distance to a body of body for drilling activities has been set at 86.03 m and from the cement silos at 95.59 m. Complementary measures to reduce impact such as access irrigation (minimizing any type of dust interaction with identified water bodies) and runoff water management are to be considered. Water volumes used in the proposed activities must be within the amount approved in their surface water licenses.

Groundwater – Volumes will not be affected by the proposed activities, since the water resource will come from surface water, which is already included in the approved water use licenses. Regarding groundwater quality, for drilling activities, if there is any interception with the water table, the borehole will be immediately plugged, so this possibility is considered a risk, and the measures are described in Bateas' Contingency Plan.

Vibrations - This factor is not considered a risk because none of the activities of the Caylloma Mine are significant sources of vibrations that merit evaluation. At the same time, the distance to the nearest population center is 7.26 km.

Soil quality - During construction and drilling activities, hazardous and non-hazardous solid waste will be generated. Poor disposal of this waste could affect soil quality. In addition, the occurrence of accidental spills of materials or substances (hydrocarbons, additives) that could have an impact on soil quality have been identified as an environmental risk.

Hydrobiology - The components are located at a distance of 75.75 m from the nearest body of water (Jesús María lagoon); while the nearest drilling platform for Mineral Reserve confirmation will be at a minimum distance of 86.03 m from the nearest body of water (Jesús María lagoon) in the Animas Sector. Although there will be dispersion of particulate material that could be generated by specific activities, it is not expected to generate appreciable impact due to the distance of more than 50 m of the auxiliary components such as temporary accesses, with respect to the bodies of water, for this reason, no environmental impacts are expected during the construction, operation and closure stages on this environmental component.

Fragile ecosystems - The identified fragile ecosystems will not be affected, because the various components are located at a distance of 74.50 m and 730.86 m from components such as Access SC-014-21 (Santa Catalina), and in the case of the high Andean lagoon (Jesús María), they will be located at a minimum distance of 75.75 m.

Archaeological remains – Operations at the Caylloma Mine are not expected to have an impact from an archaeological perspective. The operations are located in areas that have certificates of non-existence of archaeological remains (CIRA) as defined from archaeological reconnaissance reports.

Socioeconomic components - They involve non-significant positive impacts on the generation of local employment for the closure and post-closure stage due to the generation of temporary jobs and revitalization of the economy for the construction and operation stages due to the contracting of services and the purchase of inputs and goods in the populated centers. It should be noted that they do not involve the intervention of new communities or other populations other than those contemplated and approved by Directorial Resolution No. 172-2017-MEM-DGAAM.

20.2.12 Environmental management plan

Bateas' internal policy is to carry out its activities through sustainable mechanisms, giving priority to the environmental components of its surroundings. Therefore, during the stages of operation at the Caylloma Mine it is committed to safeguarding the environment where its activities will be carried out.

The prevention measures will establish the actions to be taken to minimize and/or mitigate activities that may cause adverse impacts to environmental components that present established elements or factors. The environmental management measures described correspond to those included in the approved IGAs of the Caylloma mine, which are part of the current EMP and are being developed and implemented at the mine.

The objective of the Prevention, Correction and/or Mitigation Plan is to provide the necessary environmental measures to avoid, correct and mitigate possible environmental impacts.

Construction and operation stage

Currently the environmental commitments are being developed and reported to the competent authority in accordance with the declared in the environmental management instruments, in June 2017 the Second Modification of the Environmental Impact Study "Expansion of mine and beneficiation plant Huayllacho from 1030 TMD to 1500 TMD" was approved by R.D. No. 172-2017-MEM/DGAAM.

Activities were developed for the components declared in the third "Informe Technico Sustentatorio" of the second MEIA of the project "Expansion of Huayllacho Mine and Beneficiation Plant from 1030 TDM to 1500 TMD" (Auxiliary Components) by means of R.D. N° 105-2019-SENACE-PE/DEAR approved on July 05, 2019, also the Fourth ITS of the 2nd MEIA of the Caylloma Project "Expansion of Mine and Beneficiation Plant from 1,030 tpd to 1,500 tpd of the Caylloma Mine" by means of R.D. N°00124-2021-SENACE-PE/DEAR approved on September 17, 2021.

Bateas also carries out controls corresponding to the construction and operation of components already approved, such controls are as follows:

- Air quality and noise
    - Humidification through irrigation of access roads and work sites by tanker truck and spray atomizer system.
    - Provision of dust protection equipment (respirators), hearing protection (earplugs), and visual protection for personnel working in areas where dust and noise are generated.
    - Control of the maximum speed of vehicles in accordance with REGL-SEG-002 Internal transportation regulations in the areas where operations are carried out, by means of signs placed in strategic locations.
    - Optimized movement of vehicles to work fronts.
    - Preventive maintenance of equipment and machinery.
    - Periodic maintenance of roads and accesses.
    - Periodic monitoring of air quality and environmental noise.

- Soil quality
    - Restoration of the topography by filling and leveling the areas disturbed by the operation.
    - Contaminated soil and rags impregnated with fuels are segregated in color-coded cylinders for temporary storage and transfer by EO-RS in charge of transport and final disposal.
- Water quality
    - There is a treatment system for effluents from the operation.
    - There is a domestic wastewater treatment plant with an automated system.
    - There is a drinking water treatment plant that ensures the quality of drinking water distributed to all camps, offices, and dining halls.
    - Water quality monitoring in the receiving body, effluents, and drinking water in accordance with the approved environmental program.
- Flora Protection
    - Delimitation of the work area so as not to disturb vegetation unnecessarily.
    - Bateas avoids unnecessary clearance of areas.
    - The organic soil is not mixed with other material and if necessary, it is transferred to the topsoil deposit.
    - Transfer of plants to suitable locations for replanting.
    - Sensitization of workers for the protection and conservation of flora.
- Protection of avifauna and terrestrial fauna
    - Hunting activities or other disturbances to avifauna and terrestrial fauna are prohibited; there are visible signs in the areas with the highest concentrations of animals.
    - Protective fencing around the riskiest components prevents animals from entering.
    - Provide training and raise awareness among workers about wildlife protection.
    - Air quality and noise are monitored periodically.
- Aquatic fauna protection
    - Maintenance of trucks and equipment in the unit's maintenance workshops, avoiding grease and oil spills that impact surface waters.
    - Raising awareness among workers about the protection and conservation of the aquatic ecosystem.
    - Periodic monitoring of water quality.
- Social environment

- Hazard warning signs are posted in the work areas.
- Proper behavior of workers at all times.
- Respect for people and private property.
- Strict application of the Code of Ethics for workers in general.

Mine closure stage: progressive closure

The Mine Closure Plan of Caylloma Mine has been updated and approved by R.D. N° 085-2013-MEM/AAM, where there is a committed schedule of progressive closure of components and a letter of guarantee before the MEM for the closure as required by current law.

By means of R.D. N° 327-2015-MEM-DGAAM, the Modification of the Mine Closure Plan of the Caylloma Mine was approved, where the financial schedule for the closure of the TSF N°2, Pumahuasi Mouthpiece, San Cristóbal Nv. 12 B landfill, and Bateas camp was modified.

By means of R.D. N° 092-2017-MEM-DGAAM a Second Modification of the Mine Closure Plan of the Caylloma Mine was approved, where the closure schedule of the TSF N°2, shotcrete plant, power line, and domestic wastewater treatment plant was modified.

By means of R.D. N°224-2018-MEM-DGAAM, the Third Modification of the Mine Closure Plan of the Caylloma Mine was approved, where the closure schedule of the Animas Level 6, Animas Level 7 portal, Pumahuasi Level 12 portal, 240 E- Level 12 ramp, and Bateas waste deposit was modified.

By means of R.D. N°220-2021/MINEM-DGAAM a Second Update of the Mine Closure Plan of the Caylloma Mine was approved where there is a progressive closure schedule for the Bateas explosives mine magazine, San Carlos blasting accessories mine magazine, San Carlos explosives mine magazine, and the recovery of the crown pillar from Animas Levels 5 and 6.

20.2.13 Operation and management

Water quality monitoring (surface water, domestic and industrial wastewater, and groundwater), air, soil, noise levels, non-ionizing radiation, hydrobiology, sediments, flora and fauna in the area of influence of the Caylloma Mine are monitored on a regular and permanent basis, in accordance with the monitoring program and in compliance with the sector's environmental laws.

