M3-PN170117
September 4, 2018
Revision 0

ARCHITECTURE
ENGINEERING
CONSTRUCTION MANAGEMENT

Morelos Property

NI 43-101 Technical Report

ELG Mine Complex Life of Mine Plan and Media Luna Preliminary Economic Assessment

Guerrero State, Mexico

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DATE AND SIGNATURES PAGE

The effective date of this report is March 31, 2018.

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MORELOS PROPERTY
FORM 43-101F1 TECHNICAL REPORT

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1 SUMMARY

1.1 EXECUTIVE SUMMARY – EL LIMÓN GUAJES MINE AND MEDIA LUNA PROJECT INTRODUCTION

Torex Gold Resources Inc. (Torex) wholly-owns the Morelos Property (the "Morelos Property" or the "Property"), a group of seven mineral claims which hosts four deposits, El Limón (which includes El Limón Sur), Sub-Sill, Guajes, and Media Luna, each of which has a mineral resource estimate prepared in accordance with National Instrument 43-101 (NI 43-101). The Morelos Property is a 29,000 ha mineral claim in the Mexican State of Guerrero, approximately 200 kilometers southwest of Mexico City. The property is in the Guerrero Gold Belt and the entire 29,000 ha mineral claim is considered to have significant exploration potential.

Torex is currently operating the El Limón Guajes Mine Complex (ELG Mine Complex) which includes three open pits (ELG Open Pits) and an underground mine (ELG UG). While operating the ELG Mine Complex, Torex is carrying out work on the Media Luna deposit to support the development of this mineral resource. This technical report (the Report) provides a life of mine plan for the ELG Mine Complex. In addition, Section 24 of this Report presents the results of a Preliminary Economic Assessment (PEA) for exploitation of the Media Luna mineral resource using the ELG Mine Complex infrastructure and is referred to as the Media Luna Project (the ML Project).

The PEA economics for the ML Project in Section 24 are based on conventional mining methods. In addition, the Muckahi Mining System (Muckahi), a Torex proprietary mining method, is introduced and described in Section 24.24. Section 24.24 uses the ML Project as a platform for comparison to demonstrate to the reader the potential benefits that could be possible if the Muckahi method is proven and ultimately applied to the ML Project, or any other deposit that does not employ caving methods. However, it is important to note that Muckahi is experimental in nature and has not been tested in an operating mine. Many aspects of the system are conceptual, and proof of concept has not been demonstrated.

1.2 EXECUTIVE SUMMARY - ELG MINE COMPLEX PLAN

The ELG Mine Complex has been in commercial production since March 2016. The mine operates three independent open pits to extract ore from the skarn hosted gold-silver Guajes and El Limón deposits and currently has an underground mine under development. 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 plant. The 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. The production, in doré bars, for the life of mine is expected to average 391,000 gold ounces per year, and 137,000 silver ounces per year. As of the end of year 2017, the ELG Mine Complex has produced and sold over 515,000 oz of gold from just under 8 million tonnes of ore.

Over the last three years, the ELG Mine Complex has achieved significant milestones, first gold pour in December 2015, commercial production in March 2016, discovery and development of the ELG UG mine to exploit the Sub-Sill mineral reserve (adding ~180,000 oz Au to proven and probable mineral reserves). There have also been challenges, impact of soluble copper on the processing plant as well as a five-month illegal blockade all which the team has successfully managed. Building on the successes and managing the challenges has positioned the ELG Mine Complex to provide the base on which Torex can grow the business organically through expansion of ELG UG, development of Media Luna, and further exploration of the large and prospective, Morelos land package.

1.3 EXECUTIVE SUMMARY – ELG MINE COMPLEX KEY METRICS

Table 1-1 summarizes the key metrics from the ELG Mine Complex plan. Unless noted otherwise, the currency used in the Technical Report is United States Dollars (USD).

Table 1-1: Projected Financial Metrics for the ELG Mine Complex 2018 to End of Mine Life ($M)

ELG Mine Complex NAV* at a 5% Discount Rate	**$705.8**
Sustaining CAPEX	**$253.1**
ELG Open Pits	$59.8
ELG Technical Services	$10.7
ELG UG	$3.4
ELG Plant	$13.4
ELG Site Support	$16.3
Deferred Stripping CAPEX	$149.5
Average OPEX, with Ag Credits (before royalties and inventory movement)	$512/oz
Average OPEX without the Ag Credits (before royalties and inventory movement)	$521/oz
AISC per oz Au	**$734**
Open Pit Mining Cost per Tonne Mined	$2.18
Underground Mining Cost per Tonne Mined	$100.88
Mining Cost per Tonne Processed	$15.67
Processing Cost per Tonne Processed	$19.94
Treatment & Refinery per Tonne Processed	$0.37
Metal Prices Used	
Gold - $/oz	$1,200
Silver - $/oz	$17
Copper - $/lb	$3
Exchange Rate	**$18 MXN : $1 USD**

*NAV = NPV less long-term debt plus cash on hand based on proven and probable reserves, before corporate initiatives

Table 1-2: Projected Operational Metrics for the ELG Mine Complex

Construction Start	Q4/2013
First Production	Q4/2015
Production in 2015 to End of 2017	521 koz Au
	255 koz Ag
Planned Production in 2018	348 koz Au
	223 koz Ag
Average Planned Production 2019- 2024	396 koz Au
	123 koz Ag
Mine Life	7 years
Total Mineral Reserves (Open Pit and Underground) as of March 31, 2018	
Mineral reserve tonnes	33,852,000
Average Mineral Reserve Grade Au	2.82 g/t
Average Mineral Reserve Grade Ag	3.76 g/t
Mineral Reserve Contained Ounces Au	3,063,000
Mineral Reserve Contained Ounces Ag	4,087,000
Open Pits Operational Cut-off Grade Au Diluted	0.9 g/t Guajes and El Limón pits 1.0 g/t El Limón Sur pit
Open Pits Low Grade Ore Cut-off Grade Au Diluted	0.70 g/t all pits
ELG Underground Operational Cut-off Grade Au insitu	4.47 g/t
ELG Underground Incremental Cut-off Grade Au insitu	0.74 g/t
Total Ore Tonnes Mined OP and UG (2018 to 2024)*	33,883,000
Total Ore Tonnes Expected to be Processed (2018 to 2024)**	**34,633,000**
Average Process Plant Throughput	14,000 tpd
Average Process Plant Au Recovery	87%
Average Process Plant Ag Recovery	23%
Average Bond Work Index	16.34
Grind Specification	80% passing 83 microns

* includes actual tonnes mined 1st quarter of 2018 and reserves as of March 31, 2018 (excluding stockpiles)
**includes actual tonnes processed 1st quarter of 2018, and reserves as of March 31, 2018

Open pit mining has been underway since 2014, first with mining of the NN Pit, and Guajes followed by El Limón in 2016. Mining of the El Limón Sur pit commenced in 2017 by contractors. To the end of March 2018, approximately 8.4 M tonnes of ore have been mined and 70 M tonnes of waste. Open pit operations are conventional shovel-truck mining, with work taking place in the nominal three pits. The LOM has mining being completed in 2024.

Table 1-3: ELG Open Pit

Construction Start	Q4/2013
First Production	Q4/2015
Production in 2015 to End of 2017	515 koz Au
	255 koz Ag
Production in 2018	322 koz Au
	217 koz Ag
Average Production 2019- 2024 (Production per year)	377 koz Au
	115 koz Ag
Mine Life	7 years
Mineral Reserve Tonnes (as of March 31, 2018)	**33,330,000**
Average Mineral Reserve Grade Au	2.69 g/t
Average Mineral Reserve Grade Ag	3.64 g/t
Mineral Reserve Contained Ounces Au	2,880,000
Mineral Reserve Contained Ounces Ag	3,900,000
Cut-off Grade Au (insitu Au grade) (Weighted Average of Ore Types)	0.9 g/t Guajes and El Limón pits 1.0 g/t El Limón Sur pit
Open Pits Low Grade Ore Cut-off Grade Au Diluted	0.70 g/t all pits
Total Ore tonnes Mined OP (2018 to 2024)*	33,357,083
Total Ore Tonnes Expected to be Processed (2018 to 2024)**	**34,106,878**
Average Process Plant Throughput	14,000 tpd
Average Process Plant Au Recovery	87%
Average Process Plant Ag Recovery	23%
Average Bond Work Index	16.34
Grind Specification	80% passing, 83 microns

* includes actual tonnes mined 1st quarter of 2018 and in pit reserves as of March 31, 2018 (excluding stockpiles)
**includes actual tonnes processed 1st quarter of 2018, and reserves as of March 31, 2018

Exploration work at the ELG UG since 2016 has resulted in an increase and upgrade in the mineral resources leading to a high-grade mineral reserve estimate based on a mechanized cut and fill mine plan with 29 months of production.

Run-of-mine (ROM) and Incremental ore quantities from the underground mine design as of March 31, 2018 total 0.522 Mt of ore at grades of 10.9 g/t Au and 11.16 g/t Ag which is planned to be extracted over 29 months of mine life.

First ore was cut at the ELG Underground Mine Sub-Sill zone in June 2017 with advanced exploration development confirming high grade ore.

It is expected that there is good potential for expanding the mineral reserves for the ELG UG through expansion of the Sub-Sill and other targets notably the down dip extension of the El Limón Open Pit deposit referred to as ELD. This potential is demonstrated through the successful exploitation of the Sub-Sill zone, having first been identified in late 2015 to first ore in 2017. The geology below the pits have potential to provide more mineral resources as current targets ELD, Zone 71 (down dip extension of Sub-Sill) and other targets are followed up on and explored.

Table 1-4: Projected Operational Metrics for the ELG Underground Mine

Sub-Sill Zone Discovered	Q4 /2015
UG Development Started	Q4 / 2016
1st Ore Production	Q2 / 2017
Planned Production in 2018 Contained Au/Ag	30 koz Au 23 koz Ag
Average Expected Production 2019- 2020 Contained Au/Ag	153 koz Au 166 koz Ag
Mine Life - months	29
UG Mineral Reserves tonnes - Mt	0.5
Average Mineral Reserve grade Au - g/t	10.8
Average Mineral Reserve grade Ag - g/t	11.2
Mineral Reserve Contained ounces Au	183 koz
Mineral Reserve Contained ounces Ag	189 koz

1.4 EXECUTIVE SUMMARY - MEDIA LUNA PEA

1.4.1 Summary

Section 24 of this technical report has been prepared to disclose relevant information about the Media Luna Project. This section is based on inferred mineral resource estimates and conceptual mine planning. It is important to understand that the PEA is preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the results set forth in the PEA will be realized. Mineral resources that are not mineral reserves do not demonstrate economic viability.

Section 24.24 is included in the PEA to introduce the Muckahi mining method which Torex has been developing. Section 24.24 is presented to show the reader the potential benefits the development of Muckahi could have by using the ML Project as a platform for comparison. It is not intended to be seen as a trade-off study within the PEA. Muckahi is experimental in nature and has not been tested in an operating mine. Many aspects of the system are conceptual, and proof of concept has not been demonstrated.

Within the ML Project, room has been assumed within the ELG processing plant. No cost or revenues from the adjustment of the ELG ore processing schedule has been included within the ML PEA. All financials for ML assume it to be a "standalone" project with estimated costs for processing and site support during and post overlap period.

1.4.2 Key Data

Table 1-5 presents key ML Project data both physical and financial. including a summary of the size, production, operating costs, metal prices, and financial indicators.

Table 1-5: Key ML "Standalone" Project Data

Mineralized Material (kt)	30,937
Copper Grade (%)	1.03
Gold Grade (g/t)	2.58
Silver Grade (g/t)	27.59
Gold Equivalent (g/t)	4.77
Total Tonnes Mined (kt)	30,937
Process Plant (ML Feed only)	
Ore Processed (kt)	30,937
Bullion Production	
Gold Production (kozs)	849
Gold Recovery - %	33.1%
Silver Production (kozs)	1,372
Silver Recovery - %	5%
Copper Concentrate Production	
Copper Concentrate (kt)	1,124
Copper Production (klbs)	624,219
Copper Recovery %	88.8%
Gold Production (kozs)	1,333
Gold Recovery - %	52%
Silver Production (kozs)	19,212
Silver Recovery - %	70%
Total Production and Recoveries (Bullion + Copper Concentrate)	
Gold Production (kozs)	2,182
Gold Recovery %	85.1%
Silver Production (kozs)	20,585
Silver Recovery %	75%
Copper Production (klbs)	624,219
Copper Recovery %	88.8%
Metal Prices	
Copper ($/lb)	3.00
Gold ($/oz)	1,200
Silver ($/oz)	17.00

ML "Standalone" Economic Indicators Before-Taxes	
Revenues ($M)	4,517.7
Project Capital - ($M) (cost to construct project)	496.5
Mining Equipment/ Infrastructure/ Development	213.9
Process Plant	265.9
Owner's Cost	16.7
Pre-commercial Capital – ($M), Project Capital plus pre-commercial operating cost less pre-commercial revenue.	411.4
Sustaining Capital – ML ($M) including Mine Development	109.4
Mining Cost - ML ($/t mined)	23.64
Processing Plant ($/t processed)	23.47
Site Support ($/t processed)	14.11
Treatment & Refining Charges ($/t processed)	10.03
Total Operating Cost ($/t processed)	71.23
Average Cash Cost per oz Au Eq	596.08
Average AISC per oz Au Eq	619.34
ML "Standalone" Economic Indicators Before-Taxes	
NPV @ 0% ($M)	1.77
NPV @ 5% ($M)	977
NPV @ 8% ($M)	688
IRR %	37.3
Payback - years	5.3
ML "Standalone" Economic Indicators After-Taxes*	
NPV @ 0% ($M)	1.11
NPV @ 5% ($M)	582
NPV @ 8% ($M)	392
IRR %	27.3
Payback – years	5.8
*Taxes in the ML Project financial model were calculated based only on costs and revenue related to the ML project.	

1.4.3 ML Executive Summary – Discussion of Key Decisions

The concept that had the most impact on the design and outcomes of the ML Project was the decision to process the Media Luna mineralized material through the processing plant built for the ELG Mine Complex versus building of a separate processing plant. This is not an intuitive decision but there are several technical and social considerations that made it the most favorable commercial outcome. These include:

Tailings Disposal:

The current estimated Media Luna inferred mineral resource is 51M tonnes (at 2.0 g/t Au Eq cut-off grade), but with only 31% of the magnetic anomaly explored it would be prudent to allow for additional tailings capacity to accommodate potential future expansion of the mineral resource and extension of the mine life over the longer term. The design considers that concentrate would take 5% of the mass and tailings for backfill would take 25%. In this scenario, a potentially large amount of tailings would need to be placed on surface in a rugged topography. Depositing the tailings into the ELG open pits appears to be the most favourable solution from a technical, social, and commercial perspective.

Processing Synergies:

If a material handling system is to be built to carry this large amount of tailings across the river for disposal, then it can just as easily carry the known and potential resource over the life of the ML Project. If infrastructure must be built to bring the mineral resources to the north side of the river, the question then becomes – Can the ELG processing assets be leveraged to process the Media Luna mineral resource as well? The answer turns out to be yes, since both materials would require a similar grind size for optimal recoveries. The two material types could be batched through the existing grinding circuit, build a flotation circuit for the Media Luna mineral resources, take the tailings from the ML flotation circuits and put it through the existing leach circuit and then through the existing tailings filtration circuit.

Infrastructure Synergies:

If the mineral resources are processed, and the tailings are disposed of, north of the river, can the existing road, power, administration, housing, security, etc. infrastructure be utilized for Medial Luna? If this could be done, then there would be limited environmental impact south of the river. The answer to this is yes and the conceptual design considers the use of existing roads, power, administration, housing, security, and current infrastructure north of the river to minimize the environmental impact south of the river. This would involve establishing a Ropeway to connect the existing infrastructure on the north side of the river to the south side. The Ropeway will take workers and materials to the south side of the river during operation. (Replaces the tunnel under the river in the previous PEA).

Material Handling Across the River:

With workers and materials moving across on the Ropeway, the question shifts to – How to move the Media Luna mineral resource north to the processing plant and the 25% of tailings that are required for backfill south to the underground mine? This problem has an element of complexity to it because the mineral resource is in one mountain and between it and the processing plant is a river and another mountain. The potential solutions would be some combination of 'over', 'on', or 'under'. Torex could go over the river and / or the mountain. Torex could go on the river with a boat and on the mountain with a road. Torex could go under the mountain or under the river with a tunnel.

After examining many options, the concept chosen for the PEA was the use of a suspended conveyor to go over the river and under the mountains. This solution would allow the construction of one material handling system to handle both the mineral resource and the filtered tailings for backfill. The conveyor belt would originate at the lower area of Media Luna and be suspended from the roof of its tunnel until it exits the north side of the Media Luna Mountain. It would be suspended above the river as a conventional suspended conveyor (similar to the one being operated for the ELG Mine Complex) until it reaches the El Limón Mountain. It would then enter a tunnel through the El Limón Mountain that would break out in close proximity to the processing plant. The belt would be ~7 km in length with a 130-meter vertical rise over its length. The tunnel through the El Limón Mountain could provide optionality for early mining of the high grade at the bottom of the El Limón pit as well as any potential additional mineral resources that may be discovered under the pits.

The unique characteristics of the suspended conveyor allow filtered tailings to be returned to the mining area on the return side of the belt. This optimization of material handling allows for efficient use of equipment which is already required and overall reduction in plant operating costs. The capital cost of this option is offset by not having to build a new processing plant and associated infrastructure.

While using the return side of the belt is not common, it is far from being innovative. It is just a conveyor belt with the unique characteristic of being able to return with the 'load side' facing up. In the ELG Mine Complex, conveyors are used to transport the filtered tailings to the filter tailings storage facility (FTSF). This design takes advantage of a different conveyor to create an elegant solution to a technical, social, and commercial challenge of moving tailings ~7 km with a 130 m vertical drop. (Pumping the tailings would have seen very significant pressures and then required filtration at the paste plant end. This design takes advantage of the tailings filters that are already in place for the ELG Mine Complex.)

Mining and Ramp-Up Schedule:

The mining methods would be conventional, with a 66/34 split of long hole open stope and cut & fill methods. The large area of the deposit allows for the planned 7,800 t/d of production (Peak 8,500 tpd) to be extracted from three mining areas (EPO, Upper ML and Lower ML) that are connected but largely independent of each other. The three mining areas allow for higher mining rates as well as flexibility during operation.

Following is the summary of various sections of the Technical Report except for Section 24. Section 24 contains the PEA on the ML Project. For brevity of this report, the executive summary provides the summary for the PEA.

1.5 SCOPE

This report was prepared for Torex by the following Authors:

- M3 Engineering & Technology Corporation (M3)
- Torex Gold Resources, Inc. (Torex)
- NewFields Mining Design & Technical Services (NewFields)
- Huls Consulting, Inc.
- MPH Consulting
- JDS Energy & Mining Inc. (JDS)

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 PEA report for the exploitation of the Media Luna resource using the ELG Mine Complex infrastructure.

1.6 PROPERTY

The ELG Mine Complex and ML Deposit are located in Guerrero State, Mexico, approximately 200 km south–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. 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 Media Luna deposit is accessed via a gravel road from the town of Mezcala or by boat from Nuevo Balsas and then via a gravel road.

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.

1.7 OWNERSHIP

The area (Reducción Morelos Norte claim block) is wholly owned by Torex through its Mexican subsidiary, Minera Media Luna, S.A. de C.V. (MML). Through an agreement dated August 6, 2009, Gleichen Resources Ltd. (Gleichen) acquired 78.8% of the property from Teck Resources Ltd. (Teck) via the acquisition of 100% of Oroteck Mexico S.A. de C.V. (Oroteck) from Teck's subsidiaries Teck Metals Ltd. and Teck Exploration Ltd. for a purchase price of $150 M and a 4.9% stake in Gleichen. Oroteck was the holding entity for Teck's 78.8% interest in the joint venture company

MML in Mexico. The remaining 21.2% interest in MML was purchased from Goldcorp Inc. (Goldcorp) by Gleichen on February 24, 2010. On May 4, 2010, Gleichen changed its corporate name to Torex Gold Resources Inc.

MML is the registered holder of a 100% interest in the Morelos Property in the State of Guerrero, Mexico. MML and Torex are used interchangeably.

1.8 MINERAL TENURE

The Morelos Property consists of seven mineral concessions, covering a total area of approximately 29,000 ha. All concessions were granted for a duration of 50 years. All licenses are held in the name of MML.

1.9 ROYALTIES

There is a 2.5% royalty payable to the Mexican government on minerals produced and sold from the Reducción Morelos Norte Concession.

1.10 SURFACE RIGHTS AND LAND USE

Torex has surface rights to all land required for the operation of the ELG Mine Complex. In addition to these long-term lease agreements, Torex has executed a land use agreement with the Punta Sur Balsas Ejido which cover current exploration and is convertible to cover access for mining of the ML resource.

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 project. However, MML does experience illegal blockades from time to time as the local communities adjust to being part of a large industrial-based economy. See also Section 1.2.2 and 20 for more information regarding the recent illegal blockade and measures taken to manage the risk of future blockades.

1.11 HISTORY & EXPLORATION

MML Morelos Property is comprised of the Morelos Norte Mineral Reserve, Torex acquired full control of this reserve in 2010, first with a purchase of 72.8% of the Morelos Property from Teck in 2009 and the remaining 21.2% from Goldcorp in 2010. Please refer to Table 6-1 for a summary of the exploration work completed prior to Torex's ownership of the Morelos Property.

Since purchase of the property Torex has focused its work programs in two distinct geographic areas, North and South of the Balsas River as the mineral tenure holding is bisected by the Balsas River. Work in the area north of the Balsas River has concentrated around the El Limón and Guajes deposits and has resulted in the development and operation of the ELG Mine Complex. Exploration activity south of the Balsas River has primarily concentrated on the Media Luna deposit.

During the first years of ownership Torex efforts on the north side of the river was focused on upgrading and expanding the ELG deposit. This work was successfully completed and resulting mineral resources were the basis for a Feasibility Study and subsequent construction decision in 2012. Construction of the mine commenced in 2013, and first production began in late 2015.

In mid-2013, an airborne ZTEM and magnetic survey was conducted that covered the entire mineral tenure area.

During 2014, infill drilling work was undertaken in the El Limón Sur area adjacent to the planned El Limón pit. The results supported an update to the estimated mineral resources for El Limón Sur, as detailed in Section 14 of this report. Mining of the El Limón Sur deposit commenced in 2017.

In 2015, based on an understanding gained in interpreting the ML deposit an exploration target was identified near the El Limón and El Limón Sur deposits. In early 2016, it was decided to follow up on earlier drilling in this area that occurred at a time prior to the learnings from Media Luna. The first follow-up hole returned a positive intersection and the program was expanded. The newly found deposit was located under the El Limón Sill, and named Sub-Sill (the El Limón deposit is located above this sill). A total of 27,248 meters of drilling in the Sub-Sill area was completed during 2016-2017, leading to the mineral resource in this report. Drilling continues on this deposit, with the goals of providing additional definition to aid mining, infill drilling to upgrade the confidence class of mineral resources, and step-out drilling to add to mineral resources. Drilling to date demonstrates the continuity of the gold mineralization.

In late November of 2016, an exploration ramp was collared to provide underground access to both the Sub-Sill zone as well as the El Limón Deep (ELD) target which is the down dip extension of the El Limón Deposit being mined via Open Pit. In June 2017, the Sub-Sill ramp intersected the Sub-Sill deposit. By November 2017, the ELD ramp had reached its phase 1 target and will now be used as a drill platform to infill the ELD deposit with the goal to upgrade the mineral resource and support mine planning.

As part of the mining operations, Torex undertakes pit infill drilling, in pit mapping and geological reconciliation. This information contributes to the data that is used when mineral resource updates are completed.

On the south of the Balsas River, during 2010 to 2013, Torex completed the following work; reconnaissance mapping, 1:5,000 scale geological mapping, systematic road-cut channel sampling and core drilling on various targets. Drilling in this area consists of a total of 304 drillholes (154,906.7 m), including 283 core holes (150,423.7 m) and 21 reverse circulation (RC) drillholes (4,483 m). The work covered a number of target areas, but with the discovery of Media Luna deposit in 2012, the bulk of geological work south of the Balsas River has since focused on the Media Luna deposit.

A first-time mineral resource estimate for the Media Luna deposit was completed in 2013 and updated in 2015. The 2015 update was based on additional drilling was carried out during 2014 and 2015 which expanded the mineral resource to the northwest. The mineral resource presented in Section 14 of this Report includes drill/assay information up to June 23, 2015.

During 2014, target generation work was undertaken, and 10 new target areas were defined that are considered drill prospects. Initial wide-spaced reconnaissance drilling was completed in some of the new targets in 2014.

In September of 2017, an infill drilling program was started in Media Luna deposit. The purpose of this program is to upgrade the confidence level of the current inferred mineral resources. The program that is currently planned contains 175 holes, averaging 600 meters in depth, for a total of 105,000 meters of drilling. After the completion of this program, Torex plans to prepare a measured and indicated mineral resource estimate to support further mine planning.

1.12 GEOLOGY AND MINERALIZATION

The area under mineral tenure 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 dikes and sills.

Gold mineralization at El Limón 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 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 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 target area as well as El Limón and El Limón Sur ore deposits are hosted in a graben bounded by La Flaca fault to the west and the Antena fault to the east, and both are considered to be potential feeders for the mineralization.

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 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 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 dikes and sills.

The Media Luna deposit is located on the south side of the Balsas River, ~7 km south south-west of the ELG Mine Complex.

The surface geology of the Media Luna area is dominated by Morelos Formation limestone which is intruded by numerous feldspar porphyry dikes 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.

In the opinion of MPH QP, knowledge of the deposit setting, lithologies on structural and alteration controls on mineralization is sufficient to support mineral resource estimation.

1.13 DRILLING

Drilling completed during the Teck ownership, between 2000 and 2008, referred to as legacy drilling, comprised of 619 drillholes (98,774.1 m), including 558 core holes (88,821.0 m) and 61 RC holes (9,953.1 m).

From 2009 until the end of 2017, Torex has completed 1,636 core holes (332,347.9 m) and 110 RC holes (8,791.5 m). Additional drilling has been completed in 2018, as drilling is an ongoing process at the Property which will allow Torex to continue to refine its mineral resources and reserves.

Diamond drilling typically recovered HQ size core (63.5 mm) from surface and was only reduced to NQ size core (47.6 mm) when drilling conditions warranted, in order to drill deeper.

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.

Drillholes were and are designed to intersect the mineralization in the most perpendicular 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.

In the opinion of the MPH QP, the quantity and quality of the logging, geotechnical, collar and down-hole survey data collected in the Torex exploration and infill drill programs are sufficient to support the mineral resource estimation for gold-silver at ELG and copper, gold, and silver mineralization at Media Luna.

1.14 SAMPLING AND ANALYSIS

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

Sample preparation and analytical laboratories used by Torex include SGS Nuevo Balsas, SGS Toronto, SGS Vancouver, Acme Vancouver, Acme Guadalajara and TSL laboratories.

Sample preparation and analytical methods have varied slightly by drill program. The procedures are in line with industry-standards methods at the time the work was completed.

The QA/QC program results do not indicate any problems with the analytical programs, therefore in the opinion of the MPH QP, the analyses from the core drilling are suitable for inclusion in mineral resource estimation.

1.15 DATA VERIFICATION

Data verification has been undertaken in support of compilation of technical reports in the period 2005 to 2017. Work completed included database review, QA/QC checks and independent analytical verification of the presence of gold silver and copper mineralization.

The data verification programs undertaken on the data collected from the Morelos Property adequately support the geological interpretations, the analytical and database quality, and therefore, in the opinion of the MPH QP, supports the use of the data in Mineral Resource estimation.

1.16 MINERAL RESOURCE ESTIMATE

Mr. Hertel is the QP for the mineral resource estimate at El Limón, Guajes, Sub-Sill Underground and Media Luna. Mineral resources are reported as undiluted. Mineral resources are reported inclusive of those mineral resources converted to mineral reserves, using the 2014 CIM Definition Standards (CIM).

Geology rock type codes were assigned to the block model based on MML and WMS interpretations.

Specific gravity values are based on wax immersion measurements performed on drill core. Density was assigned to the block model by rock type.

Outlier restriction was used for gold grade top cutting. Variography analysis was performed to obtain down-hole and directional correlograms for selected indicators and estimation domains.

Grade estimation was performed using ordinary kriging, with the minimum and maximum number of composites used, and the number from any one drillhole defined.

Validation of the models and resulting estimates was performed, and include nearest-neighbor checks, visual inspection on screen, swath plots, and reconciliation to production.

To assess reasonable prospects of economic extraction the mineral resource for the ELG open pit was confined within a Lerchs–Grossmann optimization, key parameters of which were the geological and grade continuity of mineralization, mining costs, processing costs, metallurgical recoveries, general and administrative costs, a gold price of $1,380/oz and a silver price of $21/oz. These estimates were considered applicable at the time of the 2017 estimate. No additional dilution or mining losses were considered within the pit shell.

Mineral resources (El Limón including El Limón Sur and Guajes) potentially amenable to open pit mining methods were classified using the rules listed below.

In order for a block to be a classified as a resource block, it must have the confidence class value assigned, and have a gold grade of 0.7 g/t Au or greater.

1. Measured mineral resource

   Mineral resources are classified as measured when a block was located within 15 m of the nearest composite and two composites from two additional drillholes was within 22 m. Drillhole spacing for Measured Resources would broadly correspond to a 20 m x 20 m grid.

2. Indicated mineral resource

   Mineral resources were classified as indicated when a block was located within 28 m of the nearest composite and one additional composite from another drillhole was within 40 m. Drillhole spacing for Indicated Resources would broadly correspond to a 36 m x 36 m grid.

3. Inferred mineral resource

   Mineral resources were classified as Inferred when a block was located within 60 m of the nearest composite. Drillhole spacing for declaration of inferred mineral resources would broadly correspond to a 60 m x 60 m grid.

For the Sub-Sill resource, a cut-off grade of 2.5 g/t Au was selected. The assumed mining method is via underground techniques. Mineral resources are reported using a long-term gold price of US$1,380/oz, and silver price of US$21.00/oz. Metallurgical recoveries are assumed at 87% for gold and 32% for silver. Only exoskarn and endoskarn show grade continuity and only skarn rock types are considered for confidence classifications.

MPH has reviewed mine plans and cash flows proving resources have reasonable positive expectation for economic extraction.

Sub-Sill mineral resources are potentially amenable to underground mining methods and all are classified using the rules listed below.

From the drillhole spacing study, which uses the composite CV, variogram parameters, production rate, and kriging variance at various drill spacings, the following rules for the classification were defined.

1. Indicated mineral resource

   A drill spacing of 17.5 m by 17.5 m is required using a cut-off of 2.5 g/t Au. Two drillholes are required to be found within 19 m of the block centroid, and one of the two must be within 14 m. The block must be coded as skarn.

2. Inferred mineral resource

   This requires a block to be estimated within the variogram range, coded as skarn, and a drill spacing of approximately 35 m by 35 m. The block must have a grade of 2.5 g/t Au or greater.

   Measured mineral resources are not defined for the Sub-Sill at this time.

Media Luna mineral resources are reported using a long-term gold price of US$1,470/oz, silver price of US$23.00/oz, and copper price of US$3.60/lb. The assumed mining method is underground, costs per tonne of mineralized material, including mining, milling, and general and administrative used were US$50 per tonne to US$60 per tonne. Metallurgical recoveries average 88% for gold and 70% for silver and 92% for copper.

MPH has reviewed a PEA for Media Luna showing that the mineral resources have reasonable positive expectation for economic extraction. The mineral resource is an inferred mineral resource, an infill drilling program is underway to upgrade the mineral resource to Measured and Indicated categories. For details on the Media Luna conceptual mine plans, please see Section 24.16 of this Report.

Media Luna mineral resources are potentially amenable to underground mining methods and are classified using the rules listed below.

The following rules must be meet for a block to be classified as an inferred mineral resource:

- Drill spacing of 100 m grid
- Two drillholes within 110 m
- Block must be within 3D modeled skarn zone
- Au Equivalent (AuEq) = Au (g/t) + Cu % *(79.37/47.26) + Ag (g/t) * (0.74/47.26)
- Block gold equivalent grade of 2.0 g/t AuEq or higher

Measured and Indicated mineral resources are not defined for Media Luna at this time.

1.16.1 Mineral Resource Statement

Mineral resources for El Limón and Guajes, which are potentially amenable to open pit mining methods, are summarized in Table 1-6.

Table 1-6: Mineral Resource Statement, Effective December 31, 2017, El Limón and Guajes

	Tonnes (Mt)	Au Grade (g/t)	Ag Grade (g/t)	Contained Au (Moz)	Contained Ag (Moz)
El Limón (including El Limón Sur)					
Measured	7.99	2.86	5.02	0.73	1.29
Indicated	20.77	2.87	5.07	1.92	3.38
Subtotal Measured and Indicated	**28.76**	**2.87**	**5.05**	**2.65**	**4.67**
Inferred	3.27	1.71	4.05	0.18	0.43
	Tonnes (Mt)	**Au Grade (g/t)**	**Ag Grade (g/t)**	**Contained Au (Moz)**	**Contained Ag (Moz)**
Guajes					
Measured	2.19	2.53	2.28	0.18	0.16
Indicated	9.10	2.82	2.79	0.82	0.82
Subtotal Measured and Indicated	**11.29**	**2.76**	**2.69**	**1.00**	**0.98**
Inferred	0.45	1.49	2.60	0.02	0.04
	Tonnes (Mt)	**Au Grade (g/t)**	**Ag Grade (g/t)**	**Contained Au (Moz)**	**Contained Ag (Moz)**
El Limón and Guajes					
Measured	10.18	2.78	4.43	0.91	1.45
Indicated	29.87	2.86	4.37	2.74	4.20
Total Measured and Indicated	**40.05**	**2.84**	**4.39**	**3.65**	**5.65**
Inferred	3.72	1.68	3.87	0.20	0.46

Notes to accompany El Limón and Guajes mineral resource table

1. The qualified person for the estimates is Mark Hertel, RM SME, an MPH Consulting employee. The estimates have an effective date of December 31, 2017.
2. Mineral resources are reported using topography with mining progress as of December 31, 2017. Mining progress applies to both El Limón and Guajes mineral resources. Stockpiled material is not included within the resource table above.
3. Mineral resources are reported above a 0.7 g/t Au cut-off grade and constrained within a conceptual open pit shell.
4. Mineral resources are reported using a long-term gold price of US$1,380/oz, silver price of US$21.00/oz. The metal prices used for the mineral resources estimates are based on long-term consensus prices. The assumed mining method is open pit, mining costs used are US$2.18/tonne, processing costs US$19.09/tonne, general and administrative US$8.80/tonne processed. Metallurgical recoveries are assumed to be 87% for gold and 32% for silver. Assumed pit slopes range from 33 to 49 degrees.
5. Mineral resources are reported as undiluted; grades are contained grades.
6. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade, and contained metal content.
7. El Limón Sub-Sill Underground mineral resource has been excluded from the open pit mineral resource.
8. Mineral Resources are reported inclusive of those mineral resources that have been converted to mineral reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

1.16.1.1 Sub-Sill Underground

Mineral resources for Sub-Sill, which are potentially amenable to underground mining methods, are summarized in Table 1-7.

Table 1-7: Mineral Resource Statement, Effective December 31, 2017, Sub-Sill Underground

	Tonnes (Mt)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Contained Au (oz)	Contained Ag (oz)
Indicated	1.29	8.09	10.22	0.50	336,085	424,492
Inferred	0.65	9.09	10.79	0.60	191,087	226,919

Notes to accompany Sub-Sill Underground mineral resource table

1. The qualified person for the estimate is Mark. P. Hertel, RM SME, an MPH Consulting employee. The estimate has an effective date of December 31, 2017.
2. Mineral resources are reported above a 2.5 g/t Au cut-off grade.
3. Mineral resources are reported as undiluted; grades are contained grades.
4. Mineral resources for the Sub-Sill that are contained within the conceptual pit shell have been removed from the ELG mineral resource estimate.
5. Mineral resources are reported using a long-term gold price of US$1,380/oz, and silver price of US$21.00/oz.
6. The assumed mining method is from underground.
7. Metallurgical recoveries are assumed to be 87% for gold and 32% for silver.
8. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade, and contained metal content.
9. Mineral resources that are not reserves do not have demonstrated economic viability.

1.16.1.2 Media Luna Underground

Mineral resources for Media Luna, which are potentially amenable to underground mining methods, are summarized in Table 1-8. Mineral resources are reported using a cut-off of 2 g/t AuEq for the material amenable to underground mining. The sensitivity of the estimate to changes in the selected AuEq cut-off grade are also shown in Table 1-8, with the 2 g/t AuEq base case highlighted.

Table 1-8: Mineral Resource Statement, Effective June 23, 2015, Media Luna (base case is highlighted)

Cut-off AuEq (g/t)	Tonnes (Mt)	AuEq Grade (g/t)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Contained AuEq (Moz)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (M lb)
1.0	79.3	3.42	1.74	21.28	0.80	8.72	4.45	54.26	1,405.03
1.5	63.9	3.94	2.07	24.01	0.90	8.11	4.25	49.33	1,269.15
2.00	51.5	**4.48**	**2.40**	**26.59**	**0.99**	7.42	3.98	44.02	1,128.50
2.5	41.4	5.02	2.75	28.81	1.09	6.69	3.66	38.35	996.74
3.0	33.9	5.53	3.06	31.18	1.18	6.02	3.34	33.96	884.44
3.5	27.6	6.05	3.40	33.37	1.27	5.37	3.02	29.65	776.49

Notes to accompany Media Luna mineral resource table

1. The qualified person for the estimate is Mark Hertel, RM SME, an MPH Consulting employee. The estimate has an effective date of June 23, 2015.
2. Au Equivalent (AuEq) = Au (g/t) + Cu % *(79.37/47.26) + Ag (g/t) * (0.74/47.26)
3. Mineral resources are reported using a 2 g/t Au Eq. grade
4. Mineral resources are reported as undiluted; grades are contained grades. Mineral resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Mineral resources are reported using a long-term gold price of US$1470/oz, silver price of US$23.00/oz, and copper price of US$3.60/lb. The metal prices used for the mineral resources estimates are based on Amec Foster Wheeler`s internal guidelines which are based on long-term consensus prices. The assumed mining method is underground, costs per tonne of mineralized material, including mining, milling, and general and administrative used were US$50/t to US$60/t. Metallurgical recoveries average 88% for gold and 70% for silver and 92% for copper.
6. Inferred blocks are located within 110 m of two drillholes, which approximates a 100 m x 100 m drillhole grid spacing
7. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade, and contained metal content.

1.17 MINERAL RESERVES

ELG Mine Complex proven and probable mineral reserves are summarized in Table 1-9 and Table 1-10.

1.17.1 ELG Open Pit Mine - Mineral Reserves Estimate

Table 1-9: Mineral Reserve Statement, ELG Open Pit Mine – effective date March 31, 2018

Reserve Category	Tonnes (Mt)	Au Grade (g/t)	Ag Grade (g/t)	Contained Au (Moz)	Contained Ag (Moz)
El Limón (including El Limón Sur) - Note 3					
Proven	6.54	2.95	4.51	0.62	0.95
Probable	14.28	3.03	4.19	1.39	1.93
Sub-total Proven & Probable	20.81	3.00	4.29	2.01	2.87
Guajes - Note 3					
Proven	1.66	2.36	1.68	0.13	0.09
Probable	6.87	2.84	2.64	0.63	0.58
Sub-total Proven & Probable	8.53	2.75	2.45	0.75	0.67
Mined Stockpiles					
Proven	0.54	1.51	7.90	0.03	0.14
ELG Low Grade - Note 4					
Proven	1.13	0.80	2.12	0.03	0.08
Probable	2.32	0.80	1.90	0.06	0.14
Sub-total Proven & Probable	3.45	0.80	1.98	0.09	0.22
Total El Limón Guajes					
Proven	9.87	2.53	3.94	0.80	1.25
Probable	23.46	2.75	3.51	2.08	2.65
Total Proven & Probable	33.33	2.69	3.64	2.88	3.90

Notes to accompany mineral reserve table:

1. Mineral reserves are based on Guajes, El Limón and El Limón Sur measured and indicated mineral resources with an effective date of December 31, 2017.
2. Mineral reserves are reported based on open pit mining within designed pits and incorporate estimates of 15% dilution and 5% mining losses.
3. El Limón and Guajes mineral reserves are reported above diluted cut-off grades of 0.9 g/t Au for the Guajes and El Limón pits and 1.0 g/t Au for the El Limón Sur pit. The cut-off grades and pit designs are considered appropriate for metal prices of US$1,200/oz gold and US$17/oz silver, process recoveries averaging 87% for gold (83% for near cut-off grade ore) and 23% for Silver and estimated mining, processing, and G&A unit costs during pit operation.
4. ELG Low Grade mineral reserves are reported above a diluted cut-off grade of 0.7 g/t Au and below the higher cut-off grades identified in Note 3. It is planned that ELG Low Grade mineral reserves within the designed pits will be stockpiled during pit operation and processed during pit closure. The Low Grade cut-off is considered appropriate for a gold price of US$1200/oz,a gold process recovery of 83% and estimated ore rehandle, processing, and G&A unit costs during pit closure.
5. Mineral reserves were developed in accordance with CIM (2014) guidelines.
6. Rounding may result in apparent summation differences between tonnes, grade, and contained metal content.
7. The qualified person for the mineral reserve estimate is Dawson Proudfoot, P. Eng. the Vice President of Engineering of the Corporation.

Contained gold in the proven and probable mineral reserves is 21.9% less than contained gold in the measured and indicated mineral resources. Approximately 6% of the difference in contained gold is attributed to the higher cut-off grades utilized to define mineral reserves, incorporation of mining losses and dilution in mineral reserve estimates, and mineral resource depletion due to mining in 2018Q1. The remaining 15.9% is gold contained principally in indicated mineral resources that are located outside the ultimate pit designs. The ultimate pits are smaller than the conceptual pit shell utilized to report mineral resources.

Mineral reserves have decreased by 3.3 Mt and contained gold has decreased by 0.21 Moz compared to the EY2017 mineral reserve estimates reported in Torex's 2017 AIF. Actual mining and processing during 2018Q1 contributed to the change to mineral reserves, however the major contributor was pit design changes. A pit optimization analysis utilizing long term metal prices forecasts and estimated unit costs during mine operation indicated modifications to the open pits to reduce waste stripping would benefit mine economics, and pit redesigns guided by the pit optimization results were implemented.

Reconciliations comparing plant feed with mineral reserve depletion from the start of commercial production through 2018Q1 indicate that over this period the in-pit mineral reserve model was a good predictor of the gold grade and tonnage of the mined areas, with tonnage, gold grade, and gold content comparison factors of 0.98, 0.99, and 0.97, respectively. 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.

1.17.2 ELG Underground Mine - Mineral Reserves Estimate

The Mineral Reserve estimate for the ELG Underground Mine is solely based on indicated mineral resources identified at the Sub-Sill Zone within the December 31, 2017 mineral resource estimate.

The underground mineral reserve estimate for the Sub-Sill zone was determined by applying the Mechanized Overhand Cut and Fill (MCAF) mining method to the three-dimensional block model. This was done in Deswik®, a commercially available mine planning software. The shapes were assessed against an insitu cut-off grade and an incremental cut-off grade. The mine plan was completed by including the development and infrastructure required to support the mining process and access the mining shapes.

Table 1-10: ELG Underground Sub-Sill Zone Reserve - effective December 31, 2017

Reserve Category	Tonnes (Mt)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Contained Au (Moz)	Contained Ag (Moz)
Proven						
Probable	0.522	10.90	11.16	0.58%	0.183	0.187
Total Proven & Probable	0.522	10.90	11.16	0.58%	0.183	0.187

Notes to accompany mineral reserve table:
1. Mineral reserves are based on Sub-Sill measured and indicated resources with an effective date of December 31, 2017.
2. Mineral reserves are reported based on underground overhand mechanized cut and fill mining with designed underground workings and incorporates estimates for 10% dilution and 10% mining losses.
3. Mineral reserves are reported above in-situ cut-off grades of 4.47 g/t Au for the Sub-Sill. The cut-off grades and underground mine design are considered appropriate for metal prices of US$1,200/oz and US$17/oz, and estimated mining, processing and G&A unit costs during mine operations.
4. Process plant recoveries for the ELG Underground average 84.5% for gold and 26.2% for sliver.
5. Mineral reserves were developed in accordance with CIM (2014) guidelines.
6. Rounding may result in apparent summation differences between tonnes, grades and contained metal content.
7. The qualified person for this mineral reserve estimate is Clifford Lafleur, P.Eng. the Director of Technical Services of the Corporation.

1.18 MINING OPERATIONS

1.18.1 ELG Open Pit - Mining Method

The geotechnical design of pit slopes was initially carried out as part of the 2012 Feasibility Study. The slope designs continue to be reviewed and updated as additional data is collected and experience gained. Overall the rock mass has proven to be competent with geologic structure controlling stable bench face and interramp slope angles.

Groundwater and precipitation inflows to the Guajes Pit are being managed by a series of dewatering wells and in-pit dewatering systems, with pumping capacity primarily governed by runoff during storm events. Produced water is currently being pumped to onsite ponds. Similar dewatering systems will be employed within the EL Limón and El Limón Sur pits.

Waster Rock Storage Facilities (WRSFs) are being developed by end dumping from platforms located at the crest elevation, since bottom-up construction is not considered practical due to the large elevation difference between the waste rock mining benches and the base of the WRSFs. In general, the foundation conditions are conducive to this type of WRSF construction. To ensure safe operation of the WRSFs, a safety zone has been established at the base of all WRSFs and safe waste rock placement procedures have been developed and utilized during mine operation. Surface water drainage from all of the WRSFs is being collected in surface water management ponds. At closure, the WRSF slopes will be re-graded to 2H:1V for long-term stability and safety.

Lerchs-Grossmann (LG) pit optimization for the LOM plan was conducted based on long term metal price forecasts of US$1,200/oz for gold and US$17/oz for silver, process recoveries of 87% for gold and 23% for silver, and unit operating cost estimates sourced from the ELG 2018 budget and preliminary LOM forecasts. It is expected that G&A costs will be lower during the pit closure period, however the reduced G&A cost at that time is not considered in the pit optimization analysis, and therefore is not reflected in pit optimization results or in pit designs guided by pit optimization results.

A series of nested LG pit shells were generated by varying the gold price. Based on analysis of the resulting cash flow estimates on an incremental and present value basis, the pit shell generated using a gold price of $1,100/oz was selected to guide Guajes and El Limón ultimate pit design. Smaller nested shells were utilized to guide interior phase pit design.

The mine is in operation with multiple phase pits previously designed. The Guajes East pit, which is near completion, and the El Limón Sur pit, which approximates the selected $1,100/oz pit shell, were not redesigned. The Guajes ultimate phase pit, an interior Guajes phase pit, the El Limón ultimate phase pit and two interior El Limón phase pits were redesigned based on pit optimization results.

WRSFs are 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. The Guajes WRSF is located in the valleys to the west of the pit. Guajes waste rock is also utilized to buttress the Filtered Tailings Storage Facility (FTSF) slopes on an ongoing bases for stability and closure purposes. It is also hauled to the Buttress WRSF located downhill from the El Limón WRSF. El Limón waste rock is hauled to the El Limón WRSF located to the north of the pit on the slopes above the Buttress WRSF.

Groundwater inflow to the proposed pits was predicted based on development of a 3-D numerical groundwater flow model (SRK 2012b, 2012c, 2015). Maximum passive groundwater inflow rates are predicted to be low due to the low hydraulic conductivity of surrounding country rock (approximately 210 m^3/d, 100 m^3/d, and 21 m^3/d for the Guajes, El Limón, and El Limón Sur pits, respectively). Groundwater inflow to the Guajes Pit is being managed through an in-pit dewatering system (diesel-powered pump). Several bedrock dewatering wells are intercepting groundwater that would otherwise flow to the pits. Collectively, these wells are pumping approximately 27 m^3/day (Sergio Cosio and Associates, personal communication, 2017). Although ongoing groundwater modeling efforts may result in refinements to the above estimates (Section 16.2.3), values are not expected to change significantly.

Ore quantities incorporate 5% mining loss and 15% dilution with grades of 0.13 g/t Au and 0.13 g/t Ag, which is supported by ongoing reconciliations of actual mining versus mineral resource depletion. Run-of-mine ore quantities are reported above diluted cut-off grades of 0.9 g/t Au for the Guajes and El Limón pits and 1.0 g/t Au for the El Limón Sur pit. ELG low grade ore, which is planned to be stockpiled during mine operation will be processed at pit closure when G&A costs are projected to be lower. It is reported above a diluted cut-off grade of 0.7 g/t Au for all pits. Silver is excluded from cut-off grade estimation since it is a minor contributor to revenue compared to gold.

The designed pits, as of March 31, 2018, are estimated to contain a total of 32.8 Mt of ore with average grades of 2.71 g/t Au and 3.57 g/t Ag. The pits also contain 189 Mt of primary waste rock for an overall strip ratio of 5.8:1. ROM ore stockpiles as of March 31, 2018 total 0.54 Mt with grades of 1.51 g/t Au and 7.9 g/t Ag.

The main pit production schedule objective is providing sufficient ROM ore to meet process plant capacity, which is estimated at 13,000 tpd in 2018 and 14,000 tpd (5.04 Mt/a) thereafter. Sub-Sill underground ore will supplement open pit ore feed to the process plant. Other scheduling constraints include maintaining sufficient ROM ore inventory to facilitate ore blending and/or to maximize the process plant head grade early in the LOM plan, and mining sufficient Guajes waste rock to meet the Buttress WRSF development schedule and providing ongoing waste rock buttressing of the FTSF.

Open pit mining is scheduled to be complete in early 2024. The mining rate peaks at approximately 50 Mt/a in 2019 and 2020 before declining. Mining quantities moved include primary ore and waste mined, plus ore and waste rehandle. Waste rehandle is primarily the result of dozer mining of the early benches, high up on the hill, that were not accessible by haul truck. The waste was pushed over the edge of the hill and is rehandled when mining gets down to the benches that the waste was pushed onto. ROM ore rehandle is a result of ore blending to smoothen plant head grades and/or improve head grades early in the mine life. Ore rehandle also includes all ELG low grade ore, which is scheduled to be stockpiled during mine operation and rehandled to the process plant during pit closure in 2024.

ROM and Low Grade ore stockpiles peak at 5 Mt at the start of 2023, with 2 Mt located in the Guajes pit area and 3 Mt in the El Limón pit area. The El Limón ore stockpiles are scheduled to increase to 3.5 Mt by the start of 2024, which will necessitate some pit design modifications to provide haulage ramp access to the in-pit stockpile locations.

The ELG mining is carried out by the owner's workforce on a continuous 24 hour/day 365 day/year basis, with three production crews working a 20 day on-10 day off rotation. Contractors are utilized for El Limón Sur pit mining, which requires small scale mining equipment, for blasting services, and for production equipment maintenance under maintenance and repair contracts. Production equipment maintenance by the owner's workforce is being phased in during 2018. The mine workforce is expected to peak at 254 employees in 2019 and 2020 before declining.

Grade control is based on blasthole sampling and definition drilling. The explosive powder factor is forecast at 0.22 kg/t utilizing a combination of ANFO and emulsion explosives.

The ELG Mine Complex is in operation and most production equipment needed for the LOM plan was acquired from 2013 to 2017. Major production equipment on site includes three 114-mm and six 171-mm drills equipped for down-the-hole (DTH) hammer drilling, three 15-m^3 hydraulic shovels, four 12-m^3 wheeled loaders, 22 90-t haulage trucks, seven bulldozers, three graders, two water trucks, and a small excavator. LOM plan equipment additions include three drills, two haulage trucks, a wheel bulldozer, and an additional small excavator. Seven production units are also scheduled to be replaced in 2019 and 2020 and a large number of units are scheduled for major overhauls over the four year period 2018 to 2021.

1.18.2 ELG Underground - Mining Method

Mechanized cut and fill is the mining method selected for the Sub-Sill zone of the ELG Underground Mine. The mine currently has approximately 2,000 m of development accessed via a portal from surface. A second portal was started in July 2018 to connect to existing development it will provide a second means of egress, facilitate flow through ventilation and improve transport logistics.

A geotechnical evaluation has been completed for the ELG Underground Mine by Dr. Will Bawden, showing fair to good rock in most areas with typical ground support requirements. A crown pillar with a thickness of 10m is adequate for the proposed mine plan.

Mine inflows have been estimated to be between 2.2 and 81.3 L/s with a best estimate of 32.8 L/s.

Cut and fill stopes are planned to be 5 m high and are designed to an ore cut-off grade of 4.47 gpt. The stopes are accessed by an internal ramp.

Production from Sub-Sill is planned over 29 months which started in April 2018. The mine will be ramped up to steady state production by December 2018 and continue for 18 months entering a short ramp down period in 2020. A program to explore the immediate area near Sub-Sill and El Limón Deep is planned to start in 2018, with the goal of upgrading and discovering additional resources to sustain and extend mining operations beyond the current 29 month mine life. Figure 16-23 illustrates the production plan by month.

1.19 PROCESSING THE ELG ORES AND METAL RECOVERIES

The ELG processing plant has been in operation since the end of 2015 and has processed over 8 million tonnes of ore to produce over 515,000 oz of gold. During this period cyanide leaching followed by carbon in pulp absorption has proven to be an effective recovery process. Since declaration of commercial production gold recovery has averaged 86.1% (range of 75 – 90%) and silver has averaged 22.8% (range of 3 - 43%). Within this report, recoveries used in the financial model for Open Pit ore is set at 86.5% for 2018 and 87% beyond for gold and 23% for silver. Soluble copper in the ore has proven to be an issue due to the high portion of recycle water used in the process. This issue will be permanently addressed with the addition of a SART plant to the process.

Test work has determined Sub-Sill ore is amendable for recovery of gold and silver through the existing Process Plant. Recoveries expected are 84.5% Au, 26.7% Ag and 6.3% Cu; the copper recovery as a SART plant concentrate. Test work was also completed which indicated the Sub-Sill ore is amendable to flotation which could lead to increased recoveries for gold, silver and copper to respectively 88%, 83.8% and 78.1%.

1.20 POWER

A power study was undertaken in July 2017 to determine if additional power infrastructure was required with the addition of the horizontal belt filters and SART. The conclusion of the report was that the capacity of the transformers feeding the plant was sufficient. Future load increases would result in a need to expand the supply and distribution system in order to maintain 100% redundancy. The current power demand has 100% redundancy with a second transformer.

1.21 WATER

Water supply for the ELG Mine Complex and Camp is from a well field (3 wells) located near the village of Atzcala approximately 18 km east of the mine site. Torex has been granted a water concession from the Mexican national water commission (CONAGUA) for taking up to 5 million cubic meters of water per year. Current water requirements for the ELG Mine Complex and Camp is estimated at 1 million cubic meters per year (~110 m^3/hr), which provides for water availability for expansion at the current site or within the concessions.

1.22 ENVIRONMENTAL AND SOCIAL PERMITTING AND STUDIES

All National, State, and Municipal permits/authorizations required for the exploration, development, and operation of the ELG OP and process plant have been received from the various levels of Mexican government. The ELG UG has all necessary permits/authorization for mining.

The site experiences distinct wet and dry seasons and warm temperatures (year-round, mean temperatures above 18°C). Other than the human settlements in the area, the ELG operation is the only major potential source of dust and noise. The quality of local surface and ground water is affected by local mineralization. The main surface water features in the area are the Presa El Caracol, and the Rios Balsas and Cocula Rivers.

The ELG area is primarily occupied by deciduous forests, which represent approximately 63% of the land area. Modified ecosystem units, including tilled fields, pasturelands, and plantations, are reflective of the traditional use of the areas around the mine site where very little of the land is used for agricultural production. The flora sampling units within the Media Luna area reported 187 species distributed in 130 genera and 45 families. The fauna research study carried out in 90.62 ha of the Media Luna area reported a total of 103 species including: 8 amphibia, 14 reptiles, 17 mammals, and 66 birds. The Morelos Property is within the 'Zopilote Canyon' ('Cañón del Zopilote'), which is one of nine bird conservation areas in Guerrero.

The ELG Mine Complex represents a large mining operation in México, with implications for the State of Guerrero - ELG's initial capital investment represents one of the largest investment in the State's recent history. In 2017, MML spent $226 million in procurement to Mexican firms, and paid $53 million in wages to 2,369 employees (including contractors); 98% of the workforce is from Mexico, including 63% from Guerrero and 52% from the local communities. In addition, $1.3 million was invested in community projects.

Land access for the ELG Mine Complex required the relocation of two villages - the community of Real de Limón was located within the 500 m safety buffer zone of the proposed El Limón pit and the community of La Fundición was located within the active mining area. Both communities were in Ejido Real del Limón lands. These communities were successfully relocated to a new area, approximately 5 km east of the mine site area.

MML environmental management plans are organized into an over-arching Environmental Management Plan (EMP) covering all major aspects of the physical and biological environment, and some key social aspects. The EMP is included in contract tender packages/specifications (contractual requirement) and is available to all ELG Mine Complex personnel (employees and contractors).

Over the LOM, mining the El Limón and Guajes open pits is expected to generate approximately 260 Mt of waste rock and 42 Mt of filtered tailings. Waste rock mined from the El Limón open pit is placed in the El Limón WRSF. Waste rock mined from the Guajes pit is stored in two WRSFs: the Guajes North WRSF and the Guajes West WRSF. Tailings is placed in the FTSF. Geochemical testing of 645 waste rock samples (Teck, 2004; SRK, 2008; Amec, 2012) indicates 77% of the waste rock samples had neutralization potential ratios (NPR) >3 and are, thus, characterized as non-potentially acid generating (non-PAG). MML does not segregate potentially acid generating (PAG) and non-PAG waste rock during mining.

On the operational site generally, clean water is diverted around the site and to the receiving environment. Water containing sediment is directed to sediment control ponds and water that has the potential to be in contact with reagents is retained within the overall plant and FTSF drainage and is used as make up water for the process plant. This water may be discharged if it meets the required standards.

A natural and industrial risk assessment was undertaken for the ELG Mine Complex in 2014. This study is still valid with the addition of El Limón Sur and the ELG underground mine. Overall, 19 public safety risks, and 51 environmental risks were identified. Each hazard scenario included a consideration of public safety, or environmental risks, or both as appropriate.

Environmental and social management plans implemented at the ELG Mine Complex site include, but are not limited to, the following:

- Environmental risks evaluation and monitoring
- Accident Prevention Plan
- Environmental Quality and Monitoring Program (PSCA)
- Contingency Response Plan
- Erosion and Sediment Control plan
- Flora Rescue and Conservation Plan
- Fauna Rescue and Relocation Plan
- Stakeholder consultation and participation (engagement design and strategies at local, regional and international levels)
- Reporting
- Government-led consultation and negotiations
- Response to emergencies, and blockade prevention and management
- Mine closure effects
- Management of in-migration and population effect

The next land use after mining is anticipated to be open land for basic farming/ranching, like much of the surrounding area except along the slopes of the filtered tailings storage facility and waste rock storage facilities, which will remain as exposed rock, which would be similar to natural talus slopes.

MML has involved stakeholders in the development of the ELG Mine Complex since 2010. Stakeholder engagement is one of the seven key components in MML's ESMS. The Social Responsibility Team are in the communities each day providing a conduit for information from the community to MML and *vice versa*. The stakeholders in ELG fall into the following groups:

- Directly affected stakeholders: these stakeholders live in eight small communities located near the mine area: Nuevo Balsas, San Nicolas, La Fundición, Real de Limón, Atzcala, Balsas Sur, San Miguel Vista Hermosa (affected by exploration only) and Valerio Trujano.
- Ejidatarios: belong to five Ejidos in the ELG Mine Complex area – Ejido de Real de Limón, Ejido de Rio Balsas, Ejido de Atzcala, Ejido de Puente Sur Balsas and Ejido de Valerio Trujano. The Ejidos are legal entities some of which MML has signed long-term land leases and land purchase agreements to allow construction of ELG and associated facilities.
- Interested stakeholders: these are key interested stakeholders from three levels of government – Municipal, State, and Federal.

MML´s operations have been interrupted several times by illegal blockades, most recently in November 2017. Operations were re-established in January 2018 with full access in April 2018. The November 2017 blockade was established by a minority of workers who tried to demand the company change the union representation from CTM to the Miners Union (Los Mineros). It is the Company's position that the Miners Union made unsubstantiated claims to damage Company relationships with local communities and, thereby, bolster their case for a change in union. As with many negative advertising campaigns, initially this tactic met with some success.

With a bit of time, MML's traditionally strong community relationships re-asserted themselves and it was community support that led to a circumventing of the union blockade in mid-January 2018 and a restart of operations. Community support for the Company continued to grow since the restart of operations in mid-January, as is evidenced by blockades of the 'blockaders' and a growing chorus for government intervention to provide the Company with unfettered access to all of its facilities. The Mineros Union withdrew its challenge for the change of union on April 2018, the blockades were removed and full access to the site and infrastructure were restored.

1.23 WASTE DISPOSAL

Tailings are filtered, placed and compacted in the FTSF southwest of the process plant and northwest of the Guajes open pit. To date, over 8 million tonnes of tailings have been placed in the FTSF. To address operational issues during the wet seasons, the Guajes North WRSF has been extended across the downslope side of the FTSF as additional support for the tailings.

The WRSFs are being developed by a combination of end dumping from platforms located at the WRSF crest elevation, or when possible bottom-up construction. Such WRSF construction (end dumping from high elevations on steep terrain) has parallels at many other mining operations located in mountainous regions. Final slopes will be graded to 2H:1V for closure.

1.24 OPERATING COST ESTIMATE

The operating and maintenance costs for the ELG Open Pit operations are summarized by areas of the operation and shown in Table 1-11. Cost centers include mine operations, process plant operations, General and Administration area and treatment & logistic costs. Operating costs were determined annually for the life of the mine. Actual Labor rates and contractual supply rates as available are used as basis for the cost summary. No escalation was included. Table 1-11 below shows the annual cost for a typical year, in this case year 2 - 2019.

Table 1-11: Typical Year (Year 2 – 2019) Operating Costs by Area

	Ore Processed Tonnes	5,040,000
	Open Pit total Tonnes Mined	50,067,000
	Underground Ore Tonnes Mined	302,000
Mining Operations	**Annual Cost - ($M)**	**$/t Mined**
Drill	$17.13	$0.34
Blast	$18.85	$0.38
Load	$13.75	$0.27
Haul	$25.54	$0.51
Mine Indirect	$17.92	$0.36
Rehandling	$0.66	$0.01
Technical Services	$10.06	$0.20
		$/t Ore Mined
Underground	$26.68	$88.23
Subtotal Mining	**$130.58**	**$2.59**
Processing Operations	**Annual Cost - ($M)**	**$/t Ore Processed**
Crushing	$2.26	$0.45
Grinding	$27.24	$5.40
Leaching & Thickening	$29.31	$5.81
Carbon Handling & Refinery	$3.35	$0.66
Cyanide Destruction	$1.90	$0.38
Filtering	$12.13	$2.41
Tailing	$7.48	$1.48
Ancillary	$1.16	$0.23
Plant Indirect	$8.19	$1.62
SART	$3.60	$0.72
Subtotal Processing	**$96.62**	**$19.17**
Supporting Facilities		
Site Support (including Profit Share)	$50.79	$10.08
Treatment & Refinery	$1.85	$0.37
Subtotal Supporting Facilities	**$52.64**	**$10.44**
Total Mine Site Operating Cost	**$279.83**	**$55.52**

1.25 CAPITAL COST ESTIMATE

Capital cost for the ELG Mine Complex is based on the life of mine plan used for operation of the ELG Mine Complex by Torex.

The key results of the capital cost estimates (for mine, process facilities, site support, and growth) are outlined in Table 1-12:

Table 1-12: Capital Total Costs ($M)

	Total	2018	2019	2020	2021	2022	2023	2024
Sustaining								
Mine	70.5	16.9	25.3	21.7	3.9	1.4	1.3	
Sub-Sill Zone	3.4	0.1	3.1	0.2				
Process Plant	13.4	10.4	1.5	0.5	1			
Site Support and Exploration	16.3	10.4	2.4	1.3	0.9	0.6	0.4	0.3
Sub-total	*103.6*	*37.8*	*32.3*	*23.7*	*5.8*	*2*	*1.7*	*0.3*
Deferred Stripping	149.5	62.3	26.5	42.6	14.6	3.5		
Total Sustaining	**253.1**	**100**	**58.8**	**66.3**	**20.4**	**5.5**	**1.7**	**0.3**
Non- Sustaining								
SART	3.4	3.4						
Sub-Sill Zone	22.1	21.3	0.8					
Development	28.0	10.0	14.0	4.0				
Total Non-Sustaining	**53.5**	**34.7**	**14.8**	**4.0**				
Total	**306.6**	**134.7**	**73.6**	**70.3**	**20.4**	**5.5**	**1.7**	**0.3**

1.26 ECONOMIC ANALYSIS

The results from the economic analysis for the ELG Mine Complex are shown below:

- NAV @ 5% is $706M
- Operating Cost with Ag credits per Au oz is $554
- AISC per Au oz is $734

1.27 CONCLUSIONS

1.27.1 Conclusions by M3

The current ELG Mine Complex infrastructure is sufficient for the remainder of the mine life. Power and water supply are adequate to meet the current demand. The power capacity is near maximum with maintaining 100% redundancy but there are no major planned process additions to the ELG Mine Complex and therefore the need to expand the power capacity is not required. There is a surplus water for the plant if an increase in water demand is required.

The operational cost of the ELG Mine Complex provides for positive cash flow through the end of the mine life.

1.27.2 Conclusions by MPH

The knowledge of the deposit setting, lithologies and structural and alteration controls on mineralization in the Guajes, El Limón, Sub-Sill, and Media Luna deposits is sufficient to support the Mineral Resource estimation. 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 upside potential.

The skarn deposit type is an appropriate model for exploration and for support of the geological models used in Mineral Resource estimation.

The exploration programs completed to date are appropriate to the style of the deposits and prospects within the Property. Exploration and samples have been collected in a manner such that they are representative and not biased.

Additional exploration has a likelihood of generating further exploration successes particularly down-dip of known zones and along strike from the known deposit. There are a significant number of prospects and occurrences remaining to be drill tested and fully evaluated. 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, both north and south of the Balsas River.

The quantity and quality of the logging, geotechnical, collar and down-hole survey data collected in the Torex exploration and infill drill programs are sufficient to support the mineral resource estimation in this report. No significant factors were identified with the data collection from the drill programs that could affect the mineral resource estimation contained in this report.

