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Morelos Property

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ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study

Guerrero State, Mexico

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DATE AND SIGNATURES PAGE

The effective date of this report is March 16, 2022. The issue date of this report is March 31, 2022. See Appendix A: ELG Mine Complex Life of Mine and Media Luna Feasibility Study Contributors and Professional Qualifications, for certificates of qualified persons prepared in accordance with Section 8.1 of NI 43-101. These certificates are considered the date and signature of this report in accordance with Form 43-101F1

MORELOS PROPERTY
FORM 43-101F1 TECHNICAL REPORT

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LIST OF APPENDICES

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A	ELG Mine Complex Life of Mine and Media Luna Feasibility Study Contributors and Professional Qualifications • Certificate of Qualified Person ("QP")

1 EXECUTIVE SUMMARY

1.1 OVERVIEW – EL LIMÓN GUAJES MINE COMPLEX AND MEDIA LUNA PROJECT INTRODUCTION

This technical report (the Technical Report) provides a life of mine plan for the El Limón Guajes Mine Complex (ELG Mine Complex) and Feasibility Study (FS) for the Media Luna Project (ML Project). The ELG Mine Complex and the Media Luna Project are collectively known as the Morelos Complex.

Torex Gold Resources Inc. (Torex) wholly-owns the Morelos Property, a group of seven mineral concessions, covering approximately 29,000 ha, including the Reducción Morelos Norte Concession (26,000 ha) which hosts four deposits, El Limón (which includes El Limón Sur), Guajes (together, referred to as the ELG OP), Sub-Sill and ELD (together, referred to as the ELG UG) and Media Luna (ML), each of which has a Mineral Resource estimate and a Mineral Reserve estimate prepared in accordance with National Instrument 43-101 (NI 43-101). The mineral concessions have been granted for a term of 50 years (Reducción Morelos Norte to 2055). The Morelos Property is wholly owned by Torex through its Mexican subsidiary, Minera Media Luna, S.A. de C.V. (MML). The Morelos Property is in the Mexican State of Guerrero, approximately 180 kilometers southwest of Mexico City, 60 km southwest of Iguala and 35 km northwest of Mezcala. The closest village, Nuevo Balsas, is a small agricultural-based community with a population of approximately 1,700. The Morelos Property is in the Guerrero Gold Belt and the entire 29,000 ha is considered to have significant exploration potential. For the purposes of this Technical Report, the names MML and Torex, and together the Company, are used interchangeably.

The vast majority of the land in the Reducción Morelos Norte concession is owned by Ejidos. Land owned by an Ejido is collectively administered and is held by its members as either common land, which is jointly owned by the members, or as parcels, which are held by individual members.

MML has surface rights to all land required for the operation of the ELG Mine Complex through long-term lease agreements with the Rio Balsas Ejido, the Real del Limón Ejido, Ejido members with ownership of individual parcels, and individuals who own private lands. MML has also secured surface rights to land for the direct development of the ML Project through the signing of long-term lease agreements with the Puente Sur Balsas Ejido and its members with ownership of the individual parcels which cover current exploration and development activities and can be converted to mining of the ML deposit. In addition, MML has long-term lease agreements for camp and water well access with the Atzcala Ejido, and its members with ownership of individual parcels.

In 1995, the former Morelos Mineral Reserve, created in 1983, was divided into a northern and southern portion, and these portions were allocated to mining companies through a lottery system. MML, at that time a joint venture vehicle between Miranda Mining Development Corporation (MMC which was subsequently acquired by Goldcorp Inc.) and Teck Resources Limited (Teck), submitted the winning bid for the Morelos Norte license in mid-1998. Initial work completed by Teck from 1998 to 2008, comprised of initial regional exploration programs, identified El Limón and Guajes deposits in 1999 and completed about 100,000 m of drilling. Torex acquired full control of these deposits through the acquisition of MML. By agreement dated August 6, 2009, Torex acquired 78.8% of MML from Teck and the remaining 21.2% interest in MML was purchased from Goldcorp on February 24, 2010.

There are no significant factors or risks known to Torex that might affect access or title, or the right or ability to perform work on the Morelos Property. However, in the past, MML has experienced illegal blockades from time to time as the local communities adjusted to being part of a large industrial-based economy. The last such blockade concluded in 2018.

Torex has been operating the ELG Mine Complex since 2016, which includes three independent open pits (the ELG OP referred to above) to extract ore from the skarn hosted gold-silver Guajes and El Limón deposits along with an underground mine (ELG UG). The open pits and underground mine feed a centrally located cyanide leach / carbon-in-pulp process plant (CIP), with filtered tailings deposited just to the west of the ELG Process Plant. The ELG Process

Plant has a design throughput rate of 14,000 tonnes per day (t/d). The plan contemplates the current Mineral Reserves being depleted in 2024. As at year end 2021, the ELG Mine Complex has produced and sold more than 2.2 million ounces (Moz) of gold from 24.4 million tonnes (Mt) of ore. There is a 2.5% royalty payable to the Mexican government on minerals produced and sold from the Reducción Morelos Norte Concession.

While operating the ELG Mine Complex, Torex has carried out work on the ML deposit to support the Mineral Reserve for the development of the FS. The key concepts of the FS are presented below:

- Approximately 160 km of infill drilling at ML has resulted in the definition of a 25.4 Mt (4.4 Moz AuEq) Indicated Mineral Resource and 23 Mt (3.4 Moz AuEq) Probable Mineral Reserve.
- Development of the ML Project allows for the mining and processing of additional ore from the ELG UG mine that would otherwise be forfeited due to lack of tonnage to the ELG Process Plant.
- ML ore will be mined via proven underground bulk stope mining methods.
- ML ore will be transported to the ELG Process Plant site via an underground conveyor suspended from the back of the Guajes Tunnel. The tunnel will be developed below the Balsas River and will be the primary access connecting the ELG Mine Complex with the ML mine.
- Access for personnel and material to ML mine will be via the Guajes Tunnel or the two South Portal tunnels.
- Construction of the Guajes Tunnel, and South Portal tunnels commenced in 2021 as part of the ML early works program.
- ML ore will be processed through an existing/enhanced ELG Process Plant including a new copper concentrate circuit which will produce a copper-gold-silver concentrate. Copper and iron flotation tailings will be leached to produce doré.
- Overall metal recoveries are expected to incrementally improve from current levels with the planned ML process design.
- A Class 3 capital cost estimate has been developed for the ML mine, process, and surface infrastructure.
- ML mine operating costs have been estimated from first principles using industry standard productivity rates and assumptions. The future process operating costs are well understood due to several years of ELG operational experience.
- The ML Project shows positive economics with the current ML Mineral Reserves.
- Future Reserve growth through ongoing exploration is expected to further improve the ML Project's economics

This Technical Report was prepared by Torex and the following Authors:

- M3 Engineering & Technology Corporation (M3)
- SLR Consulting Ltd (SLR)
- Consultoria e Ingenieria ProMet101 Ltd. (ProMet101)
- BQE Water Inc. (BQE)
- BBA E&C Inc. (BBA)
- Stantec Consulting International Ltd. (Stantec)
- Paterson & Cooke Canada Inc. (P&C)

- Golder Associates Ltd. (Golder)
- JDS Energy & Mining Inc. (JDS)
- Call & Nicholas, Inc. (CNI)
- NewFields Mining Design & Technical Services (NewFields)
- Conrad Partners

These Authors were commissioned by Torex to jointly provide a Technical Report for the Morelos Property that contains the Life of Mine Plan for the ELG Mine Complex and a Feasibility Study of the Media Luna deposit using the ELG Mine Complex infrastructure.

1.2 GEOLOGY, MINERALIZATION AND DEPOSIT TYPES

The Guerrero platform is characterized by a thick sequence of Mesozoic carbonate rocks successively comprising the Morelos, Cuautla and Mezcala Formations and has been intruded by a number of early Tertiary-age granitoid bodies. The carbonate sequence is underlain by Precambrian and Paleozoic basement rocks. The Cretaceous sedimentary rocks and granitoid intrusions are unconformably overlain by a sequence of intermediate volcanic rocks and alluvial sedimentary rocks (red sandstones and conglomerates) which partially cover the region.

The Mesozoic succession was folded into broad north–south-trending paired anticlines and synclines as a result of east-vergent compression during the Laramide Orogeny (80–45 Ma). The Property lies at the transition between belts of overthrust rocks to the west and more broadly-folded rocks to the east.

The Morelos Complex is characterized by a structurally-complex sequence of Morelos Formation (marble and limestone), Cuautla Formation (limestones and sandstones) and Mezcala Formation (shale and sandstone) intruded by the El Limón granodiorite stock and later felsic dykes and sills.

At El Limón, gold mineralization occurs in association with a skarn body that was developed along a 2 km- long corridor following the northeast contact of the El Limón granodiorite stock. Significant gold mineralization at El Limón is dominantly associated with the skarn, preferentially occurring in pyroxene-rich exoskarn but also hosted in garnet-rich endoskarn that has been affected by retrograde alteration.

The main El Limón intrusion consists of an approximately peanut-shaped stock of granodiorite composition, which is approximately 6 km long by 2.5 km wide and has a general elongation of N45W. Usually, the skarn is developed along the contacts with this stock, although the important bodies are controlled by major northwest and northeast structures coincident with the Cuautla Formation position and the intrusive contacts. The contact of the intrusion at El Limón, although irregular, is generally quite steep and almost perpendicular to bedding.

The El Limón Sur zone occurs approximately 1 km south of the main El Limón skarn deposit and outcrops on a steep ridge extending down the mountain towards the Balsas River. The El Limón Sur area is underlain by a similar stratigraphic succession as the southeastern portion of the El Limón deposit.

The Sub-Sill zone is located between the El Limón and El Limón Sur ore deposits and under the El Limón sill. At Sub-Sill, several skarns have been identified along the contacts of the carbonate rich sediments and marbles of the Cuautla and Morelos formations and sills of granodiorite interpreted as fingering out from the main El Limón granodiorite intrusion stocks. High grade gold mineralization has been intercepted in all the different skarn horizons, mainly associated with exoskarns with retrograde alteration.

Structurally, the Sub-Sill as well as El Limón and El Limón Sur zones are hosted in a graben bounded by La Flaca fault to the west and the Antena fault to the east, and both are potential feeders for the mineralization.

The Guajes East zone is developed in the same lithologies on the opposite side of the same intrusion present at El Limón. Drilling indicates that the skarn development at Guajes East is 300 m wide, up to 90 m thick, and is continuous along at least 600 m of the northwest edge of the intrusion.

The Guajes West zone is located along the northwest contact of the El Limón granodioritic stock. Surface geology is represented by the hornfels–intrusive contact with some local patchy and structure-controlled skarn occurrences. The skarn formed at the contact between hornfels and marble; however, in addition to proximity to the granodioritic stock there are numerous associated porphyritic dykes and sills.

The ML deposit is located on the south side of the Balsas River, ~7 km south of the ELG Mine Complex.

The surface geology of the ML area is dominated by Morelos Formation limestone which is intruded by numerous feldspar porphyry dykes and sills.

Systematic drilling has identified a gold-copper-silver mineralized skarn with approximate dimensions of 1.4 km x 1.2 km and ranging from 4 m to greater than 70 m in thickness. Skarn alteration and associated mineralization is open on the southeast, southwest, west and northwest margins of the area.

The regional geology setting outlining the main ELG and ML mineral deposits is shown in Figure 1-1.

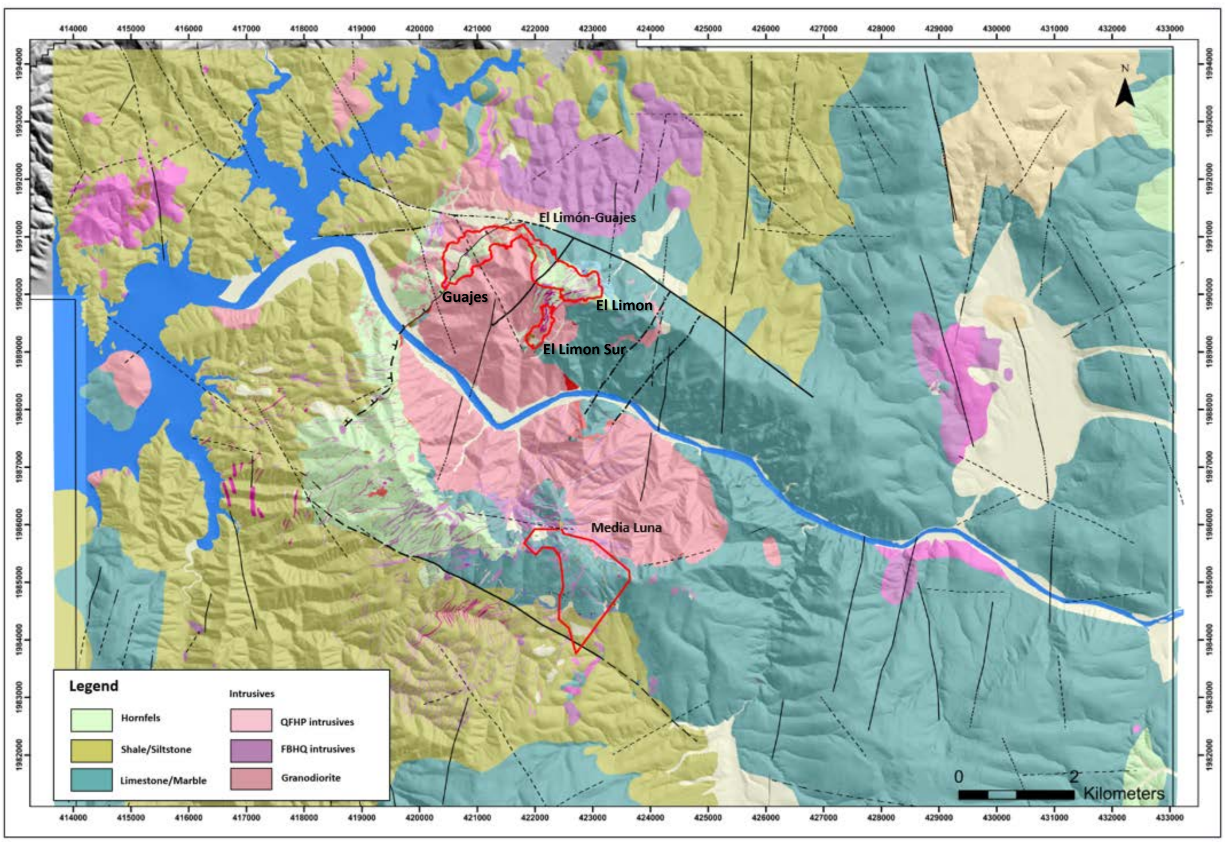

Figure 1-1: Regional Geological Setting Showing the El Limón Guajes and Media Luna Deposits

1.3 EXPLORATION

The Morelos Property has been exposed to a wide variety of exploration techniques that include including reconnaissance mapping, 1:5,000 scale geological mapping, systematic 1:500 scale pit mapping and 1:250 scale underground mapping, systematic road-cut, channel sampling, soil and stream sediment sampling, diamond drilling, an airborne ZTEM, magnetic geophysical survey (airborne and drone), and a gravimetry survey.

Exploration work at the Morelos Property has shown that magnetic surveys are highly effective at identifying targets for follow up drilling. Based on the results of exploration activity at the Morelos Property, zones of high magnetic intensity that coincide with the contact between the granodiorite intrusion and sedimentary formations show high potential for mineralization.

Additional exploration has a likelihood of generating further exploration successes particularly down-dip and along strike from of the known deposits. There is also potential for discovery of additional mineralization outside of the known deposits as there are several geophysical targets that warrant follow-up investigation, on both sides of the Balsas River.

In the Qualified Person's (QP) opinion, the exploration programs completed to date are appropriate to the style of the deposits and prospects within the Morelos Property. Exploration and samples have been collected in a manner such that they are representative and not biased. The known deposits are likely to be successfully extended along strike and at depth by following the contacts of the intrusions with the Mezcala/Cuatla and Morelos formations. The ML cluster has the potential to be expanded and current targets may be connected into one larger entity. The lateral limits of this cluster remain un-tested.

1.4 DRILLING

Drilling completed during the Teck ownership, between 2000 and 2008, referred to as legacy drilling, comprised of 619 drillholes (98,774 m), including 558 core holes (88,821 m) and 61 RC holes (9,953 m).

From 2009 until the end of 2021, Torex has completed 3,426 core holes (719,609 m) and 110 RC holes (8,792 m). Drillholes completed within mineralization range in size from NQ to PQ and are designed to intersect the mineralization in the most perpendicular manner as possible. Due to the deep nature of the ML deposit, Torex has employed Directional Core Drilling (DCD) since 2019 to improve drilling precision and to concentrate drillhole meters in, and not above, the deposit.

Drilling at the Morelos Property has delineated multiple zones of continuously mineralized Au and Au-Cu skarn bodies and has been used as the basis of the Mineral Resource Estimate.

In the opinion of the QP, the quality and volume of the drilling, logging, collar and down-hole survey data collected by Torex are appropriate to support the declaration of Mineral Resources at the Morelos Property and no issues were identified in the drilling procedures, data collection and data storage that would have a material impact on the Mineral Resource.

1.5 SAMPLING AND ANALYSIS

Sample analysis techniques varied slightly between drill programs and can be summarized as follows. Samples are dried and crushed to 75% passing 2 mm before splitting. Sub-samples are pulverized to at least 85% passing 75 µm before analysis. Sample pulps are assayed for Au, Cu, Ag and deleterious elements using a variety of standard techniques including fire assay, acid digest, sodium peroxide fusion, gravimetric, and ICP-AES. The appropriate technique is selected according to the element being assayed and the grade obtained by the initial assay.

Certified reference materials and blank samples are inserted into the sample stream for quality assurance and quality control purposes before being sent to the laboratories. Regular check assay programs are carried out on selected samples to check for analytical bias at assay laboratories.

Sample preparation and analytical laboratories used by prior owners included ALS Chemex, Laboratorio Geológico Minero (Lacme), and Global Discovery Laboratory (GDL). Sample preparation and analytical laboratories used by Torex include SGS, Acme, TSL and Bureau Veritas laboratories. All laboratories are independent of the Company.

Samples are always supervised by Torex staff or stored in locked facilities. Samples are transported to laboratories in sealed bags by reputable logistics companies.

In the opinion of the QP, the sample collection, preparation, analysis, QAQC, storage and security at the Morelos Property is aligned with industry best practices and is adequate to support the estimation of the Mineral Resources.

1.6 DATA VERIFICATION

The SLR QP conducted a site visit during which a selection of drillhole data was confirmed spatially (collar location, azimuth, and dip confirmation) and that the logging and analytical results matched with the drill core. A desktop study to confirm analytical results against original assay certificates, and a series of visual and software-based validation checks were also undertaken.

Extensive data verification work was carried out between 2005 and 2017. This was done by reputable consultants such as Amec Foster Wheeler M&M, Analytical Solutions Ltd., and Qualitica Consulting Inc. No significant flaws were found in the data.

In the opinion of the QP, the data provided is adequate to support the estimation of Mineral Resources at the Morelos Property. The QP found no evidence of any tampering, falsification or systematic error in the data used to estimate the Mineral Resource.

1.7 MINERAL RESOURCE ESTIMATE

SLR has prepared updated Mineral Resources for the ML and ELG deposits and adopted the previous Mineral Resource estimate for the EPO area of ML. The effective date for each estimate is October 31, 2021 for ML and EPO, and December 31, 2021 for the ELG Mine Complex.

The Mineral Resources were estimated into seven block models across the Morelos Property, the majority of the grade being hosted in exoskarn and endoskarn lithologies.

At ELG, outlier grades were treated using a grade distance restriction while at ML a traditional grade capping approach was taken. Assays were composited to 3 m, 2.5 m or 1 m within the skarn domains depending on the mining method and block size being used for the area. Grades were interpolated into a whole block or sub blocked model in two or three passes using inverse distance cubed (ID3) or ordinary kriging (OK) to weight each sample.

Mineral Resources are classified into the Measured, Indicated and Inferred categories using a drillhole spacing approach. The criteria to define each category was tailored to each deposit area, and considers geological continuity and understanding, as well as a drillhole spacing study. Both open pit and underground mining methods are considered at the property.

Mineral Resource domains and block models were constructed using Leapfrog Geo and Edge software. Databases and surfaces provided were validated using standard techniques and block models were validated using statistical comparisons, visual reviews, and reconciliation to mine production (where available).

Metal prices were assumed to be US$1,550/oz Au, US$20.00/oz Ag and US$3.50/lb Cu and gold equivalents (AuEq) were calculated using the price ratios in combination with metallurgical recovery. The cut-off grades calculated for each area were 0.9 g/t Au (ELG OP), 2.6 g/t Au (ELG UG) and 2.0 g/t AuEq (Media Luna and EPO).

Using the above the cut-off grades relevant for each deposit and proposed mining method, Measured and Indicated Mineral Resources are estimated to total 46.7 Mt at average gold, silver, and copper grades of 3.41 g/t Au, 19.6 g/t Ag, and 0.66% Cu and containing 5.1 Moz of gold, 29.3 Moz of silver and 677 million pounds (Mlb) of copper. Inferred Mineral Resources are estimated to total 16.2 Mt at average gold, silver and copper grades of 2.17 g/t Au, 25.5 g/t Ag, and 0.95% Cu and containing 1.13 Moz of gold, 13.3 Moz of silver and 340 Mlb of copper. Results are presented in Table 1-1.

Table 1-1: Summary of Mineral Resources at the Morelos Property

Mineral Resources	Tonnes (kt)	Grade			Contained Metal			Gold Equivalent	
		Au (g/t)	Ag (g/t)	Cu (%)	Au (koz)	Ag (koz)	Cu (Mlb)	AuEq (g/t)	AuEq (koz)
ELG Open Pits									
Measured	5,727	3.89	5.0	0.13	716	919	17	3.93	724
Indicated	11,027	2.37	4.7	0.12	842	1,660	28	2.41	856
Measured & Indicated	16,754	2.89	4.8	0.12	1,557	2,579	45	2.93	1,580
Inferred	812	1.80	3.5	0.08	47	90	1	1.83	48
ELG Underground									
Measured	584	7.24	10.0	0.52	136	187	7	7.37	138
Indicated	3,968	6.11	7.1	0.27	779	900	23	6.18	789
Measured & Indicated	4,551	6.25	7.4	0.30	915	1,088	30	6.34	927
Inferred	1,380	4.88	6.2	0.25	217	275	8	4.95	220
Media Luna Underground									
Measured									
Indicated	25,380	3.24	31.5	1.08	2,642	25,706	602	5.38	4,394
Measured & Indicated	25,380	3.24	31.5	1.08	2,642	25,706	602	5.38	4,394
Inferred	5,991	2.47	20.8	0.81	476	3,998	106	4.05	780
EPO Underground									
Measured									
Indicated									
Measured & Indicated									
Inferred	8,019	1.52	34.6	1.27	391	8,908	225	3.97	1,024
Total									
Measured	6,311	4.20	5.5	0.17	852	1,106	24	4.25	862
Indicated	40,375	3.28	21.8	0.73	4,263	28,266	653	4.65	6,039
Measured & Indicated	46,685	3.41	19.6	0.66	5,114	29,373	677	4.60	6,901
Inferred	16,202	2.17	25.5	0.95	1,131	13,271	340	3.98	2,071

Notes to accompany the Summary Mineral Resource Table:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are depleted above a mining surface or to the as-mined solids as of December 31, 2021.
3. Mineral Resources are reported using a gold price of US$1,550/oz, silver price of US$20/oz, and copper price of US$3.50/lb.
4. AuEq of total Mineral Resources is established from combined contributions of the various deposits.
5. Mineral Resources are inclusive of Mineral Reserves.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. Numbers may not add due to rounding.
8. The estimate was prepared by Mr. John Makin, MAIG, a consultant with SLR Consulting (Canada) Ltd. Mr. Makin is independent of the company and is a "Qualified Person" under NI 43-101.

Notes to accompany the ELG Mineral Resources:

9. The effective date of the estimate is December 31, 2021.
10. Average metallurgical recoveries are 89% for gold, 30% for silver and 10% for copper.
11. ELG AuEq = Au (g/t) + (Ag (g/t) * 0.0043) + (Cu (%) * 0.1740). AuEq calculations consider both metal prices and metallurgical recoveries.

Notes to accompany the ELG Open Pit Mineral Resources:

12. Mineral resources are reported above a cut-off grade of 0.9 g/t Au.
13. Mineral Resources are reported inside an optimized pit shell, underground Mineral Reserves at ELD within the El Limón shell have been excluded from the open pit Mineral Resources.

Notes to accompany ELG Underground Mineral Resources:

14. Mineral Resources are reported above a cut-off grade of 2.6 g/t Au.
15. The assumed mining method is underground cut and fill.
16. Mineral Resources from ELD that are contained within the El Limón pit optimization and that are not underground Mineral Reserves have been excluded from the underground Mineral Resources.

Notes to accompany Media Luna Mineral Resources:

17. The effective date of the estimate is October 31, 2021.
18. Mineral Resources are reported above a 2.0 g/t AuEq cut-off grade.
19. Metallurgical recoveries at Media Luna (excluding EPO) average 85% for gold, 79% for silver, and 91% for copper. Metallurgical recoveries at EPO average 85% for gold, 75% for silver, and 89% for copper.
20. Media Luna (excluding EPO) AuEq = Au (g/t) + (Ag (g/t) * 0.011889) + (Cu (%) * 1.648326). EPO AuEq = Au (g/t) + Ag (g/t) * (0.011385) + Cu % * (1.621237). AuEq calculations consider both metal prices and metallurgical recoveries.
21. The assumed mining method is from underground methods, using a combination of longhole stoping and, cut and fill.

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

1.8 MINERAL RESERVES

Updated Mineral Reserves for the ELG Mine Complex and ML deposits were prepared and are described in Section 15. The effective date for the ELG Mine Complex Mineral Reserve estimates is December 31, 2021 and October 31, 2021 for ML.

Metal prices were assumed to be US$1,400/oz Au, US$17.00/oz Ag and US$3.25/lb Cu and gold equivalents (AuEq) were calculated using the price ratios in combination with metallurgical recovery. The in-situ cut-off grades calculated for each deposit were 1.2 g/t Au (ELG OP), 3.58 g/t Au (ELG UG) and 2.4 g/t AuEq (ML) for longhole stoping. ELG OP applies an in-situ 1.1 g/t cut-off grade for Low Grade Ore that is stockpiled for future processing upon depletion of the open pit deposits. ELG UG mine applies an in-situ 1.04 g/t cut-off grade for Incremental Ore that is mined as development in the designed mine openings.

The Mineral Reserve estimates were prepared solely on Measured and Indicated Mineral Resources, with provisions for mine dilution and recovery. Any Inferred Mineral Resources included within the mine designs is treated as waste rock material.

The ELG OP Mineral Reserve estimates were prepared using HexagonTM MinePlan 3D software and underground Mineral Reserves were prepared using Deswik software. Relevant and appropriate economical and geotechnical parameters were applied to each deposit to identify mineable shapes from the respective Mineral Resources models.

Using the above cut-off grades relevant for each deposit and proposed mining method parameters, Proven and Probable Mineral Reserves are estimated to total 40.9 Mt at average gold, silver, and copper grades of 2.90 g/t Au, 16.3 g/t Ag, and 0.55% Cu and containing 3.82 Moz of Au, 21.4 Moz of Ag and 495 Mlb of Cu. The Proven Reserves include a total of 4.8 Mt of stockpiled ore at average gold, silver and copper grades of 1.35 g/t Au, 3.1 g/t Ag, and 0.07% Cu and containing 0.21 Moz of Au, 0.5 Moz of Ag and 7 Mlb of Cu. Results are presented in Table 1-2.

Table 1-2: Mineral Reserves Statement, Morelos Property

Mineral Reserves	Tonnes (kt)	Grade Au (g/t)	Grade Ag (g/t)	Grade Cu (%)	Contained Metal Au (koz)	Contained Metal Ag (koz)	Contained Metal Cu (Mlb)	Gold Equivalent AuEq (g/t)	Gold Equivalent AuEq (koz)
ELG Open Pit									
Proven	4,900	3.95	4.6	0.14	623	719	15	4.00	630
Probable	5,471	2.35	4.5	0.12	414	784	15	2.39	421
Proven & Probable	10,371	3.11	4.5	0.13	1,037	1,503	30	3.15	1,051
ELG Underground									
Proven	110	7.23	10.5	0.59	25	37	1	7.38	26
Probable	2,566	5.68	5.7	0.22	469	474	13	5.74	474
Proven & Probable	2,675	5.74	5.9	0.24	494	511	14	5.81	500
Media Luna									
Proven	-	-	-	-	-	-	-	-	-
Probable	23,017	2.81	25.6	0.88	2,077	18,944	444	4.54	3,360
Proven & Probable	23,017	2.81	25.6	0.88	2,077	18,944	444	4.54	3,360
Surface Stockpiles									
Proven	4,808	1.35	3.1	0.07	209	484	7	1.38	213
Probable	-	-	-	-	-	-	-	-	-
Proven & Probable	4,808	1.35	3.1	0.07	209	484	7	1.38	213
Total									
Proven	9,817	2.72	3.9	0.11	858	1,240	23	2.75	869
Probable	31,054	2.96	20.2	0.69	2,959	20,202	472	4.26	4,254
Proven & Probable	40,871	2.90	16.3	0.55	3,817	21,442	495	3.90	5,123

Notes to accompany the Mineral Reserves Estimate table:

1. Mineral reserves were developed in accordance with CIM (2014) guidelines.
2. Rounding may result in apparent summation differences between tonnes, grade, and contained metal content Surface Stockpile Mineral Reserves are estimated using production and survey data and apply the ELG AuEq identified in Note 14.
3. AuEq of Total Reserves is established from combined contributions of the various deposits.
4. The qualified person for the Mineral Reserve estimate is Johannes (Gertjan) Bekkers, P. Eng., Director of Mine Technical Services.
5. The qualified person is not aware of mining, metallurgical, infrastructure, permitting, or other factors that materially affect the Mineral Reserve estimates

Notes to accompany the ELG Open Pit Mineral Reserves:

6. Mineral Reserves are founded on Measured and Indicated Mineral Resources, with an effective date of December 31, 2021, for ELG Open Pits (including El Limón, El Limón Sur and Guajes deposits).
7. El Limón and Guajes Open Pit Mineral Reserves are reported above a diluted cut-off grade of 1.1 g/t Au.
8. El Limón Guajes Low Grade Mineral Reserves are reported above a diluted cut-off grade of 1.0 g/t Au.
9. It is planned that ELG Low Grade Mineral Reserves within the designed pits will be stockpiled during pit operation and processed during pit closure.
10. Mineral Reserves within the designed pits include assumed estimates for dilution and ore losses.
11. Cut-off grades and designed pits are considered appropriate for a metal price of $1,400/oz Au and metal recovery of 89% Au.
12. Mineral Reserves are reported using a gold price of US$1,400/oz, silver price of US$17/oz, and copper price of US$3.25/lb.
13. Average metallurgical recoveries of 89% for gold and 30% for silver and 10% for copper.
14. ELG AuEq = Au (g/t) + Ag (g/t) * (0.0041) + Cu (%) * (0.1789), accounting for metal prices and metallurgical recoveries.

Notes to accompany the ELG Underground Mineral Reserves:

15. Mineral Reserves are founded on Measured and Indicated Mineral Resources, with an effective date of December 31, 2021, for ELG Underground (including Sub-Sill and ELD deposits).
16. Mineral Reserves were developed in accordance with CIM guidelines.
17. El Limón Underground Mineral Reserves are reported above an in-situ ore cut-off grade of 3.58 g/t Au and an in-situ incremental CoG of 1.04 g/t Au.
18. Cut-off grades and mining shapes are considered appropriate for a metal price of $1,400/oz Au and metal recovery of 89% Au.
19. Mineral Reserves within designed mine shapes assume mechanized cut and fill mining method and include estimates for dilution and mining losses.
20. Mineral Reserves are reported using a gold price of US$1,400/oz, silver price of US$17/oz, and copper price of US$3.25/lb.
21. Average metallurgical recoveries of 89% for gold and 30% for silver and 10% for copper.
22. ELG AuEq = Au (g/t) + Ag (g/t) * (0.0041) + Cu (%) * (0.1789), accounting for metal prices and metallurgical recoveries.

Notes to accompany the Media Luna Underground Mineral Reserves:

23. Mineral Reserves are based on Media Luna Indicated Mineral Resources with an effective date of October 31st, 2021.
24. Media Luna Mineral Reserves are reported above a diluted ore cut-off grade of 2.2 g/t AuEq.
25. Media Luna cut-off grades and mining shapes are considered appropriate for a metal price of $1,400/oz Au, $17/oz Ag and $3.25/lb Cu and metal recoveries of 85% Au, 79% Ag, and 91% Cu.
26. Mineral Reserves within designed mine shapes assume longhole stoping, supplemented with mechanized cut and fill mining method and includes estimates for dilution and mining losses as outlined in Section 16.4.4.4.5.
27. Media Luna gold equivalent (AuEq) = Au (g/t) + Ag (g/t) * (0.011188) + Cu (%) * (1.694580), accounting for metal prices and metallurgical recoveries.

The QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant factors that could materially affect the Mineral Reserve Estimate.

1.9 MINING METHODS

1.9.1 ELG Open Pit - Mining Method

The ELG OP mine plan was prepared based on established parameters and capacities for existing operations. ELG OP applies a conventional truck and shovel mining method. Open pit mining operations for the El Limón and Guajes pits are executed using the Owner's open pit mining fleet and a contractor maintenance workforce, with some support of specialized contractor services. The El Limón Sur open pit operations are executed entirely by contractor workforce and equipment. All open pit operations are supported by owner's supervision and Technical Services.

1.9.2 ELG Underground - Mining Method

The ELG UG mine plan was prepared based on established parameters and capacities for existing operations. ELG UG consists of the El Limón and Sub-Sill deposits and applies cut and fill mining method with consolidated rockfill as backfill. Underground mining operations are executed using contractor workforce and equipment, supported by Owner's supervision and its Technical Services.

An infill drilling and step out drilling program is planned in 2022 to explore the immediate area near Sub-Sill and El Limón Deep, with the goal of upgrading and discovering additional resources to sustain and extend mining operations beyond the current mine life.

1.9.3 Media Luna Underground – Mining Method

The ML Underground mine is designed for an average production capacity of 7,500 t/d, predominately using a mining method of longhole stoping with paste backfill, supplemented by mechanized cut and fill stoping where appropriate.

The ML Underground mine will be a fully mechanized operation with the primary access to the mine via the Guajes Tunnel. The Guajes Tunnel will have a length of approximately 6.5 km, creating an underground connection between the ELG Mine Complex and the ML mine. The ELG site will continue to serve as the base of mine operations. Two additional South Portal tunnels will provide access from the ML mine to the internal mine ramp. These three access tunnels will equally serve as fresh air intakes for the mine ventilation, with exhaust air leaving the mine through two designated ventilation adits, each equipped with two fans to create a ventilation pull system. Construction of the Guajes and South Portal tunnels commenced in 2021 as part of the ML early works program.

The ML Underground mine is designed for bulk mining from 6 active mining blocks, each set up with dedicated infrastructure to sustain continuous production of ore from stopes. The ML deposit has a dip that is suitable to benefit from sub-vertical ore and waste passes to move broken material efficiently between levels by gravitational force. The material handling system is designed to minimize the requirement for rehandling by mobile equipment. Each mining block will consist of several production levels, with dedicated infrastructure constructed in the footwall drift of each level. All production levels will be accessible from the internal mine ramp.

Broken ore and waste will move through a system of sub-vertical passes to rock breaker stations equipped with grizzlies. From the rock breaker stations, the sized material will continue on to the conveyor transfer level to dedicated ore and waste bins, where the material is then fed onto the Guajes Tunnel conveyor system. The Guajes Tunnel conveyor system will transport ore and waste through the tunnel from the ML mine to the ELG Mine Complex. The conveyor will terminate outside the portal of the Guajes Tunnel, from where ore and waste will be rehandled to its final destination.

A dedicated paste backfill plant will be constructed outside of South Portal Upper. The plant will be supplied with slurry tailings from the ELG processing facility, which will be pumped from the ELG Mine Complex through the Guajes Tunnel and up to the paste plant. Binder will be supplied to the paste plant via surface transportation. Paste backfill will be pumped into the mine through a directionally driven borehole that intersects with the South Portal tunnel. The piping is routed through the underground workings, branching off to stopes in the Media Luna Upper and Media Luna Lower orebodies.

ML mining operations will be executed using an Owner's workforce and mobile fleet, with support of specialized contractor services. Mine personnel will principally use the existing ELG Mine Complex as their base and travel underground to their assigned worksite through the Guajes Tunnel. Both the longhole mining method and owner-operated underground mining activities are a change from the existing contractor-operated underground mining operations at ELG Mine Complex. A workforce transition strategy will be developed as part of the project execution to enable operators from the open pit mining operations to join the ML workforce after open pit mining operations have ceased, and appropriately implement a recruitment plan to meet the mine and scheduling requirements.

The mobile fleet will be a hybrid fleet of mostly Battery-Electric Vehicles (BEVs) with support from a diesel mobile fleet. Battery-electric production equipment will significantly reduce the requirement for ventilation underground and provide an improved work climate for the workforce due to the absence of diesel particulate matter and engine heat. The implementation of BEVs will also support the Company's intentions to reduce carbon consumption as part of a longer-term climate change strategy currently under development.

Infill drilling and step out drilling is planned in 2022 and future years to explore the immediate area near ML, with the goal of upgrading and discovering additional Mineral Resources to sustain and extend mining operations beyond the estimated mine life.

1.10 MINERAL PROCESSING AND METALLURGICAL TESTING

The existing ELG Process Plant will be used to process ELG OP and ELG UG ores until the end of Q3 2024. From Q4 2024, a new processing facility that will be able to process the high grade copper sulphides from the ML ores will be put into operation. The use of the new facilities will allow for an increase in recovery of the gold and silver over and above the existing facility and achieve high recoveries of a saleable copper concentrate. The predicted recoveries for the two process facilities when treating the different feed materials are presented in Table 1-3. The proposed ML process facility will be used to process ELG OP ores as required and when operated, in that condition the recoveries will revert back to the current performance as no copper concentrate will be produced. The predicted recoveries for each mine zone when processed through the facilities are incorporated to the mine and financial plans to achieve the overall predicted LOM recoveries.

Table 1-3: Process Facility Recoveries on ELG OP/UG and ML ores

Process Facility and Feed Type	Recoveries		
	Gold	Silver	Copper
ELG Current Process Facility with ELG OP/UG feed (Q2 2022 to Q3 2024)	89.0%	30.0%	10.0%
Media Luna Proposed Process Facility with ELG UG and ML feed (Q4 2024+)	90.0%	86.0%	93.0%
Average LOM Recovery	89.8%	80.5%	86.4%

1.10.1 Processing the ELG Ores and Metal Recoveries

The ELG Processing Plant has been in operation since the end of 2015 and has processed over 24.4 Mt of ore to produce over 2.2 Moz of gold to December 2021. Since declaration of commercial production gold recovery has averaged 87.3% (range of 63 – 91%) and silver has averaged 26.3% (range of 3 – 46%). The average gold recovery for 2021 was 88.3%, and for silver was 30.6%. The simplified process flowsheet is presented in Figure 1-2. The milling rate for the year in 2021 was on average 12,362 t/d, with a product size of 80% passing 92 μm.

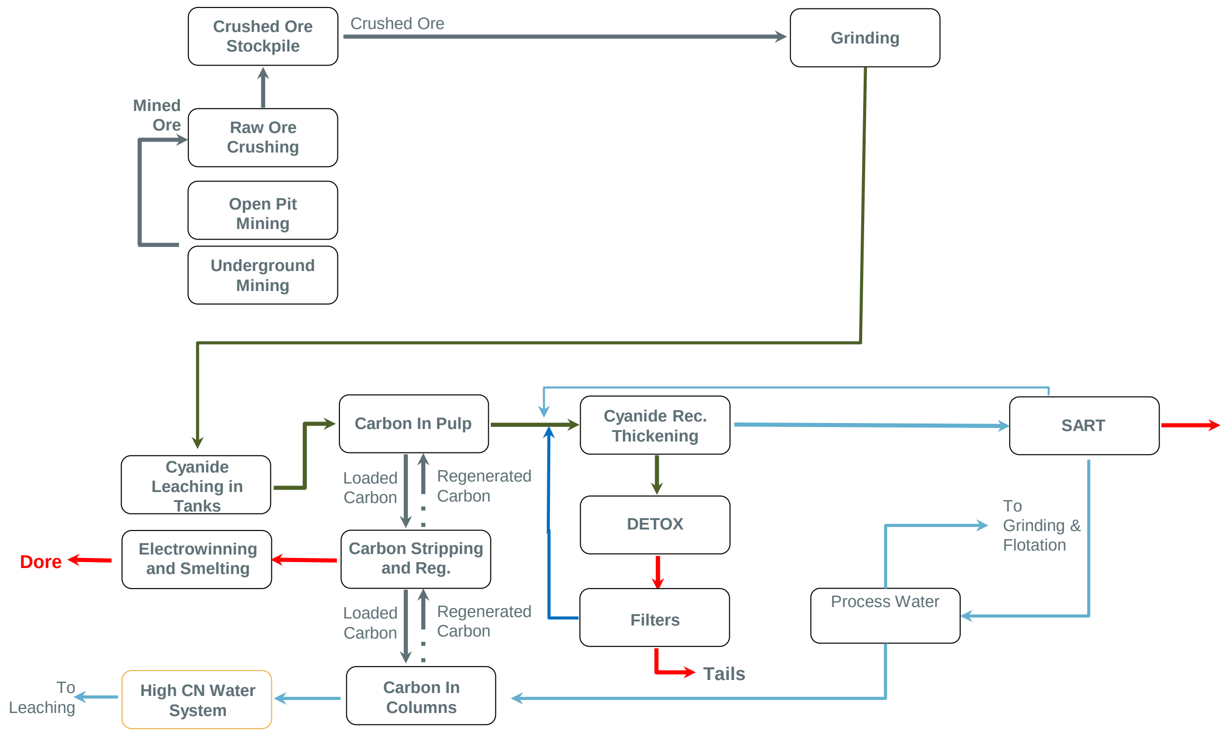

Figure 1-2: Existing ELG Process Flowsheet

Cyanide leaching followed by carbon in pulp (CIP) adsorption continues to be an effective recovery process for the ELG OP ores. However, elevated levels of iron in the feed was identified as the source of increased cyanide consumption with measures put in place to mitigate this via pre-oxidation using liquid oxygen injection. The impact of soluble copper on cyanide consumption has been mitigated to a reasonable extent via the operation of the SART process. The implementation of the SART plant in 2018 resulted in the recovery of 89.1 tonnes per month of copper in SART.

1.10.2 Media Luna Mineral Metallurgy and Proposed Processing Facility

The ML ores contain elevated levels of copper, primarily in the form of chalcopyrite that is amenable to recovery via flotation processes. The value of the copper in the feed represents approximately 30% of the economic value of the mineralized ores from the Media Luna deposit.

An extensive metallurgical testing program for the FS followed the initial evaluation as part of the preliminary metallurgical program. This was carried out on fresh drill core obtained as part of the infill drilling program, with spatial and grade variability used to ensure samples were representative. As part of the metallurgical testing the optimum conditions for processing to maximize copper recovery, copper concentrate grade, silver and gold recovery was carried out. In addition, an extensive evaluation into the deportment of deleterious elements (Bismuth, Arsenic, Zinc and Cadmium) to the copper concentrate was carried out. The depression of these elements to minimize the impact of smelter penalties was explored in detail, but due to relatively high grades of these elements in the feed, penalties will be payable.

The preferred process flowsheet to treat the ML ores will be to use sequential flotation in which a saleable copper concentrate is recovered first and then followed by the recovery of a metal sulphides concentrate stream (Fe-S). The iron sulphides have been shown to be the primary cause of increased cyanide consumption in the existing ELG facility whenever underground material that is similar to that of the ML ores is fed to the process facility. These contain reactive

Pyrrhotite which consumes both oxygen and cyanide in the leach circuits thereby increasing cyanide consumption and also at times reduced gold recovery. Metallurgical testing on both ELG and ML ores consistently showed that recovering iron sulphides into a separate concentrate stream via flotation and separate leaching from a low sulphide tails could result in reduced cyanide consumption and increased gold recovery. The increased gold recovery comes from the ability to regrind the iron sulphide concentrate to 80% passing 30 µm versus the operating primary grind size of 80-100 µm.

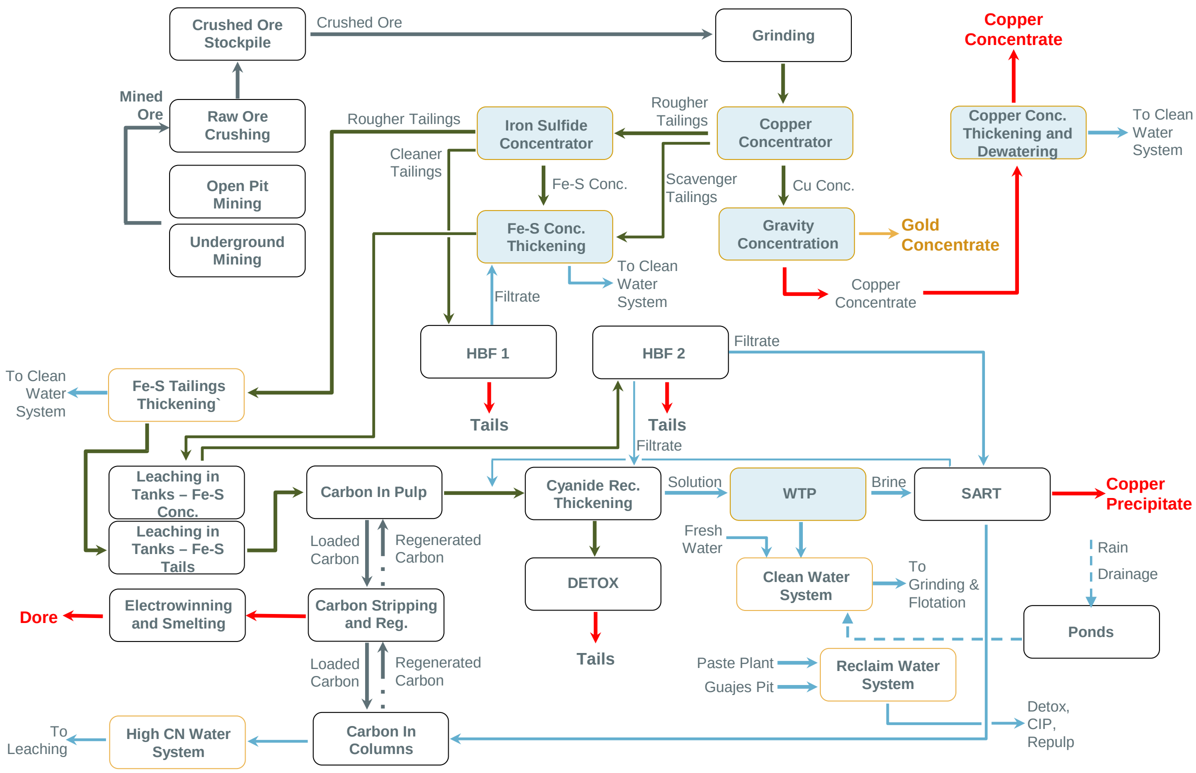

Figure 1-3: Proposed ML Process Flowsheet

For ML and ELG UG mineralized material, laboratory tests indicate expected overall recoveries of 93.0% for copper, 90.0% for gold and 86.0% for silver should be obtained from an integrated flotation and leaching circuit. The significant increase in recovery of silver is due to the physical association of silver with chalcopyrite with the bulk of the silver recovery to report to the copper concentrate. Gold recovery is expected to increase as a result of the ability to recover gold associated with metal sulphides and regrind these prior to leaching.

The process flowsheet will maximize reuse of the existing circuit as far as possible and repurpose equipment to minimize capital costs. The crushing and primary grinding circuits will be used with minimal modifications. A new flotation circuit will generate three flotation products, with the copper concentrate to be filtered and trucked off site for smelting. The new iron sulphide flotation circuit will generate a low sulfur grade flotation tails stream which will be fed to the existing leach and gold recovery circuits. The high sulfur content iron sulphide concentrate will be reground and fed through a dedicated leach circuit using the existing repurposed leach tanks, with the product to be fed to the horizontal belt filters to recover pregnant solution with elevated gold and copper in solution. This stream will be sent directly to the SART plant to recover copper and silver and regenerate cyanide that will be complexed with the soluble copper. The product from the SART plant will be fed to the modified existing CIC circuit to recover gold which will also be fed to the ADR plant.

A key change will be required to be made to the process water circuits for the new ML circuit. The existing process water contains cyanide as part of the original design, and this will need to be changed as cyanide in the flotation circuit would depress the copper minerals. Two new water circuits will be configured, using the existing process facilities, in addition to the installation of a new water treatment plant to ensure that any excess cyanide containing water is converted to cyanide free water for feed to the grinding and flotation circuits.

The existing tails pressure filters will not be used in the future, but instead tails will be sent to either the paste plant or a new tails thickener at the Guajes portal area for thickening and deposition in the Guajes west pit. The generation of the high and low iron sulphide content flotation tails streams will be used to maximize the placement of high sulphide material as paste backfill in the underground mine, as much as practical.

The new copper and iron flotation circuits along with a water treatment plant will be constructed at the ELG Mine Complex to support the ML Project. The flotation circuit will be located between the existing ELG coarse ore stockpile dome and tailings filter building and the water treatment plant will be located near the existing SART facility. Coinciding with the copper flotation plant commissioning, the tailings disposal will change from filtered tailings within the Filtered Tailings Storage Facility (FTSF), to slurry tailings deposition into the mined out Guajes West Pit, termed the Guajes Pit Tailings Storage Facility (GTSF).

Due to the challenges being faced by the existing operation with regards to high cyanide consumption and the presence of pyrrhotite in the feed, the construction of the iron sulphide facility and associated water treatment plant is to be accelerated ahead of the main flotation circuit. Installing the early Fe-S circuit will help to de-risk the main ML Project as the conversion of the water systems and separate leach circuits will have been completed and commissioned by the time the ML Project is ready for commissioning. The iron sulphide facility has a planned commissioning timeline of Q1 2024.

1.10.3 Process Plant Feed

The mineralized ores to be fed to the process facility from mining operations from April 2022 through to Q3 2024 will include open pit and underground ELG ores, and from Q4 2024 to LOM underground ores from both ELG and ML, and ELG stockpile material. The construction of the new ML process facilities will allow for the transition from the existing mill feed of ELG OP and UG ores to the production of copper concentrate from both ELG UG and ML ores. This is in addition to the production of doré and SART copper precipitate. The Media Luna process facility will, however, still be able to process the low copper content ELG OP and stockpile ores by bypassing the copper flotation circuit and making use of the iron sulphide recovery and separate leaching circuits. Figure 1-4 presents the mine production from 2022 to 2033, and Figure 1-5 presents the ore to be processed including stockpile reclaim material.

The process facility design capacity will be reduced to 10,600 t/d to suit the ML mine capacity and remaining ELG UG and stockpile materials.

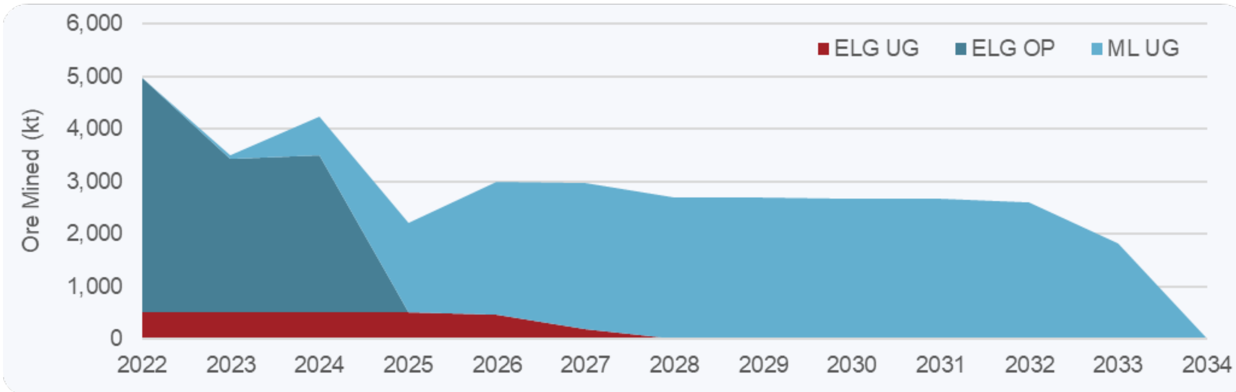

Figure 1-4: Morelos Complex Mine Ore Production

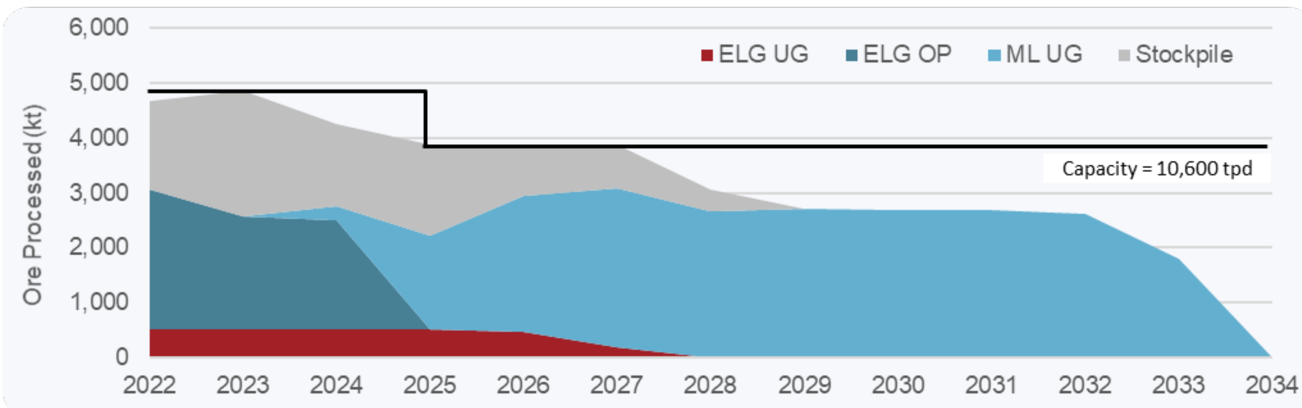

Figure 1-5: Morelos Complex Ore Processed

The recovery of copper concentrate from the Media Luna and ELG UG ores will result in an increase in gold equivalent production once the new process facility is commissioned. The production profile including the contribution from copper and increased silver recovery is presented in Figure 1-5. Gold equivalent production/sold is calculated by adding the gold equivalent values for copper and silver to gold. Gold equivalent for copper is calculated by multiplying copper production/sold by the underlying copper price and then dividing by the underlying gold price. Gold equivalent for silver is calculated by multiplying silver production/sold by the underlying silver price and then dividing by underlying gold price.

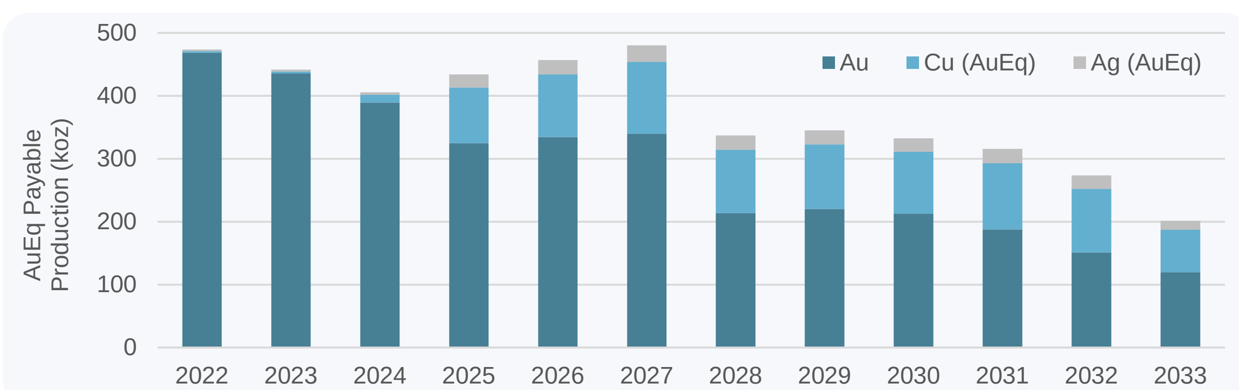

Figure 1-6: Morelos Complex AuEq Production

It should be noted that the mill feed and resulting gold production as shown in Figure 1-4 through Figure 1-6 include full year production through 2022, while the Morelos Complex financial model and economic criteria as presented within this Technical Report are presented on a go-forward basis as of Q2 2022.

1.11 NON-PROCESS INFRASTRUCTURE

Both the ELG Mine Complex and Media Luna deposit are located near established power and road infrastructure at Mezcala and near centers of supply for materials and workers at Chilpancingo, Iguala and Cuernavaca. The nearest port is Acapulco, Mexico.

The ELG Mine Complex on-site infrastructure is focused on the open pit and underground mines and includes the administration, process plant, crusher, and mine operation infrastructure. The ELG Process Plant is located north of the West Guajes pit and northwest of the El Limón pit. The facilities are all outside a 500-m blast radius from the pits, except for the El Limón Crusher and RopeCon conveyor. The infrastructure was constructed by leveling existing hills to provide relatively flat areas for the facilities. The process plant is on one leveled hill area and the mine truck shop is located on another leveled ridge area. The Guajes crusher structure is located on the same ridge as the truck shop and set into the side slope of the ridge. The crushed ore stockpile is located on grade between the crusher and the process plant. The administration and warehouse are located on benches adjacent to the ELG Process Plant.

The ELG infrastructure is currently operating and no major additions are required to service the ELG LOM needs. The water required for the ELG Mine Complex is supplied from a purpose-built well field which has more than enough capacity to handle the existing ELG LOM needs.

The ML Project surface infrastructure makes significant use of the existing ELG Mine Complex infrastructure to reduce environmental impact, reduce capital expenditures, and to utilize the secure ELG work area. During operations, the primary access into the ML Underground mine will be via the 6.5 km Guajes Tunnel from ELG under the Balsas River, and two access tunnels from the ML south portals located in the ML exploration area south of the Balsas River. A conveyor system will be utilized to transport ore from the ML Mineral Resource to the ELG Mine Complex through the Guajes Tunnel. Access to the ML south portals is via an existing road from the town of Mezcala to the village of San Miguel, portions of which will be upgraded to meet the higher traffic demands during project development and operations.

Additional wells at the ML South Portal area will supplement development work for the ML mine until there is connection to ELG through the Guajes Tunnel, at which time mine service water will be from the mine service water recycling ponds located at either the Guajes East pit, or South Portal Upper sediment pond.

1.11.1 Access

Access to the ELG Mine Complex is via two routes; from the north by narrow, paved highway from Iguala and from the east by the East Service Road which connects the ELG Mine Complex to Highway I-95. The ELG Mine Complex is mainly accessed from the East Service Road (ESR) which was purposely built for the mine to accommodate the movement of all supplies and most personnel to and from the mine. The main well field, power supply and permanent camp are located along the ESR. Access to the mine is controlled with a guardhouse located at the entrance to the main process plant at the termination point of the ESR. All mine supplies, including cyanide, are transported along the ESR.

Access to the ML Project is currently from highway 95 along an 18 km paved road from Mezcala, which passes near the Los Filos Mine. The route becomes a small gravel road for 5 km from the village of Mazapa to San Miguel, and the gravel portion of this route will be widened and upgraded for the ML Project construction and operations period.

Both the ELG Mine Complex and ML deposit are located near established power and road infrastructure at Mezcala and near centers of supply for materials and workers at Chilpancingo, Iguala, and Cuernavaca. The nearest port is Acapulco, Mexico.

1.11.2 Camps

The Permanent Camp for Owner's operations personnel (termed VLO) is located approximately 15 km from the main gate at the process plant, along the ESR. An additional on-site camp (termed 916 Camp) has been constructed adjacent to the ELG Process Plant for use by visitors, contractors or in times when access to the complex is restricted. The Atzcala camp area will house project personnel working on the construction at the ELG Mine Complex along with space for contractors to setup their own camp facilities.

Camps for the ML mine development and operation are located approximately 500 m southeast of the San Miguel community and consist of 3 separate areas; the MML camp, the Drilling Contractor camp, and the Mine Contractor camp. As part of an early works program, the first extension to the existing MML camp as well as the establishment of the underground development contractor's camp have been completed.

1.11.3 Water Supply

Water supply for ELG Mine Complex is from 3 wells developed near the village of Atzcala approximately 11 km east of the mine site and the water is pumped to the ELG Process Plant via a 14.5 km pipeline. Water from the Atzcala well field is used for the camp, process water for the mining and plant operation, dust control on the roads as well as domestic use at the mine and plant site. This water is also used as potable water after treatment. Package water treatment plants are being utilized to treat all potable water needs.

For the Media Luna mine development period, five production wells are currently being used to supply the exploration drilling, early works construction, and camps on a specified daily pumping schedule. To reduce well use, a water recycling system will be installed to enable re-use of mine water and to also take advantage of the natural runoff water collected in the ponds during the wet season. Once the mine is connected to ELG Mine Complex through the Guajes Tunnel, the main source of water supply for underground development will be from the ELG water sources, allowing for reduced consumption from the ML wells.

1.11.4 Power

Power is supplied to the ELG Mine Complex at 115 kV from a transmission line that is within two kilometers of the complex site. A switching station (CFE Balsas Substation) has been constructed at the base of the 115 kV line, followed by a two kilometers transmission line extending from this line to a substation located at the mine site. The switching station is powered by an existing 115 kV power line from the CFE El Caracol Substation. The connected load for the facility is 40 MW with a demand of 30 MW.

A connection to the 230 kV national electrical system will have to be installed in order to serve the additional load of the ML Project. The system will consist of a new 230 kV switchyard that will connect to an existing national electrical system 230 kV overhead line, a 230 kV powerline, and a 230 kV substation located at the existing ELG Mine Complex.

1.11.5 Waste Rock Storage Facilities

The Guajes North Waste Rock Storage Facility (WRSF) has been extended across the downslope side of the FTSF as additional support for the tailings.

The El Limón Norte and El Limón Sur WRSFs comprise the two main ELG WRSFs and are being developed by end dumping from platforms located at the crest elevation (descending construction sequence), since bottom-up construction is not considered practical due to the large elevation difference between the El Limón and El Limón Sur open pits and the base of the WRSFs. Individual phases can exceed 200 m in height with material placed at the angle of repose (1.4H:1V). At closure, the WRSF slopes will be re-graded to 2H:1V for long-term stability.

Surface water management includes diversions to limit flow towards tipping faces and basal flow-through drains. Drainage from all of the WRSFs is being collected in surface water management ponds.

Two WRSFs will be available to store waste rock near the ML South Portals prior to connection with the Guajes Tunnel. The South Portal WRSF will store approximately 700,000 tonnes and the West WRSF will store approximately 870,000 tonnes. Each WRSF will be constructed in an ascending construction sequence with 30 m lifts placed at angle of repose (1.4H:1V) with setbacks between lifts to establish an overall 2H:1V slope. Surface water management includes perimeter drainage channels to collect surface water run-off and basal flow through into sedimentation ponds at the toe of the facilities. Final closure activities would include contour drain construction on any remaining benches with periodic downslope drains contoured into bench faces to deliver rainfall runoff to the toe.

1.11.6 Tails Management Facilities

Currently, the tailings are filtered, placed and compacted in the FTSF which is located southwest of the process plant and northwest of the Guajes open pit. To date, over 24 Mt of tailings have been placed in the FTSF. Tailings will continue to be deposited in the FTSF through 2024 until the ML operations commence and the GTSF is permitted. If needed, the FTSF can be expanded vertically and laterally to contain ML tailings.

The plan for tailings management from the processing of the ML Mineral Reserve is to place tailings in one of two locations, the Guajes Pit, and as paste backfill in the underground mine. The Guajes Pit shell has a storage capacity of approximately 17.3 Mt for tailings storage.

The tailings stream reporting to the GTSF will be primarily Fe-S Tails. Occasionally, a small amount of Fe-S Cons will be combined with the Fe-S Tails tailings stream, with a maximum ratio of 20% Fe-S Con to 80% Fe-S Tails and an average of approximately 10% to 90%. More than half of the Fe-S Cons will be directed into the paste backfill.

The GTSF is designed with engineering controls including a base drainage system and a lining system on non-natural areas of the pit rim. Instrumentation will be used to monitor the pit wall stability as the tailings rise. Downstream groundwater monitoring wells, that can be converted to pump back wells, are included in the design to provide an adaptive management strategy to safely contain the slurry tailings from the ML operations. The GTSF has been designed in accordance with the new Global Industry Standard on Tailings Management (GISTM).

1.11.7 Water Management

Torex maintains an Operational Water Management Plan that provides detailed information on current water monitoring and management systems at the ELG Mine Complex and Media Luna, as well as information on planned water management systems for the ML Project when the underground mine becomes operational. Key water management tools include a Web-GIS Dashboard for data management, access, and team collaboration and a site-wide water balance model to evaluate the movement of water and estimate water storage and flow rates at major mine facilities.

The water management system includes four sediment ponds that receive contact water that requires treatment for sediment load prior to discharge to the environment. Contact water from the FTSF and plant site are collected in three ponds (Ponds 1, 2, and 3), which are pumped to the Central Water Pond (CWP) for use in the mill. FTSF contact water includes runoff from the FTSF surface, underdrain flow, and seepage that is collected below the pond dams. Water demands exceed the supply of water that is collected and recycled in water management ponds, so freshwater from the Atzcala well field is used to augment supply.

The operation of the ML Project will primarily impact tailings storage at ELG, increase the amount of water that needs to be managed due to the addition of excess mine dewatering flows from the ML Mine to the ELG Mine Complex, and potentially reduce the quantity of water required from the existing Atzcala well field. Excess water from the ML Underground mine will be piped through the Guajes Tunnel to the Guajes East Pit where it will be stored for use by mine services or for process makeup water. ELG contact water reporting to Ponds 1, 2, 3 and the CWP will remain in operation during the ML Project. Effective pond management will be important and will involve prioritizing the use of reclaimed pond water in the plant during the wet season, rather than the use of fresh water from the Atzcala well field.

Two sediment ponds, a decant pond, and a sump will be constructed at ML to capture runoff from the portal and waste rock areas. The water will be used for mine services and dust control at ML.

1.12 ENVIRONMENTAL AND SOCIAL PERMITTING AND STUDIES

The ELG Mine Complex complies with Mexican federal, state and municipal environmental laws and regulations. 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 at the existing operations and ML Project. 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. There are no active violations of environmental compliance.

The Company has authorized permits allowing for operations at the ELG Mine Complex and the early works outside of the existing permit boundary to access the Media Luna deposit. The most recent modification of the permit ('MIA-Modification') authorized the construction of the South Portal Upper and Lower on the south side of the Balsas River, as well as the Guajes Tunnel under the Balsas River subject to consultations with the national water regulator (CONAGUA), which are currently ongoing. In July 2021, the Company applied for an environmental permit 'MIA-Integral' to integrate the ELG Mine Complex and Media Luna environmental authorizations. There are no major technical or social risks that have been identified, and approval is expected in the first half of 2022. A modification to the MIA-Integral will be needed in the future for in-pit tailings disposal. This permit application will be submitted in the second half of 2022.

Other environmental permit applications that have been submitted and are pending authorization include, construction of a landfill on the ML Project, road improvements between Mazapa and San Miguel, additional water concessions at ML Project and sewage discharge permits at Morelos Complex. A permit application is also pending for construction of a new solar plant at ELG Mine Complex, as part of the Company's broader plans to reduce its carbon footprint.

Additional future non-environmental permit requirements include authorizations from the Federal Electricity Commission to increase the electrical power draw, and to make a connection to the regional 230 kV power line system.

A conceptual closure plan for the integrated Morelos Complex, including the ML Project, was updated based on the Life-of-Mine designs. In general, the closure plan activities include decommissioning, demolition, rehabilitation and post-closure monitoring. Facilities that will remain after closure will be the open pits, the FTSF, the planned in-pit GTSF and WRSFs. The seepage from the FTSF will need to be managed until discharges meet applicable environmental regulatory standards or can be managed passively. The geochemistry study and contaminant transport modeling predictions indicated that long-term seepage management will not be required. After the post-closure monitoring period, the reclaimed lands and remaining facilities will be relinquished to the property owners and members of the Ejido lands. It is expected that the land usage 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 open pits, the underground mine workings, the GTSF and the FTSF. The current estimated closure cost for the Morelos Complex is $92.6 million.

Environmental, cultural heritage and social baseline studies have been carried out for the initial ELG Mine Complex and for the ML Project. The Morelos Property is in a mountainous, rural area with agriculture, fishing and mining representing the three biggest economic sectors. The presence of the Balsas River has contributed to the biodiversity of the region, and the Morelos Complex is located within one of nine bird conservation areas in the state of Guerrero. The flora and fauna baseline studies identified twenty-six different species that are under special conservation status, including two fauna species that are considered under threat of local extinction, namely the Leopardus wiedii (Margay), which is a small wild cat native to Central and South America, and the Ara militaris (Military macaw), which is a large parrot. No Indigenous peoples have been identified that are impacted by operations at the ELG Mine Complex or the ML Project.

An Environmental Protection Policy and an Environmental and Social Management System have been implemented by the Company with a commitment to meet or surpass environmental regulatory requirements in all exploration, development, mining, and closure activities, while doing zero harm to the natural environment beyond operational boundaries. This policy is currently implemented at the ELG Mine Complex and will extend to development and operations at ML Project. The system includes programs for management of water, wastes, and biodiversity, as well as environmental monitoring programs. As part of the energy and greenhouse gas emissions program, climate change is considered, and emissions inventories are kept. The projected energy use, and associated greenhouse gas emissions, for the ELG Mine Complex and ML Project is comprised of 70% grid electricity, 25% diesel and 4% solar over the Life of Mine. Gasoline and propane will account for less than 1% of consumption. The Company is currently conducting a carbon reductions opportunities study to further identify energy savings and emissions reductions as part of a broader climate change strategy currently under development.

Stakeholder identification and analysis exercises are regularly updated to identify and assess stakeholder concerns. Local communities are considered to have the highest potential impact and influence on operations at Morelos Complex. Relationships with local communities are positive, and the Company has unique community development agreements (CODECOPs) in place with the nine key communities near ELG Mine Complex and two key communities near ML Project. The agreements address local economic development, additional direct community investment, local employment and local procurement initiatives. Criminal activities in the region, or the perception that activities are likely, are a concern in southern Mexico, including in Guerrero. Illegal drug production and transport occurs in the region, which has resulted in violence between criminal organizations. This violence has not been directed at the Company and has not affected the Company's ability to engage in exploration and mining activities.

The Company has committed to the continuous improvement and disclosure of material environmental, social and governance (ESG) information through its commitment to implement voluntary sustainability standards such as the World Gold Council Responsible Gold Mining Principles (RGMPs), the International Cyanide Management Code (ICMC), "Industria Limpia" (Clean Industry) certification through the Mexican federal agency responsible for the enforcement of environmental laws, and potentially the GISTM. The Company has adopted a Diversity Policy. Currently, 14% of the workforce at site is made up of women, and 18% of the management team in Mexico is comprised of women. The Company has programs in place to attract more women to the workforce.

1.13 CAPITAL COST ESTIMATE

Capital and operating cost estimates have been developed for the ELG Life of Mine planning and the Media Luna Project Feasibility Study. A summary of the total Morelos Complex capital costs is provided in Table 1-4. All capital costs including non-sustaining and sustaining have been assumed on a go-forward basis as of April 1, 2022. The Media Luna initial project capital period is assumed from April 1, 2022 through December 31, 2024. The Media Luna commercial production period is assumed from January 1, 2025 through the end of life of mine in 2033. All Media Luna Project costs incurred prior to April 1, 2022 are assumed sunk costs (estimated at approximately $124M) and are excluded from the project economic analysis. Capital costs have been expressed without allowance for escalation, currency fluctuation, or interest.

Table 1-4: Total Capital Cost Estimate, Morelos Complex, Q2 2022 through 2033

As of April 1, 2022	Units	Q2 2022 to 2024 (Total)	2025+ (Total)	Life of Mine (Total)
Non-Sustaining[1] - Media Luna				
Guajes Portal & Tunnel	$M	75.8	0.0	75.8
South Portals & Tunnels	$M	40.2	0.0	40.2
Underground Mine	$M	172.6	0.0	172.6
Process Plant	$M	98.3	0.0	98.3
Tailings and Paste Plant	$M	77.8	0.0	77.8
On-Site Infrastructure	$M	15.0	0.0	15.0
Off-Site Infrastructure	$M	25.9	0.0	25.9
Sub-total Directs	$M	505.6	0.0	505.6
Freight and IMMEX	$M	61.6	0.0	61.6
Contractor Indirects	$M	20.3	0.0	20.3
Mobilization, Spares, Vendor Support	$M	26.6	0.0	26.6
EPCM	$M	81.5	0.0	81.5
Owners Cost	$M	53.3	0.0	53.3
Contingency	$M	99.5	0.0	99.5
Sub-total Indirects	$M	342.8	0.0	342.8
Total Media Luna Non-Sustaining	$M	848.4	0.0	848.4
Non-Sustaining[1] - El Limón Guajes				
ELG Underground - Portal 3	$M	1.7	0.0	1.7
Sustaining[1]				
ELG Open Pit - Capitalized Stripping	$M	93.7	0.0	93.7
ELG Open Pit - Other	$M	24.8	0.0	24.8
ELG Underground	$M	31.1	2.7	33.8
Media Luna Underground	$M	0.0	266.0	266.0
Process Plant	$M	22.8	70.0	92.8
Support equipment leases	$M	10.0	24.0	34.0
Total	$M	182.4	362.7	545.1
GRAND TOTAL	$M	1,032.5	362.7	1,395.2

Note 1: These measures are Non-GAAP Financial Performance Measures (collectively, "Non-GAAP Measures"). For a detailed reconciliation of each Non-GAAP Measure to its most directly comparable GAAP financial measure please refer to the Company's management's discussion and analysis ("MD&A") for the year ended December 31, 2021, dated February 23, 2022. The MD&A is available on the Company's website (www.torexgold.com) and under the Company's SEDAR profile (www.sedar.com). See also Section 2.5– Non-GAAP Financial Measures.

1.14 OPERATING COST ESTIMATE

A summary of the total Morelos Complex operating costs is provided in Table 1-5. All operating costs included have been assumed on a go-forward basis as of April 1, 2022 in order to align with the capital cost estimate time periods described above, and as carried in the project economics. The ELG mines and process plant have been operating since 2016, and their associated costs are well understood. Processing and Site Support costs on a $/t basis will increase incrementally with the Media Luna operation, predominantly due to redistribution of overhead costs with reduced mill throughput. The ML mine operating costs were developed from first principles basis including labor, materials, consumables and energy, using quoted costs or referencing local labor rates and materials costs where applicable. Operating costs have been expressed without allowance for escalation, currency fluctuation, or interest.

Table 1-5: Total Operating Cost Estimate, Morelos Complex, Q2 2022 through 2033

As of April 1, 2022		Q2 2022 to 2024 (Total)	2025+ (Total)	Life of Mine (Total)
Physicals				
Total ore mined - ELG Open Pit	kt	9,528	0	9,528
Waste mined - ELG Open Pit	kt	71,121	0	71,121
Total mined - ELG Open Pit	kt	80,649	0	80,649
Total ore mined - ELG Underground	kt	1,404	1,145	2,549
Total ore mined - Media Luna	kt	806	22,210	23,017
Net stockpile drawdowns	kt	887	3,798	4,685
Total Ore Processed	kt	12,624	27,154	39,778
Operating Unit Costs (with PTU)				
ELG Open Pit - per tonne mined	$/t	2.81	0.00	2.81
ELG Underground - per tonne ore mined	$/t	96.25	100.56	98.19
Media Luna - per tonne ore mined	$/t	44.77	33.65	34.04
Process Plant - per tonne ore processed	$/t	32.63	35.43	34.54
Site Support - per tonne ore processed	$/t	11.49	14.39	13.47
Operating Unit Costs (without PTU)				
ELG Open Pit - per tonne mined	$/t	2.67	0.00	2.67
ELG Underground - per tonne ore mined	$/t	95.10	99.12	96.90
Media Luna - per tonne ore mined	$/t	44.77	33.00	33.42
Process Plant - per tonne ore processed	$/t	31.65	34.78	33.79
Site Support - per tonne ore processed	$/t	10.85	13.98	12.99
Total Operating Cost				
ELG Open Pit	$M	215.2	10.9	226.1
ELG Underground	$M	133.7	113.3	247.0
Media Luna	$M	36.8	733.0	769.8
Process Plant	$M	399.6	944.6	1,344.2
Site Support	$M	137.0	379.7	516.7
Transport/Treatment/Refining	$M	12.3	213.4	225.7
Employee Profit Sharing (PTU)	$M	56.7	55.0	111.7
Capitalized stripping	$M	(44.5)	(49.2)	(93.7)
Total Operating Cost	$M	946.8	2,400.7	3,347.5
Total Operating Cost - per tonne processed	$/t	75.00	88.41	84.15

1.15 ECONOMIC ANALYSIS

The results of the economic analysis of the Morelos Complex, including ELG and Media Luna Mineral Reserves, are presented in Table 1-6 below and are as of April 1, 2022. The production plan used in this analysis is based on the proven and probable reserves at ELG and ML. Operating and capital costs were developed using activity based costing and zero-based principles. The sales revenue is based on the production of gold and silver doré, copper/gold/silver concentrate, and copper precipitate and accounts for appropriate payable factors. The estimates of capital expenditures include project capital, sustaining and non-sustaining capital for the remaining Mineral Reserves for ELG and ML. Closure cost estimates were developed by estimating the impact of future disturbance based on the mine plan.

The Net Present Value (NPV) of the Morelos Complex was calculated at an asset level, based on the financial plan developed as indicated above using 5% discount rate. Incremental benefit arising from Media Luna was determined through comparison of two cases above. This analysis reiterated that Media Luna is not only accretive to the combined operation on a standalone basis, but it also enables the processing of 776 kt (@ 5.41 g/t) of ELG UG ore that would otherwise be uneconomic on a standalone basis.

Table 1-6: Morelos Complex Key Financial Metrics – As of April 1, 2022

Metrics as of April 1, 2022	Units	Morelos Complex	ELG Standalone	ML Incremental
Processed				
Life of Mine	years	12	4	8
Total ore	kt	39,778	15,931	23,847
Total Payable Sold				
Gold	koz	3,294	1,330	1,964
Silver	koz	15,587	661	14,926
Copper	mlb	409	4	405
Gold Equivalent	koz	4,392	1,347	3,045
Operating Costs (life of mine, with PTU)				
ELG Open Pit	$/t mined	2.81		
ELG Underground	$/t mined	98.19		
ML Underground	$/t mined	34.04		
Processing	$/t milled	34.54		
Site Support	$/t milled	13.47		
Transport/Treatment/Refining	$/t milled	5.67		
Total cash costs - By-product[1]	$/oz	545	820	
Total cash costs - gold equivalent[1]	$/oz	809	831	
Mine-site all-in sustaining costs - By-product[1]	$/oz	739	1,015	
Mine-site all-in sustaining costs - gold equivalent[1]	$/oz	954	1,023	
Total Capital Expenditures				
Non-Sustaining	$M	850	2	848
Sustaining	$M	545	184	361
Reclamation and closure	$M	93		
Economics - After-Tax				
EBITDA[1]	$M	3,503	1,067	2,436
NPV (0% discount rate)	$M	1,418	590	828
NPV (5% discount rate) - Base Case	$M	1,040	582	458
NPV (10% discount rate)	$M	778	572	206
IRR	%			16.1%
Project payback period	years			5.8
Base Case Commodity/Currency Assumptions				
Gold	$/oz	1,600	1,600	1,600
Silver	$/oz	21.00	21.00	21.00
Copper	$/lb	3.50	3.50	3.50
MXN/USD		20.00	20.00	20.00

Note 1: These measures are Non-GAAP Financial Performance Measures (collectively, "Non-GAAP Measures"). For a detailed reconciliation of each Non-GAAP Measure to its most directly comparable GAAP financial measure please refer to the Company's management's discussion and analysis ("MD&A") for the year ended December 31, 2021, dated February 23, 2022. The MD&A is available on the Company's website (www.torexgold.com) and under the Company's SEDAR profile (www.sedar.com). See also Section 2.5 – Non-GAAP Financial Measures.

The life of mine recoveries and the payable metal production are shown in Table 1-7. Note that the metal recovery and distribution shown in this table represent the overall results of the current blended LOM mill feed, and they have been estimated based on metallurgical recoveries as stated in Table 1-3. The new process flowsheet and associated recoveries with the Cu Concentrate circuit will start in Q4 2024 onwards.

Table 1-7: Recoveries and Payable Metal Production – As of April 1, 2022

	Concentrate			Doré / Other			Total		
	Au (koz)	Ag (koz)	Cu (klb)	Au (koz)	Ag (koz)	Cu (klb)	Au (koz)	Ag (koz)	Cu (klb)
Existing Processing Plant (Q2 2022 to Q3 2024)									
Recovered to				89.0%	30.0%	10.0%	89.0%	30.0%	10.0%
Recovered metal				1,118	529	3,379	1,118	529	3,379
Payable factor				99.96%	99.50%	96.50%	99.96%	99.50%	96.50%
Payable metal				1,117	526	3,254	1,117	526	3,254
Upgraded Processing Plant (Q4 2024+)									
Recovered to	56.4%	79.1%	89.0%	33.6%	5.9%	3.0%	90.0%	85.0%	92.0%
Recovered metal	1,380	15,461	407,369	823	1,152	13,850	2,202	16,613	421,218
Payable factor	98.25%	90.00%	96.50%	99.96%	99.50%	96.50%	98.89%	90.66%	96.50%
Payable metal	1,354	13,915	392,325	822	1,146	13,338	2,176	15,061	405,663
Life of Mine									
Recovered to	37.3%	72.6%	82.8%	52.5%	7.9%	3.5%	89.8%	80.5%	86.4%
Recovered metal	1,380	15,461	407,369	1,940	1,681	17,229	3,320	17,142	424,597
Payable factor	98.25%	90.00%	96.50%	99.96%	99.50%	96.50%	99.25%	90.93%	96.50%
Payable metal	1,354	13,914.9	392,325	1,940	1,672.6	16,592	3,294	15,587.4	408,917

1.16 OTHER RELEVANT INFORMATION

As part of the current strategy, Torex funds and will continue to fund a multi-million-dollar drilling and exploration budget each year for the Morelos Property. Prospects and exploration targets for the Morelos Property have been divided into two types, Near Mine and District-Scale Exploration Targets. Near Mine are defined to be within the ELG Mine Complex, while district-scale targets are outside of the ELG Mine Complex.

Near mine drilling and exploration at ELG is currently focused in the areas adjacent to the existing infrastructure at the ELG Mine Complex. This includes identification of new resources underneath the pits, and extension of Sub-Sill and ELD underground deposits. As of January 1, 2022, there are 7,500 m of planned underground capital development, which will create suitable access for Infill and Exploration drilling.

Torex, supported by consultants, conducted a district scale target definition utilizing detailed geological mapping and rock-chip sampling, grid-based soil geophysics and detailed geophysical modeling from the property-wide ZTEM-magnetic survey conducted in 2013. Between 2019-2021, a review of the historical targeting and new target generation was conducted. In 2021, two new geophysical surveys were conducted at ML, including a drone magnetic survey to improve the resolution of the magnetic anomalies and a gravimetry survey.

District-Scale exploration targets and prospective areas on the south side of the Balsas River around the ML resource include EPO, EPO North, Media Luna West, Media Luna East, ML02, Todos Santos, and ML04. These targets are referred to as part of the ML cluster. The targets on the north side of Rio Balsas and outside of the ELG Mine Complex includes Esperanza, Querenque, Tecate, and Atzcala.

Approximately $15M has been allocated for District-Scale exploration drilling activities in 2022. From the sixteen district-scale exploration targets, six areas have been prioritized for follow-up work. South of river, the priority targets within the ML cluster include EPO, EPO North and Media Luna West. Three targets are located north of the Balsas River; Esperanza, Querenque and Tecate.

The remaining prospects are at an earlier stage of exploration and the lithologies, structural and alteration controls on mineralization are currently insufficiently understood to support estimation of Mineral Resources. The prospects retain exploration potential and represent significant upside for both mine life and economics.

1.17 CONCLUSIONS AND RECOMMENDATIONS

The ELG and ML deposits are examples of Au and Au-Cu skarn systems. The geology and controls on mineralization are well understood by the site geologists and are appropriate to support the declaration of a Mineral Resource Estimate. The remainder of the property retains exploration potential and continued exploration and drilling is justified to define and expand the resource base at the property. SLR recommends that Torex continue to drill infill holes in the inferred material, and to extend the known mineralization along strike and down dip from the currently defined resources.

The ELG OP mining operations as developed have proven effective in exploiting near surface Guajes and El Limón deposit Mineral Resources. Pit designs and quantities have been updated guided by the results of a pit optimization analysis based on current costs and geological understanding.

The ELG UG operations have been a success since inception, with considerable growth of the reserves over the years due to successful drilling campaigns. There is considerable and real potential for further resources growth and the existing resource base may be suitable for larger-scale production.

Exploration work since 2015 has resulted in an increase in the Mineral Resources at ELG UG, leading to a high-grade Mineral Reserve estimate based on a mechanized cut and fill mine design. The current mining method is appropriate and successful from the operational point of view; however, there remains room for improvement in terms of production increase, productivity improvement, cost reduction, and utilization of resources. The addition of Portal 3 will enhance the ventilation, backfill and hauling systems at the ELG UG once it is completed. Based on financial, exploration success and ELG UG performance in the previous years to date, it is recommended that Torex continue with the production increase /improvement initiatives.

The geometry and rock mass quality make ML amenable to extraction using longhole stoping and mechanized cut and fill mining methods with paste backfill. The steady state production rate of 7,500 t/d is seen to be attainable based on the current level of understanding of the ML deposit.

The ML mine development and mining methods are safe and highly mechanized, they use common equipment and processes that are proven in the global mining industry. The successful execution of these methods to achieve planned underground mine development and production at ML will require the operation to build on its established culture focused on worker health and safety. It will also require investment and emphasis on worker skills training geared toward the new equipment and technology used, along with systems for structured mine planning. Key recommendations include continued engagement with suppliers for all mobile equipment, further assessment of automation and autonomous operation, and securing battery electric vehicles on time to support the LOM schedule. Additionally, the mine plan schedule will be optimized including more detailed assessment of stope designs and cut-off grades in current market price environments.

The existing facilities designed for crushing, grinding, cyanide leach and carbon recovery of precious metals to doré for the existing ELG ores are considered to be suitable for the continued processing of both ELG OP and ELG UG ores. The metallurgical testing program results from the FS indicates that the proposed split flotation circuit to generate a saleable copper concentrate followed by recovery of a high sulphide content Fe-S concentrate with separate leaching of two flotation streams is the preferred process design. A significant part of the existing process facilities will be either reused or repurposed for the future process to minimize capital expenditures. New process facilities for the ML Project include the Fe-S and Cu flotation circuits, water treatment plant, Cu concentrate loadout, new tailings and power infrastructure.

It is recommended to undertake additional testing to increase the understanding of gold deportment and association with minerals, lithology, etc. within the ELG and ML mine zones to support the optimization of operations decisions as to whether to leach flotation tails streams or not. It is also recommended to evaluate online analysis systems to improve turnaround time for online analysis of gold and other elements in the new flotation circuit along with advancing the understanding of copper concentrate handling and blending requirements together with associated facilities. It is also recommended that an assessment be completed with respect to changing grinding media over to high chrome content material to minimize negative impact on flotation performance.

For the waste rock storage facilities, continue on-going slope monitoring practices including daily inspections and utilization of slope instrumentation (prisms, GPS, extensometers). Upgrade software used to manage monitoring data to allow for distribution of real-time alerts of slope displacement. Continue slope management practices including crest cutting, re-grading and short dumping. Modify short dumping as needed to maintain sufficient distance from the crest when near-crest cracking has been observed.

ML is located in an area with moderate climate, workable topography and regional work force that has experience in construction and operations of mining projects. The current ELG Mine Complex has developed significant infrastructure which ML can utilize.

Based on the design of the tailings management system, there are no flaws or unresolvable issues anticipated. NewFields support the current monitoring and testing programs in place for the tailings facility and recommends they continue. Storage of slurry tailings in the GTSF is feasible and economical, further development of the GTSF tailings deposition and water recovery designs is recommended. It is important to note that either tailings strategy proposed for the ML Project; expanding the FTSF or utilizing the GTSF, adhere to the design principles of the GISTM.

Potential water issues related to waste rock and tailings disposal have been identified and plans for mitigation, if required, can be developed.

The site wide water balance demonstrates that sufficient water is available through the LOM. Depending on the amount of water produced by the ML Underground mine, storage and treatment of additional contact water is feasible utilizing the existing mine infrastructure and exhausted open pits. It is recommended that the Company continue to improve the measurement of important inputs to the site wide water balance and the numerical groundwater models, and update the models as needed to optimize development plans. The Operational Water Management Plan should also continue to be refined, including the development of a site storm water management plan.

The baseline environmental studies were comprehensive and reasonable. The ELG Mine Complex and ML Project have an established monitoring program that complies with the permit requirements. Groundwater sampling quality control procedures should be formalized and some techniques improved such as single use samplers or purging prior to sampling.

The ELG Mine Complex and ML Project have the required permits for current activities, and additional permits are either pending responses from the environmental agency or are planned for future submittal. At this time, there are no known factors to preclude a successful permitting effort; however, the length and effort of the permitting process with the Mexican environmental agency can be difficult to predict. A future permit modification to convert the Guajes pit into an in-pit tailings storage facility will be needed. Although in-pit tailings disposal has been used successfully outside of Mexico, there is a potential risk associated with delays in receipt of this permit given that in-pit disposal is a relatively new approach in Mexico. The Company has an on-going strategy to mitigate risks associated with substantial delays. In addition, the Company will require authorization from energy authorities to increase the power draw and distribution required for ML Project, through a connection to the regional 230 kV power line system for the higher electricity loads for ML.

Although the mine is in a state considered as a high-risk security area, the security protocols are well-defined, and no material incidents have occurred in the past three years.

The Company has a strong social license program and there is positive support from the stakeholder communities. In addition, the corporate management has a strong commitment to ESG issues.

A summary of environmental monitoring reports should be prepared at least annually that contain the results of the monitoring programs, data validation, interpretation and discussion of results, and recommendations for corrective actions, as needed. Continued monitoring of environmental systems and mining wastes is recommended. This includes updated predictions of post-closure water quality.

The ML Project estimates were prepared following best practices and consider where applicable site conditions and existing contract and operational costs. The scope of the design will require an $848 million investment in the project period capital, together with $363 in sustaining capital after the project period and through the life of mine. A closure plan and costing were developed for the life of mine conditions that include the existing ELG Mine Complex and the addition of the ML Project.

Evaluation of the ML Project has been completed on an incremental basis considering the overall operation and is financially viable. Based on a long term Au price of $1600, after tax incremental NPV at 5% is $458 million and IRR of 16.1%. ML Project returns are sensitive to the gold price and operating cost.

In addition to the positive economics of the Project, there is an abundance of prospectivity on the south side of the Morelos Property, which is expected to further improve the ML Project's economics. The ML Project also opens up the opportunity for Torex to diversify into becoming a meaningful copper producer.

With tremendous future exploration potential, advancing the ML Project is fundamental to setting up the Morelos Complex for a sustainable future of operations, and prolonged economic prosperity for local communities and all of those who share stakes in the Company.

2 INTRODUCTION

In 2020, Torex Gold Resources Inc. (Torex) undertook an update to the Morelos Property which includes the El Limón Guajes Mine Complex (ELG Mine Complex) and Feasibility Study (FS) for the Media Luna (ML) Project. The ELG Mine Complex entered commercial production in March of 2016, and currently has production provided from three open pits (ELG OP) and an underground mine (ELG UG).

In addition to Torex, the following consultants were commissioned to carry out this work:

- M3 Engineering & Technology Corporation (M3)
- SLR Consulting (Canada) Ltd (SLR)
- Consultoría e Ingeniería Promet101 Ltda. (ProMet101)
- BQE Water Inc. (BQE)
- BBA E&C Inc. (BBA)
- Stantec Consulting International Ltd. (Stantec)
- Paterson & Cooke Canada Inc. (P&C)
- Golder Associates Ltd. (Golder)
- JDS Energy & Mining Inc. (JDS)
- NewFields Mining & Technical Services LLC (NewFields)
- Call & Nicholas, Inc. (CNI)
- Conrad Partners Limited

Torex's contact information is as follows:

Torex Gold Resources Inc.
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Toronto, ON
Canada M5X 2A2
Tel: (647) 260 1500
Fax: (416) 304 4000

This Technical Report has been prepared in accordance with the guidelines provided in National Instrument 43-101, Standards of Disclosure for Mineral Projects (NI 43-101). The effective date of this Technical Report is March 16, 2022. The issue date of this Technical Report is March 31, 2022. The Qualified Persons responsible for this Technical Report are:

- Robert Davidson, P.E., Project Manager
  M3 Engineering & Technology Corporation
- Johannes (Gertjan) Bekkers, P.Eng., Director, Mine Technical Services
  Torex Gold Resources
- John Makin, MAIG, Consultant Geologist
  SLR Consulting (Canada) Ltd
- Stuart J Saich, FAusIMM, Process Engineering Consultant
  Consultoria e Ingenieria Promet101 Ltda
- Carl Burkhalter, P.E. Civil Engineer
  NewFields Mining & Technical Services LLC

- William Lucas Kingston, MSc, PG, Associate Hydrogeologist
  NewFields Mining & Technical Services LLC
- Dawn Garcia, PG, CPG, Senior Geologist
  Golder Associates USA Inc.
- Michal Dobr, RNDr.,P.Geo.(BC), Senior Hydrogeologist
  Golder Associates Ltd.
- Michael L. Pegman, P.E. Geotechnical Engineer
  Golder Associates USA Inc
- Ross Hammett, Ph.D., P.Eng.(BC), Senior Geotechnical Engineer
  Golder Associates Ltd.
- Robert W. Pratt, P.E. Vice President and Senior Geological Engineer
  Call & Nicholas, Inc.
- Leslie Correia, Pr.Eng. Engineering Manager
  Paterson & Cooke Canada Inc.
- David Halley, FAusIMM, Executive Director
  Conrad Partners Limited
- Michael E Levy, MSc., P.E., P.G., P.Eng., Geotechnical Manager
  JDS Energy & Mining Inc.

Site visits and areas of responsibility are summarized in Table 2-1 for the QPs.

Table 2-1: Dates of Site Visits and Areas of Responsibility

QP Name	Latest Site Visit Date	Area of Responsibility
Robert Davidson	November 18, 2014	Sections 2, 3, 4, 5, 6, 18.1, 18.2, 18.3, 18.4, 18.5, 18.6, 18.7, 18.8, 18.9, 18.10, 18.13.1.3, 18.13.2.3, 18.13.2.4, 21.1.2, 21.1.3.4, 21.1.3.5, 21.2.1.3, 21.2.2 (except 21.2.2.1), 21.3.4, 21.3.5, 21.3.6, 22, 23, 24.2, 24.3 and those parts of the key points, summary, interpretations and conclusions, recommendations, and references to these sections.
Johannes (Gertjan) Bekkers	October 25-29 and November 22-25, 2021	Sections 15, 16 (except 16.2.1, 16.3.2, 16.4.2, 16.4.3, 16.4.7), 21.1 (except 21.1.2, 21.1.3.4, 21.1.3.5), 21.2.1 (except 21.2.1.3), 21.2.2.1, 21.3.1, 21.3.2, 21.3.3, and those parts of the key points, summary, interpretations and conclusions, recommendations, and references to these sections.
John Makin	December 13 to December 17, 2021	Sections 7, 8, 9, 10, 11, 12, 14, 24.1, and those parts of the summary, interpretations and conclusions, recommendations, and references to these sections.
Stuart J Saich	December 17, 2019	Sections 13, 17 and those parts of the summary, interpretations and conclusions, recommendations, and references to these sections.
Carl Burkhalter	November 17 to November 18, 2021	Section 18.12 (except 18.12.2.1) and those parts of the summary, interpretations and conclusions, recommendations, and references to these sections.
William Lucas Kingston	March 8, 2020	Sections 18.11.3, 18.12.2.1, 18.13.1 (except 18.13.1.3), 18.13.2 (except 18.13.2.3, 18.13.2.4), 20.5.1 and those parts of the summary, interpretations and conclusions, recommendations, and references to these sections.
Dawn Garcia	February 7 to February 8, 2022	Section 20 (except 20.5.1) and the corresponding subsections of the summary, interpretations and conclusions and recommendations sections.
Michal Dobr	N/A*	Section 16.4.3 and references to this section.
Michael L. Pegman	N/A*	Section 18.11.2 and those parts of the summary, interpretations and conclusions, recommendations, and references to these sections.
Ross Hammett	N/A*	Section 16.4.2 and references to this section.
Robert W. Pratt	November 20 to November 23, 2021	Section 18.11.1 and those parts of the summary, interpretations and conclusions, recommendations, and references to these sections.
Leslie Correia	N/A*	Section 16.4.7 and those parts of the summary, interpretations and conclusions, recommendations, and references to these sections.
David Halley	N/A*	Section 19.
Michael E. Levy	November 2 to November 5, 2021	Sections 16.2.1, 16.3.2 and those parts of the summary, interpretations and conclusions, recommendations, and references to this section.
*A site visit was not necessary for the parts of the Technical Report for which the QP is responsible.		
The documentation reviewed, and other sources of information, are listed at the end of this Technical Report in Section 27 References. All authors contributed to the compilation of Section 27 References.		

2.1 PURPOSE AND BASIS OF TECHNICAL REPORT

This Technical Report documents the results of a life of mine plan for the ELG Mine Complex and presents the findings of a Feasibility Study for the Media Luna Project. The information presented, opinions, conclusions, and estimates made are based on the following information:

- Current operating information provided by Torex and their contractors;
- Assumptions, conditions, and qualifications as set forth in the report; and
- Data, reports, and opinions from third-party entities and previous property owners.

All such information has been reviewed by the authors of this Technical Report and they believe such information to be factual and accurate and that any interpretations and conclusions are reasonable. The authors have taken appropriate steps in their professional judgment, to ensure that the information is accurate and they do not disclaim any responsibility for this Technical Report other than as allowed under NI 43-101 in the Reliance on Other Experts section below.

2.2 TERMS AND DEFINITIONS

The Morelos Property as referred in this Technical Report means collectively all of the mining concessions held by MML (see subsection 4.4.1. – Property Description and Location – Current Tenure – Mining Title). The Morelos Complex includes the existing ELG Mine Complex, and the future Media Luna Project mine and infrastructure (each as defined below). Other important terms used in this Technical Report are presented in Table 2-2. These are not all of the terms presented in the Technical Report, but include major terms that may not have been defined elsewhere.

Table 2-2: Terms and Definitions

Full Name	Abbreviation
Above mean sea level	amsl
Acid Base Accounting	ABA
Acid Rock Drainage	ARD
All-in sustaining costs	AISC
Amec Foster Wheeler	Amec
Area of Direct Influence	ADI
Area of Indirect Influence	AII
Arsenic	As
Atomic Absorption Spectroscopy	AAS
Attorney General for Environmental Protection (Procuraduría Federal de Protección al Ambiente)	PROFEPA
Base Metallurgical Laboratories Ltd.	BML
Bismuth	Bi
Cadmium	Cd
Canadian Council of Ministers of the Environment	CCME
Canadian Institute of Mining, Metallurgy and Petroleum	CIM
Carbon in Column	CIC
Carbon in Pulp	CIP
Carbon Monoxide	CO
Catch per Unit Effort	CPUE
Cemented Rock Fill	CRF
Centimeter	cm
Central Water Pond	CWP
Certified Reference Material	CRM
Change in Land Use Permit	CUS
Comision Federal de Electricidad	CFE
Communications and Transportation Secretariat	SCT
Community Relations Team	CRT
Confederación de Trabajadores Mexicanos	CTM
Constituents of Potential Concern	COPC
Convenio de Desarrollo Comunitario Participativo	CODECOP
Convention on International Trade in Endangered Species of Wild Flora and Fauna	CITES
Copper	Cu
Copper Concentrate	Cu Con
Cubic meters	m^3
Cubic meters per day	m^3/d
Cubic meters per hour	m^3/h
Cut-off Grade	CoG
Cyanide	Cn
Degrees	°

Full Name	Abbreviation
Degrees Celsius	°C
Detoxification	DETOX
Economically Active Population	EAP
El Limón Guajes as generally referenced to the deposits or mines within the ELG Mine Complex	ELG
El Limón Guajes Open Pits	ELG OP
El Limón Guajes Underground	ELG UG
El Limón Guajes Mine Complex (inclusive of ELG Open Pits, ELG UG, Process plant and other infrastructure associated with the existing ELG Mine Complex operation)	ELG Mine Complex
El Limón Deep deposit or mine as part of the ELG Underground Mine	ELD
El Limón Norte	ELN
El Limón Sur	ELS
Energy Secretariat	NUCL
Environmental and Social Impact Assessment	ESIA
Environmental and Social Management System	ESMS
Environmental, Social, and Governance	ESG
Environmental Management Plan	EMP
Environmental, Health and Safety (Guidelines)	EHS (Guidelines)
Equator Principles	EP
Equivalent Grinding Length	EGL
Estudio Técnico Justificativo (Technical Justification Study)	ETJ
Feasibility Study	FS
Federal Electricity Commission (Comisión Federal de Electricidad)	CFE
Federal Energy Regulatory Commission (Comisión Reguladora de Energía)	CRE
Federal Environmental Licenses (Licencia Ambiental Única)	LAU
Filtered Tailings Storage Facility	FTSF
General Directorate of Environmental Impact and Risk (Subsecretaría de Gestión para la Protección Ambiental con la Dirección General de Impacto y Riesgo Ambiental)	DGIRA
Generally Accepted Accounting Principles (which for this Technical Report are the International Financial Reporting Principles)	GAAP
Global Discovery Laboratory	GDL
Global Industry Standard on Tailings Management	GISTM
Global Positioning System	GPS
Global Reporting Initiative Standards	GRI
Gold	Au
Gold Equivalent	AuEq
Golder Associates Inc.	Golder
Grams per dry metric tonne	gms/dmt
Grams per tonne	g/t
Greenhouse Gas	GHG
Gross Domestic Product	GDP
Guajes Portal and Tunnel	GT
Guajes Pit Tailings Storage Facility	GTSF
Hazard Identification and Analysis	HAZAN
Hazard and Operability Analysis	HAZOP
Hazard Quotient	HQ
Health Secretariat	SSA
Health & Safety	H&S
hectare	ha
Hydrocyanide	HCN
Hydrogen Cyanide	H_2S
Inductively Coupled Plasma	ICP

Full Name	Abbreviation
Instituto Nacional de Estadística y Geografía	INEGI
International Cyanide Management Code	ICMC
International Finance Corporation	IFC
International Finance Institution	IFI
Iron	Fe
Iron Sulphide	Fe-S
Iron Sulphide Concentrate (leached Fe-S Concentrate)	Fe-S Cons
Iron Sulphide Tailings (leached Fe-S Tailings)	Fe-S Tails
JDS Engineering	JDS
Kilogram	kg
Kilograms per cubic meter	kg/m^3
Kilometer	km
Kilopascals	kPa
Kilotonnes	kt
Labor Secretariat	STPS
Labor Party	PT
Lead	Pb
Ley General de Equilibrio Ecológico y Protección al Ambiente	LGEEPA
Life of Mine	LOM
Liter	L
Liters per second	L/s
Longhole Stoping	LHS
Local Study Area	LSA
M3 Engineering and Technology Corp.	M3
Maintenance and repair contracts	MARC
Manifestación de Impacto Ambiental (or Environmental Impact Statement)	MIA
Mean Sea Level	MSL
Mechanized cut and fill	MCAF
Media Luna EPO Mine Area	EPO
Media Luna deposit or mine	ML
Media Luna Lower Mine Area	MLL
Media Luna Project	ML Project
Media Luna Upper Mine Area	MLU
Meter	m
Meters above mean sea level	MAMSL
Meters above sea level	MASL
Meters below ground surface	mbgs
Meters per day	m/d
Metric tonnes per day	t/d
Metric tonnes per meter	t/m
Metric tonnes per year (or per annum)	tpa or t/a
Micrometer or micron	µm
Millimeters	mm
Million U.S. dollars	$M
Million metric tonnes	Mt
Million pounds	Mlb
Minera Media Luna S.A. de C.V.	MML
Minera Nukay	Nukay
Miranda Mining Development Corporation	MMC

Full Name	Abbreviation
Morelos Property referring collectively to all mineral concessions operated by Minera Media Luna, including the ELG Mineral Resources and Reserves, Media Luna Mineral Resources and Reserves, and regional exploratory targets	Morelos Property
Morelos Complex referring collectively to the existing ELG Mine Complex and future Media Luna mine and associated infrastructure	Morelos Complex
National Action Party	PAN
Net Operating Hour	NOH
National Commission for Natural Protected Areas (Comisión Nacional de Areas Naturales Protegidas)	CONANP
National Commission for the Knowledge and Use of Biodiversity	CONABIO
National Commission of Aquaculture and Fish (Comisión Nacional de Acuacultura y Pesca)	CONASPECA
National Council for Evaluation of Social Development Policy	CONEVAL
National Energy Control Center (Centro Nacional de Control de Energía)	CENACE
National Environment Institute and the Federal Attorney Generalship of Environmental Protection	PROFEPA
National Forestry Commission (Comisión Nacional Forestal)	CNF
National Institute of Anthropology and History (Instituto Nacional de Antropología e Historia)	INAH
National Institute of Statistics and Geography	INEGI
National Instrument	NI
National Population Council	CONAPO
National Water Commission (Comisión Nacional del Agua)	CONAGUA
Net Present Value	NPV
NewFields Mining Design & Technical Services	NewFields
Net Processing Revenue	NPR
Non-Acid Generating	NAG
Normas Oficiales Mexicanas	NOMS
North American Free Trade	NAFTA
Not potentially acid generating	non-PAG
Operational Water Management Plan	POMA
Ordinary kriging	OK
Particulate Matter	PM
Paste Backfill	PBF
Parts per billion	ppb
Parts per million	ppm
Party of Democratic Revolution	PRD
Paterson & Cooke Canada Inc.	P&C
Percent by mass	%m
Performance Standard	PS
Piping and Instrumentation Diagram	P&ID
Potentially Acid Generating	PAG
Pound	lb
Pre-Feasibility Study	PFS
Preliminary Economic Assessment	PEA
Process Control Diagram	PCD
Process Flow Diagram	PFD
Procuraduría Federal de Protección de Ambiente	PROFEPA
Programa de Seguimiento de Calidad Ambiental	PSCA
Programa para la Prevención de Accidentes (Program to prevent risk)	PPA
Purchasing Power Parity	PPP
Qualified Person	QP
Quality Assurance and Quality Control	QA/QC
Red Mexicana de Afectadas y Afectados por la Minería	REMA
Region of Importance for Conservation of Birds	AICAS

Full Name	Abbreviation
Regional Environmental System	RES
Regional Study Area	RSA
Resettlement Action Plan	RAP
Resolución de Impacto Ambiental	RIA
Responsible Gold Mining Principles	RGMPs
Reverse Circulation	RC
Rock Quality Designations	RQD
Secretaría de Medio Ambiente y Recursos Naturales (Secretariat of the Environment)	SEMARNAT
Secretaría de Medio Ambiente, Recursos Naturales y Pesca, SEMARNAP (Secretary of Environment and Natural Resources)	SEMARNAP
Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food	SAGARPA
Secretariat of the Environment, Natural Resources and Fishing	ECOL
Semi-autogenous grinding	SAG
Silver	Ag
Simpson's Diversity Index	SDI
Simpson's Evenness Index	SEI
South Portal Upper and Access Tunnel	SPU
South Portal Lower and Access Tunnel	SPL
Square meter	m^2
SRK Consulting	SRK
Stakeholder Engagement Plan	SEP
Standard Proctor Maximum Dry Density	SPMDD
Sulfidization, acidification, recycling and thickening	SART
Sustainability Accounting Standards Board	SASB
Sub-Sill deposit or mine as part of the ELG Underground Mine	Sub-Sill
Taskforce on Climate-related Financial Disclosures	TCFD
Teck Resources Limited	Teck
Terrestrial Priority Region (Region Terrestre Priorities)	RTP
The Security, Energy and Environment Agency (Agencia de Seguridad, Energía y Ambiental)	ASEA
Thousand ounces	koz
Thousand tonnes per day	ktpd
Torex Gold Resources Inc.	Torex
Total Dissolved Solids	TDS
Total Organic Carbon	TOC
Total Suspended Particles	TSP
Total Suspended Solids	TSS
Toxicity Reference Value	TRV
Uncemented Rock Fill	URF
Universal Transverse Mercator	UTM
Villa Lunas de Oro Mine Camp	VLO
Waste Rock Storage Facilities	WRSF
Waste Water Treatment Plant	WWTP
Water Treatment Plant (for process water treatment at El Limón Guajes)	WTP
World Wildlife Fund	WWF
Zinc	Zn
Zone of Influence	ZOI

The names Torex and MML are used interchangeably in this Technical Report, as Torex holds 100% ownership of MML.

2.3 UNITS

This Technical Report uses metric measurements. Unless otherwise stated, the currency used in the report is U.S. dollars ($). The local currency of Mexico is the Mexican peso.

2.4 CAUTIONARY NOTE WITH RESPECT TO FORWARD LOOKING INFORMATION

This Technical Report contains "forward-looking information" and "forward-looking statements" within the meaning of applicable Canadian securities legislation. Forward-looking information includes, without limitation, information with respect to proposed exploration, development, construction and production activities and their timing, the results set out in the Technical Report including the Feasibility Study of the ML Project, including, mineral resource estimates, mineral reserve estimates and potential mineralization; the estimates of capital and sustaining costs; assumed metal payable factors; projected revenues and cash flows; estimated net present values and anticipated internal rates of return; estimated payback period; future production, operating costs, total cash costs and mine-site sustaining costs and other expenses and other economic parameters; expected mine life or project life; expected mine, mill and metal production and metallurgical recoveries; the initiatives underway to realize available upside and build-on the solid base case production and cash flow; the Company's future exploration potential; expectation that the ML Project will set up the Morelos Complex for sustainable future operations, and prolonged economic prosperity for all of those who share stakes in the Company; the economics set out in the Technical Report are grounded in operating costs, capital costs, and ramp-up time frames being both realistic and achievable; the expected further improvement in the ML Project's economics due to the abundance of prospectivity on the south side of the Morelos Property; the opportunity for the Company to diversify into becoming a meaningful copper producer; plans to further optimize the ELG Mine Complex; the expected increase in production in 2025; initiatives planned to fill the mill beyond 2027; opportunities to transition to lower cost longhole stoping at ELG which could result in potentially higher throughput in the ELG Underground and lower unit costs; assumed ramp up period to commercial production for the ML Project; the planned upgrades and additions to the process plant to process the ore from ML; expected availability of stockpiles to wet commission the upgraded process plant; tailings management plans; belief that the southside of the Morelos Property offers significate resource upside; the expected access that the South Portals will provide in advance of the completion of the Guajes Tunnel; the increased power demands of the ML Project. potential to reduce unit costs by filling the mill; the estimated NPV and implied IRR; the expected incremental benefit of ML to ELG; the exploration potential of the broader Morelos Property; expectation to build-on the point in time economics by extending reserves within the existing deposits, potentially bringing new deposits such as EPO into reserves, and identifying new sources of incremental feed beyond ML; the focus on drilling to extend the current life of the Morelos Complex and to bolster medium term production by filling the mill beyond 2027, when the processing plant will be under utilized with ML the sole source of feed; planned hybrid mining fleet; expected approval of the permit authorizing the operations for the ML Project; plans to continue to achieve compliance with ESG performance standards; expected cash flow generation prior to the capital expenditures on the ML Project, including expected corporate G&A and exploration/drilling expenditures. Generally, forward-looking information can be identified by the use of terminology such as "plans", "expect", "outlook", "forecast" "estimate", "near-term", "long term", "opportunity", "potential", "plan", "envision", "beyond", "commitment" and "ongoing" or variations of such words, or statements that certain actions, events or results "can", "may", "would", "will", occur, or "will be" taken or achieved. Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking information, including, without limitation, forward-looking statements and assumptions pertaining to the following: risk associated with skarn deposits including grade variability; fluctuation in gold, copper and other metal prices; commodity price risk; currency exchange rate fluctuations; ability to realize the results of the feasibility study; uncertainty regarding the inclusion of inferred Mineral Resources in the Mineral Resource estimate and the ability to upgrade the Mineral Resources to a higher category, uncertainty regarding the ability to convert any part of the Mineral Resource into Mineral Reserves, uncertainty involving resource estimates and the ability to extract those resources economically, or at all; uncertainty involving drilling programs and the ability to expand and upgrade existing resource estimates; ability to obtain the timely supply of services, equipment and materials for the operation of the ELG Mine Complex and the design, development and construction of the ML Project; the regulatory process and actions; ability to finance the ML Project on reasonable terms, and those risk factors identified in the Technical Report and the Company's annual information form and MD&A. Forward-looking information is based on the assumptions discussed in the Technical Report and such other reasonable assumptions, estimates, analysis and opinions of management made in light of its experience and perception of trends, current conditions and expected developments, and other factors that management believes are relevant and reasonable in the circumstances at the date such statements are made. Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in the forward-looking information, there may be other factors that cause results not to be as anticipated. There can be no assurance that such information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. Accordingly, readers should not place undue reliance on forward-looking information. The Company does not undertake to update any forward-looking information, whether as a result of new information or future events or otherwise, except as may be required by applicable securities laws.

2.5 NON-GAAP FINANCIAL MEASURES

The Company has presented certain future non-GAAP financial measures ("Non-GAAP Measures") in this Technical Report within the meaning of National Instrument 52-112 – Non-GAAP and Other Financial Measures. Total cash costs per ounce of gold (Au) or gold equivalent (AuEq) sold ("TCC"), total cash costs margin per ounce of gold or AuEq sold, mine-site all-in sustaining costs per ounce of gold or AuEq sold ("AISC"), mine site AISC margin, mine-site earnings before interest, taxes, depreciation and amortization ("mine-site EBITDA"), sustaining capital expenditures and non-sustaining capital expenditures included in this news release are Non-GAAP Measures. Non-GAAP Measures have no standard meaning under International Financial Reporting Standards ("IFRS"), the financial reporting framework used by the Company, and may not be comparable to other issuers. The Company believes that these measures, while not a substitute for measures of performance prepared in accordance with IFRS, provide investors with an improved ability to evaluate the underlying performance or financial position of the Company. Please see Table 13 for the equivalent historical non-GAAP measure. For the year ended December 31, 2021, the following historic Non-GAAP Measures were reported in the Company's management's discussion and analysis ("MD&A") for the year ended December 31, 2021, dated February 23, 2022, which is available on the Company's website (www.torexgold.com) and under the Company's SEDAR profile (www.sedar.com): EBITDA - $461.6M; TCC - $674/oz Au; TCC margin $1,120/oz Au; AISC – $928/oz; AISC margin - $865/oz Au; sustaining capital costs - $85.3M; and non-sustaining costs - $152.4M. For a detailed reconciliation of each historical Non-GAAP Measure to its most directly comparable GAAP financial measure, please refer to the Company's management's discussion and analysis ("MD&A") for the year ended December 31, 2021, dated February 23, 2022, which is available on the Company's website (www.torexgold.com) and under the Company's SEDAR profile (www.sedar.com). Please note that in this Technical Report, the forward-looking AISC, AISC margin, potential sustaining exploration costs and mine-site EBITDA do not include Torex corporate G&A.

3 RELIANCE ON OTHER EXPERTS

The Qualified Persons (QPs) have relied upon and disclaim responsibility for information derived from the following reports pertaining to certain legal matters, including mineral tenure and royalties, surface and water rights acquired from private parties, and environmental and permitting.

The QPs have reviewed the information provided by Torex and the reports noted below and find in each case that the work has been performed to normal and acceptable industry and professional standards. The QPs are not aware of any reason why the information provided by these contributors cannot be relied upon.

3.1 MINERAL TENURE AND ROYALTIES

An independent verification of mineral tenure and royalties was not performed by the QPs. The QPs have not verified the legality of any underlying agreement(s) that may exist concerning the license or other agreement(s) between third parties. The QPs of this Technical Report relied upon contributions from other consultants as well as Torex. Likewise, Torex provided data for and verified claim (mineral) ownership. For the purposes of this Technical Report, the following document was referred to with respect to mineral ownership rights:

- Sánchez-Mejorada, Velasco y Ribé, S.C. Mining rights title report and opinion on the concessions held by Minera Media Luna, S.A. de C.V.: unpublished legal opinion letter prepared by Sánchez-Mejorada, Velasco y Ribé Abogados for Torex Gold Resources Ltd., March 16, 2022.

This information is used in Section 4.4, Section 14, and Section 15.

3.2 SURFACE AND WATER RIGHTS ACQUIRED FROM PRIVATE PARTIES

An independent verification of surface and water rights acquired from private parties was not performed by the QPs. The QPs have not verified the legality of any underlying agreement(s) that may exist concerning the agreement(s) between third parties. The QPs of this Technical Report relied upon contributions from other consultants as well as Torex. Likewise, Torex provided data for and verified surface and water rights (surface rights for water wells and ducts) acquired from private parties. For the purposes of this Technical Report, the following document was referred to with respect to current surface and water rights (surface rights for water wells and ducts):

- Sánchez-Mejorada, Velasco y Ribé, S.C. Surface rights report and opinion on the land expected to be used by Minera Media Luna, S.A. de C.V.: unpublished legal opinion letter prepared by Sánchez-Mejorada, Velasco y Ribé Abogados for Torex Gold Resources Ltd., March 16, 2022.

This information is used in Section 4.3, Section 14, Section 15, and Section 20.

3.3 ENVIRONMENTAL STUDIES AND PERMITTING

An independent verification of the environmental regulations and surrounding legal and policy framework contained in this Technical Report was not performed by the QPs. The QPs of this Technical Report relied upon contributions from other consultants as well as internal Torex personnel. Torex personnel provided data for parts of Section 20 of this Technical Report with respect to these matters. For the purposes of Section 20 of this Technical Report, the following documents were referred to:

- MIA-Integral for the combined ELG Mine Complex and ML Project (submitted to SEMARNAT in July 2021).
- Environmental and social baseline reports submitted as part of the MIA-Integral and referenced in Section 20.4.

- Annual environmental compliance reports submitted to PROFEPA and SEMARNAT
- Torex Gold 2020 Responsible Gold Mining Report
- Torex Gold Environmental Quality and Monitoring Program

This information is used in Section 20.2.1, Section 20.3, Section 20.4, Section 20.6, Section 20.8, and Section 20.9.2.

3.4 RELIANCE LEGISLATED UNDER SECURITIES LAWS

Except for the purposes legislated under applicable securities laws, any use of this Technical Report by any third party is at that third party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

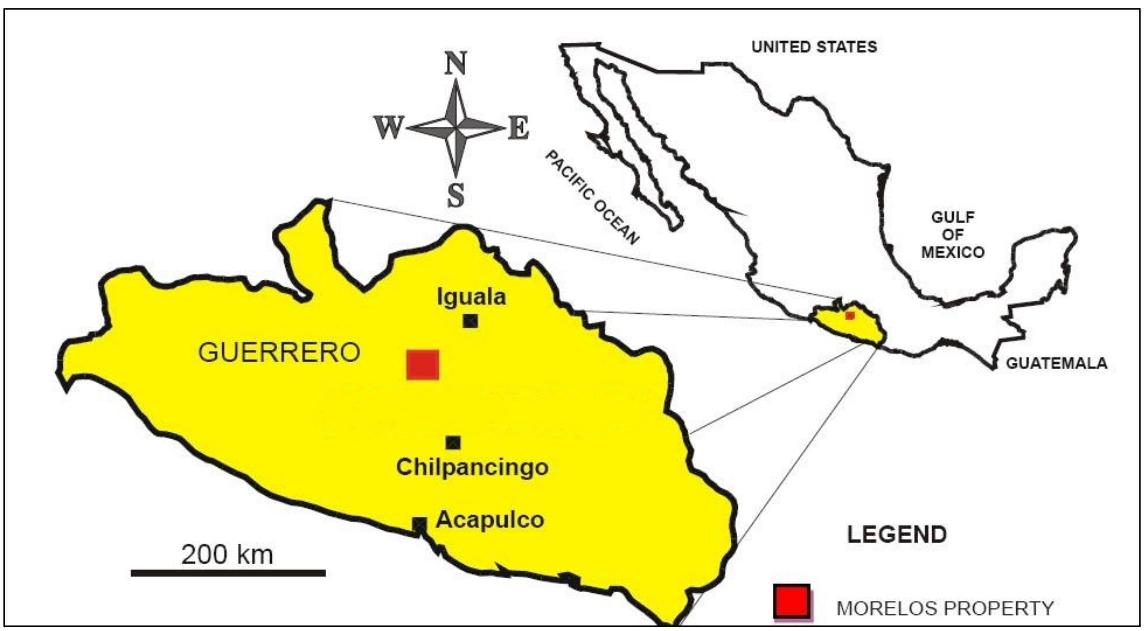
The key points made in this section include the following:

- The ELG Mine Complex and ML Project are located in Guerrero State, Mexico.
- Torex, through its ownership of MML, holds 100% title to seven concessions, including Reducción Morelos Norte Concession, collectively covering approximately 29,000 ha and located approximately 180 km southwest of Mexico City within Guerrero State, Mexico.
- The Guajes, El Limón, and Media Luna deposits are located in the Reducción Morelos Norte Concession.
- There is a 2.5% royalty payable to the Mexican government on minerals produced and sold from the Reducción Morelos Norte Concession.
- Of the 1,955 ha of land that are required for the ELG Mine Complex, 1,840 ha are held by MML under temporary occupation agreements, 35 ha are held by MML under a preparatory temporary occupation agreement and the remainder are held by MML under a preparatory temporary use and enjoyment assignment agreement.
- MML has also acquired surface rights for 2,647 ha of land for the exploration, development and construction of the ML Project under temporary occupation agreements with the Puente Sur Balsas Ejido and individual parcel owners.

4.1 LOCATION

The ELG Mine Complex and ML Project are located in Guerrero State, Mexico, approximately 180 km south-southwest of Mexico City. The location of the Morelos Property in relation to the state of Guerrero, as well as its location within Mexico, can be seen in Figure 4-1.

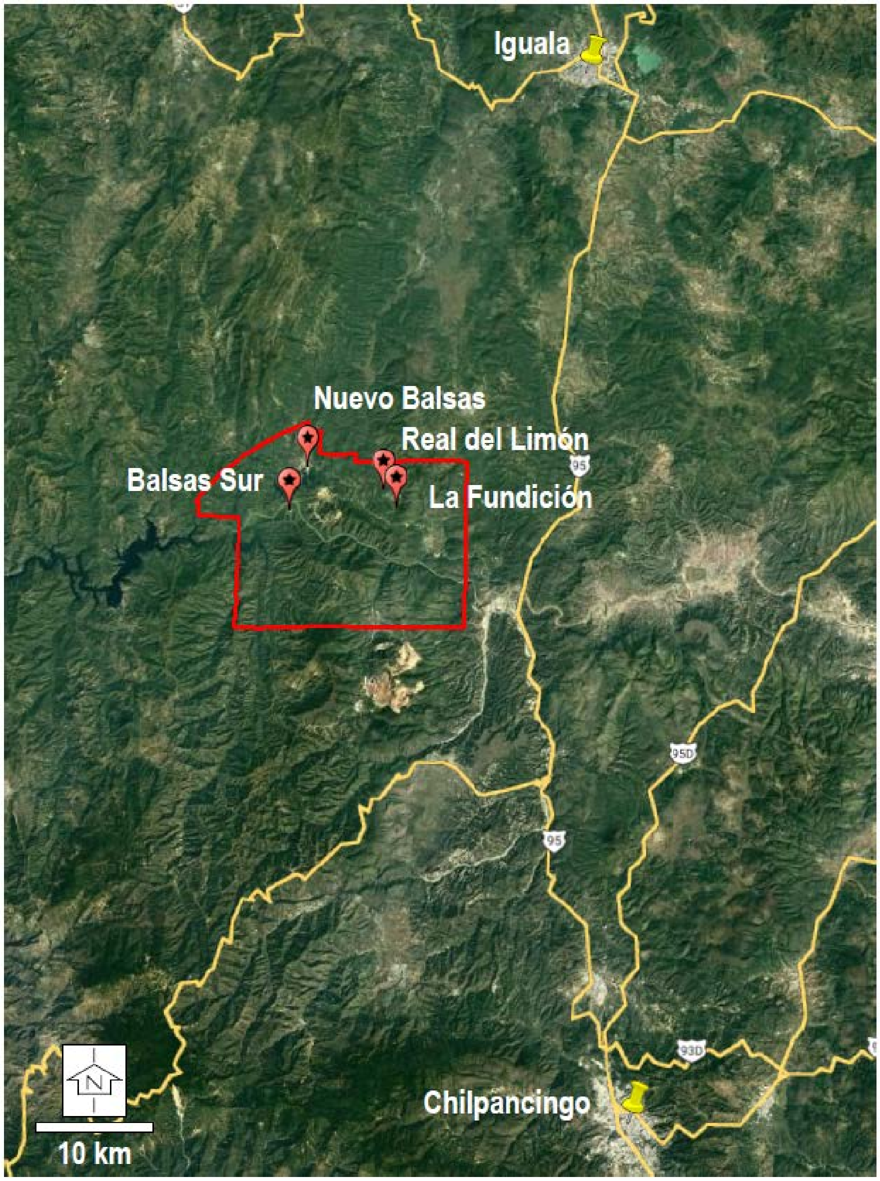
The approximate geographic center of the ELG Mine Complex is 18.0075 N, 99.7443 W. The approximate geographic center of the mineral resource of the ML Project is 17.9597 N, 99.7322 W.



Note: Figure dated July 2008, Figure courtesy of Torex.

Figure 4-1: Site Location Map

Figure 4-2 shows local communities near and within the Morelos Property. The red 'box' identifies the 29,000 ha of the Morelos Property area.



Note: Figure courtesy of Torex, 2022. Map: North is to the top of the map.

Figure 4-2: Local Communities and Infrastructure

4.2 HISTORY OF THE OWNERSHIP OF MINING CONCESSION

The following is a chronological description of the formation of the concessions and their ownership.

- In 1983, the Morelos Mineral Reserve was created and encompassed 47,600 ha, including the area of the El Limón and Guajes deposits and Media Luna deposit.
- In 1995, the Mexican Government divided the Morelos Mineral Reserve into the two concessions named Reducción Morelos Sur and Reducción Morelos Norte. The latter contained the area of the El Limón and Guajes deposits and the ML deposit.

- In 1998, through a bidding process, the Reducción Morelos Norte concession was awarded to MML, a joint venture between Miranda Mining Development Corporation (MMC) and Teck Corporation.
  - As a result of the bidding process, the Reducción Morelos Norte claim block is subject to a royalty of 2.5% on total revenue to the Servicio Geológico Mexicano.
- On September 14, 1999, the concessions titled El Anono, El Cristo, San Francisco, and El Palmar were obtained by MML in a transfer of mining assets agreement with Minera Babeque, S.A. de C.V. (Babeque).
  - Royalty payment of 2.5% net smelter return is payable to Minas de San Luis, S.A. de C.V. on the El Cristo, San Francisco, El Anono and El Palmar concessions.
- On May 8, 2003, the concession titled Apaxtla 2 was obtained by MML in a transfer of mining assets agreement with Compañía Minera Nukay, S.A. de C.V.
  - Royalty payment of 1.5% net smelter return is payable to Minas de San Luis, S.A. de C.V. (formerly Minera Nafta, S.A. de C.V.) on the Apaxtla 2 concession.
- On April 28, 2004, the concession titled La Fe was obtained by MML in a transfer of mining assets agreement with Minera Teck, S.A. de C.V.
- MML was held 60% by Teck Resources Limited (Teck), and 40% by MMC.
- In 2003, Wheaton River Minerals acquired MMC, and was in turn, in 2005, acquired by Goldcorp.
- By 2009, the Morelos Property was held 78.8% by Teck, and 21.2% by Goldcorp.
- On November 16, 2009, Gleichen (previous name of Torex) acquired Teck's 78.8% share of the Morelos Property via an agreement dated August 6, 2009. This purchase was completed by Torex's purchase of 100% of Oroteck, S.A. de C.V. from Teck's subsidiaries Teck Metals Ltd. and Teck Exploration Ltd. Oroteck, S.A. de C.V. was the holding entity for Teck's 78.8% interest in MML in Mexico. Upon purchase of Oroteck, S.A. de C.V. by Torex, the company's name was changed to TGRXM S.A. de C.V. (TGRXM). TGRXM is a wholly-owned subsidiary of Torex.
- On February 24, 2010, Torex, through TGRXM, completed the acquisition of all of the shares of MML, held by Desarrollos Mineros San Luis, S.A. de C.V. (DMSL), a wholly-owned subsidiary of Goldcorp. This holding represented the remaining 21.2% of the issued and outstanding shares of MML. The acquisition was completed through the exercise of a right of first refusal held by TGRXM to acquire 7.2033% Series A shares and 14.0% Series G shares in the capital of MML. As a result of the acquisition, Torex now holds 100% of the issued and outstanding shares of MML, through its wholly-owned subsidiary TGRXM. MML is the registered holder of a 100% interest in the Morelos Property in the State of Guerrero, Mexico.

4.3 SURFACE OWNERSHIP

The vast majority of the land in the Reducción Morelos Norte concession is owned by Ejidos. Land owned by an Ejido is collectively administered and is held by its members as either common land, which is jointly owned by the members, or as parcels which are held by individual members.

4.3.1 ELG Mine Complex

Of the 1,955 ha of land required for the ELG Mine Complex and held under temporary occupation agreements (TOAs), the preparatory temporary occupation agreement (PTOA) and the preparatory use and enjoyment assignment agreement (PUEAA), 1,237 ha is owned by the Balsas River Ejido and individual parcel owners (ejidotarios), and 603 ha is owned by the Real del Limón Ejido and individual parcel owners. The only private property within the ELG Mine Complex area is to the south of the Real del Limón Ejido; it has a surface area of 115 ha.

MML has secured surface rights to land for the direct development of the Morelos Complex through the signing of long-term ELG TOAs with the Balsas River and Real del Limón Ejidos and with the members of such Ejidos and in respect of the private property, through the signing of a PTOA and a PUEAA. These agreements cover approximately 1,955 ha of land. The following paragraphs provided by Torex describe these agreements.

MML signed TOAs with the Balsas River and Real del Limón Ejidos along with TOAs for individually 'owned' land parcels (collectively the ELG TOAs), including two common land lease agreements, one human settlement area agreement and 138 individually owned parcel agreements. The area covered by the ELG TOAs is approximately 1,840 ha.

MML has also signed a PTOA with co-owners of 35 ha of the private land and a PUEAA with co-owners of 80 ha of the private land. In each case, the agreement provides for the determination of the terms and conditions of the respective definitive agreement which each co-owner is obligated to sign once estate judicial proceedings of certain deceased co-owners are finalized authorizing the heirs to execute the definitive agreement.

The terms of all of these lease agreements are believed to be comparable to long-term lease agreements signed by other operating mining companies in the area. The ELG TOAs are for 30 years (as of December 15, 2011 for the Balsas River lease agreement, and March 20, 2012, for the Real del Limón lease agreement) with annual payments of a fixed amount per ha per year during the first two years, and for the subsequent 13 years, the annual payment is linked to the gold price. Starting in year 16, and every five years thereafter, the amount of the annual payments will be renegotiated.

The terms of the PTOA and related definitive temporary occupation agreement for the private land is for 30 years (as of December 2012) with annual payments of a fixed per hectare during the first year, and thereafter, the annual payment is linked to the gold price.

The terms of the of PUEAA and related definitive temporary occupation agreement for the private land is for 15 years (as of December 2012), renewable for an additional 15 years at MML's election, with annual payments of a fixed amount per hectare during the first year, and thereafter, annually adjusted for inflation.

As part of the agreement with the Real del Limón Ejido a general agreement on a resettlement of both the La Fundición and El Limón villages was negotiated. Resettlement has been completed.

The land required for the East Service Road is owned by four Ejidos, which are Valerio Trujano, Atzcala, Real del Limón and Balsas River. Construction of the road has been completed and in February 2016 the road was transferred to the government of the State of Guerrero.

The agreements for the long-term lease of the land required for the water well field and the permanent camp are in place with the Atzcala Ejido (approx. 40 ha) and with the members of such Ejido and in respect of individually owned parcels, with expiry dates ranging from 2038 to 2048.

4.3.2 Media Luna Project

MML has secured surface rights to land for the direct development of the ML Project through the signing of TOAs with the Puente Sur Balsas Ejido and with the members of such Ejido and in respect of individual parcels. These agreements cover approximately 2,647 ha of land. The following paragraphs provided by Torex describe these agreements.

MML signed TOAs with the Puente Sur Balsas Ejido along with agreements for individually 'owned' land parcels (collectively, the ML TOAs), including two common land lease agreements, one human settlement area agreement and six individually owned parcel agreements. The terms of all of the lease agreements are believed to be comparable to long-term lease agreements signed by other operating mining companies in the area.

Four of the ML TOAs with individual parcel owners holding a total of approximately 47 ha of land have a term of 30 years from the date of execution (expiry dates range from February 2047 to October 2048) subject to earlier termination by MML.

Two of the ML TOAs with individual parcel owners, holding a total of approximately 19 ha of land, have a term of 25 years expiring in one case on July 1, 2045, and in the other, January 1, 2046, subject to earlier termination by MML.

The ML TOAs for the use of the common use lands have a term of 25 years expiring in one case, in respect of approximately 2,389 ha of land, on February 10, 2042, and in the other case, in respect of approximately 4 ha of land, April 1, 2045. The surface will be reduced upon production to 250 ha of MML´s choice.

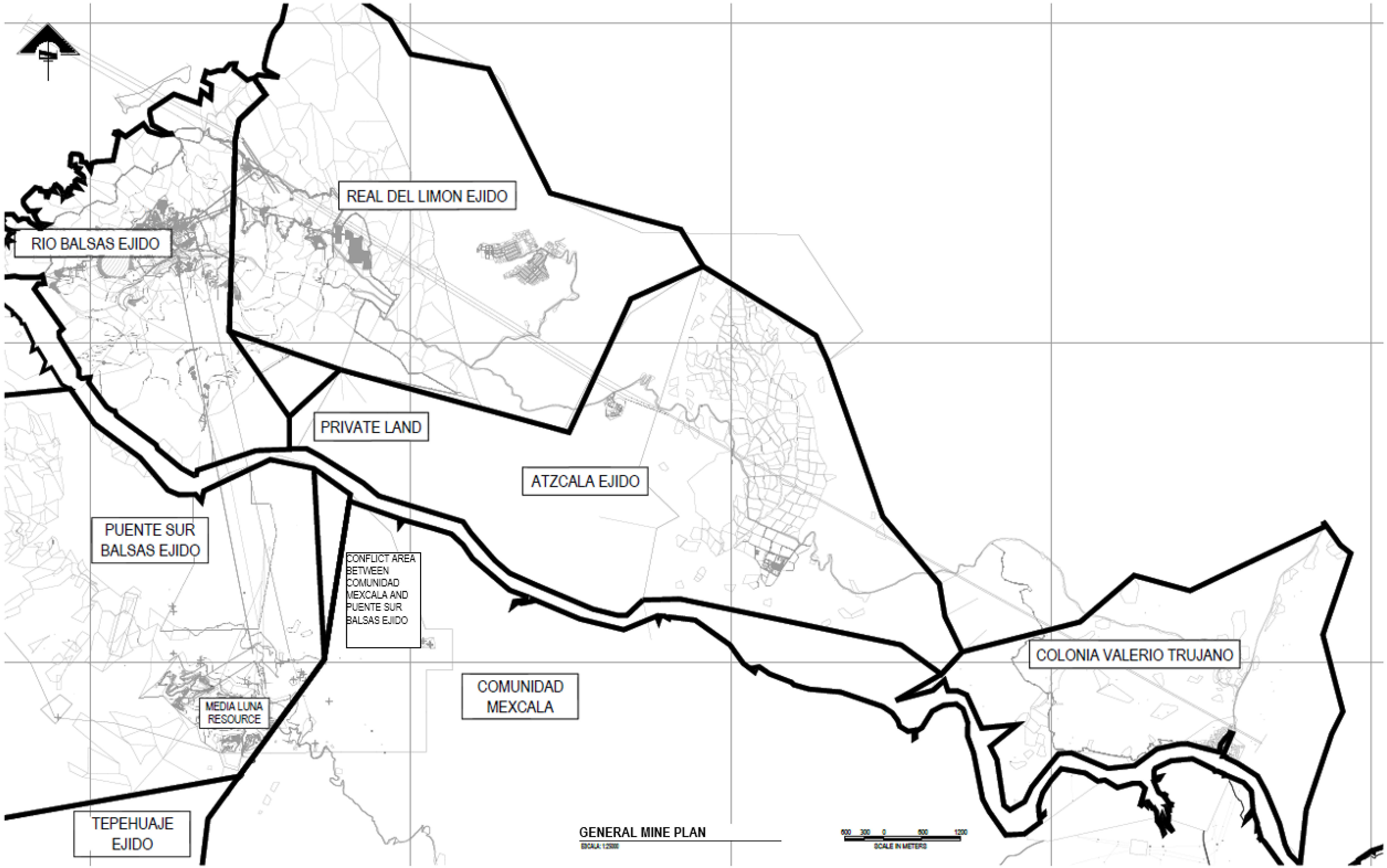
The ML TOA for the human settlement area (approximately 10 ha) has a term of 25 years expiring on July 1, 2045, subject to earlier termination by MML.

The balance of the ML TOAs for the Puente Sur Balsas Ejido lands of approximately 182 ha have terms of 25 years expiring on July 1, 2045, subject to earlier termination by MML.

In each case, the amount to be paid for the use of such lands is a fixed amount per ha per year, to be increased annually by the rate of inflation, and upon the start of commercial production, the annual payment will be linked to the gold price.

The ELG TOAs, the PTOA and the PUEAA and the ML TOAs, in each case, require MML to comply with all the environmental provisions contained in the applicable laws and authorize MML to obtain the permits, authorizations and/or licenses necessary to perform the authorized activities on the land. In case of non-compliance by any party, which is not remedied within 30 days of the corresponding notice, the agreement may be rescinded or the affected party may request its specific performance, at its election, before a court of competent jurisdiction. In addition, while these agreements are legally enforceable, disputes regarding existing agreements may cause, blockades, suspension of operations, delays to projects, and on occasion, may lead to legal actions and government authorities may be hesitant to enforce agreements against the ejidos and private parties, therefore it is important for the Company to maintain cordial community relations.

Figure 4-3 shows the Ejido locations in relation to the Morelos Complex.



Note: Figure courtesy of M3, 2022

Figure 4-3: Morelos Complex General Area Layout Showing Current Ownership

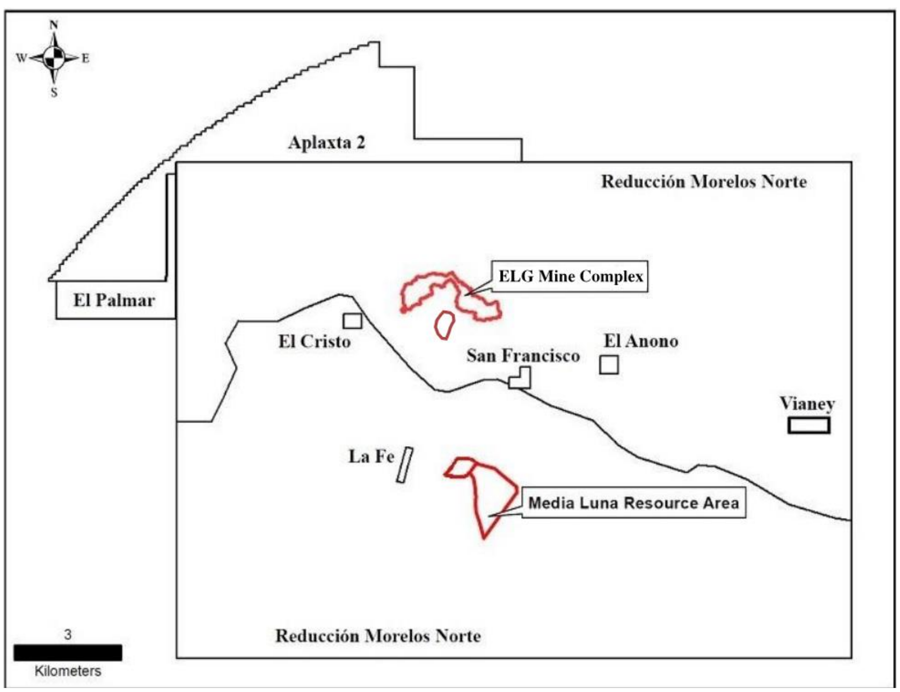
4.4 CURRENT TENURE

4.4.1 Mining Title

MML holds seven mineral concessions, covering a total area of approximately 29,000 ha (Table 4-1 and Figure 4-4), with the El Limón and Guajes deposits contained in the Reducción Morelos Norte concession. All concessions were granted for a duration of 50 years. Torex controls 100% of MML. A small tenement, Vianey, is held by a third-party, and excised from the Morelos Property area as illustrated in Figure 4-4.

Table 4-1: Mineral Tenure Summary

Type of Tenure	Issuance Date	Expiration Date	Duration	Area (ha)
Mining Concession No. 188793 (La Fe)	November 30, 1990	November 28, 2040	50 years	20
Mining Concession No. 214331 (El Cristo)	September 6, 2001	September 5, 2051	50 years	20
Mining Concession No. 214332 (El Palmar)	September 6, 2001	September 5, 2051	50 years	429.5
Mining Concession No. 214333 (El Anono)	September 6, 2001	September 5, 2051	50 years	25
Mining Concession No. 214334 (San Francisco)	September 6, 2001	September 5, 2051	50 years	27
Mining Concession No. 217558 (Apaxtla 2)	July 31, 2002	July 30, 2052	50 years	2,263.2
Mining Concession No. 224522 (Reducción Morelos Norte)	May 17, 2005	May 16, 2055	50 years	26,261.5
Total Hectares				29,046.2



Note: Red outlines show the location of the ELG Mine Complex and Media Luna deposit and are the approximate dimensions, dark black outline is a small tenement named Vianey that is held by third parties and is not part of the Property. Figure courtesy of Torex, 2018.

Figure 4-4: Tenure Map

4.4.2 Royalties

MML are subject to the royalties per claim block as shown in Table 4-2. The claim blocks are illustrated in Figure 4-4. Currently the only royalty that is payable is the one for Reducción Morelos Norte since mining activity is occurring in the claim block. The other royalties listed in the table will be payable if mining activity starts within those claim blocks. There are other taxes payable to the government of Mexico which apply and are discussed in Section 22.10.

Table 4-2: Royalty Summary

Type of Tenure	Royalty	Payable
Mining Concession No. 214331 (El Cristo)	2.5% on Net Smelter Return	Minas de San Luis, S.A. de C.V
Mining Concession No. 214332 (El Palmar)	2.5% on Net Smelter Return	Minas de San Luis, S.A. de C.V
Mining Concession No. 214333 (El Anono)	2.5% on Net Smelter Return	Minas de San Luis, S.A. de C.V
Mining Concession No. 214334 (San Francisco)	2.5% on Net Smelter Return	Minas de San Luis, S.A. de C.V
Mining Concession No. 217558 (Apaxtla 2)	1.5% on Net Smelter Return	Minas de San Luis, S.A. de C.V
Mining Concession No. 224522 (Reducción Morelos Norte)	2.5% on Total Revenue	Servicio Geológico Mexicano

4.4.3 Duty Payments

Duty payments for 2021 and the first half of 2022 were made for all mining concessions as seen in Table 4-3.

Table 4-3: 2021 and first half of 2022 Duty Summary

Mining Concession	Years since Grant Made	Amount Paid 2021 (Pesos)	Amount Paid 1st Half 2022 (Pesos)
La Fe	31	7,036	3,777
El Cristo	20	7,036	3,777
El Palmar	20	151,108	81,121
El Anono	20	8,796	4,722
San Francisco	20	9,498	5,099
Apaxtla 2	19	796,178	427,419
Reducción Morelos Norte	16	9,238,796	4,959,747

As per Mexican requirements for grant of tenure, the concessions comprising the mine have been surveyed on the ground by a licensed surveyor.

4.5 ENVIRONMENTAL, PERMITTING AND SOCIAL RISKS

Environmental and social risks related to the ELG Mine Complex and ML Project have been identified and assessed by the Company. The Company maintains adequate management systems to control and mitigate such risks; as such, it has been determined that these risks would not preclude the Company's ability to execute the ML Project as envisaged in this Technical Report. Environmental and social risks are discussed in Sections 20 and 25 of this Technical Report.

Discussion on Permitting is available in Section 20.3 of this Technical Report.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The key points of this section are the following:

- Good existing road access to the ELG Mine Complex
- Road access to the ML resource area will be improved for project construction and operations
- Located in relatively well serviced region of Guerrero State
- Close proximity to other existing mining operation
- Close proximity to major transportation routes (highway and port facilities)
- ELG Mine Complex and ML Project are located near centers for supply of material and workers
- ELG Mine Complex is connected to the Mexican power grid
- ELG Mine Complex is connected to a permanent water source

5.1 EXISTING ACCESS, INFRASTRUCTURE AND LOCAL RESOURCES

The Morelos Property is easily accessible and within a 4.5 hour drive of Mexico City. Current access to the ELG Mine Complex is via two routes. The first route is from the west via the village of Nuevo Balsas through 5 km of single-lane gravel road. A second access route, referred to as the East Service Road (ESR), has been established from the east. The ESR provides the mine with a two lane gravel road from the mine complex to the Mexican highway I-95 which runs from Mexico City to the port of Acapulco. The ESR is the main route of transportation to the ELG Mine Complex for personnel, materials and supplies.

Access to the ML Project is currently from highway 95 along an 18 km paved road from Mezcala, which becomes a small gravel road for 5 km from the village of Mazapa to San Miguel. This route passes near the Los Filos Mine. The gravel portion of this route will be widened and upgraded for the ML Project construction and operations.

Other large communities near the Morelos Property include Iguala with a population of ~140,000 and Chilpancingo, the state capital of Guerrero, with a population of ~240,000. Iguala is 60 km north of the ELG Mine Complex via west access route and Chilpancingo is ~100 km south of the mine complex via the ESR and highway I-95. The nearest port to the mine is at Acapulco which is approximately 200 km south of the mine complex via the ESR and highway I-95. For the ML Project, shipment of copper concentrate is currently assumed from the Lazaro Cardenas port, which is located 300 km northwest of Acapulco; however, this will be further assessed in subsequent phases of the Project.

The existing ELG Mine Complex is fed from the Mexican power grid through a transformer station to high-power transmission lines near the plant site. An agreement is in place between CFE, the Mexican power authority, and MML to supply electricity for the ELG Mine Complex. The additional ML Project loads will be handled with a planned 230 kV switching station adjacent to the existing Balsas switchyard and the existing 230 kV power line. The planned 230 kV system located at the ELG Mine Complex will support the loads of the ML underground mine and paste plant with powerlines through the Guajes Tunnel. The south portals located near the community of San Miguel are used to access the ML ore body from the south and will be provided with supplementary power for surface infrastructure using an upgraded 1 MW powerline from Mezcala.

Process water for the ELG Mine Complex is from a well field located near the village of Atzcala approximately 18 km east of the complex. MML has an existing agreement with CONAGUA, the Mexican Water Authority, granting a water concession for MML to draw up to 5 million cubic meters of water per year from the aquifer. Three wells have been installed with 2 wells capable of supplying the complex's current and forecasted water demand. It is also expected that process water for the ML Project would be supplied from these wells. Temporary water needs for mine development and camps will use water from existing and new wells installed in the South Portal area.

Current site communications consists of fiber optic internet service by Mexican provider Telmex. Internet to the Media Luna resource area is via microwave signal from ELG. Phone service to the complex and ML Project is via the internet connection. There is also cellular service at the ELG Mine Complex via two installed antennas and minimal cell service at San Miguel. Site communications upgrades are planned to service the ML Project both during construction and further into operations.

5.2 CLIMATE AND OPERATING SEASON

The Morelos Property is located in a sub-tropical zone that receives about 780 mm of precipitation annually. The months with the most rainfall are June through September (rainy season). Very little precipitation occurs between November and April (dry season). During the rainy season, the Morelos Property can be affected by tropical storms and hurricanes which can result in short-term high precipitation events. These events can produce severe erosion, flash flooding, debris flows and poor road conditions.

The average annual temperature is 23–29ºC. The most predominant wind direction appears to be from the north-northeast (NNE), followed by winds from the southwest (SW), the west-southwest (WSW) and the northeast (NE).

Operations at the ELG Mine Complex occur on a year-round basis.

5.3 PHYSICAL GEOGRAPHY & TERRAIN

The region is characterized by large limestone mountains divided by wide valleys (Figure 5-1 and Figure 5-2). The slopes of the hills vary from relatively flat (5%–10%) to very steep slopes (50%). Within the ELG Mine Complex area, relief ranges from 470 m above mean sea level (which is the average elevation of the El Caracol Reservoir) to top of the El Limón ridge at 1,540 m above mean sea level.

Figure Source: Torex 2022. Photograph looks northwest.

Figure 5-1: ELG Mine Complex Physiography (Looking Northwest)

(Photograph courtesy Torex, 2013. Photograph looks west. The Balsas River is approximately 90 m wide in the foreground of the photograph and provides an approximate scale. The Guajes, El Limón Sur and El Limón deposits are situated to the upper right-hand side background of the photograph. The Media Luna deposit is located just off the image to the left-hand side.)

Figure 5-2: Media Luna Topographic Setting

5.4 LAND TENURE

Torex has gained sufficient land tenure, via long-term lease agreements, for the operation of the ELG Mine Complex. See Section 4.4 for additional detail on the ELG Mine Complex land tenure.

6 HISTORY

The key points of this section include the following:

- Initial work completed by Teck from 1998 to 2008; comprised of initial regional exploration programs; identified El Limón and Guajes deposits in 1999 and completed about 100,000 m of drilling.

6.1 PRIOR OWNERSHIP AND OWNERSHIP CHANGES

Refer to Section 4.2 of this report for a description of the prior ownership of the Morelos Property and ownership changes.

6.2 PRE-TOREX WORK PROGRAMS

In 1983, the Morelos mineral reserve was created. It encompassed 47,600 ha, including the area of the ELG deposits and the ML deposits. In 1995, the Morelos mineral reserve was divided into the two concessions named Reducción Morelos Sur and Reducción Morelos Norte. The latter contained the area of the ELG deposits and the ML deposits. In 1998, through a bidding process, the Reducción Morelos Norte concession was awarded to a joint venture between MMC and Teck, through the joint venture entity named MML.

Historically, small artisanal mining has been conducted on the site prior to Torex ownership.

A summary of the exploration work completed during Teck's ownership of MML is included in Table 6-1. The exploration work carried out by Torex since 2010 is described in Section 10 Drilling.

Table 6-1: Property History, MML – Teck (1995 to 2008)

Year	Work Completed	Comment
1998	Data review, regional geological mapping, rock chip collection and silt sampling	
1999	Regional-scale reconnaissance, consisting of geochemical sampling and mapping	El Limón and Media Luna oxide mineralization discovered
2000	Trenching and RC drilling program, totaling 1,888 m	Skarn-hosted gold mineralization outlined at El Limón and Guajes East
2001	11,088 m of drilling; induced polarization (IP) survey; road building, geological mapping at more detailed scales, and additional rock chip sampling	
2002	4,265 m of core drilling Initial mineral resource estimate 20-line kilometers of IP survey; time-domain electromagnetic (TEM) geophysical surveys; mineralization characterization studies to support metallurgical test work.	El Limón North Oxide and Guajes East; blind Guajes West skarn identified. Estimates completed for El Limón, Guajes
2003	3,781 m of core drilling	Focused on El Limón and Guajes West areas; El Limón Sur oxide zone discovered
2004	10,111 m of core drilling; Metallurgical test work; updated mineral resource estimate.	Work focused on the Guajes West skarn, the El Limón Sur oxide zone north of the river, and the Azcala, La Amarilla and El Naranjo prospects south of the river.
2006	22,580 m of drilling Detailed mapping and rock and soil sampling	Work focused on the El Limón East, Los Mangos, and La Amarilla areas El Querenque and Azcala areas
2007	33,603 m of drilling Updated mineral resource estimate	Work completed at El Limón East, Los Mangos, and La Amarilla
2008	10,544 m of drilling Commencement of pre-feasibility studies	Work focused on Guajes and Guajes West zones, Los Mangos and El Querenque This work evaluated the merits of mining the El Limón, Guajes East and Guajes West deposits either by open pit methods only, or by a combination of underground and open pit methods. The work also looked at processing options with a focus on processing the mineralization through a conventional gold cyanidation plant. The work was terminated before completion.

7 GEOLOGICAL SETTING AND MINERALIZATION

The key points of this section include the following:

- Skarn-style mineralization has developed in limestone and dolomite of the Morelos Formation, limestone and sandstone of the Cuautla Formation, and terrigenous sediments of the Mezcala Formation where these rocks have been intruded by Paleocene granodiorite stocks. Skarn-hosted mineralization has developed along the contacts of the intrusive rocks and the enclosing carbonate-rich sedimentary rocks.
- Favorable host rocks and multiple intrusion events gave rise to multiple pulses of alteration and mineralization, a key process for the origin of polymetallic deposits of multi-million ounces of Au associated Ag, Cu, Zn, Pb, Fe.
- Four major deposits have been delineated to date at the Morelos Property: Three are located in the ELG Mine Complex including El Limón (includes El Limón Sur) and Guajes open pits and the Sub-Sill/El Limón Deep (ELD) underground deposit, and the Media Luna underground deposit. Gold and silver mineralization at the ELG deposits extends over 3,700 m along strike with widths up to 90 m. Copper, gold and silver mineralization at Media Luna covers at least an area of 1.4 km x 1.2 km, with widths ranging from 4 m to greater than 70 m in thickness.
- At the Sub-Sill/ELD area, several skarn zones have been identified along the contacts of the carbonate rich sediments and marbles of the Mezcala and Morelos formations and dykes and sills fingering out from the main granodiorite stock. High grade gold mineralization has been intercepted in all the different skarn horizons. Within the skarn zones, individual shoots of mineralization vary in strike length from approximately 50 m up to 200 m, with apparent thickness varying from 2 m to 36 m.
- Pre-and syn-skarn dykes and sills emplaced near the marble-granodiorite contact can enhance the shape and grade of skarn mineralization.

7.1 REGIONAL GEOLOGY

The Guerrero platform is characterized by a thick sequence of Mesozoic carbonate rocks successively comprising the Morelos, Cuautla and Mezcala Formations and has been intruded by a number of early Tertiary-age granitoid bodies. The carbonate sequence is underlain by Precambrian and Paleozoic basement rocks. The Cretaceous sedimentary rocks and granitoid intrusions are unconformably overlain by a sequence of intermediate volcanic rocks and alluvial sedimentary rocks (red sandstones and conglomerates) which partially cover the region (Figure 7-1).

The Mesozoic succession was folded into broad north–south-trending paired anticlines and synclines as a result of east-vergent compression during the Laramide Orogeny (80–45 Ma). The Morelos Property lies at the transition between belts of overthrust rocks to the west and more broadly-folded rocks to the east.

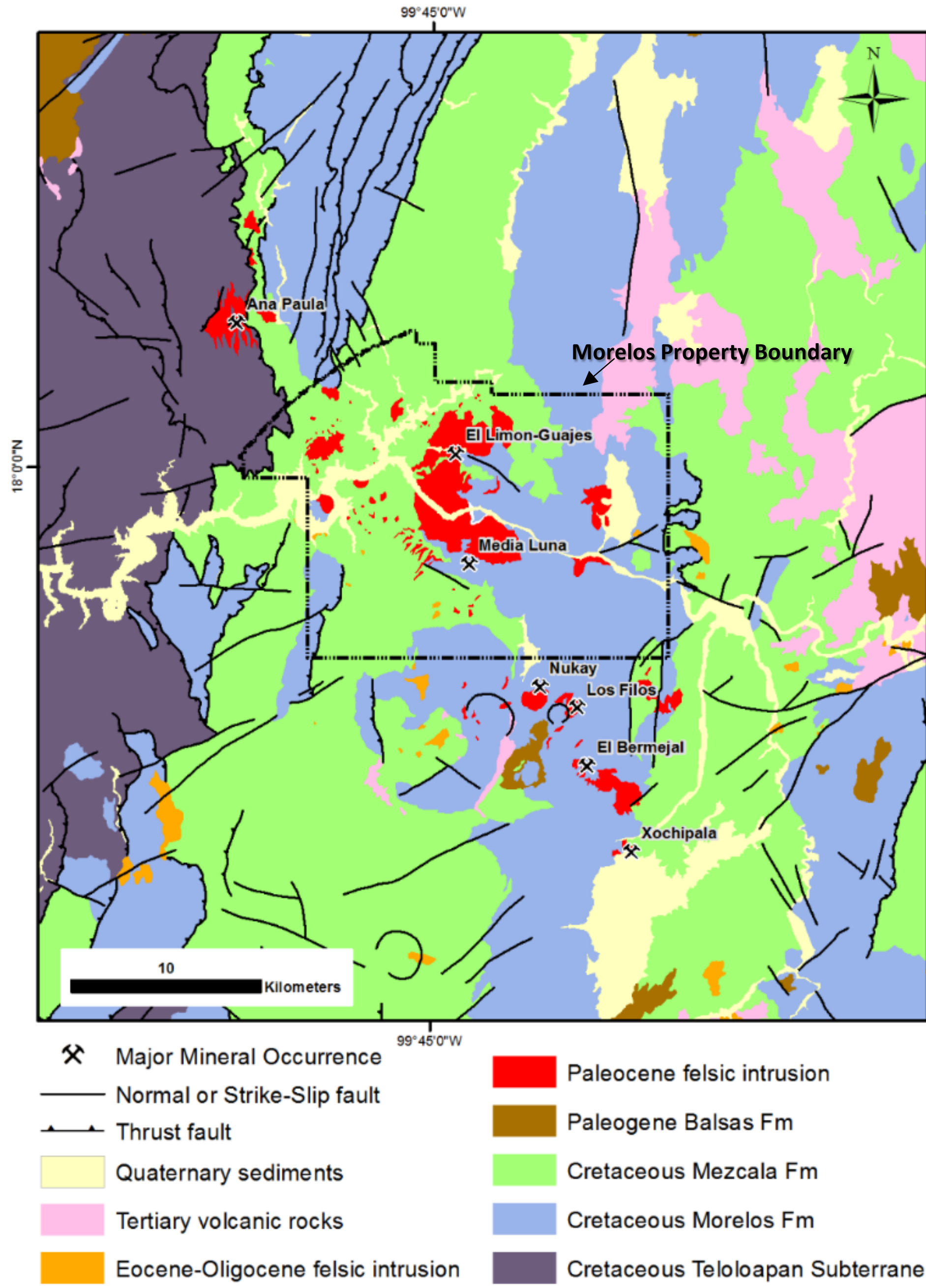
Regional structures include sets of northeast- and northwest-striking faults and fractures which cut both the carbonate sequence and the intrusive rocks. The distribution of intrusive bodies in northwest-trending belts is thought to reflect the control on their emplacement by northwest-trending faults (de la Garza et. al. 1996).

Regional mineralization styles comprise skarn-hosted and epithermal precious metal deposits and volcanogenic massive sulfide deposits. In Guerrero, these occur as two adjacent arcuate belts, with the gold belt lying to the east and on the concave margin of the massive sulfide belt. Both belts are approximately 30 km wide and over 100 km long, from northwest to southeast.

7.2 LOCAL AND PROPERTY GEOLOGY

The Morelos Complex is characterized by a structurally complex sequence of Morelos Formation (marble and limestone), Cuautla Formation (limestones and sandstones) and Mezcala Formation (shale and sandstone) intruded by the El Limón granodiorite stock and sills and later felsic dykes (Figure 7-2). The El Limón-Guajes and Media Luna deposit areas are shown on this figure within the Morelos Property boundary.

The Morelos Formation comprises fossiliferous medium - to thickly-bedded finely-crystalline limestones and dolomites. The lower contact is not exposed within the mineral tenure area, but from available Petroleos Mexicanos (PEMEX) drill data, the Morelos Formation has a thickness of at least 1,570 m near the community of Mezcala. The formation is widely distributed in the central and eastern parts of the mineral tenure, and is found altered to marble outboard of skarn zones, in addition to hosting small jasperoid occurrences.



Note: Figure courtesy Torex and Western Mining Services, 2015.

Figure 7-1: Regional Geology Showing the Morelos Property Boundary

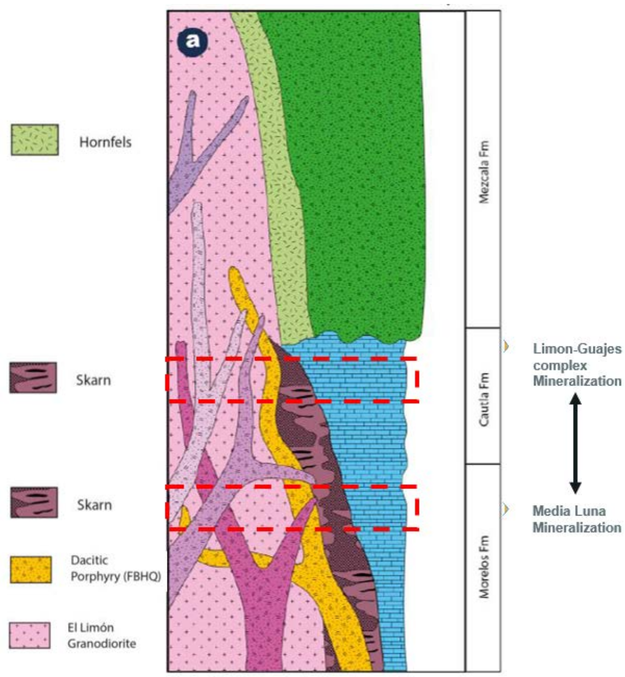


Figure Source: Torex, 2020 (Modified after Hertel & Rust,2013).

Figure 7-2: Schematic Stratigraphic Section

The Cuautla Formation transitionally overlies the Morelos Formation. It comprises a succession of thin to medium bedded silty limestones and sandstones with argillaceous partings and minor shale intercalations. The thickness of the Cuautla Formation is variable but averages 20 m. At El Limón, the skarn body is developed at the stratigraphic position of the Cuautla Formation, although a complete lack of silty limestone exposures suggests that the Cuautla Formation is absent in most of the drill area. Some small exposures of thin-bedded silty limestones that could represent the Cuautla Formation are present at the El Limón Norte Oxide Zone and also near the Guajes area.

The Mezcala Formation transitionally overlies the Cuautla Formation and consists of a platform to flysch-like succession of intercalated sandstones, siltstones, and lesser shales which have been extensively altered to hornfels near intrusive contacts at El Naranjo and El Limón Guajes, in the west part of the mineral tenure area. In contrast to the Morelos and Cuautla Formations, the Mezcala Formation sedimentary rocks are commonly strongly deformed into tight folds. Differential folding between units implies that formational contacts have served as dislocation surfaces. Dykes and sills crosscut hornfels-altered Mezcala Formation adjacent to contacts with Paleocene intrusive rocks. The Mezcala Formation has been removed by erosion in most of the eastern part of the mineral tenure area.

An intrusive stock complex, oriented northwest–southeast, intrudes the carbonate sedimentary rocks (refer to Figure 7-1). The dominant intrusive composition is granodiorite, although some quartz monzonites, tonalites, and diorites have been identified, in addition to minor, late andesitic dykes.

Geochemical data indicate that the intrusive rocks are sub-alkaline with alkali-calcic to calc-alkalic characters, and are strongly reduced. Uranium–Pb dating of zircons from intrusive rocks return age dates of approximately 66 Ma.

Skarn-hosted gold mineralization is developed along the contacts of the intrusive rocks and the enclosing carbonate-rich sedimentary rocks.

In the northeast corner of the Morelos Property, there is post-mineral cover comprising felsic volcanic rocks, which are probably coeval with the last Tertiary igneous events.

7.3 DEPOSIT DESCRIPTIONS

7.3.1 Overview

The deposit descriptions are typically referenced as either ELG deposits, or Media Luna deposits. Figure 7-3 shows the district geology of the Morelos Property, with general resource area outlines.

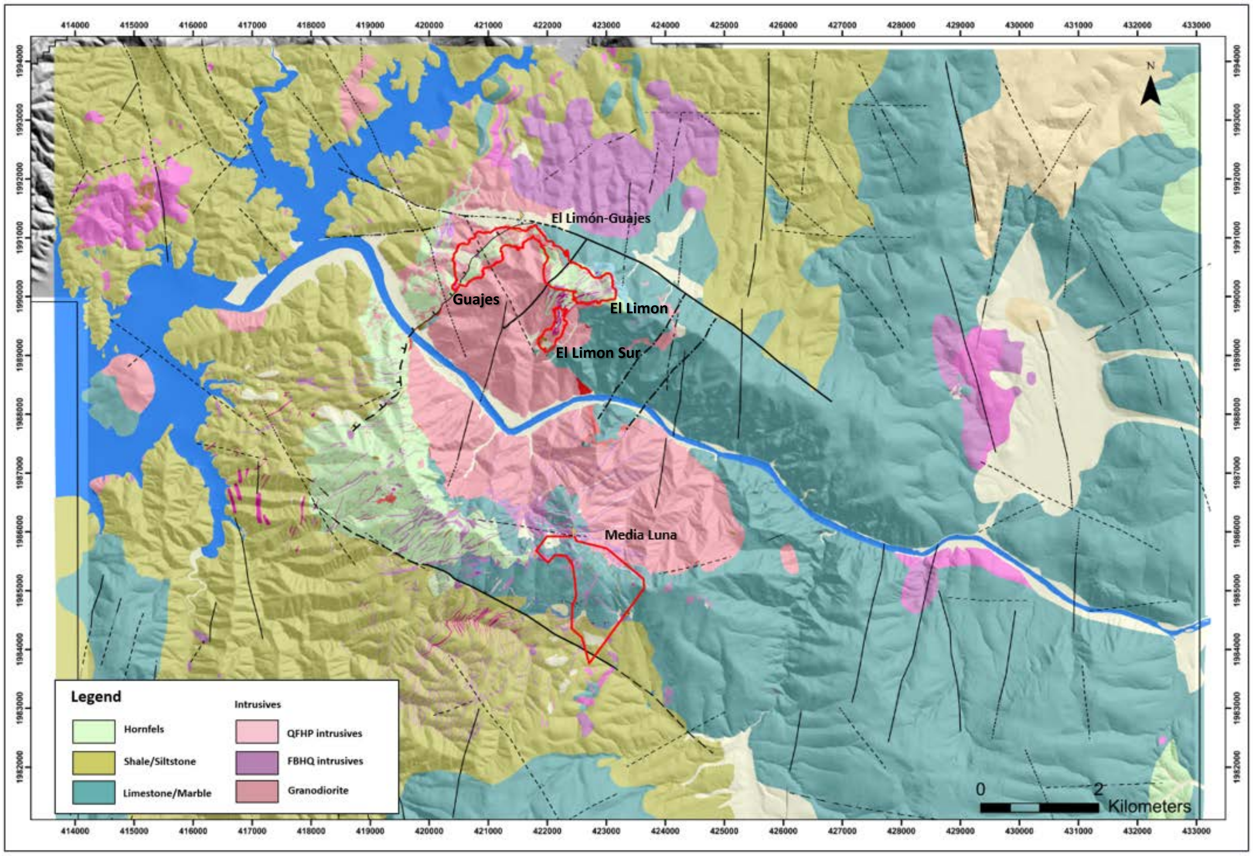


Figure 7-3: District Geology of the Morelos Property

7.3.2 ELG Deposits

Gold mineralization at ELG occurs in association with a skarn body that was developed along a 2 km long corridor following the northeast contact of the ELG granodiorite stock. The skarn zone occurs at the marble stratigraphic level of the Morelos Formation is in contact with hornfelsed sedimentary rocks of the Mezcala Formation. At El Limón skarn mineralization is also structurally controlled by NE-SW and WNW-ESE trending faults and fractures zones. Skarn alteration and mineralization at ELG are fairly typical of calcic gold-skarn systems. Zones of coarse, massive, garnet-dominant skarn appear within and along the stock margin, with fine-grained pyroxene-dominant skarn more common at greater distances from the contact with the stock. Significant gold mineralization at ELG is associated with the skarn, preferentially occurring in pyroxene-rich exoskarn but also hosted in garnet-rich endoskarn that has been affected by retrograde alteration.

Pre and post mineralization dykes and sills are found to crosscut the hornfels and marble, along the structural trends mentioned above, and spatially associated with the skarn formation.

The following summarizes the ELG deposits; El Limón Pit, El Limón Sur, Sub-Sill, El Limón Deep, and Guajes East, and Guajes West.

7.3.2.1 El Limón Pit

The El Limón deposits are associated with the ELG OP resources and reserves.

El Limón Pit

The main El Limón intrusion consists of an approximately peanut shaped stock of granodiorite composition, which is approximately 6 km long by 2.5 km wide and has a general elongation of N45W. Usually, the skarn is developed along the contacts with this stock, although the important bodies are controlled by major northwest and northeast structures coincident with the Cuautla Formation position and the intrusive contacts. The contact of the intrusion at El Limón, although irregular, is generally quite steep and almost perpendicular to bedding. At El Limón the skarn zone is divided in two structural domains limited by La Flaca Fault, a steeply dipping northeast trending fault zone. Skarn north of the La Flaca Fault is exposed on surface, trends north–northwest for approximately 700 m and dips 40º to 70º to the southwest. Typically, gold mineralization occurs within the main skarn body that developed at the marble–hornfels boundary. Irregular mineralized lenses of skarn also occur in the hanging wall hornfels. Centimeter scale fractures with skarn development are common in the hanging wall hornfels. Skarn south of the La Flaca fault extends southeast for about 800 m. The strike of the skarn is generally north northeast and dips gently to moderately northwest, and is primarily demarcated by drilling. In the contact zone between El Limón Norte and El Limón Sur, high grade mineralized skarn is developed, controlled by steeply dipping faults and fractures part of the La Flaca structural system. High-grade mineralization is also localized in the intersection of La Flaca fault zone and the west northwest structural trend (Ropecon Fault).

Pre and post skarn dykes are frequent at El Limón, intruding along the northeast and west-northwest structural trends. The dykes are mainly of rock types, Feldspar-Biotite Porphyry (FP), Feldspar-Biotite-Hornblende-Quartz (FBHQ). Quartz-Feldspar-Hornblende (QFHP), Mafic dyke and Fine-grained Biotite Porphyry intrusive are less common. FP dykes are pre and/or syn skarn alteration and mineralization. These dykes are predominant in the Limón Norte structural domain and emplaced along both structural trends. When altered to endoskarn are usually mineralized. The FBHQ dykes are post skarn and post mineralization. These dykes are predominant in the El Limón Sur structural domain and emplaced mainly along the northeast structural trend, offsetting the skarn and the mineralization. No skarn alteration has been identified in the FBHQ dykes at ELG Complex.

El Limón Sur

The El Limón Sur skarn occurs approximately 1 km south of the main El Limón skarn deposit and crops out on a steep ridge extending down the mountain towards the Balsas River. The El Limón Sur area is underlain by a similar stratigraphic succession as the southeastern portion of the El Limón deposit. In general, marbleized and hornfelsed sedimentary rocks are in contact with the El Limón granodiorite intrusive and pre/syn mineralization FP dykes. Pyroxene-garnet skarn occurs along the contact between hornfels or marble and granodiorite. There are two main areas of near-surface gold mineralization at El Limón Sur that are separated by a zone of mostly barren granodiorite. The northernmost mineralized area is developed in the contact between hornfels and granodiorite, trending north-northwest for about 100 m and dips 50º to the southwest with widths ranging from 15 m to 40 m. The mineralization is characterized by retrograde-altered exoskarn containing sulfides and local argillic alteration. The southern mineralized area is smaller in extent but wider and dominated by endoskarn along with hydrothermal breccias hosted in the granodiorite and locally in contact with marbles and granodiorite. The hydrothermal breccias are developed within skarn and often display thin laminations and size-graded layering. In both areas, the skarn and the mineralization are controlled by a northeast trending structure hosting an FP dyke with endoskarn alteration along its margins. Best skarn development is located at the intersection of northeast and west-northwest structural trends. The mineralized zones are strongly oxidized in the near surface.

7.3.2.2 Guajes

The Guajes deposits are associated with the ELG OP resources and reserves.

Guajes East

The Guajes East skarn zone is developed in the same lithologies on the opposite side of the same intrusion that is present at El Limón. Drilling indicates the skarn development at Guajes East is 300 m wide, up to 90 m thick, and is continuous along at least 600 m of the northwest edge of the intrusion.

At Guajes East, the intrusion underlies the sedimentary rocks and dips about 30° to the west, sub-parallel to bedding. There are also a number of shallow-dipping intrusive sills at Guajes that crosscut the skarn and although they are occasionally mineralized at or near their contacts, for the most part, the sills are non-mineralized. As of the end of March 2018, the Guajes East zone has been mined out.

Guajes West

The Guajes West area is located along the northwest contact of the El Limón granodioritic stock. Surface geology is represented by the hornfels–intrusive contact with some local patchy and structure controlled skarn occurrences. The skarn formed at the contact between hornfels and marble; however, in addition to proximity to the granodioritic stock, there are numerous associated porphyritic dykes and sills.

A block of granodiorite that has been strongly altered to kaolinite, sericite, pyrite and carbonate with some brecciated and silicified portions, forms the hanging wall of the Amarilla fault, which can be traced along a distance of more than 2.5 km from the Balsas River to the Guajes West area. The fault, which strikes N30-40E and dips from 40º to 60º to the northwest, occurs 20 m to 50 m above the mineralization. Mineralization at Guajes West does not crop out and was discovered based on the El Limón geological model.

7.3.2.3 Sub-Sill and ELD

The Sub-Sill and El Limón Deep (ELD) deposits are associated with the ELG UG mine resources and reserves.

The Sub-Sill area is located between the El Limón and El Limón Sur ore deposits and under the El Limón Sill. At the Sub-Sill area, several skarn zones have been identified along the contacts of marbles of the Morelos formations and sills of granodiorite interpreted as late-stage porphyritic intrusions fingering out from the main El Limón granodiorite stock. The best developed skarn zones at the Sub-Sill area strikes approximately 40° northeast and dip between 35° and 45° to the northwest. Deep drilling has identified a steeply dipping, 65° to 75° northwest, extension of the Sub-Sill skarn zone with high grade mineralization. This zone is currently interpreted as the structurally controlled feeder of the mineralization that developed along the lithological contacts between the hornfels, the marbles, and the sills. The skarn zone hosts multiple horizons with high-grade gold mineralization mainly associated with exoskarns with retrograde alteration. Individual ore shoots of mineralization vary in strike length from 50 m up to 240 m, with apparent widths varying from 2 m to 46 m. The trend of the overall skarn body in the Sub-Sill area is north-south to northeast-southwest.

ELD represents the down-dip extension of the skarn that hosts the gold mineralization at El Limón open pit, where the skarn is developed immediately above a large granodiorite sill intruded along the contact of the Morelos and the Mezcala formations. The mineralized skarn forms a single and continuous package that strikes approximately 25° to the north-northeast and dips between 20° and 40° to the northwest. To the northwest, the strike of the skarn package changes to approximately 30° to the north-northwest and the dip steepens to approximately 60°. The change in the geometry of the skarn package is related to the northeast striking and southeast dipping La Flaca Fault; parallel structures are locally represented by post mineral dykes.

7.3.3 Media Luna

The Media Luna deposit is associated with the Media Luna underground mine mineral resources and reserves.

The Media Luna deposit is located on the south side of the Balsas River, ~7 km south south-west of the ELG Mine Complex. Systematic drilling has identified a gold-copper-silver mineralized skarn with approximate dimensions of 1.4 km x 1.2 km and ranging from 4 m to greater than 70 m in thickness. The mineralization occurs in most parts around 500 m below surface but crops out at surface at the north side of the Media Luna ridge. Skarn alteration and associated mineralization is open on the east, southeast, southwest, and northwest margins of the area.

The surface geology of the Media Luna area is dominated by Morelos Formation limestone, which is intruded by numerous porphyry dykes and sills. The contact between the Morelos Formation and the El Limón granodiorite stock is exposed in the northern sector of the area, and Mezcala Formation sediments are present in the southern portion of the area. Morelos Formation limestone is typically converted to grey to white marble along with the intrusive contacts, often accompanied by clay and iron-oxide. The Mezcala Formation is locally converted to biotite–hornfels where cut by dykes and sills. The mineralization hosting skarn occurs at the contact of the El Limón granodiorite with the Morelos limestone. The skarn, like the wall rocks, is intruded by numerous porphyritic dykes and sills.

Media Luna is a magnesian skarn and has formed where rocks are more dolomitic, whereas ELG is a calcic skarn. Reflecting the protolith, a calcic skarn contains garnet, pyroxene, and pyrrhotite, whereas a magnesian skarn contains Mg-rich minerals like olivine, periclase, chondrodite, phlogopite, ludwigite, vesuvianite, talc, serpentine, and magnetite. This difference in mineralogy has several important implications. First, the magnesian protolith enables the formation of Mg-rich minerals and forces the iron that would have gone into garnet and pyroxene in a calcic skarn system, to precipitate as magnetite. In a calcic skarn, the excess iron will precipitate as pyrrhotite in a reduced system or pyrite in a more oxidized system. Second, precipitation of magnetite at relatively high temperature means that the available sulfur that would have gone into pyrrhotite formation can precipitate Cu as chalcopyrite from fluids that are present in the skarn environment. This explains why, although the gold contents of ELG and Media Luna are similar, Media Luna has significant Cu, whereas ELG does not.

7.4 SKARN TYPES

Hydrothermal alteration is dominated by prograde and retrograde skarn formation. Prograde skarn alteration can also be described as exoskarn and endoskarn where it is developed in sedimentary wall rocks and intrusive rocks respectively. Pre- and post-skarn alteration is also documented but these are volumetrically less significant.

7.4.1 Endoskarn

Endoskarns in the El Limón and Guajes deposits are dominated by diopsidic pyroxene with lesser amounts of younger crosscutting andraditic garnets. If gold is present in the unit, it is associated with retrograde alteration of garnet–pyroxene skarn.

Endoskarn is best developed at Media Luna in the main granodiorite and in feldspar porphyry dykes and sills near the granodiorite contact. Endoskarn alteration closest to the contact with exoskarn-altered rocks is typically massive garnet–pyroxene. Igneous texture is rarely preserved. Massive skarn quickly grades to garnet–pyroxene veins and veinlets with garnet cores and pyroxene halos in zones of tan to white intrusion with pervasive pyroxene ± wollastonite and altered plagioclase. Igneous textures are preserved in these zones. Endoskarn alteration farthest from the intrusive contact consists of veinlets of tan to white pyroxene/wollastonite. These veinlets occur individually or as dense anastomosing masses.

7.4.2 Exoskarn

Excluding relatively fine-grained hornfelsed rocks, the exoskarns in the El Limón, Guajes, Sub-Sill and ELD deposits are dominated by what appears to be intermediate 'grossularite–andradite' garnets, with late, coarse-grained, iron-rich garnets (i.e. more nearly pure end-member andradites). Iron-rich pyroxenes (salite to hedenbergite) are associated with these garnets. Gold mineralization is predominantly part of the earliest retrograde event.

Overprinting this latest 'peak' prograde metasomatism are early, retrograde, probably Fe-rich amphiboles (black in color) and slightly later black, fine-grained chlorite that are very closely associated with the gold-bearing sulfides pyrrhotite and arsenopyrite. Retrograde calcite and what appear to be hypogene iron oxides are additionally associated with this earliest retrograde event. The retrograde alteration appears to be the closing chapter of the peak prograde metasomatic event and is thus closely related in space and time to the exoskarn.

At Media Luna, as well as in the deeper skarn zones of the Sub-Sill deposit, exoskarn is best developed in marble (Morelos Formation) at the contact with the main granodiorite and along the edges of feldspar porphyry dykes (FP) near that contact. Exoskarn typically consists of massive coarse- to fine-grained pyroxene and garnet. The contact between exoskarn and marble is typically sharp.

7.4.3 Retrograde Alteration

Development of retrograde skarn alteration started once temperatures decreased in the system and hydrothermal fluids started to play a role in mineral formation; skarn minerals became more hydrous and replaced the original prograde mineral assemblage.

Phlogopite appears to be the first retrograde mineral to form, especially near the skarn-marble contact in assemblages that contain magnetite. It occurs as well-formed books and clusters of smaller books intergrown with magnetite, pyrrhotite and chalcopyrite. Amphibole (follows) closely and is more abundant away from the skarn-marble contact. It occurs as lath- and triangular-shaped overgrowths on pyroxene and is intergrown with sulfides, native metals (electrum and native bismuth), bismuth minerals, calcite, and quartz. Chlorite forms after amphibole. While chlorite is sometimes observed intergrown with sulfides, it is not clear if chlorite formed as an alteration product of an earlier formed mineral or if it developed coincidently with sulfide deposition.

7.4.4 Pre-Skarn Alteration

The intrusions locally exhibit evidence of potassic alteration. Potassic alteration consists of fine biotite replacing mafic minerals in ground mass and/or recrystallization of igneous biotite. Also present at ML is the development of potassium feldspar in groundmass and replacing other feldspars.

7.4.5 Post-Skarn Alteration

Argillic alteration occurs locally within porphyry dykes and sills and the main granodiorite and is characterized by alteration of feldspars and mafic minerals to clays and fine micas. In addition, late quartz–carbonate–adularia veins and veinlets are occasionally observed in association with fine silica and pyrite.

7.4.6 Oxide

This refers to a portion of the El Limón mineralized zone that is dominated by iron oxides such as hematite and goethite. Some iron-rich oxides may be a product of supergene weathering of Fe-rich garnets and pyroxenes, locally giving massive surficial oxides. However, other iron-rich oxides appear to be a true hypogene retrograde 'event'. Evidence for this is seen in outcrop where there appears to be a zonation from relatively 'fresh' garnet skarn outcrops to 'enigmatic' oxide zones, to a still more peripheral 'sanding' of peripheral calcareous sedimentary rocks (i.e. the presumably somewhat acidic leaching of carbonate components in sandy units has left a relatively un-cemented and thus 'sandy' rock).

A type of strongly-oxidized skarn (calcite ± clay ± oxide-altered) occurs locally in drill core. This rock type consistently returns very high gold grades and is recognizable in surface outcrops.

7.5 MINERALIZATION

For alignment with resource and reserves reporting, the properties mineralization is grouped within; ELG OP areas, ELG UG Mine areas, and Media Luna Underground Mine areas.

7.5.1 El Limón and Guajes

The El Limón and Guajes mineralization is associated with the ELG OP resources and reserves.

Gold and silver mineralization at El Limón and Guajes extends over 1,700 m along strike with widths up to 90 m. Mineralization at El Limón has been intercepted to a depth of 470 m from surface and intercepted at Guajes to a depth of 300 m from surface. The deepest mineralization known to date was intercepted to a depth of 1,100 m from the surface underneath the southern portion of El Limón skarn.

Gold and silver occurs most often with early sulphide mineralization but also with late carbonate, quartz, and adularia. Native gold most commonly occurs in close association with bismuth and bismuth tellurides but also occurs with chalcopyrite and as inclusions in arsenopyrite. The gold associated with bismuth tellurides is extremely fine-grained, in the range of a few micrometers to some tens of micrometers.

The dominant sulphides are pyrrhotite and pyrite with lesser but locally abundant amounts of chalcopyrite and arsenopyrite occurring in veinlets and open-space fillings. Petrographic studies indicate that pyrrhotite commonly has been partially replaced by a mixture of pyrite-marcasite, although the earliest pyrite is replaced by pyrrhotite. Chalcopyrite is associated with pyrrhotite and usually is present as very fine grains. Very minor amounts of tennantite have been noted in a few thin section samples. Fluorite is rarely observed.

Minor amounts of sphalerite and molybdenite are also present. Sphalerite tends to occur with, or as inclusions in, chalcopyrite. Molybdenite, although spatially closely associated with sulphides, usually is free in gangue and occurs as small laths and bent lamellae in the 20–50 µm size range. Coarse-grained stibnite along surface cavities has been found along some holes drilled in the east portion of the El Limón skarn.

7.5.2 Sub-Sill and ELD

The Sub-Sill and El Limón Deep (ELD) mineralization is associated with the ELG UG mining resources and reserves.

Mineralization at the Sub-Sill and at ELD deposits is primarily gold associated with bismuth minerals and variable contents of silver and copper. Gold occurs in low and high sulfidized pyrrhotite rich skarns, while silver and copper mineralization is primarily determined by the degree of sulfidation of the host skarn. Mineralization is strongly associated with a late stage retrograde alteration characterized by amphiboles, chlorite, calcite ± quartz ± epidote, affecting pyroxene-garnet marble related exoskarn and granodiorite porphyry related endoskarn. Locally mineralization occurs in narrow lenses of massive sulfides.

7.5.3 Media Luna

The Media Luna mineralization is associated with the Media Luna underground mine mineral resources and reserves.

Mineralization at Media Luna is localized in the skarn which is formed along the contact between the upper part of the El Limón granodiorite and (contact) marbles of the Morelos Formation. Although the skarn is localized along this contact, it is temporally related to emplacement of FBHQ (granodiorite porphyry) dykes and sills that are ~1 Ma younger than the El Limón granodiorite. Mineralization is predominately developed in exoskarn above the granodiorite contact and rarely extends into endoskarn of the granodiorite. Pre-and syn-skarn dykes and sills emplaced near the marble-granodiorite contact both enhance and complicate the shape and grade of skarn mineralization. They produce upward-oriented "domes" and "tongues" of exoskarn along their contacts, which are altered to endoskarn. The endoskarn related to these dykes and sills often exhibits similar mineralization to the exoskarn in their contacts (Figure 7-4).

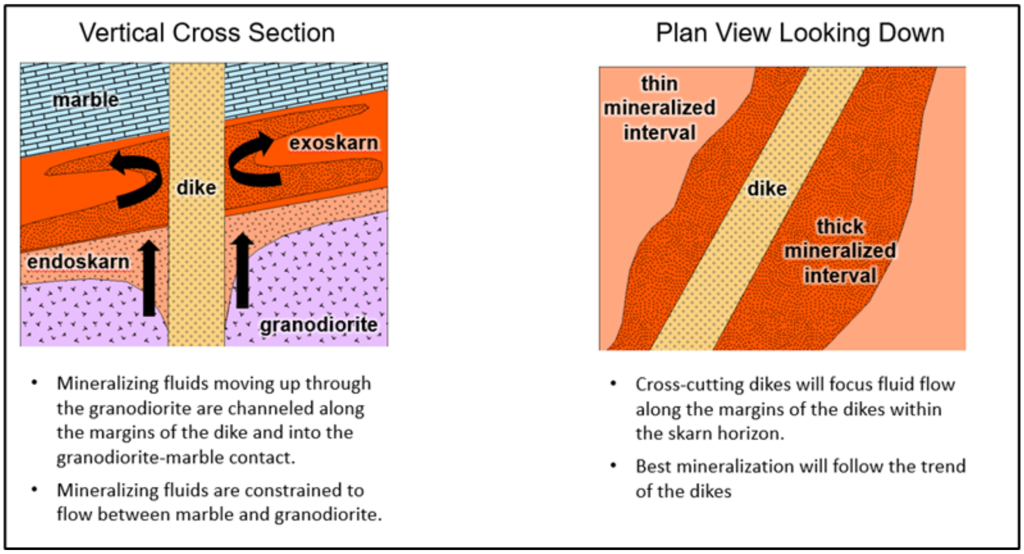


Figure 7-4: Proposed Model for how Pre- and Syn-Mineral Dykes may Control Thicker and Higher Grade Mineralization (WMS-Torex 2018)

Economic gold mineralization may occur in both endoskarn and exoskarn, as well as with prograde and retrograde mineral *assemblages (Belanger, 2012; De la Garza, 1996; Jones and Jackson, 1999).*

There is a strong geochemical association of Au-Bi-Te-As±Co as is typical most Au skarns. Across the entire Media Luna deposit, gold is geochemically strongly correlated with bismuth and tellurium. Gold commonly occurs as native Au as well as gold-rich electrum. Chalcopyrite is the principal Cu mineral in the deposit. The Zn–Fe–S system is represented by sphalerite, sulfosalt, galena and Ag-Fe–S rich minerals, such as argentopyrite.

Sulphide minerals including pyrrhotite, chalcopyrite and sphalerite, as well as native metals and bismuth minerals, are intergrown with retrograde amphibole and are thought to have formed shortly after or at the same time as amphibole. There are areas of early pyrrhotite that have patches of ragged and porous-looking pyrite; some even show lamellae of marcasite forming in pyrrhotite. Late pyrite appears to be associated with darker colored chlorite, typically yellow-brown to brownish-green. Chlorite commonly occurs along with garnet or pyroxene grain boundaries or as cross-cutting veinlets with calcite. Late pyrrhotite and pyrite appear to have formed under a reduced state of oxidation.

In general, elevated gold grades (Au-As, Au-Bi) are found in the hanging wall of the skarn package, and copper mineralization dominates along the footwall. These domains commonly overlap near the major dykes. This zonation is more evident on the central-south portion of the deposit. Zn rich domains are constrained to the northern edge of ML and associated with dykes. These dykes are currently interpreted as the main feeders of the mineralization at the deposit scale.

Generally, the skarn contacts are very sharp, with a transition zone of only a few centimeters. Minerals at these locations are very fine-grained and almost impossible to identify in hand samples. Moving across the contact from veined marble to skarn, the mineralogy is dominated by phlogopite and magnetite for 2 to 10 cm before visible pyroxene and garnet appear.

7.6 GEOLOGICAL SECTIONS

Example geological cross-sections for the deposits are included as follows:

- El Limón: Figure 7-5 to Figure 7-7
- Guajes: Figure 7-8 to Figure 7-9
- Sub-Sill and ELD: Figure 7-10 to Figure 7-11
- Media Luna: Figure 7-12 and Figure 7-13

The sections show typical drill orientations, simplified geology and examples of mineralization thicknesses and grades encountered in drillholes.

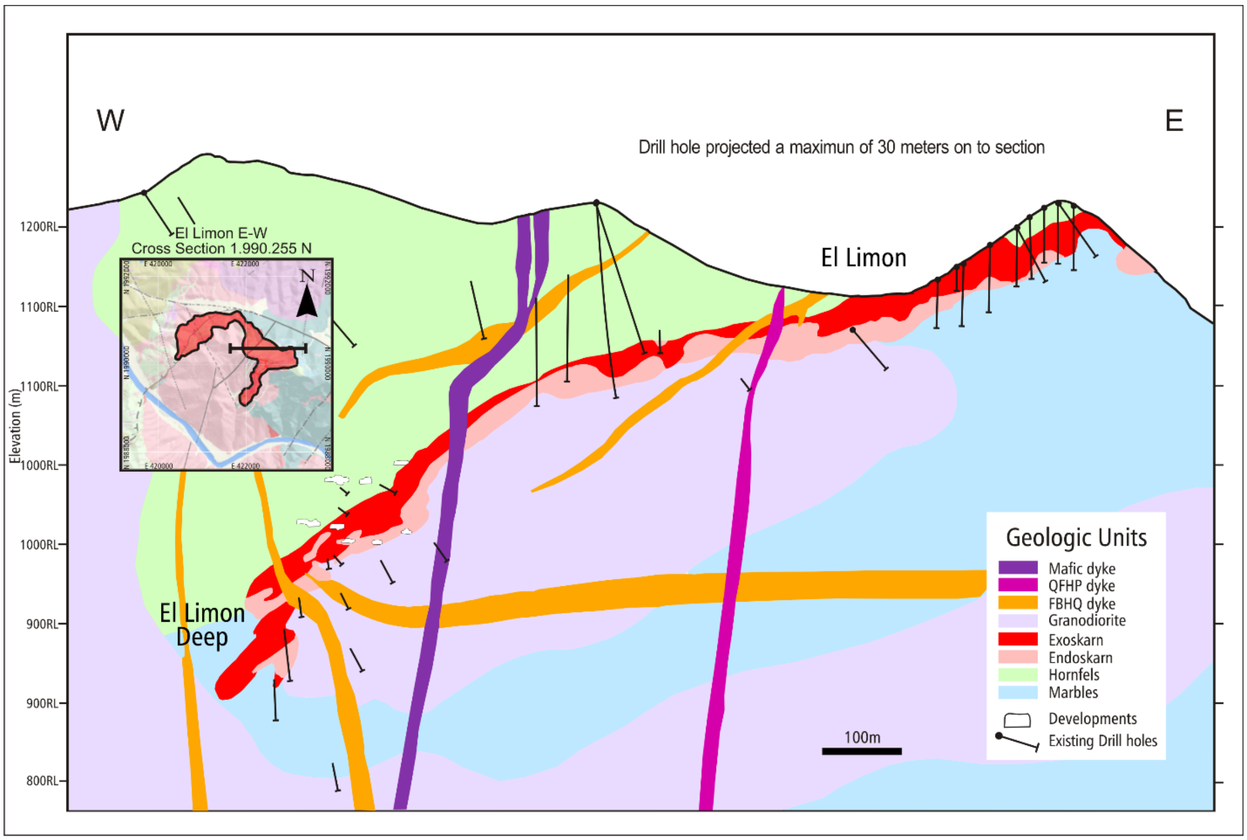


Figure Source: Torex, 2021. Section location is indicated in inset map. Surface shown is the pre-mining topography.

Figure 7-5: Example Cross Section, El Limón (Southern domain), looking North

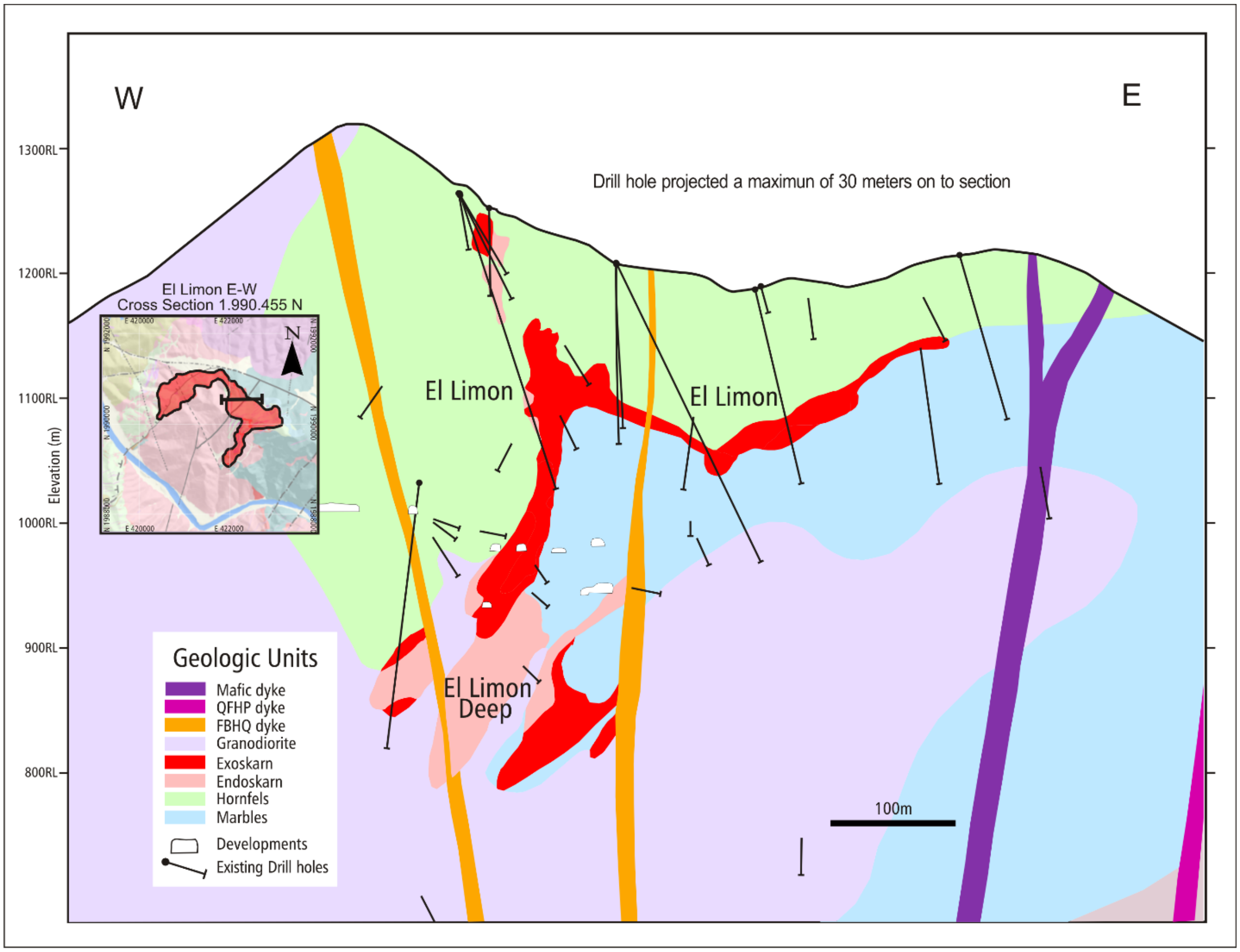


Figure Source: Torex, 2021. Section location is indicated in inset map. Surface shown is the pre-mining topography.

Figure 7-6: Example Cross Section, El Limón (Northern domain), looking North

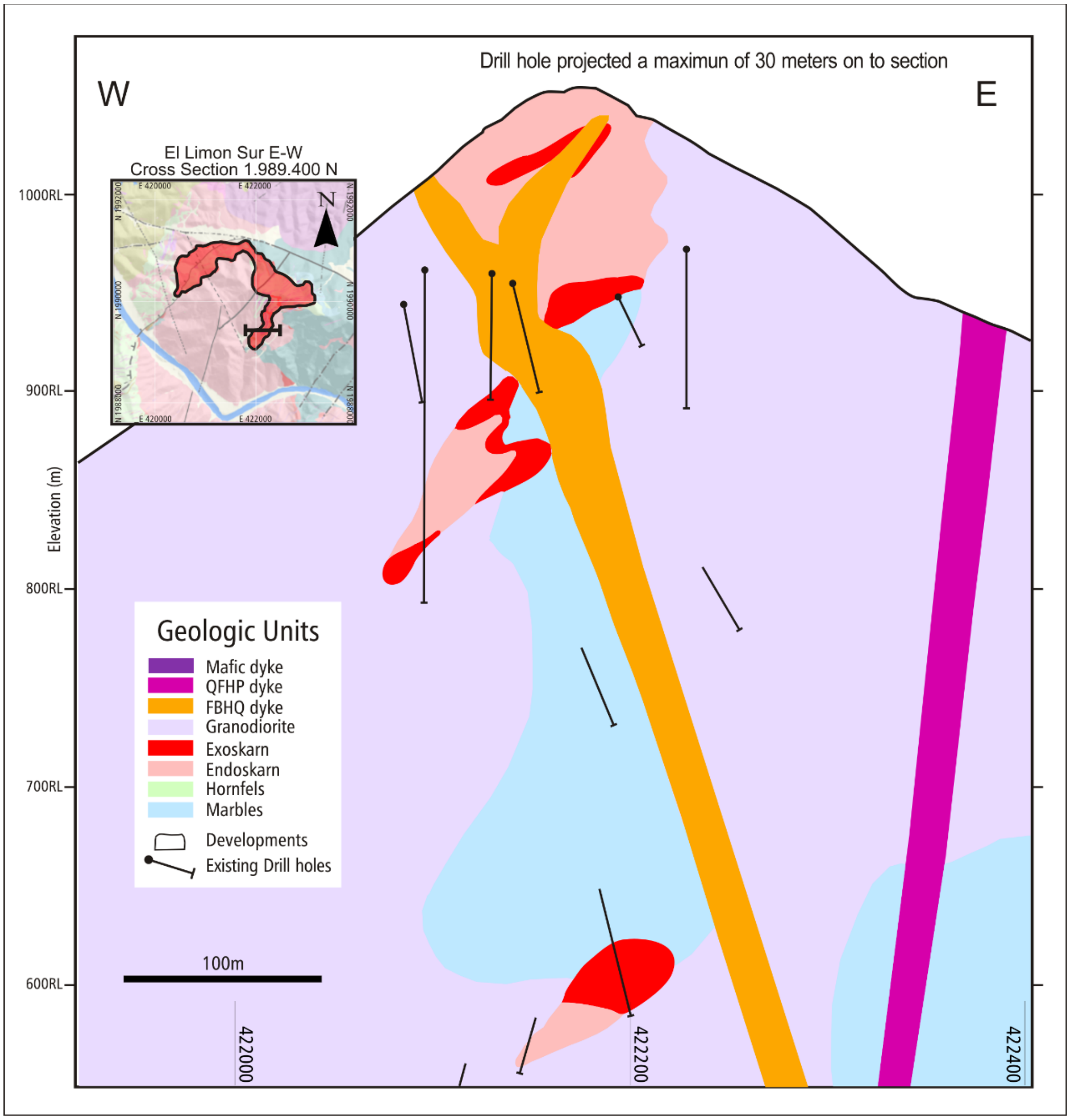


Figure Source: Torex, 2021. Section location is indicated in inset map. Surface shown is the pre-mining topography.

Figure 7-7: Example Cross Section, El Limón Sur, Looking North

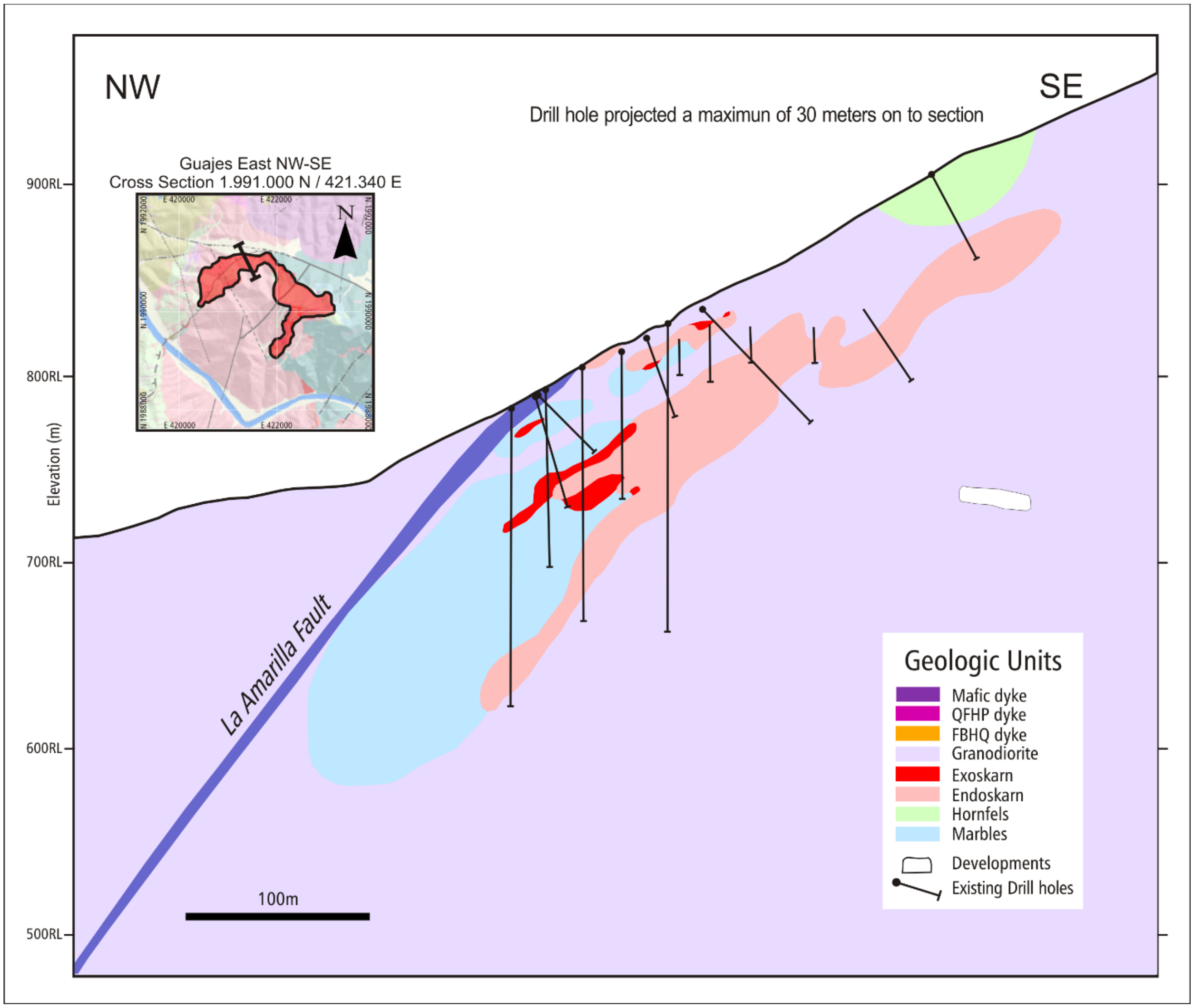


Figure Source: Torex, 2021. Section location is indicated in inset map. Surface shown is the pre-mining topography. Guajes East is mined out.

Figure 7-8: Example Cross Section, Guajes East, looking Northeast

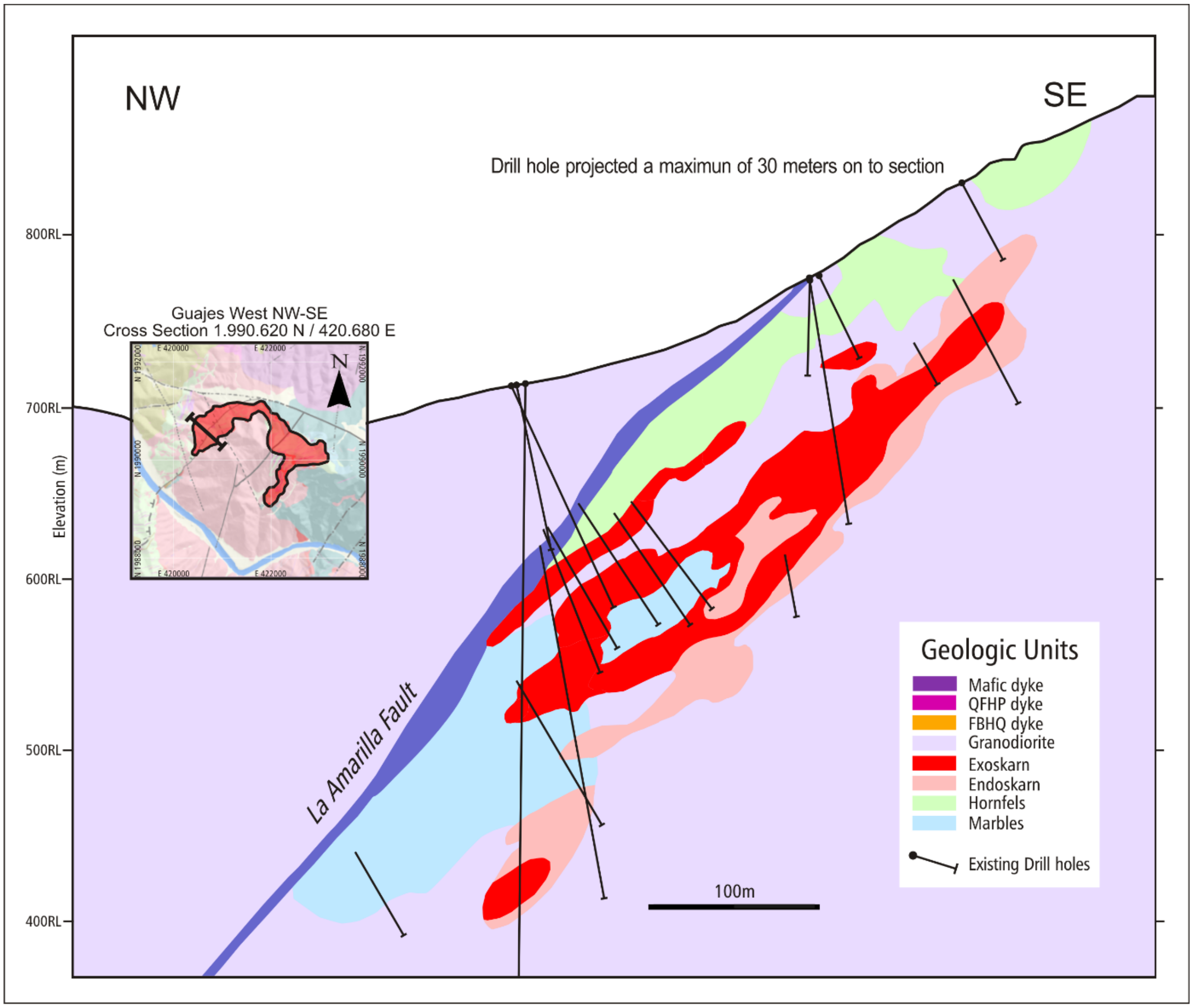


Figure Source: Torex, 2021. Section location is indicated in inset map. Surface shown is the pre-mining topography.

Figure 7-9: Example Cross Section, Guajes West, looking Northeast

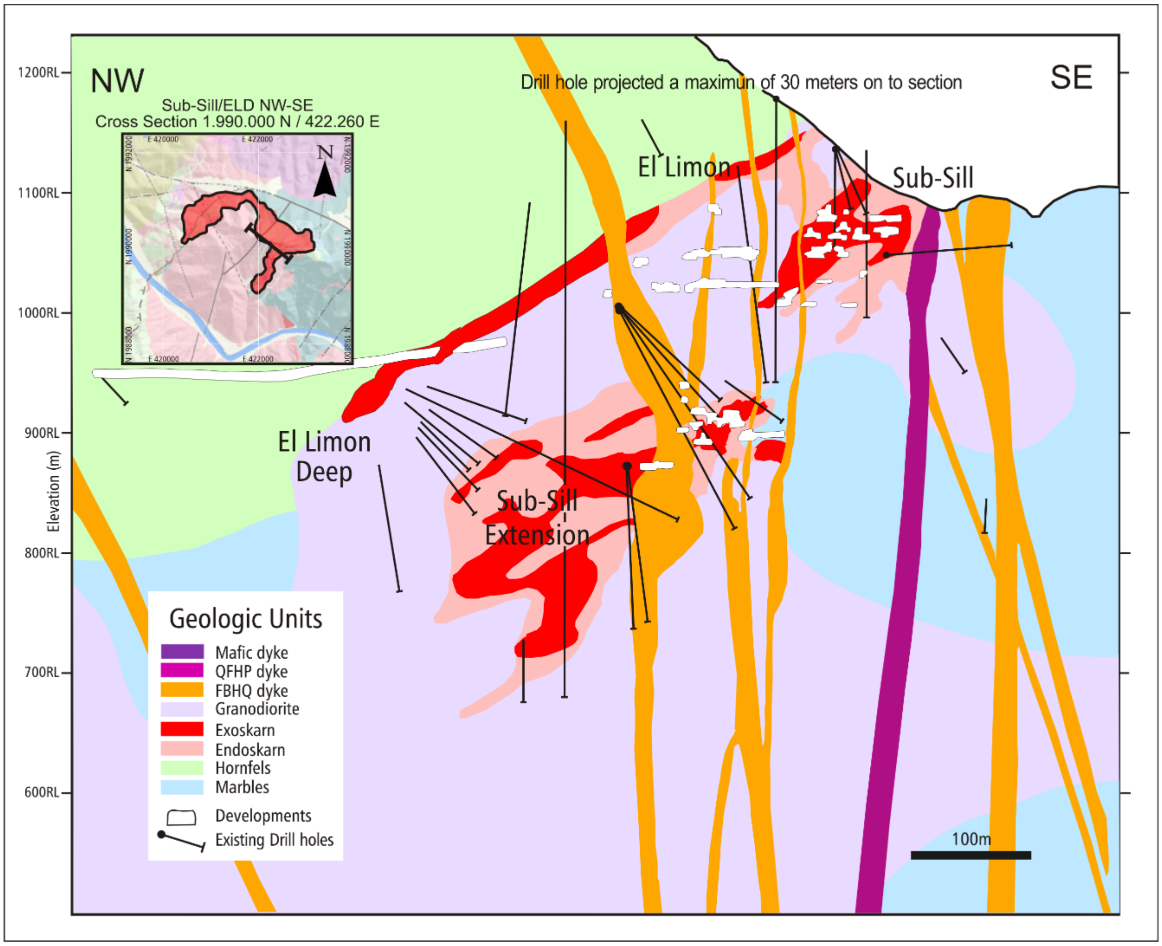


Figure Source: Torex, 2021. Section location is indicated in inset map. Surface shown is the pre-mining topography.

Figure 7-10: Sub-Sill and ELD Cross-Section, looking Northeast

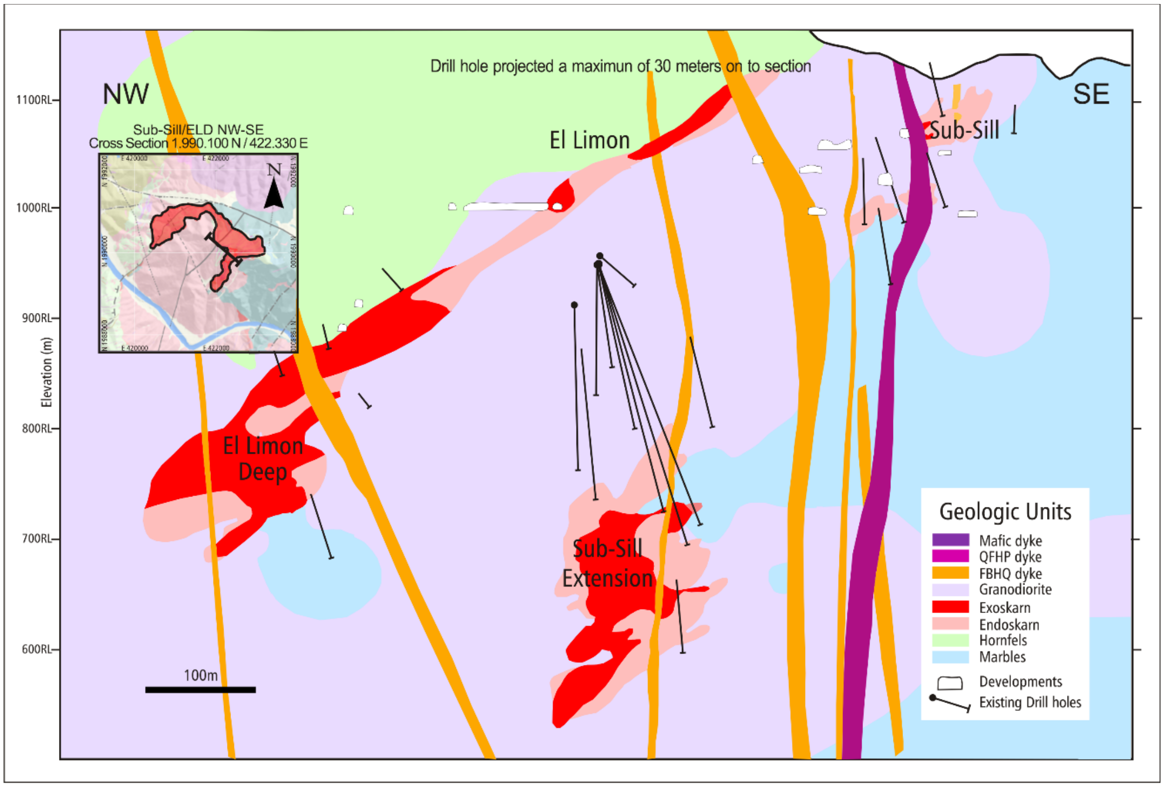


Figure Source: Torex, 2021. Section location is indicated in inset map. Surface shown is the pre-mining topography.

Figure 7-11: Sub-Sill Cross-Section, looking Northeast

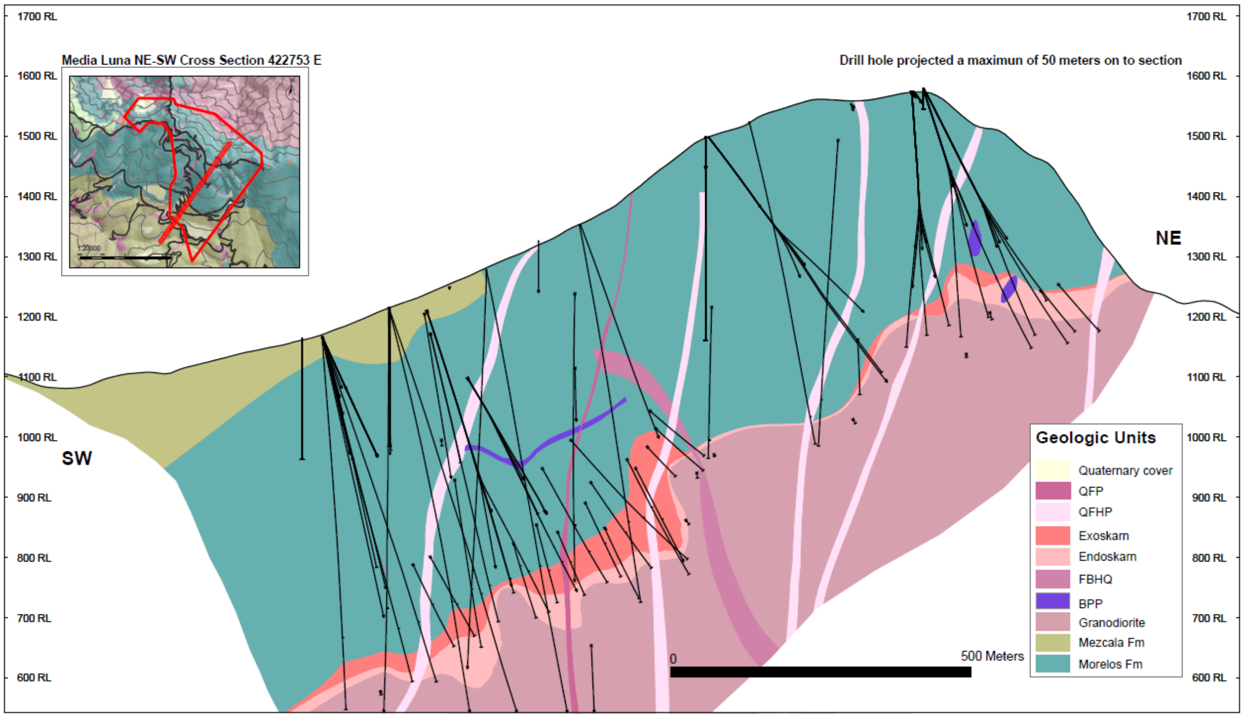


Figure Source: Torex 2021

Figure 7-12: Media Luna Cross-Section, looking Northwest

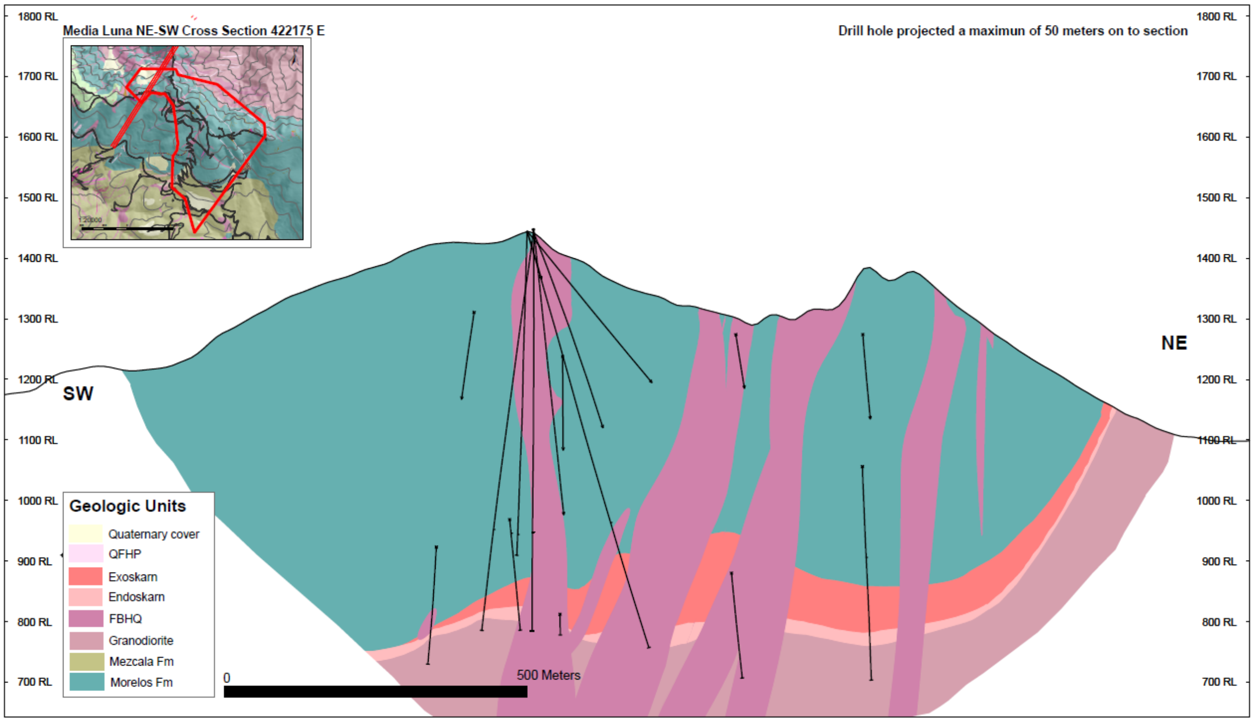


Figure Source: Torex and Western Mining Services, 2020.

Figure 7-13: Media Luna EPO Cross-Section, looking Northwest

7.7 COMMENTS ON SECTION 7

In the opinion of the QP, the geological setting and controls on mineralization at the Morelos Property are adequately understood to support the geological model and the Mineral Resource estimate. The geology staff on site show excellent understanding of the mineral systems in which they work, while also undertaking further work to improve the knowledge base of each deposit and its implications for further exploration at the property.

8 DEPOSIT TYPES

8.1 FEATURES OF SKARN-STYLE DEPOSITS

Mineralization identified within the Morelos Property to date is typical of intrusion-related Au and Au–Cu skarn deposits. Such skarn hosted deposits typically form in orogenic belts at convergent plate margins and are related to intrusions associated with the development of oceanic island arcs or back arcs (Ray, 1998; Meinart, 1992; Meinart et al, 2003).

Skarns develop in sedimentary carbonate rocks, calcareous clastic rocks, volcaniclastic rocks or (rarely) volcanic flows in close spatial association with high to intermediate-level stocks, sills and dykes of gabbro, diorite, quartz diorite, or granodiorite composition.

Skarns are classified according to the rock type in which they develop. Endoskarn is skarn developed in intrusions and exoskarn is skarn hosted by sedimentary, volcanic and metamorphic rocks. Metal deposits hosted by skarns are classified into various types based on metal content (Einaudi and Burt, 1982; Meinart, 1992).

Skarn-hosted base and precious metal mineralization frequently displays strong stratigraphic and structural controls. Deposits can form in exoskarn along sill–dyke intersections, sill–fault contacts, bedding–fault intersections, fold axes and permeable faults or tension zones. Deposits range from irregular lenses and veins to tabular or stratiform bodies with lengths ranging up too many hundreds of meters. Mineral and metal zoning is common in the skarn envelope. When present, gold often occurs as micrometer-sized inclusions in sulfides or at sulfide grain boundaries.

8.2 SKARN DEPOSITS WITHIN THE MORELOS PROPERTY

The deposits and occurrences on the Morelos Property are examples of Au (ELG) and Au–Cu (ML) type skarns. Most are hosted in exoskarn. Au, Ag and Cu concentrations are found primarily within exoskarn developed in Morelos Formation marble and the Mezcala/Cuautla Formations along the contact with El Limón granodiorite. Zones of coarse, massive, garnet-dominant skarn appear within and along the stock margin, with fine-grained pyroxene-dominant skarn zoned away from the contact with the stock. Common sulfides include pyrrhotite, pyrite, chalcopyrite and arsenopyrite. Minor sphalerite, molybdenite, galena and bismuth minerals can also be associated with the skarn.

At the Morelos Property, the skarn type is influenced by the exoskarn protolith. At ML, the higher dolomite content of the Morelos Marble has resulted in a magnesian skarn, facilitating the precipitation of magnetite chalcopyrite and a higher copper content. The skarn at ELG is considered to be calcic, preferentially precipitating pyrrhotite or pyrite and resulting in a gold dominated deposit.

In the opinion of the QP, the skarn deposit type is a suitable descriptor of the known deposits at the Morelos Property. The deposit type supports the geological modelling on which the Mineral Resource estimate is based. The deposit type is appropriate to pursue in further exploration of these systems at the Morelos Property.

9 EXPLORATION

The key points of this section are:

- The Morelos Property has been exposed to a wide variety of exploration techniques including reconnaissance mapping, 1:5,000 scale geological mapping, systematic 1:500 scale pit mapping and 1:250 scale underground mapping, systematic road-cut, channel sampling, soil and stream sediment sampling, diamond drilling, an airborne ZTEM, magnetic geophysical survey (airborne and drone), and a gravimetry survey.
- Additional exploration has a likelihood of generating further exploration successes particularly down-dip and along strike of the known deposits. There is also potential for discovery of additional mineralization outside of the known deposits as there are several geophysical targets that warrant follow-up investigation, on both sides of the Balsas River.

9.1 GRIDS AND SURVEYS

Prior to 2012, the coordinate system used for all data collection and surveying was the Universal Transverse Mercator (UTM) system NAD 27 Zone 14N. In 2012, Torex converted all survey data to WGS 84 Zone 14 N. The WGS grid has subsequently been used for all exploration and drill survey data collection.

9.2 GEOLOGICAL MAPPING

Between 2012 and 2021 detailed mapping at a scale of 1:5,000 has been completed by Torex personnel at ML, ML West, El Naranjo, La Fe, Guajes South, Pacífico, Todos Santos, Victoria, Querenque and a portion of the Esperanza target. This mapping has been incorporated into the district map initially prepared by Teck, who completed regional and detailed geological mapping during Teck's ownership of the Property.

Detailed, systematic geological mapping has been performed in the open pits since 2015 and in the underground mines since 2017. This mapping has been incorporated into the geology map of the ELG Mine Complex and has contributed to the understanding of the characteristics and the controls on the mineralization in the Morelos Property.

9.3 GEOCHEMICAL SAMPLING

Between 1999 and 2008, Teck personnel collected 10,747 rock chip samples, 111 whole-rock geochemistry samples, 185 stream sediment samples, and 2,022 soil samples. The sampling programs identified Au, As, and Ag anomalies that could be tested using drill methods.

During early exploration on the Morelos Property, trenches were cut into the side of hills using a bulldozer to expose lithologies, alteration, and mineralization. Trench sample results were used to confirm the presence of mineralization in areas with geochemical anomalies.

Torex carried out channel sampling programs in the ML Project area and El Cristo areas in 2011, to help define possible drill targets. Channel samples were collected along existing roads after cleaning with a bulldozer. A total of 1,020 samples were collected for assay and represent a total length of 1,651 m.

A grid-based soil survey was conducted over the Modelo target in 2014 consisting of 3,147 samples collected along lines spaced 100 m apart and at stations 50 m apart. In addition, 68 stream sediment samples were collected over a large area south of the Balsas River.

Between 2019 and 2021, a total of 1,500 rock ship samples were collected in Victoria, Querenque, and a portion of the Esperanza target on the north side of the Balsas River. Sampling was collected along lines spaced 75-100 m apart.

9.4 GEOPHYSICS

Teck acquired a reduced-to-pole airborne magnetic image early in the Morelos Property history. The image showed that large magnetic intrusions lay under carbonate sequences in the Property area. The El Limón skarn complex was located at a northwest-trending break between intrusions. Data from the 200 m line-spacing aeromagnetic survey flown by Teck was reprocessed to create a 3-D magnetic susceptibility model for the Property area. This model was re-evaluated to locate drill targets in the Media Luna, Todos Santos, Pacífico, Corona, and Limón South/Fortuna areas (Figure 9-1).

During 2002, a 20 line-km IP survey was completed. The survey identified several magnetic highs for follow-up drill testing.

During mid-2013, Geotech Ltd. carried out a helicopter-borne geophysical survey for Torex covering the entire Morelos Property. The survey consisted of helicopter-borne AFMAG Z-axis Tipper electromagnetic (ZTEM) system and aero magnetics sensor using a cesium magnetometer. A total of 1,620 line-km of geophysical data were acquired during the survey. The survey was flown in an east to west (N 90° E azimuth) direction, with a flight line spacing of 200 m. Tie lines were flown perpendicular to the traverse lines at a line spacing of 2,000 m. The helicopter was maintained at a mean altitude of 249 m above the ground with a nominal survey speed of 80 km/hour for the survey block. This allowed for a nominal EM bird terrain clearance of 179 m and a magnetic sensor clearance of 194 m.

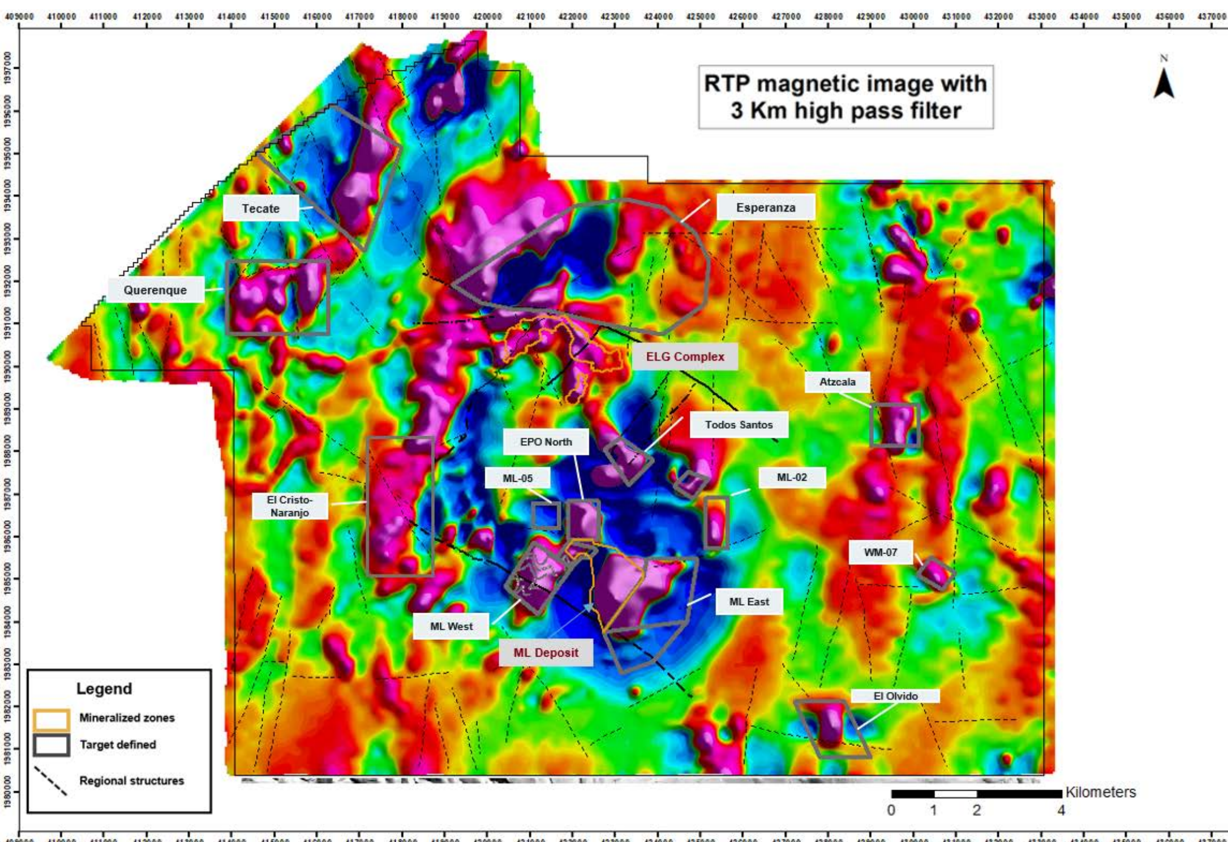


Figure 9-1: District Scale Exploration Targets

Results from the magnetic survey reveal notably different shapes for the main magnetic anomalies in the ML Area. Of note is an expansion of the main ML anomaly to the northeast and the appearance of a connection between the ML

West anomaly and the NW extension of ML. The Todos Santos anomaly also has a slightly different shape. The cause of the differences between the new magnetic and the previous (Year 2000) magnetic data is not known. The changes in the shapes may result from surveying using a different line direction, lower magnetic sensor height and better line control using a helicopter. The ZTEM data highlights resistivity contrast within the local rock packages and is being used to define rock contacts and vertical structures that may have been conduits for mineralizing fluids. Both the ZTEM and magnetic data have been used to create 3D inversion models that support detailed targeting within prospective areas.

To define areas in which the airborne magnetic survey does not clearly show the anomalies, a drone magnetic survey was carried out during 2021 on ML. A total of 272 line-km of geophysical data were acquired during the survey. The main altitude of the drone was 70 m with a flight line spacing of 50 m.

The preliminary results from this survey show the extension of the airborne magnetic to the western fringe of the ML deposit. The area was successfully tested by drilling, showing the continuity of mineralization.

Extension of the drone magnetic survey to ML West and Todos Santos is ongoing, and magnetic and gravimetry surveys will start at the ELG Mine Complex early in 2022.

9.5 OTHER STUDIES

Teck completed age dating, petrography, mineralogical studies, and Quick Bird imagery. Between 2017 and 2021, Torex completed new petrography and mineralogical studies in the Sub-Sill, and Media Luna deposits.

Mineralogical and age-dating studies of hydrothermal alteration and mineralization at ML and at ELG are ongoing.

9.6 EXPLORATION POTENTIAL

Exploration potential on the Morelos Property area is discussed in Section 24.1.

9.7 COMMENTS ON SECTION 9

In the QP's opinion, the exploration programs completed to date are appropriate to the style of the deposits and prospects within the Morelos Property. Exploration and samples have been collected in a manner such that they are representative and not biased. The known deposits are likely to be successfully extended along strike and at depth by following the contacts of the intrusions with the Mezcala/Cuatla and Morelos formations. The ML cluster has the potential to be expanded and current targets may be connected into one larger entity. The lateral limits of this cluster remain un-tested.

The high resolution drone magnetics show that while the magnetic highs are useful to identify areas of high potential, the edges of the magnetic anomaly do not define the edge of the deposit. This finding should be followed up with drilling to extend the deposits past the previously defined boundaries.

There is also potential for discovery of additional mineralization outside of the known deposits as there are several geophysical targets that warrant follow-up investigation, on both sides of the Balsas River.

A revision and re-prioritization of targets is underway, utilizing new geological and geochemical information from drilling and the recently-collected geophysical data.

