MINERAL RESOURCE AND MINERAL RESERVE UPDATE

Los Gatos Joint Venture, Chihuahua, Mexico

Submitted by:

Gatos Silver Inc.
925 W Georgia Street, Suite 910
Vancouver, British Columbia, Canada, V6C 3L2

Prepared by:
Curtis Clarke, MMSAQP, PMP
Ronald Turner, P. Geo., MAusIMM CP
Stephan Blaho, P. Eng., PEO
Ibrahim Karajeh, P. Eng., PMP
Adam Johnston, FAusIMM CP (Met)
Dawn Garcia, CPG, AIPG
Matthew Fuller, P. Eng., APEGBC

Report Date: October 20, 2023
Effective Date: July 1, 2023

Signatures Page

Qualified Person	Professional Designation	Role	Employer	Signature
Curtis Clarke	MMSA (1352QP), PMP	Lead Author	Bara Consulting (Americas) Ltd.	/s/ Curtis Clarke
Ronald Turner	P. Geo., MAusIMM CP (302538)	Mineral Resources	Golder Associates S.A.	/s/ Ronald Turner
Stephan Blaho	P.Eng., PEO (90252719)	Mineral Reserves	WSP Canada Inc.	/s/ Stephan Blaho
Adam Johnston	FAusIMM CP (Met)	Mineral Processing	Transmin Metallurgical Consultants	/s/ Adam Johnston
Ibrahim Karajeh	P.Eng. PEO (100050232)	Infrastructure	WSP Canada Inc.	/s/ Ibrahim Karajeh
Dawn Garcia	CPG, AIPG 08313	Environmental & Social	Stantec USA	/s/ Dawn Garcia
Matthew Fuller	P.Eng. APEGBC (199825)	Tailings Storage Facility Engineer of Record	Tierra Group International	/s/ Matthew Fuller

Table of Contents

TABLES

FIGURES

NOTE REGARDING FORWARD LOOKING INFORMATION

This Technical Report contains statements that constitute "forward looking information" and "forward-looking statements" within the meaning of U.S. and Canadian securities laws. All statements other than statements of historical facts contained in this Technical Report, including statements regarding Mineral Resource and Reserve estimates, potential cash flow and cash distributions, life of mine, net present value, operating costs, capital costs, economic analysis, production, cash flows, mill throughput rates, viability of modifications and projects to improve efficiency, and expected mining methods, are forward-looking statements. Forward-looking statements are based on beliefs, assumptions, current expectations about future events and on information currently available. Such statements are subject to risks, uncertainties, and other factors that could cause actual results to differ materially from those expressed or implied in the forward-looking statements including without limitation, commodity prices, foreign exchange rates, changes in laws or regulations, failure to obtain or retain permits and licenses, achievement of ramp development rates, requirements to alter mining methodologies, dewatering the mine in a cost-effective manner, opposition to mining that may arise, labour interruptions, uncertainties due to health and safety considerations, risks and uncertainties set out in this Technical Report, other general risks associated with mining operations, and such other risks and uncertainties described in the Gatos Silver, Inc.'s (Gatos Silver, Inc. is referred to herein as the "Company" or "GSI") filings with the U.S. Securities and Exchange Commission and Canadian securities commissions including its 2022 annual report filed on SEDAR in Canada and on form 10-K and subsequent 10-K reports in the United States, also available on the Company's website on gatossilver.com. Further, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended that could cause actual actions, events or results to differ materially from those described in forward-looking statements.

The Company expressly disclaims any obligation or undertaking to update the forward-looking statements contained in this Technical Report to reflect any change in its expectations or any change in events, conditions, or circumstances on which such statements are based unless required to do so by applicable law. No assurance can be given that such future results will be achieved, and as such, readers should not place undue reliance on forward-looking statements. Forward-looking statements speak only as of the date of this Technical Report.

1.0 SUMMARY

The operating Cerro Los Gatos (CLG) underground mine and processing facilities are approximately centered on Latitude 27° 34' 17" N, Longitude 106° 21' 33" W, located approximately 7 kilometers (km) from the town of San José de Sitio, within the Municipality of Satevó in the State of Chihuahua, Mexico. The mine is approximately 120 km south of the state capital of Chihuahua City and approximately 100 km north/northwest of the historical mining city of Hidalgo del Parral (Figure 1.1). In this Technical Report (TR), Cerro Los Gatos (CLG) is defined as the underground mine, processing facilities, Tailings Storage Facility (TSF), and supporting onsite infrastructure as well as the known extents of the Cerro Los Gatos Mineral Reserve and Mineral Resource. The Esther deposit is an undeveloped Mineral Resource located approximately 4km south-west of CLG.

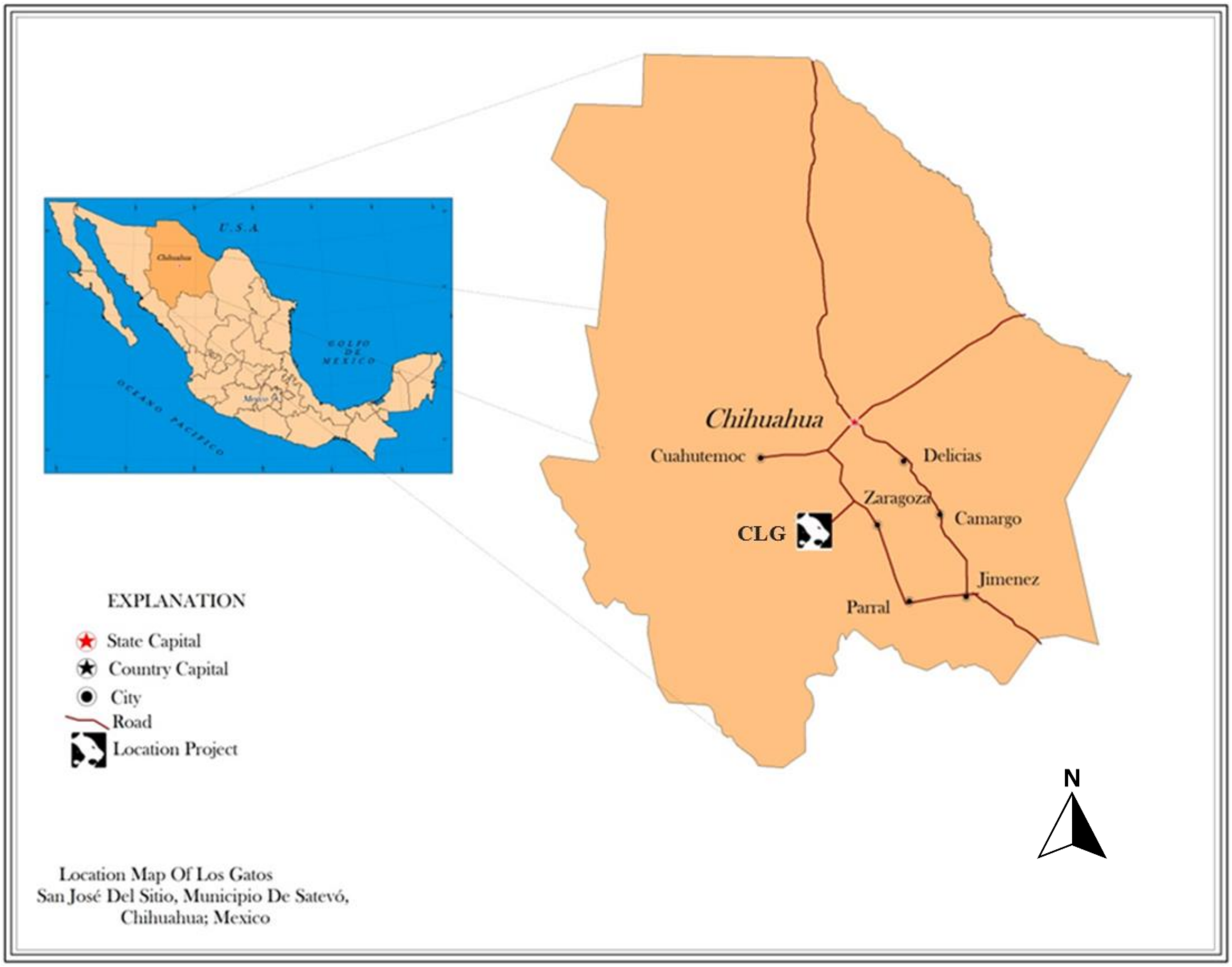


Figure 1.1: Cerro Los Gatos Location Map

The CLG life of mine (LOM) plan which is based on the Mineral Reserves has:

- A current reserve mine life that continues to the fourth quarter of 2030
- Average annual production of 6.6 million ounces of silver with average annual cash flow of $75 million (after tax) through 2030 at $22 per ounce silver price;
- Average operating costs of $88.67 per tonne milled; and
- A post-tax net present value (“NPV”) at a 5% discount rate of $462 million ($572 million pre-tax).

The CLG life of mine plan (LOM Plan) described in this TR covers the period starting July 1, 2023, through to the end of the reserve life in 2030, with closure and reclamation activities expected to occur during 2031 through 2034.

1.1 Property Description and Ownership

The Los Gatos Joint Venture (LGJV) holds concessions through its Mexican subsidiary, Minera Plata Real, S. de R.L. de C.V. (MPR). MPR is 70% owned by Gatos Silver, Inc. and 30% owned by Dowa Metals & Mining Co., Ltd. MPR is the owner of mineral rights held in seventeen titled concessions, covering approximately 103,000 hectares (Ha). MPR has purchased surface lands covering the known extents of the CLG and Esther Resource areas, totalling approximately 5,189 hectares, and has negotiated and ratified an access agreement with the community of San José del Sitio for the use of the access road.

Environmental baseline data collection began in May 2010, to prepare for the development of future environmental studies (EIS) required for the project. The Environmental Impact Study (Manifestación de Impacto Ambiental) for the development of the Cerro Los Gatos project was filed with the Mexican Environmental Regulatory authorities (SEMARNAT) on December 12, 2016, and was approved in 2017. A positive Feasibility Study (FS) was completed on CLG in 2017 (Tetra Tech, 2017). The CLG mine was constructed in 2018 and commissioned in mid 2019. The CLG mine produces concentrates containing silver, lead, zinc, and gold, which are shipped to smelters for processing.

1.2 Geology and Mineralization

The CLG and Esther deposits are embedded within andesites of the Lower Volcanic Series (LVS) of the Sierra Madre Occidental (SMO) volcanic province. On the LGJV concessions, the LVS is exposed in a horst feature that stretches from the CLG deposit approximately 25 km to the northwest to the edge of the concession package.

CLG is an intermediate sulphidation epithermal vein developed within a listric fault zone. Mineralization at CLG is characterized by silver, lead, zinc, and copper sulphides and their corresponding oxides, along with fluorite, manganese, barite, and traces of gold associated with quartz and calcite veins. The veins vary in orientation from West-Northwest to North-Northwest and vary in thickness up to 25 meters (m).

A plan view of the local geology and location of mineralization is provided in Figure 1.2.

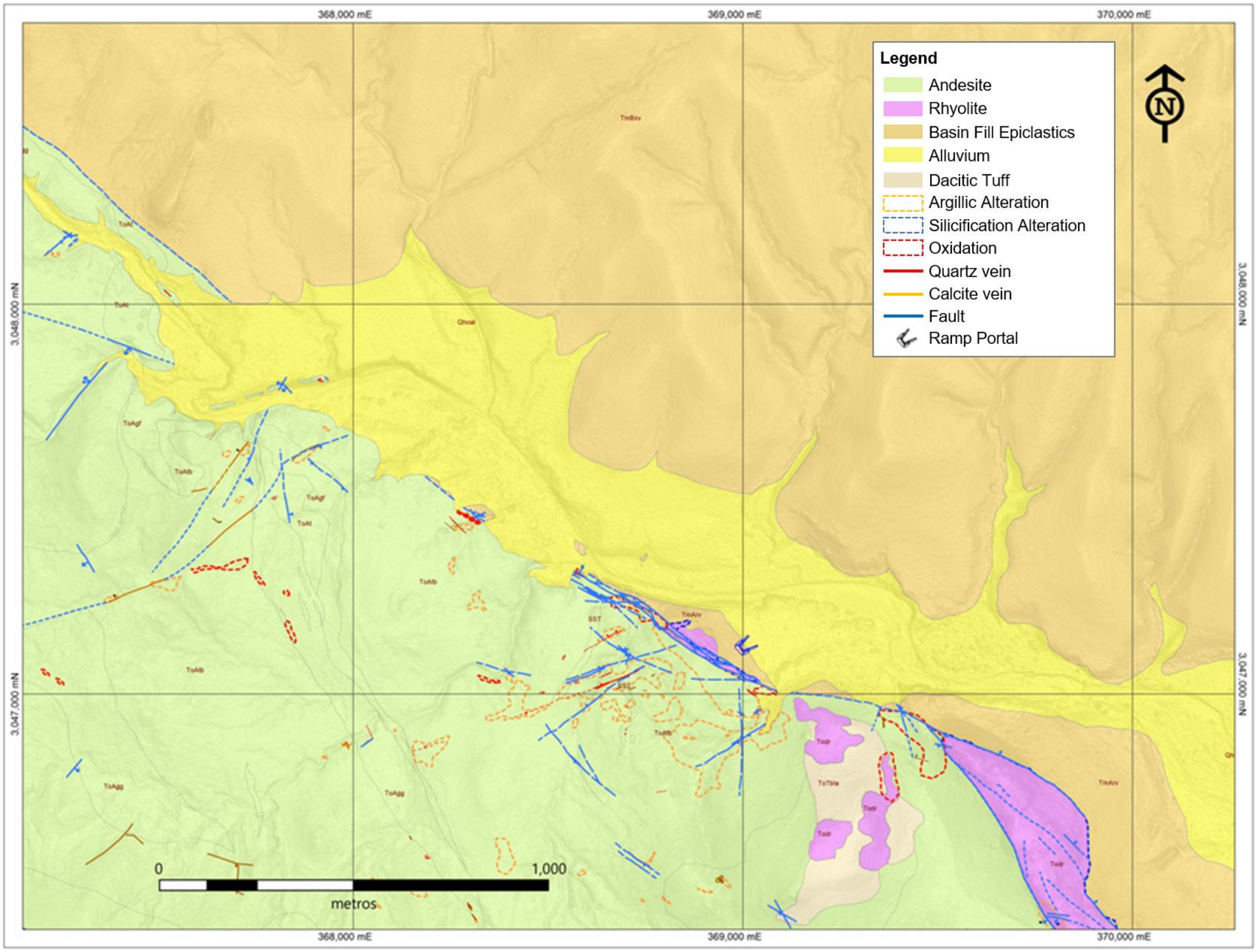


Figure 1.2: Surface Geological Map of the Cerro Los Gatos Deposit Area

The Cerro Los Gatos deposit is a listric-shaped mineralized horizon hosting steeply to shallowly dipping mineralized-shoots at depth. Mineralization of interest occurs for approximately 1,800 m in length, between an elevation varying roughly between 700 masl and 1,400 masl. The top of the mineralized horizon at Cerro Los Gatos is generally located at an elevation of 1,400 masl. The natural topographic surface is in the order of 1,570 masl ± 50 masl.

Figure 1.3 provides a typical cross-section view of the CLG deposit.

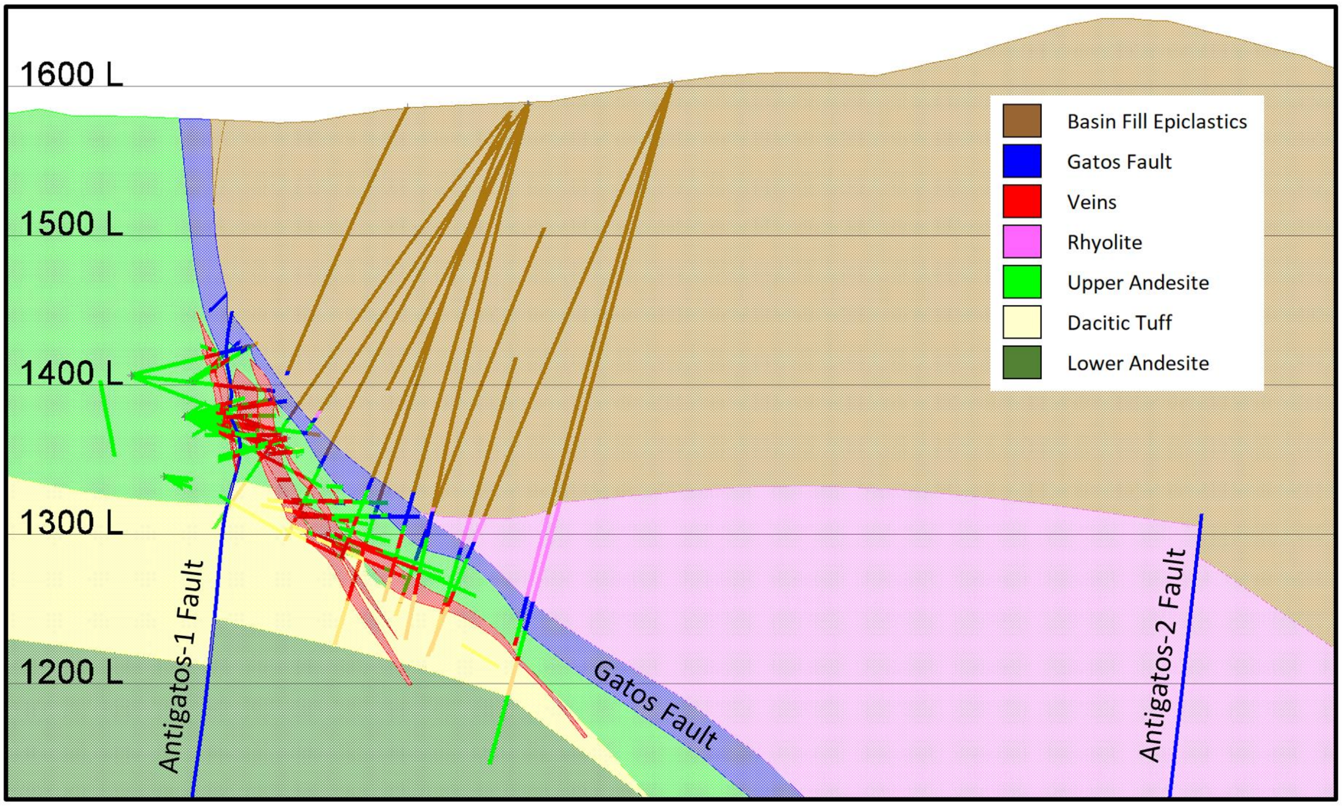


Figure 1.3: Geologic Model, Section Looking Northwest through the Central Zone Showing the Lithological Sequence at Los Gatos Deposit

The veins at Cerro Los Gatos contain silver, zinc, and lead. Lower concentrations of gold and copper are also associated with the veining.

Silver mineralization occurs dominantly as acanthite (argentite) and native silver.

Zinc mineralization occurs as sphalerite, zinc silicates and zinc carbonates of variable grain sizes disseminated in quartz vein material, as open-space filling in cavities, and as replacements in the andesitic and dacitic flow units. Sphalerite ranges from yellow to brown in color and is deposited in a similar style but is not always associated with the galena mineralization. Zinc oxides after sphalerite also exists down along fault structures through the deposit.

Lead mineralization occurs primarily as galena and lead oxide minerals of varying grain sizes that are disseminated in quartz vein material, as open-space filling in cavities, and as replacements in the andesitic and dacitic flow units.

Copper mineralization occurs dominantly as chalcopyrite disseminated within quartz veins.

Gold mineral species have not been identified visually but are present in small quantities in assay results.

1.3 Exploration, Sampling, and Data

Exploration at CLG by MPR has been completed primarily by diamond drilling (DD) and limited non-drilling exploration activities, including surface geochemical assay, geophysics, surface mapping, and structural studies.

The Mineral Resource estimate uses geological and geochemical data that has been collected up until March 31, 2023, for CLG and July 31, 2022, for the Esther deposit. As of March 31, 2023, total drilling with assays available for the CLG Mineral Resource estimation is approximately 1,466 holes, totalling 282,904 m. The CLG Mineral Resource incorporates an additional 32,057 meters of surface resource drilling in 51 holes and 29,462 meters of underground definition drilling in 284 holes since the 2022 Technical Report. The Mineral Resource for Esther is unchanged since 2022.

The sample collection and preparation, assaying and security procedures implemented by MPR use methodologies in accordance with internal and mining industry standards and were continuously monitored to ensure the integrity of the data collected.

1.4 Mineral Resource Estimate

Material factors that may cause actual results to materially vary from the conclusions, estimates, designs, forecasts, or projections, include any significant differences in any one, or more, of the material factors, or assumptions, set out in this subsection, this report, and as set out above in the note regarding forward looking information, including geological and grade interpretations and controls, as well as assumptions and forecasts associated with the establishment of the prospects for economic extraction.

Mineral Resources were estimated using exploration and definition drilling and associated sampling data available for CLG.

The estimation is based on a 3D geological model built using implicit modeling to characterize the structures and establish the geometry and continuity of the veins that form the estimation domains.

Exploratory Data Analysis (EDA) and geostatistical analysis were completed on the raw and composite datasets to help define the interpolation parameters and Mineral Resource classifications. Estimation was completed using Ordinary Kriging (OK) using nested passes with outlier data constraints, variography, and estimation plan defined per each estimation domain.

The Mineral Resource classification in this disclosure is based on drill hole spacing grids, the closeness to mine infrastructure (production drifts), and the level of geological confidence for the continuity and grade of each vein.

Mineral Resources were constrained based on a stope optimization that considered economic Net Smelter Return (NSR) cut-off value, price, mining costs, infrastructure constraints, and mining licenses. For the cut-off definition a NSR calculation was used for generation of the stope optimization shapes. The parameters applied to the calculation of NSR in the block model (including metal values, recovery factors, transportation costs, etc.) were provided by MPR and reviewed and considered reasonable by WSP.

Mineral Resource estimates, for CLG and Esther deposit are shown in Table 1.1 and Table 1.2, respectively, and are reported exclusive of Mineral Reserves and are summarized on a 100% ownership basis. The effective date of the Mineral Resource estimate is July 1, 2023.

Table 1.1: CLG Mineral Resource Estimate, Exclusive of Mineral Reserves

Resource Classification	Mt	Ag (g/t)	Zn (%)	Pb (%)	Au (g/t)	Cu (%)	Ag (Moz)	Zn (Mlbs)	Pb (Mlbs)	Au (koz)	Cu (Mlbs)
Measured	0.05	141	2.50	1.70	0.40	0.05	0.2	2.9	2.0	0.7	0.1
Indicated	0.34	85	3.71	1.90	0.23	0.15	0.9	28.1	14.4	2.5	1.1
Measured and Indicated	**0.40**	**93**	**3.55**	**1.88**	**0.25**	**0.14**	**1.2**	**30.9**	**16.4**	**3.2**	**1.2**
Inferred	4.58	100	3.40	2.32	0.21	0.40	14.7	343.6	234.5	30.9	40.1

Notes:

1. Mineral Resources are reported on a 100% basis and are exclusive of Mineral Reserves.
2. The SEC definitions for Mineral Resources in S-K 1300 were used for Mineral Resource classification which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).
3. Under SEC Regulation S-K 1300, a mineral resource is defined as a concentration or occurrence of material of economic interest in or on the Earth’s crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Mineral Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Mineral Resources as an Indicated or Measured Mineral Resource. It is uncertain if further exploration will result in upgrading Inferred Mineral Resources to an Indicated or Measured Mineral Resource category.
5. Specific gravity has been assumed on a dry basis.
6. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not sum exactly.
7. Mineral Resources exclude all Mineral Resource material mined prior to July 1, 2023.
8. Mineral Resources are reported within stope shapes using a $81.03/tonne Resource NSR cut-off calculated using a silver price of $22/oz, zinc price of $1.20/lb, lead price of $0.90/lb, gold price of $1,700/oz and copper price of $3.50/lb. The Resource NSR cutoff includes mill recoveries and payable metal factors appropriate to the existing CLG processing circuit augmented with a pyrite leach circuit and copper separation circuit. The processing recoveries for these additional projects is based on existing preliminary metallurgical testwork.
9. No dilution was applied to the Mineral Resource.
10. Contained Metal (CM) is calculated as follows:
    a. Zn, Pb and Cu CM (Mlb) = Tonnage (Mt) * Grade (%) / 100 * 2204.6
    b. Ag and Au, CM (Moz) = Tonnage (Mt) * Grade (g/t) / 31.1035; multiply Au CM (Moz) by 1000 to obtain Au CM (koz)
11. The Mineral Resource estimates were prepared under the supervision of Ronald Turner, MAusIMM(CP) an employee of Golder Associates S.A. who is the independent Qualified Person for these Mineral Resource estimates.

Table 1.2: Esther Mineral Resource Estimate, Exclusive of Mineral Reserves

Resource Classification	Mt	Ag (g/t)	Zn (%)	Pb (%)	Au (g/t)	Ag (Moz)	Zn (Mlbs)	Pb (Mlbs)	Au (koz)
Indicated	0.28	122	4.30	2.17	0.14	1.1	26.8	13.6	1.2
Inferred	1.20	133	3.69	1.53	0.09	5.1	98.0	40.6	3.3

Notes:
1. Mineral Resources are reported on a 100% basis.
2. Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.
3. The SEC definitions for Mineral Resources in S-K 1300 were used for Mineral Resource classification which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).
4. The quantity and grade of reported Inferred Mineral Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Mineral Resources as an Indicated or Measured Mineral Resource. It is uncertain if further exploration will result in upgrading Inferred Mineral Resources to an Indicated or Measured Mineral Resource category.
5. Specific gravity has been assumed on a dry basis.
6. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not sum exactly.
7. Mineral Resources are reported within stope shapes using a $52/tonne NSR cut-off basis assuming processing recoveries equivalent to CLG with an Ag price of $22/oz, Zn price of $1.20/lb, Pb price of $0.90/lb and Au price of $1,700/oz. There is a portion of the Esther deposit that is oxidized and metallurgical test work is required to define processing recoveries.
8. No dilution was applied to the Mineral Resource.
9. Contained Metal (CM) is calculated as follows:
   - Zn and Pb, CM (Mlb) = Tonnage (Mt) * Grade (%) / 100 * 2204.6
   - Ag and Au, CM (Moz) = Tonnage (Mt) * Grade (g/t) / 31.1035 ; multiply Au CM (Moz) by 1000 to obtain Au CM (koz)
10. The Mineral Resource estimates were prepared by Ronald Turner, MAusIMM(CP) an employee of Golder Associates S.A. who is the independent Qualified Person for these Mineral Resource estimates.

1.5 Mineral Reserve Estimation

The mine design, scheduling, and mineral reserve estimate were prepared by the technical services department at CLG and verified by the QP responsible for these estimates.

Material factors that may cause actual results to materially vary from the conclusions, estimates, designs, forecasts, or projections, include any significant differences in any one, or more, of the material factors, or assumptions, set out in this subsection, this report, and as set out above in the note regarding forward looking information, including metal prices, mining methods, mining dilution and recovery, labor costs, consumables costs, metal recoveries and transportation costs.

1.5.1 Methodology for Estimating Mineral Reserves

CLG employed procedures recognized in the mining industry to estimate Mineral Reserves. The method consists of converting Measured and Indicated Mineral Resources to Proven and Probable Reserves by identifying material that exceeds the NSR cut-off values while conforming to the geometrical constraints determined by the mining method and applying modifying factors such as dilution and mining recovery.

1.5.2 Modifying Factors

The conversion of Mineral Resources to Mineral Reserves involves the application of modifying factors. The economic modifying factors used in estimating the Mineral Reserve are metal prices, NSR values, and NSR cut-offs, while the mining modifying factors used in the estimate are dilution and mining recovery.

The metal prices used in the Mineral Reserve estimate are based on three-year trailing average monthly prices from April 2020 to April 2023 and long-term analyst consensus estimates.

As CLG is a polymetallic deposit, it is more practical to assess the viability of mining the resource in terms of monetary unit values rather than grades or equivalent grades, as is typically the case at mines having a single predominant metal. This value is estimated as the NSR that is expected to be received for each tonne of ROM material mined and processed. The NSR value refers to the value of a tonne of ROM material as concentrates as final product at the end of the CLG processing plant. This is calculated as the price received for metal in saleable concentrate less costs for transportation, smelting, and refining.

The viability of mining a tonne of diluted resource material is determined by comparing its NSR value to its NSR cut-off. The NSR cut-off consists of all on-site operating costs to mine and process a tonne of the material, including general and administration up to the point of production of final concentrate. If the material's NSR value exceeds the NSR cut-off, it is potentially a candidate for inclusion in the Mineral Reserve. The Mineral Reserve estimate uses six NSR cut-offs according to the three mining methods, cut-and-fill, sill, and longhole, and two cost allocation approaches to each mining method, full cost and incremental.

For longhole open stoping (LHOS), dilution is estimated in terms of equivalent linear overbreak slough (ELOS), which increases with the width of the vein and is higher for stopes dipping less than 70˚. Mining recovery is lower for wider veins and those that dip less than 70˚. The dilution and recovery factors for vein widths up to 8 m apply to longitudinal LHOS, while those for widths exceeding 8 m apply to transverse LHOS. The mine design parameters for longitudinal LHOS specify a minimum mining width of 2.0 m, representing an additional source of dilution for narrow veins.

For cut-and-fill (CAF), the dilution is estimated as a percentage of the resource material, which is included as waste in the ore. Dilution is higher and recovery lower for longitudinal CAF compared to transverse CAF. In addition, dilution is higher for both mining methods in stopes near the Los Gatos fault. The mine design for CAF stopes applies a minimum mining width of 3.5 m, representing an additional source of dilution for narrow veins.

The Mineral Reserve estimate includes additional dilution from backfill in stopes mined with LHOS. It is estimated as a percentage of the resource material according to the backfill type and whether the LHOS version is longitudinal or transverse. Dilution is higher for cemented rockfill (CRF) than for paste backfill (PF).

1.5.3 Stope Optimization

Mineable Shape Optimizer (MSO) embedded in Deswik mine design software was used to determine the mineable portion of the Mineral Resource. The application generates and evaluates potentially mineable shapes in the geological block model to define optimal stope designs that maximize the economic value of the orebody.

1.5.4 Mineral Reserve Statement

The Mineral Reserve available for mining and processing as of July 1, 2023, includes the in-situ tonnes defined on Table 1.4 plus 8.6 kilotonnes of mined material sitting on the stockpile on surface awaiting processing. Table 1.3 presents the Mineral Reserve for CLG at July 1, 2023.

Table 1.3: 2023 CLG Mineral Reserve as at July 1 2023 (1,2,3,4,5,6,7,8,9,10)

	Mt	Ag (g/t)	Zn (%)	Pb (%)	Au (g/t)	Cu (%)	Ag (Moz)	Zn (Mlbs)	Pb (Mlbs)	Au (koz)	Cu (Mlbs)
Proven	3.46	317	4.39	2.17	0.31	0.09	35.3	335.0	165.7	34.7	6.9
Probable	4.62	141	4.27	2.23	0.20	0.19	21.0	435.3	226.6	29.3	19.5
Proven and Probable	**8.08**	**217**	**4.32**	**2.20**	**0.25**	**0.15**	**56.3**	**770.2**	**392.3**	**64.0**	**26.4**

Notes:
1. Mineral Reserves are reported on a 100% basis and exclude all mineral reserve material mined prior to July 1, 2023.
2. Specific gravity has been assumed on a dry basis.
3. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not sum exactly.
4. Values are inclusive of mining recovery and dilution. Values are determined as of delivery to the mill and therefore not inclusive of milling recoveries.
5. Mineral Reserves are reported within stope shapes using a variable cut-off basis with a Ag price of US$22/oz, Zn price of US$1.20/lb, Pb price of US$0.90/lb, Au price of US$1,700/oz and Cu price of $3.50/lb.
6. The Mineral Reserve is reported on a fully diluted basis defined by mining method, stope geometry and ground conditions.
7. Contained Metal (CM) is calculated as follows:
   - Zn, Pb and Cu, CM (Mlb) = Tonnage (Mt) * Grade (%) / 100 * 2204.6
   - Ag and Au, CM (Moz) = Tonnage (Mt) * Grade (g/t) / 31.1035 ; multiply Au CM (Moz) by 1000 to obtain Au CM (koz)
8. The SEC definitions for Mineral Reserves in Regulation S-K 1300 were used for Mineral Reserve classification and are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).
9. Under SEC Regulation S-K 1300, a Mineral Reserve is defined as an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.
10. The Mineral Reserve estimates were prepared under the supervision of Mr. Stephan Blaho, P.Eng. an employee of WSP Canada Inc. who is the independent Qualified Person for these Mineral Reserve estimates.

The average value of the Mineral Reserve is $193/t, which is well above the NSR cut-off cost for the longhole mining method and the cut-and-fill mining method. Therefore, it is concluded that the NSR cut-off has a low impact on the Mineral Reserves.

1.6 Mining Methods

1.6.1 General Description of the Mineralization at Cerro Los Gatos

The CLG orebody is an epithermal vein-type deposit containing polymetallic mineralization. It extends approximately 1,800 m along strike, and its exploited veins average 5 m to 30 m in true width and dipping in excess of 55 degrees.

The deposit consists of four zones called the Northwest (NW), Central (CZ), Southeast Upper (SEU), and Southeast (SE) zones.

1.6.2 Geomechanics

The ground conditions in parts of the deposit are adversely affected by proximity to a major hangingwall fault called the Los Gatos fault. This major basin boundary fault ranges from centimetres to tens of metres in width. While the fault itself does not host mineralization, in areas where the mineralized veins are located adjacent to the structure, mining and ground support methods need to be adapted to limit mining dilution and increase mining recovery.

Geotechnical engineers at the CLG mine have developed a rock support system which is applied to development headings (ramps and drifts), cut-and-fill stopes, longhole stopes, and pillars. The WSP QP has engaged a highly experienced geotechnical engineer to review the rock support designs and who has visited the mine to observe installed rock support and the behaviour of the standing rock mass. Discussions have been held with CLG technical staff to investigate rock mechanics challenges, and identify and mitigate excavation risks.

Various combinations of rock bolts, welded-wire fabric (mesh), shotcrete and cable bolts are utilized in the mine (see Item 16.2). In addition, stope voids are backfilled with cemented backfill to provide support for remnant pillars and stope spans (see Item 16.6 and Item 18.5).

Rock support in the CLG Mine is complicated by major fault structures intersecting the mineralized veins at oblique and high angles. Engineers have applied specific mining methods and rock support techniques to provide secure and safe mine openings (see Item 16.0).

The unmined rock above the uppermost stopes is referred to as the crown pillar. At CLG the crown pillar has been evaluated for stability, probability of failure and likelihood of surface subsidence (Item 16.2). Since the mineralized veins peter out many tens of meters from the topographic surface, there is very little to no likelihood of crown pillar failures, nor of surface subsidence, along the strike of the deposit.

The QP is of the opinion that the rock support designs and installation protocols employed by CLG are adequate to manage the natural and induced stresses in the rock mass and are consistent with observed rock support strategies in mines of similar mining techniques and rock conditions.

1.6.3 Hydrogeology

The CLG deposit is characterised by the Los Gatos Fault (LGF) and a number of cross faults. Of the six identified hydrogeological units (HGUs) identified at CLG, the central gouge zone of the LGF and less-fractured rock masses distal to the fault zones are considered to be of low permeability. The fractured rock masses on either side of the LGF and areas where cross faults intersect the LGF are considered to be of high water permeability.

Water flows into the mining area from two sources – rainwater through epiclastics and fracture zones, and upswelling thermal waters via the Lower Gatos Fault.

The strategy for managing water at CLG is to draw down the water table and thus minimize the inflow of water. The original topographic surface of the Cerro Los Gatos deposit ranges from 1571 to 1624 meters above sea level (masl). The natural water table was at 1400 masl and inflows occur below 1450 masl. A series of 18 wells were drilled from surface to establish dewatering wells and piezometer stations. Once underground, additional wells were drilled to intercept water before it flowed into the mine for the dual purpose of lowering the water table and reducing the temperature gradient in the mine. Wells have been drilled and pumps installed in the NW and CZ zones with more planned as the mine deepens (see Item 16.3).

The QP observes that mining productivity and mine development rates increase when the water table has been drawn down below the mining horizon in advance of excavations.

1.6.4 Mine Design

The Mineral Reserve estimate is based on a mine design and schedule which was prepared in Deswik software. The development parameters used for mine design and planning include the cross-sections of drifts and ramps, the diameters of ventilation raises, and the advance rates for the diverse headings. The production parameters include mining methods, pillar thicknesses, dip constraints, minimum mining widths, stope dimensions, and production rates.

1.6.5 Stoping Methods

Criteria for Mining Method Selection

CLG uses the following mining methods and approaches:

- Longitudinal cut-and-fill
- Transverse cut-and-fill
- Longitudinal longhole stoping
- Transverse longhole stoping

CLG considers the following criteria when selecting the mining method or mining methods for a zone:

Dip: Longhole stoping (LHS) is used in those parts of the deposit that dip at 55° or greater from the horizontal, and cut-and-fill (CAF) is used where veins dip at less than this inclination.

Vein width: For LHS, the vein is mined longitudinally if it is narrower than 8 m and transversely if it is wider. For CAF, the vein can be mined longitudinally in a single pass if the vein is narrower than 8 m, while wider veins are mined by drifting through the ore using a technique referred to as drift-and-fill.

Ground Conditions: When mining a vein with challenging geotechnical conditions using CAF, CLG will prefer to apply the transverse version of the mining method as it limits the exposure of the hangingwall to the cross-section of the drifts. Where challenging ground conditions occur in a vein dipping greater than 55°, CLG may choose to use CAF instead of LHS.

Cost and Productivity: Where possible, CLG prioritizes LHS in preference to CAF because of its higher productivity and lower cost.

CLG selects the mining method or methods for each zone by comparing its characteristics with the criteria described above.

The method for handling ore and waste at CLG is ramp haulage. Mine trucks with a 40-tonne payload haul ore and waste via a system of ramps. Trucks are loaded by underground loaders (LHDs), which muck the ore from the stopes or waste rock from development headings in the mine.

1.6.6 Mine Infrastructure

CLG is a mechanized mine, and access to the underground workings is provided by a system of ramps. The main ramp extends from the portal to the 1420 level, where it branches into two ramps, one accessing the NW zone and the other accessing the CZ zone. CLG is developing a ramp for the SE zone from the CZ ramp. An underground maintenance shop is set up in the NW zone.

Mine ventilation is provided by two fresh air raises, the main ramp, and three return raises. Booster fans and regulators direct air to the active mining levels. CLG has initiated a project to extend the ventilation system for the SEU and SE Zones, consisting of two additional fresh-air raises and a return-air raise.

The ventilation intake for the mine requires cooling due to heat entering the underground workings from hydrogeothermal sources. CLG operates two air-cooling plants, one providing cooling for the NW zone and the other for the CZ zone.

The underground mine has two independent dewatering systems, one for contact water and the other for non-contact water. Contact water is pumped to the main pumping station on the 1384 level from several sumps located in the mine. From this pumping station, it is pumped out of the mine to surface. Non-contact water consists of groundwater drawn from the aquifer by dewatering wells located underground. It is pumped to one of the non-contact water pumping stations, one on the 1330 level and the other on the 1390 level, which are connected in series. The non-contact water is pumped out of the mine to surface from the 1390-level pumping station.

The safety infrastructure at the mine includes an escapeway raise to surface, internal escapeway raises, a permanent refuge station on the 1390 level, and three portable refuge chambers. A truck equipped with a mine rescue hoist is parked adjacent to the collar of the escapeway raise to surface for evacuating personnel from the mine in an emergency.

In 2022 MPR contracted for the supply of 100% renewable energy through a third-party energy provider. Grid electric power is delivered from the San Francisco de Borja substation, which is owned by the Federal Electricity Commission (CFE), located 62 km from CLG Mine. MPR has erected and owns the 115 kV transmission line which delivers power to a substation on the mine site. The capacity of the transmission line is approximately 23.5 MW, which exceeds the current power requirement of approximately 20 MW.

The underground communications system includes a fiber optic trunk line along with leaky feeder, ethernet and WiFi connections for voice and data transmissions. Personnel are equipped with tracking devices and digital radios and plans are in place to establish monitoring of mobile equipment in real-time in addition to existing on-board digital radios.

The mine is serviced by an underground maintenance shop for regularly scheduled maintenance and light breakdown repairs. Major repairs and overhauls are conducted in the surface maintenance facility.

Potable water is delivered to underground refuge stations which are also equipped with fresh air supply and sustenance in case of emergency.

Pipelines have been installed to provide compressed air, service water and paste backfill throughout the mine and to transmit contact and non-contact waters out of the mine.

1.6.7 Mine Equipment

CLG is a mechanized mine employing rubber-tired diesel equipment for all phases of mining operations. Its mobile mine equipment fleet includes six jumbo drills, seven bolters, one cable bolter, three longhole production drill rigs, nine loaders, seven 40 tonne underground mine trucks, five vehicles for shotcrete and explosives charging, and a number of ancillary vehicles for mine services and personnel. All told, the mine utilizes 97 pieces of mobile equipment. The mine ventilation system takes into consideration the air flow required to remove the exhaust products of internal combustion engines.

1.6.8 Mine Personnel

The underground mine works two 12-hour shifts, and there are three rosters, working rotations of 14 days on and seven days off. CLG previously used a mining contractor in the underground mine but currently performs all development and production with its own employees.

1.6.9 Life-of-Mine Plan

Production

Table 1.4 presents the LOM underground mine schedule developed in the reserve estimation process. The table includes 8,621 tonnes of ore in the ROM stockpile on July 1, 2023, and the totals coincide with the Mineral Reserve estimate. Economic value of copper is expected to be realized starting in 2025 once grades achieve minimum threshold levels under current contract terms.

Table 1.4: LOM Underground Mine Schedule

	Units	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM
Proven & Probable	**t**	**547,235**	**1,082,063**	**1,079,422**	**1,081,294**	**1,088,989**	**1,086,956**	**1,087,008**	**1,029,534**	**8,082,501**
NSR Value	$/t	223	224	224	203	183	178	162	162	**193**
Ag Grade	g/t	269	267	268	223	193	201	171	165	**217**
Pb Grade	%	2.08	2.14	2.22	2.33	2.26	2.03	2.17	2.34	**2.20**
Zn Grade	%	4.44	4.75	4.56	4.89	4.56	3.68	3.69	4.08	**4.32**
Cu Grade	%	0.09	0.10	0.11	0.12	0.14	0.21	0.24	0.15	**0.15**
Au Grade	g/t	0.28	0.27	0.28	0.26	0.27	0.24	0.19	0.21	**0.25**

Development

Mine development is segmented into lateral and vertical headings due to the difference in methodology, advance rates and costs. **Table** 1.5 and **Table** 1.6 depict the schedule of mine development beginning the second half of 2023 and including the decline ramp, crosscuts, ore drives and sublevels. Mine lateral development is scheduled to be substantially completed by 2027.

Table 1.5: Schedule of Lateral Development, meters

	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM Total
Total	3,645	7,254	6,601	6,969	6,020	1,007	0	22	31,518

Table 1.6: Schedule of Vertical Development, meters

	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM Total
Total	658	148	608	349	416	0	0	0	2,179

1.7 Processing Plant

The CLG processing plant employs a conventional design and flotation technology typical of base metal operations. The processing flow sheet is comprised of a crushing and grinding circuit, including jaw crusher, semi-autogenous grinding (SAG) mill and ball mill, which feeds a flotation plant consisting of lead and zinc flotation circuits (including rougher, regrind and cleaner stages), lead and zinc concentrate thickening, and tailings thickening.

Since commencing operations, processing improvements, relative to the 2017 Feasibility Study design, have been achieved through equipment additions and optimized maintenance and operating practices. The actual plant performance from 2019 through to 2023 has been the primary basis for the processing rate and metallurgical predictions in this Mineral Reserves update study. During 2019 to 2023, the main sources of processed material were the Central and NW Zones. While the Central and NW zones make up most of the remaining Reserve there will be increasing contributions from the SE Zone.

There is no indication that the characteristics of the material being mined will change and therefore the throughput and recovery assumptions applied for future processing are considered as reasonable for the LOM. The plant equipment sizing is robust for the throughput projected.

The plant operating practices are consistent with the design, metallurgical testwork described in Item 16.0, and performance predictions that have been used in developing the Mineral Reserve.

The construction design nominal throughput basis for the processing facility was 2,500 t/d, 365 days per year or 912,500 tonnes per year (t/y) of ROM on an operating basis of 92% utilization.

- From January 2023 to June 2023, the average processing rate was 2,905 tonnes per calendar day.
- The 2023 LOM Plan is based on an average processing rate of 2,949 tonnes per calendar day.

The 2019 to 2023 processing recovery results have been better than the recoveries achieved in the 2016 Feasibility test program. The 2023 LOM Plan is based on average historical monthly metal recoveries after removal of outliers.

CLG produces zinc concentrates with significant silver content, however due to the properties of the feed mineral (type of grain, mineral associations, grade of oxidation, etc.) fluorine bearing minerals are simultaneously recovered which incurs minor financial penalties on the sale to smelters. A fluorine leach circuit was constructed in early 2023 and started operation in June 2023. The fluorine leach circuit is designed to lower the content of the zinc concentrate to approximately 500 ppm fluorine. To date less than 500 ppm fluorine has been steadily achieved. There are minor losses of silver and zinc during the leaching processes that have been accounted for in the processing plant production calculations.

The key process parameters are outlined in Table 1.7.

Table 1.7: Process Parameters

Metal	Process Recovery
Silver (to lead and zinc concentrates)	88.2%
Zinc (to zinc concentrate)	62.8%
Lead (to lead concentrate)	89.4%
Gold (to lead concentrate)	54.2%
Copper (to lead concentrate)	60.0%

Table 1.8: Life of Mine Projected Processing and Production Summary [1,2]

Plant Metrics	Units	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM
Processed Material	Mt	0.54	1.08	1.08	1.08	1.09	1.09	1.09	1.04	**8.08**
Process Rate	tpd	2,928	2,957	2,957	2,962	2,984	2,970	2,978	2,821	**2,949**
Ag Grade	g/t	271	267	268	223	193	201	171	165	**217**
Zn Grade	%	4.51	4.75	4.56	4.89	4.56	3.68	3.69	4.08	**4.32**
Pb Grade	%	2.11	2.14	2.22	2.33	2.26	2.03	2.17	2.34	**2.20**
Au Grade	g/t	0.28	0.27	0.28	0.26	0.27	0.24	0.19	0.21	**0.25**
Cu Grade	%	0.10	0.10	0.11	0.12	0.14	0.21	0.24	0.15	**0.15**
Ag Production	Moz	4.1	8.2	8.2	6.8	6.0	6.2	5.3	4.8	**49.7**
Zn Production	Mlbs	33.6	71.1	68.1	73.1	68.6	55.3	55.5	58.6	**484.0**
Pb Production	Mlbs	22.4	45.5	47.2	49.7	48.5	43.5	46.6	47.8	**351.1**
Au Production	koz	2.6	5.0	5.3	4.8	5.0	4.5	3.7	3.7	**34.7**
Cu Production	Mlbs	-	-	0.6	0.8	2.0	3.0	3.4	2.0	**11.8**
AgEq Production	Moz	7.1	14.3	14.3	13.2	12.1	11.3	10.5	10.3	**93.1**

Notes:

1. LOM begins on July 1, 2023. The 2023 Mineral Reserve excludes all mineral reserve material mined prior to July 1, 2023.
2. Ag production is silver contained in Pb and Zn concentrates, Zn production is zinc contained in Zn concentrate, Pb production is lead contained in Pb concentrate, Au production is gold contained in Pb concentrate and Cu production is copper contained in Pb concentrate when Cu is expected to be above the payable threshold.

1.8 Infrastructure

CLG is an operating mine with significant existing infrastructure in place supporting the operation, including offsite and onsite components. Existing offsite infrastructure comprises grid power distribution to the mine and previously completed road upgrades to facilitate heavy equipment transport during construction, material deliveries and concentrate shipments, in addition to worker traffic. On site infrastructure is comprised of office and maintenance facilities, processing facilities, a TSF, backfill plants, a refrigeration plant, a mine ventilation system, and dewatering ponds for sediment settling and water cooling.

The underground mine operates three air extractive fans to exhaust spent air, with fresh air intake via the decline ramp and two downcast fresh air raises equipped with refrigeration plants and air coolers. The current installed capacity of the ventilation system is 1.3 M CFM and plans are in place for an expansion to provide fresh air to the SE Zone.

The mine dewatering system consists of both surface and underground infrastructure. Only two of the eleven dewatering wells drilled from surface are currently active, as the water table is now beneath the bottom of other wells. There are four main underground wells in the NW zone, with a fifth under development. As the mine expands, capital has been allocated for the anticipated additional dewatering infrastructure that will be required to manage the water underground.

Site infrastructure in addition to production-related installations are typical of a mining operation of this scale, located some distance from supporting populations, and include a concrete batch plant, maintenance shops, administration and engineering building, mine dry for underground personnel, warehouse facilities, security guard house and gates, residential camps and cafeterias.

1.8.1 Tailings Storage Facility

The CLG TSF has been constructed and tailings have been deposited in the facility since 2019. Regular dam raises have been conducted to increase the volume of the TSF.The material used in the dam construction is mostly rockfill with some screened filter material. All TSF stages are built using local borrow materials, primarily rockfill excavated and blasted from foundation material within the TSF. The TSF uses downstream construction methods.

The tailings dam has a composite liner consisting of geosynthetic clay liner (GCL) overlain by a 1.5 mm (60-mil), Linear Low-density Polyethylene (LLDPE) geomembrane. This lining system also covers the entire impoundment. The lining system is placed on a 0.15-m thick bedding fill.

The original permitted TSF design consists of four Stages (I to IV) with an ultimate crest elevation of 1638.0 m. However, due to a change in the tailings delivery rate to the TSF with the commissioning of the paste plant in the fourth quarter of 2022, the ultimate TSF will have a maximum crest elevation of 1633.0 m (Stage III) which is adequate for the revised and reduced volume of tailings to be stored based on the Mineral Reserve and LOM Plan.

To date, four dam raises have been constructed to the existing crest elevation of 1628.0 m. The LOM Plan requires two additional raises to be built during 2025 and 2028 to a final maximum crest elevation of 1633.0 m.

The 2023 TSF dam height assessment allowed for 8.2 Mt of material processed from July 2023 onwards (more than the final reserve of 8.08 Mt), which included 0.66 Mt of concentrate and 7.54 Mt of tailings. It is projected that 40% of the tailings produced by the Process Plant will be sent to the Paste Plant, for use as underground backfill, while the remaining 60% will be sent to the TSF. As a result, tailings accumulated in the TSF are estimated at 7.47 Mt (2.94 Mt stored until June 2023 and 4.53 Mt from July 2023 until mine closure).

The TSF design criteria were established based on the facility size and risk using applicable dam safety and water quality regulations and industry best practice for the TSF embankment on a standalone basis. The dam has a blanket drain in the foundation to control and reduce the water level in the dam due to any infiltration that could occur. Incorporating the blanket drain will improve the stability of the embankment in the event of liner failure.

The TSF has an Operations, Maintenance, and Surveillance (OMS) Manual that describes operating and monitoring procedures to confirm the condition of the embankment, foundation, and performance of the impoundment. Regular TSF inspections are completed, including annual inspections by the Engineer of Record.

1.9 Environmental Studies, Permitting, and Social Impacts

Mexico has established environmental laws and regulations that apply to the development, construction, operation and closure of mining projects, and the Company has management systems in place to ensure ongoing regulatory compliance. Of particular importance are the air, surface water and groundwater quality monitoring programs. An environmental compliance report is submitted annually to the Mexican environmental authority. The last compliance report submission resulted in a request for clarification, which has been provided.

The Company has all material permits for the current operations. The Company is waiting on final resolution documents for three permits: the modification of the environmental permit that added the fluorine leach plant to the metallurgical process (the Company considers that this permit has been presumptively granted under Mexican law); a permit for land occupied by the tailings facility (permitting fees have been established with the regulator and have been paid); and a permit regarding the use of treated water from the personnel camp sewage treatment facilities.

MPR has produced several social baseline studies that collected information from official statistical sources, as well as interviews and participatory workshops with stakeholders and the local communities in the area of direct influence. The information obtained has been used to identify social impacts in the communities, as well as social risks for the mining operations. Prevention and mitigation plans were developed for the Community Social Management Plan, which is updated from time to time and monitored against.

The MPR community relations team has had a presence in the region since the mineral exploration phase and has established communication and collaboration channels based on transparency of information. The objective of the MPR Community Relations Policy is to establish the guidelines for institutional work with the neighboring communities and for MPR social interaction projects. Projects are to promote social development, either independently or through strategic alliances with various institutions (public or private), that are aimed at addressing health, education, culture, and basic infrastructure, based on respect for human rights, beliefs, and local characteristics.

The Community Relations Model is based on methods to prevent and reduce risks and socio-environmental impacts and is used to develop the social and environmental investment portfolio. MPR carries out continuous monitoring of the identified social risks, as well as stakeholder mapping. The social and environmental investment portfolio is made up of 12 programs divided into six capital analysis areas: natural, infrastructure, economic, social, relational, and community relations management. MPR has established strategic alliances with stakeholders at the state, municipal and local levels for the execution of its projects.

MPR has established a community relations office in the nearby town of San José del Sitio, which allows for a permanent point of contact between the communities and the mine. MPR has established various commitments for the hiring of local labor, as well as in the acquisition of services during the life of the project, through agreements with stakeholders. A total of 153 direct employees from the area of influence work for CLG, including 70 from San José del Sitio.

A conceptual closure strategy was presented in the closure plan (Tetra Tech, 2018) that was submitted to the Mexican environmental authority. The closure cost was estimated at $14.9M.

1.10 Capital and Operating Costs

Operating cost estimates were developed based on recent actual costs with minor specific adjustments for business improvement initiatives that are currently being implemented. They were prepared on an annual basis using a detailed build-up of individual cost centres and considering specific mine site activity levels and cost drivers. Operating costs at CLG have been reviewed by WSP and found to be reasonable for a mechanized mine utilizing the cut-and-fill and bulk longhole mining methods and associated processing plant for the production of saleable concentrates. The plant has demonstrated typical operating costs for a facility of its size.

Operating cost expenditures for the LOM Plan are estimated at $716.7 million from July 1, 2023, to the planned end of the LOM in 2030, equivalent to $88.67 per tonne milled. Table 1.9 summarizes the expected site operating expense projected to the end of mine life to mine and process the defined Mineral Reserve, segmented by major cost centre of Mining, processing which includes TSF operations, and General and Administrative.

Table 1.9: LOM Operating Costs

Cost Center	LOM Cost, $M	Unit Cost, $/t milled
Mining	356.7	44.14
Processing	215.3	26.64
G&A	144.6	17.90
Total Operating Costs	**716.7**	**88.67**

There are no expansion plans requiring development capital in the LOM Plan. CLG will require sustaining capital for continuing underground mine development and two additional raises of the TSF dam, as well as other miscellaneous equipment and infrastructure projects.

Table 1.10 summarizes the capital expenditures planned for the balance of the mine life. Sustaining capital is estimated in 2023 dollars with no inflation or escalation considered. The QPs have reviewed the planned annual expenditures and agree that they are reasonable.

Table 1.10: LOM Sustaining Capital

Item	Units	LOM Cost
Mine Development		
Lateral Development	m	16,236
Mine Development	**$M**	**91.1**
Infrastructure & Equipment		
Mine	$M	49.1
Tailings Storage Facility	$M	15.1
Others	$M	4.9
Infrastructure & Equipment	**$M**	**69.1**
Total Sustaining Capital	**$M**	**160.2**

1.11 Economic Analysis

The economic analysis for this TR was performed by Gatos Silver, Inc. (GSI) using the GSI financial model. Key inputs to the financial model include the Reserve LOM Plan inclusive of operating and capital costs, commodity prices and exchange rate assumptions.

The LOM Plan economic analysis supports the declaration of Mineral Reserves. Golder reviewed the LOM Plan and economic model components relevant to the LOM Plan in detail.

Economic assumptions are based on historic pricing and analysts' long-term consensus forecasts as of April 2023 (see Table 1.11).

Table 1.11: Economic Assumptions

Parameter	Unit	Value
Zinc	US$/t	2,646
	US$/lb	1.20
Lead	US$/t	1,984
	US$/lb	0.90
Silver	US$/oz	22.00
Gold	US$/oz	1,700
Copper	US$/t	7,716
	US$/lb	3.50
Exchange rate	MX$ per US$	20

The LGJV mill produces two products, a lead concentrate and a zinc concentrate. Payable metals are evaluated using the recovery parameters described in Table 15.2 as well as management's estimates of treatment and refining charges for each concentrate based on a marketing consultant's input and current market conditions.

The Mineral Reserve LOM Plan begins on July 1, 2023, with operations continuing through to the end of 2030 (7.5 years). The financial model includes closure costs of $14.9 M over the 2031-2034 period. The Reserves LOM Plan includes in-process mineralized material of 8,621 tonnes as of June 30, 2023.

The economic analysis uses a 5% discount rate and on an unlevered basis. Corporate administration, management fees, interest expense, and exploration activities are excluded from the economic analysis used to support the Mineral Reserves.

The Reserves LOM Plan assumes a 2,949 t/d processing rate for a total of 8.08 Mt of mineralized material through the mill at average ROM grades of 217 g/t silver, 4.32% zinc, 2.20% lead, and 0.25 g/t gold over a 7.5-year period. The Reserve LOM Plan supports the Mineral Reserves as it demonstrates economic viability via projected revenues exceeding all projected operating, sustaining capital, and closure costs.

Table 1.12 summarizes the economic analysis of Cerro Los Gatos Mine based on the projected cash flow generated by the mining and processing of the stated Mineral Reserves. The economic analysis considers applicable mining and corporate income taxes which have rates of 7.5% and 30%, respectively.

Table 1.12: LOM Financial Summary

Description	Unit Cost ($/t milled)	LOM Cost ($k)
Net Smelter Return	**$194.54**	**1,572,338**
La Cuesta Royalty	($0.48)	(3,860)
Net Revenue	**$194.06**	**1,568,478**
Operating Costs		
Mining Costs	($44.14)	(356,745)
Plant Costs	($26.64)	(215,286)
G&A	($17.90)	(144,642)
Total Operating Costs	**($88.67)**	**(716,673)**
Operating Margin ($k)	**$105.39**	**851,805**
Operating Margin (%)	**54%**	**54%**
Capital Costs		
Mine Development	($11.27)	(91,103)
Infrastructure & Equipment	($8.55)	(69,106)
Total Capital Costs	($19.82)	**(160,209)**
Pre-Tax Cash Flow		
Cash Flow	$92,213	676,712
NPV 5.0% Pre-Tax		**572,406**
Post-Tax Cash Flow		
Cash Flow	$74,984	547,495
NPV 5.0% Post-Tax		**461,747**
Cost of Sales		**688,450**
AISC – By-Product Basis ($/oz Ag Pay.)(1)		**6.61**
AISC – Co-Product Basis ($/oz Ag Equivalent Pay)(1)		**13.71**

Note:

1. See Item 22.3 for Non-GAAP financial measures and AISC and Cash Cost reconciliation. By-product and Co-product AISC exclude the LGJV management fee and administrative costs of $1.09 / oz Ag payable and $0.59 / oz AgEq payable, respectively.

The post-tax Net Present Value (NPV) of the Cerro Los Gatos mine is $462 M using a discount rate of 5%. Annual after-tax cash flow is expected to average $75 M over the 7.5 years of operations. The Cerro Los Gatos mine remains economic under a wide range of commodity prices and has Cash Costs after by-product credits of $3.05 and All-in Sustaining Costs (AISC) of $6.61 per ounce of silver payable (also net of by-product credits) over the Reserve LOM Plan. The main drivers of the low AISC are lower go-forward sustaining capital requirements and significant by-product credits.

1.12 Conclusions of Qualified Persons

Throughout the exploration, development, and mining of the deposit a sound knowledge and understanding of the geological controls on the mineralization has been acquired, which are adequately expressed in the Resource Model.

The deposit has logging data from subsurface workings and surface and underground drilling that has been adequately reviewed and validated which allows it to be used with sufficient confidence in the construction of a long-term resource model.

A new geological model has been constructed of the deposit that integrates the different sources of information through an implicit 3D model. Based on this geological model an estimation of the main grades of the deposit has been performed using Ordinary Kriging (OK) interpolators. The results have been validated in detail by visual and statistical review and against existing production data.

The Mineral Resource categorization uses methodologies and assumptions that allow for adequate consideration of uncertainty and risk.

The Mineral Resources reported in this TR are reported above a NSR cut-off value, supported by studies, and considers reasonable prospects for economic extraction by optimizing stopes using assumptions and reliable data.

It is the opinion of the QP that the Mineral Resources presented herein are appropriate for public disclosure and comply with the definitions of Mineral Resources as established by CIM Definition Standards for Mineral Resources and Mineral Reserves (2014).

The Mineral Reserves for CLG have been re-estimated, and a Mine Plan developed, which is attuned to the deposit and the conditions under which the mineralized material can be mined and processed. The Mineral Reserves have been estimated with consideration for the modifying factors of mining dilution and mining recovery for each mining method, support service costs as well as reasonable assumptions regarding input costs and metal prices.

The Mine Plan will deliver mineralized material to the processing plant of contained metal value well in excess of the NSR cut-off value used to establish economic blocks of mineralized material. The Mine Plan is considered by the QP to be robust and achievable in the current operating environment.

Mine management has responded to challenges presented by each of the structurally controlled zones of the CLG deposit and invested in actions and techniques that will ensure safety of workers and reduce operating costs.

Other conclusions drawn by the Mining QP are:

- High ambient underground temperatures must continue to be well managed to maintain appropriate conditions for underground workers.
- The continuation of pumping to lower the water table will have a direct impact on mine development productivity.

Identified risks to the Mineral Reserves pertain to:

- Accessing and mining the Mineral Reserves per the LOM production schedule will depend on success in managing the groundwater. The challenges with mine dewatering and inflows may increase as the mine deepens.

- Since ground support will be used, the maximum recommended span will be the Stable limit of 9 m for an RMR of 60, bearing in mind that encountering rock of a lower RMR may result in ground problems, and ground support requirements may have to be increased.
- The hydrogeological data available for the SE zone is limited. Although sustaining capital has been allocated in the LOM Plan for installation of additional dewatering infrastructure, additional capital necessary for dewatering wells in this part of the mine is difficult to estimate accurately.
- The challenges with geothermal heat and controlling temperatures in the underground work environment could increase as the mine deepens. The assumed higher primary ramp development rates following the installation of additional dewatering infrastructure may not be achieved. Not achieving the planned development rates could impact mine sequencing. Failure to adequately manage geothermal conditions could impact production and development rates and schedules.
- The plan to increase the proportion of LHS depends on the SE zone having suitable conditions for employing the method; however, the geotechnical data available for that part of the mine is limited. If geotechnical conditions are unsuitable to LHS, the proportion of ore requiring the CAF mining method could be higher.

The following factors represent opportunities to enhance mining operations at CLG:

- The expanded diamond drilling program planned for Inferred Resources in the SE zone and South-East Deeps has the potential to add significantly to the CLG mine life.
- The exploration drilling program will also provide core which can be subjected to geotechnical test work to better understand rock mass characteristics and conditions at depth.

It is the opinion of the Mining QP that the Mineral Reserves presented herein are appropriate for public disclosure and comply with the definitions of Mineral Reserves, as established by CIM Definition Standards for Mineral Resources and Mineral Reserves (2014).

Identified risks to mineral processing pertain to:

- The 2022 and 2023 period experienced slightly lower lead recoveries, thought to be due to the lower lead head grades of the mill feed. The projected feed grades in the future are expected to rise, facilitating higher recoveries.
- The future silver head grades are expected to be lower than the historical production grades, particularly in 2028 through 2030. While neither the plant nor variability data currently show a strong grade-recovery relationship, this should continue to be evaluated for possible risks of lower silver recovery in the later years of the mine life.

The following conclusions were made regarding the site infrastructure:

The mine dewatering system has achieved steady state status – that is, adequate drainage, wells and pumping installations have been installed to draw down the water table around active mining horizons. CLG has made plans and budgeted for additional underground wells to enable the continued removal of groundwaters as the mine is deepened to the SE.

The underground ventilation system requires expansion as the mine activity gravitates to the SE Zone and to depth. Plans, schedules, and budgets are in place to establish adequate air flow to the future mine development areas.

The TSF is a mature structure operating under steady-state conditions and monitored by permanent stations installed throughout the TSF dam structure. As compared to the 2022 Report, the volume of material to be stored in the TSF has been revised to reflect the reduction of tails to be impounded with the advent of the paste backfill plant and with the addition of mineral reserves. There are two more lifts scheduled for the dam to complete its construction for acceptance of the LOM tailings volumes. The TSF is managed by an independent Engineer of Record, Tierra Group International, Ltd., which conforms with Mexican and other industry accepted guidelines such as the International Committee on Large Dams and the Canadian Dam Association.

The following observations and conclusions have been developed based on the site visit and inquiries made by the environmental and permitting QP and review of available information.

- No material issues were noted.
- The Company has all material permits for the current operations. The company is waiting on final resolution documents for three permits: the modification of the environmental permit that added the fluorine leach plant to the metallurgical process (the Company considers that this permit has been presumptively granted under Mexican law); a permit for land occupied by the tailings facility (permitting fees have been established with the regulator and have been paid); and a permit regarding the use of treated water from the personnel camp sewage treatment facilities. The environmental agency (SEMARNAT) has not issued any violations to Los Gatos Mine. It is noted that practices could be improved at site to better align with industry standards.
- The new fluorine leach plant will not produce a new waste stream.
- The groundwater system, in particular the occurrence and quality of perched groundwater, is not well understood. The groundwater monitoring program does not meet industry standards for the monitor well number, placement, design or sampling methods.
- The closure plan presents a five-year post-closure period, which is the timeframe in the authorized environmental impact assessment. This period meets Mexican standards but does not meet industry practice which can be 20 or more years.
- Mine closure planning is at a preliminary stage and the closure costs could increase as closure planning advances. The addition of the fluorine leach plant is not anticipated to have an impact on the current closure cost estimate.

The following observations and conclusions are drawn regarding community and social aspects:

- The CLG Mine is an operation located in the municipality of Satevó in the state of Chihuahua. The presence of the mine has contributed to the decrease in migration of community members, and the demographic increase in the communities of the area of influence. The generation of direct and indirect employment has been the main reason for the return of the inhabitants.
- The presence of a community relations facility in the town of San José del Sitio since the exploration work commenced has allowed a continued relationship with the stakeholders of the area of influence, generating various collaboration agreements and community investment and co-investment.
- The indicators of the socioeconomic baseline (2018) were updated in 2021. The information obtained was used for the design of the Community Relations Plan, integrating the gender and human rights perspective in the analysis of the social impacts derived from the operation.

- The ejidos and the unions are the interest groups with the greatest relevance to the operation, since there are agreements for the right of way, as well as transport services and machinery used in the operations. Periodic meetings for the follow-up of agreements between the parties are held in the Agrarian Prosecutor's Office, giving greater credibility and legality to the fulfillment of agreements between the parties.
- One of the main mechanisms for disseminating social and environmental actions is the quarterly bulletin of the CLG Mine, which is distributed in the communities of the area of influence, and among employees.
- One of the projects the LGJV recently completed was the construction of a lined landfill that will be used jointly by the mine and the local community for solid waste disposal.
- The main form of receiving complaints or requests is verbal, however, not all requests are recorded. The effects of the transport of materials and the contracting process are the main reasons for complaints.
- The Community Relations Plan has a portfolio of social programs aligned with human rights and the United Nations Sustainable Development Goals (SDGs). Each program has compliance indicators yet could be improved with social impact indicators.
- CLG Mine has formalized its commitment to sustainability and social responsibility issues through adherence to the United Nations Global Compact as a member and, at the national level, it has been awarded with the Socially Responsible Company Distinction granted by the Mexican Center for Philanthropy (CEMEFI) for three consecutive years.

1.13 Recommendations

The following recommendations are made by the Qualified Persons:

Geology and Mineral Resources:

- Continue with the surface and underground drilling campaigns to upgrade the Mineral Resource categorization (infill drilling) and increase Mineral Resources (step-out drilling).

Mining and Mineral Reserves:

- For future Mineral Reserve estimates, investigate whether closure costs and sustaining capital expenditures for the mine and processing plant could be relevant costs for determining the NSR cut-off values.
- In-situ stress tests are recommended to investigate the magnitude and orientation of principal stresses.
- Update the original regional numerical groundwater flow model or replace it with a new one to simulate the mine-scale water balance. A regional numerical groundwater flow model was developed for the site in 2016 and updated in 2019. CLG plans to update the model in H1 2024.
- Consider establishing the internal escapeways using the Safescape Laddertube system (or similar), as these tubular manways can be quickly installed in 1.2-m-diameter boreholes. Determine whether additional portable refuge chambers are needed on a provisional basis until the internal escapeway system can be developed. Assess whether a second escapeway connecting to surface is advisable for the SE, considering the distance of the zone from Escapeway Raise #1.

Metallurgy and Mineral Processing:

- Continue with geometallurgical modelling of the Mineral Resource to reduce risks to plant throughput, metal recovery and concentrate quality predictions.
- Continue the pyrite leaching study to determine the technical and economic feasibility of increasing gold and silver recovery in the plant.
- Continue testwork and evaluations for the separation of copper into copper concentrate.
- The SE Zone, now representing approximately 31% of the overall reserve tonnage, has yet to be processed through the plant. While metallurgical testing of the SE Zone has occurred over the last year, it is recommended to continue this testwork to increase confidence in metallurgical characteristics before the material is fed to the concentrator. If results are inadequate, then adjustments to the process technology or performance predictions may be required.
- Based on the results of global lead recovery, it is observed that zone mapping exhibits high variability in the SE region. Therefore, it is recommended to assess the association of recovery with other geological events or parameters in the deposit.
- The presence of pyrite in the heads of the samples could allow CLG to study, through metallurgical flotation tests, the recovery of pyrite from the bulk Cu/Pb concentrates, with the aim of obtaining a cleaner concentrate.

Infrastructure:

Pertaining to the paste fill plant:

- Cure CRF and paste test samples underground as a means to mimic the actual “as placed” conditions as recommended in the Minefill (2019) report.

Pertaining to the dewatering infrastructure:

- It is recommended that a documented dewatering plan be developed by the operator that adequately describes the conceptual hydrogeological model, summarizes groundwater conditions and dewatering progress to date, establishes dewatering pumping rate and drawdown performance targets and defines dewatering well and monitoring well or piezometer installation plans.
- Reviews dewatering system performance and revises the dewatering plan as needed.

CLG is advancing work on several components of the dewatering plan to enable improved dewatering and water management in the operations and have included $15 million in capital projects relating to mine dewatering within the LOM Plan, including the installation of additional wells and pumping infrastructure.

Tierra Group makes the following recommendations with respect to tailings storage:

- Develop a closure plan based on the current LOM schedule;
- Develop a detailed deposition plan to support the closure strategy;
- Continue quarterly bathymetric surveys to validate and update deposition plan and water balance;
- Monitor tailings tonnage sent to paste plant to confirm assumptions used in the design;

- Additional vibrating wire piezometers, inclinometers, and survey prisms are recommended for future expansions;
- Maintain a current tailings water and mass balance based bathymetric surveys and operational data to support TSF construction schedules; and
- Continue monitoring and inspections activities in accordance with the OMS manual.

Environmental and Social:

- A written environmental monitoring plan should be developed that includes a description of all media monitoring requirements based on Company and regulatory agency requirements, sampling procedures, protocol for the management of results and interpretation, action levels, corrective action plan and documentation procedures.
- The waste rock should be subject to kinetic geochemistry testing to evaluate the long-term environmental impacts at the waste rock storage facility. Assuming the waste rock storage facility may remain after closure, an understanding of the geotechnical properties of the waste rock, and the erosion potential based on slope lengths and slope angles, is necessary.
- Incorporate surface water sampling at the surface waste rock storage facility and during storm events at ephemeral streams.
- The existing conceptual closure plan is recommended to be updated and follow accepted industry standards. Additional technical studies to support the closure designs should be carried out. The closure costs should be updated to reflect changes in the mine plan and provide more details as closure planning advances. It is recommended that climate change be considered, as well as an analysis of the storm water events to determine whether a 100-year, 24-hour storm water event is practical for long-term stability.
- Establish periods for updating the main socioeconomic indicators related to the social impacts of the operation on the communities in the area of influence.
- Integrate oral requests as part of the grievance mechanism.
- Maintain spaces for dialogue between the parties at the Agrarian Prosecutor's Office.
- Generate indicators for monitoring and evaluating social programs that allow identification of the level of social impact on community life, as well as decision-making in social investment.

2.0 INTRODUCTION

2.1 Registrant Information

Gatos Silver, Inc. ("Gatos Silver") is listed on the New York Stock Exchange and the Toronto Stock Exchange. The company's corporate office is located at 925 West Georgia Street, Vancouver, BC, Canada V6C 3L2.

2.2 Qualified Persons

This Technical Report was prepared for Gatos Silver by Qualified Persons (QPs) employed by WSP, Stantec USA, Transmin Metallurgical Consultants, Bara Consulting (Americas) Ltd., and Tierra Group International. The QPs responsible for the preparation of this Technical Report, as defined under NI 43-101 and in compliance with Form 43-101F1, as well as their areas of responsibility for the various items included in this Technical Report are provided in Table 2.1

Table 2.1: Responsibilities of Qualified Persons

Qualified Person	Professional Designation	Role	Employer	Report Items
Curtis Clarke	MMSA (1352QP), PMP	Lead Author	Bara Consulting (Americas) Ltd.	1.1, 1.8, 1.9, 1.10, 1.11, 2, 3, 4, 5, 6, 19, 21, 22, and 24
Ronald Turner	P. Geo., MAusIMM CP (302538)	Mineral Resources	Golder Associates S.A.	1.2, 1.3, 1.4, 1.12, 1.13, 7, 8, 9, 10, 11, 12.1, 14, 23, 25.1, and 26.1
Stephan Blaho	P.Eng., PEO	Mineral Reserves	WSP Canada Inc.	1.5, 1.6, 1.8, 1.10, 1.12, 1.13, 12.2, 15, 16, 25.2 and 26.2
Adam Johnston	FAusIMM CP (Met)	Mineral Processing	Transmin Metallurgical Consultants	1.7, 1.12, 1.13, 12.3, 13, 17, 25.3, and 26.3
Ibrahim Karajeh	P.Eng. PEO	Infrastructure	WSP Canada Inc.	1.8 (excluding 1.8.1), 18.1 through 18.7, 21.1, 25.4 and 26.4
Dawn Garcia	CPG, AIPG 08313	Environmental & Social	Stantec USA	1.9, 1.12, 1.13, 20, 25.5, and 26.5
Matthew Fuller	P.Eng. APEGBC 199825	Tailings Storage Facility Engineer of Record	Tierra Group International	1.8.1, 1.12, 1.13, 18.8, 25.4, and 26.4.3

2.3 Terms of Reference and Purpose

This report has been prepared by WSP as a Technical Report to satisfy and National Instrument 43-101 requirements and for Gatos Silver as set out by the Canadian Securities Administrators. The quality of information, conclusions, and estimates contained herein are consistent with the level of effort involved in consultants' services, based on; i), information available at the time of preparation; ii), data supplied by outside sources; and iii), the assumptions, conditions, and qualifications set forth in this TR. The purpose of this TR is to report Mineral Resources and Mineral Reserves for the CLG Mine, 70% owned by Gatos Silver.

Key Acronyms and definitions for this Report include:

- Golder: Golder Associates Ltd.
- WSP: WSP Global and its subsidiary companies, including Golder, which was acquired by WSP in 2022

- LOM: Life-of-Mine
- Mt: Million tonnes (Metric)
- FS: Feasibility Study
- QA/QC: Quality Assurance / Quality Control
- QP: Qualified Person
- ROM: Run-of-Mine
- NI 43-101: Canadian National Instrument 43-101, an Act of Parliament
- S-K 1300: United States Securities and Exchange Commission regulation subpart S-K 1300
- TR: Technical Report

2.4 Sources of Information

The compilation and estimation of Mineral Resources and Mineral Reserves used public and private data sources. The supply of the private data sources from Gatos Silver included a drill hole database, geological model, internal documentation, laboratory certificates, mine designs, mine plans and other mine planning files.

A detailed list of cited reports is noted in Item 27.0 of this TR.

WSP has adopted certain provisions from previous Technical Reports authored by Golder (2022), Tetra Tech (2012, 2017, 2020) and Behre Dolbear, as appropriate. Where content from previous Technical Reports have been included, the authors have not relied upon previous authors and are taking responsibility for the sections indicated by the certificates of QPs of this TR.

2.5 Personal Inspection Summary

Site visits have been conducted by WSP, Golder Associates S.A., Stantec USA, and Transmin Metallurgical Consultants personnel as described on Table 2.2.

Table 2.2: Site Visits of Qualified Persons

Name	Role	Company	Site Visit Dates
Ronald Turner, MAusIMM (CP)	Mineral Resources	Golder	May 15-18, 2023
Curtis Clarke, MMSAQP	Mine Engineering	WSP	May 15-18, 2023
Stephan Blaho, P. Eng.	Infrastructure	WSP	May 15-18, 2023
Adam Johnston, FAUSIMM (CP)	Mineral Processing	Transmin Metallurgical Consultants	June 13-17, 2022
Dawn Garcia, AIMMGM, AIPG, P.Geo.	Environmental & Social	Stantec USA	May 15-18, 2023
Ibrahim Karajeh, P. Eng., PMP	Infrastructure	WSP	Deemed not necessary
Matthew Fuller, P. Eng.	Tailings Storage Facility	Tierra Group International	Deemed not necessary

2.6 Previous Technical Reports

The following technical reports have been made publicly available previously:

- S-K 1300 Technical Report Summary November 2022 WSP Golder Mineral Reserves Report
- NI 43-101 Technical Report November 2022 WSP Golder Mineral Reserves Report
- NI 43-101 Technical Report July 2020 Tetra Tech Mineral Reserves Report
- NI 43-101 Technical Report January 2017 Tetra Tech Feasibility Study Report

3.0 RELIANCE ON OTHER EXPERTS

Regarding the mining concessions, the author has been provided with a title opinion to MPR by the law firm VHG Servicios Legales, S.C. that relates to title documentation, tax payments, and assessment works, dated July 19, 2021. The opinion states that all claims are in full force and effect. According to title opinion, all the Los Gatos mining concessions are grouped, except for the Paula Adorada concession. The author has relied on the title opinion and statements by MPR that the claims and agreements are in good standing (Item 4.1, Item 4.2, and Item 4.3).

4.0 PROPERTY DESCRIPTION

4.1 Property Location

The operating Cerro Los Gatos (CLG) underground mine and processing facilities are approximately centered on Latitude 27° 34' 17" N, Longitude 106° 21' 33" W, near the town of San José de Sitio, within the Municipality of Satevó in the State of Chihuahua, Mexico. The mine is approximately 120 kilometers (km) south of the state capital of Chihuahua City and approximately 100 km north/northwest of the historical mining city of Hidalgo del Parral (Figure 4.1).

Figure 4.1: Project Location Map

4.2 Mineral Rights

4.2.1 Name and Number of Mineral Rights

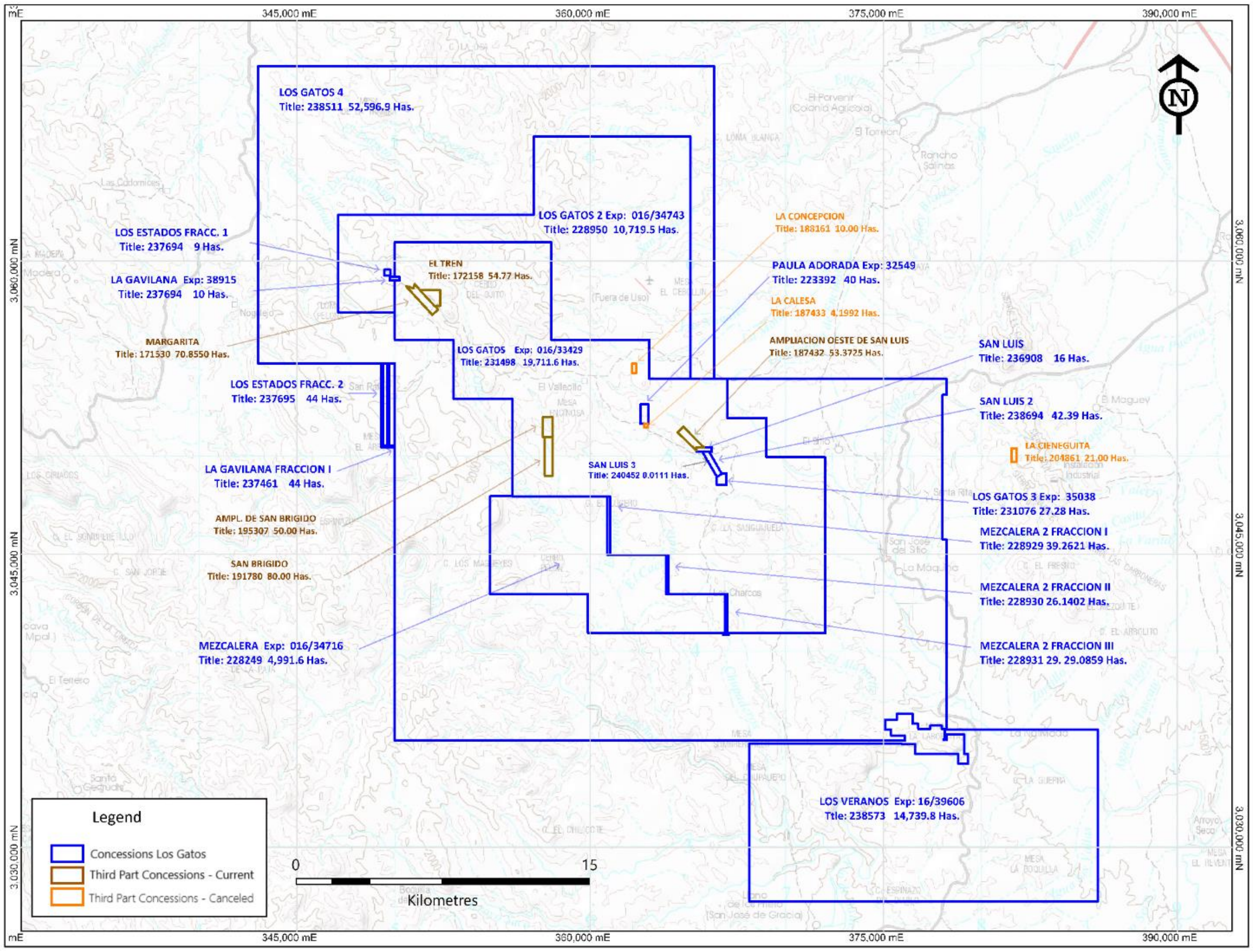
MPR is the owner of mineral rights held by seventeen titled concessions, covering 103,086.8 ha. Under applicable Mexican law, titled mining concessions grant holders exploration and exploitation rights, subject to certain conditions including minimum expenditure requirements. Titled mining concessions exclude surface rights, which are generally separately negotiated. Titled mining concessions are summarized in Table 4.1, collectively the “Project Area”.

Table 4.1: Los Gatos Project Titled Mining Concessions

No.	Lot	Holder	Surface (Ha)	Title	Type of Concession	Term	Location
1	Los Gatos	MPR	19,711.7	231498	Mining	March 3, 2058	**Satevó, Chihuahua**
2	Los Gatos 2	MPR	10,719.6	228950	Mining	February 21, 2057	**Satevó, Chihuahua**
3	Los Gatos 3	MPR	27.3	231076	Mining	January 15, 2058	**Satevó, Chihuahua**
4	Los Gatos 4	MPR	52,597.0	238511	Mining	September 22, 2061	**Satevó, Chihuahua**
5	Mezcalera	MPR	4,991.6	228249	Mining	October 16, 2056	**Satevó, Chihuahua**
6	Mezcalera 2 Fracción I	MPR	39.3	228929	Mining	February 20, 2057	**Satevó, Chihuahua**
7	Mezcalera 2 Fracción II	MPR	26.1	228930	Mining	February 20, 2057	**Satevó, Chihuahua**
8	Mezcalera 2 Fracción III	MPR	29.1	228931	Mining	February 20, 2057	**Satevó, Chihuahua**
9	La Gavilana	MPR	10.0	237137	Mining	November 18, 2060	**Satevó, Chihuahua**
10	La Gavilana Fracción I	MPR	44.0	237461	MINING	December 20, 2060	**Satevó, Chihuahua**

No.	Lot	Holder	Surface (Ha)	Title	Type of Concession	Term	Location
11	Paula Adorada	MPR	40.0	223392	Mining	December 8, 2054	**Satevó, Chihuahua**
12	San Luis	MPR	16.0	236908	Mining	October 4, 2060	**Satevó, Chihuahua**
13	Los Estados Fracc. 1	MPR	9.0	237694	Mining	April 25, 2061	**Satevó, Chihuahua**
14	Los Estados Fracc. 2	MPR	44.0	237695	Mining	April 25, 2061	**Satevó, Chihuahua**
15	San Luis 3	MPR	0.01	240452	Mining	May 22, 2062	**Satevó, Chihuahua**
16	San Luis 2	MPR	42.4	238694	Mining	October 17, 2061	**Satevó, Chihuahua**
17	Los Veranos	MPR	14,739.8	238573	Mining	September 22, 2061	Satevó, Chihuahua

Figure 4.2 depicts the Los Gatos concessions.

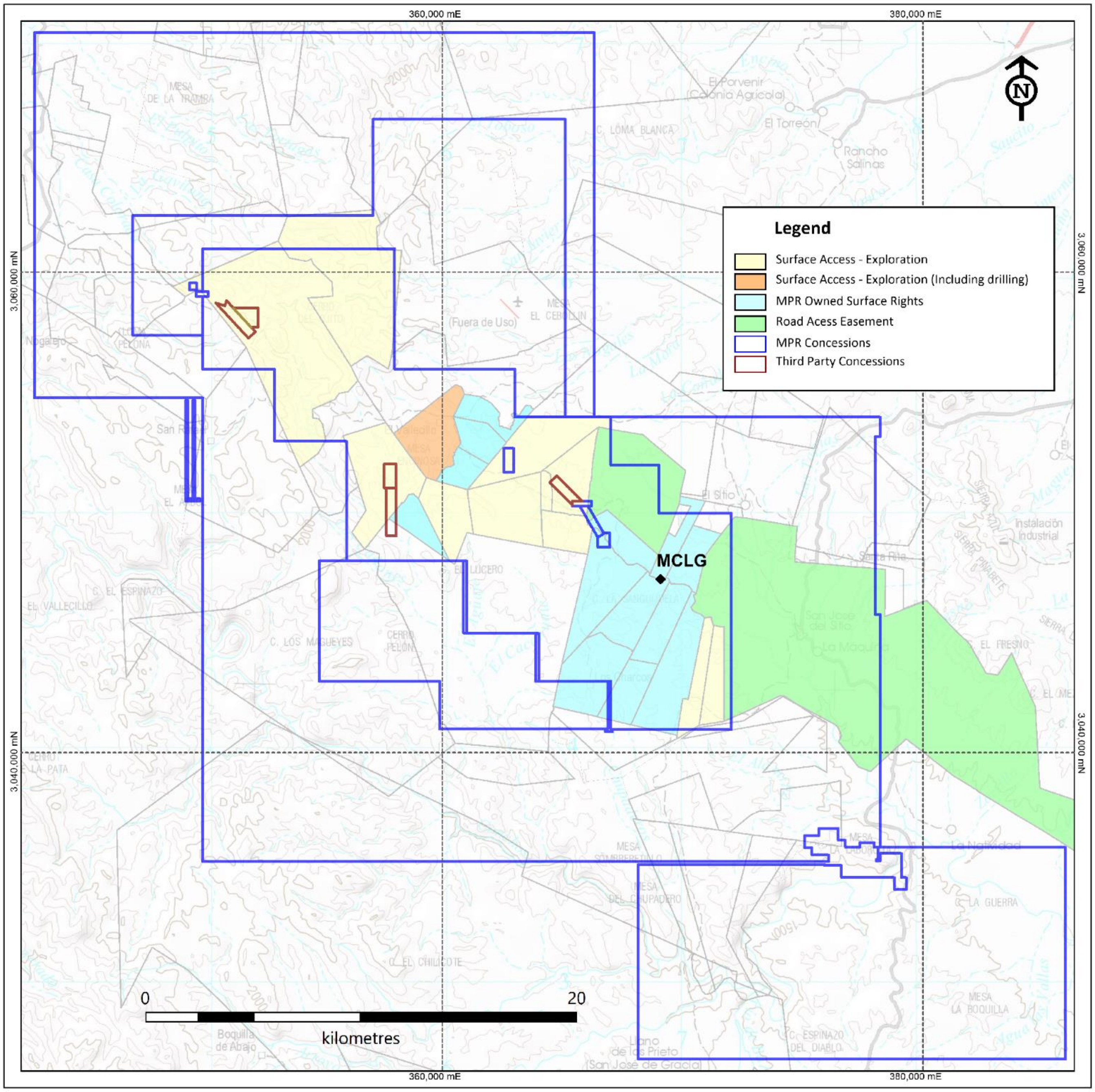


Source: Minera Plata Real S. de R.L. de C.V. (MPR)

Figure 4.2: Los Gatos Concessions Map

4.3 Surface Rights

MPR has arranged permissions to enter and perform exploration and mining activities on several land properties in the Project Area, including all surface rights necessary to access the CLG operating mine and processing and tailings facilities. Figure 4.3 shows the distribution of communal land and private property, where permissions have been obtained and the nature of such permissions. MPR has purchased surface lands covering the known extents of the CLG, and Esther Resource areas, totalling 5,188.6 ha, as shown in light blue in Figure 4.3.



Source: MPR

Figure 4.3: Surface Rights and Exploration Permissions

MPR has negotiated and ratified an access agreement with the community of San Jose del Sitio for use of the access road through communally owned land shown in light green fill on Figure 4.3 This agreement, the term of which extends to November 6, 2046, allows access through the surface land holdings of the community and is registered with the federal land registry. MPR has worked together with the community since the inception of the exploration project and has enjoyed strong support from the community leaders and Ejido assemblies.

MPR has established a multi-disciplinary team to maintain ongoing communications in the nine most proximate communities to CLG, including San José del Sitio and La Esperanza, as well as the municipality of Satevo. Description on Acquisition of Mineral Rights

The Los Gatos Joint Venture holds concessions through its Mexican subsidiary company, MPR. MPR is 70% owned by Gatos Silver, Inc. and 30% owned by Dowa Metals & Mining Co., Ltd. The Los Gatos concession (title 231498) is held subject to a royalty agreement, described below. Based on its review of available information, MPR's legal advisors, VHG Servicios Legales, S.C., has advised that all lien collateral registrations with the Public Registry of Mining in connection with the concessions are in the process of being cancelled following the formal ratification of cancellation thereof by the counterparty.

MPR also holds the rights to the concession of Paula Adorada through a Contract of Assignment of Rights duly recorded with the Public Registry of Mining.

4.4 Significant Encumbrances to the Property

Under Mexican mining law, titled concessions must have submitted the required Surveying and Assessment Works to define their precise location and rights against any pre-existing mining claim. Once titled, concession owners have the obligation to submit annual Assessment of Work Reports every year by the end of May for each concession or group of concessions based on minimum investment amounts. All of MPR's concessions are grouped for legal compliance with requirements by Mexican mining law, except for the Paula Adorada claim, which was acquired later. Non-compliance with these requirements is cause for cancellation only after the authority communicates in writing to the concessionaire advising of any such default, and granting the concessionaire a specified time frame in which to remedy the default. As of the date of this report, MPR concessions are in good standing with respect to this obligation.

In Mexico, there are no limitations on the total amount of mining concessions or on the amount of land that may be held by an individual or a company.

A second obligation that holders of mining concessions must meet is the bi-annual payment of mining duties. As of the date of this report, MPR has complied with the payment of mining duties payable in connection with its concessions including in respect of 2020, 2021, 2022 and 2023. As result, MPR's concessions are in good standing as concerns this obligation.

On May 8, 2023, a Decree was published in the Official Gazette of the Federation amending, adding to, and repealing several provisions of the Mining Law, the National Water Law, the General Law of Ecological Balance and Environmental Protection and the General Law for the Prevention and Integral Management of Waste, regarding mining and water concessions.

As a result of the Decree, with respect to concession tenors, the term of any new concession will be 30 years, with the option of a single 25-year term extension subject to certain conditions. At the end of such extension, the concession holder may participate on a priority-basis in the bidding of the concession for another 25 years. Under the Decree, all mining concessions granted prior to the entry into force of the Decree retain their existing durations as reflected in their title documentation. This applies to all concession currently held by MPR.

The Decree, which requires implementing regulations in some instances, also introduces the following new requirements upon full implementation: new concessions would only be granted through a public bidding process; new mining concessions would be granted in respect of specified minerals; the potential to expropriate private land would be discontinued; the approval of transferees of mining concessions would be required; minimum payments of 5% of profits to local communities would be imposed; social impact studies and community consultation would be required; restoration, closure and post closure programs would be required with financial guarantees; water availability would be a condition for granting new mining concessions; the concept of presumptive approval (afirmativa ficta) for approval matters properly and timely submitted to regulatory agencies would be removed; parastatal entities could be created and would enjoy preferential rights to exploration; environmental obligations and prohibitions would be increased; and water concessions could be significantly modified by governmental authorities in certain circumstances. Although it is not clear in all instances, the amendments under the Decree are generally stated to not have retroactive effect, and as such their most significant impact would be expected to be on new mining concessions rather than existing concessions and operations, including those of the LGJV and Gatos. Certain of the amendments may also apply to existing operations, such as the requirement for approval of any concession transferee, establishing a closure and post-closure program and additional environmental obligations.

4.4.1 Royalty Payments

There is one current royalty contract that applies to a concession and one royalty contract that previously applied to a concession. The details of the two contracts follow.

4.4.2 Los Gatos and Paula Adorada Concessions

A NSR royalty agreement was established in 2015 with the previous owner of the Los Gatos concession (title 231498) (the “La Cuesta Royalty Agreement”). The La Cuesta Royalty Agreement stipulated a 2% royalty on revenue until a threshold of $10 million in payments was reached. Thereafter, the royalty was reduced to 0.5% until $15 million has been paid. To July 27, 2023, $11.54 million has been paid. The remaining 0.5% royalty will be retired upon the payment of $3.46 million after July 27, 2023. Under the La Cuesta Royalty Agreement there is also a production payment of 0.5% NSR on production from lands within a 1-km boundary of the Los Gatos concession which is also subject to the previously referenced $15 million maximum.

A royalty agreement in respect of the Paula Adorada concession (title 223392) was acquired from the Chihuahua-based company Grupo Factor through a Contract of Assignment of Rights effective December 3, 2014. There are no remaining obligations or royalties under this agreement.

4.5 Other Factors and Risks Affecting Access

Mining operations in Mexico have from time-to-time been subject to illicit community-led blockades. MPR works closely with local communities to mitigate this and other risks. Please see Item 20.0 for further information on social considerations. MPR is not aware of any other material risk factors which could limit or deny access to the CLG Mine.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access to the Property

CLG Mine is accessible by automobile from Mexican Federal Highway 24 to km 81 and then turning west on a newly paved road for 40 km west to the community of San José de Sitio, situated near the southeast-end of the concession block. Travel time by automobile is approximately two hours, either from Chihuahua City from the north or Hidalgo del Parral from the south. The city of Valle de Zaragoza, located on Federal Highway 24, 35 km to the south of the turnoff to San José del Sitio is the nearest significant commercial center.

5.2 Climate Description

The climate of the Los Gatos project is typical of desert areas of Northwest Mexico; it is semi-arid, with a maximum temperature in the order of 41.7 degrees Celsius (°C) and a minimum recorded at minus 14°C; annual average temperature is 18.3°C. Annual rainfall averages 363.9 millimeters (mm) over an average of 61 days, mostly during the rainy season of June through September, and relative humidity is 50%, with a dominant northeastward wind. There is abundant sunshine and little cloud cover during most of the year. Snow is a rare occurrence in Southern Chihuahua but has been recorded on occasion. Exploration and mining activities are seldom interrupted by adverse weather conditions, except for short-lived storms producing floods and damage to access roads.

5.3 Physiography

Vegetation is characterized by a semi-desert landscape, with typical low brush vegetation in the slopes including lechuguilla, ocotillo, sotol, yucca, sage, bear grass, and other types of indigenous grasses. Larger brush and trees are common along the main watercourses, with the presence of oak, cypress, cottonwood, poplar, huizache, and mesquite, among others.

The soils of the area are sandy to rocky and are composed of detrital material from the local volcanic and sedimentary rocks classified as lithosols and yermosols. The lack of flat areas with regular water sources and good soils results in only small areas useful for crops, but there is sufficient growth of native grasses and desert plant life to support the principal economic activity of the region, cattle grazing. Land tenure in the municipality of Satevó is 25% communal (Ejido); and 52% private property, with predominantly cattle grazing and other agricultural use.

The Project Area is in the Sierras y Llanuras del Norte Physiographic Province near the boundaries between the Gran Meseta, Cañones, and Sierras, and Llanura Tarahumara Sub Provinces. The general physiography of the Los Gatos area is characterized by low rolling volcanic hills with local escarpments and flat valley floors. Altitudes vary between 1,550 meters above sea level (masl) at the base of the Santo Toribio Creek and 1,780 masl at the top of the Los Gatos Hill, one of the highest peaks of the Project Area. The mine portal elevation is 1,585 masl.

Locally, the surface lands are mostly owned by private individuals as small cattle ranches, with average sizes of 1,000 to 2,000 hectares. Many of these ranches are unimproved grazing lands with no structures; however, a few ranch houses exist in the scattered areas. Some landowners live locally in the community of San José del Sitio or surrounding communities, while others live in the surrounding cities of Zaragoza, Parral, and Chihuahua.

Two communities hold parcels of surface lands as agrarian communes or "Ejidos." These are the communities of La Esperanza and San José del Sitio, which have corporate ownership of their respective surface lands.

5.4 Availability of Required Infrastructure

CLG is an operating mine. All required infrastructure for the current operation is in place, with some additions required for the LOM Plan as described in Item 16.0.

Infrastructure constructed to support the mining and processing operations at CLG Mine include offsite and onsite components. Offsite infrastructure comprises grid power distribution to the mine and a main access road.

Electrical power to the CLG site is supplied via a 115-kilovolt (kV) utility transmission line which originates from the San Francisco de Borja' substation in Satevó (Chihuahua).

CLG mine is accessible by existing road, which is used to transport personnel, materials and supplies to the mine and concentrates from the mine. That existing road is owned and maintained by the State and is paved up to the local San Jose del Sitio community and beyond that is a 11km gravel access road through an easement over ejido lands that is maintained by MPR. Railway transport infrastructure does not exist in the vicinity of the mine, nor is there nearby rail access to seaports. Lead and zinc concentrate products are trucked to Manzanillo. The nearest commercial airport is in Chihuahua City.

Water resources in the region are mostly related to the Conchos River Basin, which includes the San Pedro, San Francisco de Borja, and Satevó River sub-basins. A larger supply of surface water is associated with the Conchos River, located 7 km to the South of the main operation areas. The Conchos River is dammed in several locations, including La Boquilla, a major hydro power plant in the region. Scattered ranch houses near and within the Project Area are normally serviced by generators and small wells or capture ponds from surface runoff waters. Make-up water for the operation is sourced from water generated by the underground mining operations.

Onsite infrastructure is comprised of camp facilities, office and maintenance facilities, a processing plant, a tailings storage facility, backfill plants, refrigeration plants, a mine ventilation system, and dewatering ponds for sediment settling and water cooling. An accommodation camp with supporting facilities is operated onsite for workers and contractors. Since the mining industry is well-established in Mexico, and the local population density is relatively low, the vast majority of mine personnel travel to site from across Mexico with most coming from within Chihuahua State. Mine personnel who are not locally resident are required to stay on on-site accommodation.

Item 18.0 discusses infrastructure in more detail.

6.0 HISTORY

The Los Gatos area is considered a region with extensive veining but only limited showings of precious and base metals mineralization. It has been the subject of only very limited historical prospecting and mineral exploration. There are small prospect pits and minor historic workings in the Esther, San Luis, Tren/Margarita, and Paula zones. There is no known record keeping from this small-scale production. Surface work by MPR has not uncovered any evidence of modern prospecting activities in the area such as drill hole collars, survey points, or earlier sample locations.

Los Gatos was initially recognized by reconnaissance activities by La Cuesta International Inc. (La Cuesta) and La Cuesta applied for the original Los Gatos concession in 2005.

An initial letter of agreement for exploration work on the project was negotiated between La Cuesta and Los Gatos Ltd., (a former parent company to MPR) in early 2006, and a final contract was ratified in April 2006 between MPR and La Cuesta.

Exploration activities increased from 2008 onwards. Early drilling during 2008 and 2009 was focused on the Amapola area approximately 12km north-west of the CLG deposit. During 2009 and 2010 the Esther and CLG deposits were recognized as significant mineralized zones and exploration activities were advanced at both zones. As the size and scale of CLG was recognized during this time, the drill resources were focused on advancing this deposit.

There are no records of historical Mineral Resource and Mineral Reserve estimates before the involvement of MPR. Any silver, lead, and zinc production that might have been carried out from the Esther and Gavilana (Paula) prospects was probably limited to a few hundreds of tonnes with irregular silver and lead-zinc concentrations. A positive Feasibility Study (FS) was completed on Los Gatos in 2017 (Tetra Tech, 2017) and the project secured financing for construction, commissioning, and start up with first concentrate produced in the second half of 2019.

Table 6.1 depicts CLG Mine production from 2019 through the first half (H1) of 2023.

Table 6.1: CLG Mine Production (2019 – H1 2023)

		2019	2020	2021	2022	H1 2023	To Date
Tonnes milled	tonnes	274,194	667,422	909,586	971,595	525,770	**3,348,567**
Tonnes milled per day	tonnes	2,247	1,829	2,492	2,662	2,905	
Silver Grade	g/t	232	229	295	368	296	**298**
Zinc Grade	%	3.09	3.64	3.94	4.37	3.96	**3.94**
Lead Grade	%	2.00	2.27	2.27	2.31	1.86	**2.20**
Gold Grade	g/t	0.52	0.42	0.32	0.33	0.28	**0.35**
Metal Production contained in concentrates							
Ag in Pb and Zn Concentrate	Moz	1.7	4.2	7.6	10.3	4.4	**28.2**
Zn in Zn Concentrate	Mlbs	11.6	34.2	49.6	60.7	28.9	**184.9**
Pb in Pb Concentrate	Mlbs	9.1	27.4	39.8	43.9	19.1	**139.5**
Au in Pb Concentrate	koz	2.5	4.9	5.2	5.3	2.6	**20.6**

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geological Setting

North-western Mexico geologically consists of a series of accreted arc terranes that are overlain in the area of the Cerro Los Gatos deposit by the thick volcanic sequence of the Sierra Madre Occidental volcanic province (SMO). Figure 7.1 shows the location of the SMO over the older arc terranes (Campa and Coney 1983).