Sampling methods are acceptable, meet industry-standard practice and are adequate for mineral resource estimation.

The data verification programs undertaken by the QPs on the data collected adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in the mineral resource estimation in this report.

The mineral resources for the Project, which have been estimated using core drill data and channel sampling data, have been performed to industry practices, and conform to the definitions set forth in CIM.

1.27.3 Conclusions by Huls Consulting

Since declaration of commercial production gold recovery has averaged 86.1% (range of 75 – 90%) and silver has averaged 22.8% (range of 3 - 43%). These values are at or close to those predicted in the original feasibility study. Filtration proved to be an early bottleneck in the circuit. It has been solved through a combination of decoupling the comminution process from the filtration, and improved operation and maintenance practices. The addition of two horizontal filters will further reduce the risk of the filtration process becoming a bottleneck in the future. Once the filter bottleneck was removed, the SAG mill became the bottleneck. Efforts to improve the size distribution of material entering the SAG mill are well underway and plant should soon be able to process ore consistently at the per design rate.

Higher recoveries from Sub-Sill ore would be possible if a flotation process would precede leaching. Copper concentrate would be able to collect most of the sulfide copper as well as silver that for the most part is associated with copper. With the current mine plan, volumes of Sub-Sill ore are not sufficient to justify a flotation circuit. Absent a flotation circuit, leaching Sub-Sill ore is expected to recover 84.5% Au, 26.7% Ag into doré, and 6.3% Cu as a SART precipitate product.

A SART process was installed to reduce the copper tenor in the recirculating process water. High copper levels negatively affected reagent consumption in various ways throughout the process.

1.27.4 Conclusions by NewFields

Based on the design of the waste management and site water management system, there are no flaws or unresolvable issues anticipated. Potential water issues related to waste rock and tailings disposal have been identified and plans for mitigation, if required, should be developed.

1.27.5 Conclusions by JDS

Overall the rock mass has proven to be competent with geologic structure controlling stable bench face and interramp slope angles. The slope designs continue to be reviewed and updated as additional data is collected and experience gained.

1.27.6 Conclusions by Torex

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, and will continue to contribute, to the development of the local economy lifting people out of poverty. MML has obtained the required environmental approvals for the operation of the mine and can reasonably expect to obtain any further approvals required for ongoing operations and changes to that operation.
- The ELG Mine Complex has broad stakeholder support and the local, state and federal levels and can expect to maintain this support. However, there will always be a small number of people who are not aligned with the operation and will seek to damage the operation for their own gain. This may result in limitations to access to the site from time to time.

ELG Open Pit:

- The ELG open pits is well-established, with over 4 years of development and operation. The open pit mining operations as implemented 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.

ELG Underground Mine:

- Exploration work at the Sub-Sill Zone since 2016 has been successful leading to an increase is mineral resources
- Exploration work since 2016 has resulted in an increase in the mineral resources at the Sub-Sill zone, leading to a high-grade mineral reserve estimate based on a mechanized cut and fill mine design.
- There is very good potential for successful exploitation of the Sub-Sill zone given its size, grade, selected mining method, metallurgical characteristics, developed and planned infrastructure, and the knowledge and experience of Company management and the engaged mine contractor.

1.28 RECOMMENDATIONS

1.28.1 M3 Recommendations

M3 makes the following recommendations:

- Implement a recurring technical audit on an 18-month interval to alternate rainy and dry seasons in order to help identify problems and potential problems before costly downtime is required to repair or rebuild structures or equipment due to failure.
- Review current electrical usage, capacity and future requirements to have a full understanding of the current system and if additional loads will be required in the future what modifications might be required.

1.28.2 MPH Recommendations

The work program recommendations provided by MPH are designed to support potential upgrade of Mineral Resources to a higher classification, and further evaluate outlying exploration targets. Work has been divided up into near mines, Media Luna and Exploration.

- **Sub-Sill:** Continue infill drilling program and underground development to upgrade Inferred and Indicated Resources and complete a new resource model with the infill results. Continue expansion program.
- **ELG Deep Mineralization:** Implement drill program and study to exploit known and potential deep high strip ratio mineralization by underground mining. The study is to determine best method to exploit the mineralization, open pit or underground.
- **Media Luna:** Continue infill drilling program upgrade Inferred Resources and complete a new resource model with the infill results.
- **Exploration:** Key aims of the program are to continue exploration efforts on previously-identified outlying prospects and exploration of outlying unexplored or lightly-explored target areas based on reconnaissance knowledge and generation of new targets through further geological work, test porphyry target.

1.28.3 Huls Recommendation

Consideration to be given to developing a geometallurgical model to assist in planning for the process plant.

1.28.4 NewFields Recommendations

NewFields support the current monitoring and testing programs in place and recommends they continue.

- Continue laboratory testing of waste rock and tailings humidity cells collecting long term data.
- Continue to monitor waste rock and tailings drainage water quality at the field scale.
- Continue analyses of ore mixtures (ELG UG and OP) and the effect on resultant tailings acid base chemistry.
- Further development of the site water quality model supported by the field and laboratory data.
- Continue to monitor site water quality data and compare to established trigger or permit-level concentrations.

1.28.5 JDS Recommendations

Open Pit Geotechnical:

- Geotechnical mapping should be carried out as benches are developed with particular attention paid to the variation in persistence, spacing, and orientation of discontinuities such as faults, bedding planes and joint sets. Bench and interramp slope designs should be refined as necessary based on the newly acquired information.
- The 3D geologic structural model should be updated with any new major fault structures mapped. The updated model should be reviewed regularly to identify new geotechnical domains as well as any geologic structures with potential to cause bench and multi-bench instabilities when daylighted.
- Several geotechnical core holes were drilled into the Guajes highwall prior to the suspension of operations in 2017 to investigate the possibility of additional La Amarilla parallel structures. Core from these drillholes should be geotechnically logged and reviewed to confirm whether not potential for additional adversely oriented structures exists.

1.28.6 Torex Recommendations

ELG Open Pit:

- Continue successful operation of the WRSF. With the reduction of waste, the design and operating procedures for the El Limón WRSF requires review and updates to ensure continued safe and efficient operation and allow resloping at closure.
- Recommend improving effective equipment utilization of the loading and haulage fleet by advancing the operational team's use of the Fleet Management System.
- Recommend the establishment of procedures for the development and maintenance of the Low-Grade Ore stockpile need to be established.

ELG Underground Mine:

- Based on financial, technical exploration success and project advances to date, continue with the development and infrastructure to bring the Sub-Sill zone to full production by the end of 2018.
- Continue with plans and ongoing work to add reserves to replace depletion and grow the ELG Underground Mine.

Environmental and Permitting:

- Use the existing data to validate the predictions of the groundwater model that was included in the original environmental permit documents.
- Complete an evaluation of the operational effects of the El Limón Sur mine on the surface water quality in the Rio Balsas River.
- Evaluate the control parameters for discharges to the receiving environment downstream of the WRSF and the potential effects on the Rio Balsas River and the Rio Cocula River.
- Develop the environmental and socioeconomic baseline for the Media Luna Project area.
- Update the environmental management plans to include the newly developed projects.

Social and Community:

- Evaluate the effects of the resettlement of community livelihoods.
- Implement a comprehensive, clan-based livelihoods restoration plan.

2 INTRODUCTION

In 2018, Torex Gold Resources Inc. (Torex) undertook an update to the Life of Mine Plan for the El Limón Guajes Mine Complex (ELG Mine Complex) and Preliminary Economic Assessment (PEA) 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 Open Pits) and an underground mine. In 2015, Torex discovered the Sub-Sill deposit and since this time has advanced the planning and development of this deposit with first ore being produced in 2017. As of March 31, 2018, Torex has mined over 8 million tonnes of ore and sold over 515 koz of gold from the ELG Mine Complex.

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

- M3 Engineering & Technology Corporation (M3)
- NewFields Mining Design & Technical Services (NewFields)
- Huls Consulting, Inc.
- MPH Consulting
- JDS Energy & Mining Inc.

Torex's contact information is as follows:

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This 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 report is March 31, 2018. The issue date of this report is September 4, 2018. The Qualified Persons responsible for this report are:

- Daniel H. Neff, P.E., Principal Author of El Limón Guajes Mine Plan
  M3 Engineering & Technology Corporation
- Robert Davidson, P.E., Principal Author of Media Luna Preliminary Economic Assessment
  M3 Engineering & Technology Corporation
- Dawson Proudfoot, P. Eng, Vice President of Engineering
  Torex Gold Resources Inc.
- Clifford Lafleur, P. Eng., Director, Technical Services
  Torex Gold Resources Inc.
- James Joseph Monaghan, P. Eng., Senior Mining Engineer
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- Paul Kaplan, P.E., Principal
  NewFields Mining Design & Technical Services
- Bert J. Huls, P. Eng., Principal Metallurgist
  Huls Consulting, Inc.
- Mark Hertel, SME Registered Member, Principal Geologist
  MPH Consulting

- Michael 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
Daniel H. Neff	April 28, 2016	Sections 2, 3, 4, 5, 18.1-18.4, 21.1.3, 21.1.4, 21.1.5, 21.2, 21.2.3, 21.2.4, 21.2.6, 22, 27, and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections.
Robert Davidson	November 18, 2014	Sections 24.2, 24.3, 24.4, 24.5, 24.18.1, 24.18.2, 24.21.1.1, 24.21.1.2, 24.21.2.1, 24.21.2.1.2, 24.21.2.3, 24.22, and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections.
Dawson Proudfoot	July 11, 2018	Sections 15.1, 15.2, 16.1, 16.2.5, 16.2.6, 16.2.8, 16.2.9, 16.2.10, 16.2.11, 16.2.12, 16.4 (open pit only), 18.6.1, 20, 21.1.1, 21.2.1, 21.2.5, 24.20 and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections.
Clifford Lafleur	July 11, 2018	Sections 15.3, 16.3, 21.1.2, 21.2.2, 25.5.2, 26.3.2, and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections.
James Joseph Monaghan	November 18, 2014	Sections 24.15, 24.16, 24.21.1.3, 24.21.2.1.1, 24.21.2.1.3, 24.21.2.2, 24.24, and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections.
Paul Kaplan	September 12 to September 17, 2017	Sections 16.2.2, 16.2.3, 16.2.4, 16.2.7, 16.3.3, 18.5, 18.6.2, 18.6.3, 20.4.1.3, 20.4.1.4, 24.18.3, 24.18.4, 24.20.3.4, 24.20.3.5, 24.20.3.6, and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections.
Bert J. Huls	May 26-June 1, 2017	Sections 13, 17, 19, 24.13, 24.17, 24.19 and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections.
Mark Hertel	July 10 to July 13, 2017	Sections 6, 7, 8, 9, 10, 11, 12, 14, 23, 24.6, 24.7, 24.8, 24.9, 24.10, 24.11, 24.12, 24.14, 24.23, 25.2, 26.1, and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections.
Michael Levy	September 13 to September 15, 2017	Section 16.2.1 and those portions of the summary, interpretations and conclusions, recommendations, and references to this section.
The documentation reviewed, and other sources of information, are listed at the end of this report in Section 27 References. All authors contributed to the compilation of Section 27 References.		

2.1 PURPOSE AND BASIS OF REPORT

This report documents the results of a life of mine plan for the ELG Mine Complex and presents the finding of a Preliminary Economic Assessment for the Media Luna Project in Section 24. 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 report and they believe such information to be factual and accurate and that any interpretations 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 report other than as allowed under NI 43-101 in the Reliance on Other Experts section below.

2.2 TERMS AND DEFINITIONS

Important terms used in this 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
Acid Base Accounting	ABA
Acid Rock Drainage	ARD
Amec Foster Wheeler	Amec
Area of Direct Influence	ADI
Area of Indirect Influence	AII
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
centimeter	cm
Central Water Pond	CWP
Certified Reference Material	CRM
Communications and Transportation Secretariat	SCT
Community Relations Team	CRT
Convention on International Trade in Endangered Species of Wild Flora and Fauna	CITES
Copper	Cu
cubic meter	m^3
Cut-off Grade	CoG
Cut and Fill Stoping	C&F
degrees	°
degrees Celsius	°C
Economically Active Population	EAP
El Limón Guajes Open Pits	ELG Open Pits/ ELG OP
El Limón Guajes Underground	ELG UG
El Limón Guajes Mine Complex (inclusive of Open pits, underground, Process plant and other infrastructure associated with the ELG Mine Complex operation	ELG Mine Complex
El Limón Guajes Filtered Tailings Storage Facilities	ELGFTSF
Energy Secretariat	NUCL
Environmental and Social Impact Assessment	ESIA
Environmental and Social Management System	ESMS
Environmental Impact Study	EIS
Environmental Management Plan	EMP
Environmental, Health and Safety (Guidelines)	EHS (Guidelines)
Equator Principles	EP
Estudio Técnico Justificativo (Technical Justification Study)	ETJ
Feasibility Study	FS
Federal Electricity Commission	CFE
Filtered Tailings Storage Facility	FTSF
Global Discovery Laboratory	GDL

Full Name	Abbreviation
Global Positioning System	GPS
Gold	Au
Golder Associates Inc.	Golder
grams per dry metric tonne	gms/dmt
grams per tonne	g/t
Gross Domestic Product	GDP
Guajes Pit Filtered Tailing Storage Facility	GP FTSF
Hazard Quotient	HQ
Health Secretariat	SSA
hectare	ha
Informed Consultation and Participation	ICP
Instituto Nacional de Estadística y Geografía	INEGI
International Finance Corporation	IFC
International Finance Institution	IFI
Iron	Fe
Iron Sulphide	Fe-S
JDS Engineering	JDS
kilogram	kg
kilometer	km
kilotonnes	kt
Labor Secretariat	STPS
Labor Party	PT
Licencia Ambiental Unica	LAU
Local Study Area	LSA
Long Hole Open Stoping	LHOS
M3 Engineering and Technology Corp.	M3
Maintenance and repair contracts	MARC
Manifestación de Impacto Ambiental (or Environmental Impact Statement)	MIA
Mean Sea Level	MSL
Media Luna	ML
Media Luna Lower	MLL
Media Luna Project	ML Project
Media Luna Upper	MLU
Meter	m
metric tonnes per day	MTPD or t/d
metric tonnes per year (or per annum)	MTPY or t/a
Mexican National Water Commission (Comisión Nacional de Agua)	CONAGUA
Minera Media Luna S.A. de C.V.	MML
Minera Nukay	Nukay
Miranda Mining Development Corporation	MMC
MPH Consulting	MPH
National Action Party	PAN
National Council for Evaluation of Social Development Policy	CONEVAL
National Environment Institute and the Federal Attorney Generalship of Environmental Protection	PROFEPA
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	CNA
NewFields Mining Design & Technical Services	NewFields
Neutralization Potential Ratio	NPR

Full Name	Abbreviation
Non Acid Generating	NAG
Normas Oficiales Mexicanas	NOMS
North American Free Trade	NAFTA
ordinary kriging	OK
Particulate Matter	PM
parts per billion	ppb
parts per million	ppm
Party of Democratic Revolution	PRD
Performance Standard	PS
Potentially Acid Generating	PAG
Pre-Feasibility Study	PFS
Preliminary Economic Assessment	PEA
Procuraduría Federal de Protección de Ambiente	PROFEPA
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
Regional Study Area	RSA
Resettlement Action Plan	RAP
Resolución de Impacto Ambiental	RIA
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
Silver	Ag
Simpson's Diversity Index	SDI
Simpson's Evenness Index	SEI
Square meter	m^2
SRK Consulting	SRK
Stakeholder Engagement Plan	SEP
Standard Proctor Maximum Dry Density	SPMDD
Substances of Potential Concern	SOPCs
Teck Resources Limited	Teck
Torex Gold Resources Inc.	Torex
Total Dissolved Solids	TDS
Total Suspended Particulate	TSP
Total Suspended Solids	TSS
Toxicity Reference Value	TRV
Universal Transverse Mercator	UTM
Waste Rock Storage Facilities	WRSF
Zinc	Zn
Zone of Influence	ZOI

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

2.3 UNITS

This report uses metric measurements. The currency used in the report is U.S. dollars. The local currency of Mexico is the Mexican peso.

2.4 EFFECTIVE DATES

The effective date of the Technical Report March 31, 2018. There were no material changes to the information on the property between the effective date and the signature and issue date of the report of September 4, 2018.

There are several effective dates for information in the Technical Report:

- Date of last supply of exploration drillhole information is June 18, 2018. The exploration program is ongoing.
- The drillhole database assay close-off date for El Limón is August 24, 2017.
- The drillhole database assay close-off date for Guajes is August 17, 2015.
- The drillhole database assay close-off date for El Limón Sur area is May 3, 2014.
- The drillhole database assay close-off date for Media Luna is June 2, 2015.
- The drillhole database assay close-out date for Sub-Sill is September 3, 2017.
- Effective date of the Guajes Mineral Resource estimate is December 31, 2017.
- Effective date of the El Limón Mineral Resource estimate (including El Limón Sur) is December 31, 2017.
- Effective date of Sub-Sill Mineral Resource estimate is December 31, 2017.
- Effective date of the Media Luna Mineral Resource estimate is June 23, 2015.
- Effective date of Mineral Reserve estimate is March 31, 2018.
- Date of land tenure legal opinion is February 7, 2018.
- Date of surface rights legal opinion is February 7, 2018.
- Effective date of the mine plan for ELG Mine Complex is April 1, 2018.
- Production and costs are actual for the first quarter of 2018 and estimates from the second quarter of 2018 to end of mine life.
- The capital cost estimate for the Media Luna Project is effective June 30, 2018.

2.5 CAUTIONARY NOTE WITH RESPECT TO FORWARD LOOKING INFORMATION

This report contains “forward-looking information” and “forward-looking statements” as defined in applicable securities laws. Forward-looking information includes, but is not limited to, statements with respect to the life of mine plan for the ELG Mine Complex and the Preliminary Economic Assessment for the Media Luna Project, including as applicable, the resource estimates, the reserve estimates and potential mineralization, the estimates of capital and sustaining costs, projected revenues, projected future cash flows, anticipated internal rates of return, future production, operating costs, total cash costs and AISC and other expenses and the other economic parameters of the projects, as set out in this report, including IRR and NPV, estimated payback period, net present values, and earnings before interest, depreciation and amortization; the Muckahi Mining System in Section 24.24; the success and continuation of exploration activities, including drilling; the future price of gold; government regulations and permitting timelines; requirements for additional capital; environmental risks; and general business and economic conditions, expected benefits and cost savings from the operation of the SART plan, the expected ramp-up of ELG to steady state full production, the potential growth of the ELG UG mine, plans to complete additional metallurgical testing on the Media Luna mineralized material to demonstrate potential for improved recoveries, plans to complete an infill drilling program and a feasibility study of the Media Luna Project, the potential to upgrade the mineral resources of the Media Luna Project, the potential of the Muckahi mining system and possible application to other underground deposits, plans to complete the manufacture of prototypes for Muckahi and timing on the underground testing of the prototypes. Often, but not always, forward-looking information can be identified by the use of words such as “plans”, “expects”, “is expected", "budget", "scheduled", "estimates", "continues", "forecasts", "projects", "predicts", "intends", "anticipates" or "believes", "aims" or variations of, or the negatives of, such words and phrases, or statements that certain actions, events or results "may", "could", "would", "should", "might" or "will" be taken, occur or be achieved. Forward-looking information involves known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements to be materially different from any of the future results, performance or achievements expressed or implied by the forward-looking information. These risks, uncertainties and other factors include, but are not limited to, risks associated with completing the ramp up of the operations to steady-state, risk associated with skarn deposits including grade variability fluctuation in gold and other metal prices, commodity price risk, currency exchange rate fluctuations, risk that expected benefits of SART plant will not be realized, risk of illegal blockades impacting access to the ELG Mine Complex, the Media Luna Project or to supplies and services, the assumptions underlying the production estimates not being realized, decrease of future gold prices, cost of labor, supplies, fuel and equipment rising, the availability of financing on attractive terms, actual results of current exploration, changes in project parameters, exchange rate fluctuations, delays and costs inherent to consulting and accommodating rights of local communities, title risks, regulatory risks and uncertainties with respect to obtaining necessary permits or delays in obtaining same, and other risks involved in the gold production, development and exploration industry, as well as those risk factors discussed in this report and in Torex's latest Annual Information Form and its other SEDAR filings from time to time. Forward-looking information is based on a number of assumptions which may prove to be incorrect, including, but not limited to, the availability of financing for the Company's production, development and exploration activities; the timelines for the Company's exploration and development activities on the property; the feasibility of the Muckahi Mining System, the availability of certain consumables and services; assumptions made in mineral resource and mineral reserve estimates, including geological interpretation grade, recovery rates, price assumption, and operational costs; and general business and economic conditions and other assumptions discussed in this report. All forward-looking information herein is qualified by this cautionary statement. Accordingly, readers should not place undue reliance on forward-looking information. Torex and the authors of this technical report undertake no obligation to update publicly or otherwise revise any forward-looking information whether as a result of new information or future events or otherwise, except as may be required by applicable law.

2.6 NON-IFRS MEASURES

This report contains certain non-International Financial Reporting Standards measures. Such measures have non-standardized meaning under International Financial Reporting Standards ("IFRS") and may not be comparable to similar measures used by other issuers. Total cash costs and all-in sustaining costs ("AISC") are financial performance measures with no standard meaning under IFRS. Refer to "Non-IFRS Financial Performance Measures" in Torex's 2017 Management's Discussion and Analysis for further information and a detailed reconciliation regarding historical performance measures as updated in Torex's continuous disclosure documents.

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, and surface and water rights.

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 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 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., February 7, 2018.

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

The QPs have reviewed the information provided by Torex and the above noted title opinion and finds this 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.

3.2 SURFACE AND WATER RIGHTS

An independent verification of surface and water rights 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 report relied upon contributions from other consultants as well as Torex. Likewise, Torex provided data for and verified surface and water rights. For the purposes of this report, the following document was referred to with respect to current surface and water rights:

- 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., February 7, 2018.

This information is used in Sections 4.3, 14 and 15.

The QPs have reviewed the information provided by Torex and the above noted title opinion and finds this 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.

3.3 ENVIRONMENTAL STUDIES AND PERMITTING

An independent verification of the environmental regulations and surrounding legal and policy framework contained in the report was not performed by the QPs. The QPs of this report relied upon contributions from other consultants as well as internal Torex personnel. Torex personnel provided data for parts of Section 20 and Section 24.20 of this report with respect to these matters. For the purposes of Section 4.6, Section 20 and Section 24.20 of this report, the following documents were referred to:

- Torex Gold 2016 and 2017 Corporate Responsibility Report

- 2016 Report on Environmental Compliance
- 2016 Environmental Monitoring Report
- The reports referenced in Table 20-1
- The Environmental and Social Impact Assessment for the Morelos Project completed in September 2014 by Golder Associates
- Interralogic, 2012

This information is used in Sections 4.6, 20.2.1, 20.3.1, 20.4, 20.6.9 and 24.20.2.

The QPs have reviewed the information provided by Torex and the above noted reports and find this 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.

3.4 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

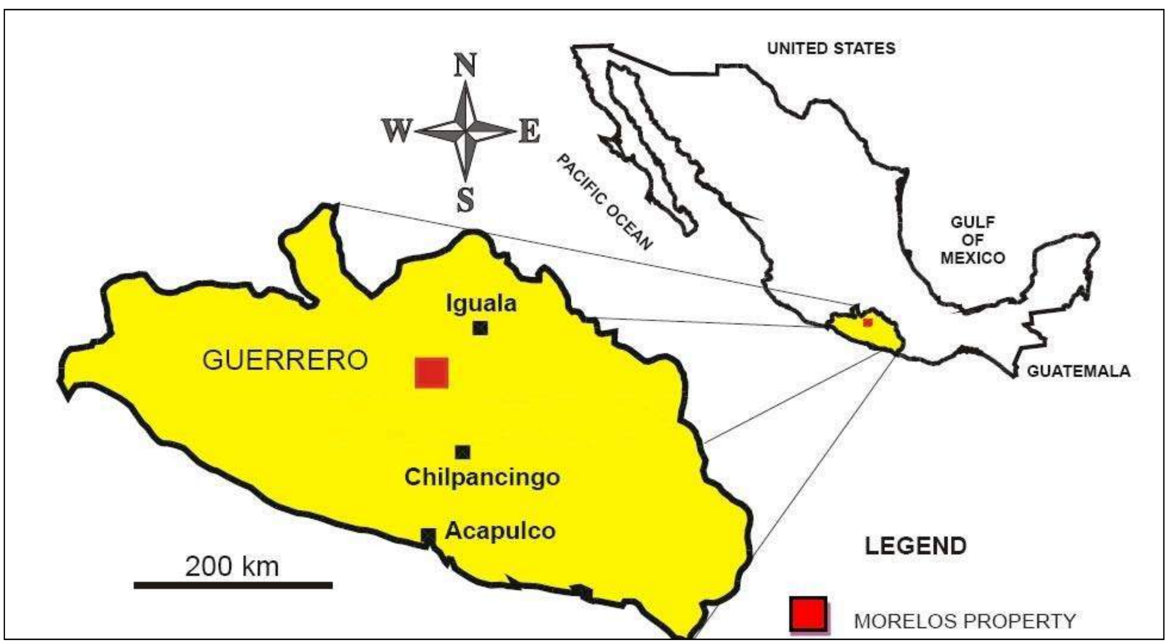
The key points made in this section include the following:

- The ELG Mine Complex and Media Luna Project are located in Guerrero State, Mexico.
- Torex, through its ownership of MML, holds 100% title to seven concessions covering approximately 29,000 hectares.
- The Guajes, El Limón, Sub-Sill and Media Luna deposits are located in the Reducción Morelos Norte Concession.
- The Reducción Morelos Norte Concession is located approximately 200 km southwest of Mexico City within Guerrero State, Mexico.
- There is a 2.5% royalty payable to the Mexican government on minerals produced and sold from the Reducción Morelos Norte Concession.
- Of the 1,946 hectares that are required for the ELG Mine Complex, 1,831 hectares are held by MML under Temporary Occupation Agreements, 26 hectares 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 also has access agreement with the Puente Sur Balsas Ejido for exploration of the ML deposit which can be converted to development.

4.1 LOCATION

The ELG Mine Complex and Media Luna Project are located in Guerrero State, Mexico, approximately 200 km south-southwest of Mexico City. The location of the property in relation to the state of Guerrero, as well as its location within Mexico, can be seen in Figure 4-1.

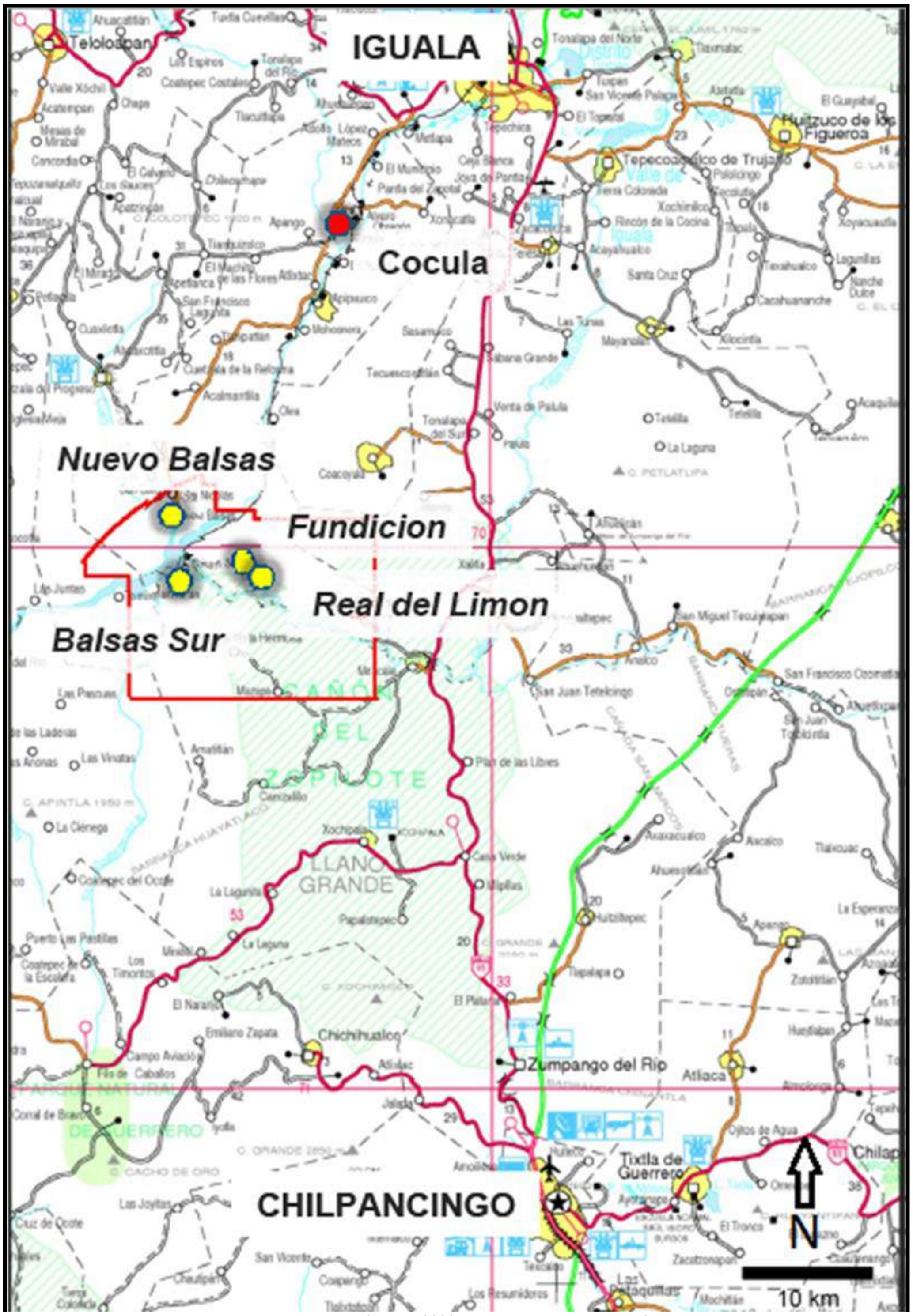
The approximate geographic center of the ELG Mine Complex is 18.0075 N, 99.7443 W. The approximate geographic center of the Media Luna mineral resource is 17.9597 N, 99.7322 W.



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 Property. The red ‘box’ identifies the 29,000 ha of the property area.



Note: Figure courtesy of Torex, 2008. 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. It encompassed 47,600 ha, including the area of the El Limón and Guajes 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 El Limón and Guajes deposits.
- In 1998, through a bidding process, the Reducción Morelos Norte concession was awarded to a joint venture between Miranda Mining Development Corporation (MMC) and Teck Corporation, through the JV entity named Minera Media Luna, S.A. de C.V. (MML).
    - 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). This agreement transferred the mining concession titles from Babeque to MML for a consideration of $5M pesos.
    - 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 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 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., for a purchase price of US$150M and a 4.9% stake in Torex. 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 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.

Of the 1,946 ha of land required for the El Limón and Guajes mining and processing operations and held under Temporary Occupation Agreements, the Preparatory Temporary Occupation and the Preparatory Use and Enjoyment Assignment Agreement, 1,229 ha is owned by the Balsas River Ejido and 602 ha is owned by the Real del Limón Ejido. 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 Property through the signing of long-term lease agreements 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 Preparatory Temporary Occupation Agreement and a Preparatory Temporary Use and Enjoyment Assignment Agreement. These agreements cover approximately 1,946 hectares of land. MML utilized and maintains the services of Grupo GAP to obtain these land agreements as well as to complete land title searches. The following paragraphs provided by Torex describe these agreements.

> *MML signed long-term common land lease agreements with the Balsas River and Real del Limón Ejidos along with agreements for individually 'owned' land parcels. Long-term land lease agreements have been executed for a total of approximately 1,831 hectares of land, including two common land lease agreements, one human settlement area agreement and 140 individually owned parcel agreements.*
>
> *MML has also signed a Preparatory Temporary Occupation Agreement with co-owners of 26 ha of the private land and a Preparatory Temporary Use and Enjoyment Assignment Agreement with co-owners of 89 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 the lease agreements are believed to be comparable to long-term lease agreements signed by other operating mining companies in the area. The lease agreements 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 23,000 pesos per hectare during the first two years, and for the subsequent 13 years, the equivalent, in pesos, of 2.5 troy ounces of gold per hectare, calculated at the annual average gold price published by the London Bullion Market Association. Starting in year 16, and every five years thereafter, the amount of the annual payments will be renegotiated.*
>
> *The terms of the Preparatory Temporary Occupation Agreement and related definitive temporary occupation agreement for the private land is for 30 years (as of December 2012) with annual payments of 23,000 pesos per hectare during the first year, and for the remaining years, the equivalent, in pesos, of 2.5 troy ounces of gold per hectare, calculated at the annual average gold price published by the London Bullion Market Association.*
>
> *The terms of the of Preparatory Temporary Use and Enjoyment Assignment Agreement 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 13,000 pesos per hectare during the first year, and for the remaining years, 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.

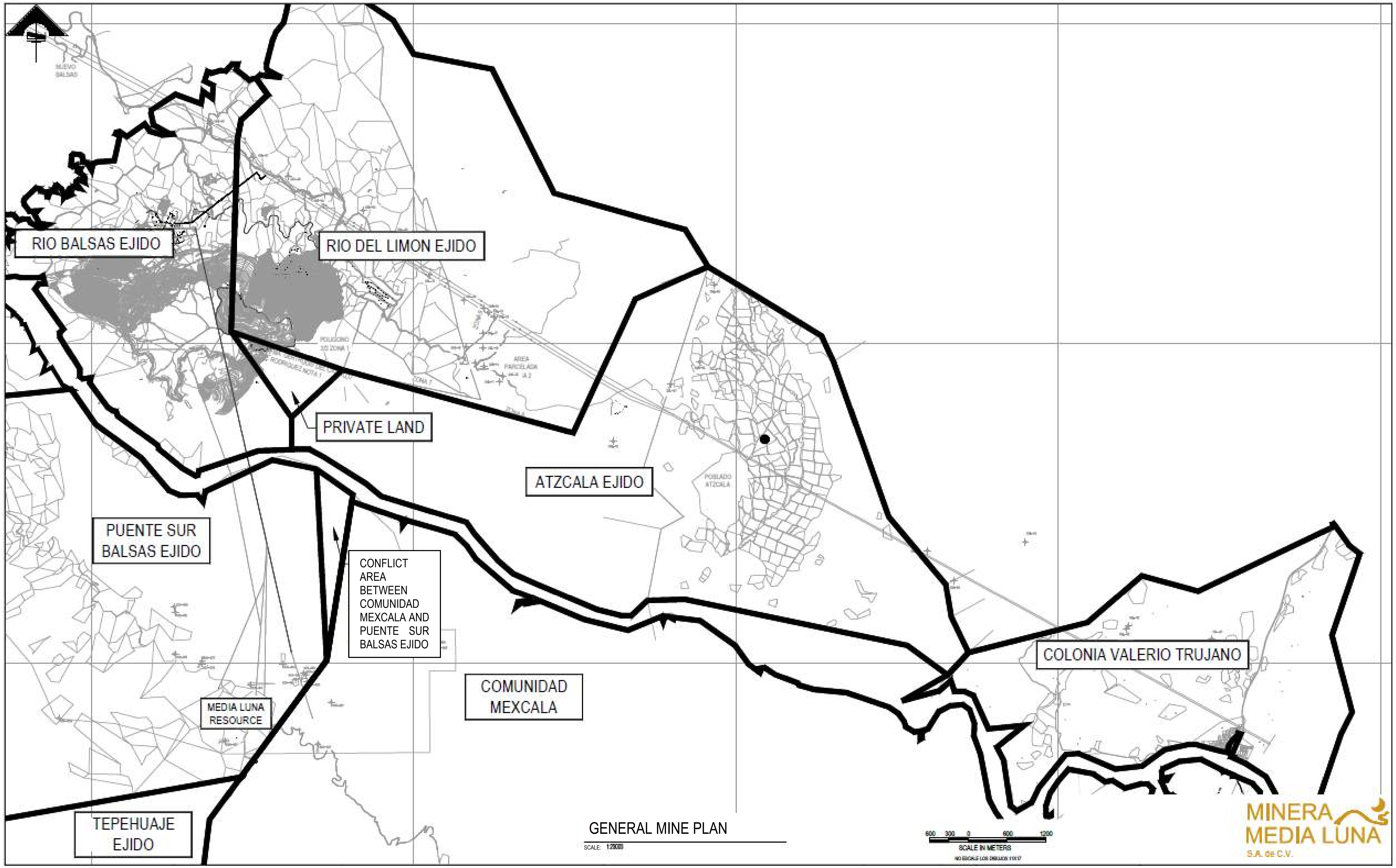
The agreements for the long-term lease of the land required for the water well field and the permanent camp are in place with the Atzcala Ejido.

MML entered into a temporary occupation agreement (TOA) with the Rio Balsas Ejido, which had been successful in obtaining an Agrarian Unitary Tribunal decision in favor of the Rio Balsas Ejido recognizing it as having legal title and possession of approximately 642 hectares of Ejido land; however, on December 14, 2010, several members of a Miranda family (no relation with the prior owner of several concessions in the area) sued the Río Balsas Ejido, claiming better rights over 642.4721429 hectares of Ejido land (the "**Miranda Land**"). The case was heard originally under file 1147/2011 at the Agrarian Unitary Tribunal in Chilpancingo, Guerrero, and was subsequently moved to the Agrarian Unitary Tribunal in Iguala, Guerrero, where it was heard under file 51-423/2011. On July 23, 2015, MML bought the Miranda Land and the litigation rights against the Rio Balsas Ejido from the Miranda family and on October 11, 2016, MML signed a settlement agreement with the ejido, recognizing the ejido´s ownership over the Miranda Land. The settlement agreement was approved by the Agrarian Tribunal on January 4, 2018. Cancellation of the Miranda title in the Public Registry of the Property is in process.

In addition to agreements for the development of the Property, MML also has agreements with the Ejido Puente Sur Balsas to enable exploration and development activities for the ML Project. The TOA for the common use areas of Puente Sur Balsas covers an area of approximately 2,388 hectares, has a term of 25 years (as of July 12, 2017) and may be terminated by MML at any time. There is a fixed annual payment during exploration and upon commencement of production, the common use lands that are subject to the TOA with Puente Sur Balsas Ejido will be reduced to 250 hectares of MML's choice and MML will pay the peso equivalent of the yearly average of the price of 2.5 troy ounces of gold per hectare per year. The TOAs require MML to comply with all applicable environmental laws and authorizes MML to obtain the permits and authorizations and/or licenses necessary to carry out 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 case of conflict, the parties shall be subject to the competent courts in the State of Guerrero.

MML has also signed 25-year TOAs for other key areas of the Media Luna Project.

Figure 4-3 shows the full property area including Ejido locations.



Note: Figure courtesy of M3, 2015

Figure 4-3: Property General Area Layout Showing Current Ownership

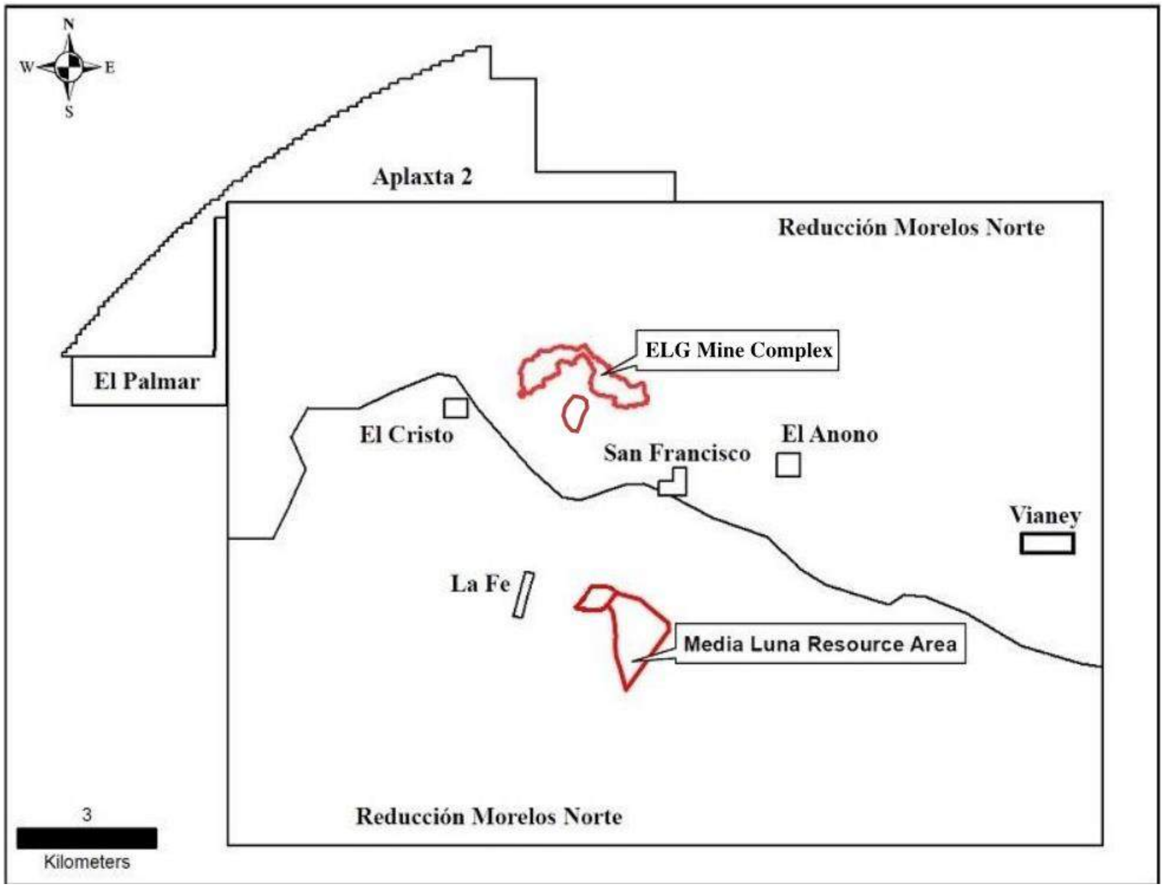
4.4 CURRENT TENURE

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 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.

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 (formerly Minera Nafta, 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 2017 were made for all mining concessions as seen in Table 4-3.

Table 4-3: 2017 Duty Summary

Mining Concession	Years since Grant Made	Amount Paid (Pesos)
La Fe	27	2,962
El Cristo	16	2,962
El Palmar	16	63,597
El Anono	16	3,702
San Francisco	16	3,998
Apaxtla 2	15	335,083
Reducción Morelos Norte	12	3,888,278

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 AND SOCIAL RISKS

At the time of this report there are no known environmental risks that have a material likelihood of impacting the ability to carry out the mine as envisaged in this report. There are ongoing social risks at the site which are discussed further in Section 20 of this report.

4.6 PERMITTING CURRENT AND FUTURE

4.6.1 Exploration

During 2011, permits for exploration work were granted under the General Law for Ecological Equilibrium and the Protection of the Environment and the General Law of Sustainable Forestry Development. Environmental impact assessments and change of land uses applications were submitted and accepted by the Mexican regulatory authorities.

4.6.2 Permitting Required for ELG Mine Complex Operation

All permits to enable the operation of the ELG Mine Complex are in place.

Additional discussion on Permitting is available in Section 20 of this report.

4.6.3 Permitting Required for Future ML Resource Development

The permits required to develop the ML Resource, are similar to permits that were required for the ELG Mine Complex.

It must be noted that with the current mine plan for ML, the impact on the environment would be substantially less than the ELG Mine Complex. This is due to three main reasons:

1. The use of the ELG Mine Complex infrastructure for processing of the Media Luna mineralized material and the disposal of Media Luna Tailings within the permitted ELG Filtered Tailings Storage Facility (FTSF) followed by in-pit disposal.
2. Accessing the mine via a Ropeway and a suspended conveyor to span the Balsas River which greatly reduces surface disturbance.
3. The use of Underground Mining methods with tailings and waste rock being placed back into the mine as fill.

With these reasons in mind, the permitting for the ML Project would be expected to be less complex than experienced for the ELG Mine Complex. It should also be noted that certain work required for the ML MIA is currently underway.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The key items of this section are the following:

- Good existing road access to the ELG Mine Complex and ML Project area
- 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

Access to the Morelos Property is good, with the Property being 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 from the village of Nuevo Balsas via 5 km of single-lane gravel road. A second access route has been established from the east and the route is referred to as the East Service Road (ESR). 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 that personnel, materials and supplies travel to the ELG Mine Complex. Access to Media Luna Project is currently from highway 95 along a 23 km gravel road from the village of Mezcala or by a 15 minute boat ride from the village of Nuevo Balsa along El Caracol Reservoir and Balsas River.

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. The ESR also provides access to other communities notable Mezcala (45 km) which is the location of Leagold's Los Filos Mine, one of the largest gold mines in Mexico. Other large communities near the 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 ELG Mine Complex is connected to Mexican power grid with a connection and transformer station to high-power transmission lines near the plant site. An agreement is in place between the CFE, the Mexican power authority, and MML to supply electricity for the ELG Mine Complex. The Media Luna Project loads will be handled from a new 230 kV switching station at the nearby existing 230 kV power line.

Process water for the ELG Mine Complex is from a well field located near the village of Atzcala approximately 18 km west of the complex. MML has an existing agreement with CONAGUA, the Mexican Water Authority, granting a water concession for MML to draw of 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 water current and forecasted needs. It is also expected that process water for the Media Luna Project would be supplied from these wells if required.

Current site communications consist of internet running by microwave from Iguala. Phone service to the complex and ML Project is via the internet connection. There is also cellular service at both the ELG Mine Complex and ML Project via two installed antennas.

5.2 CLIMATE

The 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 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 are planned to 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 amsl.

Figure Source: M3 Engineering, 2015. Photograph looks southeast. (Mine Infrastructure in foreground and Guajes pit behind.)

Figure 5-1: ELG Mine Complex Physiography

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 4.5 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.
- Torex acquired 100% of the Morelos Property in 2010, focusing their work in two areas – North of the Balsas River and South of the Balsas River.
- North of the Balsas River:
  - Torex added over 100,000 m of drilling and completed a feasibility study on the El Limón and Guajes Mine Complex in 2012.
  - Construction and mining operations commenced on the ELG Mine Complex in 2013. In 2014, Torex completed a mineral resource update on the Guajes and El Limón Sur deposits.
  - In 2015, Torex identified the Sub-Sill deposit and conducted exploration work on it. A maiden mineral resource for the Sub-Sill deposit was released 2017.
  - Infill drilling and mineral resource updates are ongoing as part of the ELG Mine Complex operating process.
- South of the Balsas River:
  - Work in this area resulted in the discovery of the Media Luna deposit in 2012. Torex has completed over 180,000 m of core drilling. The initial Media Luna mineral resource estimate was completed in 2013.
  - Additional drilling was undertaken on the Media Luna deposit during 2014–2015, and the mineral resource estimate was updated in 2015. The updated mineral resource estimate was used to support the preliminary economic assessment that is included in Section 24 of this report.
  - An infill drilling program on the Media Luna deposit was started in September 2017.

6.1 PRIOR OWNERSHIP AND OWNERSHIP CHANGES

Please refer to Section 4 of this report for a description of the prior ownership of the Property and ownership changes.

6.2 PRE-TOREX WORK PROGRAMS

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. A joint venture vehicle between Miranda MMC and Teck, called MML submitted the winning bid for the Morelos Norte license in mid-1998.

A summary of the exploration work completed during the Teck/MML ownership is included in Table 6-1.

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 testwork; 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 áreas
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.

6.3 TOREX WORK PROGRAMS ON THE MORELOS PROPERTY

Torex acquired 78.8% of the Morelos Property from Teck in 2009 and the remaining 21.2% from Goldcorp in 2010.

Torex has focused its work programs in two distinct geographic areas, North and South of the Balsas River as the mineral tenure holding is bisected by the Balsas River. Work in the area north of the Balsas River has concentrated around the El Limón and Guajes deposits. Exploration activity south of the Balsas River has primarily concentrated on the Media Luna deposit.

6.3.1 Torex Work Programs Completed North of the Balsas River

During the first year of work in 2009, the presence and tenor of gold mineralization in the El Limón and Guajes area was assessed, and the available exploration data reviewed in sufficient detail to support Torex's first time mineral resource estimate. This estimate covered the El Limón, Guajes East and Guajes West deposits and considered mining them via open pit.

An alternative mineral resource estimate for the El Limón deposit assuming underground mining methods was completed in 2010.

Torex completed a feasibility study in 2012. This study assumed conventional open pit mining of the El Limón and Guajes deposits, feeding a centrally-located, conventional cyanide leach–carbon-in-pulp process plant at the rate of 14,000 t/d to produce doré bars. Construction of the mine commenced in 2013, and first production began in late 2015.

In mid-2013, an airborne ZTEM and magnetic survey was conducted that covered the entire mineral tenure area.

During 2014, infill drilling work was undertaken in the El Limón Sur area adjacent to the planned El Limón pit. The results supported an update to the estimated mineral resources for El Limón Sur, as detailed in Section 14 of this report. Mining of the El Limón Sur deposit commenced in 2017.

In 2015, based on an understanding gained in interpreting the ML deposit an exploration target was identified near the El Limón and El Limón Sur deposits. In early 2016, Torex decided to follow up on earlier drilling in this area that occurred at a time prior to the learnings from Media Luna. The first follow-hole returned a positive intersection and the program was expanded. The newly found deposit was located under the El Limón Sill, and named Sub-Sill (the El Limón deposit is located above this sill). A total of 27,248 meters of drilling in the Sub-Sill area was completed during 2016-2017, leading to the mineral resource in this report. Drilling continues on this deposit, with the goals of providing additional definition to aid mining, infill drilling to upgrade the confidence class of mineral resources, and step-out drilling to add to mineral resources. Drilling to date demonstrates the continuity of the gold mineralization.

In late November of 2016, an exploration ramp was collared to provide underground access to both the Sub-Sill zone as well as the El Limón Deep (ELD) target which is the down dip extension of the El Limón Deposit being mine via Open Pit. In June 2017, the Sub-Sill ramp intersected the Sub-Sill deposit. By November 2017, the ELD ramp had reached its phase 1 target and will now be used as a drill platform to infill the ELD deposit to upgrade the mineral resource and support mine planning.

As part of the mining operations, Torex undertakes pit infill drilling, in pit mapping and geological reconciliation, as this information becomes available mineral resource updates are completed.

6.3.2 Torex Work Programs Completed South of Balsas River

On the south of the Balsas River during the 2010 to 2013 Torex completed the following work; reconnaissance mapping, 1:5,000 scale geological mapping, systematic road-cut channel sampling and core drilling on various targets. Drilling in this area consists of a total of 307 drillholes (154,906.7 m), including 283 core holes (150,423.7 m) and 21 reverse circulation (RC) drillholes (4,483 m). The work covered a number of target areas, but with the discovery of Media Luna deposit in 2012, the bulk of geological work south of the Balsas River has since focused on the Media Luna deposit.

A first-time mineral resource estimate for the Media Luna deposit was completed in 2013 and updated in 2015. The 2015 update was based on additional drilling was carried out during 2014 and 2015 which expanded the mineral resource to the north west. The mineral resource presented in Section 14 of this Report includes drill/assay information up to June 23, 2015.

During 2014, target generation work was undertaken, and 10 new target areas were defined that are considered drill prospects. Initial wide-spaced reconnaissance drilling was completed in some of the new targets in 2014.

In September of 2017, an infill drilling program was started in Media Luna deposit. The purpose of this program is to upgrade to the confidence level of the current inferred mineral resources. The program that is currently planned contains 175 holes, averaging 600 meters in depth, for a total of 105,000 meters of drilling. After the completion of this program, Torex plans to be able to prepare a measured and indicated mineral resource estimate.

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 intercalated 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.
- Three major deposits and one smaller deposits have been delineated to date: Major deposits include - El Limón (includes El Limón Sur), Guajes, and Media Luna and a smaller deposits Sub-Sill. Gold and silver mineralization at 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 area, several skarn zones have been identified along the contacts of the carbonate rich sediments and marbles of the Cuautla and Morelos formations 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 meters up to 200 meters, with apparent thickness varying from 2 meters to 36 meters.
- Targeting work conducted during 2013–2014 generated several exploration targets and prospect areas that are being investigated. The targeted styles of mineralization include porphyry copper-gold systems and gold-bearing skarns similar to Media Luna and El Limón Guajes.
- In 2015, post-skarn dikes were recognized by MML and WMS, the dikes were solid modeled by MML and used in the 2015 mineral resource model and all subsequent models.

7.1 REGIONAL GEOLOGY

The Guerrero platform is occupied 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 mineral tenure holdings area lies at the transition between belts of overthrust rocks to the west and more broadly-folded rocks to the east.

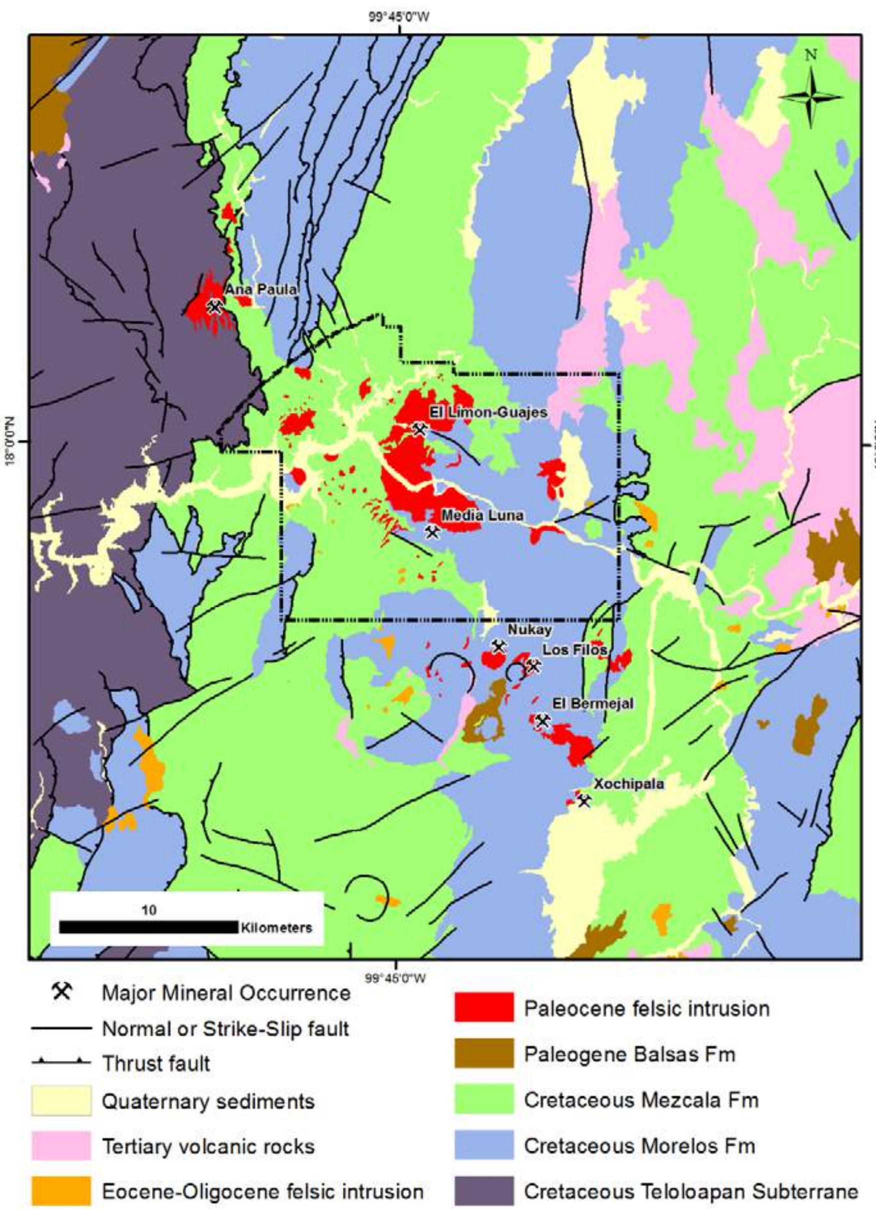
Regional structures include sets of northeast- and northwest-striking faults and fractures which cut both the carbonate sequence and the intrusive rocks. The distribution of intrusive bodies in northwest-trending belts is thought to reflect the control on their emplacement by northwest trending faults (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 area under mineral tenure 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 dikes and sills (Figure 7-2).

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 PEMEX drill data, the Morelos Formation has a thickness of at least 1,570 m near the community of Mezcala (Teck Resources, 2008). 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 of the Nukay District

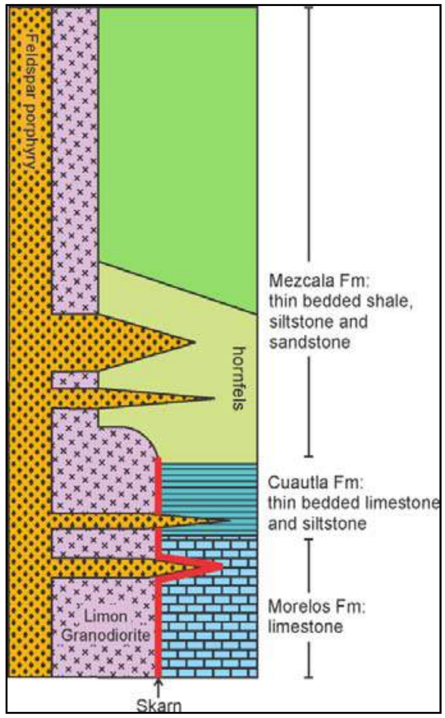


Figure Source: Torex, 2013.

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 North 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 the El Naranjo and El Limón areas 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 El Limón

Gold mineralization at El Limón 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. The skarn zone occurs at the stratigraphic level of the Cuautla Formation where marble is in contact with hornfelsed sedimentary rocks of the Mezcala Formation. Skarn alteration and mineralization at El Limón 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 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.

Dykes and sills are found to crosscut the hornfels and marble, most of them spatially associated with the skarn formation.

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.

7.3.1.1 El Limón Main

The skarn zone at El Limón is cut by the La Flaca Fault, a steeply dipping northeast-trending fault. Skarn north of the La Flaca Fault is exposed on surface, trends north–northwest for about 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. There are also a few irregular mineralized lenses of skarn developed in the hanging wall hornfels. Fractures with development of skarn over a few centimeters 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. Near the fault, the skarn is developed at the contact of the marble and hornfels but to the south a granodiorite sill has intruded along the contact and mineralization occurs at the contact of the granodiorite and overlying hornfels.

In 2015 post-skarn dikes were recognized by MML and WMS, the dikes were solid modeled by MML and used in the 2015 resource model and subsequent models. The dikes are of rock types Quartz-Feldspar-Hornblende Porphyry, Feldspar-Biotite Porphyry, Mafic dike, and Fine-grained Biotite Porphyry. The dykes are not mineralized and incorporating them in the 2015 mineral resource model resulted in a loss of Au modeled ounces when comparing the 2015 model to the previous model completed in 2012.

7.3.1.2 El Limón Sur Oxide

The El Limón Sur Zone 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. Post-mineralization felsic dikes and sills are also common. 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 trends north-northwest for about 100 meters and dips 50º to the southwest with widths ranging from 15 to 40 meters. The mineralization is characterized by retrograde-altered exoskarn containing sulfides and local argillic alteration. The southern mineralized area is smaller in extent and consists of dominantly endoskarn along with hydrothermal breccias. The hydrothermal breccias are developed within skarn and often display thin laminations and size-graded layering. The mineralized zones are strongly oxidized in the near-surface.

7.3.1.3 El Limón Norte (North Nose)

The skarn at El Limón Norte outcrops and is characterized by high oxidation along a northwest-trending ridgeline for about 500 m. Mineralization occurs in skarn that developed along the contact between the Mezcala and Morelos Formations (at the stratigraphic level of the Cuautla Formation) near the main El Limón granodiorite intrusion. Numerous sills and dikes of granodiorite and other felsic porphyry intrusions were also emplaced along this contact. Weathering and oxidation has affected the rock and destroyed most of the primary minerals and textures associated with mineralization. However, isolated zones of less weathered rock are present and permit identification of original skarn minerals which minerals consist of garnet and pyroxene. Garnet tends to form along specific layers in the sedimentary rocks and as cross-cutting veins in both sedimentary and intrusive rock while pyroxene is the dominant mineral elsewhere. Various iron oxide minerals are abundant and there are local concentrations of copper oxides and copper sulfate minerals.

7.3.2 Sub-Sill

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 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. Within the skarn zones individual shoots of mineralization vary in strike length from approximately 50 meters up to 200 meters, with apparent thickness varying from 2 meters to 36 meters. The trend of the overall skarn system in the Sub-Sill area is N-S to NE-SW and dips between 35° to 45° to the northwest, and appears to connect to previously recognized skarn and gold mineralization at the Limón Sur deposit 200 meters to the SW.

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

7.3.3 Guajes

7.3.3.1 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 end of March 2018, the Guajes East zone has been mined out.

7.3.3.2 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 dikes 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.

7.3.4 Media Luna

The Media Luna deposit is located on the south side of the Balsas River, ~7 km south south-west of the ELG Mine Complex.

The surface geology of the Media Luna area is dominated by Morelos Formation limestone which is intruded by numerous feldspar porphyry dikes 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.

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 dikes 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 and Sub-Sill 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 dikes 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

At Media Luna, there is a clear association of gold, copper and other metals with phlogopite, amphibole, chlorite, calcite ± quartz ± epidote alteration of skarn (amphibole–calcite alteration) and other mafic minerals and sulfidation of skarn, mafic minerals and magnetite. This mineral assemblage can occur as pervasive replacement of skarn minerals sometimes preserving garnet grain outlines or as veinlets with black chlorite or amphibole halos cutting across massive skarn bands.

Amphibole–calcite alteration and sulfidation of skarn and magnetite is lower temperature and is therefore retrograde compared to the prograde, higher-temperature skarn alteration.

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 Media Luna is the development of potassium feldspar in groundmass and replacing other feldspars.

7.4.5 Post-Skarn Alteration

Argillic alteration occurs locally within porphyry dikes 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 even in surface outcrops.

7.5 MINERALIZATION

7.5.1 El Limón and Guajes

Gold and silver mineralization at El Limón and Guajes extends over 1,700 m along strike with widths up to 90 meters. 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 650 m from the surface between the Sub-Sill deposit and Limón Sur.

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.

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.

7.5.2 Sub-Sill

Mineralization at the Sub-Sill deposit is primarily gold, associated with 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

Gold–copper–silver mineralization at Media Luna is associated with skarn alteration (pyroxene–garnet–magnetite) and later sulfides, which developed at the contact of granodiorite with marble. There is a clear association of gold, copper and silver with retrograde amphibole, phlogopite, chlorite, calcite ± quartz ± epidote alteration of exoskarn. This mineral assemblage can occur as pervasive replacement of skarn minerals, sometimes preserving garnet and pyroxene outlines, or as veinlets with black chlorite or amphibole halos cutting across massive skarn bands. Sulfidation of skarn assemblages is closely related to retrograde alteration and is extensively developed at Media Luna. Mineralization is primarily associated with sulfidized exoskarn and with zones of massive magnetite–sulfide. Mineralization does occur within endoskarn but is much less significant.

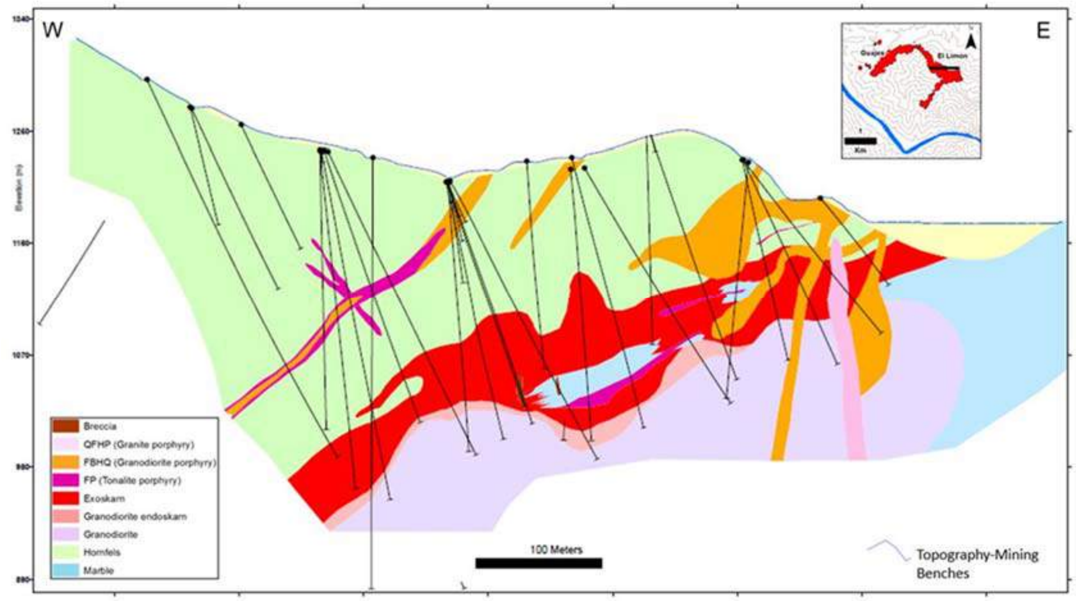
7.6 GEOLOGICAL SECTIONS

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

- El Limón: Figure 7-3 to Figure 7-5
- Guajes: Figure 7-6 to Figure 7-7
- Sub-Sill: Figure 7-8 to Figure 7-9

- Media Luna: Figure 7-10 and Figure 7-11

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



Note: Figure courtesy Torex, 2017. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. Section location is indicated in inset map. Surface shown is as of December 31, 2017.