The participatory environmental monitoring program is executed in accordance with Directorial Resolution N°172-2017-MEM-DGAAM Approval of the 2nd Modification of the Detailed Environmental Impact Study and the ITS of R.D. N° 334-2015-MEM/DGAAM and R.D. N° 206-2017-MEM-DGAAM.

Different monitoring programs are developed for the environmental components that interact with the project, in order to ensure that the management and mitigation measures adopted meet the objectives of the Caylloma Mine.

Air quality monitoring

The Caylloma Mine has an environmental surveillance plan in which an air quality monitoring program consisting of ten monitoring stations was approved. These stations are being monitored and reported to the MEM on a quarterly basis.

Environmental noise quality monitoring

The Caylloma Mine has an environmental surveillance plan in which an environmental noise quality monitoring program consisting of eight monitoring stations was approved. These stations are being monitored and reported to the MEM on a quarterly basis.

Surface water quality monitoring

The Caylloma Mine has an environmental surveillance plan in which a surface water quality monitoring program consisting of 15 monitoring stations was approved. These stations are being monitored and reported to the MEM on a quarterly basis.

Effluent monitoring

The Caylloma Mine has an environmental surveillance plan in which an effluent monitoring program consisting of eight monitoring stations was approved. These stations are being monitored and reported to the MEM on a quarterly basis.

Soil quality monitoring

The Caylloma Mine has an environmental surveillance plan in which a soil quality monitoring program consisting of nine monitoring stations was approved. These stations are monitored and reported to the MEM every six months.

Environmental monitoring of flora

The Caylloma Mine has an environmental surveillance plan in which the flora monitoring program consisting of fifteen monitoring stations was approved. The results of the parameters to be evaluated are compared with the Categorization List of Threatened Species of Wild Flora published by D.S N° 043-2006-AG.

Wildlife environmental monitoring

The Caylloma Mine has an environmental surveillance plan in which the fauna monitoring program consisting of fifteen monitoring stations was approved. The results of the parameters to be evaluated are compared with the Categorization List of Threatened Species of Wildlife published by Supreme Decree No. 004-2014-MINAGRI.

Environmental monitoring of hydrobiological resources

The Caylloma Mine has an environmental surveillance plan in which the hydrobiological monitoring program consisting of ten monitoring stations was approved.

20.3 Community relations

The Caylloma Mine is located at 4,500 meters above sea level in the district of Caylloma, approximately 225 kilometers northwest of the city of Arequipa, in Peru. The total area of the district covers 1,499 km² and has approximately 3,697 inhabitants distributed among two population centers (Caylloma and Jachana), three peasant communities (Apacheta Rajada, Cucho Capilla, Santa Rosa), and eight annexes (Antayaque, Aparuyo, Chinosiri, Coraza, Nequeta, Pusa Pusa, Sotocaya, Talta huarahuarco).

The area of social influence of the mine is made up of only eight sectors. The Caylloma Town Center, the Annex of Talta Huarahuarco and the Peasant Community of Santa Rosa, recognized by the Ministry of Culture as original indigenous peoples, make up the area of direct social influence. The Annex of Coraza, the Annex of Pusa Pusa, the Minor Populated Center of Jachaña, the Peasant Community of Cucho Capilla and the Peasant Community of Apacheta Rajada constitute the area of indirect social influence.

The Caylloma town center is the capital of the district and is the sector closest to the mining unit (located 14 km to the south), concentrating 86 % of the total population (INEI, 2017). The highest administrative authority is the district mayor, elected in electoral processes that take place every four years and based in the district capital. The representative of the Executive Power is the Sub-Prefect, who is responsible for ensuring internal order and appointing the lieutenant governors of the annexes and communities. Due to its distance from the capital of the district and being the second town with the highest population density, the Minor Town Center of Jachaña has a mayor to address the problems of the sector.

The district has a history of mining activity. Silver has been mined for more than 500 years and the population is familiar with the process and impact on the community of mining centers. Caylloma can be seen in the list of mines that existed in Tahuantinsuyo, from the book Los caminos del Inca en el antiguo Perú by Alberto Regal Matienzo.

The raising of camelids (alpacas, llamas and vicuñas) is one of the main economic activities in the district of Caylloma, which highlights its livestock vocation. More than 90 % of producers are dedicated to the commercialization of alpaca meat and fiber.

The commercialization of fiber is one of the main sources of income for alpaquera families. However, due to the proximity to mining centers, in recent years there has been an increase in laundry businesses, hotels, car rental and restaurants with the aim of supplying mining companies and boosting the local economy.

The district is located at a high altitude and has extreme low temperatures, with frost seasons between June and August. The occurrence of these events affects livestock activity, since the quality and quantity of feed available to livestock decreases and even disappears completely in cases of snowfall. In addition, it impacts on the health and development of routine activities of the people who live in the annexes and communities located in the high areas of the district, because houses are predominately constructed from adobe or stone with mud and calamine.

In recent years, there has been a process of migration of residents of the district of Caylloma to the city of Arequipa. However, they continue to attend political, cultural and social activities in the district.

20.3.1 Social management approach

Bateas assumes sustainable management in all its processes with conviction and commitment, ensuring that its activities are carried out in a responsible manner and respectful of the environment and the communities in its area of influence.

Bateas prioritizes its commitment to the community as follows:

- Harmonious relationships: Bateas relates respectfully and proactively with the people in their environment, considering their needs and expectations, with a focus on legality and full respect for all the rules that govern its activities and the link with our environment.
- Fulfillment of commitments: Bateas is responsible for both the commitments assumed in the environmental impact studies and voluntarily commitments with its surrounding communities. Its implementation aims to promote social peace between the company and the district of Caylloma, as well as the sustainable development of the district.

- Co-responsibility: Bateas responsibly involves key actors of the State, communities, companies and civil society, from the role that corresponds to them, to generate synergies and maximize the positive impact of the projects.
- Sustainable development: Bateas aims to promotes projects and actions that contribute to a sustained improvement in the quality of life of the people who live in the surroundings, promoting the balance between economic growth, the preservation of the environment and the well-being of the population.

Bateas has a Permanent Information Office in the capital of the district of Caylloma, with the presence of community relations personnel for fluid and direct communication with community members.

20.3.2 Framework convention management committee

In 2021, Bateas signed a Framework Agreement with the District Municipality of Caylloma, the National Government and the United Front for the Defense of the Interests of the District of Caylloma (FUDICAY) to establish a Development Fund for the benefit of the district. Bateas has committed to contribute 2.2 million Peruvian soles per year to the fund between 2021 and 2024, for a total of 8.8 million Peruvian soles. The agreement also aims to create employment and training opportunities for communities and business development for local suppliers.

The fund is closely supervised and regulated by two committees: the Management Committee and the Supervisory Committee. The Management Committee is made up of seven members, representatives of various organizations, including Minera Bateas, the District Municipality of Caylloma, FUDICAY, the Federation of Andean Women, peasant communities, annexes and neighborhoods. In this space, stakeholders can propose development projects that respond to the needs of the community.

In addition, the fund strengthens its management through the establishment of two specialized committees:

- Subcommittee on Employment and Local Purchasing: facilitates accountability of local employment and supply commitments. It also communicates local employment, training and acquisition opportunities for Bateas and its contractors.
- Subcommittee on Participatory Environmental Monitoring: its function is to promote environmental oversight with the participation of key local actors.

Until 2022, the Bateas' disbursements to the Development Fund totaled 4.4 million soles prioritized in the following initiatives to be developed between 2023-2025:

- Improvement in the services of the Municipal Slaughterhouse of the District of Caylloma, which consists of the rehabilitation of the facilities, equipment and management of the exploitation permits necessary for its operation (2023).
- Installation of traditional water reservoirs to promote the rational use of water and improve the production of natural pastures for animal feed (2023-2025).
- Provide technological equipment to the district's educational institutions at the initial, primary and secondary levels to provide the necessary tools that contribute to better student learning (2023-2024).
- Ensure adequate territorial management to reduce chronic child malnutrition and anemia in children under 5 years of age and pregnant mothers in the district. (2023-2024)

- Improvement of the hygienic services and dressing rooms of the Municipal Stadium, to promote cultural and sports activities for the development of the youth of Caylloma (2023).
- Support to the supplementary food service "Qali Warma" provided in the district's educational institutions at the initial, primary and secondary levels (2023).