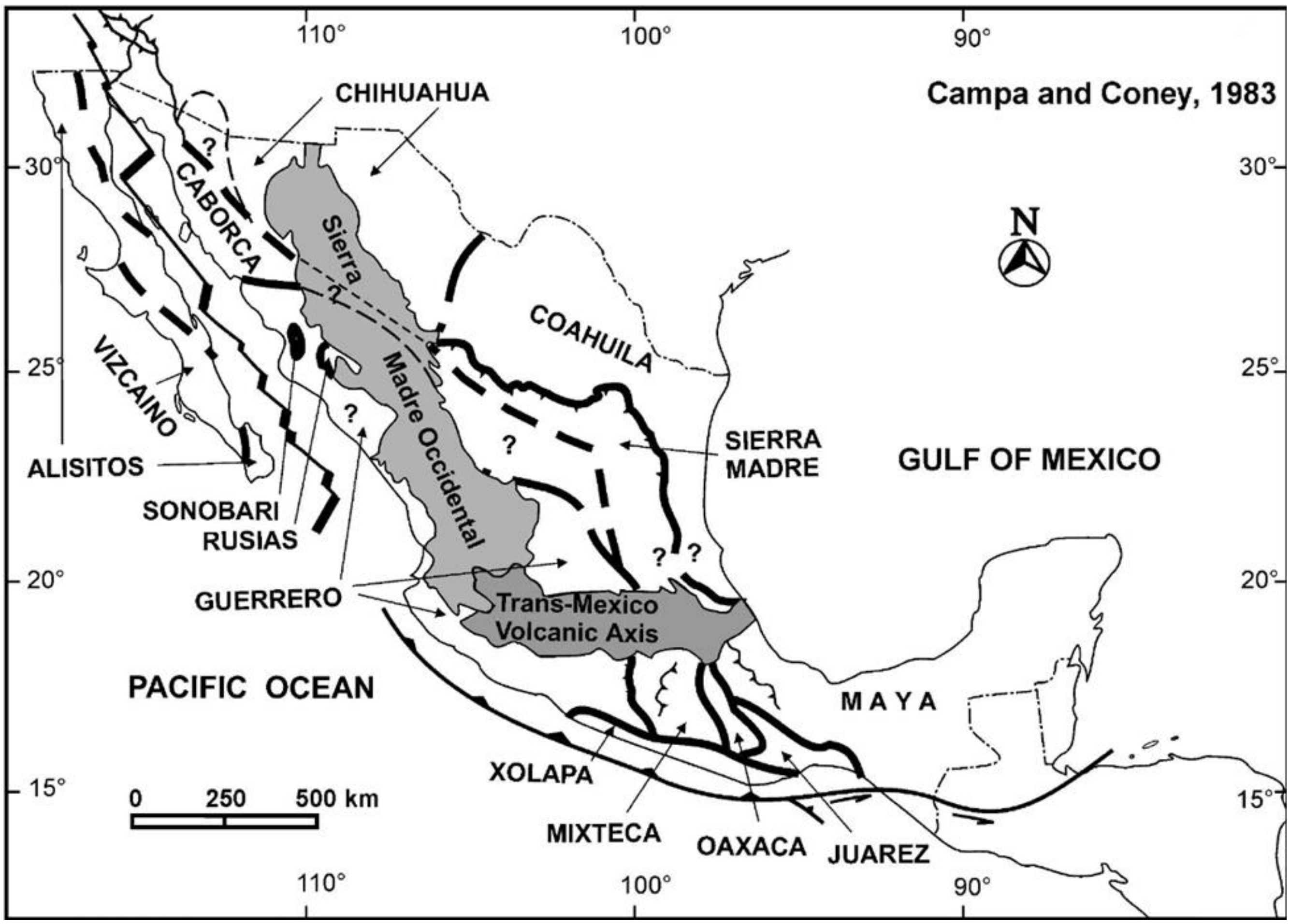


Figure 7.1: Location of the Sierra Madre Occidental volcanic province (Campa and Coney 1983)

The SMO is a middle tertiary volcanic province which extends from the southwestern United States to central Mexico. The average thickness of the flows exceeds 1 km (McDowell and Clabaugh, 1979).

The SMO sequence of volcanic rocks is subdivided into two major units, the Lower Volcanic Series, and the Upper Volcanic Series:

Lower Volcanic Series (LVS): Characterized by a predominant pile of andesitic volcanoclastic rocks. The group is generally massive in nature. While the unit is predominantly andesitic, the upper parts, toward the contact with the Upper Volcanic Series, tend to become more felsic, and thick beds of rhyodacite and rhyolite are found intercalated with andesite and dacite.

Upper Volcanic Series (UVS): Characterized by a thick sequence of felsic volcanoclastic rocks, predominantly ignimbrites, that shows well-defined bedding and tuffaceous horizons. These rocks form most of the high scarps and cliffs that characterize this province.

The Cerro Los Gatos and Esther deposits are embedded within andesitic rocks that are considered to be part of the LVS. The exposed area of andesite that contains the CLG and Esther deposits is considered an uplifted horst feature. These andesites are exposed at surface for approximately 30km to the north-west of the CLG deposit and there are multiple vein outcrops throughout this exposure.

The rhyolites around the andesite horst are considered to be an early (lower) part of the UVS.

The Cerro Los Gatos deposit sits on a range front fault of a tertiary extensional basin known on government maps as the Rio Conchos graben. The graben basin is filled with unconsolidated or partially consolidated sediments. The basin formation and filling likely occurred both contemporaneously and after the mineral deposition of the Cerro Los Gatos deposit. The extensional faulting that formed the basin influences the local dip and fault segmentation of the mineralization.

Both the sediments that fill the tertiary extensional basin and the rhyolites that surround the andesites at surface are considered to overlay the andesite.

The regional geology in the area of the CLG deposit is shown in Figure 7.2.

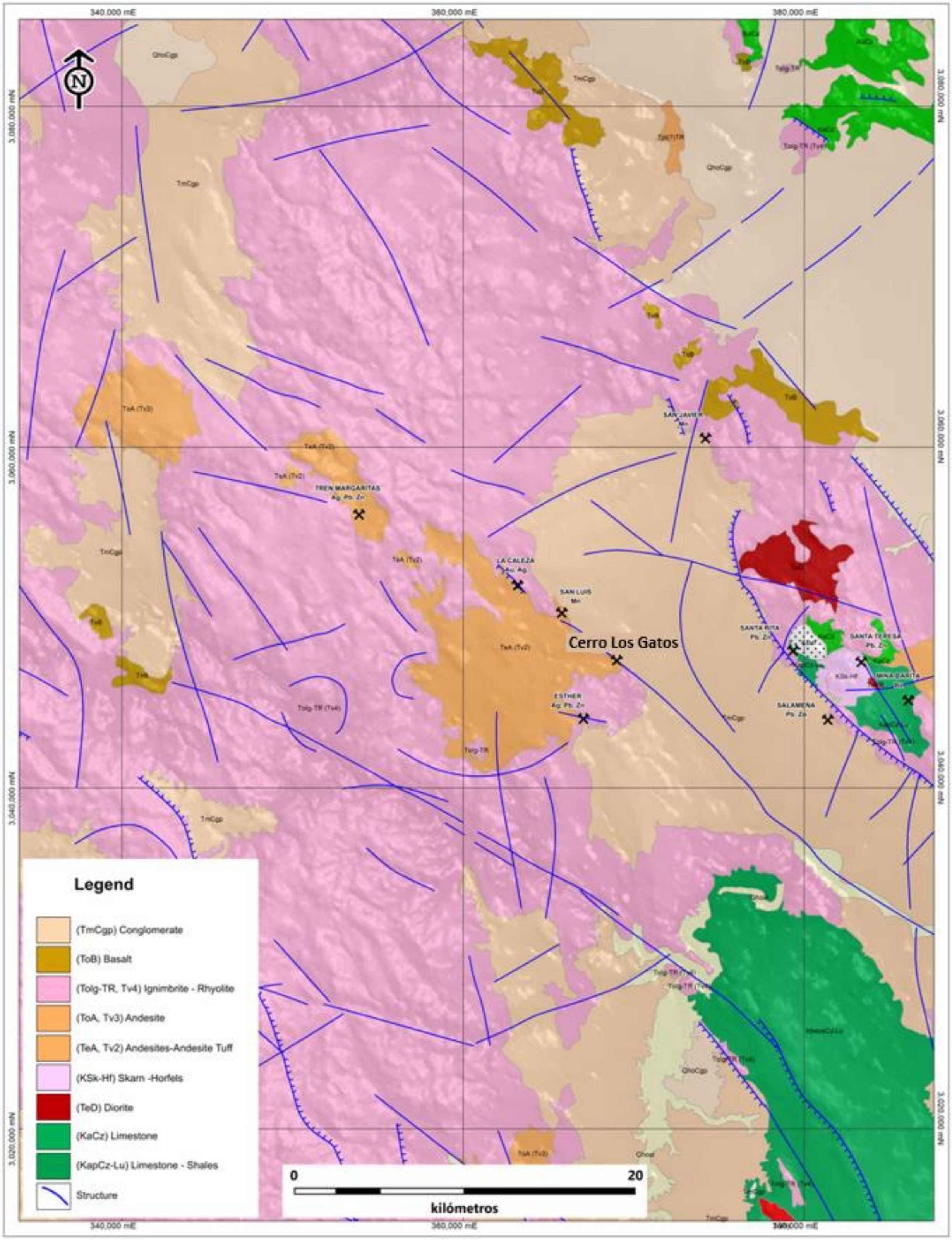


Figure 7.2: Regional Geological Map of the Los Gatos Area based on Servicio Geologico Mexico Data

7.1.1 Regional Structures

On a regional scale, both West-Northwest and North-Northwest trending large scale structures are observed. The North-Northwest trending faults in the deposit area are extensional and associated with the edges of the graben basin. The West-Northwest trending fault and fracture zones possibly reflect reactivated basement structures.

In the region, epithermal mineralization is associated with both West-Northwest and North-Northwest trending structures.

7.2 Local Geology

A stratigraphic column representing the regional geology is shown in Figure 7.3.

The rocks that host the Cerro Los Gatos deposit are a series of andesitic flows and dacitic tuffs. These are locally considered part of the "Lower Volcanic Series" and likely correlative of Tv2 and Tv3 of McDowell 2007. These are the host units of the Cerro Los Gatos deposit.

Intruding and deposited on the entire section are locally important rhyolite flows, flow domes, and dikes that are likely correlative with unit Tv4 of McDowell 2007.

Each of the rocks in the section contains observable hydrothermal alteration, suggesting that mineralization in the area probably occurred late in the history of the development of the volcanic section.

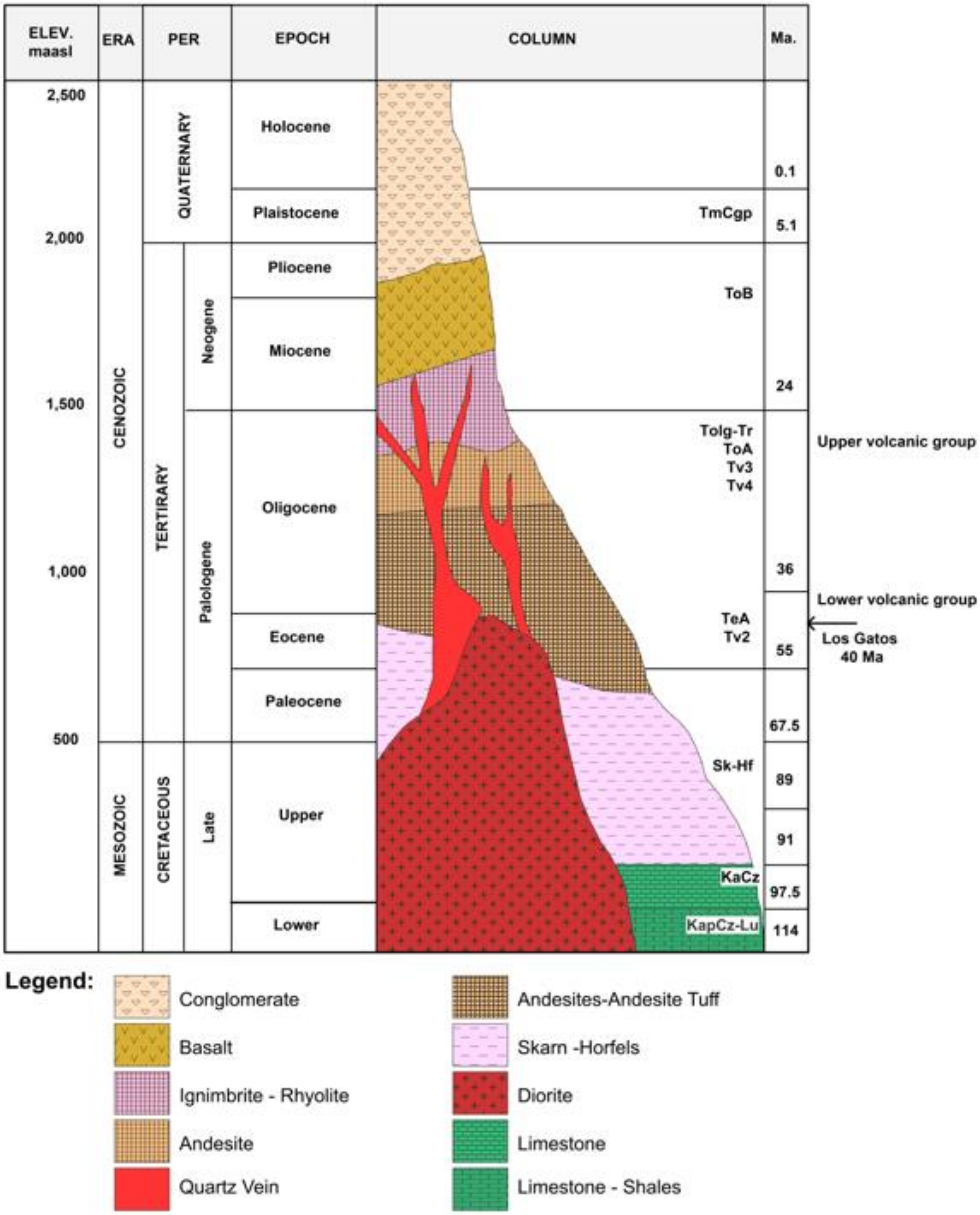


Figure 7.3: Stratigraphic Column of Regional Geology of Los Gatos

Figure 7.4 shows a geological map of the Cerro Los Gatos deposit area and Figure 7.5 depicts cross-section through the deposit, looking Northwest.

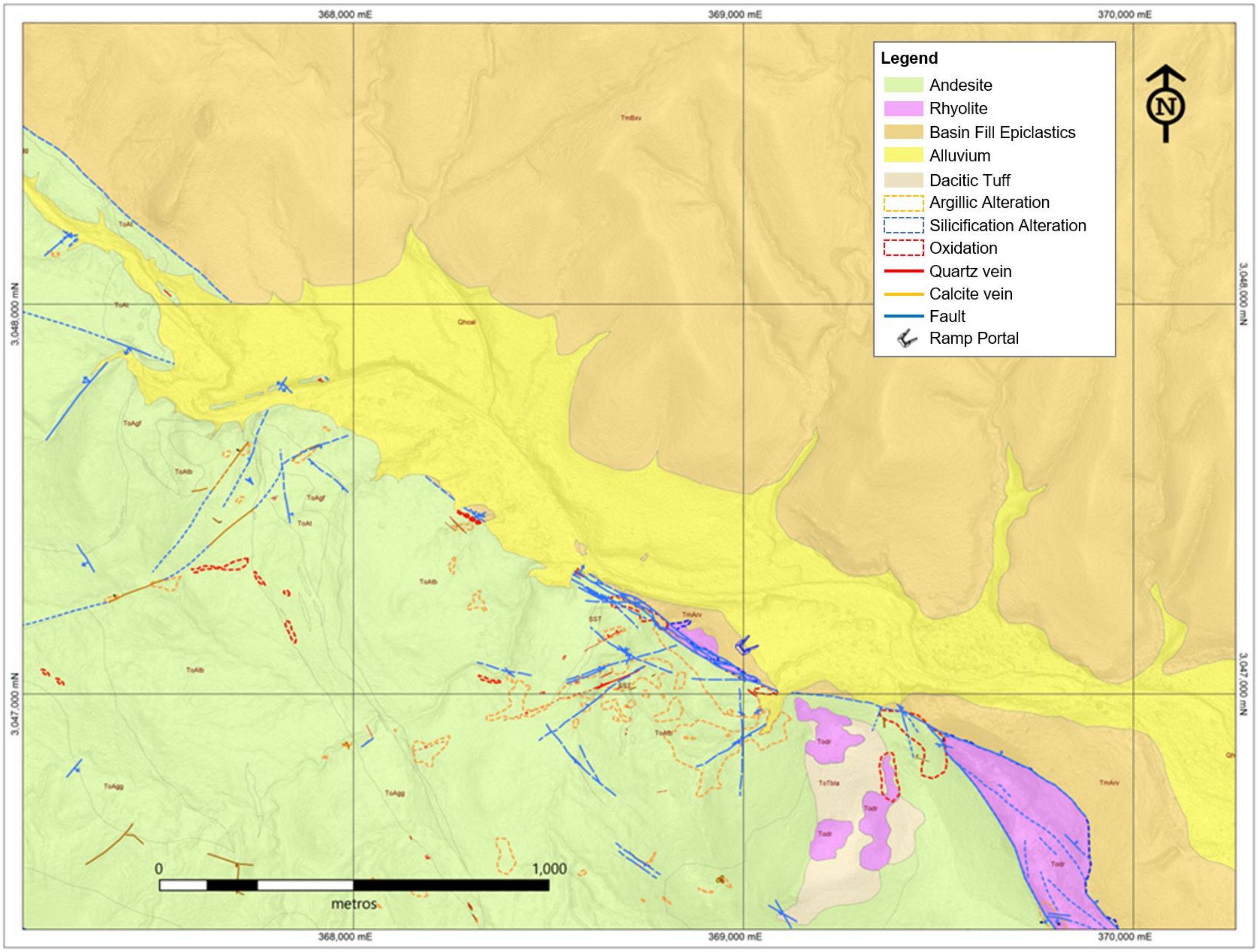


Figure 7.4: Geological Map of the Cerro Los Gatos Deposit Area

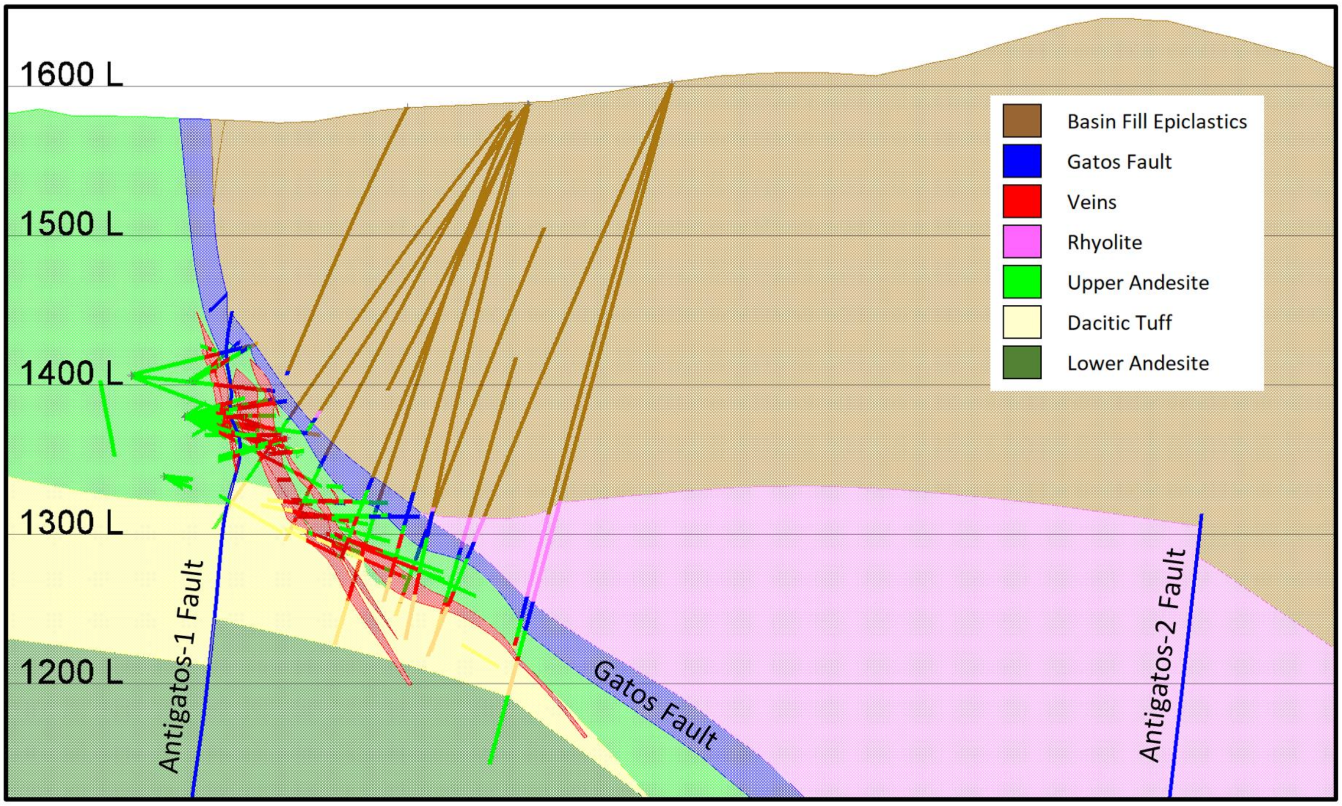


Figure 7.5: Geologic Model, Section Looking Northwest through the Central Zone Showing the Lithological Sequence at Los Gatos Deposit

7.2.1 Local Structural Framework

In the Esther to Los Gatos area there are NW-striking faults with major normal (extensional) displacements. These faults tend to be marked by strongly reddened (hematitic) rocks and soils. From SW to NE the principal faults comprise the Esther, Ambar, Cascabel and Los Gatos faults.

The Los Gatos fault is a major North-West trending listric fault zone, generally ranging from 5 to 30m wide that forms the edge of the graben basin. This fault frequently contains fine gouge. The mineralized veins that form the Cerro Los Gatos deposit sit in the footwall of the fault, ranging from immediately adjacent to up to 100m from the fault.

A fault parallel to the Los Gatos fault, known as the Lower Gatos fault, sits within the mineralized veins and is postulated to be an earlier plane of movement for the graben boundary before the primary movement shifted to the Los Gatos fault.

The Los Gatos fault and mineralized zones are cross-cut by two sub-vertical major North-West to North-North-West trending faults known as the Anti-Gatos-1 and Anti-Gatos-2 faults. Anti-Gatos-1 separates the North-West zone from the Central Zone and the Anti-Gatos-2 separates the Central and South-East Upper blocks from the South-East main block.

There are multiple late cross cutting faults trending North-East. Most of these do not have significant movement. The North-East trending Ramp fault does offset the mineralized veins and separates the Central block of mineralization from the South-East Upper block.

Figure 7.6 (WP 243) shows a typical siliceous fault plane, with slickensides, beside non-exposed ground (presumably clay-altered rock).

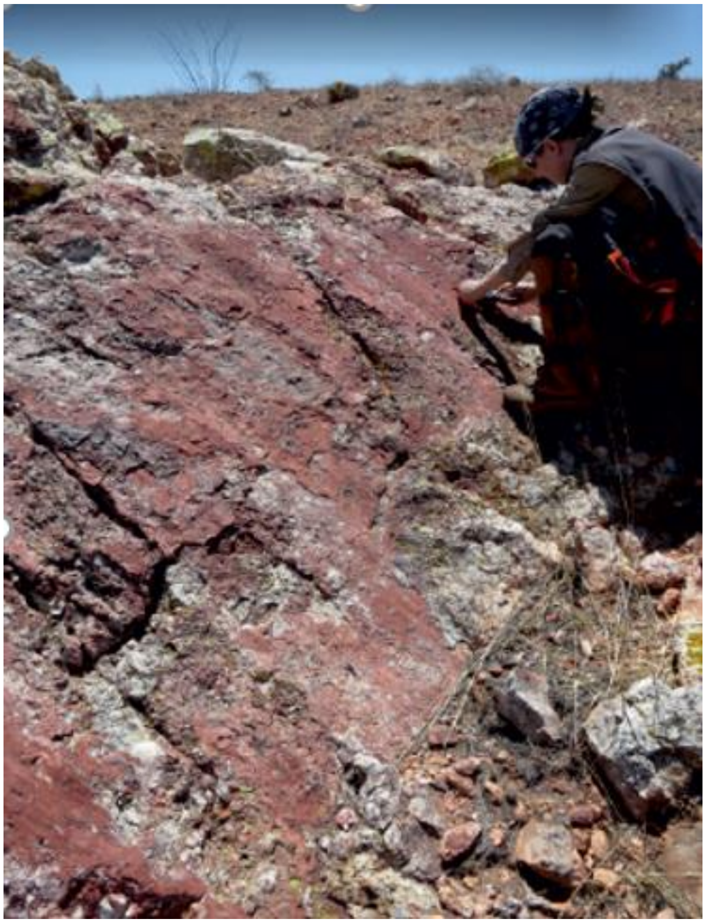


Figure 7.6: Typical Los Gatos Fault with Reddened Slickensided Fault Plane Cutting Siliceous Rhyolite

7.3 Mineralized Zones

The Los Gatos District hosts a series of quartz, quartz-calcite, and calcite veins in at least fifteen separate vein systems that are exposed along a strike length of approximately 30 km and an outcrop belt width of approximately five km.

The veins containing silver, lead and zinc at Cerro Los Gatos are hosted primarily by the andesite rocks immediately above the contact with the dacitic lithic tuff. Vein thickness is variable. Figure 7.7 shows an isometric view of the dacite lithic tuff unit (pink) which marks the position of a NE facing monoclinic fold that is disrupted by brittle deformation along the Lower Gatos and the antithetic Anti-gatos faults (In red: Ag, Pb, Zn Mineralization).

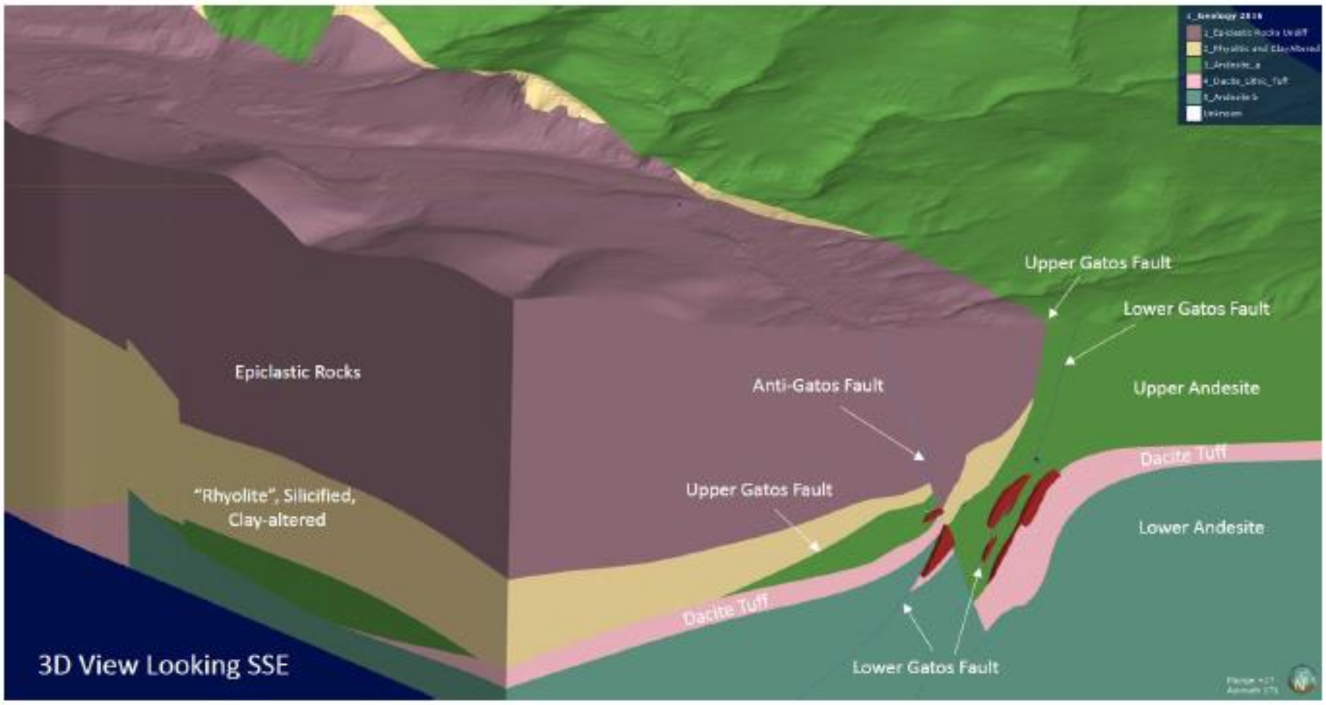


Figure 7.7: Geological Model 3D View Looking South Southeast

Economic mineralized grades are not present at surface; however, epithermal alteration textures are present. The general Northwest trending, Northeast dipping Cerro Los Gatos vein system is persistent with a mapped extension in the order of 10 km, with true widths of as much as 25 m at depth as demonstrated by diamond drilling. Banded quartz veins and breccias are cemented by quartz, calcite, and abundant manganese oxides.

The Cerro Los Gatos deposit is a listric-shaped mineralized horizon hosting steeply to shallowly dipping mineralized-shoots at depth. Mineralization of economic interest occurs for approximately 1,800 m in length, between an elevation varying roughly between 700 masl and 1,400 masl. The top of the mineralized horizon at Cerro Los Gatos is generally located at an elevation of 1,400 masl. The natural topographic surface is in the order of 1,570 masl ± 50 masl.

The veins at Cerro Los Gatos contain silver, zinc and lead. Lower concentrations of gold and copper are also associated with the veining.

Silver mineralization occurs as acanthite (argentite) and native silver and has been detected in thin sections as proustite as small inclusions within galena grains.

Zinc mineralization occurs as sphalerite, zinc silicates and zinc carbonates of variable grain sizes disseminated in quartz vein material, as open-space filling in cavities, and as replacements in the andesitic and dacitic flow units. Sphalerite ranges from yellow to brown in color and is deposited in a similar style but is not always associated with the galena mineralization. Zinc oxides after sphalerite also exist down along fault structures through the deposit.

Lead mineralization occurs primarily as galena and lead oxide minerals of varying grain sizes that are disseminated in quartz vein material, as open-space filling in cavities, and as replacements in the andesitic and dacitic flow units.

Copper mineralization generally occurs as chalcopyrite disseminated within quartz veins. Azurite and malachite have been observed in oxidized areas of the South-East zone.

Gold mineral species have not been identified visually but are present in small quantities in assay results.

The veins themselves display variable gangue mineralization, depending on the depth of exposure within the epithermal environment. It is common to observe calcite or manganese oxide mineralization at high levels within the epithermal system which transitions to barite, fluorite, and quartz at lower levels.

Within the mineralized portions of the veins, it is common to see quartz and fluorite and occasional minor calcite associated with lead, zinc, silver, copper, and gold mineralization. Fluorite is a significant component of the mineralized zones. The veins are typically rhythmically banded on a scale of 1 mm to 10 mm per band, with repeated pulses of quartz carrying the metals and other gangue minerals.

It is common to see multiple pulses of mineralization where small veins crosscut each other. It is also common to see various coloration of quartz in the multiple pulses, ranging from milky white to vitreous gray to amethystine purple.

It is apparent that most of the economic mineral values are associated with sulfide mineralization. Oxide mineralization is limited but present at depth, and is commonly related to fracture, breccia zones, and open spaces within the veins.

7.3.1 Alteration

The Los Gatos vein mineralization has a halo of hydrothermal alteration. The distribution of alteration is complex because the halo was subsequently offset by the major listric fault movement.

The Los Gatos footwall rocks are mostly unoxidized. Unaltered mafics and feldspar are common, even as close as 20 m from the fault zone. Approaching the Los Gatos vein(s), magnetite is destroyed and the andesites become pale green. The illite alteration is typical argillic alteration found around epithermal veins. The dacitic tuffs are less affected; they remain siliceous and contain only a minor percentage of illite + pyrite. Illite alteration is seen at depth and at surface. At deeper levels, epidote + chlorite + pyrite alteration is widespread (propylitic) as far as 200 m into the footwall of the South-East zone.

High elevations within the hanging wall, particularly within rhyolite, are affected by massive chalcedony replacement and veinlets of chalcedony. Kaolinite + silica alteration occurs preferentially within the acidic volcanic rocks.

8.0 DEPOSIT TYPES

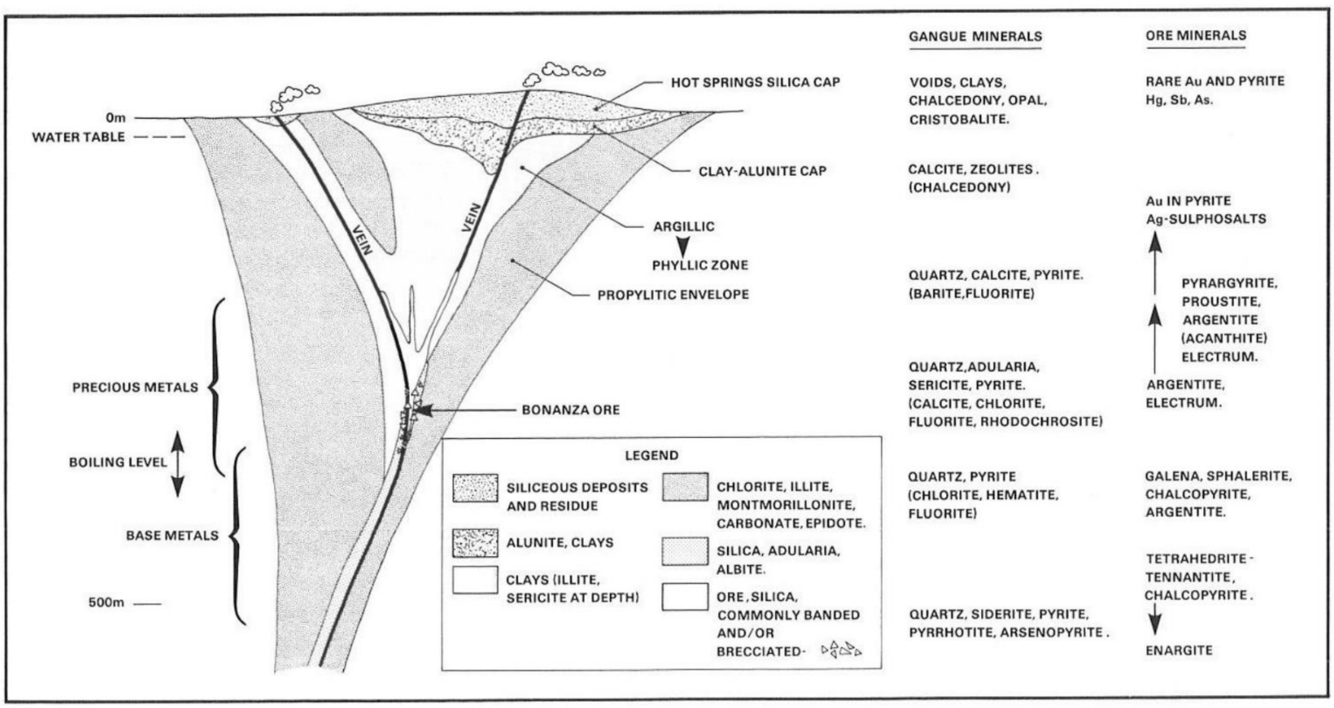
Los Gatos is interpreted as an intermediate sulfidation epithermal vein system.

Veins in the Cerro Los Gatos deposit show textures and gangue mineralogy (local chalcedony and calcite, and quartz-replaced lattice texture calcite) that indicate a relatively high-level hydrothermal system in the boiling environment. Breccia with clasts of vein quartz indicates a protracted hydrothermal system during multiple faulting events.

Mineralization at Cerro Los Gatos is characterized by silver, lead, zinc, and copper sulfides and their corresponding oxides, along with fluorite, manganese, barite, and traces of gold associated with quartz and calcite veins.

The veins vary in orientation from West-Northwest to Northwest to North-Northwest and vary in thickness from 20 cm to 30 m in the mine operation. Study of the veins in hand specimens and thin sections suggest they are epithermal in origin and are likely of intermediate sulfidation composition.

The exploration model for these types of veins was put forward in a paper by Dr. Larry J. Buchanan (1981) that set the basis for the understanding and interpretation of epithermal deposits that has been widely used in exploration; see Figure 8.1.



Source: Buchanan L.J., 1981

Figure 8.1: Idealized Section of a Bonanza Epithermal Deposit

Figure 8.2 shows epithermal textures encountered in CLG drill holes GA-132 at 392 m down the hole on the left, and GA-175 at 273 m down the hole on the right.

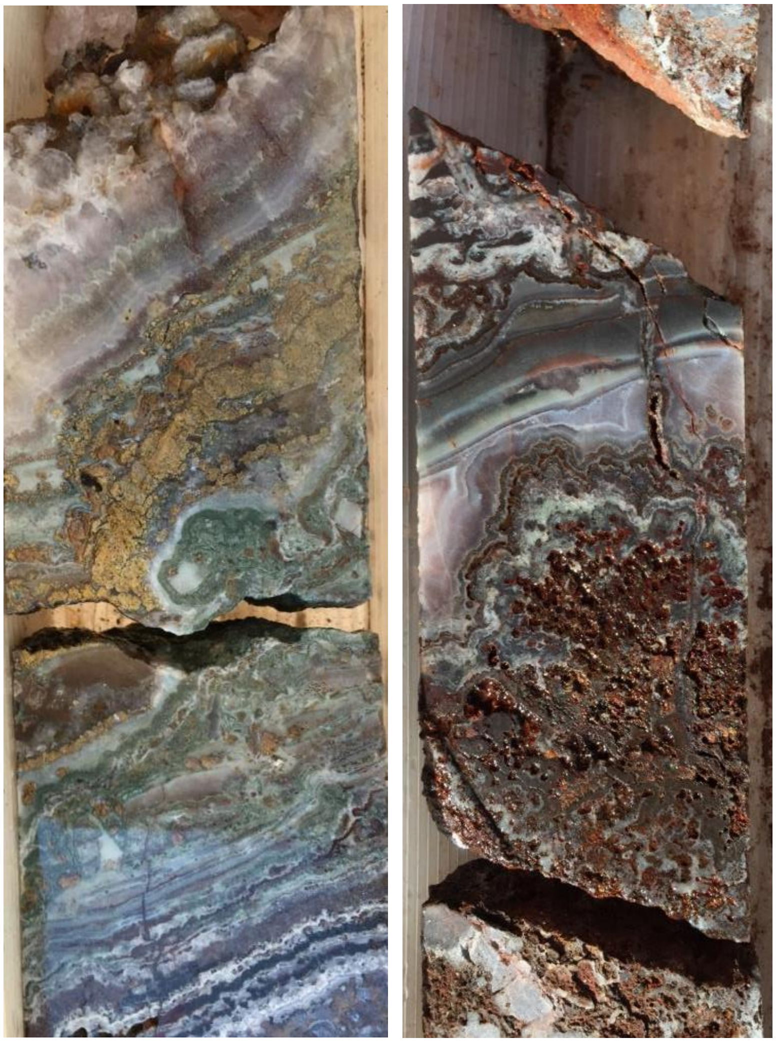


Figure 8.2: Epithermal Textures in Drill Core

9.0 EXPLORATION

Exploration on the LGJV concessions by Minera Plata Real has been completed primarily by core drilling and limited non-drilling exploration activities including surface geochemical assay, geophysics, surface mapping and structural studies.

Results of recent and ongoing drilling programs are intended to define new discoveries and better delineate known deposits to increase confidence of the Mineral Resources and Mineral Reserves estimates as the basis for future organic growth of the business.

The non-drilling exploration work currently being undertaken is attempting to identify new mineralization beyond what is being reported in this technical report.

9.1 Exploration Work (Non-Drilling)

9.1.1 Geochemistry

Detailed mapping and rock geochemistry has been completed during 2022 and 2023 on various exploration targets on the LGJV concession package outside the CLG and Esther zones.

9.1.2 Geophysics

During 2023, the first phase of a Magneto-Telluric study was completed over CLG and the Los Gatos fault to the northwest and southeast. The intent of this survey is to attempt to identify structures within the basin that may indicate accumulations of mineralization similar to South-East Deeps.

9.1.3 Surface Mapping

Regional scale geologic mapping has been conducted over areas of the Los Gatos concession where the LGJV controls the surface rights utilizing both local staff from MPR and independent contractors. Limited areas of detailed surface mapping exist in the immediate vicinity of the Esther and CLG deposits.

During 2022, MPR commenced detailed mapping programs over the central area of the concessions from Amapola to Wall-e and the area between CLG and Esther.

During 2023 a drone LiDAR and airphoto survey was completed over the Ojito ranch approximately 20 km northwest of the CLG operation. The intent of this survey was to prioritize geological mapping targets.

Detailed mapping was completed during 2023 over Los Torunos, El Valle, La Palma, San Luis, Los Rieles, Lince, Diana and Portigueno targets.

10.0 DRILLING

Since the acquisition of Los Gatos by MPR, several drilling campaigns have been carried out with different objectives. As of March 31, 2023, 1,938 drill holes relevant to the LGJV property had been completed by MPR, for a total of 467,535 m drilled. The project database contains surface exploration drilling on other prospects that are not applicable to this report. Table 10.1 shows all drilling campaigns on the LGJV property, tabulated by objective and Figure 10.3 shows a map with spatial distribution of the CLG deposit drilling.

Table 10.1: Drill Hole Count by Purpose

Purpose	Meters	N° Drill Holes
Definition	85,981.8	**950**
Exploration and metallurgical testing	1,733.1	6
Geotechnical	6,256.2	26
Metallurgical testing	1,693.5	5
Pumping wells	5,269.3	13
Surface Exploration	356,533.2	857
Underground Bulk Sample Targeting	419.8	4
Underground Exploration	9,647.7	77
Total	**467,534.6**	**1,938**

10.1.1 Drilling

10.1.1.1 Cerro Los Gatos

Mineral exploration drilling was initiated at the CLG Project in October 2008 and continued until 2012. Drilling restarted in 2015, following the joint venture agreement with DOWA, with four rigs simultaneously operating until February 2016. Drilling began with a Mexican contractor, Minera Gavilán, but most of the drilling was completed by Major Drilling Company with Major 5000 rigs. Drilling was conducted using a wire line rig with diamond core capabilities. Holes begin with HQ size and are reduced, if necessary, to NQ and very rarely to BQ, only if difficult drilling conditions are encountered. Drilling from the 2015-2016 program were pre-collared with tri-cone bits.

Drilling resumed in connection with underground development in August-December 2018 from designed and excavated chambers within the underground workings. The drilling was conducted by Major Drilling to retrieve NQ size core drilled from the footwall side of the mineralized zone.

Surface drilling has continued since 2019. The surface drilling up until early 2023 was dominantly focused on mineral resource infill to improve geologic confidence. Up until mid-2022, holes were pre-collared with a tri-cone bit and core collected using HQ size, reducing to NQ size if poor drilling conditions were encountered. From mid-2022, the epiclastics have been drilled starting with PQ to control drillhole deviation.

Underground definition drilling commenced in 2019. The underground drilling has utilized small MPR owned “Termite” rigs drilling LTK48 (35mm) diamond core and Boart-Longyear LM-75 rigs drilling NQ core. In late 2022, the termite drilling changed to 42mm diamond core.

Exploration drilling has been undertaken almost yearly at CLG. Drilling specific to the CLG Mineral Resource estimation is approximately 1,466 holes, totalling 282,904.8 m of core.

Table 10.2 shows the summary of the different campaigns throughout the mineral exploration work on the Cerro Los Gatos deposit, by year as of the database cutoff date of March 31, 2023. Figure 10.2 illustrates the drill hole locations.

During 2022 there was a backlog of underground diamond drill core that had been drilled but not logged or sampled. This backlog was resolved during 2022. There are some drillholes shown in Table 10.2 that were drilled during 2021 but not finalized until after the 2022 mineral resource database cutoff date.

Table 10.2: Total of Drill Holes and Meters per Campaign at Los Gatos

Year	Data	Meters	N° Drill Holes
2009	Surface	12,067.5	30
2010	Surface	12,373.5	22
2011	Surface	557.8	1
2012	Surface	12,255.1	38
2014	Surface	1,733.1	6
2015	Surface	61,788.8	184
2016	Surface	8,861.8	29
2018	Surface	401.3	1
	UG	3,564.5	32
2019	Surface	18,747.4	65
	UG	4,449.4	92
2020	Surface	679.0	2
	UG	18,550.3	236
2021	Surface	35,398.6	94
	UG	30,494.2	311
2022	Surface	24,644.0	42
	UG	24,057.1	239
2023	Surface	9,090.5	13
	UG	3,191.0	29
Total		**282,904.8**	**1,466**

Figure 10.1 presents a plan view of drill holes, segmented by surface and underground collar locations.

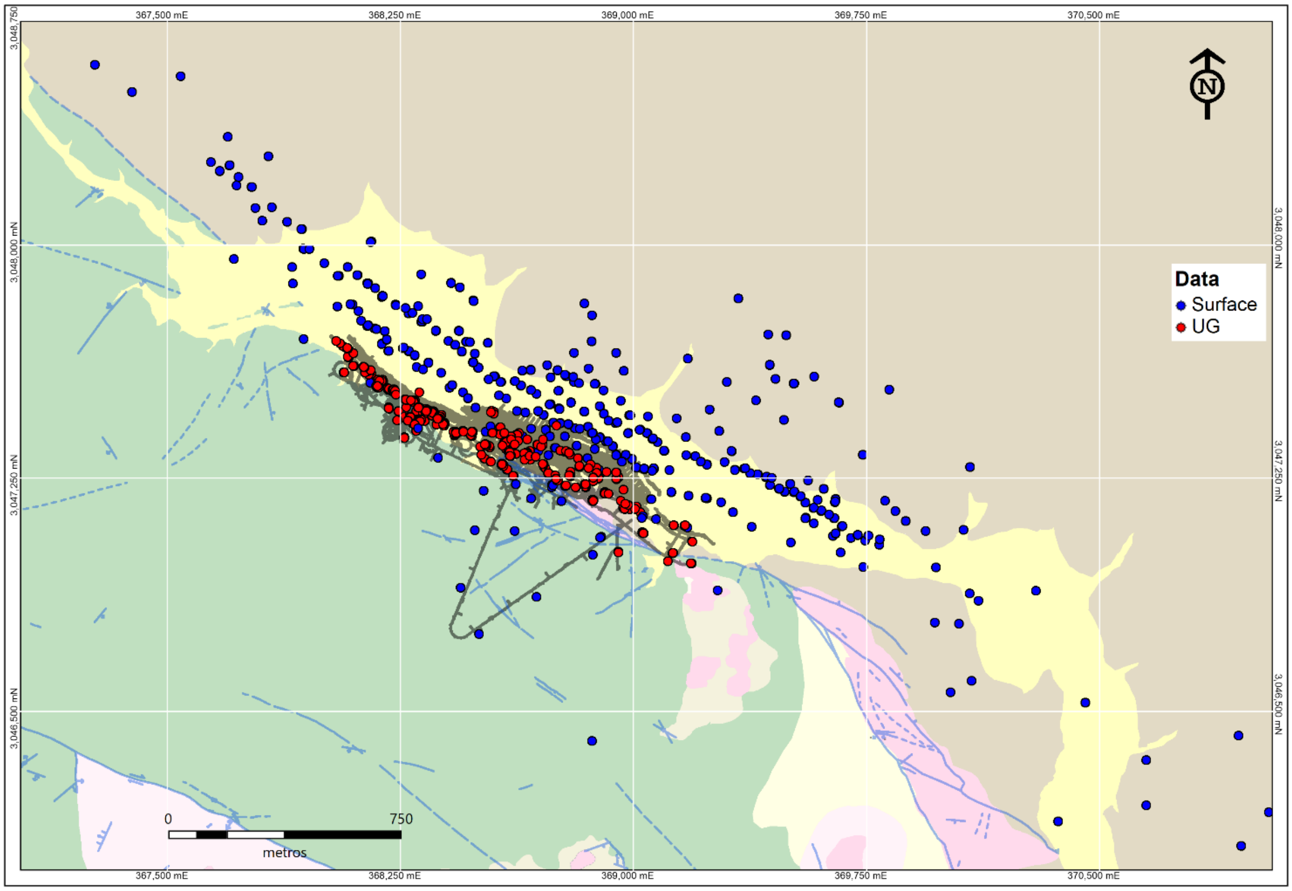


Figure 10.1: Distribution of Drill Holes used for Estimation by Type at Los Gatos

10.1.1.2 Esther

As at July 1, 2023, a total of 108 drill holes for 42,374 m have been completed in the Esther area. After the 2022 Mineral Resource model was completed in 2022, a total of 5 drillholes for 1,467 metres were completed outside of the reported mineral resource solid.

Table 10.3 shows the summary of the different campaigns at the Esther area, by year. This table contains the drill holes from the entire Esther area, some of which were beyond the area included in the mineral resource block model. Figure 10.2 illustrates the drill hole locations.

Table 10.3: Total of Drill Holes and Meters per Campaign at Esther up until July 1, 2023

	N° Drill Holes	Total m
Year	Surface	
2009	18	6,872
2010	16	8,519
2011	6	2,950
2021	28	10,067
2022	40	13,966
Total	**108**	**42,374**

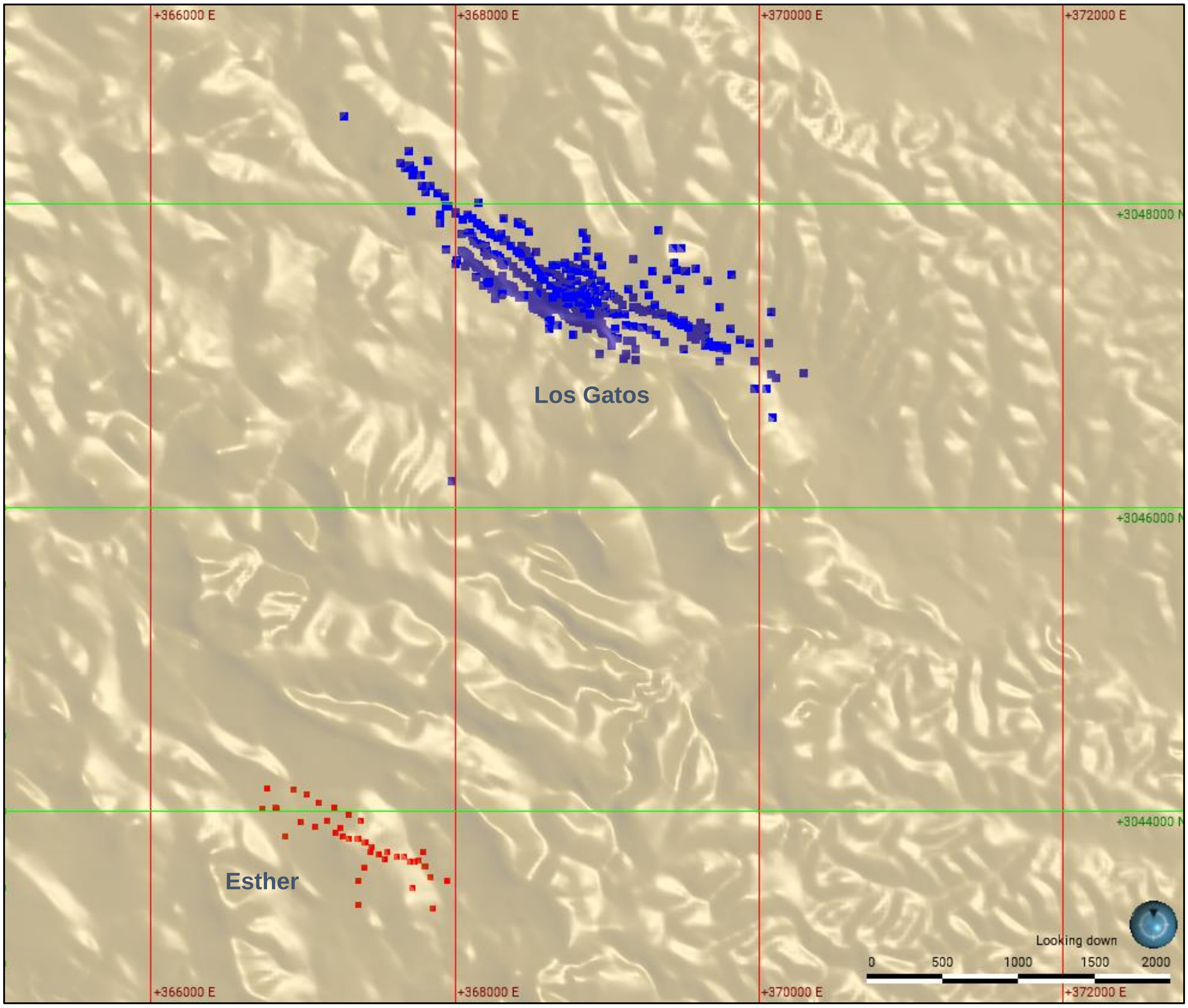


Figure 10.2: Drill Hole Distribution Used for Mineral Resource Estimation at Esther

10.1.2 Logging

Drill hole logging was conducted by core logging geologists at the Los Gatos core logging and storage facility, supervised by the senior Geologist. The logging process included a detailed description of the lithology of the different rock units found in the deposit, as well as the identification of alteration, structures, and mineral zones. Based on the geological description, codes were assigned to each geological unit. The logging process was conducted manually on paper log sheets, which were then entered into a Microsoft (MS) Excel spreadsheet. Once the transcription was completed, the geologists responsible for the Project reviewed the Excel files for consistency. An example of a paper logging sheet is shown in Figure 10.3.

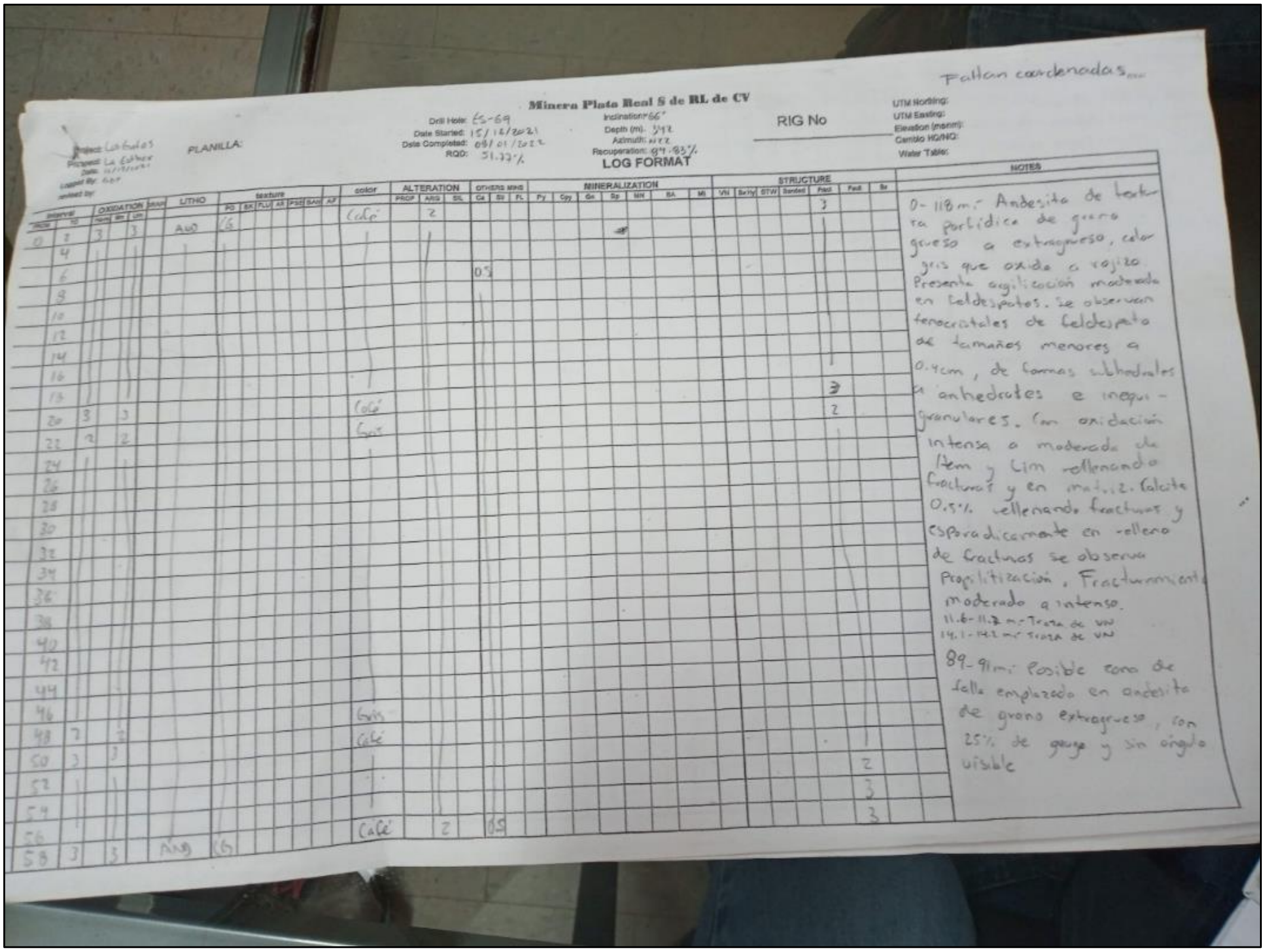


Figure 10.3: Example Core Logging Sheet for Los Gatos

10.1.3 Drill Core, Sampling, and Recovery factors

10.1.3.1 Topographic Survey

Detailed topographic mapping was created using Photosat, a Canadian contractor for satellite imagery. The topography was created at 1-m, 5-m, 10-m, and 50-m contours from Geoeye® satellite coverage captured exclusively for the survey. Survey control points were established on surface, with coordinates by total station to guarantee the accuracy of the survey.

10.1.3.2 Core Recovery

For diamond drill hole (DDH) core, the percentage of core recovery was calculated as the division of the length of each of the recovered pieces by the length of the drilled hole section. In some cases, recovery was less than 100 percent of the drilled interval due to washout of fines, compaction of soft units, or inability of the bit to break and recover rock core. Occasionally, recovery exceeded 100 percent due to borehole collapse (redrilling), clay expansion, or core breakout to the bottom of the borehole during barrel recovery. The measurement is recorded to the nearest centimeter (cm) and as a number, not a percentage. Figure 10.4 shows the core recovery from DDH drilling between 2009 and 2022.

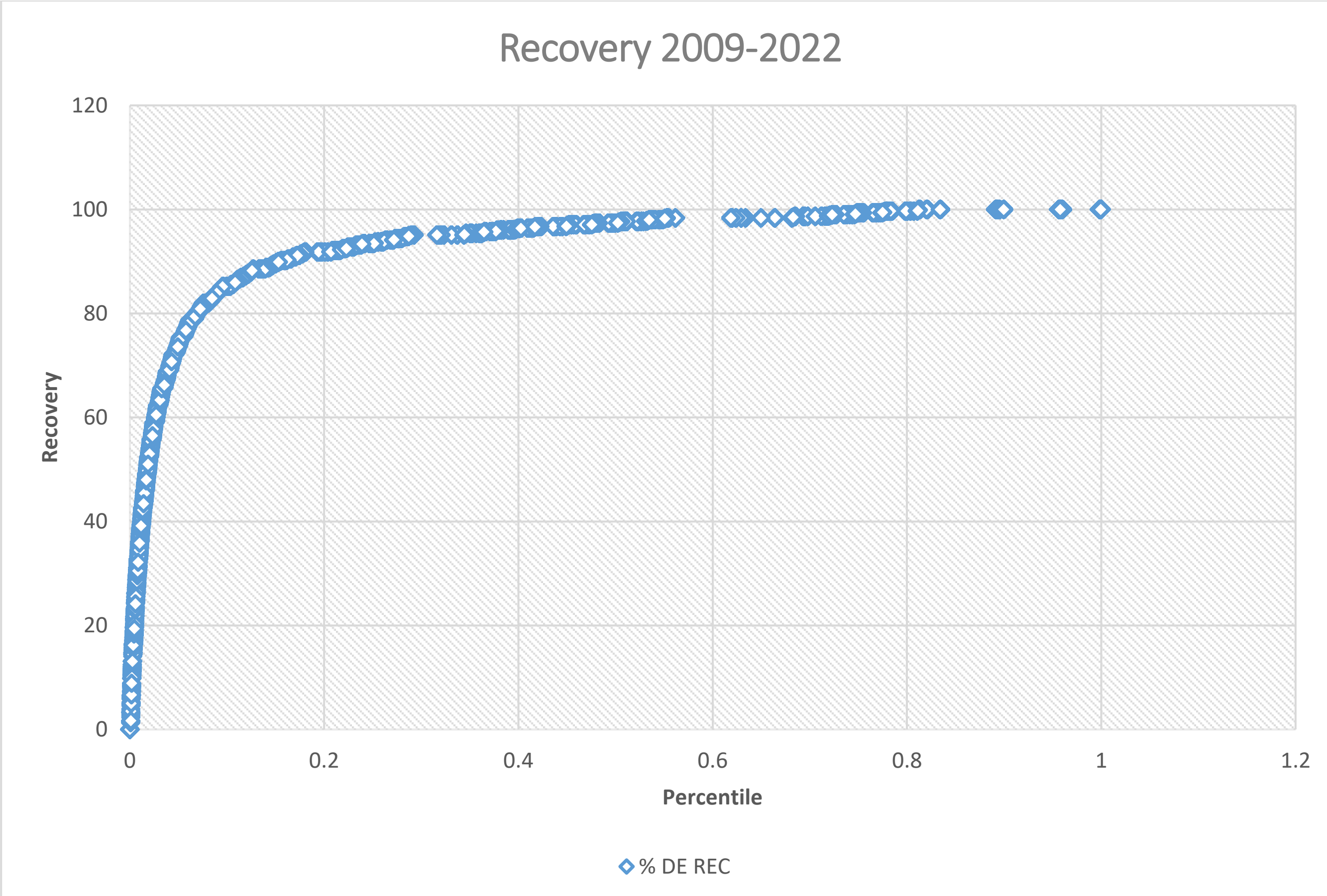


Figure 10.4: Recovery DDH - All Data

10.1.3.3 Surveying - Drill Collar Survey

10.1.3.3.1 Surface Drill Holes

Surveys of drill collar locations has been completed by a local contract topographer using a Topcon Total Station GTS-236W and Leica Total Station. All collar and survey information was previously stored in a master database in Microsoft Access® and transferred to the new acQuire database system in late 2022. Most surface collars have been cemented and labelled with the drill hole name; Figure 10.5 shows typical collars on the Los Gatos area.

Figure 10.5: Example of a Completed Drill Hole Site

10.1.3.3.2 Underground Drill Holes

Underground collars have been surveyed by conventional mine survey (measuring offsets from control points). To ensure accuracy, collar location and hole dip/azimuth were measured twice by the mine survey department. One measure is completed while the machine is still drilling, and a second measurement taken after the machine is off the drill hole, using a tube inserted into the drill hole for hole inclination measurement.

10.1.3.4 Downhole Survey

10.1.3.4.1 Surface Drill Holes

Up until 2022, surface drill holes were surveyed down the hole with a Flexit EZ Trac device on 50-m intervals, as the holes were completed and with a magnetic tool, Wireless Multishot (Devico Devishot). The accuracy of the Flexit EZ Trac is reported by its manufacturer to be 0.25 degrees (°) in calculation of both the azimuth and inclination.

The measurements were made in areas without extreme fracturing or faulting in the rock that could affect the measuring instrument. Once the measurement is obtained, it is reviewed by MPR geologists to evaluate if it is within the allowed parameters of azimuth and inclination deviation.

If the result is not satisfactory the measurement was performed again and if the result was still not satisfactory the reason is evaluated (fracture zone, magnetism in the rock or instrument failure). All the measurements that are accepted by the geology department are noted in the daily drilling reports of the AP DRILLING company, and they are also incorporated in the database.

Since April 2022, Los Gatos has used Reflex Gyrocompass and DeviAligner tools for rig alignment and conducted a post-completion 3m interval gyro downhole survey program for holes drilled from surface using Reflex Gyro Sprint-IQ and DevyGyro tools.

10.1.3.4.2 Underground Drill Holes

During late 2022, Los Gatos implemented a downhole survey program for holes drilled from underground. The GyroRigALigner and GyroScout tools are used for rig alignment and post drillhole surveying respectively. Prior to that date, downhole dips/azimuths were not measured for underground drill holes.

10.1.4 Drilling Results and Interpretation

Based on the geological understanding of the deposit, the reconciliation and the QA/QC program it is the opinion of this QP that the spatial spacing, extents and continuities, drilling methods and sample quality at Los Gatos are deemed to be acceptable for the purpose of modelling and estimating mineralization content of the deposit.

10.2 Hydrogeological Investigations

Hydrogeological characterization of the site has been conducted by MPR and consultants (Hernández-Bedolla, 2015; Tetra Tech, 2015, 2019, 2020, and Hydro Ressources, 2020a-e, 2021). Hydrogeologic characterization consisted of the installation of wells and monitoring of water levels. Aquifer testing at the site was conducted between 2010 and 2016 and consisted of numerous short duration slug tests and pumping tests in boreholes and dewatering wells and one long-term (93-day) constant rate pumping test (Tetra Tech, 2019, 2020). Data acquired during these investigations was used to develop a conceptual hydrogeological model of the site, which formed the framework for the development of a numerical groundwater flow model (summarized in Tetra Tech, 2019). The numerical groundwater flow model was used to simulate drawdown effects of pumping from dewatering wells and to produce a dewatering plan for the development of the underground mine.

Mine development below the water table after 2019 demonstrated that the initial numerical groundwater flow model significantly underestimated the groundwater inflow rates to the underground mine. This indicated that the conceptual model then in use was inadequate and needed revision. Noting the strong influence of fault structures on groundwater inflow to the underground workings, in 2020 MPR retained consultants that specialized in the analysis of structurally complex, fractured rock groundwater systems. As appropriate for these type of hydrogeological systems, the groundwater characterization effort since 2020 has been focused on defining the degree of compartmentalization of the groundwater system at CLG and on the location of the principal water bearing structures (Hydro Ressources, 2020a-e, 2021) using targeted drilling and flow monitoring. These studies have allowed the estimated peak dewatering rate required to meet target drawdown rates for the current mine plan in the Northwest (NW) and Central zones to be better constrained.

Since mid-2022, CLG has employed a staff hydrogeologist to collect and evaluate hydrogeological data and analyse the results of mine dewatering programs. As of July, 2023 the company has a total of seven piezometers to measure static water levels, four collared in underground monitoring wells and three piezometers collared from surface. These piezometers are used to evaluate the water level and impact of the various dewatering infrastructure. Pumping volumes are monitored on a real-time minute by minute basis.

Item 16.3 describes the conceptual hydrogeological setting in more detail.

10.3 Geotechnical Drilling and Sampling

For all diamond drilling that has been completed on the deposit basic geotechnical information, including core recovery, rock hardness and RQD has been collected from diamond drill core at the same time as the geological logging process.

For the period 2012 to 2015, point load testing was introduced as well as the logging of joint form and frequency for estimation of an RMR value. From 2015 onwards, point load testing was continued and the format of joint evaluation was modified to include the estimation of a Barton Q’ parameter.

The mine employs geotechnical engineers who conduct detailed geotechnical rock quality logging of individual areas for specific projects. Examples of these are each vent raise location or the trial of a new stope methodology, such as the implementation of transverse longhole mining in the CZ. This detailed geotechnical analysis is completed on diamond drill core on an as needed basis.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

Data summarized in this Item and utilized for Mineral Resource estimation has been collected by MPR. The sample collection and preparation, assaying and security procedures implemented by MPR use methods in accordance with internal and mining industry standards and were continuously monitored to ensure the integrity of the data collected.

No historic sampling by previous operators has been utilized by MPR nor has it been described in this section. Descriptions and quantities of samples are limited to drilling within the immediate CLG deposit mineral resource area (project ID "GA" in the database); various surface sampling and drilling outside of the deposit area are not considered relevant to this section.

11.1 Sample Preparation Methods and Quality Control Measures

11.1.1 Methods

At Los Gatos only DDH core samples have been used for resource estimation purposes. Diamond drill cores are labeled and secured in wooden cases before daily transport from the rig to the core shack by truck. Once the samples have been received in the core shack, they undergo geotechnical logging by field assistants, while geologists proceed with the geological logging and the selection of the intervals to be sampled.

Sample intervals were selected only where the geologist recognized mineralization. In practice, the core is extensively sampled above the hanging wall and below the footwall on either side of the mineralized zone. Samples are constrained to a minimum length of 80 cm and maximum of 10 m. Surface drilling is dominantly assayed at 2.0m intervals and the underground (UG) drill core is dominantly sampled on 1.5m intervals.

Geologists are responsible for selecting the intervals to be sampled and entering records on a sampling sheet (Figure 11.1). At the time of sawing the cores in half along the longitudinal axis, an identifier is assigned by using a sample identification notebook.

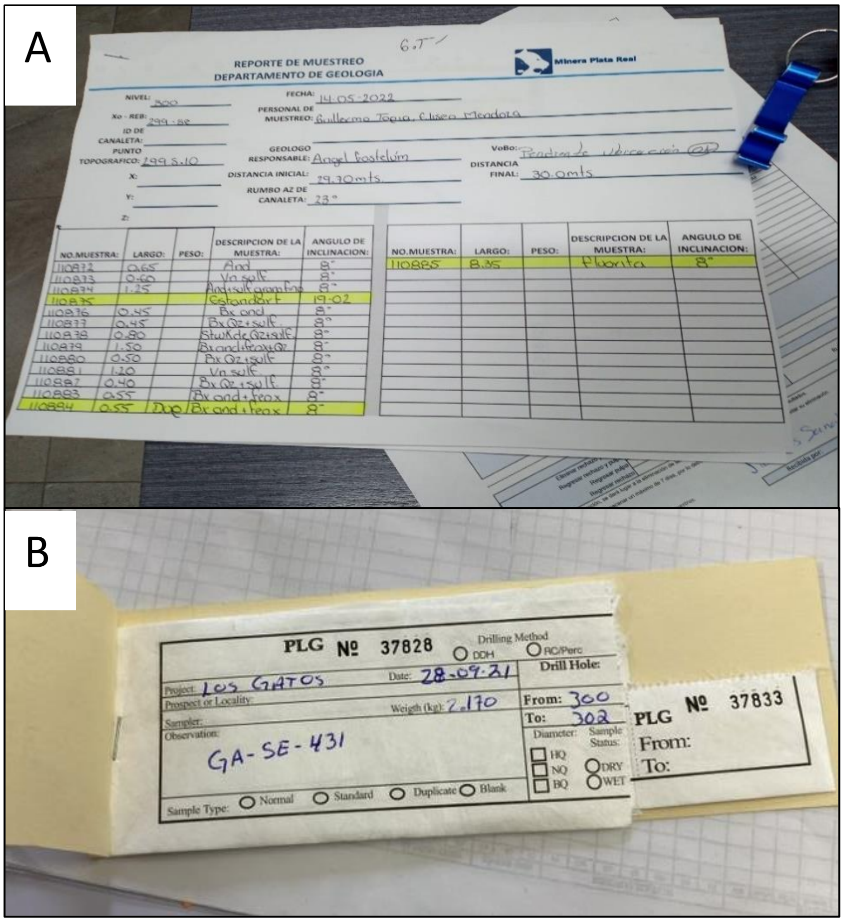


Figure 11.1: A) Sampling Sheet I B) Sample ID Booklet

Prior to core sawing the responsible geologist marks a cut line along the core to ensure an adequate representation of the style of mineralization occurrence. A sample sheet is provided to the core cutter containing sample numbers and the “from – to” intervals. NQ and HQ core is sawn in half along its long axis with an electric diamond saw. The remainder half of the core is then stored at the Geological core shack for further geological characterization and storage. The smaller 42mm diameter core from the UG Termite drill rigs is whole-core sampled.

Figure 11.2 shows pictures of the core shack, geological logging, the diamond saw core cutter, and half core placed in a core box.

Figure 11.2: A) Geological Core-Shack; B), Geological Logging on Site; C), Electrical Diamond Saw; D), Half Core Placed in a Labelled Core Box

Samples of holes drilled from surface are then sent for mechanical preparation at an independent laboratory in Chihuahua (ALS Chemex). Core samples from the underground drilling programs undergo mechanical preparation at an onsite Mine Laboratory.

11.1.2 Sample Security

Once cores have been collected, they are placed in plastic boxes that are labeled by the drillers on the rig with drill hole number, box number and a mark that indicates the beginning hole depth of the box. Plastic or wooden plugs are inserted, marking the drilling advance meterage with the help of a marker at the end of each drilling run. Plastic plugs are marked with the depth and highlighted with a marker for better visualization in core photographs.

Core preparation is completed in the geological core shack, which is secured by fence gates, monitored by security personnel and securely locked at night. In the warehouse the samples are received and then proceed to geological logging, density sample selection, photography and saw cutting.

Prior to the core sawing process, paper labels are used to identify the samples; the first label is stapled to the corrugated plastic core box and the second label is placed in the sample bag along with the sample, keeping a receipt in the original sample tag booklet (Figure 11.1B). Sample identification is also transcribed on the plastic core box using a red marker. Sample numbering begins with the numbering of the previous batch of samples. The core remaining after sampling is stored in a core store at San Jose El Sitio (Figure 11.3) or in a core storgae area on site.

Prior to transport to Chihuahua City, samples are stored in a secure building adjacent to the core logging area.

Prior to and during transportation, the necessary actions are taken to guarantee the integrity of the samples. Plastic trays with cores are closed to avoid displacement or loss of samples, and the shipments are checked to ensure the integrity of the samples, and a document detailing the contents and the work order is generated. Only project personnel are involved in the selection, preparation, and delivery of samples to the laboratory.

Samples are transported by MPR employees to the city of Chihuahua with an approximate frequency of three times per week. The samples are received at the ALS Chemex preparation facility in the city of Chihuahua (ALS Chihuahua) using a Chain of Custody form that allows traceability of the samples during transit. Once the mechanical preparation is completed, pulp samples are shipped to Vancouver, Canada for chemical assay. Once pulp samples are returned from Vancouver, they are stored in a warehouse facility at San José El Sitio in conditions that guarantee their integrity over time (Figure 11.3).

Figure 11.3: A) Storage Conditions in the Core Warehouse at San José El Sitio; and B), Rejects Storage

11.2 Sample Preparation, Assaying, and Analytical Procedures

11.2.1 Density

MPR measures density of DDH cores using the Archimedes method. Samples are selected by the geologist as representative for each lithology; however, in the presence of hydrothermal veins and hydrothermal breccias, samples are taken every two meters, unlike the country rock where only representative samples are taken.

The length of the samples is standardized to 10 cm. They are cut to have samples of uniform size and to facilitate the weighing and kerosene wax coating process (Figure 11.4). The data obtained are entered into a Microsoft Excel spreadsheet, which is then added to the geological database.

Figure 11.4: Density Samples

11.2.2 Sample Preparation

11.2.2.1 Surface Samples

The sample mechanical preparation steps are summarized below:

- Drying in an electric oven at 105°C for approximately 10 hours.
- Primary crushing to #3 (3 screen openings per linear inch) Tyler (Ty).
- Secondary crushing, 90% passes #10 Ty.
- Sample splitting to two kilograms using a rotary splitter.
- Pulverizing, 95% passes #150 Ty.
- Three samples are created.

11.2.2.2 Underground Samples

Core samples are received at the mine site laboratory and registered in LIMS before the mechanical preparation.

The mechanical preparation steps are summarized below:

1. Weighing of samples and entry in LIMS.

2. Drying in an electric oven at 221°F ±9°F for approximately three to four hours.

3. Primary crushing in a Terminator Crusher to 75% (P_{75}) passing #10 mesh (PO-LA-02-07), if not the opening of the slats should be adjusted. This test is completed every 20 samples.

5. Homogenization and splitting in a Jones splitter is repeated until a sample size of approximately 300 g is achieved.

6. Pulverization to 85% passing #200 mesh is then conducted on the 300 g samples. One out of 20 samples is subjected to a particle size test.

7. Pulp samples are placed in a box labeled with the lot number and are transferred to the temporary storage area (Figure 11.5).

Figure 11.5: Left, Samples After Crushing I Right, Pulp Samples Labelled

11.2.3 Analysis

11.2.3.1 Surface Samples

After mechanical preparation in the ALS Chemex lab in Chihuahua City (ALS Chihuahua) samples are sent to ALS Vancouver for chemical assay.

From 2008 to June 2009 samples were assayed for Ag, Pb, Zn, Cu, and 31 additional elements using aqua regia digestion inductively coupled plasma – atomic emission spectroscopy (ALS-Chemex code ICP41) with re-run for values exceeding 100 g/t Ag, and 1% Pb, Zn, Cu analyzed by aqua regia inductively coupled plasma – atomic emission spectroscopy (ALS-Chemex code OG46).

After June 2009 samples have been analyzed for Ag, Pb, Zn, Cu, and 29 additional elements using four acid digestion inductively coupled plasma – atomic emission spectroscopy (ALS-Chemex code ICP61) with re-run for values exceeding 100 g/t Ag, and 1% Pb, Zn, Cu analyzed by four acids inductively coupled plasma – atomic emission spectroscopy (OG62). Values further exceeding 1,500 g/t Ag are re-run using fire assay with gravimetric finish (GRA21).

Samples are analyzed for Au using fire assay with atomic absorption spectroscopy finish (AA23) with a re-run for values exceeding 10 g/t Au, using fire assay with gravimetric finish (GRA21).

The results of the analyzed samples are reported to Los Gatos via an Excel file in .csv format and pdf format sent by email and are entered directly into the database, avoiding any type of manipulation of the results.

11.2.3.2 Underground Samples

The Mine Lab uses Fire Assay for Ag and Au with AAS assay and for Pb, Zn, Cu, and Fe digestion with nitric acid and hydrochloric acid digestion with atomic absorption finish. Fluorine is analyzed on Pb and Zn head samples and concentrates, using ion selective electrode (Figure 11.6).

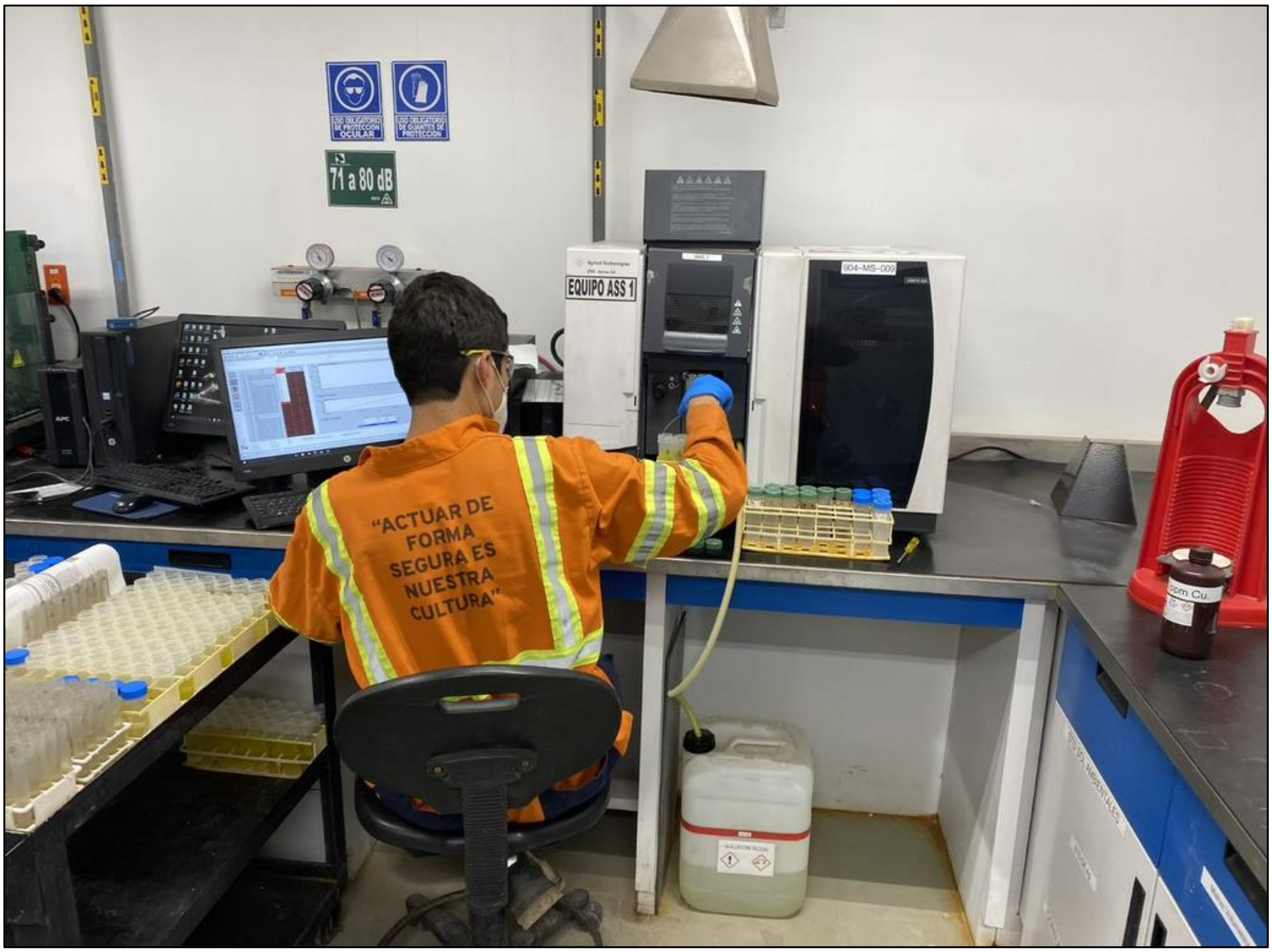


Figure 11.6: Internal Mine Laboratory

Analysis flow is further shown in in the process diagram included as Figure 11.7.

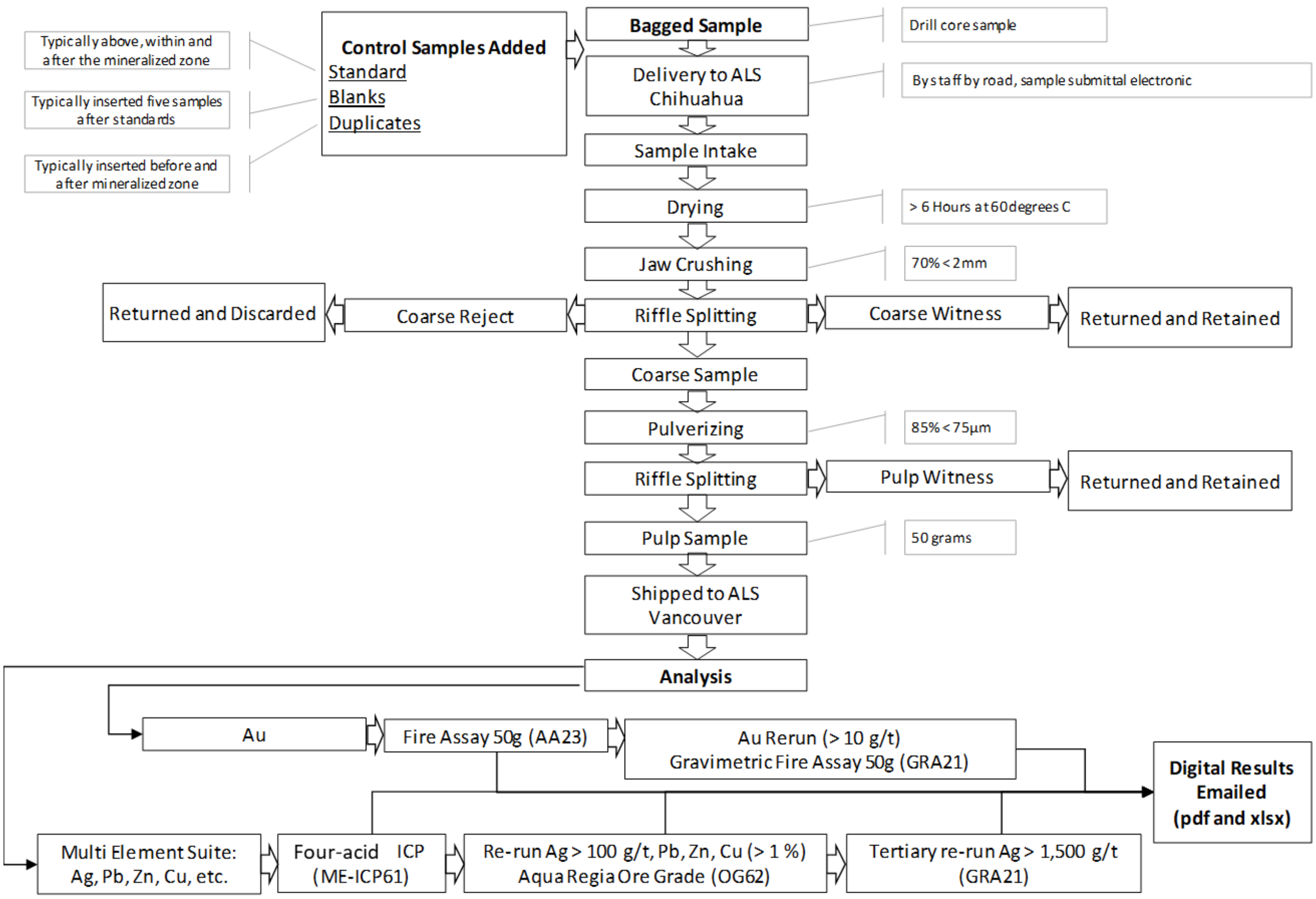


Figure 11.7: Diagram of Sample Preparation and Analyses of CLG DDH Samples by ALS-Chemex

11.2.4 Laboratory Certification

The ALS Chihuahua laboratory is responsible for mechanical preparation and the ALS Vancouver laboratory for assaying of surface samples. ALS Chemex is independent of MPR and is ISO 17025 accredited. The accreditation of ALS Vancouver encompasses preparation processes completed at ALS Chihuahua.. There is no relationship, or conflict of interest between MPR and the ALS Chemex S.A. group.

Underground samples were sent to the Internal MPR Laboratory, which is not certified.

11.3 Quality Control Procedures/Quality Assurance

11.3.1 Control Samples

MPR sample assays are subject to a comprehensive Quality Assurance and Quality Control (QA/QC) program for monitoring Ag, Au, Pb and Zn. Table 11.1 details the QA/QC procedure, which includes insertion of control samples to monitor precision, accuracy and contamination for the sampling, mechanical preparation, and assaying stages.

The drilling campaigns from April 2022 onwards included the insertion of Pulp Duplicates. These pulp duplicates were obtained after the crushing and homogenization of the samples with a frequency of one in 20 samples. Also, since October 2022, coarse blanks are inserted for samples obtained by underground and surface drilling and fine blanks are no longer inserted.

Each batch includes 30 samples, comprising 24 routine samples and six control samples. The Database Administrator controls the analytical quality of each batch, monitoring annual and monthly behaviours. Irregular, or suspect, analysis results have been addressed in a timely manner in order to ensure the integrity of the database.

The ALS Chemex and CLG Mine laboratories have an independent QA/QC program that includes field duplicates, pulp duplicates, coarse analytical blanks, and Certified Reference Material (CRM), commonly called 'standards.' The target frequency for these QA/QC samples are shown in Table 11.1.

Separately, a subset of pulp samples from the underground drilling that were originally assayed at the CLG Mine laboratory were sent to ALS Chemex for check assaying.

Table 11.1: QA/QC Controls for Sample Preparation and Assaying

Control Sample	Description	Frequency (%)	Observations	Threshold	Campaigns
Fine Blank	Silica sand (previously analyzed by a certified external laboratory)	1 in 20 samples	Contamination in assaying	10 times detection limit with a 95% confidence	2008 to 2022
Standard	Commercial Reference Material	1 in 20 samples	Accuracy in chemical analysis	Results are within ±2 and ±3 standard deviations of the certified value	2008 to 2023
Field Duplicate	Obtained from the second split quartile of the original sample	1 in 20 samples	Precision in DDH samples	20% Relative Error	2008 to 2023
Pulp Duplicate	Obtained after the crushing and homogenization	1 in 20 samples	Precision in DDH samples	10% Relative Error	2023
Coarse Blanks	Marble stone (Previously analyzed)	1 in 20 samples	Contamination in mechanical Preparation	10 times detection limit with a 95% confidence	2023

Results outside the acceptance range imply re-preparation and re-analysis of the complete batch (Figure 11.8).

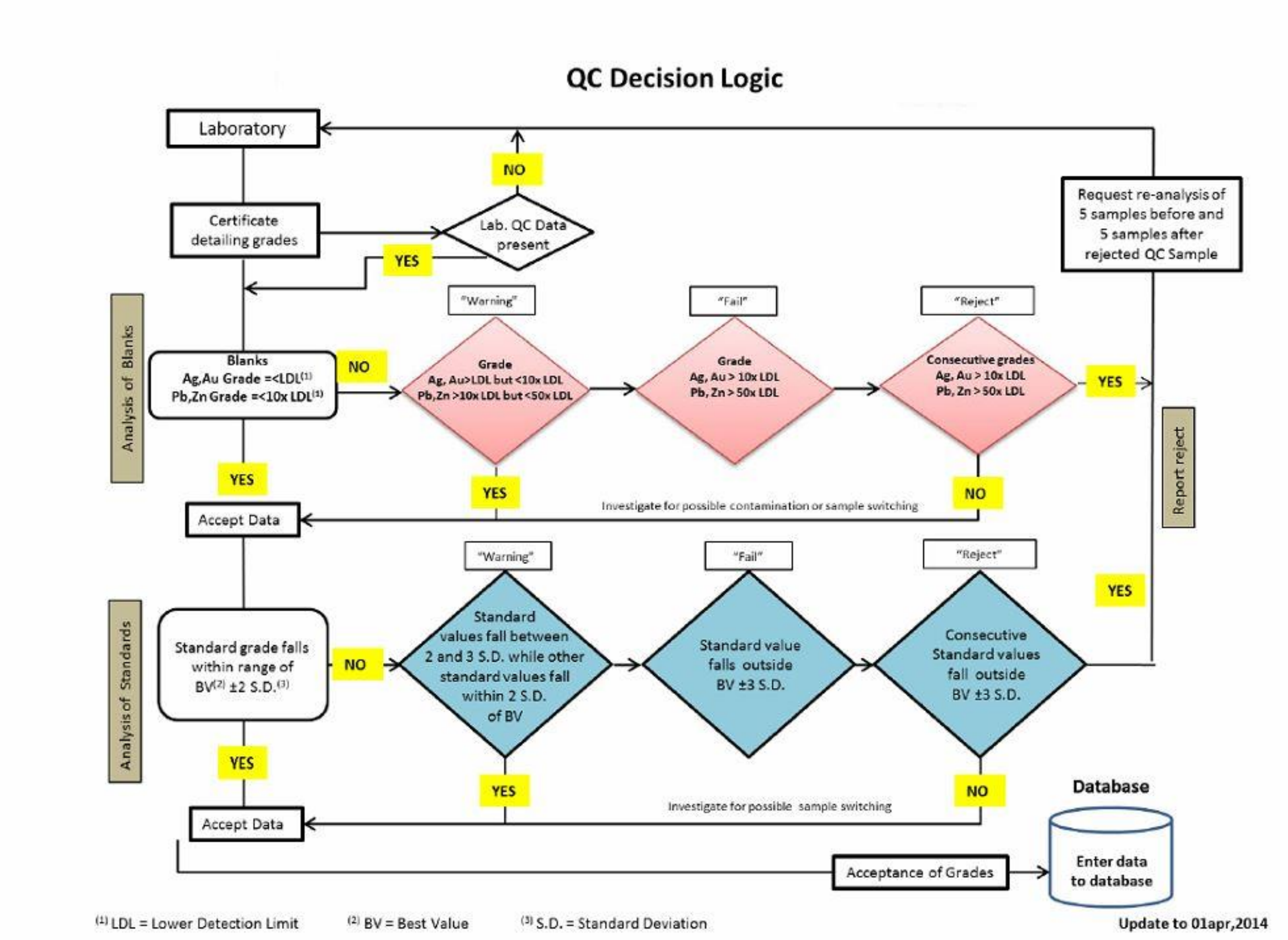


Figure 11.8: Quality Control Decision Flow Diagram

11.3.2 Quality Control

11.3.2.1 Surface Samples

The control samples include the insertion of Blind QA/QC Samples (Coarse blanks, ¼ core field duplicates, pulp duplicates and Certified Standards) with all batches sent to the laboratory.

11.3.2.1.1 Certified Reference Materials

The 2008 to 2022 QAQC results were analyzed in detail by the QP for the 2022 mineral resource estimate and found to be acceptable.

2022-2023 Campaign

The results for silver are shown in Table 11.2. The analyses of the silver values for the four standard samples show an acceptable precision: all the samples have silver values within the acceptable tolerance limits with low bias.

Table 11.2: Standard Control Sample Results for Silver- 2023 Campaigns

Element	CRM ID	CRM Value	CRM Desv	Accept Min (2DE)	Accept Max (2DE)	Mean	St dDev	N° of Analyses	Bias	Outliers	% Outliers
Ag	CDN-ME-1805	2236	74	2088	2384	2189.16	23.96	24	-2.09	0	0
	CDN-ME-1811	87	7	73	101	93.18	3.118	8	7.11	0	0
	CDN-ME-1902	356	19	318	394	354.818	7.189	55	-0.33	0	0
	CDN-ME-2003	106	9	88	124	108.13	2.55	46	2.01	0	0

The analyses of lead for all the standards from 2022-2023 campaigns show an acceptable accuracy and precision. All samples have a lead values within the acceptable tolerance limits (2σ). (Table 11.3)

Table 11.3: Standard Control Sample Results for Lead - 2023 Campaigns

Element	CRM ID	CRM Value	CRM Desv	Accept Min (2DE)	Accept Max (2DE)	Mean	Std Dev	N° of Analyses	Bias	Outliers	% Outliers
Pb	CDN-ME-1805	55,000	3,100	48,800	61,200	54,175	748.5	24	-1.5	0	0
	CDN-ME-1811	3,040	160	2,720	3,360	3,075	65.95	8	1.15	0	0
	CDN-ME-1902	22,000	1,000	20,000	24,000	21,940	306.65	55	-0.27	0	0
	CDN-ME-2003	4,750	160	4,430	5,070	4,730	82.3	46	-0.41	0	0

For the 2022-2023 period, there are no samples outside the two standard deviation (2σ) tolerance limits for zinc (Table 11.4).

Table 11.4: Standard Control Sample Results for Zinc Standard- 2023 Campaigns

Element	CRM ID	CRM Value	CRM Desv	Accept Min (2DE)	Accept Max (2DE)	Mean	Std Dev	N° of Analyses	Bias	Outliers	% Outliers
Zn	CDN-ME-1805	105400	2800	99800	111000	104812.5	1456.5	24	-0.56	0	0
	CDN-ME-1811	15400	600	14200	16600	15218.75	251.1	8	-1.18	0	0
	CDN-ME-1902	36660	2300	32060	41260	36229.09	573.56	55	-1.18	0	0
	CDN-ME-2003	10500	500	9500	11500	10636.08	210.78	46	1.3	0	0

For the 2022-2023 period, the analyses of the gold values for the standards CDN-ME-1811, CDN-ME-1902, CDN-ME-2003 show good precision: all the samples have gold values within the acceptable tolerance limits. Only two samples from CDN-ME-1805, are outside of limits of tolerance, with no bias (Table 11.5).

Table 11.5: Standard Control Sample Results for Gold Standard -2023 Campaigns

Element	Element	CRM ID	CRM Value	CRM Desv	Accept Min (2DE)	Accept Max (2DE)	Mean	Std Dev	N° of Analyses	Bias	% Outliers
Au	CDN-ME-1805	2.67	0.17	2.33	3.01	2.585	0.173	24	-3.17	2	8.33
	CDN-ME-1811	2.05	0.24	1.57	2.53	2.11	0.16	8	2.93	0	0
	CDN-ME-1902	5.38	0.42	4.54	6.22	5.341	0.242	55	-0.72	0	0
	CDN-ME-2003	1.301	0.135	1.031	1.571	1.335	0.09	46	2.58	0	0

11.3.2.1.2 Blanks

The 2008 to 2022 blank analysis details were analyzed in detail by the QP for the 2022 mineral resource estimate and found to be acceptable.

2023 Campaigns

For the 2022-2023 campaigns, graphical analyses of the silver, gold, lead and zinv blanks samples show results acceptable for use in mineral resource estimation. Of the few lead and zinc results analysis outside the tolerance limit, most corresponded to preceding high-grade samples that had been identified by CLG personnel.

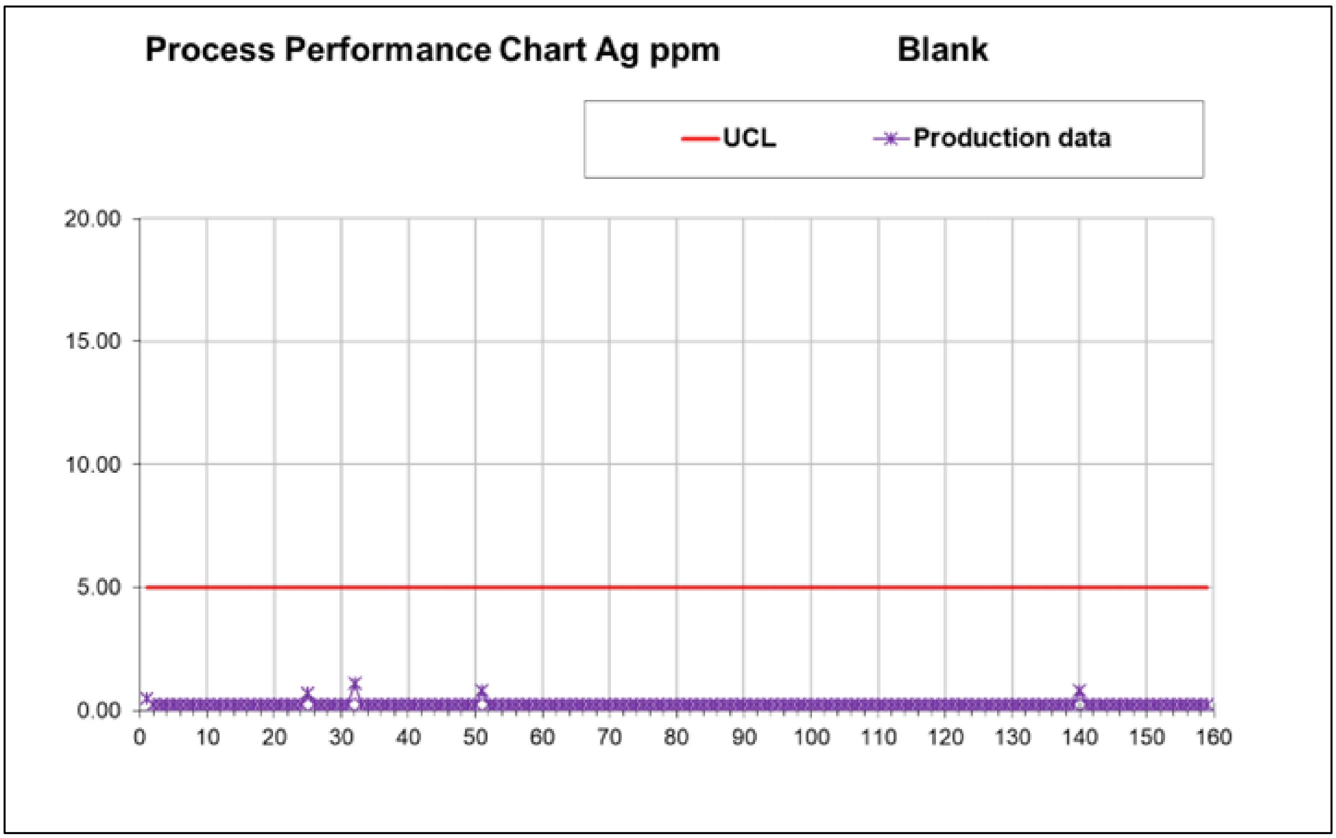


Figure 11.9: Coarse Blank – Silver - 2023 Campaign

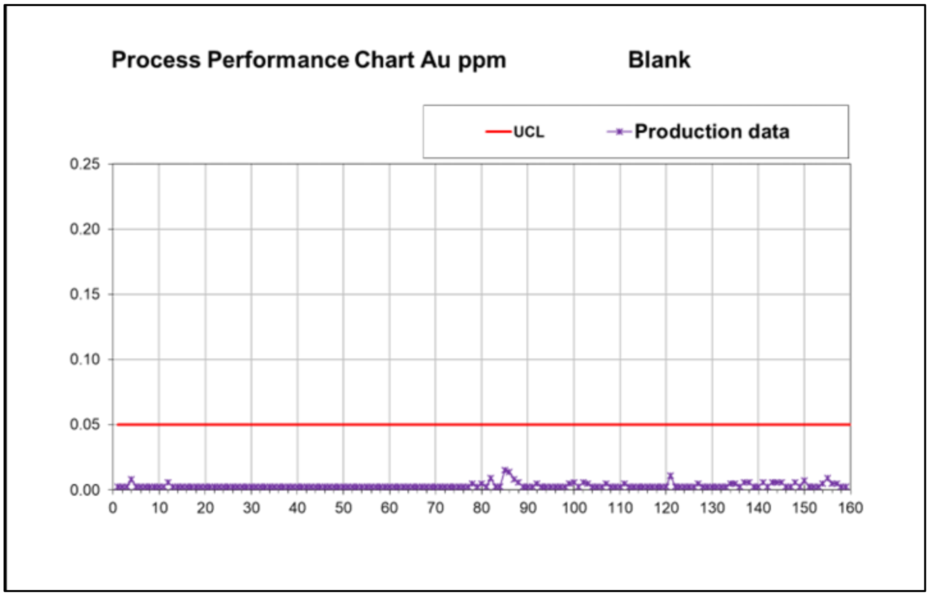


Figure 11.10: Coarse Blank – Gold - 2023 Campaign

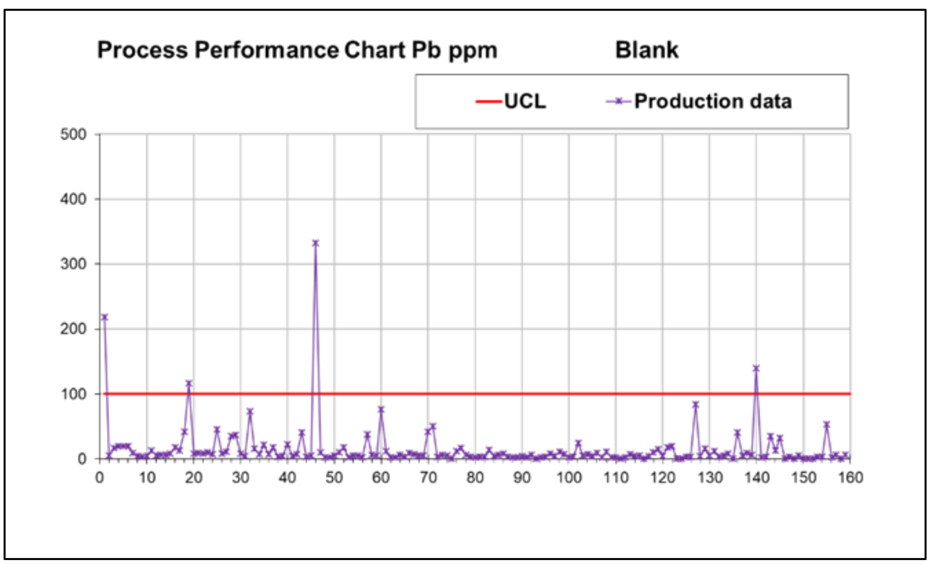


Figure 11.11: Coarse Blank – Lead - 2023 Campaign

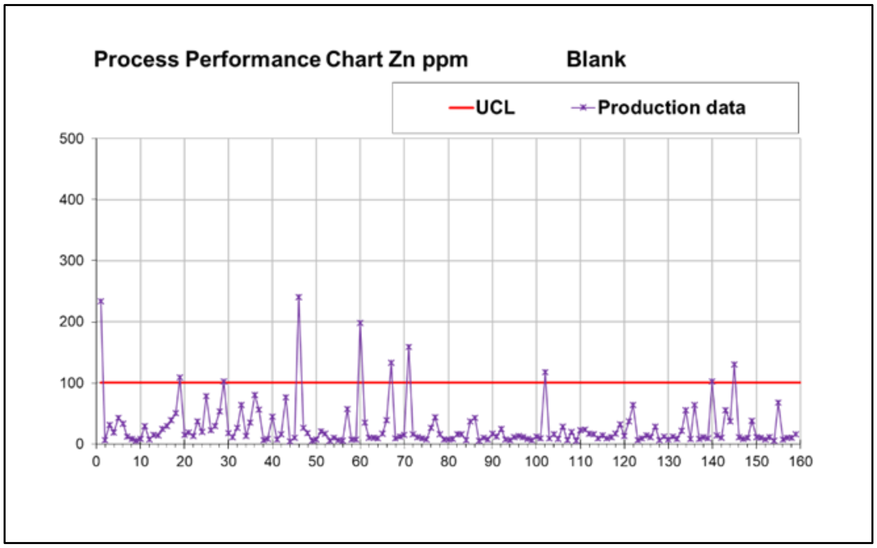


Figure 11.12: Coarse Blank – Zinc - 2023 Campaign

11.3.2.1.3 Field Duplicates

The 2008 to 2022 duplicate results were analyzed in detail by the QP for the 2022 mineral resource estimate and found to be acceptable.