10 DRILLING

The key points of this section include:

- Mineral Resource estimates at the Morelos Property are based on core drilling.
- Industry standard techniques were used throughout drilling, channel sampling, and core handling processes.

10.1 INTRODUCTION

Drilling completed during the Teck ownership, between 2000 and 2008, referred to as legacy drilling, comprised of 619 drillholes (98,774 m), including 558 core holes (88,821 m) and 61 RC holes (9,953 m). Legacy drilling is summarized in Table 10-1.

From 2009 until the end of 2021, Torex has completed 3,426 core holes (719,609 m) and 110 RC holes (8,792 m). A drill summary table for the Torex drilling is included as Table 10-2. Additional drilling has been completed in 2022, as drilling is an ongoing process at the Morelos Property which will allow Torex to continue to refine its mineral resources and reserves.

Figure 10-1 shows a regional drill collar location plan, current as of December 2021. Figure 10-2 shows drill collar and channel sample locations for the ELG areas, current as of December 2021. Figure 10-3 is a drill collar plan for the ML deposit drilling, current as of December 2021.

Table 10-1: Drill Summary Table, Legacy Drilling

Year	No. of Core Holes	Total Core Lengths (m)	No. of RC Holes	Total RC Lengths (m)	Total No. of Holes, All Drilling by Program	Total All Core and RC Lengths by Program (m)
Unknown	13	970	0	0.0	13	970
2000	0	0	17	2,028	17	2,028
2001	7	1,647	44	7,926	51	9,573
2002	53	7,716	0	0.0	53	7,716
2003	28	3,782	0	0.0	28	3,782
2004	53	8,031	0	0.0	53	8,031
2006	133	22,740	0	0.0	133	22,740
2007	200	33,389	0	0.0	200	33,389
2008	71	10,545	0	0.0	71	10,545
Total	558	88,821	61	9,953	619	98,774

Table 10-2: Drill Summary Table, Torex Drilling

Year	No. of Core Holes	Total Core Lengths (m)	No. of RC Holes	Total RC Lengths (m)	No. of Channels	Total Channel Lengths (m)	Total Number, All Data	Total All Lengths (m)
2010	139	30,960	0	0	0	0	139	30,960
2011	382	60,614	0	0	42	4,160	424	64,774
2012	242	82,817	0	0	0	0	242	82,817
2013	152	87,506	1	240	0	0	153	87,746
2014	52	11,229	109	8,552	0	0	161	19,781
2015	233	18,952	0	0	0	0	233	18,952
2016	245	15,701	0	0	0	0	245	15,701
2017	219	29,447	3	1,312	994	1,130	1,216	31,889
2018	265	60,356	0	0	4,509	4,508	4,774	64,864
2019	400	89,679	0	0	15,573	15,719	15,973	105,398
2020	464	95,573	0	0	12,936	13,021	13,400	108,594
2021	633	136,777	0	0	15,221	15,221	15,854	151,998
Total	3,426	719,611	113	10,104	49,275	53,759	52,814	783,474

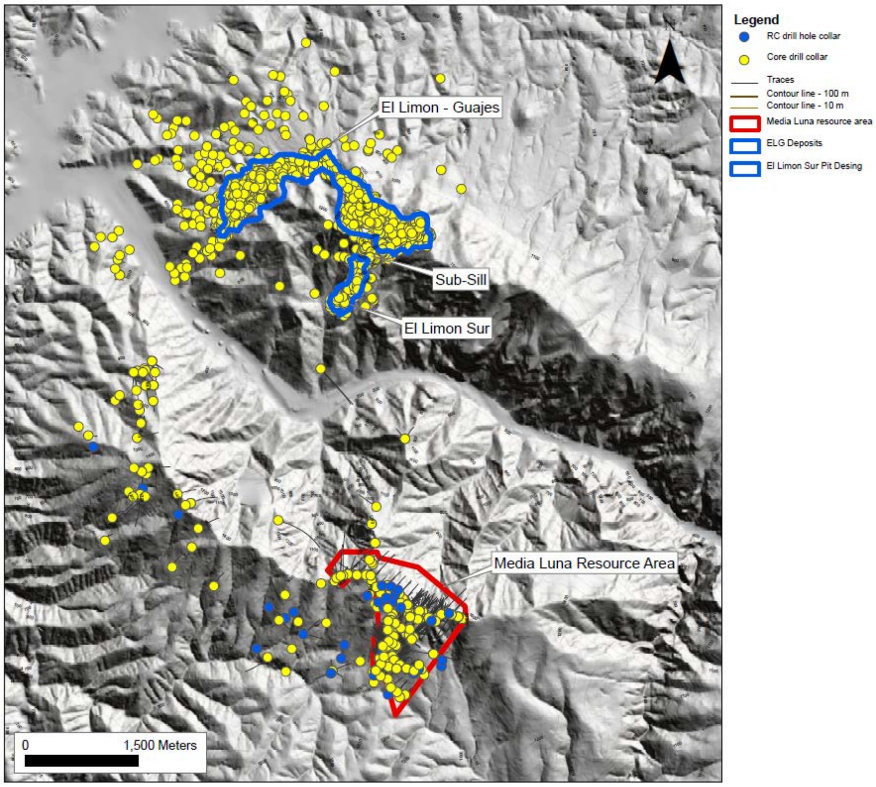


Figure Source: Torex, 2021. Drill collar locations are current to December 2021.

Figure 10-1: Drillhole Location Plan, Morelos Property

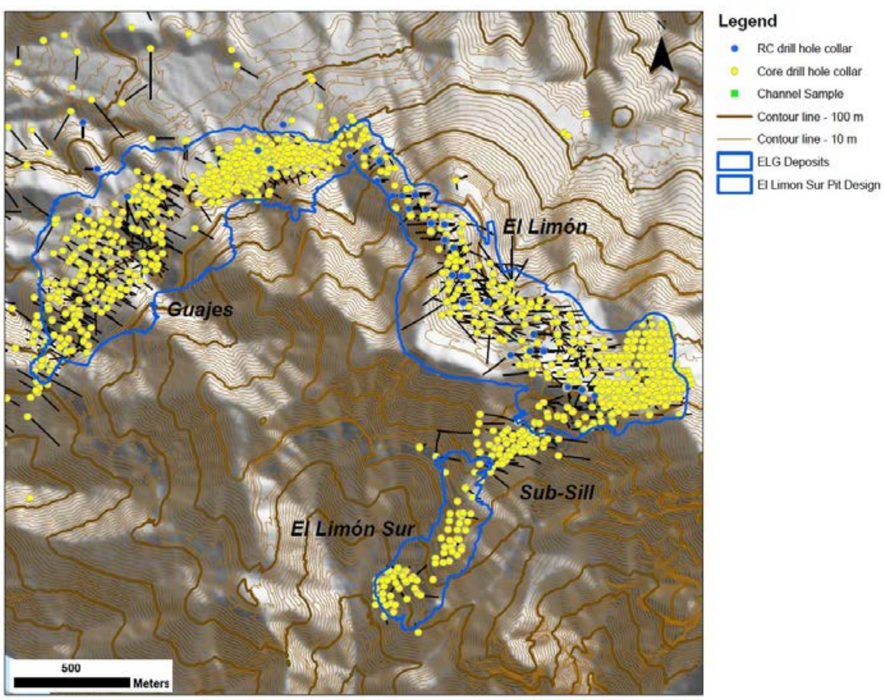


Figure Source: Torex, 2021. Drill collar locations are current to December 2021.

Figure 10-2: Drillhole and Channel Sample Location Plan, ELG Deposits

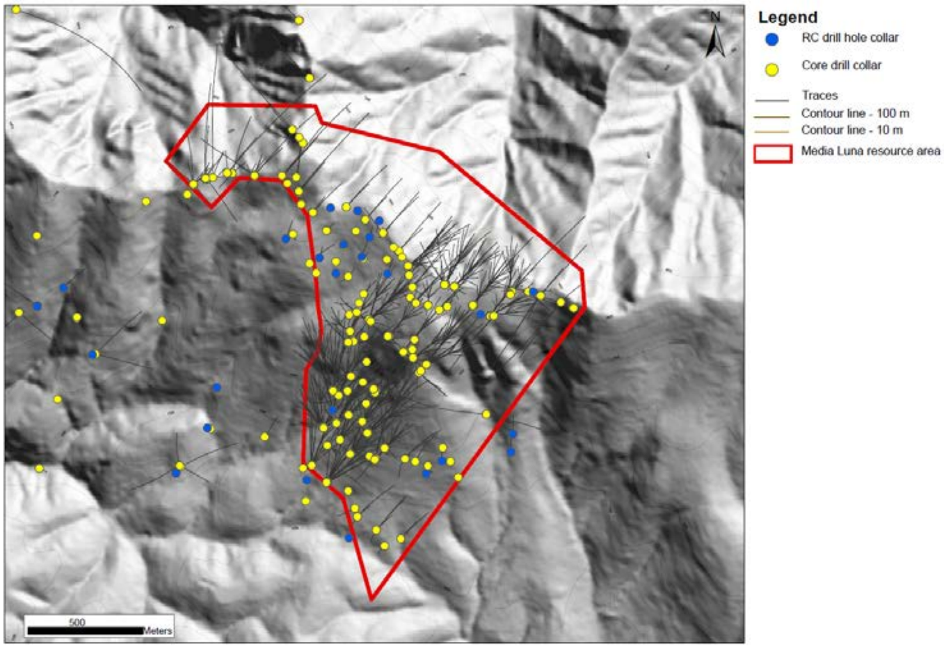


Figure Source: Torex, 2021. Drill collar locations are current to December 2021.

Figure 10-3: Drillhole Location Plan, Media Luna Area

10.2 DRILL METHODS

10.2.1 El Limón and Guajes

10.2.1.1 Drill Contractors and Rig Types

Torex does not have the names of the drill contractors used in the Teck drill programs or the drill rig types.

Drilling by Torex was undertaken by several contractors as outlined in Table 10-3.

Table 10-3: Drilling Contractors and Drill Rig Types

Drilling Contractor	Year	Rig Type	Number of Drill Rigs
Major Drilling	2010–2011	LF-70	8
Energold Drilling	2010–2011	Christensen C-14	2
Boart Longyear	2011–2012	R38	2
G4 Drilling México S.A. de C.V.	2011–2013	HTM -2500	4
Integración y Evaluación de Proyectos Mineros	2012–2013	Christensen C-14	2
Landdrill International México, S.A. De C.V.	2012–2013	ZUNET – A5	3
Landdrill International México, S.A. De C.V.	2012–2013	HTM -2500	2
Canz Drilling Sapi de C.V.	2013	Cortech 1800	1
Moles Drilling De R. L. de C.V.	2013-2021	Cortech 1800	2
G4 Drilling Mexico S.A. de C.V.	2018-2021	ST-1500	3 - 4
Moles Drilling De R. L. de C.V.	2019 - 2021	Ingetrol Sandy 30E	1
Moles Drilling De R.L. de C.V.	2021	CKD 600	1
Layne De México, S.A De C.V. (Media Luna)	2017-2021	CT-14 / MPD-1500	8

10.2.1.2 RC Drilling

During Teck's drill programs, some RC drilling was performed as pre-collars for core tails.

All RC drilling during both Teck and Torex drilling was performed dry unless water injection became necessary to stabilize the hole.

Sample recoveries were not recorded for RC holes. RC drilling represents only ~2.5% of the total drillhole length and no area with declared mineral resource is reliant on this form of drilling for support.

10.2.1.3 Core Drilling

In the ELG Mine Complex, diamond drilling typically recovered HQ size core (63.5 mm) from the surface and from the underground infill and exploration drilling. HQ size was only reduced to NQ size core (47.6 mm) when drilling conditions warranted, to drill deeper. Underground delineation drilling recovered TT46 size core (35.0 mm).

When breakage of the core was required to fill the box during both the Torex and Teck drilling programs, edged tools and accurate measure of pieces to complete the channels was the common practice to minimize core destruction. The end of every run was marked with a wooden block with the final depth of the run.

Core was transferred to wooden core boxes, marked with "up" and "down" signs on the edges of the boxes using indelible pen. The drillhole number, box number and starting depth for the box was written before its use, whilst end depth were recorded upon completion. All information was marked with indelible pen on the front side of the box and on the cover.

Transport of core boxes to the core shed was done by personnel from the company that were responsible for managing the drill program, or the drilling supervisor. Core handling logs were completed that included details for all persons involved in any step during the logging and sampling procedures.

10.2.1.4 Channel Samples

Channel samples were collected by Teck personnel using chip channeling of horizontal sections of trenches and road-cuts. These legacy data is not used in the current Mineral Resource estimation included in this Technical Report.

Torex collected 1,997 surface channel samples using rock saws at El Limón Sur and El Limón Norte Oxide with the objective of further constraining the geological model as well as for assessing mineralization at surface.

Delineation of the channel sampling lines was dictated by the availability of outcrops along each road cut line, and in the absence of outcrop, the most proximal outcrop to the line was sampled, irrespective of lithology. A total of 1,179 samples were taken at El Limón Norte Oxide and 818 samples were collected at El Limón Sur.

Sample locations were recorded using a handheld GPS Garmin GPSMAP 60CSx.

Channel samples are systematically collected from underground developments in the ore zones, using a hammer and chisel. They are used for ore control purposes and short-term internal models. Channel samples do not inform the Mineral Resource estimate.

10.2.2 Media Luna

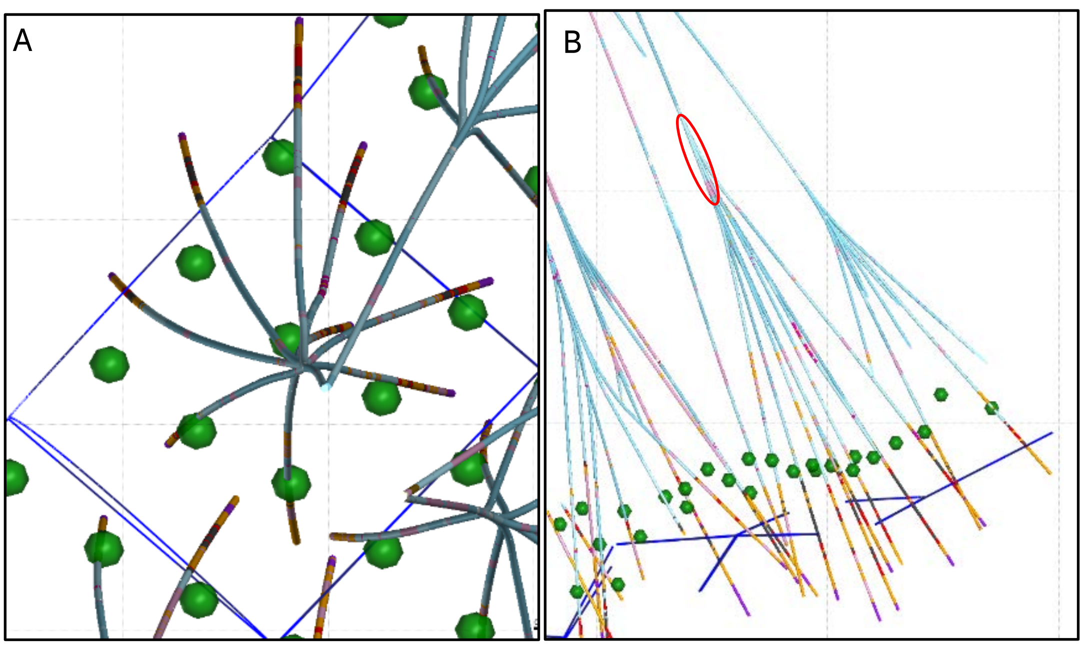
10.2.2.1 Core Drilling

In ML, diamond drilling typically recovered PQ size core (85 mm) from surface and was reduced to HQ size core (63.5 mm) between 150 and 200 m depth. NQ size core (47.6 mm) was used when drilling conditions warranted, in order to drill deeper, and in all directional drilling holes.

10.2.2.2 Directional Core Drilling

Since 2019, directional core drilling (DCD) was implemented to speed up the drilling program and to improve the accuracy of the target spacing in ML area. The selected tool, Azidrill, was able to operate with similar water consumption than regular diamond drilling and therefore allowed to continue with the same number of rigs previously employed in conventional drilling. By implementing the Azidrill (DCD), the time used to drill one target was approximately cut in half. Additionally, it improved the drilling precision significantly as the targets were hit in their majority less than 5 m from the planned intersecting points.

The DCD process involved the drilling of an HQ parent hole to the total hole depth through the ore intersection. Drill rods were then retreated, a wedge installed, and then the DCD would be drilled with BQ core diameter for several meters following a child hole inclination and azimuth. Once the target inclination and azimuth of the child hole was achieved, drilling would switch to NQ core diameter for the remainder of the hole through to intersection of the ore target. A directional core barrel tool was used whenever deviations to the parent or child holes were encountered. A typical parent-child hole arrangement illustration is shown in Figure 10-4.



A) View along parent hole showing all holes drilled to intersect the 9 targets of the block; in green the targets, in blue the outline of the block. B) Showing the same block in section; visible is the short interval (35 m) in which all directional holes were started (red circle).

Figure 10-4: Example Directional Core Drilling Plan and Profile

10.3 GEOLOGICAL LOGGING

Logging of RC drill cuttings and core utilized standard logging procedures originally implemented by Teck. Initial logging utilized paper forms, with data hand-entered into a database from the form. From 2006, logging was completed using hand-held computers.

Logs recorded lithologies, skarn type, fracture frequency and orientation, oxidation, sulphide mineralization type and intensity, and alteration type and intensity.

A total of 1,255 holes were relogged by Torex during 2013–2014, and the updated information was used to generate a new model for the Guajes area. During 2015, all El Limón drilling was relogged by Torex to identify post mineralization dykes to support an update to the reinterpretation of the El Limón mineral resource model in 2015.

Teck photographed drill core. All drill cores and RC chips generated by Torex are also photographed. From 2013, a purpose-built and equipped photographic laboratory has been used to photograph drill core. Two boxes are photographed at a time and each photograph is labeled by drillhole number and interval. All boxes of uncut core are photographed. All cut and samples core is photographed after sampling is complete. Core is wet when photographed.

For geotechnical purposes, rock quality designations (RQD) and recovery percentages were also recorded. Intervals for measuring recovery generally do not correspond to assay intervals. No hydrogeological data were collected from exploration core drillholes. Six oriented holes (1,070 m) were drilled at the Sub-Sill area in 2017 for geotechnical purposes. Geotechnical and hydrogeological investigations commenced at ML in 2018, and since then a significant number of holes have used oriented core with detailed geotechnical parameters collection of discontinuities.

10.4 RECOVERY

Recovery is measured using total core recovery (TCR), the ratio of core recovered (solid and non-intact) to the length of the core run.

RQD is also measured and is the ratio of solid core pieces longer than 100 mm to length of core run. It is determined by measuring the core recovery percentage of core chunks that are greater than 100 mm in length.

If the core is broken by handling or by the drilling process (i.e., the fracture surfaces are fresh irregular breaks rather than natural joint surfaces), the fresh broken pieces are fitted together and counted as one piece, provided that they form the requisite length of 10 cm.

Drill core recoveries typically averaged 93.7% after the first 50 m. Statistical analysis of these core recoveries by Torex indicated that no bias was apparent using samples with recoveries that were less than 100%. For some fault intervals, recovery may locally decrease to 50%. Even when the recovery is good, the RQD is generally poor within fault zone areas.

Recovery data were not available for all core holes, most notably in older Teck drillholes.

10.5 COLLAR SURVEYS

Drillhole collars were initially surveyed using differential GPS. All subsequent drillholes have been surveyed using the Total Station instrument, and locations of older holes picked up using Total Station methods such that all drill collar data are now sourced from the Total Station.

10.6 DOWNHOLE SURVEYS

Several different down hole survey techniques and devices were used during the Teck drilling programs to measure down hole azimuth and dip, including Sperry Sun, Tropari, and Reflex instruments, and acid tube measurements. During the 2006 Teck program readings of azimuth and dip were collected at 50 m intervals down-hole. Teck noted that some difficulties were encountered with the Reflex magnetic instrument in areas where there is significant magnetite or pyrrhotite (Teck Resources, 2008).

At ELG, Torex has used a Reflex magnetic instrument on 50 m down the hole increments until 2014 and 25 m down the hole increments from 2015 onwards.

Due to the magnetic nature of the mineralization in the ML area, the decision was taken to use non-magnetic survey instruments. A north-seeking gyro (gyroscope) is used for downhole survey. This tool calibrates itself on the surface to the magnetic north and the gravitational field of the earth. Within the hole, it measures the difference in azimuth and inclination between the established survey point.

Measurements were taken every 30 m while the hole is being drilled, to monitor deviation while drilling is in progress. Once the hole is complete measurements are taken every 5 m down hole or every 2 m when directional drilling is being used. To guarantee that the gyroscope delivered the best possible results, the tools are calibrated on a test stand monthly.

10.7 SAMPLE LENGTH/TRUE THICKNESS

Drillholes are designed to intersect the mineralization in as perpendicular a manner as possible; reported mineralized intercepts are typically longer than the true thickness of the mineralization. Drillholes that orthogonally intersect the mineralized skarn will tend to show true widths. Drillholes that obliquely intersect the mineralized skarn will show mineralized lengths that are slightly longer than true widths. A majority of the drillholes have been drilled obliquely to the skarn mineralization.

A series of cross-sections and plan maps for El Limón, Guajes, Sub-Sill, ELD and ML are included in Section 7. These maps include drillhole traces and an interpretation of major geologic contacts. These figures show that drill orientations are generally appropriate for the mineralization style and have been drilled at orientations that are optimal for the orientation of mineralization for the bulk of the deposit area.

10.8 ON-GOING DRILL PROGRAM

Starting in 2017, infill drilling work was undertaken inside of the planned ELG OP, and in the underground mining areas. Infill and step-out core drilling is currently focused on the underground areas.

Infill drilling is on-going at ML, and will be expanded to EPO. Step-out drilling will also be carried out at ML within unclassified areas, such as the ML-West target.

Additional information regarding future exploration programs and targets is provided in Section 24.1.

SLR has reviewed the core drill results available for drillholes completed since the cut-off date for the Mineral Resource model contained in this Technical Report and has found no reason to change the global assumptions used for the Mineral Resource estimate based on that additional data.

10.9 SUMMARY OF DRILL INTERCEPTS

Example drill intercepts for ELG are summarized in Table 10-4 and Table 10-5. They are illustrative of the mineralization styles at ELG. The example drillholes contain oxide and sulphide intersections and areas of higher-grade in lower-grade intervals.

A selection of example drill intercepts for ML are included in Table 10-6 and illustrate the typical range of grades and thicknesses encountered within the deposit.

Table 10-4: Example Drillhole Intercept Summary – ELG Open Pit

Deposit	Drillhole ID	Easting	Northing	Elevation	Azimuth (º)	Dip (º)		Depth of Top of Composite (m)	Depth of Base of Composite (m)	Composite Length (m)	Au (g/t)	Ag (g/t)	Cu (%)	Rock Code
El Limón	DLIM-281	422465.98	1990402.57	1220.09	125	-85		30.50	56.00	25.50	1.28	10.6	0.33	Exoskarn
								83.20	152.30	69.10	5.57	7.2	0.09	Endoskarn
							including	111.00	118.00	7.00	17.87	17.8	0.09	Endoskarn
								199.50	208.00	8.50	4.52	7.2	0.13	Endoskarn
	TMP-1396	422952.06	1990180.11	1267.80	0	-90		0.00	31.90	31.90	3.05	13.9	0.26	Endoskarn
	EC-173	422161.70	1990415.98	1248.78	65	-54		26.42	57.50	31.08	4.37	5.14	0.14	Exo/Endoskarn
								93.16	126.93	33.77	2.00	3.99	0.06	Exoskarn
								152.00	205.44	53.44	4.15	5.93	0.15	Exoskarn
							including	182.00	188.00	6.00	11.17	10.25	0.13	Exoskarn
	EC-193	421926.53	1991030.87	979.58	260	-57		17.10	45.31	28.21	2.90	3.34	0.06	Exo/Endoskarn
	EC-201	422145.37	1990391.26	1210.86	65	-49		19.65	72.00	52.35	6.45	13.22	0.30	Exoskarn
							including	64.00	68.47	4.47	18.60	9.03	0.17	Exoskarn
Guajes East	T10-100C	421304.37	1991025.79	821.65	59	-86		39.91	78.05	38.14	5.97	15.6	0.45	Endoskarn
							including	54.31	65.51	11.20	10.54	36.6	1.01	Endoskarn
	DLIM-520	421484.39	1991056.43	866.50	326	-58		58.00	96.70	38.70	3.56	17.1	1.02	Endoskarn
							including	77.80	79.20	1.40	19.33	133.7	2.86	Endoskarn
	GE-046	421368.86	1991051.20	819.28	0	-90		7.30	44.00	36.70	3.81	2.9	0.06	Exoskarn
							including	8.50	13.03	4.53	11.03	7.0	0.11	Exoskarn
	GE-079	421327.43	1991014.54	819.99	0	-90		0.00	40.94	40.94	6.21	7.1	0.18	Exo/Endoskarn
							including	35.69	40.94	5.25	19.54	4.2	0.01	Exoskarn
	GE-089	421233.50	1991047.64	791.77	120	-73		20.85	53.60	32.75	3.34	7.8	0.06	Endoskarn
Guajes West	TMP-1196	420644.60	1990512.05	755.81	313	-85		74.90	153.40	78.50	6.05	3.7	0.09	Endoskarn
							including	92.40	99.00	6.60	16.25	7.8	0.21	Endoskarn
							including	120.70	124.40	3.70	25.21	6.5	0.21	Endoskarn
	DLIM-483	420565.00	1990418.33	761.55	132	-65		84.00	107.00	23.00	1.72	0.8	0.0	Endoskarn
	GW-046	420627.53	1990511.07	692.86	128	-75		7.30	44.00	36.70	3.81	2.9	0.06	Exoskarn
							including	8.50	13.03	4.53	11.03	7.0	0.11	Exoskarn
	GW-050	420616.55	1990521.55	692.86	128	-78		27.53	80.00	52.47	4.45	5.5	0.09	Exo/Endoskarn
							including	51.50	60.50	9.00	8.26	2.6	0.16	Endoskarn
	GW-079	420679.64	1990654.80	636.94	128	-75		0.00	40.94	40.94	6.21	7.1	0.18	Exo/Endoskarn
							including	35.69	40.94	5.25	19.54	4.2	0.01	Exoskarn
	GW-089	420598.63	1990510.12	657.92	128	-83		20.85	53.60	32.75	3.34	7.8	0.06	Endoskarn

Note: The Composite Length does not necessarily represent the true width of the mineralized skarn.

Table 10-5: Example Drillhole Intercept Summary – ELG Underground

Deposit	Drillhole ID	Easting	Northing	Elevation	Azimuth (º)	Dip (º)		Depth of Top of Composite (m)	Depth of Base of Composite (m)	Composite Length (m)	Au (g/t)	Ag (g/t)	Cu (%)	Rock Code
Sub-Sill	SST-07	422453.12	1989886.99	1173.58	0	-90		136	148.13	12.13	14.64	22	0.78	Exoskarn
								255.94	273.24	17.3	18.36	26.9	0.64	Exoskarn
	SST-27	422450.02	1989828.49	1150.34	90	-68		39.42	44.91	5.49	48.34	6	0.01	Endoskarn
								80.53	96.24	15.71	20.03	33.3	2.79	Exoskarn
	SST-49	422466.05	1989865.01	1155.42	0	-90		79.63	89.32	9.69	39.08	6.9	0.16	Exoskarn
							including	81.83	85.78	3.95	88.35	12.6	0.24	Exoskarn
								153	159.17	6.17	16.08	34.4	0.57	Exoskarn
	SST-101	422399.7	1989777.6	1141.19	90	-45		53.24	57.59	4.35	4.71	1.1	0.03	Exoskarn
								87.49	114.7	27.21	13.12	28.3	0.59	Exo/Endoskarn
	SST-146	422345.26	1989997.82	1007.58	270	-87		211.7	220.6	8.9	11.01	6.3	0.74	Exoskarn
								266	272.6	6.6	8	3.7	0.25	Endoskarn
	SST-208	422158.24	1990257.15	928.32	121	-55		36.1	51.4	15.3	11.94	10.1	0.2	Exoskarn
							including	41.67	49.77	8.1	17.56	18.1	0.32	Exoskarn
	SST-221	422366.13	1989980.79	1007.94	131	-6		153	159.84	6.84	10.64	30.2	1.24	Exoskarn
	SST-232	422141.37	1989394.55	955.02	111	-74		75.22	86.5	11.28	10.21	156.2	1.82	Exo/Endoskarn
								105.46	112.7	7.24	7.53	19.9	0.05	Exoskarn
ELD	LDUG-034	422181.13	1990285.47	1010.24	311	-80		111.45	138.25	26.8	11.66	5.5	0.17	Exo/Endoskarn
							including	126.13	130.2	4.07	25.28	6.4	0.18	Exoskarn
								143.3	149.8	6.5	12.27	1.4	0.03	Exoskarn
	LDUG-071	422099	1990353.68	1010.37	60	-27		118.25	122.82	4.57	3.72	0.9	0	Exoskarn
								134	148.38	14.38	14.85	26.3	0.73	Exoskarn
							including	139	145.2	6.2	25.4	54.8	1.56	Exoskarn
	LDUG-099	422100.17	1990355.06	1011.21	65	-14		127	137	10	9.2	8	0.19	Exoskarn
							including	133	137	4	14.56	32.3	0.59	Exoskarn
	LDUG-117	422106.76	1990622.78	1015.63	65	0		23.4	41	17.6	19.57	34.3	0.43	Exoskarn
							including	29.92	38.77	8.85	34.5	65.2	0.74	Exoskarn
	LDUG-130	422201.38	1990432.77	980.8	31	-40		8.88	21.88	13	6	10	0.19	Exoskarn
							including	16.6	20	3.4	16.44	22.4	0.38	Exoskarn
	LDUG-145	422227.23	1990302.33	969.89	127	-16		48	60.08	12.08	9.72	5	0.14	Exoskarn
								68	79.68	11.68	5.42	34.5	1.2	Exoskarn
	LDUG-157	422117.36	1990375.75	1013.16	65	18		98.5	124	25.5	14.51	8.6	0.16	Exoskarn
							including	105.76	116	10.24	24.32	12.2	0.11	Exoskarn
	LDUG-164	422125.95	1990317.69	921.25	165	-40		52	80.92	28.92	13.53	16.2	0.86	Exoskarn
							including	74.6	80.92	6.32	19.56	10.9	0.45	Exoskarn

Note: The Composite Length does not necessarily represent the true width of the mineralized skarn.

Table 10-6: Example Drillhole Intercept Summary –Media Luna

Drill-Hole	Target Area	UTM-E (m)	UTM-N (m)	Elevation (m)	Hole Type	Mother Hole	Azimuth	Dip	Final Depth (m)	Intersection		True Length (m)	Au g/t	Ag g/t	Cu %
										From (m)	To (m)				
ML18-232A	ML-Infill	422498	1984516	1224	CD		321.12	-72.54	478.35	418.13	442.15	23.66	7.90	12.24	0.37
ML18-236	ML-Infill	422498	1984517	1224	CD		333.45	-69.32	454.05	393.05	402.54	9.35	3.69	26.92	0.91
										420.03	441.46	21.10	5.10	65.38	1.28
ML19-295D	ML-Infill	422499	1984518	1224	DD	ML18-261			536.20	421.46	430.22	7.43	1.83	13.91	0.30
										449.79	476.39	22.56	15.29	43.99	1.34
										502.81	522.63	16.20	0.99	122.85	3.30
ML19-307D	ML-Infill	422557	1984537	1248	DD	ML19-284			566.75	481.98	506.22	20.99	2.04	68.21	1.91
										516.06	522.57	5.64	1.76	189.01	5.92
ML20-418D	MLU-Infill	423230	1985003	1564	DD	ML20-410			487.4	370.04	376.33	6.19	4.98	6.59	0.37
										381.63	392.86	11.06	0.61	11.59	0.67
										400.58	406.71	6.04	3.64	32.31	1.29
										418.35	441.17	22.47	5.45	42.89	2.48
										482.00	482.74	0.73	1.18	5.80	0.44
ML21-523D	MLUL	422852	1984850	1498	DD	ML20-451A			485.7	443.28	460.21	14.33	7.63	17.17	0.86
ML21-570D	MLM	422618	1984937	1442	DD	ML21-536A			612.7	480.52	486.00	5.48	12.38	84.28	1.84
										494.00	514.00	20.00	2.42	23.87	0.98
ML21-612D	MLM	422700	1984986	1473	DD	ML21-604			530.05	471.00	506.00	31.72	3.21	71.90	1.90
ML21-623D	MLL	422619	1984937	1442	DD	ML21-596A			578.80	522.60	549.61	26.48	3.00	39.49	1.25
ML21-631D	MLL	422619	1984937	1442	DD	ML21-596A			594.05	517.43	538.47	20.32	7.48	16.58	0.94

Notes to drilling results table:

1. Intersections are reported as true thickness
2. Directional Core drilling hole (DCD): Drillhole which was deviated by directional drilling tool from a mother hole.

10.10 COMMENTS ON SECTION 10

In the opinion of the QP, the quality and volume of the drilling, logging, collar and down-hole survey data collected by Torex are appropriate to support the declaration of Mineral Resources at the Morelos Property. The QP further comments as follows:

- No issues were noted in the drilling procedures, data collection and data storage that would have a material impact on the Mineral Resource.
- Core logging is carried out to a high standard and the procedures in place meet industry standards for the deposit type and commodities in question.
- Drillhole collars are surveyed in accordance with industry best practices.
- The current down-hole survey procedures meet standard industry practices and allow drill core samples to be accurately located in space. The QP offers the following comments on down-hole surveys carried out by previous operators:
  - The downhole survey practices utilized prior to 2006 were principally based on magnetic measurements which may not be consistently accurate in rock with high magnetite or pyrrhotite content.
  - This data represents less than 3% of the total core drilling database and does not have a material impact on the Mineral Resource estimate.
- Recovery data from core drill programs are acceptable.
- Drillholes are planned to intercept mineralization at near perpendicular angles where possible. Where intercept angles are not perpendicular to the mineralization, true widths will be less than the intercept width.
- Example cross sections in Section 7 show the orientation of drillholes with respect to the mineralization

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 SAMPLING METHOD

11.1.1 Geochemical Sampling

During Teck ownership of the property, grab samples were collected by Teck personnel from an area of outcrop or float. Rock chip samples were taken from areas of outcrop. Samples typically weighed about 2 kg. Locations were recorded with a hand-held GPS.

Soil samples were taken by Teck personnel on approximately 100 m to 200 m sample spacing. Locations were recorded with a hand-held GPS. Samples were collected from the "B" soil horizon and sieved to -80 mesh. Approximately 500 g of material was collected at each site.

Channel samples were collected by Teck personnel chip channeling horizontal sections of trench and road-cut. Trenches and road-cuts were sampled at nominal 2 m intervals, though some intervals were modified to account for geological contacts. The average weight of the trench samples was 3 kg.

During the Torex ownership channel sampling, vertical cuts of 0.2 to 0.3 m were spaced 3 to 5 cm along a 2 m horizontal sample length along road cuts. Rock material in-between the vertical cuts was then chipped out.

During 2014, soil samples were collected by Torex personnel in selected areas south of the Balsas River. Samples were sieved in the field to pass a 5 mm screen. Two soil samples, approximately 80 to 100 g in size, were collected at each site (with the same sample number). Samplers were provided with sample numbers for grid locations by the survey manager, and recorded the sample number, and, using a GPS unit, the UTM coordinates.

Stream sediment samples at a district-scale were collected by Torex personnel through 2014–2015. The samples were coarse sieved to -2 mm (10 mesh Tyler) in the field. The samples were dried at Acme laboratory at 60°C, and sieved to -180 µm (0.18 mm, -80 mesh Tyler), and the entire minus fraction, or a split of 110 g, was sent to the Vancouver laboratory for analysis.

Channel, soil, and stream samples were not used to inform the Mineral Resource estimate.

11.1.1.1 RC Sampling

Reverse circulation drill cuttings were systematically sampled at 1.5 m intervals. RC drilling was done dry except when water was added to cross fault zones. RC samples were collected in buckets from the cyclone and split (approximately 20%) using a 3-tier Jones splitter. The average weight of the RC samples was 7 kg.

It is unknown whether Teck program samples were collected by the drill crew, or by Teck personnel.

During the Torex programs, samples were collected by Torex (MML) personnel.

Reverse circulation assay results have not been used for the mineral resource estimation.

11.1.1.2 Core Sampling

Legacy

Core boxes were transported by Teck from the drill site to the logging facility, where the core was logged and the assay intervals determined by a geologist. Assay intervals were selected after logging.

Core was sawn in half; one half was sent to sample preparation, after being sampled at irregular intervals honoring geological contacts.

The other half of the core was retained in the core box as an archive or for additional studies. Four bar-code sample tags were used. One tab was left in the tag book as reference, one tab was stapled to the box to mark the sample interval, one tab was placed with the coarse reject material and one tab was included with the pulp material. In addition to the paper tag marking, the interval in the core box was also marked with a metal tag inscribed with the hole number, interval, and sample number.

Torex

Torex drill supervisors or drilling contractors were present at the drill site daily to ensure the core was sequentially placed in each box and that the boxes were properly marked and labeled. Boxes are covered with a wooden cover at the drill site and core was transported each day from ELG or ML to the core shack in Nuevos Balsas to await logging.

In 2013, a separate core facility was established in the village of San Miguel to process the ML core, the same practice was followed. A chain of custody was recorded for each box before entering the San Miguel core shack.

Prior to logging, the core is cleaned and marked with a double line (red and blue) to assist with maintaining a correct core orientation as the core was handled. Each box is then photographed. A Torex geologist logs each drillhole using a portable computer with software for core logging and sample descriptions. RQD and core recovery measurements are taken and any other required non-destructive testing is completed. The geologist marks up the assay intervals, inserts the appropriate sample tags for each interval in the core trays and records the sample information. ELG core is typically sampled in 1.5 to 3 m intervals and ML core is typically sampled in 1 m intervals. The sample is adjusted for mineralization/waste contacts and major geological breaks where appropriate. If core recovery is poor and insufficient material is available to prepare a sample, two or three meters of core can be combined to make a composite sample.

The geologist ensures that sample tags are in place and sample numbers and meters are properly recorded. The geologist aligns the core by matching broken ends so that core has same relative orientation and draws a line down the axis of the aligned core to ensure each piece was split along the same axis. Core is normally split in two equal halves.

All drill log and sample data are maintained under the supervision of the database geologists.

The remaining half-split was returned to the core box and stored at the core shack facilities onsite. All samples to be assayed were then transported daily by Torex employees to the preparation laboratory that is operated by SGS Laboratories (SGS), an independent certified laboratory, located in Nuevo Balsas. In July 2016, the ELG sample preparation laboratory was transferred from Nuevo Balsas to the mine area, where it remains, operated by SGS. All samples are under Torex's control during transport and until samples are collected in the preparation laboratory. A complete chain of custody is recorded for each sample before entering the laboratory.

For the ML infill drilling program, all core samples are double bagged after splitting and placed in rice bags (5 samples per rice bag), which are then sealed by a nylon zip-tie and stored onsite in a secure location until they are shipped. All samples are assigned a unique sample number. The sample number does not include any reference to drillhole number or meterage for security reasons.

11.2 DENSITY DETERMINATIONS

11.2.1 ELG

During the 2004 and 2006 Teck programs, density measurements were obtained from a range of rock types and lithologies including skarns, hornfels, marble and intrusive rocks. A mechanical balance was used to weigh the samples in the air and then in water. Teck personnel performed these weight measurements on site using an Ohaus Triple Beam balance. All selected samples were collected one day before measuring, stored overnight in a bucket full of water and measured the next day. The bulk density was calculated by dividing the weight in the air by the difference of weight in the air and weight in the water.

Specific gravity (SG) values were updated for the 2012 Morelos Property mineral resource model (El Limón and Guajes), using results from 1,426 wax coated SG tests.

11.2.2 Media Luna

During the infill campaign in ML, bulk density measurements were obtained for every assayed core sample, including all lithologies logged: skarn, limestone, and intrusive rocks.

The bulk density (Bureau Veritas code SPG02) was determined using the water displacement method. A sample was dried at 105°C to remove all moisture. Then, the drill core was weighed in air and afterward submerged in a container with water. The mass of the immersed sample was measured, and the weight was registered to calculate the bulk density. For highly fractured samples and/or with high content of clays, specific gravity was determined in pulps (SPG01), also by water displacement. At the beginning of 2020, SPG01, was removed from Bureau Veritas package and ML started to use specific gravity on pulps or rock chips by gas pycnometer (SPG04) as a substitute for SPG01. Table 11-1 summarizes the averages of a selection of results by rock type.

Table 11-1: Density, Media Luna

Rock Type	Rock Code	Number of Determinations	Mean Density Value (g/cm^3)
Exoskarn	31	29	3.303
Endoskarn	32	30	3.005
Undifferentiated Intrusive	36	30	2.670
Marble Limestone	39	31	2.818
Massive Sulfide Oxide	41	30	3.998
Granodiorite	60	30	2.662
Quartz–feldspar–hornblende porphyry	63	30	2.657
Breccia	34	7	2.808
Hornfels	37	2	3.007
Feldspar Porphyry	61	20	2.580
Feldspar–biotite–hornblende–quartz porphyry	62	3	2.553
Mafic Dykes	65	2	2.763

11.3 ANALYTICAL AND TEST LABORATORIES

11.3.1 ELG

Sample preparation and analytical laboratories used during Teck's exploration programs included ALS Chemex, Laboratorio Geológico Minero (Lacme), and Global Discovery Laboratory (GDL).

ALS Chemex (now ALS) was responsible for sample preparation during 2000–2001 through its non-accredited sample preparation facility in Guadalajara, Mexico. Samples were dispatched to the Vancouver laboratory facility, which, at the time the work was performed, was ISO-9000 accredited for analysis. ALS Chemex was independent of Teck.

Lacme prepared samples during 2002–2004 at its sample preparation facility in Guadalajara, Mexico. Lacme is a subsidiary of Acme Laboratories Limited (Acme). At the time of sample preparation, Lacme was independent of Teck. The preparation facility was not accredited.

In 2006, a sample preparation laboratory was set up on site at Morelos, under the supervision of Teck personnel. This preparation facility was not registered and was operated by a contractor independent of Teck.

Sample analysis from 2002 to 2008 was performed at Teck's in-house laboratory, Global Discovery Laboratory (GDL), in Vancouver, Canada. GDL (no longer in operation) was not accredited, but routinely participated in and received certification of proficiency in the CANMET administered Proficiency Testing Program for Mineral Analysis Laboratories. The GDL laboratory was an in-house laboratory as was not independent of Teck. The sample preparation laboratories used by Teck are not accredited.

Check assays on GDL original gold assays were performed by ALS, Assayers Canada and Acme Laboratories (Acme), now part of Bureau Veritas, all of Vancouver, Canada. Assayers Canada (now part of SGS) was not accredited during the time that the check assays were performed. Acme Vancouver is an ISO-17025 accredited laboratory. All laboratories were independent of Torex.

In 2005, Acme Vancouver performed check assays of approximately 10% of the samples from the 2000–2001 Teck drilling campaigns that were assayed originally by ALS Chemex.

Starting in 2011, the ELG drill campaigns drill samples were sent to the SGS laboratory in Nuevo Balsas, Guerrero, Mexico, where the samples were dried, crushed and pulverized. The Nuevo Balsas laboratory is owned by Torex, and operated by SGS under a service agreement, and is not accredited. In July 2016, the ELG sample preparation laboratory was transferred from Nuevo Balsas to the mine area. In December 2021, the relocation of the analytical laboratory to the ELG Mine Complex was completed. Both are operated by SGS. SGS Nuevo Balsas has performed both sample preparation and analytical functions.

Prepared sample pulps are then sent to the SGS laboratories in Nuevo Balsas, Mexico; Durango, Mexico; Toronto, Canada; and Vancouver, Canada for analysis. The SGS laboratories in Durango and Toronto are ISO-17025 accredited and are independent of Torex. External check assays for QA/QC purposes are performed at ALS Chemex de Mexico S.A. de C.V.

11.3.2 Media Luna

Sample preparation at ML was completed by SGS Nuevo Balsas between 2012 and 2013. Drill samples for the first 11 drillholes completed at ML were assayed by Acme Vancouver. From July 2012 to April 2014, drill samples were sent to SGS Nuevo Balsas for analysis for Au, and either SGS Toronto or SGS Vancouver for Cu, Ag, and the 36-element exploration suite. Acme Vancouver was retained as the check assay laboratory.

For the 2014 and 2015 drilling campaigns, all samples were prepared by Acme in their Guadalajara laboratory, prior to being analyzed by Acme Vancouver. The Guadalajara laboratory holds ISO-17025 accreditation.

For the 2014 Modelo–La Fe and 2015 ML drilling campaigns, sample preparation was performed by Acme Guadalajara. Drill samples were then sent to Acme Vancouver and TSL Laboratories (TSL) in Saskatchewan were used as the check assay laboratory. TSL holds ISO/IEC 17025:2005 accreditations.

Between 2015-2017 no samples were taken from Media Luna project. Late August 2017, the project was re-started as part of the company plan to develop an infill drilling campaign in the Media Luna Resources area. Bureau Veritas was chosen as a new laboratory.

Since 2017, Bureau Veritas has functioned as the primary laboratory. Pulps are prepared from core samples received in Durango, gold fire assays are carried out in Hermosillo and multielement ICP analyses are conducted in Vancouver. Check assay samples are sent to ALS in Hermosillo.

11.4 SAMPLE PREPARATION AND ANALYSIS

11.4.1 Legacy Programs

Drill and trench samples from the 2000 and 2001 Morelos drill campaigns were prepared by ALS Chemex. Samples were crushed to 60% passing 10 mesh prior to splitting a 300 g sub-sample which was pulverized to 95% passing 150 mesh.

The pulverized pulp sample was analyzed by ALS Chemex for gold using a one assay tonne (1 AT; approximately 30 g of sample) fire assay with an atomic absorption finish. Samples returning assays greater than 10 g/t Au were assayed again using a 1 AT fire assay with a gravimetric finish. Silver, arsenic, copper, and 31 additional elements were determined by aqua regia digestion followed by inductively coupled plasma–atomic emission spectroscopy (ICP-AES).

Drill and trench samples from the 2002 through 2004 programs were sent to the Lacme sample preparation facility. Samples were dried and crushed to 70% passing 10 mesh prior to splitting a 300 g sub-sample which is pulverized to 95% passing 150 mesh.

The pulverized pulp samples were sent to GDL for assay. GDL assayed all samples by a wet chemical method using an aqua regia digestion, MIBK extraction and atomic adsorption finish. Samples returning greater than 200 ppb Au were re-assayed using a 1 AT fire assay with an atomic absorption finish. Gold assays greater than 10 g/t Au by fire assay were assayed again by 1 AT fire assay but with a gravimetric finish. Additional elements were determined ICP-AES.

Once assay data were reviewed by Teck personnel, any intervals that returned less than 200 ppb Au but that fell within the mineralized skarn or oxide interval envelope were fire assayed by 1 AT fire assay with an atomic absorption finish.

At the beginning of the 2006 program, a preparation laboratory was established in Nuevo Balsas. This preparation laboratory was run by an independent contractor, and was used for the 2006–2008 campaigns. Samples were dried and crushed to 85% passing 10 mesh prior to splitting a 300 g sub-sample. The sub-sample was pulverized to 95% passing 150 mesh before shipment to GDL where the analytical methodology was the same as that described for the 2002–2004 programs.

11.4.2 Torex Programs

11.4.2.1 ELG

Torex drill samples for the 2011–2016 ELG program were prepared by SGS in Nuevo Balsas, Mexico. In July 2016, the ELG sample preparation laboratory was transferred from Nuevo Balsas to the mine area. In December 2021, the relocation of the analytical laboratory to the mine site was completed. Both are operated by SGS.

Samples were dried and crushed to 75% passing 2 mm prior to splitting a 500g sub-sample. The sub-sample was then pulverized to 85% passing 75 µm. Production samples (blast holes and underground channel samples) and delineation drilling core samples were then dispatched to the SGS laboratory in Nuevo Balsas, Mexico for gold, silver and copper analysis. Infill, Step-out and Brownfield exploration core samples were dispatched to SGS Durango, Mexico for gold, silver, copper and 31 other elements determined by aqua regia ICP-AES. Gold was assayed by 30 g fire assay atomic absorption (AA). Samples reporting over 10 g/t Au by fire assay AA were re-assayed by 30 g gravimetric fire assay. Samples reporting over 10 g/t Ag were re-assayed by a three-acid digestion followed by AA finish. In rare cases, samples reporting over 300 g/t Ag by the three-acid method were re assayed by 30 g gravimetric fire assay. In December 2016, the laboratory of Nuevo Balsas began the analysis of cyanide soluble copper by using a 10% NaCN and 1%NaOH solution with Atomic Absorption Spectrometry (AAS). In August 2019, the analysis of Fe was incorporated at the Nuevo Balsas laboratory. The methodology consists in nitric and hydrochloric acid digestion with Atomic Absorption Spectrometry (AAS) finish. In September 2021, the Fe analysis was changed to a methodology of sodium peroxide fusion with Atomic Absorption Spectrometry (AAS) finish for a higher resolution of the iron content in the samples.

11.4.2.2 Media Luna

In the case of ML samples, sample preparation from 2012–2013 was also undertaken by SGS in Nuevo Balsas, and samples were dried and crushed to 75% passing 2 mm, prior to splitting a 600 g sub-sample. The sub-sample was then pulverized to 90% passing 75 µm.

A 200 g split of the pulverized material was then dispatched to SGS, where Au was assayed by conventional 30 g fire assay with AA finish (SGS code FAA313). Samples returning greater than 3.0 g/t Au by this method were re-assayed by fire assay with gravimetric finish (SGS code FAG303).

Starting in March 2013, copper and silver were assayed by aqua regia digestion atomic absorption (SGS code AAS10D) at the SGS Durango laboratory, but these assays were not used for Mineral Resource estimation purposes.

Another 200 g split was dispatched to either SGS Toronto or SGS Vancouver, and copper, silver and 36 additional elements were determined by aqua regia digestion ICP or mass spectrometry (SGS codes ICP14B and IMS14B). Samples returning greater than 10 ppm silver were re-assayed by three-acid digestion AA (SGS code AAS21E) and high-grade silver samples were re-assayed by fire assay gravimetric finish (FAG313). Samples returning greater than 10,000 ppm (or 1%) copper were re-assayed by sodium peroxide fusion (SGS code ICP90Q). The remaining 200 g pulp was returned to site for archiving.

For the 2014 Modelo–La Fe and 2015 ML drilling programs, sample preparation was undertaken by Acme Guadalajara. Samples were dried and crushed to 75% passing 2 mm, prior to splitting a 600 g sub-sample. The sub-sample was then pulverized to 90% passing 75 µm.

A 200 g split of the pulverized material was then dispatched to Acme Vancouver, where Au was assayed by conventional 30 g fire assay with an AA finish (Acme code FA430). Samples returning greater than 10.0 g/t Au by this method were re-assayed by fire assay with gravimetric finish (Acme code FA530). Copper, silver and 43 other elements were determined by multi-acid digestion ICP or mass spectrometry (Acme code MA200). Samples returning greater than 50 ppm silver were re-assayed by fire assay with gravimetric finish (Acme code FA530). Samples returning greater than 10,000 ppm (or 1%) copper were re-assayed by the aqua regia ore grade method (Acme code AR400). Aqua regia ore grade ICP analysis (Acme code AQ370) was used to determine overlimit values for other elements. The remaining 200 g pulp was returned to site for archiving.

Since 2017, the samples received for the ML drilling program were entered into the Laboratory Information Management System (LIMS), weighed, dried, and crushed to ensure that more than 70% of the sample passed a 2 mm sieve. A 250 g split of the crushed material was then pulverized to greater than 85% passing a 75 µm sieve. In 2019, pulverization was increased to 500 g split to have a larger sample for quality control.

A 150 g split of the pulverized material for each sample was dispatched to the Bureau Veritas laboratory in Hermosillo, Mexico. Gold was analyzed by 30 g fire assay with AAS finish (FA430). Gold overlimit (10 g/t) were re-assayed by fire assay with gravimetric finish (FA530-Au).

Another 30 g split was dispatched to the Bureau Veritas laboratory in Vancouver, Canada to be analyzed by AQ270 method. A 1 g sample split was digested with a modified Aqua Regia solution of equal parts of concentrated HCl, HNO_3 and DI H_2O, followed by elemental determinations (35 elements, including Te) by Inductively Coupled Plasma – Atomic Emission Spectroscopy (ICP-ES) & Inductively Coupled Plasma – Mass Spectrometry (ICP-MS). Samples returning greater 100000 ppm (10 %) copper were re-assayed by a multi-acid ore grade method (MA404) until July of 2020 when AQ374 was defined as overlimit for all multielement package.

11.5 QUALITY ASSURANCE AND QUALITY CONTROL PROGRAMS

11.5.1 Legacy Programs

The QA/QC program for the 2000–2001 drill Teck campaigns relied on ALS Chemex's internal quality controls.

Starting in 2002, an external QA/QC program was initiated by Teck personnel. This program consisted of inserting two standards and four blanks in the sample stream with each drillhole submittal. In 2003, the program changed to include 5% blanks, 5% field duplicates, and 10% certified reference materials (CRMs).

Because of the good results from the 2003 program, the number of insertions in the 2004 QA/QC program was reduced to 2% blanks, 2% field duplicates and 5% CRMs.

The 2006–2008 QA/QC programs consisted of the insertion of 5% CRMs, 5% blanks and 5% field (core) duplicates. The preparation laboratory inserted 5% coarse crush duplicates and laboratory replicates were used as pulp duplicates.

11.5.1.1 Certified Reference Materials

From 2002 to 2004, two CRMs sourced from WCM Minerals of Burnaby, British Columbia, Canada were inserted into submissions at the site. The insertion rate was approximately 5% and the position the CRM was inserted into the sample stream was randomized.

Two different CRMs were prepared in 2006 from matrix-matched material taken from the property and processed as CRMs by CDN Resource Laboratory.

11.5.1.2 Blanks

Blank samples from 2002 to 2004 were generated from RC reject samples of barren marble from early exploration drillholes at Morelos. During this period, 47 (or 10%) of the 462 gold assays of blank samples reported values greater than the detection limit (10 ppb Au). Teck reassayed select blank samples and found that there was sporadic gold in the Media Luna marble unit, so it was discontinued as a source of blank material.

For the initial portion of the 2006 program, blank material was sourced from unmineralized RC cuttings. During this period, 13 (or 11.2%) of the 118 blanks inserted returned values greater than detection, suggesting that some of this material contained very low but detectable levels of gold and was unsuitable as a blank.

For drill programs post-June 2006, blank material was sourced from a barren limestone outcrop located between Iguala and Morelos. This blank material showed good performance.

11.5.1.3 Check Assays

Teck submitted 139 intervals from mineralized zones selected from drillholes completed in 2000–2001, together with QA/QC samples, to Acme in Vancouver, Canada for check assays. The Acme gold check assays indicate that the original ALS Chemex gold assays are acceptably accurate.

Teck check assays on 2002 to 2004 GDL original gold assays by ALS Chemex, Assayers, and Acme, all of Vancouver, Canada, show a minor low bias in the GDL assays of between 2% and 8%.

11.5.2 Torex Programs

Torex utilizes a program of CRMs, blanks and duplicates to control assay quality for its drilling campaigns and for all the samples collected for ore control purposes. The QA/QC programs were designed with the support of Lynda Bloom from Analytical Solutions Ltd. At ELG, the QA/QC results are audited every quarter by external consulting groups, including Analytical Solutions Ltd., from 2017 to 2019 and Qualitica Consulting Inc. since 2019 to date. The ELG QA/QC procedures are summarized in Table 11-2.

Table 11-2: El Limón Guajes QA/QC Procedure

	Infill, Step-Out and Brownfield Programs (OP and UG)	Underground Delineation Drilling	Open Pit Production Samples (blast holes)	Underground Production Samples (Channels)
Blanks	At the beginning of the hole, samples with tags ending in 10, 35, 60, 85	At the beginning of the hole, samples with tags ending in 10, 35, 60, 85	Samples with tags ending in 50 and 00	Samples with tags ending in 50 and 00
Standards	Samples with tags ending in 00, 25, 50, 75	Samples with tags ending in 00, 25, 50, 75	Samples with tags ending in 25 and 75	Samples with tags ending in 25 and 75
Field Dup	No samples collected	No samples collected	One in 50	No samples collected
Check Assay	3% of total samples	3% of total samples	3% of total samples	3% of total samples

Through October 2012, Torex considered ML an early-stage project and the QA/QC protocol was designed for a 2% insertion rate of control samples. Beginning in October 2012, the ML Project was raised to the mineral resource estimation stage and as a result, the insertion rate was raised to 5%. The 2014 ML QA/QC program consisted of the insertion of approximately 6% CRMs, 6% blanks and 5% check assays. Blind duplicates are not part of the current protocol.

11.5.2.1 Certified Reference Materials

Torex used nine different CRMs to monitor gold assay accuracy during the ELG drill programs, and the early ML drilling. All CRMs were sourced from CDN Resource Laboratories (CDN) in Langley, British Columbia, Canada. The CRMs over the expected gold grade range, from 0.3 to 5.3 g/t Au. CRMs are inserted at a rate of one per 20 samples.

For the drilling and production sampling performed at ELG between 2015 and 2019, Torex used between four and nine CRMs from SGS, prepared from blast hole samples of the ELG deposits and certified for Au, Ag and Cu. The CRMs cover the range from 0.88 to 11.57 g/t Au, 2.24 to 29.06 g/t Ag and 487 to 20,450 ppm Cu. In 2020 and 2021, five commercial CRMs from Oreas and CDN were used in the sampling programs covering a range of 0.69 to 15.70 g/t Au, 5.3 to 80.0 g/t Ag and 0.55 to 1.17% Cu. Since 2022, four CRMs prepared by Oreas in Australia with material from the ELG open pit and underground deposits are being used. The actual CRMs are certified for Au, Ag, Cu and Fe and cover the following ranges:

- Au from 0.74 to 8.45 g/t

- Ag from 0.60 to 6.62 g/t
- Cu from 283 to 3,230 ppm
- Fe from 0.79 to 6.90%

The insertion rate for the different sampling programs are shown in Table 11-3.

For the drilling performed between 2013 and 2015 at Media Luna, Torex used four CRMs from CDN that were certified for gold, copper, and silver, and two CRMs from Ore Research & Exploration (ORE) that were certified for gold and silver. The CRMs cover the following grade ranges:

- Au from 0.3 to 7.1 g/t
- Ag from 0.3 to 295 ppm
- Cu from 0.01% to 0.8%.

CRMs are inserted at a rate of one per 20 samples.

ML's QAQC protocol included the submission of blind CRMs and blanks.

During the ML Infill Program 2017-2010, a CRM (or commercial standard) was inserted systematically at every 25 samples. CRMs were mainly used to monitor gold, copper, and silver assay accuracy. Also, multielement assay accuracy was checked for Al, As, Bi, Fe, S, and Te. All CRMs were sourced from Ore Research & Exploration Pty Ltd (ORE), Australia. Table 11-3 summarizes CRMs used in Media Luna Infill Program.

Table 11-3: CRMs Media Luna

CRMs	Ore	Au (g/t)	Ag (ppm)	Cu (%)
Oreas 524	IOCG	1.54	3.7	2.5
Oreas 602	High sulphidation epithermal Ag-Au-Cu	1.95	118	0.517
Oreas 602b	High sulphidation epithermal Ag-Au-Cu	2.29	119	0.495
Oreas 701	High grade W-Cu-Au Magnetite	1.11	1.11	0.479
Oreas 603b	High sulphidation epithermal Ag-Cu-Au	5.21	300	0.985

11.5.2.2 Blanks

Torex used a blank sourced from CDN up until February 2013. It is certified blank for Au, Pt and Pd. Commencing in February 2013, Torex has used a coarse blank sample sourced from a marble quarry near to the Morelos Properly that has very low gold, copper and silver values. Blank samples have been used for all of Torex's ELG and ML programs.

The insertion rate of blanks at ELG is one in 25 samples for the Delineation, Infill, Step-Out and Brownfield core drilling program and one in 50 samples for the blast holes and channel samples production sampling (Table 11-2).

11.5.2.3 Duplicates

At ELG no duplicate samples have been collected since 2020, except for blast holes samples in which one in 50 samples is duplicated.

Blind duplicate samples are not included in the ML drilling program, but Torex evaluates the results of Bureau Veritas internal lab duplicates.

11.5.2.4 Check Assays

At ELG pulp samples are submitted monthly to ALS Guadalajara, Mexico for check assays. Since 2014 to December 2021, a total of 7,500 assay intervals had been submitted for gold, silver and copper check assay. No significant bias was observed in the original SGS gold and silver assays.

Check assay programs completed at ML have included a set of 1,501 early drillhole samples that were assayed at SGS after having been assayed initially at Acme. Additional sets of check assay samples were sent to Acme for drilling from December 2012 through February 2013 (552 samples) and May 2013 through July 2013 (1,166 samples).

The check assays from the early set of drillhole samples and the drilling from December 2012 through February 2013 were completed on coarse reject samples, whereas the check assays from the drilling from May 2013 through July 2013 were completed on pulps.

For the 2015 drilling campaign, 66 check assay samples were sent to TSL during March 2015.

For the ML Infill campaign, the check assay program comprised 5% of the total samples analyzed. The samples were randomly selected trying to have all Au ranges covered. A split of 150 g was submitted to ALS for analysis by a similar technique.

Gold was analyzed by 30 g fire assay with AAS finish (Au-AA23) in ALS Hermosillo. Samples over 10 g/t had gravimetric finish (Au-GRA21).

Multi-elements were analyzed under the code ME-ICP41. A prepared sample of 0.5 g was digested with aqua regia (HNO_3- HCl) for 45 minutes in a graphite heating block. After cooling, the resulting solution was diluted to 12.5 mL with deionized water, mixed and analyzed by Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES). The analytical results were corrected for inter-element spectral interferences. Silver and copper overlimits were analyzed by ICP-AES on individual element (OG46).

All QAQC sample results are reviewed for each batch of results before being imported into the databases. Control charts are prepared and reviewed monthly by on site database geologists. An example control chart for OREAS-524 (Cu) is shown in Figure 11-1.

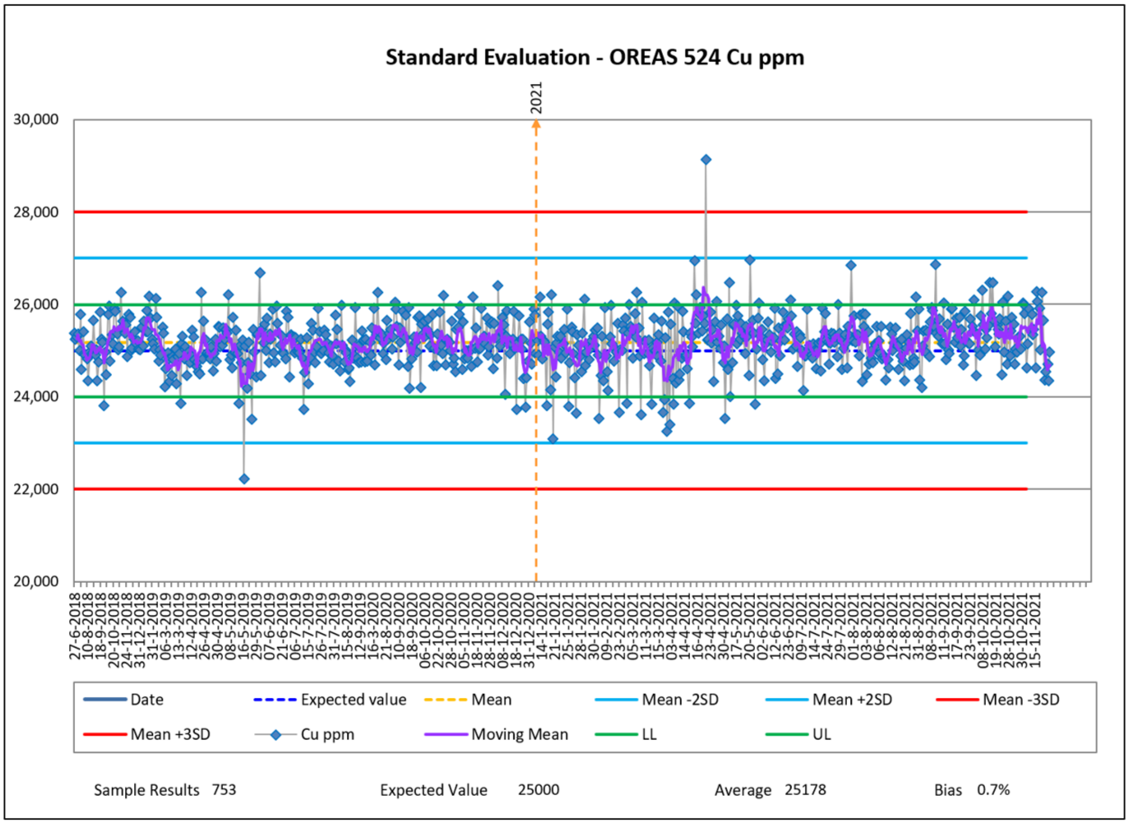


Figure 11-1: Example CRM control chart for OREAS-524, results from Media Luna samples

The QP has reviewed the results of reference material, blank and check assay programs and found that there are no systemic biases likely to have a material impact on the Mineral Resource.

11.6 DATABASES

11.6.1 El Limón and Guajes

Entry of information into databases utilized a variety of techniques and procedures to check the integrity of the data entered.

During the 2000 to 2005 period, geological data were entered into spreadsheets in a single pass by Teck personnel. From 2006 through 2009, all geological data were entered electronically directly into the system without a paper log step.

Assays were received electronically from the laboratories and imported directly into the database.

Drillhole collar and down hole survey data were manually entered into the database.

Paper records were kept for all assay and QA/QC data, geological logging and bulk density information, downhole and collar coordinate surveys. All paper records were filed by drillhole for quick location and retrieval of any information desired. Assays, downhole surveys, and collar surveys were stored in the same file as the geological logging information. In addition, sample preparation and laboratory assay protocols from the laboratories were monitored and kept on file.

From 2010 to 2012, Torex has maintained the exploration data in a series of Microsoft Excel spreadsheets, and these data were periodically loaded into a Microsoft Access database. During Amec Foster Wheeler M&M's audit work in 2011, a high incidence of data-entry errors was observed in the collar location and assay records. In 2012, Torex systematically corrected the collar and assay data and implemented a new system of data entry to ensure that these errors are no longer introduced.

From mid-2013 to 2014, Torex geologists reviewed and re-logged geological data from El Limón and Guajes drill core; the lithological re-logging data have been now included the database and replace the earlier information.

In 2019, the ELG database was migrated to acQuire where all the exploration and production drilling and sampling data in stored. Data from drill logs, drillholes surveys, blast holes and channels logging and sampling and the assay results from the different laboratories are imported electronically into the acQuire database. Daily checks of the results of the QC samples are performed in this software and corresponding actions taken immediately.

Access to the ELG database is controlled by Torex's database geologists who ensure its accuracy before release for wider use by staff or outside consultants.

11.6.2 Media Luna

In 2017, the existing information of the ML Project was compiled, standardized, and stored in a single unique Access database. In 2018, the data was migrated to MX Deposit, a cloud-based database software application.

The following is a summary of the main steps to populate the information into the database:

- Drill hole coordinates were reported by a surveyor for mother holes. In the case of directional holes, the coordinates were taken from the mother hole. The collar data were manually entered in the application.
- The survey company reported the data from the gyro instrument in .csv files. The information was validated and later loaded into the database.
- RQD, lithology, alteration, structures, and samples were captured by the geologists using the application.
- Assays were received electronically from the laboratories and imported directly into the database. Once the files were uploaded into MX Deposit, the application locked the files to avoid any edition.
- The review of the QAQC of the assays was done in the section "reports" in MX Deposit and using plots in excel files.

The application provides internal validations for gaps, overlaps and tables as samples and minerals that should be linked to the lithology. Moreover, a second validation test is performed on the CSV export tables before delivering the data to resource modelling.

Access permission for entering and editing data into the database is restricted to the Database Administrator. MX Deposit has several layers of enterprise-grade security built into the product, platform, and processes. User passwords, access tokens, and all other stored information are also encrypted. All data is backed-up frequently.

11.7 SAMPLE SECURITY

Sample security is not an issue at the Morelos Complex during the drilling programs, due to the remote nature of the site. Sample security relies upon the fact that the samples were always attended or locked at the sample dispatch facility. Sample collection and transportation have always been undertaken by company or laboratory personnel using company vehicles.

Prior to 2002, drill and trench samples were picked up at site by ALS Chemex, prepared to a pulp in Guadalajara, Mexico, and sent by ALS Chemex via air to the ALS Chemex analytical laboratory in Vancouver, Canada. Starting in 2002, samples were delivered by Teck personnel to the Lacme sample preparation laboratory in Guadalajara, Mexico, prepared to a pulp by Lacme, and then shipped by Lacme to the GDL analytical laboratory in Vancouver, Canada.

Torex continued with the Teck sample security procedures, bringing the core boxes from the drill rig to the core logging facility once per day. Core is logged, sample intervals are marked by the geologist, and then the core is cut and bagged. The sample dispatch facility is always attended or locked.

From 2011 to date, sampled and bagged core was delivered by Torex staff to the SGS sample preparation facility in Nuevo Balsas or delivered to the external laboratories through a certified transport company contracted by Torex or in a special transport from the external laboratory, SGS in the case of ELG.

For both the Teck and the Torex programs, chain of custody procedures consisted of filling out sample submittal forms that were sent to the laboratory with sample shipments to ensure that all samples were received by the laboratory.

At the ML Project, sample security protocols requires that all drillhole samples are always attended or locked at the sample dispatch facility on site.

Sample collection and transportation are always undertaken by Bureau Veritas personnel using company vehicles. Chain of custody procedures consisted of filling out sample submittal forms that were sent to the laboratory with sample shipments to ensure that the laboratory received all samples.

11.8 SAMPLE STORAGE

Coarse rejects and pulps from ELG are stored at a secure warehouse in Nuevo Balsas. Pulps from production samples are stored for three months and then discarded.

Drill core from ELG drilling programs is stored in wooden core boxes on steel racks in a warehouse building in Nuevo Balsas. Infill drilling core samples from areas that have been mined out (Guajes East, North Nose and El Limón B phase) have been discarded.

In 2014, a core storage warehouse was built in the San Miguel Exploration Camp (Media Luna), this facility was extended in 2018. The facility stores drill core, coarse reject, and pulp reject samples, under the following specifications:

- Drill core was stored in wooden core boxes on steel racks. The core boxes are racked in numerical sequence by drillhole number and depth.
- Coarse rejects are stored in plastic bags. These plastic bags are packed in rice bags and stored on pallets on steel racks in a separate locked building. The pallet sequences correspond to the internal work order numbers.
- Pulps rejects are stored in cardboard boxes on steel racks according to the lab reference number. No more than three boxes were vertical stacked.

The core boxes in both the San Miguel and Nuevo Balsas core shacks are racked in numerical sequence by drillhole number and depth.

Since 2020, all remaining pulps and rejects have been stored in Bureau Veritas facilities in Durango.

11.9 COMMENTS ON SECTION 11

In the opinion of the QP, the sample collection, preparation, analysis, storage and security at the Morelos Complex is aligned with industry best practices and is adequate to support the declaration of the Mineral Resource. The QP offers the following more detailed opinions:

- Core sampling, photography, logging and storage are compliant with industry standard practices
- Current density assignments are well supported by reconciliation data, but further density measurements should be collected ELG underground deposits. A systematic density measurement program would allow a shift towards estimating the local density rather than assigning an average.
- The suite of density measurements at ML is comprehensive
- All assays used to support the Mineral Resource are from laboratories that are reputable and independent of the company.
- The sample preparation procedures and analysis techniques used to assay samples from the Morelos Complex are suitable to inform the Mineral Resource.
- The QA and QC procedures in use at the property are appropriate for the deposit and their results show no material issues with the data.
- QA/QC results are reviewed individually prior to batch importation into the drillhole database. Results are compiled and reviewed monthly by the Torex database manager. In addition, Qualitica Consulting Inc. compiles and reviews quarterly QA/QC reports.
- The databases in use at the deposit are secure, clean and well maintained. All data is checked and verified by the database managers before being released for use.
    - Creation of a single compilation database for the entire property is recommended to facilitate the construction of a regional scale litho-structural model. This may aid further exploration targeting programs at the property.

The security and storage of samples at the property is consistent with industry standards.

12 DATA VERIFICATION

12.1 ON SITE DATA VERIFICATION

The QP conducted a site visit of the Morelos Complex from December 13 to December 17, 2021. While on site, the QP undertook the following steps to confirm the data used to support the Mineral Resource estimate:

- Visited several drillhole collar locations across the ML deposit:
  - Checked and verified their GPS coordinates against the database.
  - Measured the azimuth and dip of drillhole casings and cross checked with surveys stored in the database.
  - Visited an active diamond drill rig and witnessed drill core from an ore zone being retrieved from the inner tube.
- Inspected drill core and cross checked the logging and assay results stored in the database.
  - Compared logged geology to the core and found that the intervals were well described.
  - Compared the logged sample intervals to the core box tags and found that the sample numbers and from/to measurements matched.
  - Compared the assay results to the core and found that the assay results were reasonable (e.g. high copper assays occurred in samples with high proportions of chalcopyrite).
  - Drill holes for inspection were selected by the QP, not pre-selected by Torex staff.
- Viewed core storage facilities at Nuevo Balsas and ML and found that remaining drill core was stored in an orderly manner and would be easily located if re-assay or further investigation was required.

The QP was afforded access to any staff members required and toured the open pit, underground and processing operations at ELG as well as the core logging and storage facilities at both ML and Nuevo Balsas. The onsite assay laboratory (run by SGS) was in the process of moving into new facilities and was not yet fully operational, but the fire assay section viewed was operating in a clean and orderly manner.

12.2 SOFTWARE AND SPATIAL VERIFICATION

The databases for both ELG and ML were imported into Leapfrog and run through standard verification procedures to identify duplicate samples, overlapping sample intervals, un-sampled drillholes, conflicting drillhole lengths between collar and interval tables, and unusual values (e.g. negative assay values, percentage values greater than 100). No significant errors were identified.

The drillhole collar points were checked against the pre-mining topographic surfaces and the dip convention (i.e. positive dip is an up hole) was confirmed. All drillholes appeared to be credible and correctly located.

12.3 ASSAY VALIDATION

In order to verify that the supplied databases had not been tampered with, falsified or suffered from a systematic error related to assay import/export, Torex supplied the QP with all available original assay certificates and reports.

The QP systematically checked 15% of the assays in database, across all time periods, against the original assay certificates from the assay laboratories and found no errors or inconsistencies in the database.

In addition, the QP conducted spot checks of elevated Cu, Au and Ag values in the database and found that the values in the database matched the original assay certificates.

12.4 WORK BY PREVIOUS AUTHORS

Extensive data verification work was carried out between 2005 and 2017 by reputable consultants such as Amec Foster Wheeler M&M, Analytical Solutions Ltd., and Qualitica Consulting Inc (Neff et al., 2018). This work found no significant flaws in the data.

12.5 COMMENTS ON SECTION 12

In the opinion of the QP, the data provided is adequate to support the estimation of Mineral Resources at the property. The QP found no evidence of any tampering, falsification or systematic error in the data used to estimate the Mineral Resource.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 EL LIMÓN GUAJES

The key points of this section related to the ELG mineral process and recoveries are as follows:

- The mineral processes described are the ELG Process Plant operating processes as originally designed and constructed and subsequent modifications as part of optimization programs.
- Operating results form the basis of the process results. Since declaration of commercial production Au recovery has averaged 87.3% (range of 63 – 91%) and Ag has averaged 26.3% (range of 3 - 46%). The average Au recovery for 2021 was 88.3%, and for Ag was 30.6%.
- The SART plant was successfully commissioned in 2018. In 2021, it resulted in average recovery of 89.1 tonnes per month of copper in SART precipitate.
- Operation of the CIP circuit has steadily improved, resulting in an average stage recovery of 95.7% for the year in 2021.
- Cyanide leaching followed by carbon in pulp (CIP) adsorption continues to be an effective recovery process for the ELG OP ores. However, elevated levels of iron in the feed has been identified as the source of increased cyanide consumption with measures put in place to mitigate this via pre-oxidation using liquid oxygen injection.
- The milling rate for the year in 2021 was on average 12,362 t/d, with a product size of 80% passing 92 µm.
- Bond work index weighted average is 16.2 kWh/t. The ore is considered moderately hard to hard. The target is to achieve 13,000 t/d over the next two years.
- Test work on gold dissolution versus grind size has shown that the extraction is not very sensitive to grind size and that there is a variance of only 0.5% dissolution per 10 µm change.

The graph in Figure 13-1 below shows the reconciled monthly recoveries for gold and silver since the ELG plant achieved commercial production. Note that plant operations were shut down November and December 2017 due to Mine Blockage, and in April 2020 due to COVID.

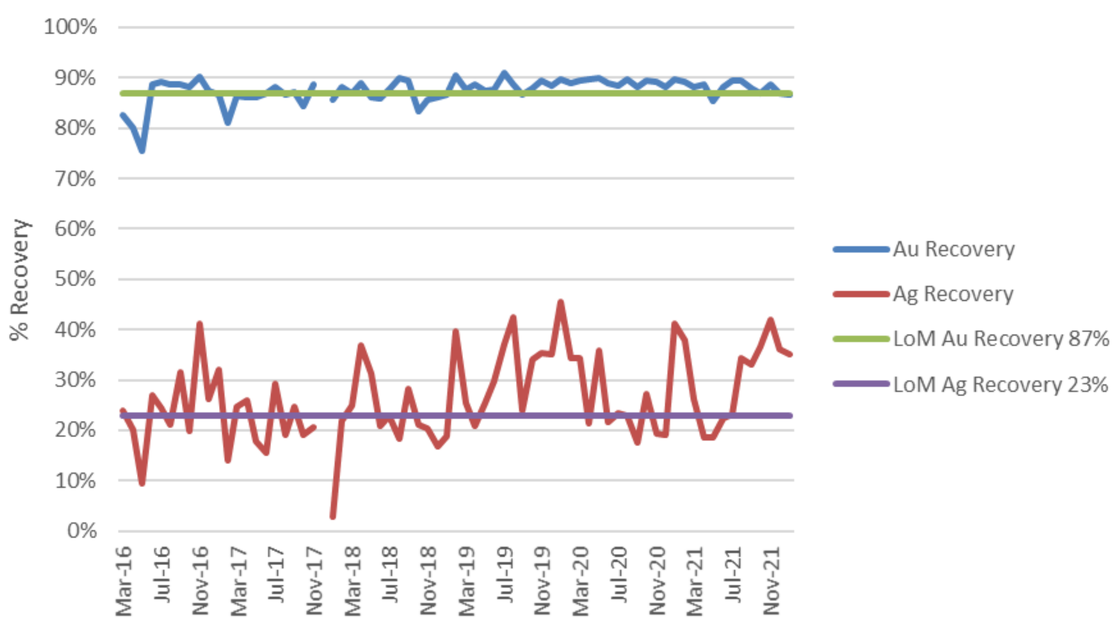


Figure 13-1: Monthly Au and Ag Recovery Since Start of Commercial Production

13.1.1 General

The ELG plant was designed and built based on several metallurgical test programs. Overall, the process has functioned as designed with two key modifications required to address the soluble copper and the capacity of the tails filtration system. The new SART plant was successfully commissioned and has been in operation since 2018. Two horizontal belt filters were installed to augment tails filtration capacity. However, operational improvements to the availability of the plate and frame tails filters resulted in these filters being able to process full process plant production.

The following is a listing of historical reports with respect to the test work conducted on the ELG deposits prior to and during operation.

1. International Metallurgical and Environmental Inc., Kelowna, British Columbia, Canada, March 22, 2002, Morelos North Project, Preliminary Metallurgical Report, Scoping Laboratory Cyanide Leach, Flotation & Gravity Test Work Results.
2. G&T Metallurgical Services Ltd. (G&T), Kamloops, British Columbia, Canada, November 13, 2003, Los Morelos Ore Hardness and Cyanidation Test Results – KM1405.
3. G&T, Kamloops, British Columbia, Canada, November 29, 2006, Process Design Testwork, Teck Cominco, Morelos Gold Project, Guerrero Mexico, KM1803.
4. G&T, Kamloops, British Columbia, Canada, May 18, 2007, Assessment of Metallurgical Variability, Teck Cominco Morelos Gold Project, Guerrero Mexico, KM1826.
5. G&T, Kamloops, British Columbia, Canada, December 4, 2015, Metallurgical Test program, Work Performed on behalf of Promet101 – KM4804.
6. Dorr-Oliver Eimco, Salt Lake City, Utah, December 2006, Report On Testing for Teck Cominco Ltd. Los Morelos, Sedimentation and Rheology Tests On Tailings: Oxide and Pro Grade Ore.
7. Outokumpu Technology, work performed at G&T, Kamloops, British Columbia, Canada, October 16-18, 2006, Test Report TH-0388, Teck Cominco Limited Morelos Gold Project, Thickening of Oxide Tailings and Prograde Composite Tailings (60% El Limón and 40% Guajes).
8. JKTech Pty Ltd, Brisbane, Queensland, Australia, June 2006, SMC and Bond.
9. Test Report on Drill Core from Morelos Gold Project, JKTech Job No. 06221.
10. SMC PTY Ltd, Chapel Hill, Queensland, Australia, October 2006, Initial Sizing of the Morelos Grinding Circuit.
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13.1.2 Plant Production Statistics

13.1.2.1 Grinding

The grinding circuit consists of a 9.14 m diameter by 4.15 m EGL, 7,000 kW variable speed drive SAG mill and a 7.01 m diameter by 12.65 m EGL, twin pinion fixed speed 7,000 kW drive(s) ball mill. The SAG mill discharge is screened, and crushed pebbles returned to the SAG feed. The ball mill is operated in closed circuit with a set of hydrocyclones to achieve a primary grind product in the range of 80% passing 85-95 µm. The overflow from the cyclones reports to a safety screen to remove organic material and grit prior to reporting to the pre-leach thickener. The process water that is used in the grinding circuit contains cyanide as a result of the return stream of the SART product back to the process water tank and excess cyanide recovery thickener overflow water also reporting to the process water tank. Leaching of soluble metals in the grinding circuit does occur.

The design capacity of the grinding circuit was selected at 14,000 t/d which with a utilization factor of 90% results in an instantaneous design capacity of 648 t/hr. The daily average production of the grinding circuit in 2020/21 was 11,866 t/d or 578 t/hr with an average plant utilization of 85.5%. This data includes the month of April 2020 when the plant was shut down due to COVID restrictions.

An expert system was put into operation in Q4 2021 which improved operational stability.

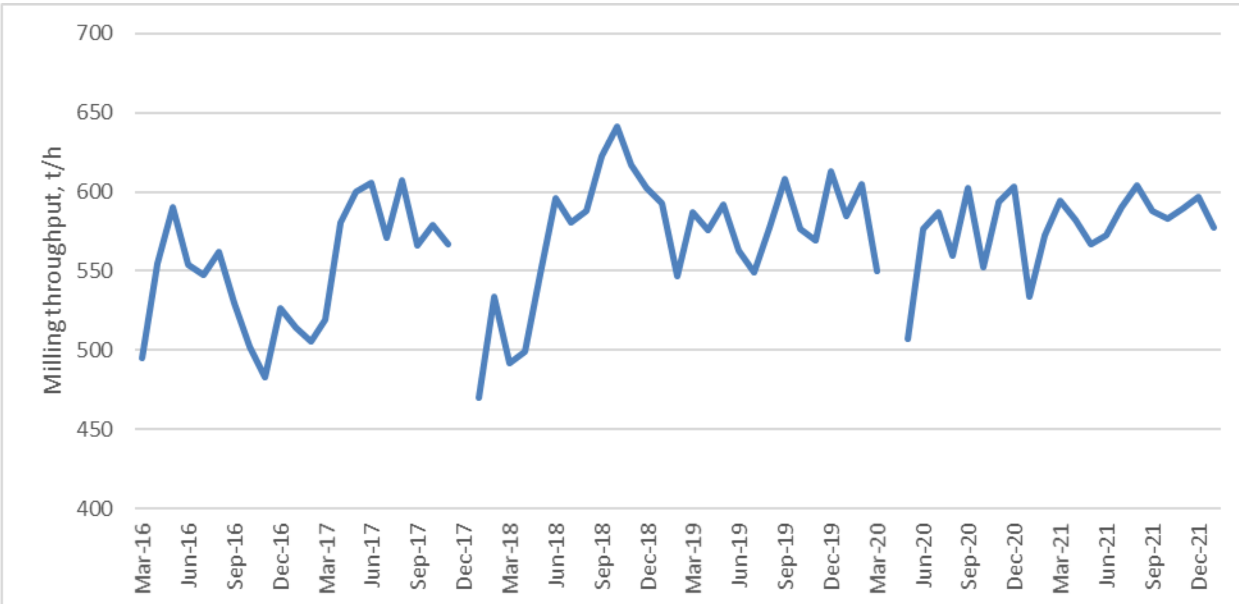


Figure 13-2: Grinding Circuit Throughput since Commercial Production

13.1.2.2 Leaching

The original leaching circuit consisted of eleven (11) 3,950 m^3, agitated tanks utilizing forced air to provide the dissolved oxygen for the leaching of gold and silver. The design leach residence time was 49 hours, but after startup it was determined that 24 hours provided sufficient residence time for leaching.

Two of the leach tanks (#2&4) were converted to be used as extra surge capacity for process water, and currently only six to seven leach tanks are typically used. Tank # 4 can still be used as a leach tank, and is currently used as either a leach or pre-oxidation tank. The presence of soluble copper was identified during initial commissioning and cyanide addition modified from original design conditions to ensure that sufficient cyanide is maintained in solution to both minimize copper adsorption onto carbon and also ensure that there is sufficient cyanide for gold and silver dissolution. The CN:Cu Molar ratio in the discharge of the leaching circuit maintained in the range of 4.0-4.5, and at a minimum of 100 ppm of free CN.

An increase in the production of underground mining feed to the process facility from 2018 resulted in an increase in the total copper and iron content in the feed. An increase in feed iron content in 2021 and part of 2022 resulted in further increases in cyanide consumption. Iron is present in the form of reactive pyrrhotite, pyrite and iron oxides such as magnetite. The iron sulphide species have been identified as being primarily responsible for the increase in cyanide consumption. Pre-oxidation of the leach circuit feed using oxygen injection into the first two leach tanks was initiated and positive results with regards a reduction in cyanide consumption observed. The process flowsheet that currently has the SART product returning to the process water tank means that this cyanide is partially consumed in the grinding circuit.

13.1.2.3 SART Plant

The SART plant was installed to address high copper tenor in solution as a result of higher than expected soluble copper identified during commissioning and the first year of operation. The SART plant enables removal of copper by precipitation to a copper sulfide, while the cyanide is regenerated, and returned to the principal leach circuit. An additional benefit of the SART process is that silver is co-precipitated along with copper but gold is not. Gold recovery follows the normal CIP/ADR process route. Key operational parameters for the SART plant in 2021 were as follows:

- Min flow: 320m^3/h
- Max flow: 489 m^3/h
- Average flow: 422 m^3/h
- Average Cu feed: 539 ppm
- Average CN WAD feed: 885 ppm
- Cu recovery: 90.4%
- Cu precipitate grade: 52.7% Cu
- Average Cu production: 89.1 tonnes per month
- Average cyanide recovered: 276 tonnes per month (or 0.76 kg/t as NaCN)
- Cu concentrate moisture: 38.8%

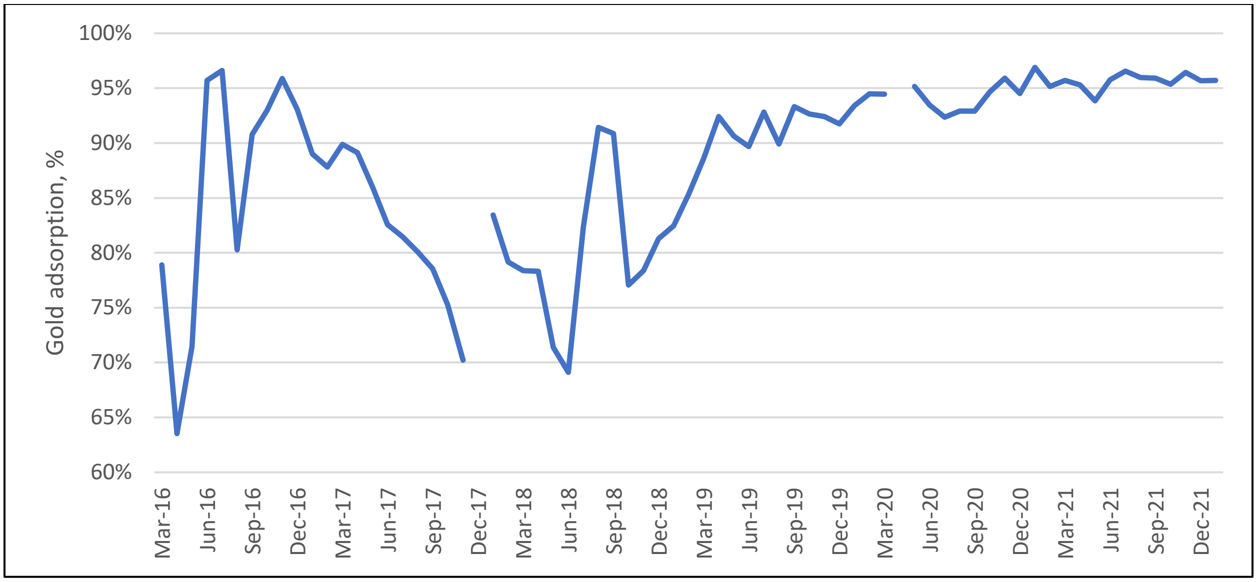
Table 13-1: SART Copper Precipitate Analysis

Sample Details	Units	1: Lot 1 29 DMT	2: Lot 2 29 DMT	3: Lot 3 27 DMT	4: Lot 4 29 DMT
Copper	% Cu	50.5	46.0	50.7	48.9
Silver	g/t Ag	1,481	1,351	1,483	1,481
Gold	g/t/Au	2.5	5.6	8.8	1.9

13.1.2.4 Gold Recovery Through CIP

The CIP circuit treats the product stream from the leaching circuit in a KEMIX carousel circuit utilizing a series of six (6) 250 m^3 cells. The presence of soluble copper in the circuit was identified early on after commissioning and the adsorption of copper onto carbon minimized via the use of a high cyanide to soluble copper ratio to ensure that copper is retained in solution and also by maintaining a relatively high pulp pH. The presence of grit in the leach circuit feed whenever the single safety screen in the grinding circuit is bypassed was identified and remedied via the installation of a tails leach safety screen to minimize this occurrence.

Optimization of the operation of the CIP circuit has resulted in a steady improvement in the overall gold adsorption to average 95.7% in 2021. The stage efficiency since startup is presented in the following Figure 13-3.



Note: plant shut down November and December 2017 due to Mine Blockage, and in April 2020 due to COVID.

Figure 13-3: Gold Adsorption Efficiency in CIP since Startup

13.1.2.5 Desorption and Gold Recovery

At the start of operations, copper was adsorbed onto the carbon in the CIP circuit resulting in high copper content doré being produced. This was remedied via the use of a cold cyanide wash which desorbs the copper preferentially prior to the hot cyanide desorption process. Subsequent to the commissioning of the SART plant and the use of a high CN:Cu molar ratio in the CIP circuit to minimize copper adsorption, the cold wash is no longer required. The last cold wash was performed in the Q1 of 2019.

The ADR plant was initially constructed with a single fiber glass acid wash vessel and a stainless steel elution vessel. Excessive corrosion on the elution vessel was identified after startup and addressed by the installation of two new stainless steel vessels. A second stainless steel acid vessel was also added to accommodate the required frequency of acid washing. The following is a summary of the 2021 operational data.

- Average number of elutions per day 1.2
- Gold desorption efficiency 94.3%
  - Loaded carbon gold assay before elution – 2,930 g/t
  - Loaded carbon gold assay after elution – 165 g/t
- Carbon regeneration – 34 % of batches are regenerated
- Carbon consumption 100 g/t mill feed

13.1.2.6 DETOX Process

The short-term solution for dealing with the high concentration of copper in solution required changes to be made in tailings DETOX circuit. Cryoinfra conducted a series of test work with oxygen replacing air making significant improvement in cyanide destruction efficiency. This led to the installation of an oxygen supply system commensurate with the increase of copper circulating in plant process solution. In addition to the use of oxygen, Sodium Metabisulfite (MBS) was replaced by MT-2000.

13.1.2.7 Tails Filtration Performance

Solid-liquid separation processes were designed and constructed based on a test work completed to support the 2012 Feasibility Study. Seven (7) plate and frame filters were installed to dewater the DETOX tails stream to generate a filtered tails product at 16-18% moisture to be placed as “Dry Stack Tails”. During the ramp-up period, the tailings filters were identified as being a bottleneck to the process plant throughput due to low availability.

Two used horizontal belt filters were identified as being available for purchase and were subsequently installed at the ELG plant. These were originally set up, at their installed location, to treat leached pulp to recover a pregnant solution, but were configured as only dewatering filters for the ELG plant. The average capacity of the belt filters was observed to be 160 dry t/h when operated in 2021.

The availability of the tails filters since commissioning increased significantly from 50-55% achieved in the first year of operation to 89.0% in 2021, and are now averaging 100 t/h per filter. This increase in availability meant that the belt filters were no longer necessary to be operated and are only put in use as required.

13.2 MEDIA LUNA

The key points of this section for the Media Luna mineral process design and recoveries are as follows:

- The metallurgical tests were conducted by independent commercial laboratories, SGS METCON of Tucson, Arizona (SGS) and Base Metallurgical Laboratories, Ltd., Kamloops, (BaseMet).
- A detailed and rigorous sample selection process involving the project geologists and metallurgists was undertaken to ensure that a focus on sample representation and spatial distribution were achieved.
- Test work shows that the ML mineralized material is amendable to sulphide flotation to generate a high gold-silver grade copper concentrate.
- Sequential Iron sulphide flotation to generate two product streams with separate leaching of each was the preferred methodology to maximize precious metal recovery and minimize reagent consumptions.
- Test work demonstrated that grinding of the ML mineralized material to p80 of 85 µm, can be accomplished with the existing ELG processing plant grinding circuit.
- Estimated overall recovery of the process is 93.0% for Cu, 90.0% for Au and 86.0% for Ag.
- Selected treatment process requires a simple reagent scheme and normal reagent dosages.
- Flotation concentrates contain elevated levels of Bismuth, Zinc, Cadmium and Arsenic that may attract penalties. Depression of these was effective, but high feed deleterious element grades in feeds could be challenging.

The ML mineralized ores are similar in nature to the ELG underground material in that they can be characterized as high metal sulphide ores with economically important precious metal grades. A key difference however is the higher copper grade and variable grades of zinc. Deleterious elements are present in both ELG and ML mine zones. The grade of copper in the ML mineralized material is such that when recovered they have the potential to generate up to 30% of the revenue stream from the ML mineralized ores.

Metallurgical testing on samples of the ML mineralized material have been completed for the FS. Metallurgical test work was completed by independent commercial metallurgical laboratories. Initial evaluations completed in 2012 to 2014 to support the initial PEA presented in the 2018 Technical Report, have been superseded with PFS and FS level metallurgical test programs.

Based on test work completed to date, the following process design is envisaged for the ML Mineral Resource.

Processing of the ML mineralized material utilizing the existing grinding circuit, with a new copper flotation circuit to produce a copper, gold and silver concentrate, followed by a new iron sulphide flotation to generate two leach feed streams for final recovery of gold and silver to doré. A blend of the two leach streams which maximizes the Fe-S concentrate is to be used for paste backfill and the remainder of the leached Fe-S cons and tails deposited as a slurry into the West Guajes pit.

This section summarizes the test work performed to evaluate the metallurgical aspects of the ML Project. It discusses the interpretation of the test work and provides an estimate on expected recoveries, as well as the consumption of reagents and other consumables.

13.2.1 General

In November 2012, Torex initiated test work to provide an initial understanding of the metallurgical response of the ML sulphide mineralized material and to establish design criteria for the mineral extraction process. The results of the initial test work were used to prepare the 2018 PEA but have since been superseded by the PFS and FS level metallurgical test programs. Only the results from the PFS and FS level metallurgical test programs are presented in this section.

At the start of the 2107 metallurgical test programs a “Metallurgical Process Development Decision Tree” was developed to ensure that the scope of the metallurgical programs would sufficiently explore risks and opportunities with regards the metallurgical response of the Media Luna ores.

In 2018, a staged metallurgical test program (PFS Level) was initiated with five phases used to describe the execution stages of that program. This was followed with a feasibility level metallurgical test program (Phase VI) with a focus on the MLU, MML and ELG mineralized material. The following outlines the high-level scope of the PFS and FS level metallurgical testing conducted for each of these stages.

- Phase I – Ore hardness testing – ELG, MLU, MLL & EPO
- Phase II – Bulk composite flotation testing
- Phase III – Variability flotation testing
- Phase IV – Optimization flotation testing
- Phase V – Downstream testing programs
    - Filtration, thickening and rheology testing
    - Nano filtration
    - Ore aging testing
    - Water treatment
- Phase VI – MLL, MLU & ELG mine zones
    - Stage I – Ore hardness variability
    - Stage II - Bulk composite testing
    - Stage III – Variability testing
    - Stage IV – Optimization (locked cycle testing)
    - Stage V – Investigation into deleterious elements deportment
    - Stage VI – Downstream testing programs

The samples used for the PFS level test programs, Phases I to V, were selected in 2018 and were from material that was drilled in 2012, 2014 & 2015. The samples that were used for the Feasibility Study were selected in 2019-2020 and are from the resource and infill drilling programs carried out from 2018-2019.

The PFS level metallurgical test program included Phases I to V and was completed from 2017 to 2019. The Phase VI FS level test program was completed from 2020 to the end of 2021.

All of the sample preparation and the bulk of the metallurgical test programs were carried out at BaseMet Laboratories in Kamloops, BC Canada. Specific testing was also carried out at third party laboratories to support the overall program.

13.2.2 Flowsheet selection process

The development of the preferred flowsheet to be used was driven by the "Metallurgical Process Development Decision Tree" such that various configurations for the flowsheet were tested and metallurgical response evaluated. Some of the flowsheets evaluated were as follows:

- Bulk cyanide leaching
- Bulk sulphide flotation followed by separation of a copper concentrate from other sulphides, followed by leaching of tails streams
- Sequential flotation wherein a copper concentrate is generated first followed by an iron sulphide flotation circuit followed by cyanidation of flotation products
- Incorporation of gravity gold recovery into different parts of the circuit
- Evaluation of magnetic recovery from flotation products
- Nano filtration as part of water treatment circuit

The final flowsheet selected thus evolved from conceptual flowsheets to the finally selected flowsheet as presented in Section 17.

13.2.3 Sample Selection, Preparation and Analysis

Sample selection for the PFS and FS level tests utilized the geologists drillhole data imported into the Cancha software to enable a visualization of the drill core samples in 3D to be included as part of the selection process. The focus was on obtaining sufficient variability samples to represent the expected ranges of grades to be encountered in the processing facility and also attain sufficient spatial representivity to obtain samples that would represent mine planning.

13.2.3.1 Sample Selection Methodology

13.2.3.1.1 Prior to Feasibility Study Sample Selection

A total of thirty (30) variability samples of Media Luna material were selected for testing at BaseMet. All assays were generated by Atomic Absorption Spectroscopy (AAS) and with Inductively Coupled Plasma (ICP) scan used for Arsenic assaying.

For the initial composite selection, eighteen (18) samples were used to generate a bulk composite with target grade as close as possible to the ML Mineral Resource with regards to gold, silver and copper grades. The composite sample grade obtained was 1.56 g/t Au, 18.04 g/t Ag, and 0.78% Cu (3.15 g/t AuEQ). Any samples containing excessively high gold, copper or arsenic were not included in this composite.

13.2.3.1.2 Feasibility Study Sample Selection

The scope of work for the MLL and MLU metallurgical test programs included grinding, flotation, cyanide leaching and downstream testing. To achieve the most representative results from a metallurgical test program, identification of suitable samples was required to meet specific test conditions.

Sample selection was carried out on material from new drillholes from the 2018-2019 infill-drilling campaign. This campaign was carried out to improve the Mineral Resource definition and block model. The MLL and MLU block models that were released in December 2019, was used to analyze information related to lithology, distribution of elements and mineralogy. An analysis of all of the blocks considered as Mineral Resource, with a cut-off grade greater than 2.0 g/t of AuEq, was carried out to determine resource tonnages per lithology as summarized in Table 13-2 and Table 13-3.

Table 13-2: Distribution of Resources for the Media Luna Lower Mine Area by Lithology

Lithology	Quantity Mt	Distribution %
Endoskarn (SKN)	4.0	20.0
Exoskarn (SKX)	15.3	75.7
Others (GDI, MAB, FBHQ, etc)	0.9	4.3
Total	20.2	100

Table 13-3: Distribution of Resources for the Media Luna Upper Mine Area by Lithology

Lithology	Quantity Mt	Distribution %
Endoskarn (SKN)	4.4	26.7
Exoskarn (SKX)	11.9	72.1
Others (GDI, MAB, FBHQ, etc)	0.2	1.2
Total	16.5	100

The sample selection criteria considered a copper cut-off head grade of 0.2%Cu for flotation purposes and the block model distribution analysis included a range of blocks that incorporated copper grades down to those low grades. A similar selection exercise was done for gold and silver.

Iron sulphides (mainly pyrrhotite) were previously identified as being a key factor in flotation performance and also cyanide consumption in leaching. Sample selection thus considered low, average to high ranges of pyrrhotite.

Deleterious elements present in the ore body such as arsenic, bismuth, zinc and cadmium were also considered as important criteria for sample selection. Sample selection considered coverage from average/median values up to 85% of the distribution for these elements as indicated by block model estimation.

From the perspective of selection for grindability, two important selection criteria were identified. The first was the potential for dilution that could be fed to the process facility and corresponds to boundaries between endo/exoskarn material and dykes, granodiorite, marble and other contact zones material. A second key driver was the correlation between the iron content and ore hardness which indicated that a higher iron concentration may imply a softer rock which corresponds to a lower energy consumption during grinding.

Finally, spatial coverage for the mine zones was considered when selecting samples for both flotation and grinding testing using mine plan stopes as a guideline.

The drillhole database representing potential sample inventory, including the information listed above was loaded into “Cancha”, which is a geometallurgical sample selection software package from which the samples can be analyzed in 3D, and also specific lengths of samples selected and reviewed in comparison to the geological domains and proposed mine plan.

Sample Spatial Coverage

The preliminary sample selection of the MLL mine zone considered in the PFS level phase, used drill cores from the early project exploration drilling from which samples were selected for metallurgical testing. For this Feasibility Study, the new drilling campaign focused on each mine area of interest to prepare a more robust block model and to ensure a more defined Mineral Resource estimation.

Samples for metallurgical testing were selected from the cores obtained during the infill drilling program. In the first instance, the assay information from the drillholes was used to search for element concentration targets in conjunction with the selection of skarn units that are meant to encompass the main ore resource.

Some of the old drillholes (exploration campaign) were also used to select samples in areas where the new drilling was not completed in time for the metallurgical program. This occurred for the MLU wall zone, which physically represents the contact zone between the MLL and MLU mine zones and it is located in a wall area within the mine.

Another consideration was that the selected samples should cover most of the extension of the mine zone, in a two-dimensional projection of the ore body. That target could only be achieved, by selecting some drillholes from older campaigns, as new infill core did not necessarily cover all the stopes areas estimated by mine planning.

The selection process focused on obtaining samples utilizing drillholes that represented material to be located within the mine stopes. The mine plan solids stopes from the preliminary mine plan were uploaded into Cancha so that the selected samples would intersect the stopes. This criteria was used as guide only, considering that new drilling results could result in a shift in the mine plan as higher grade material is identified.

The assay information from the drillholes was used as the basis for sample selection once a sample was selected, another drillhole within the mine stope area was evaluated to look for similar or new targets to complete the entire assay concentration range and skarn lithologies to be tested. This iteration was repeated for the complete infill drilling campaign from 2019 – 2020. The following Figure 13-4 presents the typical spatial analysis done for all sample selection.

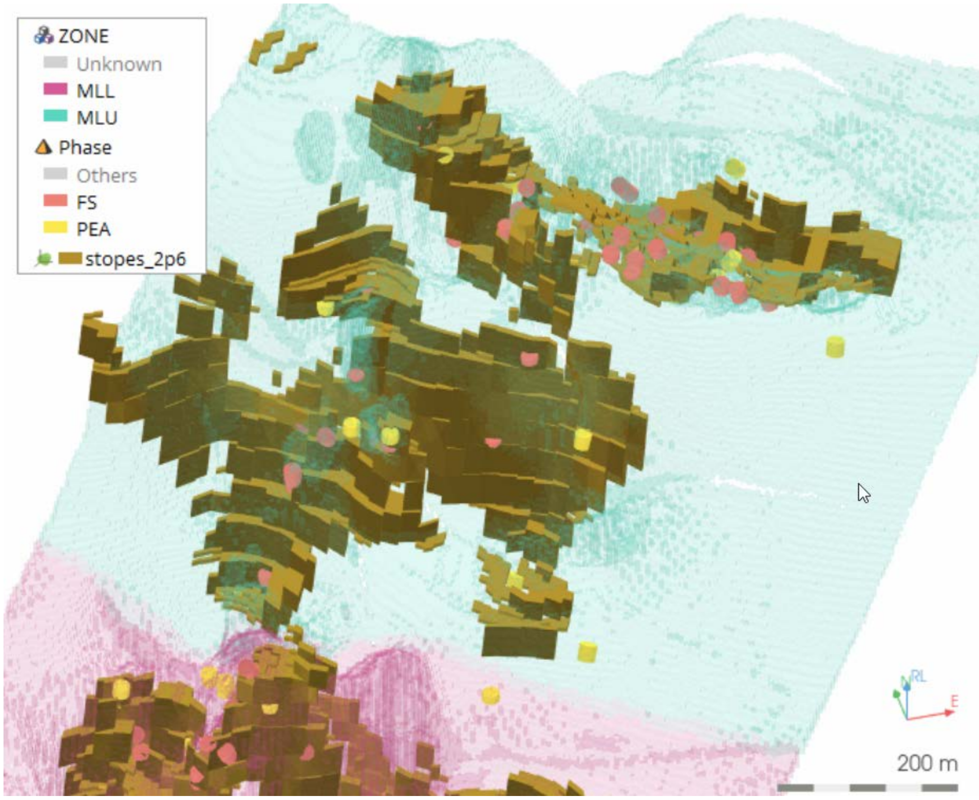


Figure 13-4: Samples Selected for MLU Phase VI Metallurgical Test work

The yellow sections in Figure 13-4 represent the samples tested during the PFS level program, whilst the red squares are samples for this actual feasibility stage. Note that any yellow samples appearing outside the stope boundaries was as a result of updating the mine plan after sample selection.

<u>Ore Hardness Sample Selection</u>

Two main objectives were focused on in the selection of ore hardness samples.

- Examine a range of Iron grade as a potential proxy for grindability, from previous test work conducted at PFS level, the iron content proved an indicator of ore hardness, which represents power consumption for the grindability tests. To address this objective, the range of iron content considered ranged from 1 to 32%. A correlation was obtained based on the combination of the new and previous test work.

- Examine some samples of dilution and non-skarn material to assess if proxy is valid, this considered the possibility of dilution during the mine development and ore plant feed extracted during the Media Luna operation, as it is expected that not only pure skarn mineralogy will be fed into the plant. Dilution material could be harder than proper skarn material.

These objectives resulted in a reasonable spatial coverage, which was obtained during the sample selection exercise using the Cancha software. This software allowed for the selection of samples from locations near mine stopes where samples had not previously been identified nor tested.

Figure 13-5 presents the MLL mine areas showing spatial coverage of the FS level selected samples and of the previously selected PFS level grinding samples.

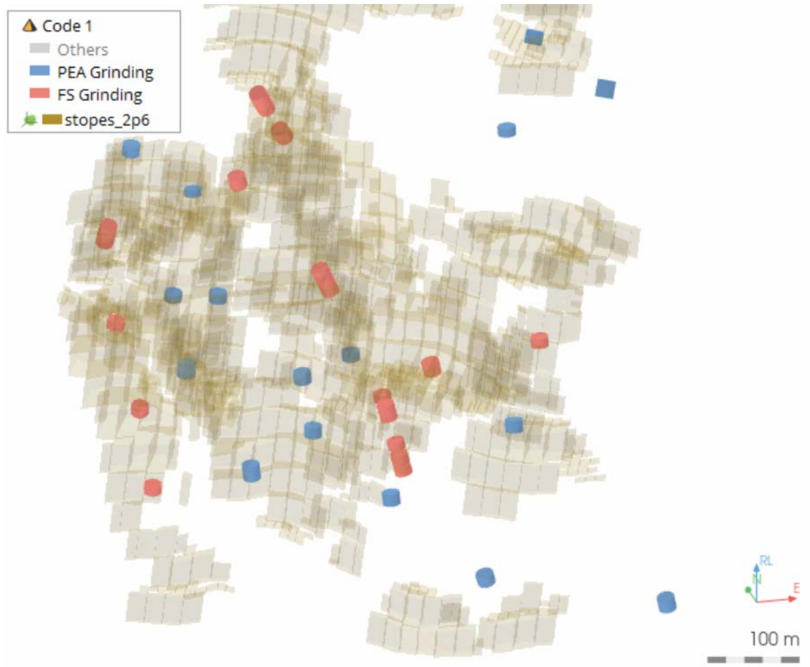


Figure 13-5: Media Luna Lower Grinding Sample Selection Spatial Location

A total of eighteen (18) MLL samples for ore hardness testing proposes were selected, compared with the twelve (12) samples from the previous PFS level tests. The blue samples are from the PFS level tests and the brown ones from the FS level tests.

The same ore hardness sample selection process and objectives as used for the MLL samples was used for the MLU mine zone. These objectives were achieved with a reasonable spatial coverage of the upper MLU zone.

A total of eight (8) ore hardness samples for grinding proposes were selected, as compared with the five (5) samples from the previous PFS level tests for the MLU mine zone.

Flotation and Leaching Variability Sample Selection

A total of thirty-three (33) samples were selected for the MLL flotation and leaching test work purposes. This quantity of samples was selected to ensure sufficient sample mass was sent to the laboratory to satisfy the expected scope of work for the bulk and variability program and subsequent downstream test work. The samples selected used the following criteria as the guidelines:

- Minimum variability sample mass ~ 25 kg.
- Range of Cu grades from 0.1 - 2.5% Cu.
- AuEq < 2.0 g/t to reflect developmental ore as applicable.
- Fe-S content range from 10 - 50% Fe-S.
- Au grades from 1.0 to 10 g/t.

The analysis methodology used to satisfy each of the objectives were achieved is presented in the following sections.

A total of thirty-seven (37) MLU samples were selected initially for flotation and leaching test work purposes. The samples selected used the following criteria as the guidelines:

- Minimum variability sample mass ~ 25 kg.
- Range of Cu grades from 0.01 - 1.98% Cu.
- AuEq < 2.0 g/t to reflect developmental ore as applicable.
- Fe-S content range from 1.5 - 50% Fe-S.
- Au grades from 1.0 to 18 g/t.

One of the main sample selection criteria was to ensure that the suitable grade distribution of the principal economical elements was achieved to allow for testing of the average/median values expected from the block model analysis. Figure 13-6 and Figure 13-7 present the distribution frequency for copper extracted from the block model information, as blue bars and the cumulative frequency (percentage) as a red line. The green dots represent the grades of the variability samples selected compared to the cumulative block model grade data frequency curve. Average and median values that were calculated from the block model are presented as purple and blue dots. The same assessment was done for gold, silver, deleterious elements and pyrrhotite and are presented in the individual metallurgical reports.

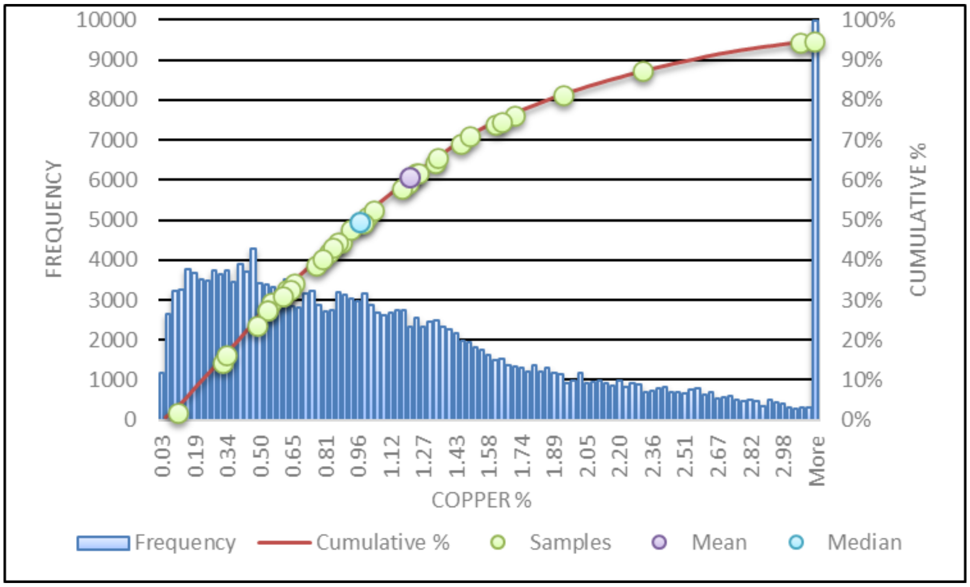


Figure 13-6: MLL Flotation Samples - Copper Grade Distribution

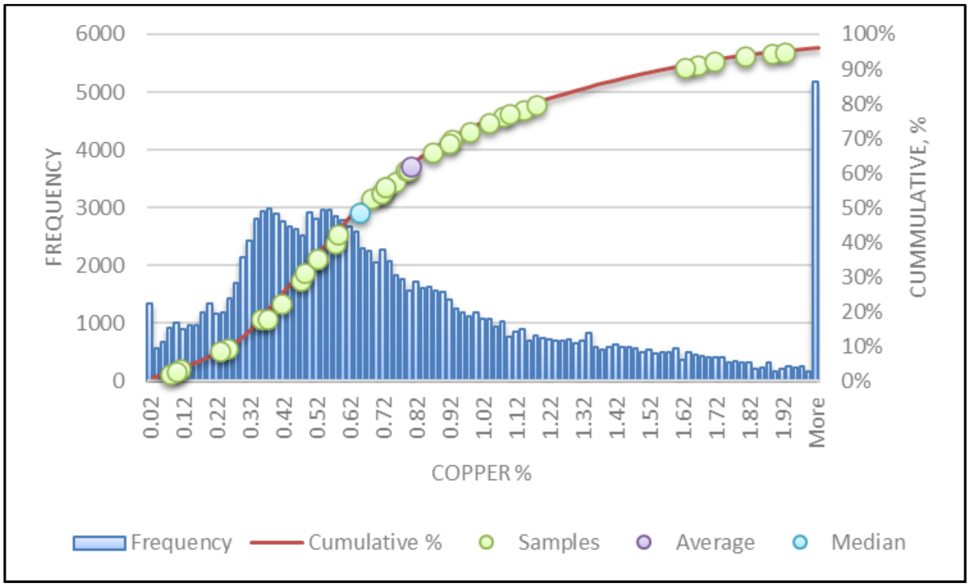


Figure 13-7: MLU Flotation Samples - Copper Grade Distribution

The lithology of the mineralized material is known as the skarn envelope, which is distinguished in exoskarn and endoskarn. Together the skarn envelopes represent 96% of the mineralized material. The sample selection methodology was aligned with this percentage as it constitutes the plant feed distribution. In general, some dilution material or zones with a blend of lithologies would end up in plant feed and was also considered.

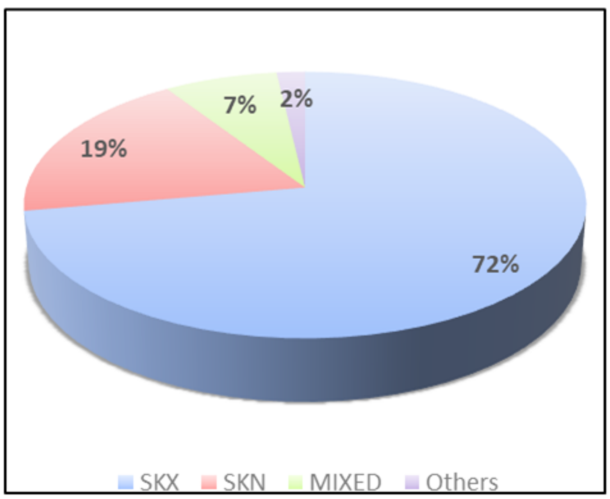


Figure 13-8: MLL Lithology Distribution for Sample Selection

Figure 13-8 presents the lithology of the total MLL samples selected, and illustrates that the samples selected represent 91% of the lithology corresponding to the endo-exoskarn envelope (SKX&S062692KN). Seven percent (4 samples) are of mixed lithologies; skarn plus marble, porphyry or other intrusive lithologies that may be combined, or/and granodiorite.

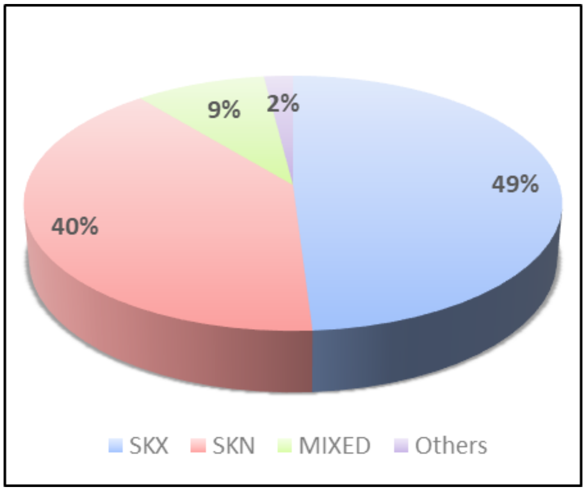


Figure 13-9: MLU Sample Lithology Distribution

Figure 13-9 illustrates that the MLU samples selected represent 89% of the skarn lithology corresponding to the endo-exoskarn envelope. Nine percent (4 samples) are of mixed lithologies; skarn plus marble, porphyry or other intrusive lithologies that may be combined, or/and granodiorite.

13.2.3.2 Sample Preparation, QA/QC

The intent of the process of sample selection from drill core inventory at site was to ensure that sufficient sample inventory would be available for ore hardness and variability composite selection and preparation at the laboratory. Contiguous lengths of drill cores were selected to allow final sample selection at the lab based on a visual inspection of the samples for ore hardness testing and on final assay assessment for variability sample identification.

The list of samples with the full inventory in weight from each sample was provided to the laboratory. With that list, composites, grinding and variability samples were prepared according to the methodology and procedures presented in this section.

13.2.3.2.1 Ore Hardness Sample Preparation Methodology

The ore hardness composites were coarse crushed from which samples were subsequently selected for SMC testing and solids specific gravity determination. The test products from the SMC testing and solids specific gravity determination were returned to the composite prior to the fine-crushing step.

Refer to Figure 13-10 for the workflow process of the grinding sample selection. Each sample was a composite of between 15 and 30 meters of half NQ or HQ drill core. Bags of core that corresponding to an interval were mixed and lightly crushed to produce material suitable for an SMC test (35 mm top size).

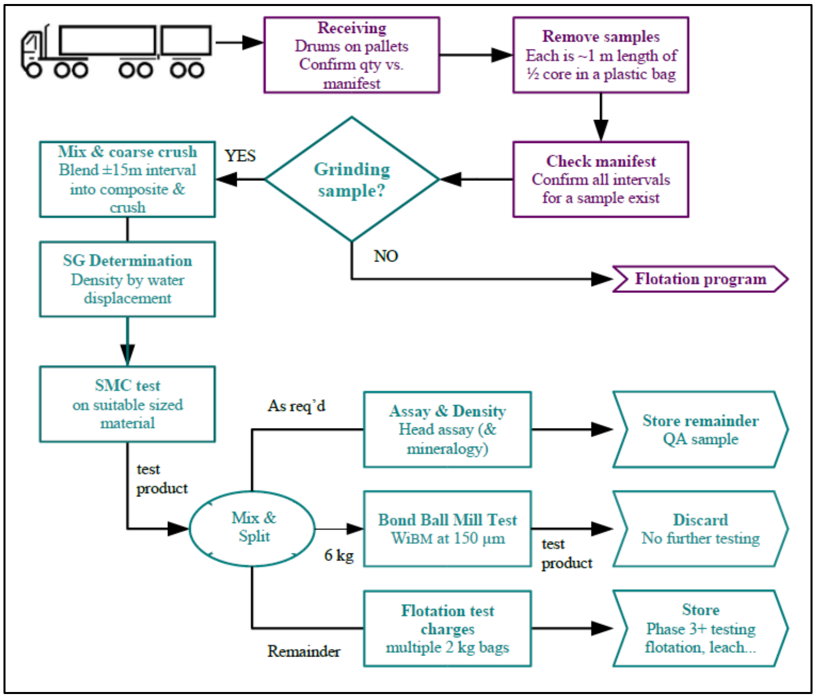


Figure 13-10: Grinding Sample Handling Workflow

The SMC test specimens in the 26.5 × 31.5 mm size class were selected from the crushed material using the laboratory's standard procedure with a density determination as per the SMC Test protocol. The SMC test products were returned to the composite for subsequent assaying.

Subsequently, the entire composite was crushed to 100% passing 3.3 mm. This was blended and split into a sample of about 6 kg to conduct a single Bond ball mill work index test, a further sample to determine the head assay and mineralogy (mass as required), while the remainder was stored in sealed plastic bags (e.g., as 2 kg flotation test charges) for future process testing.

Each ore hardness test sample required a mass of 500 g to be sent to Bureau Veritas laboratory, selected by Torex geologist for Fourier-Transform Infrared Spectroscopy (FTIR) analysis.

13.2.3.2.2 Flotation Sample Preparation

The flotation samples were prepared according to the flotation program for bulk composites and variability samples. Individual lengths of drill core were stage-crushed and screened to 100% passing 3.35 mm and stored as 2.0 kg flotation feed samples. A small sample cut of each variability sample was removed and sent to for head assays. The variability samples were prepared first, and the results of the assays on the variability samples were used to determine which of these were to be used in the preparation of bulk composites.

Variability Flotation Sample Preparation and Selection

A total of eleven (11) variability samples were selected for the MLL flotation program and twelve (12) for the MLU program.

A small sample cut of each variability sample was removed and sent to collect a head assay, and to determine Bulk Mineral Analysis (BMA) mineralogy and specific gravity (SG).

The final sample list for flotation variability testing samples for each program is presented in Table 13-4 and Table 13-5.

Table 13-4: FS-MLL Flotation Variability Sample Selection

Sample ID	Weight kg	Litho	Au Eq ppm	Au ppm	Ag ppm	Cu %	Zn %	As ppm	Bi ppm	Cd ppm	Po %	Fe-S/ Cu-S
FS-MLL-011	109.48	SKX	2.77	1.02	26	0.80	0.02	3939	113	2	14.98	7.1
FS-MLL-014	70.1	SKX	2.78	0.68	37	0.90	0.02	2246	61	3	6.17	2.9
FS-MLL-015	128.4	SKX	10.73	5.46	93	2.27	0.04	12096	495	8	6.23	1.2
FS-MLL-017	29.62	SKX	5.80	5.60	3	0.09	0.00	20705	1379	0	16.15	67.9
FS-MLL-021	143.89	SKX	9.35	7.42	34	0.84	0.02	4466	295	3	4.42	2.4
FS-MLL-022	172.24	SKX	3.41	0.56	43	1.30	0.03	224	9	4	6.47	2.1
FS-MLL-023	93.58	MIXED	2.92	1.47	23	0.64	0.05	443	5	6	3.78	2.9
FS-MLL-025	267.05	SKX	2.49	0.29	35	0.98	0.02	849	3	3	10.75	4.3
FS-MLL-026	196.98	SKN	6.69	5.61	14	0.51	0.64	268	513	76	7.67	6.2
FS-MLL-032	70.89	SKX	3.37	0.76	44	1.14	0.02	161	82	3	2.58	1.2

Table 13-5: FS-MLU Flotation Variability Sample Selection

Sample ID	Weight kg	Litho	Au Eq ppm	Au ppm	Ag ppm	Cu %	Zn %	As ppm	Bi ppm	Cd ppm	Po %	Fe-S/ Cu-S
FS-MLU-041	73.9	SKX	2.17	0.84	14.0	0.74	0.148	63	132	15	22.88	11.4
FS-MLU-051	29.8	SKN	3.76	3.73	1.1	0.01	0.008	12959	39	1	0.00	22.6
FS-MLU-053	39.5	SKN	6.51	3.09	41.7	1.86	0.350	1091	102	41	15.50	3.2
FS-MLU-055	51.1	SKX	4.45	2.51	23.2	1.06	0.026	2305	168	3	5.90	2.4
FS-MLU-056	114.5	SKN	5.46	3.95	23.9	0.78	0.019	647	76	2	2.86	1.9
FS-MLU-058	53.5	SKX	4.95	3.26	22.8	0.90	0.025	5208	145	3	9.60	4.3
FS-MLU-061	67.3	SKN	19.07	17.84	15.0	0.67	0.472	437	581	62	9.87	5.9
FS-MLU-067	50.2	SKX	2.66	1.46	9.6	0.70	5.863	414	189	803	50.25	25.6
FS-MLU-069	115.3	SKX	7.12	5.92	8.8	0.71	0.578	1171	1684	67	36.44	18.5
FS-MLU-072	58.4	SKX	3.68	1.09	41.0	1.16	2.295	5245	6	223	8.56	3.0

Bulk Flotation Sample Preparation and Selection

Three bulk composites were prepared for each of the MLL and MLU test programs using the variability composites as feed material. Each bulk composite had to be of sufficient size to satisfy the expected testing including rougher flotation, cleaner and locked cycle testing.

A minimum sample mass of 50 kg for each bulk composite sample was required. A small sample cut of each bulk sample was removed and sent for head sample assay, Particle Mineral Assessment (PMA) mineralogy and SG determination.

Each composite was prepared to target a desired copper concentration and in some cases iron to copper sulphide ratios that would represent average, high and low values compared with the MLL block model distribution. The required composites as follows:

- Average copper content and average Fe-S/Cu-S.
- High copper content and low Fe-S/Cu-S.
- Average copper and high Fe-S/Cu-S content.

In order to generate each bulk composite, different samples or drillhole section were used, ideally with similar concentrations from the targets listed above, using the information from initial drillholes assay.

13.2.3.2.3 Leaching Sample Preparation

Whole-Ore Leach Sample Preparation

Two-kilogram charges were used to determine the required grind time that achieves the desired P_{80} during sample preparation. The mill discharge was then washed into a 7 L plastic bottle where the slurry was allowed to settle and the density adjusted to attain the target density. The pulp pH was adjusted using hydrated lime. At the target pH, sodium cyanide was added to reach its target concentration. After oxygen was sparged into the slurry and bottle prior to being sealed, it was placed on the rollers. The sample was then leached as per defined conditions.

Two samples were whole-ore leached, one corresponding to an already selected flotation sample (FS-MLL-011) and another (FS-MLL-027) that was low in copper grade. The latter sample was prepared from a percentage of subsamples that were used to make the final composite used for this test. Samples details are presented in Table 13-6.

Table 13-6: FS-MLL Whole-Ore Leaching Sample Selection

Sample ID	% Used	Au_{Eq} ppm	Au ppm	Ag ppm	Cu %	S %	Fe %	As ppm	Bi ppm	Po %
FS-MLL-011	-	2.77	1.02	26	0.80	7.7	36.4	3,939	113	14.98
FS-MLL-027	-	3.05	2.28	15	0.37	3.7	12.1	1,394	295	7.4
FS-MLL-027A	65	1.24	0.25	21	0.46	2.0	9.6	1,219	8.6	3.3
FS-MLL-027B	35	6.41	6.03	5	0.20	6.8	16.7	1,719	826	14.9

Four samples were whole-ore leached, one corresponding to a variability sample (FS-MLU-051) that was low in copper grade and the three main bulk composites. Sample details are presented in Table 13-7.

Table 13-7: FS-MLU Whole Ore Leaching Sample Selection

Sample ID	Au_{Eq} ppm	Au ppm	Ag ppm	Cu %	S %	Fe %	As ppm	Bi ppm	Po %
FS-MLU-051	3.76	3.73	1	0.01	0.72	2.03	12,959	39	0.00
FS-MLUCOMP-001	4.68	3.23	18	0.79	7.46	22.45	614	245	14.17
FS-MLUCOMP-002	7.33	5.18	18	1.24	13.85	27.57	1487	615	29.22
FS-MLUCOMP-003	4.01	2.79	14	0.67	12.94	31.32	836	156	26.80

Samples for bulk flotation testing were tested using the bulk Fe-S configuration circuit, with both products subjected to cyanide leaching. Bulk rougher tails were leached at the as-received grind size and would not undergo any additional grinding. Where leaching of the bulk concentrates would require regrinding, the sample would be placed into a regrind mill with water being added to achieve an approximate density of about 60 percent solids. An 8-kilogram stainless steel ball charge was placed into the mill and the sample was ground for a pre-determined time.

Flotation Products Leach Sample Preparation

Selected products from flotation were leached. Rougher tails were leached at the as-received grind size and would not undergo any additional grinding. Where leaching of Fe-S concentrates would require regrinding, the sample would be placed into a regrind mill with water being added to achieve an approximate density of about 60 percent solids. An 8-kilogram seasoned mild steel rod charge was placed into the mill and the sample was ground for a pre-determined time. The sample was discharged into a bottle, and if required the appropriate mass of copper scavenger tail would also be added. In order to evaluate the economic performance of individual streams leaching of copper cleaner scavenger tails, Fe-S rougher cons, Fe-S cleaner cons and Fe-S cleaner tails was carried out.

13.2.3.2.4 Sample head assays

All of the comminution and flotation/leaching samples were assayed as part of the program. Ore hardness samples were assayed after completion of ore hardness testing.

With respect to comminution samples, an assay cut sample was drawn from the 100% passing 3.35 mm material prepared for the Bond ball mill work index test. In the case of flotation bulk, mine plan composites and variability samples, sample cuts from the 100% passing 3.35 mm charges were selected for head assays.

The list of assays included the following elements: Au, Ag, Cu (including CuCN & CuOx), Cd, F, Fe, As, Zn, Pb, Bi, TOC, Total sulfur, Sulphate, sulfur and full ICP. In addition to this, solids SG's of each individual sample were obtained.

The metallurgical samples were assayed at BML; ICP scans were conducted by Activation Laboratories. The assaying technique employed at BML for elements was:

- Cu, Fe, Zn – Aqua Regia (AR) digest followed by AAS.
- Ag, As, Bi, Cd – Aqua Regia (AR) digest followed by ICP.
- Au – fire assay followed by AAS.
- S – infrared determination by Leco.
- Sulphate and Sulphide assays were determined by the gravimetric barium sulphate method.
- CuOx and CuCN - sequential digest to determine the acid soluble copper content and cyanide soluble content.
- ICP Multi-Element Scans – Aqua Regia digest followed by ICP.

Comminution Sample Assaying

All of the individual ore hardness composites were assayed with the results presented in the relevant metallurgical reports.

Bulk Composite Head Assays

The MLL bulk composites were assayed in duplicate with results presented in Table 13-8. Some of the copper was present as copper oxide and some as cyanide soluble copper. For the samples, the assays obtained were close to expected with FS-MLLCOMP-001 copper assay at 0.95% Cu, gold at 2,21 g/t Au and sulfur at 4.8% S. The high copper grade sample FS-MLLCOMP-002 was 1.75% Cu. The high Fe-S:CuS composite FS-MLLCOMP-003 had a copper grade of 0.73% Cu and high 14.6% total sulfur. In addition, this sample had almost 0.9% Zn, which made it an appropriate sample for zinc rejection or separation for final zinc concentrate.

Table 13-8: FS-MLL - Bulk Composite Head Assays

Sample ID	Cu	Pb	Zn	Fe	CuOx	CuCN	Ag	Au	S(t)	C(t)	S(SO_4)	S(S2-)	TOC	As	Bi	Cd	F
	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	Leco	Leco	Grav	Grav	Leco	ICP	ICP	ICP	FusISE
	%	%	%	%	%	%	g/t	g/t	%	%	%	%	%	ppm	ppm	ppm	ppm
FS-MLLCOMP-001	0.95	<0.001	0.022	20.4	0.017	0.026	39	2.21	4.81	1.09	0.02	4.79	0.12	3200	145	7	307
FS-MLLCOMP-002	1.75	<0.001	0.160	31.0	0.034	0.034	60	4.67	6.24	1.03	0.02	6.14	0.10	2055	227	20	309
FS-MLLCOMP-003	0.73	<0.001	0.855	42.3	0.007	0.018	26	3.58	14.6	1.44	0.02	15.2	0.11	3125	172	63	120

The MLU bulk composites were assayed with results indicated in Table 13-9. A small fraction of the copper is present as an oxide, most evident in sample FS-MLUCOMP-001. Cyanide-soluble copper averaged 0.07%, which was slightly less than that of the MLL composites.

For these samples, the assays were close to expectations; FS-MLUCOMP-001 average grade sample with 0.8% Cu, 4,08 g/t of Au and 8.1% S, whilst the high grade copper sample FS-MLLCOMP-002 had 1.10% Cu. The high Fe-S:CuS composite FS-MLLCOMP-003 had near average copper grade with 0.65% Cu and high total sulphides at 14.9% total sulfur.

Table 13-9: FS-MLU Bulk Composite Head Assays

Sample ID	Cu	Pb	Zn	Fe	CuOx	CuCN	Ag	Au	S(t)	C(t)	S(SO4)	S(S2-)	TOC	As	Bi	Cd	F
	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	Leco	Leco	Grav	Grav	Leco	ICP	ICP	ICP	FusISE
	%	%	%	%	%	%	g/t	g/t	%	%	%	%	%	ppm	ppm	ppm	%
FS-MLUCOMP-001	0.80	0.090	0.52	22.85	0.03	0.04	18.0	4.08	8.105	0.39	0.05	7.98	0.10	617	242	57	0.270
FS-MLUCOMP-002	1.10	0.070	0.36	28.90	0.00	0.09	15.5	6.15	15.55	0.34	0.04	15.51	0.09	1008	504	36	0.030
FS-MLUCOMP-003	0.65	0.085	1.41	31.80	0.00	0.07	13.1	2.93	14.85	0.20	0.07	14.80	0.04	984	107	150	0.565

Variability Composite Head Assays

A detailed head assay compilation of the eleven (11) MLL variability samples is provided in Table 13-10, testing was done in duplicate and the average was used for test analysis. No samples with high levels of copper oxides or CN soluble copper were identified. ICP results are presented below:

Table 13-10: FS-MLL Variability Samples Head Assays

Sample ID	Cu	Pb	Zn	Fe	CuOx	CuCN	Ag	Au	S(t)	C(t)	S(SO4)	S(S2-)	TOC	As	Bi	Cd	F
	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	Leco	Leco	Grav	Grav	Leco	FICP	FICP	FICP	FusISE
	%	%	%	%	%	%	g/t	g/t	%	%	%	%	%	ppm	ppm	ppm	ppm
FS-MLL-011	0.78	<0.001	0.01	40.6	0.009	0.021	26	0.51	8.09	1.35	0.03	8.06	0.18	2436	49	13	304
FS-MLL-014	0.89	<0.001	0.02	11.9	0.009	0.016	35	0.79	4.66	0.60	0.02	4.64	0.06	2348	141	6	622
FS-MLL-015	2.06	0.09	0.04	12.4	0.024	0.035	86	5.19	6.56	0.98	0.04	6.51	0.25	10392	419	9	208
FS-MLL-017	0.095	<0.001	0.00	13.6	0.002	0.002	<1	4.27	7.30	1.31	0.03	7.27	0.23	17155	1125	453	170
FS-MLL-021	0.79	<0.001	0.02	20.5	0.010	0.011	33	4.88	3.48	0.86	0.02	3.46	0.09	3550	161	7	1205
FS-MLL-022	1.24	<0.001	0.02	29.8	0.020	0.012	43	0.55	4.72	1.14	0.03	4.68	0.12	182	<5	12	652
FS-MLL-023	0.59	0.045	0.04	10.4	0.004	0.007	22	1.83	3.08	1.98	0.02	3.06	0.05	274	<5	7	1585
FS-MLL-025	0.92	<0.001	0.02	28.6	0.012	0.014	34	0.26	6.41	0.32	0.02	6.39	0.04	709	<5	11	213
FS-MLL-026	0.51	<0.001	0.57	32.5	0.006	0.010	15	5.33	5.05	0.40	0.01	5.03	0.05	156	380	62	674
FS-MLL-027	0.36	<0.001	0.01	14.3	0.004	0.008	17	2.56	4.12	1.56	0.01	4.11	0.07	1634	231	5	359
FS-MLL-032	1.08	0.001	0.02	9.05	0.010	0.012	42	0.86	3.18	0.90	0.01	3.17	0.11	275	83	5	397

A detailed head assay compilation of the eleven (11) MLU variability samples is provided in Table 13-11, testing was done in duplicate and the average of the results presented used for analysis. A sample with high levels of secondary copper minerals can be found in sample MLU-041, CN soluble copper average 0.14%.

Table 13-11: FS-MLU Variability Samples Head Assays

Sample ID	Cu	Pb	Zn	Fe	CuOx	CuCN	Ag	Au	S(t)	C(t)	S(SO$_4$)	S(S2-)	TOC	As	Bi	Cd	F
	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	Leco	Leco	Grav	Grav	Leco	FICP	FICP	FICP	FusISE
	%	%	%	%	%	%	g/t	g/t	%	%	%	%	%	ppm	ppm	ppm	ppm
FS-MLU-041	0.80	0.002	0.18	30.80	0.00	0.14	15.1	0.90	13.45	0.54	0.01	13.46	0.01	62	136	18	1.430
FS-MLU-051	0.02	0.002	0.03	2.12	0.00	0.00	0.9	2.69	0.68	0.92	0.02	0.67	0.03	12775	59	1	0.045
FS-MLU-053	2.09	0.002	0.42	20.15	0.03	0.07	52.8	3.59	11.80	0.17	0.04	11.77	0.02	1206	173	43	0.110
FS-MLU-056	0.82	0.003	0.03	13.00	0.01	0.03	24.4	5.60	3.61	0.43	0.03	3.58	0.02	666	104	4	0.030
FS-MLU-058	0.86	0.004	0.04	18.70	0.01	0.05	22.4	2.39	6.77	0.33	0.03	6.75	0.03	3613	156	5	0.040
FS-MLU-061	0.74	0.001	0.56	23.80	0.02	0.05	14.2	22.24	7.54	0.21	0.01	7.54	0.01	391	820	82	0.020
FS-MLU-067	0.74	0.001	5.75	48.80	0.00	0.03	8.3	1.74	31.05	0.43	0.03	31.03	0.02	470	180	648	0.040
FS-MLU-069	0.72	0.001	0.60	29.65	0.00	0.06	6.8	7.24	18.70	0.96	0.02	18.69	0.03	964	1910	77	0.015
FS-MLU-072	0.99	0.001	1.80	39.45	0.03	0.04	36.9	0.88	6.72	0.09	0.11	6.61	0.01	3302	12	236	0.150
FS-MLU-073	1.00	0.001	0.17	11.65	0.01	0.06	12.2	1.39	5.03	0.07	0.03	5.00	0.01	989	388	19	0.025
FS-MLU-074	1.81	0.001	0.87	33.55	0.00	0.04	15.4	1.68	19.40	0.21	0.01	19.40	0.05	209	18	106	0.020

Zinc Composite Head Assays

Head assays for the Zinc composites are presented in Table 13-12.

Table 13-12: FS-MLL Zinc Composites Head Assays

Sample ID	Cu	Pb	Zn	Fe	CuOx	CuCN	Ag	Au	S(t)	C(t)	$S(SO_4)$	S(S2-)	TOC	As	Bi	Cd	F
	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	FAAS	Leco	Leco	Grav	Grav	Leco	ICP	ICP	ICP	FusISE
	%	%	%	%	%	%	g/t	g/t	%	%	%	%	%	ppm	ppm	ppm	ppm
FS-MLLCOMP-003A	0.89	<0.001	4.02	51.9	0.009	0.020	24	1.40	11.9	0.47	0.02	11.9	0.03	54	37	332	388
FS-MLLCOMP-003D	0.57	0.001	1.52	45.5	0.005	0.013	16	2.2	3.56	0.71	0.08	3.48	0.01	114	24	134	687
FS-ZINC-004	0.84	0.03	0.94	47.3	0.046	0.030	29	4.48	5.50	0.37	0.01	5.50	0.03	1891	184	102	

Quality Control on Head Assays

The sample selection process utilized the assays of samples provided by the project geologists and as part of the QA/QC process validation versus the metallurgical laboratory assays was carried out.

This check consisted of comparing the sample assays as calculated from the meter-by-meter drillhole sample section assays versus the composite head grades reported by BML following the sample preparation. This exercise provided a verification on consistency between the expected results and the final head assays as a post check for detecting any missing drillhole section during packaging, for discrepancy on head assays or for any typographical errors.

Relatively good correlations between predicted composite assays versus those prepared were obtained for copper, gold and silver. Iron and sulfur assays appeared to have a slight bias with higher levels in the composites versus those expected. No significant concerns were raised.

13.2.3.3 Mineralogy and Mineral Liberation Assessment

13.2.3.3.1 Prior to Feasibility Study Mineralogical Analysis

A mineralogical assessment was conducted on the thirty prefeasibility level individual variability Media Luna samples. The purpose of this was to identify the primary minerals contained in the ML minerals material, followed by an assessment to understand liberation of the copper and iron sulphides. Figure 13-11 presents the overall mineral content of each sample, Figure 13-12 the liberation profile of copper minerals and Figure 13-13 the liberation profile of pyrrhotite, being the dominant Fe-S species present in Media Luna material. In these figures, Cs refers to total copper sulphides, Sp - Sphalerite, Po - Pyrrhotite, Os - Other sulphides, and Gn - gangue.

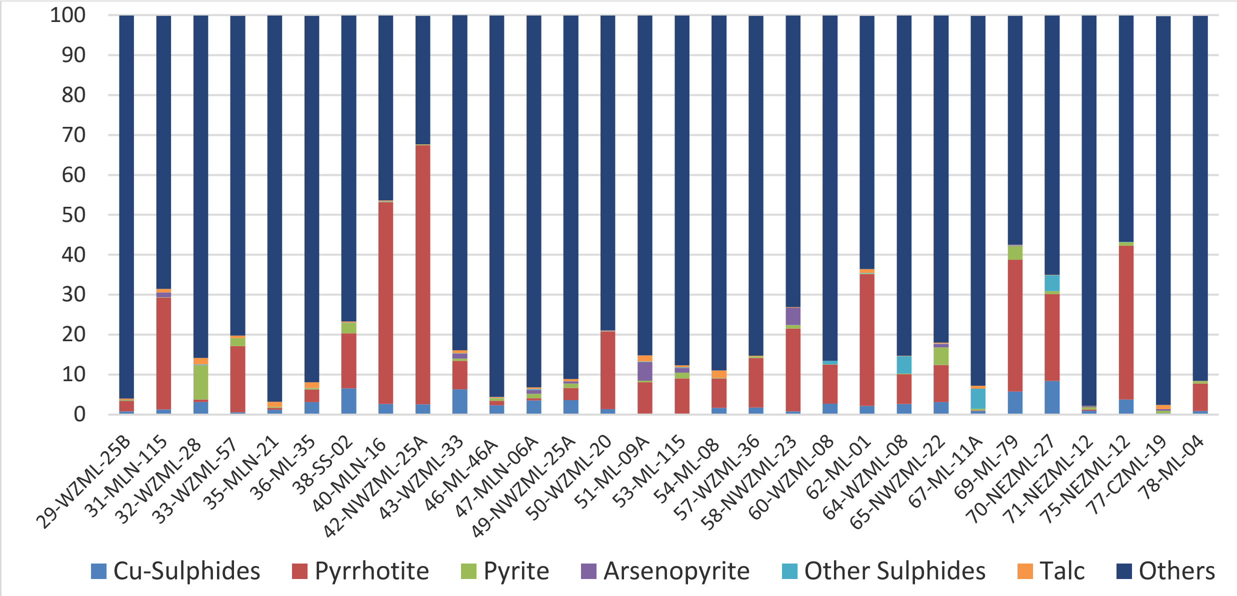


Figure 13-11: Phase IV - Mineralogy of Media Luna PFS Level Variability Samples

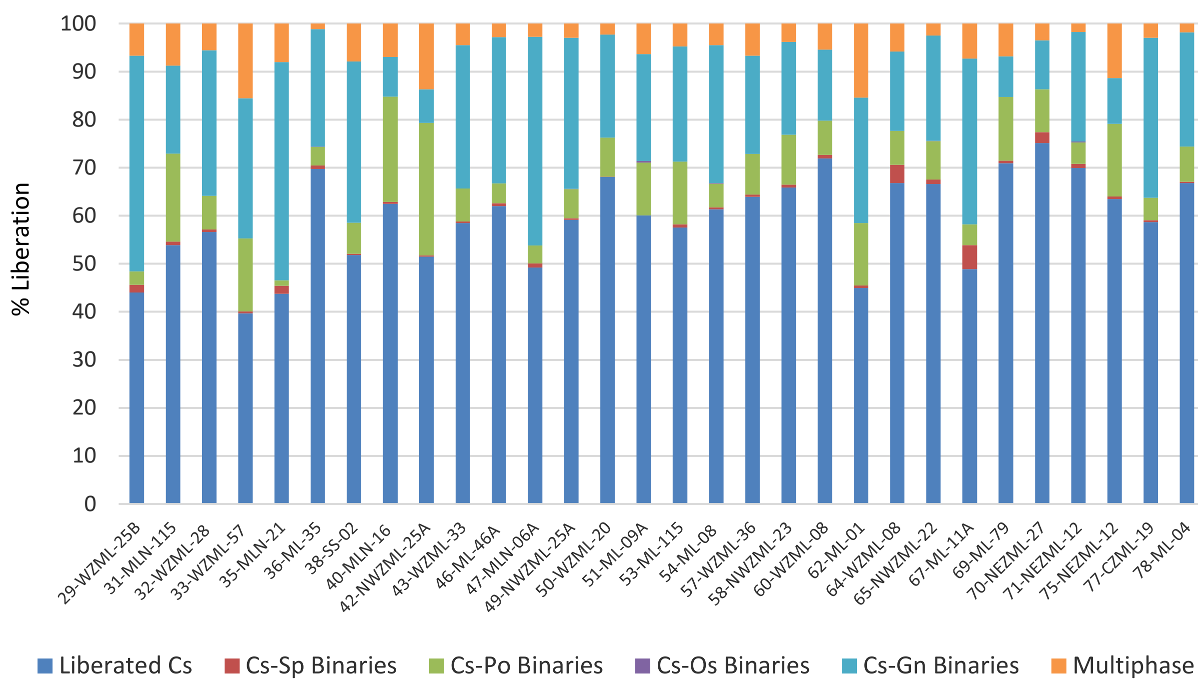


Figure 13-12: Phase IV - Evaluation of Copper Sulphide Liberation of PFS Level Variability Samples

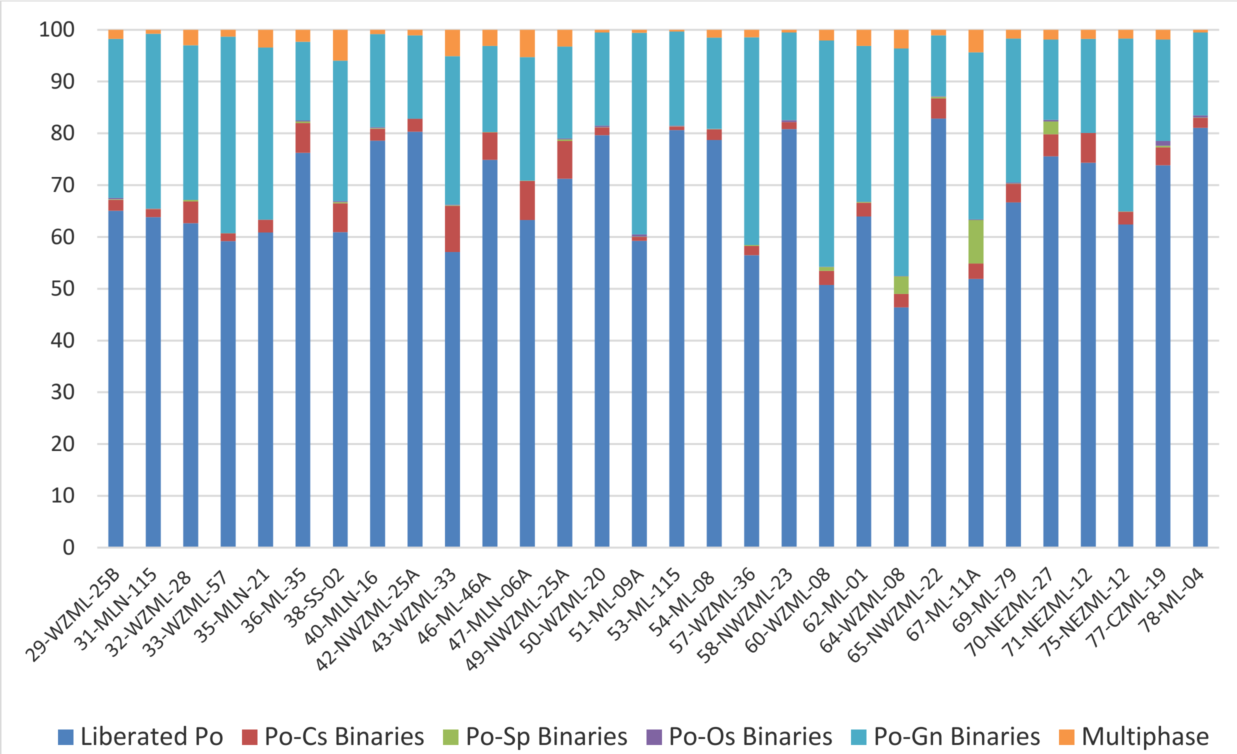


Figure 13-13: Phase IV - Evaluation of Pyrrhotite Liberation of PFS Level Variability Samples

As shown in Figure 13-14 and Table 13-13, copper sulphides on average make up about 2.5% of the content of each sample with Chalcopyrite (2.28%) being the dominant copper mineral. Copper was also identified as being present as Chalcocite (0.05%) and smaller amounts of Bornite, Covellite, Tetrahedrite/Tennantite and Cuprite. Both Chalcocite (~0.05%) and Cuprite are cyanide soluble. The use of flotation would mitigate the effect of Chalcocite on the leaching circuit as this would instead report to the concentrates.

Of importance is the level of potential deleterious elements, arsenic, bismuth and zinc, as they have the potential to affect the quality of copper concentrate produced if not depressed in flotation.

The Pyrrhotite content observed is relatively high and being reactive would be expected to also contribute to increased cyanide consumption when leached from either whole mineralized material, or Fe-S flotation concentrate.

Table 13-13 presents a summary of size-by-size liberation of minerals in the bulk composite. Liberation assessment at 110 microns indicates that gangue was well liberated (~94%) and should be easily rejected in a flotation circuit. Copper minerals were reasonably well liberated (~50%) at the 110 microns but would require regrind of rougher concentrate to liberate the copper minerals from iron sulfides and achieve suitable final concentrate grades.

For this phase of assessment chalcopyrite intergrowth with pyrrhotite in the Fe-S concentrate was identified, which implies that regrinding prior to leaching Fe-S concentrate would allow for higher extraction of both copper and gold in the CN leach circuit for ultimate recovery in the CIP and SART circuits.

Table 13-13: Phase IV - Summary of Size-by-Size Mineralogy of the Bulk Composite

Mineral	Mineral Assays (Wt. percent)					
	>106 µm	<106>53 µm	<53>C2 µm	<C2>C5 µm	<C5 µm	Total
Chalcopyrite	0.85	1.67	2.51	3.24	4.73	2.28
Bornite	0.00	0.00	0.01	0.00	0.01	0.00
Chalcocite	0.01	0.03	0.05	0.04	0.15	0.05
Bismuth	0.00	0.00	0.02	0.02	0.04	0.01
Sphalerite	0.21	0.55	0.51	0.69	0.69	0.51
Molybdenite	0.02	0.01	0.02	0.00	0.03	0.01
Pyrrhotite	14.5	15.1	17.3	14.6	12.3	14.8
Pyrite	1.36	1.17	1.37	1.02	0.85	1.17
Arsenoyrite	0.20	0.18	0.26	0.21	0.16	0.20
Iron Oxides	31.3	25.0	25.6	18.7	15.6	24.1

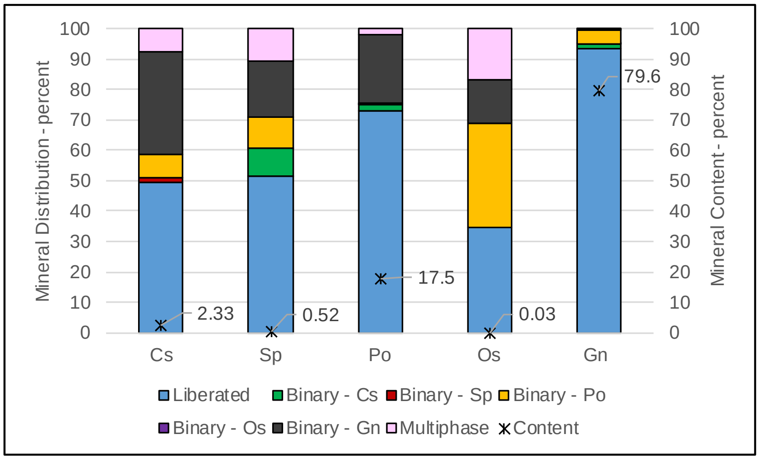


Figure 13-14: Phase IV Liberation Summary of the Composite at 110 microns

13.2.3.3.2 Feasibility Study Mineralogical Analysis

PMA done on bulk and mine composites, which is a sized mineralogical assessment carried out at significantly more detail than the BMAL. A Bulk Mineralogical Assessment and Liberation (BMAL), which involves a 39 species identification protocol (SIP) minerals quantification, mineral liberation by class of association of copper sulphides and distribution of copper and fluorine bearing minerals was completed for all variability samples.

The samples used for the mineralogical assessment were those generated as part of the grind calibration testing. Previous test results indicated that the previously identified primary grind target of 80% passing 85 µm should be maintained.

13.2.3.3.2.1 Bulk Composite Mineralogy and Liberation

The full quantitative mineral content and PMA was conducted for the three MLL (3) and three (3) MLU bulk composites. Qemscan analysis was performed for the feed samples that were prepared to a similar nominal P_{80} 85 µm as for the variability samples to provide a measurement of mineral liberation.

- Overall mineral abundance within 39 minerals by size fraction.
- Size by assay and distribution based on metal content (Copper, Zinc, Iron and Sulfur) and mineral content (Chalcopyrite, Sphalerite, Pyrrhotite, Other Sulphides and Gangue).

- Distribution by size range of copper and zinc bearing minerals, including Chalcopyrite, Bornite, Chalcocite/Covellite, Tetrahedrite, Cuprite, Chrysocolla and Valleriite for copper plus Tetrahedrite, Stranskiite/Warikahnite, Sphalerite, Smithsonite and Gahnite for zinc.
- Summary of percent liberation by size and class, this involves liberated, binaries with copper sulphides (including Chalcopyrite, Bornite, Chalcocite/Covellite and Tetrahedrite/Tennantite), binaries with Sphalerite, binaries with Pyrrhotite (including Pyrite and Arsenopyrite), binaries with other sulphides, binaries with gangue and multiphase.
- Estimated relative proportion and composition of mineral grains, from same classes mentioned in the previous bullet point.

The following tables present the results from liberation analysis of the bulk composite and also sized mineral liberation analysis.

Table 13-14: FS-MLL-COMP-001 Liberation Summary of the Primary Mineral Species

Mineral Status	Mineral				
	Cs	Sp	Po	Os	Gn
Liberated	61.7	59.0	58.8	43.5	90.1
Binary - Cs		9.6	1.4	1.5	2.0
Binary - Sp	4.5		0.1	0.0	0.0
Binary - Po	0.3	8.6		17.1	7.5
Binary - Os	0.0	0.0	0.0		0.0
Binary - Gn	29.3	8.1	37.9	19.8	
Multiphase	4.2	14.7	1.7	18.1	0.3
Total	100	100	100	100	100
Content	3.16	0.07	12.87	0.03	83.90

Table 13-14 indicates that the copper sulphides are very well liberated at the target grind size and if anything, a coarser primary grind size may be sufficient for flotation purposes. A good result is that the copper sulphides are not in any significant association with Po – iron sulphides or Os – other sulphides such as bismuthinite. Other sulphides are primarily associated with Po and gangue which would be expected to allow for depression in the copper circuit.

Table 13-15: FS-MLL-COMP-002 Liberation Summary of the Primary Mineral Species

Mineral Status	Mineral				
	Cs	Sp	Po	Os	Gn
Liberated	63.4	43.7	59.4	11.3	90.2
Binary - Cs		15.7	2.4	1.2	2.9
Binary - Sp	4.1		0.4	0.0	0.1
Binary - Po	0.9	13.0		40.5	6.3
Binary - Os	0.0	0.0	0.2		0.0
Binary - Gn	27.5	11.6	35.0	21.9	
Multiphase	4.0	15.9	2.5	25.0	0.5
Total	100	100	100	100	100
Content	5.1	0.2	11.8	0.0	82.9

From Table 13-15 it can be seen that for the FS-MLLCOMP-002 that the gangue is again very will liberated as is the pyrrhotite (Po). The copper minerals are reasonably well liberated as compared to the sphalerite and bismuthinite which are poorly liberated.

Table 13-16: FS-MLL-COMP-003 Liberation Summary of the Primary Mineral Species

Mineral Status	Mineral				
	Cs	Sp	Po	Os	Gn
Liberated	51.9	59.6	68.8	8.1	82.4
Binary - Cs		5.7	0.6	2.0	1.4
Binary - Sp	7.0		0.4	0.5	0.7
Binary - Po	4.0	7.6		52.0	14.9
Binary - Os	0.1	0.0	0.1		0.0
Binary - Gn	29.1	18.7	28.8	14.5	
Multiphase	7.9	8.4	1.2	22.9	0.6
Total	100	100	100	100	100
Content	1.8	1.2	31.5	0.0	65.5

From Table 13-16 it can be seen that for the MLL composites that the gangue is again very well liberated as is the pyrrhotite (Po). The copper and sphalerite minerals are reasonably well liberated as compared to the bismuthinite (Os) which is poorly liberated.

Table 13-17: FS-MLU-COMP-001 Liberation Summary of the Primary Mineral Species

Mineral Status	Minerals				
	Cs	Sp	Po	Os	Gn
Liberated	56.3	63.3	75.3	53.9	91.8
Binary - Cs		6.5	1.7	4.0	1.6
Binary - Sp	7.9		0.5	2.8	0.4
Binary - Po	1.8	8.8		10.6	5.6
Binary - Os	0.0	0.2	0.0		0.0
Binary - Gn	25.5	14.1	20.0	19.2	
Multiphase	8.5	7.1	2.4	9.5	0.6
Total	100	100	100	100	100
Content	2.58	1.18	18.82	0.08	77.35

Table 13-17 indicates that the copper sulphides were well liberated at the target grind size and if anything, a slightly coarser primary grind size would be sufficient for flotation. A good finding is that the copper sulphides are not in any significant association with Po – iron sulphides or Os – other sulphides such as Bismuthinite. Other sulphides were primarily associated with Po and gangue which would be expected to allow for depression in the copper circuit.

Table 13-18: FS-MLU-COMP-002 Liberation Summary of the Primary Mineral Species

Mineral Status	Minerals				
	Cs	Sp	Po	Os	Gn
Liberated	60.8	54.1	82.2	41.3	88.8
Binary - Cs		9.9	1.3	1.8	1.8
Binary - Sp	9.1		0.3	1.3	0.3
Binary - Po	1.9	12.1		13.1	8.5
Binary - Os	0.1	0.2	0.1		0.1
Binary - Gn	22.1	13.2	15.0	32.5	
Multiphase	6.0	10.5	1.1	9.9	0.6
Total	100	100	100	100	100
Content	3.35	0.65	35.33	0.11	60.56

The liberation characteristics for COMP-02 as presented in Table 13-18 were similar to those of COMP-01, with all of the sulphides having slightly higher liberation values. The association of Cs and Sp is slightly higher than that of COMP-01 implying recovery of zinc to the copper rougher concentrate via mineral association and not pulp chemistry can be expected.

Table 13-19: FS-MLU-COMP-003 Liberation Summary of the Primary Mineral Species

Mineral Status	Minerals				
	Cs	Sp	Po	Os	Gn
Liberated	52.7	75.6	77.6	37.3	87.0
Binary - Cs		4.4	1.2	2.2	1.2
Binary - Sp	11.9		0.8	10.8	0.9
Binary - Po	4.9	8.6		15.9	10.3
Binary - Os	0.1	0.1	0.0		0.0
Binary - Gn	20.5	5.9	18.9	15.2	
Multiphase	9.9	5.4	1.4	18.6	0.7
Total	100	100	100	100	100
Content	1.82	3.19	34.09	0.05	60.85

The liberation characteristics for COMP03 as presented in Table 13-19 indicate that the copper sulphides for this sample is slightly less liberated as compared to those of COMP01 and COMP02. Pyrrhotite liberation for this composite # 3 was similar to that of composite # 1. Gangue was well liberated.

The sphalerite minerals are better liberated compared to the copper sulphides. Bismuthinite (Os) was again relatively poorly liberated. The fact that the Po is well liberated and only 1.2% associated with Copper sulphides, implies that efficient separation of Fe-S from CuS in the flotation process is to be expected.

13.2.3.3.2.2 Variability Sample Mineralogical Assessment

All variability samples (grinding and flotation program) were subjected to a Qemscan bulk mineralogy assessment, mainly to identify detailed mineralization that could be useful when metallurgical performance of an individual sample would present an unexpected result compared to the other variability samples.

The eleven (11) MLL and nineteen (19) MLU variability head samples were evaluated by Qemscan at a target primary grind size P_{80} 85 µm with un-sized samples, using the BMAL method. The different reports from this assessment are listed below:

- Overall mineral abundance within 39 minerals.
- Estimated mineral liberation for copper sulphide minerals liberated and binaries with Sphalerite, Pyrrhotite, Other Sulphides -including Molybdenite, Bismuth/Bismuthinite and Galena-, Gangue and multiphase (more than 2 associations).
- Distribution copper in bearing minerals as Chalcopyrite, Bornite, Chalcocite/Covellite, Tetrahedrite/Tennantite and Copper Oxides.
- Distribution of fluorine in Biotite/Phlogopite, Muscovite, Apatite, Fluorite and others.

Mineral Distribution of Variability Samples

The mineral distribution of the MLL variability samples is summarized in Figure 13-15, from where the percentage of total sulphides can be seen to vary significantly from 10 to 30%, with the bulk of this being the iron sulphides (pyrrhotite and pyrite).

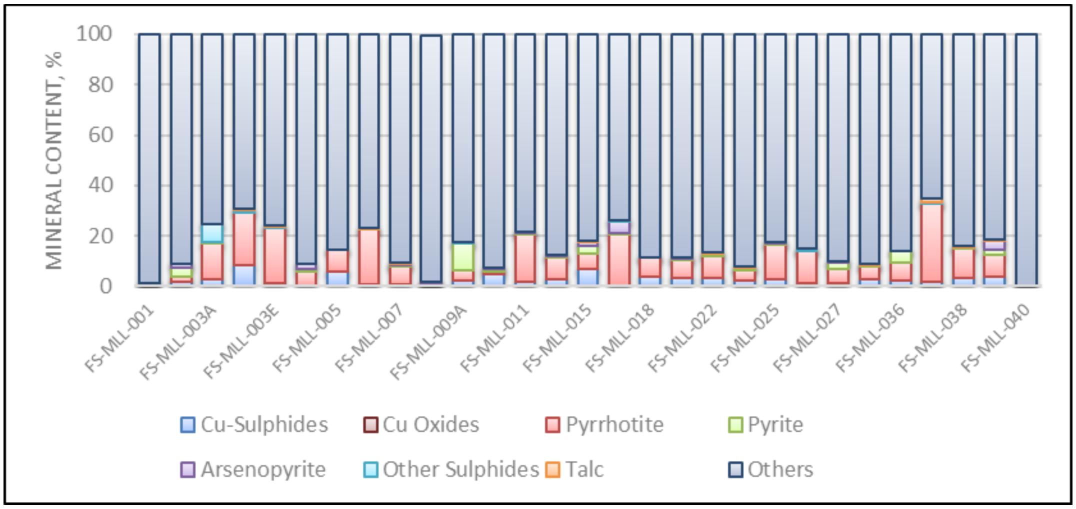


Figure 13-15: FS MLL-Variability Sample Mineral Distributions

Figure 13-15 indicates that most MLL variability samples contain varying but significant levels of Pyrrhotite (Po) (sample MLL-040 represents mine dilution and contains minor mineralization) as the predominant metal sulphide, ranging from 1% to 31%. Pyrite (Py) was also identified and typically is above 2%, but in some samples measured up to 5% and in sample MLL-009A at 11%. Talc was identified in sample MLL-037 and its depression requires the use of Carboxy Methly Cellulose (CMC) to ensure the copper content in the final copper concentrate would attain the desired level. Sample MLL-003A assayed 7% of other sulphides, which corresponds to the presence of sphalerite, as that sample contains up to 4% of zinc.

Arsenopyrite (Aspy) is another sulphide of importance in these samples. Specifically, samples MLL-017 and MLL-039 which would require aggressive depression to ensure that arsenic levels in the copper concentrate do not exceed penalty levels.

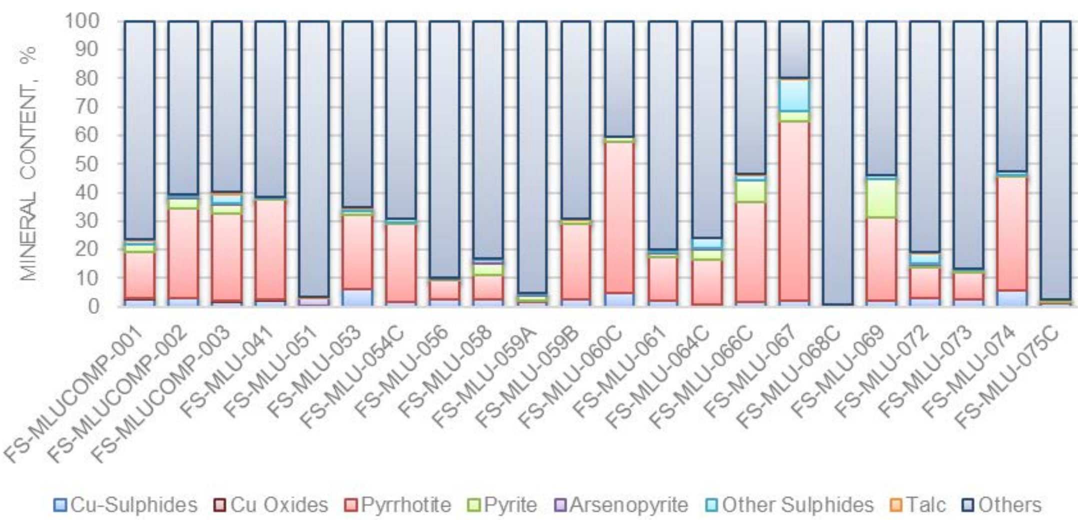


Figure 13-16: FS MLU - Variability Samples Mineral Distribution

Figure 13-16 indicates that most MLU variability samples contain varying but significant levels of Pyrrhotite (Po) as the predominant metal sulphide, ranging from 0% to 63%. Pyrite (Py) was also identified and typically is above 3%. High talc levels were not identified in any particular sample (highest value by MLU-COMP003 1.2%), its understood that talc depression requires the use of CMC to ensure the copper content in the final copper concentrate would attain the desired level, and this case was covered in the MLL Phase VI metallurgical report. The sample with high percent of other sulphides, mainly corresponds to the presence of sphalerite, as sample MLU-067 contains up to 11% of zinc.

Samples MLU-051 and MLU-058 had high levels of arsenic which would require aggressive depression to ensure that arsenic levels in the copper concentrate do not exceed penalty levels.

Copper sulphide liberation and association

The following figures presents the degree of liberation of copper sulphides and ore their association with other minerals for the MLL and MLU variability composites. This information allows an understanding of the degree of liberation of the copper sulphides and preferred association to other minerals with subsequent impact on the flotation process.

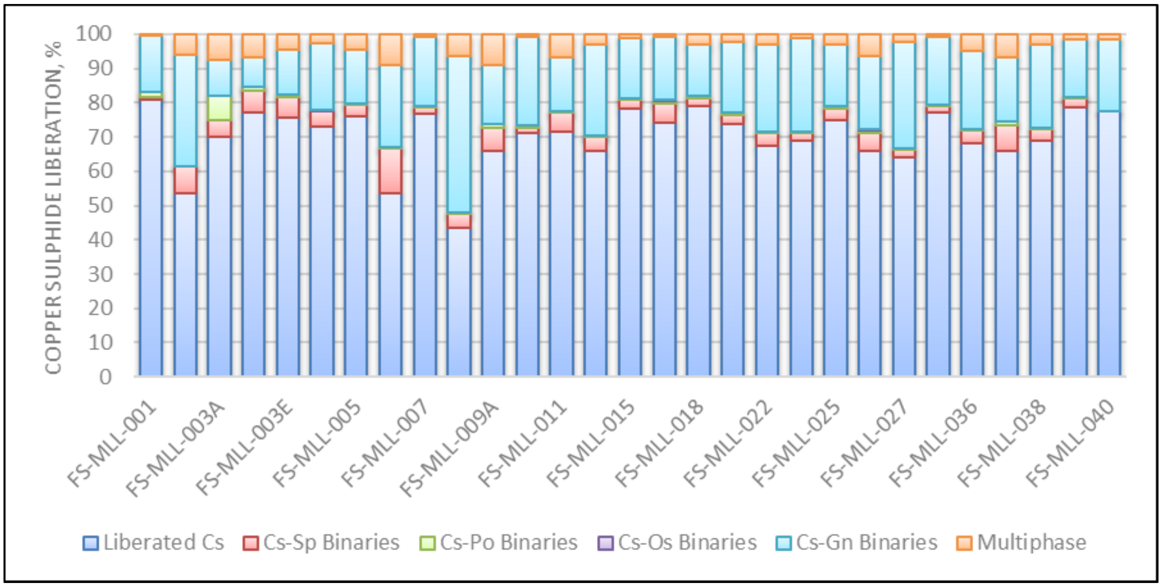


Figure 13-17: MLL Variability Samples - Estimated Copper Sulphide Liberation

From Figure 13-17 above, it can be seen that the average liberation of the copper sulphides was of the order of 70%. Typically, a liberation of the order of 40-60% is sufficient for good rougher recovery and as such the primary grind can be considered to be finer than absolutely necessary for the copper minerals. The bulk of the remaining copper sulphides are associated with gangue minerals (21% average). Minor associations exist with sphalerite particles (4% average), and in some cases, such as sample MLL-003A, the association appears with Pyrrhotite.

These results are positive with regards the proposed use of flotation for recovery of copper to a copper concentrate.

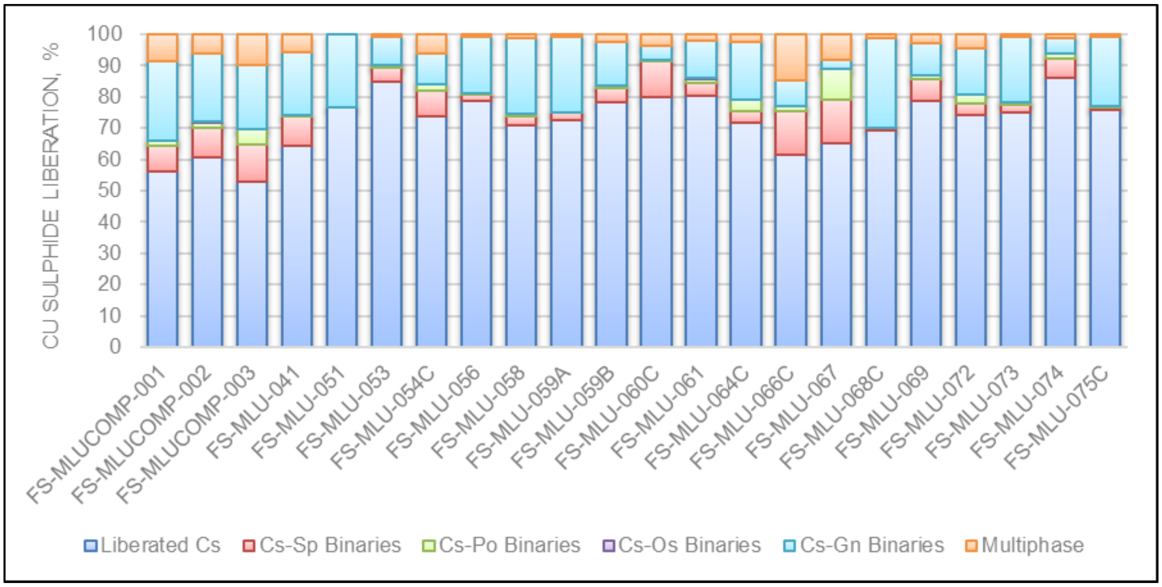


Figure 13-18: MLU Variability Samples - Estimated Copper Sulphide Liberation

From Figure 13-18 above it can be seen that the average liberation of the copper sulphides was of the order of 72%. The bulk of the remaining copper sulphides are associated with gangue minerals (17% average). Also, more common associations exist with sphalerite particles (6% average) as more zinc is present on this mine zone.

13.2.4 Ore Hardness Testing

Two grinding test programs were conducted on ELG and ML ores at PFS and FS level.

“Phase I” explored the grindability of samples distributed across ELG, and ML. ML was further subdivided into four zones: MLL, MLU, EPO, and “outside ML” dilution samples that are outside the current LOM. This work was completed in 2018 at Base Met Laboratories.

“Phase VI” grindability work was completed on samples from MLL, MLU, and ELG deposits (extended El Limón & Guajes open pits, plus nearby underground deposits Sub-Sill and El Limón Deep, ELD). The programs were also conducted at Base Met Laboratories.

The results obtained to date indicates that the ML deposits are generally all one large system that is suitable for modelling as a whole, and it is unnecessary to generate separate geometallurgical domains for each deposit within ML.

The grinding testing to date indicates that the ELG deposits are generally all one large system that is suitable for modelling as a whole, and it is unnecessary to generate separate geometallurgical domains for each deposit within ELG.

ML and ELG are not similar enough to be a single domain. There is evidence that “skarn” and “non-skarn” might be distinct domains within each deposit, but the non-skarn is usually not of economic interest and is not different enough from skarn to warrant its own geometallurgical domain. Grindability values are generally related to the degree of alteration and iron content in skarn domains.

Grindability results are treated as whole samples and the design is not performed on averages of test results or similar statistics of individual tests. Treating whole samples preserves the correlations that exist within the ore properties. The design basis is a Morrell Mi model and test work results for the two most important parameters (the coarse "Mia" parameter and fine "Mib" parameter) for this model are shown in Figure 13-19.

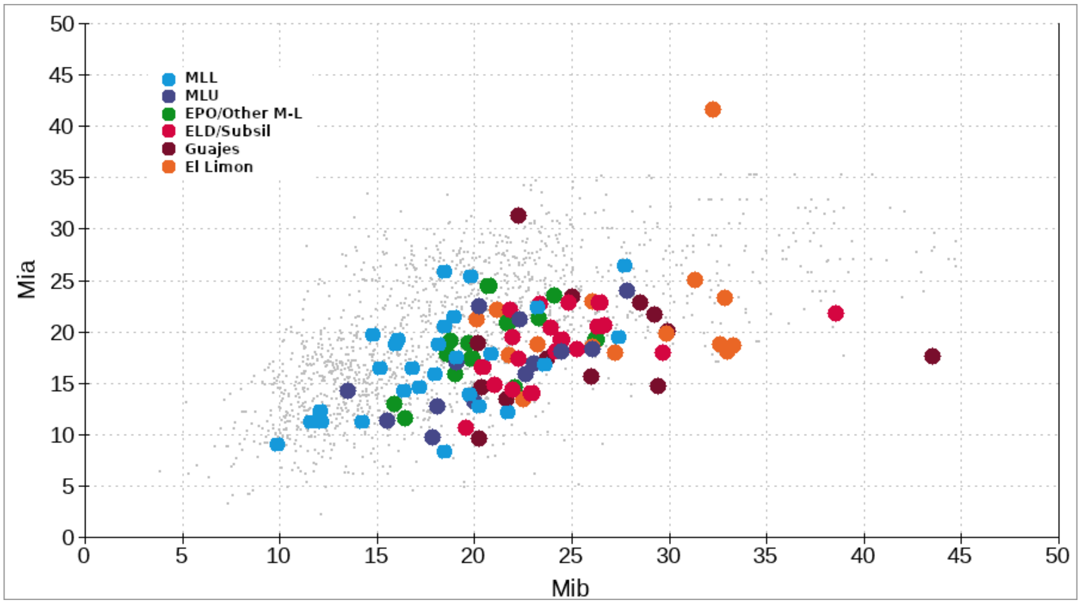


Figure 13-19: Morrell Mia & Mib Index values for Phase I & VI

13.2.4.1 Crushing work index (Wi_C) testing

No Bond low-energy crushing work index (Wi_C) tests were performed on any samples from ELG or ML. The test requires whole-diameter PQ or HQ diameter drill core which is not available from exploration drilling programs where half of the core is claimed for Mineral Resource assays.

Synthetic crushing work index values were created for Phase VI samples by judging how hard it was to break specimens of half-core using a geological hammer. Both the ELG and MLL specimens show similar trends with median synthetic Wi_C values of 10 metric units for ELG and 8 metric units for MLL. The MLU samples were consistently easy to break and are judged to have negligible crushing work index values. The cumulative distributions of synthetic Wi_C values for the three deposits are given in Figure 13-20.

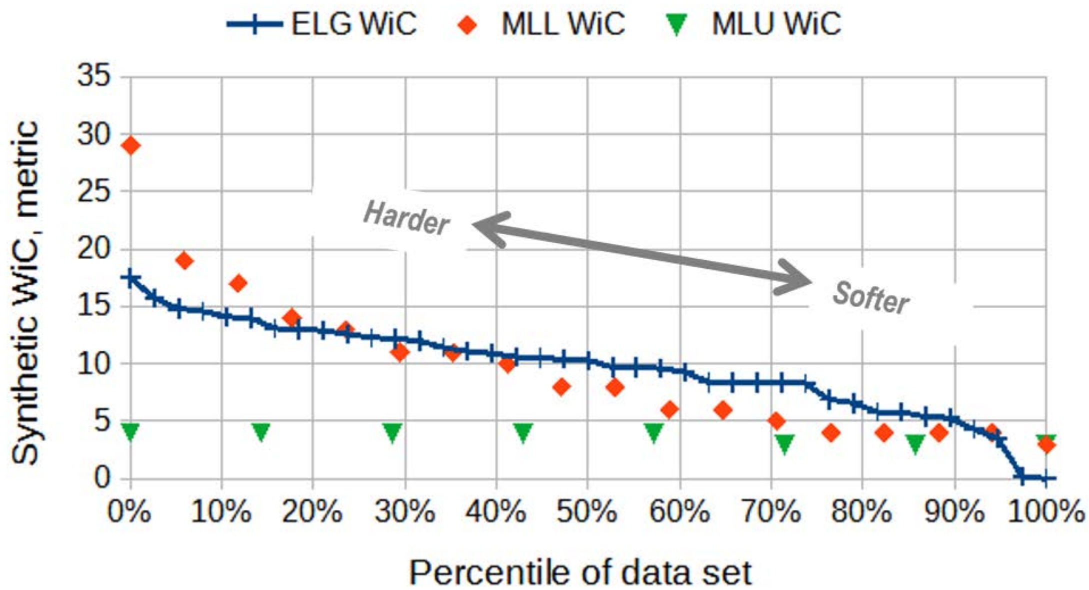


Figure 13-20: Synthetic Crushing Work Index Distributions

13.2.4.2 Bond Ball Mill Grindability (Wi_{BM} and Mib) Testing

The Bond ball mill grindability test was performed in both Phase I and Phase VI. The Phase I program was developed using a target primary grind of 80% passing 100 µm and the tests were run with a closing screen size of 150 µm (Black points on Figure 13-21). The Phase VI program developed to a slightly finer target primary grind of 80% passing 85 µm product size and tests were run with a closing screen of 106 µm (Orange points on Figure 13-21). A process plant survey sample dated Oct 19, 2016 when Guajes pit material was treated is included in the database. Three 'calibration samples' were tested in Phase I to assess the variation in ball mill work index as a function of grind product size (blue points on Figure 13-21).

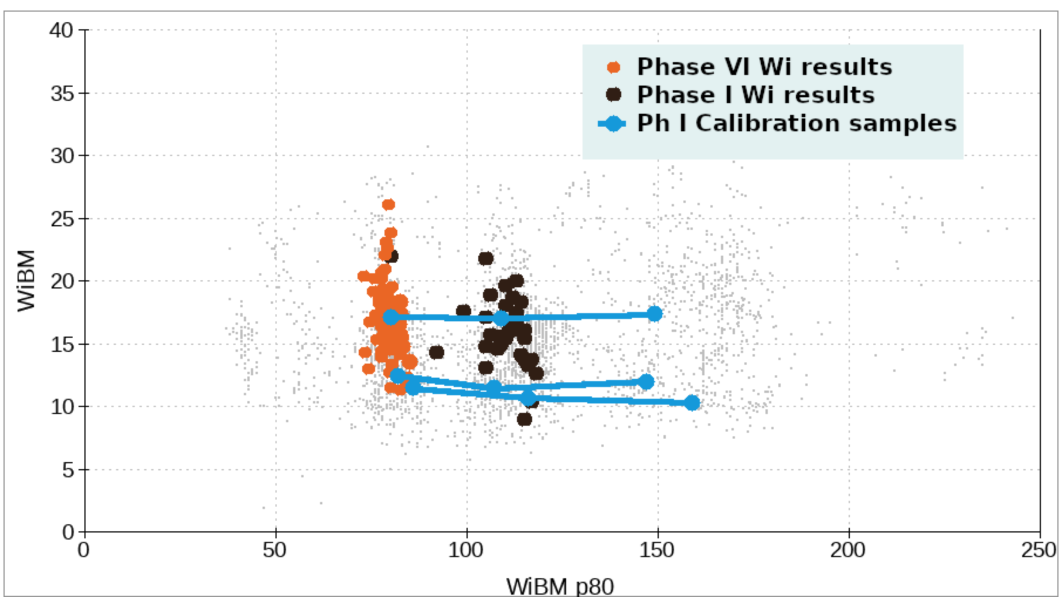


Figure 13-21: Ball Mill Work Index Values and Test P_{80}

13.2.4.3 Effect of P_{80} on Ball Mill Grindability (Josefin Equation)

The Phase I program included three samples that were tested at three different closing sizes to determine the variation in work index and Mib value as a function of the grind target P_{80} size. Figure 13-22 shows the MLL results of the Phase I, Phase VI, and the three calibration samples. The Josefin & Doll (Procemin, 2018) method is used for adjusting work index and Mib values to a specific P_{80} size.

- A Hukki exponent of –0.703 was measured for Bond Wi modelling.
- A Hukki exponent of –0.877 was measured for Morrell Mi modelling.

Table 13-20: Phase 1 Ball Mill Work Index Calibration

Sample	P100	F80	P80	g/rev	Wi_Ball mill		Morrell Mib		Mine Zone
	µm	µm	µm		Test	Model	test	model	
16-MLN-08	106	2414	80	1.08	17.1	17.0	24.2	24.0	EPO
16-MLN-08	150	2414	109	1.26	17.0	17.1	21.7	21.9	EPO
16-MLN-08	212	2414	149	1.42	17.4	17.3	20.3	20.3	EPO
18-WZML-36	106	2499	86	1.85	11.5	11.4	14.5	14.4	MLU
18-WZML-36	150	2499	116	2.31	10.7	10.8	12.1	12.2	MLU
18-WZML-36	212	2499	159	2.81	10.3	10.3	10.5	10.5	MLU
24-NEZML-22	106	2501	82	1.63	12.4	12.2	16.1	15.7	MLU
24-NEZML-22	150	2501	107	1.99	11.5	11.9	13.5	14.0	MLU
24-NEZML-22	212	2501	147	2.19	12.0	11.8	13.0	13.0	MLU

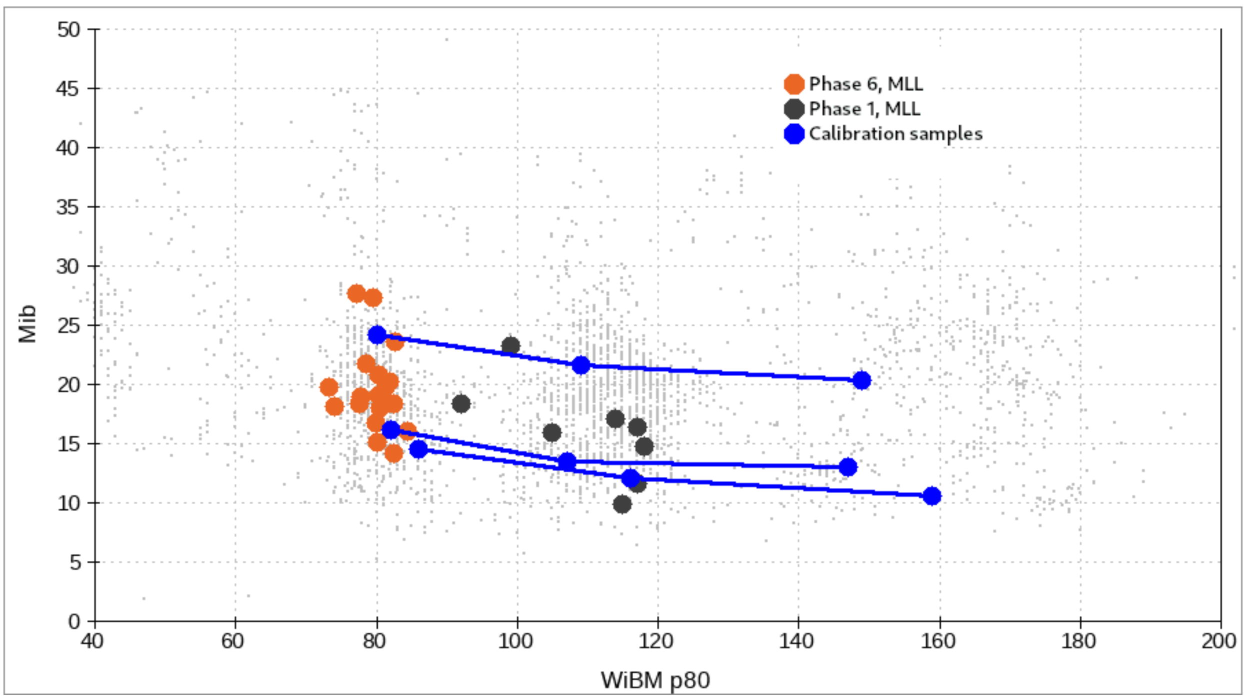


Figure 13-22: Morrell Mib values as a Function of Test P_{80}

13.2.4.4 ELG OP Ball Mill Grindability Tests

The ELG ball mill grindability results are presented in Figure 13-23 from the Phase I test program. Ore hardness testing was carried out at two closing screen sizes with the groups of data representing the two distinct ranges of ore hardness. Figure 13-23 presents the relatively wide variability in bond ball mill work index for the ELG samples from 15 to as high as 25 kWh/t.

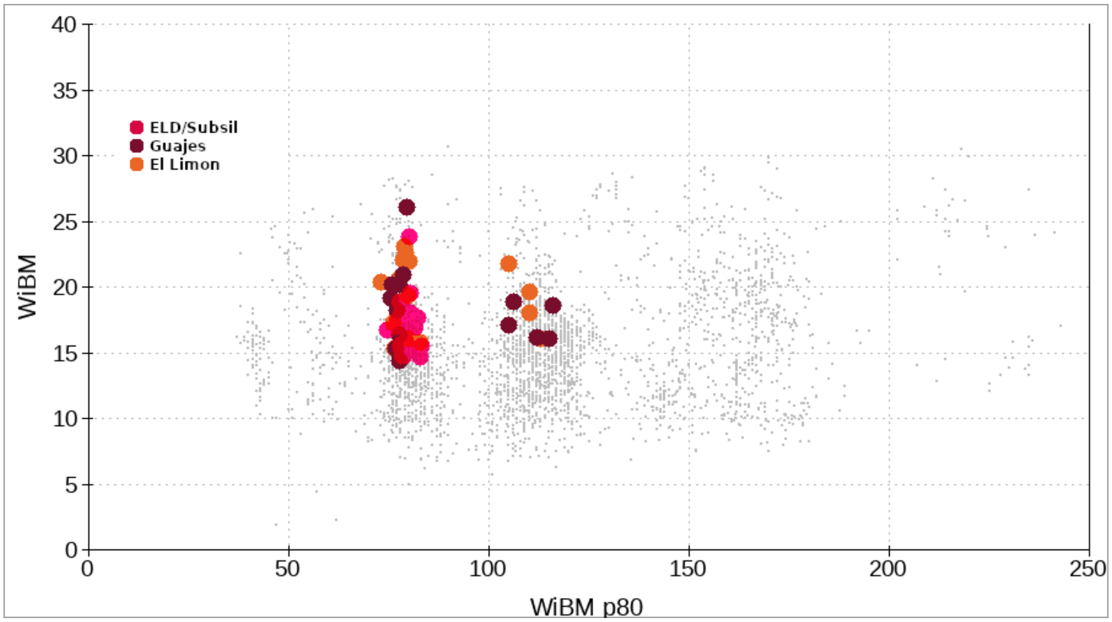


Figure 13-23: ELG Bond Ball Mill Work Index Values and Test P_{80}

13.2.4.5 Media Luna Ball Mill Grindability Tests

Bond ball mill grindability tests for the ML material in both Phase I and Phase VI are presented in Figure 13-24. The data presented for this phase of testing once again illustrates the relatively wide range of ore hardness from 10-20 kWh/t for the ML ores.

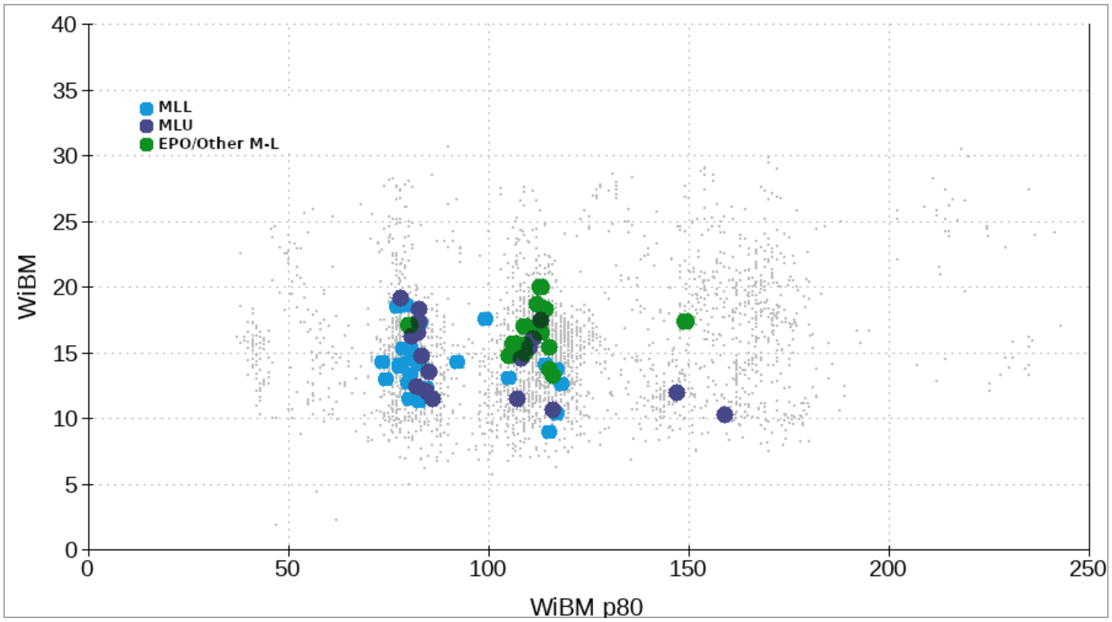


Figure 13-24: MLL Bond Ball Mill Work Index Values and Test P_{80}

13.2.4.6 Bond Rod Mill Work index (Wi_{RM}) Testing

The Bond rod mill grindability tests were conducted on a sub-set of the Phase I samples as a quality-control check on the results of the SMC Test™. The rod mill work index (WiRM) results (filled in circles in Figure 13-25) were consistent with expectations based on AGD's database (open circles in Figure 13-25 use SMC Test results to estimate a synthetic WiRM) and are judged to corroborate the SMC Test results. The Phase I samples were tested at the ALS Laboratory in Kamloops as a sub-contract to Base Met Laboratories.

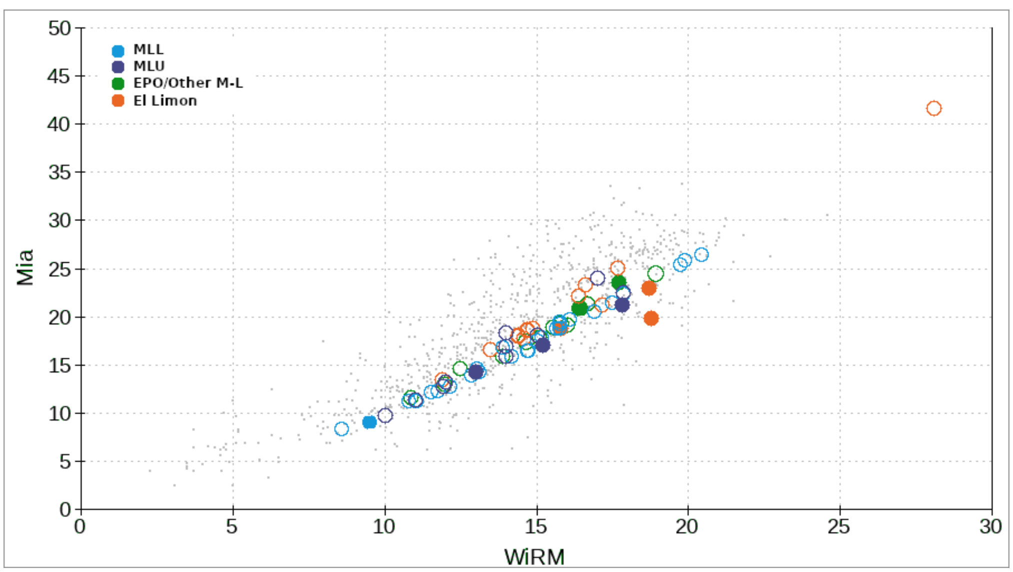


Figure 13-25: Phase I Bond Rod Mill Work Index Values and SMC Mia

13.2.4.7 SMC testing

The SMC Test™, an abbreviated drop weight test, was performed on all comminution samples as part of Phase 1 and Phase VI testing conducted at the Base Met Laboratory in Kamloops, Canada. Determinations made at Base Met used the –22.4 +19.0 mm size fractions. A single SMC Test was performed by Metso on a plant feed sample in 2016. No "Full" JKDWT determinations have been done as the core available for testing is sawn in half and is unsuitable for the JKDWT. The "Full" test is not required for the Morrell Mi model, and it is not recommended to performed.

13.2.4.7.1 El Limón Guajes OP SMC test results

A summary chart of the SMC result (Mia) and measured specimen density of the ELG samples is presented in Figure 13-26. Ore grindability appears to be inversely related to the iron content and density (specific gravity).

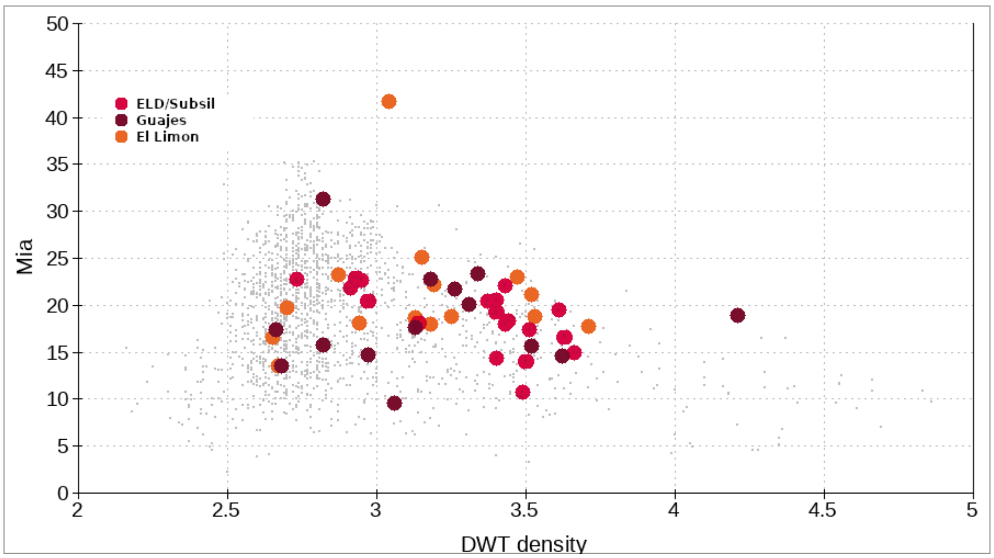


Figure 13-26: Phase I & VI ELG SMC Test Results

13.2.4.7.2 Media Luna UG SMC test results

A summary chart from SMC result (Mia) and measured specimen density of ML samples is presented in Figure 13-27. Once again, the data set indicates that the ore grindability appears to be inversely related to the iron content and density (SG).

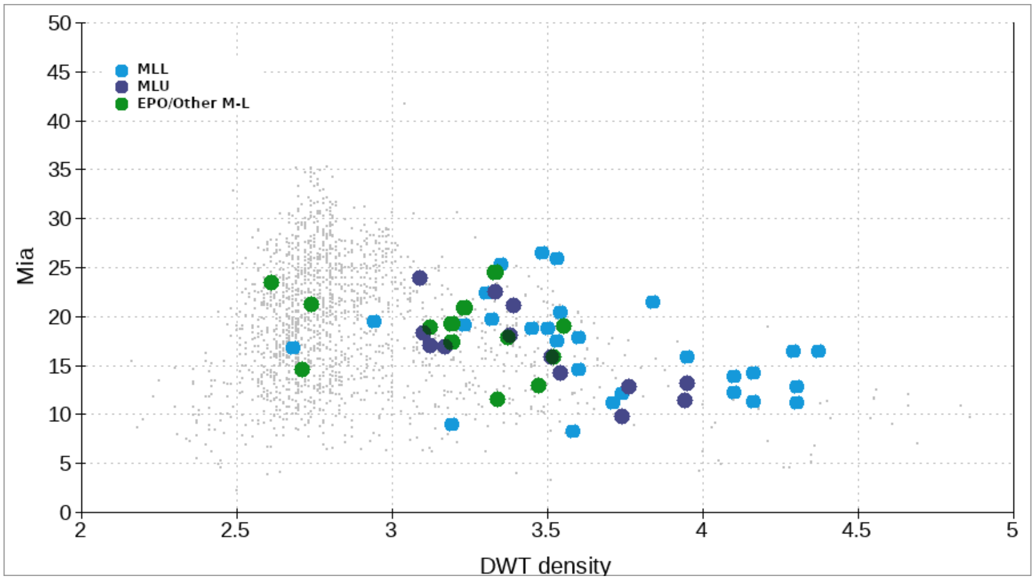


Figure 13-27: Phase I & VI Media Luna SMC Test results

13.2.4.8 Abrasion Index (Ai) Testing

Bond Abrasion Index (Ai) testing was conducted at Base Met Laboratories on a subset of samples in Phase 1. The values were judged to be unnecessary (low signal & high noise) for Phase 6 and were not included in the program. Actual ball and liner wear data from the existing operating mills will be used instead of laboratory testing and empirical models.

13.2.4.8.1 ELG OP - Abrasion Index Testing

Two El Limón samples were testing and have extremely low values Ai results of 0.00 and 0.01, respectively.

No Guajes samples were tested for Ai.

13.2.4.9 ML - Abrasion Index Testing

Four samples of MLL ore were tested for Ai returning a moderate result of 0.24 and three extremely low results of 0.01. A single MLU sample also returned 0.01. Two EPO samples were tested; both returned moderate Ai values of 0.23 and 0.36.

13.2.4.10 Geometallurgy and E_total

The various grindability metrics have been condensed to a single total specific energy consumption (E_total) that includes the SAG, pebble crushing, and ball mill stage. A Morrell Mi model is used to generate E_total from the Mia, Mic, and Mib values measured on each sample. Models are based on 85 µm product size and the ball mill drive using a VFD.

The Morrell model total specific energy consumption (E_total) predictions have been compared to the iron assays of the sample composites measured at Base Met Laboratories. The ML relationship between iron and ore hardness is given in Figure 13-28. The ML model consists of all samples of all rock types from the MLL, MLU, EPO, and “outside ML” domains.

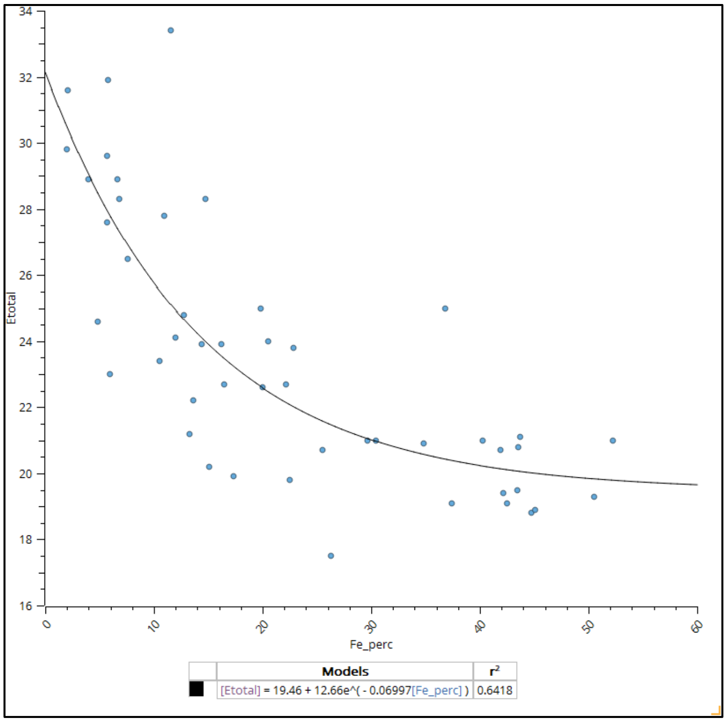


Figure 13-28: Media Luna Iron Model for Geometallurgy

ELG has a different relationship with iron, presented in Figure 13-29. The ELG model consists of all samples of all rock types from the El Limón open pit, Guajes open pit, El Limón Deep, and Sub-Sill deposits.

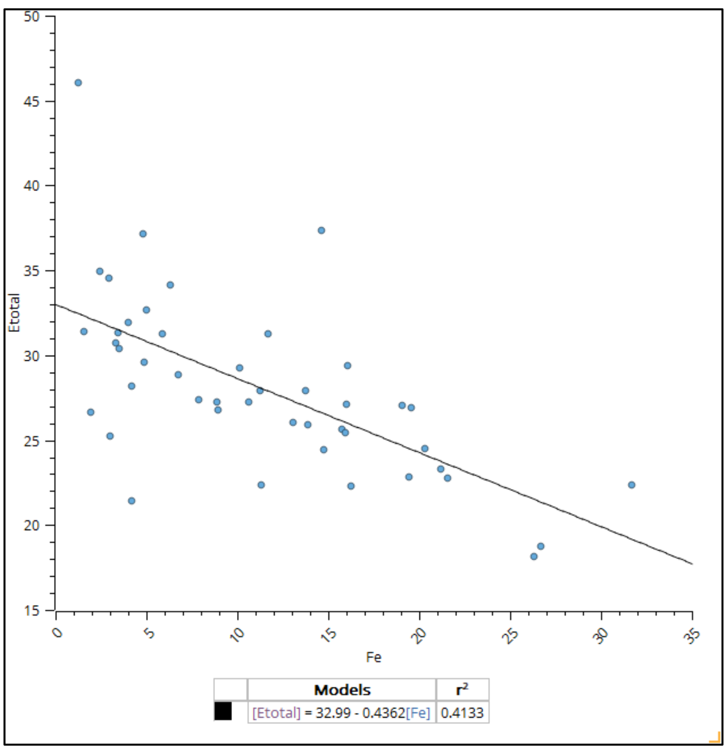


Figure 13-29: ELG Iron Model for Geometallurgy

Both iron proxy relationships to grindability do not change significantly when separating into lithology or alteration regimes. The two skarn domains (exoskarn and endoskarn) are nearly identical trends versus iron and are recommended to be considered as a single Skarn domain for grinding modelling. Other domains, such as dilution by Granodiorite (GDI), Limestone (LMS), or intrusive dykes (Eg. FBHQ), are "somewhat close" to the iron proxy relationship, and it is recommended to use the same proxy relationship developed using all rock types for simplicity.

13.2.5 Flotation Testing Program

The key objectives of the metallurgical testing programs for flotation testing were as follows:

- Select and validate process flowsheet.
- Evaluate effect of primary grind on recovery and separation efficiency.
- Evaluate impact of pulp density.
- Develop Copper and Fe-S Rougher kinetics and mass recovery to concentrate.
- Evaluate cleaner circuit stage performance.
- Evaluation of impact of regrind on copper concentrate grades and gold dissolution from Fe-S concentrates.
- Complete locked cycle tests for generation of data for process design and financial analysis.
- Confirmation on reagents conditions.
- Evaluate gold and silver deportment to copper rougher concentrate.
- Investigate presence of deleterious elements and identification of methods to address these.
- Carry out testing to support engineering.
- Generate samples for key stakeholders.
    - Copper concentrate for marketing
    - Tails for rheology, geochemical and geotechnical evaluation

13.2.5.1 Rougher Flotation Testing

The flowsheet utilizes two rougher flotation stages as follows:

- Copper rougher flotation
    - For the copper rougher stage, the depression of iron sulphides is key to improving the performance of the copper cleaner circuit.
    - However sufficient residence time is still required to accommodate variability in performance and maximize copper recovery.
    - A copper rougher followed by a rougher scavenger stage is considered for full scale design.
- Fe-S rougher flotation
    - The objective of the Fe-S rougher is to maximize recovery of all residual sulphides from the copper rougher-scavenger flotation tails stream.
    - Subsequent cleaning of the Fe-S rougher concentrate may be used as a means to reject low gold content, but high cyanide consuming metal sulphides to a non-economic flotation tails stream.
    - A "throw away" Fe-S rougher tails stream and Fe-S cleaner tails stream is a key objective for these two streams.

During Phase IV testing, different parameters were evaluated using the average mine zone composites, to determinate the best conditions for flotation purposes. These are presented in the following sections as follows:

- Evaluation of grinding media
- Evaluation of pulp density
- Evaluation of particle size
- Evaluation of kinetics
- Evaluation of mass recoveries

13.2.5.1.1 Evaluation of Type of Grinding Media in Copper Rougher Performance

An evaluation of the impact of grinding media on the copper rougher flotation was carried out to determine if the generation of soluble iron species did affect float performance. The curves shown in Figure 13-30 to Figure 13-32 present the results obtained on testing of the three MLL composites as part of the FS.

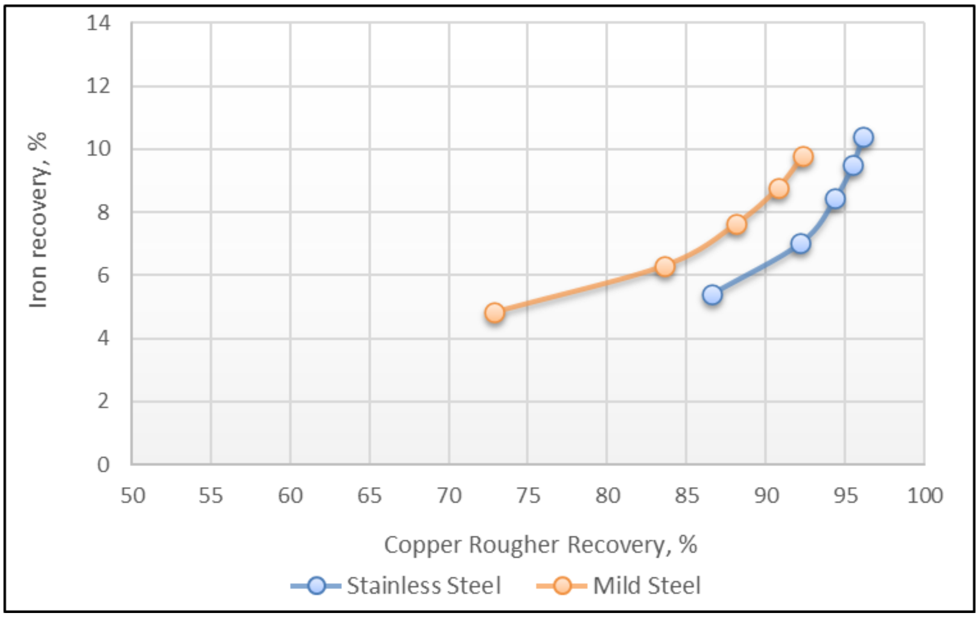


Figure 13-30: Evaluation of Grinding Media on FS-MLLCOMP-001 Cu vs Fe-S Selectivity

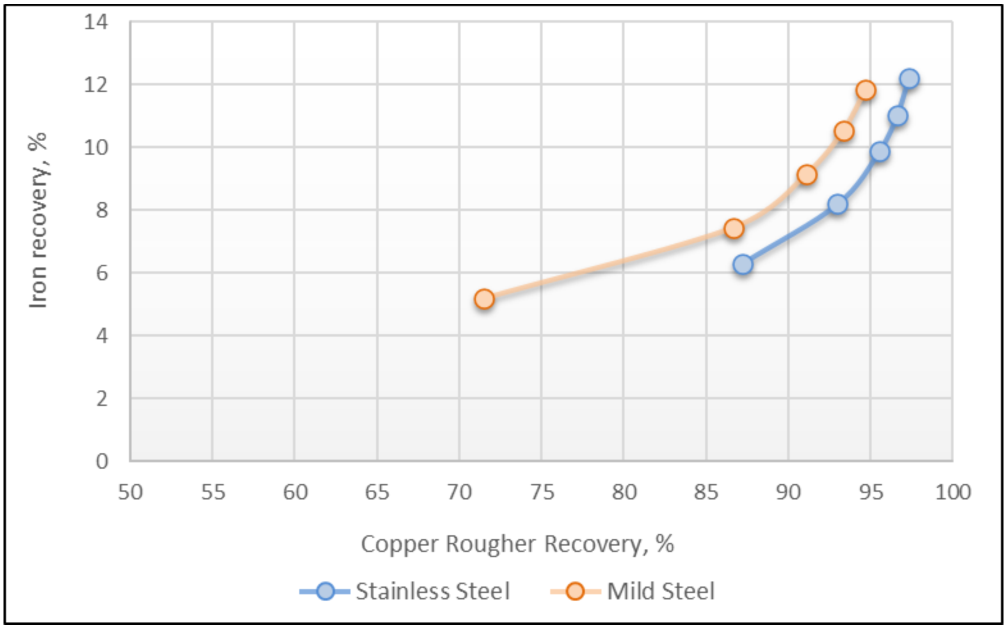


Figure 13-31: Evaluation of Grinding Media on FS-MLLCOMP-002 Cu vs Fe-S Selectivity

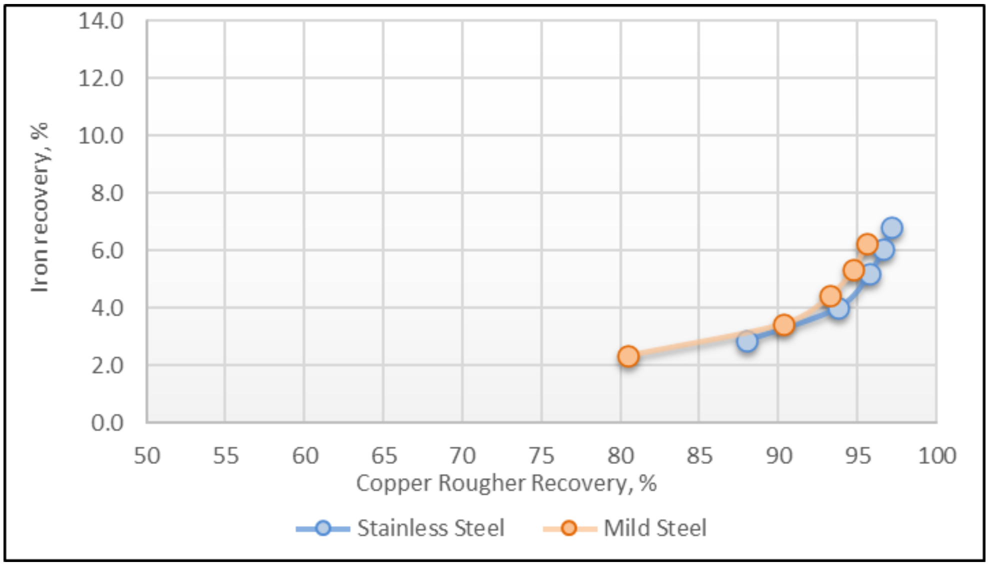


Figure 13-32: Evaluation of Grinding Media on FS-MLLCOMP-003 Cu vs Fe-S Selectivity

The use of stainless-steel media improved the copper grade-recovery curve for all three composites with 2% - 4% higher grades at the same recovery, or 2% - 5% better recovery at the same grade. The mass recoveries of copper rougher concentrates dropped by about 1%. Stainless-steel balls typically cost double that of mild-steel balls, however, stainless-steel balls also typically last up to twice as long as mild steel balls. Shipments of stainless-steel balls would thus be halved with corresponding in lower transportation costs implying lower overall costs for stainless-steel balls. The test program subsequently continued with the use of stainless-steel grinding media.

13.2.5.1.2 Effect of Primary Grind on Rougher Recoveries

A series of tests at different primary grinds were carried out at a PFS level to determine impact on flotation performance on the t MLL and MLU composites. This was part of the Base Met Labs project number BL0238, with the test numbers for that program presented in the following graphs. The copper grade recovery curves obtained are presented in Figure 13-33 and Figure 13-34.

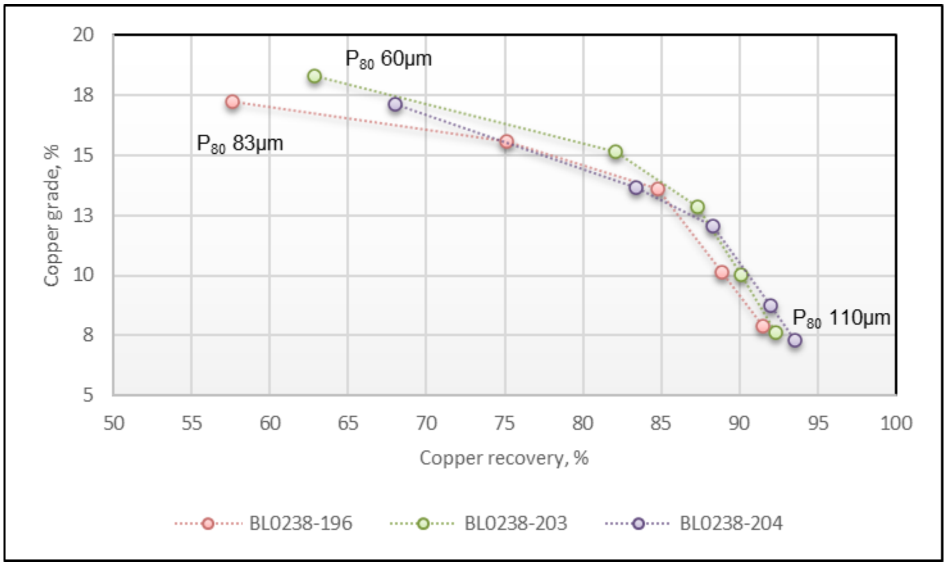


Figure 13-33: Evaluation of Primary Grind Size on PFS Level Test - MLL Rougher Recovery

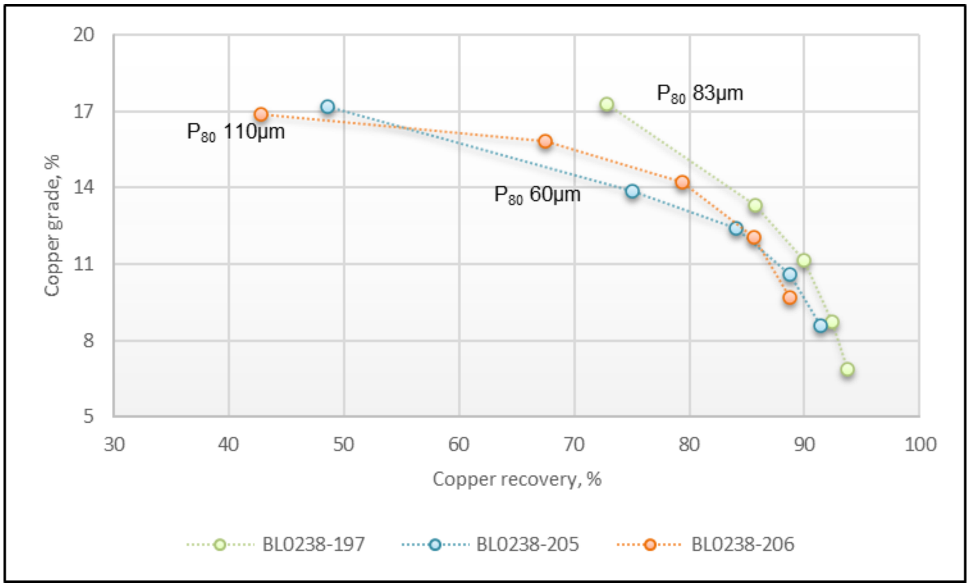


Figure 13-34: Evaluation of Grind Size on PFS Level Test - MLU Rougher Recovery

For the tests carried out on the ML mine zone samples, there was no significant difference in the grade recovery curves as a function of primary grind size. It must be noted that the sample preparation for these tests considers a batch rod mill and in the full-scale plant some preferential overgrinding of the higher density minerals is expected to occur. The existing grinding circuit is currently set up to produce a leach circuit feed at a range of 80% passing 85-95 µm, with this target being based on the liberation and subsequent dissolution of gold.

The flotation tests at varying primary grind sizes did not present any appreciable differences from the current grind target and as such the selected design for the flotation circuit has been retained at 80% passing 85µm and based primarily on liberation of gold for leaching and not copper flotation.

The evaluation of copper rougher recovery versus grind size was extended in the FS. A target P_{80} of 85 microns was used as the base case set point as was determined in the Phase II test program. The metallurgical response for two coarser grinds was evaluated for two of the three composites. Results of the rougher copper-grade recovery curve is presented in Figure 13-35 and Figure 13-36.

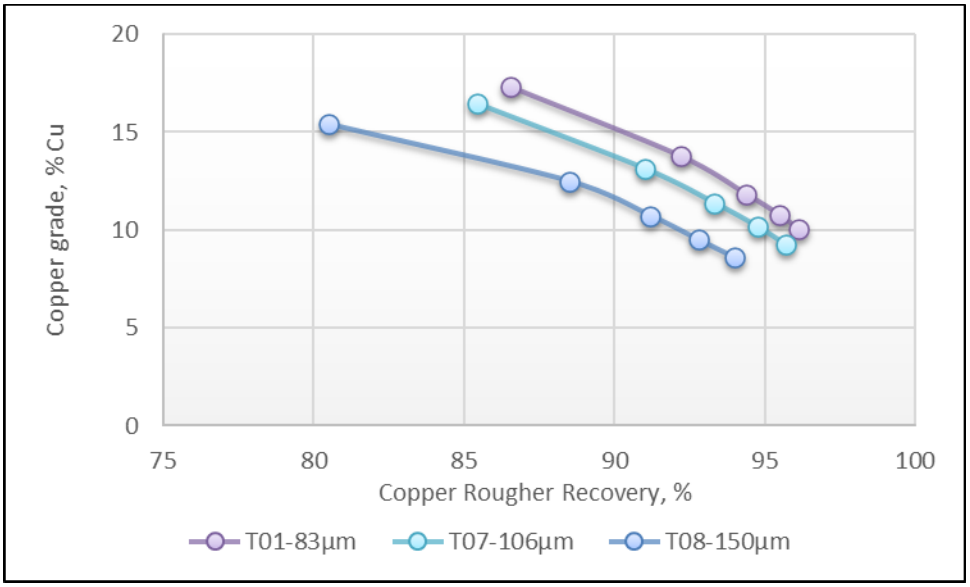


Figure 13-35: Evaluation of Primary Grind Size in FS-MLLCOMP-001 Recovery

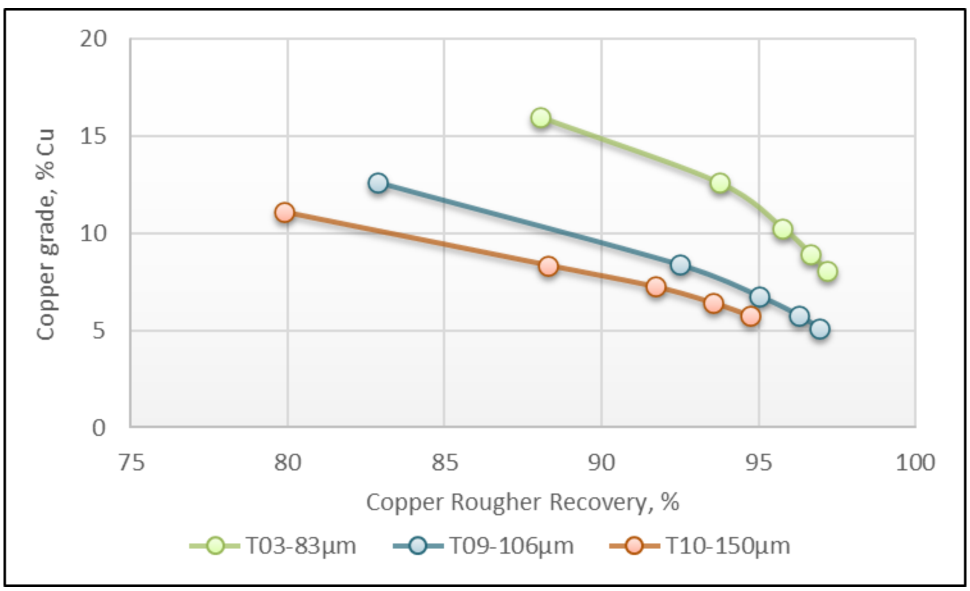


Figure 13-36: Evaluation of Primary Grind Size on FS-MLLCOMP-003 Recovery

The primary grind as selected, P80 85 µm, for gold liberation was thus considered to be suitable as a target grind for copper recovery.

13.2.5.1.3 Effect of Pulp Density on Flotation Performance

The effect of pulp density on copper recovery was evaluated in both metallurgical test programs with the results presented in this section.

A series of tests at two different pulp densities were carried out to determine potential impact on flotation performance on the three ML composites at PFS level. The grade recovery curves obtained are presented below:

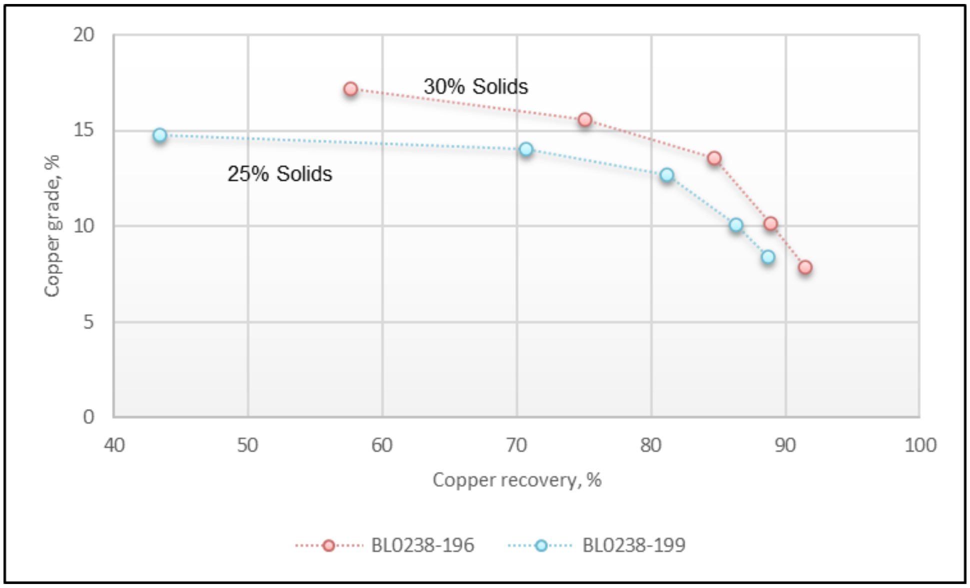


Figure 13-37: Evaluation of Pulp Density on PFS Level Test - MLL Flotation Performance

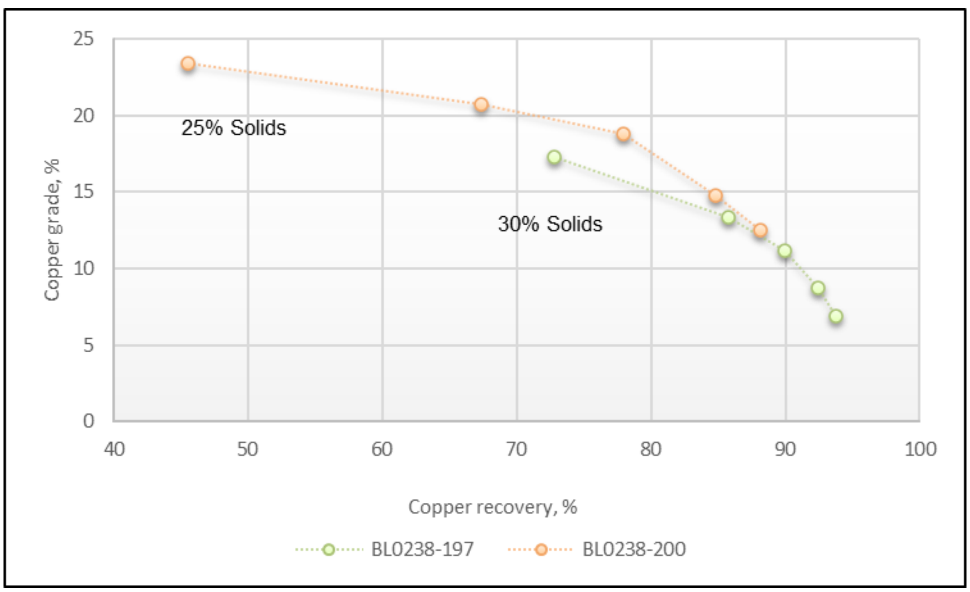


Figure 13-38: Evaluation of Pulp Density on PFS Level Test - MLU Flotation Performance

An evaluation of the impact of pulp density on rougher performance for the FS was also carried out on the MLL and MLU composites. The typical pulp percent solids by mass used for bench-scale flotation testing was ~36. Tests were subsequently conducted on pulps at 60%, 40%, 22% and 33% solids by mass. Results for COMP001&003 are presented in Figure 13-39 and Figure 13-40. For both composites it appears that best lab results were attained at the typical test density of around 36% solids.

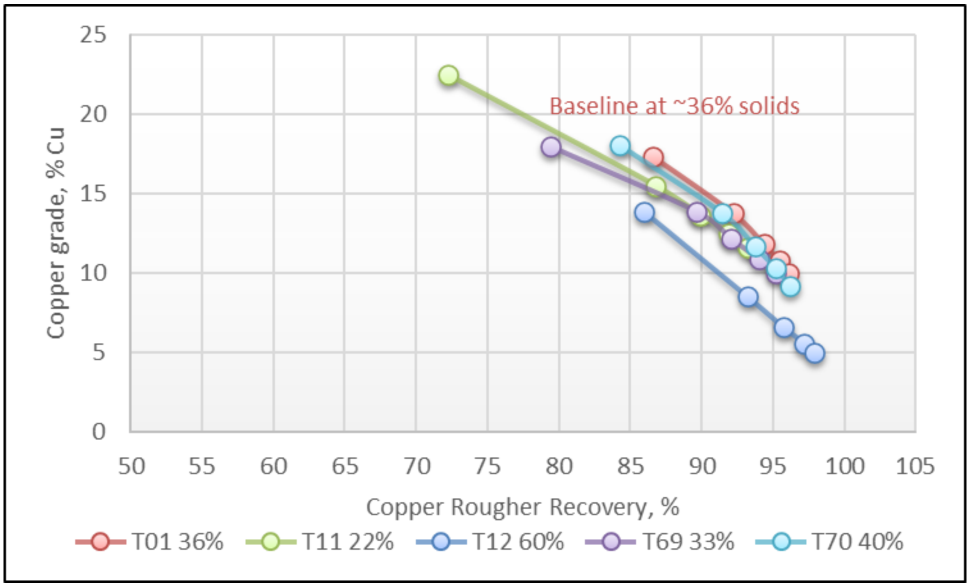


Figure 13-39: Evaluation of Pulp Density on FS-MLLCOMP-001 Rougher Flotation

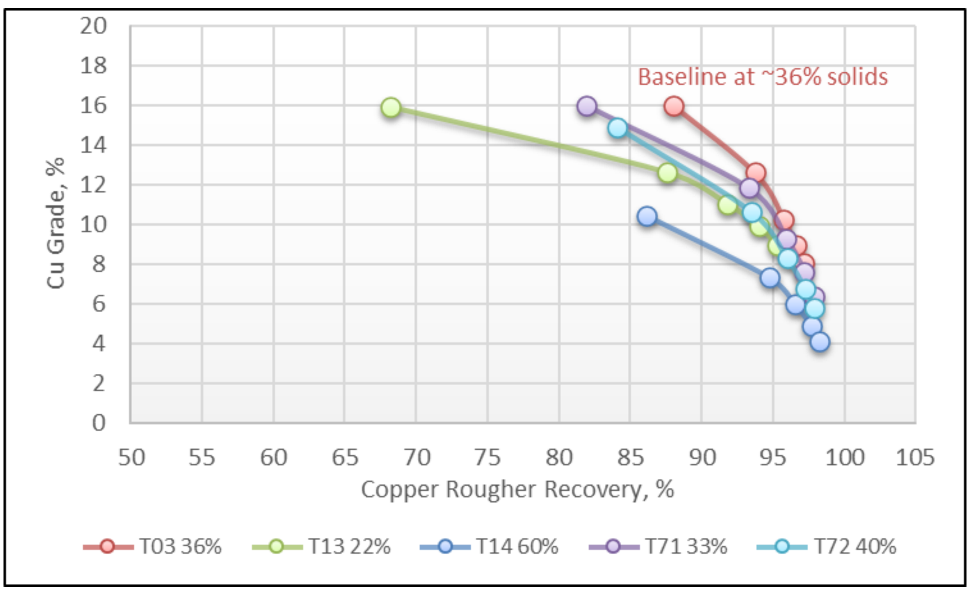


Figure 13-40: Evaluation of Pulp Density on FS-MLLCOMP-003 Rougher Flotation

The objective of this testing was to identify if there was any significant performance difference or improvement that could be identified from operating at a lower flotation feed density. A lower flotation feed density would however require larger flotation cells with the associated increase in the process plant footprint but if the metallurgical performance was improved could be justified to be used. From Figure 13-39 and Figure 13-40, it can be seen that there was only a marginal difference in final copper rougher recovery and as such the higher pulp density deemed suitable to be used for design.

13.2.5.1.4 Evaluation of Rougher Performance versus Particle Size

As part of the testing at different pulp densities an evaluation of the recovery versus particle size was also completed as part of the pre-feasibility stage of testing. Size by size recovery analysis was carried out and the first and fifth stage incremental concentrates were analyzed for the rougher flotation. Note that in the results presented below that the 25 and 30% refers to the percent solids that the tests were run at.

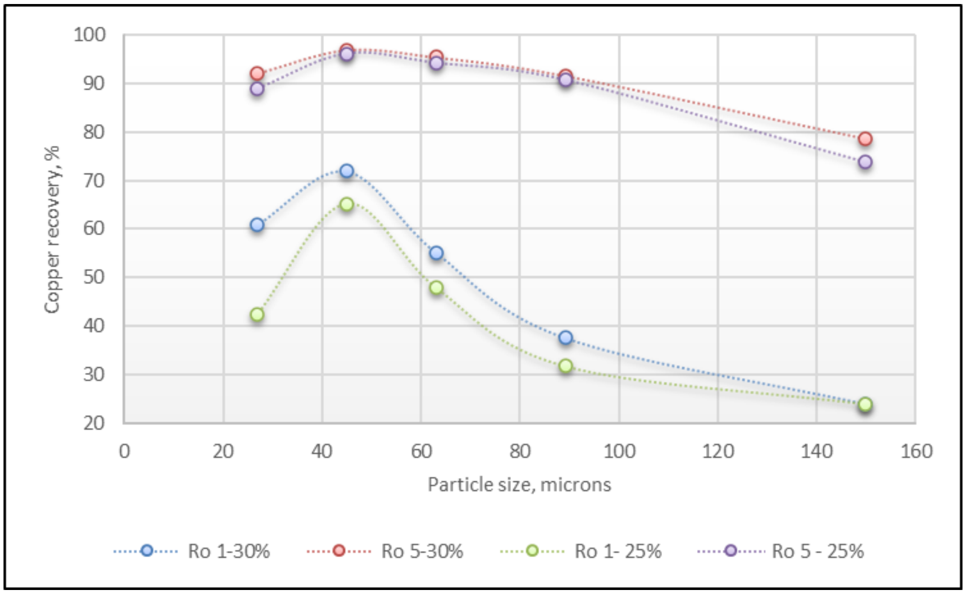


Figure 13-41: Size by Size Rougher Recovery for PFS Level Test - MLL Bulk Composite

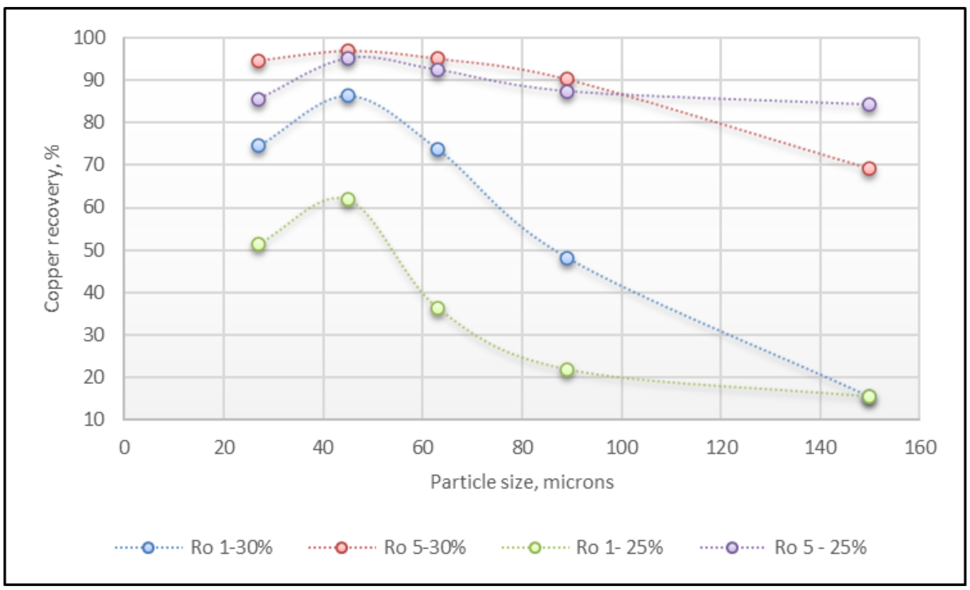


Figure 13-42: Size by Size Rougher Recovery for PFS Level Test - MLU Bulk Composite

The size by size recovery, shown in Figure 13-41 and Figure 13-42, is as per expected with a peak occurring from 40 to 80 µm. Recovery of coarse particles greater than 100 µm is reduced but with a primary grind target of 80% passing 85 µm there is only a minimum amount of valuable material within this size fraction. The recovery versus size data at the higher pulp density does also support the recommendation to operate at higher pulp densities. Of importance however is the reduction in recovery for particles finer than 40 µm. Overgrinding in the primary grinding circuit should be avoided and flotation equipment needs to be cognizant of the recovery versus grind size and suitable power and impellor design utilized.