Figure 7-3: Example Cross Section, El Limón

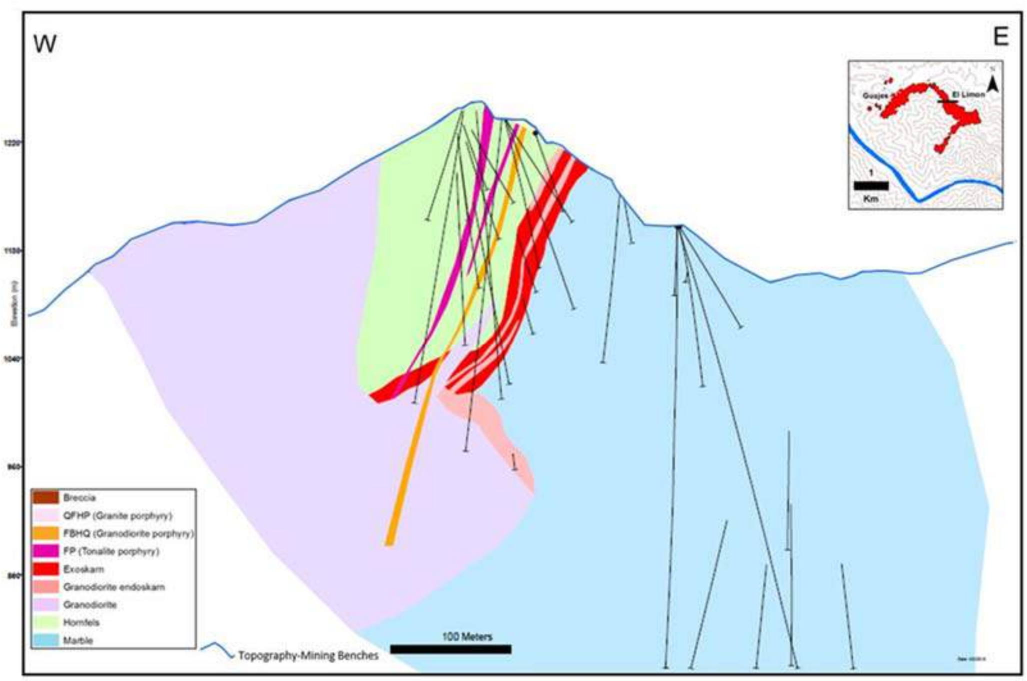


Figure Source: Torex, 2017. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. Section location is indicated in inset map. Surface shown is as of December 31, 2017.

Figure 7-4: Example Cross Section, El Limón East

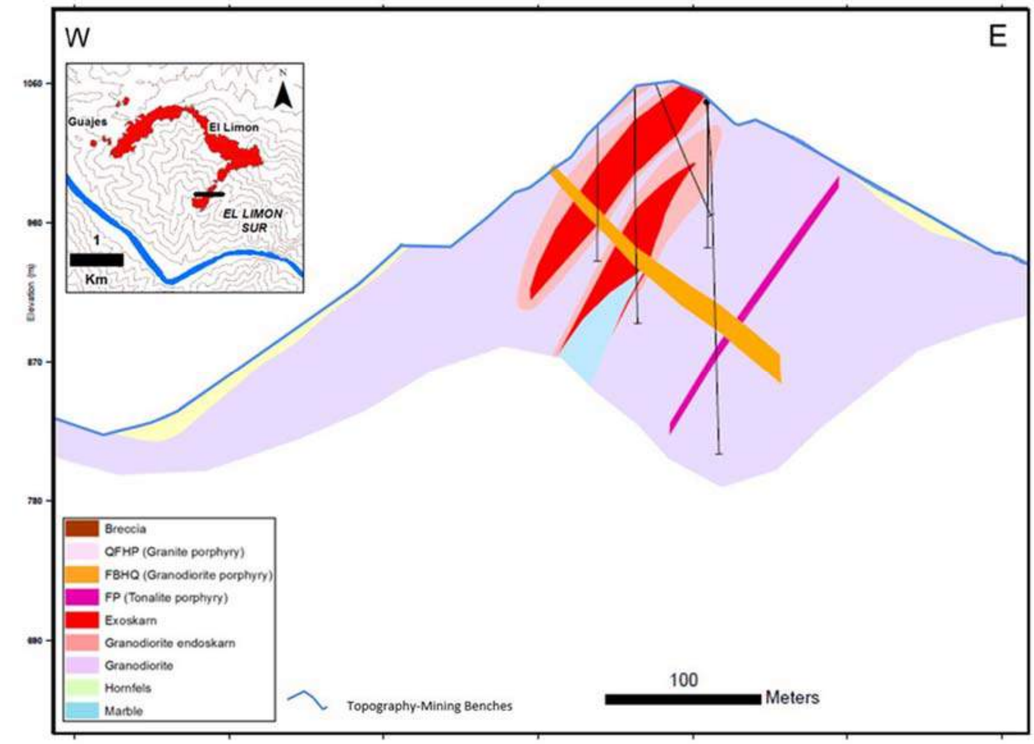


Figure Source: Torex, 2017. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. Section location is indicated in inset map. Surface shown is as of December 31, 2017

Figure 7-5: Example Cross Section, El Limón Sur

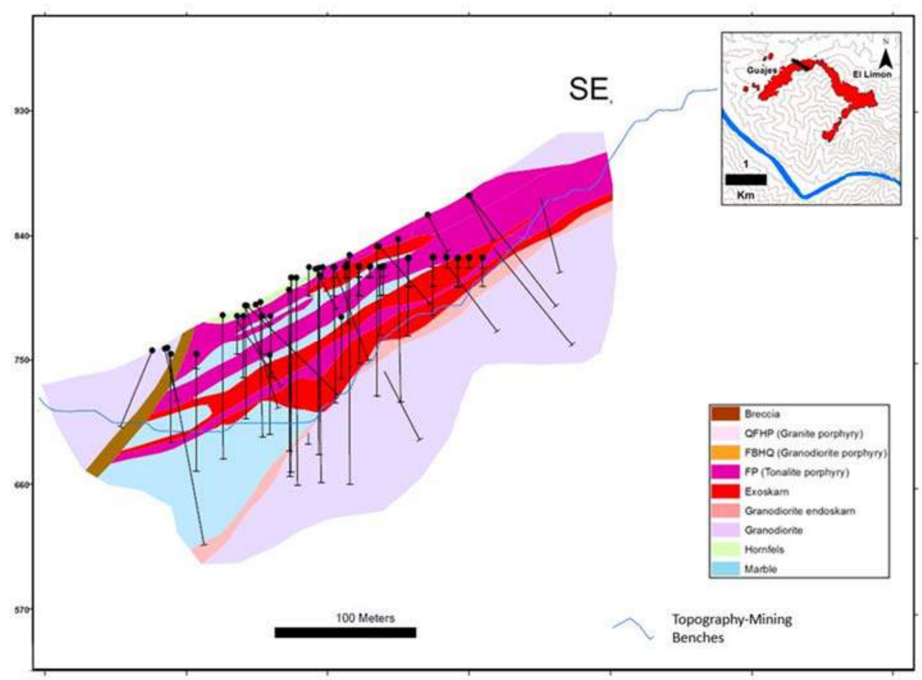


Figure Source: Torex, 2017. As of writing of this report the Guajes East deposit is mined out. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. Section location is indicated in inset map. Surface shown is as of December 31, 2017.

Figure 7-6: Example Cross Section, Guajes East

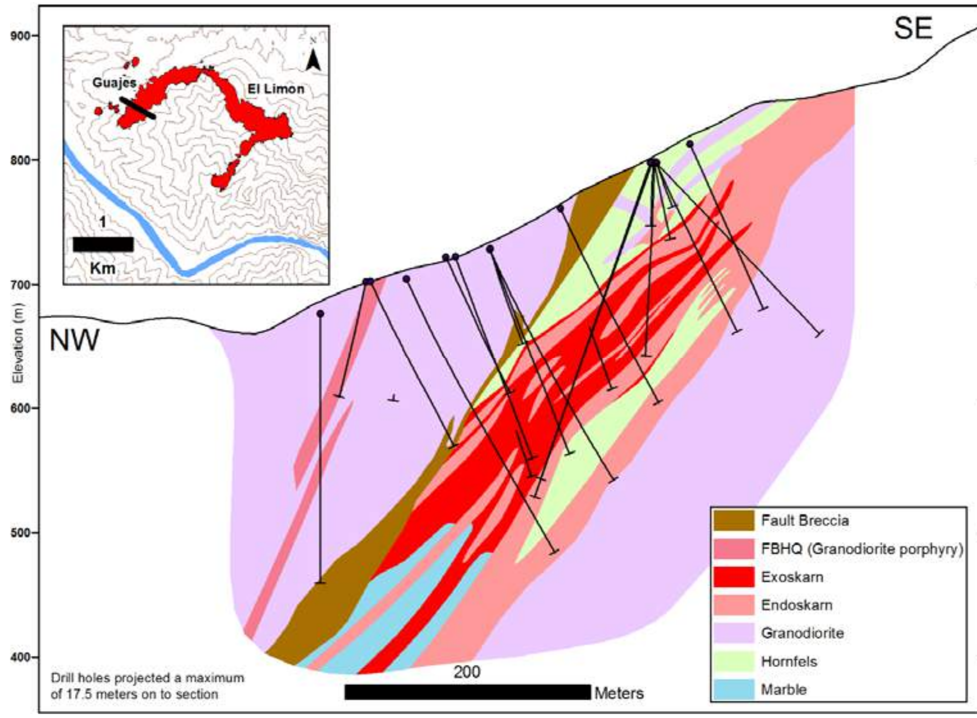


Figure Source: Torex and Western Mining Services, 2015. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. Section location is indicated in inset map. Surface shown is as of December 31, 2017.

Figure 7-7: Example Cross Section, Guajes West

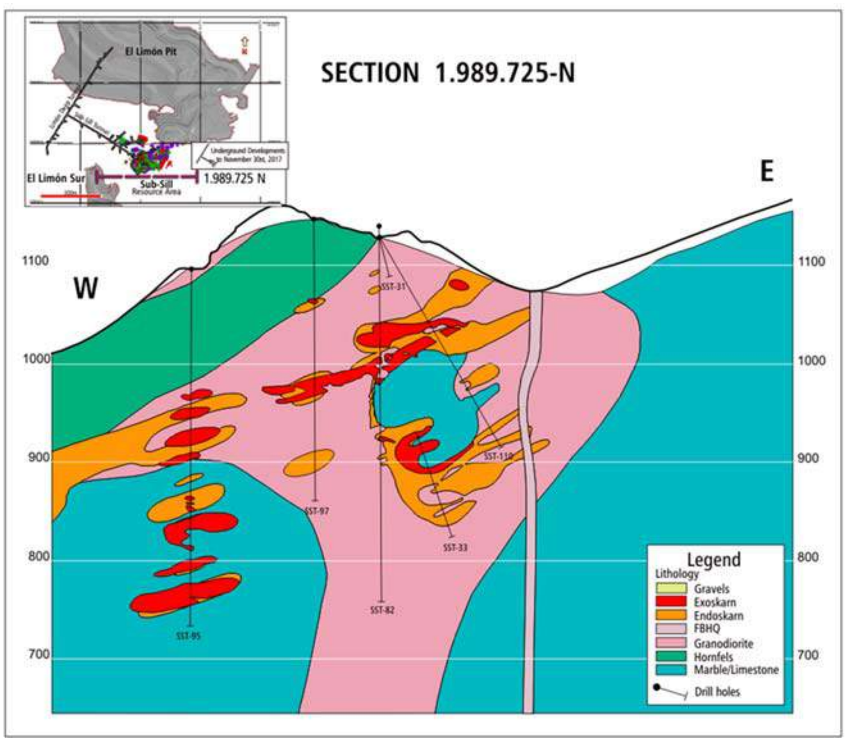


Figure Source: Torex, 2017. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. FBHQ = Feldspar-Biotite-Hornblende-Quartz Porphyry. Surface shown is as of December 31, 2017.

Figure 7-8: Sub-Sill Cross-Section 1989725 N (looking N)

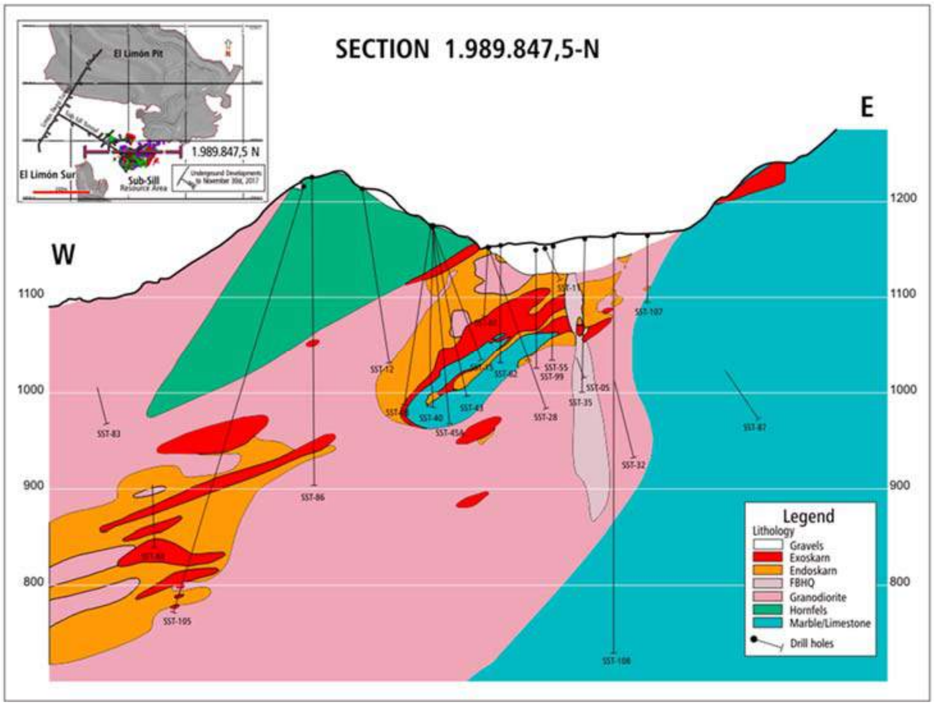


Figure Source: Torex, 2017. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. FBHQ = Feldspar-Biotite-Hornblende-Quartz Porphyry Surface shown is as of December 31, 2017.

Figure 7-9: Sub-Sill Cross-Section 1989847.5 N (looking N)

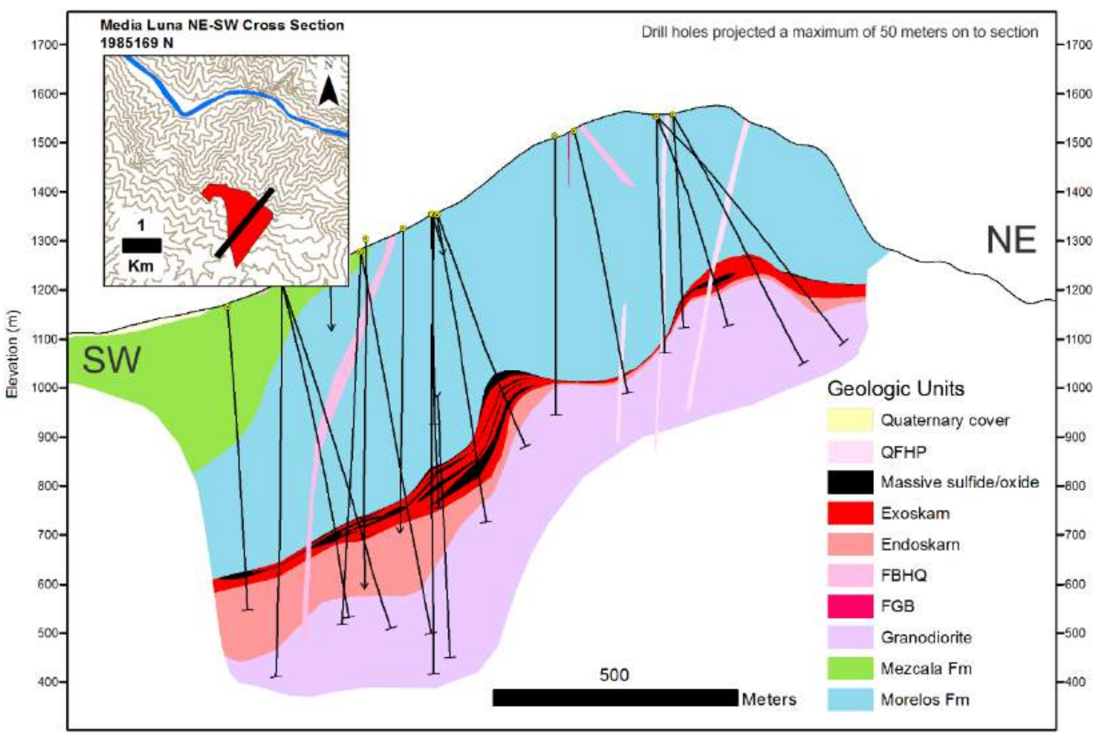


Figure Source: Torex and Western Mining Services, 2015. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. QFHP = Quartz-Feldspar-Hornblende Porphyry; FBHQ = Feldspar-Biotite-Hornblende-Quartz Porphyry; FGB = Fine-Grained Biotite Porphyry. Surface shown is as of December 31, 2017.

Figure 7-10: Media Luna Cross-Section 1985169 N (looking NW)

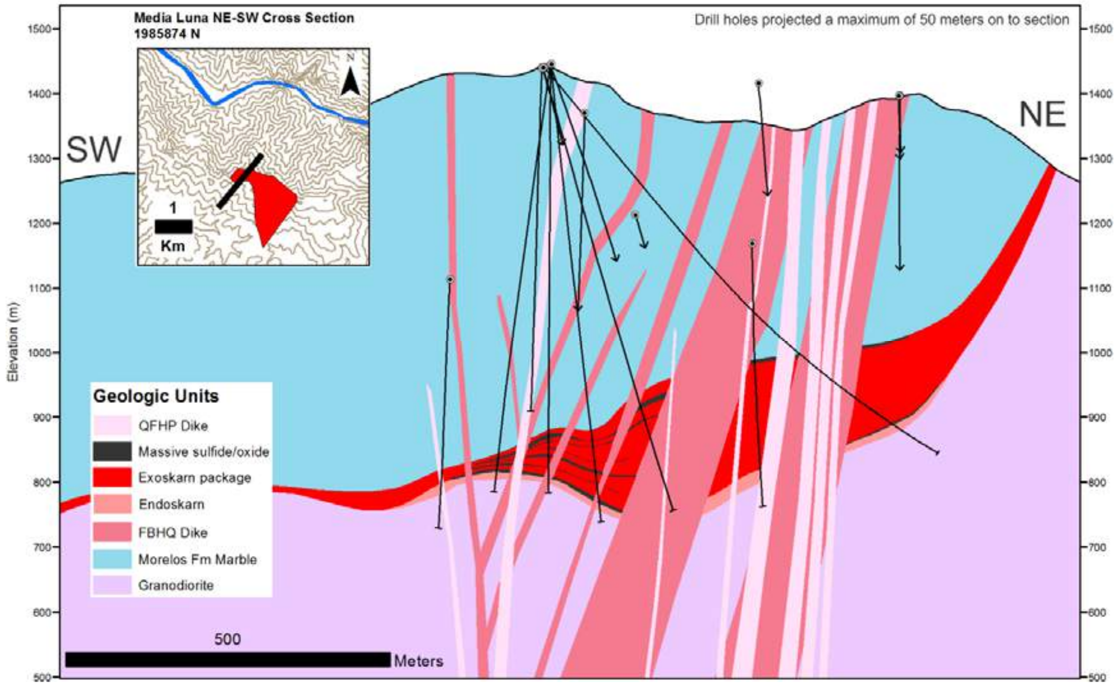


Figure Source: Torex and Western Mining Services, 2015. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. QFHP = Quartz-Feldspar-Hornblende Porphyry; FBHQ = Feldspar-Biotite-Hornblende-Quartz Porphyry; FGB = Fine-Grained Biotite Porphyry. Surface shown is as of December 31, 2017.

Figure 7-11: Media Luna Cross-Section

7.7 PROSPECTS/EXPLORATION TARGETS

Torex funds a multi-million-dollar drilling and exploration budget each year for the Morales 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.

7.7.1 Near Mine Drilling Exploration

Near mine drilling and exploration is currently focused in the area below the pits and adjacent to the current underground workings. As of March 31, 2018, there is 2,000 m of underground capital development, which creates suitable access for Infill and Exploration Testing.

Near mine drilling and exploration is divided into two categories:

1) Infill Drilling - ~$3 Million for the remaining 2018 calendar year and full calendar year of 2019. Infill Drilling targets are defined by current mineral resource estimates, with the intent of upgrading and expanding the known mineral resource.
2) Exploration Testing - ~$2.5 Million for the remaining 2018 calendar year and full calendar year of 2019. 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 exploration focusses on three geographical groups, ELD, Sub-Sill and ELG UG Extension Areas, as illustrated in Figure 7-12, Figure 7-13, Figure 7-14, and Figure 7-15:

1) ELD - The intent is to conduct Infill Drilling to upgrade a pre-existing open-pit resource to an underground Indicated resource, and to expand the known mineral resource down dip, and along strike. As illustrated in Figure 7-12, Figure 7-13, and Figure 7-15, this area is below the final El Limón pit limits.
2) Sub-Sill – The intent is to upgrade current Inferred mineral resource blocks to the Indicated confidence category and to identify the extents of the Exoskarn. Much of the planned drilling will be directed to upgrading the Zone 71 extension of the current mineral resource. Figure 7-13 indicates the inferred mineral resource blocks that will be targeted.
3) ELG UG Extension Areas – The ELG UG Extensions areas include multiple target areas near and adjacent to both ELD and Sub-Sill. The intent is to conduct exploration drilling to investigate the down dip extension of current mineral resource of ELD (Figure 7-15), investigate the potential for additional sills bellow the El Limón pit limits (Figure 7-15), and following up on some earlier drilling west of the existing Sub-Sill mineral resource (Figure 7-14).

Longer-term exploration potential remains for deep underground targets and additional sill targets to the SE, SW, and NW of the current mineral resource estimates.

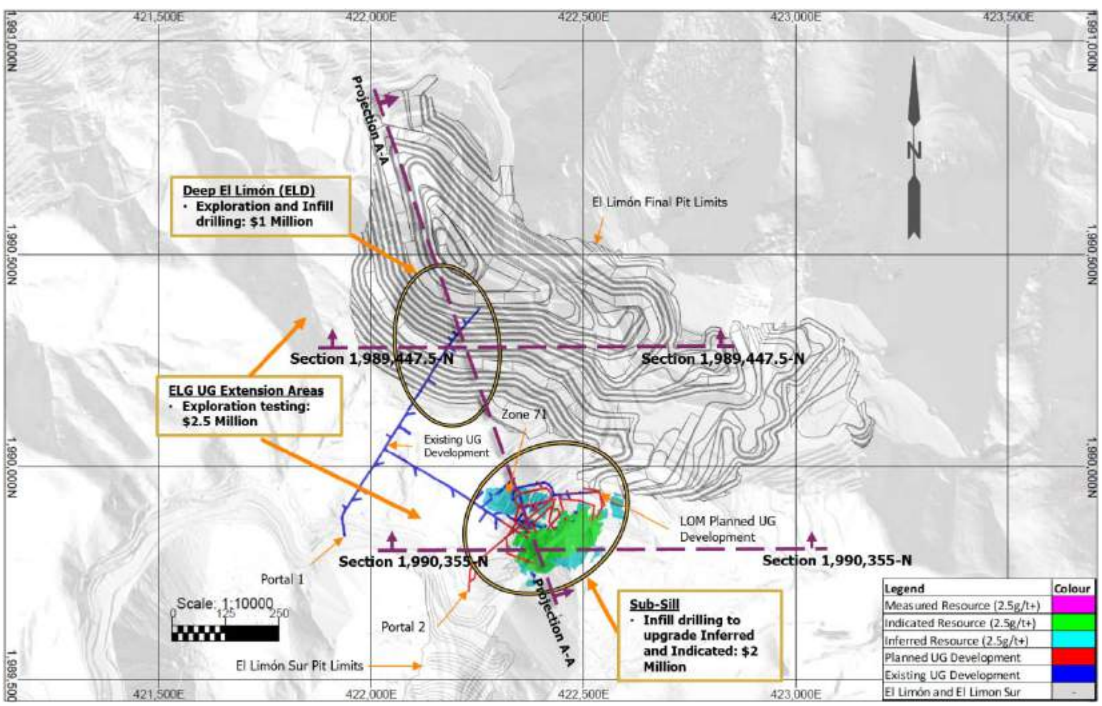


Figure Source: Torex, 2018. Projection and sections are illustrated below. Surface, pit-limits, and underground development shown are as of March 31, 2018.

Figure 7-12: Plan View – Near ELG Open Pit and Underground Exploration and Infill Target Areas

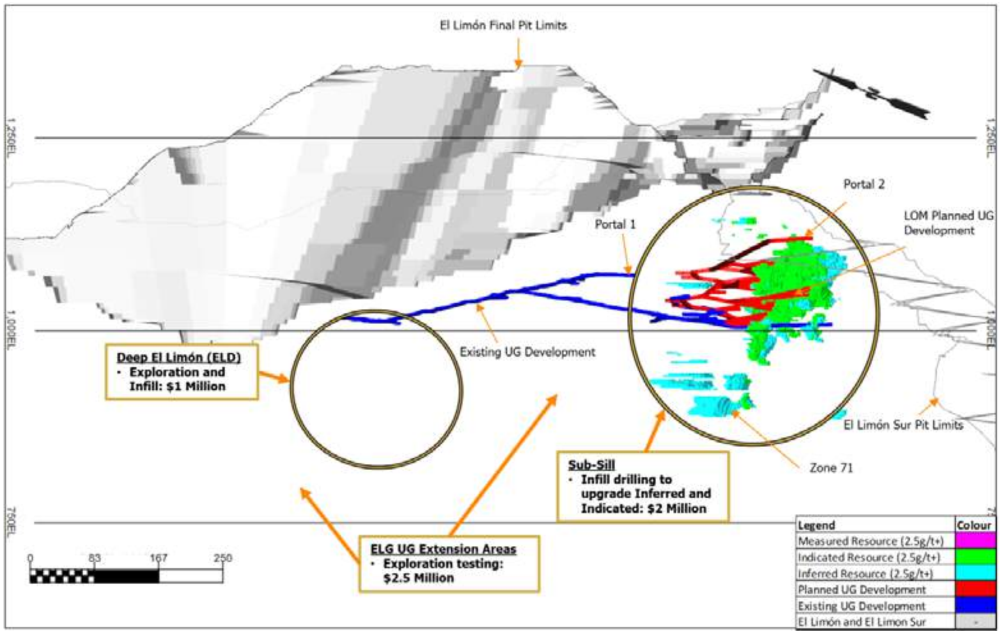


Figure Source: Torex, 2018. Section location is indicated on plan view above. Surface and underground development shown are as of March 31, 2018. Final Open Pit Limits are as per the 2018 LOM plan.

Figure 7-13: Projection A-A – ELG UG Mine Mineral Resource Upgrade and Exploration Target Areas

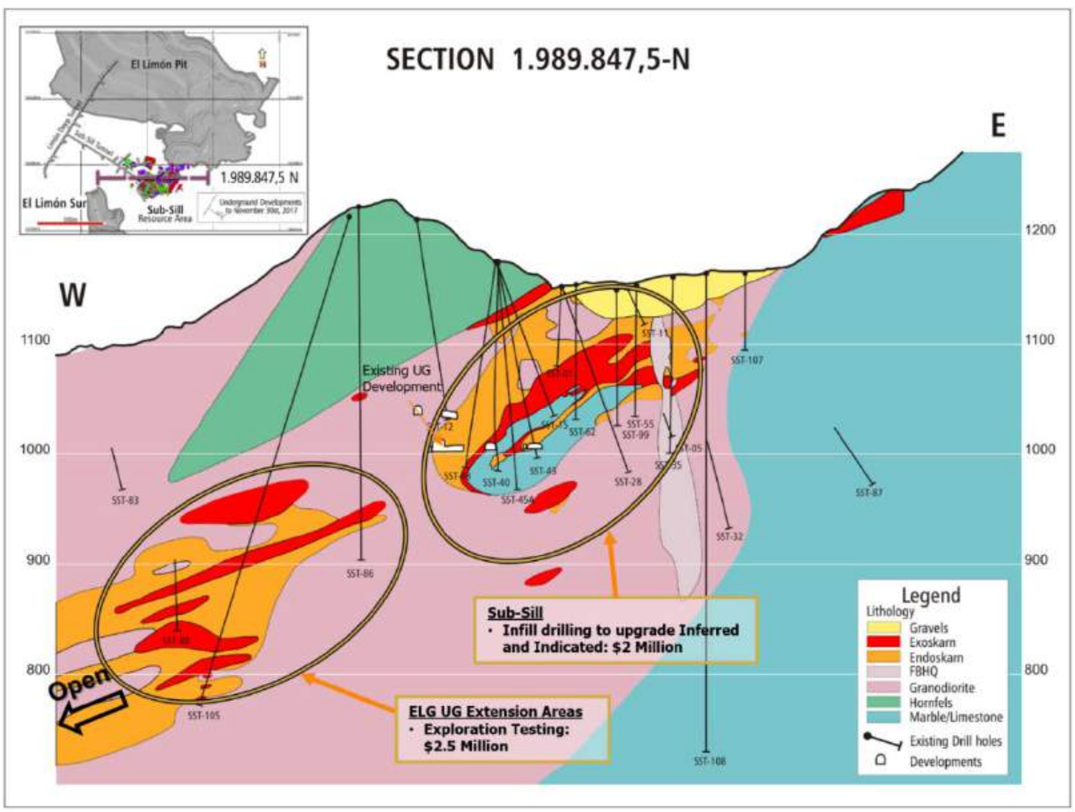


Figure source: Torex, 2018. Notel: Section location is indicated in inset map. Planned development is not shown in this section view. Sub-Zone 71 out of plane for this section view. Existing underground development shown are as of March 31, 2018.

Figure 7-14: Section 1,989,447.5-N (looking N) - Sub-Sill Infill and Exploration Target Areas

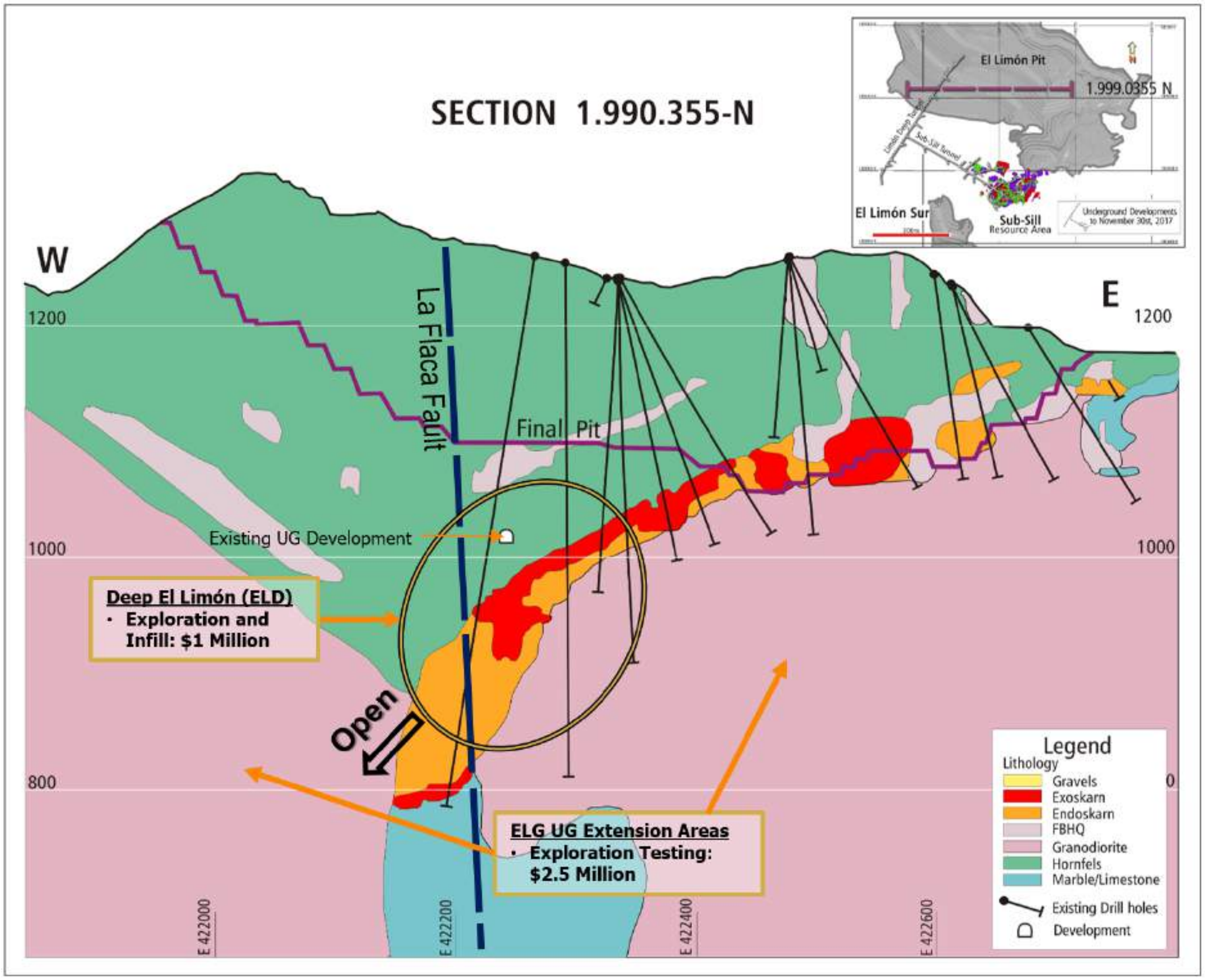


Figure Source: Torex, 2018. Note: Section location is indicated in inset map. Drill intercepts that are not orthogonal to the dip angle of the skarn report wider mineralization intercepts than the actual mineralization true thickness. FBHQ = Feldspar-Biotite-Hornblende-Quartz Porphyry. Existing underground development are as of March 31, 2018 and final open pit outline is as per 2018 LOM plan.

Figure 7-15: Section 1,990,355-N (looking N) - Deep El Limón (ELD) Infill and Exploration Target Areas

7.7.2 District–Scale Exploration Targets

Targeting work conducted from 2014 to 2017 identified seventeen targets for follow up. In addition to the Skarn gold and gold-copper deposit already identified the potential for hosting other gold and copper-gold deposit styles. These other deposit types include Porphyry copper-gold style, Breccia style and Intrusive hosted. Torex has reviewed the exploration information currently available, including structural, geochemical and geophysical studies and have identified several target areas, shown in Figure 7-16. Specific target areas will be focused on over the next exploration program.

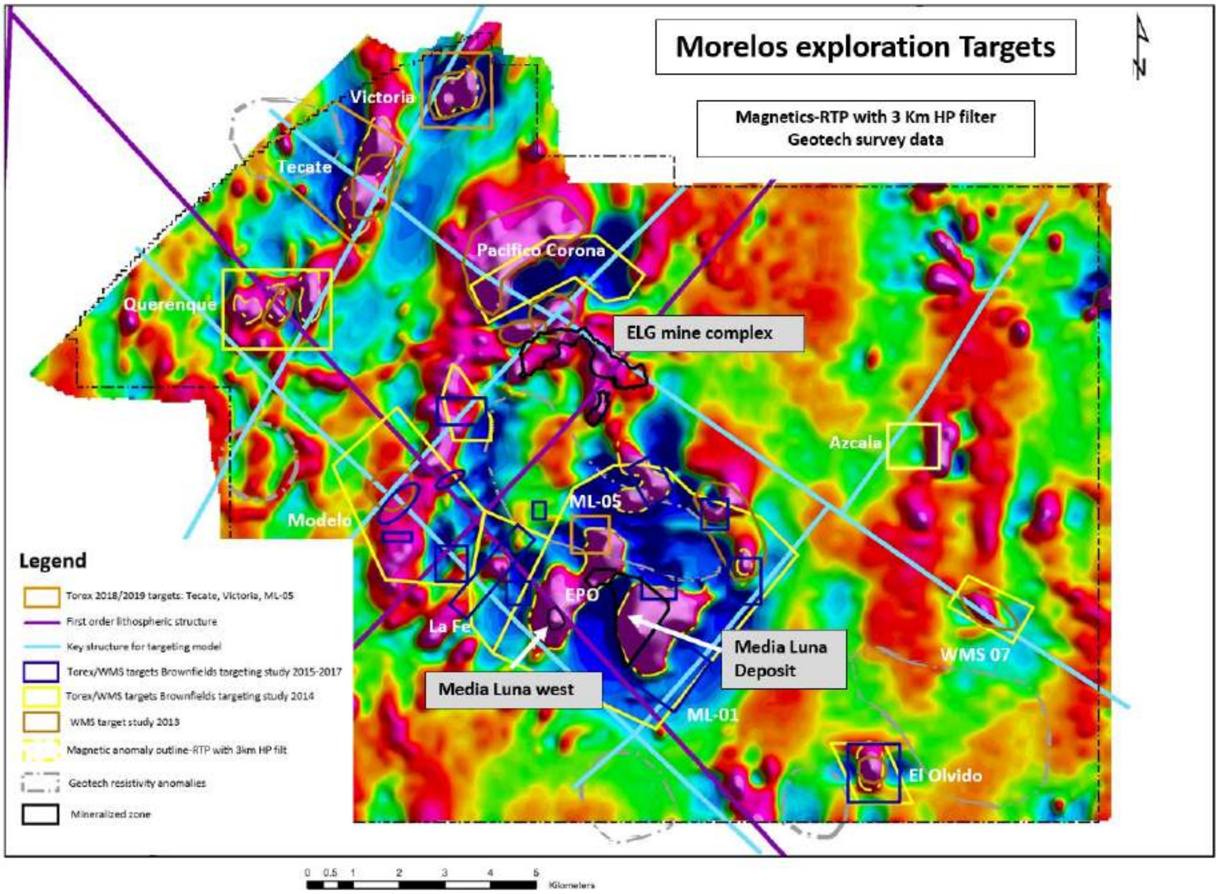


Figure Source: Torex, 2018

Figure 7-16: Prospect Location Plan

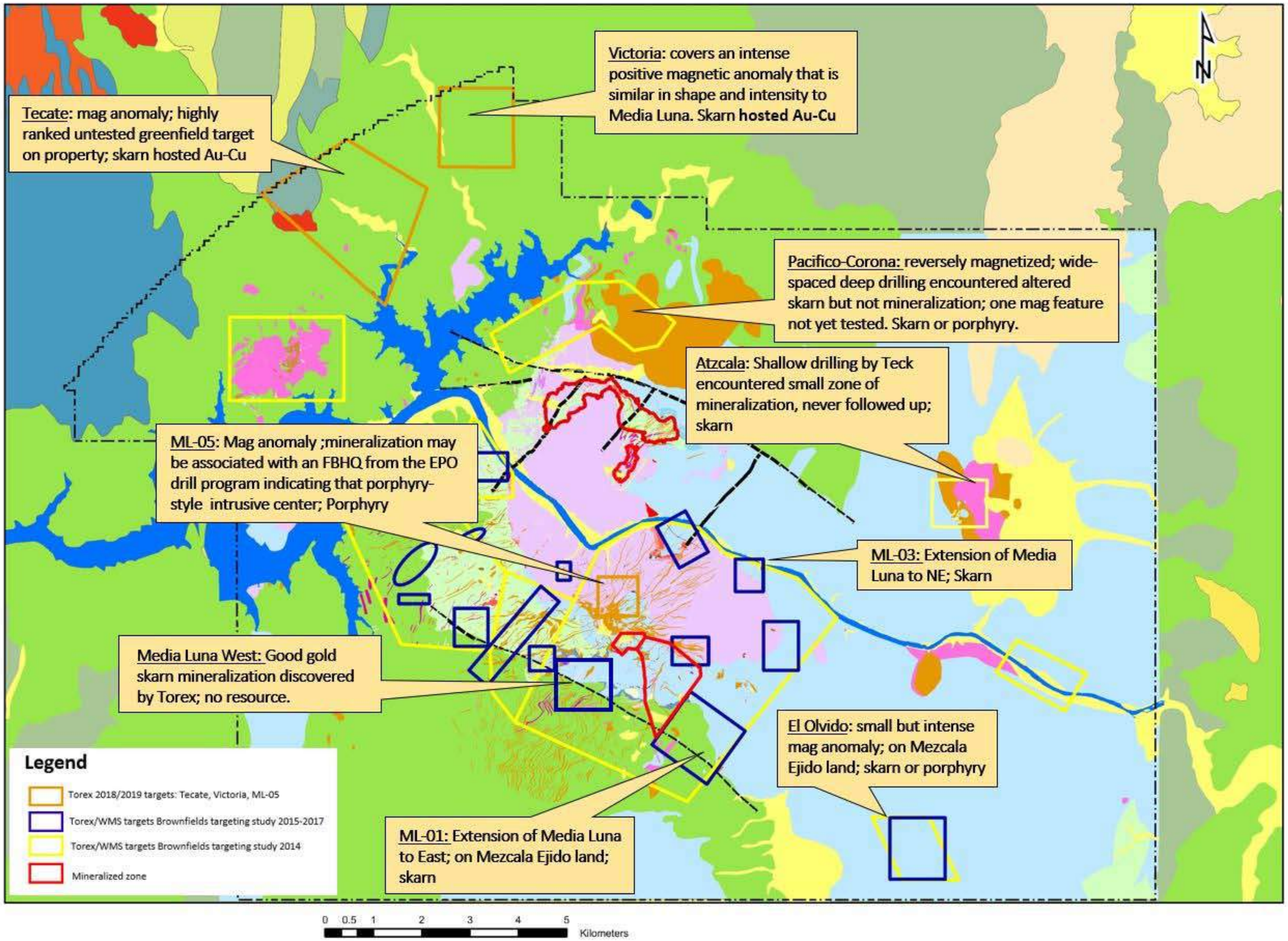


Figure Source: Torex, 2018

Figure 7-17: Detailed Exploration Targets Within 2014 Focus Area South of the Balsas River

The major district-scale exploration targets defined include:

- Media Luna 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. Currently, the Media Luna Resource is being drilled with the goal to upgrade the resources classification.
- ML-05: Mining district with Au-Cu skarn hosted ore deposit may also host Au-Cu porphyry deposit. From 2013 to early 2015, Torex developed and began testing targets for Au-Cu porphyry ore deposit. One of the target developed but not tested is ML-05, located northwest of Media Luna. Some initial work was completed in 2015 that identified weak alteration in outcrops and in drill core from the EPO drill program indicating that porphyry-style mineralization may be associated with an FBHQ intrusive center.
- La Fe: The target comprises a complex package of hornfelsed Mezcala Formation cut by numerous sills and dikes of variable composition. There are historic workings with gold mineralization in steeply dipping structural zones adjacent to argillic-altered dikes and sills. There is a moderate magnetic anomaly in the northeastern portion of the target. Four wide-spaced reconnaissance drillholes have been completed in the area by Torex. The drilling intersected local skarn alteration with zones of pyrrhotite and chalcopyrite but with low gold values.
- Modelo: The target is defined on the basis of regional structural interpretation combined with geophysical signatures from the 2013 airborne ZTEM-magnetic survey. In 2014, Torex carry out a soil and rock sampling campaign along this area. The results support further work inside of the Modelo area.
- El Cristo: Drilling results to date are disappointing but a significant portion of the target area has not been adequately tested.
- Querenque: Previous work by Teck indicates the area comprises hornfelsed Mezcala Formation with minor skarn and granodiorite intrusive similar to El Limón. Teck drilled three holes that returned minor gold values. No work has been undertaken by Torex in this area to date.
- 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. Area of further work planned by Torex.
- Victoria: Defined by a magnetic signature similar to Media Luna that occurs along a major regional-scale northeast-trending structural zone. No work has been carried out by Torex and there appears to be no previous work on the target. Area of further work planned by Torex.
- Pacífico-Corona: Located 1.5 km north of El Limón and defined by the presence of strong magnetic anomalies near intrusion-limestone contacts. One Torex drillhole on the east side of the target intersected a complex intrusive-hornfels package and significant low-level gold and trace element anomalism. Two additional diamond drillholes were completed in early 2014 with negative results.
- Dawson: Possible deep target indicated by structural analysis and geophysics. No work has been done due to target being located within current infrastructure and mining areas at El Limón Guajes.
- 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.

7.7.3 Future Exploration Target Areas

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. The targeted styles of mineralization include porphyry copper-gold systems and gold-bearing skarns similar to Media Luna and El Limón Guajes.

From the seventeen drill targets defined within district, three areas have been targeted for additional follow-up work. Victoria and Tecate are located north and west of Nuevo Balsas. Both are highly ranked target based on disciplined target reviews completed between 2014-2015. South of balsas river the main targets to follow-up on is the ML-05 target northwest of Media Luna deposit.

7.8 COMMENTS ON SECTION 7

In the opinion of the MPH QP, knowledge of the deposit setting, lithologies and structural and alteration controls on mineralization in the Guajes, El Limón, Sub-Sill, and Media Luna deposits is sufficient to support the mineral resource estimation.

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 upside potential.

8 DEPOSIT TYPES

The key point of this section is:

- The deposits and occurrences are considered to be examples of gold- and gold–copper-type skarn deposits.

8.1 FEATURES OF SKARN-STYLE DEPOSITS

Mineralization identified within the Property to date is typical of intrusion-related gold and gold–copper 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–dike 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 Property are considered to be examples of Au- and Au–Cu-type skarns. Most are hosted in exoskarn. Gold, silver and copper concentrations are found primarily within exoskarn developed in Morelos Formation marble 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.

In the opinion of the MPH QP, a skarn deposit type is an appropriate model for exploration and for support of the geological models used in mineral resource estimation.

9 EXPLORATION

The key points of this section are:

- The Property has been exposed to a wide variety of exploration techniques that include reconnaissance mapping, 1:5,000 scale geological mapping, systematic road-cut, channel sampling, soil and stream sediment sampling, diamond drilling, and an airborne ZTEM and magnetic geophysical survey.
- Additional exploration has a likelihood of generating further exploration successes particularly down-dip of known zones and along strike from 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, both north and south 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

Detailed mapping at a scale of 1:5,000 has been completed by Torex personnel at the Naranjo and Media Luna targets. Additional detailed mapping was completed by third-party consultants to Torex at the south end of Naranjo, Modelo, La Fe, Guajes South, and Pacífico, Media Luna, Media Luna West and Todos Santos targets, and in the southeast part of the Limón deposit. 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.

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 Project, 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 Media Luna 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.

9.4 GEOPHYSICS

Teck acquired a reduced-to-pole airborne magnetic image early in the 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.

During 2002, a 20 line-km IP survey was completed. The survey identified a number of 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 concession. 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.

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

9.5 OTHER STUDIES

Teck completed age dating, petrography, mineralogical studies, and Quick Bird imagery.

Igneous petrology and mineralogical and age-dating studies of hydrothermal alteration and mineralization at Media Luna are on-going.

9.6 EXPLORATION POTENTIAL

Exploration potential remaining in the Property area is discussed in Section 7.8.

9.7 COMMENTS ON SECTION 9

In the MPH QP’s opinion, the exploration programs completed to date are appropriate to the style of the deposits and prospects within the Property. Exploration and samples have been collected in a manner such that they are representative and not biased. Additional exploration has a likelihood of generating further exploration successes particularly down-dip of known zones and along strike from the known deposit. There are a significant number of prospects and occurrences remaining to be drill tested and fully evaluated. 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, both north and south 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 used for the ELG Mine Complex Life of Mine plan are all based on core drilling.
- Mineral resource estimate for Media Luna is 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 (98,774.1 m), including 558 core holes (88,821.0 m) and 61 RC holes (9,953.1 m). Legacy drilling is summarized in Table 10-1.

From 2009 until the end of 2017, Torex has completed 1,636 core holes (332,347.9 m) and 110 RC holes (8,791.5 m). A drill summary table for the Torex drilling is included as Table 10-2. Additional drilling has been completed in 2018, as drilling is an ongoing process at the 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 2017. Figure 10-2 is an inset plan, showing drill collar and channel sample locations for the El Limón and Guajes areas, current as of November 3, 2017. Figure 10-3 is a drill collar plan for the Media Luna deposit drilling, current as of December 2017.

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	970.4	0	0.0	13	970.4
2000	0	0.0	17	2,027.7	17	2,027.7
2001	7	1,647.4	44	7,925.5	51	9,572.9
2002	53	7,716.3	0	0.0	53	7,716.3
2003	28	3,782.1	0	0.0	28	3,782.1
2004	53	8,031.0	0	0.0	53	8,031.0
2006	133	22,740.3	0	0.0	133	22,740.3
2007	200	33,389.1	0	0.0	200	33,389.1
2008	71	10,544.5	0	0.0	71	10,544.5
Total	*558*	*88,821.0*	*61*	*9,953.1*	*619*	*98,774.1*

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	30,960.3	0	0.0	0	0.0	139	30,960.3
2011	382	60,613.5	0	0.0	42	4,160.0	424	64,773.5
2012	242	82,816.7	0	0.0	0	0.0	242	82,816.7
2013	152	87,505.6	1	240.0	0	0.0	153	87,745.6
2014	52	11,228.7	109	8,551.5	0	0.0	161	19,780.2
2015	233	18,951.8	0	0.0	0	0.0	233	18,951.8
2016	245	15,700.52	0	0	0	0.0	245	15,700.52
2017	191	24,570.73	0	0	0	0	224	29,430.7
Total	*1,636*	*332,347.85*	*110*	*8,791.5*	*42*	*4,160*	*1,788*	*345,299*

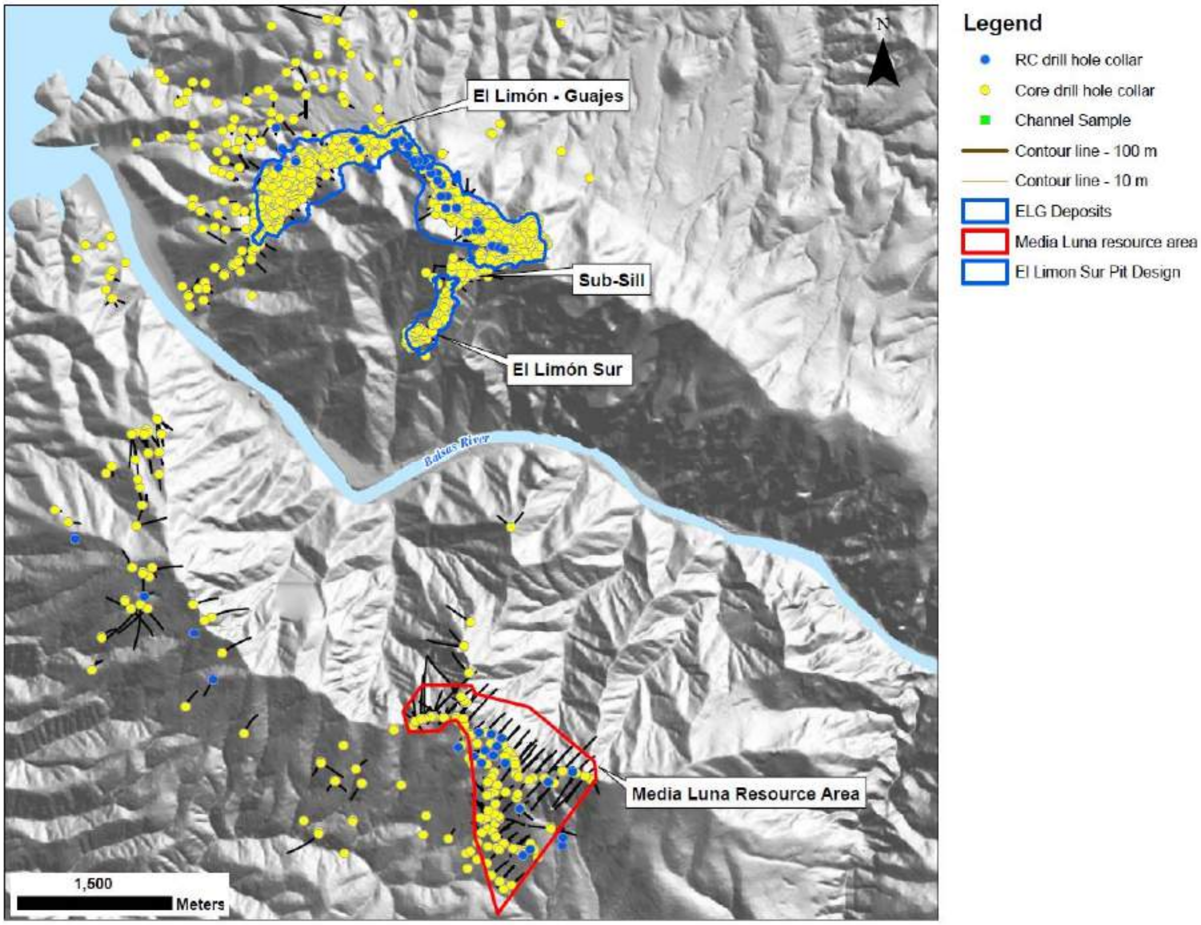


Figure Source: Torex, 2017. Drill collar locations are current to December 2017.

Figure 10-1: Drillhole Location Plan, Morelos Property

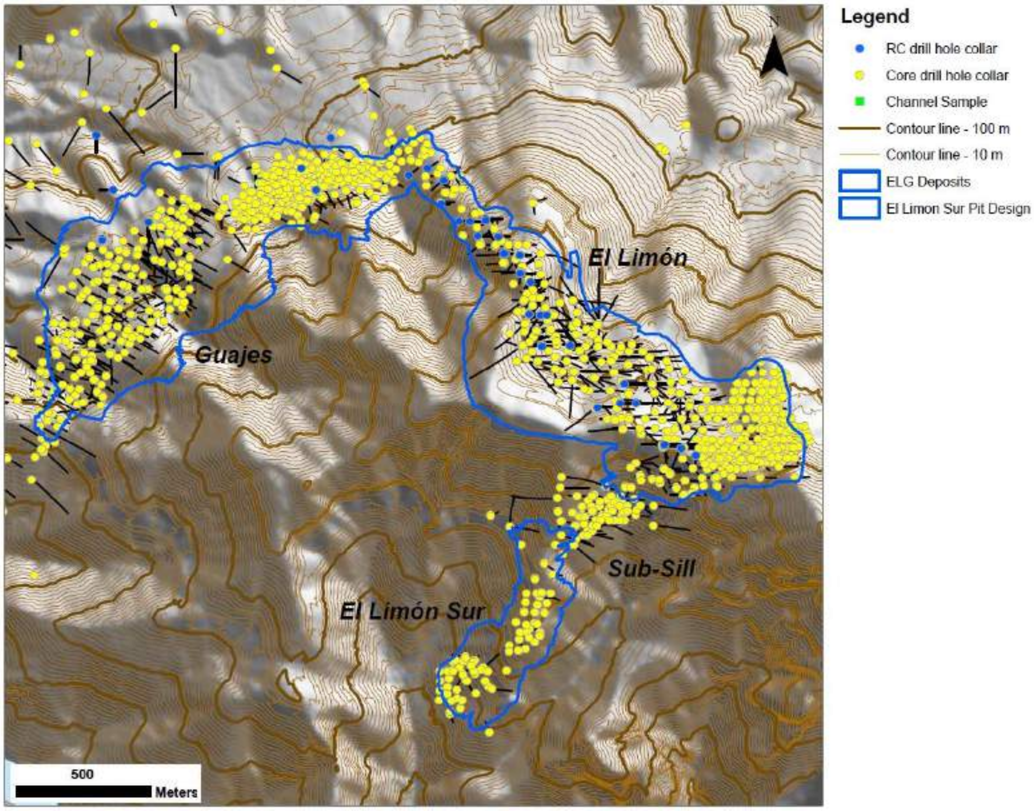


Figure Source: Torex, 2017. Drill collar locations are current to November 3, 2017.

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

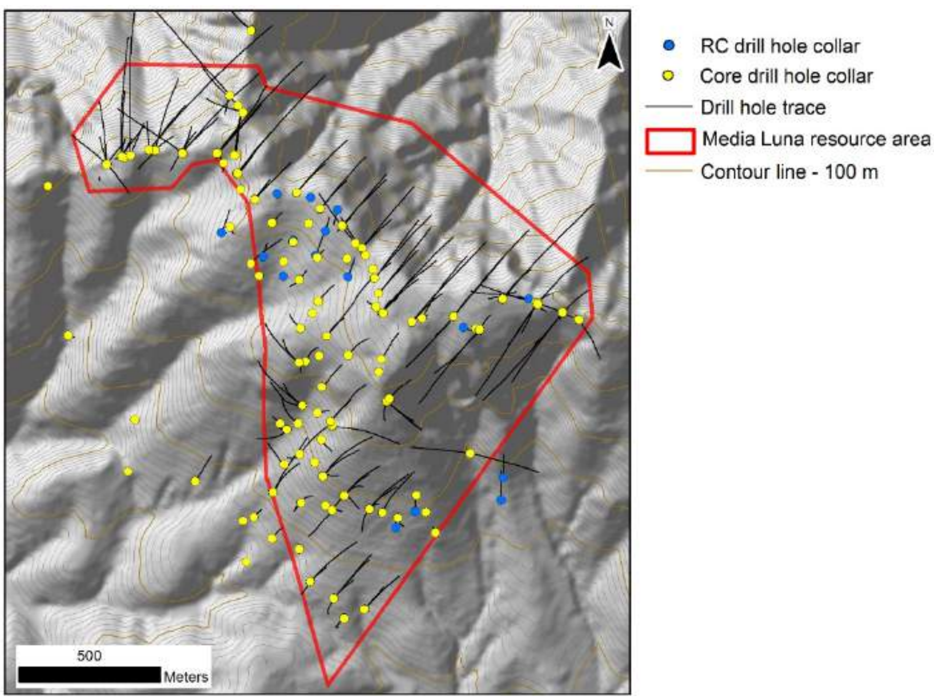


Figure Source: Torex, 2017. Drill collar locations are current to December 2017.

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

10.2 DRILL METHODS

10.2.1 Drill Contractors and Rig Types

MPH and Torex do 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
Canz Drilling Sapi de C.V	2013	Cortech 1800	1
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
Moles Drilling De R. L. de C.V	2013	Cortech 1800	2
Moles Drilling De R. L. de C.V	2014–2017	Cortech 1800	3
LAYNE DE MÉXICO, S.A DE C.V	2017	CT-14 / MPD-1500	3

10.2.2 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.

10.2.3 Core Drilling

Diamond drilling typically recovered HQ size core (63.5 mm) from surface, and was only reduced to NQ size core (47.6 mm) when drilling conditions warranted, in order to drill deeper.

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 and 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.

10.2.4 Channel Samples

Channel samples were collected by Teck personnel using chip channeling of horizontal sections of trenches and road-cuts. These legacy data are not used in the current mineral resource estimation included in this 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 outcrop 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 collected in 2016 and 2017 have not been used for the mineral resource estimation included in the report, the samples were used for ore control and short term internal models.

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.

10.4 RECOVERY

Recovery is measured using total core recovery (TCR) which is 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 instrument in areas where there is significant magnetite or pyrrhotite (Teck Resources, 2008).

Torex has used a Reflex instrument in areas with insignificant magnetite or pyrrhotite mineralization on 50 m down the hole increments. In areas of high magnetite or pyrrhotite, only an acid etch was used to record dip orientation on 50 m increments.

MPH reviewed azimuth deviations from Reflex instrument measurements in low magnetic intensity areas and is of the opinion that down hole azimuth deviations are relatively minor and do not pose an issue with regards to confidence in intercept location.

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 and Media Luna 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

During 2017, infill drilling work was undertaken in the El Limón East area, inside of the planned El Limón pit and in the Sub-Sill area. Infill and step-out core drilling is currently focused on the Sub-Sill area. Infill drilling is on-going at Media Luna.

MPH has reviewed the core drill results available for drillholes completed since the cut-off date for the mineral resource model contained in this report and has found no reason to change the global assumptions used for the mineral resource estimate based on that available data.

10.9 SUMMARY OF DRILL INTERCEPTS

Example drill intercepts for El Limón and Guajes are summarized in Table 10-4, and are illustrative of nature of the mineralization at El Limón and Guajes. The example drillholes contain oxide and sulphide intersections and areas of higher-grade in lower-grade intervals.

A selection of example drill intercepts for Media Luna are included as Table 10-5 and illustrate the typical range of grades and thicknesses encountered within the deposit.

Selected example drill intercepts for the most recent exploration drill programs are included as Table 10-6. The example drillholes include samples of higher and lower grade intercepts, different thickness ranges, and contain areas of higher-grade in lower-grade intervals.

Table 10-7 shows selected intersections for Sub-Sill.

Table 10-4: Example Drillhole Intercept Summary – El Limón and Guajes

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)	Rock Code
El Limón	DLIM-281	422465.98	1990402.57	1220.089	125	-85		30.5	56.0	25.5	1.28	10.6	Exoskarn
								83.2	152.3	69.1	5.57	7.2	Exoskarn
							including	111.0	118.0	7.0	17.87	17.8	Exoskarn
								199.5	209.0	9.5	4.10	6.8	Exoskarn
	TMP-1396	422952.062	1990180.11	1267.7964	0	-90		0.0	31.9	31.9	3.05	13.9	Exoskarn
							including	13.7	16.4	2.7	5.32	10.6	Exoskarn
								44.6	48.0	3.3	0.98	4.5	Endoskarn
Guajes East	T10-106C	421264.14	1991027.85	811.789	0	-90		4.5	6.6	2.1	1.22	4.0	Endoskarn
								53.1	91.0	37.9	4.87	21.1	Breccia
							including	55.2	61.0	5.8	20.71	6.5	Exoskarn
								119.0	122.0	3.0	0.83	1.0	Endoskarn
	DLIM-520	421484.39	1991056.43	866.5	326	-58		8.8	10.0	1.2	1.38	2.6	Endoskarn
								58.0	96.7	38.7	3.56	17.1	Exoskarn
							including	77.8	79.2	1.4	19.33	133.7	Exoskarn
Guajes West	TMP-1196	420644.6	1990512.05	755.81	313	-85		74.9	153.4	78.5	6.05	3.7	Exoskarn
							including	92.4	99.0	6.6	16.25	7.8	Endoskarn
							including	120.7	124.4	3.7	25.21	6.5	Endoskarn
	DLIM-483	420565	1990418.33	761.554	132	-65		84.0	107.0	23.0	1.72	0.8	Endoskarn

Note: Depth is calculated as at the base of the composite and represents the "to" depth; to obtain the composite depth from the top of the composite interval, the composite length is subtracted from the base of composite depth. The easting, northing and elevation are reported at the collar location.

Table 10-5: Example Drill Composite Intercepts, Media Luna

Drillhole ID	Easting	Northing	Elevation	Azimuth (°)	Dip (°)	Depth of Top of Composite (m)	Depth of Base of Composite (m)	Composite Length (m)	Au Equivalent (g/t)	Au (g/t)	Cu (%)	Ag (g/t)	Rock Code
CZML-03	422875.07	1985180.92	1540.30	40	-48	274.88	379.93	105.05	2.57	2.00	0.26	8.83	Endoskarn
CZML-16	422600.45	1985478.79	1532.89	40	-52	334.9	344.29	9.39	3.46	0.79	1.01	62.06	Exoskarn
ML-35	422610.46	1984569.52	1277.73	0	-90	537.65	591.36	53.71	12.97	11.86	0.5	19.04	Exoskarn
ML-46M	422725.96	1984668.53	1353.93	0	-90	599.8	606.87	7.07	3.6	0.46	1.32	61.61	Exoskarn
NEZML-10	423243.22	1984999.65	1563.50	220	-58	621.5	639.16	17.66	2.21	1.35	0.51	4.23	Endoskarn
WZML-07	422567.76	1984654.95	1281.05	0	-90	479.24	538.77	59.53	18.4	16.34	0.97	31.28	Exoskarn
WZML-47	422839.18	1984028.96	1137.21	0	-90	777	794.81	17.81	3.7	3.07	0.37	2.54	Marble/Limestone

Note: Au Equivalent = Au (g/t) + Cu % *(74.74/48.07) + Ag (g/t) * (0.85/48.07). All intervals are required to be >2 g/t AuEq in value and > 2.5 m in length to be considered as a composite interval in resource modeling. Depth is calculated as at the base of the composite and represents the "to" depth; to obtain the composite depth from the top of the composite interval, the composite length is subtracted from the base of composite depth. The easting, northing and elevation are reported at the collar location.

Table 10-6: Example Drill Intercepts, Exploration Program

Drill-Hole	Target Area	Easting (UTM-E m)	Northing (UTM-N	Elevation (m)	Azimuth (°)	Dip (°)	Total Length (m)	Intersection			Core Length (m)	Au g/t	Ag g/t	Cu %	AuEq g/t	Lithology
									From (m)	To (m)						
NWZML-03	Exploration - NWML	422200.59	1985615.3	1460.63	0	-90	809.65		516.80	521.65	4.85	1.34	27.39	0.01	1.85	Skarn
									549.64	565.67	16.03	2.71	19.69	0.07	3.16	Skarn
								including	560.26	564.84	4.58	3.62	24.21	0.05	4.12	Skarn
									573.27	577.88	4.61	2.21	4.74	0.04	2.36	Skarn
									659.40	672.00	12.60	0.36	8.53	0.35	1.06	Skarn
NWZML-04	Exploration - NWML	422198.57	1985617.9	1460.97	40	-58	755.5		395.68	399.40	3.72	3.13	49.26	0.16	4.25	Breccia
									454.90	458.73	3.83	0.08	15.88	0.80	1.61	Skarn
									524.73	528.53	3.80	5.38	37.62	0.26	6.45	Skarn
									552.48	555.50	3.02	2.16	22.29	0.27	2.97	Skarn
									559.65	565.50	5.85	1.63	17.30	0.14	2.16	Skarn
									583.34	588.03	4.69	0.57	19.15	0.36	1.47	Skarn
NWZML-05	Exploration - NWML	422080.56	1985626.8	1443.52	40	-73	715.75		308.83	314.50	5.67	0.08	25.42	0.31	1.00	Skarn
									544.26	562.50	18.24	7.45	16.46	0.42	8.39	Skarn
								including	551.72	562.50	10.78	12.40	13.90	0.20	12.96	Skarn
									566.50	571.60	5.10	0.14	4.07	0.31	0.70	Skarn
									578.41	580.20	1.79	0.61	9.04	0.59	1.68	Skarn
									586.18	596.54	10.36	0.27	15.36	0.24	0.91	Skarn
NWZML-06	Exploration - NWML	422081	1985627.3	1443.54	40	-50	862.62		407.27	412.65	5.38	0.47	13.71	0.04	0.78	Skarn
									536.63	540.24	3.61	0.20	68.58	1.76	4.15	Skarn
									590.51	597.74	7.23	0.96	12.71	0.20	1.49	Skarn
									732.18	736.72	4.54	0.08	24.71	0.47	1.25	Skarn
									758.45	762.47	4.02	0.27	17.12	0.39	1.18	Skarn
									770.95	781.61	10.66	3.98	46.57	1.05	6.43	Skarn
								including	776.48	779.65	3.17	4.43	101.79	2.64	10.34	Skarn
NWZML-07	Exploration - NWML	421932.72	1985577.1	1431.73	310	-73	693.2		630.89	634.00	3.11	0.98	16.55	0.69	2.35	Skarn
NWZML-08	Exploration - NWML	421931.37	1985577.5	1431.72	130	-80	713.5		235.77	239.13	3.36	0.32	102.73	0.19	2.44	Skarn
									620.81	628.00	7.19	0.71	1.48	0.02	0.77	Porphyry Dike
									660.09	666.70	6.61	0.25	15.25	0.34	1.05	Skarn
MLW-03A	Media Luna West	421033.25	1985192.1	1192.73	220	-75	926.65		799.57	814.42	14.85	4.06	4.56	0.17	4.40	Skarn
								including	799.57	803.20	3.63	7.11	6.56	0.11	7.40	Skarn
								and	808.62	812.69	4.07	7.74	6.46	0.27	8.28	Skarn
									869.00	870.21	1.21	0.92	85.78	2.73	6.68	Skarn

Notes: True thickness of the mineralized zone is unknown and is reported as drillhole length. The gold equivalent grade, including copper and silver values, is based on 100% metal recoveries. The gold grade equivalent calculation used is as follows: AuEq (g/t) = Au g/t + (Cu grade x ((Cu price per lb/Au price per oz) x 0.06857 lbs per oz x 10,000 g per %)) + (Ag grade x (Ag price per oz/Au price per oz)). The metal prices used were: gold, $1,495/oz; copper, $3.39/lb; and silver, $26.45/oz.