For the 2022-2023 Campaigns, the silver and gold analysis values exhibited an acceptable to regular precision, I.e. where 80% of the samples had a HARD (half absolute relative difference) value below 30% (Figure 11.13 and Figure 11.14). For lead and zinc values, the precision was acceptable, as shown in Figure 11.15 and Figure 11.16, with 90% of the samples below 30%.

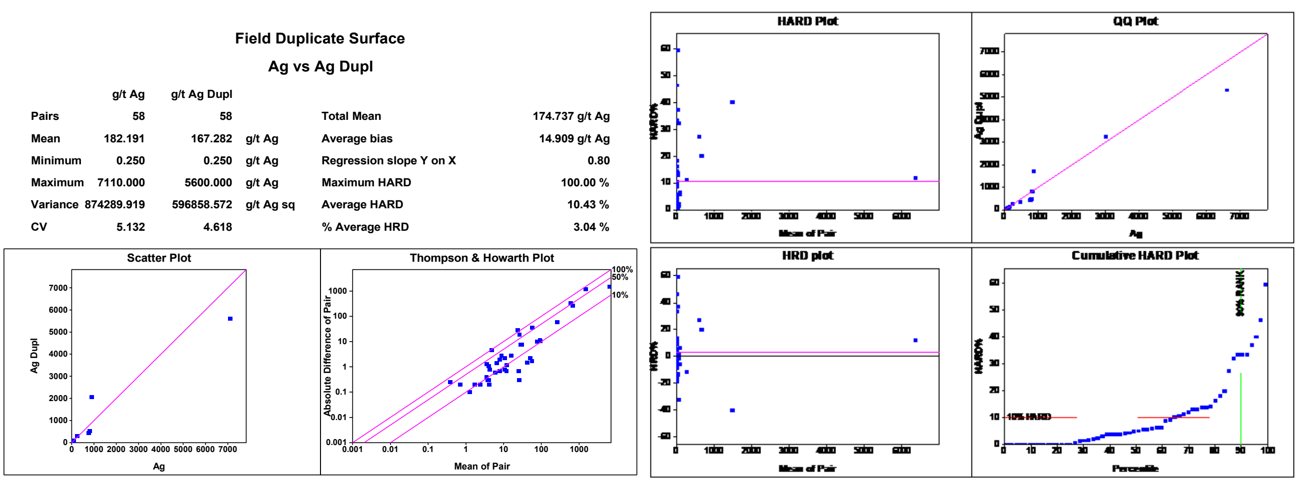


Figure 11.13: Result for Field Duplicates – Silver (2023 Campaign)

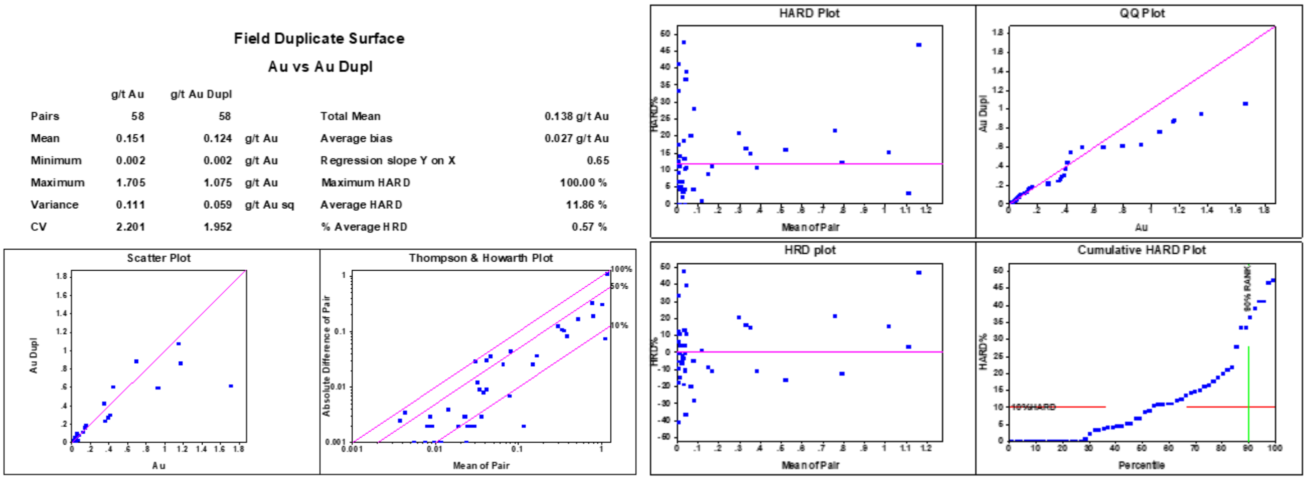


Figure 11.14: Result for Field Duplicates – Gold (2023 Campaign)

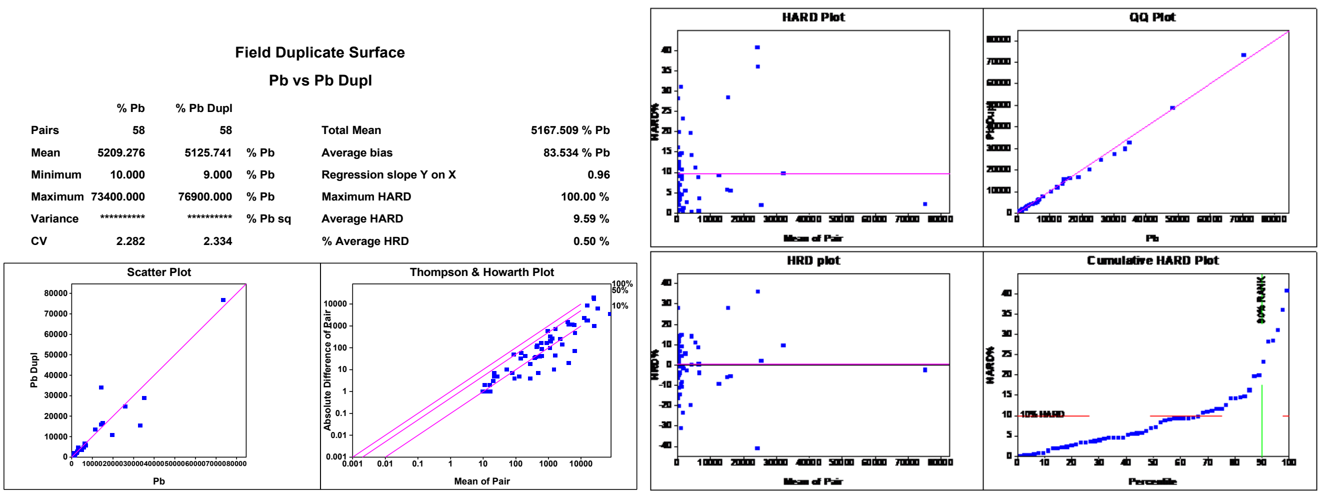


Figure 11.15: Result for Field Duplicates – Lead (2023 Campaign)

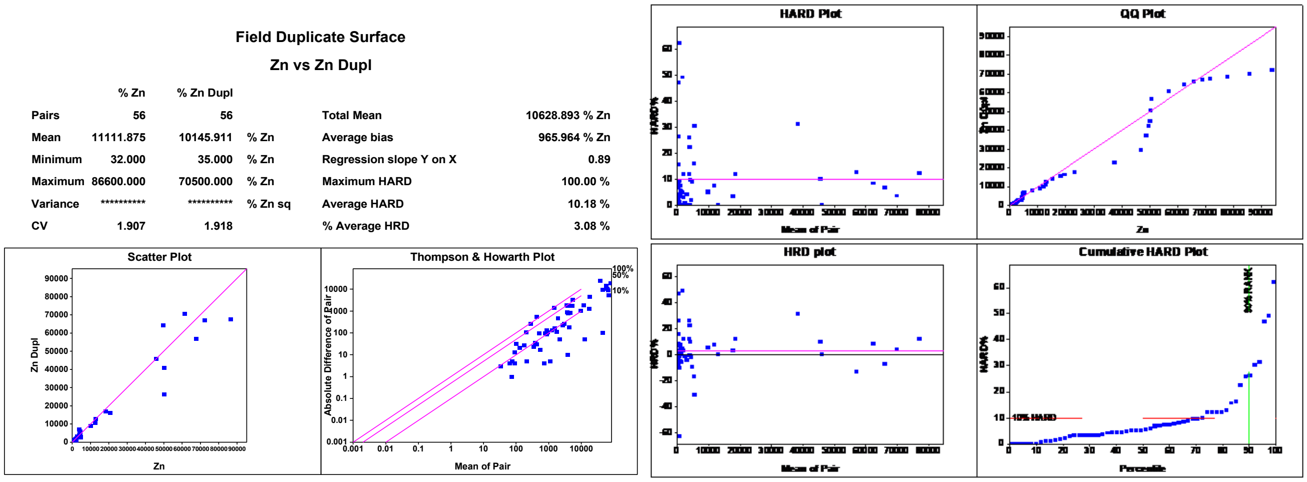


Figure 11.16: Result for Field Duplicates – Zinc (2023 Campaign)

11.3.2.1.4 Pulp Duplicates

The QAQC program included pulp duplicates in the 2022-2023 campaign. In general, no significant biases in pulp duplicates were observed for silver, gold, lead and zinc, and the accuracy was within acceptable ranges for silver, lead and zinc. The gold values of pulp duplicates have a regular precision, with approximately 85% of the samples exhibiting a HARD value below 10% (Figure 11.17 to Figure 11.20).

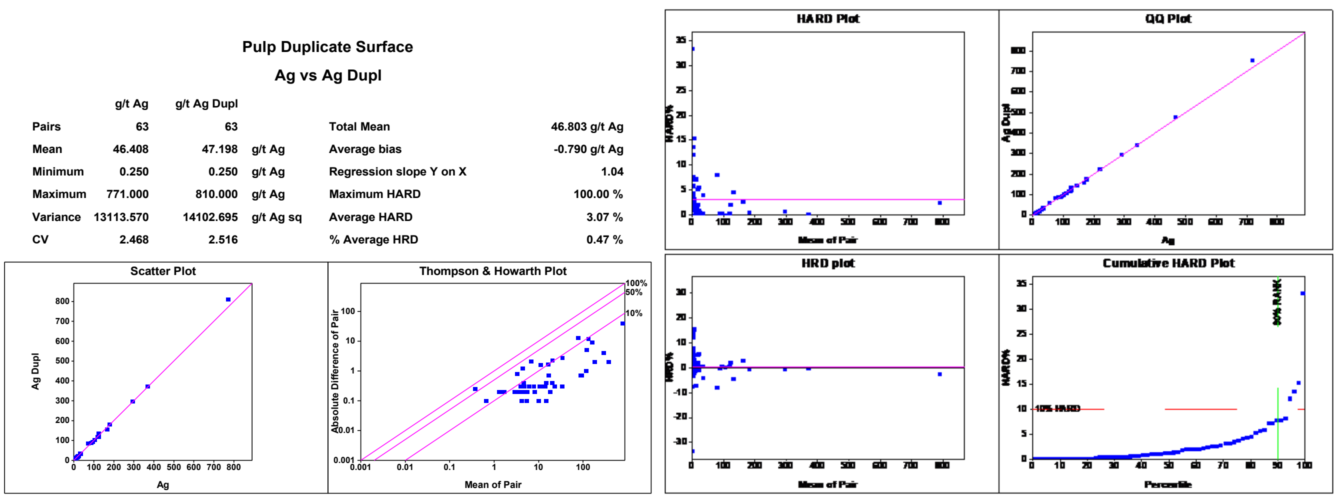


Figure 11.17: Result for Pulp Duplicates – Silver (2023 Campaign)

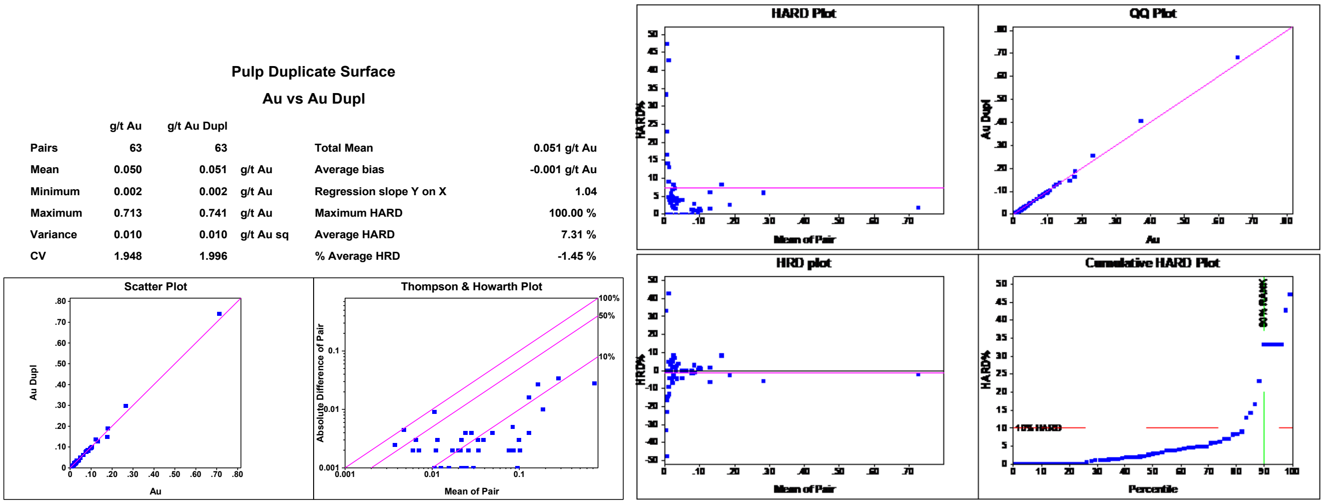


Figure 11.18: Result for Pulp Duplicates – Gold (2023 Campaign)

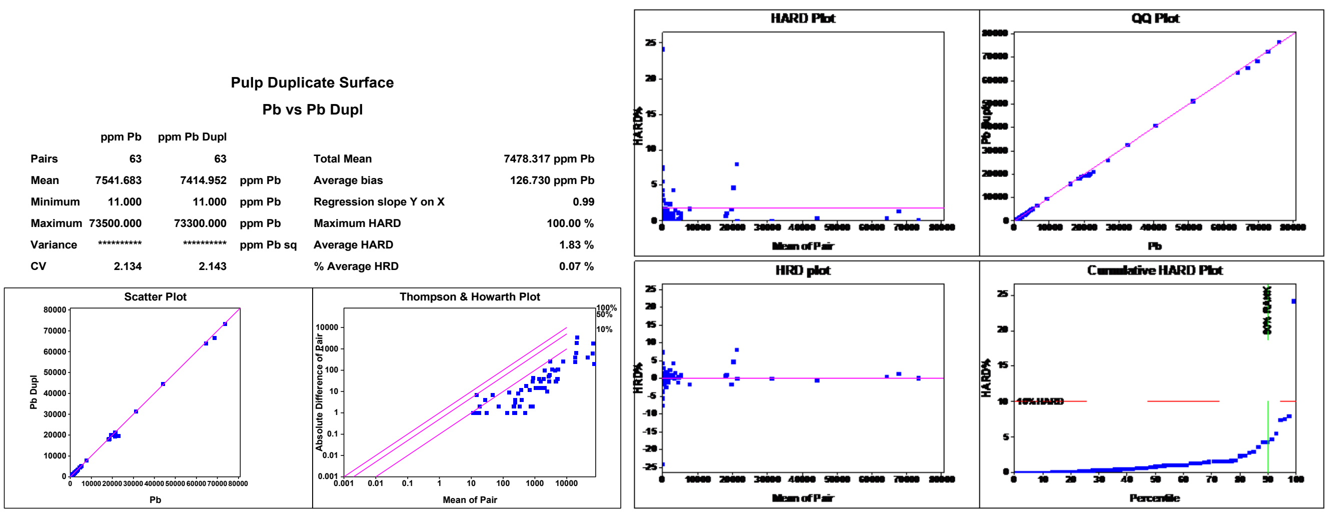


Figure 11.19: Result for Pulp Duplicates – Lead (2023 Campaign)

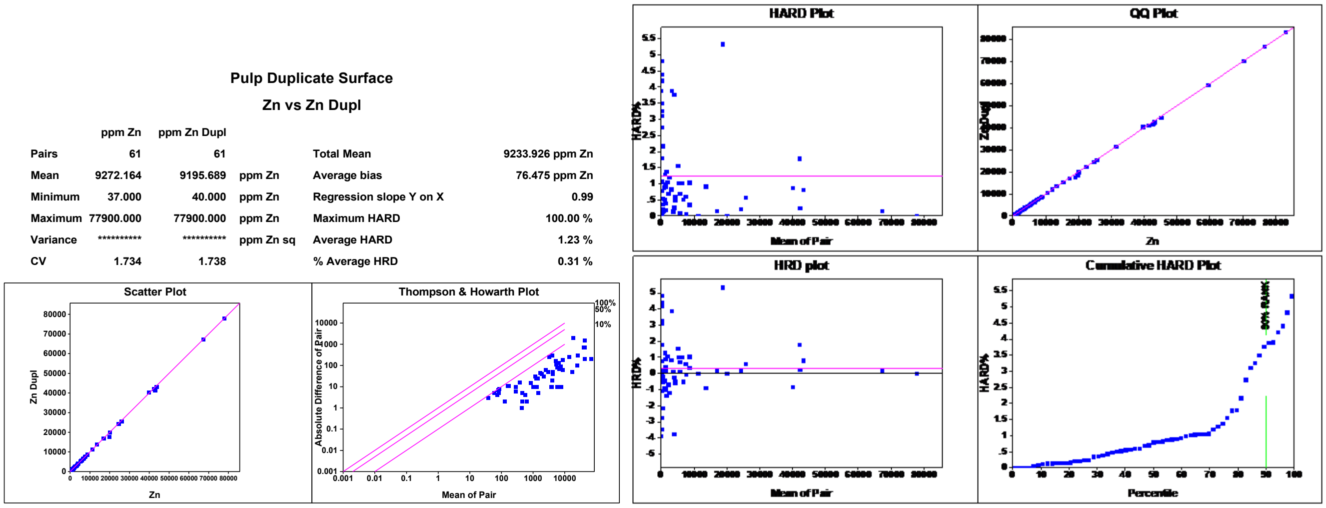


Figure 11.20: Result for Pulp Duplicates – Zinc (2023 Campaign)

11.3.2.2 Underground Data

11.3.2.2.1 Certified Reference Materials

The 2019 to 2022 CRM analysis was analyzed in detail by the QP for the 2022 mineral resource estimate and found to be acceptable.

2022 - 2023 Campaign

The results for silver are shown in Table 11.6. The analyses show an acceptable precision: all the samples have silver values within the acceptable tolerance limits with low bias.

Table 11.6: Silver Results for Standard Control Samples- 2023 Campaign

Element	CRM ID	CRM Value	CRM Desv	Accept Min (2DE)	Accept Max (2DE)	Mean	Std Dev	N° of Analyses	Bias	Outliers	% Outliers
Ag	CDN-ME-1811	87	7	73	101	85.938	3.007	193	-1.22	0	0
	CDN-ME-1902	356	19	318	394	346.976	5.199	125	-2.53	0	0

For lead, Table 11.7 show the results for the two CRM samples used. There is no evidence of bias, and all the samples are within the acceptable limits.

Table 11.7: Lead Results for Standard Control Samples-2023 Campaign

Element	CRM ID	CRM Value	CRM Desv	Accept Min (2DE)	Accept Max (2DE)	Mean	Std Dev	N° of Analyses	Bias	Outliers	% Outliers
Pb	CDN-ME-1811	0.304	0.016	0.272	0.336	0.307	0.005	193	0.99	0	0
	CDN-ME-1902	2.200	0.100	2.000	2.400	2.192	0.046	125	-0.36	0	0

Table 11.8 shows the results for zinc. For the 2023 period there are no samples outside the confidence limits, and no bias is present.

Table 11.8: Zinc Results for Standard Control Samples-2023 Campaign

Element	CRM ID	CRM Value	CRM Desv	Accept Min (2DE)	Accept Max (2DE)	Mean	Std Dev	N° of Analyses	Bias	Outliers	% Outliers
Zn	CDN-ME-1811	1.540	0.060	1.420	1.660	1.529	0.03	193	-0.73	0	0
	CDN-ME-1902	3.666	0.23	3.206	4.126	3.579	0.07	125	-2.37	0	0

The results for gold CRM indicate that the accuracy is good with no evidence of bias for all the samples (Table 11.9).

Table 11.9: Gold Results for Standard Control Samples-2023 Campaign

Element	CRM ID	CRM Value	CRM Desv	Accept Min (2DE)	Accept Max (2DE)	Mean	Std Dev	N° of Analyses	Bias	Outliers	% Outliers
Au	CDN-ME-1811	2.050	0.240	1.570	2.530	2.043	0.128	193	-0.34	0	0
	CDN-ME-1902	5.380	0.420	4.540	6.220	5.348	0.216	125	-0.6	0	0

11.3.2.2.2 Field Duplicates

2023 Campaign

Figure 11.21 to Figure 11.24 shows the results for 2023 campaigns for Ag, Au, Pb and Zn field duplicates. The precision is within the acceptance threshold for Pb and Zn. Ag and Au have regular precision with 90% of the samples exhibiting a HARD value below 40%.

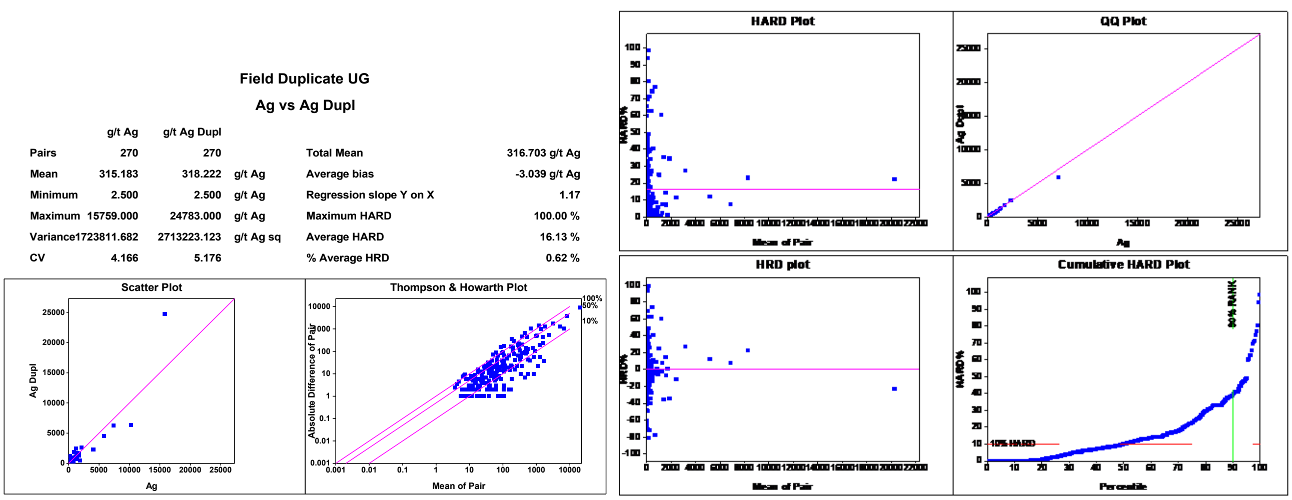
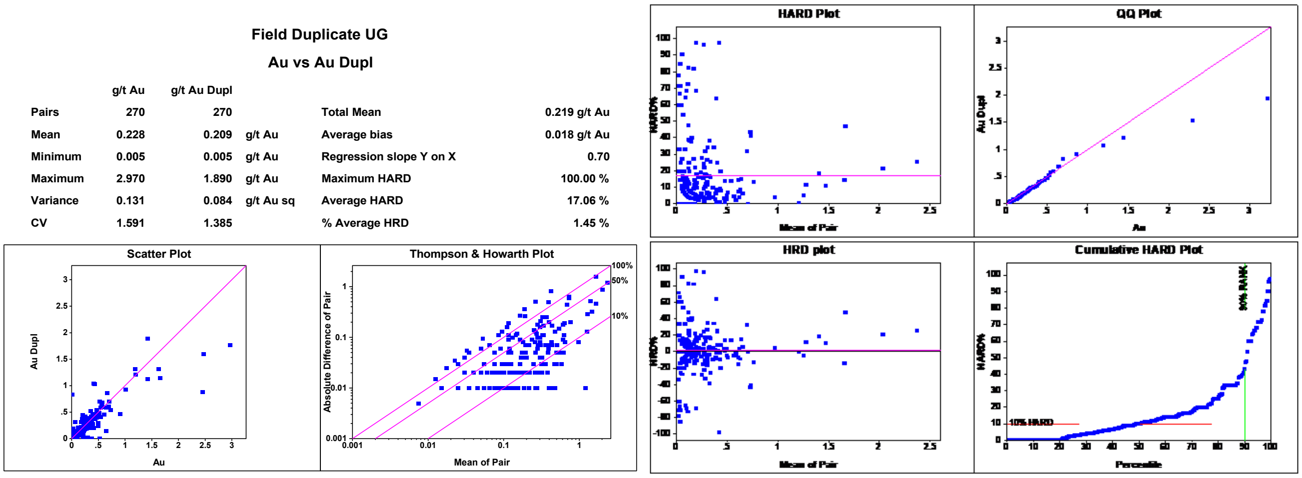


Figure 11.21 Field Duplicates Result - Silver (2023 Campaign)

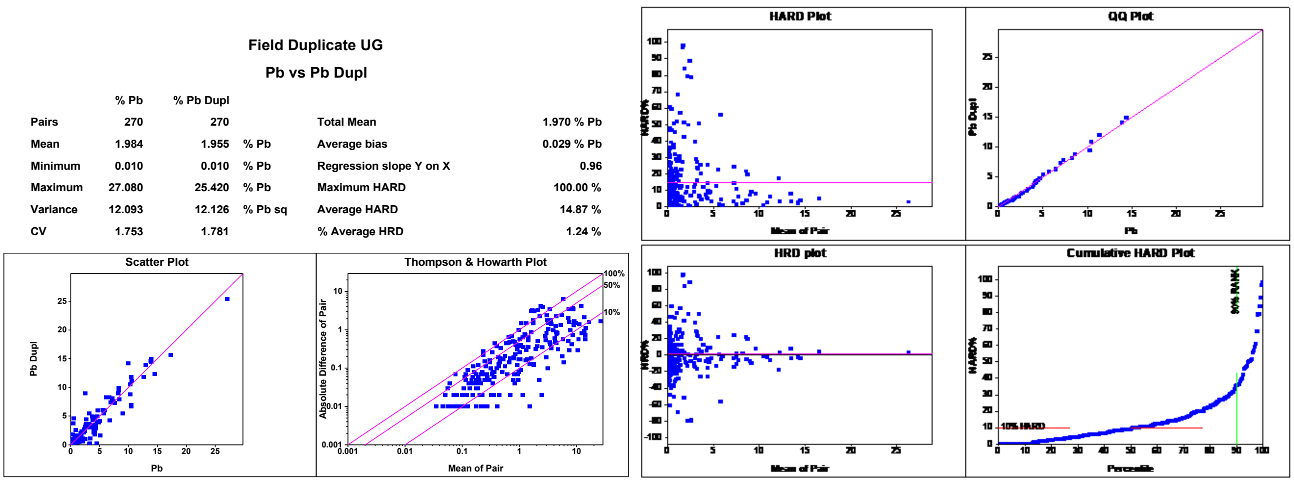


Field Duplicate UG

Au vs Au Dupl

	g/t Au	g/t Au Dupl			
Pairs	270	270		Total Mean	0.219 g/t Au
Mean	0.228	0.209	g/t Au	Average bias	0.018 g/t Au
Minimum	0.005	0.005	g/t Au	Regression slope Y on X	0.70
Maximum	2.970	1.890	g/t Au	Maximum HARD	100.00 %
Variance	0.131	0.084	g/t Au sq	Average HARD	17.06 %
CV	1.591	1.385		% Average HRD	1.45 %

Figure 11.22. Field Duplicates Result - Gold (2023 Campaign)

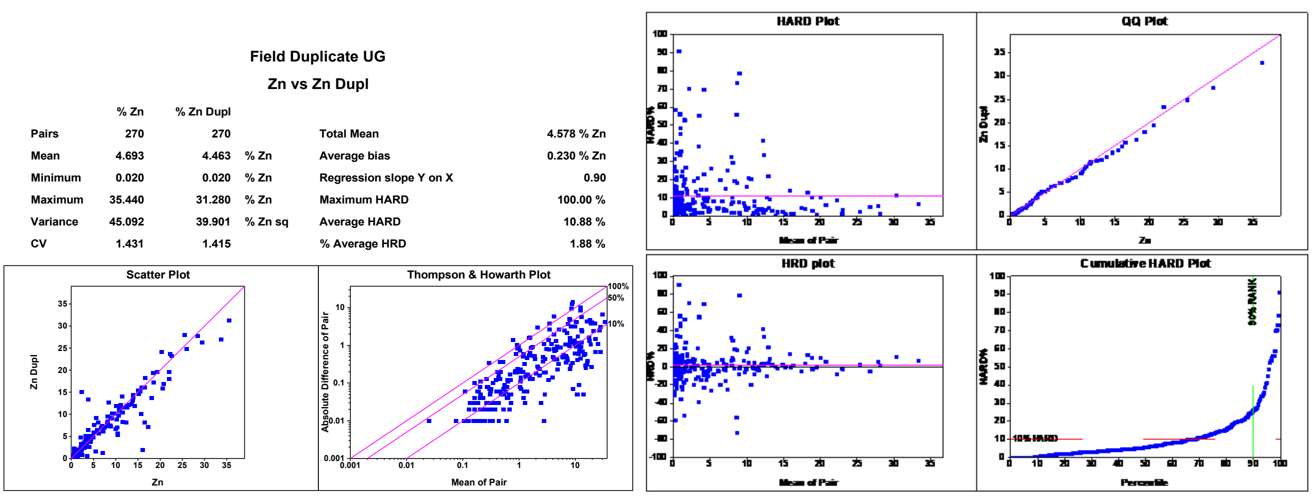


Field Duplicate UG

Pb vs Pb Dupl

	% Pb	% Pb Dupl			
Pairs	270	270		Total Mean	1.970 % Pb
Mean	1.984	1.955	% Pb	Average bias	0.029 % Pb
Minimum	0.010	0.010	% Pb	Regression slope Y on X	0.96
Maximum	27.080	25.420	% Pb	Maximum HARD	100.00 %
Variance	12.093	12.126	% Pb sq	Average HARD	14.87 %
CV	1.753	1.781		% Average HRD	1.24 %

Figure 11.23: Field Duplicates Result - Lead (2023 Campaign)



Field Duplicate UG

Zn vs Zn Dupl

	% Zn	% Zn Dupl			
Pairs	270	270		Total Mean	4.578 % Zn
Mean	4.693	4.463	% Zn	Average bias	0.230 % Zn
Minimum	0.020	0.020	% Zn	Regression slope Y on X	0.90
Maximum	35.440	31.280	% Zn	Maximum HARD	100.00 %
Variance	45.092	39.901	% Zn sq	Average HARD	10.88 %
CV	1.431	1.415		% Average HRD	1.88 %

Figure 11.24: Field Duplicates Result - Zinc (2023 Campaign)

11.3.2.2.3 Blanks

Blank results for the 2019 to 2022 drilling programs were analyzed in detail by the QP for the 2022 mineral resource estimate and found to be acceptable.

2023 Campaign

Figure 11.25 to Figure 11.28 show the results of the blanks for gold, silver, lead and zinc. There was no evidence of contamination during the mechanical preparation of samples with no samples exceeding the acceptance thresholds. Only one sample for zinc was outside the tolerance limit.

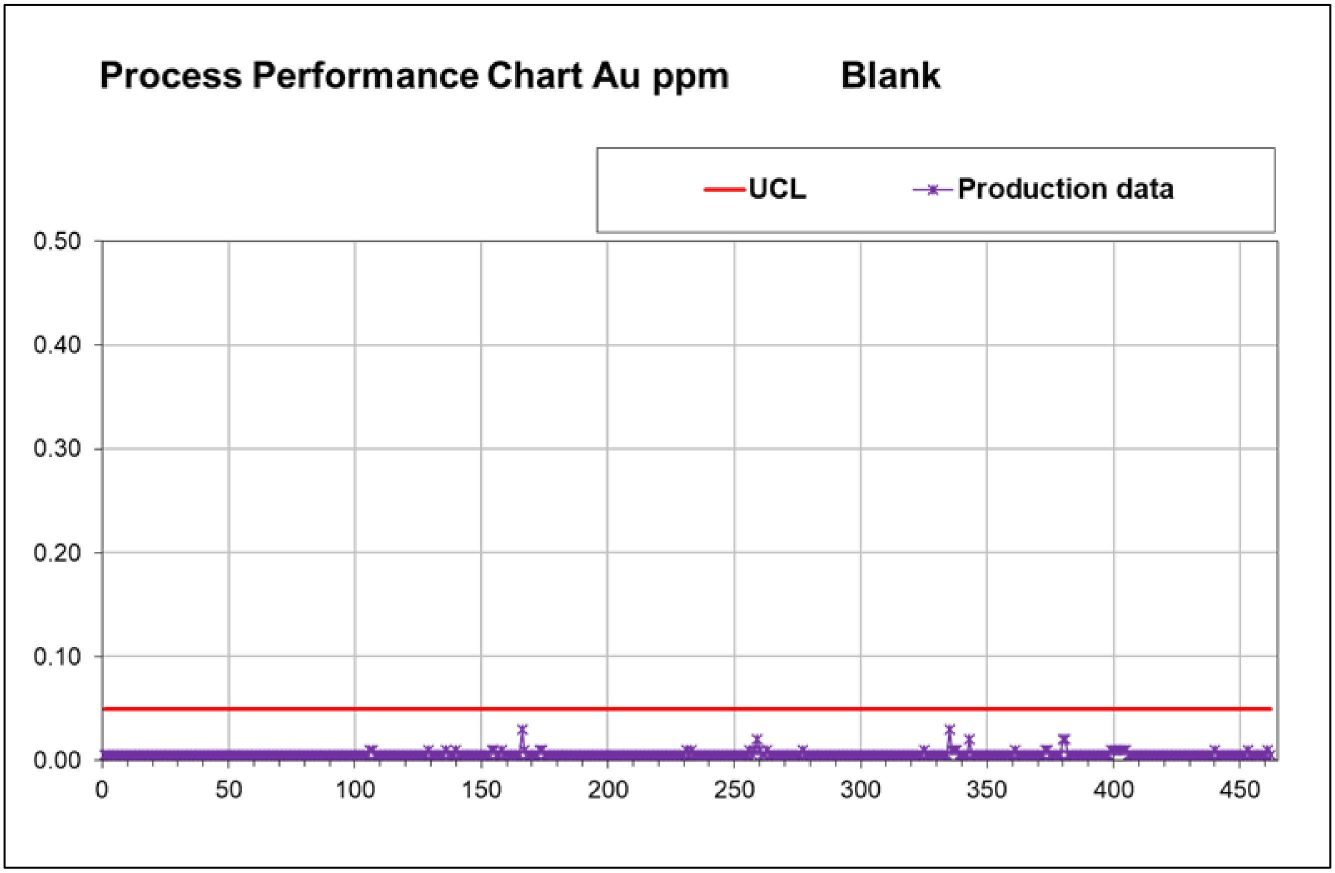


Figure 11.25: Coarse Blanks - Gold

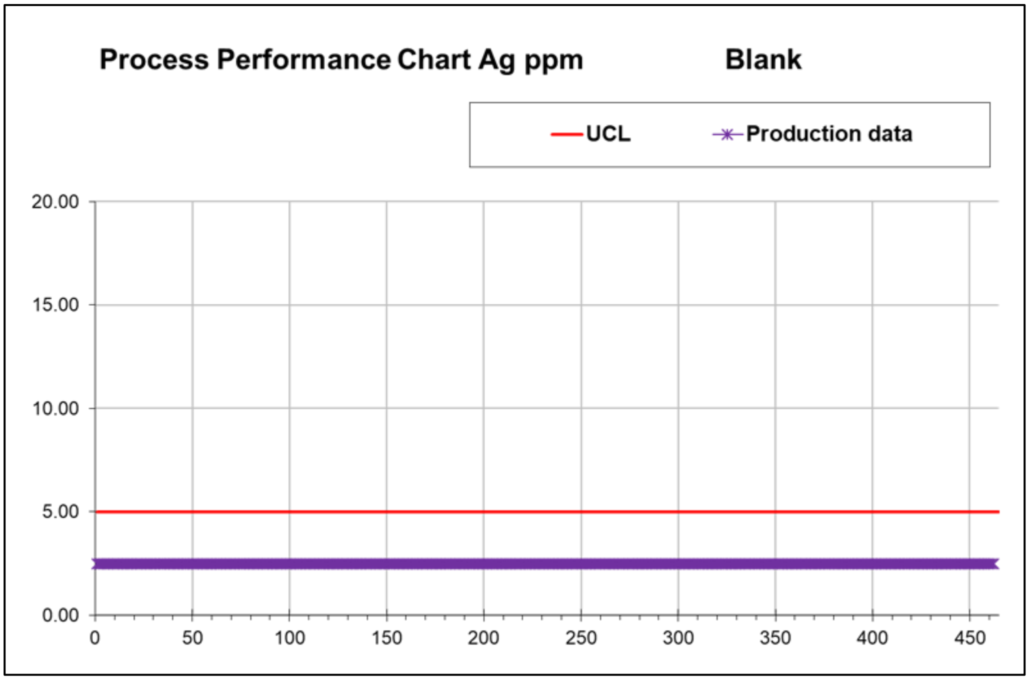


Figure 11.26: Coarse Blanks - Silver

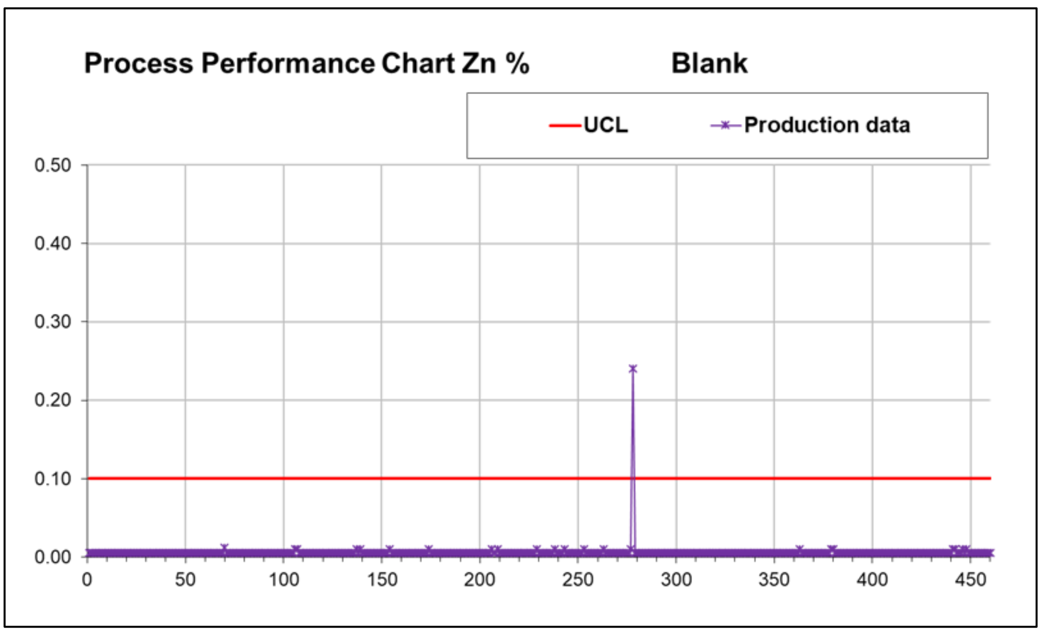


Figure 11.27: Coarse Blanks - Zinc

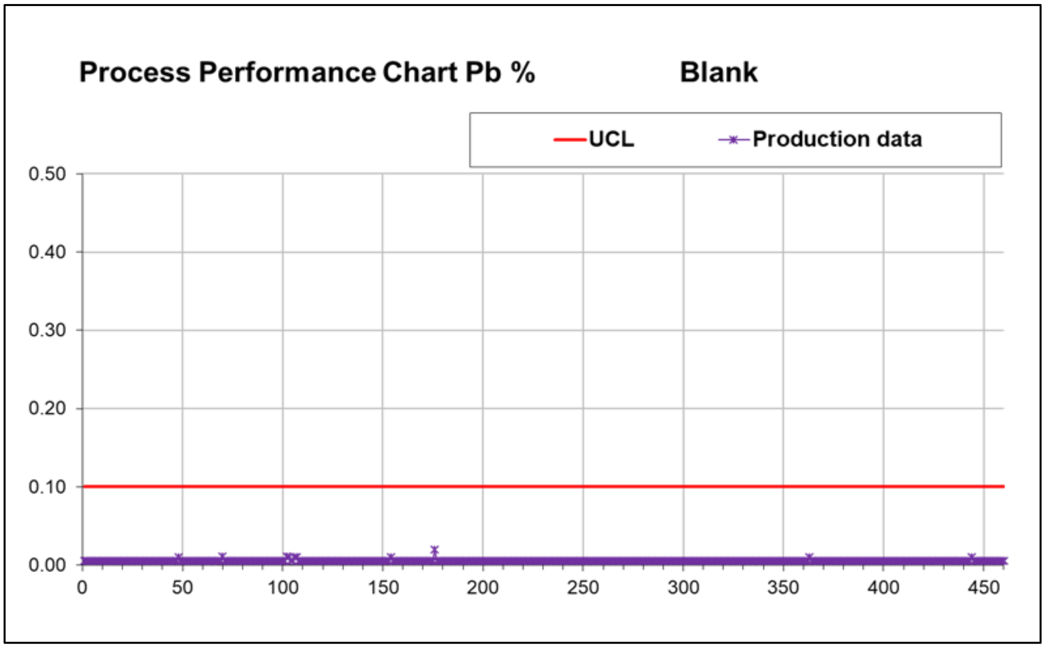


Figure 11.28: Coarse Blanks - Lead

11.4 Opinion on Adequacy

In the opinion of the Qualified Person, both the mechanical preparation protocols and the procedures that regulate the chemical analysis methodologies, traceability and custody of the samples that support the Mineral Resource estimate at CLG (including Mineral Resources that are included in the reported Mineral Reserve but are excluded from the reported Mineral Resources) are adequate and correspond to those commonly used in the mining industry for the processing of samples from this type of deposit.

At the same time, the QA/QC results established for the monitoring of contamination, accuracy, and precision demonstrate that the sample assay data is acceptable for use for Mineral Resource and Mineral Reserve estimation.

12.0 DATA VERIFICATION

Field data is collected and analysed for all mineral projects. The greatest volume of data is geological which informs geologists and mineral resource estimators. Rock property information is also collected for purposes of design and monitoring of the TSF foundation and dam, building foundations, rock mechanics analyses, ground control determinations for rock support, crown pillar assessment, tunnel dimensions, and stope dimensions. Mineral processing monitoring and control systems and procedures have also been reviewed.

CLG is now an operating mine which produces operating data on a daily basis. The mine technical services department monitors and measures the conditions in the mine, including air flow, volume and quality, water ingress, pumping systems, personnel health status and safety systems. The processing plant technical team continuously monitors the technical and performance aspects of the plant as standard operating procedures for supervision of the comminution system, flotation, filtration, metal recovery and plant discharge with particular attention to flow rates (i.e., plant throughput) and system performance.

The respective QPs have reviewed the data collection records and systems used to supervise and manage the functions of the mine and plant, and verify the systems and protocols employed by CLG as adequate for purpose.

The data used for the Mineral Resource Model were directly exported from the database. The export was carried out according to established procedures for exporting data from the geological information management system.

Geological data validation and review was performed by Mr. Ronald Turner. The procedures used meet industry standards.

Metallurgical accounting balances are closed and reconciled with mine production reports, and concentrate sold on a monthly basis, in order to ensure accuracy and accountability. Facilities conducting plant sampling, flow measurements, sample preparation, concentrate dispatch, and assay laboratory functions were visited in order to assess their conditions and compliance with best practices. Plant supervisory staff were interviewed, and documentation was reviewed in order to gain a better understanding of compliance, procedures and policies.

12.1 Geology

12.1.1 Data Management

All the aspects that could materially impact the integrity of the data informing the estimation of Mineral Resources (core logging, sampling, analytical results, and database management) are supported by protocols, procedures, and process mapping implemented on site which follows industry practice. The information system is supported by security protocols that allow the capture and administration of data. These security protocols are administrated internally by MPR.

Up until late 2022, the database software used was MS Access for the surface drilling database and MS Excel for the underground definition drilling database. In late 2022 an acQuire database system was implemented and the data storage and management was transferred to this system.

12.1.1.1 Database

All the data is incorporated in acQuire where the validation process is made before data exportation for geological modelling and resource estimation purposes. Validations are implemented throughout the data capture chain. Restricted access to the data exists to guarantee security.

A single data management system, which guarantees that all data complies with the same quality assurance protocols, is fully implemented on site.

12.1.1.2 Drilling and Sampling

For quality assurance of data captured in the chain of sampling and assaying, individual sample labels were and are used. For DDH drill core, trays are labelled and include "from-to" information.

A registry of blanks, duplicates and standards insertion for QC is performed for every batch of samples sent for mechanical preparation and chemical analysis. Each batch name identifies the destination, type of preparation and analysis, laboratory name, dates of delivery and return, analytical suite name, etc.

The shipping list is generated internally on site prior to delivery of the samples to the preparation laboratory.

12.1.2 Logging

Geologists log directly onto paper. These paper records are entered into acQuire by a data entry technician and verified after entry by both the database manager and the responsible geologist. The process is undertaken or supervised by suitably qualified geologists. For a group of representative drill holes of the deposit, it was verified by the QP that the existing records in the original backups coincided with those in the database, without identifying significant differences. This verification included the geological logging and assaying.

12.1.3 Sample Preparation and Chemical Analysis

All samples received in the laboratory are carefully recorded in the Laboratory Information Management System (LIMS) before proceeding with the process of sample preparation. Once mechanical preparation is completed, batches are sent to the Vancouver assay lab for chemical analysis and assays. Assay samples are collected by appropriately qualified staff at the laboratories. The insertion of control samples of pulp duplicates has improved confidence in the data by better control over the precision of the analytical results.

12.1.4 Geological Modelling

The geological modelling included all the main geological variables that control the mineralization and was carried out using data that are considered adequate and were properly reviewed and validated. The methodology used in the modelling follows industry best practices and allows adequate modelling of the continuity of the mineralization existing at Cerro Los Gatos. The geological model was statistically validated and reviewed by the QP together with the mine personnel.

12.1.5 Internal Reviews

During March and April 2022, Gatos Silver completed a detailed internal review of all drilling, surface and underground, that was to be used in the Mineral Resource estimate. This review entailed validating the database geochemical analysis values for Ag, Zn, Pb and Au back to the .csv assay certificate from the relevant laboratory, CLG or ALS-Chemex. The complete UG assay database was validated against original assay certificates and all except 64 samples, of 44,031 total samples (99.85% validation), were verified against original assay certificates for the surface database.

12.1.6 Limitations

The QP for Geology and Mineral Resource estimation is not aware of any additional limitations or any failure to perform adequate data verification.

The process of data validation includes several iterations to fix and resolve possible differences that may be identified during the data collection processes. No limitations that may affect the data are considered, the data capture processes ensure the integrity of the information among the different procedures and protocols of each single data flow.

As a result of the data verification and validation process, the differences that have been identified have been corrected in the database in coordination with the Geology Department at CLG. The final data extraction for the mineral resource modelling process considers all the corrections made in the database resulting from verification work.

12.1.7 Opinion on Data Adequacy

A reasonable level of verification has been completed at CLG, and no material issues have been identified. The data verification programs for the data used for the Resource Model adequately support the geological interpretations, and the analytical and database quality; and therefore, support the use of the data in Mineral Resource estimation.

The validation results of the data that were exported for the 2023 Mineral Resource Model have been conducted in accordance with the established export and validation procedures. The QP considers the information to be suitable for use in the Mineral Resource model and considers the historical data to be of acceptable quality.

12.2 Mineral Reserves

The QP for Mineral Reserves took the following steps to verify the data used to prepare the Mineral Reserve estimate.

- The QP visited the CLG mine site from March 15 to 18, 2023. During his time on site, he had the opportunity to tour the underground mine, meet with the CLG engineering staff, and review firsthand the mine design work for the Mineral Reserve estimate.
- The QP participated in discussions about the NSR cut-off calculations for the Mineral Reserve estimate. As part of the verification procedure, he benchmarked cut-off calculations from similar underground mines in Mexico to compare the parameters and unit costs with those used by CLG to calculate NSR cut-offs.
- The QP and the senior WSP geotechnical engineer participated in discussions with CLG engineers about the dilution and mine recovery factors proposed for the Mineral Reserve estimate. These discussions resulted in changes to the dilution factors.
- The WSP geotechnical engineer reviewed the geotechnical parameters in consultation with the QP.
- The QP verified the reasonableness of the mining productivity, development rates, and mine design parameters by reviewing historical records and through extensive personal experience in mining.
- The WSP hydrogeological engineer reviewed hydrogeological parameters and piezometer data in consultation with the QP.
- A WSP mining engineer reviewed mine design and scheduling software inputs under the supervision of the QP.
- The QP reviewed internal controls at CLG Mine and procedures for verification of input data as they apply to the preparation of the Mineral Reserve estimation.

The QP is of the opinion that the data verification procedures used at CLG comply with industry standards and are adequate for the purposes of Mineral Reserve estimation.

12.3 Metallurgy

Mineral processing data is constantly monitored and analyzed as a management control mechanism. Typical data management tests have been reviewed by the QP and are summarized below:

- Metallurgical accounting balances are closed and reconciled with mine production reports and concentrate sold on a monthly basis in order to ensure accuracy and accountability.
- The plant sampling, flow measurements, sample preparation, concentrate dispatch, and assay laboratory facilities were visited in order to assess their conditions and compliance with best practices.
- Supervising staff were interviewed, and documentation was reviewed in order to gain a better understanding of their compliance, procedures and policies.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Previous Disclosures

The following studies were previously reported in the Tetra Tech Mineral Resources Report of 21 December, 2012:

1. RDi Report dated May 29, 2012, Scoping Metallurgical Study for Minera Plata Real Los Gatos Samples, Mexico: Phase I Report.
2. RDi Report dated July 3, 2012 Scoping Metallurgical Study for Minera Plata Real Los Gatos Samples, Mexico: Phase II Report.

The following studies were previously reported in the Mineral Resource and Mineral Reserve Update Report of November 10, 2022:

1. SGS Canada Inc., Burnaby, British Columbia, September 1, 2016, An Investigation into A Feasibility Level Metallurgical Study of the Los Gatos PJ Project, Project 14392-003 – Final Report.
2. SGS Canada Inc., Lakefield, Ontario, March 24, 2017, An Investigation into Flotation Pilot Plant Testing of a Los Gatos Ore Sample, Project 14392-0005- Final Report.
   3.
3. Base Met Labs, Canada, Mineralogical Assessment of Concentrator Performance Mina Cerro Los Gatos:
   a. BL0576 - February 2020
   b. BL0677 - August 2020
   c. BL0780 - January 2021
   d. BL0881- November 2021
   e. BL1039 - April 2022
4. Gatos Silver internal report, February 2022, Fluorine leaching of zinc concentrate.

13.2 New Metallurgical Testwork Programs

Summaries of the following testwork programs are given in this report:

1. SGS Canada, Mineralogical Assessment of Mina Cerro Los Gatos for 38 Samples of Variability - August 2022
2. Gatos Silver internal report, August 2023, Fluorine leaching of zinc concentrate.
3. Gatos Silver internal report, August 2023, Au-Ag recovery in tails.
4. Gatos Silver internal report, August 2023, Pb-Cu recovery.

13.3 Samples

In 2022/2023 the geometallurgy team at Los Gatos studied the resource using samples from two sources. First, 110 samples were taken from drill core for flotation tests, and 38 of these were further analyzed for their mineralogy. Second, 400 samples from underground mine channels were taken for additional flotation tests. The goal was to improve the short-term block model with new data on metallurgical performance.

13.3.1 Sample representativity

A representativeness analysis was conducted on the samples. According to Figure 13.1, the representativeness of the samples was evaluated by comparing the chemical characteristics and spatial distribution to the information obtained from the drill cores. It was found that the samples were reasonably representative of the resource and reserves, covering the range of grades for the principal elements and rock types.

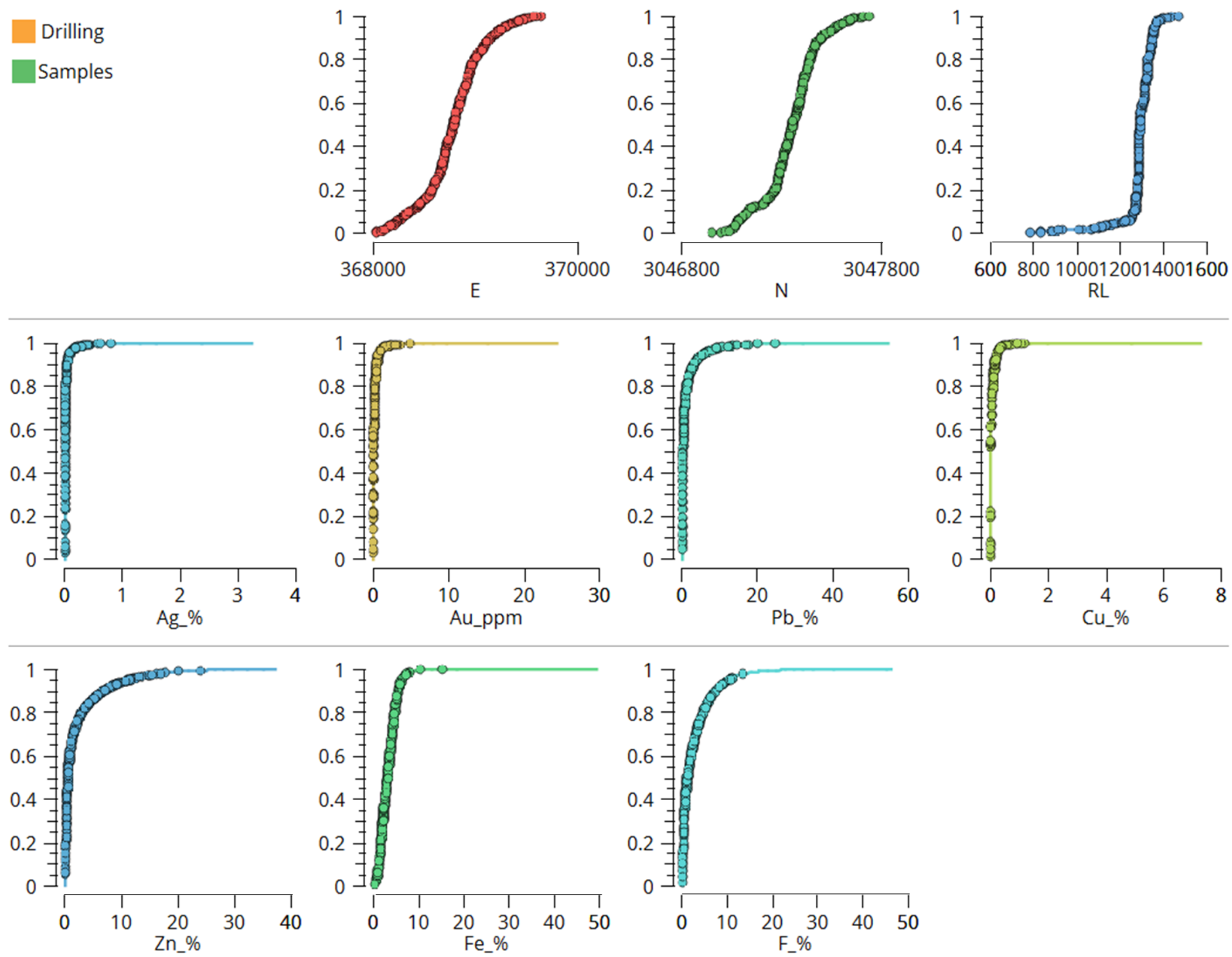


Figure 13.1: Sample Representativity

13.3.2 Historical Production

Figure 13.2 illustrates the spatial source of materials that entered the plant between 2021 and 2023, and Figure 13.3 presents the life of mine material sources for the period 2024 to 2030.

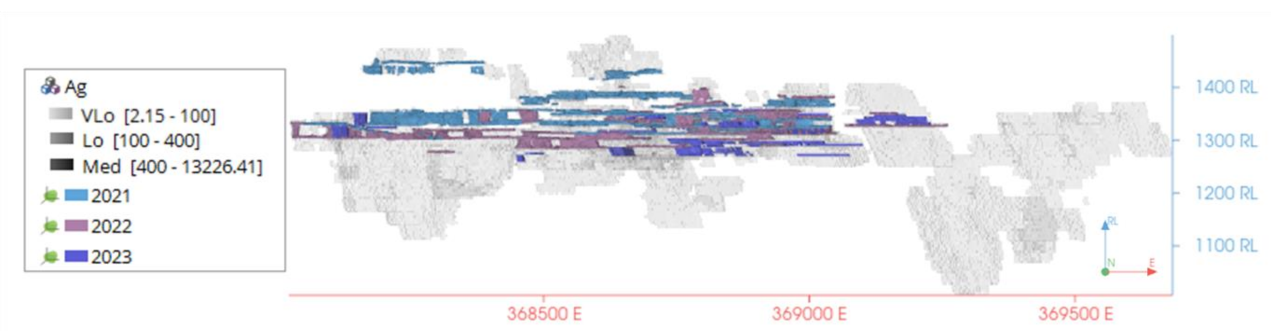


Figure 13.2: Production 2021-2023

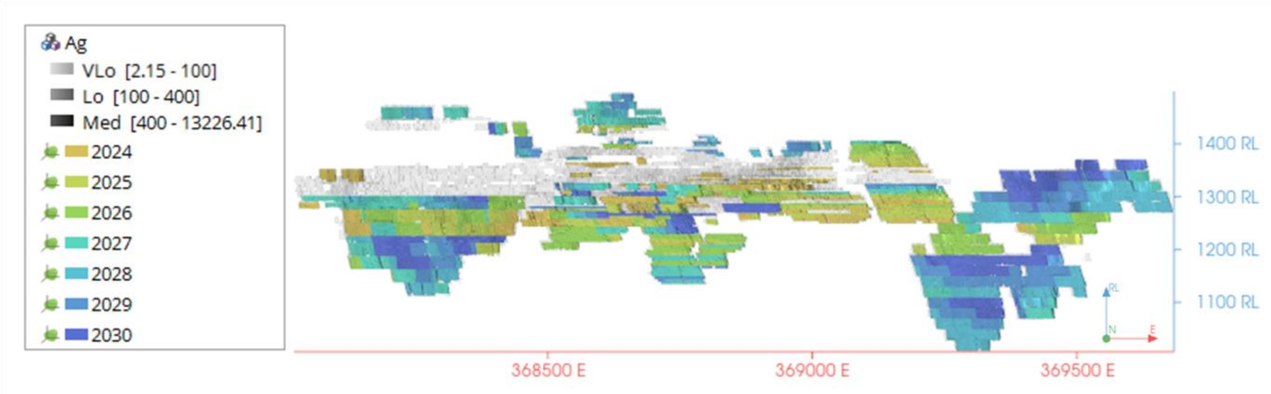


Figure 13.3: Life of Mine 2024-2030

13.3.3 Spatial distribution

Figure 13.4 to Figure 13.8 present the geometallurgical variability sample spatial distribution by sample source, and grade.

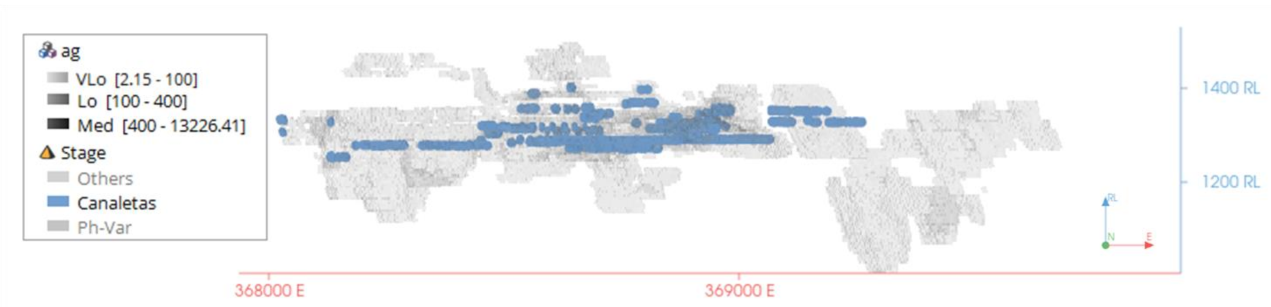


Figure 13.4: Spatial Distribution of Samples from Channels

Figure 13.5: Spatial Distribution of Samples from Cores

Figure 13.6: Spatial Distribution of Zinc Recovery Results

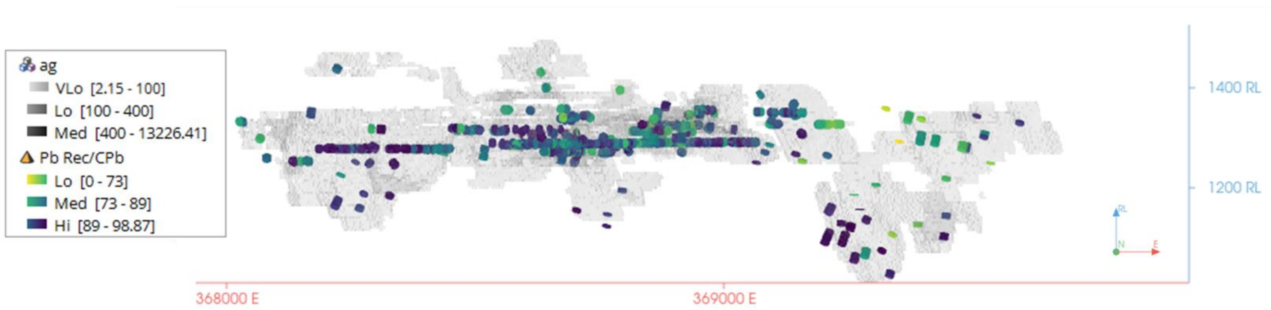


Figure 13.7: Spatial Distribution of Lead Recovery Results

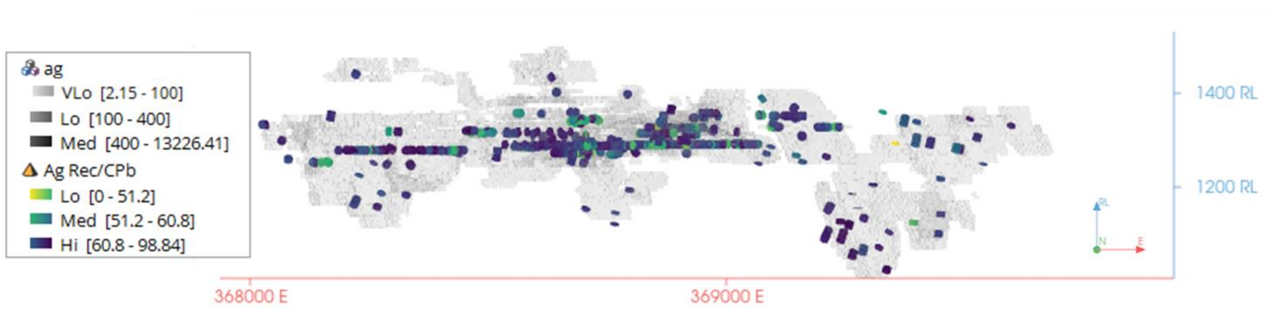


Figure 13.8: Spatial Distribution of Silver Recovery to Lead Concentrate Results

Table 13.1 presents the statistical analysis of the test results for the variability samples and channels.

Table 13.1: Summary Statistics of Recovery

Stage	Ag Rec/CPb		Pb Rec/CPb		Zn Rec/CZn	
	Channels	Ph-Var	Channels	Ph-Var	Channels	Ph-Var
N	400	110	400	110	400	110
Minimum	18.9	0	33.9	0	0.78	1.45
Maximum	98.3	98.8	98.8	98.9	89.0	90.3
Mean	73.5	75.7	86.4	84.5	48.9	50.5
Median	76.9	79.5	89.1	90.4	52.8	55.6
SD	15.8	13.8	10.7	17.5	21.0	25.2

Based on the results of global lead recovery, it is observed that zone mapping exhibits high variability in the SE region. Therefore, it is recommended to assess the association of recovery with other geological events or parameters in the deposit.

Figure 13.9 presents the metallurgical performance of lead in the geometallurgical variability tests by mining zone.

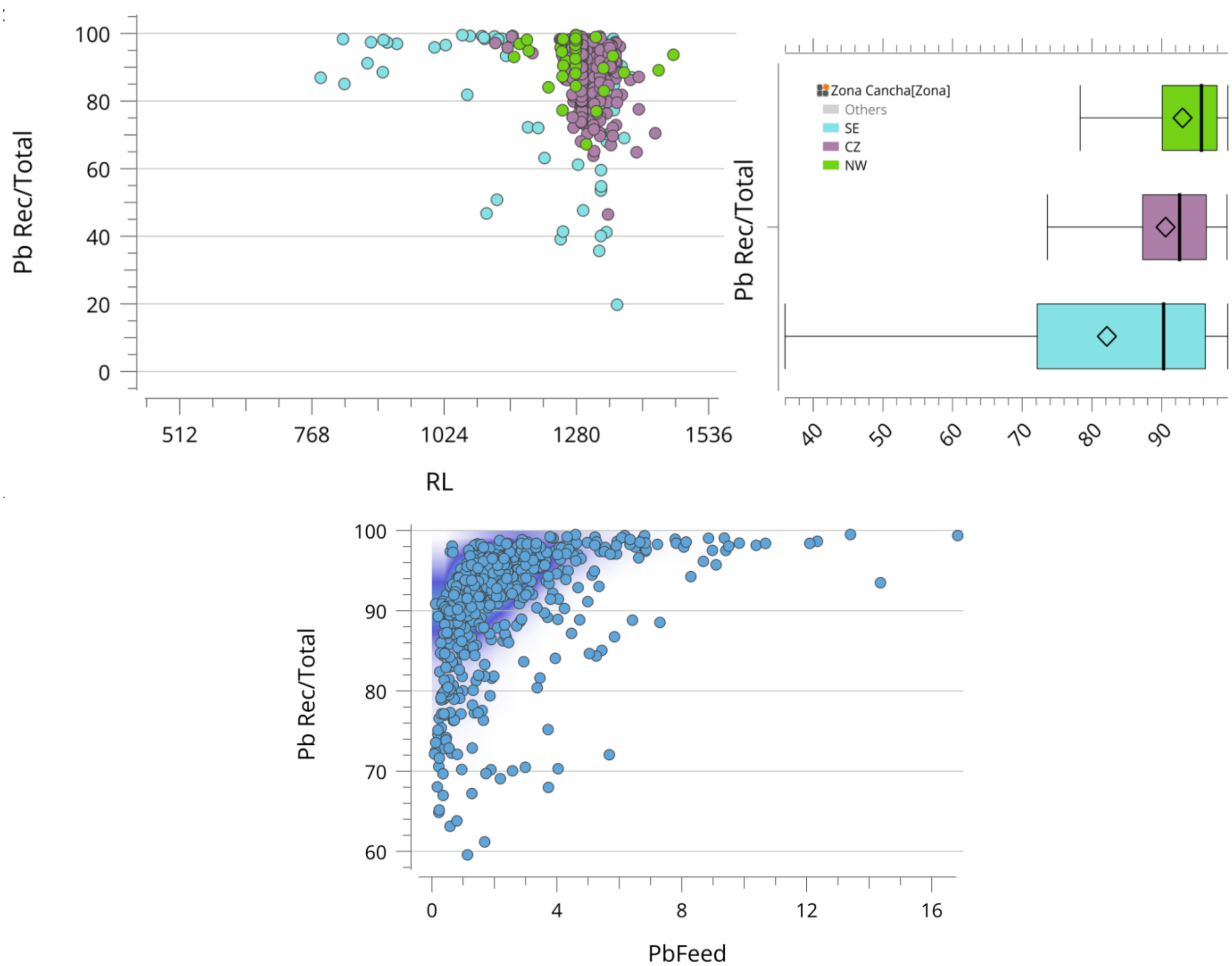


Figure 13.9: Lead Total Recovery (%, Y-axis) by Lead Grade (%, X-axis)

From the analysis of global zinc and global silver recovery results, it is observed that zone mapping is not able to explain the variability of the deposit. Therefore, similar to lead, it is recommended to assess the association of recoveries with other geological events or parameters in the deposit.

Figure 13.10 presents the metallurgical performance of zinc in the geometallurgical variability tests by mining zone.

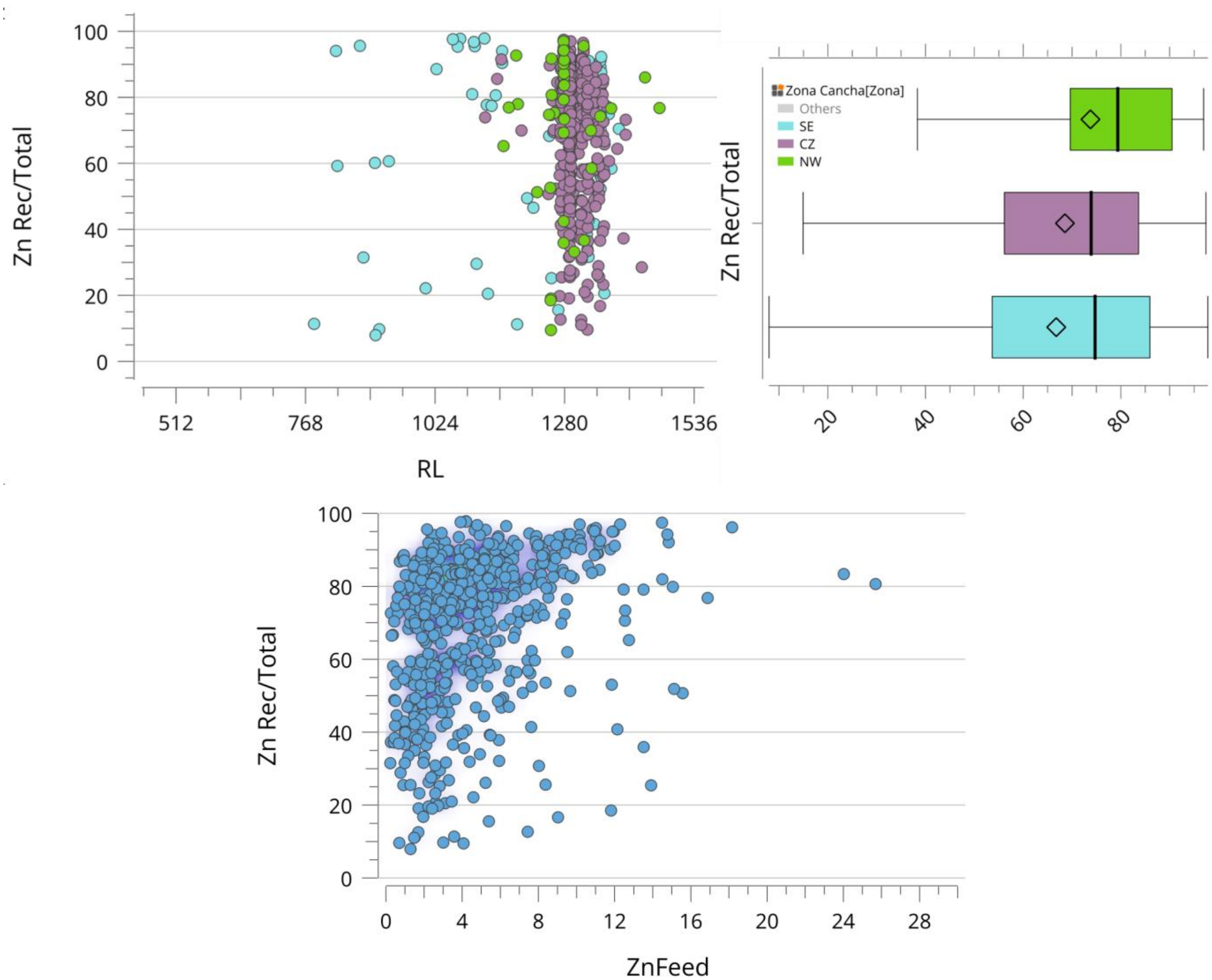


Figure 13.10: Zinc Total Recovery (%, Y-axis) by Zinc Grade (%, X-axis)

Figure 13.11 presents the metallurgical performance of silver in the geometallurgical variability tests by mining zone.

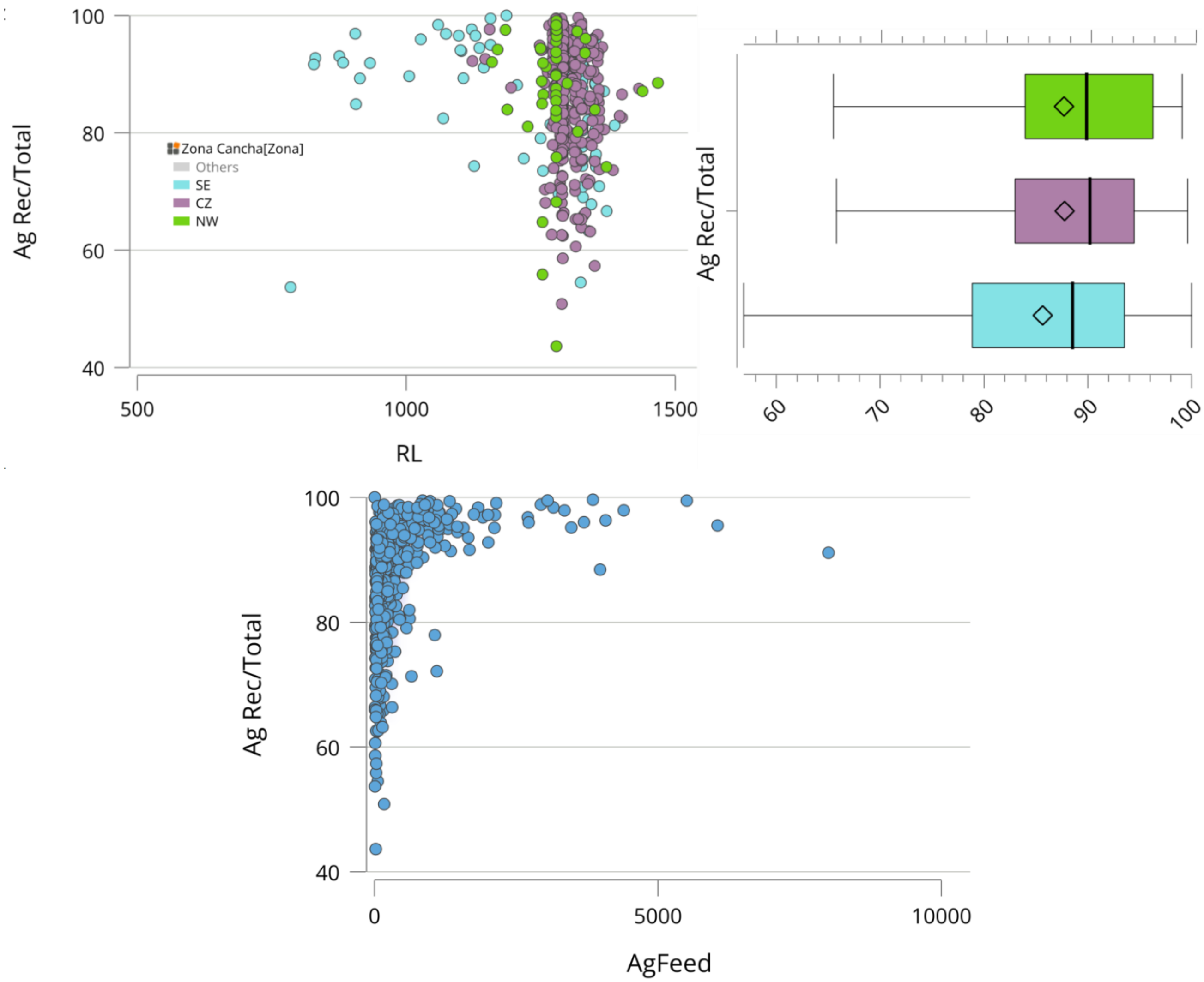


Figure 13.11: Ag Total Recovery (%, Y-axis) by Ag Grade (g/t)

Currently, the recovery results do not show a strong correlation to observable geological events or parameters. Therefore, in the mineral reserve estimation, the plant's historical data was used, which is a good indicator of how the variability of the deposit affects the efficiency of the flotation scheme employed.

13.4 Mineralogy

Mineralogical characterization was performed on monthly composite samples taken from the Los Gatos process streams between the years 2020 and 2021 at Base Metal Labs in Canada. Additionally, 38 geometallurgical samples underwent mineralogical characterization at a SGS Canada laboratory during 2022 and 2023.

The primary objective of these studies was to characterize the effects of mineralogical assemblage and overhead textures of individual flotation samples.

The metal distribution by minerals was found to be:

- Silver:
  - Acanthite/argentite, Jalpaite, Enargite (Ag), Diaphorite and Mckinstry
- Lead:
  - Galena, Leningradite
- Zinc:
  - Sphalerite, Willemite, Baileychlore, Smithsonite, Zincite, Descloizite, Frapointite, Hemimorphite, Genthelvite

Table 13.2 depicts the associations of sphalerite, zinc silicate, and galena.

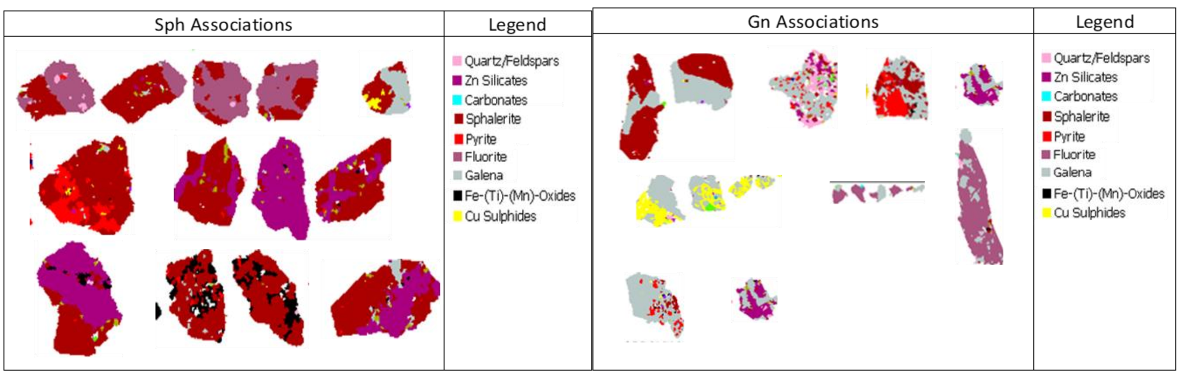


Figure 13.12: Zinc Mineralogy Textures

Table 13.2 presents the statistical analysis of the zinc minerals reported in the modal mineralogy.

Table 13.2: Statistical Analysis of Zinc Minerals

Mineral	Min	Max	Average
Sphalerite	1.34	23.1	7.52
Hemimorphite	0.01	7.0	1.70

Figure 13.13 and Figure 13.14 present the spatial distribution of the LAS samples and their sphalerite and hemimorphite content. It is observed that the hemimorphite content is higher in the central zone and SE zone; and lower in the NW zone. As for sphalerite, the content varies throughout the deposit.

Figure 13.13: Spatial Distribution of Sphalerite in LAS Samples

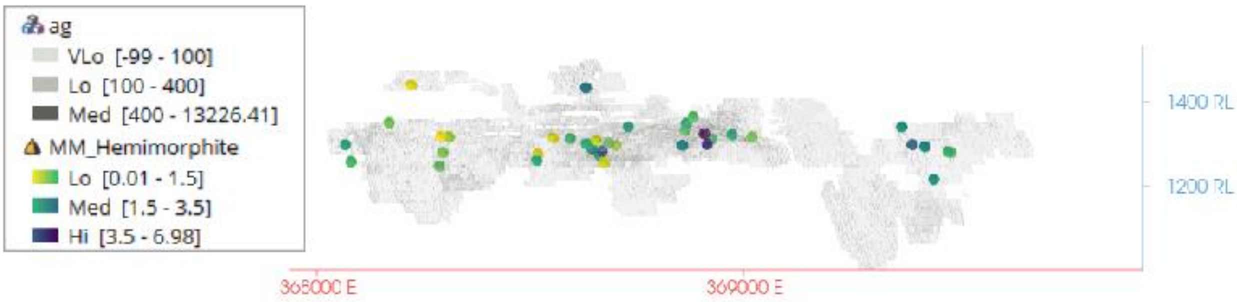


Figure 13.14: Spatial Distribution of Hemimorphite in LAS Samples

It was concluded that:

- The release textures of galena and sphalerite would allow similar or better recoveries with a coarser primary grind size.
- Zinc minerals other than sphalerite (oxides, silicates and carbonates) would not be recovered by flotation.

It was recommended that:

- The presence of pyrite in the heads of the samples could allow CLG to study, through metallurgical flotation tests, the recovery of pyrite from the bulk Cu/Pb concentrates, with the aim of obtaining a cleaner concentrate.

13.5 Historical Plant Performance

The Los Gatos mill has been operating since 2019 at an increasing production rate from 2,700 tonnes per operating day (t/d) to an average in 2022 of over 2,900 t/d; while in H1-2023, the average was 3,086 t/d. The main source of material was mined from the Central Zone and North West Zone. Going forward, these zones will continue to provide a significant proportion of plant feed along with increasing contributions from the South East Zone.

The historical plant performance has been the primary basis for the metallurgical predictions in this TR.

13.5.1 Throughput

The plant was originally designed for 2,500 tonnes per calendar day throughput capacity, but through good maintenance, operating, and optimization processes, the plant has and can reliably achieve over 2,900 tonnes per calendar day.

- The LOM Plan is based on an average processing rate of 2,949 tonnes per calendar day which equates to 3,157 tonnes per operating day assuming two days per month non-operating.
- From June 2021 to August 2022, the average throughput was 2,872 t/d.
- From January 2022 to August 2022, the average throughput was 2,902 t/d.
- From September 2022 to June 2023, the average throughput was 3,086 t/d.

The mine production and therefore the availability of material for the processing plant continues to be the limiting constraint on throughput. Figure 13.15 and Figure 13.16 provide the distribution of plant throughput performance and time plot of plant throughput performance, respectively. The plant does not need to be stopped for two days per month for maintenance, and tonnage is not pushed when the feed stockpile is low, therefore it is clear that there is slack capacity to increase the overall treatment rate per month.

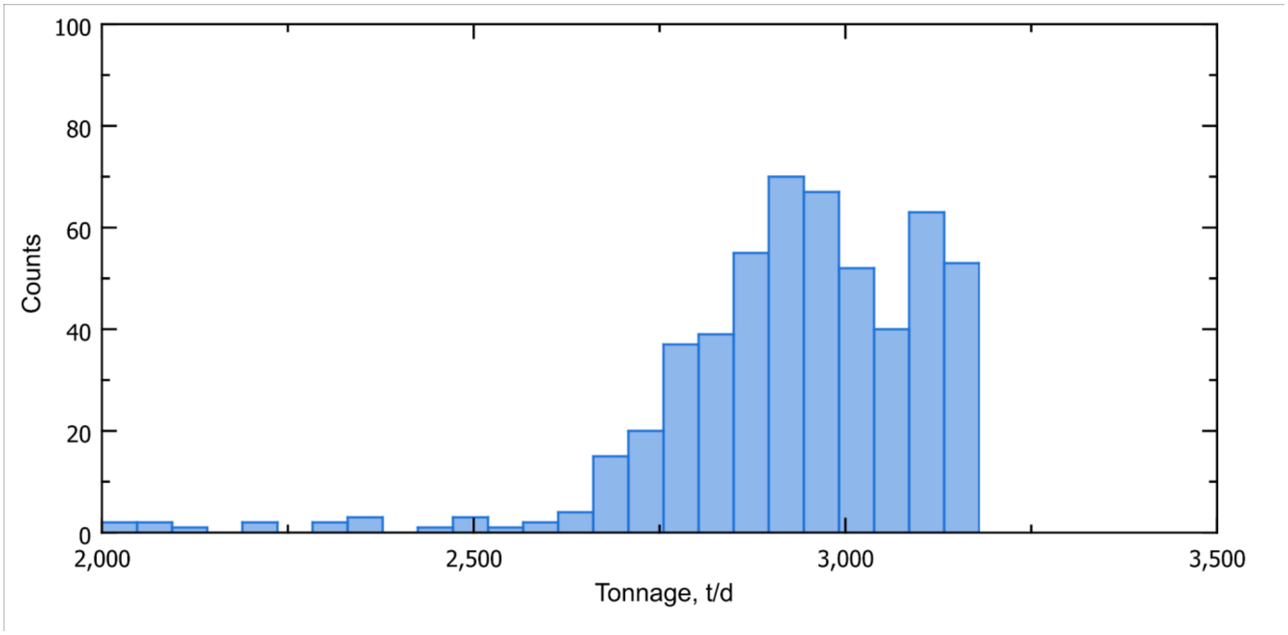


Figure 13.15: Distribution of Daily Plant Throughput Performance

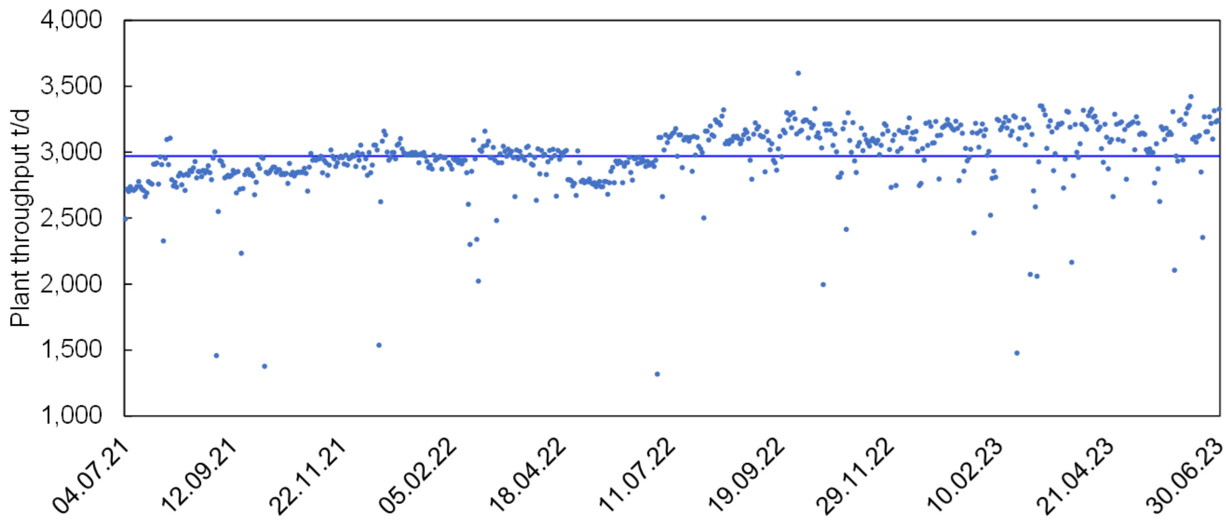


Figure 13.16: Time Plot of Plant Throughput Performance

13.5.2 Silver

Regarding silver, Figure 13.17 provides distributions of historical plant silver flotation recovery (total (AgR Total), to lead concentrate (AgR CcPb), and to zinc concentrate (AgR CcZn)).

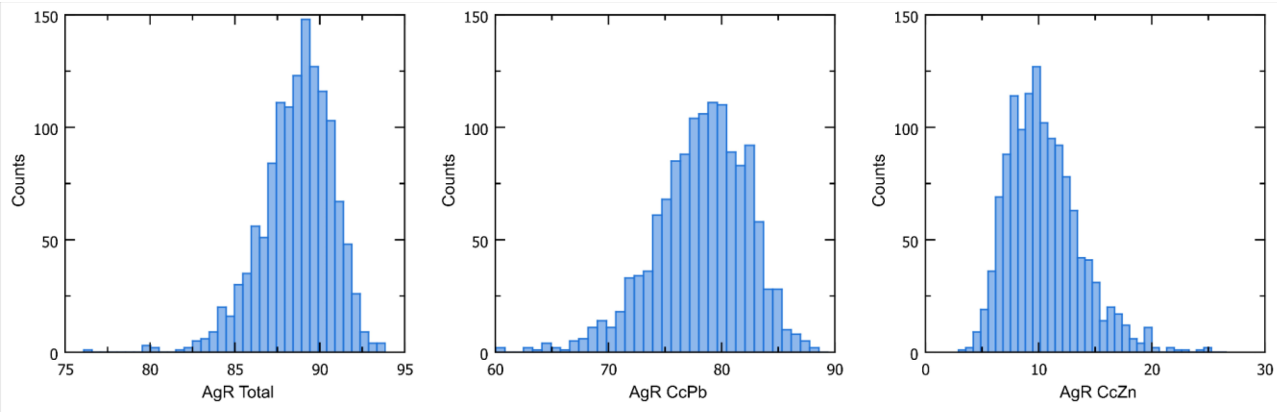


Figure 13.17: Distributions of Historical Silver Recovery (Total, to Lead Concentrate, to Zinc Concentrate)

Figure 13.18 shows a time plot of plant total silver recovery for the 24-month period from July 2021 to June 2023. The silver metallurgical performance has been stable.

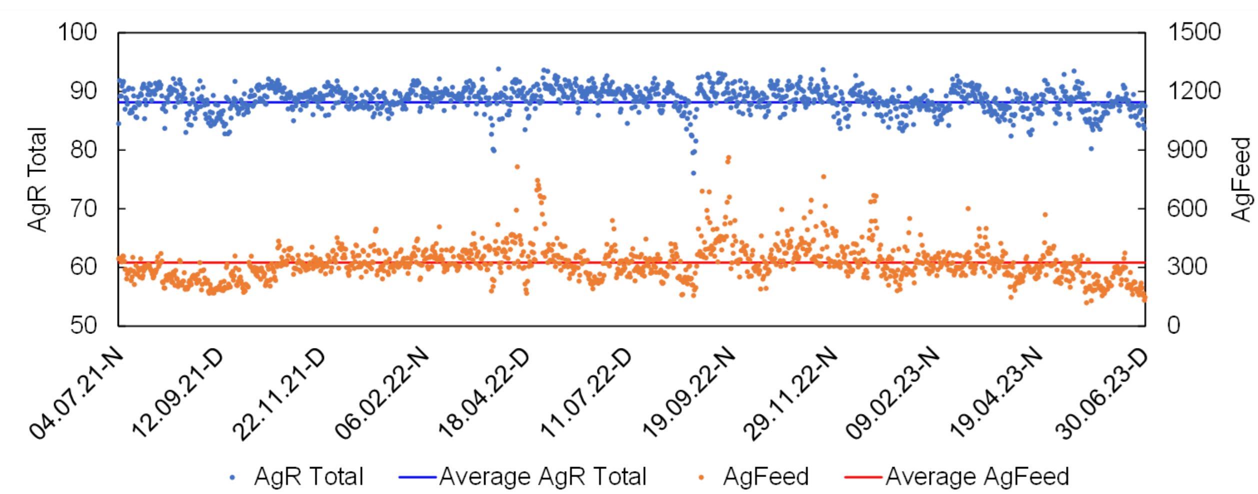


Figure 13.18: Time Plot of Plant Total Silver Recovery

Table 13.3 includes summary statistics of silver recovery performance for the period of July 2021 to June 2023

Table 13.3: Summary Statistics of Silver Recovery

	AgG CcPb	AgR CcPb	AgR CcZn	AgR Total
Median	7,784	78.1	10.2	88.4
Mean	7,992	77.7	10.6	88.3
Std. Deviation	2,683	4.49	3.49	2.24
Minimum	3,104	60.6	2.91	76.1
Maximum	19,437	88.0	25.2	93.8
25th percentile	6,107	74.9	8.08	87.0
50th percentile	7,784	78.1	10.2	88.4
75th percentile	9,361	80.8	12.5	89.9

After analysis of the historical plant production database, the total silver recovery for the LOM Plan was estimated to be 88.2%.

13.5.3 Lead

Figure 13.19 presents distributions of historical lead recovery and lead concentrate grade.

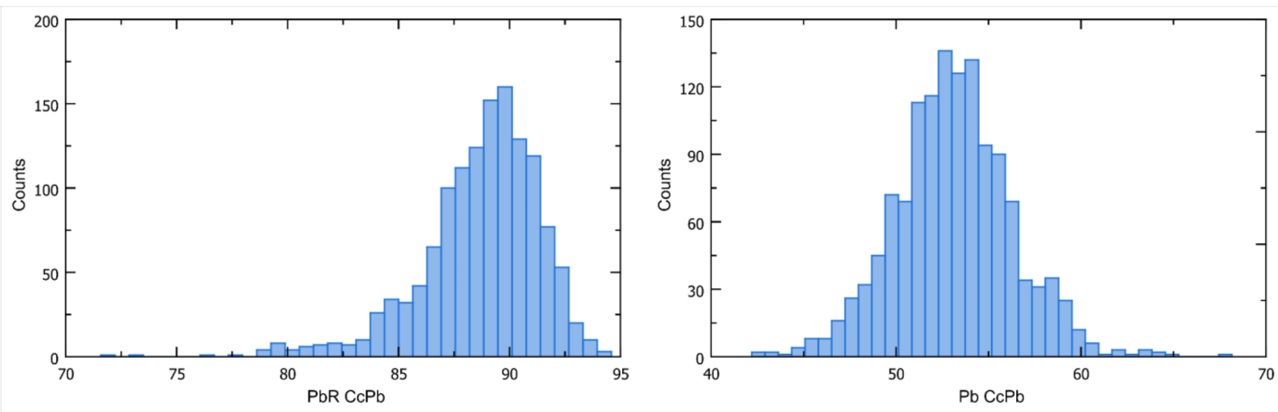


Figure 13.19: Distributions of Historical Lead Recovery (%) and Lead Concentrate Grade (%)

Figure 13.20 and Figure 13.21 provide time plot of plant lead concentrate grade and time plot of plant lead recovery, respectively. The lead metallurgical performance has been stable.

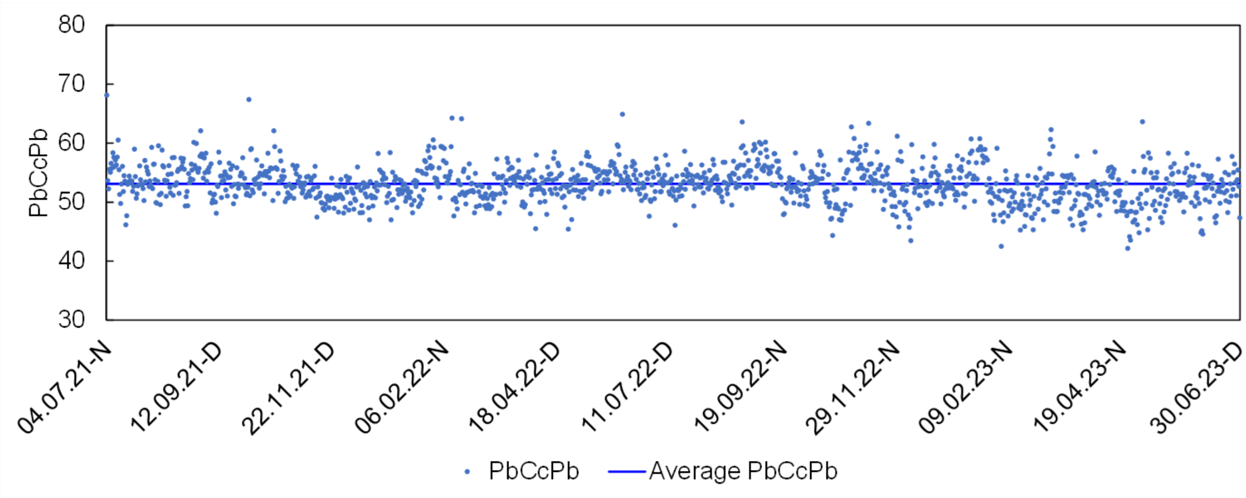


Figure 13.20: Time Plot of Plant Lead Concentrate Grade

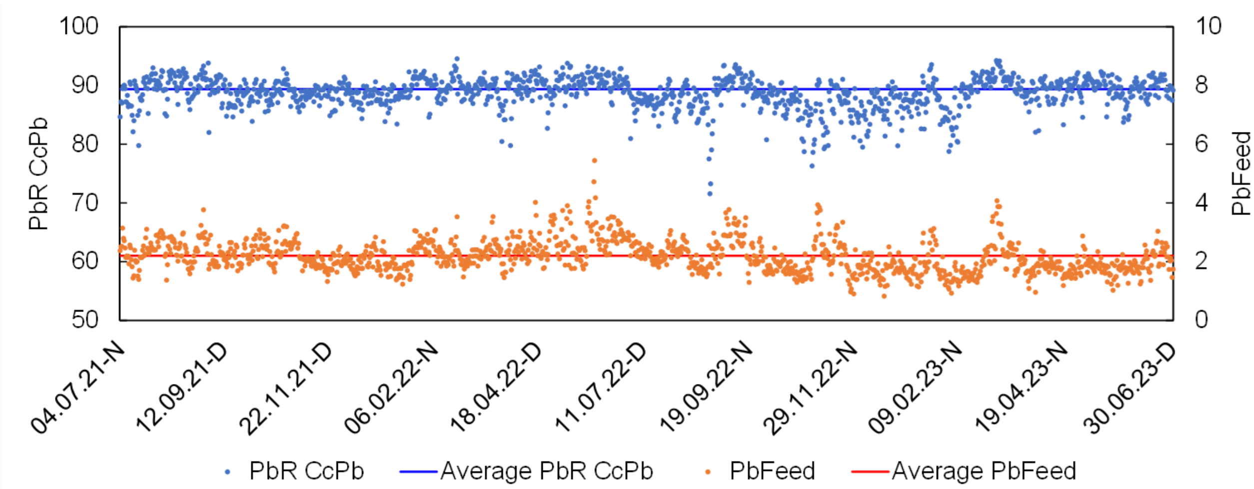


Figure 13.21: Time Plot of Plant Lead Recovery

Table 13.4 provides summary statistics of lead recovery and lead concentrate grade for the period of July 2021 to June 2023.

Table 13.4: Summary Statistics of Lead Recovery and Lead Concentrate Grade

	Grade Pb% Conc Pb	Recovery Pb Conc Pb
Median	52.8	88.8
Mean	52.8	88.2
Std. Deviation	3.52	3.11
Minimum	42.2	71.6
Maximum	63.7	94.3
25th percentile	50.3	86.7
50th percentile	52.8	88.8
75th percentile	55.0	90.3

After analysis of the historical plant production database, it was estimated that the recovery of lead in the lead concentrate would be 89.4% in the LOM plan.

13.5.4 Zinc

Figure 13.22 provides distributions of historical zinc recovery and zinc concentrate grade.

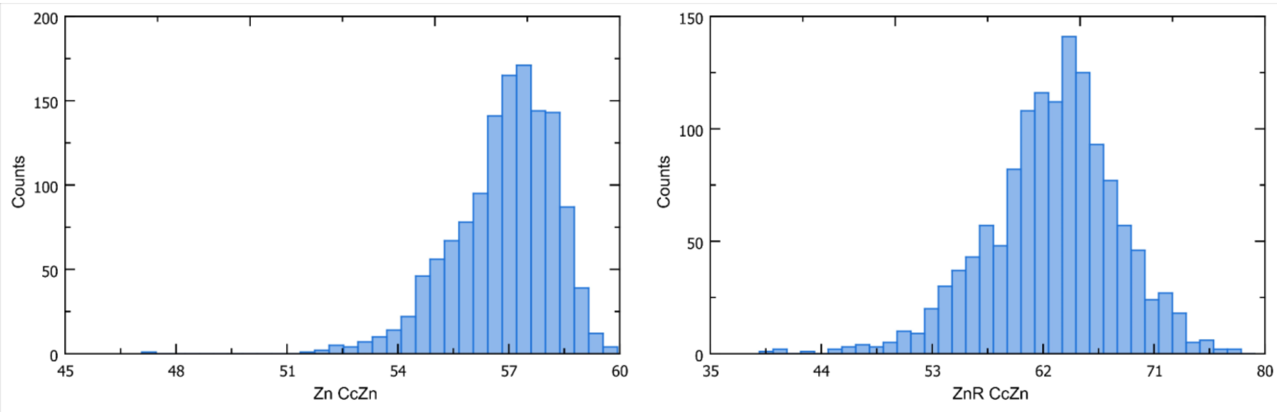


Figure 13.22: Distributions of Historical Zinc Recovery and Zinc Concentrate Grade

Figure 13.23 provides a time plot of plant zinc recovery and zinc concentrate grade for the period of July 2021 to June 2023. Results have varied and are likely mainly due to variable non-sphalerite zinc proportion in the plant feed.

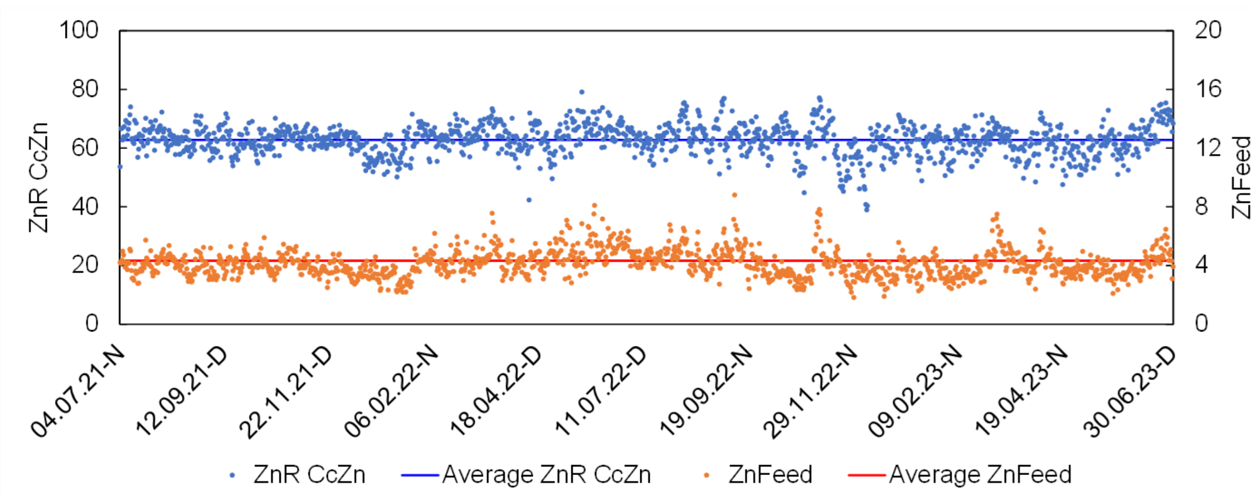


Figure 13.23: Time Plot of Plant Zinc Recovery

Table 13.5 provides summary statistics of zinc recovery and zinc concentrate grade for the period of July 2021 to June 2023.

Table 13.5: Summary Statistics of Zinc Recovery and Zinc Concentrate Grade

	ZnG CcZn	ZnR CcZn
Median	57.7	62.7
Mean	57.4	62.3
Std. Deviation	1.35	6.09
Minimum	47.1	39.0
Maximum	61.1	77.1
25th percentile	56.8	58.5
50th percentile	57.7	62.7
75th percentile	58.3	66.3

After analysis of the historical plant production database, it was estimated that the recovery of zinc in the zinc concentrate would be 62.8%. This is based on 63.4% recovery of zinc to zinc concentrate and then 1% losses through the fluorine leach circuit.

13.5.5 Gold and Copper

After analysis of the historical plant production database, it was estimated that the recovery of gold to the lead concentrate would be 54.2% and copper to the lead concentrate would be 60.0%.

While only minor contributors to revenue, there are payable terms for gold and copper in the current lead concentrate purchase contracts. There are no payable terms for gold or copper in the current zinc contract so plant recovery is not considered for those metals.

13.6 Copper-Lead Recovery

Cerro Los Gatos Mine primarily produces lead and zinc concentrates; however, the SE zone shows higher levels of copper. The area is expected to contribute increasing copper to the processing plant feed starting in 2025.

For the 2023 Mineral Reserves production plan, it has been assumed that the copper will continue to report to the lead concentrate.

CLG has also completed metallurgical testwork for future consideration of whether a copper concentrate could be separated from the bulk lead-copper concentrate. For this study, a master composite from the SE zone was created. Initial results indicate commercial-grade copper levels, but further study is required to validate these findings. The statistics from the tests conducted are presented in Table 13.6 and Table 13.7.