13.2.5.1.5 Rougher Flotation Kinetics

An assessment of rougher flotation kinetics was done for both the PFS and FS level, with results from the FS level presented in Figure 13-43.

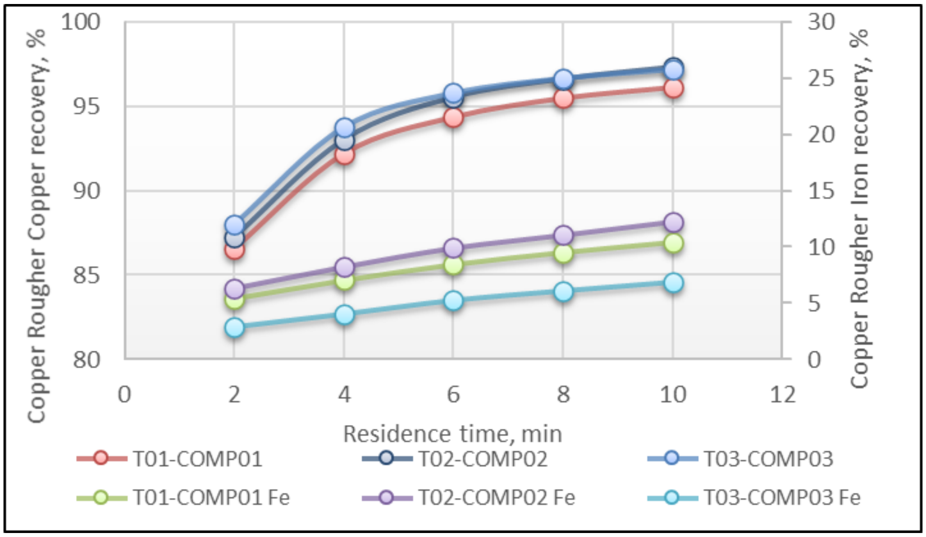


Figure 13-43: FS-MLL Evaluation of Copper Rougher Copper and Iron flotation kinetics

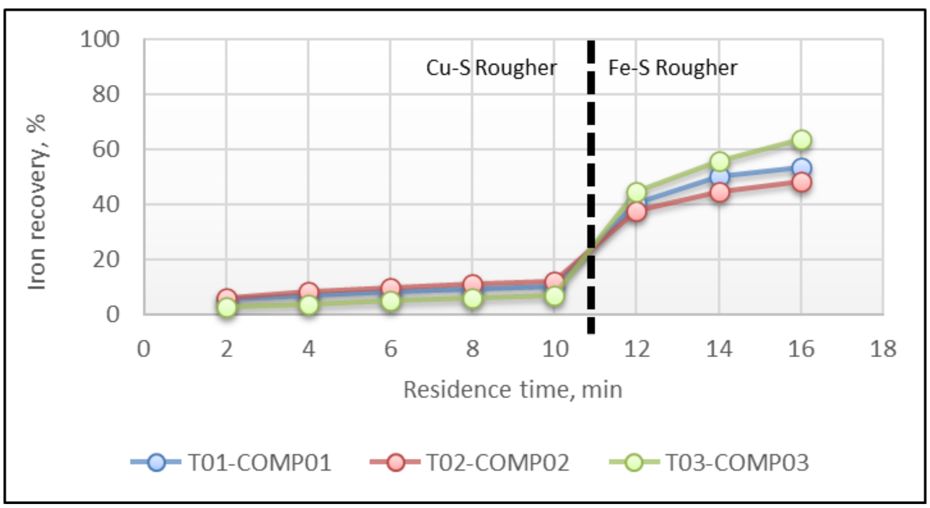


Figure 13-44: FS-MLL Evaluation of Iron Flotation Kinetics in the Copper and Fe-S Rougher Stages

The impact of Potassium Amyl Xanthate (PAX) on the flotation of pyrrhotite is clearly noticeable on its response after the pulp entered the Fe-S rougher stage. This is demonstrated in Figure 13-44.

Figure 13-45 presents the copper rougher kinetics curves for the three composites during the phase VI test work and also for comparison purposes the Phase IV MLU Average and MLU High Fe-S composite sighter test results are presented.

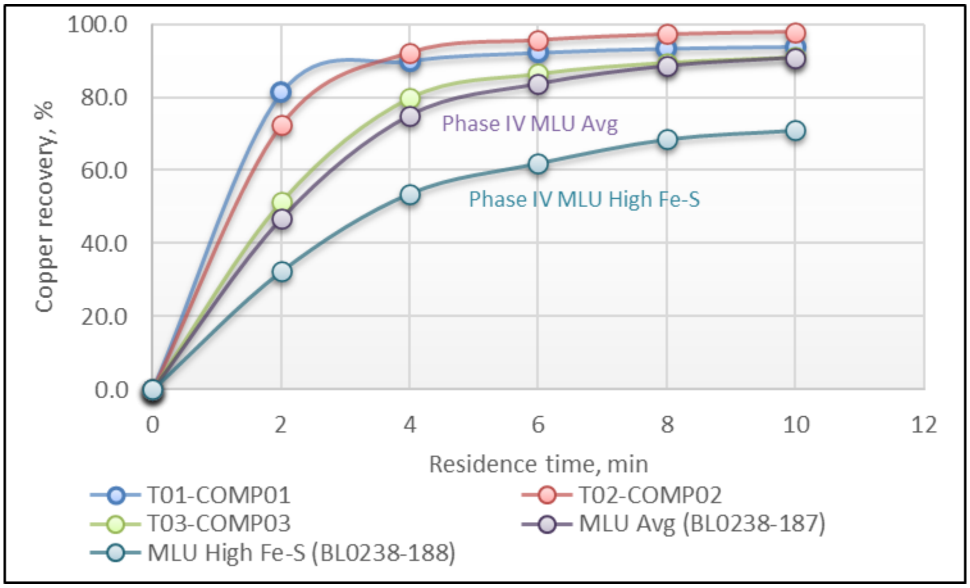


Figure 13-45: Copper Rougher Kinetics for FS-MLU Bulk Composites

Figure 13-45 shows that for MLU-COMP-01 and MLU-COMP-02 (average and high-grade Cu) the copper recovery was fundamentally completed after eight minutes. These two composites achieved the fastest kinetics and final copper recoveries of the three composites tested. MLU-COMP-02 obtained the highest final recovery at 97.9% Compared with the MLU-Avg test from phase IV, both phase VI samples show better results, with faster kinetics and higher final copper recoveries.

COMP-03 (high Fe-S:CuS) had a slower kinetic response that was more similar to that of the Phase IV results. Overall reasonable recoveries were achieved for this composite. However, when comparing to the high Fe-S:CuS composite from the phase IV testing it can be seen that the Phase VI composite performed significantly better.

As an early conclusion and as a starting condition for the following test evaluations, all three composites (representing MLU copper average and high grade plus a high Fe-S ratio composite) achieved copper rougher recoveries above 90%, within the 10 minutes residence time. Additional pulp residence time may increase copper recovery but possibly at the expense of increased mass recovery and reduced final concentrate quality.

13.2.5.1.6 Copper Rougher Grade versus Recovery Response

Figure 13-46 presents the copper rougher grade versus recovery (G-R) curves for the 3 bulk composites from phase VI. Also presented are the G-R recovery curves from the phase IV composites; COMP-01 (average copper grade) and COMP-03 (high Fe-S/Cu-S) ratio will be compared with the phase IV. Phase IV MLU avg curve in a purple color it is plotted, (to be compared with COMP-01) and in light blue the Phase IV MLU high Fe-S (to be compared with COMP03).

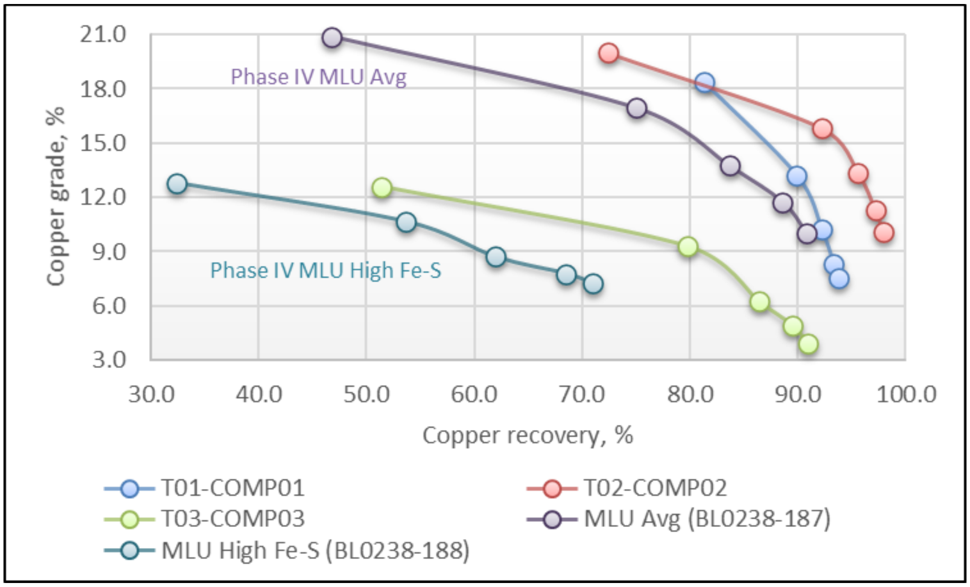


Figure 13-46: Copper Recovery-Grade curves for MLU Bulk Composites

Figure 13-46 shows that the best G-R (grade recovery) curve was obtained by COMP-02 with a 10% copper grade and 97% recovery at the end of the copper rougher flotation, followed by COMP-01 at 7.5% Cu and 93% recovery and COMP-03 with the lower grade of 3.9% copper at 91% recovery.

In comparison to the phase IV results, a significant grade versus recovery improvement can be observed. For the average grade composites an increase of 3% in final recovery was achieved at similar concentrate grades. The high Fe-S:Cu-S ratio composite (COMP-03) achieved a significant 20% copper recovery increase but with a reduction in concentrate grade. Once again, the high Fe-S:CuS ratio sample performed worse than that of the average ratio samples but importantly a significant improvement in performance was achieved.

13.2.5.1.7 Gold and Silver Deportment to Copper Rougher Concentrate

The deportment of gold and silver to the copper concentrate versus copper recovery at PFS level is presented in Figure 13-47 and Figure 13-48, from where it can be seen that the recovery of gold to the copper rougher concentrate is more variable than that of the silver recovery with no clear relationship between copper and either gold or silver recovery.

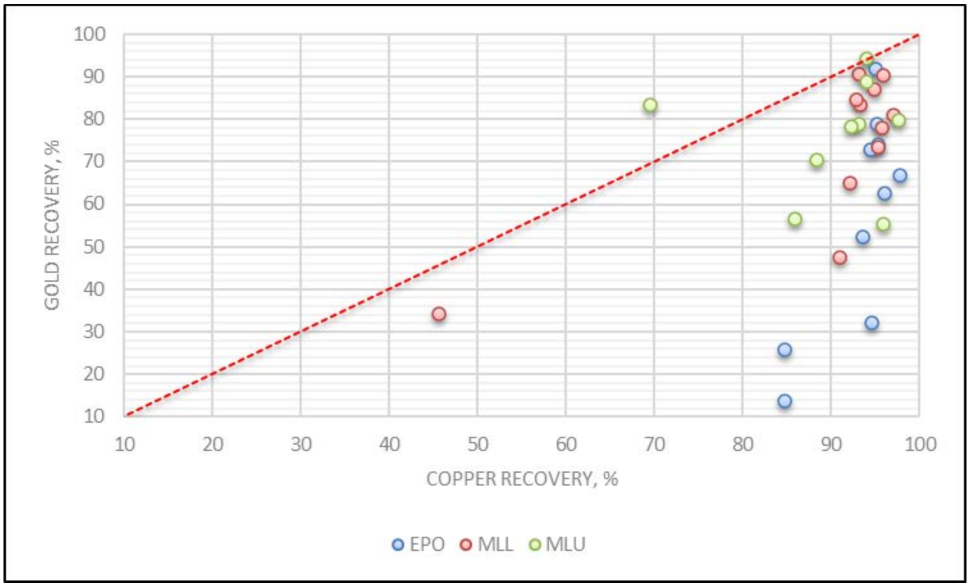


Figure 13-47: Evaluation of Copper Rougher Gold versus Copper Recovery

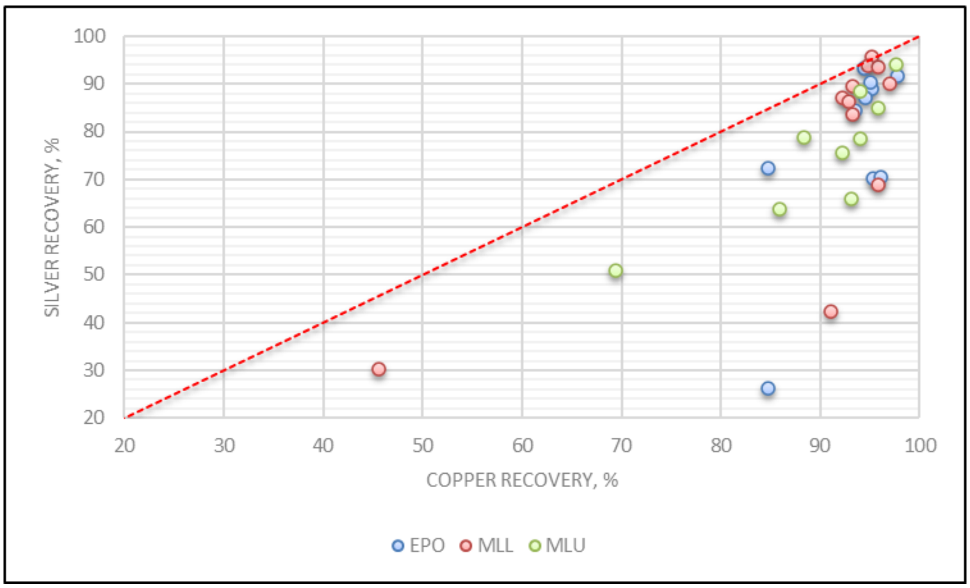


Figure 13-48: Evaluation of Copper Rougher Silver versus Copper Recovery

13.2.5.1.8 Evaluation of Bismuth Response in Copper Rougher Stage

For the three main bulk composites, bismuth rougher recovery kinetics were obtained for the various test conditions and presented in the following Figure 13-49, Figure 13-50 and Figure 13-51.

For COMP01 (Average Cu grade and Bi head 242 ppm), it can be seen that there is a marked reduction in bismuth recovery to the copper rougher concentrate as a function of increased pulp pH and bismuth depressant A7263 (Figure 13-49). The bismuth rougher recovery drops from 35% obtained with the baseline scheme to 8.1 percent compared with the test at 35 g/t of A7263 and then to 5.8% when the dosage of A7263 was increased to 50 g/t.

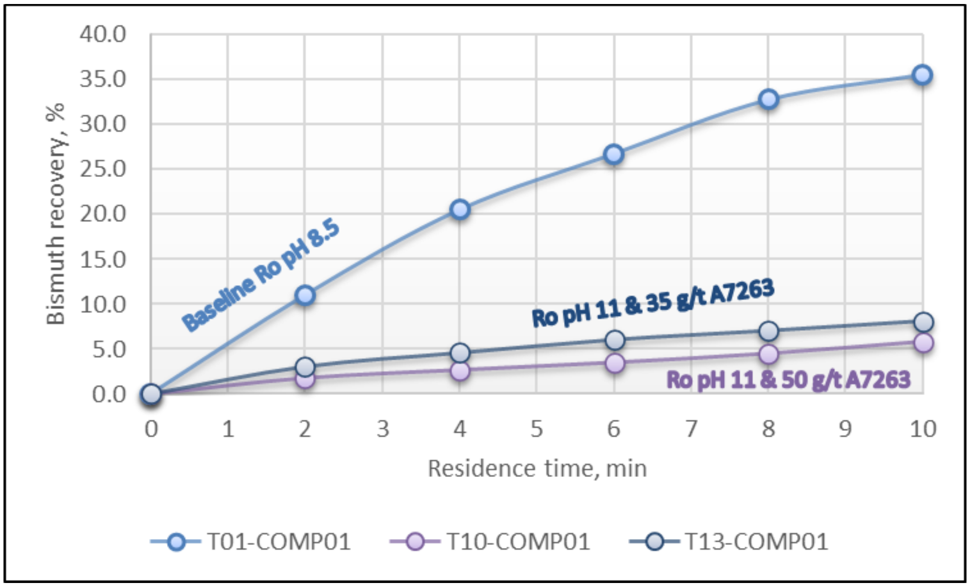


Figure 13-49: Bismuth Rougher Kinetics in MLU COMP01 with High Pulp pH and Bi Depressant

For the COMP02 (High Cu grade and Bi head 504 ppm), a similar response to that of the Comp01 was observed but not as dramatic (Figure 13-50). The bismuth rougher recovery drops from 40.6% from the baseline scheme to 25.5 % at the increased pulp pH and 35 g/t of A7263. Increasing the bismuth depressant further to 50 g/t only resulted in a marginal change in bismuth recovery.

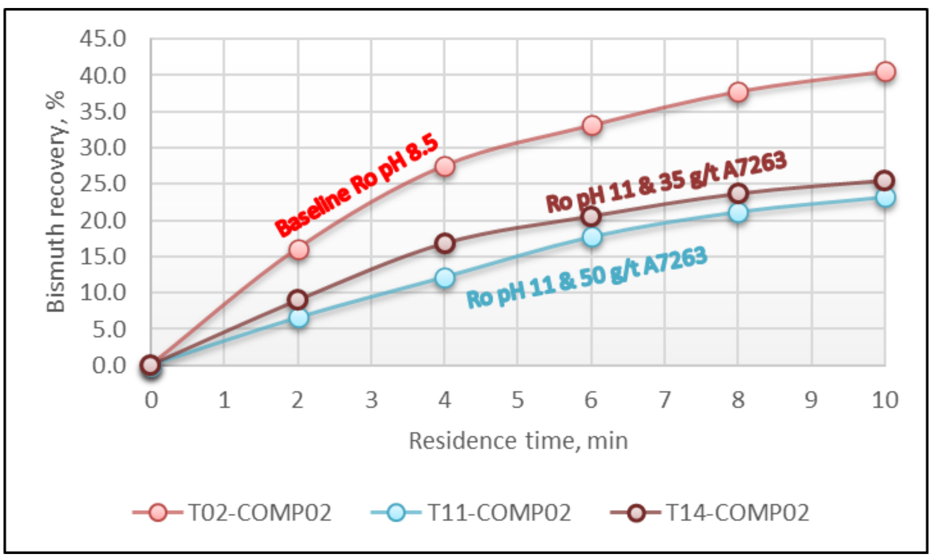


Figure 13-50: Bismuth Rougher Kinetics in MLU COMP2 using Higher Pulp pH and Bi Depressant

For the COMP03 (High Fe-S:CuS and relatively low Bismuth head grade of 107 ppm), the recovery of bismuth was halved from 40 to 21% with 35 g/t of A7263 and a pulp pH of 11.0 (Figure 13-51). A further reduction to 13 % recovery was achieved when using 50 g/t A7263.

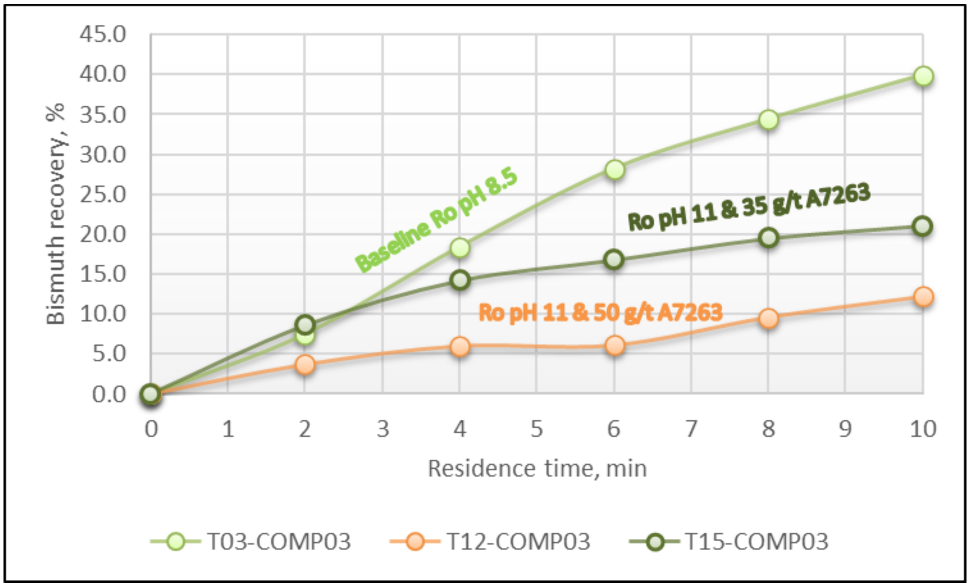


Figure 13-51: Bismuth Rougher Kinetics in MLU COMP3 using Higher Pulp pH and Bi Depressant

For all composites, depression of bismuth in the copper rougher stage was relatively successful at high pulp pH and addition of bismuth depressant.

The copper recovery obtained in the baseline test was always higher compared with the higher pulp pH and bismuth depressant tests. This indicates that a portion of the bismuth and Fe-S is associated with copper sulphides and aggressive depression of these leads to reduced copper recoveries.

The use of high pulp pH in the copper rougher stage can assist in depressing bismuth that is associated with Fe-S. However, it has to be considered that the objective of the overall circuit is also to maximize recovery of Fe-S to a separate leach circuit via flotation with PAX, so that a reduction in overall cyanide consumption can be achieved. Once the pulp has been subjected to a high pulp pH in the copper rougher circuit, which effectively depresses Fe-S, it is difficult to maximize subsequent recovery of sulphides in the next stage of the circuit.

An evaluation of the potential to utilize only the bismuth depressant instead of also raising the copper rougher pulp pH was subsequently carried out. The results indicated that good bismuth rejection only using the A7263 depressant can be achieved without the need to excessively increase the copper rougher pulp pH. The selectivity was improved adding for all samples Sodium Meta Bisulphate (SMBS) and Diethylenetriamine (DETA) at the primary grinding stage, independent of the Fe-S/Cu-S ratio.

13.2.5.2 Copper Cleaner Flotation Testing

Once the copper rougher conditions were optimized, cleaner testing was carried out. Initial conditions were set in accordance with the results obtained for the testing reported in the December 2020 report on Phases I to IV. The conditions for copper cleaning were the use of collector 3418A, 1 g/t NaCN in the first cleaner and testing at pH 11. The bench-scale target is to collect approximately 90% copper to a concentrate assaying at least 23% Cu.

Figure 13-52 presents the copper grade-recovery response for the MLL bulk composite copper cleaner flotation for the three composites. For composites 1 and 2 the target recovery of 90% at a minimum copper concentrate grade of 23% Cu was achieved, while that for composite 3 was almost achieved. Composite 3 consists of a Fe-S to Cu-S ratio of 17.4, which makes the removal of pyrrhotite challenging. The addition of the DETA/SMBS to the primary and regrind stages did an effective job at depressing pyrrhotite, as shown in Figure 13-53.

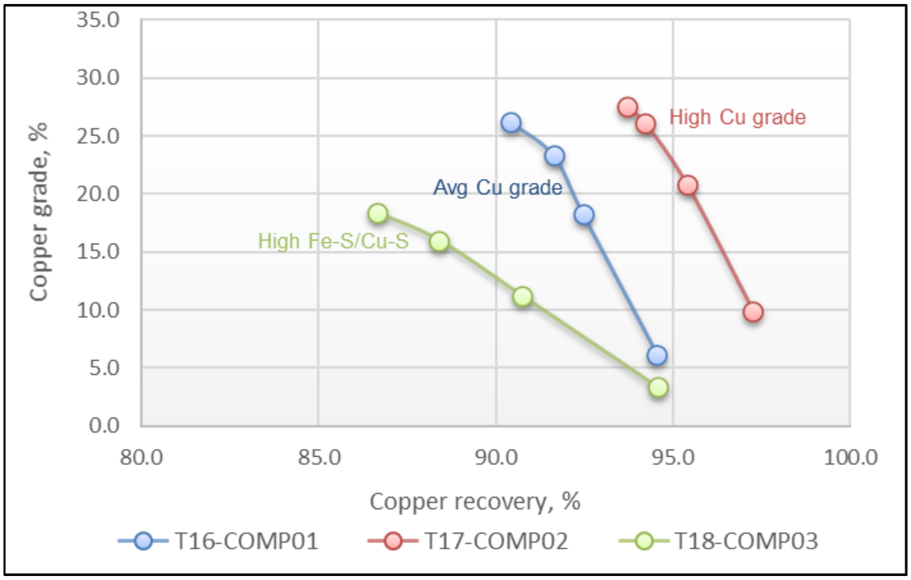


Figure 13-52: Copper Recovery vs Grade Response for MLU Bulk Composites

From Figure 13-52, it can be seen that, at a cut-off grade of 25% copper, the recoveries for the average and high grade composites were 92.0 and 94.5% respectively. COMP-03 had a high Fe-S:Cu-S ratio of 14.6, which resulted in a flatter grade recovery curve and a final concentrate grade less than 20% and at 86.5% recovery.

Figure 13-53 shows that the selectivity between copper and iron is presented for the cleaner flotation tests on the three main composites. For these curves, the rougher concentrates are the ones at the top right of the curves, with the final copper concentrate at the low iron recovery end.

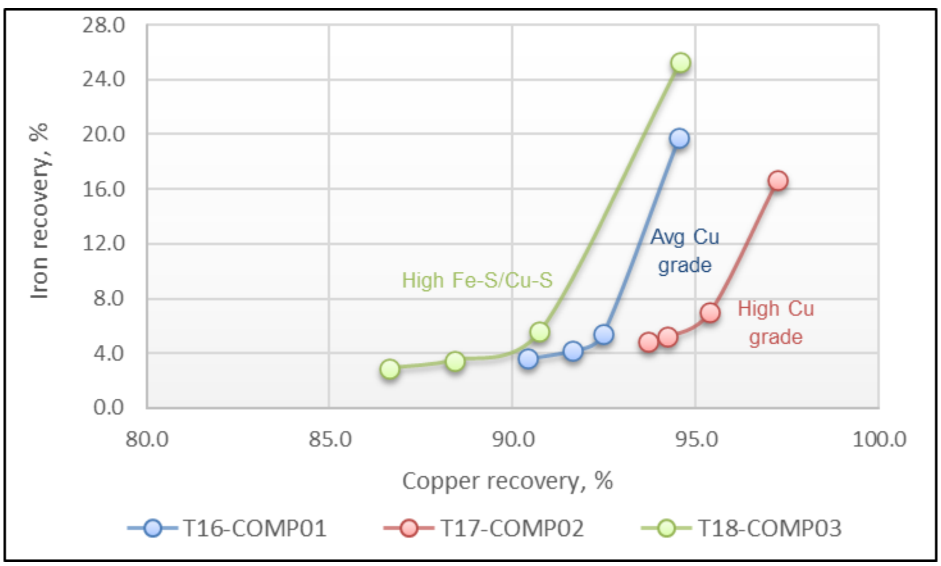


Figure 13-53: Copper versus Iron Selectivity for MLU Bulk Composites

Also, in Figure 13-53, it can be seen that iron rejection from the rougher stage to the 1st cleaner is excellent with the bulk of the recently liberated Fe-S in the regrind circuit being rejected. The relatively flat recovery of Fe-S in the subsequent cleaner stages versus the copper grade increase indicates that the cleaner stages typically reject non-iron sulphide/oxide gangue.

13.2.5.2.1 Evaluation of Regrind of Copper Rougher Concentrate on Flotation Performance

An evaluation of the effect of regrind on the grade recovery curve as part of the PFS level metallurgical program (BL0238) for each of the three composites was carried out. The results indicated a marginal change for MLL and reduced performance the MLU ore type with a coarser regrind.

The grade recovery curves for each test are presented in Figure 13-54 and Figure 13-55.

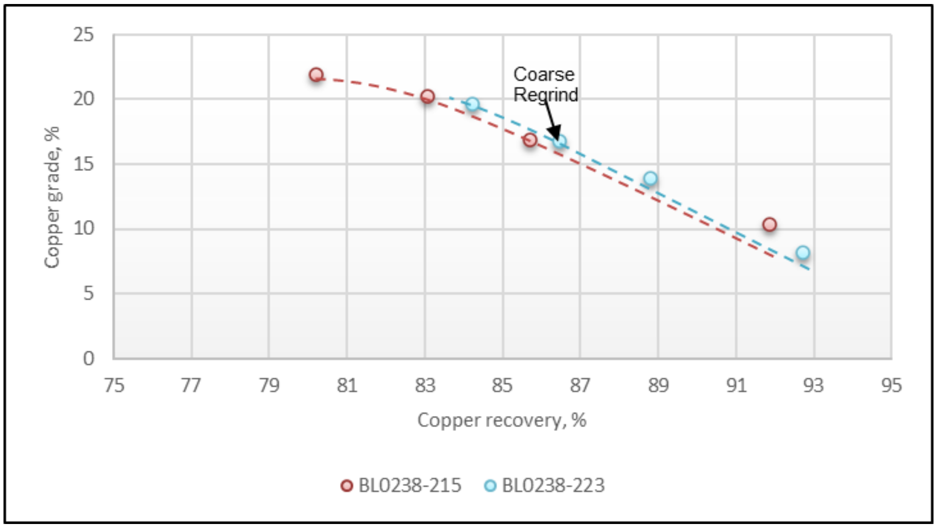


Figure 13-54: Impact of Regrind on MLL Grade Recovery Curve

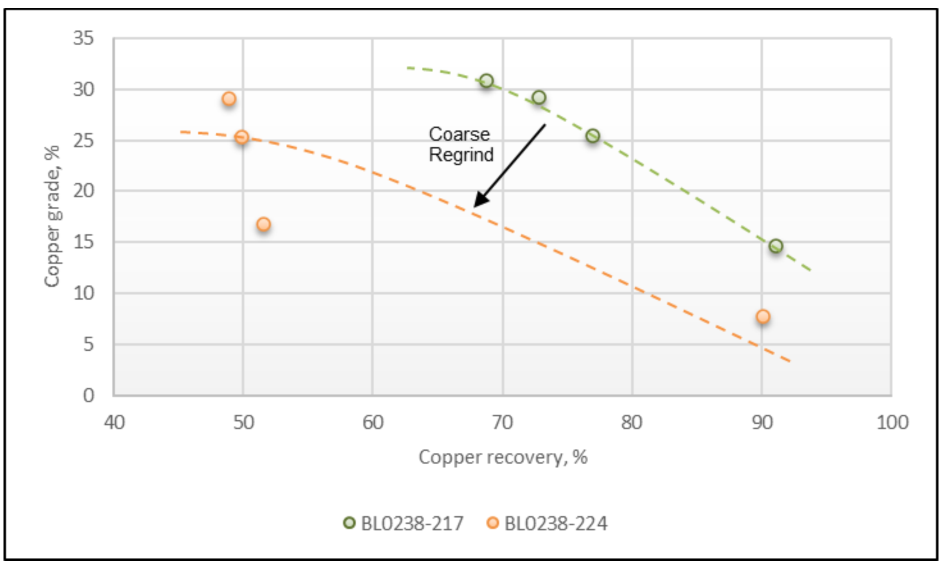


Figure 13-55: Impact of Regrind on MLU Composite Grade Recovery Curve

The results presented above indicate that finer regrind is required for the MLU ore type to achieve suitable concentrate grades.

13.2.5.2.2 Gold and Silver Response in Copper Cleaner Flotation

The following section presents the deportment of gold and silver to the various flotation streams for the FS level tests on the bulk composites. It must be noted that these represent cleaner tests including the exploratory tests to try to depress zinc from the final copper concentrate.

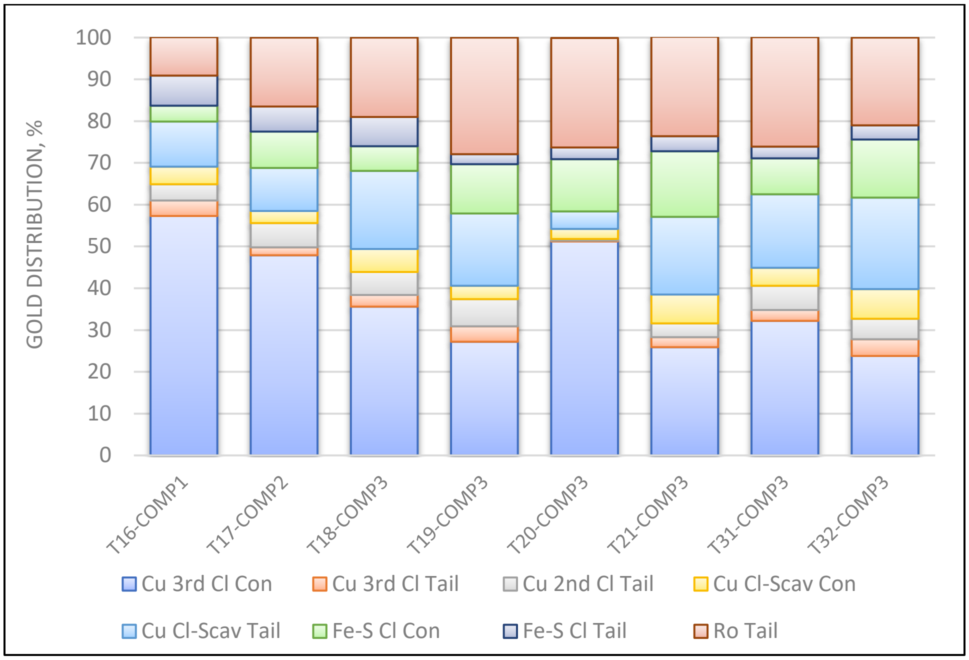


Figure 13-56: MLU Deportment of Gold to Flotation Streams

The recovery of gold to the final copper cleaner concentrate for MLU varied between 35% and 60%, which was similar to the results obtained for the MLL samples tested during phase VI. The quantity of gold that reported to the Fe-S rougher flotation tails ranged from 10-18% and at grades from 0.46 to 1.43 g/t.

The 2nd and 3rd copper cleaner tails streams and the copper cleaner scavenger cons streams are internal streams that would in the full scale plant report to either the copper concentrate or cleaner scavenger tails streams and represent 3-16% of the total gold in the circuit.

The copper cleaner scavenger tails stream contains 4.2 - 21.9% of the total gold in the circuit at grades from 2.2 – 9.5 g/t Au. This stream will always be economical to leach.

The Fe-S rougher cons, which is effectively the combined Fe-S cleaner cons and tails shown in Figure 13-56 contains 11.0 – 19.2 % of the total gold fed to the process at grades from 1.8 – 3.4 g/t Au.

Gold deportment to the individual flotation streams is thus variable and to date not predictable based on the available mineralogy or assay relationships.

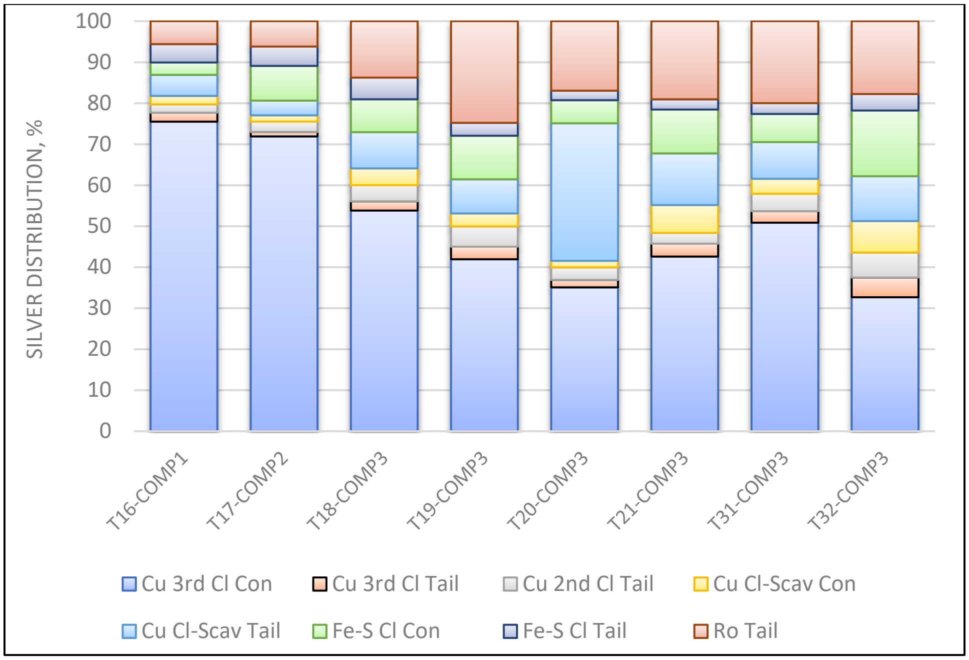


Figure 13-57: MLU Deportment of Silver to Flotation Streams

For the open circuit tests which were used to evaluating use of depressants to depress zinc the impact on Silver recoveries can be seen. Silver can be seen to be depressed to the copper cleaner scavenger tails when aggressive zinc depression occurs as shown in Figure 13-57.

13.2.5.2.3 Deleterious Elements' Response in Copper Cleaner Flotation

The ML ores contain several elements that may report to the copper concentrates in sufficient levels to attract penalties as part of smelter contracts. These are as follows:

- Zinc
- Bismuth
- Arsenic
- Cadmium

The deportment of the deleterious elements was analyzed in more detail in the Phase VI of the program with the results presented per element in the following sections.

13.2.5.2.3.1 Zinc Deportment to Copper Concentrate

All three of the MLU bulk composites contain zinc in the feed at varying grades. COMP-01 - 0.56% Zn (similar to that of the MLU block model average grade), COMP-02 - 0.25% Zn and COMP-03 1.67% Zn. The grade versus recovery curves for zinc to the copper concentrate are presented below and indicate that if zinc is present in elevated quantities in the feed it will be upgraded into the copper concentrate if not specifically depressed.

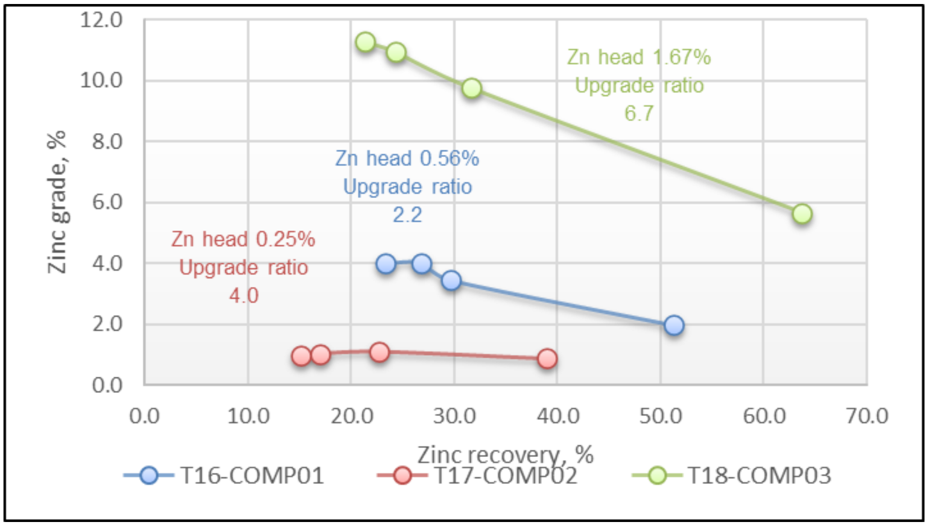


Figure 13-58: Zinc Recovery versus Grade Response Curves to Copper Concentrate

From Figure 13-58 the cleaner test for COMP-01 with the average zinc head grade of 0.56% resulted in an upgrade ratio of 2.2 resulting in a concentrate containing 3.9% Zn in the final copper concentrate. For COMP-02, an upgrade ratio of 4 was achieved with a final zinc grade of 0.9% Zn. For COMP-03 (the high Fe-S:CuS ratio composite) resulted in the highest zinc upgrade ratio of 6.7 with a final copper concentrate containing 11.3% Zn.

For the high grade zinc in feed composites it will be important to evaluate to what extent depression should be carried out to reduce the amount of penalties to be paid. Typically Zinc Sulphate is used in copper-zinc separation circuits where zinc is first depressed in the rougher stage and then reactivated via the addition of copper sulphate and recovered in a subsequent zinc rougher stage.

For COMP-03 several tests were carried out to evaluate potential methodologies that could be used to depress the zinc in either the rougher and/or cleaner stages. Zinc sulphate and cyanide were added to both the rougher and cleaner stages.

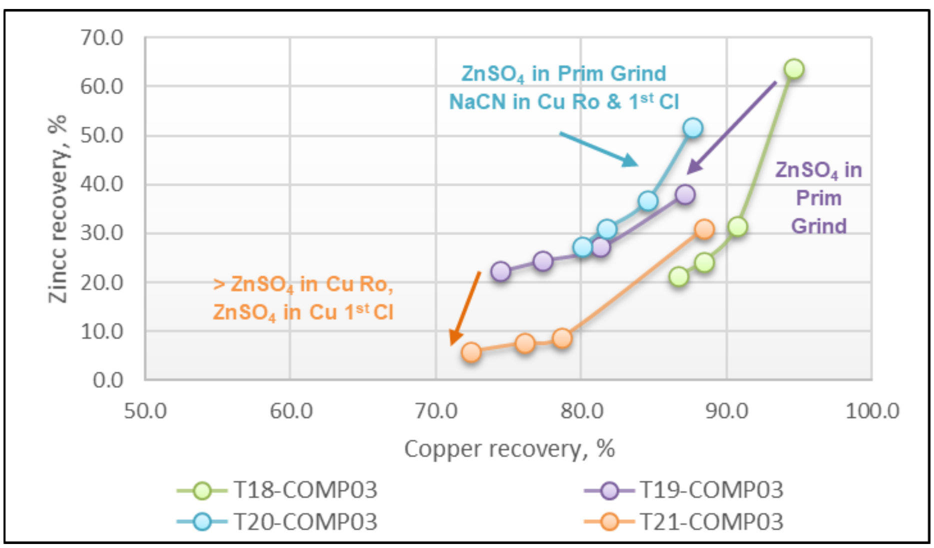


Figure 13-59: Evaluation of Zinc Depressants on COMP-03

From Figure 13-59, the green curve represents the baseline test T18 with no zinc depressants were added. The first attempt to gain selectivity against copper is represented by the purple curve test T19, where 300 g/t of $ZnSO_4$ were added to the primary grind stage. This resulted in a reduction in the zinc recovery but also a loss of 6-7% copper recovery to the rougher concentrate. For the second attempt which is represented by the light blue curve (T20), $ZnSO_4$ was maintained in the primary grind, at the same dosage of T19, but with SMBS and DETA being replaced by NaCN as iron sulphide depressant. No improvement in selectivity was observed and zinc recovery increased compared with T19. Finally, third test T21 (orange curve) was to repeat T19 but adding doble dosage of $ZnSO_4$ in primary grind (600 g/t) and also in the regrind and first cleaner stages (150/50 g/t). The results of this reagent scheme resulted in a reduction in the zinc recovery, but also a significant reduction in copper recovery.

Comparing T18 and T21 results, these two tests follow a similar selectivity curve, and the zinc that is being depressed carries with it copper, which are probably binary zinc/copper composites that exist even after regrinding to 35 microns.

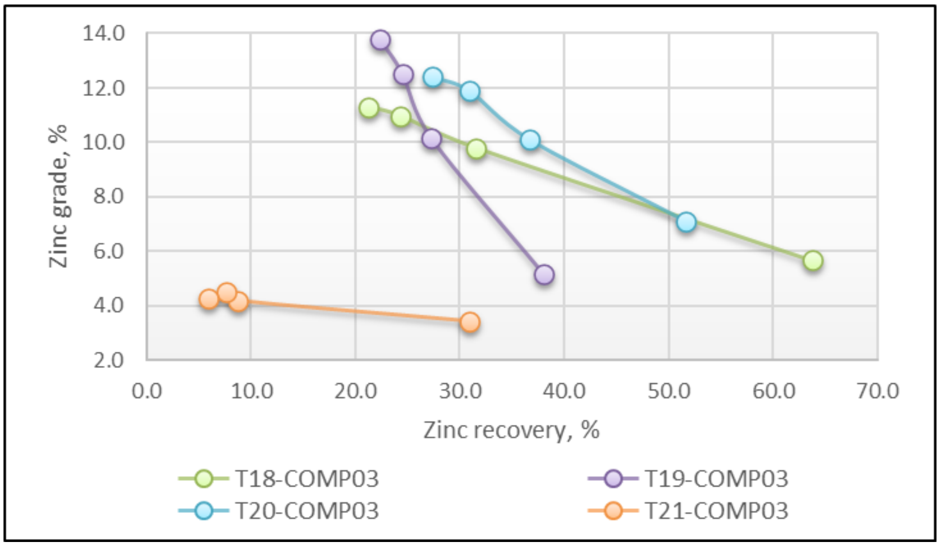


Figure 13-60: Zinc Grade versus Recovery for COMP-03

From Figure 13-60, it can be seen that that none of the first three tests (T19, T20 and T21) managed to achieve a copper concentrate with zinc grade below the threshold penalty limit of 4% Zn. In all of those cases, the zinc concentration was increasing as the flotation test was progressing from the copper rougher to the third cleaner concentrate. Finally, test T21 was able to stabilize zinc concentration in the cleaner stage around 4 percent. However as can be seen from the previous figure there is a reduction in copper recovery from 87 to 73%.

The results from test T21 were then considered as the new baseline to represent good zinc depression but further attempts were then made to increase copper recovery via increased collector in the copper rougher stage. A second test with less collector and more SMBS at the primary grind was evaluated. These results are presented in Figure 13-61.

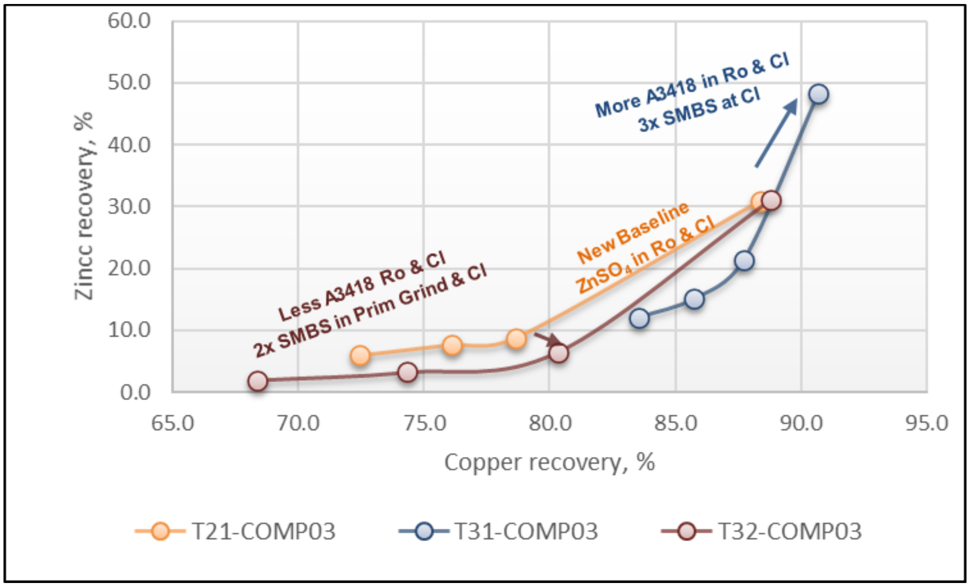


Figure 13-61: MLU Copper versus Zinc Selectivity for COMP03 using T21 as New Baseline

Test 31 compared with the new baseline (T21) had 10 g/t more A3418 collector in the rougher and cleaner flotation, also the SMBS at the cleaner stage dosage was increased by a factor of 3. Test 32 used 10 g/t less collector compared with T21 and double SMBS dosed in the primary grind and cleaner flotation stage. The results shown in Figure 13-61 show that increasing collector improved the copper recovery, as expected, but also zinc recovery increased too. When this is compared with the original baseline it can be observed that T31 is between baseline curves. Test 32 shows the lowest zinc recovery from all tests, but with the same response for copper recovery.

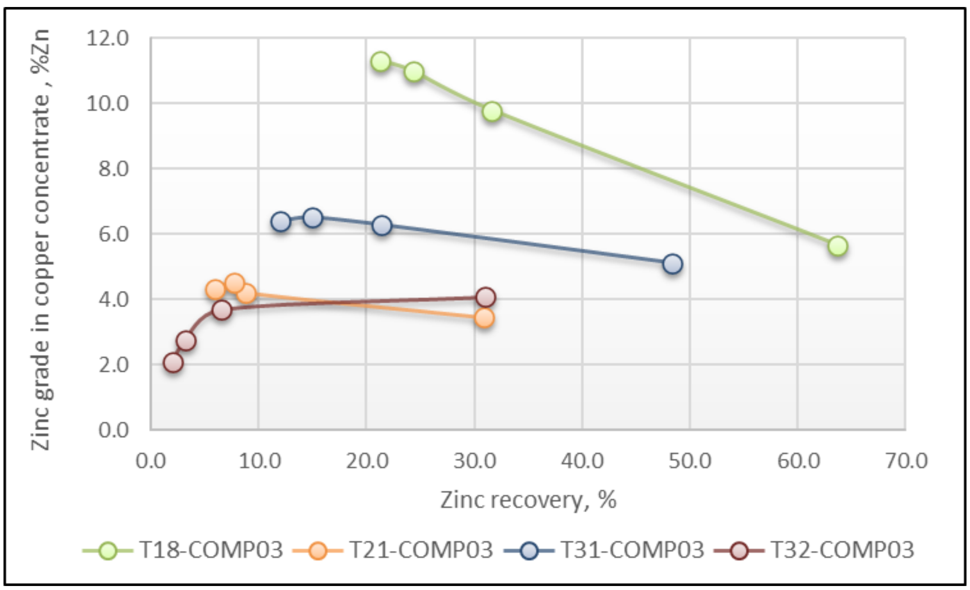


Figure 13-62: MLU Zinc Grade versus Recovery for COMP-03 using T21 as New Baseline

The grade recovery plot shown in Figure 13-62 confirms that zinc grade in copper concentrate can be reduced using less collector. Once zinc sulphate is added to the circuit, the grade of zinc has been able to be reduced and stabilized after first cleaner concentrate, and even to reduce this concentration as it is shown by test T32.

From all the observations above, the addition of zinc depressants can result in lower zinc content in the copper concentrate but at the expense of a potential loss in copper recovery. The best zinc rejections were obtained when using zinc sulphate in both primary grind and cleaner flotation stages. Increased dosages of SMBS did not appear to improve selectivity and modifying collector dosages impacts in both copper and zinc recovery. The extent of zinc depression will need to be tailored to suit the feed grade of zinc when in operation and impact on copper performance monitored.

13.2.5.2.3.2 Bismuth Deportment to Copper Concentrate

The bismuth grade versus recovery curves for the three MLU bulk composites are presented in Figure 13-63. Once again, the rougher concentrates are the data points to the right-hand side of the curves and the final copper cleaner concentrates the data points to the bottom left. The results of bismuth depression testing carried out as part of the MLL testing program were used to determine the use of depressants and flotation conditions to depress bismuth.

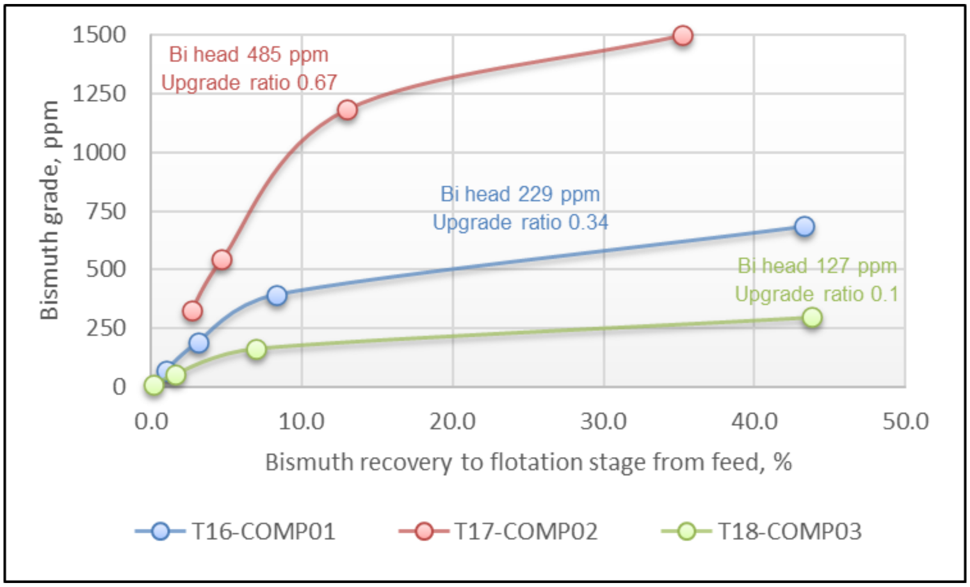


Figure 13-63: MLU Bismuth grade Versus Recovery in Bulk Copper Cleaning Tests

For all MLU bulk composites, good depression of bismuth was achieved as a result of increased pulp pH and depressant addition. However overall concentrate grades would be expected to exceed penalty limits due to relatively high bismuth feed grades.

13.2.5.2.3.3 Arsenic Deportment to Copper Concentrate

Arsenic is also present at elevated grades in the feed to the process facilities with some very high values identified in the sample selection process. The typical level at which penalties start to get paid in the copper concentrate is of the order of 0.2% or 2,000 ppm As. The feed grade to the process plant as determined from the mine plans is on average 0.228 % and peaks at 0.926 % As.

In order to be below the penalty limits effective depression of arsenic will be required. Fortunately, the arsenic is present in the form of arsenopyrite which can be depressed in the flotation circuit using conventional methods such as high pulp pH and depressants such as SMBS and cyanide.

Figure 13-64 presents the grade versus recovery curves for the three bulk composites.

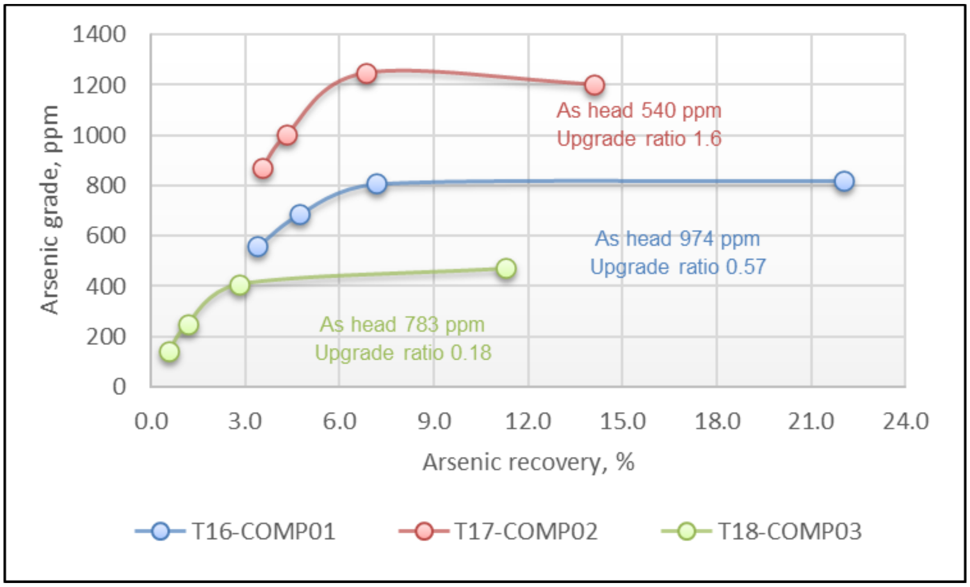


Figure 13-64: MLU Arsenic grade Versus Recovery

The arsenic upgrade ratio was below 1 for most of the composites reflecting excellent depression of arsenopyrite. The overall recovery of arsenic to the copper concentrate in the range of 0.5 to 3.5% is an excellent result and reflects low association of arsenopyrite to the chalcopyrite in the regrind rougher concentrate stages. The impact of adding SMBS and DETA for iron sulphides and bismuth rejection also worked well for arsenopyrite. For all of these samples the arsenic in the final concentrate did not exceed the 2,000 ppm limit.

13.2.5.2.3.4 Cadmium Deportment to Copper Concentrate

During the MLU testing, it became apparent that the flotation response of cadmium was very similar to that of the zinc. Analysis of the recovery of cadmium to the various stages of the copper flotation are presented in Figure 13-65.

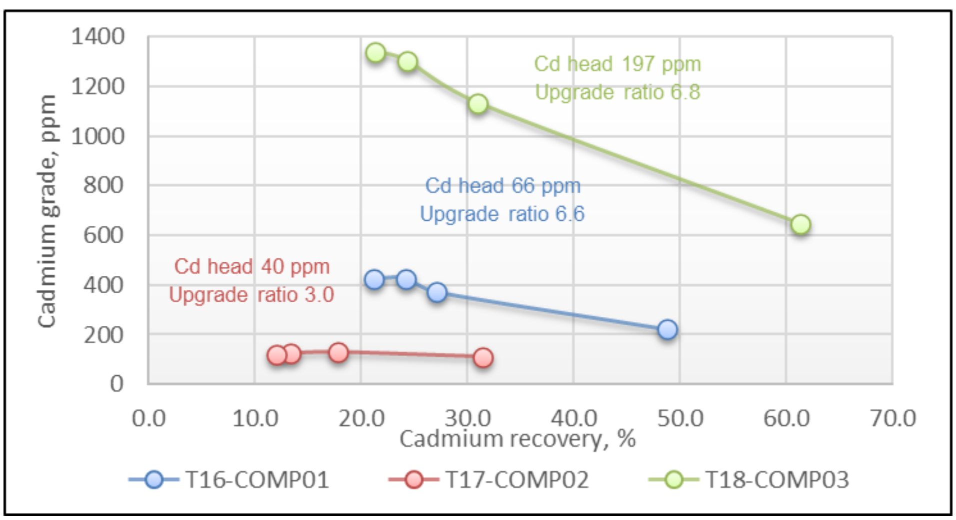


Figure 13-65: MLU Copper versus Cadmium Upgrade Evaluation

As expected, cadmium concentrate flotation response was similar to that of the zinc concentrate grade response. The level at which penalties start to occur is currently set at 300 ppm in the copper concentrate and it can be seen that for the average grade composite Comp-01 this is exceeded at a level of approximately 400 ppm. The high copper grade composite COMP-02 was well under the target grade, whereas the high Fe-S:CuS ratio sample with the high zinc in the feed significantly exceeded the Cadmium limit at 1,350 ppm.

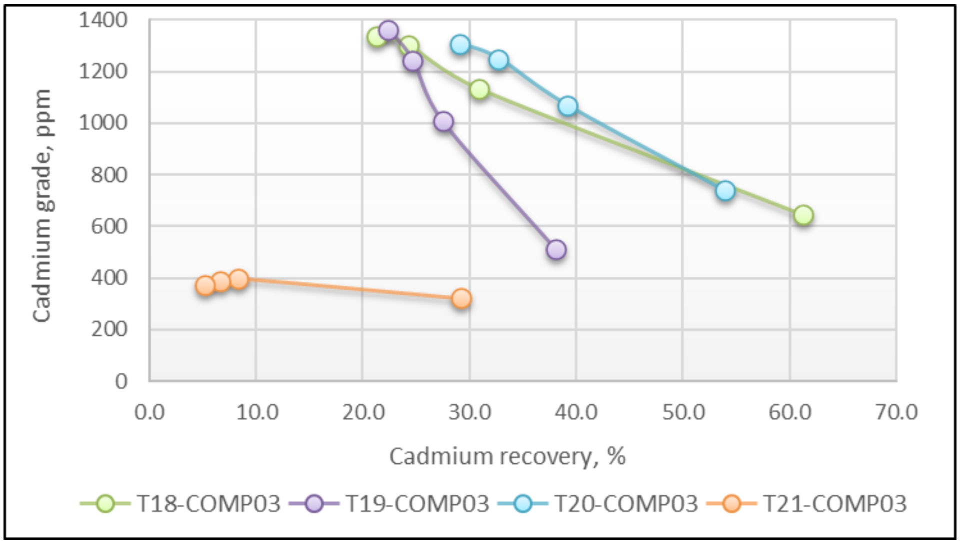


Figure 13-66: MLU COMP-03 Cadmium grade Versus Recovery Evaluation

Figure 13-66 illustrates the effect of the zinc depressants on the cadmium deportment. The test 21 illustrates that with aggressive zinc depression that cadmium levels can be depressed but once again at the expense of copper recovery. During operation on line analysis of zinc deportment will need to be carried out to also effect an impact on cadmium recovery to the copper concentrate.

13.2.5.3 Fe-S Cleaner Flotation Testing

13.2.5.3.1 Pre-feasibility Level Fe-S Cleaner Flotation Testing

The first objective of the Fe-S cleaner flotation testing was to maximize the recovery of residual metal sulphides from the copper rougher flotation concentrate stream and reject the liberated gangue generated after regrinding the Fe-S rougher concentrate. The second objective was to determine the gold deportment to the Fe-S rougher flotation concentrate to enable an assessment of the economics of leaching the Fe-S flotation circuit products.

In order to evaluate the performance of the gold, silver and copper in the cleaning of the Fe-S rougher concentrate several cleaner flotation tests on the reground Fe-S rougher concentrate were carried out. The results obtained are presented in Table 13-21.

Table 13-21: Fe-S Cleaner Flotation Stage Recoveries

Recoveries							
Composite	Mass	Copper	Gold	Silver	Iron	Sulfur	Bismuth
EPO Avg	78.7	74.2	84.7	86.6	86.4	95.5	97.3
MLL Avg	63.2	77.5	75.5	71.1	48.1	88.5	92.3
MLU Avg	78.6	86.8	84.5	93.3	90.4	92.3	94.4

Table 13-21 illustrates that the Fe-S cleaner stage mass recovery was high as expected with gold recovery being 8-12% less than the sulfur recovery, but on average 8-10% higher than the mass recovery. This implying that the gold is mainly associated with metal sulphides. The objective being to see how low the gold grade of the cleaner tails is after this stage of cleaning.

Table 13-22 to Table 13-26 present the deportment of gold, silver, copper, sulfur and iron at PFS level around the Fe-S rougher and cleaner stages. Two key issues are important for evaluation. The first is the deportment of the gold into the different streams, and the second is the grade of gold in those streams.

Table 13-22: PFS Level Gold Deportment in Fe-S Flotation Circuit Streams

Mine Zone	Gold Deportment	Fe-S Rougher Cons	Fe-S Rougher Tails	Fe-S Cleaner Cons	Fe-S Cleaner Tails
MLL Avg	% of fresh feed	6.20	8.10	5.50	0.70
	ppm Au	1.78	0.34	2.49	0.55
MLU Avg	% of fresh feed	19.2	15.5	17.7	1.50
	ppm Au	18.3	0.99	21.5	6.57

The amount of gold reporting to the Fe-S rougher tails varied from 8 to 16%, but at grades of 0.09 to 0.99 g/t. The MLU Fe-S rougher tails would be considered to be economic to process with an inherent value of approximately $50.0/t assuming a gold value of $50/g. The MLL Fe-S rougher tails would in this instance be considered marginal to process.

The Fe-S cleaner concentrate gold grades are all reasonable to high grade (2.0 to 21.5 g/t Au) and considered economic for leaching. The Fe-S cleaner tails grades are however more complicated, and in the case of MLU should not be discarded but rather the bulk Fe-S rougher cons reground and sent for leaching. The MLL Fe-S cleaner tails grade at 0.33 g/t Au would be considered marginal economically to process when a 60-70% dissolution and cyanide consumption are taken into account.

Table 13-23: PFS Level Silver deportment in Fe-S flotation circuit streams

Mine Zone	Deportment	Fe-S Rougher Cons	Fe-S Rougher Tails	Fe-S Cleaner Cons	Fe-S Cleaner Tails
MLL Avg	% of fresh feed	1.3	9.9	0.6	0.7
	ppm Ag	4.0	4.0	3.0	5.0
MLU Avg	% of fresh feed	4.0	10.3	3.6	0.4
	ppm Ag	40	7.0	47	18

The deportment of silver to the Fe-S rougher and cleaner streams is relatively low and as expected considering the relatively close relationship between copper and silver recovery in the copper circuit.

Table 13-24: PFS Level Copper Deportment in Fe-S Flotation Circuit Streams

Mine Zone	Deportment	Fe-S Rougher Cons	Fe-S Rougher Tails	Fe-S Cleaner Cons	Fe-S Cleaner Tails
MLL Avg	% of fresh feed	1.30	2.50	1.00	0.30
	% Cu	0.11	0.03	0.13	0.07
MLU Avg	% of fresh feed	3.60	5.70	3.10	0.50
	% Cu	1.31	0.14	1.45	0.81

The deportment of copper to the Fe-S rougher and cleaner streams is very low and as expected due to the high copper recovery to the copper rougher stream.

Table 13-25: PFS Level Sulfur Deportment in Fe-S Circuit Streams

Mine Zone	Deportment	Fe-S Rougher Cons	Fe-S Rougher Tails	Fe-S Cleaner Cons	Fe-S Cleaner Tails
MLL Avg	% of fresh feed	40.7	23.6	28.9	11.7
	% S	27.0	2.30	30.4	21.2
MLU Avg	% of fresh feed	10.8	3.20	10.1	0.70
	% S	23.1	0.50	27.4	7.30

The low sulfur deportment to the Fe-S rougher tails indicates that good sulfur recovery to the concentrate stream(s) did occur indicating only minor losses of Fe-S to the Fe-S rougher tails. The Sulfur assay of the Fe-S cleaner tails was significantly higher than that of the Fe-S rougher tails from 7.3-21.2% indicating that this process stream cannot be combined with the Fe-S rougher tails.

Table 13-26: PFS Level Iron Deportment in Fe-S Circuit Streams

Mine Zone	Deportment	Fe-S Rougher Cons	Fe-S Rougher Tails	Fe-S Cleaner Cons	Fe-S Cleaner Tails
MLL Avg	% of fresh feed	12.5	77.1	9.5	3.1
	% Fe	43.9	39.6	52.4	29.2
MLU Avg	% of fresh feed	5.3	63.0	4.5	0.8
	% Fe	43.9	34.8	47.2	31.7

The relatively high iron content of the Fe-S rougher and cleaner tails with relatively low sulfur assays indicates that iron oxides are effectively rejected to the flotation tails streams.

All of the above assays and deportment of elements are used as guidelines to development of the mass balance and flotation circuit performance in the process facility design.

Pre-feasibility Level Fe-S Cleaner Flotation Kinetics

Cleaner kinetic flotation tests were done on each of the three mine zones to enable sizing parameters for the Fe-S cleaner circuit to be developed should this be included in the circuit design. The Fe-S cleaner flotation sulphide recoveries can be seen to be highly variable.

Figure 13-67 presents the sulfur kinetic results per mine zone tested, and it can be seen that the recovery is close to being completed at nine minutes and that a marginal increase with a few more minutes should be evaluated in future testing.

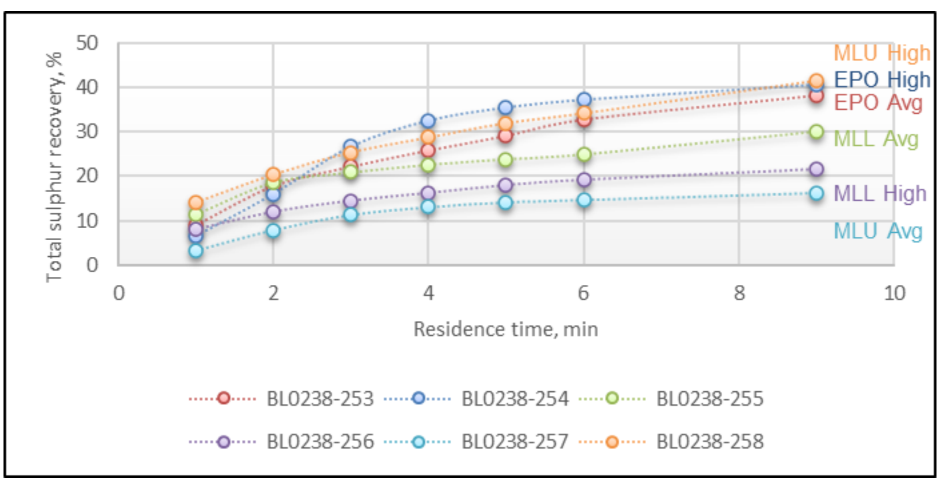


Figure 13-67: PFS Level Fe-S Cleaner Flotation Kinetics

13.2.5.3.2 Feasibility Level Fe-S Cleaner Flotation Testing

The objective of the Fe-S rougher concentrate cleaner test program was to identify if a "Throw-away" tail could be generated in such a cleaning stage. The definition of "Throw-away" tails being considered as having insufficient recoverable gold in any stream such that the operating costs to process that stream do not justify further treatment to maximize uneconomic metal recovery.

The gold deportment for each mine zone and variability sample was however found to be highly variable, and any proposed Fe-S cleaner circuit would not be expected to be operated 100% of the time. The Fe-S rougher concentrate is reground to a P_{80} around 35 microns and cleaning carried out using PAX as the collector.

Table 13-27 presents the results obtained for the Phase VI MLL bulk composites.

Table 13-27: MLL Results of Cleaning Fe-S Concentrate

Sample Nº	Test Nº	Mass stage rec %	Fe-S cleaner stage recoveries, %								
			Cu	Zn	Fe	S	Ag	Au	As	Bi	Cd
COMP01	T26	66.4	85.5	76.9	45.3	52.1	64.6	83.3	75.4	88.2	82.4
COMP02	T24	92.4	88.7	94.0	54.9	65.2	78.4	91.9	90.5	95.5	93.9
COMP03	T68	58.9	78.2	83.9	58.1	69.4	68.3	75.2	54.9	75.1	81.1
Sample Nº	Test Nº	Mass % of feed	Fe-S cleaner cons assays, % or g/t								
			Cu	Zn	Fe	S	Ag	Au	As	Bi	Cd
COMP01	T26	7.7	0.23	0.05	44.6	27.5	22	8.78	34,580	894	87
COMP02	T24	7.3	0.42	0.67	46.6	26.0	31	10.0	14,080	1,271	90
COMP03	T68	19.0	0.05	1.53	47.8	36.3	9	2.82	6,566	240	137
Sample Nº	Test Nº	Mass % of feed	Fe-S cleaner tails assays, % or g/t								
			Cu	Zn	Fe	S	Ag	Au	As	Bi	Cd
COMP01	T26	11.6	0.03	0.01	35.8	16.8	8	1.17	7492	80	12
COMP02	T24	7.86	0.05	0.04	35.8	13.0	8	0.83	1379	56	5
COMP03	T68	13.3	0.02	0.42	49.4	22.9	6	1.33	7736	114	46

For the MLL composites, the Fe-S cleaner stage gold recoveries were excellent at 75.2-91.9%. The gold and bismuth recoveries were high and appear to be associated. However, the Fe-S cleaner tails gold grades were all relatively high and this stream would warrant cyanidation and precious metal recovery.

Table 13-28 presents the results obtained for the Phase VI MLL bulk composites.

Table 13-28: MLU Fe-S Rougher Concentrate Cleaning Stage Results

Sample Nº	Test Nº	Mass % of fresh feed	Fe-S Cl feed (Fe-S Rougher cons) % of fresh feed					
			Cu	Zn	Fe	S	Au	Ag
MLUCOMP01	T16	17.0	1.7	40.2	32.9	53.9	11.0	7.5
MLUCOMP02	T17	30.4	2.2	44.9	66.3	68.8	14.7	13.2
MLUCOMP03	T18	20.4	3.1	35.6	31.4	42.9	13.0	13.3
Sample Nº	Test Nº	Mass Stage Rec %	Fe-S Cl stage recoveries, % from Fe-S Ro cons					
			Cu	Zn	Fe	S	Au	Ag
MLUCOMP01	T16	40.3	33.4	52.7	41	47.1	34.6	40.3
MLUCOMP02	T17	59.0	51.4	55.1	59	61.6	59.0	64.3
MLUCOMP03	T18	55.1	47.3	87.3	56.3	61.4	45.7	60.3
Sample Nº	Test Nº	Mass % of fresh feed	Fe-S Cleaner tails - % of fresh feed					
			Cu	Zn	Fe	S	Au	Ag
MLUCOMP01	T16	6.8	1.13	19.0	19.4	28.5	7.19	4.48
MLUCOMP02	T17	17.9	1.07	20.2	27.2	26.4	6.03	4.71
MLUCOMP03	T18	11.2	1.63	4.52	13.7	16.6	7.06	5.28
Sample Nº	Test Nº	Mass % of fresh feed	Fe-S Cleaner tails assays, % or g/t					
			Cu	Zn	Fe	S	Au	Ag
MLUCOMP01	T16	10.1	0.11	1.05	50.6	25.1	2.44	9.00
MLUCOMP02	T17	12.4	0.1	0.41	53.6	33.2	2.45	6.00
MLUCOMP03	T18	9.2	0.12	0.82	48.8	26.9	2.14	8.00

The amount of gold in the MLU Fe-S rougher concentrates represent 11.0 to 14.7% of the total feed to the process plant. Of this gold 34.6 to 59.0% was recovered to the Fe-S cleaner concentrate with a relatively high mass recovery of 40-59%. The result of this is that 6-7% of all of the feed gold reported to the Fe-S cleaner tails stream but at a relatively high grade range from 2.10 to 2.44 g/t. For these tests, the grade of gold in the Fe-S cleaner tails streams was significantly higher than that which would be expected to be a throw away tails stream. In this instance, the Fe-S cleaner tails stream would need to be recombined back with the Fe-S cleaner concentrate stream and sent for leaching.

13.2.5.4 Locked Cycle Flotation Testing

Locked cycle testing (LCT) is used to emulate the expected performance of the full-scale plant and is a key stage to be able to determine stage recoveries in the flotation circuit.

For the phase VI FS level metallurgical program, a significant number of locked cycle tests were carried out for each of the mine zones, including blends to evaluate the mixing of open pit and underground ores and also mine plan composites.

As part of the metallurgical test programs (IV and VI), the following mine zones or composites were tested.

- Media Luna Lower – MLL
- Media Luna Upper – MLU
- ELG open pit
- ELG underground
- Mine composites

The following list in Table 13-29 represents all the locked cycle tests carried out for both phases of testing, with selected tests used for the subsequent basis for design.

Table 13-29: Summary of FS Locked Cycle Tests

Mine zone	Phase	Test #	Composite
Media Luna Lower	IV	LCT-251	MLL Bulk composite
	VI	LCT-81	FSMLL Composite 2
	VI	LCT-82	FSMLL Composite 1
	VI	LCT-83	FSMLL Composite 3
	VI	LCT-151	FSMLL Composite 001+002
	VI	LCT-153	FS-MLL Composite 001
Media Luna Upper	IV	LCT-252	MLU Bulk composite
	VI	LCT-47	FS-MLU-Comp-001
	VI	LCT-48	FS-MLU-Comp-002
	VI	LCT-49	FS-MLU-Comp-003
ELG Composites	VI	LCT-120	FS-ELG ELD-Bulk float circuit
	VI	LCT-121	FS-ELG Sub-Sill-Bulk float circuit
	VI	LCT-122	FS-ELG-Z71_VC
	VI	LCT-123	FS-ELG_ELD-Bulk
Mine Comps	VI	MC LCT-154	FS-MINECOMP-Y01 (2024)
	VI	MC LCT-155	FS-MINECOMP-Y02 (2025)
	VI	MC LCT-156	FS-MINECOMP-5YP (2024-2029)

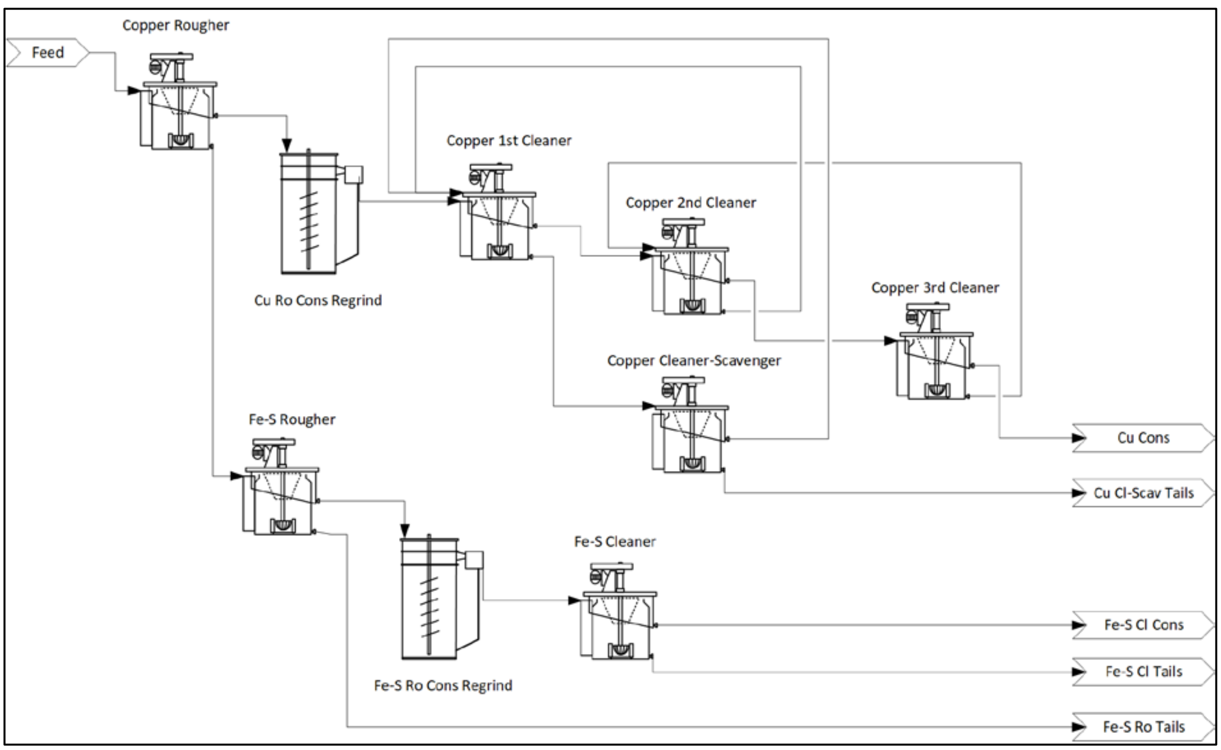


Figure 13-68: Locked Cycle Test Flotation Flowsheet

Figure 13-68 represents the flotation circuit flowsheet used for each of the locked cycle tests. The following describes the individual streams for which data is presented in the following sections:

- Copper concentrate
  - o Final copper concentrate containing ~90% of feed copper, 55-65% of feed gold and 75-85% of feed silver
- Copper-cleaner scavenger tails
  - o Copper flotation circuit tails which contains elevated levels of gold
- Fe-S rougher concentrate
  - o High sulfur content stream that consumes significant quantity of cyanide but has elevated levels of gold and silver and relatively low mass, thereby having a reduced impact on cyanide consumption overall
  - o Can, at times, be reground and refloated to reject lower gold grade tails with high sulfur content
- Fe-S cleaner concentrate
  - o High sulfur content stream with high gold content
- Fe-S cleaner tails
  - o Moderate sulfur content stream with varying gold grades that may be economic to leach
- Fe-S rougher tails
  - o Low sulfur content stream but typically low gold content that may be may uneconomic to leach at times

Locked cycle tests were carried out for the individual mine zones and also mine plan composites.

13.2.5.4.1 Mine Plan composites Locked Cycle Flotation Test Results

A composite representing the expected mill feed for the first year of operation was prepared from the ML and ELG variability samples and tested using the standard flotation circuit. The results from Test # 154 as the final optimized test for Mine composite year # 1 are presented in Table 13-30 and Table 13-31.

Table 13-30: Mine Composite Year 1 LCT # 154 Stream Assays

Stage	Assays %/g/t								
	Copper	Zinc	Iron	Sulfur	Silver	Gold	Arsenic	Bismuth	Cadmium
Flotation Feed	0.79	0.26	16.2	5.06	22.6	3.74	1,216	175	21.2
Copper 3rd Cl Cons	25.5	2.52	27.6	33.0	710	70.8	623	960	284
Copper Cl-Scav tails	0.32	0.86	28.4	15.8	23.0	10.4	3,672	1,807	90.0
Fe-S Ro cons	0.10	0.90	43.1	26.4	3.00	6.54	8,058	348	36.7
Fe-S Cl cons	0.16	1.81	47.6	34.0	3.40	12.9	6,949	688	60.0
Fe-S Cl tails	0.06	0.25	39.9	20.9	2.80	1.99	8,859	102	19.9
Fe-S Ro tails	0.01	0.05	11.2	0.33	0.20	0.47	108	24.2	5.20

Table 13-31: Mine Composite Year 1 LCT # 154 - Overall recoveries

Stage	Recoveries % of Fresh Feed									
	Mass	Copper	Zinc	Iron	Sulfur	Silver	Gold	Arsenic	Bismuth	Cadmium
Copper Ro Cons	7.79	97.4	45.2	13.50	34.4	97.7	69.5	16.1	65.9	60.1
Copper 3rd Cl Cons	2.96	95.5	29.1	5.04	19.3	92.8	56.1	1.51	16.2	39.7
Copper Cl-Scav tails	4.83	1.94	16.2	8.46	15.0	4.91	13.4	14.6	49.7	20.5
Fe-S Ro cons	11.6	1.43	40.7	30.8	60.4	1.55	20.3	76.7	23.0	20.1
Fe-S Cl cons	4.86	0.95	34.2	14.3	32.6	0.73	16.7	27.8	19.0	13.8
Fe-S Cl tails	6.73	0.47	6.43	16.6	27.8	0.82	3.6	49.0	3.92	6.33
Fe-S Ro Tails	80.6	1.12	14.1	55.7	5.2	0.71	10.3	7.16	11.1	19.8

The performance of the Year 1 mine plan composite was excellent with 95.5% copper recovery into a concentrate at 25.5% Cu. Silver recovery was very high at 92.8% and gold was 56.1%.

The gold grade in the copper cleaner scavenger tails (10.4 g/t Au) and Fe-S rougher concentrate (6.54 g/t Au) streams was sufficiently high to warrant processing. The Fe-S rougher tails gold grade (0.47 g/t Au) was close to being uneconomic to leach. Further discussion in the leach section and economics is presented in the following sections.

The Fe-S cleaner stage did upgrade the gold to a high grade into the Fe-S cleaner concentrate (12.9 g/t Au) stream but the tails grade at (1.99 g/t Au) would still be economic to leach.

A composite representing the expected mill feed for the second year of operation was prepared from the ML and ELG variability samples and tested using the standard flotation circuit. The results from Test # 155 as the final optimized test for Mine composite Year 2 are presented in Table 13-32 and Table 13-33.

Table 13-32: Mine Composite Year 2 LCT # 155 Stream Assays

Stage	Assays %/g/t								
	Copper	Zinc	Iron	Sulfur	Silver	Gold	Arsenic	Bismuth	Cadmium
Flotation Feed	0.82	0.22	20.9	5.52	24.1	3.51	1,190	238	27.2
Copper 3rd Cl cons	23.5	3.95	31.7	33.9	614	67.4	368	605	404
Copper Cl-Scav tails	0.58	0.56	38.5	20.4	31.5	7.25	1,044	1,340	77.5
Fe-S Ro cons	0.15	0.40	38.5	21.1	13.0	4.28	10,191	709	55.4
Fe-S Cl cons	0.29	1.04	40.5	28.7	27.8	10.3	18,983	1,767	114
Fe-S Cl tails	0.11	0.18	37.7	18.4	7.8	2.20	7,121	340	34.8
Fe-S Ro tails	0.02	0.01	16.1	0.61	0.95	0.40	60.7	33.6	2.45

Table 13-33: Mine Composite Year 2 LCT # 155 - Overall recoveries

Stage	Recoveries % of Fresh Feed									
	Mass	Copper	Zinc	Iron	Sulfur	Silver	Gold	Arsenic	Bismuth	Cadmium
Copper Ro cons	12.2	96.4	78.1	21.41	52.6	91.5	78.6	8.91	58.8	72.3
Copper 3rd Cl cons	3.12	90.0	55.3	4.73	19.1	79.6	59.9	0.97	7.9	46.4
Copper Cl-Scav tails	9.05	6.38	22.8	16.7	33.5	11.9	18.7	7.95	50.9	25.8
Fe-S Ro cons	10.2	1.92	18.4	18.7	38.8	5.5	12.4	87.1	30.3	20.7
Fe-S Cl cons	2.63	0.92	12.3	5.1	13.7	3.0	7.69	42.0	19.5	11.1
Fe-S Cl tails	7.54	1.00	6.10	13.6	25.1	2.43	4.72	45.1	10.8	9.67
Fe-S Ro Tails	77.7	1.67	3.49	59.9	8.56	3.07	8.96	3.96	10.9	7.00

The performance of the Year 2 mine plan composite was good with 90.0% copper recovery into a concentrate at 23.5% Cu. Silver recovery was reasonable at 79.6% and gold was 59.9%.

The gold grade in the copper cleaner scavenger tails and Fe-S rougher concentrate streams was sufficiently high to warrant processing. The Fe-S rougher tails gold grade (0.40 g/t Au) was close to being uneconomic to leach. Further discussion in the leach section and economics is presented in the following sections.

The Fe-S cleaner stage did upgrade the gold to a high grade into the Fe-S cleaner concentrate stream but the tails grade at (2.2 g/t Au) would still be economic to leach.

A composite representing the expected mill feed for the first five years of operation was prepared from the ML and ELG variability samples and tested using the standard flotation circuit The results from Test # 156 as the final optimized test for the year 1-5 Mine composite are presented in Table 13-34 and Table 13-35.

Table 13-34: Mine Composite Year 1-5 LCT # 156 Stream Assays

Stage	Assays %/g/t								
	Copper	Zinc	Iron	Sulfur	Silver	Gold	Arsenic	Bismuth	Cadmium
Flotation Feed	0.76	0.23	16.5	4.68	21.6	2.62	2,021	187	21.6
Copper 3rd Cl cons	22.1	4.97	31.9	34.4	559	43.5	999	1,480	520
Copper Cl-Scav tails	0.26	0.11	29.7	15.7	22.0	5.26	4,107	936	4.43
Fe-S Ro cons	0.09	0.46	37.7	22.4	12.1	6.15	16,023	605	39.1
Fe-S Cl cons	0.17	1.03	43.2	31.0	28.8	13.9	27,441	1,493	96.5
Fe-S Cl tails	0.04	0.16	34.9	18.0	3.6	2.18	10,177	150	9.76
Fe-S Ro tails	0.01	0.01	12.1	0.26	0.60	0.26	61.4	20.1	0.05

Table 13-35: Mine Composite Year 1-5 LCT # 156 - Overall recoveries

Stage	Recoveries % of Fresh Feed									
	Mass	Copper	Zinc	Iron	Sulfur	Silver	Gold	Arsenic	Bismuth	Cadmium
Copper Ro cons	9.63	97.7	75.4	17.73	45.3	91.9	67.5	14.5	57.6	80.8
Copper 3rd Cl cons	3.30	95.6	72.3	6.37	24.2	85.4	54.8	1.63	26.0	79.5
Copper Cl-Scav tails	6.33	2.16	3.06	11.4	21.1	6.46	12.7	12.9	31.6	1.30
Fe-S Ro cons	10.5	1.22	21.1	23.9	50.2	5.9	24.6	83.1	33.8	19.0
Fe-S Cl cons	3.55	0.81	16.1	9.3	23.5	4.7	18.8	48.2	28.3	15.86
Fe-S Cl tails	6.93	0.41	5.01	14.6	26.7	1.16	5.8	34.9	5.54	3.13
Fe-S Ro Tails	79.9	1.05	3.5	58.4	4.5	2.22	7.93	2.43	8.55	0.19

The performance of the Year 1-5 mine plan composite was excellent with 95.6% copper recovery into a concentrate at 22.1% Cu. Silver recovery was good at 85.4% and gold was 54.8%.

The gold grade in the copper cleaner scavenger tails and Fe-S rougher concentrate streams was sufficiently high to warrant processing. The Fe-S rougher tails gold grade (0.26 g/t Au) would be considered to be below that considered to be economic to leach.

The Fe-S cleaner stage did upgrade the gold to a high grade into the Fe-S cleaner concentrate stream (13.9 g/t Au) but the tails grade at (2.18 g/t Au) would still be economic to leach.

13.2.5.4.2 Analysis of Locked Cycle Flotation Test Results

A comparison of the mine plan composites locked cycle test results versus those of the individual mine zones is presented to compare results achieved.

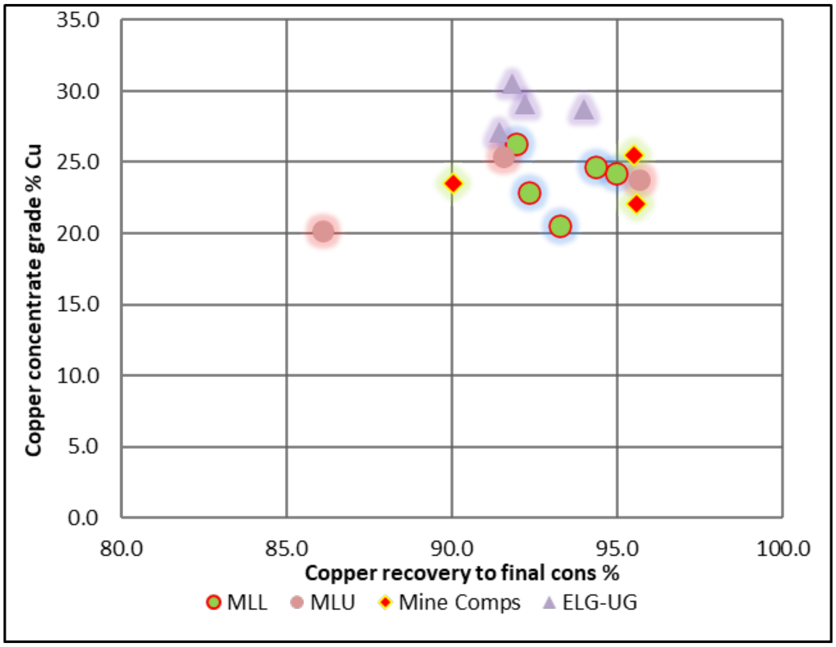


Figure 13-69: Copper Recovery versus Concentrate Grade to Copper Concentrate - Phase VI LCT's

From Figure 13-69 it can be seen that the performance of the individual mine zone LCT's were consistent with those of the mine plan composites. Of importance is that the performance of the ELG underground mine composites were excellent achieving high concentrate grades at good recoveries.

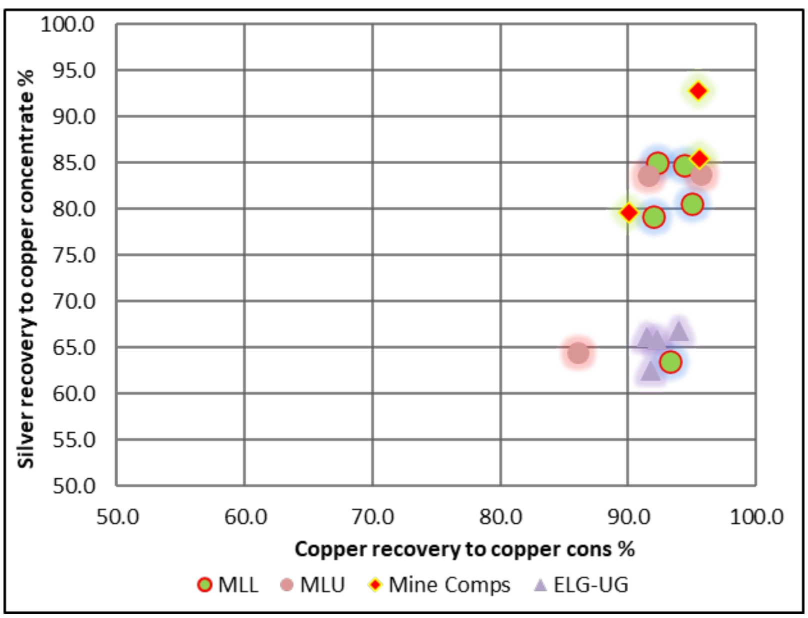


Figure 13-70: Silver versus Copper Recovery in copper concentrate Phase VI LCT's

As shown in Figure 13-70, silver recovery was excellent for the mine zone composites, slightly lower for the MLU composite and low for the ELG UG composites. However of importance is the significantly higher recovery of silver to a saleable concentrate versus the relatively low silver dissolution and recovery via the cyanide process.

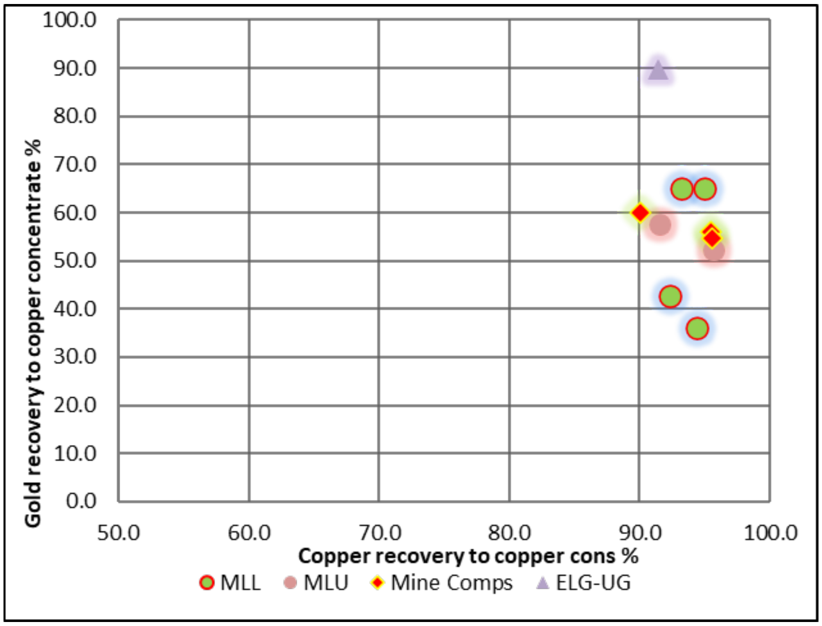


Figure 13-71: Gold versus Copper Recovery in copper concentrate Phase VI LCT's

Figure 13-71 illustrates the variable gold recovery to the copper concentrate, which therefore has an impact on the operating strategy for the leach circuits.

13.2.5.5 Evaluation of Blending of Media Luna Underground and Open Pit Ores

One of the key challenges for the project is that of balancing the process plant capacity with mine production. The process plant capacity was selected at a nominal 10,600 t/d based on both mine plans and the desire to minimize CAPEX and retain the flexibility to operate both grinding mills and not commit to a single grinding circuit.

The mine production from the new ML Project is planned to be able to generate 7,500 t/d of feed. In addition to this, the underground operations at the ELG site are expected to add an additional 1,500 t/d. The selection of the 10,600 t/d of mill throughput was based on a minimum sustainable capacity without risk of SAG mill grind out conditions. This implies an extra 1,600 t/d of feed from ELG OP sources could or should be fed to the process facility.

The question as to whether blending of ELG OP ores together with high sulphide content ores and feeding this to the process plant without detrimental impact on flotation performance was a key part of the metallurgical investigations. Including 1,600 t/d of open pit ores would necessitate blending in a ratio of 85:15 underground to open pit feed. The hypothesis of reducing the feed grade of copper to the flotation circuit and having no detrimental effect was evaluated. Testing of variability samples on the ML only ores did indicate that flotation performance was not significantly affected as a result of reduced feed grades as long as it was underground ores only.

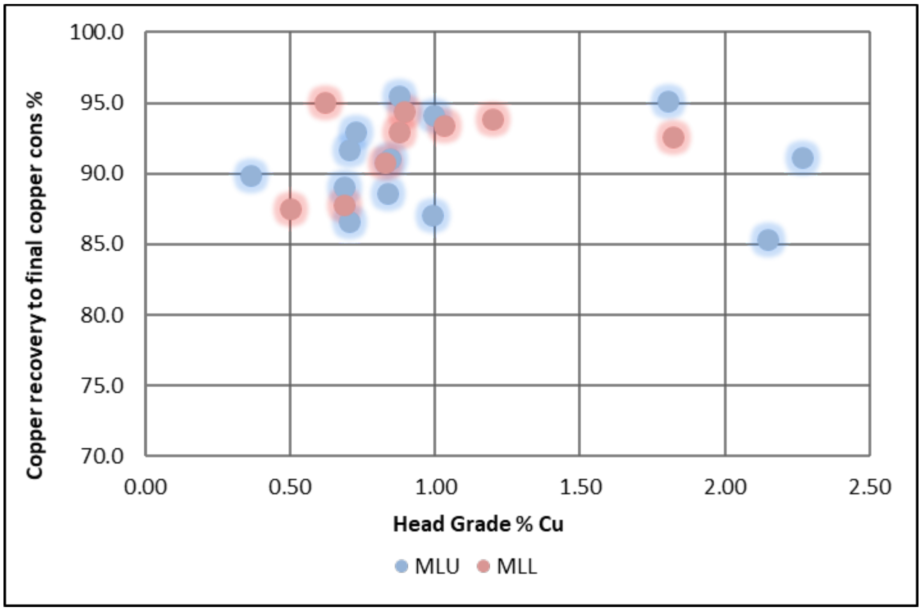


Figure 13-72: Recovery versus Feed Grade for ML Ores

Figure 13-72 shows that the flotation performance of the Medial Luna only ores are not significantly affected by head grade. The above data does not include blending with open pit ores.

Figure 13-73 illustrates that there is no apparent relationship between the feed grade of Media Luna ores and the final copper concentrate grade.

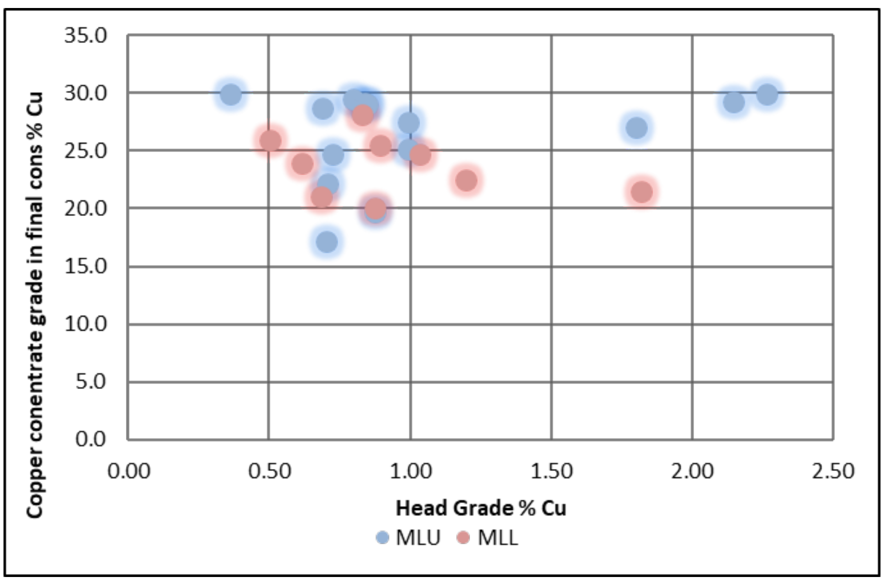


Figure 13-73: Copper Concentrate Grade Versus Feed Grade for ML ores

The question then becomes does blending of high grade copper underground ores with low grade open pit ores, to result in low copper feed grades, impact flotation performance.

Testing of the ELG and ML ores independently and also as blends with varying ratios was carried out to determine if any negative impact would result. Figure 13-74, Figure 13-75 and Table 13-36 present the recovery versus feed grade relationship for the blend between ELG OP ores and the 5-Year mine plan composite. The grades of the various composites are presented below for comparison purposes.

Table 13-36: Feed Grades for Blend Composites at Different Ratios of UG to OP ores

Sample	Copper	Sulfur	Iron	Zinc	Bismuth	Arsenic
5 Year Mine Comp	0.73	5.03	18.5	0.22	185	0.19
90:10 Blend UG:OP	0.70	4.59	16,6	0.20	184	0.19
70:30 Blend UG:OP	0.56	4.09	15.0	0.15	171	0.15
50:50 Blend UG:OP	0.44	3.63	13.2	0.12	177	0.13
Open Pit	0.13	2.29	8.7	-	148	0.06

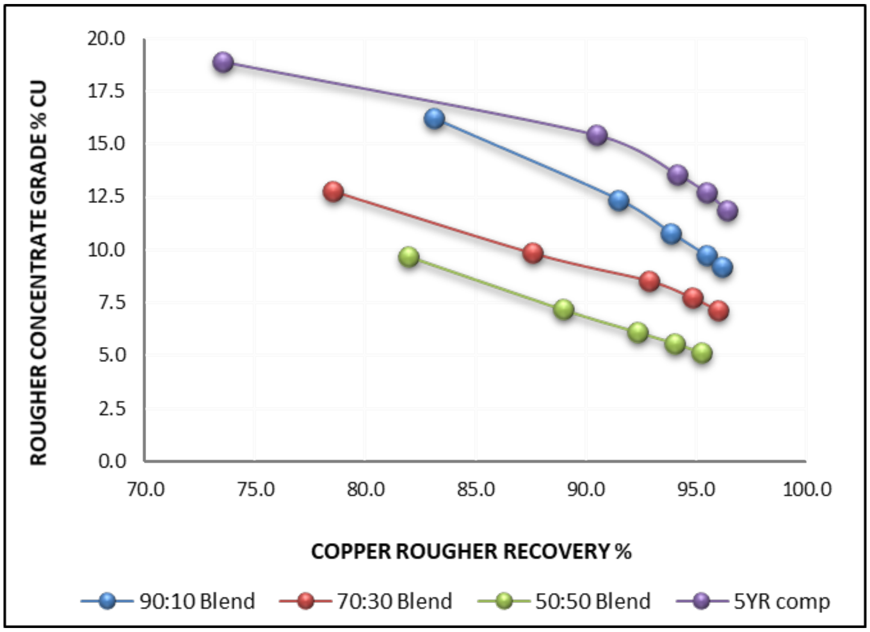


Figure 13-74: Rougher Grade Recovery Curves for blends with Open Pit Ores

The best copper rougher grade versus recovery response was for the 5 Year mine plan blend. Diluting that blend with open pit material at differing ratios results in a drop in flotation performance with significantly lower concentrate grades at slightly reduced copper recoveries. There is a marginal reduction from 96.4% copper rougher recovery for the 5 Year composite down to 95.3% for the 50:50 blend. The key issue however is that of the rougher concentrate grade generated which drops from 11.0% to 5.4% as a result of a significant increase in mass recovery.

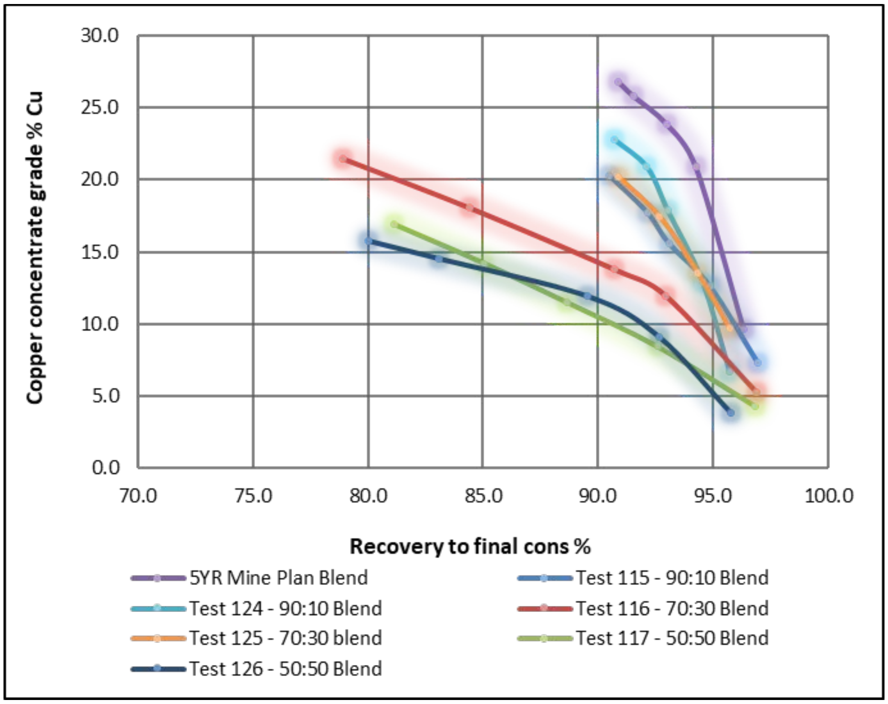


Figure 13-75: Cleaner Grade Recovery Curves for Blends with Open Pit Ores

The cleaner flotation circuit grade recovery curves in Figure 13-75 illustrates clearly that blending significantly beyond the 90:10 ratio ML-UG: ELG OP results in a significant shift in the grade recovery curve. The key issue is that this is not a feed grade issue as low grade Media Luna ores did achieve excellent copper concentrate grades when below 0.5% Cu in the feed (90% recovery @ 30.0% copper concentrate grade), versus the 50:50 blend which only achieved 16% copper concentrate grade at 80% recovery.

The issue is not the feed grade but rather the quantity of the gangue mineralization which reports to the copper concentrate. Tests were done to try to minimize this and marginal success for the 70:30 sample was achieved. There appears to be some form of hydrophobic material present in the more weathered open pit ores that is difficult to depress It is recommended that a maximum 85:15 underground to open pit blending be used as the design basis and that this be investigated further as the project advances.

13.2.6 Cyanidation Leach Testing

The objective of the flotation circuit operation is to recover as much of the copper, gold and silver to a saleable copper concentrate. If the gold and silver could be recovered to the copper concentrate in excess of say 90-95% then there would be insufficient gold and or silver in the flotation tails stream(s) to warrant subsequent leaching.

However as can be seen from the previous section gold recovery to the copper concentrate was variable and on average 55-60%. This leaves a significant portion of the feed gold that reports to flotation product streams to be considered for cyanidation and precious metal recovery.

The deportment of gold in the Fe-S rougher concentrate, Fe-S rougher tails, Fe-S cleaner concentrate, Fe-S cleaner tails and copper cleaner scavenger flotation tails streams is variable. At times one or more of these streams (excluding copper cleaner scavenger tails) may be uneconomic to process due to a combination of low solubility gold content coupled with excessive operational costs (i.e. cyanide/consumption, power, etc.).

Analysis of the metallurgical results of leaching of each stream with regards gold, silver and copper dissolution and reagent consumptions was carried out with the following key conclusions to be made.

- Fe-S Rougher tails
  - Identified to be economic to leach 73% of the time via cyanidation.
  - Typically represents 75-85% by mass of fresh feed.
  - Cyanide consumption typically 1.0-2.0 kg/t Fe-S rougher tails.
  - Fe-S rougher tails stream typically contains 5-35% of feed gold.
- Fe-S Rougher concentrate
  - Typically, always has sufficient soluble gold to render this stream economic to leach via cyanidation
  - Typically represents 12.5-25.0% by mass of fresh feed.
  - Cyanide consumption typically 10-15 kg/t Fe-S rougher concentrate.
  - Fe-S rougher concentrate represents 15-25% of feed gold.
- Fe-S cleaner concentrate (generated from flotation of Fe-S rougher cons)
  - Typically represents 75-80% by mass of Fe-S rougher concentrate.
  - Cyanide consumption typically 12-20 kg/t Fe-S cleaner concentrate mass.
  - Fe-S cleaner concentrate represents 5.0-20% of feed gold.
- Fe-S cleaner tails (generated from flotation of Fe-S rougher tails)
  - Typically represents 20-25 % by mass of Fe-S rougher concentrate
  - Cyanide consumption typically 5-10 kg/t Fe-S cleaner tails mass.
  - Fe-S cleaner tails represents 0.1-9.0% of feed gold.
  - If this stream grade is <0.5 g/t Au should not be sent for leaching
  - If this stream grade is > 0.5 g/t then this stream should be recombined with Fe-S cleaner cons (effectively Fe-S rougher cons) and sent for leaching
- Copper cleaner scavenger tails
  - Typically, always has sufficient soluble gold to render this stream economic to leach via cyanidation.
  - Typically represents 5.0-10.0 % by mass of fresh feed.
  - Cyanide consumption typically 10-18 kg/t copper cleaner-scavenger tails.
  - Copper cleaner-scavenger tails typically contains 1.4-12.5 % of feed gold.

The analysis of economic viability of each of these streams is complicated by the following issues:

- High cyanide consumption may be partially offset by the recovery of cyanide in the SART process.
- High cyanide consumption, however, does result in increased reagent costs in the DETOX circuit which needs to be accounted for in the economics.

The existing cyanide leach circuit is thus proposed to be split into two discrete circuits as follows:

- Leaching of the Fe-S flotation tails.
- Leaching of combined Fe-S (rougher or cleaner) concentrates and Cu cleaner scavenger tails.

A summary of the FS level test results of the leaching of the combined and/or separate streams is presented in the following sections, with the selection of design parameters in the process design section.

13.2.6.1 Feasibility Level Bulk Composite Leaching

The flotation products for the MLL and MLU bulk composites were subjected to cyanidation with the following dissolutions achieved. Results are shown in Table 13-37 and Table 13-38.

Table 13-37: MLL - Stage Leach Dissolution for each Bulk Composite and Flotation Product

Sample ID	Test #	Cu Cl-Scav Tail			Fe-S Cl Con			Comb Cu Cl Scv Tl + Fe-S Cl Con			Fe-S rougher tails		
		Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag
FS-MLLCOMP-001	26	51.9	61.6	29.6	57.0	62.5	25.4	57.9	63.2	32.1	23.3	58.9	12.5
FS-MLLCOMP-002	24	41.9	57.4	24.9	46.0	75.7	30.8	49.7	74.6	38.0	21.3	55.4	18.2
FS-MLLCOMP-003	68	69.5	83.4	43.7	35.1	78.5	31.3	61.1	79.9	40.8	17.6	65.6	15.8

Table 13-38: MLU - Stage Leach Dissolution for each Bulk Composite and Flotation Product

Sample ID	Test #	Cu Cl-Scav Tail			Fe-S Cl Con			Comb Cu Cl Scv Tl + Fe-S Cl Con			Fe-S rougher tails		
		Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag
FS-MLUCOMP-001	47	40.0	93.9	42.5	55.3	88.4	34.9	55.8	92.5	38.8	31.0	62.6	33.2
FS-MLUCOMP-002	48	53.4	92.1	36.5	25.9	77.9	2.2	57.3	83.1	12.1	41.1	59.6	36.0
FS-MLUCOMP-003	49	63.6	97.5	37.4	48.8	85.0	14.7	65.4	95.6	35.8	34.9	68.4	26.2

Copper dissolutions for both mine zones (MLL and MLU) were fairly similar. Gold dissolutions for the Fe-S concentrate streams for the MLU mine zone were however significantly higher for the MLL mine zone.

The final stage of testing was that of preparing mine plan composites and evaluating the flotation and leaching stages. Table 13-39 presents the dissolution per stream.

Table 13-39: Mine Plan Composites - Stage Leach Dissolution for each Bulk Composite and Flotation Product

Sample ID	Test #	Cu Cl-Scav Tail			Fe-S Cl Con			Comb Cu Cl Scv Tl + Fe-S Cl Con			Fe-S rougher tails		
		Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag
Year # 1	154	65.8	90.4	51.9	76.9	85.4	50.5	73.6	86.8	46.7	29.1	74.1	21.9
Year # 2	155	59.9	95.7	35.6	52.6	90.6	51.3	64.3	93.7	52.6	48.9	69.6	30.2
Year # 1-5	156	77.4	91.5	53.8	50.5	88.0	47.2	76.8	89.3	43.8	40.3	73.7	41.5

Relatively high copper dissolutions were obtained for the mine plan composites as compared to the previous mine zone composites.

13.2.6.2 Comparison of Whole Ore Leaching versus Fe-S Flotation, Regrind and Leach of Two Products

Very low grade copper in the feed is unlikely to be able to achieve final copper concentrate grades. However, the proposed use of the Fe-S flotation circuit to recover gold bearing metal sulphides, regrind these and leach these separately has been proposed. The moderately refractory nature of this gold has been explored and the results of utilizing this flowsheet to treat low copper grade ores are presented in Table 13-40.

Table 13-40: MLL – Comparison of Whole-Ore versus Fe-S float, Regrind and Separate Leach Results

Sample ID	Test Protocol	Overall rec. to Leach Solution		
		Cu	Au	Ag
FS-MLL-027	Whole-Ore Leach	10.5	74.0	15.2
	Fe-S Float + Leach	14.8	88.6	20.2
FS-MLL-017	Whole-Ore Leach	15.4	40.4	17.2
	Fe-S Float + Leach & regrind to 35 um	6.2	71.5	23.6
	Fe-S Float + Leach & regrind to 20 um	6.2	89.9	28.7

For both samples the separate recovery of an Fe-S concentrate containing gold, and separate leaching resulted in a significant increase in gold recovery. The second sample MLL-017 results were done at a finer regrind as compared to the first resulting in an extra 18% gold dissolution. The finer regrind of the Fe-S concentrate results in better gold liberation and hence higher dissolution.

Table 13-41: MLU – Comparison of Whole-Ore versus Fe-S Float, Regrind and Separate Leach Results

Sample ID	Test Protocol	Overall rec. to leach solution		
		Cu	Au	Ag
MLU-Comp01	Whole-Ore Leach	12.1	86.9	21.9
	Fe-S Float + Leach	10.0	89.8	7.7
MLU-Comp02	Whole-Ore Leach	12.9	80.3	23.9
	Fe-S Float + Leach	12.4	90.8	16.3
MLU-Comp03	Whole-Ore Leach	14.1	84.6	24.1
	Fe-S Float + Leach	11.1	87.5	22.0

As shown in Table 13-41, the MLU response was similar to that of the MLL with 3 to 10% increase in gold dissolution being achieved as a result of recovering the iron sulphides via flotation, regrinding these and leaching.

The result of this test work is the recommendation to always pass sulphide containing material through the Fe-S rougher flotation stage and leaching the Fe-S concentrate and Fe-S rougher tailings separately.

13.2.6.3 Feasibility Level Variability Leach Testing

The flotation products from the variability flotation testing of both the MLL and MLU test programs were subjected to cyanide leaching. The results are presented in Table 13-42, Table 13-43 and Table 13-44 and these illustrate the variability in leach response for individual samples and also differences between flotation streams. Table 13-42 presents the dissolution for the individual copper cleaner scavenger tails and Fe-S cleaner concentrate streams.

Table 13-42: MLL Variability Samples - Leach Extraction Results Fe-S Cleaner Cons and CuCl-Scav Tail

Sample ID	Test #	Stage Leach Extraction %					
		Cu Cl Scv Tail			Fe-S Cl Con		
		Cu	Au	Ag	Cu	Au	Ag
FS-MLL-011	49	66.4	85.3	62.4	58.6	64.7	47.3
FS-MLL-014	50	21.1	67.7	26.6	43.3	72.2	32.4
FS-MLL-015	84	49.0	65.6	32.3	41.6	49.9	30.8
FS-MLL-021	52	58.0	90.3	53.9	24.4	76.7	42.6
FS-MLL-022	53	55.9	69.0	28.5	47.8	96.9	26.8
FS-MLL-023	54	51.8	85.0	26.5	46.8	95.3	39.0

Sample ID	Test #	Stage Leach Extraction %					
		Cu Cl Scv Tail			Fe-S Cl Con		
		Cu	Au	Ag	Cu	Au	Ag
FS-MLL-025	55	48.8	78.1	26.5	64.0	99.2	29.5
FS-MLL-026	75	80.3	92.4	55.1	23.3	86.4	16.0
FS-MLL-032	57	33.9	88.5	36.2	43.5	90.2	42.5
FS-MLL-037	93	66.6	88.1	45.0	12.4	71.0	3.0
FS-MLL-027	77	24.9	80.0	37.5	14.5	85.0	38.6
Average		50.6	80.9	39.1	38.2	80.7	31.7

Table 13-43 presents the dissolution obtained for the combined Copper cleaner scavenger tails and Fe-S concentrate and the Fe-S rougher flotation tails stream.

Table 13-43: MLL Variability Stage Leach Extraction of Combined Fe-S Con and Cu Cl Scav Tl and Fe-S Tails

Sample ID	Test #	Stage Leach Extraction %					
		Cu Cl Scv Tl – Fe-S Cl Con			Fe-S Rougher Tails		
		Cu	Au	Ag	Cu	Au	Ag
FS-MLL-011	49	60.2	65.0	51.3	20.5	60.5	25.2
FS-MLL-014	50	37.6	68.1	33.8	12.1	50.8	27.1
FS-MLL-015	84	48.5	52.9	33.3	14.9	58.5	48.6
FS-MLL-021	52	41.1	77.8	47.7	20.6	69.0	11.4
FS-MLL-022	53	51.3	91.3	27.8	17.6	43.8	7.63
FS-MLL-023	54	49.8	91.8	33.0	16.3	55.4	7.85
FS-MLL-025	55	57.1	76.1	30.7	24.1	30.8	7.20
FS-MLL-026	75	34.9	86.5	37.1	23.2	66.1	4.43
FS-MLL-032	57	38.8	89.7	43.7	15.6	70.1	21.8
FS-MLL-037	93	41.4	73.9	6.4	13.1	57.8	12.1
FS-MLL-027	77	19.4	83.8	40.5	20.7	59.6	11.6
Average		43.7	77.9	35.0	18.1	56.6	16.8

Copper dissolutions for the individual Copper Cleaner scavenger tails stream were high and slightly lower for the Fe-S concentrate. Copper dissolutions for the combined Cu Cleaner scavenger tails and Fe-S concentrate was on average as predicted from individual stream results. The copper dissolution for the Fe-S rougher tails was less than half of that as compared to the Fe-S cons.

Gold dissolutions for the individual Copper Cleaner scavenger tails stream and Fe-S cleaner concentrate were high (80.9 & 80.7%). Gold dissolution for the combined Cu Cleaner scavenger tails and Fe-S concentrate was on average relatively high (77.9%) and variable (52.9-91.8%). For the Fe-S rougher tails the dissolution was lower (56.6%) but still variable (30.8-70.1%).

Silver dissolution for the combined Copper Cleaner scavenger tails and Fe-S concentrate was on average relatively low (35.0%) and very variable (6.4-51.3%). For the Fe-S rougher tails the dissolution was lower (16.8%) but still variable from (5.5-38.6%).

For the MLU testing program, the importance of zinc and iron dissolution and impact on downstream processes and reagent consumptions meant that zinc and iron dissolutions were included. These are presented in Table 13-44.

Table 13-44: MLU Variability Stage Leach Extraction of Combined Fe-S Con and Cu Cl Scav Tails

Sample ID	Cu Cl-Scav tails & Fe-S Cl cons %					Fe-S Rougher tails %				
	Au	Ag	Cu	Zn	Fe	Au	Ag	Cu	Zn	Fe
FS-MLU-041	88.3	29.8	34.2	3.43	0.06	65.5	19.0	17.1	4.50	0.06
FS-MLU-053	76.2	41.9	63.4	1.67	0.07	76.9	55.3	35.5	4.71	0.18
FS-MLU-056	86.2	42.7	68.5	3.35	0.10	76.8	22.4	27.0	5.40	0.08
FS-MLU-058	68.4	31.2	58.0	3.46	0.06	67.8	32.9	22.7	5.81	0.10
FS-MLU-059A	61.9	36.7	32.7	5.72	0.17	60.4	18.7	20.5	2.87	0.07
FS-MLU-061	80.8	34.9	23.8	2.66	0.04	43.8	38.5	24.0	2.65	0.06
FS-MLU-069	88.5	37.8	29.4	2.29	0.03	58.0	29.0	11.2	1.42	0.11
FS-MLU-073	82.6	28.1	55.1	2.15	0.05	61.5	25.2	17.2	8.87	0.12
FS-MLU-074	71.5	18.0	35.3	1.32	0.03	63.1	20.3	17.3	2.77	0.12
Average	78.3	33.4	44.5	2.89	0.07	63.8	*29.0*	*21.4*	*4.33*	*0.10*

The cyanidation of the MLU flotation streams resulted in similar dissolutions to those of the MLL composites. Of importance is the high variability in copper dissolution in cyanide, reflecting on the variability of the copper mineralogy in the deposit.

13.2.6.4 Evaluation of Regrind on Fe-S gold Dissolution

The recovery of gold via sulphide flotation confirmed the hypothesis that gold in the Media Luna and ELG ores is to a reasonable extent associated with metal sulphides. In addition, the liberation of this gold was believed to be dependent on the particle size of the metal sulphides themselves. Regrinding of the Fe-S rougher concentrate was already done for the purposes of potential gangue rejection in an Fe-S cleaner stage. A subsequent evaluation of the dissolution of gold as a function of the regrind of iron sulphide concentrate was carried out with one example of the results obtained presented in Table 13-45, and clearly illustrates that the finer regrind resulted in a significant increase in gold dissolution but at a significant increase in cyanide consumption. Copper dissolution was unchanged and silver dissolution marginally higher.

Table 13-45: Evaluation of Regrind of Fe-S Con on Gold Dissolution

P80 regrind Fe-S Con	Overall Leach Extraction from Fe-S Con			NaCN kg/t
	Cu	Au	Ag	
36 µm	4.1	69.7	22.0	2.6
16 µm	4.1	88.2	27.1	4.3

13.2.6.5 Leach Stage Reagent Consumptions

A comparison of the cyanide consumptions for the leaching of the Fe-S concentrate and tails streams was carried out at a PFS and FS level of the Project to illustrate the change in cyanide consumption for the two programs.

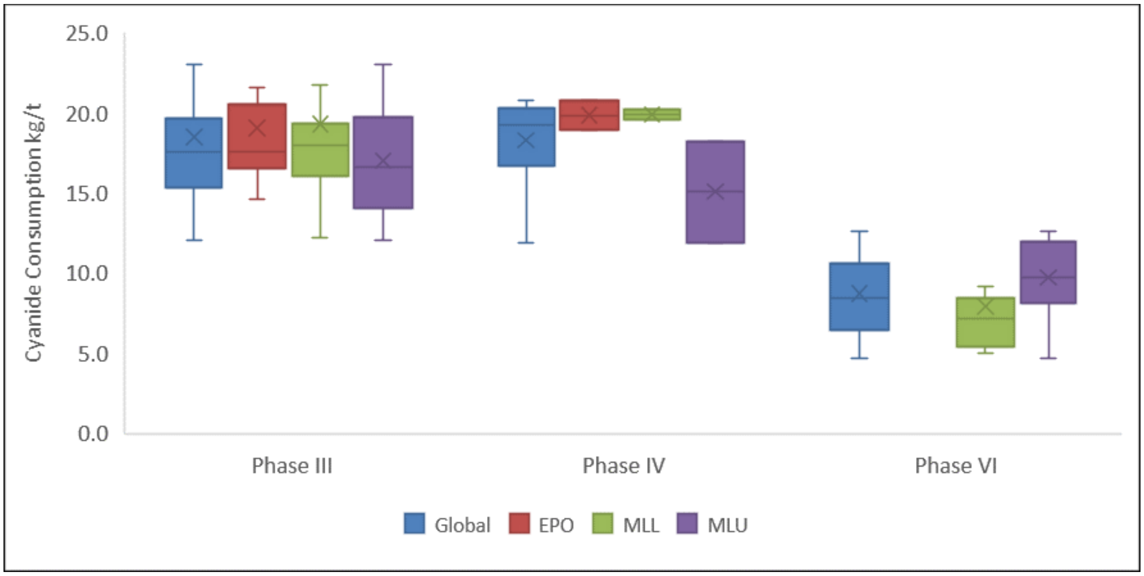


Figure 13-76: Evolution of Cyanide Consumption During Testing Phases – Fe-S Cons

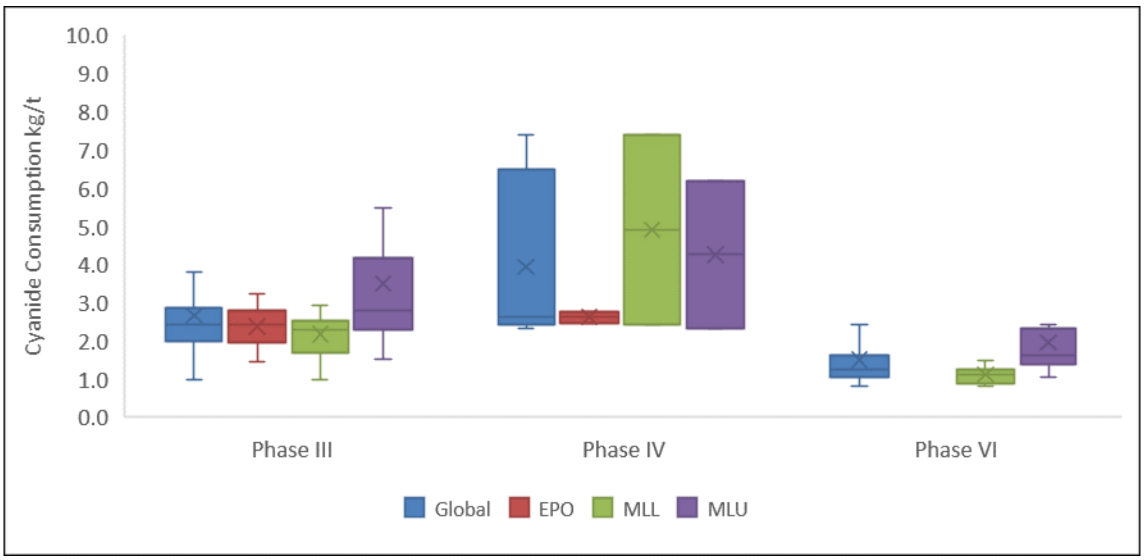


Figure 13-77: Evolution of Cyanide Consumption During Testing Phases – Fe-S Tails

Figure 13-76 and Figure 13-77 present the results obtained, and it can be seen that there was a significant drop in cyanide consumption for both streams from the Phase III and Phase IV to the feasibility study phase VI program. The fundamental difference between the PFS and FS level programs was the age of the drill core that was used for the metallurgical testing programs. For the PFS level, the drill core had been stored for approximately 5-7 years prior to metallurgical testing, whereas for the FS level, the drill core was selected and sent to the laboratory within one year. Aging of the samples is considered to be the most likely cause for the shift in cyanide consumption as a result of the oxidation of the metal sulphides then becoming more amenable to leaching.

In addition to the review of the cyanide consumption a further analysis of the causes for high cyanide consumption for each of the individual tests was carried out. This involved the stochiometric analysis of cyanide consumption by base metals and iron in the leaching stage. Consumption of cyanide can be estimated based on the solution assays of the dissolved metals, Cu, Fe, Zn, Au and Ag in the leachate at each stage of leaching. However, it must be acknowledged that cyanide consumption by other material and conversion of cyanide to thiocyanate will also occur. The following figures do however give a reasonable indication as to the causes of high cyanide consumption in the leach circuits.

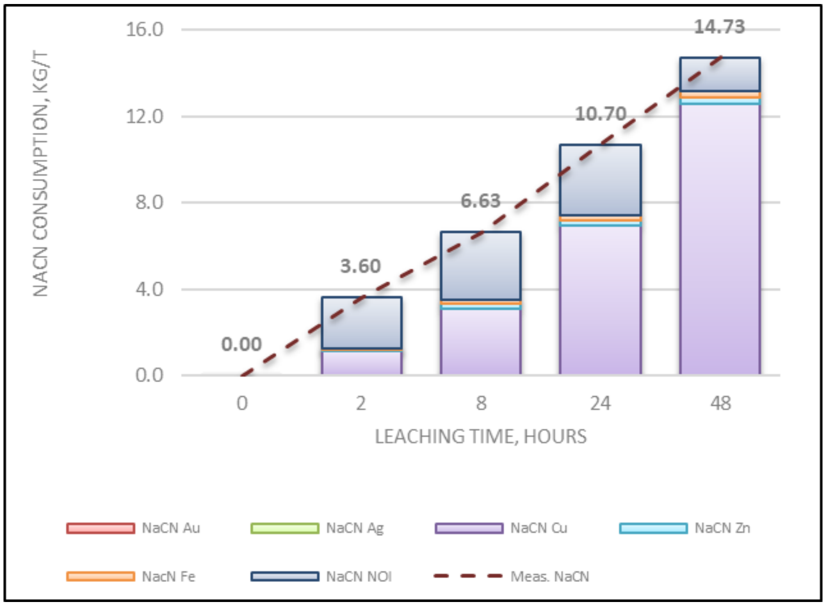


Figure 13-78: NaCN Consumption as Function Dissolved Elements for Fe-S Cons & Cu Cl Scav tails Stream

For the combined Fe-S concentrate and Copper cleaner scavenger tails stream, the bulk of the cyanide consumption was due to the dissolution and complexing of cyanide with copper. This is as expected due to the rejection of cyanide soluble copper species, such as secondary copper minerals, from the copper cleaner scavenger tails being present in this stream. The consumption of cyanide with zinc, gold, silver and iron is negligible. Other consumers represent the balance of cyanide consumption.

Whilst the cyanide consumption figures look to be high for the “Fe-S cons” stream, it must be acknowledged that these figures correspond to the stage feed and that the combined Fe-S concentrate stream represents only 15-20% of the mass of the fresh feed. The 14.73 kg/t consumption for this test thus contributes only 2.1-2.5 kg/t to the overall consumption.

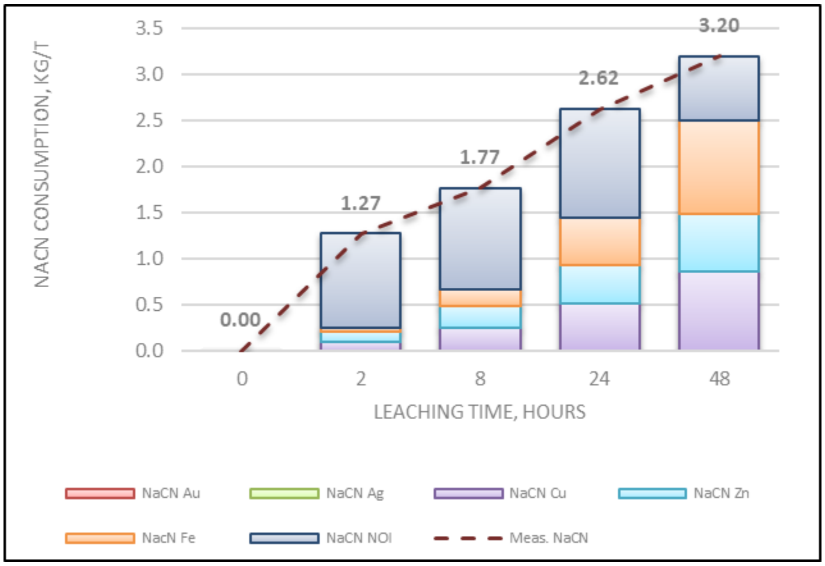


Figure 13-79: NaCN Consumption as Function Dissolved Elements for Fe-S Rougher Tails Stream

In Figure 13-79 it can be seen that for the Fe-S flotation tails stream cyanide consumption was similar for both iron and copper. Zinc also plays a role in consumption. Key to this is that of the iron playing an important role in cyanide consumption which supports operational data linking higher iron in feed to higher cyanide consumption.

13.2.7 Gravity Gold Recovery from Copper Concentrate

It is well known that assaying for gold in copper concentrates is statistically challenging and that the variable presence of high grade gold particles in the concentrate is not captured by bulk assaying and a potential revenue source lost. This is due to the presence of nuggety gold which may be associated with metal sulphides or free gold. Free gold was not identified to any significant quantity for the ML Project but the association of gold with metal sulphides is well known.

Testing of the final copper concentrates utilizing gravity gold recovery was completed and resulted in reasonable recoveries, as shown in Table 13-46. The recommendation of this to install a gravity concentrator on the final copper concentrate before dewatering and filtration.

Table 13-46: Gravity Gold Recovery Results from Copper Concentrates

Sample	Copper Con Au, g/t	Gravity Concentrate							Upgrade Ratio Au
		Grade, % or g/t			Recovery, %				
		Cu	Au	Ag	Mass	Cu	Au	Ag	
MLLCOMP-01	29.1	21.8	136	840	1.89	0.9	4.4	1.0	4.7
MLLCOMP-02	33.0	25.0	197	1,060	3.67	0.5	2.8	0.7	6.0
MLLCOMP-03	70.3	19.0	1,464	903	3.18	0.7	15.3	1.3	20.8
MINECOMP-Y01	58.8	25.2	231	724	3.74	2.5	10.0	2.7	3.9
MINECOMP-Y02	57.4	21.2	295	708	3.51	3.9	22.1	5.0	5.1
MINECOMP-5YP	52.6	21.5	215	632	2.62	4.6	19.4	5.5	4.1
MLUCOMP-01	55.1	23.5	633	798	3.29	1.0	12.1	1.7	11.5
MLUCOMP-02	54.2	17.8	275	304	4.69	2.3	14.0	3.4	5.1
MLUCOMP-03	27.5	18.1	229	434	2.62	3.4	29.1	6.0	8.3

13.2.8 Downstream Testing Programs

An integral part of the metallurgical testing program was that of generating samples for subsequent testing to generate parameters for selection of new equipment or evaluation of suitability of existing equipment in a new configuration or feed type. The following equipment and/or process areas were considered for design and operational characterization:

- Equipment
  - Regrind Mills
    - Cu rougher concentrate
    - Fe-S rougher concentrate
  - Thickeners
    - Cu concentrate
    - Fe-S concentrate pre-leach
    - Final tails (Guajes)
    - Fe-S tails pre-leach (existing)
    - Cyanide recovery (existing)
  - Filters
    - Cu concentrate filter
    - Leached Fe-S concentrate Horizontal Belt Filter (HBF) (existing)
- Operational performance evaluation:
  - SART
  - CIP
  - DETOX

Testing was carried out primarily at Base Met labs but also at third party laboratories as required.

For each mine zone (MLL and MLU), a bulk composite of approximately 200 kg was prepared from the variability samples and processed through the final flowsheet at the optimal test conditions to generate the required samples for testing.

13.2.8.1 Concentrate Regrind

Samples of the Copper rougher and Fe-S rougher concentrate were generated to enable hardness testing to be carried out by a third-party vendor Metso-Outotec.

13.2.8.1.1 Copper Rougher Concentrate Regrind

Samples from MLL and MLU mine zones were each tested separately. For each sample a feed characterization was done including SG and particle size analysis (PSA).

The MLL sample had a F80 of 61 µm and a SG of 3.87 g/cm^3. Figure 13-80 presents the particle size versus the specific grinding energy consumption. From this plot, a power relation was obtained which predicts the energy necessary to obtain a desired P80 at the mill product, in the case of the target P80 of 25 µm the energy consumption was 8.7 kWh/t.

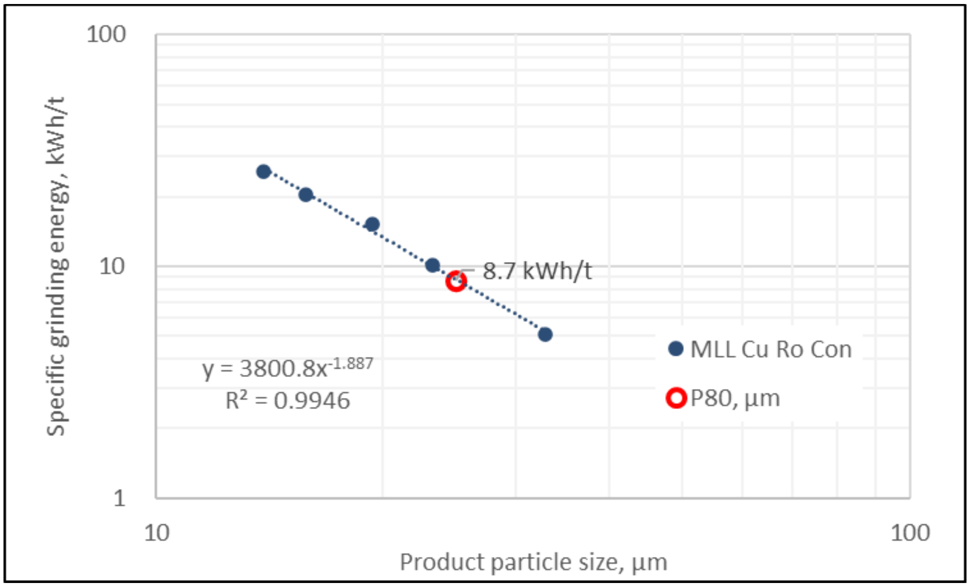


Figure 13-80: MLL Copper Rougher Concentrate Specific Grinding Energy Consumption vs P80

The MLU sample had an F80 of 77 µm and a SG of 4.14 g/cm³. The specific grinding energy consumption was 9.2 kWh/t for the target P80, 5% higher compared with the MLL rougher concentrate sample. The graphical results are presented in Figure 13-81.

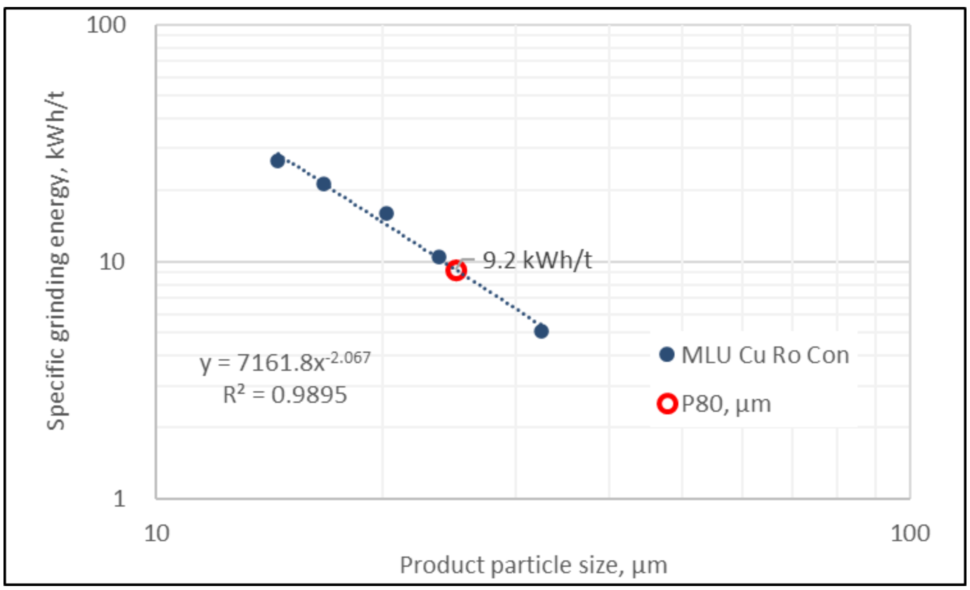


Figure 13-81: Specific Grinding Energy Consumption vs P80 for MLU Copper Rougher Concentrate

13.2.8.1.2 Fe-S Rougher Concentrate Regrind

A combined sample was generated from the MLL and MLU Fe-S concentrate, in order to run the HIGMill test.

From the head characterization, the MLL Fe-S concentrate weighed 3.25 kg, with an F80 of 72 µm and a SG of 4.11 g/cm³, while the MLU concentrate weighed 4.37 kg, with a F80 of 80 µm and a SG of 4.24 g/cm³.

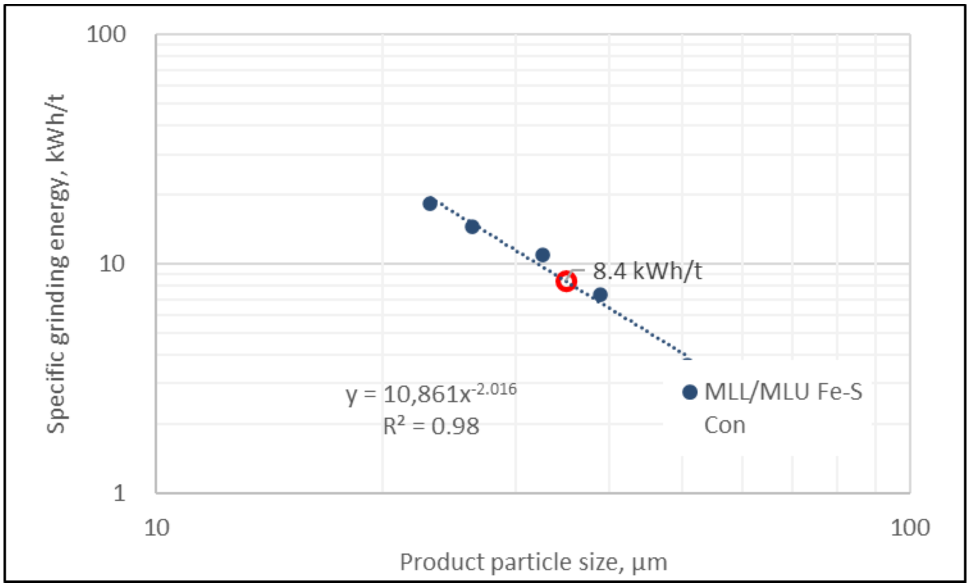


Figure 13-82: Specific Grinding Energy Consumption vs P80 for combined MLL/MLU Fe-S Concentrate

For the Fe-S rougher concentrate, 8.4 kWh/t would be required to grind to 35 microns from a feed of 82 microns, as shown if Figure 13-82.

13.2.8.2 Solid Liquid Settling

Three new thickeners are to be installed for the new process circuit, and two existing thickeners are to be reused. Testing of suitable samples was carried out for design of the new thickeners and validation of the performance of the existing thickeners under different operating conditions.

Both static and dynamic settling testing was caried out as part of the program.

13.2.8.2.1 Copper Concentrate Solid:Liquid Separation Testing

Copper concentrate samples were tested for MLL and MLU mine zones to obtain design parameters for the copper concentrate thickener. Both samples were diluted using tap water and tested at pH 11, which is the current design pH for the copper cleaner circuit. Two flocculant dosages were tested for each sample. Results are presented in Table 13-47, and settling test plot observed in Figure 13-83.

Table 13-47: Static Settling Test Results for MLL/MLU Copper Concentrate Samples

Test ID	Dry Solids S.G.	Slurry pH	Flocculant Dosage, g/t	Pulp Initial Density, %	Pulp Final Density, %	Free Settling Velocity, mm/s
MLL S-15	3.99	11.0	10	12.8	56.4	6.1
MLL S-16	3.99	11.0	20	12.8	54.1	8.4
MLU S-15	4.38	11.0	10	13.4	62.2	6.4
MLU S-16	4.38	11.0	20	13.5	59.9	10.2

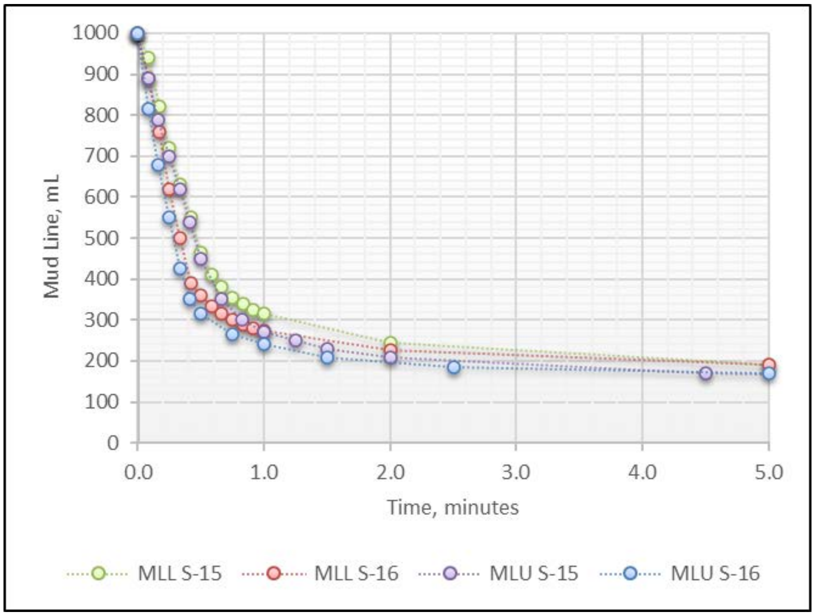


Figure 13-83: Static Settling Plot for MLL/MLU Copper Concentrate Samples

Fairly rapid settling of the concentrate was achieved with suitable concentrate pulp density for subsequent pressure filtration. The settling curves generated are suitable for sizing of a copper concentrate thickener.

13.2.8.2.2 Combined Fe-S Cl cons and Copper Cl-scavenger tails Solid:Liquid Settling Tests

The MLL Fe-S cleaner concentrate plus copper cleaner scavenger tails sample has a solids SG of 3.40 g/cm^3 and a P_{80} of 99 microns. Table 13-48 presents a summary of the input data and results of the dynamic settling tests for this sample.

Table 13-48: Dynamic Settling Test Results for combined MLL Fe-S Cleaner Cons Cu Cl-Scav Tails

Test	Unit	D1-A	D1-B	D1-C	D1-D	D1-E
Parameter		Settling Test - Conditions				
Feed % Solids	%	15.0	15.0	15.0	15.0	15.0
Feed Flow Rate	mL/min	355	497	213	355	355
Loading Rate	t/m²/hr	0.5	0.7	0.3	0.5	0.5
Solids Feed Rate	g/min	59.6	83.4	35.8	59.6	59.6
Rise Rate	m/hr	3.08	4.31	1.85	3.03	3.13
Floc Dosage	g/t	20	20	20	10	30
pH Target		10.5	10.5	10.5	10.5	10.5
Results		Settling Test - Output Data				
Time	Min	25.0	13.0	41.0	20.0	27.0
Bed Height	Cm	14.0	14.0	13.0	14.0	14.0
U/F Density (% Solids)	%	68.5	65.0	69.7	64.4	70.2
Turbidity	FAU	65	69	55	184	41
Unsheared Yield Stress		80	30	98	67	97

The MLU Fe-S cleaner concentrate plus copper cleaner scavenger tails sample has a solids SG of 3.40 g/cm^3 and a P80 of 92 microns. Table 13-49 presents a summary of the input data and results of the dynamic settling tests for this sample.

Table 13-49: Dynamic Settling Test Input and Output for MLU Fe-S Cleaner Cons Plus Cu Cl- scav Tails

Test	Unit	D1-A	D1-B	D1-C	D1-D	D1-E
Parameter		Settling Test - Conditions				
Feed % Solids	%	15.0	15.0	15.0	15.0	15.0
Feed Flow Rate	mL/min	355	497	213	355	355
Loading Rate	$t/m^2/hr$	0.5	0.7	0.3	0.5	0.5
Solids Feed Rate	g/min	59.6	83.4	35.8	59.6	59.6
Rise Rate	m/hr	3.08	4.31	1.85	3.03	3.13
Floc Dosage	g/t	20	20	20	10	30
pH Target		10.5	10.5	10.5	10.5	10.5
Results		Settling Test - Output Data				
Time	min	24.0	17.0	41.0	24.0	21.0
Bed Height	cm	11.0	12.5	10.5	11.0	10.5
U/F Density (% Solids)	%	72.9	68.2	65.0	68.2	66.8
Turbidity	FAU	20	72	39	114	118
Unsheared Yield Stress		100	86	77	62	90

Comparing MLL and MLU Fe-S cleaner concentrate plus copper cleaner scavenger tails samples, high U/F densities could be achieved (70% approx.) when using 20 g/t of flocculant and a loading rate of 0.5 $t/m^2/hr$. For the plant mass balance, the proposed operating range for the thickener underflows is 62-65% solids by mass.

13.2.8.2.3 Fe-S Rougher Tails Solid:Liquid Separation Testing

Dynamic settling test were performed on the Fe-S rougher tails for both mine zones using a vessel of 71.5 cm^2 of cross section and 300 mm height. The test objective was to emulate different loading rates (varying the solids feed rate) and determinate the resultant underflow (U/F) density. Also, for a fixed loading rate, different dosages of flocculant were tested to evaluate this impact on the percentage of solids in the U/F and the turbidity of the liquid phase.

Different loading rates were tested from 0.3, 0.5 and 0.7 $tonnes/m^2/hour$ at a fixed flocculant rate of 20 g/tonnes. Then the three flocculant dosages tested were 10, 20 and 30 g/t of ore processed.

The MLL Fe-S rougher tail sample has a solids SG of 3.22 g/cm^3 and a P80 of 99 microns. Table 13-50 presents a summary of the input data and results of the dynamic settling tests for this sample.

Table 13-50: Dynamic Settling Test Input and Output for MLL Fe-S Rougher Tails

Test	Unit	D1-A	D1-B	D1-C	D1-D	D1-E
Parameter		Settling Test – Conditions				
Feed % Solids	%	15.0	15.0	15.0	15.0	15.0
Feed Flow Rate	mL/min	356	499	214	356	356
Loading Rate	$t/m^2/hr$	0.5	0.7	0.3	0.5	0.5
Solids Feed Rate	g/min	59.6	83.4	35.8	59.6	59.6
Rise Rate	m/hr	3.09	4.32	1.85	3.04	3.14
Floc Dosage	g/t	20	20	20	10	30
pH Target		10.5	10.5	10.5	10.5	10.5
Results		Settling Test - Output Data				
Time	min	26.0	21.0	72.0	29.0	23.0
Bed Height	cm	13.0	15.0	14.0	13.0	14.0
U/F Density (% Solids)	%	69.6	69.8	78.1	70.5	70.4
Turbidity	FAU	25	43	48	192	14
Unsheared Yield Stress		31	39	>100	33	36

The MLU Fe-S rougher tail sample has a solids SG of 3.00 g/cm³ and a P80 of 92 microns. Table 13-51 presents a summary of the input data and results of the dynamic settling tests for this sample.

Table 13-51: Dynamic Settling Test Results for MLU Fe-S rougher tails

Test	Unit	D1-A	D1-B	D1-C	D1-D	D1-E
Parameter		Settling Test - Conditions				
Feed % Solids	%	15.0	15.0	15.0	15.0	15.0
Feed Flow Rate	mL/min	358	501	215	358	358
Loading Rate	t/m2/hr	0.5	0.7	0.3	0.5	0.5
Solids Feed Rate	g/min	59.6	83.4	35.8	59.6	59.6
Rise Rate	m/hr	3.10	4.34	1.86	3.05	3.15
Floc Dosage	g/t	20	20	20	10	30
pH Target		10.5	10.5	10.5	10.5	10.5
Results		Settling Test - Output Data				
Time	min	27.0	12.0	31.0	21.0	26.0
Bed Height	cm	14.5	11.5	11.5	10.0	10.0
U/F Density (% Solids)	%	68.5	68.0	69.2	69.0	57.5
Turbidity	FAU	36	43	13	66	43
Unsheared Yield Stress		113	100	70	91	153

13.2.8.2.4 Leached Fe-S Flotation Tails

Leached Fe-S rougher tails samples were obtained from the products after 48 hours of leaching the Fe-S rougher tails, and settling test were done for MLL and MLU mine zone samples to obtain operational parameters to assess the future performance of the current Cyanide Recovery thickener. Figure 13-84, Table 13-52 and Table 13-53 present the results obtained for this testing.

Table 13-52: Static Settling Test Results for MLL leached Fe-S Rougher Tails Samples

Test ID	Dry Solids S.G.	Slurry pH	Flocculant dosage, g/t	Pulp initial density, %	Pulp final density, %	Free settling velocity, mm/s
MLL S-5	3.56	10.5	20	14.4	64.2	17.2
MLL S-6	3.56	10.5	10	14.5	68.4	6.4
MLL S-13	3.56	11.0	10	13.2	66.2	13.2
MLL S-14	3.56	11.0	20	13.2	62.2	27.7

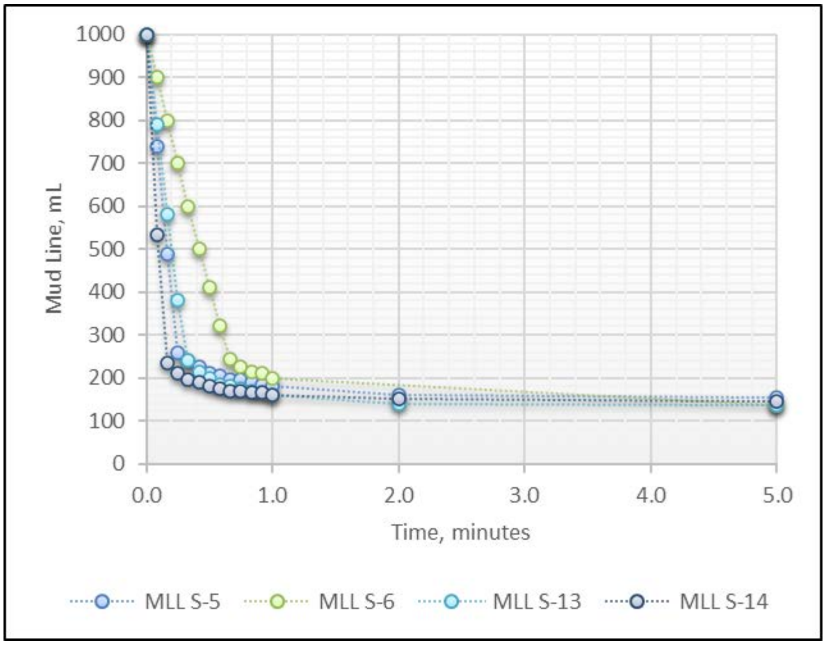


Figure 13-84: Static Settling Plot for MLL leached Fe-S Rougher Tails Samples

Table 13-53: Static Settling Test Results for MLU leached Fe-S Rougher Tails Samples

Test ID	Dry Solids S.G.	Slurry pH	Flocculant Dosage, g/t	Pulp Initial Density, %	Pulp Final Density, %	Free Settling Velocity, mm/s
MLU S-5	3.47	10.5	10	14.5	63.4	3.5
MLU S-6	3.47	10.5	20	14.4	64.4	4.6
MLU S-7	3.47	11.0	10.	14.9	65.7	2.1
MLU S-8	3.47	11.0	20.	14.6	66.3	7.8

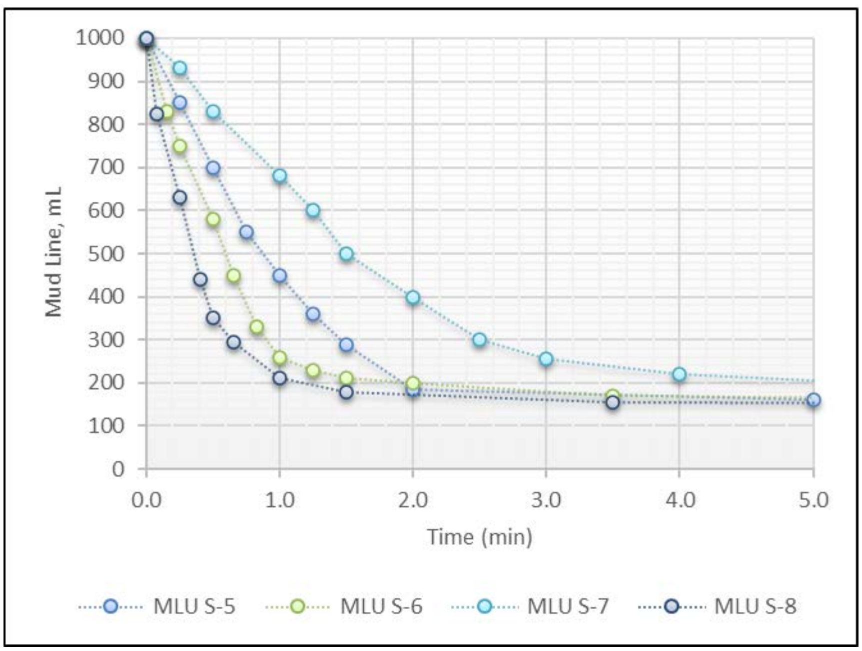


Figure 13-85: Static Settling Plot for MLU leached Fe-S Rougher Tails Samples

For both MLL and MLU samples, the final settled densities were above the proposed operating pulp densities with rapid settling and moderate flocculant dosages were required to achieve this.

13.2.8.3 Filtration Testing

Filtration will be required on two products from the flotation circuit, copper concentrate and Fe-S concentrate, and specific tests were carried out to support selection of new equipment and assessment of existing equipment to be repurposed.

13.2.8.3.1 Copper Concentrate Filtration

Laboratory scale pressure filtration tests were carried out on copper concentrate samples. Final copper concentrate samples from MLL and MLU were obtained and tested after thickening and viscosity test were performed.

Results for both mine zones downstream samples are presented in the Table 13-54, and it can be seen that the dewatering of the copper concentrates to the desired cake moisture was achievable

Table 13-54: Pressure Filter Test Results for MLL and MLU Copper Concentrate Samples

Test	Sample Mass grams	Blow Time - sec		Cake Thickness, mm	Cake Moisture, %	Filter Rate, kg/m²/hr
		Total	Filter Time			
MLL Copper Concentrate	30	30	4	8	8.0	2,158
		60	4	7	7.2	970
		180	4	7	4.7	355
	60	30	15	15	11.4	3,954
		60	15	14	9.4	1,939
	90	60	35	24	11.8	2,965
		180	41	23	8.7	992
MLU Copper Concentrate	30	30	5	8	12.6	1,667
		60	5	9	17.2	1,015
		180	5	9	4.5	338
	60	30	7	16	9.6	4,172
		60	7	17	5.7	2,135
	90	60	11	23	8.6	2,980
		180	12	27	6.6	1,240

13.2.8.3.2 Fe-S Concentrate Vacuum Filtration Testing

The horizontal vacuum belt filters (HBF) will be repurposed and used to recover pregnant solution from the leached Fe-S concentrate stream in the new process flowsheet. Vacuum filtration tests were performed to be able to validate production performance for the Fe-S concentrate streams to ensure that this equipment would be fit for purpose. Full filtration and washing efficiency tests were completed at BML and a specialized consultant familiar with vacuum belt filtration sizing involved in validation of the equipment for use in the circuit.

The two HBF's will be used to treat either the Fe-S cleaner tails and leached Fe-S concentrates separately, or as required both to treat the Fe-S concentrates when production rates are high. Testing was carried out to support subsequent performance analysis.

All tests were performed at natural pulp pH, using a filter area of 70.88 cm^2 and Sepor 25 as filter media. The pulp density used was between 50 and 60% solids.

For the leached Fe-S cleaner tails products, 5 different cakes thickness were tested. The sample has an SG of 3.71 g/cm³ and the filter clarity obtain from all tests was cloud and milky type. Results from all tests are presented Figure 13-86.

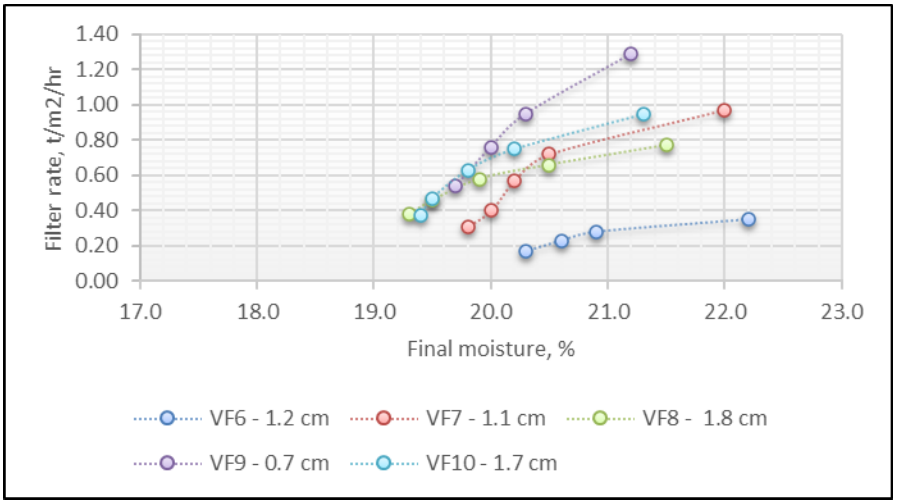


Figure 13-86: Final Moisture vs Filter Rate for MLL Fe-S Cleaner cons + Cu Cleaner Scavenger Tails

From Figure 13-86, it can be observed that moistures below 20% can be achieved for most of the cake thickness tested. Best filter rates can be obtained for the cake thickness of 0.7 cm.

In addition to the vacuum filtration rates, an evaluation of wash displacement ratio on filtration rate performance was also completed. This was important because the efficient recovery of pregnant solution and subsequent washing of residual cyanide from the filter cake before discharge is essential. The wash efficiency tests indicated that 95-97% efficiency can be obtained confirming the proposed use of the belt filters for the desired duty.

13.2.9 Copper Concentrate for Marketing

Copper concentrates generated via locked cycle tests were analyzed using full ICP and mineralogical assessment. Table 13-55 presents the expected average and range of grades of key elements for the copper concentrates.

Table 13-55: Predicted Copper Concentrate Grades and Moisture Content

Elements		Grade Ranges			
		Units	Average	Minimum	Maximum
Copper	Cu	%	24.5	22.0	29.0
Gold	Au	g/t	55	26	160
Silver	Ag	g/t	650	240	910
Moisture		%	8.5	7.0	10.0
Iron	Fe	%	30.00	21.30	30.80
Sulfur	S	%	31.50	24.30	32.40
Arsenic	As	ppm	1,500	200	8,500
Zinc	Zn	%	1.80	0.18	14.90
Bismuth	Bi	ppm	570	135	2,300
Cadmium	Cd	ppm	460	28	1,600
Cobalt	Co	ppm	98	47	101
Lead	Pb	ppm	30	12	525
Chlorine	Cl	ppm	120	100	160
Fluorine	F	ppm	74	42	112

13.2.10 Recovery of Deleterious Elements

The analysis of recovery of deleterious elements, Bismuth, Zinc, Cadmium and Arsenic and deportment of these elements was a key part of the flotation circuit testing. No simple recovery versus feed grade relationship of any of these elements or versus minerals could be determined. The final recoveries of these elements to the copper concentrate are based on analysis of the final locked cycle test results as presented in Table 13-56.

Table 13-56: Recovery of Deleterious Elements to Copper Concentrate

Element	Recovery to Copper Concentrate %
Bismuth	8.55
Zinc	38.0
Cadmium	43.3
Arsenic	1.85

These recoveries are to be used in the process design criteria, mill feed plans and financial model analysis.

13.2.11 Reagent Consumption & Consumables

Reagent consumption rates for the full-scale plant operation have been estimated from the results of test work and current operation where applicable and used for plant design and are shown in Table 13-57.

As flotation tailings are leached, any cyanide-soluble copper contained within may require subsequent removal from leach solution. Table 13-58 contains typical reagent consumption rates for the SART process that removes copper from solution by precipitation as a copper sulfide, Cu_2S.

Table 13-57: Estimated Reagent Consumption Rates

Reagent Suite	Consumption	Units	Notes
Quicklime to SAG mill	2.64	kg/t	
Hydrated lime to SAG mill	0.11	kg/t	
Hydrated lime to flotation	0.44	kg/t	
Hydrated lime to leaching	0.65	kg/t	
Hydrated lime to DETOX	0.81	kg/t	
Hydrated lime to WTP	0.50	kg/t	
Caustic Soda to ADR	0.10	kg/t	
SMBS to flotation	0.11	kg/t	
SMBS to DETOX	1.60	kg/t	
SMBS to WTP DETOX	0.10	kg/t	
NACN to flotation	0.001	kg/t	
NaCN to Fe-S tails leaching	1.60	kg/t	85% of feed
NaCN to Fe-S cons leaching	11.0	kg/t	15% of feed
NaCN to ADR	0.10	kg/t	
HCl to ADR	0.35	kg/t	
Flocculant to Fe-S tails pre-leach thickener	13.0	g/t	
Flocculant to Fe-S cons preleach thickener	6.35	g/t	
Flocculant to cyanide recovery thickener	12.0	g/t	
Flocculant to Copper concentrate thickener	1.66	g/t	
Flocculant to Guajes tails thickener	15.9	g/t	
Flocculant to HBF # 1	15.0	g/t	5% of feed
Flocculant to HBF # 2	15.0	g/t	10% of feed
Frother	45.0	kg/t	
Collector – 3418A	30.0	g/t	

Reagent Suite	Consumption	Units	Notes
Collector - PAX	220	g/t	
DETA – depressant	15.0	g/t	20% of feed
CMC depressant	0.54	g/t	20% of feed
Zinc sulphate – sphalerite depressant	800	g/t	20% of feed
A7263 Bi depressant	50	g/t	50% of feed
Antiscalant – plant	0.10	kg/t	
Antiscalant ADR	0.01	kg/t	
Oxygen to leach	2.8	kg/t	
Oxygen to DETOX	1.2	kg/t	
Carbon	0.1	kg/t	
Copper sulphate to DETOX	0.17	kg/t	
Copper sulphate to WTP DETOX	0.05	kg/t	

Table 13-58: SART Plant Reagent Consumption Rates

Reagent	Consumption	Units	Notes
Sodium Hydrosulphide	0.55	kg/t	
Sulfuric Acid	2.56	kg/t	
Hydrated lime to SART	2.30	kg/t	
Caustic soda to SART	0.10	kg/t	
Flocculant to copper concentrate thickener	20.0	g/t	3% of feed
Flocculant to gypsum thickener	20.0	g/t	10% of feed
Antiscalant – SART	0.05	kg/t	
Antiscalant – SART	0.10	kg/t	

13.2.12 Test Work Recommendations for Next Development Phase

The following are the recommendations for extended metallurgical testing as part of detailed design and operational planning for startup.

- Obtain and test samples of EPO material
- Increase the understanding of gold deportment and association with minerals, lithology etc within the mine zones to support the optimization of operations decisions as to whether to leach flotation tails streams or not
- Advance understanding of performance of on line assessment methods to be able to make decisions on the fly with regards throw away flotation tails in real time
- Advance understanding of deportment of deleterious elements within the mine and subsequent process

13.2.13 Opportunities

The metallurgical test program was focused on maximizing recovery of the saleable products via flotation and leaching. Depression of deleterious elements such as bismuth and zinc from the copper concentrate to minimize penalties was the primary objective of the metallurgical testing program. Trade-off studies that considered recovering zinc as a product, or a separate bismuth rejection circuit identified that economically the best financial option was to pay penalties.

The potential to recovery bismuth into a saleable concentrate was not included in the scope of the FS, and as this is considered a strategic element could have the potential to generate revenue. Preliminary testing did indicate that good concentrate grades could be generated and this should be evaluated further.

14 MINERAL RESOURCE ESTIMATES

The key points of this section are:

Mr. John Makin, (MAIG) a Consultant Geologist employed by SLR (Canada) Inc. has prepared updated Mineral Resources for the ML and ELG deposits and adopted the previous Mineral Resource estimate for the EPO area of ML. The effective date for each estimate is October 31, 2021 (ML and EPO), and December 31, 2021 (ELG Mine Complex). Mr. Makin is independent of the Company and a Qualified Person as defined by NI 43-101.

The Mineral Resources were estimated into seven block models across the property, the majority of the grade being hosted in exoskarn and endoskarn lithologies.

At ELG, outlier grades were treated using a grade distance restriction while at ML a traditional grade capping approach was taken. Assays were composited to 3 m, 2.5 m or 1 m within the skarn domains depending on the mining method and block size being used for the area. Grades were interpolated into a whole block or sub blocked model in two or three passes using inverse distance cubed (ID3) or ordinary kriging (OK) to weigh each sample.

Mineral Resources are classified into the Measured, Indicated and Inferred categories using a drillhole spacing approach. The criteria to define each category was tailored to each deposit area, and considers geological continuity and understanding, as well as a drillhole spacing study. Both open pit and underground mining methods are considered at the property.

Mineral Resource domains and block models were constructed using Leapfrog Geo and Edge software. Databases and surfaces provided were validated using standard techniques and block models were validated using statistical comparisons, visual reviews and reconciliation to mine production (where available).

Metal Prices were assumed to be US$1,550/oz Au, US$20.00/oz Ag and US$3.50/lb Cu and gold equivalents (AuEq) were calculated using the price ratios in combination with metallurgical recovery. The cut-off grades (CoGs) calculated for each area were 0.9 g/t Au (ELG OP), 2.6 g/t Au (ELG UG) and 2.0 g/t AuEq (ML and EPO).

At the Morelos Property and above the CoGs relevant for each deposit and proposed mining method, Measured and Indicated Mineral Resources are estimated to total 46.7 Mt at average Au, Ag, and Cu grades of 3.41 g/t Au, 19.6 g/t Ag, and 0.66% Cu and containing 5.1 million ounces of Au, 29.3 million ounces of Ag and 677 million pounds of Cu. Inferred Mineral Resources are estimated to total 16.2 Mt at average Au, Ag and Cu grades of 2.17 g/t Au, 25.5 g/t Ag, and 0.95% Cu and containing 1.13 million ounces of Au, 13.3 million ounces of Ag and 340 million pounds of Cu. Results are presented in Table 14-1.

The Mineral Resource estimate for the Morelos Property is provided in Table 14-1 with accompanying footnotes.

Table 14-1: Summary of Mineral Resources at the Morelos Property

Mineral Resources	Tonnes	Grade			Contained Metal			Gold Equivalent	
	(kt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (koz)	Ag (koz)	Cu (Mlb)	AuEq (g/t)	AuEq (koz)
ELG Open Pits									
Measured	5,727	3.89	5.0	0.13	716	919	17	3.93	724
Indicated	11,027	2.37	4.7	0.12	842	1,660	28	2.41	856
Measured & Indicated	16,754	2.89	4.8	0.12	1,557	2,579	45	2.93	1,580
Inferred	812	1.80	3.5	0.08	47	90	1	1.83	48
ELG Underground									
Measured	584	7.24	10.0	0.52	136	187	7	7.37	138
Indicated	3,968	6.11	7.1	0.27	779	900	23	6.18	789
Measured & Indicated	4,551	6.25	7.4	0.30	915	1,088	30	6.34	927
Inferred	1,380	4.88	6.2	0.25	217	275	8	4.95	220
Media Luna Underground									
Measured									
Indicated	25,380	3.24	31.5	1.08	2,642	25,706	602	5.38	4,394
Measured & Indicated	25,380	3.24	31.5	1.08	2,642	25,706	602	5.38	4,394
Inferred	5,991	2.47	20.8	0.81	476	3,998	106	4.05	780
EPO Underground									
Measured	-	-	-	-	-	-	-	-	-
Indicated	-	-	-	-	-	-	-	-	-
Measured & Indicated	-	-	-	-	-	-	-	-	-
Inferred	8,019	1.52	34.6	1.27	391	8,908	225	3.97	1,024
Total									
Measured	6,311	4.20	5.5	0.17	852	1,106	24	4.25	862
Indicated	40,375	3.28	21.8	0.73	4,263	28,266	653	4.65	6,039
Measured & Indicated	46,685	3.41	19.6	0.66	5,114	29,373	677	4.60	6,901
Inferred	16,202	2.17	25.5	0.95	1,131	13,271	340	3.98	2,071

Notes to accompany the Summary Mineral Resource Table:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are depleted above a mining surface or to the as-mined solids as of December 31, 2021.
3. Mineral Resources are reported using a gold price of US$1,550/oz, silver price of US$20/oz, and copper price of US$3.50/lb.
4. AuEq of total Mineral Resources is established from combined contributions of the various deposits.
5. Mineral Resources are inclusive of Mineral Reserves.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. Numbers may not add due to rounding.
8. The estimate was prepared by Mr. John Makin, MAIG, a consultant with SLR Consulting (Canada) Ltd. Mr. Makin is independent of the company and is a “Qualified Person” under NI 43-101.

Notes to accompany the ELG Mineral Resources:

9. The effective date of the estimate is December 31, 2021.
10. Average metallurgical recoveries are 89% for gold, 30% for silver and 10% for copper.
11. ELG AuEq = Au (g/t) + (Ag (g/t) * 0.0043) + (Cu (%) * 0.1740). AuEq calculations consider both metal prices and metallurgical recoveries.

Notes to accompany the ELG Open Pit Mineral Resources:

12. Mineral resources are reported above a cut-off grade of 0.9 g/t Au.
13. Mineral Resources are reported inside an optimized pit shell, underground mineral reserves at ELD within the El Limón shell have been excluded from the open pit Mineral Resources.

Notes to accompany ELG Underground Mineral Resources:

14. Mineral Resources are reported above a cut-off grade of 2.6 g/t Au.
15. The assumed mining method is underground cut and fill.
16. Mineral Resources from ELD that are contained within the El Limón pit optimization and that are not underground Mineral Reserves have been excluded from the underground Mineral Resources.

Notes to accompany Media Luna Mineral Resources:

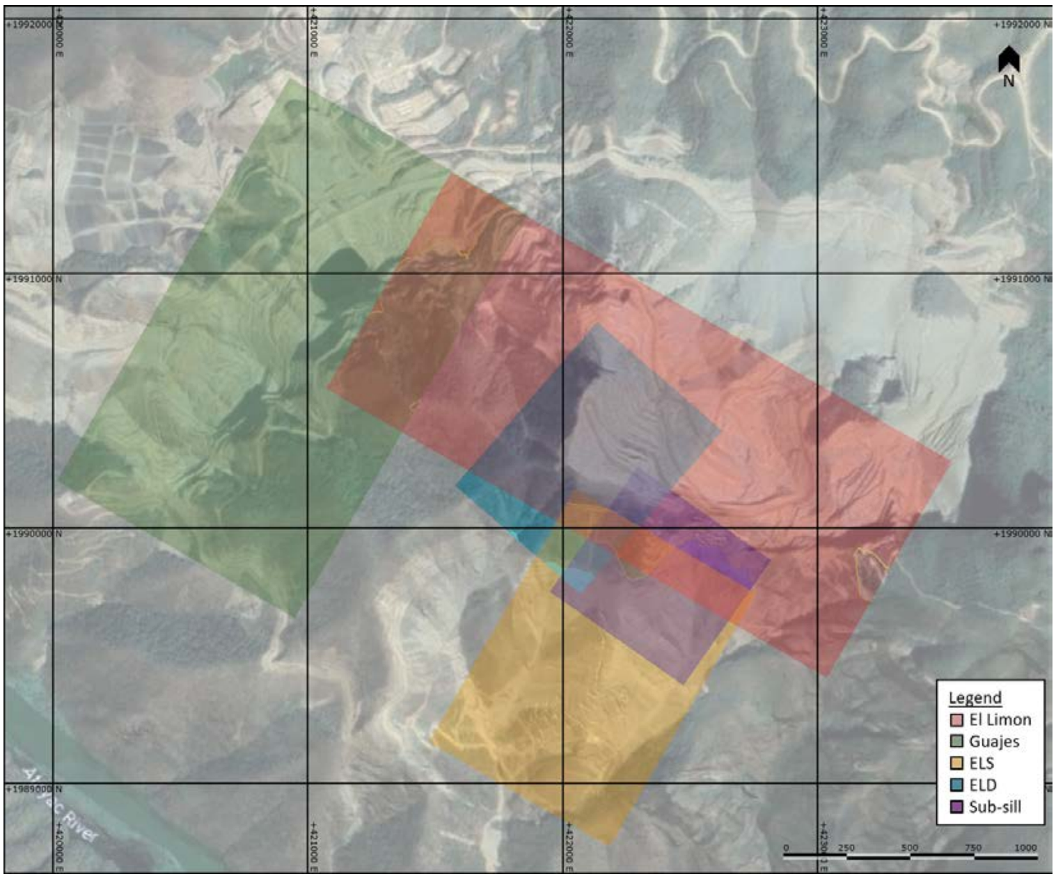
17. The effective date of the estimate is October 31, 2021.
18. Mineral Resources are reported above a 2.0 g/t AuEq cut-off grade.
19. Metallurgical recoveries at Media Luna (excluding EPO) average 85% for gold, 79% for silver, and 91% for copper. Metallurgical recoveries at EPO average 85% for gold, 75% for silver, and 89% for copper.
20. Media Luna (excluding EPO) AuEq = Au (g/t) + (Ag (g/t) * 0.011889) + (Cu (%) * 1.648326). EPO AuEq = Au (g/t) + Ag (g/t) * (0.011385) + Cu % * (1.621237). AuEq calculations consider both metal prices and metallurgical recoveries.
21. The assumed mining method is from underground methods, using a combination of longhole stoping and, cut and fill.

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

14.1 INTRODUCTION

The Mineral Resource Estimates for the ELG Mine Complex and ML Project were carried out using Seequent's Leapfrog Geo and Edge software. To reduce project extents, complexity and processing time, ML and the ELG projects were set-up in several Leapfrog projects.

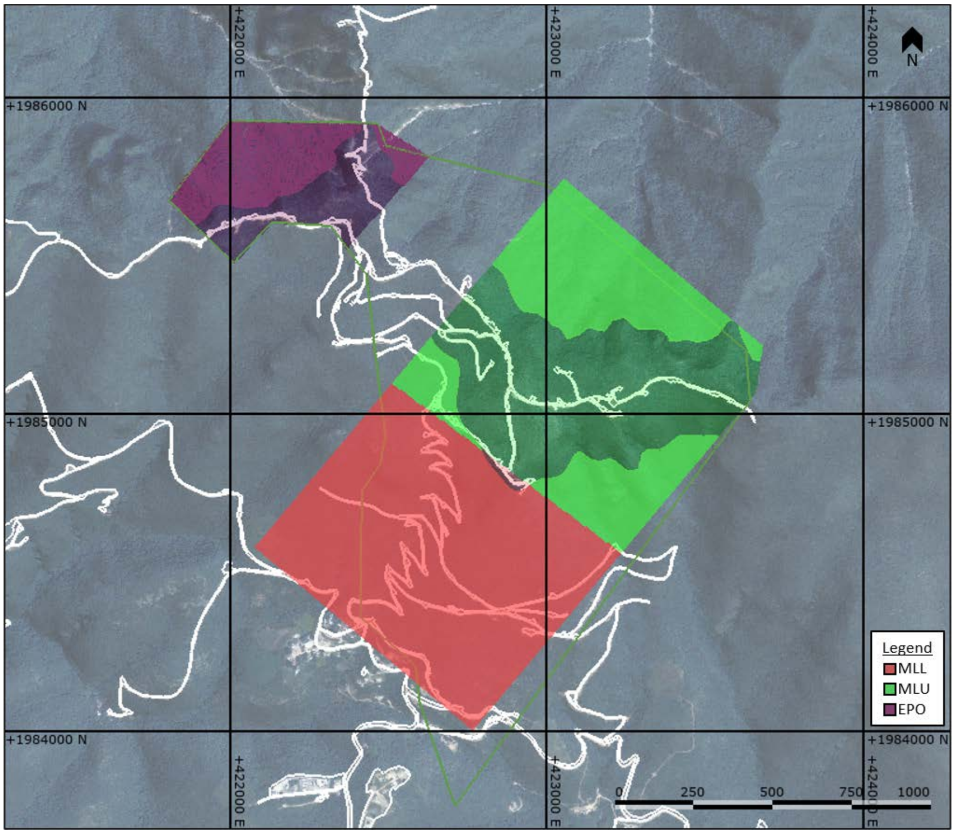
The ELG Mine Complex was estimated into five block models across three Leapfrog (LF) projects. The Leapfrog project for El Limón held the block models for the El Limón and El Limón Sur (ELS) open pit models, and the block model for the El Limón Deep (ELD) underground mining area. The Guajes project held the Guajes open pit model, and the Sub-Sill project holding the Sub-Sill underground block model. The relative extents of the five block models are shown in Figure 14-1.



Source: SLR, 2022.

Figure 14-1: Plan View showing the ELG Model Areas

At ML, two separate block models are being referred to in this Technical Report. The Indicated Mineral Resources and some Inferred Mineral Resources are hosted in the areas known as Media Luna Upper (MLU) and Media Luna Lower (MLL). This model is referred to as the ML model. An additional area to the northwest of MLU known as 'Early Production Opportunity' (EPO) was estimated by Dr. Lars Weiershaeuser, P.Geo. (effective April 30, 2021), and is referred to in this Technical Report as the EPO Model. As no further drilling had taken place at EPO when the October model update commenced, the QP has reviewed and adopted it for this Technical Report. A plan view of the relative block model extents at Media Luna is shown in Figure 14-2.



Source: SLR, 2022.

Figure 14-2: Plan view showing the Media Luna Model Areas

14.2 DATABASE

Drillhole data for the property is stored in two databases. Data from north of the Balsas River covers the ELG mine area and is stored using AcQuire database software while drillholes from south of the river cover the ML area and are stored using MX Deposit software. Complete databases were provided to SLR for each project as a Microsoft Access database and as generic comma separated value files.

14.2.1 ELG

The drillhole database for ELG included all holes with assays that were available as of November 9, 2021. This comprises 2,894 drillholes with a total drilled length of 401,884 m. As the ELG mine area was divided into three separate LF projects, the database was also split to ensure superfluous data would not impact the project extents and contribute to an increase in processing time. The database was divided into the three projects by northing and easting as summarized in Table 14-2.

Table 14-2 Database Extents by Project Area

Project	Minimum Easting	Maximum Easting	Minimum Northing	Maximum Northing	Number of holes	Drilled Length (m)
El Limón	421,600	423,200	1,989,040	1,991,300	2,024	295,545
Guajes	419,700	421,800	1,989,500	1,991,300	921	115,837
Sub-Sill	421,670	423,000	1,989,400	1,990,400	1,302	208,731

The number of holes and total drilled length for the database used in each project are summarized in Table 14-2.

14.2.2 Media Luna

The drillhole database used to inform the MLU/MLL estimate included all holes with complete assays that were available as of September 30, 2021. This consisted of 772 drillholes with a total length of 318,432 m (parent holes for directional drilling were not included in drilling length of the child holes).

The EPO estimate contains 72 drillholes with a total length of 41,868 m drillholes with assays available as of September 30, 2021 (no drilling from April to September 2021).

14.3 GEOLOGICAL MODELS

The lithology across the Morelos Property area is logged directly into the drillhole databases for each project using the rock codes in Table 14-3.

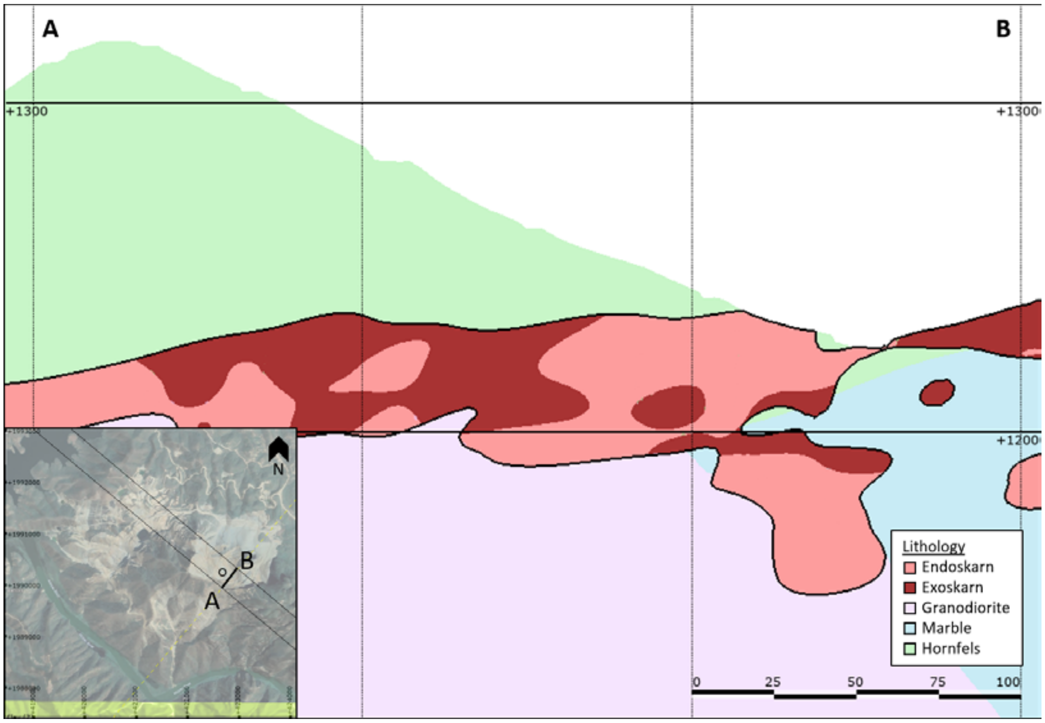
Table 14-3: Rock Codes

Code	Description
0	No Recovery
31	Exoskarn
32	Endoskarn
33	Iron Oxides
34	Breccia
35	Dissolution Breccia
36	Undifferentiated Intrusive
37	Hornfels
38	Alluvium
39	Marble/Limestone
41	Massive Sulfides/Oxides
42	Fault gouge
50	Shale
60	Granodiorite
61	Feldspar Porphyry
62	Feldspar-Biotite-Hornblende-Quartz Porphyry
63	Quartz-Feldspar-Hornblende Porphyry
64	Feldspar-Biotite Porphyry
65	Mafic Dykes
66	Fine-grained Biotite

Lithology models were constructed by Torex staff for each project using Leapfrog Geo software. The sedimentary packages (Limestone, Marble and Hornfels) were modelled first before being overprinted by the Granodiorite intrusion. The skarn package (endo and exoskarn) was then modelled to overprint this overarching lithology using various modelling tools in Leapfrog as appropriate to the local geometry of the skarn package. Intrusive dykes were then modelled, overprinting the older lithologies using the vein modelling tool where clear linear trends could be observed and intrusion modelling where the trend was unclear or non-linear.

14.3.1 ELG

At the ELG Mine Complex the skarn package was further refined into exoskarn and endoskarn units before estimation (Figure 14-3).



Source: SLR, 2022.

Figure 14-3: Refined Skarn Package at El Limón, Looking Northwest

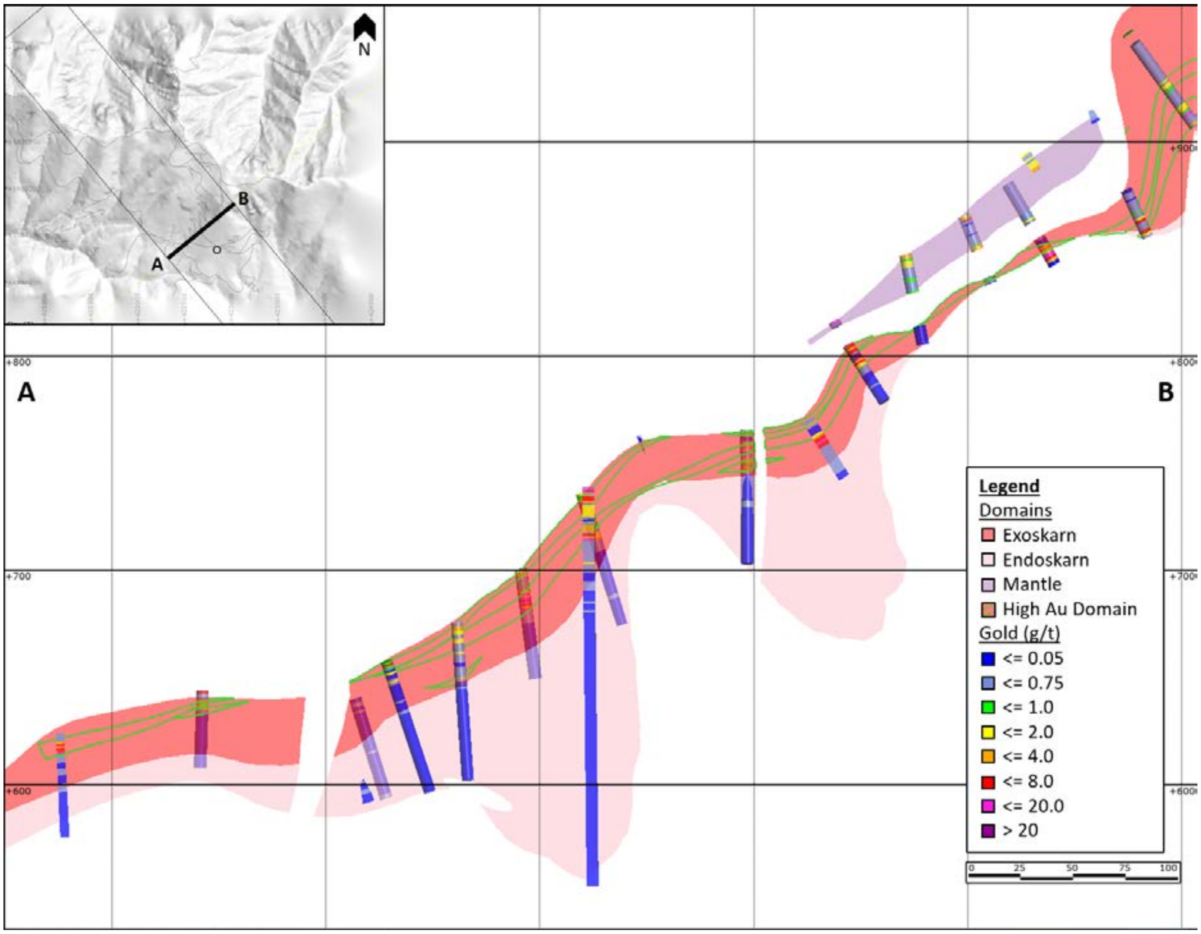
In future work, SLR recommends trialing the use of high grade domains within the skarn package for the underground mining areas. This approach may allow the use of longer range variograms to weigh the estimate and improve the continuity of grade, especially in areas where drilling information is sparse.

14.3.2 Media Luna

At ML, the total skarn package was divided into two units, the upper exoskarn unit and the lower endoskarn unit. Each of these domains contained small discontinuous intervals of the other rock type (the generalized exoskarn unit contained intervals of endoskarn, and vice versa) and were treated as separate domains.

In addition to the main skarn package, smaller skarn domains in the hanging wall were also defined. These are referred to locally as 'mantles' (sub-horizontal) or 'tongues' (sub-vertical) depending on their spatial orientation. The rock codes associated with these domains are Mantle1, M2 and 31_UW.

For the ML deposit, three sets of additional wireframes were prepared to select material with elevated Au, Cu or Zn grades within the main skarn horizon. These additional wireframes were used to drive the selection of capping grades and influence the direction of the search ellipse during block estimation.



Source: SLR, 2022.

Figure 14-4: Media Luna Exoskarn, Endoskarn Mantle and high grade Au Domains with Au Composites, Looking Northwest

The high grade domains at ML that were developed for Au, Cu and Zn were also used for elements showing strong correlations to the primary element as follows:

- Au: As, Bi and Pb.
- Cu: Ag, CuCN, Fe, S and Pyrrhotite (PYH).
- Zn: Cd

At EPO, only the upper exoskarn domain was estimated.

14.4 GRADE CAPPING/OUTLIER RESTRICTION

14.4.1 ELG

At ELG grade capping was not applied and outlier Au grades were controlled using a grade/distance restriction approach. The grade/distance restrictions are applied to Au grades during estimation. Grades above a certain value are capped when the distance to the estimated block is greater than the applied threshold. For example, an exoskarn sample at Guajes would be capped at 40 g/t Au if the distance to the block being estimated was greater than 15 m. The distance criteria and selected capping grades for each estimation domains can be seen in Table 14-4.

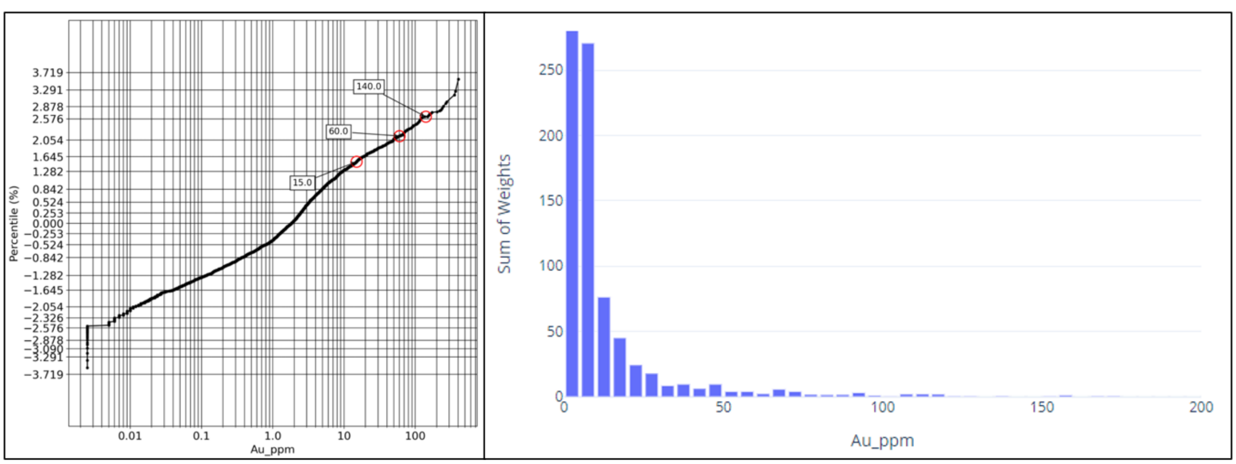
Table 14-4: Au Grade Restriction Thresholds, ELG

	Lithology	Domain	Capping Grade (g/t Au)	Distance Threshold (m)
Guajes	Exoskarn		40	15
	Endoskarn		35	15
El Limón	Exoskarn	East	30	10
		West	26	10
	Endoskarn	East	30	10
		West	25	10
El Limón Sur	Exoskarn		18	10
	Endoskarn		18	7.5
El Limón Deep	Exoskarn	East	30	7.5
		West	26	7.5
	Endoskarn	East	30	7.5
		West	25	7.5
Sub-sill	Exoskarn		70	7.5
	Endoskarn		55	7.5

SLR is of the opinion that the chosen strategy for the treatment of outlier grades is appropriate for the ELG Mine Complex Mineral Resources. To confirm this opinion, SLR ran a check estimate using a conventional capping approach and found that there was no material change (<2%) in the global resource estimate and using the grade restriction was a more conservative strategy. The short-range distance thresholds result in very small tonnages that use uncapped samples to inform the interpolation while also preserving the high grade of the samples within the local estimate.

14.4.2 Media Luna

At ML, capping of outlier grades for each element was analyzed within the exoskarn, endoskarn and mantle lithologies in each zone (MLL or MLU). The exoskarn was further divided into the high- and low-grade populations based on the high grade domains for each element described above. Capping levels were assessed using histograms and log-probability plots within each domain (see example in Figure 14-5), the assigned capping grades are shown for each element and domain in Table 14-5. Assays were capped before compositing.



Source: SLR, 2022.

Figure 14-5: Example Log Probability Plot and Histogram, Au, MLL high grade Au Domain

Table 14-5: Assigned Capping Grades at Media Luna

Element (unit)	Domain	MLL Exoskarn	MLL Endoskarn	MLU Exoskarn	MLU Endoskarn	Mantle/Tongues
Au (g/t)	High Cap	140	50	120	50	35
	Low Cap	50		50		
Cu (%)	High Cap		10		10	7.5
	Low Cap	8		11		
Ag (g/t)	High Cap	380	340	450	250	260
	Low Cap	200		250		
As (ppm)	High Cap	120,000	90,000	150,000	120,000	130,000
	Low Cap	90,000		120,000		
Bi (ppm)	High Cap	7,500	4,500	7,500	4,500	3,000
	Low Cap	4,500		4,500		
CuCN (%)	High Cap	2.75	1.25	2.75	1.25	
	Low Cap	1.25		1.25		1.25
Pb (ppm)	High Cap	275	275	275	275	275
	Low Cap	275		275		
Zn (%)	High Cap	25	15	25	15	15
	Low Cap	15		15		15
Cd (ppm)	High Cap	3,500	1,750	3,500	1,750	
	Low Cap	1,750		1,750		

The remaining estimated elements (Fe, S and Pyrrhotite) were uncapped as their sample populations did not show outliers requiring treatment.

Example descriptive statistics for raw assays and capped assays by domain for Cu are shown in Table 14-6 and Table 14-7 respectively.

Table 14-6: Descriptive Statistics for Copper Assays, by Domain

Domain	Count	Length	Mean	SD	CV	Min.	Median	Max.
MLL Exoskarn HG	5764	4419	1.26	1.63	1.29	0.0	0.68	16.2
MLL Exoskarn LG	6880	5427	0.19	0.43	2.29	0.0	0.06	11.8
MLL Endoskarn	5047	4543	0.07	0.44	5.93	0.0	0.00	24.9
MLU Exoskarn HG	2246	1677	1.41	2.21	1.57	0.0	0.74	18.8
MLU Exoskarn LG	3506	2727	0.17	0.82	4.92	0.0	0.01	18.5
MLU Endoskarn	3436	2802	0.14	0.73	5.41	0.0	0.00	16.6
Mantles	2295	1777	0.28	0.68	2.45	0.0	0.02	9.0

Table 14-7: Descriptive Statistics for Capped Copper Assays, by Domain

Domain	Count	Length	Mean	SD	CV	Min.	Median	Max.
MLL Exoskarn HG	5764	4419	1.26	1.63	1.29	0.0	0.68	16.2
MLL Exoskarn LG	6880	5427	0.19	0.42	2.24	0.0	0.06	8.0
MLL Endoskarn	5047	4543	0.07	0.42	5.72	0.0	0.00	10.0
MLU Exoskarn HG	2246	1677	1.41	2.21	1.57	0.0	0.74	18.8
MLU Exoskarn LG	3506	2727	0.16	0.68	4.29	0.0	0.01	11.0
MLU Endoskarn	3436	2802	0.13	0.67	5.08	0.0	0.00	10.0
Mantles	2295	1777	0.28	0.67	2.42	0.0	0.02	7.5

At EPO, outliers were identified in the total exoskarn package and caps were applied as shown in Table 14-8.

Table 14-8: Capping Grades for EPO

Element	Unit	Cap
Ag	g/t	270
As	%	11.5
Au	g/t	60
Bi	ppm	7000
Cu	%	8
Zn	%	14

14.5 COMPOSITING

14.5.1 ELG

For the Guajes and El Limón deposits (including ELD), samples were composited to a 3 m length with a minimum composite length of 2 m. Residual short composites were distributed equally across the sampled interval.

The Sub-Sill model used composites with a length of 2.5 m, using a minimum length of 2 m and distributing any residual sample equally across the interval.

Compositing occurred within the lithology domain boundaries.

Fundamental descriptive statistics for the skarn domain Au assays (Table 14-9) and composites (Table 14-10) are shown below.

Table 14-9: Au Assay Summary Statistics

Deposit	Rock Code	Count	Length (m)	Mean (g/t)	SD	CV	Min. (g/t)	Median (g/t)	Max. (g/t)
Guajes	31	6,232	8,042	2.36	9.2	3.9	0	0.18	347.1
	32	18,704	25,194	1.19	7.4	6.2	0	0.04	672.0
ELS	31	1,670	2,174	0.99	5.4	5.5	0	0.05	193.2
	32	2,696	4,098	0.62	2.4	3.9	0	0.04	59.0
El Limón	31	10,391	13,188	2.73	7.7	2.8	0	0.45	262.8
	32	9,361	11,933	1.76	6.9	3.9	0	0.16	215.3
ELD	31	10,699	11,528	3.14	8.2	2.6	0	0.56	187.3
	32	4,810	6,075	1.01	4.0	3.9	0	0.10	128.2
Sub-Sill	31	11,249	12,779	4.04	17.2	4.2	0	0.39	637.5
	32	9,785	12,470	0.98	4.5	4.7	0	0.07	158.7

Table 14-10: Au Composite Summary Statistics

Deposit	Rock Code	Count	Length (m)	Mean (g/t)	SD	CV	Min. (g/t)	Median (g/t)	Max. (g/t)
Guajes	31	2,777	8,042	2.36	7.1	3.0	0	0.32	157.3
	32	8,527	25,194	1.19	5.5	4.6	0	0.06	268.9
ELS	31	747	2,174	0.99	4.0	4.1	0	0.10	93.2
	32	1,393	4,098	0.62	1.8	3.0	0	0.06	31.8
El Limón	31	4,632	13,188	2.73	6.0	2.2	0	0.72	186.4
	32	4,196	11,933	1.76	5.5	3.1	0	0.29	194.0
ELD	31	4,714	11,528	3.14	6.1	1.9	0	0.88	98.5
	32	2,554	6,075	1.00	3.0	3.0	0	0.15	75.8
Sub-Sill	31	5,372	12,779	4.04	12.8	3.2	0	0.66	317.2
	32	5,374	12,470	0.98	3.5	3.5	0	0.11	111.5

14.5.2 Media Luna

At ML and EPO, the dominant sample interval was 1 m. Capped samples were composited to 1 m within skarn lithologies and their internal high grade domains. A minimum length of 0.66 m was applied for each composite and short composites were added to the previous interval. For capped elements, a final composite grade field was created to combine the appropriate capping value for each domain into a single attribute for estimation. Example composite statistics for Cu by domain are shown in Table 14-11.

Table 14-11: Descriptive Statistics for Copper Composites, by Domain

Domain	Count	Length (m)	Mean (%)	SD	CV	Min. (%)	Median (%)	Max. (%)
MLL Exoskarn HG	4377	4421	1.26	1.45	1.15	0.00	0.76	12.2
MLL Exoskarn LG	5421	5434	0.19	0.37	1.97	0.00	0.07	5.2
MLL Endoskarn	4527	4557	0.07	0.37	4.99	0.00	0.00	7.5
MLU Exoskarn HG	1652	1680	1.41	1.91	1.35	0.00	0.82	15.3
MLU Exoskarn LG	2725	2729	0.16	0.58	3.64	0.00	0.01	10.9
MLU Endoskarn	2783	2802	0.13	0.57	4.31	0.00	0.01	10.0
Mantles	1763	1782	0.28	0.59	2.15	0.00	0.03	6.0

14.6 DENSITY ASSIGNMENT

14.6.1 ELG

At ELG density assignment followed the procedures used in previous work to maintain continuity at the deposit. Densities were assigned based on the modelled lithology and whether each block was mineralized or unmineralized based on a threshold of 1 g/t Au. The assigned densities for each rock type are shown in Table 14-12.

Table 14-12: ELG Block Density Values

Rock Code	Density (t/m^3)	
	Mineralized	Unmineralized
31	3.168	3.132
32	3.125	3.169
34	2.484	2.642
35	2.484	2.642
36	2.629	2.603
37	2.869	2.849
38	2.479	2.479
39	2.866	2.675
41	3.327	3.691
42	2.572	2.544
50	2.866	2.675
99	1.8	1.8
Other	2.629	2.603

While SLR believes that the assigned densities at ELG are appropriate for this update, the database of density measurements should be re-compiled to ensure that all data is considered and that the deeper areas slated for underground mining are well represented. In future work, if supported by sampling, consideration should also be given to estimating density into the model rather than assigning it based on the averages of the encompassing lithology.

14.6.2 Media Luna

At ML, a comprehensive suite of 49,220 density measurements has been taken across all lithologies and in all areas of the deposit. This dataset allowed the density at ML to be directly estimated into all endoskarn and exoskarn lithologies (See Section 14.8.2). Un-estimated blocks within skarn lithologies were assigned the lithologies' average value.

The density of the surrounding non-skarn lithologies was assigned based on the average densities of the rock type in either the MLL or MLU zones. The assigned densities are shown in Table 14-13.

Table 14-13: Assigned Densities at Media Luna

Rock Code	Density (t/m^3)	
	MLL	MLU
31	3.582	3.441
32	3.260	3.161
31_UW	3.637	3.317
Mantle1	3.132	3.132
M2	3.647	3.647
39	2.853	2.853
60	2.860	2.754
62	2.679	2.679
Other	2.630	2.630

At EPO, densities were estimated into the exoskarn package, and the surrounding rock was assigned the average density of the unit. Assigned densities at EPO are shown in Table 14-14.

Table 14-14: Assigned Densities at EPO

Rock Code	Density (t/m^3)
31	3.731
32	3.298
39	2.767
60	2.793
62	2.636
Other	2.886

14.7 BLOCK MODEL SETUP

Block models were constructed to host interpolated grades and other assigned attributes such as rock type, density, and Mineral Resource classification.

14.7.1 ELG

At the ELG Mine Complex five block models were created to hold the estimates for El Limón, Guajes, El Limón Sur, El Limón Deep and Sub-Sill. The block model setup for each area is shown in Table 14-15.

Table 14-15: ELG Block Model Setup

Model	Axis	Origin	Model Size (m)	Block Size (m)	Sub-block Size (m)	Rotation (°)
Guajes	x	420015	1078	7	-	-
	y	1990186	1827	7	-	-
	z	462	637	7	-	30
El Limón	x	421072	2268	7	-	-
	y	1990547	980	7	-	-
	z	833	595	7	-	30
ELS	x	421475	819	7	-	-
	y	1989159	1148	7	-	-
	z	672	637	7	-	30
ELD	x	421578	650	5	2.5	-
	y	1990167	850	5	2.5	-
	z	500	600	5	2.5	41
Sub-Sill	x	421950	640	2.5	-	-
	y	1989750	600	2.5	-	-
	z	500	700	2.5	-	35

Note: Origin coordinates have been rounded to nearest meter.

14.7.2 Media Luna

The ML block model covers the MLU and MLL zones. The EPO model represents a portion of an older (April 2021) larger block model originally covering EPO, MLL and MLU. The block model set up for the Media Luna models are shown in Table 14-16.

Table 14-16: Media Luna Block model setup

Model	Axis	Origin	Model Size (m)	Block Size (m)	Sub-block Size (m)	Rotation
ML (Upper and Lower)	x	422077.255	900	5	2.5	-
	y	1984580	1520	5	2.5	-
	z	480	1000	5	2.5	40
EPO	x	421100	2140	2.5	-	-
	y	1985010	1875	2.5	-	-
	z	25	1385	2.5	-	35

14.8 ESTIMATION / INTERPOLATION METHODS

Grades were interpolated into the block models for each area using a combination of OK and ID3 weighting. Estimates were carried out for the key economic elements (Au, Ag and Cu) and suite of elements that may be deleterious to the processing or payables (As, Bi, Cd, Co, Fe, Pb, S and Zn).

The estimated percentage of key minerals was stored in the block model in addition to the elemental chemistry. Mineral content was calculated using a set of formulae produced by Richard Preece Services LLC and Promet101 Consulting. These formulae were based on the weight percent of the elements contained in each mineral and the resulting consumption of iron and sulfur.

To quantify the relative contributions of chalcocite and chalcopyrite to the total Cu grade, the cyanide soluble Cu assay results were used to estimate the percentage of total Cu sourced from each mineral where these assays were available. Parallel estimates of total Cu and Cu contributed by chalcocite, using only assays where cyanide soluble Cu was available, were carried out using the same estimation parameters as the total Cu estimate. These values were normalized to the total Cu estimates before being used to calculate the chalcopyrite and chalcocite mineral contents for each block. In blocks where the chalcocite contribution to total Cu was not estimated, the Cu was assumed to be held in chalcopyrite.

The following minerals were calculated in the block model based on the interpolated elemental chemistry:

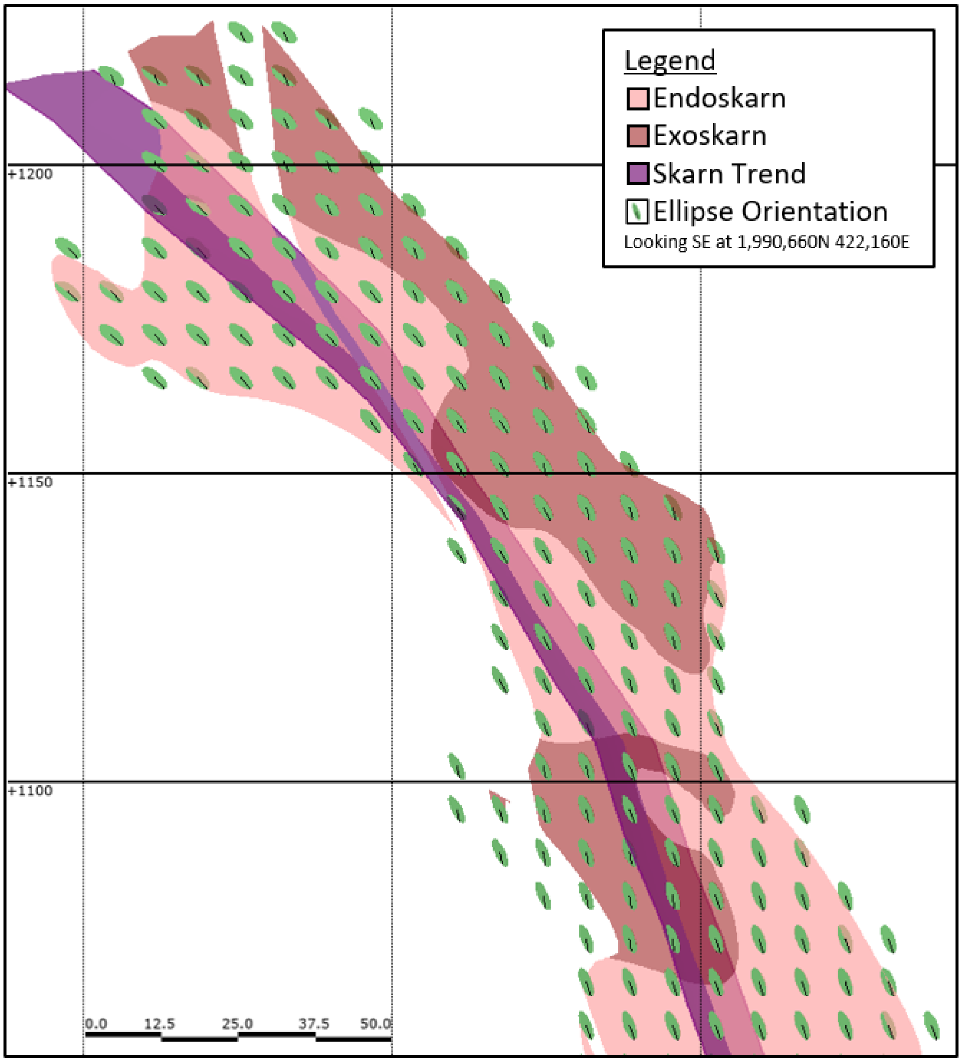
- Chalcopyrite (CPY)
- Chalcocite (CCT)
- Sphalerite (SPH)
- Galena (GAL)
- Arsenopyrite (ASP)
- Bismuthinite (BIS)
- Pyrite (PYR)
- Magnetite (MAG)

Pyrrhotite (PYH) content was calculated in the drillhole database, then estimated into the block model.

14.8.1 ELG

At the ELG Mine Complex, grades were interpolated into the exoskarn (rock code 31) and endoskarn (rock code 32) lithologies, and into other rock types within a 100 m buffer zone around the skarn package. The contacts between rock types were treated as a hard boundary for estimation purposes. The skarn domains were estimated using OK weighting, other domains used either OK or ID3 weighting depending on the size and distribution of the sample population within the domain.

Domains 31 and 32 were estimated using three search passes, the search ellipse used a variable orientation aligned to the overarching trend of the local skarn package. Each search pass progressively expanded the search radii and relaxed the minimum and maximum sample selection criteria. Figure 14-6 illustrates the variable orientation of the search ellipse at the El Limón area.



Source: SLR, 2022.

Figure 14-6: Illustration of Variable Search Ellipse, El Limón

For the remaining domains within the 100 m buffer zone, grades were estimated using either two or three search passes with a fixed search ellipse orientation. The search ellipse was aligned to the observed grade trend of each element within the domain. The second search pass expanded the search ellipse and relaxed the sample selection criteria.

Examples of the estimation parameters used to estimate the Au values for each area are shown in the following tables Table 14-17, Table 14-18, Table 14-19,Table 14-20 and Table 14-21.

Nearest Neighbor (NN) and ID3 weighted estimators were also evaluated for validation purposes.

Table 14-17: Guajes Estimation Parameters, Au

Domain	Search Pass	Method	Ellipsoid Ranges (m)			Ellipsoid Directions (°)			Variable Orientation	Number of Samples		Drillhole Limit
			Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch		Minimum	Maximum	Max Samples per Hole
31	1	OK	25	25	10				Skarn Trend West	4	12	3
31	2	OK	40	40	15				Skarn Trend West	4	12	3
31	3	OK	55	55	20				Skarn Trend West	3	16	
32	1	OK	30	25	10				Skarn Trend West	4	12	3
32	2	OK	45	35	15				Skarn Trend West	4	12	3
32	3	OK	60	50	25				Skarn Trend West	3	16	
37	1	OK	45	22.5	12	40	305	35		3	12	3
37	2	OK	60	30	15	40	305	35		3	16	
39	1	OK	55	45	30	25	325	110		4	12	3
39	2	OK	75	60	45	25	325	110		3	16	
60	1	OK	50	40	27	10	320	175		4	12	3
60	2	OK	75	60	40	10	320	175		3	16	
42	1	ID3	25	25	25	0	0	90		4	12	3
42	2	ID3	100	100	100	0	0	90		3	16	
62	1	ID3	35	35	35	80	165	115		3	12	3
62	2	ID3	50	50	50	80	165	115		3	16	
65	1	ID3	25	25	25	0	0	90		4	12	3
65	2	ID3	100	100	100	0	0	90		3	16	

Table 14-18: El Limón Estimation Parameters, Au

Domain	Search Pass	Method	Ellipsoid Ranges (m)			Ellipsoid Directions (°)			Variable Orientation	Number of Samples		Drillhole Limit
			Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch		Minimum	Maximum	Max Samples per Hole
31 West	1	OK	30	30	12				Skarn Trend West	4	12	3
31 West	2	OK	45	45	16				Skarn Trend West	4	12	3
31 West	3	OK	60	60	25				Skarn Trend West	3	16	
31 East	1	OK	20	17.5	10				Skarn Trend East	4	12	3
31 East	2	OK	30	23	15				Skarn Trend East	4	12	3
31 East	3	OK	40	35	20				Skarn Trend East	3	16	
32 West	1	OK	30	30	13				Skarn Trend West	4	12	3
32 West	2	OK	45	45	20				Skarn Trend West	4	12	3
32 West	3	OK	60	60	26				Skarn Trend West	3	16	
32 East	1	OK	20	15	10				Skarn Trend East	4	12	3
32 East	2	OK	30	22	16				Skarn Trend East	4	12	3
32 East	3	OK	42	30	22				Skarn Trend East	3	16	
37	1	ID3	15	12	8	0	0	25		4	12	3
37	2	ID3	50	40	20	0	0	25		3	16	
39	1	ID3	18	12	14	25	300	40		4	12	3
39	2	ID3	50	40	28	25	300	40		3	16	
62	1	ID3	25	12	12	80	165	115		4	12	3
62	2	ID3	50	23	23	80	165	115		3	16	
63	1	ID3	25	25	5	85	290	90		4	12	3
63	2	ID3	100	100	25	85	290	90		3	16	
65	1	ID3	25	25	25	0	0	90		4	12	3
65	2	ID3	100	100	100	0	0	90		3	16	
66	1	ID3	25	25	25	0	0	90		4	12	3
66	2	ID3	100	100	100	0	0	90		3	16	

Table 14-19: ELS Estimation Parameters, Au

Domain	Search Pass	Method	Ellipsoid Ranges (m)			Ellipsoid Directions (°)			Variable Orientation	Number of Samples		Drillhole Limit
			Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch		Minimum	Maximum	Max Samples per Hole
31	1	OK	25	25	15				Skarn Trend	4	12	3
31	2	OK	35	35	20				Skarn Trend	4	12	3
31	3	OK	50	50	30				Skarn Trend	3	16	
32	1	OK	15	10	9				Skarn Trend	4	12	3
32	2	OK	20	14	12				Skarn Trend	4	12	3
32	3	OK	55	35	35				Skarn Trend	3	16	
37	1	OK	15	12	8	0	0	25		4	12	3
37	2	OK	50	40	20	0	0	25		3	16	
39	1	OK	18	12	14	25	300	40		4	12	3
39	2	OK	50	40	28	25	300	40		3	16	
60	1	OK	40	35	10	12	230	47		4	12	3
60	2	OK	75	65	20	12	230	47		3	16	
62	1	OK	25	12	12	80	165	115		4	12	3
62	2	OK	50	23	23	80	165	115		3	16	
63	1	ID3	25	25	5	85	290	90		4	12	3
63	2	ID3	100	100	25	85	290	90		3	16	
65	1	ID3	25	25	25	0	0	90		4	12	3
65	2	ID3	100	100	100	0	0	90		3	16	
66	1	ID3	25	25	25	0	0	90		4	12	3
66	2	ID3	100	100	100	0	0	90		3	16	

Table 14-20: ELD Estimation Parameters, Au

Domain	Search Pass	Method	Ellipsoid Ranges (m)			Ellipsoid Directions (°)			Variable Orientation	Number of Samples		Drillhole Limit
			Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch		Minimum	Maximum	Max Samples per Hole
32 West	3	OK	45	26	32				ELD	2	10	
32 West	2	OK	30	17	22				ELD	3	8	2
32 West	1	OK	20	13	16				ELD	3	6	2
32 East	3	OK	30	35	30				ELD	2	10	
32 East	2	OK	20	22	20				ELD	3	8	2
32 East	1	OK	15	17	15				ELD	3	6	2
31 West	3	OK	40	50	30				ELD	2	10	
32 West	2	OK	27	35	20				ELD	3	8	2
33 West	1	OK	20	25	15				ELD	3	6	2
31 East	3	OK	30	30	20				ELD	2	10	
31 East	2	OK	20	20	15				ELD	3	8	2
31 East	1	OK	15	15	10				ELD	3	6	2
65	1	ID3	30	30	10	80	330	90		3	8	2
65	2	ID3	75	75	30	80	330	90		2	15	
62	2	ID3	75	75	30	90	160	90		2	15	
62	1	ID3	30	30	10	90	160	90		3	8	2
60	3	ID3	100	100	100	15	310	15		2	10	
60	2	ID3	75	75	70	15	310	15		3	8	2
60	1	ID3	50	50	40	15	310	15		3	6	2
39	1	ID3	40	30	20	0	0	112		3	6	2
39	3	ID3	80	60	40	0	0	112		2	10	
39	2	ID3	60	45	30	0	0	112		3	8	2
37	3	ID3	65	55	55	90	0	90		2	10	
37	2	ID3	45	38	30	90	0	90		3	8	2
37	1	ID3	30	25	20	90	0	90		3	6	2

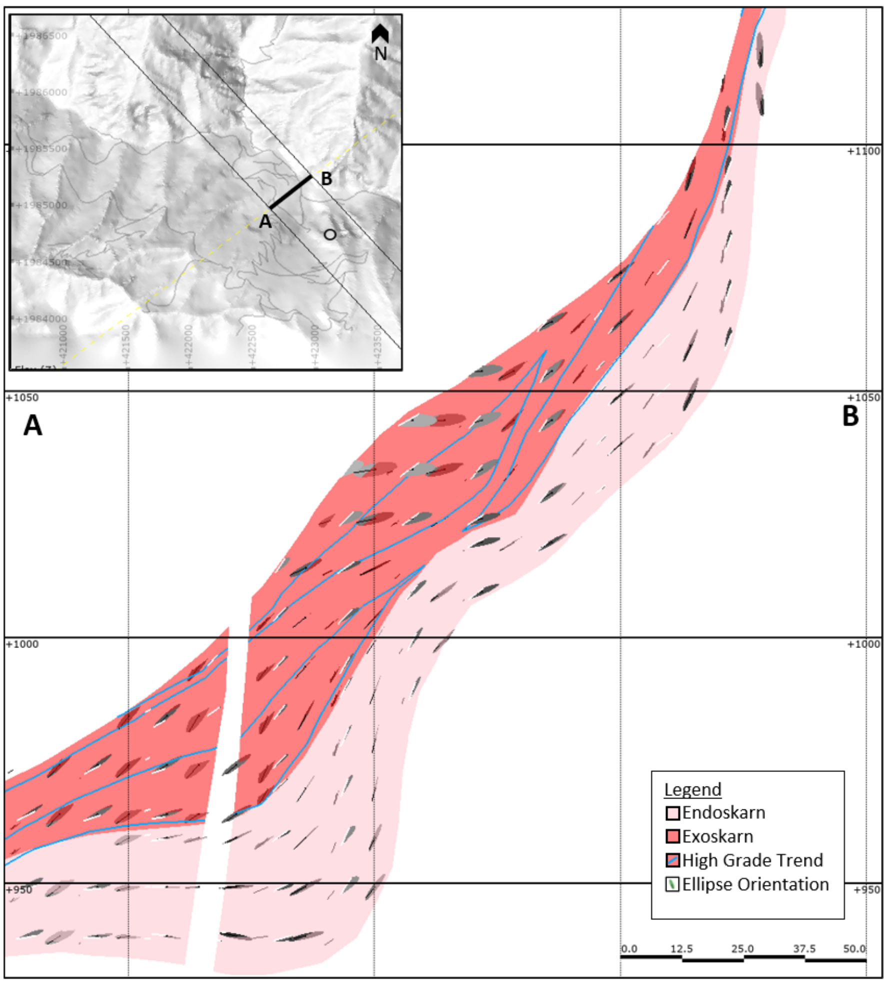
Table 14-21: Sub-Sill Estimation Parameters, Au

Domain	Search Pass	Method	Ellipsoid Ranges (m)			Ellipsoid Directions (°)			Variable	Number of Samples		Drillhole Limit
			Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch	Orientation	Minimum	Maximum	Max per Hole
31	1	OK	15	10	7.5				SS Variable Orientation	3	6	2
31	2	OK	20	15	11				SS Variable Orientation	3	8	2
31	3	OK	50	45	30				SS Variable Orientation	2	10	
32	1	OK	15	10	7.5				SS Variable Orientation	3	6	2
32	2	OK	20	15	11				SS Variable Orientation	3	8	2
32	3	OK	50	50	35				SS Variable Orientation	2	10	
37	1	ID3	50	30	20	0	0	22		3	6	2
37	2	ID3	65	40	25	0	0	22		3	8	2
37	3	ID3	100	60	40	0	0	22		2	10	
39	1	ID3	12	12	10	0	0	150		3	6	2
39	2	ID3	25	25	15	0	0	150		3	8	2
39	3	ID3	35	35	20	0	0	150		2	10	
60	1	ID3	40	30	15	55	312	60		3	6	2
60	2	ID3	50	45	25	55	312	60		3	8	2
60	3	ID3	60	60	30	55	312	60		2	10	
62	1	ID3	30	30	10	90	160	90		3	8	2
62	2	ID3	50	50	20	90	160	90		2	10	2
62	3	ID3	75	75	30	90	160	90		2	15	
63	1	ID3	30	30	12	80	295	90		3	8	2
63	2	ID3	50	50	20	80	295	90		2	10	2
63	3	ID3	75	75	30	80	295	90		2	15	

14.8.2 Media Luna

At ML, all elements were interpolated into the endoskarn, exoskarn and mantle/tongue domains using ID3 weighting. The boundaries between domains were hard boundaries. Within the exoskarn domain, the high grade wireframes were used as an input to direct the variable orientation of the search ellipse. The high grade domains were initially utilized as a hard boundary constraint but upon visual validation, the block grades appeared over constrained relative to the informing composites. Surrounding waste lithologies were not estimated and assigned zero grades.

Blocks were estimated using a three pass search strategy, each search ellipse utilizing a variable orientation driven by the foot wall and hanging wall surfaces of the domain, and the internal high grade wireframes. Each search pass progressively expanded the search radii and relaxed the minimum and maximum sample selection criteria. An example of the varying search orientations used for Cu is shown in Figure 14-7. The minor MT1 and 31_UW domains were estimated using a fixed search ellipse.



Source: SLR, 2022.

Figure 14-7: Varying Search Ellipse Orientation for Copper, MLU

All elements were also estimated using NN for block validation purposes.

A complete example of the estimation parameters used for Cu are shown in Table 14-22.

Table 14-22: Media Luna Estimation Parameters, Cu

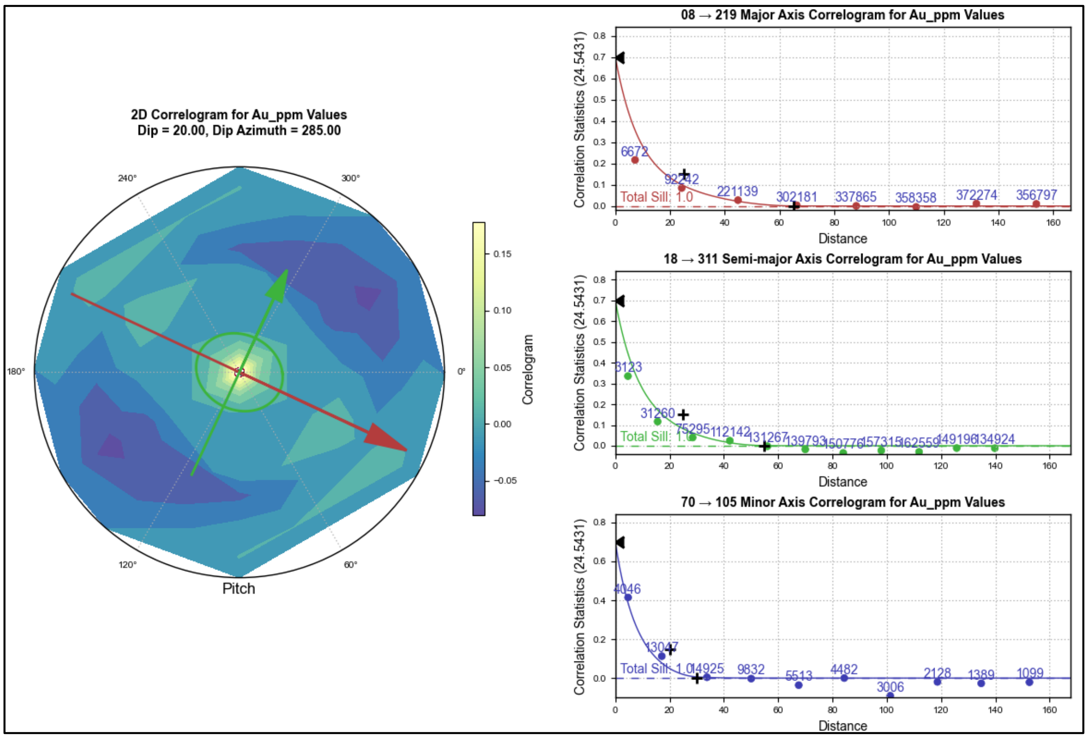
Domain	Search Pass	Ellipsoid Ranges (m)			Ellipsoid Directions (°)			Variable Orientation	Number of Samples		
		Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch		Minimum	Maximum	Max per Hole
31	1	60	60	6				CuDomains VO	10	20	6
31	2	120	120	10				CuDomains VO	10	20	6
31	3	180	180	20				CuDomains VO	1	20	
32	1	60	60	6				CuDomains VO	10	20	6
32	2	120	120	10				CuDomains VO	10	20	6
32	3	180	180	20				CuDomains VO	1	20	
M2	1	60	60	6				Variable Orientation	10	20	6
M2	2	120	120	10				Variable Orientation	10	20	6
M2	3	180	180	20				Variable Orientation	1	20	
MT1/31_UW	1	60	60	6	65	130	160		10	20	6
MT1/31_UW	2	120	120	10	65	130	160		10	20	6
MT1/31_UW	3	180	180	20	65	130	160		1	20	

14.9 VARIOGRAPHY

14.9.1 ELG

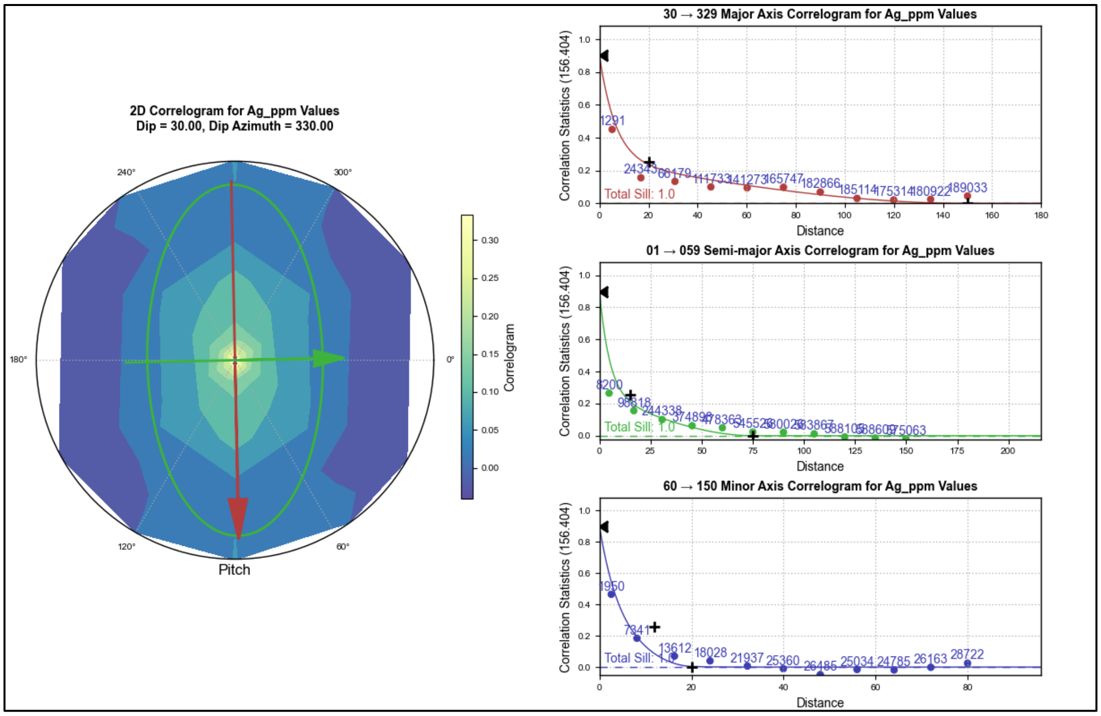
Variography was calculated and analyzed for the economic elements (Au, Ag and Cu) in all domains, and for most of the deleterious elements in the skarn domains. Deleterious elements with strong correlations to economic elements (e.g. Cd and Co with Cu) were estimated using the structures of the related economic element. In the non-skarn domains, the deleterious elements were estimated using the variogram structures of the economic element to which they are most closely related. Variography was analyzed using Leapfrog Edge software and the variance was typically modelled as a correlogram.

Figure 14-8, Figure 14-9 and Figure 14-10 show examples of the experimental and modelled variography for Au, Ag and Cu respectively.



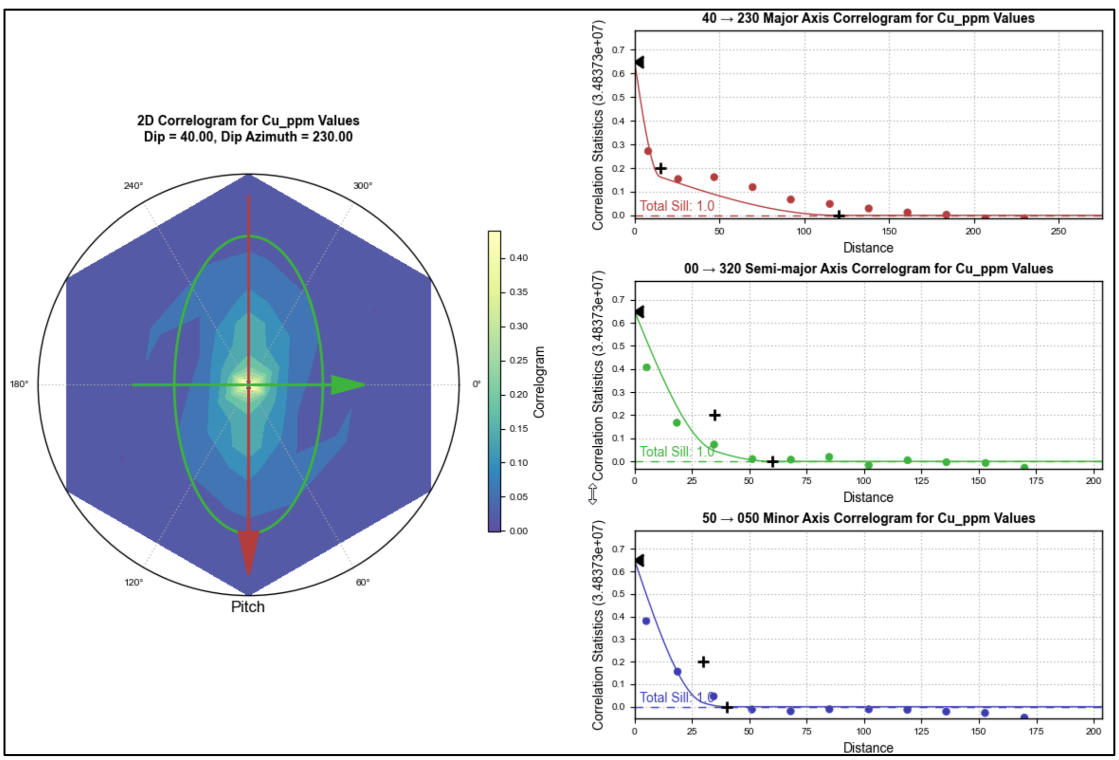
Source: SLR, 2022.

Figure 14-8: Experimental and Modelled Correlogram for Au in Exoskarn at El Limón (East)



Source: SLR, 2022.

Figure 14-9: Experimental and Modelled Correlogram for Ag in Exoskarn at Sub-Sill



Source: SLR, 2022.

Figure 14-10: Experimental and Modelled Correlogram for Cu in Exoskarn Domain at ELD

14.9.2 Media Luna

Experimental variograms were computed and plotted at ML to assess the spatial continuity of the Cu, Ag and Au grades inside the mineralized envelopes and to confirm observed trends. The experimental variogram results were found by SLR to be unstable and difficult to interpret, however, the results were useful in supporting the range of expected grade continuity at Media Luna.