20.3.3 Social investment

In order to contribute effectively to the execution of sustainable initiatives that respond to the real needs of the population of Caylloma, the social management of Bateas has been oriented to apply a multi-actor model through which ministries, municipalities and residents of Caylloma meet efforts to promote the sustainable development of the district in a coordinated manner and under the principle of co-responsibility.

The programs are designed and executed under five lines of action aimed at promoting well-being and improving living conditions in Caylloma:

- Economic development
- Health and nutrition
- Education
- Socio-environmental
- Communication

Additionally, the mine has generated local employment opportunities directly and indirectly since the beginning of its activities. Local staff represent 18% of Bateas' total employees and contractors today.

In recent years, there has been a greater demand for the supply of local products and services. The company has developed training programs to strengthen the skills of local businesses and promote their formalization. Approximately 12% of its suppliers are local.

20.4 Mine closure

20.4.1 Legal requirements

The following is a brief description of the main general and specific regulations applicable to Closure Plans, with the objective of achieving the management of economic activities within the framework of environmental conservation and sustainable use of natural resources.

General legislation at national level

- Political Constitution of Peru (1993)

  The Political Constitution of Peru of 1993, in its article 2, paragraph 22, establishes that: "Every person has the right to peace, tranquility, enjoyment of free time and rest, as well as to enjoy a balanced and adequate environment for the development of his or her life".

- D. L. No. 635, Penal Code

  The Sole Chapter of Title XIII of the Criminal Code. "Crimes against Ecology" regulates crimes against ecology, natural resources and the environment.

In Articles from 304° to 314°, crimes against Ecology are established for pollution and infringing the rules on environmental protection, in addition to the aspects of prohibition and crimes against hunting and extraction of flora and fauna among others.

- D. L. Nº 757, Framework Law for the Growth of Private Investment in Peru.

  Its purpose is to guarantee free initiative and private investments, made or to be made, in all sectors of economic activity and in any of the entrepreneurial or contractual forms permitted by the Constitution and the laws.

  Legislative Decree No. 757 (11/13/91) establishes in its Art. 50º that: "The competent sectorial authorities to know about matters related to the application of the provisions of the Environmental and Natural Resources Code are the Ministries or the supervising agencies, as the case may be, of the sectors corresponding to the activities developed by the companies without prejudice of the attributions corresponding to the Regional and Local Governments according to the provisions of the Political Constitution. (Text according to the modification provided by the Ninth Complementary Provision of Law No. 26734).

  "In the event that the company develops two or more activities under the jurisdiction of different sectors, the competent sectorial authority shall be the one corresponding to the activity of the company that generates the highest gross annual income".

- Law N° 28245, Framework Law of the National System of Environmental Management

  The purpose of this Law is to ensure the most effective compliance with the environmental objectives of public entities; to strengthen the mechanisms of trans-sectoriality in environmental management, the role that corresponds to sectorial, regional and local entities in the exercise of their environmental attributions in order to guarantee that they comply with their functions and to ensure that overlapping, omissions, duplicity, gaps or conflicts are avoided in the exercise of them.

  The purpose of this law is to guide, integrate, coordinate, supervise, evaluate and guarantee the application of policies, plans, programs and actions for the protection of the environment and contribute to the conservation and sustainable use of natural resources.

- Law No. 27446, Law of the National Environmental Impact Assessment System (SEIA).

  The purpose of this Law is:

  a) "The creation of the National SEIA, as a unique and coordinated system of identification, prevention, supervision, control and anticipated correction of the negative environmental impacts derived from human actions expressed through the investment project.

  b) The establishment of a uniform process that includes the requirements, stages, and scope of the environmental impact assessments of investment projects.

c) The establishment of mechanisms to ensure citizen participation in the environmental impact assessment process".

The creation of the SEIA as a unique and coordinated system of identification, prevention, supervision, control and early correction of negative environmental impacts derived from human actions expressed through the investment project. The establishment of a uniform process that includes the requirements, stages, and scope of environmental impact assessments of investment projects. The establishment of mechanisms to ensure citizen participation in the environmental impact assessment process.

- Law No. 26821, Organic Law for the Sustainable Use of Natural Resources.

  It regulates the regime of sustainable use of natural resources, as they constitute patrimony of the Nation, establishing their conditions and the modalities of granting them to individuals, in compliance with the mandate contained in Articles 66° and 67° of Chapter II of Title III of the Political Constitution of Peru and in accordance with the provisions of the General Law of the Environment and the International Agreements ratified by Peru.

  Article 28 indicates that sustainable use implies the rational management of natural resources taking into account their capacity for renewal, avoiding overexploitation and replenishing them qualitatively and quantitatively. In the case of non-renewable resources, it consists of their efficient exploitation, under the principle of substitution of real values or benefits, avoiding or mitigating the negative impact on other resources of the surroundings and the environment.

- Law Nº 26834, Law of Natural Protected Areas

  Its objective is to regulate aspects related to the management of Natural Protected Areas and their conservation in accordance with Article 68 of the Political Constitution of Peru.

  This law defines Natural Protected Areas as National Heritage, therefore, their natural condition must be maintained in perpetuity, allowing the regulated use of the area and the exploitation of resources, or determining the restriction of direct uses. They are part of the National System of Natural Areas Protected by the State (SINANPE), whose governing body is the National Institute of Natural Resources (INRENA), which also oversees the management of Natural Protected Areas that are not part of this system.

- Law No. 27308, Forestry and Wild Fauna Law

  The purpose of this Law is to regulate, regulate and supervise the sustainable use and conservation of the country's forest and wildlife resources, making their use compatible with the progressive valorization of the forest's environmental services, in harmony with the social, economic and environmental interest of the Nation, in accordance with the provisions of Articles 66° and 67° of the Political Constitution of Peru, ; Article 92 of Law No. 28611, General Environmental Law; Law No. 26821, Organic Law for the Sustainable Use of Natural Resources and the International Agreements in force for the Peruvian State.

- Law No. 26839 - Law for the Conservation and Sustainable Development of Biological Diversity

It regulates the conservation of biological diversity and the sustainable use of its components in accordance with Articles 66° and 68° of the Political Constitution of Peru.

Within the framework of sustainable development, the conservation and sustainable use of biological diversity implies:

a) Conserving the diversity of ecosystems, species and genes, as well as maintaining the essential ecological processes on which the survival of species depends.

b) Promoting the fair and equitable sharing of the benefits arising from the use of biological diversity.

c) Encourage education, information exchange, human resource capacity building, scientific research, and technology transfer related to biological diversity and the sustainable use of its components.

d) Promote the economic development of the country based on the sustainable use of the components of biological diversity, promoting the participation of the private sector for these purposes.

- D.S. Nº 043-2006-AG, Categorization of Threatened Species of Wild Flora and Fauna

  Stablishes the official list of threatened flora species in Peru in categories of Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Threatened (NT).

- D.S. Nº 004-2014-AG, Update of the list of Classification and Categorization of threatened species of legally protected fauna.

  Establishes the official list of endangered fauna species in Peru in categories:

  Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) and adds the category (DD) as Data Deficient.

- D.S. Nº 017-2009-AG, Land Classification Regulation, among others.

  The regulation establishes a National Land Classification System according to its Major Use Capacity as an interpretative system of soil studies, with the help of climatic information (life zones) and relief, which will have a dynamic character as it allows the reclassification of a land unit, when changes in soil or relief parameters have had an impact on the change of its use capacity, as a result of appropriate technological practices such as irrigation, rehabilitation of saline conditions and poor drainage, terraces and others.

- D.S. Nº 013-2010-A, Regulation for the Execution of Soil Surveys.

  This Regulation has two objectives: a) to establish a) a method and procedure for the execution, presentation, review and approval of soil surveys, and b) to ensure that professionals who perform soil surveys use uniform criteria that allow their integration with those performed in neighboring areas or in different circumstances, according to the level of study.

20.4.2 Closure objectives

The main objective of the Closure Plan is to ensure that the environment where the mining activity is carried out recovers the quality conditions necessary to ensure its sustainability, either in conditions similar to those it had before the start of operations, and/or alternative use conditions that are environmentally viable and that are in accordance with the particular characteristics of the area.

Have the progressive and final closure schedules according to the mine's LOM, approved in the 3rd MPCM.