Table 13.6: Statistical Summary of Grades and Recoveries in Copper Concentrate

Item	Grade			Recovery, %		
	Ag, g/t	Pb, %	Cu, %	Ag	Pb	Cu
Min	1,333	9.74	18.4	7.26	1.38	30.0
Max	2,686	36.0	28.3	17.0	8.50	45.6
Average	1,996	16.8	25.6	10.5	3.71	39.1

Table 13.7: Statistical Summary of Grades and Recoveries in Lead Concentrate

Item	Grade				Recovery, %			
	Ag, g/t	Pb, %	Zn, %	Cu, %	Ag	Pb	Zn	Cu
Min	369	10.0	6.31	0.65	15.4	19.0	4.62	8.22
Max	1,569	57.8	10.9	3.49	72.6	87.7	13.4	49.8
Average	1,211	40.0	8.37	2.44	53.8	67.8	8.18	31.5

With the optimal scheme selected from previous tests, a locked cycle flotation test (LCT) was conducted, the results of which are shown in Table 13.8. To implement this flotation circuit in the current Los Gatos processing plant, an engineering study will be required.

Table 13.8: Summary of Grades and Recoveries in LCT

Product	Mass, %	Grade					Recovery, %				
		Ag, g/t	Pb, %	Zn, %	Cu, %	Fe, %	Ag	Pb	Zn	Cu	Fe
Cu Conc	1.67	1,572	17.2	10.2	21.3	18.0	26.0	10.3	3.75	74.8	7.64
Pb Conc	4.11	1,393	54.1	9.02	1.52	5.68	58.0	80.0	8.14	13.2	5.94
Zn Conc	11.6	73.0	0.67	28.9	0.35	11.6	9.00	2.80	73.6	8.56	34.3
Tailings	82.6	9.00	0.23	0.80	0.02	2.48	7.00	6.84	14.5	3.48	52.1
Feed	100	99.0	2.78	4.56	0.47	3.93	100	100	100	100	100

13.7 Silver - Gold Recovery in Tails

Cerro Los Gatos Mine produces lead and zinc concentrates with important silver content, with a recovery for the latter metal of 89% due to the different associations present with other elements, mainly non-sulphide gangue. A study was conducted to recover gold and silver through a pyrite flotation process. This would be followed by leaching the obtained concentrate and, ultimately, employing a Merrill Crowe process to recover the extracted metals from solution.

During the pyrite flotation stage, sulphuric acid was used to lower the pH, copper sulphate was applied to activate the pyrite rejected from the Pb/Zn flotation process, and SIPX and A407 served as collectors. Additionally, MaxGold was employed as a third collector for native silver. The statistical analysis of the results obtained from the flotation tests is presented in Table 13.9.

Table 13.9: Chemical Characterization of Flotation Concentrate

Item	Mass		Grade				Distribution, %			
	g	%	Ag, g/t	Pb, %	Zn, %	Fe, %	Ag	Pb	Zn	Fe
Min	16.9	1.49	332	0.86	3.22	12.8	23.3	12.4	6.66	11.2
Max	37.3	3.54	615	2.22	7.62	25.5	40.6	24.3	13.6	19.9
Average	27.0	2.57	451	1.20	5.31	19.5	33.6	16.2	10.2	17.0

Subsequently, a leaching test was conducted on the previously re-ground concentrate. The leaching process lasted for 130 hours, with oxygen dosed during the first six hours to accelerate the leaching of silver and gold. Table 13.10 shows the results of the leaching test.

Table 13.10: Gold and Silver Leaching Results

Leach time, h	Consumption NaCN, kg/t	Grade, g/t		Recovery, %	
		Ag	Au	Ag	Au
130	14	67.0	0.19	82.0	52.0
81	10	75.0	0.16	82.0	52.0

It is necessary to continue with the study to determine the technical and economic feasibility of the process.

13.8 Fluorine Leaching

Cerro Los Gatos started commissioning its fluorine leaching circuit in June 2023. This circuit aims to reduce the fluorine grade in the concentrate, thereby meeting the specifications set by a customer.

Table 13.11 presents the conditions of the fluorine leaching process during the month of August 2023.

Table 13.11: Fluorine Leaching Conditions

Conditions	
H_2SO_4, kg/t	32.2
Al_2O_3, kg/t	6.49
RM (Al:F)	1.99
Energy Consumption, kW-h	487,584

Table 13.12 summarizes the results obtained in the month of August 2023.

Table 13.12: Fluorine Leaching Results

	Conc Zn, t	Ag, g/t	Au, g/t	Pb, %	Zn, %	Cu, %	Fe,%	F, g/t
Conc Zn Feed	2,316	822	0.40	0.70	55.7	0.50	5.30	1,227
Conc Zn Leached	2,274	835	0.40	0.80	56.5	0.50	4.70	364

According to these results, 70% of the fluorine was removed in the circuit, fulfilling the specification. Minor losses of zinc and silver through the leach circuit have been accounted for in the recovery assumptions used for financial modelling.

13.9 Ongoing Testwork

A geometallurgical testing program is progressing as a continuous improvement initiative. Samples that are representative of future production continue to be selected and are tested for laboratory flotation performance, and detailed mineralogy.

The current focus of testwork is on additional SE Zone resources discovered at depth.

13.10 Factors Affecting Economic Extraction

The 2022 and 2023 period experienced slightly lower lead recoveries, thought to be due to the lower lead head grades of the mill feed. The projected feed grades in the future are expected to rise again, facilitating higher recoveries.

The future silver head grades are expected to be lower than the historical production grades, particularly in 2028 through 2030. While neither the plant nor variability data currently show a strong grade-recovery relationship, this should continue to be evaluated for possible risks in the later years of the mine life.

The “zinc oxide” risk that was identified in 2022 has now been diagnosed as hemimorphite by mineralogy. The geological controls for the origin of the hemimorphite, and its spatial distribution in the deposit have not advanced. There is sufficient evidence through laboratory variability flotation testing that the future production will not be materially different from the past production in terms of hemimorphite content over the long term.

14.0 MINERAL RESOURCE ESTIMATION

This TR provides a Mineral Resource estimate and classification of resources reported in accordance with the Guidelines and Definition Standards for Mineral Resources and Mineral Reserves (CIM 2014).. From information entered into the Los Gatos geological database, MPR geologists constructed 3D wireframes for structural blocks, veins and lithology using Leapfrog™ Geo software. Estimation of occurrences of silver, zinc, lead, gold, and copper in a 3D block model was completed with Vulcan software.

The methods and results of resource estimation are reported below and correspond to the final version of the 3D block model, <GT_BM_LongTerm_2023Apr_Update_v4_5x5x5.bmf>.

The estimate of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors change from those currently assumed at CLG. Estimates of Inferred Mineral Resources have significant geological uncertainty, and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to the Measured or Indicated categories. Mineral Resources reported in the TR are stated exclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves have not met the threshold for reserve modifying factors, such as estimated economic viability, that would allow for conversion to Mineral Reserves. The Resource estimate is consistent with both S-K 1300 and the Guidelines and Definition Standards for Mineral Resources and Mineral Reserves (CIM 2014).

14.1 Estimation Assumptions, Parameters and Methods (Cerro Los Gatos)

14.1.1 Software

CLG geologists used Leapfrog Geo software for solids model generation and Vulcan software for block model estimation, reporting, statistics review, geostatistics, and swath plots.

14.1.2 Database Transmission

The acQuire exploration database containing both surface and underground drilling was exported to a comma separated values (.CSV) file, which is a standard format for the software used. When data is moved between different programs it is checked to verify that the data is spatially correct. Additionally, a running summation to verify values and visual spot checks are conducted.

14.1.3 Drilling Data Los Gatos

The global database available for the 2023 Mineral Resource estimation of the CLG deposit includes 527 (198,598.4 m) surface and 939 (84,306.5 m) underground core drill holes. Table 14.1 summarizes the data used for construction of the Mineral Resource model.

Data sets used in the Mineral Resource estimation include DDH, topographic data, and density data.

Summary information on the CLG drill programs is provided on Table 14.1. The drill hole file was reviewed in plan and section to validate the accuracy of the collar locations, hole orientations and down hole trace, and the assay data was analyzed for out-of-range values. The drill hole database was determined to be of suitable quality to support the 2023 Mineral Resource estimate.

Table 14.1: Summary of Los Gatos Drill Hole Database

Table	N° Drill Holes	Core length (m)
Collar	1,466	282,904.8
Survey	1,466	NA
Lithology	1,463	281,875.77
Assay	1,466	66,189.89

14.1.4 Geological Interpretation

The Los Gatos geological model considers fault blocks, veins, and lithological models. For the construction of each of the models, the following was considered:

- Database tables in csv format: collar, survey, lithology, and assay.
- Database validation for each one of the variables
- Display of information in Leapfrog Geo.
- Cross sections interpretation of the previous models (2D).
- Topography
- Chronology for the Lithology Units (.xls format)
- Description of rock codes (.pdf format)

The geological models were built in Leapfrog Geo v.2021.2 by CLG geologists using implicit modelling for all geological units. Implicit modelling refers to the creation of wireframes defined by mathematical functions, geology and stratigraphic relationship.

Model blocks were coded with the 3D solids, created in Leapfrog Geo, and then imported into Vulcan Software.

14.1.5 Structural Model

The Structural Framework is the main factor that defines the entire size, shape, and continuity of the CLG deposit. The oldest faults are the Lower Los Gatos and Upper Los Gatos faults, which served as conduits for mineralizing fluids. The Upper Los Gatos fault has a listric shape with a NW strike and NE dip. Several different studies were completed to reveal the primary faults cutting the system including a photo lineament analysis, and a study of the elevation changes that occur across the upper contact of the dacitic lithic tuff. All the primary faults except for the Gatos Fault were used to define the structural domains or fault blocks used in the associated geologic model.

Main Fault blocks, from the northwest to the southeast, include the Northwest (NW), Central (CZ), and Southeast 2 (SE) (Figure 14.1).

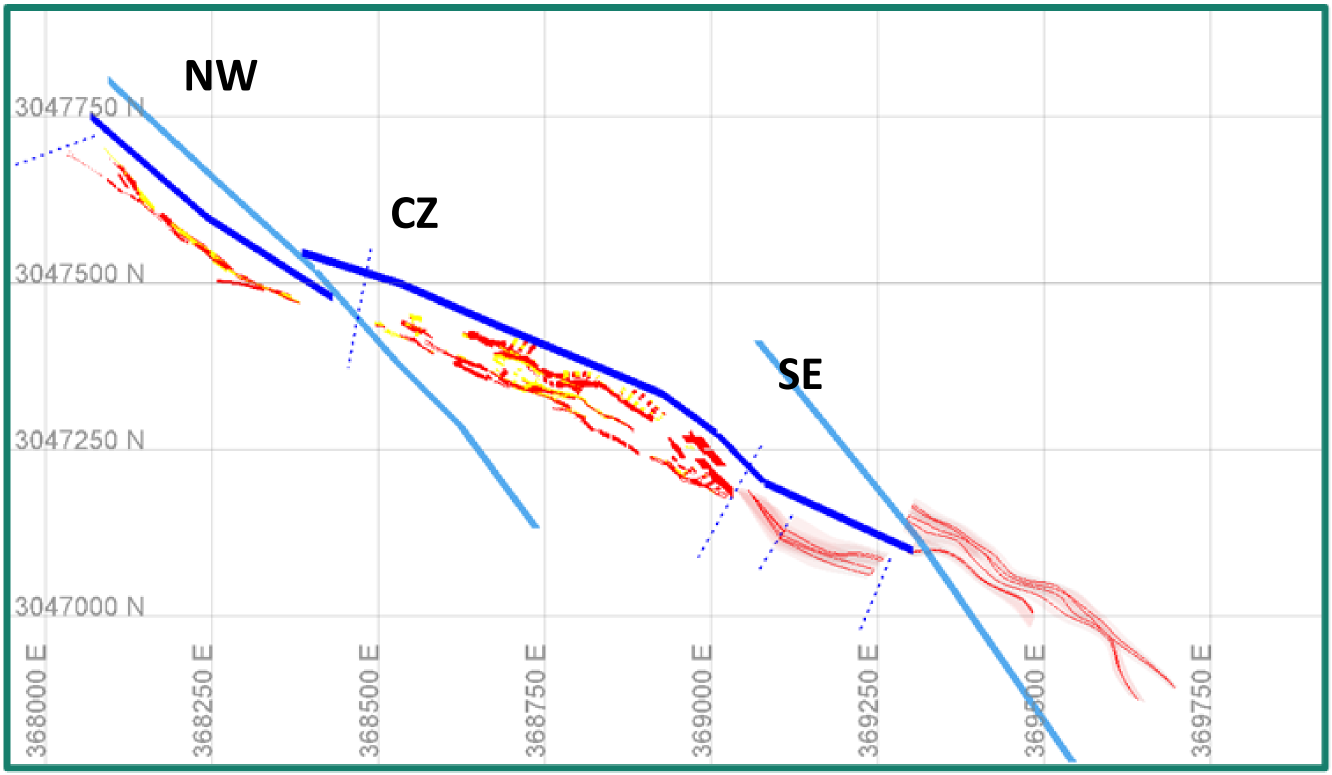


Figure 14.1: Main Fault Blocks at Los Gatos Deposit

Seven cross-faults were used to divide the geologic model into eight fault blocks within the final geologic model (Figure 14.2).

- Block 1 – NW Ext – No significant mineralization
- Block 2 – NW – Major mineralized zone
- Block 3 – Central Upper – Minor mineralization
- Block 4 – NW Offset – Deeper zone
- Block 5 – Central – Major mineralized zone
- Block 7 – South-East 1 – Minor mineralization
- Block 10 – NW Ext 2 – No significant mineralization
- Block 11 – South-East 4 - Major mineralized zone

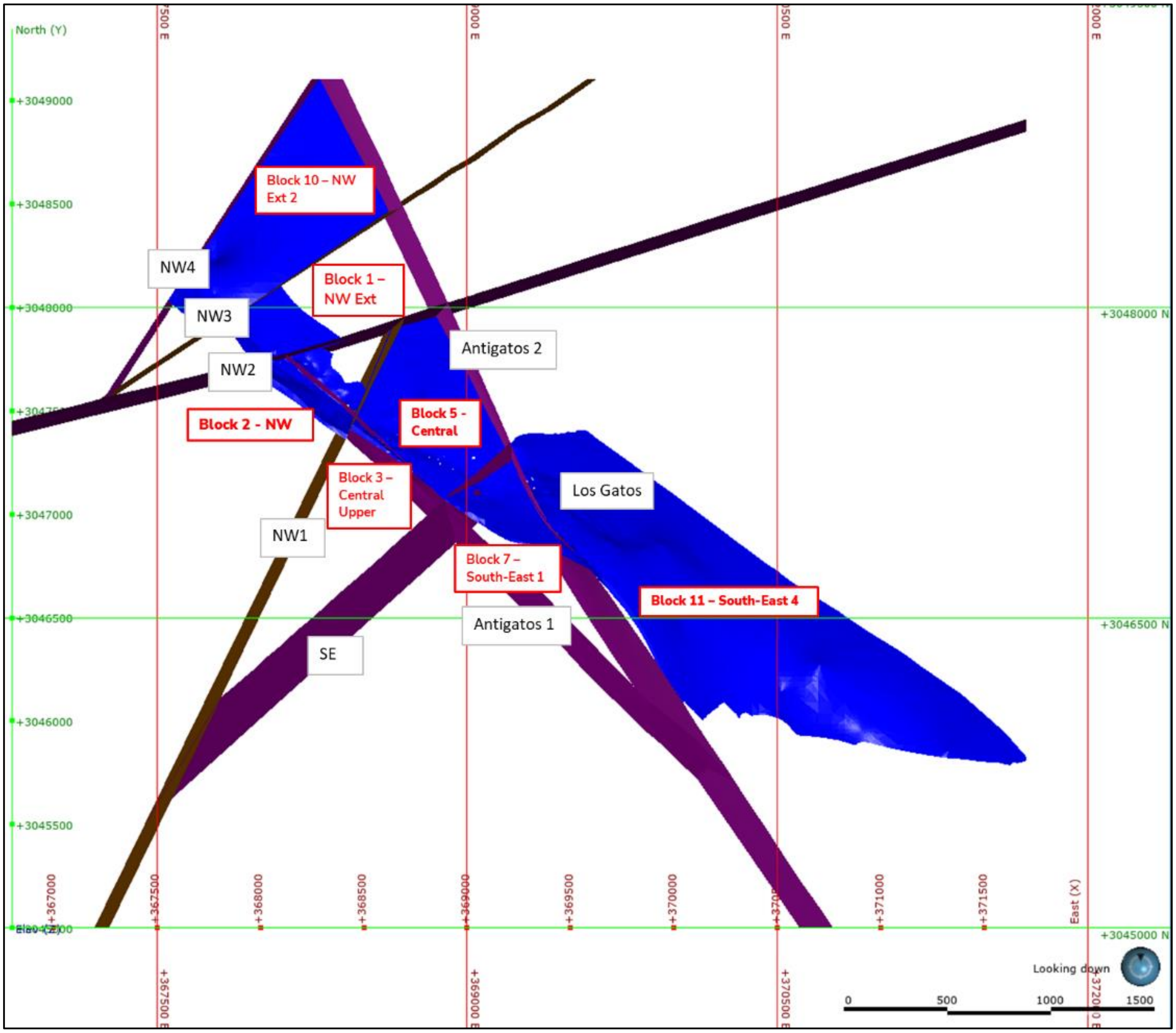


Figure 14.2: Plan View of the Structural Fault Blocks at CLG

14.1.6 Lithology and Vein Model

Los Gatos deposit is hosted in a series of andesitic lava flows and pyroclastic breccias that are interbedded and overlaid by flows and tuffs of dacitic composition. Silver mineralization at Los Gatos is predominantly hosted in a series of quartz, quartz-calcite, and calcite veins. These vein systems vary locally but predominantly have northwest strikes and mostly steep dips.

All available assay, lithology and structural data from the drill hole logs and geological mapping of underground exposures were used for geological interpretation of the veins. Each interval interpreted to be within the vein model was coded with a vein and fault block code.

The post-mineral low-grade or waste Veta Rosa vein was modelled separately and was assigned estimation domains prefixed by RV separately from the mineralized veins.

Eight different veins were interpreted on each fault block, totalling 28 body veins, as can be seen in Figure 14.3.

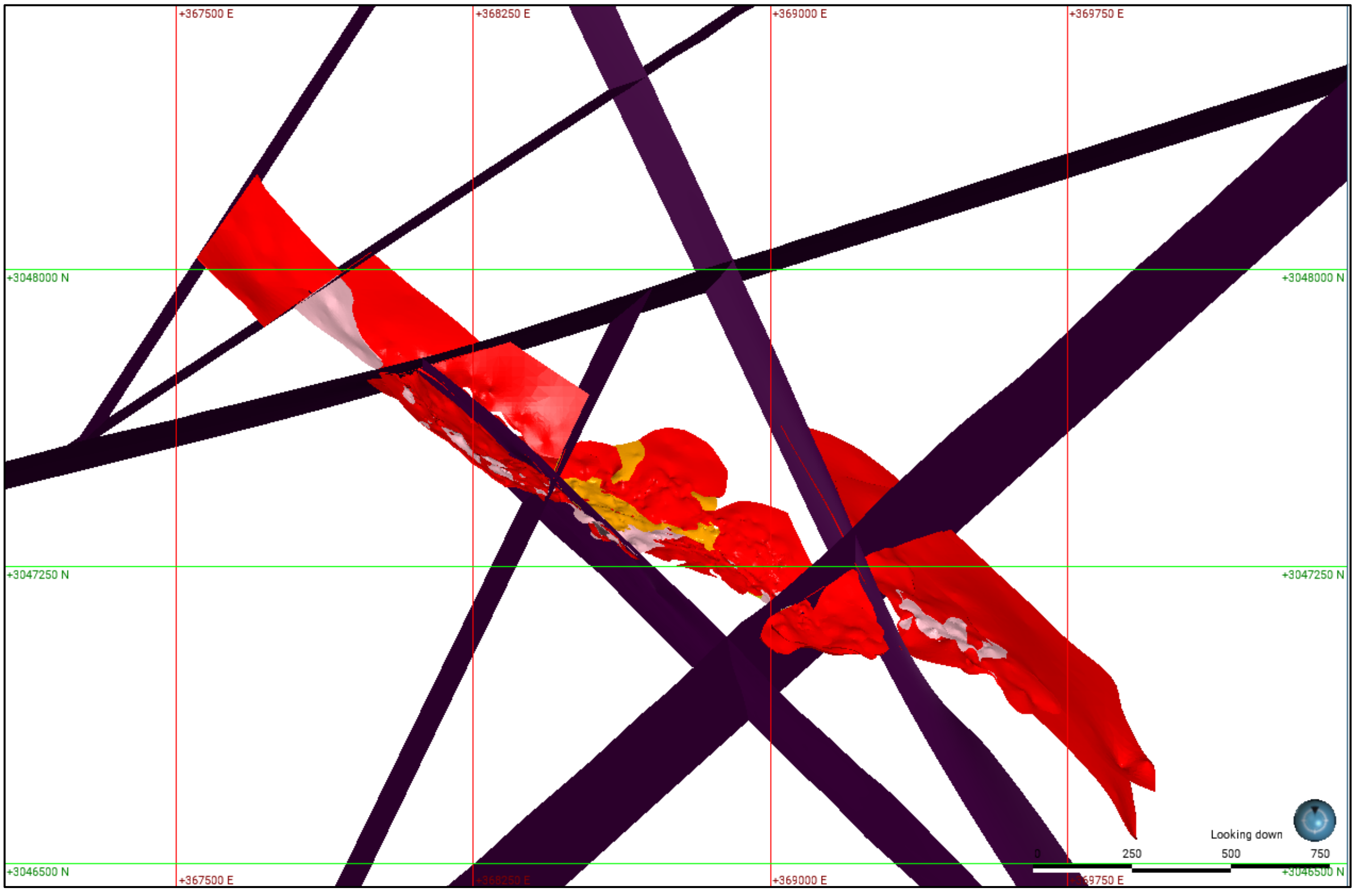


Figure 14.3: Plan View of Los Gatos Veins on each Fault Block

The model also includes the following lithological units:

- Epiclastic erosional volcanic sediments above the rhyolite and andesite
- Rhyolite overlaying the andesite and underlying the epiclastics.
- Undifferentiated andesitic volcanics, the primary vein host, situated in the footwall of Los Gatos fault.
- Dacite/volcanic tuff within the andesite, which comprises the immediate footwall of the mineralization and occasional host.

A cross-section showing the relationship of veins and the lithological units is shown for the CZ (Figure 14.4).

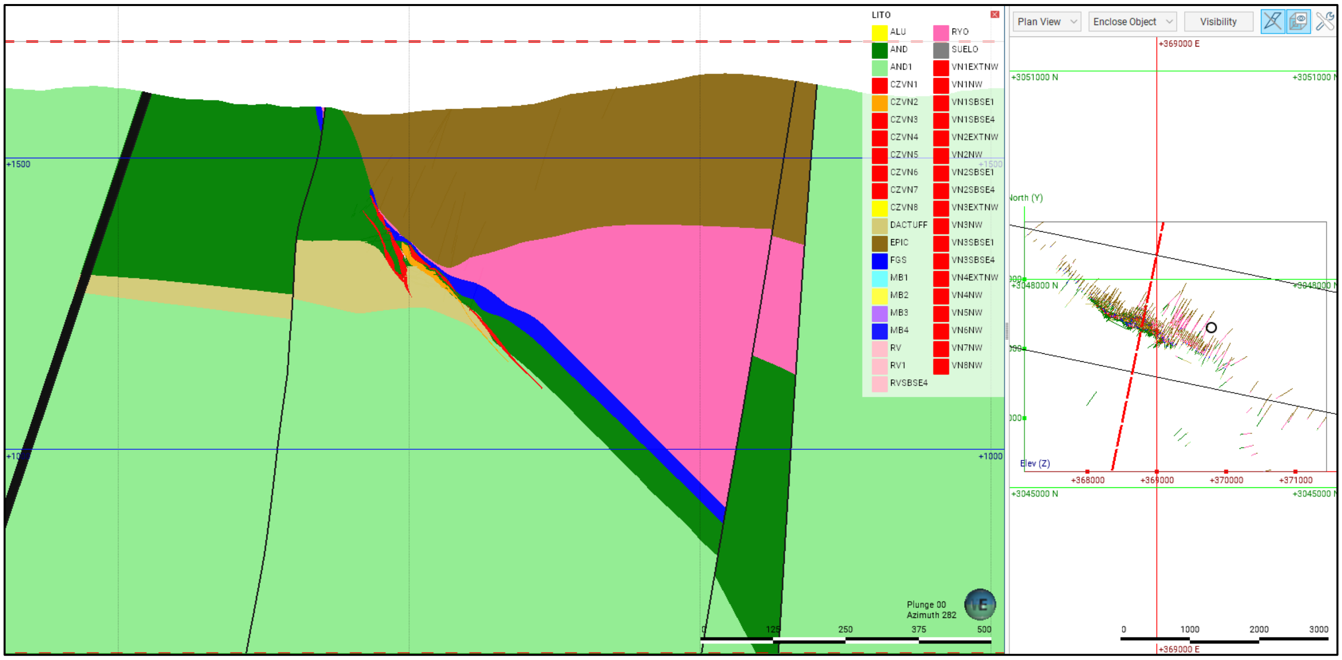


Figure 14.4: Cross-section of the Los Gatos Lithology Model. Looking NE

14.1.7 Exploration Data Analysis

14.1.7.1 Detection Limit

Samples with assays equal to detection limits or zero were adjusted to half of the minimum detection limit. In general, for each element, less than 0.5 % of the samples inside the mineralized veins were adjusted. Samples for the underground database had a different detection limit; all samples with a value of 5.0 ppm silver were adjusted to 2.5 ppm.

14.1.7.2 Sample Length and Assay Compositing

There are a variety of sample lengths in the drill core database, although the most common sample lengths were 1.0 m, 1.5 m, and 2.0 m. Table 14.2 shows a summary of the sample lengths statistics for samples of veins, segmented by database; the surface database shows a majority of 2.0 m samples while the most common sample length in the underground database was 1.5 m. Considering the general width of the veins and that the majority of samples inside the modelled veins are of 1.5 m in length, it was decided that the composite length should be 1.5 m.

Table 14.2: Sample Length Grouped by Database; Only Samples within Modelled Veins

Database	Surface		Underground		Total	
Length (m)	Samples	%	Samples	%	Samples	%
1.0	396	9.5	1055	9.4	1451	9.4
1.5	368	8.8	8395	74.8	8763	56.9
2.0	2501	59.8	461	4.1	2962	19.2
Other	919	22.0	1318	11.7	2237	14.5
Total	**4184**	**100.0**	**11229**	**100.0**	**15413**	**100.0**

The drill hole database was composited at 1.5 m. The methodology used breaks in the compositing process when there was a change in the underlying estimation domain, therefore, only samples from the same estimation domain are composited together, while any remaining sample lengths are merged into the last composite.

14.1.7.3 Estimation Domain Definition

Estimation Domains (EDs) have been defined based on the modelled veins with each vein defining an independent estimation domain (from ED 1 to ED 28). Material lying outside veins define a single low-grade domain (ED 30), as shown in Table 14.3.

Table 14.3: Estimation Domain Definition

ED	Vein	ED	Vein	ED	Vein	ED	Vein	ED	Lithology
1	CZVN1	9	RV	17	VN2NW	25	VN5NW	30	AND
2	CZVN2	10	RV1	18	VN2SBSE1	26	VN6NW	30	AND1
3	CZVN3	11	RVSBSE4	19	VN2SBSE4	27	VN7NW	30	DACTUFF
4	CZVN4	12	VN1EXTNW	20	VN3EXTNW	28	VN8NW	30	EPIC
5	CZVN5	13	VN1NW	21	VN3NW			30	FGS
6	CZVN6	14	VN1SBSE1	22	VN3SBSE4			30	RYO
7	CZVN7	15	VN1SBSE4	23	VN4EXTNW			30	Unknown
8	CZVN8	16	VN2EXTNW	24	VN4NW				

Table 14.4, Table 14.5, and Table 14.6 show the composite statistics for Ag, Pb, and Zn for each domain, respectively.

Table 14.4: Composite Statistics for Ag by Estimation Domain

ED	Composites	Min.	Max.	Mean	Median	Q1	Q3	Std. Dev.	CV
Total	44,317	0.005	32,329.00	113.9	10.2	2.5	40.0	620.2	5.4
1	1,984	0.005	25,373.00	421.3	118.5	43.2	343.2	1232.6	2.9
2	2,271	1.400	23,804.93	355.6	87.0	37.9	240.6	1090.4	3.1
3	2,322	2.000	23,362.01	258.7	78.0	31.0	233.0	783.5	3.0
4	96	18.000	9,136.00	471.0	102.5	60.0	184.5	1337.9	2.8
5	174	2.500	3,907.00	241.7	57.7	28.3	181.0	549.0	2.3
6	602	2.500	3,600.00	281.1	91.0	27.7	271.9	520.8	1.9
7	21	5.667	372.00	103.7	69.8	21.6	143.5	103.5	1.0
8	352	2.500	3,733.00	309.1	143.4	46.4	381.2	486.2	1.6
9	2,165	0.010	1,935.00	26.7	14.2	5.7	29.6	77.4	2.9
10	12	0.100	138.00	38.1	42.5	7.6	47.5	36.0	0.9
11	260	0.437	149.00	12.1	8.0	3.9	15.0	14.1	1.2
12	61	1.700	106.90	23.8	18.8	11.2	30.9	19.8	0.8
13	3,434	0.600	32,329.00	457.1	66.0	25.7	258.0	1448.5	3.2
14	262	0.800	384.00	31.4	18.0	9.0	33.0	45.6	1.5
15	186	3.400	303.00	67.6	41.8	19.7	103.6	63.2	0.9
16	21	1.300	73.30	20.7	9.0	4.9	37.1	21.8	1.1
17	114	2.500	393.89	39.9	23.2	9.0	48.6	55.4	1.4
18	357	0.250	2,257.82	99.4	37.0	19.5	89.0	205.4	2.1
19	513	0.500	883.00	71.3	35.1	14.4	85.6	109.5	1.5
20	34	3.000	152.00	41.2	31.3	7.9	64.5	38.0	0.9
21	56	1.100	630.00	51.2	27.4	9.0	39.7	106.6	2.1
22	359	1.000	993.00	100.1	54.1	19.4	127.8	133.3	1.3
23	21	4.400	281.00	30.1	15.1	12.0	20.4	57.5	1.9
24	42	1.500	81.60	19.4	14.3	7.4	25.0	17.7	0.9
25	44	7.900	4,060.00	196.6	39.6	21.4	141.2	624.6	3.2
26	306	0.613	18,635.04	534.9	79.2	17.7	344.0	1508.6	2.8
27	133	2.500	3,955.16	191.0	64.4	20.0	138.3	504.3	2.6
28	41	2.200	259.33	62.7	29.3	16.7	80.7	66.2	1.1
30	28,074	0.010	4,910.49	16.5	4.0	1.3	12.0	98.7	6.0

Table 14.5: Composite Statistics for Pb by Estimation Domain

ED	Composites	Min.	Max.	Mean	Median	Q1	Q3	St. Desv.	CV
Total	44,317	0.0001	54.60	0.77	0.10	0.04	0.42	2.10	2.73
1	1,984	0.0100	54.60	2.14	1.01	0.33	2.71	3.10	1.45
2	2,271	0.0047	37.36	1.75	0.69	0.23	2.01	2.83	1.62
3	2,322	0.0025	28.69	2.44	1.11	0.37	3.15	3.35	1.37
4	96	0.0001	17.38	1.04	0.34	0.13	0.90	2.69	2.58
5	174	0.0400	13.73	1.07	0.23	0.11	1.09	2.12	1.97
6	602	0.0177	33.00	1.67	0.37	0.15	1.27	3.53	2.12
7	21	0.0631	1.39	0.36	0.25	0.11	0.48	0.33	0.90
8	352	0.0300	44.01	4.63	2.55	0.79	7.00	5.67	1.22
9	2,165	0.0004	3.78	0.14	0.05	0.03	0.13	0.29	2.05
10	12	0.0040	0.07	0.03	0.03	0.01	0.05	0.02	0.63
11	260	0.0360	1.99	0.33	0.29	0.18	0.42	0.22	0.68
12	61	0.0233	5.55	0.82	0.47	0.12	1.05	1.00	1.23
13	3,434	0.0100	31.14	2.61	1.24	0.42	3.30	3.59	1.37
14	262	0.0050	6.90	0.58	0.20	0.11	0.46	0.99	1.72
15	186	0.0034	12.53	1.72	0.96	0.41	2.42	2.00	1.16
16	21	0.0437	9.47	1.15	0.24	0.08	0.73	2.36	2.06
17	114	0.0402	23.61	1.45	0.70	0.23	1.50	2.73	1.89
18	357	0.0157	18.75	1.93	0.89	0.25	2.08	2.91	1.51
19	513	0.0023	20.00	1.77	0.75	0.22	2.11	2.74	1.55
20	34	0.0569	6.80	1.39	0.77	0.26	2.09	1.54	1.11
21	56	0.0261	8.26	1.33	0.66	0.32	1.67	1.70	1.28
22	359	0.0130	24.73	2.39	1.00	0.40	2.59	3.59	1.50
23	21	0.0263	11.90	0.88	0.21	0.14	0.34	2.50	2.84
24	42	0.0962	3.43	0.90	0.65	0.28	1.31	0.80	0.89
25	44	0.0723	9.03	1.13	0.73	0.20	1.46	1.50	1.33
26	306	0.0107	10.45	1.23	0.66	0.23	1.54	1.60	1.30
27	133	0.0050	11.19	0.77	0.21	0.07	0.77	1.64	2.13
28	41	0.0928	11.45	2.05	0.87	0.59	2.33	2.67	1.31
30	28,074	0.0002	25.48	0.14	0.06	0.02	0.13	0.54	3.80

Table 14.6: Composite Statistics for Zn by Estimation Domain

ED	Composites	Min.	Max.	Mean	Median	Q1	Q3	St. Desv.	CV
Total	44,317	0.0001	36.85	1.56	0.28	0.08	1.03	3.46	2.22
1	1,984	0.0167	30.00	4.44	2.74	0.84	6.31	4.85	1.09
2	2,271	0.0063	36.85	4.00	2.06	0.54	5.83	4.84	1.21
3	2,322	0.0117	30.65	4.42	2.64	1.02	6.09	4.80	1.09
4	96	0.0116	11.58	1.30	0.50	0.28	1.21	2.00	1.54
5	174	0.0300	13.31	1.35	0.48	0.20	1.38	2.17	1.61
6	602	0.0130	25.89	3.03	1.00	0.41	3.29	4.78	1.58
7	21	0.0618	0.72	0.25	0.18	0.13	0.32	0.17	0.68
8	352	0.0400	31.24	7.49	5.00	1.98	10.83	7.05	0.94
9	2,165	0.0001	18.47	0.28	0.10	0.04	0.25	0.74	2.62
10	12	0.0049	0.19	0.03	0.01	0.01	0.03	0.05	1.73
11	260	0.0069	2.48	0.39	0.30	0.11	0.54	0.37	0.95
12	61	0.0374	11.93	2.05	0.98	0.25	3.16	2.42	1.18
13	3,434	0.0001	35.44	5.44	3.02	1.06	7.81	6.00	1.10
14	262	0.0200	17.67	1.09	0.51	0.26	0.95	2.08	1.91
15	186	0.0054	15.37	2.62	1.52	0.68	3.61	2.84	1.08
16	21	0.1006	6.27	1.23	0.62	0.28	1.25	1.57	1.28
17	114	0.1500	16.90	3.20	2.11	0.78	4.48	3.31	1.03
18	357	0.0133	24.92	3.72	1.73	0.57	4.66	4.84	1.30
19	513	0.0087	26.30	2.85	1.49	0.41	3.63	3.68	1.29
20	34	0.1000	15.45	2.49	1.41	0.47	3.83	3.17	1.27
21	56	0.4490	17.80	3.28	2.37	1.16	3.90	3.45	1.05
22	359	0.0145	25.33	3.13	1.78	0.44	4.75	3.68	1.18
23	21	0.0738	9.66	1.01	0.44	0.23	0.79	2.00	1.97
24	42	0.3200	11.50	2.95	1.86	1.22	3.88	2.60	0.88
25	44	0.0826	15.25	2.48	1.46	0.68	3.33	2.90	1.17
26	306	0.0028	18.00	2.68	1.81	0.74	3.57	2.85	1.06
27	133	0.0100	20.07	1.09	0.30	0.12	0.79	2.95	2.71
28	41	0.2900	19.88	5.41	3.85	1.35	7.36	4.99	0.92
30	28,074	0.0002	29.93	0.35	0.15	0.04	0.37	0.91	2.63

In terms of the economic value of each vein, the most important veins are from the central zone (from ED 1 to ED 8), vein VN1NW (ED 13), vein VN6NW (ED 26), and VN7NW (ED 27).

14.1.7.4 Contact Analysis

To determine the type of contact (soft or hard) between different EDs, a contact analysis was conducted. Contact analysis is a mathematical method to define the grade behavior among composites from different EDs as they approach a contact. The type of contact is important during the process of grade estimation.

In general, the results show abrupt changes in the grade at the contact between the modelled veins (green) and the low-grade domain (ED 30, blue), therefore, it was decided to use hard contacts between all EDs and variables to avoid sharing composites between veins. Figure 14.5 shows the contact analyses for ED 1 vs ED 30 for Ag and Zn respectively.

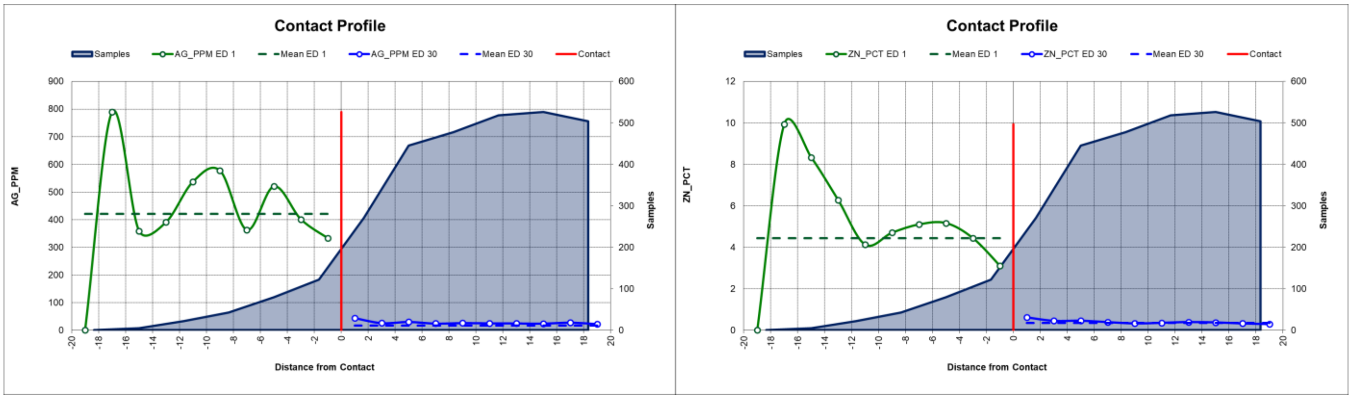


Figure 14.5: Contact Analysis between ED 1 and ED 30 for Ag (left) and Zn (right).

14.1.7.5 Evaluation of Outlier Grades, Cut-offs, and Grade Capping

Definition and control of outliers is a common industry practice that is necessary and useful to prevent potential overestimation of volumes and grades. Values defined as outliers have been controlled in the estimation using high yield restrictions (HYR) within a three-block distance (15.0 m x 15.0 m x 15.0 m). HYR consists of using the composite with its real value, but within a restricted radius that is smaller than the estimation's search.

Outliers were defined according to probability distribution curves, depending on population, or continuity breaks, reconciliation with the short-term block model (channel samples) and the production information from the plant. Table 14.7 shows the selected values and the number of composites affected by ED.

The values and methodology selected produced a lower metal estimate of 4.1% for Ag, 1.8% for Pb and 2.5% for Zn, when compared to an alternative model where outlier restriction was not used.

Table 14.7: Outliers Treatment by ED and Variable

ED	Ag (ppm)		Pb (%)		Zn (%)	
	Value	Restricted Samples	Value	Restricted Samples	Value	Restricted Samples
1	6,000	16	20	4		
2	6,000	17	20	6	22	12
3	6,000	4	20	9	22	17
4						
5						
6			20	2		
7						
8			30	2		
9	400	8	2	13	3	16
10						
11			1.5	1		
12						
13	7,000	32	25	8		
14						
15						
16						
17						
18	1500	1				
19					20	2
20						
21						
22			20	2		
23						
24						
25						
26	7,000	3				
27						
28						
30	100	488	1	386	1	1709

14.1.7.6 Variography

Down-the-Hole (DTH), directional (3D), and omnidirectional variograms were calculated and modelled to define the spatial continuity for each variable. Variograms were calculated for each variable using the 1.5 m composite database. The variography was completed using the following procedure:

- Derivation of nugget effect from DTH variograms
- Adjustment of variogram models to the main continuity directions

Due to some EDs possessing a lower number of composites, it was not possible to model a robust variogram for the majority of the ED. For this reason, a global correlogram was used for all estimation domains. The main directions to calculate the experimental correlogram were selected from the main veins. The calculated nugget effect varies between 10% to 20% of the total sill, which is considered appropriate for the variability of these types of deposits. The total ranges are around 120 m to 200 m in the main direction, which is considered adequate. Table 14.8 provides a summary of variograms modelled for each variable, and Figure 14.6 illustrates the modeled variogram for Ag.

Table 14.8: Variogram Model Parameters for Ag, Pb, and Zn

Variable	Nugget	Sill 1	Major 1	Semi 1	Minor 1	Sill 2	Major 2	Semi 2	Minor 2
AG	0.2	0.6	10	10	5	0.2	120	120	20
PB	0.2	0.6	10	10	5	0.2	150	150	25
ZN	0.1	0.6	10	10	5	0.3	150	150	25

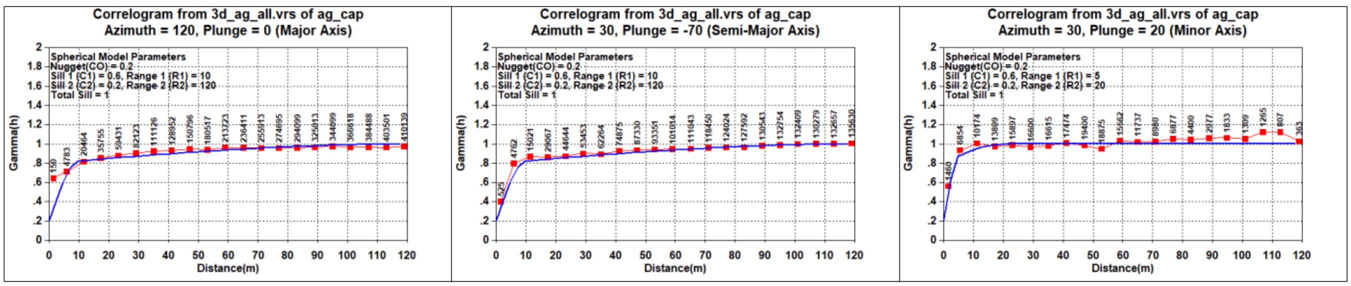


Figure 14.6: Experimental and Modelled Variograms for Ag.

14.1.8 Block Model Parameters, Specific Gravity, and Grade Estimation

14.1.8.1 Block Model Parameters and Domaining

Table 14.9 shows the definition for the block model built in Vulcan®, using the local coordinate system.

Table 14.9: Block Model Dimensions

Orientation	East	North	Elevation
Origin	367,300	3,047,900	600
Rotation (°)	120	-	-
Parent Block Size (m)	5.0	5.0	5.0
Sub-Block Size (m)	1.25	1.25	1.25
No. of Blocks	620	150	210
Range (m)	3,100	750	1,050

14.1.8.2 Interpolation and Extrapolation Parameters

The estimation of Ag, Pb, and Zn grades for CLG has been conducted using OK with four nested passes for each ED. The objective of the fourth pass was to assign values to un-estimated blocks. The material estimated with the fourth pass is located in the borders of the model and were classified as Inferred representing approximately 8% of the M+I+I material.

Local varying anisotropy methodology was used to handle the geological variability of the dip and azimuth of each vein. This method defines a local orientation for the search ellipsoid for each block. The result is that all the veins have an independent set of variables for azimuth, dip and plunge, as shown in Figure 14.7. Material lying outside the veins was estimated using a fixed value depending on the fault block (see Table 14.10).

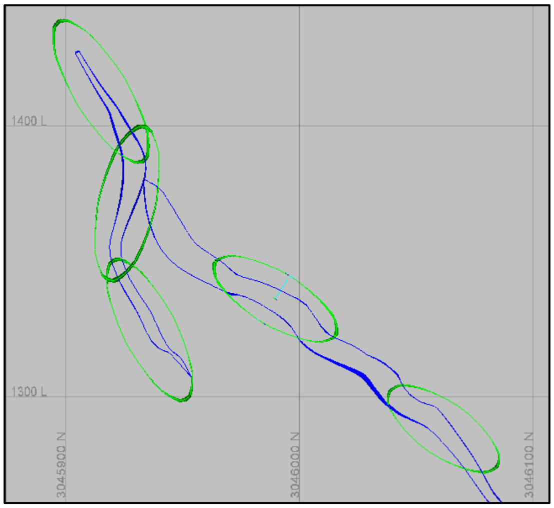


Figure 14.7: Example of Local Varying Anisotropy for Two Different Veins in the CLG Model

Table 14.10: Block Model Dimensions

Fault Block	Azimuth	Dip	Plunge
1	120	0	0
2	120	40	0
4	120	0	0
6	120	70	0
7	120	40	0
8	120	40	0
9	120	40	0
10	120	0	0
11	120	60	0
12	120	20	0
13	120	80	0
14	120	0	0
15	120	0	0

The purpose of the estimation strategy is to achieve a balanced estimation of volumes and mean grades per pass and to represent each ED by avoiding any potential grade extrapolation and/or overestimation. The sample search and selection strategy are important decisions in the estimation process, as this has a direct impact on the quality and smoothing of grades for the estimation. This ensures that smoothing takes place in reasonable ranges. For the CLG deposit a set of main schemes defining different search radii, sample selection strategies, octant usage and outlier control were implemented and analyzed to apply an appropriate estimate plan.

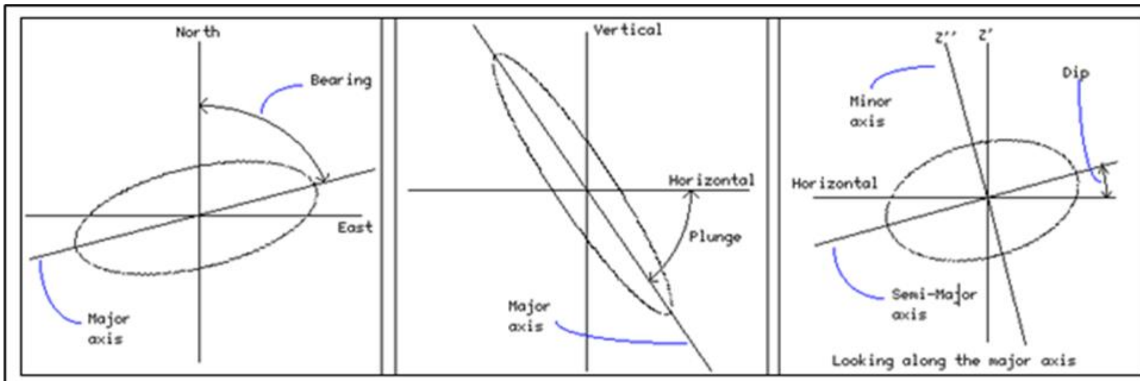
The OK plan included the following criteria and restrictions:

- 4 x 4 x 3 discretization.
- For outlier control, restriction of high grades was achieved using high yield restriction for all passes (see Section 11.1.7.5).
- Hard contacts have been implemented in all estimation passes and between all EDs.

Search radii were defined based on data distribution in the model as well as the variogram model. Table 14.11 summarizes the radii of searches implemented and the scheme of samples selection, for all variables according to Vulcan® convention (see Figure 14.8).

Table 14.11: Sample Selection and Radii of the Search Ellipsoid

Pass	Search Radii			Samples			
	Major	Semi	Minor	Min	Max	Max per DH	Max per Oct.
1	40.0	20.0	10.0	7	12	3	5
2	90.0	45.0	22.5	6	12	3	5
3	190.0	95.0	47.5	8	20	3	3
4	380.0	380.0	380.0	6	20	-	-



Bearing, plunge, and dip are the values ((Θ1, Θ2, Θ3, respectively) and angles are measured in degrees. Initially, the X axis is heading north; the Y axis is heading east and the Z axis is heading up. Bearing is measured clockwise from the north towards the bearing line (rotation around the Z axis). Plunge is measured counter-clockwise around the Y' axis and dip is measured counter-clockwise around the X' axis. The major axis is the X' axis radius, the semi-major axis is the Y' axis and the minor axis is the Z' axis (X',Y' and Z' are the axes modified by rotation).

Figure 14.8: Angle and Axis Convention in Vulcan

For the selected samples selection scheme, a detailed analysis was performed for the block model pass and the number of samples and the drill holes used for estimation. The objective of this analysis was to evaluate the implementation of the OK estimation plan and, specifically, determine how the estimation plan accounted for the number of samples and number of drill holes in each estimation pass. This analysis also allowed the evaluation of the spatial coverage of every block by determining whether the estimation was performed by an interpolation or extrapolation process.

Figure 14.9 provides a summary of estimated block percentage (bars), mean grade (circle, upper graph), and mean distance (circle, lower graph) per estimation pass for each ED for silver. Figure 14.10 and Figure 14.11 show the number of samples and drill holes by estimation pass for silver for ED 1 and 13, respectively. The following observations can be made from the figures:

- The first pass is a local track, evidenced in the representation in terms of estimated volume, with a mean estimated distance of approximately 20-30 m. The second pass estimated a mean distance closer to 60 m.
- The majority of veins were estimated in the first two passes.
- In general, it is observed that all EDs included an adequate number of samples and drill holes for grade interpolation. For both examples, more than three drill holes were used in the first estimation pass and only in the third and fourth passes was the kriging plan allowed to estimate with two drill holes. This sample selection strategy ensures adequate grade interpolation with correct three-dimensional spatial coverage.

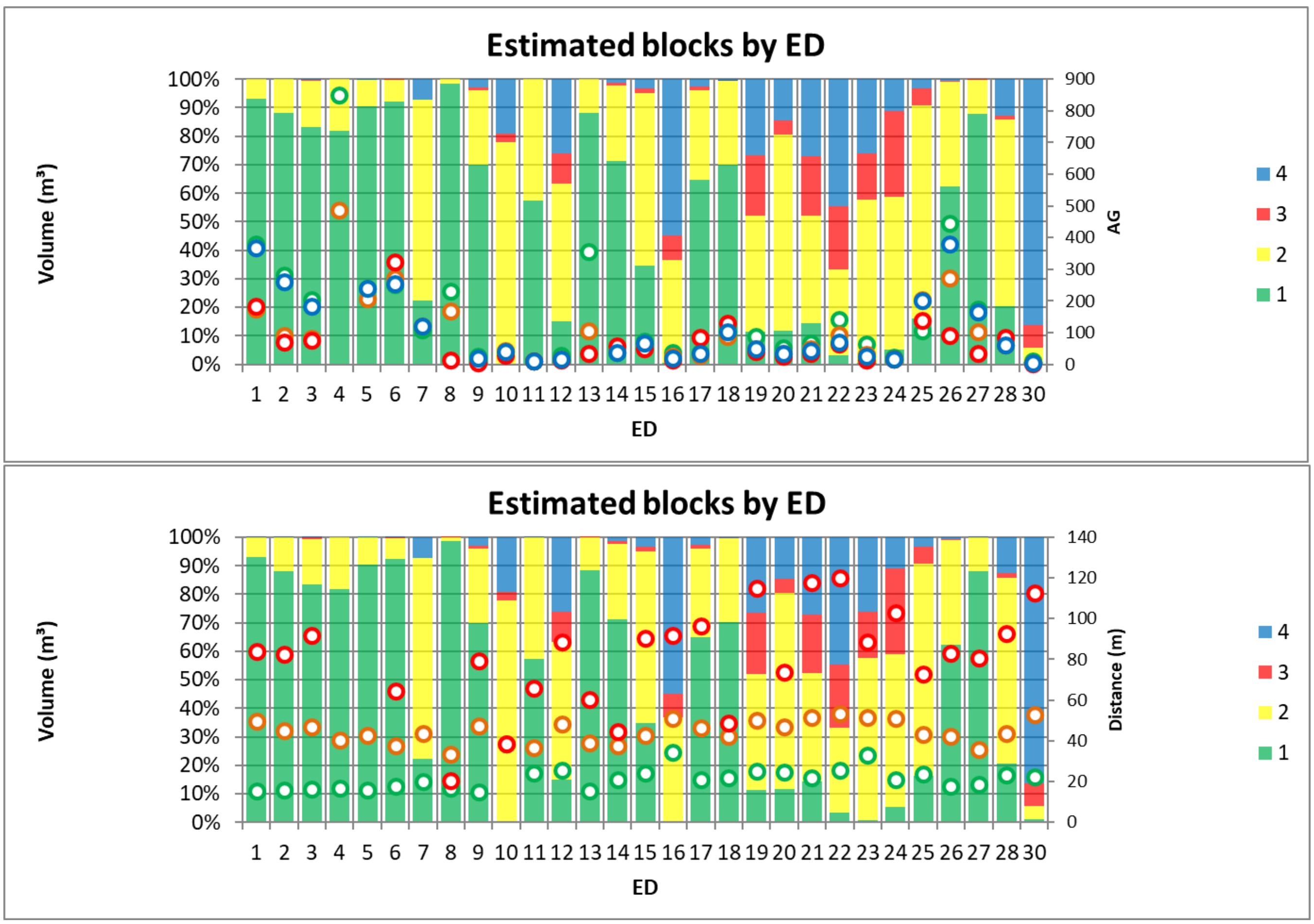


Figure 14.9: Percentage of Estimated Blocks and Mean Grades (upper) and Mean Distance (lower) per Pass by ED for Ag

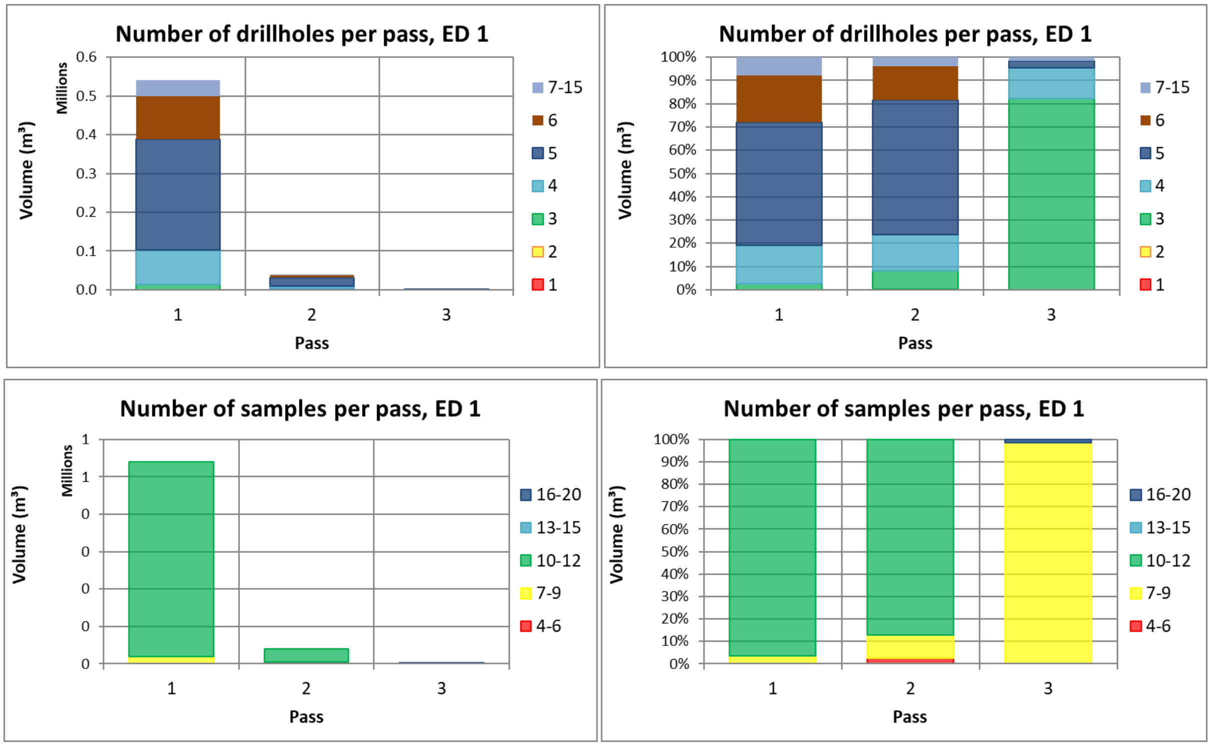


Figure 14.10: Number of Samples and Drill Holes per Estimation Pass for Ag ED 1

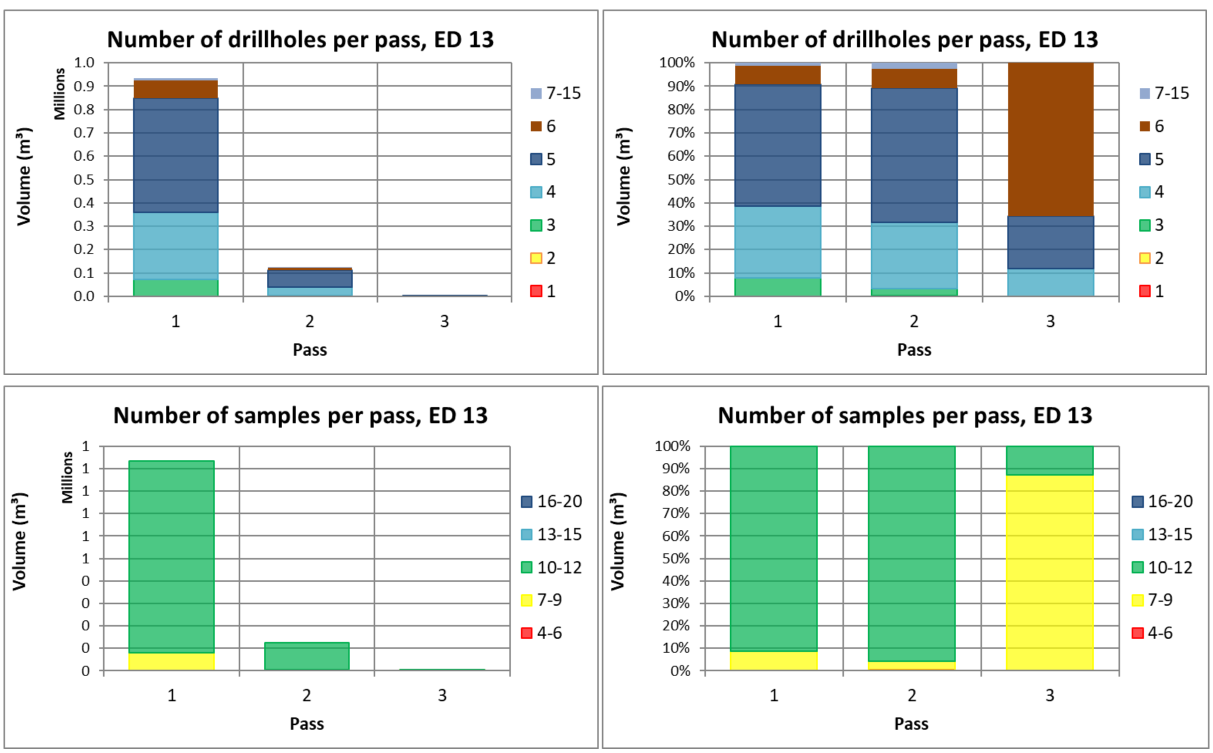


Figure 14.11: Number of Samples and Drill Holes per Estimation Pass for Ag ED 13

14.1.8.3 Specific Gravity

Specific gravity was estimated using a similar approach to that of metal grade estimation. Four kriging passes were defined for each ED with a hard contact between all EDs. The results show a wide variation in specific gravity between veins, whereas other alternatives, like a regression model (previously used), show smoothed results with low variability between veins.

In the QP's opinion, the estimation of specific gravity with OK is an improvement to assess the local variability of specific gravity between veins.

14.1.9 Model Validation

In order to validate the Los Gatos Resource estimation, a validation of the block model was carried out to assess the performance of the OK technique and the conformity of input values. The validation was carried out on estimated blocks up to the third pass, considering composites used in the estimates.

14.1.9.1 Global Statistics

A statistical validation between declustered composite grades and estimated blocks was completed. Global statistics of mean grades for composites can be influenced by several factors, such as sample density, grouping, and, to a greater extent, the presence of high grades that have been restricted in the estimation plan. Consequently, global statistics of declustered composites were calculated using the nearest-neighbor (NN) method with search ranges as used in the OK estimation technique. A summary of this comparison is shown in Table 14.12, Table 14.13, and Table 14.14 for Ag, Pb, and Zn, respectively, where negative values indicate a negative difference between block mean grades in relation to composite mean grades, and vice-versa. In general, differences under 10% are satisfactory, and differences above 10% require attention. The result of the estimate shows that relative differences for the main ED were found to be within acceptable limits. Only EDs with few samples and poor geological continuity showed results above the expected threshold.

Table 14.12: Statistics Comparison for Ag by ED, Pass 2

ED	Number of data		Minimum		Maximum		Mean			Std. Dev.	
	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN	%Diff	Blocks	NN
1	33,861	33,861	6.04	2.50	10,802.9	19,853.0	367.1	391.4	**-6.2%**	486.2	955.1
2	44,745	44,745	9.65	2.50	7,715.6	13,072.7	258.2	257.9	**0.1%**	339.3	641.7
3	48,337	48,337	1.01	2.04	7,715.3	18,680.2	185.3	182.4	**1.6%**	250.9	410.7
4	1,771	1,771	36.40	19.32	3,014.0	7,783.9	785.1	796.0	**-1.4%**	595.7	1522.4
5	3,429	3,429	7.57	3.49	2,170.0	3,541.7	237.2	246.8	**-3.9%**	226.7	438.8
6	13,491	13,491	1.79	2.66	2,295.3	3,263.8	254.0	240.9	**5.4%**	226.1	374.9
7	2,366	2,366	37.30	9.15	266.4	361.6	118.6	127.9	**-7.3%**	24.4	88.0
8	5,025	5,025	11.61	5.73	1,696.1	2,799.7	229.8	221.4	**3.8%**	174.6	278.2
9	44,199	44,199	1.85	0.46	1,162.3	1,935.0	19.5	19.4	**0.4%**	24.3	42.9
10	810	810	7.32	0.10	105.8	137.7	42.4	28.8	**47.3%**	14.6	23.5
11	15,908	15,908	1.37	0.56	54.5	111.0	11.4	11.5	**-0.6%**	5.4	10.8
12	11,811	11,811	5.55	3.22	65.0	94.2	20.1	19.1	**5.5%**	9.0	14.6
13	43,954	43,954	2.34	1.10	13,226.4	24,534.8	325.7	347.4	**-6.3%**	582.5	1062.7
14	13,163	13,163	4.54	1.53	179.6	307.5	37.9	37.1	**2.2%**	22.3	43.6
15	26,283	26,283	6.38	3.50	193.9	265.9	68.1	66.2	**2.7%**	26.1	53.8
16	11,204	11,204	5.15	1.52	55.4	70.8	24.6	23.7	**3.6%**	10.8	22.3
17	6,965	6,965	3.10	2.50	267.9	357.3	33.2	30.5	**8.9%**	23.1	40.0
18	20,597	20,597	2.94	0.68	1,112.0	1,885.4	102.7	95.1	**7.9%**	83.3	144.0
19	78,440	78,440	3.47	0.53	429.1	771.0	58.7	57.9	**1.4%**	52.9	92.9
20	8,358	8,358	5.67	3.28	110.0	131.6	37.3	39.0	**-4.5%**	16.4	33.0
21	8,969	8,969	5.14	1.15	441.1	627.4	53.5	34.4	**55.5%**	52.1	79.7
22	68,788	68,788	5.43	2.40	580.0	871.0	97.6	92.8	**5.1%**	66.6	103.7
23	8,868	8,868	6.68	4.43	160.1	190.1	32.2	25.2	**27.7%**	19.0	35.9
24	6,362	6,362	3.83	1.66	60.9	75.0	17.2	13.7	**25.4%**	8.1	12.8
25	3,378	3,378	17.07	10.27	2,282.3	2,897.0	187.6	258.5	**-27.4%**	226.2	532.3
26	7,656	7,656	7.87	2.50	7,719.8	13,429.2	381.2	357.5	**6.6%**	444.7	738.1
27	3,391	3,391	10.39	2.50	2,782.5	3,556.1	166.4	164.8	**1.0%**	241.2	353.5
28	4,704	4,704	17.68	8.29	170.0	217.3	60.8	62.3	**-2.4%**	17.6	48.0
30	1,716,738	1,716,726	0.10	0.10	2,649.2	4,133.4	5.6	5.5	**2.2%**	8.2	22.7

Table 14.13: Statistics Comparison for Pb by ED, Pass 2

ED	Number of data		Minimum		Maximum		Mean			Std. Dev.	
	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN	%Diff	Blocks	NN
1	33,862	33,862	0.04	0.01	30.68	46.29	2.34	2.28	**2.6%**	1.45	2.53
2	44,747	44,747	0.04	0.01	21.95	32.05	1.69	1.72	**-1.3%**	1.24	2.14
3	48,339	48,339	0.07	0.00	14.51	22.72	2.25	2.30	**-2.3%**	1.43	2.58
4	1,771	1,771	0.12	0.00	5.90	16.10	1.61	1.71	**-6.1%**	1.13	3.03
5	3,429	3,429	0.05	0.04	8.65	11.88	1.05	1.13	**-7.7%**	0.88	1.83
6	13,490	13,490	0.07	0.02	17.25	24.42	1.55	1.62	**-4.3%**	1.98	2.94
7	2,366	2,366	0.12	0.07	0.89	1.27	0.29	0.22	**29.5%**	0.11	0.19
8	5,022	5,022	0.07	0.04	23.80	33.41	4.22	4.14	**2.0%**	2.12	3.61
9	44,196	44,196	0.01	0.00	2.21	3.15	0.11	0.11	**-2.4%**	0.12	0.22
10	810	810	0.01	0.00	0.05	0.06	0.03	0.03	**8.2%**	0.01	0.02
11	15,908	15,908	0.09	0.04	0.90	1.51	0.33	0.32	**1.9%**	0.10	0.19
12	11,811	11,811	0.07	0.03	3.33	4.02	0.69	0.67	**3.2%**	0.49	0.76
13	43,954	43,954	0.04	0.02	14.24	20.63	2.47	2.51	**-1.7%**	1.61	2.81
14	13,163	13,163	0.06	0.01	3.46	5.78	0.65	0.76	**-14.2%**	0.58	1.11
15	26,283	26,283	0.11	0.00	8.90	12.27	1.74	1.75	**-0.9%**	0.87	1.76
16	11,204	11,204	0.12	0.05	6.43	8.78	1.62	1.55	**4.7%**	0.89	2.73
17	6,965	6,965	0.08	0.04	12.27	20.55	1.54	1.56	**-1.1%**	1.42	2.90
18	20,597	20,597	0.09	0.02	12.21	15.16	2.03	1.93	**5.3%**	1.42	2.22
19	78,440	78,440	0.02	0.00	14.33	17.12	1.33	1.28	**3.7%**	1.26	1.81
20	8,358	8,358	0.25	0.08	3.75	5.34	1.35	1.51	**-10.5%**	0.66	1.40
21	8,969	8,969	0.18	0.03	4.30	7.46	1.19	0.96	**24.9%**	0.51	1.08
22	68,787	68,787	0.13	0.04	16.19	21.84	2.11	2.12	**0.0%**	1.45	2.44
23	8,868	8,868	0.13	0.03	6.47	7.89	0.85	0.60	**41.5%**	0.75	1.57
24	6,362	6,362	0.17	0.10	2.07	2.48	0.76	0.67	**13.3%**	0.37	0.53
25	3,378	3,378	0.11	0.08	4.32	6.13	1.22	1.45	**-15.4%**	0.68	1.39
26	7,656	7,656	0.05	0.01	7.34	9.30	0.99	0.99	**-0.2%**	0.60	0.99
27	3,391	3,391	0.03	0.01	5.17	10.13	0.64	0.70	**-8.0%**	0.87	1.47
28	4,704	4,704	0.44	0.12	9.11	11.09	1.67	1.82	**-8.3%**	0.80	1.49
30	1,716,811	1,716,808	0.00	0.00	10.63	21.89	0.08	0.07	**6.2%**	0.08	0.15

Table 14.14: Statistics Comparison for Zn by ED, Pass 2

ED	Number of data		Minimum		Maximum		Mean			Std. Dev.	
	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN	%Diff	Blocks	NN
1	33,862	33,862	0.03	0.02	22.28	28.08	5.02	4.89	**2.8%**	3.16	4.64
2	44,746	44,746	0.05	0.01	19.69	35.28	3.97	4.02	**-1.4%**	2.84	4.05
3	48,331	48,331	0.03	0.01	19.41	25.50	4.37	4.50	**-3.0%**	2.34	4.06
4	1,771	1,771	0.20	0.17	6.89	10.45	1.73	2.01	**-14.0%**	1.07	2.28
5	3,429	3,429	0.07	0.04	10.18	13.20	1.36	1.35	**0.9%**	1.05	1.84
6	13,487	13,487	0.11	0.01	20.48	24.77	3.22	3.11	**3.7%**	3.71	4.49
7	2,366	2,366	0.10	0.06	0.59	0.71	0.30	0.33	**-8.0%**	0.08	0.18
8	5,026	5,026	0.52	0.08	23.56	29.44	7.26	7.11	**2.1%**	3.12	5.85
9	44,193	44,193	0.01	0.00	12.02	16.36	0.21	0.23	**-7.6%**	0.31	0.73
10	810	810	0.01	0.00	0.15	0.19	0.03	0.01	**129.0%**	0.02	0.02
11	15,908	15,908	0.04	0.01	1.88	2.20	0.42	0.41	**4.1%**	0.20	0.38
12	11,811	11,811	0.19	0.08	7.95	11.26	1.80	1.80	**0.1%**	1.12	1.89
13	43,953	43,953	0.08	0.04	23.69	28.32	5.44	5.62	**-3.2%**	3.47	5.52
14	13,163	13,163	0.06	0.02	12.56	15.67	1.07	1.19	**-9.6%**	0.92	2.05
15	26,283	26,283	0.14	0.01	10.79	15.04	2.51	2.57	**-2.2%**	1.50	2.50
16	11,204	11,204	0.25	0.10	4.44	5.36	1.40	1.37	**2.2%**	0.69	1.47
17	6,965	6,965	0.33	0.17	13.29	16.76	3.37	2.97	**13.5%**	1.57	2.49
18	20,597	20,597	0.14	0.02	18.27	23.12	3.92	3.80	**3.1%**	2.51	4.07
19	78,440	78,440	0.04	0.02	16.17	25.15	2.26	2.28	**-0.8%**	1.83	2.73
20	8,358	8,358	0.49	0.10	12.19	15.44	2.75	2.78	**-1.0%**	1.66	3.15
21	8,969	8,969	0.86	0.48	9.78	17.28	2.84	2.52	**13.1%**	1.26	2.19
22	68,788	68,788	0.11	0.02	11.73	18.00	3.05	3.10	**-1.6%**	1.61	2.90
23	8,868	8,868	0.19	0.08	6.09	6.64	0.96	0.78	**22.9%**	0.64	1.30
24	6,362	6,362	0.59	0.33	8.33	10.26	2.60	2.24	**16.2%**	1.27	1.79
25	3,378	3,378	0.22	0.09	10.99	12.26	2.78	3.43	**-18.9%**	1.29	2.74
26	7,656	7,656	0.06	0.02	12.93	15.16	2.08	2.01	**3.4%**	1.27	1.77
27	3,391	3,391	0.04	0.01	10.49	19.55	1.10	1.14	**-3.6%**	1.91	2.99
28	4,704	4,704	0.92	0.35	16.09	18.96	5.00	5.36	**-6.7%**	2.25	4.27
30	1,714,119	1,714,111	0.00	0.00	18.20	24.80	0.16	0.15	**2.0%**	0.14	0.26

14.1.9.2 *Swath Plots*

In order to evaluate how robust block grades are in relation to data, a semi-local comparison using swath plots was completed. Generating swath plots entails averaging blocks and samples separately in regular 30 m (east) x 30 m (north) x 20 m (elevation) panels and then comparing the mean grade in each sample and block panel through each axis. Figure 14.12 to Figure 14.14 provide a summary of swath plots for each variable for ED 1 and ED 13. The validation was conducted considering the block estimation up to the third pass. In general, results indicate that grade estimates for the deposit reasonably follow trends found at the local and global scale without observing an excessive degree of smoothing.

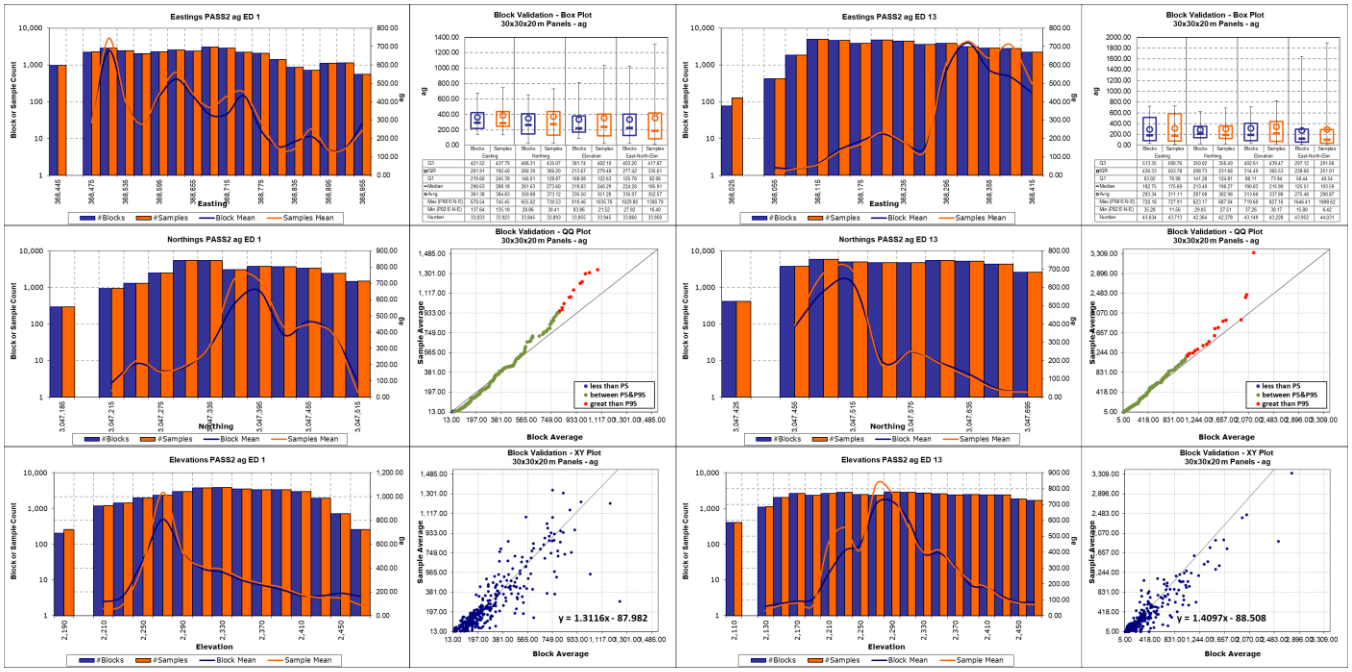


Figure 14.12: Swath Plots for Ag for ED 1 and ED 13

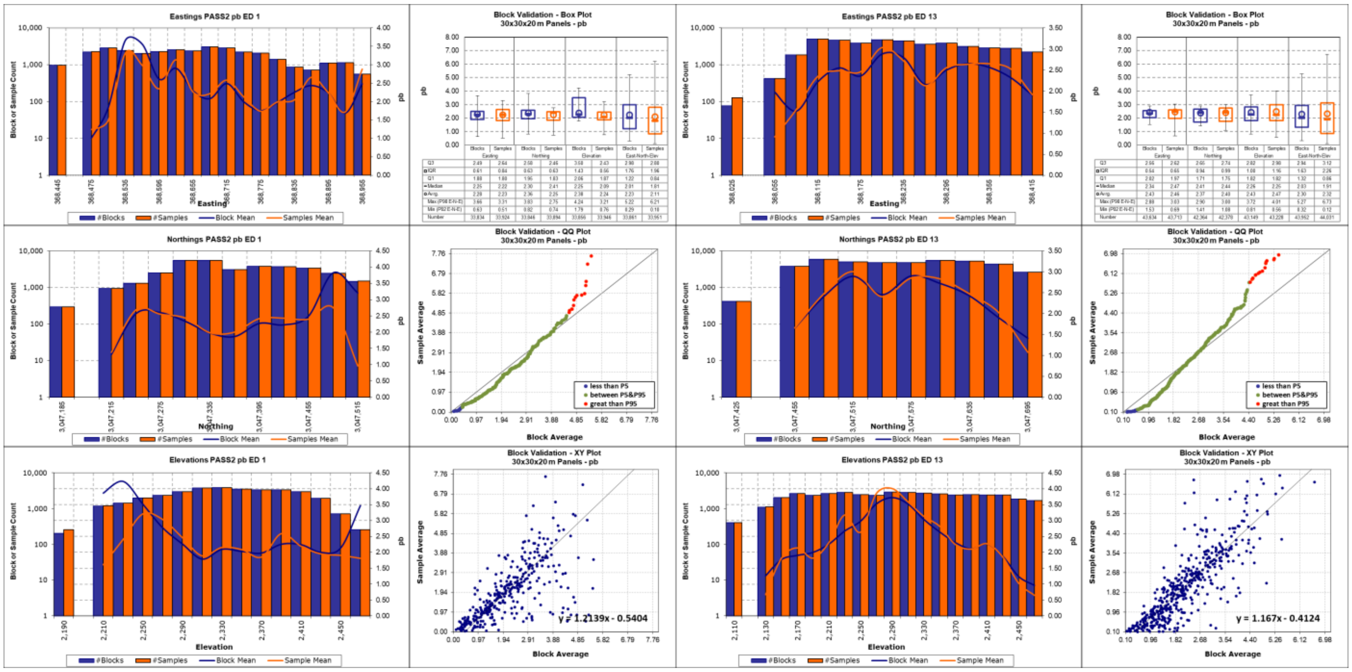


Figure 14.13: Swath Plots for Pb for ED 1 and ED 13

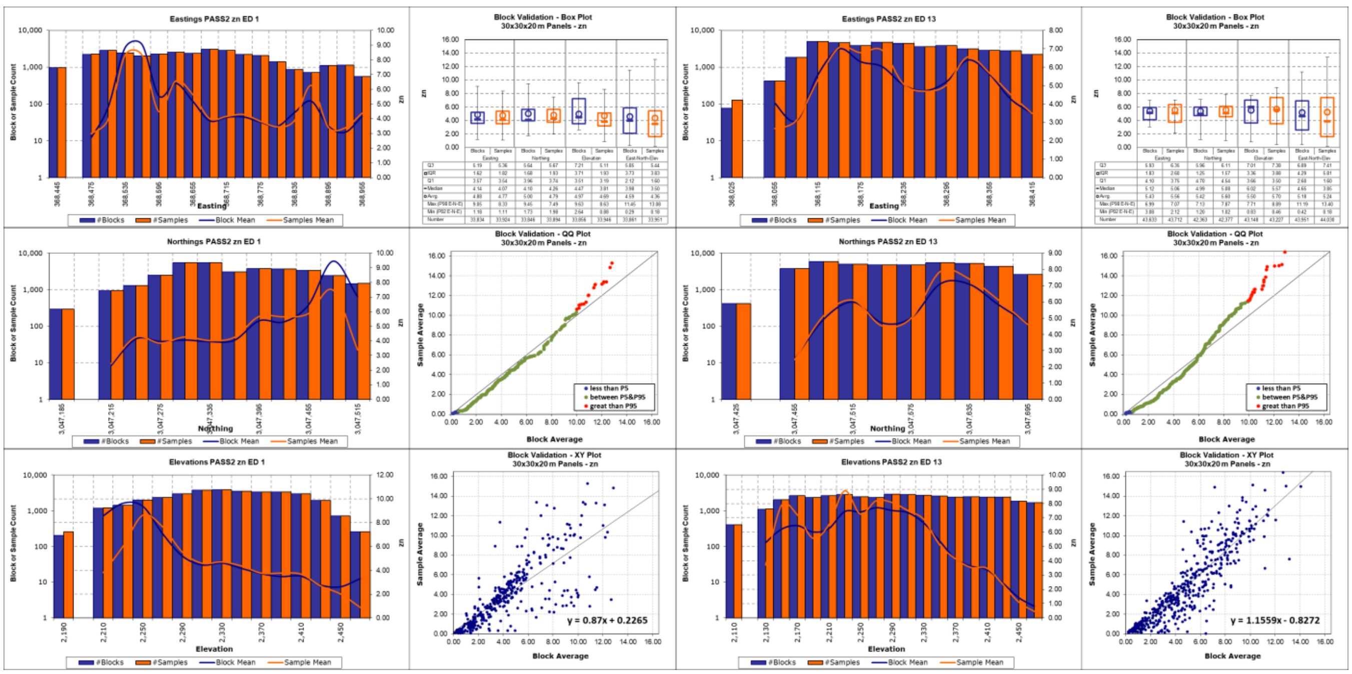


Figure 14.14: Swath Plots for Zn for ED 1 and ED 13

14.1.9.3 Visual Validation

To visually validate the estimation, the QP completed a review of a set of cross sectional and plan views. The validation shows a suitable representation of samples in blocks. Locally, the blocks match the estimation composites both in cross section and plan. In general, there is an adequate match between composite data and block model data for Ag, Pb and Zn grades. High grade areas are suitably represented, and high-grade samples exhibit suitable control, which validates the treatment of outliers used. Smoothing increases in boundary and deep areas of the deposit, due to the reduction in the number of available composites.

Figure 14.15, Figure 14.16, and Figure 14.17 present a series of vertical sections from the estimate model and the composites for each variable.

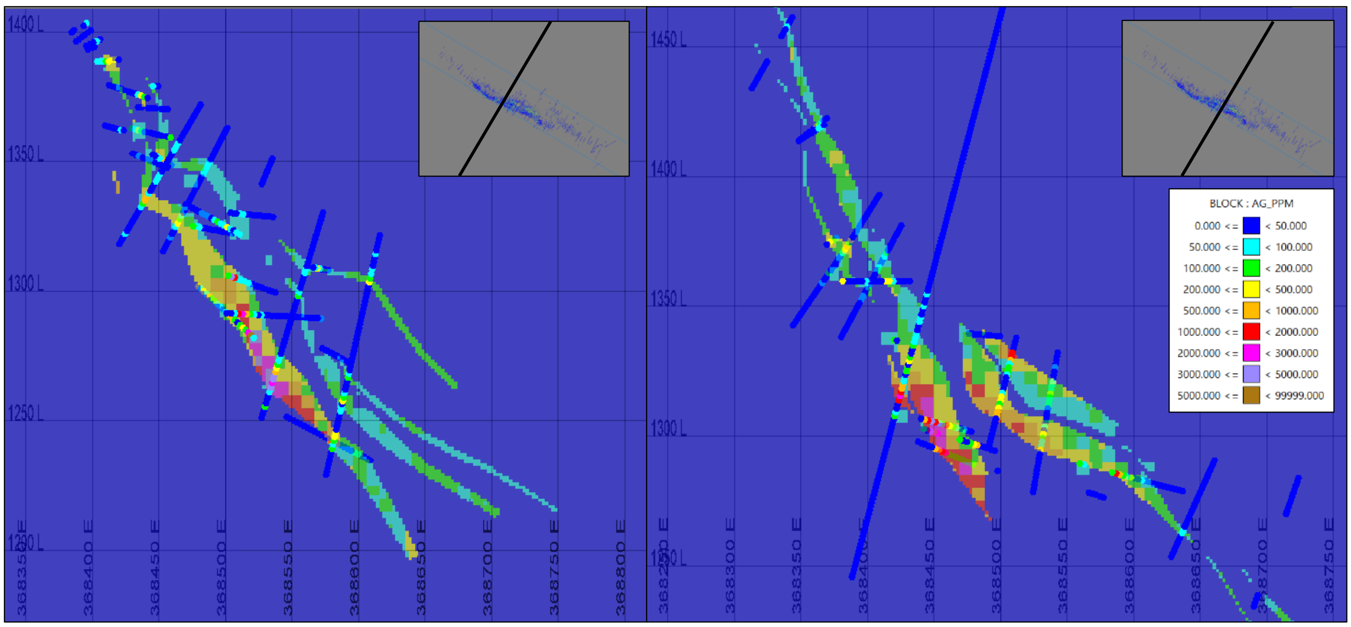


Figure 14.15: Visual Validation of Ag Estimation

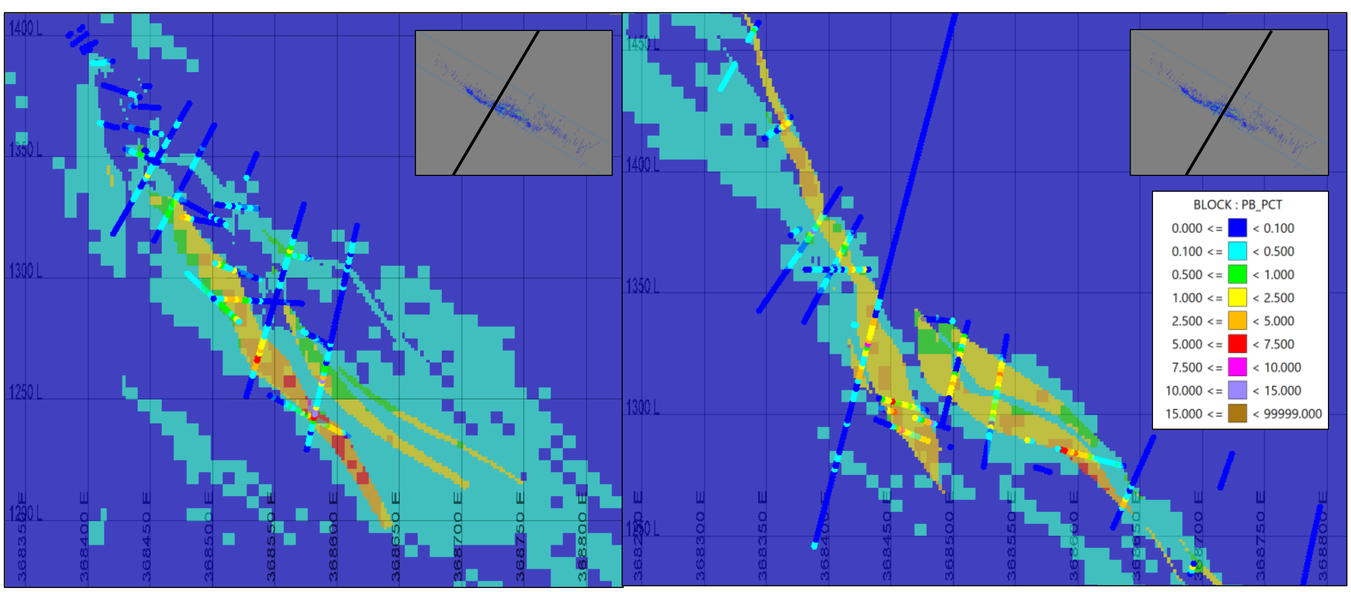


Figure 14.16: Visual Validation of Pb Estimation

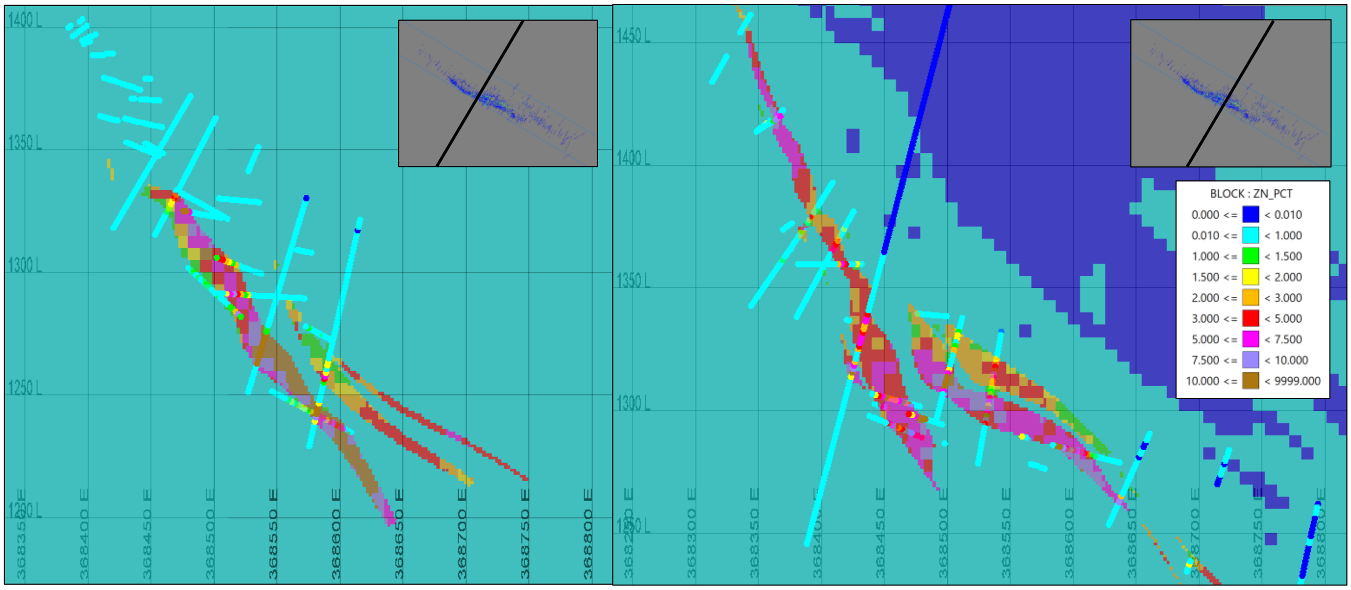


Figure 14.17: Visual Validation of Zn Estimation

14.1.9.4 Block Model Reconciliation

Based on channel sample data from production drifts, a short-term model for Ag, Pb, and Zn was constructed. Table 14.15 shows the comparison between the plant feed, the long-term model (drillholes) and the short-term model (channel samples) for the period between July 2022 and February 2023. While the differences between the plant feed and the long- and short-term model is low for Pb and Zn, the long-term model grade for Ag was below both the plant feed and the short-term model. A review of the zones sent for processing during this time indicated that the operational channel sampling had identified small high-grade structures that were not present in the wider-spaced diamond drillholes. In the opinion of the QP the difference in metal between these two models is acceptable and the long-term model based on the drill holes should be considered a good approximation of expected grades.

Table 14.15: Comparison Between the Plant Feed, Long-term Model and Short-term Model (between July 2022 and February 2023)

Source	Ag (ppm)	Pb (%)	Zn (%)
Plant Feed	361	2.1	4.1
Long Term Model	292	1.9	3.8
Short Term Model	392	2.1	3.9

14.2 Estimation, Assumptions, Parameters and Methods (Esther)

The Mineral Resource estimate for the Esther deposit remains unchanged from that reported in 2022.

14.2.1 Software

In the Esther zone the Leapfrog™ Geo software was used for solids model generation and Vulcan software for block model estimation, reporting, statistics review, geostatistics, and swath plots.

14.2.2 Drilling Data Esther

The global database available for the 2022 Mineral Resource estimation of Esther included 104 surface core boreholes yielding 41,414.1 m of core with a cutoff date of July 31, 2022.

The drill hole file included DDH data, topographic surface data, and density data, with 82 drillholes totalling 221, 385 and was reviewed in plan and section to validate the accuracy of the collar locations, hole orientations and down hole trace, and assay data were analyzed for out-of-range values. The drill hole database was determined to be of suitable quality to support the 2022 Mineral Resource estimate.

14.2.3 Geological Interpretation

For the 3D geological modelling at the Esther zone, the Leapfrog EDGE version 2021.2 program was used, using only the geological information from the surface diamond drill holes and the surface geological mapping conducted by the MPR team. Figure 14.18 is a 3D view of the Esther Vein.

The vein was modelled as a vein cutting into pre-existing rocks, which were modelled as deposit surfaces.

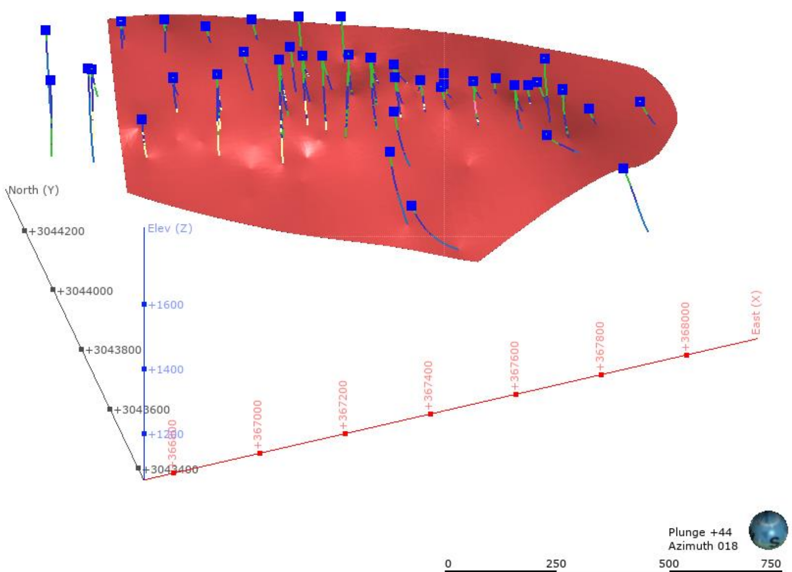


Figure 14.18: 3D View of Esther Modelled Vein and the Drill Holes Used for Geological Interpretation

14.2.4 Exploratory Data Analysis

14.2.4.1 Detection Limit

Samples with assays equal to the detection limit or zero were adjusted to half of the minimum detection limit.

14.2.4.2 Sample Length and Assay Compositing

Considering that the sample database shows a majority of 2.0 m samples, the block size and the average vein width, it was decided that the composite length should be 2.0 m.

The database was composited at 2.0 m, and the methodology used breaks in the compositing process where there was a change in the underlying estimation domain. Therefore, only samples from the same estimation domain are composited together, while the lengths of remaining samples are merged into the last composite.

14.2.4.3 Estimation Domain Definition

Estimation Domains (EDs) have been defined based on the current geology - the vein defines an independent estimation domain (ED 1) and the material lying outside the vein defines the low-grade domain (ED 2).

14.2.4.4 Contact Analysis

The results of the contact analysis show abrupt changes in the grade at the contact between the modelled veins. Therefore, it was decided to use hard contacts between all ED and variables to avoid sharing composites between veins.

14.2.4.5 Evaluation of Outlier Grades, Cut-offs, and Grade Capping

Values defined as outliers have been controlled in the estimation using HYRs within a block distance (10.0 m x 5.0 m x 5.0 m). Outliers were defined according to probability distribution curves, depending on population, or continuity breaks.

14.2.4.6 Variography

Due to the number of samples available it was not possible to model a robust variogram for the majority of the EDs. For this reason, the variograms modelled for Los Gatos were used in the estimation process of Esther.

14.2.5 Block Model Parameters, Specific Gravity, and Grade Estimation

14.2.5.1 Block Model Parameters and Domaining

Table 14.16 shows the definition for the block model built in Vulcan using the local coordinate system.

Table 14.16: Block Model Dimensions (Esther)

Orientation	East	North	Elevation
Origin	366,600	3,043,900	1,000
Rotation (°)	110	-	-
Parent Block Size (m)	10.0	5.0	5.0
Sub-Block Size (m)	5.0	1.0	1.0
No. of Blocks	340	600	800
Range (m)	1,700	600	800

14.2.5.2 Interpolation and Extrapolation Parameters

The estimation of Ag, Pb, and Zn grades for Esther was conducted using OK with three nested passes for each ED. Local varying anisotropy methodology was used to handle the geological variability of the dip and azimuth of each vein.

14.2.5.3 Specific Gravity

Specific gravity was estimated using a similar approach to that employed for the estimation of metal grades. Three kriging passes were defined for each ED with hard contacts between all EDs.

14.2.6 Model Validation

The model was subjected to a detailed and comprehensive validation process to assess the performance of the OK and the conformity of input values. The validation included local and global statistical validations as well as visual validations. The validation of the model indicates that the model is consistent with the geological controls on mineralisation and has a concordance with the data used in its model construction.

14.3 Mineral Resource Classification

This sub-section contains forward-looking information related to Mineral Resource classification for the CLG deposit. Material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts, or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geological and grade continuity analysis and assumptions.

According to CIM 2014, to reflect geological confidence, Mineral Resources are subdivided into the following categories based on increased geological confidence: Inferred, Indicated, and Measured, which are defined under CIM 2014 as:

> “Inferred Mineral Resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a mineral reserve.”

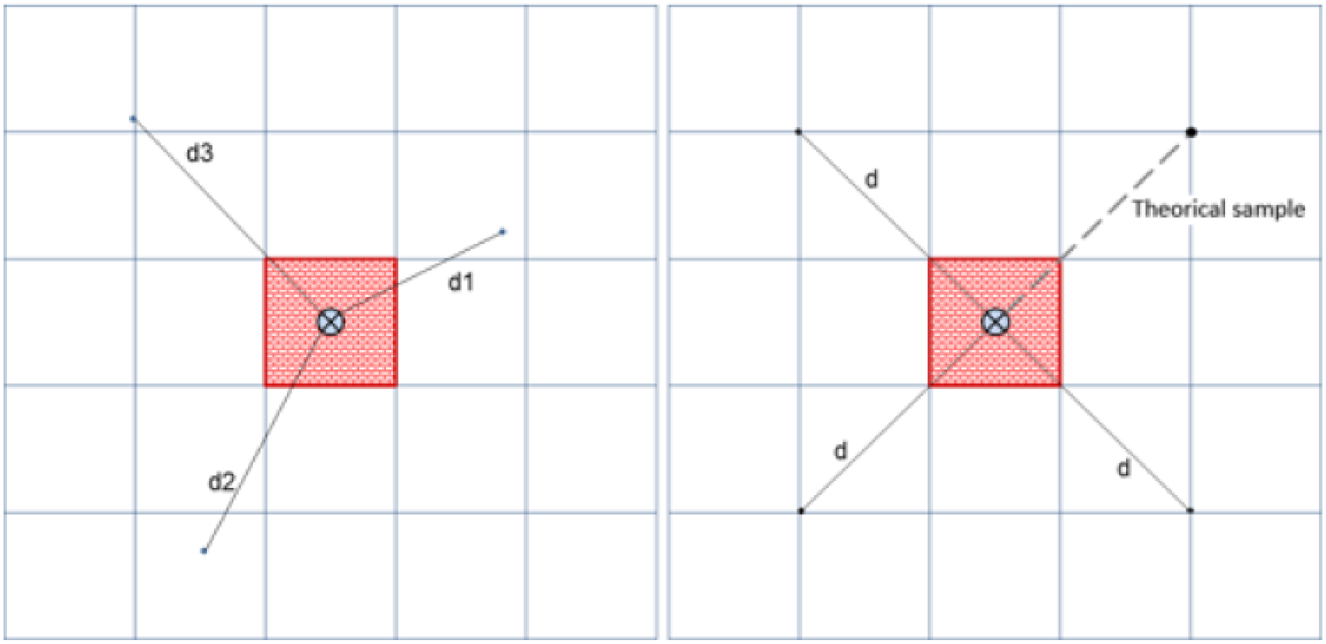
> “Indicated Mineral Resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.”

> “Measured Mineral Resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.”

The Mineral Resource classification in this disclosure is based on several factors including drill hole spacing grids, proximity to mine infrastructure (production drifts) and the level of geological confidence for the continuity and grade of each vein.

In order to apply the resource classification criteria an equivalent grid definition methodology was used. This methodology was based on the distance of the drill holes relative to an estimated block. Based on the distance, an equivalent (theoretical) grid was calculated assuming that the distances of the drill hole to the center of the evaluated block are equidistant (see

Figure 14.19). Figure 14.20 illustrates the theoretical grid calculation and final resource classification in a 3D view for blocks inside veins.



$$Equivalent\ Distance = \frac{(d_1 + d_2 + d_3)}{3}$$

$$Equivalent\ Grid = \sqrt{2} * Equivalent\ Distance$$

Figure 14.19: Formula for Theoretical Grid Definition

Therefore, the Mineral Resource Classification for Los Gatos is as follows:

- Measured Resources: Material lying inside a buffer of 30 m from mine development and limited to veins already in production (ED 1 to 9, 13, 14, 18, 26, and 27), and veins where the level of geological knowledge and confidence is high and there is a low uncertainty of grade and vein continuity.
- Indicated Resources: Blocks with a theoretical grid between 0 and 50 m.
- Inferred Resources: Blocks with a theoretical grid greater than 50 m, material lying outside the modelled veins (ED 30) and specific veins where the geological knowledge is low (ED 12, 16, 20, 21, 24, 25, and 28). The Inferred category was further limited by an external polygon of geological confidence, interpreted in long section. Mineralized material estimated within the vein but outside this polygon is not reported.

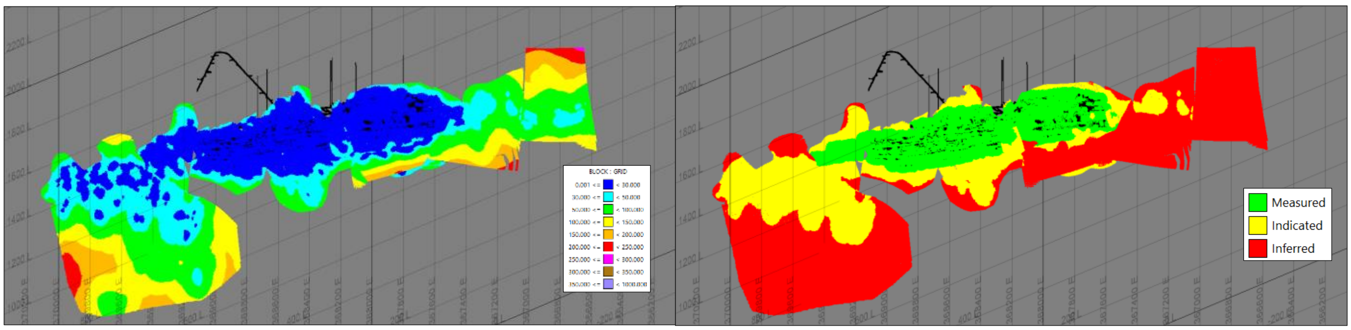


Figure 14.20: Theoretical Grid and Resource Classification, Showing Blocks Inside Veins, 3D View.

14.4 Basis for Establishing the Prospects of Economic Extraction for Mineral Resources

This subsection contains forward-looking information relating to establishing the prospects for economic extraction of the Mineral Resources. Factors that may cause actual results to differ materially from the conclusions, estimates, designs, forecasts, or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions set forth in this subsection, including NSR cut-off assumptions, metallurgical recovery, cost forecasts, and product price forecasts.

The Mineral Resource estimate was reported from within a constrained stope optimization developed using criteria to establish Reasonable Prospects for Economic Extraction (RPEE).

The Cerro Los Gatos deposit is polymetallic. Therefore, a NSR calculation was used to determine a NSR cut-off value to define the mineral resources. The parameters used in the calculation of NSR in the block model (including metal values, recovery factors, transportation costs, etc.) were provided by Gatos Silver and reviewed by WSP. For cut-off estimation purposes, the NSR value of the mineralized material that GSI expects to receive at the mine gate must first be established and expressed in terms of value per tonne mined and processed, commonly referred to as run-of-mine (ROM) tonnes.