14.10 BLOCK MODEL VALIDATION

SLR undertook an in-depth validation process for each model which included:

- A comprehensive visual review of block grades against composite grades on cross sections and plans throughout each deposit.
- Statistical and visual review of block grades, comparing to composite grades, NN and ID3 estimates.
- Preparation and review of swath plots in cross section, long section, and elevation of the key skarn domains.

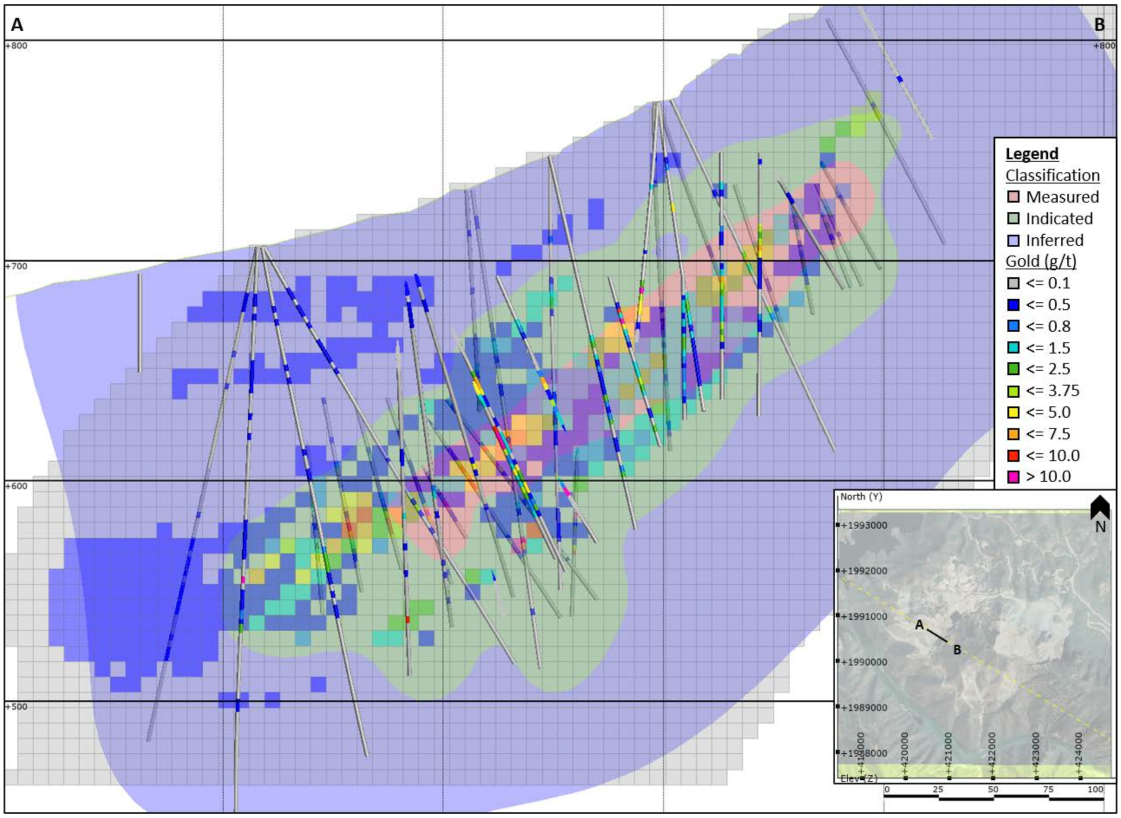
In addition, SLR conducted a reconciliation exercise for each of the underground models and reviewed production reconciliations prepared by Torex for the open pit mines.

Examples of these for each of the model areas are shown in the following sections (14.10.1 to 14.10.6). The average grade of the composites for all areas is higher than the block grades in all areas. This is due to clustering of data within the high grade (mineable) areas of the deposit relative to the skarn package. In addition, some domain areas extend beyond the block model extents and therefore composite results are representing a larger volumetric area than block model results. Because of these reasons, the NN estimate is considered as a better representation of declustered input composites, limited to the portion of the domains captured in the block model areas.

The QP is of the opinion that the validation procedures are reasonable, and the resulting estimates are a valid representation of the deposits.

14.10.1 Guajes

SLR has reviewed the 2020 and 2021 quarterly reconciliations produced by Torex staff for the Guajes open pit mine areas. These reconciliations show that Mineral Resource models estimated using similar parameters predict ore tonnes and grades to within 10%. Resultant Au production has been underpredicted by ~15%.

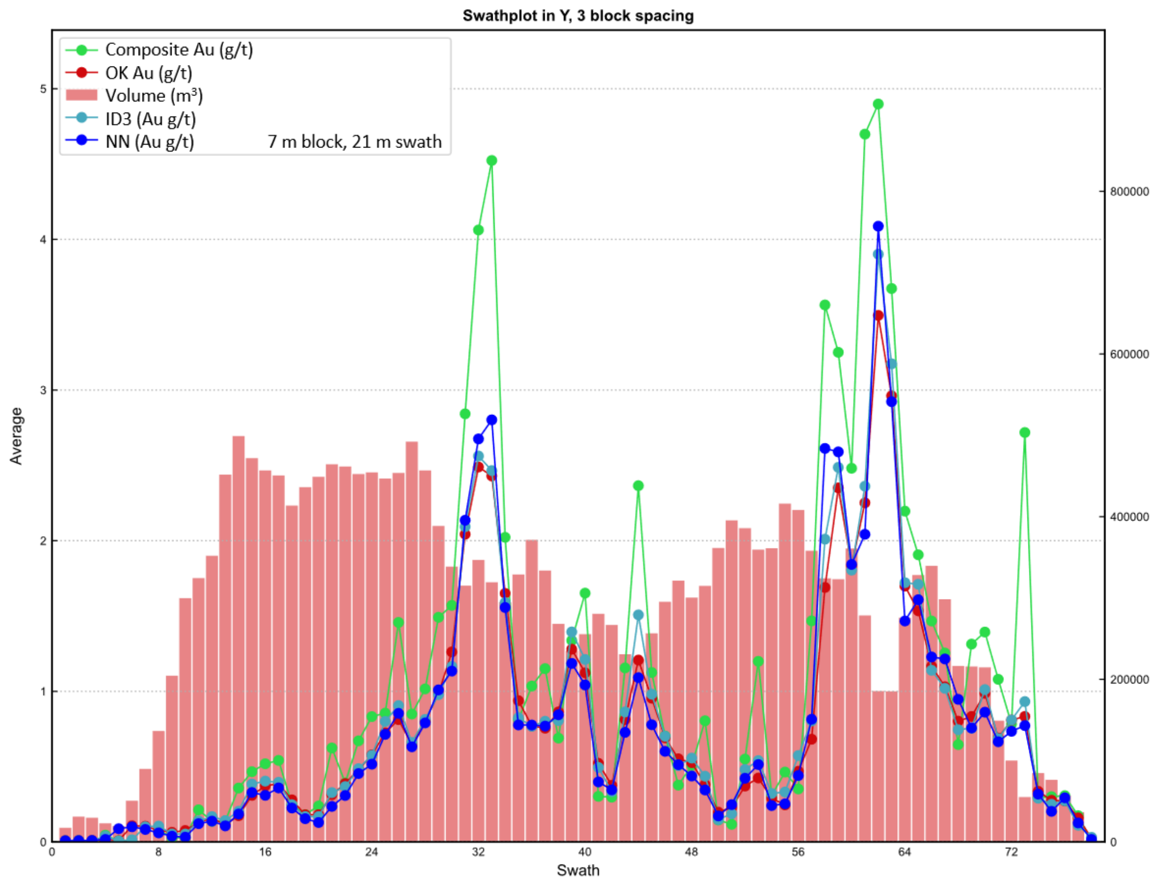


Source: SLR, 2022.

Figure 14-11: Cross Section at Guajes, Showing Classification, Block and Composite Grades, Looking Northeast

Table 14-23: Composite and Block Statistics for Au in the Exoskarn Domain at Guajes

	Composite	NN	ID3	OK
Count	2777	10207	10093	10059
Mean (g/t)	2.36	1.77	1.75	1.78
SD	7.12	5.46	3.54	3.18
CV	3.01	3.09	2.02	1.79
Minimum (g/t)	0.00	0.00	0.00	0.00
Median (g/t)	0.32	0.22	0.68	0.8
Maximum (g/t)	157.31	157.31	98.4	60.3



Source: SLR, 2022.

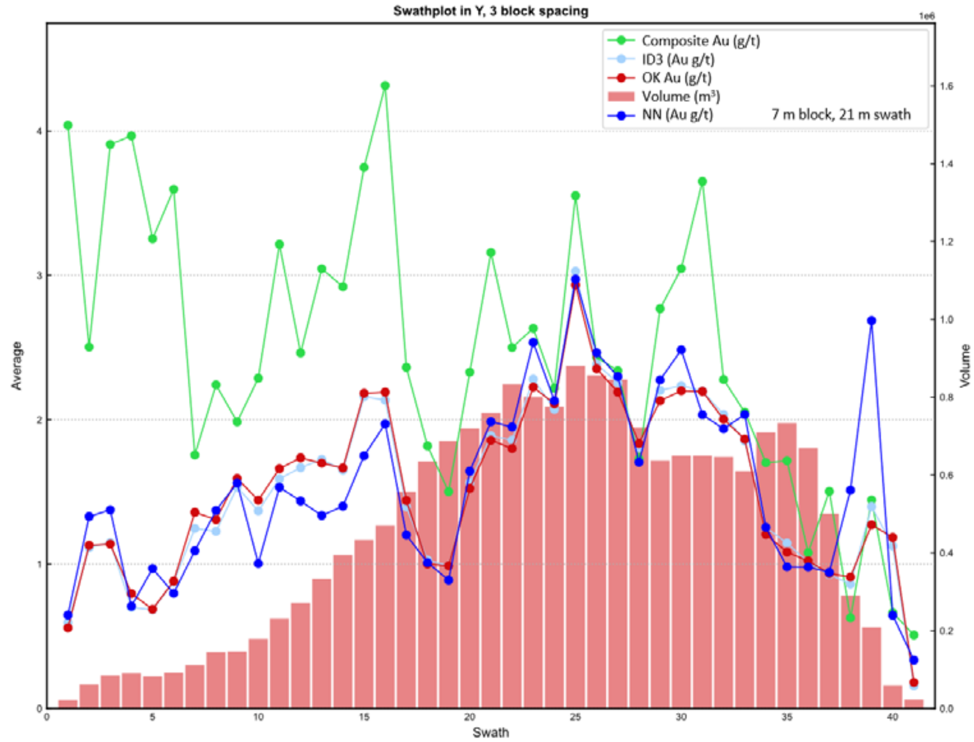
Figure 14-12: Swath Plot of Average Au grade in Skarn Domains at Guajes

14.10.2 El Limón

SLR has reviewed the 2020 and 2021 quarterly reconciliations produced by Torex staff for the El Limón open pit mine areas. These reconciliations show that Mineral Resource models estimated using similar parameters predict ore tonnes and grades to within 10%. Total ounces have been overpredicted by less than 10%.

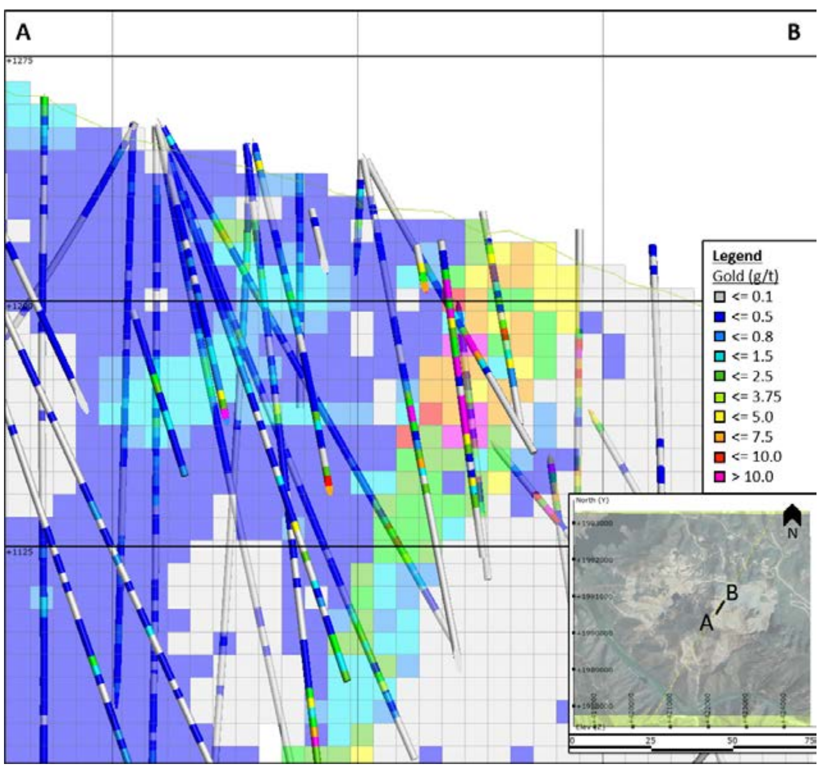
Table 14-24: Composite and Block Statistsics for Au in Skarn Domains at El Limón

	Composite	NN	ID3	OK
Count	14783	59243	54327	54327
Mean (g/t)	2.33	1.74	1.77	1.75
Standard deviation	5.68	4.83	2.94	2.43
CV	2.43	2.77	1.66	1.39
Minimum (g/t)	0.00	0.00	0.00	0.00
Median (g/t)	0.49	0.30	0.72	0.84
Maximum (g/t)	193.96	193.96	96.72	60.06



Source: SLR, 2022.

Figure 14-13:Swath Plot of Average Au grade in Skarn Domains at El Limón



Source: SLR, 2022.

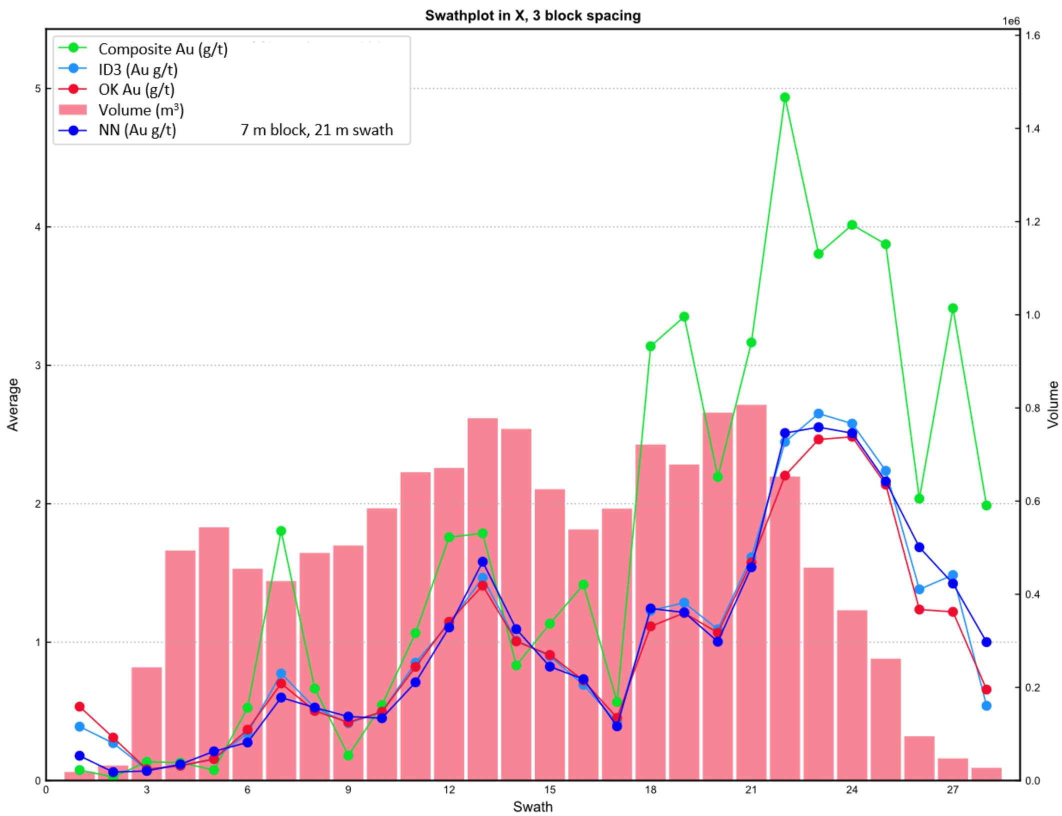
Figure 14-14: Cross Section at El Limón, showing Block and Composite Gold Grades, Looking Northwest

14.10.3 El Limón Sur

SLR has reviewed the 2020 and 2021 quarterly reconciliations produced by Torex staff for the El Limón Sur open pit mine areas. These reconciliations show that Mineral Resource models estimated using similar parameters predict ore tonnes to within 15% and grades to better than 5%. Produced Au from El Limón Sur is ~10% greater than predicted by the model.

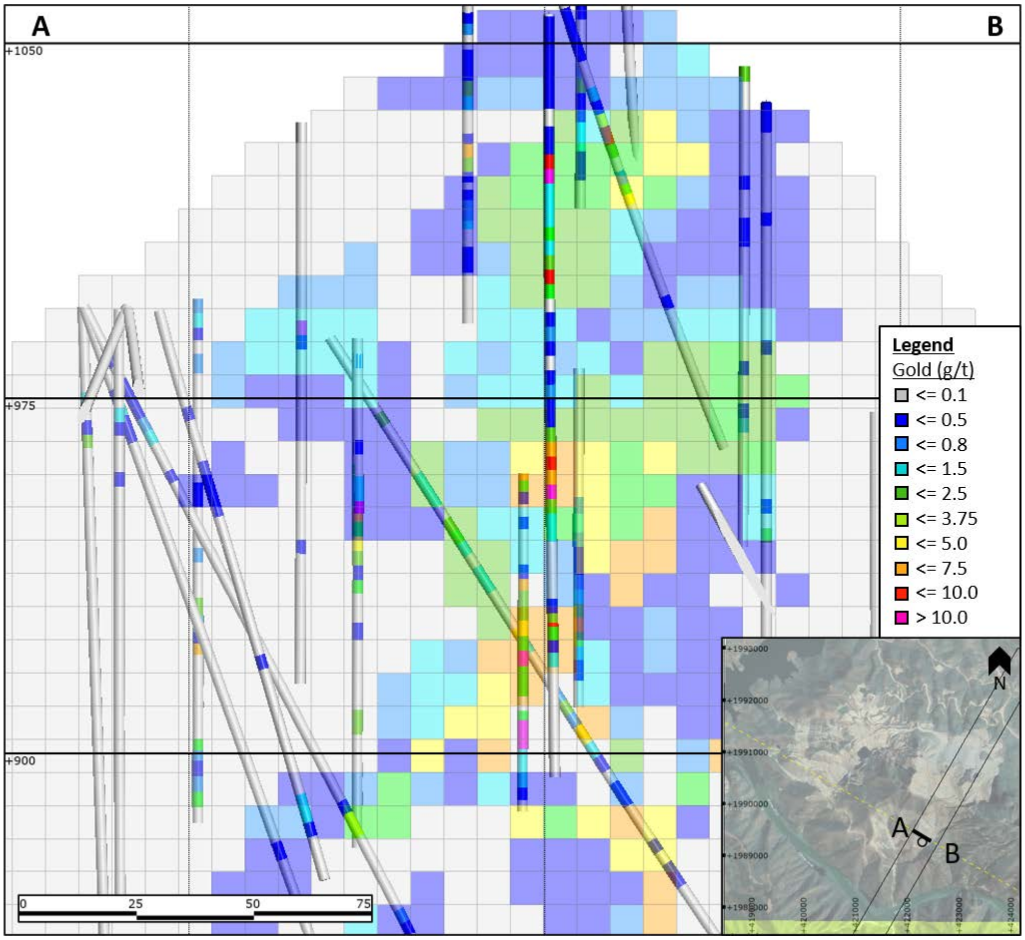
Table 14-25:Composite and Block Statistics for Au in Exoskarn at El Limón Sur

	Composite	NN	ID3	OK
Count	4463	16487	15321	15321
Mean (g/t)	3.92	1.78	1.78	1.69
SD	12.42	7.00	4.35	2.92
CV	3.17	3.93	2.44	1.73
Minimum (g/t)	0.00	0.00	0.00	0.00
Median (g/t)	0.73	0.27	0.68	0.80
Maximum (g/t)	330.75	330.75	181.76	80.93



Source: SLR, 2022.

Figure 14-15 : Swath Plot of Average Au grade in Skarn Domains at El Limón Sur



Source: SLR, 2022.

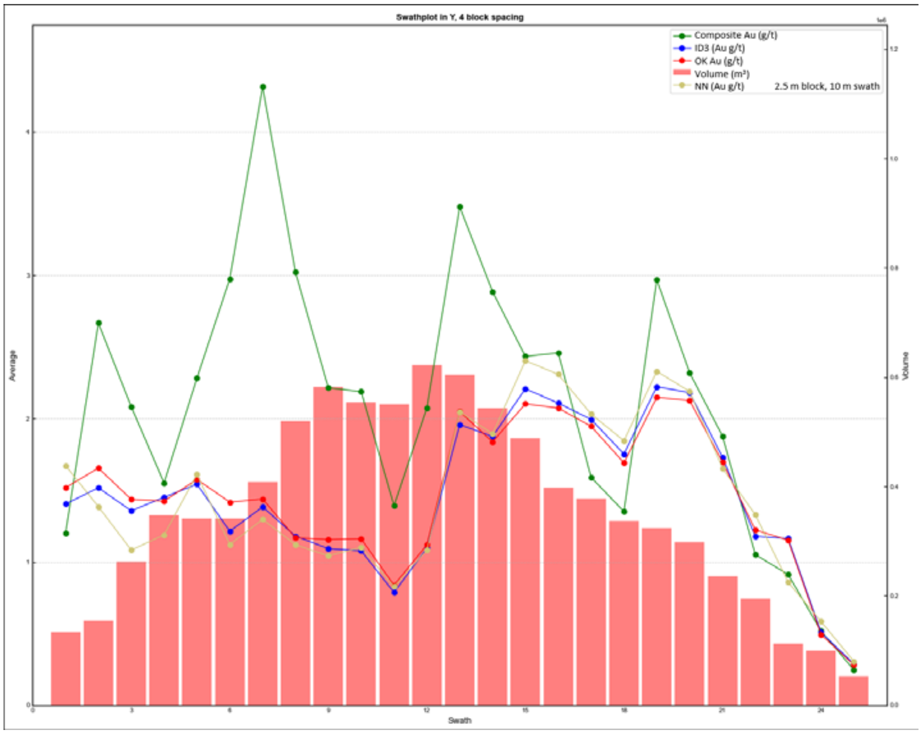
Figure 14-16: Cross Section at El Limón Sur, showing Block and Composite Gold Grades, Looking Northeast

14.10.4 Sub-Sill

SLR conducted a reconciliation based on 13 months of production from 2020 and 2021 from the Sub-Sill area. This exercise showed that the Mineral Resource as estimated predicts the ore tonnes (material above 3.36 g/t Au) to within 3% in all of tonnes, grade and contained ounces.

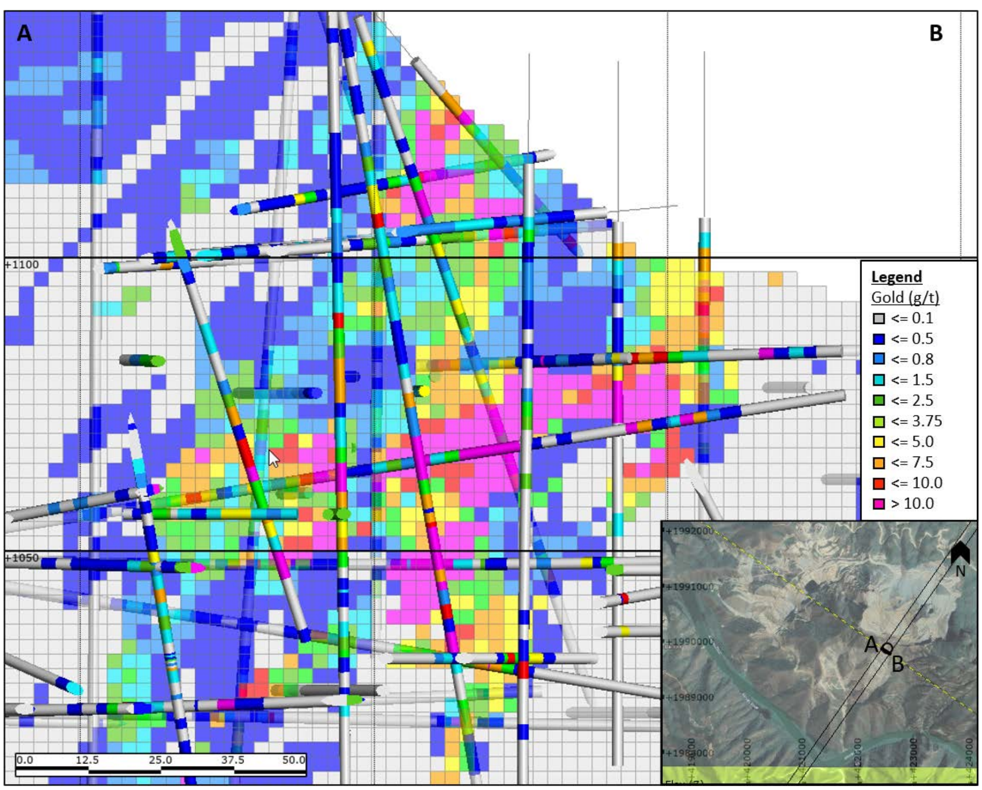
Table 14-26: Composite and block statistics for Au in skarn at Sub-Sill

	Composite	NN	ID3	OK
Count	22,057	917,536	763,309	867,919
Mean	2.39	1.17	1.19	1.16
SD	7.71	5.50	3.17	2.63
CV	3.22	4.71	2.66	2.27
Minimum	0.00	0.00	0.00	0.00
Median	0.36	0.10	0.23	0.30
Maximum	317	317	72	68



Source: SLR, 2022.

Figure 14-17: Swath Plot of Average Au grade in Skarn Domains at Sub-Sill



Source: SLR, 2022.

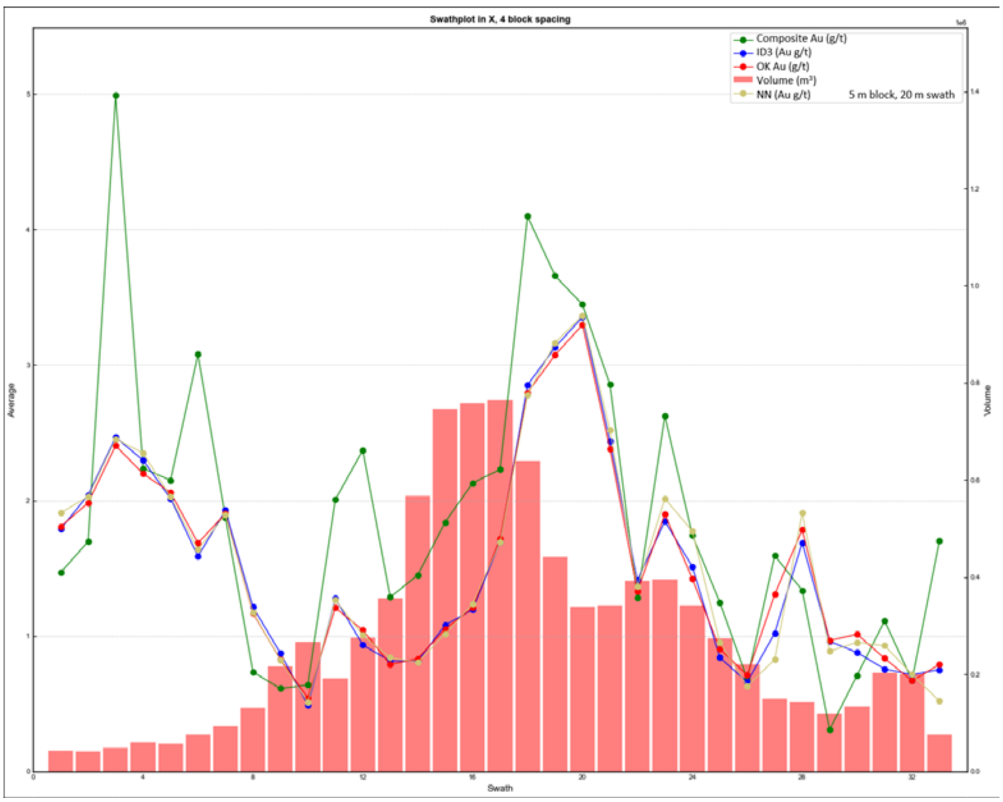
Figure 14-18: Cross Section at Sub-Sill, showing Block and Composite Gold Grades, Looking Northwest

14.10.5 El Limón Deep (ELD)

SLR conducted a reconciliation based on 13 months of production from 2020 and 2021 from the ELD area. This exercise showed that the Mineral Resource as estimated predicts the ore tonnes (material above 3.36 g/t Au) to within 5% in all of tonnes, grade and contained ounces.

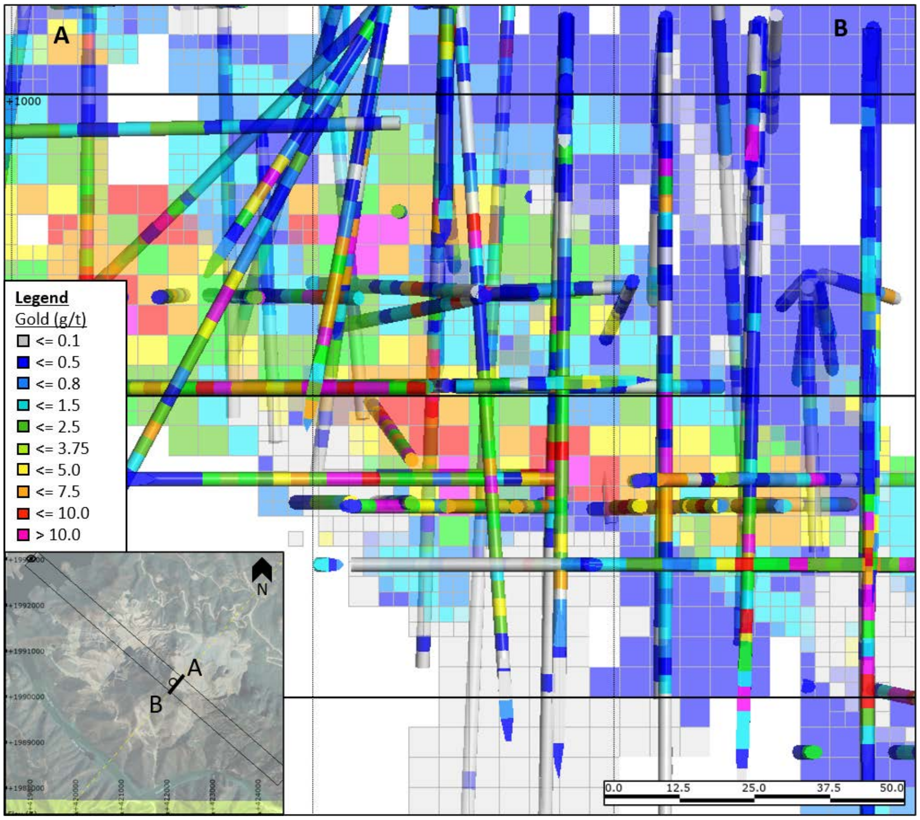
Table 14-27: Composite and Block Statistics for Au in Exoskarn at El Limón Deep

	Composite	NN	ID3	OK
Count	5,965	163,421	160,781	151,676
Mean	3.25	2.19	2.20	2.23
SD	6.53	4.74	3.39	3.02
CV	2.01	2.17	1.54	1.36
Minimum	0.00	0.00	0.00	0.00
Median	0.96	0.42	0.92	1.11
Maximum	186	87	81	37



Source: SLR, 2022.

Figure 14-19: Swath Plot of average Au grade in Skarn Domains at El Limón Deep

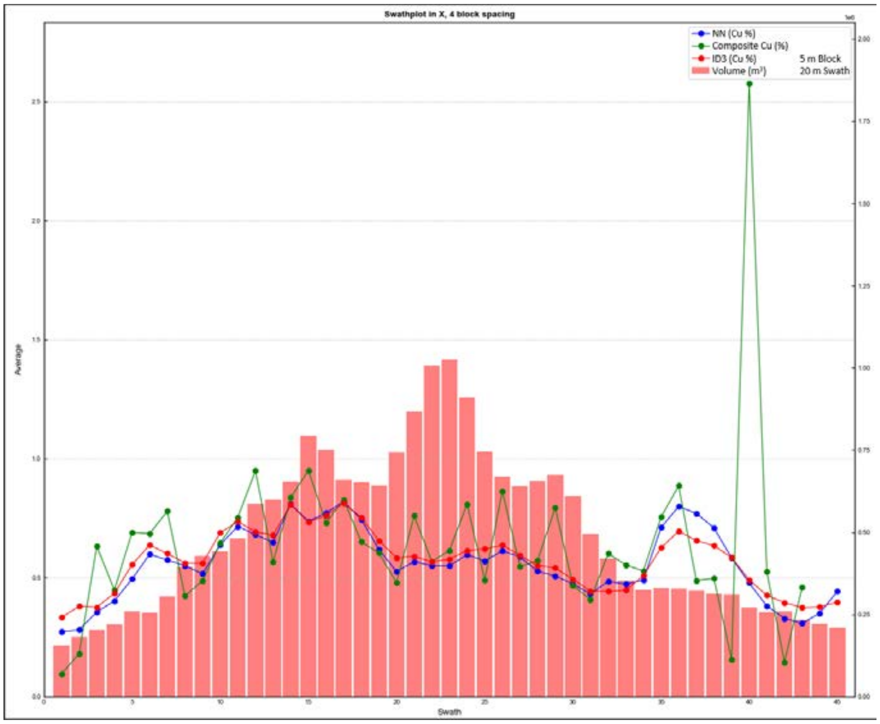


Source: SLR, 2022.

Figure 14-20: Cross Section at El Limón Deep, showing Block and Composite Gold Grades, Looking Southeast

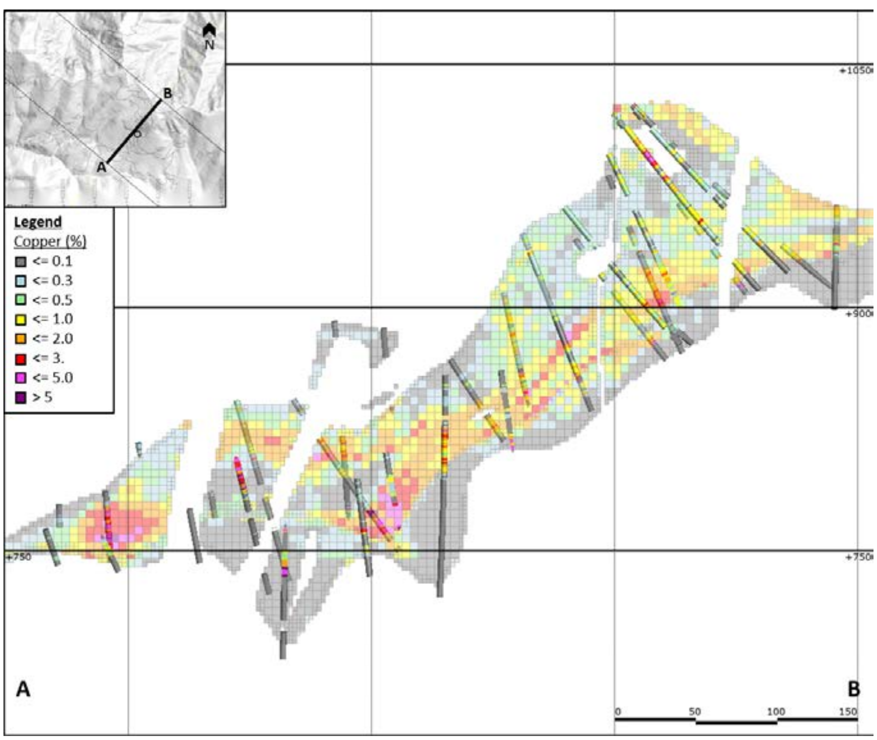
14.10.6 Media Luna

ML is not in production and a reconciliation study has not been undertaken. An example swath plot, a cross section showing block to composite conformation, and a summary of comparison statistics are shown below.



Source: SLR, 2022.

Figure 14-21: Swath Plot of Average Cu grade in Exoskarn at Media Luna



Source: SLR, 2022.

Figure 14-22: Cross Section at MLL, showing Block and Composite Cu Grades, Looking Northwest

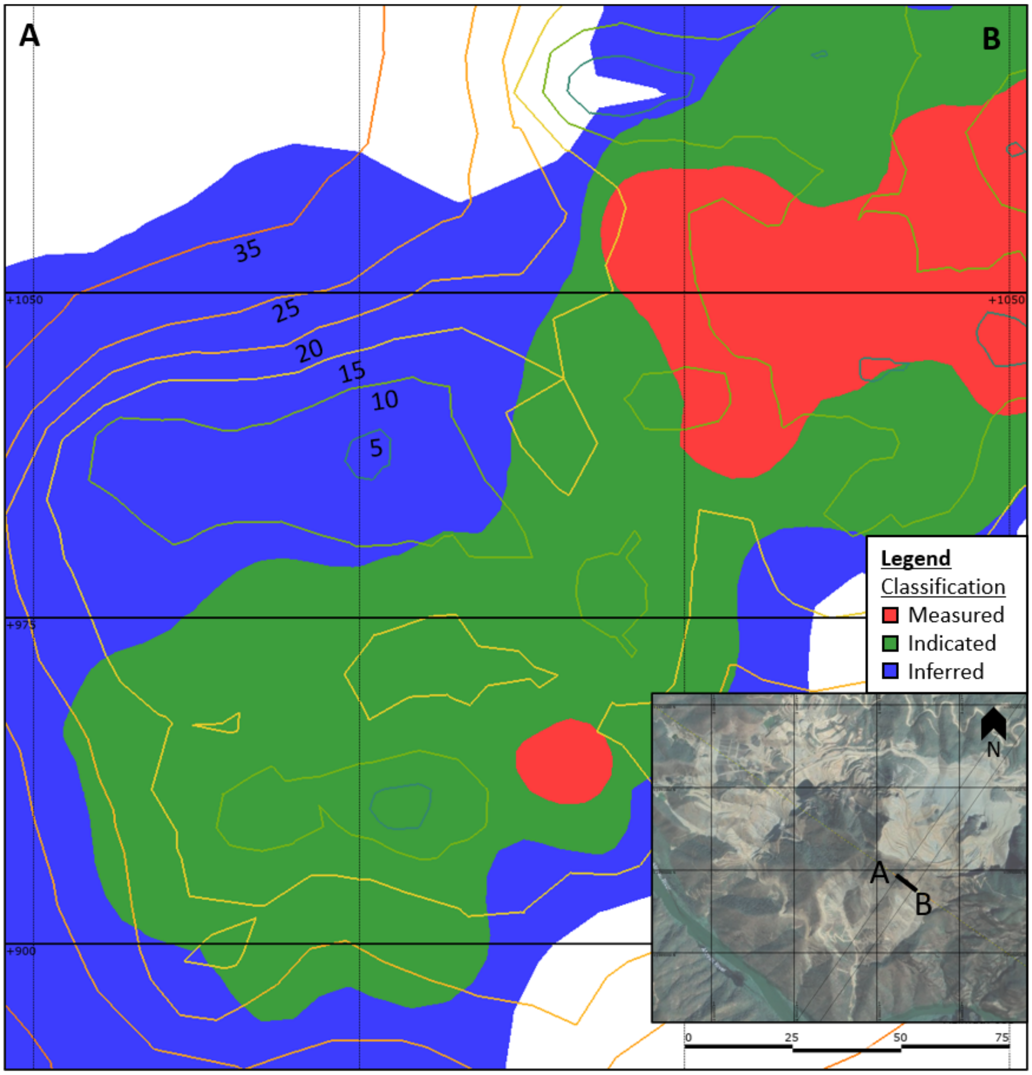
Table 14-28: Composite and Block Statistics for Cu in Exoskarn, Media Luna

	Composite	NN	ID3
Count	13985	498905	499693
Mean	0.67	0.53	0.60
SD	1.23	1.04	0.68
CV	1.85	1.97	1.12
Minimum	0.00	0.00	0.00
Q2	0.20	0.15	0.40
Maximum	15.25	15.25	13.05

14.11 CLASSIFICATION OF MINERAL RESOURCES

Definitions for Mineral Resource categories used in this Technical Report are consistent with those defined by CIM (2014) and adopted by NI 43-101. SLR used a modified drillhole spacing approach to classify Mineral Resources at the Morelos Property. SLR carried out a drillhole spacing study in 2021 that used multiple methodologies to be able to estimate the required drillhole spacing to declare Measured, Indicated and Inferred Mineral Resources at the ELG Mine Complex. This study used volume variance, grade variance, confidence intervals, variography, geologic understanding and benchmarking to recommend the required drillhole spacing to define each category with sufficient confidence.

In the drillhole spacing study, composites for each area were exported and the average distance to the nearest two drillholes was assigned as a measure of the local drillhole spacing. These calculations were carried out in Python scripts prepared by SLR. The composites were imported back into Leapfrog as points, flagged according to the classification criteria, and used as guide points to generate an intrusion solid for each classification. Each solid was checked and edited by SLR to ensure continuity, remove disconnected or small volumes, maintain a reasonable shape, and were modified in some areas to reflect geological understanding. These edits meant that the classification rules were not strictly followed, so the distribution of the drillhole spacing within each solid was checked to ensure that material from less well drilled areas was not contributing undue volumes to higher confidence categories. Figure 14-23 shows the deviation of the classification solid from the pure drillhole spacing.



Source: SLR, 2022.

Figure 14-23: Cross Section at Sub-Sill showing Classification Shapes and Drillhole Spacing Contours, Looking Northwest

Blocks within these solids were flagged with their Mineral Resource classification for reporting.

14.11.1 ELG Open Pit

For ELG OP deposits, the classification criteria were as follows:

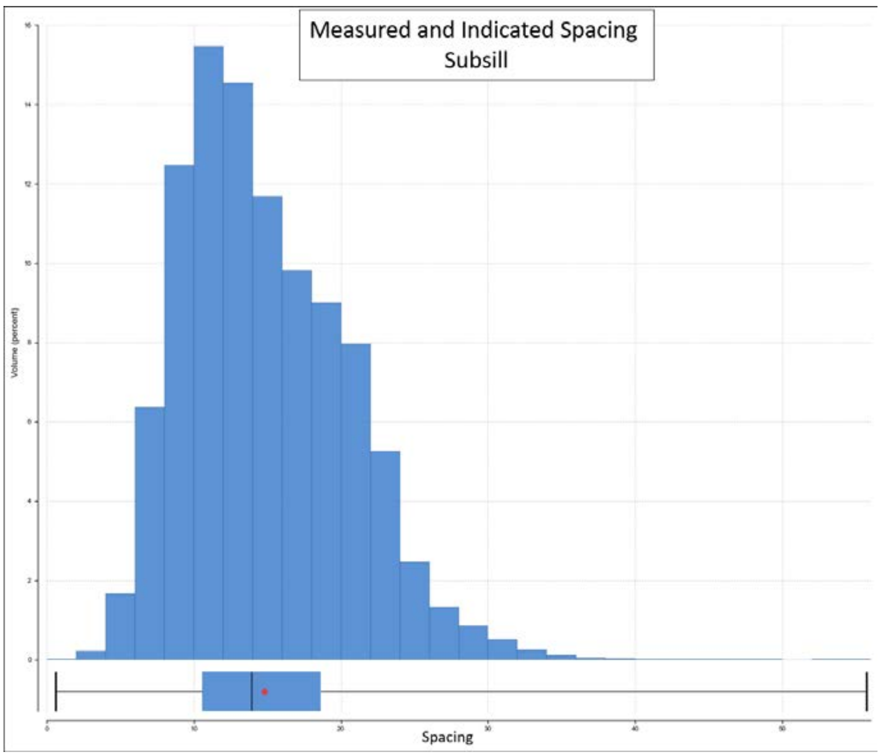
- Measured Mineral Resources were estimated in areas characterized by a maximum drillhole spacing of 15 m.
- Indicated Mineral Resources were estimated in areas characterized by a maximum drillhole spacing of 35 m and within 15 m of the skarn lithology
- Inferred Mineral Resources were estimated in areas characterized by a maximum drillhole spacing of 70 m and inside the area of interest.

14.11.2 ELG Underground

For the ELG UG operations, the criteria for classification were:

- Measured Mineral Resources were estimated in areas within 5 m of a composite sample and modified to consider geological continuity and proximity to development.
- Indicated Mineral Resources were estimated in areas characterized by a maximum drillhole spacing of 20 m, and where within 15 m of skarn lithologies,
- Inferred Mineral Resources were estimated in areas characterized by a maximum drillhole spacing of 70 m and where within the area of interest.

Figure 14-24 shows an example histogram of the drillhole spacing in blocks classified as Measured or Indicated at Sub-Sill, and shows that 80% of blocks satisfy the drillhole spacing criteria and 95% of blocks have a drillhole spacing of less than 24 m.



Source: SLR, 2022.

Figure 14-24: Histogram of the Measured and Indicated Drillhole spacing of blocks at Sub-Sill

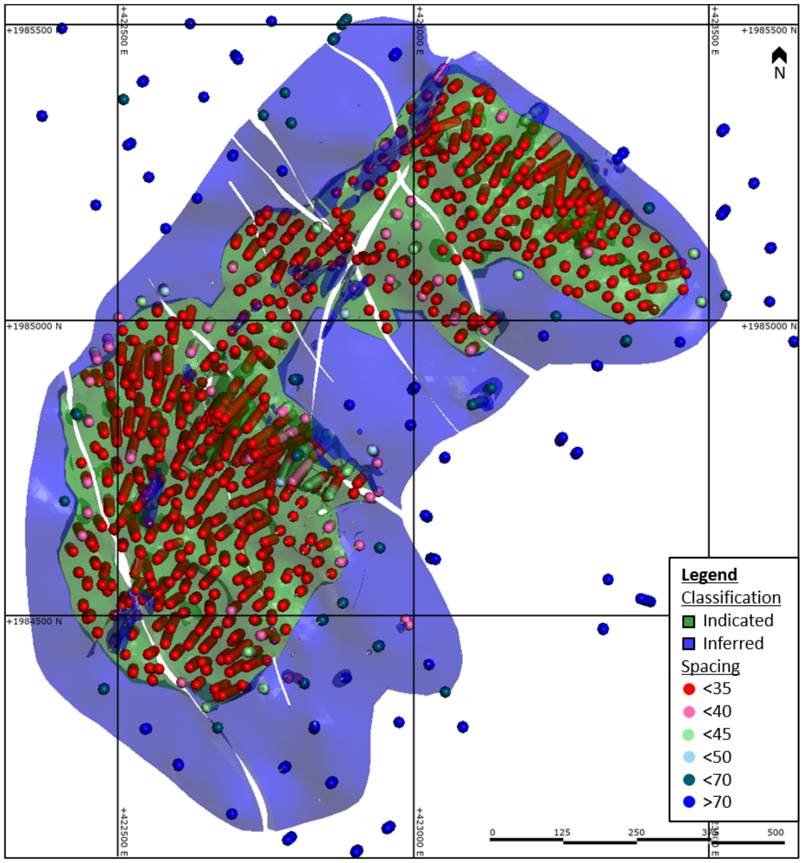
14.11.3 Media Luna

For ML, the criteria for each classification were:

- Indicated Mineral Resources were estimated in areas characterized by a maximum drillhole spacing of 35 m.
- Inferred Mineral Resources were estimated in areas characterized by a maximum drillhole spacing of 70 m.

Measured Resources have not been estimated at ML.

The calculated drillhole spacing and resulting classification solids for Media Luna are shown in Figure 14-25.



Source: SLR, 2022.

Figure 14-25: Drillhole Spacing and Classification Solids at Media Luna

All Mineral Resources at EPO are classified as Inferred.

14.12 CUT-OFF GRADE AND REASONABLE PROSPECTS FOR EVENTUAL ECONOMIC EXTRACTION

To assess the prospects of eventual economic extraction at the Morelos Property, SLR reviewed the inputs and assumptions in preparation of CoG values, used an open pit optimization for reporting open pit Mineral Resources and undertook a block cluster analysis of underground Mineral Resources to ensure that small, dispersed clusters of blocks were not materially contributing to the declared Mineral Resource.

The QP is of the opinion that the stated Mineral Resources satisfy the requirement of reasonable prospects for eventual economic extraction.

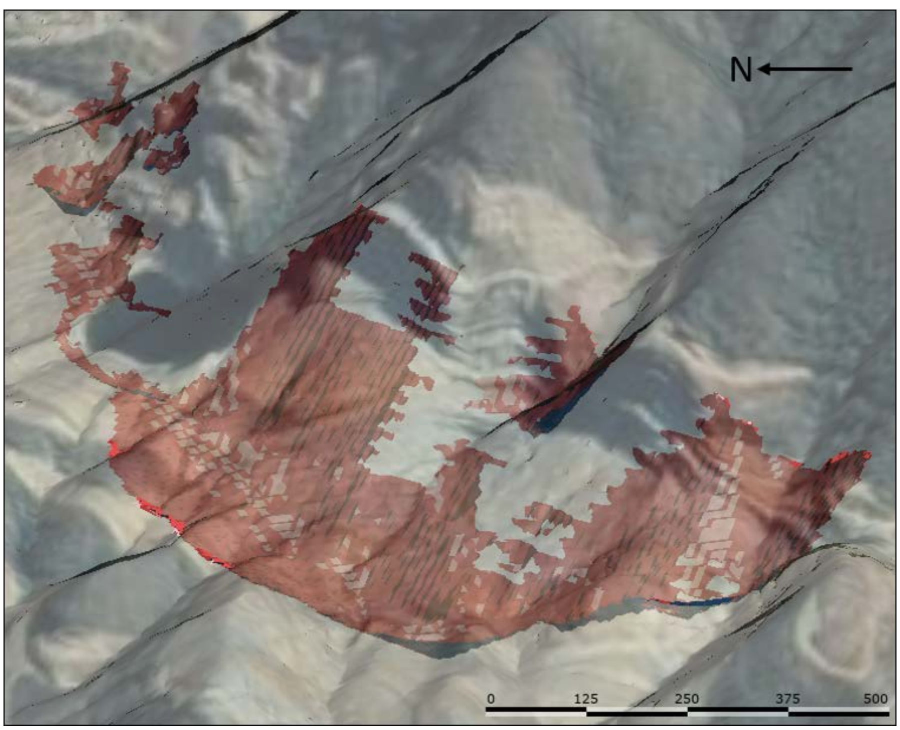
14.12.1 ELG Open Pit

For the ELG OP mining areas, an optimized open pit shell was prepared by Groupe BBA Inc. (BBA) using similar parameters to those used to generate the mineral reserve pit optimization. The Mineral Resource pit optimizations used higher metal prices and removed some engineering constraints to generate the optimized pit shell. The parameters used to generate the open pit shells are shown in Table 14-29.

Table 14-29: Input Parameters for Open Pit Optimization

	Unit	ROM Ore	Sub-Grade Ore
Metal Price	$/oz.	1,550	
Payability	%	99.925	
Treatment, transport, & insurance	$/oz.	4.2	
Royalty	%	3	
Mill Recovery (Au)	%	89	86
Costs			
Haulage Cost	$/hr	136	
Incremental Haulage (ELS)	$/t mined	0.034	
EL & G	$/t mined	1.75	
ELS – Ore	$/t mined	5.28	
ELS – Waste	$/t mined	2.89	
Ore Processing Cost	$/t processed	31.9	27.8
G&A Cost	$/t processed	9.35	8.51
Discount Rate	%	5	
Mining Rates			
El Limón	Mt/y	30	
Guajes	Mt/y	10	
El Limón Sur	Mt/y	5	

BBA used the Pseudo-flow algorithm in MineSight's Economic Planner module to generate the pit optimization, an example of the generated pit shell from Guajes is shown in Figure 14-26. Geotechnical sectors for slope angles were consistent with the mineral reserve optimization while boundary constraints related to existing infrastructure were removed. Open pit cut-off grades were calculated from the pit optimization at 0.9 g/t Au and 1.0 g/t Au for low grade and run of mine ore, respectively.



Source: SLR, 2022.

Figure 14-26: 3D View of the Guajes Optimized Open Pit Shell

14.12.2 ELG Underground

For the ELG UG Mineral Resources, a CoG was calculated using the parameters shown in Table 14-30. Costs and input parameters were supplied to SLR by Torex.

Table 14-30: Input Parameters and Costs for Cut-Off Grade Calculation, ELG Underground

	Unit	Value
Metal Price (Au)	$/oz.	1550
Payability	%	99.925
Treatment, transport, & insurance	$/oz.	4.2
Royalty	%	3
Mill Recovery	%	89
Operating Costs	$/t mined	78.55
Processing Costs	$/t processed	31.9

General and administration costs for the ELG operations were assigned to open pit mining and were not included in the CoG calculation for underground.

The CoG for the ELG UG operations was calculated to be 2.57 g/t Au and a reporting cut-off of 2.60 g/t Au was used when reporting the underground Mineral Resources.

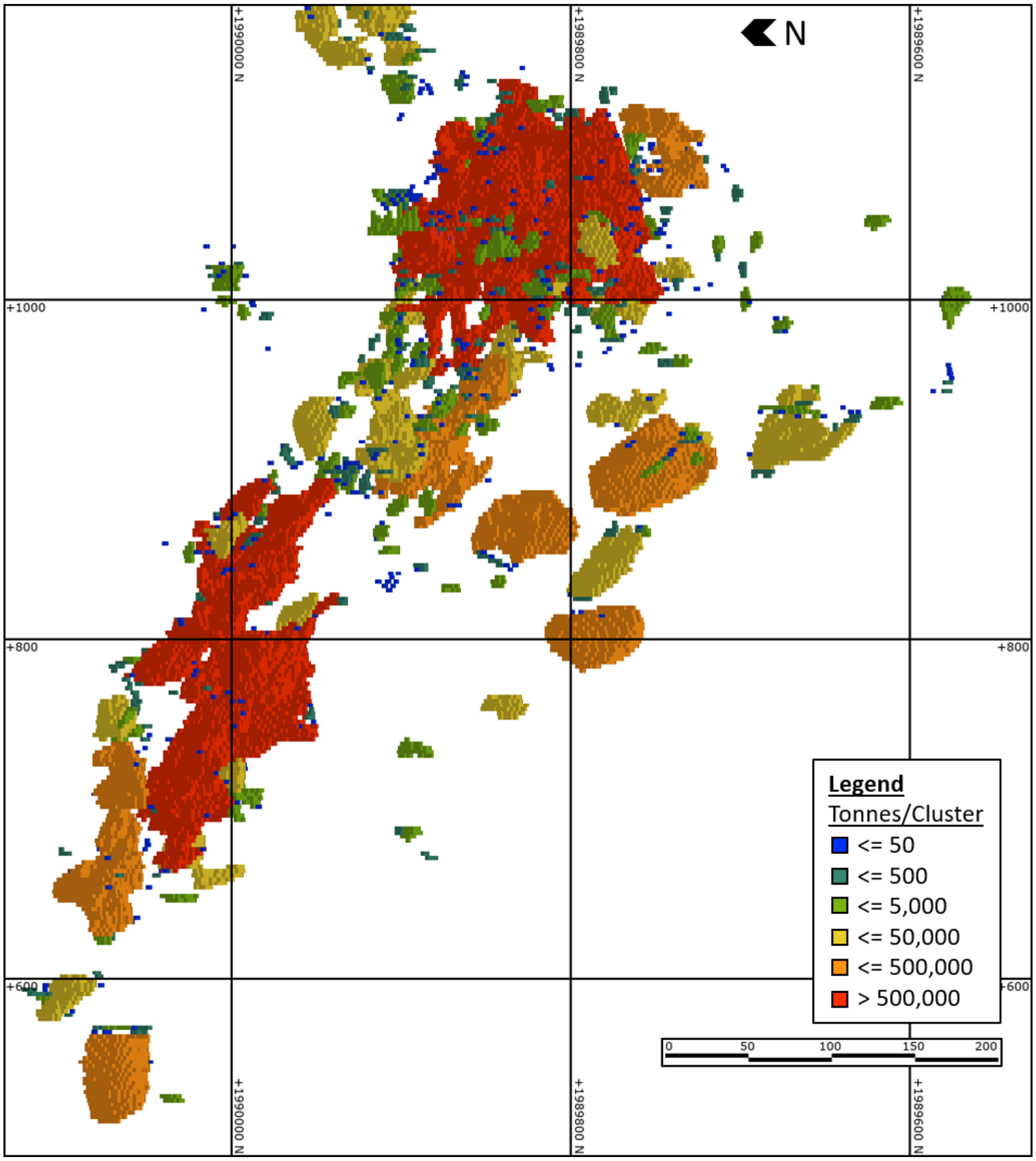
To ensure that the ELG UG Mineral Resources had reasonable prospects for eventual economic extraction, SLR carried out a cluster analysis on the block models for ELD and Sub-Sill. This cluster analysis used a density based spatial clustering of applications with noise (DBSCAN) algorithm, implemented in Python.

The cluster analysis process can be generalized as follows:

- Each block was assigned an indicator based on the grade being above or below the CoG.
- Selected blocks that shared a face with another selected block were assigned to be part of a cluster.
- Each continuous cluster was given a unique identifying label and the tonnes per cluster was calculated.

The block models with labelled clusters were imported back into Leapfrog to allow a visual review of the results and tabulated and charted to analyze the impact of small, discontinuous clusters on the total Mineral Resource.

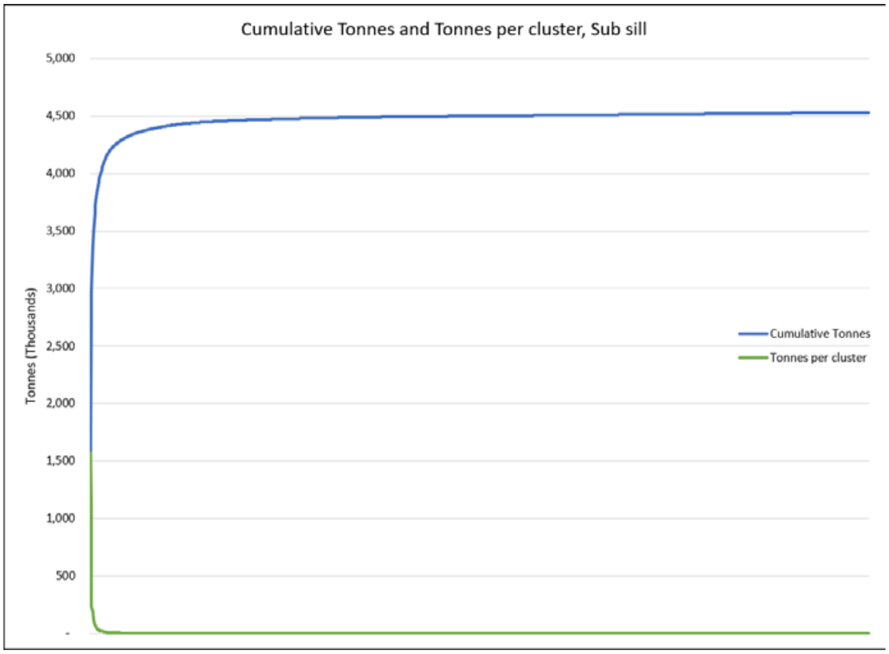
Figure 14-27 shows an example of the labelled clusters from Sub-Sill. This view shows that most of the Mineral Resource above the CoG is contained in large continuous clusters.



Source: SLR, 2022.

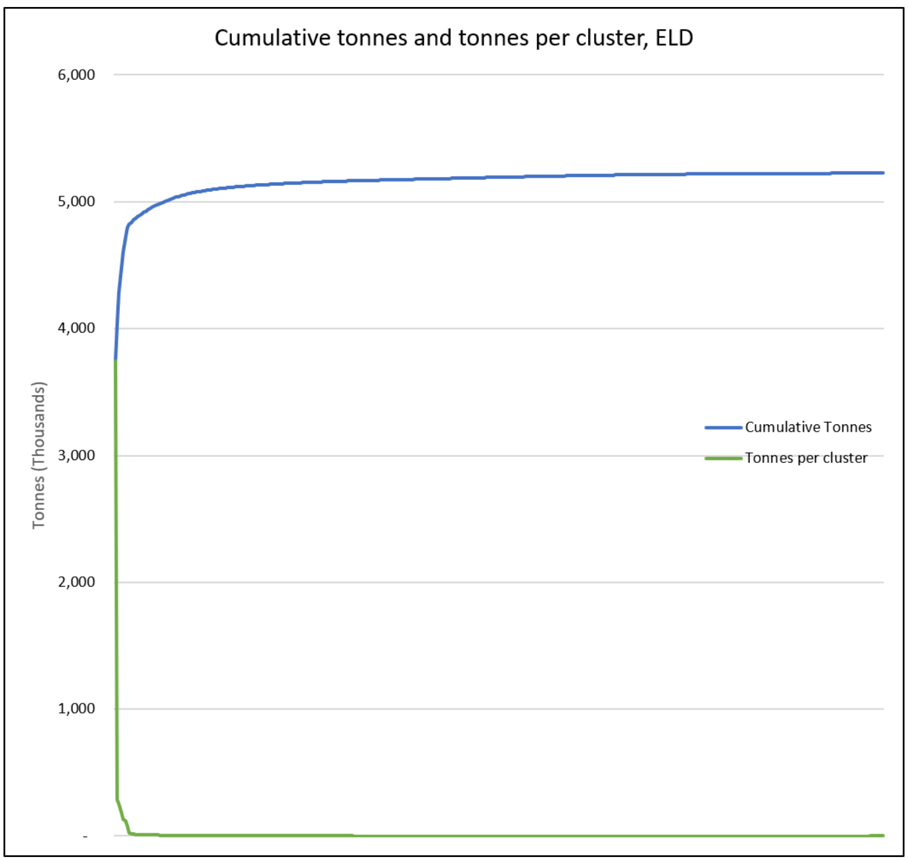
Figure 14-27: Sub-Sill Blocks above Cut-off, Colored by Tonnes per Cluster, Looking East

SLR also tabulated the results for Sub-Sill and ELD to assess if the material contained in small or discontinuous clusters constituted a material fraction of the Mineral Resource that warranted exclusion from the Mineral Resource statement. Figure 14-28 and Figure 14-29 show charts demonstrating that for ELD and Sub-Sill, the small and distant clusters are not material to the total Mineral Resource.



Source: SLR, 2022.

Figure 14-28: Chart of Tonnes per Cluster and Cumulative Tonnes, Sub-Sill



Source: SLR, 2022.

Figure 14-29: Chart of Tonnes per Cluster and Cumulative Tonnes, ELD

14.12.3 Media Luna

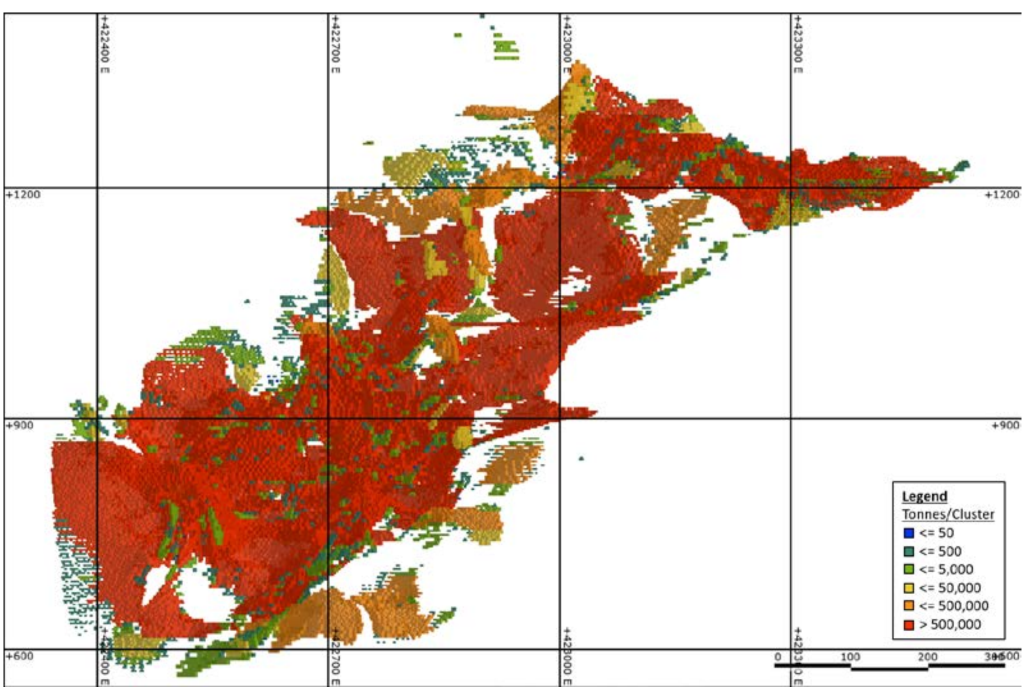
For ML, a metal price weighted AuEq CoG was calculated using the parameters shown in Table 14-31. Costs and input parameters were supplied to SLR by Torex.

Table 14-31: Input Parameters and Costs for Cut-off Grade Calculation, Media Luna

	Unit	Value
Metal Price (Au)	$/oz.	1550
Metal Price (Cu)	$/lb.	3.50
Metal Price (Ag)	$/oz.	20
Recovery (Au)	%	85.2
Recovery (Cu)	%	90.7
Recovery (Ag)	%	78.5
Fraction of revenue (Au)	%	61.1
Fraction of revenue (Cu)	%	31.1
Fraction of revenue (Ag)	%	7.8
Mining Cost	$/t	33.90
Processing Cost	$/t	32.14
General and Administration	$/t	11.57
Sustaining Cost	$/t	8.35

The CoG for the underground operations at ML was calculated to be 1.997 g/t AuEq and a reporting cut-off of 2.00 g/t AuEq was used to estimate the Mineral Resource.

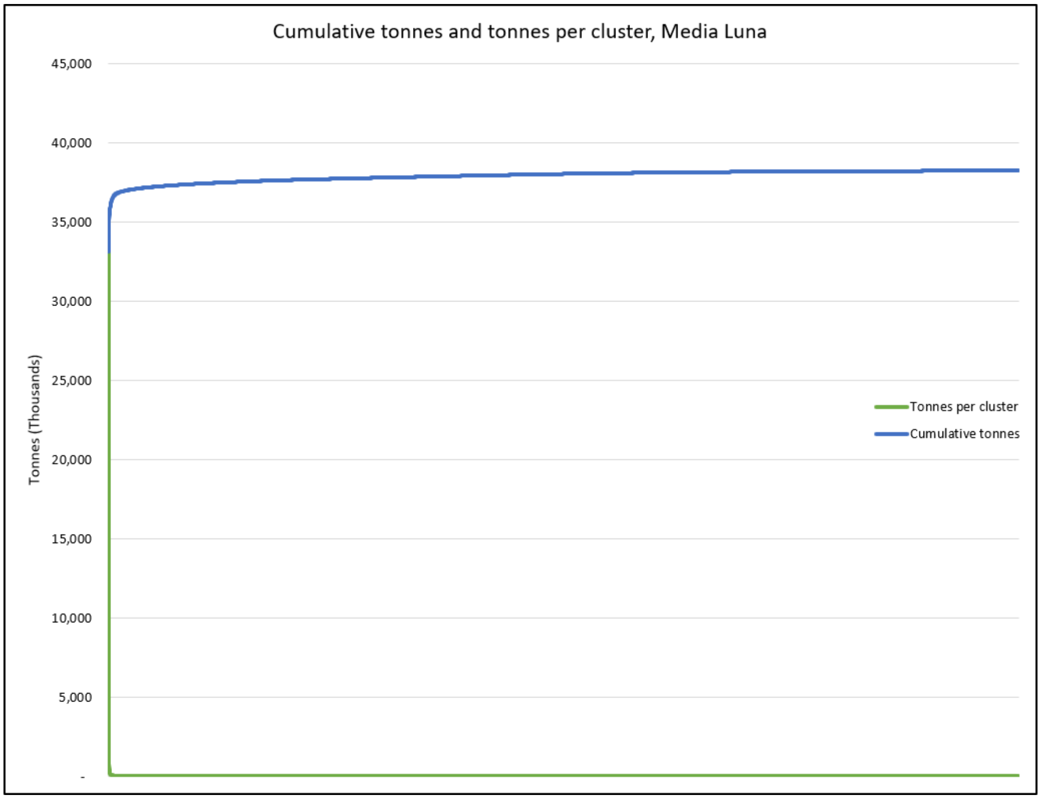
SLR carried out the same cluster analysis process as described for ELG UG (14.12.2) for the MLU and MLL zones at ML. Figure 14-30 shows the results of the cluster analysis for ML with above CoG clusters colored by their size.



Source: SLR, 2022.

Figure 14-30: Media Luna Blocks Above Cut-off, Colored by Tonnes per Cluster, looking North

SLR tabulated the results of the cluster analysis to assess if small and discontinuous clusters constituted a material fraction of the Mineral Resource and found that at ML these clusters do not make a material contribution to the Mineral Resources. The results of this tabulation can be seen in Figure 14-31.



Source: SLR, 2022.

Figure 14-31: Chart of Cumulative Tonnes and Tonnes per Cluster, Media Luna

14.13 MINERAL RESOURCE ESTIMATE

Mineral Resources are summarized by area below.

14.13.1 ELG Open Pit

The estimated Mineral Resources considered for the ELG OP mining are summarized in Table 14-32. These Mineral Resources include 1.56 million ounces of Au from 16.8 Mt at a grade of 2.89 g/t Au in the Measured and Indicated categories, and 47 koz of Au in 812 kt at a grade of 1.80 g/t Au in the Inferred category.

Table 14-32: Mineral Resource Statement, Effective December 31, 2021, ELG Open Pit

Deposit	Class	Tonnes (kt)	Grade			Contained Metal			Gold Equivalent	
			Au (g/t)	Ag (g/t)	Cu (%)	Au (koz)	Ag (koz)	Cu (Mlb)	AuEq (koz)	AuEq (g/t)
Guajes	Measured	1,674	4.44	3.6	0.12	239	192	4	241	4.47
	Indicated	3,326	2.73	2.5	0.08	292	267	6	295	2.76
	Inferred	77	1.88	3.0	0.03	5	7	0	5	1.90
El Limón Sur	Indicated	2,098	2.28	9.2	0.17	154	618	8	159	2.35
	Inferred	152	2.04	9.3	0.13	10	46	0	10	2.10
El Limón	Measured	4,053	3.66	5.6	0.14	477	727	13	483	3.71
	Indicated	5,604	2.20	4.3	0.11	396	776	14	403	2.23
	Inferred	583	1.73	2.0	0.07	32	37	1	33	1.75
ELG Open Pit Total	Measured	5,727	3.89	5.0	0.13	716	919	17	724	3.93
	Indicated	11,027	2.37	4.7	0.12	842	1,660	28	856	2.41
	Measured and Indicated	16,754	2.89	4.8	0.12	1,557	2,579	45	1,580	2.93
	Inferred	812	1.80	3.5	0.08	47	90	1	48	1.83

Notes to accompany ELG Open Pit Mineral Resource Table

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are depleted above a mining surface as of December 31, 2021.
3. Mineral Resources are reported using a gold price of US$1,550/oz, silver price of US$20/oz, and copper price of US$3.50/lb.
4. Average metallurgical recoveries are 89% for gold, 30% for silver, and 10% for copper.
5. Mineral resources are reported above a cut-off grade of 0.9 g/t Au.
6. AuEq = Au (g/t) + (Ag (g/t) * 0.0043) + (Cu (%) * 0.1740). AuEq calculations consider both metal prices and metallurgical recoveries.
7. Mineral Resources are reported inside an optimized pit shell, underground reserves at ELD within the El Limón shell have been excluded from the open pit Mineral Resources.
8. Mineral Resources are inclusive of mineral reserves.
9. Mineral Resources that are not mineral reserves do not have demonstrated economic viability.
10. Numbers may not add due to rounding.
11. The estimate was prepared by Mr. John Makin, MAIG, a consultant with SLR Consulting (Canada) Ltd. Mr. Makin is independent of the company and is a “Qualified Person” under NI 43-101.

14.13.2 ELG Underground

The Mineral Resources considered for underground mining methods include 4.6 million tonnes containing 915 thousand ounces of Au at a grade of 6.25 g/t Au in the Measured and Indicated categories and 1.4 million tonnes containing 217 thousand ounces at an average grade of 4.88 g/t Au in the Inferred category. The ELG UG Mineral Resources are summarized in Table 14-33.

Table 14-33: Mineral Resource Statement, Effective December 31, 2021, ELG Underground

Deposit	Class	Tonnes (kt)	Grade			Contained Metal			Gold Equivalent	
			Au (g/t)	Ag (g/t)	Cu (%)	Au (koz)	Ag (koz)	Cu (Mlb)	AuEq (koz)	AuEq (g/t)
Sub-Sill	Measured	584	7.24	10.0	0.52	136	187	7	138	7.37
	Indicated	2,042	6.21	6.4	0.29	408	422	13	413	6.29
	Inferred	1,125	4.92	6.3	0.25	178	228	6	180	4.99
El Limón Deep	Indicated	1,926	5.99	7.7	0.25	371	478	11	376	6.07
	Inferred	256	4.74	5.6	0.22	39	46	1	39	4.80
ELG Underground Total	Measured	584	7.24	10.0	0.52	136	187	7	138	7.37
	Indicated	3,968	6.11	7.1	0.27	779	900	23	789	6.18
	Measured and Indicated	4,551	6.25	7.4	0.30	915	1,088	30	927	6.34
	Inferred	1,380	4.88	6.2	0.25	217	275	8	220	4.95

Notes to accompany ELG Underground Mineral Resource table

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are depleted to the as-mined solids as of December 31, 2021.
3. Mineral Resources are reported using a gold price of US$1,550/oz, silver price of US$20/oz, and copper price of US$3.50/lb.
4. Average metallurgical recoveries are 89% for gold, 30% for silver and 10% for copper.
5. Mineral Resources are reported above a cut-off grade of 2.6 g/t Au.
6. AuEq = Au (g/t) + (Ag (g/t) * 0.0043) + (Cu (%) * 0.1740). AuEq calculations consider both metal prices and metallurgical recoveries.
7. The assumed mining method is underground cut and fill.
8. Mineral Resources are inclusive of Mineral Reserves.
9. Mineral Resources from ELD that are contained within the El Limón pit optimization and that are not underground Mineral Reserves have been excluded from the underground Mineral Resources.
10. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
11. Numbers may not add due to rounding.
12. The estimate was prepared by Mr. John Makin, MAIG, a consultant with SLR Consulting (Canada) Ltd. Mr. Makin is independent of the company and is a “Qualified Person” under NI 43-101.

14.13.3 Media Luna

The Mineral Resources at ML (ML and EPO) include Indicated Mineral Resources of 25.4 Mt with Au and Cu grades of 3.24 g/t Au and 1.1% Cu and containing 2.6 million ounces of Au and 602 Mlb of Cu. Inferred Mineral Resources is estimated to total 14 Mt with Au and Cu grades of 1.93 g/t Au and 1.1% Cu and containing 0.9 million ounces of Au and 331 Mlb of Cu. These Mineral Resources are summarized in Table 14-34 and Table 14-35.

Table 14-34: Mineral Resource Statement, Effective October 31, 2021, Media Luna

Class	Tonnes (kt)	Grade			Contained Metal			Gold Equivalent	
		Au (g/t)	Ag (g/t)	Cu (%)	Au (koz)	Ag (koz)	Cu (Mlb)	AuEq (g/t)	AuEq (koz)
Indicated	25,380	3.24	31.5	1.1	2,642	25,705	602	5.38	4,394
Inferred	5,991	2.47	20.8	0.8	476	3,998	106	4.05	780

Notes to accompany Media Luna Mineral Resource table

1. CIM (2014) definitions were followed for Mineral Resources.
2. The effective date of the estimate is October 31, 2021.
3. Mineral Resources are reported using a gold price of US$1,550/oz, silver price of US$20/oz, and copper price of US$3.50/lb.
4. Metallurgical recoveries at Media Luna average 85% for gold, 79% for silver, and 91% for copper.
5. AuEq = Au (g/t) + (Ag (g/t) * 0.011889) + (Cu (%) * 1.648326). AuEq calculations consider both metal prices and metallurgical recoveries.
6. Mineral Resources are reported above a 2.0 g/t AuEq cut-off grade.
7. Mineral Resources are inclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
9. Numbers may not add due to rounding.
10. The estimate was prepared by Mr. John Makin, MAIG, a consultant with SLR Consulting (Canada) Ltd. Mr. Makin is independent of the company and is a “Qualified Person” under NI 43-101.

Table 14-35: Mineral Resource Statement, effective October 31, 2021, EPO

Class	Tonnes (kt)	Grade			Contained Metal			Gold Equivalent	
		Au (g/t)	Ag (g/t)	Cu (%)	Au (koz)	Ag (koz)	Cu (Mlb)	AuEq (g/t)	AuEq (koz)
Inferred	8,019	1.52	34.6	1.27	391	8,908	225	3.97	1,024

Notes to Mineral Resource Estimate Table:

1. CIM (2014) definitions were followed for Mineral Resources.
2. The effective date of the estimate is October 31, 2021.
3. Mineral Resources are reported using a gold price of US$1,550/oz, silver price of US$20/oz, and copper price of US$3.50/lb.
4. Metallurgical recoveries at EPO average 85% for gold, 75% for silver, and 89% for copper.
5. AuEq = Au (g/t) + Ag (g/t) * (0.011385) + Cu % * (1.621237). AuEq calculations consider both metal prices and metallurgical recoveries.
6. Mineral Resources are reported above a 2.0 g/t AuEq cut-off grade.
7. Mineral Resources are inclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
9. Numbers may not add due to rounding.
10. The estimate was audited and adopted by Mr. John Makin, MAIG, a consultant with SLR Consulting (Canada) Ltd. Mr. Makin is independent of the company and is a “Qualified Person” under NI 43-101.

14.14 COMMENTS ON SECTION 14

The QP is of the opinion that the Mineral Resources, estimated using core drill data, have been performed to industry practices, and conform to the definitions used in CIM (2014).

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

15 MINERAL RESERVE ESTIMATES

15.1 MINERAL RESERVES SUMMARY

The key points of this section are:

- Mineral Reserves are estimated for ELG OP, ELG UG, Surface Stockpiles, and the ML Project. For ELG OP, ELG UG, and Surface Stockpiles Mineral Reserves are estimated as of December 31, 2021. The Media Luna Mineral Reserves are estimated as of October 31, 2021.

- ELG OP:
  - Mineral Reserves incorporate 15% dilution and 5% mining loss and are reported within designed pits above a diluted cut-off grade (CoG) of 1.1 g/t Au. Low grade ore to be stockpiled during pit operation and processed at closure is reported above a diluted CoG of 1.0 g/t.
  - The contained Au in Proven and Probable Mineral Reserves is 33.0% less than the contained Au in ELG OP Measured and Indicated Mineral Resources (excluding stockpile inventory).

- ELG UG:
  - Mineral Reserves incorporate 10% dilution and 10% mining loss and are reported within designed underground cut and fill stopes above an in-situ ore CoG of 3.58 g/t Au.
  - The contained Au in Proven and Probable Mineral Reserves is approximately 55% less than the contained Au in the ELG UG Measured and Indicated Mineral Resources (using a CoG of 2.6 g/t).

- ML Project:
  - Mineral Reserves incorporate 6% dilution and 10% mining loss and are reported within designed underground longhole stopes above an in-situ ore AuEq CoG of 2.4 g/t Au.
  - Mineral Reserves have been identified for Media Luna Upper (MLU) and Media Luna Lower (MLL).
  - The contained AuEq in Probable Mineral Reserves is approximately 25% less than the contained AuEq in the Measured and Indicated Mineral Resources (using a AuEq CoG of 2.0 g/t).

The Mineral Reserve Estimates for the Morelos Property including ELG OP, ELG UG, Surface Stockpiles, and ML are provided in Table 15-1 with accompanying footnotes.

Table 15-1: Mineral Reserves Estimate, Morelos Property

Mineral Reserves		Grade			Contained Metal			Gold Equivalent	
		Au	Ag	Cu	Au	Ag	Cu	AuEq	AuEq
	Tonnes (kt)	(g/t)	(g/t)	(%)	(koz)	(koz)	(Mlb)	(g/t)	(koz)
ELG Open Pit									
Proven	4,900	3.95	4.6	0.14	623	719	15	4.00	630
Probable	5,471	2.35	4.5	0.12	414	784	15	2.39	421
Proven & Probable	10,371	3.11	4.5	0.13	1,037	1,503	30	3.15	1,051
ELG Underground									
Proven	110	7.23	10.5	0.59	25	37	1	7.38	26
Probable	2,566	5.68	5.7	0.22	469	474	13	5.74	474
Proven & Probable	2,675	5.74	5.9	0.24	494	511	14	5.81	500
Media Luna									
Proven	-	-	-	-	-	-	-	-	-
Probable	23,017	2.81	25.6	0.88	2,077	18,944	444	4.54	3,360
Proven & Probable	23,017	2.81	25.6	0.88	2,077	18,944	444	4.54	3,360
Surface Stockpiles									
Proven	4,808	1.35	3.1	0.07	209	484	7	1.38	213
Probable	-	-	-	-	-	-	-	-	-
Proven & Probable	4,808	1.35	3.1	0.07	209	484	7	1.38	213
Total									
Proven	9,817	2.72	3.9	0.11	858	1,240	23	2.75	869
Probable	31,054	2.96	20.2	0.69	2,959	20,202	472	4.26	4,254
Proven & Probable	40,871	2.90	16.3	0.55	3,817	21,442	495	3.90	5,123

Notes to accompany the Mineral Reserves Estimate table:

1. Mineral reserves were developed in accordance with CIM (2014) guidelines.
2. Rounding may result in apparent summation differences between tonnes, grade, and contained metal content Surface Stockpile Mineral Reserves are estimated using production and survey data and apply the ELG AuEq identified in Note 14.
3. AuEq of Total Reserves is established from combined contributions of the various deposits.
4. The qualified person for the Mineral Reserve estimate is Johannes (Gertjan) Bekkers, P. Eng., Director of Mine Technical Services.
5. The qualified person is not aware of mining, metallurgical, infrastructure, permitting, or other factors that materially affect the Mineral Reserve estimates

Notes to accompany the ELG Open Pit Mineral Reserves:

6. Mineral Reserves are founded on Measured and Indicated Mineral Resources, with an effective date of December 31, 2021, for ELG Open Pits (including El Limón, El Limón Sur and Guajes deposits).
7. El Limón and Guajes Open Pit Mineral Reserves are reported above a diluted cut-off grade of 1.1 g/t Au.
8. El Limón Guajes Low Grade Mineral Reserves are reported above a diluted cut-off grade of 1.0 g/t Au.
9. It is planned that ELG Low Grade Mineral Reserves within the designed pits will be stockpiled during pit operation and processed during pit closure.
10. Mineral Reserves within the designed pits include assumed estimates for dilution and ore losses.
11. Cut-off grades and designed pits are considered appropriate for a metal price of $1,400/oz Au and metal recovery of 89% Au.
12. Mineral Reserves are reported using a gold price of US$1,400/oz, silver price of US$17/oz, and copper price of US$3.25/lb.
13. Average metallurgical recoveries of 89% for gold and 30% for silver and 10% for copper.
14. ELG AuEq = Au (g/t) + Ag (g/t) * (0.0041) + Cu (%) * (0.1789), accounting for metal prices and metallurgical recoveries.

Notes to accompany the ELG Underground Mineral Reserves:

15. Mineral Reserves are founded on Measured and Indicated Mineral Resources, with an effective date of December 31, 2021, for ELG Underground (including Sub-Sill and ELD deposits).
16. Mineral Reserves were developed in accordance with CIM guidelines.
17. El Limón Underground Mineral Reserves are reported above an in-situ ore cut-off grade of 3.58 g/t Au and an in-situ incremental CoG of 1.04 g/t Au.
18. Cut-off grades and mining shapes are considered appropriate for a metal price of $1,400/oz Au and metal recovery of 89% Au.
19. Mineral Reserves within designed mine shapes assume mechanized cut and fill mining method and include estimates for dilution and mining losses.
20. Mineral Reserves are reported using a gold price of US$1,400/oz, silver price of US$17/oz, and copper price of US$3.25/lb.
21. Average metallurgical recoveries of 89% for gold and 30% for silver and 10% for copper.
22. ELG AuEq = Au (g/t) + Ag (g/t) * (0.0041) + Cu (%) * (0.1789), accounting for metal prices and metallurgical recoveries.

Notes to accompany the Media Luna Underground Mineral Reserves:

23. Mineral Reserves are based on Media Luna Indicated Mineral Resources with an effective date of October 31st, 2021.
24. Media Luna Mineral Reserves are reported above a diluted ore cut-off grade of 2.2 g/t AuEq.
25. Media Luna cut-off grades and mining shapes are considered appropriate for a metal price of $1,400/oz Au, $17/oz Ag and $3.25/lb Cu and metal recoveries of 85% Au, 79% Ag, and 91% Cu.
26. Mineral Reserves within designed mine shapes assume longhole stoping, supplemented with mechanized cut and fill mining method and includes estimates for dilution and mining losses as outlined in Section 16.4.4.4.5.
27. Media Luna gold equivalent (AuEq) = Au (g/t) + Ag (g/t) * (0.011188) + Cu (%) * (1.694580), accounting for metal prices and metallurgical recoveries.

15.2 ELG OPEN PIT

15.2.1 Mineral Reserve Estimate

The ELG OP Mineral Reserves includes the El Limón pit, El Limón Sur pit, Guajes pit, and Low grade (below cut-off but above 1 g/t) material from all pits that is sent to stockpile. ELG OP Mineral Reserves are summarized in Table 15-2.

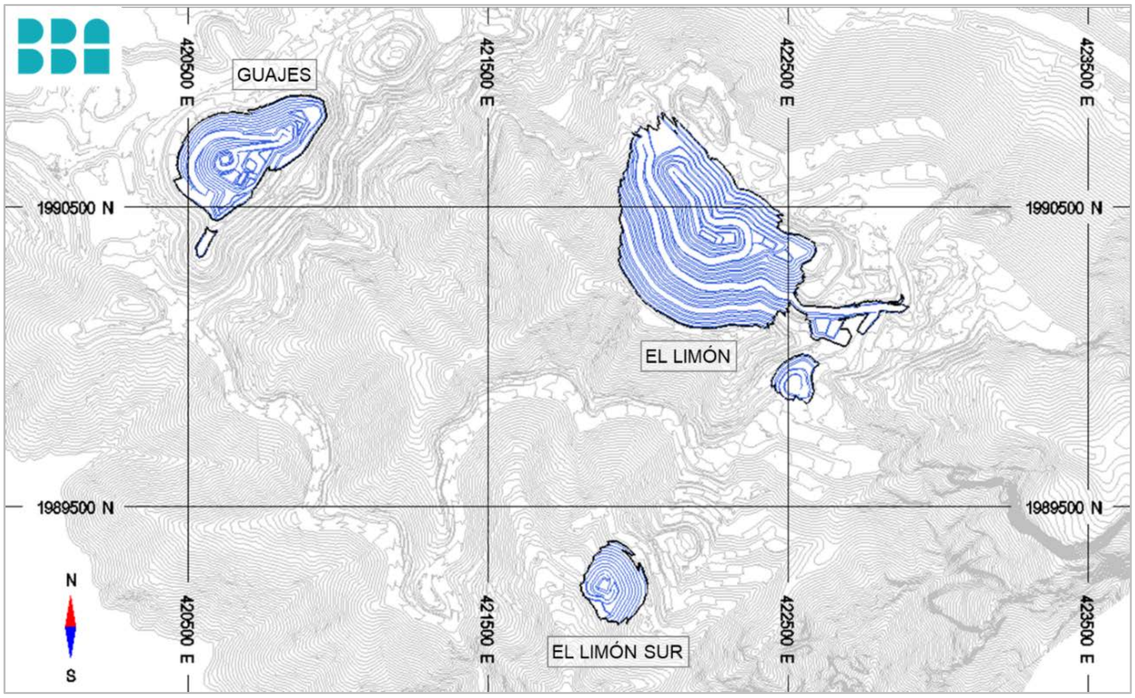
Table 15-2: ELG Open Pit and Surface Stockpiles Mineral Reserve Estimate – December 31, 2021

Mineral Reserves As of December 31, 2021	Tonnes (kt)	Grade Au (g/t)	Grade Ag (g/t)	Grade Cu (%)	Contained Metal Au (koz)	Contained Metal Ag (koz)	Contained Metal Cu (Mlb)	Gold Equivalent AuEq (g/t)	Gold Equivalent AuEq (koz)
El Limón (including El Limón Sur)									
Proven	3,314	3.84	5.1	0.14	410	539	10	3.89	414
Probable	4,097	2.33	4.8	0.13	307	639	12	2.37	312
Proven & Probable	7,411	3.01	4.9	0.14	716	1,178	22	3.05	727
Guajes									
Proven	1,429	4.53	3.7	0.14	208	168	4	4.57	210
Probable	859	3.27	2.8	0.09	90	78	2	3.29	91
Proven & Probable	2,287	4.06	3.3	0.12	298	246	6	4.09	301
ELG Low Grade									
Proven	158	1.02	2.3	0.07	5	12	0	1.04	5
Probable	515	1.02	4.0	0.11	17	67	1	1.06	17
Proven & Probable	672	1.02	3.6	0.10	22	79	1	1.05	23
ELG Open Pit Total									
Proven	4,900	3.95	4. 6	0.14	623	719	15	4.00	630
Probable	5,471	2.35	4.5	0.12	414	784	15	2.39	421
Proven & Probable	10,371	3.11	4.5	0.13	1,037	1,503	30	3.15	1,051
Surface Stockpiles									
Proven	4,808	1.35	3.1	0.07	209	484	7	1.38	213
Probable	-	-	-	-	-	-	-	-	-
Proven & Probable	4,808	1.35	3.1	0.07	209	484	7	1.38	213

Notes to accompany Mineral Reserve table:

1. Mineral Reserves are founded on Measured and Indicated Mineral Resources and Stockpiled Ore, with an effective date of December 31, 2021, for ELG Open Pits (including El Limón, El Limón Sur and Guajes deposits).
2. Mineral Reserves were developed in accordance with CIM guidelines.
3. El Limón and Guajes Open Pit Mineral Reserves are reported above a diluted cut-off grade of 1.1 g/t Au.
4. El Limón Guajes Low Grade Mineral Reserves are reported above a diluted cut-off grade of 1.0 g/t Au.
5. It is planned that ELG Low Grade Mineral Reserves within the designed pits will be stockpiled during pit operation and processed during pit closure.
6. Mineral Reserves within the designed pits include assumed estimates for dilution and ore losses.
7. Cut-off grades and designed pits are considered appropriate for a metal price of $1,400/oz Au and metal recovery of 89% Au.
8. Mineral Reserves are reported using a gold price of US$1,400/oz, silver price of US$17/oz, and copper price of US$3.25/lb.
9. Average metallurgical recoveries of 89% for gold and 30% for silver and 10% for copper.
10. ELG AuEq = Au (g/t) + Ag (g/t) * (0.0041) + Cu (%) * (0.1789), accounting for metal prices and metallurgical recoveries.
11. Numbers may not add due to rounding.
12. The qualified person for the Mineral Reserve estimate is Johannes (Gertjan) Bekkers P.Eng. the Director of Mine Technical Services for the Corporation.

ELG OP Mineral Reserves are founded on and are part of the Mineral Resources presented in Section 14 of this Technical Report. The Mineral Reserves are reported based on open pit mining within the Life of Mine designed pits presented in Section 16.2.8 and illustrated in Figure 15-1 below. The overall slopes with ramps in the designed pits range from 30º to 50º.



Source: BBA, 2022

Figure 15-1: ELG Ultimate Pits Designs

The pit designs shown in Figure 15-1 were guided by the results of a pit optimization analysis that used the pseudo-flow algorithm in the Economic Planner module of Hexagon's MinePlan 3D and input technical and economic parameters to determine the optimum shape and depth of the ultimate pits. Key input parameters for the pit optimization analysis included:

- Long term gold price forecast of US$1,400/oz;
- Guajes and El Limón ore and waste mining costs estimated at US$2.15/t;
- El Limón Sur ore and waste mining costs estimated at US$5.28/t and US$2.89/t, respectively;
- Processing costs estimated at US$31.90/t processed ($27.30/t for low grade ore plus $0.50/t for rehandling);
- General and administrative costs estimated at US$9.35/t processed ($8.51/t for low grade ore);
- The Mineral Resource block models as described in Section 14;
- Mining dilution estimated at 15% and mining losses estimated at 5%;
- Average gold process recovery of 89% (86% for low grade ore) as presented in Section 13;
- Overall pit slopes ranging from 33º to 50º.

Further details on pit optimization and pit design are presented in Sections 16.2.6 and Section 16.2.8 of this Technical Report.

The ELG OP Mineral Reserves include 15% dilution and 5% mining losses, and are reported above a diluted CoG of 1.1 g/t Au. The CoG was derived based on the long term gold price forecast of $1,400/oz, the unit operating cost estimates and gold process recoveries listed above. Silver is not incorporated in the CoG calculation since its contribution to revenue is relatively minor compared to gold.

Lower G&A unit costs are estimated during the pit closure period, which allows the economic processing of lower grade mineralization at that time. It is planned that ELG Low Grade Mineral Reserves within the designed pits will be stockpiled during pit operation and processed during pit closure. ELG Low Grade Mineral Reserves are reported above a diluted CoG of 1.0 g/t Au and below the higher CoGs noted above. The Low Grade cut-off is considered appropriate for a gold price of US$1,400/oz, stockpile rehandle costs of US$0.50/t, low grade processing costs of US$27.30/t, and G&A costs at closure estimated at US$8.51/t processed.

Further details on mining dilution and losses are presented in Section 16.2.4 of this Technical Report. Further details on the open CoG calculation are presented in Section 16.2.7.

ELG OP Proven and Probable Mineral Reserve estimates as of December 31, 2021 are summarized in Table 15-2. ELG OP mining has been underway since late 2013 and Mineral Reserve estimates are supplemented with 4.8 Mt of ore in Surface Stockpiles at the end of December 2021. The remaining Mineral Reserves are located within the designed pits at an average waste-to-ore strip ratio of 7.8:1.

The open pit life of mine plan that was developed for the optimization study, and for which the capital and operating costs are presented in Section 21, shows that the ELG life of mine plan founded on the Mineral Reserve estimates in Table 15-2 provides positive cash flows throughout the mine's operating life, confirming that the Mineral Reserves are economically mineable and that economic extraction can be justified.

15.2.2 Comparison to Mineral Resource Estimate

The ELG OP Mineral Reserve estimates shown in Table 15-2 were reconciled with ELG OP Mineral Resource estimates presented in Section 14. Contained gold in the Proven and Probable Mineral Reserves is 33.0% less than contained gold in the Measured and Indicated Mineral Resources (excluding stockpile inventory). Approximately 3.0% of the difference in contained gold is attributed to the higher CoGs utilized to define Mineral Reserves, approximately 3.1% is due to incorporation of mining losses and dilution in Mineral Reserve estimates. The remaining 24% is gold contained principally in Indicated Mineral Resources that are located outside the ultimate pit designs. The ultimate pits are smaller than the "reasonable prospect of eventual economic extraction" (RPEEE) pit shell utilized to report Mineral Resources.

15.2.3 Comparison to Previous Mineral Reserve Estimate

The ELG OP Proven and Probable Mineral Reserves in Table 15-2 were compared to the previous Mineral Reserve estimate, i.e. Mineral Reserves (excluding Surface Stockpiles) on December 31, 2020 that were included within the Torex press release "2020 Year End Mineral Reserves & Resources for El Limón Guajes Complex" dated March 30, 2021. The difference in total Proven and Probable Mineral Reserve estimates showing the 4.01 Mt reduction in Mineral Reserve tonnage and 0.29 Moz reduction in contained gold from year-end 2020 to December 31, 2021 are summarized in Table 15-3.

Mine depletion accounts for the majority of the difference, while the Surface Stockpile Mineral Reserves increased by 0.71 Mt and 0.027 Moz. The reduction in reserves was partially offset by gains from updated pit optimization and designs. Details of the pit optimization analysis and designs are described in Section 16 of the report.

Table 15-3: Comparison to Previous ELG Open Pit Mineral Reserve Estimate

	Ore	Grade		Contained Metal		Waste	Percent change to;		
	(Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)	(Mt)	Ore (t)	Gold (oz)	Waste (t)
ELG Open Pit PP Reserves, EY2021	10.37	3.11	4.5	1.04	1.50	80.89			
ELG Open Pit PP Reserves, EY2020	14.38	2.87	3.6	1.33	1.65	87.80			
Change to Reserves during 2021	(4.01)	0.24	0.9	(0.29)	(0.15)	(6.91)	*(28%)*	*(22%)*	*(8%)*
Reasons for change to Reserves:									
2021 Mined	(4.76)	2.81	3.4	(0.43)	(0.52)	(34.92)	*(33%)*	*(32%)*	*(40%)*
2021 Surface Stockpiles Growth	0.71	1.20	2.2	0.03	0.05	0.00	*5%*	*2%*	*0%*

15.2.4 Ore Reconciliation

The ELG mine geology team manages and tracks extraction of Mineral Reserves (ore) as part of the ore control process. The team collects tonnage, grade, and metal content data from various sources and compares them as part of the reconciliation process. General data sources and comparison ratios or factors are illustrated in Figure 15-2.

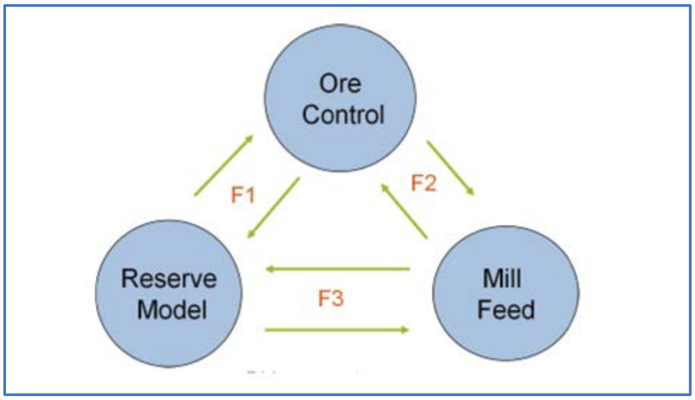


Figure 15-2: Reconciliation Data Sources & Comparison Factors

The F1 factors shown in Figure 15-2 compare short-range ore control tonnages, grades, and metal content to ore reserves depleted. Since the start of mining and until September 2021 the overall F1 factors for tonnage, gold grade, and gold content are 0.96, 0.99, and 0.95, respectively.

The F2 factor compares received-at-mill grades and metal content to mine production grade and metal content delivered-to-mill. The F2 grade determination from the start of commercial production in March 2016 to the end of 2021Q3 shows that over this period the process plant calculated head grade is approximately 4% higher than the grade predicted from the ore control data, resulting in a F2 gold grade factor of 1.04. Due to that the ore delivered from the mine to the crushers is not completely fed directly to the mill and a portion of it is stockpiled before being fed, the F2 grade and metal content reconciliations factors are estimated using the tonnage processed at the mill, resulting in a F2 tonnage factor of 1.00. For the period the derived F2 gold content factor of 1.04 (i.e., $1.00_{\text{F2 tonnes}}$ x $1.04_{\text{F2 grade}}$ = $1.04_{\text{F2 gold content}}$). In summary, since the start of commercial production F2 factors for tonnage, gold grade, and gold content are approximately 1.00, 1.04, and 1.04, respectively.

The F3 reconciliation factors compare the plant feed reported by the mill to the Mineral Reserves depleted. The F3 factor is the product of the F1 factor and the F2 factor. Overall, from mine start through to the end of 2021Q3, the derived F3 factors for tonnage, gold grade, and gold content are 0.96, 1.02, and 0.99, respectively, indicating that for the long term the in-pit reserve model was a good predictor of the gold grade and tonnage of the mined areas. The reconciliation factors are summarized in Table 15-4.

Table 15-4: ELG Open Pit Reconciliation Factors F1, F2 and F3 Since Start of Mining

Mining Area: Open Pits	Start of Mining to Q3 2021					
	F1			F2	F3 (F1XF2)	
	Tonnes	Grade	Ounces	Grade	Grade	Ounces
North Nose	0.83	0.93	0.77	1.04	0.96	0.80
Guajes East	0.98	0.91	0.90	1.04	0.95	0.93
Guajes West	1.03	1.09	1.13	1.04	1.14	1.18
El Limón B	0.98	0.94	0.93	1.04	0.98	0.96
El Limón C - D	0.90	1.03	0.93	1.04	1.07	0.96
El Limón Sur	1.11	0.98	1.09	1.04	1.02	1.13
Total Open Pit	0.96	0.99	0.95	1.04	1.02	0.99

At this time, it is concluded that no adjustment is required to the current ore control procedures for the open pit. Reconciliation results to date indicate that the Mineral Reserve model, which incorporates dilution and mining loss estimates, is a good predictor of the tonnes and gold grades identified in Guajes and El Limón open pit deposits.

15.3 ELG UNDERGROUND

15.3.1 Mineral Reserves Estimate

The Mineral Reserve estimate for ELG UG mine is based on Measured and Indicated Mineral Resources identified at Sub-Sill zone (comprised of SSL, Z71 and SSX) and ELD zone as of the December 31, 2021 Mineral Resource estimate.

The ELG UG Mineral Reserves are summarized in Table 15-5. Proven Mineral Reserves were calculated to be 110 kt at 7.23 g/t Au for 25 koz Au based on a mine plan with an in-situ CoG of 3.58 g/t Au. Probable Mineral Reserves were calculated to be 2,566 kt at 5.68 g/t Au for 469 koz Au based on a mine plan with an in-situ CoG of 3.58 g/t Au. The Mineral Reserve also includes material encountered in the mine plan which is above the incremental CoG of 1.04 g/t Au. This Mineral Reserve considers geologic, mining and processing constraints.

Table 15-5: ELG Underground Reserve Estimate – December 31, 2021

		Grade			Contained Metal			Gold Equivalent	
Mineral Reserves As of December 31, 2021	Tonnes (kt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (koz)	Ag (koz)	Cu (Mlb)	AuEq (g/t)	AuEq (koz)
Sub-Sill									
Proven	110	7.23	10.5	0.59	25	37	1	7.38	26
Probable	1,214	5.55	4.8	0.21	217	187	6	5.61	219
Proven & Probable	1,324	5.69	5.3	0.24	242	224	7	5.76	245
El Limón Deep (ELD)									
Proven	-	-	-	-	-	-	-	-	-
Probable	1,351	5.80	6.6	0.23	252	287	7	5.87	255
Proven & Probable	1,351	5.80	6.6	0.23	252	287	7	5.87	255
ELG Underground Total									
Proven	110	7.23	10.5	0.59	25	37	1	7.38	26
Probable	2,566	5.68	5.7	0.22	469	474	13	5.74	474
Proven & Probable	2,675	5.74	5.9	0.24	494	511	14	5.81	500

Notes to accompany ELG Underground Mineral Reserve table:

1. Mineral Reserves are founded on Measured and Indicated Mineral Resources, with an effective date of December 31, 2021, for ELG Underground (including Sub-Sill and ELD deposits).
2. Mineral Reserves were developed in accordance with CIM guidelines.
3. El Limón Underground Mineral Reserves are reported above an in-situ ore CoG of 3.58 g/t Au and an in-situ incremental CoG of 1.04 g/t Au.
4. Cut-off grades and mining shapes are considered appropriate for a metal price of $1,400/oz Au and metal recovery of 89% Au.
5. Mineral Reserves within designed mine shapes assume mechanized cut and fill mining method and include estimates for dilution and mining losses.
6. Mineral Reserves are reported using a gold price of US$1,400/oz, silver price of US$17/oz, and copper price of US$3.25/lb.
7. Average metallurgical recoveries of 89% for gold and 30% for silver and 10% for copper.
8. ELG AuEq = Au (g/t) + Ag (g/t) * (0.0041) + Cu (%) * (0.1789, accounting for metal prices and metallurgical recoveries.
9. Numbers may not add due to rounding.
10. The qualified person for the Mineral Reserve estimate is Johannes (Gertjan) Bekkers P.Eng. the Director of Mine Technical Services for the Corporation.

The underground Mineral Reserve estimate for Sub-Sill and ELD Zones was determined by applying the mechanized overhand cut and fill (MCAF) mining method to the three-dimensional block models. This was done in Deswik®, a commercially available mine planning software. For inclusion in the reserve, the shapes were assessed against an in-situ CoG of 3.58 g/t Au and an in-situ incremental CoG of 1.04 g/t Au. The CoG accounts for direct mining costs, indirect mining costs, processing costs, selling costs, and sustaining capital costs. The incremental CoG accounts for processing costs only. The mine plan was completed by including the development and infrastructure required to support the mining process and access the reserve mining shapes. Key input parameters for the underground mine design and CoGs are listed below:

- Long term metal prices forecast at US$1,400/oz for gold;
- Ore total mining cost estimated at US$78.55/t of ore mined;
- Sustaining capital charge estimated at US$17.27/t of ore mined;
- Processing costs estimated at US$31.90/t processed;
- Incremental cost estimated at US$31.90/t;
- The Mineral Resource block model as described in Section 14;
- Mining dilution estimated at 10% and mining losses estimated at 10%;
- Average process gold recovery of 89%.

Further details on the ELG UG mine design are presented in Section 16.3 of this Technical Report.

The mine plan physicals, such as, gold, silver and copper grades were estimated by interrogating the mine design shapes against the resource block model.

15.3.2 Comparison to Mineral Resource Estimate

ELG UG Mineral Reserve estimate shown in Table 15-6 was compared to ELG UG Mineral Resource block model detailed in Section 14. Total Contained gold in proven and probable Mineral Reserves (CoG 3.58 g/t) is ~54% compared to contained gold in the measured and indicated Mineral Resources at a CoG of 2.6 g/t. Approximately 10% of the difference in contained gold is attributed due to incorporation of mining losses and remaining 36% contained in operationally uneconomic indicated resource zone.

Table 15-6: Comparison Mineral Resource to Mineral Reserve

	Category	Mass (Mt)	Material Contained (Au koz)
Mineral Resources -Total ELG UG	Measured and Indicated Resources	4.6	915
Mineral Reserve - Total ELG UG	Proven and Probable	2.67	494
Conversion Ratio %	M+I to Proven and Probable	59%	54%

15.3.3 Comparison to Previous Mineral Reserve Estimate

The ELG UG proven and probable Mineral Reserves in Table 15-6 were compared to the 2020 Mineral Reserve estimate, less material mined in 2021 (Table 15-7). The changes that affected Mineral Reserves include the addition of incremental material to Mineral Reserves, minor adjustments to the Mineral Reserve mine plan design, and a reduction of tonnes and metal due to ore processed in 2021.

Table 15-7: 2021 Reserve Compared to 2020 Reserve

	2020 Reserve	2021 (Jan-Dec) Mined	2021 Reserve	Change
Tonnes (kt)	2,032	460	2,675	1,104
Grade - Au (g/t)	6.32	7.08	5.75	5.24
Grade - Ag (g/t)	6.29	10.47	5.94	7.18
Contained Au (koz)	413	105	494	186
Contained Ag (koz)	411	155	511	255

The major changes are attributed to depletion from mining and to conversion of Inferred Mineral Resources to Indicated Mineral Resources within the block model above CoG (3.58 g/t) and the inclusion incremental ore mined between defined minable shapes. Change in the in-situ CoG from 3.4 g/t to 3.58 g/t resulted in loss of ~19 koz of Mineral Reserve.

15.3.4 Ore Reconciliation

The same criteria and procedures described in Section 15.2.4 apply to estimate the reconciliation factors F1, F2 and F3 for the Sub-Sill and ELD underground mines of El Limón Guajes.

The analysis of the reconciliation factors began in Q2 2018 for the Sub-Sill and as of Q1 2020 the Limón Deep (ELD) was incorporated.

Since the start of mining and until Q3 2021, the overall underground F1 factors for tonnage, gold grade, and gold content are 1.37, 1.01 and 1.39, respectively.

The F2 factors that compares received-at-mill grades and metal content to mine production grade and metal content delivered-to-mill are the same as the F2 factors for the open pit mines. This is due to the ore delivered from the mines is mixed at the crushers before it is processed, and the head grades reported by the plant is a combination of the open pit and underground grades that are delivered from the mine. In summary, it is considered that since start of commercial underground the F2 factors for tonnage, gold grade, and gold content are approximately 1.00, 1.04, and 1.04, respectively.

Overall, since underground production start through to the end of Q3 2021 the derived F3 factors for tonnage, gold grade, and gold content are 1.37, 1.05 and 1.44, indicating that for the long term the underground reserve models have been good predictors of the grade but underestimated the tonnes, resulting in significantly more gold produced than predicted in the reserve model.

Table 15-8: ELG UG Ore Reconciliation Factors F1, F2 and F3 since Start of Mining

Mining Area: Underground	Start of Mining to Q3 2021					
	F1			F2	F3 (F1XF2)	
	Tonnes	Grade	Ounces	Grade	Grade	Ounces
Sub-Sill	1.39	0.99	1.38	1.04	1.03	1.43
ELD	1.30	1.12	1.46	1.04	1.17	1.52
Total Underground	1.37	1.01	1.39	1.04	1.05	1.44

Information from delineation and infill drilling, as well as underground mapping and channel samples are being continuously added to improve the shapes and volumes of the mineralized units, exoskarn and endoskarn, and the mineralization patterns. This information is incorporated to the geologic models updated quarterly.

15.4 MEDIA LUNA

15.4.1 Mineral Reserves Estimate

The Media Luna Mineral Reserves are based on the Indicated Mineral Resource material contained in the resource block model prepared by SLR. The Indicated Mineral Resource targeted in the mine design has been divided into two zones, MLL and MLU. ML Mineral Reserves are summarized in Table 15-9. Due to the planned upgrade of the ELG processing installations to recover silver and copper, ML Mineral Reserves include a gold equivalent grade and contained metal, based on applicable long term metal prices and anticipated metal recoveries (see details in footnotes).

Table 15-9: Mineral Reserve Estimate, Media Luna – October 31, 2021

Mineral Reserves As of October 31, 2021	Tonnes (kt)	Grade Au (g/t)	Grade Ag (g/t)	Grade Cu (%)	Contained Metal Au (koz)	Contained Metal Ag (koz)	Contained Metal Cu (Mlb)	Gold Equivalent AuEq (g/t)	Gold Equivalent AuEq (koz)
Media Luna Upper									
Proven	-	-	-	-	-	-	-	-	-
Probable	7,360	3.12	16.8	0.78	738	3,963	127	4.60	1,088
Proven & Probable	7,360	3.12	16.8	0.78	738	3,963	127	4.60	1,088
Media Luna Lower									
Proven	-	-	-	-	-	-	-	-	-
Probable	15,657	2.66	29.8	0.92	1,339	14,981	318	4.51	2,271
Proven & Probable	15,657	2.66	29.8	0.92	1,339	14,981	318	4.51	2,271
Media Luna Total									
Proven	-	-	-	-	-	-	-	-	-
Probable	23,017	2.81	25.6	0.88	2,077	18,944	444	4.54	3,360
Proven & Probable	23,017	2.81	25.6	0.88	2,077	18,944	444	4.54	3,360

Notes to accompany Mineral Reserve table:

1. Mineral Reserves are based on ML Indicated Mineral Resources with an effective date of October 31st, 2021.
2. Mineral Reserves were developed in accordance with CIM guidelines.
3. ML Mineral Reserves are reported above a diluted ore CoG of 2.2 g/t AuEq
4. ML CoG and mining shapes are considered appropriate for a metal price of $1,400/oz Au, $17/oz Ag and $3.25/lb Cu and metal recoveries of 85% Au, 79% Ag, and 91% Cu.
5. Mineral Reserves within designed mine shapes assume longhole open stoping, supplemented with mechanized cut and fill mining method and includes estimates for dilution and mining losses as outlined in Section 16.4.4.4.5.
6. ML gold equivalent (AuEq) = Au (g/t) + Ag (g/t) * (0.011188) + Cu (%) * (1.694580), accounting for metal prices and metallurgical recoveries.
7. The qualified person for the Mineral Reserve estimate is Johannes (Gertjan) Bekkers, P. Eng., Director of Mine Technical Services.

The underground mine design for Media Luna was completed using Deswik software. The Mineral Reserves for longhole stoping were established using an in-situ CoG of 2.4 g/t AuEq. The Mineral Reserves for mechanized cut and fill stoping were established using an in-situ CoG of 3.0 g/t AuEq. The CoG accounts for direct mining costs, indirect mining costs, processing costs, G&A costs, and sustaining capital costs. The mine design includes all development and infrastructure required to access and support the underground mining of the reserve mining shapes. The estimated mining costs used to establish CoG are presented in Table 15-10 and key input parameters for the underground mine design and CoG are listed below:

- Long term metal prices forecast at US$1,400/oz for gold, US$17/oz for silver, and US$3.25/lb for copper
- The Mineral Resource block model as described in Section 14
- Mining dilution and losses are defined in Section 16 and are estimated as follows:
    - Transverse longhole stoping: 5% dilution and 10% mining losses
    - Longitudinal retreat longhole stoping: 17% dilution and 5% mining losses
    - Mechanized cut and fill stoping: 10% dilution and 5% mining losses
- Average process recoveries of 82.1% for weighted content of gold, silver, and copper

Table 15-10: Media Luna Estimated Mining Cost to Establish Mineral Reserves

Cost Item	Longhole Stoping (US$/t)	Cut and Fill Stoping (US$/t)
Underground Mining Cost	33.90	48.74
General and Administration Cost	11.57	11.57
Processing Cost	32.14	32.14
Sustaining Capital Cost	8.35	8.35
Total Cost	85.96	100.80

15.4.2 Comparison to Mineral Resource Estimate

The Media Luna Mineral Reserve was compared to the Media Luna Mineral Resource presented in Section 14. The ML Mineral Reserve accounts for metals from Indicated Mineral Resource material only.

The Mineral Resource to Mineral Reserve tonnage conversion is presented in the waterfall chart in Figure 15-3.

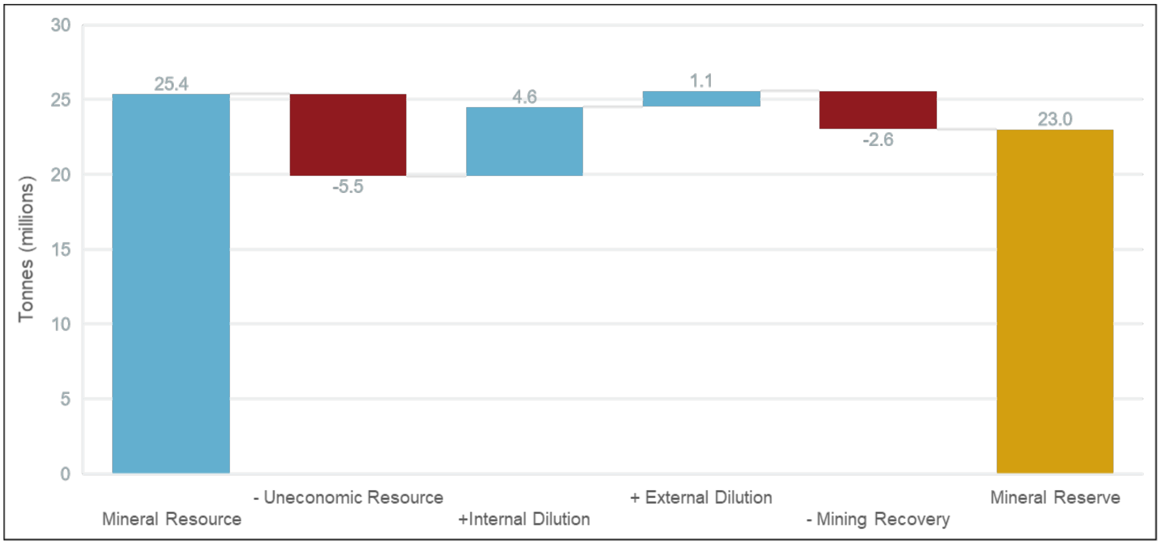


Figure 15-3: Media Luna Mineral Resource Conversion Tonnage Waterfall

15.4.3 Comparison to Previous Mineral Reserve Estimate

Previous Mineral Reserves have not been released for Media Luna.

16 MINING METHODS

ELG Mine Complex key points:

- Mining at the ELG Mine Complex is carried out by open pit method in the Guajes, El Limón and El Limón Sur pits and by underground mining methods for the ELG UG mine currently focused on the Sub-Sill and El Limón Deep zones.
- The El Limón and Guajes mine construction began at the end of October 2013. The life-of-mine (LOM) plan in this Technical Report presents planned ELG Mine Complex development after December 31, 2021.
- The ELG pit slopes are comprised primarily of competent rock; however, weaker rock has been observed in close proximity to the known major faults and near surface topography.
- Pit optimization analyses to guide pit design were conducted for the Guajes, El Limón, and El Limón Sur deposits, with value only applied to Measured and Indicated Mineral Resources.
- The designed pits as of December 31, 2021 are estimated to contain a total of 9.7 Mt of Run-of-mine (ROM) Mineral Reserves with average grades of 3.25 g/t Au and 4.56 g/t Ag to be processed at an average of 13,020 t/d during mine operation, and 0.7 Mt of Low Grade Mineral Reserves with average grades of 1.02 g/t Au and 3.71 g/t Ag to be processed at closure. The pits also contain an estimated 81 Mt of waste rock for an overall pit waste-to-ore strip ratio of 7.8:1. Surface Stockpiles as of December 31, 2021 total 4.8 Mt with grades of 1.35 g/t Au and 3.13 g/t Ag.
- The ELG UG exploration program commenced November 2016 and first ore was reached in June 2017.
- The current mining method for the ELG UG is mechanized cut and fill (MCAF) and, in 2021, operated at a production rate of 1.3 ktpd.
- ROM and Incremental Mineral Reserve quantities from the underground mine design as of December 31st, 2021 total 2.675 Mt at grades of 5.74 g/t Au and 5.94 g/t Ag.

Media Luna Mine key points:

- Access between Media Luna and the ELG Mine Complex will be via the Guajes Tunnel. Two portals located on the south side of the Media Luna Ridge provide access for early development and production.
- Longhole stoping (LHS) will be the predominant mining method, supplemented with minor mechanized cut and fill stoping (MCAF).
- Transportation of ore and waste from ML to the ELG Mine Complex will be via a conventional conveyor installed in the Guajes Tunnel. Tailings for backfill will be transported from the ELG Mine Complex to ML using a pumped slurry installation in the Guajes Tunnel.
- Mining will occur from two independent mineralized zones termed Media Luna Lower (MLL) and Media Luna Upper (MLU), each of which will be subdivided into several mining areas.
- Ramp-up to designed production level (7,500 t/d) will be over three years.

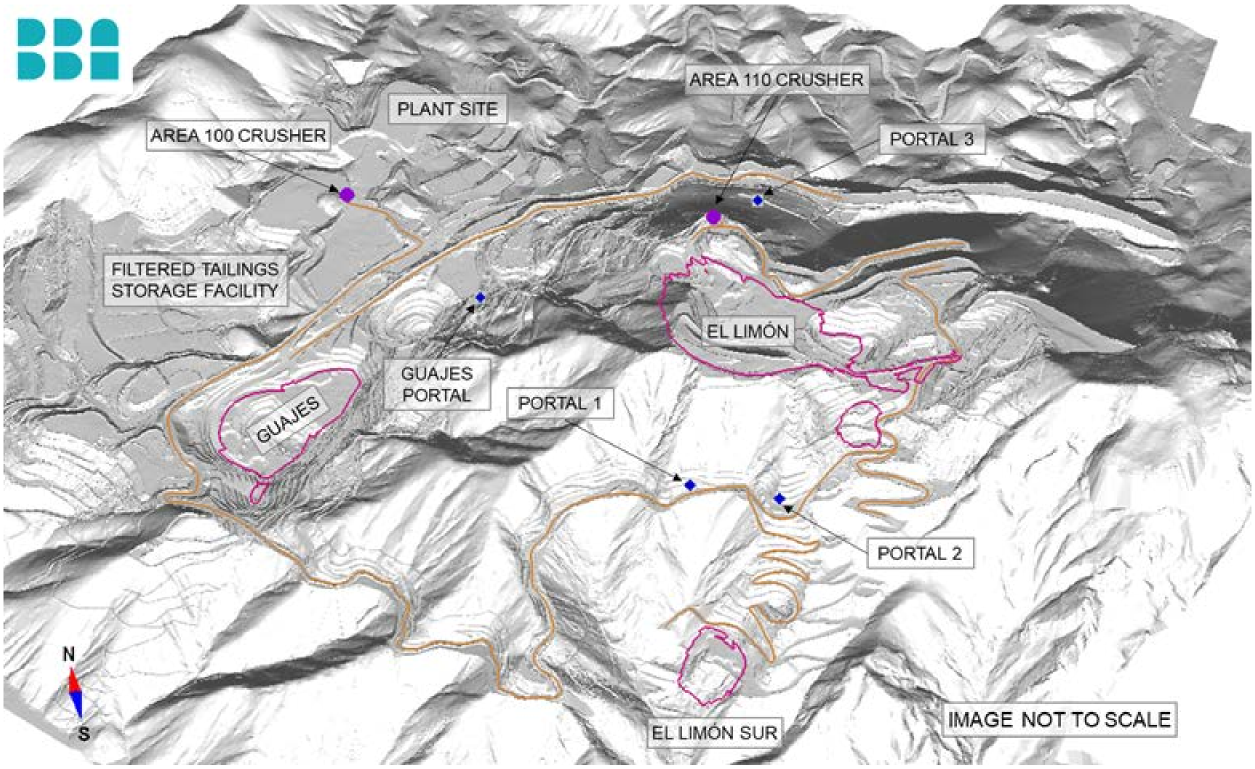
16.1 INTRODUCTION

The Morelos Property is host to two separate Mine Complexes, with current and future mining operations and applying varied mining methods. The ELG Mine Complex is the base of existing mining and milling operations, whereas the ML Project is located in a distinct area of the complex on the South side of the Balsas River.

Key characteristics of the El Limón and Guajes (ELG) and Media Luna deposits from a mining perspective include a very steep and irregular topography with relatively competent bedrock.

The ELG deposit began being mined using open pit mining methods and later incorporated underground methods where appropriate. Currently, both open pit and underground methods are being used at ELG.

Section 16.2 and 16.3 in this Technical Report present planned mining activities at ELG after December 31, 2021. Mine construction began in October 2013, and mine development progress to December 2021 included Guajes and El Limón access and haul road development, completion of El Limón Phase NN pit, completion of Guajes East and West phases, El Limón B and C phases and commencement of Sub-Sill and ELD underground mining. An overview of the ELG Mine Complex site based on a December 31, 2021 pit survey is shown in Figure 16-1.



Map: ELG December 31, 2021 pit survey

Figure 16-1: ELG Mine Complex Site Plan, December 31, 2021

Section 16.4 describes the mining plan for ML. In this mining plan, ML is anticipated to commence production in 2024 with approximately 2,500 t/d processed at the ELG Mine Complex and increasing to an average of 7,500 t/d as of 2027. The ore will be transported to the process plant via a conventional conveyor system through the Guajes Tunnel.

16.2 ELG OPEN PIT

16.2.1 Geotechnical Pit Slope Evaluation

16.2.1.1 Rock Mass Characterization

Rock mass and geologic structural characterization were initially completed by SRK (2012) for the Guajes and El Limón open pits. A supplemental program was completed by SRK (2014) for the El Limón Sur pit. The 2012 and 2014 geotechnical programs included geotechnical core logging and discontinuity orientation, point load testing, and laboratory strength testing for a combined total of 18 geotechnical specific drillholes. Geotechnical mapping of drill pad and assess roads road excavations was also carried out, where suitable.

Results of the investigations indicated 'Good' geomechanical quality for most of the ELG OP with rock mass rating (RMR) values typically between 60 and 80 according to the Bieniawski (1989) system and strong to very strong intact rock strengths with UCS values typically ranging between 150 and 200 MPa for the granodiorite and hornfels. The marble typically has a lower intact strength with an average UCS value of 58 MPa but occurs to a much lesser extent in the final pit walls.

The La Amarilla hanging wall materials (Guajes northwest wall) are typically much weaker than the other units and can be characterized as 'Poor' to 'Fair' rock quality with a mean UCS value of 28 MPa. Localized zones of poor quality, soil-like materials and saturated conditions are anticipated near the fault as mining progresses. A series of vertical wells and piezometers have also been installed behind the wall for monitoring water levels.

Additional data collection and refinement of the geotechnical model through bench face mapping, additional diamond core drilling and hydrogeologic instrumentation has been on-going during development of the open pits. Open pit slope designs have been revised or optimized as necessary based on the newly acquired data.

16.2.1.2 Guajes Pit

Mining of the Guajes pit is near completion with approximately 3 (21m high) benches remaining on the southeast wall and 5 (14 m high) benches on the northwest. Overall, the rock quality exposed appears consistent with previous assessments which indicated very competent, good rock mass quality in the southeast wall (footwall of the La Amarilla Fault) and variably weathered/altered rock quality in the northwest wall (La Amarilla hanging wall).

The dominant structural trends exposed in the pit are generally consistent with those developed by SRK (2012) and assumed as the basis for the slope design. Due to the overall high rock mass competency, stability of the southeast wall is primarily structurally controlled whereas the northwest wall is controlled by a combination of rock mass, structure, and potential pore water pressures.

The pit walls at Guajes have generally performed well with a couple instances of localized, bench or double bench-scale instabilities. Most instabilities have occurred during the rainy season either during or shortly after intense rainfall events. When necessary, higher risk areas are mitigated by deferring mining until the dry season when more stable conditions persist. Minimal movement has been recorded outside of the localized instabilities.

Shallow to moderately, northwest dipping structures have resulted in crest loss and localized bench-scale instabilities in several areas on the southeast wall. These structures are typically most persistent at or very near skarn contacts and identifiable through bench face mapping. Potentially unstable blocks created by these structures are currently managed on a case-by-case basis with either small-scale blasting and scaling or by installing cable bolts along the crest in local areas.

16.2.1.3 El Limón Pit

Approximately 3 (21 m high) benches remain to be mined in El Limón pit Phase ELD1. Stripping has begun for the final pushback of the southwest wall (ELD2). Rock mass quality exposed in the current pit walls is generally good with localized zones of more heavily jointed or blocky ground. Conditions are reasonably consistent with those anticipated from previous geotechnical investigations and that have been assumed for the current design. Due to the competent rock mass quality and favorably oriented (mostly sub-vertical and west dipping) structure, there have been few instances of instability within the El Limón pit. No multi-bench or large-scale instabilities have occurred to date.

A geotechnical mapping and drilling investigation was completed by SRK (2021) to update rock mass quality and structural domains for the final pushback wall (ELD2). Preliminary results suggest the interramp slope angle (ISA) may be able to be steepened from the 55° to 57° for a significant portion of the final high wall (Sector Z2-Z7). This would require increasing the bench face angle (BFA) to 80° (from the current practice of 75°), with minimal crest damage.

Consistently achieving 80° bench face angles would likely be challenging without the presence of a dominant, sub-parallel discontinuity set and would require extra tight controls on wall control blasting and quality control procedures.

As such, the ELD2 design maintains the current practice of 75° BFAs and a 55° ISA. The potential to increase the IRA to 57° for Sectors Z2-Z7 will be evaluated in the future using different wall control blasting techniques.

Increasing the bench face angle to 80° has also been suggested by SRK (2021) for Sector Z8. Given the flatter, 52° IRA for that sector and resulting wider (12.7 m) catch benches, the consequence of not consistently achieving the design crests is considered low provided the benches are thoroughly scaled.

The northeast wall of the El Limón pit (Sector Z8) is anticipated to be comprised of primarily marble which commonly contain karst voids in the area. Based on previous drillhole intersections and excavations in the northern portion of El Limón and the Guajes pit, such voids are not expected to significantly impact overall slope stability but may present operational hazards if large enough.

16.2.1.4 El Limón Sur Pit

The fresh rock at El Limón Sur is of good geomechanical quality similar to the El Limón and Guajes pits. However, given the relatively shallow depth of the El Sur Limón deposit, the upper weathered rock comprises a relatively high percentage of the overall pit slopes, compared to the El Limón and Guajes pits. Weathering below ground surface also appears greater in the lower lobe of the pit due to its intersection with a high angle, east-west trending fault zone. RMR values of the weathered rock typically range from 30 to 50 (‘Poor’ to ‘Fair’ quality) based on previous core logging.

The El Limón Sur pit has been mined down to the 868m bench with approximately 5 (21m high) benches remaining to be mined. Overall, the pit has performed reasonably well with only minor, bench-scale instabilities occurring to date. Geotechnical conditions are generally similar to those anticipated from previous investigations except for a larger than expected zone of highly altered, poor rock quality exposed in the lower lobe of the pit, on the 861 m and 882 m benches.

The remaining pit design (below elev. 868 m) has been revised to account for the zone of poor rock quality by reducing the BFA to 65° with 10.5 m wide catch benches resulting in a 46° interramp slope angle.

16.2.1.5 Pit Slope Design Criteria

Current pit slope design criteria are summarized in Table 16-1. Pit design sectors for the El Limón pit are also shown graphically on Figure 16-2 and for the Guajes pit on Figure 16-3.

Table 16-1: Pit Slope Design Parameters

Sector	Max. Stack Height (m)	Max. Interramp Slope Angle (°)	Bench Face Angle (°)	Bench Height (m)	Bench Width (m)
El Limón Z1	126 (6x21)*	55	75	21	9.1*
El Limón Z2-Z7	126 (6x21)*	47	65	21	9.8*
El Limón Z8	126 (6x21)*	52	80	21	12.7
El Limón Sur (below elev. 868m)	126 (6x21)*	46	65	21	10.5
Guajes- La Amarilla Footwall	126 (6x21)*	55	75	21	9.0*
Guajes - La Amarilla Hanging Wall	84 (6x14)*	38	58	14	9.2*

*A minimum 20 m stepout or “geotechnical berm” should be designed between bench stacks. The 20 m minimum width includes the normal 9 m berm width.

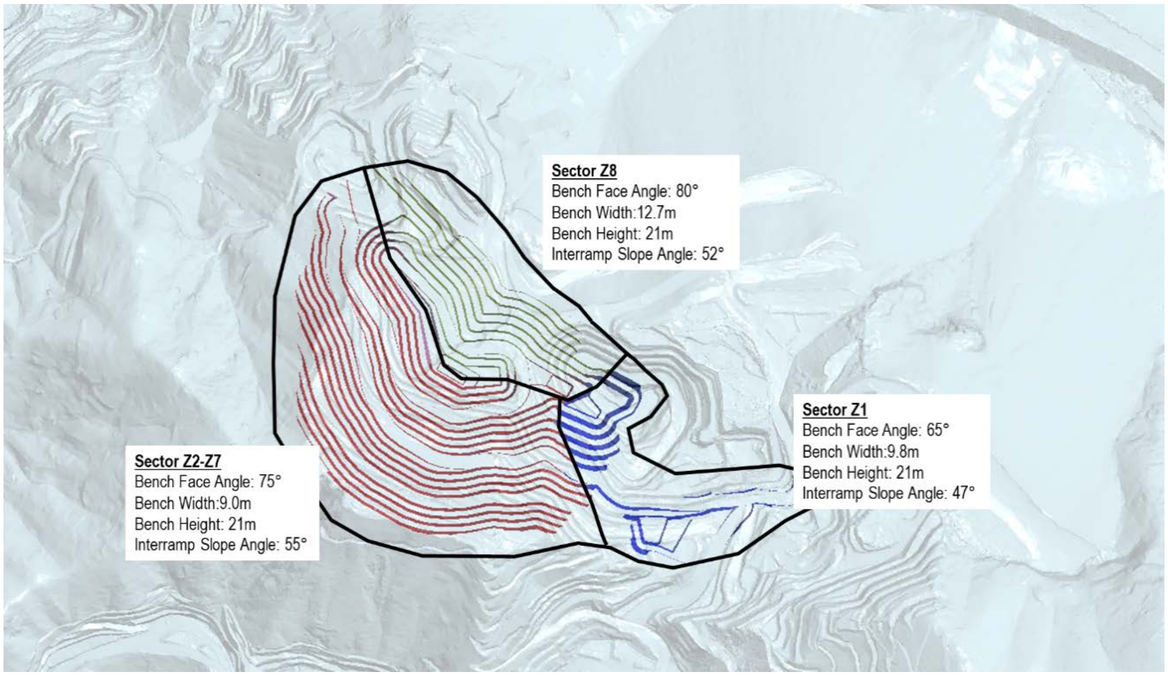


Figure 16-2: Updated Pit Sectors and Design Criteria for El Limón Pit

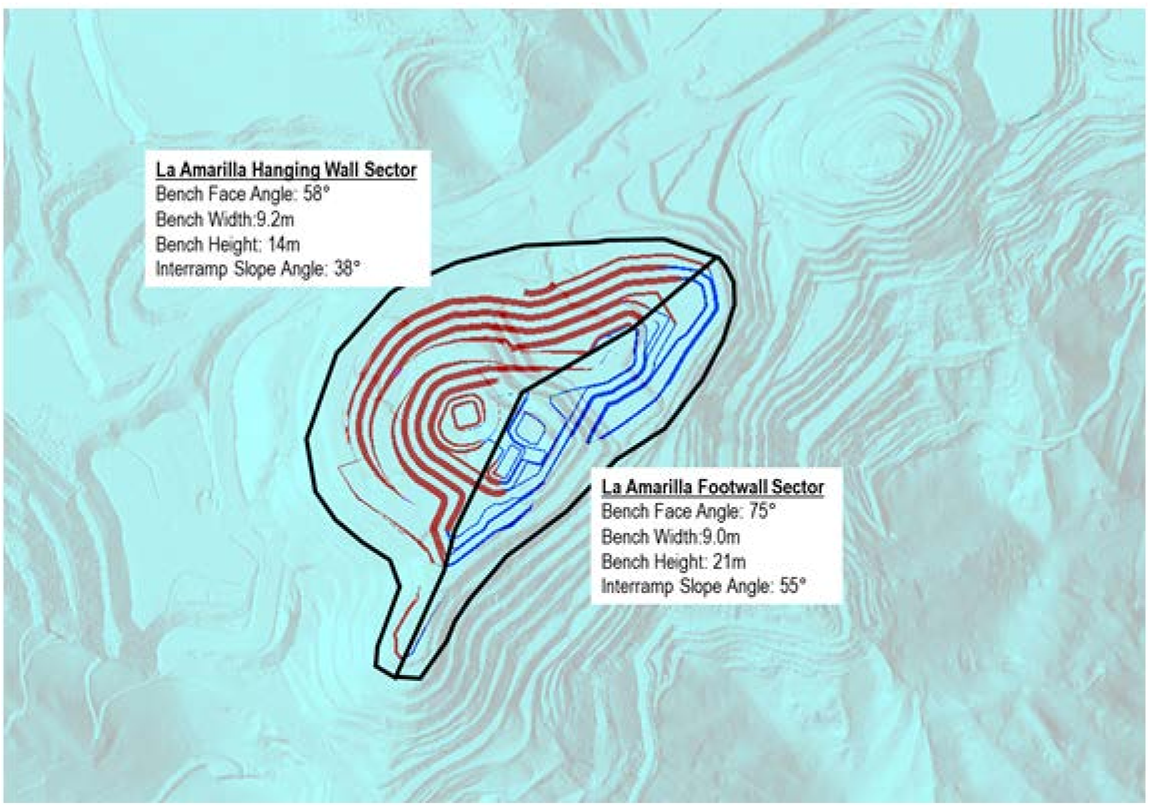


Figure 16-3: Updated Pit Sectors and Design Criteria for the Guajes Pit

16.2.2 Pit Dewatering

Groundwater and surface water inflows to the Guajes and EL Limón Pits are being managed by in-pit dewatering sumps and pumping systems that operate during the wet season to facilitate safe and efficient mining. Produced water is currently being pumped to onsite ponds.

Groundwater seeps discharge in the Guajes highwall along joints and fractures, particularly in the wet season. In 2017, a total of 26 drains were installed to depressurize the highwall and improve pit wall slope stability. Drains were inclined upward at 3 to 8 degrees and were constructed of 5-inch diameter steel casing to lengths from 70 to 190 m with a total length drilled of 3,480 m. Flow rate data indicate that initial flow rates are generally low (below 0.2 L/s) and decline further over time. Three drains were exceptions and initially discharged from 0.5 to 2 L/s. In the following wet season, two of the drains declined to low rates. In general, the flow rates are low and not sustainable once storage is removed.

Concurrent with horizontal drain installation and operation, the feasibility of the use of pit dewatering wells was assessed. The wells were installed near Guajes East and West Pits, with the objective to reduce groundwater inflow into the pits to improve pit wall slope stability. However, it was determined that this method would be ineffective due to the low hydraulic conductivity of the metamorphic rocks adjacent to the pits.

Pit dewatering requirements for the ELG OP were evaluated prior to the start of active mining through the use of numerical groundwater flow modeling (SRK, 2012b, 2012c, and 2015). Recent model updates have been completed using site characterization data dating back to 2006. The refined model was used to simulate the continuation of mining at the Guajes West and El Limón pits and to forecast groundwater inflows to the pits. Model results forecast that groundwater inflows to the Guajes West Pit would occur in October 2021 and continue through the end of mining at approximate rates up to 7 L/s. Model forecasts for El Limón Pit suggest that groundwater inflows will occur in October 2022 and continue through the end of mining at rates up to 12 L/s.

16.2.2.1 Pit Surface Water Inflows

Diversion channels provide a means to improve slope stability of open pit walls and divert runoff to sediment ponds for treatment and discharge to the environment. The channels and associated small sediment basins are constructed along haul roads and adjacent to open pits.

The Technical Services group is responsible for visual monitoring and maintenance of the diversion channel system. Management activities include:

- Rehabilitate the existing diversion channel system. The wet season generally begins in May, so the planning of maintenance activities should start in March and commence in April. Continue maintenance activities through the wet season, which generally ends in August.
- Design and construct new system elements, as necessary.

During the wet season, precipitation and surface water runoff that is not captured by diversion channels reports to in-pit sumps at Guajes West and El Limón Pits. Water management activities are undergoing a process of continuous improvement and are designed to:

- Monitor flow rate and volume pumped from the in-pit sumps for input to the Site Wide Water Balance and for use in water-related disclosures.
- Collect water quality samples for laboratory analyses.

Surface water drainage into the pits is pumped to surface water management ponds shown in Figure 16-4, as follows:

- Runoff into the Guajes West Pit is routed to Pond 8;
- Runoff into El Limón Pit is routed to the Guajes East Pit Lake; and
- Runoff into the El Limón Sur Pit report to Pond 9.

In addition to inflows to El Limón Pit, Guajes East Pit Lake also receives runoff from adjacent catchments to increase the amount of water stored. The water is used for dust control and drill makeup at ELG, which minimizes the demand for freshwater makeup from the wellfield and helps to improve the negative water balance.

Sediment ponds 8 and 9 were constructed with HDPE geomembrane-lined spillways to safely pass design storms and geotextile on the upstream slope of the embankment to allow for controlled seepage through the embankment. Surface water and groundwater monitoring is conducted at downstream and downgradient locations to minimize the risk of non-compliant discharge from water management ponds to protect human health and the environment. Pond water that is below the discharge limits is permitted to be discharged to the receiving environment.

In addition, trigger levels have been established for the sediment ponds as early detection of pond water quality that is approaching the discharge limit and requires active management. Confirmed exceedance of pond trigger levels may require 1) investigation of sources or source reduction; 2) consideration of the potential for discharge via the spillway in the next month; and 3) evaluation of options to increase pond retention capacity such as sediment removal, pumping to the CWP, evaporation on a WRSF, or development of other mitigation measures, as needed.

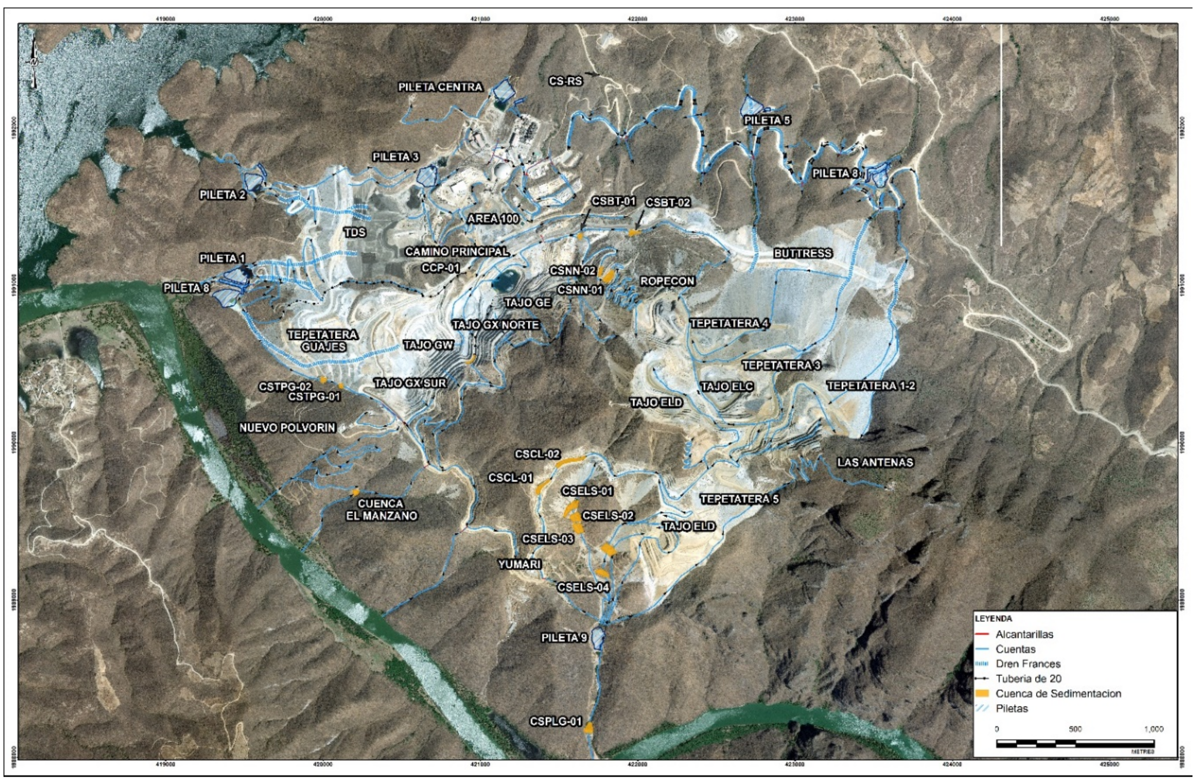


Figure 16-4: Primary Surface Water Routes

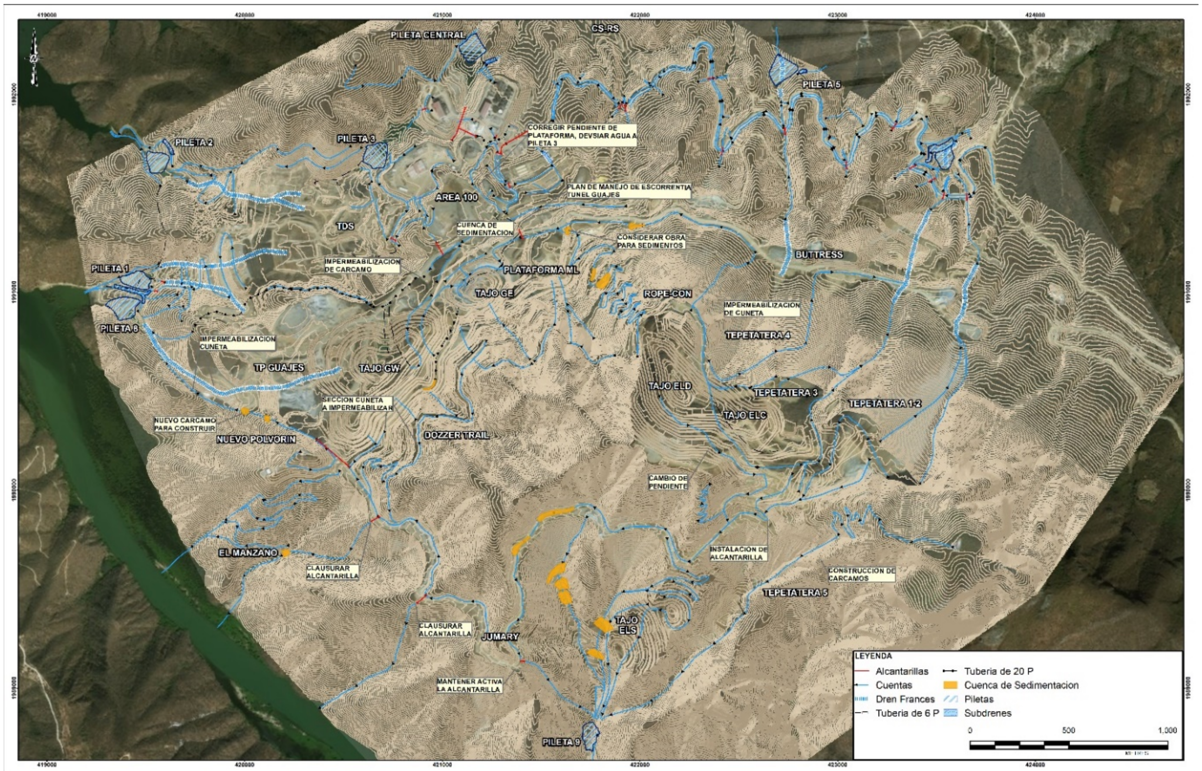


Figure 16-5: Sediment and Run-off Control Plan 2021

The contributions from surface runoff into the open pits for average year precipitation are estimated to be 580 m^3/day and 450 m^3/day for Guajes and El Limón open pits, respectively. In the case of the El Limón Sur open pit, the runoff is estimated to be 102 m^3/day. The pumping capacity has been sized to evacuate the 1:10 year return period, 24-hour storm event in about 48 hours. The runoff volumes for the 1:10 year 24-hour storm event are estimated to be 68,000 m^3 for the Guajes open pit, 49,000 m^3 for the El Limón open pit, and 15,865 m^3 for El Limón Sur. The design pump capacities required at the Guajes and El Limón open pits are 1,500 m^3/hour and 1,000 m^3/hour, respectively, and 350 m^3/hour for El Limón Sur.

These values apply to the fully developed pits scenario and include runoff from adjoining sub-catchments, which are assumed to drain into the pits.

16.2.3 Mine Planning Models

The Mineral Resource models for the open pits presented in Section 14 were provided to BBA in the form of CSV files. Each model consists of blocks that are 7 m x 7 m x 7 m and do not contain sub-cells or ore percent. The models include items which represent the block's density, rock type, resource classification, gold grade, silver grade as well as the grades for 17 additional deleterious elements. BBA imported the models into the Hexagon™ MinePlan 3D software and added the items presented in Table 16-3 which have been used for the purposes of mine design and mine planning.

Table 16-2: Mine Planning Model Items

Item	Description
UG	Used to code the blocks that have or will be mined out by the underground
ORE	Used to code blocks above and below the cut-off grades (ROM Ore = 1, Low Grade = 2)
AUD	Diluted grade (used for the pit optimization)
TNDIL	Diluted tonnes (used for the pit optimization)
MCOST	Mining Cost (used for the pit optimization)
PCOST	Processing Cost (used for the pit optimization)
REV	Revenue (used for the pit optimization)
NET	Net Value (used for the pit optimization)
GEOT	Used to code the slope sectors for pit optimization and pit design
MCODE	Used to code blocks that are high in copper and iron (used for mine planning)

The following tasks were carried out upon receipt of the resource models;

- Rock codes with values of -99 or undefined have been set to a default of 37 (Hornfels);
- Densities with values of -99 or undefined have been set to a default of 2.869 (Hornfels);
- Resource classifications with values of -99 or undefined have been set to a value of 0;
- All grade items that have values of -99 have been set to undefined "–";
- For El Limón, the backfilled ramp used to access the upper benches of the ED2 pushback has been coded a rock code of 90 and has been given a density of 2.11 t/m^3;
- For El Limón, an item called UG has been added to the block model to represent blocks that have been previously mined out by the underground mine or that are planned to be mined out by the underground mine. All blocks have initially been set to a value of 1. A value of 2 was then coded to blocks that have a majority of 51% within the underground end of December 2021 forecasted as-built solids. A value of 3 was then coded to blocks that are planned to be mined out by the underground mine starting in 2022 and beyond.

16.2.4 Mining Dilution and Losses

In every mining operation, it is impossible to perfectly separate the ore and waste as a result of the size of the mining equipment and the mining process. For the ELG OP, Torex has historically considered a mining dilution of 15% with diluted gold and silver grades of 0.13 g/t which has reconciled well with actual production data.

Torex also considers a mining recovery of 95% which has also been supported by reconciliations. These losses are the results of isolated ore blocks that are mined as waste, unrepresentative blast hole assays resulting in misdirected loads, and occasional excessive dilution requiring material to be wasted.

Mining dilution and mining recovery are calculated in Excel once the mine plan is complete. Mining dilution is reduced from the waste rock tonnages and added to the ore tonnage while ore losses are added to the waste rock tonnages and removed from the ore tonnes.

ELG has recently commenced evaluating an optimized approach where each block in the model is diluted with its neighboring blocks. This method was not retained for the optimization study as it is still under evaluation.

16.2.5 Material Properties

16.2.5.1 Moisture Content

Mineral resources and Mineral Reserves are reported as in-situ dry tonnes. The moisture content reflects the amount of water present within the rock formation. It affects the estimation of haul truck requirements and must be considered during the payload calculations. The moisture content is also a contributing factor for the process water balance. A moisture content of 3% has been used for both blasted ore and waste rock, consistent with the 2018 NI 43-101 Technical Report.

16.2.5.2 Swell Factor

The swell factor reflects the increase in volume of the material from its in-situ state to its state after it has been blasted and loaded into the haul trucks. The swell factor is an important parameter that is used to determine the loading and hauling equipment requirements, as well as the Waste Rock Storage Facilities (WRSF) and stockpile designs. A swell factor of 30% has been considered for the optimization study for all rock types. No compaction factor has been added for material placed in the waste rock piles and ore stockpiles.

16.2.6 Pit Optimization

A pit optimization analysis was carried out to determine which parts of each deposit can be mined and processed economically. The pit optimization analysis was done using the pseudo-flow algorithm in the Economic Planner module of Hexagon™ MinePlan 3D. The algorithm determines the economic limits of the open pit at a range of selling prices based on input of mining and processing costs, revenue per block, and operational parameters such as the mill recovery, open pit slopes and other imposed physical constraints. The pseudo-flow algorithm provides similar results as the Lerchs-Grossman algorithm. Since this study is being carried out at a FS level, NI 43-101 guidelines do not allow for Inferred Mineral Resources to be considered in the pit optimization and mine plan and have therefore been considered as waste rock. The results of the pit optimization analysis were then used to guide the pit and phase designs.

The pit optimization used the 2021 Year End Forecasted Topography Surface (November 2021) as a starting point. Areas that have already been mined out by the underground mines or that are planned to be mined out by the underground mines in the future have been considered as waste for the pit optimization. Mining dilution and ore loss were accounted for in the pit optimization.

16.2.6.1 Input Parameters

The input parameters used for the ELG pit optimization are summarized in Table 16-3. The pit optimization considered a gold price of US$1,400/oz which is reduced to a net sales price of US$1,353/oz after considering gold payables, treatment, transportation and insurance charges, and the 3% royalty. Silver and copper credits have not been considered since they currently have a minimal effect on the mine's cashflow. A process recovery for gold of 89% was considered as well as a reduced recovery of 86% for low grade material (near cut-off grade).

The mine operating costs used in the pit optimization are based on the average historical costs from January 2020 to June 2021. Excluding profit sharing, the open mine operating costs for the El Limón and Guajes pits are $2.15/t mined. Mining costs from April and May of 2020 have been excluded since the operations were impacted by the government mandated COVID-19 Pandemic shutdown during this period.

Haulage costs are a function of haul distance and pit depth and have been treated on a $/h basis. An analysis of the haulage data from September 2020 and June 2021 shows an average haulage cost for the El Limón and Guajes pits of $136/NOH (Net Operating Hour). A haulage model was established, and each block in the resource model was assigned a travel time to the crusher and a travel time to the waste rock storage facilities (WRSF) which are a function of the block's depth as well as its distance to the destinations. These travel times were then converted into hauling hours and subsequently a haulage cost for each block.

The haulage cost component of the aforementioned cost of $2.15/t was determined to be $0.40/t, therefore the mine operating cost input for the pit optimization (excluding hauling) was $1.75/t mined. A mining cost of $0.50/t was used for mining out backfilled material.

The El Limón Sur pit is mined by a mining contractor and a mining cost of $5.28/t mined was used for ore and $2.96/t mined was used for waste rock. The difference in the mining costs is due to the longer haul distances for ore. These mining costs are at a reference elevation of 875 m. An additional $0.034/t has been added for both ore and waste for each additional 7 m bench below this elevation.

A processing cost of $31.90/t processed was used which represents the expected processing cost over the remaining mine life. A cost of $27.30/t processed was used for low grade material which is expected to be processed at the end of the mine life. A rehandling cost of $0.50/t was added to the processing cost for low grade material to consider stockpile rehandling, bringing the total processing cost used in the optimization to 27.80/t for low grade material.

A general and administration (G&A) cost of $9.35/t processed was used for the pit optimization, which was the average G&A cost for ELG during 2019, 2020 and the first half of 2021, with the exclusion of Q2 2020, the quarter affected by the COVID-19 Pandemic. A G&A cost of $8.51/t has been used for low grade material which will be processed at the end of the mine life.

It is important to note that the operating costs for the pit optimization are preliminary estimates made at the start of the optimization study and differ slightly from the "final" operating costs presented in Section 21 of this Technical Report.

The pit optimization considered the pit slope recommendation presented in Section 16.2.1 with adjustments to account for haulage ramps and geotechnical berms which are added in the pit design process.

Table 16-3: Pit Optimization Parameters

Description	Unit	Ore	Low Grade
Long Term Gold Price	$/oz	1,400	
Payable Gold in Doré	%	99.925%	
Doré Transportation, Treatment, Insurance	$/oz	4.20	
Royalty	%	3%	
Net Value of Gold Price	$/oz	1,353	
Process Gold Recovery	%	89%	86%
Operating Costs			
Mining @ El Limón & Guajes (exclusive of hauling)	$/t	1.75	
Haulage @ El Limón & Guajes	$/h	136	
Mining @ El Limón Sur (ore)	$/t	5.28	
Mining @ El Limón Sur (waste)	$/t	2.89	
Processing	$/t feed	31.90	27.30
Stockpile Rehandling	$/t feed	0.00	0.50
G&A	$/t feed	9.35	8.51
Mining Dilution	%	15%	
Mining Loss	%	5%	
Mining Rate			
El Limón	Mtpy	30	
Guajes	Mtpy	10	
El Limón Sur	Mtpy	5	
Discount Rate	%	5%	

16.2.6.2 Pit Optimization Results

The pit optimization results for each deposit are presented graphically in Figure 16-6, Figure 16-7 and Figure 16-8 for El Limón, Guajes, and El Limón Sur respectively. Following the results of the discounted cash flow analysis, and incremental analysis between the various pit shells, it was decided to use the revenue factor (RF) 1.0 pit for El Limón, the RF 0.90 for Guajes and the RF 1.05 for El Limón Sur to guide the ultimate pit designs. These pit shells are illustrated in Figure 16-7.

The graphs demonstrate that each deposit has an opportunity for an expansion with higher RF's. For El Limón, this expansion, which is seen at the RF 1.40 pit shell, has a lower net present value (NPV) than the selected RF 1.0 pit shell. For Guajes, the expansion is seen at the RF 0.95 pit and has the same NPV as the selected RF 0.90 pit shell. The difference with the 2 pit shells is 0.5 Mt of ore (32,000 recovered ounces of gold) and 7.9 Mt of waste rock (incremental strip ratio of 15.4 to 1). It was decided to select the smaller shell and to consider the expansion as a potential opportunity. For El Limón Sur, the expansion is seen at the RF 1.05. The difference with this pit shell and the RF 1.0 pit shell is 313 kt of ore (13,000 recovered ounces of gold) and 300 kt of waste rock (incremental strip ratio of 1 to 1), and the NPV's are the same. It was decided to select the large pit shell to gain the additional ore tonnes which do not incur a high incremental strip ratio.

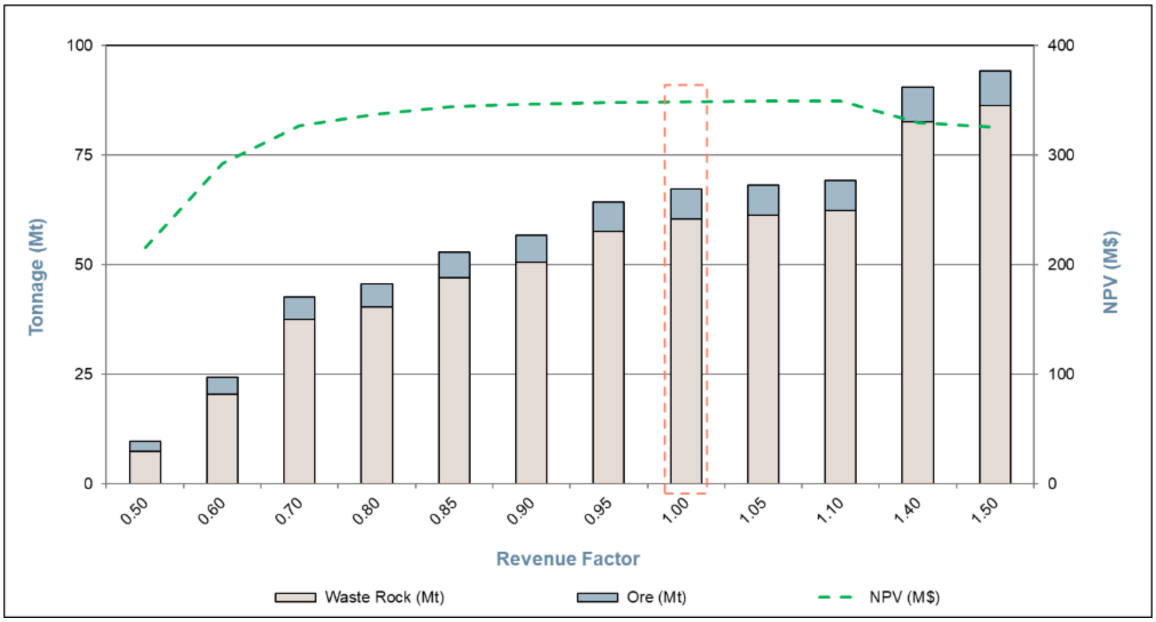


Figure 16-6: Pit Optimization Results (El Limón)

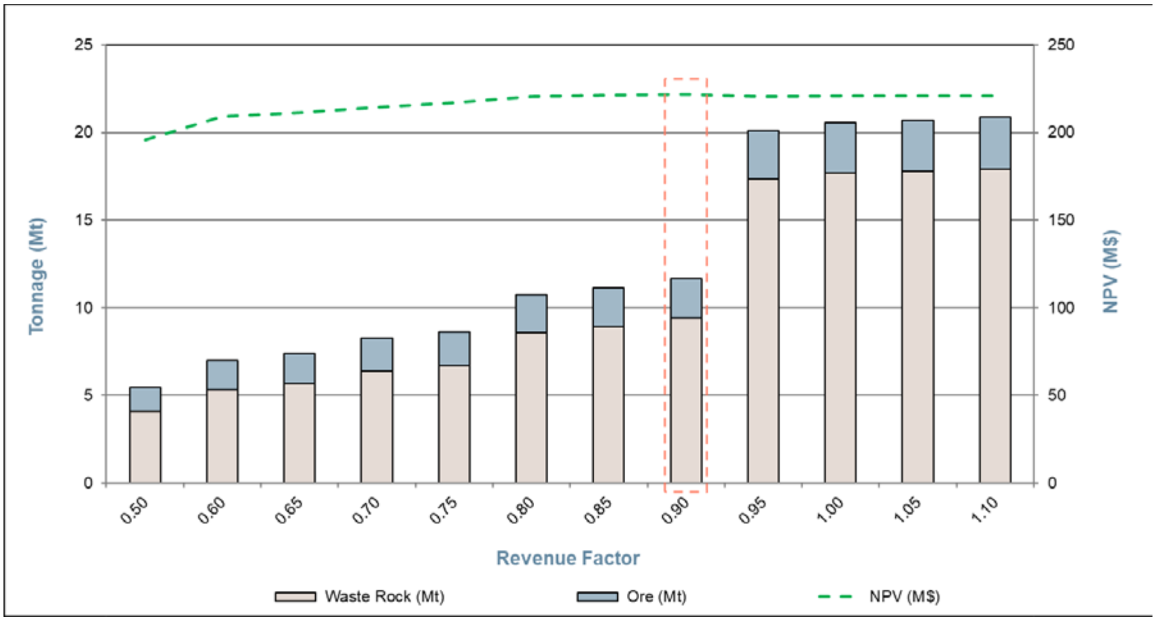


Figure 16-7: Pit Optimization Results (Guajes)

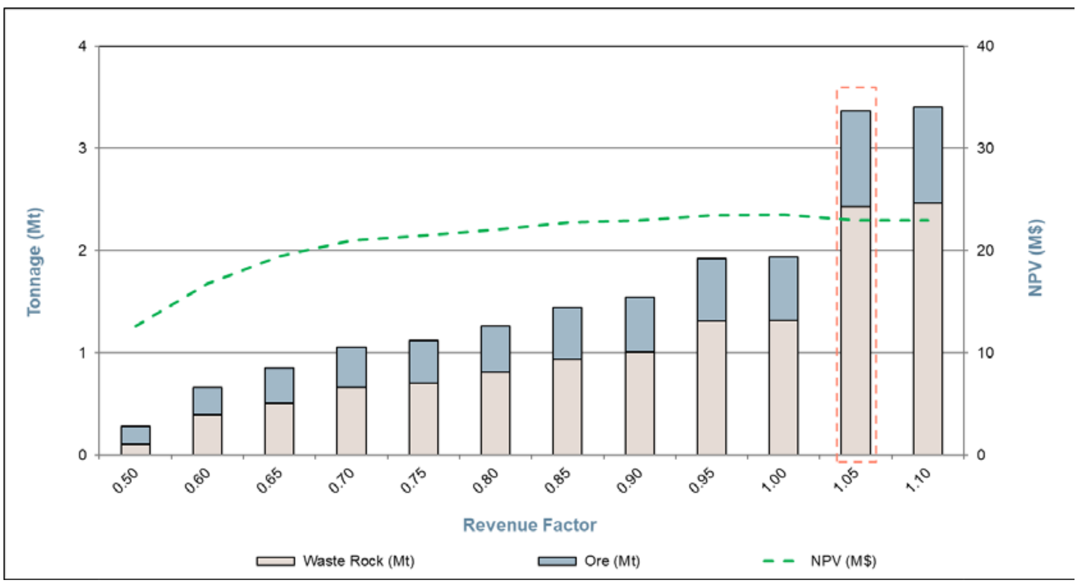


Figure 16-8: Pit Optimization Results (El Limón Sur)

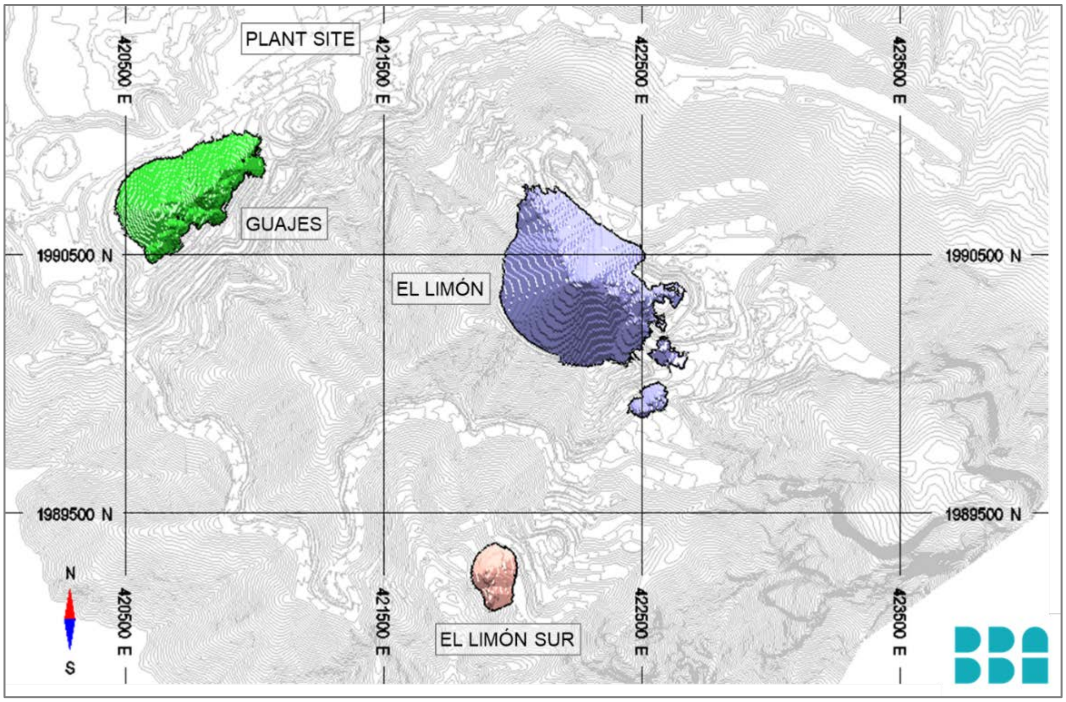


Figure 16-9: Pit Optimization Selected Pit Shells

16.2.7 Open Pit Cut-off Grade

A cut-off grade (CoG) is calculated to distinguish between ore and waste rock using inputs of cost and operating parameters. Note that mining costs are not considered in the calculation since every block in the pit must be mined and hauled out of the pit to access the block below. Incremental costs for hauling material to the primary crushers versus the WRSF's are however considered. This is the case for El Limón Sur which has an incremental ore haulage cost of $2.32/t. The following presents the CoG calculation which is based on a breakeven profit.

$$CoG = \frac{\text{Processing Cost + G\&A Cost + Stockpile Rehandle Cost + Incremental Haulage Cost}}{\text{Mill Recovery x Selling Price}}$$

The CoG calculation for the optimization study used the same parameters as those used in the pit optimization and presented in Table 16-4. Note that costs related to profit sharing are excluded for the CoG calculation.

ELG has two (2) CoG's, one for material generating a profit today, known as run of mine (ROM) ore. A second CoG for low grade ore which is stockpiled with the intent of processing once mining in the open pits has ceased and the G&A costs will be lower. Table 16-4 presents the cut-off grades for the open pit.

Table 16-4: Open Pit Cut-Off Grades (g/t)

Description	ROM Ore	Low Grade Ore
In-situ	1.2	1.1
Diluted	1.1	1.0

16.2.8 Pit and Phase Designs

The following section presents the design criteria used to establish the ultimate pit and phase designs.

16.2.8.1 Pit Wall Configuration

The pit wall configurations follow the recommendations presented in Section 16.2.1.

16.2.8.2 Haul Ramp Design

ELG is currently operating a fleet of 91-tonne Komatsu HD-785 haul trucks in the El Limón and Guajes pits and the El Limón Sur pit is being operated by a contractor with 40-tonne CAT 740 haul trucks.

In-pit haul ramps for double lane traffic in the El Limón and Guajes pits have been designed to be three (3) times the truck width plus an allowance for safety berms and ditches. The width of the Komatsu HD-785 is 6.8 m, resulting in a running surface of 20.4 m and an overall road width of 25 m, as presented in Figure 16-10. The maximum ramp grade is 10%. The ramp is reduced to single-lane traffic for the final 5 benches (35 m in elevation) which results in a width of 18 m.

In the El Limón Sur pit as well as the ED2b pushback, haul ramps have been designed with a width of 17 m and a maximum ramp grade of 12%. The final five (5) benches are designed with a ramp width of 11 m for single lane traffic.

Table 16-5 summarizes the different haul road configurations that have been used in the pit and pushback designs.

Table 16-5: Haul Road Configuration

Parameter	Unit	El Limón & Guajes	El Limón Sur & ED2b
Double Lane Width	m	25	17
Single Lane Width	m	18	11
Number of 7m benches	#	5	5
Ramp Grade	%	10	12

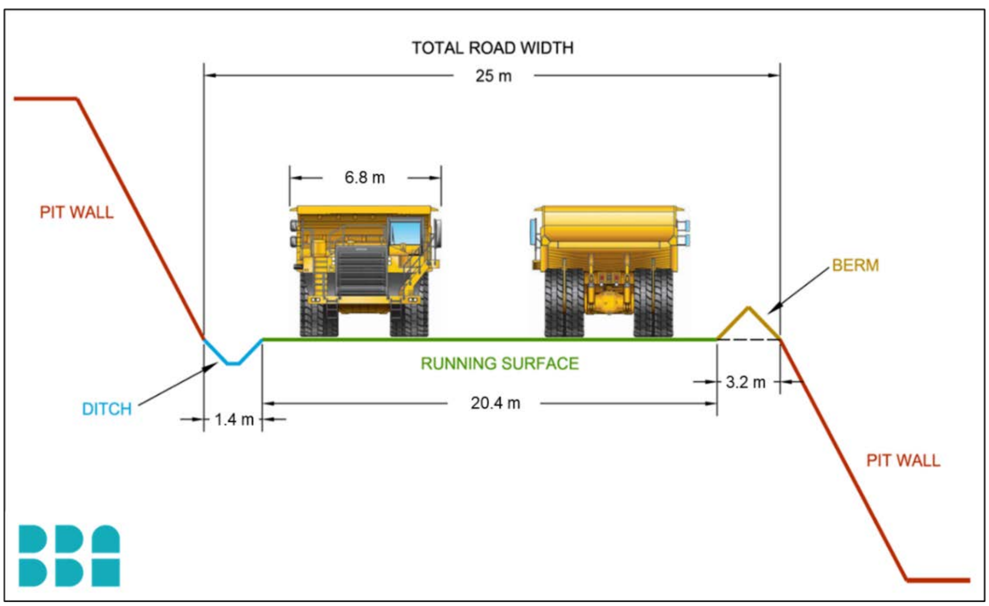


Figure 16-10: Double Lane Haul Ramp Configuration (El Limón and Guajes)

16.2.8.3 Minimum Mining Width

A minimum mining width of 25 m has been considered in the pit and phase designs. This width must be respected to ensure a 91-tonne haul truck, with a turning radius of 10 m, can safely enter the mining area and make a 180° turn to be positioned for loading.

16.2.8.4 Final Bench Access

To reduce the strip ratio, access ramps have not been designed to the bottom bench of each phase. When mining the final bench, the trucks are positioned on the bench crest rather than on the floor. Figure 16-11 illustrates this operating scenario, commonly referred to as a "good-bye" cut. This final bench is 7 m high.

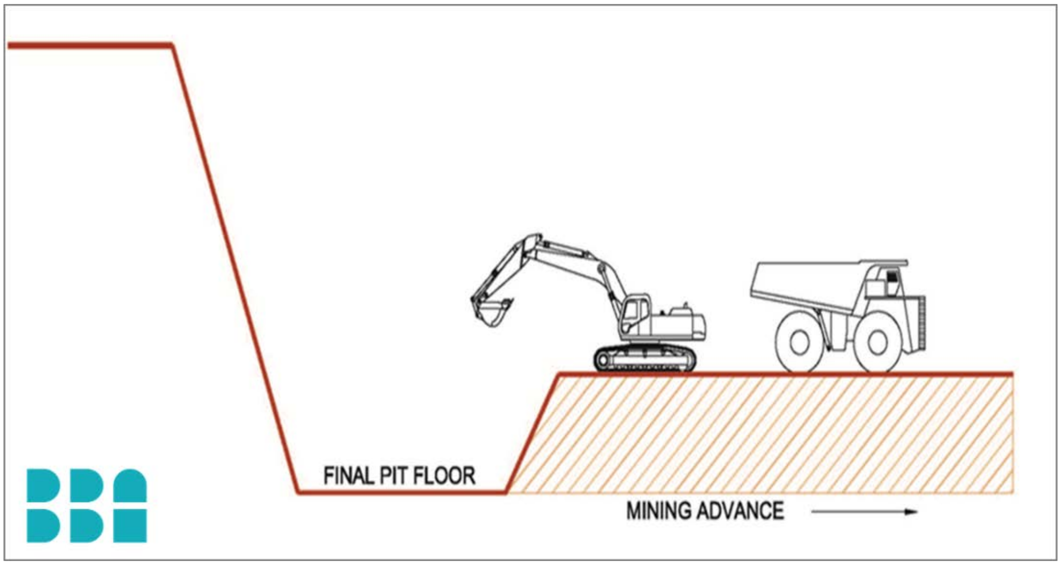


Figure 16-11: Final Bench Access

16.2.8.5 Guajes Pit Design

Mining in the Guajes pit began in 2014 and the final phase is currently being mined. The pit floor is currently at the 658 m elevation and the bottom bench of the ultimate pit is at the 560 m elevation. The remaining part of the pit to be mined is approximately 500 m long and 300 m wide. The Guajes pit contains 2.4 Mt of ore at an average diluted gold grade of 3.92 g/t and there is 8.8 Mt of waste rock, resulting in a strip ratio of 3.7 to 1. The Guajes pit design is presented in Figure 16-12.

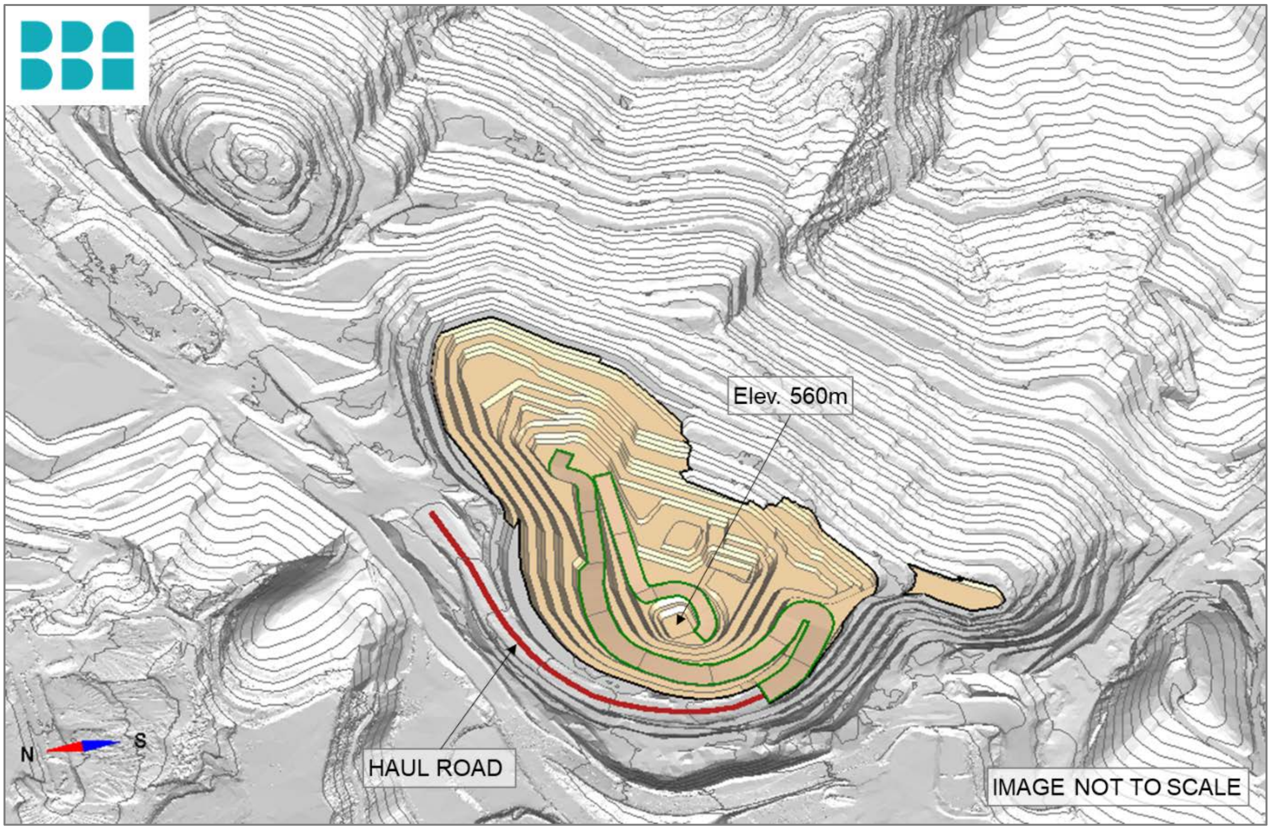


Figure 16-12: Guajes Ultimate Pit Design

16.2.8.6 El Limón Pit Design

Mining in the El Limón pit is currently being done in the ED1, ED2 and ED2b phases. The pit floor in the ED1 phase is currently at the 1,141 m elevation and the bottom bench of the phase is at the 1,071 m elevation. The remaining part of the pit to be mined is approximately 650 m long and 200 m wide. A backfill ramp will be constructed on the northwest side of the ED1 phase to maintain access to the Area 110 crusher. The phase also has access to the WRSF's via a ramp that exits on the southeast side. The El Limón ED1 phase contains 2.1 Mt of ore at an average diluted gold grade of 2.88 g/t and there are 7.3 Mt of waste rock, resulting in a strip ratio of 3.4 to 1. The El Limón ED1 phase design is presented in Figure 16-13.

The ED2b phase is a small pit on the south side of El Limón which is currently at the 1,211 m elevation. The bottom bench of the phase is at the 1,141 m elevation. The ED2b phase is circular and has a diameter of approximately 125 m. The El Limón ED2b phase contains 0.1 Mt of ore at an average diluted gold grade of 3.15 g/t and there are 1.0 Mt of waste rock, resulting in a strip ratio of 6.9 to 1. The El Limón ED2b phase design is presented in Figure 16-14.

The ED2 phase is the final phase at El Limón. The current elevation of the phase is at the 1,295 m elevation and the bottom bench of the phase is at the 966 m elevation. The ED2 phase is approximately 750 m long and 500 m wide. A 20 m wide geotechnical berm is included in the pit wall configuration at the 1,225 m elevation. The El Limón ED2 phase contains 4.7 Mt of ore at an average diluted gold grade of 3.02 g/t and there are 60.3 Mt of waste rock, resulting in a strip ratio of 12.8 to 1. The waste rock includes approximately 0.9Mt of a backfilled ramp that will be removed with the phase. The El Limón ED2 phase design is presented in Figure 16-14.

In total, the three (3) phases at El Limón contain 7.0 Mt of ore at an average diluted gold grade of 2.98 g/t and there are 68.6 Mt of waste rock, resulting in a strip ratio of 9.8 to 1.

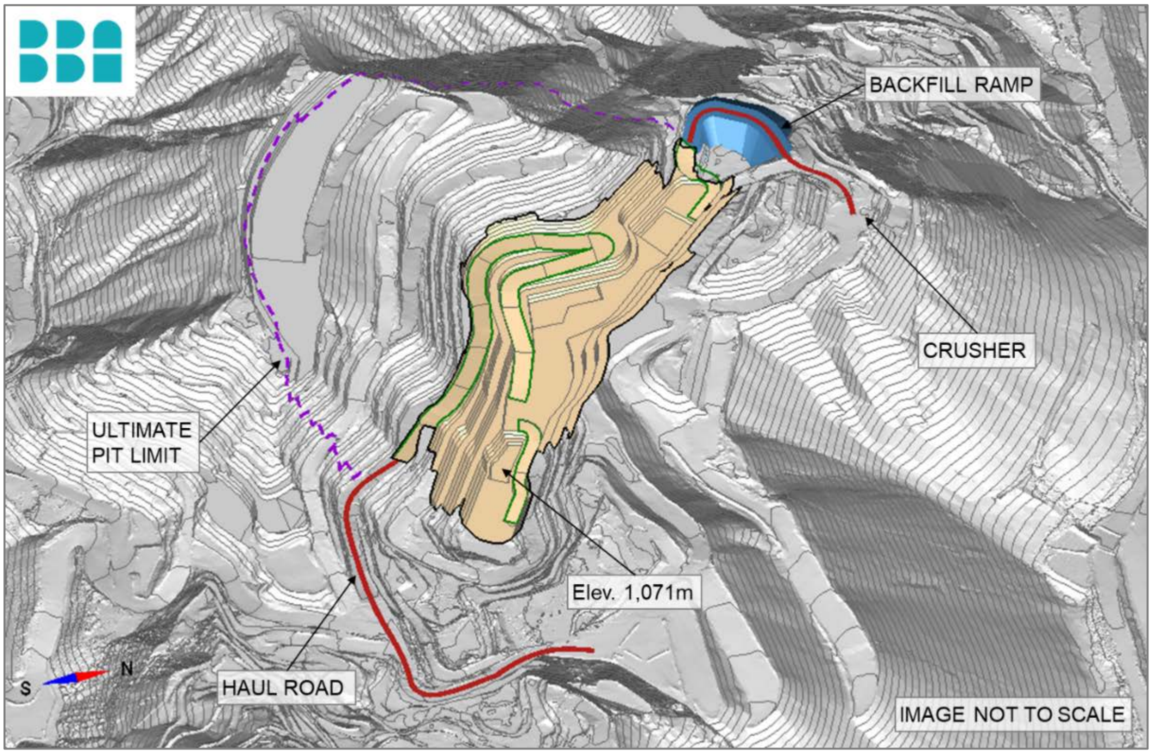


Figure 16-13: El Limón Phase ED1

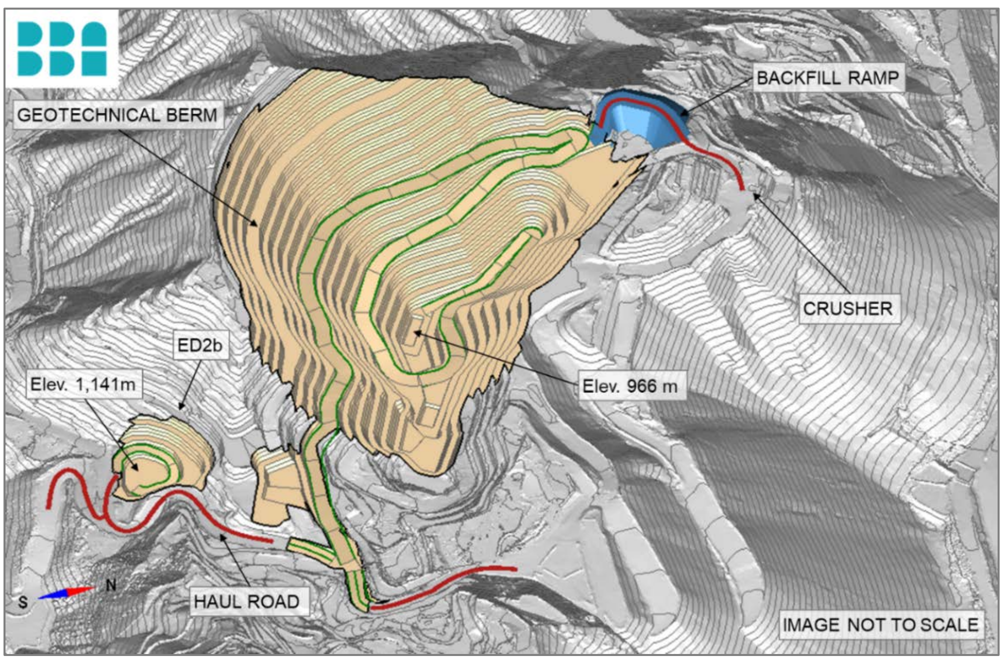


Figure 16-14: El Limón Phase ED2 and ED2b

16.2.8.7 El Limón Sur Pit Design

The El Limón Sur pit is currently being mined to its ultimate limits and its floor is at the 861 m elevation. The bottom bench of the pit is at the 749 m elevation. To minimize the strip ratio, there is no ramp on the final pit wall above the 784 m elevation. Access to these benches will be via a WRSF that will be built on the west side of the pit. The El Limón Sur pit contains 1.0 Mt of ore at an average diluted gold grade of 2.00 g/t and there are 3.5 Mt of waste rock, resulting in a strip ratio of 3.6 to 1. The El Limón Sur pit design is presented in Figure 16-15.

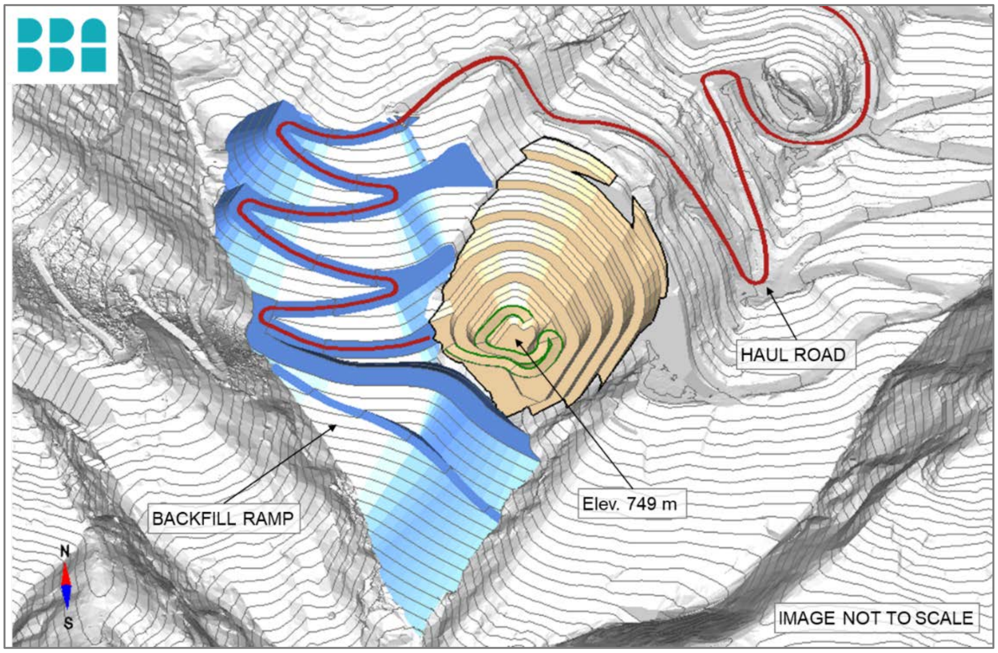


Figure 16-15: El Limón Phase ED2 and ED2b

16.2.8.8 Mining Quantities

The Mineral Reserves in the open pits at ELG which consider the 2021 Year End Topography Surface as a starting point include 9.7 Mt of ROM ore at an average gold grade of 3.25 g/t and an average silver grade of 4.56 g/t, and 0.7 Mt of low grade ore at an average gold grade of 1.02 g/t and an average silver grade of 3.71 g/t. A total of 80.9 Mt of waste rock must be mined to access these Mineral Reserves which results in a strip ratio of 7.8 to 1.

In addition to the in-pit ore tonnages, there is ore stored in several Surface Stockpiles located around the ELG site, which at the end of 2021 contained 4.8 Mt of ROM ore at an average gold grade of 1.35 g/t and an average silver grade of 3.13 g/t. More details on the Surface Stockpiles are provided in Section 16.2.10.

Table 16-6 presents the Mineral Reserves for the open pits that are scheduled in the life of mine plan (LOM) presented in Section 16.2.8. The numbers in the table consider mining dilution and ore losses.

Table 16-6: Open Pit Mineral Reserves Estimate, December 31, 2021

Phase Pit	ROM Mineral Reserves			Low-Grade Mineral Reserves			Total Mineral Reserves			Waste	Strip
	Qty (Mt)	Au (g/t)	Ag (g/t)	Qty (Mt)	Au (g/t)	Ag (g/t)	Qty (Mt)	Au (g/t)	Ag (g/t)	Rock (Mt)	Ratio (w/o)
El Limón											
Phase ED1	2.0	2.97	4.56	0.1	1.02	2.22	2.1	2.88	4.46	7.3	3.4
Phase ED2	4.4	3.20	4.41	0.4	1.02	3.06	4.7	3.02	4.31	60.3	12.8
Phase ED2b	0.1	3.31	2.75	0.0	1.03	2.74	0.1	3.15	2.75	1.0	6.9
Sub-total	**6.5**	**3.13**	**4.43**	**0.5**	**1.02**	**2.89**	**7.0**	**2.98**	**4.32**	**68.6**	**9.8**
EL Limón Sur											
Final Phase	0.9	2.10	8.79	0.1	1.02	10.78	1.0	2.00	8.97	3.5	3.6
Guajes											
Final Phase	2.3	4.06	3.30	0.1	1.02	1.83	2.4	3.92	3.23	8.8	3.7
All Pits	**9.7**	**3.25**	**4.56**	**0.7**	**1.02**	**3.71**	**10.4**	**3.11**	**4.50**	**80.9**	**7.8**
Surface Stockpiles	4.8	1.35	3.13	0.0	0.00	0.00	4.8	1.35	3.13		
Total Mineral Reserves	**14.5**	**2.62**	**4.08**	**0.7**	**1.02**	**3.71**	**15.2**	**2.55**	**4.07**		

*Numbers may not add up due to rounding.

16.2.9 Waste Rock Storage Facilities

Material mined from the open pits below the low-grade cut-off grade is placed in one of several WRSF's across the site. WRSF's were designed to minimize (where possible) the haul truck cycle time for each pit, considering the terrain, access road and facility layout, pit waste disposal requirements, waste rock re-sloping requirements, and waste rock capacity constraints. Figure 16-16 presents a general layout of the WRSF's.

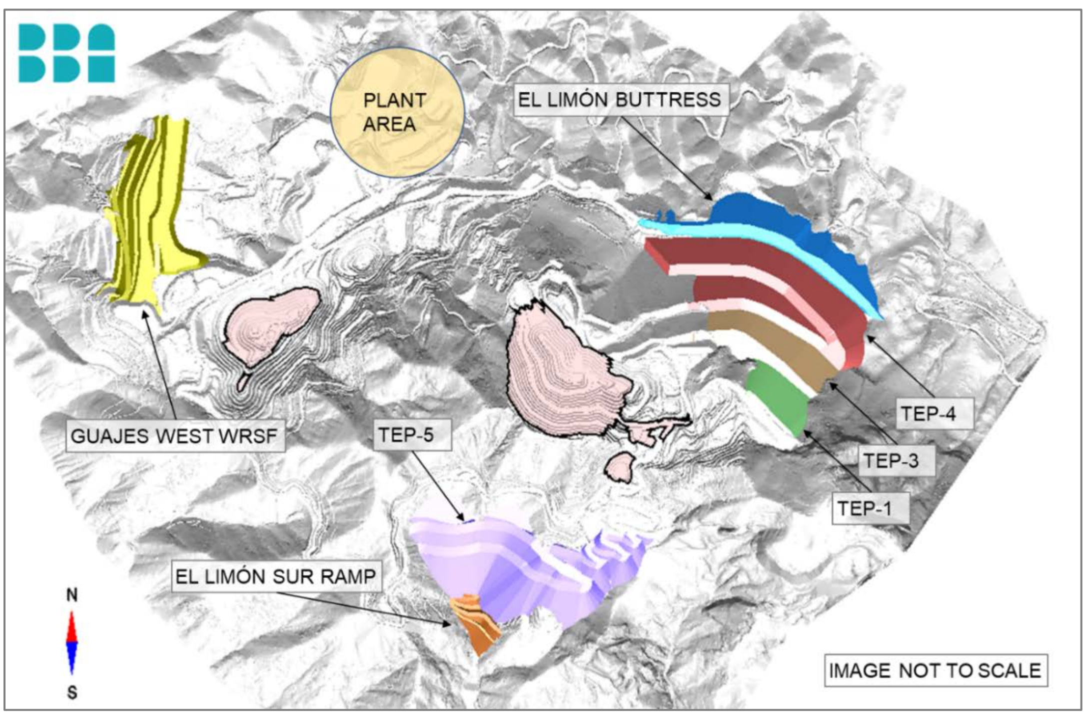


Figure 16-16: El Limón Phase ED2 and ED2b

The El Limón Buttress is built at the toe of the El Limón WRSF. The purpose of the buttress is to prevent runout of a larger failure, containment of rockfall, and protection of the toe from erosion. The El Limón Buttress has a crest elevation of 882 m, a crest width of 60 m and side slopes of 37 degrees, with no catch benches. The construction of the El Limón Buttress must be completed before the upper lifts of the El Limón WRSF can advance. The El Limón Buttress is built with waste rock from the Guajes pit.

The El Limón WRSF is built from the top down, with material dumped at the crest and resting at the rock's angle of repose of 37 degrees. To ensure the overall stability of the WRSF, material is dumped from several terraces named (Tep-1, Tep-3, and Tep-4), resulting in a final overall slope of approximately 27.5 degrees, measured from the toe to the highest point of the pile.

The El Limón Sur Ramp is required early in 2022 since it provides access to the El Limón Sur pit from the 784 m bench and below. The El Limón Sur Ramp also provides access to a drill pad which will be used to establish a new ventilation raise for the underground mine. Material for the El Limón Sur Ramp will come from both the El Limón and El Limón Sur pits.

The Tepe 5 WRSF is built above the El Limón Sur pit and eventually fills in the El Limón Sur pit. Material for the Tepe 5 WRSF will come from the El Limón pit. Like the El Limón WRSF, Tepe 5 has a ramp which declines down part of the final slope to reduce the overall slope of the pile to achieve the desired stability.

The Guajes West WRSF is built on the west side of the Filtered Tailings Storage Facility (FTSF). A ramp system is incorporated in the Guajes West WRSF design to provide access to the settling ponds that are located at the toe. The construction sequencing of the Guajes West WRSF must ensure that the settling ponds can always be accessed via a ramp on the advancing slope of the pile. The Guajes West WRSF has a final crest elevation of 700 m, 17 m wide catch benches every 21 m in elevation, resulting in an overall slope of 26.6 (2H:1V) degrees (in areas with no ramp).

Additional information pertaining to the design and stability of the WRSF's is provided in Section 18.11.

Table 16-7 presents the remaining capacities for each of the WRSF's at the end of 2021. The table also includes the volumes that are planned to be placed in each WRSF according to the mine plan presented in Section 16.2.8.

Table 16-7: WRSF Capacities

Description	Capacity (mm^3)	Material Placed (mm^3)
ELM Buttress	3.6	3.6
Tep-1	10.4	0.0
Tep-3	5.9	4.6
Tep-4	22.8	17.1
Tep-5	20.5	8.2
ELS Ramp	1.6	1.6
Guajes West WRSF	7.0	2.2
Total	71.9	37.3

16.2.10 Ore Stockpiles

Low-grade ore is stockpiled for future processing when the open pits will be completely mined out. There are currently several low-grade stockpiles located around the site. In addition to the low-grade stockpile, several higher grade stockpiles at different CoG's exist in order to allow the process plant to blend the mill feed. Some of these stockpiles are located directly on the Area 100 ROM pad while others are located closer to the open pits. For the purposes of mine planning, stockpile rehandling is done using the average grade of the stockpile. The CoG's for the different stockpiles, collectively referred to as Surface Stockpiles, are presented in Table 16-8.

Table 16-8: Ore Stockpile Grade Bins (in-situ)

Description	Value
High-High Grade	> 2.7 g/t
High Grade	> 1.5 g/t
Medium Grade	> 1.2 g/t
Low Grade	> 1.1 g/t

Table 16-9 presents the 2021 Year End stockpile balances which were used to develop the mine production schedule. The numbers presented in the table include mining dilution and ore losses.

Table 16-9: Ore Stockpile 2021 Year End Balances

Description	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Fe (%)
El Limón High-High Grade	27,986	4.94	7.66	0.99	12.61
El Limón High Grade	645,083	2.06	3.87	0.07	3.70
El Limón Medium Grade	1,712,257	1.29	3.48	0.05	4.53
El Limón Low Grade	1,328,164	0.93	2.87	0.06	2.16
Guajes High-High Grade	92,379	3.50	3.94	0.13	10.78
Guajes High Grade	131,691	2.01	2.69	0.07	10.52
Guajes Medium Grade	160,419	1.34	1.82	0.05	9.66
Guajes Low Grade	688,185	0.97	2.03	0.05	2.57
Underground Mine	21,405	6.12	7.09	0.69	6.86
Total	4,807,568	1.35	3.13	0.07	4.00

In addition to these stockpiles, the mine production plan for the optimization study considers a high copper content stockpile, one at El Limón and one at Guajes, as well as a high iron content stockpile, one at El Limón and one at Guajes. The lower limit CoG's for these stockpiles have been set at 0.25% for Cu and 12% for Fe.

16.2.11 Grade Control

At El Limón Guajes, gold mineralization is found almost exclusively in skarn and to a minority and locally in fractures and veinlets of garnet, pyroxene, chlorite, calcite, and quartz, developed in hornfels and intrusive rocks with no or slight skarn alteration.

Within the skarn, gold mineralization is finely disseminated in the retrograde and prograde phases of exoskarn and endoskarn, which can be clearly identified in the field, in the core and in chip samples. However, within these lithologies ore cannot be visually distinguishable from waste rock.

Ore zones and waste rocks are defined by the ore control geologists primarily based on sampling and assaying of blast holes in the open pits and channel samples in underground mines. The assays results are complemented by all available drilling information (delineation, infill, and exploration), and with a detailed geological mapping of pits and underground developments, including lithology, alteration, mineralization, structures, and hardness. All this integrated information makes up the ore control process.

The definition drilling program includes selective in-fill diamond drilling of ore zones included in the yearly mine plans, especially for selective underground mining, that requires additional information for a better delineation of the shape and the grade of the ore zone, for the purposes of blast pattern planning, short range mine planning, and mine budgeting.

Production blastholes drilled in mineralized areas, or where the mine geologists have indications that skarn or mineralized rock may be encountered, are sampled, and assayed for grade control purposes. In area of pre-stripping or in known barren lithologies sampling is performed on every third hole. Channel samples along the ribs and faces of production developments are used for ore control purposes in the underground mines.

Grade control procedures involves preparation of a grade control model informed mainly by blasthole and channel sampling data for open pits and underground, respectively. The mine geology staff define ore and waste mining zones for each blast and/or round based on the ore control model for open pit or underground, respectively.

For reconciliation purposes, quantities and grades within the open pit and underground mineralized blocks, are compared to Mineral Reserve block model reports on a bench-by-bench and level-by-level basis. In addition, reported ore delivered to the crusher is compared to process plant estimates of mill feed. Further detail on ELG ore reconciliations is presented in Section 15.2.4 and Section 15.3.4 of this Technical Report.

16.2.12 Open Pit Mine Production Schedule

The LOM production schedule for the open pit has been prepared using the MinePlan Schedule Optimizer (MPSO) tool in the Hexagon™ MinePlan 3D software. Provided with economic input parameters and operational constraints such as phase sequencing, maximum bench sink rates, and mining and milling capacities, the software determines the optimal mining sequence and low-grade ore stockpiling strategy which maximizes the NPV of the mine production plan.

16.2.12.1 Mine Planning Parameters

The mine plan begins in January 2022 using the 2021 Year End Topography Surface and has been prepared monthly for 2022 and 2023 and quarterly thereafter. Each mining phase has been subdivided in cuts with dimensions of 49 m x 49 m on each 7 m high bench.

The underground mine plan was incorporated into MPSO and the software therefore produced and integrated open pit and underground mine plan for ELG.

The integrated mine plan aims to meet the mill capacity which has been adjusted monthly to reflect the scheduled utilizations for 2022 and 2023. The mill capacities targeted for 2024 follow those from 2023. The average mill throughput for 2022 is 12,789 t/d and 13,286 for 2023.

The integrated mine plan through 2022 and 2023 also targets a maximum copper feed to the mill of 0.15% and a maximum iron feed to the mill of 8%.

Production rate constraints for the open pit were also applied for the various phases to ensure the resulting mine plan can be executed safely and efficiently given the current fleet of mining equipment and the size of the working areas.

The Media Luna underground mine plan was also incorporated into MPSO. Media Luna is scheduled to begin providing ore to the mill in October 2024, once a certain amount of ore has been stockpiled in order to facilitate commissioning. At this point in time, the milling facilities will be modified with the addition of a copper flotation circuit. For mine planning purposes, it has been assumed that there will be a one-month shutdown of the mill, followed by a month at an average ramp-up production rate of 8,939 t/d. By the third month, the mill will operate at an average throughput of 10,594 t/d and continue at this rate for the Media Luna Life of Mine.

Following the Q3 2024 mill conversion, the integrated mill feed plan for the ELG OP, ELG UG, and Media Luna mine plan considers a new constraint. ML and ELG UG ores may be blended up to 15% with ELG OP ores, and report to the copper concentrator. If remaining mill capacity is available and sufficient ELG OP material is available, it can be batch processed separately.

16.2.12.2 Mine Production Schedule Results

In 2022, mining is planned to occur in all the phases and pits, with the primary source of ore coming from the El Limón ED1 phases and the Guajes pit. Mining in ED2b will be completed in September 2022 and mining in ED1 will be completed in May 2023. It is important to continue stripping the upper benches of the ED2 phase since ore is required from this phase once mining is completed in the Guajes pit which is scheduled for April 2023.

Stripping in ED2 totals approximately 1,175,000 tonnes in January 2022 and gradually increases to just approximately 2 million tonne per month by December 2022. Ore begins to be mined in ED2 in November 2022. Mining in the El Limón Sur pit will be complete in May 2023. As of June 2023, ED2 phase is the only source of ROM material and mining that will be complete in this phase by the end of 2024.

The total material mined from the open pits (excluding rehandling) averages approximately 3.5 Mt per month in 2022, followed by 3.0 Mt in 2023, and 1.1 Mt in 2024. A total of 6.6 Mt of ore is planned to be fed directly to the primary crushers and 8.6 Mt via rehandling.

Low-grade ore rehandling begins in Q2 2025 and by Q2 2028 the low-grade ore stockpiles are depleted.

Recovered gold from the open pits is expected to total approximately 383,000 ounces in 2022, followed by 344,000 ounces in 2023, 271,000 ounces in 2024, and 50,000 ounces in 2025, 24,000 ounces in 2026, 22,000 ounces in 2027 and 11,000 ounces in 2028. A total of 1,106,000 ounces is recovered from the open pits.

The integrated open pit and underground mine production schedule respects the imposed constraints for maximum copper and iron grades for each period of the mine plan.

Table 16-10 presents the open pit mine production schedule (summarized quarterly). Figure 16-17 to Figure 16-21 present various charts which display the mine production schedule and Figure 16-22 to Figure 16-26 present the pit and WRSF's advances every 6 months.

Table 16-10: Open Pit Production Schedule

Description	Unit	2022				2023				2024				2025	2026	2027	2028	Total
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4					
Mill Feed	kt	1,020	1,038	1,058	1,042	1,053	1,111	1,109	1,063	1,051	1,118	1,121	97	1,195	917	786	400	15,179
Au Grade	g/t	2.84	3.28	3.08	3.67	4.00	2.15	1.91	3.12	3.01	2.67	2.47	5.76	1.49	0.95	1.01	0.98	2.55
Ounces Rec. (Au)	koz.	83	97	93	109	121	68	61	95	90	85	79	16	50	24	22	11	1,106
Ag Grade	g/t	3.30	4.18	4.19	4.26	4.68	4.95	5.08	3.82	3.03	4.30	4.42	7.25	3.44	2.87	4.15	3.38	4.07
Cu Grade	%	0.12	0.11	0.10	0.12	0.14	0.13	0.11	0.11	0.08	0.12	0.13	0.21	0.08	0.07	0.12	0.07	0.11
Fe Grade	%	7.47	7.31	7.65	7.48	6.42	6.97	7.18	6.88	6.45	5.97	6.30	7.93	4.56	2.98	4.41	4.06	6.29
ROM to Mill	kt	366	512	748	917	590	360	371	733	645	694	547	96	0	0	0	0	6,579
ROM to Mill	g/t	3.70	4.55	3.55	3.91	6.05	3.20	2.65	3.96	4.13	3.29	3.53	5.78	0.00	0.00	0.00	0.00	3.95
ROM to Stockpile	kt	477	504	416	529	366	150	118	232	430	115	130	327	0	0	0	0	3,792
ROM to Stockpile	g/t	1.64	1.69	1.48	1.40	1.88	1.46	1.10	1.13	1.91	1.09	1.11	2.78	0.00	0.00	0.00	0.00	1.66
Stockpile to Mill	kt	654	525	310	126	463	751	738	330	406	423	574	0	1,195	917	786	400	8,600
Stockpile to Mill	g/t	2.36	2.04	1.97	1.91	1.39	1.65	1.54	1.26	1.23	1.65	1.47	0.95	1.49	0.95	1.01	0.98	1.49
Waste Rock	kt	9,766	9,565	9,463	9,191	9,659	8,545	7,909	6,588	4,938	3,010	1,812	442	0	0	0	0	80,887
Total Material Moved	kt	11,263	11,106	10,936	10,762	11,077	9,806	9,136	7,883	6,418	4,242	3,063	866	1,195	917	786	400	99,858
Total ROM	kt	10,609	10,581	10,627	10,637	10,614	9,055	8,398	7,553	6,013	3,819	2,488	865	0	0	0	0	91,258
Stripping Ratio		11.6	9.4	8.1	6.4	10.1	16.8	16.2	6.8	4.6	3.7	2.7	1.0	0.0	0.0	0.0	0.0	7.8

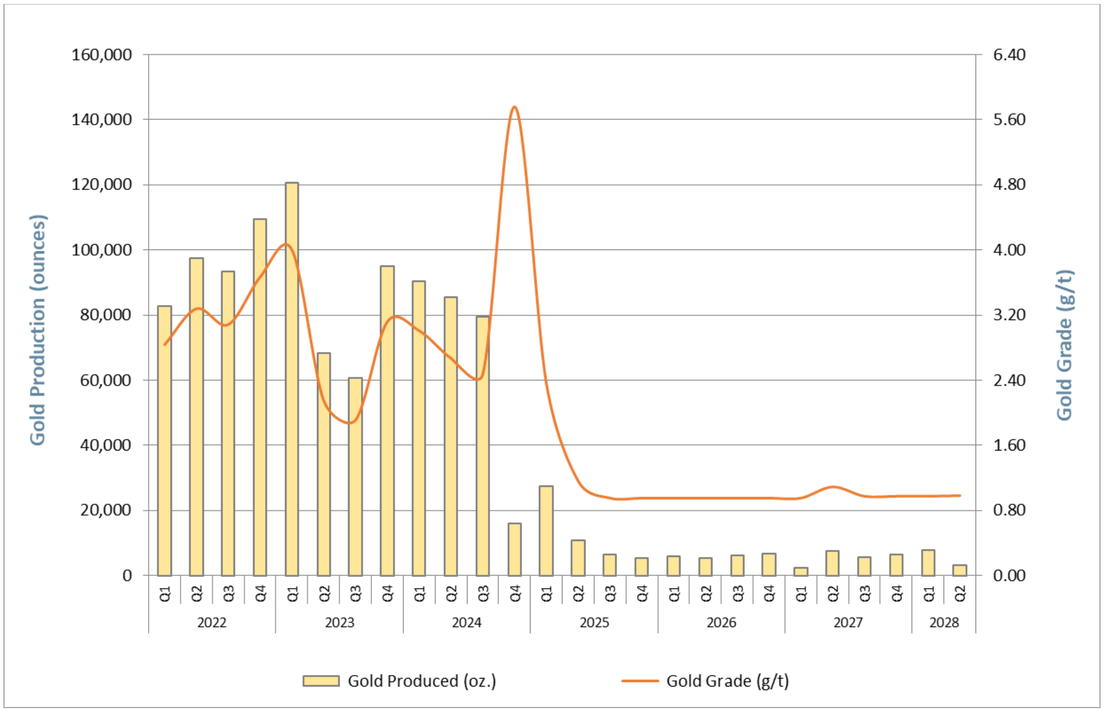


Figure 16-17: Open Pit Gold production

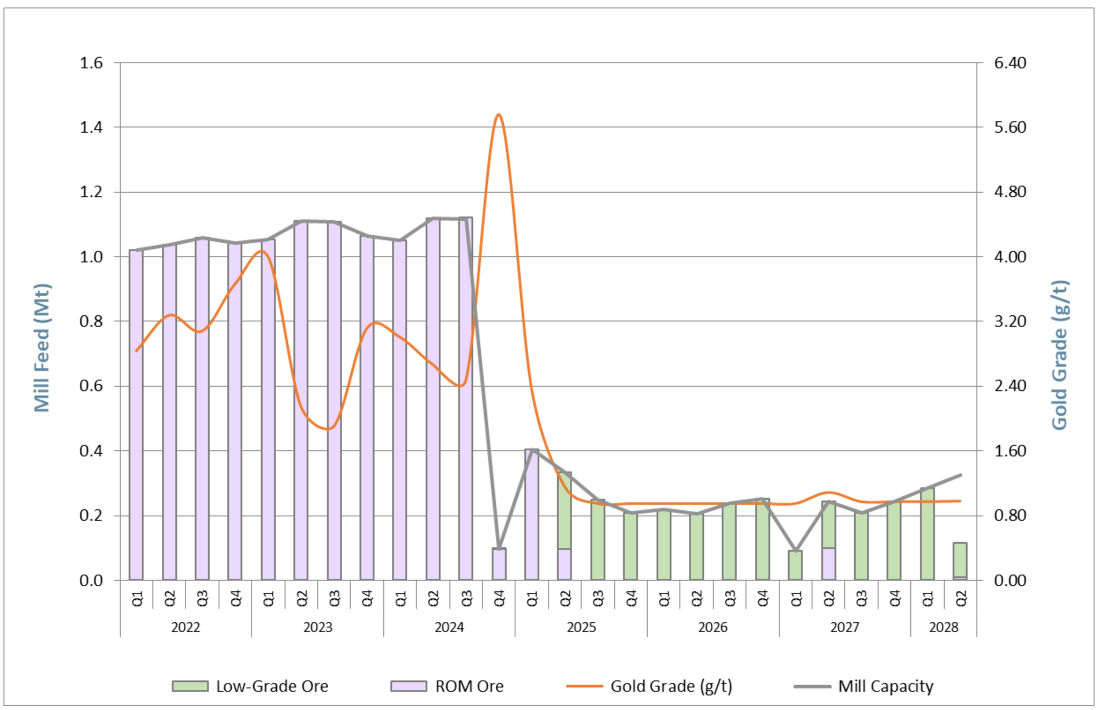


Figure 16-18: Open Pit Mill Feed

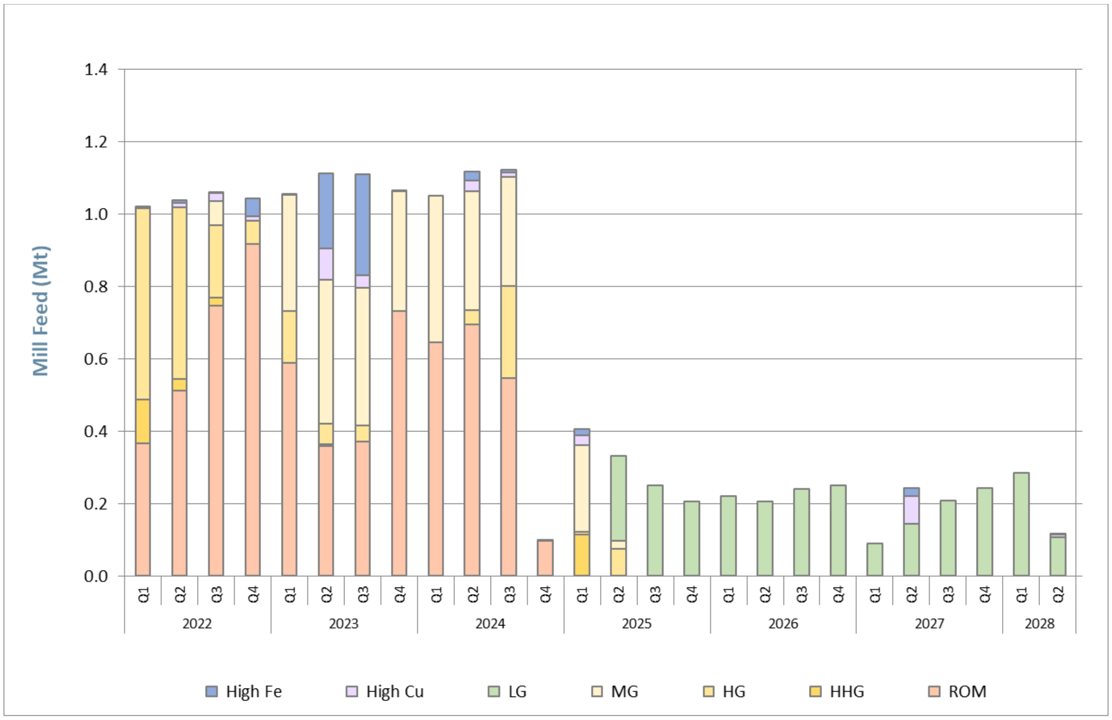


Figure 16-19: Open Pit Mill Feed by Source

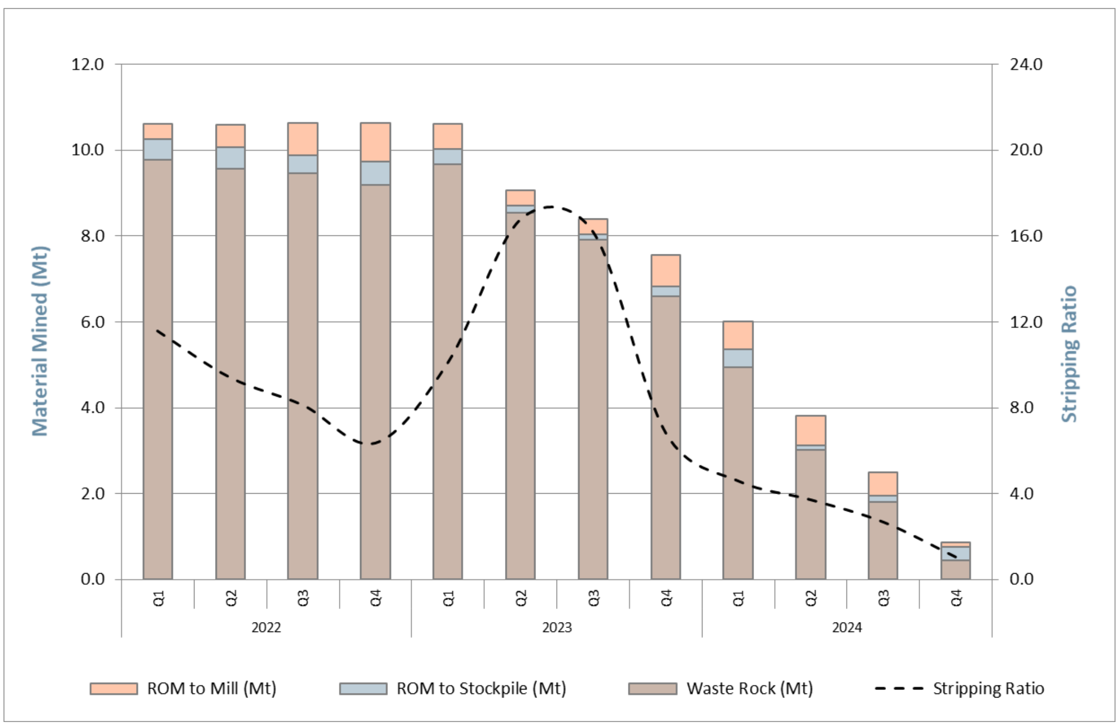


Figure 16-20: Total Material Mined (ROM)

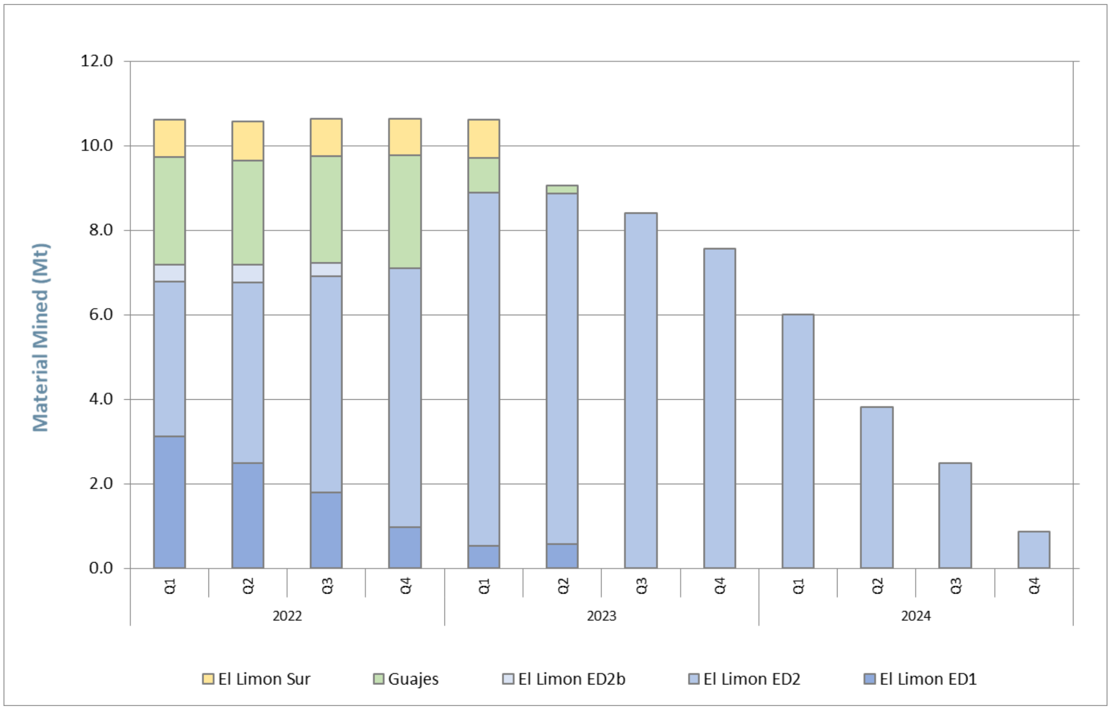


Figure 16-21: Total Material Mined by Pit (ROM)

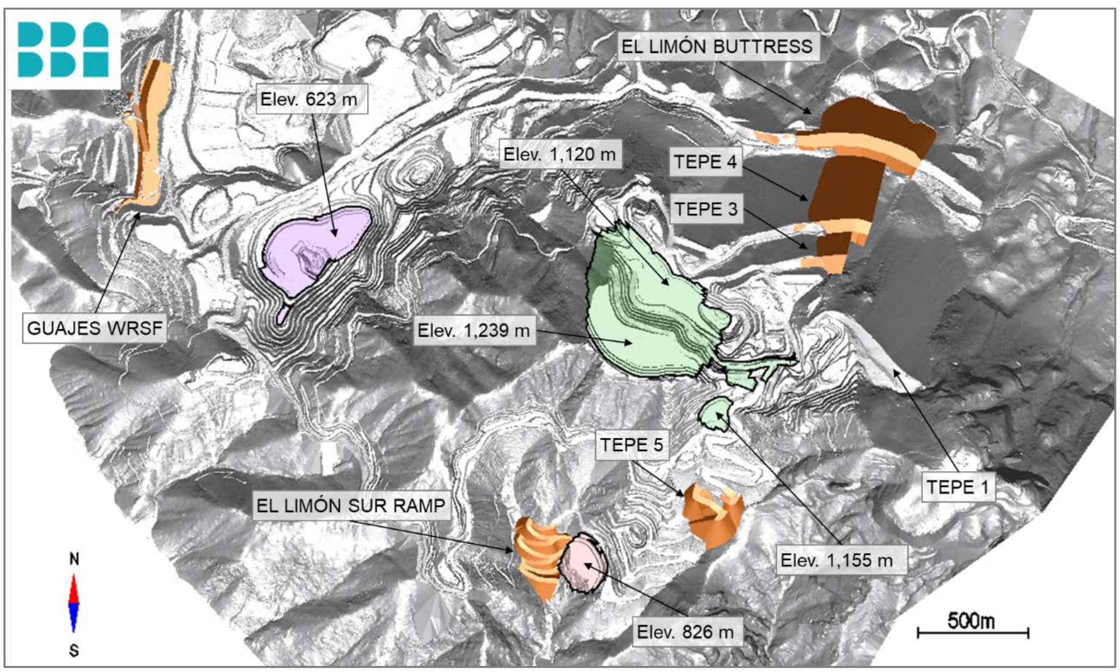


Figure 16-22: End of June 2022

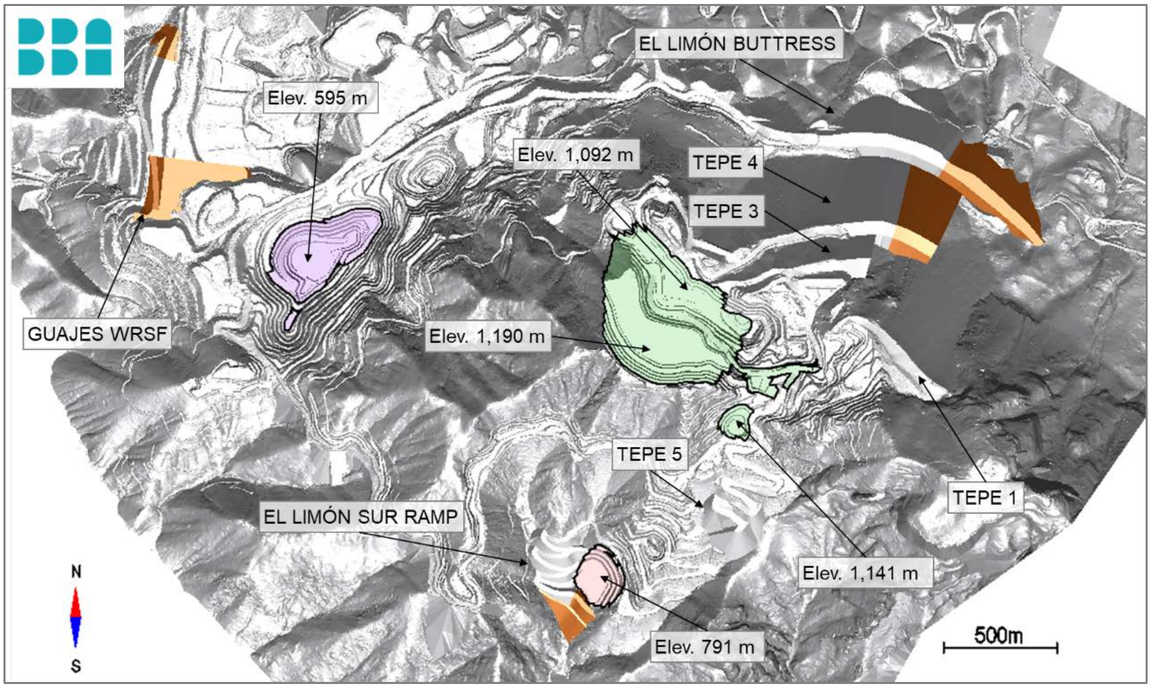


Figure 16-23: End of December 2022

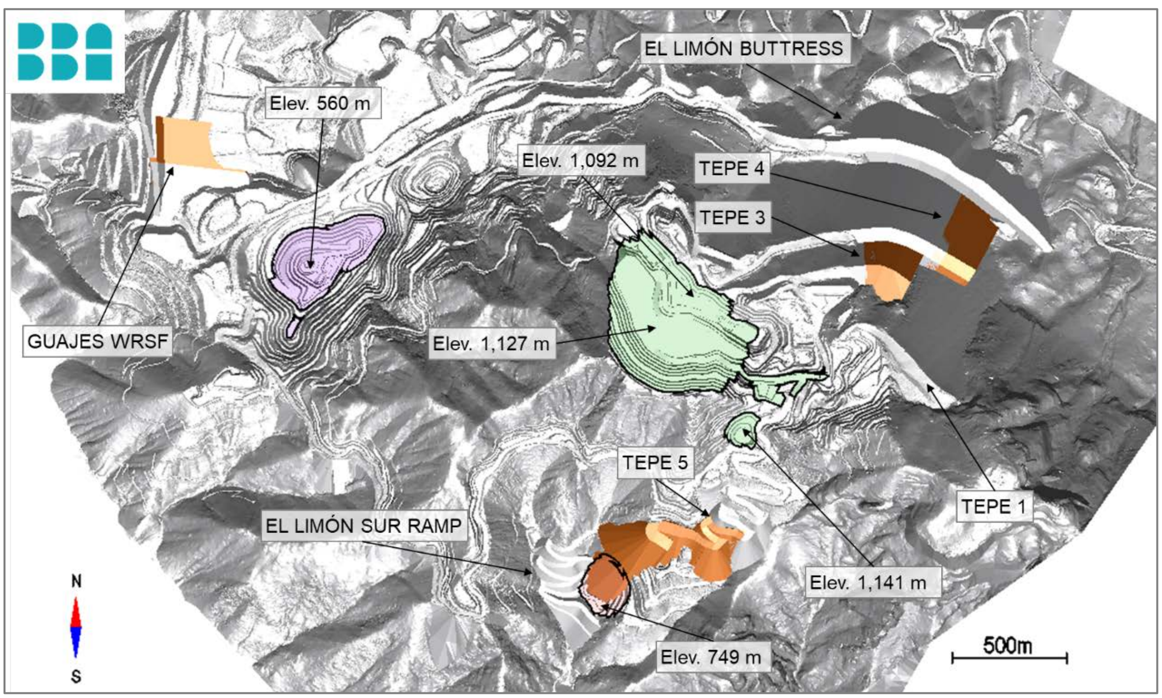


Figure 16-24: End of June 2023

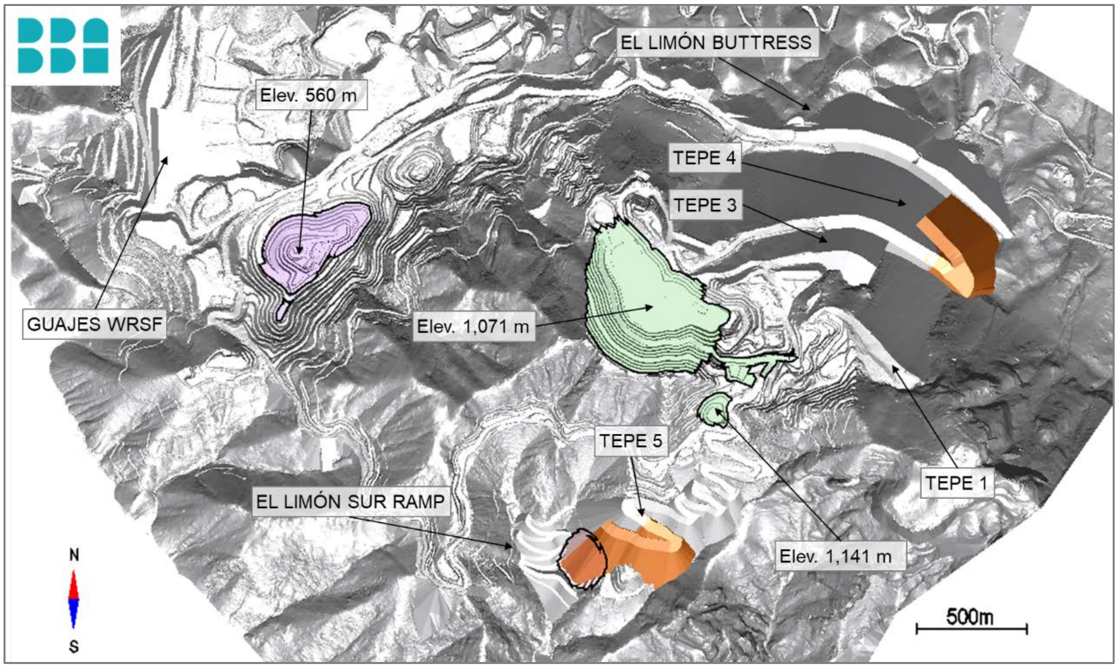


Figure 16-25: End of December 2023

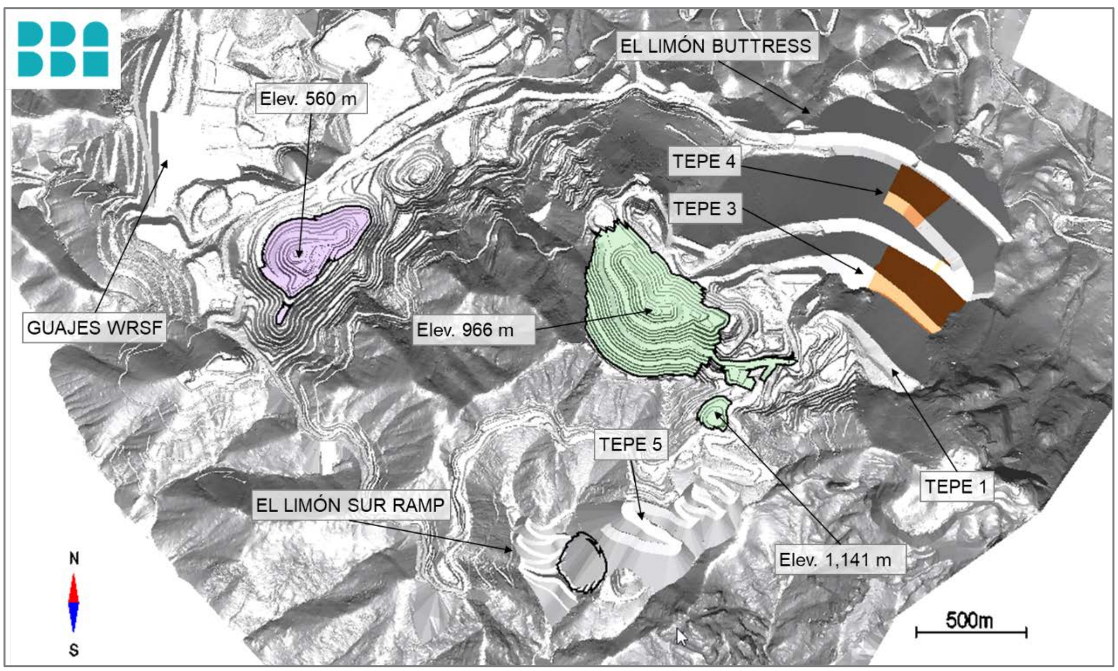


Figure 16-26: End of December 2024

16.2.13 Open Pit Equipment Fleet

The following section discusses the fleet requirements that were estimated to carry out the open pit mine production plan. Although the rock density varies across the site and by rock type, the fleet calculations consider the average densities in the Mineral Reserves, which are 3.09 t/m^3 for ore and 2.82 t/m^3 for waste rock.

16.2.13.1 Mode of Operation

The ELG OP mine is operated using an Owner's workforce on a continuous 24 hour/day basis, 365 days/year, with 3 production crews working 12 hour shifts on a 20 day on – 10 day off rotation. Contractor services are used for mining at the El Limón Sur pit, the ED2b pushback and for all stockpile rehandling and miscellaneous activities. Blasting services are also provided by a contractor.

16.2.13.2 Equipment Utilization Model

Figure 16-27 presents the equipment utilization model that is used to understand the key performance indictors (KPI) that govern the fleet requirements. The definitions for each time component are presented below using haul trucks as an example.

- Maintenance Time (MT) – The unit is inoperable due to either a scheduled maintenance or an unplanned breakdown;
- Available Time (A) – Scheduled time less maintenance time;
- Idle Time (ID) – The unit is available mechanically but not being used. The engine will typically be shut off while the unit is on idle time (also commonly referred to as standby time);
- Operation Time (OP) – Available time less idle time. This time is commonly referred to as the Gross Operating Hours;
- Delay Time (DL) – The unit is available and not on idle time but not effectively producing. The engine will be running during the delay time;
- Work Time (NOH) – Operation time minus delay time. This time is commonly referred to as the Net Operating Hours.

The following KPI's can be calculated from using the formulas below;

- Physical Availability (PA%) = (NOH + ID + DL) / (NOH + ID + DL + MT);
- Use of Availability (UA%) = (NOH + DL) / (NOH+ ID + DL);
- Work Efficiency (WE%) = (NOH) / (NOH + DL);
- Utilization (UT%) = (NOH) / (S).

Table 16-11 presents the KPI's and time assumptions that were used for the fleet of shovels, loaders, trucks, and drills.

<table>
<tr><th colspan="5">Scheduled Time (S)</th></tr>
<tr><th colspan="3">Available Time (A)</th><th colspan="2">Maintenance Time (MT)</th></tr>
<tr><th colspan="2">Operation Time (OP)</th><th rowspan="2">Idle Time (ID)</th><th rowspan="2">Planned Loss</th><th rowspan="2">Breakdown Loss</th></tr>
<tr><th>Work Time (NOH)</th><th>Delay Time (DL)</th></tr>
<tr><td>Travelling empty</td><td>Waiting for Shovel</td><td>Shift Change</td><td>Scheduled Maintenance</td><td>Breakdown</td></tr>
<tr><td>Spotting at Shovel</td><td>Shovel Repositioning</td><td>Lunch & Coffee Breaks</td><td>Preventative Maintenance</td><td>Waiting for Parts</td></tr>
<tr><td>Loading</td><td>Crusher Down</td><td>Refueling</td><td>Inspections</td><td>Repair Time</td></tr>
<tr><td>Travelling Full</td><td>Queuing at Shovel</td><td>Pre-start Checks</td><td>Overhauls</td><td></td></tr>
<tr><td>Spotting at Dump</td><td>Weather</td><td>No Operator Available</td><td></td><td></td></tr>
<tr><td>Dumping</td><td></td><td></td><td></td><td></td></tr>
</table>

Figure 16-27: Equipment Utilization Model

Table 16-11: Mine Equipment KPI's

Description	Unit	Shovels	Loaders	Trucks	Drills
Physical Availability	%	83.0	85.2	92.7	91.2
Use of Availability	%	79.6	77.2	74.5	79.2
Work Efficiency	%	93.1	90.9	96.5	91.1
Utilization	%	61.5	59.8	66.6	65.8
Scheduled Time	h/y	8,760	8,760	8,760	8,760
Maintenance Time	h/y	1,486	1,294	643	775
Idle Time	h/y	1,485	1,702	2,069	1,660
Operation Time	h/y	5,789	5,764	6,048	6,325
Delay Time	h/y	402	527	211	560
Work Time	h/y	5,387	5,237	5,837	5,765

Weather delays vary by month and are presented in Table 16-12. The values presented in the table are the weather delay hours per month for each shovel, loader, truck, and drill.

Table 16-12: Weather delays (hours/month)

Month	Weather Delays
January	3.12
February	0.00
March	0.61
April	0.00
May	9.13
June	9.13
July	10.65
August	10.65
September	9.13
October	6.08
November	3.12
December	3.12
Total	64.72

16.2.13.3 Drilling and Blasting

Production drilling is currently done with a fleet of six (6) Epiroc DM45 and four (4) Epiroc D55 rigs that drill 140 mm (5.5”) diameter holes on 7 m high benches. The drill patterns vary for ore and waste as well as whether the rock is classified as “soft”, “medium”, or “hard”. Since the hardness classification is developed on-site in a short term geotechnical model, the optimization study considered the drill patterns for “medium” rock for drilling and blasting calculations which are presented in Table 16-13.