Table 10-7: Sub-Sill Example Drillhole Intercepts

Drill-Hole	Target Area	UTM-E (m)	UTM-N (m)	Elevation (m)	Azimuth (°)	Dip (°)	Total Length (m)	Intersection	From (m)	To (m)	Core Length (m)	Au g/t	Ag g/t	Cu %
SST-01	Sub-Sill	422457.99	1989852.07	1152.97	315	-87	254.60		84.49	87.99	3.5	13.4	6.4	0.1
								SST-01	141.72	145.22	3.5	305.5	49.5	1.6
									190.58	194.40	3.8	7.4	4.7	0.1
SST-07	Sub-Sill	422453.12	1989887	1173.58	0	-90	317.80		140.78	148.13	7.3	23.0	31.9	1.2
								SST-07	256.76	272.80	16.0	19.4	28.2	1.0
SST-15	Sub-Sill	422399.22	1989845.5	1175.20	95	-71	150.00		114.65	120.45	5.8	23.9	4.2	0.1
								SST-15	134.58	138.49	3.9	112.7	39.2	1.3
SST-17	Sub-Sill	422555.27	1989831.73	1154.92	95	-60	101.50		78.77	82.47	3.7	6.7	18.3	0.6
SST-19	Sub-Sill	422361.1	1989864.1	1205.91	0	-90	326.50	*SST-19*	263.55	267.05	3.5	162.2	5.2	0.0
									275.50	279.00	3.5	58.4	16.1	0.7
SST-27	Sub-Sill	422450.02	1989828.5	1150.34	90	-68	206.60		41.11	44.91	3.8	68.3	7.8	0.0
								SST-27	81.59	94.88	13.3	22.6	37.1	3.1
SST-28	Sub-Sill	422458.66	1989852.00	1152.83	100	-70	180.00		90.76	95.61	4.8	8.6	17.2	0.6
SST-34	Sub-Sill	422448.85	1989829	1150.32	90	-45	134.40	*SST-34*	54.68	58.98	4.3	82.7	18.1	1.1
									95.27	100.83	5.6	25.5	36.7	3.7
SST-47	Sub-Sill	422382.35	1989777.1	1138.9	0	-90	140.50		91.33	94.83	3.5	8.0	12.8	0.4
									97.89	102.05	4.2	8.2	1.5	0.0
								SST-47	105.26	120.09	14.8	27.3	19.0	0.9
								Including	*111.87*	*116.78*	4.9	*62.1*	*50.4*	*2.2*
									132.02	135.54	3.5	12.2	6.1	0.1
SST-48	Sub-Sill	422398.61	1989846.5	1175.41	270	-80	189.30		115.70	119.30	3.6	30.8	3.8	0.0
SST-49	Sub-Sill	422466.05	1989865.01	1155.42	0	-90	200.65	*SST-49*	79.63	89.32	9.7	39.1	8.2	0.1
								Including	*82.28*	*85.78*	3.5	*97.0*	*14.8*	*0.2*
									153.00	159.17	6.2	16.1	49.3	2.1
SST-50	Sub-Sill	422337.36	1989795.04	1183.54	90	-83	240.00		142.33	154.87	12.5	3.7	1.9	0.0
								SST-50	171.38	174.97	3.6	92.6	46.4	1.9
SST-54	Sub-Sill	422523.82	1989865	1159.82	0	-90	161.40		54.50	62.92	8.4	13.3	48.7	3.6
									72.00	83.85	11.9	9.2	76.8	3.1
								SST-54	100.40	113.40	13.0	32.1	25.7	0.4
								Including	*106.40*	*110.40*	4.0	*68.9*	*19.4*	*0.5*
SST-71	Sub-Sill	422398.00	1989900.00	1196.00	0	-90	331.20	*SST-71*	287.90	307.20	19.3	41.4	43.4	2.1
								Including	*291.07*	*296.66*	5.6	*69.8*	*56.8*	*1.7*
SST-72	Sub-Sill	422449.48	1989829.98	1150.69	90	-78	146.95		43.47	47.07	3.6	9.0	2.6	0.0
								SST-72	84.51	113.80	29.3	32.2	33.1	1.6
								Including	*84.51*	*90.44*	5.9	*103.5*	*62.4*	*3.9*
									117.63	121.87	4.2	15.4	16.2	0.6
SST-101	Sub Sill	422399.70	1989777.60	1141.19	90	-45	158.50		53.24	57.59	4.4	4.7	2.2	0.0
								SST-72	87.49	114.70	27.2	13.1	28.8	2.0
								Including	*106.56*	*114.70*	*8.1*	*30.2*	*37.9*	*4.3*

Note: Depth is calculated as at the base of the composite and represents the "to" depth; to obtain the composite depth from the top of the composite interval, the composite length is subtracted from the base of composite depth. The easting, northing and elevation are reported at the collar location.

10.10 COMMENTS ON SECTION 10

In the opinion of the MPH QP, the quantity and quality of the logging, geotechnical, collar and down-hole survey data collected in the Torex exploration and infill drill programs are sufficient to support the mineral resource estimation in this report as follows:

- Core logging meets industry standards for exploration on gold–silver, and gold–silver–copper deposits.
- Collar surveys have been performed using industry-standard instrumentation.
- Down-hole surveys were performed using industry-standard instrumentation, with the following notes:
  - The down hole surveying methods used prior to 2006 have been superseded, and no longer reflect industry leading practices.
  - Tropari is a magnetic method and is unreliable in magnetic rocks, which are common in skarn deposits and the acid tube method does not provide azimuth information.
  - A non-magnetic survey tool such as a gyro or the Maxibor tool should be used for down hole surveys in future drill programs. Deep mineralized intercepts from existing drill programs should be used to support classification of Inferred Mineral Resources only, since there is significant uncertainty as to their location.
  - Down hole survey vector analysis indicates that core drillholes with a total depth greater than 200 m, show an average drift of less than the dimensions of a mine block. MPH is of the opinion that the missing downhole surveys do not degrade the level of confidence in the location of mineralization, for the purposes of mineral resource estimation. However, all deep drillholes in the future should be appropriately surveyed.
- Drilling practices, logging, collar surveys and down-hole surveys for legacy and Torex drill programs have been reviewed (refer to Section 12).
- Recovery data from core drill programs are acceptable.
- 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.
- 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 areas.
- Drill orientations are shown in the example cross-sections in Section 7 and can be considered to appropriately test the mineralization.

No significant factors were identified with the data collection from the drill programs that could affect the mineral resource estimation contained in this report.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

The key points of this section include:

- Sampling methods are acceptable, meet industry-standard practice and are adequate for mineral resource estimation.
- Sample security has relied upon the fact that the samples were always attended to or locked in the on-site sample preparation facility.

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.

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.

There was no information available to MPH as to 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 were covered with a wooden cover at the site and core was transported each day by truck and by motor boat 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 was 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 was then individually photographed. A geologist was assigned to log a drillhole using an IPAQ hand held computer and software for core logging and sample descriptions. RQD and core recovery measurements were taken and any other required non-destructive testing was completed. The geologist marked up the assay intervals, inserted the appropriate sample tags for each interval in the core trays and recorded this sample information. Core was typically marked up in 1.5 to 3 m intervals adjusted for mineralization/waste contacts or major geological breaks where appropriate. Where 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 ensured that sample tags were in place and sample numbers and footages were properly recorded. The geologist aligned core by matching broken ends so that core has same relative orientation and drew 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 were maintained under the supervision of the project supervisor.

For the Media Luna drill programs, all geochemical samples to be assayed were double bagged after splitting and placed in grain bags (approximately eight to 10 samples per grain bag) which were then sealed by a nylon zip-tie and stored on site in a secure location until they were shipped.

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 on a daily basis by Torex employees to the preparation laboratory that is operated by SGS Laboratories (SGS), an independent certified laboratory, located a few blocks away from the Nuevo Balsas Core Shack. All samples were under Torex’s control during transport and until samples were collected in the preparation laboratory. A complete chain of custody was recorded for each sample before entering the laboratory.

11.2 DENSITY DETERMINATIONS

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 coating SG tests. Previous SG determinations that were based on water immersion method were not used in the 2012 modeling due to the potential for a high bias of the mean value for some lithology types when compared to wax immersion results. Specific gravity domains are categorized and listed in Table 11-1 and reflect averages that are subdivided by lithology type, and by mineralized or unmineralized character (~0.5 g/t Au threshold).

Table 11-1: Mean Specific Gravity Assigned to El Limón and Guajes Block Models by Lithology Type

		Averages for All Campaigns (outliers removed)	
Lithology Type	**Lithology Code**	**# samples**	**SG**
ExoSkarn	31 – Mineralized	112	3.168
ExoSkarn	31 – Unmineralized	106	3.132
EndoSkarn	32 – Mineralized	95	3.125
EndoSkarn	32 – Unmineralized	94	3.169
Breccia	34 – Mineralized	66	2.484
Breccia	34 – Unmineralized	54	2.642
Intrusives	36 – Mineralized	52	2.629
Intrusives	36 – Unmineralized	255	2.603
Hornfels	37 – Mineralized	72	2.869
Hornfels	37 – Unmineralized	160	2.849
Alluvium	38 – Mineralized	0	2.479 (assigned)
Alluvium	38 – Unmineralized	4	2.479
Marble/Limestone	39 – Mineralized	38	2.866
Marble/Limestone	39 – Unmineralized	88	2.675
Dyke	40 – Mineralized	4	2.830
Dyke	40 – Unmineralized	16	2.743
Massive Sulfide Oxide	41 – Mineralized	48	3.327
Massive Sulfide Oxide	41 – Unmineralized	44	3.691
Fault Gouge	42 – Mineralized	28	2.572
Fault Gouge	42 – Unmineralized	37	2.544

Fifty-three SG measurements were rejected as outliers (low and high) prior to calculating averages. Lithology types were updated to reflect relogging efforts recorded in the April 6, 2012 database, as well as lithology updates made by Amec Foster Wheeler M&M to the 3.5 m composites (refer to Section 14).

For the infill El Limón Pit B and Guajes infill mineral resource models completed in 2017 and 2016, SG values were assigned using values from Table 11-1.

The El Limón Sur Model mineral resource model used SG determinations by rock type from 137 wax immersion density determinations. Values are as shown in Table 11-2.

Table 11-2: El Limón Sur Update Model Specific Gravity Assigned by Lithology Type

Rock Type	Number of Samples	Unmineralized SG (g/cm^3)	Number of Samples	Mineralized SG (g/cm^3)
Exoskarn	22	3.40	23	3.35
Endoskarn	15	3.03	23	3.11
Breccia	4	2.30	12	2.28
Hornfels	18	2.99	1	2.93
Marble/Limestone	28	2.73	3	2.78
Massive Sulfides Oxides	NS		2	4.35
Granodiorite	16	2.63	3	2.65
Feldspar Porphyry	15	2.66	1	2.59
Feldspar Biotite Hornblende Quartz Porphyry	15	2.70	NS	
Quartz Feldspar Hornblende Porphyry	1	2.78	NS	
Mafic Dykes	1	2.40	NS	
Fine Grain Biotite	2	2.71	NS	

Note: NS = no sample

A total of 244 Media Luna drill intervals were selected for density determination based on rock type and assay values and six-inch pieces of core were sent to ALS Global (ALS) in Tucson, Arizona, an independent certified laboratory, for density determination by the wax immersion method (ALS code OA-GRA08a). A set of 12 core samples from the same (adjacent) intervals were sent to SGS in Tucson to check the ALS results and density was determined using the wax immersion method (ASTM method C 914-79).

Table 11-3 summarizes the average results by rock type. A preliminary comparison of the ALS and SGS results show that the ALS results are biased high by an average of approximately 0.1 g/cm^3 across all rock types when compared to SGS values. This bias equals about a 3.0% bias when comparing the difference to an average value of about 2.9 g/cm^3. When comparing the results by rock type, there is a very consistent bias of between 0.08 to 0.21 g/cm^3, with the only rock types not showing a significant bias being two of the porphyry types (rock codes 62 and 63).

In MPH opinion, the ALS density determinations are adequate for use in the Media Luna mineral resource estimate. Additional work is required to determine the source of the bias between the results produced by ALS and SGS.

Table 11-3: 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

For the Sub-Sill mineral resource model, SG was assigned by rock type from 107 wax immersion density determinations. MML completed the SG work, MPH reviewed the work and found it to be adequate for mineral resource estimation, Table 11-4 shows the density determinations.

Table 11-4: Density Sub-Sill

Rock Type	Rock Code	Number of Determinations	Mean Density Value (g/cm³)
Endoskarn Um	31	5	3.03
Endoskarn Min	31	14	3.40
Exoskarn Um	32	12	2.65
Exoskarn Min	32	22	3.45
Hornfels	37	10	2.81
Marble/Limestone	39	10	2.64
Massive Sulfides Oxides	41	7	3.85
Granodiorite	60	15	2.56
Feldspar−Biotite−Hornblend−Quartz Porphyry	62	8	2.53
Quartz−Feldspar−Hornblend Porphyry	63	4	2.54

The cut-off value for un-mineralized, “Um”, and mineralized “Min”, is 0.3 Au gpt.

11.3 ANALYTICAL AND TEST LABORATORIES

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 period 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.

During the 2011–2012 El Limón Guajes 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. SGS Nuevo Balsas has performed both sample preparation and analytical functions.

Prepared sample pulps were then sent to the SGS laboratories in 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.

Samples for the El Limón Sur program were prepared and assayed by the SGS Nuevo Balsas laboratory.

Sample preparation at Media Luna was completed by SGS Nuevo Balsas between 2012 and 2013. Drill samples for the first 11 drillholes completed at Media Luna 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 accreditations.

For the 2014 Modelo–La Fe and 2015 Media Luna 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 a infill drilling campaign in the Media Luna Resources area. Bureau Veritas was chosen as a new laboratory. Core samples will be prepared by Bureau Veritas in their Durango Laboratory prior to being analyzed by Bureau Veritas in Vancouver. Check assay samples will be sent to SGS.

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 ran 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

Torex drill samples for the 2010–2012 El Limón and Guajes program were prepared by SGS in Nuevo Balsas, Mexico. 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. Samples were then dispatched to the SGS laboratory in Durango, Mexico, and assayed for gold 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. Silver, As, Ca, Fe, Mg, S, and 26 other elements were determined by aqua regia ICP-AES. 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 reassayed by 30 g gravimetric fire assay.

Samples for El Limón Sur were assayed by SGS in Nuevo Balsas. The same assay methodology as noted above for El Limón and Guajes was used.

In the case of Media Luna 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 Media Luna 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.

For 2017-2018 Media Luna drilling program, sample preparation will be done by Bureau Veritas Durango. Samples will be crushed 70% passing 2mm. Pulverization of 250 g to 85% passing 75µm. The split of 250 g of pulverized material is dispatched to Bureau Veritas to be analyzed by 30 g Fire assay with AA finish (FA430). Au over limit (10g/t) will be re-assayed by fire assay with gravimetric finish (FA530-Au). 34 elements will be determinate by aqua regia digestion ICP-ES and ICP-MS (AQ270). Samples with values greater than 1000 pm will be re-assay by fire assay with gravimetric finish (FA530-Ag). Samples with copper values greater than 10000 (1%) will be re-assay by multi-acid ore grade method (MA404). The remaining pulp will be returned to the site for storage.

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 RC cuttings that were considered to be unmineralized. 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.

Through October 2012, Torex considered Media Luna an early-stage project and the QA/QC protocol was designed for a 2% insertion rate of control samples. Beginning in October 2012, the project was raised to the mineral resource estimation stage and as a result, the insertion rate was raised to 5%. The 2014 Media Luna 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 El Limón and Guajes drill programs, and the early Media Luna drilling. All CRMs were sourced from CDN Resource Laboratories (CDN) in Langley, British Columbia, Canada. The CRMs cover 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 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.

11.5.2.2 Blanks

Blanks are inserted at a rate of one in 20 samples. 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 site that has very low gold, copper and silver values. Blank samples have been used for all of Torex's El Limón, Guajes and Media Luna programs.

11.5.2.3 Duplicates

Quarter core, coarse, and pulp duplicate samples have been regularly submitted in the Torex programs at El Limón, Guajes and Media Luna.

11.5.2.4 Check Assays

A total of 300 assay intervals had been submitted for gold check assay, and 1,027 assay intervals had been submitted for silver check assay at Acme Vancouver, at the time of the El Limón and Guajes databases were closed for estimation purposes. No significant bias was observed in the original SGS gold and silver assays.

Check assay programs completed at Media Luna 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.

11.5.3 Media Luna Silver Re-Assays

A QC review of the Media Luna silver data in mid-2013 identified a low bias for silver based on check assays at Acme.

To investigate the potential low bias, a suite of 141 sample pulps were submitted to TSL for repeat Ag analyses. Silver values greater than 10 ppm, determined by three-acid digest with an AA reading by SGS (method AAS21E) were compared against TSL Ag values, determined by a “total” three-acid digest.

The TSL and Acme Ag assays were higher than SGS Ag values. The majority of these samples would be included in ore zones due to the positive correlation with gold and copper, and high magnetite or sulphides.

SGS agreed to re-assay 2,771 samples with previously reported values over 10 ppm. SGS agreed that the AAS21E method resulted in a low bias. SGS suggested that the cause of the low bias for method AAS21E was high viscosity, since 2 g of material was used for the dissolution and this may have affected the uptake rate on the AAS.

SGS proposed that the Ag assay method be converted to AAS10D for future analyses. The main difference with the AAS21E method is that 0.5 g is digested with HCl and HNO_3 acids (with HF excluded) for the AAS10D method; the final volume of 50 mL and AAS finish are the same for the two methods.

Samples with original AAS21E Ag assays that fell between 10 to 100 g/t Ag have re-assayed AAS10D Ag values that are 10% higher on average. The re-assays were lower than the original Ag assay for approximately 20% of the samples, but were higher than the original assays for the remaining 80% of samples. The samples with greater than 100 g/t Ag were generally not found to have a bias between the AAS21E and AAS10D Ag values. The exception was a small group of 13 samples that also required re-pulverizing. These samples had a low bias of 7% on average (up to -20% bias) which again may be related to oxidation of sulphides.

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.

11.6.2 Media Luna

Drillhole data for the Media Luna Project is logged in the field and entered into an IPAQ and exported in *.txt* format and Excel spreadsheets by Torex. Drillhole logs are manually reviewed for discrepancies and inconsistencies in the sample interval column and the rock code column. Once the drill logs are cleared they are imported to Microsoft Access and transferred to the master database, where additional data validation checks are undertaken.

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

Drillhole collar data were manually entered into the database. Down-hole survey data were loaded into the database from digital files produced by the survey equipment.

Additional core information such as geotechnical, magnetic susceptibility, mineralization and alteration types and mineralogy, and core recovery is also stored in the database.

Access permission for entering and editing data into the database is restricted to the Database Administrator. The database is hosted on the Torex server located in Nuevo Balsas and which is routinely backed up every day for protection from data loss due to potential drive failures or other technical issues.

11.7 SAMPLE SECURITY

Sample security is not generally practiced at Morelos during the drilling programs, due to the remote nature of the site. Sample security relied 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 through mid-2014, sampled and bagged core was delivered by Torex staff to the SGS sample preparation facility in Nuevo Balsas.

The protocol changed in mid-2014 and from then to date, samples are picked up at site by Acme Guadalajara staff, for sample preparation, and then sent by Acme via air to their analytical laboratory in Vancouver.

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 make certain that all samples were received by the laboratory.

11.8 SAMPLE STORAGE

Coarse rejects and pulps from the 2003 through mid-2014 drill programs are stored at a secured warehouse in Nuevo Balsas.

Coarse and rejects from the 2014 and 2015 drilling programs are stored at a new warehouse in the San Miguel Exploration Camp (Media Luna). Coarse rejects in plastic bags are stored in cardboard boxes on steel racks in a separate locked building. The coarse reject boxes are labeled and stored by sample number.

Drill core from the 2003 through 2014 drilling programs is stored in wooden core boxes on steel racks in a building in Nuevo Balsas.

In 2014, a new core shack was built in the San Miguel Exploration Camp (Media Luna) and this facility currently stores drill core from the 2014-2015 drilling campaigns.

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

11.9 COMMENTS ON SECTION 11

In the opinion of the MPH QP, the sampling methods are acceptable, meet industry-standard practice and are adequate for mineral resource estimation, based on the following:

- Drill sampling has been adequately spaced to first define, then infill, gold–silver anomalies to produce prospect-scale and deposit-scale drill data at El Limón and Guajes.
- Drill sampling has been adequately spaced to first define, then infill, gold-copper-silver anomalies to produce prospect-scale and deposit-scale drill data at Media Luna.
- Since inception of the Torex drill campaigns, data have been collected following industry-standard sampling protocols (see Section 12 for discussion of third-party reviews).
- Sample collection and handling of core was undertaken in accordance with industry standard practices, with procedures to limit potential sample losses and sampling biases.
- Sample intervals in core, typically comprising 1 m to 3 m intervals, are considered to be adequately representative of the true thicknesses of mineralization.

- Sample preparation for samples that support the mineral resource estimation at El Limón and Guajes has followed a similar procedure since Torex commenced drilling in 2010. The preparation procedure is in line with industry-standard methods for gold–silver deposits.
- Sample preparation for samples that support mineral resource estimation at Media Luna has followed a similar procedure since Torex commenced drilling in 2012. The preparation procedure is in line with industry-standard methods for polymetallic deposits.
- Exploration and infill core programs were analyzed by independent laboratories using industry-standard methods for gold, copper and silver analysis.
- Specific gravity determination procedures are consistent with industry-standard procedures. While there are sufficient acceptable specific gravity determinations to support the specific gravity values utilized in tonnage interpolations, additional determinations are recommended.
- Typically, drill programs included insertion of blank and standard samples. The QA/QC program results (see Section 12) do not indicate any problems with the analytical programs, therefore the analyses from the core drilling are suitable for inclusion in mineral resource estimation.
- Data that were collected were subject to validation, using in-built program triggers that automatically checked data on upload to the database.
- Verification is performed on all digitally-collected data on upload to the main database and includes checks on recovery, surveys, collar co-ordinates, lithology data and assay data. The checks are appropriate and consistent with industry standards.
- Sample security is consistent with industry standards. The samples were always attended or locked in the on-site sample preparation facility. Chain-of-custody procedures consist of filling out sample submittal forms that are sent to the laboratory with sample shipments to make certain that all samples are received by the laboratory.
- Current sample storage procedures and storage areas are consistent with industry standards.

12 DATA VERIFICATION

The key points of this section are:

- The data verification programs undertaken by the QPs on the data collected adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in the mineral resource estimation in this report.

- Since 2005 to 2017 data audits and QA/QC results have been performed and checked continuously and reviewed before each resource modelling iteration.

12.1 AMEC FOSTER WHEELER M&M 2005

During an audit to support the mineral resource estimation in 2005, Amec Foster Wheeler M&M performed the following:

- Reviewed core sampling and logging procedures and trench and road-cut sampling procedures. The practices employed by Teck were found to conform to industry-standard practices.
- Compared logged lithologies, collar and down-hole surveys and assays in the digital database against original source documents. In Amec Foster Wheeler M&M's opinion, the digital database at the time was representative of the available exploration data and was sufficiently free from error to support mineral resource estimation.
- Reviewed logging and sampling practices in selected drill core and visually inspected mineralized intervals in the core. In general, Amec Foster Wheeler M&M found logging practices to meet industry standards, and that drill logs were well collected and representative of the core inspected. Observed mineralized intervals were marked by competent rock with high core recovery except for areas of mineralized fault zones.
- Reviewed gold analytical accuracy data from the quality control programs (check, blank, pulp, quarter core duplicates). Check assays on GDL original gold assays by ALS Chemex, Assayers, and Acme show a minor low bias in the GDL assays of between 2% and 8%. Assays of blank samples reported occasional values outside acceptable limits. The precision of GDL gold assays on pulp duplicates was marginal, but acceptable for a gold skarn deposit with coarse gold. Calculated precision for the drill programs was approximately 30% at the 90% confidence limit.
- Reviewed sampling precision data for quarter core duplicates. Amec Foster Wheeler M&M considered the quarter-core duplicates at Morelos to have poor sampling precision. This is not altogether unexpected in a gold skarn deposit with relatively high gold grades.
- Reviewed core versus RC twin data.

Recommendations were provided to Teck personnel and some changes to the QA/QC programs were introduced. It was also recommended that when twin drilling of RC holes had been completed, that the RC data be removed from consideration in resource estimates.

12.2 TECK, 2008

Teck used built-in checks in the acQuire® database to monitor analytical results and identify any CRM or blank failures. Where failures were noted, the laboratory was requested to re-analyze the samples and to pay more attention to cleaning the pulverizers between samples.

At the beginning of the 2006 program, the sample preparation protocol was changed in order to reduce the sampling error. The percentage passing 10 mesh at the crushing stage was increased from 70% to 85%. Although Teck considered that the sampling error could be further reduced by crushing finer or by pulverizing a larger sample, practical considerations prevented this.

12.3 AMEC FOSTER WHEELER M&M 2009

Amec Foster Wheeler M&M reviewed the assay data from drill programs completed between 2006 and 2008. All samples were assayed for gold by the Teck-owned GDL laboratory. The laboratory standard reference materials were internal laboratory reference materials that have not been assayed by any other laboratories (no round robin or certification). Amec Foster Wheeler M&M calculated the uncertainty of the certified values of each of the CDN CRMs used. Amec Foster Wheeler M&M concluded that the GDL assays are very unlikely to have a bias exceeding 5% and the assays are therefore acceptably accurate for use in the mineral resource estimation.

Torex provided Amec Foster Wheeler M&M with a Microsoft Access database containing all available drilling information. Amec Foster Wheeler M&M's review included:

- Review of assay data in the database against original assay certificates.
- Checks on data transfer errors when uploading survey and logging data to the database by comparing selected data against the original drill logs.
- Review of logging and sampling practices in selected drillholes, and visual inspection of mineralized intervals.

In Amec Foster Wheeler M&M's opinion, the digital database was found to be representative of the available exploration data and was sufficiently free from significant error to support resource estimation.

Amec Foster Wheeler M&M found logging practices met industry standards, and that drill logs were well collected and generally representative of the core inspected. Observed mineralized intervals were marked by competent rock with high core recovery.

Amec Foster Wheeler M&M selected seven quarter-core sample intervals from half core and collected three chip samples from mineralized outcrop (one from Los Guajes and two from El Limón) to confirm the presence of gold mineralization. The Amec Foster Wheeler M&M values confirm the presence of gold mineralization, and confirm that high gold grades can be expected.

12.4 AMEC FOSTER WHEELER M&M 2012

Amec Foster Wheeler M&M reviewed the available QA/QC data in support of an updated mineral resource estimate for El Limón and Guajes and noted:

- Of 2,749 CRMs assayed by SGS from 2010 to March 2012 and evaluated, no significant bias in the SGS gold assays was observed.
- Out of a total of 2,982 blanks assayed for gold, only 25 (0.8%) reported values greater than 10 times the lower detection limit of 0.005 g/t.
- Poor precision levels for quarter core and pulp duplicates were observed, and are most likely the result of coarse gold in the samples and the inadequacy of the sample preparation scheme to generate a homogeneous sub-sample for assay. The poor precision of the pulp duplicates indicates a large gold particle size is likely present in many samples, and that more reproducible results would require a larger fire assay mass, achieved either by screen fire assay or by multiple fire assay charges.

12.5 AMEC FOSTER WHEELER M&M 2013

Amec Foster Wheeler M&M performed data verification checks of the mineral resource database every month from October 2012 through August 2013 in support of the initial Media Luna mineral resource estimate. Torex provided Amec Foster Wheeler M&M with database extracts in Microsoft Access format.

Each month Amec Foster Wheeler M&M randomly selected approximately 10% of the new drillholes for audit and compared the collar surveys, down-hole surveys, lithology logs and assay data against the original source documents.

A total of 30 drillholes were audited and the data-entry error rate was found to be below the acceptable threshold of 1.0%. It was concluded that the database was acceptable to support mineral resource estimation.

Amec Foster Wheeler M&M also reviewed the assay QA/QC results from Torex's drill programs in October 2012 and March, May, and August 2013, with the following findings:

- Gold, copper and silver assays are acceptably accurate for purposes of mineral resource estimation, based upon blind CRM and check assay results.
- The precision of the gold, copper and silver assays is acceptable for purposes of mineral resource estimation, based upon internal laboratory duplicate results.
- There is no significant carryover contamination in the gold, copper and silver assays, based upon blind blank results.

12.6 AMEC FOSTER WHEELER M&M 2014

In May 2014, Amec Foster Wheeler M&M performed an audit of the El Limón Sur information added to the database from the drilling completed by Torex in 2014. The audit consisted of checking the database records against the original documentation for the collar surveys, downhole surveys, lithology logs, and assays for approximately 10% of the drillholes completed by Torex in 2014. The purpose of the audit was to ensure that the drilling information was accurately entered into the database and that the data are acceptably accurate to support resource estimation.

A total of four drillholes were randomly selected from the 41 drillholes that had been completed at the time. The original records were requested from Torex for these drillholes for the collar, survey, and the lithology audit and from SGS for the assay audit.

No errors were found as a result of the audit and the database was determined to be acceptably free from error and acceptably accurate for the purposes of resource estimation.

12.7 MPH ELG INFILL 2017

For infill models, MPH reviewed internal reports completed by Torex, MPH found the results of Torex internal audits of sufficient quality to support the mineral resource estimation.

12.7.1 Infill Torex Internal Database Quality Report

Torex maintains an internal database quality report prepared by the Technical Services Group. The following key points from the Technical Services Group are from the January 25, 2017 report on the Sub-Sill database:

- The collar location and orientation data were checked against the collar survey records and no data entry errors were found (0.0% error rate).

- 1,302 lithology values (From, To, and Code from logged intervals) were checked against electronic logs from geologists and observed zero errors (0.0% error rate).
- A total of 3,934 assay records were checked against 18 digital SGS certificates for gold, Ag, and Cu assays values. 1,465 assay records were checked for multi-elements results from Vancouver certificates. No errors were found (0.0% error rate).

Database integrity checks:

- Overlapping lithology or assay intervals: 0% of errors found.
- Distinct HoleIDs in the Collars table: 34 HoleIDs
- HoleID count in Surveys table: 34 HoleIDs.
- HoleID count in Assays table: 34 HoleIDs.
- Range Checks Min/Max Values for Collar Azimuth, Dip from Collars and Surveys table.
- Holes where Azimuth in Collars and Surveys table > 360 or < 0: 0% of errors found.
- Holes where Dip in Collars and Surveys table > 90 or < -90: 0% of errors found.
- Min/Max From, To from Assays table.
- Negative assay intervals in Assays table: 0% of errors found.
- Assay values out of range: 0% of errors found.
- Lithology code values not matching acceptable code list: 0% of errors found.
- Collars missing survey, lithology, or assay information: 0% of errors found.
- Null values for Easting, Northing, Elevation, or TD in Collars table: 0% of errors found.
- Survey, lithology, or assay data past the collar depth value: 0% of errors found.
- Azimuth and dip values out of range: 0% of errors found.
- Collar location values out of range: 0% of errors found.
- Check for unusually small assay intervals (<0.03 m): 0 records found.
- Large assay intervals in Assays table (>3m): 6 records found (SST-02, SST-16, SST-36, SST-33, SST-35 and SST-21 have samples that are large in length due to poor core recovery).
- Min/Max Au, Ag and Cu in Assays table: 0% of errors found.
- Duplicate assay intervals: 0% of errors found.
- Duplicate survey depths in the Surveys table: 0% of errors found.
- Internal intervals not sampled: 0% of errors found.
- Overlapping Assay Intervals: 0% of errors found.
- Assays in the Assays table that are beyond the TD in the Collars table: 0% of errors found.
- Downhole surveys in the Surveys table that are beyond the TD in the Collars table: 0% of errors found.
- Drillholes in Assays table that have no match in the Collars table: 0% of errors found.
- Drillholes in Surveys table that have no match in the Collars table: 0% of errors found.

Potential problems identified:

1. There are 6 large assay intervals in Assays table (larger than 3 m). It was a decision-making mistake by the geologist when defining the interval. However, these 6 intervals have a Core recovery poorly adequate (< 30%).
2. Reviewed the core recovery results for the Sub-Sill drilling. In general, core recovery appears adequate, with approximately 93% of the logged intervals having core recovery greater than 70%.
3. There are only 146 intervals (of 2,585 geotech intervals) with poor core recovery (recovery < 40%) and they were investigated by MML to determine whether the assays are representative of the interval. It can be difficult

to take representative samples from these intervals with poor core recovery, and this can lead to biased (high or low) assays for these intervals.

These internal reports are ongoing. As new records are added to the database the reports are updated and reviewed before new mineral resource estimation.

12.8 SUB-SILL DATA 2017

MPH reviewed a report completed by Analytical Solutions Ltd. and agree with their conclusions that the data is of sufficient quality to support a resource estimate. Further details on the report are provided below.

12.8.1 QA/QC Review September 2017 Analytical Solutions Ltd., Sub-Sill Data

The report "Summary Report Torex Gold Resources Inc. Sub-Sill Database QA/QC Review September 2017, Lynda Bloom, M.Sc., P. Geo, Chantal Jolette, B.Sc., P. Geo", made the following suggestions and conclusion:

- Obtain reference materials with gold grades above 5 gpt to monitor sample with gold grades above 5gpt Au.
- QC failures should be evaluated on receipt of assays and action taken prior to uploading data to the database.
- Maintain an Action Table to track the reference material failures, whether action was taken and what the correction action was if any.
- Prepare QC control charts monthly and evaluate analytical results for drift and not only QC failures.
- Monitor additional ICP elements for drift on a routine basis in addition to the economic elements, Cu, Ag and Au.
- Review the round robin data, used to certify the in-house reference materials, and revise values for Cu and Ag.
- Torex maintains a QC program that meets or exceeds industry standards. Sample preparation, security and analytical procedures are all industry-standard and produce analytical results with accuracy and precision that is suitable for mineral resource estimation.

12.9 COMMENTS ON SECTION 12

From completing the above noted data verification procedures, in the opinion of the MPH QP:

- The El Limón, Guajes and Media Luna mineral resource databases accurately represent the original source data.
- Gold, silver and, in the case of Media Luna, copper assays are acceptably accurate for purposes of the mineral resource estimation included in this report, based upon blind CRM and check assay results.
- The precision of the gold, silver and copper assays is acceptable for purposes of the mineral resource estimation included in this report, based upon internal laboratory duplicate results.
- There is no significant carryover contamination in the gold, silver and copper assays, based upon blind blank results.

There were no limitations or failure by the MPH QP to conduct the data verification for this report. The data verification programs undertaken on the data collected adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in mineral resource estimation included in this report. Sample data collected appropriately reflected deposit dimensions, true widths of mineralization, and the style of the deposits. Drill data were typically verified prior to the mineral resource estimation by running a software program check. Database verification indicates that an appropriately clean database has been developed, with few errors.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

The key points of this section are as follows:

- The mineral processes described are the operating processes and/or are modifications currently underway to the ELG Plant.
- The tests were completed by independent commercial laboratories or by internal sources during plant operations.
- Operating results form the basis of the process results. Since declaration of commercial production gold recovery has averaged 86.1% (range of 75 – 90%) and silver has averaged 22.8% (range of 3 - 43%). Within this report, recoveries used in the financial model for Open Pit ore is set at 86.5% for 2018 and 87% for future years for gold and 23% for silver for 2018 and future years. Recovery values are about 2% below extraction values as losses are incurred to remove gold and silver from solution into doré. With operational focus on the CIP process, this gap could be reduced, especially after start-up of the SART plant.
- Cyanide leaching followed by carbon in pulp adsorption has proven to be an effective recovery process. However, soluble copper in the ore has proven to be an issue effecting the process. Measures were put in place to reduce its impact in the short term. As a permanent solution a SART plant is being added to the process.
- Sub-Sill ore is expected to have a weighted average recovery of ~85% for Au and ~39% for Ag through the existing ELG Plant.
- Bond work index weighted average is 16.2 kWh/t. The ore is considered moderate hard to hard. To achieve the steady state level of 14,000 tpd balancing of the grinding circuit is underway. Test work showed that a K_{80} grind size of 90 microns (operating range 80 to 100) provided the same recovery as the planned grind size of 67 um.

All initial metallurgical test programs were completed by independent commercial metallurgical laboratories. After plant start-up, additional test work has been carried out both internally and at external laboratories. Drill core from exploration drilling was sampled and used for metallurgical testing for initial plant design. Follow-up test work was carried out on run of mine ore samples as they became available. The selection of drill core was made with the usual standard of care so that the samples submitted for testing represent all the mineralized rock types within the mineralized area.

After plant start-up, the company identified an issue with the quality of doré. Additional test work was carried out both internally and at external laboratories. Elevated levels of cyanide soluble copper in the ore were determined to be the cause. This issue is being permanently addressed with the addition of a SART plant to the process, expected is to be operational in mid-2018.

Below is the Work Index value by rock type summary based on test work prior to start of operation updated with 2018 Life of Mine Plan.

Table 13-1: Work Index Value by Rock Type 2018 Life of Mine Plan

Rock Type	Model Code	Percent of Ore	Ore Mt	Work Index Values	
				KWh/ton	KWh/tonne
Skarn	31	51.6%	17.5	14.4	15.9
Retrograde Skarn	32	21.3%	7.2	11.6	12.8
Oxide	33	0.0%	0.0	12.4	13.6
Breccia	34	2.6%	0.9	15.9	17.5
Dissolution Breccia	35	0.0%	0.0	NA	NA
Intrusive	36	0.0%	0.0	15.7	17.3
Hornfels	37	18.7%	6.3	19.8	21.9
Marble/Limestone	39	1.4%	0.5	9.6	10.6
Massive Sulphides	41	0.0%	0.0	14.6	16.1
Gouge/Fault material	42	0.1%	0.0	14.2	15.7
Granodiorite	60	0.4%	0.1	14.2	15.7
Feldspar–biotite–hornblende–quartz porphyry	62	0.7%	0.2	NA	NA
Quartz–feldspar–hornblende porphyry	63	0.0%	0.0	NA	NA
Undefined* (ELG UG and Stockpile)	NA	3.1%	1.1	NA	NA
Total Ore**		**100%**	**33.8**	**14.80**	**16.34**

* - Ore currently in stockpile rock type, not available
* - ELG UG ore in this table not defined by rock type
** - Wt. average for Work Index does not include NA

The graph below shows the reconciled monthly recoveries for gold and silver since ELG Plant achieved Commercial Production along with the Life of Mine estimated gold and silver recoveries.

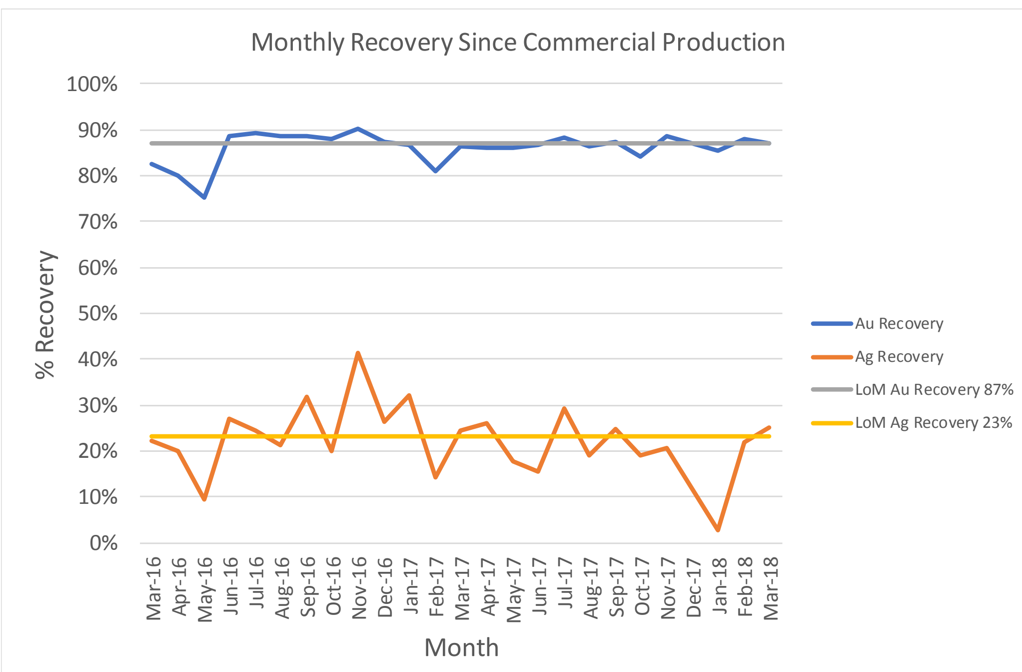


Figure 13-1: Au and Ag Recovery from start Commercial Production (March 2016) to end of March 2018

13.1 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 filtration system. Both issues have been addressed and are in the final stages of completion. A SART plant has been added to the process and the filtration system has been optimized and additional capacity has been installed.

The following is a listing of reports with respect to the test work conducted on the ELG deposits prior to and during operation. Sections 13.4 and 13.9 of this report deal with the two operational issues identified, soluble copper and tailings filter capacity.

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.
11. Pocock Industrial Inc. Salt Lake City, Utah, June-July 2011, Flocculant Screening, Gravity Sedimentation, Pulp Rheology, and Pressure Filtration Study for Morelos Property.
12. METCON Research, Inc., Tucson, Arizona, August 2011 Morelos Property, Metallurgical Study on Composite Samples.
13. METCON Research, Inc., Tucson, Arizona, December 2011 Morelos Property, Additional Cyanidation and Detoxification Study on Composite samples.
14. Huls Consulting Inc. Reno, NV, July 19, 2016. Eficiencia Adsorción de Oro en CIP.
15. Huls Consulting Inc. Reno, NV, February 21, 2017. Results leachability testing of Sub-Sill material. Analysis of test results generated at ALS Metallurgy, Kamloops, BC, Canada.
16. Huls Consulting Inc. Reno, NV, June 30, 2017. Follow up Leach results variability tests on Sub-Sill composites. Analysis of test results generated at ALS Metallurgy, Kamloops, BC, Canada.

17. Huls Consulting Inc. Reno, NV, June 1, 2017. Follow up Leach and Flotation tests on Sub-Sill composites. Analysis of test results generated at ALS Metallurgy, Kamloops, BC, Canada.
18. Analytical Solutions Ltd. April 11, 2017. Lynda Bloom, Toronto. TOREX – SUB-SILL Geochemistry.
19. MORELOS Project Evaluation Report M3-PN110063 - April 2012 – M3, Tucson, AZ.
20. Huls Consulting Inc. Reno, NV, May 28, 2017. Report of May 26 – 31, 2017 visit.
21. Huls Consulting Inc. Reno, NV. July 8, 2016. Reason for Cold wash and update May-June 2016 performance.
22. Reliable Controls, Salt Lake City, UT. February 3, 2016. 010- Analysis of Detox Performance at MML.
23. Elbow Creek Engineering Inc., Mike Botz. March 14, 2016. Torex Gold Resources – Minera Media Luna Cyanide Detoxification Plant Trip Report, Rev. 0.
24. Elbow Creek Engineering Inc., Mike Botz. May 22, 2016. Torex Gold Resources – Minera Media Luna May 2016 Trip Report, Rev. 0.
25. Cryoinfra, Ma. De los Angelos Casales H., September 29, 2016. Destrucción de Cianuro, asistida con oxígeno.
26. Test work by MML in conjunction with Orion, November 2016. November 16, 2016. Pruebas Industrial MT-2000.
27. Orion Productos Industriales S.A. de C.V. Mexico City, Mexico. December 11, 2016. Presentación-Torex resumen ejecutivo dic 11.
28. Ruben Zevallos, MML Plant manager, Email correspondence August 29, 2017. Eventos sobresalientes detox.
29. Reliable Controls, Salt Lake City, UT, November 2, 2016. 15.044 – Torex Gold Resources Inc. – Media Luna Project
30. Miller Filtration Corp, Oakland, CA, Tony Miller. Miller Report_Torex Gold Morelos_6-Nov-2016_English.
31. POCOCK INDUSTRIAL, INC., Salt Lake City, UT. March 10, 2017. Torex Gold -_- Media Luna Vacuum Filtration (003).
32. FLSmidth Salt Lake City, Inc., Midvale, UT. March 24, 2017. Torex MML - Promet101 Vacuum belt tails filter evaluation Rev A1.
33. Tenova Delkor test site at Takraf, Burnaby, BC, Canada. August 9, 2017. D1718-Torex Gold TW_TCAN.BF.FP Test Report-R1.
34. Metso Process Optimisation Services, Optimisation Study at Los Morelos Grinding Circuit, 23 January 2017
35. SART Copper Precipitate Analysis – April 20, 2017 – internal report 24. Elbow Creek Engineering Inc., Mike Botz.

13.2 METALLURGICAL TESTING

Pre-construction test work as well as more recent test work is described below. Note that recoveries, and consumption stated in Section 17 for processing of the open pit ores are for the most part based on actual operating results, the exception is for the operation and effect of the SART plant. SART test work is described in Section 13.4.1. Work is presented chronologically.

2002 - 2007

Preliminary scoping tests in 2002 by International Metallurgical and Environmental Inc. provided an initial characterization of the mineral: The Bond Mill Work Index varied from 10.7 for oxide ore to over 25 kWh/t for Hornfels.

Gold recovery by gravity appeared unsuccessful, reaching no more than 14.4%. Leaching a flotation concentrate containing about 41.1 g Au/t, resulted in 77.6% extraction, versus 83.5% for whole-ore leach. Leaching flotation tailings added no more than about 3.1%, still below the whole-ore leach result. Similarly, poor flotation + leach results were generated by G&T in 2015: although 80% copper was recovered, the concentrate only assayed 1.4% Copper. Gold recovery to concentrate was 71% or less. Direct cyanidation achieved gold extraction of up to 90%, dropping off to mid 60% range when coarsening the grind from P_{80} of 75 to 150 microns.

In 2003 and 2004, G&T carried out tests on eleven composite samples from El Limón, Guajes, East and West. El Limón composites assayed between 1 and 8.4 g/t depending on the ore type, Guajes East between 0.82 and 9.8 g/t, and Guajes West between 1.2 and 4.5 g Au/t ore as well as a Breccia sample contained 39.7 g/t.

Table 13-2 presents a summary of assays and Ball Mill Work Index data, as well as direct cyanidation results at two P_{80} grind sizes. Gold extraction appears subject to grind size distribution of leach feed material.

Table 13-2: Head Assays, BMWI and Extraction Results on Composite Samples Tested in 2003

			Coarse Grind		Fine Grind	
	Grade	Work Index	Grind	Au Ext	Grind	Au Ext
Composite Sample	g/t Au	kWh/t	(microns)	(%)	(microns)	(%)
El Limón						
Hornfels	2.42	22.8	73	84.6	49	87.9
Oxide (fault)	3.21	15.0 *	69	90.8	38	94.2
Oxide (surface)	8.41	13.4	76	91.9	45	94.3
Prograde Garnet (North)	1.09	16.9	73	92.0	51	93.2
Prograde Garnet (South)	3.04	17.2	62	87.8	52	91.2
Prograde Pyroxene (North)	5.7	16	65	90.8	46	93.1
Prograde Pyroxene (South)	3.36	16	67	89.4	52	87.5
Retrograde	6.11	13	61	85.0	25	89.0
Guajes East						
Massive Sulphide	0.82	16.1	60	33.2	40	35.6
Prograde	4.99	14.9	71	88.1	51	88.7
Retrograde	9.79	12.6 *	55	87.5	50	92.4
Guajes West						
Prograde Pyroxene	4.47	15.4	75	89.7	50	92.1
Prograde Garnet	2.15	15.4	75	77.8	50	79.6
Retrograde	7.92	-	75	79.8	50	83.2
Intrusive	1.22	-	75	87.4	50	93.3
Breccia	2.48	-	75	49.2	50	53.1
Breccia with Copper	39.7	-	75	85.7	-	-

* Estimate only – stability not attained

On these same samples, G&T in 2006 conducted additional cyanidation and Carbon loading tests. Table 13-3 provides a summary of extraction results, standardizing at a P80 of 65 microns, pre-aeration, a cyanide concentration of 800 mg/L at pH 11. For Carbon loading, carbon concentration was below 0.5 g/L resulting in loadings of up to 4,500 g/t gold a 1,350 g/t silver. Preliminary SO_2 –Air cyanide destruction tests using sodium metabisulphite reduced the CNWAD concentration to less than 1 mg/L.

Table 13-3: Leach Test Results

		Prograde Skarn		Oxide	
		0.5 kg tests	10 kg tests	0.5 kg tests	10 kg tests
Head	Au (g/t)	4.25	4.36	3.30	4.87
Residue	Au (g/t)	0.41	0.36	0.32	0.32
Extraction	Au (%)	90.5	91.7	90.5	93.5
CN Cons.	Kg/t	2.2	2.6	1.1	1.8

Further gravity test work again showed that pursuing gravity gold recovery was not economic due to gold locked in either sulphides or silicates.

Variability testing by G&T in 2007, using coarse rejects from the 2006 in-fill drilling program, mainly focused on breccia and retrograde. Cyanidation at P80 of 60 microns, at 800 mg/L CN at pH 11 for 48 hours produced the following results:

- Retrograde: average 79% gold extraction, ranging from 16 to 95%
- Breccia: average 69%, ranging from 17 to 93%
- Prograde: average 93.6%, ranging 87.4 to 97.1%

Grinding characteristics composite samples were determined by both the SMC and Bond Mill Work Index test protocols. Table 13-4 and Table 13-5 summarize the results. Resulting drop weight indices, DWi, range from 2 (soft) to 12 (high). Table 13-5 calculates the average BMWI for each ore type taking into account respective presence in the ore body.

Table 13-4: SMC Test Results

Sample Designation	SG	Dwi	A	b	BM Wi (kWh/t)
El Limón – Prograde Pyroxene	3.17	9.5	66.4	0.50	17.1
El Limón – Prograde Pyroxene	3.11	10.5	60.5	0.49	20.4
El Limón – Prograde Garnet	3.48	9.6	63.5	0.57	14.6
El Limón – Prograde Garnet	3.38	9.3	69.7	0.52	16.2
El Limón – Marble	2.72	2.2	73.4	1.70	8.6
El Limón - Hornfels	2.98	7.3	70.6	0.58	28.8
El Limón - Intrusive	2.69	8.6	92.2	0.34	18.2
El Limón – Low Grade Skarn	3.42	9.6	61.4	0.58	16.4
Guajes West – Prograde Pyroxene	3.31	12.3	72.3	0.37	14.5
Guajes West – Prograde Garnet	3.56	5.6	61.7	1.03	15.5
Guajes West - Breccia	2.57	6.0	61.6	0.69	18.6
Guajes West – Low Grade Skarn	3.47	6.5	58.9	0.90	15.0

The work indices from the previous tables were used to determine the weighted average of the Bond Ball Mill Work Index. This resulted in the work index weighted average of 17 kWh/tonne, as shown at the bottom of Table 13-5.

Table 13-5: Weighted Averages of Bond Ball Mill Work Indices by Ore Body

Rock type	%	Bond BMWI kWh/tonne
El Limón		
Skarn	33.6%	16.5
Retrograde skarn	0.4%	13.1
Oxide	0.9%	13.3
Breccia	0.9%	15
Argillic Intrusive	0.2%	18.2
Intrusive	9.3%	18.2
Hornfels	16.2%	22.8
Overburden	0.2%	13.3
Marble	2.0%	8.6
El Limón Total	63.8%	18.0
Guajes		
Skarn	22.7%	15
Retrograde skarn	1.3%	12.7
Oxide	0.2%	15
Breccia	2.0%	18.6
Argillic Intrusive	1.1%	16.1
Intrusive	5.6%	16.1
Hornfels	2.2%	15
Overburden	0.2%	15
Marble	0.9%	15
Guajes Total	36.2%	15.3
Total/Average	100.0%	17.0

2011

In 2011, METCON Research Inc. of Tucson, Arizona conducted metallurgical studies on composite samples representing the ore types of the Mine to ascertain the recovery of gold and silver via cyanidation leaching versus grade. Test work comprised of conventional cyanidation leaching, followed by Carbon-In-Pulp (CIP) gold recovery and cyanide detoxification with SO_2. Leach conditions were identical to those developed by G&T, as mentioned earlier. After leaching, agitation of the pulp with 5.5 grams (3 g/L) of activated carbon performed the CIP test for maximum adsorption of gold and silver. Subsequently, the addition of 10 grams of SO_2, supplied from sodium meta-bisulphite, for each gram of cyanide ion in the slurry, represented a simulation of the Air/SO_2 cyanide destruction process. The slurry contained less than 2 ppm cyanide after two hours of detoxification by vigorous agitation maintaining the pH between 9 to 10. Table 13-6 summarizes the metallurgical test results indicating head grade assays, gold and silver extractions, and reagent consumptions. The data developed from the metallurgical study indicated that gold and silver are amenable to cyanidation leaching and recoverable by conventional CIP process.

13.2.1 Leaching Extraction Evaluation

Bottle roll cyanidation test results were used to evaluate the relationship between ore grade and the percent gold extraction. A mathematical equation to describe that relationship could then be developed and used to predict the percent gold extraction for a specified ore grade. The test results from both the previous test programs and the recent test program conducted by METCON Research Inc. were compiled in a single database to analyze the data.

A graphical presentation of ore grade versus percent gold extraction results for all the tests in the database is shown in Figure 13-2. The data points identified by a lighter color are results from the METCON Research program. The data points identified by a darker color are results from older test programs. Two trend lines have been drawn on the graph to describe the data. The first trend line describes data for ore grades from 0 ppm to 0.39 ppm. The second trend line describes data for ore grades greater than 0.39 ppm. The equations that describe the trend lines are also shown in the figure. Of main interest is the second trend line, for ore grades greater than 0.39 ppm. The ore grade versus percent gold extraction data has a correlation coefficient value (r) of 0.41, representing a moderate correlation. The equation describing the data has coefficient of determination (r2) of 0.1677, which means that 17% of the data points are closest to the trend line described by the equation. It should be noted that these trend lines only provide an indication of expected extraction results for gold. From this Figure, a large cluster of data above the line is evident within the range of approximately 1.5 to 4.5 g/t gold in feed. This means that for such gold grades extraction results can vary between about 70 to 92%.

Information from the 2018 Life of Mine Plan was used to develop the Ore Type Distribution schedule presented in Table 13-7. For each of the identified six ore types similar extraction curves are presented in Table 13-8, again indicating the variability in results, an important understanding when following plant results. The predicted percent gold extraction for all the ore types with an overall weighted average percent gold extraction reached 87.1%.

Table 13-6: METCON Test Results

Source	Material Description	Head Grade		%Extraction		Consumptions	
		Au g/t	Ag g/t	Au	Ag	NaCN Kg/t	CaO Kg/t
El Limón	Prograde Skarn	0.881	4.5	73.29	14.98	1.331	0.689
	Prograde Skarn	1.577	4.3	70.11	10.04	1.850	1.629
	Prograde Skarn	3.568	14.2	69.29	0.90	3.417	1.325
	Prograde Skarn	23.107	5.3	88.24	40.16	0.608	1.090
Guajes East	Prograde Skarn	1.019	3.9	87.10	15.22	0.275	0.019
	Prograde Skarn	1.749	3.0	90.04	13.51	0.251	0.230
	Prograde Skarn	3.237	11.8	91.12	31.10	2.434	0.244
	Prograde Skarn	10.788	4.4	89.63	34.81	0.313	0.112
Guajes West	Prograde Skarn	1.199	2.5	94.98	11.80	1.451	0.754
	Prograde Skarn	1.175	2.9	88.49	11.46	1.063	0.906
	Prograde Skarn	3.042	3.7	90.82	19.26	1.886	2.051
	Prograde Skarn	4.958	3.4	89.01	28.73	0.777	0.817
El Limón	Porphyry + Endoskarn	0.818	0.6	87.39	52.82	0.158	0.417
	Porphyry + Endoskarn	1.688	0.9	86.85	45.69	0.092	0.254
	Porphyry + Endoskarn	3.228	0.9	87.43	57.89	0.186	0.302
	Porphyry + Endoskarn	6.219	1.7	81.96	53.40	0.399	0.381
Guajes East	Porphyry + Endoskarn	0.966	1.2	59.33	23.04	1.047	0.578
	Porphyry + Endoskarn	1.474	3.0	86.54	33.19	1.501	1.242
	Porphyry + Endoskarn	3.749	4.5	83.77	20.80	0.683	0.000
	Porphyry + Endoskarn	8.994	5.8	80.55	37.92	2.067	0.785
Guajes West	Porphyry + Endoskarn	0.902	3.2	66.26	28.37	0.901	0.268
	Porphyry + Endoskarn	.628	1.1	96.92	54.78	0.183	0.254
	Porphyry + Endoskarn	2.854	3.2	75.74	40.31	0.683	0.575
	Porphyry + Endoskarn	6.450	4.2	90.61	32.93	0.810	0.451
El Limón	Oxides	0.977	7.2	77.39	68.15	0.641	4.13
	Oxides	1.621	3.6	77.35	24.35	0.457	10.46
	Oxides	0.013	0.0				
	Oxides	6.709	3.6	80.63	41.99	0.662	4.98
Guajes East	Oxides	1.375	4.2	80.79	50.71	0.71	3.19
	Oxides	1.880	8.8	75.37	73.40	0.91	3.74
	Oxides	28.922	4.1	87.18	56.75	0.47	2.68
El Limón	Retrograde Skarn	1.106	5.4	43.83	14.60	1.52	2.80
	Retrograde Skarn	2.381	4.3	79.07	13.74	0.69	1.93
	Retrograde Skarn	1.797	2.4	83.89	21.26	0.67	2.00
Guajes West	Retrograde Skarn	1.665	4.1	76.93	44.75	1.59	2.42
	Retrograde Skarn	2.317	4.6	76.89	41.18	1.92	3.63
	Retrograde Skarn	4.387	2.5	85.04	28.64	0.82	1.91
	Retrograde Skarn	23.665	22.3	31.76	7.85	3.59	3.27
Guajes East	Retrograde Skarn	3.122	3.6	82.54	26.49	0.78	1.86
	Retrograde Skarn	3.211	6.9	77.38	43.23	0.96	3.60
	Retrograde Skarn	25.182	58.5	55.45	11.67	3.93	4.84
Guajes West	Hornfels	0.644	2.3	91.15	52.49	1.019	1.30
	Hornfels	1.462	2.1	92.55	18.92	0.145	0.10
	Hornfels	1.461	1.2	96.01	31.27	0.173	0.32
	Hornfels	12.296	10.7	89.46	43.20	0.792	0
Guajes West	Breccia	0.809	1.2	14.14	15.53	0.848	1.16
	Breccia	1.554	2.0	76.79	21.24	0.731	1.07
	Breccia	29.660	50.0	58.63	1.99	3.861	2.87

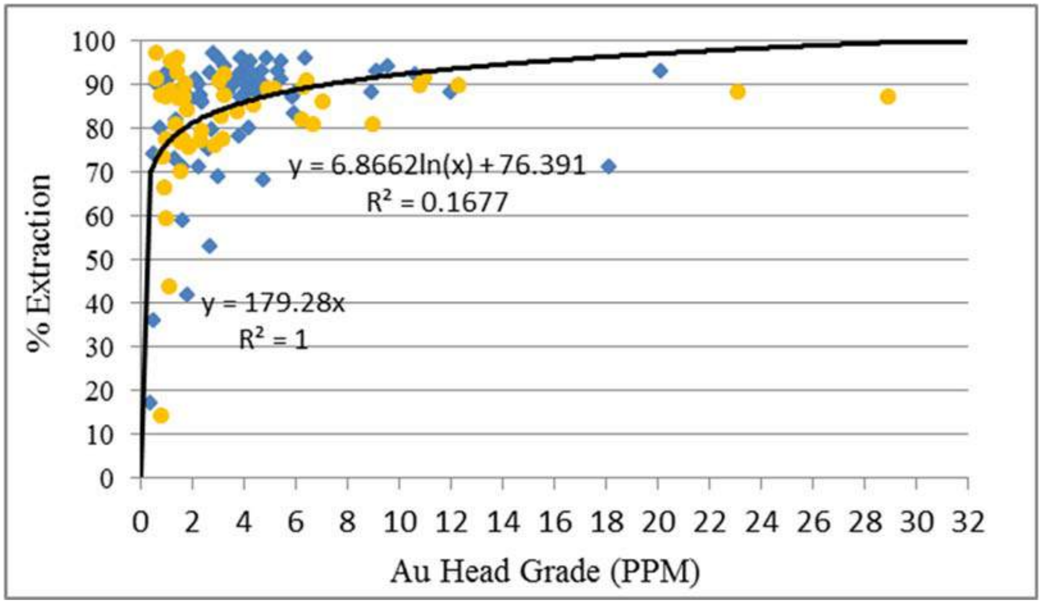


Figure Source: M3

Figure 13-2: Au Head Assay Grade vs. Indicated Extraction Overall

Table 13-7: Ore Type Distribution 2018 Open Pit Life of Mine Plan

Ore Types	Percent of Mineral Body
Prograde Skarn and Gouge	52%
Retrograde and Massive Sulfides	21%
Oxide, Marble and Overburden	1%
Breccia	3%
Hornfels and Vein Material	19%
Intrusive and Granodiorite	0%
Total	**96%**

Note: The remaining 4% consist of the Stockpile, ELG UG and new rock type defined since Feasibility Study

Table 13-8: Weighted Average Extraction at 2018 Open Pit Life of Mine Plan Gold Grades
Based on 2012 Extraction Equations

Ore Type	Average Au grade ppm	Extraction Equation	Extraction %
Prograde Skarn and Gouge	3.12	y= 2.2771*ln(x) + 87.057	89.6
Retrograde and Massive Sulfides	2.95	y= 5.4671*ln(x) + 77.314	83.2
Oxide, Marble and Overburden	1.34	y= 3.1185*ln(x) + 82.235	83.2
Breccia	3.35	y= 15.453*ln(x) + 48.282	67.0
Hornfels and Vein Material	1.37	y= 90	90.0
Intrusive and Granodiorite	1.68	y= 1.3912*ln(x) + 82.376	83.1
Total	**2.72**	**Weighted Average on Contained Au =**	**87.3**

*For the financial model, overall recoveries for the Open Pit were set at 86.5% Au for 2018 and 87% Au for 2019 to 2025

Analysis of the test results did not indicate a correlation between percent silver extraction and ore silver grade or ore gold grade, or percent gold extraction. Table 13-9 summarizes the numeric average of the percent silver extraction by ore type. For financial modeling a recovery of 23% was used which is the average since commercial production.

Table 13-9: Percent Silver Extraction by Ore Type based on Test Work Prior to Production

Ore Type	Ag Extraction
Overall	32.5%
Prograde Skarn and Gouge	33.7%
Retrograde and Massive Sulfides	27.5%
Oxide, Marble and Overburden	47.4%
Breccia	21.5%
Hornfels and Vein Material	32.2%
Intrusive and Granodiorite	39.6%

13.3 POST 2012 ADDITIONAL STUDIES OF GRIND SIZE ON LEACH RESULTS

Prior to plant start up, various stockpiles awaiting processing were sampled for confirmatory metallurgical testing. The stockpiles contained ore from the North Nose and Guajes, and were divided into low, medium and high grades. Gold grades in the composites varied between 0.51 and 5.23 g/t. Table 13-10 shows the extraction results, as reported in G&T report KM4804.

The test work completed and described below showed that a K_{80} grind size of 90 µm (operating range 80 to 100) provided the same recovery as the planned grind size of 67 um. Sampling of actual plant streams confirmed that recovery was not significantly affected by grind size up to about 105 microns. These observations prompted the desire to a significant increase in the circuit product P80 from 64 to ~ 90 µm could be possible, without loss in dissolution, by maintaining the cyclone feed density between 60% and 65% solids, up from the current average of about 54%.

Gold extractions appeared generally high for all composites, averaging about 92 percent at the coarsest primary grind size at K_{80} of 150 microns. It was noted that these were results generated in laboratory setting, and not necessarily achievable at the operation.

The average gold extraction improved slightly by 1 and 3 percent when leaching at finer primary grind sizes at K_{80} at 90 and 60 micron, respectively. Composite 4, containing 0.76 g/t gold, produced the lowest extraction value of about 85% at K_{80} of 90 microns.

Silver extractions recorded in the tests were much lower than those for gold, averaging 53 percent at the coarsest primary grind size. These improved by 4 and 6 percent at K_{80} of 90 and 60 µm, respectively. Within the range tested, a finer primary grind appears to lead to a modest improvement in gold and silver extraction.