Table 14.17 lists key parameters used to calculate the NSR value to establish reasonable prospects for economic extraction. Commodity price assumptions were supplied by MPR based on long-term prices and, in the opinion of the QP, the prices are reasonable and consistent with market research provided by MPR. Concentrate sales terms were provided by MPR and consider standard industry terms, consistent with those experienced to date, for payable values and treatment and refining charges.

Table 14.17: Parameters for Calculating Net Smelter Return Values for Mineral Resource Reporting

Item	Unit	Zn Conc	Pb Conc	Cu Conc	Pyrite Leach
Ounces Troy to grams	g	31.10348	31.10348	31.10348	31.10348
Tonnes to pounds	lb	2204.623	2204.623	2204.623	2204.623
USD to Pesos	MXN	20.00	20.00	20.00	20.00
Ag price	US$/oz	22.00	22.00	22.00	22.00
Au price	US$/oz	1,700.00	1,700.00	1,700.00	1,700.00
Pb price	US$/lb	0.90	0.90	0.90	n/a
Zn price	US$/lb	1.20	1.20	1.20	n/a
Cu price	US$/lb	3.50	3.50	3.50	n/a
Plant recovery Ag	%	10.16%	48.22%	30.00%	n/a
Plant recovery Au	%	n/a	32.79%	20.40%	n/a
Plant recovery Pb	%	n/a	82.00%	n/a	n/a
Plant recovery Zn	%	62.33%	n/a	n/a	n/a
Plant recovery Cu	%	n/a	n/a	65.00%	n/a
Zn in concentrate grade	%	56.60%	n/a	n/a	n/a
Pb in concentrate grade	%	n/a	54.60%	n/a	n/a
Cu in concentrate grade	%	n/a	n/a	25.00%	n/a
Concentrate moisture	%	9.50%	7.50%	7.50%	n/a
Concentrate transportation cost	US$/wmt	195.50	110.50	110.50	n/a
Pyrite leach recovery Ag	%	n/a	n/a	n/a	4.9%
Pyrite leach recovery Au	%	n/a	n/a	n/a	6.8%

Table 14.18 summarizes operating costs used to establish the NSR cut-off to establish reasonable prospects for economic extraction. Operating costs were provided by MPR based on historical operating data and were considered reasonable based on QP experience from other operations. Costs include estimates of general and administration costs.

Table 14.18: Costs Used for Resource NSR Cut-Offs

Item	Cost Type	Unit	Cost
Mining	Fixed / Indirect	US$/t	28.98
Processing	Fixed / Indirect	US$/t	10.78
Processing	Variable / Direct	US$/t	21.47
General & Admin.	Fixed / Indirect	US$/t	19.80
Total Cost (NSR Cut-off)		**US$/t**	**81.03**

14.5 Mineral Resource Uncertainty Discussion

Mineral Resources are not Mineral Reserves and do not necessarily demonstrate economic viability. There is no certainty that all or any part of this Mineral Resource will be converted into a Mineral Reserve.

Mineral resource estimates can be materially impacted by data quality, natural geological variability of mineralization and/or metallurgical recovery and the adequacy of economic assumptions supporting reasonable prospects for economic extraction, including metal prices and mining and processing costs. Mineral resources may also be affected by the estimation methodology and the parameters and assumptions used in the grade estimate, including data limitations or search and estimation strategies, although, in the opinion of the QP, this is unlikely to have a significant impact on the mineral resource estimate.

Most of the Inferred Mineral Resource is in the SE zone and extends approximately 550 meters below the current level of development in the SE zone. The Inferred Mineral Resource in the SE zone is based on drill spacing of approximately 100m by 200m and therefore information is currently limited with respect to the geological continuity of mineralization and geotechnical and hydrogeological conditions.

Further infill drilling may confirm the continuity of mineralization and upgrade the mineral resource categories and associated quantities.

14.6 Qualified Person’s Opinion on Factors that are Likely to Influence the Prospect of Economic Extraction

In the opinion of the QP, the relative accuracy and, consequently, the confidence of the Mineral Resource estimates are deemed to be appropriate for their intended purpose of reporting Mineral Resources.

Mineral Resources are not Mineral Reserves and do not necessarily demonstrate economic viability. There is no certainty that all, or any part, of the mineral resources will be transformed into Mineral Reserves. The 2023 Mineral Resource estimate may be materially impacted by any future changes in the breakeven NSR cut-off, potentially resulting from changes in mining costs, processing recoveries, metal prices or from changes in geological knowledge as a result of new exploration data.

14.7 Mineral Resource Estimate

This sub-section contains forward-looking information related to Mineral Resource estimates for the Mine. Material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts, or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geological and grade interpretations and the controls, assumptions and forecasts associated with establishing the prospects for economic extraction.

The Mineral Resource estimate for the project is reported here in accordance with NI 43-101 regulations. For estimating the Mineral Resources of Los Gatos, the following definition, as set forth in the Guidelines and Definition Standards for Mineral Resources and Mineral Reserves (CIM 2014), was applied.

As per CIM 2014, a Mineral Resource is defined as:

> “… a concentration or occurrence of material of economic interest in or on the Earth’s crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable

technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled."

Note to readers: The Mineral Resources presented in this section are not Mineral Reserves and do not reflect demonstrated economic viability. The reported Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that all or any part of this Mineral Resource will be converted into Mineral Reserve. All figures are rounded to reflect the relative accuracy of the estimates and totals may not sum precisely.

The estimated Mineral Resources reported exclusive of Mineral Reserves are summarized in Table 14.19 on a 100% ownership basis. Mineral Resources presented in the tables are in accordance with the definitions adopted by NI 43-101. The effective date of the Mineral Resource estimate is July 1, 2023.

Table 14.19: CLG Mineral Resource Estimate, Exclusive of Mineral Reserves

Resource Classification	Mt	Ag (g/t)	Zn (%)	Pb (%)	Au (g/t)	Cu (%)	Ag (Moz)	Zn (Mlbs)	Pb (Mlbs)	Au (koz)	Cu (Mlbs)
Measured	0.05	141	2.50	1.70	0.40	0.05	0.2	2.9	2.0	0.7	0.1
Indicated	0.34	85	3.71	1.90	0.23	0.15	0.9	28.1	14.4	2.5	1.1
Measured and Indicated	**0.40**	**93**	**3.55**	**1.88**	**0.25**	**0.14**	**1.2**	**30.9**	**16.4**	**3.2**	**1.2**
Inferred	4.58	100	3.40	2.32	0.21	0.40	14.7	343.6	234.5	30.9	40.1

Notes:

1. Mineral Resources are reported on a 100% basis and are exclusive of Mineral Reserves.
2. The SEC definitions for Mineral Resources in S-K 1300 were used for Mineral Resource classification which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).
3. Under SEC Regulation S-K 1300, a mineral resource is defined as a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Mineral Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Mineral Resources as an Indicated or Measured Mineral Resource. It is uncertain if further exploration will result in upgrading Inferred Mineral Resources to an Indicated or Measured Mineral Resource category.
5. Specific gravity has been assumed on a dry basis.
6. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not sum exactly.
7. Mineral Resources exclude all Mineral Resource material mined prior to July 1, 2023.
8. Mineral Resources are reported within stope shapes using a $81.03/tonne Resource NSR cut-off calculated using a silver price of $22/oz, zinc price of $1.20/lb, lead price of $0.90/lb, gold price of $1,700/oz and copper price of $3.50/lb. The Resource NSR cutoff includes mill recoveries and payable metal factors appropriate to the existing CLG processing circuit augmented with a pyrite leach circuit and copper separation circuit. The processing recoveries for these additional projects is based on existing preliminary metallurgical testwork.
9. No dilution was applied to the Mineral Resource.
10. Contained Metal (CM) is calculated as follows:
    a. Zn, Pb and Cu CM (Mlb) = Tonnage (Mt) * Grade (%) / 100 * 2204.6
    b. Ag and Au, CM (Moz) = Tonnage (Mt) * Grade (g/t) / 31.1035; multiply Au CM (Moz) by 1000 to obtain Au CM (koz)
11. The Mineral Resource estimates were prepared under the supervision of Ronald Turner, MAusIMM(CP) an employee of Golder Associates S.A. who is the independent Qualified Person for these Mineral Resource estimates.

Figure 14.21 presents a long section of the 2023 Mineral Resource and Mineral Reserve differentiated by resource classification.

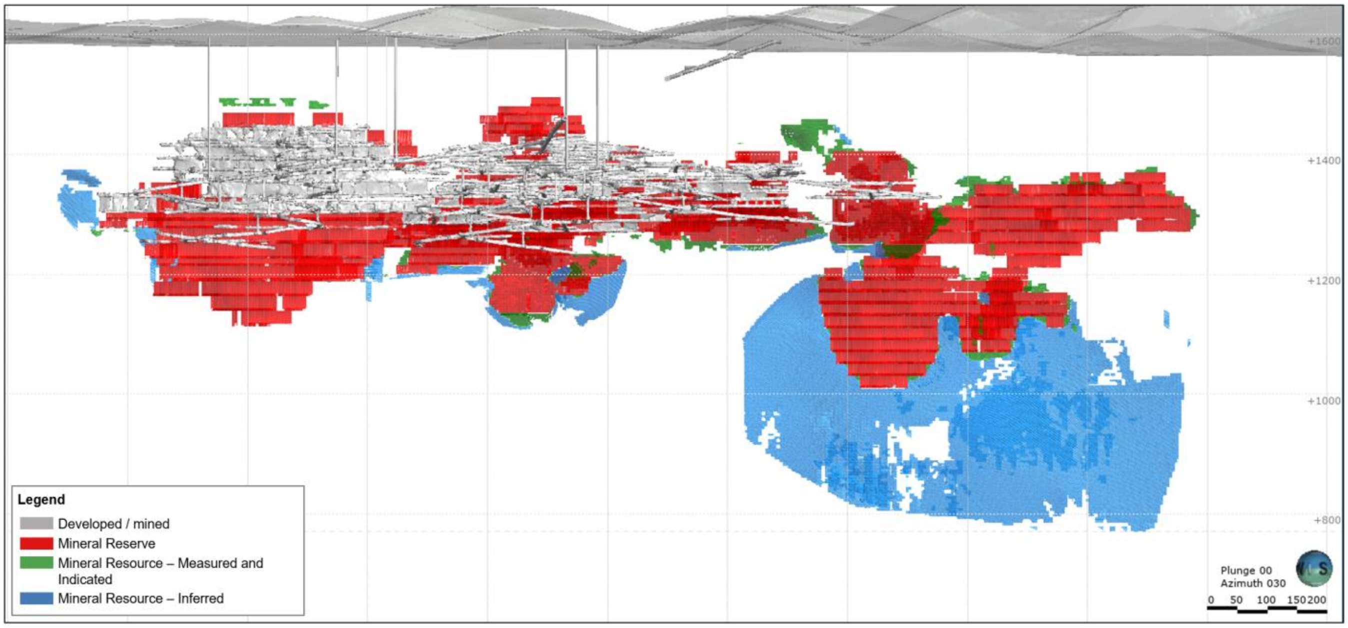


Figure 14.21: Long Section of CLG 2023 Mineral Resource and Mineral Reserve

The mineral resource estimate for the Esther deposit remains unchanged from that published in the 2022 TR. It is re-produced in Table 14.20.

Table 14.20: Esther Mineral Resource Estimate, Exclusive of Mineral Reserves

Resource Classification	Mt	Ag (g/t)	Zn (%)	Pb (%)	Au (g/t)	Ag (Moz)	Zn (Mlbs)	Pb (Mlbs)	Au (koz)
Indicated	0.28	122	4.30	2.17	0.14	1.1	26.8	13.6	1.2
Inferred	1.20	133	3.69	1.53	0.09	5.1	98.0	40.6	3.3

Notes:

1. Mineral Resources are reported on a 100% basis.
2. Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.
3. The SEC definitions for Mineral Resources in S-K 1300 were used for Mineral Resource classification which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).
4. The quantity and grade of reported Inferred Mineral Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Mineral Resources as an Indicated or Measured Mineral Resource. It is uncertain if further exploration will result in upgrading Inferred Mineral Resources to an Indicated or Measured Mineral Resource category.
5. Specific gravity has been assumed on a dry basis.
6. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not sum exactly.
7. Mineral Resources are reported within stope shapes using a $52/tonne NSR cut-off basis assuming processing recoveries equivalent to CLG with a silver price of $22/oz, zinc price of $1.20/lb, lead price of $0.90/lb and gold price of $1,700/oz. There is a portion of the Esther deposit that is oxidized and metallurgical test work is required to define processing recoveries.
8. No dilution was applied to the Mineral Resource.
9. Contained Metal (CM) is calculated as follows:
   - Zn and Pb, CM (Mlb) = Tonnage (Mt) * Grade (%) / 100 * 2204.6
   - Ag and Au, CM (Moz) = Tonnage (Mt) * Grade (g/t) / 31.1035 ; multiply Au CM (Moz) by 1000 to obtain Au CM (koz)
10. The Mineral Resource estimates were prepared by Ronald Turner, MAusIMM(CP) an employee of Golder Associates S.A. who is the independent Qualified Person for these Mineral Resource estimates.

15.0 MINERAL RESERVE ESTIMATES

15.1 Introduction

This section presents the CLG Mineral Reserve estimate effective July 1, 2023, and discusses the key assumptions, parameters, and methods used for converting Mineral Resources to Mineral Reserves.

A Mineral Reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted. A Probable mineral reserve is the economically mineable part of an indicated and, in some cases, measured mineral resource. A Proven mineral reserve is the economically mineable part of a measured mineral resource and can only result from the conversion of a measured mineral resource.

The mine design, scheduling, and mineral reserve estimate were prepared by the CLG technical services department under the supervision of the QP responsible for these estimates.

15.2 Methodology for Estimating Mineral Reserves

The methodology used to prepare the 2023 mine design is similar to that implemented for the 2022 updates, with updates to account for changes in actual operating performance over the 12 months preceding the effective date of this report. The process consists of converting Measured and Indicated Mineral Resources to Proven and Probable Reserves by identifying material that exceeds the NSR cut-off values while conforming to the geometrical constraints determined by the mining method and applying modifying factors such as dilution and mining recovery. The conversion of Measured and Indicated Mineral Resources to Proven and Probable Mineral Reserves involves the following procedures:

- Review the geological block model of the resource received from geology.
- Review the long-term metal price assumptions to ensure they are reasonable.
- Estimate the on-site production costs according to the mining method and mining situation.
- Estimate the economic modifying factors: NSR cut-offs and the parameters for NSR values.
- Apply economic modifying factors to the block model and exclude Inferred Mineral Resources.
- Analyze resource characteristics to select viable mining methods for each geological domain.
- Estimate mining modifying factors: dilution and mining recovery.
- Determine mine design parameters, such as stope dimensions, minimum mining width, and minimum footwall angle for LHS.
- Outline potentially mineable shapes in the block model based on the resource value exceeding the NSR cut-off.
- Screen potentially mineable shapes with the Mineable Shape Optimizer application in Deswik software.
- Refine potentially mineable shapes by removing un-mineable resource material.
- Design mine development and mine infrastructure in mine design software.

- Carry out economic analysis of the mineable shapes, removing areas that are not viable.
- Determine production sequencing with Scheduler software.
- Prepare a life-of-mine plan for development and production.
- Estimate capital, operating, and sustaining capital costs associated with the life-of-mine plan.
- Verify the economic viability of the proposed reserve.
- Prepare the Mineral Reserve statement.

15.3 Modifying Factors

As described in the previous section, converting Mineral Resources to Mineral Reserves involves applying modifying factors. A qualified person must apply and evaluate modifying factors to convert measured and indicated mineral resources to proven and probable mineral reserves. These factors include but are not restricted to mining; processing; metallurgical; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project. The following subsections discuss the mining and economic modifying factors that were applied in estimating the 2023 Mineral Reserve.

15.3.1 Metal Prices and Exchange Rate

Table 15.1 presents the exchange rate and metal prices used in the Mineral Reserve estimate, including the data used to determine these values. They were established based on the three-year trailing monthly averages from April 2020 to April 2023 and long-term analyst consensus estimates. The exchange rate and the silver, gold, lead, and zinc prices are the same as those used in the 2022 Mineral Reserves estimate. The 2023 estimate includes copper, which, when reporting to the lead concentrate, is assumed to generate revenues once its content achieves payable levels based on current contractual terms. The QP reviewed the long-term exchange rate and metal prices and is of the opinion that they are reasonable for the estimation of the Mineral Reserve.

Table 15.1: Metal Prices and Exchange Rate Used in the Mineral Reserve Estimate

	Silver	Zinc	Lead	Gold	Copper	MXN
	US$/oz	US$/lb	US$/lb	US$/oz	US$	MXN/ $1 USD
3-Year Trailing Average	22.94	1.36	0.94	1,816	3.80	20.49
Long-term Consensus	22.11	1.19	0.95	1,672	3.71	21.47
2023 R&R Assumptions	**22.00**	**1.20**	**0.90**	**1,700**	**3.50**	**20.00**

15.3.2 NSR Values

As CLG is a polymetallic deposit, the viability of mining the resource is assessed in terms of monetary unit values rather than grades or equivalent grades, as is typically the case at mines having a single predominant metal. This value is estimated as the NSR GSI expects to receive at the mine gate for each tonne of ROM ore mined and processed. The NSR value relates to the price received for metal value in saleable concentrate, less the costs for transportation, smelting of the concentrate, and refining of the metals. The NSR value of the metal contained in a tonne of concentrate is then applied to the metallic content of the corresponding ROM tonnes. In this way, a common metric is established for the economic threshold required to be exceeded by material designated as mineralized material (or ore) as well as for an assignment of value of the tonnes to be mined from any one block and the entirety of the deposit.

Table 15.2 lists key parameters used to calculate the NSR value of a tonne of potentially mineable material. For concentrate sales terms, standard industry terms, consistent with those experienced to date, were considered for payable values and treatment and refining charges.

Table 15.2: Parameters for Calculating Net Smelter Return Values

Item	Unit	Zn Conc	Pb Conc
Ounces Troy to grams	g	31.10348	31.10348
Tonnes to pounds	lb	2204.623	2204.623
USD to Pesos	MXN	20.00	20.00
Ag price	US$/oz	22.00	22.00
Au price	US$/oz	1,700.00	1,700.00
Pb price	US$/lb	0.90	0.90
Zn price	US$/lb	1.20	1.20
Cu price	US$/lb	3.50	3.50
Plant recovery Ag	%	10.16%	78.22%
Plant recovery Au	%	n/a	54.33%
Plant recovery Pb	%	n/a	88.30%
Plant recovery Zn	%	62.33%	n/a
Plant recovery Cu	%	n/a	58.93%
Zn in concentrate grade	%	55.84%	n/a
Pb in concentrate grade		n/a	53.35%
Concentrate moisture	%	9.50%	7.50%
Concentrate transportation cost	US$/wmt	195.50	110.50

15.3.3 NSR Cut-Offs

The viability of mining a tonne of diluted resource material is determined by comparing its NSR value to its NSR cut-off. The NSR cut-off consists of the on-site costs to mine and process a tonne of the material, including general and administration costs. If the material's NSR value exceeds the NSR cut-off, it is potentially a candidate for inclusion in the Mineral Reserve.

Table 15.3 presents the calculations for the NSR cut-offs used in the Mineral Reserve estimate. There are six NSR cut-offs according to the following three mining methods and two cost allocation approaches:

Mining Methods:

- Cut-and-fill applies to the mineralized material planned for mining with this method.
- Sill refers to the mineralized material excavated by driving drifts within stope boundaries to prepare them for mining with LHS. While both sill and cut-and-fill involve drifting, cut-and-fill is more expensive because it requires backfilling and has higher fixed costs due to its lower productivity.

- Longhole applies to the diluted mineralized material within the LHS stope shape but excludes the material accounted for as sill. It is a lower-cost and higher-productivity mining method than CAF.

Cost Allocation Approaches:

- The full-cost NSR cut-off applies to mineralized material with sufficient value to fully support its production cost, including fixed costs and infrastructure.
- The incremental cost NSR cut-off applies to mineralized material grading below the full-cost NSR cut-off that can benefit by sharing sublevel development and infrastructure deemed required for accessing and mining nearby stopes with NSR values above the full-cost NSR cut-off. In this situation, the economic viability of mining the otherwise subeconomic material can be evaluated using a lower threshold value whereby the fixed component of its mining cost is set to zero because it is considered to have been paid for by the stopes above the full-cost NSR cut-off. When applying the incremental NSR cut-off, sufficient capacity is assumed to be available in the processing circuit so that mining the incremental material will not displace full-cost material, which is the case at CLG.

CLG's estimation of NSR cut-offs is consistent with the approach used in its 2022 Mineral Reserve estimate and the practice of many mines limiting the calculation to operating costs. Consequently, the NSR cut-offs do not include closure costs or sustaining capital expenditures such as mine development, equipment replacement, and overhauls. For future Mineral Reserve estimates, WSP recommends that CLG investigate whether closure costs and sustaining capital expenditures for the mine and processing plant could be relevant costs for determining the NSR cut-offs. However, sustaining capital, including required mine development and infrastructure, is considered during the mine planning evaluations when determining the economics of developing new areas.

Table 15.3: Calculations of NSR Cut-Offs

Cost	Cost	Unit	Full Cost			Incremental Cost		
Center	Type		Cut-and-fill	Sill	Longhole	Cut-and-fill	Sill	Longhole
Mining	Fixed / Indirect	$US/t	29.59	20.02	20.02	-	-	-
	Variable / Direct	$US/t	28.98	25.88	17.56	28.98	25.88	17.56
Processing	Fixed / Indirect	$US/t	10.78	10.78	10.78	10.78	10.78	10.78
	Variable / Direct	$US/t	16.47	16.47	16.47	16.47	16.47	16.47
General & Admin.	Fixed / Indirect	$US/t	19.80	19.80	19.80	19.80	19.80	19.80
Total Operating Cost (NSR Cut-off)		**$US/t**	**105.62**	**92.95**	**84.63**	**76.03**	**72.93**	**64.61**

15.3.4 Dilution and Mining Recovery

For the 2023 Mineral Reserve estimate, CLG's technical services department assessed the factors for dilution and mining recovery based on recent operating performance and reconciliation calculations of production data. These assumptions are applied based on the mining method, stope width, zone inclination, and proximity to hanging-wall faults.

The dilution and recovery factors for longhole open stoping (LHS) are estimated according to the width and dip of the vein (Table 15.4). The dilution is estimated in terms of equivalent linear overbreak slough (ELOS), which measures overbreak beyond the footwall (FW) and hanging wall (HW) contacts of the mineralization. The ELOS increases with the width of the vein and is higher for stopes dipping less than 70˚. Table 15.4 also presents the dilution in terms of percentage for reference purposes; however, ELOS is the factor applied in the mine design software. Diluting material within the ELOS is applied at the block model estimated grade if it is in the Measured or Indicated categories or as a metal grade of zero if it is Inferred or outside the vein. All Inferred material that falls within stope solids is set to a metal grade of zero.

Mining recovery is lower for wider veins and those that dip less than 70˚ (Table 15.4). The dilution and recovery factors for vein widths up to 8 m apply to longitudinal LHS, while those for widths exceeding 8 m apply to transverse LHS. The mine design parameters for longitudinal LHS specify a minimum mining width of 2.0 m, representing an additional source of dilution for narrow veins.

The dilution and recovery factors for cut-and-fill (CAF) are estimated according to the version of the mining method used and whether the ground conditions in the stope are influenced by the Los Gatos fault (Table 15.5). The dilution is estimated as a percentage of the resource material, which is included as waste in the ore. Dilution is higher and recovery lower for longitudinal CAF compared to transverse CAF. In addition, dilution is higher for both CAF versions in stopes near the Los Gatos fault due to unfavourable ground conditions in the hanging wall. The mine design for CAF stopes applies a minimum mining width of 3.5 m, representing an additional source of dilution for narrow veins. For CAF, the dilution has a metal grade of zero and is applied in the Scheduler software rather than the mine design software.

The Mineral Reserve estimate includes additional dilution from backfill in stopes mined with LHS. This dilution is estimated as a percentage of the resource material according to the backfill type and whether the LHS version is longitudinal or transverse (Table 12.6). It is higher for cemented rockfill (CRF) than for paste backfill. For transverse LHS, dilution is estimated for secondary stopes and is considered nil for primary stopes. Backfill dilution is applied at a metal grade of zero in the Scheduler software rather than mine design software. Backfill is not included in estimating dilution for CAF stopes.

For future Mineral Reserve estimates, WSP recommends investigating whether backfill on stope floors could represent a relevant source of dilution. An LHD may extract this material when mucking ore in the stope.

WSP recommends that CLG continue analyzing mining modifying factors for future Mineral Reserve estimates to ensure they adequately reflect actual operating results. The assumptions that ELOS increases with vein width and FW ELOS increases with shallower dips should be verified.

Table 15.4: Dilution and Mining Recovery – Longhole Open Stoping

Width	Dip	Dilution	ELOS Dilution	Recovery
2 m	> 70˚	40%	0.40 m HW + 0.40 m FW	95%
2 to 3 m	> 70˚	30%	0.45 m HW + 0.45 m FW	95%
3 to 5 m	> 70˚	30%	0.75 m HW + 0.75 m FW	95%
5 to 8 m	> 70˚	20%	0.80 m HW + 0.80 m FW	95%
> 8 m	> 70˚	20%	1.20 m HW + 1.20 m FW	95%
2 m	55˚ to 70˚	45%	0.45 m HW + 0.45 m FW	95%
2 to 3 m	55˚ to 70˚	35%	0.525 m HW + 0.525 m FW	95%
3 to 5 m	55˚ to 70˚	35%	0.875 m HW + 0.875 m FW	95%
5 to 8 m	55˚ to 70˚	25%	1.00 m HW + 1.00 m FW	93%
> 8 m	55˚ to 70˚	25%	1.50 m HW + 1.50 m FW	93%

Table 15.5: Dilution and Mining Recovery – Cut-and-Fill Mining

Width	Los Gatos Fault	Dilution	Recovery
Longitudinal cut-and-fill			
Min. 4 m	No influence of the fault	7%	95%
Min. 4 m	Under influence of the fault	10%	93%
Transverse cut-and-fill			
Max. 8 m	No influence of the fault	5%	97%
Max. 8 m	Under influence of the fault	7%	95%

Table 15.6: Backfill Dilution

Backfill Type and Mining Method	Dilution
Cemented Rockfill	
Transverse longhole - Primaries	0%
Transverse longhole - Secondaries	6%
Primaries & secondaries together	3%
Longitudinal longhole	3%
Paste Backfill	
Transverse longhole - Primaries	0%
Transverse longhole - Secondaries	4%
Primaries & secondaries together	2%
Longitudinal longhole	2%

15.4 Stope Optimization

Mineable Shape Optimizer (MSO) embedded in Deswik mine design software was used to determine the mineable portion of the Mineral Resource. Through an iterative process, the application generates and evaluates potentially mineable shapes in the geological block model to define optimal stope designs that maximize the economic value of the orebody. At the same time, it analyzes deposit geometry, mining methods, geological and geotechnical constraints, modifying factors, and mine design parameters.

The MSO was applied in two runs, the first using full-cost NSR cut-offs and the second using incremental-cost NSR cut-offs. Finally, Deswik mine design software was used to refine the optimized blocks into mineable stope shapes.

15.5 Mineral Reserve Estimate

Table 15.7 presents the Mineral Reserve estimate for CLG as of July 1, 2023. It consists of Proven and Probable in-situ ore plus 8 kt of Proven ore in the run-of-mine ore stockpile on the effective date of the estimate. Approximately 94% of the Mineral Reserve was determined using full-cost NSR cut-offs, and the remaining 6% with incremental-cost NSR cut-offs. Figure 15.1 illustrates the Mineral Reserves in a long section view according to the NSR value of the ore.

The Mineral Reserves are disclosed with a “mill feed” reference point; consequently, they are reported as run-of-mine ore delivered to the processing plant and do not include reductions attributed to anticipated plant recovery and losses. The Mineral Reserves are inclusive of mining recovery and dilution as described in Section 15.3.

CLG has been successful in replacing reserves mined and adding additional reserves. Compared with the 2022 estimate, the Mineral Reserves increased by approximately 2.0 Mt, net of 1.05 Mt of material processed from July 1, 2022, to June 30, 2023. Furthermore, the mine life was extended an additional 2.75 years, from Q1-2028 to Q4-2030. The increase is attributable to the intensive diamond drilling program conducted at the mine, especially in the SE zone. The block model for the 2023 Mineral Reserve included 1,466 diamond drill holes totalling 282,905 m, which compares with 1,131 holes totalling 221,385 m in the previous year’s estimate. The additional 61,520 m of drilling consisted of 284 underground holes and 51 surface holes. Figure 15.2 illustrates the extent to which the Mineral Reserve has expanded compared with the previous estimate, effective July 1, 2022.

The mine design, mine plan, and Mineral Reserve estimate were prepared by the Technical Services Department at CLG under the supervision of the QP responsible for the estimate. The QP is of the opinion that the CLG Mineral Reserve was prepared in accordance with:

- The Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2003)
- CIM Definition Standards for Mineral Resources and Mineral Reserves
- Disclosure requirements for Mineral Reserves set out in NI 43-101, including sections 2.2, 2.3, and 3.4
- Property disclosure requirements for mining registrants, Securities and Exchange Commission Subpart 1300 of Regulation S-K

The QP is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

Table 15.7: 2023 CLG Mineral Reserves as of July 1, 2023

	Mt	Ag (g/t)	Zn (%)	Pb (%)	Au (g/t)	Cu (%)	Ag (Moz)	Zn (Mlbs)	Pb (Mlbs)	Au (koz)	Cu (Mlbs)
Proven	3.46	317	4.39	2.17	0.31	0.09	35.3	335.0	165.7	34.7	6.9
Probable	4.62	141	4.27	2.23	0.20	0.19	21.0	435.3	226.6	29.3	19.5
Proven and Probable	**8.08**	**217**	**4.32**	**2.20**	**0.25**	**0.15**	**56.3**	**770.2**	**392.3**	**64.0**	**26.4**

Notes:

1. Mineral Reserves are reported on a 100% basis and exclude all mineral reserve material mined prior to July 1, 2023.
2. Specific gravity has been assumed on a dry basis.
3. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not sum exactly.
4. Values are inclusive of mining recovery and dilution. Values are determined as of delivery to the mill and therefore not inclusive of milling recoveries.
5. Mineral Reserves are reported within stope shapes using a variable cut-off basis with a Ag price of US$22/oz, Zn price of US$1.20/lb, Pb price of US$0.90/lb, Au price of US$1,700/oz and Cu price of $3.50/lb.
6. The Mineral Reserve is reported on a fully diluted basis defined by mining method, stope geometry and ground conditions.
7. Contained Metal (CM) is calculated as follows:
    - Zn, Pb and Cu, CM (Mlb) = Tonnage (Mt) * Grade (%) / 100 * 2204.6
    - Ag and Au, CM (Moz) = Tonnage (Mt) * Grade (g/t) / 31.1035; multiply Au CM (Moz) by 1000 to obtain Au CM (koz)
8. The SEC definitions for Mineral Reserves in Regulation S-K 1300 were used for Mineral Reserve classification and are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).
9. Under SEC Regulation S-K 1300, a Mineral Reserve is defined as an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.
10. The Mineral Reserve estimates were prepared under the supervision of Mr. Stephan Blaho, P.Eng., an employee of WSP Canada Inc. who is the independent Qualified Person for these Mineral Reserve estimates.

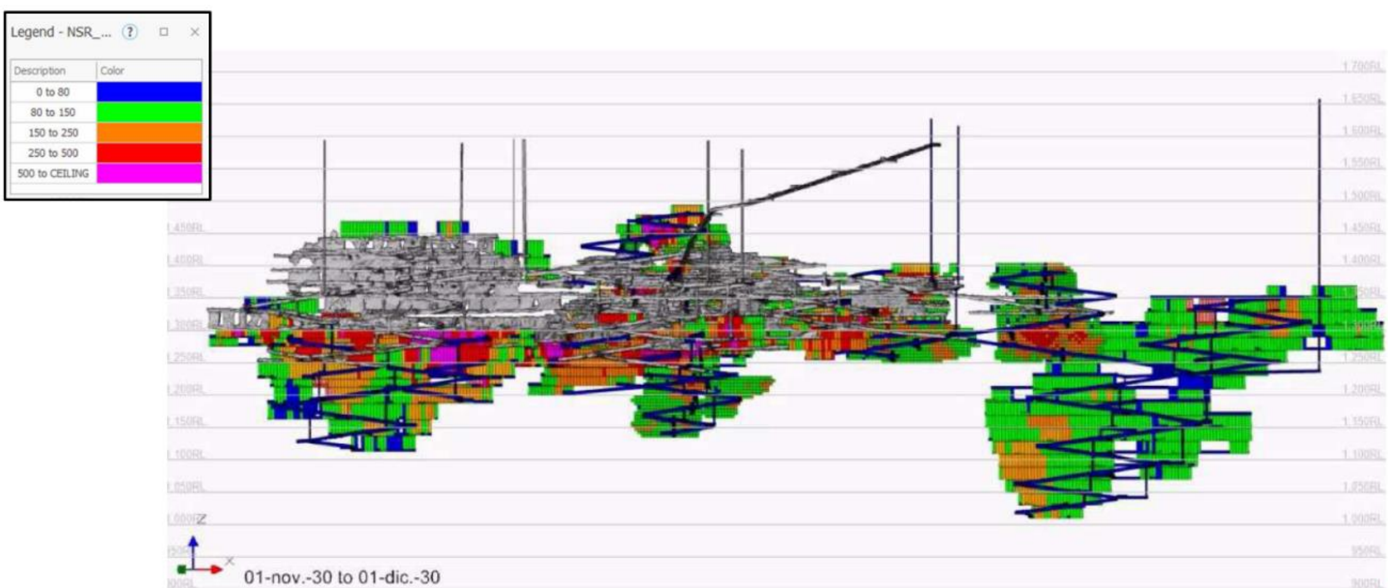


Figure 15.1: Long Section of Mine Illustrating 2023 Mineral Reserves with NSR Values

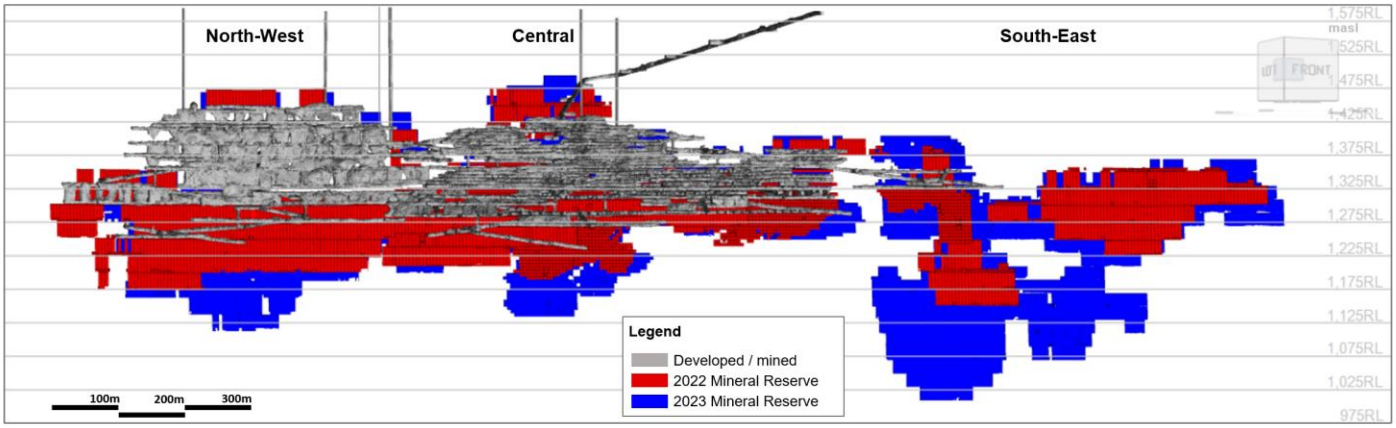


Figure 15.2: Long Section of Mine Illustrating 2023 and 2022 Mineral Reserves

15.6 Factors Potentially Affecting the Mineral Reserve Estimate

The Mineral Reserve estimate could be materially affected by the following risk factors:

- High temperatures in the underground work environment affecting productivity
- Geotechnical conditions, especially in proximity to the Los Gatos Fault
- Dewatering capacity to manage groundwater inflows as the mine deepens
- Dilution exceeding estimates
- Mining recovery falling short of estimates
- Currency exchange rates
- Metal prices
- Equipment productivities
- Metallurgical recoveries
- Mill throughput capacities
- Operating costs exceeding estimates
- Capital costs exceeding estimates
- Changes to the permitting and regulatory environment
- Changes in the taxation conditions
- Ability to maintain mining concessions and/or surface rights

16.0 MINING METHODS

16.1 General Description of Mineralization at Cerro Los Gatos

CLG is an underground mine producing about 2,900 tonnes per day of ore. The orebody is an epithermal vein-type deposit containing polymetallic mineralization. The portion of the deposit of economic interest occurs roughly 170 m to 900 m below the surface elevation at the portal and extends approximately 1,800 m along strike. The exploited veins vary in thickness, ranging from 1 m to 30 m and averaging 5 m to 12 m in true width.

The ground conditions in parts of the deposit are adversely affected by a major fault in the hanging wall called the Los Gatos Fault. It extends sub-parallel to the deposit and ranges in thickness from 5 m to 30 m. Its distance from the veins varies from immediately adjacent to their contacts to up to 100 meters. The Los Gatos fault and the mineralized zones are offset by two crosscutting sub-vertical faults called Antigatos-1 and Antigatos-2.

As illustrated in Figure 16.1, the deposit consists of four zones called the Northwest (NW), Central (CZ), Southeast Upper (SEU), and Southeast (SE) zones. Figure 16.2 illustrates the four zones in cross-section, and Table 16.1 summarizes their key characteristics. These characteristics determine the mining method or methods that CLG has selected for each zone.

The NW consists of a steeply dipping vein ranging in thickness from 5 m to 12 m. Areas in the top part of the zone (previously mined) were affected by the proximity to the Los Gatos fault. The current reserves in the zone are distant from the Los Gatos fault; consequently, the ground conditions have improved in the lower levels.

The CZ consists of multiple veins, generally two or three. Its thickness is variable, ranging up to 30 m. The vein at the hanging wall has a steep dip in the upper part of the zone but flattens out considerably at depth. In contrast, the vein forming the footwall dips steeply throughout the zone. Of the four zones, CZ is most affected by the Los Gatos fault and requires the most significant measures to manage the ground conditions in specific areas.

The SEU consists of a single narrow vein. It has a moderately steep dip in the upper part of the zone but flattens out at depth. Parts of it are affected by the Los Gatos Fault.

The SE consists of two veins; however, generally, only one has sufficient grade to be mined. It has a moderately steep dip, and the thickness of the economic vein ranges from 4 m to 8 m.

The following characteristics of the deposit represent challenges for mining the orebody:

- Unfavourable ground conditions may occur in stopes influenced by the Los Gatos fault and in areas with high argillic hydrothermal alterations.
- Significant dewatering is needed to control groundwater inflows, and this requirement is expected to increase as the mine deepens.
- Temperatures in the underground work environment must be controlled as the mine is affected by geothermal heating from groundwater inflows, specifically in the CZ.
- Potential for high compressive induced stresses may occur in the lower portions of the SE zone.

CLG manages these conditions with the following measures:

- Ground conditions: The hanging walls of longhole stopes are supported with cable bolts where required. Cut-and-fill (CAF) mining technique is used instead of longhole stoping (LHS) in areas with unfavourable ground conditions, such as the mineralization adjacent to the hanging wall in the CZ. The transverse version of CAF is used to control hanging wall conditions. Additional ground support will be installed in areas with the potential for high compressive stresses.

- Groundwater: CLG controls groundwater conditions with a system of dewatering wells collared on surface and underground. CLG has allocated capital for establishing additional underground wells as the mine deepens. The mine has an independent dewatering system to pump the non-contact water from the wells out of the mine.
- Temperatures: CLG has two cooling plants to reduce the ventilation air temperature entering the mine. The capacity of the ventilation system exceeds the diesel equipment requirement to improve the underground working environment. The dewatering wells collared on surface and underground manage groundwater inflows, which are the principal source of heat in the mine.

The QP is of the opinion that CLG has implemented adequate measures and provided appropriate equipment and infrastructure to manage these characteristics of the deposit but notes that the challenges with dewatering, temperature control and induced stresses are expected to increase as the mine deepens.

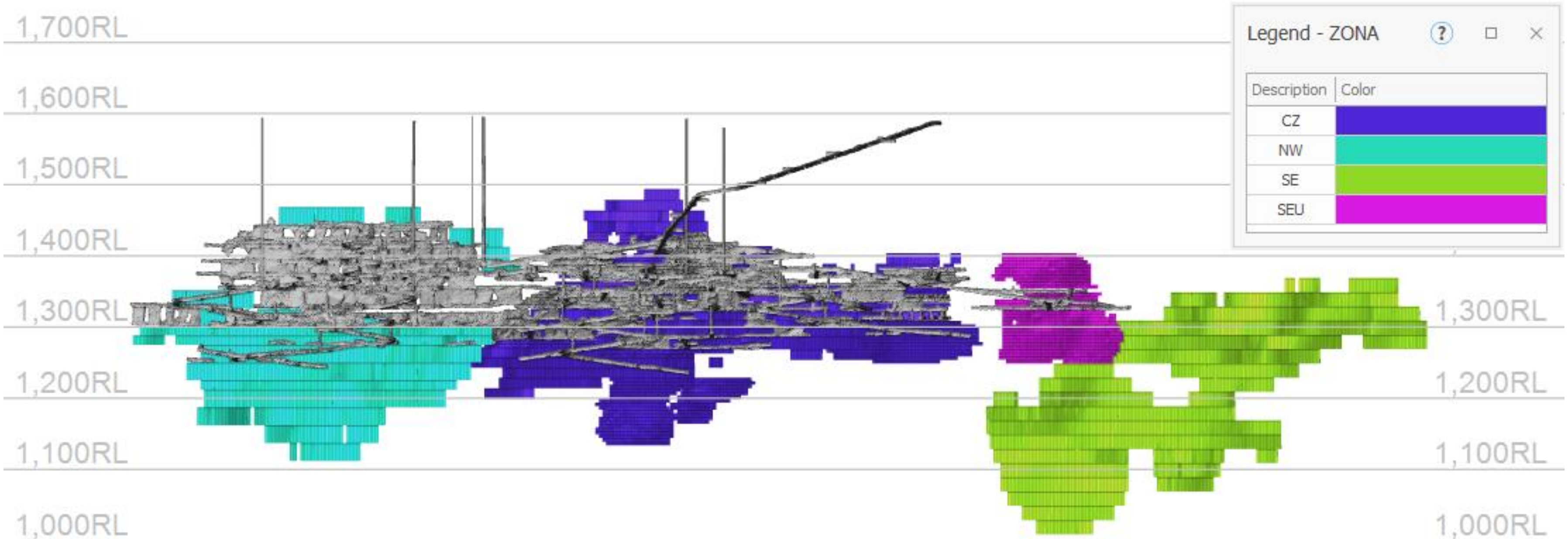


Figure 16.1: Long Section of the CLG Deposit

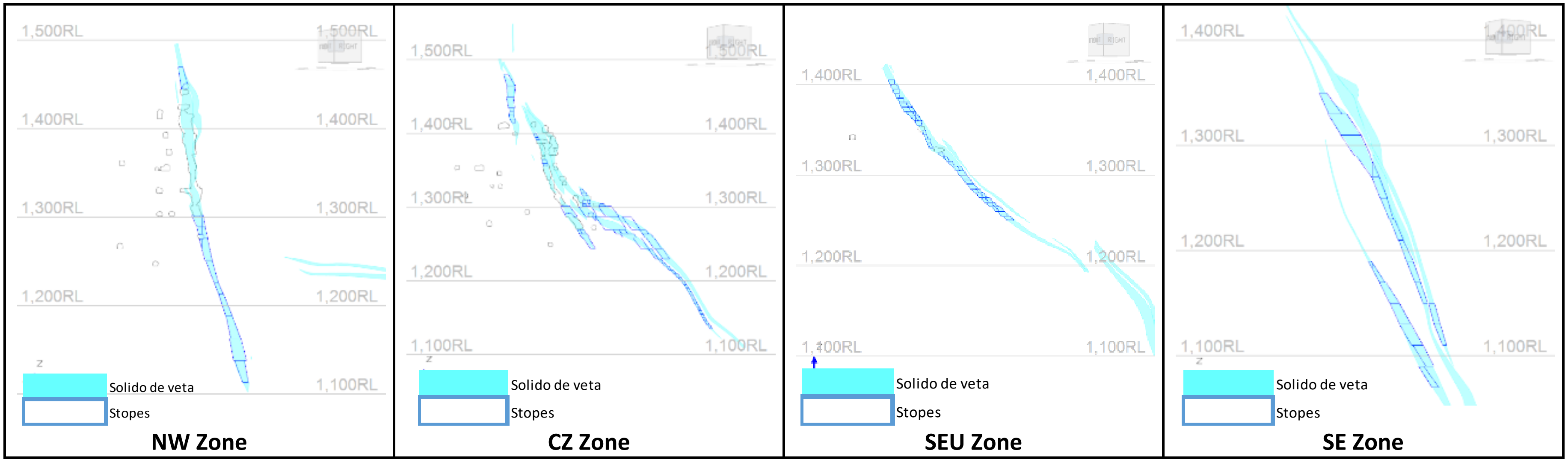


Figure 16.2: Typical Cross-Sections of the Zones at CLG

Table 16.1: Characteristics of the Zones at CLG

Zone	Dip	True Thickness	Ground Conditions	Configuration of Mineralization
NW Zone	75˚ to 90˚	5 to 12 m	The top of zone (previously mined) was affected by the Los Gatos fault, but current reserves are distant from the Los Gatos fault.	Single vein
CZ Zone	Hanging wall 80˚ flattening to 55˚ at depth, footwall vein is steeper	Up to 30 m	Ground conditions in parts of the zone are affected by proximity to the Los Gatos Fault.	Two or three veins of varying thickness and dip
SEU Zone	60˚-70˚ flattening to 55˚ at bottom	3.5 to 8 m	Ground conditions in parts of the zone are affected by the influence of the Los Gatos Fault.	Single vein
SE Zone	About 70˚	4 to 12 m	Better ground conditions as hanging wall are situated 10 to 20 m from Los Gatos fault.	Two veins but generally only one has sufficient grade to mine.

16.2 Geotechnical

The rock mass strength, quality and behaviour are controlled by the major faults, the hydrothermal alteration and in particular the argillic alteration and groundwater inflows.

The rock mass quality is blocky to very blocky and generally characterized as fair to poor, with the RMR_{89} (Bieniawski, 1989) in the range of 60 to 30, with an average of 50. Proximity to the major faults, including their intersections, tend to present poor ground conditions.

The host rhyolite, dacite tuff and andesite rock mass strengths are moderately strong to strong. These rock mass strengths reduce to weak to very weak in the hanging wall of the stopes and when in close proximity to the Los Gatos Fault or other faults, as shown in Table 16.2, which contains the laboratory test results carried out by Stantec for Tetra Tech, 2020.

Table 16.2: Rock Strength Laboratory Test Results (MPa)

Laboratory testing	Hanging Wall Andesite (Los Gatos Fault)	Host Andesite (between ore vein)	Mineralization	Footwall Andesite	Tuff Dacite
Average UCS	14.7	68.4	74.6	69.9	55.8

The rock strength is also impacted by the hydrothermal alteration, in particular, the argillic alteration, which is associated with the epithermal mineralisation of the deposit. Argillic alteration is prominent in the vein contacts and in the proximity of faults.

Groundwater seepage occurs from basically two sources: one related to precipitation and recharge from the alluvium and epiclastic rock mass located in the hanging wall, producing water of normal temperature. The other source is heat-driven upward flow that produces water with relatively high groundwater temperatures (e.g., up to 70° C). Areas with high groundwater flow, primarily in the lower levels of the primary ramps, exhibit reduced rock mass quality causing significant delays in advancing the ramp or other excavations and, due to heat introduced by the groundwater inflow, creates a challenging environment for mine workers. To counteract that, the mine has installed deep dewatering wells inside the mine and plans to add deeper wells as mining progresses to depth.

The typical potential mode of failure for the rock mass is associated with gravity failure (unravelling) due to a loss of confinement, which allows blocks or wedges to move freely along existing weakness planes such as joints and faults. In weak, very blocky and poor rock masses, where the blocks of rock are less than about 10 cm in size, the back of the drift or ramp may collapse within a short stand-up time, requiring the use of shotcrete and installation of light frame metal arches.

With the deepening of the mineralized zones, the magnitude of the induced stresses will increase which could bring rock mass damage initiation to potentially rock mass failure due to the high compressive induced stresses.

In-situ stress tensors obtained from the Acoustic Emission Method (Villaescusa and Hogan, 2016) indicate the principal stress orientations, shown on Table 16.3 (from Tetra Tech, 2020).

Table 16.3: In-situ Stress Tensors

Stress Tensor Component	Value (MPa)	Orientation	Plunge
Major Principal Stress	3 + 0.0532*D	116°	9°
Intermediate Principal Stress	1 + 0.0422*D	25.5°	1°
Minor Principal Stress	0.0273*D	298°	82°

For illustration purposes, assuming an average intact rock strength (UCS) of 75 MPa, surface elevation of 1590 m, the planned lowest levels of 1110 m (NW zone), 1130 m (CZ zone) and 1010 m (SE zone), an in situ major horizontal stress of 1.8 times the vertical stress, Figure 16.3 indicates potential for rock mass failure caused by high compressive induced stresses to occur for depths greater than about 500 m. This figure also indicates the current operating 1250 level might only have seen rock mass damage initiation (or fracturing). The observed excavations on this level confirm that the compressive stresses are still not high at this elevation (depth of 340 m). In-situ stress tests are recommended to investigate the magnitude and orientation of these principal stresses.

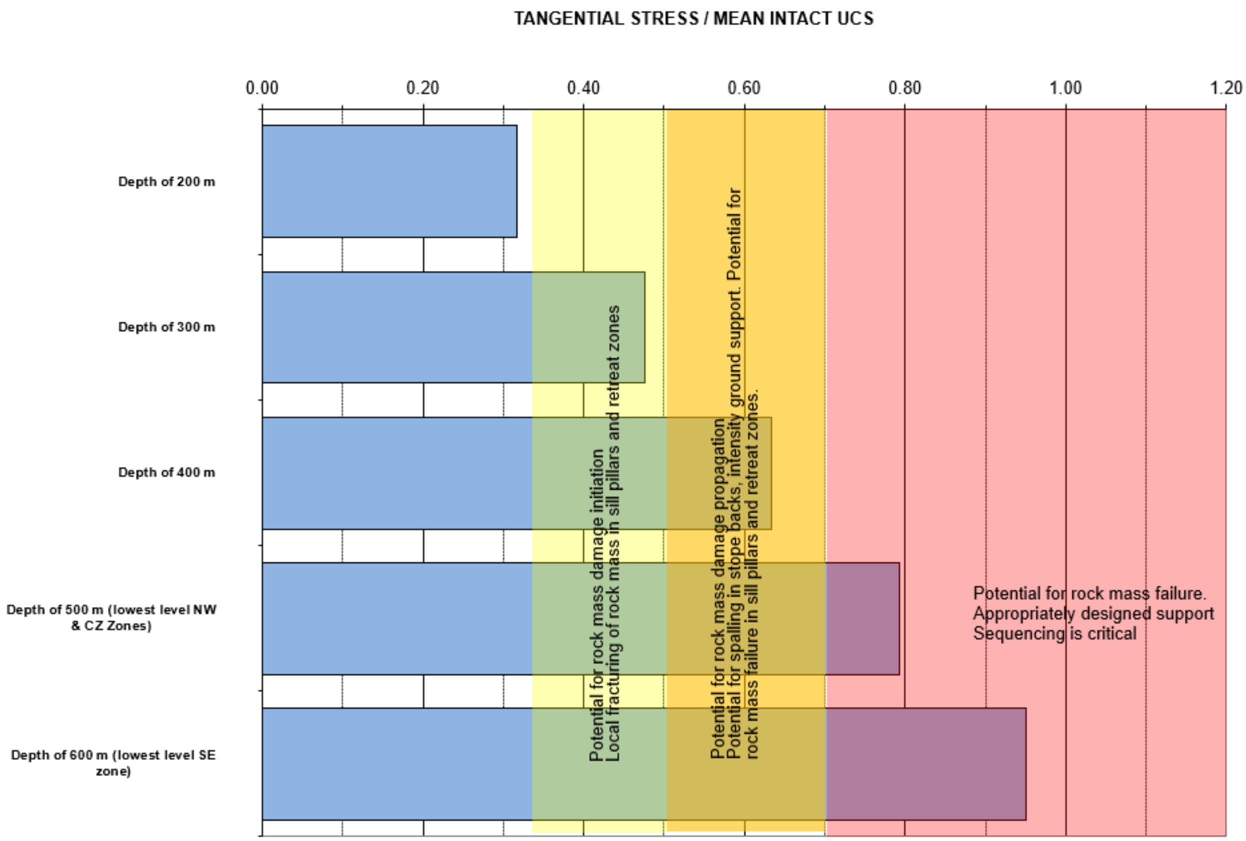


Figure 16.3**: Illustration of Possible Rock Mass Damage and Failure Due to High Compressive Induced Stresses for Different Mining Depths**

16.2.1 Ground Support

16.2.1.1 Ground Support - Tunnels

The ground support designs are based on a commonly used empirical Ground Support Design Graph (Grimstad and Barton, 1993 and revised NGI, 2015), kinematic analyses using the major and minor discontinuities sets, and numerical analysis.

The Ground Support Design Graph relates the rock mass quality obtained by the Q-system (Barton et al., 1974) and the span of the proposed excavation to ground support requirements, using an equivalent dimension, which is defined as the width of the underground opening, divided by the Excavation Support Ratio (ESR), as depicted on Figure 16.4.

For the CLG mine, a ground support specification was developed by CLG geotechnical engineers to provide guidance for a total of six support classes (CS1 to CS5) which are correlated with the rock mass quality varying from Very Good to Extremely Poor (Figure 16.4).

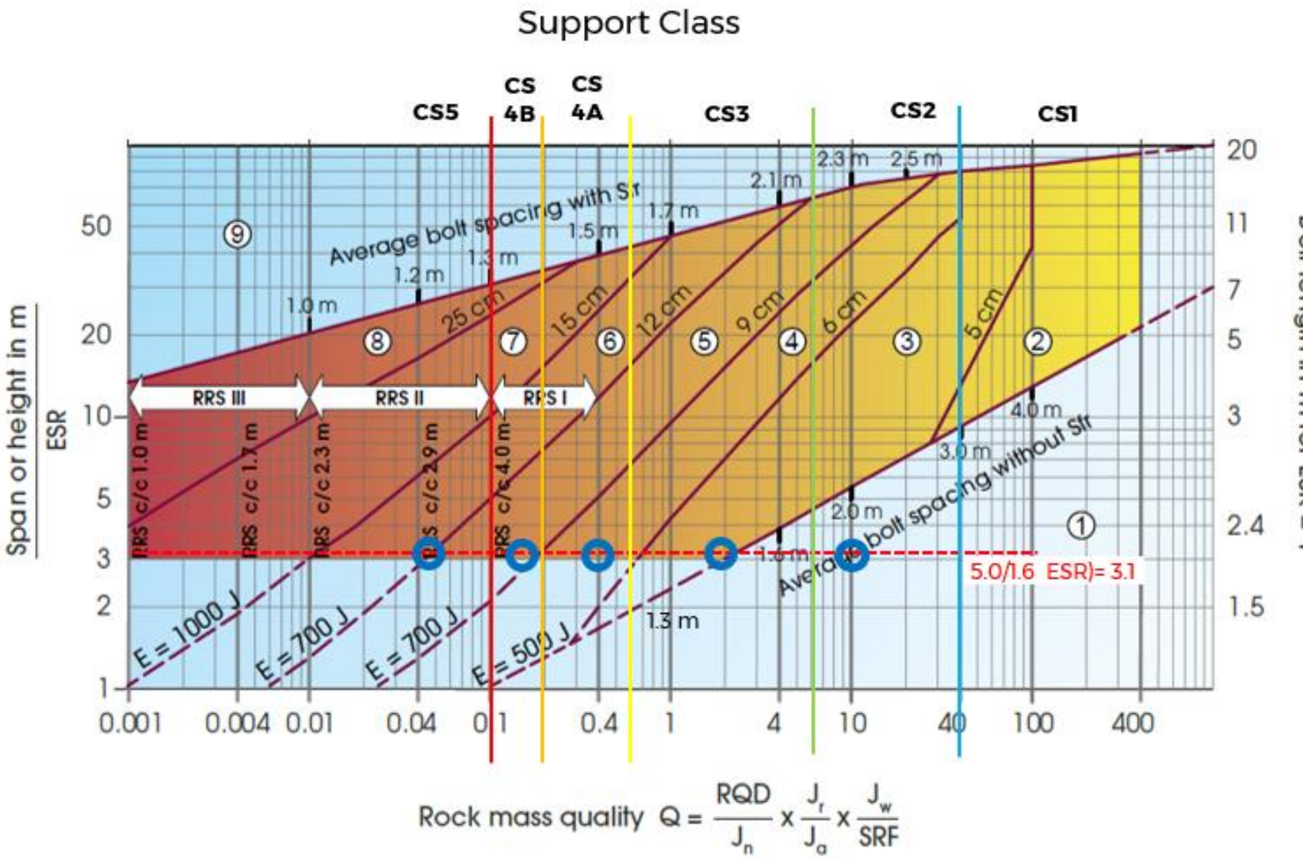


Figure 16.4: Ground Support Design Graph, based on Rock Mass Quality, Q

Based on Figure 16.4 and the kinematic and numerical analysis results (Stantec for Tetra Tech, 2020), Table 16.4 and Table 16.5 provides, for example, the Ground Support Specification in tabular format for temporary and permanent 5.0 m x 5.5 m excavation, respectively.

Table 16.4: Ground Support Specification for Temporary 5 m x 5.5 m Excavation

Support Class	Ground Condition	GSI (Q)	Bolt Type	Bolting	Bolt Spacing	Mesh	Poly fiber Shotcrete fc = 250 kg/cm^2	Steel Arches
CS1	Very Good	80 – 100 (Q > 40)	Split Set: 2.4 m L x 39 mm Φ	Spot bolting of back	As required			
CS2	Good	61 - 80 (6 < Q < 40)	Split Set: 2.4 m L x 39 mm Φ	Pattern bolting of back + walls to 2.8m above floor	1.5 m x 1.0 m Rhombic distribution	As required		
CS3	Fair	41 – 60 (0.6 < Q < 6)	Split Set: 2.4 m L x 39 mm Φ	Pattern bolting of back + walls to 2.8 m above floor	1.5 m x 1.0 m Rhombic distribution	Mesh back and to 2.8 m above floor		
CS4A	Poor	31 – 40 (0.2 < Q < 0.6)	Super Swellex: 2.4m L x 39 mm Φ	Pattern bolting of back + walls to 1.7 m above floor	1.5 m x 1.0 m Rhombic distribution		50 mm on back and walls	
CS4B	Poor	21 – 30 (0.1 < Q < 0.2)	Super Swellex: 2.4m L x 39 mm Φ	Pattern bolting of back + walls to 1.5 m above floor	1.2 m x 1.2 m		75 mm on back; 100 mm on walls;	Light frame arches at 1.5 m spacing
CS5	Very to Extremely Poor	< 20 (Q<0.1)	Super Swellex: 2.4m L x 39 mm Φ	Pattern bolting of back + walls to 1.5 m of floor	1.2 m x 1.2 m		100 mm (50 mm + 50 mm) on back; 150 mm on walls, encapsulating steel frames;	Light frame arches at 1.0 m spacing

Table 16.5: Ground Support Specification for Permanent 5 m x 5.5 m Excavation

Support Class	Ground Condition	GSI (Q)	Bolt Type	Bolting	Bolt Spacing	Mesh	Poly fiber Shotcrete fc = 250 kg/cm²	Steel Arches
CS1	Very Good	80 – 100 (Q > 40)	Super Swellex: 2.4 m L x 39 mm Φ	Spot bolting of back	As required	If required		
CS2	Good	61 - 80 (6 < Q < 40)	Super Swellex: 2.4 m L x 39 mm Φ	Pattern bolting of back + walls to 3.8m above floor	1.5 m x 1.5 m Rhombic distribution		50 mm on back and walls	
CS3	Fair	41 – 60 (0.6 < Q < 6)	Super Swellex: 2.4 m L x 39 mm Φ	Pattern bolting of back + walls to 2.8 m above floor	1.5 m x 1.0 m Rhombic distribution		50 mm on back and walls	
CS4A	Poor	31 – 40 (0.2 < Q < 0.6	Super Swellex: 2.4m L x 39 mm Φ	Pattern bolting of back + walls to 1.5 m above floor	1.5 m x 1.0 m Rhombic distribution	Mesh back and 1.5 m above floor	75 mm on back and walls	
CS4B	Poor	21 – 30 (0.1 < Q < 0.2)	Super Swellex: 2.4m L x 39 mm Φ	Pattern bolting of back + walls to 1.5 m above floor (invert)	1.2 m x 1.2 m	Mesh back and 1.5 m above floor	75 mm on back; 150 mm on walls, encapsulating steel frames;	Light frame arches at 1.5 m spacing
CS5	Very to Extremely Poor	< 20 (Q<0.1)	Super Swellex: 2.4m L x 39 mm Φ	Pattern bolting of back + walls to 1.5 m of floor (invert);	1.0 m x 1.0 m		100 mm (50 mm + 50 mm) on back; 200 mm on walls, encapsulating steel frames;	Light frame arches at 0.75 m spacing

For tunnel intersections, the effective span equates to the diameter of the largest circle that can be inscribed within the open intersection area (i.e., mined dimensions, not planned dimensions). For ramp intersections with effective spans < 7.5 m, secondary 3.6 m (12') long Swellex™ Pm24 bolts on a 1.5 m x 1.5 m pattern will be installed whereas for effective spans in the range of 7.5 m to 10 m, secondary 6 m long, 25 tonne, bulged cable bolts on a 1.5 m x 1.5 m pattern will be installed. The secondary support is installed in the back extending a minimum of two bolt lines (or rings) before and beyond all the intersection sides and will be installed prior to the opening of the full intersection span.

16.2.1.2 Ground Support – Stopes

For the cut-and-fill method, stope dimensions are based on the Stand-up Time Curve and the Span Design Curve. The Stability Graph Empirical Method was used to determine longhole stope dimensions. The stope design dimension will describe the methodology used, the results obtained, and the recommendations for stope dimensions from a geotechnical perspective.

16.2.1.3 Cut-and-fill Rock Assessment and Ground Support

From the rock mass classifications using RMR_{89} (Bieniawski, 1989), the empirical unsupported Span Design Curve was used to determine the span of excavations per domains (Unstable, Potentially Unstable, or Stable) with respect to the RMR range of 40 to 60 (Figure 13-5).

For the host rock mass at CLG, an RMR of 40 to 60 was used, which is one standard deviation (10) above and below the average RMR value of 50 for the mineralized andesite. As graphically demonstrated, the figures show the following.

- At a minimum RMR of 40, only spans up to 8.3 m fall within the Potentially Unstable domain (below the Unstable domain).
- For the average RMR of 50, spans of less than 13 m fall within the Potentially Unstable domain, and spans of less than 5-m fall within the Stable domain.
- For an RMR of 60, spans less than 19 m fall within the Potentially Unstable domain, and spans less than 9 m fall within the Stable domain.

The values illustrated in Figure 16.5 are for unsupported spans. Since ground support will be used, the maximum recommended span will be the Stable limit of 9 m for an RMR of 60, bearing in mind that encountering rock of a lower RMR may result in ground problems, and ground support requirements may have to be increased.

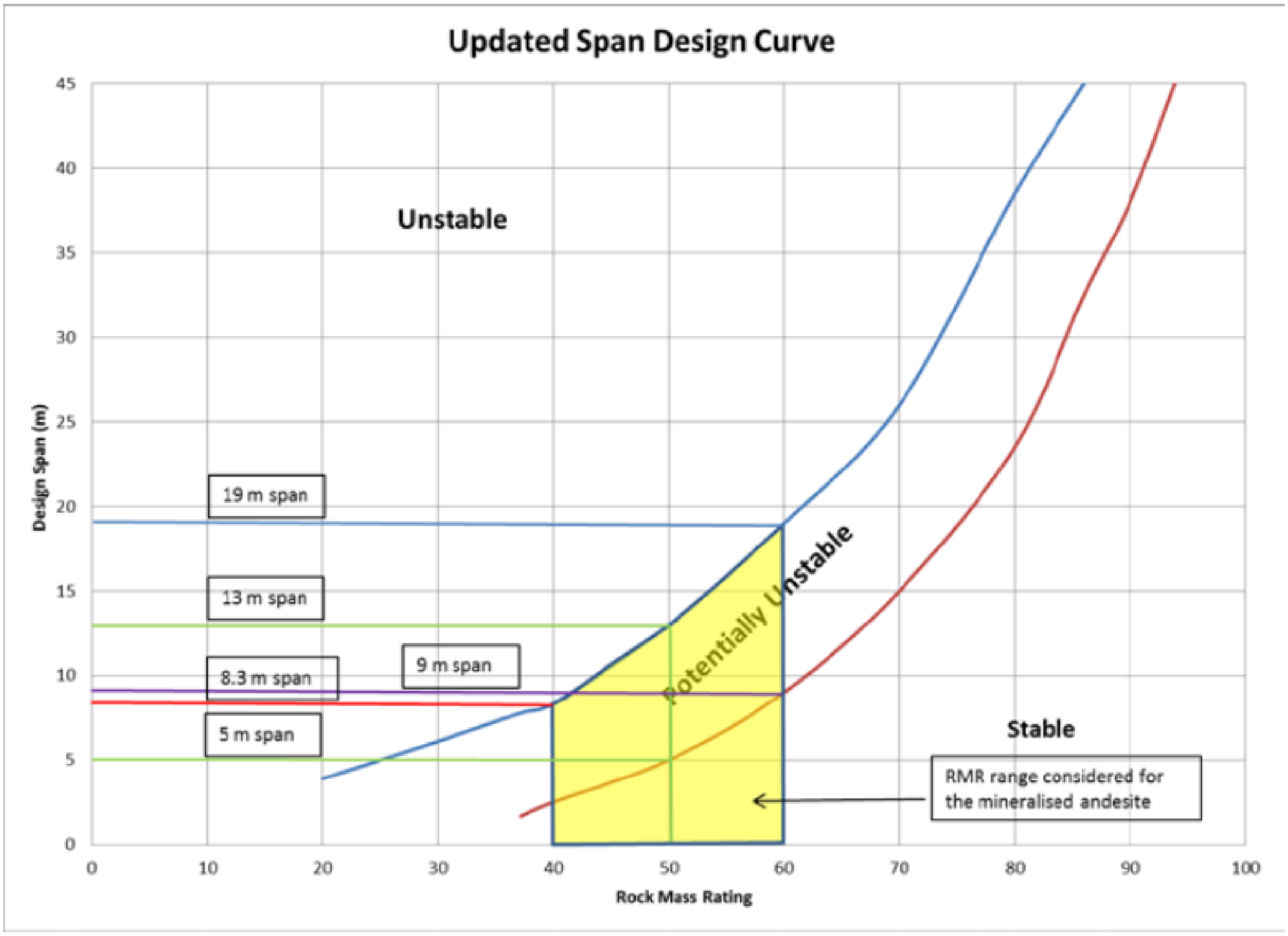


Figure 16.5**: Design Span for CLG Cut-and-Fill Stopes**

Considering the maximum span of 9 m with an ESR of 3.0 and Q varying from 0.4 to 10, Figure 16.4 recommends the support Class 1 to Class 3. Class 1 consists of no ground support or just spot bolting, while Class 3 includes systematic bolting with five to six cm of fiber-reinforced shotcrete. Due to the temporary nature of the cut-and-fill openings, welded wire mesh is recommended instead of shotcrete.

16.2.1.3.1 Longhole Stopes

The empirical Stability Graph Method (Potvin, 1988) was used to evaluate long-hole stope dimensions. This method consists of comparing the hydraulic radius (HR) of a stope surface (back, end wall, footwall, or hanging wall) to a stability number (N’). Table 16.6 lists the values used to determine N and HR.

Table 16.6: Parameters Used to Establish HR and N

Surface	Stope Width or Strike Length (m)	Strike Length or Height (m)	Hydraulic Radius (m)	Q' Average	A	B	C	N'
NW – HW	15	30	5.0	1.3	0.6	0.5	8.0	3.0
NW – Back	8	15	2.6	7.4	0.4	0.9	2.0	5.3
CZ – HW	40	20	6.6	2.2	0.7	0.5	8	6.2
CZ – Back	8	40	2.9	7.4	0.6	0.9	2.0	8.0
SE – HW	12	20	3.8	1.4	0.6	0.5	5.0	2.0
SE – Back	8	12	2.4	7.4	0.1	0.9	2.0	1.3

Figure 16.6 illustrates the results obtained for the three mineralized zones. Stope backs fall within the Stable Zone. The hanging wall stopes fall approximately in the middle of the Unsupported Transition Zone, which is considered acceptable.

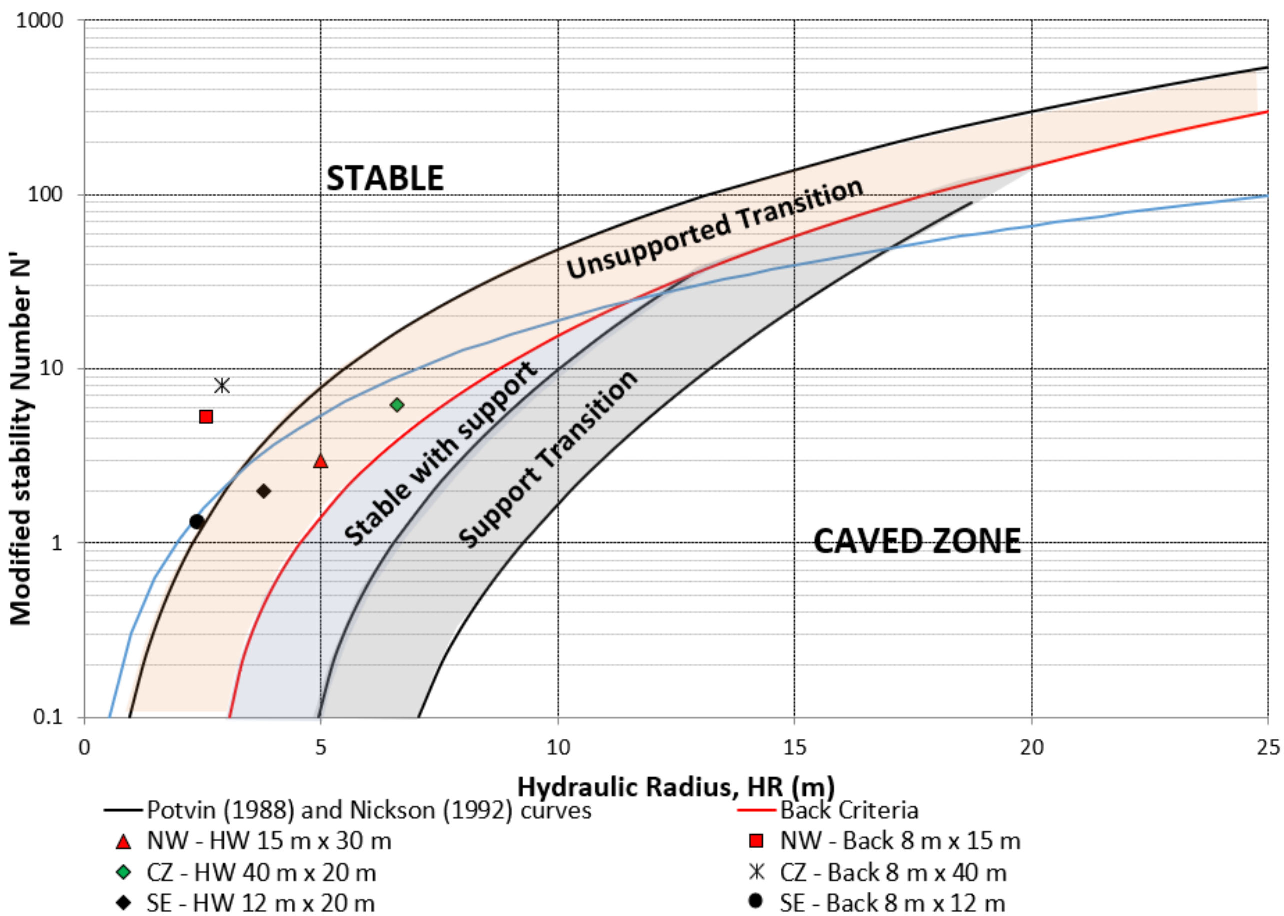


Figure 16.6: Stability Graph for Transverse and Longitudinal Stopes

Top and bottom drill drifts for bulk mining techniques are subjected to blast damage and large mine-induced stress change. Therefore, the ground support must be able to sustain the additional stresses caused by the mining method. Furthermore, the drill drifts are usually open for more than six months, especially with a bottom-up sequence where the drill drift on the upper sublevel will eventually become a mucking drift on the next lift. A stiff support will be used, such as fully grouted cable bolts.

Table 16.4 provides the reference for the ground support for the top drill drift, assuming 5 m span with an ESR of 1.6 to consider vibration and CS-3 fair rock mass quality (Q in the range of 0.6 to 6). Given the uncertainties with respect to the behavior of the ore, the rock mass deterioration due to blasting, and the mine-induced stress change, systematic bolting has been recommended and is used. The drill drifts are relatively temporary, so welded wire mesh is the recommended support, rather than shotcrete.

16.2.1.4 Crown Pillar

The crown pillar constitutes the rock mass not mined at the top of the underground mine. The pillar is left to avoid creating a permanent void between the mine workings and surface. To determine the height of the pillar, which must remain undisturbed, the geotechnical engineer considers the topography, geology, rock mass quality, hydrogeology, mining method, and consequences of pillar failure.

A stability assessment of the Los Gatos crown pillar has been undertaken by Dr. Luiz Castro and reported to Gatos Silver in a Technical Memorandum (L. Castro, 2022). Both a Scaled Span Analysis and long-term void migration assessment were completed.

The rugged topography at CLG results in crown pillar thicknesses ranging from 98 m to 206 m, shown in Figure 16.7, for stope spans between 5 m and 9 m.

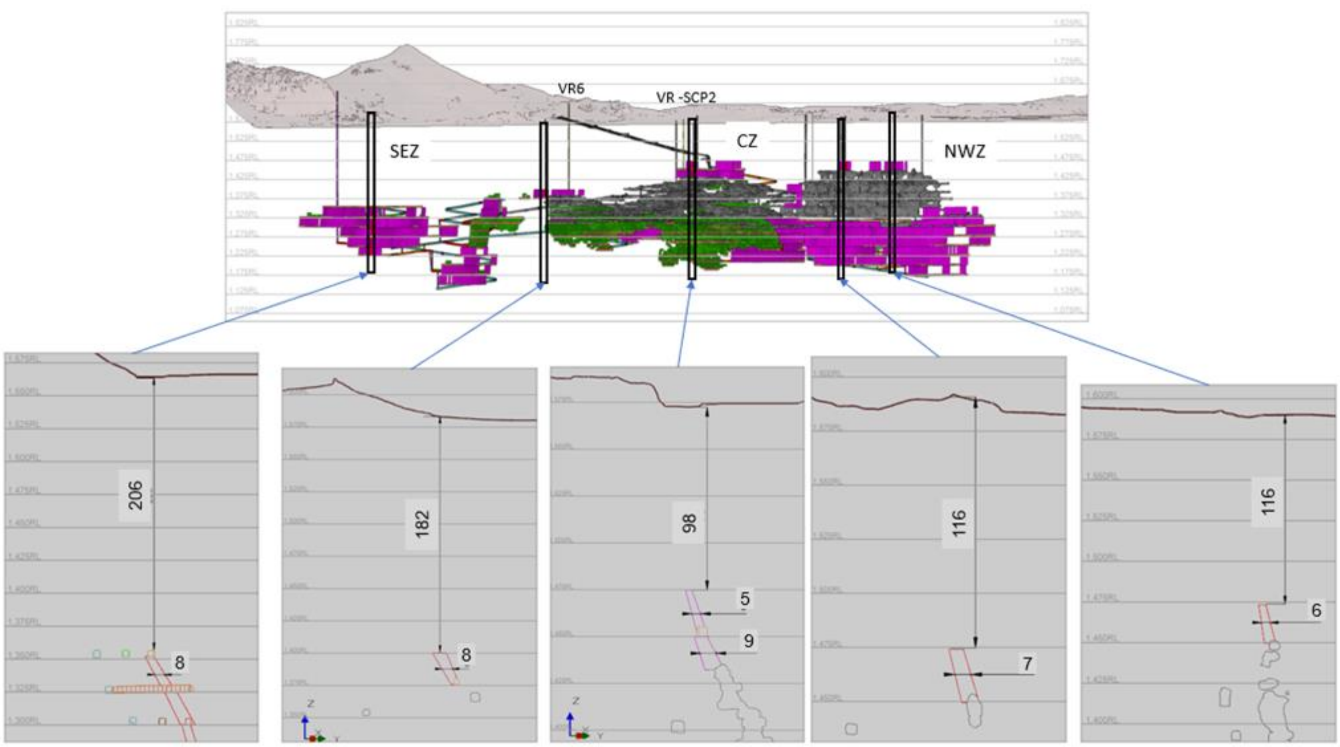


Figure 16.7: Crown Pillar Thickness Along Deposit Strike

Details of the locations noted in the above figure are provided on Table 16.7.

Table 16.7: Estimation of Crown Pillar Thickness and Stope Dimensions

Mining Area	Crown Thickness (m)	Stope span (m)	Stope Inclination (°)	Stope Height (m)
SEZ	206	8	60	25 + 25
SEZ to CZ	182	8	65	25
CZ	98	5 to 9	65	25 + 25
NWZ	116	7	75	27
NWZ	116	6	75	25

For the planned stope spans, described in Table 16.7, the crown pillar is considered stable in the short and long term for all the geometries and rock mass conditions evaluated. In addition, void migration to surface is unlikely to occur for the planned upper stope dimensions for the different mineralized zones. This means that the volume of the bulked rock will tend to fill the available underlying voids, and the upwards progression of failure will be halted for the planned 25 m high stopes.

16.3 Hydrogeology

16.3.1 Regional Hydrogeological Setting

The mine area is located entirely within the area defined by CONAGUA (2020) as the San Felipe de Jesus Aquifer. The closest adjacent aquifer areas are the Upper Rio San Pedro to the north and the Valley de Zaragoza to the east. The San Felipe de Jesus Aquifer as defined by CONAGUA is a groundwater basin or management area rather than an aquifer in the strict sense. Within its boundaries the San Felipe de Jesus Aquifer area contains multiple aquifer and aquitard units within several hydrographic basins along the upper part of the Rio Conchos, an important river of northern Mexico and a major tributary of the Rio Grande. The Cerro Los Gatos mine itself is located in the upper drainage of Arroyo de Santo Toribio, an ephemeral tributary of the Rio Conchos.

16.3.2 Hydrogeologic Units

The principal water-bearing formations (Hydrogeologic Units - HGUs) present at surface and in the underground mine are:

- Alluvium (restricted to Arroyo Santo Toribio)
- Partially consolidated sandstone and conglomerate epiclastics (restricted to the NE side of the Los Gatos Fault)
- Volcanic formations (fractured and brecciated dacite, rhyolite, andesite)
- Los Gatos Fault gouge zones
- Los Gatos Fault damage zones
- NNW-striking and ENE-striking faults damage zones

These HGUs are cut by several sets of faults that further compartmentalize the groundwater system. This compartmentalization is a consequence of fault zone formation processes that commonly produce zones of increased or reduced hydraulic conductivity compared to adjacent un-faulted rock.

The process of fault displacement forms zones of closely spaced fracturing or brecciation (damage zones) which, with increasing displacement, can develop a zone of fine-grained fault rock or gouge (the fault core) flanked by damage zones. Fault damage zones can form areas of higher fracture porosity and K immediately adjacent to low permeability fault cores and lower permeability undamaged rock. This close association of different hydraulic properties means that large displacement fault zones can have complex hydraulic behavior and can variously behave as barriers to flow, flow conduits or combined barrier-conduits, dependent on scale of displacement and displacement history.

The Los Gatos Fault has up to several meters thickness of fault gouge over long distances along strike and up and down dip. This low-permeability material is interpreted to act as an aquitard (groundwater flow barrier), based on the observed low inflow rates in stopes where thick clay zones are found on the footwall side of the Los Gatos Fault. The Los Gatos Fault gouge HGU is an important control on groundwater movement at the mine.

The low-K gouge zone of the Los Gatos Fault HGU is flanked by damage zones of variably heavily fractured rock, formed in the Sandstone and Conglomerate epiclastics HGU on the NE side and the Volcanic HGU on the SW side. These have higher groundwater storage and hydraulic conductivity parallel to the Gatos fault than the relatively less fractured rock at a greater distance from the fault and form distinct HGUs that are interpreted as allowing local groundwater movement parallel to the Los Gatos Fault gouge HGU, where infiltration of groundwater from surface or inflow across the Los Gatos Fault occurs.

Fault damage zones are known to be associated with some of the NNW-striking and ENE-striking cross-faults that cut the Los Gatos Fault. Some structures of these orientations, such as the “Falla Aportada NW” which cuts the Los Gatos Fault in the NWZ are major water-bearing structures in the underground mine at Cerro Los Gatos and they are interpreted as distinct HGUs that have the potential to allow groundwater flow across the Los Gatos and associated parallel faults.

16.3.3 Water Table

Within the Los Gatos Mine, the water table was first encountered in 2018 at an elevation of approximately 1,400 masl. The water table appears to have been essentially flat at this time, which is consistent with good lateral hydraulic connectivity within the higher K volcanic formations that host the ore body where the stopes were mined.

The subdued water table topography within the underground workings has been sustained during drawdown caused by dewatering pumping at progressively higher rates since 2019. In May 2022 (MCLG, 2020b) the water table surface within the mine dipped towards the NW, declining from the SE end of the Central Zone (at about 1,310 masl) to the NW end of the Northwest Zone (at 1,290 masl), indicating a gradient of about 0.02. This gradient towards the NW is towards the area of highest dewatering pumping rates and the lowest elevation workings.

In June 2023, the static water level at the NW end of the of the Northwest Zone had been lowered from 1,290 masl to 1,247 masl, a localized reduction of approximately 46 meters over the 12-month period. Individual underground wells had shown lesser rates of drawdown.

Static water levels are measured from a total of seven piezometers, four collared in underground monitoring wells and three piezometers collared from surface. Deep wells that allow monitoring of groundwater levels and gradients are currently restricted to the immediate area of the underground mine. The lack of deep monitoring wells in the area to the NE and SW of the mine away from the Gatos Fault prevents the general shape of the water table or phreatic surfaces from being mapped and the radial extent of drawdown impacts from being assessed.

The relatively impermeable Los Gatos Fault Gouge HGU in the core of the Gatos Fault is interpreted as having greatly restricted groundwater inflow from the saturated sandstone HGU, which is presumed to have a much higher elevation water table (comparable to pre-mining elevation).

16.3.4 Recharge

Recharge to the groundwater system is from infiltration of rainfall, infiltration of flow in the Arroyo Santo Toribio and groundwater inflow from the upgradient area of the Rio Conchos Graben and adjacent mountains. In the mine area, flow in the Arroyo Santo Toribio includes intermittent response to precipitation events and perennial flow over a short distance downstream of the discharge of underground dewatering water from the sedimentation and cooling pond. Infiltration of precipitation is expected to preferentially recharge the epiclastic HGU with lower rates of recharge reaching the volcanic HGU.

Geothermal water inflow to the underground workings occurs at elevations below 1,450 masl. The water temperature of the inflow ranges from 41° C to 72.1° C, with the highest temperatures found at greatest depth in the Central zone. The highest temperature groundwater inflow is associated with the Gatos Inferior fault. The geothermal inflow is inferred to represent upwelling of buoyant water from depth along conductive fault and fracture zones. Elevated groundwater temperatures were noted in early field mapping (Geologic Mapping, 2013) to the SE of the underground mine, so further areas of geothermal inflow may be encountered associated with Anti-Gatos Fault parallel structures in currently undeveloped areas.

16.3.5 Discharge

Under pre-mining conditions, groundwater discharge is likely to have occurred through evapotranspiration from the alluvial aquifer along Arroyo Santo Toribio and through outflow SE towards the Rio Concho. At present, the major groundwater discharge is through pumping from dewatering wells and underground sumps. A water balance was developed before the start of mining; however, a new model is required to incorporate the current understanding of water flows gained through mine development and monitoring activities.

16.3.6 Conceptual Hydrogeologic Model

The key elements of the conceptual hydrogeologic model are summarized in Figure 16.8.

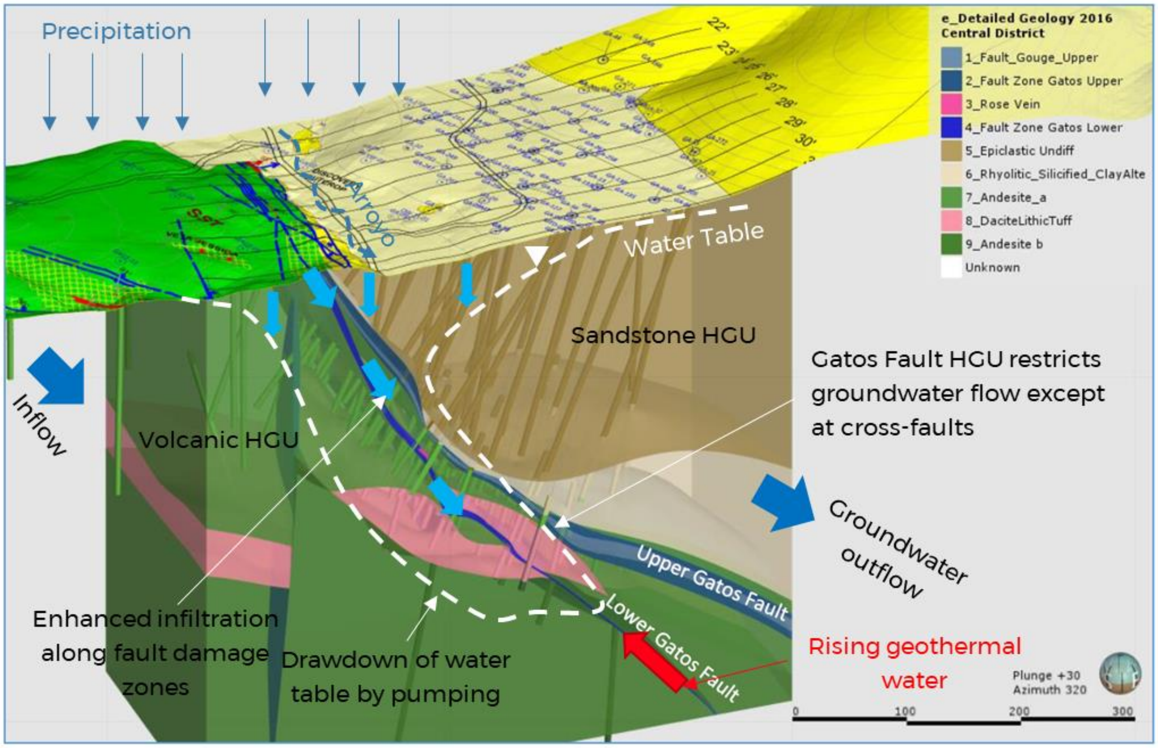


Figure 16.8: Conceptual Hydrogeologic Model (adapted from Rowearth, 2016)

16.4 Groundwater Management

The CLG deposit is situated in a groundwater basin called the San Felipe de Jesus Aquifer. Dewatering of the underground mine is achieved through pumping from a combination of wells and underground sumps. Groundwater extracted from wells is non-contact water. Groundwater not intercepted by dewatering wells enters the mine workings as contact water. The dewatering wells draw down the phreatic surface below the pre-mining water-table elevation, thereby reducing the volume of groundwater entering the underground workings and requiring discharge and management as contact water.

Excessive groundwater inflows adversely affect mining operations because:

- They impede mine development, especially lower ramp development.
- They contribute heat to the underground work environment.
- They generate contact water, which may require treatment to reduce suspended solids and contaminants.

In the early year of operations, the mine established 18 wells drilled from surface to draw down the groundwater. These wells have depths ranging from 350 to 530 m and hole-bottom elevations ranging from 1,118.0 masl to 1,246.5 masl. In recent years, CLG has established additional dewatering wells in the underground mine (Table 16.8). As the mine has deepened, the underground dewatering wells have proven more effective than those on surface. Consequently, the focus has shifted from surface wells to underground wells. Only two of 11 surface wells operating in April 2022 remained active as of this report date (Table 16.9). The other nine were shut down because they were not making an appreciable impact on groundwater inflows to the mine. Figure 16.9 illustrates the locations of the active and inactive surface wells. Of the two active wells, #17 was temporarily inoperative in April 2023 and is expected to be returned to service in Q4 2023.

Table 16.8: Underground Dewatering Wells (Jul 2023)

Location	Water level (masl)	Flow (L/s)
UG Well #1 NWZ 1370	1,239.26	170
UG Well #2 NWZ 1370	1,238.00	170
UG Well #1 NWZ 1277	1,209.41	100
UG Well #2 NWZ 1277	1,208.40	100
UG Well #3 NWZ 1277 (In construction)	n/a	150-170
UG Well #1 CZ 657	1,240.00	20-25
UG Well #2 CZ 657	1,240.00	20-25
UG Well #1 NW CRO-171	1,230.00	20-26
UG Well #2 NW CRO-171	1,230.00	20-27

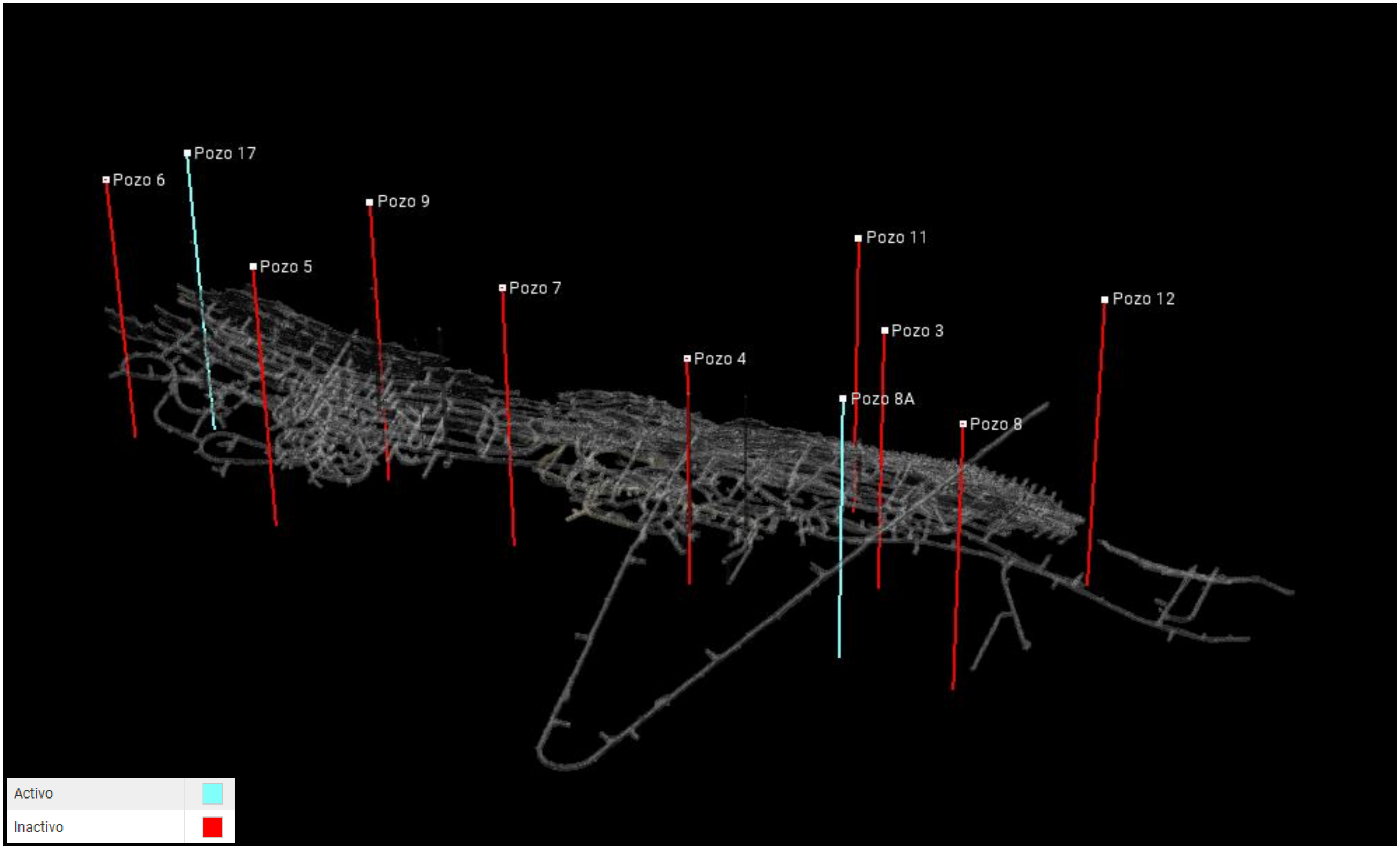


Figure 16.9: Isometric View Showing Surface Dewatering Wells and Mine Excavations

Table 16.9: Surface Dewatering Wells (July 2023)

Well Number	Easting	Northing	Collar Elev. (masl)	Total Depth (m)	TD elevation (masl)	Water Level (masl)	Flow (L/s)	Los Gatos Fault
1	368580.2	3047200	1,595.30	530	1,065.30	-	Inactive	
2	368371.3	3047316	1,596.50	350	1,246.50	-	Inactive	
3	368847.9	3047275	1,574.00	410	1,164.00	-	Inactive	FW
4	368630.9	3047245	1,588.60	376	1,212.60	-	Inactive	FW
5	368188.7	3047462	1,593.80	410	1,183.80	-	Inactive	FW
6	368041.9	3047637	1,594.50	372	1,222.50	-	Inactive	FW
7	368451.9	3047401	1,580.30	410	1,170.30	-	Inactive	FW
8	368893.4	3047059	1,624.10	420	1,204.10	-	Inactive	FW
8A	368781.3	3047142	1,600.50	410	1,190.50	1,261	47	FW
9	368325.5	3047569	1,581.50	460	1,121.50	-	Inactive	HW
11	368845.4	3047425	1,583.10	436	1,147.10	-	Inactive	HW
12	369092.8	3047294	1,571.10	400	1,171.10	-	Inactive	HW
17	368133.4	3047684	1,583.30	465	1,118.00	1,248	63	HW

Underground wells now produce the majority of well dewatering flows. In July 2023, four high-capacity wells were operating in the NW, two on the 1370 level (2 x 170 L/s) and two on the 1277 level (2 x 100 L/s). A third high-capacity well was under construction on the 1277 level, with a planned capacity of 150-170 L/s and a depth of approximately 180 m. In addition, there were four lower-capacity wells (20-25 L/s) in the NW and CZ. By June 2023, the static water level in the NW had dropped to 1,247 masl, representing a drawdown of 153 m relative to the pre-mining water table elevation of about 1,400 masl. The high-capacity wells intersect a transmissive water-bearing structure in the NW called Falla Aportadora NW. This fault strikes approximately SW-NE, cutting across the Los Gatos fault. It is the predominant conduit for groundwater inflow to the rock mass in the NW. Drawdown of the groundwater level of this structure through well dewatering and mine development is expected to significantly reduce potential inflows to the mine workings of the NW. Mining the zone will require drawing down the groundwater to its lowest elevation of the Mineral Reserve in the NW, the 1100 level. Therefore, the groundwater in the NW must be drawn down a further 147 m from the current level for a total of 300 m relative to the pre-mining water-table elevation.

As the principal groundwater inflow is thought to occur through cross-faults cutting the Los Gatos Fault in the NW, CLG expects that dewatering of the NW will also reduce potential groundwater inflows to the CZ and SE. The SE zone has the deepest Mineral Reserve, defined to a depth of 1,000 masl. CLG expects modest contact water flows of about 75 L/s in the SE. Spare capacity to handle this water will be available due to the expected declining inflow rates of contact water in the NW and CZ. Formation-specific capacity has fallen with time and increasing depth of drawdown (17.48 L/s/m in 2019 to 5.37 L/s/m in 2023), indicating that the drawdown rate per unit increase in pumping rate has progressively risen. This trend suggests that additional dewatering efforts in future should have a progressively greater drawdown than in previous years.

The graph in Figure 16.10 shows how the flow rates and the dewatering approach have evolved over recent years. In May 2023, the total mine dewatering rate averaged 822 L/s, of which 25% was contact water, 7% came from surface wells, and 68% from underground wells (Table 16.10). This dewatering rate is slightly lower than the average of 873 L/s recorded the previous year. Throughout the LOM, CLG projects the total dewatering rate to peak at 1,300 L/s, of which 23% will be contact water, 8% will come from surface wells, and 69% from underground wells. CLG expects that non-contact water flow rates will increase by approximately 300 L/s as the lower levels of the mine are developed. About 150 L/s of this increase will come from the third well under construction on the 1277 level and the remainder from one or two future wells around the 1225 or 1200 level of the NW.

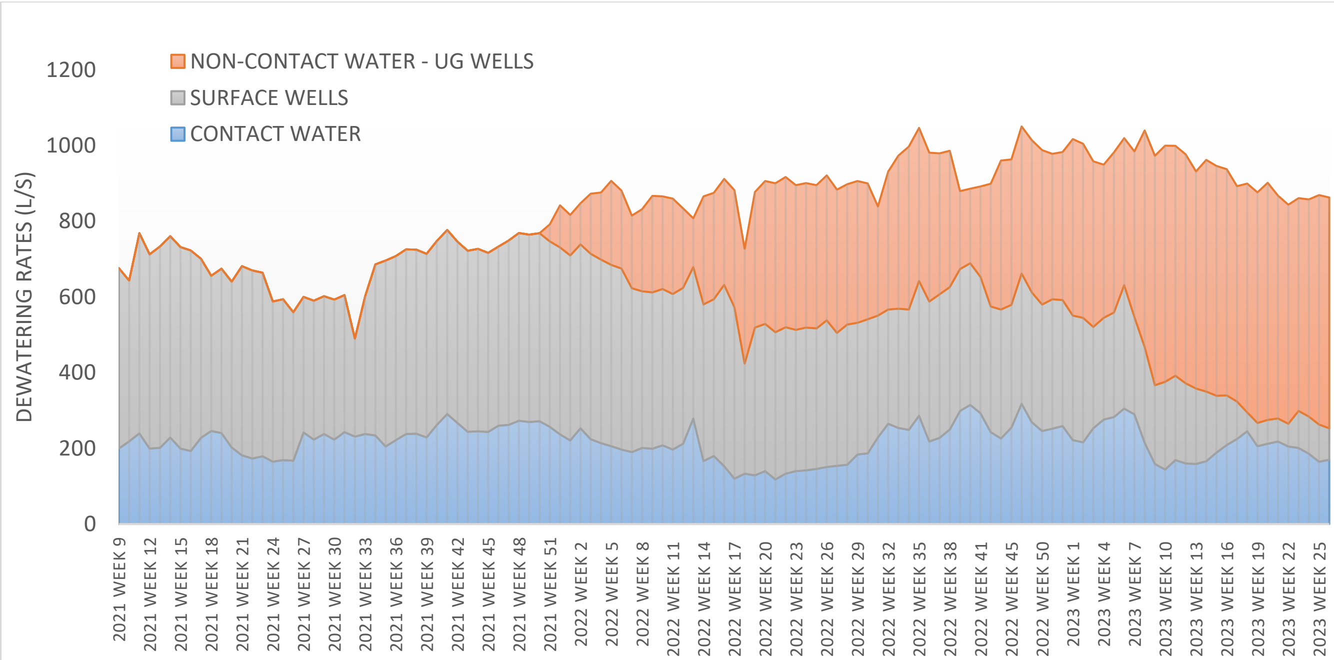


Figure 16.10: Dewatering Rates from March 2021 to June 2023

Table 16.10: Dewatering Flow Rates and Drawdown of the Groundwater

	Contact Water Flow (L/s)	Surface Well Flow (L/s)	Underground Well Flow (L/s)	Total Well Flow (L/s)	Total Drawdown (m)	Drawdown Elev'n masl	Specific Capacity L/s/m
Recorded April 2018	52	0	0	52	0	1,400	0
Recorded May 2019	244	333	0	577	33	1,367	17.48
Recorded May 2020	145	431	0	576	40	1,360	14.40
Recorded May 2021	227	439	0	600	44	1,356	13.64
Recorded May 2022	210	357	306	873	87	1,313	10.03
Recorded May 2023	206	54	562	822	153	1,247	5.37
Projected to establish 1125 NW Level	300	100	900	1,300	300	1,100	4.33

In addition to wells and sumps, the dewatering strategy depends on the capacity of the pumping infrastructure to discharge water from the mine. The non-contact water pumping station on the 1390 level has a 780 L/s capacity and currently pumps 600-620 L/s to surface. The contact water pumping station on the 1384 level has a 375 L/s capacity and currently pumps about 220 L/s to surface, of which approximately 170 L-180 L/s comes from the deepest parts of the primary ramps. CLG expects this contact-water flow rate to decrease when the third well on the 1277 level comes online in October and when surface well #17 is reactivated. The contact water dewatering system has spare capacity to handle well water if needed. CLG has budgeted to increase the capacity of the contact water pumping station to 450 L/s; however, CLG is reviewing this requirement based on the strategy of increasing non-contact water capacity.

The mine's strategy for groundwater management is to attain an optimal balance between contact water and non-contact water dewatering. CLG continues to shift its focus towards non-contact water dewatering in the NW and away from contact water, given the recent successes of the NW wells. The monitoring and experience through 2023 have shown that the deep wells targeting the main water-bearing structure in the NW are an effective way of dewatering the lower levels of the mine and reducing contact water inflows in the primary ramps, including in the CZ.

A regional numerical groundwater flow model was developed for the site in 2016 and updated in 2019. CLG stopped maintaining the model as it significantly underestimated inflow rates to the underground and generally failed to be a useful predictive tool. However, CLG plans to update it in H1 2024. WSP recommends that CLG update the original model or replace it with a new one to simulate the mine-scale water balance. Incorporating the knowledge, understanding, and experience gained contending with the groundwater over the past several years into the new or updated model should enhance its predictive capability. It should provide insight into the infrastructure and flow rates required to draw down the groundwater in the NW and the concurrent dewatering of the CZ and SE.

The QP is of the opinion that CLG's dewatering strategy is an effective approach to groundwater management and controlling inflows to the mine.

16.5 Mine Design

The Mineral Reserve estimate is based on a mine design and schedule that was prepared in Deswik software. Table 16.11 and Table 16.12 summarize the parameters for development and production used for mine design and planning at CLG. The development parameters include the cross-sections of drifts and ramps, the diameters of ventilation raises, and the advance rates for the diverse headings. The production parameters include mining method, pillar thickness, dip constraints, minimum mining widths, stope dimensions, and production rates.

The following general planning criteria were applied to determine priorities for production:

- Highest grade
- Highest productivity
- Lowest mining cost

Stope productivities were based on typical total stope cycles, including cable bolting, slot raising, longhole drilling, production blasting, remote mucking, fill fence construction, backfilling, and delay for backfill curing time.

Primary ramp development rates are an important assumption for the mine plan and mine stope sequencing. The LOM schedule considers primary ramp development rates that range between 20 m per month to 75 m per month in each primary ramp, depending on ramp location and design. Dewatering requirements and groundwater inflows in the lower development levels at CLG can negatively impact the rate of development.