The closure measures for the components implemented are included in the following environmental management instruments:

- Second Modification of the detailed EIA of the project "Expansion of Caylloma Mine and Beneficiation Plant from 1030 TMD to 1500 TMD" approved by R.D. N°172-2017- MEM-DGAAM (14.06.2017).
- Informe Técnico Sustentatorio (ITS) para la Mejora, Reposición de las Infraestructuras de la Línea de Transmisión de 15 Kv (LT 15 Kv), adición de Sistema de Ventilación y Compresión en el Nivel 7 Animas approved by R.D. N° 206-2017-MEM-DGAAM (21.07.2017).
- First Substantive Technical Report (ITS) of the Second Modification of the Detailed Environmental Impact Study of the project "Expansion of Caylloma Mine and Beneficiation Plant from 1030 to 1500 TMD" approved by R.D. N°044-2018-SENACE/DCA (21.03.2018).
- Second Substantive Technical Report (ITS) of the Second Modification of the Detailed Environmental Impact Study of the project "Expansion of Caylloma Mine and Beneficiation Plant from 1030 to 1500 TMD" approved by R.D. N°018-2019-SENACE-PE/DEAR (28.01.2019).
- Third Substantive Technical Report (ITS) of the Second Modification of the Detailed Environmental Impact Study of the project "Expansion of Caylloma Mine and Beneficiation Plant from 1030 to 1500 TMD" approved by R.D. N°105-2019-SENACE-PE/DEAR (05.07.2019).

20.4.3 Closure criteria

In order to meet the objectives, set for the closure of the Caylloma Mine and Mill, "closure criteria" have been defined, which will allow the design of strategies to ensure their technical, economic and environmentally sustainable viability.

The closure of the Caylloma Mine and Processing Plant is intended to achieve a planned closure of its operations, thus minimizing the environmental impacts that could occur in the components involved in the post-closure stage, leaving them physically and chemically stable, dismantling infrastructure, profiling and stabilizing the land as appropriate.

It is necessary to know the specific conditions of the disturbed areas and in which it will be necessary to apply a restoration or rehabilitation, taking into account physical, geological, hydrological, hydrogeological, climatic and environmental characteristics, methods of mining-metallurgical operation applied and the conditions of the process; all this leads to take particular criteria applicable only to the reality presented.

There are environmental components typified in the current environmental legislation and in which there are commitments that we must all consider in order to protect them, such as: water resources, soil resources, air, flora and fauna. A beneficial use of soil must also be contemplated after closure in some areas, which implies applying Sustainable Development guidelines.

20.4.4 Stakeholder identification

According to the Community Relations Guide of the Ministry of Energy and Mines in Peru, stakeholders are considered as all those social groups that may be impacted by the project. Stakeholders can be made up of families, neighborhoods, economic organizations.

The main usefulness of stakeholders lies in the fact that they are people or organizations that allow the focus of the information on that data most relevant to the study of the company-community relationship.

The purposes of this technique are:

- Identify the stakeholders.
- Define their interests and perceptions of the specific problems on which we intend to intervene.
- Identify the resources that each group brings to the problem.
- Identify the institutional responsibilities that each group has.
- Identify the interest that each group has in the initiative.
- Identify the conflicts that each stakeholder group would have with respect to the initiative.
- Conclude on the activities that can be carried out to satisfy the interests of the stakeholders.

20.4.5 Post-closure maintenance and monitoring

In accordance with current regulations for mine closure, in our Second Mine Closure Plan Update for the Caylloma Mine and Processing Plant, we are committed to execute the closure measures, as well as to maintain and monitor the effectiveness of the measures implemented both during its execution and in the post-closure stage.

The monitoring program (location, frequency, elements, parameters and conditions to be monitored) was approved by the competent authority, this program is specific, according to the characteristics of each area, work or facility and will be carried out until the physical and chemical stability of the mining components of the Mine Closure Plan is demonstrated.

In this sense, the actions, measures and/or post-closure maintenance and monitoring procedures designed for the present closure at the Caylloma Mine and Processing Plant are aimed at ensuring that the closure activities or measures comply with the objectives for which they were designed.

Once the closure of the areas and facilities used by the mining unit has been completed, we must continue to develop the corresponding monitoring, maintenance or surveillance measures, as proposed in this Closure Plan, which was approved by the competent authority. The execution of engineering and infrastructure construction works for environmental rehabilitation are not included in the post-closure stage.

The post-closure stage will be in charge and under the responsibility of Compania Minera Bateas S.A.C. (hereinafter Bateas), for a period of five (05) years after the conclusion of the execution of the works contemplated in this closure of the Caylloma Mine and Processing Plant.

The goal of the closure measures formulated is to achieve stability, taking as a reference the Environmental Quality Standards and National and International Maximum Permissible Limits, as well as physical, chemical, hydrological, biological and social stability criteria.

The closure measures for the components contemplated in the Caylloma Mine and Processing Plant have been designed under the Passive Care closure criterion, so some closure measures will require the application of Passive Maintenance and Monitoring activities, which will imply a minimum need for periodic care and maintenance programs in the post-closure stage, basically including surveillance programs and eventual maintenance actions, annual inspections of the facilities, etc. without requiring permanent personnel on site.

20.4.6 Post-closure maintenance activities

As previously indicated in the Approved PCM Update, due to the characteristics of the components and the proposed closure activities, it is anticipated that only Passive Care or Maintenance activities will be required.

The following are the measures for the post-closure stage of the components contemplated in this closure of the Caylloma Mine and Processing Plant.

The objective of the implementation of the maintenance program is to ensure that the closure works operate effectively until they are self-sustaining, so maintenance will be performed.

- Physical Stability Maintenance.
- Geochemical Maintenance.
- Hydrological Maintenance.

Post-closure monitoring activities

The following activities will be performed as follow-up:

- Physical Stability Monitoring.
- Air quality monitoring program.
- Geochemical stability monitoring.
- Biological Monitoring.
- Monitoring of Social Programs

20.4.7 Closure costs

Mine closure is also included in the environmental program. For 2024 a total of US$ 471,000 has been budgeted for the ongoing closure plan and environmental liabilities. The closure plan is performed to ensure compliance with the programs and plans submitted to the MEM. A breakdown of the budgeted mine closure costs for the LOM are presented in Table 20.2 and totals US$ 16.1 million.

Table 20.2 Mine closure budget

Capital Cost Item	2024	2025	2026	2027	2028	Total
Budget (US$000)	471	71	2,098	1,896	11,524	16,060

20.5 Comment on Section 20

It is the opinion of the QP that the appropriate environmental, social and community impact studies have been conducted to date at the Caylloma Mine. Bateas has maintained all necessary permits to develop mining activities in compliance with what is specified in its environmental, social and community impact studies.

21 Capital and Operating Costs

The Caylloma Mine is a producing operation managed by Bateas having mined underground continuously since 2006. Capital and operating cost estimates are based on the established cost experience gained from the operation, projected budgets, and quotes from manufacturers and suppliers. Overall, the cost estimation is of sufficient detail that, with the current experience at Bateas, Mineral Reserves can be declared. The analysis includes forward estimates for sustaining capital. Inflation is not included in the cost projections and exchange rates were estimated at S/3.60 (Peruvian Soles) to one US dollar.

21.1 Sustaining capital costs

Projected capital costs for the Caylloma Mine LOM are summarized in Table 21.1.

Table 21.1 Summary of projected major capital costs for the LOM

Capital Cost Item (MUS$) *	2024	2025	2026	2027	2028
Development	3.61	5.89	2.52	2.87	0.00
Brownfields	0.24	0.00	0.00	0.00	0.00
Infill	0.74	0.50	0.50	0.50	0.50
Mine Development & Brownfields	**4.59**	**6.39**	**3.02**	**3.37**	**0.50**
Mine	6.07	0.98	1.32	4.08	0.00
Plant	0.36	0.13	0.09	0.03	0.00
Tailings dam	0.44	3.61	5.41	0.31	0.00
Maintenance and Energy	6.18	1.68	0.23	0.00	0.00
General services	1.07	2.89	0.15	0.23	0.00
Equipment and Infrastructure	**14.11**	**9.29**	**7.20**	**4.64**	**0.00**
Mine Closure & Site Rehabilitation	**0.47**	**0.07**	**2.10**	**1.90**	**11.52**
Total Capital Expenditure	**19.17**	**15.75**	**12.32**	**9.91**	**12.02**
*Numbers may not total due to rounding					

Capital costs include all investments in mine development, equipment and infrastructure necessary to maintain the mine facilities and sustain the continuity of the operation. Capital costs are split into three main areas; mine development and Brownfields; equipment and infrastructure; and mine closure and site rehabilitation.