Table 13-10: Extraction Results of Stockpile Composites at Different Grind

# Composite	Target grind at P80 of:			Target grind at P80 of:		
	155	90	60	155	90	60
	microns	microns	microns	microns	microns	microns
	Au	Au	Au	Ag	Ag	Ag
1	91.62	92.16	91.59	58.03	69.54	69.45
2	88.44	87.51	92.41	58.62	66.09	76.39
3	92.46	93.78	96.24	49.66	49.43	50.91
4	87.84	85.53	91.04	39.68	44.11	44.74
5	92.42	93.26	95.84	43.59	44.39	45.49
6	91.09	92.43	93.84	55.22	57.75	60.28
7	94.61	94.59	98.51	50.37	56.13	57.41
8	90.08	90.40	92.41	57.71	61.77	55.27
9	90.85	92.11	94.09	52.69	48.99	64.56
10	93.76	94.65	95.51	68.00	67.93	58.24
11	89.94	93.44	94.66	63.43	61.94	56.22
12	91.93	92.98	94.42	51.03	55.39	60.80
13	91.43	91.47	93.57	50.68	61.53	70.35
14	93.87	95.00	95.64	58.11	65.47	63.52
15	98.71	94.84	95.66	54.31	68.20	67.05
16	95.31	95.52	96.63	64.26	63.80	67.13
17	94.59	93.68	97.20	60.53	64.39	66.34
18	95.54	96.06	97.18	62.79	66.24	66.89
19	93.04	94.22	94.83	41.65	43.80	45.98
20	90.17	91.32	92.97	22.51	23.84	27.17
21	88.03	91.39	92.79	59.47	66.33	69.15
Average	92.2	92.7	94.6	53.4	57.5	59.2

Monthly reconciled plant recoveries for gold and silver from declaration of commercial production are presented in Figure 13-3. Average monthly-reconciled weighted recoveries for gold and silver are respectively 86.1% and 22.8%.

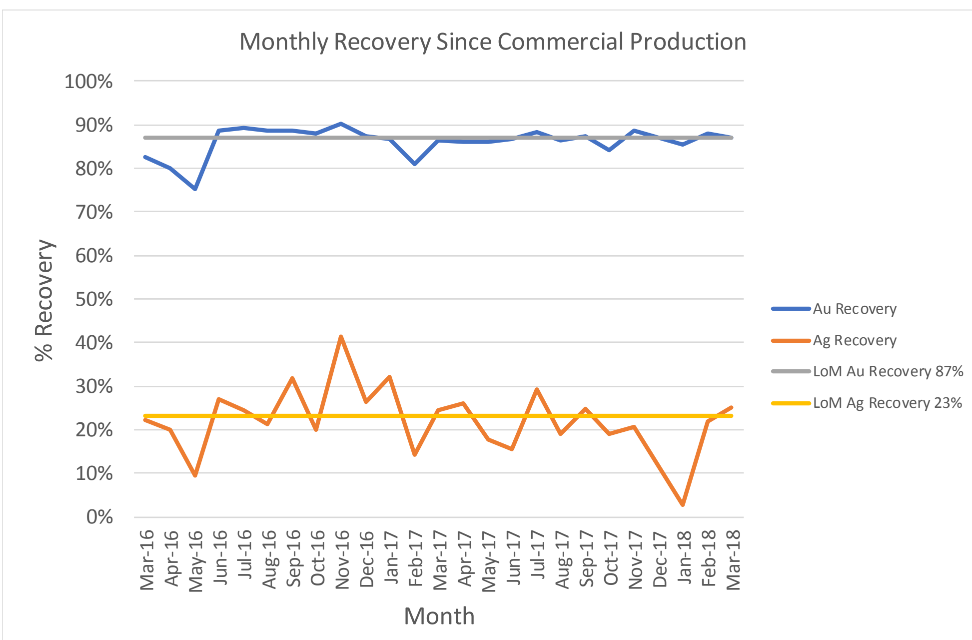


Figure 13-3: Reconciled Recovery for Gold and Silver from Commercial Production

The Bond Ball Mill Work Index closing screen size of 106 microns is suitable for use for the expected final operational conditions and has been a design feature. In general, the ore hardness seems to be moderately hard to hard. However, the grinding circuit will process ores of significant different hardness.

Late 2016, an issue was identified within the grinding circuit which had the potential to limit the SAG mill operation. Metso was requested to conduct a survey of the grinding circuit. Ore hardness was high at that time, as shown in Table 13-11. The calculated Axb value of 52.7 for the sample indicates that the feed material is of medium resistance to impact breakage (medium resistance ranges from 43 to 56, with higher resistance for lower numbers).

Table 13-11: BMWI and DWi at Time of Metso Survey in 2016

Sample	F80	P80	Gbp	Test sieve	Bond Ball Mill	Mib
	µm	µm	g/rev	µm	Work Index, kWh/t	kWh/t
SAG mill Feed	2,480	116	1.18	150	18.6	23.7

Sample	Dwi	Dwi	Mi Parameters, kWh/t			A	b	Axb	SG	ta
	kWh/m3	%	Mia	Mib	Mic					
SAG mill Feed	5.46	35	15.8	11.2	5.8	65.7	0/79	51.9	2.82	0.47

Metso concluded that an increase in circuit throughput is achievable using the existing spare capacity in the ball mill. This could be affected by smaller SAG mill feed top size, an increase in open area in the discharge grate and larger aperture size of the SAG discharge screens.

13.4 SOLUBLE COPPER ISSUE

During the process plant ramp-up period, the issue of soluble copper was identified and affected the process plant operations mainly through increased reagent consumption and doré quality.

To alleviate this issue a SART (sulfidization, acidification, recycling and thickening) plant has been designed, constructed and at the time of writing is in the commissioning stage. Prior to the installation and operation of the SART plant several short term operational solutions were implemented. These operational solutions are outlined within this section.

Soluble copper causes issues with gold and silver recoveries in two areas, Leaching and Adsorption.

- In the leach circuit the affinity of copper to cyanide is lower than the affinity of gold to cyanide, but copper affinity increases as the concentration of copper in solution increases. With the concentrated level of copper in solution as present at the ELG operation, complexing copper and cyanide to $[Cu(CN)_3]^{2-}$ becomes preferential over $[Au(CN)_2]^{-}$ formation lowering the extraction process. In other words, copper wants to bind itself to cyanide preferentially prior to completing the leaching of gold, or silver.
- In the adsorption process if copper is not maintained as a complex $[Cu(CN)_3]^{2-}$ the Cu complex $[Cu(CN)_2]^{-}$ will be absorbed onto the carbon.

To deal with this high level of soluble copper in the short-term higher dosages of CN were used in conjunction with higher detox agents. The long-term solution is SART, which will bring the reagent consumption levels down as well as producing a saleable copper precipitate.

Figure 13-4 inferences the increase in copper tenor in leach solution with a rising total copper grade in the ore. In this graph total copper is used as a proxy for soluble copper. The rise in total copper (blue line) coincides with a rise in copper tenor in solution (red line). These levels of Cu in the leach solution generated issues to the recovery of gold and silver in both the leach and CIP circuit.

The impact of this rise in copper tenor was addressed in the leach, CIP and Detox circuits. In leach and CIP sufficient cyanide was added to maintain copper in a $[Cu(CN)3]^{2-}$ complex form. This ensured (a) availability of free cyanide to complete the leaching of gold and silver, and (b) reduction of copper adsorption onto carbon. The higher levels of this copper-cyanide complex in the process water also required an adjustment to the Detox process. The reagent mix was changed to maximize the destruction of copper-cyanide and free cyanide, with copper precipitating as copper hydroxide.

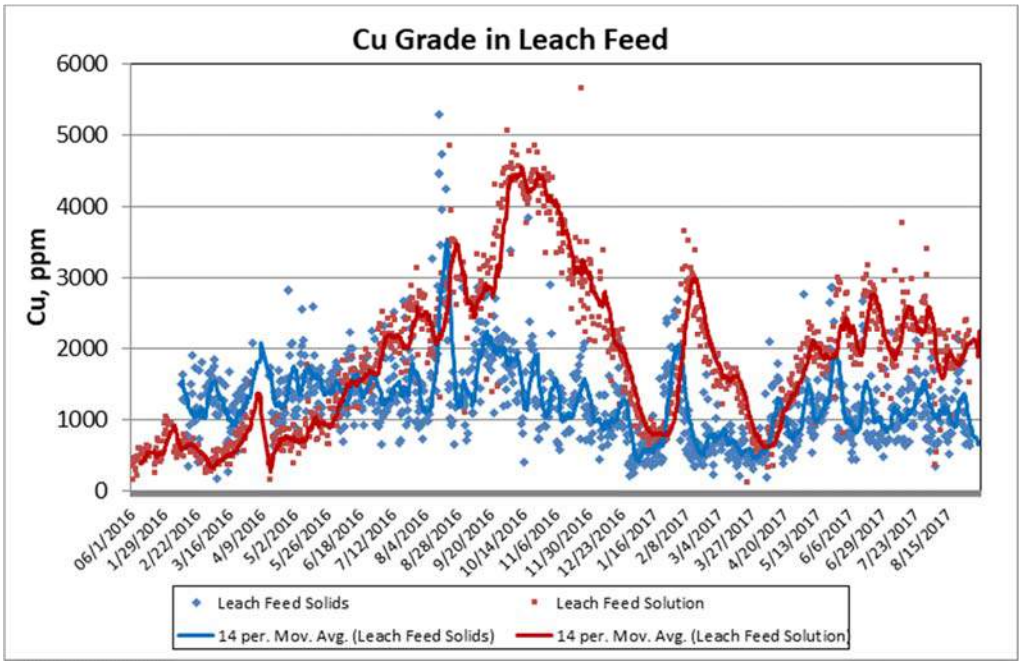


Figure 13-4: Trends of Copper Grade and Concentration in Leach Feed

13.4.1 SART Plant

In gold leach operations worldwide experiencing high copper tenor in solution, the installation of a SART plant is common practice. 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. The SART plant has become a standard operation and plant installation, no longer requiring pilot testing. Laboratory tests, of which results are described below, are conducted to check for composition of the concentrate, or precipitate, for any deleterious elements and not of the SART plant process. The SART process is described in Section 17.

At laboratory scale, two tests were conducted to assess the composition of the precipitate from this process on Cyanide Recovery Overflow solution generated by ELG Operations. Table 13-12 summarizes results of the cake produced at the ELG lab by Michael Botz of Elbow Creek Engineering Inc. The duplicate tests performed in February 2017 generated a cake containing between 65 and 72% copper, and close to 19% S. In comparison, pure Cu_2S contains about 79.8% copper. Copper recovery from the SART feed solution into the precipitate reached 96 to 97%. Gold content in SART analyzed between 2 and 3 ppm, roughly equivalent to a gold capture from solution of about 0.1%.

Table 13-12: SART Copper Precipitate Analysis

		Sample 20 Dec 2016 (1)		Sample #1 28 Feb 2017 (1)		Sample #2 28 Feb 2017 (1)		Sample #3 28 Feb 2017 (1)	
Element		**ppm**	**%**	**ppm**	**%**	**ppm**	**%**	**ppm**	**%**
Ag	Silver	522		858		730		747	
Al	Aluminum		0.06		0.06		0.04		0.05
As	Arsenic	334		714		605		636	
Au	Gold (2)	1.04		5.06		1.92		2.71	
Ba	Barium	<50		<50		<50		<50	
Be	Beryllium	<0.5		<0.5		<0.5		<0.5	
Bi	Bismuth	0.9		3.5		2.4		3.2	
C	Carbon (2)				3.6		6.8		4.5
Ca	Calcium		0.20		0.31		0.29		0.32
Cd	Cadmium	5		35.4		31.5		30.8	
Ce	Cerium	0.2		0.5		0.3		0.4	
Co	Cobalt	10		24		24		23	
Cr	Chromium	<10		10		<10		<10	
Cs	Cesium	4.5		17.5		13.6		11.4	
Cu	Copper (2)		63.4		62.3		65.2		72.4
Fe	Iron		0.06		0.41		0.31		0.18
Ga	Gallium	1		0.6		1.0		1.2	
Ge	Germanium	<0.5		1.0		0.8		0.5	
Hf	Hafnium	<1		<1		<1		<1	
Hg	Mercury	10		22		20		19	
In	Indium	<0.05		<0.05		<0.05		<0.05	
K	Potassium		0.07		0.12		0.09		0.08
La	Lanthanum	<5		<5		<5		<5	
Li	Lithium	<2		<2		<2		<2	
Mg	Magnesium	<0.02		0.02		<0.02		0.02	
Mn	Manganese	10		10		10		10	
Mo	Molybdenum	497		679		565		556	
Na	Sodium		1.33		2.02		1.94		1.93
Nb	Niobium	<1		<1		<1		<1	
Ni	Nickel	32		56		56		55	
P	Phosphorus	<100		<100		<100		<100	
Pb	Lead	9		17		5		20	
Rb	Rubidium	3		8		5		4	
Re	Rhenium	0.03		0.06		0.05		0.05	
S	Sulfur		19.90		18.1		18.7		18.8
Sb	Antimony	79.8		32.1		37.3		87.2	
Sc	Scandium	<1		<1		1		<1	
Se	Selenium	60		220		180		80	
Si	Silicon as SiO2		0.36		0.2		0.1		0.2
Sn	Tin	<2		<2		<2		<2	
Sr	Strontium	15		19		17		17	
Ta	Tantalum	<0.5		<0.5		<0.5		<0.5	
Te	Tellurium	0.5		1.0		0.8		0.9	
Th	Thorium	<2		<2		<2		<2	
Ti	Titanium		<0.01		<0.01		<0.01		<0.01
Tl	Thallium	13.5		5.2		4.5		4.5	
U	Uranium	<1		<1		<1		<1	
V	Vanadium	14		14		12		12	
W	Tungsten	21		13		23		49	
Y	Yttrium	<1		<1		<1		<1	
Zn	Zinc	1,030		4,220		3,680		3,580	
Zr	Zirconium	<5		<5		<5		<5	

Notes:

(1) Analyses by ALS Chemex de Mexico S.A. de C.V. unless otherwise indicated.

(2) Analyzed by MML laboratory.

13.5 GOLD RECOVERY THROUGH CIP

In report KM4804, July 2015, G&T reports results of CIP testing, indicating that, on average, about 94 percent of the gold and silver adsorbed onto carbon from the cyanidation leach solution after 4 hours. Much lower were the percentages of adsorption of copper and iron from solution. There was very little difference between gold and silver carbon loadings at the two primary grinds at K_{80} of 60 and 150 micron tested for each composite; this was likely due to the similar gold and silver leach extractions recorded for each composite at those K_{80}'s tested.

The adsorption efficiency used for the design of the ELG carbon circuit is 99%. Following Kemix design, MML installed six CIP stages, assuming respectively 60, 60, 55, 55, 50, and 50 percent adsorption efficiency from stage 1 to 6, total adsorption efficiency should be 99.1%. During test work in May of 2017, it was determined that the average gold extraction and recovery was respectively 88.0% and 85.7%, showing an efficiency of 97.4% a gap of 2.6% on the absorption side whereas design is 99%. This work demonstrates that an opportunity for improvement exists within the CIP circuit. By focusing on correct chemistry in the CIP circuit, this gap can be minimized to between 1 and 2% by maintaining copper as the $[Cu(CN)_3]^{2-}$ complex, thereby minimizes copper adsorption to carbon.

The key to good CIP performance is to produce a CIP exit stream containing less than 0.1 ppm Au by gradually reducing the copper tenor in solution when carbon passes from cell to cell. When this has been achieved, the CIP efficiency is around 99%, and gold losses to solution in tailings are kept to a minimum. Figure 13-5 shows that operations are capable to achieve this target.

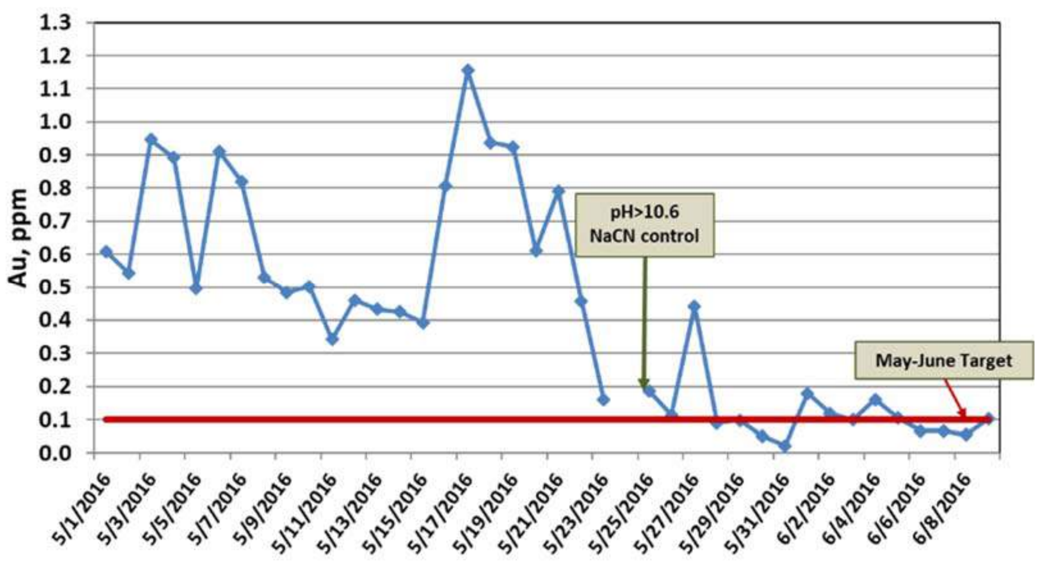


Figure 13-5: Drop in Gold in CIP Tailings Solution

13.6 COLD WASH

Based on test work carried out during ramp up it was determined that a Cold Wash was required to be added to the process. This process step is before the Acid Wash of Carbon after harvesting and removes most of this copper from carbon by washing with a strong cyanide solution.

The Cold Wash step will be maintained after implementation of the SART process to ensure copper is removed from carbon to the extent that it should not negatively affect subsequent hot elution and electrowinning stages. The presence of copper in hot eluate at elevated levels prevents complete removal of gold and silver from carbon and prevents effective precipitation of gold and silver at the cathode.

Gold must be eluted from carbon to below 100 g/t, and preferably below 50 g/t to ensure that the desired CIP gold tenor of 100 ppm or less in the CIP exit solution can be achieved. For every gold operation, there is a balance between gold on carbon and gold in solution. The ELG operation target is to operate in the bottom end of the red zone shown on Figure 13-6.

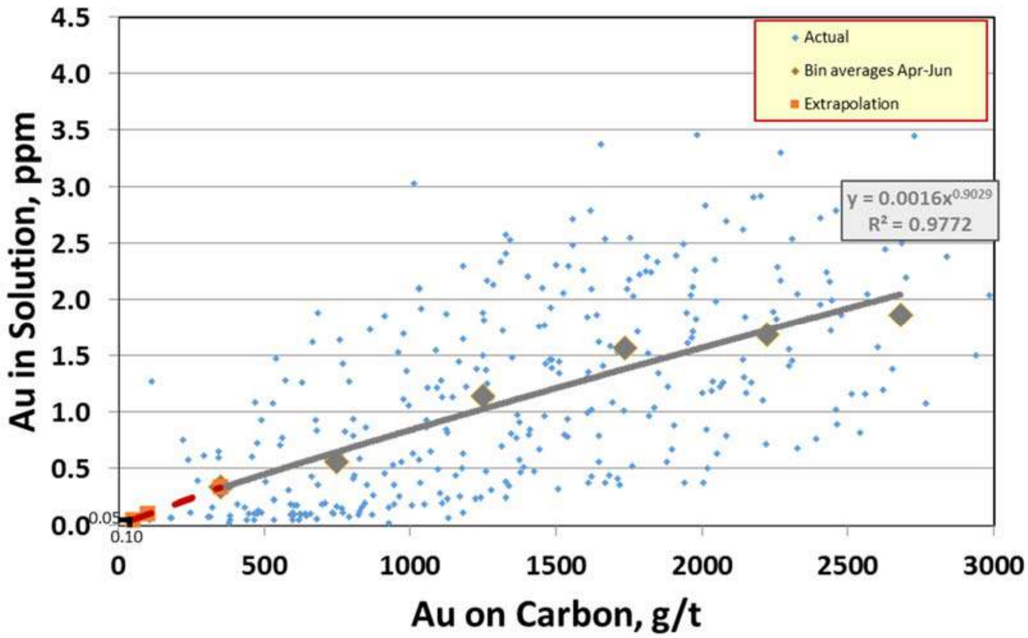


Figure 13-6: Carbon Equilibrium Curve for the ELG Operation, until July 2016

13.7 SUB-SILL ZONE ORE METALLURGICAL TEST WORK AND EXPECTED RESPONSE

Torex discovered the Sub-Sill zone in 2016 and is currently developing the ELG UG Mine. The zone that will be mined first from the ELG UG Mine is referred to as the "Sub-Sill Zone". The following sections describe the test work carried out to understand this ore's metallurgical responses.

Sub-Sill ore can be processed through the ELG plant, but performance (recoveries) depends on copper grade in the ore. For copper grades below 0.1%, laboratory tests revealed extraction results of about 90% gold. From ore containing between 0.1 and 1% copper, the plant could expect an extraction of gold of about 87% on the average, while for ore higher than 1% copper, gold extraction dropped to about 82%. Flotation test work of Sub-Sill composite material containing over 1% copper, followed by leaching flotation tailings, indicate overall gold, silver and copper recovery (meaning to either concentrate or doré) respectively reaches about 97, 90.5 and 90%, as shown in Table 13-21.

13.7.1 General

The test work was carried out concurrently with the initial exploration program and subsequent infill drill program. This report includes the maiden mineral reserve estimate for the ELG UG Mine.

Initial composites were based on copper content. Samples were selected based on material that was expected to be extracted by underground mining (higher grade). Composite 1 consisted of material containing less than 0.1% Cu and Composite 2 of material containing >1% copper. Composite 3 was composed of all material, including ore containing less than 1% and more than 0.1% copper.

As this test work was carried out during the exploration and infill drill program the distribution of material in each composite was associated with a weighted average of length of core and grade cut through grade-containing Sub-Sill material.

Composites were sent to ALS Metallurgy in Kamloops. Test results are summarized in Table 13-13. Indications are of a good extraction response for gold when processing any of the Sub-Sill ore through the current ELG Plant. This table also evidences that the reproducibility of the results was excellent. A direct interpretation from the results warrant caution because the test design reflects a quick leachability test. No efforts towards optimization were made; optimization may likely have a positive impact on eventual plant results for Composites 2 and 3.

Table 13-13: Sub-Sill Composite Results

Test	Composite	Leach Extraction			Calc Head Assay			Reagent Consumption	
		Au	Ag	Cu	Au	Ag	Cu	NaCN	Lime
		%	%	%	g/tonne	g/tonne	g/tonne	kg/tonne	kg/tonne
1	1	90.7	69.7	21.5	23.1	4.6	622	1.1	0.8
2	1	90.4	69.0	20.6	22.3	4.6	630	1.0	0.9
3	2	82.1	16.9	4.2	37.5	32.9	27485	5.4	0.8
4	2	82.2	15.3	4.3	38.2	33.2	27845	5.3	0.9
5	3	87.9	38.4	11.6	26.6	16.7	11034	4.8	1.0
6	3	87.7	39.8	11.5	27.3	16.3	10496	4.9	1.0

Due to the high extraction of copper, processing of the Sub-Sill ore with the SART plant in place will be beneficial.

Mineralogical analysis of the Sub-Sill ore was conducted using Qemscan. Results are shown in Table 13-14. The results in the top part of the Table indicate that copper is mostly present in the form of chalcopyrite. However, Qemscan does not analyze for copper oxides. The conclusion to be drawn from this is that the higher copper containing material is mostly related to the presence of sulfides.

The bottom part of Table 13-14 presents the sulfide distribution as a percentage of Sulphur content in the composite. This information confirms the relatively high content of chalcopyrite in composite 2, which relates to high overall sulfides content in the ore.

The high pyrrhotite content in composite 2, present in Sub-Sill material with a copper content greater than 1%, is concerning. Pyrrhotite will require a higher cyanide dosage than normally expected for a gold ore. As silver is slowest in extraction, the low extraction rates are likely the result of lack of free cyanide, having mostly been consumed by the S ions segregated from pyrrhotite.

Forty-three % of composite 3 (composed of all ore types) consists of ore containing between 0.1% and 1% copper. This ore of intermediate copper range allows a gold and silver extraction of respectively 87.8% and 25%. Copper extraction for this ore is about 7%.

Table 13-14: Qemscan Mineralogy of Sub-Sill Composites at Different Ranges of Copper Content

MINERAL COMPOSITION OF THE MINERA MEDIA LUNA COMPOSITES
KM5260

Minerals	an Unidentified	Composite 2	Composite 3
Chalcopyrite	0.2	8.7	2.9
Bornite	0.0	0.0	<0.1
Chalcocite/Covellite	<0.1	0.0	0.0
Sphalerite	<0.1	0.3	0.1
Pyrite	1.7	1.4	2.3
Pyrrhotite	0.2	12.5	6.4
Arsenopyrite	0.2	0.2	0.4
Gangue	97.8	77.1	87.9
Total	100	100	100

Notes: 1) Gangue includes Garnets, Pyroxene/Amphibole, Quartz, Feldspars, trace amount of an Unidentified Bismuth Sulphide and other non-sulphide Gangue minerals.

% SULPHUR BEARING MINERAL OF TOTAL SULPHUR
KM5260

Minerals	Composite 1	Composite 2	Composite 3
Copper Sulphides	5.0	30.3	18.1
Sphalerite	0.2	0.9	0.5
Pyrite	81.9	7.2	21.8
Pyrrhotite	9.3	61.2	58.0
Arsenopyrite	3.2	0.4	1.6
Other Sulphur bearing Minerals	0.4	<0.1	0.1
Total	100	100	100

Note: 1) Copper Sulphides includes Chalcopyrite and trace amounts of Bornite and Chalcocite/Covellite.
2) Other Sulphur bearing Minerals includes trace amounts of an unidentified Bismuth Sulphide.

For the most part, when testing leach variability, gold extraction was similar or slightly better than the expected average extraction. Exceptions are the results from composites 4 and 5, which may have been affected by the high consumption of cyanide by the pyrrhotite present. If the ore quantities constituting these composites are significant, further test work would be warranted. Table 13-15 summarizes actual extraction values indicating the underlying variability. This expected average extraction value is listed in Table 13-13 for the specified ranges of copper. The Table also lists the relevant metals grades for the samples used in variability testing.

Table 13-15: Grades and Extraction Results for Individual Sub-Sill Samples used in Variability Testing

	Selected Subsill samples			Leach Extraction		
	Au	Ag	Cu	Au	Ag	Cu
Composite #	g/t	g/t	g/t	%	%	%
4	3.87	3.50	0.04	47.7	36.5	18.5
5	7.37	10.23	0.25	74.2	44.8	12.0
6	18.65	12.17	0.41	89.3	57.1	10.4
7	9.08	13.28	0.02	95.4	77.1	12.5
8	12.08	47.6	5.47	88.4	2.7	2.4
9	11.38	14.66	1.00	88.5	33.8	7.1
10	7.37	4.69	0.11	92.8	60.3	10.9
11	25.11	80.77	2.76	88.7	17.2	5.7
12	84.44	19.45	1.15	80.9	24.0	6.6
13	37.01	30.46	2.63	84.1	1.9	4.8

The presence of pyrrhotite confirmed a higher cyanide consumption. In addition, it became apparent that sufficient oxygen must be available to satisfy the reaction between the loose sulfur ion of pyrrhotite and cyanide. Satisfying that demand marginally improved extraction results by a few percentage points. Repeat testing at higher dosage of cyanide moved results in a positive way, as shown in Table 13-16. A finer grind from a K_{80} of just over 100 micron to about 75 micron did not produce better results.

Table 13-16: Results of Repeat Tests of Those Sub-Sill Samples Producing below Expected Extraction Results

Test Parameters are Noted on the Left

	Test Parameters					Test Results			
		NaCN	pH	Reagent Cons, kg/t			Leach Extraction, %		
Composite	K_{80}	ppm		NaCN	Lime	Composite	Au	Ag	Cu
4	104	1000	11	1.4	1.2	4	47.7	36.5	18.5
4	75	1000	11	1.5	1.3	4	46.7	38.0	20.1
4	75	2000	11	2.4	1.1	4	54.0	41.1	23.4
5	114	1000	11	1.7	0.9	5	74.2	44.8	12.0
5	72	1000	11	2.1	0.8	5	75.7	43.4	13.4
5	72	2000	11	3.32	0.79	5	80.2	53.8	17.2

	Test Parameters					Test Results			
		NaCN	pH	Reagent Cons, kg/t			Leach Extraction, %		
Composite	K_{80}	ppm		NaCN	Lime	Composite	Au	Ag	Cu
12	111	2000	11	9.2	1.6	12	80.9	24.0	6.6
12	111	3000	11	12.8	1.6	12	83.9	36.1	12.0
13	104	2000	11	9.6	1.2	13	84.1	1.9	4.8
13	104	2000	11	8.8	1.6	13	85.4	8.2	5.1

For most samples, Fe extraction is below 10%. It has a maximum of 22% for sample 13, which is significantly higher than for the next highest value of 15%. It is a clear manifestation of the presence and effect of pyrrhotite.

Although Table 13-15 failed to indicate an improvement in extraction for Sub-Sill samples 4 and 5, in general, a finer grind appears to generate better extraction results when tested on the overall Sub-Sill composites made at the varying range in copper grade. Low gold extractions for composites 4 and 5 are likely due to a higher degree of gold locked in sulphides.

Results shown in Table 13-17 indicate that a finer grind may generate an economic benefit. The May test work results at finer grind are compared to the original test results listed in Table 13-13.

Table 13-17: Effect of Finer Grind when Leaching the Sub-Sill Composites Described in Table 13-13

Composite	Test	Grind	Pre-	Leach Extraction - percent			Reagent Consumption-kg/t	
	Month	K_{80} microns	aeration	Au	Ag	Cu	NaCN	Lime
1	Feb avg	102	N	90.5	69.3	21.1	1.0	0.8
1	May	80	N	91.6	71.8	20.5	1.9	0.6
2	Feb avg	108	N	82.1	16.1	4.3	5.4	0.9
2	May	75	N	86.0	4.0	2.6	8.0	0.7
2	May	108	Y	84.4	24.3	4.3	4.5	1.5
3	Feb avg	108	N	87.8	39.1	11.6	4.8	1.00

13.7.2 Flotation of Sub-Sill Composite 2

The higher copper and general sulphides grade in Sub-Sill Composite 2 warranted an evaluation of its response to flotation. Although flotation test work was positive, this tonnage currently known to contain a higher copper content, does not justify the capital expense and time to construct a grinding/flotation circuit.

Results are summarized in Table 13-18 below. Rougher flotation results are excellent for copper, collecting 97% to 98% into a rougher concentrate with grade of over 13%.

The “Clnr Flot Conc” constitutes the final flotation concentrate. About 94% of the copper was floated into this concentrate, assaying 28% copper. It appears that Sub-Sill material floats very easily and cleanly. Assuming that nearly all the Fe pertains to pyrrhotite, the final concentrate then calculates to having recovered less than 4% of this material. Depression of pyrrhotite in the cleaning circuit at pH 10.5 appears to be very effective.

The concentrate collected about 12% of Bi, resulting in a concentrate grade of 0.17% Bi. Investigation will be required if such Bi content will yield a penalty if a flotation concentrate is to be made.

The concentrate collected nearly 28% of the gold. Nearly all the gold not otherwise recoverable through the leach process, floated with copper into final concentrate. Most of the silver follows copper, recovering over 70% into final concentrate. Silver in concentrate for the most part consists of this metal not otherwise recoverable through leaching only.

Table 13-18: Flotation Test Results on Sub-Sill Composite 2

Product	Cum. Weight	Assay - % or g/tonne or ppm						Distribution - %					
	%	Cu	Fe	S	Ag	Au	Bi	Cu	Fe	S	Ag	Au	Bi
Float Feed	100	2.9	19.0	8.2	38	38	1454	100.0	100.0	100.0	100.0	100.0	100.0
Rhgr Float Conc	20.6	13.6	30.9	26.8	163	84	2391	97.9	33.5	67.1	87.6	45.4	33.9
Rhgr Float Tails	79.4	0.1	15.9	3.4	6.0	26.3	1210	2.1	66.5	32.9	12.4	54.6	66.1
Clnr Float Conc	10.1	27.7	30.0	34.0	270.0	105.9	1730	94.1	15.9	41.5	70.9	27.9	12.0
Combined Clnr Tails	10.6	1.0	31.7	19.9	60.5	63.1	3021	3.9	17.6	25.5	16.7	17.4	22.0

Both rougher and cleaner tailings were leached separately to evaluate gold extraction independently. Table 13-19 summarizes leach results.

The copper distribution to pregnant liquor from each tailings leach indicates extent of copper extraction, which appears greater for the cleaner tailings. This is to be expected as more soluble copper minerals, such as chalcocite or covellite, would have floated into the rougher in the first place, and likely were rejected as fines into cleaner tailings. Gold and silver each leached to about the same extent, regardless of type of tailings. The “Pregnant Liquor o'all distribution” of metals in Table 13-19 back calculates extraction to original flotation feed, listed in Table 13-18. It may be evident that

45.4% of the original gold in feed reported to pregnant solution when leaching rougher tailings, while some 16.6% when leaching cleaner tailings; hence a total of 62% of all the gold in feed reported to leach solution. Conclusion is that (84-62) =22% of the gold otherwise reporting to the pregnant liquor of a whole-ore leach, ended up in concentrate.

When combining flotation results with those of leaching rougher and cleaner tailings, the overall gold, silver and copper production estimate is presented in Table 13-20 below. Results are that 28% of the gold reports to concentrate, and 62% to leach liquor. Assuming a 2% loss of gold due to carbon adsorption and stripping, the total gold recovery is expected to achieve about (28+62-2) = 88% of gold in ore. For silver and copper (assuming SART process is operating), these values are estimated at 89% for Ag and 96% for Cu. From this test work it can be derived that if additional Sub-Sill like ore were found after the Media Luna flotation plant is installed, this material could have similar recoveries as shown in Table 13-20.

Table 13-19: Distribution of Elements in Sub-Sill Concentrate and Leach Liquor

	Cum. Weight	Assay - % or g/tonne or ppm			Distribution - percent		
Product	%	Cu	Ag	Au	Cu	Ag	Au
Leaching Rghr Tails							
Calc'd Feed	100	820	10.7	25.1	100	100	100
Rghr Cyanidation Tails	100	588	3	4.83	71.7	28.2	16.8
Pregnant Liquor		116	3.8	11.7	28.3	71.8	83.2
Pregnant Liquor-o'all distrib		116	3.8	11.7	0.6	8.9	45.4
Leaching Clnr Tails							
Calc'd Feed	100	9253	41.8	61.2	100	100	100
Clnr Cyanidation Tails	100	3220	14.7	3.0	34.8	35.2	4.9
Pregnant Liquor		2640	11.3	21.4	65.2	64.8	95.1
Pregnant Liquor-o'all distrib		2640	11.3	21.4	2.5	10.8	16.6
Overall Recovery + Extraction					97.2	90.6	89.9
Overall Pregnant Liquor		412	4.6	12.83918	3.12	19.72	62.04

Table 13-20: Results of Metal Extraction in Combination of Flotation and Leaching of Sub-Sill ore

		Assay-percent or g/tonne or ppm				Distribution - percent			
		Cu	Ag	Au	Bi	Cu	Ag	Au	Bi
Flotation Feed	100	2.9	38	38	1454	100	100	100	100
Flotation Concentrate	10.07	27.7	270	106	1730	94	71	28	12
Pregnant Liquor		412	4.6	12.839		3.1	20	62	
Overall Recovery + Extraction						97.2	90.6	89.9	

Table 13-21 provides a summary of expected recoveries for Sub-Sill material processed through the existing ELG Plant. The recoveries of gold, silver and copper reflect presence in concentrate and doré for gold and silver. Copper recovery is in the form of a SART concentrate. Some of the copper ends up in doré, but relative quantity is low and difficult to estimate from these lab float and leach tests. In the CIP adsorption process about 2% of the gold and silver are lost to the CIP exit solution. This loss is incorporated in the numbers presented in Table 13-21.

Table 13-21: Summary Results for Sub-Sill Ore

Physicals Distributed By Copper Content	Mill Feed Physicals	Mill Recovery Leach only (%)
Cu < 0.1%		
Tonnes	180,000 t	180,000 t
Au	4.40 g/t	88.3%
Ag	1.54 g/t	67.3%
Cu	0.03%	20.0%
0.1% ≤ Cu ≤ 1.0%		
Tonnes	237,000 t	237,000 t
Au	13.24 g/t	85.8%
Ag	10.78 g/t	37.1%
Cu	0.37%	10.9%
Cu > 1.0%		
Tonnes	105,000 t	105,000 t
Au	16.76 g/t	80.1%
Ag	28.51 g/t	14.1%
Cu	2.00%	4.0%
Total		
Tonnes	522,000 t	522,000 t
Au	10.90 g/t	84.5%
Ag	11.16 g/t	26.7%
Cu	0.58%	6.3%
**Estimated Mill Feed Physicals for Sub-Sill LOM*		

13.8 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 lead 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. This reagent is similar to MBS, but Ammonia replaces Sodium. MT-2000 is a metabisulfite in liquid form, which seems to function more effectively than the solid reagent MBS.

Follow-up testing, employing an oxygen addition rate of 1,900 m^3/h and up to 9 kg/t MT-2000, resulted in a destruction efficiency of WAD CN of about 50%. ELG conducted these tests in conjunction with Orion in November 2016. Cu removal from Detox feed only starts once CN WAD destruction reaches about 50%.

Figure 13-7 and Figure 13-8 illustrate the effectiveness of oxygen supply. Replacing air by oxygen demonstrated the improvement of cyanide destruction and efficiency of copper removal, as is apparent from the third and fourth windows (periods) in these Figures. Oxygen also is no longer metered into the tank through the “Chinese Hat” (a conical device at the bottom of the tank typical for gas distribution), but lanced directly into the tanks. Effectively, an inflow of oxygen between 900 and 1,100 m^3/h will maintain a dissolved oxygen content of between 6 and 8 ppm. These levels generate the best results. For the most part, the issue lies with the installed reagent supply system for solid MBS, as it is not capable of handling the higher copper levels.

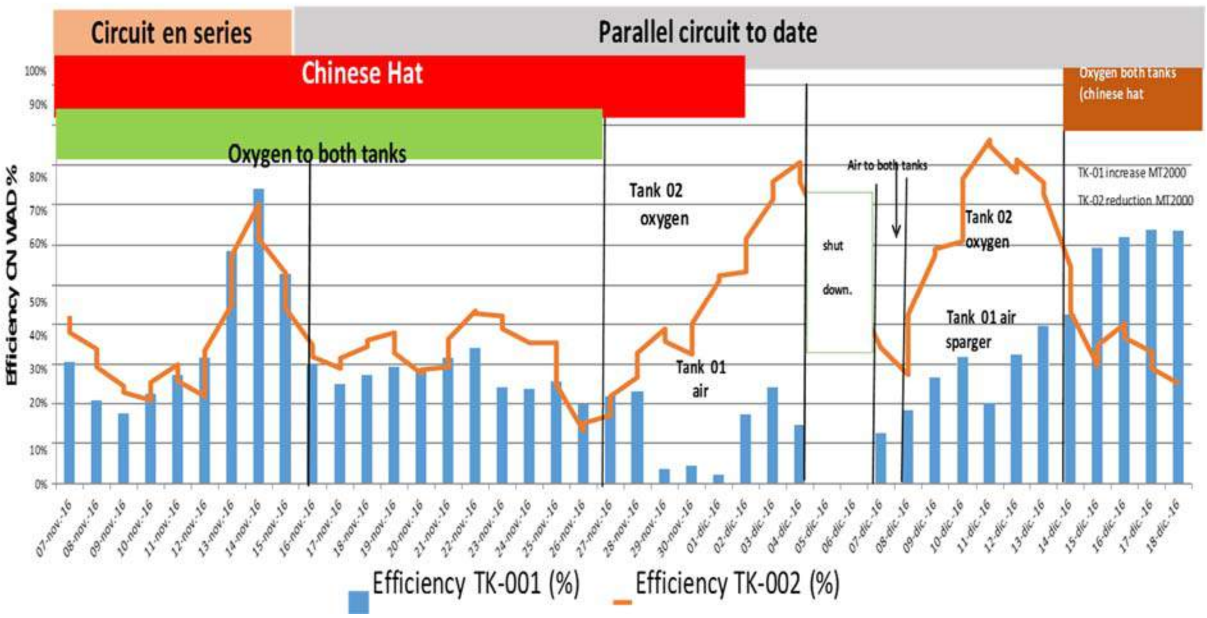


Figure 13-7: WAD CN Destruction with MT-2000 and Effect of Oxygen

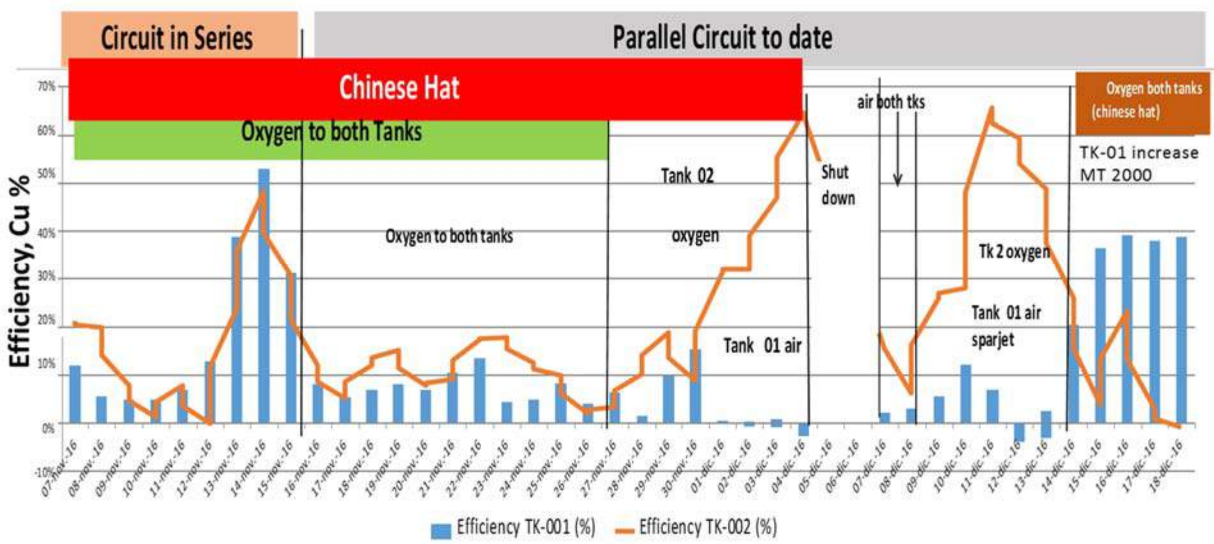


Figure 13-8: Copper Removal from DETOX Feed Associated with WAD CN Destruction

Experimentation at plant operating level continued throughout 2016 resulting in the development of operating procedures.

13.9 SOLID-LIQUID SEPARATION TESTS

Solid-liquid separation processes were designed and constructed based on a test work completed to support the 2012 Feasibility Study. ELG installed seven Diemme filters at their operation. During the ramp-up period, the tailings filters were identified as being a bottleneck on the process plant throughput.

To improve operation of the filter plant five items were completed.

1) Optimization of the filter plant operations
2) Optimization of the filter plant maintenance
3) Plant decoupling project.
4) Modification to operational strategies of Filtered Tailings Storage Facility (FTSF)
5) The addition of two horizontal belt filters

With the implementation of the first four items listed above the filter plan can work at designed levels. The fifth item (increasing the filter plant capacity) was completed by the installation of two horizontal belt filters and will add capacity.

Two used horizontal belt filters were sourced, laboratory testing carries out and following satisfactory results, purchased and installed at the ELG Plant. Note as of the writing of this report final installation and commissioning is required. Following is a description of the test work completed prior to installation.

This installation of the horizontal belt filters preceded with test work by FLSmidth and Pocock to ensure proper sequencing of process material through all filtration equipment.

- The average dry bulk density is 1771.4 dry kg/m^3, or 17.71 dry kg/m^2 for a 10 mm cake.
- At a form vacuum of 67.7 kPa, a 10 mm cake will form; from 52.0% feed solids, in 10.37 minutes on a horizontal vacuum belt filter.
- The dry time factor permits a correlation between cake moisture and dry time by normalizing the dry time for cake weight and, hence, cake thickness. The correlation indicates that a 1.00 dry time, following the cake formation, will yield filter cake with approximately 22.9% moisture.
- A minimum cake thickness of 10-mm was considered necessary for good operation, and to elicit proper/adequate weight for discharge from horizontal belt filter applications for the material tested.

An adequate belt wash or high-pressure belt-spray between filter cycles may also be required to remove residue in order to maintain production rates shown in Table 13-22. The typical economical cut-off point for horizontal vacuum belt filtration is considered to be 300 kg/m^2*h. With the addition of flocculant as a filtration aid, the production rates increased to above the economic cut-off point. However, with the addition of flocculant as a filtration aid the discharge moisture of the cakes were shown to increase.

Tests at feed densities of 55% and 59% produced similar results with slightly higher production rates.

Table 13-22: Summary of Vacuum Filtration at 52.1% Solids in the Feed

Material	Test Conditions(1)	Feed Solids(2)	Filter Cloth Used (CFM/ft^2)	Filter Cake Moisture (%)	Bulk Cake Density (dry kg/m^3)	Cake Thick. (mm)	Production Rate (dry kg/m^2-hr)(3)(4)
Tailings	No Flocculant added as filtration aid	52.0%	8 – 10	22.9%	1,771.4	10	74.76
Tailings	110 g/MT of Plant Floc added at 0.25 g/L	52.0%	8 – 10	24.4%	1,363.4	10	415.9

- Tests conducted by FLSmidth produced comparable results. The lowest cake moisture achievable for the Horizontal Belt Filter was found to be 18 wt. %. For unaided filtration, FLSmidth predicted a full-scale filtration rate at this moisture of 77 kg/h/m^2, dry solids basis. Flocculating the feed with 60-75 grams per ton (g/t) dry solids with an anionic polymer produced a full-scale filtration rate of 415 kg/h/ m^2 while maintaining a 20 wt. % cake moisture, which was conveyable.

- Test work performed by Tenova determined the operating parameters and theoretical maximum throughput using a horizontal vacuum belt filter, as well as a filter press, to produce a 'dry-stackable' tailings product from MML's current filter feed material.

Table 13-23 summarizes Tenova test results. Calculations include expected throughput for two 162 m^2 horizontal belt filters acquired by MML. The capacity of the 162 m^2 HBF is significantly higher using SEFAR Cloth 05-8000-W-120 (PP7) than using SEFAR Cloth 05-8000-K-085 (PP6) particularly in producing low moisture filter cakes. The operating parameters using PP7 Cloth are within the range of 58 to 96 seconds, once again dependent on the final moisture content desired in the cake. No flocculant was employed in these two tests due to the coarser particle size of the cyclone underflow.

Detailed test results with Cloth PP6 are summarized in Table 13-24. Cake thickness increases linearly with loading, as does the form time. As expected, the cake moisture content drops with mass loading drying time. Cloth PP6 may be preferred as it produces a filtrate containing less than 0.2% solids compared to tests with cloth PP7 with tenfold that amount.

Figure 13-9 presents the Tenova test results for cloth PP6, indicating expected throughput on the horizontal belt filter versus cake moisture. With the modifications to the stacking of filtered tailings, the filter plant now targets a cake moisture content of 18%. At that moisture content, per filter, the expected belt filter throughput is 100 tonne per hour at 100% filter availability. Expected filter availability is 80%.

Table 13-23: Belt Filter Operation Parameters

Filter Cloth Type (SEFAR) - Code	05-8000-W-120 (PP7)	05-8000-K-085 (PP6)
Cloth Air Permeability	221 CFM /ft^2	78 CFM/ft^2
Feed	Cyclone Underflow	Cyclone Underflow
Feed Density	70% Solids	71% Solids
Filter Cake Thickness	20 mm	20 mm
Cake Loading	33 kg/m^2	34.5 kg/m^2
Form Time	37 seconds	51 seconds
Drying Time	21 seconds @ 18% moisture to 59 seconds @ 15% moisture	62 seconds @ 18% moisture to 262 seconds @ 16% moisture
Total Cycle Time	58 seconds @ 18% moisture to 96 seconds @ 15% moisture	113 seconds @ 18% moisture to 313 seconds @ 16% moisture
Belt Filter Capacity (162m2)	200* TPH @ 15% Moisture to 329* TPH @ 18% Moisture	64* TPH@ 16% moisture to 178* TPH @ 18% Moisture

Table 13-24: Vacuum Filtration Test Data (using cloth PP6)

TEST N°		6	7	8	9	10
Actual Sample Tested	(g)	490	480	494	380	376
% Solids	Calculated	71.0%	71.3%	71.7%	71.1%	71.8%
Flocculant Dose	g/ton	0.0	0.0	0.0	0.0	0.0
Flocculant Volume	0.50 g/l	0.0	0.0	0.0	0.0	0.0
FORM. TIME	(sec)	77	72	92	66	40
FORM. VACUUM	(-inches)	20.0	20	20	20	20
DRYING TIME	(sec)	0	144	276	66	120
DRYING VACUUM	(-inches)	20	20	20	20	20
TOTAL TIME	(sec)	77	216	368	132	160
Filtrate Weight	(g)	58	66	74	58	60
CAKE	THICKNESS (mm)	25	25	25	20	20
	WET Weight (g)	428	416	424	328	320
	DRY Weight (g)	348	342	354	270	270
	Dry Solids (g)	348	342	354	270	270
SOLIDS LOADING	kg/m2	44.3	43.5	45.1	34.4	34.4
CAKE MOISTURE	(g H20 - IN CAKE)	80.00	74.00	70.00	58.00	50.00
CAKE MOISTURE	(% H20 - wet base)	18.69%	17.79%	16.51%	17.68%	15.63%
Form Rate	kg/m2.hr	2072	2177	1764	1875	3094
Drying Rate	Sec.m2/kg	0.00	3.31	6.12	1.92	3.49

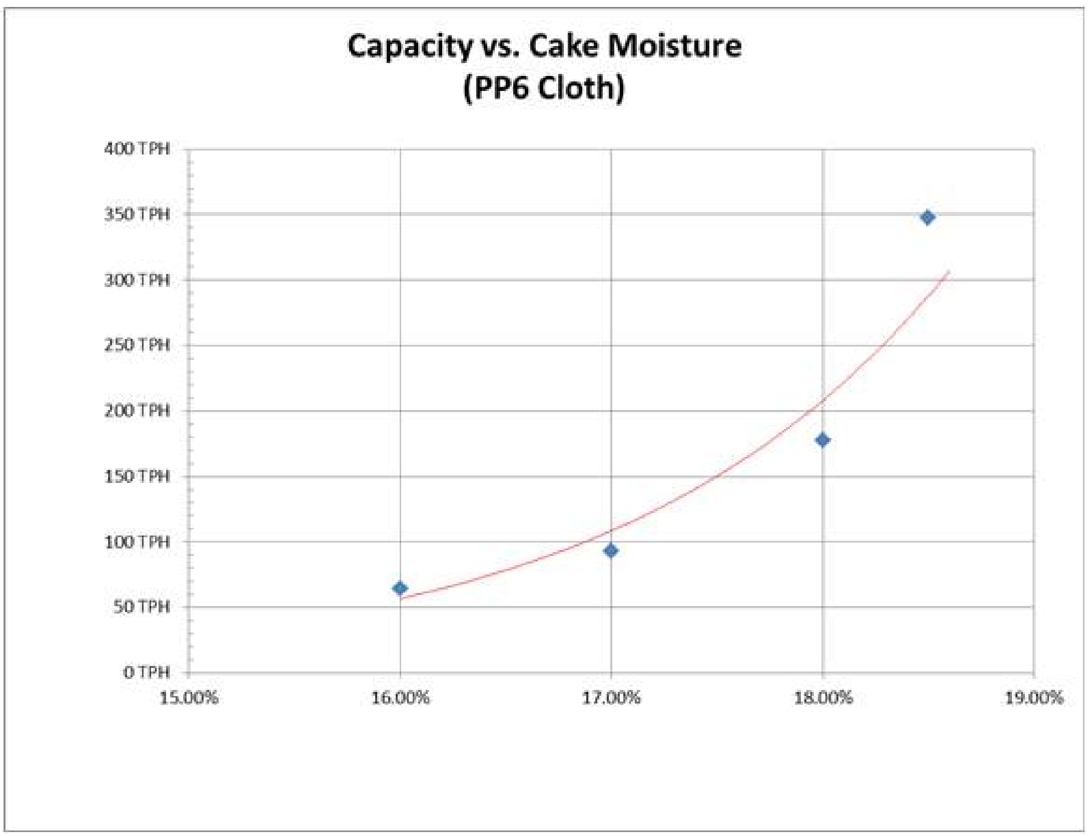


Figure 13-9: Tenova Test Results – Capacity Horizontal Belt Filter vs Cake Moisture

14 MINERAL RESOURCE ESTIMATES

The key points of this section are:

- The QP is of the opinion that the mineral resources for the Project, which have been estimated using core drill data and channel sampling data, have been performed to industry practices, and conform to the definitions set forth in CIM (2014).
- It is the QP's opinion that one of the most valuable tools for model validation is reconciling actual production to mineral resource model estimation. Reconciliation at ELG Open Pits since the start of mining shows a mill production compared to mineral reserve of 0.97 on contained ounces of gold. This supports the conclusion that the mineral resource estimation is accurate.
- Drillhole spacing required for measured, indicated and inferred mineral resources for ELG Open Pit
  - Measured, 20 m x 20 m
  - Indicated, 36 m x 36 m
  - Inferred, 60 m x 60 m
- Drillhole spacing required for measured, indicated and inferred mineral resources for Sub-Sill Underground
  - Measured, to be determined; no Measured currently declared
  - Indicated, 17.5 m x 17.5 m
  - Inferred, 35 m x 35 m
- Drillhole spacing required for measured, indicated and inferred mineral resources for Media Luna Underground
  - Measured, to be determined; no measured currently declared
  - Indicated, to be determined; no indicated currently declared
  - Inferred, 100 m x 100 m

14.1 INTRODUCTION

This section describes the mineral resource estimates for the El Limón, Guajes, Sub-Sill and Media Luna deposits.

Detailed descriptions of the 2014 and 2015 modeling and estimation process which covered El Limón, Guajes, El Limón Sur and Media Luna were presented in the report entitled:

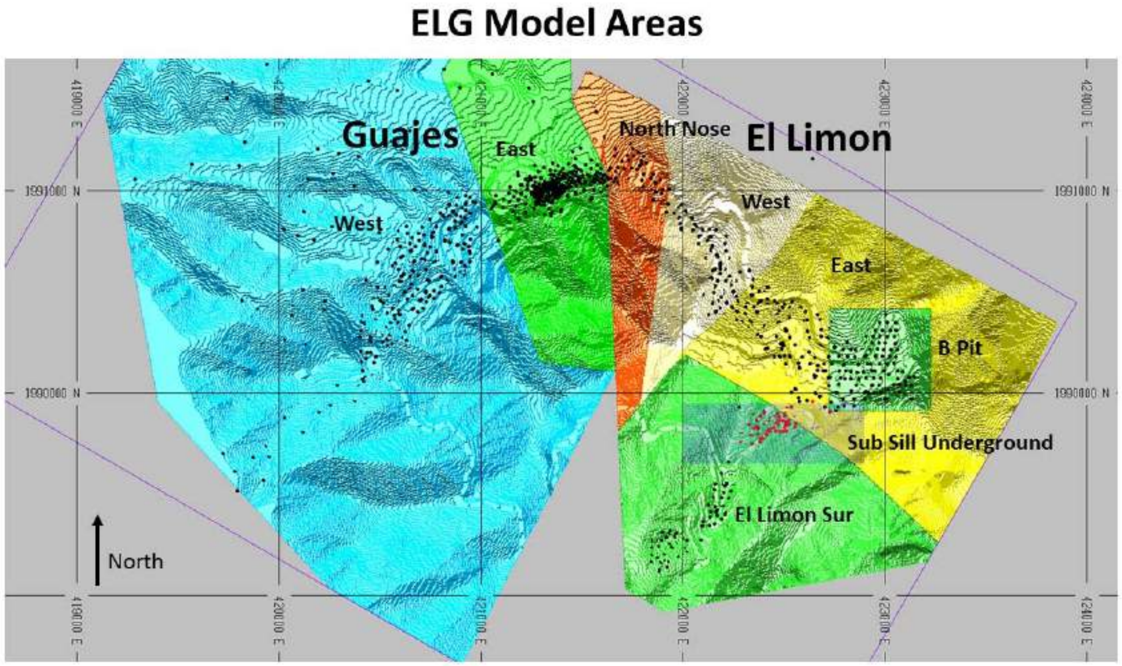
- Daniel H. Neff, P.E., Robert Davidson, P.E., Thomas L. Drielick, P.E., Brian Connolly, P. Eng., Mark Hertel, RM-SME, Edward J.C. Orbock III, RM-SME, Benny Susi, P.E., Prabhat Habbu, P.Eng., Michael Levy, P.E., P.G., Vladimir Ugorets, MMSAQP, James Joseph Monaghan, P.Eng., Morelos Property, NI 43-101 Technical Report El Limón Guajes Mine Plan and Media Luna Preliminary Economic Assessment Guerrero State, Mexico: technical report prepared by M3 Engineering and Technology Corporation, Amec Foster Wheeler E&C Services Inc., SRK Consulting Inc. and Golder Associates Inc. for Torex, effective date September 3, 2015.

The relevant information from the report mentioned above has been summarized into this Report.

Since the 2015 Technical Report, model updates have been completed for El Limón and Guajes as mining progressed, and the Sub-Sill resource model was completed in 2017. These updates were completed by MPH Consulting (MPH) using MineSight®, a commercially available mine planning software package and are described in below

Definitions that were assigned using the 2011 CIM Definition Standards were subsequently reviewed using the 2014 edition of the CIM Definition standards.

Figure 14-1 shows the location of the ELG Mine Complex mineral resource models, the Sub-Sill underground model area is only considered for mineral resources potentially amenable to underground mining, no mineral resources potentially amenable to open pit mining are declared within the Sub-Sill model area.



Note: Figure prepared by MPH, 2018.

Figure 14-1: Plan View showing the ELG Model Areas

14.2 RECONCILIATION

Torex has been mining using open pit methods at ELG Open Pit since 2015. The reconciliation factor of contained gold ounces mined compared to the estimate within the mineral reserve (material mined based on tonnes and grade processed divided by tonnes and grade reserve within the pit) to the end of March 2018 is 0.97 or 97%. This means that of the planned contained gold ounces to be mined (in reserve, 97% of mine plan contained ounces have reported to the mill. For this ratio to be close to unity shows that the mineral resource models, which form the basis of the Mineral Reserves, provide robust, accurate and dependable estimates.

Underground mining at the Sub-Sill has just started, and it is too soon to come to any meaningful conclusions using currently-available reconciliation data.

14.3 DATABASE

MPH used the previously validated database from earlier mineral resource estimates and validated new data to generate the updated open pit models and develop the Sub-Sill estimate. Following is the description of the validation work from the 2015 Technical Report.

Torex provided Amec Foster Wheeler M&M with Microsoft Excel spreadsheets containing all drilling information for El Limón and Guajes. Amec Foster Wheeler M&M imported the collar downhole survey, lithological, and assay data into MineSight mining software version v7.0-4 (build 52681-304) and used validation routines within the software to check for survey errors, overlapping intervals, missing intervals, skipped intervals, and values outside of range. The initial database showed a high error rate and the database was reconstructed. Amec Foster Wheeler M&M's re-audit on the re-built database shows a very low incident of errors and is acceptable to support the geological interpretations, the analytical and database quality, and therefore support the use of the data in mineral resource estimation.

The database contains 132,697 gold assay samples totaling 187,403.0 m and 132,527 silver assay samples totaling 187,164.1 m. The sampling was completed by means of reverse circulation, diamond core drilling, and channel samples during the period from 1997 through 2012.

Two sub-set resource databases were created from this larger database, one for the two Guajes deposits, East and West, and the second for the El Limón deposits, North, El Limón, and South.

Additional data used for mineral resource modeling is outlined in the following sub-sections.

14.3.1 El Limón

14.3.1.1 El Limón East, West, and North Nose

The database used in estimation for all of El Limón in 2012 contained 132,697 gold assay samples totaling 187,403.0 m and 132,527 silver assay samples totaling 187,164.1 m. In December of 2015, the El Limón East and West model areas were updated. The database used contained 587 drillholes with 16 new drillholes (EL-01 to EL-16) added to the database since the previous audit in 2012. Validation of the database showed it to be acceptable for use in mineral resource estimation.

14.3.1.2 El Limón Sur

Within the El Limón Sur model area 75 drillholes (6,772.8 m) support the mineral resource estimate. Validation of the database showed it to be acceptable for use in mineral resource estimation.

14.3.1.3 El Limón B Pit

MPH reviewed a database quality report completed by MML and found the database to be of sufficient quality for mineral resource estimation. Within the Pit B area 463 drillholes (38,148 m) support the mineral resource estimate. Of the 463 drillholes, 234 are new infill holes.

14.3.2 Sub-Sill Underground

Sub-Sill is a new deposit discovered and drilled off between 2015 and 2017. MPH reviewed the database quality report completed by Analytical Solutions Ltd. Entitled "Sub-Sill Database QAQC Review September 2017", and found the database to be of sufficient quality for mineral resource estimation.

Within the Sub-Sill project, 88 drillholes (17,287 m) support the mineral resource estimate.

14.3.3 Guajes East and West

Guajes West was remodeled in 2014 using new geology and the 2012 database that contained 132,697 gold assay samples totaling 187,403.0 m and 132,527 silver assay samples totaling 187,164.1 m. The sampling was completed by means of reverse circulation, diamond core drilling, and channel sample methods during the period from 1997 through 2012.

Guajes East was remodeled in 2016 using 197 in-pit infill drillholes (GE-001 to GE-197), for a total of 5,663.7 m. Many of the holes had depths of either 21 m or 8 m to test mineralization on benches directly below current mining. As of March 2018, Guajes East mining is complete.

14.3.4 Media Luna

Within the Media Luna Project, 223 drillholes (129,080 m) support the mineral resource estimate. The database used for this estimate was audited by Amec Foster Wheeler and determined to be sufficient to support mineral resource estimation.

14.4 DENSITY ASSIGNMENT

14.4.1 El Limón

14.4.1.1 El Limón East, West, North Nose

Information on density determinations can be found in Section 11.

14.4.1.2 El Limón Sur

SG was assigned by rock type from 137 wax immersion density determinations. Information on density determinations can be found in Section 11.

14.4.1.3 El Limón B Pit

SG was assigned by rock type from wax immersion density determinations. Information on density determinations can be found in Section 11.

Table 14-1 lists the SG values assigned to the blocks in the Pit B model.

Table 14-1: El Limón Block SG Values

Mineralized	
Rock Code	**SG**
31	3.168
32	3.125
37	2.869
39	2.866
Un-Mineralized	
31	3.132
32	2.642
37	2.849
39	2.675
60 to 64	2.61

The cut-off value for differentiating between the un-mineralized and mineralized units in the table is 0.5 g/t Au.

14.4.2 Sub-Sill Underground

SG was assigned by rock type from 107 wax immersion density determinations. MML completed the SG work, MPH reviewed the work and found it to be adequate for use in mineral resource estimation. Table 14-2 list the SG values assigned to the blocks in the Sub-Sill model.

Table 14-2: Sub-Sill Block SG Values

Domain	Density	# Samples
31 Um	3.03	5
31 Min	3.40	14
32 Um	2.65	12
32 Min	3.45	22
37	2.81	10
39	2.64	10
41	3.85	7
60	2.56	15
62	2.53	8
63	2.54	4

The cut-off value to distinguish between un-mineralized, “Um”, and mineralized “Min” units in the table, is 0.3 g/t Au.

14.4.3 Guajes East and West

SG was assigned by rock type from 137 wax immersion density determinations, information on density determinations can be found in Section 11.

14.4.4 Media Luna

Density values for the Media Luna mineral resource block model were calculated from 244 wax immersion density determinations. Approximately 30 samples were selected from each rock type found within the skarn zone. The samples were selected evenly throughout the range of sorted gold assay values. Mean density values, sorted by decile, gold, copper, silver, and iron, were plotted for each of the rock types. The plots were examined for trends in density values for each of the grades. Density was assigned to the block model by rock types. Information on density determinations can be found in Section 11.

14.5 GEOLOGICAL MODELS

14.5.1 El Limón

14.5.1.1 El Limón East, West, and North Nose

For the North Nose model, a probabilistic approach was used to code blocks with geology. El Limón East and West used a wire-frame approach based on MML and Western Mining Services (WMS) section and plan interpretations.

14.5.1.2 El Limón Sur

For the 2014 Limón Sur model update, Torex provided 24 geology section interpretations. From these data, a deterministic geologic model for Limón Sur was created. The deterministic modeling approach to geology results in a more focused, clearer picture of the geology at El Limón Sur than the probabilistic approach used in previous models.

14.5.1.3 El Limón Pit B

Rock solids were delivered to MPH from MML in DXF file format. The solids were constructed by MML using Leap Frog, a commercially-available geology modeling package. The final set of solids were delivered in September of 2017. Standard ELG Mine Complex codes were used for coding the Pit B model. The codes and rock types are listed 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 Sulphides/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

Rock types listed in Table 14-3 are a standard for all deposits within the Morelos Project and were used in the modeling, and not all of the rock types in Table 14-3 are found at the Pit B project.

14.5.2 Sub-Sill Underground

Rock solids were delivered to MPH from MML in DXF file format. Several sets of solids were delivered and reviewed by MPH and WMS. The solids were constructed by MML using Leap Frog. The final set of solids were delivered in October of 2017. Standard ELG Mine Complex codes were used for coding the Sub-Sill model (refer to Table 14-3).

14.5.3 Guajes East and West

Torex provided 44 geology section interpretations and 12 geology level interpretations. From this data a deterministic geologic model was constructed for Guajes East and West. From the Torex interpretations, three methods were used to assign rock codes to the three-dimensional geology block model: modeled wire frame solids, projection of section geology to section volume, and assigning codes to levels from level interpretations.

14.5.4 Media Luna

Torex provided 22 geologic sections that were spaced generally at 100 m intervals through the Media Luna skarn zone, four oblique sections, and three level plans. The sectional interpretations were completed by Torex and WMS geologists.

The sections were used to model three contact surfaces: limestone-exoskarn, exo-endoskarn, and endoskarn-granodiorite. Vertical dykes were solid modeled, tied into the surface geology, and used to code blocks. Dykes cross-cut the skarn zone and are not mineralized. Dykes were projected downward to pierce the skarn zone when encountered by drilling above the skarn zone.

The volume between the each of the surfaces was split into five sub-surfaces. The block model was coded by the sub-surfaces to create 10 skarn zone positions that were subsequently back-loaded to the drillholes.