Table 16.11: Mine Design Parameters - Development

Item	Description
Ramps	
Dimensions	5.0 x 5.5 m
Grade	-15%, -13% in turns, -7% at intersections
Curves	Minimum 25 m radius
Footwall drifts	5.0 x 5.0 m
Crosscuts and ore drives	5.0 x 5.0 m
Future surface ventilation raises	2.4 and 4.1 m diameter
Interior ventilation raises	3.1 and 4.1 m diameter
Development advance rates	
Lateral single heading in ore	3.4 d/day
Lateral multi-headings in ore	6.8 m/day
Lateral single heading in waste	3.4 m/day
Lateral multi-headings in waste	13.6 m/day
Vertical in waste	0.83 m/day

Table 16.12: Mine Design Parameters - Stopes

Item	Description
Modifying factors	
NSR cut-offs	See Item 15.3
Dilution	See Item 15.3
Mining recovery	See Item 15.3
Pillar between veins	5.0 m
Cut-and-fill	
Deposit dip	< 55˚
Minimum mining width	3.5 m FW to HW
Maximum mining width	8.0 m
Height	5.0 m
Production rate	251 t/day
Longitudinal longhole	
Deposit dip	≥ 55˚
Drill/mucking drift width	3.5 to 5.0 m
Minimum mining width	2.0 m
Maximum mining width	8.0 m
Maximum panel length	12.0 m
Production rate	2,678 t/day
Transverse longhole	
Deposit dip	Not applicable
Minimum mining width	8.0 m
Maximum panel length	21.0 m perpendicular to strike
Stope width	9.0 m parallel to strike
Production rate	2,678 t/day
Longhole stope dimensions - NW	
Height	20 m
Length	15 m
Longhole stope dimensions - CZ	
Height	10 m
Length	40 m
Longhole stope dimensions - SE	
Height	15 m
Length	15 m

16.6 Mining Methods

16.6.1 Criteria for Mining Method Selection

The configuration of the deposit is suitable for sublevel-type mining methods. CLG uses two mining methods: cut-and-fill (CAF) and longhole stoping (LHS). Both methods can be applied longitudinally or transversely, depending on the characteristics of the deposit. With longitudinal CAF, drifts or the full face of the cut advance along the vein parallel to its strike, whereas, with transverse CAF, part of the cut is mined by driving drifts to the hangingwall at right angles to the strike. With longitudinal LHS, the vein is excavated parallel to the strike of the deposit. In contrast, with transverse LHS, it is mined perpendicular to the strike, between the footwall and hangingwall.

CLG considers the following criteria when selecting a mining method or methods for a zone.

16.6.1.1 Dip of the Vein

CLG uses longitudinal LHS in those parts of the deposit that dip at 55° or greater and CAF where it dips at less than this inclination. For LHS to be viable, the vein must have sufficient inclination so that the broken ore can be drawn down along the stope footwall by gravity. In contrast, mechanized CAF with ramp access does not rely on gravity to remove material from the stope. However, using transverse LHS, CLG successfully mines wider parts of the CZ dipping at less than 55°.

16.6.1.2 Width of the Vein

For LHS, veins are mined longitudinally if narrower than 8 m and transversely if wider. The 8-m maximum width for longitudinal LHS is based on the geotechnical characteristics of the deposit.

For CAF, veins narrower than 8 m can be mined longitudinally and full face in a single pass. Wider veins are mined using drift-and-fill. With this approach, the cut is mined by driving drifts through the ore, which are subsequently backfilled. In this way, the span of the opening in any part of the stope is limited to the width of a drift, generally 5 m.

16.6.1.3 Ground Conditions

When mining a vein with challenging geotechnical conditions using CAF, CLG will prefer to apply the transverse version of the mining method. Unfavourable ground conditions are typically encountered in stopes near or adjacent to the Los Gatos fault. The advantage of transverse CAF over longitudinal CAF in this situation is that it limits the exposure of the hangingwall to the cross-section of the drifts. However, in stopes with better ground conditions, the preference is to use longitudinal CAF, which is more efficient than the transverse approach.

Where unfavourable ground conditions occur in veins dipping greater than 55°, CLG may choose to use CAF instead of LHS. CAF has greater flexibility for dealing with difficult ground conditions than LHS because the exposure of the hangingwall is kept to a minimum. Furthermore, the hangingwall is more accessible for applying ground support.

16.6.1.4 Cost and Productivity

Where possible, CLG prioritizes LHS in preference to CAF because of its higher productivity and lower cost. The cost and productivity advantages of LHS are a greater benefit than the superior dilution control achieved with CAF. Furthermore, the dilution at CLG generally contains some metal, which mitigates its impact on the mill feed.

16.6.2 Mining Methods Used in the Zones

Table 16.13 summarizes the mining methods used in the four zones. CLG selects a mining method or methods for each zone by comparing its characteristics, summarized in Table 16.1, with the criteria described above. The rationale behind the selection is discussed as follows.

16.6.2.1 ***NW Zone***

Longitudinal LHS is the predominant mining method employed at the NW zone, as the vein is steeply dipping and reasonably narrow. However, some wider parts of the vein are mined with transverse LHS. While the Los Gatos fault influences the zone to some extent in higher parts of the NW zone, the ground conditions do not require the CAF technique.

16.6.2.2 ***CZ Zone***

CLG uses all of the mining methods in the CZ. It is the widest zone and the one most affected by the Los Gatos fault. CLG’s strategy for stabilizing the ground at the hangingwall is to mine the mineralization immediately adjacent to the HW contact with CAF. The layer of cemented backfill from CAF mining installed at the hangingwall provides a shield for mining the adjacent stopes. Most of the remaining mineralization is mined with transverse LHS. Each transverse stope mines two veins together; consequently, the rib of waste separating the veins contributes some planned dilution to the ore. Longitudinal LHS is used to mine a thin, steeply dipping vein at the footwall of the zone and several other narrow portions of the mineralization.

16.6.2.3 ***SEU Zone***

The SEU zone is mined with CAF due to the unfavourable ground conditions caused by the Los Gatos fault and the shallow dip in the lower levels. As the vein is narrow, it can be mined longitudinally, taking the full width of the mineralization between the contacts in a single pass.

16.6.2.4 ***SE Zone***

The predominant vein of the SE Zone is relatively narrow and steeply dipping; consequently, it is mined with longitudinal LHS. The Los Gatos fault is situated 10 to 20 m from the hangingwall, so the ground conditions do not require the CAF technique.

The QP is of the opinion that CLG employs appropriate mining methods for the zones and mining conditions where they are applied. During his visit to the site, the QP had the opportunity to visit active CAF and LHS stopes.

Table 16.13: Mining Methods by Zone

Zone	Cut-and-Fill	Longitudinal Longhole	Transverse Longhole
NW Zone	-	✓	✓
Central Zone	✓	✓	✓
SE Upper Zone	✓	-	-
SE Zone	-	✓	-

16.6.3 Cut-and-Fill Mining

With CAF, the deposit is mined from bottom to top in a series of horizontal slices called cuts. When a cut is excavated, the volume of the material extracted must be replaced with backfill to provide a working floor for the next, higher-up cut in the sequence. Additionally, the backfill provides support to the footwall and hangingwall by replacing the ore that has been removed.

At CLG, the CAF stopes are accessed using attack ramps driven from the sublevels. An attack ramp has a variable road grade, which progressively increases to permit accessing progressively higher-up cuts in the sequence. It is initially driven at a -15% grade to access the lowest cut in the sequence and ends up grading +15% to access the highest cut. This increase in road grade from one cut to the next is achieved by slashing the back of the attack ramp while leaving blasted waste on the floor to build up the roadway to the required inclination. At CLG, the cuts are 5 m high, and four or five of them are mined from each sublevel, depending on the sublevel interval.

A vein narrower than 8 m can be mined with CAF in a single pass by advancing the full face between the footwall and hangingwall. A version of CAF called drift-and-fill is used for veins exceeding this width. With this version, the cut is mined by driving a series of drifts through the ore with a development jumbo. In this way, the span of the open ground is limited to the width of a drift, which at CLG is 5 m. Limiting the span in this way minimizes problems with ground stability that a wider opening could cause. CLG uses two approaches to the drift-and-fill version of the method: longitudinal CAF and transverse CAF.

Figure 16.11 illustrates how longitudinal CAF is employed at CLG. With this approach, the cut is mined by driving one or more drifts along the vein parallel to its strike. Figure 16.12 illustrates the second cut being mined with longitudinal CAF.

Figure 16.13 illustrates a stope being mined with transverse CAF. As illustrated in Figure 16.14, a drift is driven along the vein adjacent to the footwall contact, and the remainder of the cut is mined by advancing shorter drifts from the first one to the hangingwall. An advantage of transverse CAF over longitudinal CAF is that it minimizes the exposure of the hangingwall at any given time.

With both versions of the method, the drifts are driven as alternating primaries and secondaries. The primary drifts are driven first and spaced to leave 5 m ribs of ore between them that will be mined afterwards as secondary drifts. When a primary drift is completed, it is backfilled tight to the back with cemented rock fill (CRF). This backfill material is delivered to the CAF stopes by mine trucks equipped with ejector boxes and dumped as close as possible to the location where it is to be placed. An LHD equipped with a “rammer jammer” attachment pushes it tight to the back of the drift. When this CRF cures, it forms an engineered pillar that supports the ground for mining the adjacent rib as a secondary drift.

Before the pastefill (PF) plant was commissioned in Q4 2022, the mined-out secondary drifts were backfilled with URF or CRF. Since the plant has been operational, CLG has transitioned to backfilling the secondary drifts with PF. A benefit of excavating the cut as primaries and secondaries rather than as consecutive drifts (i.e., one next to the other) is avoiding delays waiting for backfill to cure.

CLG plans to establish an underground CRF plant, which will permit the disposal of development waste underground without having to haul it to the surface. However, jamming CRF can be an inefficient operation in the mining cycle, so WSP recommends that CLG try backfilling the primary drifts of CAF stopes with PF.

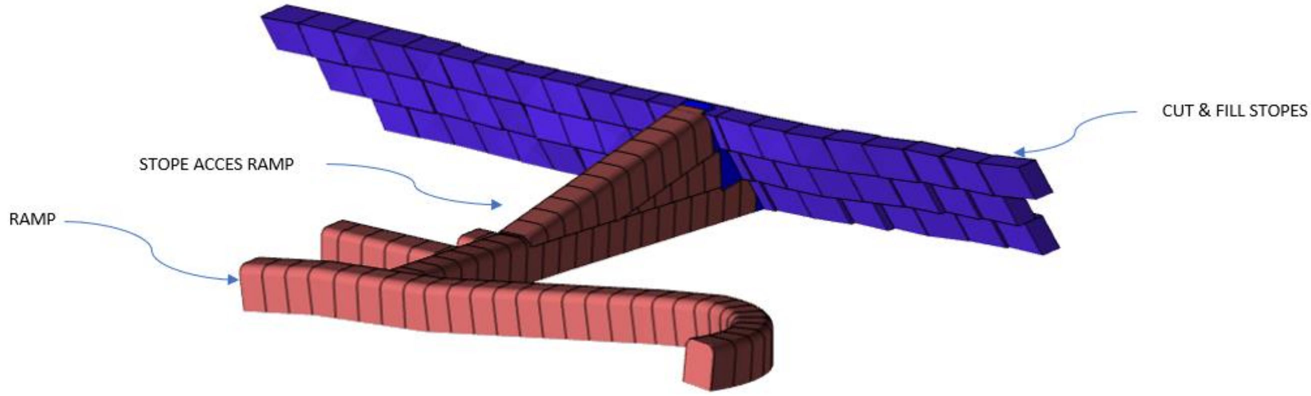


Figure 16.11: Schematic of Typical Longitudinal Cut-and-fill Stope Design at CLG

Figure 16.12: As-built Isometric View of Mining Longitudinal Cut-and-Fill Stopes at CLG

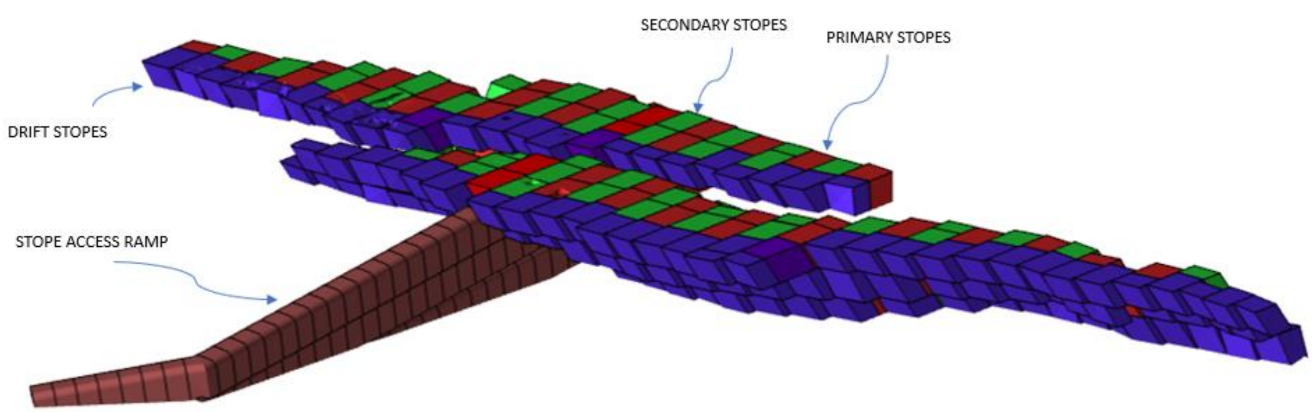


Figure 16.13: Schematic of Typical Transverse Cut-and-fill Stope Design at CLG

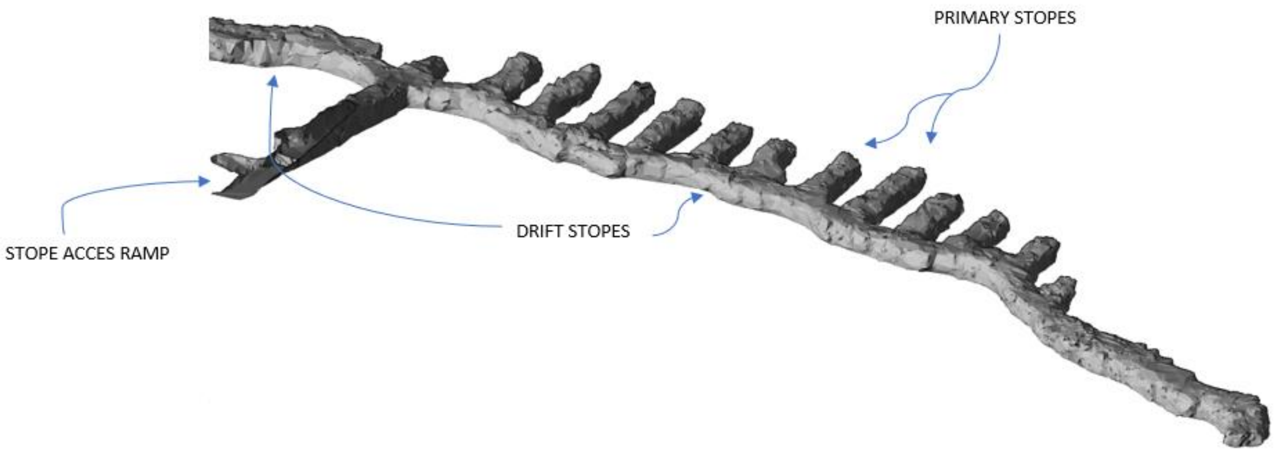


Figure 16.14: As-built Isometric View of Mining a Cut in Transverse Cut-and-Fill Stopes at CLG

16.6.4 Longhole Stoping

LHS divides the vein into sublevels and the lifts between sublevels into stopes. A stope between two sublevels is drilled and blasted with vertical or near vertical longholes, and the broken ore is extracted from the lower sublevel. CLG uses longitudinal LHS to mine the parts of the deposit dipping at 55˚ or greater. As previously commented, CLG uses transverse LHS in the lower part of the CZ, which dips at less than 55˚.

At CLG, the stope heights range from 20 m to 25 m depending on the sublevel interval of the zone. The drilling level at the top of the stope and the mucking level at the stope bottom are driven 5 m wide by 5 m high with arched backs. The stopes are drilled with 89 mm (3.5”) diameter downholes from the upper sublevel. A slot raise blasted as a drop raise between the sublevels provides a free face for initiating longhole blasting in the stope. A LHD mucks the broken ore from the lower sublevel. A portion of the broken ore can be mucked with the operator on the machine; however, most of it must be extracted by radio remote control, whereby the operator controls the LHD from a safe position in the access drift. Broken ore is hauled out of the stope and is either stockpiled in a muck bay on the sublevel or loaded directly into mine trucks for haulage to the ROM pad on surface.

CLG uses two versions of LHS depending on the width of the vein. Longitudinal LHS is employed in veins up to 8 m wide, and transverse LHS in veins that exceed this width.

16.6.4.1 Longitudinal Longhole Stoping

With longitudinal LHS, the deposit between two sublevels is mined along the strike of the vein. Figure 16.15 illustrates the method as it is applied at CLG. The stopes are drilled and blasted in series, one next to the other, along the vein. Figure 16.16 illustrates the waste and ore development associated with the method.

In most cases, a vein can be accessed via a single crosscut on each sublevel, thus avoiding needing a footwall drive. The ore development consists of a drill drift at the top of the stope and a mucking drift at the bottom. These drifts are developed from 3.5 m to 5.0 m wide, depending on the vein width.

Figure 16.17 and Figure 16.18 show a typical drilling layout for a longitudinal LHS stope in plan and section view, respectively. The longholes are drilled as downholes from the ore drive of the upper sublevel. Longhole blasting in each stope is initiated by blasting into a slot raise, which is blasted as a drop raise between the upper and lower sublevels.

At CLG, the longitudinal LHS stope lengths vary but are typically limited to approximately 20 m to 30 m due to geotechnical constraints for the dimensions of underground openings. They generally are mined in a retreating fashion, advancing one after the other from both sides of the vein toward a central crosscut access.

Before the PF plant was commissioned in Q4 2022, the mined-out longitudinal LHS stopes were backfilled with CRF and URF. After being mined out, a stope was partially backfilled with CRF, establishing a dam at the angle of repose, while the remainder of the opening was filled with RF or a low-strength CRF. With the plant operational, CLG now backfills all longhole stopes entirely with PF. Once the PF has cured, a layer of URF is placed on top to provide a suitable floor for operating mobile equipment when mining the next higher-up lift.

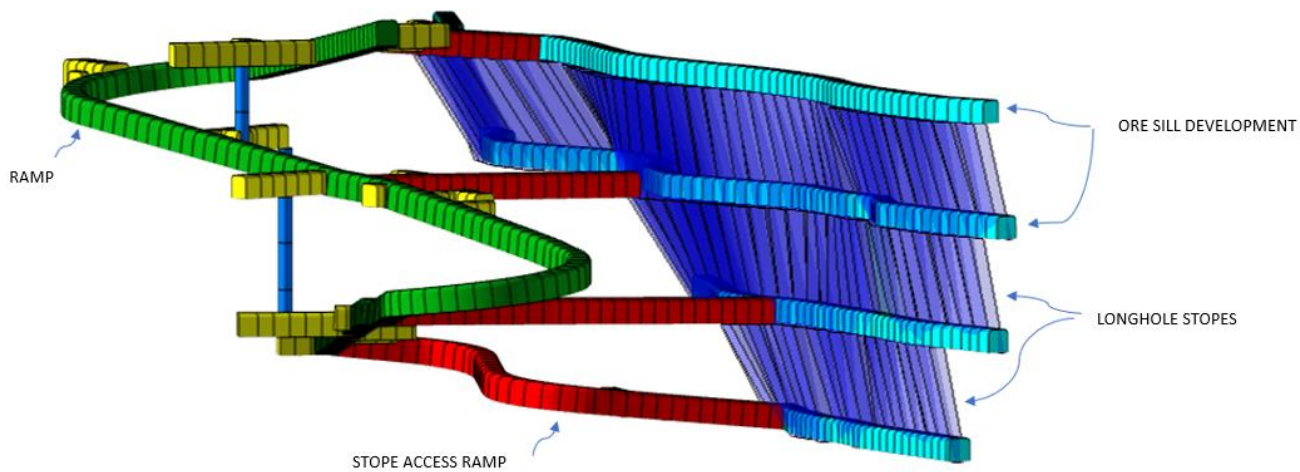


Figure 16.15: Schematic of Longitudinal Longhole Stope Design at CLG

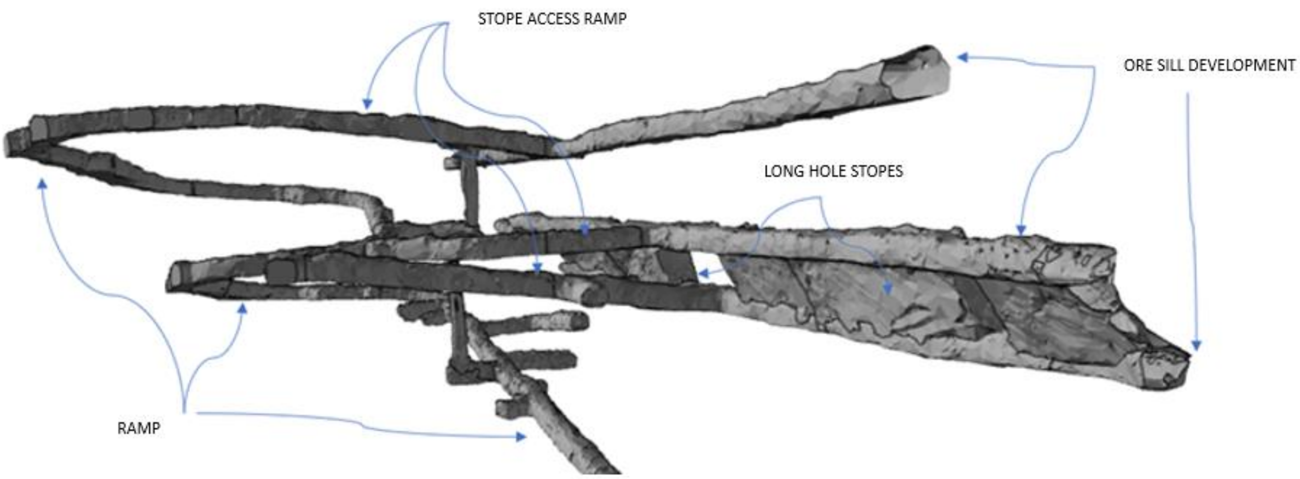


Figure 16.16: As-built Isometric View of Mining Longitudinal Longhole Stopes at CLG

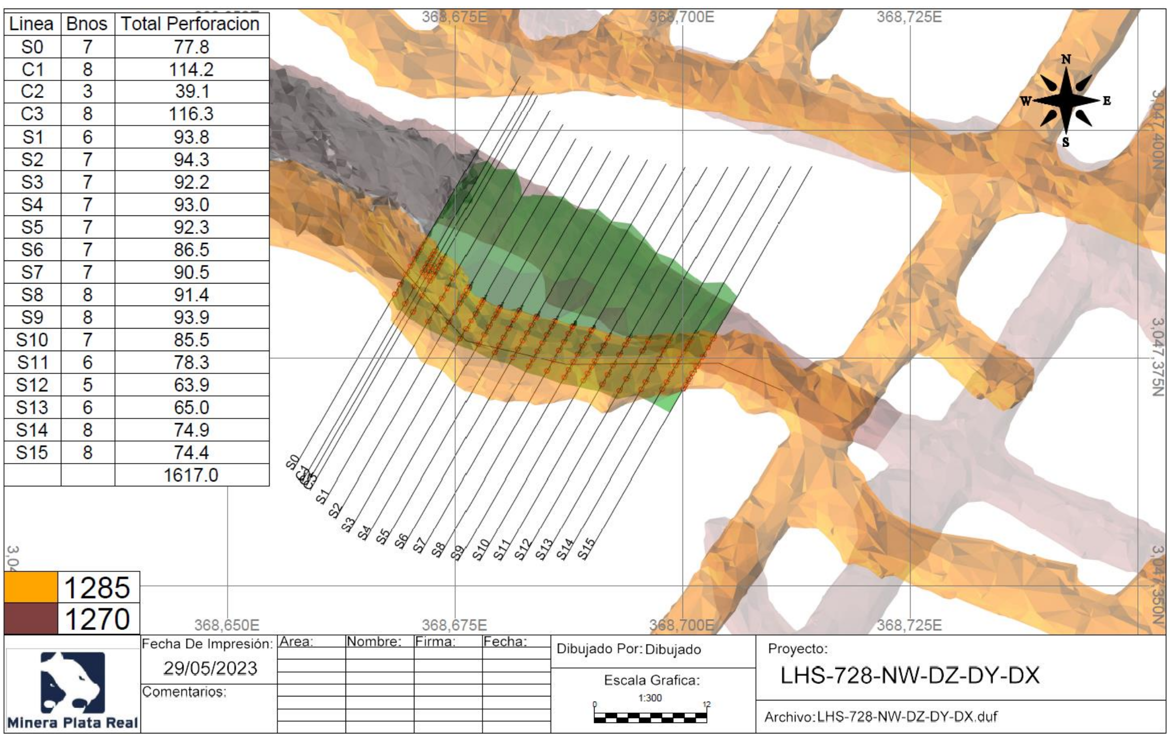


Figure 16.17: Drilling Layout for Longitudinal Longhole Stope – Plan View

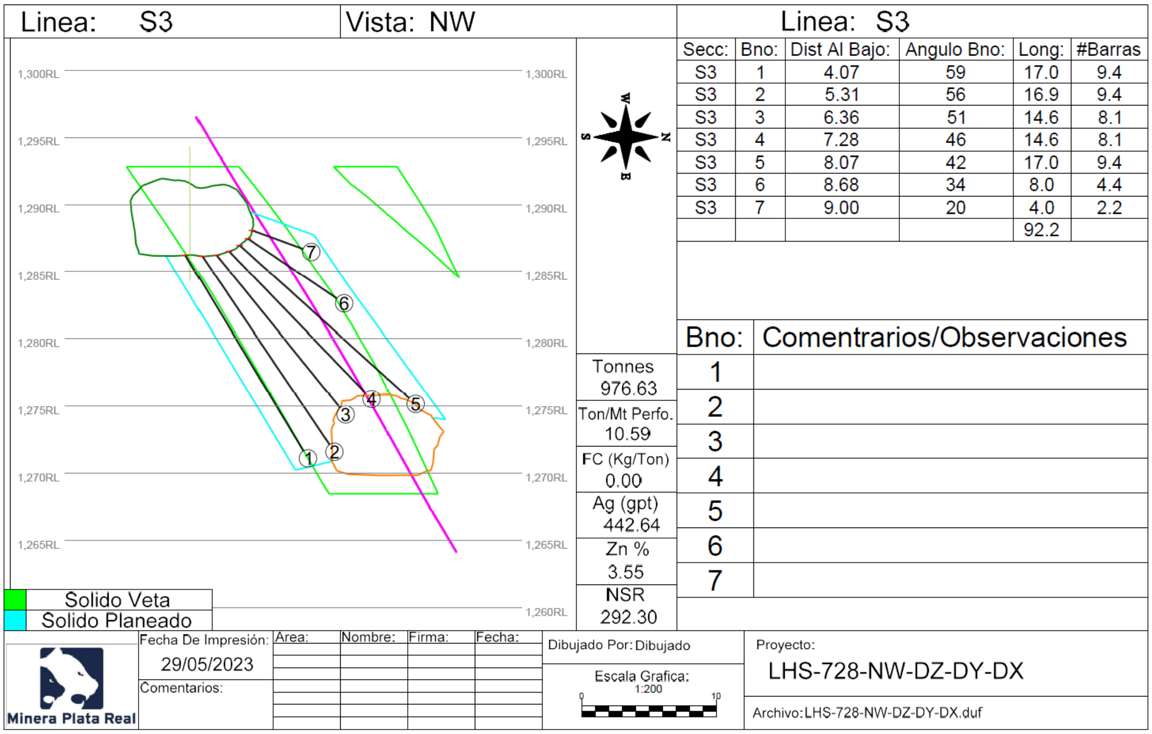


Figure 16.18: Drilling Layout for Longitudinal Longhole Stope – Section View

16.6.4.2 Transverse Longhole Stoping

With transverse LHS, the deposit between two sublevels is mined by dividing the ore into alternating primary and secondary stopes, which extend in parallel from the footwall to the hangingwall at a right angle to the strike. Figure 16.19 illustrates the application of the mining method at CLG. The stopes are accessed by driving crosscuts to the orebody from footwall drives on the upper and lower sublevels. These crosscuts are extended across the vein to the hangingwall to provide a drilling drift on the upper sublevel and a mucking drift on the lower sublevel.

At CLG, the primary and secondary stopes are 12 m to 15 m wide, measured parallel to the strike. The primary stopes are mined first, leaving 12 m to 15 m wide pillars of ore between them that will subsequently be mined as secondary stopes. The mined-out primary stopes are backfilled with PF, forming engineered pillars on either side of each secondary stope. The mined-out secondary stopes are filled with low-strength PF. A layer of URF is placed on top of the PF to create a suitable floor for operating mobile equipment when mining the next higher-up lift.

The lengths of the stope openings between the footwall and hangingwall vary with the vein widths but are generally limited to approximately 21 m due to geotechnical constraints. If the transverse stope length exceeds this restriction, a stope will be mined with two separate blasting and backfilling sequences.

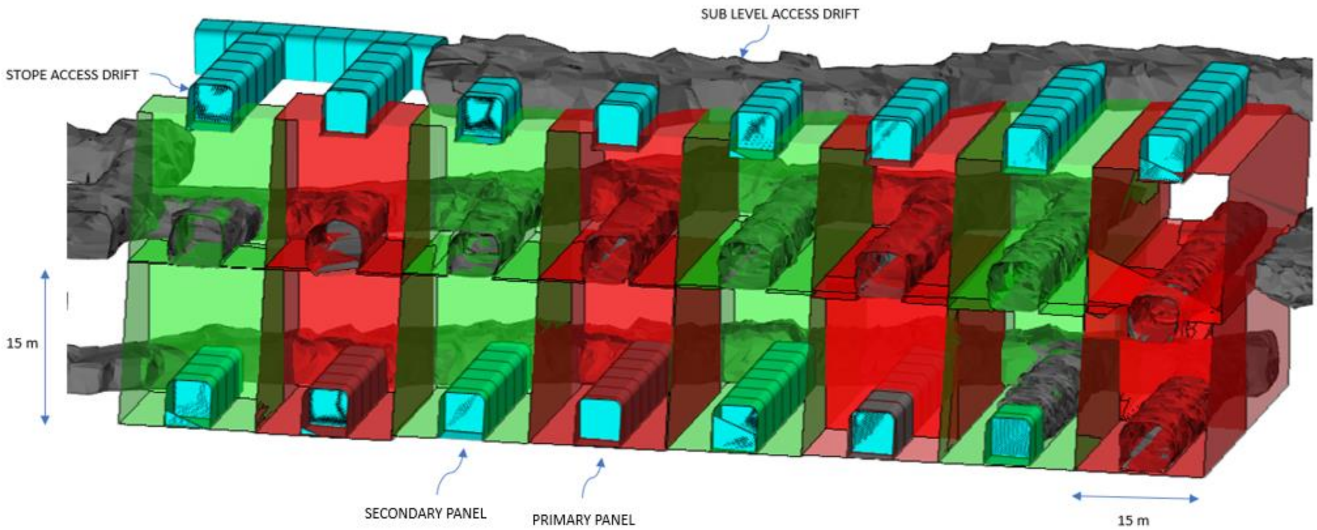


Figure 16.19: Schematic of Transverse Longhole Stoping Design at CLG

16.6.5 Backfill

CLG employs three types of material for backfilling stope voids:

- Uncemented rockfill (URF)
- Cemented rockfill (CRF)
- Paste fill (PF)

URF consists of blasted waste rock from mine development. It is hauled to the stopes being backfilled from the active development headings or the waste stockpile on surface. CRF contains the same development waste as URF, but the material is crushed and blended with cement and water. It is currently prepared at a CRF plant on surface and, from there, hauled underground to the stopes being backfilled. CLG plans to replace the existing CRF plant with a new one located underground.

The principal application of CRF is backfilling the drifts of CAF stopes. Once backfilled, the primary drifts serve as engineered pillars for mining the secondary drifts between or adjacent to them. Secondary drifts are filled with URF or a low-strength CRF, as the backfill serves as a floor for the next cut above but does not provide geotechnical support. An exception is the first cut above a temporary sill. In this case, both the primary and secondary drifts are backfilled with high-strength CRF to create a solid back (roof) for mining beneath a CAF stope. As previously described, CRF and URF are delivered to the CAF stopes with mine trucks and pushed into place, tight to the back of the drifts, with LHDs equipped with rammer-jammer attachments.

The PF plant at CLG was commissioned in Q4 2022, and since then, the mine has transitioned to backfilling LHS stopes with PF instead of CRF and URF. PF consists of filtered mill tailings blended with cement or other binder. The PF is pumped underground from the PF plant on surface to the paste bay located by the Central Ventilation Raise on the 1390 Level. From that point, it is distributed throughout the mine in 150-mm diameter pipes.

Before backfilling a LHS stope with PF, the stope entrance of the mucking drift on the lower sublevel must be sealed off with a bulkhead. The PF is then poured into the open stope from the drill drift on the upper sublevel. Once backfilling is completed, a 14-day curing period is required for the PF to set before an adjacent longitudinal or secondary stope can be blasted. Other activities, such as development and drilling in the adjacent stopes, may continue during the backfilling and curing cycle.

The PF poured in secondary stopes can have a lower strength than that poured in primary stopes as, in this case, the material mainly serves to provide a floor for the next higher-up lift. An exception is the first lift above a temporary sill. The stopes immediately above a temporary sill require a high-strength PF to create a solid back for future mining of the ore immediately below the sublevel.

16.6.6 Explosives

Table 16.14 presents the types of explosives used at CLG according to mining method, presence of water and rock temperature. Bulk emulsion is used for mine production and development when the rock temperature is less than 50°C. Due to geothermal heating, in-situ rock temperatures can exceed 50°C in parts of the mine. Bulk emulsion is transported by an emulsion container truck to the stope or heading from the permanent onsite storage facility. CLG has a Normet Charmec SF emulsion charger for loading bulk emulsion into blastholes. ANFO is used in preference to emulsion in drier parts of the mine due to its lower cost. Blastholes in LHS stopes that are loaded with bulk emulsion or ANFO are primed with boosters and initiated with i-Kon-II™ electronic detonators. In addition, the mine uses bulk emulsion or emulsion-based cartridge explosives and Non-electric (Nonel™) blasting caps for blasting rounds in development headings and CAF stopes. Blasts are initiated from a central blasting system at the end of the shift when no personnel are underground. Following a blast, approximately 30 minutes are required to clear blasting fumes from the mine.

Table 16.14: Explosives Used at CLG

Mining Method	Without Water Present		With Water Present	
	T° < 50°C	T° > 50°C	T° < 50°C	T° > 50°C
Longhole Stoping				
Bulk Emulsion	√		√	
Cartridge Explosive				
ANFO	√			
Cut & Fill Mining				
Bulk Emulsion	√		√	
Cartridge Explosive	√	√	√	√
ANFO	√	√		
Mine Development				
Bulk Emulsion	√		√	
Cartridge Explosive	√	√	√	√
ANFO	√	√		

16.6.7 Ore and Waste Handling

The method for transporting ore and waste at CLG is ramp haulage. Mine trucks with a 40 t payload haul ore and waste via a system of ramps. The mine has a single access to surface via the main ramp and the portal. The trucks haul the ore to surface and haul waste either to surface or stopes being backfilled. The same trucks haul CRF underground from the CRF plant.

In the case of stope production, LHDs muck the blasted ore from the CAF and LHS stopes and tram the material out of the stoping area. They either load the material directly into mine trucks or dump it in muck bays on the sublevels for temporary storage. In the latter case, the stockpiled ore will be rehandled by the LHDs and loaded onto trucks later.

The loaded trucks haul the ore up-ramp to surface and dump it at the ROM pad stockpile. A wheeled loader rehandles the material, transferring it from the ROM pad stockpile to the chute of the ROM bin. The primary jaw crusher crushes the ore to minus 125 mm, and a conveyor transports the material to the coarse-ore stockpile in the dome.

Mine development generates both ore and waste. After a drift round is blasted, an LHD mucks the blasted material from the face and either loads it into mine trucks or dumps it in a muck bay for temporary storage. If the blasted material is ore, the trucks haul it to surface just like production ore. If it is waste, they haul it either to the stockpile of the CRF plant on surface or to stopes in the process of being backfilled.

The waste stockpiled on surface is available for being processed into CRF. This backfill is produced at the CRF plant and hauled underground by the same 40 t trucks. The trucks are equipped with ejector boxes, which facilitate dumping CRF or URF in the stopes where the back height would impede dumping with a standard box.

CLG plans to close the present CRF plant and establish a new smaller plant underground. When it is operational, trucks will haul the blasted waste to the new plant rather than surface, significantly reducing the amount of waste transported out of the mine.

16.7 Mine Infrastructure

This section describes the infrastructure located in the underground mine or connected directly to it. For other infrastructure items located on surface, including the PF plant, CRF plant, compressor house, and main maintenance shop, refer to the Project Infrastructure chapter of this technical report.

The QP is of the opinion that the underground infrastructure, mine services, and fixed equipment are appropriate for the scale of the underground operation. During the site visit, the QP observed that these installations were of high quality, in working order and functioning normally. CLG has most of the required infrastructure to support operations to the end of the mine life.

16.7.1 Mine Access and Underground Facilities

CLG is a trackless mine and access to the underground workings is provided by a system of ramps. The ramps allow access to the sublevels and stopes and provide the means for hauling ore and waste to surface and CRF into the mine.

The portal situated at 1585 masl is the only access point to the underground mine for equipment and personnel. The main ramp extends from the portal to the 1420 level, where it branches off into two ramps, one accessing the NW zone and the other accessing the CZ zone. CLG is developing a ramp for the SE zone from the CZ ramp.

As much as possible, the ramps are designed to maximize straight runs for safety and mining efficiency and minimize wear on mobile equipment. Headings have a 5.0 x 5.5 m cross-section and are driven at a maximum grade declination of -15%. The grade is reduced to -13% on curves and -7% at main intersections. Curves are designed with a minimum 25 m radius. Passing bays are established where required, and safety bays are excavated at 30 m intervals. Table 16.15 summarizes ramp and heading orientations and dimensions.

CLG has set up an underground maintenance shop in a mined-out stope in the NW zone. It has four service bays and an office. It is intended for performing light maintenance work. Vehicles and equipment requiring more intensive repairs are transported to the maintenance shop on surface.

The LOM Plan includes the construction of an underground fuel station, a lubrication bay, an underground CRF plant, and an underground explosive magazine.

Table 16.15: Mine Infrastructure – Mine Access and Underground Facilities

Infrastructure Item	Characteristics	Location
Portal		CZ Zone, 1,585 masl
Main access decline	5.0 x 5.5 m, -15% grade	CZ Zone
NW Ramp	5.0 x 5.5 m, -15% grade	NW Zone
CZ Ramp	5.0 x 5.5 m, -15% grade	CZ Zone
SE Ramp	5.0 x 5.5 m, -15% grade	SE Zone
Underground maintenance shop	4 service bays, 1 office	NW Zone

16.7.2 Ventilation Infrastructure

Figure 16.20 illustrates the ventilation system at CLG. Fresh air enters the mine via the main ramp and two raises. Additionally, Escape Raise #1 is also lightly downcasting. Spent air is exhausted from the underground via three return-air raises, with ventilation fans installed at their collars.

Table 16.16 presents the details of the ventilation raises, fans, and airflows. The NW zone intakes fresh air via the main ramp and ventilation raise (VR) #1. It exhausts spent air via VR #3A and VR #5. The CZ zone intakes fresh air via the main ramp and VR #2. It exhausts spent air via VR #4. The SEU and SE ventilation is currently drawn from the CZ system.

Within the underground mine, airflow is distributed via the ramps, sublevels, and internal raises. Where possible, exhaust and intake raises have been placed at the ends of the sublevels to provide flow-through ventilation. Booster fans and regulators direct air to the active mining levels.

Table 16.17 calculates the minimum permissible ventilation flow based on the diesel equipment operating in the mine. The ventilation system is designed to comply with e Mexican regulations for operating diesel equipment in an underground mine, plus provide additional airflow for mine-cooling purposes. The regulations for underground mining stipulate 2.13 cubic meters per minute per horsepower for machinery powered by diesel engines (Article 8.4.4-a.2 NORMA Oficial Mexicana NOM-023-STPS-2012). The system provides approximately 1.3 M cubic feet per minute (cfm) of fresh air to the mine compared with an estimated regulatory requirement of just under 1.0 M cfm.

The LOM Plan includes developing ventilation infrastructure for the SE, consisting of twin 2.4-m diameter fresh-air raises, a 4.1-m diameter return-air raise, and two 400-hp ventilation fans installed at the return-air-raise collar.

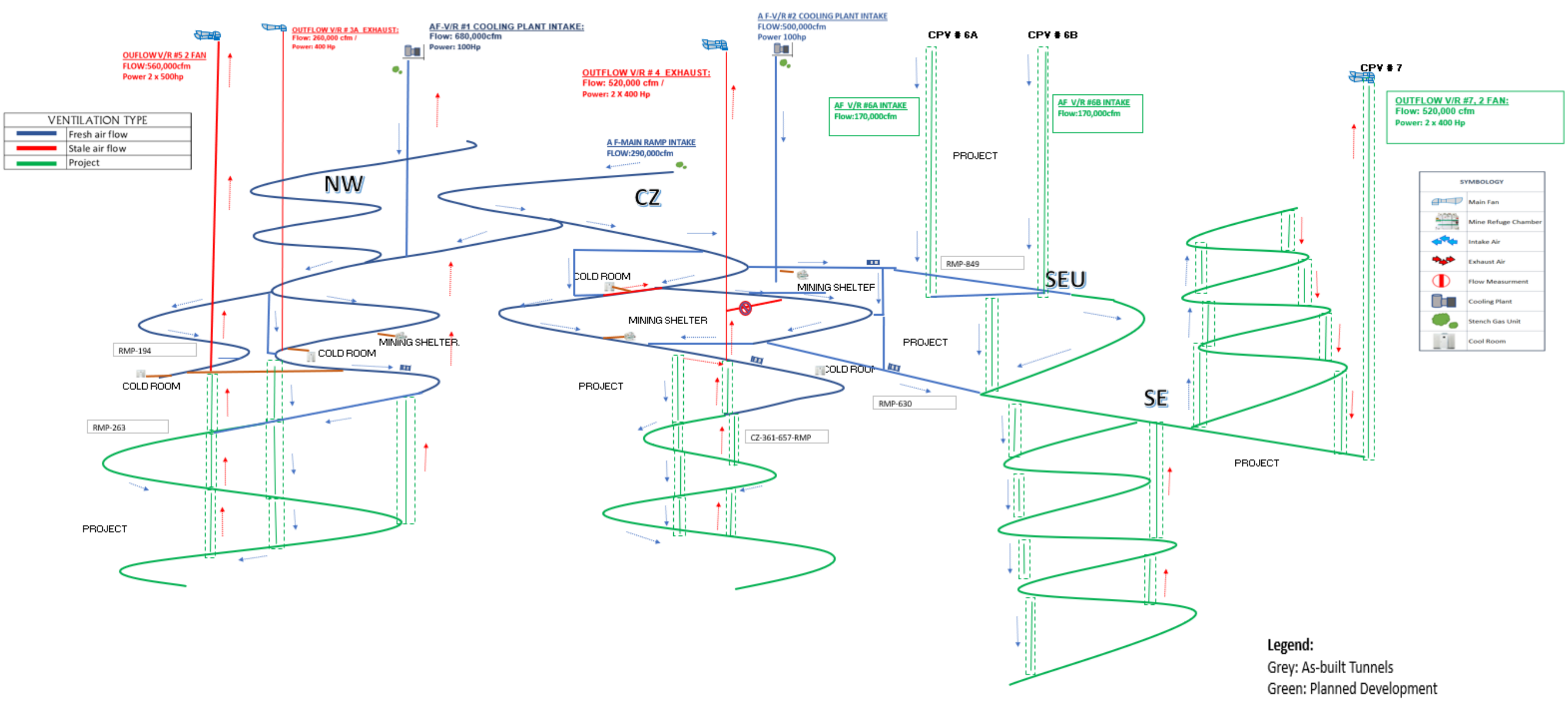


Figure 16.20: Schematic Illustrating Mine Ventilation System

Table 16.16: Mine Infrastructure - Current and Planned Ventilation System

Ventilation Raise	Zone	Diameter (m)	Ventilation Fans	Upcast Volume, (CFM)	Downcast Volume (CFM)	Direction
Vent Raise #1	CZ	5.1	1 ea. x 100 hp		750,000	Downcast
A/F R/E Emerg. #1	CZ	2.4			4,102	Downcast
Vent Raise #2	CZ	4.1	1 ea. x 100 hp		500,838	Downcast
Vent Raise #3A	NW	4.1	1 ea. x 400 hp	260,000		Upcast
Vent Raise #4	CZ	4.1	2 ea. x 400 hp	520,000		Upcast
Vent Raise #5	NW	4.1	2 ea. x 500 hp	560,000		Upcast
Portal (Decline)	CZ				290,000	Downcast
Current Ventilation System				**1,340,000**	**1,544,940**	
Planned additions						
Vent Raise #6A	SE	2.4			170,000	Downcast
Vent Raise #6B	SE	2.4			170,000	Downcast
Vent Raise #7	SE	4.1	2 ea. x 400 hp	520,000		Upcast
Ultimate Ventilation Capacity				**1,860,000**	**1,884,940**	

Table 16.17: Calculation of Ventilation Requirement

Mobile Equipment	Units	Unit Power		Unit Air Flow	Fleet Air Flow	Utilization	Req'd Air Flow
Make, Model		kW	Hp	CFM	CFM	%	CFM
Electric/hydraulic jumbo, DD321	6	110	148	11,133	66,795	20%	13,359
Electric/hydraulic bolter DD421	7	110	148	11,133	77,928	25%	19,482
Sandvik LHD LH307	2	160	215	16,172	32,345	75%	24,258
Sandvik LHD LH514	6	256	343	25,800	154,803	75%	116,102
Sandvik Toro Truck, TH540	8	405	543	40,844	326,752	70%	228,729
Spraymec MF050 NORMET	2	111	148	11,133	22,265	50%	11,133
Normet Transmixer LF600	3	104	139	10,456	31,367	40%	12,547
Normet LF050	2	120	161	12,110	24,221	60%	14,533
Normet Charmec SF Emulsion charger	3	121	162	12,186	36,557	50%	18,278
Sandvik Cubex ITH Production drill	2	130	174	13,088	26,177	20%	5,235
Sandvik Solo DL421 Production drill	1	110	147	11,237	11,237	30%	3,317
Multimec NORMET material handler	2	121	161	12,110	36,331	50%	12,110
Scamec 2000s Normet	3	156	208	15,646	46,937	60%	28,162
Telehandler	8	75	100	7,522	60,176	50%	30,088
John Deere 310L Backhoe	2	62	83	9,252	18,504	60%	7,492
Caterpillar 120K Grader	1	93	123	9,252	9,252	50%	4,626
Utility vehicles/tractors	30	100	134	10,079	302,384	40%	120,954
Subtotal	**58**				**1,284,030**		**670,405**
Personnel	130			53			6,877
Airflow for explosives volume							129,500
Airflow to cool rock & water temp.							180,100
Total Ventilation Requirement							**986,882**

16.7.3 Air-Cooling Infrastructure

Figure 16.21 illustrates the air-cooling system at the CLG mine. The ventilation intake requires cooling due to heat entering the underground workings. The main contributors to the heat load are the following:

- Virgin rock temperatures and a thermal gradient estimated at 2.5°C/100 m depth.
- Groundwater inflows to underground workings with temperatures up to 70°C.
- Auto-compression heat load due to the mining depth.
- Operation of fixed and mobile equipment underground.
- Backfill and other heat loads (personnel, lighting, etc.)

CLG operates two air-cooling plants to control air temperatures in the underground work environment (Table 16.18). One provides cooling for the NW zone and the other for the CZ zone. They each have a 4.5 MW capacity and are designed to achieve an average stope and development reject wet bulb temperature of 28.5°C, using a surface intake air temperature of the high monthly average of 24.5°C wet bulb and 33°C dry bulb. The cooling plants chill water and send it to Bulk Air Coolers on the intake ventilation raises. The cooling plants operate automatically 24 hours per day from June to September and during the day only during April, May, and October. CLG has determined that a cooling plant is not required for the SEU and SE zones as low groundwater inflows are expected in this part of the mine, inflows being a principal source of heat.

Table 16.18: Air Cooling Infrastructure

Infrastructure Item	Characteristics	Location
Cooling plant -vent raise #1	4.5 MW capacity + 1 Fan 100 Hp	NW Zone
Cooling plant - vent raise #2	4.5 MW capacity + 1 Fan 100 Hp	CZ Zone

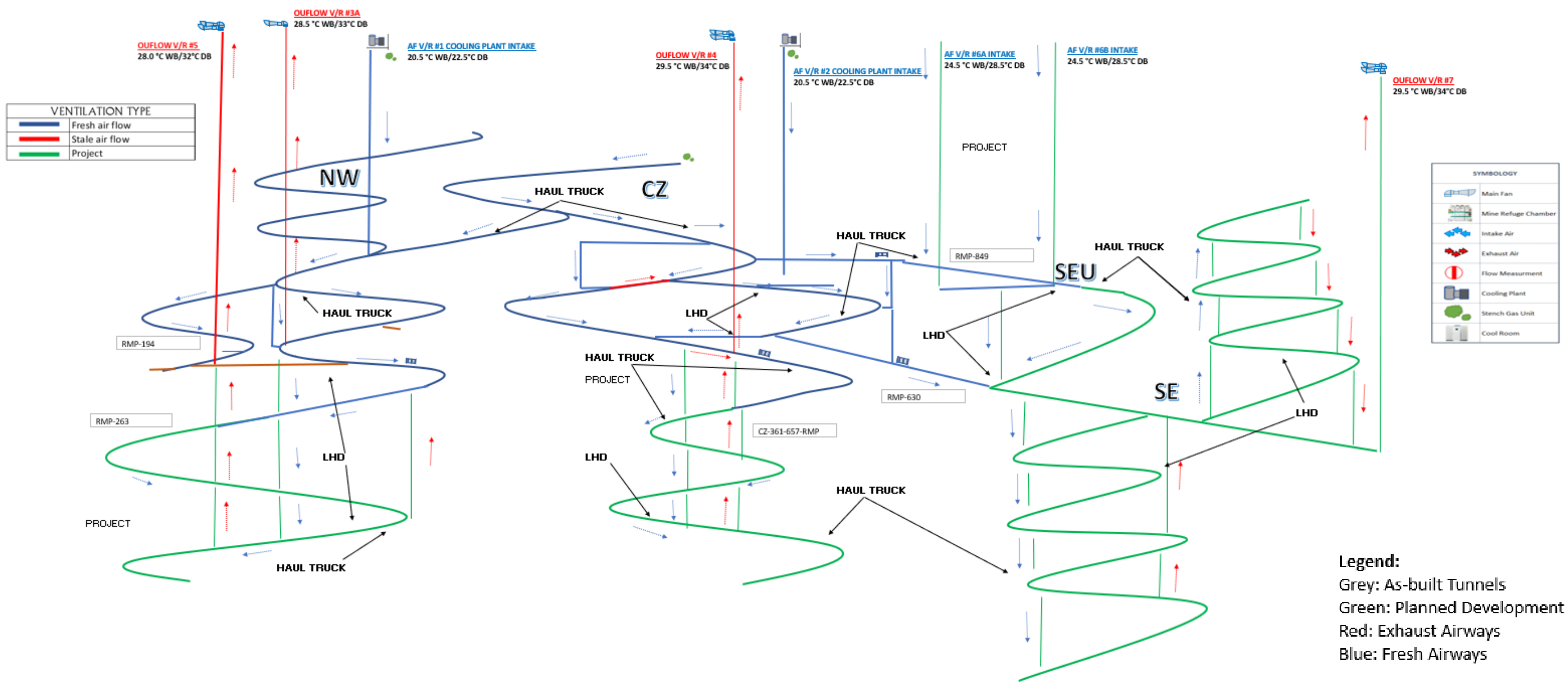


Figure 16.21: Heat Model Equipment Locations and Mine Heat Cooling Simulations Results

16.7.4 Mine Dewatering Infrastructure

CLG has two underground dewatering systems, one for contact water and another for non-contact water. While functioning separately, the systems are interdependent in that extracting more non-contact water from the aquifer results in lower groundwater inflows to the mine and, hence, less contact water. Contact water means water that has come into contact with, or seeped from or through, any mine component, including groundwater flows into the underground mine (Canadian Environmental Assessment Agency, 2019). Non-contact water refers to groundwater drawn directly from the aquifer by dewatering wells located on surface and underground.

Table 16.19 presents the contact water dewatering infrastructure at CLG. Except for relatively small amounts coming directly to surface from two sumps in the main ramp, all contact water is pumped out of the mine from the main pumping station on the 1384 level via three borehole pipes. This pumping station has a capacity of 375 L/s, while the actual flow rate currently averages 200-220 L/s. The flows reporting to this pumping station come from dewatering installations for mine workings in the NW Ramp, CZ Ramp-361, and CZ Ramp-406. The NW Ramp has sumps on three sublevels transferring water in series to the main pumping station. The CZ Ramp-361 has sumps on four sublevels pumping in series to a pumping station on the 1330 level. The CZ Ramp-406 has sumps on three sublevels that pump in series to the 1330-level pumping station. From this pumping station, the water is pumped to the sump of the 1384-level main pumping station and from there to surface.

The LOM Plan includes the following upgrades and extensions to the contact water dewatering infrastructure:

- Increasing the capacity of the 1384-level main pumping station to 450 L/s.
- Increasing the capacity of the 1330-level pumping station to 360 L/s.
- Building new pumping stations on the 1225 level of the NW Ramp and the 1250 level of the CZ Ramp-406.
- Establishing a series of sublevel sumps in the NW and Central ramps as the mine deepens, which will deliver water to the underground pumping stations.
- Establishing dewatering infrastructure in the SE as its ramp system is developed, consisting of three main pumping stations and a series of sublevel sumps.

Table 16.19: Mine Infrastructure – Mine Dewatering System for Contact Water

Infrastructure Item	Characteristics	Capacity (L/s)	Actual (L/s)
Main pumping station 1384 level	Pumps: 3 X 500 hp & 2 X 600 hp	375	~200-220
Pumping station 1325 level	Pumps: 2 x 200 hp	210	~125
Sump NW Ramp 1300 level		150	
Sump NW Ramp 1275 level		150	
Sump NW Ramp 1250 level		150	
Pumping station 1330 level	Pumps: 2 X 200 hp	210	~85
Sump CZ Ramp-361 1310 level		70	
Sump CZ Ramp-361 1290 level		70	
Sump CZ Ramp-361 1270 level		70	
Sump CZ Ramp-361 1250 level		70	
Sump CZ Ramp-406 1310 level		70	
Sump CZ Ramp-406 1290 level		70	
Sump CZ Ramp-406 1270 level		70	

Table 16.20 presents the underground infrastructure for dewatering non-contact water. Except for a well on the 1263 level of the CZ, all non-contact water extracted underground is pumped to surface from a pumping station on the 1390 level via three borehole pipes. This pumping station has a capacity of 780 L/s, while the actual flow rate is in the 600 to 620 L/s range. There are currently five active dewatering wells in the mine: two on the 1370 level of the NW, two on the 1277 level of the NW, and one on the 1263 level of the CZ. The 1370-level wells pump to the sump of the 1390-level pumping station. The 1277-level wells pump to a pumping station on the 1330 level, which in turn pumps the water to the sump of the 1390-level pumping station. At the effective date of this report, a third well was under construction on the 1277 level. The 1263-level well pumps to the sump of the 1384-level contact-water pumping station.

The LOM Plan includes the following upgrades and extensions to the non-contact water dewatering infrastructure in the underground mine:

- Commissioning the third well under construction on the NW 1277 level, drilled to a depth of 180 m.
- Installation of wells capable of an additional ~150 L/s in the NW zone
- Moving and reinstalling NW zone dewatering well infrastructure as mine development progresses deeper
- Establishing two additional wells on the 1263 level of the CZ that will pump to the 1390-level non-contact-water pumping station.

Table 16.20: Mine Infrastructure – Mine Dewatering System for Non-Contact Water

Infrastructure Item	Characteristics	Water level (masl)	Capacity (L/s)	Flow (L/s)
Pumping station 1390 level	Pumps: 3 ea. X 500 hp & 3 ea. X 600 hp		780	600-620
Pumping station 1330 level	Pumps: 4 ea. X 200 hp		320	220
UG Well #1 NWZ 1370	180 m deep	1,239.26	170	170
UG Well #2 NWZ 1370	180 m deep	1,238.00	170	170
UG Well #1 NWZ 1277	80 m deep	1,209.41	100	100
UG Well #2 NWZ 1277	80 m deep	1,208.40	100	100
UG Well #3 NWZ 1277	Under construction		150-170	
UG Well #1 CZ 657		1,240.00		20-25
UG Well #2 CZ 657		1,240.00		20-25
UG Well #1 NW CRO-171		1,230.00		20-26
UG Well #2 NW CRO-171		1,230.00		20-27

16.7.5 Mine Safety Infrastructure

Table 16.21 lists the safety infrastructure at the mine, which includes an escapeway raise to surface, a permanent refuge station, and three portable refuge chambers.

Mexican mining legislation requires an operating underground mine to have at least two independent exits to the surface (Articles 8.2.10-a and 17.3 page 56/122 NORMA Oficial Mexicana NOM-023-STPS-2012). In compliance with this legislation, CLG has Escapeway Raise #1, which is a 2.4 m diameter open borehole providing an alternate means of egress from the mine in case the main ramp becomes blocked. In an emergency, personnel would be hoisted to surface via this raise in a torpedo-type man cage by a truck-mounted portable mine rescue hoist system (Timberland PMRH45). This unit is parked at all times adjacent to the raise collar. The ventilation of the escapeway raise is downcasting; consequently, it is designed to remain in fresh air during a mine fire.

The bottom of Escapeway Raise #1 connects directly to the permanent refuge station on the 1390 level of the CZ Zone. This refuge station is designed and built to high standards and is equipped with the supplies and equipment required for this type of installation. Its entrance has double doors to prevent contaminated air from entering during a mine fire. It also serves as a lunchroom and meeting room for underground personnel. In addition, three container-type portable refuge chambers are located at strategic points in the mine. CLG plans to establish a second permanent mine rescue station in the SE zone in the medium term.

CLG currently lacks an internal system of escapeways connecting the sublevels; consequently, parts of the mine are not provided with two independent exits to the surface. CLG plans to conduct a study in Q4 2023 to assess the requirement for an internal escapeway system.

WSP offers the following recommendations concerning escapeways:

- Consider establishing the internal escapeways using the Safescape Laddertube system (or similar), as these tubular manways can be quickly installed in 1.2-m-diameter boreholes.
- Determine whether additional portable refuge chambers are needed on a provisional basis until the internal escapeway system can be developed.
- Assess whether a second escapeway connecting to surface is advisable for the SE, considering the distance of the zone from Escapeway Raise #1.
- Ensure that the designs of the planned internal escapeways comply with Mexican mining legislation regarding ladderways and manways (Articles 8.3.1-s and 17.3 pages 59&60/122 NORMA Oficial Mexicana NOM-023-STPS-2012).

Table 16.21: Mine Infrastructure – Mine Safety

Infrastructure Item	Characteristics	Location
Refuge Station	50-person, 96-hour capacity	1390 level
Portable refuge chamber	Dräger, 12-person, 96-hour capacity	1275 level
Portable refuge chamber	Dräger, 16-person, 96-hour capacity	1320 level - Ramp 630
Portable refuge chamber	Dräger, 12-person, 96-hour capacity	1320 level - Ramp 657
Escapeway raise #1	Truck-mounted mine rescue hoist	CZ Zone: 1390 level to surface

16.7.6 Electric Power

Table 16.22 lists the electrical substations installed in the underground mine. The electrical power distribution system consists of 19 mobile electrical substations of varying capacities operating at a primary voltage of 13,800 volts and providing a secondary voltage of 480 volts. Additionally, there are three fixed substations with a capacity of 2,500 kVA each, operating at a primary voltage of 13,800 volts and a secondary voltage of 4,160 volts. These units supply power to the stationary pumping and ventilation systems.

Table 16.23 lists the six standby generators at the site for providing backup power in case of an interruption in the external power supply. The standby system can maintain a constant load of 7.5 MW, sufficient to maintain the pumping and ventilation systems operational.

Table 16.22: Electrical Substations in the Underground Mine

Mobile Substations			
Quantity	**Capacity kVA**	**Primary Voltage**	**Secondary Voltage**
6	2000	13.8 kV	480 V
6	1500	13.8 kV	480 V
5	1000	13.8 kV	480 V
2	500	13.8 kV	480 V
Fixed Substations			
Quantity	**Capacity kVA**	**Primary Voltage**	**Secondary Voltage**
3	2500	13.8 kV	4,160 V

Table 16.23: Standby Generators at the Mine Site

Quantity	Capacity kVA	Primary Voltage	Secondary Voltage
2	1000	480 V	13.8 kV
1	1250	480 V	13.8 kV
3	2000	480 V	13.8 kV

16.7.7 Underground Communications

Underground communications at CLG consists of the following systems:

Voice Communications

- Leaky Feeder Cable Network in the UHF Band, with an installed length exceeding 10 km.
- NEXEDGE Digital Radios in the UHF Band.
- 53 radios installed in mobile production equipment

Data Communications

- Optical Fiber Trunk (backbone).
- System has two fiber entrances to create a redundancy ring.
- 17 locations with internet coverage (Ethernet and/or Wi-Fi).

Personnel Location

- Solution based on Antennas and Tracking Tags using Wi-Fi.
- System has 35 location points.

Video Surveillance Cameras

- 15 IP Cameras.
- Viewable on the surface at the COM (Communication Center) and C3.

- Recording time exceeds 30 days.

Sustaining capital has been allocated for the implementation of a system for underground “real-time” information registration (SCADA) for mine activities.

16.7.8 Mine Services

Table 16.24 lists the mine-service materials that are used underground at CLG.

Table 16.24: Mine Services at CLG

Mine Service Item	Characteristics	Diameters
Compressed Air Pipe	HDPE RD 11	8”, 6”, 3” and 2”
Service Water Pipe	HDPE RD 11	6”, 4” and 2”
Dewatering Pipe	HDPE RD11 (85%) and Steel Schedule 40 (15%)	8”, 10”, 12” and 14”
Paste Fill Pipe	Steel, Schedule 80, HDPE RD 11	5”and 6”
Vent tubing	Rip Stop Oval 540 gm/m^2	54”, 42”, 36” and 20”

16.8 Mine Equipment

The CLG mine is a mechanized operation employing rubber-tired diesel equipment for all phases of mining operations. Table 16.25 lists the mobile equipment operating in the mine. Fixed equipment installed underground is described in the Mine Infrastructure section of this chapter.

The electric-hydraulic development jumbos are two-boom units. One of these jumbos is equipped with an adapter for cable bolting. For ground support, CLG operates seven bolters and three scalers. The bolters are equipped for installing mesh and 2.4 m Super Swellex bolts.

CLG operates nine LHDs for production and development. Most units are equipped with radio-remote-control systems to permit mucking inside open stopes, with the operator situated in a safe location in the stope access behind the brow. Some LHDs can be fitted with a rammer-jammer attachment for jamming CRF or URF in the CAF stopes.

The Sandvik mine trucks are equipped with ejector boxes, which allows the dumping of CRF and URF directly into stopes where the back heights would prevent discharging with a standard rear dump box.

CLG operates three production drill rigs for drilling in the LH stopes. One rig is a top hammer unit; the other two are ITH (in the hole). The ITH rigs have minimal drilling deviation compared to the top hammer drills and are used in steeply dipping and wider veins and when drilling holes greater than 20 m in length. The top hammer rig is typically used in shallow-dipping stopes (< 60°) and for drilling radial designs in more irregular geometry.

The equipment list includes a cable bolter (Sandvik DS412) that arrived on site in August 2023 (i.e., after the effective date of this technical report). The unit will provide a more efficient capability for installing cable bolts, which will significantly benefit mining operations, considering the increasing emphasis on LHS over the LOM. Cable bolting is required to support the hangingwall of LHS stopes. With the new cable bolter plus the jumbo adapted for cable bolting, CLG expects its cable bolting capacity to be sufficient for the LOM.

CLG plans to acquire a mine truck, an LHD, and a top-hammer longhole drill rig in 2026. CLG is not planning to retire or replace any units in its fleet over the LOM. Instead, it has established a program for overhauling the equipment presently operating at the mine and capital has been allocated for this purpose. Three mine trucks and two LHDs were rebuilt in H1 2023, and overhauls are planned for 21 pieces of production equipment from H2 2023 to 2026.

The QP reviewed the underground equipment fleet and observed many of the machines in operation. The QP is of the opinion that the number of units in the fleet and the types, makes, and models are appropriate for the production rate, mining methods and development requirements at CLG.

Table 16.25: Mobile Mine Equipment

Equipment Type	Make & Model	Capacity	kW Diesel	Units
Jumbo	Sandvik DD321	Two boom	110	6
Cable Bolter (Delivered August, 2023)	Sandvik DS421	Cable bolt length up to 25 m	110	1
Bolter	Sandvik DS411	135 kW power pack	110	5
Bolter	Sandvik DS311	135 kW power pack	110	2
Underground loader (LHD)	Sandvik LH307	7 t tramming capacity	160	2
Underground loader (LHD)	Sandvik LH514	14 t tramming capacity	256	6
Underground loader (LHD)	CAT R1700G	15 t tramming capacity	336	1
Mine truck with ejector box	Sandvik TH540	40 t payload	405	7
Transmixer	Normet Utimec LF600	5.6 m3	104	3
Shotcrete sprayer	Normet Spraymec LF050	19 m3/h	120	2
Emulsion charger	Normet Charmec SF		121	3
ITH longhole drill rig	Sandvik DU311	33 kW percussion	130	2
Top hammer longhole drill rig	Sandvik DL421	33 kW percussion	110	1
Scaler	Normet Scamec 2000S		120	2
Scaler	Lake Shore Cannon SV11		69	1
Telehandler	Manitou MTX1440	4000 kg load capacity	75	3
Telehandler	Caterpillar TL943D	4082 kg load capacity	75	4
Grader	Caterpillar 120K		93	1
Fuel lube truck	Normet Multimec LF100	140 L	205	1
Personnel carrier	Normet Multimec LF100	12 passengers	205	1
Multi-functional carrier	Normet Multimec LF100	N/A	205	2
Wheel loader	Komatsu WA500	5.3 m^3	203	1
Wheel loader	Komatsu WA470	4.1 m^3	203	1
Scissor lift	Normet LF540	4.5 t	110	2
Backhoe loader	John Deere T0310L		87	2
Pickup trucks	Toyota Hilux / Mitsu			35

16.9 Mine Personnel

Table 16.26 lists the personnel employed in the Mine Department as of July 1, 2023. Of the total, 35 positions were held by women. The underground mine works two 10-hour shifts per day. There are three rosters, working rotations of 14 days on and 7 days off, with two rosters working at the mine at any given time. The majority of the mine personnel reside in the city of Chihuahua, however some commute from other communities in the state of Chihuahua or other parts of Mexico. CLG previously used a mining contractor in the underground mine but currently performs all development and production with its own employees.

The QP reviewed the personnel organization and is of the opinion that it is appropriate for the scale of an underground mining operation, such as CLG.

Table 16.26: Mine Personnel

Mine Labor	Positions
Training	10
Mine Geology	24
Engineering and Construction	8
Maintenance - Fixed Equipment	45
Maintenance - Mobile Equipment	44
Mine Supervision	4
Mine Operations	281
Productivity	9
Technical Services	26
Total	**451**

16.10 Life-of-Mine Plan

16.10.1 Production

Table 16.27 presents the LOM production schedule developed in the reserve estimation process. The table includes 8,621 tonnes of ore in the ROM stockpile on July 1, 2023, and the totals coincide with the Mineral Reserve estimate. The other tables in this section show ore mined underground and do not include the stockpile.

The following trends can be noted in the LOM production schedule:

- The mine maintains a steady production output of approximately 1.1 Mtpa over the LOM.
- Mineral Reserves of 8.08 Mt are sufficient to continue operations at this production rate until the end of 2030.
- The 7.5-year mine life represents an extension of 2.75 years to the LOM stated in the July 1, 2022, Mineral Reserve estimate, which projected mining operations continuing until Q1 2028.
- The average annual NSR value declines progressively after 2025, mainly due to lower silver and zinc grades but remains well above the NSR cut-off values. Copper grades, on the other hand, show an upward trend at depth.

Table 16.28 presents the LOM production plan broken down by zone and mining method. The following trends can be noted in this schedule:

- About 73% of the LOM production is derived from reserves in the CZ and SE zones.
- Proportional production from the CZ progressively declines yearly from 75% of total output in 2024 to 15% in 2030.
- The drop in CZ output is offset by progressively increasing production from the SE zone, contributing to 67% of the total mine output in 2029.
- Production in the NW continues throughout the LOM, averaging 22% of the LOM output.
- The SEU zone accounts for only 6% of the Mineral Reserves, which mineralization will be exhausted in 2027.

Table 16.29 presents the LOM Plan broken down by mining method. The following trends can be noted in this schedule:

- Stope production transitions from roughly equal emphasis on CAF and LHS in 2024 to predominantly LHS in the final three years of the LOM.
- The diminishing emphasis on CAF is partially attributable to the exhaustion of the SEU reserves and the declining application of the mining method in the CZ, where it is used to stabilize the hangingwall.
- The SE will be mined exclusively with LHS as the zone has favourable geometry and ground conditions for this mining method.

Table 16.30 and Table 16.31 present LOM backfill placement and longhole drilling, respectively. The following trends can be noted in these tables:

- With the commissioning of the PF plant in Q4 2022, PF is the predominant backfill, accounting for about 96% of the backfill volume placed over the LOM.
- The volume of CRF, used in CAF stopes, declines yearly in line with the increasing emphasis on LHS.
- The drilled metres for longhole stopes and cable bolting progressively increase yearly with the increasing emphasis on the LHS mining method.

Table 16.27: Life of Underground Mine Production Schedule, Including Stockpile Material

	Units	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM
Proven & Probable	t	547,235	1,082,063	1,079,422	1,081,294	1,088,989	1,086,956	1,087,008	1,029,534	8,082,501
NSR Value	$/t	223	224	224	203	183	178	162	162	**193**
Ag Grade	g/t	269	267	268	223	193	201	171	165	**217**
Pb Grade	%	2.08	2.14	2.22	2.33	2.26	2.03	2.17	2.34	**2.20**
Zn Grade	%	4.44	4.75	4.56	4.89	4.56	3.68	3.69	4.08	**4.32**
Cu Grade	%	0.09	0.10	0.11	0.12	0.14	0.21	0.24	0.15	**0.15**
Au Grade	g/t	0.28	0.27	0.28	0.26	0.27	0.24	0.19	0.21	**0.25**

Table 16.28: Life of Mine Underground Production Schedule by Zone, Excluding Stockpile Material

	Method	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM Total
CZ	Cut-and-fill	266,418	377,386	253,976	219,273	185,358	80,938	8,683	72,171	1,464,203
	Longhole Stoping	128,972	309,992	215,837	222,820	266,936	257,302	171,776	77,664	1,651,299
	Development	55,461	124,642	32,902	5,847	12,823	390	338	93	232,495
	Total CZ	**450,851**	**812,020**	**502,714**	**447,940**	**465,118**	**338,629**	**180,797**	**149,928**	**3,347,997**
NW	Cut-and-fill	8,498								8,498
	LHS	27,443	135,242	254,100	235,532	267,494	191,740	178,693	298,535	1,588,780
	Development	20,047	32,359	25,773	60,455	26,049	2,025			166,707
	Total NW	**55,987**	**167,601**	**279,874**	**295,987**	**293,543**	**193,765**	**178,693**	**298,535**	**1,763,985**
SE	Longhole Stoping		4,188	58,560	152,620	116,710	532,175	727,519	581,070	2,172,843
	Development		6,558	55,385	101,232	148,800	22,387			334,362
	Total SE		**10,747**	**113,945**	**253,852**	**265,510**	**554,562**	**727,519**	**581,070**	**2,507,205**
SEU	Cut-and-fill	31,518	90,363	181,147	82,918	64,588				450,534
	Development	258	1,333	1,743	597	230				4,160
	Total SEU	**31,776**	**91,696**	**182,889**	**83,515**	**64,818**				**454,694**
	Total All Zones	**538,614**	**1,082,063**	**1,079,422**	**1,081,294**	**1,088,989**	**1,086,956**	**1,087,008**	**1,029,534**	**8,073,880**

Table 16.29: Life of Mine Underground Production Schedule by Mining Method, Excluding Stockpile Material

Mining Method	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM Total
Cut-and-fill	306,435	467,748	435,122	302,191	249,946	80,938	8,683	72,171	1,923,235
Longhole Stoping	156,415	449,423	528,497	610,972	651,141	981,216	1,077,987	957,270	5,412,922
Development	75,765	164,892	115,803	168,131	187,902	24,802	338	93	737,724
Total Production	**538,614**	**1,082,063**	**1,079,422**	**1,081,294**	**1,088,989**	**1,086,956**	**1,087,008**	**1,029,534**	**8,073,880**

Table 16.30: Life of Mine Backfill Placement, cubic meters

Backfill Type	Mining Method	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM Total
Pastefill	Cut-and-fill	69,250	122,567	141,428	94,766	75,716	26,114	6,520	20,270	556,632
	Longhole stoping	49,954	156,412	208,855	243,845	230,669	369,383	419,655	402,861	2,081,635
	Total Pastefill	119,204	278,980	350,283	338,610	306,385	395,498	426,175	423,131	2,638,267
Cemented Rockfill	Cut-and-fill	24,626	33,932	24,307	9,901	15,441	1,885		4,983	115,075
Rockfill	Cut-and-fill				1,977					1,977
	Total Backfill	**143,830**	**312,912**	**374,590**	**350,488**	**321,827**	**397,383**	**426,175**	**428,114**	**2,755,319**

Table 16.31: Life of Mine Longhole Drilling, meters

	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM Total
Longhole Drilling	56,606	158,994	183,344	214,666	223,672	344,039	369,981	323,370	1,874,673
Cable Bolting	5,192	15,087	18,114	20,891	22,195	33,741	37,192	33,201	185,614
Total	**61,798**	**174,081**	**201,459**	**235,557**	**245,867**	**377,780**	**407,173**	**356,572**	**2,060,286**

16.10.2 Development

Table 16.32 presents the LOM schedule for lateral development, which consists of ramps and drifts. Table 16.33 shows the vertical development schedule, which consists for raises for ventilation and escapeways. LOM mining rates are similar to current operating rates, and underground development for mining the current mineral reserve is expected to be materially complete in 2027.

Table 16.32: Life of Mine Schedule for Lateral Development, meters

		H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM Total
CZ	Sublevel development	597	522	560	162	263	99			2,203
	Crosscut	148	196	362	139	153	3		20	1,021
	Ramp	297	304	664	240	150				1,655
	Ore drive	1,245	2,566	620	74	250	5			4,761
	Total CZ	2,286	3,588	2,206	615	815	107	0	20	9,639
NW	Sublevel development	210	199	571	362	127				1,468
	Crosscut	126	178	190	256	28				779
	Ramp	34	191	260	428					913
	Ore drive	476	659	578	1,037	434	92		2	3,279
	Total NW	847	1,227	1,599	2,084	589	92		2	6,439
SE	Sublevel development		256	252	556	438	18			1,520
	Crosscut		557	211	613	725				2,106
	Ramp	78	557	511	1,049	726				2,921
	SIL		182	1,549	2,040	2,680	790			7,242
	Total SE	78	1,552	2,523	4,257	4,569	808			13,789
SEU	Sublevel development	52	358	115	13					539
	Crosscut	145	120	55		46				366
	Ramp	236	408	102						746
	Total SEU	433	887	272	13	46				1,651
	Total All Zones	**3,645**	**7,254**	**6,601**	**6,969**	**6,020**	**1,007**	**0**	**22**	**31,518**

Table 16.33: Life of Mine Schedule for Vertical Development, meters

Zone	H2 2023	2024	2025	2026	2027	2028	2029	2030	LOM Total
CZ	29	49	49	79	87				292
NW	71	70	96	72	39				348
SE		7	464	197	272				940
SEU	558	22			18				598
Total	**658**	**148**	**608**	**349**	**416**				**2,179**

16.11 Mining Risks and Opportunities

The following factors represent challenges and risks for mining the CLG orebody for the remaining LOM:

- Accessing and mining the Mineral Reserves per the LOM production schedule will depend on success in managing the groundwater. The challenges with mine dewatering and inflows may increase as the mine deepens.
- Unfavourable ground conditions occur in some areas of the mine, specifically in stopes influenced by the Los Gatos fault. These conditions could impact production and development schedules and require greater usage than planned of the higher-cost transverse CAF mining method.
- The challenges with geothermal heat and controlling temperatures in the underground work environment could increase as the mine deepens. Failure to adequately manage these conditions could impact production and development schedules.
- The hydrogeological data available for the SE zone is limited; consequently, the additional capital necessary for dewatering wells in this part of the mine is difficult to estimate accurately. Sustaining capital has been allocated in the LOM Plan for installation of additional dewatering infrastructure.
- The assumed higher primary ramp development rates following the installation of additional dewatering infrastructure may not be achieved. Not achieving the planned development rates could impact mine sequencing.
- The plan to increase the proportion of LHS depends on the SE zone having suitable conditions for employing the method; however, the geotechnical data available for that part of the mine is limited. If geotechnical conditions are unsuitable to LHS the ore would be required to be mined using CAF methods at a higher cost.
- The schedule for developing the South-East Access Ramp is difficult to estimate due to limited data on the geotechnical conditions of the footwall. Not achieving the planned development rates could impact mine sequencing.
- The LOM plan assumes the SE zone can be mined without installing a third cooling plant. The second cooling plant required approximately $5 million in capital, and if a third plant is required the cost is expected to be similar.
- The schedule for developing the SE zone could be impacted by ground conditions affecting the development of ventilation raises.
- Approximately 57% of the 2023 Mineral Reserve is in the Probable category. The confidence in the Modifying Factors applying to Probable mineralization is lower than that applying to Proven material.

The following factors represent opportunities to enhance mining operations at CLG:

- The expanded diamond drilling program planned for the SE zone and South-East Deeps has the potential to add significantly to the CLG mine life.
- The exploration drilling program will also provide core which can be subjected to geotechnical test work to better understand rock mass characteristics and conditions at depth.
- Indications of drier conditions in the SE zone could improve mining conditions concerning temperature control and dewatering and permit greater usage of lower-cost ANFO explosives.
- An option under evaluation to increase mill throughput and mine production could increase revenues and potentially improve margins at CLG.

17.0 PROCESSING AND RECOVERY METHODS

17.1 Overview

This section summarizes the process plant facilities in operation treating lead, zinc and silver ores at the Cerro Los Gatos mine site in Chihuahua, Mexico.

The design basis for the ore processing facility was 2,500 t/d, 365 days per year or 912,500 t/y of ore on an operating basis of 92% utilization. Since commencing operations, throughput improvements have been achieved and the plant now consistently treats over 3,000 t/d of ore.

The plant operating practices are consistent with the design, metallurgical testwork described in Section 13.0 and performance predictions.

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. The plant uses a conventional design and technology. The plant equipment sizing is robust for the throughput projected.

17.2 Plant Parameters

The key process parameters are outlined in Table 17.1.

Table 17.1: Process Parameters

Parameter	Units	Value
Plant Throughput	t/d	3,000
Crushing Availability	%	75
Concentrator Availability	%	93.4
Crushing Plant Product Size (P_{100})	mm	125
Flotation Feed Size (F_{80})	µm	45
Pb Rougher Regrind Product Size (P_{80})	µm	20
Zn Rougher Regrind Product Size (P_{80})	µm	20
Pb Recovery in Pb Concentrate	%	89.4
Ag Recovery in Pb Concentrate	%	78.0
Au Recovery in Pb Concentrate	%	54.2
Cu Recovery in Pb Concentrate	%	60.0
Zn Recovery in Zn Concentrate	%	62.77
Ag Recovery in Zn Concentrate	%	10.2
Pb Concentrate Grade	% Pb	53
Zn Concentrate Grade	% Zn	56

17.3 Major Equipment

Table 17.2 shows a list of major equipment installed in the plant.

Table 17.2: Major Equipment List

Equipment	Size
Primary jaw crusher	870 mm x 1200 mm, 150 kW
SAG mill	6.1 m DIA x 2.8 m EGL, 1750 kW
Ball mill	5.0 m DIA x 7.32 m EGL, 3100 kW
Pb rougher flotation	5 x 70 m^3 tank cells
Pb cleaner flotation	5 x 10 m^3 tank cells 5 x 5 m^3 cells
Pb Scalper flotation on column	1 column cell 2.5 m Ø
Zn rougher flotation	5 x 10 m^3 tank cells
Zn cleaner flotation	16 x 10 m^3 tank cells
Zn Scalper flotation	2 column cells 2.5 m Ø
Pb regrind mill	150 kW vertical mill
Zn regrind mill	225 kW vertical mill
Pb concentrate thickener	10 m DIA, high rate
Zn concentrate thickener	10 m DIA, high rate
Pb concentrate filter	41 m^2 pressure filter
Zn concentrate filter	93 m^2 pressure filter
Tailing thickener	20 m DIA, high rate

17.4 Comminution

The crushing plant is processing the ROM ore by using a primary jaw crusher to reduce the ore to a P_{100} of minus 125 mm.

Crusher product is fed to a coarse ore stockpile with about 3000 tonne live capacity.

Material reclaimed from the coarse ore stockpile is fed to a semi-autogenous (SAG) mill-ball-mill grinding circuit to liberate the economic minerals from gangue. The SAG mill operates in closed circuit with a vibrating screen. The ball mill operates in closed circuit with hydrocyclones. The grinding circuit flow sheet is presented in Figure 17.1.

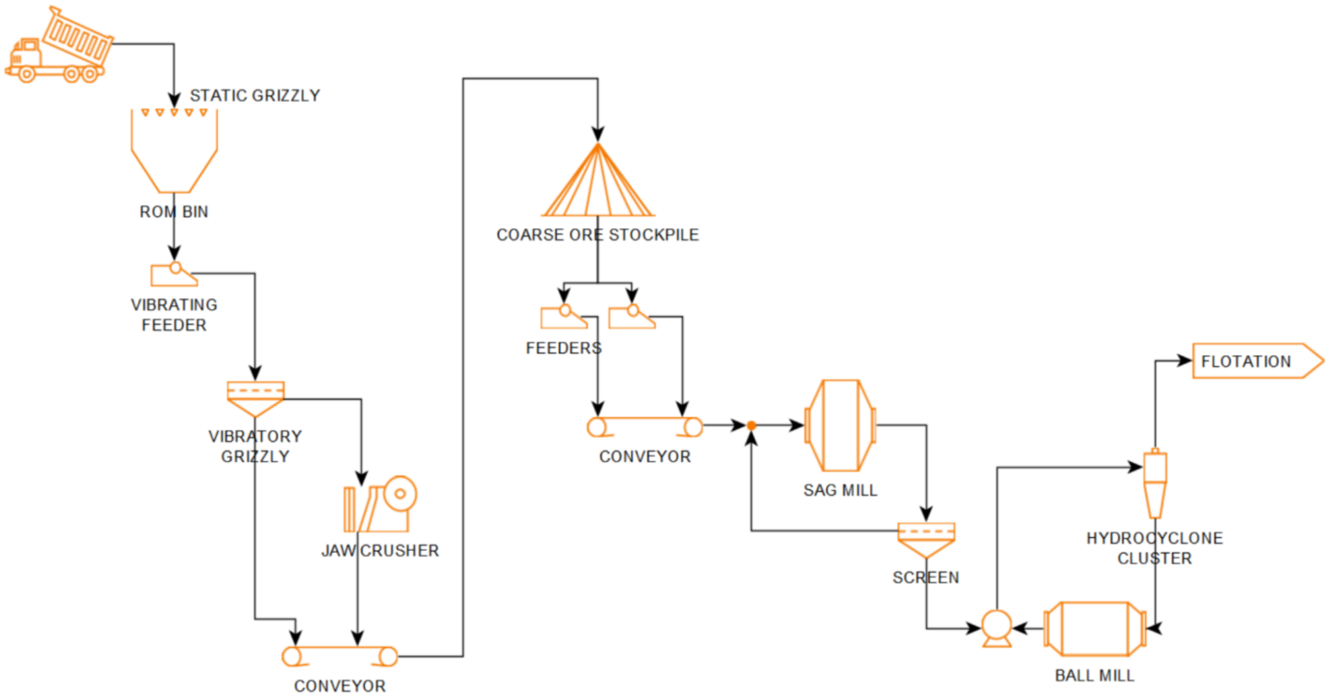


Figure 17.1: Crushing and Grinding Simplified Process Flowsheet

17.5 Beneficiation

Cyclone overflow, the grinding circuit product, is fed to the flotation plant. The flotation plant consists of lead and zinc flotation circuits. The lead flotation circuit consists of rougher flotation, regrind, and five cleaner flotation stages. Lead cleaner stages 1 to 4 use mechanical tank cells, whereas the final stage of cleaning uses column flotation technology. The lead regrind circuit is not currently being used as the flotation circuit is working effectively at the grind size produced directly by the ball mill. The lead flotation circuit flow sheet is presented in Figure 17.2.

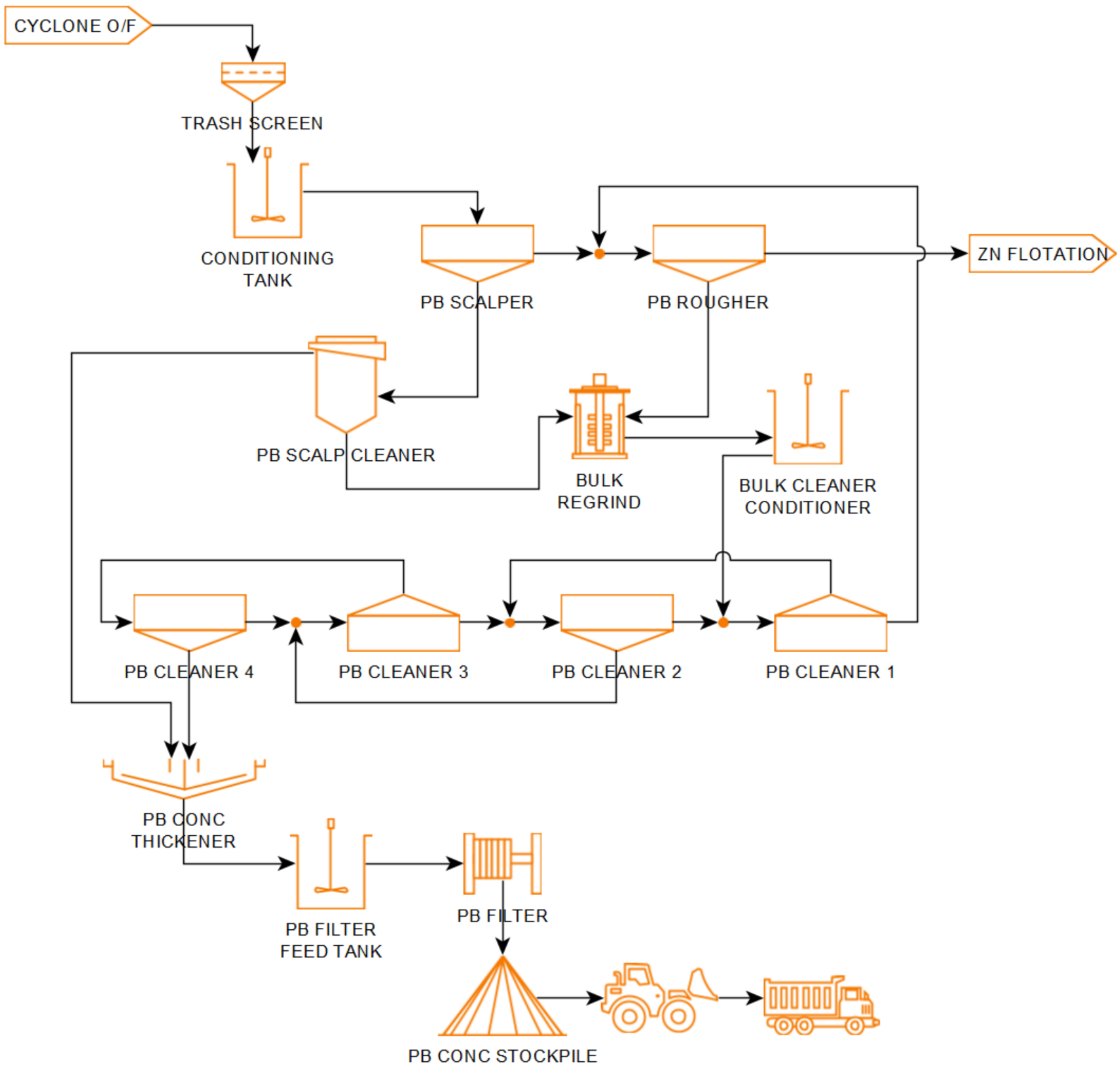


Figure 17.2: Lead Flotation Simplified Process Flowsheet

The zinc flotation circuit consists of rougher flotation, regrind, and five-stage cleaner flotation. Zinc cleaner stages 1 to 4 use mechanical tank cells, whereas the final stages of cleaning use column flotation technology. The zinc flotation circuit flow sheet is presented in Figure 17.3.

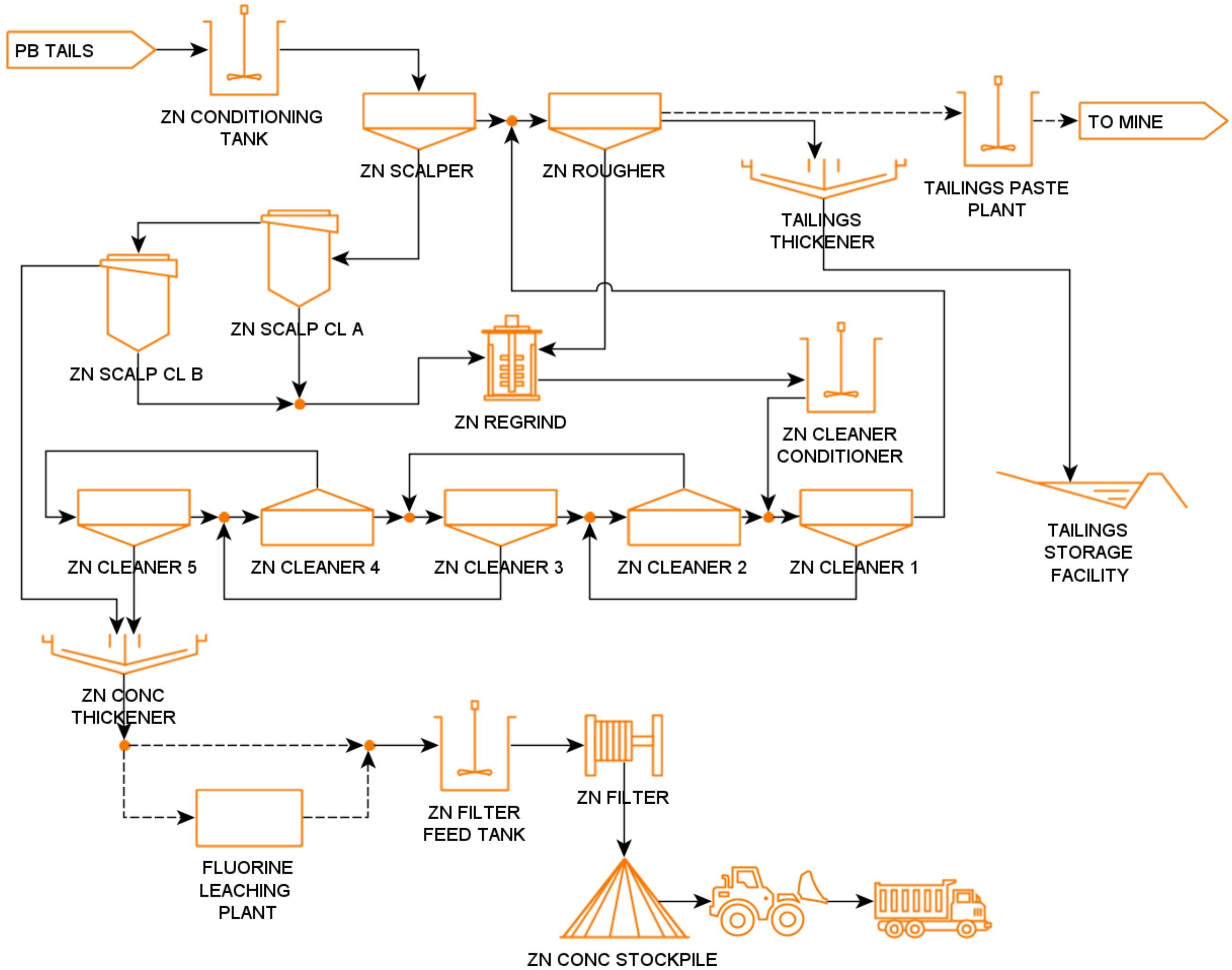


Figure 17.3: Zinc Flotation and Tailings Simplified Process Flowsheet

17.6 Fluorine Leaching Plant

High levels of fluorine (>1300 ppm) have been encountered in the zinc concentrate produced. While this grade of fluorine has not inhibited concentrate sale, a principal concentrate buyer has requested that CLG reduce the fluorine level to approximately 500 ppm. A plant has been successfully commissioned based on a hot sulfuric acid and aluminum sulfate leaching process that reduces the fluorine grade in the zinc concentrate to within the buyer’s target. The fluorine reduction circuit flow sheet is presented in Figure 17.4.

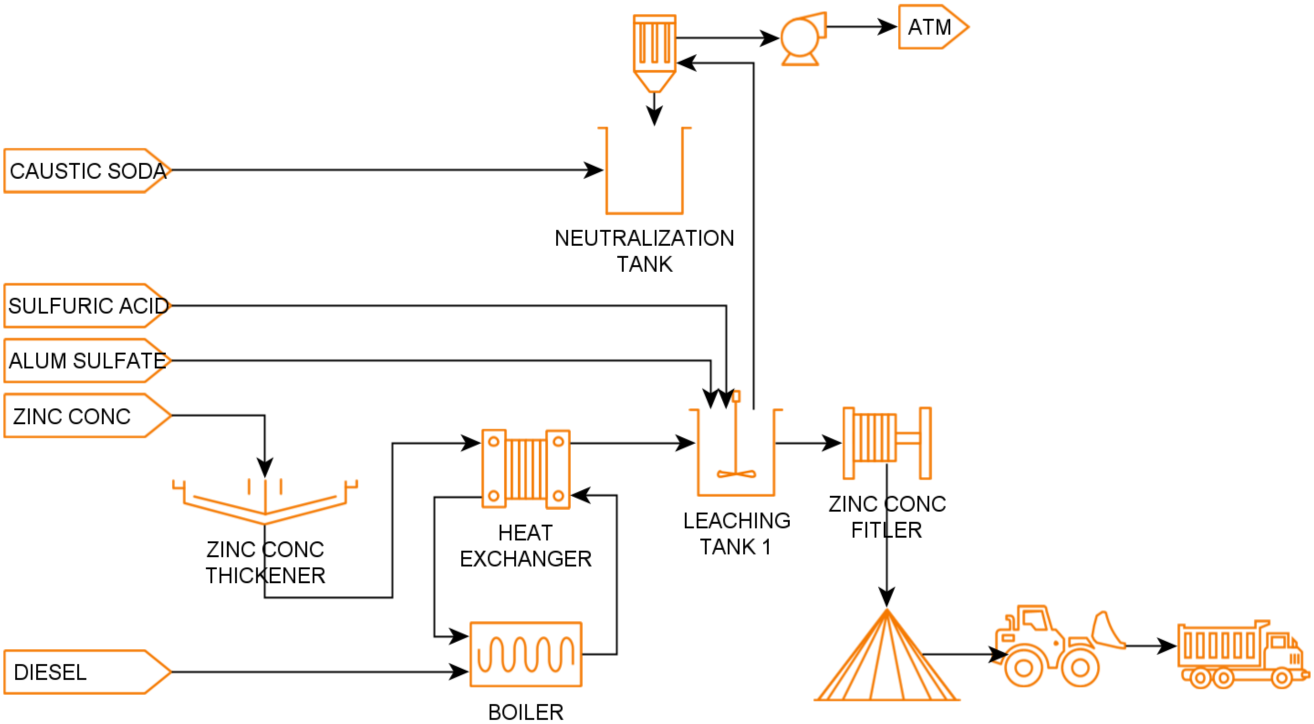


Figure 17.4: Fluorine Leaching Plant Process Flowsheet

17.7 Concentrates

Both final lead and zinc concentrates are thickened, filtered, and stored in concentrate storage facilities prior to loading in trucks for shipment.

Both the lead and zinc concentrates have low levels of deleterious elements and are considered high quality concentrates.

17.8 Tailings

Zinc flotation tailings become the final tailing stream. Tailings are thickened, and thickener underflow is pumped to the lined tailings storage facility. A paste backfill plant was commissioned in early 2023 and a portion of the sands fraction of the plant tailings are converted to paste for use as backfill in the underground mine. There is ample surface tailings storage capacity demonstrated for the projected production (see Section 15.8).

17.9 Reagents

The reagents area includes the flotation reagents and flocculants to support the processes, including:

- Aerophine collector
- Modified thionocarbamate collector
- Sodium isopropyl xanthate collector
- MIBC frother
- Copper sulfate activator

- Zinc sulfate depressant
- Sodium cyanide depressant
- Anionic flocculant
- Lime pH regulator
- Aluminum sulfate
- Sulfuric acid
- Sodium hydroxide

Each reagent has suitable mixing, storage and dosing equipment.

17.10 Instrumentation

The plant is fitted with the appropriate instrumentation, sampling equipment, and online analyzers required for operation, historical data keeping, metal accounting, and process optimization.

17.11 Maintenance

The plant has an appropriate maintenance plan in place to keep the facility running smoothly. The plan includes regular cleaning and inspection of all equipment, systems, and structures. In addition, plant management follows a preventive maintenance program which helps to identify and correct potential problems before they cause disruptions. The maintenance staff is trained and experienced, and work closely with the production team to ensure that the plant runs efficiently.

Bridge cranes are installed for maintenance over the equipment installations of the primary crusher, grinding, flotation, and filtration circuits.

17.12 Water

There is ample water supply on site for the plant operation. No plant effluents are discharged to the environment.

About 0.66 cubic metres per tonne (m^3/t) of raw water is supplied from the mine dewatering operation to compensate for the water reporting to tailings, concentrates, and lost to evaporation.

The lead process water tank receives overflow from the lead concentrate thickener, tailings thickener and water reclaimed from the tailings dam. The lead process water is used as makeup water in the primary cyclone feed sump. Fresh water can be added to the lead process water tank if necessary.

Overflow from the zinc concentrate thickener and lead process water excess overflow is recycled to the zinc process water tank and used as makeup water in the zinc flotation circuit. Fresh water can be added to the zinc process water tank.

Additional water is also recovered from the surface tailings storage facility. Water is reclaimed from the tailings dam using reclaim water pumps.

The plant area is also equipped with a gland water system, and a fire water tank and pumps.

17.13 Plant Utilities and Services

Plant utilities and support services facilities include:

- Grinding media receiving and storage.
- Spares and consumables warehouse.
- Reagent mixing and storage facilities.
- Raw and process water storage and distribution systems.
- Maintenance workshop.
- Crusher and reclaim dust collection systems.
- Air blowers and compressors and air supply.
- Assay and metallurgical laboratories.
- Standby power generator.
- Cranes and mobile equipment
- On stream analyzers and sampling systems.
- Process control room and systems.
- Electrical distribution systems.
- Concentrate storage and dispatch systems.
- Plant offices, ablution facilities, and meeting rooms.

17.14 Process Labour

Process plant labor includes plant management, technical staff, operations, and maintenance personnel, and administrative staff, as detailed in Table 17.3.

Table 17.3: Process Plant Staffing

Mine Labor	Positions
Plant Manager	1
Plant Superintendent	3
Plant Operation	43
Plant Maintenance	58
Paste Plant and Leaching	18
Training	2
Assay and Laboratory	20
Metallurgists	9
Total	**154**

18.0 INFRASTRUCTURE

18.1 Introduction

CLG is an operating mine. All required infrastructure for the current operation is in place, with some additions required for the LOM Plan as described in this section.

Infrastructure constructed to support the mining and processing operations at CLG Mine include offsite and onsite components. Offsite infrastructure comprises grid power distribution to the mine and a main access road which was upgraded to facilitate heavy equipment transport during construction, material deliveries and concentrate shipments, in addition to worker traffic. Onsite infrastructure is comprised of camp facilities, office and maintenance facilities, a processing plant, a tailings storage facility, backfill plants, a refrigeration plant, a mine ventilation system, and dewatering ponds for sediment settling and water cooling.

A site visit was completed in May 2023 to examine the surface infrastructure at the CLG mine to inform the author of installed infrastructure and the status of construction projects.

18.2 General Site Layout

Figure 18.1 depicts the general layout of the CLG site, in plan view, showing major infrastructure and operating installations.

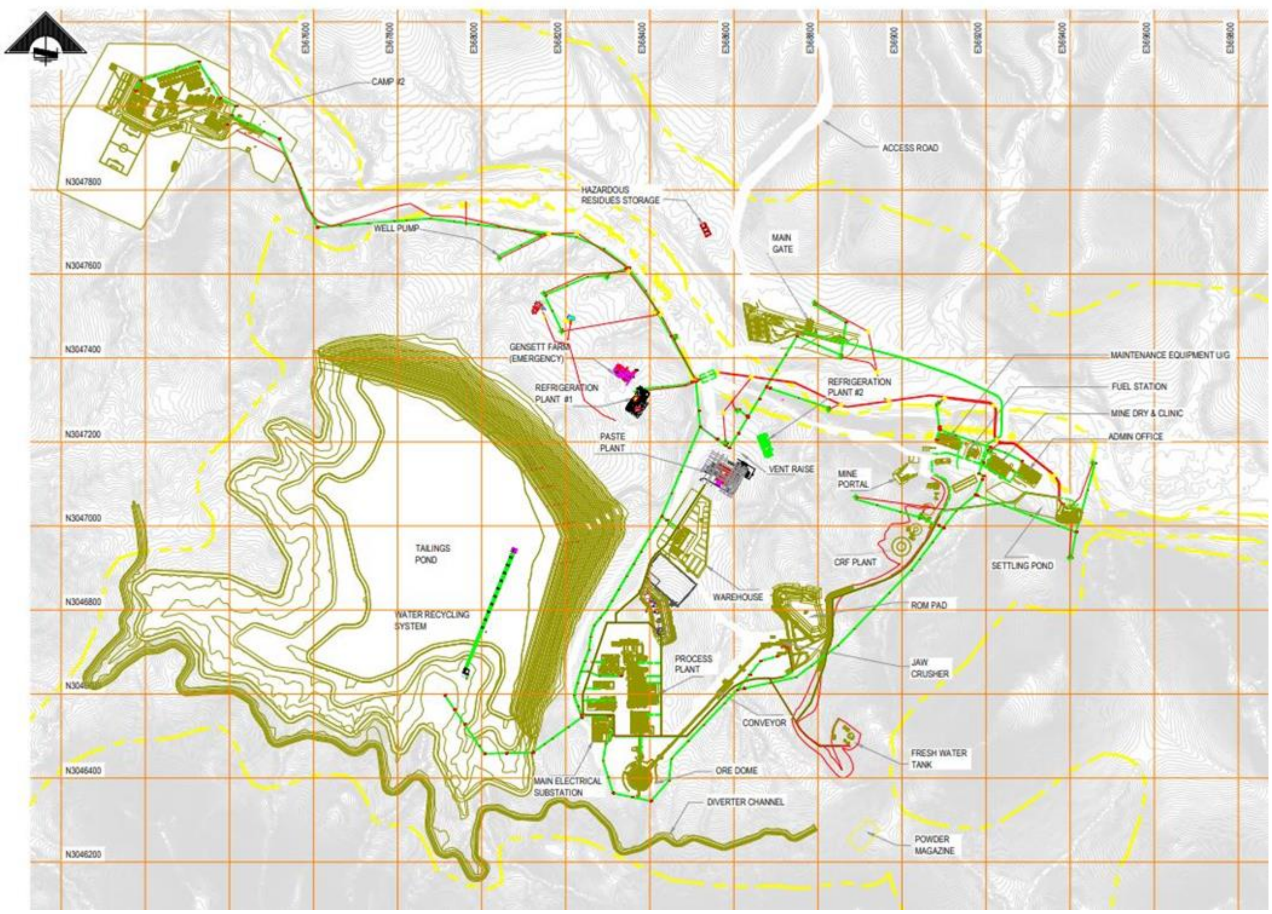


Figure 18.1: Infrastructure Layout

18.3 Ventilation and Refrigeration Systems

The underground mine operates three air extractive fans, totaling approximately 1.09 M CFM of capacity. As the mine experiences hot conditions, primarily due to geothermal water inflows, refrigeration is required. Air intake for the mine is approximately 1.12 M CFM (MPR, 2022) and is provided through two refrigeration plants providing cooled air to downcast fresh air raises, and the downcast decline ramp. The current installed capacity of the ventilation system is 1.30 M CFM and plans are in place for an expansion to provide fresh air to the SE Zone.