21.1.1 Mine development

Mine development includes the main development and infrastructure of the mine through the generation of ramps, ore and waste shafts, ventilation shafts, and level extraction. It also includes the development of drives for Brownfield exploration to allow investigation of areas that are inaccessible from the surface. Infill delineation drilling is included under mine development & brownfield costs as this activity has the objective of increasing confidence in currently defined Mineral Resources. Capital costs for the mine are higher in the next two years due to an investment required in 2024 to continue development of the deeper levels (levels 20 to 21) of the mine.

21.1.2 Equipment and infrastructure

Equipment and infrastructure costs are attributed to all departments of the mine including mine, plant, tailing facilities, maintenance and energy, safety, information technology, administration and human resources, logistic, camps, geology, planning, laboratory and environmental. Capital costs for equipment and infrastructure are related to completion of the construction for the pumping system, construction of a new backfill system, energy capacity expansion, energy substations and energy contingency line proposed for completion in 2024. Additionally, further investment is required for tailing dam expansion and studies in the coming years.

21.1.3 Mine closure and rehabilitation

Mine closure costs are attributed to site rehabilitation costs required to remediate the area where the mine is located and to meet mine closure requirements.

21.2 Operating costs

Projected operating costs for the LOM are detailed in Table 21.2.

Table 21.2 Life-of-mine operating costs

Area	Units	2024	2025	2026	2027	2028
Mine	US$/t	45.3	44.1	42.4	41.9	43.2
Plant	US$/t	15.7	12.2	12.2	12.2	12.2
General Services	US$/t	16.4	16.4	16.4	16.4	16.4
Administrative Services	US$/t	12.0	12.1	12.1	12.1	12.0
Management Fee	US$/t	1.7	1.8	1.8	1.8	1.7
Distribution	US$/t	7.4	7.1	7.3	7.1	7.2
Community Support Activities	US$/t	1.2	1.2	1.2	1.2	1.2
Total	**US$/t**	**99.8**	**94.8**	**93.3**	**92.6**	**93.9**

Operating costs include the site costs and other operating expenses for the operation. These operating costs are analyzed on a functional basis and the cost structure is not similar to the operating costs reported by financial statements of Fortuna. The site costs relate to activities that are performed on the property including mine, plant, general services, and administrative service costs. The other operating expenses include costs associated with distribution, management, and community support activities.

21.3 Comment on Section 21

The capital and operating cost provisions for the LOM plan that supports Mineral Reserves have been reviewed. The basis for the estimates is appropriate for the known mineralization, mining and production schedules, marketing plans, and equipment replacement and maintenance requirements.

The QP considers the capital and operating costs estimated for the Caylloma Mine as reasonable based on industry-standard practices and actual costs observed for 2023.

22 Economic Analysis

22.1 Economic analysis

Fortuna is using the provision for producing issuers, whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material production expansion is planned.

Mineral Reserve declaration is supported by a positive cashflow.

22.2 Comments on Section 22

An economic analysis was performed in support of estimation of the Mineral Reserves; this indicated a positive cashflow for the period set out in the LOM using the assumptions detailed in this Report.

23 Adjacent Properties

This section is not relevant to this Report.

24 Other Relevant Data and Information

This section is not relevant to this Report.

25 Interpretation and Conclusions

25.1 Mineral tenure, surface rights, water rights, royalties and agreements

Fortuna was provided with a legal opinion that supports that the mining tenure held by Bateas for the Caylloma Mine is valid and that Fortuna has a legal right to mine the deposit.

The mineral tenement holdings cover 74 mining concessions for a total surface area of 35,622 hectares (ha). In Peru, mining concessions do not have expiration dates, but an annual fee must be paid to retain the concessions in good standing. Bateas states that all fees are up to date and the concessions are all in good standing.

Bateas has signed 22 surface right or easement contracts covering a total of 8,311 ha with landowners to cover the surface area needed for the operation and tailings facilities.

There are royalties attached to the mineral concessions with the following being applicable to Mineral Reserves and taken into consideration in the economic analysis:

- A 2 % royalty on silver production to Nueva Granada Gold Ltd. (formerly Lemuria Royalties Corp.)
- A 1% royalty or an effective rate based on operating profit (whichever is greater) to the Peruvian Government.
- A Special Tax on Mining based on the quarterly operating profit of the mining concession holder.

25.2 Geology and mineralization

The Caylloma polymetallic and silver-gold rich veins are characteristic of a typical low sulfidation epithermal deposit having formed in a relatively low temperature, shallow crustal environment.

Epithermal veins at the Caylloma Mine are characterized by minerals such as pyrite, sphalerite, galena, chalcopyrite, marcasite, native gold, stibnite, argentopyrite, and silver-bearing sulfosalts (tetrahedrite, polybasite, pyrargyrite, stephanite, stromeyerite, jalpite, miargyrite and bournonite). These are accompanied by gangue minerals, such as quartz, rhodonite, rhodochrosite, johannsenite (manganese-pyroxene) and calcite.

There are two distinct types of mineralization at the Caylloma Mine, one with predominately elevated silver values (Bateas, Bateas Piso, Bateas Techo, La Plata, Cimoide La Plata, San Cristobal, San Pedro, San Carlos, Paralela, Carolina, Don Luis II veins), and the other being polymetallic with elevated silver, lead, zinc, copper, and gold values (Animas, Animas Techo, Animas NE, Animas NE Techo, Cimoide ASNE, Ramal Techo ASNE, Santa Catalina, Soledad, Silvia, Pilar, Patricia, Nancy and Rosita veins).

Underground operations are presently focused on mining the Animas and Animas NE veins.

25.3 Exploration, drilling and analytical data collection in support of Mineral Resource estimation

Drill holes drilled under Bateas management in the period 2005 to 2023 have data collected using industry-standard practices. Drill orientations are appropriate to the orientation of the mineralization and core logging meets industry standards for exploration of an epithermal-style deposit.

Geotechnical logging is sufficient to support Mineral Resource estimation with the data having been used to support detailed mine planning for the underground mine for over 15 years of operation.

Collar and downhole surveys have been performed using industry-standard instrumentation. Any uncertainties in survey information have been incorporated into subsequent resource confidence category classification.

All collection, splitting, and bagging of channel and core samples were carried out by Bateas personnel since 2005 representing more than 96 % of all information collected at the mine. No material factors were identified with the drilling programs that could affect Mineral Resource or Mineral Reserve estimation.

Sample preparation and assaying for samples that support Mineral Resource estimation has followed approximately similar procedures for most drill programs since 2005. The preparation and assay procedures are adequate for the type of deposit and follow industry standard practices.

Sample security procedures met industry standards at the time the samples were collected. Current core and pulp sample storage procedures and storage areas are consistent with industry standards.

25.3.1 Data verification

Paul Weedon

Mr. Weedon has visited the Caylloma Mine on multiple occasions and during these visits has reviewed the geological interpretations and drill core. He is of the opinion that the data verification programs performed on the data collected from exploration are adequate to support the geological interpretations, the analytical and database quality, and Mineral Resource estimation at the Caylloma Mine.

Eric Chapman

Mr. Chapman has personally verified data used in the Mineral Resource estimation, including the database, collars and downhole surveys, geological logs and assays, estimation parameters, and mine reconciliation.

Mr. Chapman is of the opinion that the geological and assay data stored in the database is representative of that reported from the laboratories and is suitable for usage in Mineral Resource estimation.

Monthly and quarterly QC reports detailing results for exploration drilling, infill drilling and channel sampling are received and reviewed by Mr. Chapman on an ongoing basis. Any discrepancies identified are immediately followed up with site staff for further investigation.

To further verify the assay data, Mr. Chapman has randomly selected assay data from the database and compared the assay results stored to that of the original assay certificates.

Mr. Chapman is of the opinion that the geological and assay data stored in the database is representative of that reported from the laboratories and is suitable for usage in Mineral Resource estimation.