Table 16-13: Drill and Blast Patterns

Description	Unit	Ore	Waste
Burden	m	4.0	5.0
Spacing	m	4.0	5.0
Subdrilling	m	2.0	2.0
Stemming	m	0.8	0.7
Powder Factor	kg/t	0.35	0.22

Drilling productivities have been calculated at 235 m^3/h for ore and 367 m^3/h for waste which consider an effective penetration rate of 20 m/h and the fixed time drilling components that are presented in Table 16-14.

Table 16-14: Fixed Drilling Time Per Hole

Description	Unit	Value
Steel Retract	min	0.30
Jack Up	min	0.30
Tramming	min	2.50
Jack Down	min	0.60
Collar	min	3.00
Bit Change	min	0.30
Total	**min**	7.00

The drill productivities were then applied to the number of holes drilled per year to determine the annual hours of drilling and number of units required. In addition to the number of holes, which are based on the blast patters presented above, an additional 5% has considered for holes requiring re-drilling.

Blasting is generally carried out using a product mix of 80% Ammonium Nitrate Fuel Oil (ANFO) and 20% emulsion, resulting in a density of 0.95 g/cm^3. For the lower benches where groundwater will potentially infiltrate into the drillhole, the optimization study considers a pure emulsion product. Blasting is done using electric detonation and drillholes are primed with detonators and boosters.

Pre-split blasting is done on final pit walls using the Epiroc D55 rigs with 114 mm (4.5”) diameter holes, which are drilled continuously for the triple stacked benches resulting in a drilling length of 21 m plus a 1.5 m subdrill. The pre-split holes are spaced 1.5 m apart, are loaded with a packaged emulsion product with a diameter of 45 mm, a density of 1.20 g/cm^3 and a stemming length of 2.0 m, resulting in a powder factor of power factor of 1.21 kg/m^2.

A total of 10 drills are required in 2022, reducing to 8 in 2023, and 4 in 2024.

16.2.13.4 Loading

Loading is done on 7 m high benches with a fleet of three (3) Komatsu PC3000 diesel powered hydraulic shovels equipped with 21 m^3 buckets and four (4) Komatsu WA900 front end wheel loaders equipped with 14 m^3 buckets. The wheel loaders are used both in the open pits and for stockpile rehandling. Historical data from 2018, 2019 and 2020 shows that each shovel typically mines between 6.5 and 8.5 Mtpy with the best month being just over 1 Mt which was achieved by Shovel #22 in October 2018. The same data shows that each wheel loader typically mines between 4 to 6 Mtpy with the best month being 0.9 Mt achieved by Loader #11 in May 2018.

Shovel productivities have been calculated considering 16 seconds for the truck to position for loading plus a load time of 124 seconds, based on four (4) pass loading at 31 seconds per pass.

Loader productivities have been calculated considering 19 seconds for the truck to position for loading plus a load time 180 seconds, based on five (5) pass loading at 36 seconds per pass.

To simplify the loading calculations for truck and shovel requirements, it has been assumed that loading will be equally split between the fleet of shovels and wheel loaders which is consistent with the historical data. The average load times are shown in Table 16-15, presented in the next section which discusses hauling.

A total of 3 shovels are required in 2022, reducing to 2 in 2023, and 1 in 2024. A total of 4 loaders are required in 2022, reducing to 3 in 2023, and 1 in 2024.

16.2.13.5 Hauling

Hauling is done with a fleet of 25 Komatsu HD-785 rigid frame haul trucks with effective payloads of 93 tonnes. A haulage network has been developed and loaded into MPSO which considers the hauls for each mining cut to each potential dumping destination. The fixed cycle time components are presented in Table 16-15 and the travel times have been calculated according to the grade-speed bins presented in Table 16-16. The fixed cycle time components are added to the travel time to arrive at the total cycle time for each haul. In addition to these haulage parameters, the truck cycle time calculations consider a 3% rolling resistance.

Table 16-15: Fixed Cycle Time Components

Description	Unit	Value
Truck Spot Time	sec	17
Load Time	sec	152
Spotting at Dump	sec	36
Dump Time	sec	48
Total Fixed Cycle Time	**sec**	**253**

Table 16-16: Grade-Speed Bins

Grade (%)	Loaded Speed (km/h)	Empty Speed (km/h)
-10	19.0	24.0
-9	20.0	25.0
-8	21.0	26.5
-7	22.0	28.0
-6	24.0	29.5
-5	26.0	32.0
-4	28.0	33.5
-3	30.0	34.0
-1	33.0	36.0
0	36.0	36.0
1	31.0	35.0
2	24.0	34.0
3	20.0	32.0
4	18.0	28.5
5	17.0	27.0
6	16.0	26.0
7	15.0	24.0
8	14.0	23.0
9	13.0	22.5
10	12.7	22.0

A total of 25 trucks are required in 2022, reducing to 23 in 2023, and 15 in 2024.

16.2.13.6 Auxiliary Equipment

A fleet of support equipment is used for haul road maintenance, drill pad preparation, spreading material on the waste rock piles, and cleaning around the loading faces. The current fleet of support equipment includes five (5) dozers (tracked and on rubber tires), four (4) graders, three (3) water trucks, and two (2) utility excavators. The fleet of support equipment will be gradually reduced as the tonnages mined from the open pits is reduced.

A fleet of service equipment such as fuel & lube trucks, lowboys to transport the tracked equipment, transport vans, maintenance vehicles, and pick-up trucks are also used for the open pit operations.

16.2.14 Open Pit Personnel

The mine operations, mine maintenance, and mine technical services workforce is projected to average 332 employees in 2022, 306 in 2023, and 202 in 2024. The open pit workforce will be reduced to 36 as of 2025 when mining in the open pits is complete and the open operation is limited to low-grade ore stockpile rehandling. The majority of the rehandling crew will be part of the mine technical services team since the rehandling will be done by a contractor. The 2022 workforce 181 equipment operators, 27 mechanics, 52 supervisory and support personnel, and 72 people in the mines technical service team.

16.3 ELG UNDERGROUND MINING

16.3.1 Underground Development and Access

ELG UG Mine consists of: Sub-Sill Area, and El Limón Deep (ELD) Zone. Sub-Sill area is comprised of three mining zones; two of which are currently being mined (SSL and Z71) whereas SSX (Sub-Sill Extension) is under development (Figure 16-28). ELD lower elevations are under development, while mining is ongoing in the upper areas. Portal 1

(1172EL, Figure 16-28) is the main access to ELD and the fresh air intake for the mine, while Portal 2 (Figure 16-28) provides access to the Sub-Sill Area and is currently the main exhaust for the mine. ELD and Sub-Sill ramps are connected at approximately 235 m from each portal.

Currently, mining operations are carried out by utilizing Portal 1 (Figure 16-29) and Portal 2 (Figure 16-30) for personnel, equipment, and ore/waste removal. Portal 3 ramp is under development from a location near the processing facility which, when complete, will eliminate the requirement to surface haul ore from Portal 1 and 2 stockpiles around the mountain to the processing facility.

Portal 3 (Figure 16-31) is under development to support the mine and will be the main ore haulage route on completion (End Q2 2022).

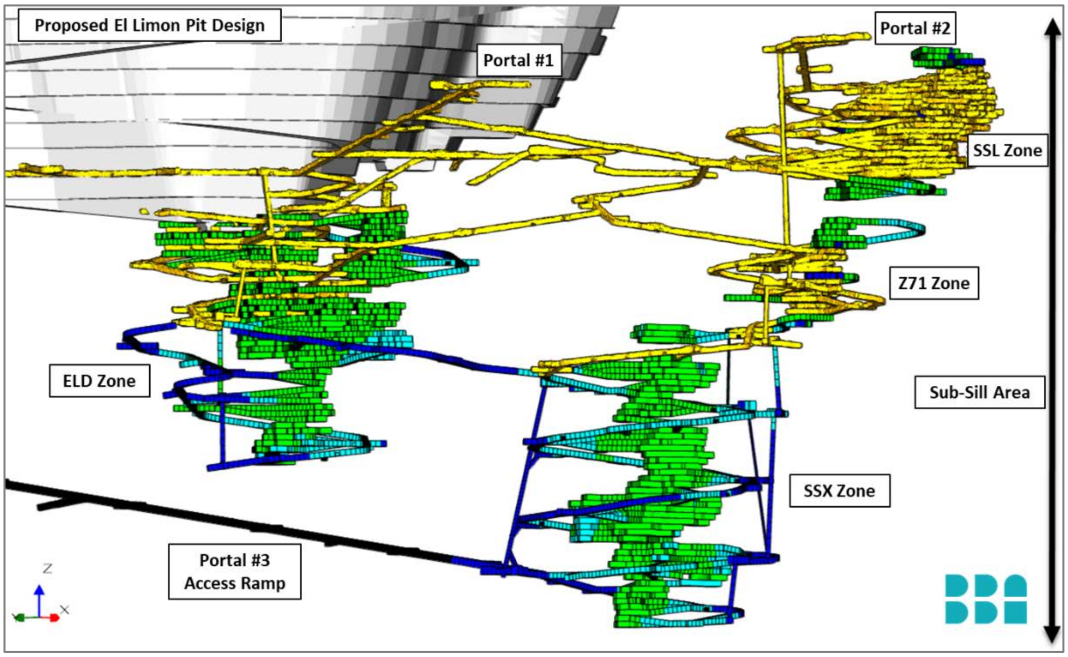


Figure 16-28: Underground Existing and Planned Excavations

Figure 16-29: Portal 1

Figure 16-30: Portal 2

Figure 16-31: Portal 3

Figure 16-32: Second Egress Manway

A second means of egress from a mine is required by Mexican law. In most instances, the ramps enable this by making multiple connections to allow exit via Portal 1 or 2. In mining areas that do not have a second egress via ramps, ladderways are installed to meet this requirement (Figure 16-31). Once Portal 3 and the SSX Ramp is connected, the requirement for ladderways will be reduced (Figure 16-32).

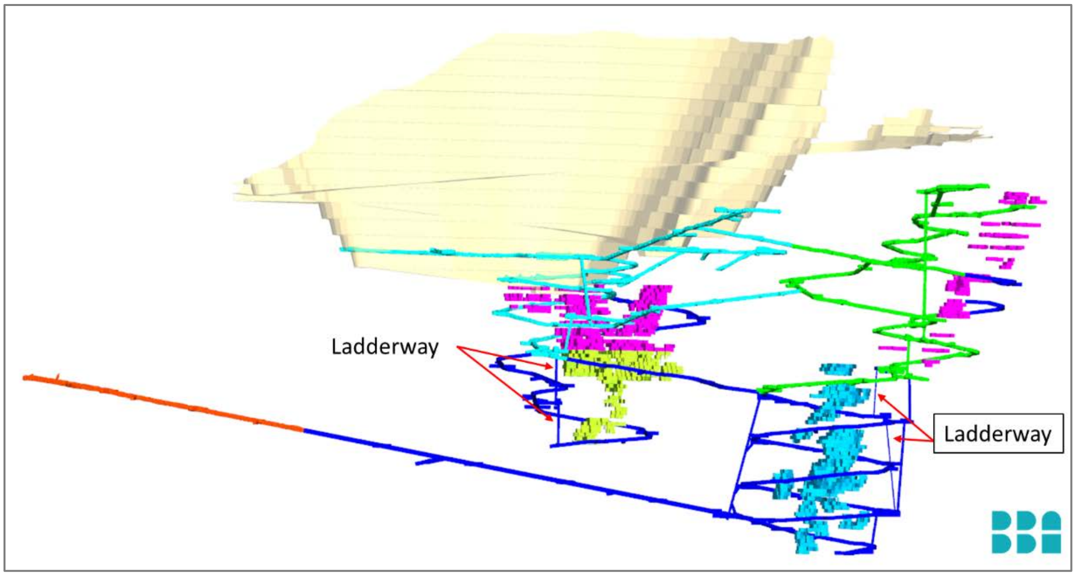


Figure 16-33: ELG Ramp and Ladderways

16.3.2 ELG-UG Geotechnical Evaluation

16.3.2.1 Rock Mass Characterization and Domains

Geotechnical evaluations have previously been carried out by Mine Design Engineering (MDEng) and Bawden Engineering Limited (Bawden) for the El Limón Deep (ELD) and Sub-Sill (SSL) deposits using data selected from historical reports, geotechnical drillholes and underground mapping.

The MDEng (2019) and Bawden (2017a and 2018) evaluations concluded that each of the main rock types at Sub-Sill and ELD (granodiorite, hornfels, skarn and marble) are geomechanically similar such that they can be grouped into individual, lithology-based domains. Rock mass quality for each domain was assessed using the Bieniawski (1989) rock mass rating (RMR) and Barton (2002) Q' rock mass classification systems.

Rock mass classification data from underground mapping and core logging is summarized in Table 16-17 for each of the four main rock types and geotechnical domains. The data indicate mostly 'Good' rock mass quality according to the Q' rock mass classification system.

Table 16-17: Rock Mass Quality Data per Geotechnical Domain (Bawden, 2018)

Rock Type/ Domain	Range of Q'	
	Underground Mapping *	Core Logging
Granodiorite	9.9 – 16.7	6.3 – 12
Hornfels	9.3 – 16.5	15 – 24
Marble	7.7 – 25	19 – 47
Skarn	7.7 - 25	14 – 27

* Underground mapping data obtained by MDEng (2019)

Laboratory strength testing has been conducted on representative samples intact core by MDEng (2019) for the Sub-Sill and ELD Crown Pillar. Additional laboratory strength testing was carried out by SRK (2012) as part of the El Limón open pit geotechnical investigation. Table 16-18 shows a combined summary of the available strength testing data developed during the SRK (2012) and MDEng (2019) campaigns.

Intact rock strengths are typically Very Strong according to the ISRM (1978) guidelines with UCS values typically ranging between 150 and 200 MPa for the granodiorite, hornfels and skarn. The marble is more ductile and lower strength compared to the other rock types with an average UCS of 80 MPa, classifying as 'Strong' rock.

Table 16-18: Summary of Intact Rock Strength Testing (Bawden 2018)

Rock Type	Average Intact Rock Properties				
	No. Tests A	UCS (MPa) B	Ei (GPa) B	Poisson's Ratio	Density (g/cm³)
Granodiorite	6	183 (50)	2.64	183 (50)	2.64
Hornfels	7	214 (122)	2.92	214 (122)	2.92
Marble	3	80 (24)	2.71	80 (24)	2.71
Skarn	4	163 (69)	3.23	163 (69)	3.23

1. Number shown in parentheses indicates standard deviation of tests.
2. Indicates number of tests noted as "valid" in MDEng (2019) or having "intact" failure modes as indicated in SRK (2012).

Underground observations from ELD and Sub-Sill access ramps indicate that the host rock masses (granodiorite and hornfels) have two or more steeply dipping joint sets. Shallow dipping structures have also been identified but typically have low persistence and minimal influence on large-scale rock mass behavior. La Flaca fault is the only major, brittle fault structure known to exist in the immediate area. Based on intersections with drill core, the fault typically consists of a relatively narrow (20 - 30cm) damage/broken zone with an up to approximately 1m wide zone of altered but intact rock, in some cases. La Flaca fault is not anticipated to have significant impacts on mining as currently planned.

16.3.2.2 In-situ Stress State

In-situ stress testing has not been conducted to date at ELG Mine Complex. A review of data from the World Stress Map (Heidbach 2016) suggests that σ1 is vertical (i.e., a normal faulting regime) with σ2 and σ3 oriented towards approximately 080° and 350° (azimuth), respectively. The maximum horizontal stress is assumed to be 0.4*σ1 which is also consistent with other studies conducted at other sites in Mexico. No signs of elevated horizontal stresses have been observed in the underground to date. Based on the planned depth of mining and the good rock mass quality, no mine induced stress issues are considered unlikely.

16.3.2.3 Geotechnical Design Parameters

Recommendations for excavation dimensions and ground support standards were provided by Bawden (2017) for ELD and (2018) for Sub-Sill. Recommendations for pillar dimensions include the following:

- Minimum ratio of sill pillar vertical thickness to the stope width or span of 2:1 W:H ratio for sill pillars (i.e. for a 5 m stope span, the minimum vertical thickness for a sill pillar above is 10 m).
- Minimum ratio of the horizontal thickness of pillar to stope wall height (W:H) of 1:1 for pillars adjacent to stope walls.

Cemented Rock Fill (CRF) will be used where stopes will be mined against previously mined stopes, sills and the crown pillar area. Uncemented rock fill (URF) will be used for secondary stopes and areas that will not have future excavations adjacent to or beneath them. Minimum backfill strength requirements were provided by Bawden (2017a and 2018) and are summarized as follows:

- Mining adjacent to backfill requires a minimum UCS of 160 and 300 kPa is required for 5 and 10 m high cuts, respectively, up to 50 m in length.
- Minimum strength requirements for backfill that will have mining beneath is based on the width of the span:

  - 5 m span: 2 MPa
  - 7 m span: 3.5 MPa
  - 10 m span [intersections]: 6 MPa.

A Safety Factor of 2 was used to develop the criteria to account for uncertainty in the quality of mixing and placement of the CRF. Backfill provides the regional ground support and hence good quality fill placed tight to the backs is an essential component of mine planning strategy.

16.3.2.4 Minimum Ground Support Requirements

Industry standard rock mass classification systems such as Q' (Barton 2002) and RMR (Bieniawski 1989) were used by Bawden (2017a and 2018) along with industry standard rules of thumb, (SME 2011) to assess anticipated ground conditions and develop minimum ground support recommendations. Potential wedge formation was also examined by Bawden (2017b) using Unwedge software (Rocscience©). The analyses indicate that standard ground support systems are appropriate. Recommendations for typical ground support include the following:

- Temporary ore development (service life of <6 months and spans ≤ 7 m):
  - 2.4 m, black split sets with tensile strength of 23,000 lb (102 kN)
  - Bolts installed on a 1.2 m x 1.2 m square pattern across the back, shoulders down walls to within 1.5 m of the sill; and,
  - #6 gauge black welded wire mesh (10 cm opening).
- Permanent capital development (5mW x 5mH):
  - 2.4 m long fully encapsulated #6 resin rebar with yield strength of 19,000 lb (86kN) and Tensile Strength of 26,000 lb (116 kN) for the threaded section.
  - Bolts installed in 1.2m x 1.2m square pattern across the back and down walls to within 1.5 m of the sill; and,
  - #6 gauge welded wire mesh (10 cm opening) installed down to 1.5 m above the sill.

Deep, secondary ground support is also installed at intersections and wide spans. Additional details on ground support are contained in the Bawden (2017b and 2018) and the MML (2019) Ground Support Management Plan.

16.3.2.5 Stope Intersections with Pit Walls

Several stopes in the upper ELD deposit will be intersected by or will be very near the pit walls in the bottom of the final El Limón (ELD2) open pit design. The stopes are small scale 5mx5m cut and fill stopes and are located in the bottom bench, between elevations 985 m and 966 m (pit bottom). In addition, a few larger stopes have already been mined between elevation 1019 m and 994 m but are contained entirely within the pit and will not intersect pit walls.

All stopes will be mined and backfilled in advance of the pit being mined at the respective elevations. CRF jammed tight against the back will be used for any stopes or development from in front of (inside the pit) to a minimum distance of 25 m behind the pit wall. As such, any disturbance to pit wall stability is anticipated to be minimal.

A review of core photographs for several resource drillholes in the area indicate very competent rock quality and there are no major fault structures known to exist within this area. Stability of the pit walls considering the planned underground mining has been assessed by SRK (2022).

16.3.3 Underground Mine Inflows

NewFields analyzed existing hydrogeological data, completed a full hydrogeological study titled "NewFields Mining Design & Technical Services Detailed Numerical Groundwater Modeling Report Sep 23rd, 2021" and developed estimates of expected groundwater inflows to El Limón Mine at 7 to 11 L/s.

Table 16-19 provides a range of inflow estimates from previous studies. Comparison of the inflow rate calculated using the best estimate hydraulic conductivity value (32.8 L/s) inflow measurements provided by mine staff suggests that 32.8 L/s for the entire development is a reasonable estimate. This estimate is based on groundwater inflow and does not include other water sources such as process water for mining activities (i.e. drilling, washing muck pile, etc.) which averaged 0.28 L/s based on 2021 data.

On September 18th, 2021 a natural inflow was reported 3 l/s at the development heading in ELD Zone. This inflow reduced to 1.1 l/s by September 22nd and ended by the end of Sept 2021. This has not impacted mine operations. The other natural inflow was reported at portal 3 on 2021-09-24 during drilling which was minor inflow and not impacted any mining operation.

Flow rates obtained using the high and low hydraulic conductivity values are likely over and under-estimates, respectively. These values are likely unrepresentative of the hydraulic conductivity of the bulk rock mass. However, inflow rates will be controlled by the presence or absence of high permeability fractures or faults (NewFields, 2018).

Table 16-19: Sub-Sill Preliminary Groundwater Inflow Predictions (L/s)

	High K	Mean K	Low K	Best Estimate K
Estimated Flow	81.3	5.3	2.2	32.8

*Note: K = hydraulic conductivity

Additional information regarding mine water is under Section 16.3.7.

One potential issue that has been recognized is the fact that the ELG OP will break through into ELG UG workings in Q3 and Q4 2024 as per LOM 2022.

To eliminate the risk of water inflows from the Open Pit breakthrough areas, additional measure will be taken while backfill with CRF in 25 m from the open pit. Provision for the 35,000 m^3 CRF backfill is made in the LOM costing to eliminate the impact of any inflow of water from the breakthrough. Investigations will need to be made of the potential impact this may have on the mine dewatering system, especially on the design and capacity of the Portal 3 system.

16.3.4 Underground Mine Design

16.3.4.1 Mining Zones

Access to the underground mining zones is via ramps (5.0 m x 5.0 m) at grades of ±12% and typically driven around the perimeter of the zone with Access Drifts off the ramp every 15 meters vertically. Each Access Drift enables the establishment of a minimum of three Attack Ramps used to access, a 5-meter-high cut of the ore as illustrated in Figure 16-34. The Attack Ramp excavated to the first cut is designed down grade, the second cut flat, and finally the third cut is up grade.

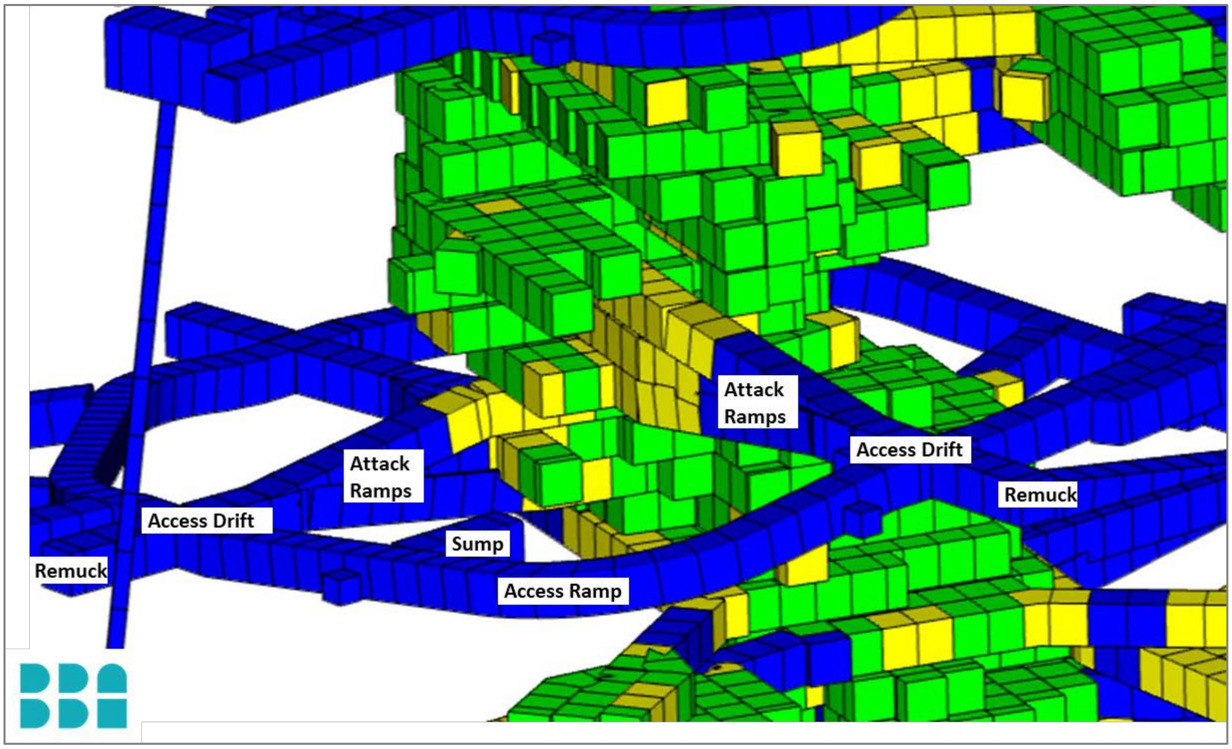


Figure 16-34: Ore Zone Ramps and Access Drifts (figure not to scale)

All services are installed in the Access Ramps to support mining. Safety Bays are installed 60 m apart in the Access Ramp areas where no other openings exist for pedestrian safety. Remuck B bays are developed on the opposite side of each Access Drift to allow for storage of material (waste or ore) removed from the active mining areas in preparation of loading into haulage trucks for removal to surface.

Mining at SSL and Z71 Zones will be completed in Q1 2024 and Q4 2023 respectively with most of the Access Ramp completed and few mining fronts available as shown in Figure 16-35.

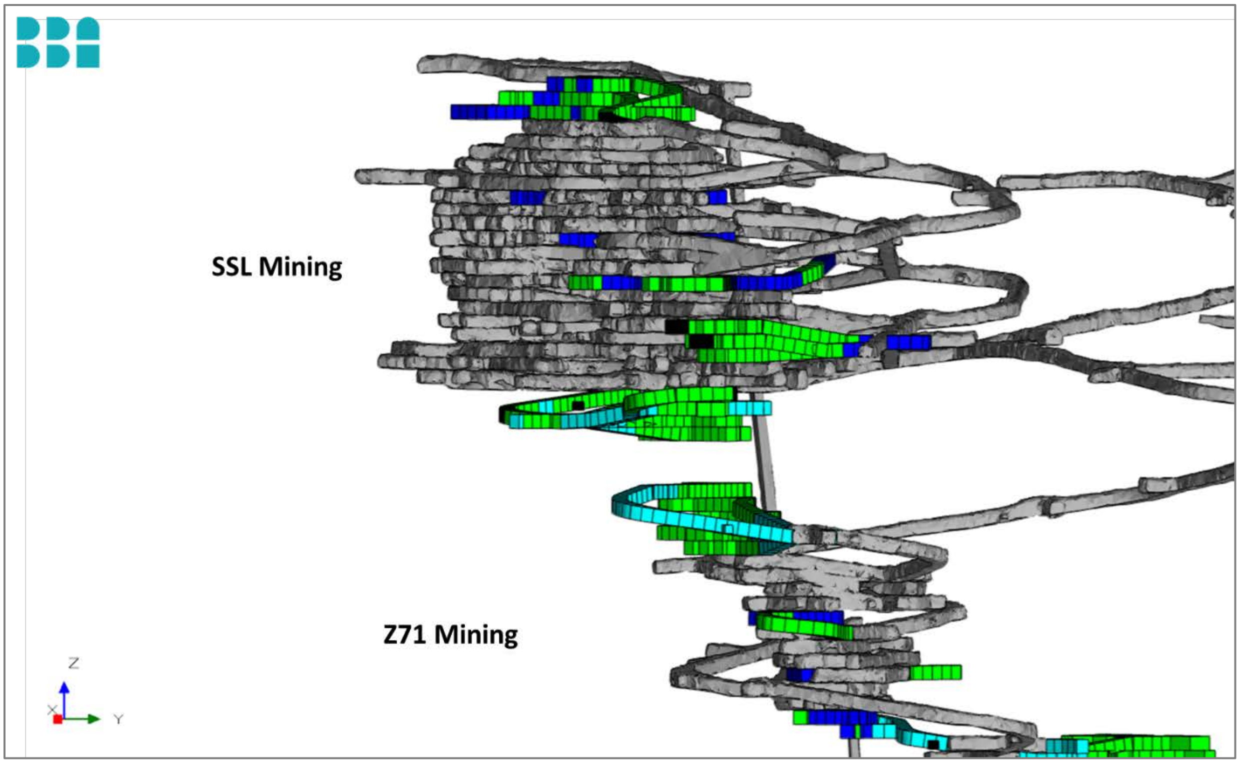


Figure 16-35: SSL and Z71 Zones (not to scale)

SSX and ELD Zones, are divided into Mining Horizons for planning purposes. The ELD Access Ramp is approximately half completed and has exposed mining Horizons 4 and 5 (Figure 16-36). The top of Horizon 5 aligns with the bottom of the El Limón Open Pit design (Figure 16-37). Underground mining will be completed before the open pit reaches this elevation.

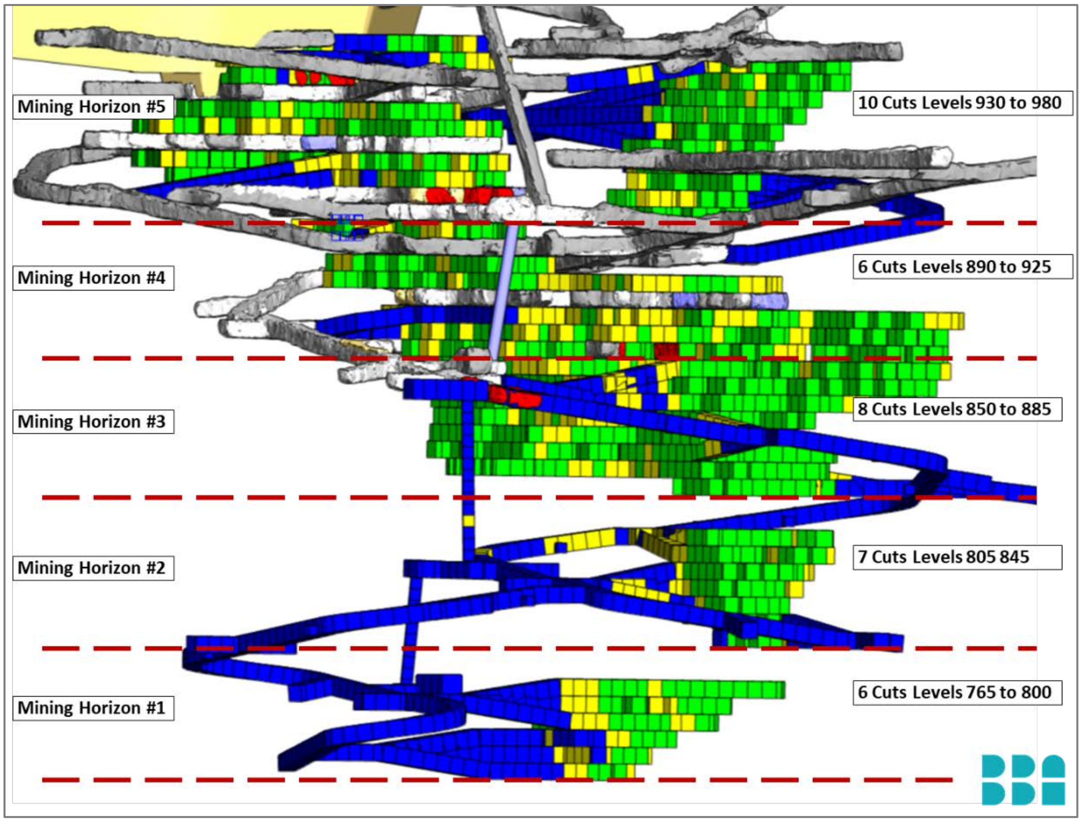


Figure 16-36: ELD Zone (not to scale)

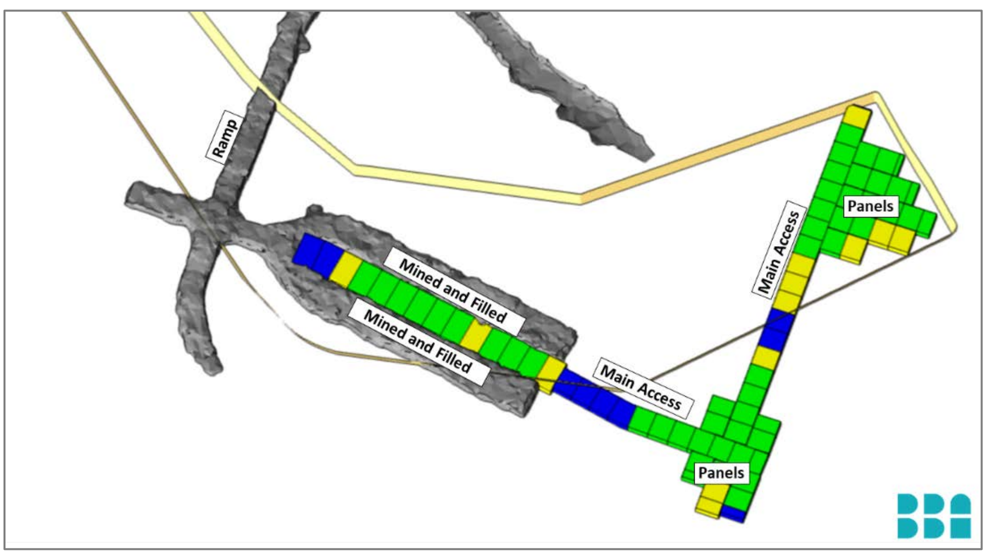


Figure 16-37: 980 level and Pit Bottom (figure not to scale)

Development in the upper part of SSX Zone began in late 2021, from Z71 ramp as shown in Figure 16-38. Development of the lower part begins once Portal 3 Ramp development reaches the Zone in late Q2 of 2022.

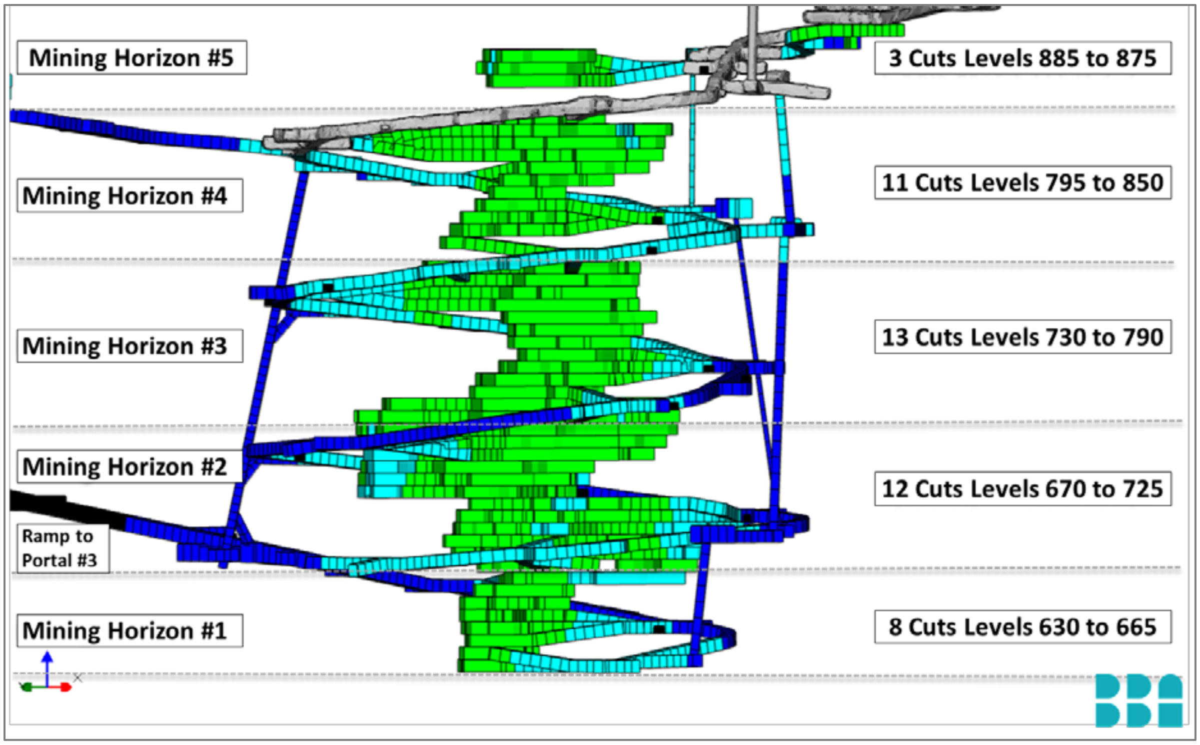


Figure 16-38: SSX Zone (figure not to scale)

16.3.4.2 Underground Mining Method

The current underground mining method at ELG Mine is MCAF using a Drift and Fill process. By utilizing the drift and fill process, typical support pillars are not required, and higher recovery of the ore is achievable. As an example, a previously mined drift and fill area is shown as post pillar compared to Drift and Fill in Figure 16-39 with the pillars shown in red accounting for 21% of the mining area. This result in a loss of 21% of the ore remaining in the pillars compared to 10% loss with drift and fill. MCAF mining at SSL Zone has proven to be very successful in recovering the ore. Figure 16-40 illustrates the amount of mining completed in SSL on December 31st, 2021 and the remaining workplaces to be developed and mined.

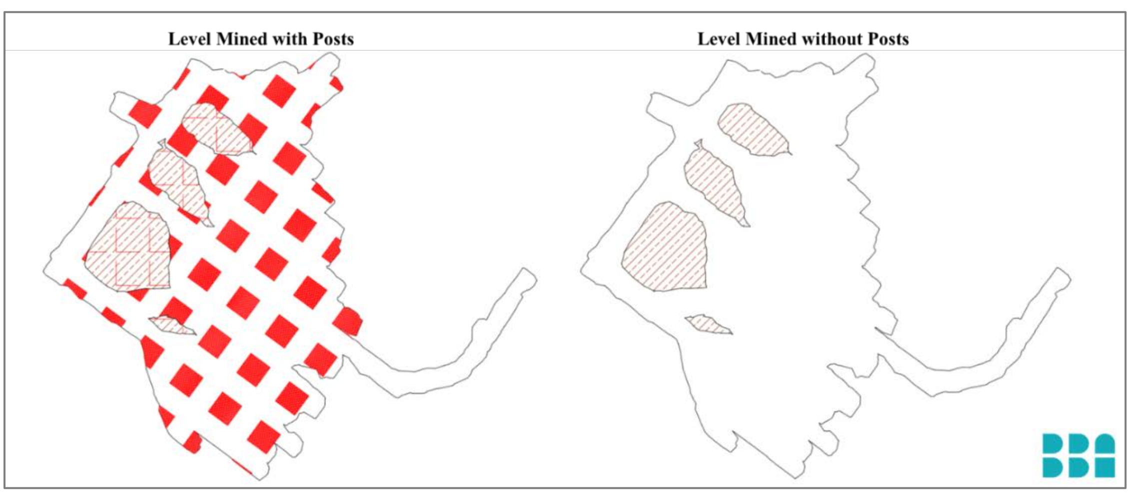


Figure 16-39: Comparison of Level Mined with Posts vs. Tight Fill -Drift and Fill

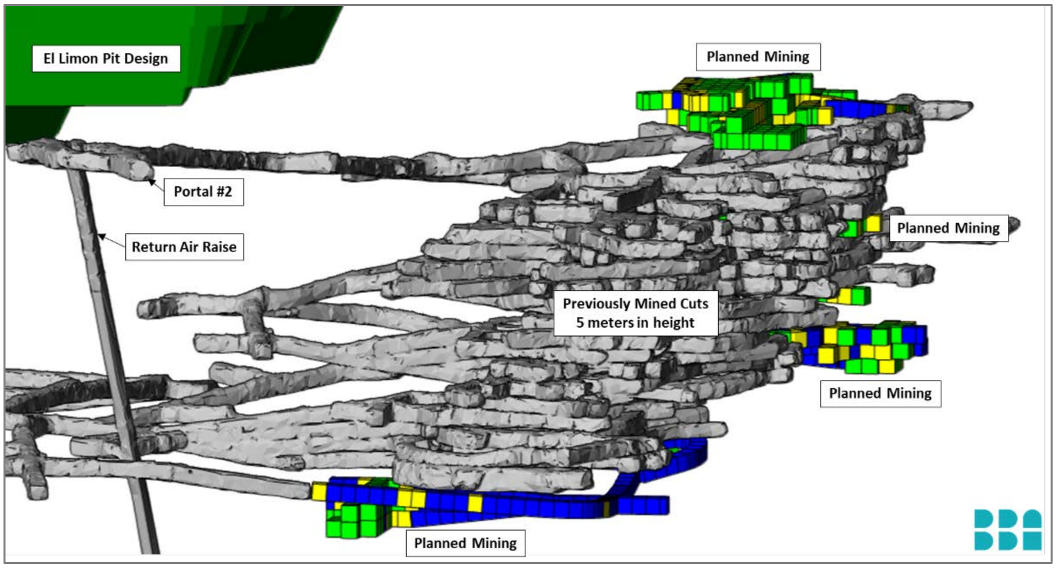


Figure 16-40: SSL Mined Areas with Future Mining (figure not to scale)

Cuts are accessed via Attack Ramps from the Zone Access Ramp. Panels are extracted in a primary/secondary sequence. Secondary panels are left as pillars until primary panels are backfilled with cemented rock fill or uncemented rock fill. Panels are 5 meters wide, 5 meters high and may have wall slashes if there is ore left on the wall and there is no adjacent panel planned. Uncemented rockfill is used where there is no mining beneath or adjacent to the panel. Geotech department ensures that fill is placed tight to the back. Once the primary panel fill has gained the required strength, the secondary panels are extracted and backfilled. When all panels on the cut elevation have been extracted and backfilled, a new attack ramp is excavated to the cut above by taking down the back of the previous attack ramp. Cuts proceed upward until the stope is fully extracted. The driving direction of panels will vary cut to cut so as not to align panel walls between cuts (Figure 16-41). For cuts mined beyond two years, the panel shapes are combined into a consolidated shape to reduce the planned shapes that require scheduling and reduce complexity in the Life of Mine Plan (Figure 16-42).

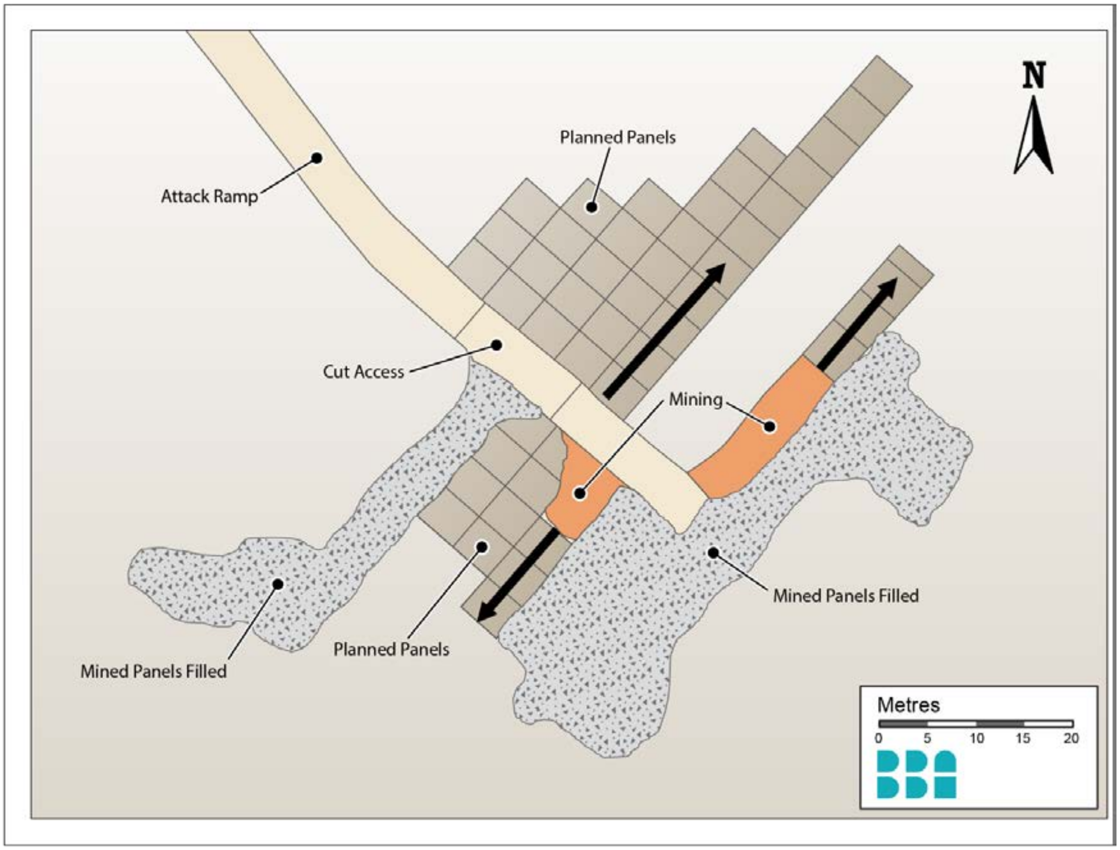


Figure 16-41: Short Term Cut Plan

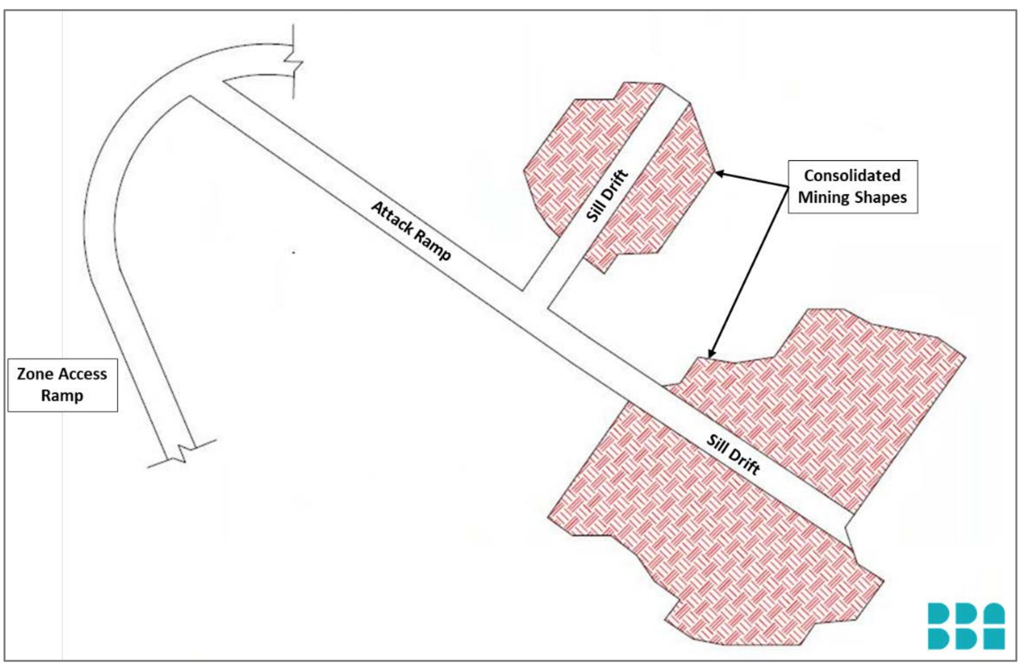


Figure 16-42: Long Term Planning Cut

Mining crews develop the cut with conventional mobile mining equipment under engineering control in consultation with geology.

16.3.4.3 Cut-Off Grade

An in-situ incremental cut-off grade (ICoG) of 3.58 g/t was calculated based on historical site costs from January 2020 (April 2020 and May 2020 cost were excluded due to COVID-19) to August of 2021 (Table 16-20). Long-term gold price and Royalties were $1,400/oz. and 3.00%, respectively. No by-product credits have been used for silver or copper.

The CoG includes allowances for mining, processing, sustaining capital, and site support costs. The CoG considered costs and productivities from the start of steady state production to the end of mine life.

An ICoG of 1.04 g/t Au is calculated and is applied to low grade material that must be broken and removed to access ore blocks yet does not meet the Ore cut-off grade. The ICoG accounts for the additional portion of the costs incurred to process this material versus sending it to the waste storage facility. If low grade material extracted is below the incremental cut-off grade it is sent to the waste storage facility. The incremental material with an Au grade above the ICoG is included in the Mineral Reserves. These cut-off grades are used to determine the initial mining shapes as described in Section 16.3.4.5 (Table 16-25).

Table 16-20: Mine Costs Used in CoG Calculations

OPEX Unit Rates (USD/Tonne)	2020-2021 Combined
Direct Mining	$36.45
Cemented Rock Fill	$8.21
Haulage	$7.53
Fortification	$4.11
Explosives	$2.69
Power	$2.03
Diesel & Fuel	$2.20
General Services	$2.22
Explosive Services	$2.42
Labor	$1.27
Drill Steel	$0.80
Pipes	$0.68
Electricals	$1.00
Other Consumables	$0.44
Safety Supplies	$0.40
Spare Parts CRF	$0.92
Technical Services UG	$5.30
Total Mining	$78.55

Table 16-21: Cut-off Grade Calculation

Item	Unit	Value
Productivity Estimate	t/d	1,325
Revenue Inputs		
Metal Price	US$/oz	$1,400.00
Payability	%	99.925%
Treatment, Refining, Transportation etc.	%	3.000%
Royalty	US$/oz	$4.20
Net Gold Price	US$/oz	$1,352.75
Processing Parameters		
Metallurgical Recovery	%	89.00%
Value of Au in plant feed	$/oz	$1,203.95
(a) Value of Au in plant feed	$/g Au	$38.71
Mining Operating Costs	US$/tonne	$78.55
Ore Processing Costs	US$/tonne	$31.90
Selling & Administrative	US$/tonne	$0.00
General and Administrative (Corporate)		
Capital Charge	US$/tonne	$17.27
(b) Total Operating Costs	US$/tonne	$127.85
U/G Cut-Off Grade		
(c) CoG, diluted Au in feed = (b) / (a)	g/t	3.30
External Dilution (overbreak), % of in situ	%	10%
Dilution grade	g/t	0.50
CoG (In-situ)	g/t	3.58
Incremental Cut-Off Grade (ICoG)		
Incremental Cost of Mill Haulage	US$/tonne	$0.00
Incremental Mill Costs	US$/tonne	$31.90
Total Incremental Costs	US$/tonne	$31.90
ICoG	g/t	0.95
ICoG (In-situ)	g/t	1.04

16.3.4.4 Recovery and Dilution

Mining recovery accounts for the ore loss due to the imperfect alignment of the mining shape to the Mineral Resource model and through mining processes themselves. This is accounted for by applying a factor to the in-situ tonnes and ounces in each mining shape (Table 16-22).

As per CIM Estimation of Mineral Resources & Mineral Reserves Best Practice Guidelines, Section 7.6 (November 29, 2019) dilution is defined as “material that is below the cut-off grade or value but is intentionally or inadvertently mined and must be considered in Mineral Reserve estimates because it "dilutes" the average grade estimate and increases the volume mined”. Based on the SRK Report “Underground Modifying Factors Update, El Limón Guajes Project, Guerrero, Mexico Dec 14th, 2021,” Table 16-22 indicates the factors used on final mining shapes. Gold is the only metal assigned a grade for dilution.

Table 16-22: Modifying Factors Stopes

	Stope Ore	Incremental Ore
Unplanned Dilution	10%	10%
Dilution Grade (Au g/t)	2.00	0.5
Mining Recovery	90%	90%

When incremental material (Gold Grade between 1 and 3.58 g/t) is mined to access stope ore, the same recovery (90%) and dilution (10%) factors are utilized, except a dilution grade of 0.5 g/t is applied to the dilution tonnes.

16.3.4.5 Stope Designs

To develop the mineable shapes and associated quantities of tonnes and metal grades, the following steps have been completed.

Step One DSO Shapes:

Deswik.SO© was run on each resource block model using in-situ CoG of 3.58 g/t Au and the parameters shown in Table 16-23 and Table 16-24. Deswik.SO© analysis produces shapes (5 m wide x 5 m high x varying length) with respect to the Mineral Resource block model. Although all shapes produced during this step have a grade above the CoG (3.58 g/t), not all have the potential to be included in the mine plan due to capex (waste development) required to access the blocks/stopes and not viable after economical consideration.

Table 16-23: ELD DSO Parameters

Item	Unit	X	Y	Z
Model Origin (min)	m	0	0	0
Model Extent (max)	m	650	850	600
Block Dimension	m	5	5	5
Number of Blocks	#	130	170	120
Rotation Origin	m	421,578	1,990,167	500
Rotation Axis Order	-	Z	None	None
Rotation Angle	Degree (°)	Z = -41.00*	0	0

* Rotated 41 degrees clock-wise from the North (0-degree azimuth)

Table 16-24: Sub-Sill DSO Parameters

Item	Unit	X	Y	Z
Model Origin (min)	m	0	0	0
Model Extent (max)	m	256	240	280
Block Dimension	m	2.5	2.5	2.5
Number of Blocks	#	640	600	700
Rotation Origin	m	421,950	1,989,750	500
Rotation Axis Order	-	Z	None	None
Rotation Angle	Degree (°)	Z = -35.00*	0	0

* Rotated 35 degrees clock-wise from the North (0-degree azimuth)

Figure 16-43 illustrates all the mining shapes produced that have a value above the cut-off grade, while Figure 16-44 illustrates the shapes in a plan view. These shapes require additional evaluation based different factors such as:

- Location with respect to the planned open pit walls.
- Distance from existing infrastructure.

- Distance from planned infrastructure.
- Location with respect to the open pit last bench.
- Resource classification of the shape.

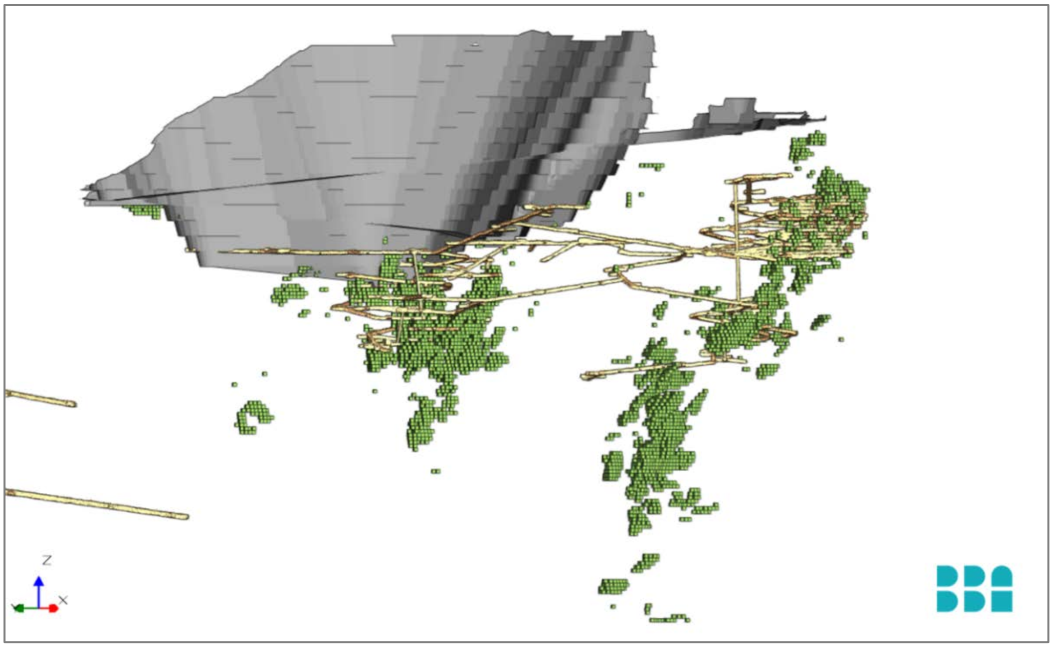


Figure 16-43: DSO Mining Shapes (figure not to scale)

Figure 16-44: Initial DSO Shapes with Grade Above Cut-Off (not to scale)

Step Two Mining Shapes:

From the DSO shapes developed in Step One, mining shapes are created by consolidating the DSO shapes into larger shapes (Black boundaries) at 5 m vertical intervals (Figure 16-45) and assigning a mining class as shown below:

- CP – Short Term Planning (Years 2022 or 2023);
- LP – Long Term Planning (Lower ELD Zone and SSX Zone);
- Locked – Resource not mineable as it will impact existing infrastructure or not accessible due to previous mining.
- NM – Not mineable due to economics (cost to access is more than the economic value).

To maximize recovery of the Ore (material above 3.58 g/t), incremental material (grades between (1.04 g/t to 3.58 g/t) is included within the mining shape, shown as light green in Figure 16-45. Table 16-25 shows the results of the analysis of the mining shapes developed.

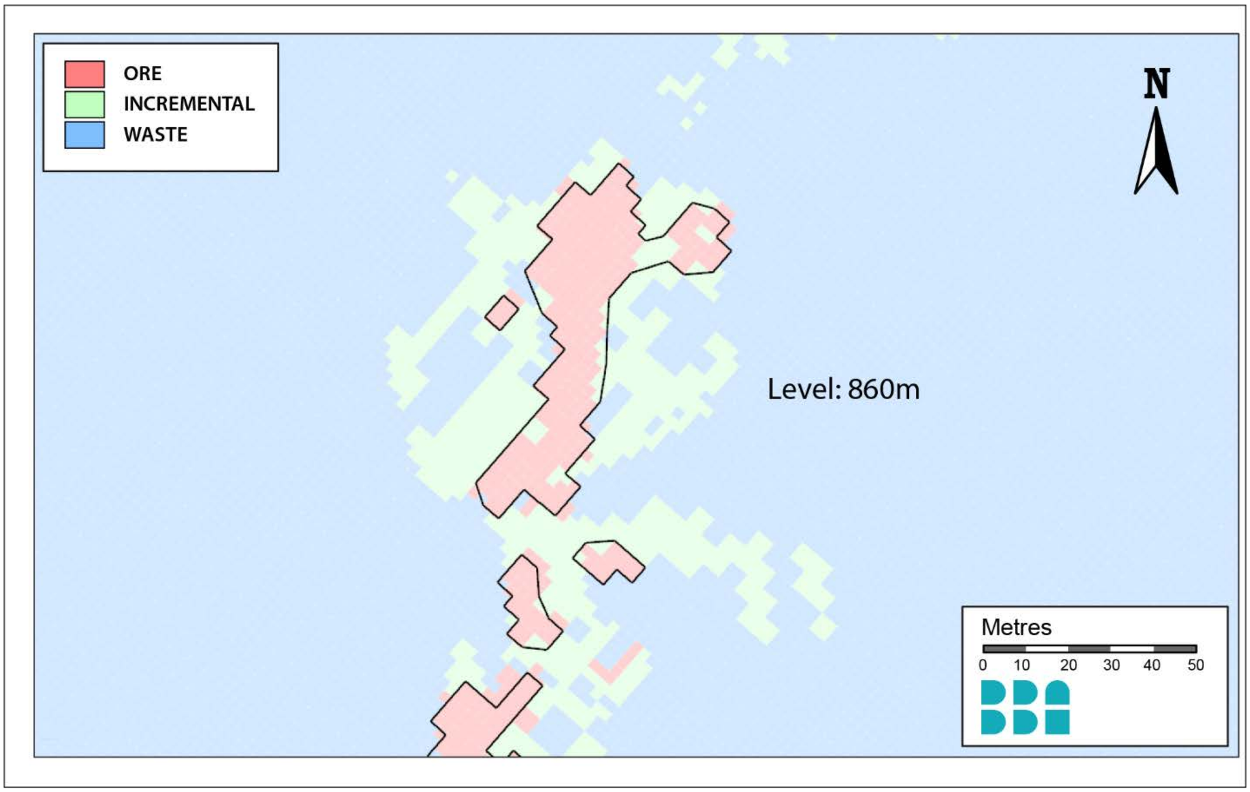


Figure 16-45: Mining Shapes with Grades Above Cut-Off

Table 16-25: Mining Shapes Summary of In-Situ Tonnes and Grade

		Total				For Mine Plan				Not Mineable				Locked		
Zone	Class	Tonnes	Au Grade g/t	Au Oz		Tonnes	Au Grade g/t	Au Oz		Tonnes	Au Grade g/t	Au Oz		Tonnes	Au Grade g/t	Au Oz
SSL	Measured	356,695	7.60	87,103		88,304	8.98	25,496		27,320	5.32	4,669		241,071	7.35	56,938
	Indicated	264,416	7.96	67,712		98,971	9.44	30,049		81,814	6.02	15,844		83,631	8.11	21,818
	Total	621,111	7.75	154,815		187,275	9.23	55,545		109,135	5.85	20,513		324,702	7.54	78,756
Z71	Measured	57,976	7.78	14,497		28,852	8.52	7,901		32	1.61	2		29,092	7.05	6,594
	Indicated	137,592	7.01	31,018		61,621	7.69	15,229		51,093	6.51	10,700		24,879	0.00	0
	Total	195,568	7.24	45,515		90,472	7.95	23,130		51,125	6.51	10,702		53,970	3.80	6,594
Z71A	Measured	0	0.00	0		0	0.00	0		0	0.00	0		0	0.00	0
	Indicated	0	0.00	0		0	0.00	0		0	0.00	0		0	0.00	0
	Total	0	0.00	0		0	0.00	0		0	0.00	0		0	0.00	0
SSX	Measured	0	0.00	0		0	0.00	0		0	0.00	0		0	0.00	0
	Indicated	979,989	5.98	188,481		945,668	6.01	182,744		34,320	5.20	5,737		0	0.00	0
	Total	979,989	5.98	188,481		945,668	6.01	182,744		34,320	5.20	5,737		0	0.00	0
Sub-Total	Measured	414,671	7.62	101,600		117,156	8.87	33,397		27,352	5.31	4,671		270,162	7.31	63,532
	Indicated	1,381,997	6.46	287,210		1,106,260	6.41	228,022		167,228	6.00	32,281		108,510	6.25	21,818
	Total	1,796,668	6.73	388,810		1,223,416	6.65	261,419		194,580	5.91	36,952		378,672	7.01	85,350
ELD	Measured	0	0.00	0		0	0.00	0		0	0.00	0		0	0.00	0
	Indicated	1,577,698	6.59	334,407		1,292,552	6.77	281,503		172,916	5.85	32,537		112,230	5.64	20,366
	Total	1,577,698	6.59	334,407		1,292,552	6.77	281,503		172,916	5.85	32,537		112,230	5.64	20,366
Grand Total	Measured	414,671	7.62	101,600		117,156	8.87	33,397		27,352	5.31	4,671		270,162	7.31	63,532
	Indicated	2,959,695	6.53	621,617		2,398,812	6.61	509,526		340,144	5.93	64,818		220,739	5.94	42,184
	Grand Total	3,374,366	6.67	723,217		2,515,968	6.71	542,922		367,496	5.88	69,489		490,902	6.70	105,716

Step Three Short Term Mining Shapes:

For mining shapes identified to be mined within 24 months coded CP, detailed analysis was completed to create shapes that align with the drift size operations 5 m x 5 m rooms. This enables scheduling of panel-to-panel mining as illustrated in Figure 16-46 and the elimination of incremental material from the shapes, thus improving the mine grade.

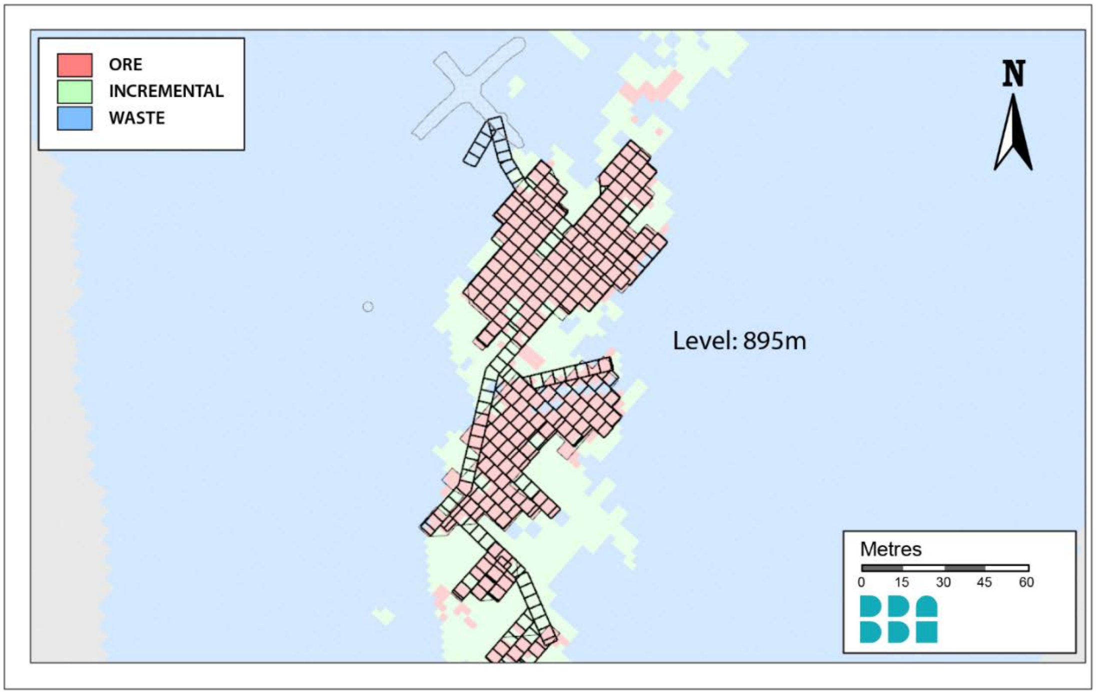


Figure 16-46: Detailed Shapes with Grades Above Cut-Off

Step Four Long Term Mining Shapes:

Mining shapes identified as Long-Term coded LP are not subjected to the same rigor of engineering as they are not planned for mining until at least two years in the future. While creating mining shapes as shown in Figure 16-47, reasonable care was taken to ensure that the mining shapes align with the cut-off grade and does not over/underestimate tonnage and grade. Each mining shape has an access, attack ramp and sill designed. The sill shape is evaluated with the mining shape with Deswik's Boolean process that separates the sill (Black squares) from the mining shape as illustrated in Figure 16-47.

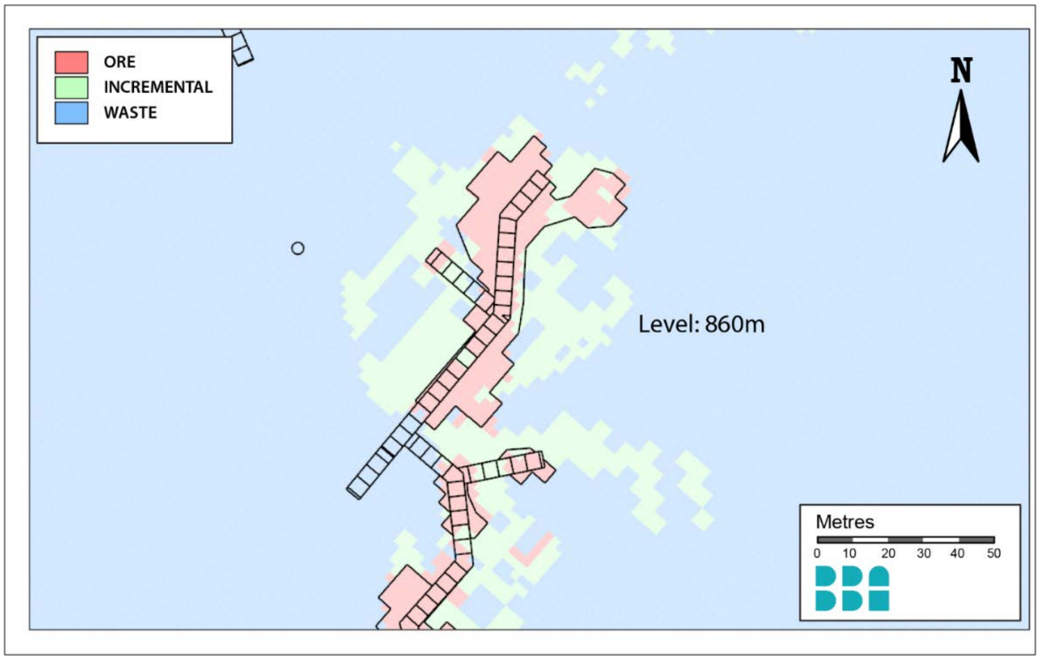


Figure 16-47: Mining Shape and Sill Shape for Long Term Mining Shapes

Based on the work completed and explained above, a total minable resource of 2,702,000 in-situ tonnes with average gold grade of 6.14 g/t contained within the mining shapes developed (Table 16-26).

Table 16-26: In-situ Tonnes and Grade of Planned Mining Shape

	Measured	Indicated	Total
Tonnes (kt)	111.4	2,591.0	2,702.4
Grade - Au (g/t)	7.74	6.07	6.14
Grade - Ag (g/t)	11.45	6.33	6.54
Grade - Cu (%)	0.64	0.25	0.26
Contained Au (oz.)	27,747	505,887	533,634
Contained Ag (oz.)	41,004	526,981	567,985
Contained Cu (Mlb)	1.56	14.1	15.66

16.3.5 Estimate of Mineable Quantities

Once the recovery and dilution modifying factors are applied (Section 16.3.4.4), Table 16-27 illustrates the Mineral Reserve tonnes and grade that are included in the mine schedule.

Table 16-27: Tonnes and Grade of Schedule Ore

	Proven	Probable	Total
Tonnes (Mt)	0.11	2.56	2.67
Grade - Au (g/t)	7.23	5.68	5.75
Grade - Ag (g/t)	10.40	5.75	5.94
Grade - Cu (%)	0.58	0.22	0.24
Grade - Fe (%)	11.35	10.25	10.30
Contained Au (Moz)	0.025	0.469	0.494
Contained Ag (Moz)	0.037	0.474	0.511
Contained Cu (Mlb)	1.41	12.7	14.1

16.3.6 Development and Production Schedule

16.3.6.1 Mining Sequence

ELD and SSX are divided into mining H horizons consisting of 8 to 13 cuts each, depending on the number and location of the mining shapes. This strategy reduced the complexity in scheduling of mining areas by creating specific blocks that have their own sequencing allowing them to be sequenced separately. Each H horizon will have two or three mining fronts subsequently referred to as Stopes (Figure 16-48 red box), which are dependent on the number of cuts in a Horizon.

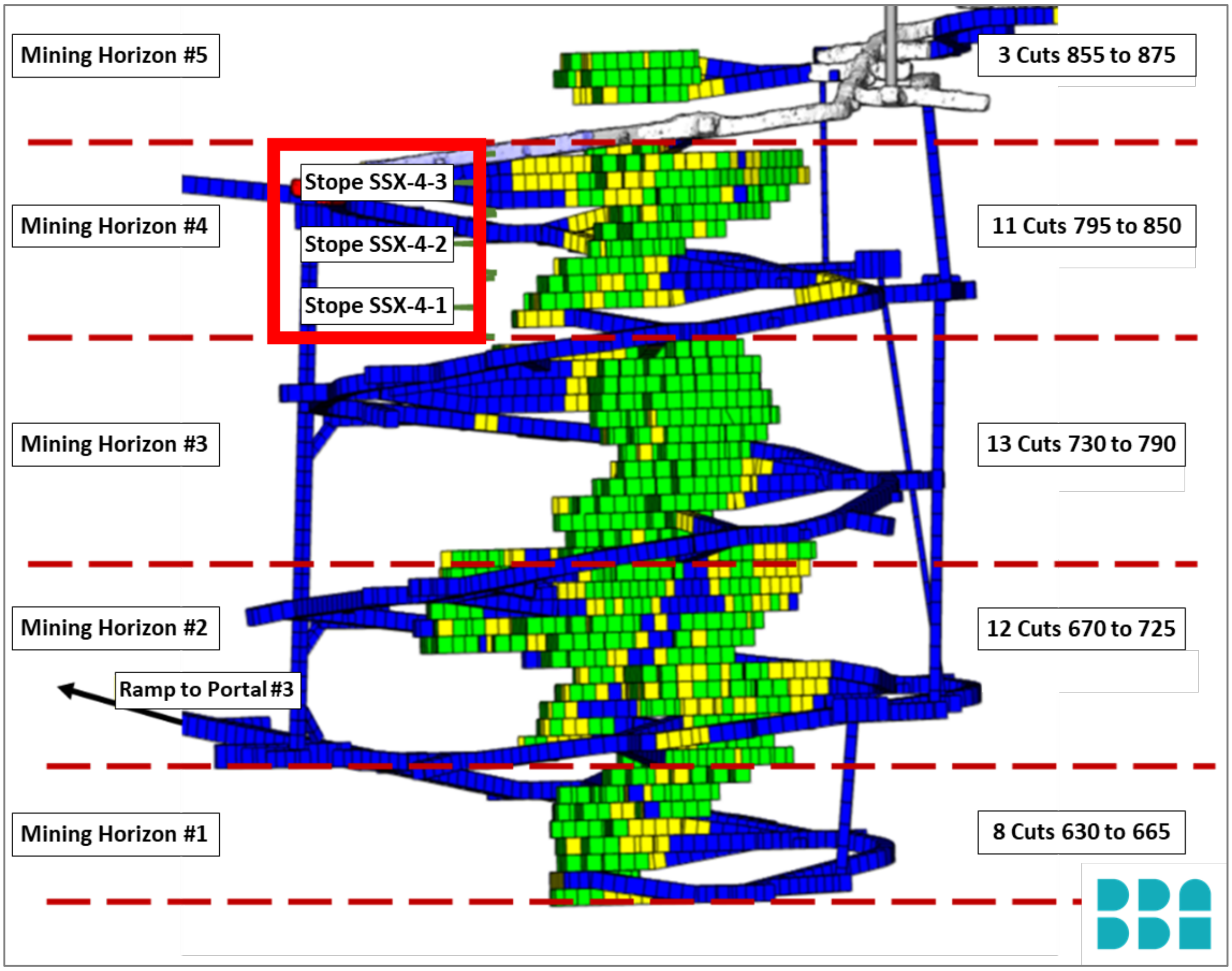


Figure 16-48: Detailed Shapes above Cut-Off grade 3.58 g/t (figure not to scale)

Mining sequence is first based on horizon, then stope and finally cut. There are currently no geomechanical criteria that govern the sequence of mining horizons or stopes. During scheduling, cuts are sequenced to ensure that there are always a minimum of two cuts between active cuts which complies with the geotechnical recommendations of minimum 10 m parting between the active headings.

16.3.6.2 Development

A 3D mine design model and schedule were prepared using Deswik mine design software. The following allowances were applied to the design and schedule:

- 90% mine recovery of tonnes for all MCAF stopes (10% loss on mined tonnes);
- A 10% overbreak allowance in waste rock headings.

All development in waste rock and MCAF stopes use conventional drill-blast-muck-bolt techniques. The development advance rates are based on historical performance with the on-site contractor.

The historical development and estimated development quantities are summarized in Table 16-28.

Table 16-28: ELG Development Quantities (meters)

	2019A1	2020A1	2021A1	2022	2023	2024	2025	2026	2027
OPEX									
SSL	5,151	3,660	2,827	1,994	1,073	26	-	-	-
Z71	-	515	1,005	840	455	-	-	-	-
ELD	-	219	2,791	4,673	4,967	3,277	1,344	3,964	774
SSX	-	-	484	286	1,021	3,566	5,547	2,467	1,607
Portal 3	-	-	-	-	-	-	-	-	-
Sub-Total	5,151	4,393	7,107	7,793	7,515	6,869	6,891	6,431	2,381
CAPEX									
SSL	162	535	133	181	-	-	-	-	-
Z71	803	517	542	150	-	-	-	-	-
ELD	731	1,942	1,194	823	725	827	30	23	41
SSX	-	-	17	1,730	1,261	473	-	-	-
Portal 3	-	27	608	1,393	-	-	-	-	-
Sub-Total	1,696	3,021	2,494	4,277	1,986	1,300	30	23	41
TOTAL									
SSL	5,313	4,195	2,960	2,175	1,073	26	-	-	-
Z71	803	1,032	1,546	991	455	-	-	-	-
ELD	731	2,161	3,986	5,496	5,692	4,104	1,374	3,987	815
SSX	-		501	2,015	2,282	4,039	5,547	2,467	1,607
Portal 3	-	27	608	1,393	-	-	-	-	-
Total	6,847	7,415	9,601	12,070	9,501	8,169	6,921	6,454	2,422
Rate (m/d)	18.8	20.3	26.3	33.1	26.0	22.4	19.0	17.7	6.6

*A1 – Does not include Muckahi development quantities in actual values.

16.3.6.3 Production

Ore was first accessed in August 2017 in the SSL Zone. For the remainder of 2017 and 2018, exploration drifting continued with development and production in the SSL Zone and development in the ELD Zone. By 2019, development had progressed to the point to start ramping up production in ELD and SSL.

Key highlights for the 2022 Mineral Reserve production plan are:

- LOM production schedule commences in January 2022 with a mine life of 69 months ending in Q3 2027.
- The mining rate is steady state until Q2 of 2026 and starts to decline until reserves are exhausted in Q3 2027.
- The average diluted ROM grade is 5.75 g/t Au for the LOM.

- Average daily production for 2022 to 2026 is 1,370 t/d.
- Mining in SSL will end in Q1 2024.
- Mining in Z71 will end in Q2 2023.
- Mining in ELD under the planned open pit will end in Q3 2023.

The forecasted annual production for all Zones is summarized in Table 16-29.

Table 16-29: Annual Production – Proven & Probable Reserves

Ore	2022	2023	2024	2025	2026	2027	Total
Tonnes (kt)	406.3	418.8	435	475.9	393.5	164.6	2294.1
Grade - Au (g/t)	6.77	7.12	6.12	5.89	6.1	5.48	6.32
Grade - Ag (g/t)	8.55	7.83	4.78	4.46	6.16	5.26	6.21
Grade - Cu (%)	0.34	0.25	0.2	0.22	0.27	0.22	0.25
Contained Au (oz.)	88,406	95,931	85,568	90,095	77,193	29,014	466,207
Contained Ag (oz.)	111,714	105,493	66,857	68,186	77,969	27,841	458,060

Incremental Ore	2022	2023	2024	2025	2026	2027	Total
Tonnes (kt)	103.8	94.6	72.3	33.7	66	11	381.4
Grade - Au (g/t)	2.35	2.23	2.17	2.26	2.36	2.25	2.27
Grade - Ag (g/t)	4.31	5.55	3.65	2.98	4.18	3.56	4.33
Grade - Cu (%)	0.12	0.17	0.18	0.12	0.18	0.18	0.16
Contained Au (oz.)	7,828	6,788	5,038	2,445	4,998	795	27,892
Contained Ag (oz.)	14,395	16,884	8,497	3,221	8,873	1,257	53,127

Ore + Incremental	2022	2023	2024	2025	2026	2027	Total
Tonnes (kt)	510.1	513.4	507.3	509.6	459.4	175.6	2675.4
Grade - Au (g/t)	5.87	6.22	5.55	5.65	5.56	5.28	5.74
Grade - Ag (g/t)	7.69	7.41	4.62	4.36	5.88	5.15	5.94
Grade - Cu (%)	0.3	0.24	0.2	0.21	0.26	0.22	0.24
Contained Au (oz.)	96,234	102,719	90,606	92,540	82,191	29,809	494,099
Contained Ag (oz.)	126,109	122,377	75,354	71,407	86,842	29,098	511,187

Figure 16-49 illustrates the actual production and gold grade (g/t) from 2019 to 2021 along with the Life of Mine planned production and gold grade (g/t).

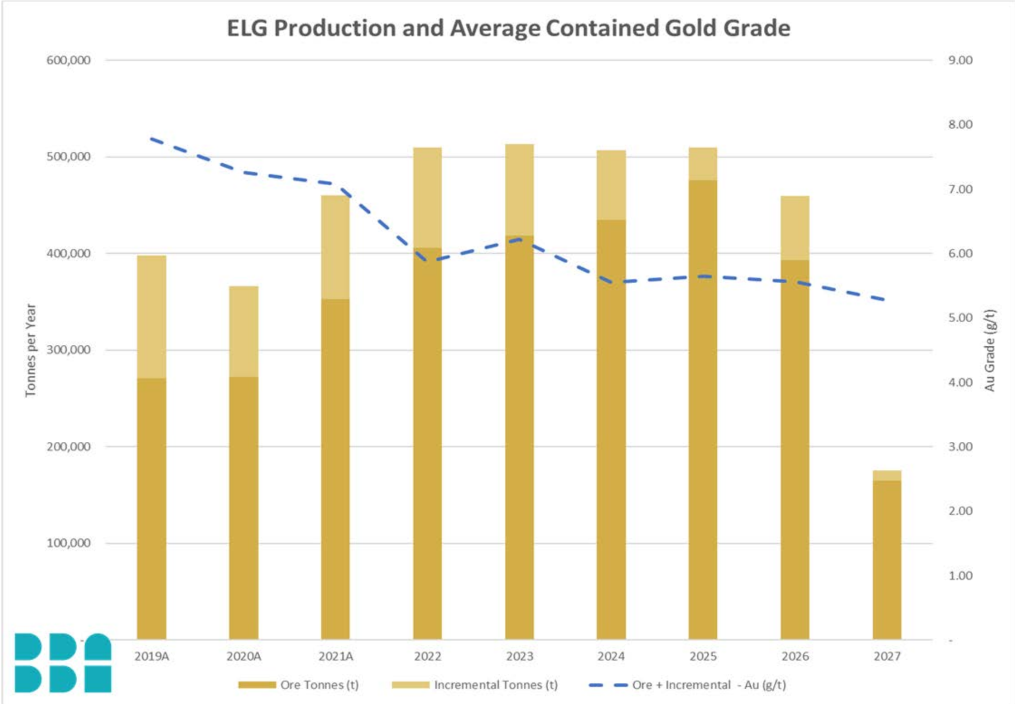


Figure 16-49: ELG Underground Production Profile and Average Contained Grade

16.3.6.4 Waste Rock

Waste rock used as backfill where possible, otherwise, it is moved to surface and then from the surface stockpile to the ELG WRSF. The annual tonnages of waste rock generated from development activities is summarized in Table 16-30.

Table 16-30: Annual Waste Rock Tonnage

Zone	Type of Development	2022	2023	2024	2025	2026	2027	Total
SSL	Lateral Development Waste (t)	40,970	11,407	0	0	0	0	52,377
Z71	Lateral Development Waste (t)	36,017	7,389	0	0	0	0	43,406
ELD	Lateral Development Waste (t)	100,779	86,902	71,310	9,249	28,794	2,949	299,982
SSX	Lateral Development Waste (t)	129,792	107,968	51,687	25,679	21,954	13,951	351,032
Portal 3	Lateral Development Waste (t)	93,635	0	0	0	0	0	93,635
All	Vertical Development Waste (t)	9,881	3,762	1,458	0	0	0	15,101
Total		411,074	217,428	124,454	34,928	50,748	16,900	855,532

16.3.7 Mine Operations

16.3.7.1 Mobile Equipment

Table 16-31 outlines the equipment currently in operation by contractors and Torex. It is expected that this fleet will remain for the life of mine and maintained by the site contractors.

Table 16-31: Mobile Equipment Fleet

Item	Manufacture	Model	Qty. Portals 1 & 2	Qty. Portal 3	Total
LHD's	Caterpillar	R1600	1	0	1
	Sandvik	LH 514	3	0	3
Haulage Truck	Caterpillar	AD30	4	0	4
	Sandvik	TH430	2	0	2
	Caterpillar	730C EJ	3	0	3
Bolters	Sandvik	DS 311	2	1	3
Scissor Lift	J&S Manufacturing	SLX5000MF	1	0	1
	Marcotte Mining Services	M40	-	1	1
Jumbos	Sandvik	DD321	1	0	1
	Epiroc	B282	2	1	3
Service Equipment	Variable Manufacturers	Variable	12	1	13
		Total	31	4	35

16.3.7.2 Ventilation

The ELG ventilation system is designed to supply sufficient air to dilute containments, remove blasting gases, and provide fresh air for workers. The system is designed based on Mexican Regulation NOM-023 and industry best practices.

<u>Diesel Airflow Requirements</u>

Based on Mexican Regulation Nom-023 the following equipment list with diesel airflow requirements was developed for the projects "steady state".

The total air flow tabulated in Table 16-32 of 215 m^3/s is the minimum air volume requirement for diesel equipment as per the Mexican regulations.

Table 16-32: Steady State NOM-023 Diesel Airflow Requirements

Vehicle Type	Model	Number of Units	KW per Unit	Ventilation Utilization	Total m^3/s
CAT (6Yd LHD/Jammer)	R1600	1	208	40%	4.0
Sandvik (8 Yd LHD)	LH514	3	265	40%	15.1
CAT (Truck)	AD30	2	281	56%	15.0
Sandvik (Truck)	TH430	2	310	56%	16.5
CAT (Truck Dumas)	AD30	1	281	56%	7.5
CAT (Truck)	AD30	1	281	56%	7.5
CAT (Truck)	730C EJ	3	276	56%	22.1
Sandvik (Bolter)	DS311	3	70	56%	5.6
Scissor Lift	SLX5000MD	1	130	39%	2.4
Sandvik (Jumbo Drill)	DD321	1	135	38%	2.4
Atlas Copco (Jumbo Drill)	B282	2	125	38%	4.5
Boomer 282 Atlas	B282 STAND BY	1	125	38%	2.3
Boom Truck BT X5100M6D	BTX5100M6D	1	210	16%	1.6
Lube Truck	FLX5 100 M6D	1	210	23%	2.3
Tractor (TR-01) Explosive	John Deere 673	1	59	25%	0.7
Tractor (TR-02) Explosive	John Deere 674	1	59	25%	0.7
Light Vehicles		20	124	65%	76.6
				Sub-Total	187
				+ Leakage 15%	28
				Total	215

Current Ventilation System

The current primary ventilation circuit for ELD (Figure 16-50) is a pull-type system. All fresh air is pulled into the mine through Portal 1, circulated through the mine and exhausted through Portal 2. Two 300 kW, parallel-installed, 2,000 mm diameter, VFD equipped vane-axial fans located underground at Portal 2 provide approximately 165 m^3/s via this arrangement.

An auxiliary ventilation system is required to be maintained within the mine to support development and mining areas that do not have flow through availability. The current auxiliary ventilation systems use 1100-1200 mm axial fans with power requirements from 55-115 kW, depending on length of ducting and diesel equipment requirements for each application. Ventilation tubing is generally the lay-flat variety, with some rigid plastic ducting used for long-runs. The diameters of this ducting range from 1,100 to 1,400 mm, based on the application and requirements.

The current Portal 3 development relies on auxiliary ventilation. The fans used for this application are 2 x 190 kW fans installed in series per 2 x 1400 mm diameter duct runs. These fans provide up to 50 m^3/s of fresh air to the face. Booster fans are installed to maintain this air flow until the connection is made with the Portal 2 fans in late Q4 2022 and flow through ventilation is established.

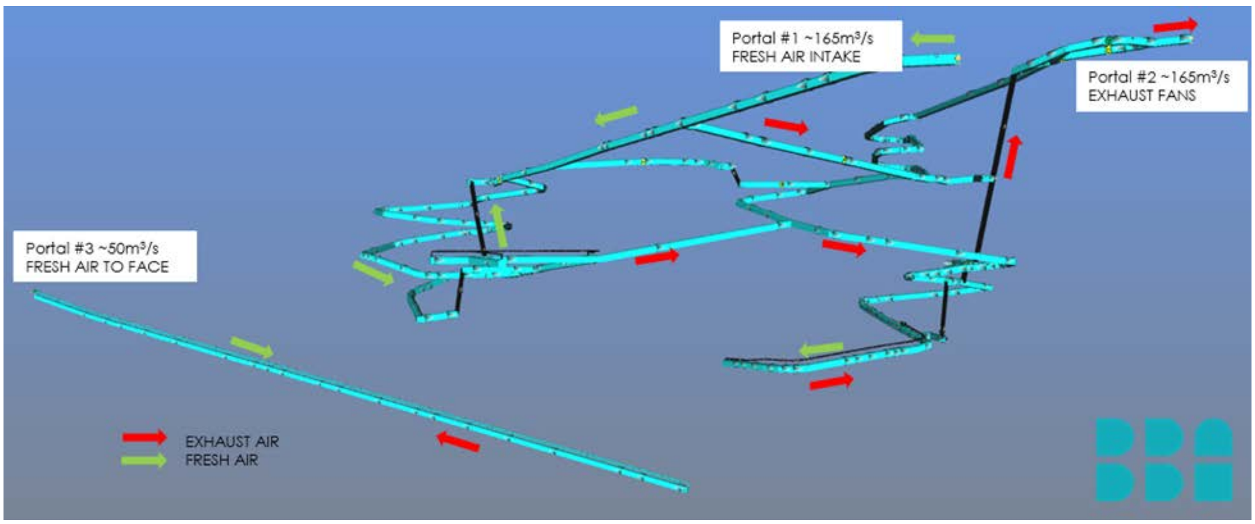


Figure 16-50: Current Ventilation System

Future Primary Ventilation System (2022-2027)

The future primary ventilation circuit will operate from 2022 through to 2027 and will continue to be a pull-type system with all exhaust leaving the mine via Portal 2. A Return Air Raise (RAR) and ramps will transfer the air to the Portal 2 fans and discharge to atmosphere via Portal 2.

A new ventilation circuit will be established in late 2022 when Portal 3 connects into the lower SSX Zone RAR thus, providing a second source of fresh air intake. The split of fresh air will range from a ~40% in through Portal 3 and ~60% in though Portal 1, depending on the production year. The use of both intakes allows for a more balanced and controllable ventilation system with intake velocities at desirable levels.

2022

Total mine airflow at this stage (Figure 16-51) will be 220 m^3/s. Installed secondary egresses and an ore pass will be established. Flow through the ore pass will be kept to a minimum.

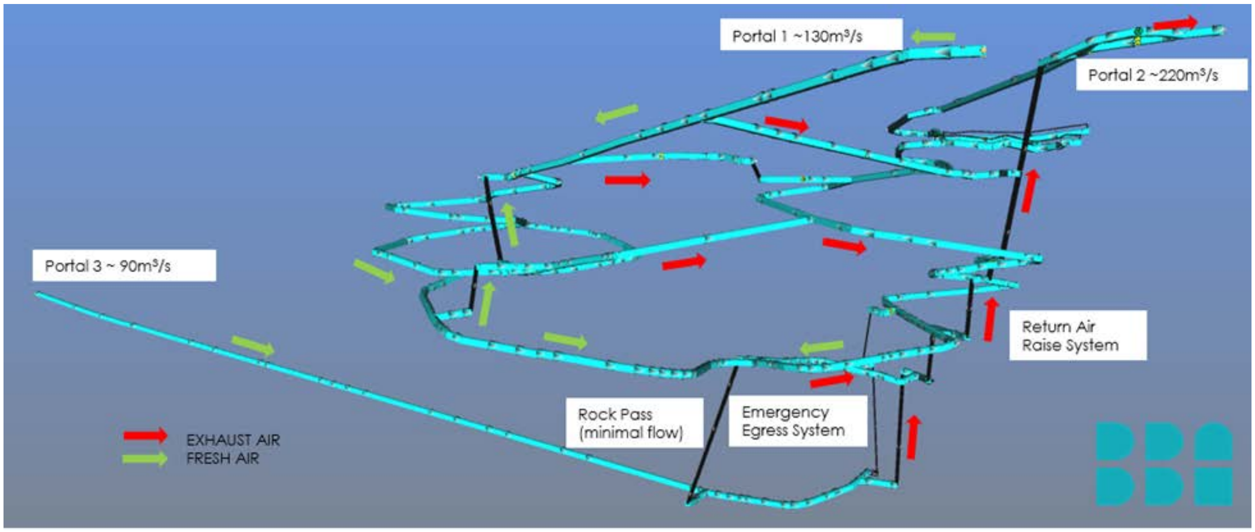


Figure 16-51: 2022 Ventilation Circuit

2023

In 2023, the SSX ramp connects to the Portal 3 decline allowing a continuous fresh air circuit to be established from Portal 3 to Portals 1 and 2 via the ramp system (Figure 16-52). Airflow during this year will be increased to 350 m^3/s. 2023 is the time when the ventilation system reaches a steady state in terms of ventilation flows, these flows remaining relatively constant for remainder of mine life.

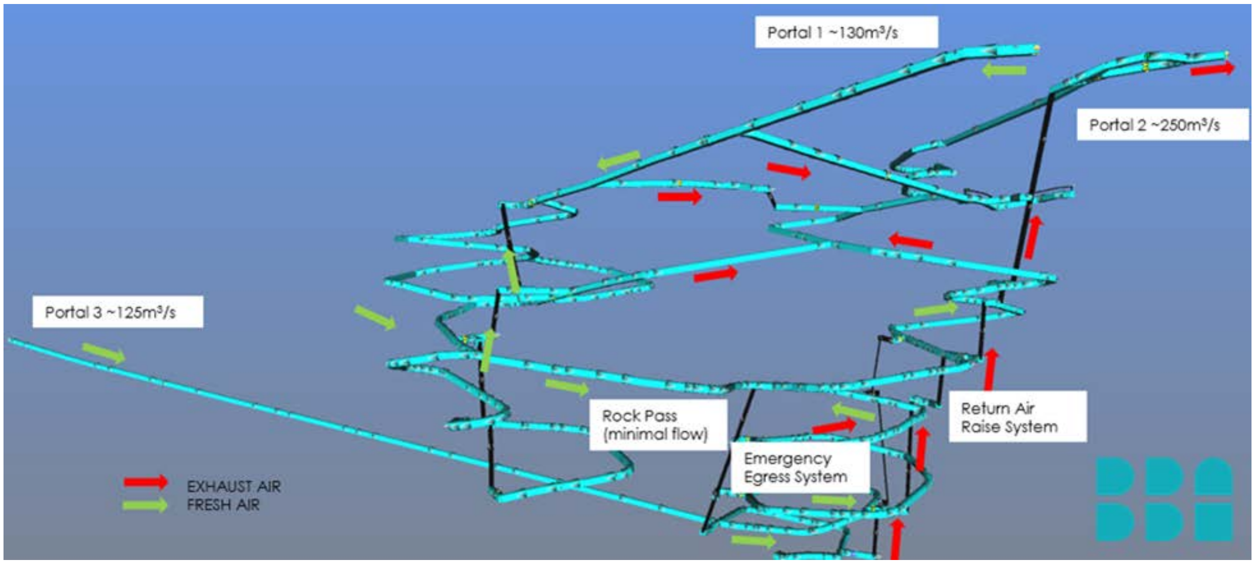


Figure 16-52: 2023 Ventilation Circuit

2024-2027

The primary ventilation circuit remains the same during this period. Total flows increase minimally to 275 m^3/s. Portal 1 intake quantities increase to 140 m^3/s, while Portal 3 intake quantities remain the same (Figure 16-53).

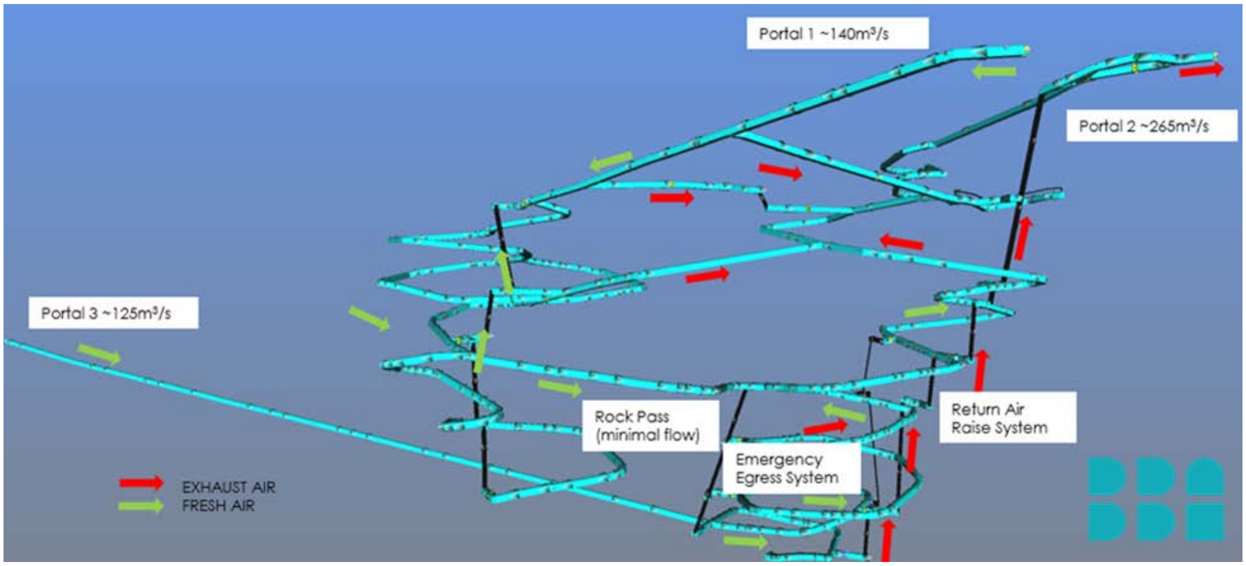


Figure 16-53: 2024-2027 Ventilation Circuit

Table 16-33 shows the fan Portal 2 exhaust fan settings and operating points in addition to the flows associated with Portal 1 and Portal 3 from 2022 through 2027. The values at Portal 2 listed are for the fan quantities, these vary from the overall Portal 2 quantities as some air recirculates through the airlock door system. The Portals 1 and 3 quantities are actuals.

Table 16-33: Exhaust Fan Operating Points and Portals 1 & 3 Intake Flows (2022-2027)

	2022	2023	2024-2007
Portal 2 Exhaust Fan Parameters			
Fan Airflow (m^3/s)	228	263	275
Electrical Load (kW)	187	281	345
Fan Total Pressure (Pa)	548	695	880
Blade Angle Setting (°)	32.5	32.5	32.5
Speed (rpm)	974	1121	1180
VFD Setting (%)	82.5	95	100
Efficiency (%)	71	69	75
Portal Velocity (m/s)	6.6	7.6	8.0
Portal 1 Intake Parameters			
Portal Airflow (m^3/s)	131	130	140
Portal Velocity (m^3/s)	3.9	3.8	4.2
Portal 3 Intake Parameters			
Portal Airflow (m^3/s)	90	125	125
Portal Velocity (m^3/s)	2.7	3.7	3.7

Open Pit Development into the Underground (2024)

In 2024, the open pit is scheduled to intersect the underground workings. This will have an impact on the primary ventilation circuit, as a portion of ramp connected to the Portal 1 decline will be impacted (Figure 16-54). Without mitigation through the addition of a raise connection, several airways will be lost, and air will short circuit and be pulled into the mine. The entire area shown within the circle will be without flow. A 75-kW booster will be required, and airflow will reverse from the SSX Zone.

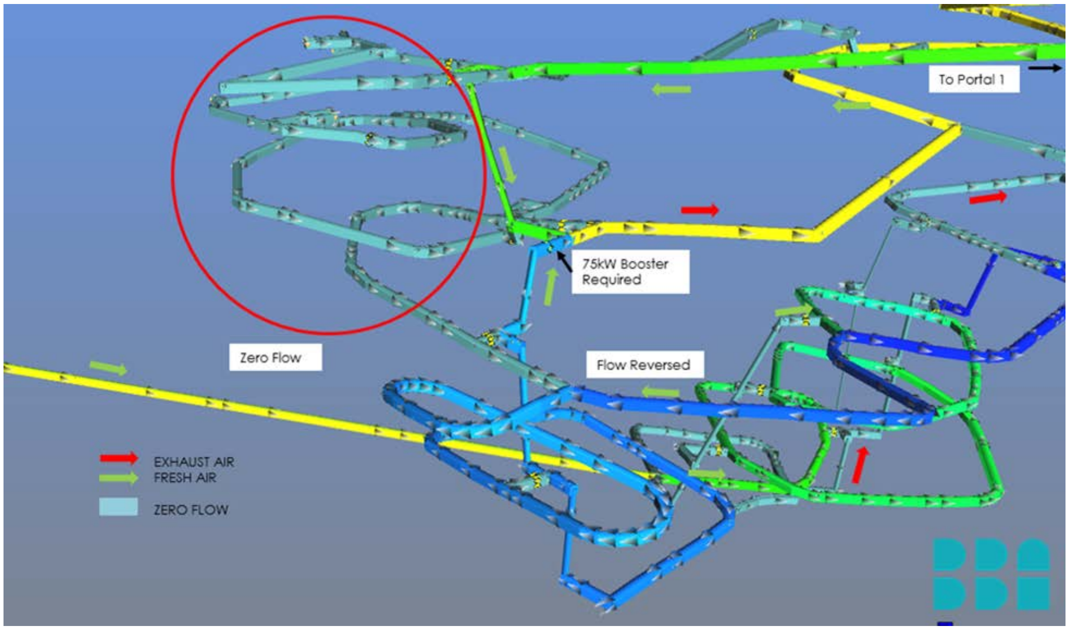


Figure 16-54: Ventilation Circuit Without New Ventilation Raise

Potential Mitigation

This situation can be mitigated through the use of muck barriers and a 3.0 m x 3.0 m by ~33 m long by-pass ventilation raise (Figure 16-55) The general mine airflow quantities are maintained, no zonal sterilization occurs, no boosters are required, and flow direction will not be reversed.

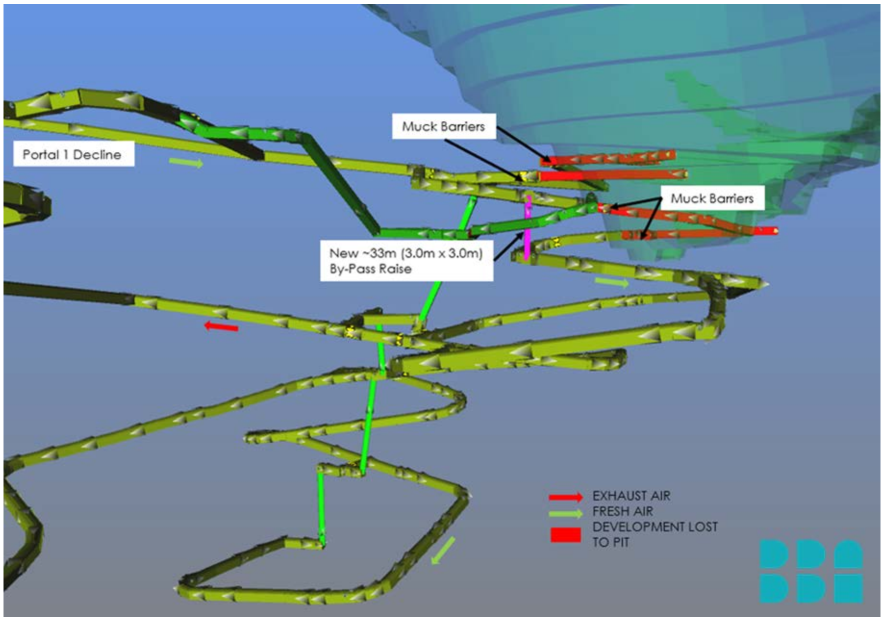


Figure 16-55: Ventilation Circuit with By-Pass Ventilation Raise

Table 16-34 below shows the resulting exhaust fan operating points and Portals 1 and 3 flows if the by-pass ventilation raise is developed.

Table 16-34: Exhaust Fan Operating Points Portals 1 & 3 Intake Flows with Bypass Raise

	2025 (Bypass Raise)
Portal 2 Exhaust Fan Parameters	
Fan Airflow (m^3/s)	273
Electrical Load (kW)	366
Fan Total Pressure (Pa)	995
Blade Angle Setting (°)	32.8
Speed (rpm)	1180
VFD Setting (%)	100
Efficiency (%)	78
Portal Velocity (m^3/s)	7.8
Portal 1 Intake Parameters	
Portal Airflow (m^3/s)	114
Portal Velocity (m^3/s)	3.4
Portal 3 Intake Parameters	
Portal Airflow (m^3/s)	125
Portal Velocity (m^3/s)	3.7
Estimated Inflow Through Muck Berms from Pit	
Pit Inflow (m^3/s)	25

Future Auxiliary Ventilation System 2022-2027

Auxiliary systems from 2022 through 2027 will continue to function in the current state using 1100-1200 mm axial fans with power requirements from 55-115 kW, dependent on the required installation, length of ducting and diesel equipment requirements. Ventilation tubing is generally the lay-flat variety, with some rigid plastic ducting used for long-runs. The diameters of this ducting range from 1100 to 1400 mm, based on the application and requirements. Table 16-35 lists the estimated auxiliary fans requirements through 2027.

Table 16-35: Estimated Auxiliary Fan Requirements 2022 to 2027

Type of Activity	Type of Fan			2022	2022 kW	2023	2023 kW	2024	2024 kW
	Diameter (mm)	Power (kW)	Airflow (m^3/s)						
MCAF Access (up to 125 m)	1100	55	25	21	1155	22	1210	22	1210
Long Ramp Development (>200 m)	1200	85	35	8	680	8	680	8	680
Short Ramp Development (<200 m)	1200	115	35	6	690	6	690	6	690
Total Estimated kW					2525		2580		2580
Type of Activity	Type of Fan			2025	2025 kW	2026	2026 kW	2027	2027 kW
	Diameter (mm)	Power (kW)	Airflow (m^3/s)						
MCAF Access (up to 125 m)	1100	55	25	22	1210	24	1320	8	440
Long Ramp Development (>200 m)	1200	85	35	8	680	8	680	2	170
Short Ramp Development (<200 m)	1200	115	35	6	690	6	690	2	230
Total Estimated kW					2580		2690		840

16.3.7.3 Backfill

Backfill is required for the overall stability of the underground workings. A backfill study was conducted by Bawden Engineering Ltd, 09-07-2017 to determine backfill production requirements, provide a basis for detailed design, procurement, and construction of the CRF plant.

Backfill at ELG primarily done by CRF or URF. The bottom cut stope is backfilled with 6% CRF to ensure that the future mining can be conducted safely under the backfill area. At the end of a 28 days period, 5 MPa strength is achieved in the bottom cut where mining is planned later directly below or adjacent to the bottom cut. In the second cut stope, 4% cement is used in the backfill which is sufficient to provide 270 KPa strength and the top cut is backfilled with the uncemented rockfill where no mining is planned adjacent or below the top cut in future. QAQC is conducted by Geo-tech (Tech Services) department regularly to ensure the recommended backfill strength is attained.

There is an additional requirement for CRF backfill in the ELD for support of existing mine openings that are identified as intersecting the planned open pit mine. Filling of these openings will be completed before mining in the open pit reaches the underground workings (Q3 and Q4 2024). For this purpose, an estimated 70,000 tonnes (35,000 m^3) of backfill is required to fill the openings and included in the opex costs for 2024.

Table 16-36 summarizes the annual quantities of CRF and URF required for the LOM production schedule.

Table 16-36: Backfill Quantities (m^3) by Zone

Zone	Type	2022	2023	2024	2025	2026	2027	Total
SSL	CRF	24,399	29,039	396	-	-	-	53,834
	URF	20,034	12,016	3,122	-	-	-	35,172
	Sub-Total	*44,432*	*41,056*	*3,518*	-	-	-	*89,006*
Z71	CRF	15,420	10,725	-	-	-	-	26,144
	URF	4,930	9,118	-	-	-	-	14,048
	Sub-Total	20,350	19,843	-	-	-	-	40,193
ELD	CRF	90,221	96,109	72,494	26,525	75,981	12,610	373,941
	URF	2,832	40,883	40,465	18,058	53,316	40,612	196,166
	Sub-Total	*93,053*	*136,992*	*112,959*	*44,583*	*129,298*	*53,222*	*570,107*
SSX	CRF	-	15,319	80,298	115,601	74,995	15,988	302,200
	URF	-	-	8,159	57,415	24,550	54,818	144,943
	Sub-Total	-	*15,319*	*88,457*	*173,016*	*99,545*	*70,806*	*447,143*
Total	CRF	130,040	151,192	153,187	142,126	150,976	28,598	756,119
	URF	27,796	62,017	51,747	75,473	77,866	95,430	390,330
	Total	157,836	213,209	204,934	217,599	228,843	124,028	1,146,449

The CRF plant selected can produce a product which meets the unconsolidated compressive strength design criteria of 270 kPa to 5 MPa. The plant can produce CRF at a rate of 68 m^3 per hour or up to 5,000 m^3 per day @ 60% utilization. The plant prepares cement slurry at a set specification and then mixes it with crushed and sized aggregate. The plant will operate at two different cement content mixtures (4% and 6 %) (5.5% and 13.5%) to meet the design criteria.

The CRF plant and system is located at Portal 2 and consists of the following:

- An aggregate rock hopper where minus 76 mm sized aggregate will be stored;
- An aggregate loading facility where aggregate is transported from the hopper into a batch mixer;
- A cement storage and loading facility where cement is stored in a silo and transferred into a batch mixer;

- A batch mixer with a discharging into a gob hopper;
- Gob hopper to load underground haul truck equipped with an ejection box;
- A control room.

Figure 16-56 shows the CRF plant at Portal 2 and Figure 16-57 and Figure 16-58 illustrate the detailed items of the plant.

Figure 16-56: CRF Plant and Portal 2

Figure 16-57: Backfill Plant Aggregate Bins

Figure 16-58: Backfill Mixer and Cement Silo

The Portal 2 plant capacity is approximately 23,000 m^3 per month and is sufficient to supply all backfill requirements for the Life of Mine. The limiting factor for the backfill system is the trucking capacity and availability of the crushed waste rock of suitable size (minus 76 mm). The capacity is a function of the truck availability, truck size and lastly travel distance from the plant to the stope. A recent site study has indicated that although the current backfill plant has sufficient capacity, the distance to haul backfill to the SSX Zone will limit the mine to achieving the planned backfilling requirements. Therefore, the Portal 2 backfill plant will supply the ELD, SSL and Z71 Zones using underground trucks to transfer the cemented fill to the panel in the stope where an LHD with a pusher blade packs the backfill into the panel. A new plant is being considered for Portal 3 in 2023 (Projected capacity of 13,500 m^3 per month) that will produce cement slurry and use a loader to produce the cemented rockfill in a mixing pit (See Figure 16-59, Figure 16-60, and Figure 16-61). Construction would start in Q1 2023.

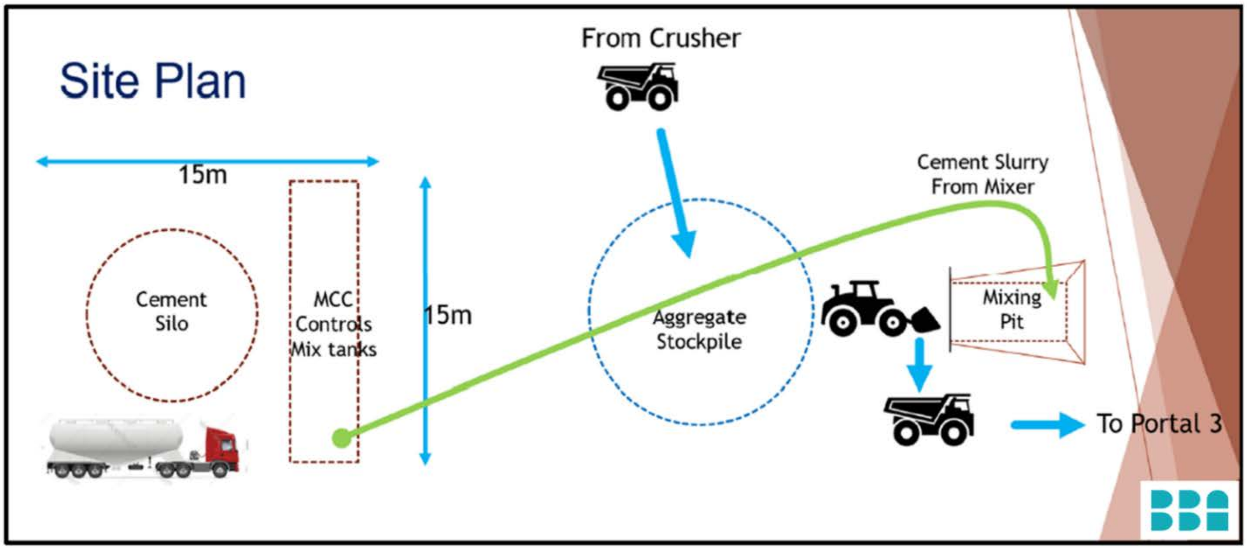


Figure 16-59: Portal 3 Slurry Plant Arrangement

Figure 16-60: Portal 3 Slurry Mixing Unit

Figure 16-61: Mixing Pit Example

Most mining areas in ELG Mine will be backfilled with CRF or HSRF while some areas will use URF. Geotechnical specifications and considerations for backfill provided by Dr. Bawden are described below.

In operations, three conditions that must be considered when selecting the type of backfill:

- Mining adjacent to the MCAF stope (CRF 4 %);
- Mining directly beneath the MCAF stope (CRF 6 %);
- No mining occurring adjacent or under the MCAF stope (URF).

A Factor of Safety (FS) of 2 was used to account for uncertainty in the quality of mixing and placement of the CRF. When mining adjacent to the MCAF stope, cemented rockfill must be used to limit dilution. Backfill unconfined compressive strength (UCS) for 5 and 10 meter-high by 50-meter-long cuts will be 160 and 300 kPa respectively to achieve a FS of 2. Mining against this fill can take place after 3 days of curing. When mining adjacent to filled stopes the 'effective span' will be greater than the 'design span' due to imperfect tight fill (i.e. a 5 m secondary span will have an effective span locally of 6 to 7 m). If primary cuts are made at 7 m, then secondary cuts mined next to a backfilled primary cut should be reduced from 5 to 6 m. If cut lengths significantly exceed 50 m, fill strength requirements would be reassessed.

In the case where there will be mining beneath a cut, the backfill required in this cut must be stronger and of higher quality. For mining spans of 5 to 6 m, backfill strengths of 5.0 MPa or greater will be required, allowing mining under the cut with no ground support. Achieving such high quality backfill would require a high quality, well graded aggregate, and good mixing.

The following operation procedures will be adopted for mining directly below sills:

- Preparation of production and truck underground (Figure 16-62);
- CRF jammed as tight as possible to back on cut above;
- Jammer face toes must be cut vertical to prevent back wedges;

- Floors will be cleaned very well before CRF is placed;
- Check scaling will be conducted with bolter or jumbo when mining adjacent to or under CRF;
- QAQC program to test placed CRF;
- Spot bolting will be used to pin local wedges and weaknesses.

Figure 16-62: Truck Loading Backfill

For quality control, samples of the backfill are taken during the fill cycle as shown in Figure 16-63. Figure 16-64 illustrates the hardened backfill on the right wall and backfill of a mined panel, while Figure 16-65 illustrates mining under previously placed backfill.

Figure 16-63: Underground Samples

Figure 16-64: Panel Beside Backfill Panel

Figure 16-65: Panel Under Backfill

Additional backfill will be required to fill existing infrastructure openings in the upper ELD Zone. These openings penetrate the future pit walls and are required to maintain pit wall stability (Figure 16-66). It has been calculated that approximately 35,300 m^3 of CRF are required and are scheduled starting Q1 of 2023 with completion planned for Q4 2023.

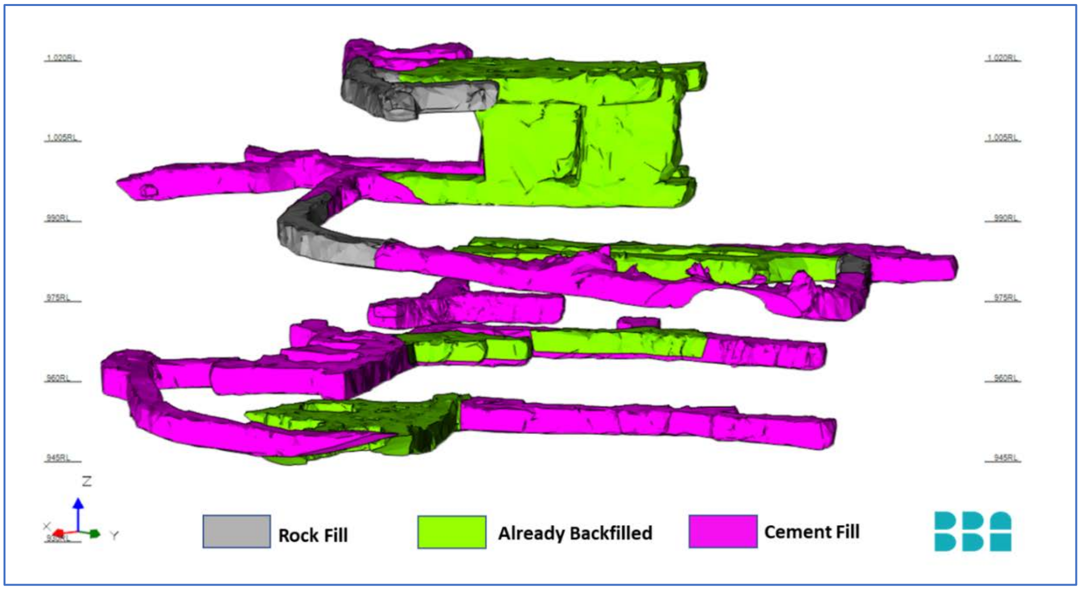


Figure 16-66: Underground Openings in Pit Wall (figure not to scale)

16.3.7.4 Ore Pass System (Material Handling)

Ore and waste are mucked from the working face using LHDs and moved to a remuck bay or dumped directly into a haul truck. Material dumped into a remuck bay is subsequently loaded into a haul truck for transport to the Sub-Sill ore stockpile or temporary waste pile on surface via Portal 1 or Portal 2 (Figure 16-67). One-way traffic is utilized so that empty trucks or trucks loaded with backfill enter the mine through Portal 2 and trucks loaded with muck will exit the mine through Portal 1. Truck loading underground is facilitated by utilizing designated intersections in the ramps or on the levels where the drift height has been increased.

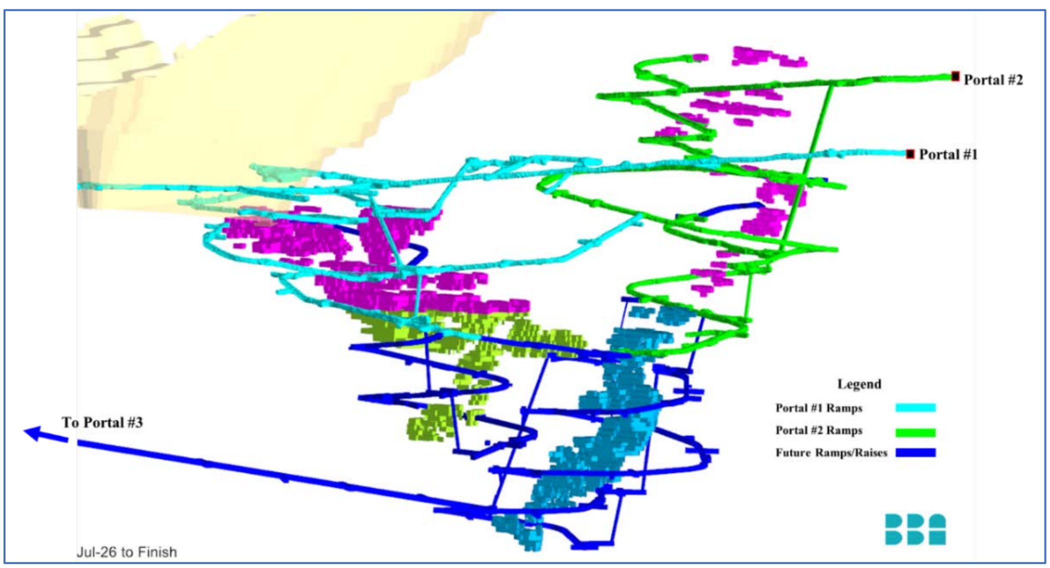


Figure 16-67: Underground Ramps Portal 1 and 2 Trucking Routes (figure not to scale)

Ore and waste are stored and managed in Surface Stockpiles. A surface loader loads surface trucks to deliver ore to Guajes crusher or waste to El Limón waste rock storage facility. Waste is tested for potentially acid generating characteristics. If the waste rock is non-acid generating, it may be used for construction activities around the site.

Waste from the temporary waste pile and cemented rock fill is loaded into a dedicated truck with an ejector box and delivered underground via Portal 2 to be used as backfill. The truck dumps the backfill as close to the working areas as possible where it is placed in the stope by an LHD. Tight-filling will be achieved by the LHD manipulating the backfill with a push-plate on a 15 m boom. Figure 16-68 illustrates the flow of material during operation.

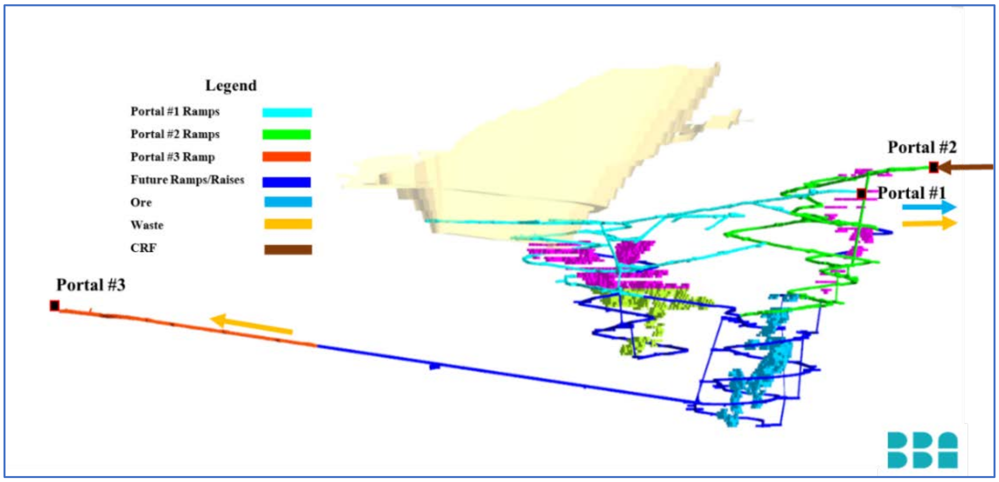


Figure 16-68: Current Material Handling Flow (figure not to scale)

Portal 3 is currently being developed near the Processing Plant enabling ore to be transported directly to the processing plant rather than to the Portal 1 ore stockpile eliminating the surface haul of 8 kilometers currently required. An ore pass with truck chute and three dump grizzlies is planned to start construction in late 2022 with completion in early Q2 2023 (Figure 16-69). This ore pass will be used for ore within the SSX Zone and Lower ELD Zone. Ore from SSL and Z71 Zones will continue to be moved via Portal 1 as it is expected that the mining areas will be depleted by the time the ore pass is completed.

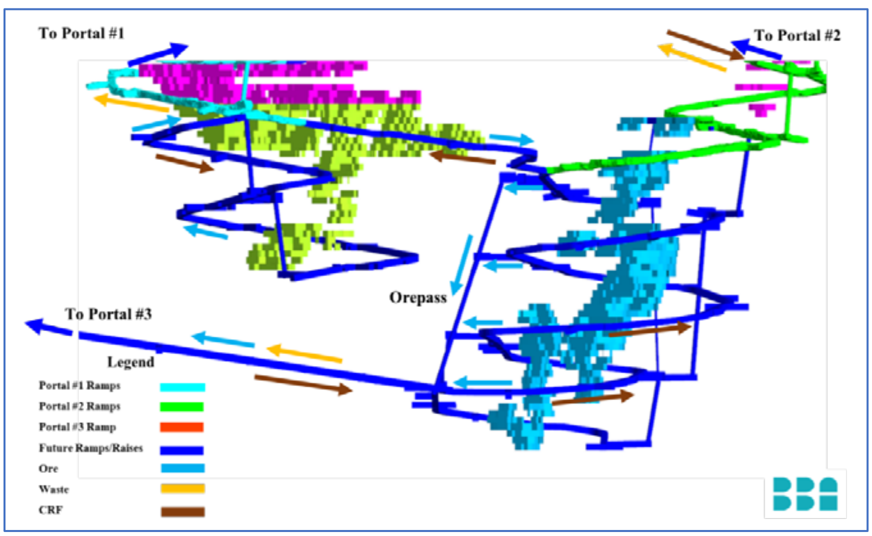


Figure 16-69: Future Material Handling (figure not to scale)

16.3.7.5 Underground Infrastructure

The following section describes the infrastructure installed or to be installed in the ELG Mine. Table 16-37 indicates the current and future planned quantities.

Table 16-37: Underground Infrastructure

Item	Qty.
Level Access with Truck loading	30
Level Sump	15
Main Sump	1
Electrical Load Centre	11
Portable Refuge Station	2
Ore Dump with mantel	4
Ore pass Chute	1

16.3.7.6 Water Supply and Management

The mine water for the ELG UG mine is provided from a series of surface tanks located at each Portal. The seven tanks located above Portal 2 are shown in Figure 16-70, two of these tanks supply the CRF plant. Similar arrangements are located at Portal 1 (three tanks) and Portal 3 (three tanks). Each tank has a 25 m^3 storage capacity.

Daily mine water usage is currently estimated at 1,200 m^3 per day as shown on Table 16-38. Discharge is estimated at 520 m^3 per day with current recycling estimated at 220 m^3 per day.

Table 16-38: Estimated Daily and Annual Mine Water Usage and Discharge

	Per Day (m^3)	Per Annum (m^3)
Water fed by pipes Portal 2	600	216,000
Water development equipment (Dumas)	140	50,400
CRF plant	60	21,600
Exploration drilling	240	86,400
Drilling geology	120	43,200
Other services	40	14,400
Recirculation to Portal 2	220	79,200
Portal 1 mine discharge	520	187,200

The main underground activities and systems consuming water include:

1. Exploration and definition drilling with diamond drills
2. Drilling production and development headings with Jumbo drills
3. Drilling for installation of ground support with bolters
4. Dust control
5. CRF plant

The mine recycles much of the mine water using the dewatering system (see below) by pumping the water up to the surface tanks for storage at each portal. The mine is also working to improve the system by installing two filtration sumps at the 325 elevation. Additional mine water is pumped into the tanks from water trucks which are filled at the Guajes East pit. Once the Portal 3 project is completed, the Portal 3 dewatering system will be connected to the Portal 2 dewatering system such that this water can be more effectively recycled. The operation is also considering the installation of a decant sump system in the mid portion of the mine to provide clean mine water in the lower part of the mine without having to pump to the Portal 1 and 2 elevation.

Figure 16-70: Portal 2 Water Tanks

Mine Dewatering

Once completed, there will be three drainage water systems at ELG. Currently, the SSL/Z71 and ELD systems are operational and service the active mining areas. A temporary system is installed in the Portal 3 access ramp to support development of the ramp. Once the Portal 3 ramp is completed, a permanent dewatering system will be installed for SSX with emergency capacity for ELD and/or SSL. Portal 3 system is designed to remove mine drainage water from the lower production areas primarily by gravity with pumping assistance in some areas. All drainage water is delivered to the main sump located at the bottom of the Portal 3 decline at level 670 (Figure 16-71). The main sump is a double-width drift collecting dirty water from which the slimes are pumped to a solids settling system. The latter consists of two drifts, each with a permeable fence (Sturda Weir®) and one clear water collection sump with mine dewatering pumps. All water handling prior to the weir system is a dirty water system, whereas all water handling after the weir system is considered generally clear water handling.

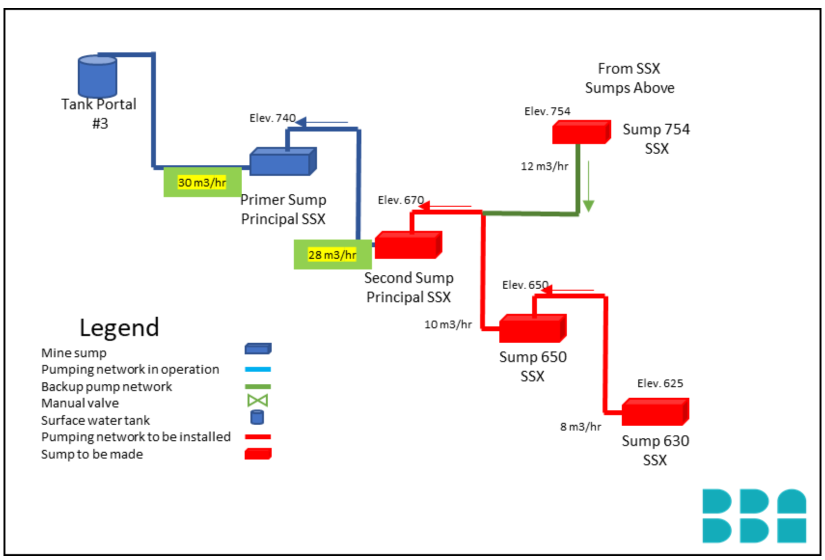


Figure 16-71: Planned Main Sump and Solids Settling System Portal 3

For the upper production areas of the SSX, SSL and Z71, the Portal 2 pumping system shown in Figure 16-72 will be utilized.

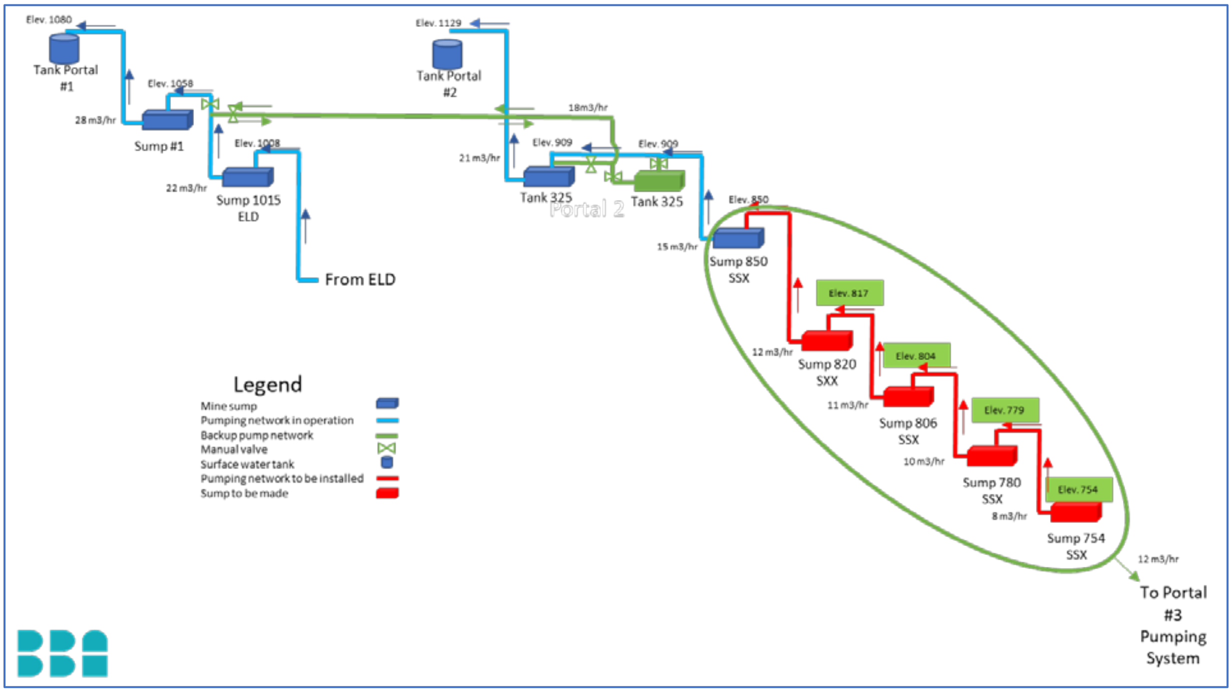


Figure 16-72: Portal 2 Dewatering System

ELD Zone utilizes the Portal 1 pumping system as illustrated in Figure 16-73.

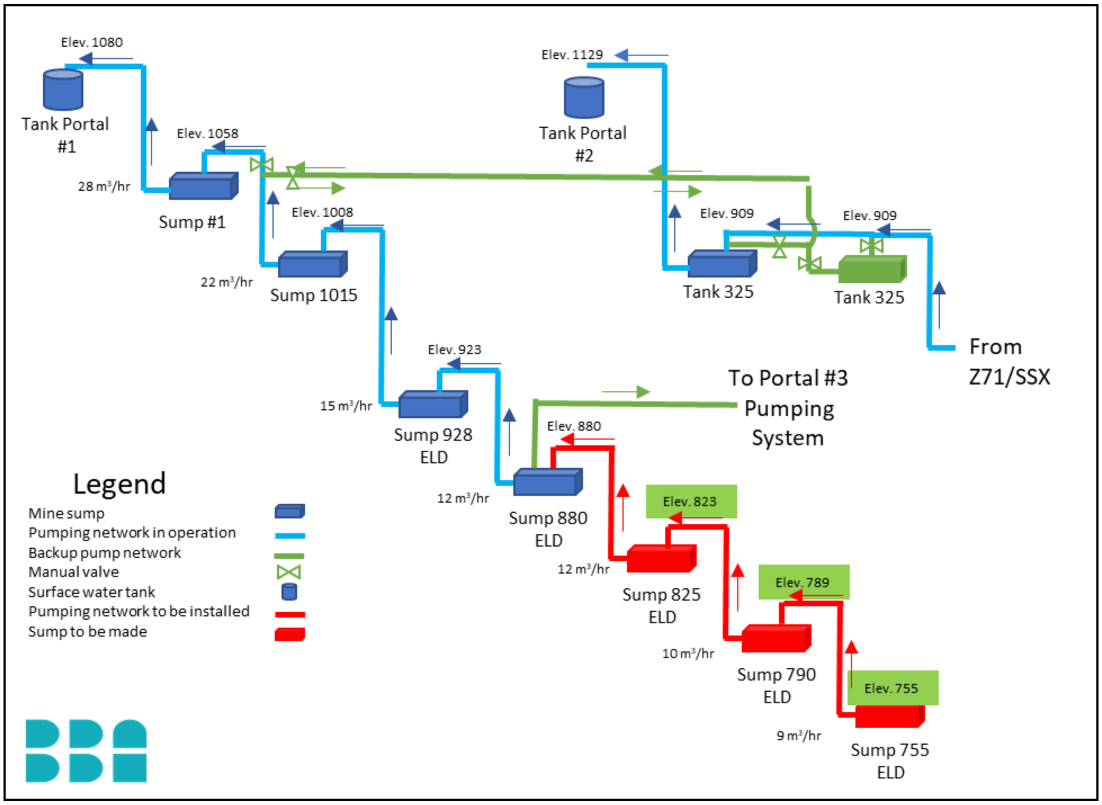


Figure 16-73: Portal 1 Pumping System

16.3.7.7 Safety

There is a full-time safety supervisor who oversees the safety and training initiatives and programs for the underground operation, including emergency preparedness, response plans, and mine rescue.

The ELG UG mine is equipped with portable, self-contained refuge stations at strategic locations. These refuge stations are equipped with compressed air, potable water, first aid equipment, emergency lighting, and rations.

The two portals and declines to surface and escapeways, provide primary and secondary means of egress from the underground mine. Once completed, Portal 3 will also provide an alternate means of egress from the mine. Until the internal connection with the SSX Ramp and Portal 3 ramp is made, secondary egress will be provided by escapeways.

16.3.7.8 Explosives Storage

Explosives and detonators used at the ELG UG Mine are stored in the existing ELG Mine Complex explosive and detonators storage magazines on surface. Explosives and detonators are delivered to the underground mine by a contractor, and unused explosives and detonators are returned to the surface magazines by the same contractor.

16.3.7.9 Electrical Power

ELG mine is connected to CFE source network with a main feed 115 kV as primary voltage from the CFE substation on the transmission line existing near the project site, located approximately 2 km away the project. ELG main substation has a configuration of two bays, with one(1) incoming line, two (2) step-down transformer (115-13.8 kV) 37.5/50 MVA with KNAN/KNAF cooling, and a switchgear.

Currently, power is provided to the ELG UG mine via an overhead line to Portal 1 with a tap to Portal 2 and a separate line to Portal 3. Each portal has diesel generators supplying backup power. The underground mine is fed from Portal 1 for all orebodies save where Portal 3 and SSX orebody meet; there shall be a main tie main connecting Portal 3 feeder and the Portal 1 SSX feed to provide power to the ore chute and the main dewatering station in case of an outage or back feed power in an emergency. The remaining existing ELG mine equipment will consume around 1.0 MVA of demand load while the expansion, including the existing shall be approximately 6.0 MVA of demand load (Table 16-39).

Table 16-39: Load List Summary for Existing and Additional Load

	Year					
Description	2022	2023	2024	2025	2026	2027
Existing U/G* in MW/hr	1.316	1.316	1.316	1.316	1.316	1.316
New U/G (Pumps) in MW/hr	0.713	0.713	0.713	0.713	0.713	0.713
New U/G (Fans) in MW/hr	2.126	2.173	2.173	2.173	2.265	0.707
New U/G** (Mobile Equipment) in MW/hr	0.7421	0.742	0.742	0.742	0.742	0.742
Portal 3 surface (CRF, Fans, Control Room)	0.842	0.842	0.372	0.372	0.372	0.372
Total in MW/hr	5.740	5.786	5.316	5.316	5.408	3.850
Total in MW/day	137.761	138.872	127.578	127.578	129.801	92.412
Total in MW/year @ 90% efficiency	45,254	45,619	41,909	41,909	42,639	30,357

* This is from the existing load list (LOM) provided by Torex Gold, including all surface and underground equipment.
** Additional power such as chute, diamond drill etc.

Surface Electrical Distribution

A 15 kV switchgear installed at the Portal 1 area receives power for normal operation through the 13.8 kV overhead line coming from the Ropecon Area 110, and during power outages from a combination of back-up generator (1.0 MVA) and step-up transformer (which is already installed and supplying power for mine development).

A second 15 kV switchgear installed at the Portal 2 area receives power from the 13.8 kV overhead line coming from the Ropecon Area 110. The main feed is connected to Portal 1 for redundancy. This switchgear shall provide power to a 2500 kVA 13.8/0.48 kV transformer for the main ventilation fans motor, backfill plant, and portal development.

An electrical ground bed is designed and installed to produce good earthing connection to underground electrical equipment.

For Portal 3, the design was completed by M3 Engineering and changes shall be made to the 15 kV switchgear by MML. The 15 kV switchgear is powered in two phases and connected to a back-up generator of around 2.0 MVA in 2022. Phase 1 includes a tap off the Guajes Tunnel Development overhead line that shall connect to the electrical room located at Portal 3. Phase 2 shall disconnect the tap and shall connect to the existing ELG substation via an overhead line.

Underground Electrical Distribution

Underground power is delivered from the switchgear at Portal 1 to the underground 15 kV Junction box currently installed and receiving power from the diesel generators. From here, power is distributed to the Sub-Sill Mine Load Centers (MLC) located strategically throughout the mine as it is developed. There are 11 existing MLCs with 1 MVA transformers feeding Portal 1 and Portal 2. Main power to the underground mine is provided via a 3/C 500 MCM cable with around 30% load occupancy and a forecasted 60-70% load increase based on demand load for Portal 1.

The basis of design requires new MLCs to be placed around 450 m apart to minimize voltage drop on the secondary side for mobile equipment. In compliance with this requirement, there are 11 new MLCs placed in Portal 3, SSX and

ELD to supply power to the new areas. These new MLCs shall be connected to the existing MLCs feeder cables. At each new MLC, a single or double load-break fused disconnect switch shall be installed to provide downstream cable protection, as well as isolation for the local MLC. This shall allow the MLC's to be added or removed from the system as schedule and load demand dictate, without de-energizing the entire system. A 1,000 kVA or 50 kVA transformer shall be used to stepdown the voltage to 480 V, and supply power to local areas or mobile equipment.

The new 15 kV switchgear at Portal 3 will provide power down the ramp. A main tie-main shall be placed at the end of the ramp to connect SSX and Portal 3, in case back feeding is required to maintain dewatering operations and avoid flooding.

16.3.7.10 Automation & Communications

Leaky feeder cable has been installed enabling radio communication throughout the mine and will be expanded along with the mine. A second head end will be added at Portal 3 for redundancy. All Refuge Stations and electrical bays have been or will be hardwired with telephone lines.

A fiber-optic backbone has been designed and installed to all existing MLCs. A second backbone will be brought in from Portal 3 and connect to all new MLCs in conjunction with the existing backbone to create a redundant path. A control room located at Portal 3 surface is the central control and monitoring station that will manage all control and monitoring processes within the mine both locally and remotely. These processes include ventilation, dewatering and the ore chute. Depending on the outcome of planned personnel and tracking upgrades the control room should also cover tracking and dispatch for the mine as well.

The automation system for monitoring and control in ELG will be extended from existing MLCs. The system design will be expanded to include PLC or RIO for control and monitoring at every MLC, which will operate all processes within the mine both locally and remotely via the control room at Portal 3. Figure 16-74 shows the standard schematic for the automation system design used in ELG.

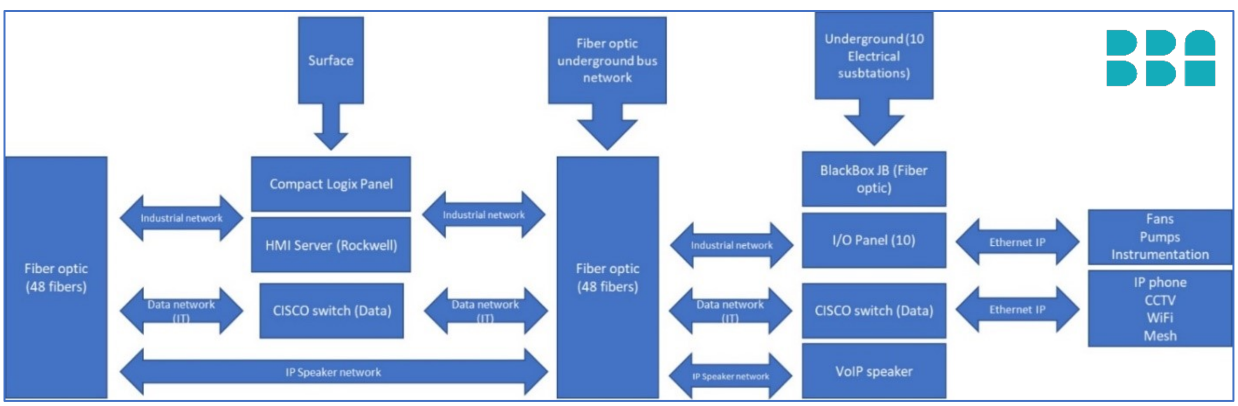


Figure 16-74: ELG Mine Fiber-Optic Monitoring and Control System

16.3.7.11 Compressed Air

The compressed air system will not employ air-drying equipment of any kind, instead, it will employ automatic blow down points in U-tubes. Underground drilling activities will be completed primarily using electric-hydraulic drills with on-board compressors (jumbos and bolters). The use of handheld pneumatic rock drills (i.e. jacklegs and stopers) will generally be limited to construction-related activities. In addition to handheld drills, compressed air will be required for other mining and construction activities, explosives loading, and pneumatic face pumps.

Compressed air is currently delivered to the mine through a network of 6” steel piping through the main ramps and 2” plastic piping in the access and ore drives.

There is an existing compressor installed at Portal 1 to facilitate the underground development program supplying compressed air to the mine. A second compressor is installed at Portal 2 ramp development which serves the same purpose. A third compressor will be installed at the Portal 3 entrance, to serve the same purpose.

The three compressed air piping networks will remain in place along with the compressors located at the three portal entrances. The piping networks will be connected where development intersects, albeit with isolation valves for the various branches to allow maintenance. This arrangement conserves capital provides improved pressure balancing through the network and, in the event of an emergency, provides compressed air supply from multiple sources.

Lastly pressure vessels outfitted with blow-down valves will be installed immediately downstream of the compressors at the portal entrances as well as a single large vessel at the bottom to Portal 3 to further aid network pressure balancing and stability.

16.3.7.12 Process Water

Process water for underground activities such as drilling, washing down development headings, and dust suppression is supplied from buffer storage water tanks located at the entrances of Portals 1, 2, and 3, and is delivered underground via a network of 4” plastic piping. The process water system is pressurized by gravity, with period pressure relief arrangements require as illustrated in Figure 16-75.

Figure 16-75: Typical Pressure Relief Arrangement

Process water supplied is a mixture of fresh water and recycled mine water from the dewatering process, and is not for sanitary uses such a drinking, washing, or ablutions. Sanitation water is supplied separately. This system has sufficient capacity to meet the demands of steady state production estimated to be 4.6 L/s with peak demand of 5.7 L/s based on 2021 values. All three sources of process water will be required for the duration of the mine life, to provide three sources of pressurized production and fire suppression water. This has the added advantage of using sunk cost for existing infrastructure to reduce both the amount of water trucking and transport from the lower Portal 3 system to the other portals as well as reduce the amount of electricity required for higher total lifts.

16.3.7.13 Mobile Equipment Maintenance Shops

Currently all preventative and break down maintenance is carried out in the surface workshop located adjacent to Portal 1. A new maintenance shop is being constructed at Portal 3 in 2022 to support the mine. Planning and performing maintenance on the mobile fleet is the responsibility of the mine contractor.

16.3.8 Underground Personnel

The workforce at the ELG UG Mine consists of MML employees and contractors. In general, all management, technical services and administration will be by MML and operated by four contractors. Table 16-40 provides a summary of the MML ELG UG Mine Workforce during, steady state and ramp down operational periods.

Table 16-40: Mine Workforce

Labor Underground	2022	2023	2024	2025	2026	2027
Torex Underground Management	18	18	18	18	18	9
Torex Technical Services	28	28	28	28	28	14
Mining Contractor 2	176	176	176	176	176	118
Underground Loading and Haulage Contractor 2	63	63	63	63	63	46
Underground Blasting Contractor 2	50	50	50	50	50	24
Services Contractor 2	18	18	18	18	18	9
Total	353	353	353	353	353	220

*Note1: Year Average, Note2: Information supplied by contractors

Four contractors provide personnel to perform the following services at the mine:

- Drilling, and bolting (ground support);
- Explosive loading and blasting;
- Ore, waste, and backfill loading and haulage;
- Surface ore and waste haulage.

The mine operates two 12-hour shifts per day, 7 days per week. There are three crews working (two crews working each day and one crew on days off) a 20 day on, 10 day off shift rotation.

16.4 MEDIA LUNA UNDERGROUND MINING

16.4.1 Introduction

The ML Underground mine will be accessed via three tunnels from surface. The mine design relies primarily on the use of longhole stoping with paste backfill to extract the Mineral Resources. The Mineral Reserve is separated into two distinct zones MLU and MLL and is approximately 700 m high, averages 500 m along strike, and varies in thickness from 5 m to over 100 m. A section and plan view of ML are provided in Figure 16-76 and Figure 16-77.

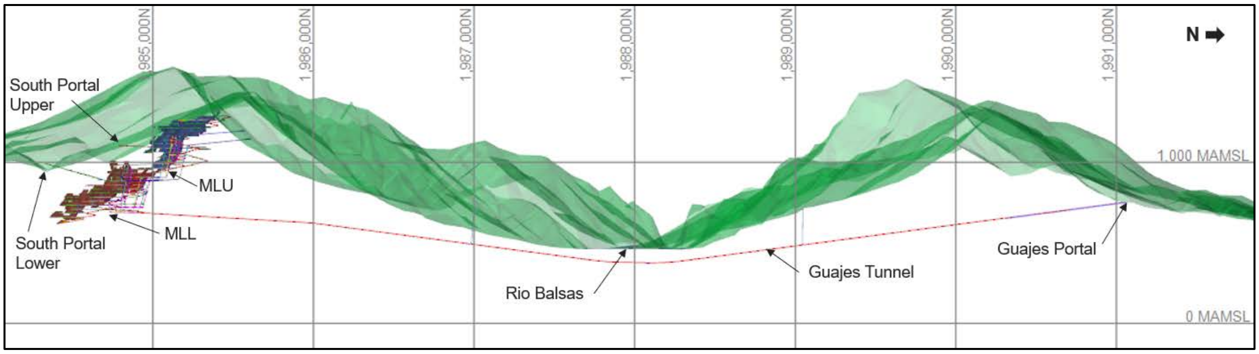


Figure 16-76: Media Luna Mineral Reserve Section View Looking West

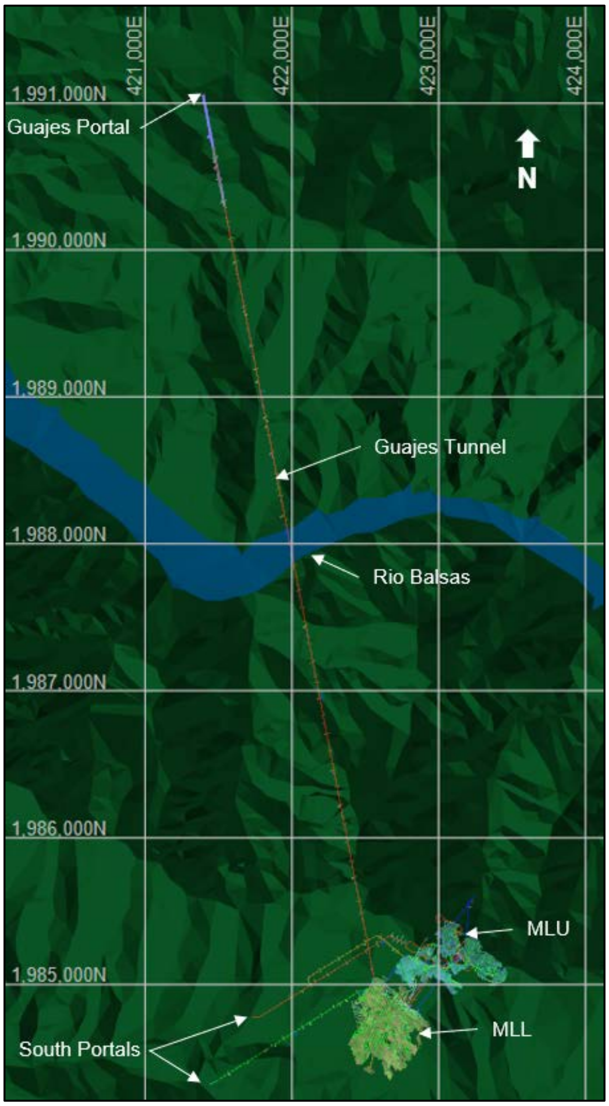


Figure 16-77: Media Luna Mineral Reserve Plan View

16.4.2 Media Luna Geotechnical

The geotechnical and stability assessment was based on data from the following sources:

- 97 geotechnical drillholes with core logs,
- 628 exploration drillholes with logged RQD,
- core photographs, and
- results of laboratory strength testing.

Based on reviewing this information it was concluded that the mineralized zone is Good rock (mean RMR76 of 76) and competent ground. Six (6) geotechnical domains have been identified as summarized below:

- Limestone/Marble (LMS/MAB) – The LMS/MAB is located in the hanging wall of the mineralized skarn zone. The LMS/MAB within 5 m of the mineralized zone will control the stability of the hanging wall of stopes at the hanging wall extremity of the mineralized zone. The mean RQD is classified as Very Good (88%) and the estimated ISRM intact strength estimates indicate Strong rock (R4) within 5 m of the mineralized zone. The representative intact UCS rock strength for this unit is 92 MPa (Strong rock) and the rock mass rating indicates Good rock (mean RMR76 of 74) within 5 m of the mineralized zone.
- Exoskarn (SKX) – The SKX is the mineralized zone. The mean RQD is classified as Excellent (>90%) and the estimated ISRM intact strength estimates indicate Very Strong rock (R5). The representative intact UCS rock strength for this unit is 152 MPa (Very Strong rock) and the rock mass rating indicates Good rock (mean RMR76 of 78).
- Endoskarn (SKN) – Typically the end walls and/or sidewalls of the stopes are located in the SKN. The mean RQD is classified as Excellent (>90%) and the estimated ISRM intact strength estimates indicate Very Strong rock (R5). The representative intact UCS rock strength for this unit is 200 MPa (Very Strong rock) and the rock mass rating indicates Good rock (mean RMR76 of 76).
- Granodiorite (GDI) – Located in the footwall of the mineralized zone, the majority of the infrastructure including the ramp, ore passes, and footwall drifts will be located in the GDI. The mean RQD is classified as Very Good (87%) and the ISRM intact strength estimates indicate Strong rock (R4). The representative intact UCS rock strength is 178 MPa (Very Strong rock) and the rock mass ratings indicates Good rock (mean RMR76 of 76).
- Dykes –The Dykes are waste rock and in some instances the end walls and/or sidewalls of the stopes are comprised of dyke material. Variable rock quality is observed in the dykes; however, based on the drillhole information and photographs of core from near the planned stopes, the rock quality of the dykes is Good (mean RMR76 of 67) with a mean RQD classified as Very Good rock (80%). The ISRM intact strength estimates indicate Strong rock (R4). The representative intact strength is 188 MPa (Very Strong rock). The QFP_A dyke is slightly different to the other dykes in that it has intervals 1-2 m wide which is highly fractured (RQD < 20%) which may be exposed partially in some stopes.
- Weak Ground – Very localized zones of poor rock mass quality are in close proximity to and appear to be related to the intersection of some large-scale structures and rock with moderate to strong argillic alteration intensities. Two areas of weak ground are located in MLL and one area in MLU. The RQD is classified as Very Poor to Poor (0 to 40%), and the estimated ISRM intact strength estimates indicate Very Weak to Weak rock (R1 to R2). Approximately 14 stopes were initially planned within these zones, however as referenced in Section 16.4.4.3.2, a modified mining approach with reduced ore recovery is planned in these weak zones because of the poor quality of the rock mass.

Figure 16-78 presents a typical cross section through the ML area indicating the geotechnical domains excluding the Weak Ground domain in MLL and MLU which are indicated in Figure 16-79.

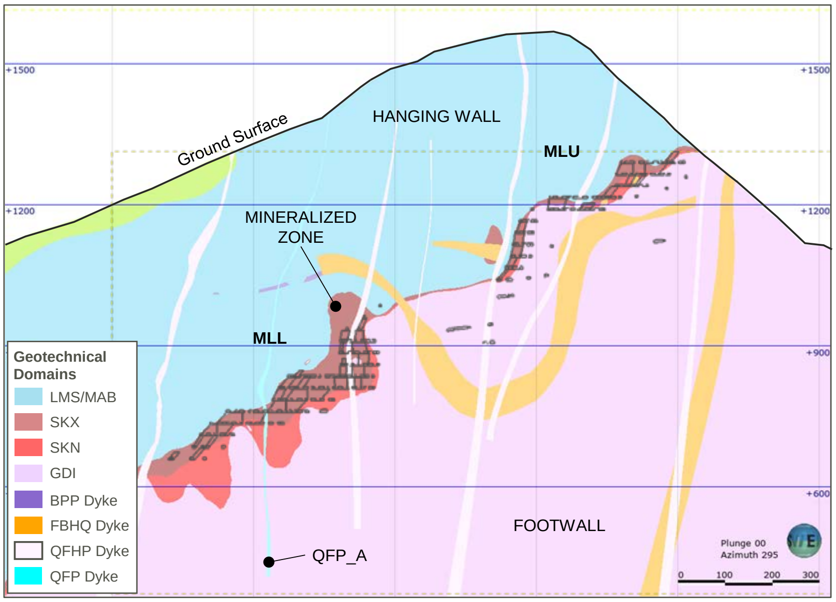


Figure 16-78: Cross Section (looking Northwest) through ML (Golder, 2022a)

Table 16-41 presents the representative intact strength and estimated Q' values for each geotechnical domain and Table 16-42 presents the rock mass elastic modulus and rock mass strength properties based on the Hoek-Brown strength criteria (Hoek 2002) for each geotechnical domain. Further details can be found in the Golder geotechnical characterization report (Golder, 2022a).

Table 16-41: Summary of Representative Intact Strength and Q' Values For The Geotechnical Domains (Golder, 2022a)

Geotechnical Domain	Representative Intact Strength (MPa)	Q'			
		25th Percentile	Median	75th Percentile	Mean
LMS/MAB	92	9	17	87	31
SKX	152	16	37	325	55
SKN	200	11	24	99	39
GDI	178	4	10	63	21
Dykes	188	5	9	24	14
Weak Ground	10	-	-	-	1

Table 16-42: Rock Mass Elastic Modulus and Strength Properties (Golder, 2022a)

Geotechnical Domain	Erm (GPa)	Hoek-Brown Strength Parameters			Uniaxial Rock Mass **Compressive Strength σc** (MPa)	Rock Mass Tensile **Strength σtm** (MPa)
		mb	s	A		
LMS/MAB	59	6.481	0.501	0.050	20.5	-0.71
SKX	46	7.293	0.501	0.087	44.7	-1.81
SKN	55	6.142	0.501	0.062	49.7	-2.02
GDI	37	6.863	0.501	0.050	39.6	-1.29
Dykes	37	5.740	0.502	0.029	31.6	-0.94
Weak Ground	-	-	-	-	-	-

Figure 16-79a and Figure 16-79b indicate the locations and extent of the Weak Ground geotechnical domain in MLL and MLU.

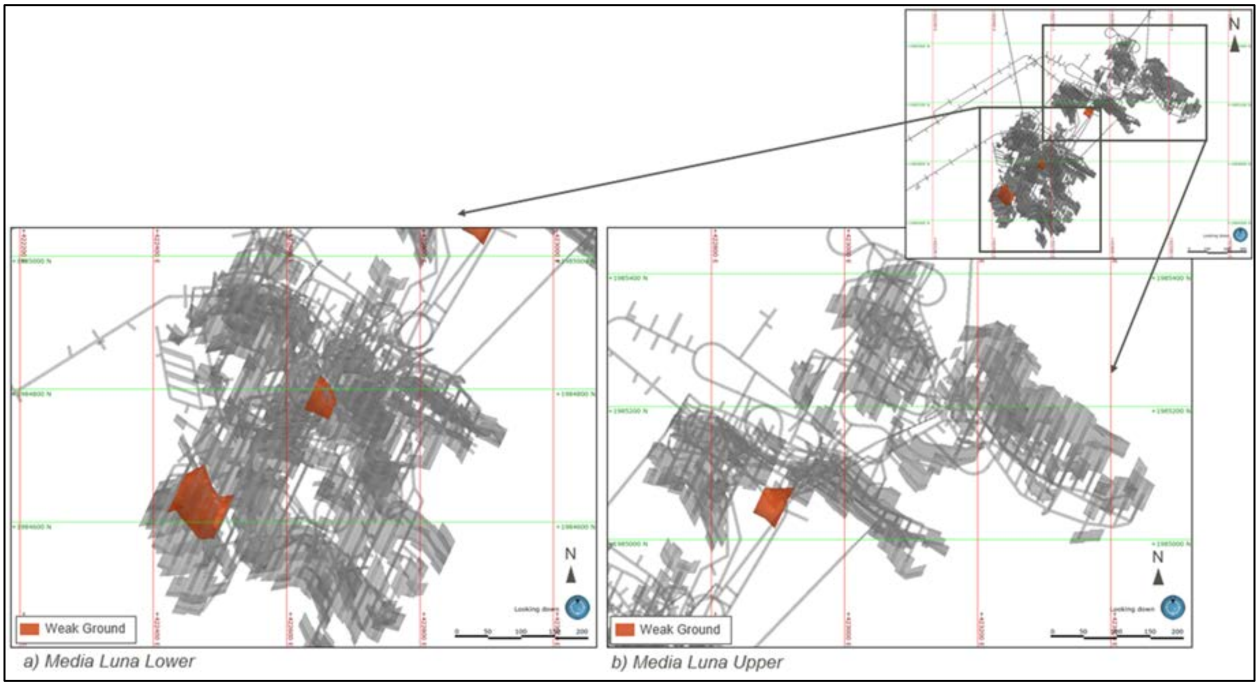


Figure 16-79: Plan View Indicating Weak Ground Locations in MLL and MLU (Golder, 2022a)

16.4.2.1 Stope Stability Assessment

LHS is the primary mining method and both transverse (TR) and longitudinal (LG) stopes are planned for ML. The geometry of the planned stopes and the design dimensions assumed for the stope stability assessments are as follows:

- Transverse stopes (TR) - 25 m sub-level spacing (30 m high stopes), 20 m wide (strike direction), and up to 40 m long (approximately 70% of total stopes). The end walls are parallel to the strike of the deposit and are 20 m wide, and the sidewalls are perpendicular to the strike of the deposit and are up to 40 m long.
- Longitudinal stopes (LG) - 25 m sub-level spacing (30 m high stopes), 20 m long (strike direction), and up to 15 m wide (approximately 30% of total stopes). The end walls are perpendicular to the strike of the deposit and are up to 15 m wide, and the sidewalls are parallel to the strike of the deposit and are 20 m long.
- The hanging wall dip varies between 50 and 90 degrees and 50% of the stopes have a hanging wall that dips between 50 and 60 degrees.
- The mineralized zone dips mostly to the SSW (dip direction of 205 degrees), but in some areas it reverses and dips to the NNE (dip direction of 025 degrees).

The stability of the stopes was assessed using the Mathews stability analysis method (Stewart et al., 1995). The stope is considered stable if the stability number (N) for the median Q' plots above the 70% Mawdesley probability of stability curve (Mawdesley, 2003). Overbreak was estimated for the inclined end walls for the TR stopes and inclined sidewalls of the LG stopes using the equivalent linear overbreak/slough (ELOS) factor developed by Clark and Pakalnis (1997). The ELOS is based on the N value and the hydraulic radius of the stope walls and is a measure of the estimated stope overbreak based on the rock mass quality for a given stope dimension. Detailed results can be found in the Geotechnical mine design report (Golder, 2022c).

The configurations analyzed to evaluate the stability of the stopes for different ground conditions are indicated in Table 16-43. These configurations were first analyzed for the most critical case where the dip of the HW is 50° and the depth is 600 m below surface. If this configuration was indicated to be unstable, the depth at which the stope was stable for a dip of 50° was determined. For stopes at greater depth than this stable depth, the HW dip at which stopes are stable was then determined for dips greater than 50°. The results of the stability assessments are presented in Table 16-43.

Table 16-43: Stope Stability Assessments

<table>
<tr><th>Case</th><th>Percentage Of Stopes</th><th>Stability Assessment</th></tr>
<tr><td>End Walls in SKX
Sidewalls in SKX
Back in SKX</td><td>75%</td><td>HW dip of 50° and depths less than 600 m from surface - stable for transverse and longitudinal stope dimensions indicated above
ELOS is < 0.5 m for the HW for median ground conditions.</td></tr>
<tr><td>TR:
End Walls in LMS/MAB
Sidewalls in SKX
Back in SKX
LG:
End Walls in SKX
Sidewalls in LMS/MAB
Back in SKX</td><td rowspan="2">23%</td><td>HW dip of 50° and depths less than 550 m from surface - stable for transverse and longitudinal stope dimensions indicated above
ELOS is < 1.0 m for the HW for median ground conditions.
HW dip of 60° and depths greater than 550 m from surface - stable for transverse and longitudinal stope dimensions indicated above.</td></tr>
<tr><td>TR:
End Walls in Dykes
Sidewalls in SKX
Back in SKX
LG:
End Walls in SKX
Sidewalls in Dykes
Back in SKX</td><td>HW dip of 50° and depths less than 600 m from surface - stable for transverse and longitudinal stope dimensions indicated above.
ELOS is < 1.0 m for the HW for median ground conditions.</td></tr>
<tr><td>Weak Ground</td><td><2%</td><td>Unstable for transverse and longitudinal stope dimensions indicated above.
As noted in Section 16.4.4.3.2, a modified mining approach with reduced ore recovery is planned in these weak zones because of the poor quality of the rock mass.</td></tr>
</table>

16.4.2.2 Mine Scale Stability Assessment

The stress distribution around the stopes for different stages of mining was assessed using FLAC3D and the elastic stresses were compared to the estimated rock mass strength. Details are documented in Golder's geotechnical mine design report (Golder, 2022c). The rock mass properties used in the analysis are presented in Table 16-42.

The results for the base case stress assumption ($\sigma_H : \sigma_h : \sigma_v$ = 1.5:1.5:1.0) indicate that stress induced fracturing of the rock mass is not expected except for local zones limited to the sidewalls of the transverse stopes and within the LMS/MAB at depth. The pillars between the primary stopes may locally experience up to 2 m of overstressing on each side of the pillar, as estimated for the deepest mining level which is the expected worst-case scenario as this level experiences the most stress. Most pillars do not indicate overstressing. Major overstressing was not observed between the stopes and the footwall drifts offset 25 to 30 m from the mineralized zone. Figure 16-80 presents a vertical cross-section indicating the stress to strength ratio and an example of localized overstressing in the LMS/MAB at depth.

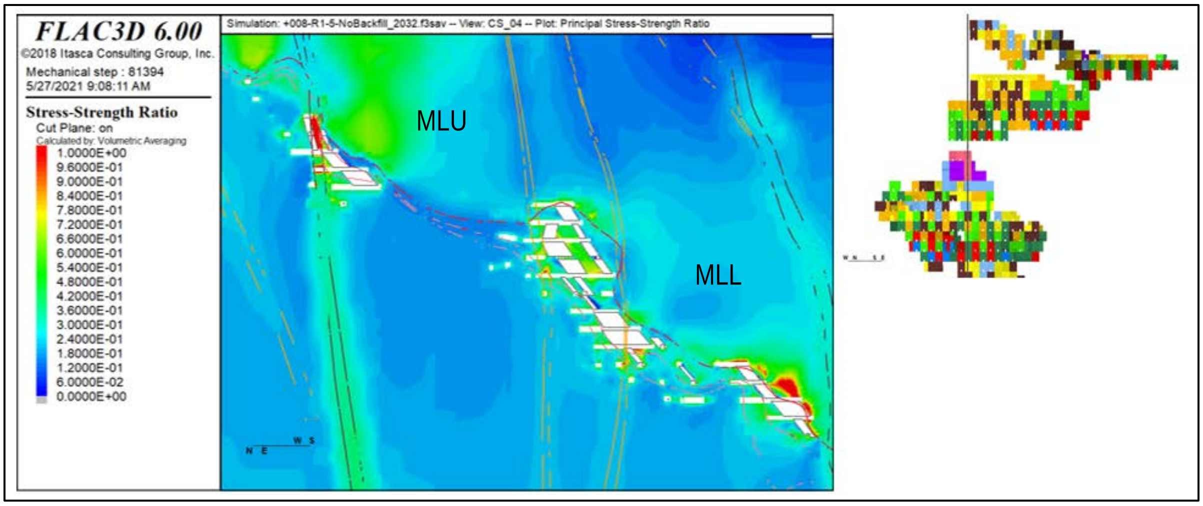


Figure 16-80: Stress to Strength Ratio for Vertical Cross-Section (looking Southwest) (Golder, 2022c)

16.4.2.3 Ground Support

16.4.2.3.1 Development Support

Ground support recommendations for the development were developed using the Q-System empirical design method (NGI, 2015). Kinematic analyses were also conducted to assess ground support requirements. Ground support standards were developed for long-term (i.e., footwall drift, ramp) and short-term excavations (i.e., stope access) in rock of Good and Poor to Very Poor rock quality. Based on the NGI guidelines, the Q' values, the results of the kinematic assessments, and professional judgement, the ground support recommendations for the development are summarized in Table 16-44.

Table 16-44: Ground Support Recommendations for Development (Golder, 2022c)

Ground Support Standard	Excavation Type	Geotechnical Domain	Opening Dimensions (m) H X W	Recommended Ground Support
GS1	- Long and short-term development - Tunnels	LMS/MAB SKX SKN GDI, Dyke	5 x 5	- 2.4 m long bolts (rebar) on a 1.5 m by 1.5 m spacing in the back/ribs - Rebar bolts installed within 1.5 to 2.0 m of the floor - Mesh back
GS2	- Intersections -wide excavations	LMS/MAB SKN GDI, Dyke	5 (high) x 6.2 to 8 (wide)	- 2.4 m long bolts (rebar) on a 1.5 m by 1.5 m spacing in the back/ribs -Rebar bolts installed within 1.5 to 2.0 m of the floor - 4.0 m long cable bolts, rows 2 m apart, 3 bolts per row in the back - Mesh back - Avoid intersections and wide excavations in Poor to Very Poor ground

Ground Support Standard	Excavation Type	Geotechnical Domain	Opening Dimensions (m) H X W	Recommended Ground Support
GS3	- Vertical raises	SKN GDI, Dyke	3 x 3 or 3 diameter	- If Alimak raising spot bolts may be required. - Raise bore likely no support required. - When vertical raises intersect dyke, 2.4 m long bolts (rebar) on a 1.5 m by 1.5 m spacing with spot bolting in the walls
GS4	Weak Ground		5 x 5	- 2.4 m long bolts (rebar) on a 1.2 m by 1.2 m spacing in the back/ribs - Rebar bolts installed within 1.0 m of the floor - Mesh back and ribs - 6 to 9 cm shotcrete thickness - May need to apply 3 to 5 cm shotcrete prior to bolting

Large excavations (up to 9 m high and 14 m wide) will require additional support (4 m and 6 m long cable bolts) and a tighter bolt spacing than indicated in Table 16-44. Details are provided in Golder's geotechnical mine design report (Golder, 2022c). Wide excavations and intersections should be avoided in the Weak Ground domain.

16.4.2.3.2 Support of Stope Backs

As indicated previously, the backs of the stopes are expected to be Good rock mass quality. However, there could be localized areas where the rock mass quality is poorer than this (dykes, faults) and these may require cable bolting.

16.4.3 Media Luna Hydrogeology

The ML Project is located within a mountainous area and the groundwater system is driven primarily by topography. Based on the results of hydrogeological investigations completed in support of the project the interpreted phreatic surface (water table) in the vicinity of the ML Mineral Resource area ranges from greater than 200 meters below ground surface (mbgs) under the ridge top to near, or above (artesian), ground surface in the creek valleys. In the ML resource area, the water table is approximately 700 to 800 meters above the elevation of the Balsas River. The shallow groundwater flow (Figure 16-81) generally follows three directions from a groundwater divide centered near the footprint of the proposed ML underground development.

- An east-west trending groundwater divide located along the mountain ridge directs water towards the south (San Miguel) and north (Balsas River).
- A north-south trending topographic high that intersects the ridge directs groundwater flows either towards the Las Mesas Creek in the southwest or the Bajial Creek in the southeast.
- The deeper groundwater flow pathway follows a significant downward hydraulic gradient through the skarn into the underlying granodiorite and is inferred to discharge to the Balsas River.

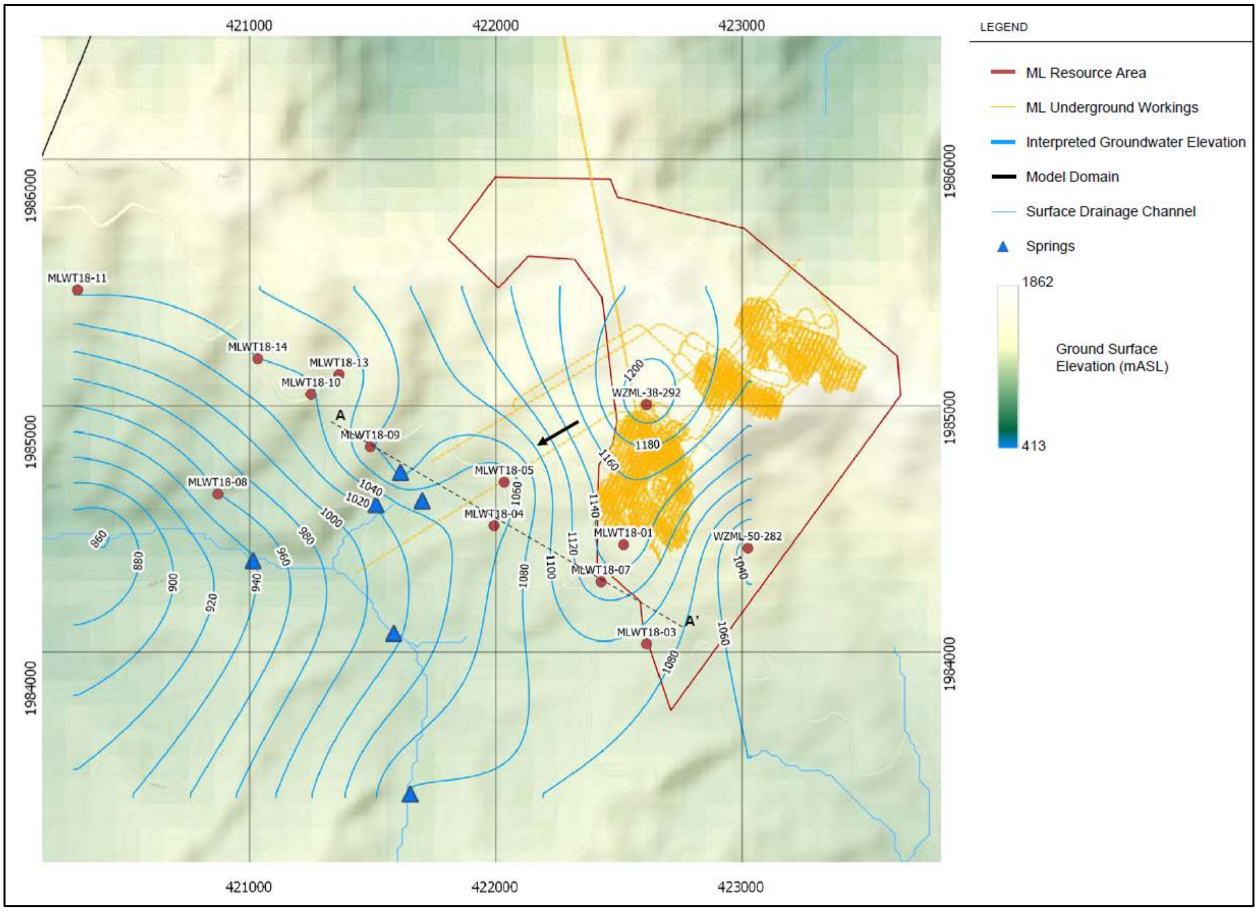


Figure 16-81: Interpreted Shallow Water Table Elevation (Shallow Monitoring Locations and Springs), Plan View (Golder, 2021b)

As presented on Figure 16-82, the available data indicate the occurrence of under draining (i.e., through features or lithological units of higher transmissivity present beneath units of lower transmissivity) and potential perched conditions of the observed water table. Based on the available data, approximately 15% of annual precipitation (i.e., 137 millimeters per year) is surplus and is available for groundwater recharge and overland flow.

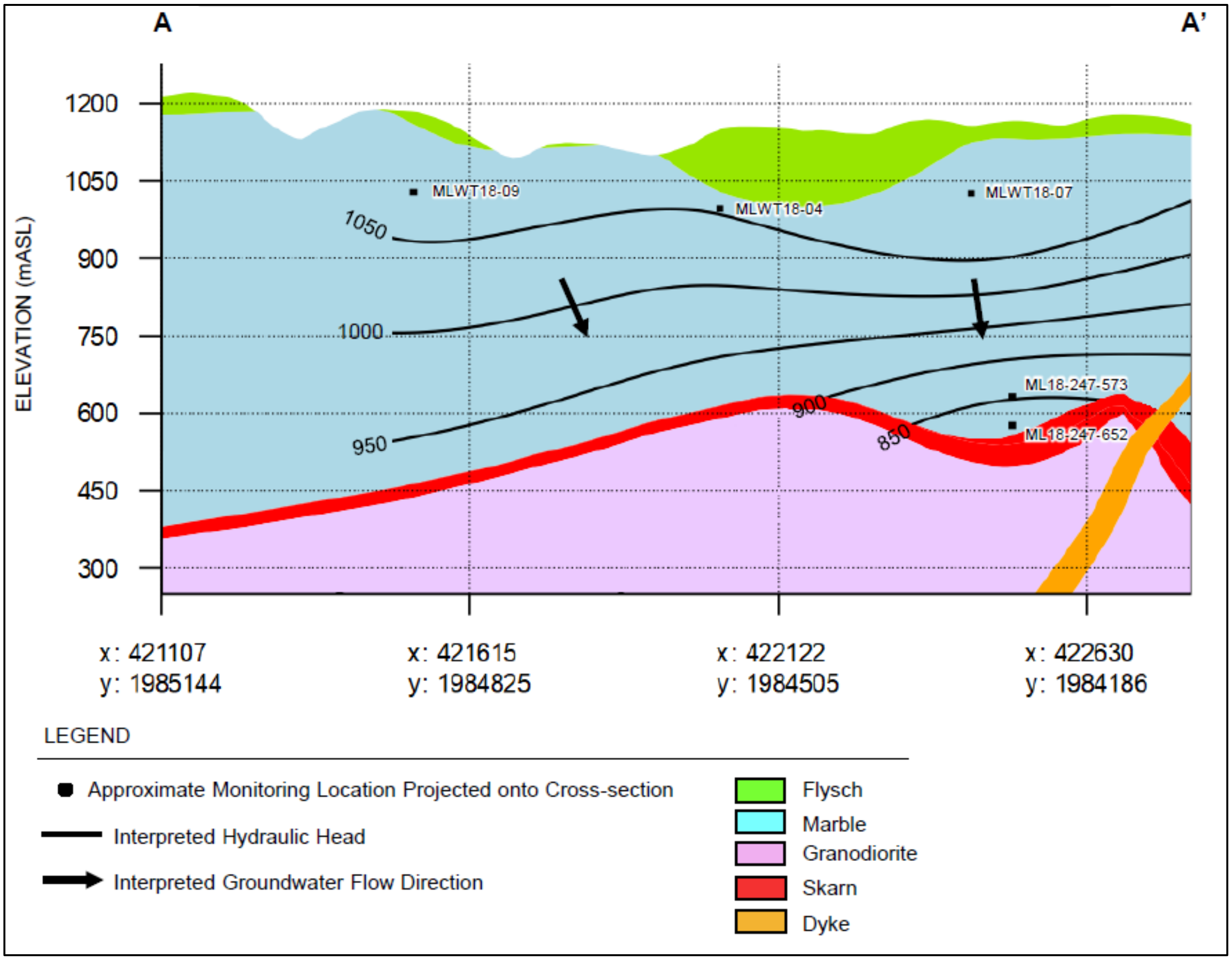


Figure 16-82: Interpreted Water Table Elevation (Shallow and Deep Monitoring Locations), Cross-Section A-A' (Cross-Section Locations as Presented on Figure 16-80) (Golder, 2021b).

16.4.3.1 Hydrostratigraphic Units and Hydraulic Conductivity

The main hydrostratigraphic units identified in the ML resource area include the marble, skarn, and granodiorite, as well as the dykes and faults which intrude these units (Figure 16-83). Regionally, alluvial and flysch deposits are present, although these are not predominant in the ML resource area.

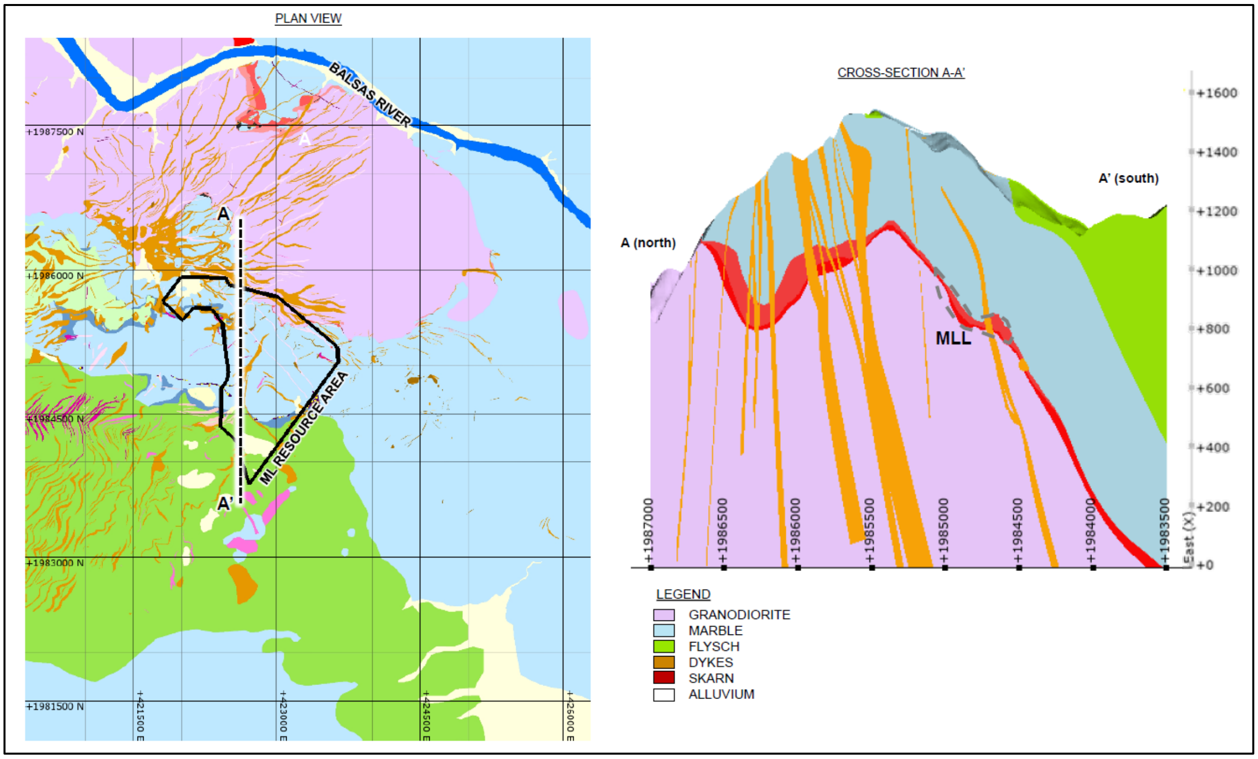


Figure 16-83: Geology and Hydrostratigraphy of the ML Resource Area (Golder, 2021b)

Results of hydraulic testing indicate similar ranges of hydraulic conductivity for each of the main hydrostratigraphic units, although the interpretation of the test results is complicated by the long test intervals which span multiple units and/or include the dykes and structural features (e.g., faults). To account for this, the available hydraulic conductivity estimates have been grouped based on the test interval intersection of the hanging wall (i.e., marble/limestone and dykes), ore zone (skarn and dykes) and/or footwall (i.e., granodiorite and dykes). Hydraulic conductivity estimates for tests completed in the hanging wall cover a wide range from 9 x 10-9 m/s to 9 x 10-5 m/s. The range of hydraulic conductivity estimates completed in the footwall and the ore zone fall within the lower portion of the range covered by the hydraulic conductivity estimates for the hanging wall. Lower transmissivity in the skarn relative to surrounding bedrock units could produce a perched water table that results in conditions consistent with the downward vertical hydraulic gradient observed in the groundwater elevation data. It is noted that all hydrogeological testing within the granodiorite unit occurred within approximately 100 m of the skarn. Although data is not available at depth within the granodiorite for the ML resource area, it would be expected that hydraulic conductivity within this unit would decrease with depth due to a decrease in fracture density. Hydraulic conductivity testing completed within granodiorite at the ELG Site indicated lower hydraulic conductivity below a depth of 100 m.

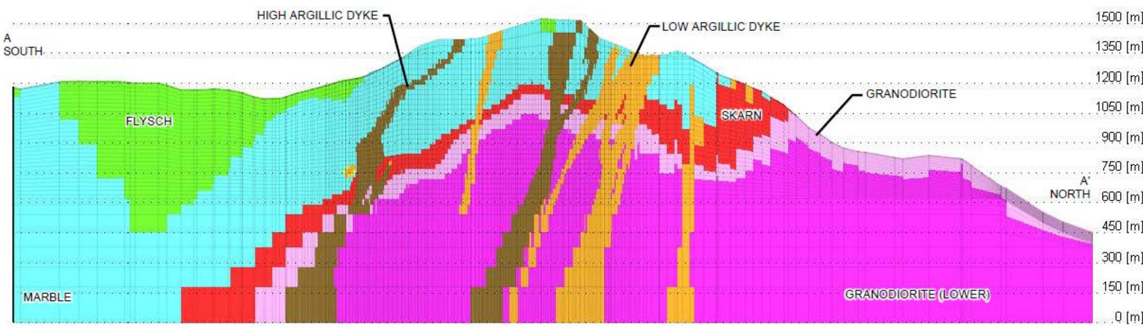
Geologic structures could potentially be a source of groundwater inflow to the underground development if these are permeable and connected to a source. Hydrogeological test intervals that intersected mapped faults did not consistently provided higher hydraulic conductivity estimates however, it is noted that two tests intersecting the El Limón fault corresponded with higher hydraulic conductivity estimates.

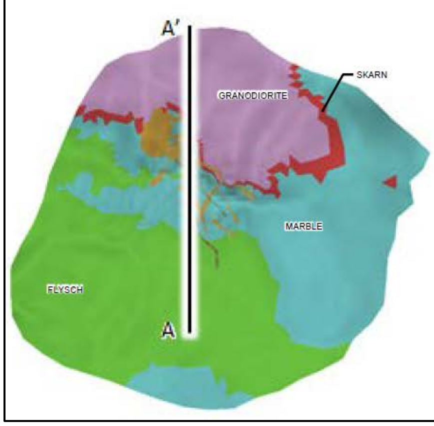
16.4.3.2 Inflow Estimates – Methodology

A three-dimensional numerical groundwater flow model was developed to estimate seepage flow rates during the development of the ML mineral resource. The groundwater flow model was configured using HydroGeoSphere (HGS), a three-dimensional control-volume finite element flow code that is capable of fully coupled simulation of the subsurface and surface flow domains of the hydrologic cycle (Aquanty, 2016).

Construction of the model mesh and pre-processing of the required HGS input files was completed using additional software (e.g., Algomesh for the numerical mesh construction, FEFLOW for assignment of material properties, and Leapfrog Works for combining the mesh and 3D geological model). The boundary conditions for the groundwater flow model were set based on the conceptual hydrostratigraphic model developed for the ML Project area.

The hydrostratigraphic units identified during the development of the conceptual hydrogeological model were selected for representation in the groundwater flow model as equivalent porous media (EPM) zones. The selected hydrostratigraphic units were mapped to the flow model such that each element of the flow model was assigned one EPM zone. Major geological structures (i.e., faults) identified in the conceptual hydrogeological model were represented in the flow model as discrete features defined along vertical element faces. The hydraulic conductivity values assigned to each EPM zone were based on the conceptual hydrostratigraphic model and the results of the model calibration process. The hydrostratigraphic units and assigned hydraulic conductivity values are illustrated on Figure 16-84.





Hydraulic conductivity (K) of hydrostratigraphic units

Unit	Horizontal K (m/s)	Vertical K (m/s)
Flysch	4.0E-08	4.0E-09
Marble	9.0E-08	9.0E-09
Granodiorite	1.5E-07	1.5E-07
Granodiorite (Lower)	7.0E-08	7.0E-08
Skarn	1.0E-09	1.0E-10
Dykes (Low Argillic)	5.0E-09	5.0E-10
Dykes (High Argillic)	1.0E-09	1.0E-10
Mantle	1.0E-09	1.0E-10
Alluvium	1.0E-04	1.0E-04

Transmissivity of structures

Structures in shallow units	1.0E-04 m²/s
Structures in granodiorite	1.0E-01 m²/s

Specific storage

All units	1.0E-06 m⁻¹

Figure 16-84: Groundwater Flow Model Parameterization (Golder, 2021b)

The calibration of the flow model to pre-mining conditions (Figure 16-85) was assessed by comparing the hydrogeological conditions simulated by the flow model to measured data (i.e., hydraulic heads). The flow model parameters and boundary conditions were adjusted through an iterative process until a reasonable agreement was reached between simulated conditions and the calibration targets (hydraulic heads). Once calibrated, the boundary conditions of the model were reconfigured to incorporate the planned mine development schedule, resulting in a forecast of hydrogeological conditions during development.

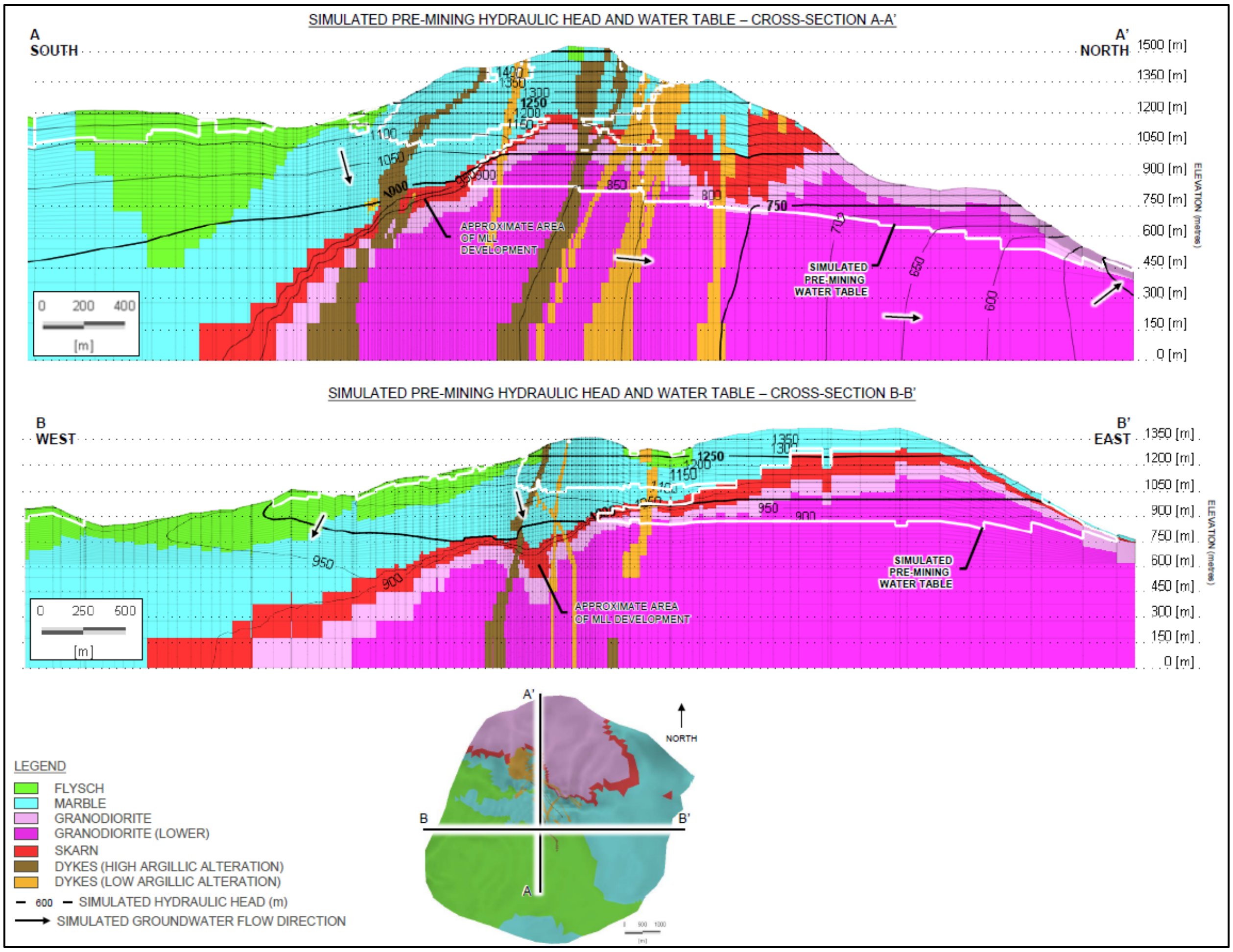


Figure 16-85: Simulated Pre-Mining Hydraulic Head (Golder, 2021b)

The calibrated groundwater flow model was configured to forecast the transient hydrogeological conditions within the flow model domain for the planned development of the ML resource area. The nodal selection representing the underground development (based on the provided mine plan) was subdivided into four groupings to allow for simulated groundwater inflows to be attributed to either the MLU, MLL, South Portal Upper (SPU) or South Portal Lower (SPL) components of the underground development. To simulate the transient development of the mine workings, the nodal selections were further subdivided into annual groupings based on the quarterly schedule provided with the mine plan. The forecast simulation was run from January 1, 2021 until December 31, 2032, with the initial conditions defined by the steady-state conditions simulated with the calibrated model. The seepage nodes associated with each annual grouping were activated on January 1st of the year where the development is scheduled to occur. Once a seepage node has been activated, it remains activated for the remainder of the simulation.

A sensitivity analysis was completed to better understand the impact of uncertainty in the parameter estimates arrived at through the calibration process on the resulting estimates of groundwater seepage to the ML resource area. The sensitivity analysis involved the adjustment of key model parameters (i.e., hydraulic conductivity of the granodiorite and skarn, specific storage and total surplus) to assess the impacts of each parameter on model results. For each sensitivity analysis simulation, the flow model parameter selected for analysis was adjusted while all remaining parameters were kept consistent with the parameterization of the calibrated model. For each sensitivity analysis, the simulated pre-mining conditions and simulated groundwater seepage rates to the underground development were compared to the base case simulation results (i.e., the forecast results obtained using the calibrated model).

The Guajes Tunnel was not represented in the flow model. Groundwater seepage into the full length of the Guajes Tunnel was estimated using the Goodman (1965) analytical solution for flow to a tunnel. The tunnel was subdivided into six segments (Figure 16-86) and the analytical solution was applied over each segment to evaluate the total inflow to the tunnel. Bulk hydraulic conductivity of the granodiorite adjacent to the tunnel was selected from a review of deep hydraulic testing data from the ELG Site.

Based on the wide range of hydraulic conductivity estimates available for the granodiorite, groundwater seepage to the Guajes Tunnel was estimated for each tunnel segment using three hydraulic conductivity estimates:

i. the geometric mean hydraulic conductivity from tests completed in the granodiorite below 120 meters depth;
ii. the hydraulic conductivity one standard deviation above the geometric mean hydraulic conductivity; and
iii. the hydraulic conductivity one standard deviation below the geometric mean hydraulic conductivity.

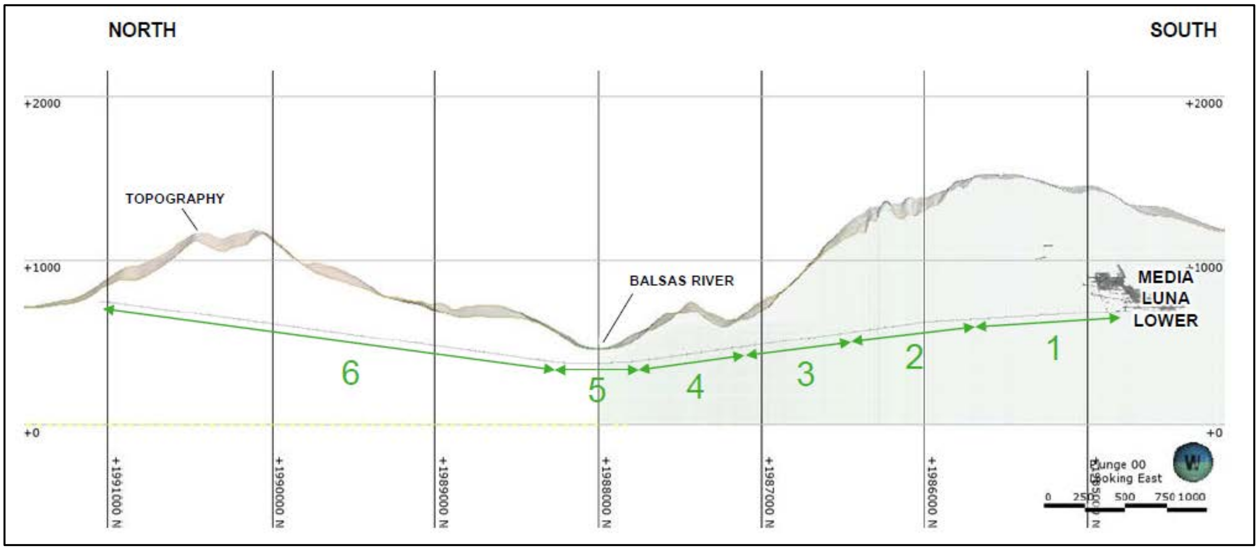


Figure 16-86: Guajes Tunnel Segments for Analytical Solution (Golder, 2021b)

16.4.3.3 Results

According to the mine plan, the elevation of the proposed underground development in the ML resource area is 230 meters or higher above the elevation of the Balsas River while the Guajes Tunnel extends to an elevation approximately 60 m below the lowest elevation of the Balsas River in the vicinity of the ML Project. From approximately 30 mbgs to 500 mbgs, the planned underground development is expected to encounter groundwater inflows below the perched water table inferred at approximately 200 mbgs (above the skarn). The planned underground development extending from approximately 400 mbgs to 600 mbgs is located below the inferred water table and groundwater inflows to the workings are expected throughout development.

Simulated groundwater seepage into the development over life of mine for the base case (calibrated model) is illustrated on Figure 16-87. The following presents a summary of the results of the simulated groundwater seepage into the underground development over time for the base case (calibrated model) condition:

- The combined simulated groundwater seepage to each of the components of the ML resource development combined range from 4.5 L/s to 13.3 L/s. The highest seepage rate was simulated to occur in 2028.
- From 2021 to 2022, nearly all the simulated groundwater seepage occurs within the SPL tunnel. Simulated groundwater seepage to the SPL tunnel in 2021 was 4.3 L/s. Simulated seepage to the SPL tunnel generally decreases each year after 2022.
- From 2022 until the end of mining, most of the groundwater seepage is simulated to report to the MLL development ranging from approximately 7.0 L/s to 9.6 L/s. The highest seepage rate to the MLL development is simulated to occur from 2028 to 2032.
- Simulated groundwater seepage to the MLU development and SPU tunnel do not make up a significant component of the total simulated groundwater seepage to the ML resource developments. The simulated groundwater seepage throughout development was below 0.5 L/s and 0.1 L/s for the MLU development and SPU tunnel, respectively. The lower seepage rates for these components reflect the interpretation that much of their development occurs above the inferred groundwater table elevation.

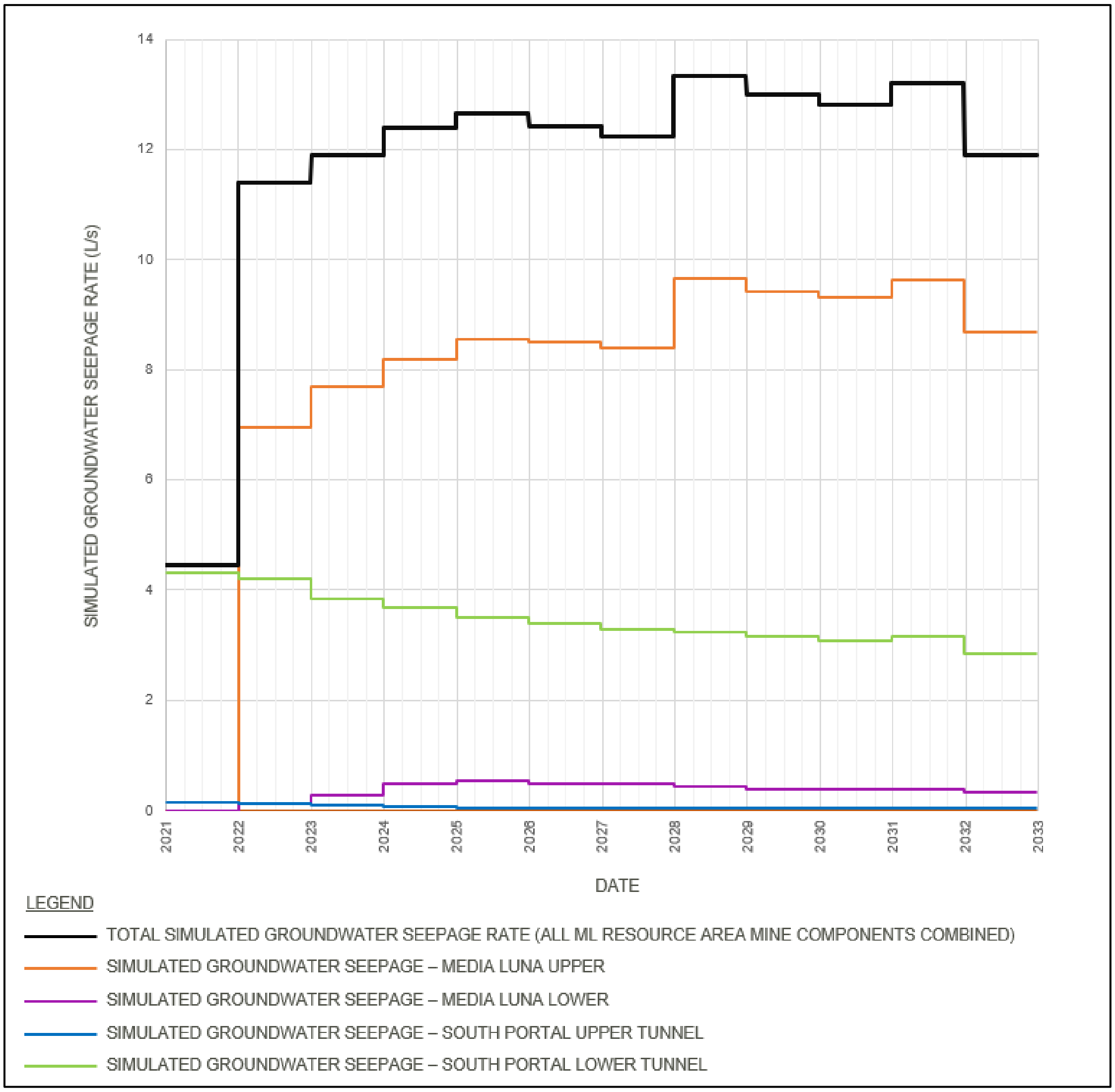


Figure 16-87: Simulated Groundwater Inflow Rate over Life of Mine (Golder, 2021b)

Groundwater seepage into the full length of the Guajes Tunnel was estimated separately from the groundwater flow model. The calculated groundwater seepage rates to the tunnel ranged from approximately 7 L/s to 110 L/s. The range in the estimated seepage rates is the result of the wide range in hydraulic conductivity estimates for the granodiorite. The hydraulic conductivity information for the granodiorite suggests there may be a continuing decrease in hydraulic conductivity with depth resulting in lower seepage to the deeper portions of the tunnel than estimated herein, however there is insufficient data to fully characterize the hydraulic conductivity with depth along the full tunnel alignment. The best estimate for groundwater seepage to the tunnel is approximately 27 L/s.

The following is noted regarding the change in the simulated hydrogeological conditions as a result of the development of the ML resource area:

- The dewatering of the developments in the ML resource area creates a hydraulic sink that results in local groundwater flow towards the development.
- Depressurization of the developments results in a lower simulated water table within the vicinity of the ML resource area.

The presented seepage estimates are based on assumed conditions during development of the ML resource. The actual groundwater inflows could however vary from those presented due to general uncertainty associated with the subsurface conditions in the ML resource area, and recognized gaps in the data (e.g., lack of pumping test results and specific hydraulic conductivity testing of each of the main hydrostratigraphic units). In particular, if the underground development and/or Guajes Tunnel were to intersect transmissive structural features not specifically represented in the model the seepage inflows could be greater than those estimated if not otherwise mitigated.

16.4.4 Mine Design

The ML Mineral Reserve is divided into two relatively distinct zones; MLL and MLU. The mine design uses primarily LHS with paste backfill and some MCAF stoping. The mine design provides operational flexibility for planning and scheduling while targeting high grade material early in the production life. The mine design divides the mine into blocks which can operate as independent areas but share a main access and materials handling system to transport mineralized material under the Rio Balsas to the ELG Process Plant. Processing of the ML mineralized material would take place in the existing ELG Process Plant. Details on processing are provided in Section 17 of this Technical Report.

16.4.4.1 Mine Access

Media Luna will be accessed via three portals and tunnels: Guajes portal and tunnel on the north side of the Rio Balsas at the ELG Mine Complex and SPU and SPL portals and tunnels on the south side of the Rio Balsas near San Miguel. There are box cuts and portals constructed at each site to facilitate tunnel development and the life of mine operation. The plan to maintain the ELG Mine Complex as the main access route provides benefits from a social, environmental, security and operational perspective.

16.4.4.1.1 Guajes Tunnel

The Guajes Tunnel will be the main haulage route for life of mine operation and the primary access for personnel and material movement from surface to underground.

The Guajes Tunnel profile is 6.0 m wide by 6.5 m high and is approximately 6.5 km long with a maximum gradient of 13%. For the development phase, one 1,830 mm diameter and one 1,520 mm temporary ventilation ductwork will be suspended from the back and will accommodate clearance for a loaded 45-t class haul truck. Remuck bays with truck loading will be established every 150 m. Safety bays will be developed every 60 m and passing bays every 300 m. Mine services will be installed in the tunnel and will include water and slurry piping, compressed air (for development), as well as electrical and communications cables. The Guajes Tunnel is currently being developed and as of December 31st, 2021 approximately 1,033 m have been completed.

Two ventilation raises will be developed along the Guajes Tunnel. The first will be on the north side of the Rio Balsas after the Guajes Tunnel has advanced approximately 2.1 km and will be developed by raise boring. The second will be approximately 4.2 km from the Guajes portal, on the south side of the river, and will be developed by Alimak methods as surface access at this location will be limited. A cross section view of the Guajes Tunnel for the development phase is presented in Figure 16-88.

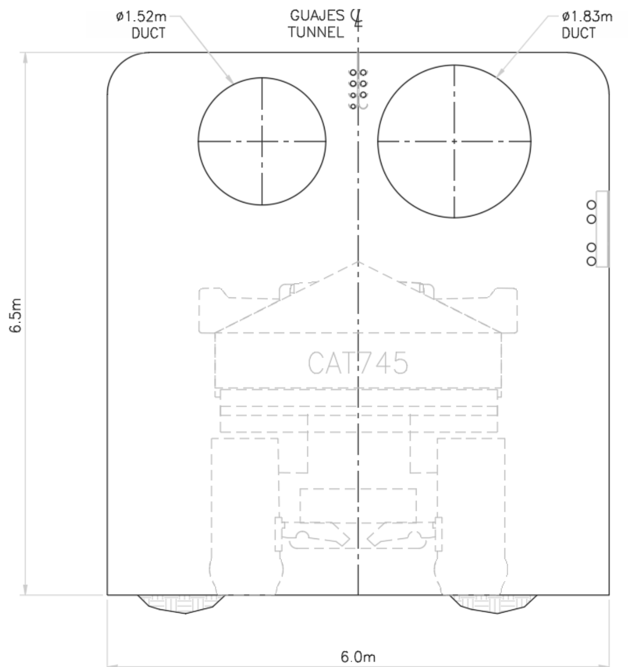


Figure 16-88: Media Luna Guajes Tunnel Cross-Section (Development Phase)

For LOM operation a back mounted conveyor will be installed in Guajes Tunnel for ore and waste transfer from underground to surface. The LOM tunnel operation will accommodate mobile equipment required for personnel and material delivery, maintenance, cleaning, and inspection of the conveyor system. A cross section view of the Guajes Tunnel for the development phase is presented in Figure 16-89.

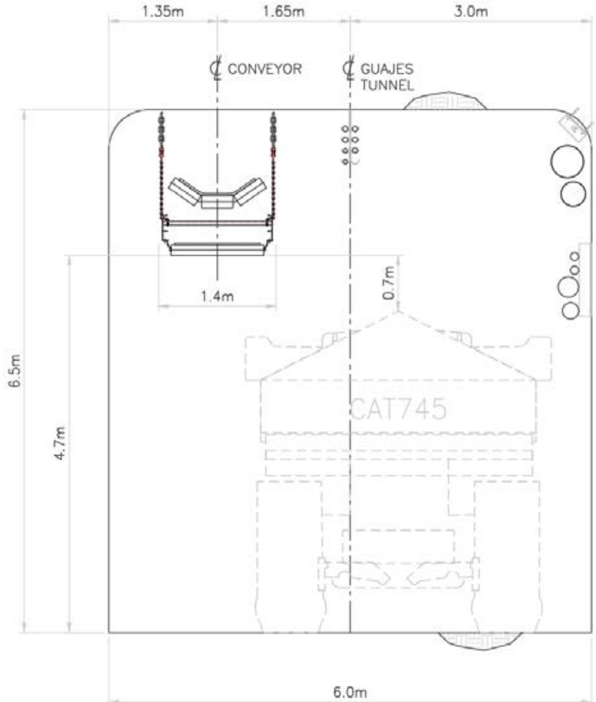


Figure 16-89: Media Luna Guajes Tunnel Cross Section (LOM Phase)

16.4.4.1.2 South Tunnels

The south tunnels were selected as early mine accesses to ML and for LOM ventilation and paste backfill delivery. There are two portal locations for the south tunnels, SPL at 990 meters above mean sea level (MAMSL) and SPU at approximately 1,105 MAMSL. Figure 16-90 presents a section view of the south tunnel mine accesses.

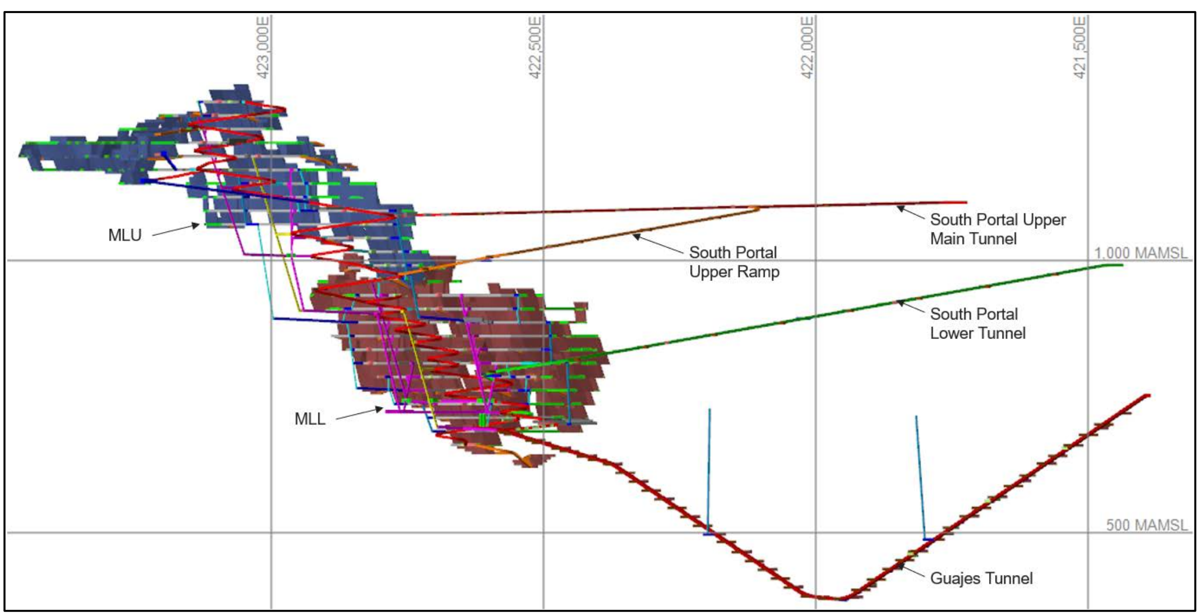


Figure 16-90: South Tunnels Longitudinal View Looking South

The SPL tunnel profile is 5.0 m wide by 5.5 m high at a maximum gradient of 15%. For the development phase, temporary 1,520 mm diameter ventilation ductwork will be suspended from the back and will accommodate clearance for a loaded 30-t class haul truck. Remuck bays with truck loading will be established every 150 m. Safety bays will be developed every 60 m and passing bays every 300 m. Mine services will be installed in the tunnel and will include water piping, compressed air (for development), as well as electrical and communications cables. The SPL tunnel is currently being developed and as of December 31st, 2021 approximately 233 m have been completed.

The SPL tunnel is approximately 1470 m long and reaches the internal ramp at approximately 780 MAMSL. The SPL tunnel provides access for early mine development of MLL including Guajes Tunnel, material handling system (including bins, rockbreaker stations, and conveyor drifts), and early MLL level development.

The SPU main tunnel profile for the initial 460 m is 5.5 m wide by 6.0 m high at a gradient of -2.0 % until it reaches the intersection with the SPU ramp at which point both tunnels will be 5.0 m wide x 5.0 m high. The South Portal main tunnel continues at a gradient of -2.0 % while the SPU ramp is developed at a minimum gradient of -15%. For the development phase, temporary 1 520 mm diameter ventilation ductwork will be suspended from the back and will accommodate clearance for a loaded 30-t class haul truck. Remuck bays with truck loading will be established every 150 m. Safety bays will be developed every 60 m and passing bays every 300 m. Mine services will be installed in the tunnel and will include water, paste backfill, and slurry piping, compressed air (for development), as well as electrical and communications cables. The SPU main tunnel is currently being developed and as of December 31st, 2021 approximately 333 m have been completed.

The SPU main tunnel is approximately 1,220 m long and reaches the ML internal ramp at approximately 1080 elevation. South portal upper is the location of the paste backfill plant and the South Portal main tunnel provides LOM distribution for paste backfill and ventilation intake. The SPU ramp is approximately 860 m long and reaches the internal ramp at approximately 970 MAMSL. The SPU tunnels also provide access for early mine development of MLU including the west ventilation adit, material handling system, and early MLU level development.

16.4.4.2 Mine Development

All ramp and lateral excavations will be developed using drill and blast methods and diesel-powered mobile equipment. The mobile equipment required for development activities is listed below.

- Drill – 2-Boom Electric-Hydraulic Jumbo
- Blast – Mobile Explosives Loader
- Muck – 14-t Class LHD
- Haul – 30-t Class Haul Truck
- Ground Support Installation – Mechanical Bolter

There will be five main development heading profiles for the underground workings as summarized in Table 16-45. For infrastructure excavations general arrangement drawings were completed and the excavation dimensions incorporated into the 3D mine design accordingly. For larger infrastructure excavations (such as crane bays, conveyor transfer stations, rock breaker stations, shops, etc.) multi pass development was considered and for these excavations, initial pilot drifts will be developed, and then a combination of wall slashing, floor benching, and back-slashing will be used to achieve the final dimensions.

Table 16-45: Main Development Heading Profiles

Heading Type	Heading Profile
Guajes Tunnel	6.0 m W x 6.5 m H
South portal upper tunnel	5.5 m W x 6.0 m H
South portal lower tunnel	5.0 m W x 5.5 m H
Ramp and lateral development	5.0 m W x 5.0 m H
Transverse stope ore development	7.0 m W x 5.0 m H

Lateral development rounds will be drilled using a 2-Boom Electric-Hydraulic Jumbo. The jumbo will drill 4.6 m deep holes to break (advance) 4.4 m per development round. A 10% overbreak allowance has been applied to all waste headings. An example of the drilling pattern for the 5.0 m wide x 5.0 m high heading type is presented in Figure 16-91.

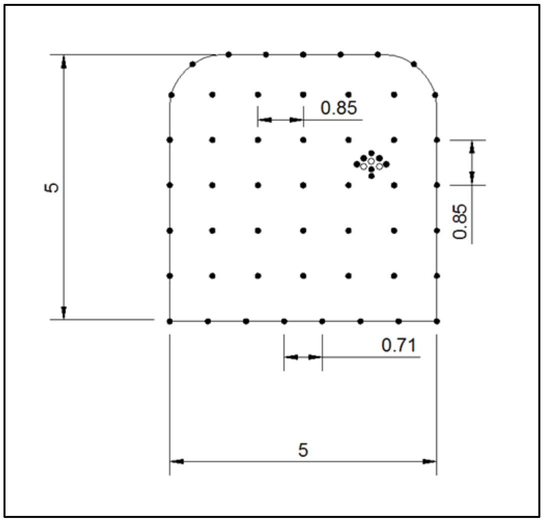


Figure 16-91: Drilling Pattern for a Typical 5 m x 5m Heading Section View

Development rounds will be loaded with ANFO or emulsion using a mobile mechanical explosives' loader. Development rounds will be mucked using a 14-t class LHD. The LHD will muck blasted rock from the face to a remuck bay or other available development drift. For long single development headings, remuck bays will be spaced 150 m apart, resulting in an average tramming distance of 75 m. Once the round has been mucked from the face, the LHD will load the rock into a haul truck.

Ground support installation will be completed using a mechanical bolter. Ground support requirements were identified for various rock types that will be encountered at ML. To minimize the variation of ground support materials and to promote consistency and quality control with ground support installation, a common primary ground support that will accommodate most ground conditions encountered was selected for development cycle estimates and costing. The primary ground support will include 2.4 m long resin rebar bolts installed on a 1.5 m by 1.5 m staggered pattern with welded-wire mesh screen installed on the back, shoulders, and ribs. An allowance for shotcrete application to all development as part of primary ground support has been included to accommodate local poor-quality ground.

Secondary ground support consisting of cable bolts will be applied to larger spans at intersections and infrastructure excavations. Where possible, four-way intersections will be avoided in the mine design. At intersections, there will be 4 m long cable bolts installed on a 2.0 m x 2.0 m pattern. Some larger excavations will require 6 m long cable bolts.

Vertical raise development will include ventilation raises, ore and waste passes, ore storage bins, and finger raises. These will be developed using raise boring or Alimak methods and completed by a qualified mining contractor. There may be opportunities for some of the shorter ventilation raises and ore pass fingers to be drop raised using an ITH drill.

There are two sizes of raise boring development: 4 m diameter ventilation raises to be equipped with escapeways as second egress and 3 m diameter ventilation raises. The ventilation raises vary in length from 20 to 230 m. Two thirds of the ventilation raises are less than 30 m in length. The longest is 230 m and is located in Guajes Tunnel on the north side of the Rio Balsas. At Media Luna the longest ventilation raise is approximately 180 m.

The Alimak vertical development is designed at 3 m x 3 m and includes ore and waste passes and finger raises into the ore and waste passes. The ventilation raise in Guajes Tunnel on the north side of the Rio Balsas will also be developed by Alimak methods. The Alimak raises vary in length from 20 to 230 m, while the finger raises are typically 10 m long. The longest Alimak raises are 230 m and are in Guajes Tunnel or at ML as a connection between the MLU and MLL material handling systems.

Typical levels for MLL and MLU are presented in Figure 16-92 and Figure 16-93 and a section view of ML is presented in Figure 16-94. The level number corresponds approximately to the meters above mean sea level.

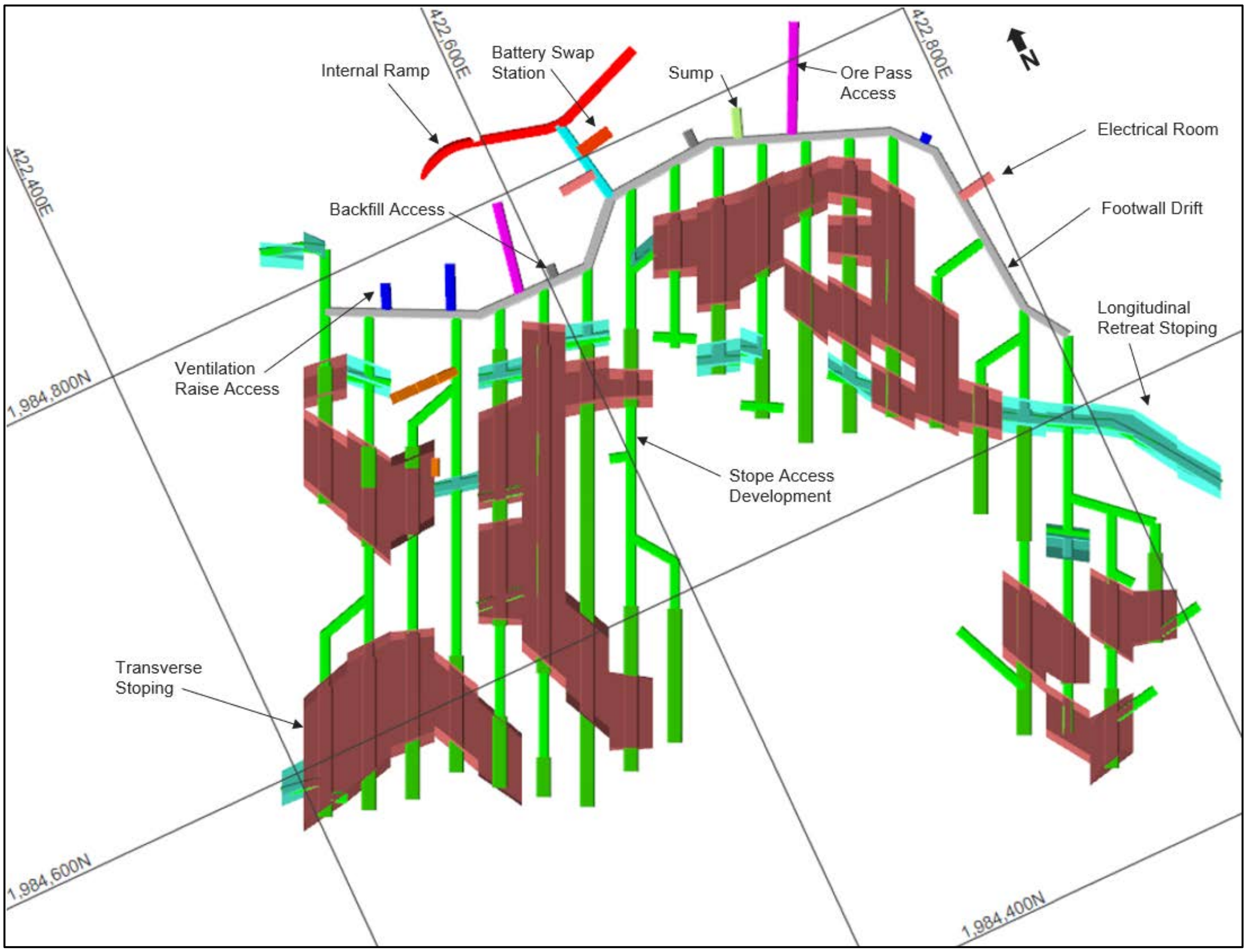


Figure 16-92: Typical Level (795L) MLL Plan View

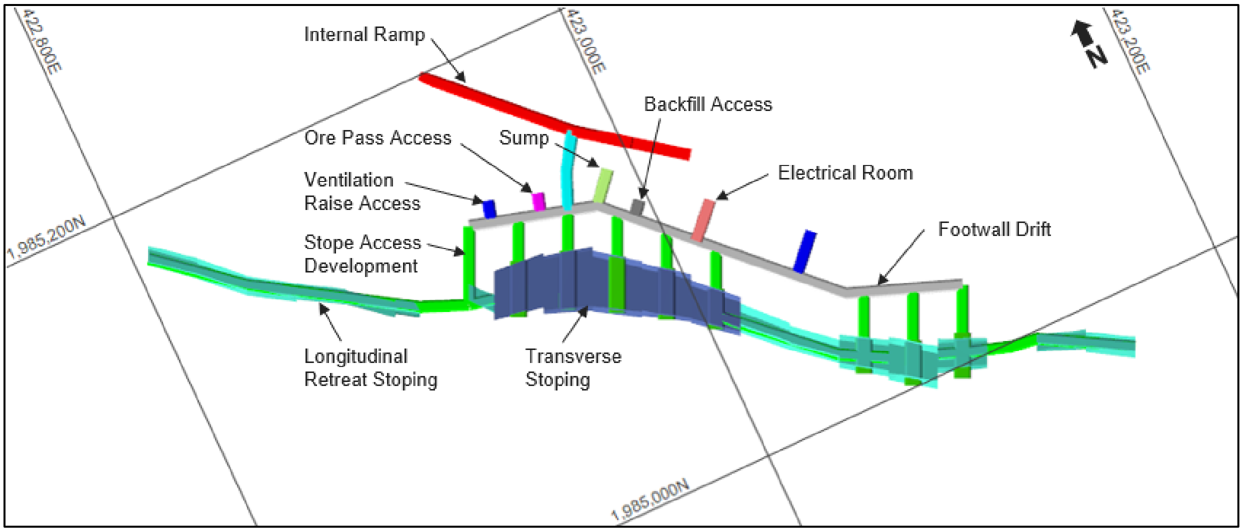


Figure 16-93: Typical Level (1120L) MLU Plan View

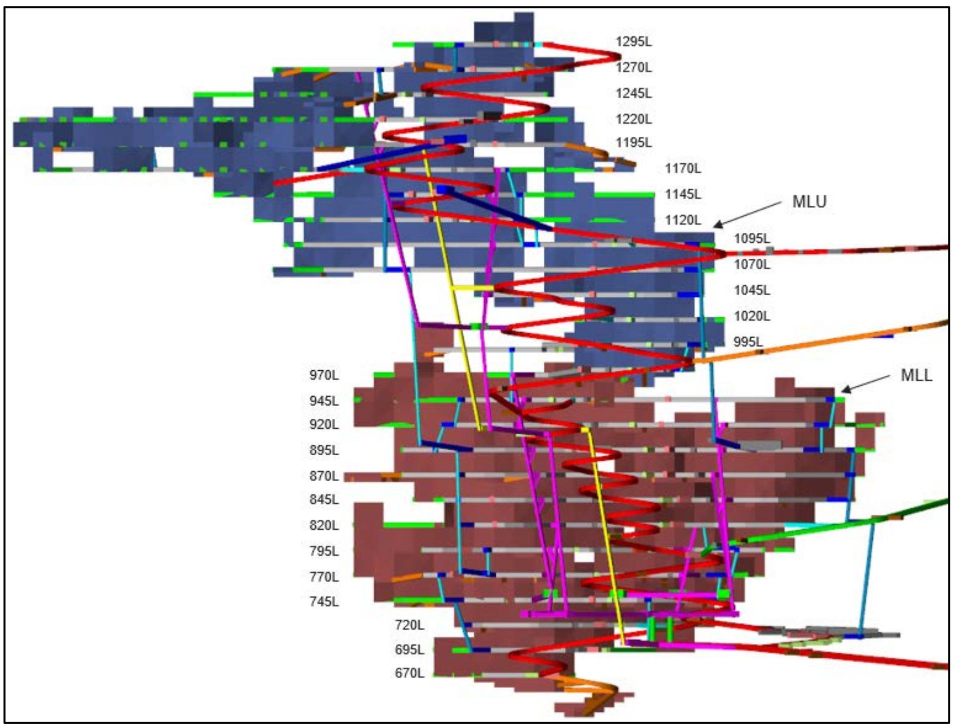


Figure 16-94: Media Luna Longitudinal View Looking Southwest

16.4.4.3 Mining Method

The primary mining method selected for Media Luna is LHS with paste backfill. LHS provides a high production rate and lower operating cost based on the resource geology and overall good rock mass quality. There are two types of LHS in the mine design: transverse stoping and longitudinal retreat stoping. The limit between transverse and longitudinal retreat stoping is a stope thickness of 12 m, but stopes in close proximity are also taken into account. For example, if a stope is 15 m wide but surrounded by other longitudinal retreat stopes it would match that stoping method and be recovered longitudinally. Wherever possible, mining would progress from the bottom up.

In areas where the Mineral Resource is not continuous for LHS, overhand MCAF stoping will be utilized. Based on the mine design, MCAF accounts for 4% of the total production.

16.4.4.3.1 Level Interval

Preliminary mining stope shapes were estimated using the Deswik Shape Optimizer (DSO). The range of stope dimensions evaluated were first constrained by geotechnical parameters. This work resulted in a nominal stope size using a 25 m (vertical) level interval, 20 m wide by 30 m long. The DSO parameters used for the feasibility study are presented in Table 16-46. Other level intervals that were trialed were 20 and 30 m along with stope widths of 25 m. There is a possibility that varying the level interval level-to-level depending on resource geometry will provide better resource recovery. For the feasibility study it was determined that a consistent level interval would be more appropriate due to the resource definition and the base stope size remained 25 m high (vertical) by 20 m wide by 30 m long.

Table 16-46: DSO Parameters

Item	Value
Vertical Height	25 m and 15 m
Section (Length)	20 m and 10 m
Minimum Stope Width	5 m
Maximum Stope Width	40 m
Minimum Dip	50º

Development was planned to provide access using levels at 25 m spacing. Stopes were also created 15 m high where 25 m high stopes were not, these stopes will be drilled with up-holes and not require an overcut access. MCAF stopes were designed in areas where LHS could not be used. An example of a MCAF area is presented in Figure 16-95.

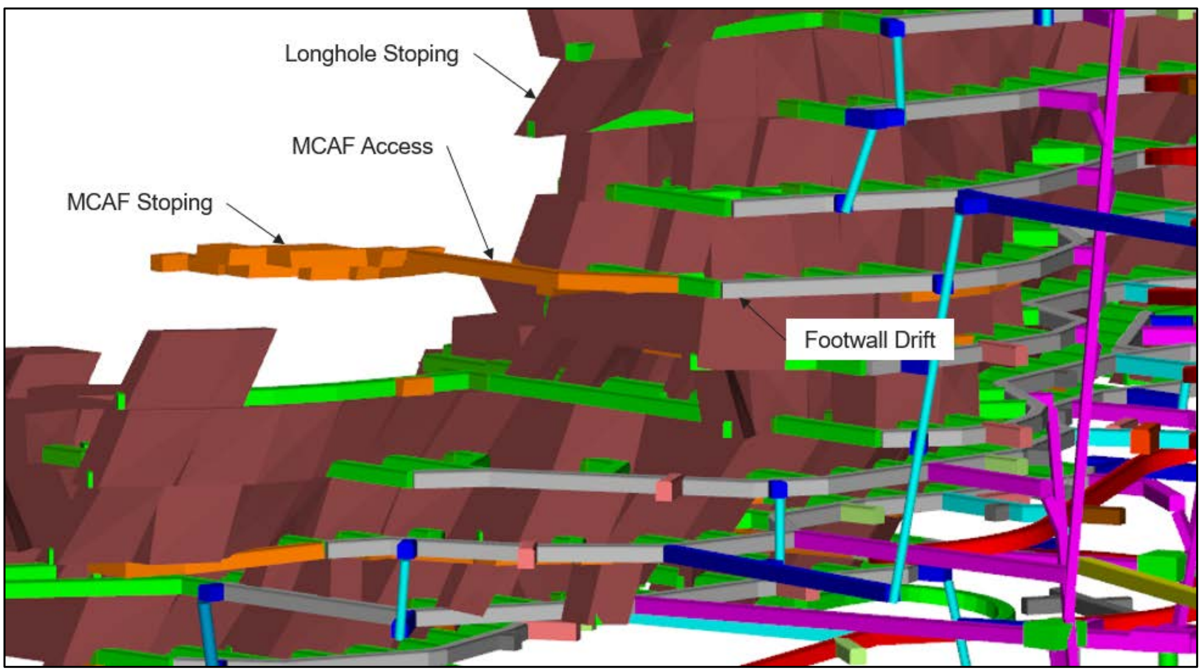


Figure 16-95: MCAF Stoping Area (870L) Isometric View

16.4.4.3.2 Longhole Stoping

Longhole Stoping (LHS) would be the main mining method employed and the LHS methods would be transverse stoping, transverse up-hole stoping, longitudinal retreat stoping, and longitudinal retreat up-hole stoping. The stope tonnage by LHS methods is presented in Table 16-47.

Table 16-47: Longhole Stoping Method Breakdown

LHS Type	LHS Tonnes (%)
Transverse	81
Transverse up-hole	5
Longitudinal retreat	12
Longitudinal retreat up-hole	2

Most stopes would be accessed using undercut and overcut development (all non-up-hole stopes). Production drilling along with loading and blasting would take place from the overcut. Mucking of blasted material would occur from the undercut, while backfill would be placed in the open stope from the overcut. For the up-hole stopes, all activities would take place from the undercut.

There are some stopes located in weak ground as noted in Section 16.4.2.1. These stopes account for less than 2% of the stopes. The weak ground stope would be unstable and special pre-cautions would have to be in place during the mining of these stopes. These stopes would have no personnel access during stoping, with all drilling, blasting, and mucking conducted remotely, this can be achieved with fan drilling from the footwall drift or other drift parallel to strike in good ground.

Typical transverse stoping is presented in Figure 16-96 and Figure 16-97 and a typical transverse production drill ring is presented in Figure 16-98.

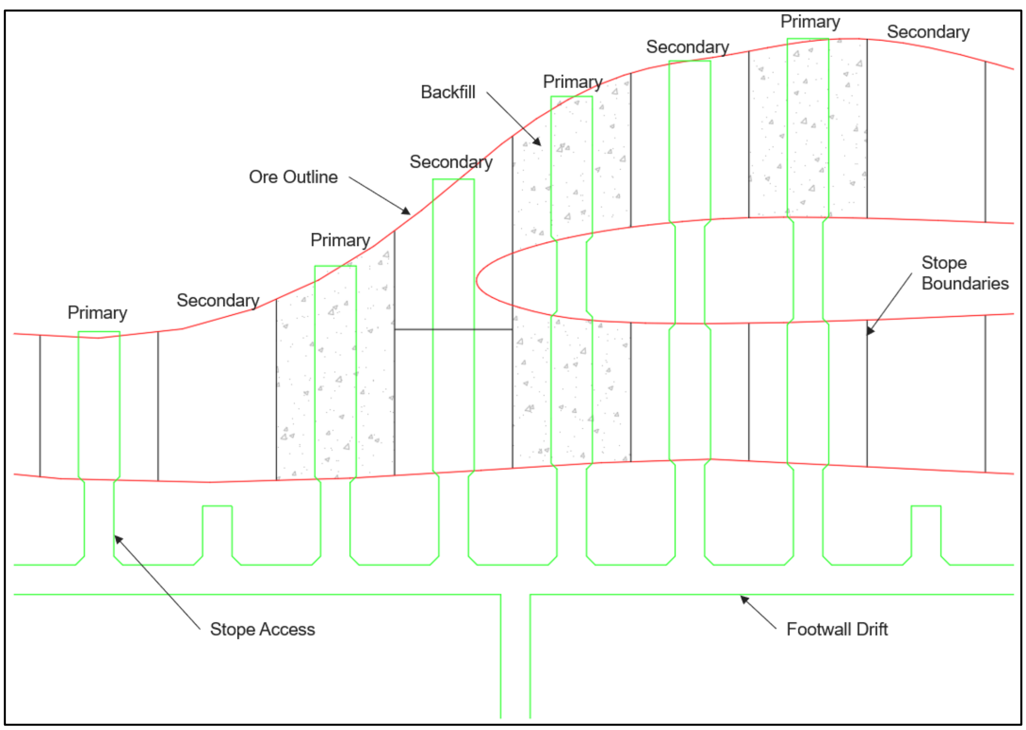


Figure 16-96: Typical Transverse Stoping Design Plan View

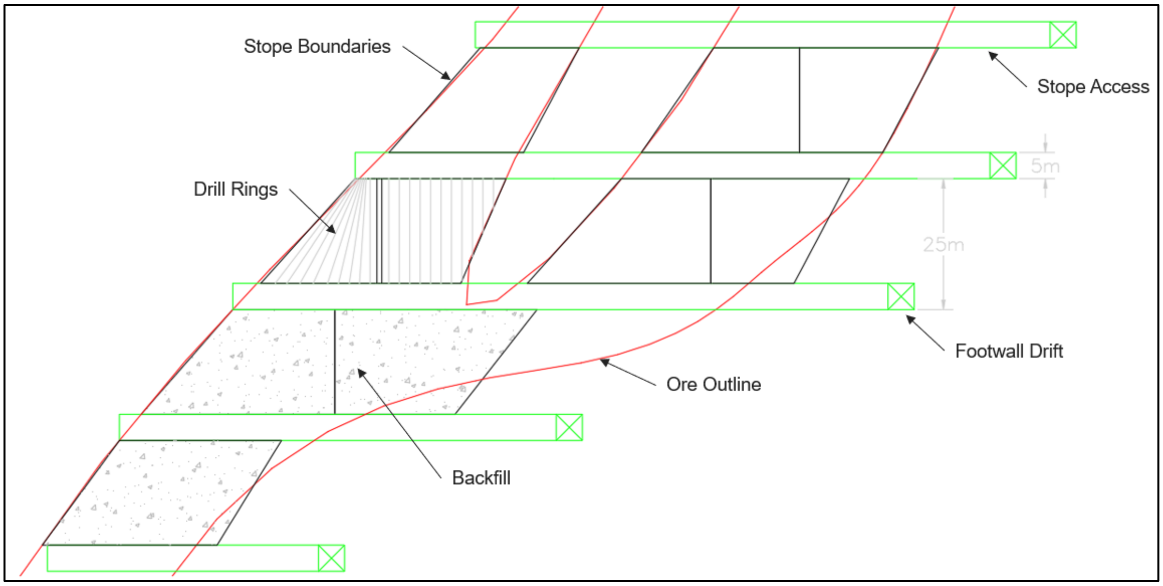


Figure 16-97: Typical Transverse Stoping Design Section View

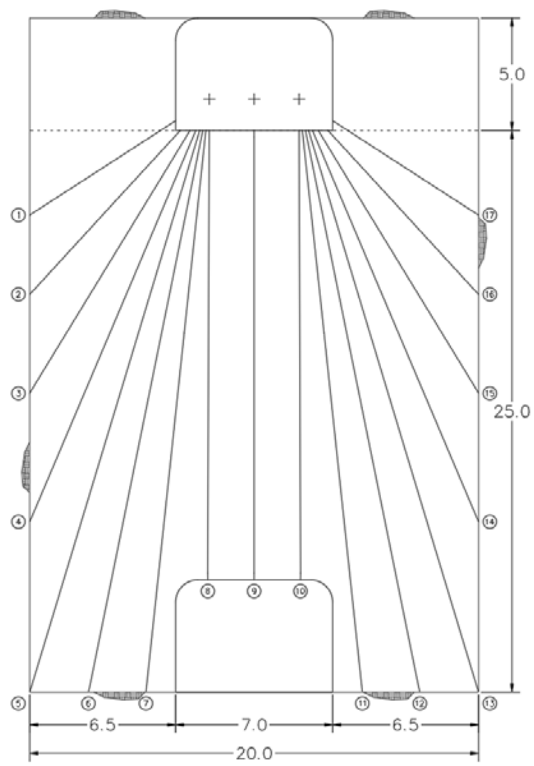


Figure 16-98: Transverse Production Drill Ring Design Longitudinal View

A section of typical longitudinal retreat stoping is presented in Figure 16-99 and typical longitudinal retreat production drill design is presented in Figure 16-100 and Figure 16-101.