Geology codes from the Torex and WMS logging of core on site were then interpolated matching on skarn zone position, such that skarn zone position blocks could only be assigned grade with composites of a matching zone position. This forced the geology to follow the fabric of the skarn zone as it undulates, pinches, and swells.

14.6 COMPOSITES AND EXPLORATORY DATA ANALYSIS

14.6.1 El Limón

14.6.1.1 El Limón East, West, and North Nose

For the North Nose model, a 3.5 m length was used for all assay composites. North Nose composites were back-tagged from the lithology-interpolated mine block they intersected. Descriptive statistics were completed on the gold composites by rock code within the skarn envelope and outside of the skarn envelope. Descriptive statistic runs included box plots, histograms, and cumulative frequency plots.

The El Limón East and West models were constructed from core drillholes, reverse circulation drillholes and channel samples.

Assays were composited to 3.5 m lengths. A minimum of two 3.5 m composites, which matches the 7 m bench height of a block, was required to construct a mineralized interval. Mineralized intervals mean Au grade requirements were that the grade was equal to or greater than 0.3 g/t. Majority rock codes from assay logging were used to code the composites for rock type.

Histograms, probability plots, boxplots and contact plots were created for gold and silver composites.

14.6.1.2 El Limón Sur

A 3.5 m length was used for all assay composites. Composites were back-tagged from the lithology-interpolated mine block they intersected.

Descriptive statistics were completed on the gold composites by rock code within the skarn envelope and outside of the skarn envelope. Descriptive statistic runs included box plots, histograms, and cumulative frequency plots.

Three geology composite domains were created. The domains were selected on similar mean gold grade and sample distributions of rock coded composites. The skarn package domain includes exoskarn, endoskarn, and breccia. The sedimentary domain includes hornfels, marble/limestone. The intrusive domain includes feldspar porphyry, feldspar–biotite–hornblende–quartz porphyry, and granodiorite.

The four domains, skarn package mineralized, skarn package un-mineralized, sedimentary, and intrusive for grade estimation domaining for both gold and silver.

14.6.1.3 El Limón Pit B

Gold, silver and copper assays were composited into 3.5 m down hole lengths for estimation.

Composites were backloaded with rock codes from the rock model. The codes were checked and adjusted using summary statistics and visualization in three-dimensional space. Table 14-4 shows summary statistics for gold.

Table 14-4: Au Summary Statistics

3.5 Meter Composites, g/t Au, By Rock Code						
Rock Code	Number	Mean	Min	Max	Standard Deviation	CV
31 and 32	2258	2.303	0.003	61.804	4.891	2.12
37	2114	0.253	0.003	9.244	0.679	2.68
39	1223	0.191	0.003	4.665	0.484	2.53
60	1176	0.065	0.003	2.194	0.203	3.12
62	2661	0.169	0.002	10.604	0.691	4.09
64	82	0.365	0.002	4.996	0.838	2.30

Composites were split into estimation domains using rock codes and by breaking out high and low, grade domains within the skarn rock types. Figure 14-2 shows breaks in the g/t Au probability plot, pointing to possible high, and low, grade domains within composites coded as exo and endo skarn (codes 31 and 32). The probability plot also is used to select the outlier restriction value, which was selected as 45 gpt Au.

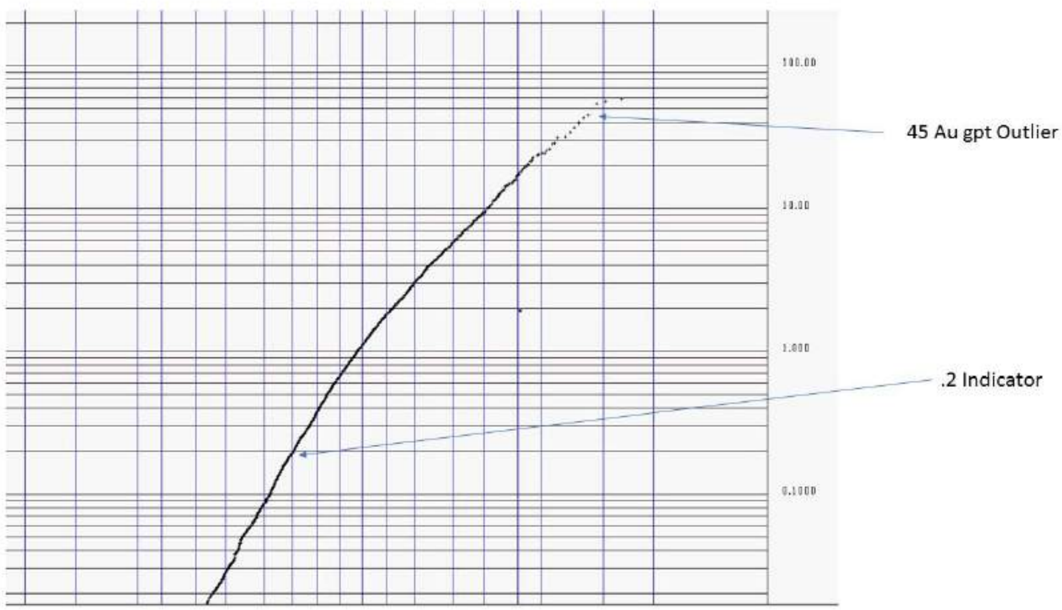


Figure 14-2: Au Probability Plot, August 2017 MPH

Visual inspection of the composites confirms a sharp hard contact between composites coded as endo and exoskarn at or above a 0.2 g/t Au threshold.

To break out the three domains for coding the composites and blocks, MPH used probability assigned constrained kriging (PACK). Steps for using PACK are listed as follows:

- Select mineral indicator value
- Code composites with the indicator
- Compute variograms on the indicator
- Interpolate indicators to estimate block probabilities

- Select probability for mineralized blocks
- Backload block probabilities to composites
- Complete exploratory data analysis (EDA) on coded composites.

PACK and the rock codes were used to select the grade estimation domains are listed in Table 14-5.

Table 14-5: Composite Estimation Domains

3.5 Meter Composites, g/t Au, By Estimation Domains										
Domain	**Rock Code**	**Number**	**Mean**	**Min**	**Max**	**Standard Deviation**	**CV**	**Outlier Cut-off Au**	**Number of Outliers**	**CV Less Outliers**
1	31, 32	1251	3.285	0.003	61.80	5.96	1.82	45	4	1.64
2	31, 32	1007	1.083	0.003	24.55	2.61	2.41	15	8	2.17
3	37	2114	0.253	0.003	9.24	0.68	2.68	4	17	2.02
4	39	1223	0.191	0.003	4.67	0.48	2.53	2	19	2.14
5	60	1176	0.065	0.003	2.19	0.20	3.12	1.5	6	2.88
6	62,63,64	3043	0.166	0.002	10.80	0.67	4.04	3	36	2.83

14.6.2 Sub-Sill Underground

Gold, silver and copper assays were composited into 2.5 m down hole lengths for estimation.

Composites were backloaded with rock codes from the rock model. The codes were checked and adjusted using summary statistics and visualization in three-dimensional space. Table 14-6 shows summary statistics for gold.

Table 14-6: Au Summary Statistics

2.5 Meter Composites, g/t Au, By Rock Code						
Rock Code	**Number**	**Mean**	**Min**	**Max**	**Standard Deviation**	**CV**
31	999	6.490	0.003	365.574	17.963	2.77
32	1055	1.369	0.002	103.284	5.205	3.80
37	809	0.083	0.002	7.214	0.295	3.55
39	896	0.271	0.002	11.722	0.925	3.41
60	2451	0.167	0.002	13.045	0.78	4.68
62	109	0.056	0.002	0.942	0.14	2.50
63	123	0.034	0.002	1.67	0.155	4.56
67	79	0.089	0.002	0.68	0.164	1.84

Composites were split into estimation domains using rock codes and by breaking out high, medium, and low, grade domains within the skarn rock types. Figure 14-4 shows breaks in the g/t Au probability plot, pointing to possible high, medium, and low, grade domains within composites coded as exo and endo skarn (codes 31 and 32).

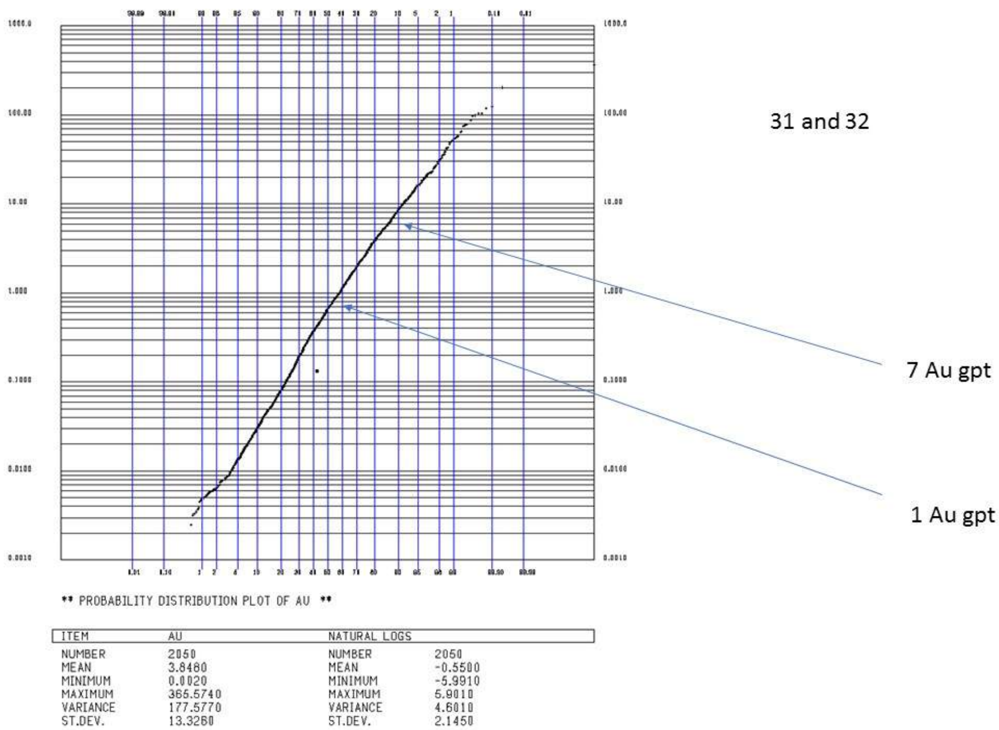


Figure 14-3: Au Probability Plot, August 2017 MPH

Visual inspection of the composites confirms a sharp hard contact between composites coded as endo and exoskarn at or above a 7.0 gpt Au and 1.0 g/t Au threshold.

To break out the three domains for coding the composites and blocks MPH used PACK.

PACK and the rock codes that were used to select the grade estimation domains are listed in Table 14-7.

Table 14-7: Composite Estimation Domains

2.5 Meter Composites, g/t Au, By Estimation Domains										
Domain	Rock Code	Number	Mean	Min	Max	Standard Deviation	CV	Outlier Cut-off Au	Number of Outliers	CV Less Outliers
1	31	210	22.524	0.014	365.57	34.04	1.51	100	5	0.94
2	31, 32	519	3.800	0.022	51.82	4.63	1.22	25	3	0.936
3	31, 32	1481	0.961	0.002	103.28	4.30	4.47	15	8	2.087
4	37	809	0.083	0.002	7.21	0.30	3.55	0.5	8	1.048
5	39	896	0.271	0.002	11.72	0.93	3.41	5	9	2.936
6	60	2451	0.166	0.002	13.05	0.78	4.70	5	11	3.423
7	61,62,63,66,67	311	0.056	0.002	1.67	0.15	2.73	1	1	2.197

14.6.3 Guajes East and West

A 3.5 m length was used for all assay composites. Composites were back-tagged from the lithology-interpolated mine block they intersected.

Descriptive statistics were completed on the gold composites by rock code within the skarn envelope and outside of the skarn envelope. Descriptive statistic runs include box plots, histograms, and cumulative frequency plots.

Three geology composite domains were created. The domains were selected on similar mean grade and sample distributions of rock coded composites. The skarn package domain includes exoskarn, endoskarn, and breccia. The sedimentary and granodiorite domain includes hornfels, alluvium, marble/limestone, massive sulfide oxide, and granodiorite. The intrusive domain includes feldspar porphyry, feldspar–biotite–hornblende–quartz porphyry, and mafic dykes.

14.6.4 Media Luna

Assays were composited into 2.5 m lengths. Each 2.5 m length was composited for gold, copper and silver. Composites were assigned rock codes from the assays. The core was logged on site by Torex and WMS geologists. The coding was found to be very consistent.

The down-hole composite received the majority rock code for the 2.5 m length. The skarn position was back-loaded to the composite from the 2.5 m cubic blocks. Composites with a skarn position value range of one to 10 are skarn zone composites; only these composites were used for grade estimation.

The down-hole composited assays of 2.5 m lengths were reviewed using probability plots to select domains for gold, silver and copper mineralization. From examination of the gold probability plot and confirmation of the pick by reviewing composite cross sections, an upper domain was determined to exist at 0.5 g/t Au and above. Review of the copper probability plot indicated an upper population at 0.15% Cu. Completing the same process on silver revealed an upper grade population at 3 g/t Ag.

An indicator was created for gold, copper and silver in the composite file; all composites below the selected threshold values received a zero and values above received a one.

14.7 GRADE CAPPING/OUTLIER RESTRICTION

14.7.1 El Limón

14.7.1.1 El Limón East, West, and North

Within the upper grade skarn domain, a value of 35 g/t Au at a distance of 7 m was used, within the lower grade domain 10 g/t Au was used at a distance of 10 m.

14.7.1.2 El Limón Sur

Gold capping/outlier restriction at Limón Sur was based on the four estimation domains. Gold and silver composite grades were outlier restricted' the gold and silver composite values for restriction were selected by rock type. Composite rock and block codes were matched for grade estimation. Within the upper grade skarn domain, a value of 35 g/t Au at a distance of 7 m was used, within the lower grade domain 10 g/t Au was used at distance of 10 m.

14.7.1.3 El Limón Pit B

Outlier restriction values were defined from g/t Au probability plots and visual inspection. A 7 m distance was used for all of the estimation domains, 45 g/t Au was used as the outlier cut-off for the high-grade domain, and 15 g/t Au was used for the low-grade domain. Silver values were not capped, or outlier restricted.

14.7.2 Sub-Sill Underground

Outlier restriction values were defined from g/t Au probability plots and visual inspection. Outlier restriction has been proven to work well at the ELG Mine Complex for top cutting of very high-grade composites. The skarn package high-grade domain used a gold value of 100 g/t Au, the medium-grade domain used a value of 25 g/t Au, and the low-grade domain used a value of 15 g/t Au. All values used a restriction range of 7 m. Silver values were not capped or outlier restricted.

14.7.3 Guajes East and West

Gold capping/outlier restriction at Guajes was based on the four estimation domains. Gold composite grades were outlier restricted at 40 g/t Au inside the skarn mineralized domain with a 7 m distance and 3.5 g/t Au in the remaining three domains. Capping/outlier restriction removed approximately 3.0% of the expected gold metal.

Silver composites were capped at 40 g/t Ag for all lithologies outside of the skarn package domain, and capped at 80 g/t Ag for all lithologies inside the skarn package domain.

14.7.4 Media Luna

Potential outlier restriction values were selected from lognormal probability plots and then verified the value by finding the outlier and looking at its surrounding composites in 3D space. Outlier restriction values were calculated by rock type and upper- and lower-grade domains for gold, silver, and copper. Skarn blocks were estimated using both outlier restriction and without restrictions, so that the metal reduction due to outlier restriction could be calculated. In the gold upper-grade domain, it was noted that a small number of composites have a great effect on the mean grade in the exoskarn rock type.

Exoskarn was outlier-restricted to 30 g/t Au and endoskarn was restricted to 10.5 g/t Au, both with a 15 m distance.

14.8 ESTIMATION / INTERPOLATION METHODS

14.8.1 El Limón

14.8.1.1 El Limón East, West, and North Nose

Gold grades in the skarn, granodiorite, and sedimentary group domains were estimated using a three-pass estimation method by OK. Silver grades were interpolated along with the gold grades in the same gold interpolation runs. Silver grade interpolation runs honored all of the gold parameters, except for capping and outlier restriction.

Gold and silver grade interpolation for post-skarn dykes was by inverse distance weighted to the third power (IDW3). The total number of post-skarn dike composites >0.3 g/t Au for West is 223, and for East is 114. There are insufficient mineralized dyke composites to produce meaningful variograms. Two passes were used to interpolate gold and silver grades into dykes with rock type codes from 61 through 66.

14.8.1.2 El Limón Sur

Gold and silver grades, within the Limón Sur resource model, were estimated using geologic solids, upper- and lower-grade domains, and lithologic codes. Geologic solids were modeled from section interpretations and used to assign lithologic codes to the block model. OK was used to interpolate grade. A three-pass estimation plan was used that employed a more restrictive local estimate with each pass, permitting a more local estimate if composites were locally available. The first pass used a maximum of 16 composites, minimum of two, and a maximum of four from any single drillhole. For the second and third passes, a maximum of 16 composites, minimum of five, and a maximum of four from any single drillhole were used. Gold and silver grades were estimated for each block. Silver grades were estimated independent of the gold grades.

14.8.1.3 El Limón Pit B

EDA was completed on the estimation domain coded composites. Estimation parameters for El Limón Pit B are listed in Table 14-8.

Table 14-8: El Limón Pit B Estimation Parameters

2017 El Limón B Pit, Estimation Parameters, Model MORB15.ELB														
Composite Selection Outlier Restriction									Three Dimensional Ellipsoidal Search					
Domain	Pass	Rock Codes	Min	Max	Max per hole	Limiting Search Distance	Outlier Cut-off Au gpt	Outlier Search Distance m	Y Axis Range	X axis range	Z Axis Range	Rot Z Axis	Rot X Axis	Rot Y Axis
Skarn Package High−Mineralized	1	31.32	2	20	3	200	45	7	30	58.3	20	−24	19	11
	2	31.32	4	20	3	200	45	7	22.5	43.73	15	−24	19	11
	3	31.32	6	12	3	200	45	7	15	29.2	10	−24	19	11
Skarn Package Low−Mineralized	1	31.32	2	20	3	200	15	7	30	58.3	20	−24	19	11
	2	31.32	4	20	3	200	15	7	22.5	43.73	15	−24	19	11
	3	31.32	6	12	3	200	15	7	15	29.2	10	−24	19	11
Sedimentary and Granodiorite	1	37	4	20	3	200	4	7	83	61.7	24.4	−5	−13	16
	1	39	4	20	3	200	2	7	15	64.4	21.7	−22	2	2
	1	60	4	20	3	200	1.5	7	36.1	116.4	23	−23	−37	20
Intrusive	1	62,63,64	4	20	3	200	3	7	25	38.8	20	−12	8	11
ranges in meters, rotation rules (ZXY−LRL)														
Block Probability Estimation Parameters														
Composite Selection									Three Dimensional Ellipsoidal Search					
Domain	Pass	Rock Codes	Min	Max	Max per hole	Limiting Search Distance	Outlier Cut-off Au gpt	Outlier Search Distance m	Y Axis Range	X axis range	Z Axis Range	Rot Z Axis	Rot X Axis	Rot Y Axis
High, .2 gpt Au ind	1	31.32	4	12	3	NA	NA	NA	49	82.4	35	−10	−24	12
ranges in meters, rotation rules (ZXY−LRL); High Indicator at .2 gpt, below .2 au gpt =0, above = 1														

In Table 14-8, in the row for first pass parameters, the variogram ranges and rotations are listed. Gold, silver, and copper grades were estimated using the parameters listed in Table 14-8. OK was used for estimation, using hard boundaries between the estimation domains.

Outlier restriction values were defined from g/t Au probability plots and visual inspection. Outlier restriction has been proven to work well at the ELG Mine Complex for top cutting of very high-grade composites.

14.8.2 Sub-Sill Underground

EDA was completed on the estimation domain coded composites. The Sub-Sill estimation parameters are listed in Table 14-9.

Table 14-9: Sub-Sill Estimation Parameters

2017 Sub-Sill Model, Estimation Parameters, Model SUBE15.V2														
Composite Selection Outlier Restriction									Three Dimensional Ellipsoidal Search					
Domain	Pass	Rock Codes	Min	Max	Max per hole	Limiting Search Distance	Outlier Cut-off Au gpt	Outlier Search Distance m	Y Axis Range	X axis range	Z Axis Range	Rot Z Axis	Rot X Axis	Rot Y Axis
Skarn Package High−Mineralized	1	31	2	12	2	200	100	7	35	25	15	55	17	19
	2	31	4	12	3	200	100	7	26.25	18.75	11.25	55	17	19
	3	31	4	12	3	200	100	7	17.25	12.5	7.5	55	17	19
Skarn Package Med−Mineralized	1	31,32	2	12	2	200	25	7	35	25	15	55	17	19
	2	31,32	4	12	3	200	25	7	26.25	18.75	11.25	55	17	19
	3	31,32	4	12	3	200	25	7	17.25	12.5	7.5	55	17	19
Skarn Package Low−Mineralized	1	31,32	2	12	2	200	15	7	35	25	15	55	17	19
	2	31,32	4	12	3	200	15	7	26.25	18.75	11.25	55	17	19
	3	31,32	4	12	3	200	15	7	17.25	12.5	7.5	55	17	19
Sedimentary and Granodiorite	1	37	2	12	3	200	0.5	7	38.2	54	10	58	27	−7
	1	39	2	12	3	200	5	7	26	63.1	15	77	−68	−9
	1	60	2	12	3	200	5	7	63	21.8	14.7	−18	−15	31
Intrusive	1	61,62,63,66,67	2	12	3	200	1	7	60	60	60	−16	−35	21
ranges in meters, rotation rules (ZXY−LRL)														
Block Probability Estimation Parameters														
Composite Selection									Three Dimensional Ellipsoidal Search					
Domain	Pass	Rock Codes	Min	Max	Max per hole	Limiting Search Distance	Outlier Cut-off Au gpt	Outlier Search Distance m	Y Axis Range	X axis range	Z Axis Range	Rot Z Axis	Rot X Axis	Rot Y Axis
High, 7 gpt Au ind	1	31	3	12	2	NA	NA	NA	44.6	36.5	15	56	14	26
Med., 1 gpt Au ind	1	31,32	4	12	3	NA	NA	NA	84.4	126.1	39.4	−14	−20	21
ranges in meters, rotation rules (ZXY−LRL); High Indicator at 7.0 gpt, below 7 au gpt =0, above = 1; Med. Indicator at 1.0 gpt, below 1 au gpt =0														

In Table 14-9, in the row for first pass parameters, the variogram ranges and rotations are listed. Gold, silver, and copper grades were estimated using the parameters listed in Table 14-9. OK was used for estimation, using hard boundaries between the estimation domains.

Outlier restriction values were defined from g/t Au probability plots and visual inspection. Outlier restriction has been proven to work well at the ELG Mine Complex for top cutting of very high-grade composites.

14.8.3 Guajes East, West

A three-pass estimation plan was used that employed a more restrictive local estimate with each pass, permitting a more local estimate if composites were locally available. Grade estimation was completed using OK. For gold and silver block grade estimation, a maximum of 20 composites, minimum of two, and a maximum of three from any single drillhole were used for the first pass. For the second pass a maximum of 20 composites, minimum of four, and a maximum of three from any single drillhole was used. The third and final pass used a maximum of 12 composites, minimum of six, and a maximum of three from any single drillhole. Gold and silver grades were estimated for each block. Composites were selected for grade estimation from each of the nine-combined skarn envelope/geological domains, matching with envelope/geological domain coded blocks.

14.8.4 Media Luna

OK was used to interpolated block probabilities using grade indicators, block probabilities were selected by matching block probabilities to blocks interpolated by nearest-neighbour (NN) of the indicators. Validation was done for the probabilities selected by comparing the number of blocks in the NN estimate to the selected block probability.

An estimation plan for grade estimation was developed using grade domains, skarn position, and rock codes. A two-pass estimation plan was used that employed matching by grade domain and rock type followed by a more restrictive pass that matched block and composites by grade domain, skarn position and rock type. The second pass overwrote the block estimation of the first pass, if the composites were available, with a more local estimate conforming to the fabric of the skarn zone.

For gold, silver and copper block grade estimation, a maximum of 12 composites, minimum of two, and a maximum of three from any single drillhole was used. Gold, silver, and copper grades were estimated for each block in the skarn zone. Grade estimation was completed using OK.

14.9 VARIOGRAPHY

14.9.1 El Limón, Guajes, and Media Luna

Sage2001 software was used to construct down-the-hole and directional correlograms for the selected indicators and estimation domains. Directional variograms were created by estimation domains to produce ellipsoids used for searches and OK.

14.10 BLOCK MODEL VALIDATION

14.10.1 El Limón

14.10.1.1 El Limón East, West, North Nose, El Limón Sur

Validation was performed for all of the model areas including NN checks by comparing the means of the OK model with means from the NN model, visual inspection of cross-sections and plan views, comparing color-coded composites and blocks on-screen, and construction of swath plots. Swath plots did not show local bias.

14.10.1.2 El Limón Pit B

MPH used visual inspection and a comparison of the new model “morb15.elb” to the previous model to validate the new model.

Figure 14-4 and Figure 14-5 show both models have good correlation between block grades and composite grades. The figures also show how the un-mineralized dyke geology interpretations have changed, with the benefit of the infill drilling.

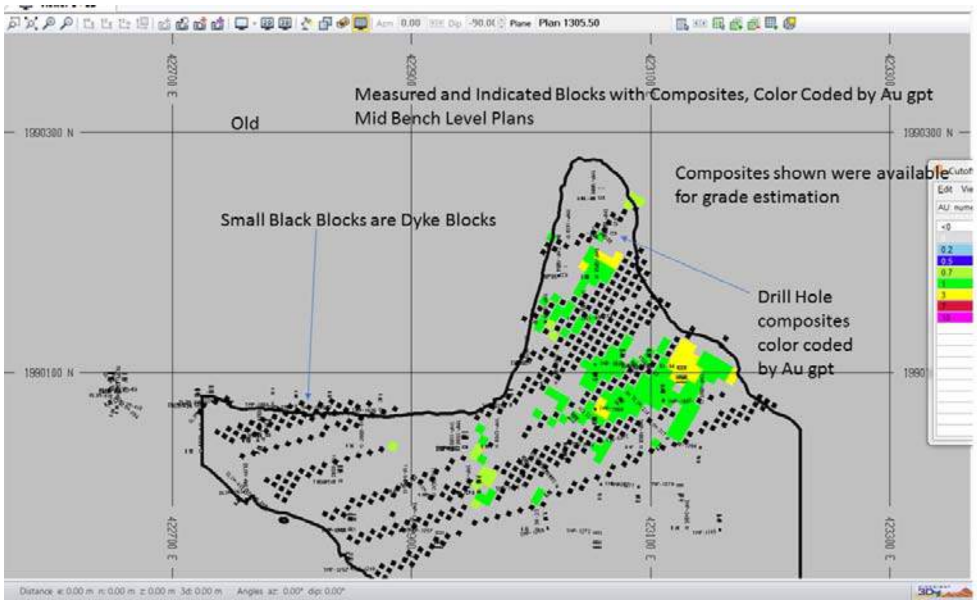


Figure 14-4: Elevation 1,305.5 Mid Bench Plan View, Old Model, August 2017 MPH

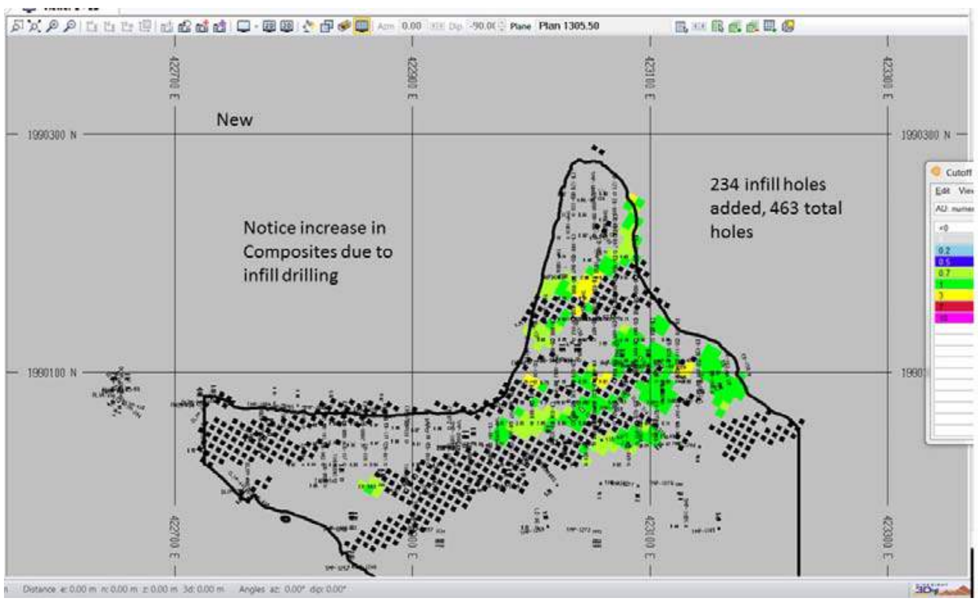


Figure 14-5: Elevation 1,305.5 Mid Bench Plan View, New Model, August 2017 MPH

From visual inspection of cross section and plan views, the new model was not found to contain grade bias. Due to the infill-drilling, the new model is considered to be a better predictor of local tonnes and grade.

14.10.2 Sub-Sill Underground

MPH used visual inspection and a Nearest Neighbor (N model for global and local grade bias checks. Table 14-10 shows the results of the OK model compared to the NN model.

Table 14-10: Global Variance Check

Global Bias Check*, Block Estimated Grade Compared to Nearest Neighbor Grade at A Zero Cut-Off												
Skarn Domain	Rock Code	Rock Type	Tonnes	Au gpt	AuNN gpt	% Difference**	Ag gpt	AgNN gpt	% Difference	Cu %	Cu NN %	% Difference
1, 2, 3	31	Exo Skarn	4,098,806	4.01	4.24	-5.4%	6.29	6.33	-0.74%	0.29	0.29	-0.3%
*All confidence classes												
** ((Au gpt − Aunn gpt) ƒ Aunn gpt) %												

Table 14-10 is comparing confidence class 2, and 3 at a zero g/t Au cut-off. The percent differences are well within reason for estimation domains with grade. MPH found no global bias in the OK estimation.

For a local bias check, MPH completed swath plots. The swath plots were completed on g/t Au values for skarn blocks at a zero cut-off.

MPH found no local bias in swaths that had a reasonable number of tonnes and total length of composites.

The swaths are competed at a zero cut-off. At a zero cut-off the NN model is a good un-biased estimate. The OK model matches the NN model, at a zero cut-off, very closely both globally and locally.

MPH compared block grades to composite grades for cross sections and plans and found the composite and block grades to match well (Figure 14-6).

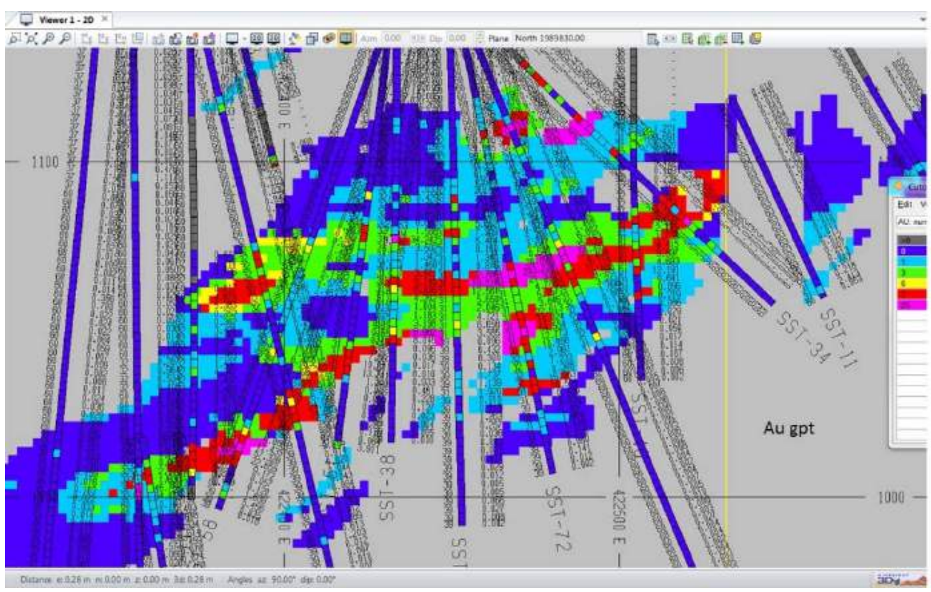


Figure 14-6: Composite and Block Grade Comparison, Cross Section 1989830 North Looking North, August 2017 MPH

14.10.3 Guajes East, West, Media Luna

Validation performed for all of model areas included nearest-neighbor checks by comparing the means of the OK model with means from the NN model, visual inspection of cross-sections and plan views, comparing color coded composites and blocks on-screen, and construction of swath plots. No local or global bias was found.

14.11 CLASSIFICATION OF MINERAL RESOURCES

The confidence class is based on:

- Geologic continuity
- Grade continuity
- Production rate
- Kriging variance at various drillhole spacings.

14.11.1 El Limón and Guajes Resource Classification for Mineralization Potentially Amenable to Open Pit Mining

Mineral resources potentially amenable to open pit mining methods are all classified using the rules listed below.

In order for a block to be a classified as a resource block, it must have the confidence class value assigned, and have a gold grade of 0.7 g/t Au or greater.

1. Measured mineral resource

   Mineral resources are classified as measured when a block was located within 15 m of the nearest composite and two composites from two additional drillholes was within 22 m. Drillhole spacing for Measured Resources would broadly correspond to a 20 m x 20 m grid.

2. Indicated mineral resource

   Mineral resources were classified as indicated when a block was located within 28 m of the nearest composite and one additional composite from another drillhole was within 40 m. Drillhole spacing for Indicated Resources would broadly correspond to a 36 m x 36 m grid.

3. Inferred mineral resource

   Mineral resources were classified as Inferred when a block was located within 60 m of the nearest composite. Drillhole spacing for declaration of inferred mineral resources would broadly correspond to a 60 m x 60 m grid.

14.11.2 Sub-Sill Underground Resource Classification

From the drillhole spacing study, which uses the composite CV, variogram parameters, production rate, and kriging variance at various drill spacings, the following rules for the classification were defined.

1. Indicated mineral resource

   A drill spacing of 17.5 m by 17.5 m is required using a cut-off of 2.5 g/t Au. Two drillholes are required to be found within 19 m of the block centroid, and one of the two must be within 14 m. The block must be coded as skarn.

2. Inferred mineral resource

   This requires a block to be estimated within the variogram range, coded as skarn, and a drill spacing of approximately 35 m by 35 m. The block must have a grade of 2.5 g/t Au or greater.

Measured mineral resources are not defined for the Sub-Sill at this time.

14.11.3 Media Luna Underground Resource Classification

Geological continuity as interpreted in section and plan was reviewed, as well as in the field. This provided a sense of the continuity of the geology and grade as they pertain to the mineralized zones. From review of the Media Luna core and three-dimensional modeling of the skarn package, it was concluded that favorable host rock geology shows continuity across drillholes. It was found that the new drilling supports the 100 m drill spacing for inferred mineral resources, and the mineralized zones gained additional support from newly-completed holes as they were added to the data set.

The following rules must be meet for a block to be classified as an inferred mineral resource:

- Drill spacing of 100 m grid
- Two drillholes within 110 m
- Block must be within 3D modeled skarn zone
- Au Equivalent (AuEq) = Au (g/t) + Cu % *(79.37/47.26) + Ag (g/t) * (0.74/47.26)
- Block gold equivalent grade of 2.0 g/t AuEq or higher.

14.12 ASSESSMENT OF REASONABLE PROSPECTS FOR EVENTUAL ECONOMIC EXTRACTION

14.12.1 All El Limón and Guajes

To assess reasonable prospects of economic extraction the mineral resource for the ELG open pit was confined within a Lerchs–Grossmann optimization, key parameters of which were the geological and grade continuity of mineralization, mining costs, processing costs, metallurgical recoveries, general and administrative costs, a gold price of $1,380/oz and a silver price of $21/oz. These estimates were considered applicable at the time of the 2017 estimate. No additional dilution or mining losses were considered within the pit shell.

MPH considers that the mineralization that displays geological and grade continuity, and which falls within an economic pit shell constructed using the parameters listed in Table 14-11 is shows reasonable prospects of eventual economic extraction.

Table 14-11: Parameters Used to Establish Open Pit Mineral Resource Cut-off Grade

Item	Unit	Amount
Gold Price	$/oz	1,380
Silver Price	$/oz	21
Average Au Process Recovery	%	87.0
Average Ag Process Recovery	%	32.0
Ore Mining Cost	$/t	2.18
Waste Mining Cost	$/t	2.18
Processing Cost	$/t	19.09
G&A Cost	$/t	8.80
Cut-off Grade	g/t Au	0.70

Expected metal recoveries used in developing the mineral resource pit shell are listed in Section 13 of this Report.

14.12.2 Sub-Sill

For the Sub-Sill project, a cut-off grade of 2.5 g/t Au was selected. The assumed mining method is from underground. Mineral resources are reported using a long-term gold price of US$1380/oz, and silver price of US$21.00/oz. Metallurgical recoveries are assumed at 87% for gold and 32% for silver. Grade continuity is shown at a 2.5 g/t Au cut-off in Figure 14-6 above. Only exoskarn and endoskarn show grade continuity and only skarn rock types are considered for confidence classifications.

MPH has reviewed mine plans and cash flows proving resources have reasonable positive expectation for economic extraction.

14.12.3 Media Luna

Mineral resources are reported using a long-term gold price of US$1470/oz, silver price of US$23.00/oz, and copper price of US$3.60/lb. The assumed mining method is underground, costs per tonne of mineralized material, including mining, milling, and general and administrative used were US$50 per tonne to US$60 per tonne. Metallurgical recoveries average 88% for gold and 70% for silver and 92% for copper.

MPH has reviewed a PEA for Media Luna proving that the mineral resources have reasonable positive expectation for economic extraction. The mineral resource is an inferred mineral resource, an infill drilling program is underway to upgrade the mineral resource to Measured and Indicated categories. For details on the Media Luna conceptual mine plans, please see Section 24.16 of this report.

14.13 MINERAL RESOURCE STATEMENT

Mr. Hertel is the QP for the Mineral resource estimate at El Limón, Guajes, Sub-Sill Underground and Media Luna. Mineral resources are reported as undiluted. Mineral resources are reported inclusive of those mineral resources converted to mineral reserves, using the 2014 CIM Definition Standards.

Mineral resources for El Limón and Guajes, which are potentially amenable to open pit mining methods, are summarized in Table 14-12.

14.13.1 ELG Open Pit (ELG OP)

Table 14-12: Mineral Resource Statement, Effective December 31, 2017, El Limón and Guajes

	Tonnes (Mt)	Au Grade (g/t)	Ag Grade (g/t)	Contained Au (Moz)	Contained Ag (Moz)
El Limón (including El Limón Sur)					
Measured	7.99	2.86	5.02	0.73	1.29
Indicated	20.77	2.87	5.07	1.92	3.38
Subtotal Measured and Indicated	**28.76**	**2.87**	**5.05**	**2.65**	**4.67**
Inferred	3.27	1.71	4.05	0.18	0.43
	Tonnes (Mt)	**Au Grade (g/t)**	**Ag Grade (g/t)**	**Contained Au (Moz)**	**Contained Ag (Moz)**
Guajes					
Measured	2.19	2.53	2.28	0.18	0.16
Indicated	9.10	2.82	2.79	0.82	0.82
Subtotal Measured and Indicated	**11.29**	**2.76**	**2.69**	**1.00**	**0.98**
Inferred	0.45	1.49	2.60	0.02	0.04
	Tonnes (Mt)	**Au Grade (g/t)**	**Ag Grade (g/t)**	**Contained Au (Moz)**	**Contained Ag (Moz)**
El Limón and Guajes					
Measured	10.18	2.78	4.43	0.91	1.45
Indicated	29.87	2.86	4.37	2.74	4.20
Total Measured and Indicated	**40.05**	**2.84**	**4.39**	**3.65**	**5.65**
Inferred	3.72	1.68	3.87	0.20	0.46

Notes to accompany El Limón and Guajes Mineral Resource Table

1. The qualified person for the estimates is Mark Hertel, RM SME, an MPH Consulting employee. The estimates have an effective date of December 31, 2017.
2. Mineral Resources are reported using topography with mining progress as of December 31, 2017. Mining progress applies to both El Limón and Guajes mineral resources. Stockpiled material is not included within the resource table above.
3. Mineral resources are reported above a 0.7 g/t Au cut-off grade and constrained within a conceptual open pit shell.
4. Mineral resources are reported using a long-term gold price of US$1,380/oz, silver price of US$21.00/oz. The metal prices used for the mineral resources estimates are based on long-term consensus prices. The assumed mining method is open pit, mining costs used are US$2.18/tonne, processing costs US$19.09/tonne, general and administrative US$8.80/tonne processed. Metallurgical recoveries are assumed to be 87% for gold and 32% for silver. Assumed pit slopes range from 33 to 49 degrees.
5. Mineral resources are reported as undiluted; grades are contained grades.
6. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade, and contained metal content.
7. El Limón Sub-Sill Underground mineral resource has been excluded from the Open Pit Mineral Resource.
8. Mineral resources are reported inclusive of those Mineral Resources that have been converted to mineral reserves. Mineral resources that are not Mineral reserves do not have demonstrated economic viability.

14.13.2 Sub-Sill Underground

Mineral resources for Sub-Sill, which are potentially amenable to underground mining methods, are summarized in Table 14-13.

Table 14-13: Mineral Resource Statement, Effective December 31, 2017, Sub-Sill Underground

	Tonnes (Mt)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Contained Au (oz)	Contained Ag (oz)
Sub-Sill						
Indicated	1.29	8.09	10.22	0.50	336,085	424,492
Inferred	0.65	9.09	10.79	0.60	191,087	226,919

Notes to accompany Sub-Sill Underground Mineral Resource table

1. The qualified person for the estimate is Mark. P. Hertel, RM SME, an MPH Consulting employee. The estimate has an effective date of December 31, 2017.
2. Mineral Resources are reported above a 2.5 g/t Au cut-off grade.
3. Mineral Resources are reported as undiluted; grades are contained grades.
4. Resources for the Sub-Sill that are contained within the conceptual pit shell have been removed from the ELG Mineral Resource estimate.
5. Mineral Resources are reported using a long-term gold price of US$1,380/oz, and silver price of US$21.00/oz.
6. The assumed mining method is from underground.
7. Metallurgical recoveries are assumed to be 87% for gold and 32% for silver.
8. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade, and contained metal content.
9. Mineral resources that are not reserves do not have demonstrated economic viability.

14.13.3 Media Luna Underground

Mineral resources for Media Luna, which are potentially amenable to underground mining methods, are summarized in Table 14-14. Mineral resources are reported using a cut-off of 2 g/t AuEq for the material amenable to underground mining. The sensitivity of the estimate to changes in the selected AuEq cut-off grade are also shown in Table 14-14, with the 2 g/t AuEq base case highlighted.

Table 14-14: Mineral Resource Statement, Effective June 23, 2015, Media Luna (base case is highlighted)

Cut-off AuEq (g/t)	Tonnes (Mt)	AuEq Grade (g/t)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Contained AuEq (Moz)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (M lb)
1.0	79.3	3.42	1.74	21.28	0.80	8.72	4.45	54.26	1,405.03
1.5	63.9	3.94	2.07	24.01	0.90	8.11	4.25	49.33	1,269.15
2.00	51.5	**4.48**	**2.40**	**26.59**	**0.99**	7.42	3.98	44.02	1,128.50
2.5	41.4	5.02	2.75	28.81	1.09	6.69	3.66	38.35	996.74
3.0	33.9	5.53	3.06	31.18	1.18	6.02	3.34	33.96	884.44
3.5	27.6	6.05	3.40	33.37	1.27	5.37	3.02	29.65	776.49

Notes to accompany Media Luna mineral resource Table

1. The qualified person for the estimate is Mark Hertel, RM SME, an MPH Consulting employee. The estimate has an effective date of June 23, 2015.
2. Au Equivalent (AuEq) = Au (g/t) + Cu % *(79.37/47.26) + Ag (g/t) * (0.74/47.26)
3. Mineral resources are reported using a 2 g/t Au Eq. grade
4. Mineral resources are reported as undiluted; grades are contained grades. Mineral resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Mineral resources are reported using a long-term gold price of US$1470/oz, silver price of US$23.00/oz, and copper price of US$3.60/lb. The metal prices used for the Mineral resources estimates are based on Amec Foster Wheeler`s internal guidelines which are based on long-term consensus prices. The assumed mining method is underground, costs per tonne of mineralized material, including mining, milling, and general and administrative used were US$50 per tonne to US$60 per tonne. Metallurgical recoveries average 88% for gold and 70% for silver and 92% for copper.
6. Inferred blocks are located within 110 m of two drillholes, which approximates a 100 m x 100 m drillhole grid spacing.
7. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade, and contained metal content.

14.14 FACTORS THAT MAY AFFECT THE MINERAL RESOURCE ESTIMATE

Risk factors that could potentially affect the mineral resource estimates include:

- Assumptions used to generate the conceptual data for consideration of reasonable prospects of eventual economic extraction including:
    - Long-term commodity price assumptions

  - Long-term exchange rate assumptions
  - Assumed mining methods and mining recoveries
  - Changes in local interpretations of mineralization geometry and continuity of mineralization zones
  - Geotechnical and hydrogeological assumptions
  - Operating and capital cost assumptions
  - Metal recovery assumptions

- Metallurgical testwork, metallurgical recovery and process plant performance assumptions.
- Estimates of insitu bulk density are presently based on samples taken from core drilling. Determination of density based on larger-scale excavations or production may reveal densities that are different than those currently estimated for the deposit.
- Delays or other issues in reaching required agreements with local communities.
- Changes in assumptions to current and future permitting requirements.
- Maintenance of the social license to operate.

14.15 COMMENTS ON SECTION 14

The QP is of the opinion that the mineral resources, which have been estimated using core drill data and channel sampling data, have been performed to industry practices, and conform to the definitions used in CIM (2014).

15 MINERAL RESERVE ESTIMATES

The key points of this section are:

- ELG open pit and underground mineral reserves are estimated as of March 31, 2018.
- ELG open pit mine:
  - Mineral reserves incorporate 15% dilution and 5% mining loss and are reported within designed pits above diluted cut-off grades of 0.9 g/t Au for Guajes and El Limón, and 1.0 g/t Au for El Limón Sur. Low grade ore to be stockpiled during pit operation and processed at closure is reported above a diluted cut-off grade of 0.7 g/t for all pits.
  - The contained gold in proven and probable mineral reserves is 21.9% less than the contained gold in open pit measured and indicated mineral resources.
  - The contained gold in proven and probable mineral reserves has decreased by 6.7% versus EY 2017 mineral reserve estimates, principally because of re-optimization and re-designs of the open pits, and ore processed in 2018Q1.
  - Reconciliations to date of tonnes and gold grades mined to the mineral reserve model shows that the reserve model has been a good indicator for the Guajes and El Limón open pit deposits.
- ELG underground mine:
  - Mineral reserves incorporate 10% dilution and 10% mining loss and are reported within designed underground cut and fill stopes above an in-situ ore cut-off grade of 4.47 g/t Au.
  - Mineral reserves have been identified for the Sub-Sill zone.
  - The contained gold in proven and probable mineral reserves is approximately 29% less than the contained gold in the underground measured and indicated mineral resources (using a cut-off grade of 4.47 g/t).
  - At the time of writing this report, the Sub-Sill is ramping up to full production and therefore there is limited production data with which to draw reconciliation conclusions.

15.1 ELG OPEN PIT AND UNDERGROUND MINERAL RESERVE ESTIMATE

CIM definitions have been followed in reporting mineral reserves. A mineral reserve is defined as follows:

"A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified."

ELG open pit and underground mineral reserves are summarized in Table 15-1 and Table 15-2, respectively.

Table 15-1: Mineral Reserve Statement, ELG Open Pit Mine – March 31, 2018

Reserve Category	Tonnes (Mt)	Au Grade (g/t)	Ag Grade (g/t)	Contained Au (Moz)	Contained Ag (Moz)
El Limón (including El Limón Sur) - Note 3					
Proven	6.54	2.95	4.51	0.62	0.95
Probable	14.28	3.03	4.19	1.39	1.93
Sub-total Proven & Probable	20.81	3.00	4.29	2.01	2.87
Guajes - Note 3					
Proven	1.66	2.36	1.68	0.13	0.09
Probable	6.87	2.84	2.64	0.63	0.58
Sub-total Proven & Probable	8.53	2.75	2.45	0.75	0.67
Mined Stockpiles					
Proven	0.54	1.51	7.90	0.03	0.14
ELG Low Grade - Note 4					
Proven	1.13	0.80	2.12	0.03	0.08
Probable	2.32	0.80	1.90	0.06	0.14
Sub-total Proven & Probable	3.45	0.80	1.98	0.09	0.22
Total El Limón Guajes					
Proven	9.87	2.53	3.94	0.80	1.25
Probable	23.46	2.75	3.51	2.08	2.65
Total Proven & Probable	33.33	2.69	3.64	2.88	3.90

Notes to accompany mineral reserve table:

8. Mineral reserves are based on Guajes, El Limón and El Limón Sur measured and indicated mineral resources with an effective date of December 31, 2017.
9. Mineral reserves are reported based on open pit mining within designed pits and incorporate estimates of 15% dilution and 5% mining losses.
10. El Limón and Guajes mineral reserves are reported above diluted cut-off grades of 0.9 g/t Au for the Guajes and El Limón pits and 1.0 g/t Au for the El Limón Sur pit. The cut-off grades and pit designs are considered appropriate for metal prices of US$1,200/oz gold and US$17/oz silver, process recoveries averaging 87% for gold (83% for near cut-off grade ore) and 23% for Silver and estimated mining, processing, and G&A unit costs during pit operation.
11. ELG Low Grade mineral reserves are reported above a diluted cut-off grade of 0.7 g/t Au and below the higher cut-off grades identified in Note 3. It is planned that ELG Low Grade mineral reserves within the designed pits will be stockpiled during pit operation and processed during pit closure. The Low Grade cut-off is considered appropriate for a gold price of US$1200/oz,a gold process recovery of 83% and estimated ore rehandle, processing, and G&A unit costs during pit closure.
12. Mineral reserves were developed in accordance with CIM (2014) guidelines.
13. Rounding may result in apparent summation differences between tonnes, grade, and contained metal content.
14. The qualified person for the mineral reserve estimate is Dawson Proudfoot, P. Eng. the Vice President of Engineering of the Corporation.

Table 15-2: ELG Underground Sub-Sill Zone Reserve

Reserve Category	Tonnes (Mt)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Contained Au (Moz)	Contained Ag (Moz)
Proven						
Probable	0.522	10.90	11.16	0.58%	0.183	0.187
Total Proven & Probable	0.522	10.90	11.16	0.58%	0.183	0.187

Notes to accompany mineral reserve table:

8. Mineral reserves are based on Sub-Sill measured and indicated resources with an effective date of December 31, 2017.
9. Mineral reserves are reported based on underground overhand mechanized cut and fill mining with designed underground workings and incorporates estimates for 10% dilution and 10% mining losses.
10. Mineral reserves are reported above in-situ cut-off grades of 4.47 g/t Au for the Sub-Sill. The cut-off grades and underground mine design are considered appropriate for metal prices of US$1,200/oz and US$17/oz, and estimated mining, processing and G&A unit costs during mine operations.
11. Process plant recoveries for the Sub-Sill average 84.5% for gold and 26.2% for silver.
12. Mineral reserves were developed in accordance with CIM (2014) guidelines.
13. Rounding may result in apparent summation differences between tonnes, grades and contained metal content.
14. The qualified person for this mineral reserve estimate is Clifford Lafleur, P.Eng. the Director of Technical Services of the Corporation.

15.2 ELG OPEN PIT MINERAL RESERVES

15.2.1 Mineral Reserve Estimate

ELG open pit mineral reserves are founded on, and are part of the mineral resources presented in Section 14 of this report. The mineral reserves are reported based on open pit mining within the Life of Mine designed pits presented in Section 16.2.6 and illustrated in Figure 15-1 below. The overall slopes with ramps in the designed pits range from 30º to 50º.

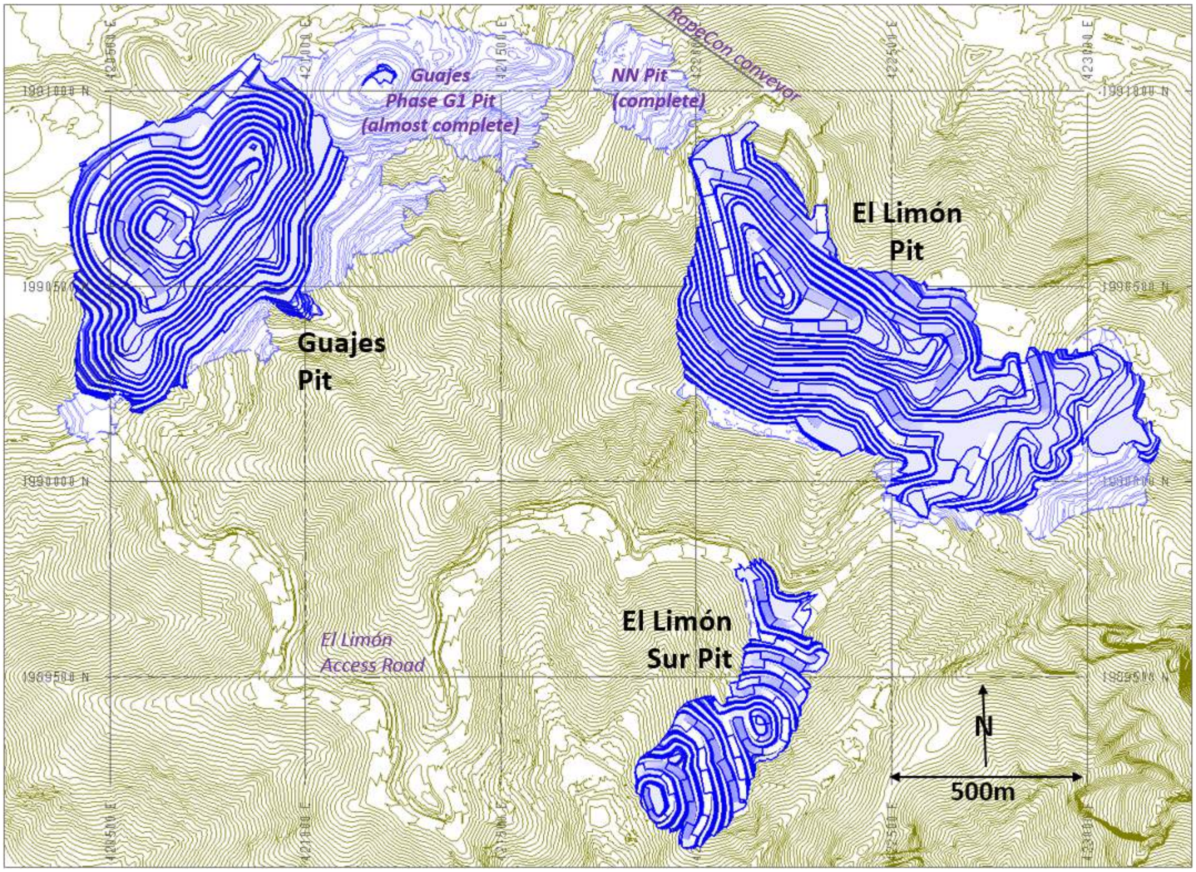


Figure 15-1: ELG Ultimate Pits, Source Torex, June 2018

The pit designs shown in Figure 15-1 were guided by the results of a pit optimization analysis that utilized the Lerchs-Grossman algorithm 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 metal prices forecast at US$1,200/oz for gold and US$17/oz for silver;
- Guajes and El Limón ore and waste mining costs estimated at US$2.90/t;
- El Limón Sur ore and waste mining costs estimated at US$5.78/t and US$2.88/t, respectively;
- Processing costs estimated at US$18.94/t processed;
- General and administrative costs estimated at US$8.63/t processed;
- The mineral resource block model as described in Section 14;
- Mining dilution estimated at 15% and mining losses estimated at 5%;
- Average process recoveries of 87% for gold and 23% for silver as presented in Section 13;
- Overall pit slopes ranging from 33° to 49°.

Further details on pit optimization and pit design are presented in Sections 16.2.5 and Section 16.2.6 of this report

The open pit mineral reserves include 15% dilution and 5% mining losses, and are reported above diluted cut-off grades of 0.90 g/t Au for the Guajes and El Limón pits, and 1.00 g/t for the El Limón Sur pit. The cut-off grades were derived based on the long term gold price forecast of $1200/oz, the long term unit operating cost estimates listed above, and process recovery of gold estimated at 83% for marginal, near cut-off grade ore. Silver is not incorporated in the cut-off grade estimation 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 cut-off grade of 0.7 g/t Au and below the higher cut-off grades noted above. The Low Grade cut-off is considered appropriate for a gold price of US$1200/oz, stockpile rehandle costs of US$1.00/t, low grade processing costs of US$18.10/t, and G&A costs at closure estimated at US$3.75/t processed.

Further details on dilution, mining loss, and cut-off grade estimation are presented in Section 16.2.8 of this report.

ELG open pit proven and probable mineral reserve estimates as of March 31, 2018 are summarized in Table 15-1. ELG open pit mining has been underway since late 2013 and mineral reserve estimates include 0.5 Mt of ore in mine stockpiles at the end of March 2018. The remaining mineral reserves are located within the designed pits at an average waste-to-ore strip ratio of 5.8:1.

The open pit life of mine plan using costs presented in Section 21 shows that the ELG life-of-mine plan founded on the mineral reserve estimates in Table 15-1 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.

The qualified person as defined by Canadian Securities Administrators National Instrument 43-101 for mineral reserve estimates is Dawson Proudfoot, P.Eng., Vice-President of Engineering of the Corporation. The qualified person is not aware of mining, metallurgical, infrastructure, permitting, or other factors that materially affect the mineral reserve estimates.

15.2.2 Comparison to Mineral Resource Estimate

The ELG open pit mineral reserve estimates shown in Table 15-1 were reconciled with ELG open pit mineral resource estimates presented in Section 14. Contained gold in the proven and probable mineral reserves is 21.9% less than contained gold in the measured and indicated mineral resources. Approximately 1% of the difference in contained gold is attributed to the higher cut-off grades utilized to define reserves, approximately 3.6% is due to incorporation of mining losses and dilution in reserve estimates, and 1.5% is due to mineral resource depletion due to mining in 2018Q1. The remaining 15.9% is gold contained principally in indicated mineral resources that are located outside the ultimate pit designs. The ultimate pits are smaller than the conceptual pit shell utilized to report mineral resources.

15.2.3 Comparison to Previous Mineral Reserve Estimate

The ELG proven and probable mineral reserves in Table 15-1 were compared to the previous mineral reserve estimate, i.e. mineral reserves on December 31, 2017 that were included within the Torex Gold Corporation "Annual Information Form for the Year Ending December 31, 2017" (2017 AIF) dated March 29, 2018. The two total proven and probable mineral reserve estimates and a breakdown of the 3.3 Mt reduction in reserve tonnage and 0.21 Moz reduction in contained gold from year-end 2017 to March 31, 2018 are summarized in Table 15-3.

Actual mining and processing during 2018Q1 contributed to the change to mineral reserves, however the major contributor was pit design changes. A pit optimization analysis utilizing long term metal prices forecasts and estimated unit costs during mine operation indicated modifications to the open pits to reduce waste stripping would benefit mine economics, and pit redesigns guided by the pit optimization results were implemented. The pit design change shown in Table 15-3 incorporates 2018Q1 reconciliations to resource model depletion.

Table 15-3: Comparison to Previous ELG 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, March 31, 2018	33.3	2.69	3.64	2.88	3.90	189			
ELG Open Pit PP Reserves, EY2017	36.6	2.62	3.66	3.08	4.31	228			
Change to reserves during 2018Q1	**-3.3**	**1.93**	**3.87**	**-0.21**	**-0.41**	**-39**	*-9.0%*	*-6.7%*	*-17.2%*
Reasons for change to reserves:									
Ore processed & waste mined, 2018 Q1	-0.8	3.13	3.61	-0.08	-0.09	-2.5	*-2.1%*	*-2.5%*	*-1.1%*
Pit design changes	-2.5	1.56	3.95	-0.13	-0.32	-36.9	*-6.9%*	*-4.1%*	*-16.1%*

15.2.4 ELG Ore Reconciliations

The El Limón Guajes 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.

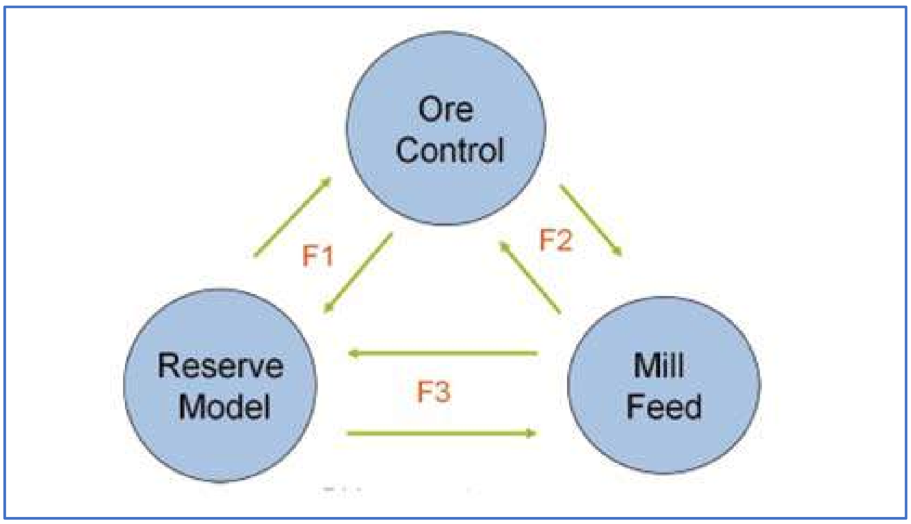


Figure 15-2: Reconciliation Data Sources & Comparison Factors

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 the overall F1 factors for tonnage, gold grade, and gold content are 0.98, 0.95, and 0.94, respectively.

The F2 reconciliation factors compare estimated tonnage and grades delivered to the mill to estimated tonnage and grade received and processed within the plant. The F2 grade determination from the start of commercial production in March 2016 to the end of 2018Q1 shows that over this period the process plant calculated head grade is approximately 3% higher than the grade predicted from the ore control data, resulting in a F2 gold grade factor of 1.03. Production reports also show that during this period the total tonnage delivered to the mill is virtually the same as the total processed quantity, resulting in a F2 tonnage factor of 1.00 for the period and a derived F2 gold content factor of 1.03

(i.e. 1.00 $_{F2\ tonnes}$ x 1.03 $_{F2\ grade}$ = 1.03 $_{F2\ gold\ content}$). In summary, since the start of commercial production F2 factors for tonnage, gold grade, and gold content are approximately 1.00, 1.03, and 1.03, 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 2018Q1, the derived F3 factors for tonnage, gold grade, and gold content are 0.98, 0.99, and 0.97, 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.

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 MINERAL RESERVES – SUB-SILL

Development work at the ELG Underground Mine started in November 2016 with the goal of proving up reserves in two mining zones, Sub-Sill and El Limón Deep (ELD). To date only Sub-Sill has a mineral reserve with the ELD zone requiring further geological work to upgrade the resources.

The Mineral Reserve estimate for the ELG Underground Mine is solely based on indicated mineral resources identified at the Sub-Sill Zone within the December 31, 2017 mineral resource estimate.

The underground Mineral Reserve Estimate for the Sub-Sill Zone was determined by applying the Mechanized Overhand Cut and Fill (MCAF) mining method to the three-dimensional block model. This was done in Deswik®, a commercially available mine planning software. For inclusion in the reserve, the shapes were assessed against an insitu cut-off grade of 4.47 g/t Au and an incremental cut-off grade of 0.74 g/t Au. The insitu cut-off grade accounts for direct mining costs, indirect mining costs, processing costs, selling costs, G&A costs and sustaining capital costs. The incremental cut-off grade 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 cut-off grades are listed below;

- Long term metal prices forecast at US$1,200/oz for gold and US$17/oz for silver;
- Sub-Sill ore total mining cost estimated at US$99.9/t of ore mined;
- Sub-Sill general and administration cost estimated at US$7.28/t of ore mined;
- Sustaining capital charge estimated at US$7.75/t of ore mined;
- Processing costs estimated at US$18.94/t processed;
- Incremental cost estimated at US$23.56/t;
- The mineral resource block model as described in Section 14;
- Mining dilution estimated at 10% and mining losses estimated at 10%;
- Average process recoveries of 84.5% for;

Further details on the underground mine design are presented in Section 16.3 of this 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.

15.3.1 Mineral Reserves Estimate

Probable mineral reserves were calculated to be 522,000 tonnes at 10.90 g/t Au for 183,000 gold ounces based on a mine plan based on an in-situ cut-off grade of 4.47 g/t Au (refer to Table 15-2). The mineral reserve also includes material encountered in the mine plan which is above the incremental cut-off grade of 0.74g/t Au. This mineral reserve considers geologic, mining and processing constraints.

The qualified person as defined by Canadian Securities Administrators National Instrument 43-101 for mineral reserve estimates is Clifford Lafleur, P.Eng., Director of Technical Services for the Corporation. The qualified person is not aware of mining, metallurgical, infrastructure, permitting, or other factors that materially affect the mineral reserve estimates.

15.3.2 Comparison to Mineral Resource Estimate

The ELG underground mine plan on which the mineral reserve estimate shown in Table 15-2 is based was compared to ELG underground mineral resource block model detailed in Section 14. Contained gold in the proven and probable mineral reserves mine plan is approximately 29% less than contained gold in the measured and indicated mineral resources block model at an insitu cut-off grade of 4.47g/t. Approximately 8% of the difference in contained gold is attributed due to incorporation of mining losses. The remaining 21% is uneconomic resource contained principally in indicated mineral resource.

15.3.3 Comparison to Previous Mineral Reserve Estimate

The ELG UG proven and probable mineral reserves in Table 15-2 were compared to the previous mineral reserve estimate, i.e. mineral reserves at year end 2017 included within the 2017 AIF. The changes that affected mineral reserves include the addition of incremental material to reserves, minor adjustments to the reserve mine plan design, and a reduction of tonnes and metal due to ore processed in Q1 2018 from the Sub-Sill.