Raul Espinoza

Mr. Espinoza has reviewed on site the current mining methods and verified the Mineral Reserve estimation methodology including review of documents and discussions with relevant Bateas personnel regarding permitting, metallurgical testwork and processing, operating and capital expenditure requirements.

Mr. Espinoza also works closely with the relevant departments reviewing the environmental and community programs as part of Fortuna's Environmental, Social, and Governance (ESG) criteria.

Mr. Espinoza is of the opinion that the parameters used for the estimation of Mineral Reserves based on the proposed mining method, geotechnical studies, environmental and community commitments, operational, processing and cost estimates are reasonable and representative for the Caylloma Project.

Mathieu Veillette

Mr. Veillette has been providing technical support to Caylloma since August 2022. Mr. Veillette helps coordinate and manage the Engineer of Record (EoR) for TSF and water management. Mr. Veillette provides support for waste dump geotechnical aspects and has reviewed all technical documents related to the TSFs, water management and waste dumps. During Mr. Veillette's most recent site visit he performed an internal audit on the TSF, water management and waste dump. In April 2023, he spent 10 days on site training new RTFEs and providing support on waste dump design and stability. Mr. Veillette's most recent site visit was May 30 to 31, 2023.

Patricia Gonzalez

Ms. Gonzalez has reviewed the metallurgical results comprising several phases of testwork and in the opinion of Ms. Gonzalez, the Caylloma Mine metallurgical samples tested, and the ore that is presently treated in the plant is representative of the orebody as a whole in respect to grade and metallurgical response. Differences between vein systems are minimal with regard to recovery.

25.4 Metallurgical testwork

Metallurgical recovery values forecast in the LOM for sulfide material average 82 % for silver, 22 % for gold, 89 % for lead, and 89 % for zinc with the exception of veins with elevated gold grades (>1g/t) where metallurgical testwork has shown that minor adjustments in the plant can result in average metallurgical recovery rates of 85 % for silver, 55 % for gold, 87 % for lead and 89 % for zinc.

Metallurgical recovery has been found to decrease with elevated zinc oxide material, however this can be mitigated by blending with sulfide material, as long as the oxide content does not exceed 11 %. This blending strategy has been taken into account in the LOM. There are no additional deleterious elements that require special treatment in the plant as of the effective date of this Report.

25.5 Mineral Resource estimation

The 2023 Mineral Resource update has relied on channel and drill hole sample information obtained by Bateas since 2005. Mineralized domains identifying potentially economically extractable 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.

Mineral Resources are reported based on underground mining within mineable stope shapes based on actual operational costs and mining equipment sizes using NSR values in the block model calculated based on the projected long-term metal prices, commercial terms, and actual metallurgical recoveries experienced in the plant. Mineral Resources have been reported above a US$ 75/t NSR cut-off value for veins wider than two meters and amenable to extraction by semi-mechanized mining methods (Animas, Animas NE, Ramal Techo ASNE, Cimoide ASNE, Nancy, Rosita, and San Cristobal veins); or above a US$ 135/t NSR cut-off value for veins narrower than two meters regarded as amenable to conventional mining methods (all other veins).

Mineral Resources are categorized as Measured, Indicated or Inferred. The criteria used for classification includes the number of samples, spatial distribution, distance to block centroid, KE and ZZ.

Mr. Chapman is of the opinion that the Mineral Resources have been estimated using standard industry practices and conform to the requirements of CIM (2019). The Mineral Resources are acceptable to support the declaration of Mineral Reserves.

Furthermore, it is the opinion of Mr. Chapman that by the application of US$ value for each metal taking into consideration projected commercial terms, the average metallurgical recovery, average grade in concentrate and long-term metal prices as well as the exclusion of Mineral Resources identified as being isolated or economically unviable via the application of a mineable stope optimizer that accounts for operational dilution, the Mineral Resources have 'reasonable prospects for eventual economic extraction'.

25.6 Mineral Reserve estimation

Mineral Reserves are estimated as of December 31, 2023, and will support a four-year and 3-month LOM considering 350 days in the year for production and a capacity rate of 1,500 tpd. The expectation based on an optimized production schedule is for an annual average production of approximately 1.1 Moz of silver and 15 kt of lead and 20 kt of zinc.

The conversion of Mineral Resources to Mineral Reserves was undertaken using industry recognized methods, actual operational costs, capital costs, and plant performance data. Thus, it is considered to be representative of future operational conditions. This Report has been prepared with the latest information regarding environmental and closure cost requirements.

Mr. Espinoza is of the opinion that the Proven and Probable Mineral Reserves estimate has been undertaken with reasonable care and has been classified using the 2014 CIM Definition Standards.

Factors that may affect the estimates include: metal price and exchange rate assumptions; changes to the assumptions used to generate the cut-off grade; changes in local interpretations of mineralization geometry and continuity of mineralized zones; changes to geological and mineralization shape and geological and grade continuity assumptions;

variations in density and domain assignments; geometallurgical assumptions; changes to geotechnical, mining, dilution, and metallurgical recovery assumptions; change to the input and design parameter assumptions that pertain to the conceptual stope designs constraining the estimates; and assumptions as to the continued ability to access the site, retain mineral and surface rights titles, maintain environment and other regulatory permits, and maintain the social license to operate.

25.7 Mine plan

Mining at Caylloma is conducted by contractors based on conventional overhand cut-and-fill using mechanized, semi-mechanized and conventional extraction methodologies.

Since October 2006 Bateas has successfully managed the underground operation of the Caylloma Mine, processing 8.0 Mt of ore and producing 23 Moz of silver, 36 koz of gold, 193 kt of lead, and 272 kt of zinc as of December 31, 2023. During this period considerable investment has been made to improve the processing plant, develop the underground infrastructure, and increase the capacity of the TSFs.

Mr. Espinoza is of the opinion that:

- The mining method being used is appropriate for the deposit being mined. The underground mine design, stockpiles, tailings facilities, and equipment fleet selection are appropriate for the operation.
- The mine plan is based on historical mining and planning methods practiced at the operation for the previous twelve years and presents low risk.
- Inferred Resources are not included in the mine plan.
- The mobile equipment fleet presented is based on the actual mining operations, which are known to achieve the production targets set out in the LOM.
- All mine infrastructure and supporting facilities meet the needs of the current mine plan and production rate.

25.8 Recovery

The current process plant design is split into four principal stages including crushing; milling; flotation; and thickening, filtering, shipping.

Ms. Gonzalez considers process requirements to be well understood, and consistent based on the actual observed conditions in the operating plant. There is no indication that the characteristics of the material being mined will change and therefore the recovery assumptions applied for future mining are considered as reasonable for the LOM.

25.9 Infrastructure

Mr. Espinoza is confident that all mine and process infrastructure and supporting facilities are included in the present general layout to ensure that they meet the needs of the mine plan and production rate and notes that:

- The Caylloma Mine is located 225 km, or 5 hours by road from the city of Arequipa, the main service center for the operation, with good year-round access.
- The mine site infrastructure has a footprint of 91.12 ha associated with the Huayllacho beneficiation concession.

- An expansion to the tailings facility stage (2B) was constructed and provides capacity until the end of 2026, based on current production rates. Detailed engineering studies are in progress for the third expansion stage (3C) which is going to cover tailings capacity for LOM requirements.
- Power demand on the operations is 7.8 MW provided mainly (87 %) through the national power grid and two diesel generators on site to cover the shortfall and provide backup.
- Water demand at the Caylloma Mine is 60 l/s, including 10 l/s for the camp. Approximately 70 % of the processing plant total water consumption is recovered from tailings facility N° 3 with the other 30 % from fresh water provided by the Santiago River.
- All process buildings, offices, and camp facilities for operating the mine have been constructed.

25.10 Markets and contracts

Since the operation commenced production in October 2006, a corporate decision was made to sell the concentrate on the open market. To get the best commercial terms for the concentrates, it is Fortuna's policy to sign contracts for periods no longer than one year. All commercial terms entered between the buyer and Bateas are regarded confidential but are considered to be within standard industry norms.

The QP has reviewed the information provided by Fortuna on marketing, contracts, metal price projections and exchange rate forecasts and notes that the information provided support the assumptions used in this Report and are consistent with the source documents, and that the information is consistent with what is publicly available within industry norms.