The installation of the refrigeration system has occurred in two stages, starting with an early works system, refrigeration plant 1, located at the central vent raise, followed by a newly commissioned, refrigeration plant 2, located at the south vent raise. The refrigeration plants process a combined 890k CFM of air, cooling the surface ambient air by 10°C to 15°C (depending on season and ambient temperature). Major sources of heat are (Tetra Tech, 2020):

- The native rock
- Water from the rock fissures which could be as high as 70°C (experienced under current conditions)
- Mobile mining equipment
- Auxiliary mining equipment, such as auxiliary fans and pumps
- Other loads such as backfilling, lighting, personnel activities
- Auto-compression of air from surface to shaft bottom

The two-stage refrigeration system (Figure 18.2) consists of an evaporative cooling system located outdoors (Figure 18.3) followed by chillers located indoors. Cooled fluid is then delivered to heat exchangers located at the intake air fans (Figure 18.4).

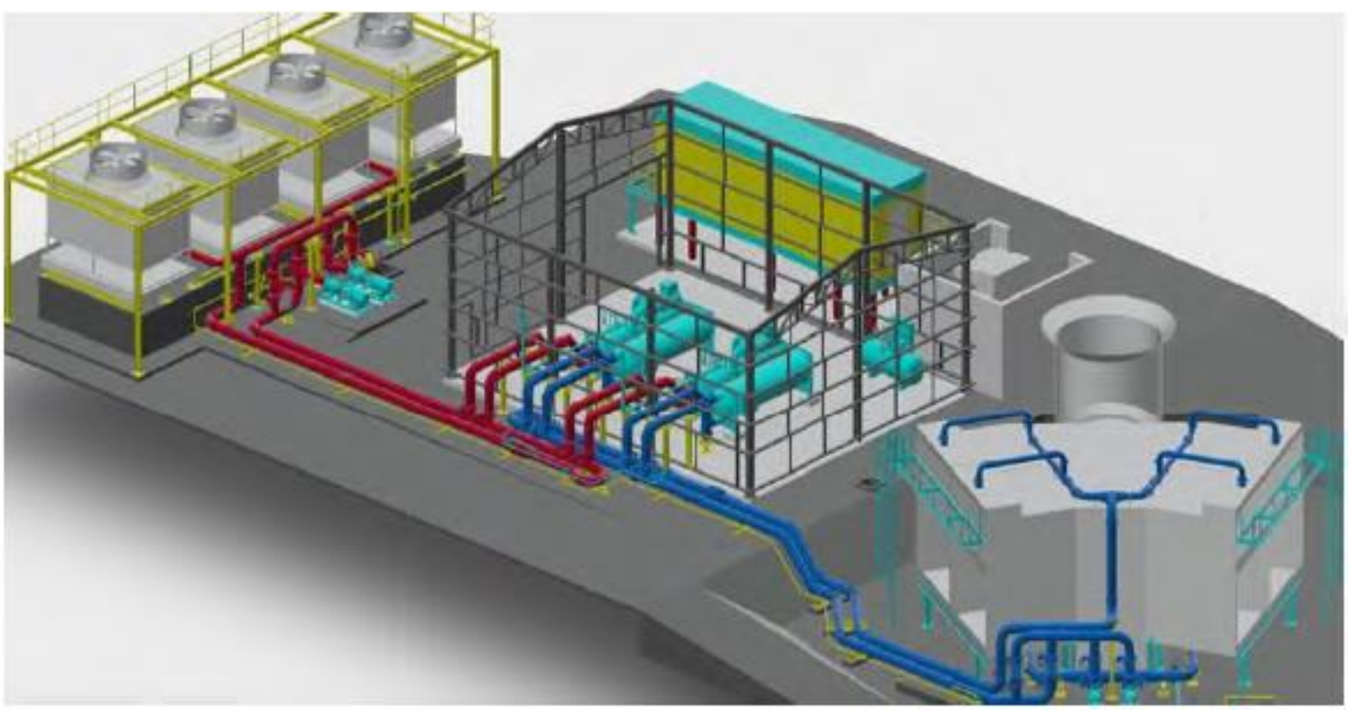


Figure 18.2: 3D Rendering of Refrigeration Plant 2 Design

Air intake is through bulk air cooler fins, with air delivered to the underground after being cooled through heat exchange with chilled water. Water is chilled (second stage of cooling) by mechanical refrigeration which rejects the heat extracted from chilled water return to water cooled by evaporative cooling towers (first stage of cooling).

Figure 18.3: Evaporative Cooling Towers as the First Stage of Cooling

Figure 18.4: Air Intake through Cooling Fins with Cooled Air Delivered to the Underground

18.4 Mine Dewatering System

Accomplishing the LOM Plan for mining the Mineral Reserve depends to a significant extent on CLG's ability to control groundwater inflows to the mine. Mine dewatering is largely managed by two different systems (MPR, 2022):

- Pumping through borehole/well pumps installed on the 1370 and 1277 levels which deliver to the 1390 pumping station which has a capacity of 780 L/s and an average pumping rate of 600-620 L/s.
- Underground water collection system where water from different levels is channeled to a central pumping station on the 1384 level with capacity for 375 L/s and is transported to the surface at a combined rate of 220 L/s.

In total, there are eleven surface borehole/well pumps located across the length of the deposit. Only two of the eleven dewatering wells drilled from surface are currently active, as the water table is now beneath the bottom of other wells. There are four main underground wells in the NW zone, with a fifth under development. As the mine expands, capital has been allocated for the anticipated additional dewatering infrastructure that will be required to manage the water underground.

The LOM Plan has made allowance for the installation of additional wells, sumps and pumping infrastructure with sustaining capital included in the cash flow model.

A detailed discussion of the mine dewatering system is provided in Section 16.0.

The underground pumping stations are designed to deliver water to the surface and the discharge header delivers water to surface cooling ponds, shown in Figure 18.5.

Figure 18.5: Underground Wellhead Pumps and Surface Discharge Header

18.5 Cemented Backfill

18.5.1 Cemented Rockfill Plant

Prior to 2023, CLG employed CRF as the primary backfill material. CRF is produced at a surface plant close to the portal. Longhole stopes are filled via end dumping from the drill drift access at the top of the stope, while the CRF backfill for cut-and-fill stopes is jammed in place at the mining horizon.

A modular, Rapid Mix 400C CRF Plant (Figure 18.6), produces approximately 880 tonnes of fill in a 10-hour shift.

Figure 18.6: CRF Production at the Rapid Mix 400C Plant

A primary jaw and secondary cone crusher combination is used to produce the aggregate for the CRF, a minus 76-mm material. Figure 18.7 shows the backfill crushing plant and aggregate stockpile.

Figure 18.7: Astec KCI-JCI Mobile Jaw-cone Crushing Plant (left); -76mm Aggregate Stockpile (right)

CLG has plans to construct a CRF plant underground and de-commission the surface CRF plant.

18.5.2 CRF Underground Placement

As a part of the general underground visit, locations of CRF placement were reviewed. Figure 18.8 illustrates CRF placement observed in cut-and-fill and longhole stopes. Care was taken by the backfill team to place fill tight to the back in the cut-and-fill stope using a “rammer-jammer,” a push plate bolted to an LHD in place of its bucket. A close-up view of the CRF shows a well set up, homogeneous CRF.

Figure 18.8: CRF Placed by Rammer Jammer in a Cut-and-fill Stope (left). A Close-up View of CRF in a Longhole Stope

As demonstrated in laboratory results, April 17 to May 22, 2022 (MPR, 2022), the CRF mix design consists of 65% coarse aggregate, 35% fines (although only one aggregate stockpile was observed on surface), 5% cement and 10 mL of retarder per kilogram of cement. Test samples are taken at 3-day, 7-day, 14-day, and 28-day curing ages for break strength targets of 1 MPa, 2 MPa, 3 MPa, and 4 MPa, respectively. Of a total of 214 CRF test results, there were 18 failures, where the tested CRF strength did not meet the targeted strength for the break period. The test results exceed a 90% pass rate, which is well within the industry standard.

It was observed that CRF test samples are cast into steel molds in duplicate. After a period of time, the steel molds are released and the CRF sample continues to cure on surface, adjacent to the CRF plant. Previously, Minefill (2019) indicated that the CRF samples were cured underground. The author observes that this practice be continued to allow the CRF to cure under the “as-placed” condition. Allowing the samples to cure on the surface will result in premature drying and samples will be subjected to cyclical temperature swings during the curing period, which is unlike the conditions underground.

18.5.3 Paste Backfill

Paste backfill was introduced late in 2022 with the completion of the paste backfill plant on surface. Towards the end of mine life, up to 95% of ore mining will be LHS for which paste backfill is ideal.

A pipeline system has been installed for delivery of paste backfill to underground stopes, described in Section 16.0. The plan is for paste fill to replace CRF as the primary backfill method.

18.5.4 Paste Fill Plant Overview

The paste fill (PF) plant has been commissioned and is now in operation. The PF plant is designed to process classified full mill tailings from the mill. A new cyclone was installed at the mill to remove ultrafine material and only deliver the cyclone underflow (UF) to the existing cyanide destruction circuit before transport to the PF plant, located remotely from the mill. Cyclone overflow is sent to the existing tailings thickener and pumped to the TSF. The thickener underflow can also be diverted to the existing cyanide destruction circuit.

The PF plant is designed to capture as much of the cyclone underflow as possible with two installed agitated filter feed tanks (Figure 18.9) and one future agitated filter feed tank. As paste backfill plants operate intermittently, the filter feed tanks allow for the storage of cyclone underflow during periods when paste is not poured. The filter feed tanks therefore, in effect, de-couple the downstream paste backfill process from the upstream process.

Downstream of the filter feed tanks, paste backfill can be poured at a higher rate (85 t/h tailings solids) than cyclone UF tailings is produced (65.6 t/h tailings solids).

Table 18.1 provides a summary of the key PF plant design parameters. With the PF plant taking only a portion of the mill tailings, as cyclone UF, it is important to understand the quantity of cyclone UF that needs to be captured to meet backfill demand. In this case, it is calculated that approximately, 58% of all the cyclone UF tailings is needed to meet backfill demand. This value is primarily driven by paste backfill characteristics, where to achieve a 170-mm slump a paste content of 71% by weight (wt%) solids is needed and of that, 65 wt% is cyclone UF tailings.

Table 18.1: Paste Backfill Plant Key Design Parameters

Parameter	Units	Design Values	Operating Values
Plant throughput	tonnes/day	2,500	2,900
ROM Specific Gravity		2.78	2.78
Stope volume excavated	m^3/day	899	1,043
Fraction of mine voids requiring paste backfill	%	75%	75%
Paste backfill required (volume)	m^3/day	674	782
Paste backfill plant operational throughput	m^3/day	1,738	1,738
Paste solids content	%	71 wt%	71 wt%
Paste Specific Gravity		1.80	1.80
Paste required (mass)	tonnes/day	1,213	1,408
Cyclone UF tailings mass required	tonnes/day	790	915
Cyclone UF available	tonnes/day	1,361	1,579
Cyclone UF tailings available	%	58%	58%
Total mill tailings required	%	55%	55%

Table 18.1 illustrates that a sufficient quantity of cyclone UF is available for paste backfill production purposes, as it is significantly greater than the cyclone UF tailings mass required, 1,579 tonnes/day compared to 915 tonnes/day. This means that approximately 58% of the cyclone UF must be captured to fulfill paste backfill demand. It is important to monitor the cyclone UF produced to ensure that the backfill operation remains unconstrained by the feed stock. Provisions for a third filter feed tank are already in place should the paste backfill plant consistently fall short on the pour cycles, as piping changes underground may necessitate paste backfill plant stoppages.

Figure 18.9: Filter Feed Tanks (left), Vacuum Pump, and Binder Silo (right) at the Paste Fill Plant

Figure 18.10: Positive Displacement Pumps for Paste Fill

Figure 18.11:Paste Surface Pipeline to Borehole

18.5.5 Paste Backfill Performance

Paste strength requirements are described in Minefill (2021) for the aforementioned mining methods (Section 18.5.3). Table 18.2, summarizes the UCS requirements for both the longitudinal and transverse longhole stopes based on a factor of safety of 1.5 and 28-day cure time. In addition to the UCS strengths defined, a plug pour will be required at the bottom of longhole stopes.

Table 18.2. Paste Backfill Fill Strength Requirements for Longhole Stopes (Longitudinal and Transverse)

Max Stope Width	UCS: 0 to 10m Lift (kPa)	UCS: 10m to 20m lift (kPa)
9m	180	140
15m	240	170
21m	290	190
Secondary Stopes	100	100

UCS tests for cut-and-fill applications have also been summarized in Minefill (2021). It is understood that cut-and-fill stopes will occur in panels, where a group of four to five drifts will be mined. The orebody is no more than four drifts wide with a maximum drift width of nine meters (Tetra Tech, 2020). Across the width of the mineable veins, primary and secondary drifts are also established. The subsequent panel is mined underneath the initial panel, therefore, for cut-and-fill applications, paste backfill will need to act as:

- A wall to the adjacent drift
- A working floor when mining bottom up within a panel
- The back to the panel above

Each of the above scenarios require different backfill strength considerations and these are summarized in Table 18.3. Minefill (2021) recommended that for the wall and working floor scenarios a 200-kPa paste UCS is suitable, allowing for a factor of safety of 3 and 2, respectively. A UCS of 200 kPa is the minimum strength to reach prior to the resumption of mining activity on top of the paste backfill or adjacent to it.

Table 18.3: Paste Backfill Strength Requirements for Cut-and-fill Applications

Max Drift Width	UCS (kPa)
5 m	200
5m, Lower Drift in Panel (Back for Panel Above)	870

18.6 Power Distribution

Electrical power is supplied to the CLG site via a 62 km, 115 kV overhead utility transmission line which originates from the San Francisco de Borja substation in Satevo (Chihuahua). The San Francisco de Borja substation is owned by the Federal Electricity Commission (CFE) and is connected into the national electrical grid.

The transmission line running to CLG is a dedicated line owned by MPR which was installed during mine construction. The capacity of the transmission line is approximately 23.5 MW, which exceeds the current power requirement of approximately 20 MW.

The 115 kV transmission line connects into an onsite substation at CLG located adjacent to the processing plant. The CLG substation consists of two transformers, each 24/32 MVA, which reduce the voltage from 115 kV to 13.8 kV. Electricity is distributed from the CLG substation to various surface and underground facilities, generally at 13.8 kV with local substations installed across the operation to step down the electricity further as required.

A system of backup diesel generators is installed at CLG to maintain power in the event of an interruption to power supply from the national electrical grid. Total installed backup generator capacity is approximately 12.5 MW which is designed to provide emergency power to critical equipment both on surface and underground.

In March 2022, MPR signed a contract for the supply of 100% renewable energy, with the transition to the renewable energy source occurring in September, 2022.

18.7 Other Surface Infrastructure

The CLG mine site is also serviced by facilities of a level of function typical for mining operations. The QP observed the following during the site visit:

- Processing plant for grinding, regrinding, flotation, thickening, filtration, reagent storage, concentrate storage and loading
- TSF
- Concrete batch plant
- Small vehicle maintenance shop
- Heavy mobile vehicle maintenance shop
- Administration and engineering building
- Dry for underground personnel
- Warehouse
- Security guard house, fencing and gates
- Employee and contractor camps and cafeterias

18.8 Tailings Storage

18.8.1 Background

The CLG TSF has been constructed and tailings have been deposited in the facility since 2019. Regular dam raises have been conducted to increase the volume of the TSF. This Section summarizes the design premise of the facility and any changes in the design, particularly since the decision to divert a large portion of tailings to the paste fill plant for use as mine backfill. The TSF design has been updated by the EOR, Tierra Group, to accommodate the increase in Mineral Reserves reported in this TR. Tierra Group produced a Technical Memorandum (TM) for MPR (August 25, 2023) documenting 2023 revisions to the TSF. Excerpts from the TM provide a summary description of the facility for this TR. Table 18.4 identifies parameters applied to the design of the TSF at CLG.

Table 18.4: Key Parameters of CLG TSF

Description	2022 Parameters	2023 Parameters
Beach Tailings Slope	0.5 %	0.5 %
Underwater Tailings Slope	15 % [1]	4% [2]
Tailings processed through June 2022	2.34 Mt	--
Total Reserves (July 2022 through LOM)	6.07 Mt	--
Projected total tailings through to TSF (July 2022 through LOM)	5.68 Mt	--
Tailings processed through June 2023	--	2.94 Mt
Total Reserves (July 2023 through LOM)	--	8.2 Mt
Project Total Tailings to TSF (from beginning of operations through LOM)	--	7.47 Mt
Tailings Dam crest elevation	1630.5 m	1633.0 m
Facility Life	Q4 - 2028	Q1 - 2031

Notes: [1] Estimated based on May 2022 bathymetry.
[2] Estimated based on May 2023 bathymetry.

18.8.2 Topography

Per NOM-141-SEMARNAT-2003, Table 2, any slope grade steeper than approximately 18% is considered Mountainous Land. Therefore, the site topography can be classified as “Mountainous Land” as some of the topographic slopes at the location of the TSF are between 18% and 23%.

18.8.3 Site Seismicity

The Mexican Seismological Service has divided the republic into four seismic zones based on:

- The catalog of earthquakes that occurred during the last century
- Great earthquakes mentioned in historical records
- Ground motion records of some of the larger events of this century

Mexico’s seismic hazard map places the Project site within Zone B. In this intermediate zone, infrequent earthquakes have been recorded, and peak ground accelerations do not exceed 70% of the acceleration of the soil. Zone B is called the “Penesísmica” region, with a peak ground acceleration (PGA) range of 0.8 to 1.6 m/s^2 (approximately 0.08g to 0.16g) for 10% probability of exceedance in 50 years (equivalent to a return period of 475 years). The site is on the border of Seismic Zones A and B; in order to be conservative, the TSF design assumes that the site is in Seismic Zone B.

For structures, such as the TSF, which present a significant hazard for damage to the environment, should be capable of tolerating displacements from a maximum credible earthquake (MCE) without catastrophic loss of tailings or supernatant; however, limited damage to the structure may take place. This approach is consistent with current International Commission of Large Dams (ICOLD) (Wieland, 2005) and Federal Emergency Management

Agency (FEMA) (2005) guidelines for seismic stability, which indicate that “significant structural damage is accepted” for maximum earthquake ground motions; however, no uncontrolled release from the reservoir shall occur. The deterministic seismic hazard evaluation for the Project (Tierra Group, 2018a) indicates a maximum site PGA of 0.18 g for stiff soil/soft rock conditions at the site for the assumed background event MCE of moment magnitude (Mw) 6.5 at a source-to-site distance of 12 km. Relative to published results of probabilistic ground motion estimates, this represents a conservative level of ground motion with a recurrence interval much greater than 10,000 years, which was calculated to be 0.087g (Tierra Group, 2018a).

18.8.4 Surface Water Hydrology

Based on NOM-141-SEMARNAT-2003, the Project site is situated in the Humid Hydrologic Zone and exhibits mountainous topography. For the design, the TSF area’s hydrology was evaluated using the Soil Conservation Service (SCS) curve number method to model soil losses and specify unit hydrograph transformation. The SCS method relies on basin characteristics, design storm rainfall depths, and temporal distribution to calculate volumetric flow rates.

18.8.5 Site Investigation and Site Conditions

Two geotechnical investigation programs were previously completed. The first geotechnical investigation began in December 2015 and was completed by Tetra Tech for the feasibility study. The second geotechnical investigation was performed by Tierra Group intermittently between August 13-18, October 30 and December 7, 2017 (Tierra Group, 2018b).

18.8.5.1 Surface and Subsurface Conditions

In general, the TSF soil profile can be described as shallow, with weathered and/or fractured bedrock generally encountered within 2.0 meters (m) of the surface. In areas where soil is present, it typically consisted of 0.5 to 2.0 m of silty sand (SM) and clayey sand with gravel (SC). Upstream of the TSF, silty gravel with sand (GM) and sand with clayey sand (SP-SC and SW-SP) were encountered. At the north end of the TSF, approximately 100 m from the embankment toe, silty sand (SM) with gravel was encountered up to 19 m in depth. This deeper soil deposit may be attributed to the proximity of the Los Gatos fault line. In areas along the TSF foundation, areas of exposed, slightly weathered bedrock were visible with little or no topsoil. Below the soil horizon, slightly weathered and highly fractured rock was encountered. Typically, this layer is approximately 1 m to 10 m thick, depending on the area. Below this layer, fresh bedrock was encountered. This rock is generally described as andesite and rhyolite. Per Tierra Group’s investigation (Tierra Group, 2018b), the permeability of the bedrock ranged from 1.24×10^{-6} to 6.67×10^{-8} cm/s. In addition, some boreholes northwest and southeast of the TSF encountered a potential shear zone consisting of moderately weathered rock with clay infill.

18.8.6 Borrow Material

MPR identified the borrow areas for investigation. They are located north of the TSF embankment across the Santo Toribio River in areas of epiclastic sedimentary deposits. Test pits in the potential borrow areas encountered silty gravel to clayey gravel to clayey sand with gravel (GC-GM & SC-GM). The typical soil depth in the test pits was approximately 2 m. Weathered bedrock was encountered below the soil.

These borrow areas were used for Stage I Phase 1 (Tetra Tech, 2017). Since then, all borrow material has come from excavating and blasting foundation material within the TSF footprint (Tetra Tech, 2017).

18.8.7 Design Criteria

Design criteria were established based on the facility size and risk using applicable dam safety and water quality regulations and industry best practice for the TSF embankment on a standalone basis. Table 18.5 lists the design criteria for the TSF.

Table 18.5: TSF Design Criteria

	Parameter	Criteria	Source	Comments
TSF				
Geotechnical Stability	Static Factor of Safety (FOS)	≥ 1.5	CDA, 2014	The dam must provide sufficient strength to withstand anticipated static loading conditions (i.e., no additional external forces).
	Pseudo static (Earthquake) FOS	≥ 1.0	CDA, 2014	If the pseudo-static FOS is less than 1.0, a deformation analysis is required to guarantee that the possible deformations are less than the parameters specified in the project.
	Design Earthquake	Operating Basis Earthquake (OBE) with a 475-year return period = 0.027g	ICOLD Bulletin 98 (1995)	Earthquake with 10% exceedance in 50 years during normal operations. Calculated with PRODISIS v4.1 software. (Tierra Group, 2018a)
		Maximum Design Earthquake (MDE) with a 10,000-year return period =0.087g or Maximum Credible Earthquake (MCE)= 0.18g	ICOLD Bulletin 98 (1995) CDA, 2014	ICOLD B98 (1995) and CDA (2014) establish a maximum earthquake with a return period of 10,000 years or the MCE that does not have an associated return period. The 10,000-year earthquake was calculated with the PRODISIS v4.1 software. (Tierra Group, 2018a)
Impoundment and Surface Water Management				
	Design Storm Event- TSF Operations	24-hour PMP = 375 mm	CDA, 2014	The TSF was designed to store the Inflow Design Flood (IDF), in addition to a normal operating pool, without overflowing and maintaining the required freeboard. SEMARNAT (2003) recommends rain with a return period of 50 years. CONAGUA (2011) recommends rain with a return period of 10,000 years for the spillway.
	Freeboard	2 m	SEMARNAT (2003)	Freeboard is defined as the difference between the minimum dam crest and the maximum extraordinary water level.
	Spillway	24-hour PMP	CDA, 2014 CONAGUA, 2011	CONAGUA (2011) recommends designing the spillway for rainfall with a return period of 10,000 years or the PMP.
	Diversion Channel	10,000-year 24-hour Event	SEMARNAT (2003) IFC, 2007; ICOLD 1996a; ICOLD 1996b	Diversion channels are designed to convey certain storm events avoiding failure (erosion or bank overflow). Antecedents of average humidity conditions are assumed.

Notes: CDA – Canadian Dam Association
CONAGUA - Comisión Nacional del Agua
IFC – International Finance Corporation

Table 18.6 summarizes the design storm events.

Table 18.6: Design Storm Events

Design Storm Event	Value (mm)
10,000-year 24-hour	194.3
24-hour PMP	375.4

18.8.8 Tailings Storage Facility Description

All TSF Stages are built using local borrow materials, primarily rockfill excavated and blasted from foundation material within the TSF. The ultimate updated TSF will be constructed in three stages using downstream construction methods (Figure 18.14). These stages will be constructed with upstream slopes of 2H:1V (horizontal to vertical) and downstream of 2.5H:1V, a maximum crest width of 15 m with a maximum crest elevation of 1,633.0 m (Stage III). The materials used in the dam construction are rockfill (Zone C), 1.5-m thick transition zone (Zone B), and a 3-m thick filter zone (Zone A). The tailings dam has a composite liner consisting of geosynthetic clay liner (GCL) overlain by a 60-mil LLDPE geomembrane (Figure 18.14).

This lining system also covers the entire impoundment. The lining system is placed on a 0.15-m thick bedding fill.

The original permitted TSF design consists of four Stages (I to IV). The TSF has been permitted to an ultimate crest elevation of 1638.0 m (Stage IV), however, due to a change in the tailings delivery rate to the TSF (paste plant commissioned in December 2022), the ultimate TSF will have a maximum crest elevation of 1633.0 m (Stage III) adequate for the revised and reduced volume of tailings to be stored.

To date, four raises have been constructed and one more is anticipated as follows:

- Stage I Phase 1 was built to a minimum crest elevation of 1618.6 m
- Stage I Phase 2 was built to a minimum crest elevation of 1621.6 m
- Stage II Phase 1 was built to a minimum crest elevation of 1625.0 m
- Stage II Phase 2 was built to a minimum crest elevation of 1628.0 m (current stage built)
- Stage II Phase 3 to be built to a minimum crest elevation of 1631.0 m
- Stage III (Ultimate Stage) to be built to a maximum crest elevation of 1633.0 m

Table 18.7 summarizes the TSF construction stages.

Table 18.7: TSF Construction Stages

Stage/Phase	Crest Elevation (m)	Start Of Construction	End Of Construction
Stage I Phase 1	1618.6	April 2018	August 2019
Stage I Phase 2	1621.6	June 2020	February 2021
Stage II Phase 1	1625.0	February 2021	April 2022
Stage II Phase 2	1628.0	April 2022	September 2022
Stage II Phase 3	1631.0	January 2025[1]	September 2025
Stage III	1633.0	January 2028[1]	September 2028

Notes:
1. Estimate based on construction time of previous stages

Figure 15.12 shows the plan view for the current TSF stage (Stage II Phase 2), and Figure 15.13 presents a section view with the TSF As-Built Stages and future expansions.

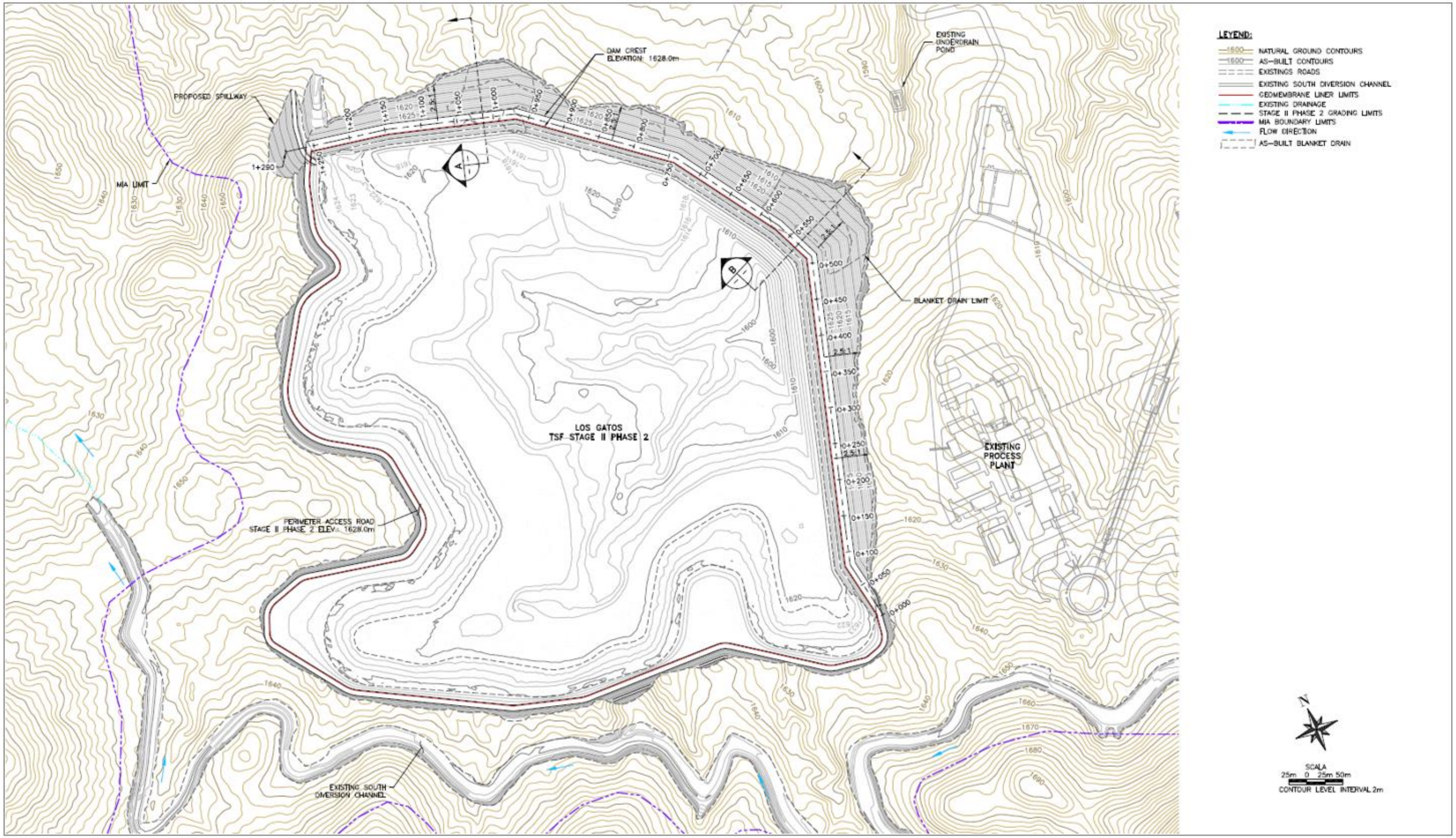


Figure 18.12: Stage II, Phase 2 Plan View (current elevation)

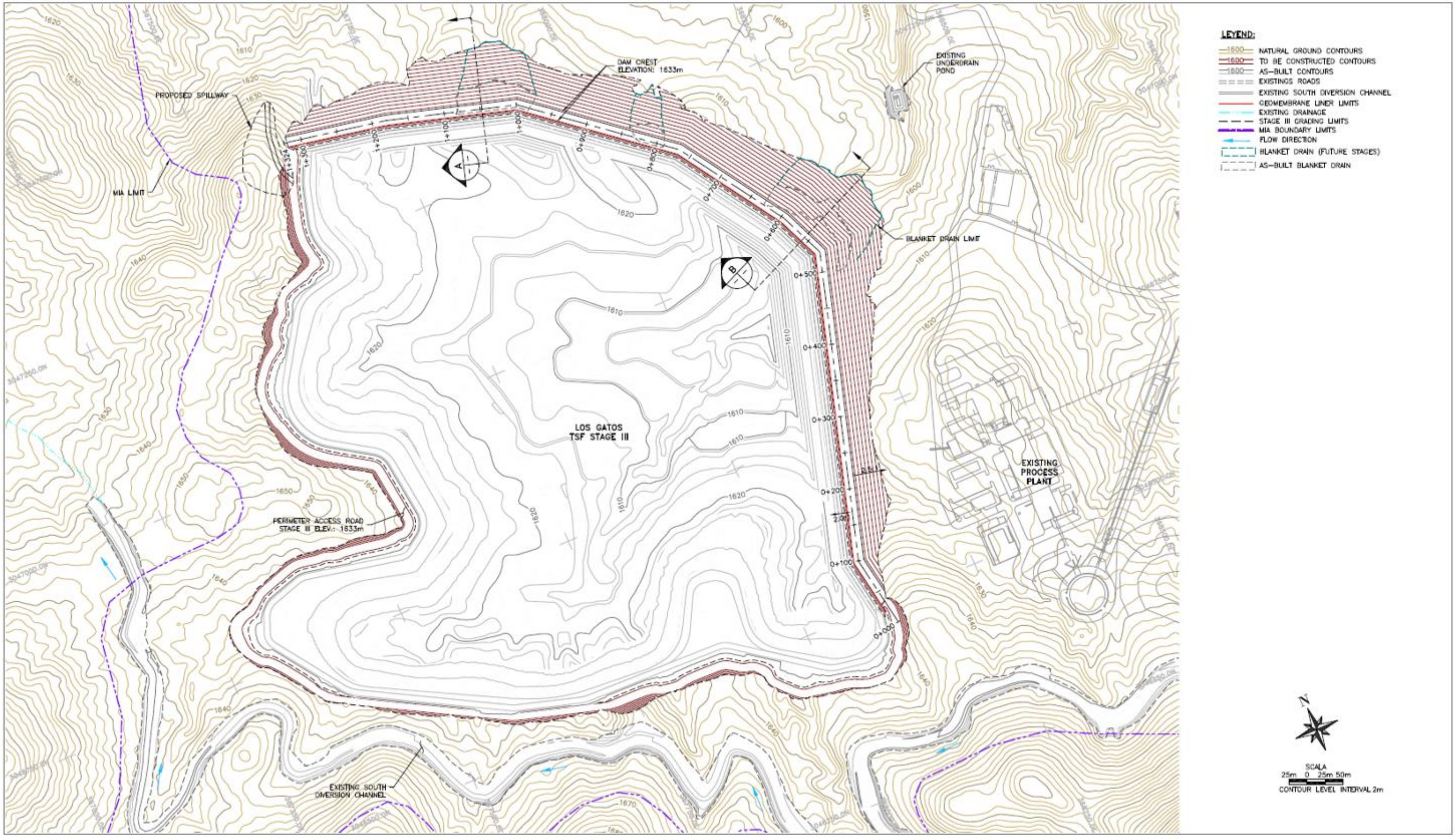


Figure 18.13: TSF Stage III Plan View (ultimate elevation)

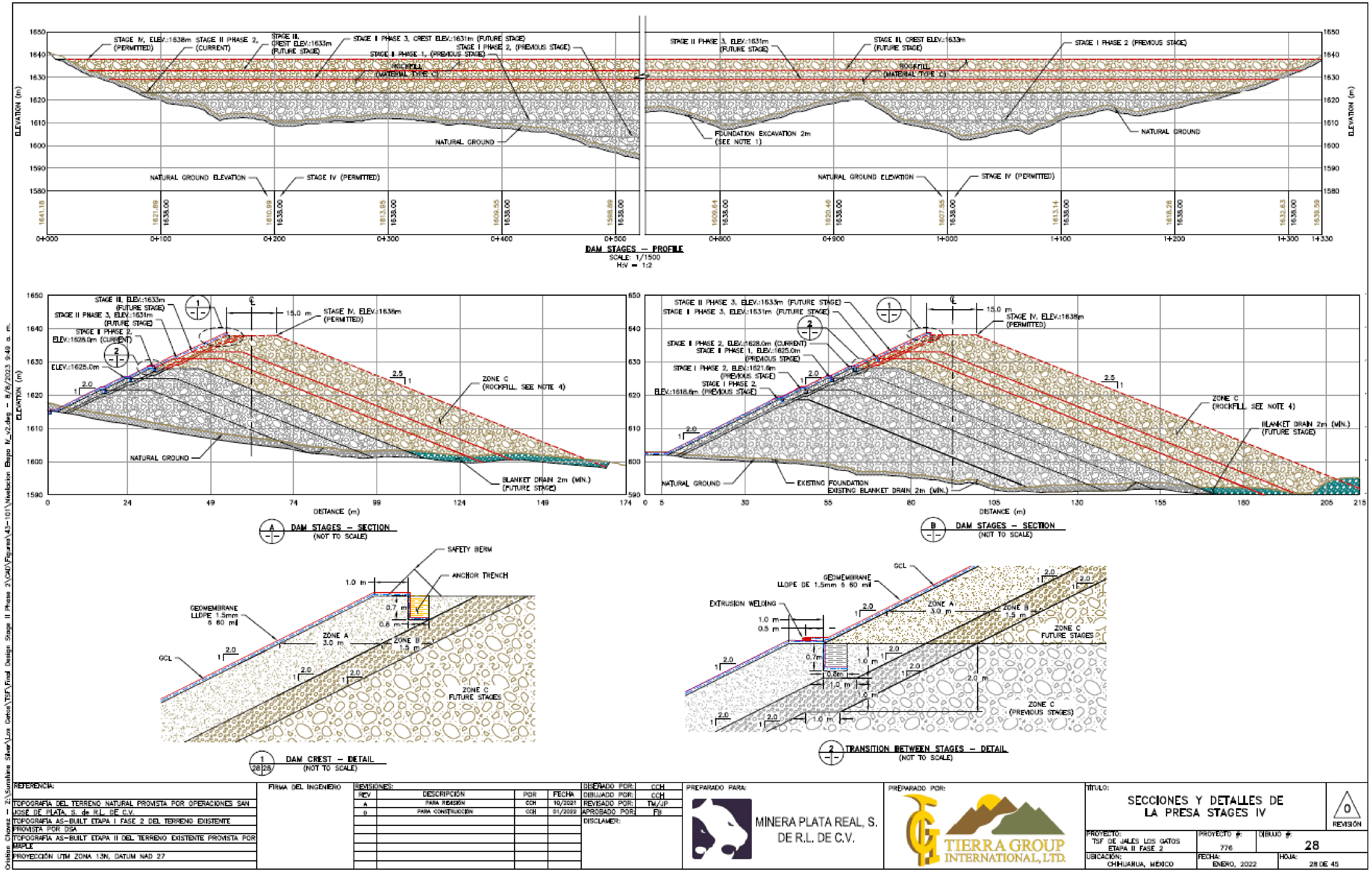


Figure 18.14: TSF As-Built and Future Stages Section View

18.8.9 Tailings Dam Design

The TSF is designed to accommodate tailings, mine water, and tailings slurry water. The average dry density of the tailings is 1.39 tonnes/cubic meter (t/m^3) (estimated dry density based on tailings records and bathymetry). Using the measured in-situ tailings density and the current design, the TSF is estimated to hold approximately 7.47 million tonnes (Mt) of dry tailings (5.51 million cubic meters, [Mm^3]). Table 18.8 presents the TSF capacity to accommodate the volume for tailings, operating water pool, IDF and 2 m of freeboard.

Figure 18.15 shows the TSF capacity curves.

Table 18.8: TSF Capacity

Description	Crest Elevation (m)	Total Capacity (Mm^3)
TSF	1,633.0	7.65

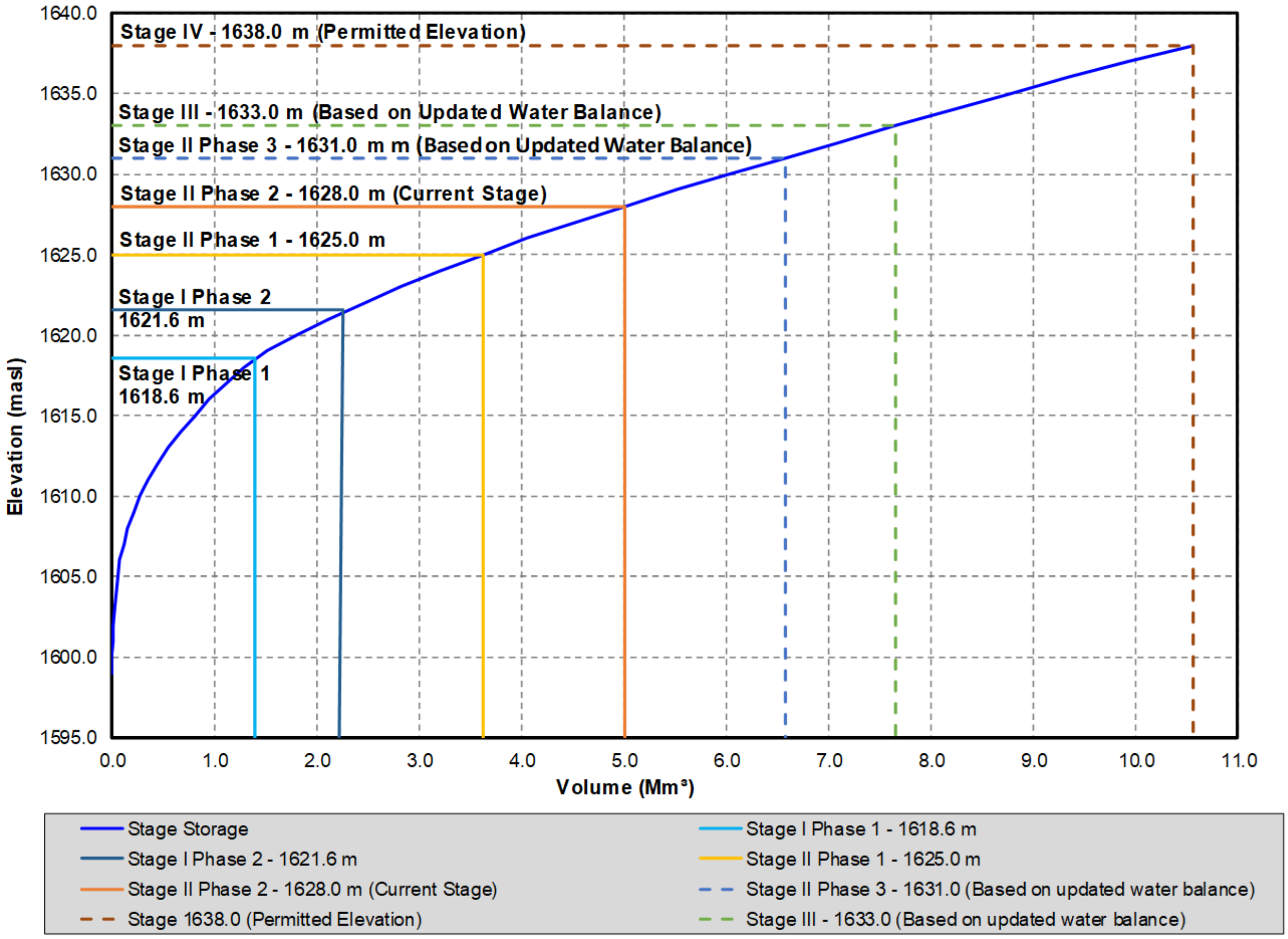


Figure 18.15: TSF Capacity Curve

18.8.9.1 *Water Balance Update*

The TSF water balance was updated based on PF Plant operations starting in October 2022, and the new LOM operating plan. The LOM TSF height assessment was projected using 8.20 Mt as of July 2023, which includes 0.66 Mt of concentrate and 7.54 Mt of tailings. It is projected that 40% of the tailings produced by the Process Plant will be sent to the Paste Plant, for use as underground backfill, while the remaining 60% will be sent to the TSF. As a result, tailings accumulated in the TSF are estimated at 7.47 Mt (2.94 Mt stored through June 2023 and 4.53 Mt from July 2023 until exhaustion of current mineral reserves).

The water balance update includes a volumetric calculation of deposited tailings, operating pond, required Inflow Design Flood (IDF) storage volumes, and freeboard that must be maintained within the TSF. Based on the evaluation, the TSF will provide the required storage through the end of the current LOM.

The water balance results estimate that the dam's elevation required to store 7.47 Mt (5.51 Mm^3) is 1633.0 masl (Stage III). Table 18.9 details the volumes stored within the TSF for Stage III (1633.0 m).

Table 18.9: Stage II Phase 3 Storage Volume

Description	Accumulated dry tailings (Mm^3)	Tailings Pond (Mm^3)	IDF (Mm^3)	Freeboard min. 2 m (Mm^3)	Total Capacity Mm^3	Crest Elev. masl
TSF	5.51	0.63	0.28	1.23	7.65	1633.0

18.8.10 Liner Design

The TSF impoundment has been designed with a 1.5-mm (60-mil) LLDPE geomembrane liner. The liner shall extend along the base of the impoundment and the embankment's upstream slope and anchored along the edges of the current construction stage. GCL will underlie the LLDPE geomembrane. See Figure 15.13 for details.

18.8.11 Tailings Delivery System

Tailings from the Process Plant are pumped to a tailings distribution pipeline along the TSF crest through pressure-rated HDPE pipelines ranging in diameter from 15 to 20 cm, at a nominal solids content of 50% by weight. The tailings distribution system consists of a header and manifold system with the controlled discharge of tailings through multiple spigots connected to a peripheral tailings distribution header pipeline. The supernatant pond's extent and location within the impoundment will be controlled by selective operation of the spigots (rotating operating spigot locations) such that the pond location is constrained to the impoundment's south-central area away from the embankment faces at all times during operation.

18.8.12 Underdrain System

A network of drains was installed underneath the geomembrane liner to collect and convey subsurface water emanating from seeps and springs within the TSF footprint. The underdrains were installed along predetermined channels generated during the subgrade grading of the TSF footprint. The drainage network consists of 8-inch (200-mm) nominal diameter solid and/or perforated pipe with drain gravel and geotextile wrap. Flows are collected in the underdrain collection pond located on the TSF's east side. The flow's water quality, collected in the underdrain collection pond, is monitored regularly, and the water is discharged directly to natural drainages.

18.8.13 Blanket Drain System

The dam has a blanket drain in the foundation to control and reduce the water level in the dam due to any infiltration that could occur. Incorporating the blanket drain improves the stability of the embankment in the event of liner failure. The blanket drain consists of a 1.0-m thick layer of drain material.

18.8.14 Surface Water Management

The surface water management system consists of the South Diversion Channel and an Emergency Spillway.

18.8.14.1 South Diversion Channel

The South Diversion Channel was designed in four discrete segments; three of the four segments have an unlined trapezoidal cross-section with 2H:1V side slopes, and an average longitudinal slope of 0.5%. The diversion channel's fourth (downstream-most) segment has rockfill lining at the bottom of the channel. There are 5-m transition structures between the segments, which is lined with rockfill and concrete. The channel intersections with existing watercourses have catchment structures. These auxiliary structures prevent erosion on the projected channel.

18.8.14.2 Emergency Spillway (Stage III)

The Emergency Spillway has been designed as a trapezoidal channel with 2H:1V slopes and 0.3 m thick riprap lining, with an average slope of 1%, a bottom width of 6 m, and a depth of 1.8 m. The spillway will be able to convey a flow of approximately 5.2 m^3/s.

18.8.15 Monitoring

The TSF has an OMS Manual that describes operating and monitoring procedures to confirm the condition of the embankment, foundation, and performance of the impoundment.

In order to monitor TSF performance during operations, 18 vibrating wire piezometers (VWPs) two accelerographs, three standpipe piezometers, and five inclinometers were installed to monitor phreatic levels and displacements in and around the TSF. Additional VWPs, inclinometers, survey prisms, and accelerographs are recommended for future TSF expansion stages.

Figure 18.16 shows the locations of monitors for the final TSF monitoring system.

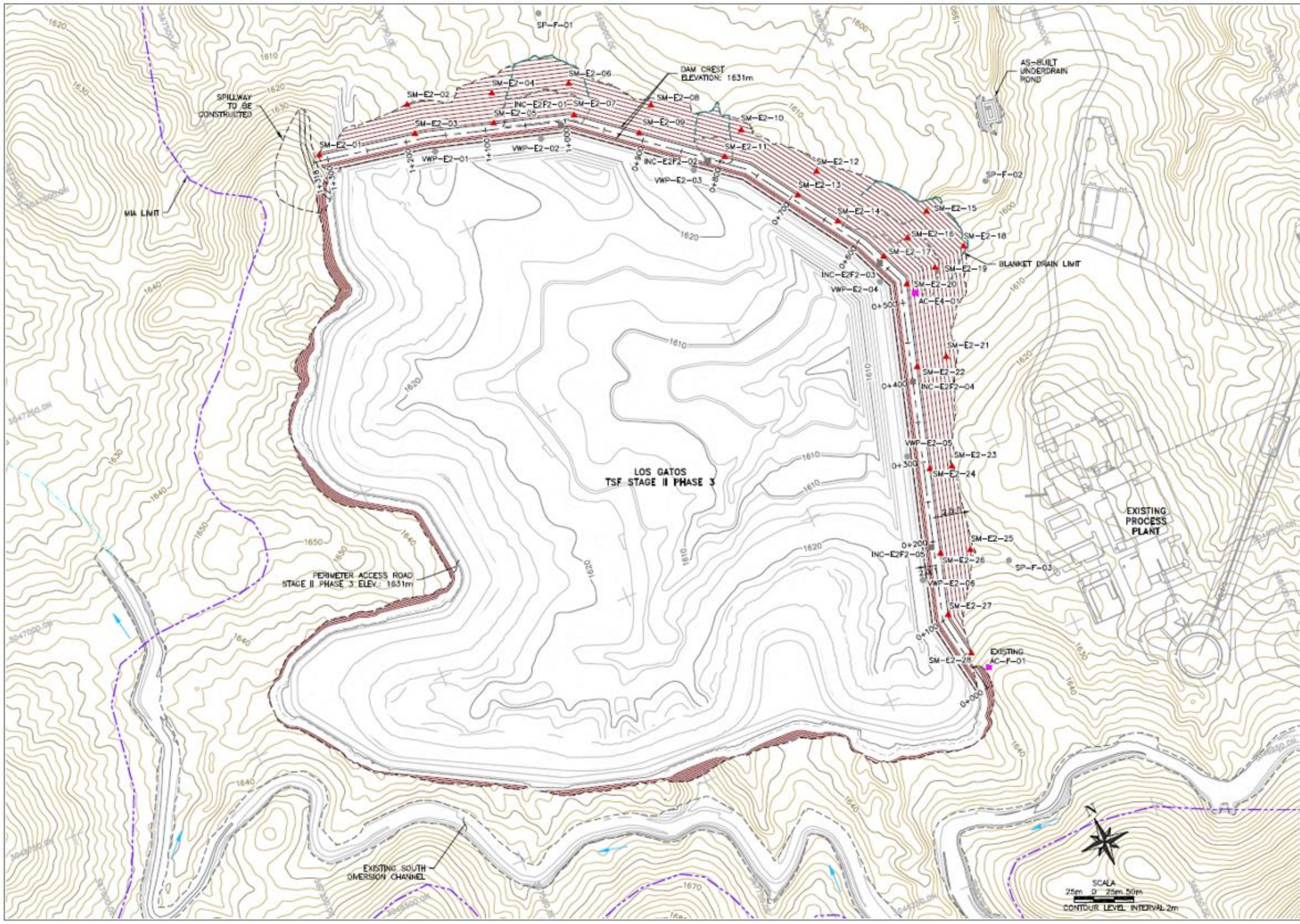


TABLE N°1: LOCATION SURVEY MONUMENT

POINT	NORTH	EAST	ELEV.
SM-E2-01	3,047,408.08	367,617.32	1,631.00
SM-E2-02	3,047,422.15	367,742.60	1,616.00
SM-E2-03	3,047,384.99	367,737.29	1,631.00
SM-E2-04	3,047,393.40	367,845.17	1,616.00
SM-E2-05	3,047,358.01	367,832.62	1,631.00
SM-E2-06	3,047,366.44	367,937.70	1,610.00
SM-E2-07	3,047,327.53	367,928.31	1,631.00
SM-E2-08	3,047,300.94	368,021.17	1,616.00
SM-E2-09	3,047,274.62	367,994.07	1,631.00
SM-E2-10	3,047,227.69	368,112.22	1,616.00
SM-E2-11	3,047,205.45	368,080.05	1,631.00
SM-E2-12	3,047,143.26	368,177.95	1,616.00
SM-E2-13	3,047,125.44	368,144.79	1,631.00
SM-E2-14	3,047,075.73	368,177.53	1,631.00
SM-E2-15	3,047,043.25	368,283.93	1,600.00
SM-E2-16	3,047,022.29	368,249.41	1,616.00
SM-E2-17	3,047,012.81	368,212.66	1,631.00
SM-E2-18	3,046,984.96	368,309.09	1,600.00
SM-E2-19	3,046,974.73	368,265.89	1,616.00
SM-E2-20	3,046,969.53	368,225.31	1,631.00
SM-E2-21	3,046,867.11	368,234.51	1,616.00
SM-E2-22	3,046,869.86	368,196.25	1,631.00
SM-E2-23	3,046,739.01	368,186.94	1,618.00
SM-E2-24	3,046,746.76	368,160.36	1,618.00
SM-E2-25	3,046,634.21	368,166.61	1,616.00
SM-E2-26	3,046,644.71	368,130.61	1,616.00
SM-E2-27	3,046,570.65	368,109.02	1,631.00
SM-E2-28	3,046,515.26	368,116.60	1,631.00

Figure 18.16: Final TSF Monitoring System

19.0 MARKET STUDIES

The CLG mine produces high quality lead and zinc concentrates with low levels of deleterious products that can be processed by several different smelters around the world. The lead and zinc concentrates produced by the CLG mine are transported by truck from the mine site to the port of Manzanillo.

The CLG mine currently has various lead concentrate sales agreements and a long-term zinc concentrate sales agreement in place. The concentrate terms used for reserve design inputs shown in Table 15.1 were informed by existing agreements, together with historical, current, and expected future market terms.

19.1 Lead Concentrate

The CLG mine lead concentrate is expected to contain between 3,000 and 8,000 grams per tonne silver, which is considered a high silver bearing lead concentrate.

Sales of lead concentrate are currently tendered on a periodic basis under contract terms of approximately six to twelve months, although this may change with future contracts. Based on the volume of lead concentrate production, it is assumed that lead concentrate sales will continue to be tendered on a periodic basis. Consequently, CLG sales of lead concentrates are expected to be influenced by the spot treatment charge (TC) for high silver lead concentrate more than by benchmark terms. The economic analysis assumes a treatment charge of $85 per dry metric tonne, which is aligned with the CLG mine’s trailing average spot treatment charge for high silver lead concentrate.

19.2 Zinc Concentrate

The Company has an agreement in place to sell all its zinc concentrate to a joint venture partner at market-based prices and benchmark terms. The zinc concentrate that does not meet the requirements of the partner due to elevated fluorine levels has historically been sold on short-term contracts or on the spot market based on prevailing market rates.

The CLG operation recently completed the construction of a zinc concentrate fluorine leach plant. The LOM Plan assumption is that all zinc concentrate will meet the agreed upon quality specifications going forward and will therefore be sold to the joint venture partner at market terms.

For the economic analysis, the medium to long-term average historical benchmark zinc concentrate treatment charges were considered and a zinc treatment charge of $220 per dry metric tonne was used.

19.3 Contracts

The CLG mine has the required contracts in place to support ongoing operations, which include contracts for the supply of power, key consumables, explosives, camp and catering services, security services, personnel transportation, and concentrate transportation and handling. The individual contracts and agreements vary in duration and commercial terms and are negotiated and renewed periodically to ensure their terms are competitive. Based on management experience, contracts are aligned with typical industry terms.

The LGJV has an offtake agreement with its 30% shareholder, Dowa. Under that agreement Dowa has the right to purchase 100% of the zinc concentrate produced by the CLG mine, at rates reflecting the then prevailing market price based and industry benchmark terms. The LGJV also has a substantially fixed rate power supply agreement with a renewable power supplier with a term ending in September 2025.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Introduction

The following subsections outline the key environmental and social aspects of the Cerro Los Gatos Mine operations. As per Mexican environmental impact regulations, baseline studies were carried out to characterize the environmental and social impacts related to the mine operations. An overview of the environmental and social components is presented herein. Key laws and regulations applicable to the operations are summarized, including the key environmental permits secured to date and outstanding permits required for the LOM Plan, as described in this TR.

Highlights of the environmental, permitting and social or community impact components are as follows:

- Mexico has established environmental laws and regulations that apply to the development, construction, operation and closure of mining projects, and the Company has management systems in place to ensure ongoing regulatory compliance. Of particular importance are the air, surface water and groundwater quality monitoring programs. An environmental compliance report is submitted annually to the Mexican environmental authority.
- Certain revisions have been made in 2023 to Mexican laws affecting the mining sector (see Section 13). This TR reflects the Company's understanding of the laws that affect the Company in light of these revisions. It should be noted that the current and revised laws are subject to ongoing interpretation and that in many instances the revised laws require implementing regulations, which have not yet been promulgated, for their impact to be assessed.
- The Company believes that it has, or has duly applied for, all material permits. The company further believes it is in material compliance with all key obligations required by such permits. No material violations have been identified or fines have been received.
- The Mexican environmental agency has established new surface wastewater discharge standards in April 2023. The mine water that is currently discharged exceeds the water temperature criteria that is in the revised standards; however, the Mexican water agency (CONAGUA) has issued a decision that mine water is not classified as a wastewater discharge (CONAGUA, Notification Act, File D.L. CHIH.SAA-014/2020) and outside legal counsel has confirmed that the discharge standards do not apply to the mine water discharge.
- A conceptual closure strategy was presented in the closure plan (Tetra Tech, 2018) that was submitted to the Mexican environmental authority. The closure cost was estimated at about $14.9 M.
- The Company has developed strong social programs and liaisons with the communities. In that regard, the Company recently completed the construction of a lined landfill that will be used jointly by the mine and the local community for solid waste disposal.

It is noted that information provided in the 2019 Technical Report (Tetra Tech, 2019) was used by the QP as a primary source of information, as well as a review of original supporting documents for the environmental permitting.

20.2 Regulatory, Legal and Policy Framework

The Mexican Constitution contains provisions for the regulation of natural resources in Article 27, which is regulated by the Mexican Mining Law for mining activities, including exploration, mining, and processing activities. As noted above, this law was updated in 2023 and the interpretation of the law into a regulation is pending.

The primary environmental law in Mexico is the General Law on Ecological Equilibrium and Environmental Protection (*Ley General de Equilibrio Ecológico y Protección al Ambiente*, “LGEEPA”), which provides a general legal framework for environmental legislation. Key related Federal statutes include:

- General Law on Sustainable Forest Development (*Ley General de Desarrollo Forestal Sustentable*)
- General Law on Wildlife (*Ley General de Vida Silvestre*)
- National Waters Law (*Ley de Aguas Nacionales*)
- General Law on Climate Change (*Ley General de Cambio Climático)*
- General Law on the Prevention and Comprehensive Management of Waste (*Ley General para la Prevención y Gestión Integral de los Residuos*)
- General Law of Environmental Responsibility (*Ley General de Responsabilidad Ambiental*)

The Secretariat of Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales*, “SEMARNAT”) is the main regulatory body in charge of enacting and enforcing environmental regulations throughout Mexico, including the issuance of environmental permits. SEMARNAT is comprised of multiple autonomous agencies with administrative, technical, and advisory functions, which are summarized in Table 20.1.

Table 20.1: Overview of SEMARNAT Agencies

SEMARNAT Unit	Function
National Water Commission (*Commission Comisión Nacional del Agua*, "CONAGUA")	Responsible for the management of national water, including issuing water concessions, water extraction permits (both surface water and groundwater), and wastewater discharge permits.
National Forestry Commission (*Comisión Nacional Forestal*, "CONAFOR")	Mandate is to develop, support, and promote the conservation and restoration of Mexico's forests.
Attorney General for Environmental Protection (*Procuraduría Federal de Protección al Ambiente*, "PROFEPA")	Monitors compliance with environmental regulations and responsible for the enforcement of environmental law.
National Commission for Natural Protected Areas (*Comisión Nacional de Areas Naturales Protegidas*, "CONANP")	Oversees the management and protection of 192 protected areas throughout Mexico.
The Safety, Energy and Environment Agency (*Agencia de Seguridad, Energía y Ambiental*, "ASEA")	Regulates and oversees industrial safety and environmental protection, and integrated waste management specifically with respect to hydrocarbon-related activities.
General Directorate of Environmental Impact and Risk (Subsecretaría de Gestión para la Protección Ambiental con la Dirección General de Impacto y Riesgo Ambiental, "DGIRA")	Responsible for issuing environmental permits and authorizations.

SEMARNAT oversees the Official Mexican Standards (*Normas Oficial Mexicana*, "NOMs"), which are mandatory technical regulations that establish the rules, specifications, and/or requirements. Key NOMs relevant to the mining operations are listed in Table 20.2.

Table 20.2: List of Official Mexican Standards Applicable to the Company's Mining Operations

NOM	Description
NOM-001-SEMARNAT-2021	Wastewater discharge into national waters and national lands
NOM-003-CONAGUA-1996	Water extraction and well construction
NOM-011-CNA-2000	Water conservation and evaluation of water availability
NOM-035-SEMARNAT-1993	Methodology to measure total suspended particles in air
NOM-043-SEMARNAT-1993	Maximum permissible limits of solid particles from fixed source emissions
NOM-045- SEMARNAT-1996	Maximum permissible limits for opacity of exhaust from vehicles
NOM-052-SEMARNAT-2005	Identification, classification and lists of hazardous waste
NOM-054-SEMARNAT-1993	Procedure to determine hazardous waste segregation
NOM-059-SEMARNAT-2010	Flora and fauna protection, including at-risk species
NOM-080-SEMARNAT-1994	Maximum permissible limits for noise from vehicle emissions
NOM-081-SEMARNAT-1996	Noise emissions
NOM-083-SEMARNAT-2003	Urban solid waste management
NOM-087-SEMARNAT-1995	Medical (biological and infectious) hazardous waste management requirements
NOM-120-SEMARNAT-2011	Environmental protection specifications for mining exploration activities
NOM-138-SEMARNAT/SS-2003	Hazardous waste management requirements
NOM-141-SEMARNAT-2003	Project, construction, operation, and post-operation of tailings dams
NOM-147-SEMARNAT/SSA-2004	Soil metal contamination management and remediation
NOM-157-SEMARNAT-2009	Mine waste management plans
NOM-161-SEMARNAT-2011	Special handling waste and management plans

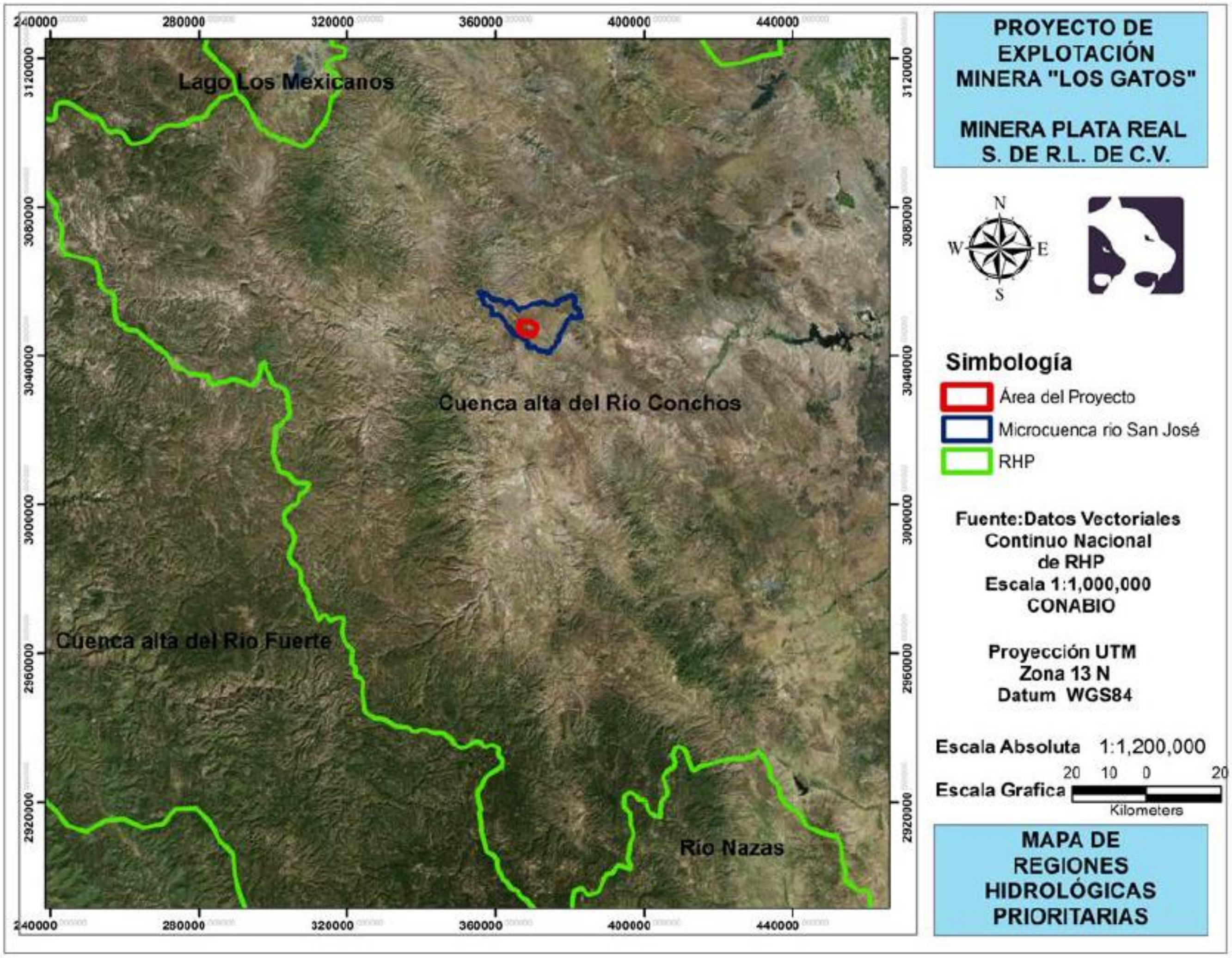
The mining operations of CLG Mine are also regulated by the following regulations and legal orders:

- Political Constitution of the Mexican United States
- National Development Plan 2018-2024
- State Development Plan 2022-2027
- Satevó Municipality Development Plan 2021-2024
- General Territorial Ecology Program
- Important Hydrological Regions designated by CONAGUA

20.3 Environmental Studies

The environmental studies for CLG were based on a combination of publicly accessible data from the Mexican government and from new baseline studies carried out by a consultant contracted by the Company. The government data were primarily obtained from the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía [INEGI]), which is responsible for collecting and disseminating information characterizing the nation’s territory, resources, population and economy.

Asesores en Impacto Ambiental y Seguridad, S.C. (ASI), carried out the baseline studies to comply with the Mexican requirements to submit an Environmental Impact Statement (Manifestación de Impacto Ambiental or MIA) and to prepare a Risk Study to obtain environmental authorization of the proposed project. The purpose of baseline analyses was to characterize the components, environmental impacts and mitigation measures, as well as to predict future scenarios within the area of environmental influence (that is, the Environmental System). The Environmental System was defined as the San José River hydrologic microbasin, which covers an area of 20,225.98 ha (202.3 km^2). The mine is located within the Sierra Madre Occidental Physiographic Province, particularly within the Sub-provinces of the Great Plateau and Canyons of Chihuahua, and Sierras and the Plains of Durango, which cover the greater part of the Environmental System. The Environmental System and the Project Area are shown in Figure 20.1.



Source: Minera Plata Real, 2017, NI 43-101 Technical Report Feasibility Study of the Cerro Los Gatos Silver-Zinc-Lead Deposit, Los Gatos Project – Chihuahua, Mexico, Volume 8: Environmental and Permitting: Document prepared by Tetra Tech, Document 114-910117-REP-R0008-00, January 6, 1191 p.

Figure 20.1: Mina Cerro Los Gatos and the San José River Hydrologic Microbasin

20.3.1 Climate and Precipitation

Within the ES, the climate is classified as dry climate "B" and semi-dry climate "BS1", and the climatic subtypes “semi-arid semi-warm and mild semidry.” The area has an average temperature of 17.5°C and an average rainfall of 433.2 millimeters (mm), according to the nearby climatological stations.

The first weather station onsite was installed in 2013 and was operated non-continuously through 2018, when it was replaced with a new weather station, which has operated continuously.

20.3.2 Geology

Geologically, the Environmental System exhibits seven surficial lithological units plus soils, with five units covering 92.05% of the total surface area of the Environmental System (acidic rhyolite-tuff, conglomerates, andesite, and granodiorite); alluvial cover of 7.06%; and two lithological units that cover only the 0.89% (marble and latite).

20.3.3 Soils

A variety of soil types are present in the ES, including Leptosols, Chernozem, Luvisol, Fluvisol, Kastañozem and Regosol; however, the baseline studies indicated that the natural grassland has been affected by the establishment of introduced grass for the extensive cattle raising industry.

Cattle grazing generates soil compaction and eventually soil erosion. According to the estimates made, the Environmental System has an average erosion of 10.05979 t/ha/year, which is considered light, although there are areas with moderate erosion. The Project Area has an estimated average soil erosion of 7 t/ha/year, which is considered light erosion.

20.3.4 Regional and Site Hydrology

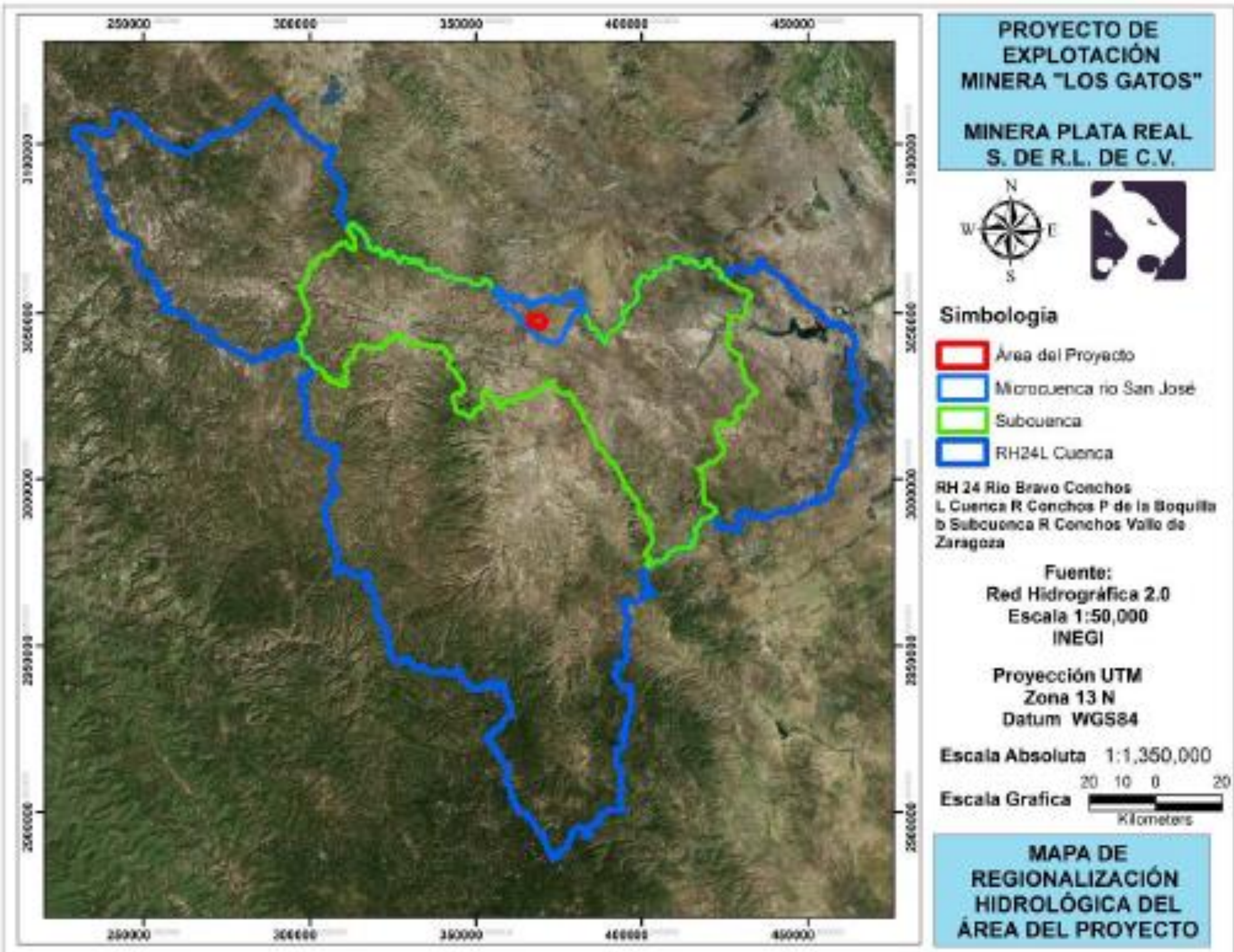
Surface Hydrology

The Los Gatos mine is located in the hydrologic region 24 Rio Bravo Conchos, with headwaters in the mountains west of the Project Area and has a discharge to the Atlantic Ocean (Figure 20.2).

Source: Minera Plata Real, undated pdf file, filename, Apendice A_CONAGUAG_Hidrologia.

Figure 20.2: Hydrologic Region Boundaries

The hydrologic basin boundaries are closely tied to the area of influence of the mining operations. The hydrologic limits include the Bravo-Conchos region, the Rio Conchos-Presa de la Boquilla basin, the Río Conchos-Valle de Zaragoza subbasin, and the Rio San Jose microbasin (Figure 20.3). The hydrologic region is shown in the blue outline, the basin in green, microbasin in light blue and the Project Area in red.



Source: MPR, 2017

Figure 20.3: Hydrologic Regional Map at Cerro Los Gatos

Within the ES, there is intermittent surface water that is associated with the Santo Toribio, El Yeso and El Salto streams, which are indicated as permanent streams in the INEGI cartography; however, these streams are typically dry except during the rainy season due to the reduced volume of precipitation in the area and high infiltration rates. The hydrologic parameters within the Environmental System were estimated to be a precipitation volume of 100,651 cubic meters per year (m^3/year), with an evapotranspiration of 81,551 cubic hectometers per year (hm^3/year), and a drained volume of 13,531 hm^3/year, which means an infiltration of 5,564 hm^3/year.

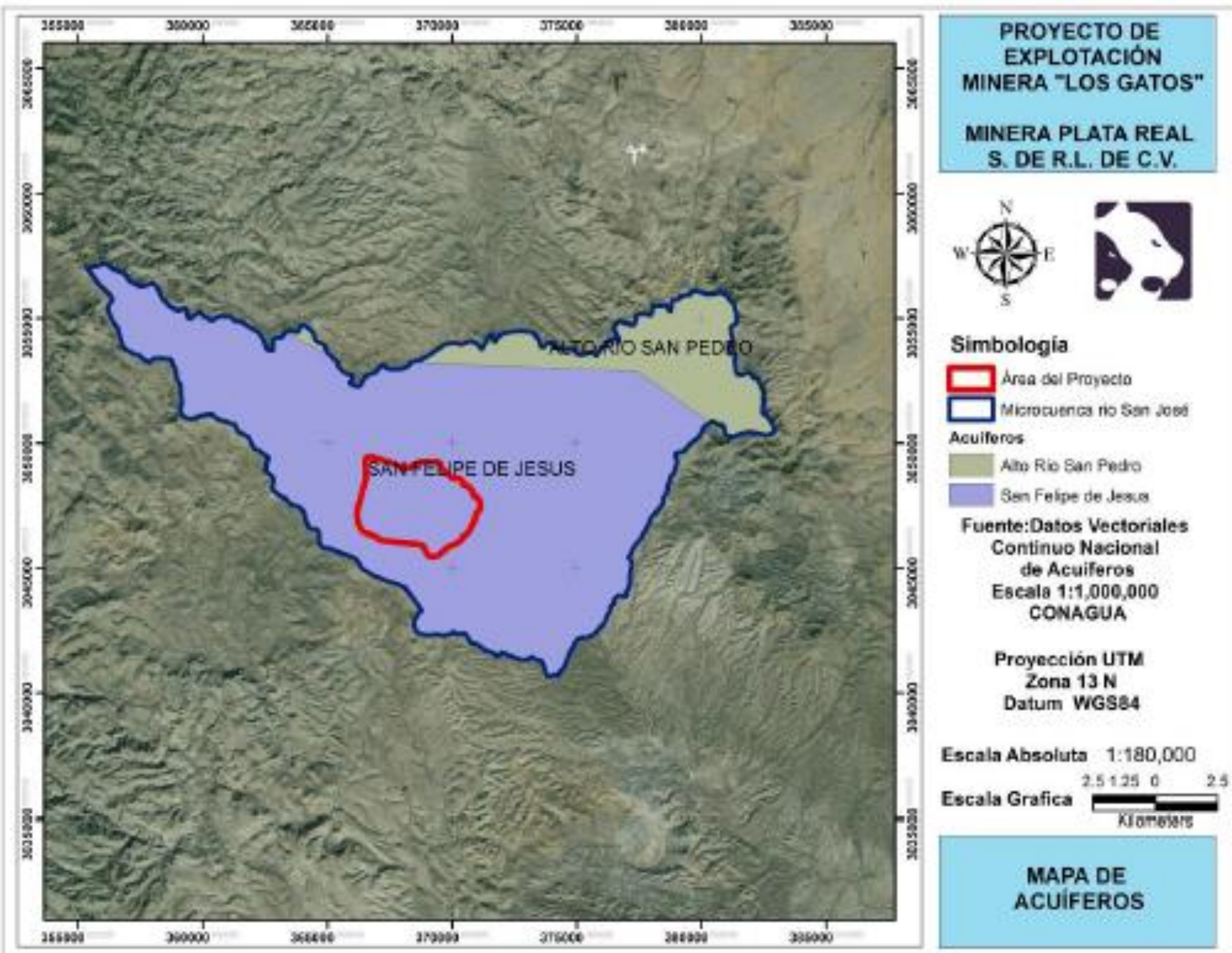
No existing discharges of industrial effluents that could contribute to high levels of contaminants to surface water were identified within the Environmental System. The Environmental System is a rural area where irrigation agriculture is very limited, and the discharge of municipal wastewater is limited to discharge from the town San

José del Sitio, located near the limits of the microbasin of the San José River and downstream from Los Gatos mine operations.

The impacts of the mining operations to the surface hydrology were identified as the TSF construction and alteration of runoff and infiltration patterns due to the TSF and other mining infrastructure. Applicable mitigation measures were included in the mine design and approved by the environmental agency.

20.3.5 Hydrogeology

The Environmental System is underlain by the Upper San Pedro River and San Felipe de Jesús aquifers, as shown in Figure 20.4. The Upper San Pedro River aquifer has a deficit (that is, overdraft) of 14,391,280 m^3/year (CONAGUA, 2020a). The San Felipe de Jesús aquifer has an availability of 16,695,276 m^3/year of groundwater (CONAGUA, 2020b).



Source: MPR, 2017

Figure 20.4: Aquifer Designations Delineated by CONAGUA within the Rio San Jose Microbasin

According to studies conducted on site, groundwater occurs in perched zones, which are isolated and disconnected from the main aquifer, encountered at 3 m below ground surface, and in the deeper aquifer (the "San Felipe de Jesús" aquifer) starting at depths between 67 and 245 m. Part of the reasoning that the shallow and deeper groundwater zones are disconnected hydraulically is that the deeper groundwater has a higher temperature than the shallow groundwater. In the area of the TSF, the alluvium thickness ranges from 0 to 12.5 m, with the thickness increasing in the to the north and southeast.

The San Felipe de Jesús aquifer is not classified as vulnerable to contamination based on the Norm Annex 2 of NOM-141-SEMARNAT-2003, which describes the method to evaluate the vulnerability of an aquifer to pollution.

According to the database "Public Register of Water Rights" (REPDA) of the National Water Commission (CONAGUA 2016), the nearest water source users identified within the microbasin are one groundwater user located approximately 3 km from the project area and one surface water user located just upstream of the Project Area.

The mining operations include groundwater extraction (dewatering). About 2% of total groundwater extracted is recirculated in a closed circuit and is used in the mine camps and offices. Approximately 12% of the excess water released to the environment goes through a sediment recovery process that removes sediments by settling and reduces the temperature of the water to meet discharge standards.

A more detailed discussion of the hydrogeology of the underground mine is provided in the Mining section of this report.

20.3.6 Flora

The biotic environment of the Environmental System, based on INEGI data, consists of three regimes: 93.93% of the area is covered by a primary natural pasture and secondary shrub vegetation; 4.48% is covered by agricultural and livestock activities; and 1.59% of the total area is covered by a secondary shrub vegetation of oak forest.

According to the baseline studies, the presence of a microphytic desert scrubland was found within the Project Area. The field surveys identified 95 species of flora within the Environmental System and 84 species in the PA. The microphyllous desert scrubland was similar in the Environmental System and the PA. Only one species found in both areas was listed in the NOM-059-SEMARNAT-2010. The species is a walnut tree (Juglans major), which is categorized as threatened.

Modifications to the vegetation is one of the environmental impacts from the mining operations. An area of 390.37 hectares currently covered by microphyllous desert shrubs has or will be affected by mining infrastructure, mining, mineral processing and/or other activities.

Within the Project Area, the vegetation generally does not correspond to pristine ecosystems due to extensive livestock activity and for the establishment of introduced grasses to support cattle production.

20.3.7 Fauna

Baseline surveys of fauna within the Environmental System indicated the presence of 14 species of herpetofauna; 99 species of avifauna; 36 species of mammal fauna; and 9 species of ichthyofaunal. Twenty-one of these species are listed under the Mexican regulation NOM-059-SEMARNAT-2010 as protected species, while in the Project Area 88 species were identified to include 10 of herpetofauna, 46 of avifauna, 26 of mammal fauna, and 6 of ichthyofauna. Although the protected species were not specifically identified in the Project Area description of the environmental permit submission, it is assumed that protected species found in the Environmental System are, or could, be present in the Project Area.

The wildlife is another component of the Environmental System that has some environmental impacts. The mine will affect an area of 390.37 ha covered by a microphyllous desert scrubland. The surface area disturbances by mining activities could cause loss of habitat and result in migration of fauna to outside of the PA. To minimize this potential impact, mitigation efforts are part of the environmental activities carried out by the mine personnel.

20.3.8 Biodiversity

The Environmental System does not have a high biodiversity rating, nor are there protected areas. The region has been impacted by overgrazing and by agricultural activities.

20.4 Waste Management

Mining wastes generated by the operations include tailings, sediments removed from the dewatering system and waste rock, which are managed under a plan approved by the Mexican environmental agency. The operations also produce hazardous and regulated wastes that are managed in accordance with the applicable waste regulations. The Company is certified as a large hazardous waste generator. The Company is in the process of updating their waste generator registration.

Analytical testing and characterization of wastes were carried out by a laboratory certified by the Mexican authority.

20.4.1 Hazardous and Regulated Wastes

The mining operations generate hazardous wastes such as oily water, used oils, grease and lubricants, batteries, aerosol cans, fluorescent and mercury vapor lights, and contaminated soils. A hazardous waste management plan authorized by SEMARNAT is in place. There is a storage facility for the temporary storage of hazardous wastes pending pickup and off-site disposal by a third party. Quantities generated annually are reported to SEMARNAT.

Additional regulated, nonhazardous wastes generated by the mining operations include wood, scrap metal, used tires, construction debris and organic domestic waste. The mining operations contract with a recycling company for wood, plastics and scrap metal debris, and organic food wastes are composted. There is no onsite landfill, so any additional debris or trash is handled by a third party for off-site disposal.

20.4.2 Sediment Removed from the Dewatering System

The sediment removed from the mine dewatering system includes sediment from mine water that has been in contact with the underground workings that is captured in the underground ponds. A flocculate is added to the mine water to remove the sediments, which are subsequently pumped to the TSF.

The sediments have been characterized per NOM-157-SEMARNAT-2009 as a mining waste and were determined to be nonhazardous and were not acid-generating.

20.4.3 Tailings

The metallurgical process produces tailings that are subsequently neutralized to adjust the pH; to oxidize cyanide to a non-toxic form; and to precipitate metals. This process results in nonhazardous tailings water. Neutralized tailings are stored in the TSF or diverted underground as cemented paste backfill.

The tailings have been characterized as hazardous per the Mexican environmental authority classification system (NOM-141-SEMARNAT-2003). The tailings are acid-generating. None of the regulated metals were indicated to exceed the static leach test. The Company also carried out a preliminary kinetic testing program that was not required by Mexican regulations but would be considered an industry standard practice. The kinetic testing results indicated that the tailings had a low possibility of acid leaching or metals leaching.

Tailings are currently placed in the lined TSF or placed into the underground mine.

20.4.4 Waste Rock

The majority of waste rock generated from the mining operations is used for CRF and placed in the underground mine. About 80% of the waste rock is used as fill, whereas the other 20% is placed in a surface waste rock facility.

The waste rock was characterized as nonhazardous per NOM-157-SEMARNAT-2009. The waste rock is non-acid-generating and the static leach test did not show any leached metals above the regulatory standard. The Company also carried out a preliminary kinetic testing program that was not required by Mexican regulations but would be considered an industry standard practice. The kinetic testing results indicated that some of the lithologies had the capacity for acid leaching, but it was a lithology estimated to be of low proportion within the entire volume of waste rock to be generated over the LOM. The acid generation potential appeared to be of limited duration, thus for closure the long-term production of acid was believed to be manageable and should be monitored further to evaluate the need for special management. In particular, waste rock stored at the surface would require monitoring to detect potential future acid drainage production.

20.5 Environmental Monitoring

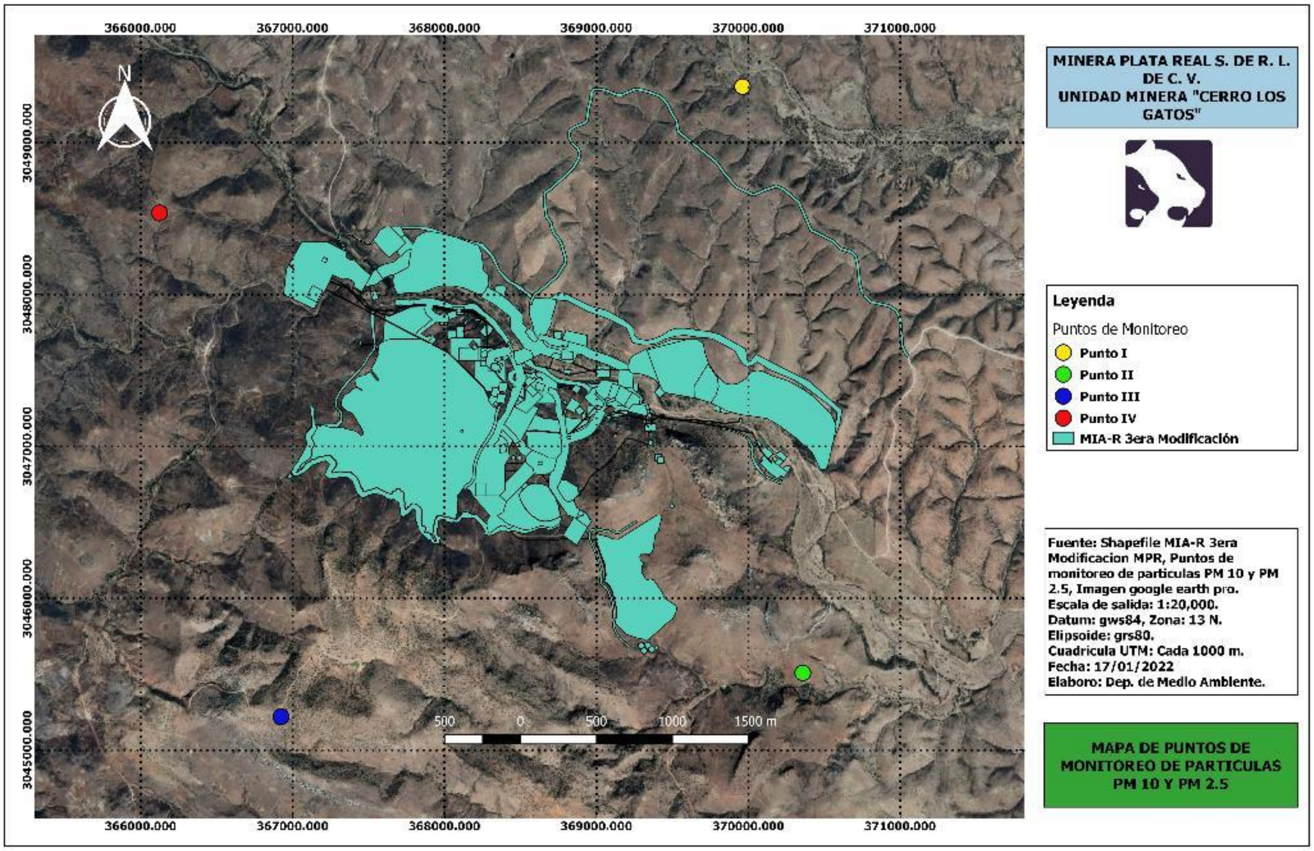
Environmental monitoring and reporting to the environmental agency is required in Mexico. Monitoring is conducted on a routine basis for the key environmental media: air, surface water, groundwater, noise and wastes. Table 20.3 lists the various monitoring stations where the Company routinely collects samples.

Table 20.3: Monitoring Requirements at Cerro Los Gatos

Item	Applicable Regulation	Number of Monitoring Locations	Frequency per Year	Comments
Groundwater	NOM-127-SSA1-1994	5	4	Grab samples from continuously pumping wells. Wells El Tule and La Cueva are upgradient of the mining operations and monitoring points Well San Jose, Arroyo Santo Toribio, La Laborcita, Boca del Rio and Los Veranos are downgradient. Analytical results from wells El Tule and San Jose are the only monitoring results that are required to be sent to SEMARNAT; all other results are for internal control
Wastewater	NOM-001-SEMARNAT-1996	11	4	grab samples
SIRALAB pond	NOM-001-SEMARNAT-1996	2	4	24-hour samples
Waste treatment plant ponds	NOM-001-SEMARNAT-1996	1	12	Ponds associated with the four domestic wastewater treatment plants
Groundwater	NOM-001-SEMARNAT-1996	3	4	Wells 1, 2, and 3, which monitor upgradient and downgradient shallow groundwater around the TSF
Wastewater	NOM-003-CONAGUA-1996	4	4	Treatment plants 1, 2, 3 and 4 (domestic wastewater)
Perimeter noise	NOM-081-SEMARNAT-1994	4	1	daytime and nighttime monitoring
Sludge from waste treatment plants	NOM-004-SEMARNAT-2022	4	1	Sludge associated with the four domestic wastewater treatment plants
Perimeter air quality	NOM-035-SEMARNAT-1993	4	4	PM-10 and PM-2.5 size total suspended solids in air
Mining wastes	NOM-052-SEMARNAT-2005; NOM-141-SEMARNAT-2003; NOM-157-SEMARNAT-2009	3	1	sediments from dewatering system, tailings, and waste rock
Emissions from fixed sources	NOM-043-SEMARNAT-1993	5	1	Solid particulates in air emissions from fixed sources (laboratory)

20.5.1 Air Quality Monitoring

Air quality monitoring services are contracted by the Company and are performed by a certified laboratory to help maintain compliance with Mexican regulations. There are four perimeter stations in the PA where total suspended particles, PM10 and PM2.5 are sampled on a quarterly basis by the contractor (Figure 20.5). None of the first quarter 2023 test results exceeded Mexican environmental standards.



Source: Minera Plata Real, 2022, filename PLANO MONIT_PM10_PM2.5.pdf

Figure 20.5: Perimeter Air Quality Monitoring Locations

The emissions generated by the laboratory include dust and gases, which are controlled by dust collectors and gas scrubbers. Emissions are monitored in five locations (Figure 20.6). The 2022 test results complied with Mexican environmental standards; 2023 testing will be carried out later in the year.

Source: Minera Plata Real, 2022, filename PLANO EMISIONES ATMOEFERA.

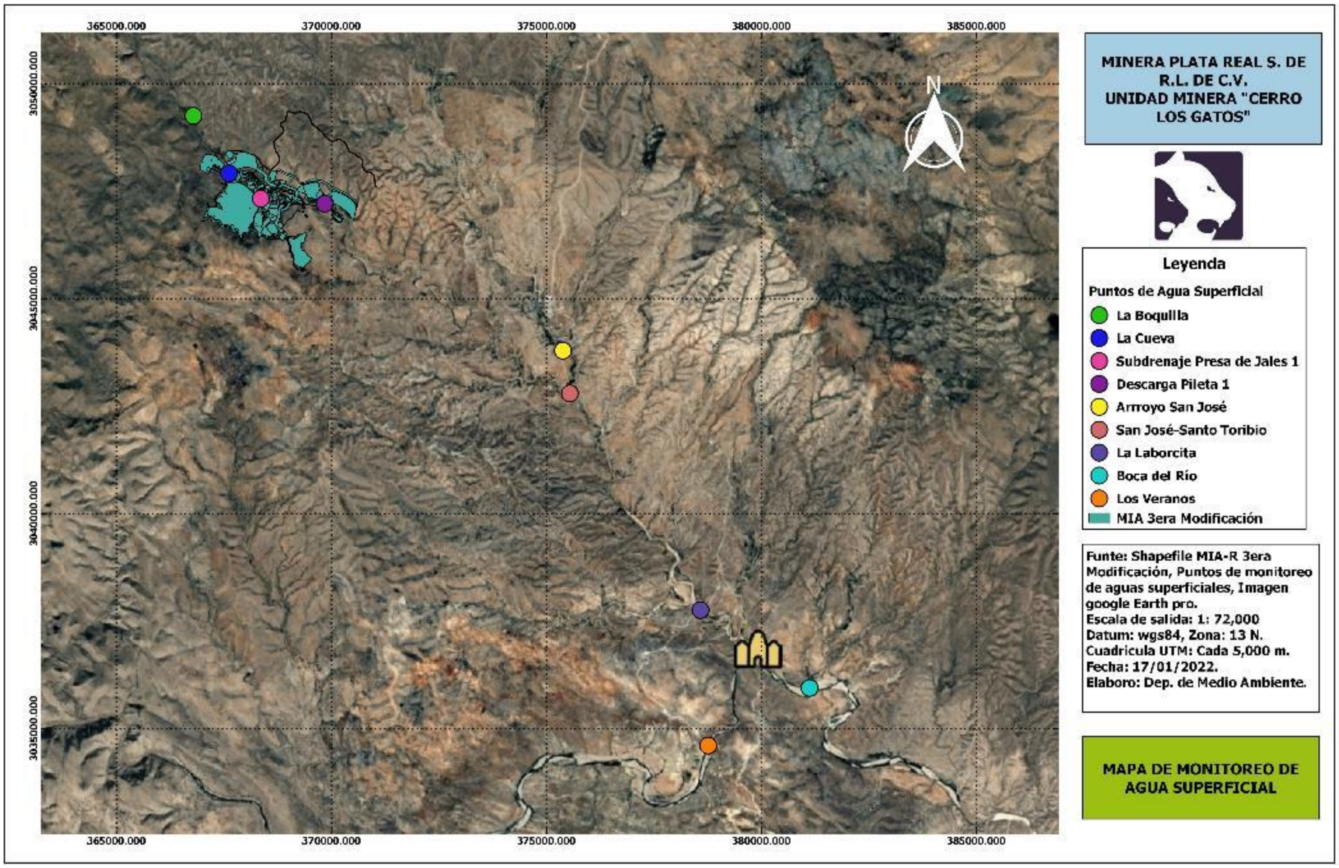
Figure 20.6: Locations of Fixed Emission Sources

20.5.2 Water Monitoring

Baseline studies were carried out to characterize the water quality in the region prior to operations and additional sampling is carried out to monitor whether the mining operations have impacted surface water or groundwater.

20.5.2.1 Surface Water Quality Monitoring

Surface water quality is monitored at upstream and downstream locations to the mining operations (see Figure 20.7). Surface water flow is regionally from the northwest to the southeast; however, within the Project Area the surface water flow direction is determined by the local topography and can vary widely from the regional direction. At the mine site there are no permanent surface water bodies - stream flows are only temporary during the rainy season. At the time of this report, only the first quarter results were available, and all were in compliance with Mexican surface water discharge standards.



Source: MPR, 2022, filename, Mon_Agua_Superficial.pdf.

Figure 20.7: Surface Water Monitoring Locations

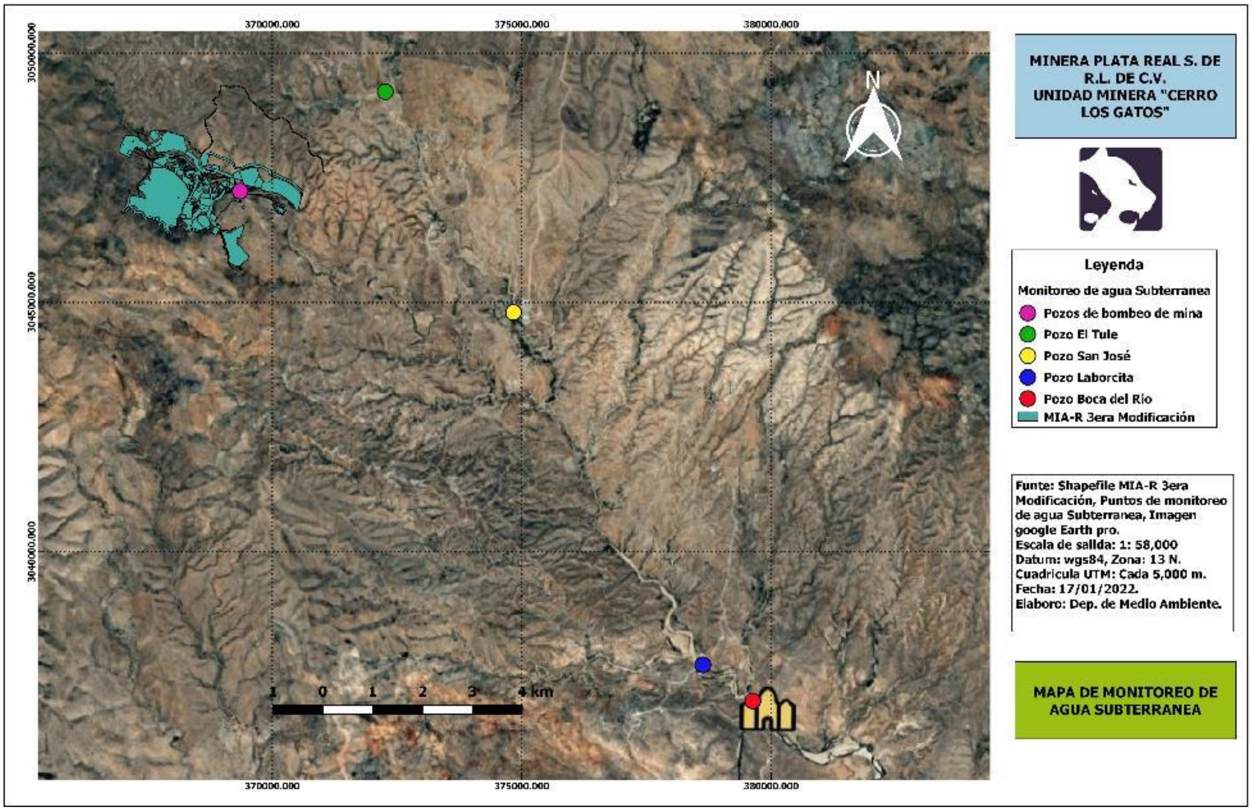
Additional sampling points such as the TMF subdrain are included in the monitoring program for internal control purposes but are not surface water bodies subject to Mexican surface water discharge standards. Additional sampling results are included as appendices in the annual report submitted to SEMARNAT.

20.5.2.2 Groundwater Quality Monitoring

The groundwater quality described in the 2019 Technical Report (Tetra Tech, 2019), indicated that water samples from dewatering and monitoring wells in the area did not exceed any of the standards established for water use or water discharge, with the exception of exceedances of total coliforms in samples from most wells, fecal coliforms in samples from two wells, and total trihalomethanes in samples from three wells. The QP notes that total coliforms are not typically found in groundwater and could be indicative of a migration of contamination due to a poor well seal at surface. Trihalomethanes are likely related to water treatment, and are not a significant concern.

The water was reported to have a neutral pH, low-to-moderate total dissolved solids, and did not exceed any of the other regulated compounds. Three groundwater monitor wells (Pozo 1 Aguas Abajo, Pozo 2 Aguas Abajo and Pozo 3 Aguas Arriba) are used to monitor shallow groundwater around the TSF. The shallow groundwater monitor wells results comply with Mexican standards for surface water (NOM-001-SEMARNAT-2021).

The Company currently monitors groundwater quality at the dewatering wells (wells 1 to 17); and supports the communities by monitoring the El Tule well; the San José well; the Laborcita well and the Boca del Rio well. The well locations are shown in Figure 20.8. The first quarter 2023 groundwater quality test results did not exceed Mexican standards for surface water discharges (NOM-001-SEMARNAT-2021).



Source: Minera Plata Real, 2022, filename Mon_Agua_Subterranea.pdf.

Figure 20.8: Groundwater Monitoring Well Locations

20.5.3 Wastewater Treatment and Monitoring

Four wastewater treatment plants are operated to treat domestic wastewater. All of the treatment plants have had exceedances in 2023 samples compared to regulatory discharge standards; however, all treated wastewater is reused and not discharged to the environment.

20.5.4 Noise Monitoring

A noise monitoring program is conducted quarterly, and the mine site perimeter noise complies with Mexican regulations.

20.6 Water Management

Aspects of the site water management include the following:

- The mine dewatering system provides a water supply for the water demands, such as process makeup water, dust control, drill supply and potable water.
- Mine water temperature varies between 50 and 70°C. Mine water is managed in a sedimentation pond and then through the cooling towers before use.
- 12% of total excess water from the mine dewatering system is discharged to the environment after removal of excess sediment in a retention pond. A cooling pond and lined channel with energy dissipators is under construction. MPR has contracted with a specialist to evaluate the efficiency of the cooling system and to develop options as needed to meet water temperature surface water discharge standards.

- Contact water includes groundwater recovered in the underground mine. The contact water is collected and treated in sedimentation basins prior to release to the environment.
- Process water is recovered and returned to the system; there are some losses to evaporation associated with the process water recirculation.
- Impacted water from contact water and the process is captured and returned to the process after treatment.
- Diversion channels are used to reduce the amount of contact water that requires management. Diverted non-contact water is conveyed around the mining operations and discharged into the Santo Toribio arroyo.
- Discharge from the wastewater plants is treated and used for the plant nursery.
- Water quality is documented through monitoring programs.

20.7 Permitting

The main environmental permits required in Mexico for mining and exploration are the *Resolución de Impacto Ambiental* for Construction and Operation (“RIA”) and the Change in Land Use Permit (“CUS”) that are issued by SEMARNAT. Four primary documents must be submitted for the approval and issuance of these permits by SEMARNAT:

- Manifestación de Impacto Ambiental (“MIA”): Mexican Environmental Impact Assessment, including MIA Modifications for any changes to project planning and operations. MIAs describe potential environmental and social impacts that may occur in all stages of the operation as well as the measures to prevent, control, mitigate or compensate for these impacts
- Estudio Técnico Justificativo (“ETJ”): Technical Justification Study for the Change in Land Use
- Estudio de Riesgo Ambiental: Environmental Risk Assessment
- Programa para la Prevención de Accidentes (“PPA”): Program to prevent accidents

Federal environmental licenses (Licencia Ambiental Unica, “LAUs”) are issued, which set out the acceptable limits for air emissions, hazardous waste, and water impacts, as well as the environmental impact and risk of the proposed operation.

Figure 20.9 summarizes the environmental permitting process for the authorization of mining operations in Mexico.