The largest change is attributed to the inclusion of incremental material into the mineral reserves. Incremental material is low grade material that must be broken and removed from the mine as part of the mine plan. It does not meet the ore cut-off grade criteria but is of sufficient grade that it can bear the additional costs for it to be hauled to the plant and processed, rather than be sent to the waste dump. This material accounts for an increase of 37k tonnes and 2,800 Au ozs in the reserve estimate.

15.3.4 ELG Underground Ore Reconciliations

Due to limited mining and information available at the time of writing, no final reconciliations have been made at the ELG Underground.

16 MINING METHODS

The key points of this section are:

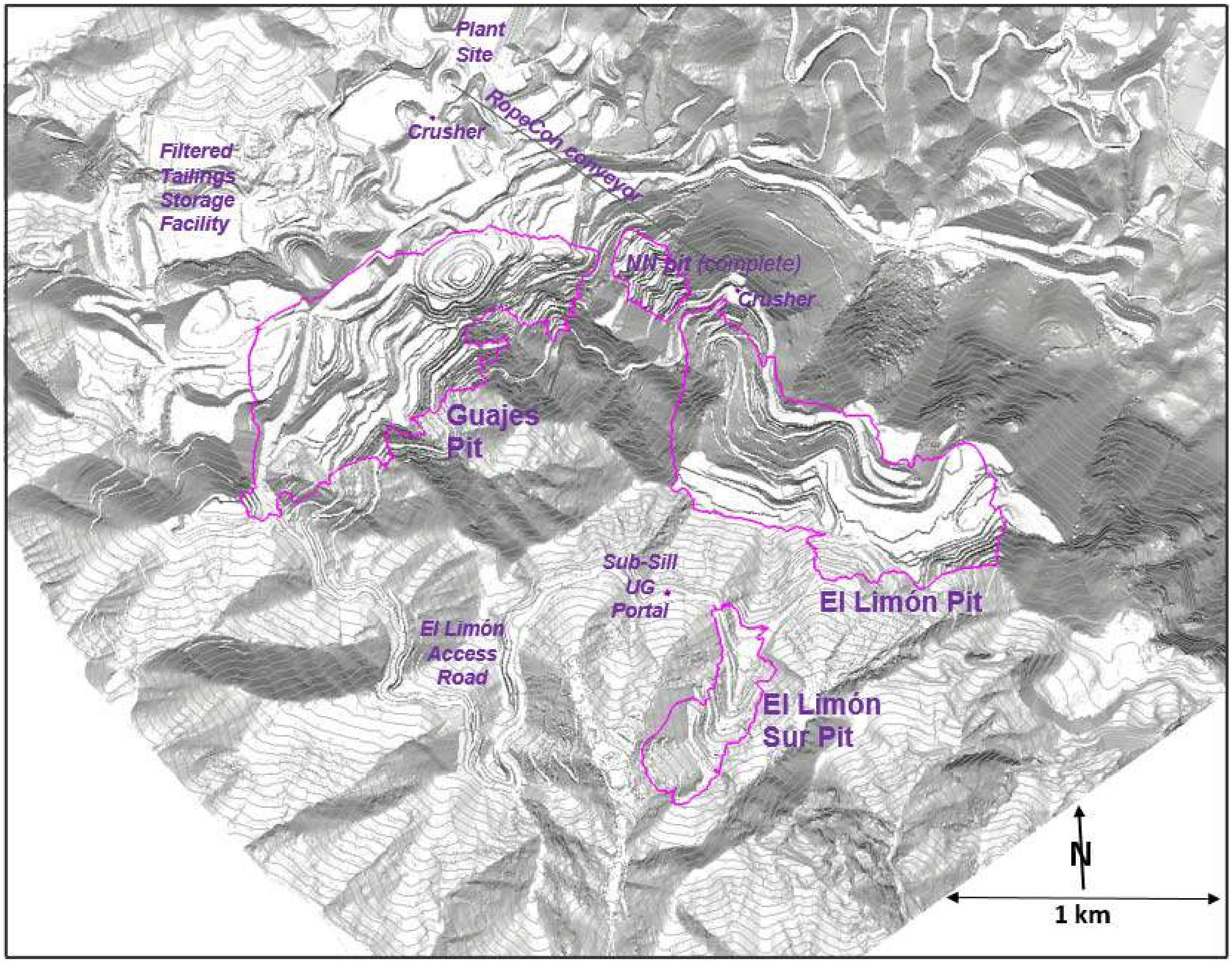
- Mining at the ELG Mine Complex is being carried out by two methods, open pit method in the Guajes, El Limón and El Limón Sur pits and by underground for the ELG UG mine currently focused on the Sub-Sill zone.
- The El Limón and Guajes mine construction began at the end of October 2013. The life-of-mine (LOM) plan in this report presents planned ELG Mine Complex development after March 31, 2018.
- The ELG pit slopes are comprised primarily of competent rock. Weaker rock has however 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 March 31, 2018 are estimated to contain a total of 32.8 Mt of Run-of-mine (ROM) mineral reserves with average grades of 2.71 g/t Au and 3.57 g/t Ag to be processed at 14,000 tpd during mine operation, and 3.4 Mt of Low Grade mineral reserves with average grades of 0.80 g/t Au and 1.98 g/t Ag to be processed at closure. The pits also contain an estimated 189 Mt of waste rock for an overall pit waste-to-ore strip ratio of 5.8:1. ROM mineral reserve stockpiles as of March 31, 2018 total 0.5 Mt with grades of 1.51 g/t Au and 7.90 g/t Ag.
- The ELG Underground exploration program commenced November 2016 by collaring a portal. First ore was reached in June 2017.
- The mining method for the ELG Underground is mechanized cut and fill (MCAF) and expected to reach steady state production in December 2018 (830 tpd).
- ROM and Incremental mineral reserve quantities from the underground mine design as of March 31, 2018 total 0.522 Mt at grades of 10.9 g/t Au and 11.16 g/t Ag which is planned to be produced over 29 months of mine life.

16.1 INTRODUCTION

Key characteristics of the El Limón and Guajes (ELG) deposit from a mining perspective include very steep and irregular terrain, relatively competent bedrock, and poorly defined ore-waste contacts.

The ELG deposit is being mined principally by open pit mining methods. Underground mining is underway in the ELG UG (Sub-Sill zone), which is located at a depth where open pit mining is not economic due to adverse strip ratio.

The LOM plan in this report presents planned development after March 31, 2018. Mine construction began at the end of October 2013, and mine development progress to March 2018 included Guajes and El Limón access and haul road development, completion of bulldozer mining on the high elevation Guajes and El Limón ridges, completion of El Limón Phase NN pit, near completion of Guajes East phase pit (i.e. Phase G1), and commencement of Sub-Sill underground mining. A plan of the ELG Mine Complex site based on a March 31, 2018 pit survey is shown in Figure 15-1.



Map: ELG March 31, 2018 pit survey, showing 25 m contours and mining areas (magenta outlines). Figure Source: Torex, May 2018

Figure 16-1: ELG Mine Complex Site Plan, March 31, 2018

16.2 ELG OPEN PIT

16.2.1 Geotechnical Pit Slope Evaluation

16.2.1.1 Geotechnical Characterization

Geotechnical characterization of the Guajes and El Limón open pits was initially conducted by SRK (2012d) as part of the Feasibility Study for the project. Geotechnical characterization and analysis of the El Limón Sur pit was subsequently carried out by SRK in 2014.

The 2012 and 2014 geotechnical programs were designed with the primary objective of determining rock mass characterization and discontinuity orientations to serve as the basis of geotechnical model development. Geotechnical core logging and discontinuity orientation, point load testing, and laboratory strength testing were conducted for a total of 18 geotechnical specific drillholes between the two programs. Geotechnical mapping was also carried out along drill pad and road cuts where suitable outcrops were accessible within or near the pit limits.

Additional data collection and refinement of the geotechnical model has been on-going during mine construction and operation with periodic site visits and geotechnical reviews by SRK and JDS Energy & Mining, Inc. (JDS). Additional geotechnical data has been acquired using bench face mapping, additional diamond core drilling and installation of hydrogeology wells and instrumentation. Open pit slopes designs have been revised or optimized as necessary based on the newly acquired data.

Results of the various data collection programs indicate competent overall rock mass conditions for much of the El Limón and Guajes open pits areas. The intrusives and hornfels that will comprise much of the pit highwalls (SE wall at Guajes and SW wall at El Limón) are typically of 'Good' quality with rock mass rating (RMR) values typically between 60 and 80 according to the Bieniawski (1989) system. Intact rock strengths are strong to very strong with average UCS values of 163 and 201 MPa for the Intrusives and Hornfels, respectively. The upper, near surface materials are typically weathered to a depth of approximately 10 to 20 m below ground surface. In local areas weathering has been observed to depths of up to approximately 40 m. Relatively deep, intensely weathered rock has led to localized slope movements in the upper GE pit and along the saddle between the El Limón, E1 Phase and the El Limón Sur pit however the instabilities have been monitored and successfully managed to date without significant impacts to operations.

The marble is also generally characterized as 'Good' geomechanical quality with RMR (Bieniawski, 1989) values between 60 and 80 the geotechnical core logging data. The marble typically has a lower intact rock strength compared to the Intrusives and Hornfels with a mean UCS value of 58 MPa. The marble is expected to be present primarily in the northeast wall of El Limón beneath the primary ramp system although a minor amount was encountered near the bottom of the GE pit.

Based on drilling intersections with voids and observations of marble on site, the marble hosts frequent karst voids. These voids are of unknown shapes and sizes and are believed to have formed by groundwater seeping along geologic structures and dissolving the limestone. While these voids are not expected to significantly impact overall slope stability, they are could present operational hazards if large enough, given that much of the primary El Limón ramp system will be underlain by the marble. The access road to/from the El Limón crusher loading pad from the EL Limón pit has been excavated successfully through the marble without any significant complications. Numerous voids were encountered in the access road cuts but the size of the openings exposed to date have not been large enough to cause significant interruptions to the construction progress. Larger size karst voids were encountered in the marble near the bottom of the Guajes GE pit but were able to be mined out successfully without causing significant delays.

Two areas of lesser rock quality were noted and planned for in the designs are the La Amarilla Fault hanging wall material at Guajes and a zone near the La Flaca Fault in El Limón. The La Amarilla hanging wall material will comprise the NW wall of the Guajes pit and typically consists of intensely fractured intrusive rock and breccia that has been appreciably altered in most places. The La Amarilla hanging wall materials have been characterized as 'Poor' to 'Fair' rock quality (Bieniawski, 1989) with a mean UCS value of 28 MPa. More conservative slope angles were used in this area as a result of the lower rock quality. A significant section of the La Amarilla hanging wall has already been exposed in the existing Guajes pit and appears to be performing well. A series of vertical wells and piezometers have also been installed behind the wall for monitoring and depressurization.

At the intersection of La Flaca Fault with the marble-hornfels contact in the El Limón pit, a thick northeast trending zone of relatively poor quality rock exists, with increased fracturing and intense alteration of the rock mass. This zone, referred to herein as the La Flaca fault zone, is characterized with a mean UCS value of 30 MPa and RMR of 47. Most of this poor rock quality zone will be mined out based on the current final pit design but and does not appear to extend into the final El Limón northeast pit wall. Interim pit walls in this area could be impacted.

South of the La Flaca Fault, the eastern edge of this poor rock quality zone roughly parallels the final pit wall suggesting that localized areas of the weaker rock mass may remain in final pit walls, possibly resulting in localized bench sloughing. Such sloughing is not anticipated to significantly impact overall slope stability and has been accounted for in the slope design by incorporating wider catch benches and shallower bench face angles in this area of the pit.

At El Limón Sur, the fresh rock appears to be of similarly high quality as the majority of the El Limón and Guajes pits. Given the relatively shallow depth of the El Sur Limón deposit, the upper weathered rock comprises a high percentage of the overall pit slopes compared to the El Limón and Guajes pits. The depth of weathering below ground surface also appears greater in the lower lobe of the El Limón Sur pit due to its intersection with a high angle, east-west trending fault zone. RMR values of the weathered rock were generally in the 30 to 50 range based on core logging with UCS estimated between approximately 50 and 100 MPa. The El Limón Sur pit is currently being mined and several interim slopes have been exposed within the weathered rock mass. As suggested by the low RMR values derived from the geotechnical core logging, the exposed rock mass is heavily fractured in some areas but has performed adequately to date.

16.2.1.2 Slope Stability Analyses

As part of the original Feasibility pit slope design, SRK (2012d) evaluated both global and bench scale stability were evaluated for the proposed open pits. Overall slopes were analyzed with limit equilibrium methods using the Hoek-Brown (2002) rock mass shear strength criteria and the “end of mining” groundwater surface exported from the SRK (2012b) hydrogeologic model. The competent materials of the El Limón and Guajes pit walls were evaluated deterministically and demonstrated greater than acceptable factors of safety for rock mass failure assuming isotropic conditions. This indicates that stability of the pit walls will be controlled by the structures within the rock mass such as joints, faults and bedding. With the exception of the localized instabilities in the upper, weathered materials previously discussed, pit wall performance to date has been in agreement with these conclusions. The deepest excavations thus far are within the Guajes southeast highwall and the rock exposed has been very competent with faults and joint sets controlling stability.

For the lower quality La Amarilla hanging wall (northwest Guajes pit wall) and the La Flaca fault zone (El Limón), the initial (SRK, 2012d) slope stability analyses utilized more rigorous probabilistic methods of analysis to incorporate the high degree of variability in rock mass quality. The probabilistic analyses yield results in terms of a probability of failure (POF). A maximum acceptable POF of 10% was considered appropriate for the two sections based on the sections having a high failure consequence since they contain the primary ramp systems.

Slope kinematics were also evaluated as part of the SRK (2012d) initial investigation with a qualitative risk assessment for each pit sector. The purpose of the assessment was to judge the likelihood of plane shear and wedge-type failures occurring in a given pit sector. Where relatively high risks of instabilities are present, more detailed quantitative analyses should be carried out. However, given the predominantly steep dip angle of the dominant structural trends at the ELG mine Complex, no sectors were initially identified as high risk based on the information available at that time.

Nearly all of the dominant structural trends that have been identified from geotechnical bench face mapping are consistent with those developed from the pre-mine core orientation data which were used by SRK (2012d) as the basis of the initial pit slope design. In addition to those previously identified, a persistent structural trend was also encountered during development of the GE pit that was not apparent from the previous mapping or drill core data. This set or structural zone strikes NE-SW, similar to a set previously identified from oriented core and mapping but has a moderate (50º) NW dip, compared to the steep (80º) dip previously identified. This moderately NW dipping set has potential to create bench or multi-bench instabilities in the GW pit highwall, if present. As such, continued mapping and updating of the 3D geologic structural model will be especially important during mining of the remaining Guajes pit. Beyond this set, no other dominant structural trends have been identified to date with significant potential to cause instabilities.

16.2.1.3 Pit Slope Design Recommendations

Pit slope design recommendations for the LOM plan pit designs are summarized in Table 16-1.

Table 16-1: Pit Slope Design Parameters

Sector	Max. Slope Height (m)	Max. Stack Height (m)	Max. Interramp Slope Angle (°)	Max. Overall Slope Angle (°)	Bench Face Angle (°)	Bench Height (m)	Berm Width (m)
El Limón – NW, East and South	380	126 (6x21)*	55	51	75	21	9.0*
El Limón - La Flaca Fault Zone	150	126 (6x21)*	47	42	65	21	9.8*
El Limón – NN	250	84 (6x14)*	47	40	70	14	8.0*
Guajes- La Amarilla Footwall	400	126 (6x21)*	55	51	75	21	9.0*
Guajes - La Amarilla Hanging Wall	150	84 (6x14)*	38	35	58	14	9.2*
El Limón Sur – Weathered	190	63 (3x21)*	46	39	62	21	9.0*
El Limón Sur – Fresh	190	63 (3x21)*	53	39	72	21	9*

*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.

A 75° bench face angle is recommended for the El Limón pit NW, East and South sectors and the Guajes pit La Amarilla footwall sector based on the dip and dip directions of the structures relative to the slope orientation. The geotechnical advantage of the 75° bench face angle is improved rockfall control based on the anticipation that the 75° face angle can be successfully achieved without requiring exceptional care in excavation practices. High quality wall control blasting practices are currently being employed by MML for final pit wall excavation, producing stable bench faces at near design angles.

16.2.2 Waste Rock Storage Geotechnical Aspects

Amec Foster Wheeler provided geotechnical guidance on open pit waste rock storage facility (WRSF) design. NewFields has reviewed the recommendations of this document and has visited the site and find the guidance and operating practices to be acceptable. Updated information relative to the WRSF design are presented in Section 18.6.3 of this report.

WRSFs are being developed by end dumping from platforms located at the crest elevation, since bottom-up construction (i.e., hauling to the base of the facility and constructing the WRDF in lifts) is not considered practical due to the large elevation difference between the waste rock mining benches and the base of the WRSFs. Such WRSF construction (end dumping from high elevations on steep terrain) has parallels at many other mining operations located in mountainous regions. Some of the best examples are Teck Resources Elk Valley Coal and Rio Tinto's Bingham Canyon operations. The El Limón WRD is being developed by construction of a waste rock buttress by end dumping rock from elevation 865 m. Subsequently, waste rock is being end dumped from higher crest platform elevations. Guajes WRSF is being developed by end dumping rock ultimately from four elevations in the valleys to the west of the pit forming four crest platforms. Guajes waste rock is also being end dumped on the western slopes of the FTSF as needed to support the placement of tailings. The El Limón Sur WRSF is being developed in the valleys on the east and west side of the El Limón Sur open pit. The east WRSF will be developed by end dumping rock from four elevations in the east valley forming four crest platforms. The El Limón Sur West WRSF will be developed by dumping rock from one elevation in the west valley, forming one crest platform.

Geotechnical investigations have been completed near the toe of the El Limón and Guajes WRD locations that included boreholes and test pits. In general, the foundation conditions are conducive to this type of WRSF construction. The subsurface conditions were assumed to be similar at the El Limón Sur WRSF locations. Flow-through drains were constructed in areas of groundwater seeps to ensure the water drains freely.

To ensure safe operation of the WRSFs, a safety zone has been established at the base of all WRSFs, signifying the maximum limit of potential rock run-out. These zones will not be entered during operation of the WRSFs. The location and extent of these zones have been determined based on evaluation of the WRSFs and is described in Section 18.6.3. Safe waste rock placement procedures have been developed and are being utilized during mine operation.

Surface water drainage from all of the WRSFs is being collected in surface water management ponds. Runoff from the El Limón WRSFs reports to Ponds 5 and 6. Runoff from the Guajes West WRSF reports to Pond 8. Runoff from El Limón Sur WRSF reports to Pond 9. These ponds will settle solids and provide discrete monitoring locations. Additional information on these ponds is described in Section 18 of this report.

At closure, the WRDF slopes will be re-graded to 2H:1V for long-term stability and safety.

16.2.3 Pit Dewatering

16.2.3.1 Pit Inflows

Groundwater inflows to the Guajes Pit are being managed by an in-pit dewatering system and a series of dewatering wells. These dewatering methods will also be employed within the EL Limón and El Limón Sur pits. Produced water is currently being pumped to onsite ponds. Refer to Section 18.5.2 for additional information about current and proposed pit dewatering systems.

During 2017, a series of horizontal slope depressurization drains were installed in the Guajes Pit area to lower pore water pressures within the rock mass. The purpose of the drains is to reduce risks associated with excessive slope water pressures. A total of 12 drains were installed in 2017. Drains were constructed of 5-inch diameter steel casing; horizontal lengths range from 70 to 190 m with a total length drilled of 2,450 m. Drain lengths may be extended later in the life of the pit. Additional sets of drains will be installed in the El Limón and El Limón Sur pits. Mean flow rates in existing Guajes drains range from 0.1 L/s to 2.0 L/s. Water pressure in the drains, which are monitored using valves at the point where the drains exit the rock mass, have generally declined over time. Produced water is routed away from the pits using pipes, hoses, and open channels.

Pit dewatering requirements for the Guajes and El Limón open pits were evaluated by SRK based on 3D numerical groundwater flow modelling completed in 2012 (SRK, 2012b and 2012c). SRK used the MODFLOW-SURFACT finite-difference code and the Visual MODFLOW interface. This model was developed based on hydrogeological data collected during the 2011 and 2012 field programs, and calibrated to measured water levels in 44 monitoring wells/test holes. Groundwater model predictions were updated in 2015 by incorporating the El Limón Sur pit (SRK, 2015). Plans for the Guajes, El Limón and El Limón Sur open pits with ultimate pit bottom elevations of 560 msl, 966 msl, and 777 msl, respectively were incorporated into the groundwater model.

The model predicted that maximum groundwater inflow to the proposed pits would be very small due to the low hydraulic conductivity of surrounding country rock. Maximum passive groundwater inflow rates were predicted to be approximately:

- Guajes Pit: 210 m^3/day (2.4 L/s)
- El Limón Pit: 100 m^3/day (1.2 L/s)
- El Limón Sur Pit: 21 m^3/day (0.24 L/s)

Sergio Cosio and Associates (SCS) are re-evaluating groundwater inflows to the current and proposed pits by updating the existing 3D numerical groundwater flow model. Results were not available for inclusion in this Technical Report. Based on operational data, the estimates are within the range of observed inflow to the referenced pits.

16.2.4 Pit Hydrology

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.

16.2.5 Pit Optimization

Lerchs-Grossmann (LG) pit optimization was conducted using Whittle® software. The LG algorithm determines a pit shell that provides the maximum operating margin or cash flow (before capital, taxes or discounting) based on a mineral resource model and a set of input economic and technical parameters. The technical parameters include overall pit slope angles that incorporate approximate allowances for haulage ramps. The pit shell generated shows the depth and shape of the economic mining area, although the shell itself is quite irregular since it is defined based on mining entire blocks.

A series of nested pit shells are generated by varying or factoring input revenue estimates and rerunning the LG algorithm. The nested pit shells generated with various revenue factors are analyzed on a present value and incremental basis to determine the optimal pit shell to be utilized as a guide to ultimate pit design with haulage ramps. Smaller nested pit shells are also useful as a guide to stage or phase pit design.

16.2.5.1 Input Parameters

ELG pit optimization input parameters are summarized in Table 16-2. Pit optimization for the LOM plan is based on long term metal price forecasts of US$1,200/oz for gold and US$17/oz for silver, with value only applied to Measured and Indicated mineral resources. Inferred mineral resources are considered waste rock.

Process recovery of gold is expected to average 87% for gold and 23% for silver as described in Section 13. The process recovery of gold from low grade (near cut-off grade) ore is estimated at 83%.

Unit mine operating cost estimates in Table 16-2 were sourced from ELG 2018 budget estimates. The unit processing and G&A cost estimates are LOM forecasts based on full production and include operation of the SART plant. The overall pit slope angles summarized in Table 16-2 vary by geotechnical domain based on the recommended inter-ramp slope angles for the domain, with allowances for haulage ramps and/or geotechnical berms as deemed appropriate.

The pit optimization analysis utilizes the ELG EY2017 surveyed mine topography and the mineral resource model as described in Section 14. Within the Whittle® program the 7x7x7m resource blocks are grouped into 14x14x7m pit optimization blocks in order to expedite pit shell generation.

Table 16-2: Pit Optimization Parameters

	Units	Guajes & El Limón	El Limón Sur
Long term gold price	$/oz	1,200	
Payable gold in doré	%	99.925%	
Doré transportation, treatment, insurance	$/oz	1.81	
Value of gold in doré	$/oz	1197.29	
Royalty	%	3%	
Value of gold recovered	$/oz	1161.37	
Process recovery – average	%	87%	
Value of gold in average plant feed	$/oz	1010.39	
Process recovery on low grade ore[1]	%	83%	
Value of gold in low grade plant feed[1]	$/oz	963.94	
Value of gold in low grade plant feed[1]	$/g	30.99	
Long term silver price	$/oz	17	
Payable silver in doré	%	99.5%	
Doré transportation, treatment, insurance	$/oz	1.45	
Value of silver in doré	$/oz	15.46	
Royalty	%	3%	
Value of silver recovered	$/oz	15.00	
Process recovery	%	23%	
Value of silver in plant feed (i.e. diluted)	$/oz	3.45	
Value of silver in plant feed (i.e. diluted)	$/g	0.11	
Process rate (14000 tpd)	Mt/yr	*5.04*	
Discount rate	%	*10%*	
Operating Costs			
Ore mining	$/t	2.90	5.78
Waste mining	$/t	2.90	2.88
Processing	$/t feed	18.94	
G&A	$/t feed	8.63	
Dilution	%	15%	
Mining loss	%	5%	
Marginal economic cut-off grade, diluted, rounded	g/t Au	0.90	1.00
Overall pit slopes (with allowances for ramps)			
Weathered rock, rock fill	degrees	30-45	35
Fresh rock	degrees	33-49	39

[1] For pit optimization purposes only a 83% gold process recovery was assumed for ore < 1.5 g/t Au

The G&A cost shown in Table 16-2, i.e. $8.63/t feed, is the estimated unit cost during the mine operational period. It is expected that G&A costs will be lower during the pit closure period, however the reduced G&A cost at that time is not considered in the pit optimization analysis, and therefore is not reflected in pit optimization results or in pit designs guided by pit optimization results.

16.2.5.2 Pit Optimization Results

Pit optimization results for the total ELG property are presented graphically in Figure 16-2. Based on discounted cash flow analysis, and incremental analysis of results for the Guajes, El Limón, and El Limón Sur deposits individually, the pit shell developed using a revenue factor of 0.92, which is equivalent to utilizing a gold price of US$1,100/oz, was selected to guide ultimate pit design.

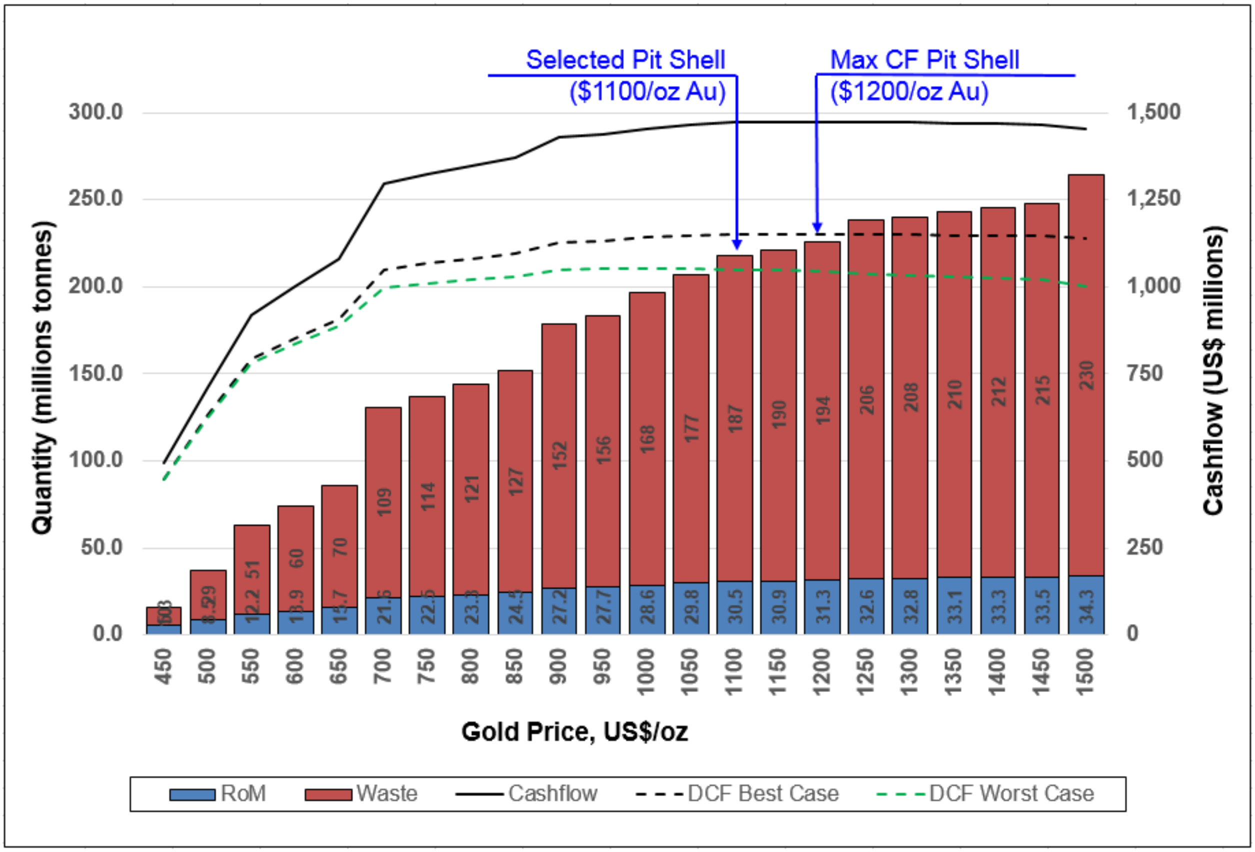


Figure source: SRK Canada, April 2018

Figure 16-2: Pit Optimization Results

The Whittle $1,100/oz pit shell selected to guide ultimate pit design is illustrated in Figure 16-3. The pit shell as displayed contains 30.5 Mt ROM at grades of 2.97 g/t Au and 3.92 g/t Ag, and at a strip ratio of 6.1:1. Approximately 0.25 Mt of the pit shell quantity is located within the dashed magenta outline shown in Figure 16-3, and represents remnant mineralization remaining in the vicinity of the previously mined El Limón NN phase pit and near complete Guajes East (Guajes Phase G1) pit.

Smaller pit optimization shells, i.e. shells created at a gold price of $700/oz or less, were utilized to guide individual Guajes and El Limón phase pit designs, although the some deviations from the pit shells layouts were necessary to maintain bench access and adequate operating widths within the phase pits.

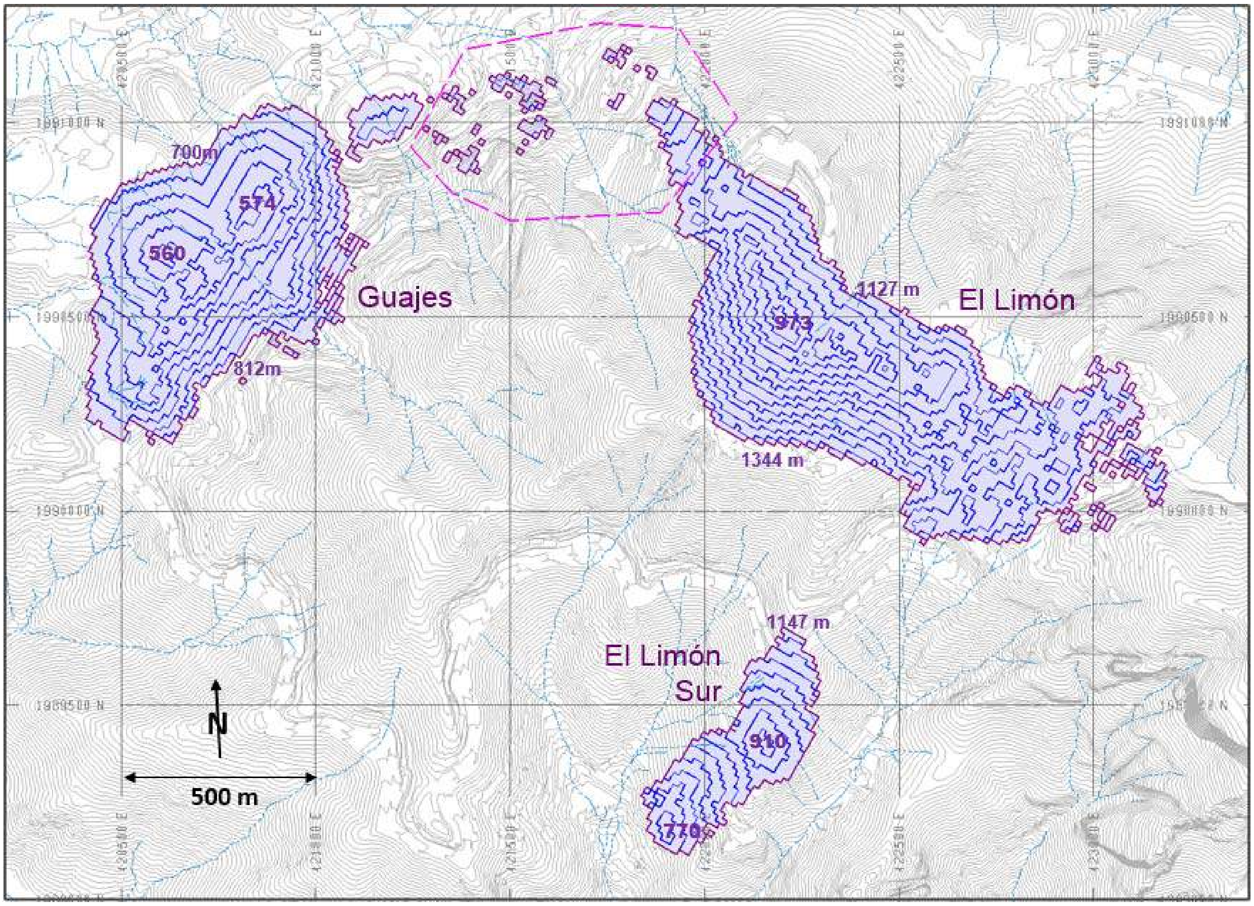


Figure source: SRK Canada, April 2018

Figure 16-3: Pit Optimization Selected Pit Shell, $1100/oz Au

16.2.6 Pit Design

Surface roads required for ELG pit access and hauling were constructed in the mine preproduction period and are now operational although some additions and modifications will be required as open pit mining progresses. Surface haul roads are in general designed 25 m in width (including allowances for a drainage ditch and shoulder safety berm) at gradients up to 10.5% to support two-way uninterrupted haulage by 90-tonne class mining trucks. Because of the steep terrain, construction of mine access and haul roads is challenging. To minimize cut excavations mine roads utilized for pit access only are generally designed 18 m in width at gradients up to 10.5%, which is considered adequate for single lane equipment traffic. Pullouts are required for large vehicle passing.

The ultimate and phase pits were designed using Vulcan® and MineSight® mining software based on pit slope geotechnical criteria presented in Section 16.2.1. All pits are designed with 7 m bench heights, which match the vertical dimension of the mineral resource blocks. Pit walls are designed with catchbenches at 14 m intervals (i.e., double benched) or at 21 m intervals (triple benched). In general, based on geotechnical parameters, Guajes pit walls located to the west of the La Amarilla fault are designed with catchbenches at 14 m intervals, whereas pit walls to the east of the fault (i.e., the higher pit walls) are designed with catchbenches at 21 m intervals. The El Limón and El Limón Sur pits are designed with catchbenches at 21 m intervals.

In-pit haulage ramps in general are designed 25 m in width at 10% gradient. Near pit bottom the haulage ramp designs are narrowed to 18 m, which is suitable for single lane traffic by the 90-tonne class haulage trucks currently in operation.

Narrower ramps suitable for haulage by 36-tonne class articulated haulage trucks, are designed for the small El Limón Sur pit.

The geotechnical slope sectors shown in Table 16-1 were coded into the mine planning block model so that variable pit slope geotechnical criteria by sector could be followed on a block-by-block basis during pit design. Pit design parameters are summarized in Table 16-3.

Table 16-3: Pit Design Parameters

Parameter	Units	Guajes pit		El Limón	El Limón
		Highwall	W of fault	Main Pit	Sur Pit
Bench height	m	7	7	7	7
Bench face angle	deg	75	58	65 - 75	62 – 72
Catchbench vertical interval	m	21	14	21	21
Catchbench width	m	9	9.2	9.0 - 9.8	9
Inter-ramp slope angle	deg	55	38	47 - 55	46 – 53
Highwall geotech berm width	m	25	na	25	Na
Highwall geotech berm interval	m	126	na	126	Na
Haulage width - two way	m	25	25	25	17
Haulage width - single lane (near pit bottom)	m	18	18	18	11
Max in-pit ramp gradient	%	10	10	10	12
Overall slope (with ramps & geotech berms)	deg	50	30	35 - 50	36 – 39

The designs presented are considered feasibility-level layouts. Final designs for construction should incorporate run-out ramps at appropriate locations including switchbacks.

16.2.6.1 Guajes Pit Design

Guajes mining has been underway since late 2013. Truck-loader mining commenced in the Guajes East phase pit in 2014 and the pit has been a major source of ore feed since processing plant start-up. The pit, which is referred to as Guajes Phase G1 in this report, is nearing completion.

It is planned that the remaining Guajes deposit will be mined in two phase pits guided by the pit optimization results presented in Section 16.2.5. The Guajes Phase G2 pit design, with a pit bottom located at 595m elevation, was guided by the Whittle $700/oz Au Pit Optimization shell. In general, the Phase G2 pit walls are interim slopes, although the pit mines to the ultimate pit highwall on the southeast side.

Guajes Phases G1 and G2 pit designs are shown in Figure 16-4.

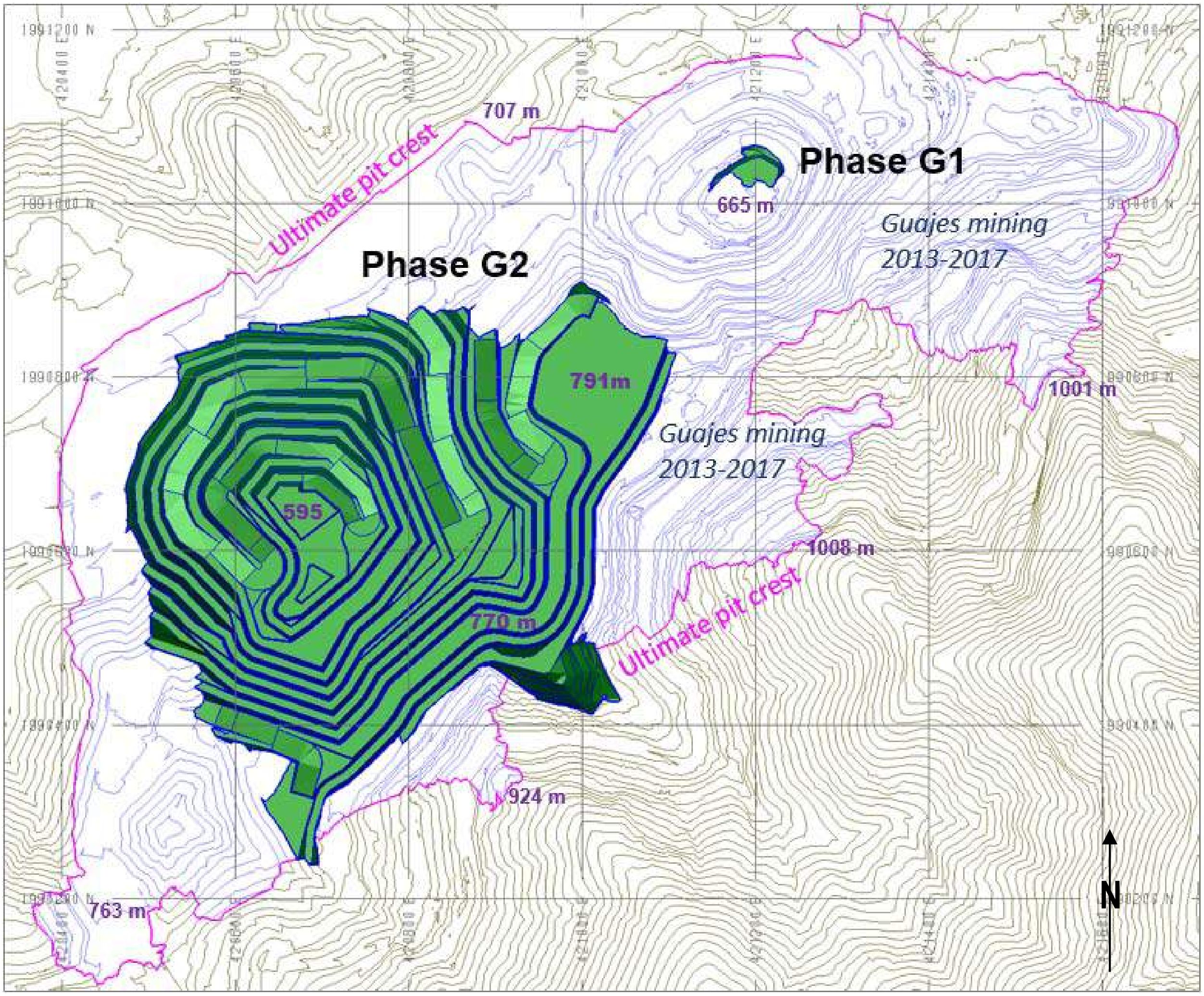


Figure source: SRK Canada, April 2018

Figure 16-4: Guajes Pit Phases G1 and G2

The Guajes Phase G3 pit design, with a pit bottom located at 560m elevation, was guided by the Whittle $1,100/oz Au Pit Optimization shell shown in Figure 16-3. The Guajes Phase G3 Pit is the final Guajes phase pit and encompasses the Guajes Phase G2 pit, although both pits mine to the ultimate pit highwall to the southeast. Guajes Phase G3 pit design is illustrated in Figure 16-5.

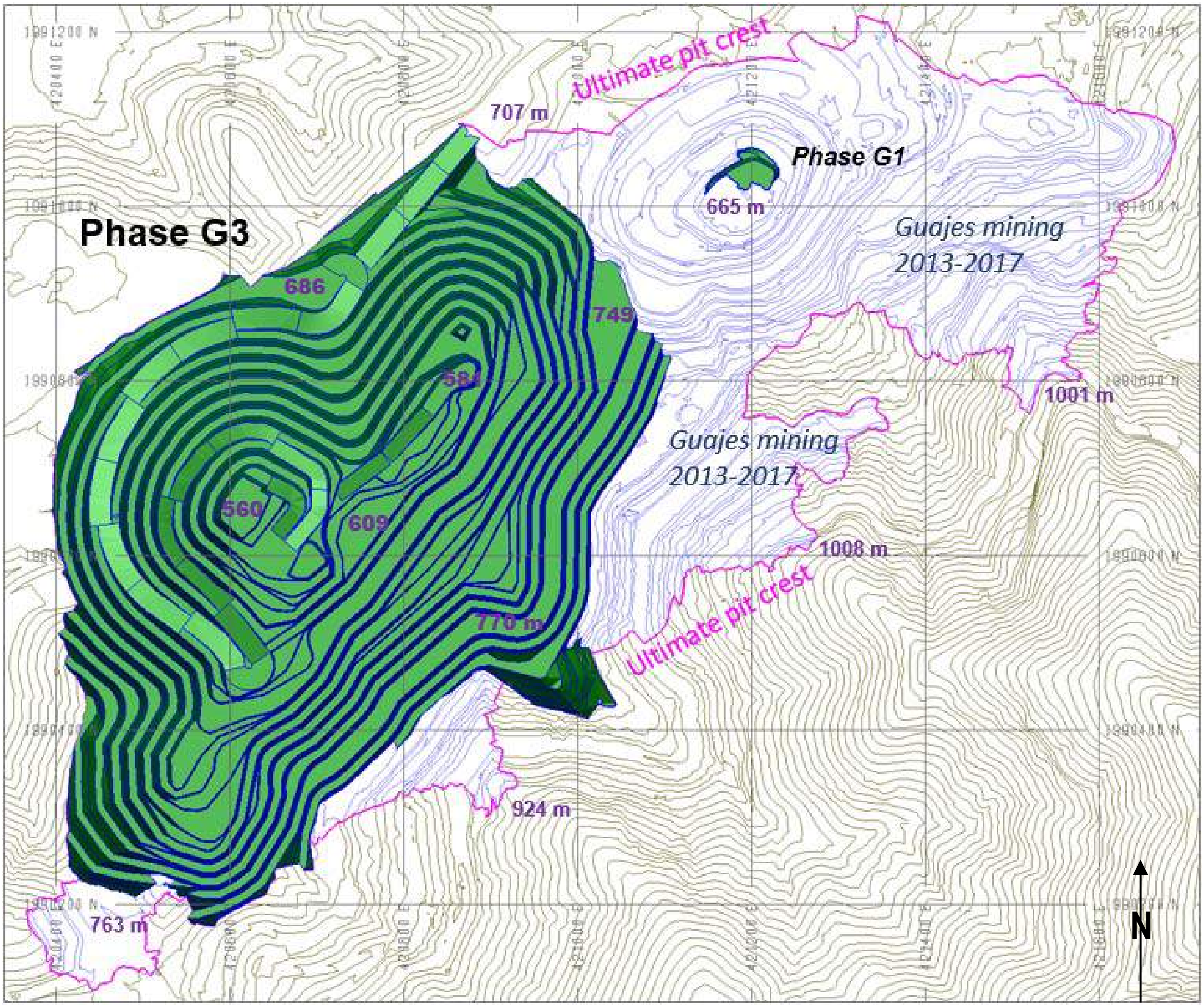


Figure source: SRK Canada, April 2018

Figure 16-5: Guajes Phase G3 (Ultimate Pit)

16.2.6.2 El Limón Pit Design

El Limón main pit mining commenced after the pit access road on the south facing slopes was complete and the village of La Fundición was relocated. Initial pit development consisted of dozer mining on the east ridge and haul road construction to connect the initial mining areas to the WRSF and the El Limón crusher platform. Concurrent with village relocation and road development the El Limón crusher and aerial RopeCon conveyor were installed. Crushed El Limón ore is transported to the processing plant via the RopeCon conveyor.

El Limón truck-shovel mining is currently underway, with plant feed sourced from the east end of the pit where the ore is near surface. The El Limón phase pits have been redesigned guided by the results of the pit optimization analysis presented in Section 16.2.5. The first El Limón truck-loader pit is Phase E1 located in the current ore mining area. The Phase E1 pit design is illustrated in Figure 16-6.

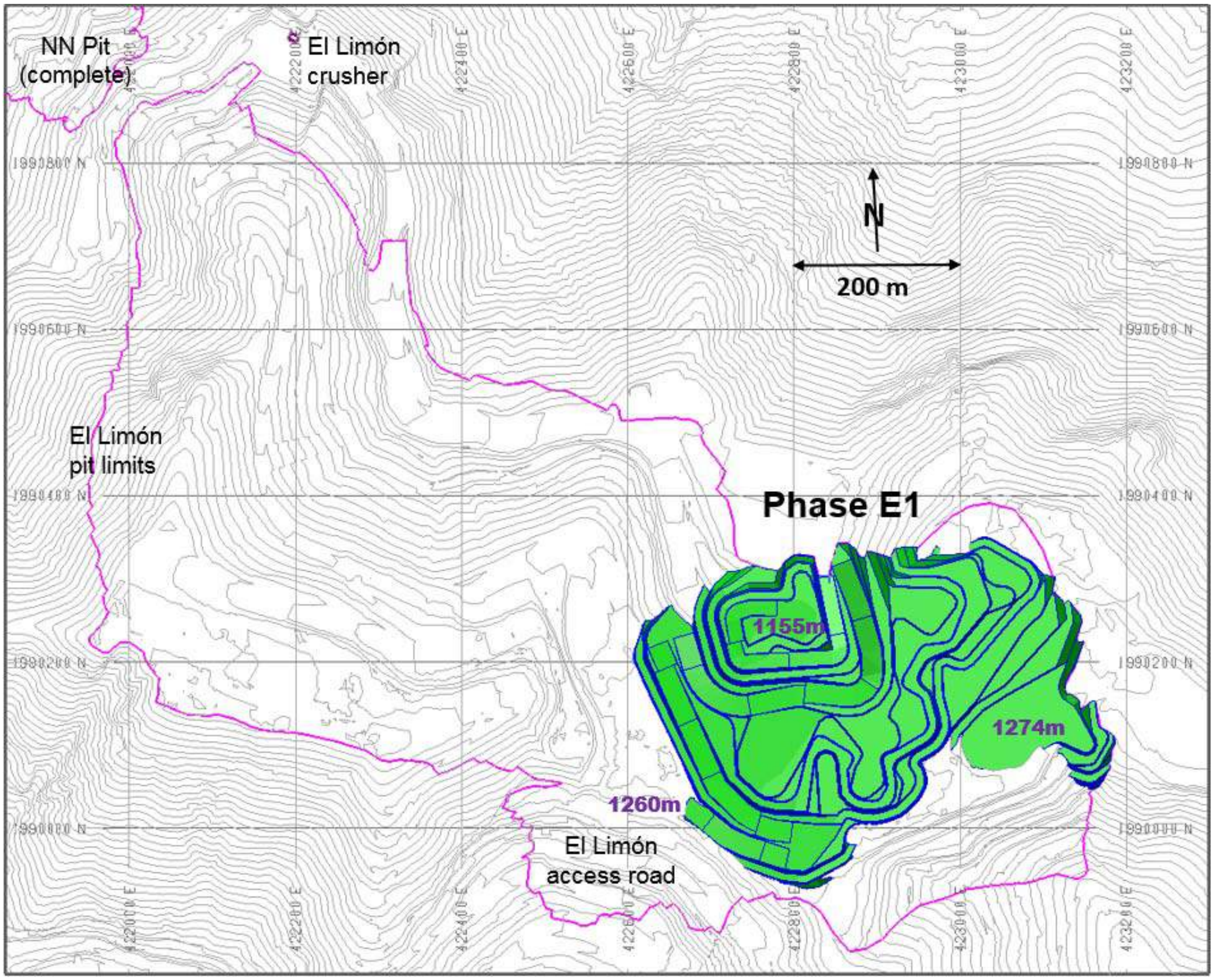


Figure source: SRK Canada, April 2018

Figure 16-6: El Limón Phase E1

The next El Limón truck-loader phase pit is Phase E2, which mines the main ridge to an interim highwall. Phase Pit E2 is shown in Figure 16-7. The design includes a haulage ramp left in the interim highwall to facilitate subsequent Phase E3 mining of the main ridge to ultimate pit limits. Phase E3 is shown in Figure 16-8.

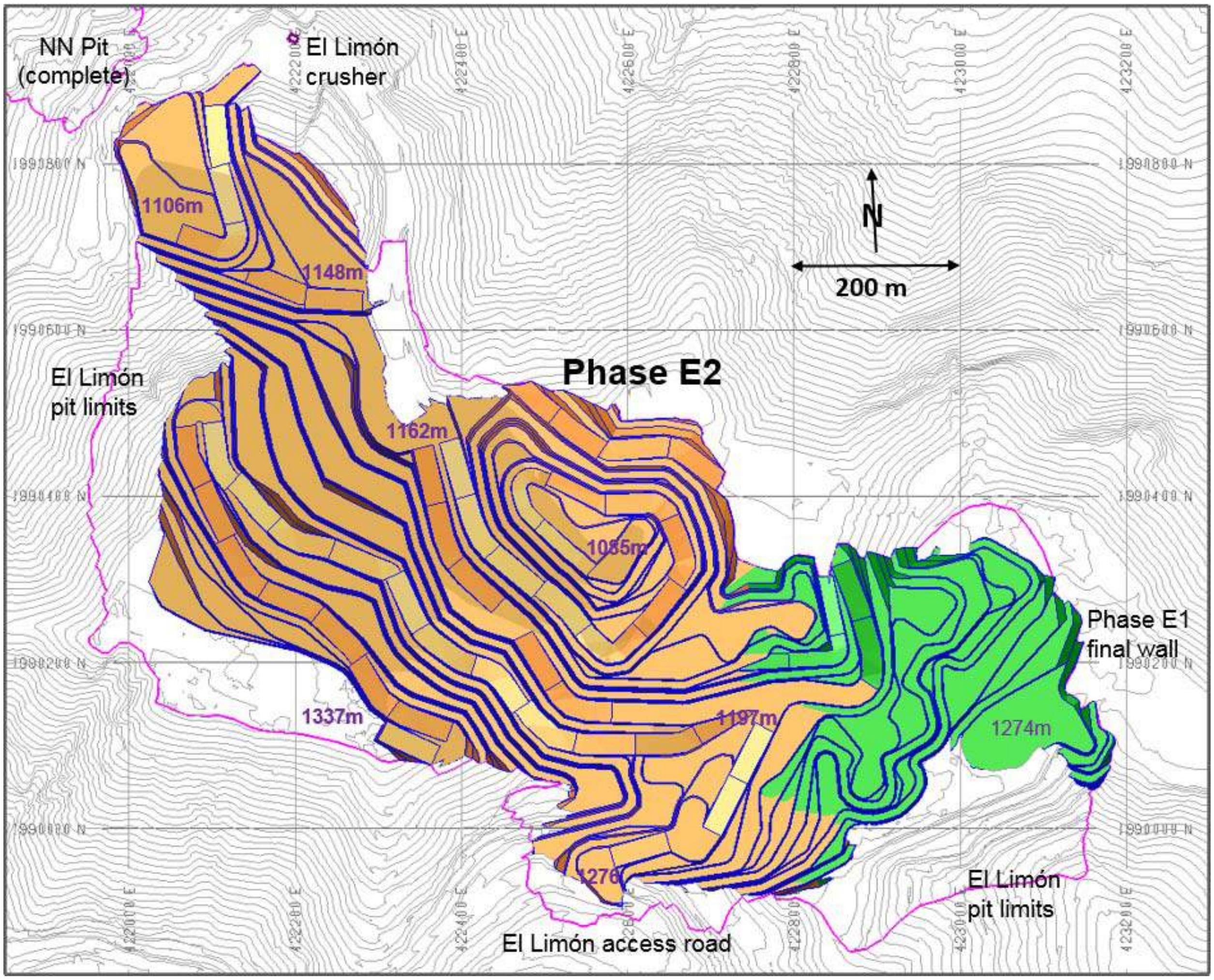


Figure source: SRK Canada, April 2018

Figure 16-7: El Limón Phase E2

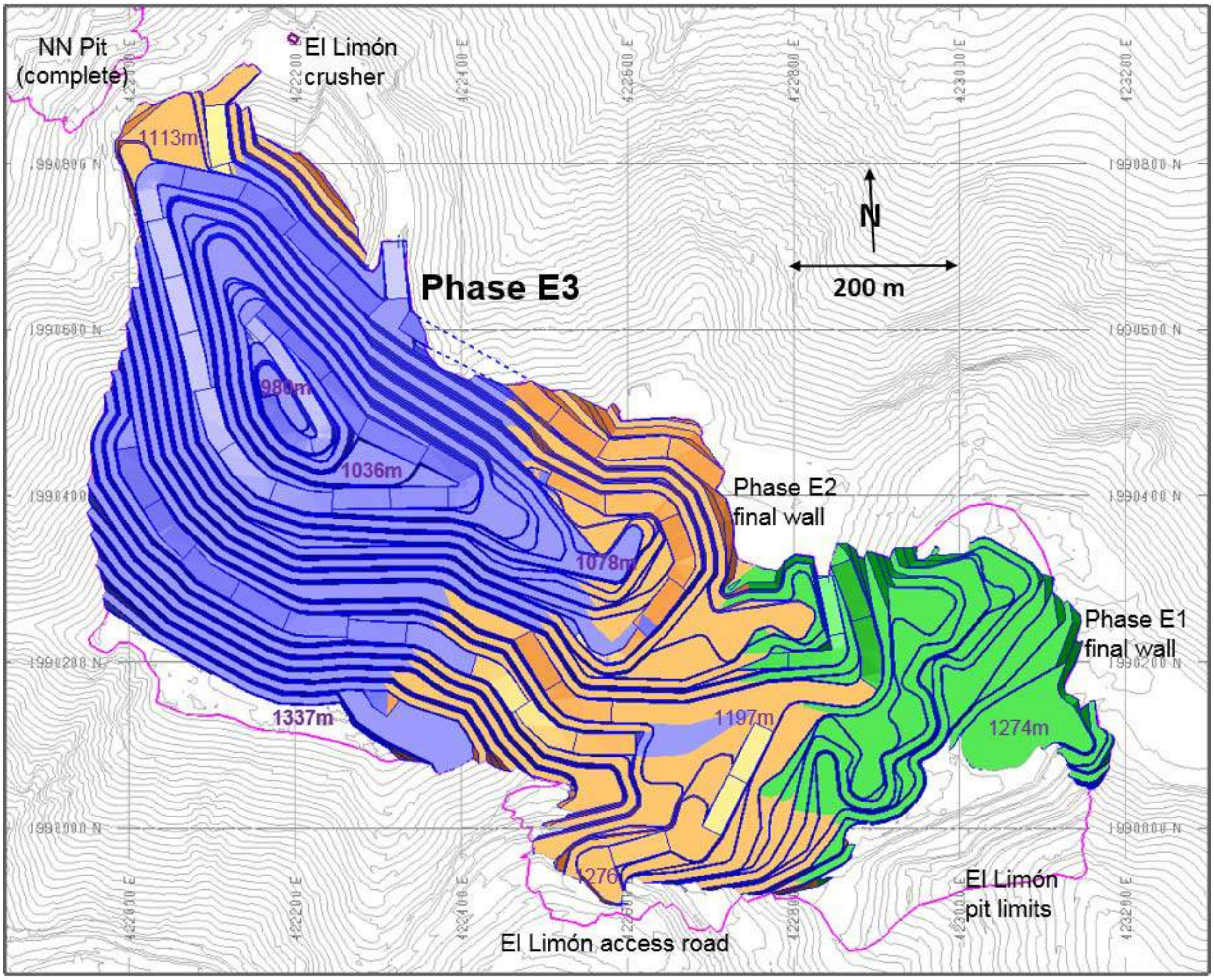


Figure source: SRK Canada, April 2018

Figure 16-8: El Limón Phase E3

The final El Limón phase is the small El Limón Sur pit located to the south of the main pit as illustrated in Figure 16-9. The pit design as shown has not been revised from previous design other than to provide a platform near the El Limón access road for a Sub-Sill underground mine ventilation ramp. The pit design approximates the $1,100 Whittle pit optimization shell shown in Figure 16-3. The pit highwall ramp is sized for 36-tonne articulated mining trucks. The El Limón Sur pit is currently in operation, with mining by contractor. Ore is hauled via the El Limón access road to the Guajes crusher.

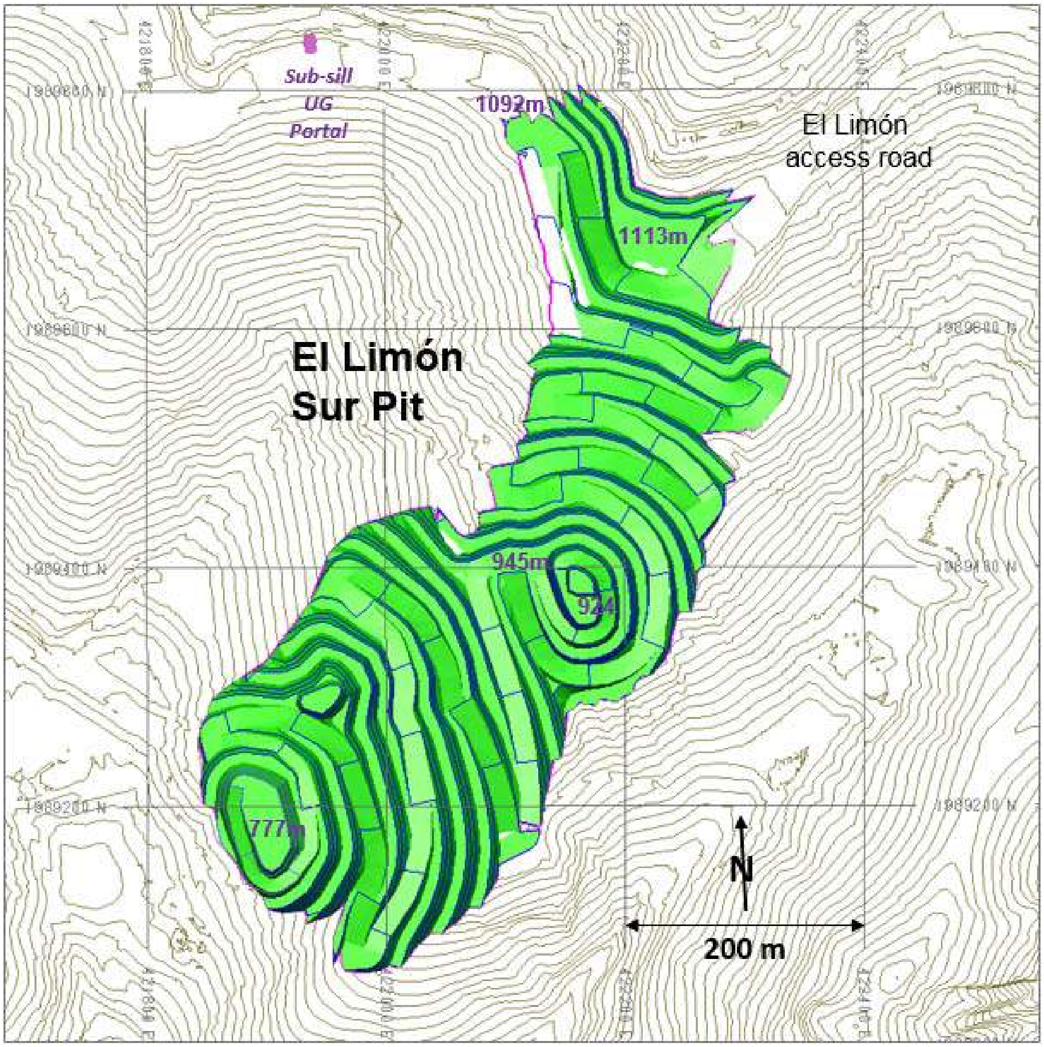


Figure source: SRK Canada, April 2018

Figure 16-9: El Limón Sur Pit

The El Limón ultimate pit, comprised of all El Limón main pit phases and the El Limón Sur pit is shown in Figure 16-10.

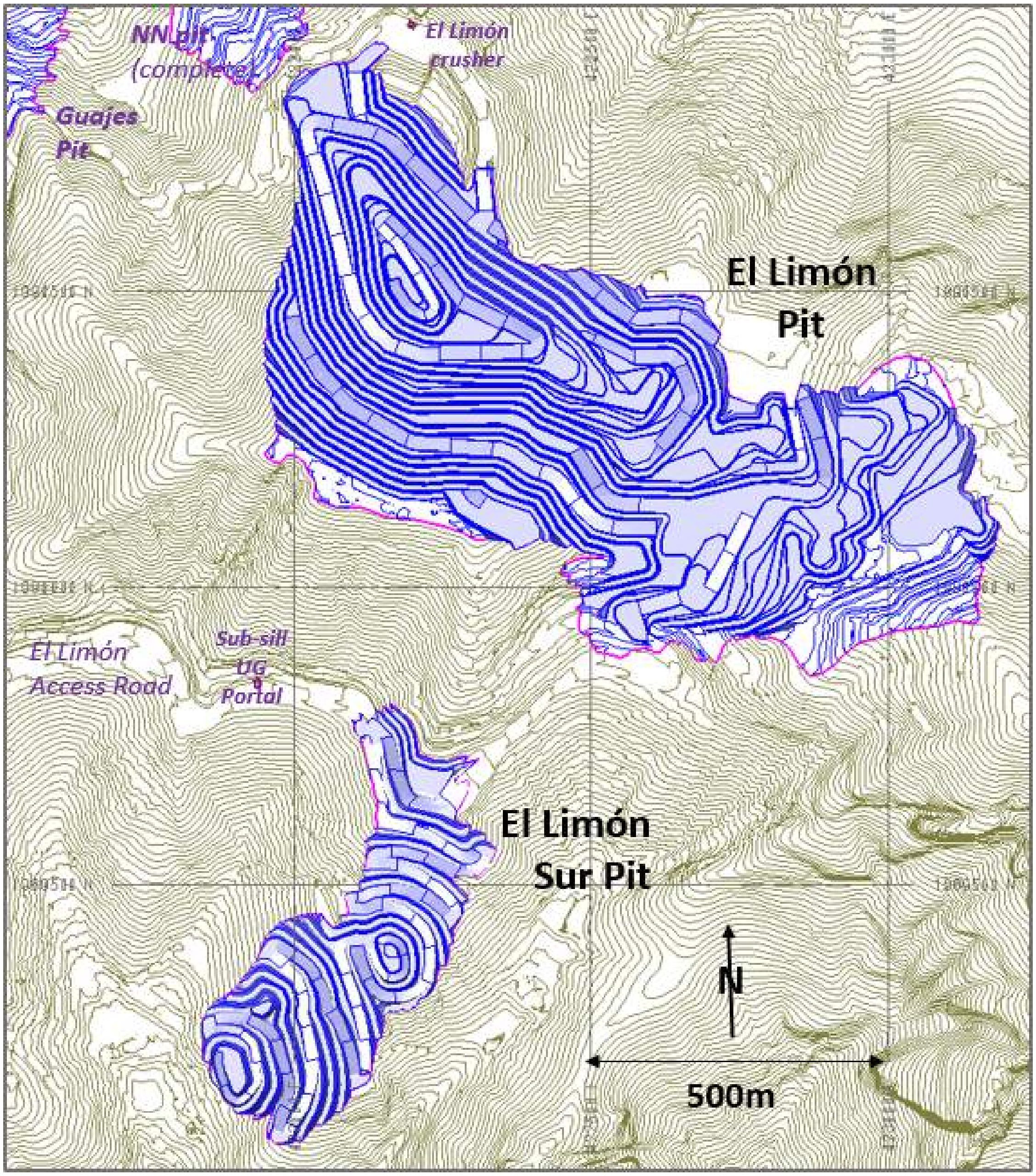


Figure source: SRK Canada, April 2018

Figure 16-10: El Limón Ultimate Pit

16.2.7 Waste Rock Storage Facilities

WRSFs 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, with geotechnical guidance provided by NewFields. Figure 16-11 shows the WRSFs and rock fill from access and haul road development. The WRSFs shown in Figure 16-11 include:

- Guajes West WRSF: The main destination area for Guajes waste rock, developed by end dumping from platforms starting at 625 m elevation. Subsequent 25 m lifts are stepped back to facilitate future WRSF re-sloping requirements.
- Guajes North WRSF: A northerly extension of the Guajes West WRSF adjacent to the FTSF. The Guajes North WRSF has been designed to cover the final west and south faces of the FTSF, to provide buttressing and to facilitate closure at the end of the mine life.
- El Limón WRSF: The main destination area for El Limón waste rock, located on the El Limón north slopes downhill from the pit and developed by end dumping from a series of platforms selected based on phase pit layouts, waste disposal quantities, and future WRSF re-sloping requirements.
- Buttress WRSF: Located at the toe of El Limón WRSF to serve as a barrier for rock runout from the El Limón WRSF development activities during mine operation and to facilitate re-sloping of the main El Limón WRSF at closure. The buttress WRSF will be developed by end dumping Guajes pit waste rock from a platform at 865 m elevation. It is planned that the downhill slope of the buttress WRDF will be progressively re-sloped to 2H:1V as development advances to the east.
- EL Sur WRSF: Destination for waste rock from the El Limón Sur pit, developed by end dumping from a series of platforms in the gullies to the east and west of the pit.