25.11 Environmental, permitting and social considerations

In June 1997, the Ministry of Mines approved the PAMA (Environmental Compliance and Management Program) of the San Cristóbal Economic Management Unit through Directorial Resolution No. RD 087-97-EM/DGM, for compliance with the commitment's environmental conditions of the mining unit.

The mining operation has been developed under strict compliance with the regulations and permits required by public institutions linked to the mining sector. In addition, all work follows the international quality and safety standards established in ISO 14001 and ISO 45001.

Standards and permits obtained by the environmental area together with the legal area. The operation also ensures that all environmental activities are periodically monitored and recorded as part of the quality control measures submitted to the MEM. and other legal regulatory entities.

Of particular importance is the monitoring of the river water quality in the area. This activity consists of monitoring the Santiago River, being the main river that passes through the property, employing people from the local communities to verify the results.

Bateas has a very strong commitment to the development of the communities surrounding the Caylloma Mine. In this sense, Bateas is committed to sustainable projects, direct support and alliances that build the company's commitment to local communities, respecting local values, customs and traditions, through projects or programs based on respect for diversity. ethnic. -cultural, open communication and effective interaction with local actors that improve education, health and infrastructure. Mine closure is also included in the environmental program.

Environmental risks during the closure stage will be reduced through remediation and monitoring works.

There will also be a significant environmental risk during the closure of the facilities, which will cause a significant production of non-hazardous industrial waste and hazardous products due to the movement of heavy machinery. In the closure stage, the land will be profiled with heavy machinery to minimize the long-term impact of mining activity and return the land topology to previous conditions. It will be critical to establish clear environmental policies with contractors during this process.

For 2024, a total of US$471,000 has been budgeted for the ongoing closure plan and environmental liabilities. The closure plan is carried out to ensure compliance with the programs and plans submitted to the MEM.

It is the opinion of the QPs that the appropriate environmental, social and community impact studies have been conducted to date at the Caylloma Mine. Bateas has maintained all necessary environmental permits that are prerequisite for operation of project infrastructure and the maintenance of mining activities.

25.12 Capital and operating costs

Capital and operating cost estimates are based on established cost experience gained from current operations, projected budget data and quotes from manufacturers and suppliers.

The capital and operating cost provisions for the LOM plan that supports Mineral Reserves have been reviewed. The basis for the estimates is appropriate for the known mineralization, mining and production schedules, marketing plans, and equipment replacement and maintenance requirements.

Mr. Espinoza considers the capital and operating costs estimated for the Caylloma Mine as reasonable based on industry-standard practices and actual costs observed for 2023.

25.13 Economic analysis

Fortuna is using the provision for producing issuers, whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material production expansion is planned.

Mineral Reserve declaration is supported by a positive cashflow for the period set out in the LOM based on the assumptions detailed in this Report.

25.14 Risks and opportunities

A number of opportunities and risks were identified by the QPs during the evaluation of the Caylloma Mine.

Opportunities include:

- Reduction in overall pumping costs through improvements to the mine dewatering system resulting in reduced power consumption and maintenance requirements. Mine water optimization will strive to eliminate the need to abstract water from the Santiago River.

- Potential to expand the ore processing capacity at the plant. The conceptual study indicates a possible business case to increase production to 2,200tpd and requires further studies to confirm its feasibility.
- Potential to expand current resources through exploration of the Animas NE vein with mineralization remaining open to the northeast and at depth.

Risks include:

- An expansion of the current tailings storage facility TSF No. 3 will be required for stage (3C) to cover the current production levels up to LOM requirements. A permit will be required for the expansion, and although there is no guarantee this will be granted, Bateas is confident that if the application is submitted in a timely manner, the permit should be granted based on previous permit applications.
- Bateas management occasionally receives requests from local authorities and/or civil organizations regarding unrealistic social expectations. Bateas are mitigating the risk of conflict regarding these demands by working with local authorities, landowners, and communities to address expectation levels and to take requests into account in preparing its annual community relations work program and budget.
- TSF N° 2 closure costs are currently unknown. A site investigation study was conducted in the third quarter of 2023 to sample foundation materials and laboratory testing is planned for January 2024. An engineering trade off analysis is expected to be completed by the end of the second quarter 2024 to determine closure costs associated with this facility. TSF N° 2 is planned for decommissioning in 2025 when a new cyclone plant is planned to be operational adjacent to the mill. TSF N° 2 is currently being used as a temporary cyclone / tailings classification facility. Coarse tailings (40% by volume) are disposed of as mine backfill with overflow fine tailings sent to TSF N° 3.

26 Recommendations

26.1 Overview

Recommendations for the next phase of work have been broken into those related to ongoing exploration activities and those related to additional technical studies focused on operational improvements. Recommended work programs are independent of each other and can be conducted concurrently unless otherwise stated. The exploration phase is estimated to cost $ 980,000 with an additional technical studies phase estimated to cost $ 180,000. Depending on results from these phases a plant expansion pre-feasibility study phase may be executed at an estimated cost of approximately $ 1,000,000.

26.2 Exploration

- It is recommended that Bateas continue surface mapping of key areas of interest including Antacollo, Condorcoto, Santa Rosa and Antimonio, as well as geophysical surveys at Llococucha to identify potential future drill targets. The budgeted cost of the surface mapping activities is $ 244,000 (excluding personnel costs).
- Bateas is planning to continue the delineation drilling from underground in 2024 focusing on the lower levels of ore shoot 3 in the Animas NE vein. A total of 20 drill holes totaling 4,027 m are planned at a budgeted total cost of $ 736,000.

26.3 Technical and operational

A number of additional studies are recommended to improve estimates as well as operational decision making and mining costs.

- **Review of mining methodology.** The width of mineralization and rock quality varies greatly throughout the deposit. It is recommended that an evaluation of mining method be conducted to assess potential implementation of the SLS mining method applied to high grade Au-Ag veins, additionally to review an increment on the bench height of the SLS stopes from 13.5 m to 20 m. The study could be conducted in-house or externally, with an external cost estimated at $ 80,000.

- **Review of Mine Cost Optimization.** It is proposed to do a cost optimization study in order to identify operational bottlenecks where savings can be found both in mine, auxiliary services and plant. The estimated cost of the study is $ 100,000.

- **Plant expansion pre-feasibility study.** Dependent on the results of the delineation drilling and mine cost optimization a pre-feasibility study could be executed to assess if the production rate at the Caylloma plant could be increased to 2,200 tpd. The estimated cost of such a study is approximately $ 1,000,000.

- **Density estimation.** It is recommended that the number of bulk density measurements be increased in veins that lack sufficient values for meaningful statistical analysis. This will be completed using the Projects resources and part of normal operating cost.

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Certificates

CERTIFICATE of QUALIFIED PERSON

(a) I, Eric Chapman, Senior Vice President of Technical Services for Fortuna Silver Mines Inc., 650-200 Burrard St, Vancouver, BC, V6C 3L6 Canada; do hereby certify that:

(b) I am the co-author of the technical report titled "Fortuna Silver Mines Inc. Caylloma Mine, Caylloma District, Peru" that has an effective date of December 31, 2023 (the "Technical Report").

(c) I graduated with a Bachelor of Science (Honors) Degree in Geology from the University of Southampton (UK) in 1996 and a Master of Science (Distinction) Degree in Mining Geology from the Camborne School of Mines (UK) in 2003. I am a Professional Geologist of the Engineers and Geoscientists of the Province of British Columbia (Registration No. 36328) and a Chartered Geologist of the Geological Society of London (Membership No. 1007330). I have been practicing as a geoscientist and preparing resource estimates for approximately twenty years and have completed more than thirty resource estimates for a variety of deposit types such as epithermal gold/silver veins, porphyry gold deposits, and volcanogenic massive sulfide deposits. I have completed at least fifteen Mineral Resource estimates for precious metal projects over the past five years.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* ("NI 43–101").

(d) I last visited the mine on November 18th to 19th, 2023.

(e) I am responsible for the preparation of Sections 1.1 to 1.4, 1.6, 1.7, 1.9, 1.19 and 1.20; Sections 2 to 8; Section 10; Section 11; Sections 12.1 to 12.4, 12.7, 12.9 and 12.10; Section 14; Sections 25.1 to 25.3, 25.5, 25.14; Sections 26.1 and 26.3; and Section 27.