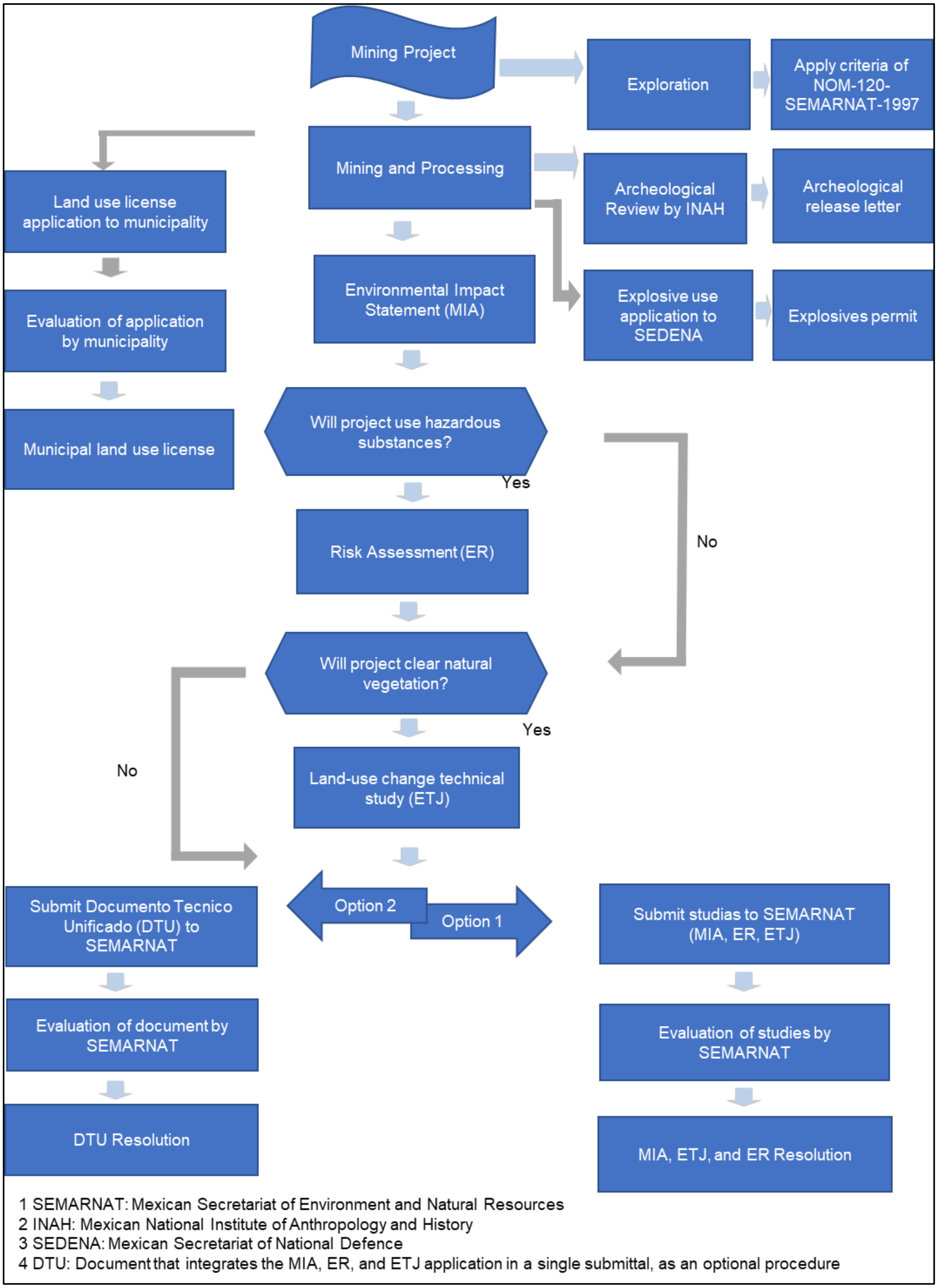


Figure 20.9: Overview of Environmental Permitting Process for Mining Operations in Mexico

The mine has authorization for its current operation. The key existing permits are provided in Table 20.4.

Table 20.4: Environmental Permit Registry and Required Reports

ENVIRONMENTAL IMPACT ASSESSMENT AUTHORIZATIONS ISSUED BY SEMARNAT					
CONSECUTIVE NUMBER	**PERMIT TYPE AND IDENTIFICATION NUMBER**	**AUTHORIZED ACTIVITY**	**ACTIVE FROM - TO/ VALIDITY**	**REPORTING REQUIREMENTS**	**REPORT DUE DATES**
1	Regional Permit, Environmental Impact Statement (MIA-R) SGPA/DGIRA/DG/05121-2017	Implementation of site preparation activities, construction works, project management and exploitation activities, among others, on a surface of 211.084 Ha.	July 17, 2017 to July 17, 2041 (24 years)	Annual compliance and progress report; Environmental management program results	Due July 15 annually until 2041
2	First modification to authorized project	Expanded surface disturbance to permitted 268.84 Ha (increase: 57.76 Ha.) Five new infrastructure works.	March 15, 2018 to July 17, 2041		
3	Second modification to authorized project	Increased surface disturbance of 325.84 (increase: 56.2408 Ha.) 34 new infrastructure works and extension of the surface of existing works.	November 28, 2018 to July 17, 2041		
4	Third modification to authorized project	Increased surface disturbance of permitted 334.028 Ha. (increase: 8.942 Ha.) 05 new infrastructure works and extension of the surface of existing works.	June 01, 2021 to July 17, 2041		
5	Fourth modification to the authorized project	Increase of workings and activities from 334.028 to 235.2178 Ha. Leaching Plant	March 17, 2017 (pending response from SEMARNAT)		
6	Environmental Impact Assessment, Individual Permit Mode (MIA-P) No. SG.IR.08-2017/251	Implementation of the work and activities for construction, maintenance, and operation of the project named “Línea Eléctrica 115 KV Los Gatos”	September 04, 2017 to September 04, 2037 (20 years).	Activities reports	Report at the start of construction activities (2018) and at the end of activities (2020)

7	Environmental Impact Statement, Individual Mode (MIA-P) SG.IR.08-2018/097	Exemption of the submittal of the Environmental Impact Statement (MIA) for the expansion of the road from "San José del Sitio to Mina Los Gatos"	No expiration date, starting on May 04, 2018		
FORESTRY PERMITS ISSUED BY SEMARNAT					
CONSECUTIVE NUMBER	**PERMIT TYPE AND IDENTIFICATION NUMBER**	**AUTHORIZED ACTIVITY**	**ACTIVE FROM – TO/ VALIDITY**	**REPORTING REQUIREMENTS**	**REPORT DUE DATES**
1	Technical Justification Study to change of land use designation of Forestry Lands, surface area of 390.6972 ha No. SG.CU.08-2017/310	Removal of forest vegetation and fertile soil at the specified surface.	November 1, 2017 to November 1, 2020 (3 years) Extended to June 2022	Biannual advances and at mine closure	November and May annually from 2017 to 2022
2	Forest Germplasm Collection Permit No. SG.SF.08-2020/060	Permit to collect seeds of forest species in the region for restoration and reforestation purposes on degraded land areas.	No expiration date, starting March 11, 2020		
WATER PERMITS ISSUED BY CONAGUA					
CONSECUTIVE NUMBER	**PERMIT TYPE AND IDENTIFICATION NUMBER**	**AUTHORIZED ACTIVITY**	**ACTIVE FROM - TO**	**REPORTING REQUIREMENTS**	**REPORT DUE DATES**
1	Concession No. 06CHI141265/24FADL16 for the discharge of impacted water from the ramp, speed bumps and deepening works from the "Cerro Los Gatos" mine	Discharge of mine water coming from the mine ramps for a volume of 8.0 l/s (note: discharge is based on a volume per time)	August 31, 2018 to August 31, 2028, closure in process	Quarterly water quality report (SIRALAB)	Quarterly from 2018 until concession expires
2	Construction Permit No. 4494, Tailings Dam	Activities related to the construction and operation of the tailings dam No.1, to be built in four stages with a total capacity of 7.47 Mm^3	January 18, 2019 to January 18, 2028 (9 years)	Notification for start and end of each stage. Monthly reports for the construction advances of the dam	From 2019 until the end of construction of the tailings dam (2028)
3	Application for the permit for discharge of wastewater from three treatment plants that have been installed.	Permit to discharge treated water for irrigation of gardens and green areas.	The application was submitted to CONAGUA on September 7, 2019. Pending response from CONAGUA		

AIR AND WASTE					
CONSECUTIVE NUMBER	**PERMIT TYPE AND IDENTIFICATION NUMBER**	**AUTHORIZED ACTIVITY**	**ACTIVE FROM - TO**	**REPORTING REQUIREMENTS**	**REPORT DUE DATES**
1	Approval of Individual Environmental License (LAU), No. LAU-CHIH-001-2019, which authorizes the installation and operation of the mining operations.	Installation and operation of mining operations and mineral processing plant	No expiration date, starting May 27, 2019 unless production is increased or beneficiation process changes or due to social reason (note: this permit was updated and submitted on June 21, 2023, for regulatory agency evaluation)	Annual Operations Report (COA)	Between April and July annually, starting 2019
1.1	Update of Individual Environmental License No. SG.CA.OB-2023/100.	Update Installation and operation of mining operations and mineral processing plant	No expiration date, starting July 13, 2019 unless production is increased or beneficiation process changes or due to social reason.	Annual Operations Report (COA)	Between April and July annually
2	Registry of Hazardous Waste Management Plan No. 08-PMG-I-3405-2019	Registration with the General Direction of Integrated Management of Hazardous Materials and Activities (DGGIMAR-SEMARNAT). (note: this plan is being updated to submit to SEMARNAT)	From March 26, 2019, no expiration	Annual Operations Report (COA)	Between April and July annually, starting 2019
2.1	Update to Registry of Hazardous Waste Management Plan No. 08-PMG-I3405-2019	The registry was updated with the General Directorate of Comprehensive Management of Risky Materials and Activities (DGGIMAR-SEMARNAT), due to the increase in the production of Hazardous Waste.	From September 18, 2023. No expiration.		

3	Environmental Risk Study (ERA),	Submitted at the same time of submitting the MIA-R, which was approved by the authority, on par with the MIA-R (see approval of the MIA-R)No. 08-PMG-I-3405-2019.	From July 17, 2017 no expiration until there are changes that must be evaluated.		
3.1	Updated to the Environmental Risk Study (ERA),	Update of the Environmental Risk Study, due to the increase in the consumption of Sodium Cinnaride that occurred in the beneficial process	Submitted August 04, 2023 Pending response from SERMARNAT		
4	Registry as generator and notification of Management Plan of Special Waste Handling (RME) No. MPR-2273-19;	Registration as waste generator and authorization of the Special Waste Handling Management Plan (PRME) under the Department of Urban Development and Ecology (SEDUE) in the State of Chihuahua. (Note: this plan is being updated and will be submitted to SEDUE for evaluation)	From April 09, 2019, no expiration	Annual waste generation report using the Emission Report Format (FRE)	Annually each April starting in 2019
5	Mining Waste Management Plan Registration No. 08-PMM-20223-2021	The Mining Waste Management Plan includes the management of tepetate, mine water sedimentation sludge and mining tailings.	"From June 21, 2021. No expiration.		
MUNICIPAL PERMITS					
CONSECUTIVE NUMBER	**PERMIT TYPE AND IDENTIFICATION NUMBER**	**AUTHORIZED ACTIVITY**	**ACTIVE FROM - TO**	**REPORTING REQUIREMENTS**	**REPORT DUE DATES**
1	Soil Use License, official document No. 607	Municipal permit for the construction and installation of mining infrastructure for industrial use	Active from July 23, 2018 to July 23, 2023		
2	Authorization of the start of construction, official document No. 237/2018	Consent and notice to municipality about the start of mining infrastructure works	No expiration starting May 03, 2018		

3	Alignment and official number, writeup No. 603	Alignment and official number process	No expiration, starting July 23, 2018		
4	Start of operations, official document No. 606	Approval of facilities by Municipal Civil Security and approval of start of operations.	No expiration, starting July 23, 2018		

There are two permits for which applications have been made but a reply from the applicable authorities remain outstanding. First, the Company has submitted a modification of the environmental license based on the addition of the fluorine leach process. All required documentation in respect of the modification has been submitted as of June 21, 2023. As the environmental authority has not replied and/or made an additional information request within the period stipulated by applicable law, a legal presumption of approval exists. This issue is not considered by the QP to be a material risk to the operation of CLG Mine.

Los Gatos submitted a permit application in 2019 for a sewage treatment plant that treats sewage from the personnel campsite. CONAGUA has acknowledged receipt of the application but has yet to respond with actions regarding the permit. Los Gatos has been operating the sewage treatment plant and using treated water for irrigation at the mine site. Recent communications with CONAGUA have indicated that presumptive approval of the permit application does not apply because the permit had not advanced far enough in the review and approval process. There is a risk that Los Gatos could face a fine related to the operation of the sewage treatment plant without an approved permit. CONAGUA has indicated that depending on whether the water quality of the treated water meets permissible limits, the mine could be fined or the treated water may be disallowed from use for irrigation. In this case Los Gatos has the mitigation option of diverting treated water to the TSF, which is a permitted option for the treated water. This issue is not considered by the QP to be a material risk to the operation of CLG Mine.

Los Gatos also awaits issuance of the permit associated with the use of the CONAGUA federal zone within the TSF footprint area. The Los Gatos Joint Venture owns the surface lands for the TSF and the Los Gatos Joint Venture mining concessions cover the TSF location. The TSF Federal land use application was timely submitted to CONAGUA and approved pending payment by CLG. The payment was timely submitted by Los Gatos in October, 2022. It is usual for the permit document to be issued two to three months following payment but the final, signed authorization has not yet been issued by CONGUA. CLG legal personnel have indicated that their interpretation is that the permit approval will not be subject to any new criteria given CONAGUA has accepted the Los Gatos application and appropriate fees have been established and paid The QP notes that there is a low risk associated with the authorization but if the regulator does not ultimately issue the final permit documentation this could be considered material to the TSF operation.

The Company plans to submit updates to the hazardous waste and the special waste plans to reflect increases in wastes generated by the mining operations. No known factors exist to preclude a successful permitting effort. The length of the review and authorization process with the Mexican environmental agency can be difficult to predict.

20.8 Social Considerations

The following subsections include the relevant social and community aspects of the area of influence of the CLG Mine, located in the municipality of Satevó, Chihuahua. Various documents were reviewed, including socioeconomic and demographic aspects of the preliminary socioeconomic diagnosis (ASI s.c, 2016), social baseline study (Sincronía, 2018), and 2021 update (Aluna Sustainability, 2021a), and the Regional Environmental

Impact Statement (MIA-R) (ASI s.c, 2016). The review also included information regarding the identification of social risks, the mitigation measures that are part of the community relations plan, and the main agreements with the local stakeholders.

20.8.1 Social Setting

MPR has produced several baseline studies. The first was carried out in 2016 and was focused at the municipal level, however, the most significant studies are the 2018 baseline, and the 2021 baseline, which integrates a comparative analysis with the 2018 baseline on the social, economic, natural and infrastructure capital of the localities that make up the area of direct influence of the project. The latest update includes an analysis of human development indicators, aligned with human rights and Sustainable Development Goals.

The baseline studies collected information from official statistical sources, as well as interviews and participatory workshops with stakeholders and the local communities in the area of direct influence (Table 20.5). The information obtained has been used to identify social impacts in the communities, as well as social risks for the mining operations. Prevention and mitigation plans were developed for the Community Social Management Plan.

Table 20.5: Localities in the Area of Influence of Cerro Los Gatos Mine

Within the Regional Environmental System (Area of Direct Influence)			
Locality	**Municipality**	**Distance to the project (meters)**	**Population**
El Salto de Agua	Satevó	9,028	-
Santa Rita		9,143	1
El Sitio		5,558	-
La Esperanza		7,280	100
Las Pilas		4,853	-
El Tule		4,655	33
El Tule de Abajo		4,472	44
El Carrizo		4,735	26
La Guerrita		4,728	18
San José del Sitio		7,190	312
La Máquina		8,046	26
Outside the Regional Environmental System (Area of Indirect Influence)			
Locality	Municipality	Population	
Los Veranos	Satevó	84	
San Nicolás de la Joya		6	

La Laborcita		10
Boca del Río		62

The communities in the San Jose hydrologic microbasin that are within the area of direct influence are shown in Figure 20.10. According to the data in the table above, no demographic data were available for four localities. MPR considers the town of La Esperanza to be within the area of direct influence due to the exploration agreement with the ejido of the same name. The town of Valerio, in the municipality of Valle de Zaragoza, is considered to be within the area of indirect influence because both the town and municipality share access routes.

Figure 20.10: Location of Communities and Project

The composition of the population in the area of direct influence is 51.2% female and 48.4% male.

The area surrounding Cerro Los Gatos mine is predominantly rural, with livestock and agriculture being the main activities. Livestock is an activity that has economic and cultural significance for the municipality, however, since the opening of the Cerro Los Gatos mine, mining has become the predominant economic driver in the area.

The level of education in the area of influence has increased since the Company started operations.

Medical services in the region are concentrated in San José del Sitio, which has a community health center that is administered by the Mexican Social Security Institute (IMSS). Not affiliated with any medical service is 44.6% of the population in the area of direct influence, which highlights that it is mostly mine employees who make up the 19.3% of the people who have access to private health services.

There is a significant water shortage in the towns of La Esperanza, El Carrizo, and El Tule. According to social perception, derived from a survey of the populace, some of the main reasons for the shortage are the drought that prevails in the region, as well as the consumption of water by the operations of the mine, which the community perceives as resulting in decreased flows in rivers and streams in the hydrologic micro-basin. Even though the hydrologic studies have shown that the mining operations and the towns are in separate hydrologic microbasins and use different aquifers, this social perception has a reputational impact on operations.

San José del Sitio is the largest community and has the most community infrastructures, such as basic and upper secondary level schools, health centers, and businesses for goods and services. In this sense, MPR, as part of its agreements with the ejido as well as initiatives of the Social Management Plan, has contributed to the maintenance of roads and streets of the town; construction of a potable water retention basin and expansion of the water system; maintenance of schools; and co-investment in the construction and renovation of the health center and the basic rehabilitation unit.

At the time of the survey, the results indicated that the main social problems that affect the population are security, water scarcity, environmental problems such as the potential for water contamination, and limited access to health services. These identified issues have been used for the design of community programs that are part of the MPR Social Management Plan.

Social perception surveys were carried out as part of the 2018 and 2021 baseline studies. In both surveys it was identified that most localities perceive the presence of the mine as a benefit due to the generation of jobs, and the social co-investment that has been made in the community infrastructure within the area of influence. On the other hand, the perception of impacts by MPR operations on water and air quality remains an issue, especially the perception that mining operations impact water availability in other hydrologic basins. The Community Relations Plan has water education actions and a dust suppression program as well as other initiatives.

20.8.2 Social Management Plan

The MPR community relations team has had a presence in the region since the mineral exploration phase and has established communication and collaboration channels based on transparency of information. The Community Social Management Plan was developed as part of the 2018 social baseline study, and subsequently implemented in 2019 and 2020. In 2021, the socioeconomic indicators survey was updated to include components of human rights, gender perspective, and United Nations Sustainable Development Goals (SDGs). Comparison of the baseline 2018 and 2021 results identified the main risks and perceived impacts of the mine and were used to prepare the Community Relationship Model.

The objective of the MPR Community Relations Policy is to establish the guidelines for institutional work with the neighboring communities and for MPR social interaction projects. Projects are to promote social development, either independently or through strategic alliances with various institutions (public or private), that are aimed at addressing health, education, culture, and basic infrastructure, based on respect for human rights, beliefs, and local characteristics.

The Community Relations Model is based on methods to prevent and reduce risks and socio-environmental impacts and is used to develop the social and environmental investment portfolio. The main social impact mitigation measures that are part of the social and environmental investment portfolio are presented in Table 20.6. It is noted that there are two trade unions; one is local (Satevó) and the other (Duran Mier-San Jose del Sitio) is a local section of a national organization.

Table 20.6: Potential Social Impacts and Mitigation Measures

Interest / Potential Concern	Priority	Summary of Actions / Mitigation Measure
Conflict with unions with the possibility of strikes, blockades, or increased rates due to the high expectations of benefits and demands for additional services.	Very High	Comply with established agreements with trade unions. Relationship strategy that shows positive economic and social impacts, with possible working groups to facilitate communication. Sustainability and compliance reports based on international standards. Feasibility study of alternative services for a future construction stage of the TSF.
Social investment is impacted by weak ejido and trade union organizations.	Very High	Project of organizational strengthening of the unions. Sustainability and compliance reports based on international standards.
The increased presence of criminal groups in the area has an influence on young people, and causes security concerns.	Very High	Environmental Promoters Project. Entrepreneurship Project – diagnosis of business ideas based on historic vocations of the region. Addiction Prevention Program, Youth Integration Centers (CIJ). University scholarship program. Projects to promote community spirit (cinema, sport, culture). Infrastructure projects – Community centers. Training project Work Training Institute of the State of Chihuahua (ICATECH). Intensive alternative high school program for adults to obtain a high school degree.
Direct and indirect economic impacts due to emigration of workers.	Very High	Entrepreneurship Project – diagnosis of business ideas based on the historic vocations in the region. Environmental Promoters Project - With business ideas based on eco-technologies. University scholarship program. Sustainability and compliance reports with international standards.
Future incidents with the community of Valerio related to the blockade of an access road in 2021.	High	Infrastructure projects – Community centers. Health programs. Projects to promote community spirit (cinema, sport, culture). Environmental Promoters Project. Entrepreneurship Project – diagnosis of business ideas. Study of cumulative social and environmental impacts to develop a management strategy, Government relationship strategy. Alternate path (Ejido El Torreón, Salinas, El Tule). Develop a relationship strategy to preserve good communications with the authorities and community members related to an alternative access route to the mine site. Sustainability and compliance reports based on international standards.
Loss of livestock production as a vocation.	High	Entrepreneurship Project – diagnosis of business ideas based on the historic vocations in the region. Financial inclusion project. Mapping of potential competitive funds. Integrated water management project.

Interest / Potential Concern	Priority	Summary of Actions / Mitigation Measure
		Environmental Promoters Project - With business ideas based on eco-technologies. Sustainability and compliance reports based on international standards.
Critical water scarcity in the area generates the misperception that the decrease in the water level is due to consumption of water by the operations, and results in discontent on the part of the population.	High	Integrated water management project. Environmental Promoters Project. Project improvements to the sanitation system, specifically the extension to the oxidation lagoon. Drilling project and commissioning of a well in a prioritized community. Sustainability and compliance reports based on international standards. Ensure impact assessments done for all exploration and production projects, primarily for community water quality and quantity.
The restoration project "Semilleros de agua" is important to encourage co-responsibility by the beneficiaries.	High	Permanent accompaniment in the design and execution process to achieve the adaptation of the project with the farmers. Financial inclusion project. Environmental Promoters Project - With business ideas based on eco-technologies. Design of specific indicators to determine the degree of ownership by beneficiaries. Sustainability and compliance reports based on international standards.
Direct and indirect economic impacts due to community members moving out of area.	Low	Entrepreneurship Project – diagnosis of business ideas. Financial inclusion project. Environmental Promoters Project - With business ideas based on eco-technologies. University scholarship program. Sustainability and compliance reports based on international standards.

MPR carries out continuous monitoring of the identified social risks, as well as stakeholder mapping. The projects in the social and environmental investment portfolio have quantitative indicators of compliance to project controls. It will be necessary to develop qualitative or mixed indicators for the social impact of each project to monitor investment success.

The social and environmental investment portfolio is made up of 10 programs divided into nature (environment), health, education, organization (human rights), community activities, infrastructure, economic support of external programs, and union relations. For 2023, a budget of US$833,558 has been allocated by MPR for these programs.

MPR has established strategic alliances with stakeholders at the state, municipal and local levels for the execution of its projects. The infrastructure projects, for example, have been carried out collaboratively, using investments from government, communities, and MPR. Another area of collaboration is water management. Community committees have been formed to monitor wells, rivers, and streams in the area of influence, and those results are shared with the authorities.

Due to the proximity of the project to the town of San José del Sitio, and because the town is the primary source of goods and services within the area of influence, MPR has established a community relations office there, which allows for a permanent point of contact between the communities and the mine. A quarterly newsletter is distributed in the area of influence and with collaborators to report on MPR social, environmental, and governance projects.

20.8.2.1 Grievance Management

MPR has developed a mechanism for dealing with questions, complaints, and grievances for internal and external stakeholders using physical mailboxes and email. Information received is input into a database, including request type, the issuer, case description, the actions carried out and status.

Among the main complaints or requests are those related to transport providers, as well as contracting or termination of contracts. The community relations office has been responsible for resolving problems related to suppliers, in particular the two trade unions. During the first six months of 2023, only nine grievances were registered, and none were considered to be of high concern per the QP. The office provides a link between the Company's Human Resources department and is responsible for registering complaints and reporting on progress of results.

MPR has an internal grievance mechanism that is managed by a third party, and submittals can be made anonymously through a website and by telephone. The Human Resources office is in charge of internal issues.

20.8.2.1.1 Memberships

As part of the Company's commitment to sustainability and social responsibility, MPR has a Social Responsibility Committee with subcommittees of Business Ethics, Quality of Life of the Company, Connection with the Community, and Care and Preservation of the Environment. Among the main achievements are the following:

- Member of United Nations Global Compact since 2018, committing to disseminate and enforce 10 principles that focus on human rights, labor standards, the environment, and fighting corruption; they also promote the Sustainable Development Goals in their operations, as well as in their community projects.
- Socially Responsible Company Distinction, medium-sized company category, awarded by the Mexican Center for Philanthropy (CEMEFI) in 2019.
- Socially Responsible Company Distinction, large company category, awarded by the Mexican Center for Philanthropy (CEMEFI) in 2020 and 2021.

20.8.2.1.2 Worker Safety

There is a worker job safety campaign that applies throughout all areas of the mine. All personnel entering the site must wear personal protective equipment according to the work area, likewise, the occupational safety area is responsible for providing inductions to all new personnel, as well as visitors. Two emergency drills are held annually.

The underground mining operations have a rigorous worker safety program with first aid stations and mine rescue facilities. One of the stations has a ventilation shaft with a rescue capsule that can fit four persons and serves as a second means of emergency egress from the underground mine. The capacity is for 50 persons, including food and oxygen tanks.

There are preventive measures for dehydration, in the underground mine there are hydration points and a cold room for relief of the high temperatures in the area.

20.8.2.1.3 Security

In the area of influence, there is a permanent presence of organized crime, however, there have been no incidents with the operation. As part of the security measures, MPR has schedules for the transit of personnel and services, as well as a surveillance system provided by a third party.

The property is fenced, so access is restricted to employees, suppliers, licensed neighboring ranch owners and authorized visitors. The access point has rigorous screening protocols for vehicles entering or leaving the site, a video surveillance system, and continuous surveillance rounds are conducted in all site areas.

There is a military barracks inside the property which houses members of the Secretary of National Defense (SEDENA). MPR has an agreement with SEDENA to safeguard explosives products stored for use in the underground mine. The explosives are stored at surface in a fenced area that is patrolled 24 hours a day. MPR has donated the housing for SEDENA members and considers the SEDENA presence on the mine site as a strategic security measure.

20.8.3 Agreements with Stakeholders

The mapping and analysis of stakeholders is continuously monitored and updated to identify and address possible social risks in a timely fashion. MPR has identified 65 stakeholders that are classified into eight groups: state and national authorities; local authorities; communities; institutions; government institutions; NGOs; trade unions, and other companies in the area of direct influence.

The relationship with key stakeholders is good per a relationship index analysis; the rating reflects a continuous relationship with external stakeholders such as institutions and nongovernmental organizations (NGOs). There are significant relationships with community leaders, local authorities, and trade unions, which all have their own interests, influence, and impacts on the mining operations.

The Cerro Los Gatos Mine is near the town of San José del Sitio, municipality of Satevó. Most of the region is ejido lands, which are communally held lands that combine communal ownership with individual use. Due to the proximity of the mine site with the San José del Sitio ejido, communication and collaboration channels were established with local authorities and key stakeholders in the region starting with the exploration phase. Agreements established with the local stakeholders are related to access to land associated with the 155 kV electrical transmission line, exploration areas and the access road to the mine. No issues associated with the agreements were noted by the QP.

To guarantee legal certainty and compliance with the agreements with the ejido of San José del Sitio, periodic meetings are held with the Agrarian Prosecutor's Office of the State of Chihuahua, in which MPR reports about the fulfillment or progress of its agreements with the ejido, and the ejido can make any request or externalize any disagreement. The agreements are recorded in officially validated minutes by the Mexican authority and are shared with the ejido leadership boards as a means of transparency.

20.8.4 Commitments for Local Procurement and Hiring

MPR has established various commitments for the hiring of local labor, as well as in the acquisition of services during the life of the project, through agreements with stakeholders such as the ejidos San José del Sitio and La Esperanza, as well as with the Durán Mier-San José del Sitio and Satevó trade unions.

MPR has agreed with the parties that priority will be given to hiring non-specialized labor and services from the San José del Sitio and La Esperanza ejidos. It is established that the staff must be of legal age and cover the profile required for the performance of the tasks. Contracting is subject to the requirements of the project stage.

Local procurement employees are working in the underground mine, laundry, dining room, and offices. Local hiring from within the area of influence is shown in Table 20.7. The number of local employees increased from 2022 to 2023.

Table 20.7: Direct Employees from the Area of Influence

Community	Men	Women	Total
Boca del Rio	15	9	24
Los Veranos	16	13	29
El Tule	8	5	13
La Esperanza	2	6	8
La Guerrita	2	1	3
La Máquina	1	4	5
San José del Sitio	41	29	70
San Nicolas de la Joya	1	0	1
Total	**86**	**67**	**153**

There have been participatory agreements since 2015 with the Durán Mier-San José del Sitio and Satevó unions to provide services such as personnel transport services, non-specialized machinery, and transport of aggregate materials. These agreements provide a source of employment for approximately 200 people. The unions were started during the exploration stage, and the members are part of the ejido of San José del Sitio and Satevó. The community relations office is the link between the unions and the MPR, so they manage applications, agreements, and payments.

20.9 Mine Closure

A mine closure plan was prepared in 2017 as part of the environmental impact assessment and subsequently updated in 2018 as part of the feasibility plan. The mine plan indicates that permanent closure will begin in the year 2030, which is the year that extraction of ore and processing of minerals are scheduled to cease. There is a four-year period of closure activities and a post-closure monitoring period of a minimum of five years. Mexican regulations require that a detailed closure plan be developed prior to the closure period for submittal to the environmental agency.

20.9.1 Objectives

The closure objectives established for the Los Gatos mine include the following:

- Return the land to a stable condition that allows for beneficial reuse
- Comply with applicable environmental rules and regulations
- Ensure geochemical and physical stability of mining wastes that remain after closure
- Reduce potential impacts to surface water and groundwater
- Re-establish vegetation

- Reduce long-term maintenance requirements

20.9.2 Land Use

It is expected that the land use post-closure will be natural habitat for wild flora and fauna, land for livestock grazing and areas of restricted access. The areas of restricted access will be the access to the underground mine workings and the reclaimed TSF. The waste rock storage facility will also remain after closure. Almost all other facilities and infrastructure are to be removed.

The plant nursery and the road improvements that would be useful to the community are expected to remain after closure.

20.9.3 Mexican Closure and Reclamation Regulatory Framework

Mine reclamation is addressed in Article 27 of the Mexican Constitution, which sets two broad standards for reclamation:

- The Nation retains ownership of the mineral rights at all times and concession holders only have rights to mined materials. As such, the Nation may establish the conditions of reclamation; and
- The Nation has an obligation to take mitigation measures to protect natural resources and restore the ecological balance.

Key regulations that apply to closure conditions are NOM-001-SEMARNAT-1996, NOM-138-SEMARNAT/SS-2003, NOM-141-SEMARNAT-2003, NOM-147-SEMARNAT/SSA1-2004, NOM-155-SEMARNAT-2007 and NOM-157-SEMARNAT-2009. The focus of each regulation is listed below.

- NOM-001-SEMARNAT-1996 establishes the maximum permissible limits of contaminants in wastewater discharges to surface water. This regulation is currently under review by SEMARNAT for possible modification.
- NOM-059-SEMARNAT-2001 establishes the criteria for inclusion, exclusion or change of risk category for species or populations of flora and fauna, through a method of evaluating their extinction risk.
- NOM-138-SEMARNAT/SS-2003 establishes maximum permissible limits for hydrocarbons in soil. Should limits be exceeded, an environmental and human health risk assessment may be conducted to determine remediation options.
- NOM-141-SEMARNAT-2003 establishes the procedures to characterize the tailings materials, as well as the specifications and criteria for characterization and preparation of the site, design, construction, operation and closure of the tailings facilities. The closed facility should not generate dust or impacted runoff, and physical stability must be ensured.
- NOM-147-SEMARNAT/SSA1-2004 establishes soil remediation levels for concentrations of arsenic, barium, beryllium, cadmium, hexavalent chromium, mercury, nickel, silver, lead, selenium, thallium and vanadium. The regulation includes specifications for site characterization (such as the number of samples), a conceptual site model, and an alternative method to determine remediation levels based on a risk assessment.
- NOM-157-SEMARNAT-2009 establishes the requirements for mine waste management plans. Section 5.6 of the regulation describes the criteria for storage and final deposition of wastes. The criteria include identification of the site environment that could be impacted by operations; the engineering and maintenance

specifications to maintain physical stability; control measures to avoid wind and water erosion; and measures to prevent acid drainage, leaching and runoff. Post-closure criteria include monitoring of water bodies that could be impacted and reforestation using stockpiled soil and native species of the area.

20.9.4 Closure Activities

Closure activities planned include the following:

- Closure, decontamination and demolition of the mine facilities, metallurgical plant, infrastructure, and ancillary facilities
- Disposal of demolition materials
- Soil remediation
- Construction of storm water conveyances
- Placement of closure covers
- Revegetation
- Post-closure monitoring and maintenance

Conceptual closure activities are presented in the closure plan (Tetra Tech 2018) and key closure components are described below. Overall site gradient after reclamation will be to the San Toribio arroyo.

20.9.4.1 Tailings Storage Facility

The TSF was designed based on the classification of the tailings as potentially acid-generating, but with the probability of metals leaching being low. The slopes are designed to require no change for closure. The tailings will be covered with compacted fill of one meter thickness, then revegetated. A system of surface water conveyances will be installed to promote drainage off the TSF. Channels will be protected with 15 cm of riprap.

20.9.4.2 Waste Rock Storage Facility

The waste rock storage facility is anticipated to be constructed with a slope of 2H:1V, and will need to be reconfigured for a more stable overall slope of 3H:1V. The final configuration will include surface water conveyances and a 0.3 m organic soil cover. The entire surface will be revegetated.

20.9.4.3 Buildings

Buildings and installations contaminated with cyanide and other chemicals will be decontaminated by rinsing. The rinseate will be sent to the TSF for evaporation.

The electrical infrastructure will be removed and dewatering wells will be destroyed.

Pond sediments will be placed in the TSF or an offsite solid waste landfill, depending on the management requirements. Lined ponds will be perforated and filled, then regraded, covered and revegetated.

20.9.4.4 Underground Mine

Equipment, combustibles, and other chemical products stored underground will be removed prior to closure. Inert demolition debris will be used to fill the ramp for a distance of about 1080 m to 5 m above the predicted final water level elevation. The ramp will be sealed at the portal using a minimum of 3 m thickness of expanding foam that solidifies after emplacement. The portal will be reclaimed using organic soil and revegetation.

The ventilation shafts will be closed with reinforced concrete 0.45 m thick and a cap of at least three meters of fill. An organic soil cover of 0.15 m will be placed and revegetated.

20.9.4.5 Revegetation

It is anticipated that the seed mixes to be used will be composed of native plants. Native seeds are collected and used in the production of rootstock. The plant nursery currently can produce about 14,000 rootstock in a three-year period. No areas have been reclaimed, but concurrent reclamation is an objective during operations.

20.9.4.6 Water Management at Closure

The mine water and/or a water supply well will be operated to provide for rinseate water to decontaminate equipment for up to one year. Domestic wastewater from the mine camp will be treated and discharged. Forced evaporation will be used for two years at the TSF to reduce the volume of tailings water.

The subdrain tailings water and infiltration from the TSF will be recirculated for evaporation and eventually sealed if possible. If water quality discharge standards are met, then the tailings water can be discharged to the environment.

20.9.5 Post-Closure Monitoring and Maintenance

Post-closure monitoring and maintenance will be conducted for a minimum of five years. Restriction of livestock will be critical, and it is anticipated that the reclaimed area will be fenced. Physical inspections will be conducted to monitor reclamation success and stability of the closure designs. Success criteria will be developed for erosion, slope stability, water quality, and vegetation.

20.9.6 Closure Costs

The closure cost estimate is about MXN$290,000,000 or about US$14.9 M (Table 20.7). The closure cost was prepared in Mexican pesos and the conversion to US dollars is based on currency exchange rates as of August 2022. The Mexican authority does not require a closure cost financial mechanism. The QP notes that the closure plan does not include all existing infrastructure at the site, and is not based on adequate technical studies. The QP recommends that the closure plan be updated.

Table 20.8: Closure Cost Estimate

Closure Item	Cost (MXN)*	US$
Earthworks and Grading	65,946,833	3,385,360
Revegetation and Stabilization	14,201,372	729,025
Neutralization, Water Treatment and Waste Disposal	112,738,726	5,787,410
Infrastructure, Equipment and Facility Removal, and Miscellaneous	93,115,689	4,780,070
Monitoring	3,911,379	200,790
Total	**289,913,999**	**14,883,000**

* Source: Tetra Tech, 2018.

20.10 Adequacy of Response to Environmental and Social Issues

The QP observes that there are well established processes and procedures for recording, acting upon and resolving environmental and social issues as they arise. Like any process, success lies in attention to issues as they arise, accurate record keeping with assigned responsibilities and commitments to resolution dates wherever possible throughout the life of any issue until appropriately addressed to the satisfaction of regulators and/or stakeholders.

21.0 CAPITAL AND OPERATING COSTS

21.1 Operating Costs

Operating cost estimates were developed based on recent actual costs with minor specific adjustments for business improvement initiatives that are currently being implemented. Operating costs are estimated in 2023 dollars with no inflation or escalation considered. Estimates were prepared on an annual basis using a detailed build-up of individual cost centers and considering specific mine site activity levels and cost drivers. The estimates consider current and expected labour headcount and salaries, major consumables and unit prices, power costs, fixed and mobile equipment costs, and maintenance costs. The total operating cost estimate includes all site costs related to mining, processing, and general and administrative activities, as well as regional office costs and excludes joint venture management fees and administration costs as well as Gatos Silver corporate general and administration cost allocations. Site operating costs exclude concentrate transportation costs, smelter and refining charges, royalties and mining and income taxes; however, these are included in the economic analysis presented in Section 22.0.

The LOM Plan operating costs consider estimated costs to fully deplete the Mineral Reserve. Therefore, operating costs exclude any exploration and drilling costs related to potential future mine life extensions which are not required to mine and process the Mineral Reserve.

Mining costs were developed separately for the longhole and cut-and-fill mining methods, with the resulting unit cost estimates applied to the tonnages extracted using each mining method as defined in the LOM Plan. Mining costs cover expected direct costs for the mining process including drilling, blasting, mucking, hauling, backfilling, mine dewatering and ground support.

Processing costs include expected direct costs for ore processing: crushing and conveying, grinding, flotation, tailings thickening and deposition, zinc concentrate leaching, and on-site concentrate handling. The newly installed zinc concentrate fluorine leach circuit adds marginally to the unit operating cost in the plant.

General and administrative costs include costs associated with support of the operation: administrative personnel and functions, administrative facilities, site services, accommodations, security, and other support costs.

Operating costs at the CLG Mine have been reviewed by the mining QP and found to be reasonable for a mechanized mine utilizing the longhole and cut-and-fill mining methods. The plant has demonstrated typical operating costs for a facility of its size. The following tables summarize operating costs, segmented by major cost center: Mine, Processing Plant (includes TSF operations), and General and Administrative (G&A).

Table 21.1 summarizes the total expected operating costs to mine and process the defined Mineral Reserve.

Table 21.1: Projected Operating Costs

Cost Center	LOM Cost, $M	Unit Cost, $/t milled
Mining	356.7	44.14
Processing	215.3	26.64
G&A	144.6	17.90
Total Operating Costs	**716.7**	**88.67**

Operating costs of the underground mine are estimated to be $44.14/tonne of processed material, itemized in Table 21.2.

Table 21.2: Mine Operating Cost Projection

Cost Center	LOM Cost $M	Unit Cost $/tonne milled
Admin G&A	35.0	4.33
Geology	19.6	2.43
Maintenance	39.0	4.82
Operation	226.6	28.03
Power	21.6	2.67
Technical Services	15.0	1.85
Total Mining Costs	**356.7**	**44.14**

Operating costs of the processing plant are estimated to be $26.64/tonne of processed material, with major cost elements provided on Table 21.3.

Table 21.3: Processing Plant Operating Cost Projection

Cost Center	LOM Cost $M	Unit Cost $/tonne milled
Admin G&A	18.3	2.26
Assay Lab	9.6	1.19
Maintenance	11.8	1.46
Operation	122.5	15.15
Leaching Plant	15.7	1.94
Power	37.5	4.64
Total Plant Costs	**215.3**	**26.64**

General and Administrative costs are comprised of general site and regional office costs, safety and security, accommodations and camp operations, site services, environmental and social expenditures, community relations, and other site administrative and support costs, as depicted on Table 21.4.

Table 21.4: General and Administrative Cost Projection

Cost Center	LOM Cost $M	Unit Cost $/tonne milled
Site and Local Administration and Services	82.2	10.17
Concentrate Marketing	3.2	0.40
Human Resources and Information Technology	8.1	1.01
Operational Excellence	0.0	0.00
Supply Chain	10.1	1.24
Community, Environment, Health and Safety	31.8	3.94
Security	9.2	1.14
Total G&A Costs	**144.6**	**17.90**

21.2 Capital Costs

21.2.1 Development Capital

There are no expansion plans requiring development capital in the LOM Plan.

21.2.2 Sustaining Capital

CLG will require sustaining capital for continuing underground mine development and two additional raises of the TSF dam, as well as other miscellaneous equipment and infrastructure projects.

Table 18.5 summarizes the capital expenditures planned for the balance of the mine life. Sustaining capital is estimated in 2023 dollars with no inflation or escalation considered. The QPs have reviewed the planned annual expenditures and agree that they are reasonable.

Underground development costs are directly correlated with development meters and are estimated based on expected unit rates per meter, applied to the number of meters of mine development required each year. Development capital is expected to be substantially complete by 2027 and totals $91.1 million over the LOM.

The LOM sustaining capital includes continuation of the ongoing mining equipment rebuild program to extend the useful life of the existing fleet. In addition, select new equipment purchases are considered. Evaluations of fleet performance and capabilities will continue into 2024. Mine infrastructure and equipment also includes the installation of additional dewatering wells and pump stations as mine development advances deeper and the SE zone is developed. It also considers the addition of three new vent raises collared at surface to provide sufficient ventilation as the mine expands into the SE zone.

The 2023 LOM Plan will require two additional tailings dam lifts in each of 2025 and 2028, included on the Process Plant line of Table 21.5.

Table 21.5: LOM Sustaining Capital, $M

Item	Units	2023 H2	2024	2025	2026	2027	2028	2029	2030	Total
Mine Development										
Lateral Development	m	1,923	3,847	3,853	3,817	2,655	121	0	20	16,236
Mine Development	**$M**	**12.0**	**21.1**	**22.0**	**20.4**	**15.1**	**0.6**	**0.0**	**0.0**	**91.1**
Infrastructure & Equipment										
Mine	$M	11.0	16.0	8.7	6.9	3.0	2.0	1.5	0.0	49.1
TSF	$M	0.0	0.0	7.7	0.0	0.0	7.3	0.0	0.0	15.1
Others	$M	1.8	0.8	0.6	0.6	0.5	0.5	0.1	0.0	4.9
Infrastructure & Equipment	**$M**	**12.8**	**16.8**	**17.1**	**7.5**	**3.5**	**9.8**	**1.5**	**0.0**	**69.1**
Sustaining Capital	**$M**	**24.8**	**37.9**	**39.1**	**27.9**	**18.6**	**10.4**	**1.5**	**0.0**	**160.2**

21.3 Level Of Accuracy in the Estimates

Operating costs are sensitive to several factors, primarily mining method, backfill type, ventilation, refrigeration, mine dewatering, and labor in addition to fluctuations in the cost of consumables, including diesel fuel, electrical power, ground support, and explosives, amongst others. Operating costs will also be impacted by fluctuations in the USD/Mexican peso exchange rate and inflation of input costs including labor, consumables and contracts.

Mining costs have been based on actual costs realized to date, with consideration for business improvement initiatives underway and established supply contracts.

Processing plant costs consist primarily of electrical power, labor, grinding media (including crusher and grinding mill wear components), reagents, spares, and maintenance. The operation is in a steady state and future cost estimates are considered reasonable and expected.

General and Administrative costs are based on historical costs projected to the end of the mine life, with consideration for site activity levels and headcount over the remaining mine life.

Sustaining capital cost estimates have been developed from experience with underground mine development over the past number of years. The costs to raise the TSF dam have been established from past practice.

21.4 Risks Associated with the Specific Engineering Estimation Methods Used to Arrive at The Estimates

Volume and cost estimates are of a high level of confidence. Operating volumes are well defined and understood, as are mining and processing productivities. Unit cost estimates are based on supply contracts and operating history.

Actual capital and operating costs at the CLG Mine will nonetheless depend upon changes in the availability and prices of labor, equipment, consumables and contractors, variances in mining rates and ore recovery from those assumed in the LOM Plan, operational risks, exchange rates being adverse to those assumed (including the USD/Mexican Peso exchange rate), changes in governmental regulation, including taxation, environmental permitting and other regulations (including recent changes to the laws affecting the mining industry described herein) and other factors, many of which are beyond the control of GSI. Due to any of these or other factors, the capital and operating costs at the CLG Mine may be higher than those set forth herein.

22.0 ECONOMIC ANALYSIS

For the purposes of this report, an economic analysis was performed by GSI using the GSI economic model and the 2023 LOM Plan for the CLG mine. The 2023 LOM Plan economic analysis supports the declaration of Mineral Reserves. WSP reviewed in detail the 2023 LOM Plan and the GSI economic model components relevant to the LOM Plan. For certainty, the economic analysis herein excludes stated Resources (which are stated exclusive of Reserves).

22.1 Principal Assumptions

Commodity prices and exchange rate assumptions used in the economic analysis are summarized in Table 22.1. The commodity price and exchange rate assumptions were based on an approximately equal blend of three-year trailing averages and analyst long-term consensus, and rounded down or up as appropriate.

Table 22.1: Commodity Prices and Exchange Rate Assumptions

Commodity Prices - 2023 LOM Plan		
Silver Price	$/oz	22.00
Gold Price	$/oz	1,700.00
Zinc Price	$/lb	1.20
Lead Price	$/lb	0.90
Copper Price	$/lb	3.50
Exchange Rate		
MXN per $1 USD	-	20.00

The LOM Plan considers periods from July 1, 2023, forward, with operations continuing for 7.5 years through the end of 2030 based on fully depleting the Mineral Reserve. Total ore processed based in the LOM Plan is 8.08 million tonnes at an average processing rate of 2,949 tonnes per calendar day.

The CLG processing plant produces a lead concentrate and a zinc concentrate. Payable metals are evaluated using the recovery parameters described in Section 17.0 as well as estimates of smelter charges which are based on current and expected concentrate market conditions, as described in Section 19.0.

Operating and capital cost estimates are described in Section 18. Operating costs are projected to average $88.67 per tonne milled over the LOM, with total planned sustaining capital expenditures of $160.2 M. Closure costs of $14.8 M are forecasted for the period 2030-2034 and are described in Section 20.0.

The LOM Plan used to prepare the cash flow analysis is in real 2023 dollars, with no allowances made for future inflation. The economic model is on a real 2023 dollars basis and an unlevered basis. Changes to working capital, corporate administration, management fees, and exploration activities are excluded from the LOM operating costs used to support the Mineral Reserve.

The differential between the undiscounted pre-tax and post-tax cash flows is $129.2 M, representing the estimated cash taxes payable (mining taxes and income taxes) from July 1, 2023, onward. The economic analysis applies current mining and corporate income tax rates of 7.5% and 30%, respectively.

22.2 Demonstration of Economic Viability

The LOM Plan and corresponding economic model includes the processing of 8.08 Mt of ore at an average throughput rate of 2,949 tonnes per day and average grades of 217 g/t silver, 4.33% zinc, 2.20% lead, 0.15% copper, and 0.25 g/t gold over a 7.5-year period. The LOM Plan supports the Mineral Reserves as it demonstrates economic viability via projected revenues exceeding projected operating, sustaining capital, and closure costs.

Figure 22.1 presents annual silver production, cash costs and all-in sustaining costs, while Table 22.2 through Table 22.4 summarize key LOM production, revenues, costs, and economic metrics. Annual cash flow and unit cost details are presented in Table 22.6 through Table 22.8.

Key highlights of the LOM Plan are:

- Mine life through to the end of 2030
- Average annual production over the LOM of 6.6 million ounces of silver, 65 million pounds of zinc, and 47 million pounds of lead, or 12.4 million ounces of silver equivalent production
- Average operating costs (mine, mill, G&A) of $88.67 per tonne milled and total sustaining capital costs of $160 million
- Average by-product cash costs of $3.05 per ounce of payable silver[1]
- Average by-product all-in sustaining costs (“AISC”) of $6.61 per ounce of payable silver[1]
- Average annual after-tax free cash flow of $75 million
- After-tax net present value (“NPV”) at a 5% discount rate of $462 million

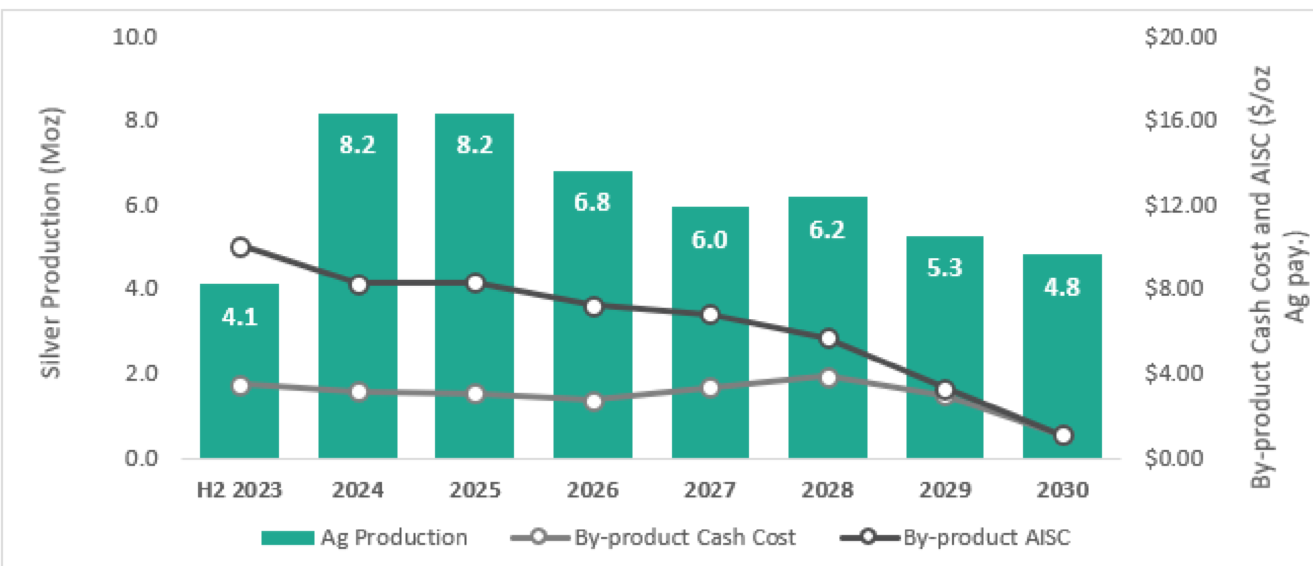


Figure 22.1: Annual Silver Production, Cash Costs and All-in Sustaining Costs

[1] See Non-GAAP Financial Measures following Table 19.9

Table 22.2: LOM Production Summary

LOM OPERATIONS METRICS	Unit	Value
Mine life (Operations)[1]	years	7.5
Property life (to closure)	years	11.5
Total mill feed tonnage	Mt	8.08
Average mill feed grade		
Silver	g/t	217
Zinc	%	4.32%
Lead	%	2.20%
Copper	%	0.15%
Gold	g/t	0.25
Mill recoveries		
Zinc Conc.		
Zn Recovery in Zn Conc	%	62.77%
Ag Recovery in Zn Conc	%	10.15%
Lead Conc.		
Pb Recovery in Pb Conc	%	89.40%
Cu Recovery in Pb Conc	%	60.00%
Ag Recovery in Pb Conc	%	78.00%
Au Recovery in Pb Conc	%	54.20%
Production (contained in concentrate)		
LOM Silver Production	Moz	49.7
LOM Zinc Production	Mlbs	484
LOM Lead Production	Mlbs	351.1
LOM Copper Production	Mlbs	11.8
LOM Gold Production	koz	34.7
LOM Average Annual Silver Production	Moz/year	6.6
LOM Average Annual Zinc Production	Mlbs/year	64.5
LOM Average Annual Lead Production	Mlbs/year	46.8
LOM Silver Equivalent Production[2]	Moz	93.1
LOM Average Silver Equivalent Production[2]	Moz/year	12.4

Concentrate Production and Sales		
Zinc Concentrate Produced and Sold	t	387,122
Lead Concentrate Produced and Sold	t	298,269
LOM Payable Silver in Concentrate Sold	Moz	44.9
LOM Payable Silver Equivalent in Concentrate Sold	Moz	83.4

Notes: 1 Mine Life includes the last 6 months of 2023 through the end of 2030 (7.5 years).
2 Silver equivalent production is calculated using base case price assumptions to "convert" zinc, lead and gold production contained in concentrate to "equivalent" silver ounces (contained metal, multiplied by price, divided by silver price). Copper is excluded due to relatively low payable terms for copper in lead concentrate.

Table 22.3: LOM NSR

Description		Unit	Value
Zinc Concentrate			
	Payables		
	Zinc	$k	493,634
	Silver	$k	70,182
	Gold	$k	0
	Total Payable - Zinc Concentrate	**$k**	**563,816**
	TC/RC/Penalties/Freight		
	Treatment & Refining Charges, Penalties	$k	-89,812
	Freight	$k	-80,202
	Zinc NSR	**$k**	**393,802**
Lead Concentrate			
	Payables		
	Lead	$k	298,214
	Copper	$k	12,362
	Silver	$k	918,567
	Gold	$k	42,655
	Total Payable - Lead Concentrate	**$k**	**1,271,798**
	TC/RC/Penalties/Freight		
	Treatment & Refining Charges, Penalties	$k	-57,044
	Freight	$k	-36,218
	Lead NSR	**$k**	**1,178,536**
	Net Smelter Return	**$k**	**1,572,338**

Table 22.4: LOM Economic Results

FINANCIAL RESULTS		
Commodity Prices		
Item	**Units**	**Value**
Silver	$/oz	22
Zinc	$/lb	1.2
Lead	$/lb	0.9
Copper	$/lb	3.5
Gold	$/oz	1,700
Exchange rate	MXN per 1 USD	20
Operating Margins		
Item	**Unit Value/Cost ($/t milled)**	**LOM Value/Cost ($k)**
Net Smelting Return [1]	**$194.54**	**1,572,338**
La Cuesta Royalty	($0.48)	-3,860
Net Revenue	**$194.06**	**1,568,478**
Operating Costs		
Mining Costs	($44.14)	-356,745
Plant Costs	($26.64)	-215,286
G&A	($17.90)	-144,642
Total Operating Costs	**($88.67)**	**-716,673**
Operating Margin	**$105.39**	**851,805**
Operating Margin	**54%**	**54%**
Sustaining Capital		
Item	**Unit Cost ($/t milled)**	**LOM Cost ($k)**
Mine Development	($11.27)	-91,103
Infrastructure & Equipment	($8.55)	-69,106
Total Capital Costs	($19.82)	**-160,209**
Cash Flow and Net Present Value		
Pre-Tax Cash Flow	**LOM Annual Average ($k/year)**	**LOM Value ($k)**
Cash Flow	$92,213	676,712
NPV 5%	**-**	**572,406**
Post-Tax Cash Flow	**LOM Annual Average ($k/year)**	**LOM Value ($k)**
Cash Flow	$74,984	547,495
NPV 5%	**-**	**461,747**

Notes: [1] Net Smelter Return is based on the LOM economic model parameters. These parameters have minor differences from the initial parameters used for the Mineral Reserve calculation NSR methodology shown on Table 15.1.

Table 22.5: Commodity Prices and Production

	Units	LOM	H2 2023	2024	2025	2026	2027	2028	2029	2030	2031+
COMMODITY PRICES & EXCHANGE RATES											
Ag Price - Spot (Period Average)	USD/oz	22	22	22	22	22	22	22	22	22	22
Au Price - Spot (Period Average)	USD/oz	1,700.00	1,700.00	1,700.00	1,700.00	1,700.00	1,700.00	1,700.00	1,700.00	1,700.00	1,700.00
Zn Price - Spot (Period Average)	USD/lb	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Pb Price - Spot (Period Average)	USD/lb	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Cu Price - Spot (Period Average)	USD/lb	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
MXN per $1 US	-	20	20	20	20	20	20	20	20	20	20
PRODUCTION											
Ore Milled - Volume	t	8,082,501	538,614	1,082,063	1,079,422	1,081,294	1,088,989	1,086,956	1,087,008	1,038,155	0
Ag Contained in Zn & Pb Concentrate	oz	49,669,200	4,137,614	8,196,275	8,204,764	6,846,521	5,963,959	6,196,638	5,280,265	4,843,165	0
Au Contained in Zn & Pb Concentrate	oz	34,681	2,635	5,034	5,273	4,836	5,043	4,453	3,664	3,742	0
Zn Contained in Zn Concentrate	M lbs	484	34	71	68	73	69	55	55	59	0
Pb Contained in Pb Concentrate	M lbs	351	22	46	47	50	48	43	47	48	0
Cu Contained in Pb Concentrate	M lbs	12	0	0	1	1	2	3	3	2	0
Contained Silver Equivalent	oz	93,108,809	7,088,815	14,326,398	14,257,437	13,239,133	12,080,227	11,336,880	10,493,704	10,286,214	0
PAYABLE METALS											
Ag Payable in Pb and Zn Concentrate	oz	44,943,123	3,754,855	7,429,360	7,442,933	6,182,016	5,377,844	5,618,237	4,773,814	4,364,064	0
Au Payable in Pb Concentrate	oz	25,091	2,022	3,789	3,986	3,482	3,721	3,262	2,391	2,439	0
Zn Payable in Zn Concentrate	M lbs	411	29	60	58	62	58	47	47	50	0
Pb Payable in Pb Concentrate	M lbs	331	21	43	45	47	46	41	44	45	0
Cu Payable in Pb Concentrate	M lbs	4	0	0	0	0	1	1	1	1	0
Payable Silver Equivalent	oz	82,875,075	6,332,413	12,776,738	12,730,299	11,758,006	10,719,011	10,113,543	9,328,060	9,117,006	0

Table 22.6: Annual Revenue Forecast

	Units	LOM	H2 2023	2024	2025	2026	2027	2028	2029	2030	2031+
Gross Revenues (Based on Payable Metals)											
Silver	$k	988,749	82,607	163,446	163,745	136,004	118,313	123,601	105,024	96,009	0
Gold	$k	42,655	3,438	6,441	6,776	5,919	6,325	5,545	4,065	4,147	0
Zinc	$k	493,634	34,254	72,516	69,495	74,557	70,012	56,425	56,559	59,816	0
Lead	$k	298,214	19,015	38,685	40,052	42,196	41,168	36,927	39,569	40,602	0
Copper	$k	12,362	0	0	617	862	2,053	3,161	3,566	2,104	0
Total Gross Revenues	**$k**	**1,835,614**	**139,313**	**281,088**	**280,683**	**259,538**	**237,871**	**225,659**	**208,784**	**202,678**	**0**
Treatment & Refining Charges, Penalties											
Third Party Smelting and Refining - Zn CCT	$k	-89,812	-6,273	-13,388	-12,752	-13,822	-12,843	-9,966	-9,993	-10,776	0
Third Party Smelting and Refining - Pb CCT	$k	-57,044	-4,258	-8,517	-8,637	-7,948	-7,313	-7,106	-6,731	-6,534	0
Total TC/RC/PP	**$k**	**-146,856**	**-10,531**	**-21,905**	**-21,389**	**-21,770**	**-20,156**	**-17,071**	**-16,723**	**-17,310**	**0**
Other Offsite Costs											
Royalties (k USD)	$k	-3,860	-604	-1,213	-1,067	-938	-37	0	0	0	0
Freight and Handling	$k	-116,420	-7,915	-16,659	-16,251	-17,457	-16,464	-13,399	-13,732	-14,543	0
Total Other Offsite Costs	**$k**	**-120,280**	**-8,520**	**-17,872**	**-17,318**	**-18,394**	**-16,502**	**-13,399**	**-13,732**	**-14,543**	**0**
Net Revenues	**$k**	**1,568,478**	**120,262**	**241,311**	**241,976**	**219,373**	**201,214**	**195,189**	**178,329**	**170,825**	**0**

Table 22.7: Annual Operating and Capital Cost Forecast

	Units	Total / LOM	H2 2023	2024	2025	2026	2027	2028	2029	2030	2031+
Operating Costs											
Mining Costs	$k	-356,745	-25,729	-50,832	-51,075	-49,560	-50,088	-46,328	-43,270	-39,864	0
Plant Costs	$k	-215,286	-14,680	-29,923	-29,360	-30,078	-30,069	-28,205	-27,719	-25,252	0
G&A	$k	-144,642	-10,481	-20,963	-20,963	-20,963	-20,963	-18,866	-16,770	-14,674	0
Total Site Costs	**$k**	**-716,673**	**-50,890**	**-101,717**	**-101,397**	**-100,600**	**-101,120**	**-93,400**	**-87,759**	**-79,790**	**0**
Capital Expenditures											
Mine Development	$k	-91,103	-11,967	-21,059	-22,016	-20,404	-15,053	-604	0	0	0
Infrastructure & Equipment	$k	-69,106	-12,814	-16,826	-17,084	-7,476	-3,542	-9,827	-1,538	0	0
Total Capital Expenditures	**$k**	**-160,209**	**-24,781**	**-37,885**	**-39,099**	**-27,880**	**-18,595**	**-10,431**	**-1,538**	**0**	**0**
Closure Costs											
ARO Liability - Total Cash Expenditures	$k	-14,884	0	0	0	0	0	0	0	0	-14,884
Resources and Income Taxes											
Mining Taxes	$k	-20,551	0	-3,989	-3,359	-2,724	-2,183	-2,180	-2,961	-3,157	0
Income Taxes	$k	-108,665	-5,495	-22,035	-21,807	-18,364	-11,901	-7,745	-10,436	-10,883	0
Total Resources and Income Taxes	**$k**	**-129,216**	**-5,495**	**-26,023**	**-25,165**	**-21,088**	**-14,084**	**-9,925**	**-13,396**	**-14,040**	**0**

Table 22.8: Annual Cash Flow Summary

	Units	Total / LOM	H2 2023	2024	2025	2026	2027	2028	2029	2030	2031+
Pre-Tax Cash Flow	**$k**	**676,712**	44,591	101,709	101,479	90,894	81,499	91,357	89,031	91,035	-14,884
Cumulative Pre-Tax Cash Flow	**$k**		44,591	146,301	247,780	338,674	420,172	511,530	600,561	691,596	676,712
Post-Tax Cash Flow	**$k**	**547,495**	39,096	75,686	76,314	69,806	67,415	81,433	75,635	76,995	-14,884
Cumulative Post-Tax Cash Flow	**$k**		39,096	114,783	191,097	260,902	328,317	409,750	485,385	562,379	547,495
Pre-Tax NPV (5%)	**$k**	**572,406**									
Post Tax NPV (5%)	**$k**	**461,747**									

Table 22.9: LOM Unit Cost Details

Cash Cost and All-In Sustaining Costs (AISC)		
Mining Costs	$k	356,745
Plant Costs	$k	215,286
G&A	$k	144,642
Royalties	$k	3,860
Freight and Handling	$k	116,420
Third Party Smelting and Refining	$k	146,856
Cash Costs	**$k**	**983,809**
Total Capital Expenditures	$k	160,209
AISC	**$k**	**1,144,018**
By-Product Credits		
Zn Payable in Zn CCT	$k	493,634
Pb Payable in Pb CCT	$k	298,214
Cu Payable in Pb CCT	$k	12,362
Au Payable in Pb CCT	$k	42,655
Total By-Product Credits	**$k**	**846,865**
Payable Silver		
Payable Silver in Zn CCT	oz	3,190,094
Payable Silver in Pb CCT	oz	41,753,029
Total Payable Silver	**oz**	**44,943,123**
By-Product Cash Costs		
Cash Costs before By-Product Credits	$/oz Ag Pay.	21.89
By-Product Credits	$/oz Ag Pay.	18.84
By-Product Cash Costs	**$/oz Ag Pay.**	**3.05**
By-Product AISC		
AISC before By-Product Credits	$/oz Ag Pay.	25.45
By-Product Credits	$/oz Ag Pay.	18.84
By-Product AISC	**$/oz Ag Pay.**	**6.61**
Payable Silver Equivalent		
Total Value of Payables - Zn CCT	$k	563,816
Total Value of Payables - Pb CCT	$k	1,271,798
Total Value of Payables	**$k**	**1,835,614**
Ag Price	$/oz	22.00
Payable Silver Equivalent	**oz**	**83,437,002**
Co-Product Cash Costs		
Cash Costs	$k	983,809
Payable Silver Equivalent	oz	83,437,002
Co-Product Cash Costs	**$/oz AgEq Pay.**	**11.79**
Co-Product AISC		
AISC	$k	1,144,018
Payable Silver Equivalent	oz	83,437,002
Co-Product AISC	**$/oz AgEq Pay.**	**13.71**

Please refer to Section 22.3 for additional details on cash costs and AISC, including non-GAAP measures and reconciliations.

The post-tax NPV of the LOM Plan based on the Mineral Reserve is $ 461.7 M at a discount rate of 5.0%. Payback and IRR estimates are not relevant for an operating mine as all previous costs are considered sunk; they are not required to support reserve declaration. Average post-tax annual cash flows through 2030 for the LOM Plan are $75 million. Figure 22.1 shows the annual and cumulative after-tax free cash flow over the life-of-mine and Figure 22.2 shows the silver production with by-product cash costs and all-in sustaining costs (AISC).

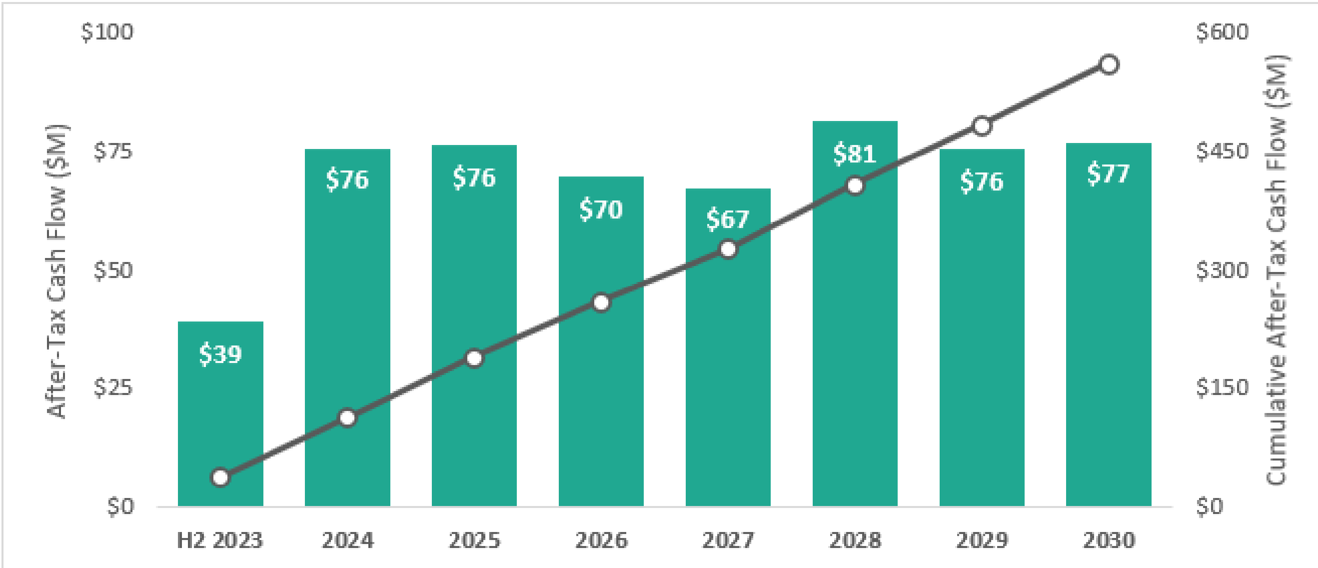


Figure 22.2: Annual and Cumulative After-Tax Free Cash Flow

Grade declines in the later years of the mine life are offset by declining unit costs, resulting in annual after-tax free cash flow ranging from $67 to $81 million per year throughout the life-of-mine.

22.2.1 Sensitivity Analysis

Figure 22.3 illustrates the sensitivity of the post-tax NPV at a discount rate of 5.0% to changes in key inputs to the economic analysis. Positive and negative variations were applied independently to each of the following parameters: silver price, zinc price, lead price, operating costs, and capital costs. The operation is most sensitive to variations in the price of silver followed closely by variations in the overall operating cost of CLG Mine.

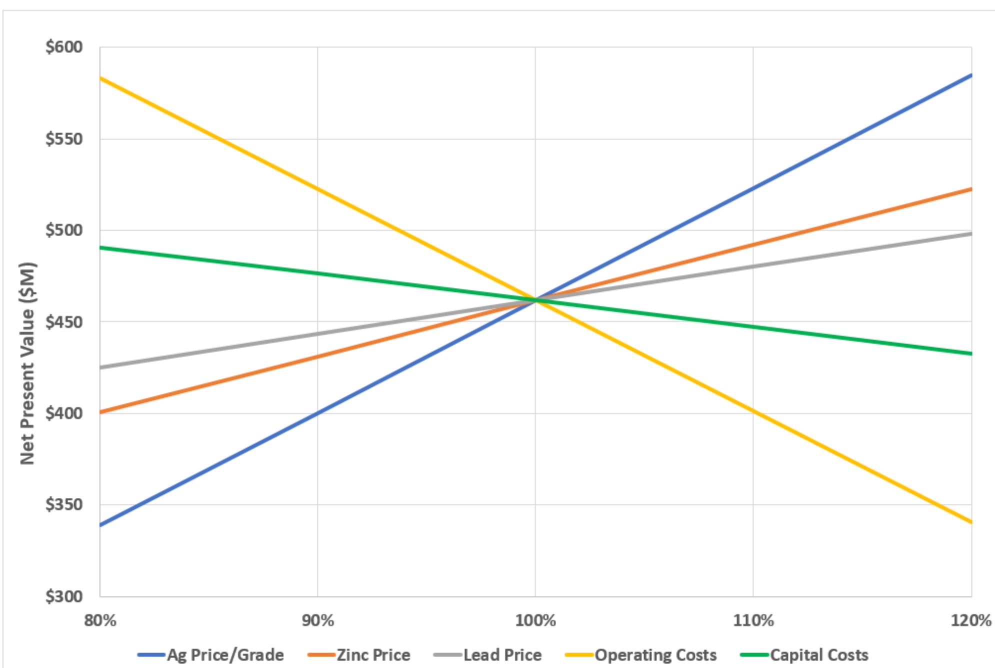


Figure 22.3: Sensitivity of Post-tax NPV at a 5% Discount Rate to Changes in Key Inputs

Table 22.10 shows the sensitivity of CLG mine free cash flow (before and after-tax) on a discounted (5%) and undiscounted basis and demonstrates the robust cash flow generation of the CLG mine over a range of silver prices.

Table 22.10: Sensitivity of Post-tax NPV at a 5% Discount Rate to Changes in Key Inputs

Silver Price		$20.00	$22.00	$23.00	$24.00	$26.00
Total LOM Free Cash Flow (undiscounted)	$M pre-tax	$586.80	**$676.70**	$721.70	$766.60	$856.50
	$M post-tax	$482.80	**$547.50**	$579.80	$612.20	$676.90
Net Present Value[(1)] (5% discount rate)	$M pre-tax	$495.60	**$572.40**	$610.80	$649.20	$726.00
	$M post-tax	$406.00	**$461.70**	$489.60	$517.50	$573.30

22.3 Cash Cost and AISC Reconciliation

22.3.1 Non-GAAP Financial Measures

The Company uses certain measures that are not defined by GAAP to evaluate various aspects of our business. These non-GAAP financial measures are intended to provide additional information only and do not have any standardized meaning prescribed by GAAP and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with GAAP. The measures are not necessarily indicative of operating profit or cash flow from operations as determined under GAAP.

22.3.2 Cash Costs and All-In Sustaining Costs

Cash costs and all-in sustaining costs (“AISC”) are non-GAAP measures. AISC was calculated based on guidance provided by the World Gold Council (“WGC”). WGC is not a regulatory industry organization and does not have the authority to develop accounting standards for disclosure requirements. Other mining companies may calculate AISC differently as a result of differences in underlying accounting principles and policies applied, as well as definitional differences of sustaining versus expansionary (i.e., non-sustaining) capital expenditures based upon each company’s internal policies. Current GAAP measures used in the mining industry, such as cost of sales, do not capture all of the expenditures incurred to discover, develop and sustain production. Therefore, the Company believes that cash costs and AISC are non-GAAP measures that provide additional information to management, investors and analysts that aid in the understanding of the economics of the Company’s operations and performance compared to other producers and provides investors visibility by better defining the total costs associated with production.

Cash costs include all direct and indirect operating cash costs related directly to the physical activities of producing metals, including mining, processing and other plant costs, treatment and refining costs, general and administrative costs, and royalties. AISC includes total production cash costs incurred at the LGJV’s mining operations plus sustaining capital expenditures. The Company believes this measure represents the total sustainable costs of producing silver from current operations and provides additional information of the LGJV’s operational performance and ability to generate cash flows. As the measure seeks to reflect the full cost of silver production from current operations, new project and expansionary capital at current operations are not included. Certain cash expenditures such as new project spending, tax payments, dividends, and financing costs are not included.

22.3.3 Reconciliation of GAAP to Non-GAAP Measures

Table 22.11 presents a reconciliation between the most comparable GAAP measure of the LGJV's expenses to the non-GAAP measures of (i) cash costs, (ii) cash costs, net of by-product credits, (iii) co-product AISC and (iv) by-product AISC for the Company's operations. The Company is unable to provide without unreasonable efforts a reconciliation of forward-looking AISC and related measures on a per-year basis to cost of sales due to the inherent difficulty in forecasting and quantifying certain amounts, some of which may be material, that are necessary for such reconciliation.

Table 22.11: Reconciliation of Cash Costs and AISC to Cost of Sales (as defined under US GAAP)

Cash Costs and All-in Sustaining Costs	Units	2023 LOM
Mining Costs	$M	$356.70
Milling Costs	$M	$215.30
Transportation Costs	$M	$116.40
Cost of Sales	**$M**	**$688.50**
Royalties	$M	$3.90
General and Administrative	$M	$144.60
Expenses	**$M**	**$837.00**
Treatment and Refining	$M	$146.90
Cash Costs	**$M**	**$983.80**
Sustaining Capital	$M	$160.20
All-in Sustaining Costs (AISC)(1)(2)	**$M**	**$1,144.00**
By-product Credits(3)	$M	($846.90)
Payable Silver	$M	44.9
Cash Costs before By-Product Credits	**$/oz Ag Payable**	**$21.89**
AISC before By-Product Credits	**$/oz Ag Payable**	**$25.45**
By-product Credits(3)	$/oz Ag Payable	($18.84)
By-product Cash Cost	**$/oz Ag Payable**	**$3.05**
By-product AISC	**$/oz Ag Payable**	**$6.61**
Payable Silver Equivalent(3)(4)	Moz	83.4
Co-product Cash Cost	**$/oz AgEq Payable**	**$11.79**
Co-product AISC	**$/oz AgEq Payable**	**$13.71**

Notes:

1. Excludes LGJV management fee and administration costs of approximately $6 million per year, equivalent to $1.09 / oz Ag payable and $0.59 / oz AgEq payable, respectively in the LOM Plan.
2. Excludes any exploration costs related to future resource expansion and conversion to reserves.
3. Assumes prices of $22.00/oz silver, $1.20/lb zinc, and $0.90/lb lead, $1,700/oz gold and $3.50/lb copper.
4. Payable silver equivalent ounces include copper aligned to current payable terms for copper in lead concentrate.

23.0 ADJACENT PROPERTIES

There are no properties adjacent to the land holdings of MPR.

24.0 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data pertaining to the Mineral Reserves of CLG Mine.

25.0 INTERPRETATION AND CONCLUSIONS

25.1 Mineral Resources

Throughout the exploration, development, and mining of the deposit there has been acquired a sound knowledge and understanding of the geological controls on the mineralization, which are adequately expressed in the Resource Model.

The deposit has logging data from subsurface workings and surface and underground drilling that has been adequately reviewed and validated which allows it to be used with sufficient confidence in the construction of a long-term resource model.

A new geological model has been constructed of the deposit that integrates the different sources of information through an implicit 3D model. Based on this geological model an estimation of the main grades of the deposit has been performed using OK interpolators. The results have been validated in detail by visual and statistical review and against existing production data.

The Mineral Resource categorization uses methodologies and assumptions that allow for adequate consideration of uncertainty and risk.

The Mineral Resources reported in this TR are reported above a NSR cut-off value, supported by studies and considering the RPEE by optimizing stopes using assumptions and reliable data.

It is the opinion of the QP that the Mineral Resources presented herein are appropriate for public disclosure and comply with the definitions of Mineral Resources as established by S-K 1300 and CIM Definition Standards for Mineral Resources and Mineral Reserves (2014).

The Mineral Resource estimate and classification of resources are reported in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves (2014).

The estimate of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors change from those currently assumed at Los Gatos. Estimates of Inferred Mineral Resources have significant geological uncertainty, and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to the Measured or Indicated categories. Mineral Resources reported in the TR are stated exclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves have not met the threshold for reserve modifying factors, such as estimated economic viability, that would allow for conversion to Mineral Reserves. The Resource estimate is consistent with CIM Guidelines and Definition Standards for Mineral Resources and Mineral Reserves (CIM 2014).

25.2 Mineral Reserves and Mining Methods

Mineral Reserves have been developed from the estimate of Mineral Resources after consideration for mine design and modifying factors as described in Section 13 and summarized below:

- The data verification procedures used at CLG comply with industry standards and are adequate for the purposes of Mineral Reserve estimation.
- The Technical Services Department at CLG prepared the mine design, mine plan, and Mineral Reserve estimate under the supervision of the QP responsible for the estimate.
- The long-term metal prices and exchange rate used to estimate the Mineral Reserve are reasonable.

- The estimation of NSR cut-off values by CLG is consistent with the approach used in its 2022 Mineral Reserve estimate.
- The CLG Mineral Reserve was prepared in accordance with:
  - The Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2003)
  - CIM Definition Standards for Mineral Resources and Mineral Reserves
  - Disclosure requirements for mineral reserves set out in NI 43-101, including sections 2.2, 2.3, and 3.4
  - Property disclosure requirements for mining registrants S-K 1300
- The Mineral Reserve was prepared in accordance with SEC sub-part § 229.1302(e)(2) (Item 1302(e)(2) of Regulation S–K and the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2003) and complies with CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) and disclosure requirements for mineral reserves set out in Canadian National Instrument, 43-101, including sections 2.2, 2.3, and 3.4.
- No indications of mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate were noted during the preparation of this report.
- CLG has implemented adequate measures and provided appropriate equipment and infrastructure to manage ground conditions, groundwater inflows, temperatures in the underground work environment, and high compressive induced stresses in the lower portions of the SE deposit. The challenges with dewatering, temperature control and induced stresses are expected to increase as the mine deepens.
- CLG's dewatering strategy is an effective approach to groundwater management and controlling inflows to the mine.
- CLG employs appropriate mining methods for the zones and mining conditions where they are applied. During his visit to the site, the QP had the opportunity to visit active CAF and LHS stopes.
- The underground infrastructure, mine services, and fixed equipment are appropriate for the scale of the underground operation. During the site visit, the QP observed that these installations were of high quality, in working order and functioning normally. CLG has constructed or installed most of the required infrastructure to support operations to the end of the mine life.
- The number of units in the equipment fleet and the types, makes, and models are appropriate for the production rate, mining methods and development requirements at CLG. The QP reviewed the underground equipment fleet and observed many of the machines in operation.
- The personnel organization at CLG is appropriate for the scale of the underground mining operation.

25.3 Mineral Processing

QP interpretations of the function of the processing plant include:

- The 2022 and 2023 period experienced slightly lower lead recoveries, thought to be due to the lower lead head grades of the mill feed. The projected feed grades in the future are expected to rise again, facilitating higher recoveries.
- The future silver head grades are expected to be lower than the historical production grades, particularly in 2028 through 2030. While neither the plant nor variability data currently show a strong grade-recovery relationship, this should continue to be evaluated for possible risks in the later years of the mine life.
- The "zinc oxide" risk that was identified in 2022 has now been diagnosed as hemimorphite by mineralogy. The geological controls for the origin of the hemimorphite, and its spatial distribution in the deposit have not advanced. There is sufficient evidence through laboratory variability flotation testing that the future production will not be materially different from the past production in terms of hemimorphite content over the long term.

25.4 Infrastructure

The mine dewatering system has achieved steady state status – that is, adequate drainage, wells and pumping installations have been installed to draw down the water table around active mining horizons. CLG has made plans and budgeted for additional underground wells to enable the continued removal of groundwaters as the mine is deepened to the SE.

The underground ventilation system requires expansion as the mine activity gravitates to the SE Zone and to depth. Plans, schedules, and budgets are in place to establish adequate air flow to the future mine development areas.

The TSF is a mature structure operating under steady-state conditions and monitored by permanent stations installed throughout the TSF dam structure. As compared to the 2022 Report, the volume of material to be stored in the TSF has been revised to reflect the reduction of tails to be impounded with the advent of the paste backfill plant and with the addition of mineral reserves. There are two more lifts scheduled for the dam to complete its construction for acceptance of the LOM tailings volumes. The TSF is managed by an independent Engineer of Record, Tierra Group International, Ltd., which conforms with Mexican and other industry accepted guidelines such as the International Committee on Large Dams and the Canadian Dam Association.

25.5 Environmental and Social

The following observations and conclusions have been developed based on the site visit and inquiries made by the environmental and permitting QP and review of available information.

- No material issues were noted.
- The Company has all material permits for the current operations. The company is waiting on final resolution documents for three permits: the modification of the environmental permit that added the fluorine leach plant to the metallurgical process (the Company considers that this permit has been presumptively granted under Mexican law); a permit for land occupied by the tailings facility (permitting fees have been established with the regulator and have been paid); and a permit regarding the use of treated water from the personnel camp sewage treatment facilities.

- The environmental agency (SEMARNAT) has not issued any violations to Los Gatos Mine; It is noted that practices could be improved at site to better align with industry standards.
- The new fluorine leach plant will not produce a new waste stream.
- The groundwater system, in particular the occurrence and quality of perched groundwater, is not well understood. The groundwater monitoring program does not meet industry standards for the monitor well number, placement, design or sampling methods.
- The closure plan presents a five-year post-closure period, which is the timeframe in the authorized environmental impact assessment. This period meets Mexican standards but does not meet industry practice which can be 20 or more years.
- Mine closure planning is at a preliminary stage and the closure costs could increase as closure planning advances. The addition of the fluorine leach plant is not anticipated to have an impact on the current closure cost estimate.

The following conclusions are drawn regarding community and social aspects:

- Cerro Los Gatos Mine is an operation located in the municipality of Satevó in the state of Chihuahua. The presence of the mine has contributed to a decrease in migration of community members, and a demographic increase in the communities of the area of influence. The generation of direct and indirect employment has been the main reason for the return of the inhabitants.
- The presence of a community relations facility in the town of San José del Sitio since the exploration work commenced has allowed a continued relationship with the stakeholders of the area of influence, generating various collaboration agreements and community co-investment.
- The indicators of the socioeconomic baseline (2018) were updated in 2021. The information obtained was used for the design of the Community Relations Plan, integrating the gender and human rights perspective in the analysis of the social impacts derived from the operation.
- The ejidos and the unions are the interest groups with the greatest relevance to the operation, since there are agreements for the right of way, as well as transport services and machinery used in the operations. Periodic meetings for the follow-up of agreements between the parties are held in the Agrarian Prosecutor's Office, giving greater credibility and legality to the fulfillment of agreements between the parties.
- One of the main mechanisms for disseminating social and environmental actions is the quarterly bulletin of Cerro Los Gatos Mine, which is distributed in the communities of the area of influence, and among employees.
- One of the projects the LGJV has recently completed was the construction of a lined landfill that will be used jointly by the mine and the local community for solid waste disposal.
- The main form of receiving complaints or requests is verbal, however, not all requests are recorded. The effects of the transport of materials and the contracting process are the main reasons for complaints.
- The Community Relations Plan has a portfolio of social programs aligned with human rights and the UN SDGs. Each program has compliance indicators yet could be improved with social impact indicators.
- Mina Cerro Los Gatos has formalized its commitment to sustainability and social responsibility issues through adherence to the United Nations Global Compact as a member and, at the national level, it has been

awarded with the Socially Responsible Company Distinction granted by the Mexican Center for Philanthropy (CEMEFI) for three consecutive years.

25.6 Costs and Economic Analysis

The cash flow model for the CLG Mine has been updated to include depletion of mineral reserves to July 2023, the addition of mineral reserves from the successful exploration program and the higher throughput rate of the processing plant, demonstrated to be at a steady state of 2,910 tpd, 16% above the design throughput rate. The LOM Plan has been developed to consume 8.08 Mt of Mineral Reserves over 7.5 years at an average throughput rate of 1.08 Mt per year to the end of 2030, a 2.75-year extension compared to the 2022 Report.

From H2 2023 to the end of mine life, CLG Mine will produce 49.7 Moz silver, 484.0 Mlbs zinc, 351.1 Mlbs lead, 11.8 Mlbs copper and 34,700 ounces gold. Metal price estimations are based on consensus analyst forecasts with consideration for market developments and the support of trailing averages: silver $22.00/oz, zinc $1.20/lb, lead $0.90/lb, copper $3.50/lb and gold $1,700/oz. An average exchange rate of 20 Mexican Pesos to the US Dollar has been maintained for the LOM.

The operation is at steady state with predictable costs for operations and sustaining capital. Mining costs are trending lower with the higher proportion of LHS vs CAF mining method and are expected to average $44.14/tonne ROM. Processing costs have increased slightly with the commissioning of the fluorine removal circuit, now estimated at $26.64/tonne. General and Administrative costs will be $17.90/tonne processed, a marginal increase over 2022 estimates. Total operating costs are estimated at $88.67/tonne, -1% versus the 2022 Report.

Capital spending is planned to sustain the operation. Underground mine development will require $91.1 million of investment and an additional $69.1 million will be invested in equipment and infrastructure. Sustaining capital investments have been scheduled in the cash flow model.

Revenue has been estimated by calculating payable volumes of each metal, less royalties, transportation costs, treatment and refining costs. Revenue is expressed in terms of Net Smelting Return, the average LOM value of which is $194.06/tonne processed, after royalty, generating an operating margin of 54%. LOM Net Revenue is expected to be $1,568.5 million net of the La Cuesta Royalty payment.

The GSI cash flow model indicates an average annual pre-tax cash flow of $92.2 million for a LOM total of $676.7 million and a discounted NPV_5 of $572.4 million. Post-tax average annual cash flow will be $75.0 million for a LOM total of $547.5 million generating a discounted NPV_5 of $461.7 million.

The QP has reviewed the price and cost assumptions, contracts and cash flow model in detail and is satisfied that the estimates of operating revenues and costs are within expectations.

26.0 RECOMMENDATIONS

Recommendations of Qualified Persons have been presented to Gatos Silver and, where deemed beneficial, the

Recommendations of Qualified Persons have been presented to Gatos Silver and, where deemed beneficial, the costs of implementing the recommendations will be worked into operational budgets.

26.1 Mineral Resources

The following recommendations are made by the Geology QP:

- Continue with the surface and underground drilling campaigns to improve the Mineral Resource categorization (infill drilling) and increase Mineral Resources (step-out drilling).
- Further investigation on the impacts of alternative grade interpolation methods (ie surface normal, dynamic anisotrophy).
- Consider further interpretive controls on the Leapfrog lithological domain modelling to improve geological reasonableness of the domain modelling.
- Exploration drilling is recommended for the Esther deposit towards graduation of Mineral Resources to classifications of higher confidence.

26.2 Mineral Reserves and Mining Methods

The following recommendations are made by the QP for Mineral Reserves and Mining Methods:

- For future Mineral Reserve estimates, investigate whether closure costs and sustaining capital expenditures for the mine and processing plant could be relevant costs for determining the NSR cut-off values.
- Continue analyzing modifying factors for future Mineral Reserve estimates to ensure they adequately reflect actual operating results. Verify the estimated variations in LHS dilution whereby ELOS increases with vein width and FW ELOS increases with shallower dips.
- In-situ stress tests are recommended to investigate the magnitude and orientation of in-situ principal stresses.
- Since ground support will be used, the maximum recommended span will be the Stable limit of 9 m for an RMR of 60, bearing in mind that encountering rock of a lower RMR may result in ground problems, and ground support requirements may have to be increased.
- Considering the maximum span of 9 m with an ESR of three and Q varying from 0.4 to 10, Figure 16.4 (Ground Support Design Graph, based on Rock Mass Quality, Q) recommends the support Class 1 to Class 3. Class 1 consists of no ground support or just spot bolting, while Class 3 includes systematic bolting with five to six cm of fiber-reinforced shotcrete. Due to the temporary nature of the cut-and-fill openings, welded wire mesh is recommended instead of shotcrete.
- Table 16.4 (Ground Support Specification for Temporary 5 m x 5.5 m Excavation) provides the reference for the ground support for the top drill drift, assuming 5 m span with an ESR of 1.6 to consider vibration and CS-3 fair rock mass quality (Q in the range of 0.6 to 6). Given the uncertainties with respect to the behavior of the ore, the rock mass deterioration due to blasting, and the mine-induced stress change, systematic bolting has been recommended and is used. The drill drifts are relatively temporary, so welded wire mesh is the recommended support, rather than shotcrete.

- Update the original regional numerical groundwater flow model or replace it with a new one to simulate the mine-scale water balance. A regional numerical groundwater flow model was developed for the site in 2016 and updated in 2019. CLG plans to update the model in H1 2024. Incorporating the knowledge, understanding, and experience gained over the past several years contending with the groundwater into a new or updated model should enhance its predictive capability. An updated or new model should provide insight into the infrastructure and flow rates required to draw down the groundwater in the NW and the concurrent dewatering of the CZ and SE.
- Try backfilling the primary drifts of CAF stopes with PF, as jamming CRF can be an inefficient operation in the mining cycle. The QP is familiar with mines that use exclusively PF with drift-and-fill.
- Consider establishing the internal escapeways using the Safescape Laddertube system (or similar), as these tubular manways can be quickly installed in 1.2-m-diameter boreholes.
- Determine whether additional portable refuge chambers are needed on a provisional basis until the internal escapeway system can be developed.
- Assess whether a second escapeway connecting to surface is advisable for the SE, considering the distance of the zone from Escapeway Raise #1.
- Ensure that the designs of the planned internal escapeways comply with Mexican mining legislation regarding ladderways and manways (Articles 8.3.1-s and 17.3 pages 59 & 60/122 NORMA Oficial Mexicana NOM-023-STPS-2012).

26.3 Mineral Processing

The following recommendations are made by the Mineral Processing QP:

- Continue with geometallurgical modelling of the Mineral Resource to reduce risks to plant throughput, metal recovery and concentrate quality predictions.
- Continue the pyrite leaching study to determine the technical and economic feasibility of increasing gold and silver recovery in the plant.
- Continue testwork and evaluations for the separation of copper into copper concentrate.
- The SE Zone, now representing approximately 31% of the overall reserve tonnage, has yet to be processed through the plant. While metallurgical testing of the SE Zone has occurred over the last year, it is recommended to continue this testwork to increase confidence in metallurgical characteristics before the material is fed to the concentrator. If results are inadequate, then adjustments to the process technology or performance predictions may be required.
- Based on the results of global lead recovery, it is observed that zone mapping exhibits high variability in the SE region. Therefore, it is recommended to assess the association of recovery with other geological events or parameters in the deposit.
- The presence of pyrite in the heads of the samples could allow CLG to study, through metallurgical flotation tests, the recovery of pyrite from the bulk Cu/Pb concentrates, with the aim of obtaining a cleaner concentrate.

26.4 Infrastructure

The following recommendations are made by the Infrastructure QP.

26.4.1 Underground Backfill

Pertaining to the paste fill plant:

- Cure CRF and paste test samples underground to mimic actual "as placed" conditions as recommended in the Minefill (2019) report.

26.4.2 Dewatering

The QP recommends that a documented dewatering plan be developed by the operator that:

- Describes the conceptual hydrogeologic model
- Summarizes groundwater conditions and dewatering progress to date
- Establishes dewatering pumping rate and drawdown performance targets
- Defines dewatering well and monitoring well or piezometer installation plans for:
  - The following year in detail
  - Longer term (2-3 years) in overview
- Reviews dewatering system performance and revises the dewatering plan as needed

CLG is advancing work on several components of the dewatering plan to enable improved dewatering and water management in the operations and have included $14.9 million for capital projects relating to mine dewatering within the LOM Plan, including the installation of additional wells, sumps and pumping infrastructure.

26.4.3 Tailings Storage

Tierra Group makes the following recommendations:

- Develop a closure plan based on current LOM;
- Develop a detailed deposition plan to support closure strategy;
- Continue quarterly bathymetric surveys to validate and update deposition plan and water balance;
- Monitor tailings tonnage sent to paste plant to confirm assumptions used in the design;
- Additional vibrating wire piezometers, inclinometers, and survey prisms are recommended for future expansions;
- Maintain a current tailings water and mass balance based bathymetric surveys and operational data to support TSF construction schedules; and
- Continue monitoring and inspections activities in accordance with the OMS manual.

26.5 Environmental and Social

Based on the observations and conclusions, the Environmental and Social QP makes the following recommendations:

- Although the environmental agency (SEMARNAT) has not issued any violations to Los Gatos Mine, there are opportunities for improvement to better align with industry practices.
- A written environmental monitoring plan should be developed that includes a description of all media monitoring requirements based on Company and regulatory agency requirements, sampling procedures, protocol for the management of results and interpretation, action levels, corrective action plan and documentation procedures.
- Changes in the mine plan since the 2018 feasibility study trigger a need for evaluation of the potential changes in the geochemical characteristics of the mining wastes. Any new development areas and representative samples from those areas should be considered. The kinetic testing program should consider longer-term tests to ensure that results have stabilized and provide a high level of confidence for the prediction of long-term environmental conditions.
- Paste tailings and CRF should be characterized using static and kinetic geochemistry testing. The waste rock should also be subject to kinetic testing to evaluate the long-term environmental impacts.
- Incorporate surface water sampling at the surface waste rock storage facility and during storm events at ephemeral streams.
- Management of waste rock utilization from stockpiles on the the surface waste rock storage facility should be characterized and only used where permitted to ensure that problematic lithologies are properly managed to prevent long-term environmental impacts. Assuming that the facility may remain after closurean understanding of the geotechnical properties of the waste rock, and the erosion potential based on slope lengths and slope angles, is necessary.
- The existing conceptual closure plan is recommended to be updated and follow accepted industry standards.
- Closure designs were based on 100-year storm water probability events. It is recommended that climate change be considered, as well as an analysis of the storm water events to determine whether a 100-year, 24-hour storm water event is practical for long-term stability.
- Additional technical studies to support the closure designs should be carried out. The closure costs should be updated to reflect changes in the mine plan and provide more details as closure planning advances.
- Establish periods for updating the main socioeconomic indicators related to the social impacts of the operation on the communities in the area of influence.
- Integrate oral requests as part of the grievance mechanism. Reasonable response times, as well as the registration and continuous monitoring of complaints or requests, are necessary for the proper functioning of the mechanism.
- Maintain spaces for dialogue between the parties at the Agrarian Prosecutor's Office.

Generate indicators for monitoring and evaluating social programs that allow identification of the level of social impact on community life, as well as decision-making in social investment.

27.0 REFERENCES

Geology and Mineral Resources

Aguirre-Díaz, G. J., McDowell, F. W., 1991, The volcanic section at Nazas, Durango, Mexico, and the possibility of widespread Eocene volcanism within the Sierra Madre Occidental: Journal of Geophysical Research, 96, 13373-13388.

Atwater, T., Stock, J. M., 1998, Pacific-North America plate tectonics of the Neogene southwestern United States: an update: International Geology Review, 40, 375-402

Buchanan, L. J., 1981, Precious metal deposits associated with volcanic environments in the Southwest: Arizona Geological Society Digest, v. 14, 237- 262.

Campa, M. F., Coney, P. J., 1983, Tectono-stratigraphic terranes and mineral resource distribution in Mexico: Canadian Journal of Earth Sciences 20, 1040–1051.

Ferrari L, Valencia-Moreno M, Bryan SE, 2007. Magmatism and tectonics of the Sierra Madre Occidental and their relation to the evolution of the western margin of North America, Geological Society of America, Special Papers, v. 442 (1-39)

McDowell, F. W., Clabaugh, S. E., 1979, Ignimbrites of the Sierra Madre Occidental and their relation to the tectonic history of western Mexico: Geological Society of America Special Paper, 180, 113- 124.

Pratt, W., Paulsen, H., 2013, Structural Studies at Los Gatos Chihuahua, México, Minera del Plata Real.

Telluris, 2010. Structural review of the Etna, Gatos and Zaragoza districts, Chihuahua, Mexico. Unpublished report for Minera Plata Real S de RL de CV.

Mineral Reserves, Geotechnical and Mining

Carter, T.G., 1992. A New Approach to Surface Crown Pillar Design. Proc. 16th Can. Rock Mechanics Symposium, Sudbury, pp. 75-83.

Carter, T.G., Cottrell, B.E., Carvalho, J.L. and Steed, C.M., 2008. Logistic Regression improvements to the Scaled Span Method for dimensioning Surface Crown Pillars over civil or mining opening. 42nd US Rock Mechanics Symposium and 2nd US Canada Rock Mechanics Symposium, Sao Francisco, paper ARM 08-282.

Carter, T.G., 2014. Guidelines for use of the Scaled Span Method for Surface Crown Pillar Stability Assessment. Int. Conference on Applied Empirical Design Methods in Mining held in Peru.

Castro, L. A. M., 2022. Crown pillar stability assessment for the Los Gatos mine. Internal report submitted to CLG in September 2022.

Piggott, R.J. and P. Eynon, 1978. Ground movement arising from the presence of shallow abandoned mine workings. In Large ground movements and structures. J.D. Geddes (ed.) 749-80. London. Pentech.

Q451-02-010 Los Gatos Design Criteria

Infrastructure

Minefill Services Inc. (Minefill), "Los Gatos Cemented Rockfill Audit Report". Project No.: SSM-03. November 5, 2019.

Minera Plata Real (MPR), "Resumen CRF Produccion". Ensaye 8642 A 8664, 17 de abril de 2022 – 22 de mayo de 2022.

Minera Cerro Los Gatos (Gatos), "2022 Resource and Reserve Mine Engineering Kickoff". April 2, 2022.

Minefill Services Inc. (Minefill, 2021a), "Cerro Los Gatos Laboratory Report and Mix Design". Report No.: 21013-RPT-0003-rA. November 12, 2021.

Tetra Tech, "Los Gatos Project Chihuahua, Mexico". Project No.: 117-8302008. July 1, 2020.

Tailings Storage

Canadian Dam Association (CDA), 2014. *Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams*. Edmonton, Alberta, Canada.

CONAGUA, 2011. Manual para el control de inundaciones, Febrero 2011.

Federal Emergency Management Agency (FEMA), 2005. *Federal Guidelines for Dam Safety – Earthquake Analysis and Design of Dams*. U.S. Department of Homeland Security, May 2005.

International Committee on Large Dams (ICOLD), 1995. *Tailings Dams and Seismicity – Review and Recommendations*, Bulletin 98. Paris, France.

International Committee on Large Dams (ICOLD), 1996a. *Tailings Dams and Environment – Review and Recommendations*. Bulletin 103. Paris, France.

International Committee on Large Dams (ICOLD), 1996b. *A Guide to Tailings Dams and Impoundments*. Bulletin 106. Paris, France.

International Committee on Large Dams (ICOLD), 2005.

International Finance Corporation (IFC), 2007. *Environmental, Health, and Safety Guidelines for Mining*. Technical reference document, 10 December 2007.

SEMARNAT, 2003. NOM-141-SEMARNAT-2003.

Tetra Tech, 2017. NI 43-101 Feasibility Study of the Cerro Los Gatos Silver-Zinc-Lead Deposit Technical Report. Los Gatos Project – Chihuahua, Mexico. Volume 05: Tailings Storage Facility, Appendix C.

Tierra Group International, Ltd., 2018a. Evaluacion de Sismicidad y Parametros de Diseno Sísmico, Memorando Tecnico, Enero 2018.

Tierra Group International, Ltd., 2018b. Reporte de Investigación Geotécnica Depósito de Jales Minas Los Gatos, Preparado para Minera Plata Real, Enero 2018.

Wieland, Martin, 2005. Review of Seismic Design Criteria of Large Concrete and Embankment Dams." Presented at the 73rd Annual Meeting of ICOLD, Tehran, Iran, May 1-6, Paper No. 012-W4.

Environmental

Comisión Nacional del Agua, 2020a, Actualización de la disponibilidad media anual de agua en el acuífero Alto Rio San Pedro (0838) estado de Chihuahua, December, 29 p.

Comisión Nacional del Agua, 2020b, Actualización de la disponibilidad media anual de agua en el acuífero San Felipe de Jesus (0845) estado de Chihuahua, December, 13 p.

Minera Plata Real, 2017, NI 43-101 Technical Report Feasibility Study of the Cerro Los Gatos Silver-Zinc-Lead Deposit, Los Gatos Project – Chihuahua, Mexico, Volume 8: Environmental and Permitting: Document prepared by Tetra Tech, Document 114-910117-REP-R0008-00, January 6, 1191 p.

Tetra Tech, 2018, Actualizacion del plan de cierre y restauración ambiental Minera Plata Real, Proyecto Los Gatos – estado de Chihuahua: Report prepared for Minera Plata Real, March 15, 85 p.

Tetra Tech, 2019, NI 43-101 Technical Report, Cerro Los Gatos Deposit Feasibility Study, December, 366 p.

Social

Aluna Sustainability. (2021). Actualización de Línea Base Socioeconómica del área de influencia de Gatos Silver Inc. Chihuahua, México.

Aluna Sustainability. (2021). Fundamnetos de nuestro plan de gestión social a corto, mediano y largo plazo. MINERA PLATA REAL , Chihuahua.

Aluna Sustainability. (2021). Modelo de Relaciones Comunitarias. Chihuahua.

Aluna Sustainability. (2021). Plan de Gestión Social . Minera Plata Real, Chihuahua.

Aluna Sustainability. (2022). Proceso del Sistema de PQRs- Mecanismo de Quejas (Preguntas, Quejas y Reclamos). Chihuahua.

Asesores en Impacto Ambiental y Seguridad, S.C. (2016). Diagnóstico socioeconómico de la Localidad de San José del Sitio. San José del Sitio, Satevó, Chihuahua.

ASI S.C. Asesores en Impacto Ambiental y Seguridad S.C. (2016). MIA-R Minera Plata Real S. de R.L. de C.V. Proyecto de Explotació Minera "Los Gatos". Satevó, Chihuahua, México.

ASI S.C. Asesores en Impacto Ambiental y Seguridad, S.C. (2016). Programa de Manejo Ambiental, Minera Plata Real S. de R.L de C.V. Proyecto de Explotación Minera "Los Gatos", Satevó, Chihuahua.

Instituto Nacional de Estadística y Geografía (INEGI). (2020). *Censo de Población y Vivienda 2020. ITER Chihuahua.* México.

Minera Plata Real. (Octubre de 2021). PUNTO DE ENCUENTRO. *Boletín trimestral de Minera Plata Real- Mina Cerro Los Gatos, 1, Año 1, Número 0*. (M. P. Real, Ed.) Mina Cerro Los Gatos, Chihuahua, México.

Minera Plata Real. (2022). Presentación Ejecutiva Gestión de Relaciones Comunitarias. Cerro Los Gatos Mine, Chihuahua, México.

Minera Plata Real. (Marzo de 2022). Revista Cerro Los Gatos. *Publicación Trimestral de Minera Plata Real, 1. Año 1, Número 1*. (M. P. Real, Ed.) Mina Cerro Los Gatos, Chihuahua, México.

Minera Plata Real, S. de R.L. de C.V. (2021). Política de Derechos Humanos y Mecanismo de Quejas. Cerro Los Gatos Mine.

Sincronía. (Marzo de 2018). Estudio de línea base social. Caracterización de comunidades del área de influencia del proyecto "Los Gatos" de Minera Plata Real. Chihuahua.

United Nations Global Compact. (2022). *Company information*. Obtenido de https://unglobalcompact.org/what-is-gc/participants/133920