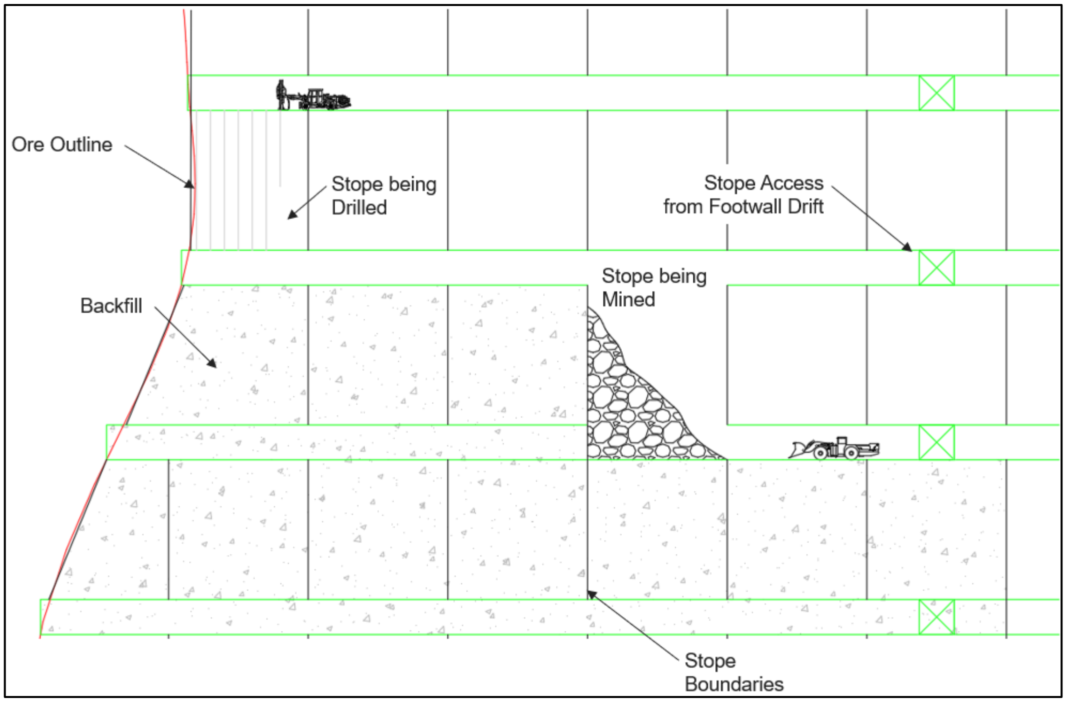


Figure 16-99: Typical Longitudinal Stoping Design Longitudinal View

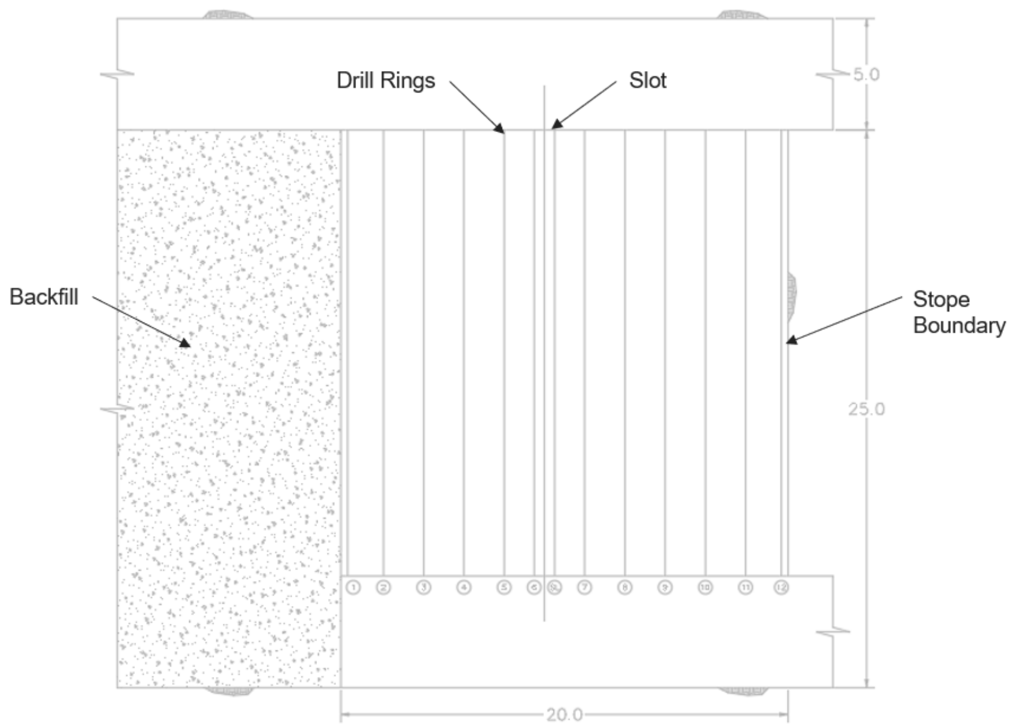


Figure 16-100: Typical Longitudinal Drill Ring Design Longitudinal View

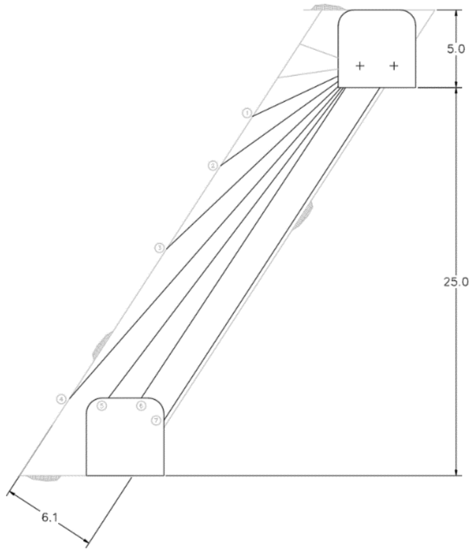
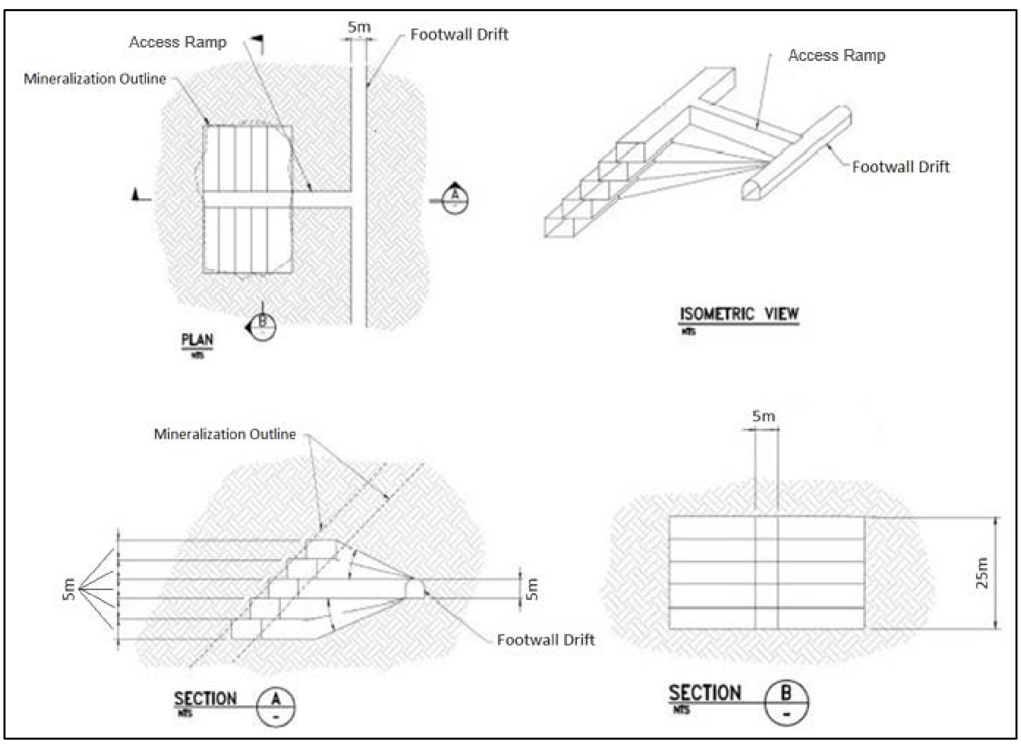


Figure 16-101: Longitudinal Production Drill Ring Design Section View

16.4.4.3.3 Mechanized Cut and Fill

In small areas where the resource is not consistent for LHS, an overhand MCAF method would be utilized. The MCAF stope areas would occur later in the mine life when stoping tonnes and waste development is ramping down. The development crew would transition from lateral development for LHS to MCAF This will result in the recovery of more ore and a smoother ramp down. Typical MCAF is presented in Figure 16-102.



Source: Torex, 2015

Figure 16-102: Overhand Mechanized Cut and Fill Schematic

MCAF stopes would be accessed primarily from the footwall drift after the longhole stopes have been completed in that area. In some cases, the MCAF stopes could be accessed from the internal ramp. When mining of a cut is complete and backfilled, breasting of the access ramp would take place to establish the new mining cut, as indicated in Section A of Figure 16-102. A maximum of five vertical MCAF lifts will be completed resulting in a MCAF block being a total of 25m in overall height.

16.4.4.4 Stoping

The height and strike length of stopes will be consistent throughout the mine design; however, the distance from hangingwall to footwall of stopes and stope dip will vary. For the two types of LHS, an average distance HW to FW and dip was used to define an average stope size for each longhole method. These average stopes were used to establish productivities and quantities for a total stope cycle and are summarized in Table 16-48.

Table 16-48: Average Stope Design Parameters

Item	Transverse	Longitudinal Retreat
Stope height	25 m	25 m
Stope length	22.4 m (HW to FW)	20 m (along strike)
Stope width	20 m (along strike)	6.1 m (HW to FW)
Stope dip	64º	62º
Ore development dimensions	7 m W x 5 m H	5 m W x 5 m H
External Dilution	6%	17%
Mining Recovery	90%	95%
Diluted/Recovered tonnage	36,500 t	9,800 t

16.4.4.4.1 Slot Raise Drilling

For LHS, when the overcut and undercut development is complete, slot raises will be drilled using an in-the-hole (ITH) drill and a Machine Roger V30 reaming head (or similar). Most slot raises will be developed top-down, but some will use a blind boring up-hole for the up-hole stopes. An initial pilot hole will be drilled and reamed followed by the installation of the reaming head and a second pass of reaming to the final diameter of 762 mm (30 inches). For transverse stopes these slots will typically be 20 m long and for longitudinal retreat the length would be approximately 24 m. The Machine Roger reaming head and raise drilling illustration is presented in Figure 16-103.

Source: www.machine-roger.com

Figure 16-103: Machine Roger Slot Raise Drilling

16.4.4.4.2 Production Drilling

Production drilling will be completed using electric-hydraulic top-hammer drills. The top-hammer drill was selected due to high penetration rates and suitability for 76 mm diameter holes that are 30 m or less in length. The majority of stopes will be drilled top down (downhole drilling) from the sill on top of the stope (Figure 16-104). In some instances, due to no top access to the stope, drilling from the bottom sill to the top of the stope will be required (up-hole drilling).

The maximum production hole length will be approximately 30 m and the average hole length for a transverse stope is approximately 17 m and for a longitudinal retreat stope is approximately 14 m. The hole diameter will be 76 mm which can be applied to narrow longitudinal stopes and larger transverse stopes.

The production drills will be equipped with control systems and automated functions that improve safety, hole placement accuracy, and drilling productivity. While there will be an operator at the drill, this control technology will reduce the drilling process reliance on high-skilled operators. Information (hole dip, dump, and length) from drilling designs provided by mine engineering will be programmed into the drill. Proper drill ring survey and initial drill set-up on a ring will be critical to achieve proper drilling results. During drilling operations, quality checks on ring mark-up, drill set-up, hole accuracy (collar location, dip, azimuth), and breakthroughs will be conducted. An example of the drilling for one ring of a transverse stope is presented in Figure 16-104.

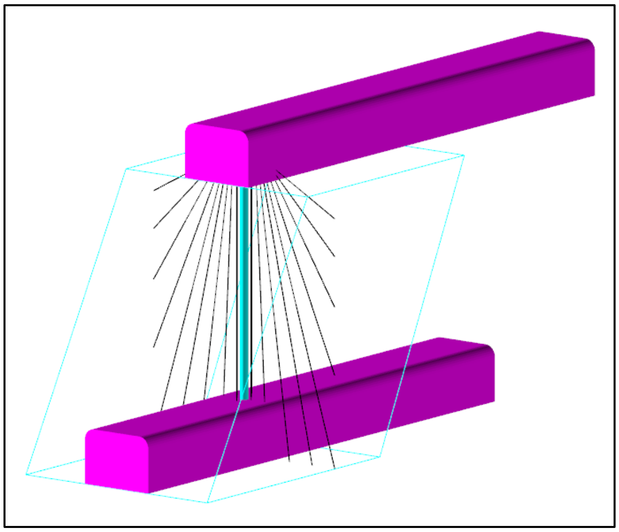


Figure 16-104: Downhole Production Drilling Transverse Stoping Isometric View

Production drilling rings for the representative stope sizes were prepared to determine the drilling quantities and drill factors. A 10% allowance was added to all drill meters to account for redrilling. The production drilling design parameters used in the mine design and estimate are summarized in Table 16-49.

Table 16-49: Stope Production Drilling Parameters

Item	Units	Transverse	Longitudinal Retreat
Hole diameter	mm	76	76
Ring burden	m	2.0	1.8
Hole toe spacing	m	2.4	2.2
Drilling per stope	m	4,570	1,200
Stope tonnes	t	36,500	9,800
Drill factor	t/m	8	8
Average hole length	m	17	14

16.4.4.4.3 Production Blasting

Bulk emulsion will be used for production blasting. There will be approximately 4 to 5 blasts per stope to ensure sufficient void, minimal hang ups, and proper fragmentation. A mobile emulsion loading unit will be used to load the holes. The longhole blasting parameters including estimated powder factor for each typical stope size is summarized Table 16-50.

Table 16-50: Stope Production Blasting Parameters

Item	Units	Transverse	Longitudinal Retreat
Hole diameter	mm	76	76
Drilling per stope	m	4,150	1,200
Loaded length per stope	m	3,040	1,040
Total emulsion per stope	kg	14,420	4,660
Stope tonnes	t	36,500	9,800
Powder factor	kg/t	0.40	0.48

16.4.4.4.4 Production Mucking

Blasted ore will be mucked from stopes using 14-t class LHDs. When the stope brow is closed, the LHD will be operated with the operator in the cab. When the stope brow is open, the LHD will be operated on remote control with the operator stationed at a remote stand located a safe distance from the brow and away from the path of the moving LHD. For transverse stopes, the LHD will tram and dump into an ore pass located an average of 250 m from the stope drawpoint and for the longitudinal stopes average tramming distance will be approximately 350 m. The design parameters related to stope mucking are summarized in Table 16-51.

Table 16-51: Stope Mucking Parameters

Item	Units	Transverse	Longitudinal Retreat
LHD bucket volume	m^3	6.4	6.4
Bucket fill factor	%	80	80
Actual bucket capacity	m^3	5.1	5.1
Ore in situ density	t/m^3	3.5	3.5
Swell factor	%	40	40
Broken ore density	t/m^3	2.5	2.5
Payload	t	12.8	12.8
Average tramming speed	km/hour	6	6
Average tramming distance	m	250	350
Mucking per day	t/d	980	650

There will be some stopes located below the Guajes Tunnel elevation. These stopes would be mucked into remucks and/or trucks and hauled up to the rockbreaker stations on 745L. These stopes will be located on the bottom three levels of ML and account for approximately 4.5% of the total tonnage produced at ML. These levels will be mined later in the mine life, starting in mid-2029, when there is less waste development, and the trucks can be transitioned to ore haulage.

16.4.4.4.5 Dilution Estimation

Dilution will be categorized as internal dilution (within the planned stope shape) and external dilution (outside the planned stope shape).

Internal dilution will include resource below cut-off grade and/or waste rock inside the stope shapes. This dilution will be mined with the stope and not segregated from the ore. Internal dilution (tonnes, grade, ounces) is reported directly from resource model data and is included in the stope in situ reserve calculation.

External dilution will include low-grade resource, waste rock, and/or backfill from outside the stope shapes that will overbreak or slough into the stope void and be mucked with the stope and not segregated from the ore.

For both transverse stoping and longitudinal retreat stoping, external dilution will be assigned by the stope optimizer as a factor on the hanging wall and footwall of the stope (for rock) or by factors in the scheduler (for paste), as outlined in Table 16-52. Secondary stopes and panels in primary stopes will incur more dilution than the initial primary stopes since the walls will be paste backfill. Paste dilution has been added as a factor in the scheduler and will be added at zero grade. When primary and secondary stopes are divided into panels, the first panel will incur the HW rock dilution the subsequent panes will incur 0.3 m of paste backfill dilution on the hanging wall and the final panel will incur the FW dilution. Secondary stopes also have 0.3 m paste backfill dilution in each of the side walls. Longitudinal retreat stoping will be assigned 0.3 m paste backfill dilution in one side wall. The dilution by stope type is outlined in Table 16-52.

Table 16-52: Stope Type Dilutions

Stope Type	HW Dilution		FW Dilution		Side Wall Dilution	
	Depth (m)	Type	Depth (m)	Type	Depth (m)	Type
Transverse Primary	0.5 to 1	Rock	0.3	Rock	NA	
Transverse Primary Panels 2+	0.3	Paste	NA		NA	
Transverse Secondary	0.5 to 1	Rock	0.3	Rock	0.3 x 2	Paste
Transverse Secondary Panels 2+	0.5 to 1	Paste	NA		0.3 x 2	Paste
Longitudinal Retreat	0.5 to 1	Rock	0.3	Rock	0.3	Paste

The percentage of external dilution will vary with stope size. Overall, in terms of percentages the external dilution is approximately 6% for transverse stoping and 17% for longitudinal retreat stoping. External dilution grades will be based on the grade of the stope skin as per Figure 16-105.

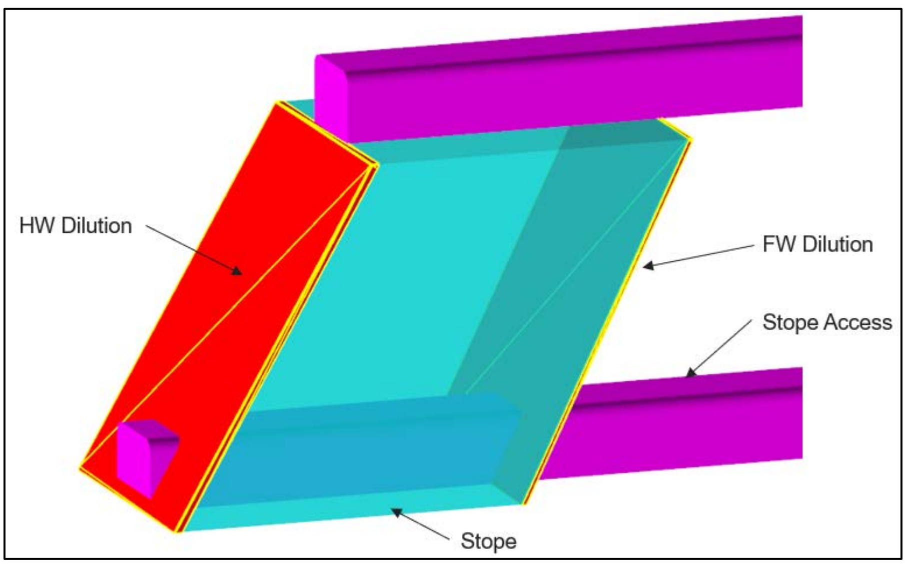


Figure 16-105: Stope Skin to Determine External Dilution Grades Isometric View

MCAF has a 10% external dilution factor applied to all stopes, this dilution is added with 0 grade.

16.4.4.4.6 Mining Recovery

A mining recovery factor of 90% has been applied to all transverse stoping and 95% has been applied to all longitudinal retreat stoping. These factors account for losses during the mining processes. Some sources of mining losses may include unexpected poor ground conditions causing stope instability preventing full recovery of the stope (sloughage during muck cycle blocking muck activities), blasting losses when ore is left in situ and is not recoverable (un-blasted material), or mucking losses when broken ore is left in the stope (equipment unable to handle oversize or equipment unable to access remnant areas). Some examples of ore losses are presented in Figure 16-106.

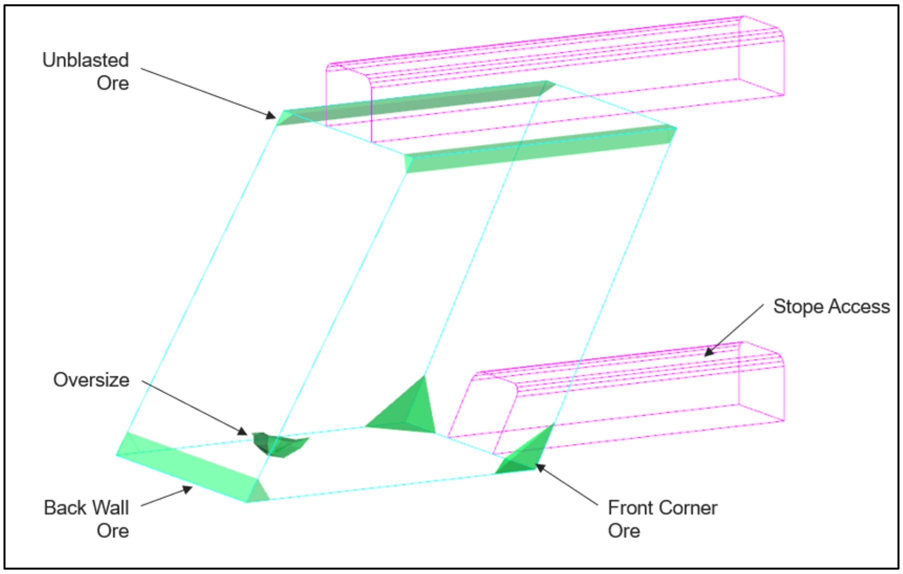


Figure 16-106: Ore Losses in a Transverse Stope Isometric View

There are some other recoveries applied in certain situations. The up-hole only stopes where there is no overcut access to the stope have an 85% mining recovery applied. Longhole stopes that are mined under backfill or being mined in the weak zones noted in Section 16.4.2 have a 75% mining recovery applied. A mining recovery factor of 95% has been applied to all MCAF.

16.4.4.5 Diamond Drill Program

There will be underground diamond drilling programs, both in the project and operating periods to upgrade the Mineral Resource and continuously delineate the stopes for mine planning and grade control. The delineation diamond drilling will be completed from dedicated drill cut-outs or from other pre-developed excavations, including remuck bays or cross cuts. Sufficient mine development will be scheduled and in place ahead of the advancing production fronts to ensure adequate time for definition diamond drilling and subsequent Mineral Resource model updates and mine planning.

The delineation drilling will be complemented with dedicated Mineral Resource definition drilling from underground. The main objective of the Mineral Resource definition drilling is to upgrade indicated Mineral Resources to measured Mineral Resources. All in-fill will commence during the initial development phase.

16.4.5 Estimate of Mineable Quantities

A Mineral Resource block model was used for the mine design. Quantities and plant feed estimated are based on indicated Mineral Resources and exclude inferred resources. Dilution and mining recovery were applied to the tonnages and grades of all mining shapes before being evaluated for inclusion in the Mineral Reserve. The development quantities come from the 3D Deswik model and include a design allowance of 5% to allow for design changes and items including chamfers on corners.

16.4.5.1 Development Quantities

The 3D mine design for Media Luna includes all mine access tunnel, ramp, level, infrastructure, and vertical development required to access and extract the reserves to surface. A summary of the development totals, by zone and heading type is included in Table 16-53.

Table 16-53: Development Quantities by Heading Type and Zone

Zone	Heading	Type	Meters
MLL	Guajes Tunnel	Capital	7,855
	South portal lower tunnel	Capital	2,023
	Internal ramp	Capital	2,396
	Level development	Capital	5,638
	Infrastructure development	Capital	4,827
	Vertical development	Capital	2,800
	Stope access waste	Operating	16,336
	Ore development	Operating	14,496
	MCAF development	Operating	5,690
	MLL total		62,061
MLU	South portal upper tunnel	Capital	1,307
	South portal upper ramp	Capital	1,184
	Internal ramp	Capital	3,264
	Level development	Capital	4,778
	Infrastructure development	Capital	3,351
	Vertical development	Capital	1,433
	Stope access waste	Operating	9,056
	Ore development	Operating	6,884
	MCAF development	Operating	4,926
	MLU total		36,183
	Mine total		98,244

16.4.5.2 Production Quantities

The diluted and recovered ore tonnes and drill meters are presented in Table 16-54.

Table 16-54: Production Quantities by Level and Zone

Zone	Level	Longhole Drilling (m)	Transverse Stopes (t)	Longitudinal Retreat Stopes (t)	MCAF Stopes (t)	Development Ore (t)	Total Ore (t)
MLL	995L	17,435	132,097	7,386	5,118	18,932	163,533
	970L	25,436	147,846	55,645	32,335	57,564	293,390
	945L	54,374	243,018	191,973	19,936	88,506	543,433
	920L	134,486	942,781	133,106	26,660	135,661	1,238,208
	895L	127,145	881,399	135,764	6,648	128,453	1,152,264
	870L	134,320	998,607	75,954	65,060	165,991	1,305,612
	845L	217,691	1,508,254	233,272	67,866	222,408	2,031,800
	820L	247,506	1,843,383	136,665	18,094	178,041	2,176,183
	795L	235,248	1,720,678	161,310	60,085	189,967	2,132,040
	770L	218,897	1,608,002	143,176	85,980	184,124	2,021,282
	745L	165,945	1,141,429	186,129	37,118	101,167	1,465,843

Zone	Level	Longhole Drilling (m)	Transverse Stopes (t)	Longitudinal Retreat Stopes (t)	MCAF Stopes (t)	Development Ore (t)	Total Ore (t)
	720L	61,092	458,644	30,089	9,069	56,444	554,246
	695L	36,547	234,667	57,712	-	28,323	320,702
	670L	18,569	81,643	66,912	83,666	26,307	258,528
	MLL total	1,694,693	11,942,448	1,615,094	517,637	1,581,889	15,657,068
MLU	1295L	4,619	-	36,948	14,593	22,611	74,152
	1270L	53,465	387,143	40,581	58,383	49,691	535,798
	1245L	63,095	422,715	82,047	37,299	56,182	598,243
	1220L	90,823	622,214	104,371	77,654	127,034	931,273
	1195L	186,907	1,378,894	116,362	60,326	121,577	1,677,159
	1170L	105,539	735,295	109,013	85,457	54,789	984,554
	1145L	34,585	178,652	98,025	-	29,856	306,533
	1120L	36,587	188,162	104,533	127	39,874	332,696
	1095L	40,881	185,738	141,307	-	48,068	375,113
	1070L	44,838	225,928	132,775	21,509	47,741	427,953
	1045L	31,264	184,953	65,162	32,549	34,689	317,353
	1020L	27,378	205,019	14,005	1,285	20,978	241,287
	995L	35,088	210,121	70,581	15,268	35,015	330,985
	970L	22,843	141,569	41,179	26,701	17,025	226,474
	MLU total	777,912	5,066,405	1,156,887	431,150	705,131	7,359,573
	Mine total	2,472,604	17,008,853	2,771,981	948,787	2,287,020	23,016,641

16.4.6 Development and Production Schedule

All mine development and production scheduling has been completed using Deswik scheduling software (Deswik.Sched) with the schedule tasks interactively linked to the Deswik 3D mine model. All development and production scheduling is based on dependencies linked within the mine model. The rates used for scheduling were developed from first principles and for the Guajes and South Portal tunnels the rates are based on the 2022 Torex site budget.

The rate build ups are based on a worker's effective time underground. The underground operations will operate two 12 hour shifts per day, seven days per week. The worker effective time was estimated considering the amount of non-effective time or non-productive time during a shift and is presented in Table 16-55.

Table 16-55: Worker Effective Time

Description	Time	Units
Shift line up and safety meeting	15	Minutes
Vehicle loading	5	Minutes
Travel time to underground (average LOM)	45	Minutes
Travel time from UG pick up area to workplace	10	Minutes
Pre-use equipment and workplace inspection	15	Minutes
Meal / other breaks	60	Minutes
Refueling and/or battery switch	30	Minutes
Wash and grease at end of shift	15	Minutes
Operator unavailable and other interference	15	Minutes
Travel time from workplace to UG pick up area	10	Minutes
Vehicle loading	5	Minutes
Travel time to surface lamp room	45	Minutes
Total non-effective shift time (minutes)	*270*	*Minutes*
Total non-effective shift time (hours)	*4.5*	*Hours*

Description	Time	Units
Total shift length	12.0	Hours
Total effective shift length time	*7.5*	*Hours*
Number of shifts per day	2	Each
Total worker effective time per day	15.0	Hours

For the development of the South Portal tunnels, an effective time of 8.8 hours per shift was used due to reduced travel time. The 1 hour and 20-minute increase is due to the removal the time associated with vehicle loading (savings of 10 minutes) and travel time to and from the workplace and pick up area (savings of 20 minutes) and the reduction travel time to and from surface from 45 to 20 minutes (savings of 50 minutes).

16.4.6.1 Development Rates

Lateral development rates for Guajes and South Portal tunnels are based on the 2022 Torex site budget. All other development advance rates were divided into the components of the drill-blast-muck-bolt cycle and estimated from first principles. All rates reflect the advance that each jumbo and associated gear will achieve over extended periods of operation, account for delays and interferences with other activities, and conflicting priorities that occur during development. There will also be opportunity for in-shift blasting during the initial tunnel development.

For the lateral development rate build ups there is a ground support allowance for advance through poor ground conditions. The allowance was based on previous recommendations prior to the completion of this study. As a result, all lateral development rounds are estimated to encounter poor ground conditions or require additional ground support 15% of the time. This equates to shotcrete and extra screen and bolts being applied to each round. Development advance rates used in the study are summarized in Table 16-56.

Table 16-56: Development Advance Rates

Heading Type	Single Face (m/d)	Multi-Face (m/d)
Guajes Tunnel	6.0	NA
South portal tunnels	4.6	NA
5 m x 5 m waste	4.0	6.7
5 m x 5 m ore	4.2	7.0
7 m x 5 m ore	3.4	5.5
Mass Excavation (for 2 passes, average)	2.2	3.6
Mass Excavation (for 4 passes, average)	1.3	2.2
4 m diameter raisebore	1.9	NA
3 m diameter raisebore	1.6	NA
3 m x 3 m Alimak	3.4	NA

The first principles development cycle components, drill-blast-muck-bolt, has an efficiency of 85% applied to allow for system interactions and other interferences. The breakdown of the development cycle for a 5 m x 5 m waste rock heading at 4.0 m/d is presented in Figure 16-107.

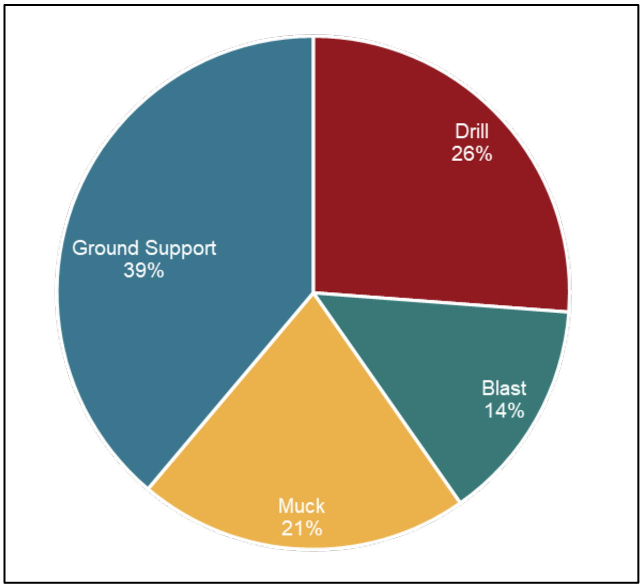


Figure 16-107: Development Cycle Breakdown 5 m x 5 m Waste

16.4.6.2 Production Rates

Stope production rates were divided into the components of the drill-blast-muck and backfill cycle and estimated from first principles. Two different production rates were estimated, one for a transverse stope and one for longitudinal retreat. The rates reflect long-term averages and account for interferences with other activities and conflicting priorities that occur during mining. A breakdown of the unit rates for the productivities of each stoping type and overall rates used in the schedule are presented in Table 16-57.

Table 16-57: Estimated Average Unit Productivities for Stope Activities

Stope Type	Task	Qty	Units
Transverse	Mucking	980	t/d
	Production drilling	230	m/d
	Loading and blasting	7 300	t/d
	Total stoping (drill/blast/muck)	550	t/d
Longitudinal Retreat	Mucking	650	t/d
	Production drilling	170	m/d
	Loading and blasting	2 500	t/d
	Total stoping (drill/blast/muck)	330	t/d
	MCAF stoping	370	t/d

The first principles stope cycle build-up has an efficiency of 85% applied to allow for equipment availability and other interferences. A breakdown of the stope cycle for a 22 m long transverse stope, with efficiency included in the individual processes, is summarized in Figure 16-108.

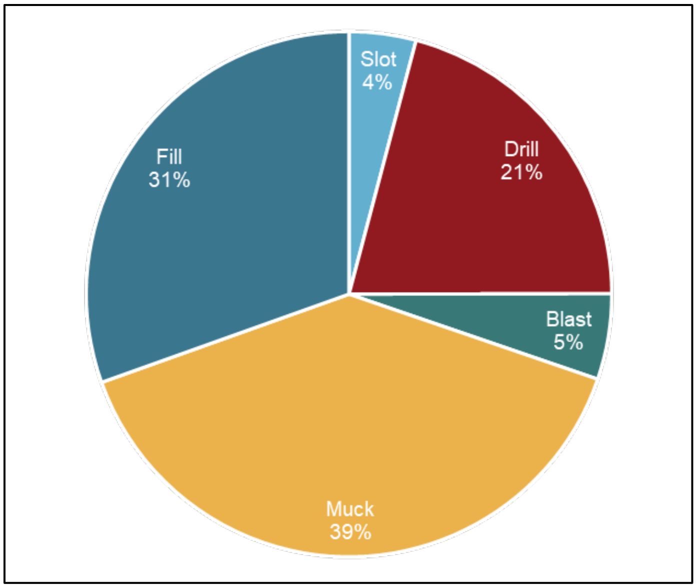


Figure 16-108: Stope Cycle Breakdown - Average Transverse Stope

The backfill component of the stope was established as a separate task in the schedule. A breakdown of the backfill cycle for an average transverse stope is summarized in Table 16-58.

Table 16-58: Backfill Cycle

Item	Days
Barricade construction and cure	6.0
Pour plug	1.5
Plug cure	3.0
Pour remainder of stope	4.5
Total backfill prep and pour days	15

The paste backfill cure time required for a stope before mining the next stope in sequence will vary depending on whether the next stope will be mined above (and only needs a backfill floor to work on), adjacent (exposing a fill wall), mining below (exposing backfill in the back), or in the same crosscut but not adjacent. To account for varying cure times, the delay for backfill cure has been accounted for using dependencies the Deswik production schedule.

16.4.6.3 Development and Production Schedule

A contractor will be engaged for the initial development phase of Media Luna for approximately four years until the end of 2024. Transition to Torex crews would start in 2024 and would gradually replace contractors over a one-year period for the lateral development. All vertical development is assumed to be completed by a contractor.

The initial development schedule is from three different portals and each of the portals have critical development and construction to support the production schedule.

Guajes Tunnel

- Develop the 6.5 km long main access for personnel and material transfer
- Install and commission the ore and waste conveyor in Guajes Tunnel

South Portal Upper

- Develop to the west adit to achieve flow through ventilation
- Develop and construct the MLU material handling system which includes ore and waste passes, one rockbreaker station, and lateral transfer between the bottom of MLU and the top of MLL
- Develop the connection for flow through ventilation between MLL and MLU
- Establish MLU and upper MLL level development for first production

South Portal Lower

- Develop to the Guajes Tunnel to establish the connection to the north side of the Rio Balsas.
- Develop and construct the MLL material handling system which includes ore and waste passes, four rockbreaker stations, conveyor gallery with four conveyors, one transfer, seven feeders, and two storage bins.
- Develop ventilation connection for flow through between MLL and MLU
- Establish lower MLL level development for first production

Once development reaches certain points and more headings become available, additional development crews will be added. In general, each crew will have multiple headings to advance without interfering with other crews. A second development crew is added to SPU when the SPU ramp is developed sufficiently (~50 m) so that two crews can work independently. The critical components of SPU are presented in Figure 16-109.

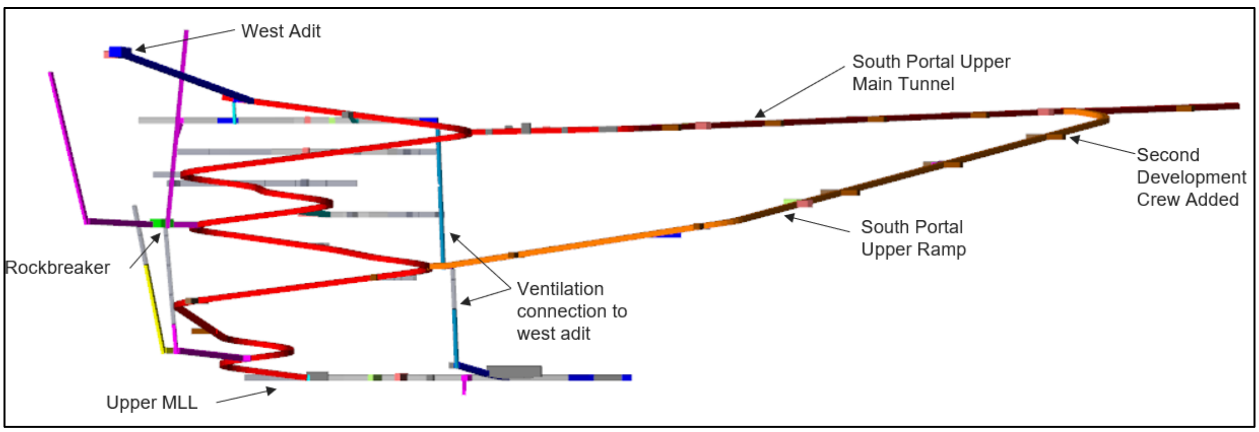


Figure 16-109: South Portal Upper Early Development Longitudinal View Looking Southwest

A second development crew is added to SPL tunnel when the SPL tunnel reaches the internal ramp and the ramp is developed sufficiently in each direction and some levels are available so that two crews can work independently. Initially all development from the south tunnels will be hauled via truck out the South Portals for storage on surface. Once the Guajes Tunnel conveyor is commissioned all waste will be transported via the conveyor to Guajes for LOM. The critical components of SPL are presented in Figure 16-110.

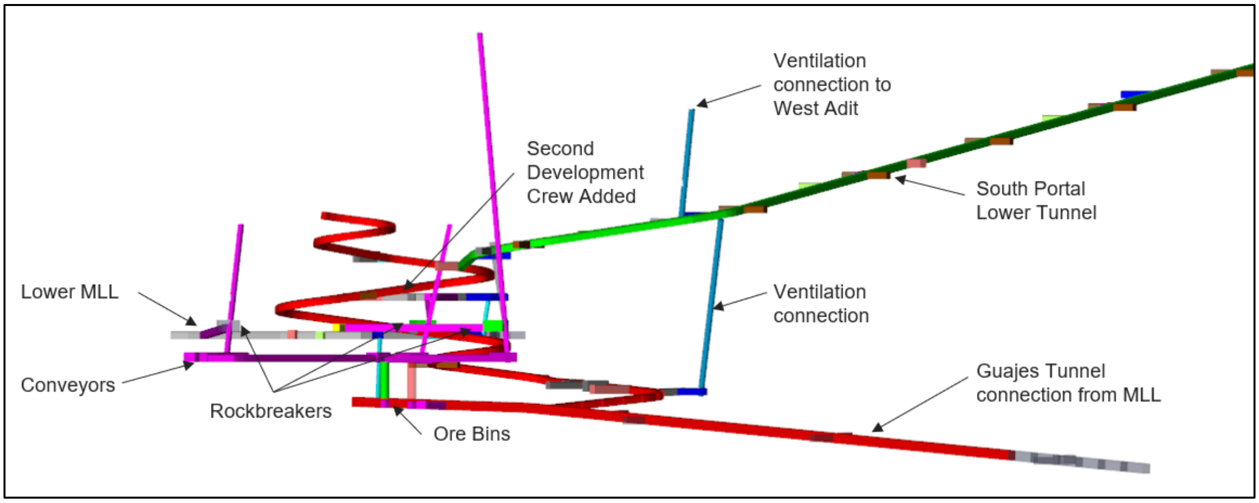


Figure 16-110: South Portal Lower Early Development Longitudinal View Looking Southwest

There is one development crew in Guajes Tunnel developing from the ELG Mine Complex. Once the Guajes Tunnel breaks through, this crew transitions to ML for a total of five development crews.

This development approach has a high quantity of development for the opening of multiple mining areas in order to reach full production. The annual development meters profile is presented in Figure 16-111 and the number of development crews per year is presented in Figure 16-112.

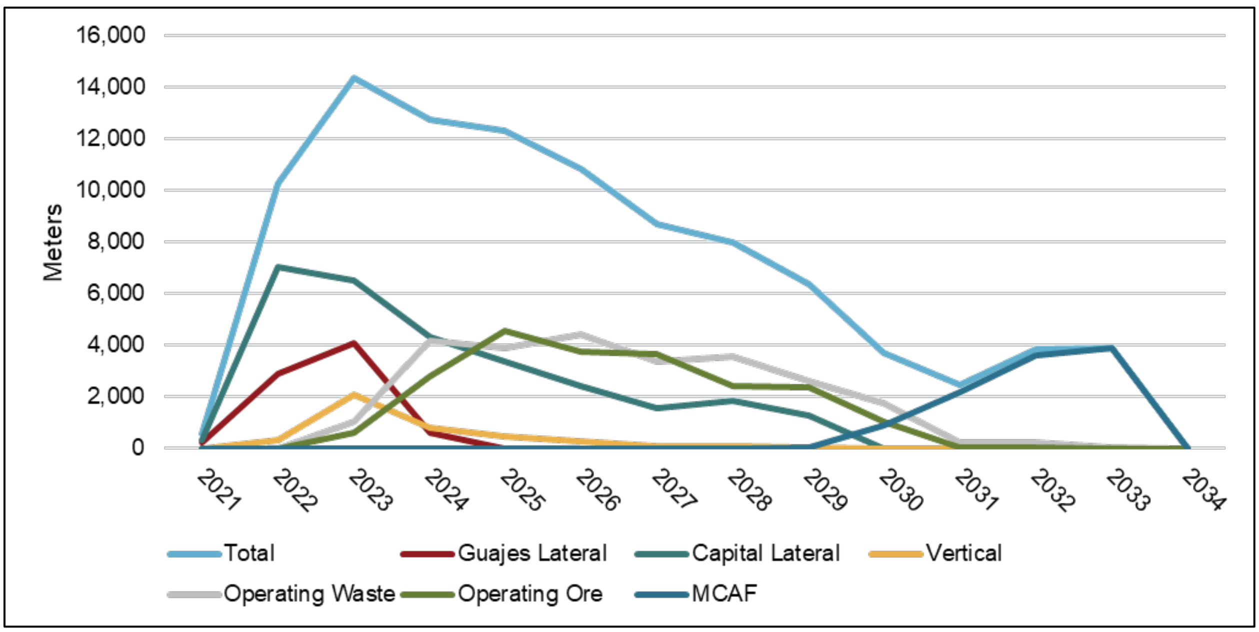


Figure 16-111: Annual Media Luna Development Meters Profile

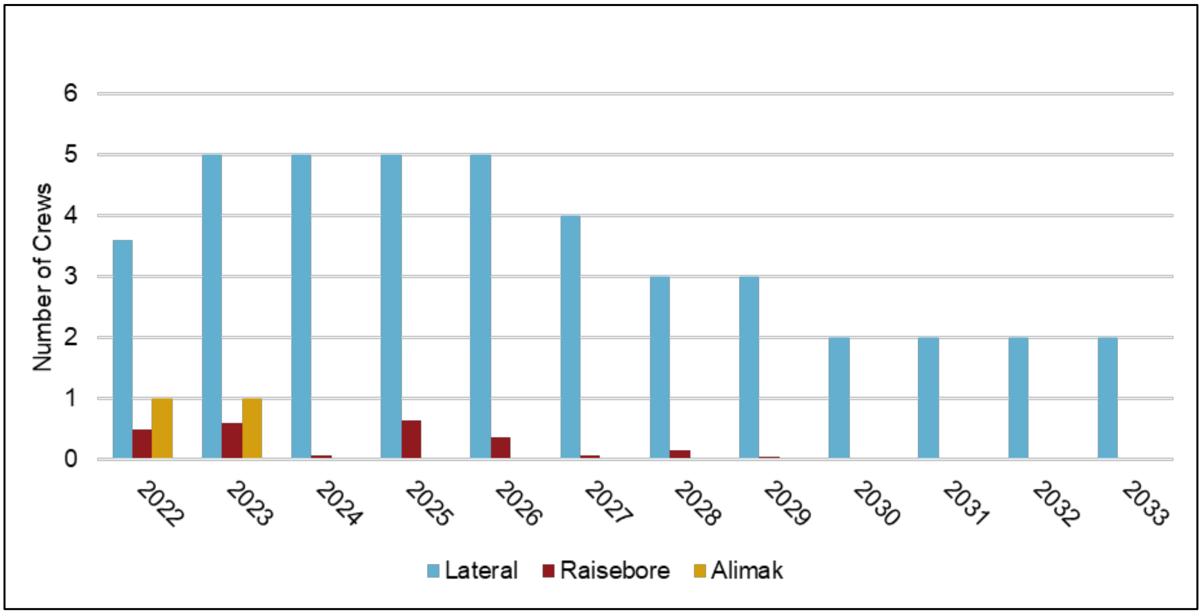


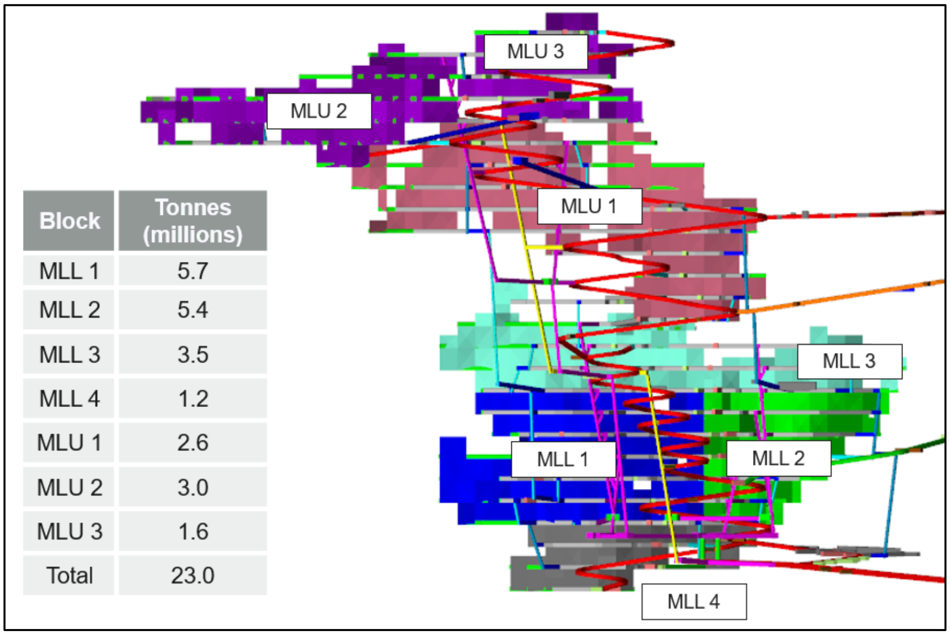
Figure 16-112: Annual Media Luna Development Crew Profile

Some key dates in the early development are listed below:

- SPU main tunnel to SPU ramp connection - April 2022
- SPU main tunnel reaches MLU internal ramp - July 2022
- SPU ramp reaches MLU internal ramp - September 2022
- SPL tunnel reaches MLL internal ramp - October 2022
- SPU ramp to South Portal main tunnel ventilation connection - January 2023
- West ventilation adit breakthrough - February 2023.
- MLL internal ramp reaches Guajes Tunnel - May 2023
- SPL to 695L ventilation connection - July 2023
- 720L material handling development completion - November 2023
- Guajes Tunnel breakthrough to MLL - March 2024
- Guajes conveyor commissioned - August 2024

There is a period from April to July 2024 when stope ore is produced before the Guajes Tunnel conveyor is commissioned. This ore, approximately 400,000 tonnes, will be either stored on surface at the South Portals or hauled in trucks through Guajes Tunnel to the ELG Mine Complex. These stopes will also be used to test and commission the paste backfill plant and distribution system.

The development approach allows for early mining of higher grade levels in both zones at 745L and 770L in MLL and 1070L and 1095L in MLU. The development approach prioritizes establishing four independent mining blocks early on, each with their own dedicated ventilation and ore pass systems. Initially the MLL and MLU zones are not linked via the internal ramp, however both the ventilation and ore handling systems are connected. The internal ramp is connected soon after and there are three additional mining blocks that will be available to support production. The mining blocks and tonnages are presented in Figure 16-113.



Block	Tonnes (millions)
MLL 1	5.7
MLL 2	5.4
MLL 3	3.5
MLL 4	1.2
MLU 1	2.6
MLU 2	3.0
MLU 3	1.6
Total	23.0

Figure 16-113: Tonnages by Mining Block Longitudinal View Looking Southwest

To reach full production Media Luna relies on four or more of these mining blocks operating at any given time. The production starts with ramping up MLL 1, 2, and 3 along with MLU 1. The MLL and MLU zones would eventually be linked via the internal ramp.

Multiple mining blocks must be established to attain the production target. Within these blocks there are various permutations of how specific stopes will be extracted. The proceeding discussion highlights the general rules and logic that have been used for this FS.

The stopes within each mining block were sequenced depending on the stoping method (transverse or longitudinal). The transverse stopes were mined in a primary-secondary sequence according to the rules outlined below and demonstrated in Figure 16-114.

a. Cannot start drilling a primary stope above until the stope below is filled, sufficiently cured, and sill rehabilitation is complete.

b. Cannot start drilling a secondary until both adjacent primaries the level above are filled.

c. Cannot start drilling any stopes under backfill until the stope from the block above has sufficiently cured.

d. In some cases, there will not be an adjacent primary above, if so, cannot start drilling the adjacent stope until the previous stope has sufficiently cured.

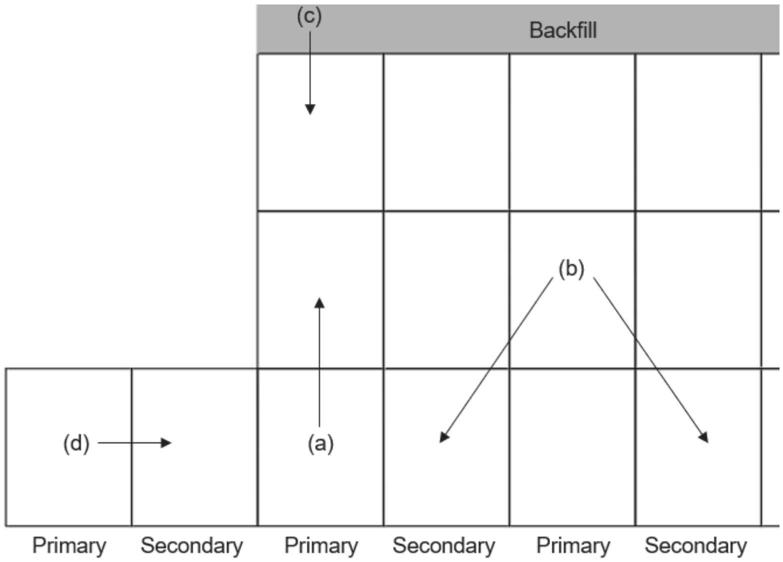


Figure 16-114: Transverse Stope Sequencing Rules Longitudinal View

A set of longitudinal stopes are typically accessed via one development drift from the footwall and are retreated back from the extents back to that access according to rules outlined below and demonstrated in Figure 16-115.

a. Cannot start drilling stope above until the stope is filled, sufficiently cured, and sill rehabilitation complete.
b. Cannot start drilling adjacent stope until previous stope is filled and sufficiently cured.
c. Cannot start drilling any stopes under backfill until the stope from the block above has sufficiently cured.

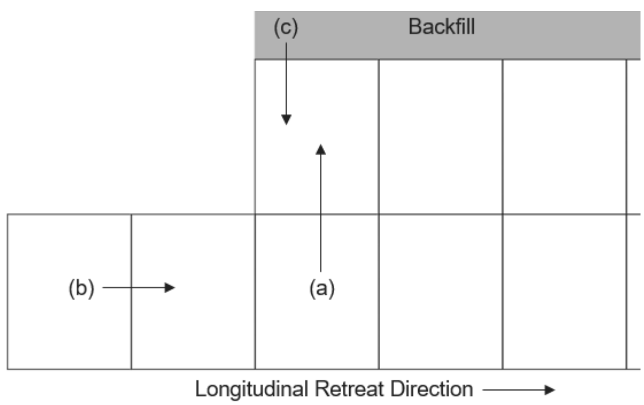


Figure 16-115: Longitudinal Stope Sequencing Rules Longitudinal View

Specific dates, in addition to the early development key dates mentioned above, need to be met to achieve the mine construction and production objectives. Some key production and infrastructure dates are listed below:

- West adit ventilation fans commissioned – July 2023
- First ore development MLL – October 2023
- First ore development MLU – October 2023
- MLU ore handling system (excl. Guajes conveyor) – March 2024

- MLL ore handling system (excl. Guajes conveyor) – April 2024
- First stope ore MLL – April 2024
- First stope ore MLU – April 2024
- Main electrical rooms commissioned – June 2024
- Main dewatering station commissioned – June 2024
- East adit ventilation fans commissioned – June 2025

Annual production by zone and mining method are summarized in Figure 16-116 and Figure 16-117.

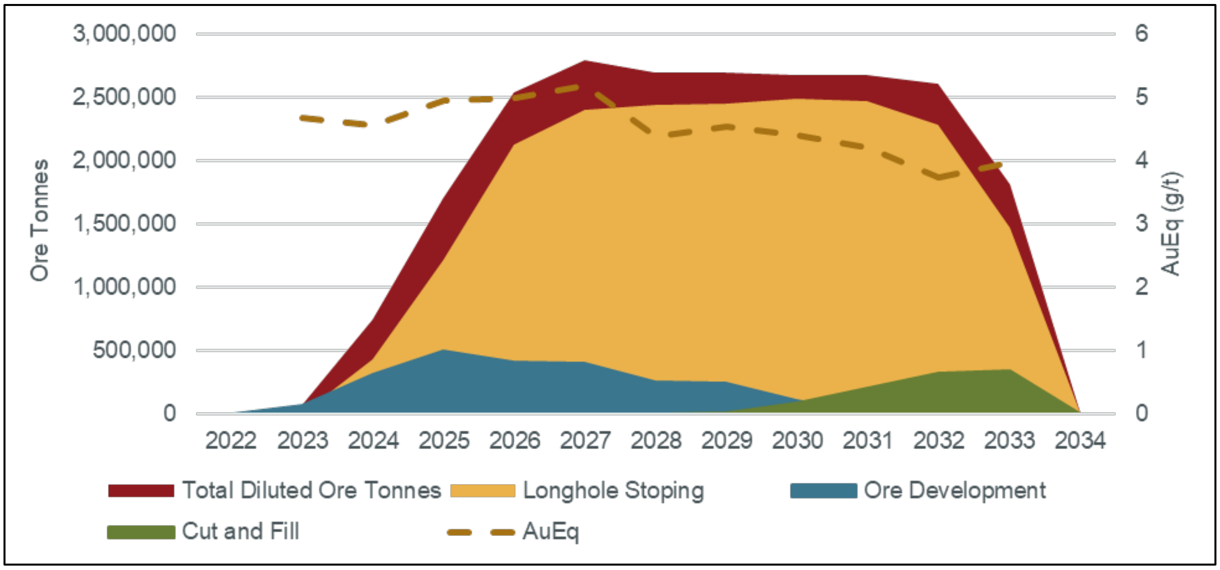


Figure 16-116: Annual Production by Mining Method

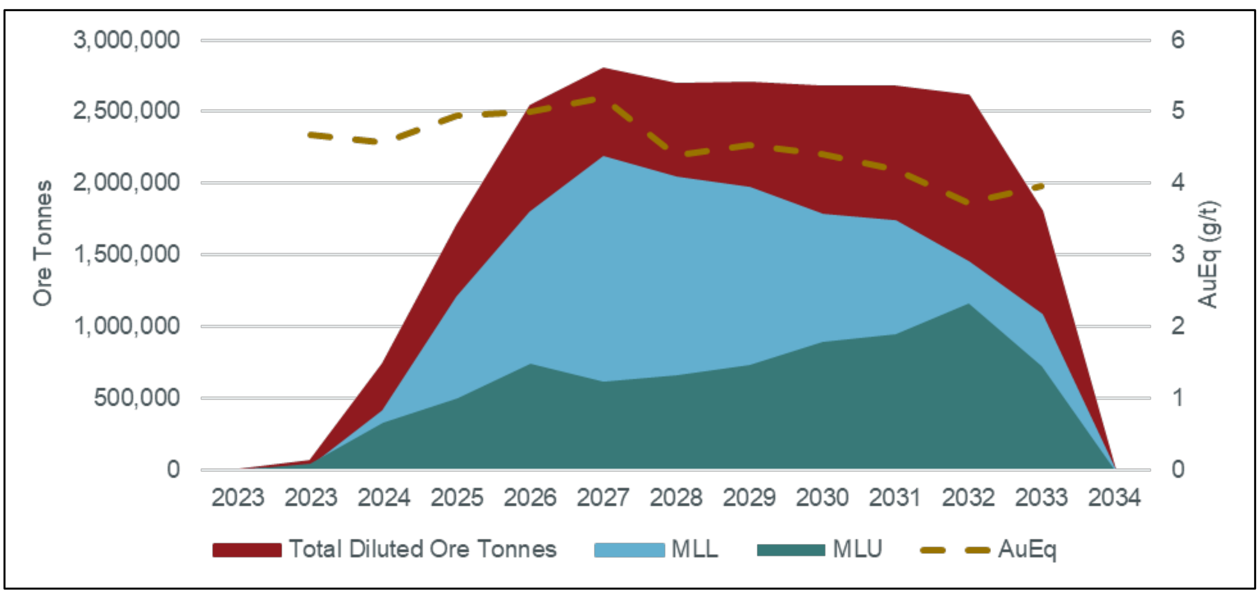


Figure 16-117: Annual Production by Mining Zone

16.4.7 Media Luna Paste Backfill

16.4.7.1 Paste Backfill Test Work Summary

P&C conducted paste backfill test work using tailings produced by Basemet Laboratories as part of the metallurgical testing campaign (P&C, 2021). Two tailings types were received, namely leached Fe-S concentrate and leached Fe-S tailings, which represent the two tailings streams that will be blended and delivered to the paste plant. The following summarizes the main outcomes of the test work, which influenced the design process:

- Predominate minerals in the Media Luna tailings: diopside (silicate), magnetite (oxide), annite (phyllosilicate), clinochlore (phyllosilicate), pyrrhotite (sulphide), and pyrite (sulphide). The presence of sulphides poses challenges of long-term strength degradation in paste. Magnetite content requires careful consideration in selection of paste plant instrumentation.
- Sulphides: The leached Fe-S concentrate stream exhibited high sulphides with pyrite ranging from 1% to 5% and pyrrhotite ranging from 61% to 75%, while the leached Fe-S tailings stream exhibited low sulphides with pyrrhotite ranging from 3% to 8%.
- Particle size distribution: leached Fe-S tailings are fine with 23% passing 20 μm and leached Fe-S concentrate are very fine with 65% passing 20 μm and 30% passing 8 μm.
- Solids densities: leached Fe-S concentrate averaged 4,300 kg/m^3, while leached Fe-S tailings averaged 3,960 kg/m^3.
- Thickening test work: 70% bed concentration was achieved within one hour of dynamic batch consolidation test work.
- Exploratory pressure filtration: a laboratory scaled vertical plate filter press configuration was used to simulate the filtration form step. The form step was allowed to run to completion and achieved ~ 16% cake moisture content with one minute form time using a 32 mm chamber width, 1,500 kPa form pressure, and 66.1%m tailings feed. Final cake concentration reached ~ 85.8%m after three minutes. Membrane squeeze or air blow steps were not required to meet the process requirements.
- Rheology: Cemented paste rheology for a 1:1 (green) and 0:1 (red) blend of leached Fe-S concentrate and leached Fe-S tailings are presented in Figure 16-118. Blends transferred to the paste plant will fall within this range and it is expected that the rheology will not differ significantly for other blends of 1:2, 1:3, etc.

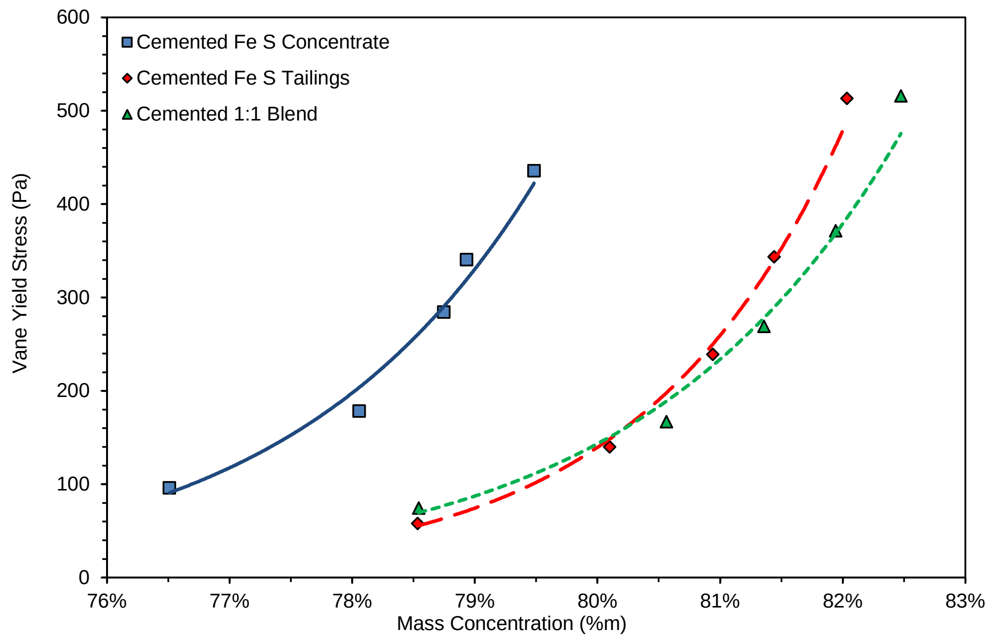


Figure 16-118: Static Yield Stress vs Mass Concentration

- Geochemical characterization: NewFields characterized the geochemistry of 12 cemented paste backfill (CPB) mixtures representing a broad range of potential recipes. Static and kinetic tests revealed that none of the mixtures produced acid leachate within the expected natural range of groundwater pH and oxygen levels. However, ten of the twelve mixtures have the potential to generate acid drainage and leach constituents of potential concern (COPCs) only if exposed to severe surface weathering conditions. Acid generation and COPC release potentials are highest in samples with higher Fe-S-Cons material and lower percentages of Fe-S-Tails and cement (NewFields, 2021i). Accelerated weathering tests conducted under natural underground conditions show that CPB did not generate acid or release COPCs other than total cyanide or sulfate. Adequate destruction of cyanide during the mill process will eliminate the potential for cyanide release from CPB. Also, groundwater modeling suggests that sulfate concentrations would not pose a risk to beneficial usage of downgradient waters.
- Self-Heating Test Work: A variety of cemented tailings blends were tested by BBA for self-heating potential and it was concluded that paste mix designs with >2.9% content and Fe-S Cons levels of 30% or less is sufficient to designate material blends at a safe level (BBA, 2021).

Binder content (Moctezuma CPC 40RS type cement) for the FS paste backfill recipe was determined to be 4.3% binder on average in consideration of the following:

- Main pours for transverse and longitudinal stopes ranged from 2.1% to 3.8% binder, subject to cure period and the tailings blend.
- Main pours when mining below paste ranged from 5.1% to 7.6% binder, subject to cure period and tailings blend.
- Plug pours ranged from 3.8% to 4.7% binder based on stope geometry and the tailings blend.

Strength requirements for the paste backfill are provided in Golder's geotechnical mine design report (Golder, 2022c).

16.4.7.2 Tailings Blending and Delivery

The paste plant will be located ~7.3 km south of the existing ELG Mine Complex, on the south side of Rio Balsas, at an elevation of 1,105 MAMSL. (Figure 16-119). Blended tailings (leached Fe-S concentrate and leached Fe-S tailings) will be supplied to the paste plant at 50%m solids (±5%m) via pipeline routed through Guajes Tunnel and the underground mine workings.

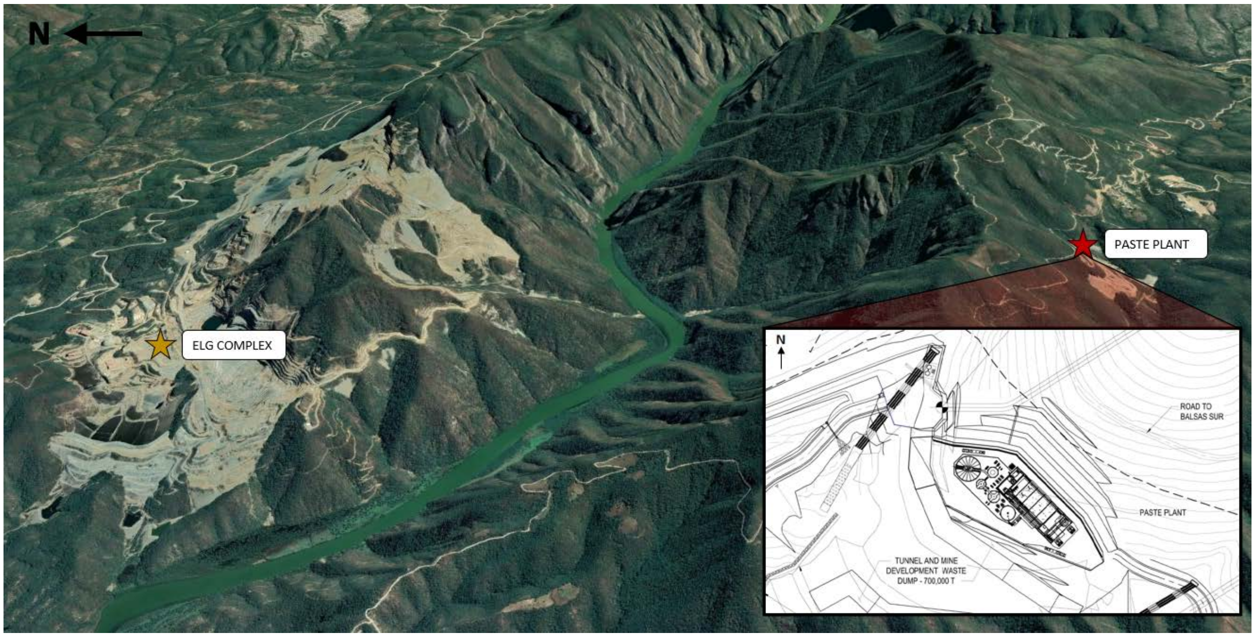


Figure 16-119: Site Layout – ELG Mine Complex and South Portal Paste Plant

The process plant will have multiple feed sources, which will dictate the percentage of leached Fe-S concentrate produced. Sulphide content in the tailings is expected to range between 2.5%m to 25%m, depending on the ore type being processed.

Leached Fe-S concentrate will be stored in tanks at the existing ELG Mine Complex, which will accumulate tailings when the paste plant is not operating and be drawn down when the paste plant is operating. On initial start-up of the paste plant, the average blend will be approximately 1:2 (leached Fe-S concentrate to leached Fe-S tailings). Once the leached Fe-S concentrate tanks are depleted, this ratio will reduce to align with the ratio produced through normal operation of the process plant.

When the paste plant is not operating and the leached Fe-S concentrate tanks are full, the leached Fe-S concentrate will be blended with the leached Fe-S tailings at the ratio produced by the process plant through normal operation and stored in the West Pit.

16.4.7.3 Paste Backfill Plant Operation and Paste Delivery

The paste plant will operate as a continuous type backfill plant (P&C, 2022). Figure 16-120 provides an overview of the plant layout, with major areas labelled.

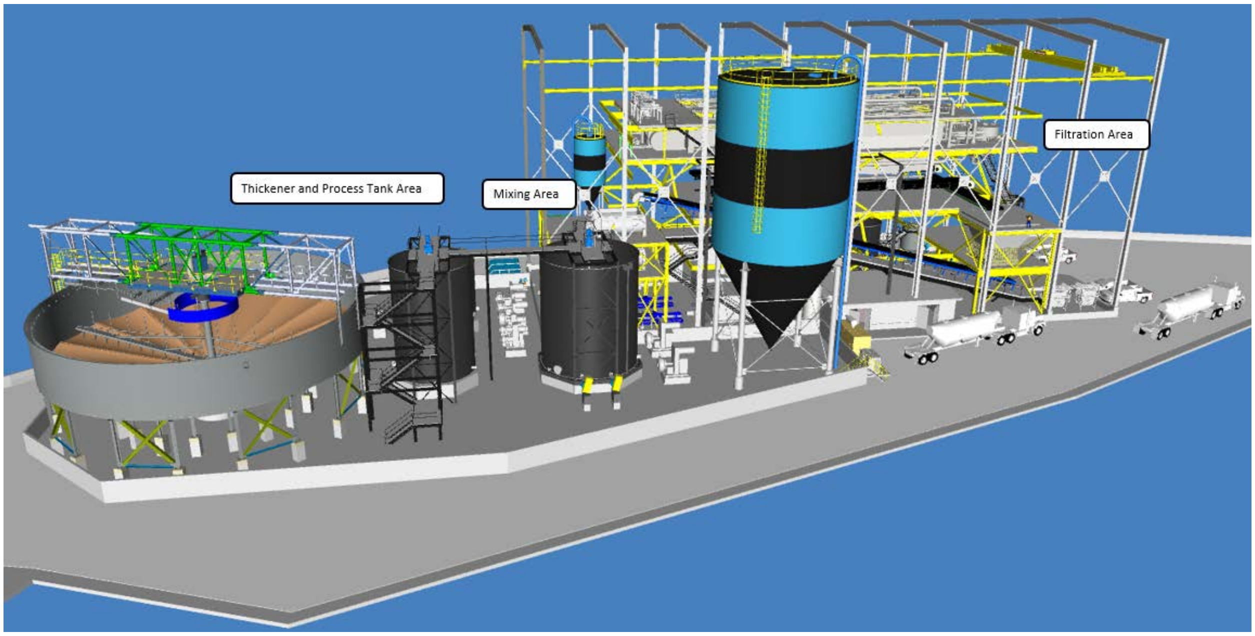


Figure 16-120: Paste Plant - Labelled 3D Model Looking Northeast

Tailings reporting to the plant will be received at a high-rate thickener and dewatered to between 65%m and 70%m. Excess water will be returned to the ELG Mine Complex via return pipeline. Thickened tailings will be pumped to an agitated filter feed tank, offering buffer capacity between the thickener and pressure filters, which operate in continuous and batched manners, respectively. A pressure filtration system will be used to achieve an ~84%m filter cake. The filter cake is transferred to a live-bottom feeder with large capacity bin. This bin will serve as a buffer between the pressure filter output and the downstream continuous paste production. Filtered tailings are transferred via inclined belt conveyor from the live-bottom feeder to a two-tier mixing system, consisting of a conditioning mixer followed by a continuous paste mixer.

Dry binder is then metered from a small day bin, weighed, and transferred to the continuous paste mixer via screw conveyor. During normal operations, dry binder will be stored at the plant in a 2,000 tonne capacity silo, offering ~ 10 days of storage capacity. A blower will transfer binder from the primary storage silo to the day bin in the plant.

Trim water is added at the continuous paste mixer to achieve the desired paste recipe, with the overflow from this mixer reporting to a paste hopper. The paste hopper gravity feeds to two hydraulically driven piston pumps that deliver paste, averaging 81%m, to the underground distribution system at the nominal plant throughput of 180 m^3/h.

From the paste plant, the paste piping will report to a directionally driven borehole that intersects with the South Portal tunnel. The piping is then routed through the underground workings, traveling approximately 1,250 m horizontally into the side of the mountain to reach the orebody. Figure 16-121 presents a long section of the mine looking South.

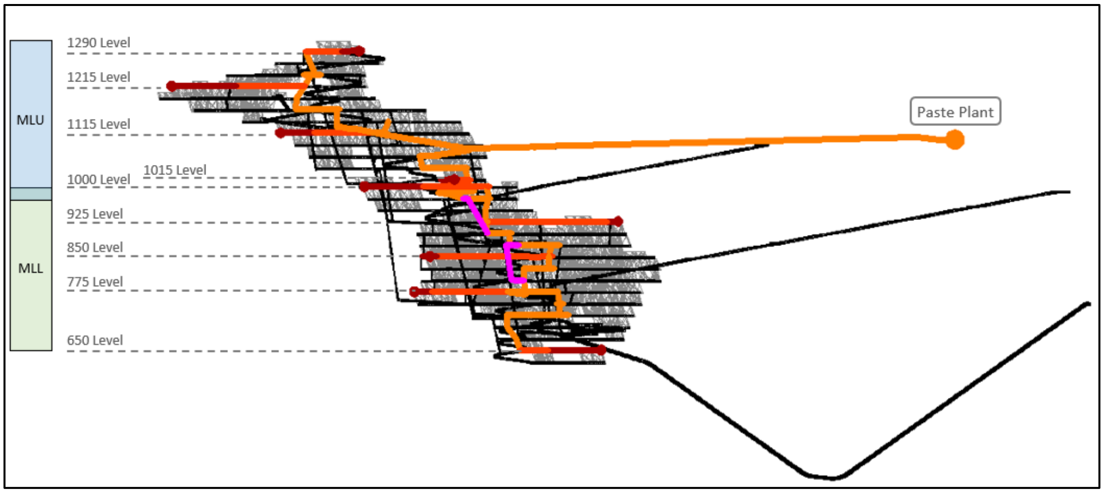


Figure 16-121: Underground Distribution System – Long Section (Looking South)

The pipeline routing branches into two trunk borehole systems, where paste can travel up through MLU to the top of the mine, or down through MLU and continuing through MLL to the bottom of the mine.

Two bypass boreholes (indicated in pink per Figure 16-121) are included to access required levels early in the mine plan, when sequential inter-level borehole routing is not possible due to the mine development schedule.

Distribution of the paste to the various working areas will be accomplished by manual switch-overs from the main trunk lines to the level piping and eventually the stope piping. Automated paste-specific valves will be considered for diversion in frequent switch-over areas or for pressure release to protect critical cased boreholes. Instrumentation will be installed in key locations to protect the system from over-pressurization and to report pressure data back to the plant operators.

16.4.8 Mobile Equipment

The mobile equipment fleet will be a hybrid fleet with a combination of diesel and battery electric vehicles. In general, the development fleet will be diesel and the production fleet along with the supporting equipment will be battery electric. This results in reduced ventilation requirements for steady state production.

The development fleet was determined from the total scheduled advance meters required to reach full production and the performance that each jumbo can achieve, considering the development heading size, ground support requirements, and the number of work headings available. Generally, except for initial tunnel development, each jumbo will have multiple workplaces to cycle development rounds.

Each jumbo will be matched with an LHD and a mechanical bolter and there will be an additional mechanical bolter in the fleet dedicated to ground rehabilitation or as a spare. The number of development explosive loading units has been determined based on capacity to load two development rounds per shift (or approximately one explosives loader per two development crews). There are also haulage trucks to assist with development, especially during the initial phase before the waste passes and Guajes Tunnel conveyor is available.

The production fleet has been determined from the total scheduled stope tonnes, stope cycle productivities, and performance that each production drill and LHD can achieve.

ITH drills will be required for drilling the slot raises for stopes using the Machine Roger V30 reaming head. The ITH drill will have a portable compressor located at the drill site. The ITH will also be used to drill boreholes for paste backfill distribution, water drainage, service water, and electrical (for running cable from level to level). Top-hammer production drills will be used for production drilling and 14-t capacity LHD will be used for mucking from the stope and dumping into an ore pass. Two emulsion explosive loading units have been included to provide flexibility to load two stopes concurrently. The mobile equipment fleet is summarized in Table 16-59.

Table 16-59: Mobile Equipment Fleet Requirement for Steady State Production

Mobile Equipment Fleet Battery Electric	Units
14 tonne LHD	11
Top-Hammer Longhole Drill Rig	5
ITH Drill with reamer	2
Stope Explosive Loader	2
Personnel Carrier - Large 20 People	4
Scissor Lift	6
Boom Truck	6
Small Personnel Carrier / LDV	18
Shotcrete Sprayer	1
Transmixer	1
Mobile Blockholer	1
Telehandler	2
Grader	1
Cable Bolter	1
Small Forklift (main garage)	1
Tow-Behind Compressor	4
Mobile Equipment Fleet Diesel	
2-Boom Automated Jumbo	5
Explosive Loader	2
Development LHD	4
Haulage Truck	3
Mechanical Bolter	6
Cable Bolter	1
Small Personnel Carrier	2
Fuel & Lubrication Truck	2

16.4.9 Mine Infrastructure

The mine infrastructure is presented in Figure 16-122 and described in the following subsections.

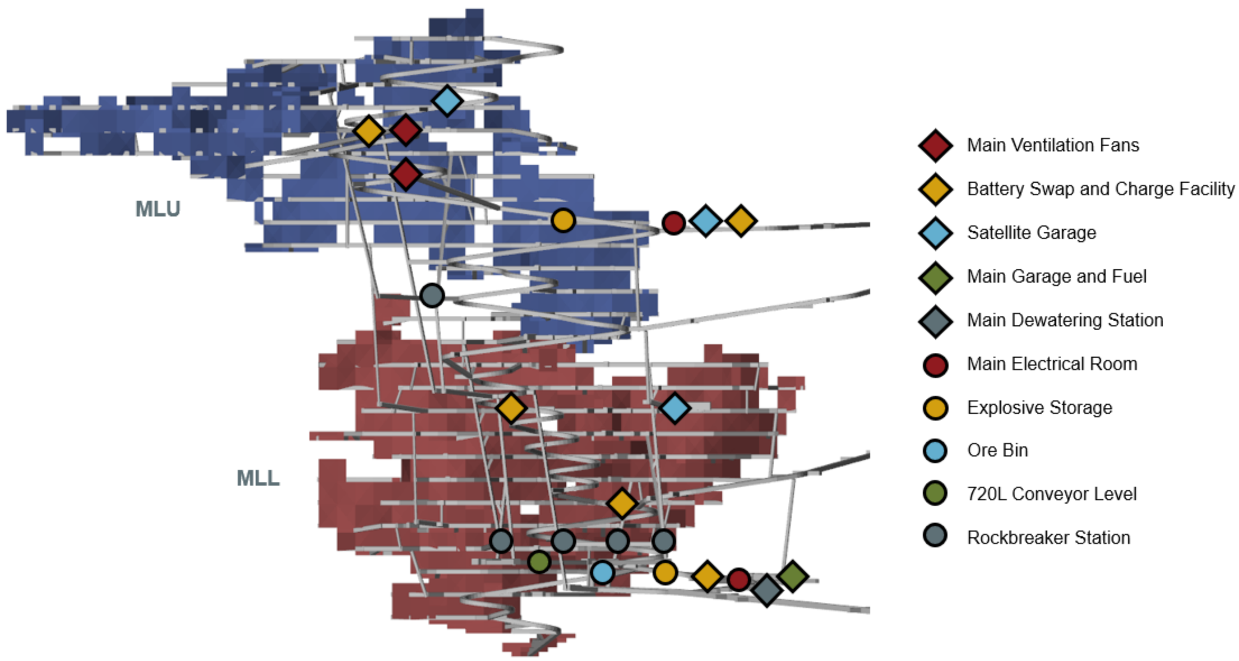


Figure 16-122: Major Mine Infrastructure Locations Longitudinal View Looking Southwest

16.4.9.1 Ventilation

Ventilation to each zone will be provided by fresh air intake through the three portal tunnels and return air ventilation via the east and west exhaust adits. The ventilation systems will be a "pull" system with fans located underground at the exhaust adits. This arrangement will reduce the heat from fans being introduced into the mine and eliminate fan installations at the portal accesses.

The ventilation system will be designed to provide flow-through ventilation with fresh air pulled from the each of the South Portal tunnels and the Guajes Tunnel. Fresh air will then be supplied to each level through the internal ramp. Exhaust raises are located near the extents of the ore body and pull air through each level. These raises return air to surface via the east or west adits.

The following are the principles related to the underground ventilation design.

- Primary ventilation system to be designed as a 'pull' system, assuming a mixed diesel and battery electric equipment fleet.
- Airflow requirements will be estimated to maintain the air quality below threshold limit values for contaminants and heat, assuming a heat load of 60% and 40% for diesel and battery electric equipment respectively. Equipment utilization will also be considered for the airflow requirement calculation.
- Airflow demand will include an allocation for fixed facilities within the mine (e.g. workshop).
- Total airflow volume will assume a 20% leakage and contingency factor throughout the mine.
- Main exhaust air fans will be installed underground and equipped with variable frequency drives (VFD's).
- The system will be designed to use a Ventilation on Demand (VoD) system with underground air quality monitoring, actuated regulators on the levels and VFDs at the main fans.

- Typically, the auxiliary ventilation will use a forced arrangement with flexible or rigid ducting depending on duct length.
- Any sub-drift/cut-out more than 15 m long will be mechanically ventilated.
- Ventilation controls (air-lock doors, regulators, bulkheads, etc.) will be used to prevent short-circuiting.
- Stench injection and/or other as required systems will be incorporated in the design of the fresh air intake (at the portals).

16.4.9.1.1 Ventilation Assumptions and Design Criteria

Ventilation assumptions and design criteria for the ventilation system are summarized in Table 16-60.

Table 16-60: Ventilation Design Criteria

Item	Criteria		
Environmental Parameters			
Summer Design Wet-Bulb Temperature	21.1 ºC		
Summer Design Dry-Bulb Temperature	36.2 ºC		
Summer Design Atmospheric pressure	92.1 kPa		
Design Surface Rock Temperature	25.0 ºC		
Geothermal Gradient	2.5 ºC per 100 m		
Rock Specific Heat Capacity	900 J/kg.ºC		
Maximum Reject Wet-Bulb Globe Temperature	28.0 ºC		
Airways Wetness Fraction	0.3		
Friction Factors	K – Factor (kg/m^3)		
Arch Shaped Drift	0.010		
Arch Shaped Ramp	0.014		
Bored Raise	0.0050		
Collapsible Fabric Duct	0.0037		
PVC Duct (Rigid)	0.0015		
Steel Duct (Rigid)	0.0028		
Resistance	Practical Units (PU)		
Single Door	20		
Bulkhead	250		
Curtain/Brattice	2.5		
Airlock (Double Door)	2 x 20		
Velocity Limits	Min. (m/s)	Optimum (m/s)	Max. (m/s)
Internal Raise with Second Egress		7-10	12
Access Tunnels and Ramps		<4	6
Workplaces	0.25	0.5	2
Duct Velocity		20	30

16.4.9.1.2 Airflow Requirements

Airflow requirements are for the peak production and development period to highlight the maximum airflow requirements. As this is a mixed fleet comprising of both BEV and diesel equipment, the airflow required is based on heat loads and takes into consideration the mobile equipment engine operating factor and utilization factor and is rated at 0.069 m^3/s per kW heat. The heat loads include the requirement for development, production, material haulage, and miscellaneous auxiliary equipment. The required total flow is approximately 411 m^3/s at peak fleet requirement. The mobile equipment list and corresponding airflow requirements are presented in Table 16-61.

Table 16-61: Mobile Equipment List and Ventilation Requirements

Description	Total Units	Total m³/s Required
Mobile Equipment Fleet Battery Electric		
14 tonne LHD	11	51.3
Top-Hammer Longhole Drill Rig	5	2.3
ITH Drill with reamer	2	1.1
Stope Explosive Loader	2	0.8
Personnel Carrier Large 20 People	4	4.0
Scissor Lift	6	6.1
Boom Truck	6	12.9
Small Personnel Carrier / LDV	18	18.2
Shotcrete Sprayer	1	0.4
Transmixer	1	0.4
Mobile Blockholer	1	0.5
Telehandler	2	0.8
Grader	1	0.4
Cable Bolter	1	0.5
Small forklift (shop)	1	0.4
Mobile Equipment Fleet Diesel		
2-Boom Automated Jumbo	5	9.2
Explosive Loader	2	3.1
Development LHD	4	55.5
Haulage Truck	3	86.5
Mechanical Bolter	6	15.0
Cable Bolter	1	2.2
Small Personnel Carrier	2	11.1
Fuel & Lubrication Truck	2	5.5
Shops and Fixed Plant Ventilation		40
Dust Collection		16
Leakage/ Contingency 20%		69
Total		413

16.4.9.1.3 Ventilation Design

The ventilation system for Media Luna will comprise of two ventilation exhaust adits equipped with two main ventilation fans per adit, intake via three portal tunnels, and 4.0 m (equipped with escapeway ladders) and 3.0 m diameter raise bored internal raises.

During a power outage, all main exhaust fans and any primary booster fans will be operated at part load. All mobile equipment, except any required for emergency use, will be parked and turned off.

The ventilation system will be established in four main phases. During each stage the backbone of the ventilation system will continue to expand through the addition of internal ventilation raises that will connect between levels. The phases along with the total flow of the ventilation system are listed below:

- Phase 1 – South portal tunnel development (86m³/s and 84 m³/s)
- Phase 2 – Establish west adit and exhaust fans (223 m³/s)
- Phase 3 – Early Production and establish east adit and Guajes Tunnel connection (294 m³/s)
- Phase 4 – Full production (413 m³/s).

Each of the ventilation system's phases are presented in Figure 16-123, Figure 16-124, Figure 16-125, and Figure 16-126.

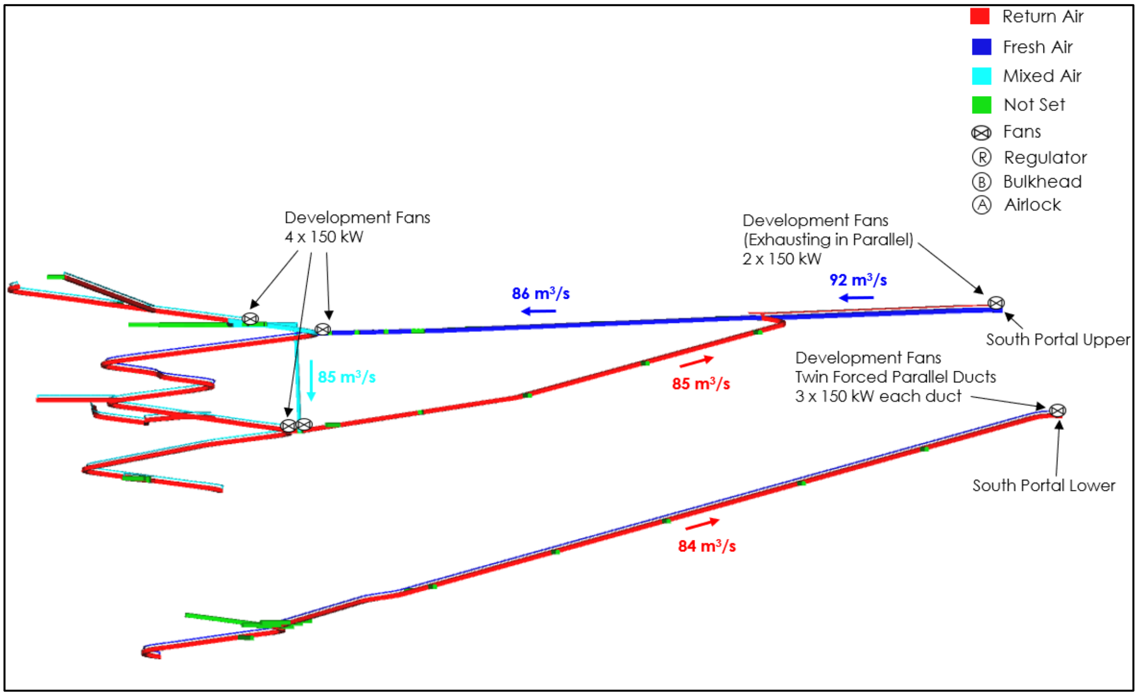
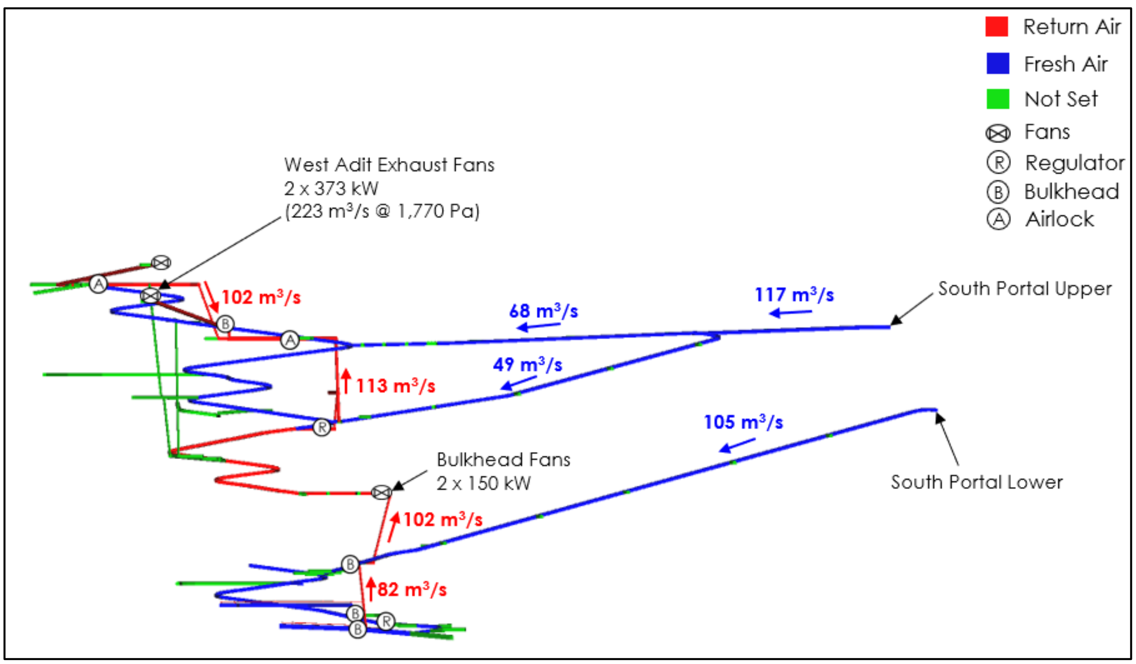
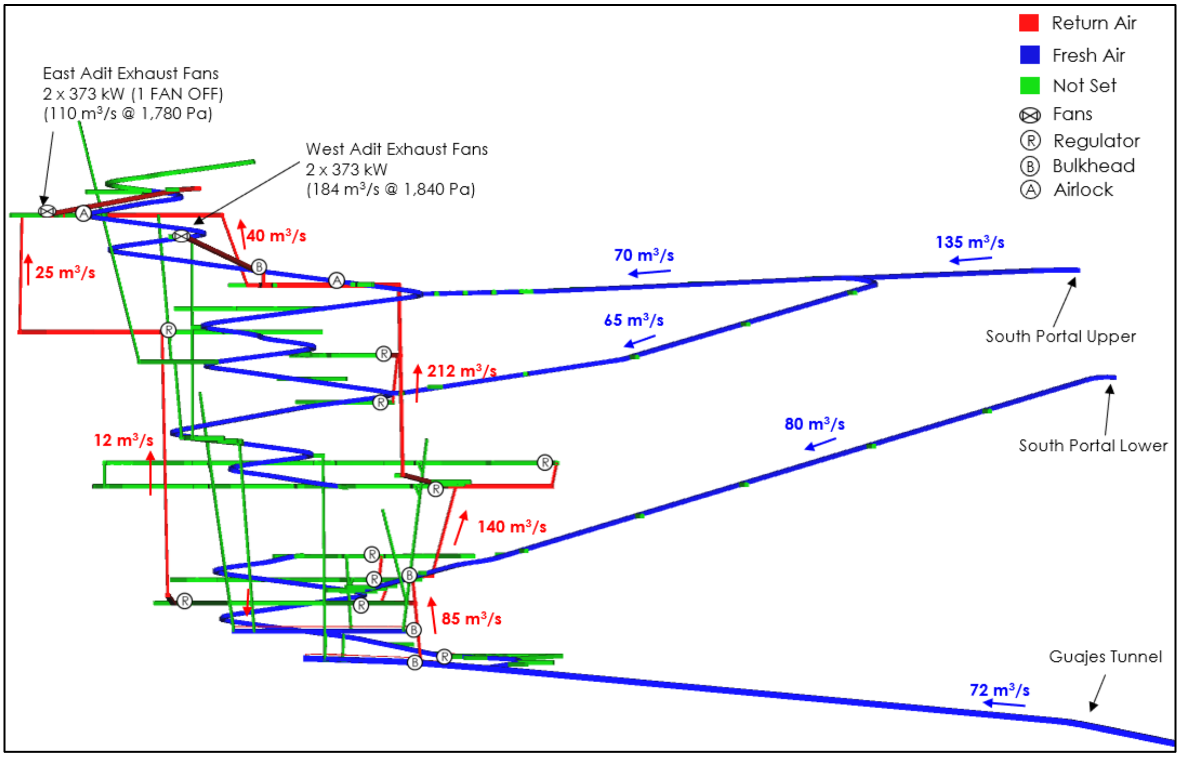


Figure 16-123: Ventilation Schematic Phase 1 - South Portal Tunnel Development (looking Southwest)



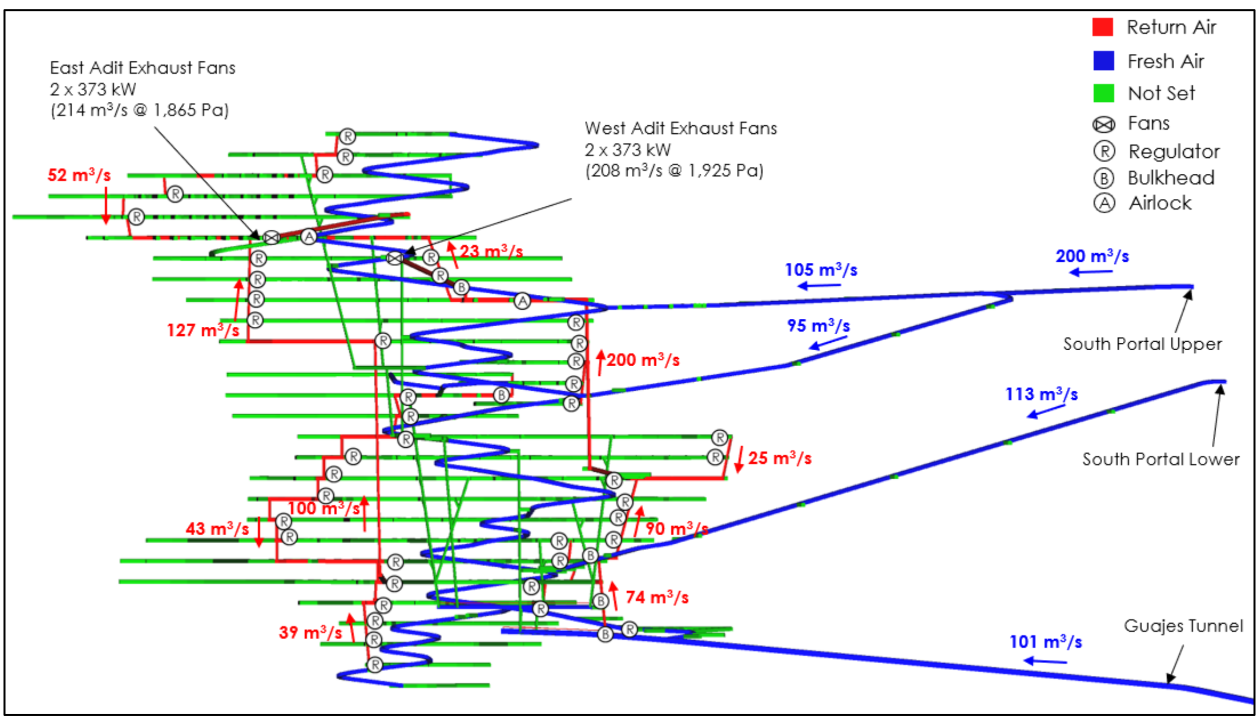
Note: All development/production fans are excluded from schematic. Flows do not match up perfectly due to density variance between the intake and exhaust air.

Figure 16-124: Ventilation Schematic Phase 2 - West Adit Exhaust Fans Established (looking Southwest)



Note: All development/production fans are excluded from schematic. Flows do not match up perfectly due to density variance between the intake and exhaust air.

Figure 16-125: Ventilation Schematic Phase 3 - East Adit and Guajes Tunnel Connection (looking Southwest)



Note: All development/production fans are excluded from schematic. Flows do not match up perfectly due to density variance between the intake and exhaust air.

Figure 16-126: Ventilation Schematic Phase 4 - Media Luna Life of Mine (looking Southwest)

The main exhaust fan pressure requirements were estimated from the VentSIM ventilation models based on the required airflows. From these parameters, the fan motor ratings were assessed. The main exhaust fans are VFD capable and their requirements are summarized in Table 16-62.

Table 16-62: Main Ventilation Fan Requirements

Description	Number of Fans	Peak Air Flow (m^3/s)	Peak Pressure (Pa)	Motor Rated Power (kW)
West adit exhaust fans	2	208	1,925	2 x 373
East adit exhaust fans	2	214	1,865	2 x 373

Ventilation controls will be used to control airflow throughout the mine and optimize ventilation system performance. These controls will include airlocks, regulators, and bulkheads. The airlocks will be used in strategic locations to allow mobile vehicle access without causing air to short circuit and to keep airflow isolated in different areas of the mine. Regulators will be used to control airflow on levels. A larger opening will allow a higher flow rate through the level and vice versa. Ventilation raises with escapeway ladders will have personnel doors installed in the regulator bulkhead to allow access.

The emergency egress strategy for Media Luna includes second egress from all levels either via the ramp (up or down) to the appropriate portal or through internal ventilation raises equipped with escapeway ladders. Personnel tracking tags will be used to report the location of all personnel underground and self-rescuers will be carried by all personnel working underground.

16.4.9.2 Materials Handling

Media Luna is planned to produce 7,500 t/d ore and up to 2,000 t/d waste. To process this material, ore and waste will be delivered to one of forty-one load points. The load points include dumping into ore and waste passes and dumping at the rockbreaker stations. For the ore and waste pass load points, a top grizzly with 750 mm x 1,500 mm openings will prevent oversize from entering the passes. The ore and waste passes lead to one of four ore rockbreaker stations, or one waste rockbreaker station. Figure 16-127 depicts the typical arrangement described above and indicates the bins feeding the Guajes Tunnel conveyor.

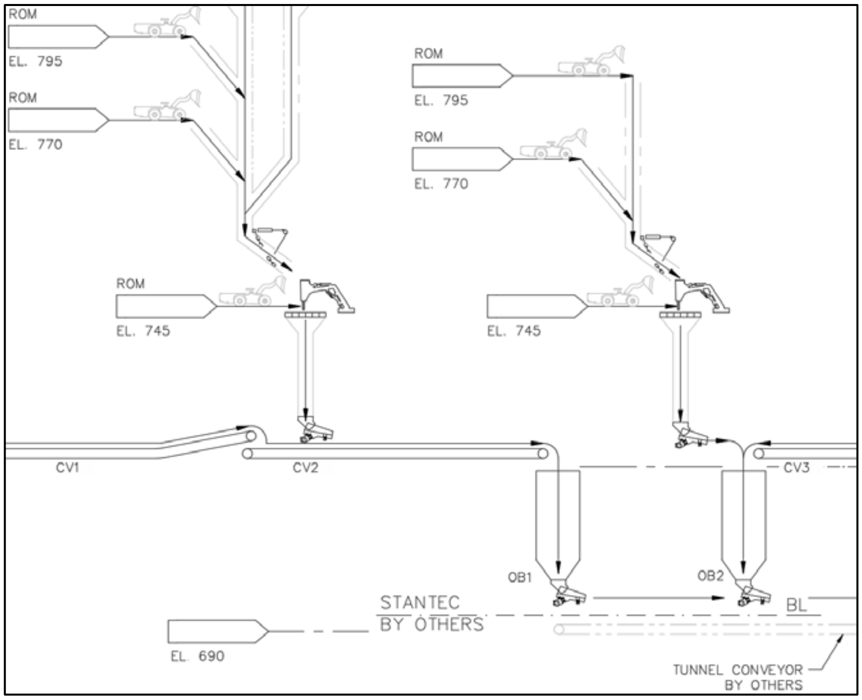


Figure 16-127: Media Luna Materials Handling Schematic

At the rockbreaker stations, undersized material will fall between the inclined grizzly bars (scalper bars), leaving oversized rock to tumble onto the flat grizzly bar deck. A remotely controlled hydraulic hammer (rockbreaker) guided through closed circuit TV will break oversized rock until all the material is small enough to pass through the flat grizzly's 400 mm x 400 mm openings. These apertures ensure all material that passes through the grizzly can be loaded and transported by the Guajes Tunnel conveyor, refer to Figure 16-128 and Figure 16-129.

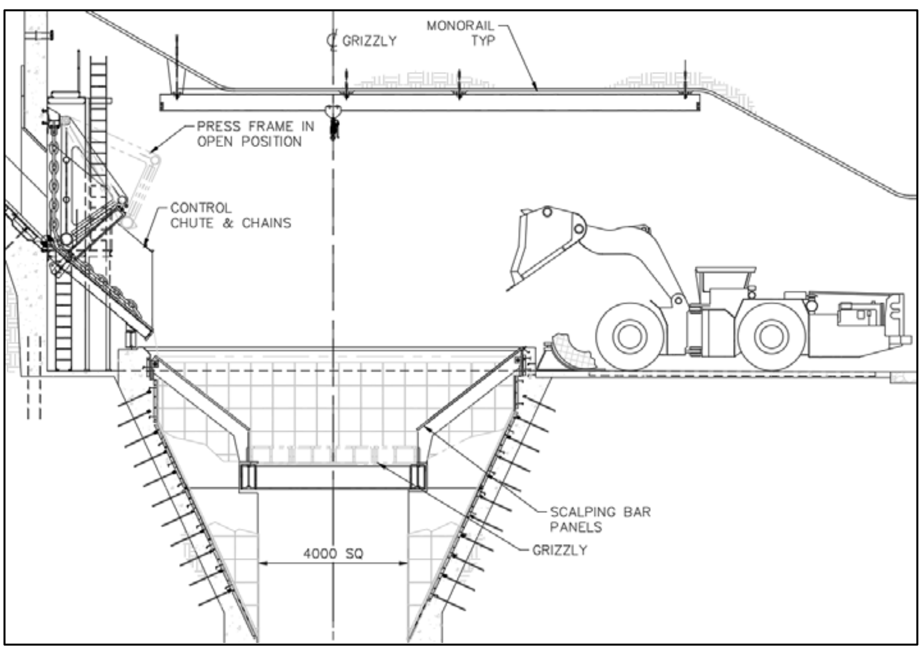


Figure 16-128: Media Luna Top of Pass Grizzly Schematic

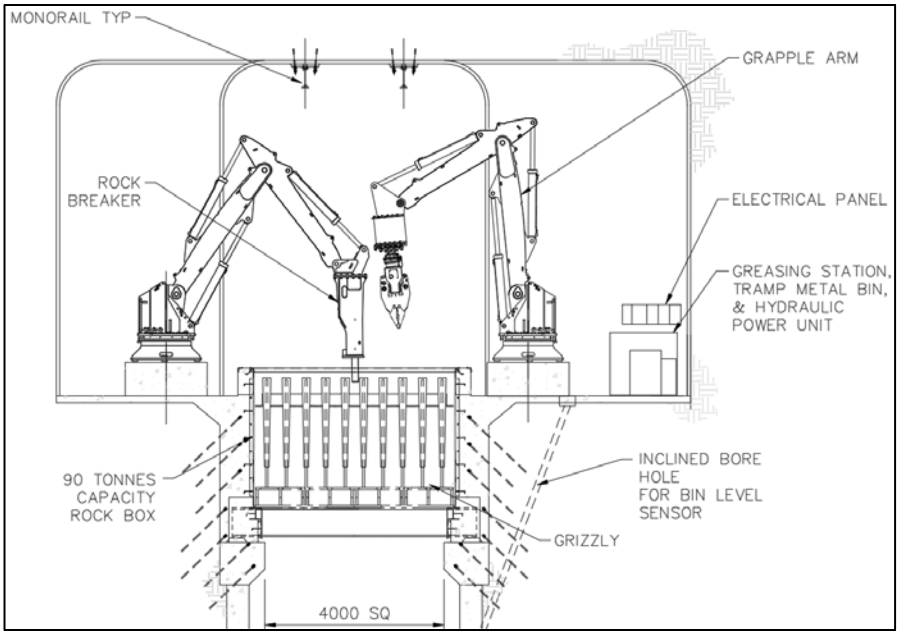


Figure 16-129: Media Luna Rock Breaker and Grapple Arm Schematic

Each rockbreaker is paired at the respective grizzly with a hydraulic scrap metal grapple arm. As the grapple uses the same hydraulic tank and hydraulic boom as the rockbreaker, the grapple can be replaced with a spare rockbreaker should the need arise.

For the ore circuit, each ore pass under a rockbreaker station is equipped at its bottom with a discharge chute, hydraulically controlled press frame, and undercutting arc gate. The undercutting arc gate provides positive isolation between the feeding of new material from the pass onto the vibratory feeder, while the canopy style press frame controls the flow of material onto the vibratory feeder to minimize spillage. The vibratory feeders then meter out material onto one of three conveyors on 720L which discharge into one of the two approximately 1,500 tonne capacity storage bins. At the discharge point of each of the three ore conveyors is a belt magnet that removes tramp steel before ore is discharged into the storage bins.

Each ore bin is equipped with an air cannon to eliminate hang-ups if required. The two ore bins feed material onto a discharge chute past an undercutting arc gate and canopy style press frame then onto a vibratory feeder discharging onto the Guajes Tunnel conveyor.

For the waste circuit, waste rock from the rockbreaker station cascades through a waste pass and an undercutting arc gate onto a vibratory feeder. This vibratory feeder directs material onto a conveyor which discharges directly onto the Guajes Tunnel conveyor.

The Guajes Tunnel conveyor is 1,070 mm wide, has an 800 t/h capacity, and will be back mounted on the east side of the tunnel. At Guajes portal this conveyor will discharge primarily ore to a 30 m radial stacker feeding a small stockpile to act as a buffer between Media Luna and surface operations. An additional waste rock stockpile can be formed with the radial stacker when required. Additional information on the Guajes portal infrastructure can be found in Section 18.9.2.1.

16.4.9.3 Mine Dewatering

The dewatering system for Media Luna has been designed as one system which includes both MLL and MLU. The mine dewatering system is designed to minimize the amount of effluent water that is released to the environment.

On each mining level, a level sump will collect water with suspended solids and gravity feed the dirty water to a sump below through a series of boreholes. Each level sump is equipped with a walkway, sump pump, washing hoses, and overhead monorail. The washing hose will be used with the sump pump to flush any suspended solids to lower levels.

The level sumps cascade down to 720L where dirty water is directed to the 695L intermediate collection sump. For levels below 720L (670L and 695L), submersible sump pumps will be required to lift the dirty water to the 695L intermediate collection sump.

Water collected in the 695L intermediate collection sump will be directed into one of three dirty water sumps equipped with Sturda weirs. The Sturda weir is comprised of a geotechnical membrane covering the end of a vertical steel frame / gate filtering out water from the accumulating cake of retained solids. The dirty water sumps are sized to allow for a minimum of 21 days for retained solids to accumulate. When the dirty water sump is full, the inflow is diverted to the next available dirty water sump, the end gate is opened, and the solid cake mucked out.

From the three dirty water sumps, clean water percolates through the Sturda weirs geotechnical membrane and accumulates in a clean water sump where a centrifugal pump, in combination with a flowmeter and control valves, will be used to direct the flow of the clean water to the mine water recycling plant on surface near the South Portals. In the event the recycling plant does not have capacity for the water coming from ML, the system will pump the excess water to facilities outside the Guajes Tunnel.

Initial mine development does not include all levels and boreholes will be used to bypass levels that are not yet developed. There are four bypasses which include 1170L to 1070L, 1070L to 970L, 970L to 895L, and 895L to 770L, this will allow dirty water to cascade downwards to the main dewatering facilities located on 695L.

16.4.9.4 Electrical

Power distribution for the underground mine and surface paste backfill plant will be provided through four feeder cables forming two circuits through the Guajes Tunnel, at 13.8 kV, using 15 kV-class cables and equipment. The four feeder cables enter the Guajes Tunnel portal, then the Guajes Tunnel Booster Station Electrical Room, then the Main Guajes Tunnel Pump Station Electrical Room, and then the key point of underground power distribution at the 695L Electrical Room at ML.

The general philosophy of the power distribution system is to use 15 kV cables through the mine ramps, or through strategically placed boreholes to minimize the amount of cable in the mine, with a unique borehole for every cable. Cables will be of either TECK or VERTITECK (or equivalent) by application. VERTITECK cables will be used in boreholes. Electrical Rooms (E-Rooms) will also serve as the location of primary 15 kV junction boxes for trunk cables routing through boreholes on alternate levels.

Power distribution will progress sequentially through underground works. All levels of the mine will have at least one electrical room, with several levels having two rooms to minimize cable length for 480 V power distribution. Two types of electrical rooms will be used.

- Type 1 Electrical Rooms, with 15 kV-class Metal Clad Switchgear with vacuum draw-out circuit breakers and full remote monitoring and operation, 125 V DC battery systems, 13.8 kV/480 V dry-type transformer and 480 V Power Distribution Panel (PDP), and Network Cabinet with integrated Uninterruptible Power Supply (UPS).

- Type 2 Electrical Rooms, with 15 kV-class Metal Enclosed Switchgear with fused disconnect switches, 13.8 kV/480 V dry-type transformer and 480 V Power Distribution Panel (PDP), and Network Cabinet with integrated UPS.

Table 16-63 provides a summary of the overall underground power requirements.

Table 16-63: Media Luna Underground Demand Load

Area	Demand Load (MVA)
Development and Production Mobile Equipment	3.3
Development and Production Fans	1.0
Paste Backfill Plant (Surface)	3.9
Major Dewatering	1.6
Battery Charging	3.2
Main Ventilation Fans	1.8
All Other Loads	5.5
Total	20.3

For both types of E-Rooms, each PDP will distribute power at 480 V to various facilities as well as local electrical room equipment such as ventilation fans, lighting panels, networking equipment, etc. All levels will have 480 V power throughout the operating life of the mine. All electrical rooms have positive-pressure air displacement (for dust control), with fans sized for cooling. Ambient temperature of E-Rooms will be designed to not exceed 30°C. Equipment to provide cooling will be sized during detailed engineering.

Type 1 E-Rooms include the 695L E-Room and 1095L E-Room. The spacing of all equipment in Type 1 E-Rooms will be designed to allow for proper installation, maintenance, or replacement throughout the life of mine and will meet the minimum code requirements.

The two tunnel dewatering rooms (Guajes Tunnel Booster Station E-Room and Guajes Tunnel Main Pump Station E-Room) are similar to the Type 1 E-Rooms, in terms of 15 kV Metal Clad Switchgear, but also include electrical equipment to support the pumps. For the purposes of this study, these are in the same category as Type 1 E-Rooms.

Type 2 E-Rooms form the bulk of the power distribution backbone and will vary based upon the specific equipment required at that level. Type 2 E-Rooms are designed to have a spare 15 kV disconnect switch as well as a 480 V, 400 A power take-off unit to provide power to mining and development crew equipment at each level where required. All equipment in Type 2 E-Rooms will also be designed to allow for proper installation, maintenance, or replacement throughout the life of mine and will meet the minimum code requirements.

Some Type 2 E-Rooms are “end of line” rooms and feed only local equipment, while most Type 2 E-Rooms feed both local equipment, and cascade power to the next level. A similar design will apply to all Type 2 E-Rooms, with minor variations for the quantity of fused disconnect switches and the capacity of the transformer and PDP.

Major underground loads and the sources of power are located as follows:

- The Guajes Tunnel Booster Pump Station is fed from the Guajes Tunnel Booster Station E-Room.
- The Main Guajes Tunnel Pump Station is fed from the Main Guajes Tunnel Pump Station E-Room.
- The Main Dewatering Station and Main Underground Garage are fed from the 695L E-Room.
- Main Ventilation Fans are fed from 1095L E-Room.

- Battery Swap and Charging Stations (for Battery Electrical Vehicles) are fed from 695L, 795L, 895L, 1095L, and 1195L E-Rooms.
- At the 1095L E-Room, dual feeders will provide power to the paste backfill plant through SPU main tunnel. Each feeder can supply almost the entire paste plant load continuously, however, minor load reductions may be required based on the final design of the paste plant.

The two 15 kV circuits through the Guajes Tunnel provide a significant level of redundancy. Operation with only one of two circuits will require load shedding, a reduction of mining or development operations, until the second circuit is restored. While breakers can be operated remotely to isolate some areas of the mine, human intervention will be required to operate manual interlocks at the corresponding Type 1 E-Room to implement the redundancy.

In the event of a utility outage, it will be necessary to suspend mining activities (mining, development, and ore/waste handling), while generated power will be sufficient to provide power for all critical underground systems, specifically ventilation and dewatering.

UPS power is provided at all underground network cabinets, and metal clad switchgear systems include 125V DC battery systems for remote monitoring and operation in case of power outages. Communication and control will be maintained by UPS power where main power distribution is temporarily unavailable.

The mine power distribution system will have some equipment installed at altitudes more than 1,000 MAMSL, potentially requiring derating. All equipment nameplates will indicate equipment ratings for 0-1000 MAMSL and 1000-2000 MAMSL. All installed equipment will meet the minimum requirements for the actual installed location. The intention is to reduce the variety and quantity of spare parts and eliminate the need for equipment specifically rated for operation in the 1000-2000 MAMSL range.

Preliminary design for the grounding of the underground power distribution system will be through the method of resistive grounding (to limit fault currents) by using two 3C 4/0 bare copper conductors throughout the entire mine. These conductors will be routed to each level and terminated on a ground bus located in each Type 1 and 2 E-Rooms and will be distributed on the level. Size and quantity of the grounding system will be validated during detailed engineering after a full power system study is completed. If separation of grounding systems is required (i.e. surface/underground/paste backfill plant), it will be determined during detailed engineering once the full power system model is complete.

16.4.9.4.1 Communications and Instrumentation

Communications to the underground works will be accomplished via two single-mode 144 core fiber-optic cables through the Guajes Tunnel. These two cables will provide redundant connection throughout Media Luna.

The main fiber backbone will be used to facilitate the network infrastructure and ensure wired and wireless access is available on all levels. The use of fiber will be minimized outside of the main backbone except as required for electrical isolation or due to the distance between components. This fiber trunk backbone will be used for all systems including business networks, process control networks, and other dedicated systems as required.

A Very High Frequency (VHF) leaky feeder system will be installed using a head end transmitter at SPU and the Guajes Tunnel. The leaky feeder will extend up/down the internal ramp system and cover all levels using 2-way and 3-way splitters. Line amplifiers will be installed at 300 m intervals, and termination units installed at every cable end. Power supplies/power couplers will be required every 10 devices.

A parallel LTE (Long-Term Evolution) network will be used for digital control and communication signals for systems such as tele-remote operation, personnel tracking, as well as network access for business and process control networks. All personnel network access underground will be via the wireless LTE network.

Communication between the levels will be completed using strategically placed boreholes of appropriate size to minimize the amount of cabling in the mine. Communication cables will use individual boreholes for ease of installation and replacement, as well as redundancy, the collapse of a single borehole will only affect one cable. Communication cables will be routed separately from power cables. The use of boreholes instead of routing the cabling through the internal ramp is to eliminate the risk of cable damage due to impact by mobile equipment or other items.

Large network cabinets (Type 1 and Type 2) will be located at each of the level electrical rooms to facilitate the management of separate physical networks and the potential for redundant paths for communications. Large network cabinets will be supplied from a dedicated lighting panel circuit feeding an outlet internal to the cabinet. This outlet will power a UPS which will provide continuous power to all internal devices.

Additional smaller network cabinets (Type 3) will be located in the other facilities that need communications (garages, air regulators, ventilation airlocks, battery swap stations, material handling stations, service water booster stations, intermediate sumps, etc.). Small network cabinets will be supplied from a dedicated lighting panel circuit feeding a surge arresting type breaker and terminal internal to the cabinet. All internal devices will be powered from this breaker.

Programmable Logic Controller (PLC) cabinets will be located as follows:

- Guajes Tunnel Booster Pump Station E-Room
- Guajes Main Tunnel Pump Station E-Room
- 695L E-Room
- Surface Service Water Pumping Station (SPU)
- 695L Main Dewatering Pump Station
- 720L Conveyor #1
- 745L Grizzly / Rockbreaker Station #1
- West Adit Main Ventilation Fans
- East Adit Main Ventilation Fans

All PLC cabinets will be connected to a local network cabinet using CAT 6 Ethernet Interlocking Armored cable.

Remote Input/Output (RIO) cabinets and smart starters will be used to support the field devices at a distance from the PLC controlling the devices. All process control will report to a central control room on surface via this fiber-optic network. All RIO cabinets will be connected to a local network cabinet using CAT 6 Ethernet Interlocking Armored cable.

Where required, some instrumentation devices will communicate over the network using CAT 6 Ethernet Interlocking Armored cable and tie into a local network cabinet.

All control cabling will be 600 V Teck 90 cable. All instrumentation cabling will be shielded twisted pair or triad and be armored control and instrument cable (ACIC). All power, control, and instrument cables will be routed to provide separation between the cable types.

Type 1 and Type 2 Network cabinets will always include an Uninterruptible Power Supply (UPS) to maintain power to the communication system in case of momentary or prolonged outages. Additional localized UPS installation will be addressed where necessary.

Central blasting and the micro-seismic monitoring system will also be connected to the fiber network. Central blasting will be accomplished using a Remote Blasting Box (RBB) connected to the overall fiber network using a 4PR #24 AWG CAT 6 armored red cable. The RBB will connect to a Centralized Electronic Blasting System (CEBS) junction box on each level using a 2C #12 AWG armored, red riser cable to provide blasting capabilities.

Analog phone communication will be accomplished via a 50-pair #24 AWG armored telephone cable. A 2-pair #24 AWG armored telephone cable will connect the telephones for the Guajes Tunnel electrical rooms, refuge stations, and garages to the junction boxes.

Voice Over Internet Protocol (VoIP) telephones will be connected to the fiber network via the fiber cabinets, with one VoIP telephone per electrical room/garage/process room as required.

During initial development, communications will be available to each ore zone through the respective portals. Once development has progressed to a point that the two ore zone communications systems can be interconnected, the two systems will be merged. These temporary systems will be removed once permanent communications through the Guajes Tunnel are installed.

16.4.9.5 Mine Service Water

The mine service water system will draw water from various sources over time. Initially, service water will be supplied from wells near the South Portals until the South Portal sediment and decant ponds can be constructed and the mine water recycling plant is operational. These ponds will store mine water along with surface run off from the waste rock storage facility and will provide water for reuse as service water. Water treatment plants are located outside of South Portal and outside of the Guajes Tunnel to treat the water prior to it being reused underground.

The service water distribution system delivers water underground using two pumps located near SPU. These pumps feed service water via steel piping either directly to levels using pressure reducing stations or to one of a series of 5,000 L vented supply tanks. One supply tank typically supplies two or three levels, and a combination of level monitors and control valves will be used to control the water level in the tank. To minimize the amount of steel piping, plastic piping will be used if the pressure rating is under 900 kPa, which corresponds to a vertical limit of 105 m below the supply tank.

During development, where it is not possible to install a higher-level water storage tank to reduce pressure rating, level piping will be mild steel and valve stands containing high pressure relieving valve stations will be installed to limit water pressure on any given operating level. When developing increasingly elevated mining levels, pressure switches will operate in conjunction with a bladder tank to control pump output with the goal of maintaining pressures between 250 and 730 kPa on the levels. This pressure range represents the range of water supply pressures that hydraulic drills require during drilling operations. As the levels continue to increase higher, the lower levels will remain connected to the increasingly pressurized main service water feed line until such time that a vented service water supply tank can be installed and connected to service the mining levels below.

16.4.9.6 Other Mining Support Services

Compressed Air

Equipment requiring compressed air will be outfitted with onboard compressors. Portable compressors will be used for miscellaneous needs such as blast hole cleaning, pneumatic pumps, handheld tools, etc. Additionally, each underground garage will be outfitted with a compressor.

Emergency Egress

Primary access to the underground will be through the Guajes Tunnel with secondary access available via SPU and SPL. The emergency egress strategy for Media Luna includes second egress from all levels, either via the internal ramp system (up or down) or internal ventilation raises equipped with escapeway ladders, to the appropriate tunnel and surface portal. A longitudinal section view of the emergency egress plan is presented in Figure 16-130.

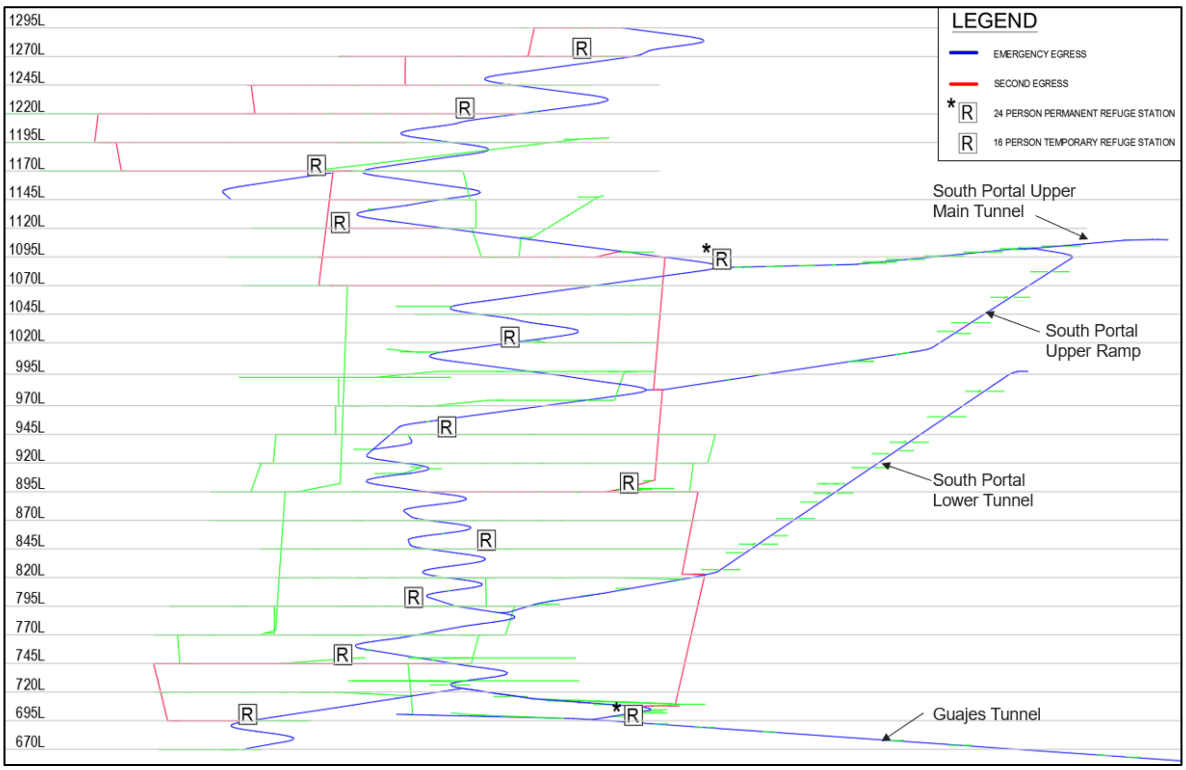


Figure 16-130: Emergency Egress Longitudinal View Looking Southwest

Fire Detection and Suppression

Fire detection and suppression for the underground mine will be provided by a third party. This system will incorporate water hose and sprinklers, as well as foam systems in the areas of chemical fires (i.e. battery charging stations). The two systems will comply to Mexican codes and standards or the National Fire Protection Association (NFPA), whichever is the more stringent between the two will be followed.

The fire detection and suppression system will include coverage of the following:

- The full length of the Guajes Tunnel conveyor.

- All conveyor systems (including loading, transfers, etc.) along with conveyor belting.
- The main garage including electrical room, electrical shop, tire storage, shop office, clean room, crane bay, wash bay, service bay, lube storage, welding bay, and fuel and lube bay.
- Satellite garages.
- Fuel and lube bays.
- Battery charging facilities.

Mine infrastructure will have additional means of fire protection, primarily fire extinguishers located in each of the facilities. Fire extinguishers will be easily accessible from the exits and unobstructed in the design. Design and installation of portable firefighting extinguishers shall follow the local requirements. In addition, fuel and lube bays utilize SATSTAT's, which house internal fire suppression, along with automatic roll-down fire doors for containment. Automatic roll-down fire doors will also be installed at the garages and lube storage.

The fire water used will be a separate system than the service water to ensure supply to the mine in the event of an emergency. A 400,000 L tank will be placed on surface near the South Portals to supply water to the mine with two 55 kW electrical pumps. The pumps will tie directly into an electrical transformer, with a standby diesel generator and an automatic transfer switch in case of power failure.

Main Maintenance Garage

The main garage will be a multi-bay facility with drive through traffic flow. The main garage will be located on 695L and will include the following:

- Service bay
- Wash bay
- Crane bay
- Tire storage
- Electrical shop
- Electrical room
- Fuel and lube bay
- Lube storage bay
- Welding bay
- Office
- Clean room

Where practical, each facility for mobile equipment has been designed as a drive-through facility, to reduce the likelihood of vehicle-personnel or vehicle-vehicle interactions.

Ventilation to the garage will be a flow-through design to an exhaust drift connected to the garage. Roll-up fire doors combined with personnel doors will be installed at the entrance to the garage. Facilities with closed off excavations will be supported by a wall mounted fan and a ventilation duct. The following facilities are considered closed off excavations: electrical substation, lube storage bay, welding bay, office, and clean room. Sloped concrete floors will be present in the garage to promote gravity flow of water to a sump with a submersible pump and oil and water separator.

The crane bay will consist of two 25-tonne cranes so that multiple vehicles can be serviced at the same time. In the service bay, there will be a concrete ramp and removable grating for access the underside of mobile equipment. The crane and service bays will each contain a trench drain along with a sump and oil and water separator.

Additional equipment in the crane and service bays will include the following:

- Safety equipment
- Fire detection and suppression
- Compressed air hose reel
- One 10 HP air compressor
- Sinks combined with a self-contained unit for grey water
- Work bench
- Tool storage
- Wall lighting
- Waste storage bins with lids

The welding bay will be located near the exhaust drift and will be equipped with welding tables, acetylene and oxygen bottles in a rack, a 5-tonne monorail crane, workbenches, storage cabinets, safety kits, a 10 HP air compressor with compressed air hose reel, portable welding screens, and two exhaust hoods ducted to the exhaust drift.

The electrical room supports the maintenance garage with power distribution and the electrical shop will provide a clean area for repairs to electrical equipment.

A clean room will be located near the office and will be equipped with a sink and water heater, lockers, and a boot washing station. A refuge station with two latrines will be located near the main garage, for use by local personnel. The latrine will be a portable facility with a hand washing sink with water heaters. The office will have tables and chairs, refrigerator, counter with microwave oven, first aid supplies, desks, computers, and a phone for communication with surface and other areas of the mine.

The tire storage bay will be designed to accommodate multiple tire sizes for underground mobile equipment. Tires may only be stacked three high and will sit on pallets positioned on an angle. The bay will be sized to allow a forklift to access the pallets.

The wash bay will be located adjacent to the service and crane bays, to clean vehicles prior to maintenance. The wash bay contains a high-pressure washer with a hot water heater, soap cubes, safety kits, a 10 HP air compressor with high-pressure hose reel, and a trench with removable traffic rated grating containing a sump combined with a sludge separator and an oil and water separator. Cleaning water will be provided through service water piping.

The warehouse will be located near the main garage, and it will consist of shelving along one wall for equipment storage, such as small parts and tools. Pallets will be placed on an angle against the opposite wall for larger pieces of equipment. The warehouse is sized so a forklift can access the pallets.

Satellite Garages

A single-bay satellite crane bay will be located on 895L, 1095L, and 1220L. This garage will be equipped with a 25-tonne crane, service water and compressed-air with hose reels, safety kits, fire detection and suppression, work bench, tool storage, and 10 HP air compressor. The purpose of this satellite garage will be to support servicing and minor repairs for limited-travel equipment. A fan with silencers will ventilate the area.

The crane bay is combined with a small wash bay at the closed end of the excavation. The wash bay includes a pressure washer with water heater, soap cube, trench with removable grating, a sump combined with sludge separator, and an oil and water separator. There is a two percent slope toward the trench at the rear of the bay, beginning after the crane section and leading into the wash bay.

Latrines, parking, warehouse, fuel and lube bay, and battery swap station will be near the satellite garages. These satellite garages will be available in the project period to support mobile equipment during development, prior to the main maintenance garage being developed.

Battery Charging Facilities

There will be two types of battery charging stations: the battery swap and charge stations and the small mobile charging stations. The battery swap and charge stations will be located 695L, 795L, 895L, 1095L, and 1195L while the mobile charging stations will be located on levels 695L, 895L, 1095L, and 1195L.

The charging philosophy for the battery swap and charge station works as follows: There are four battery slots, up to three will be in charge and one will remain empty for the next battery to be dropped off. When a piece of equipment pulls up alongside the station a 10-tonne overhead crane will be used to remove the battery from the mobile equipment, place it in the empty charging slot, and then place a fully charged battery on the mobile equipment. There are three charging posts connected to one battery power cabinet and the charging cabinet can provide an output of 320kW to the charging posts at 20kW increments. Each charging post can only charge at a maximum of 160kW, therefore, two charging posts will hold 100kW while the third will hold 120kW. A section of the battery swap and charge station is presented in Figure 16-131.

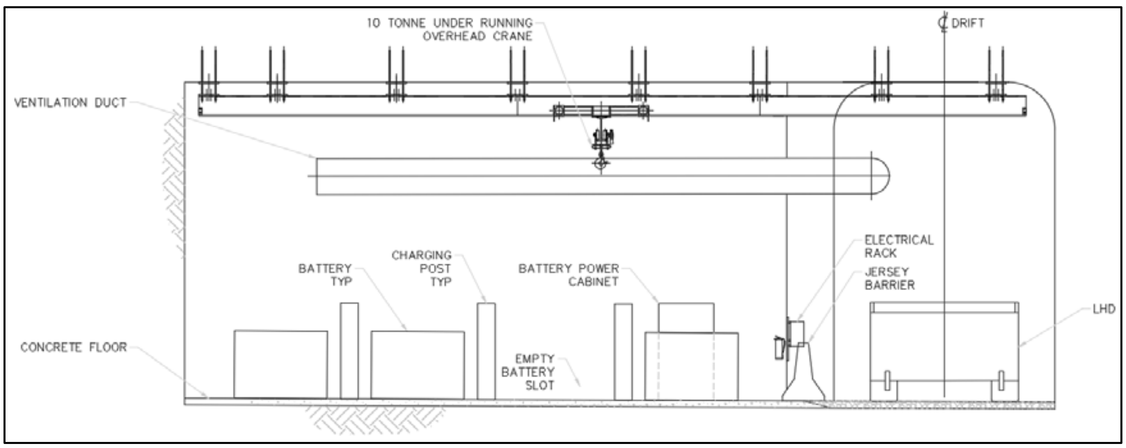


Figure 16-131: Battery Swap and Charge Station Section View

The battery swap and charge station will contain fire detection and suppression, fire alarm panel, electrical rack, fire extinguishers, and protective barriers at the entrance of the excavation and in front of the electrical racks. The station will be ventilated using a fan and silencers directed to the rear of the excavation.

Mobile charging stations will be used for smaller battery electric vehicles. There will be a similar set-up as the battery swap and charge stations, using three charging posts and one cabinet. However, the batteries will remain on the mobile equipment and will be charged in place while parked. The excavation is meant to allow traffic to pull to the side, away from traffic flow. Ventilation is not required as the depth of the station is shallow and can be classified as flow through ventilation. The mobile charging stations will have fire detection and suppression.

Fuel and Lubricant Facilities

There will be one fuel and lube bay located with the main garage on 695L and two satellite fuel and lube bays on 895L and 1095L. Fuel and lubricant will be transported in bladders via ramp access and replaced using a forklift into the SATSTAT containers. Each facility holds one 4,550 L SATSTAT for fuel and one 2,275 L SATSTAT for lube. Fuel will be used to fill the diesel mobile equipment and lubrication can be used to refill mobile equipment in the facility or pumped through 50-millimeter piping to garages nearby. Fuel stored underground will not exceed 72 hours of consumption.

The fuel and lube bays will be a drive-through arrangement with flow through ventilation and each end of the bay will include a roll-down fire rated door combined with a personnel door. These doors will prevent any fires from spreading and will prevent noxious gases from reaching workers. There will be fire detection and suppression within the bay, either in the form of water hose and sprinkler or a foam agent. Also included in the bay are safety kits, service water hose reel, and an electrical control rack.

The SATSTATS have fuel and lube bladders that sit inside self-contained units which include on-board dry chemical fire suppression and 150% spill containment. For redundancy, these SATSTATS sit on an elevated concrete pad with a raised curb to contain spills.

Refuge Chambers

Refuge stations are to be placed strategically throughout the mine in the event of an emergency. There are two twenty-four-person permanent refuge stations located on 695L and 1095L. There are eleven, sixteen-person portable refuge stations, located every second or third level and will be moved where needed as production advances throughout the mine.

Permanent refuge stations will also be used as lunchrooms and act as arrival or meeting places at the beginning and end of shift for personnel, as a ‘bus’ station from surface for the large personnel carriers (20 person). Latrines are to be placed nearby, but far enough to avoid air pollution surrounding the refuge.

The twenty-four-person refuge stations are meant to be a permanent excavation equipped with the following:

- 3.3-meter slash out for vehicles to pull over and drop personnel off
- 1-meter-wide walkways protected by 600-millimeter diameter bollards
- 10 HP air compressor
- Air conditioning unit to circulate air with ductwork reaching the rear of the excavation
- Storage shelving
- Fire extinguishers
- Electrical racks
- Pendant back mounted LED lights
- Wash fountains with water heaters
- Three, eight-person tables
- Emergency horn activation switch
- Gas monitoring station
- Door sealant
- Service water supply
- Compressed air supply with ethyl mercaptan filter and muffler
- First aid equipment
- Safety kits and portable eye wash
- Phone system
- O_2 bottles
- CO and CO_2 scrubber and O_2 generator
- Kitchen amenities including sink, refrigerator, microwave
- Portable latrine with curtain, in case of emergencies
- A small office with a desk

The sixteen-person refuge stations will be procured from a vendor. These portable stations will be stand-alone with a mine safe standard design. The station will be outfitted with all necessary equipment; reliable construction, chemical toilet, fire and safety kits, psychology of entrapment kit, emergency food and water, electrical systems with backup power of a minimum of 36 hours, gas monitoring, refuge control module, breathable air system, and a scrubbing system.

Explosives and Detonator Storage Facilities

Underground storage magazines for explosives, detonators, and blasting accessories will be located on the 695L and 1095L. There will be separate magazines for explosives and detonators. Magazines will be ventilated using a fan and silencers.

Explosive products being used for development and production mining will be securely handled and stored in the magazines, including ANFO, emulsion, detonators, and packaged explosives. The explosives will not be stored underground for periods longer than twenty-four hours and will be under guarded surveillance. Each magazine will be designed with a locking gate and be monitored by CCTV. The location of the explosive or detonator storage facilities will be at least 60 meters from: the main access into or from the mine, key mechanical and electrical installations that remain in service during a mine emergency, areas of refuge or other areas where workers may congregate, and storage areas for fuels or other potential sources of fire.

Explosive and detonator materials will be transported from the surface via ramp access. Trucks operated by trained and authorized individuals will be used to transport explosive materials from the underground magazines to the workplace.

16.4.10 Mine Personnel

For the underground direct labor there will be two 12 hour shifts per day and the underground operation will operate seven days per week with three rotations (two working per day and one off).

A peak workforce requirement of 678 personnel (direct and indirect labor) will occur in 2024 when development contractor crews are transitioning to Torex development crews and construction crews are at a maximum. The workforce requirement for operating period will be between 452 and 503 personnel. The total workforce estimates for peak and operating period have been scheduled over the life of mine operation and are presented in Table 16-64 and Figure 16-132.

Table 16-64: Workforce – Total Employment

Category	Peak on Site (2024)	Operating Period (2026)
Project (Guajes Tunnel)	98	0
Mine Management	14	20
Technical Services	38	41
Development Crew	33	66
Production Crew	36	66
Haulage	24	39
Mine Services	9	21
Mine Maintenance	54	113
Logistics	6	15
Backfill	39	39
Development Contractor	217	0
Blasting Contractor	44	53
Mine Services Contractor	66	30
Total	678	503

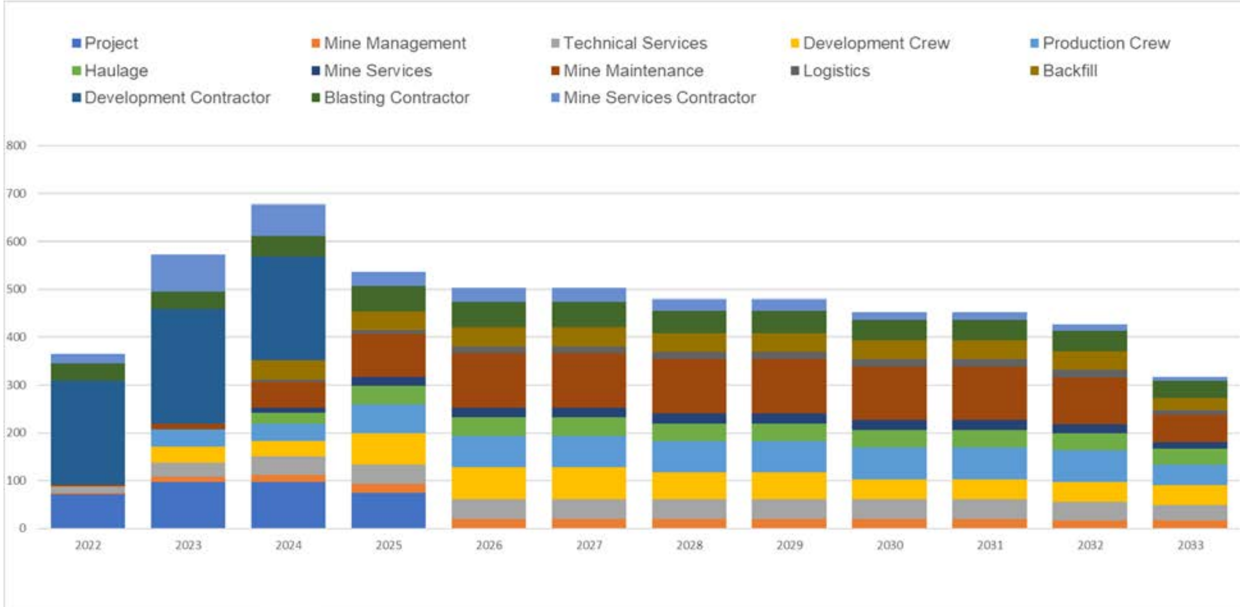


Figure 16-132: Media Luna Workforce Profile

16.5 PROCESS PLANT FEED

The ELG Process Plant feed from the ELG OP, the ELG UG mine and the Media Luna Underground mine (once in production) is summarized in Table 16-65. The ELG Mine Complex blend plant feed based on three items: Gold grade, copper grade and iron grade. For LOM ore feed schedule, the plant feed sources, in order of priority or precedence, are as follows:

1. Direct feed of ELG UG ROM ore mined;
2. Direct feed of Media Luna underground ROM ore mined (once in operation);
3. Direct feed of high grade open pit ROM ore mined;
4. Rehandle of high grade open pit ROM ore in stockpile;
5. Direct feed of medium grade open pit ROM ore mined;
6. Rehandle of medium grade open pit ROM ore in stockpile;
7. Rehandle of ELG Low Grade open pit ore in stockpile

In addition to the preferential treatment of high-grade material as stated above, iron and copper constraints have been applied to the mill feed in the years leading up to the commissioning of the copper flotation circuit which is planned for October 2024, when ore from Media Luna is expected to begin feeding the mill For each period of the mine plan, until the copper flotation circuit is operational, total iron content has been constrained to a maximum of 8.00% and total copper content constrained to a maximum of 0.15%. The mill throughput during this period, January 2022 to October 2024, will average 13,000 t/d.

There is a planned shutdown in October 2024 to allow for the commissioning of the copper flotation circuit. Once complete, there will be a one-month transition where the throughput is expected to be 8,940 t/d before reaching a steady state of 10,600 t/d.

Once the copper flotation circuit is operational, the open pit feed will be capped at 15% of total contribution. In the event that the combination of ELG UG, Media Luna Underground and 15% ELG OP cannot sufficiently meet the mill throughput, a batch process will occur to bypass the copper flotation circuit, and revert back to the existing cyanide in leach (CIL) process stream.

Table 16-65 shows that the nominal plant capacity of 13,000 t/d is forecast to be achieved from 2022 to 2024. From 2022 to 2023, the process feed gold grade ranges between 3.51 and 3.14 g/t. In 2024, pit mining is completed and a copper flotation circuit will be commissioned, in accommodation of the introduction of the Media Luna ROM. The nominal plant capacity is forecasted at 10,600 t/d. The LG ore stockpile is rehandled to the process plant to supplement the underground mines ROM and the process gold head grade adjusts to an average of 2.66 g/t Au and a copper head grade of 0.65%.

Table 16-65: Morelos Complex Process Plant Feed 2022-2023

	units	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ELG Stockpiles - Start of Period														
ROM Stockpiles	Mt		2.79	2.70	1.29	0.51	0.11	0.11	0.01	0.00	0.00	0.00	0.00	0.00
LG Stockpiles	Mt		2.02	2.32	2.54	2.69	1.78	0.99	0.11	0.00	0.00	0.00	0.00	0.00
Total Stockpiles	**Mt**		**4.81**	**5.02**	**3.84**	**3.19**	**1.88**	**1.10**	**0.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Au grade	g/t		1.35	1.21	1.18	1.15	0.99	1.01	1.06	0.00	0.00	0.00	0.00	0.00
Ag grade	g/t		3.13	3.75	3.65	5.35	3.52	3.99	4.87	0.00	0.00	0.00	0.00	0.00
Cu grade	%		0.06	0.08	0.10	0.15	0.09	0.10	0.05	0.00	0.00	0.00	0.00	0.00
Open Pit Ore Mined														
ROM ore mined	Mt	9.70	4.22	2.70	2.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LG ore mined	Mt	0.67	0.25	0.21	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total ore mined	**Mt**	**10.37**	**4.47**	**2.92**	**2.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Au grade	g/t	3.11	2.89	3.39	3.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ag grade	g/t	4.50	3.93	4.96	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cu grade	%	0.13	0.11	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELG UG Ore Mined														
ROM ore mined	Mt	2.29	0.41	0.42	0.44	0.48	0.39	0.16	0.00	0.00	0.00	0.00	0.00	0.00
Incremental ore	Mt	0.38	0.10	0.09	0.07	0.03	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Total ore mined	**Mt**	**2.67**	**0.51**	**0.51**	**0.51**	**0.51**	**0.46**	**0.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Au grade	g/t	5.75	5.87	6.22	5.56	5.65	5.56	5.28	0.00	0.00	0.00	0.00	0.00	0.00
Ag grade	g/t	5.94	7.69	7.41	4.62	4.36	5.88	5.15	0.00	0.00	0.00	0.00	0.00	0.00
Cu grade	%	0.24	0.30	0.24	0.20	0.21	0.26	0.21	0.00	0.00	0.00	0.00	0.00	0.00
ML UG Ore Mined														
ROM ore mined	Mt	23.02	0.00	0.06	0.75	1.71	2.48	2.90	2.65	2.70	2.68	2.68	2.61	1.81
Incremental ore	Mt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total ore mined	**Mt**	**23.02**	**0.00**	**0.06**	**0.75**	**1.71**	**2.48**	**2.90**	**2.65**	**2.70**	**2.68**	**2.68**	**2.61**	**1.81**
Au grade	g/t	2.79	0.00	2.90	2.94	3.22	3.33	3.51	2.67	2.85	2.78	2.45	2.01	2.22
Ag grade	g/t	25.62	0.00	24.31	25.58	27.33	26.20	26.42	25.66	25.41	24.30	26.15	24.90	24.44
Cu grade	%	0.88	0.00	0.94	0.83	0.89	0.86	0.87	0.87	0.88	0.85	0.91	0.90	0.86
Process Plant Feed														
Open Pit Feed -Dire	Mt	6.58	2.54	2.05	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELG UG Feed - Dir	Mt	2.67	0.51	0.51	0.51	0.51	0.46	0.18	0.00	0.00	0.00	0.00	0.00	0.00
ML UG Feed - Dire	Mt	22.46	0.00	0.00	0.26	1.71	2.42	2.91	2.66	2.71	2.69	2.68	2.61	1.81
Ore Stpl Rehandle	Mt	9.15	1.61	2.28	1.50	1.65	0.92	0.79	0.40	0.00	0.00	0.00	0.00	0.00
Total Feed	**Mt**	**40.86**	**4.67**	**4.85**	**4.25**	**3.87**	**3.80**	**3.87**	**3.06**	**2.71**	**2.69**	**2.68**	**2.61**	**1.81**
Au grade	g/t	2.90	3.51	3.14	3.17	2.93	3.08	3.07	2.44	2.84	2.77	2.45	2.01	2.22
Ag grade	g/t	16.33	4.39	4.93	5.95	16.61	18.52	20.86	22.68	25.32	24.22	26.15	24.90	24.44
Cu grade	%	0.55	0.13	0.13	0.18	0.54	0.61	0.69	0.77	0.88	0.85	0.91	0.90	0.86
Contained Au	Moz	3.81	0.53	0.49	0.43	0.36	0.38	0.38	0.24	0.25	0.24	0.21	0.17	0.13
Contained Ag	Moz	21.46	0.66	0.77	0.81	2.07	2.26	2.59	2.23	2.20	2.09	2.25	2.09	1.42
Contained Cu	Mlbs.	495.04	13.62	14.30	17.20	46.27	51.31	58.59	51.66	52.27	50.28	53.76	51.51	34.29
Days		7	365	365	366	365	365	365	366	365	365	365	366	365

17 RECOVERY METHODS

The ELG key points of this section are:

- The process design description follows these steps: Primary Crushing and Grinding > Cyanide leach > CIP > Tails filtration > SART > ADR > Electrowinning > Onsite smelting to doré bars.
- The recovery methods described are all currently in operation.
- The SART plant was added to the process to deal with elevated copper identified in the ELG ore during ramp-up.
- Tailings generated from the process in the Filtration Plant are stored in the Filtered Tailings Storage Facility (FTSF).
- The ELG Process Plant utilizes technology and equipment that is standard to the industry.
- The ELG Process Plant is designed to process 14,000 tonnes per day (t/d), at 90% utilization. Accounting for necessary maintenance, the current operation through 2021 was at an average of ~12,300 t/d (~87.9% of design).
- Process water is reclaimed and recycled, minimizing water consumed by process.

The ML key points for this section are as follows:

- A mineral beneficiation process for the ML Mineral Resource has been designed which would see the production of three salable products as follows: a copper/gold/silver concentrate, doré containing gold and silver and a copper precipitate.
- The envisioned process will make extensive use of the existing ELG Process Plant and facilities lowering environmental impact and capital costs.
- ML process will use the existing ELG comminution plant followed by sequential flotation to produce a copper/gold/silver concentrate, followed by further flotation of the copper rougher tailing to produce Fe-S concentrate and tails streams.
- The Fe-S flotation tailing will be subjected to Cyanide Leach/CIP through the existing ELG plant. Cyanide will be recovered from the CIP tails stream via the existing cyanide recovery thickener and the installation of a new water treatment plant. Reverse osmosis will be used to maximize recovery of cyanide and gold to the SART and CIC circuits.
- The Fe-S rougher concentrate will be combined with the copper circuit cleaner tailing and, after a regrind, will be subject to leaching for gold and silver utilizing part of the existing ELG leach circuit. Gold recovery from the Fe-S concentrate leach circuit will be via pregnant solution recovery from the existing Horizontal Belt filters and reuse of the CIC circuit.
- Two tails streams will be generated and pumped to a new tailings handling facility at the Guajes portal area. One stream will contain the leached Fe-S flotation concentrate with some of the DETOX flotation tails, and the other stream flotation tails. Tailings will be placed as either backfill in the ML mine or thickened via a new Guajes thickener and stored in the Guajes Pit Tails Storage Facility (GTSF). The priority will be to place the higher Fe-S content tails as backfill material.
- Separate leaching of the high metal sulphide concentrate into a relatively small mass as compared to the bulk feed will result in a reduction in overall cyanide consumption of 20-30% as compared to bulk leaching.
- Two distinct water circuits will be used. The new water treatment plant will be used to balance the water circuits by recovering cyanide from the cyanide containing leach solutions to reduce cyanide consumption and also generate cyanide free water for reuse in the grinding and flotation circuit.
- Reclaim water from the Guajes thickener and paste plant will return to the process via a new reclaim water system and be used for dilution and excess treated via the new water treatment plant (WTP) for subsequent use in the process water circuit.
- The footprint of the ML process plant fits within the current ELG Mine Complex area.

- Regrinding and subsequent cleaning of the copper rougher flotation concentrate is required to generate a saleable copper concentrate.
- Regrinding of the Fe-S rougher flotation concentrate is required to enhance dissolution of precious metals.
- The flowsheet is based on the results of metallurgical testing conducted by Base Metallurgical Laboratories Ltd. in Kamloops, British Columbia.

17.1 ELG PROCESS PLANT

The following description provides the reader an insight into the ELG Process Plant currently in operation at the ELG Mine Complex. The design basis for the ELG Process Plant is 14,000 t/d at 90% mill availability. The ELG Process Plant has been in commercial operation since March 2016, and the current operation through 2021 was at an average of ~12,360 t/d. The current bottleneck in the ELG Process Plant is the grinding circuit, which is currently being optimized to balance the workload between the SAG Mill, Ball Mill and Pebble Crusher.

The basic process flow is crushing, grinding, agitation leaching, carbon adsorption, carbon acid wash, carbon desorption (stripping), carbon regeneration, gold electrowinning, gold smelting, tailing detoxification, tailing filtration and disposal. The ELG Process Plant designed for the ELG Mine Complex utilizes processes and equipment that is standard for the industry. In late 2016, the decision was made to add a SART plant to the process to address operational issues caused by the presence of soluble copper in the ore.

17.1.1 Process Description

The following bullets summarize the process operations used to extract gold and silver from the ELG Mine Complex ore.

- Size reduction of the ore by a gyratory crusher, wet semi-autogenous grinding mill (SAG), and ball milling to liberate gold and silver minerals. A “pebble” crusher is operated in this circuit to deal with reject pebbles from the SAG mill.
- Thickening of ground slurry to recycle cyanide-containing water to the grinding circuit.
- Cyanide leaching of the slurry in agitated leach tanks.
- Adsorption of precious metals onto activated carbon (Carbon in Pulp – CIP).
- Removal of the loaded carbon from the CIP circuit and further treatment by acid washing, stripping with hot caustic-cyanide solution, and thermal reactivation of stripped carbon.
- Recovery of precious metal by electrowinning.
- Mixing electro-won sludge with fluxes and smelting the mixture to produce a gold-silver doré bar which is the final product of the ore processing facility.
- Thickening of CIP tailings to recycle water to the process.
- Recovery of free cyanide from copper cyanide complexes by treating the cyanide recovery thickener overflow stream in the SART plant.
- Generation of a copper precipitate from a portion of the cyanide recovery thickener overflow using the SART process.
- Detoxification of residual cyanide in the tails stream using the SO_2/Air process.
- Filtering of detoxified tailings to recover water for recycling back to the process.
- Disposal of the filtered detoxified tailings to a FTSF.

- Storage, preparation, and distribution of reagents used in the process. Reagents that require storage and distribution include: pebble lime, hydrated lime, sodium cyanide, caustic soda, sodium hydrosulphide, sulfuric acid, copper sulphate, ammonium metabisulphite (MT2000), hydrochloric acid, flocculant and antiscalant.

The overall process flow diagram of the current ELG Process Plant is presented in Figure 17-1. The processes are further described in the following sub-sections.

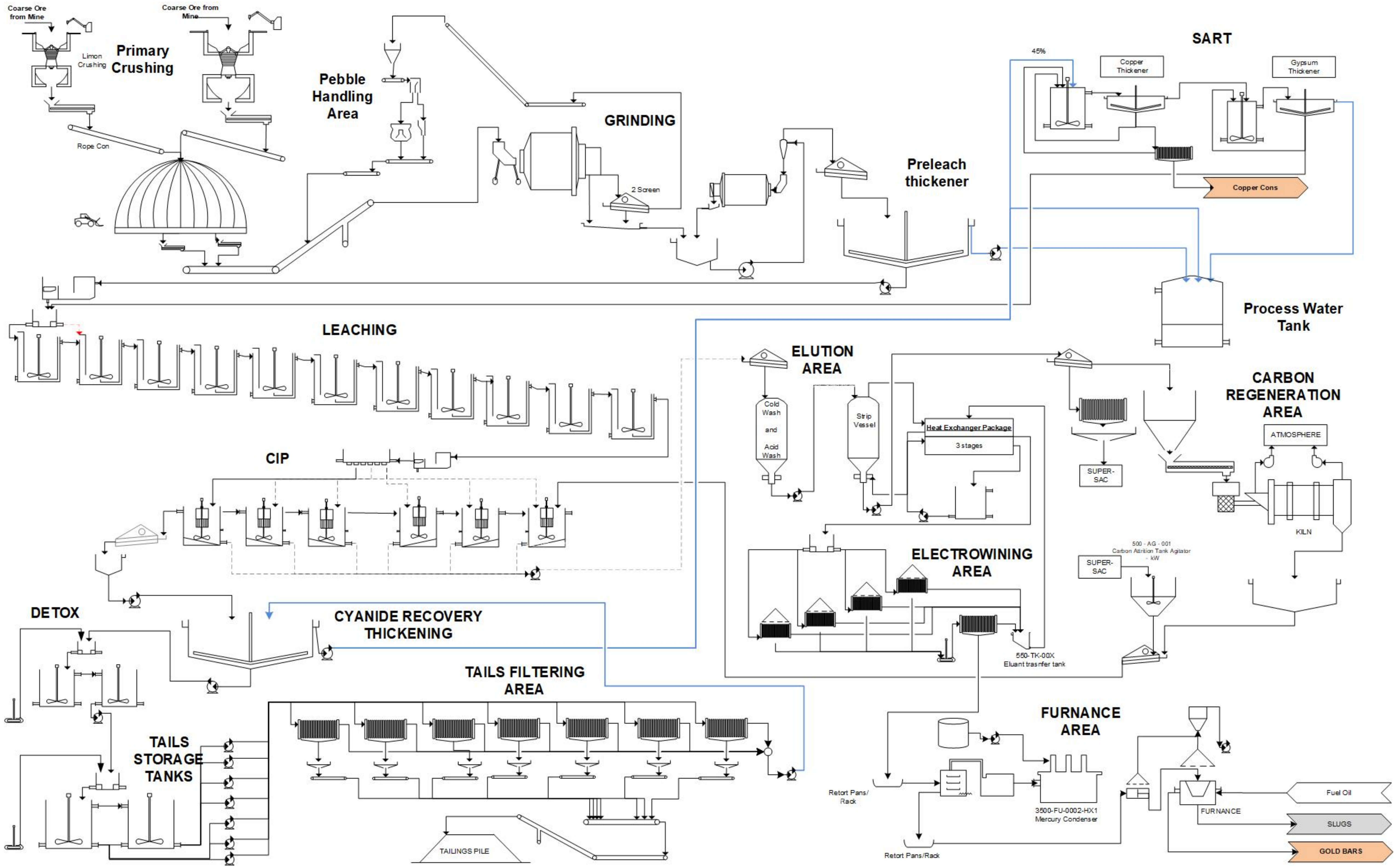


Figure 17-1: Overall ELG Process Flowsheet

17.1.1.1 Crushing and Grinding

Two identical crushing systems are installed to crush Run Of Mine (ROM) ore from the El Limón and Guajes pits. A RopeCon® conveyor system delivers ore from the El Limón crusher located at the rim of the El Limón pit to the processing plant.

The RopeCon is a bulk material and unit load handling conveyor that combines the benefits of well-proven technologies, the Ropeway and the conventional conveyor belt. The El Limón RopeCon conveys the El Limón ore over approximately 1 km horizontal and 385 m vertical distance. RopeCon was installed in 2015 and has been in operation since 2016.

At each crusher location, a crusher feed hopper, with 200 tonnes of capacity, is fed directly from rear dump haul trucks of 100 tonne capacity each. The crusher feed hopper feeds the 1.067 m by 1.651 m primary gyratory crushers that produce a 150-mm size product to feed the SAG mill circuit. Crushed ore at the Guajes pits' crushing plant is withdrawn from the crusher discharge hopper by a 1.37 m wide by 6 m long apron feeder feeding a 1.219 m wide by 149 m long belt conveyor. The conveyor transports the ore to a coarse ore stockpile. Crushed ore from the El Limón pit crushing plant is withdrawn from the crusher discharge hopper by a 1.37 m wide by 6 m long apron feeder feeding the RopeCon® conveyor, which transports crushed ore to the coarse ore stockpile. The coarse ore stockpile has a live capacity of 14,000 tonnes.

Crushed ore is reclaimed by two reclaim apron feeders delivering feed to the SAG mill in the grinding circuit by a 1.22 m wide by 217 m long conveyor belt.

Ore is currently ground to a final product size averaging 80% passing 85-95 µm in a SAG and ball mill grinding circuit.

Primary grinding is performed in a 9.15-meter diameter by 4.15-meter EGL SAG mill with a 7,000-kilowatt motor. It operates in closed circuit with a SAG mill discharge screen and pebble crushing circuit.

Secondary grinding is effected in a 7.3 m diameter by 12.65 m EGL ball mill with two 7,000-kilowatt motors operated in closed circuit with hydrocyclones. Hydrocyclone underflow flows by gravity to the ball mill. Hydrocyclone overflow (final grinding circuit product) reports by gravity to the pre-leach thickener.

17.1.1.2 Leaching and CIP

A 32-meter diameter high-rate thickener thickens the grinding cyclone overflow to 50% solids by mass to feed the leaching circuit. Thickener overflow (cyanide solution with gold from leaching in the mills) returns to the process water tank. Flocculant and dilution water are added to thickener feed to aid in settling.

The withdrawal rate of settled solids is controlled by variable speed, thickener underflow pumps to maintain the thickener underflow at a constant density. The thickener underflow is pumped to the leach circuit.

The precious metals in the ore can be leached in five to eight of eleven installed 15.55 m diameter by 21.34 m high agitated tanks. At a slurry level of 20.1-meter, each tank provides a working volume of 3,815 m^3. Six to seven leach tanks are typically used to provide a retention time of approximately 18 to 26 hours which is sufficient for gold dissolution. Oxygen is sparged into the first two leach tanks to oxidize reactive metal sulphides that are present in the feed ore. Cyanide solution can be added to the third, fourth, fifth and last leach tank in operation as required. Lime is piped to the first, second and last leach tank in operation. Process air is supplied to all leach tanks. The pH is maintained over 10.5, and cyanide addition to the tanks follows a recipe dictated by the copper and iron content in solution. Operations maintain a cyanide to copper molar ratio in the leach of over 4-4.5:1 to ensure that there is sufficient free cyanide for gold and silver dissolution and high pulp pH to minimize copper adsorption onto the carbon.

Gold and silver leached into the cyanide solution (pregnant solution) is subsequently adsorbed onto activated carbon in the CIP circuit. This circuit consists of six 250 m^3 “AAC Pump Cell” tanks operating in a carousel configuration. The CIP tanks nominally contain 48 g/L of 6 by 12 mesh granular activated carbon to adsorb the dissolved precious metal values. By maintaining the required molar ratio of cyanide to copper in solution, adsorption of copper-cyanide onto carbon is limited, but not eliminated.

Carbon is retained in each CIP tank by an inter-stage screen that allows only the slurry to pass from tank to tank. The CIP feed point advances on a daily basis to the next tank in series whilst the contents of the isolated tank get pumped by recessed impeller pump to the loaded carbon screen ahead of the strip vessel. Each cell in the CIP tank holds 12 tonnes of carbon. Harvesting of loaded carbon occurs once a day.

Slurry from the last operating CIP tank, flows by gravity to a single deck vibrating carbon safety screen fitted with 0.5 mm slotted polyurethane panels to remove coarse granular carbon that may inadvertently have passed the inter-stage screen in the last CIP tank. The screen undersize is pumped via a slurry sampler to the CIP tailing (Cyanide Recovery Thickener) thickener. The overflow from the Cyanide Recovery Thickener is pumped to the SART plant for precipitation of Copper and the recycling of NaCN. The thickener underflow (slurry) is sent to DETOX.

17.1.1.3 SART Plant

SART is a chemical process that enables the selective removal and recovery of copper and silver from cyanide leach solutions. This has the main benefit of enabling cyanide to be recycled back into the leach circuit through conversion of weak acid dissociable (WAD) cyanide bound to copper into free cyanide. SART is capable of removing ~90-95% of the Copper from the feed and produces a saleable high grade (~40-50% Cu) Copper precipitate. Silver is also precipitated along with the copper and a high silver grade precipitate is generated. Gold is not precipitated along with the copper and silver and gold losses typically less than 1% to the SART copper concentrate.

Copper removal from cyanide leach solution is materialized through the addition of sulfuric acid to reduce the solution pH to 4.5 to effect dissociation of the copper cyanide complexes and subsequent precipitation of copper sulphide, via the addition of sodium hydrosulphide. In the process, the cyanide that was complexed to copper, is released to become available as free cyanide. After recirculating the SART effluent, this free cyanide will again react with metals in the ore from the grinding circuit onwards. This process occurs in the primary reactor with the discharge reporting to the copper thickener.

The copper thickener underflow can be recycled to be used as a catalyst for copper sulphide seeding in the reactor and also transferred to the copper filter feed tank. In this tank, copper slurry is neutralized with sodium hydroxide (50% NaOH) to a pH of about 10.5-11.0.

Two horizontal pressure filters are used to filter the copper precipitate, with the configuration being one filter operating and one filter on standby (2 × 100% units). Typically, one filter operates for twenty hours per day, with the remaining four hours per day allotted for cleaning and maintenance activities. The design production rate of copper filter cake is approximately 31.8 t/d (wet basis at 50% moisture content) with a copper content of about 42.6% Cu (dry basis). The copper filter cake also contains some gypsum formed in the acidification step, as well as residual ore solids contained in overflow from the cyanide recovery thickener. The design copper production rate is estimated at 7.7 t/d (as Cu) and “80-percentile” copper production rate at about 3.5 t/d (as Cu) assuming a 91% SART plant availability. The SART plant is bypassed when serviced for maintenance.

The filter cake wash water discharges into the filtrate tank for recycle back into the SART plant feed. Filter core blow slurry and filter cake air blow discharge through an air separator tank and then into the filtrate tank. The contents of the filtrate tank are pumped back to the acidification tank.

The copper filter cake will average a moisture content of about 50% by weight. Cake discharged from the copper filters enters cone-bottom hoppers (one hopper per filter), from where it is conveyed to a bagging system. In the event of an extended bagging system outage, filter cake bypasses onto the floor for subsequent handling by front-end loader. Copper filter cake is bagged in one-tonne Supersacks. A floor-level roller-type conveyor at the bagging system allows for temporary storage of several Supersacks of material.

The copper-sulphide thickener overflow is neutralized using slaked lime to increase the solution pH to above 10.5, in two sealed neutralization tanks. Overflow from the neutralization tanks flows by gravity in a closed pipe into the gypsum thickener. Anionic flocculant will be added into the neutralization tanks overflow (i.e., gypsum thickener feed) to assist with the formation of larger fast-settling solid floccules. The thickened gypsum slurry reports to the cyanide recovery thickener feed. The gypsum thickener overflow stream at pH 10.5 and containing the regenerated cyanide is collected in an overflow tank and pumped to the process water tank.

All process equipment containing low-pH solutions are covered and ventilated to prevent the escape of HCN and H_2S gases. The ventilation system draws air from process equipment using a gas scrubber and induced-draft fan system, which removes HCN and H_2S from gases prior to discharge to the atmosphere through an elevated exhaust stack. Two variable speed fans are located on the exhaust side of the scrubber. The speed of the operating fan is manually set to achieve the design flow rate of gas through the scrubber. Normally, one fan is in operation while the second fan is on standby. Discharge from the fans is routed to a stack that will exhaust the clean gas at an elevated location.

17.1.1.4 Tailing Detoxification, Dewatering and Disposal

The discharge of the CIP process is pumped to a 32-meter diameter high-rate cyanide recovery thickener. The purpose of this thickener is to recover the aqueous solution with free residual cyanide and copper complexed cyanide to the SART plant. The cyanide recovery thickener underflow slurry is pumped to the cyanide detoxification process.

In the tailing detoxification tanks, WAD cyanide is oxidized to the relatively non-toxic form of cyanate by the SO_2/Air process. This process utilizes MT-2000 (ammonium bisulfite) with oxygen injection. Lime is to maintain a slurry pH in the range of 8.0 to 8.5.

Oxygen supply to site, as required by the detoxification reaction, is in liquid form (LOX). Large LOX tanks have been installed from which oxygen is first converted to the vapor form in air heated vaporizers and then introduced to the pulp through a manifold and sparger system that can manage oxygen. The Cu2+ ions, present in the DETOX feed solution, catalyze the reaction.

The detoxification reactors are two 9.7 m diameter by 11.6 m high tanks. Each tank maintains a slurry level of 10.9 m resulting in a working volume of 803 m^3. The two tanks are set up in parallel mode and provide a total residence time of approximately 2 hours.

The slurry discharged from the detoxification circuit constitutes final plant tailings, which is filtered for the recovery of water. The slurry from the final DETOX tank is pumped from the cyanide detoxification tank to a sampler before the feed box to the two filter feed tanks.

The filter plant consists of seven Diemme high pressure filters (HPF) and two Delkor horizontal belt filters (HBF). The high pressure filters were identified as a bottleneck to the process during commissioning and ramp-up and the decision was made to install the two HBFs for added capacity. With the operational, maintenance and process improvements, the pressure filters are now capable of operating at the 14,000 t/d capacity. For the HPFs the throughput is approximately 100 tonnes per hour each, producing a filter cake at 17% moisture. For each of the HBFs, the throughput at the ELG operation is 160 tonnes per hour, producing a cake at 18% moisture. Each horizontal belt filter has a filtering area of 162 m^2.

The feed to the HBFs is obtained by cycloning the slurry in one of the filter feed tanks in one of two cyclopacs to reject ultrafines back to the other filter feed tank and remove these from the HBF feed. The slight dilution of feed and slightly finer feed size distribution does not significantly affect their capacity, but increases the HBF capacity significantly.

The filter cake at approximately 17% moisture by weight (weight of water/total weight of cake) is transported to the FTSF by a conveyor belt system. A description of the design of the FTSF and placement procedures are given in Section 18.12.

17.1.1.5 Carbon Stripping (Elution) and Regeneration

Loaded carbon is pumped from the CIP circuit to two 1.22 m x 3.7 m loaded carbon screens. The carbon is water washed on the screens and can be discharged by gravity into either the acid washing or elution circuits.

Carbon stripping (elution) utilizes a pressure Zadra process, which comprises of circulating 140ºC caustic cyanide solutions upward through a partially fluidized bed of carbon. Carbon is stripped in 12-tonne batches through the following process.

The carbon from the screens is fed into the top of the strip column with excess water drained to the floor sump. After the complete batch of carbon has been transferred, the strip cycle is initiated by pumping hot caustic cyanide solution from the barren tank through two heat exchangers (heat recovery and final heat exchangers) into the bottom of the strip column. The solution discharges through a screen in the top of the column before passing through the heat recovery exchanger to the pregnant solution tank. The hot side of final heat exchanger is connected through a circulated glycol system to an oil-fired heater. Approximately 12 Bed Volumes (BV's) at a rate of 2 BV/h is passed through the carbon to remove gold and silver. A final 2 BV of hot water is used to wash the carbon at the end of the stripping cycle. After cool down of the stripping circuit, the carbon can be transferred with water to the reactivation circuit using a horizontal recessed impeller pump.

Acid washing of the carbon occurs as required after the elution cycle. The acid washing circuit consists of two 25 m^3 (~12 t carbon) acid wash tanks that can also be used for a cold wash to remove adsorbed copper. If required, the Carbon is cold washed by recirculation of a cyanide solution containing 50,000 ppm NaCN prior to acid washing.

Acid washing of the carbon occurs in the same vessel after the cold wash. An acid wash removes inorganic contaminants (mainly calcium carbonate) by circulating dilute hydrochloric acid from the acid storage tank upwards through the bed of carbon. Residual acid in the acid wash vessel is neutralized with caustic before transferring the carbon to the strip circuit. Transfer of carbon is established with water using a horizontal recessed impeller pump to minimize carbon attrition.

The longer than designed retention times required for reactivation does not allow thermal regeneration of carbon after every strip cycle. A schedule for reactivation is set up such that carbon gets heat treatment every second or third cycle. When not thermally regenerated, water transports carbon back to the CIP circuit.

For reactivation, stripped carbon is pumped from the bottom of the strip vessel to a dewatering screen ahead of the kiln. At a rate of 500 kg/h, well-drained, damp carbon is fed enters a horizontal rotary carbon reactivation kiln. Heated to 700-750ºC in a non-oxidizing environment, carbon is cooled down by quenching in water. From the quench tank, carbon is pumped to a carbon sizing screen. At the discharge end of the kiln, carbon fines are removed by passing stripped carbon over a screen. The screen undersize is sent to a dewatering cone, with the solids filtered and fines sold to recover value from any precious metal content. The screen oversize is returned to the adsorption circuits.

17.1.1.6 Refining

Gold is recovered from pregnant strip solution by electrowinning and deposited onto woven wire, stainless steel cathodes. Pregnant solution is pumped at a rate of 45 m^3/h through four 3.5 m^3 electrowinning cells in parallel. The gold (and silver) from the pregnant solution is deposited on the cathodes as a weakly bonded sludge. The sludge is intermittently washed off the cathodes and accumulates at the bottom of the electrowinning tanks. From the tanks, this sludge passes through a pressure filter and is recovered as a damp cake. Filter cake is then retorted in a 0.4 m^3 (15 ft^3) mercury retort furnace to remove mercury prior to smelting to gold bars. The retort temperature is ramped up gradually to 600°C-700°C to enable the sludge to dry completely before mercury is vaporized and to allow time for the mercury to diffuse to the solid surfaces.

Dried retorted sludge is mixed with fluxing materials and charged to a diesel fired smelting furnace. After the furnace charge is smelted, it is poured into slag pots and bar molds. The doré bars are cleaned, weighed, and stamped before shipment to a custom precious metals' refinery.

17.1.1.7 Reagents

The following reagents are used in the processing of the ELG Mine Complex ore, each one has its own handling, mixing, and distribution systems:

- Flocculant
- Sodium cyanide
- Caustic soda (Sodium hydroxide)
- Lime
- Hydrated lime
- Sodium hydrosulphide
- MT-2000 (ammonium bisulfite)
- Sulfuric Acid
- Hydrochloric acid
- Antiscalant

<u>Flocculant</u>

Flocculant is added to the slurry stream feeding the thickeners to enhance the settling characteristics of ground ore, as well as used in the SART plant to enhance settling the copper sulphide precipitate and gypsum.

Delivery of flocculant occurs in 625 kg supersacs and stored in a dry area in the mill building. Flocculant mixing is through a packaged flocculant mixing system that will mix the reagent to a 0.5 percent solution.

For the SART plant, two independent flocculant systems are installed to provide flocculant solution to the copper thickener and to the gypsum thickener. The vendor-packaged systems include equipment for dry powder flocculant wetting, dilution and metering to the points of use. The vendor packages also include stand-alone local controllers (PLC) to automate the preparation of batches of flocculant solution. Dry flocculant is initially wetted using fresh water, but final dilution of the flocculant solution takes place using process water. Dry flocculant is delivered to site in 25 kilogram sacks. The two flocculant systems are installed inside an enclosure to prevent exposure to wind, rain, etc.

<u>Sodium Cyanide</u>

Sodium cyanide solution is added to the ore in the leach circuit to leach gold and silver, to CIP feed to maintain the cyanide to copper molar ratio to 4-4.5:1 and within the carbon stripping process.

Sodium cyanide solution is prepared by adding water to a sodium cyanide mix tank and circulating the solution between the mix tank and ISO container until all dry cyanide has been dissolved. Sodium cyanide solution (25%) distribution to the leach circuits uses timer controlled on-off valves in a circulating loop.

Caustic Soda (Sodium Hydroxide)

Caustic soda (sodium hydroxide) solution is used in the ADR plant to neutralize acidic solutions after acid washing, in the carbon elution process and for pH control for cyanide mixing.

Dry caustic soda is delivered by bulk truck (50% NaOH) and unloaded into the caustic soda holding tank by the supplier. A 50% solution of caustic is pumped to the various manually controlled addition points.

Sodium hydroxide solution (50% NaOH) is also used in the SART plant and it is delivered to site by bulk truck and unloaded into the sodium hydroxide tank by the vendor. Vendor bulk trucks are self-equipped with a pump for unloading into the tank. The sodium hydroxide tank capacity provides approximately 60 days of supply to the plant at design throughput. The sodium hydroxide tank is constructed of carbon steel and is insulated and heat-traced to maintain the contents at a temperature of about 25°C.

Sodium hydroxide is utilized at two locations in the SART plant as follows:

1. Sodium hydroxide is consumed in the gas scrubber for absorption of HCN and H_2S gases. The make-up flow rate of sodium hydroxide (at 50% NaOH strength) to the gas scrubber is manually controlled. Two metering pumps (one operating, one spare) are used to supply sodium hydroxide to the gas scrubber. Fresh water is also added to the gas scrubber to dilute sodium hydroxide to 10% NaOH.

2. Sodium hydroxide is also added into the copper filter feed tank to adjust the pH to approximately 11.0. The feed rate of sodium hydroxide into the tank is automatically controlled based on pH readings. Two metering pumps (one operating, one spare) are used to supply sodium hydroxide to the copper filter feed tank.

Pebble Lime

Dry pebble lime is added to the SAG mill feed conveyor to control the pH in the grinding circuit.

Pebble quicklime is delivered to the site in bulk quantity by 20 tonne trucks and pneumatically off loaded to the bulk lime silo for the SAG mill which is 5.5 m diameter by 12.5 m high with a storage capacity of 200 tonnes. The pebble lime is added via a screw feeder to feed the pebble crusher discharge conveyor which in turn feeds the SAG mill feed conveyor.

Hydrated Lime

Dry hydrated lime is delivered to the site in bulk quantity by 20 tonne trucks and pneumatically off loaded into a 4.6 m diameter by 12.3 m high milk of lime silo with storage capacity of 100 tonnes.

Milk of lime slurry is produced by slaking hydrated lime ($Ca(OH)_2$) in a packaged lime slaker and distributed to the leach and cyanide destruction circuits using timer controlled on-off valves in a circulating loop.

Dry hydrated lime ($Ca(OH)_2$) is also used within the SART plant and is delivered to site by bulk truck and pneumatically unloaded by the vendor into a SART plant lime silo. This lime silo capacity provides approximately eight days of supply to the plant (135 tonnes storage capacity) at design throughput. The lime silo package includes the bin vent, vibratory discharger and screw feeder. Compressed air used to clean bin vent filters are dried to prevent caking and plugging of the filters, which otherwise could result in the release of lime solids during truck unloading. Lime slurry is automatically prepared in batches to provide 15% slurry to the SART plant. The lime slurry tank has two centrifugal slurry pumps (one operating, one spare) for continuous recirculation of lime slurry through the plant. The normal use of lime slurry is for neutralization of copper thickener overflow solution but is also can be added to the acidification tank for emergency neutralization purposes. Fresh water is utilized to prepare batches of lime slurry.

Sodium Hydrosulphide

Sodium hydrosulphide (45% NaHS) solution is used in the SART plant and is delivered to site by bulk truck and unloaded into the sodium hydrosulphide tank by the supplier. A fixed pump in the SART plant is dedicated for this purpose. The sodium hydrosulphide tank capacity provides approximately eight days of supply to the plant at design throughput. The sodium hydrosulphide tank is constructed of 316 stainless steel and insulated and heat-traced to maintain the contents at a temperature of about 30°C. Two metering pumps (one operating, one spare) are used to supply sodium hydrosulphide to the static mixer inlet upstream of the acidification tank. The sodium hydrosulphide tank is separately bunded to contain 110% of the tank contents in the event of a rupture. The secondary containment includes a sump with dedicated pump located outside the containment to allow for the removal of precipitation or spilled sodium hydrosulphide solution.

Sulfuric Acid

Concentrated sulfuric acid (98% H_2SO_4) is delivered to site by bulk truck and unloaded into the sulfuric acid tank by the supplier. A fixed pump in the SART plant is provided for this purpose. The sulfuric acid tank capacity provides approximately eight days of supply to the plant at design throughput. The sulfuric acid tank shell is constructed of carbon steel and wetted nozzles are constructed of 316 stainless steel. Two metering pumps (one operating, one spare) are used to supply sulfuric acid to the static mixer for pH adjustment in the acidification tank. The sulfuric acid tank is separately bunded to contain 110% of the tank contents in the event of a rupture. Concrete for the secondary containment is coated with an acid-resistant material. The secondary containment includes a sump with dedicated pump located outside the containment to allow for the removal of precipitation or spilled sulfuric acid.

Ammonium bisulfite (MT2000)

Ammonium bisulfite is delivered to site in bulk truck and offloaded to MT2000 storage tanks. The MT2000 is pumped to the DETOX circuit as required using a series of pumps and metered to suit DETOX requirements.

Hydrochloric Acid

Hydrochloric acid is used to acid wash carbon prior to the carbon stripping circuit.

Hydrochloric acid is delivered to site on bulk 20t trucks and offloaded to the HCl storage tank at the ADR plant. A 3.5% acid solution is prepared by pumping acid into the mix tank with fresh water makeup.

Water Systems

The water systems for the ELG Process Plant site consist of two grades of water; fresh water and process water. Below follows a description of the use of these two grades of water at the ELG Process Plant site.

Fresh Water

Fresh water is supplied from three wells located near the village of Atzcala, eighteen kilometers from the mine site. Water from the wells is pumped via two well field pumps (670-PP-001/002) to the fresh water transfer tank and pumped to the fresh/fire water tank. Fresh water from the fresh/fire water tank is distributed by gravity to:

- Fire water loop
- Use in offices, laboratory, housing, rest rooms and eyewash/safety showers
- Gland seal water to be used as seal water for mechanical equipment

- Mine water trucks to be apply reclaim water on the mine roads for dust control
- Process use points (e.g. crusher dust suppression and reagent mixing)

Process Water

Process water is used primarily in the grinding circuit as feed dilution to the SAG mill and cyclone feed sump. It is also used as spray water to the CIP discharge screens and for gland seal water systems. The make-up water source for the process water is either the fresh water from the fresh water tank and distribution or from the central water pond. The pre-leach thickener overflow, the SART gypsum thickener overflow and a bleed stream from the cyanide recovery thickener are all product streams that are returned to the process water tank. The process water contains elevated levels of cyanide.

17.1.2 ELG Design Criteria

The feed and recovery values achieved in 2021 for the ELG process operation is summarized in Table 17-1 below.

Table 17-1: ELG Process Design Criteria

Criteria	Units	Ave
Mill Feed	t/d	12,362
Mill Feed	t/h	582
Utilization	%	88.6
Feed Grades		
Gold	g/t Au	3.65
Silver	g/t Ag	3.91
Copper	%Cu	0.15
Iron	% Fe	6.97
Overall recovery		
Gold	%	88.3
Silver	%	30.6

17.2 MEDIA LUNA PROCESS PLANT

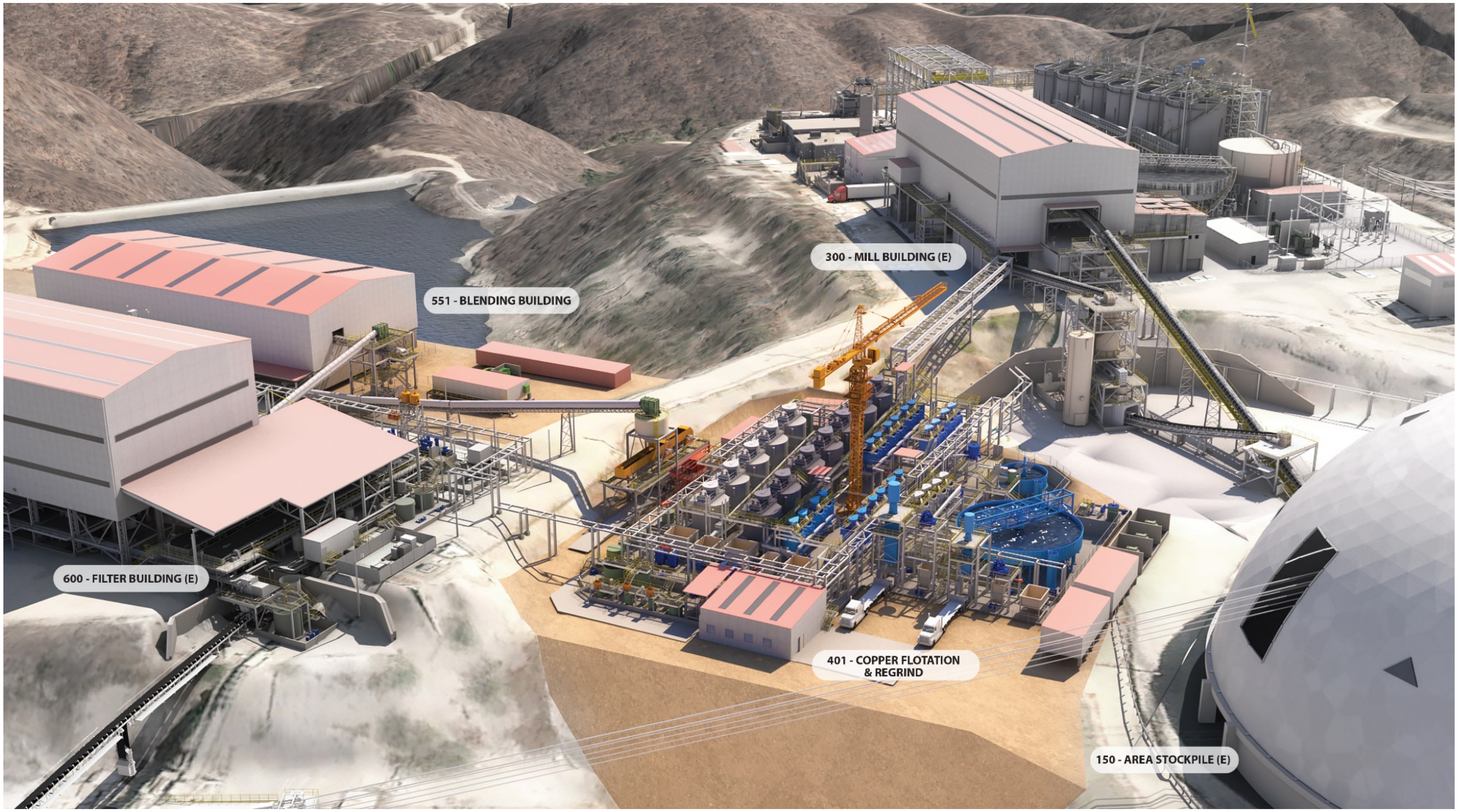
The proposed location of the ML flotation process plant is between the current tailing filter plant and the coarse ore stockpile. Figure 17-2 provides a general site arrangement drawing, while Figure 17-3 provides the layout of the Media Luna flotation process plant. The process will make use of the existing ELG grinding circuit, agitation leaching, SART, ADR and part of the tailing facilities. During the overlap period when both ML ore and ELG ores are available, these will be processed either in a blend of ML/ELG UG and ELG OP ores or ELG OP ores by themselves. Metallurgical testing indicates that minor blending of ELG OP ores with ML and ELG UG ores does not negatively affect the copper flotation process.

A new conveyor suspended from the tunnel back will transport material from the Guajes Tunnel directly to the ELG plant area from the ML Underground workings. The ML material will be stockpiled separately from the ELG ores. Blending or batching will be dependent on the mine production when in operation. The mineralized ores will be fed through the existing Guajes gyratory crusher and then fed to the existing coarse ore stockpile and grinding circuit. After grinding, the ML ore will pass through a copper sulphide rougher and then a Fe-S rougher flotation circuit. The copper rougher concentrate will be reground and cleaned to generate a saleable copper-gold-silver concentrate. The copper-gold-silver concentrate will be filtered and loaded onto trucks for shipment to market. The copper rougher tailing will be pumped to the Fe-S rougher flotation stage to produce a Fe-S rougher concentrate, which will be combined with the copper cleaner tailing for subsequent regrinding and processing in a separate leach circuit for recovery of gold and silver. The Fe-S rougher concentrate will pass through a regrind and cleaner flotation stage and depending on the gold deportment a "throw away" Fe-S cleaner flotation tails may be produced. The tailing from the Fe-S rougher float circuit will be leached in the existing ELG processing plant for additional recovery of Au and Ag.

The design basis for the ore processing facility is 10,600 dry t/d, nominally operating at a 92% availability.

From M3, 2022. As shown, new process areas for ML include 401, 551, 680, and 701. Modified areas from existing operations include 300, 400, 600.

Figure 17-2: General Site Arrangement Showing the Future Media Luna Operation



From M3, 2022. As shown, new process areas for ML include 401, 551. Modified areas from existing operations include 300, 600.

Figure 17-3: Proposed Layout of the Media Luna Flotation Operation

A summary diagram of the overall process flowsheet is presented in Figure 17-5. Process unit operations that will be used include:

- Primary crushing*
- Coarse ore stockpile and reclaim *
- SAG mill grinding*
- Ball mill grinding*
- Copper Sulphide rougher flotation
- Copper rougher concentrate regrind
- Cu-Au-Ag 1st, 2nd, 3rd cleaner and cleaner scavenger flotation
- Gravity gold recovery from copper concentrate
- Copper concentrate filtering, concentrate stockpiling and loading facility for shipment
- Fe-S rougher flotation
- Fe-S rougher concentrate regrind
- Fe-S cleaner flotation
- Leaching* and CIP* of flotation tailing
- Independent cyanidation leach and HBF* filtration for Fe-S concentrate
- Separate water systems for fresh and cyanide containing water for flotation and leach circuits respectively
- SART plant for the recovery of copper that is dissolved in the leach circuits*
- Water treatment plant to recover cyanide to the SART plant and a solution DETOX circuit to ensure very low, essentially cyanide free process water
- Carbon stripping* and doré production* of carbon harvested from both CIP and CIC circuits
- Transfer of leached Fe-S Concentrate after HBF filtration to Guajes portal area
- Transfer of leached Fe-S flotation tails to Guajes portal area
- Pumping of leached tails (Fe-S cons and tails) to backfill plant
- Thickening of leached tails in a new Guajes thickener and deposition of tails into Guajes west pit
- Individual process water loops for grinding-flotation and leaching circuits

  ** denotes use of existing ELG processing plant equipment*

Figure 17-4 presents the proposed process block flow diagram for ML ore, while Figure 17-5 illustrates the proposed process flowsheet. The process is described further in the following subsections.

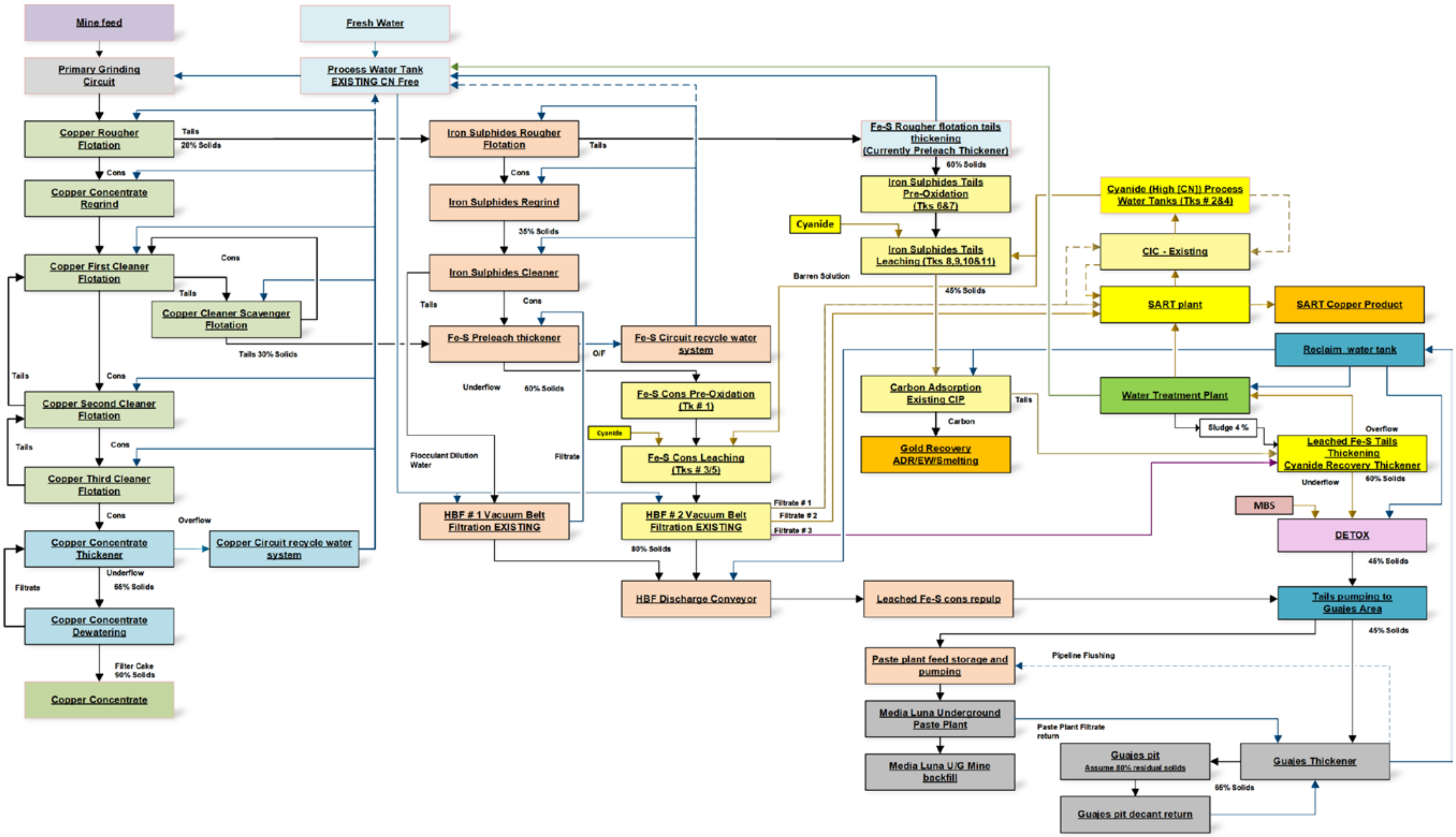


Figure 17-4: Block Flow Diagram of the Media Luna Process

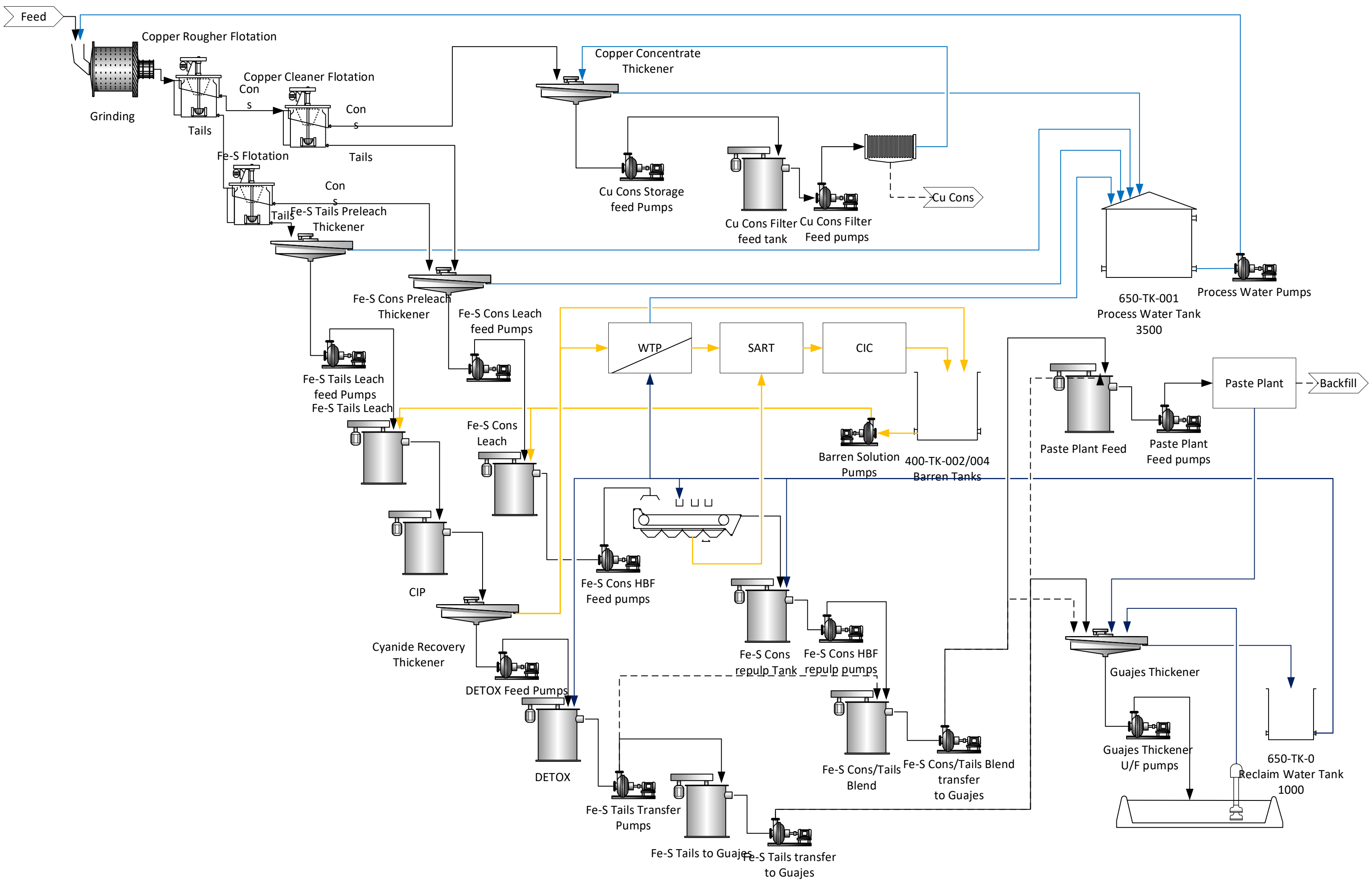


Figure 17-5: Overall Media Luna Process Flowsheet

17.2.1 Process Description

The crushing, grinding, leach, ADR circuits from the ELG process facilities will be reused as far as possible with the addition of a copper, iron sulphide flotation circuit, a new water treatment plant and reconfiguration of tails handling facilities. These are described in the following sections.

17.2.1.1 Primary Crushing

ROM ore will be stored in a large ore stockpile from where it will be reclaimed by front end loader and fed to the existing primary crusher and coarse material storage. From the coarse material storage, ML material will be transferred via the existing system to the grinding circuit.

17.2.1.2 Grinding

Apron feeders will recover crushed material from the stockpile, which will be conveyed to the existing ELG SAG mill-ball mill circuit prior to processing in a flotation circuit. The SAG mill operates in closed circuit with screens and a pebble crusher; the ball mills operate in closed circuit with cyclones to deliver flotation feed at a K_{80} of approximately passing 85 µm to the flotation circuit. ML and ELG UG ores may be blended up to 15% ELG OP ores and then batch processed separately if sufficient ELG OP material is available.

17.2.1.3 Flotation

The flotation process considers two main processes to generate a copper concentrate, an iron sulphide concentrate and iron sulphide flotation tails. These are described in the following sections.

<u>Copper Sulphide Rougher Flotation Circuit</u>

The purpose of the copper flotation circuit is to recover the majority of copper sulphides from Fe-S and non-sulphide material. Copper rougher tailing will report to a sequential flotation step to produce an Fe-S rougher concentrate.

The copper rougher flotation circuit configuration consists of seven (7) cells of 100 m^3 each, five roughers, and two rougher-scavenger cells. Each flotation cell will have its own level to allow the use of gravity to move the material. Following the rougher flotation, the tailing will be pumped to the Fe-S rougher flotation circuit. The rougher concentrate will be sent to a regrind mill. The copper cleaner scavenger tails will be combined with the relevant Fe-S rougher concentrate stream.

<u>Copper Rougher Concentrate Regrind Mill</u>

The concentrate generated from the copper rougher flotation circuit will be reground. The purpose of the regrind is to liberate the sulphide particles to enable separation of Fe and Cu sulphides in the cleaner flotation stage to achieve desired copper concentrate grades. The current design has regrind set at P80 30 µm.

<u>Copper Cleaner Flotation Circuit</u>

The purpose of the copper cleaner flotation circuit is to produce a copper concentrate that will be filtered and sold on the world market. This circuit is currently envisioned to have three cleaning stages (1st, 2nd and 3rd cleaners). Their configuration is a row of six flotation cells of each 20 m^3 for the first stage, a row of four flotation cells of each 20 m^3 cleaner scavenger cells, a row of six each 16 m^3 for the second cleaner stage, and for the third copper cleaner stage a row of four 16 m^3 cells. All cells are configured to allow gravity flow. Third cleaner tailing will recycle to the feed of the second cleaner, and the second cleaner tailing to the feed of the first cleaner. The first cleaner tails will feed the copper cleaner scavenger cells, the cleaner scavenger concentrate will return back to the first cleaner, and the cleaner scavenger tails will report to the Fe-S leaching circuit. Adequate sampling will be provided for cleaner products to allow calculation of a mass balance and to effect process control. Reagent addition points will be provided to ensure adequate supply where and whenever required.

Fe-S Flotation

The purpose of the Fe-S flotation stage is to maximize recovery of remaining metal sulphides into a concentrate stream to achieve two objectives. The first is to be able to generate a subsequent high sulphide stream for preferential placement as backfill, and the second is to reduce overall cyanide consumption by concentrating the cyanide consumers into a smaller mass and leaving a low cyanide consuming flotation tails stream.

The tailing from the copper rougher will be adjusted with reagents before entering the Fe-S flotation circuit. Present design of this circuit envisions five (5) 100 m^3 cells. Like for all other flotation circuits, the Fe-S flotation circuit will be constructed for gravity flow between cells.

The tailing of the Fe-S flotation circuit will be pumped to the existing pre-leach thickener to recover cyanide-free solution and then to the existing ELG CN leach/CIP circuit for dissolution and recovery of gold and silver.

Iron Sulphide Fe-S Rougher Concentrate Regrind Mill

The Fe-S rougher concentrate will be reground prior to cleaning and subsequent leaching of precious metals. The target regrind for the combined Fe-S concentrate being 80% passing 30 µm.

Iron Sulphide Fe-S Cleaner Flotation

The deportment of gold in the mineralized ores is highly variable and at times the Fe-S flotation tails may contain insufficient soluble gold to cover the operational costs for processing that stream. The same issue can occur with the Fe-S cleaner stage and a flotation cleaning stage was seen to be able to generate at times a “throw-away” tails stream. A separate Fe-S cleaner flotation circuit consisting of four (4) 16 m^3 flotation cells will be installed and used to determine when such conditions occur.

17.2.1.4 Leaching

Leaching of Fe-S Concentrate

The Fe-S rougher concentrate will be combined with the copper cleaner scavenger tails stream and sent to the Fe-S concentrate thickener. Flocculant will be added to the thickener feed to aid in settling. The overflow from this thickener will be used for dilution and spray purposes in the Fe-S flotation circuit, with excess solution sent to the process water tank. The underflow from this thickener will be sent to the first of three leach tanks (existing Tanks 1,3 & 5). the pulp density for this stream will be run as high as possible to maximize water recovery and minimize the amount of cyanide bearing solution that will subsequently report to the water treatment plant.

The Fe-S concentrate will pass through the existing feed sampler that discharges into the 1st leach tank. No cyanide is to be added to this tank, and it is to be used as a pre-oxidation tank via the injection of pure oxygen to oxidize the reactive iron sulphides present in this stream. The discharge of this tank will report to the following Tank # 3 where dilution will occur with the recycle of high cyanide content barren solution; cyanide solution (25%) will also be added. The volume of barren solution to be added will be controlled via the Fe-S pre-leach thickener feed stream details. The discharge of the leach Tank # 3 will flow to the leach Tank # 5 where further leaching will occur. These two leach tanks will be able to provide 40-60 hours of leach residence time depending on the mass flow rate of total Fe-S concentrate to be generated by the flotation circuit. The level in the leach Tank # 5 will be maintained via the withdrawal of leached slurry via leached Fe-S concentrate pumps to the HBFs.

Leaching of Sulphide Flotation Tailing

The tailing stream after sequential copper and Fe-S flotation will be fed to the existing pre-leach high-rate thickener. Flocculant will be added to the thickener feed to aid in settling. The withdrawal rate of settled solids will be controlled by a variable speed, thickener underflow pump to maintain thickener underflow density. Underflow from the pre-leach thickener will be pumped using variable speed horizontal centrifugal slurry pumps, (one operating/one standby) at approximately 62% solids to Tank # 6. A new sampler will be installed at this tank to be able to obtain shift samples for metallurgical accounting purposes. The thickener underflow density will be run at a higher density than currently operated to once again minimize the amount of water that needs to report back to the water treatment plant. The first leach tank for the Fe-S flotation tails will also be operated as a pre-oxidation tank with oxygen injection used to oxidize any residual reactive metal sulphides that were not recovered in the flotation stage.

Barren solution will be added to the following leach Tank # 7 to dilute the leach circuit feed to 45% solids; cyanide solution (25%) will also be added as required.

The leach tanks are 15.5 m in diameter and 21.3 m high. Each tank operates at a slurry level of 20.8-meter resulting in a working volume of 3,950 m^3. The five to six tanks would provide approximately 26 to 35 hours of plug-flow retention time at 45 percent solids. After leaching, the slurry will pass onto the CIP section where gold and silver adsorbs onto carbon.

17.2.1.5 Gold Recovery

Leached Fe-S Concentrate Gold Recovery

The leached Fe-S concentrate will be sent from the leach circuit to the feed box(s) of the horizontal belt filters. These filters will be modified to operate in their original design condition wherein the pregnant solution will be recovered as the filtrate and filter cake washing used to wash out residual gold bearing cyanide solution.

Both filters will be modified to suit the recovery of filtrate but under normal operation only one will be required to operate and the spare filter may be used to dewater the Fe-S cleaner tails stream if this is not sent to the leach circuit.

The first two stages of filtrate from each filter represents the pregnant solution and this will contain elevated levels of copper, gold and silver. The filtrate will be sent directly to the SART plant for the recovery of copper and silver and the discharge solution from the SART plant will be sent to the CIC circuit for adsorption of gold and silver onto carbon and the CIC tailing will be sent to the barren solution tanks. The third filtrate will contain trace amounts of cyanide and will be sent to the solution DETOX section of the water treatment plant.

Leached Fe-S Tails Gold Recovery

The tails from the leaching of the flotation tails will report to the CIP circuit for adsorption of gold and silver onto carbon and the CIP tailing will proceed to the cyanide recovery thickener and subsequent detoxification section. For additional details on the ELG leach /CIP circuit, please see Section 17.1.1.2.

17.2.1.6 Tailings Systems

Tails from the new ML flotation circuit will be deposited as either paste backfill in the new ML mine or in the GTSF. The objective will be to maximize the amount of the leached Fe-S concentrate placement as backfill paste material and the remainder as a combined tails in the Guajes pit. The backfill plant will ramp up production as the mine development occurs but will still be on a batch basis and when it is off-line the leached Fe-S concentrate will be combined with the leached Fe-S flotation tails.

Two tails lines (~50/50 capacity) will be used to transfer the tails streams to the Guajes thickener area with one having a higher concentration of leached Fe-S concentrate than the other. The specific details of each system follow.

Fe-S Flotation Concentrate Leached Product Tailing System

The HBFs will be used to recover the pregnant solution from the leached Fe-S concentrate stream. The filter cake that will be discharged from the HBF will report to a repulp tank via the existing tails conveyor. The filter cake will be repulped with reclaim water and sent to one of the two filter building feed tanks. The production of leached Fe-S concentrate will vary but on average will be 15% of the total plant feed. In order to balance the two tails pumping systems, some of the leached Fe-S tails stream will be blended into the same filter building feed tank that will receive the leached Fe-S concentrate for subsequent pumping to the Guajes thickener area.

ML Fe-S Flotation Tailing Leached Product Tailing System

The detoxified tailings from the CIP circuit will be pumped to the existing sampler located at the tailing filter feed tanks and a new distributor installed to allow for the controlled splitting of the flow to both of the tanks. The tails transfer pumps from the tailings filter feed tank will be on level control and transfer the leached Fe-S tails to the Guajes thickener area.

A full set of standby pumps will be installed and capable of drawing from either filter feed tank.

Paste Plant Feed Storage and Pumping

The two tails lines from the filter feed tanks will first pass by the paste plant feed tank. The operating strategy will be such that the high Fe-S stream will always have priority in filling the tank, and only during paste plant feed when the demand flow rate exceeds the capacity of one pipeline and the paste plant feed tank is at its minimum operating level will the leached flotation tails stream be diverted into the paste plant feed tank. This will be controlled to a narrow band width to ensure that the maximum amount of leached Fe-S cons is used for paste material.

When the paste plant feed tank is full and no feed is reporting to the paste plant, the two pipelines will be set up to discharge to the feedbox of the Guajes thickener.

For additional information on the use of tailing as backfill, see Section 16.

Guajes Thickener and Tails Disposal

A new 30 m diameter Guajes thickener will be installed to receive the full flow rate of tails from the flotation circuit. In addition, the filtrate from the paste plant will also feed the Guajes thickener. A new flocculant makeup system will be installed locally to the Guajes thickener to provide feed flocculant. The Guajes thickener underflow will be pumped to the Guajes west pit for final tails placement.

The overflow from the Guajes thickener will flow into a thickener overflow tank, with a portion of this water being used for local requirements and also paste plant feed pipeline flushing duty. The excess water from the tails area will flow via gravity to a new reclaim water tank.

17.2.1.7 Copper Concentrate Handling

Final copper concentrate will flow via gravity to a gravity gold concentrator where “nuggety gold” will be recovered separately and depending on the grade will either be sold to third parties or processed on site. The tails from the gravity concentrator will continue via gravity to the copper concentrate thickener feed box. The copper concentrate thickener overflow will flow by gravity to the concentrate thickener overflow tank, from where it will be pumped and used in the copper flotation circuit as dilution water and any excess returned to the process water tank. The copper concentrate thickener underflow pumps will transfer the concentrate stream to the agitated copper concentrate filter feed tank. A set of copper concentrate filter feed pumps will provide feed to the copper concentrate plate and frame filter from this tank. The filter will be installed with membrane plates to ensure that final moisture content can be controlled.

The copper concentrate filter cake will discharge into a concentrate hopper feeding the concentrate conveyor to transport the cake to the concentrate stockpile. A mobile conveyor system will be used to deposit the concentrate into "day bins" which will allow for 24 hours of production to be stored and subsequently assayed to determine levels of deleterious elements. Once the quality is known, the concentrates will be reclaimed using screw feeders to the copper concentrate loadout bin for loading into trucks for transport to port. The copper concentrate filtrate and filter wash water will be collected in the copper concentrate filtrate storage tank for recycle to the copper concentrate thickener using solution pumps.

17.2.1.8 Water Treatment Plant

A new water treatment plant that is integral to the process facility flow sheet will be installed. The grinding and flotation circuits for the new flowsheet will use cyanide free water, and the leach circuits will have cyanide added. Solids are transferred from the cyanide free circuit at 60-62% solids by mass in a pulp form and are finally placed as tails at 75-80% solids in either the Guajes pit or used as backfill paste material.

The difference in pulp density represents the volume of cyanide containing solution that needs to be converted back to cyanide free water for recycle to the grinding circuit. The water treatment plant has two main components as follows:

- High cyanide content streams such as the cyanide recovery thickener overflow will be passed through a reverse osmosis circuit to concentrate the cyanide species into a smaller volume called the retentate that will be sent to the SART plant for cyanide recovery.
- Low cyanide content solution streams such as the reclaim water will be sent together with the permeate from the reverse osmosis to a solution DETOX circuit within the water treatment plant to generate cyanide free solution.

17.2.1.9 Reagent Storage and Handling

Reagents that would require handling, mixing, and distribution in the ML processing plant are presented in Table 17-2 together with their estimated usage rates. These estimates are supported by the test work completed to date and may be revised as a result of new information.

Table 17-2: Media Luna Reagents

Reagent Identification	Function	Usage Rate, kg/tonne mill feed
Calcium Hydroxide	pH Modifier (Flotation)	3.00
Lime	pH Modifier (Leaching)	2.00
Cytec 3418A	Collector	0.01
MIBC, Methyl Isobutyl Carbinol	Frother	0.10
Sodium Cyanide	Leaching Pyrite depressant	3.01 1.55 (g/t fresh feed)
Flocculant	Settling Aid	0.10
A7263 – Bismuth Depressant		0.050
Sodium Metabisulphate	DETOX and flotation depressant	1.86
Copper Sulphate	DETOX reagent	0.17
DETA	Flotation depressant	0.015

Reagent Identification	Function	Usage Rate, kg/tonne mill feed
Hydrochloric Acid	ADR	0.35
Sulfuric Acid	SART pH modifier	1.40
Sodium hydrosulphide	SART copper precip	0.55
Sodium Hydroxide	SART & ADR	0.10

17.2.1.10 Water Systems

A major change to the existing ELG flowsheet will be that of separating the water systems for the grinding-flotation and leaching circuits. The water treatment plant will be the key link between the two systems. The water systems can be described as follows:

- Fresh water – This is the water that is provided by the wells at Atzcala and is used for makeup purposes, generation of potable water and wherever systems require low dissolved species.
- Process Water – This is the cyanide free water that is used in the grinding and flotation circuits. The existing process water tank and associated pumping systems will be reutilized.
- Barren Solution – This is the cyanide rich solution that is recovered from the cyanide recovery thickener and Carbon in column tails streams. Two of the original leach tanks will be utilized as the storage facility for this water.
- Reclaim water – This refers to all the water streams that may have residual cyanide in very low quantities such as the reclaim water from the Guajes thickener overflow stream. A new reclaim water tank that will be located next to the existing fresh water tank will be installed. Feed to the process consumers will be via gravity.

17.2.2 Media Luna Process Design Criteria

The feed and recovery criteria for the ML process is summarized in Table 17-3 below. The feed grade parameters are based on the weekly mine plans and recovery parameters for the key elements for the flotation processes.

Table 17-3: ML Process Design Criteria

Criteria	Units	Data		
Annual throughput	tpa	3,869,000		
Daily throughput	dtpd	10.600		
Hourly capacity	t/h	480		
Plant availability	%	92.0		
Feed Solids SG	-	3.58 – 3.71		
Feed Grades		min	avg	max
Copper	%Cu	0.20	0.73	1.18
Gold	g/t Au	1.45	2.57	4.07
Silver	g/t Ag	2.89	21.8	39.9
Arsenic	% As	0.01	0.23	0.92
Bismuth	ppm Bi	28.0	154	530
Zinc	% Zn	0.01	0.24	0.89
Cadmium	ppm Cd	0.81	15.9	66
Copper concentrate recovery				
Mass	% of feed	1.14	2.63	4.34
	t/d	120	280	460
Copper	% of feed	82	90	92
Gold	% of feed	52	58	65
Silver	% of feed	82	80	85
Copper concentrate predicted grades				
Copper	% Cu	22.0	24.5	29.0
Gold	g/t Au	26.0	60	160
Silver	g/t Ag	240	660	910
Arsenic	% As	0.02	0.17	0.85
Bismuth	ppm Bi	135	549	2,300
Zinc	% Zn	0.18	1.73	14.9
Cadmium	ppm Cd	28.0	446	1,600
Fe-S concentrate to leach				
Mass	% of feed	13.9	17.9	21.6
	t/d	1,473	1,868	2,555
Copper	% of feed	7.15	8.0	10.3
Gold	% of feed	36.8	36.8	36.8
Silver	% of feed	14.3	14.3	14.3
Fe-S tails to leach				
Mass	% of feed	75.6	79.6	84.8
	t/d	8,010	8,440	9,890
Copper	% of feed	1.64	2.41	10.9
Gold	% of feed	10.4	10.4	10.4
Silver	% of feed	4.13	4.13	4.13
Water treatment plant feed				
RO feed	m^3/hr	166	176	183
DETOX feed	m^3/hr	213	218	240
Overall recovery				
Copper	%	-	93.0	-
Gold	%	-	90.0	-
Silver	%	-	86.0	-

17.3 MEDIA LUNA EARLY FE-S PROCESS PLANT

The presence of high cyanide consuming metal sulphides within the ELG ores can be ameliorated by the installation of the Fe-S flotation circuit, regrind and separate leaching of high and low sulphide concentrate streams. The installation of this portion of the ML process facility is planned to be accelerated by several months to enable recovery and reagent saving benefits when processing the high cyanide consuming ELG ores. The proposed process flowsheet for this is presented in Figure 17-6.

The early Fe-S process system will consider the following.

- Installation of the flotation circuit to be able to recover iron sulphides to a flotation concentrate
- Regrind of this concentrate to increase liberation and subsequent improvement in gold dissolution
- Separate leaching of the two flotation products in the existing leach circuit which will be modified accordingly
- Modification of horizontal belt filters to be used to recover pregnant solution from leaching iron sulphide concentrate to be fed to the SART plant
- Installation of water treatment plant to maximize recovery of cyanide to the SART plant and provide clean water for grinding and flotation
- Modification of the CIC circuit to recover gold from the SART solution stream product
- Continued use of CIP, tails thickening, DETOX and tails filtration

Installing the early Fe-S circuit will help to de-risk the main ML Project as the conversion of the water systems and separate leach circuits will have been completed and commissioned by the time the ML Project is ready for commissioning.

It should be noted that this early Fe-S process plant configuration does not add any additional major equipment in comparison to that described in Section 17.2. For the proposed early Fe-S circuit, the future copper rougher flotation cells are to be installed to accommodate the higher mill production rate for the period that this plant is run prior to the reduction in throughput for the ML ores.

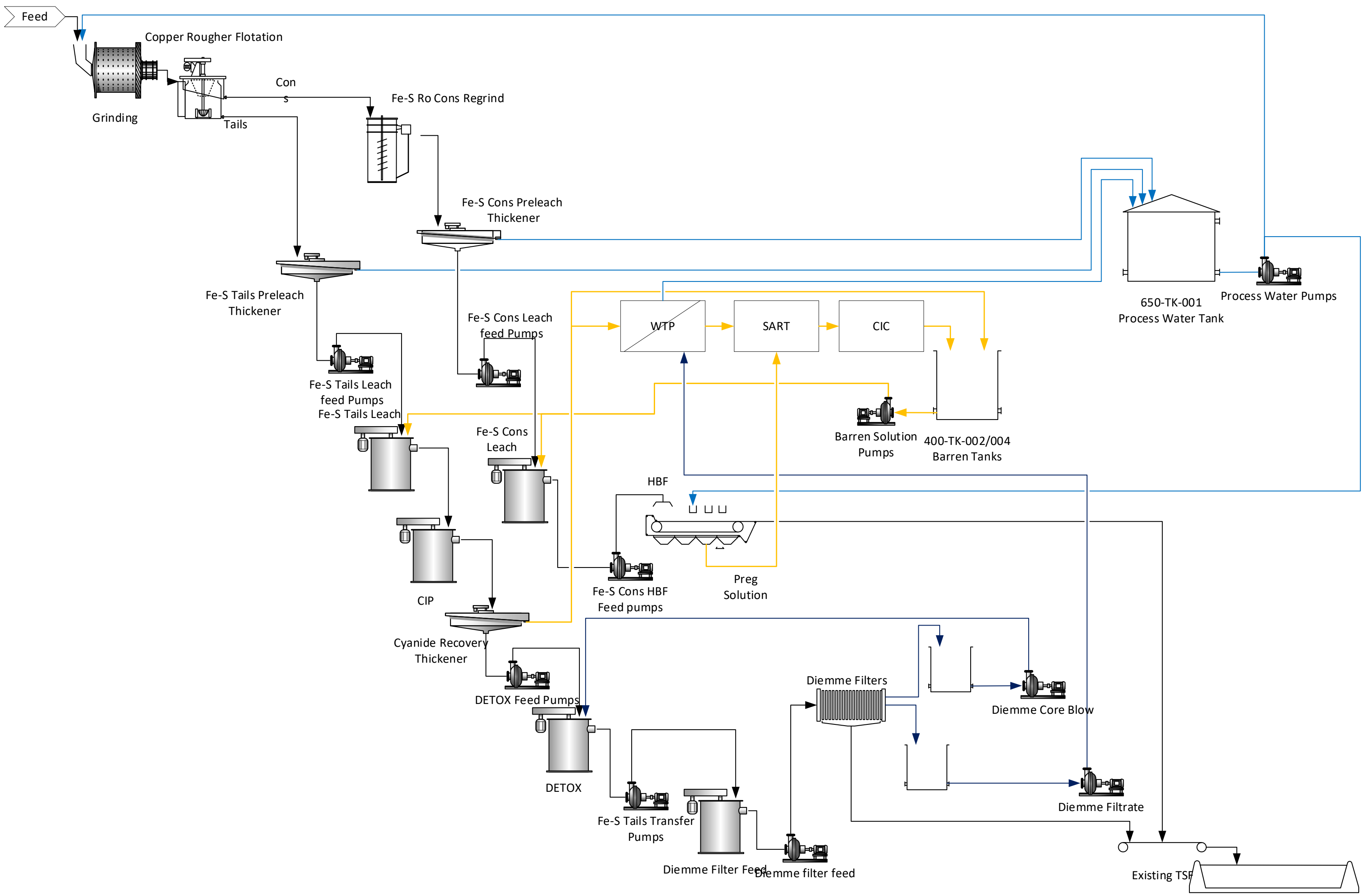


Figure 17-6: Media Luna Early Fe-S Circuit Process Flowsheet

18 PROJECT INFRASTRUCTURE

This section describes the infrastructure and logistical requirements for the Morelos Complex. This includes:

1. The existing and future infrastructure to get people, supplies and services to the site (including water and power).
2. The existing and future infrastructure to house people (including the camp).
3. The existing and future infrastructure to service and support the operations (the non-process buildings).
4. The existing and future infrastructure to secure the site and store or transport the gold doré or copper concentrate product (fencing, access control points).
5. The existing and future infrastructure to store and contain waste products (including waste rock, tailings, water, and domestic waste).

Existing infrastructure is generally referred to as the facilities to support the ELG life of mine plan (ELG LOM). Future infrastructure is generally referred to as the facilities required to support the ML Project, even if this infrastructure is added or modified within the existing ELG Mine Complex footprint. Each infrastructure type is described under specific sub-sections for ELG or ML based on this convention.

The key points for the existing ELG LOM facilities described in this section are:

- The ELG infrastructure described is currently operating, and no major additions are required to service the ELG LOM needs.
- The water required for the ELG Mine Complex is supplied from a purpose-built well field which has more than enough capacity to handle the existing ELG LOM needs.
- Electrical power is provided to the ELG Mine Complex via a connection to a 115-kV transmission line complete with switching station and power line.
- Access to the ELG Mine Complex is available via the East Service Road (ESR), which connects the complex to Highway 95. The water line and power lines supplying the well field follow this roadway. All mine supplies, including cyanide, are transported along the ESR.
- Access to the ELG Mine Complex is controlled via a gate house outside the main process plant site at the end of the ESR.
- A permanent camp (termed “VLO”) for company personnel is located adjacent to the ESR, approximately twelve kilometers from the ELG Mine Complex entry. A second camp (termed “916 Camp”) has been constructed within the complex for onsite accommodation.
- The villages of La Fundición and Real del Limón were relocated to new town sites in 2016 during the original build.
- The ELG tailings material has been dewatered and filtered to remove excess water and placed in the Filtered Tailings Storage Facility (FTSF) and this will continue for the ELG LOM until the ML Project Guajes Tailings Storage Facility (GTSF) is commissioned. The tailings storage facilities are being designed and managed to the Global Industry Standards on Tailings Management (GISTM) principles.
- The ELG open pit and underground mining waste rock is stored in three Waste Rock Storage Facilities (WRSF) on the ELG site. The waste rock is Non-Acid Generating (NAG).
- Water management infrastructure is completed and includes various drainage systems reporting to settling ponds around the site. The ELG Process Plant recycles water, and hence process water is not discharged to the environment.

The key points of the proposed ML Project facilities described in this section are:

- The ML Project makes significant use of the existing ELG Mine Complex infrastructure to reduce environmental impact, reduce capital expenditures, and to utilize the secure ELG work area.

- During operations, the primary access into the ML underground mine will be via the 6.5 km Guajes Tunnel from ELG, and two access tunnels from the ML south portals located in the ML exploration area south of the Balsas River. A conveyor system will be utilized to transport ore from the ML Mineral Resource to the ELG Mine Complex through the Guajes Tunnel. The access tunnels and conveyor system are described in Section 16.
- Access to the ML south portals is via an existing road from the town of Mezcala to the village of San Miguel, portions of which will be upgraded to meet the higher traffic demands during project development and operations. Three additional camps have been established for the ML mine; the MML Camp, the exploration Drilling Contractor Camp, and the Mine Contractor Camp. The existing Atzcala Camp located north of the Balsas River will also be expanded to support the ML process plant expansion at ELG during the construction period.
- A new copper and iron flotation circuit will be constructed at the ELG Mine Complex to support the ML Project. This will be located between the existing ELG coarse ore stockpile dome and tailings filter building. The iron and copper process facilities are described in Section 17.
- Coinciding with the copper flotation plant commissioning, the tailings disposal will change from filtered tailings within the FTSF, to slurry tailings deposition into the mined out Guajes West Pit, termed the GTSF.
- A new power supply will be required to power the increased load for the process plant expansion and the ML mine operations. This will be supplied from the existing 230 kV transmission line running northeast of the mine property, with new powerlines connected from a new 230 kV switchyard to a new 230 kV substation. Supplementary power will be provided by a new solar plant located east of the ELG Process Plant. Temporary power for the ML mine development period will be from a generator farm located near the south portals.
- Additional wells at the ML South Portal area will supplement development work for the ML mine until there is connection to ELG through the Guajes Tunnel, at which time mine service water will be from the mine service water recycling ponds located at either the Guajes East pit, or South Portal Upper (SPU) sediment pond.
- Two waste rock storage facilities will be established at the south portals to store the development waste rock from ML prior to connection with the Guajes Tunnel, at which point the ML mine waste rock will be transferred via the Guajes Tunnel conveyor for disposal in the Guajes WRSF.

Figure 18-1 provides the relative location of infrastructure described in this section.

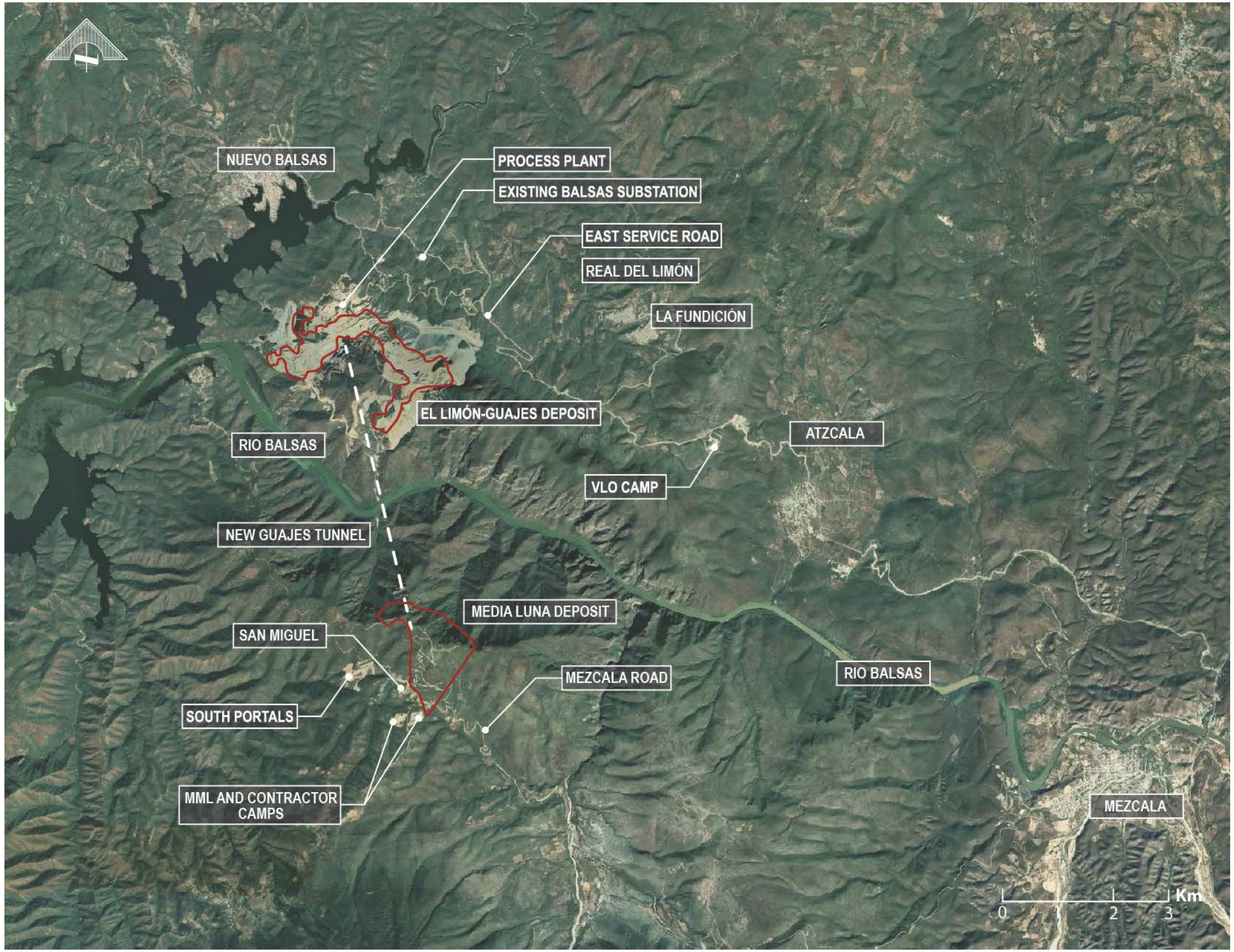


Figure source: M3, 2022

Figure 18-1: Infrastructure Location Map

18.1 GENERAL SITE AREA

18.1.1 ELG Site Area

The following sections provide a general description of the existing infrastructure which supports the mining and processing of the ELG ore.

Off-site infrastructure includes water and power supplies, transportation routes, and camps. The resettlement of the two communities (Real del Limón and La Fundición) was completed in 2016. On-site infrastructure includes all ancillary infrastructure which supports the mining and processing along with waste storage facilities.

The ELG Mine Complex is accessed from the ESR which was purposely built for the mine to accommodate the movement of all supplies and most personnel to and from the mine. The main well field, power supply and permanent camp are located along the ESR. Access to the mine is controlled with a guardhouse located at the entrance to the main process plant at the termination point of the ESR.

The ELG Mine Complex on-site infrastructure is focused on the open pit and underground mines and includes the administration, process plant, crusher, and mine operation infrastructure. The ELG Process Plant is located north of the West Guajes pit and northwest of the El Limón pit. The facilities are all outside a 500-m blast radius from the pits, except for the El Limón Crusher and head end of the RopeCon conveyor. The infrastructure was constructed by leveling existing hills to provide relatively flat areas for the facilities. The ELG Process Plant is on one leveled hill area and the mine truck shop is located on another leveled ridge area. The Guajes crusher structure is located on the same ridge as the truck shop and set into the side slope of the ridge. The crushed ore stockpile is located on grade between the crusher and the process plant. The administration and warehouse are located on benches adjacent to the ELG Process Plant.

All facilities are located within the drainage area of the Central Water Pond (CWP) ensuring that all contact water is collected and recycled from the ELG Process Plant area. The main facilities are located within a small footprint of approximately 70 ha, which allows for efficient operations and reduces the impact on the environment. To minimize impact on the town of Nuevo Balsas, the ELG Process Plant site is located on the opposite side of a natural ridge. Placing the ELG Process Plant in this location screens the site from view as well as reduces noise and dust impacts to Nuevo Balsas. The new village of El Porterillo (relocation site of Real del Limón and La Fundición villages) is shielded from the ELG Process Plant by the north end of the El Limón ridge.

Figure 18-2 provides a view of the main ELG Mine Complex area, identifying the main on-site facilities.

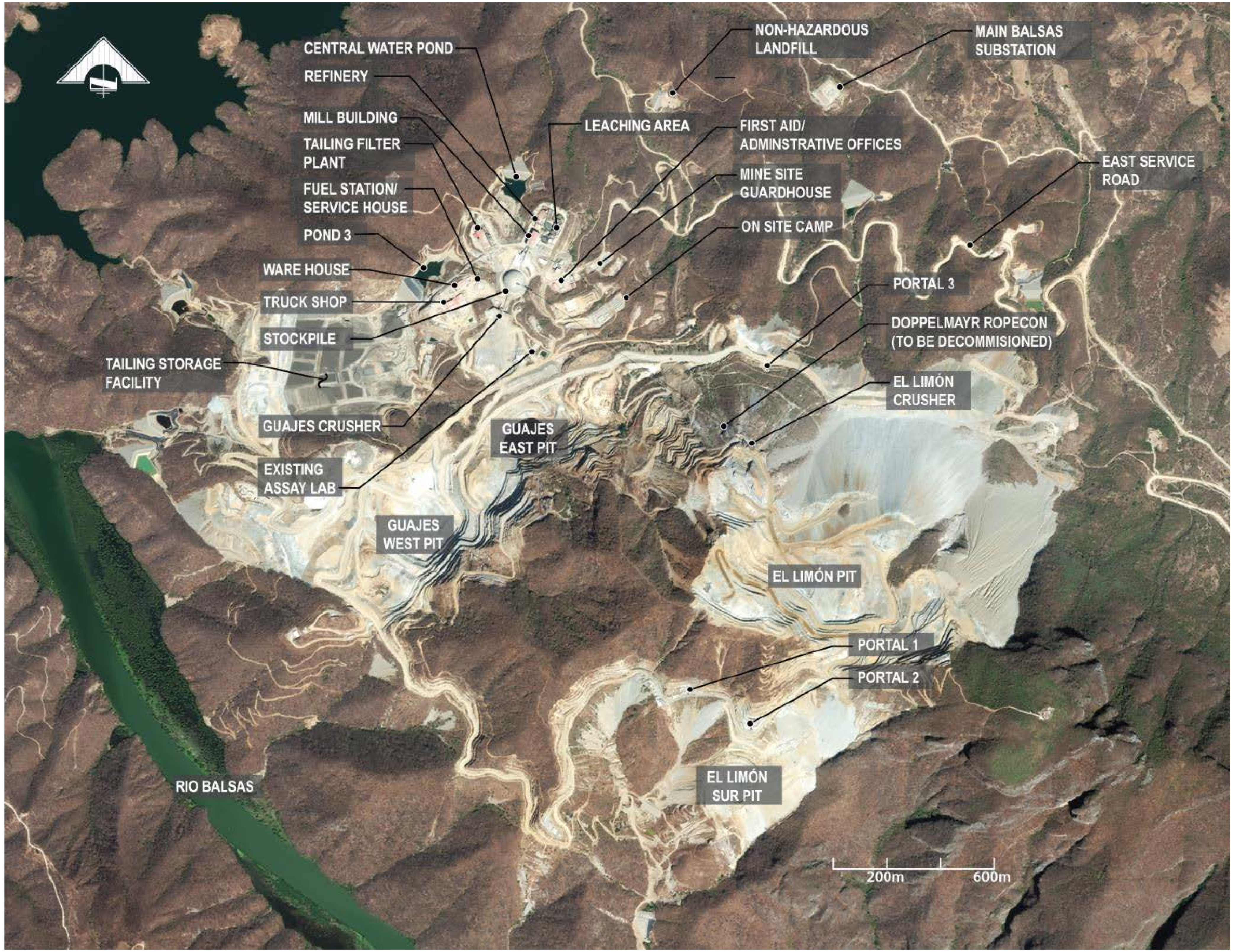


Figure source: M3, 2022

Figure 18-2: ELG Existing Site Layout

18.1.2 Media Luna Site Area

The ML deposit is located approximately 7 km meters southwest of the ELG Process Plant on the south side of the Balsas River. The ELG Process Plant is at an elevation of approximately 700 MASL while the ML deposit lies at 600 to 1,300 MASL. The general surface topography is rugged and steep with considerable topographical variability around the Morelos Complex, including an elevation high of 1,500 MASL along the Media Luna ridge immediately above the MLU resource area, to a low of 480 MASL along the Balsas River.