(f) I am not independent of Fortuna Silver Mines Inc ("Fortuna") as independence is described by Section 1.5 of NI 43–101. I am a Fortuna employee.

(g) I have been an employee of Fortuna and involved with the mine that is the subject of the Technical Report since May 2011.

(h) I have read NI 43–101 and Form 43-101F1, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument and Form.

(i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, BC, February 16, 2024.

[signed]

Eric Chapman, P. Geo.

CERTIFICATE of QUALIFIED PERSON

(a) I, Paul Weedon, Senior Vice President, Exploration of Fortuna Silver Mines Inc. ("Fortuna"), 200 Burrard Street, Suite 650, Vancouver, BC V6C 3L6, Canada, do hereby certify that:

(b) I am the co-author of the technical report titled "Fortuna Silver Mines Inc. Caylloma Mine, Caylloma District, Peru" that has an effective date of December 31, 2023 (the "Technical Report").

(c) I graduated from Curtin University, Western Australia in December 1991 with a Bachelor of Science (Geology), and a Post Graduate Diploma of Economic Geology (Distinction) and have practiced my profession continuously since 1991. I am a professional Geologist and a Member of the Australian Institute of Geoscientists (MAIG #6001). I have worked across all roles of exploration and mining geology, covering open-pit and underground gold mining in production roles up to Technical Services Manager for large scale complex operations. My exploration experience extends from project generation through to project development and corporate roles. These roles have been conducted across Australasia, Africa and Latin America. I have held my current position of Senior Vice President – Exploration for Fortuna Silver Mines Inc since October 2021.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* ("NI 43–101").

(d) I last visited the mine on August 11th to 13th, 2023.

(e) I am responsible for the preparation of Section 1.5, 1.19 and 1.20; Section 2.3; Section 9; Section 12.4 and 12.10; Sections 25.3.1 and 25.14; Section 26.2; and Section 27.

(f) I am not independent of Fortuna Silver Mines Inc ("Fortuna") as independence is described by Section 1.5 of NI 43–101. I am a Fortuna employee.

(g) I have been an employee of Fortuna and involved with the property that is the subject of the Technical Report since August 2021.

(h) I have read NI 43–101 and Form 43-101F1, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument and Form.

(i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Perth, Australia, February 16, 2024.

[signed]

Paul Weedon, MAIG.

CERTIFICATE of QUALIFIED PERSON

(a) I, Raul Espinoza, Technical Services Director of Fortuna Silver Mines Inc., 650-200 Burrard St, Vancouver, BC, V6C 3L6 Canada; do hereby certify that:

(b) I am the co-author of the technical report titled "Fortuna Silver Mines Inc. Caylloma Mine, Caylloma District, Peru" that has an effective date of December 31, 2023 (the "Technical Report").

(c) I graduated with a Bachelor of Science Degree in Mining Engineering from Pontificia Universidad Catolica del Peru in 2001 and a Master of Engineering Science in Mining from Curtin University, Australia, in 2015. I am a Fellow member of the Australasian Institute of Mining and Metallurgy and registered as a Chartered Professional in Mining - FAusIMM (CP) with Membership No. 309581. I have practiced my profession for 22 years and been preparing reserve estimates for approximately 11 years. My experience has covered operational, technical, managerial and consultancy functions for open pit and underground mines from early-stage projects through to producing mines in Peru, Australia, Canada and Mexico.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects ("NI 43–101").

(d) I last visited the mine on November 18th to 19th, 2023.

(e) I am responsible for the preparation of Sections 1.7, 1.10, 1.11, 1.13 to 1.20; Section 2.3; Sections 12.8 and 12.10; Section 15; Sections16.1, 16.3 to 16.9; Sections 18.1, 18.2, 18.5 to 18.10; Sections 19 to 24; Sections 25.3.1, 25.6, 25.7, 25.9 to 25.14; Section 26.3; and Section 27.

(f) I am not independent of Fortuna Silver Mines Inc ("Fortuna") as independence is described by Section 1.5 of NI 43–101. I am a Fortuna employee.

(g) I have been an employee of Fortuna and involved with the property that is the subject of the Technical Report since June 2022.

(h) I have read NI 43–101 and Form 43-101F1, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument and Form.

(i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, Canada, February 16, 2024.

[signed]

Raul Espinoza, FAusIMM (CP)

CERTIFICATE of QUALIFIED PERSON

(a) I, Mathieu F. Veillette, Director, Geotechnical, Tailings and Water for Fortuna Silver Mines Inc., 650-200 Burrard St, Vancouver, BC, V6C 3L6 Canada; do hereby certify that:

(b) I am the co-author of the technical report titled "Fortuna Silver Mines Inc. Caylloma Mine, Caylloma District, Peru" that has an effective date of December 31, 2023 (the "Technical Report").

(c) I graduated with a Bachelor of Science Degree in Civil Engineering in 1997 from Queen's University and a Graduate Diploma Business Administration from Simon Fraser University in 2018. I am a Professional Engineer of the Association of Professional Engineers and Geoscientists of the Province of British Columbia (Registration No. 28397), also a Professional Engineer from Colorado (Registration No. 36639) and Alaska (Registration No. 10914). I have practiced my profession continuously for 25 years in geotechnical and water management related fields. The majority of my experience has been in the mining industry including international projects on all stages of the mining process from advanced exploration through decommissioning and reclamation. My relevant work experience includes analysis, site investigations, design, construction, dewatering and operation of open pits, waste dumps, heap leach pads, tailings storage facilities, process ponds, water dams, diversion structures and other mining facilities in Canada (BC, QC), USA (CO, UT, NM, AZ, MT, AK, SC), México, Panamá, Venezuela, Guyana, Peru, Chile, Argentina, Bolivia, Australia, New Zealand and New Caledonia.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* ("NI 43–101").

(d) I last visited the mine on May 30th to 31st, 2023.

(e) I am responsible for the preparation of Section 1.19; Section 2.3; Sections 12.5 and 12.10; Section 16.2; Section 18.3, 18.4 and 18.9; and Sections 25.3.1, 25.9 and 25.14.

(f) I am not independent of Fortuna Silver Mines Inc ("Fortuna") as independence is described by Section 1.5 of NI 43–101. I am a Fortuna employee.

(g) I have been an employee of Fortuna since August 2022 and involved with the property that is the subject of the Technical Report since September 2022.

(h) I have read NI 43–101 and Form 43-101F1, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument and Form.

(i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, Canada, February 16, 2024.

[signed]

Mathieu F. Veillette, P.Eng.

CERTIFICATE of QUALIFIED PERSON

(a) I, Patricia Gonzalez, Director of Operations for Minera Cuzcatlan, Carretera Oaxaca-Huatulco km 48 San Jose del Progreso, Oaxaca CP 71550, Oaxaca - Mexico; do hereby certify that:

(b) I am the co-author of the technical report titled "Fortuna Silver Mines Inc. Caylloma Mine, Caylloma District, Peru" that has an effective date of December 31, 2023 (the "Technical Report").

(c) I graduated with a Bachelor of Science Degree in Chemical Engineering from Universidad Autónoma de Nuevo León, México in 2000 and a Master of Business Administration from Instituto Tecnologico y de Estudios Superiores de Monterrey, México in 2023. I have practiced my profession for 23 years and covered research and metallurgical technical functions for 11 years for various mines and metals such as silver, gold, lead, zinc, and copper. My experience has covered operational, technical managerial and consultancy functions in mines in México. I am a qualified professional member registered in Mining and Metallurgical Society of America #1586QP.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* ("NI 43–101").

(d) I visited the mine on October 31st to November 2nd, 2017.

(e) I am responsible for the preparation of Sections 1.8, 1.12, 1.19 and 1.20; Section 2.3; Sections 12.6 and 12.10; Section 13; Section 17; Section 25.3.1, 25.4, 25.8 and 25.14; and Section 27.

(f) I am not independent of Fortuna Silver Mines Inc ("Fortuna") as independence is described by Section 1.5 of NI 43–101. I am a Minera Cuzcatlan employee.

(g) I have been an employee of Minera Cuzcatlan since April 2011 and involved with the property that is the subject of the Technical Report since 2017.

(h) I have read NI 43–101 and Form 43-101F1, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument and Form.

(i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Oaxaca, Mexico, February 16, 2024.

[signed]

Patricia Gonzalez, MMSA QP