The ML Project will utilize the existing ELG Mine Complex infrastructure as much as possible. To enable this, a 6.5 km access tunnel will be constructed from the ELG Mine Complex, ramping under the Balsas River and back up to the 690 m elevation at the base of the MLL resource. A suspended conveyor situated in the tunnel will carry ore from the mine out to the Guajes Portal pad. The initial mine development will take place with access from two additional portals and access tunnels constructed on the south side of the ML deposit located west of the San Miguel community. The lower of these access tunnels will connect the South Portal Lower (SPL) to the Guajes Tunnel and tunnels from both the SPU and SPL (together the South Portals) will connect inside the mine to support full development of the MLU and MLL zones. These connections will enable the use of the existing ELG Process Plant and infrastructure for processing of the ML ore. Additional process facilities will be required which will be located within the existing ELG Process Plant. These new facilities will be constructed and commissioned with relatively minor interruption to the existing ELG Process Plant operations. In addition, some support infrastructure will be required on the Media Luna side for power, water and camp accommodation for the mine operations personnel. Figure 18-1 and Figure 18-3 provide an overview of the ML and ELG area, including the new plant infrastructure.

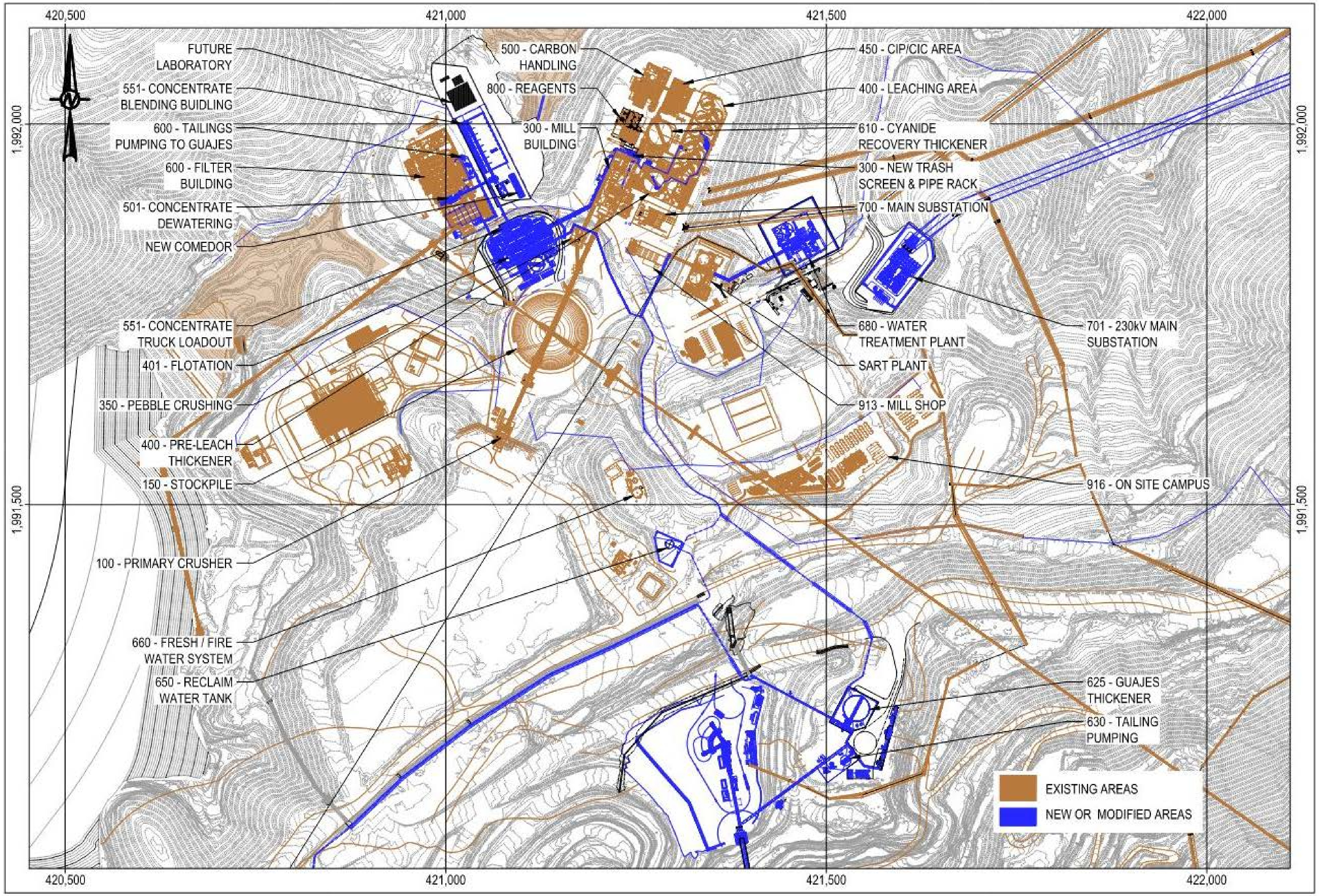


Figure 18-3: New Media Luna Process and Electrical Infrastructure to be Installed at the ELG Mine Complex

18.2 ACCESS

Access roads to the ELG Mine Complex and the ML mine South Portals branch off the Mexican Federal Highway 95 at points approximately 2.8 km apart on either side of the Balsas River.

18.2.1 ELG East Service Road

The main access to the ELG Mine Complex is via the ESR which provides a direct connection to the Mexican Federal Highway 95. This road is approximately 25 km in length. The travel way width is seven meters with a maximum grade of 12%. Currently the road has a gravel surface with future work planned to pave portions of this road to reduce dust in areas of higher population (not part of this project). As the road is the primary supply route for the site and therefore is the transport route for cyanide, the road has been built to minimize the potential for accidents that could contaminate water. This was done by constructing the route away from the Balsas River and minimizing water crossings. The Permanent Camp and well field are located along the ESR. The ESR right of way is also used for the pipeline and powerline to both the well field and camp. The guardhouse located at the entrance to the main plant at the end of the ESR serves as the main entry and check point for all mine visitors, employees, and vehicles. The building has a large area used to screen all personnel entering and leaving the mine site as well as a truck staging area outside the plant.

18.2.2 Media Luna Access Roads

The main access to the ML mine is off an existing 26 km long road from Mexican Federal Highway 95 at Mezcala to the San Miguel community and it continues on to the Balsas Sur community. This road is paved as far as Mazapa and will be upgraded from Mazapa to San Miguel to the turnoff to the South Portals 1,200 m west of San Miguel. Upgrades for the Media Luna Project include a bridge replacement south of Mazapa and a bypass around the Mazapa community. In addition, the road from Mazapa to San Miguel will be widened to two standard lanes throughout, along with curve easements and drainage improvements to ensure the road is a reliable all weather access route.

18.3 CAMPS AND OFFICES

18.3.1 ELG Camps and Offices

Villas Luna del Oro (VLO) Camp

The Permanent Camp termed Villas Luna del Oro (VLO) is located approximately 12 km from the main gate at the process plant, along the East Service Road. It has 5 dormitory blocks each with 48 beds on two floors providing a total of 240 beds. In addition, there is a large dining hall, recreation rooms, a gymnasium, laundry room, and a full-size soccer field. The whole camp facility is located on a 9 ha site, but there will be no changes to this camp for the plant expansion. The location of this camp is shown Figure 18-2.

916 Camp

An additional on-site camp (termed 916 Camp) has been constructed adjacent to the ELG Process Plant for use by visitors, contractors or in times when access to the ELG Mine Complex is restricted.

The 916 Area Camp was built in 2016 primarily using modules originally located at the Atzcala construction camp but it has been expanded with new modules as the need for onsite accommodation has grown. It is located on two wide pads above the warehouse and administration building pads. It has a total capacity of 257 beds and includes a large cafeteria, a 3-module recreation facility, laundry module, gymnasium module, an office and storage room. All utilities for this camp are connected to the main process plant. The camp occupies a 1.7 hectares (ha) site and is shown in Figure 18-4.

An expanded Wastewater Treatment Plant (WWTP) has been installed to accommodate the current capacity at the 916 Area. The camp has reached the limit of expansion and there are no plans to extend it further for the ML Project.

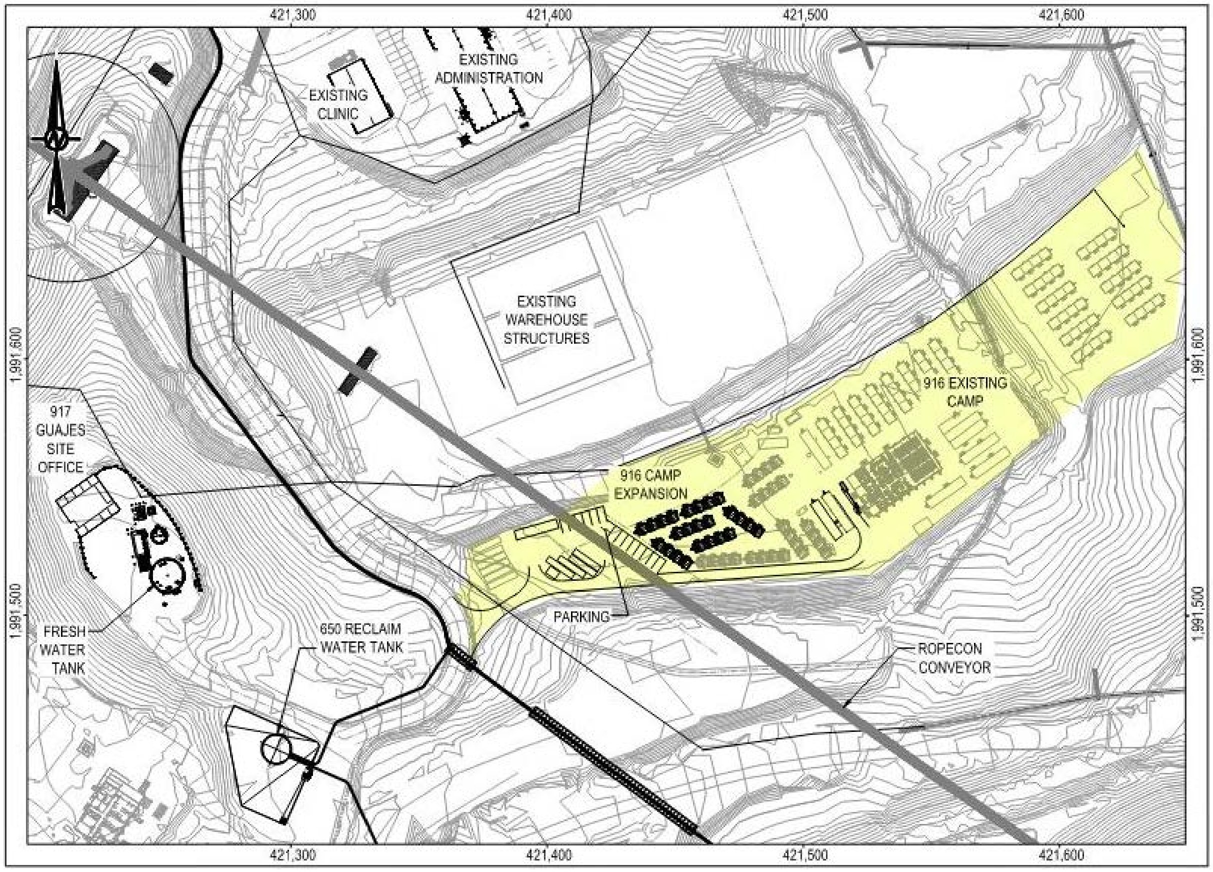


Figure 18-4: 916 Area On -Site Camp

Atzcala Construction Camp

This Atzcala Camp area was used as a laydown and staging area for construction of the initial ELG Process Plant and it accommodated both contractors' modules and Construction Management (CM) personnel. Most of the modules owned by Torex were relocated to the 916 Area Camp with only 3 remaining dormitory modules being used for Covid Quarantine.

This area will be utilized again for construction for the ML Project, with dining, recreation and laundry facilities being provided by Torex, along with 12 additional dormitory modules for smaller contractors. Larger contractors will be able to bring in their own dormitory modules but will use the overall facilities. A training facility will be included to instruct new contracting staff on the health and safety requirements for working in the plant site so they can be accredited before entering the work site. Water, power, sewage, and internet utilities will be provided by Torex, and these will be upgraded before use, where needed, and will include a new potable water and wastewater treatment plant. The layout and location of this camp is shown in Figure 18-5.

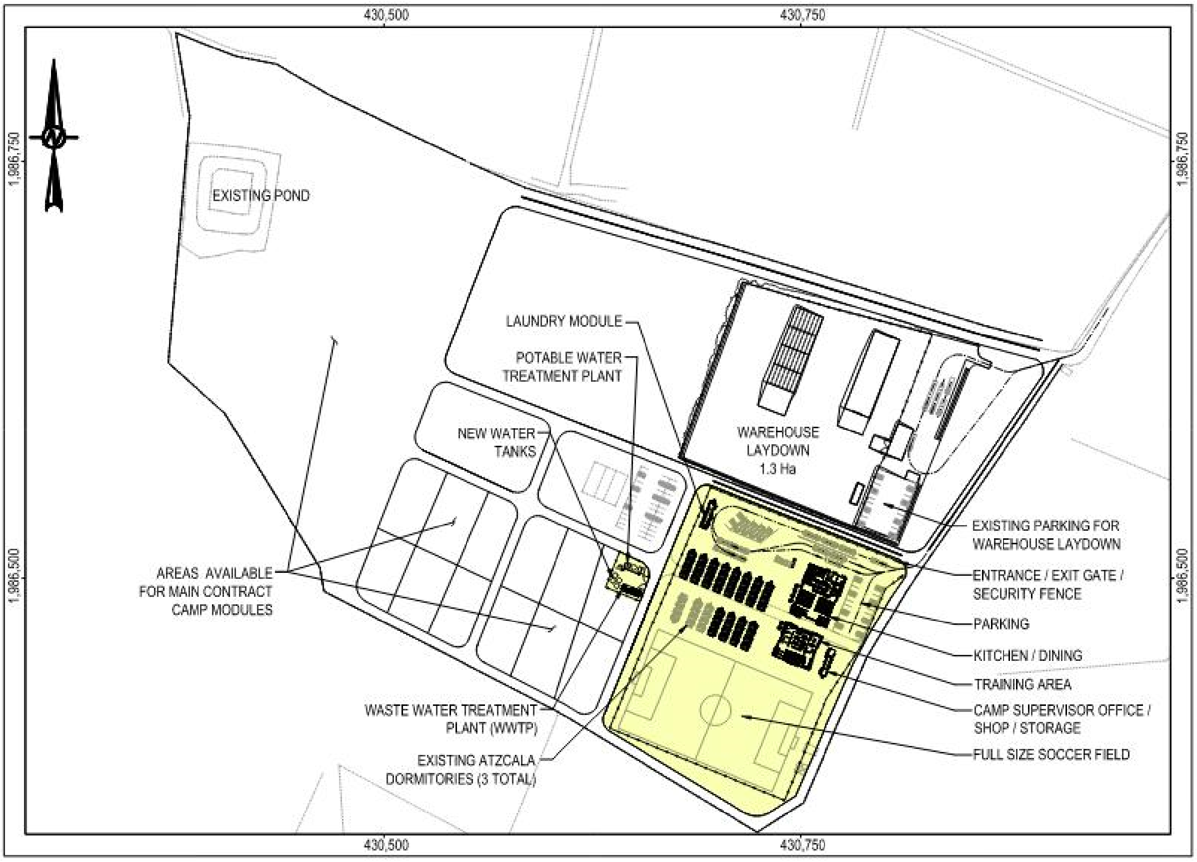


Figure 18-5: Atzcala Construction Camp and Warehouse Yard

A temporary construction warehouse and yard have been built in a section of this area to accommodate incoming shipments of supplies and equipment to support the early work of tunnel access construction and will continue to be the main receiving and laydown area for the plant expansion work. The warehouse yard consists of a fenced graveled area with a fabric warehouse and unloading pads with a modular office. All these facilities will be removed after the construction work is completed. The full area of the camp and warehouse pad is 13.7 ha, of which 1.7 hectares is occupied by the warehouse yard.

18.3.2 Media Luna Camps

Camps for the ML mine development and operation are located approximately 500 m southeast of the San Miguel community and consist of 3 separate areas; the MML Camp, the Drilling Contractor Camp, and the Mine Contractor Camp.

The MML Camp currently has accommodation for 69 people and is used mainly for MML personnel and CM staff. Twelve (12) dormitory modules will be added to this camp to expand capacity to accommodate an additional 96 people. A new dining hall will be added and the existing dining hall will be converted to a recreation facility. In addition, an office module has been installed to provide a base for CM staff during construction of the surface facilities at the South Portals. A new wastewater treatment plant has been installed to allow for the expansion and potable water will be piped into the camp from the adjacent Drilling Contractors Camp. Power is currently supplied by generators, but line power will be installed as soon as the transmission line from Mezcala is upgraded.

The Drilling Contractor has installed their own camp on the opposite side of the road from the MML Camp. This camp currently houses 88 people and will remain for continued exploration drilling. Water supply to the camp will be upgraded to a direct supply from Well 4 in the San Miguel well field with a new pipeline running along the road route to the Drilling Contractors camp. This water will be treated to comply with Mexican drinking water standards, and the supply will be directed to both sections of the Drilling Contractors Camp, the MML camp and also back to the community cistern in San Miguel. A wastewater treatment plant has been installed to treat sewage from both this camp and the Mine Contractor Camp.

The Mine Contractor Camp is being built on a new pad east of the Drilling Contractor Camp and will be able to accommodate at least 150 personnel. This camp is being constructed by the mine development contractor. A dining hall and recreation facilities will be included on the same pad. The overall area of the Drilling and Mine Contractor camps will be approximately 3.8 hectares.

The layout of all three camps is shown on Figure 18-6.

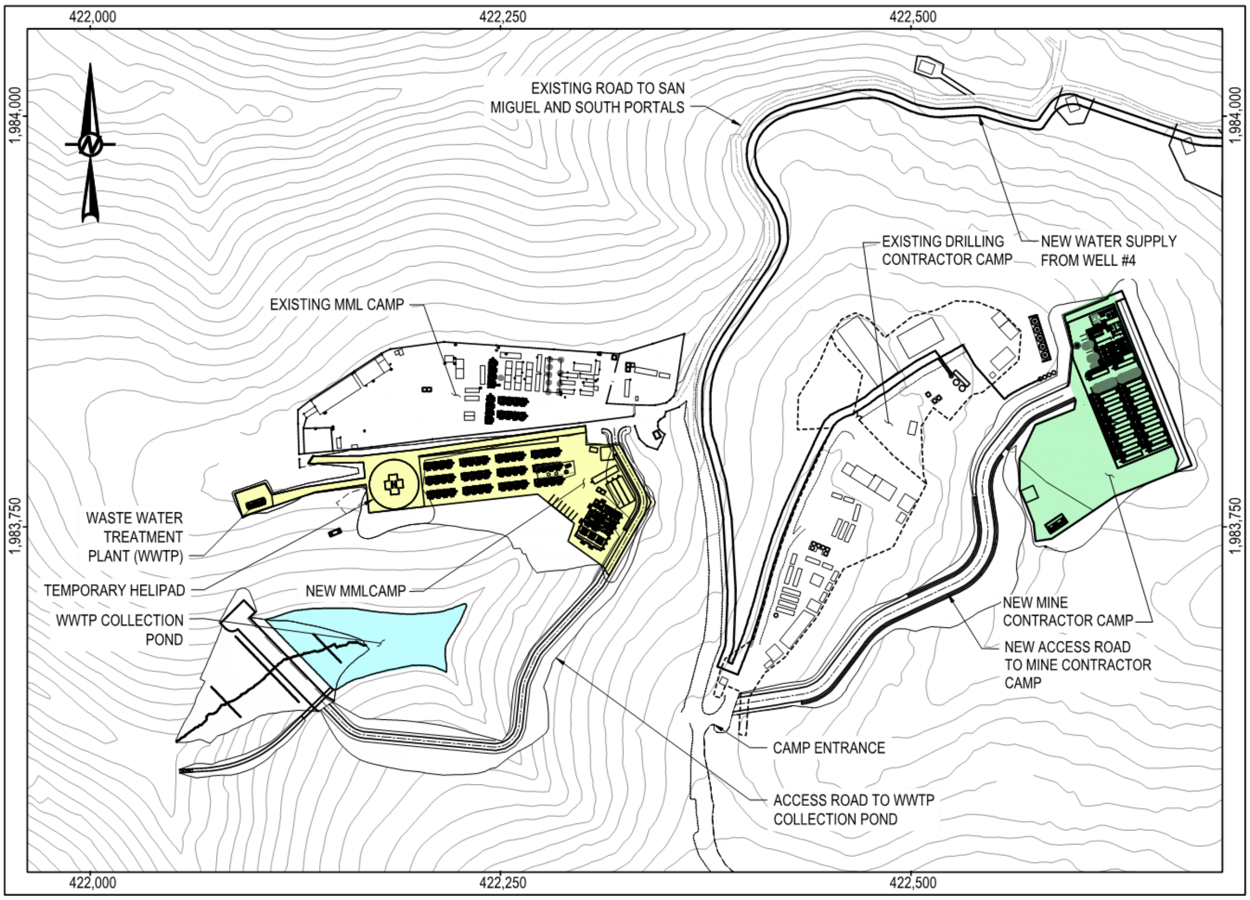


Figure 18-6: Media Luna Camps

18.4 WATER SUPPLY

18.4.1 ELG Water Supply

Water Wells and Supply

Water supply for ELG Mine Complex is from 3 wells developed near the village of Atzcala approximately 11 km east of the mine site and the water is pumped to the ELG Process Plant via a 14.5 km pipeline. Torex has been granted a water concession from CONAGUA for taking up to 5 million cubic meters of water per year. Current fresh water requirements for the ELG Mine Complex are estimated at 1 million cubic meters per year (110 m^3/hr for process and dust control requirements) allowing more than enough water for expansion needs.

Water from the Atzcala well field is used for the camp, process water for the mining and plant operation, dust control on the roads as well as domestic use at the mine and plant site. This water is also used as potable water after treatment. Package water treatment plants are being utilized to treat all potable water needs.

Fresh Water Storage & Distribution System

The three Atzcala well pumps discharge into a 1,424 m^3 water tank near the well heads. The water is then pumped from the tank by three 400 HP booster pumps into a 300 mm (12 inch) steel pipeline to the permanent camp area. From the permanent camp, an HDPE pipe is used for gravity feed to the mine. Average flow rate to the plant requires two pumps, running 12 hours a day. The booster station and well pumps are controlled by fiber optic cable running to a control room at the plant.

The fresh water tank is located on a hill above the ELG Process Plant which allows for gravity flow to the process water tank adjacent to the mill building. The fresh water tank has a dedicated volume for fire protection of 430,000 liters. A diesel fire pump is provided for operating the fire water system. Two fire water loops are provided; one around the plant site and the other around the truck shop.

Potable Water Supply & Distribution System

At the ELG Mine Complex, fresh water is drawn from the Fresh Water Tank and is then pumped through a packaged treatment plant that filters, treats, chlorinates and transfers the water to the potable water tank for storage. Design potable water consumption is 62,000 liters per day. The water is distributed to the Administration Building, the Assay Lab, and the Truck Shop Area. Eye wash and emergency showers will use potable water as well.

18.4.2 Media Luna Water Supply

For the ML mine development period, five production wells are being used to supply the exploration drilling, early works construction, and camps on a specified daily pumping schedule. These production wells have been permitted through CONAGUA. Two additional wells are pending CONAGUA concession transfer which will allow for an additional water use required for underground construction activities. Each well produces on a range of 50 to 250 m^3/d.

Total water use at ML has been in the range of about 500 m^3/d to 800 m^3/d, although during initial construction of the South Portal facilities and underground mine development, this water use will likely increase significantly for a short period. To reduce well use, a water recycling system will be installed to enable re-use of mine water and to also take advantage of the natural runoff water collected in the ponds during the wet season. Once the mine is connected to ELG through the Guajes Tunnel, the main source of water supply for underground development will be from the ELG water sources, allowing for reduced consumption from the ML wells.

At the ML mine, in addition to mining and drill use, the wells provide water to the camps and the San Miguel Community. At present, all water transport is by water truck. To reduce this need, it is intended to pipe water directly from Well 4 to the Contractors Camp, install additional treatment equipment, and use this water for both the MML and Contractors Camps.

For the future process design described for the Media Luna project, the Atzcala well water consumption is expected decline substantially to ~20 m^3/hr which suggests relatively low utilization of the well fields. Although more process water will be placed in the Guajes pit tailings facilities rather than filtered tails as per current process, the water reclaim systems from both the Guajes pit tailings facility, as well as water reclaim from the paste plant and Media Luna mine, would result in a net decline in fresh water consumption. Water controls and management will be an important consideration for the new process facilities, tails facilities, and mine facilities to maximize reclaim so as to minimize fresh water use, and to avoid high pond water levels.

18.5 POWER SUPPLY

18.5.1 ELG Mine Complex Power Supply – Existing

Power is supplied to the ELG Mine Complex at 115 kV from a transmission line that is within two kilometers of the complex site. A switching station (CFE Balsas Substation) has been constructed at the base of the 115 kV line, followed by a two kilometers transmission line extending from this line to a substation located at the mine site. The switching station is powered by an existing 115 kV power line from the CFE El Caracol Substation.

The connected load for the facility is 40 MW with a demand of 30 MW. Two 37.5/50 MVA transformers are provided in the substation. Each transformer is connected to a section of the 13.8 kV switchgear and the switchgear sections are connected through a normally open tie breaker. The substation is monitored by a Programmable Logic Controllers (PLC) connected to the process control system to provide status indications and alarms.

Power to the El Limón crusher is via a 13.8 kV overhead line run along the RopeCon installation. An overhead 13.8 kV line supplies power to the crusher, truck shop, waste dump and seepage pond areas. Power from the substation to the process plant is by underground feeders. Transformers have been installed to reduce voltage, and switchgear and motor control centers will control power at the appropriate utilization voltage.

Power for operation of the water pumps at Atzcala as well as the camp is via a 13.2 kV overhead line that parallels the ESR from CFE Balsas Substation. This power line has a connected load of 3.3 MVA.

18.5.2 Media Luna Power Supply

The existing 115 kV national electrical system does not have the capacity to serve the additional load required for the ML underground mine and new process equipment. A connection to the existing 230 kV national electrical system will have to be installed in order to serve the additional load.

A new 230 kV switchyard will connect to an existing national electrical system 230 kV overhead line and will be located adjacent of the existing 115 kV Balsas Switchyard.

A new 230 kV transmission line from the new 230 kV switchyard to a new plant substation will be installed in a location immediately east of the main plant entrance gate and will have a configuration of single bay with one incoming line and two 230 kV-13.8 kV step down transformers that will connect to a 13.8 kV switchgear with a main-tie-main configuration for redundancy. The 13.8 kV switchgear will distribute the power to the Media Luna underground electrical room and process plant. The general layout of the 230kV substation is shown in Figure 18-7.

Figure source: M3, 2022

Figure 18-7: 230kV Substation

Subject to permitting, a new solar power generating plant is planned to be constructed adjacent to the ESR to supplement the power supply from the Balsas Substation and the new 230 kV switchyard. The plant will be composed of approximately 550 photovoltaic structures and 22,000 modules with a total production of 7.26 MW AC (8.47 MW DC) located on a 28 ha site at the intersection where the road turns off to the Balsas substation and Nuevo Balsas.

A new 2.8 km long 13.8 kV transmission pole line will be installed from the solar plant to the existing plant substation within the process plant. There are no present plans for the power to feed into the grid for general distribution beyond Torex.

The existing powerline from Mezcala to San Miguel will be upgraded to handle a 1MW supply to feed the existing community, the surface facilities near the South Portals, and also the camps, to enable these to be taken off the generator supply.

18.5.3 Media Luna Backup Power

A backup power generator will be installed at the Guajes Portal which will be connected to the 13.8kV Media Luna underground mine switchgear located at the new electrical room on the Guajes Portal. The connection will be through an underground duct bank from the generator to the electrical room. The switchgear will have interlocks to prevent having the generator and utility power circuit breakers closed at the same time. The generator will have the capacity to feed the critical and emergency loads of the underground mine.

On the South Portal area there will be 8 x 1MW generators to power the ML mine construction and operation until connection to the permanent power from the ELG side. Once the connection to permanent power is made, these generators will become back-up power to the ML mine.

18.6 COMMUNICATIONS

18.6.1 ELG Communications

The ELG Mine Complex has both cell and internet service. The communications design bandwidth was 200 Mbps, or approximately 30% of an E3 connection. This bandwidth is allocated between Internet service and telecommunication services. The service demarcation points and physical media is a microwave radio link. The demarcation point passes through a firewall to provide network security and then into redundant high bandwidth network switches. The switches then feed a dedicated office system Ethernet network and a dedicated control system network. A single connection with a gateway between the office system and the control system allows business accounting systems to retrieve production data from the control system.

A voice over I/P (VoIP) phone system is part of the office network and VoIP handsets are used for voice communication. A dedicated server provides for setup and maintenance of the VoIP system and for accounting of all long-distance phone calling.

A security system is incorporated into the plant network. Using a dedicated video server and monitors, I/P cameras utilizing Power over Ethernet connections are plugged into dedicated switches. Security cameras are located in store rooms, parking lots, visitor lobbies, warehouses, and areas where sensitive materials are kept.

Internal communications within the plant utilize the same voice over I/P phone system, which provides direct dial to other phones throughout the plant site. Mobile radios are also used by the mine and plant operation personnel for daily control and communications while outside the offices.

18.6.2 Media Luna Communications

The ML mine will have both cell and internet service that is extended from the ELG services. The communications will come from ELG via Fiber Optic Cable to the new Underground (UG) Surface Control Room in the existing mine tech services building and then be distributed to the Guajes portal and mine area.

The new Control Room's process servers will communicate historical and trended data to the ELG server to provide access for the business accounting systems to retrieve production data from the control system.

A VoIP phone system is part of the office network extended from ELG and VoIP handsets are used for voice communication. This will be extended for UG services via Fiber Optic Cable. The analog phone system service will be extended from ELG to Guajes Portal and then to the underground refuge station. These structures are intended to have multiple paths of communications for redundant service. A leaky feeder system is to be installed UG and then brought to the surface UG electrical house to permit radio communications for the UG and also the surface.

A vehicle tracking system (LTE) will be installed for the UG services with the services located at the new UG Surface Control Room. Seismic monitoring is to be monitored for the UG operations along with central blasting control will be provided by a station in the new UG Surface Control Room.

Internal communications within the Guajes Portal Area will utilize the same VoIP phone system, which provides direct dial to other phones throughout the plant site. Mobile radios are also used by the mine and plant operation personnel for daily control and communications while outside the offices.

18.7 PROCESS CONTROL SYSTEM

18.7.1 Surface Process Control System

The existing control system uses PLC and personal computers connected together with a fiber optic network using the Ethernet protocol. A PLC with an adequate number of I/O ports is in each electrical room. Interface to these PLCs is by personal computers running the appropriate Human Machine Interface (HMI) programs. Interactive screens on the monitors allow process control.

The basic system incorporates PLCs in each electrical room, two personal computers in the main control room in the grinding area and two computers in the filter building control room. If access to the system is required in other areas such as the laboratory, it can be added.

The ML Project includes adding new PLCs in new electrical rooms, a new Remote I/O Panel in the 060 Area, and two additional workstations in the 300 Area Main Control Room for control of the new process areas. The Historian currently has a 5000 tag limit with 3500 being used. This Historian license will be increased to accommodate the new equipment.

18.7.2 Media Luna Mine Control Room

The ML mine control room is planned to be located within the ELG Mine Complex, currently planned to be relocated within the ELG Mine Truck Shop building, which also includes the Technical Services offices. The ML mine control system uses Programmable Logic Controllers (PLC) and personal computers connected together with a fiber optic network using the Ethernet protocol. A PLC with an adequate number of I/O ports is in each electrical room. Interface to these PLCs is by personal computers running the appropriate HM programs. Interactive screens on the monitors allow process control.

The mine control room will contain:

- 5 stations for remote control of the UG Rock Picks
- Space for a 6th Rock Pick Station
- 3 workstations for process control of dewatering, backfill, process water, electrical, ventilation, CCTV, microseismic, and fire monitoring.
- 1 Workstation for ore and waste from UG to surface including stockpile.
- 1 Workstation for tracking, personnel, and safety.
- 1 spare Workstation.
- 1 Workstation for UG Manager, Mine Time Clerk, Maintenance Foreman, Safety Coordinator, Fire Aid Attendant, Central Blasting, Engineering Development, and the Admin.
- Servers for LTE, Process, Network Intrusion Detection, Microseismic, central blasting, and satellite communications (future).

18.8 ANCILLARY FACILITIES NON-PROCESSING

The following are descriptions of the on-site non-process infrastructure. Details of the ELG Process Plant are provided in Section 17.

18.8.1 ELG Ancillary Facilities

18.8.1.1 First Aid Clinic

The ELG First Aid Clinic is located adjacent to the main administration building. This clinic provides first aid treatment of minor injuries or to stabilize sick or injured personnel for transport to an external medical facility. This building also provides a covered area for the ambulance and fire truck as well as facilities for the operations emergency response team.

18.8.1.2 Administration Offices

The ELG Administration Building is located at the entry point of the ELG Mine Complex site. Office space is provided for up to 40 people in both separate offices (18) as well as open areas. This building houses the main administration components of the operation with work areas for the management team, finance, human resources, purchasing, and environmental services. Support spaces such as conference rooms, break room, communications and data management are also provided. No changes are planned to this facility. This administration building will continue to be used throughout the ML Project.

18.8.1.3 Warehouse

The ELG warehouse is centrally located between the plant site and truck shop. The warehouse includes 550 m^2 of storage rack area with an exterior, fenced storage area adjacent to the warehouse. A second warehouse is located in the truck shop for storage of mobile equipment parts.

18.8.1.4 Refinery

The refinery is located within the ELG Process Plant and consists of separate process and personnel spaces for security and health reasons. The overall layout is designed around the high security and restricted circulation of all personnel and visitors to this facility. Before entering or exiting the refinery, personnel are required to go through a screening process and check points. All entrances into the building are monitored and alarmed. The structure has solid grouted block walls and concrete roof structure.

18.8.1.5 Truck Shop and Technical Services Building

The ELG truck shop is a 5,100 m^2 building incorporating three distinct areas, the shop area, parts warehouse and office space for mine maintenance, operations and technical services personnel.

The shop area has 3 drive-through double bays large enough for 150 MT haul trucks, equipped with two 40-tonne overhead bridge cranes. There are also two additional bays for light vehicle maintenance and repair and a 1,000 m^2 parts warehouse.

The 1st floor of the technical services building is used for mine operations and maintenance, mine dispatch, and maintenance offices. The 2nd floor is for mine planning, engineering and geology. The design incorporates 280 m^2 of shell space for future expansion if required.

18.8.1.6 Truck Wash

The ELG truck wash facility is located adjacent to the truck shop. It is complete with a water treatment and recycling system housed within a separate building adjacent to the wash area for all truck wash equipment and electrical service.

18.8.1.7 Fuel Station and Service House

The fuel station constructed for the ELG Mine Complex consists of a fuel storage area with a dispensing facility for both haul trucks and light vehicles. The current diesel storage volume at site is 480,000 liters, and gasoline storage is 80,000 liters. This facility will still be in use for the ML Project to support both the surface and underground fleet fueling systems. No changes are planned for this facility.

18.8.1.8 ELG Explosives Magazine

Explosive supply and onsite manufacturing is carried out under contract by a Mexican explosive supplier who supplies and operates all explosive storage facilities. The explosive facilities include the magazines, Ammonium Nitrate (AN) storage silos, and the bulk emulsion storage silo. These facilities are located on the western edge of the property at regulated clearance from other surface facilities. No changes are planned for this facility.

The ELG explosives magazine is planned to be used to support the ML Project, as the South Portal magazines will be removed after a connection is established to the mine through the Guajes Tunnel.

18.8.2 Media Luna Ancillary Facilities

18.8.2.1 First Aid Clinic

The ML Project has emergency medical services available for first aid treatment, as well as a helipad for emergency medical evacuation located at the MML camp.

18.8.2.2 Warehouse

For the ML project process plant expansion, the ELG warehouse yard will be extended with an additional secure area to accommodate the storage containers and laydown area that have been stored on the pad that will be used for the flotation plant. This will include an area for consignment make up for dispatch to maintenance projects. A temporary warehouse in the Atzcala Contractor camp will also be used for the ML Project construction period.

An existing large warehouse area for equipment and material laydown south of the administration building will remain unchanged.

18.8.2.3 Copper Concentrate Storage and Loadout

The copper concentrate blending building and loadout areas will all be in security fenced areas and conveyors will be covered to protect the copper concentrate. At the truck load out, all access to the upper levels where copper concentrate is being handled will be restricted. Only one loader operator will be required in the blending building and a single operator at the loadout will control both loading and sampling of the concentrate, to minimize the number of staff working in secured areas.

18.8.2.4 Assay Lab

For the ML Project's copper concentrate sampling requirements, the existing assay lab located between the 660 Area freshwater tank and the 100 Area crusher pad is planned to be replaced in the future with a new lab located on the North end of the new copper concentrate blending building. This would be constructed as a separate project in the future after the ML mine is operating and is not included as part of the current project.

18.8.2.5 Truck Shop and Technical Services Building

There are no changes planned for this facility. For the ML Project, it is anticipated that the truck shop will be used to support a small surface haulage fleet required for ore batching and stockpile rehandle. The technical services building will also be in use to support both the ELG and ML underground operations.

18.8.2.6 Truck Wash

This facility will still be in use for the ML Project to support the surface mobile haulage equipment fleet. No changes are planned for this facility.

18.9 MINE PORTAL AREAS

18.9.1 ELG Mine Portals

The ELG underground mine has three active portals to access the underground ore body, termed Portal 1, Portal 2, and Portal 3. The portal locations are shown in Figure 18-2.

Portal 1 was the first exploration portal developed and is located along the El Limón pit access road. It accesses the underground ore body from the south. The portal dimensions are 5mW x 5mH. This portal acts as the fresh air intake for the mine and provides access to the ELD and SSL zones for personnel, equipment, ore and waste haulage, emergency exit and services. Portal infrastructure includes; water tanks, electrical room, fuel station, compressors, laydown, and lunchroom/offices for the mine Contractor.

Portal 2 is located approximately 300 m east of Portal 1, and was the second portal developed for the underground mine. It has a 5mW x 5mH face profile. This portal acts as return air exhaust for the mine and provides access to the ELD and SSL mine zones for personnel, equipment, supplies, ore and waste haulage, CRF haulage, emergency egress and services. The area outside of Portal 2 has a surface area of approximately 2,700 m^2. Portal 2 infrastructure includes; water tanks, CRF plant, and waste rock piles for the CRF plant.

Portal 3 is the newest access portal located north of the ELG UG mine area, and its purpose is to access the lower portions of the underground mine for ore development, improved material haulage, and ventilation intake. The portal has a 6mW x 6mH face profile. This portal is currently being developed with completion projected for mid-2022. Once completed, it will provide access to the bottom of the SSX mine zone. Current infrastructure at the portal is designed to support the ongoing development work and includes ventilation fans, compressed air, mine water and electrical infrastructure. A decant sump with a 450 m^3 settling pond is currently being designed for installation on surface near Portal 3.

18.9.2 Media Luna Mine Portals

18.9.2.1 Guajes Portal Infrastructure

The Guajes Portal is located at the 750 m elevation off an existing open pit bench, at the base of the high wall on the south side of the Guajes East pit. The final constructed pad area will be approximately 2.1 ha using waste rock from the tunnel development. The portal protection structure extends out from the rock face for 7 m to provide protection for personnel and equipment entering and exiting the portal. It also extends 7m into the rock to allow the transition into the main tunnel profile. The tunnel floor at the portal entrance has an upward slope to prevent water ingress.

Surface rainwater runoff is caught on the pit benches and directed along these to a collection point adjacent to the haul road and then diverted into the Guajes East pit for fresh water supply. The pad also has the main underground substation located on the east side.

As the tunnel construction finishes and the mine moves into development for the pre-production phase, the facilities on the portal pad will be transitioned to their final arrangement for ore production as shown in Figure 18-8.

Once the mine enters production, ore will be conveyed the full length of the access tunnel using a back mounted 1,070 mm wide conveyor installed on the east side of the tunnel. This conveyor will remain elevated leaving the tunnel with full road clearance under it, for maximum access flexibility and use of the portal pad. A ground mounted horizontal winch take-up will be used with belt reel holders and a splice station mounted on the upper section. This conveyor will discharge primarily ore to a 30-meter radial stacker feeding a small stockpile to act as a buffer between mine and surface operations. An additional waste rock stockpile can be formed with the radial stacker when required. A separate dedicated modular electrical room will be installed for the conveyor drives and control.

Traffic on the pad will be mostly one way with vehicles entering the pad from the existing haul road along the east side of the conveyor and exiting on the west side of the conveyor. Haul trucks will only operate in the stockpile area but still follow the same directional flow.

Above the main portal pad is a second existing pad at the 784 m elevation. This will be used to install the thickener (Guajes Thickener) to remove water from the two tailing streams before sending tailings to the Guajes Tailings Storage Facility (GTSF). The positive displacement pumps used to pump tailings through the Guajes Tunnel to the paste plant at the South Portal will also be located on this pad. On the East side of this pad, the mine water recycling plant will be installed to remove solids before discharging water to the Guajes East pit water reservoir (see section 18.13.1.3).

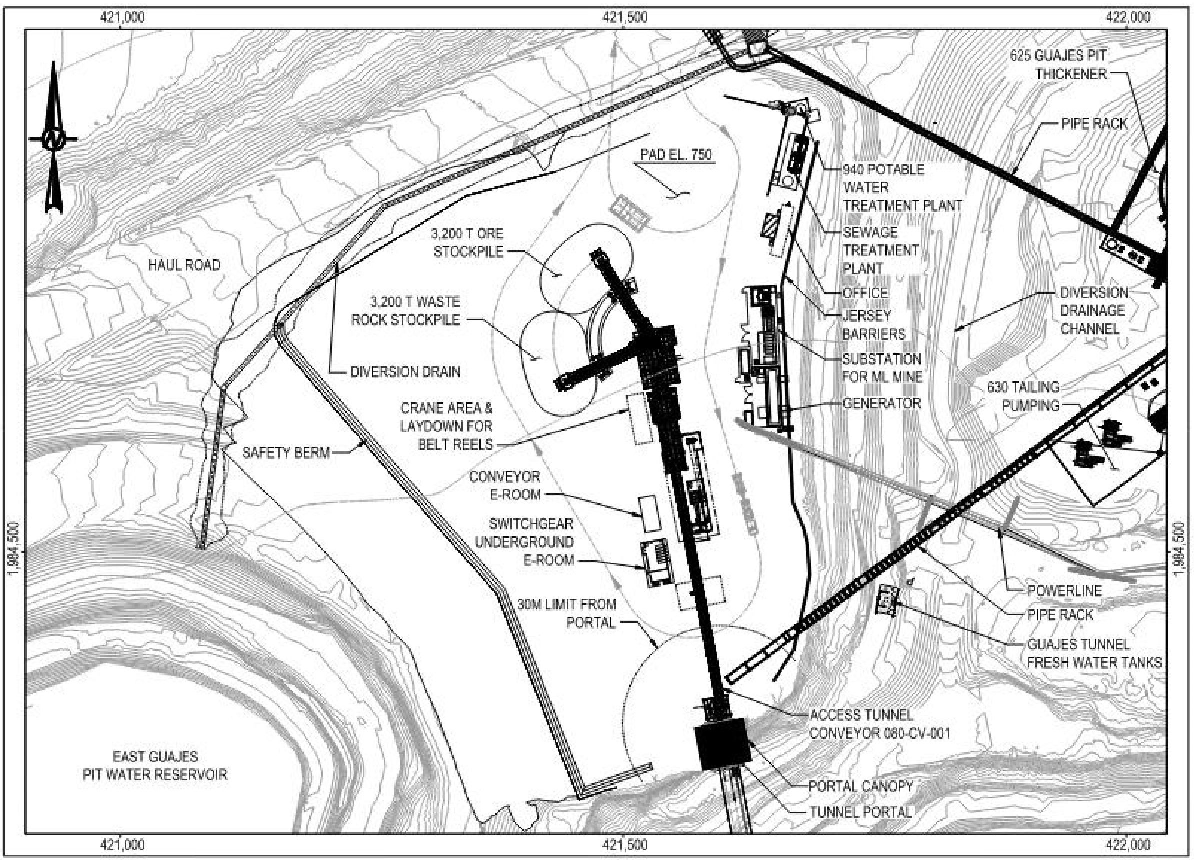


Figure 18-8: Guajes Portal Area Overall Site Plan

18.9.2.2 South Portals Infrastructure

There are two tunnel portals for development of the ML mine. SPU will be located on the east side of a valley 700 m west of the town of San Miguel at an elevation of 1,105 m, approximately 50 m below the town level and hidden from the town.

The SPU is established in a rock cut face of 15 m height and width, with a single bench above daylighting to the natural slope. The portal will have a steel protection structure built at the entrance, which will be the same size as the first 450 m of the tunnel (5 m x 5.3 m). The rock face above the portal has been scaled and stabilized with rock bolts and mesh.

The initial SPU pad will occupy an area of approximately 1,700 m^2 and this will be expanded by another 7,000 m^2 east of the portal for the paste plant pad. This pad will be almost completely in cut to provide sound foundations for the paste plant and the electrical supply yard at the east end. Some of this area may be excavated prior to the final pad construction as a source for road gravel, and to provide space for mine construction facilities close to the portal. Long term, when the temporary explosives magazines have been removed, i.e., after the South Portal and Guajes Tunnels connect, a laydown pad southwest of SPU will be used for material, fuel, equipment storage etc.

The paste plant pad cut will be benched and have ground control installed as needed to protect the work areas below. A 2 m buffer zone will exist along the base of the cut with concrete barriers. Binder delivery will enter the pad from the west side to the storage silo on the south side and then outgoing traffic will turn around the east side of the plant and return along the north side of the plant back to the Balsas Sur Road. The incoming road on the south side of the paste plant will have a gabion rock basket safety barrier constructed to prevent rock block and spalls from rolling onto the road from the adjacent rock cut.

SPL will be located 850 m west of the town of San Miguel at an elevation of 990 m which places it 165 m below the level of the town. The portal faces southwest and away from San Miguel and is not visible from the township. The cut face and bench will be similar to SPU and will have a similar steel protection structure built at the entrance. This structure will be the same 5m x 5.5m size as the tunnel and will extend from the rock face by five meters with a concrete headwall and earth fill over the steel arch to cushion any rockfalls.

Access to SPL is from a single lane road starting at the laydown pad located southwest of SPU, then crossing over the sediment pond dam and running alongside the decant pond to the south portal pad. This portal pad will have an area of only approximately 2,900 m^2, to begin tunnel excavation and this pad will not be extended with waste rock as its size is limited to the south and west by natural drainages. There is an area east of the portal which will allow an additional pad to be built for the storage of about 20,000 tonnes of ore, if required, before the Guajes Tunnel connects to the South Portal tunnels. All waste rock from SPL will be hauled initially to the same storage facility as the SPU below the upper portal pad.

West of the laydown pad, an additional waste rock storage facility will be built and below this, an additional sediment pond will be constructed to catch all sediment from the waste rock runoff. The pond will have a volume of approximately 6,000 m^3 and will overflow back to the natural drainage. The natural runoff water will be diverted around the waste rock and bypass the ponds. Runoff from the waste rock fill is not expected to be acid generating.

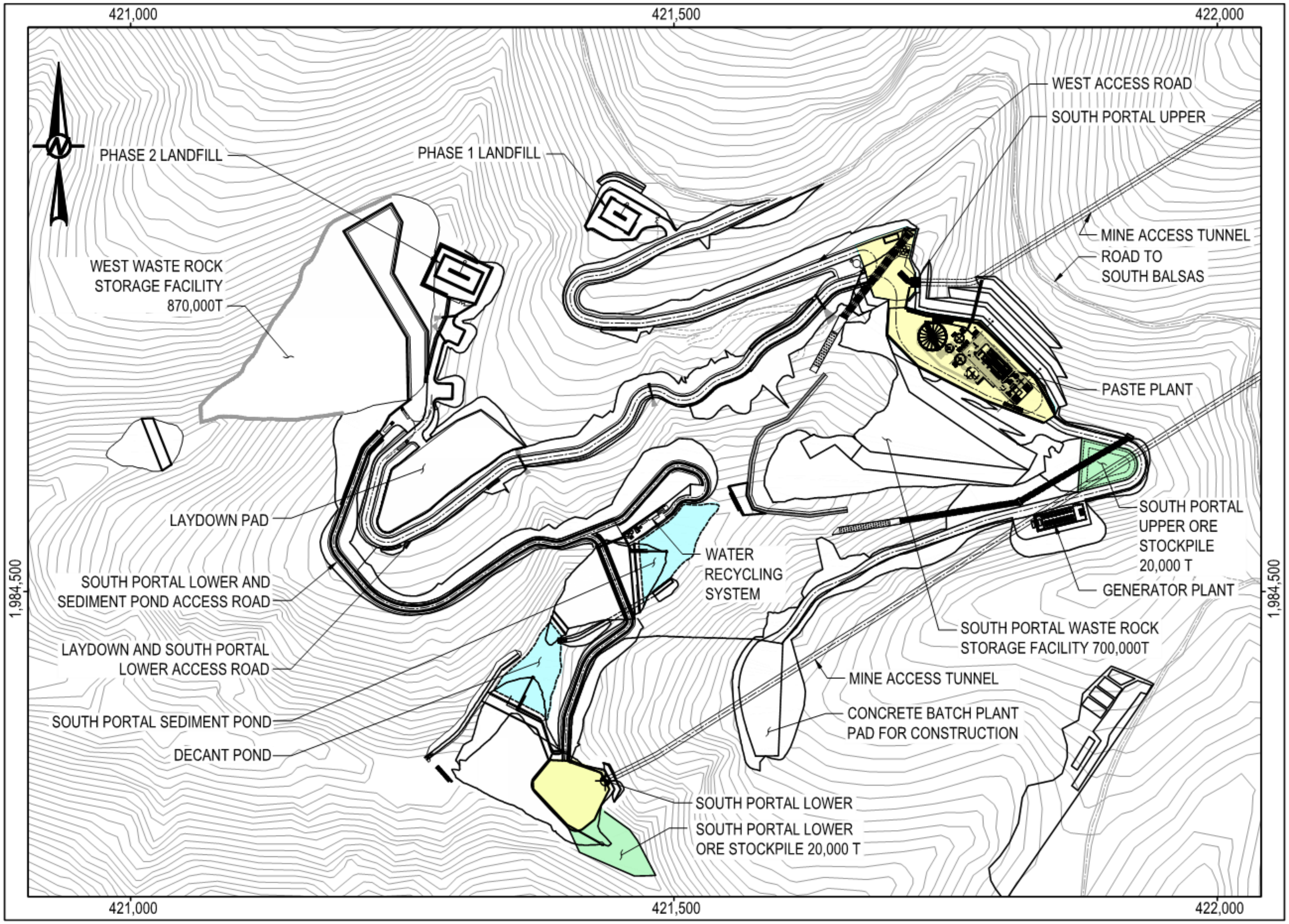


Figure 18-9: Media Luna South Portal Area Layout

18.10 WASTE LANDFILLS

18.10.1 ELG Landfill

The ELG landfill for non-hazardous solid waste was constructed in 2012 and is operated and managed within the project boundary. It is located alongside the internal road to Nuevo Balsas as shown in Figure 18-2. The total design life of the ELG landfill was 15 years (1.5 construction + 13 operational) with a total capacity of 17,200 m^3 for waste storage. With the extended mine life for the ML mine out to the end of 2033, the landfill will require additional volume. The plan is to excavate an additional volume of 7,000 m^3 out of the hill side to produce the volume required and add a double liner with a leak detection/leachate collection layer under the extension. The extension would be connected to the existing liner system. A final vegetated soil cover will be placed on top of the landfill when the capacity of the landfill is reached. Raising the existing earth embankment was not considered an option due to the presence of existing waste along the upstream slopes which would need to be moved to allow the embankment to be raised. The ELG landfill is located much further than the minimum 500 m requirement from municipalities.

18.10.2 Media Luna Landfill

The ML landfill will be constructed in two phases and will accommodate all domestic non-hazardous waste produced by both the MML and Contractor's camps. The initial landfill will be located just below the Balsas Sur road and will be in place until the explosives magazines are decommissioned after the initial project development period. The final landfill will then be constructed in the area initially occupied by the explosives magazines and will be accessed via the South access road and the Laydown pad. The proposed landfill design is a trench cell method due to site conditions. This design is based on one cell excavation, with a double liner and leak detection system. Phase I landfill will be composed of one 14 m long by 10 m wide and 3 m deep impermeable cell and Phase II landfill will be 38 m long by 20 m wide and 3 m deep impermeable cell. Each landfill cell will be built in lifts of 15-25 cm deep with a ratio of 10:1 waste/soil with each compacted by a high density 20-ton compactor. General fill can be used as earth covering for each layer. The site will be fenced to prevent illegal dumping and animals entering the landfill. Both landfill phases are shown on Figure 18-9. Both designs are based on the technical specification manual for construction of landfills for urban solid waste by Mexico's environmental ministry "Secretaria de Medio Ambiente y Recursos Naturales" (NOM-083-SEMARNAT-2003).

18.11 WASTE ROCK STORAGE FACILITIES

18.11.1 ELG Waste Rock Storage Facilities

A complete description of the design and analyses of the ELG Waste Rock Storage Facilities (WRSF) is presented in the reference documents by Amec (Amec 2011, Amec 2012, Amec 2014a, Amec 2014b, Amec 2014d, Amec 2014e), W. Kevin Walker, P.E. (WKW 2018, WKW 2019, WKW 2020) and Call & Nicholas (Call & Nicholas 2021).

18.11.1.1 ELG WRSF Design Data

The bulk density of waste rock material is estimated to be 2.0 t/m^3 with an angle of repose ranging from 35 to 37° based on field measurements.

The blasted and mined rock fill material that comprises the WRSFs will be constructed of a blend of primarily high strength coarse waste rock (hornfels, granodiorite, skarn) and some weaker material from the (La Flaca fault zone and surficial weathered material). The waste material is comprised of high strength fragments (greater than 100 MPa) with generally coarse fragmentation (approximate P50 15cm, P100 1m). The published Leps power shear strength criterion (Hawley, 2017), lower quartile for top-down construction, was utilized for the waste rock material. The Mohr-Coulomb equivalent is approximately a friction angle of 36.2º and 36.3 kPa cohesion. The waste material is assumed to be free draining.

As reported by Amec (2013) a drained friction angle of 41º was utilized for the colluvium based on direct-shear testing. The foundation colluvial soils do not exhibit undrained response, are compact to dense and are not susceptible to liquefaction failure. The Hoek-Brown shear-strength criterion was utilized for weathered rock below the colluvium (UCS 70 MPa, GSI 50, mi 15, D zero).

18.11.1.2 ELG WRSF Configuration

WSRF faces are typical angle of repose, end-dumped top-down construction dumps with segregation resulting in an apron of coarse material at the toe and a greater percentage of fines near the crest. Short dumping with a dozer assist reduces material segregation and improves particle distribution and stability.

18.11.1.2.1 El Limón WRSF

The El Limón WRSF, which is also referred to as El Limón Norte (ELN), is located north of the El Limón open pit. Approximately 65 million tonnes of additional material will be placed in ELN between 2022 and 2025. The ELN WRSF will be constructed using a generalized descending construction sequence (top down) from three separate dumping points and phases at different elevations:

- Phase TEP-1 is a wide, full-face advance dump constructed initially from the 1,270 m elevation, perpendicularly to the crest and above a waste dump. TEP-3 and TEP-4 will advance to the east and buttress the TEP-1 toe. Until this configuration is reached, the TEP-1 maximum height will be 400 m.
- Phases TEP-3 and TEP-4 will be advanced laterally as narrow "finger" dumps. TEP-3 is designed as a platform at the 1,141 m elevation; TEP-4 is designed as a ramp descending between the 1085m and 980m elevations, with one switchback at the 1015 m elevation.

TEP-1 will have a final inter ramp height of 145 m, TEP-3 will have a maximum final inter ramp height of 126 m, and TEP-4 will have a maximum final inter ramp height of 231 m. The average width of TEP-3 and TEP-4 is 60 m. The "Buttress" phase, which is a short finger dump, is being constructed at the toe of the ELN WRSF. This structure will be built up to the 882 m elevation and provides buttressing to prevent runout of a larger failure, containment of rockfall, and protection of the toe from erosion. Flow-through drains underlay the Buttress to prevent pore-pressure accumulation at the base. Including the Buttress, the overall slope angle is 27º and the total height is 415 m. The slope angle of the foundation in the lower part of the slope is up to 25-30º and 40-45º in the upper part.

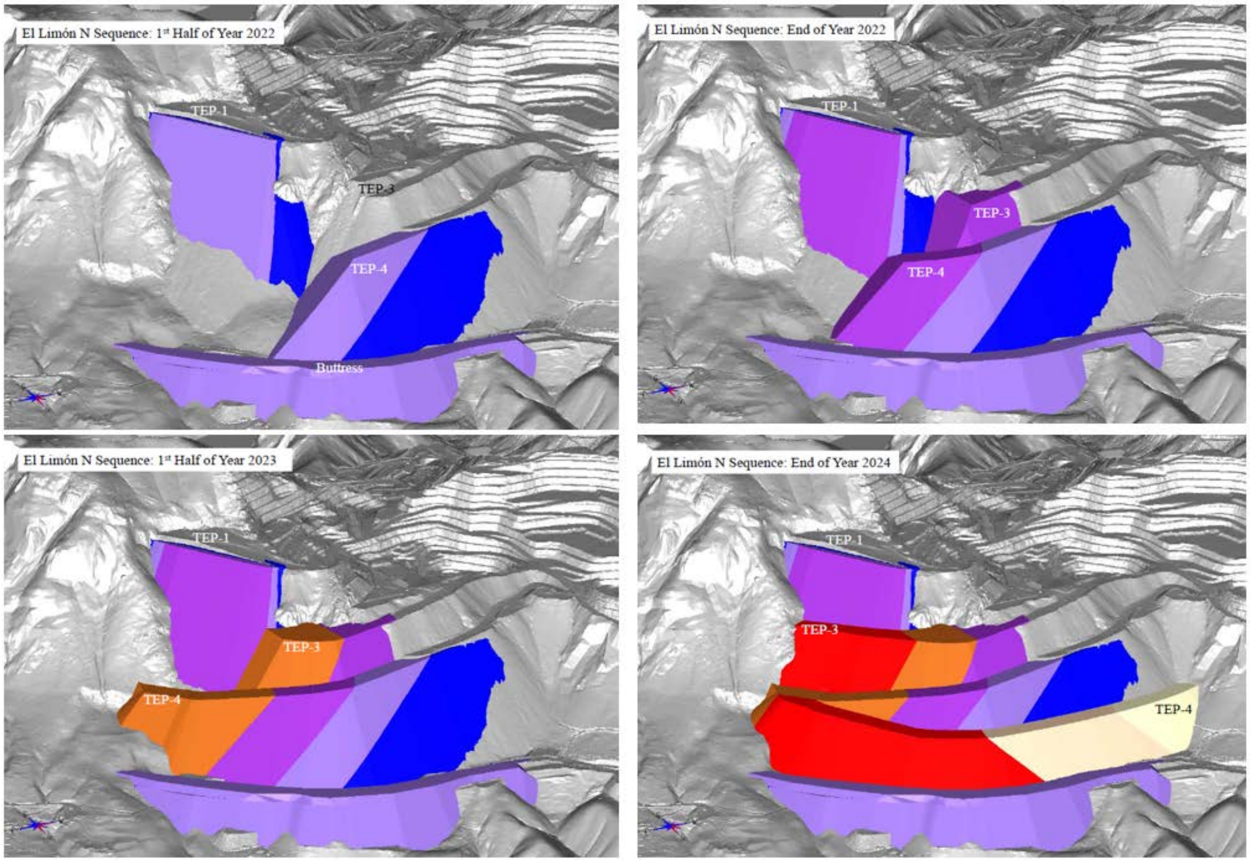


Figure 18-10: El Limón WRSF Construction Sequence and Phases (Looking South)

18.11.1.2.2 Guajes West WRSF

The Guajes West WRSF is located in the valleys west of the Guajes open pit and will be developed by end dumping waste rock in four lifts, with setbacks between lifts to facilitate re-sloping. Guajes waste rock will also be end dumped from the WRSF crest on the western slopes of the FTSF as needed to support the placement of tailings. The Guajes WRSF will continue to be used during the Media Luna operations, and relatively small quantities of mine development waste will be deposited. Approximately 14 Mt of additional material will be placed in the Guajes WRSF between 2022 and 2025.

18.11.1.2.3 El Limón Sur WRSF

The El Limón Sur (ELS) WRSF (phases TEP-5 and TEP-5A) will be developed on the east and west sides of the El Limón Sur open pit. Approximately 50 Mt of additional material will be placed in ELS between 2022 and 2025. The ELS WRF will be constructed using a generalized descending construction sequence (top down) from two separate dumping points at different elevations, TEP-5 and TEP-5A:

- The construction of TEP-5 will begin as a succession of six switchbacks between the 1,133 m and 1,010 m elevations, on top of previously existing waste material from the El Limón Sur Pit. Afterwards, advancement will proceed as a cross-valley fill in a westerly direction, partially filling the El Limón Sur Pit and crossing over two small valleys located to the west of the pit, leaving a gap between the waste dump and the natural foundation slope. The advance will stop at the 930 m elevation.

- TEP-5A will be constructed behind and on top of TEP-5. Placement of material will begin at the 1,030m elevation and will continue descending in a westerly direction to the 970 m elevation, filling the gap between TEP-5 and the natural slope.

The ELS WRSF will have a maximum toe-crest final height of 244 m, TEP-5 will have a maximum final height of 212 m, and TEP-5A will have a maximum final height of 69 m. The design face angle for both lifts is 35º. The WRSF will be deposited in two valleys and on top of the El Limón Sur Pit. The slope angle in the two valleys ranges from less than 25º in the lower part of the slope, to 40-45º in the upper part. The El Limón Sur pit design wall where the material will be deposited has an approximate overall slope angle of 45º. Natural drainages have an approximate SSW orientation and represent a preferential path for water flow.

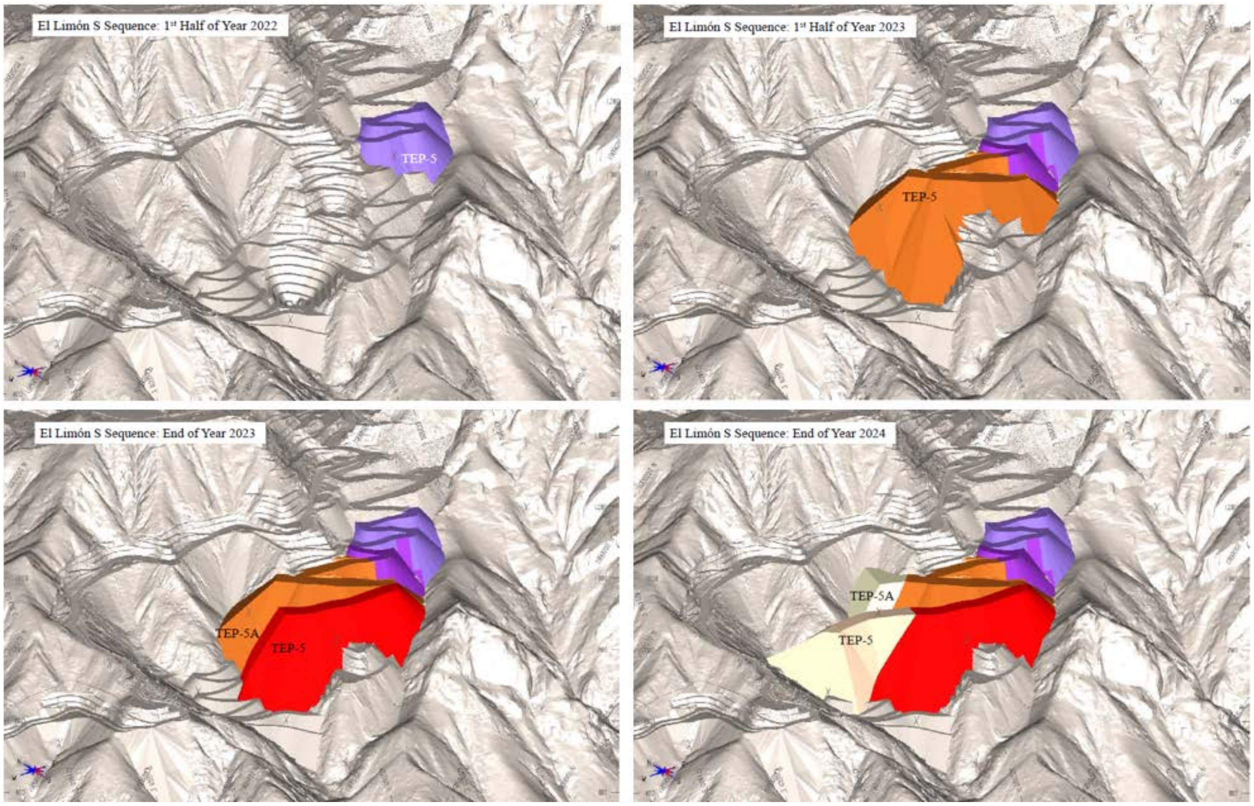


Figure 18-11: El Limón Sur WRSF Construction Sequence and Phases (Looking North)

18.11.1.3 ELG WRSF Stability

18.11.1.3.1 ELG WRSF Geotechnical Characterization

Based on the general findings of a geotechnical investigation conducted by Amec (2013) which included test pits and borings property-wide, done for multiple purposes, where flat-lying topography is present, the foundation of the WRSFs is comprised of silty sands and gravels typical of colluvial soils.

The colluvium is underlain by slightly weathered competent bedrock of up to 10 m in thickness. Unweathered bedrock underlies the slightly weathered bedrock. The colluvium is low to non-plastic, free draining, and varies in thickness from non-existent to approximately five meters. On steep topography, the foundation is typically hard rock.

18.11.1.3.2 ELG WRSF Geotechnical Stability Analysis

WRSFs were analyzed using limit-equilibrium stability analyses and Rocscience's Slide2 software. Three cross sections were analyzed for ELN and three for ELS. Both final and interim geometries were analyzed. The design criterion was a 1.2 static factor of safety and a 1.0 pseudostatic factor of safety with respect to the potential for large-scale overall instability.

The psuedostatic analyses utilized a seismic coefficient of 0.08 g to account for seismic-induced loading. This value is based on the maximum-probable-peak horizontal ground acceleration for an earthquake with an approximate return period of 100 years. The coefficient utilized is 50% of the maximum probable peak horizontal ground acceleration of 0.16 g as presented in the report Preliminary Earthquake Ground Motion Hazard Assessment (Amec, 2011).

The failure surfaces analyzed included both circular and non-circular surfaces. None of the failure surfaces penetrated the foundation and were either within the waste material or followed the foundation contact. Stability analyses were corroborated with material properties determined from back analysis of a surface slide of the TEP-3 phase which took place in October 2020. Due to the height of the phases (more than 200m), near-face failure surfaces are at or near a factor of safety of one. This creates a near-crest hazard zone and short dumping with a dozer push is done to mitigate this hazard.

The potential for failure of the WRSFs and subsequent runout was analyzed using the debris flow simulation software DAN3D to ensure that portals and other nearby infrastructure are located a sufficient distance away from the WRSFs. Both interim and final configurations were analyzed.

Berms will be constructed to provide protection from rockfall. These berms were designed using the software Colorado Rockfall Simulation Program Version 4.0 (CRSP) (Jones, 2000) and will be needed during the simultaneous advance of the TEP-3 and TEP-4 phases. The CRSP analysis indicated the need for berms 3-4 m in height to protect downslope areas from rolling rock hazards.

18.11.1.3.3 ELG WRSF Stability during Operations

The crest advance rate (CAR) is limited based on industry guidelines and site experience to minimize the potential for settlement-induced crest instability. This includes a maximum 2-2.5 m/d for phases 100m in height (TEP-5) and 1-1.5 m/d for phases more than 250m in height (TEP-1, TEP-4). Other operational controls to minimize the risk of instability during construction include blending of fine and coarse materials, diversion of surface water away from the WRSFs, and flow-through drains at the base of the Buttress phase.

Slope monitoring is done with the use of GPS, prisms, and extensometers to provide warning of slope movements. A Trigger Action Response Plan (TARP) and Ground Control Management Plan (GCMP) specify displacement alarm triggers, responses, and other procedures with respect to slope monitoring.

The sequence has been designed to maintain stability. This includes advancement of the TEP-4 phase prior to and to provide buttress to TEP-3, limiting the maximum phase height, and keying-in the toe into surrounding topography where possible.

18.11.1.3.4 ELG WRSF Stability after Closure

After closure, the WRSFs will be reconfigured to 2H:1V slopes. This slope provides a long-term static factor of safety of 1.5 or greater. The WRSF closure is described further in Section 20.

18.11.2 Media Luna Waste Rock Storage Facilities (WRSF)

Two waste rock storage facilities, termed South Portal WRSF and West WRSF, will be established near the South Portals to store waste rock prior to connection with the Guajes access tunnel. The location of these facilities is shown in Figure 18-9. Once the Guajes Tunnel connects to the mine, the mine waste will be conveyed to the Guajes Portal for disposal in the Guajes WRSF.

A complete description of the design and analyses of the ML WRSFs is documented by Golder (Golder, 2021a, Golder, 2022b).

18.11.2.1 South Portal WRSF

18.11.2.1.1 South Portal WRSF Design Data

The waste rock material is assumed to have a bulk density of 2.0 t/m^3 and an angle of repose of 35.5°. The angle of repose is a horizontal to vertical ratio of 1.4:1.

The Barton (2008) shear strength criterion was assumed for the waste rock material, which is produced by drill and blast excavation and will contain particles that are angular to sub-angular and rough to very rough. The anticipated mean particle size is expected to range from 130 mm to 180 mm. The particle strength will be approximately 25% of the intact rock compressive strength.

18.11.2.1.2 South Portal WRSF Configuration

The South Portal WRSF will be located on the natural slope below the SPU pad. At this location, the ground surface ranges from a high elevation of 1,105 m at the portal pad level to a low elevation of approximately 1,000 m near the toe of the stockpile and the slope gradient is relatively steep with an average slope of approximately 53% (28°). The slope is moderately to densely vegetated. The hillside is incised to the east and west by steep drainage channels that converge near the base of the slope.

The South Portal WRSF will store approximately 700,000 tonnes of material, and will be constructed in an ascending (i.e., bottom-up) construction sequence comprising 30 m lifts placed at the angle of repose of 35.5° (1.4H:1V) with a 18 m setback between each lift (i.e., every 30 m vertically). This results in an overall angle of about 26.5° (2.0H:1V), which is conducive to long term stability and re-vegetation.

18.11.2.1.3 South Portal WRSF Geotechnical Characterization

Geotechnical characterization of the footprint area included two traverses by an engineering geologist to map outcrops and excavation of 11 test pits. Bedrock in the ML Project area is partially overlain by a shallow layer approximately 1 m thick of alluvium/colluvium where grades are relatively flat with slightly thicker deposits in the base of the drainage channels. The soil material is silty sand to clayey sand with 15 percent to 40 percent low plasticity fines. Surface mapping indicates that the predominant rock type exposed within the WRSF footprint is the Morelos Formation Limestone with minor outcrops of Mezcala Formation sandstone. Bedrock near the ground surface can be completely weathered in isolated areas where the character is typically described as subangular to angular gravel in a low plasticity clay matrix. Most outcrops of limestone are fresh and strong. Direct shear tests of soil and weathered bedrock were conducted under consolidated drained conditions for samples remolded to 90% of maximum dry density. These tests indicate that the shear strength of the soil and weathered material may be described by a linear Mohr-Coulomb shear strength criterion defined by an angle of friction of 28° and cohesion of 33 kilopascals.

Springs were observed in the vicinity of the South Portal WRSF during field mapping with water flow rates estimated in the drainage channels at 0.2 to 0.5 L/s. No liquefiable materials were observed during the field investigation within the limits of the WRSF.

18.11.2.1.4 South Portal WRSF Stability

The slope stability software Slide2 Modeler V9.008 (Rocscience Inc.) was used to evaluate the WRSF stability. Circular and non-circular failure surfaces were evaluated for deep seated overall stability, where sliding may be expected to occur predominantly along the base of the stockpile at the interface between the waste rock and the underlying soil and weathered bedrock foundation. Shallow failure surfaces were also evaluated. These are often referred to as sliver failures and are typically managed by adjustments to operational controls during stockpile construction. The potential effect of seismic loading on WRSF was evaluated by applying a horizontal seismic coefficient, k_h, of 0.10. This value is based on consideration of an allowable dynamic displacement of 30 cm in accordance with the procedure described in Bray et al (2018) and is approximately 1/3 of the 500-year peak ground acceleration of 0.29 g. This ratio is consistent with Table 8.6 of Hawley and Cunning (2017).

A free draining base condition was assumed for the WRSF since the lift height will exceed 20 m. Segregation of coarse rock at the toe is as the dumped waster rock cascades down the slope face; the larger particles tend to roll all the way to the toe and over the foundation allowing for the development of a free-draining base layer above the in-situ foundation soil. The foundation below native ground surface is assumed to be saturated due to the observed presence of springs.

The predicted minimum Factor of Safety is 1.3 for base sliding critical surfaces and local bench-scale critical surfaces that pass through the upper soil material or weathered bedrock. The critical failure surface for overall stability extends from the toe of the WRSF and daylights beyond the crest. The critical failure surface is located on the 30-m high bench at the base of the WRSF and extends from the toe to just beyond the crest of the first lift. The minimum Factor of Safety for dynamic conditions is 1.0, which indicates dynamic deformation will be limited to 30 cm. The Factors of Safety for static and dynamic conditions meet the minimum design criteria values.

A site-specific relationship between crest advance rate and dump crest stability will be developed for the WRSF once placement has begun due to the relatively steep foundation conditions. The initial maximum crest advance rate will be set at 6 m/day to prevent a large volume of material to be placed quickly, which can allow the crest to become over-steepened. This rate may be refined based on operational considerations (e.g., the number of trucks available to deliver waste rock material to the stockpile) and the observed response of the initial stockpile lift placement.

18.11.2.2 West WRSF

18.11.2.2.1 West WRSF Design Data

The waste rock material is assumed to have a bulk density of 2.0 t/m^3 and an angle of repose of 35.5°. The angle of repose is a horizontal to vertical ratio of 1.4:1.

The Barton (2008) shear strength criterion is assumed for the waste rock material stored in the West WRSF using the R and S parameters 5 and 15, respectively, as applied to the South Portal WRSF. However, the residual friction angle for limestone is reduced to 27.5° to account for the anticipated increase volume of lower quality waste rock derived from Mezcala Formation rock types.

18.11.2.2.2 West WRSF Configuration

The West WRSF will be located within the natural drainage basin immediately west of the South Portal WRSF. The topographic gradient ranges from a high elevation of 1,080 m at the crest of the ultimate stockpile to a low elevation of approximately 970 m near the toe of the stockpile and is relatively steep with an average slope of approximately 53 percent (28°) in the upper third of the channel to 17 percent (10°) along the lower third of the base of the stockpile. The slope is moderately to densely vegetated.

The West WRSF will store approximately 870,000 tonnes of material, and will be constructed in an ascending construction sequence with 30 m lifts placed at the angle of repose of 35.5° (1.4H:1V) with a 18 m setback between every lift (i.e., every 30 m vertically). This results in an overall angle of about 26.5° (2.0H:1V) which is conducive to long term stability and re-vegetation.

18.11.2.2.3 West WRSF Geotechnical Characterization

Geotechnical characterization of the footprint area included five traverses to map outcrops and excavation of 10 test pits. Bedrock in the project area is partially overlain by a shallow layer of alluvium/colluvium. The thickness of cover ranges from approximately 20 cm on the steep sides of the drainage channel to 3.6 m where grades are relatively flat in the drainage thalweg. The soil material is typically clayey sand with 25 percent to 30 percent low plasticity fines. Surface mapping indicates that the predominant rock types exposed within the WRSF footprint are porphyry dykes and Mezcala Formation shale and limestone. Bedrock near the ground surface can be completely weathered in isolated areas where the character is typically described as a mixture of soil and rock in a low plasticity clay matrix. Most outcrops of limestone are blocky and strong. Direct shear tests of soil and weathered bedrock were conducted under consolidated drained conditions for samples remolded to 90% of maximum dry density. These tests indicate that the shear strength of the soil and weathered material may be described by a linear Mohr-Coulomb shear strength criterion defined by an angle of friction of 28° and cohesion of 55 kilopascals.

18.11.2.2.4 West WRSF Stability during Operations

Slope stability analysis was conducted for two critical cross sections. Due to the relatively steep slope at the toe of the stockpile, the stability analysis determined that stripping of the alluvial cover over the bedrock is required within the limits of the first (lower) 30-m lift of waste rock. Once soil is removed, the predicted minimum Factor of Safety is 1.4 for critical surfaces that extend over multiple lifts and pass through weathered bedrock at the toe of the WRSF. The critical surface for overall stability is 1.5.

The potential effect of seismic loading on WRSF was evaluated by applying a horizontal seismic coefficient, k_h, of 0.07. This value is based on consideration of an allowable dynamic displacement of 30 cm in accordance with the procedure described in Bray et al (2018) and considering the maximum thickness of the WRSF overlying bedrock. The minimum Factor of Safety for dynamic conditions is 1.2, which indicates dynamic deformation will be limited to 30 cm.

The Factors of Safety for static and dynamic conditions meet the minimum design criteria values.

A site-specific relationship between crest advance rate and dump crest stability will be developed for the WRSF once placement has begun due to the relatively steep foundation conditions. The initial maximum crest advance rate will be set at 6 m/day to prevent a large volume of material to be placed quickly, which can allow the crest to become over-steepened. This rate may be refined based on operational considerations (e.g., the number of trucks available to deliver waste rock material to the stockpile) and the observed response of the initial stockpile lift placement.

18.11.2.2.5 West WRSF Rockfall Runout

Rockfall from the 30-m WRSF lifts was modeled with the software RocFall V8.012 maintained by Rocscience, Inc. The results indicate that inclusion of crest berms with a minimum height of 1 m and 1.4H:1V side slopes will retain 98 percent of slough material on the 18-m wide benches.

If a conservative runout angle of 23° is applied to the lowermost lift of the WRSFs, a 29 m runout zone will extend from the toe of the lowermost 30-m high repose angle lift. Protective berms with the same dimensions as the crest berms may be placed in front of access routes or infrastructure, as needed, during operations.

18.11.2.2.6 WRSF Stability after Closure

The ascending construction sequence to an overall slope angle of 26.5° (2.0H:1V) is conducive to long term stability. Final closure activities would include contour drain construction on any remaining benches with periodic downslope drains contoured into bench faces to deliver rainfall runoff to the toe, and the slope surface topsoiled and revegetated. The WRSF closure is described further in Section 20.

18.11.3 Waste Rock Geochemical Characterization and Controls

18.11.3.1 El Limón Guajes

The waste rock from the El Limón and Guajes pits is not expected to produce ARD. Waste rock characterization studies (Teck, 2008; SRK, 2008; Amec, 2012a and 2015e, NewFields 2021a and 2021b) estimate a low quantity of potentially acid generating (PAG) rock (<7%) that is widely dispersed through the El Limón and Guajes pits. Approximately 16% of the waste rock is classified as uncertain and the majority (77%) is not potentially acid generating (non-PAG). The waste rock has low acid generating potential due to low sulfide content, which typically ranges from 0.1 to 1% in major rock units. Available neutralizing potential is mostly in the form of carbonate and is widely present in most rock units. Minor occurrences of breccia in the waste rock typically have less than 2.5% sulfur but also have a Neutralization Potential Ratio of 4 or higher and thus are not expected to produce acidity. Geochemical benchtop testing reveals that ROM mixtures of waste rock from ELG are non-PAG.

The El Limón Sur waste rock characteristics are similar to waste rock from El Limón and Guajes pits. A higher apparent degree of in-situ oxidation of the El Limón Sur waste rock has been identified, and is being assessed. Leach test results suggest that meteoric water could leach arsenic from waste rock at concentrations above acceptable water quality limits. This risk is not considered to be high enough to install mitigation measures at this time. However, potential mitigation measures have been designed and the drainage from the waste rock piles is being monitored. Assessment along the El Limón access road identified largely unmineralized rock with little concern for metal leaching and ARD. Rocks in transitional areas crossing the limits of the Guajes Pit in the east and El Limón pit in the west are similar to El Limón and Guajes waste rock (Amec, 2015c).

18.11.3.2 Media Luna

Waste rock and wall rock from the ML underground workings is not expected to produce ARD. ML waste rock is comprised of seven major lithologies (FBHQ, granodiorite, hornfels, limestone, marble, endoskarn and exoskarn). Characterization studies estimate that all ML waste rock is non-PAG or inert. Static test results classified only 6 of 93 total waste rock samples as PAG or Uncertain. These 6 samples represented endoskarn and exoskarn. All remaining samples (94%) representing FBHQ, granodiorite, hornfels, limestone, and marble were classified as non-PAG. Kinetic testing showed that all samples (including the endoskarn and exoskarn waste rock) did not produce ARD (NewFields, 2021a).

Also, all waste rock types show little to no propensity for metal release. Isolated arsenic concentrations above NOM-001-SEMARNAT-1996 water standards were observed in limited samples from granodiorite, limestone, exoskarn, and exoskarn. No other exceedances of NOM-001-SEMARNAT-1996 or NOM-157-SEMARNAT-2009 water discharge standards were observed. Furthermore, leachate from a weighted average sample of all major waste rock lithologies did not contain arsenic concentrations above these Mexican standards (NewFields, 2021a). NOM-001-SEMARNAT-1996 water quality standards are intended for non-potable water discharge into rivers, natural and artificial water bodies, and groundwater, while NOM-157-SEMARNAT-2009 regulate mine water discharge specific to waste rock and ore.

18.12 TAILS MANAGEMENT FACILITIES

18.12.1 Filtered Tails Storage Facility (FTSF)

Tailings are currently stored in the FTSF. Tailings from the filter plant are conveyed to the FTSF and discharged from a stacker. Filtered tailings are then loaded into 40-t articulated trucks or a series of grasshopper conveyors and are placed, spread, and compacted in the FTSF. Once the ML mine enters operation, tailings are planned to be placed in slurry form in the West Guajes Pit (the GTSF) as described in the next section. The current FTSF has a total design capacity of 49 Mt to EL 698 m, of which approximately 24 Mt have been placed as of the end of 2021, with another approximate 16 Mt planned to be placed prior to the start of the ML Project. The current FTSF design capacity would allow for up to 2-years of operation if the GTSF permitting is delayed and it can be expanded to accommodate the total mine life tailings for the ML Project, if required, and pending permit approvals.

The key design elements of the FTSF include:

- As tailings placement warrants, the foundation is prepared by removing organics and unsuitable materials and the subbase is compacted where required.
- Flow-through drains were constructed in the bottom of the existing valleys within the FTSF footprint to convey groundwater and tailings seepage from the bottom of the valley below the FTSF and the Waste Rock Buttress to Ponds 1 and 2.
- Tailings are placed in structural and non-structural zones in accordance with the revised design (NewFields, 2017).
- The filtered tailings are buttressed on the west by Waste Rock Buttresses to enhance the stability and provide cover materials to minimize erosion and sediment transport.
- Once the tailings rise above the surrounding topography on the east, those tailings will be buttressed by mine waste to enhance the stability and to minimize sediment transport.
- Tailings in the structural zones are compacted to a minimum of 95 percent of standard Proctor maximum dry density (SPMDD).
- Tailings placed in the non-structural zones of the facility do not require a specified degree of compaction and are placed as necessary to yield a surface that can be accessed by construction equipment.
- Access roads, composed of local site colluvium or mine waste, are constructed on the filtered tailings surface to provide access for construction vehicles. These roads will also serve as enhanced drainage pathways for the filtered tailings.
- The external tailings perimeter slopes are covered as soon as practical with a filter zone and erosion protection cover (EPC) to prevent erosion by rainfall, runoff, and wind.
- The FTSF surface is graded to the back of the impoundment (east) to promote surface water runoff and the management of stormwater within the impoundment area.

A plan view and typical cross-section of the design FTSF (49 Mt total capacity) is shown on Figure 18-12.

The FTSF is raised according to the design as tailings are supplied from the process plant. Annual tailings placement planning is designed to allow for the placement of structural tailings during the dry season and non-structural tailings during the 4-month rainy season. The intent of the planning is to maximize the placement of structural tailings during the dry season, when evaporation and water management is less critical. The placement and compaction of filtered tailings is challenging during the rainy season because of the frequent high intensity, short duration rain events.

Surface water runoff from the FTSF is managed by grading of the top of the tailings to the east and to a series of internal temporary water management ponds. Permanent ponds have also been developed for water management upstream and downstream of the FTSF as discussed in Section 18.13.

The FTSF is designed for stability during operation and long-term stability after closure. To provide stability for the filtered tailings stack, the west slope is buttressed by a minimum width of 100 m of waste rock. On the east side of the facility, the tailings are buttressed by a minimum width of 30 m of waste rock after they rise above the natural topography. The waste rock also provides for erosion control of the exposed tailings slopes. Filter material is placed between the filtered tailings and waste rock to prevent the migration of tailings into the waste rock. The stability analyses completed on the facility indicate that the factors of safety of the FTSF slopes exceed the required static factor of safety of 1.5 and the facility is stable during seismic events up to the 1:10,000 year earthquake. Some deformation is anticipated during this extreme seismic event, but the overall integrity of the structure and the containment of the tailings are maintained. For details on the stability analyses, refer to the NewFields Engineering Design Report (NewFields, 2017).

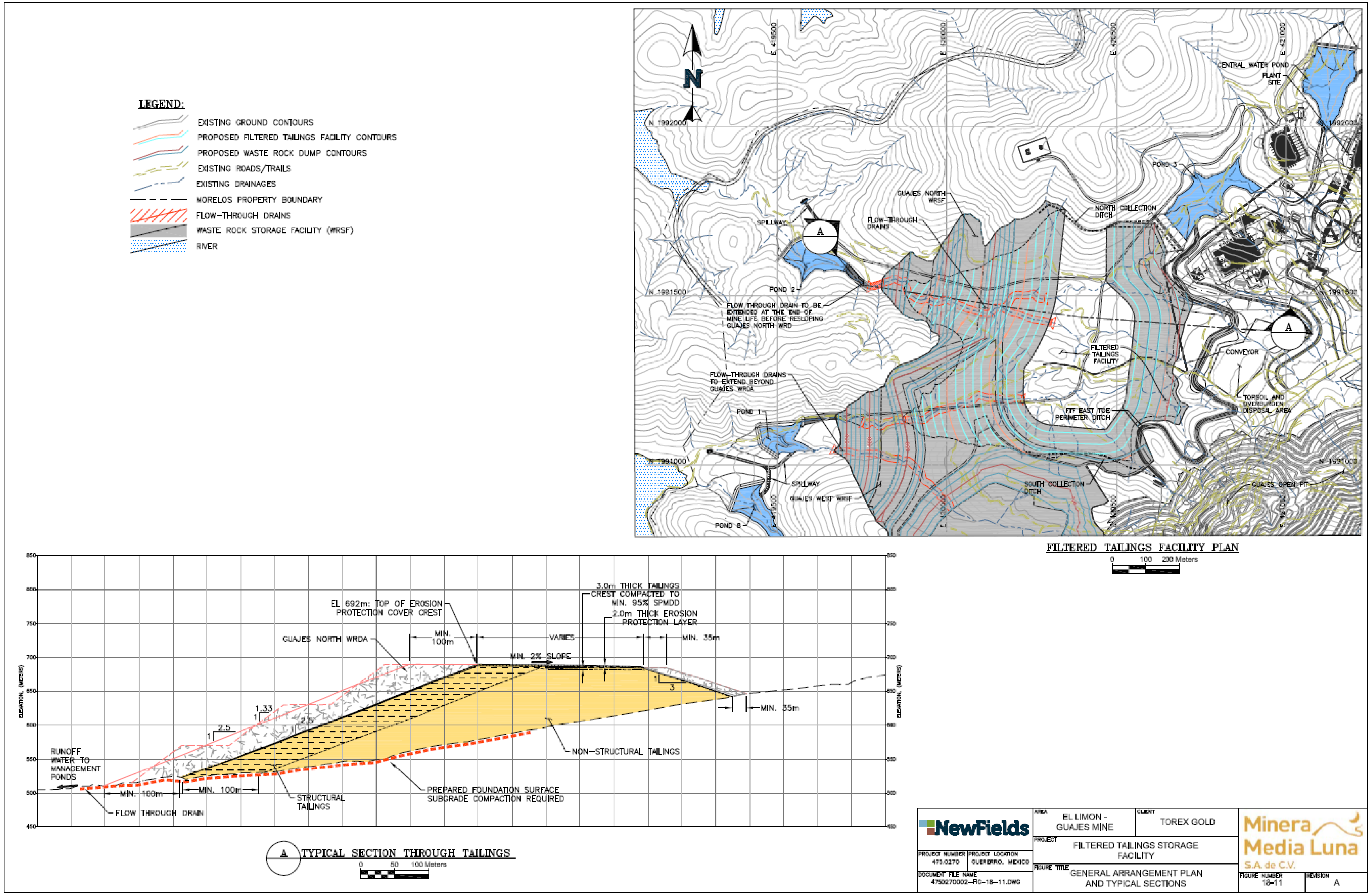


Figure Source: NewFields, 2018

Figure 18-12: ELG 49 Mt Filtered Tailings Storage Facility Plan and Section

18.12.2 Guajes Pit Tailings Storage Facility (GTSF)

For the Media Luna Project, the West Guajes Pit will be converted into the Guajes Pit Tailings Storage Facility (GTSF). The West Guajes Pit will be mined out in 2023, and the GTSF will be commissioned in 2024 during commissioning of the ML process facilities. The GTSF will be designed and operated to meet the GISTM guiding principles.

The pit shell has a storage capacity of approximately 17.3 Mt of tailings, of which the current mine plan shows approximately 15 Mt of tailings will report to the GTSF, with the remainder of tailings used for paste backfill for the ML mine.

Tailings leaving the plant will be in a slurry form and pumped to either the Paste Plant to be utilized in cement-paste backfill or to the GTSF. Initially, the tailings pipeline will follow the existing haul road into the pit. The first deposition point will be located at elevation 600 m. The pipeline will be pointed off the edge of the pit ramp to allow the tailings to fill-in the bottom of the pit. This type if deposition is known as single point deposition. When starting placement the tailings deposition will be subaqueous, however it will become subaerial after a tailings beach forms and the pit area increases with elevation. The location of the single point deposition will be re-established in 10-meter vertical increments along the access ramp to an elevation 670 m as the pit fills with tailings. Once the tailings reach an elevation of 670 m, the tailings distribution pipeline will be relocated along the north crest of the GTSF and drop bars, spaced 150 m apart, will be constructed to deposit tailings into the GTSF. The drop bars will be utilized to spread the tailings out and form a uniform beach to maximize the GTSF capacity. Figure 18-13 below depicts the time steps for the GTSF to fill with tailings.

The tailings stream reporting to the GTSF will be primarily Fe-S Tails. Occasionally, small quantities of Fe-S Cons will be combined with the Fe-S Tails tailings stream, with a maximum ratio of 20% Fe-S Con to 80% Fe-S Tails and an average of approximately 10% to 90%. More than half of the Fe-S Cons will be directed into the paste backfill.

The beach formed from subaerial deposition is expected to slope at 1.0% towards the supernatant pond located generally in the southern portion of the facility. The supernatant pond will have a minimum depth of two meters to enable operation of the reclaim pumps.

Prior to tailings being deposited into the GTSF, an underdrain collection system, consisting of a vertical riser and floor drains, will be installed. The pit underdrain will be a three-meter-wide drainage gravel strip drain constructed in the bottom of the pit to direct seepage towards the vertical riser. A thin layer of coarse mine waste will cover the drainage gravel. A vertical riser for pump access will be constructed using stainless steel pipe. The riser will be surrounded by mine waste for stability and to provide access to the top of the riser during operations. The bottom 2 m of the riser will be perforated and encompassed with clean drainage rock to allow seepage into the riser. A submersible pump will be installed down the vertical riser to evacuate any underdrain seepage and the solution will be directed towards the supernatant pond within the GTSF. The initial riser included in the Initial Capex costs will be 57 m tall and will be extended prior to the single distribution point being relocated. Figure 18-13 shows the riser access road as the tailings rise. Raising of the riser pipe and placement of the access road every 10 m are included in the Sustaining Capex costs.

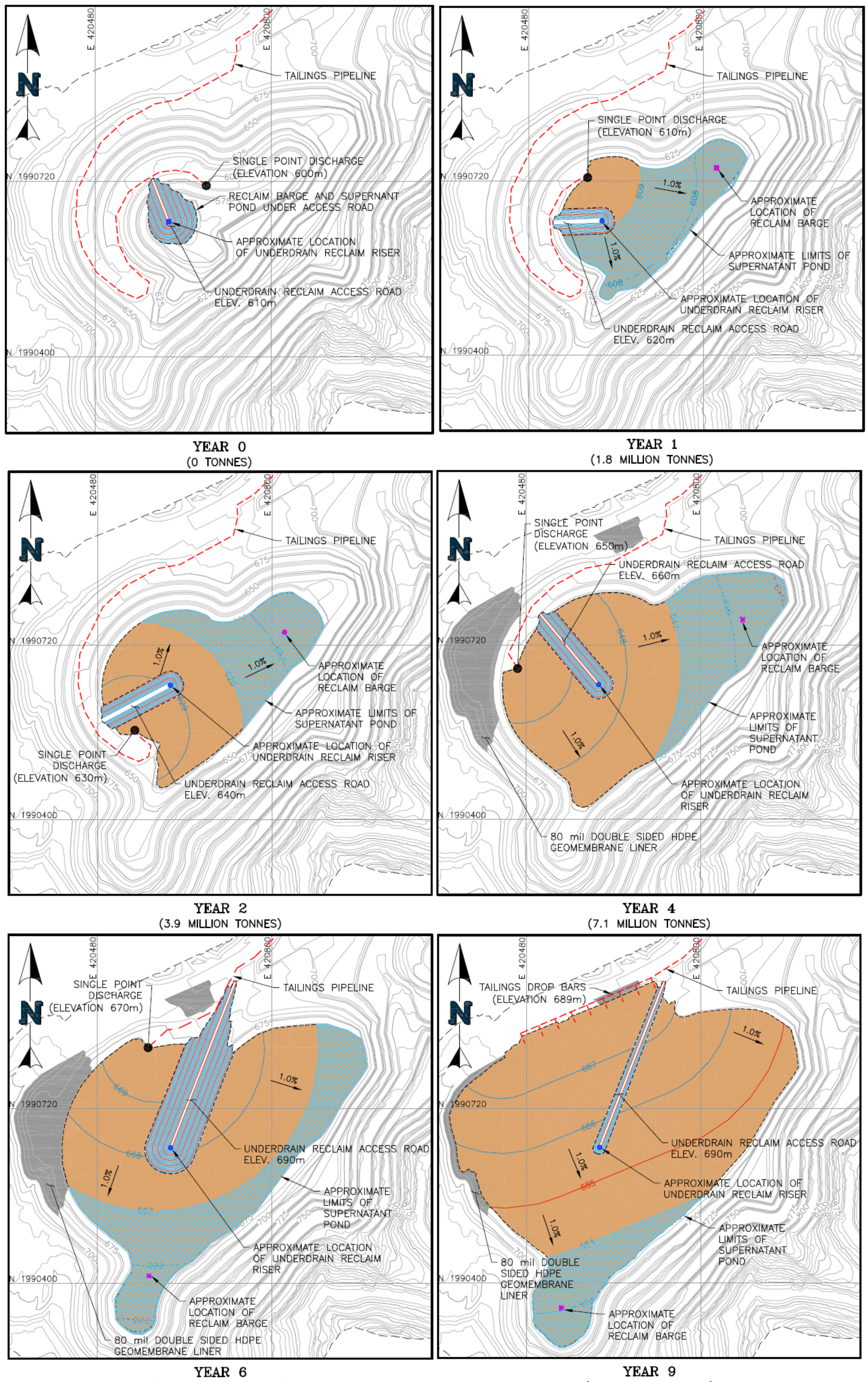


Figure 18-13: Guajes Pit Tailings Storage Facility Filling Time Steps

In Year 3 of the ML mine, the GTSF will require the installation of a geomembrane liner in areas where the waste rock has been placed above the pre-mining natural ground surface in the northern and eastern perimeter of the West Guajes Pit (see Figure 18-13). In this area, the original pit rim is low, and the area is needed to accommodate all tailings from the ML Project. This waste rock was placed in this area prior to when the GTSF was envisioned and was installed with minimal compaction effort. To decrease the permeability of at these locations, the waste rock face will be reshaped with a layer of geomembrane bedding material placed on the slope and overlayed with a High-density Polyethylene (HDPE) Geomembrane liner. The liner will be anchored to the rock around the perimeter of the pit utilizing a concrete plinth. The grey shaded areas in Figure 18-13 illustrate the area required to be lined with geomembrane. Costs for the lining of this area are included in the Sustaining Capex costs.

18.12.2.1 GTSF Hydrogeology & Geochemistry

Bedrock units in the Guajes Pits area include hornfels of the Mezcala Formation, granodiorite, feldspar-biotite-hornblende-quartz porphyry (FBHQ), skarn, mafic dykes, and marble of the Morelos Formation. The hanging wall of La Amarilla Fault, which intersects the pits, generally consists of granodiorite and hornfels with occasional FBHQ. The footwall of La Amarilla Fault includes the granodiorite, hornfels, and FBHQ, as well as skarn and marble. Argillic alteration and associated discontinuous breccia zones occur throughout the hanging wall of La Amarilla Fault.

Bedrock at ELG is generally characterized by low hydraulic conductivity regardless of rock type. Marble is an exception and is often characterized by higher yet still moderate hydraulic conductivity values. Hydraulic conductivity generally tends to decrease gradually with depth. Marble is an exception to this trend because it has dissolution widened joints and voids that can withstand increased overburden pressure at depth and remain open and conductive.

The hydraulic conductivity of the La Amarilla Fault gauge zone does not appear to be appreciably different than the surrounding bedrock. In addition to La Amarilla Fault, there are other faults intersecting or in the vicinity of the ELG site. Shallow packer test results suggest that the Range Front and Tailing South Faults have low hydraulic conductivity. However, the occurrence of low-yielding springs and seeps along the inferred fault traces suggests that these faults may have more jointing and slightly higher hydraulic conductivity relative to adjacent bedrock. The hydraulic characteristics of La Flaca Fault could not be determined during the 2012 field campaign, but the fault was observed to exhibit clay gouge that likely has low hydraulic conductivity.

Groundwater movement generally follows the topography, with a preferential flow path along the marble of the Morelos Formation. Due to the enhanced hydraulic conductivity of marble and continuous occurrence from upgradient locations at the Guajes Pits to downgradient potential discharge points at the Balsas River, the marble has been identified as a potential preferential flow path for groundwater at ELG.

To support design of the ML Project, a numerical groundwater flow and solute transport model was developed that includes the GTSF and surrounding area (NewFields, 2021j). Two tailings management strategies were evaluated for the GTSF. Notably, sub-aerial deposition of non-PAG Fe-S Tails in the Guajes West Pit and either sub-aqueous or sub-aerial deposition of blended Fe-S Tails and Fe-S Cons at approximately 85% Fe-S Tails and 15% PAG Cons (average). At closure, a layer of low sulfide non-PAG Fe-S Tails will be placed over the blended tailings above the water table as a diffusive cover. Geochemical characterization studies indicate that when Fe-S Tails and Fe-S Cons are blended at a ratio of at least 80:20 percent, there is a very low potential for acid drainage in subaerial or subaqueous storage conditions, and consequently, there is a low potential for contaminants of concern to leach from the tailings (NewFields, 2021c. When the storage mixture is greater than 20% Fe-S Cons, there is a potential for acid drainage and an elevated potential for contaminants of concern to leach from the tailings.

Arsenic, sulfate, and cyanide were selected as contaminants of potential concern for transport simulations because these constituents are estimated to occur in the tailings leachate at concentrations above Mexican water quality standards (NewFields, 2021b). Sulfate affects taste and odor and can cause health effects at high concentrations.

Also, sulfate represents a highly mobile non-reactive constituent and arsenic and cyanide represent lower mobility more reactive constituents.

Source term concentrations for sulfate, arsenic, and cyanide are based on laboratory results for Fe-S Tails and Fe-S Cons. Two source terms were modelled including: 1) a first flush concentration that represents interstitial pore water contained in the tailings and 2) long-term concentrations that result from oxidation reactions. The timing for transition from first flush concentrations to long-term was estimated at approximately 70 to 100 years, depending on the volume of tailings stored in the GTSF. Although it is planned to store Fe-S Tails and Fe-S Cons in the GTSF at a ratio of 85:15% during the ML Project, and acidic conditions are not anticipated, source terms associated with acidic conditions were modelled to assess the inherent risk of storing Fe-S Cons in the GTFS and to ensure that conservative source terms were used in modeling.

The main conclusions and findings of the groundwater and contaminant transport modeling are as follows:

- It could take from 7 to over 75 years for water to migrate from the proposed GTSF to potential downgradient receptors.
- Based on conservative model assumptions for an unlined GTSF with no under drainage collection, and no low permeability cap at closure assuming conservative source terms, the model predicts:
  - Sulfate will not migrate to the Balsas River or Caracol Reservoir at concentrations that exceed NOM-127 standards for potable water.
  - Sulfate will not migrate to the Palo Amarillo Spring at detectable concentrations.
  - Arsenic and cyanide will not migrate significantly from the Guajes West Pit and will not exceed NOM-127 standards for potable water in downgradient groundwater.

Lastly, as discussed below, a containment strategy that involves pumping from wells could be implemented to mitigate non-compliant discharge to potential surface water receptors, in the event that concentrations of Constituents of Potential Concern (COPCs) are significantly higher than expected.

18.12.2.2 GTSF Engineered Controls

The following engineered controls have been designed to allow Torex to manage the risks associated with tailings storage in the GTSF. The layers of protection methodology has been adopted.

Control 1: A monitoring system will be established for the GTSF consisting of a ground radar system and bathymetric surveys. The ground radar system will be used to monitor pit rim and bench stability during in-pit tailings placement. The system will enable displacement monitoring of the pit rim and benches and the data from this system will be used by the Engineer of Record to perform periodic performance assessments of the GTSF. If the pit wall performance is unsatisfactory, then ground control will be implemented to correct the performance deficiency and/or the tailings management strategy will be revised such as returning to filtered tailings storage in the FTSF and/or raising the pit rim level as required. Additionally, bathymetric surveys will enable the Engineer of Record to estimate the density of the stored tailings and to monitor adherence to the tailings deposition plan.

Control 2: Tailings handling, and conveyance systems have been designed to maintain the Fe-S Tails to Fe-S Cons ratio in the GTSF below 85:15%. The purpose is to prevent ARD and to maximize the delivery of Fe-S Cons to the ML Paste Plant. Also, the system will be equipped with control systems that enable continuous monitoring of the mass balance of Fe-S Cons and Fe-S Tails entering the pit, tailings and supernatant levels, and the quantities of reclaim water pumped from the pit to Guajes Thickener then to the reclaim tank. All data will be visible in the Plant Control room, which also ties into Plant Operation and Paste Backfill Operation. A trigger action response plan will be enacted defining the operator response to elevated percentages of Fe-S Cons in the pit.

Control 3: The underdrain system described previously will be used to operate a hydraulic trap. During mining, the water level in the underdrain system will be kept consistently lower than the supernatant pond level and surrounding groundwater levels by pumping. Under this condition, groundwater gradients and flows in the vicinity of the pit will be toward the underdrainage system rather than away from the pit to the environment. The water pumping from the underdrain system will be discharged into the supernatant pond and reclaimed for use in the process.

Control 4: In the event that the plant loses control of the Fe-S Tails to Fe-S Cons ratio in the pit, a water cover can be established on the tailings to prevent oxidation of the tailings during the mining until a low sulfide diffusive cover can be placed on the tailings at closure.

Control 5: Lastly, groundwater wells will be installed downstream of the GTSF in the marble zone associated with the La Amarilla Fault. If the concentrations of COPCs in the groundwater are too high, then these groundwater wells can be converted to pumped wells to create a hydraulic trap and the water captured by this system can be reclaimed for use in the process.

The preceding controls establish multiple layers of protection (or lines of defense) and will be the principal measures used to manage the GTSF risk.

18.13 WATER MANAGEMENT

18.13.1 ELG Water Management

Amec Foster Wheeler designed the existing water management infrastructure for the ELG Mine Complex (site) during the original build (Amec 2012, 2014b, 2014d, 2015a, 2015c). The main water inflows to the site are runoff, groundwater, and lastly fresh water, which is drawn from the Atzcala well field. Catchment areas that contribute to runoff at the ELG site are illustrated in Figure 18-14. A major outcome of the Amec Foster Wheeler work was a site water balance model and water management plan for the site. These existing reports have been updated for the ML Project by NewFields and M3 (NewFields, 2021e; ERC, 2022; M3, 2022) based on five years of operational data and this new work is described below.

The existing ELG site water control ponds designed by Amec Foster Wheeler were built in valleys with steep abutment slopes. There are a total of 8 ponds at the ELG site and they are classified as either process ponds or sediment ponds. Ponds 1, 2, 3, and the Central Water Pond (CWP) are process ponds and Ponds 5, 6, 8 and 9 are sediment ponds. The water management strategy employed is summarized below:

- All runoff and seepage from the FTSF, open pits, and plant are collected in water management ponds.
- Water management ponds 5, 6, 8 and 9 were designed to capture and remove sediment from runoff prior to discharge to the environment. The sediment ponds were designed for the settling of suspended solids for the 10-year, 24-hour storm. A minimum detention time of 10 hours was set for these ponds while having a maximum total suspended sediment concentration of 60 mg/L in accordance with Mexican standard NOM001-SEMARNAT-1996. Ponds 5 and 6 discharge to East Creek, which flows into Rio Cocula. Pond 8 discharges to the Presa de Caracol and Pond 9 discharges to the Rio Balsas. The sediment ponds were constructed with HDPE geomembrane-lined spillways to safely pass design storms and geotextile on the upstream slope of the embankment to allow for controlled seepage through the embankment. Surface water and groundwater monitoring is conducted at downstream downgradient locations.
- Pond 1 is fully lined with a low permeability HDPE geomembrane. Ponds 2, 3 and the CWP were constructed with a low permeability HDPE geomembrane liner on the upstream slope of the embankment and spillway. Pond capacities are as follows: Pond 1 – 46,500 m^3; Pond 2 – 88,000 m^3, Pond 3 – 207,000 m^3; and the CWP

– 262,000 m^3. Seepage collection systems are operated at the embankment toes at Ponds 1, 2 and the CWP, and groundwater and surface water monitoring are conducted at downstream and downgradient locations.

- Water from Ponds 1, 2, and 3 are pumped to the CWP. Water from Pond 3 and the CWP are recycled in the mill or filter buildings or sent to the GE Pit.
- Pond 3 is designed to flow by gravity to the CWP during flood events exceeding the Environmental Design Flood (EDF).
- The process ponds (1, 2, 3 and CWP) were designed to have no unplanned discharge during the EDF which was determined by Amec Foster Wheeler to be the 100-year, 24-hour design storm.

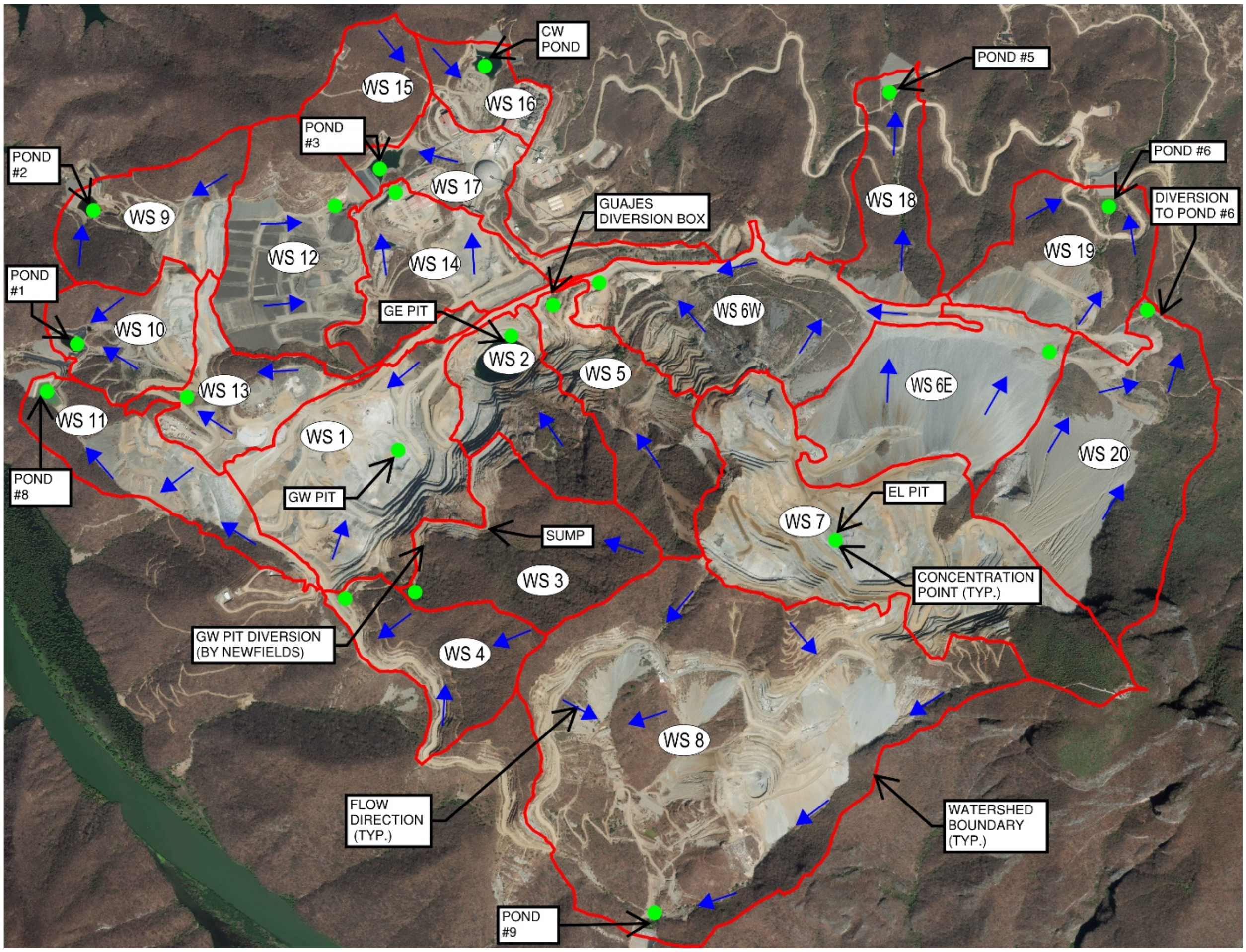


Figure source: M3, 2022

Figure 18-14: Watershed Map for ELG Site

18.13.1.1 ELG Site Water Balance

The existing ELG site water balance flow diagram is presented in Figure 18-15. The ELG Process Plant is designed to be a closed circuit for water for all precipitation up to the 1:100 year flood referred to as the EDF. The main water-consuming uses include:

- Plant make-up water to account for the loss of water to the filtered tailings

- Fresh water for the SART Process
- Domestic and Potable usage
- Service water to support drilling operations
- Dust control water in the mine and process plant

The main water that requires management is surface run-off from precipitation. The central collection point for contact water management is the CWP although Ponds 1, 2, 3 and the CWP are used collectively to store water. The following is a description of the Water Balance utilizing the CWP as the center point. A detailed description of the water management system is presented in Section 18.13.1.2.

The known sources of water inflows to the CWP are:

- Pumped water from Pond 3 (which includes water pumped from Ponds 1 and 2 to Pond 3)
- Runoff from surrounding catchment areas including the plant site.

The water outflows from the CWP are as follows:

- Evaporation
- Water recycled to the plant for processing
- Water lost due to seepage (considered insignificant)

The design of the CWP allows for discharge to the environment during very high rainfall events, which exceed the EDF or from accumulated runoff during the wet season. Generally, there is less than a 1% chance of discharge due to rainfall events or wet season rainfall, and thus far discharge has not been necessary.

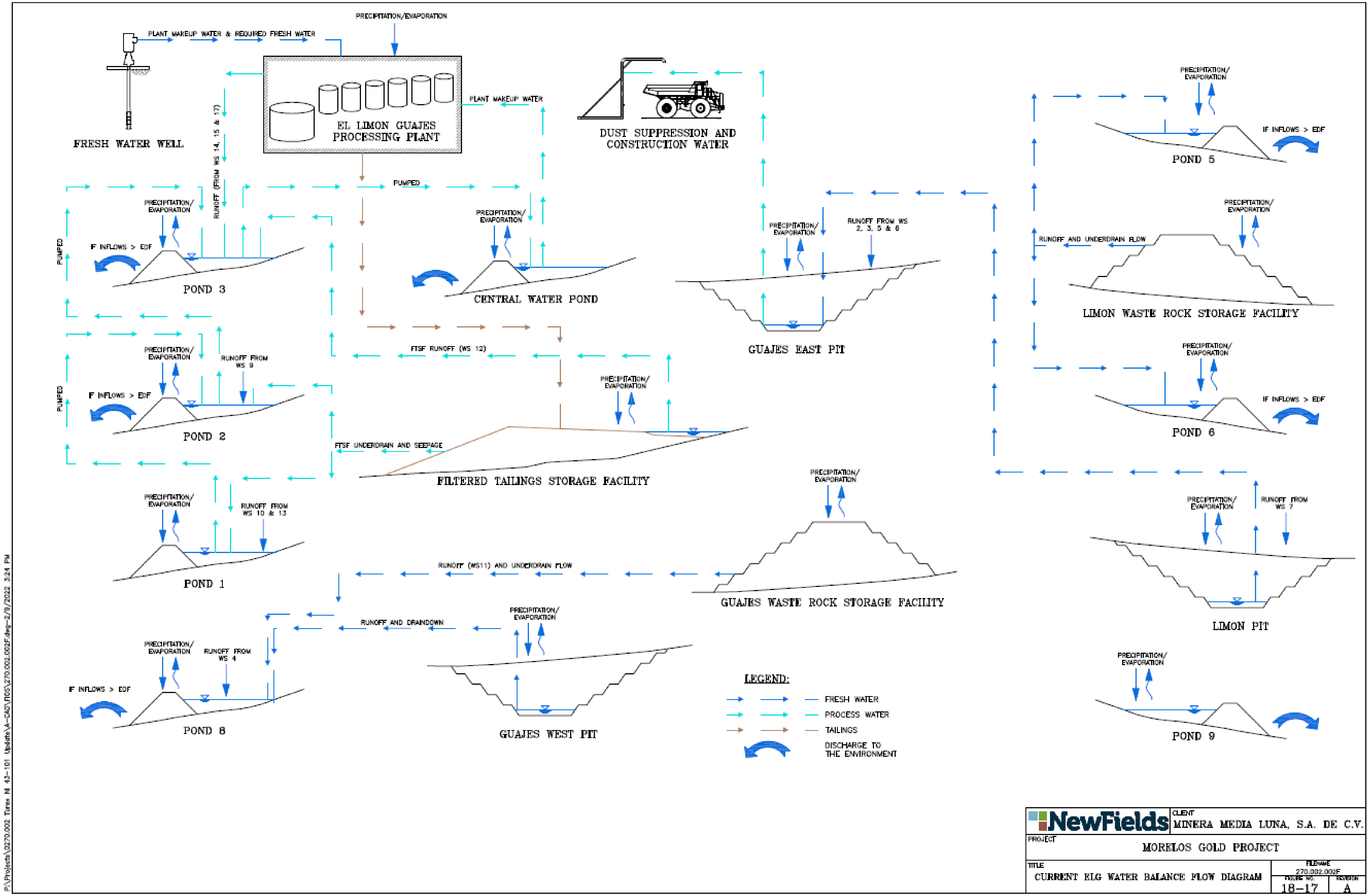


Figure 18-15: ELG Existing Site Water Flow Diagram

18.13.1.2 ELG Water Collection and Reuse

The water management system is operated to collect, reuse and to monitor the water quality prior to release. As noted above, the ELG Process Plant is a closed system and there is no release of plant process water. The focus of the ELG water management system is to maximize recycling and minimize the potential impact to the environment of runoff from rain events.

A primary objective of the existing water management plan is to divert stormwater runoff around the FTSF and plant areas to minimize the amount of water that contacts with mine waste or disturbed areas. This water, referred to as non-contact water, is collected in diversion channels and directed to sediment ponds to remove suspended solids prior to release to the environment. Non-contact water at the ELG Mine Complex consists of runoff from undisturbed areas and from non-PAG areas such as WRSFs and the open pits. Water that does contact with the FTSF and plant areas, referred to as contact water, is collected, managed, and used for process makeup water. The runoff from the waste rock buttress of the FTSF is routed into Pond 1 and Pond 2 and this water is pumped to Pond 3 and the CWP for reuse in the process. This is due to portions of the WRSF being located in the same drainage as the FTSF.

The following sections describe the water management plan for each of the main areas within the ELG Mine Complex.

18.13.1.2.1 ELG Mine Water Management

Groundwater inflow and precipitation that falls directly on the Guajes East and Guajes West open pits have been managed using dewatering wells and pumping from an in-pit sump. Twenty-three wells were installed, and two bedrock dewatering wells were equipped with pumps to intercept groundwater that would otherwise flow to the pits. Operation of these wells ceased because they were determined to be ineffective due to the low transmissivity of the metamorphosed rock units that surround the Guajes Pits. In 2017, 26 horizontal slope depressurization drains were installed in the Guajes East and West Pit areas to lower pore water pressures within the adjacent rock mass. The purpose of the drains was to reduce the risks associated with excessive slope water pressures. The drains were inclined upward at 3 to 8 degrees and were constructed of 5-inch diameter steel casing to lengths from 70 to 190 m with a total length drilled of 3,480 m. Flow rate data indicate that initial flow rates were generally low (below 0.2 L/s) and declined over time. The drains are currently operational and continue to lower pore pressures in the pit walls.

During the wet season, groundwater inflow and runoff periodically accumulate in sumps in Guajes West Pit. The water is pumped, as needed, from the sumps to piping that connects to onsite Pond 8. Pit wall materials are non-PAG; therefore, following sediment removal in Pond 8 the water is discharged to the environment.

Runoff is routed to the Guajes East Pit Lake from adjacent catchments, including the El Limón pit, (Watersheds WS 2, 3, 5 and 6 from Figure 18-15) to increase the amount of water stored. Groundwater inflow also contributes to pit lake storage. This water is used for dust control and drill makeup water at ELG, which minimizes the demand for freshwater makeup from the Atzcala wellfield and helps to improve the current negative water balance. The pit sometimes requires dewatering after rain events. A diesel-powered sump pump removes water from the pit and the pumped water is routed under the haul road to onsite Pond 8.

Since groundwater seepage is minimal, the pit dewatering systems have been designed to dewater the pits in 48 hours after a 1:10 year rain event. Based on hydrological analyses, pumps with a capacity of about 1,500 m^3/hr, 1,000 m^3/hr and 350 m^3/hr are required to dewater the Guajes, El Limón and El Limón Sur open pits, respectively.

Groundwater also collects in sumps in the El Limón Sub-Sill and El Limón Deep underground mine. The water is routed from the sumps to a weir system that allows water with a reduced sediment load to be decanted and pumped to a water tank where it is contained and re-used to the extent possible. To facilitate efficient mining operations, any excess water is pumped from the water tank and routed to Pond 9 via surface water diversion channels.

When the Mine is operational and tailings are being managed in either the ELG FTSF and/or the GTSF, mining at ELG and all associated pit and underground dewatering would have ceased. However new dewatering flows or excess water will be generated from the ML Access Tunnel and Mine. The Guajes East Pit will be the first location that excess water from the ML Mine and Access Tunnel will be stored. Depending on the rates of this excess water and if the rates significantly exceed current ELG dewatering rates, additional adjustments to the runoff routing from adjacent catchments may need to be made so that non-contact water is not stored in the Guajes East Pit but instead routed to the environment.

18.13.1.2.2 ELG FTSF Water Management

Runoff and underdrainage from the FTSF are collected in Ponds 1, 2 and then pumped to Pond 3 and depending on pond levels water from Pond 3 is pumped to the CWP. Also, runoff from the active tailings surface of the FTSF is collected in temporary sumps that are periodically pumped to Pond 3.

The ponds were designed to prevent unplanned discharge to the environment and were designed to contain the EDF. The 1 in 100 year return period flood was adopted as the EDF for watersheds that contact the pits and FTSF, which includes Ponds 1, 2, 3, and the CWP. The spillways were designed to discharge extreme events that exceed the EDF, up to the Threshold Design Flood (TDF), which is the maximum event that a facility can manage without potential damage. The TDF, which was varied based on time of exposure and potential consequences of failure, is the 1:5,000 year flood for Ponds 1 and 2, which is consistent with the Mexican CONAGUA guidelines. The TDF for Ponds 3 and CWP is the Probable Maximum Flood (PMF) due to the greater potential consequences of failure.

Spillways for Pond 1 can discharge water to the Balsas River and for Pond 2 can discharge to Cocula River. Pond 3 spillway discharges to the CWP and overflow from the CWP can discharge to an existing creek flowing north towards the Cocula River. It is also noted that no outflows have occurred to date.

The FTSF water management system will change when the mine operations transition from the ELG operations to the ML Mine operations. After commissioning the GTSF for the ML Project, the FTSF will be placed in a state of care and maintenance and measures will be implemented to minimize infiltration of direct precipitation but contact water will continue to report to the underdrains and then to Ponds 1 and 2 for some period after closure. Detailed closure planning will be carried out to allow portions of the FTSF to be used again in the future once the GTSF reaches its design life. The underdrain flow will continue to be stored in ponds and used for plant makeup water.

18.13.1.2.3 ELG Plant Site Water Management

The plant site (WS 12, 14, 15 and 17) currently drains to either Pond 3 or the CWP and water from Pond 3 is pumped to the CWP depending on the operational needs of the ELG Process Plant. As noted above, the overflow spillway at the CWP will safely discharge water from events exceeding the EDF up to the PMF. Runoff management from the plant area will not change when the mine operations transition from the ELG to ML Mine operations.

18.13.1.2.4 ELG WRSF Water Management

Ponds 5, 6, 8 and 9 are designed to capture and settle solids in the runoff and underdrainage from the WRSFs, as summarized below.

- Runoff and underdrainage from the El Limón WRSF report to Ponds 5 and 6;
- Runoff and underdrainage from the Guajes West WRSF are routed to Pond 8;
- Runoff from the El Limón Sur WRSF report to Pond 9;

The overflow spillways associated with these ponds are designed to convey runoff from the 1:5,000-year return period storm event without overtopping the dams. Spillways for Ponds 5 and 6 discharge into existing natural creeks flowing north to the Cocula River, whereas the spillways for Ponds 8 and 9 discharge to valleys, which flow to the Balsas River.

The water management system associated with the ELG WRSFs are not expected to change when the mine operations transition from ELG mining to Media Luna Mine operations. However, if dewatering flows from the ML Mine and access tunnel are significantly higher than the current ELG dewatering flows, then runoff from catchments that are currently routed to the East Guajes Pit may be diverted to Ponds 5 and 6 and then to the environment if the runoff is non-contact water.

All of the Ponds have been designed to meet the following design criteria to ensure long-term stability.

- End of construction condition and steady state long term: minimum factor of safety of 1.5
- Pseudo-static factor of safety corresponding to 1:500 return period seismic event of 1.1 or greater

18.13.1.2.5 ELG Adaptive Management Planning

An Adaptive Management Plan has been developed and may need to be enacted if runoff and seepage from the WRSFs exceed relevant water quality guidelines for release. Currently, runoff from the WRSFs does not exceed water quality guidelines and is collected in sediment control Ponds 5, 6, 8 and 9 and either evaporates or is allowed to discharge to the environment. Also, plant runoff and contact water from the FTSF is collected in Ponds 1, 2 and 3 and pumped to the CWP for reuse as process water. As discussed above, Ponds 1, 2, 3 and the CWP have been designed as a system to contain contact water and runoff from the 1:100-year rainfall event (EDF) in combination with pumping to redistribute the storage. Also, the upstream slopes of all dams constructed for Ponds 1, 2, 3, 5, 6, 8, and 9 and the CWP are designed with a geomembrane liner as a low permeability element to mitigate seepage to the environment.

Operational monitoring data will be collected and used to inform the need for enacting the adaptive management plan as described by NewFields in a report entitled: Operational Water Management Plan (NewFields, 2021e).

18.13.1.3 ELG Water Recycle System

During construction of the Guajes Tunnel, mine water from the ML Mine will be pumped to two recycling lines located on the 784 m elevation pad above the Guajes portal equipped with screens, centrifuges, and oil separators to remove fuel contaminants and solid particles. Recycled mine water from one line will initially be pumped back into the tunnel for reuse in drills but as the mine develops, the recycling equipment at the Guajes Portal may be relocated to the underground mine to avoid long pumping distances. The second recycling line outside the Guajes Portal will discharge clean water to the Guajes East pit which will act as a freshwater reservoir for the underground operation and as a backup supply for the process plant. Sludge removed from the water will be trucked to the west waste rock storage facility. When production mining begins, the water recycling systems will primarily receive water from the main underground sump and discharge all the clean water to the Guajes East pit.

18.13.2 Media Luna Water Management

18.13.2.1 Media Luna Site Water Balance

The new facilities and processes for the ML Project does result in some modifications to the ELG site water management, and the overall site water flow diagram for the future conditions is presented in Figure 18-16. From a hydrology and water management perspective, the addition of the ML Project to the existing ELG Mine Complex will primarily impact tailings storage at ELG, and increase the amount of water that needs to be managed due to the addition of excess mine dewatering flows from the ML Mine to the ELG Mine Complex, and potential reductions in the quantity of water required from the existing Atzcala well field.

A water balance model was developed to evaluate the movement of water throughout the site and the GTSF to estimate water storage, flow rates, and potential operational changes for contact water (ERC, 2022). The water balance model was programmed to run from January 2021 through December 2032 using monthly time steps. The model was run using a Monte Carlo probabilistic analysis consisting of 100 simulations. A simplified illustration of the movement of water that will be used to meet project makeup water demands is presented in Figure 18-16. As illustrated, water required for dust suppression will be met using water stored in Guajes East Pit and from fresh water from the Atzcala well field. Mill makeup water demands will be met from a variety of sources, including the following in order of usage:

- Contact water from the CWP and Pond 3 (feed by Ponds 1 and 2)
- Reclaim water from the GTSF that is routed to the Guajes thickener and subsequently to the ELG Process Plant
- Paste plant thickener overflow
- Excess dewatering flows from the ML Mine that are routed to Guajes East Pit and used in the ELG Process Plant as needed.
- Fresh water from the Atzcala well field.

One of the main uncertainties associated with the site water balance is the amount of water required to be managed due to dewatering of the ML Mine including the access tunnel. To address this, the water balance model was run assuming 0, 25, 40 and 55 l/s water from the ML Mine and management plans were developed to deal with the water shortfall or excess depending on the excess flow rate.

The water balance model is a decision support tool that will be used to assess and plan for necessary storage capacity on site to avoid spills to the environment. The model results suggest the following:

- Ponds 1 and 2 can retain the EDF without spilling, even when higher estimates of excess water from the Media Luna Mine are considered. Operational procedures will be developed during the next project phase to ensure the pond volumes are managed correctly.
- Pond 3 and the CWP are connected by a spillway so they can be managed as a single facility to reduce the risk of spills. No spills are predicted when the EDF (1:100 year) runoff volume is added to the ponds during simulating average and wet (95th percentile monthly precipitation) years provided the ponds are operated correctly. Proper operation will involve prioritizing the use of reclaimed pond water in the plant during the wet season over the use of fresh water from the Atzcala well field. The goal will be to optimize pond levels to ensure that necessary inventory is maintained to meet the plant makeup demand and at the same time provide storage capacity to accommodate runoff from a major rainfall event. Care will be required to manage large rainfall events that occur late in the wet season when plant operators require high pond levels to ensure adequate storage for the coming dry season. Operational procedures will be developed during the next project phase to ensure the pond volumes are managed correctly.
- As a system, Ponds 1, 2, 3, CWP and the Guajes East Pit can meet both the site water needs and store the EDF without spilling during average or wet (95th percentile monthly precipitation) years provided inflows from the Media Luna underground mine discharged to the Guajes East Pit do not exceed 40 L/s. However, if inflows from the ML Underground exceed 40 L/s, then spills may occur during the EDF. If this flow reaches 55 L/s, the Guajes East Pit will fill and spill in the absence of a large storm event. To reduce the risk of overtopping, if needed, changes can be made to the ditch systems that currently routes runoff from the El Limón WRSF catchment (WS 6) to the Guajes East Pit. Runoff from this area can be diverted to the environment instead of to the Guajes East Pit subject to the water quality being acceptable. Water from the Guajes East Pit could also be treated and discharged or pumped to the El Limón Pit for storage.

18.13.2.2 Media Luna Mine Water Management

Groundwater and process water for underground development will be recycled for use by mine services as much as practical. Excess water will be piped through the Guajes Tunnel to the Guajes East Pit where it will be cleaned and stored until it can be returned into the mine for water services or used on surface for dust suppression or routed to the process plant reclaim water tank for use as makeup water.

The total estimated water inflow to the ML Project from the ML underground is 34 L/s at the peak and generally declines to 24 L/s at the end of mining. As discussed above, monitoring with adaptive management planning will be required to ensure that water quantities within the pit do not present a risk for spillover. Future surface water diversion systems around the Guajes East Pit will be designed for implementation in the future, if required.

18.13.2.2.1 GTSF Water Management

The GTSF will be operated according to procedures designed to maintain a minimal supernatant pond and to allow efficient capture of excess water from the tailings slurry. Water balance modeling indicates that water can be safely contained in the GTSF (ERC, 2022). Water from the supernatant pond will be pumped to the Guajes Thickener and then to the mill as a reclaim supply to limit the buildup of water inventory in the GTSF. The supply of reclaim water to the mill from the GTSF will be prioritized due to its water quality, and so there is no advantage to using other sources. High runoff during large rainfall events is not considered a significant risk due to the minimal watershed area. The water balance shows that the water in the GTSF reaches a maximum depth of eight meters during extreme flood events and that there is adequate freeboard to prevent overtopping. In the unlikely event that the water inventory in the GTSF had to be reduced to prevent overtopping, a temporary operations "shut-down" would be considered so the water could be pumped to the WTP for treatment prior to discharge to the environment. This shutdown could potentially coincide with mill maintenance to limit impacts on production.

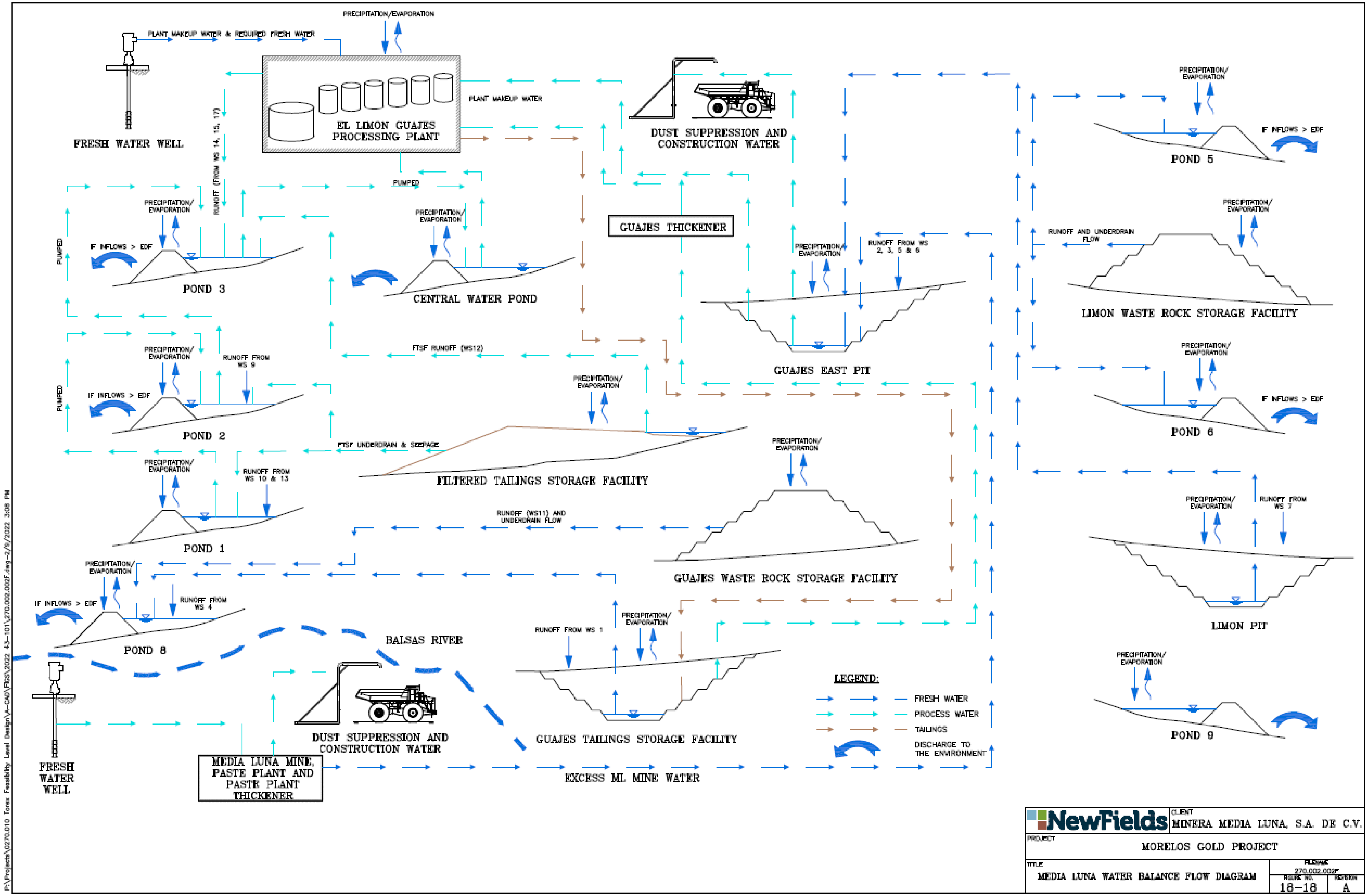


Figure 18-16: Overall Site Water Flow Diagram for Future Operations

18.13.2.3 Media Luna South Portal Drainage Ponds

Three additional ponds will be constructed for the ML Project, notably, two ponds at the South Portal area and a third pond at the MML camp facilities. The South Portal water control ponds consist of two primary ponds, sediment and decant ponds, both located downstream of the South Portal WRSF. The design parameters for these ponds were determined by M3 with the construction plans and details completed by Golder. Each pond has a capacity of 13,000 m^3 and any overflow will pass thru an emergency spillway designed to safely convey the 1:5,000 year design storm downstream. See Section 18.13.2.3 for other information on these ponds.

A sediment pond below the South Portal waste rock storage facility will contain runoff from the SPU pad, and the WRSF, which will comprise nonacid generating (NAG) waste rock. The pond will be formed by a roughly 25m high earth dam that carries the access road to the SPL. This pond has a capacity of 13,000 m^3 and will overflow through a spillway to the Decant Pond below. The level in the sediment pond will be kept as low as possible and can be controlled using the water recycling equipment to reclaim pond water and remove sediment before sending it back to the mine for re-use. The diversion drains on both sides of the WRSF will combine drainage in a drop structure at the base of the facility. It is designed to cancel out velocity of the drainage flow, while allowing it to overflow into the sediment pond enabling natural silt runoff to be captured. Gratings on the drop structures at the culvert inlets of these two diversion drains will prevent major vegetation and tree branches from entering the culverts and reaching the pond. The sediment pond will be lined on the face of the dam only, so that the accumulated sediment can be cleaned out without damaging the liner. The pond will hold approximately 3 years of sediment but will be cleaned annually.

A 13,000 m^3 decant pond below the sediment pond will be a clean water pond that will overflow to the natural drainage. It will have an earthen dam approximately 15 m high, and the pond will be fully lined. It will also be used as a water source for mine use and dust control.

Downstream of the SPL pad will be an unlined sump that will receive runoff from the SPL pad. Water from this sump will be pumped back to the SPU sediment pond if needed as a water source, but mostly it will just be used to remove sediment and then overflow back to the natural drainage. The natural drainage will be diverted around this sump on the south side in a rip rap lined channel.

An additional sediment pond will be constructed to catch all sediment from the west WRSF runoff. The pond will have a volume of approximately 6,000 m^3 and will overflow back to the natural drainage. The natural runoff water will be diverted around the waste rock and bypass the ponds. The majority of the waste rock will be limestone and granodiorite materials, which are classed as non-PAG, but there is a possibility that minor amounts of development within the waste endoskarn units are PAG. It is expected that the minor amounts of PAG material will be buffered within the dumps. Monitoring systems will be established for the facility run-off, and treatment could be considered if required to meet NOM requirements for discharge. The pond locations are shown on Figure 18-9.

Another water control pond will be built south of the existing MML camp facilities. This pond will receive the runoff from the MML camp watershed in addition to the treated effluent from the MML wastewater treatment plant (WWTP). Similar to the other ML ponds, an earth dam will be constructed across an existing valley to form the pond. The dam is approximately 13 meters in height giving a pond capacity of approximately 15,000 m^3. The WWTP pond will be lined on the face of the dam only, so drainage cannot percolate through the pond embankment material. The pond will be used as a water source for mine use and dust control.

18.13.2.4 Media Luna South Portal Water Recycle System

Excess mine inflow and mine service water return will be pumped from both portals to a recycling plant installed adjacent to the SPU sediment pond. This plant will be similar to the one installed at the Guajes Portal to remove solids and oil and fuel contaminants. The water will initially pass through a screen to remove any large solids, then through a centrifuge which will remove most of the remaining solids in a continuous process that discharges the solids to a sludge bin for disposal in the waste rock storage facility. The centrifuge will discharge to an oil separator to remove oil and fuel contaminants. The cleaned water will be pumped back to the South Portal mine water feed tanks for pumping back into the mine for re-use. This plant will be the main supply for water required in the underground mine. Excess clean water will be discharged to the decant pond, or if insufficient water is coming from the mine for continued.

19 MARKET STUDIES AND CONTRACTS

The key points of this section are:

- ELG Mine Complex currently produces doré.
- The ML Project will be put in operation in 2024 and will produce a Cu/Au/Ag concentrate, doré and a copper sulfide precipitate.
- Doré will be refined under the existing contracts with two leading providers of precious metal refining and trading services, and sold to major international banks.
- The Cu/Au/Ag concentrate would be expected to find a wide market place based on its quality.

19.1 DORÉ SALES

The Company has two contracts for refining its gold. One contract is with two affiliated refineries located in the United States and Canada and is for a two-year period ending December 2024. The Company has a second contract with a refiner in Switzerland, with operations in Switzerland and India. This contract has a one-year term to December 31, 2022 and will automatically renew each year for another one-year term, unless either party gives notice to the other party that it wishes to terminate the contract on the anniversary date. The commercial terms and conditions in these contracts have been used in the financial modelling of the ELG Mine Complex.

Refinery treatment, transportation, and deleterious element charges have been agreed to and are typical to charges in the industry. Each contract provides for title to all recoverable metals in process with the refinery or refined Au and Ag in the possession of the refinery to reside with the MML until the Au and Ag is delivered to MML or is purchased from MML by the refinery. Au and Ag sales are expected to be at the precious metal spot prices of the London and New York Metals Exchanges (LME and NYMEX).

The refineries purchase the Ag doré. All Au doré is sold to the lending banks at spot prices or using forward contracts.

19.2 COPPER CONCENTRATE MARKETING

The Cu concentrates are marketable to a range of large, reliable smelters, trading houses and blending facilities. Due to their high Au and Ag content, the concentrates are not suited for all smelters and destinations and will be sold and delivered to smelters/receivers with the best precious metal recovery capabilities.

19.2.1 Product Specification

The Cu concentrates to be produced at the ML Project are considered mid-grade Cu with high precious metals and minor deleterious elements. The concentrate quality may vary according to the ore zones from which the ore is mined.

With limited capacity for blending ore from different zones, from time to time it may be necessary to blend concentrates in the new concentrate storage shed. The requirement for blending will be determined by the variability of the concentrate and will generally be done to produce a homogenous concentrate so that Cu smelters can optimize their own concentrate blending and maximize plant recoveries. The primary element requiring consistency is Cu. Variability in Au and Ag, whilst not desirable, can be more easily managed.

With a D_{80} target of 30 - 35µm, the concentrate is classified as fine. Depending on moisture content, bulk handling of the concentrate may cause generation of dust. This can be managed by the application of fine mist sprays during stockpiling and loading operations.

At the expected “typical” concentrate quality, there are two deleterious elements in the concentrate that may trigger a penalty, bismuth and cadmium. There are no fixed rules for penalty thresholds and penalty charges are often applied (or not) considering the overall concentrate quality, the supply/demand balances at the time of sale, the type of smelting process in use, as well as in consideration of the smelters capacity to manage the impurity.

19.2.2 Potential Markets

Notwithstanding a potential penalty for bismuth and cadmium, the Cu concentrates will be widely accepted by both traders and smelters.

With high Au and Ag grades, the maximum payable percentages will come from receivers with the best processes for recovering Au and Ag. The higher their metal recoveries, the higher the potential payable percentage.

With the expected broad acceptance in the marketplace, the concentrates will be sold to receivers that are technically compatible for maximum precious metal recovery, and receivers that offer a logistical advantage. These arrangements will be within industry norms.

Since the ML Project is presently under development, sales contracts for metal concentrates projected to be produced are premature. Smelter agreements for the treatment and refining of Cu concentrate would be put into place just prior to the time ML Project would go into production.

19.2.3 Treatment & Refining Charges

Benchmark treatment charges and refining charges (TC/RC's) for clean, standard grade Cu concentrates have averaged $81 per dry metric tonne of concentrate and 8.1 cents per payable pound of Cu ($81/8.1) over the last 10 years (2012 – 2021), and averaged $72/7.2 over the last 22 years (2000 – 2021).

Treatment and refining charges are highly influenced by supply of copper concentrates available in the market place as well as demand for copper concentrate by smelters. The demand by smelters is highly influenced by smelter capacity.

This study uses a treatment charge of $80 per dry metric tonne and a refining charge of 8 cents per payable pound of Cu which are within industry norms.

19.3 METAL PRICES

Metal price forecasting is a complex activity that is practiced principally by government entities, banks, investment & trading houses, large mining companies and mineral related consulting firms. Forecasting prices is speculative by nature and warranting caution in analysis; significant projected changes, especially by governmental entities, could lead to materially different outcomes. Thus, there is a need to exercise caution when predicting future prices.

Conrad Partners Limited undertook an extensive review of Cu supply/demand from several sources; public domain (government, international NGO's, industry bodies and available corporate data), proprietary experts, industry consultants and in-house data. The review included forecast economic parameters and factored in best-estimate assessments. The results of this study support the assumptions being used in this Technical Report.

For the purpose of this Technical Report, Torex is exercising caution and is using the metal prices as developed and presented in the Section – 22 – Economic Analysis of this Technical Report.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 INTRODUCTION

The following subsections outline the key environmental and social aspects relevant to the Morelos Complex, which includes the El Limón Guajes (ELG) Mine Complex and the Media Luna (ML) Project. Key laws and regulations applicable to the operation of ELG Mine Complex and ML Project are summarized, including the key environmental permits secured to date and outstanding permits required.

As per Mexican environmental impact assessment regulations, a Regional Environmental System (RES) was established to delineate boundaries for assessing project-related environmental and social impacts related to the Property. An overview of the RES is provided in Section 20.4, including key environmental and social components, which are based on environmental and social baseline studies completed by the Company to date.

An overview of the Company's Environmental and Social Management System (ESMS) is provided in Section 20.5. This includes an overview of key environmental and social management and monitoring plans. Mine closure plans and associated costing are provided in Section 20.8.

An overview of the socioeconomic environment surrounding the Morelos Complex is provided in Section 20.9, including a description of key social issues relevant to the ML Project. External performance, disclosure, and reporting standards are summarized in Section 20.10 to highlight the voluntary Environmental, Social, and Governance (ESG) standards adopted by Torex.

The key points of this section 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 robust management systems in place to ensure ongoing regulatory compliance.
- The ELG Mine Complex has authorized permits allowing for operations. An environmental permit modification ("MIA Modification") was granted in March 2021 to allow for early works outside of the existing permit boundary to access the Media Luna deposit. In July 2021, the Company applied for a 'MIA-Integral' to allow for integrated operations at the ELG Mine Complex and ML Project. There are no major technical or social risks that have been identified, and approval is expected in the first half of 2022. In addition, the Company will require authorization from energy authorities to increase the power draw and distribution required for the ML Project, through a connection to the regional 230 kV power line system for the higher electricity loads for Media Luna.
- The Company has secured all required surface rights to land for the direct development and operation at both the ELG Mine Complex and ML Project through long-term lease agreements with Ejidos and local landowners. A number of baseline environmental studies, some of which were updated in 2021, have been carried out to characterize the environmental setting for both the ELG Mine Complex and ML Project. The area has a tropical climate with wet and dry seasons. There is a high level of biodiversity, including fauna and flora that are classified with special protections.
- The existing operations and ML Project have established environmental monitoring systems to comply with Mexican regulations. 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. There are no active violations of environmental compliance.
- A conceptual closure plan for the integrated Morelos Complex, including the ML Project, was updated based on the Life-of-Mine designs. The estimated closure cost is approximately US$92.6 million.
- The Morelos Property is located in a mountainous, rural area with agriculture, fishing and mining representing the three biggest economic sectors. A number of small communities surround the ELG Mine Complex and

Media Luna. Relationships with local communities are positive, and the Company has participatory community development agreements (CODECOPs) in place with the key nine communities in close proximity to the ELG Mine Complex and two key communities in close proximity to ML Project. The Company continues to focus on local economic development through these agreements, additional direct community investment as well as local employment and local procurement initiatives.

- The Company has committed to the continuous improvement and disclosure of material environmental, social and governance ("ESG") information through its commitment to implement voluntary sustainability standards such as the World Gold Council Responsible Gold Mining Principles ("RGMPs"), the International Cyanide Management Code ("ICMC"), "Industria Limpia" (Clean Industry) certification granted by the Mexican federal agency responsible for the enforcement of environmental laws, and potentially the Global Industry Standard on Tailings Management

20.2 REGULATORY, LEGAL AND POLICY FRAMEWORK

20.2.1 Environmental Regulations

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.

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 the following 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*, "CNF")	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.

SEMARNAT Unit	Function
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 Security, 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.

Like other Federal agencies, SEMARNAT issues Official Mexican Standards (*Normas Oficial Mexicana*, "NOMs"), which are mandatory technical regulations that establish rules, specifications, and/or requirements. Key NOMs relevant to ELG and ML Project are listed in Table 20-2 below.

Table 20-2: List of Official Mexican Standards Applicable to Torex's Operations in Mexico

NOM	Description
NOM-001-SEMARNAT-1996	Wastewater discharge into national waters and national lands
NOM-003-CONAGUA-1996	Water extraction and wells construction
NOM-052-SEMARNAT-2005	Identification, classification and lists of hazardous waste
NOM-059-SEMARNAT-2010	Flora and fauna protection, including at-risk species
NOM-081-SEMARNAT-1996	Noise emissions
NOM-083-SEMARNAT-2003	Urban solid waste management
NOM-120-SEMARNAT-2011	Environmental protection specifications for mining exploration activities
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-155-SEMARNAT-2007	Environmental protection specifications for gold and silver leaching systems
NOM-157-SEMARNAT-2009	Mine waste management plans
NOM-161-SEMARNAT-2011	Special handling waste and management plans

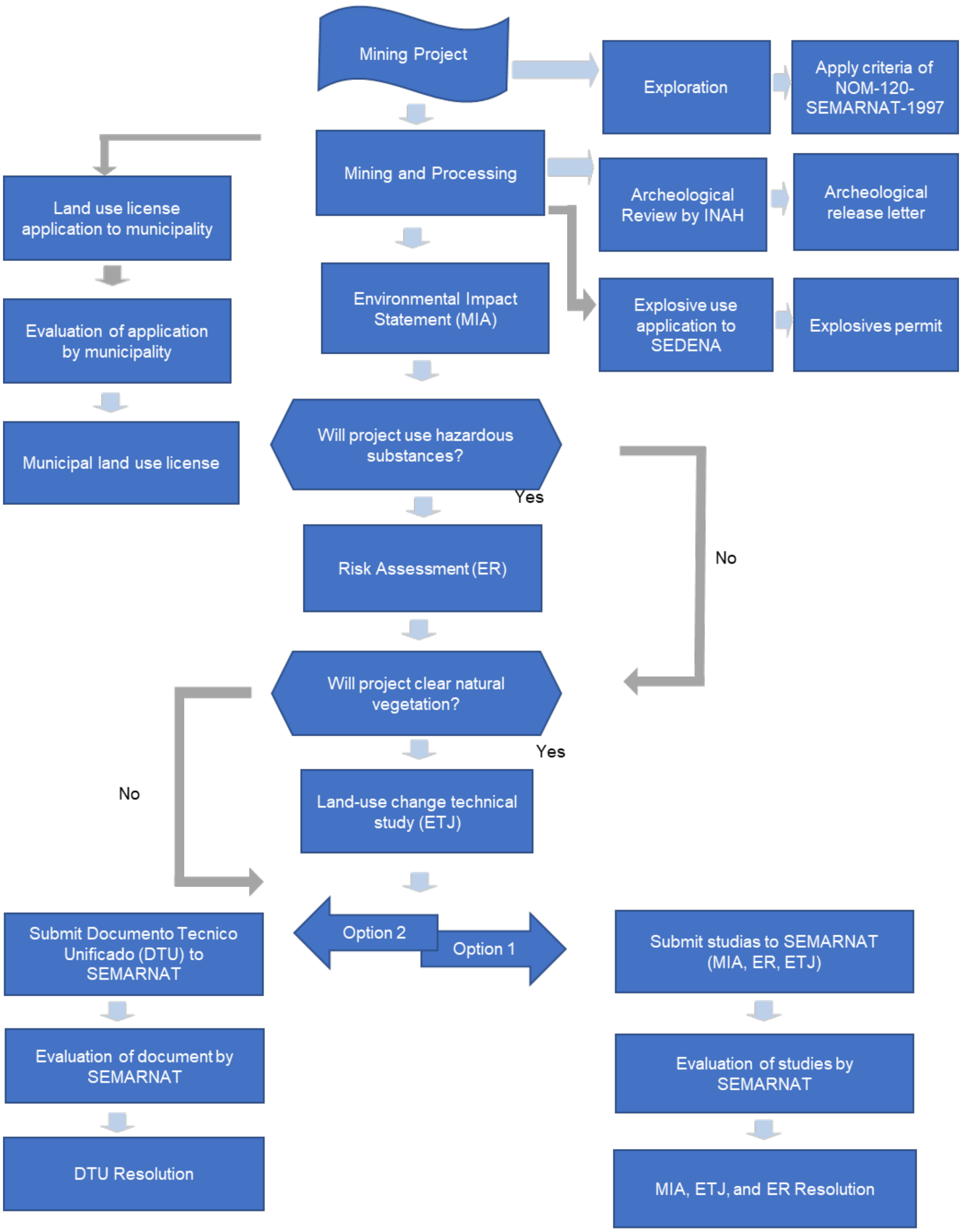
20.3 PERMITTING STATUS, SCHEDULE, PROCESS

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 20-1 below summarizes the environmental permitting process for the authorization of mining operations in Mexico.



1 SEMARNAT: Mexican Secretariat of Environment and Natural Resources
2 INAH: Mexican National Institute of Anthropology and History
3 SEDENA: Mexican Secretariat of National Defence
4 DTU: Document that integrates the MIA, ER, and ETJ application in a single submittal, as an optional procedure

Figure 20-1: Overview of Environmental Permitting Process for Mining Operations in Mexico

The ELG Mine Complex gained MIA authorization for its operation in 2013. There have been six modifications to the original authorization, including for the ELG Underground Mine, the installation of the SART plant, additional ramp development, and modifications to the wastewater treatment facilities. As outlined in this section, a MIA modification was granted in March 2021 to allow for early works to access the Media Luna deposit. In July 2021, the Company applied for a "MIA-Integral" to integrate the ELG Mine Complex and ML Project, with approval expected in the first half of 2022.

As part of the original MIA authorization, the development of an Environmental Quality Monitoring Program (*Programa de Seguimiento de Calidad Ambiental*, "PSCA") was required. The PSCA is comprised of 16 management plans covering environmental and social risks and impacts. Annual reports on compliance with the provisions of the PSCA are submitted to the State division of the General Directorate of Environmental Impact and Risk (*Dirección General de Impacto y Riesgo Ambiental*, "DGIRA") of SEMARNAT. The submission of these reports is required until mine closure is completed.

A full Environmental and Social Impact Assessment (ESIA) was completed for the ELG Mine Complex in September 2014. The ESIA was prepared in alignment with the Equator Principles, the International Finance Corporation (IFC) Performance Standards, and World Bank Group General and Mining Sector Environmental, Health, and Safety (EHS) Guidelines. Following completion of the ESIA, the PSCA described above was modified to reflect the environmental and social impacts identified in the ESIA as well as recommended mitigation measures.

In March 2021, the Company received approval from SEMARNAT on a MIA modification ("MIA Modification Phase II"), which allows for construction activities beyond the boundary of the Company's existing permit necessary for the continuation of the early works program to access the Media Luna deposit. While previous to the MIA modification, the Company had been permitted for early works activities on the north side of the Balsas River, this amendment allows for the construction of early works infrastructure on the south side of the river. The MIA modification also provides environmental authorization to continue the Guajes Tunnel under the Balsas River, subject to consultations with the national water regulator (CONAGUA), which are currently ongoing.

The combined operations of the ELG Mine Complex and ML Project requires an additional MIA authorization to integrate the two facilities, namely a MIA-Integral, the application for which was submitted to SEMARNAT in July 2021. Upon authorization of the MIA-Integral, the entire Morelos Complex would be covered under a single environmental authorization. In October 2021, SEMARNAT requested additional information related to flora, fauna and operational parameters, and in January 2022 requested 60 additional working days for review. Approval of the MIA-Integral is currently pending and expected in the first half of 2022. It is noted that planned construction works for the Media Luna Project can advance within the current permitted areas. The planned 2022 Media Luna construction activities do not require the MIA-Integral permit to proceed.

Other key pending environmental permits include:

- Authorization from the Guerrero division of SEMARNAT (i.e., SEMAREN) to construct a landfill at San Miguel on the Media Luna property.
- Authorization from SEMARNAT for road improvements from the Mazapa to San Miguel community. An associated ETJ and CUS modification application were submitted to SEMARNAT in December 2021.
- Authorization from CONAGUA on additional water concessions at ML Project.
- Authorization from CONAGUA on sewage discharge permits at Morelos Complex.

In addition, as part of the Company's commitment to reduce its carbon footprint, a permit authorization is currently pending from SEMARNAT to construct a solar plant for the supply of alternative energy to the existing processing facilities at the ELG Mine Complex. Authorization is also required from the Federal Energy Regulatory Commission (*Comisión Reguladora de Energía*, "CRE") to produce electricity from the facilities.

With respect to anticipated submission of future permits, the Company intends to submit a MIA-Integral Amendment request for in-pit tailings disposal in the second half of 2022 prior to initiating the Guajes in-pit tailings facility construction. The existing Filtered Tailings Storage Facility (FTSF) has permitted capacity through 2026.

In addition to the environmental permits previously outlined, the Company will also require authorization from energy authorities to increase the power draw and distribution required for ML Project, including authorization from the Federal Electricity Commission (Comisión Federal de Electricidad, "CFE") and the National Energy Control Centre (CENACE) for connection to the regional 230 kV power line system for the higher electricity loads for Media Luna. Both a load assessment and facility study to support the permit application are expected to be completed by CENACE in Q3 2022. Additional details related to key existing and required permits are provided in Table 20-3 below.

Table 20-3: Key Environmental Permits and Timelines[1]

Existing Permits	Issuing Agency	Date Received
Construction and operations of the ELG Mine Complex	SEMARNAT	2015 with multiple amendments
Early works construction at ML Project	SEMARNAT	March 2021
Outstanding Permit Applications	Issuing Agency	Date of Submission
MIA-Integral to combine the ELG Mine Complex and ML Project under a single environmental authorization	SEMARNAT	July 2021
Solar plant construction and operations	SEMARNAT / CENASE / CFE	April 2021
Mazapa – San Miguel Road upgrades	SEMARNAT – Guerrero	December 2021
San Miguel landfill	SEMARNAT – Guerrero	December 2021
Water concessions - reallocation of volume from the Water Wells 1 and 3 from Atzcala to San Miguel (ELG Mine Complex Mine Complex to ML Project)	CONAGUA – Guerrero	January 2021
Water concessions - ML Project water concessions of the Water Wells 8 and 9	CONAGUA – Guerrero	June 2021
Sewage water discharge permits – ELG Modification	CONAGUA – Guerrero	June 2021
Sewage water discharge permits – ML Project	CONAGUA – Guerrero	July 2021
Forthcoming Permit Applications	Issuing Agency	
MIA-Amendment for in-pit tailings disposal at Guajes Pit	SEMARNAT	Submission pending
San Miguel Fuel Storage – Construction and Operations Permit	Safety, Energy and Environment Agency (ASEA) / Energy Regulatory Commission (CRE)	Submission pending
Non-Environmental Permits Outstanding	Issuing Agency	Submission / Expected Receipt
Additional electrical power draw for ML Project from existing regional 230 kV powerline from the national grid	CFE / CENACE	November 2021 / Q3 2022
Explosives permit for ML Project	Ministry of National Defense	October 2021 / March 2022
Electrical connection from Mezcala to San Miguel	CFE / CENACE	March 2022 / May 2022

[1] Typical permit review timelines for regulatory agencies in Mexico have been impacted by COVID-19 and associated staffing impacts.

20.4 ENVIRONMENTAL SETTING

Multiple environmental baseline studies have been completed for the Morelos Complex. This includes baseline studies that were included in the full ESIA conducted in 2014 for the ELG Mine Complex. Further baseline studies and field work that included ML Project were conducted from 2018-2021 as part of the submission for the MIA-Integral permit. Baseline conditions are summarized in the following reports.

- Baseline Conditions for Geology and Soil (NewFields, 2021d)
- Baseline Conditions for Visual, Light, & Noise, Media Luna Project (NewFields, 2021h)
- Baseline Conditions for Water Resources (NewFields, 2021g)
- Baseline Conditions for Climate and Air Quality (NewFields, 2021f)
- Baseline Vibration Monitoring Study, Media Luna Underground Mine (Golder, 2021b)
- Flora and Fauna Environmental Baseline for the Media Luna Project (Asfor, 2021)

For the purposes of the MIA-Integral permit application submitted in July 2021, SEMARNAT required the delineation of a Regional Environmental System (RES) to establish boundaries as a basis for evaluating environmental impacts and risks related to the integration of the existing and new footprint on both the north and south sides of the Balsas River. The RES is comprised of environmental, economic, and cultural subsystems.

Figure 20-2 below illustrates the boundaries of the RES. The following subsections present an overview of key environmental aspects based on the results of the baseline studies as well as ongoing operational monitoring and modelling. A discussion about the geochemical characterization of the mining wastes (waste rock and tailings) is presented in Section 18.11 and Section 18.12.

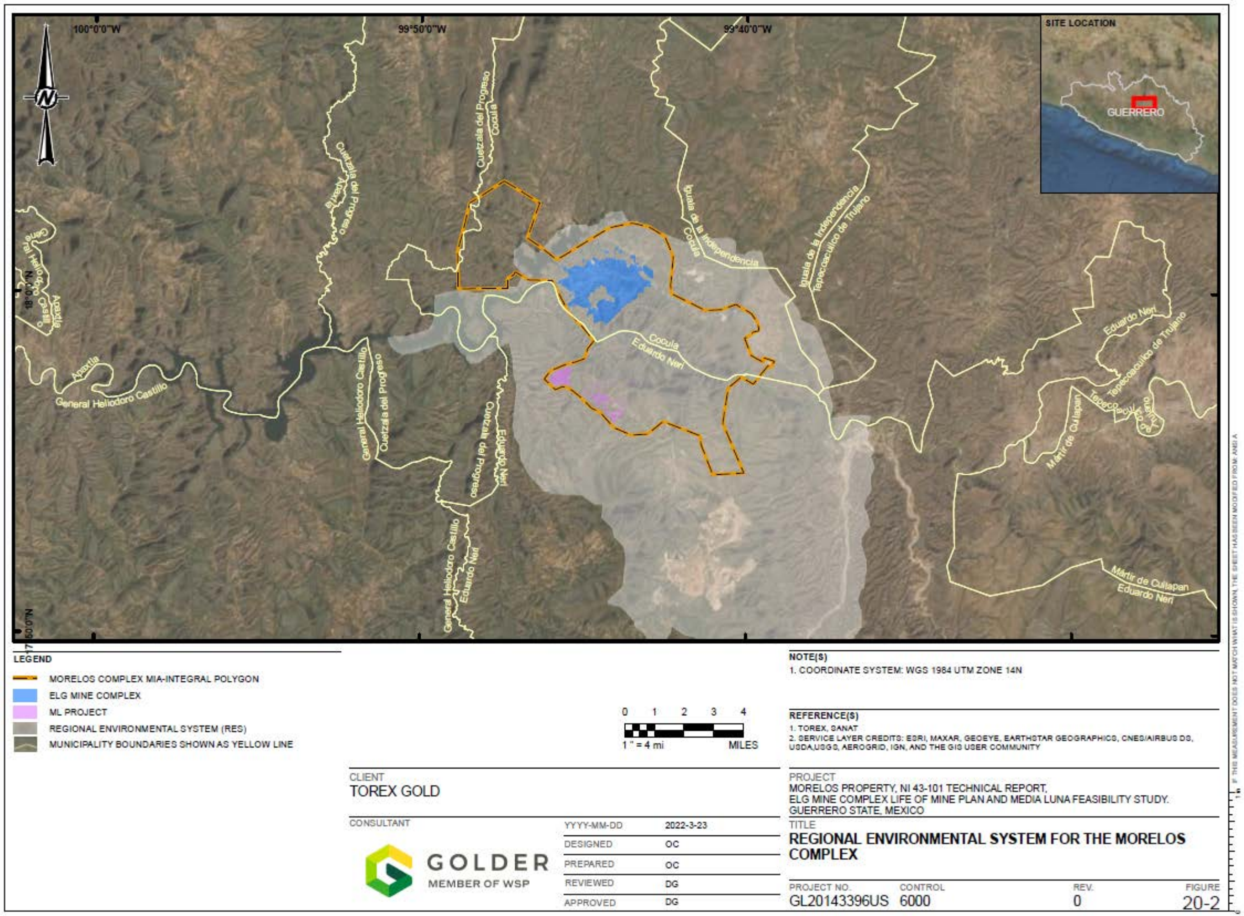


Figure 20-2: Regional Environmental System for the Morelos Complex

20.4.1 Atmosphere

The regional climate ranges from semi-warm to temperate subhumid. Using the Koppen climate classification, the climate can be described as a Tropical Wet-Dry category.

One meteorological station is located at the ELG Mine Complex and one is located at ML Project. According to 2020 operational monitoring data, the average local temperature ranges from 28.7° Celsius in January to 35.4° Celsius in April. In 2021, the highest daytime and lowest nighttime recorded temperatures were 45° Celsius in April and 18.5° Celsius degrees in January, respectively.

The Balsas River Basin experiences distinct dry and wet seasons, with the wet season peaking in July to September and a dry season during November to April. Less than 5% of the total annual rainfall occurs during the dry season. During the rainy season, there is increased activity for tropical cyclones that bring precipitation pulses to the region. Based on long-term data from the nearby town of Mezcala, the annual estimated precipitation is 715 mm. The highest monthly precipitation in 2020 was 277 mm in September. Annually, evaporation far exceeds the amount of rainfall.

On-site data indicate that the predominant winds are from the southwest and south-southwest, with average hourly wind speeds between 3 and 5 meters per second. Operational monitoring data from 2020 for wind direction and speed indicates that during the spring and winter seasons the dominant wind comes from the west-southwest direction, while for the summer and fall seasons the dominant winds were recorded in the south-southwest direction, respectively. The highest wind speed was recorded in summer at 11.34 m/s.

20.4.2 Air Quality

Baseline air quality reports were prepared in 2014 and 2019 that described existing air quality, including particulates, carbon monoxide (CO), carbon dioxide (CO_2), nitrous oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOCs), and methane (CH_4). Particulate data include total suspended particulates (TSP), particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$). The baseline study also evaluated ozone (O_3). Preparation of ground surfaces during construction activities generates dust as particulate emissions from surface disturbances, as well as emissions of CO, CO_2, NO_x, SO_2, and VOCs related to combustion of fuels by construction equipment. During the metal extraction/recovery process and burning of fuels, the following emissions can occur: VOCs, CO, CO_2, SO_2, and NO_2.

The existing air quality in and around the Morelos Complex is primarily influenced by agricultural activities, open burning, and dust from unpaved roads and waste rock deposits. The main air emissions from the operations derive from suspended particulates, such as those from the crushing plant, as well as combustion gases from vehicles and machinery. The concentrations of particles tend to increase during the dry season, while for the rainy season (i.e., June to September) they decrease considerably.

The contribution of the ML Project in terms of cumulative impacts on air quality is expected to be mainly attributed to waste rock transportation from ML Project to the waste rock dump, road improvements, and vehicle and machinery activities.

Ongoing operational air quality monitoring indicates the air quality levels are consistently below maximum permissible limits (MPLs) as defined by Mexican regulations, and modeling indicates this will continue to be the case during development and operations at ML Project.

Sound levels at each of the measured locations are influenced heavily by local traffic and other human activity during the daytime. In the evenings and throughout the night, sounds of nature dominate the background noise levels at most of the operational monitoring stations. Noise levels from the ELG Mine Complex are consistently below MPLs as defined in Mexican regulations.

The contribution of noise impacts from the ML Project are due primarily to increased vehicle traffic for the communities of San Miguel and Mancillas. Noise levels through the development and operation of ML Project are not expected to exceed MPLs.

20.4.3 Surface Water Occurrence and Quality

There are two primary rivers near the facilities and operations, namely the Cocula River (Río Cocula) and the Balsas River (Río Balsas). The Balsas River is alternatively known as the Atoyac River (Río Atoyac). There is a network of streams, springs, pools, and reservoirs in the hydrological network, some of which are used by local communities for domestic water supply. A key hydrological feature of the Balsas River is the Presa el Caracol, a dam located adjacent to the ELG Mine Complex and approximately 7 km from the Media Luna property. The dam contains a hydroelectric plant with a capacity to generate 600 MW of electricity.

Baseline studies were completed in 2014 and 2018 to characterize the hydrological conditions in the region. Sampling results indicated that the Balsas River has naturally-occurring background levels of constituents exceeding Mexican quality standards for drinking water, including aluminum, ammonia, antimony, arsenic, fecal coliforms, iron, manganese, total coliform bacteria, total dissolved solids (TDS), and turbidity. Total dissolved metals concentrations are very low.

Surface water monitoring at the ML Project has continued through 2021 for several streams, springs, and ponds, consisting of measuring water levels, flows, and quality (field parameters and laboratory analysis of common ions, nutrients, and metals) (NewFields, June 2021). Most surface water monitoring sites are small ephemeral springs and streams with low flow rates that often become dry during the months of November to April, with highest flow rates (up to about 15 liters/second) occurring a few hours to days following precipitation events (wet season is May to October). Several constituents analyzed by the laboratory were found to exceed NOM-127 standards in surface water samples, including aluminum, ammonia, arsenic, iron, manganese, coliform bacteria, and turbidity.

20.4.4 Groundwater Quality

Baseline groundwater quality samples at the ML project area were collected from four production wells (MLWT18- 04, MLWT18-05, MLWT18-10, and MLWT18-13); two domestic wells (DW-1 and DW-2) at the San Miguel community; one artesian exploration borehole (MLW-20); and the El Vado community well in Mazapa Valley. Groundwater field parameters are available from January 2019 to February 2021. Specific conductivity values ranged from 100 to over 5,000 microSiemens per centimeter (µS/cm) but are generally between 400 and 1,000 µS/cm. Total dissolved solids (TDS) values range from 120 to 640 milligrams per liter (mg/L); most values were between 300 and 450 mg/L.

Baseline results exceeded the aforementioned regulatory standards for the constituents below:

- Aluminum: 1 result exceeded the NOM-127 standard of 200 micrograms per liter (µg/L) at a concentration of 377 µg/L in production well MLWT18-04 (total fraction).
- Ammonia: 2 results exceeded the NOM-127 standard of 500 µg/L at a maximum concentration of 758 µg/L in production well MLWT18-05.
- Antimony: 8 results exceeded the 6 µg/L USEPA standard with a maximum concentration of 375 µg/L in production well MLWT18-04.
- Arsenic: 16 results exceeded the 10 µg/L NOM-127 standard (currently 25 µg/L but will change to
- 10 µg/L by 2025) with a maximum concentration of 1,149 µg/L in community well DW-1 (community wells DW-1 and DW-2 are no longer used for potable water).
- Cadmium: 2 results exceeded the NOM-127 standard of 3 µg/L with a maximum concentration of 5 µg/L in production well MLWT18-05 (total cadmium).
- Hardness: 1 result exceeded the NOM-127 standard of 500 mg/L with a concentration of 574 mg/L in production well MLWT18-05.
- Iron: 2 results exceeded the NOM-127 standard of 300 µg/L with a maximum concentration of 950 µg/L in production well MLWT18-04 (total fraction).
- pH: 1 result was outside of the NOM-127 range of 6.5 to 8.5 with an elevated pH for production well MLWT18-05.
- Thallium: 3 results exceeded the USEPA standard of 2 µg/L with a maximum concentration of µg/L in production well MWLT18-05.
- Total Coliform Bacteria: 8 results exceeded the NOM-127 standard of 1.1 Most Probable Number per 100 milliliters (MPN/100 mL) with a maximum of 39 MPN/100 in community well DW-1.

20.4.5 Soils

A baseline soil study was completed in 2014 for the ELG Mine Complex based on field data collected in 2012. In 2018-2019, several additional baseline studies were completed for geomorphology, geology, and soils. These studies included a study area that encompassed portions of the ELG Mine Complex and the ML Project, including the proposed underground tunnel/conveyor corridor extending beneath the Balsas River. The studies identified four soil groups, namely Fluvisols, Leptosols, Phaeozems, and Regosols. The soil groups are within three primary micro-basins: Atzcala, La Fundición, and El Caracol. Leptosols are the predominant soil type in the RES.

Leptosols are characterized by being very shallow (less than 25 centimeters cm deep), being very close to the parent rock, making them very susceptible to erosion, which precludes some land usages. The land within the RES is generally classified as forest. Regosols are shallow and considered young or poorly developed soils, characterized by low moisture retention and organic matter content.

The sampling studies conducted in October 2020 indicated that the soils in the RES have high erosion potential requiring effective management measures. Soils range from silty gravel to silty gravel with sand to well-graded gravel with sand. The soils also have low clay content and low moisture potential.

Key chemical properties of the soils identified in the studies include naturally-elevated levels of arsenic, copper, lead, manganese, and zinc. The soils are moderately alkaline to slightly acidic, have moderate to low potential to hold nutrients, and have adequate to high levels of organic carbon content.

20.4.6 Biodiversity

Biodiversity baseline studies were conducted in 2014 and 2021. The 2021 study incorporated various established methodologies to determine biodiversity richness in the RES.

There is a high diversity of flora species in the RES, with no significant difference in biodiversity between the Morelos Complex and the broader baseline study area (RES). The fauna species recorded indicate that the study area has a good conservation status, as there is a wide variety of ecosystem services provided by the fauna detected. Fauna diversity is summarized in Table 20-4 below.

Table 20-4: Fauna Diversity in the RES and Project Area

Fauna Type	Diversity	Equitability	Dominance	Difference between RES & Morelos Complex
Amphibians	Low	Low	Intermediate	No significant difference.
Reptiles	Low	Low	Intermediate	No significant difference.
Birds	High	Intermediate	Low	No significant difference.
Mammals	Intermediate	Intermediate	Low	No significant difference.

The Morelos Complex is located within one of nine bird conservation areas in Guerrero, namely the Cañón del Zopilote, which is considered a Terrestrial Priority Region (Region Terrestre Priorities, “RTP”) by the National Commission for the Knowledge and Use of Biodiversity (CONABIO). According to the World Wildlife Fund (WWF), the Zopilote Canyon is a center of endemic species and the site of the diversification of the *Bursera* species.

Figure 20-3 below shows the location of the Cañón del Zopilote in relation to the Morelos Complex.

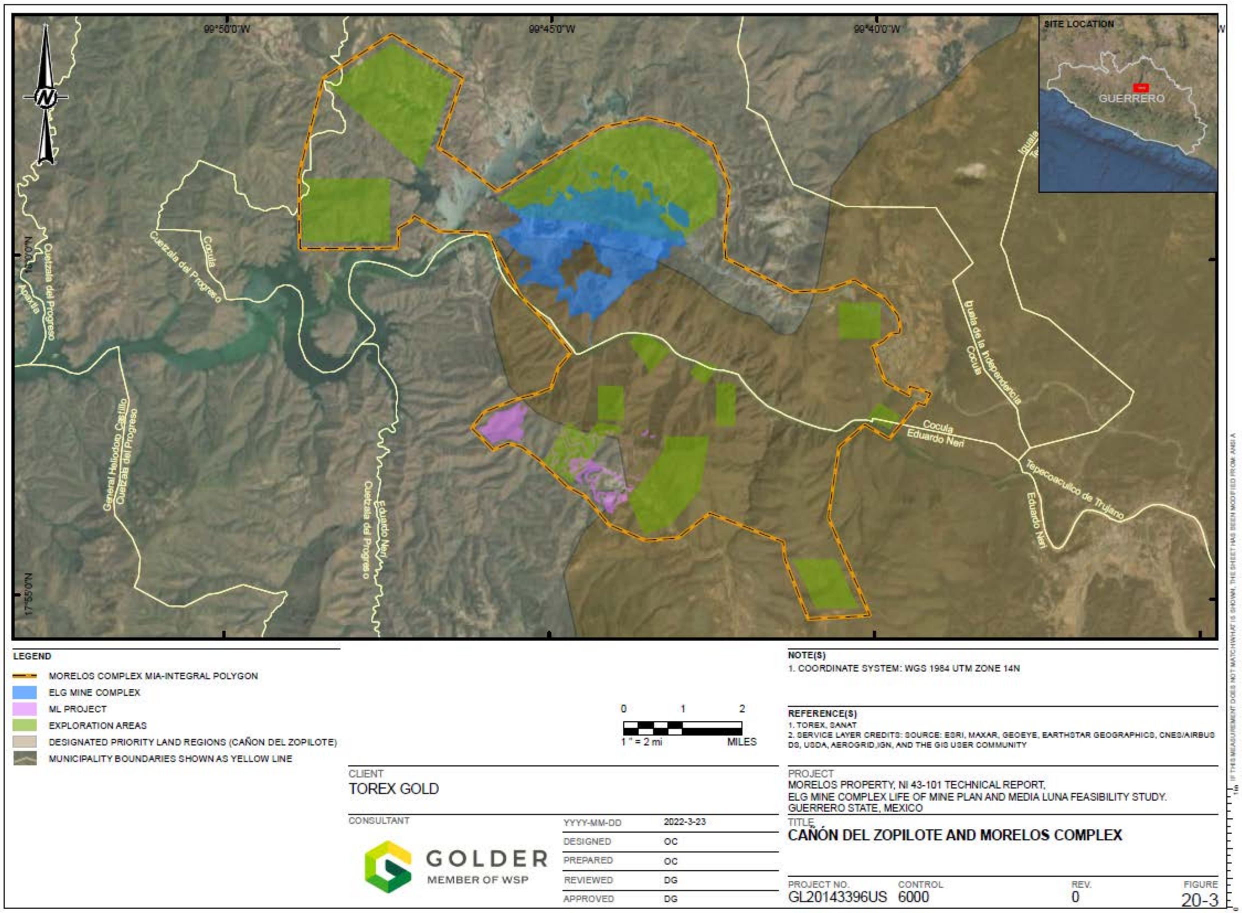


Figure 20-3: Cañón del Zopilote and Morelos Complex

20.4.7 Flora and Fauna

Flora and fauna baseline studies were completed as part of the 2014 ESIA for the ELG Mine Complex. Additional baseline studies were conducted in 2021 as part of the application to SEMARNAT for the MIA-Integral permit authorization.

In the 2021 baseline and field studies, sampling within the project area identified 130 flora species belonging to 51 families. The Fabacae family is the most represented with 27 species, followed by the Burseraceae and Malvaceae families, both with eight species. The Anacardiaceae and Asteraceae families are comprised of six and five species, respectively. The rest of the 46 families have between one and four species. Two flora species were classified as being at risk, namely the *Gliricidia sepium* (Gliricidia) and the palm soyale (*Brahea soyale* and *Brahea dulcis*), which are both classified as 'Protected' under Mexican NOM-059-SEMARNAT-2010.

The 2021 fauna baseline study identified 146 fauna species in the RES, including 95 bird species, 25 mammal species, 19 reptile species, and seven amphibian species. Six species were identified as exotic to Mexico.

Table 20-5 below summarizes species classified under the International Union for the Conservation of Nature (IUCN) classification system, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendices, and species with special protection status (i.e., 'Threatened', 'Protected', or 'In Danger of Extinction' status) under Mexican NOM-059-SEMARNAT-2010. Two fauna species are considered under threat of local extinction, namely the *Leopardus wiedii* (Margay), a small wild cat native to Central and South America and the *Ara militaris* (Military macaw), a large parrot and medium-sized macaw.

Table 20-5: Flora and Fauna Species with Special Conservation Status

Scientific Name	Common Name	IUCN	NOM-059	CITES Appendix
Flora				
Brahea dulcis	Palm soyale	LC	PR	-
Gliricidia sepium	Gliricidia	LC	PR	-
Fauna				
Amphibians				
Eleutherodactylus nitidus	Shining peeping frog	LC	PR	-
Lithobates pustulosus	Mexican white nose frog	LC	PR	-
Reptiles				
Phrynosoma asio	Giant horned lizard	LC	PR	-
Ctenosaura pectinata	Mexican spiny tailed iguana	LC	T	II
Aspidoscelis costatus	Western Mexico whiptail	LC	PR	-
Tantilla calamarina	Pacific coast centipede snake	LC	PR	-
Kinosternon integrum	Mexican mud turtle	LC	PR	-
Birds				
Dactylortyx thoracicus	Singing quail	LC	PR	-
Mycteria Americana	Wood stork	LC	PR	-
Tilmatura dupontii	Sparkling-tailed hummingbird	LC	T	II
Buteogallus anthracinus	Common black hawk	LC	PR	II
Geothlypis tolmiei	MacGillivray's warbler	LC	PR	-
Falco peregrinus	Pelegrine falcon	LC	PR	I
Xenotriccus mexicanus	Pileated flycatcher	LC	PR	-
Ara militaris	Military macaw	VU	E	I
Glaucidium palmarum	Colima pygmy owl	LC	T	II
Trogon collaris	Collared trogon	LC	PR	II
Eupsittula canicularis	Orange-fronted parakeet	VU	PR	II
Mammals				
Herpailurus yagouaroundi	Jaguarundi	LC	T	II
Leopardus pardalis	Ocelot	LC	PR	I
Leopardus wiedii	Margay	NT	E	I
Spilogale pygmaea	Pygmy-spotted skunk	VU	T	II
Potos flavus	Kinkajou	LC	PR	-
Leptonycteris yerbabuenae	Lesser long-nosed bat	NT	T	-

IUCN Legend: LC: Least Concern VU: Vulnerable NT: Near-threatened
NOM-059-SEMARNAT-2010 Legend: PR: Protected; T: Threatened; E: In Danger of Extinction
CITES Legend: I: Appendix 1; II: Appendix 2 III: Appendix 3

20.5 ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

Torex maintains an *Environmental Protection Policy*, which serves as the foundation of the Company's approach to environmental management. Under the Policy, the Company commits to meet or surpass environmental regulatory requirements in all exploration, development, mining, and closure activities, while doing zero harm to the natural environment beyond operational boundaries. This policy is currently implemented at the ELG Mine Complex and will extend to development and operations at ML Project.

The Company has an established Environmental and Social Management System (ESMS) that addresses the management of the environmental and social impacts, risks, community health, security, and the corrective actions required to comply with applicable Mexican social and environmental laws and regulations. The ESMS was updated following the completion of the ESIA completed in 2014 and is regularly updated based on operational changes including the ML Project.

The ESMS contains a variety of policies and procedures covering key environmental aspects. As part of the original MIA authorization obtained in 2013, the development of an Environmental Quality Monitoring Program (*Programa de Seguimiento de Calidad Ambiental*, "PSCA") was required. The PSCA is comprised of 16 management plans covering environmental and social risks and impacts. These plans are listed in Table 20-6 below.

Table 20-6: List of Environmental Management Plans

P-01 Construction plan	P-09 Rescue and relocation of wild fauna
P-02 Monitoring of air quality and acoustics	P-10 Conservation of archaeological remains
P-03 Soil conservation and erosion control	P-11 Social management
P-04 Integrated management of non-hazardous waste	P-12 Environmental education
P-05 Integrated management of non-hazardous waste	P-13 Site abandonment
P-06 Integrated hazardous waste management	P-14 Accident prevention
P-07 Surface and groundwater monitoring	P-15 Good mining practices
P-08 Flora rescue and conservation plan	P-16 Landscape restoration and management

The ESMS and PSCA are implemented by a team of environmental specialists at the operations with overall operational accountability residing with the VP, Mexico, who reports directly to the Chief Executive Officer (CEO). The Safety and Corporate Social Responsibility Committee of the Board of Directors maintains Board-level oversight of environmental management and associated performance.

The ESMS and PSCA will be updated as required as the Media Luna operations are incorporated. The key environmental management plans are summarized in the following subsections.

20.5.1 Water Management Plan

Torex maintains an Operational Water Management Plan (NewFields, 2021e) that provides detailed information on current water monitoring and management systems at the ELG Mine Complex and Media Luna and preliminary information on planned water management systems for the ML Project when the underground mine becomes operational. The plan continues to evolve and improve into a comprehensive summary of the plans, tools, and procedures that allow the project to:

- Provide a secure water supply to sustain mine production by meeting water demands, such as process makeup water, construction makeup water, dust control, drill supply, and potable water;
- Manage excess water and discharges from water management facilities to 1) protect the health and safety of mine staff; 2) protect potential receptors; and 3) maintain adequate water reserves to meet dry season demands;
- Divert runoff around operational areas to reduce the amount of contact water that requires management;
- Manage water quality by documenting and implementing water management plans, tools, and procedures that 1) protect the health and safety of mine staff; 2) provide water for process that meets the required water quality criteria for optimal operation and mineral recovery; 3) allow for water discharge to the environment that is protective of potential receptors; and 4) use water that is fit-for purpose to minimize the use of freshwater;
- Assess environmental risks and periodically review and optimize mitigation measures, including the potential impacts of climate change;

- Monitor water systems to optimize operational performance and have contingency plans to minimize environmental risks; and
- Continually improve operational practices to reduce operational and maintenance costs and risks and minimize environmental liabilities at closure.

Torex maintains a Web-GIS Dashboard for data management, access, and team collaboration, which serves as a foundation for the water management system. The dashboard contains data collected from groundwater monitoring wells, water supply wells, surface water monitoring locations, and water management ponds. The Web-GIS Dashboard is accessible to staff on the site and corporate levels to facilitate collaboration.

Torex also maintains a site-wide water balance model, which is a key tool to support effective water management at ELG Mine Complex and ML Project. The model is used to evaluate the movement of water and estimate water storage and flow rates at major mine facilities. The model was developed using the modeling program GoldSim and a monthly time step.

20.5.2 Waste Management Plan

The Company maintains a waste management program, including specific plans for both hazardous and non-hazardous waste that are aligned with Mexican environmental legislation, namely the General Law for the Prevention and Integral Management of Waste. All hazardous waste is controlled and stored in metal drums and transferred to a warehouse before being removed by a government-accredited contractor. Solid urban waste, generated primarily in administrative and camp areas, is separated into various sub-streams. All organic waste is used in restoration areas, while plastic and aluminum are removed by a government-accredited contractor.

The Company is also currently implementing the International Cyanide Management Code (ICMC) for the safe transportation, management, and disposal of cyanide. The Company expects to be in full conformance with the ICMC by May 2024.

20.5.3 Biodiversity Management Plan

The Company maintains a Biodiversity Management Plan, which is incorporated into the overall ESMS. As per MIA authorization requirements, an Integrated Flora and Fauna Management Program is maintained, which includes, among others, the following aspects:

- The detailed description of the techniques to be used for the rescue, management, conservation and relocation of flora and fauna species present in the project area.
- The description of the proposed sites for relocation and transplanting.
- Performance and success indicators of the measures.

The programs must be submitted to the DGIRA for approval within six months prior to the start of any work or activity of the project. The results and observations obtained from their execution and follow-up are presented annually in a report to PROFEPA. Agreements are in place with the Autonomous University of Guerrero to support wildlife conservation, including monitoring of the *Leptonycteris yerbabuenae* (Lesser long-nosed bat).

A key mitigation measure is a commitment to compensate for land disturbances by establishing a conservation area in the nearby area at a ratio of 3:1 of the mining land disturbances, with the ultimate goal of “no net loss” of natural and critical habitat. To support this objective, annual reforestation programs are conducted using seedlings grown at an on-site nursery with a production capacity of 120,000 plants per reforestation season. From 2015 to the end of 2020, the Company has reforested more than 559 hectares of land, including in areas outside of the Morelos Complex, with the planting of approximately 350,000 trees. The Company also established a conservation area of 84.3 hectares to extend the biological corridor as part of mine planning for ML Project.

The Company has partnered with two local communities in the region, San Pedro and San Felipe Chichila (located at the head of the Cocula River Basin), on a biodiversity partnership to contribute to the protection of the Cerro Los Manantiales conservation area. While outside of the Morelos Complex, this project is intended to offset mine land disturbances and is certified by SEMARNAT and the National Commission of Aquaculture and Fish (*Comisión Nacional de Acuacultura y Pesca*, "CONASPECA").

With these measures combined, it is expected that there will be a net increase in habitat conservation over the life of the operations on the Morelos Complex.

20.5.4 Mine Closure Plan

A mine closure plan is maintained as part of the overall PSCA. The plan is updated regularly based on operational changes and ongoing reclamation activities. The most recent update was completed in 2022, which focused on the development of a conceptual closure plan for the entire Morelos Complex. The plan is summarized in Section 20.8.

20.6 ENVIRONMENTAL MONITORING

Environmental monitoring is a key element of the Company's Environment and Social Management System (ESMS). An Environmental Quality Monitoring Program (PSCA) is maintained, which serves as the foundation of its environmental monitoring plans for key environmental media. The following subsections present a description of key monitoring plans and summary monitoring results.

20.6.1 Air Quality Monitoring

The Company operates a network of eleven air quality monitoring stations in the project area to help maintain compliance with Mexican regulations. The stations monitor for Total Suspended Particles (TSP), PM10, and PM2.5. Some of the stations also measure for gases, including carbon monoxide, nitrogen oxides, and Sulphur oxides.

Four of the monitoring stations are located in local communities that could be most impacted by dust generation, including Nuevo Balsas, San Miguel Vista Hermosa, Puente Sur Balsas, Real del Limón and La Fundición.

Water and specialized dust suppressants are used to control dust levels on access roads and work areas. Water sprinklers are attached to crusher feed hoppers and the main ore stockpile at the ELG processing facilities is domed. Given that the ML Project is an underground mining operation with ore processed at existing processing facilities, there is not expected to be a significant increase in dust generation.

Air quality monitoring results are submitted to PROFEPA and the DGIRA of SEMARNAT annually. The data show that air quality monitoring results are consistently below maximum permissible levels as defined by Mexican regulations. The locations of the air quality monitoring stations are shown in Figure 20-4 below.

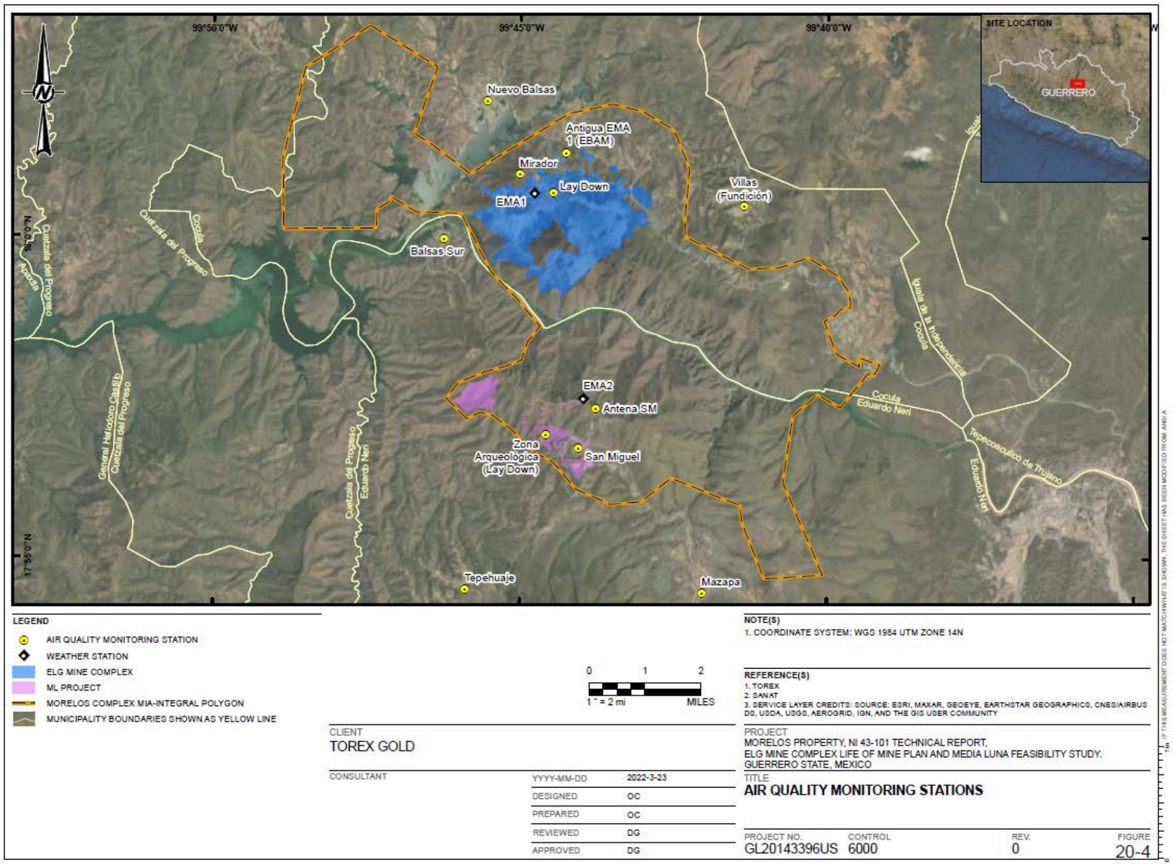


Figure 20-4: Air Quality Monitoring Stations

20.6.2 Water Monitoring

MML maintains a Water Quality Monitoring Plan in conjunction with its overall PSCA and Operational Water Management Plan (POMA). The primary objectives of the plan are to:

- Maintain compliance with Mexican NOM-001-CONAGUA-1996, including maximum permissible limits
- Ensure a sustainable water supply
- Ensure sufficient makeup for processing
- Prevent non-compliant discharge from water management ponds
- Protect human health and the environment

The plan covers surface and groundwater quality and quantity, process water contained within six contact ponds and the cyanide detoxification circuit, runoff from waste rock facilities and open pits, and domestic water. There are six wastewater treatment systems, which are currently being upgraded. An additional water treatment plant is planned for construction that will treat wastewater from Media Luna ore plus rinsate generated during closure.

The Company maintains a comprehensive water monitoring program to ensure compliance with water regulations. Samples are conducted daily, and third-party verification is conducted monthly. In addition, Torex maintains an agreement with the Autonomous University of Guerrero (UAGro) to conduct independent, participatory water quality monitoring in the Presa el Caracol. The results are verified by a Mexican accredited laboratory and shared with local communities.

MML maintains a Web-GIS platform to store water monitoring results and records. Water monitoring locations are shown in Figure 20-5 and Figure 20-6 below.

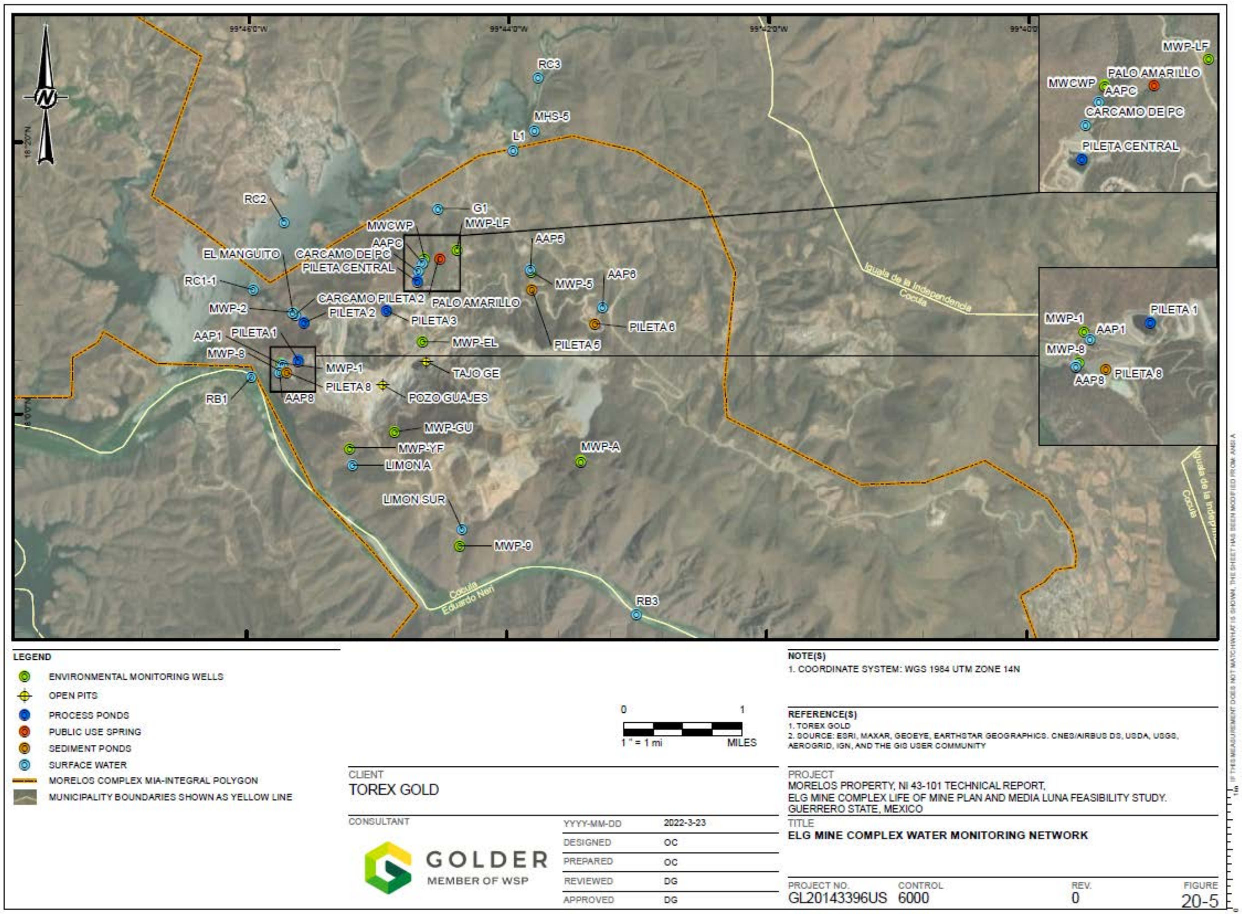


Figure 20-5: ELG Mine Complex Water Monitoring Network

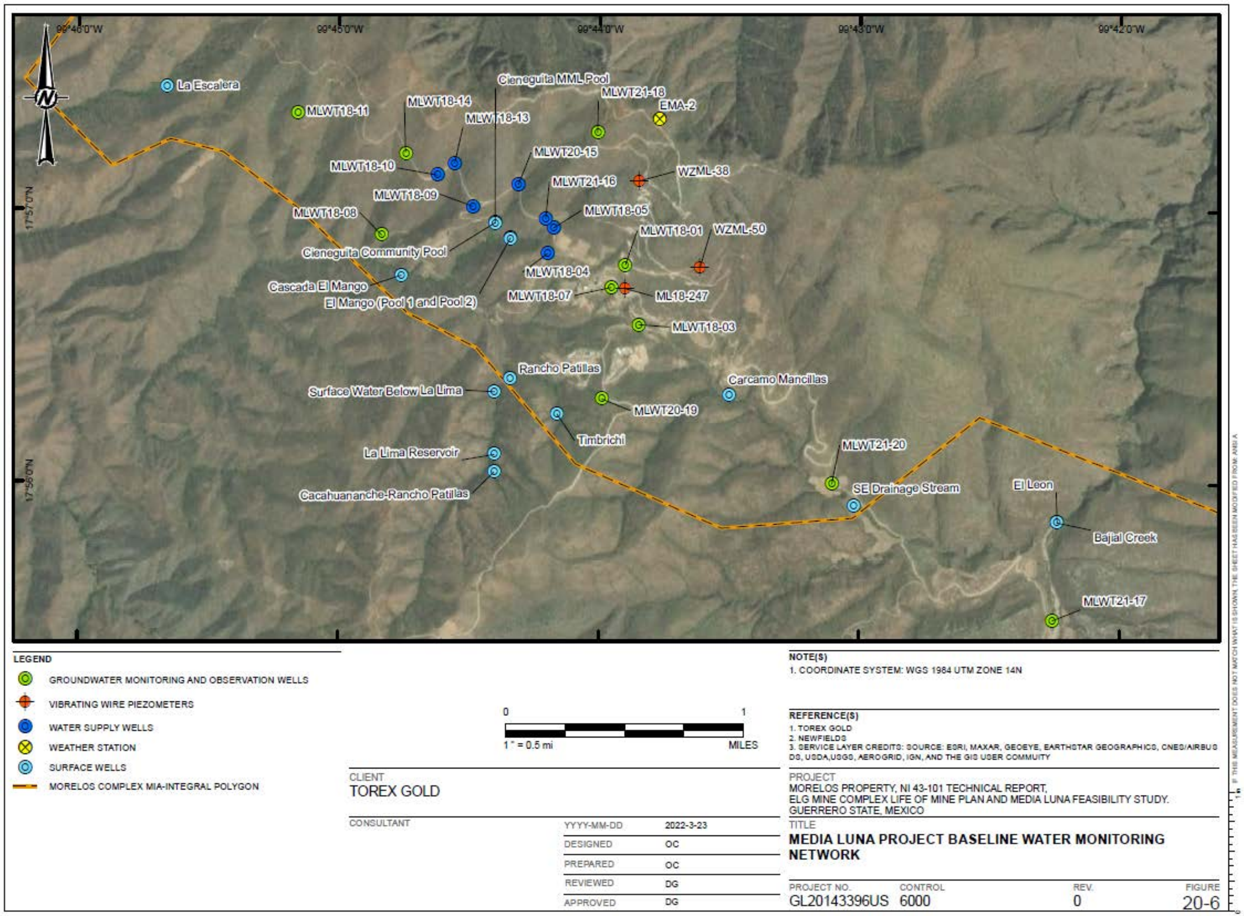


Figure 20-6: Media Luna Project Baseline Water Monitoring Network

20.6.3 Noise and Vibration Monitoring

A noise monitoring program comprised of five monitoring points at the ELG Mine Complex is maintained. The primary objective of the program is to maintain compliance with Mexican NOM-081-SEMARNAT-1994, which establishes maximum permissible limits for noise.

Monitoring results consistently show that noise levels are well below established limits and that noise impacts on local communities near the ELG Mine Complex are negligible. There will be increased noise levels for the community of San Miguel associated with the development and operation of ML Project primarily from vehicle traffic on access roads, although these levels are not expected to exceed maximum permissible limits.

The Company also maintains a vibration assessment program as required by its MIA authorization. Monitoring results from seismographs show that vibration impacts are negligible and well below maximum permissible limits. There will be negligible vibration impacts at the Media Luna mine.

20.7 ENERGY AND GREENHOUSE GAS (GHG) EMISSIONS

20.7.1 Energy and GHG Emissions Projections

Climate change is being considered as part of the ongoing operations for both ELG Mine Complex and ML Project. The Company supports the Paris Agreement and has started to align reporting with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). Climate change is being considered as part of the ongoing operations for both ELG Mine Complex and ML Project.

Energy and greenhouse (GHG) emissions inventories have been maintained since 2015 as per SEMARNAT regulations. The inventories are subject to independent, third-party verification.

The main sources of energy consumption and associated emissions are currently from electricity consumption for the ELG Mine Complex processing facilities and diesel consumption from mobile equipment. Nearly all electrical power is currently supplied by the CFE, which includes a variety of energy sources, including fossil fuels. Backup diesel generators are also used at the processing facilities and the residential camp.

An energy and GHG emissions projections study was completed in 2021 to support the MIA-Integral permit application. The study showed a change in the energy consumption mix over time, with significantly higher electrical power draw for the ML Project for underground mine ventilation and for the conveyor system in the tunnel under the Balsas River. Over the life of the operations, initial modelling estimates show that grid electricity and diesel consumption will account for 70% and 25% of energy consumption, respectively. Solar will account for 4%. Gasoline and propane will account for less than 1% of consumption.

To reduce the Company's carbon footprint, the Company is planning for a hybrid vehicle fleet at ML Project that would be made up of a large component of battery-electric vehicles. The Company has also implemented a wireless communications system underground at ELG Mine Complex and is planning the same for ML Project, to enable systems such as ventilation on demand, to reduce energy consumption.

Torex is currently conducting a carbon reductions opportunities study to further identify energy savings and emissions reductions. The Company intends to establish energy and GHG emissions reductions targets in 2022 to align with global decarbonization efforts.

20.7.2 Solar Plant

As part of the Company's plan to reduce its carbon footprint, in April 2021, Torex signed a commercial lease agreement with Scatec, a global renewable energy producer, to build an 8.5 MWh solar plant to provide power to the ELG Mine Complex. The solar plant will be located adjacent to the East Service Road and will be connected to the existing CFE substation. Expected energy cost savings are approximately $1 million per year over a 20-year lease period, with full payback of the solar plant realized within approximately 7 years.

A MIA authorization is required for the installation of the solar plant. A MIA permit application was submitted to SEMARNAT in April 2021 and construction of the solar plant was also included in the MIA Integral. The permit application is currently under review by the authorities. Earthworks and installation will commence once the permit is received. A permit to produce energy from the plant is also required from the Federal Energy Regulatory Commission (*Comisión Reguladora de Energía* (CRE)).

The solar plant has the potential to reduce Scope 2 (indirect emissions) by up to 8.5% and overall emissions by up to 4.5%. It is also anticipated that the solar plant will create new job opportunities for daily operation and maintenance within local communities. MML will continue to evaluate the significant potential to increase the capacity of the solar plant in the future, including through battery storage, to further increase savings and reduce emissions.

20.8 RECLAMATION AND CLOSURE

As areas of the ELG Mine Complex become available for restoration during operations, concurrent reclamation projects will be implemented. In accordance with the production schedule of the ML Project, should no additional mineralization be found, the permanent closure phase will begin in 2034, which is the year that extraction of ore and processing are scheduled to cease. There is a six-year period of closure activities and a post-closure monitoring period of 30 years that are anticipated (that is, the last year will be 2054). In compliance with Mexican regulations, a detailed closure plan will be developed prior to the closure period for submittal to the environmental agency.

The closure strategy involves returning the mine site and affected areas to viable, and wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment. Key activities of closure will be decommissioning equipment and waste management; demolition of physical structures and management of infrastructure; characterization and mitigation of contaminated soils; regrading and contouring to allow for stormwater drainage; placement of closure covers over mining wastes to reduce infiltration and/or prevent leaching of metals and acidic water; and revegetation of disturbed land. Conceptual-level closure methods have been developed based on the current facilities layout and proposed facilities. The reclamation and closure activities summarized here are detailed in a conceptual closure plan (Golder, 2022e).

Facilities that will remain after closure will be the open pits, the FTSF, the planned in-pit Guajes Tailings Storage Facility (GTSF) and waste rock storage facilities. The seepage from the FTSF will need to be managed until discharges meet applicable environmental regulatory standards or can be managed passively. The geochemistry study and contaminant transport modeling predictions indicated that long-term seepage management will not be required. After the post-closure monitoring period, the reclaimed lands and remaining facilities will be relinquished to the property owners and members of the ejido lands.

20.8.1 Objectives

The conceptual closure strategy has been developed with the following objectives in mind:

- Protect public and employee health, safety and welfare
- Protect the environment, including the water quality of the Balsas and Cocula Rivers
- Meet or exceed current regulatory requirements
- Identify risks and opportunities associated with the conceptual closure methods
- Ensure that stakeholders' needs and concerns are taken into account when planning closure
- Integrate closure planning and activities into project planning and design
- Strategize and plan for concurrent rehabilitation during operations
- Provide a preliminary assessment of post-closure land use options
- Stabilize the geotechnical and geochemical components of remaining facilities
- Provide a self-sustaining environment
- Incorporate international best practices and comply with the International Cyanide Management Code

20.8.2 Land Use

It is expected that the land usage 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 open pits, the underground mine workings, the GTSF and the FTSF. Each of the restricted areas will be blocked to prevent access.

20.8.3 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.

SEMARNAT requires that mining companies submit a closure plan prior to mine closure activities. The general closure activities are typically listed as part of the project MIA authorization. Mine closure plan requirements listed in the ELG Phase 2 MIA authorization, for example, indicated that a closure plan would be submitted one year prior to closure and the plan would include the following requirements for closure:

- Justification based on technical, environmental, and legal aspects.
- Closure objectives.
- Detailed description of the closure activities, such as stabilization of mining wastes, reclamation of areas of contaminated soils, restoration of the original site hydrology or a stable hydrologic network, prevention of acid mine drainage generation, and, as necessary, reduce acidic drainage and metals concentrations to acceptable legal and environmental levels.
- Identify areas that can be reused after closure.
- Establish success indicators and the monitoring activities.

- Present a calendar of activities and include concurrent reclamation activities that could be possible.

These requirements are considered in the planned closure activities for the Morelos Complex.

20.8.4 Compliance with Closure Requirements of the International Cyanide Management Code

In May 2021, Torex became a signatory to the International Cyanide Management Code (ICMC). The ICMC is a voluntary industry program focused on the safe and environmentally responsible management of cyanide by companies producing gold and/or silver and by companies producing and transporting cyanide. By becoming a signatory, Torex Gold committed to follow the ICMC's Principles and implement its Standards of Practice, and to have verification audits of its operations conducted by qualified, independent third-party auditors within three years of its initial application, and every three years thereafter.

As part of the signatory requirements, the ELG Mine Complex operations are required to become fully compliant with the ICMC by mid-2024. The ICMC Principle 5 relates to closure. The principle states that the signatory company must protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.

ICMC compliance is also a key requirement of the World Gold Council Responsible Gold Mining Principles, to which Torex plans to achieve full conformance by the end of 2023.

20.8.5 Revegetation

During construction, clearing and grubbing work includes removing existing vegetation, cutting down trees and chopping wood to manageable sizes. Top-soil is removed and stockpiled for future use in reclamation. During the period of 2020 to 2021, about 31,000 m^3 of topsoil was removed and stockpiled. The plant nursery located at ELG produces 105,000 to 120,000 tree seedlings annually. A plant nursery of capable of producing about 40,000 plants annually will be constructed at ML Project.

Disturbed areas with planned revegetation after closure include the closed and covered FTSF and GTSF; closed and backfilled ponds; footprints of demolished facilities and process plant surfaces; top of WRSFs; soil and rock borrow sites; topsoil stockpiles; and decommissioned infrastructure surfaces such as roads with no post-mining land use. The revegetation method is assumed to consist of surface preparation (such as scarifying or cross contouring) and construction of erosion control features, placement of topsoil, hydroseeding, hand-planting of root stock from the onsite plant nursery (where applicable, such as the top of the WRSFs and in the areas of the former plant). For disturbed areas where no additional cover planned, such as the outslopes of the WRSFs, revegetation may consist only of natural revegetation or hand-planting of root stock on the benches. The cover material thicknesses will be defined based on future infiltration modeling and revegetation studies, as well as topsoil and borrow sources availability.

There are some areas of the ELG Mine Complex that will be used as test as part of concurrent reclamation during operations. The seed mix for these reclamation areas will be designed to provide vegetation that is stable under the local climate condition and will support the post-mining land use.

The ELG Mine Complex closure layout is presented in Figure 20-7 and the ML Project closure layout is presented in Figure 20-8.The post-closure layout shows the revegetated areas and the remaining facilities.

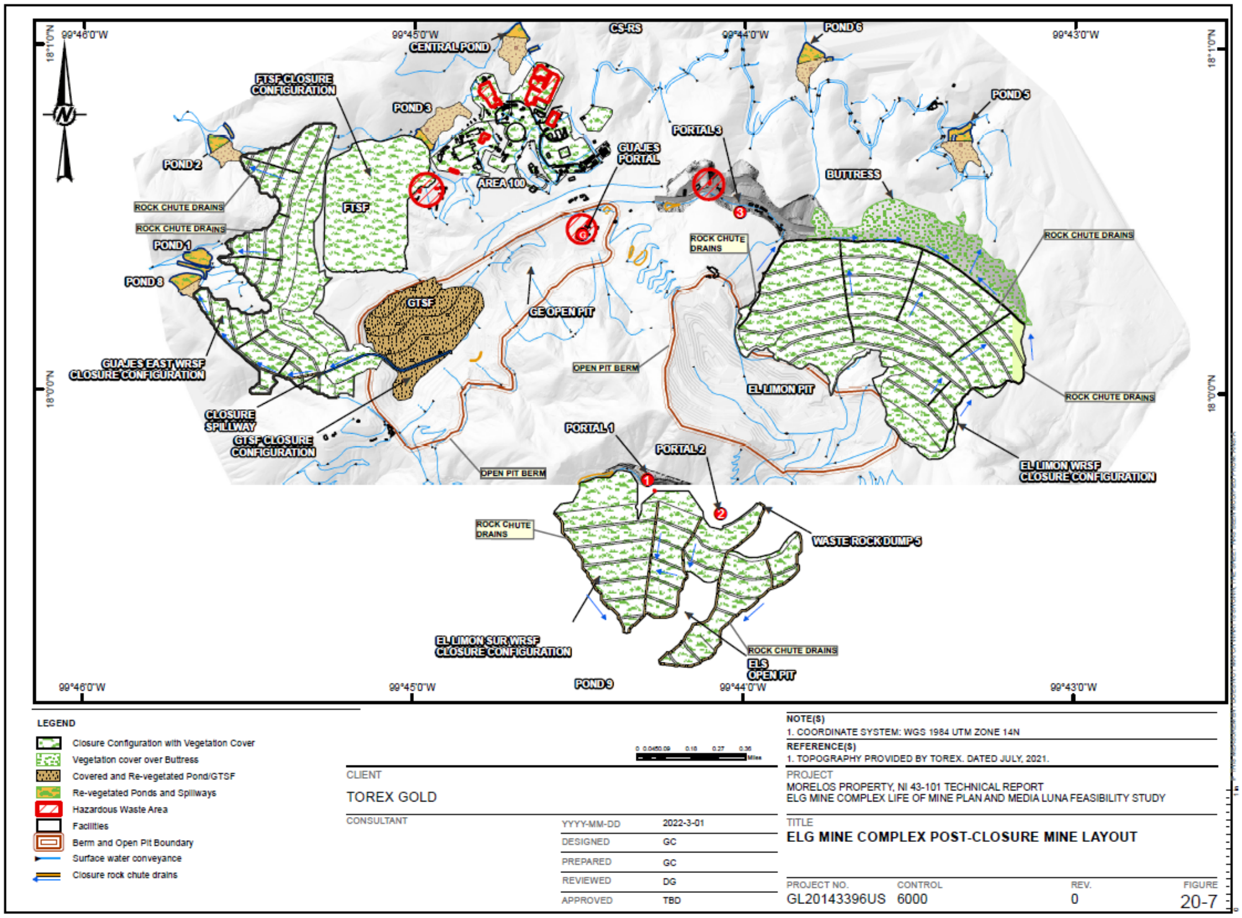


Figure 20-7: ELG Mine Complex Post-Closure Mine Layout

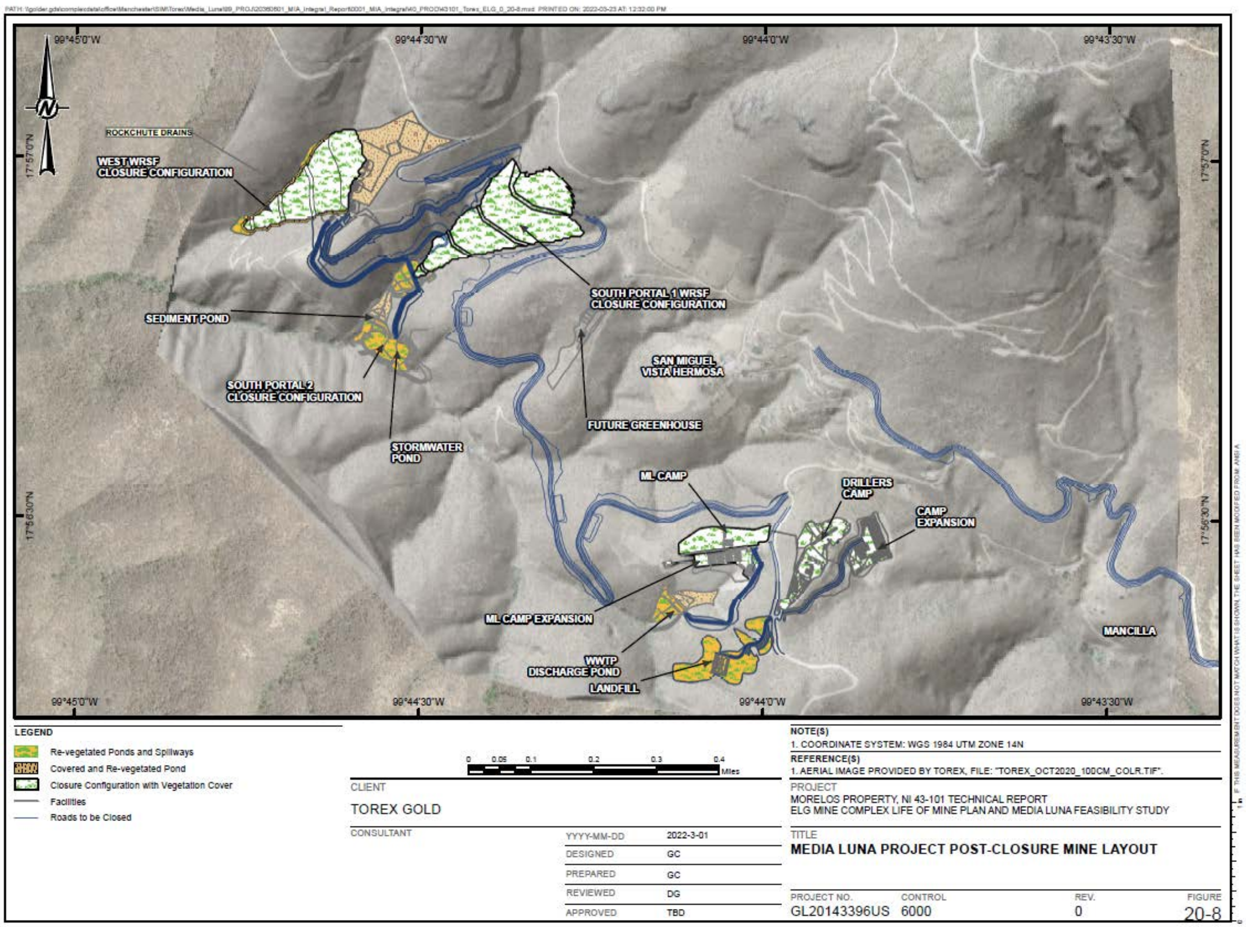


Figure 20-8: Media Luna Project Post-Closure Mine Layout

20.8.6 Cyanide Facilities Decommissioning Demolition

Decontamination and decommissioning of equipment and structures where cyanide was used, stored or handled will include removal of sediment and sludge; initial rinsing (that is, power wash) of process components; triple-rinsing with fresh water and collection of verification samples of the rinsate water; and treatment of impacted water in an on-site water treatment plant that will be constructed in the future.

Prior to decommissioning, it is assumed a survey will be completed to identify the equipment that require decontamination and that remaining materials will be classified and inventoried. Raw (unused) materials in bulk, if remaining, will be either used up or removed and returned to vendors. The term “materials” applies to chemicals, explosives, petroleum products, and other reagents. Non-hazardous materials such as glass, metal, paper, recyclable plastics, and organic wastes will be re-used or recycled.

The demolition includes removing structures to the ground-level slabs, which will be size-reduced in place, perforated, or remain as is, depending on their footprint size. Non-hazardous construction debris may be used as fill, and then covered with waste rock (if needed) and soil, and revegetated. Backfill of below-grade depressions related to the demolition work will be addressed as part of regrading or covering during reclamation. Areas will be brought to a final grade that allows for adequate drainage, covered with at least 0.3 m of inert waste rock or topsoil, and revegetated.

20.8.7 Waste Rock Storage Facilities

Waste rock storage facility top surfaces will be recontoured to promote surface water runoff and to avoid ponding on the top surface. The top surfaces will be revegetated. No soil cover is planned, assuming that revegetation will be successful without additional soil or other amendments. Surface water conveyances, such as v-ditches on benches that are graded to drain to a primary chute, will be constructed on side slopes.

Waste rock at the El Limón WRSF is placed by pushing the material from the WRSF top, resulting in slide slopes at a single angle of repose configuration. An emergency buttress is being constructed downstream of the side slopes based on a LOM design. The WRSF closure design includes recontouring 10 m wide benches and a final batter slope of 1.8H:1V, 50 m high, for an overall slope of 2H:1V at a total height of 350-400 m. No recontouring is planned for the emergency buttress downstream of the El Limón WRSF.

The El Limón Sur WRSF is a combination of a benched configuration of the waste rock and a series of access ramps through the waste rock and the El Limón Sur pit. For closure, the El Limón Sur WRSF will be recontoured with 10 m wide benches and a batter slope of 1.8H:1V, 50 m high, for an overall slope of 2H:1V at a total height of 250-300 m. This configuration will partially cover the El Limón Sur open pit.

The Guajes WRSF is constructed with benches and individual repose slopes, over the downstream face of the FTSF. The closure design consists of recontouring 10 m wide benches, and a batter slope of 2.0H:1V, 40 m high, for an overall slope of 2.25H:1V at a total height of 200-250 m.

The Media Luna South Portal 1 WRSF and West WRSF closure design is to recontour the facility using a 10 m wide benches and a batter slope of 2.5H:1V, 35 m high for and overall slope of 2.8H:1 at a total height of 200 m.

It is recommended that additional studies be carried out to advance the conceptual closure designs. These studies would include soil erosion and geotechnical stability models based on characterization of the geotechnical properties of the facility foundation and waste rock materials. In addition, geochemical characterization of representative samples of waste rock is recommended to verify preliminary geochemistry study conclusions.

20.8.8 Filtered Tailings Storage Facility (FTSF)

The FTSF has been designed so that minimal seepage occurs during operations or at closure. The FTSF seepage will be allowed to decrease during the closure period until the flow is at “de minimus” and the water quality either meets surface water discharge standards or can be managed through an evaporation cell. If an evaporation cell is needed, Pond 1, which is a lined pond, will be converted into the evaporation cell.

The entire FTSF will have inert, non-PAG waste rock placed on the tops of cells and the side slopes. The waste rock thickness will be at least 0.3 m and the cell tops will be contoured to promote drainage of surface water away from the cell tops and to avoid ponding of surface water. Surface water conveyances will be constructed to move surface water away from the cell tops and down the side slopes to natural channels. The side slopes will be no steeper than 2.5 Horizontal to 1 Vertical (2.5H:1V).

The cell tops will be covered with topsoil and revegetated except for within the surface water conveyances.

The engineering design will be advanced once the cover materials are specified and characterized for their hydraulic properties and infiltration studies are carried out to estimate seepage timeframes and rates from the FTSF. The final closure design will be based on additional geochemical characterization of the tailings and verification of the predictive models for future seepage quality and quantity.

20.8.9 Guajes Pit Tailings Storage Facility (GTSF)

An inert waste rock cover will be placed on the GTSF to reduce the potential of dust and to support revegetation. The waste rock cover will be graded to promote surface water runoff drainage to a spillway directed to a natural drainage. The engineering design will be advanced once the cover materials are specified and characterized for their hydraulic properties and soil erosion potential.

The final closure design will be based on additional geochemical characterization of the tailings and verification of the predictive models for future seepage quality and quantity.

20.8.10 Open Pit Lakes

An earthen perimeter berm with vee ditch will be constructed around each open pit and a fence with warning signs will be installed to prevent ingress to area.

A pit lake has formed in the Guajes East open pit during operations. The water quality of the pit lake currently meets surface water quality standards, and no post-closure management of the pit lake is anticipated. It is predicted that a pit lake will also form in the El Limón open pit after closure, and the water quality is assumed to meet surface water quality standards. The water quality and elevation of each pit lake will be monitored during the post-closure period to confirm predicted maximum levels.

El Limón Sur open pit will not have a pit lake form after closure. The Guajes West open pit will be commissioned as the GTSF during operations and will be closed using a separate method from the open pits.

It is possible that Guajes East and El Limón open pits will have a water elevation that is above the respective crests of the open pits, particularly in very wet years. The pit lakes will all have similar geochemical characteristics as groundwater, therefore the overspillage will be managed via a spillway and channel to connect to a natural drainage. The surface water design will take into account the seasonal changes in flow. No treatment of pit lake water is planned during closure or post-closure.

20.8.11 Ancillary Facilities and Infrastructure

<u>Buildings, Workshops, Laydown Yards, Offices, Mine Camps, etc.:</u>

The ancillary facilities and infrastructure that have no impacted soil or building material will be closed via the decommissioning and demolition procedures described above.

Pipelines will be evacuated and or ventilated and cleaned if deemed appropriate. The rinse materials will be classified for handling and disposal purposes. Buried tanks will be left in place. Above ground tanks will be removed. Where impacted soils are identified, these soils will be removed and managed according to their hazardous classification.

<u>Roads</u>: Roads will be leveled and graded to facilitate vegetation growth. Cover materials, if needed, will be used to achieve appropriate drainage.

<u>Wells and Water System:</u> The 3 water supply wells in the Atzcala Ejido will be transferred to the Ejido. The monitor wells will be destroyed at the end of the post-closure period. Wells will be properly destroyed in accordance with regulations or industry practice. In general, this procedure includes perforating the well casing, grouting the casing and removing all wellhead equipment. Surface casing is cut and removed to approximately 2 m below ground surface. Surface waterlines will be removed. Buried waterlines, if shallow, are removed; otherwise, deep waterlines will be capped and closed in situ.

Electrical System: All site powerlines and substations will be removed if not required for the post-closure land use. All site phone, fiber optic, or other type of communication lines will be removed and transported offsite for proper disposal.

Solar Plant: An option exists for the Company to transfer ownership of the solar plant to local communities post-closure. However, assuming that the plant is not transferred to a third-party, the solar plant will be dismantled, and any foundations will be broken in place or perforated for drainage. The area will be covered with non-PAG waste rock and recontoured for drainage. Topsoil will be placed over the waste rock and revegetated.

Sewage System: The sewage treatment plant will be emptied, and the infrastructure will be demolished. Demolition debris will be buried in the WRSFs. Any sludge could be used for revegetation purposes if testing indicates such use is appropriate, or alternatively could be placed in the FTSF. The surface sewer lines will be removed. Buried sewer lines, if shallow, will be removed; otherwise, deep sewer lines will be flushed, capped at each end, and closed in situ.

Landfills: The landfills receive no hazardous wastes and have only been used for domestic solid wastes and construction debris. It is assumed that the landfill has not been compacted and therefore the land will have limited reuse options due to instability and possible settling of the wastes over time. The landfill will be covered with a low permeability soil or synthetic cover, then a waste rock cover will be placed and reconfigured for drainage and to prevent water ponding. Topsoil will be placed over the waste rock and revegetated.

Other Disturbed Areas: Other areas that have been disturbed will be leveled for drainage, using clean fill material as needed, covered with topsoil as needed and revegetated. An example of a disturbed area are the topsoil stockpiles, which are assumed to have been exhausted at the end of closure activities.

Covers: Non-PAG waste rock will be used as the primary cover material to provide for drainage. All disturbed areas will receive a minimum of 0.30 m cover, except no additional cover will be needed for the WRSFs. On the tops of the FTSF and GTSF, the topsoil that has been reserved in stockpiles will be placed above the waste rock. The cover material thicknesses and sizes will be defined based on future infiltration modeling and revegetation studies, as well as topsoil and borrow sources availability.

Wastes: Residual chemical will either be consumed or hauled offsite. Process-related chemicals are anticipated to be consumed so that there is no residual during closure. Residual petroleum products, such as synthetic oil, gasoline, diesel fuel, gear oil, engine oil and transmission fluid, will be returned to the vendor. Remaining explosives will be returned to the vendor. Remaining sludge and sediments from the ponds and tanks will be encapsulated after characterization and disposed in the FTSF.

20.8.12 Rehabilitation Monitoring

Post-closure monitoring will be conducted to identify maintenance or risk problems associated with impacts from the closed facilities. The monitoring activities will include the following physical inspections and sampling events. There will be an estimated six years of monitoring during the closure activities, followed by thirty years of post-closure monitoring.

20.8.13 Closure Cost Methodology

The conceptual closure costs were calculated based on the LOM facility designs and existing technical studies, in particular the geochemistry studies for future water quality. Costs were typically based on activities such as demolition, recontouring (that is, cut and fill materials earth-moving), placement of closure covers and revegetation, which were calculated based on a unit cost per volume or area. The measurements of area were made from topographic surveys provided by Torex and volumes of materials were calculated based on the closure designs prepared in AutoCAD.

Unit rates were sources from public rate sheets, specialist contractor data and Golder´s experience in the field. Rates have been adjusted to reflect site specific considerations. The unit rates have been referenced against available information compiled by industry specialists such as the Mexican Chamber of the Construction Industry rates and "ConstruBase Neodata Nube" online database. Rates have been adjusted for inflation where necessary. Rates of Inflation in Mexico have been sourced from the Instituto Nacional de Estadística Geografía e Informat (INEGI) and the Bank of Mexico. The exchange rate used was 1USD:20MXN.

The unit rates are based on third-party contractors and consultants to conduct the closure activities and post-closure care and maintenance work. Indirect costs such as owner's costs and insurance were included. No discounting was applied. A 35% contingency was applied. The conceptual closure cost is included in the financial model presented in Section 22.

Estimated closure costs have been developed based on two different scenarios (Golder, 2022d). A closure cost scenario was developed for the Morelos Complex including the ELG and ML operations. This assumes that ELG open pit and underground operations would continue to their end of mine life ranging between 2024 and 2027, and the ML Project would be fully developed and operated to the end of its mine life (Year 2033). This estimate includes the additional infrastructure to support the ML Project operations, including the GTSF. The estimated closure cost is shown as Scenario 1 in Table 20-7. The estimated closure cost is US$92.6M.

A separate closure cost was developed for the ELG Mine Complex standalone based on the assumption that the ELG deposit will be operated through 2025, however the ML deposit development will not proceed past the conditions that existed as of the end of 2021. This is Scenario 2 shown in Table 20-7. The estimated closure cost is US$81.7M.

Table 20-7: Summary of Estimated Closure Costs for Morelos Complex and ELG Mine Complex Standalone

Closure Components		Closure Costs (USD) Morelos Complex with ELG & ML Scenario 1	Closure Costs (USD) ELG Mine Complex Standalone Scenario 2
1	Infrastructural Aspects	$19,454,000	$14,894,000
2	Mining Aspects	$36,145,000	$33,833,000
3	General Surface Reclamation	$2,778,000	$2,765,000
4	Water Management	$148,000	$148,000
	Subtotal 1	$58,524,000	$51,642,000
5	Post-Closure Aspects		
5.1	Surface Water Monitoring	$348,000	$218,000
5.2	Groundwater Monitoring		
5.3	Rehabilitation Monitoring (Incl. In 5.4)	-	-
5.4	Care and Maintenance	$2,626,000	$2,626,000
5.5	Contingencies for Post-Closure Aspects	$806,000	$701,000
	Subtotal 2	$4,836,000	$4,204,000
6	Additional Allowances		
6.1	Preliminary and General	$8,779,000	$7,746,000
6.2	Contingencies	$20,484,000	$18,075,000
	Subtotal 3	$29,262,000	$25,821,000
	Grand Total Excl. VAT. (Subtotals 1 +2 +3)	$92,623,000	$81,667,000

Note: All costs are presented in US dollars. All amounts are rounded to the nearest US$1,000.

20.9 SOCIAL AND COMMUNITY

The following subsections present key information related to social and community aspects of the Morelos Complex. The results of key socioeconomic studies are summarized, including socioeconomic baseline studies completed in

2013 for the ELG Mine Complex and in 2020 and 2021 for communities located near the ML Project. Community agreements in place with key stakeholders are summarized. Key social impacts are presented, including mitigation management plans and monitoring activities.

The ELG Mine Complex and Media Luna deposit are located in the same regional environmental system and the Company's social and community management plans cover both locations. As such, the social and community aspects provided in this section are presented together. Where there are key differences in studies, information, and/or data, they are referenced separately.

20.9.1 Stakeholder Identification and Analysis

Stakeholder identification and analysis exercises are regularly updated to identify and assess stakeholder groups and associated concerns. Local communities are considered to have the highest potential impact and influence on the project, including associated CODECOP committees. State, Federal, and local regulatory authorities, including local municipalities and Ejidos, are also regularly identified as stakeholders with high potential impact and influence. Stakeholder attitudes towards the project are regularly considered very positive by Company management.

There is a limited presence of non-governmental organizations (NGOs) in the region that the Company regularly interacts with.

20.9.2 Socioeconomic Baseline Studies

A local and regional socioeconomic baseline study was completed in 2014 as part of the overall project ESIA for the ELG Mine Complex. The purpose of the study was to provide detailed information on baseline characterization, study areas, key issues, predicted effects, applicable mitigation measures, and any required monitoring programs. The study was prepared in alignment with the Equator Principles and applicable IFC Performance Standards.

Baseline information was collected for the national and state-level population, macro-economic characteristics, governance and administrative structures, and key social development indicators. In 2020 and 2021, an additional socioeconomic baseline study was conducted with a focus on the villages and towns near the ML Project.

Communities are classified as 'directly' or 'indirectly' affected by the project according to the expected environmental and social impacts. Indirectly-impacted communities are located along key transportation routes rather than near the mining operations, making environmental and social impacts lower than directly-impacted communities that are located closer to the operations.

Directly impacted communities near the ELG Mine Complex include Atzcala, La Fundición, Nuevo Balsas, Real del Limón, San Nicolás, Tlanipatlán, and Valerio Trujano. Indirectly impacted communities include Acalamantlila, Atlixtac, Las Mesas, Tlanipatlán, and San Nicolás.

There are two directly impacted communities near the Media Luna deposit, namely Puente Sur Balsas and San Miguel Vista Hermosa. Indirectly impacted communities include Mancillas, Mazapa, Mezcala, and Tepehuaje.

Figure 20-9 below provides an overview of local communities and their proximity to the operations and key project infrastructure. Table 20-8 lists the communities, their respective municipality, and population figures.

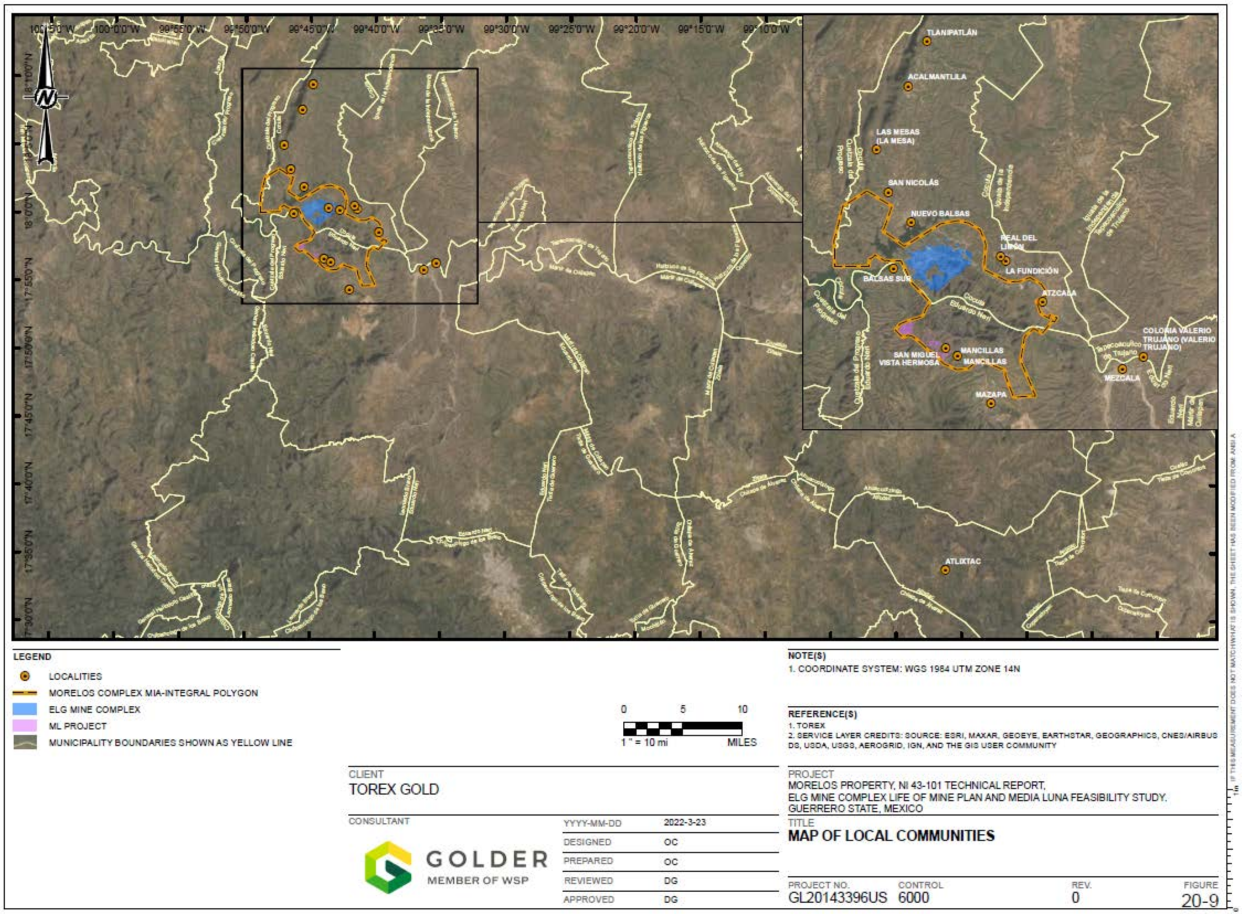


Figure 20-9: Map of Local Communities

Table 20-8: List of Impacted Communities

Community	Municipality	Population
Directly Impacted Communities (ELG Mine Complex)		
Atzcala	Cocula	640
La Fundición	Cocula	269
Nuevo Balsas	Cocula	1,711
Real del Limón	Cocula	157
Valerio Trujano	Tepecoacuilco de Trujano	314
Indirectly Impacted Communities (ELG Mine Complex)		
Acalmantlila	Cocula	304
Atlixtac	Atlixtac	3,733
Las Mesas	Cocula	139
San Nicolás	Cocula	72
Tlanipatlán	Cocula	759
Directly Impacted Communities (Media Luna Project)		
Puente Sur Balsas	Eduardo Neri	139
San Miguel Vista Hermosa	Eduardo Neri	43
Indirectly Impacted Communities (Media Luna Project)		
Mancillas	Eduardo Neri	8
Mazapa	Eduardo Neri	3,763
Mezcala	Eduardo Neri	5,654
Tepehuaje	Eduardo Neri	210

The area surrounding the Morelos property is predominantly rural with agriculture, fishing, and mining representing the biggest three economic sectors. Large-scale mining is relatively new to the region as it became a key economic driver in 2007 with the opening of the Los Filos mine complex, which is located adjacent to the ML Project.

Community economic and social development needs are high. Poverty is a key concern in many local communities, with over two thirds of the population in the regional study area experiencing some form of poverty. Educational attainment and literacy rates are also relatively low as compared with the Mexican national average.

A significant proportion of the population requires greater access to health services and social security. Larger communities in the project area access water through the public network, while smaller communities do so through nearby springs and boreholes. As such, water quality and quantity are key community interests in relation to the project.

Access to services and infrastructure is limited. Infrastructure is more advanced in the larger towns of Mezcala and Nuevo Balsas as well as La Fundición and Real del Limón given that these two communities were resettled by the Company in 2015.

Investments in local infrastructure represent a key project benefit. To date, the Company has made a variety of investments in local water supply and treatment systems, health centers, schools, churches, and road improvement projects. The projects are often implemented as part of community development agreements, which are summarized in Section 20.9.7 of this report.

Community perception surveys were conducted as part of the socioeconomic baseline studies completed in 2014 and 2021. Both surveys indicated that the Company has broad community support for mining and exploration activities and that a significant majority of respondents foresee socioeconomic improvements in the next five years, which they attributed to the presence of mining.

20.9.3 Agreements with Local Ejidos

The vast majority of the land in the concession is owned by Ejidos. Ejido land is collectively administered and is held by its members as either common land, which is jointly owned by the members, or as parcels that are held by individual members. All local communities listed in Table 20-8 above are located on Ejido land except Nuevo Balsas and Mezcala, which is located on a *Bienes Comunales*, a similar form of communal land ownership arrangement. As such, the involvement and support of Ejido leadership is a primary consideration in all stakeholder engagement activities.

The Company has secured all required surface rights to land for the direct development at both ELG and Media Luna through the signing of long-term lease agreements with the Río Balsas, Real del Limón, Atzcala, and Puente Sur Balsas Ejidos and with individuals (ejiditarios/as) who 'own' land parcels. The Company has also signed long-term lease agreements with co-owners of private lands as discussed in Section 4.3.

Table 20-9 below summarizes community land agreements with local Ejidos. More detailed information on the nature of the agreements can be found in Section 4.3 of this report.

Table 20-9: List of Ejido Agreements

Ejido	Surface Rights Area (ha)	From	To
ELG Mine Complex			
Rio Balsas	1,237	12/15/2011	12/15/2041
Real del Limón	603	03/30/2012	03/30/2042
Atzcala	40	08/03/2018	08/03/2043
Media Luna			
Puente Sur Balsas	2,647	07/12/2017	07/12/2042

20.9.4 Community Relations Management

The Company maintains a Policy on Social Harmony and Human Rights, which outlines the company-wide commitments to integrating positive community relations into its overall management systems. The Company maintains an Environmental and Social Management System (ESMS), which was developed in 2012 and updated following the completion of the 2014 ESIA. It has been updated to include ongoing operational changes at the ELG Mine Complex as well as the inclusion of the ML Project.

Stakeholder engagement is one of seven key components of the ESMS. The Company's stakeholder engagement strategy is based on a collaborative-partnership model through agreements and partnerships among stakeholders.

The key environmental and social concerns and interests of project stakeholders have generally been consistent since the pre-scoping phase of ELG Mine Complex, which ended in December 2011. Stakeholder concerns and interests were identified though community perception surveys conducted in 2012 and 2021. Ongoing engagement, monitoring, and social risk reviews are conducted to monitor potential issues and develop appropriate mitigation measures. Table 20-10 below presents the primary community interests and potential concerns identified in the socioeconomic baseline reports as well as a summary of associated mitigation measures.

Table 20-10: Potential Social Impacts and Mitigation

Interest / Potential Concern	Summary of Actions / Mitigation Measures
Employment	• Implementation of local hiring policy • Implementation of local procurement procedure • Training and skill-building programs • Support for alternative economic activity (e.g., local fishermen) • Support for local businesses
Investment and Economic Benefits	• Implementation of local procurement policy • Implementation of community development agreements (CODECOPs) • Direct community investment in local communities • Public infrastructure support • Payments to local, regional, and national governments (i.e., taxes, royalties, etc.) • Seed capital funding for local business training development
Water pollution, especially contamination of the Rio Balsas and potential economic losses linked to fishing in the Presa El Caracol	• Implementation of Water Management and Monitoring Plan • Implementation of community monitoring program with local communities and the Autonomous University of Guerrero (UAGro) • Implementation of the International Cyanide Management Code by mid-2024
Potential environmental pollution, especially potential soil and water contamination from cyanide leakage and possible spillage during transportation	• Implementation of Hazardous Waste Management Plan in line with Mexican regulations • Government-accredited contractors required for handling hazardous waste • Waste recycling, co-processing, and confinement • Implementation of the International Cyanide Management Code by mid-2024 • Contracts signed with government-approved waste management specialists to transport waste
Improved access to clean drinking water	• Support for water supply infrastructure upgrades • Provision of water treatment facilities to several local communities
Dust from construction and operations	• Implementation of Air Quality Management and Monitoring Plans aligned with Mexican regulations and maximum permissible limits • Dust suppression on haul and access roads • Use of a domed stockpile for crushed ore • Establishment of speed limits on company roads • Environmental screens at the ELG Mine Complex waste rock storage facilities
Mine closure arrangements, especially the rehabilitation of pits and mined areas and loss of economic activity	• Development of a Mine Closure Plan • Consultations with local Ejidos and communities to agree on post-mining land uses • Support for local business to promote diversification

A social management and monitoring program is maintained as part of the Company's overall Environmental Quality and Monitoring Program. The plans include the results of social and community risk assessments, mitigation measures for implementation, and monitoring protocols. The purpose of the monitoring program is to compare actual impacts with predicted effects, confirm the effectiveness of mitigation measures, provide information for use in adaptive social management, and show compliance with commitments to mitigation and benefit enhancement measures.

Monthly meetings are held with local community members and Ejidos. Offices are also maintained in several local communities to enable access to Company Community Relations personnel.

The Company also maintains a *Social Responsibility Policy for Contractors*. This policy applies throughout all stages of mine development including exploration, construction, operations, and closure. Standards of behavior are outlined for all contractors doing business with the Company. Key provisions within the policy include health and safety requirements, preferential local purchasing and hiring guidelines, and labor rights requirements.

20.9.5 Grievance Management

The Company maintains a grievance mechanism to understand and respond to community concerns. The grievance mechanism is intended to address concerns promptly and effectively, using an understandable and transparent process that is culturally appropriate and readily accessible to all parties. The grievance mechanism was developed in 2013 and is aligned with IFC guidance on addressing grievances from project-affected communities. It was subsequently updated in 2020.

Grievances can be submitted through a variety of means, including monthly community meetings, informal meetings with mine site staff, and MML's formal grievance procedure. Grievances are classified according to their severity of impact and are subject to corresponding management controls to streamline Company responses and their ensuing resolution. The grievance mechanism contains a Commitments Tracker System to digitally document and register all complaints.

The grievance mechanism may be used by stakeholders to address grievances against contractors and subcontractors.

20.9.6 Local Hiring and Procurement

Employment at the mining operations is a key interest for local stakeholders. The Company maintains a local hiring program as well as skill development training where appropriate, to enable local community members to obtain the requisite skills to fill available positions. Local communities also participate in the decision-making process for local hiring through an established labor committee. In 2020, approximately 45% of employees came from local communities and 60% came from Guerrero. Over 99% of MML employees are Mexican nationals.

A local procurement procedure is maintained to help increase the amount of spend in local communities. The procedure was updated in 2020 to reflect operational changes to the ELG Mine Complex, include the ML Project, and align with agreements with local communities. Local businesses are also supported through skill-building programs, such as ongoing business support to *Confecciones Luna*, a female-led garment company supplying uniforms to the mine. Approximately 10% of total procurement went to Guerrero-based companies in 2019 and 2020. An average of 87.5% of total procurement spend went to Mexican firms for these years.

20.9.7 Community and Economic Development

The State of Guerrero has limited government resources to fund social, economic, and infrastructure development. Given these economic circumstances, community investment by the Company offers an opportunity to increase the standard of living of the residents near the project and helps strengthen community relationships.

In 2018, the Company started implementing community development agreements (*Convenio de Desarrollo Comunitario Participativo* ("CODECOPs")) in collaboration with communities directly and indirectly impacted by the operations. MML currently has CODECOPs in place with eleven impacted communities as outlined in Table 20-11 below.

Table 20-11: List of Communities with CODECOP Agreements

ELG Communities
Atzcala
Acalmantlila
Atlixtac
La Fundición
Nuevo Balsas
Real del Limón
San Nicolás
Tlanipatlán
Valerio Trujano
Media Luna Communities
Puente Sur Balsas
San Miguel

The CODECOPs outline the development commitments made by the Company and the roles and responsibilities of the local stakeholders in designating and delivering development projects in their communities. Local committees have been established for each CODECOP, which include requirements for female representation. Funding priorities are defined by the CODECOP committee representatives in consultation with community authorities and community members. Typical projects include infrastructure development and improvements, health initiatives, water and sanitation projects, education initiatives, and cultural initiatives. The Company invested $0.9 million as part of the CODECOPs in 2020.

The Company also invests directly in community projects that are defined by local communities, often in partnership with local government agencies and non-governmental development organizations. In addition to the CODECOP funding, in 2020, the Company invested $3.1 million directly into such initiatives. Typical projects are similar to those carried out as part of the CODECOP agreements.

A variety of sustainable livelihood programs have been implemented to diversify economic development and provide long-term benefits lasting beyond the mine. A flagship initiative is a program to support local fishermen operating in the Presa El Caracol.

20.9.8 Security

Criminal activities in the region, or the perception that activities are likely, are a concern in southern Mexico, including in Guerrero State. Illegal drug production and transport occurs in the region, which has resulted in violence between criminal organizations. This violence has not been directed at the Company and has not affected the Company's ability to engage in exploration and mining activities.

The Company maintains a security management plan, including security risk matrices to identify, assess, and control potential threats. Private security contractors are employed to provide security support and the Company also engages the Instituto del Patrimonio Inmobiliario de la Administración Pública of the State of Guerrero (IPAE), the auxiliary security service operated by the state, to provide security at the operations.

Local communities may be influenced by external entities, groups, or organizations opposed to mining activities or seeking to gain illegally from mining. Social acceptance of the Company remains strong and local communities are largely supportive of the Company; however, the ELG Mine Complex has experienced blockades from time to time.

The ELG Mine Complex has been blockaded on three occasions since commercial production started in 2016, most recently in November 2017. This blockade was established when a minority of workers illegally demanded the Company change the union representation from the Confederación de Trabajadores Mexicanos (CTM) to the Los

Mineros Union. Community support led to the reestablishment of operations in January 2018 with full access restored in April 2018. The Company maintains a strong focus on maintaining mutually beneficial, productive relationships with local communities to manage the risks of potential blockades.

20.9.9 Cultural Heritage

MML established a close relationship with the Mexican National Institute of Archeology and History (INAH) in 2011 to safeguard, study, and rescue paleontological, archeological, and historical sites in the project area. In 2013, the Puente Sur Balsas and El Potrerillo areas were surveyed to establish conservation strategies for archaeological sites.

A cultural heritage baseline and impact assessment was completed in 2013 as part of the ESIA to satisfy the requirements of the Mexican legislation and IFC Performance Standard 8 on Cultural Heritage. Given the absence of Indigenous Peoples in the project area, IFC Performance Standard 7 on Indigenous Peoples did not apply. The assessment was carried out by qualified experts and included representation from the INAH.

The assessment included documentation of paleontological, archaeological, historical, and cultural sites, as well as an evaluation of the potential effects to each of those sites.

Mitigation measures were developed to protect existing cultural heritage resources and cultural heritage management and monitoring plans were developed as part of the overall ESMS. This included adoption of the INAH Chance Finds Policy and an internal *Protocol for Safeguarding Archaeological and Paleontological Heritage*, which was updated in 2020. Cultural heritage impact assessments, mitigation measures, and monitoring plans are included in MML's overall Environment Quality and Monitoring Plan.

An additional cultural heritage baseline survey was conducted in 2020 and 2021 for areas near the ML Project. Cultural heritage areas that were identified were subsequently demarcated to prohibit the extracting and / or excavating of pieces. The local Public Affairs team continues to engage with the INAH and local communities to mitigate any potential negative impacts to cultural heritage.

20.9.10 Resettlement

In 2015, land access for the ELG Mine Complex required the relocation of two villages, namely Real de Limón and La Fundición, given their proximities to active mining areas.

These communities were successfully relocated to a new area in 2015, approximately 5 kilometers east of the mine site area. The resettlement was conducted in accordance with the federal laws pertaining to land use changes and guided by the recommendations of IFC Performance Standard 5 on Land Acquisition and Involuntary Resettlement.

As part of the Ejido agreement with the Real del Limón Ejido, a general agreement on a resettlement of both the La Fundición and El Limón villages was negotiated. The resettlement has been completed.

While there is no resettlement of any villages legally required in order to access land for ML Project, the Company continues to have discussions with local communities on mitigating impacts of development and operations at Media Luna.

20.10 EXTERNAL PERFORMANCE, DISCLOSURE AND REPORTING STANDARDS

Torex has committed to continuous improvement in terms of the disclosure and reporting of material Environmental, Social and Governance (ESG) issues to meet the information needs of investors and other capital providers. Significant efforts have been made over the past couple of years to enhance ESG disclosure efforts, which has been reflected in recent improvements in scoring from key ESG ratings agencies.

The Company has also made commitments to adopt additional international standards to strengthen existing systems and promote continual improvement in environmental and social performance.

These standards and frameworks are summarized in the following subsections.

20.10.1 World Gold Council Responsible Gold Mining Principles

The Company became a member of the World Gold Council in December 2020. A condition of membership is to conform to the Responsible Gold Mining Principles ("RGMPs"), a framework of 10 principles and 51 sub-principles that address key ESG issues material to the gold mining sector. The RGMPs serve as an umbrella framework that reference several other voluntary environmental and social standards. All Company operations are required to conform to the RGMPs as a condition of membership.

The World Gold Council has defined a three-year implementation process for the RGMPs. The Company completed the Year-One requirements in 2021 and is on track to be in full conformance by end-2023. Progress on implementation and full conformance with the RGMPs are subject to independent assurance. Annual progress and conformance reports are required, which are made available in the ESG Reporting Portal on the Torex Gold public website.

20.10.2 International Cyanide Management Code

The International Cyanide Management Code ("ICMC") is a voluntary, best practice performance standard for the safe management of cyanide throughout its use cycle. Companies that adopt the ICMC must have their operations that use, transport, or produce cyanide audited to determine the status of implementation. Those operations that meet the requirements are certified.

The Company became a signatory to the ICMC in May 2021. The Company is currently working towards full compliance for its applicable facilities at the Morelos Property. As per ICMC membership requirements, the Company is designated for certification by mid-2024.

20.10.3 Global Industry Standard on Tailings Management

The Company is currently considering public adoption of the Global Industry Standard on Tailings Management (GISTM). The Company conducted a gap analysis against the standard in 2021 and is currently developing a workplan to conform to the new standard for the existing FTSF and the proposed in-pit tailings storage facility.

The GISTM provides a framework for safe tailings facility management with a goal of zero harm to the environment and stakeholders. To be compliant with the GISTM, tailings facility operators must use specified measures to prevent the catastrophic failure of tailings facilities and to implement best practices in planning, design, construction, operation, maintenance, monitoring, closure, and post-closure activities. The GISTM applies to tailings facilities, both existing and planned.

20.10.4 Industria Limpia

Industria Limpia (or Clean Industry in English) is a national environmental audit program established in 1992 by PROFEPA under the National Environmental Audit Program. Industria Limpia consists of two components, namely an audit of environmental compliance and a review of good environmental practices. The program is voluntary, and certificates are granted by PROFEPA for a period of two years. MML applied for certification in April 2021.

20.10.5 ESG Disclosure and Reporting Standards

The Company currently discloses material environmental and social information through the following international ESG reporting standards and frameworks:

- Sustainability Accounting Standards Board (SASB) Metals and Mining Sustainability Standard
- Global Reporting Initiative (GRI) Standards
- Taskforce on Climate-related Financial Disclosures (TCFD)
- CDP Climate Change Questionnaire

Disclosures made using these standards and frameworks can be found within the ESG Reporting Portal on the Torex Gold public website.

20.10.6 Diversity and Inclusion

The Company has stated that decision-making is enhanced through diversity in the broadest sense and has adopted a Diversity Policy to reflect this principle. Currently, Torex's Board of Directors is comprised of 44% women, and the Executive Team is comprised of 50% women. In addition, 14% of the workforce at site is made up of women, and 18% of the management team in Mexico is comprised of women. The Company has programs in place to attract more women to the workforce through the build and operation of ML Project.

21 CAPITAL AND OPERATING COSTS

Capital and operating cost estimates have been developed for the ELG Life of Mine planning and the ML Project FS.

A summary of the total Morelos Complex capital costs is provided in Table 21-1. The capital cost estimate including the basis of estimate and additional cost estimate information is discussed within this section.

Key points to accompany the capital cost estimate summary include:

- All capital costs including non-sustaining and sustaining have been assumed on a go-forward basis as of April 1, 2022. The ML initial project capital period is assumed from April 1, 2022 through December 31, 2024. The ML commercial production period is assumed from January 1, 2025 through the end of life of mine in 2033. All project costs incurred prior to April 1, 2022 are assumed sunk costs and are excluded from the projects economic analysis described in Section 22.
- The ML initial project capital estimate is $848M including directs, indirects, and contingency. This is a AACE Class 3 estimate developed by M3, Stantec, Patterson & Cooke, NewFields, Torex, and other supporting consultants based on the engineering and design work described in Section 16 through Section 18 of this Technical Report.
- The ML initial project capital cost estimate excludes exploration drilling, pre-commercial operating costs, and corporate costs related to financing.
- The ML sustaining capital commences in 2025 through to 2033, for total sustaining capital spend of $336M which includes $266M for the underground mine, and $70M for the processing areas.
- The ELG Mine Complex sustaining capital is $184M through the end of 2024. This includes $118M for ELG OP waste stripping and equipment rebuilds, $31M for ELG UG development and fixed infrastructure, and $23M for ELG Process Plant rebuilds and replacements.
- Unless otherwise indicated, all costs are expressed without allowance for escalation, currency fluctuation, or interest.

Table 21-1: Total Capital Cost Estimate, Morelos Complex, Q2 2022 through 2033

As of April 1, 2022	Units	Q2 2022 to 2024 (Total)	2025+ (Total)	Life of Mine (Total)
Non-Sustaining - Media Luna				
Guajes Portal & Tunnel	$M	75.8	0.0	75.8
South Portals & Tunnels	$M	40.2	0.0	40.2
Underground Mine	$M	172.6	0.0	172.6
Process Plant	$M	98.3	0.0	98.3
Tailings and Paste Plant	$M	77.8	0.0	77.8
On-Site Infrastructure	$M	15.0	0.0	15.0
Off-Site Infrastructure	$M	25.9	0.0	25.9
Sub-total Directs	$M	505.6	0.0	505.6
Freight and IMMEX	$M	61.6	0.0	61.6
Contractor Indirects	$M	20.3	0.0	20.3
Mobilization, Spares, Vendor Support	$M	26.6	0.0	26.6
EPCM	$M	81.5	0.0	81.5
Owners Cost	$M	53.3	0.0	53.3
Contingency	$M	99.5	0.0	99.5
Sub-total Indirects	$M	342.8	0.0	342.8
Total Media Luna Non-Sustaining	$M	848.4	0.0	848.4
Non-Sustaining - El Limón Guajes				
ELG Underground - Portal 3	$M	1.7	0.0	1.7
Sustaining				
ELG Open Pit - Capitalized Stripping	$M	93.7	0.0	93.7
ELG Open Pit - Other	$M	24.8	0.0	24.8
ELG Underground	$M	31.1	2.7	33.8
Media Luna Underground	$M	0.0	266.0	266.0
Process Plant	$M	22.8	70.0	92.8
Support equipment leases	$M	10.0	24.0	34.0
Total	$M	182.4	362.7	545.1
GRAND TOTAL	$M	1,032.5	362.7	1,395.2

A summary of the total Morelos Complex operating costs is provided in Table 21-2. The operating cost estimate details including the basis of estimate is discussed within this section.

Key points to accompany this summary include:

- All operating costs have been assumed on a go-forward basis as of April 1, 2022 in order to align with the capital cost estimate time periods described above, and as carried in the project economics in Section 22.
- Mine and mill physicals are described in Section 13, Section 16 and Section 17 of this Technical Report.
- The ELG mine and process plants have operated since 2016, and the associated operating costs are well understood.
- Mine and processing operating costs for ELG Mine Complex and ML have been estimated from first principles build-up of labor, power, materials, and maintenance. Unit rate costs applied to the estimate are current as of October 2021.
- Labor costs have been estimated with and without profit share bonus (PTU). The PTU is calculated in the financial modelling and applied back to the operating costs.

- Mining costs for ML include all activities required to deliver ore to the mill's primary crushing circuit, including; development, ore production, paste backfill, material handling to load the Guajes conveyor, and secondary material handling on surface.
- Processing costs for 2025+ include the planned additions of the ML process facility including copper concentrator, water treatment plant, and new tailings system. The Guajes Tunnel ore conveyor power and maintenance costs are assumed in processing costs, as is the tailings pumping costs for pumping of the slurry tailings to the paste backfill plant.
- Site Support cost assumes current expenditure profiles through 2028, with reduction thereafter with the completion of ELG mining activities.
- ML operating costs include pre-commercial mine operating costs starting in Q4 2022 through the project period ending Q4 2024.
- Unless otherwise indicated, all costs are expressed without allowance for escalation, currency fluctuation, or interest.

Table 21-2: Total Operating Cost Estimate, Morelos Complex, Q2 2022 through 2033

As of April 1, 2022	Units	Q2 2022 to 2024 (Total)	2025+ (Total)	Life of Mine (Total)
Physicals				
Total ore mined - ELG Open Pit	kt	9,528	0	9,528
Waste mined - ELG Open Pit	kt	71,121	0	71,121
Total mined - ELG Open Pit	kt	80,649	0	80,649
Total ore mined - ELG Underground	kt	1,404	1,145	2,549
Total ore mined - Media Luna	kt	806	22,210	23,017
Net stockpile drawdowns	kt	887	3,798	4,685
Total ore processed	kt	12,624	27,154	39,778
Operating Unit Costs (with PTU)				
ELG Open Pit - per tonne mined	$/t	2.81	0.00	2.81
ELG Underground - per tonne ore mined	$/t	96.25	100.56	98.19
Media Luna - per tonne ore mined	$/t	44.77	33.65	34.04
Process Plant - per tonne ore processed	$/t	32.63	35.43	34.54
Site Support - per tonne ore processed	$/t	11.49	14.39	13.47
Operating Unit Costs (without PTU)				
ELG Open Pit - per tonne mined	$/t	2.67	0.00	2.67
ELG Underground - per tonne ore mined	$/t	95.10	99.12	96.90
Media Luna - per tonne ore mined	$/t	44.77	33.00	33.42
Process Plant - per tonne ore processed	$/t	31.65	34.78	33.79
Site Support - per tonne ore processed	$/t	10.85	13.98	12.99
Total Operating Cost				
ELG Open Pit	$M	215.2	10.9	226.1
ELG Underground	$M	133.7	113.3	247.0
Media Luna	$M	36.8	733.0	769.8
Process Plant	$M	399.6	944.6	1,344.2
Site Support	$M	137.0	379.7	516.7
Transport/Treatment/Refining	$M	12.3	213.4	225.7
Employee Profit Sharing (PTU)	$M	56.7	55.0	111.7
Capitalized stripping	$M	(44.5)	(49.2)	(93.7)
Total Operating Cost	$M	946.8	2,400.7	3,347.5
Total Operating Cost - per tonne processed	$/t	75.00	88.41	84.15

21.1 BASIS OF ESTIMATE

The following section presents the basis of estimate with key assumptions which have been applied to the capital and operating cost estimates presented within this Technical Report.

21.1.1 ELG Mine Complex Capital Basis of Estimate

The following are key points for the basis of estimate of capital costs for the ELG Mine Complex mining operations:

- All costs are in US dollars and presented as of Q1 2022. Fixed exchange rates have been assumed as 1 USD: 20 MXN, and 1 USD: 1.25 CAD
- Unless otherwise indicated, all costs are expressed without allowance for escalation, currency fluctuation, or interest.
- ELG OP and ELG UG operations are planned to continue through the LOM as per existing mining methods and equipment.
- ELG OP operations will be completed in 2024, with capital cost for deferred stripping and overhauls of existing equipment to sustain operations.
- ELG UG costs are based on existing Contractor unit rates for development of capital infrastructure.
- ELG UG mobile production equipment is supplied by existing contractors and compensated in the contractual unit rates.

21.1.2 Media Luna Capital Basis of Estimate

The following are key points for the basis of estimate of capital costs for the ML Project.

The general capital cost estimate methodology includes the following:

- All costs are in US dollars as of Q1 2022 with an effective date of February 22, 2022 for the Media Luna CAPEX. Fixed exchange rates have been assumed as 1 USD: 20 MXN, and 1 USD: 1.25 CAD.
- Unless otherwise indicated, all costs are expressed without allowance for escalation, currency fluctuation, or interest.
- The capital cost estimate was developed by; M3 (surface and plant), Stantec (mine), Patterson & Cooke (paste plant), NewFields (tailings storage facility), and Torex (owners' costs and Guajes Tunnel costs).
- All costs to the end of March 2022 on the ML Project are considered as sunk costs. Any costs incurred for the early works effort to begin tunneling to the ML reserve, setup of camps, development of surface infrastructure, completion of any future feasibility study, including field geotechnical drilling and lab testing, are not included.
- "Project Capital" is defined as all capital costs starting April 1, 2022 through to the end of the construction period at the end of 2024. Capital costs estimated for later years are "Sustaining Capital" in the financial model as presented in Section 22.
- ML underground mine capital estimate: Costs for the underground mine were developed from first principle build ups, budgetary quotations, material take-offs, equipment lists, and detailed mine planning completed in Deswik.
- ML underground mine unit costs for Owner executed lateral development were estimated based on first principles and include budget prices from Mexican and North American suppliers of materials and consumables. Owner unit costs above are inclusive of direct labor, equipment operating, materials and

consumables related to underground face advance and primary mucking to the remuck, while associated indirect costs are captured separately.

ML underground mine unit costs for Contractor executed lateral development are based on fixed unit costs for contracted work currently underway onsite. UG Mine Contractor unit costs for lateral development above are inclusive of direct and indirect labor, equipment rentals/operating, materials, and consumables related to underground face advance and primary mucking to the remuck. Vertical excavations have been costed based on a combination of budgetary quotations and first principles unit costs.

- The ML underground mine mobile equipment lease terms provided by Torex, and applied within the cost estimate are as follows:
  - 5% down payment upon Purchase Order
  - 15% upon receipt of equipment onsite
  - 60-month term
  - 5% lease rate
- Guajes Tunnel cost estimate: development costs included first principles build-up of labor, materials, and overheads by the MML technical services team. The construction is being managed by MML directly. Budgetary unit rates assumed in 2022 were extended through completion of the tunnel in 2024.
- Processing Facilities capital estimate: Costs for the processing facilities were developed by utilizing a major equipment list, budgetary quotations, material take-offs, and information from the completed ELG Mine Complex Operations.
- Infrastructure capital estimate: Costs for the power line were estimated based on the cost per kilometer for a similar installation. Other infrastructure costs were based on budgetary quotes and material take-offs.
- Cost estimates were developed from quantities of equipment, materials, and labor estimated by the engineers and cost estimators. Engineering deliverables were developed for the facilities including; 1300+ drawings (general arrangements, specifications, flowsheets, piping and instrument diagrams), equipment lists, power load lists, and labor lists.
- Quantity estimates (material take offs) were derived for each discipline based on engineering deliverables.
- Material and equipment (mobile and process) costs were based on recent vendor quotations for the specific equipment planned for the mine and plant. Vendor quotations are current as of Q4 2021.
- Contractor labor rates and some Contractor unit rates for earthworks and underground development are referenced from recent quoted rates obtained during the 2021 Early Works construction phase.
- Underground mining sustaining capital costs were derived from first principles estimates including development meters, mobile equipment lease costs, mobile equipment rehab and rebuilds, and allowance for fixed infrastructure rebuilds. Underground sustaining capital does not include allowance for cost escalation nor contingency.
- Process sustaining capital costs were estimated from current expenditure profiles at ELG with additional cost applied for the Guajes TSF expansion. Sustaining costs do not include allowance for cost escalation nor contingency.
- Indirect: Indirect costs are a blend of standard percentages of direct level costs and cost build ups from current site contracts. Freight and IMMEX, EPCM, mobilization, commissioning, owner's costs and first fills are included in indirect costs.

Freight & Immex as capital indirect costs include the following:

- Freight costs are included in directs and are calculated at 10% of surface and underground process equipment, materials, and construction equipment costs.
- Import costs (IMMEX) are included in directs and are calculated at 3% of surface and underground process equipment, materials, and construction equipment costs.

Construction indirects include the following:

- Capital and commissioning spares for the underground equipment have been included at 8%.
- Surface capital spares are calculated at 2% of surface process equipment and commissioning spares are calculated at 0.5% of surface process equipment.
- Estimates for underground contractor mobilization and demobilization have been included within direct costs assuming 0.5% of total capital costs.
- Surface mobilization and demobilization are calculated at 5% of direct costs for civil works due to the heavy construction equipment required and 1% of direct costs for the remaining direct cost work.
- A 5% factor has been applied to underground infrastructure costs for temporary facilities, utilities, and equipment required for underground construction.
- A 2% factor of surface direct costs has been included for contractor temporary construction facilities.
- Surface vendor support has been included at 0.5% for vendor commissioning, 0.5% for vendor pre-commissioning, and 1.5% for supervision of specialty construction of the surface process equipment costs.
- A 0.1% factor of surface direct costs has been included for temporary power costs.
- A US$4 per manhour allowance for surface works has been included for worker busing services.

EPCM costs as capital indirect costs include the following:

- The ML Project is assumed to be constructed in an integrated EPCM format using similar project management processes as the original ELG build, including:
    - The EPCM and supporting consultants would develop and manage the design and engineering, with Torex project management oversight including expert peer review.
    - The EPCM would bid and procure materials and equipment as agent for Torex. This would include major material supplies (ie. Structural and mechanical steelwork) as well as bulk orders (ie. Piping and electrical). These would be issued to construction contractors on site using strict inventory control.
    - The EPCM would bid and award construction contracts as agent for Torex.
    - The EPCM with Torex would manage the construction of the surface and underground facilities as an integrated team.
- EPCM costs are based on preliminary estimates of deliverables, hours and rates obtained from the main consulting firms including who developed the feasibility design and estimates including; M3, Stantec, Patterson & Cooke, Promet101, BQE, and NewFields. M3 estimate includes significant resources for procurement and construction management support as the lead EPCM for the Project.

Owners' costs as capital indirect costs include the following:

- Support services provided by MML which include camps, security, environmental/permitting, and community relations.
- Owners team project staff and labor developed from time phased organizational head counts integrated with the EPCM services providers as part of the overall project organization. Additionally, Owner's team personnel have been mobilized to manage the underground workings at site.
- Project staff and labor unit rates are sourced from 2022 labor rates by pay band as provided by Torex Human Resources.
- General expenses during the project period include; IT expenses, Health and Safety equipment, technical services equipment, site vehicles, travel expenses, insurance, and office equipment and supplies.
- Operational readiness costs including; labor work force recruitment and training, first fills, shop tools and consumables, and operating spares.

Cost contingency, escalation, and estimate accuracy includes the following:

- The capital cost estimate is assumed as AACE Class 3 estimate, with accuracy +15% / - 10%.
- Capital costs have been expressed without allowance for escalation. The average US inflation rate over the past 6 years is 3.2% per year. If Media Luna were to experience this same level of escalation at 3.2% per year, additional capital costs are estimated at $42.5M.
- Contingency has been developed using a Monte Carlo analysis. Following facilitated workshops with key contributors and subject matter experts, 3 point ranges were assigned to estimate work packages to determine a project capex probability distribution.
- Contingency was modelled to be an overall average of 13% of the total contracted cost for the processing plant, surface infrastructure, and underground mine.
- Contingency does not consider macro-economic or abnormal conditions which have the potential to negatively impact commodity, equipment and labor supply. An additional factor could be considered within the management reserve.

The following was excluded from the capital estimates:

- Project finance and interest charges
- Foreign exchange hedging
- Currency fluctuations
- Performance bonds
- Cost to Owner of significant downtime outside of project scheduling assumptions
- Impact caused by modifications directed by government or permitting authorities
- Force majeure

21.1.3 Operating Cost Basis of Estimate

21.1.3.1 ELG Open Pit Mining

The ELG OP have been operating since 2016, and associated operating cost are well understood.

Key points for the development of the ELG OP mining operating costs include:

- Operating cost estimates are by BBA using physicals and productivity factors discussed in Section 16 and referencing Torex historical information.
- Open pit mine operating costs extend from April 1, 2022 to the end of the rehandling of low grade ore stockpiled from the open pits in 2028.
- Open pit mining is predominantly with Torex owned mine fleet and operators. Contractors do provide key support activities including; blasting, stockpile rehandle, and El Limón Sur contract mining.
- Labor rates are sourced from Torex Human Resources including 2022 labor rates with benefits by pay band. Labor bonus (PTU) is not included in the operating cost rates, but rather calculated within the financial model as presented in Section 22.
- Continuous 24-hours per day mining operation for 365 days per year. The mine labor is based on three operating crews on 20 days on 10 days off rotation.
- Camp and bussing costs for local employees are included within Support Services cost estimates.
- Diesel costs: $1.0/ltr; Electricity: $0.10/kWh.
- Exchange rate: 1 USD: 20 MXN.
- Explosives cost estimate based on current full-service contract with an explosive supplier.
- Contract mining services based on current pricing.
- No escalation, contingency, nor import duties are included in the mining operating cost estimates.

21.1.3.2 ELG Underground Mining

The ELG UG has operated since 2017, and associated operating costs are well understood.

Key points for the development of the ELG UG mining operating costs include:

- Operating cost estimates are by BBA using physical and productivity factors discussed in Section 16 and referencing Torex historical information.
- Mine operating costs extend from April 1, 2022, to the end of the mine life in 2027.
- The mine is to be operated by a contractor as a continuous 24-hours per day mining operation for 365 days per year. The mine labor is based on three operating crews on 20 days on 10 days off rotation.
- Labor rates provided by mine contractor including appropriate burden for each category to cover items such as overtime, health care, vacation, and federal holidays.
- Operating costs for the LOM are based on contractor supplied pricing and historical costs.
- Costs for maintenance of development and production equipment are included in the contractor rates.

- MML provides technical support to the contractor's mining crews. Technical Services labor and general expenses budget are included within the mining cost estimate.
- 2023 includes a onetime cost for additional backfill for filling underground voids that intersect the open pit wall. This cemented rock fill is required for pit wall support.
- No escalation, contingency, nor import duties are included in the mining operating cost estimates.

21.1.3.3 Media Luna Mining

The ML underground mining is planned to be a high tonnage bulk stoping operation, Owner operated.

Key points for the development of the ML underground mining operating costs include:

- The ML mine operating cost estimate is by Stantec utilizing productivity factors discussed in Section 16. Local Mexican labor, consumables, and unit rates have been provided by Torex where needed.
- Mine operating costs extend from Q3 2023 with first development ore encountered, to the end of 2033 with the completion of stope production. Commercial production is assumed starting Q1 2025. Note that operating costs prior to commercial production have not been capitalized but are instead captured as an operating expense within the Morelos Complex financial model described in Section 22. This is consistent with amendments to IAS 16 issued by the International Accounting Standards Board in May 2020 and effective for annual periods beginning on or after January 1, 2022.
- Underground operating costs are inclusive of labor, supervision, maintenance, equipment, and consumables for the Owner's mobile production fleet and support equipment fleet as well as fixed plant equipment such as ventilation, dewatering, and backfill. Additional mining costs have been assumed by Torex for truck haulage of ore from the Guajes conveyor head end to the Guajes crusher.
- The underground mine operation assumes 365 calendar days, and is based on 2 shifts per day, 12 hours/shift, on 20 days on 10 days off rotation as per current ELG operations. This generally requires three separate shifts.
- Operations from 2025 and beyond have assumed an Owner operated labor workforce. Labor rates are estimated using current labor rate pay band information provided by the Torex human resources. Owners labor cost as presented within Section 21 include benefits but exclude bonus (PTU) which is calculated directly within the financial model in Section 22.
- Operations and maintenance of all underground equipment (mobile and fixed plant) is by the Owner crews. Contractor services are assumed for explosives management, diamond drilling, and some general support services.
- Energy assumptions include diesel at $1.0/liter and electricity: $0.10/kWh.
- Mobile equipment and fixed infrastructure operating and maintenance costs are derived from first principles, based upon information and specifications provided by Vendors for each individual mobile unit. Operating and maintenance costs include for fuels, lubricants, regular maintenance parts, and tires. Rebuild and replacement intervals for each unit have been calculated using Vendor-provided data.
- Fixed infrastructure maintenance costs are derived from Stantec's database of recent projects and published data. The estimated costs include fixed and variable components for all mechanical and electrical equipment outlined on the project equipment lists.
- No escalation, contingency, VAT nor import duties are included in the mining operating cost estimates.

21.1.3.4 Processing

The ELG processing facilities have been operating since 2016, and as a result there is high confidence in estimating its future operating costs.

Key points for the development of the ELG and ML processing operating costs include:

- Processing operating costs were developed by M3 based on physicals and processes described in Section 13, Section 16 and Section 17, and also in reference to Torex historical processing operating rates.
- The process plant runs as per current ELG configuration through to Q4 2023. In Q1 2024, the Media Luna Fe-S concentrator and water treatment plant will be commissioned. In Q4 2024, the Media Luna Cu concentrator and tailings facilities will be commissioned.
- Process costs include all cost areas to produce the gold doré, copper concentrate, and copper sulfide precipitate, as well as tailings management. The future power and maintenance of the Guajes Tunnel conveyor, as well as slurry tailings pumping to the paste plant has also been included in the process opex for Q4 2024.
- Reagent consumptions for the current processing plant are based on current site consumptions until the new parts of the process plant associated with ML are commissioned. The reagents consumption for the process plant with the addition of ML ore is based on the metallurgical testing predictions.
- Cyanide costs are a major unit cost of production. Cyanide reagent unit costs of $2.48/kg were assumed, sourced from current Torex vendor rates. Other reagent unit rates were sourced from Torex current rates.
- Grinding media consumption and wear items (liners) are based on the current crushing and grinding operations. Wear rates for the ML ore are based on grindability work done as part of the metallurgical testing. The wear item prices are based on current supply costs or existing contractual agreements.
- The life of mine budget, reviewed by M3, has an allowance to cover the cost of maintenance of all items not specifically identified and the cost of maintenance of the facilities. The allowance was calculated based on historical spending at the ELG Mine Complex.
- The life of mine budget, reviewed by M3, has allowances for outside consultants, outside contractors, vehicle maintenance, and miscellaneous supplies. The allowances were estimated based on historical spending at the ELG Mine Complex.
- A headcount was developed for the process plant by area from 2022 through 2033. Current labor rates by pay band were provided by Torex Human Resources. Labor rates include benefits but do not include bonus (PTU).
- The process facility is predominantly Owner operated; however, Contractors are used for the filter tailings handling. These contractor costs are assumed through 2024 until the commissioning of the Guajes tails storage facility.
- Power estimates are based on the process area equipment operating hours and loads. Power cost assumed is $0.10/kWhr.
- No escalation, contingency, VAT nor import duties are included in the processing operating cost estimates.

21.1.3.5 Site Support

The ELG processing facilities have been operating since 2016, and as a result there is high confidence in estimating its future Site Support costs.

Key points for the development of the operations Site Support costs include:

- Site support costs were estimated by Torex. Site support functions include; camps, security, IT, health & safety, environmental, community relations, finance, procurement, supply chain, and general management.
- Site support costs are predominantly Owner staff and labor, and associated overheads. Site support expenses also include insurance payment, land payments, contractors, and facilities maintenance.
- The current 2022 annual site support cost expenditure is assumed through 2027. Once the ELG mine operations cease, the site support costs are assumed to decrease associated with reduced headcount and associated service requirements. The site support costs will further reduce in 2032-2033 with ramp-down of the ML mine operations.
- Staff and labor costs are as per current Torex human resources pay band guidance, and include benefits, but exclude profit sharing (PTU).
- Escalation is not assumed in site support costs.

21.2 CAPITAL COST ESTIMATE

Total capital cost estimates for the ELG Mine Complex and ML Project contained in the LOM financial model are as shown in Table 21-3. The following sections are detailed information of the costs for the continued operation of the ELG Mine Complex and the ML Project FS.

Table 21-3: Morelos Complex Total Capital Costs - As of April 1, 2022

As of April 1, 2022	Units	LOM	Q2 2022+	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Non-Sustaining														
Media Luna Project	$M	848.4	230.6	404.9	212.8	-	-	-	-	-	-	-	-	-
ELG Portal 3	$M	1.7	1.7	-	-	-	-	-	-	-	-	-	-	-
Sub-total	$M	850.0	232.3	404.9	212.8	-	-	-	-	-	-	-	-	-
Sustaining														
ELG Open Pit - Capitalized Stripping	$M	93.7	44.5	49.2	-	-	-	-	-	-	-	-	-	-
ELG: Open Pit	$M	24.9	13.2	11.7	-	-	-	-	-	-	-	-	-	-
ELG Underground	$M	33.7	10.3	13.3	7.5	1.0	1.0	0.6	-	-	-	-	-	-
Media Luna Underground	$M	266.0	-	-	-	39.4	35.2	36.4	41.6	46.2	31.7	24.5	9.2	1.8
Process Plant	$M	92.9	6.8	8.0	8.0	9.0	9.3	9.1	8.7	8.4	9.6	8.0	6.0	2.0
Support Equipment	$M	34.0	2.7	4.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1	2.5	1.8	1.1
Sub-total	$M	545.2	77.5	86.3	18.7	52.5	48.6	49.2	53.4	57.7	44.4	35.0	17.0	4.9
TOTAL	$M	1,395.2	309.8	491.2	231.5	52.5	48.6	49.2	53.4	57.7	44.4	35.0	17.0	4.9

21.2.1 ELG Mine Complex Capital Cost

21.2.1.1 ELG Open Pit Mine

No additional equipment is planned to be purchased for the open pit mining operation for the remainder of the LOM. The sustaining capital cost includes equipment overhauls, which total $11.1 million in 2022 and $11.7 million in 2023, as well as deferred stripping. Capitalized stripping is carried under operating costs with a similar cost structure, and then "capitalized" based on strip ratios of the various pit phases. The deferred stripping cost is shown within Table 21-4 but is also included in the mine operating costs. Technical Services covers small purchase allowances for 2022.

Table 21-4: ELG Open Pit Capital Costs – As of April 1, 2022

As of April 1, 2022		LOM	Q2 2022+	2023	2024	2025	2026	2027
Major overhauls	$M	22.8	11.1	11.7	-	-	-	-
Technical Services	$M	2.1	2.1	-	-	-	-	-
Capitalized Stripping	$M	93.7	44.5	49.2	-	-	-	-
Total ELG Open Pit	$M	118.6	57.7	60.9	-	-	-	-

21.2.1.2 ELG Underground Mine

A total of $35.4M capital required for the ELG UG mine through to completion of production in 2027. Table 21-5 summarizes the ELG UG capital spend. Additional information is provided below.

Table 21-5: ELG Underground Mine Capital Costs – As of April 1, 2022

As of April 1, 2022		LOM	Q2 2022+	2023	2024	2025	2026	2027
Development	$M	19.1	4.3	8.2	5.6	0.3	0.4	0.3
Fixed infrastructure	$M	14.6	6.1	5.0	2.0	0.7	0.6	0.2
Total Sustaining	$M	33.7	10.4	13.2	7.6	1.0	1.0	0.5
Non-Sustaining: Portal 3	$M	1.7	1.7	-	-	-	-	-
Grand Total	$M	35.4	12.1	13.2	7.6	1.0	1.0	0.5

Total capital development is 4.1 km over the LOM, with 3.4 km lateral and 0.8km vertical, shared between Sub-Sill and ELD. Fixed infrastructure includes power and water distribution, ventilation installations and mine instrumentation.

The non-sustaining costs for Portal 3 development include the remaining lateral meters (1.4 km) to develop the Portal 3 ramp towards the ELD underground area.

Typical unit cost for each development type is provided in Table 21-6. Unit costs were estimated based on Contractor pricing and include budget prices from Mexican and North American suppliers of consumables. Mobile equipment fleets are provided by the Contractors and are included within the unit costs of development.

Table 21-6: Unit Cost for Capital Development

Development Type	Unit Cost ($/meter)
Capital Lateral Development Contractor	4,827
Raiseboring by Contractor	2,679
Alimak Raising by Contractor	3,949

21.2.1.3 ELG Process Plant

Based on previous years spends, the ELG Process Plant sustaining capital assumes approximately $8M per year predominantly for process plant equipment refurbishment and replacement. The process plant capital spend for the ML Project is described in the following section.

21.2.2 Media Luna Capital Cost

Table 21-7 provides a summary of the ML Project total capital costs from April 1, 2022 through the end of 2024. Thereafter the project is determined to be within commercial production, and any capital costs incurred therein are captured within sustaining. The basis of estimate for directs and indirects are described in Section 21.1.

Table 21-7: ML Project Capital Costs – April 1, 2022 to 2024

WBS Categories	($M)
1. Guajes Portal and Tunnel	75.8
2. South Portals and Tunnels	40.2
3. Underground Mine	172.6
4. Process Plant	98.3
5. Tailings and Paste Plant	77.8
6. On-Site Infrastructure	15.0
7. Off-Site Infrastructure	25.9
Total (Directs)	505.6
Freight & IMMEX	61.6
Contractor Indirects	20.3
Mobilization, Spares, Vendor Support	26.6
EPCM	81.5
Owners Cost	53.3
Contingency	99.5
Total (Indirects)	342.8
Total (Directs + Indirects)	848.4

Escalation is not distributed within the project capital estimate of $848M, but it has been assessed at 3.2% per year based on a 6-year historical average for a total additional allowance of $42.5M which will be monitored throughout the Project.

Not included in the above table are the ML Project sunk costs which have been incurred since 2020 and are estimated at approximately $124M. The sunk costs include early works surface construction and development costs for the Guajes Tunnel and South Portals and tunnels incurred through Q1 2022, excluding costs related to drilling and completion of the economic assessments. Also not included within this table are the pre-production period operating costs which are incurred starting in 2023 and are estimated at approximately $37M. The pre-production operating costs are included in the total ML operating cost estimate discussed in Section 21.3.3.

Table 21-1 provides the annual capital spend for the ML Project. This cash flow was developed through the resource loading of the EPCM schedule, including time phasing of the procurement and construction activities. Peak expenditure occurs in 2023, coinciding with construction of the Fe-S Cons portion of the process plant in combination with various underground construction activities. The majority of underground facilities will be commissioned by Q3 2024, and the mill with copper concentrator will be commissioned in Q4 2024.

Table 21-1 also provides the annual sustaining capital costs for the ML Project from 2025 through 2033. Sustaining capital costs for the ML underground mine from 2025 through 2033 is estimated at $266M, which mainly include mobile equipment costs for lease payments and refurbishment, as well as underground mine development costs. Process plant and surface infrastructure sustaining costs were estimated at $70M, mainly plant equipment refurbishment but also some expansion of the tailings storage facilities.

21.2.2.1 Media Luna Underground Mine

The project capital cost for underground mine areas including Guajes and South Portals access tunnels is estimated at $231M (directs) over the Project period from April 2022 through the end of 2024. In reference to Table 21-7, the underground costs include WBS Category 3 Underground Mine as well as the tunnelling components of WBS Categories 1 and 2 Guajes Tunnels and South Portal Tunnels. A summary of the project underground capital cost areas are provided in Table 21-8.

Table 21-8: Media Luna Underground Project Capital Costs – April 1, 2022 to 2024

Project Capital	Units	Qty.	Cost ($M)
Development			
Tunnels, Ramps & Lateral	meter	23,831	119.0
Ventilation Raises	meter	578	3.5
Passes	meter	2,160	8.6
Main Ventilation	lot		3.1
Materials Handling	lot		23.3
Auxiliary Ventilation	lot		3.9
Main Dewatering	lot		3.8
Mining Support	lot		4.4
Power Distribution System	lot		29.6
Underground Services	lot		8.1
Underground Shops	lot		3.1
Mobile Equipment	lot		20.9
Direct Underground Capital			231.3

The ML underground mine sustaining capital is estimated at $266M from 2025 through 2033. A summary of the estimated underground sustaining capital costs is presented in Table 21-9. The annual spend is summarized in Table 21-1.

Table 21-9: Media Luna Underground Sustaining Capital Costs – January 2025 to 2033

Sustaining Capital	Units	Qty.	Cost ($M)
Development			
Tunnels, Ramps & Lateral	meter	6,190	26.4
Ventilation Raises	meter	875	3.5
Passes	meter	90	0.02
Main Ventilation	lot		4.1
Materials Handling	lot		1.2
Auxiliary Ventilation	lot		4.8
Main Dewatering	lot		1.8
Mining Support	lot		20.7
Power Distribution System	lot		40.4
Underground Services	lot		8.4
Underground Shops	lot		5.6
Mobile Equipment	lot		149.2
Total Underground Sustaining Capital			266.1

Total mine capital development over the life-of-operation includes 30 km of capital lateral waste at a cost of $145M and 4 km of capital vertical waste development at a cost of $16M. The lateral development costs include a combination of

Contractor development rates and Owners development rates. The vertical development rates are assumed as Contractor. A summary of the total meters and costs for the Project and Sustaining periods are presented in Table 21-10. The basis of estimate for these costs is described in Section 21.1.

Table 21-10: Media Luna Total Underground Capital Development

Underground Capital Development	Project Capital		Sustaining Capital		Total	
	Qty (m)	Cost ($M)	Qty (m)	Cost ($M)	Qty (m)	Cost ($M)
Tunnels, Ramps & Lateral	23,831	119.0	6,190	26.3	30,020	145.3
Ventilation Raises	578	3.5	875	3.5	1,453	7.0
Passes	2,160	8.6	90	0.02	2,250	8.6
Totals	**26,568**	**131.1**	**7,155**	**29.8**	**33,724**	**160.9**

Mobile equipment quantities were established based on calculated productivities, and budgetary pricing was obtained from equipment manufacturers, and are described in Section 16 of this Technical Report. A total fleet size of 87 vehicles is estimated, including light vehicles. It is envisaged the full mobile equipment fleet will be leased-to-own. The fleet will be maintained and rebuilt over the LOM, and any required replacements will be purchased outright. The mobile fleet lease costs are estimated at $21M during the initial project period, and $75M during the sustaining capital period through the duration of the least term. An additional $75M of mobile equipment refurbishment and replacement cost is also assumed within the sustaining capital period.

The underground mine fixed plant project capital is $76M including ventilation, materials handling systems, power distribution systems, and various shops and support facilities. The sustaining capital phase includes an additional $87M in fixed plant capital, including new facilities brought online during the operations ramp-up through 2027.

21.2.2.1 Surface and Process Plant Capital

The project capital cost for surface and process plant direct costs is estimated at $274M during the project period from April 2022 through 2024. Table 21-11 provides a summary of the surface and process plant initial capital by WBS categories and associated spend areas.

Table 21-11: Media Luna Surface and Process Plant Project Capital Costs – April 1, 2022 to 2024

WBS Category	($M)	Associated Spend Areas
1.Guajes Portals	26.5	Tunnel conveyor, portal power connections
2.South Portals	30.7	Earthworks, ponds and drainage, portal surface infrastructure
4.Process Plant	98.3	Flotation circuits, water treatment plant, Cu-con loadout, plant tie-ins
5.Tailings and Paste	77.8	Paste plant, tails thickener, pumping systems, Guajes tails storage facility
6.On-Site Infrastructure	15.0	230kV substation, control room
7.Off-Site Infrastructure	25.8	230kV switchyard and power lines, road upgrades, camps
Direct Surface and Process Capital	274.0	

The surface and process sustaining capital estimate is $70M from 2025 through 2033. Process plant sustaining capital includes $64M for plant equipment refurbishment and replacement. An additional $6M is estimated for the GTSF expansion including extension of the underdrain system and pit crest liner install.

21.2.2.2 Freight & IMMEX, Construction Indirects, EPCM, Owners Costs and Contingency

A total of $343M is carried for freight & IMMEX, construction indirects, capital spares, vendor support, EPCM, contingency and Owners Costs as outlined in Table 21-7 above. See Section 21.1 Basis of Estimate for further information.

21.3 OPERATING COST ESTIMATE

The ELG Mine Complex has operated since 2016, and its associated operating costs are well understood. The ML Project will introduce new plant area process, as well as a new large underground mine. The operating costs for the ML Project have been developed from first principles, also leveraging historical data from the MML operation as well as contractor estimates gained through the Early Works construction phase.

The following section presents the total Morelos Complex operating cost estimates for the ELG and ML areas, including;

- Mining; ELG OP, ELG UG, and ML Underground
- Processing; Plant and Tailings
- Site Support; Camps, Security, Site Finance, HSE, Community, Procurement, General Management

Operating costs were determined annually from April 1, 2022 through the end of mine life. The basis of estimate is described in Section 21.1. The annual operating costs are presented in the financial model in Section 22.

21.3.1 ELG Open Pit Mine Operating Cost

The ELG OP have been operating since 2016, and the associated mine operating costs are well understood. The open pit mining methods are described in Section 16 of this Technical Report. The open pit operations as of April 2022 include; Guajes West pit, El Limón pit, and El Limón Sur pit. Guajes pit and El Limón pit utilize an Owner operated fleet and workforce. The El Limón Sur pit utilizes a Contractor fleet and workforce. The basis of estimate for the open pit operating cost estimates is outlined in Section 21.1.

The annual mine operating costs are summarized in Table 21-12. Mine operating costs average $2.67/t ore mined (no PTU) mined over the operating mine life from 2022 through 2024 which include all OP mining activities required to strip waste, mine ore, and transport the ore to the mill. At the completion of the OP mine life, from 2025 through 2028 only stockpile rehandle is required and the average operating cost is $3.40/t ore moved. LOM operating costs total $226M of which $94M is capitalized as deferred stripping. For the economic analysis in Section 22, the capitalized stripping is removed from the total operating costs and reallocated as capital. Open pit drill and blast mining operations are complete in 2024, and thereafter mining costs are associated with haulage and rehandling of low grade stockpiles until depletion in 2028. It should be noted that the cost profile shown in the following table below assumes the integration of the ML Project as an additional source of mill feed starting in Q4 2024 which displaces the low grade stockpile feed through 2028. Without the ML Project, or other new sources of mill feed, all ELG OP stockpiles would be processed in 2025.

Table 21-12: ELG Open Pit Mine Operating Costs – As of April 1, 2022

	Units	LOM	2022	2023	2024	2025	2026	2027	2028
Production (open pit only)									
Ore mined	Mt	9.5	3.6	2.9	3.0	0.0	0.0	0.0	0.0
Total mined	Mt	80.6	31.8	35.6	13.2	0.0	0.0	0.0	0.0
Total moved	Mt	88.6	32.8	37.9	14.6	1.2	0.9	0.8	0.4
Plant feed	Mt	14.2	3.1	4.3	3.4	1.2	0.9	0.8	0.4
Mining Cost									
Drilling	$M	22.7	9.8	9.6	3.4	0.0	0.0	0.0	0.0
Blasting	$M	31.8	12.6	14.0	5.2	0.0	0.0	0.0	0.0
Loading	$M	34.9	13.6	15.5	5.8	0.0	0.0	0.0	0.0
Hauling	$M	46.1	20.4	18.6	7.2	0.0	0.0	0.0	0.0
Rehandling	$M	67.4	16.8	23.0	16.7	3.4	3.2	2.9	1.4
Indirects	$M	5.3	2.0	2.4	0.9	0.0	0.0	0.0	0.0
Tech. Serv. / Infill	$M	17.9	6.8	6.9	4.2	0.0	0.0	0.0	0.0
Total	$M	226.1	81.9	90.0	43.3	3.4	3.2	2.9	1.4
Unit Mining Cost									
Drilling	$/t mined	0.28	0.31	0.27	0.26	0.00	0.00	0.00	0.00
Blasting	$/t mined	0.39	0.39	0.39	0.39	0.00	0.00	0.00	0.00
Loading	$/t mined	0.43	0.43	0.44	0.44	0.00	0.00	0.00	0.00
Hauling	$/t mined	0.57	0.64	0.52	0.55	0.00	0.00	0.00	0.00
Rehandling	$/t mined	0.70	0.53	0.65	1.27	0.00	0.00	0.00	0.00
Indirects	$/t mined	0.07	0.06	0.07	0.07	0.00	0.00	0.00	0.00
Tech. Serv. / Infill	$/t mined	0.22	0.21	0.19	0.32	0.00	0.00	0.00	0.00
Total Unit Cost	$/t mined	2.67	2.57	2.53	3.29	0.00	0.00	0.00	0.00
Total unit cost	$/t moved	2.55	2.50	2.37	2.97	2.85	3.44	3.73	3.59
Total unit cost	$/t processed	15.97	26.09	20.75	12.79	2.85	3.44	3.73	3.59

21.3.2 ELG Underground Mine Operating Cost

The ELG UG mine has been operating since 2017 and the associated operating costs are well understood. The mine is operated by Contractor fleets and workforces with additional technical support provided by MML. The mining methods are described in Section 16. As of April 1, 2022, the operating production areas include ELD and Sub-Sill mine zones. The operating cost basis of estimate is described in Section 21.1.

Annual mine operating costs are summarized in Table 21-13. The average mining cost is $96.90/t ore mined. The relatively high mining unit costs are driven in part the Contractor operated fleets, in conjunction with the low tonnage selective mining methods. Future transition to an Owner operated fleet, as well as potential bulk mining methods, have been recognized as opportunities to reduce the mining costs in the future. These opportunities will be pursued in future studies.

Table 21-13: ELG Underground Mining Costs – as of April 1 2022

Production	Unit	LOM	Q2 2022+	2023	2024	2025	2026	2027
Ore mined	kt	2,549	384	513	507	510	459	176
Mining cost	$M	247.0	33.8	52.1	47.7	49.8	43.9	19.7
Unit Cost	$/t	96.90	87.88	101.55	94.04	97.74	95.55	112.46

21.3.3 Media Luna Mine Operating Cost

The ML underground mine is planned as an Owner-operated bulk mining operation. The mining methods and physicals are described in Section 16 of this Technical Report. Mine operating costs have been derived from first principles build-ups of workforce, productivity factors, consumables, materials, and energy costs. Preliminary quotes were referenced for consumables and materials unit pricing. Where applicable, information has been provided by Torex specific to labor, consumables, and energy costs. The operating cost basis of estimate is described in Section 21.1.

The total life of mine direct underground operating costs are summarized in Table 21-14. A summary of labor, materials, and equipment costs is provided in Table 21-15. The total underground operating cost is estimated at $769.8M, which is an average of $33.42/t mined ore (excluding PTUs). Annual mine operating costs vary from $30/t during peak mine production in 2027, to a high of $45/t during production ramp-down in the final year of mine life in 2033.

It should be noted that operating costs incurred during the project period are not capitalized, but rather expensed as an operating expense as described within the financial model in Section 22. Operating costs are first incurred in Q3 2023 with the intersection of first development ore. First stope production commences in Q2 2024, and commercial production starts in Q1 2025. Approximately $37M in mine operating costs is incurred during the initial project capital period.

Table 21-14: Media Luna Mine Operating Cost Summary

Longhole Stoping	Units	Costs
Labor	$M	23.6
Materials	$M	39.6
Equipment	$M	38.9
MCAF Stoping		
Labor	$M	2.2
Materials	$M	15.3
Equipment	$M	2.1
Total Stoping	$M	121.6
Development and Mine Services	$M	101.7
Haulage	$M	72.4
Diamond Drilling	$M	127.2
Paste Backfill	$M	128.1
Maintenance	$M	59.9
Utilities	$M	104.1
Mine Staff	$M	54.7
Total Underground Operating	$M	769.8
Total ML Ore Mined	Mt	23.017
Average Unit Cost	$/t	33.42

Table 21-15: Media Luna Labor, Materials, Equipment, and Utilities Operating Cost

	Cost ($M)	%
Labor	182.0	24
Materials	329.4	43
Equipment	154.4	20
Utilities	104.1	14
Total	769.8	100

21.3.4 Process Plant Operating Cost

The ELG Process Plant has been in operation since 2016, and the associated processing operating costs are well understood. The process operations for the current ELG configurations and future ML configurations are described in Section 17. For the ML Project, the Fe-S concentrator and water treatment plant will be commissioned in Q1 2024, and the remaining of the mill modifications with copper concentrator will be commissioned in Q4 2024. From 2025 and beyond, the process plant will run with the new configuration, producing a doré, copper concentrate, and copper sulfide precipitate. The processing operating cost basis of estimate is described in Section 21.1. Annualized process operating costs are presented in the financial model in Section 22.

The summary of processing costs within the current ELG configuration through 2024 are provided in Table 21-16. This period includes one year of operation of the Fe-S concentrator circuit and water treatment plant. The average processing costs are estimated at $31.65/t ore processed. It is noted that the processing costs in Q4 2024 assume one month of plant downtime associated with the tie-ins for the ML Project, followed by 2 months of plant ramp-up.

Table 21-16: Process Plant Operating Cost for Current Operations – April 1, 2022 to 2024

	Q2 2022-2024 ($M)	($/t)
Guajes Conveyor	2.4	0.19
Crushing	13.5	1.07
Grinding	89.9	7.12
Leaching	127.2	10.07
Carbon Handling	16.8	1.33
Concentrator	2.1	0.17
Filtering	14.8	1.17
Tailings	23.4	1.85
Cyanide Destruction	53.0	4.19
SART	27.9	2.21
Water Treatment Plant	0.9	0.07
Laboratory	3.2	0.25
Plant Indirect	24.6	1.95
Total Process Plant	399.6	31.65
Total Ore Processed (Mt)	12.62	

The summary of processing costs within the future ELG with ML configuration from 2025 through 2033 are provided in Table 21-17. This future period includes operation of the Fe-S and Cu concentrator circuits, water treatment plant, Guajes tailings storage facility, and tailings pumping systems to the Media Luna mine paste plant. The average processing costs are estimated at $34.78/t ore processed. In comparison to the current plant operations, the future plant operations show cost reductions related to crushing, filtering, and tailings, which are offset by cost increases related to the concentrator, water treatment plant, and Guajes conveyor. General plant overheads, labor, and indirects increase on a $/t basis with the future operations due to lower mill throughput.

Table 21-17: Process Plant Operating Cost for Future Operations (2025-2033)

	2025-2033 ($M)	2025-2033 ($/t)
Guajes Conveyor	24.7	0.91
Crushing	19.5	0.72
Grinding	193.9	7.14
Leaching	307.3	11.32
Carbon Handling	45.2	1.67
Concentrator	48.9	1.80
Filtering	22.7	0.84
Tailings	24.7	0.91
Cyanide Destruction	89.9	3.31
SART	56.0	2.06
Water Treatment Plant	16.7	0.62
Laboratory	12.9	0.47
Plant Indirect	82.0	3.02
Total Process Plant	944.5	34.78
Total Ore Processed (Mt)	*27.15*	

A comparison of the process plant operating costs by cost element is provided in Table 21-18. The overall cost structure is expected to remain similar from current to future plant configurations. Reagents, predominantly cyanide, are the largest operating cost source for the process plant. Various improvement initiatives have been undertaken at site for the purpose of reducing cyanide consumption. Ongoing studies and field trials for reducing cyanide consumption are recognized as an opportunity to reduce reagent costs in the future.

Table 21-18: Current and Future Process Plant Operating Costs by Cost Element

Cost Element	Q2 2022-2024 ($/t)	Q2 2022-2024 (%)	2025-2033 ($/t)	2025-2033 (%)
Labor	2.13	7	3.34	10
Utilities	4.03	13	4.92	14
Reagents	17.34	55	16.96	49
Maintenance	3.41	11	5.41	16
Supply & Services	4.74	15	4.15	12
Total Process Plant	31.65		34.78	

21.3.5 Site Support Cost

Site support costs for the current operation are well understood. Site support costs presented herein include labor and benefits (excluding PTU) for the administrative personnel, human resources, safety and environmental and accounting expenses. Also included are land owners cost, office supplies, communications, insurance, employee transportation and camp, security services, and other expenses in the administrative area.

The site support costs for the current operation through 2024 is summarized in Table 21-19. The major costs include supporting areas staff and labor, general management including various fees and insurance, and camps and security. The average unit cost is $10.85/t ore processed which is aligned with previous years spend.

Table 21-19: Site Support Costs for Current Operations (Q2 2022-2024)

	Q2 2022-2024 ($M)	($/t)
Staff & Labor	29.1	2.30
General Management	42.7	3.38
Human Resources & Training	4.3	0.34
Finance & Procurement	6.0	0.48
Health, Safety & Environment	8.9	0.70
Community Relations	11.4	0.90
Camps, Security & IT	34.5	2.74
Total Site Support Cost	137.0	10.85
Total Ore Processed (Mt)	*12.62*	

The site support costs for the future operation are summarized in Table 21-20. The site support cost structure and annual spend is assumed to remain consistent through 2027 during mining at both ELG and ML. Once the ELG mine production ends in 2028, site support services are assumed to decrease due to a lower site headcount and associated services. On a per unit cost basis, the site support cost will increase to $13.98/t mainly driven by reduced mill throughput.

Table 21-20: Site Support Cost for Future Operations (2025-2033)

	2025-2033 ($M)	($/t)
Staff & Labor	75.1	2.77
General Management	135.9	5.01
Human Resources & Training	11.2	0.41
Finance & Procurement	15.6	0.57
Health, Safety & Environment	23.0	0.85
Community Relations	29.5	1.09
Camps, Security & IT	89.3	3.29
Total Site Support Cost	379.7	13.98
Total Ore Processed (Mt)	*27.15*	

21.3.6 Other Operating Costs

Other operating costs are included within the Morelos Complex financial model and are described further in Section 22. Other operating costs include:

- Royalty payment of 0.5% for gold and silver sales and a 2.5% for Geological Mexican Institute
- Doré transport, treatment and refining costs
- Copper precipitate (SART) transportation and refining costs
- Copper (Cu-Au-Ag) Concentrate transportation and refining costs

One notable change for the ML Project is the production and shipment of copper concentrate at a rate of approximately 300 - 450 t/d. The copper concentrate ground transport from the mine to port, and overseas transport from the port to smelter, incurs a notable cost relative to the current doré treatment and shipping.

22 ECONOMIC ANALYSIS

The following section presents the results of the economic analysis for the Morelos Complex. The production plan used in this analysis is based on the Proven and Probable Mineral Reserves at the ELG Mine Complex and ML Project. Operating and capital costs were developed using activity-based and zero-based principles as described in Section 21.

The sales revenue is based on the production of gold and silver doré, copper/gold/silver concentrate, copper sulfide precipitate and appropriate payable factors. The estimates of capital expenditures include project capital, sustaining and non-sustaining capital for the remaining Mineral Reserves for the ELG Mine Complex and ML Project. Closure cost estimates were developed by estimating the impact of future disturbance based on the mine plan as described in Section 20.

Within this Technical Report, the Net Present Value (NPV) of the Morelos Complex was calculated at an asset level only based on the financial plan developed as indicated above using 5% discount rate. In order to determine the stand-alone incremental NPV of ML, a separate financial plan was developed using Proven and Probable Mineral Reserves of ELG Mine Complex only which was compared against the ELG Mine Complex and ML combined financial plan.

All costs are expressed in US dollars. Unless otherwise indicated, all costs are expressed without allowance for escalation, currency fluctuation, or interest during construction.

The key results of this section are summarized in Table 22-1.

Table 22-1: Morelos Complex Key Financial Metrics – As of April 1, 2022

Metrics as of April 1, 2022	Units	Morelos Complex	ELG Standalone	ML Incremental
Processed				
Life of Mine	years	11.75	3.5	8.25
Total Ore	kt	39,778	15,931	23,847
Total Payable Sold				
Gold	koz	3,294	1,330	1,964
Silver	koz	15,587	661	14,926
Copper	mlb	409	4	405
Gold Equivalent	koz	4,392	1,347	3,045
Operating Costs (life of mine, with PTU)				
ELG Open Pit	$/t mined	2.81		
ELG Underground	$/t mined	98.19		
ML Underground	$/t mined	34.04		
Processing	$/t milled	34.54		
Site Support	$/t milled	13.47		
Transport/Treatment/Refining	$/t milled	5.67		
Total Cash Costs - By-product	$/oz	545	820	
Total Cash Costs - Gold Equivalent	$/oz	809	831	
Mine-site all-in Sustaining Costs - By-product	$/oz	739	1,015	
Mine-site all-in Sustaining Costs - Gold Equivalent	$/oz	954	1,023	
Total Capital Expenditures				
Non-Sustaining	$M	850	2	848
Sustaining	$M	545	184	361
Reclamation and Closure	$M	93		
Economics - After-Tax				
EBITDA	$M	3,503	1,067	2,436

Metrics as of April 1, 2022	Units	Morelos Complex	ELG Standalone	ML Incremental
NPV (0% discount rate)	$M	1,418	590	828
NPV (5% discount rate) - Base Case	$M	1,040	582	458
NPV (10% discount rate)	$M	778	572	206
IRR	%			16.1%
Project Payback Period	years			5.8
Base Case Commodity/Currency Assumptions				
Gold	$/oz	1,600	1,600	1,600
Silver	$/oz	21.00	21.00	21.00
Copper	$/lb	3.50	3.50	3.50
MXN/USD		20.00	20.00	20.00

Additional key points are as follows:

- Economic analysis presented in this Technical Report is as of April 1, 2022.
- For the determination of ML stand-alone economics, two cases were developed:
  - ELG Mine Complex and ML reserves combined case, which is the base case.
  - ELG only Mineral Reserve case.
  - Incremental arising from ML was determined through comparison of the two cases above. This analysis reiterated that ML is not only accretive to the combined operation on a standalone basis; it also enables the ELG Process Plant to process 776 kt (@ 5.41 g/t) of ELG UG ore that would otherwise become uneconomic to mine and process
- Realized gold prices in 2022 and 2023 include the impact of hedges as follows:
  - 2022: 30 koz hedged at $1,910/oz between October 1, 2022 and December 31, 2022
  - 2023: 108 koz hedged at $1,924/oz between January 1, 2023 and December 31, 2023
- Total sustaining capital:
  - ELG OP: $25M
  - ELG OP (deferred stripping): $94M
  - ELG UG: $34M
  - ML Underground: $266M
  - Process plant: $93M
  - Support equipment leases: $34M
  - Total sustaining expenditure: $545M
- Total Non-sustaining capital:
  - Non-sustaining capital expenditure of $848M to develop ML over the project period including, $85M of underground development and $15M for the completion of the Guajes and the South Portal tunnels during pre-commercial period (Q4/23 to Q4/24).
  - Portal 3: $2M to completion
  - Total Non-sustaining expenditure: $850M
- The ML Project yields an after-tax IRR of 16.1% with an NPV of $458 million at a discount factor of 5% and a cumulative undiscounted cash-flow of $828 million. The positive cash flows result in the payback period of 5.8 years based on cash flows attributable to ML incremental case.
- Operating costs on a unit basis presented in Table 22-1 above are presented inclusive of the employee profit sharing (PTU). Over the life of mine, PTUs are estimated to be $112 million ($2.81/t processed). This amount is allocated $20M to ELG OP, $4M to ELG UG, $15M to ML Underground, $37M to processing, $24M to site administration, and $12M to capex.
- Gold equivalent production/sold is calculated by adding the gold equivalent values for copper and silver to gold. Gold equivalent for copper is calculated by multiplying copper production/sold by the underlying copper price and then dividing by the underlying gold price. Gold equivalent for silver is calculated by multiplying silver production/sold by the underlying silver price and the dividing by underlying gold price.

22.1 MINE PRODUCTION STATISTICS

Mine production is reported as ore and waste from the open pit mining operation and ore only for the underground mining operations. The annual production figures were obtained from the mine plan as reported earlier in this Technical Report.

Refer to the Mineral Reserves stated in Section 15, which includes Mineral Reserves effective December 31, 2021. Refer to Section 16 for the integrated mine to mill production plan integrating ELG Mine Complex and ML ore feed to the mill.

22.2 PLANT PRODUCTION STATISTICS

The design basis for the ELG Process Plant is 13,000 tonnes per day at 92% mill availability through Q3 2024 and 10,600 tonnes per day at 92% mill availability from Q4 2024 once processing of ML ore commences. The life of mine recoveries and the payable metal production are shown in Table 22-2. Note that the metal recovery and distribution shown in this table represent the overall results of the current blended LOM mill feed, and they have been estimated based on metallurgical recoveries as stated in Section 13 of this Technical Report. The new process flowsheet and associated recoveries with the Cu Concentrate circuit will start in Q4 2024 onwards.

Table 22-2: Recoveries and Payable Metal Production – As of April 1, 2022

	Concentrate			Doré / Other			Total		
	Au (koz)	Ag (koz)	Cu (klb)	Au (koz)	Ag (koz)	Cu (klb)	Au (koz)	Ag (koz)	Cu (klb)
Existing Processing Plant (Q2 2022 to Q3 2024)									
Recovered to				89.0%	30.0%	10.0%	89.0%	30.0%	10.0%
Recovered metal				1,118	529	3,379	1,118	529	3,379
Payable factor				99.96%	99.50%	96.50%	99.96%	99.50%	96.50%
Payable metal				1,117	526	3,254	1,117	526	3,254
Upgraded Processing Plant (Q4 2024+)									
Recovered to	56.4%	79.1%	89.0%	33.6%	5.9%	3.0%	90.0%	85.0%	92.0%
Recovered metal	1,380	15,461	407,369	823	1,152	13,850	2,202	16,613	421,218
Payable factor	98.25%	90.00%	96.50%	99.96%	99.50%	96.50%	98.89%	90.66%	96.50%
Payable metal	1,354	13,915	392,325	822	1,146	13,338	2,176	15,061	405,663
Life of Mine									
Recovered to	37.3%	72.6%	82.8%	52.5%	7.9%	3.5%	89.8%	80.5%	86.4%
Recovered metal	1,380	15,461	407,369	1,940	1,681	17,229	3,320	17,142	424,597
Payable factor	98.25%	90.00%	96.50%	99.96%	99.50%	96.50%	99.25%	90.93%	96.50%
Payable metal	1,354	13,914.9	392,325	1,940	1,672.6	16,592	3,294	15,587.4	408,917

22.3 REFINERY RETURN FACTORS

The refining, transportation and insurance charges for doré are based on two contracts for refining all of its gold. One contract is with two affiliated refineries (together, the "Primary Refiner") located in the United States and Canada and is for a two-year period ending December 2024. The Company has a second contract with a refiner (the "Second Refiner") in Switzerland, with operations in Switzerland and India. The contract will expire on December 31, 2022 and will automatically renew for another one-year term, unless either party gives notice to the other party that it wishes to terminate the contract on the anniversary date.

22.4 TRANSPORTATION, TREATMENT AND REFINING COSTS

Three products are planned to be produced 1) gold doré, 2) copper/gold/silver concentrate, and 3) copper sulfide precipitate. While the first product would be shipped to the refiners indicated in the preceding section, the remaining two products would be shipped from the site to offsite smelters. Terms would be negotiated at the time of agreement. For the financial model, Table 22-3 shows the assumed smelter charges.

Table 22-3: Transport, Treatment, and Refining Charges

Copper/Gold/Silver Concentrate	Charges
Treatment Charges ($/dmt)	80.00
Refining Charge – Au ($/payable oz)	5.00
Refining Charge – Ag ($/payable oz)	0.40
Refining Charge – Cu ($/payable lb)	0.08
Transportation ($/wmt)	129.42
Copper Sulfide Precipitate	
Refining Charge ($/lb)	0.36
Transportation ($/lb)	0.42
Processing Factors applied to concentrate	
Mass Pull	2.84%
Moisture Factor	8.50%

22.5 CAPITAL EXPENDITURE

ELG Mine Complex and ML mine and process capital estimates are discussed in Section 21 of this Technical Report.

22.6 WORKING CAPITAL

Working capital is based on account receivables, VAT, advances and prepaid expenses, account payables, and warehouse inventory. The net working capital cash flow amounts to $19 million over the mine life.

22.7 SALVAGE VALUE

Salvage value has not been included in this economic analysis.

22.8 REVENUE

Annual revenue is determined by applying estimated metal prices to the annual payable metal estimated for each operating year. Payable factors are described in Table 22-2. Sales prices have been applied to all life of mine production without escalation but does include the impact of hedging. The revenue is the gross value of payable metals sold before treatment charges and transportation charges. Metal sales prices used in the evaluation are shown in Table 22-4.

Table 22-4: Metal Prices Assumed in the Morelos Complex Financial Model

Metal	Units	2022	2023	2024+	LOM Average
Gold (assumed)	$/oz	1,700.00	1,600.00	1,600.00	1,611.00
Gold (realized)	$/oz	1,717.00	1,680.00	1,600.00	1,624.00
Silver	$/oz	21.00	21.00	21.00	21.00
Copper	$/lb	3.50	3.50	3.50	3.50

22.9 OPERATING COST

The mine, process, and site support operating cost estimates are presented in Section 21.

The average operating cost over the life of the mine (Q2 2022 – 2033) is estimated to be $84.15 per tonne of ore processed, excluding the cost of the deferred stripping. Operating costs include mine operations, process plant operations, site support cost, transport and refining charges and PTU. Table 22-5 shows the estimated operating cost by area per metric tonne of ore processed.

Table 22-5: Morelos Complex Total Operating Costs – As of April 1, 2022

Operating Costs	Tonnes Processed (from April 2022)	LOM Total (US$M)	LOM Average ($/t processed)
Mining: ELG Open Pit	39,778 kt	226.1	5.68
Mining: ELG Underground		247.0	6.21
Mining: ML Underground		769.8	19.35
Processing		1,344.2	33.79
Site Support		516.7	12.99
Transport/Treatment/Refining		225.7	5.67
Employee Profit Sharing (PTU)		111.7	2.81
Capitalized Stripping		(93.7)	(2.36)
Total Operating Costs		3,347.4	84.15

22.10 ROYALTY

A royalty payment of 0.5% for gold and silver sales and a 2.5% for Geological Mexican Institute based on the gross metal sales starting the first year of production. The estimated royalty payments are $196 million ($4.93/t processed).

An additional mining royalty tax based on profit (EBITDA) is also payable to the Mexican national government, as discussed in Section 22.13.2.

22.11 RECLAMATION & CLOSURE

The ELG Mine Complex and ML closure cost estimates are described in Section 20.

An allowance of $93 million for the cost of reclamation and closure of the ELG Mine Complex has been included in the cash flow projection.

22.12 TOTAL CASH COST (TCC) AND MINE-SITE ALL-IN SUSTAINING COST (MINE-SITE AISC)

Over the life of the mine, the following are the estimated TCC and Mine-site AISC (excludes corporate level elements such as corporate overhead) metrics on the basis of gold and gold equivalent ounces sold. The presentation based on cost per ounce of gold sold assumes that silver and copper sales are by-products of gold production and thus the net margin from the sale of these two commodities provides a credit to the cost of selling gold. The presentation based on cost per ounce of gold equivalent sold assumes the full cost of selling all metals where copper and silver sales are converted to gold equivalent ounces by dividing the revenue from these metals with the realized gold price.

Table 22-6: TCC and Mine-Site AISC for ELG & ML Integrated Base Case

Metrics as of April 1, 2022	Life of Mine ($M)	Gold Equivalent ($/oz)	By-Product ($/oz)
Total Payable Gold Produced (koz)			3,294
Total Payable Gold Equivalent Produced (koz)		4,392	
Operating Expenses	3,122	711	947
Transport/Treatment/Refining	226	51	69
Royalties	206	47	63
Total Cash Costs - Before Adjustments	3,554	809	1,079
Silver Revenue (by-product)	(1,432)	0	(99)
Copper Revenue (by-product)	(327)	0	(435)
Total Cash Costs - After Adjustment	1,795	809	545
Capitalized Stripping	94	21	28
Sustaining Capital Expenditures	451	103	138
Reclamation	93	21	28
Mine-site All-in Sustaining Costs	2,433	954	739

22.13 TAXATION AND DEPRECIATION

Taxes have been calculated on an integrated basis for the entire Morelos Complex. The main assumptions taken in consideration for the calculation are the following:

- Income Tax and Special Mining Duty rates applicable in Mexico (30% and 7.5%) remain the same throughout the life of the Project.
- Capitalized stripping is considered a period expense in the determination of taxable income.
- Tax depreciation was calculated on a 10% average rate for all assets. Although different tax rates should be applied depending on the asset, for simplicity a 10% rate was applied.
- Not all capital expenditures were fully tax deductible through the life of the mine. At the end of mine life, total unutilized tax depreciation pool is estimated to be $223 million.
- Employee profit sharing (PTU) payments in Mexico were estimated in line with the new legislative reforms.

22.13.1 Depreciation

Depreciation was calculated using the unit of production method. The depreciation includes a beginning balance for assets acquired before the analysis.

22.13.2 Mining Royalty Tax

A mining royalty tax of 7.5% calculated on a base of earnings before interest, taxes depreciation and amortization (EBITDA) as well as other allowable deductions is estimated at $263 million.

22.13.3 Tax Payments

Income tax payments are estimated to be $387 million over the life of mine.

22.14 FINANCING

The economic analysis assumes ML Project capital expenditure of $848M to be self-funded, however Torex may elect to support the construction through debt financing with several options currently being evaluated by Management.

22.15 NPV AND IRR

The economic analysis indicates that the ML Project has an Internal Rate of Return (IRR) of 16.1% with a payback period of 5.8 years after-taxes. The key financial metrics are summarized in Table 22-7, and the ELG & ML integrated base case detailed cash flow model is presented in Table 22-9.

Table 22-7: ML Project NPV and IRR

Metrics as of April 1, 2022	Units	Morelos Complex	ELG Standalone	ML Incremental
Undiscounted Cash Flows	$M	1,418	590	828
After Tax NPV @ 5%	$M	1,040	582	458
Media Luna IRR	%			16.1
Payback	years			5.8
ELG and ML Combined Mine Life	years			11.75

22.16 NET PRESENT VALUE (NPV) SENSITIVITIES

The economic analysis indicates that the Morelos Complex has a Net Present Value (NPV) (at 5% discount rate) of over $1 billion after taxes at the base case. Table 22-8 below compares the base case financial indicators for the Morelos Complex with the financial indicators for other cases when the gold, silver, and copper sales prices, the amount of capital expenditures, the operating cost, and recoveries are varied from the base case. This continues to reinforce the fact that the Morelos Complex is most sensitive to changes in gold prices and operating costs.

The base case for the project capex in the sensitivities table below is related to the ML Project capex only. The sustaining capex base case is exclusive of the capitalize stripping. The operating cost is inclusive of the capitalized stripping and excludes PTUs.

Table 22-8: Sensitivity Analysis ($M) – After-Taxes

After Tax Impact	Units	- $400	- $200	- $100	Base Case	+ $100	+ $200	+ $400
Gold Price	$/oz	$1,200	$1,400	$1,500	$1,600	$1,700	$1,800	$2,000
NPV (0%)	$M	$589	$1,035	$1,231	$1,418	$1,596	$1,773	$2,120
NPV (5%)	$M	$378	$733	$890	$1,040	$1,186	$1,331	$1,617
NPV (10%)	$M	$230	$523	$653	$778	$901	$1,023	$1,266
ML Incremental NPV (5%)	$M	$49	$277	$371	$458	$538	$616	$764
ML Incremental IRR	%	6.4%	12.2%	14.3%	16.1%	17.7%	19.1%	21.8%
After Tax Impact	**Units**	**- $1.50**	**- $1.00**	**- $0.50**	**Base Case**	**+ $0.50**	**+ $1.00**	**+ $1.50**
Copper Price	$/lb	$2.00	$2.50	$3.00	$3.50	$4.00	$4.50	$5.00
NPV (0%)	$M	$979	$1,136	$1,285	$1,418	$1,537	$1,652	$1,762
NPV (5%)	$M	$728	$839	$945	$1,040	$1,127	$1,210	$1,291
NPV (10%)	$M	$549	$630	$708	$778	$843	$905	$966
ML Incremental NPV (5%)	$M	$149	$259	$364	$458	$544	$626	$705
ML Incremental IRR	%	9.3%	11.9%	14.2%	16.1%	17.7%	19.3%	20.7%
After Tax Impact	**Units**	**- $6**	**- $4**	**- $2**	**Base Case**	**+ $2**	**+ $4**	**+ $6**
Silver Price	$/oz	$15.00	$17.00	$19.00	$21.00	$23.00	$25.00	$27.00
NPV (0%)	$M	$1,360	$1,380	$1,399	$1,418	$1,437	$1,455	$1,474
NPV (5%)	$M	$998	$1,013	$1,027	$1,040	$1,054	$1,068	$1,081
NPV (10%)	$M	$747	$757	$768	$778	$789	$799	$809
ML Incremental NPV (5%)	$M	$418	$432	$445	$458	$471	$484	$497
ML Incremental IRR	%	15.3%	15.6%	15.8%	16.1%	16.3%	16.6%	16.8%
After Tax Impact	**Units**	**- 30%**	**- 20%**	**- 10%**	**Base Case**	**+ 10%**	**+ 20%**	**+ 30%**
Project Capex	$M	$594	$678	$763	$848	$933	$1,018	$1,102
NPV (0%)	$M	$1,580	$1,527	$1,474	$1,418	$1,360	$1,299	$1,236
NPV (5%)	$M	$1,211	$1,155	$1,099	$1,040	$981	$919	$856
NPV (10%)	$M	$952	$895	$837	$778	$718	$657	$595
ML Incremental NPV (5%)	$M	$629	$573	$517	$458	$399	$337	$274
ML Incremental IRR	%	24.4%	21.2%	18.4%	16.1%	14.0%	12.2%	10.5%
After Tax Impact	**Units**	**- 30%**	**- 20%**	**- 10%**	**Base Case**	**+ 10%**	**+ 20%**	**+ 30%**
Sustaining Capex	$M	$316	$361	$406	$452	$497	$542	$587
NPV (0%)	$M	$1,519	$1,486	$1,452	$1,418	$1,384	$1,350	$1,315
NPV (5%)	$M	$1,121	$1,095	$1,068	$1,040	$1,013	$986	$958
NPV (10%)	$M	$845	$823	$801	$778	$756	$733	$710
ML Incremental NPV (5%)	$M	$514	$496	$477	$458	$439	$420	$400
ML Incremental IRR	%	17.3%	16.9%	16.5%	16.1%	15.7%	15.3%	14.9%
After Tax Impact	**Units**	**- 30%**	**- 20%**	**- 10%**	**Base Case**	**+ 10%**	**+ 20%**	**+ 30%**
Opex	$M	$2,330	$2,663	$2,996	$3,329	$3,662	$3,995	$4,328
NPV (0%)	$M	$1,984	$1,799	$1,612	$1,418	$1,207	$976	$732
NPV (5%)	$M	$1,490	$1,342	$1,193	$1,040	$876	$700	$512
NPV (10%)	$M	$1,149	$1,026	$903	$778	$646	$505	$355
ML Incremental NPV (5%)	$M	$719	$636	$550	$458	$353	$237	$110
ML Incremental IRR	%	20.7%	19.3%	17.8%	16.1%	14.0%	11.5%	8.3%
After Tax Impact	**Units**	**- 2.0%**	**- 1.5%**	**- 1.0%**	**Base Case**	**+ 1.0%**	**+ 1.5%**	**+ 2.0%**
Gold Recovery	$M	87.8%	88.3%	88.8%	89.8%	90.8%	91.3%	91.8%
NPV (0%)	$M	$1,350	$1,368	$1,385	$1,418	$1,452	$1,468	$1,485
NPV (5%)	$M	$985	$999	$1,013	$1,040	$1,068	$1,082	$1,095
NPV (10%)	$M	$732	$743	$755	$778	$802	$813	$825
ML Incremental NPV (5%)	$M	$428	$436	$444	$458	$473	$480	$487
ML Incremental IRR	%	15.5%	15.6%	15.8%	16.1%	16.4%	16.5%	16.7%

Table 22-9: Base Case ELG with ML Detailed Financial Model

Torex Gold Resources Inc.		PROJECT PERIOD												
LOM 2022 - Base Case		**TOTAL**	**Q2 2022+**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Mining Physicals														
Ore mined - ELG OP	t	**9,527,579**	3,625,118	2,918,592	2,983,870	-	-	-	-	-	-	-	-	-
Ore mined - ELG UG	t	**2,549,115**	384,243	513,414	506,873	509,558	459,432	175,595	-	-	-	-	-	-
Ore mined - ML UG	t	**23,016,641**	-	61,096	745,103	1,707,082	2,537,808	2,799,218	2,695,909	2,698,901	2,674,355	2,677,464	2,610,840	1,808,864
Total ore mined	t	**35,093,335**	4,009,361	3,493,101	4,235,845	2,216,640	2,997,240	2,974,813	2,695,909	2,698,901	2,674,355	2,677,464	2,610,840	1,808,864
Operational waste mined - OP	t	**39,457,690**	13,371,236	15,884,769	10,201,685	-	-	-	-	-	-	-	-	-
Capitalized waste mined - OP	t	**31,663,790**	14,847,485	16,816,305	-	-	-	-	-	-	-	-	-	-
Tonnes material mined	**t**	**106,214,815**	**32,228,082**	**36,194,175**	**14,437,530**	**2,216,640**	**2,997,240**	**2,974,813**	**2,695,909**	**2,698,901**	**2,674,355**	**2,677,464**	**2,610,840**	**1,808,864**
Strip ratio	w:o	**7.46**	7.78	11.20	3.42	-	-	-	-	-	-	-	-	-
Gold grade mined - ELG OP	g/t	**3.16**	2.97	3.39	3.16	-	-	-	-	-	-	-	-	-
Gold grade mined - ELG UG	g/t	**5.75**	5.91	6.22	5.56	5.65	5.56	5.28	-	-	-	-	-	-
Gold grade mined - ML UG	g/t	**2.80**	-	2.90	2.95	3.22	3.33	3.51	2.69	2.85	2.78	2.45	2.03	2.32
Gold contained - ELG OP	oz	**967,958**	346,384	318,247	303,326	-	-	-	-	-	-	-	-	-
Gold contained - ELG UG	oz	**470,978**	73,062	102,734	90,632	92,555	82,187	29,807	-	-	-	-	-	-
Gold contained - ML UG	oz	**2,075,123**	-	5,688	70,625	176,805	271,351	315,573	232,965	247,249	239,018	211,122	170,018	134,710
Gold contained ounces - Total	**oz**	**3,514,058**	419,447	426,669	464,583	269,360	353,539	345,379	232,965	247,249	239,018	211,122	170,018	134,710
Total ELG OP Mined	t	**80,649,059**	31,843,839	35,619,666	13,185,555	-	-	-	-	-	-	-	-	-
Silver grade mined	g/t	**18.48**	4.58	5.66	8.52	22.06	22.93	25.26	25.74	25.40	24.26	26.10	24.98	24.17
Silver contained	oz	**20,854,091**	590,056	635,995	1,159,762	1,571,941	2,209,708	2,415,570	2,231,442	2,204,188	2,085,518	2,246,869	2,097,205	1,405,838
Copper grade mined	g/t	**0.63%**	0.13%	0.17%	0.27%	0.73%	0.77%	0.83%	0.88%	0.88%	0.85%	0.91%	0.90%	0.86%
Copper contained	klbs	**484,899**	11,139	13,059	25,343	35,747	50,802	54,351	52,304	52,109	50,203	53,727	51,640	34,474
Milling Physicals														
Ore milled	t	**39,778,306**	3,521,783	4,849,248	4,253,827	3,866,977	3,866,833	3,866,812	3,062,603	2,707,454	2,685,600	2,677,464	2,610,840	1,808,864
Copper concentrate produced	t	**734,063**	-	-	11,052	89,335	98,563	101,158	79,233	76,892	76,271	76,040	74,148	51,372
Headgrade (Au)	g/t	**2.89**	3.62	3.14	3.17	2.93	3.02	3.07	2.44	2.84	2.77	2.45	2.03	2.32
Headgrade (Ag)	g/t	**16.73**	4.58	4.93	5.95	16.61	18.20	20.86	22.68	25.32	24.22	26.10	24.98	24.17
Headgrade (Cu)	%	**0.56%**	0.13%	0.13%	0.18%	0.54%	0.60%	0.69%	0.77%	0.88%	0.85%	0.91%	0.90%	0.86%
Recovery (Au)	%	**90%**	89%	89%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Recovery (Ag)	%	**80%**	30%	30%	41%	84%	85%	85%	85%	86%	86%	86%	86%	86%
Recovery (Cu)	%	**86%**	10%	10%	33%	91%	92%	92%	92%	93%	93%	93%	93%	93%
Recovered metal (Au)	oz	**3,320,146**	365,120	435,917	390,293	328,038	338,410	343,597	216,339	222,821	215,346	190,009	153,017	121,239
Recovered metal (Ag)	oz	**17,141,948**	155,708	230,815	336,176	1,733,576	1,925,078	2,215,054	1,906,368	1,895,801	1,798,449	1,932,307	1,803,596	1,209,020
Recovered metal (Cu)	klbs	**424,598**	999	1,430	5,686	42,000	47,220	54,119	47,725	48,611	46,757	49,966	48,025	32,061
Payable metal (Au)	oz	**3,293,532**	364,974	435,743	389,344	324,651	334,666	339,658	213,617	220,125	212,539	187,533	151,023	119,659
Payable metal (Ag)	oz	**15,587,446**	154,929	229,661	317,352	1,573,209	1,745,710	2,008,291	1,728,442	1,718,201	1,629,970	1,751,288	1,634,634	1,095,759
Payable metal (Cu)	klbs	**408,917**	962	1,377	5,476	40,448	45,477	52,121	45,963	46,816	45,030	48,120	46,252	30,877
Gold equivalent sales														
Gold	oz	**3,293,532**	364,974	435,743	389,344	324,651	334,666	339,658	213,617	220,125	212,539	187,533	151,023	119,659
Copper	oz	**894,219**	1,960	2,868	11,979	88,481	99,480	114,014	100,543	102,409	98,503	105,264	101,175	67,542
Silver	oz	**204,302**	1,895	2,870	4,165	20,648	22,912	26,359	22,686	22,551	21,393	22,986	21,455	14,382
TOTAL	**oz**	**4,392,054**	**368,828**	**441,481**	**405,488**	**433,780**	**457,058**	**480,031**	**336,847**	**345,086**	**332,436**	**315,783**	**273,652**	**201,583**

Torex Gold Resources Inc.		PROJECT PERIOD														
LOM 2022 - Base Case		**TOTAL**	**Q2 2022+**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035 +**
Metal price assumptions																
Gold (assumed)	$/oz	**1,611**	1,700	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Gold (realized)	$/oz	**1,624**	1,717	1,680	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Copper	$/lb	**3.50**	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Silver	$/t	**21.00**	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00
Operating Costs																
Mining cost - OP (per tonne mined)	$/t	**2.81**	2.74	2.64	3.42	-	-	-	-	-	-	-	-	-	-	-
Mining cost - UG (per tonne ore mined)	$/t	**98.19**	89.73	102.71	94.66	98.39	96.83	116.64	-	-	-	-	-	-	-	-
Mining cost - ML UG (per tonne ore mined)	$/t	**34.04**	-	122.44	38.40	37.97	30.48	30.21	32.05	35.13	33.90	30.94	31.90	45.70	-	-
Processing cost (per tonne ore milled)	$/t	**34.54**	34.37	31.49	32.48	34.09	34.19	34.73	35.43	35.76	35.53	35.38	35.84	41.26	-	-
Site administration (per tonne ore milled)	$/t	**12.99**	10.81	10.19	11.62	12.78	12.78	12.78	13.90	14.46	14.57	14.62	14.99	17.84	-	-
TCC ($ / oz sold)	$/oz	**545**	715	757	771	606	485	374	373	320	342	272	362	745	-	-
TCC ($ / oz sold) - gold equivalent	$/oz	**809**	725	769	804	856	784	733	822	784	796	811	917	1,093	-	-
AISC ($ / oz sold)	$/oz	**739**	956	978	843	794	656	545	654	614	583	493	514	825	-	-
AISC ($ / oz sold) - gold equivalent	$/oz	**954**	964	987	873	996	909	853	1,000	971	950	942	1,001	1,140	-	-
EBITDA																
Earnings	k$	**547,597**	81,614	64,497	(26,009)	90,077	95,517	100,272	74,391	60,623	44,074	36,565	(5,750)	(55,860)	(12,415)	-
Plus: interest	k$	**1,334**	1,334	-	-	-	-	-	-	-	-	-	-	-	-	-
Plus: Tax	k$	**656,712**	100,440	83,485	60,479	55,601	83,528	97,970	29,733	41,521	33,026	27,480	28,754	14,696		
Plus: Depreciation	k$	**2,297,384**	186,738	245,139	298,856	141,822	196,883	212,944	156,477	179,462	190,190	185,085	163,486	140,301		
EBITDA	**k$**	**3,503,027**	**370,125**	**393,121**	**333,327**	**287,501**	**375,928**	**411,187**	**260,601**	**281,606**	**267,290**	**249,130**	**186,490**	**99,137**	**(12,415)**	**-**
Revenue	k$	**7,105,989**	633,375	741,822	648,781	694,048	731,293	768,050	538,955	552,138	531,898	505,252	437,844	322,533	-	-
EBITDA Margin	**%**	**49%**	**58%**	**53%**	**51%**	**41%**	**51%**	**54%**	**48%**	**51%**	**50%**	**49%**	**43%**	**31%**	**0%**	**0%**

Torex Gold Resources Inc. LOM 2022 - Base Case		TOTAL	Q2 2022+	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035 +
								PROJECT PERIOD								
FREE CASH FLOWS																
Operating Activities																
Revenue																
Gold	k$	**5,347,441**	626,755	732,180	622,951	519,441	535,465	543,453	341,788	352,201	340,063	300,053	241,636	191,455	-	-
Copper	k$	**1,431,211**	3,366	4,819	19,166	141,570	159,168	182,423	160,869	163,855	157,606	168,422	161,880	108,068	-	-
Silver	k$	**327,336**	3,254	4,823	6,664	33,037	36,660	42,174	36,297	36,082	34,229	36,777	34,327	23,011	-	-
Total Revenue	**k$**	**7,105,989**	**633,375**	**741,822**	**648,781**	**694,048**	**731,293**	**768,050**	**538,955**	**552,138**	**531,898**	**505,252**	**437,844**	**322,533**	**-**	**-**
Operating Costs																
Mining - ELG OP	k$	**(226,085)**	(81,854)	(89,989)	(43,320)	(3,401)	(3,156)	(2,930)	(1,436)	-	-	-	-	-	-	-
Mining - ELG UG	k$	**(247,020)**	(33,767)	(52,137)	(47,666)	(49,806)	(43,897)	(19,747)	-	-	-	-	-	-	-	-
Mining - ML UG	k$	**(769,799)**	(684)	(7,481)	(28,611)	(62,689)	(72,903)	(79,045)	(86,347)	(93,671)	(90,247)	(82,830)	(82,620)	(82,672)	-	-
Processing	k$	**(1,344,165)**	(115,935)	(148,103)	(135,601)	(128,959)	(126,932)	(127,767)	(108,425)	(95,411)	(94,923)	(94,741)	(92,729)	(74,639)	-	-
Site Support	k$	**(516,653)**	(38,085)	(49,436)	(49,436)	(49,436)	(49,436)	(49,436)	(42,570)	(39,137)	(39,137)	(39,137)	(39,137)	(32,270)	-	-
Capitalised stripping	k$	**93,688**	44,491	49,198	-	-	-	-	-	-	-	-	-	-	-	-
Royalties (2.5%, and 0.5%)	k$	**(196,144)**	-	(23,014)	(20,486)	(20,216)	(20,812)	(21,832)	(17,834)	(15,611)	(15,365)	(14,669)	(13,052)	(10,164)	(3,088)	-
Treatment & refining	k$	**(225,712)**	(2,931)	(3,695)	(5,703)	(24,138)	(28,647)	(29,971)	(23,742)	(23,301)	(22,918)	(23,073)	(22,232)	(15,359)	-	-
PTU payment	k$	**(111,659)**	(18,910)	(22,884)	(14,897)	(8,619)	(7,542)	(14,165)	(17,605)	(200)	(3,547)	(1,232)	-	(2,058)	-	-
Sub-total	**k$**	**(3,543,548)**	**(247,674)**	**(347,542)**	**(345,722)**	**(347,264)**	**(353,325)**	**(344,893)**	**(297,958)**	**(267,331)**	**(266,137)**	**(255,683)**	**(249,769)**	**(217,162)**	**(3,088)**	**-**
Cash payments																
Income tax payments	k$	**(386,749)**	(59,953)	(51,923)	(52,579)	(26,126)	(53,435)	(67,485)	(17,288)	(16,330)	(16,329)	(6,588)	(14,877)	(3,838)	-	-
Mining royalty tax (7.5%)	k$	**(262,920)**	-	(30,448)	(26,458)	(23,315)	(23,236)	(29,118)	(32,840)	(18,845)	(20,806)	(19,408)	(17,862)	(13,567)	(7,015)	-
Closure payments	k$	**(92,719)**	(96)	-	-	-	(747)	(747)	(11,666)	(11,666)	(899)	(1,140)	(1,140)	(899)	(34,316)	(29,405)
Severance	k$	**(24,543)**	(328)	(87)	(559)	(6,364)	(2)	-	(1,422)	-	(129)	-	(355)	(2,881)	(12,415)	-
Cash payments	k$	**(766,932)**	(60,377)	(82,458)	(79,596)	(55,805)	(77,419)	(97,350)	(63,216)	(46,840)	(38,163)	(27,136)	(34,234)	(21,185)	(53,746)	(29,405)
Changes in non-cash working capital																
VAT receivable	k$	**29,689**	4,096	(1,068)	2,158	(1,542)	284	796	1,070	301	504	77	158	16,423	6,430	-
Consumables inventory	k$	**39,543**	-	-	-	-	-	-	-	-	-	13,181	13,181	13,181	-	-
Accounts receivable	k$	**9,355**	(5,792)	2,337	5,501	(2,090)	(19)	323	1,836	(67)	1,131	(1,096)	998	3,606	2,688	-
Advances and prepaids	k$	**861**	1,047	(187)	-	-	-	-	-	-	-	-	-	-	-	-
AP and accruals	k$	**(51,926)**	14,026	7	(3,920)	1,019	(1,211)	(2,198)	(792)	(924)	(942)	4	(550)	(56,443)	-	-
Sub-total	k$	**27,521**	13,377	1,089	3,738	(2,613)	(946)	(1,079)	2,115	(690)	693	12,165	13,786	(23,233)	9,118	-
Cash flows from (used in) operating activities	**k$**	**2,823,030**	**338,701**	**312,911**	**227,201**	**288,365**	**299,602**	**324,728**	**179,895**	**237,277**	**228,291**	**234,599**	**167,627**	**60,953**	**(47,716)**	**(29,405)**
Investing Activities																
Sustaining capital (excl. CS)	k$	**(451,477)**	(33,012)	(37,055)	(18,720)	(52,521)	(48,600)	(49,135)	(53,372)	(57,720)	(44,423)	(34,929)	(16,974)	(5,016)	-	-
Capitalized stripping	k$	**(93,688)**	(44,491)	(49,198)	-	-	-	-	-	-	-	-	-	-	-	-
Non-sustaining capital ELG	k$	**(1,695)**	(1,695)	-	-	-	-	-	-	-	-	-	-	-	-	-
Project capital ML	k$	**(848,358)**	(230,628)	(404,897)	(212,833)	-	-	-	-	-	-	-	-	-	-	-
AP movement	k$	**(18,240)**	34,469	(1,701)	(20,082)	(2,372)	(4,087)	34	352	(3)	(803)	(715)	(2,056)	(21,276)	-	-
VAT received (paid)	k$	**9,798**	(6,547)	117	9,711	3,709	944	(93)	(207)	(15)	434	343	924	279	200	-
Other	k$	**(1,334)**	(1,334)	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash flows from (used in) investing activities	**k$**	**(1,404,994)**	**(283,239)**	**(492,734)**	**(241,923)**	**(51,184)**	**(51,744)**	**(49,195)**	**(53,227)**	**(57,739)**	**(44,791)**	**(35,301)**	**(18,106)**	**(26,012)**	**200**	**-**
Free Cash Flows	k$	**1,418,036**	55,462	(179,822)	(14,722)	237,182	247,858	275,533	126,668	179,538	183,499	199,298	149,521	34,942	(47,516)	(29,405)

23 ADJACENT PROPERTIES

This section is not relevant to this report.

24 OTHER RELEVANT DATA AND INFORMATION

24.1 EXPLORATION STRATEGY

Torex funds a multi-million-dollar drilling and exploration budget each year for the Morelos Property. Prospects and exploration targets for the Morelos Property have been divided into two types, Near Mine and District-Scale Exploration Targets. Near Mine are defined to be within the ELG Mine Complex, while district-scale targets are outside of the ELG Mine Complex.

24.1.1 Near Mine Drilling Exploration

Near mine drilling and exploration is currently focused in the areas adjacent to the existing infrastructure at the ELG Mine Complex. This includes identification of new resources underneath the pits, and extension of Sub-Sill and El Limón Deep (ELD) underground deposits. As of January 01, 2022, there are 7,500 m of underground capital development, which will create suitable access for Infill and Exploration testing.

Near mine drilling and exploration is divided into three categories:

1) Delineation Drilling - ~$4.5 million for the full calendar year of 2022. The purpose of the Delineation program is to define in detail the shape and volume of the mineralized areas included in the short- and medium-term mining plans to ensure compliance with the production goals.
2) Infill and Step-Out Drilling - ~$5.5 million for the full calendar year of 2022. Infill and Step-out Drilling targets are defined by current Mineral Resource estimates, with the intent of upgrading and expanding the known Mineral Resource.
3) Brownfield Exploration Testing - ~$5.5 million for the full calendar year of 2022. Exploration testing areas are identified as prospective areas beyond known mineralization. The intent of exploration testing is to better define the extents of mineralization along trends, and to test local target concepts that could result in newly identified mineralization trends.

The planned underground and surface exploration focuses on four geographical groups, ELD, Sub-Sill and ELG UG Extension Areas, as well as potential open pit extensions in the Guajes area, illustrated in Figure 24-1, Figure 24-2, Figure 24-3, and Figure 24-4:

1) ELD – The intent is to conduct Infill Drilling to upgrade a pre-existing Inferred resource to Indicated Resources, and to expand the known Mineral Resource down dip, and along strike, as illustrated in Figure 24-1 and Figure 24-2.
2) Sub-Sill – The intent is to upgrade current Inferred Resource blocks to the Indicated Resource category and to identify the extents of the skarn mineralization along strike and at depth. Much of the planned drilling will be directed to upgrading the Sub-Sill Extension portion of the deposit and the definition of new Inferred Resources at further depths, drilling from the Portal 3 development. Figure 24-2 illustrates the Inferred Resource blocks that will be targeted laterally in the Sub-Sill South area and, deeper in the system, in the Sub-Sill Deep area.
3) ELG UG Extension Areas – The ELG UG Extensions areas include multiple target areas near and adjacent to both ELD and Sub-Sill as well as in the Guajes area. The intent is to conduct exploration drilling to investigate the down dip extension of current Mineral Resource of ELD and Sub-Sill (Figure 24-3), investigate the potential for additional sills and associated mineralized skarns in the El Limón area, (Figure 24-3), and investigate economic mineralization in down dip extensions and underneath the Guajes pit (Figure 24-4). Longer-term exploration potential remains for deep underground targets, additional sill targets and magnetic anomalies targets to the SE, SW, and East of the current Mineral Resource estimates.

4) Open Pit Extension Areas - An area with the potential to contain mineable open pit Mineral Resources has been identified to the SW of the Guajes West pit (Figure 24-1 and Figure 24-3). The Polvorin target consists of a system of narrow veins and subvertical quartz-sulfide veinlets with silica, epidote, chlorite and carbonate alteration and sulfide veinlets with amphibole and pyroxene alteration. The veinlets contain gold mineralization, associated with pyrite, pyrrhotite, arsenopyrite and traces of chalcopyrite. They are emplaced in hornfels sediments of the Mezcala Formation and in granodioritic intrusive, located on the slope of the La Amarilla Fault. Exploration of this target has been planned for in January 2022.

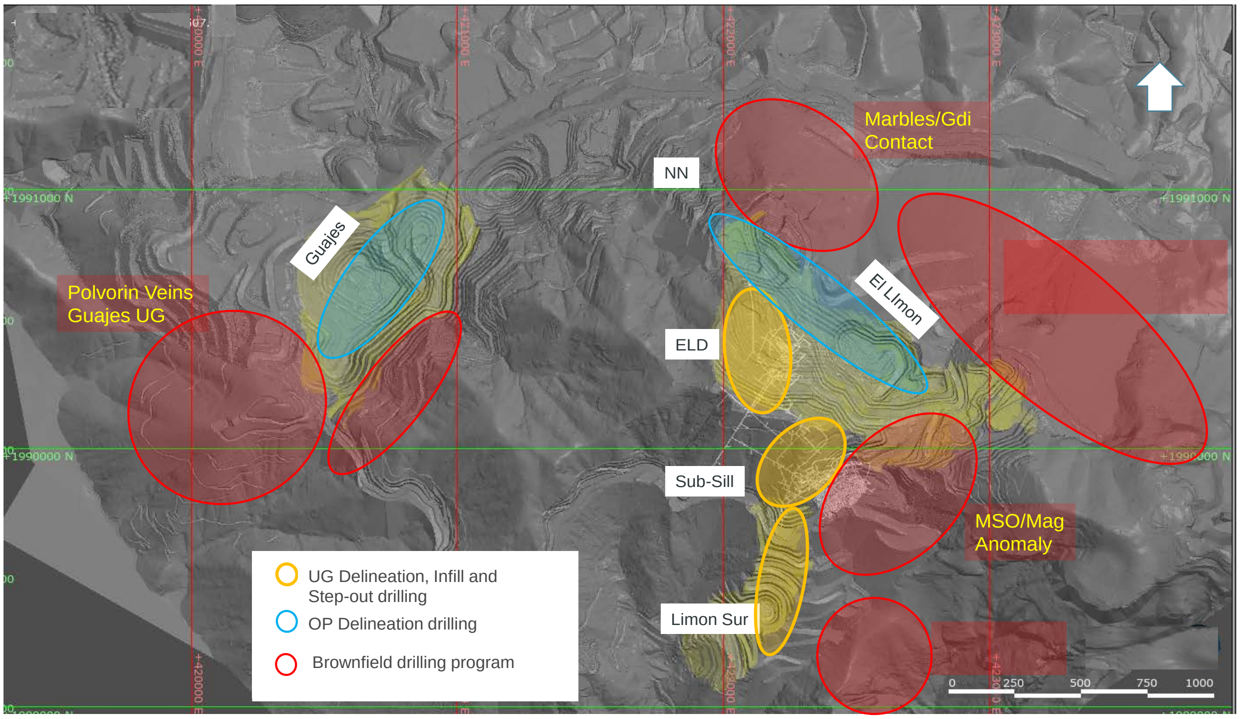


Figure Source: Torex, 2021. Projection and sections are illustrated below.

Figure 24-1: Plan View – Near ELG Open Pit and Underground Exploration and Infill Target Areas

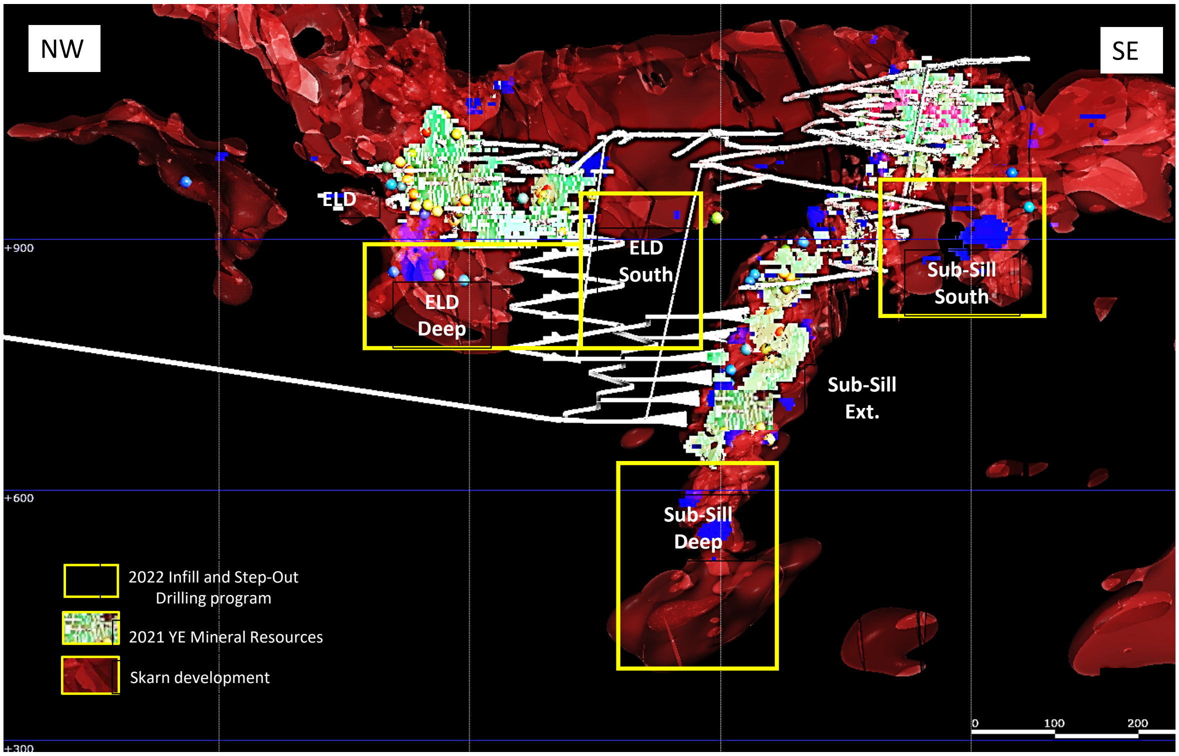


Figure Source: Torex, 2021. Surface and underground development shown are as of December 2021 and planned in LOM.

Figure 24-2: ELG UG Mineral Resource Upgrade and Exploration Target Areas, Looking Northeast

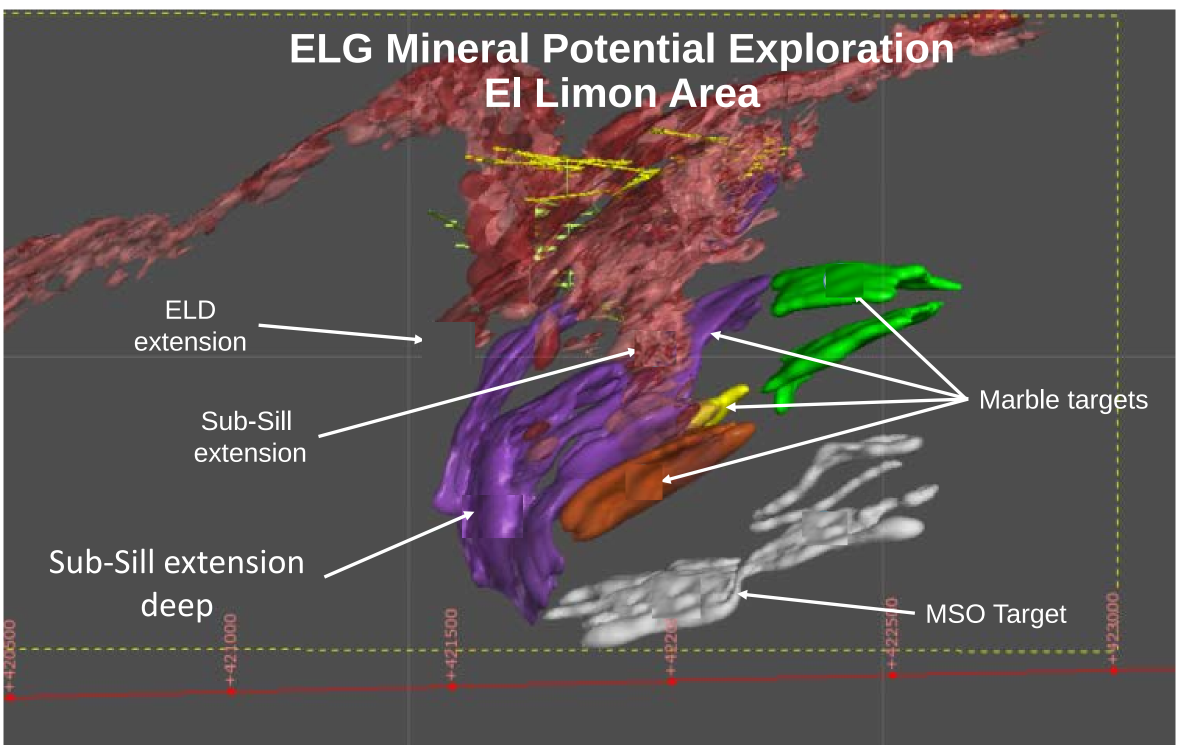


Figure source: Torex, 2021. Note: Existing and planned development shown in this section view.

Figure 24-3: ELG UG Exploration Targets Areas, Looking Northeast

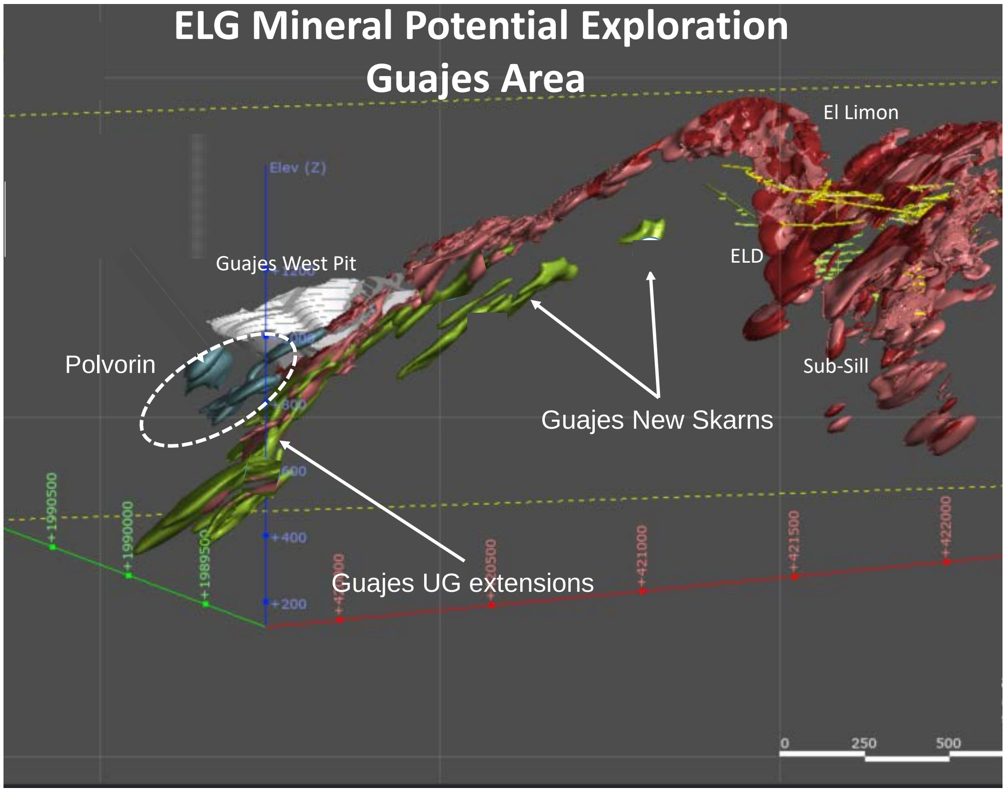


Figure Source: Torex, 2021. Note: Existing and planned underground and open pit outlines shown in this section view.

Figure 24-4: Guajes UG and Open Pit Exploration Targets Areas, Looking Northeast

24.1.2 District–Scale Exploration

Torex, supported by consultants, conducted a district scale target definition utilizing detailed geological mapping and rock-chip sampling, grid-based soil geophysics and detailed geophysical modeling from the property-wide ZTEM-magnetic survey conducted in 2013. Between 2019-2021, a review of the historical targeting and new target generation was conducted by Torex and Western Mining Services. In 2021, two new geophysical surveys were conducted at Media Luna, including a drone magnetic survey to improve the resolution of the magnetic anomalies and a gravimetry survey.

Torex has reviewed the exploration information currently available, including structural, geochemical and geophysical studies and have identified several target areas surrounding the Media Luna's Mineral Resource area, as well as areas outside of the ELG Mine Complex. Modeling of magnetic data generated plate-like bodies that correlate with skarn and skarn-hosted Au mineralization. In addition to the skarn gold and gold-copper deposit already identified, there is potential for hosting other gold and Cu-Au deposit styles including porphyry copper-gold style, breccia style and intrusive hosted.

The target areas for the Media Luna cluster area are shown in Figure 24-5 and for the total district-scale area shown in Figure 24-6.

Below is a brief description of the district-scale exploration targets:

- Media Luna Resource Area: This target area covers the Media Luna Mineral Resource and adjacent strong magnetic anomalies, including the Northwest Media Luna, Todos Santos and Media Luna West prospects.

Between 2018-2021, approximately 35% of the total Media Luna Mineral Resource has been drilled with the goal to upgrade the resources classification. The Mineral Resource upgrade drilling will continue in the remaining Media Luna Mineral Resource area.

- Media Luna Cluster: Exploration targets and prospect areas around Media Luna include EPO South Extension, EPO North, Media Luna West, Media Luna East, ML02, Todos Santos, and ML04, all of them are referred to as part of the Media Luna cluster concept.
- ML-05: Target with Au-Cu skarn hosted mineral deposit may also host Au-Cu porphyry deposit. One of the targets developed and partially tested is the ML-05, located northwest of Media Luna. Some initial work was completed in 2018 indicating that porphyry-style mineralization that may be associated with an FBHQ intrusive center.
- El Cristo-Naranjo: 2014 drilling results do not show significant values, but a significant portion of the target area has not been adequately tested. The area will be re-evaluated.
- The targets on the north side of Rio Balsas and outside of the ELG Mine Complex include Esperanza, Querenque, Tecate, and Atzcala.
- Querenque: Previous work by Teck indicates the area comprises hornfels Mezcala Formation with minor skarn and granodiorite intrusive similar to El Limón. Teck drilled three holes that returned minor gold values. During 2019-2020, detailed mapping and surface sampling were conducted showing new anomalies and extending the previously recognized. Gold mineralization in Querenque is mainly associated with a system of breccias and iron oxide veinlets.
- Tecate: Defined by the presence of a strong magnetic high in an area mapped as Mezcala formation sediments. No work has been carried out by Torex and there appears to be no previous work on the target. This is an area of further work planned by Torex.
- Esperanza: Located 1.5 km north of El Limón and defined by the presence of strong magnetic anomalies near intrusion-limestone contacts. The target is in a structural domain with very little information. Its geological, geochemical and geophysical characteristics, combined with its proximity, may suggest some similarity to the geology of ELG. Historical drillholes in the area (Teck-Torex) did not return with significant results. Between 2020-2021, the target was revisited which included re-logging and a detail mapping campaign. Three holes were drilled close to the Amarilla Fault showing prograde alteration is dominant. A significant portion of the area has not been evaluated.
- Atzcala: An area of silicified limestone and hydrothermal breccia with elevated gold grades in rock chip samples. Teck drilled three holes with minor gold intersections at shallow depth. No work has been conducted by Torex.
- WMS-07: The target is a strong magnetic anomaly associated with an interpreted significant regional structure. No work has been conducted by Torex.
- El Olvido: Defined by the presence of an intense magnetic high in area mapped as Morelos Formation limestone near the southern property boundary. Historical sampling detected moderately anomalous As and Sb but no gold. A few shallow drillholes were completed by Luismin in the southern part of area. No work has been carried out on the target by Torex.
- Victoria: Defined by a magnetic signature, targets were mapped in 2019 with magnetic anomaly that seems to be related to a magnetic intrusive.

Approximately $15M has been allocated for exploration drilling activities in 2022. From the sixteen district-scale exploration targets, six areas have been prioritized for follow-up work. Three targets are located north and west of

Nuevo Balsas; Esperanza, Querenque and Tecate. South of the river, the priority targets within the Media Luna cluster include EPO, EPO North and Media Luna West.

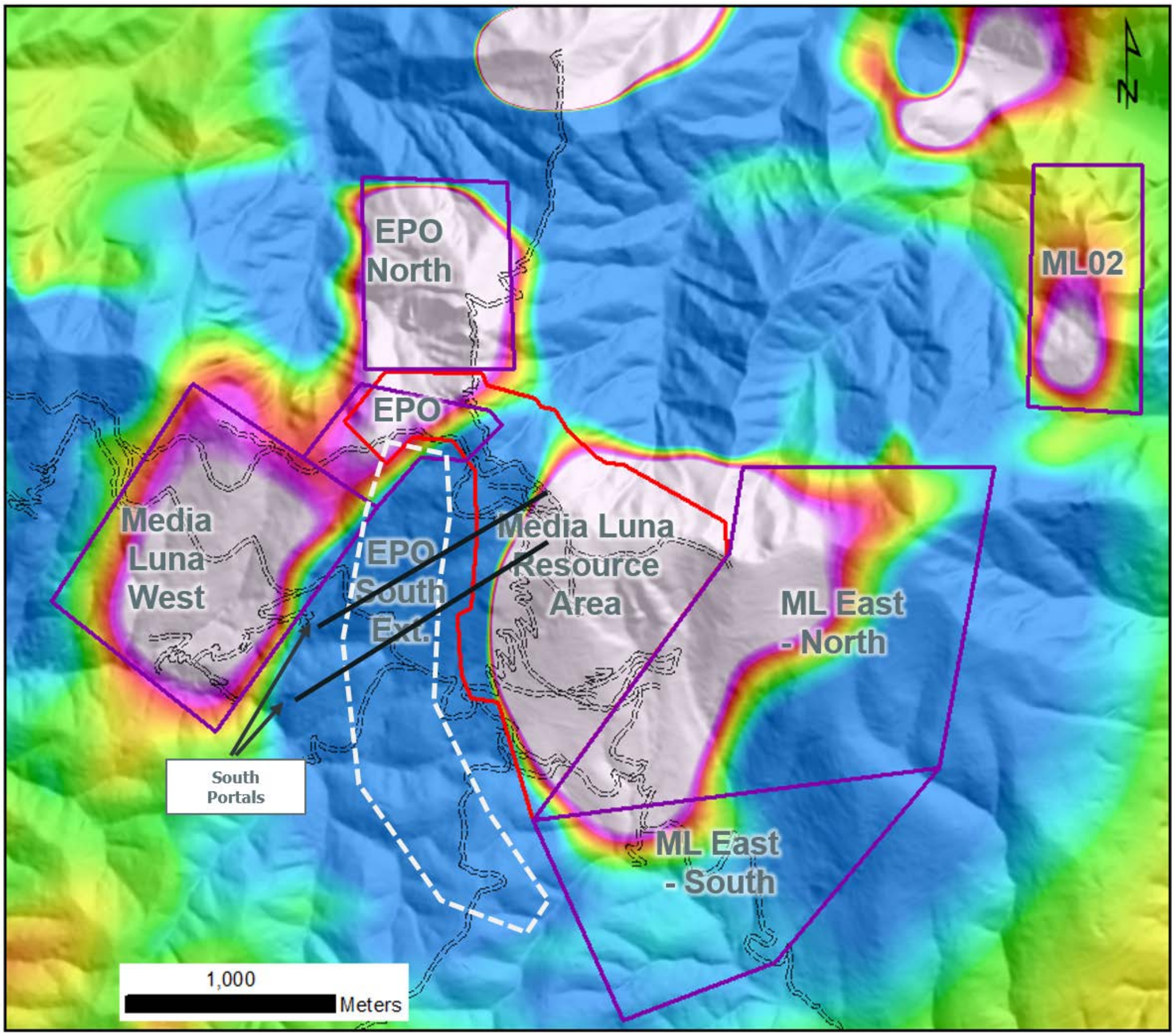


Figure Source: Torex, 2021

Figure 24-5: Exploration Target Areas in the Media Luna cluster area

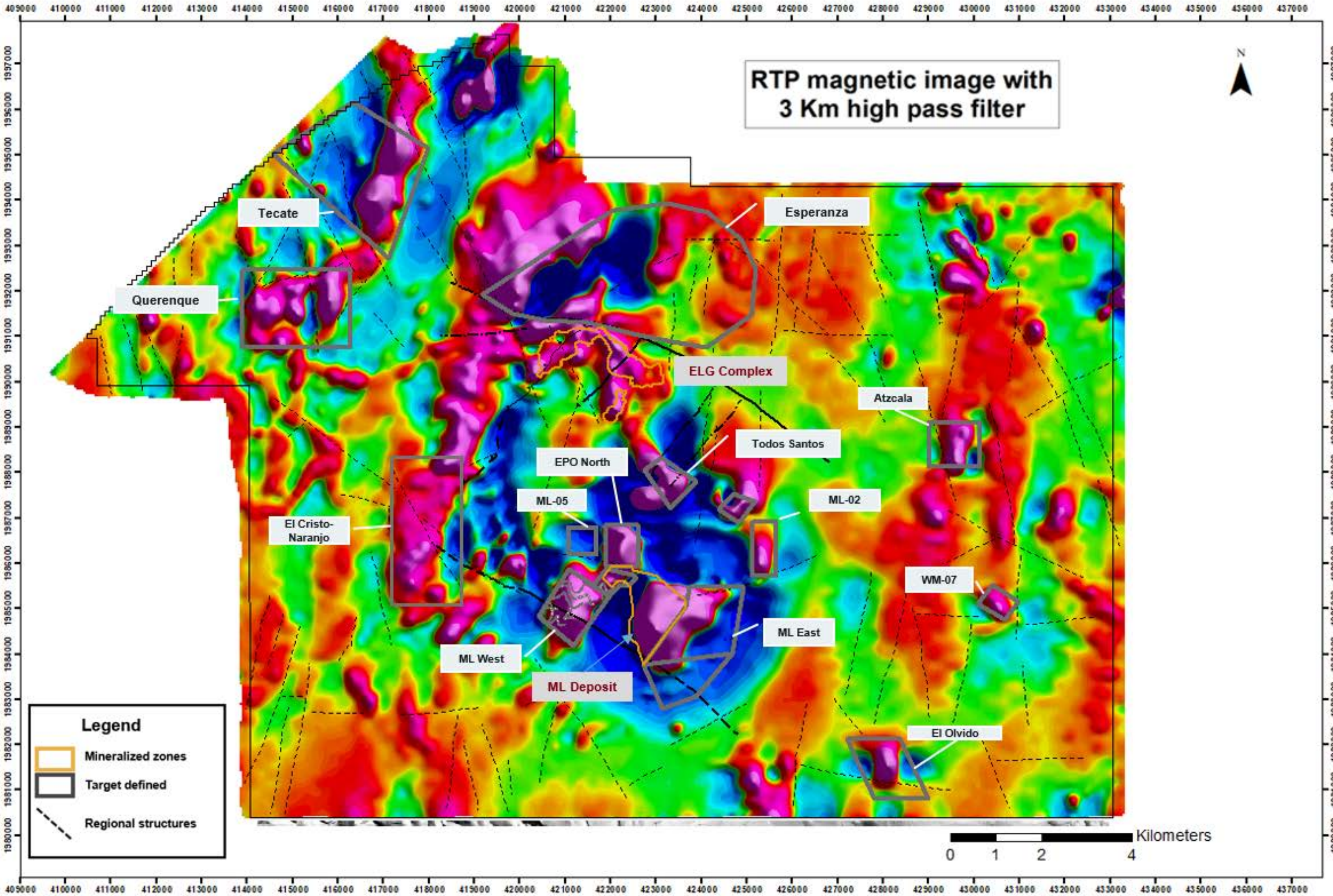


Figure Source: Torex, 2021

Figure 24-6: District-Scale Exploration Targets

SLR Consulting (Canada) Ltd (SLR) has reviewed the subsection 24.1- Exploration Strategy. In the opinion of the QP who has responsibility for Section 14 – Mineral Resource Estimates: (i) the remaining prospects noted above are at an earlier stage of exploration and the lithologies, structural and alteration controls on mineralization are currently insufficiently understood to support estimation of Mineral Resources; (ii) the prospects retain exploration potential and represent upside potential; and (iii) the proposed activities are justified and the expenditures are reasonable to continue developing and defining the future potential of the Morelos Property.

24.2 MEDIA LUNA PROJECT EXECUTION STRATEGY

As part of the Feasibility Study development, Torex and M3 have developed the strategy for the Project's execution. This includes the identification of Project and Construction Management organizational structure, the project WBS with execution schedules, procurement and contracting methodologies, and various supporting procedures and plans.

The Project will be managed through an integrated Project Team organizational structure consisting of Torex/MML roles and EPCM roles to fulfill the main project functions, including; Project Management, Project Controls, Project Services, Health & Safety, Engineering Management, Surface Construction Management, Underground Technical Services, Underground Development and Construction Management, and Operational Readiness. During the Project period, there will be a focus on operational readiness as well as the addition of dedicated resources for workforce transition and planning to establish the underground mine workforce for operations.

The integrated Project Team will leverage Torex's operational experience with M3's build experience, specifically on this site, while also maximizing visibility and control for Torex's senior management. To accelerate project execution ramp-up, key positions have already been hired and onboarded. The key management team roles include:

- EVP Projects and Technical Services (Torex)
- Project Director (Torex)
- Deputy Project Director (M3)
- Health and Safety Manager (Torex)
- Surface Area Manager (Torex)
- Site Construction Manager (M3)
- Engineering Manager (M3)
- Mine Area Manager (Torex)
- Media Luna Mine Manager (Torex)
- Project Services Manager (Torex)
- Project Controls Manager (Torex)

Some services and construction management functions will be performed by Torex's MML operations team including; Guajes tunnel development, camps services, IT services, security services, environmental monitoring, and community relations. Torex will also manage the mine development planning and mine technical services functions directly, with engineering and construction management support from M3 and Stantec.

M3 will perform EPCM on the ML Project, with specialist engineering support provided by other consultants. M3 will act as agent for Torex for procurement and contract management. The Project will also utilize M3's Project Management Systems for integrated cost control/management, reporting, and scheduling.

The Mexican contracting environment and contractors are well known to M3 and Torex, through their experience during the original ELG project build as well as through various sustaining and small growth projects over the past several years of mine operation. Contracts will typically follow unit price basis of bidding, and lump sum where applicable. Both earthworks and underground mine development contractors have already been mobilized to site as part of the early works phases to advance portals and tunnel development. Surface contract work packages have been grouped appropriately by discipline/commodity with a strategy of applying multiple surface contractors to allow for flexibility of work performance and schedule. There are currently approximately 400 full-time equivalent (FTE) contractor personnel active as part of this early works program, and this is expected to increase to upwards of 1,000 FTE's during peak construction in late-2023.

Various systems and procedures have been developed during the Feasibility Study and are provided within the Project Execution Planning documentation. Some of these plans and systems will utilize what was successfully implemented during the original ELG project build. Others such as Health & Safety, will be adopted from well-established processes currently in use at the operation and supplemented as required to support the project construction activities. Many of these procedures have been established, and others will be finalized as part of the ML Project ramp-up into execution as key team members are brought onboard.

The ML Project work breakdown structure (WBS) has been established during the Feasibility Study and will be carried forward through execution (Figure 24-7). This structure was developed from the WBS utilized during the original ELG project build and expanded to accommodate that additional contemplated for ML Project. Scheduling, procurement packages, and contract packages are linked to the WBS through a cost code structure. The WBS is also applied to equipment and materials numbering for logistics and warehousing controls.

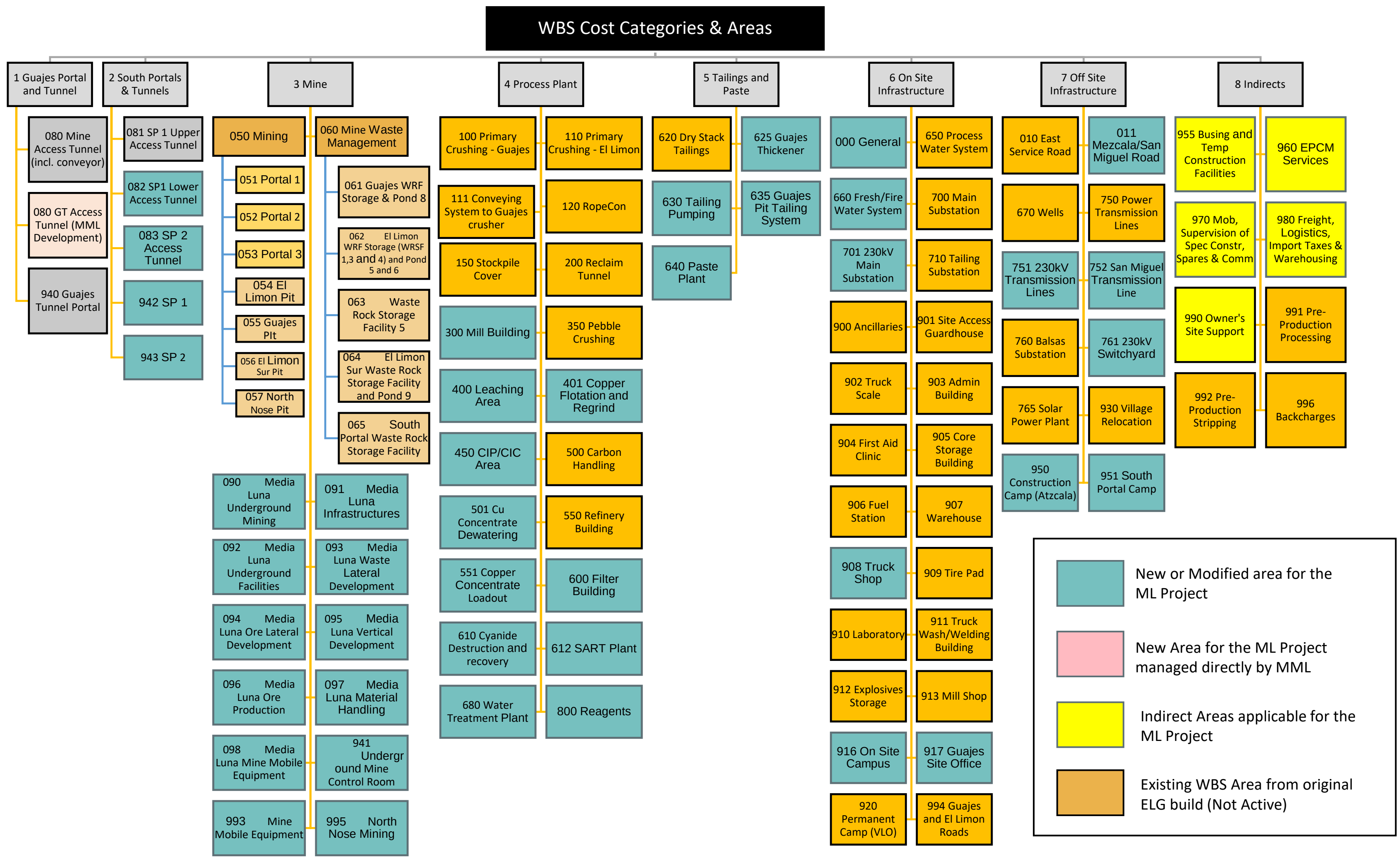


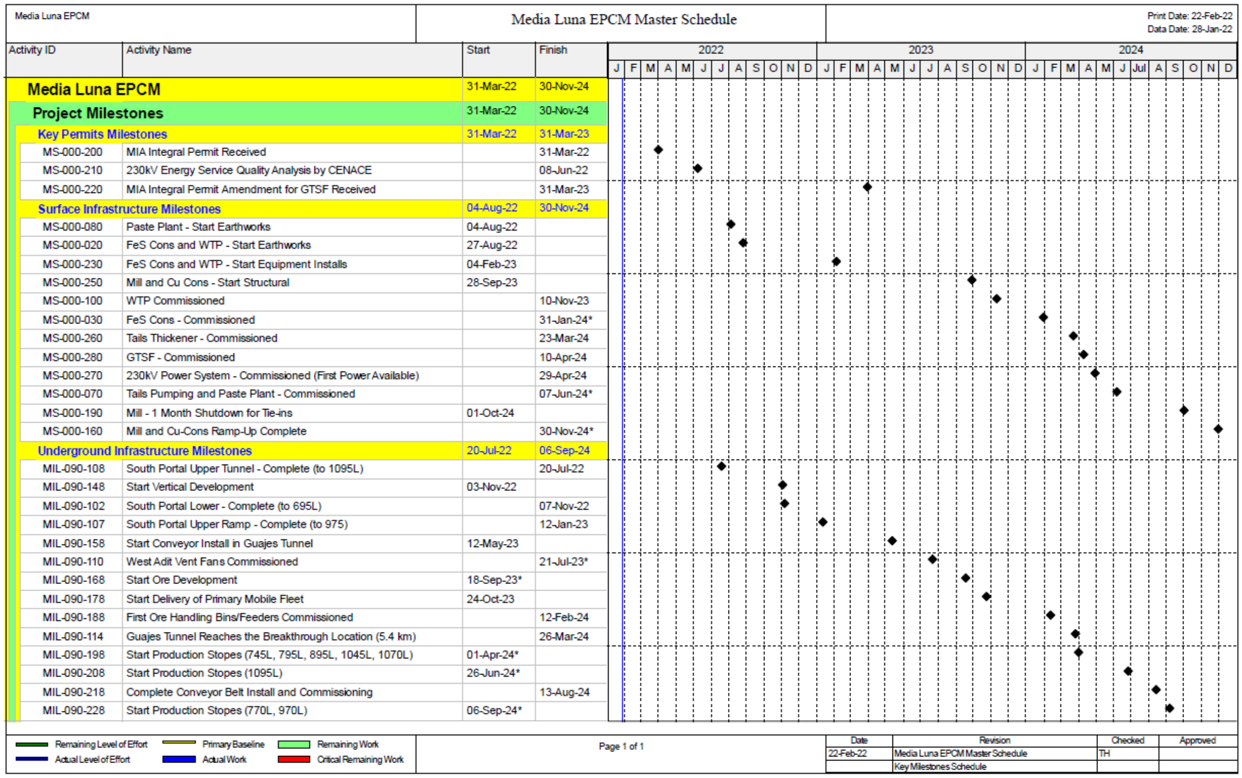
Figure 24-7: Media Luna Project Work Breakdown Structure

Torex task leads with external expert peer reviewers will provide direction to the EPCM and supporting engineering firms throughout the detailed engineering phase of the project. A Responsible Accountable Consult and Inform (RACI) matrix will be utilized to ensure appropriate review and accountability. Building Information Modelling (BIM) tools have been used for basic engineering during the Feasibility Study, will continue to be utilized for both design management and communication during the Project Execution phase. An example 3D rendering developed from the surface engineering BIM model is shown in Figure 24-8.

Source: M3, 2022. Example BIM model with applied 3D rendering showing the Guajes tunnel portal and tailings pump and thickener systems.

Figure 24-8: Media Luna BIM Output Example

A resource loaded project execution schedule has been developed as part of the Feasibility Study with approximately 2800 project activities integrating Engineering, Procurement, Construction, and Commissioning phases. Key milestones for the ML Project have been identified as shown in Figure 24-9. The ML Project's critical path follows breakthrough of the Guajes tunnel, underground development and commissioning of the ore and waste materials handling systems. The commissioning of the 230kV power system is another recognized near-critical path item. To mitigate procurement schedule risks, several long-lead equipment orders will commence early in the ML Project execution phase. The schedule for implementation of the new flotation plant will be in two phases providing early benefits in terms of reduced cyanide consumption to the existing operation and further mitigation of schedule risk through resource leveling of activities. During execution, the ML Project schedules will continue to be developed and forecasts updated based on input from the various EPCM team members as well as contractor feedback as commitments are made.



Activity ID	Activity Name	Start	Finish
	Media Luna EPCM	31-Mar-22	30-Nov-24
	Project Milestones	31-Mar-22	30-Nov-24
	Key Permits Milestones	31-Mar-22	31-Mar-23
MS-000-200	MIA Integral Permit Received		31-Mar-22
MS-000-210	230kV Energy Service Quality Analysis by CENACE		08-Jun-22
MS-000-220	MIA Integral Permit Amendment for GTSF Received		31-Mar-23
	Surface Infrastructure Milestones	04-Aug-22	30-Nov-24
MS-000-080	Paste Plant - Start Earthworks	04-Aug-22	
MS-000-020	FeS Cons and WTP - Start Earthworks	27-Aug-22	
MS-000-230	FeS Cons and WTP - Start Equipment Installs	04-Feb-23	
MS-000-250	Mill and Cu Cons - Start Structural	28-Sep-23	
MS-000-100	WTP Commissioned		10-Nov-23
MS-000-030	FeS Cons - Commissioned		31-Jan-24*
MS-000-260	Tails Thickener - Commissioned		23-Mar-24
MS-000-280	GTSF - Commissioned		10-Apr-24
MS-000-270	230kV Power System - Commissioned (First Power Available)		29-Apr-24
MS-000-070	Tails Pumping and Paste Plant - Commissioned		07-Jun-24*
MS-000-190	Mill - 1 Month Shutdown for Tie-ins	01-Oct-24	
MS-000-160	Mill and Cu-Cons Ramp-Up Complete		30-Nov-24*
	Underground Infrastructure Milestones	20-Jul-22	06-Sep-24
MIL-090-108	South Portal Upper Tunnel - Complete (to 1095L)		20-Jul-22
MIL-090-148	Start Vertical Development	03-Nov-22	
MIL-090-102	South Portal Lower - Complete (to 695L)		07-Nov-22
MIL-090-107	South Portal Upper Ramp - Complete (to 975)		12-Jan-23
MIL-090-158	Start Conveyor Install in Guajes Tunnel	12-May-23	
MIL-090-110	West Adit Vent Fans Commissioned		21-Jul-23*
MIL-090-168	Start Ore Development	18-Sep-23*	
MIL-090-178	Start Delivery of Primary Mobile Fleet	24-Oct-23	
MIL-090-188	First Ore Handling Bins/Feeders Commissioned		12-Feb-24
MIL-090-114	Guajes Tunnel Reaches the Breakthrough Location (5.4 km)		26-Mar-24
MIL-090-198	Start Production Stopes (745L, 795L, 895L, 1045L, 1070L)	01-Apr-24*	
MIL-090-208	Start Production Stopes (1095L)	26-Jun-24*	
MIL-090-218	Complete Conveyor Belt Install and Commissioning		13-Aug-24
MIL-090-228	Start Production Stopes (770L, 970L)	06-Sep-24*	

Figure 24-9: Media Luna Key Milestones

Cost control systems have been developed by M3 also with integration into Torex's Enterprise Management Systems for seamless cost and cash management. Upon ML Project approval, the approved project budget will be updated into the Project Cost Management software, which also integrates the Procurement and Invoicing activities functions. The portion of project costs which are being managed directly by MML (ie. Area 080 Guajes Tunnel and some site services) will be reported back into the Project Cost Management software on a monthly basis, for overall project reporting.

A project risk register identifying approximately 600 risks and their associated controls has been developed as part of the Feasibility Study. For the ML Project execution, risk ownership will be assigned to the key project team members for addressing during design and execution. Routine reviews of active project risks, identification of new risks, and ensuring effectiveness of associated controls will be established as part of the overall project procedures and in alignment with Torex's risk management policies. A number of project opportunities have also been identified during the Feasibility Study development and these opportunities will be further analyzed during the first few months of the ML Project execution. A summary of the ML Project risks and opportunities are described in Section 25.

24.3 MONORAIL-BASED MINING SYSTEM ENGINEERING AND TRIALING

From early 2019 to mid-2021, Torex's proprietary monorail-based mining system technology ("MMS") was the subject of a test program at ELD. While the MMS progressed from the beginning of the test program, testing of the individual components operating as an integrated system demonstrated that additional process and equipment engineering was required to achieve desired advance rates, cycle times, and associated cost efficiencies; and, therefore, there was insufficient available upside in using MMS as it relates to financial or schedule considerations for Media Luna.

While based on the test results to date, MMS is not sufficiently mature and requires additional engineering and optimization for commercial deployment, MMS is being actively pursued by another independently funded company.

Because Torex owns the IP for the MMS and the nature of the contractual arrangement, Torex will benefit from any advances or breakthroughs in the development of the MMS, which could potentially be used to economically develop exploration prospects on the Morelos Property in the future.

25 INTERPRETATION AND CONCLUSIONS

This section provides the major interpretations and conclusions reached by the main contributors for the Morelos Property ELG Life of Mine and Media Luna Feasibility Study.

25.1 GEOLOGY AND MINERAL RESOURCE

The QP (SLR) offers the following conclusions in regard to the Geology and Mineral Resource:

- The ELG Mine Complex and Media Luna deposits are examples of Au and Au-Cu skarn systems. The geology and controls on mineralization are well understood by the site geologists and are appropriate to support the declaration of a Mineral Resource estimate.
- The remainder of the property retains exploration potential and continued exploration and drilling is justified to define and expand the resource base at the property.
- The Mineral Resource estimate is based on samples from drill core only. The drilling samples have been planned, collected, prepared, analyzed and stored in accordance with industry standards, and are adequate to support the estimate.
- The data provided to SLR to prepare the estimate was verified by the QP and no material issues were detected.
- The Mineral Resource estimate was prepared by the QP without undue influence from the company. The QP has validated the model using standard techniques and production reconciliation and believes that they are accurate to within industry tolerances.
- The QP is unaware of any material risks to the estimate related to the geological setting, exploration information or preparation of the Mineral Resource estimate that may impact the continuing and potential economic viability of the Project.

25.2 METALLURGY AND PROCESS DESIGN

25.2.1 ELG Metallurgy

The QP (Promet101) offers the following conclusions in regard to the ELG metallurgy:

- Metallurgical testing has been carried out on both drill core and plant feed samples to continue to improve performance of the existing plant.
- The presence of higher quantities of iron sulphides in the feed, as a result of increased ELG UG production, has been linked to higher cyanide consumptions with reactive pyrrhotite being the primary consumer. Cyanide consumption via the dissolution of soluble copper species continued but has been reduced since the implementation of the SART process in 2018.
- The association of gold with metal sulphides and recommendation for the use of a sulphide flotation circuit to recover two separate streams for subsequent cyanidation, including the regrind of the sulphide concentrate to increase gold liberation has been confirmed through laboratory testing.

25.2.2 ELG Process Facility Operation

The QP (Promet101) offers the following conclusions in regard to the existing ELG process facility:

- Plant operating results since declaration of commercial production gold recovery has averaged 87.3% (range of 63.0 – 91.0%) and silver has averaged 26.3% (range of 3 - 46%).
- The average gold recovery for 2021 was 88.3%, and for silver was 30.6%.
- The implementation of the SART plant in 2018 resulted in the recovery of an average of 96.8 tonnes per month of copper in SART concentrate representing 260 g/t of feed in 2021.
- Operation of the CIP circuit has steadily improved, resulting in an average stage recovery of 95.7% for the year in 2021.
- Cyanide leaching followed by carbon in pulp (CIP) adsorption continues to be an effective recovery process for the ELG OP ores. However, elevated levels of iron in the feed have been identified as the source of increased cyanide consumption with measures put in place to mitigate this via pre-oxidation using liquid oxygen injection. Further optimization of this pre-oxidation concept is planned via the testing of the MACH reactors within the existing circuit to negate the impact of cyanide consumption with reactive iron oxides
- Analysis of the ELG process mass balance as part of optimization studies identified the opportunity to further reduce cyanide consumption. This can be done by redirecting high cyanide content streams back to leaching circuits instead of the grinding circuit and increase the recovery of low cyanide content process streams back to the process water circuit which in turn feeds the grinding circuit.
- Production for the year in 2021 was on average 12,362 t/d, with a product size of 80% passing 92 µm.
- Bond work index weighted average is 16.2 kWh/t. The ore is considered moderately hard to hard.
- Test work showed that a P_{80} grind size of 90 microns (operating range 80 to 100) provided nearly the same recovery as the planned grind size of 67 um.

25.2.3 Media Luna Metallurgy

The QP (Promet101) offers the following conclusions in regard to the Media Luna metallurgy:

- An extensive metallurgical testing program on the MLU and MLL mineralized zones was carried out from 2018 to 2021.
- Sample selection focused on spatial and grade variability and was done in conjunction with project geologists.
- The metallurgical performance of ELG UG ores confirmed the suitability of treating this material via the proposed Media Luna process facility. Blending of underground mineralized ores with open pit material was tested and some blending can be done without significantly affecting the proposed copper flotation circuit performance.
- The metallurgical testing included evaluation of the following processes to support the process route decision:
  - Ore hardness
  - Flotation
  - Cyanide leaching
  - Thickening and solid liquid separation
  - SART
  - DETOX

- Reverse osmosis and nanofiltration to support water treatment plant design
- Rheology and viscosity to support changed operating conditions

- The predicted overall recoveries for copper, gold, and silver to the final product streams are 93.0%, 90.0% and 86.0% respectively. The significant increase in silver recovery as compared to the present ELG operation is due to the association and subsequent recovery of silver with chalcopyrite to the copper concentrate.
- The deportment of gold to the three flotation circuit streams, namely copper concentrate, iron sulphide flotation tails and iron sulphide flotation concentrate was seen to be variable. This implies that a "Throw away" tails stream will not be able to be generated consistently and that leaching of the iron sulphide concentrate and tails streams will be required.
- The recovery of an iron sulphide concentrate and separate leaching of this stream after regrinding was consistently seen to result in an increase overall gold dissolution and also reduce overall cyanide consumption as compared to that of leaching of a bulk copper flotation tails stream. The use of an iron sulphide flotation circuit and subsequent regrind of this stream is key to increased liberation and subsequent dissolution of gold and reduction in overall cyanide consumption.
- The performance of the copper rougher flotation stage in laboratory scale testing was found to be sensitive to the grinding media used, and the use of high chrome media found to improve the grade versus recovery response.
- The presence of elevated levels of deleterious elements (Bismuth, Arsenic, Zinc and Cobalt) in the feed to the process facility was identified and investigated as part of the metallurgical testing program. Depression of these elements is possible but will be challenged when high deleterious element feed grades are encountered.
- A review of the current mine plan indicated insufficient zinc in the mineralized material to support the installation of a separate zinc recovery circuit. The recovery of a separate bismuth concentrate was successful based on testing, but further metallurgical testing would be required to optimize process conditions.

25.2.4 Media Luna Process Facility Design

The QP (Promet101) offers the following conclusions in regard to the future Media Luna process facility:

- The preferred process route for treating the Media Luna mineralized ores will be to use flotation to recover a saleable copper concentrate followed by and iron sulphide circuit to generate two products that will be leached separately. The process water circuits will need to be split to ensure that grinding and flotation is done in cyanide free water and a separate barren solution circuit used for leach circuit dilution.
- The first major modification to the process facility will be that of separating the water systems and ensuring that only cyanide free water is fed to the grinding and flotation circuits and recovered cyanide from the SART plant is to be utilized in the leaching circuits. Modifications to the circuit flowsheets will be made to minimize the amount of excess cyanide containing water but the excess solution will have to be treated to recover the cyanide. This will be done via the installation of a new water treatment plant (WTP) that is integral to the process flowsheet. In this circuit, high cyanide containing solution will be passed through a reverse osmosis circuit to maximize the recovery of cyanide to the SART plant, and low cyanide content streams passed through a DETOX plant prior to recycling back to the cyanide free process water. These modifications will allow for the operation of the plant with two different quality process water streams.
- A new copper and iron sulphides flotation circuit will be installed to generate three flotation products. A copper rougher, regrind and cleaner flotation circuit will be installed and is expected to be able to generate saleable copper concentrate at an average copper content of 25% Cu, with elevated levels of gold and silver that will

be attractive to smelters. Copper recovery to the copper concentrate is predicted to be good at ~90%, with variable gold recovery from 55-65% and high silver recovery from 80-90%.

- The copper rougher tails stream will be sent for further flotation where residual iron sulphides will be recovered. Gold that is typically associated with these iron sulphides can be considered to be marginally refractory and regrind of this stream prior to leaching will be carried out to enhance gold dissolution. The copper cleaner scavenger tails which typically has high gold and soluble copper content will be combined with the reground iron sulphide stream and leached separately to the iron sulphide flotation tails.
- A good understanding of the response of deleterious element deportment to copper concentrate with regards to depressants was identified as part of the metallurgical testing program. This information needs to be used in the design concepts and supervisory control strategies envisaged to be developed seen as part of the next phase of development.
- The existing crushing, grinding, leach, CIP, CIC, ADR, SART and DETOX circuits will be used either as is or modified to suit the new flowsheet. The metallurgical testing was carried out considering the reuse of existing equipment under these conditions and support the process flowsheet selection process.
- The focus on the metallurgical performance of the Media Luna ores and application of the selected process is expected to result in better metallurgical performance as compared to the current operations, with regards to metal recovery and cyanide consumption.

25.3 MINE DESIGN

The QP (Torex) offers the following conclusions regarding the current and future mining operations:

- The ELG UG, ELG OP and Media Luna operations have been designed as independent operations with site-specific break-even cut-off grades.
- Historical mine production performance on the Morelos Property provides an increased level of confidence of the operations team's ability to deliver the prepared mining plans.

25.3.1 ELG Open Pit Mine Design

The QP (Torex) offers the following conclusions regarding the current and future ELG OP operations:

- The ELG OP operations are well-advanced and matured. Two of the three existing open pits (Guajes and El Limón Sur) will be depleted in early 2023. The larger El Limón pit will continue operations into 2024.
- The final stage of the El Limón pit will excavate through the higher levels of the previously-mined El Limón Underground operations. Underground excavations in the periphery of the planned pit wall will be pre-emptively backfilled to ensure wall stability.
- Overall, since open pit operations started through to the end of Q3 2021, the derived F3 conversion factors for tonnes, grade, and ounces are 0.96, 1.02, and 0.99 indicating that the open pit reserve models have been good predictors of mill feed.
- Following depletion of the open pits, rehandling of stockpiled ore and low grade material to the processing facilities will continue.
- Pit designs and quantities have been updated guided by the results of a pit optimization analysis using current costs, geological understanding and applicable modifying factors

- Based on the Mineral Resource's classification, there is limited resource of inferred material available for the future mining, especially in the area of the El Limón pit where underground mining is planned.

25.3.2 ELG Underground Mine Design

The QP (Torex) offers the following conclusions regarding the current and future ELG UG operations:

- Ongoing exploration work has resulted in an increase in the Mineral Resources at ELG UG, leading to a high-grade Mineral Reserve estimate based on a mechanized cut and fill mine design with a LOM extending into 2028.
- Overall, since underground production started and through to the end of Q3 2021, the derived F3 conversion factors for tonnage, gold grade, and gold content are 1.37, 1.05 and 1.44, indicating that for the long term, the underground reserve models have been good predictors of the grade but underestimated the tonnes, resulting in significant more gold produced than predicted in the Mineral Reserve model.
- The current mining method MCAF is appropriate and successful from the operational point of view; however, there remains room for improvement in terms of production increase, productivity improvement, operating costs, and utilization of Mineral Resources.
- The addition of Portal 3 will enhance the ventilation, backfill and hauling system at ELG Mine Complex once it is completed.
- Based on the resource's classification, there is a sizable resource of inferred material available for the future mining which can be exploited economically once it is converted to indicated category.

25.3.3 Media Luna Underground Mine Design

The QP (Torex) offers the following conclusions regarding the planned Media Luna underground operations:

- The geometry of the Mineral Resource and the rock mass quality of the mineralized zones and surrounding rock mass make Media Luna amenable to extraction using longhole stoping and cut and fill mining methods with paste backfill.
- The mine design includes all development and infrastructure required to access the Media Luna Mineral Reserves. A full 3D mine model was created, and a LOM development and production schedule was prepared to determine the estimated tonnes, average grade, and metals profile mined and delivered to surface.
- The main access to the Media Luna mine operations will be established via the Guajes Tunnel, which will connect the ELG Mine Complex with Media Luna through a 6.5 km tunnel crossing under the Balsas river. Two additional access tunnels will be developed on the site of Media Luna, establishing early access for development and infrastructure construction; both tunnels will continue into the internal ramp. Once the internal ramp has reached the 695 mL, the second development face of the Guajes Tunnel will be established, progressing towards the Guajes Tunnel from the north side. The Guajes Tunnel is expected to break through in Q1 2024.
- Planned production will come from MLU and MLL. There will be approximately 2.5 years from the start of development in 2021 to the first production stopes, followed by a ramp-up of approximately three years to steady state production in 2026. To achieve a sustained steady-state production rate of 7,500 tonnes per day, Media Luna Upper and Media Luna Lower are subdivided in mining blocks, each with its own infrastructure to established production independency. Realistic production rates have been applied to each mining block to ensure the target production rate is attainable based on the current level of understanding of the Media Luna deposit.

- The development methods and mining methods are safe and highly mechanized, they use common equipment and processes that are proven in the global mining industry. The successful execution of these methods to achieve planned underground mine development and production at Media Luna will require the operation to continue to build on its established culture focused on worker health and safety, investment and emphasis on worker skills training geared toward the equipment and technology used, along with structured mine planning.
- Based on the work completed to-date, the Media Luna tailings will make a suitable paste backfill and the backfill system has been designed such that it will promote successful backfilling operations at a pace that aligns with the mining cycle. Additional pressure filtration test work is required to appropriately size equipment during the next stage of the Project.

25.4 NON-PROCESS INFRASTRUCTURE

25.4.1 ELG Mine Complex

The QP (M3) offers the following conclusions in regard to the current ELG Mine Complex non-process infrastructure:

- The ELG Mine Complex is a successful and viable operating venture, and significant operating knowledge has been gained since commencing commercial production in 2016.
- The current ELG Mine Complex infrastructure is sufficient for the remainder of the ELG OP and ELG UG mine life. Power and water supply are adequate to meet the current demand. The power capacity is near maximum while maintaining 100% redundancy however, there are no major planned process additions to the ELG Mine Complex and therefore the need to expand the power capacity is not anticipated to be required. There is a surplus in available water for the plant if an increase in water demand is required through the end of the mine life.

25.4.2 Media Luna Project

The QP (M3) offers the following conclusions in regard to the future ML Project non-process infrastructure:

- Media Luna is located in an area with moderate climate, workable topography and regional work force that has experience in construction and operations of mining projects. The current ELG Mine Complex has available significant infrastructure which Media Luna will utilize.
- To support the operation of the mine, the need for construction of the following non-process surface and underground infrastructure was identified in the study:
  - Overhead electrical line and associated substations and site distribution
  - Emergency power generation
  - Wells for water supply
  - Upgrading of the main access roads
  - Paste backfill plant with distribution
  - Mine water recycling plant and associated ponds
  - Waste rock storage facilities
  - Temporary ore stockpile facilities
  - Various mine underground fixed infrastructure
  - Warehousing and lay down
  - Construction and development camp

25.5 WASTE ROCK STORAGE FACILITIES

25.5.1 ELG Waste Rock Storage Facilities

The QP (Call & Nicholas Inc.) offers the following conclusions in regard to the existing ELG WSRF's:

- The El Limón Norte and El Limón Sur Waste Rock Storage Facilities (WRSFs) comprise the two main ELG WRSFs and are being developed by end dumping from platforms located at the crest elevation. Construction includes various phases, each designed in consideration of stability. These considerations include placement of material initially on flatter topography to buttress material to be placed on steeper topography, development of a phase at lower elevation to provide containment in the event of a failure, and various advancing ramp switchbacks to descend steep topography. Individual phases can exceed 200m in height with material placed at the angle of repose (1.4H:1V). Closure plans include regrading of the WRSFs to an overall 2H:1V angle.
- The risk of slope failure is managed using long and short-range engineering and review, as well as various operational practices including slope monitoring, limiting of the crest advance rate, visual inspections, and various slope management practices including short dumping, crest cutting, regrading, and general surface water management.

25.5.2 ML Waste Rock Storage Facilities

The QP (Golder) offers the following conclusions in regard to the new ML WSRF's:

- Two waste rock storage facilities, termed South Portal WRSF and West WRSF, will be established near the Media Luna South Portals to store waste rock prior to connection with the Guajes access tunnel. These facilities have capacity to store up to approximately 700,000 tonnes and 870,000 tonnes, respectively. Each WRSF will be constructed in an ascending construction sequence with 30 m lifts placed at angle of repose (1.4H:1V) with 18 m wide setbacks between lifts to establish overall 2H:1V slopes.
- Contact water (surface water run-off and water collected from the perimeter diversion drains) will be stored in sediment ponds located below the toe of each WRSF.
- Final closure activities would include contour drain construction on benches with periodic downslope drains contoured into bench faces to deliver rainfall runoff to the toe, and the slope surface will be topsoiled and revegetated.
- Geotechnical investigations have been completed for the footprint area of each WRSF. Alluvium/colluvium is low to non-plastic, free draining, and varies in thickness from non-existent to approximately 3 m. These overburden materials may remain in place beneath the South Portal WRSF but will be removed beneath the first (lowest) lift of waste rock at the West WRSF.

25.6 TAILS MANAGEMENT FACILITIES

25.6.1 ELG Filtered Tails Storage Facility (FTSF)

The QP (NewFields) offers the following conclusions in regard to the existing ELG FTSF:

- The current FTSF design capacity is 49 Mt of which approximately 30 Mt have been placed. The remaining capacity will allow for placement of filtered tailings until the ML operations commence, and for any permit delays for the GTSF.
- The FTSF has both vertical and lateral expansion capabilities to contain the current proven ML Reserves in combination with the ML paste backfill operations, if required.

25.6.2 Guajes Pit Tailings Storage Facility (GTSF)

The QP's (NewFields) offers the following conclusions in regard to hydrogeology, geochemistry, and design of the future ML Project GTSF:

- The GTSF has sufficient capacity to contain the proven ML Mineral Reserves with consideration of a portion of tailings reporting to the ML paste backfill operation, without overtopping the current pit rim including placed haul roads.
- Geochemical characterization studies indicate that when Fe-S Tails and Fe-S Cons are blended at a ratio of at least 80:20, there is a very low potential for acid drainage in subaerial or subaqueous storage conditions and consequently, low potential for contaminants of concern to leach from the tailings.
- Numerical groundwater modeling is an appropriate tool to assess the risk of groundwater seepage migrating from the FTSF to downgradient receptors at concentrations at exceed relevant standards. Over many years a robust site characterization dataset and good understanding of hydrogeologic conditions have been developed, which are essential to support model development and provide confidence in model predictions.
- As dictated by best practice, conservative model assumptions were used in the numerical groundwater model, including unlined GTSF with no under drainage collection, no low permeability cap at closure and assuming conservative source terms. The resultant model predictions indicate that the risk of exceeding water quality standards in seepage from the GTSF is low.
- Although engineering controls were not simulated in the numerical groundwater model and those modeling results suggest in-pit tailing storage is a low risk option, best engineering and environmental practice dictates the inclusion of an underdrain system to minimize hydraulic head at the pit base and thereby reduce seepage from the facility. Risks associated with seepage will be further reduced by inclusion of a geomembrane liner on the upper reaches of the pit rim where previously placed waste rock is located and during operations by following procedures to minimize the size and location of the supernatant pond. Lastly, an adaptive management approach will be implemented to monitor ground water quality downgradient of the GTSF to inform the need for a groundwater pump back system as a hydraulic control on seepage migration.
- It is important to note that either tailings strategy proposed for the ML Project; expanding the FTSF or utilizing the GTSF, adhere to the design principles of the Global Industry Standard on Tailings Management (GISTM) by minimizing the risk of downstream effects to stakeholders due to physical failure of a TSF along with adhering to the principles for life-cycle planning and risk mitigation planning for in pit disposal.

25.7 WATER MANAGEMENT

25.7.1 Water Management Strategy

The QP (NewFields) offers the following conclusions in regard to the Morelos Property Water Management Strategy:

- Torex maintains the necessary tools to facilitate proper water management, including a Web-GIS Dashboard and a site-wide water balance model. Importantly, Torex appears to be committed to continual improvement and optimization of the water management plan and tools, as dictated by best practice.

25.7.2 ELG Mine Water Management

The QP (NewFields) offers the following conclusions in regard to ELG Water Management:

- The water management infrastructure at the ELG Mine Complex system has operated successfully due to a combination of proper design and effective management. The four sediment ponds and four contact water ponds have demonstrated stable dam conditions and no uncontrolled discharges via the engineered spillways have been reported.

25.7.3 Media Luna Project Water Management

The QP (NewFields) offers the following conclusions in regard to ML Water Management:

- The operation of the ML Project will primarily impact tailings storage at ELG, increase the amount of water that needs to be managed due to the addition of excess mine dewatering flows from the ML Mine to the ELG Mine Complex, and potentially reduce the quantity of water required from the existing Atzcala well field.
- The Site-Wide Water Balance Model highlights the need for adaptive management practices to control water levels in Guajes East Pit if flows from the ML Mine and Guajes Tunnel exceed anticipated volumes. In addition, the model highlights the need for proper operation of the contact water ponds at ELG, which will involve prioritizing the use of reclaimed GTSF pond water in the plant during the wet season over the use of fresh water from the Atzcala well field.
- The required surface water management infrastructure at ML is limited to sediment ponds and diversion channels. The sediment ponds will be constructed below waste rock storage facilities to capture runoff. A decant pond and sump will be used as a water source for mine use and dust control water, and will overflow to the environment.

25.8 ENVIRONMENTAL, PERMITTING, COMMUNITY AND SOCIAL

The QP (Golder) offers the following conclusions in regard to Environmental, Permitting, Community and Social:

- The ELG Mine Complex is operating in an impoverished area of the State of Guerrero. The operation of the mine has contributed to the decrease in poverty in the area and will continue to do so.
- The ML Project provides an opportunity to extend the life of mine for the ELG Mine Complex operation by contributing additional material from underground resources to the mine plan, thereby extending the contribution of the Morelos Property to the local, regional, and state economies and providing the opportunity for a positive change in the standard of living of many local families.
- The advancement of the ML Project will require authorization of the pending permits, plus multiple additional permits from the federal environmental agency and Federal Electricity Commission. No known factors exist to preclude a successful permitting effort; however, the length and effort of the permitting process with the Mexican environmental agency can be difficult to predict.
- Mine closure planning is at a preliminary stage and closure costs could increase as closure planning advances.
- The Company has a strong social license program and there is positive support from the stakeholder communities. In addition, the corporate management has a strong commitment to ESG issues.

25.9 MEDIA LUNA PROJECT EXECUTION

The Project will be managed through an integrated Project Team organizational structure consisting of Torex/MML roles and EPCM roles to fulfill the main project functions, including; Project Management, Project Controls, Project Services, Health & Safety, Engineering Management, Surface Construction Management, Underground Technical Services, Underground Development and Construction Management, and Operational Readiness. During the Project period, there will be a focus on operational readiness as well as the addition of dedicated resources for workforce transition and planning to establish the underground mine workforce for operations.

Some services and construction management functions will be performed by Torex's MML operations team including; Guajes Tunnel development, camps services, IT services, security services, environmental monitoring, and community relations. Torex will also manage the mine development planning and mine technical services functions directly, with engineering and construction management support from M3 and Stantec.

The Project work breakdown structure (WBS) has been established during the Feasibility Study and will be carried forward through execution. This structure was developed from the WBS utilized during the ELG build and expanded to accommodate that additional contemplated for this Project. Scheduling, procurement packages, and contract packages are linked to the WBS through a cost code structure. The WBS is also applied to equipment and materials numbering for logistics and warehousing controls.

The ML Project estimates were prepared following best practices and consider where applicable site conditions and existing contract and operational costs. The scope of the design will require $848 million investment in project period capital, $336 in sustaining capital after the project period and through the life of mine.

Evaluation of the ML Project has been completed on an incremental basis considering the overall operation and is financially viable. Based on a long-term Au price of $1,600, after tax incremental NPV at 5% is $458 million and IRR of 16.1%.

Project returns are sensitive to the gold price and operating cost.

25.10 RISKS AND UNCERTAINTIES

Effective risk management is integral to the capital investment cycle, from evaluation of a business development opportunity through feasibility, project execution, commissioning, operations and, ultimately, closure and reclamation. Torex defines risk as an event or activity that hinders the sustainable achievement of the Company's strategic and business objectives and results, including causing a significant opportunity to be missed. For capital projects, this means delivering on safety, budget, schedule and quality, while maintaining a license to operate.

The objective of the risk management process applied for the Media Luna Feasibility Study was to identify risks that could prevent the Project from achieving its strategic, business and operational objectives, and to identify opportunities to improve overall project performance. The feasibility study reflects the characterization and definition of the risks and action plans as a snapshot in time.

This Technical Report does not incorporate existing risks associated with current ELG operations. It is assumed that these risks have already been mitigated or addressed as part of the existing operations plan. For a comprehensive discussion of the company-wide, site and project risks, please refer to the Company's latest Annual Information Form ("AIF"), filed on www.sedar.com.

The project risk profile reflects the following aspects:

- Understanding of the resource, technical and operating uncertainties;
- Environmental and permitting regime;
- Previous experience with similar projects in terms of complexity, magnitude, technology, and jurisdiction;
- Execution considerations, and
- Understanding of the local construction market.

25.10.1 Risk Management Approach

Risk management activities during the FS encompassed the following analysis of risk:

1. Technical and operational risks, to inform preliminary engineering and to address the safety, environmental and operability of the facilities:
   - Conducted in several sessions between May and December 2021, included technical team participation
   - 462 risks identified, generating 711 recommendations
   - A number of the recommendations were actioned and addressed as part of the FS design process
2. Project risks consisting of analysis to identify threats that could materially impact the achievement of the project objectives and development of associated management plans:
   - Conducted over a 2-week period in January 2022; included technical and non-technical participation
   - 142 risks identified, generating 347 recommendations
   - The moderate to high risks from this session have been populated into a Top 10 register as summarized below
3. Analysis conducted to determine the project capital cost contingency:
   - Conducted in two main sessions with the project teams subject matter experts
   - The sessions outcome focused on defining three point estimates and Monte Carlo analysis to develop probability distributions of capex which informed capex contingency estimates. The contingency estimation process is described in detail in Section 21.

25.10.2 Risk Identification and Assessment

The risk management activities were conducted in accordance with the Torex Enterprise Risk Management (ERM) Framework, which involves identifying, analyzing, mitigating, and monitoring risks:

- Risks were assessed in terms of and impact on the project objectives (using a five-point scale of impact ranging from low to critical) and assigned a likelihood of occurrence within a specified timeframe (on a corresponding scale of rare to expected), using the Torex project risk rating matrix. The standardized basis for assessment ensures a relative rating that is deemed sufficient for prioritization and active management.
- The impact of occurrence is stated as a dollar value of capital cost variance to budget, project schedule delay, and various qualitative terms, such as regulatory compliance, stakeholders and market sentiment, environment, health and safety, that could result if the risk event occurred.
- Management actions and recommendations have been identified to address the highest risks. As the project progresses into the execution stage and more detailed information becomes available, more risk treatment actions will be identified, if cost effective and practical, to reduce the residual risks.

The results of the risk assessments did not reveal any fatal flaws in the project. In addition, a number of risks identified as part of the technical and operational assessments have been already mitigated by changes to the feasibility designs. The highest-ranking risks resulting from these functional and collective risk assessments are related health and safety aspects and potential schedule delays. Immediate actions are required to mitigate these risks by establishing plans and counter measures as soon as the construction approval is obtained, in accordance with Torex's risk escalation process.

Although project capex overruns are a known risk, there were no identified discrete capex risks that ranked High to Very High. However, it should be noted that the project team is aware that the possibility of concurrent materialization of multiple schedule risks and/or discrete capex risks that could result in major capex overruns for the project. The team is working with Corporate and Site Finance to diligently monitor these risks by developing and implementing adequate cost controls for timely identification of these trends.

Table 25-1 below summarizes the top ten residual risks, the current status of these risks and the proposed mitigation actions.

Table 25-1: Media Luna Risk Register Top 10

#	Risk Universe		Risk Description	Proposed Mitigation Actions	Residual Risk
	Category	Area			
1	Safety, Security, Environmental & Sustainability	Health and Safety – Construction / Operations	Serious injury or fatality during the project construction period	• Expedite hiring a project H&S manager • Assign dedicated Project Training staff for on-going development of the contractor safety processes • Schedule the work based on resource loaded assumptions • Use of CCTV systems • Phase deployment of underground communication and refuge stations deployment • Update Emergency Response Plan for ML underground • Update SOP's for explosives storage and delivery • Design traffic management plans	Very High
2	Infrastructure and Services	Underground Mine - Recovery (Mining)	Significant delays with mobile battery equipment fleet delivery	• Detailed assessment of procurement timelines; determine contingency within procurement schedule • Initiate engineering for adjustments to ventilation systems for diesel fleet during production ramp-up, if backup needed • Assessment of contractor fleet support during production ramp-up period	Very High
3	Infrastructure and Services	Underground Mine - Recovery (Mining)	Mine production target of 7,500 tons per day (T/D) not met	• Investigate alternative mine plans / criteria for increased productivity • Conduct measured delineation drilling from surface • Carry out more detailed bottleneck systems analysis • Continued development of the geometallurgical block model • Develop mine execution planning tools and systems • Develop training systems, including the use of simulators	High
4	Infrastructure and Services	Site Services	Inadequate Power Supply during Construction or Operations	• Expedite delivery and installation of temporary South Portal genset systems • Detailed load list and schedule is continuously reviewed and updated during Detailed Engineering (DE) • Expedite hiring of Electrical OR Lead • Develop a power commissioning plan for load schedule requirements • Investigate potential re-configuration of power systems to allocate more loads directly to new plant areas • Consider early procurement activities of 230kV system • Closely monitor Centro Nacional de Control de Energía (CENACE) and Federal Electrical Commission (CFE) approval processes	High
5	Infrastructure and Services	Underground Mine - Recovery (Mining)	Underground development schedules not met for the Guajes Tunnel (GT) connection and conveyor installation	• Adjust planning and resources based on performance • Contractor bonus incentives aligned with planning assumptions • Schedule probe-hole drilling in areas deemed higher risk, such as zone below the river • Consider vertical development (vent raise) strategies • Develop a water inundation response plan to ensure emergency pumping systems readily available • Develop construction sequencing plans for conveyor installation, and traffic planning for the tunnel	High
6	Infrastructure and Services	Surface Infrastructure and Facilities	Procurement delays for major equipment (e.g. regrind mills, high pressure	• Procurement strategy to include early engagement with key vendors to identify lead time concerns • Consider increasing lead time contingency, including ordering of major plant equipment in advance	High

#	Risk Universe		Risk Description	Proposed Mitigation Actions	Residual Risk
	Category	Area			
			pumps, microchips, steel, etc.)	• Identify vendors with manufacturing capabilities in North America, to minimize supply-chain delays • Schedule detailed procurement activities, including Factory Acceptance Testing (FAT)/ Site Acceptance Testing(SAT) in the master schedule	
7	Project Management	Construction Monitoring	Sub-optimal construction planning, including lack of skilled workforce	• Ensure baseline productivity estimates are continuously revised based on measured performance • Develop detailed construction staging plans • Consider alternative contracting strategies, such as pain /gain share • Conduct detailed labor reviews • Consider alternative contractor selection strategies, and identify additional vendors in case of underperformance	High
8	Project Management	Commissioning	Lack of organizational preparation for operating the new mine and facilities	• Commence hiring key OR specific positions: discipline OR leads, Commissioning Manager, and Maintenance Leads • Develop the supervisors/ operators training programs and accreditation, SOP's, and maintenance systems • Develop a HR strategy and recruitment plans for new hires and ensure adequate onboarding time	High
9	Safety, Security, Environmental & Sustainability	Environment	Unacceptable environmental incident	• Finalize the Water Management Plan (POMA), including updates to SOP's and Trigger Action Response Plans • Develop centralized controls system for continuous monitoring of quantity and quality of ponds, wells and TSFs • Complete detailed engineering for the surface water drainage systems • Continuous geotechnical monitoring systems for GTSF pit walls, including prisms and radar system • Consider third party review of final reagent systems designs for compliance to Cyanide Code	High
10	Regulatory	Permitting, Legal/ Regulatory	Key permits / approvals critical to the project are delayed or denied	• Continue the TSF management geochemistry and hydrogeology studies • Consider strategies for including the Guajes Filtered Tailings Storage Facility (GTSF) in the MIA-Integral Amendment • Detailed engineering for the Fe-S Cons lined system and secondary haulage infrastructure, as back-up for the GTSF • Continued engagement with regulators and EIA consultants • Consider political outreach at various levels	High

25.10.3 Ongoing Risk Management

The ML Project risk register is a living document that will reflect the changing profile of the Project due to internal and external factors, as the Project advances to further phases of study. Should the Project advance, the management of risk will continue to be a collaborative process during the project execution. The intent is to promote cross-functional awareness of key issues for the project team members and other key stakeholders.

As the Project advances through to execution, the risk management process will continue with, at a minimum, monthly updates with the core project team, monitoring of action plan advancement and a regular evaluation of progress of project de-risking and opportunity exploitation. The risk mitigations activities will continue to be managed by:

- Regular reviews of the risk register, conducted to refresh the list by adding and/or removing risks, reassessing existing risks and reprioritizing management's focus;
- Action plans to be monitored for progress and adjusted as required; and
- Individuals identified as risk or action plan owners to be accountable for reporting on management activities.

The project team will continue to use reporting outputs of the risk management process to communicate to management and project stakeholders, justify additional resource and influence key project decisions.

The effectiveness of the actions will be verified during routine risk reviews, and reflected in the residual risk, as reported in the project risk register.

25.11 OPPORTUNITIES

25.11.1 ELG Opportunities

Through discussions with the studies Qualified Persons and Torex Area Leads, the following opportunities have been identified for the ELG LOM:

Geology and Mineral Resource

- Gold and silver mineralization is currently open-ended along strike and down dip at El Limón Deep and future drilling programs will continue to define and classify material along the main mineralization trends. There are also additional unclassified skarn targets identified near to existing and future ELG-UG mine areas, laterally offset from the main mineralization trends.
- Regional greenfields exploration potential remains within Torex's mineral license area north of the Rio Balsas, and several target areas are subject to current and future study including; Tecate, Esperanza, Querenque, and Azcala.

Mine Design and Reserves

- Within the current metal price environment there is justification for strategic optimization of cut-off grades across the three major mine plan areas for ELG OP, ELG UG, and ML UG in order to optimize future cash flows. Reserves could be increased with application of reduced cut-off grades.
- Potential to increase mine production rates for ELG UG, including implementation of bulk mining (LHOS) systems similar to the future planned ML mine. There is also potential for incremental productivity gains with current C&F methodologies, mainly through application of additional equipment and resources.
- The current ELG-UG mine uses predominantly Contractor development and mining. Future trade-off assessments will analyze required investments, payback, and execution planning for transitioning to an Owner operated fleet and workforce.
- Opportunities have been identified for improving processes for open pit ore grade controls to reduce dilution and improve ore recoveries.
- Considering the limited remaining mine life in the open pit operations, certain long-term assumptions may be relaxed
- The Owner operated open pit mining fleets will be freed-up starting in 2023 with the completion of mining of the Guajes and El-Sur open pits. As equipment becomes available it may applied to offset stockpile rehandling functions that are currently Contractor-operated. The Owner operated equipment can also be used for supporting some civil earthworks for the ML Project.

Processing and Metal Recovery

- The ELG ore feed contains pockets of relatively high sulfides (copper and iron), and high sulfides within the mill streams which increases cyanide consumptions and reduces recoveries. A notable opportunity exists for the installation of the ML Project Fe-S flotation system prior to the ML mine ramp-up in order to gain the recovery benefits for the existing ELG ore feeds and reduced cyanide consumption. The early Fe-S flotation system will be executed pending approval of the ML Project.

- Similar to the above point, leveraging the ML Project's Water Treatment Plan (WTP) during the ELG LOM will more efficiently recover cyanide to SART to avoid cyanide losses in the grinding circuit. The WTP will be executed alongside the early Fe-S flotation system, pending approval of the ML Project.
- The ELG operation uses pre-oxidation processes for reducing cyanide consumption driven by high sulphide contents. Additional trials will be carried out in 2022 for a MACH reactor pilot system, which could further promote pre-oxidation of the sulfides.
- Opportunity has been identified to reduce cyanide consumption through the re-piping of leachate solution streams, and this work has been approved for 2022 implementation.
- Ongoing development of the ELG geometallurgical models on site will help optimize the mine and processing plan for the ELG ore types (throughput, grade, recovery, reagents, etc.)

Environmental and Waste Management

- Use of the Guajes pit for tailings deposition during the ELG operations starting in 2024 which will reduce tailings management costs. Pending ML permits and projects approvals.
- Improvements to water recycling management systems for the mill to reduce fresh water pumping and consumption from the well fields.
- Power management systems optimization for improvements in fuel and electricity use at ELG. The commissioning of the planned solar power plant will incrementally reduce power costs, and reduce GHG's.
- The water treatment plant planned for the ML Project can be used for treating mine contact water in the sediment ponds as a contingency measure during major storm events and will also be used for mine closure and remediation of the ponds.
- Alternative mine closure configurations could be considered to reduce closure costs. For example, significant regrading of the ELG WRSF is assumed in the closure plans - geotechnical stability and risk analysis would be required to verify alternative WRSF configurations at closure. Another alternative would be to avoid the need for addition of amendments or organic soils – additional study and field verification would be required.
- The adoption of industry standards including the Global Industry Standard on Tailings Management (GISTM), the International Cyanide Management Code, and the World Gold Council Responsible Gold Mining Principles will increase the Company's reputation and implementation of the standards will decrease environmental risk.

25.11.2 Media Luna Opportunities

Through discussions with the studies Qualified Persons and Torex Area Leads, the following opportunities have been identified for the ML Project:

Geology and Mineral Resource

- There is 6M tonnes of inferred ML resource, and 8M tonnes of Inferred EPO resource, which could be upgraded to Indicated through additional infill drilling. The 2022 drill program will be focusing on the EPO inferred zone upgrade.
- Significant areas of unclassified materials remain in close proximity to the ML resource areas which will require exploration drilling for upgrade into the resource categories. Exploration target areas include; EPO North and

EPO South Extensions, ML West, ML East, ML Deep, and fringe areas of the MLL and MLU resource areas. The 2022 exploration program will target some of these areas.

Mine Design and Reserves

- There is significant reserve growth potential pending outcomes of ongoing drilling and resource definition. The general strategy will be to sustain the 7500 t/d production rates through reserves replacement, as well as to potentially grow production rates through addition of new reserves brought forward into the mine life. Some mine infrastructure including the Guajes Tunnel conveyor and paste backfill plant have been designed for increased production capacity. Conceptual mine plans integrating unclassified material suggest sustained production through 2040 is possible.
- Considerations for leveraging the designed digital backbone for the mine for application of remote and autonomous operation of underground mobile equipment to increase daily production rates by reducing downtime during shift changes, blasting, etc.
- Use of modern digital technologies including short-interval controls planning tools, fleet tracking, and remote blasting/monitoring for incremental improvements on productivity assumptions currently carried in the FS.
- Explore opportunity to reduce stope cut-off grade. There is indicated resource material below the stope cut-off that is not included in the mine plan but is adjacent to planned development and stoping areas. A lower cut-off grade could potentially bring this material into the mine plan with incremental additional development for addition to the Mineral Reserves.
- As the Mineral Resource is further defined, explore stope sizing and level interval spacing to optimize productivity and capex development.

Processing and Metal Recovery

- Conceptual metallurgy and process design work suggest that a high grade bismuth concentrate could potentially be generated as a saleable product through the integration of a bismuth flotation circuit added onto the Fe-S and Cu flotation circuits. This could provide an additional revenue stream for the company. Gold recovered within the bismuth concentrate could either be leached or sold with the concentrate. Additional metallurgy testing, process design work, and a marketing study would be required to assess the viability of this project addition.
- Geometallurgical models illustrate that there are localized zones of moderate to high grade zinc within the skarns. Follow-up assessment will be carried out to understand potential deportment of zinc from the ores, as well as its potential revenue generation stream if separated through a float circuit addition.
- Further assessment will be carried out for integration of online analysis of mill feed and process streams for optimized ore stockpiling and for back analysis of gold deportment. These analyzers could be installed on conveyor feed belts or within the mill slurry feed streams.
- Ongoing development of the ML geometallurgical models on site will help optimize the mine and processing plan for the ML ore types (throughput, grade, recovery, reagents, etc.)

Surface Infrastructure

- Further analysis within the detailed engineering phase for optimizing routing of piping to reduce pipe lengths, and pipe rack structural work.
- Evaluation of potential re-use of redundant plant equipment (pumps, electrical) within the new ML process flow sheet. This could result in some capex savings or reducing capital spares purchases.

- Procurement of used capital equipment where warranted such as the Cu-floatation tower crane system, ancillary mobile fleet (forklifts, flatbeds), and used camp trailers or offices.
- Evaluation into direct ownership and management of the Cu-Con trucking fleet used for transporting of the concentrate from the mine to the port. This may reduce costs relative to contracting through a shipping company.
- Further assessment of Mexico port facilities for shipping of the Cu-Con, as well as optimizing the ground transport routes. For example, if feasible, the use of the Acapulco port would substantially reduce ground transport costs.

Environmental and Waste Management

- The FTSF could potentially be used for tails management instead of the GTSF. The FTSF is currently permitted for an additional 9 million tonnes of filtered tails capacity beyond the current ELG LOM mine life, and will be permitted for an additional 20 million tonnes of filtered tails pending approval of the MIA-Integral currently in progress. The use of the FTSF could be considered for initial capex savings; however, the opex is substantially higher.
- Ongoing geochemistry testing of the ML ore feed materials will provide increased resolution as to the limits of Fe-S Cons blends that can deposited in either the GTSF or FTSF. Increasing Fe-S Cons deposition on surface will reduce cement costs for placement as cemented paste backfill.
- For future mine operation beyond 2033, significant increases in the GTSF capacity can be achieved by raising the rim of the pit using readily available waste rock, with a liner system. Alternatively, the GTSF could be decommissioned, and the FTSF operated 2033+. Additional permit approvals would be required for the GTSF pit rim raise option.
- Opportunities exist for continuous improvement of water quality and quantity monitoring systems to provide representative sampling and real-time data, which will help optimize water re-use onsite saving pumping costs and reduce environmental risks.

26 RECOMMENDATIONS

The following is a list of recommendations developed by the QP's for future work for the Morelos Complex, including the existing ELG Mining Complex and future ML Project.

26.1 GEOLOGY AND MINERAL RESOURCE

The QP (SLR) provides the following recommendations for future work for Geology and Mineral Resource work programs:

- The QP recommends that Torex continue to drill infill holes to the inferred material and extend the known mineralization along strike and down dip from the currently defined Mineral Resources. The QP has reviewed the scope of work and budgets for exploration as summarized in Section 24 and is of the opinion that they are appropriate for the next year of work.
- The QP recommends that the density sampling program for the Sub-Sill and ELD be expanded to allow the estimation of density in these areas.
- The QP recommends trialing the use of high grade domains at ELD and Sub-Sill which may extend the range of the variograms and improve grade continuity.

26.2 PROCESSING AND METAL RECOVERIES

26.2.1 ELG Mine Complex

The QP (Promet101) provides the following recommendations for the existing ELG process and metal recovery work programs:

- The separate leaching of a reground iron sulphide concentrate is recommended and expected to result in a significant reduction in cyanide consumption and also an increase in overall gold dissolution.
- The potential use of a "GoldOre" Mach reactor and its impact on metallurgical performance for both the ELG and ML process flowsheets should be advanced. This equipment has the potential to accelerate the pre-oxidation to thus reduce cyanide consumption, and also enhance gold dissolution.
- Stockpiling of ELG UG high grade copper ores close to the commissioning date for the copper concentrator is recommended to extract value from increased copper and silver recoveries that would otherwise be lost to tails.
- Continued geometallurgical evaluation on the gold and iron sulphide deportment of the ELG OP and Underground ores to improve on gold dissolution and reduce cyanide consumption is recommended. A metallurgical work program is suggested for the ELG Mine Complex to continue to understand causes and remedies for high cyanide consumption, and improve gold recovery.

26.2.2 Media Luna

The QP (Promet101) provides the following recommendations for the future ML process and metal recovery work programs:

- Further metallurgical test programs are recommended to improve the understanding of the deportment of deleterious elements and gold deportment to different process streams. Specific testing is as follows:
  - Evaluate the potential for recovery of Bismuth in a separate concentrate as a product for sale to third parties whilst maximizing gold recovery and minimizing copper concentrate penalties.

  - o Fill in gaps on samples identified as a result of samples not being available from the infill drilling program of MLL/MLU for metallurgical testing but now included in the resource model.
  - o Testing of EPO ores as these are likely to be the next ores to be included in the mineable reserve following suitable project study work.
  - o Advance gold deportment and diagnostic analysis to develop a more robust predictive model as to when either the Fe-S rougher flotation tails and or Fe-S cleaner flotation tails can be considered uneconomic to process.
  - o Further analysis of Zinc for potential assessment of a Zinc concentrate circuit. Based on geometallurgical models, the average Zinc quantities in mill feed are insufficient to justify a separate circuit, however as development of the models and mine plan continue to improve this can be re-evaluated.

- During detailed design of the process facility, a critical review of the proposed new equipment versus existing equipment is to be carried out to maximize the reuse of equipment such as pumps and samplers to minimize CAPEX.
- A tradeoff study to consider the use of high chrome content grinding media is recommended for the future Media Luna ores due to the reactive nature of the feed material which resulted in reduced copper circuit performance. Whilst this media is more expensive it typically has a lower wear rate and overall operational costs are similar. A trade-off of the grinding media selection will be advanced in detailed engineering.
- It is also recommended that a "digital twin" of the proposed process facility be built from the existing SysCAD models and used to form the platform from where operational training and supervisory control strategies can be advanced. Specifically to address issues of when to leach low gold streams and also management of concentrate deleterious elements.
- The content of deleterious elements contained within the copper concentrate will be variable with each of the four main deleterious elements incurring some form of penalty but not necessarily at the same time. The process design considers online measurement of some of these elements and eight day-bins to allow for onsite assaying turnaround. A decision process should be developed to manage the blending using the aforementioned infrastructure.

26.3 MINE PLANNING AND DESIGN

26.3.1 ELG Open Pit

The QP (Torex) provides the following recommendations for the ELG Open Pit future work programs:

- Validate effectiveness of 'skin-dilution' approach (through reconciliation) for permanent implementation in remaining LOM.
- Due to the limited remaining LOM of the open pit operations, assess opportunities to benefit from favorable conditions (such as higher gold price) to optimize extraction of the deposits.
- Assess opportunity to apply reduced cut-off grade for subgrade material and designate segregated portion of WRSF to stockpile accordingly.
- Evaluate future opportunities to use retired pit fleet to replace surface contractors.

26.3.2 ELG Underground Mine

The QP (Torex) provides the following recommendations for the ELG UG mine future work programs:

- It is recommended that the Company continues with their plans to add reserves to replace depletion and grow the ELG Underground Mine. This work is to be focused first on delineating addition of measured and indicated resources through infill and step-out drilling programs. Once these resources are identified, mining plan should be carried out to enable these mineral resources to become mineral reserves.
- Based on financial, exploration success and ELG Underground performance in the previous years to date, it is recommended that Torex investigates opportunities to further optimize the economical portion of the Resource Model through production performance increase and/or cut-off grade optimization.
- Other suitable mining methods should be investigated which can increase the throughput from underground at a lower cost resulting in additional reserve available for mining.
- Also, it is recommended that the Company explores additional optimization of the CoG on the Morelos Property to be able to extract/mine higher tonnages/ounces economically.

26.3.3 Media Luna Underground Mine

The QP (Torex) provides the following recommendations for the Media Luna mine future work programs:

Geotechnical and hydrogeology work recommended for the Project:

- To address the management of groundwater seepage into the Guajes Tunnel, a probe drilling program is recommended. The recommendation will also extend to the South Portal tunnel development drives, and ML internal ramping. The intent of this program is twofold and will provide additional information ahead of the Guajes tunnel and South Portal excavation drives to:
    - identify any potential water bearing features that may pose a risk of flooding to the development advance, and
    - provide additional structural geological information to address any additional weak ground areas which may inhibit the development and installation of permanent infrastructure facilities in the tunnel.

  These results informed from the drilling will allow for proper planning of necessary mitigation activities to limit the delays in the tunnel excavation and related infrastructure installations.
- There is an opportunity to reduce the offset of the footwall development from the stopes in the mine design from 20-25, but closer than 15 m will need further assessment as increased ground support will be required in less competent ground. The irregular stope footwall orientation will form the basis of how the footwall development will be excavated.
- The areas of weaker and high strength ground will require further delineation; a more refined mine design in localized areas encountering the weak ground (primarily argillic dyke contacts) will be required.
- Stope excavations in the MLU and the MLL west/southwest of the argillic dykes are expected to contribute to overstressing the argillic dykes. The final mine plan should be evaluated to assess if regions of overstressing are expected based on the proximity the argillic dykes.
- Further refinement of the geotechnical work surrounding the development and stability of long vertical excavations. The vertical excavations would include rock passes, ventilation raises, rock storage bins, etc.

Mine planning and engineering work recommended for the Project:

- Early engineering and procurement of the west adit main ventilation fans for delivery in 2023.

- Detailed engineering for mine infrastructure systems including ventilation, electrical, dewatering, service water, material handling, and others. A budget has been included in EPCM project costs to advance this work, including mine planning.
- Develop the detailed scheduling for fixed and mobile equipment procurement, diamond drilling programs, as well as construction, labor, and materials delivery. Also with market price volatility, it will be important to confirm long-term commodities pricing, especially diesel and electricity.
- Continued engagement with suppliers for all mobile equipment, including further assessment of automation and autonomous operation, and securing battery electric vehicles on time to support LOM schedule. First mobile fleet equipment deliveries are planned for second half 2023.
- Mine plan schedule optimization including more detailed assessment of stope designs and CoG's in current market price environments.
- Finalization of the current mine design work to include the development of detailed plans of the level excavations.

Paste backfill systems work recommended for the Project:

- The paste backfill system has been advanced to an FS level and is well-positioned to advance to detailed design and execution. A budget has been included to advance the detailed process engineering work.
- Long-term UCS test work to gain a more comprehensive understanding of strength gain/loss with varying sulphide content in paste. A budget has been allowed to advance the confirmatory test work.
- Confirmatory geotechnical investigation and topographic survey should be carried out at the proposed paste plant location to understand rock bearing capacities and identify site spatial constraints, respectively. A budget has been included to advance this work during detailed engineering.
- Consideration should be given to hire a dedicated backfill coordinator/team at the next stage of the project to start training, preparing procedures, and taking ownership of the paste backfill system.

26.4 NON-PROCESS INFRASTRUCTURE

The QP (M3) provides the following recommendations for the Media Luna non-process surface infrastructure:

- Consider implementing a reoccurring technical audit recommended on an appropriate interval to capture both the rainy and dry seasons. The technical audit reports are valuable for identifying problems and potential problems before costly downtime is required to repair or rebuild structures or equipment due to failure. In addition to these reports being an essential component in the Preventative Maintenance Plan for operating plants, they are also suitable for management to gauge the safety and health of the plant and its equipment.
- Begin the work on site to relocate existing facilities and utilities to allow for the areas to be available and cleared out for the construction of the new facilities associated with the ML Project. The main relocation will be the breakroom, storage containers, and electrical lines at the area where the new flotation plant will be located. Powerlines near the water treatment plant will be a part of this scope as well.
- Survey of existing process facility to identify as-built locations for existing buried utilities and culverts. A budget has been included to advance this work during detailed engineering.
- Review the shipping of the copper concentrate and consider alternatives to which Mexican port it will be taken to as part of the detailed engineering phase. A budget has been included to advance this work during detailed engineering.

26.5 WASTE ROCK STORAGE FACILITIES

26.5.1 ELG Waste Rock Storage Facility (WRSF)

The QP (Call & Nicholas) provides the following recommendations for the ongoing construction of the ELG WRSFs including El Limón Norte and El Limón Sur:

- Continue on-going slope monitoring practices including daily inspections and utilization of slope instrumentation (prisms, GPS, extensometers). Upgrade software used to manage monitoring data to allow for distribution of real-time alerts of slope displacement.
- Continue slope management practices including crest cutting, re-grading and short dumping. Modify short dumping as needed to maintain sufficient distance from the crest when near-crest cracking has been observed. The cost for these practices is incorporated into annual operating budgets.
- Conduct short-term geotechnical reviews and analyses of the WRSF construction sequence as modifications to the sequence are made particularly for areas with a steeply dipping foundation.
- Remove collection ponds and low strength material in the El Limón Sur area where TEP-5 will be constructed. Assess the need for a basal flow-through drain for El Limón Sur. Review precipitation data and determine expected accumulation of pore pressure and the need for additional drainage to maintain long-term stability.

26.5.2 ML Waste Rock Storage Facilities (WRSF)

The QP (Golder) provides the following recommendations for additional work for the ML South Portal WRSF and the West WRSF:

- Collect site-specific data meteorological and hydrology data (e.g., volume stored in the sedimentation ponds) to support refinement of seasonal run-off, design storm estimates, and development of a long-term surface water management plan.
- Develop site specific relationship between crest advance rate and dump crest stability. This rate may be refined based on operational constraints (e.g., the number of truck available to deliver waste rock).
- Develop a site-specific trigger action response plan that designates the required actions in response to observable triggering events. Examples of triggering events include development of cracks along the crest of a lift, excessive deformation of a lift, or specific precipitation intensity thresholds. Clear categories of dump status should be established (i.e., open, standby, closed) along with applicable constraints to dumping activities and access for each category.

26.6 TAILS MANAGEMENT FACILITIES

The QP's (NewFields) provides the following recommendations for additional work for the current FTSF and future GTSF.

Tailings engineering work recommended for the FTSF and GTSF and has been budgeted for during detailed engineering includes:

- Update the tailings deposition plan using Muck 3D modeling program. The model will provide guidance on the GTSF storage capacity and approximate schedule for tailings deposition location and timing for infrastructure improvements.

- Execution design phase will produce the initial and future construction details required to convert the Guajes Pit to tailings storage facility.
- Evaluate credible failure modes for the GSTF and expanded FTSF and their affects.
- Working with Torex to develop a formalized Tailings Management Plan citing the GISTM principles framework. Also develop a permitting framework and communications plan for the GTSF MIA-Integral permit amendment.

Tailings hydrogeology work recommended for the GTSF:

- Drill, install, and develop monitoring wells downgradient of the planned GTSF for groundwater quality monitoring and to support adaptive management plans to provide hydraulic capture, if needed.
- Collect additional field data and update the ELG numerical groundwater flow and solute transport model. Additional data can include aquifer test data from monitoring wells that will be installed along the preferential flow path in the Morelos Formation downgradient of the GTSF. Consider data collection in other areas where data are limited, such as the Range Front and Tailings South Faults.

Tailings and waste rock geochemistry work recommended:

- Continue laboratory testing of tailings humidity cells for investigating long term acid drainage and metal leaching potential.
- Continue to monitor waste rock and tailings drainage water quality upgradient and downgradient from existing storage facilities.
- Complete investigation of ore mixtures and tailings mixtures (ELG UG and ELG OP, and ML Underground) and the effect on resultant tailings acid and metal leaching potential. This work is scheduled for completion in April 2022.
- Refine the site water quality model pending changes to field and laboratory data.
- Continue to monitor site water quality data and compare to established trigger or permit-level concentrations.

26.7 WATER MANAGEMENT

The QP (NewFields) provides the following recommendations for additional work for the site water management modelling and monitoring:

- Continue improving the measurement of important inputs to the site wide water balance and the numerical groundwater models. Equipment resources needed include additional flow meters, pressure transducers, and surface water weirs. Consider the Operational Water Management Plan a living document and continue to plan, revise and update to optimize water management.
- Assess the ability of the current groundwater and surface water monitoring network at ELG and ML to meet the future needs of the ML Project and make improvements, as needed.

26.8 ENVIRONMENTAL, PERMITTING, COMMUNITY AND SOCIAL

As a priority, the preliminary closure design of the El Limón WRSF should be further advanced, as it could have an impact on the closure cost estimate. Groundwater sampling quality control procedures should be formalized and some techniques improved, such as single use samplers or purging prior to sampling, in the non-pumping wells to ensure that representative groundwater samples are collected.

26.9 MEDIA LUNA PROJECT EXECUTION

Based on the favorable economics of the ML Project, it is recommended to proceed with the detail engineering and construction of the ML Project to allow for continued operation of the ELG UG mine along with the future operation of the ML mine. Section 24 provides additional discussion as to next-steps for the ML Project execution.

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APPENDIX A: ELG MINE COMPLEX LIFE OF MINE AND MEDIA LUNA FEASIBILITY STUDY CONTRIBUTORS AND PROFESSIONAL QUALIFICATIONS

ARCHITECTURE
ENGINEERING
CONSTRUCTION MANAGEMENT

CERTIFICATE OF QUALIFIED PERSON

I, Robert Davidson, P.E., certify:

I am employed as Vice President by M3 Engineering & Technology Corp., 2051 W Sunset Rd. Suite 101, Tucson, AZ 85704, USA.

This certificate applies to the technical report titled “Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study” that has an effective date of March 16, 2022 and a filing date of March 31, 2022 (the “Technical Report”), prepared for Torex Gold Resources Inc.

I am a Registered Professional Engineer in good standing in the State of Arizona (No. 64339). I am also a member in good standing with the Society of Mining, Metallurgy and Exploration. I graduated from the University of Arizona and received a Bachelor of Science degree in Mechanical Engineering in 2005.

I have practiced my profession for 16 years since graduation. I have been directly involved in the development of the infrastructure, capital cost, operating cost, and financial modelling for the project.

As a result of my education, relevant experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the property that is the subject of the Technical Report on November 18, 2014.

I am responsible for Sections 2, 3, 4, 5, 6, 18.1, 18.2, 18.3, 18.4, 18.5, 18.6, 18.7, 18.8, 18.9, 18.10, 18.13.1.3, 18.13.2.3, 18.13.2.4, 21.1.2, 21.1.3.4, 21.1.3.5, 21.2.1.3, 21.2.2 (except 21.2.2.1), 21.3.4, 21.3.5, 21.3.6, 22, 23, 24.2, 24.3 and those parts of the key points, summary, interpretations and conclusions, recommendations, and references to these sections.

I am independent of Torex Gold Resources Inc. as independence is described by Section 1.5 of NI 43–101.

I have prior involvement with the property in the engineering of the El Limón Guajes Mine construction and also as a contributing author of previous technical reports on the subject property entitled, “NI 43-101 Technical Report, El Limón Guajes Mine Plan, and Media Luna Preliminary Economic Assessment, Guerrero State, Mexico” that has an effective date of August 17, 2015 and a filing date of September 3, 2015 along with technical report titled “NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Preliminary Economic Assessment” that has an effective date of March 31, 2018 and a filing date of September 4, 2018.

I have read NI 43–101 and the parts of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the parts of the Technical Report for which I am responsible, contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: March 31, 2022

(Signed) (Sealed)

Robert Davidson, P.E.

2051 W. Sunset Rd.
Suite 101

Tucson, Arizona
85704

t 520.293.1488
f 520.293.8349

www.m3eng.com

Torex Gold
RESOURCES INC.

CERTIFICATE OF QUALIFIED PERSON

This Certificate of Qualified Person has been prepared to meet the requirements of National Instrument 43-101 Standards of Disclosure for Minerals Projects, Part 8.1. I, Johannes (Gertjan) Bekkers, certify:

a) **Name, Occupation, Address:**
Johannes (Gertjan) Bekkers
Director, Mine Technical Services
Torex Gold Resources
130 King Street West, Suite 740, Toronto, ON, M5X 2A2, Canada

b) **Title and Effective Date of Technical Report:**
Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study with an effective date of March 16, 2022 (the "Technical Report"), prepared for Torex Gold Resources Inc.

c) **Qualifications:**
I am a graduate of Delft University of Technology in the Netherlands with a Master of Science in Mining and Petroleum Engineering in 1997. I am registered with the Professional Engineers of Ontario (PEO) as a P.Eng. (no. 90556465). I have practiced my profession continuously since October 1997 and have experience in mining operations and technical services for over 24 years. My experience includes various disciplines of mine engineering in both open pit and underground mines. As a result of my qualifications and experience, I am a Qualified Person as defined in National Instrument 43-101.

d) **Site Inspection:**
I visited the site in October 25-29 and November 22-25, 2021 and attended both the ELG and Media Luna sites.

e) **Responsibilities:**
I am responsible for Sections 15, 16 (except 16.2.1, 16.3.2, 16.4.2, 16.4.3, 16.4.7), 21.1 (except 21.1.2, 21.1.3.4, 21.1.3.5), 21.2.1 (except 21.2.1.3), 21.2.2.1, 21.3.1, 21.3.2, 21.3.3, and those parts of the key points, summary, interpretations and conclusions, recommendations, and references to these sections of the Technical Report.

f) **Independence:**
I am not an independent of the issuer in accordance with the application of Section 1.5 of National Instrument 43-101. I am an employee of Torex Gold Resources Inc, first joining the company in September 2021.

g) **Prior Involvement:**
I had no prior involvement with the Property prior to commencing employment with the issuer in September 2021 as Director, Mine Technical Services.

h) **Compliance with NI 43-101:**
I have read National Instrument 43-101 and Form 43-101F1, and the parts of the Technical Report for which I am responsible, have been prepared in compliance with same.

i) **Disclosure:**
As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the parts of the Technical Report for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated March 31, 2022

(Signed) (Sealed)
Johannes Bekkers

CERTIFICATE OF QUALIFIED PERSON

John Makin

I, John Makin, MAIG, as a co-author of the report entitled " Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study" with an effective date of March 16, 2022 (the "Technical Report") prepared for Torex Gold Resource Ltd., do hereby certify that:

1. I am a Consultant Geologist with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave., Toronto, ON M5J 2H7.
2. I am a graduate of the University of Melbourne, Australia, in 2010 with a B.Sc.(Hons.) in Geology.
3. I am a Member of the Australasian Institute of Geoscientists (MAIG 7313). I have worked as a geologist for over ten years since my graduation. My relevant experience for the purpose of the Technical Report is:
    - Conducted numerous resource estimates, audits and due diligence reviews on precious, base and ferrous metal projects across the Americas, Europe and Africa.
    - Geologist responsible for resource estimation, resource definition drilling, ore control and reconciliation and the preparation of National Instrument 43-101 (NI 43-101) technical reports for an open pit and underground gold mine in Sweden;
    - Resource and Production Geologist for an antimony and gold mine in Australia;
    - Experienced user of Surpac, Leapfrog, Datamine and other database and geological modelling software.
4. I have read the definition of "qualified person" set out in NI 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Media Luna Project from the 13th to the 15th of December, 2021 and visited the ELG Mine Complex from the 15th to the 17th of December, 2021.
6. I am responsible for sections 7, 8, 9, 10, 11, 12, 14, 24.1 and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections of the Technical Report.
7. I am independent of the Issuer, Torex Gold Resources Ltd., applying the test set out in Section 1.5 of NI 43-101.
8. I have consulted to Torex Gold Resources Ltd. in regard to the property subject to the Technical Report on an as-needed basis since 2019.
9. I have read NI 43-101, and those parts of the Technical Report for which I am responsible, have been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, those parts in the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 31st day of March, 2022.

(Signed)___________________
John Makin, MAIG

CERTIFICATE OF QUALIFIED PERSON

STUART JOHN SAICH

I, Stuart J Saich, FAUSIMM, do hereby certify that:

1. This certificate applies to the Technical Report titled “Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study”, (the “Technical Report”), dated effective March 16, 2022 and a filing date of March 31, 2022, prepared for Torex Gold Resources Inc.; and

2. I am a process engineering consultant and company director of:

   Consultoria e Ingenieria Promet101 Ltda
   Alfredo Barros Errazuiriz 1960
   Oficina 301bProvidencia, Santiago
   Chile

3. I graduated with a BSc Chemical engineering in 1987, University of Natal, Durban South Africa.

4. I am a Fellow of the Australian Institute of Mining and Metallurgy (FAusIMM) in good standing in the areas of metallurgy and process engineering. FAusIMM # 222028.

5. I have worked as a metallurgist and process engineer on operating mines, development of new projects, worked in engineering companies and supported a significant number of construction and commissioning projects in the last thirty-five (35) years. My experience includes the development and management of scopes of work for metallurgical test programs, the subsequent interpretation of the data generated and use of that information for the development of process designs for new and modified facilities. This experience qualifies me to be responsible for the metallurgical and process sections of this NI 43-101.

6. I have read the definition of “Qualified Person” set out in National Instrument 43101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of NI 43-101.

7. I am responsible for Sections 13, 17, and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections of the Technical Report.

8. I first visited the project site on May 2015 as part of the operational readiness program for the first phase of the project and have spent an extensive amount of time on site supporting the initial construction and commissioning and subsequent debottlenecking projects. My most recent visit to the project site was 17th December 2019.

9. I have prior involvement with the property that is the subject of the Technical Report. I was involved with the commissioning of the El Limón Guajes Mine Complex on the Property, with a significant amount of the existing facilities to be re-used as part of the new configuration for processing mill feed from Media Luna. I managed the process development, design and commissioning of the Decouple and Horizontal Belt Filter projects. My company was responsible for the commissioning of the SART plant, and I spent extensive time on site during the startup and commissioning of this facility.

10. I have been responsible for the development of the metallurgical test programs that have been completed to form the basis of design for the new Media Luna facilities.

11. As of the date of the effective date of the Technical Report, to the best of my knowledge, information and belief, the parts of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

12. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.

13. I have read National Instrument 43-101 and Form 43-101F1, and the parts of the Technical Report for which I am responsible have been prepared in compliance with that instrument and form.

Signed and dated this 31st day of March, 2022.

(Signed)
Signature of Qualified Person

Stuart J Saich, FAusIMM
Print Name of Qualified Person

CERTIFICATE OF QUALIFIED PERSON

Carl John Burkhalter

This certificate applies to the technical report entitled, “Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study” with an effective date of March 16, 2022 and an issue date of March 31, 2022 (the “Technical Report”) prepared for Torex Gold Resources Inc.

I, Carl John Burkhalter, P.E., do hereby certify that:

1. I am partner of NewFields Mining & Technical Services LLC (“NewFields”), 9400 Station Street, Suite 300, Lone Tree, CO 80124, USA.
2. I graduated with a Bachelor of Science in Mining Engineering in 1984 and a Master of Science in Civil and Environmental (Geotechnical) Engineering in 1987 from the University of Wisconsin- Madison.
3. I am a registered professional engineer in good standing in Colorado in the area of Civil Engineering, P.E. No. 29447. I am also registered as a professional civil engineer in State of Arizona (No. 34925), State of Nevada (No. 21178) and the State of South Carolina (No. 31243).
4. I have worked as civil engineer for a total of 35 years. My experience includes the design of tailings and waste storage facilities.
5. I have read the definition of “Qualified Person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of NI 43-101.
6. I am a contributing author for the preparation of the Technical Report and am responsible for Subsections 18.12 (except 18.12.2.1) and those portions of the summary, interpretations, and conclusions, recommendations, and references to this section of the Technical Report.
7. I have visited the project site on November 17 and 18, 2021.
8. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.
9. I have had prior involvement with the property that is the subject of the Technical Report as the Engineer of Record for the current Tailings Facility.
10. I have read National Instrument 43-101 and Form 43-101F1, and confirm the parts of the Technical Report for which I am responsible, have been prepared in compliance with that instrument and form.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the parts of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 31st day of March 2022.

(Signed) (Sealed)
Signature of Qualified Person

Carl John Burkhalter, P.E.
Print Name of Qualified Person

CERTIFICATE OF QUALIFIED PERSON

I, William Lucas Kingston (MSc, PG) do hereby certify that:

1. I am an Associate Hydrogeologist of NewFields Mining & Technical Services LLC ("NewFields"), 9400 Station Street, Suite 300, Lone Tree, Colorado 80124, USA.
2. This certificate applies to the technical report titled "Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study" with an effective date of March 16, 2022 (the "Technical Report"), prepared for Torex Gold Resources Inc.
3. I graduated with a degree in Geology from Tulane University in 1984. In addition, I have obtained a Master of Science degree in Hydrogeology and Hydrology from the University of Nevada – Reno in 1989. I am a professional geologist in the State of South Carolina (No. 2666), in the State of Wyoming (No. 3645), and in the State of California (No. 8679). I have worked as a Hydrogeologist for a total of 31 years since my graduation from university. My relevant experience includes water supply, pit dewatering, and mine water management studies that often include elements of data collection, development of conceptual groundwater flow models, and numerical predictive models.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I last visited the Torex ELG Mine property on March 8, 2020.
6. I am responsible for Sections 18.11.3, 18.12.2.1, 18.13.1 (except 18.13.1.3), 18.13.2 (except 18.13.2.3, 18.13.2.4), 20.5.1 and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.
7. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
8. I have had prior involvement with the property that is the subject of the Technical Report. The nature of my prior involvement is that I was Project Manager for Dewatering and Tailings Management Hydrogeology studies, starting in 2018 and through to the present.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 31st Day of March 2022.

(Signed) (Sealed)

William Lucas Kingston, MSc, PG.

CERTIFICATE OF QUALIFIED PERSON
Dawn H. Garcia

I, Dawn H. Garcia, certify that:

(a) I am a Senior Geologist at
Golder Associates USA Inc.
7458 N. La Cholla Blvd.
Tucson, Arizona, USA 85741

(b) This certificate applies to the technical report titled "Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study" with an effective date of March 16, 2022 (the "Technical Report"), prepared for Torex Gold Resources Inc.

(c) I am a "qualified person" for the purposes of National Instrument 43-101 ("NI 43-101"). My qualifications as a qualified person are as follows. I am a graduate of Bradley University with a bachelor's degree in Geological Sciences in 1982 and a graduate of California State University, Long Beach, with a master's degree in Geology in 1995. I am a licensed Professional Geologist in Arizona (License No. 26034) and am certified as a Professional Geologist (CPG) with the American Institute of Professional Geologists (Membership Number 08313). I am also a registered member of the Society for Mining, Metallurgy & Exploration (Membership No. 4135993). I have practiced my profession as an environmental geologist and hydrogeologist for over 35 years. I have over 20 years of experience in the mining industry.

My relevant experience for the purpose of this Technical Report is:

- Acted as the Qualified Person for the Environmental, Permitting and Social section for 10 NI 43-101 technical reports and more than 20 detailed environmental and permitting reviews.
- Conducted environmental, socio-economic, or water-related tasks for over 50 mineral development, mineral processing, and mining operations.

(d) My most recent personal inspection of each property described in the Technical Report occurred on February 7 and 8, 2022, and was for a duration of two days.

(e) I am responsible for Item 20 (except 20.5.1) and the corresponding subsections of the Summary, Interpretations and Conclusions and Recommendations sections of the Technical Report.

(f) I am independent of the issuer as described in section 1.5 of NI 43-101.

(g) My prior involvement with the property that is the subject of the Technical Report was as a mine closure specialist in the preparation of the closure plan.

(h) I have read NI 43-101 and Item 20 (except 20.5.1) and the corresponding subsections of the Summary, Interpretations and Conclusions and Recommendations sections of the Technical Report, and they have been prepared in compliance with NI 43-101; and

(i) At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Section 20 (except 20.5.1) and the corresponding subsections of the Summary, Interpretations and Conclusions and Recommendations sections of the Technical Report, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Tucson, Arizona, this 31st of March, 2022

(Signed) (Sealed)
Dawn H. Garcia, PG, CPG

CERTIFICATE OF QUALIFIED PERSON
Michal Dobr

I, Michal Dobr, certify that:

(a) I am a Senior Hydrogeologist at
Golder Associates Ltd.
Suite 200 – 2920 Virtual Way
Vancouver, British Columbia, Canada V5M 0C4

(b) This certificate applies to the NI43-101 Technical Report titled “Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study” with an effective date of March 16, 2022 and filing date of March 31, 2022 (the “Technical Report”) prepared for Torex Gold Resources Inc.

(c) I am a “qualified person” for the purposes of National Instrument 43-101 (“NI 43-101”). My qualifications as a qualified person are as follows. I graduated from the Charles University of Prague and received a Bachelor of Science degree in Engineering Geology and Hydrogeology in 1982. I am a licensed Professional Geoscientist in British Columbia, Canada (License #20794). I have practiced my profession as a hydrogeologist for 40 years with over 30 years of experience in the mining industry. As a result of my education, relevant experience, and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (“NI 43–101”).

(d) I have not conducted a site visit as it is not necessary for the sections of the Technical Report for which I am responsible.

(e) I am responsible for Item 16.4.3 of the Technical Report and references in Section 16.4.3 listed in Section 27 of the Technical Report.

(f) I am independent of the issuer as described in section 1.5 of NI 43-101.

(g) My prior involvement with the property that is the subject of the Technical Report was as a senior hydrogeologist for Stage 3 hydrogeological program carried out in support of the Feasibility Study which is the subject of this Technical Report for the Media Luna project.

(h) I have read NI 43-101 and the parts of the Technical Report for which I am responsible, have been prepared in compliance with NI 43-101; and

(i) At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the items of the Technical Report for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, BC, this 31st of March 2022.

(Signed) (Sealed)

Michal Dobr, RNDr., P.Geo. (BC)

CERTIFICATE OF QUALIFIED PERSON
Michael L. Pegnam

I, Michael L. Pegnam, certify that:

(a) I am a Geotechnical Engineer at
Golder Associates USA Inc
7458 N. La Cholla Blvd.
Tucson, Arizona 85741

(b) This certificate applies to the NI 43-101 Technical Report titled “Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study” with an effective date of March 16, 2022 and filing date of March 31, 2022 (the “Technical Report”), prepared for Torex Gold Resources Inc.

(c) I am a “qualified person” for the purposes of National Instrument 43-101 (“NI 43-101”). My qualifications as a qualified person are as follows. I am a graduate of University of Arizona with a bachelor’s degree in Geological Engineering and am a graduate of University of California Berkeley with a master’s degree in Geotechnical Engineering. I am a licensed Professional Engineer in California (License No. C56831), in Arizona (License No. 33800), and in New Mexico (License No. 16267). I am also a registered member of the American Society of Civil Engineers since 1995 (Membership I.D. #321277). My relevant experience after graduation and over 27 years for the purpose of the Technical Report includes professional practice in the geotechnical analysis and design of surface mining facilities, including waste rock storage facilities.

(d) I have not conducted a site visit as it is not necessary for the sections of the Technical Report for which I am responsible.

(e) I am responsible for Item 18.11.2 and those portions of the Summary, Interpretations and Conclusions, Recommendations with reference to this section of the Technical Report.

(f) I am independent of the issuer as described in section 1.5 of NI 43-101.

(g) I have not had prior involvement with the property that is the subject of the Technical Report.

(h) I have read NI 43-101 and the parts of the Technical Report for which I am responsible, have been prepared in compliance with NI 43-101; and

(i) At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the parts of the Technical Report for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Tucson, Arizona this 31st of March, 2022

(Signed) (Sealed)

Michael L. Pegnam, PE (AZ, NM, CA)

CERTIFICATE OF QUALIFIED PERSON
Ross David Hammett

I, Ross David Hammett, certify that:

(a) I am a Senior Geotechnical Engineer at
Golder Associates Ltd.
Suite 200 – 2920 Virtual Way
Vancouver, British Columbia, Canada V5M 0C4

(b) This certificate applies to the NI43-101 Technical Report titled “Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study” with an effective date of March 16, 2022 and filing date of March 31, 2022 (the “Technical Report”) prepared for Torex Gold Resources Inc.

(c) I am a “qualified person” for the purposes of National Instrument 43-101 (“NI 43-101”). My qualifications as a qualified person are as follows. I have Bachelor of Civil Engineering (Hons) (1970), Master of Engineering Science (1972), and Doctor of Philosophy (1976) degrees from the James Cook University, North Queensland, Australia. I am a licensed Professional Engineer in British Columbia, Canada (License # 105595). I have practiced my profession as a geotechnical engineer in the mining industry for 40 years. As a result of my education, relevant experience, and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

(d) I have not conducted a site visit as it is not necessary for the sections of the Technical Report for which I am responsible.

(e) I am responsible for Item 16.4.2 of the Technical Report and references in Section 16.4.2 listed in Section 27 of the Technical Report.

(f) I am independent of the issuer as described in Section 1.5 of NI 43-101.

(g) I have not had prior involvement with the property that is the subject of the Technical Report.

(h) I have read NI 43-101 and the parts of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101; and

(i) At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the items of the Technical Report for which I am responsible, contain all scientific and technical information that is required to be disclosed not to make the Technical Report misleading.

Dated at Vancouver, BC, this 31st of March, 2022.

(Signed) (Sealed)

____
Ross David Hammett, PhD., P.Eng.(BC)

Certificate of Qualified Person
Robert W. Pratt

This certificate applies to the technical report entitled "Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study" with an effective date of March 16, 2022 and a filing date of March 31, 2022 (the "Technical Report"), prepared for Torex Gold Resources Inc.

I, Robert W. Pratt, P.E., certify that:

1. I am Vice President and Senior Geological Engineer at:

    Call & Nicholas, Inc.
    2475 N Coyote Dr.
    Tucson, AZ. USA 85745

2. I am a graduate of the University of Arizona Department of Mining & Geological Engineering with a bachelor's degree in Geological Engineering (1996).
3. I am a Registered Professional Geological Engineer in the US states of Arizona (License No. 36557) and Idaho (License No. 15111).
4. I have been in continual practice as a geological engineer in the mining industry for over 25 years. My experience includes geotechnical analysis and design of waste rock storage facilities.
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.
6. I have visited the mine site and areas pertinent to my responsibilities most recently from 20-23 November 2021.
7. I am responsible for Section 18.11.1 and those portions of the summary, interpretations, and conclusions, recommendations, and references to this section of the Technical Report.
8. I am independent of the issuer as described in Section 1.5 of NI 43-101.
9. I have not had prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101 and the parts of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the parts of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading

Dated at Tucson, Arizona this 31st of March 2022.

(Signed) (Sealed)
Robert W. Pratt, P.E.

1351-C Kelly Lake Road, Unit #2, Sudbury, Ontario P3E 5P5, Canada
Tel: +1 705 222 1720, Fax: +1 705 222 1719
Email: Sudbury@PatersonCooke.com, URL: www.PatersonCooke.com

CERTIFICATE OF QUALIFIED PERSON

To accompany the Report entitled *"Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study*" which is effective as of March 16, 2022 and a filing date of March 31, 2022 (the "Technical Report"), prepared for Torex Gold Resources Inc.

I, *Leslie Correia, Pr.Eng,* do hereby certify:

1. I am Engineering Manager, with Paterson & Cooke Canada Inc., with office at 1351-C Kelly Lake Road, Unit #2, Sudbury, Ontario, P3E 5P5.
2. I am a graduate of University of Stellenbosch, Stellenbosch, Western Province South Africa in 2005 with a bachelor's degree in chemical engineering.
3. I am a member in good standing of the Engineering Council of South Africa (ECSA), Registration. # 20130236.
4. I have worked continuously as a Process Engineer for a total 14 years continuously since my graduation. My relevant work experience includes:
    - Designed, Implemented and Commissioned numerous paste backfill system in Africa and the Americas similar in process to the Media Luna project.
    - Conducted site audits and provided technical assistance for mining operations in Africa and the Americas.
    - Participation and author of several NI 43-101 Technical Reports.
5. I have read the definition of "qualified person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43 101.
6. I am independent of the Company applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Sections 16.4.7 and those portions of the summary, interpretations and conclusions, recommendations, and references to this section of the Technical Report.
8. I personally did not visit the property that is the subject to the Technical Report.
9. I have not had prior involvement with the property as an independent qualified person.
10. I have read NI 43-101 and the parts of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Dated this 31st day of March 2022

(Signed)________________________________

Leslie Correia,
Engineering Manager
Paterson & Cooke

CONRADPARTNERS

CERTIFICATE OF QUALIFIED PERSON

As a Qualified Person of the technical report entitled: "Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study", dated effective March 16, 2022 (the "Technical Report") and prepared for Torex Gold Resources Inc., I, David Stuart HALLEY, do hereby certify that:

1) I am an Executive Director of Conrad Partners Limited, with its head office at 16F, Wing On Centre, 111 Connaught Road, Central, HONG KONG;

2) I am a graduate of James Cook University, Australia. I have practiced my profession continuously since 1991. Starting as a metallurgical technician in a laboratory at Kidston Gold Mine, I progressed through operational leadership positions, commodity marketing and commercial leadership positions to President & CEO of Philippine Associated Smelting & Refining Corporation in 2012. In July 2014, I commenced working full time as an Executive Director of Conrad Partners Limited, a commodity marketing and investment advisory company I co-founded in 2010.

3) I am a Fellow of The Australasian Institute of Mining & Metallurgy (FAusIMM), with membership number 3054155;

4) I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101;

5) No site visit has been conducted because the requirement for a personal inspection of the subject property does not apply to the part of the Technical Report for which I am responsible.

6) I am independent of the issuer as described in Section 1.5 of NI 43-101;

7) I am the co-author of the Technical Report and responsible for Section 19;

8) I have had no involvement with the subject property prior to undertaking the study required to prepare this Section 19 of the Technical Report;

9) I have read NI 43-101 and confirm that the part of the Technical Report for which I am responsible, has been prepared in compliance therewith;

10) That, as of the effective date of the Technical Report, to the best of my knowledge, information and belief, the part of the Technical Report for which I am responsible, contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Makati, National Capital Region, The PHILIPPINES,
March 31, 2022

(Signed) (Sealed)
David HALLEY

JDS Energy & Mining Inc.
Suite 900 – 999 West Hastings Street
Vancouver, BC V6C 2W2
t 604.558.6300
jdsmining.ca

CERTIFICATE OF AUTHOR

I, Michael E. Levy, P.E, do hereby certify that:

1. This certificate applies to the Technical Report titled "Morelos Property: NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Feasibility Study", with an effective date of March 16, 2022, (the "Technical Report") prepared for Torex Gold Resources Inc. ("Torex").
2. I am currently employed as Geotechnical Manager with JDS Energy & Mining Inc. with an office at Suite 900 - 999 West Hastings St, Vancouver, BC V6C 2W2.
3. I hold a bachelor's degree (B.Sc.) in Geology from the University of Iowa in 1998 and a Master of Science degree (M.Sc.) in Civil-Geotechnical Engineering from the University of Colorado in 2004. I have practiced my profession continuously since 1999 and have been involved in numerous mining and civil geotechnical projects across the Americas.
4. I am a registered Professional Engineer (P.E.) in the states of Colorado (#40268), California (#70578) and Arizona (#61372) and a registered Professional Geologist P.G.) in the state of Wyoming (#3550). I am also a registered Professional Engineer (P.Eng.) in the province of British Columbia (#216542) and Yukon Territory (#2692). I am a current member of the Society for Mining, Metallurgy & Exploration (SME) and the American Society of Civil Engineers (ASCE).
5. I have read the definition of "Qualified Person" set out in NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by reason of my education, affiliation with a professional association, and past relevant experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I am independent of the issuer, Torex Gold Resources Inc., applying all of the tests in Section 1.5 of the NI 43-101.
7. I am responsible for the preparation of Sections 16.2.1 and 16.3.2 of the Technical Report.
8. I personally visited the property that is the subject to the Technical Report many times beginning in 2010 with the most recent visit being November 2 - 5, 2021.
9. I have had prior involvement with the property that is the subject of the Technical Report. I was previously responsible for the following:
    - Section 16.2.1 of the report titled "NI 43-101 Technical Report ELG Mine Complex Plan and Media Luna Preliminary Economic Assessment" with an effective date of March 31, 2018;
    - Sections 16.2 and 16.3 of the technical report titled "Morelos Project, NI 43-101 Technical Report, El Limón Guajes Mine Plan, and Media Luna Preliminary Economic Assessment, Guerrero State, Mexico", that has an effective date of August 17, 2015; and,
    - Sections 16.2 and 16.3 of the report titled "43-101 Technical Report Feasibility Study, Guerrero, Mexico", that has an effective date of September 4, 2012.
10. I have read NI 43-101, and the parts of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

11. As of the effective date of the Report, to the best of my knowledge, information and belief, the sections of this technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: March 16, 2022
Signing Date: March 31, 2022

(Signed) (Sealed)

Michael E Levy, P.E., P.G.