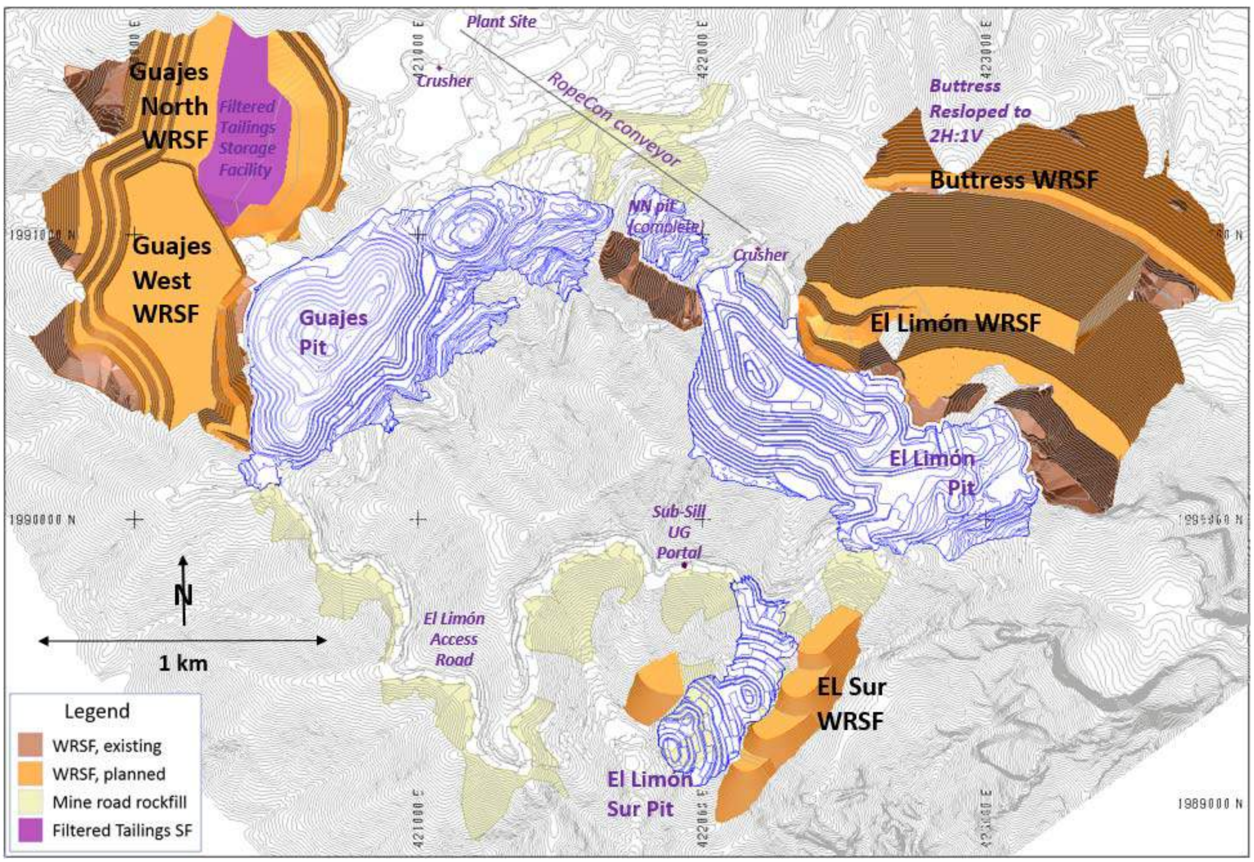


Figure source: Torex, May 2018

Figure 16-11: Waste Rock Storage Facilities

16.2.8 Estimate of Mineable Quantities

16.2.8.1 Mine Planning Model

Mine resource geologists provided the mineral resource block model supporting the mineral resource statement for use in the mine planning. Model items in this mine planning model included the portion of the mineral resource block below End of Year 2017 topography, gold and silver grades, rock type codes, rock density, resource classification (i.e., Measured, Indicated or Inferred), flags for Guajes versus El Limón mineralization, and flags for blocks within the conceptual pit shell utilized to report resources. Blocks are coded on an entire 7x7x7 m block basis as mineralized or non-mineralized.

For mine planning purposes pit slope geotechnical domain codes, berm widths and berm intervals were coded into the model to facilitate pit design. In the LOM plan, ROM ore quantities and plant feed estimates are founded only on Measured and Indicated mineral resources. Inferred mineral resources are included within waste rock stripping quantities.

16.2.8.2 Mining Dilution and Losses

Plant feed is expected to incur dilution as a result of ore and waste mixing during blasting, limitations on loading unit selectivity, and limitations on grade control information obtained from definition drilling and blasthole sampling. Previous mine plans included dilution estimate of 15% of in-situ quantities, and ongoing reconciliations to date of actual mining versus resource depletion support continuing to utilize this dilution estimate. The dilution grade is estimated at 0.13 g/t Au and 0.13 g/t Ag.

A 5% mining loss is applied to all in-situ quantity estimates. These losses, which are also supported by ongoing reconciliations, are expected to arise from 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.

16.2.8.3 Estimated Cut-off Grade

To initiate the open pit mine planning process for the ELG Mine Complex, the economic cut-off grades that could be applied to the mineral resource block model were estimated. Cut-off grade derivation is based on a gold price of $1,200/oz, unit mining cost estimates sourced from the ELG preliminary 2018 budget, and forecasts of unit processing and G&A costs based on initial estimates of full plant production and operation of the SART plant. ELG cut-off grades are based only on gold grades. Silver is a minor contributor to revenue compared to gold and is excluded from cut-off grade derivation.

The cut-off grades shown in Table 16-4 were utilized to estimate ELG Mine Complex phase pit ROM quantities, which form the basis of the LOM plan mine production and plant feed schedule. As shown in Table 16-4 ROM quantities are defined based on diluted cut-off grades of 0.9 g/t for the Guajes and El Limón pits and 1.0 g/t for the El Limón Sur pit.

In addition, Table 16-4 includes a low grade ore category based on lower G&A unit costs. It is forecast that once pit mining is complete and pit closure is underway variable G&A costs will be significantly reduced from that incurred during mine operation, and the low grade ore can be economically process at that time. The cut-off grade for low grade ore is estimated at 0.7 g/t. The low grade ore above this cut-off will be stockpiled during mine operation and subsequently rehandled to the process plant while WRSF re-sloping is underway.

The unit operating costs shown in Table 16-4 are preliminary estimates made at the start of the LOM planning process and differ slightly from the “final” unit operating cost estimates presented in Section 21 of this report. Checks confirm that the cut-off grades selected are still appropriate if final operating cost estimates are utilized in cut-off grade derivation.

Table 16-4: Cut-off Grade

Parameter	Units	ROM Mineral Reserves El Limón & Guajes	ROM Mineral Reserves El Limón Sur	LG Mineral Reserves* All pits
Ore processing period:		**During pit operation**		**At closure**
Gold value				
Long Term Gold Price	$/oz	**1,200**		**1,200**
Payable	%	99.925%		99.925%
Treatment, transportation, insurance	$/oz	1.81		1.81
Royalty	%	3.0%		3.0%
Value of recovered gold in doré	$/oz	1161		1161
Process recovery of lower grade (near CoG) ore	%	83%		83%
Value of gold in low grade plant feed	$/oz	964		964
(a) Value of gold in low grade plant feed	$/g Au	**30.99**		**30.99**
Operating costs				
Ore mining	$/t ore	2.90	5.78	2.90
Waste mining	$/t waste	2.90	2.88	2.90
Processing	$/t ore	18.94		18.10
Support Services	$/t ore	8.63		3.75
Plant feed (diluted) marginal economic cut-off grade				
Additional ore (vs waste) mining	$/t ore	0.00	2.90	0.00
Stockpile rehandle	$/t ore	0.00	0.00	1.00
Processing	$/t ore	18.94	18.94	18.10
G&A	$/t ore	8.63	8.63	3.75
(b) Extra ore cost, versus waste	$/t ore	27.57	30.47	22.85
(c) CoG, diluted Au in plant feed = (b) / (a)	g/t Au	0.89	0.98	0.74
COG diluted, rounded	**g/t Au**	**0.9**	**1.0**	**0.7**
In situ (undiluted) marginal economic cut-off grade				
Dilution, % of in situ	%	15%	15%	15%
Dilution grade	g/t Au	0.13	0.13	0.13
CoG, in situ	g/t Au	1.00	1.11	0.83
CoG in situ, rounded	**g/t Au**	**1.0**	**1.1**	**0.8**

* Low grade (LG) ore stockpiled during pit operation; rehandled and processed during pit closure.

16.2.8.4 Mining Quantities

In this LOM plan, ore quantities and plant feed estimates are founded only on Measured and Indicated mineral resources. Inferred mineral resources are included within waste rock stripping quantities.

Mining quantities are defined as material below the March 31, 2018 (i.e. end 2018Q1) surveyed topography to ultimate pit limits based on the pit designs presented in Section 16.2.6. Pre-production mining began in late 2013 and the end 2018Q1 surveyed topography reflects road and pit development completed since that time.

Phase pit mining quantity estimates are summarized by phase pit in Table 16-5. ROM and LG ore within the designed pits as of the end 2018Q1 totals 32.8 Mt at grades of 2.71 g/t Au and 3.57 g/t Ag with a strip ratio averaging 5.8:1. In addition, ROM stockpiles at the end 2018Q1 total 0.5 Mt at grades of 1.51 g/t Au and 7.90 g/t Ag.

Table 16-5: Phase Pit Quantity Estimates, March 31, 2018

Phase Pit	ROM Mineral Reserves Qty (Mt)	ROM Au (g/t)	ROM Ag (g/t)	Low Grade Mineral Reserves Qty (Mt)	Low Grade Au (g/t)	Low Grade Ag (g/t)	Total Mineral Reserves Qty (Mt)	Total Au (g/t)	Total Ag (g/t)	Primary Waste (Mt)	Strip Ratio (w/o)	Total Mined (Mt)	Waste Rockfill (Mt)	Total Moved* (Mt)
El Limón														
Phase E1	3.61	3.15	8.44	0.40	0.80	5.12	4.01	2.91	8.11	6.2	1.5	10.2	0.1	10.3
Phase E2	8.12	3.03	3.50	0.83	0.79	1.72	8.95	2.82	3.34	45.7	5.1	54.7	0.5	55.1
Phase E3	7.67	2.84	3.17	1.21	0.80	1.45	8.87	2.56	2.94	56.8	6.4	65.7	0.6	66.3
Sub-total	**19.40**	**2.98**	**4.29**	**2.43**	**0.80**	**2.15**	**21.84**	**2.73**	**4.05**	**108.7**	**5.0**	**130.6**	**1.1**	**131.7**
EL Sur														
Phase ES	**1.41**	**3.38**	**4.32**	**0.16**	**0.83**	**2.80**	**1.57**	**3.13**	**4.16**	**12.1**	**7.7**	**13.6**	**0.3**	**13.9**
Guajes														
Phase G1	0.004	1.43	2.02	0.00	0.77	1.53	0.005	1.38	1.99	0.0	1.9	0.0	0.0	0.0
Phase G2	4.37	2.62	2.51	0.49	0.80	1.32	4.85	2.44	2.39	31.8	6.6	36.7	1.1	37.8
Phase G3	4.16	2.88	2.38	0.37	0.80	1.36	4.53	2.71	2.30	36.4	8.0	40.9	1.3	42.2
Sub-total	**8.53**	**2.75**	**2.45**	**0.86**	**0.80**	**1.34**	**9.39**	**2.57**	**2.35**	**68.2**	**7.3**	**77.6**	**2.4**	**80.0**
All Pits	**29.34**	**2.93**	**3.76**	**3.45**	**0.80**	**1.98**	**32.79**	**2.71**	**3.57**	**189.0**	**5.8**	**221.8**	**3.8**	**225.6**
Stockpiles	0.54	1.51	7.90	0.00	0.00	0.00	0.54	1.51	7.90					
Total Mineral Reserves	**29.88**	**2.90**	**3.83**	**3.45**	**0.80**	**1.98**	**33.33**	**2.69**	**3.64**					

* Excluding ore rehandle from stockpile

Pit waste rock quantities in Table 16-5 include a total of 189 Mt of primary waste and 3.8 Mt of waste rockfill. The in-pit waste rockfill is a result of haul road construction and bulldozer mining of high elevation ridges that occurred during the ELG Mine Complex development period. This rockfill will be rehandled to the WRSFs over the mine life.

The mining quantities in Table 16-5 were compared to contained quantities within the pit optimization shells that guided the designs. The designed pits contain 2% less ROM ore and 5% more total material versus the selected pit optimization shells. The lower total material within the pit shells is believed due to approximations of the impact of pit haulage ramps that were incorporated in pit shell overall slope angle estimates.

16.2.9 Production Schedule

Principal mine production schedule parameters and constraints include:

- Process plant capacity 14,000 tpd
  A key objective of the LOM production schedule is mining sufficient ore to meet the ELG process plant capacity, which is estimated at 14,000 tpd over 360 days/year (i.e. 5,040 kt/a). Underground ore from the Sub-Sill mine will supplement open pit feed to the process plant.
- Process plant feed rate ramp-up in 2018
  ELG process plant commercial production was achieved in 2016. Process plant de-bottlenecking is underway and it is estimated that process plant throughput during the remainder of 2018 will average approximately 13,000 tpd.
- ROM ore grade bins
  ROM ore mined is segregated into the three grade bins shown below, to facilitate processing higher grade ore early in the mine life and avoiding sharp fluctuations in plant head grades by period:
  - High grade ore, with diluted grade greater than 2.4 g/t Au.
  - Medium grade A ore, with diluted grade between 1.3 and 2.4 g/t Au.
  - Medium grade B ore, with diluted grade between the ROM cut-off grade (i.e. 0.9-1.0 g/t Au as shown in Table 16-4) and 1.3 g/t Au.

- Low grade ore
  Low grade (LG) ore, i.e. ore with diluted grade between 0.7 g/t Au and the ROM cut-off grades, that is encountered in the open pits is mined and stockpiled during the pit operational phase. It is planned that the LG ore stockpile will be rehandled to the process plant during the pit closure period, when G&A costs are predicted to be lower.

16.2.9.1 ELG Actual Mine Development 2013 to 2018Q1

Guajes development from 2013 to 2018Q1 included:

- Completion of access trails and bulldozer mining on the three high elevation ridges within the pit.
- Guajes haul road development.
- Truck-loader pit mining in three phase pits, i.e., Phase GD (completed in 2014), Guajes East pit (Phase G1 virtually complete by Mar 31, 2018), and Guajes West (Phase G2 pre-stripping in progress).
- Ore mining and stockpiling. The Guajes East pit has been the primary source of ELG plant feed to date.

El Limón development from 2013 to 2018Q1 included:

- El Limón access road construction.
- Completion of Phase NN pit on the El Limón northwest ridge.
- Construction and commissioning of the El Limón crusher and RopeCon aerial conveyor. El Limón ore is transported to the process plant via the aerial conveyor.
- Relocation of the village of La Fundición, which was situated downhill from the pit.
- El Limón in-pit ore and waste haul road development, after village relocation.
- Completion of bulldozer mining of the high elevation southeast ridge within the main El Limón pit.
- Commencement of truck-loader ore and waste mining in the E1 phase pit and pre-stripping in the other El Limón phases. Phase E1 (formerly named Phase EB) was a major source of plant feed in 2017.

16.2.9.2 LOM Planned Development 2018Q2 to 2024

The general sequence of remaining Guajes development is:

- Complete Guajes Phase G1 and continue waste pre-stripping in the redesigned Phase G2 Pit (the former GW pit). Only small quantities of ROM ore will be mined from Phase G2 in 2018 and 2019 but waste rock is needed for the El Limón buttress WRSF and for a cover on the west face of the FTSF. In 2020, Phase G2 pit is the major source of ELG ROM ore. The pit is scheduled to be completed in early 2021.
- Commence mining in Guajes Phase G3 in 2019, to provide additional rock for the El Limón buttress WRSF. Phase G3 is mined at relatively low rates in 2019 and 2020. However, in 2021 almost two thirds of ELG ROM ore and waste mining occurs in this phase pit. Phase G3 (the final Guajes phase pit) is scheduled to be completed in 2022.

The general sequence of remaining El Limón development includes:

- Continue mining the El Limón Phase E1 (east ridge) truck-shovel pit. The pit is the major source of ROM ore in 2018. The pit is scheduled to be completed in early 2019.
- In 2018 re-commence mining the El Limón Phase E2 (main ridge) truck-shovel pit. The pit is the largest ELG waste mining area in 2018 and 2019, and the major source of ROM ore in 2019. The mining rate is reduced starting in 2020 and the pit is scheduled to be completed in 2022.

- In 2019, commence mining the El Limón Phase E3 truck-shovel pit, which is a main ridge pushback of Phase E1 and the final El Limón phase. Significant Phase E3 waste pre-stripping is scheduled in 2020 and 2021. The pit is the major ELG ore and waste mining area from 2022 to completion in 2024.
- Continue mining the El Limón Sur pit, with contractors using small equipment. ROM ore is hauled to the Guajes crusher with small trucks. It is planned that LG ore mined from the pit will be stockpiled in El Limón pit vicinity, for rehandle to the El Limón crusher during mine closure. The pit is expected to be completed in 2022.

The open pits are scheduled to be depleted in 2024, at which time pit closure activities (WRSF re-sloping, etc.) will commence. During the pit closure period, Low Grade ore in stockpile will be rehandled to the plant and processed.

The phase pit mining sequence described above is illustrated in Figure 16-12. The figure also shows annual phase pit total mining quantities (i.e. ore and waste including waste rock fill rehandle).

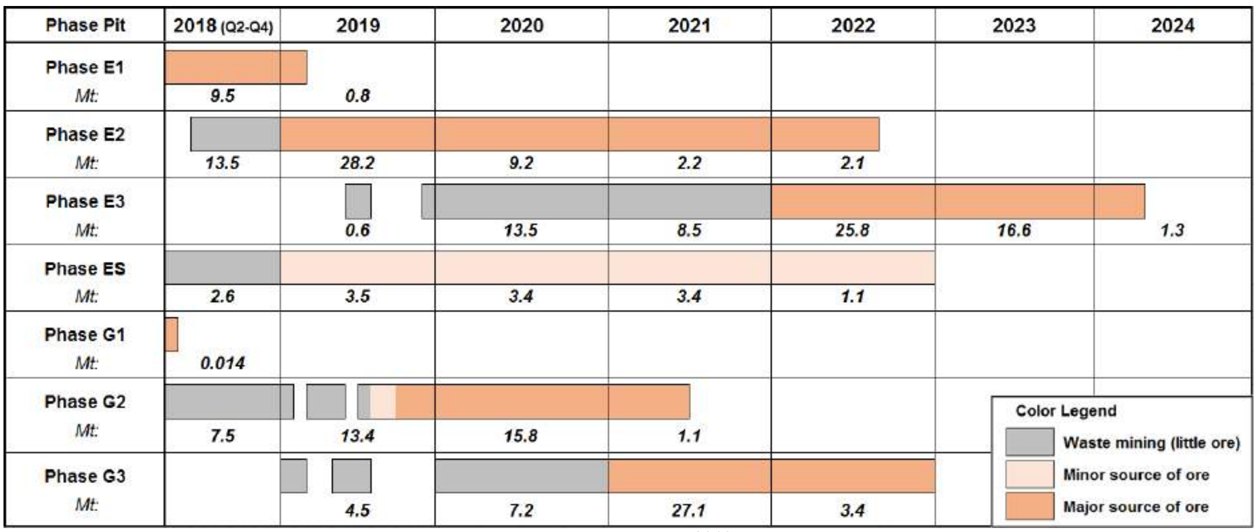


Figure source: Torex, 2018

Figure 16-12: Phase Pit Mining Sequence

Annual mining rates are shown graphically in Figure 16-13. Mining rates peak at an average of about 50 Mt/a mined in 2019 and 2020 before declining. Further mine planning analysis to reduce the peak mining rate is proposed.

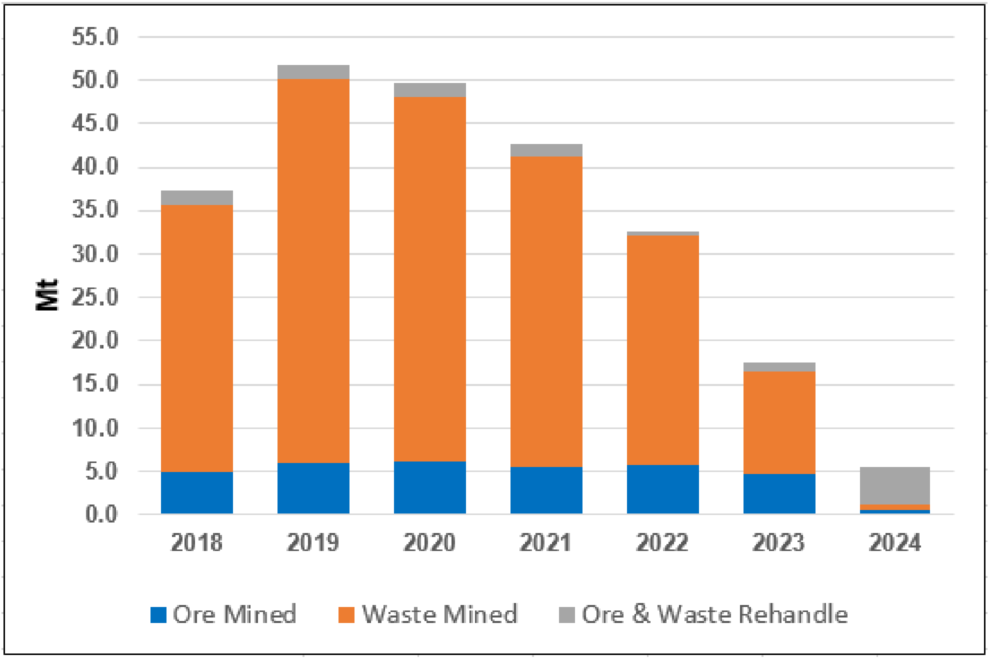


Figure source Torex, 2018

Figure 16-13: Annual Mining Rates

The overall ELG open pit production schedule showing mined ore grades is summarized in Table 16-6. LOM plan forecasts in Table 16-6 start in 2018Q2 based on the phase pit mining sequence illustrated in Figure 16-12. Table 16-6 also includes actual mine production in 2018Q1.

Table 16-6: Open Pit Production Schedule

	units	Total 2018-24	2018 Q1 actual	2018 Q2-Q4	2019 Year	2020 Year	2021 Year	2022 Year	2023 Year	2024 Year	Total 2018Q2+
Guajes											
ROM Ore	Mt	9.03	0.50	0.01	0.81	2.95	3.71	1.04	0.00	0.00	8.53
LG Ore	Mt	0.86	0.00	0.01	0.09	0.39	0.32	0.04	0.00	0.00	0.86
Sub-total Ore	**Mt**	**9.88**	**0.50**	**0.03**	**0.90**	**3.35**	**4.03**	**1.08**	**0.00**	**0.00**	**9.39**
Primary Waste	Mt	70.2	2.0	7.2	16.5	19.0	23.3	2.3	0.0	0.0	68.2
Strip Ratio	W/O	7.1	3.9	269	18.3	5.7	5.8	2.1	-	-	7.3
Sub-total Mined	Mt	80.1	2.5	7.2	17.4	22.3	27.3	3.3	0.0	0.0	77.6
Waste Rehandle	Mt	2.7	0.3	0.3	0.6	0.7	0.8	0.1	0.0	0.0	2.4
Sub-total Moved*	Mt	82.8	2.8	7.5	17.9	23.0	28.2	3.4	0.0	0.0	80.0
El Limón											
ROM Ore	Mt	19.47	0.07	3.66	3.92	2.18	1.09	3.89	4.17	0.49	19.40
LG Ore	Mt	2.43	0.00	0.50	0.47	0.23	0.09	0.64	0.49	0.01	2.43
Sub-total Ore	**Mt**	**21.91**	**0.07**	**4.16**	**4.39**	**2.42**	**1.18**	**4.53**	**4.66**	**0.50**	**21.84**
Primary Waste	Mt	108.8	0.1	18.6	24.9	20.0	9.4	23.2	11.8	0.8	108.7
Strip Ratio	W/O	5.0	0.9	4.5	5.7	8.3	8.0	5.1	2.5	1.6	5.0
Sub-total Mined	Mt	130.7	0.1	22.8	29.3	22.4	10.6	27.7	16.5	1.3	130.6
Waste Rehandle	Mt	1.1	0.0	0.2	0.2	0.2	0.1	0.2	0.1	0.0	1.1
Sub-total Moved*	Mt	131.8	0.1	23.0	29.6	22.6	10.7	27.9	16.6	1.3	131.7
El Limón Sur											
ROM Ore	Mt	1.41	0.00	0.10	0.53	0.35	0.28	0.15	0.00	0.00	1.41
LG Ore	Mt	0.16	0.00	0.04	0.06	0.00	0.04	0.02	0.00	0.00	0.16
Sub-total Ore	**Mt**	**1.57**	**0.00**	**0.13**	**0.60**	**0.35**	**0.31**	**0.17**	**0.00**	**0.00**	**1.57**
Primary Waste	Mt	12.6	0.5	2.4	2.8	3.0	3.0	0.9	0.0	0.0	12.1
Strip Ratio	W/O	8.0	-	17.9	4.7	8.4	9.7	5.0	-	-	7.7
Sub-total Mined	Mt	14.1	0.5	2.5	3.4	3.3	3.3	1.0	0.0	0.0	13.6
Waste Rehandle	Mt	0.3	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3
Sub-total Moved*	Mt	14.4	0.5	2.6	3.5	3.4	3.4	1.1	0.0	0.0	13.9
All Pits											
ROM Ore	Mt	29.91	0.57	3.77	5.26	5.49	5.08	5.08	4.17	0.49	29.34
Au grade	g/t	2.94	3.28	3.01	2.69	2.64	2.85	3.25	3.24	3.06	2.93
Ag grade	g/t	3.79	5.60	7.78	3.65	2.52	2.35	4.01	3.09	5.54	3.76
LG Ore	Mt	3.45	0.00	0.55	0.62	0.63	0.44	0.71	0.49	0.01	3.45
Au grade	g/t	0.80	0.00	0.80	0.80	0.80	0.80	0.79	0.80	0.80	0.80
Ag grade	g/t	1.98	0.00	3.90	1.94	1.40	1.72	1.57	1.42	1.09	1.98
Total Ore	**Mt**	**33.36**	**0.57**	**4.32**	**5.88**	**6.12**	**5.52**	**5.79**	**4.66**	**0.50**	**32.79**
Au grade	g/t	2.72	3.28	2.73	2.49	2.45	2.69	2.95	2.98	3.02	2.71
Ag grade	g/t	3.60	5.60	7.28	3.47	2.40	2.30	3.71	2.92	5.45	3.57
Primary Waste	Mt	191.5	2.5	28.2	44.2	42.0	35.7	26.3	11.8	0.8	189.0
Strip Ratio	W/O	5.7	4.4	6.5	7.5	6.9	6.5	4.5	2.5	1.6	5.8
Total Mined	Mt	224.9	3.1	32.6	50.1	48.1	41.3	32.1	16.5	1.3	221.8
Waste Rehandle	Mt	4.1	0.3	0.5	0.9	0.9	1.0	0.3	0.1	0.0	3.8
Ore Rehandle	Mt	8.2	0.2	0.6	0.8	0.7	0.5	0.2	0.9	4.2	8.0
Total Moved	Mt	237.2	3.6	33.7	51.8	49.8	42.7	32.6	17.5	5.5	233.6

* Sub-total Moved quantites exclude ore rehandle by pit

Pit and WRSF progress to the end of 2018, 2019, 2020, 2021, 2022, and 2024 is illustrated in Figure 16-14. The progress maps also show the expected FTSF configuration. The Guajes WRSF development in the vicinity of the FTSF coincides with FTSF development to provide the required buttressing and erosion protection for the west face of the filtered tailings, and on the east face as the tailings rise above the surrounding topography.

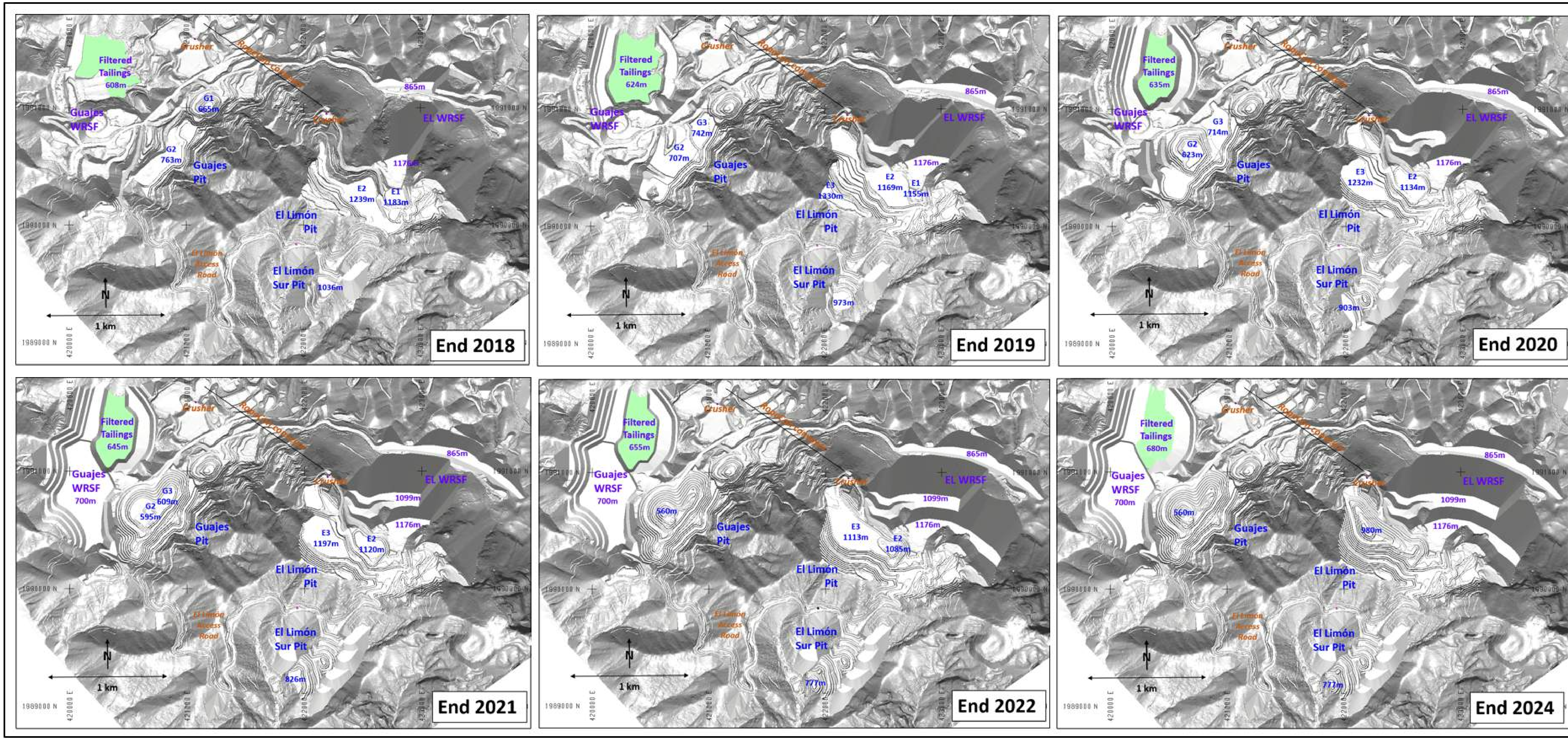


Figure source: Torex, June 2018

Figure 16-14: Pit Progress Maps

16.2.9.3 ELG Ore Stockpiles

Based on the consolidated plant feed schedule presented in Section 16.4, ore stockpile quantities are expected peak at five million tonnes at the start of 2023. ELG ore stockpile quantities by pit area at the start of each period are shown in Table 16-7.

Table 16-7: ELG Ore Stockpiles

	units	2018Q1	2018Q2	2019	2020	2021	2022	2023	2024
Guajes ore stockpiles, start of period:									
ROM Stockpiles	Mt	0.33	0.12	0.11	0.24	0.85	1.07	1.09	0.23
LG Stockpiles	Mt	0.00	0.00	0.01	0.12	0.53	0.85	0.89	0.89
Sub—total Stockpiles	Mt	0.33	0.12	0.12	0.36	1.38	1.92	1.98	1.12
El Limén ore stochpiles, start of period:									
ROM Stockpiles	Mt	0.42	0.41	0.73	1.10	1.09	0.90	0.93	0.92
LG Stockpiles	Mt	0.00	0.00	0.54	1.07	1.30	1.43	2.09	2.58
Sub—total Stockpiles	Mt	0.42	0.41	1.27	2.17	2.39	2.33	3.02	3.50
Total ELG ore stockpiles, start of period:									
ROM Stockpiles	Mt	0.75	0.54	0.84	1.34	1.94	1.98	2.02	1.15
LG Stockpiles	Mt	0.00	0.00	0.56	1.20	1.84	2.28	2.99	3.47
Grand Total Stockpiles	**Mt**	**0.75**	**0.54**	**1.39**	**2.54**	**3.77**	**4.25**	**5.00**	**4.62**

Potential ore stockpile locations are illustrated in Figure 16-15. The stockpiles shown have a total capacity of approximately 6.5 Mt, including 2.5 Mt in the Guajes pit area and 4 Mt in the El Limón pit area.

Potential stockpile locations in the Guajes pit area include sites in the vicinity of the Guajes crusher with approximately 1.5 Mt capacity, and partial backfilling of the Guajes Phase 1 (Guajes East pit), with an ore stockpile capacity of 1.0 Mt to the 700m elevation shown.

Potential stockpile locations in the El Limón pit area include the El Limón WRSF 1176m elevation platform, with an ore stockpile capacity of approximately 2 Mt, and three sites located principally within the Phase E1 pit with total ore stockpile capacity of approximately 2 Mt. Phase E1 is scheduled to be mined out in early 2019, and the in-pit sites will become available for ore stockpiling starting in late 2018. Some modifications to the Phase E1 design will be required to provide haulage ramp access to the sites.

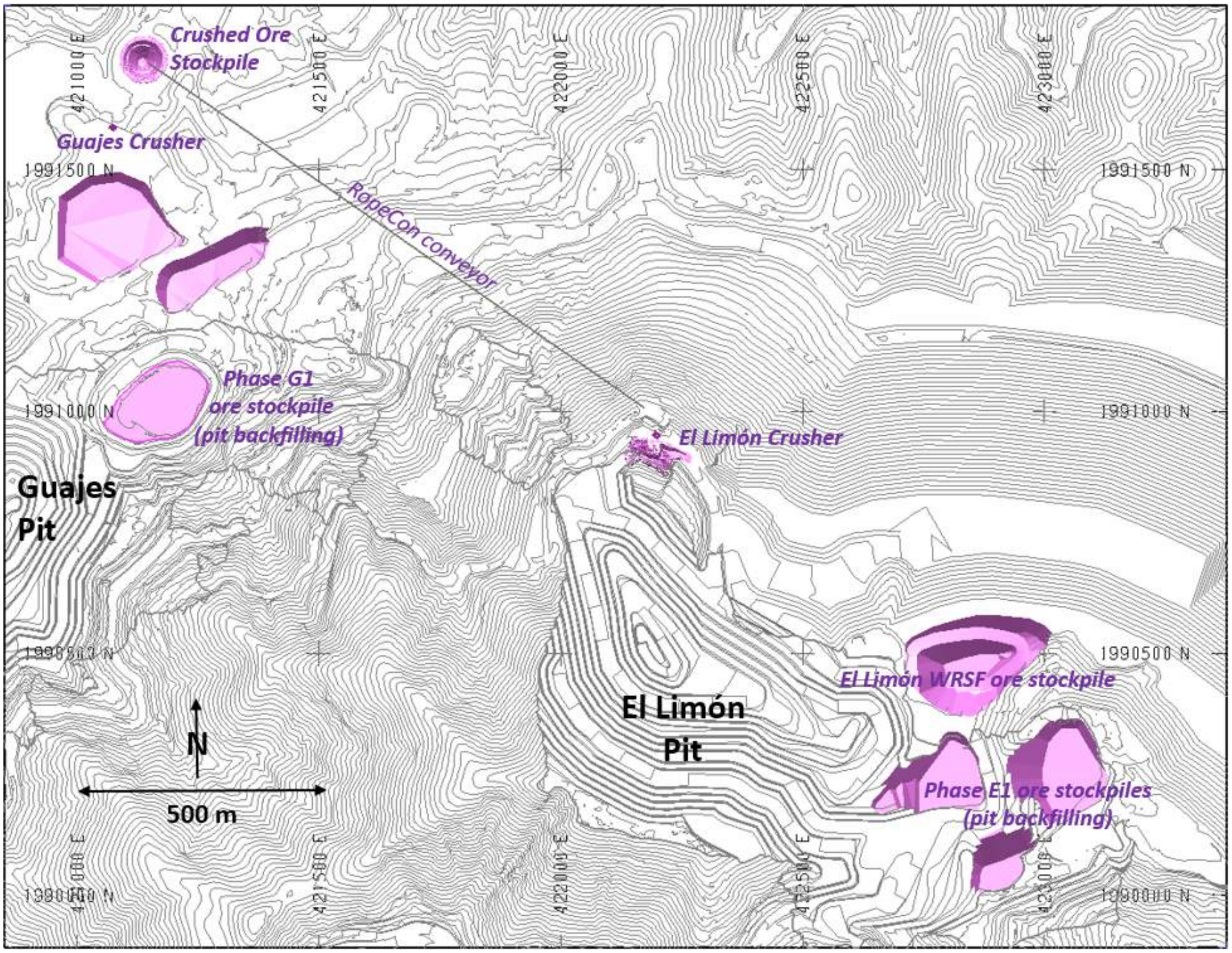


Figure Source: SRK Canada, June 2018

Figure 16-15: ELG Ore Stockpiles Locations

16.2.10 Open Pit Operation

16.2.10.1 Mode of Operation

ELG mining is planned utilizing the owner's workforce generally 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. Mining and maintenance activities planned to be performed by contractors include:

- Contract mining of the El Limón Sur pit, which requires small scale mining equipment;
- Blasting services;
- Production equipment maintenance until 2018 by equipment suppliers under maintenance and repair contracts (MARC). During 2018, equipment maintenance by the owner's workforce will be phased in.

Mine operating parameters that impact on equipment operation, and fleet and workforce sizes include:

- Equipment physical availability estimates ranging from 91% to 92% for drills, 88% for hydraulic shovels, 86% for front-end loaders, and 90% to 91.5% for haulage trucks.

- An estimated 75% to 85% utilization of available time. Non-utilized time includes delays for shift change, meal breaks, etc.
- An estimated operating efficiency of 75 to 85%, to reflect unscheduled operating delays such as queuing, fueling, blast delays, etc.

16.2.10.2 Drilling

LOM plan production drilling equipment includes 171-mm hole diameter Epiroc DM45 drills and 114-mm hole diameter Epiroc D65 drills. The larger diameter drills are forecast to drill the majority of ELG rock. The DM45 drills are capable of rotary drilling or downhole hammer drilling for a range of hole diameters. The downhole hammer configuration is used in most areas due to the relatively high ELG rock strength. The smaller D65 drills are utilized for pit highwall pre-split drilling, buffer drilling, and for pioneering roads and small, restricted access, phase pit benches. Small hole diameter drills are also utilized by the mining contractor in the El Limón Sur pit.

The required drill fleet peaks at seven of the large diameter drills and five small diameter drills. A total of six DM45 drills and three D65 drills were acquired by the end of 2017, additionally the mine fleet is supplemented by one DM45 and three smaller drills supplied by contractors.

16.2.10.3 Blasting

The LOM plan explosives powder factor is estimated at 0.22 kg/t, based on ELG operational experience to date. On an annual basis similar quantities of ANFO and emulsion explosives are utilized, but water-resistant emulsion usage is higher in the rainy season and lower in the dry season. Approximately 93% of explosive consumption is bulk and the remainder is packaged.

16.2.10.4 Loading

Pit rock excavation is principally by three 15-m^3 Komatsu PC3000 hydraulic shovels and four 12-m^3 Komatsu WA900 wheeled loaders that were acquired by the end of 2017. The small scale El Limón Sur pit is being mined by contractor utilizing a small hydraulic excavator.

16.2.10.5 Hauling

Pit rock is hauled by nominal 90-tonne capacity Komatsu HD-785-7 haulage trucks. Haulage truck requirements are estimated to peak at 24 units. A total of 22 haulage trucks were acquired by the end of 2017 and the two additional trucks will be acquired in 2018 and an third in 2019.

Smaller trucks are utilized by the mining contractor in the El Limón Sur pit.

16.2.10.6 Dozing

Dozing requirements will be performed by a fleet of two 455-kW Komatsu D375 tracked bulldozers and three 335-kW Komatsu D275-AX tracked bulldozers. These units were acquired in 2013 and 2014 for bulldozer mining of high elevation ridges in the Guajes pit at the start of pre-production development. The units are now utilized in the truck-loader pits and on the WRSFs.

Dozing equipment also includes two 393-kW Komatsu WD-600 wheeled bulldozer units for use principally on bench cleanup around the hydraulic shovels, and on road maintenance. A third wheeled bulldozer is planned to be acquired in 2018.

16.2.10.7 Support

Support equipment includes three road graders and two HD-785-7WT water trucks. Water for dust suppression in the Guajes pit is obtained from pit sumps and/or site water ponds. For El Limón, dust suppression water is pumped from the plant site to a storage tank near the El Limón crusher.

Support equipment also diesel-powered light towers, and a 4.5 m^3 hydraulic excavator for ditching and occasional ore loading. A second excavator is planned to be acquired in 2018.

16.2.10.8 Grade Control

Ore is not distinguishable from waste rock visually but rather will be separated based on cut-off grade, which requires sampling and assaying. Sampling and assaying for grade control purposes is based on a combination of definition drilling and blasthole sampling.

The definition drilling program includes selective in-fill diamond drilling of ore benches expected to be mined in the following year, 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.

Grade control procedures involves preparation of a grade control model informed exclusively by blasthole sampling data. The mine geology staff define ore and waste mining zone polygons for each blast based on the grade control model.

For reconciliation purposes, quantities and grades within the ore control polygons are compared to mineral resource block model reports on a bench-by-bench 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 Sections 15.2.4 of this report.

16.2.10.9 Pit Pumping

Pit dewatering estimates are based on groundwater inflow estimates presented in Section 16.2.3, and rainfall estimates and storm event predictions presented in Section 16.2.4. Pit groundwater and runoff is being discharged at the pit crests and collected in sumps and settling ponds located downstream of the pits as described in Section 18.

Many of the phase pit mining benches are located on mountain side slopes, so water encountered on the benches is being managed through the construction of ditches that route flow to the surrounding topography. The Guajes Phase GD (completed in 2014) was the first pit phase where mining occurred completely below grade and where in-pit pumping was required. The mined out Phase GD pit serves as a sump to temporarily collect storm event runoff from the southeast Guajes slopes above the pit. Water collected in the sump is pumped to the FTSF, managed internally and then pumped to Water Management Pond 3.

A surface sump on the slopes below the Phase G1 (Guajes East) pit collects storm event runoff and groundwater inflows from the northeast Guajes slopes above. Water collected in the sump is being pumped to the FTSF and then to Pond 3.

A Phase G1 (Guajes East) in-pit pumping system was established in 2017. The Phase GD pit sump will be replaced by a Phase G2 (Guajes West) in-pit pumping system in 2020 when Phase G2 mining reaches the 686 m bench. The El Limón dewatering system is expected to be established in early 2019 when Phase E1 pit mining reaches the 1,169 m bench, and will be relocated to the Phase E2 pit in 2021 when Phase E2 mining reaches the 1,148 m elevation.

The pumping rate required to dewater the mining areas is estimated based on predictions of storm runoff, with pumps sized to dewatering the pit within 48 hours after a 10-year return 24-hour storm event. Skid-mounted diesel pumps were selected for pit dewatering, and this type of pump is currently in use at the Guajes pits. The Morelos site receives relatively low rainfall on an annual basis and little groundwater inflow is predicted so annual pump operating hours are low.

16.2.11 Open Pit Equipment Acquisition

Major production equipment acquisitions over the mine life are summarized in Table 16-8. Mining equipment acquired from 2013 to 2017 include 51 major production units. A total of seven major production equipment additions are required in 2018 and 2019 to meet the mine production schedule, which consist of three production drills, two haul trucks, a wheel bulldozer and an excavator. It is planned that seven equipment units will be replaced in 2019 and 2020, including two production drills, one shovel, two wheel loaders, one haul truck, and one grader. In addition, major overhauls are planned on a large number of production units over the four year period 2018 to 2021. In 2018, major overhauls are scheduled on four haul trucks, one track bulldozer, and one production drill.

Support equipment additions and replacements for such items as light towers, dewatering pumps, and major parts are also planned during the remaining mine life.

Table 16-8: Pit Equipment Acquisitions

Major Production Equipment	Initial Acquisitions 2013-2017	Additional Equipment 2018-2019	Replacement Equipment 2019-2020	LOM Plan Acquisitions 2018-2024
Production Drill, 114 mm	3	2		2
Production Drill, 171 mm	6	1	2	3
Hyd. Shovel, 15m^3	3		1	1
Wheel Loader 12 m^3	4		2	2
Haul Truck 90 t	22	2	1	3
Track Bulldozer 455 kW	2			0
Track Bulldozer 335 kW	3			0
Wheel Bulldozer 393 kW	2	1		1
Grader	3		1	1
Water truck, 75000 L	2			0
Excavator, 4.5 m^3	1	1		1
Total	**51**	**7**	**7**	**14**

16.2.12 Open Pit Personnel

The mine operations and maintenance workforce is projected to average 250 employees in 2018 and peak at 254 employees from 2019 to 2021 before declining. The 2018 workforce is comprised of 44 drillers, 19 loading equipment operators, 78 haul truck drivers, 58 operations indirect employees (auxiliary equipment operators and operations supervision), and 51 maintenance personnel.

Technical service staff, including in-fill drilling personnel, totals 70 employees.

16.3 ELG UNDERGROUND – SUB-SILL ZONE MINING

16.3.1 Underground Development and Access

The ELG Underground Mine consists of two main work areas; the Sub-Sill and ELD. The Sub-Sill zone is currently being developed and the ELD is the subject of a drilling program to support mine planning. A main ramp from Portal No. 1 (1172EL) provides access to both the Sub-Sill and ELD ramps. The ELD and Sub-Sill ramps start at an intersection approximately 235 m down the main ramp. ELD exploration drill bays have been developed approximately 300 m down the ELD ramp from the Sub-Sill/ELD ramp intersection and the development of the Sub-Sill resource occurs approximately 350 m along the Sub-Sill ramp.

To support the underground mining and exploration work a workshop, office and parking, electrical infrastructure and a temporary ventilation system have been established on surface adjacent to the Portal No. 1. As of March 31, 2018, approximately 2,000 meters of capital development and 300 meters of ore development have been completed at the ELG Underground Mine.

A second portal access (Portal No. 2) is planned to begin development in August 2018 and is located above the El Limón Sur Open Pit. A ramp will be driven from Portal No. 2 at -13% grade to connect with a ramp being driven from the existing Sub-Sill development. The completed ramp will allow for flow through ventilation, second egress and one way traffic flow through the mine.

Figure 16-6 illustrates the existing surface infrastructure, planned infrastructure, existing development, and planned development associated with the ELG UG.

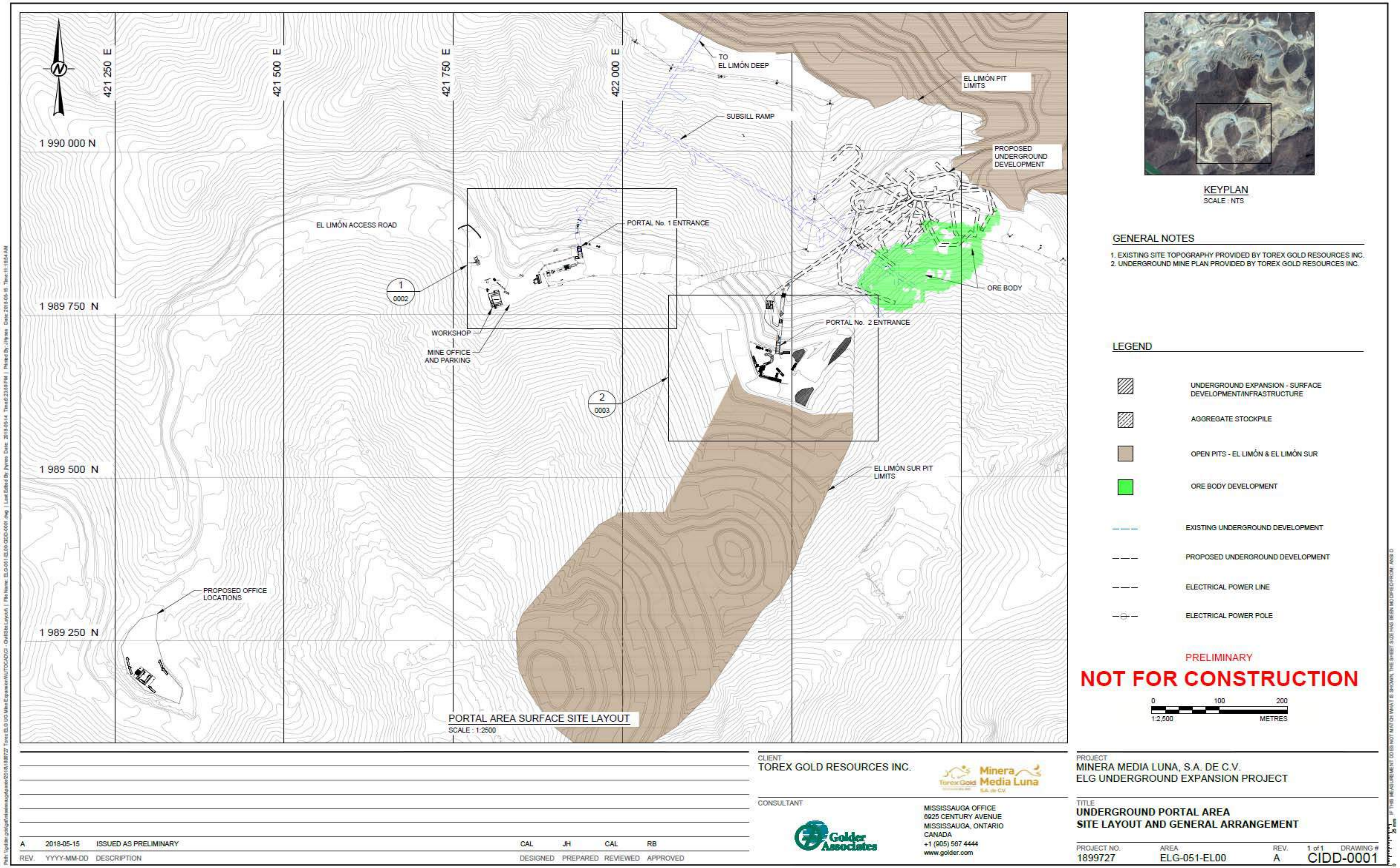


Figure source: Golder Associates, May 2018

Figure 16-16: Sub-Sill General Arrangement (Plan View)

16.3.2 Geotechnical Evaluation

The geotechnical evaluation for the Sub-Sill Zone was conducted by Dr. W. F. Bawden using data selected from historical reports, geotechnical diamond drillholes, and underground mapping of the ELD access development. The evaluation was summarized and interpreted by Dr. W. F. Bawden after which a recommendation on excavation dimensions and support standards was determined and reported on the ELG Sub-Sill Underground Mine Technical Report (Bawden Engineer, 2018).

16.3.2.1 Geotechnical Domains

From the geotechnical information and mapping available, it is currently understood that geotechnical domains of the Sub-Sill Zone should be lithology based. Four geotechnical domains have been identified, granodiorite, hornfels, skarn (endoskarn and exoskarn) and marble. There is insufficient data to determine whether the endoskarn and exoskarn should be classified as two separate geotechnical domains and are incorporated as one. Geotechnical domains, based on the modified Barton Tunnel Quality Classification is provided in Table 16-9.

Table 16-9: Sub-Sill Geotechnical Domain Data

Rock Type	Surface Mapping*+		Underground Mapping	Core Logging
	RMR_{89}'	Q'	Q'	Q'
Granodiorite	47 – 84	0.8 – 49	9.9 – 16.7	6.3 – 12
Hornfels	51 – 70	1.2 – 10.3	9.3 – 16.5	15 – 24
Marble	-	-	7.7 – 25	19 – 47
Skarn	-	-	7.7 - 25	14 – 27

*RMR rating for 'A.5: Groundwater' has been adjusted (A.5 = 15) to assume completely dry conditions (RMR_{89}'), as the effect of groundwater is already accounted for within the numerical modelling.

+Q' has been estimated using the following empirical relationship modified after Hoek et al. (1995):

$$RMR_{89}' - 5 = 9 \ln Q' + 44$$

16.3.2.1.1 Underground Geotechnical Mapping

Underground observations from the 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 been identified and appear to be produced by very low persistence microstructure. The shallow dipping microstructure has no influence on large scale rock mass behaviour. There appears to be no large-scale structures within the immediate vicinity. The La Flaca Fault is the largest known structure in the area and is approximately 500m due west of the Sub-Sill mineral resource.

16.3.2.1.2 Intact Rock Properties

Three laboratory testing programs have been conducted on intact core. Table 16-10 provides a summary of the uniaxial test work conducted by SRK 2012 and MDEng 2017.

Table 16-10: Summary of Uniaxial Laboratory Test Data

Rock Type	Number of Tests*	Average Density (g/cm3)	Average UCS +/- 1 Std. Dev. (Mpa)	Average Ei +/- 1 Std. Dev. (GPa)	Average Poisson's Ratio
Granodiorite	6	2.64	183 +/- 50	74 +/- 5	0.25
Hornfels	7	2.92	214 +/- 122	101 +/- 16	0.26
Marble	3	2.71	80 +/- 24	48 +/- 3	0.37
Skarn	4	3.23	163 +/- 69	97 +/- 22	0.28
*indicates the number of tests noted as "valid" in MDEng (2017), or having an "Intact" failure mode as indicated in SRK (2012).					

16.3.2.1.3 Far Field Stress State

In-situ stress testing has not been conducted at the 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). This is also consistent with observations from other mine sites in Mexico. Horizontal stress ratios are assumed to be 0.4σ1, also consistent with studies conducted at other sites in Mexico.

16.3.2.2 Methodology to assess geotechnical conditions and ground support standards

Industry standard rock mass classification techniques, (Barton Tunnel quality index (Q and Q'); Rock Mass Rating (RMR_{89}); Geological Strength Index (GSI)), were used to assess geotechnical designs. Ground support was determined using empirical analysis and industry standard rules of thumb, (After W. Bawden, SME Handbook Ch 9.6, 2009). Potential wedge formation was examined using Unwedge software (Unwedge, Rocscience™). Ground conditions in the Sub-Sill are fair to good in most areas and major structures have not been found near planned workings. The ground support analysis indicates the use of standard ground support systems.

16.3.2.3 Crown Pillar

An assessment of the crown pillar was conducted by Dr. Bawden using data from six geotechnical diamond drill core logs and photos.

Crown pillar stability analyses utilized both the empirical scaled span method (After Carter et al, 2014) and a limit equilibrium method (Cpillar, RocscienceTM). The analyses assumed the crown pillar would be in the un-weathered rock located below the highly weathered layer and indicated that minimum crown pillar thickness of 10 meters would be adequate for the proposed mine plan. Test drilling will be conducted to validate the continuity of the bedrock/weathered rock contact prior to mining the upper levels.

16.3.3 Underground Mine Inflows

NewFields analyzed existing hydrogeological data and mine plans to develop estimates of expected groundwater inflows to the Sub-Sill zone.

Table 16-11 provides a range of inflow estimates. Comparison of the inflow rate that was calculated using the best estimate hydraulic conductivity value (32.8 L/s) with preliminary inflow measurements that were provided by mine staff (0.3 L/s for the initial exploration access) 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 cemented paste backfill and mining activities (i.e. drilling, washing muck pile, etc).

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 16-11: 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

16.3.4 Underground Mine Design

The Sub-Sill zone as it is currently understood consists of several lenses that are relatively flat lying with a dip varying from approximately 30 to 45 degrees and extends from 1115 meters elevation in the upper part of the mine, to 1,000 meters elevation in the lower areas. The mineral resource extends approximately 150 meters along strike (north-south) with a variable thickness up to 12 meters thick. The elevation of the main portal is at 1115 meters elevation. The geometry of the deposit is illustrated in Figure 16-17, and Figure 16-18. The thickness of the resource material varies throughout and can be up to 12 meters thick.

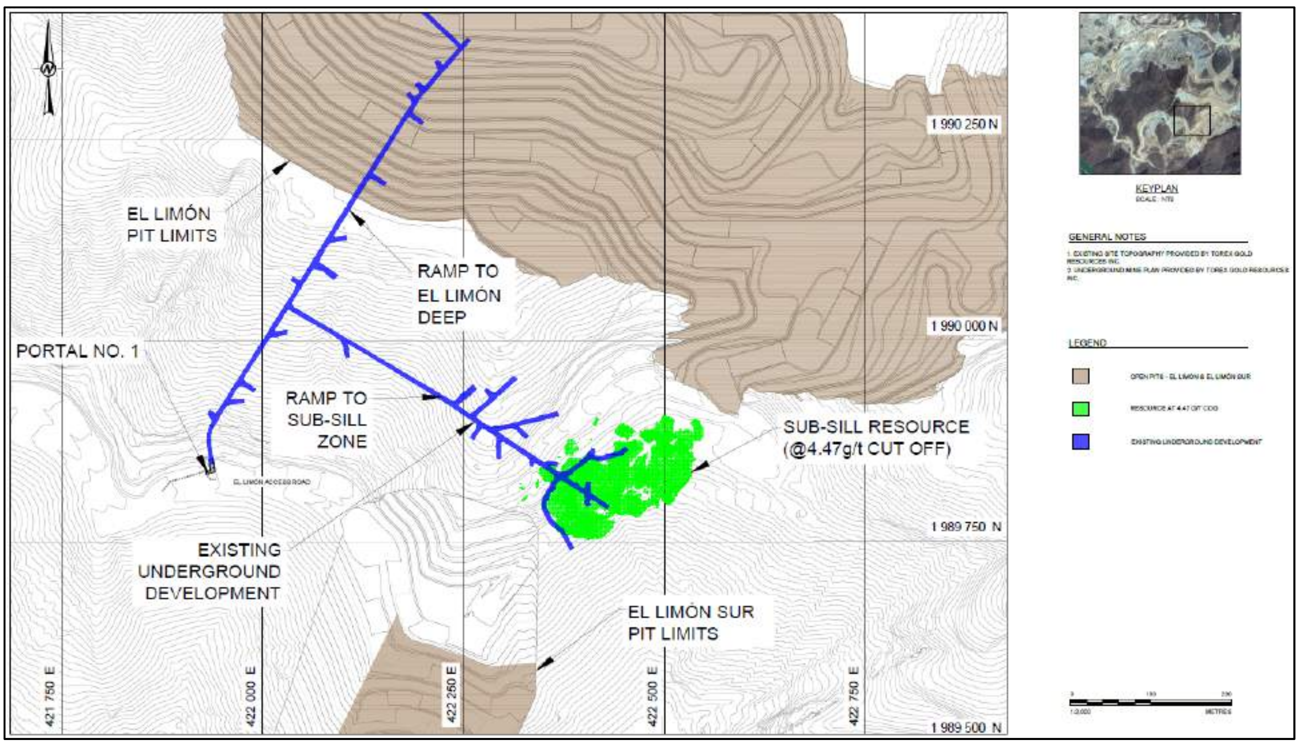


Figure source: Torex, June 2018

Figure 16-17: Sub-Sill Resource In-situ Geometry (Plan View)

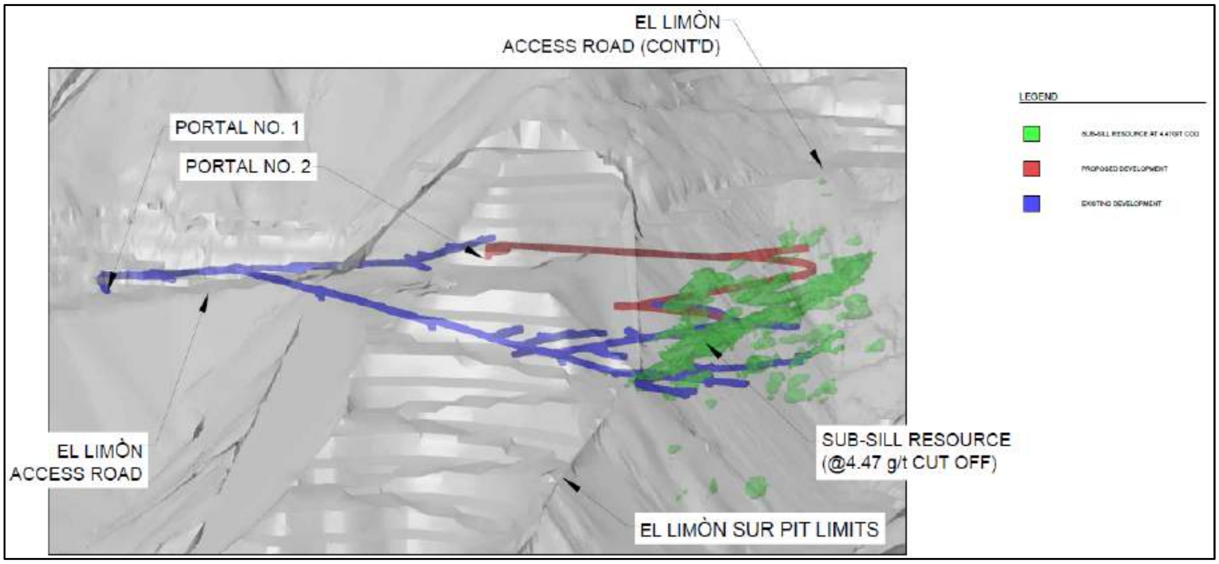


Figure source: Torex, June 2018

Figure 16-18: Sub-Sill Resource In-Situ Geometry (isometric looking north)

The predominant underground mining method in the Sub-Sill Zone is Mechanized Cut and Fill (MCAF). As of March 31, 2018, one 5 meter cut has been developed at the 1005 elevation.

The stope design process begins with the mineral resource estimate block model which has dilution and mining recovery adjusting factors applied to tonnage and grades. An in-situ cut-off grade is applied to the mineral resource block model and a 5 m high cut is planned. The mining shapes are evaluated with respect to the mineral resource block model to determine cut tonnage and grades against the cut-off grade to determine if it is included in the mine plan.

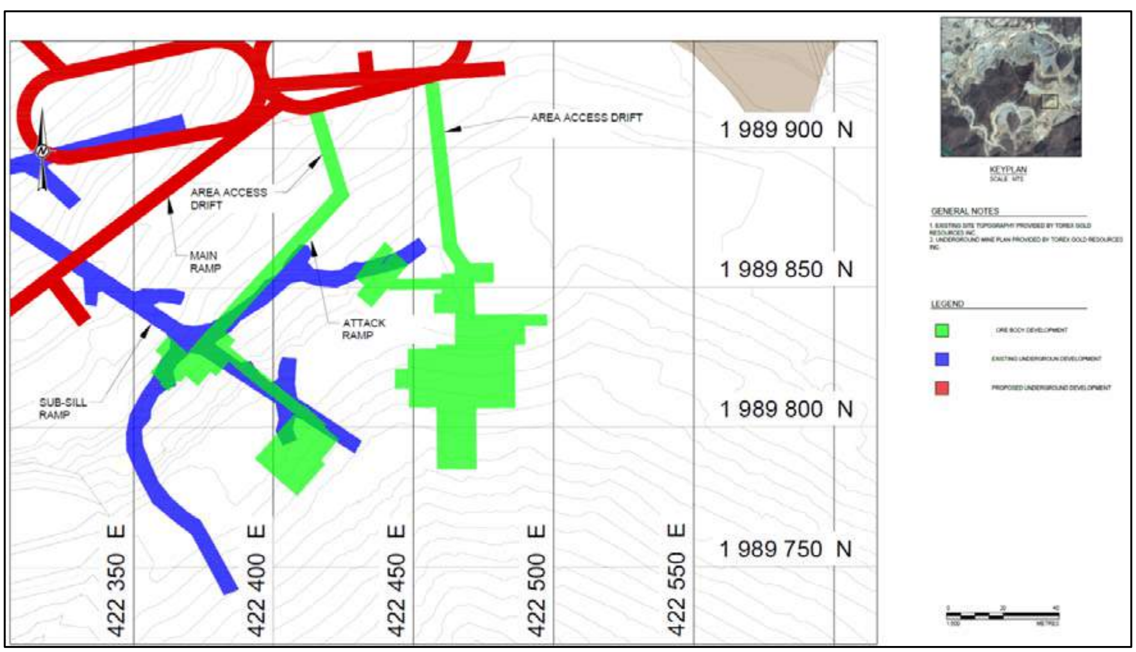


Figure source: Torex, June 2018

Figure 16-19: Typical Sub-Sill Level Designed at a 4.47 g/t COG (1070 Level)

16.3.4.1 Mechanized Overhand Cut and Fill

Mining crews develop the cut with conventional mobile mining equipment under geological control provided by geologists who map the geology and take face and wall channel samples. The minimum length for channel samples is 0.30 m and the maximum length is 1.2 m. The average weight of the samples is 5 kg with 2.5 kg being the minimum. The geological information is used to adjust the geological model to produce a Production Block Model. The Production Block Model is created by interpolating sample grades into the refined geological model.

The width of a cut and fill stope is maximum 7 m and once complete, backfilled with cemented or uncemented rockfill. Uncemented rockfill will be used in cases where there will be no mining beneath or adjacent to the stope. Work will be undertaken to ensure fill is placed tight to the back. Access to the cut above is established by slashing the back of the attack ramp to the required elevation. This process can be repeated for up to 5 cuts. Mining will progress in this fashion, starting from the bottom of the orebody and ending either at the top of the orebody or below the sill of a higher mining area. There are 3 engineered sills planned. The cut and fill mining method is illustrated in Figure 16-20.

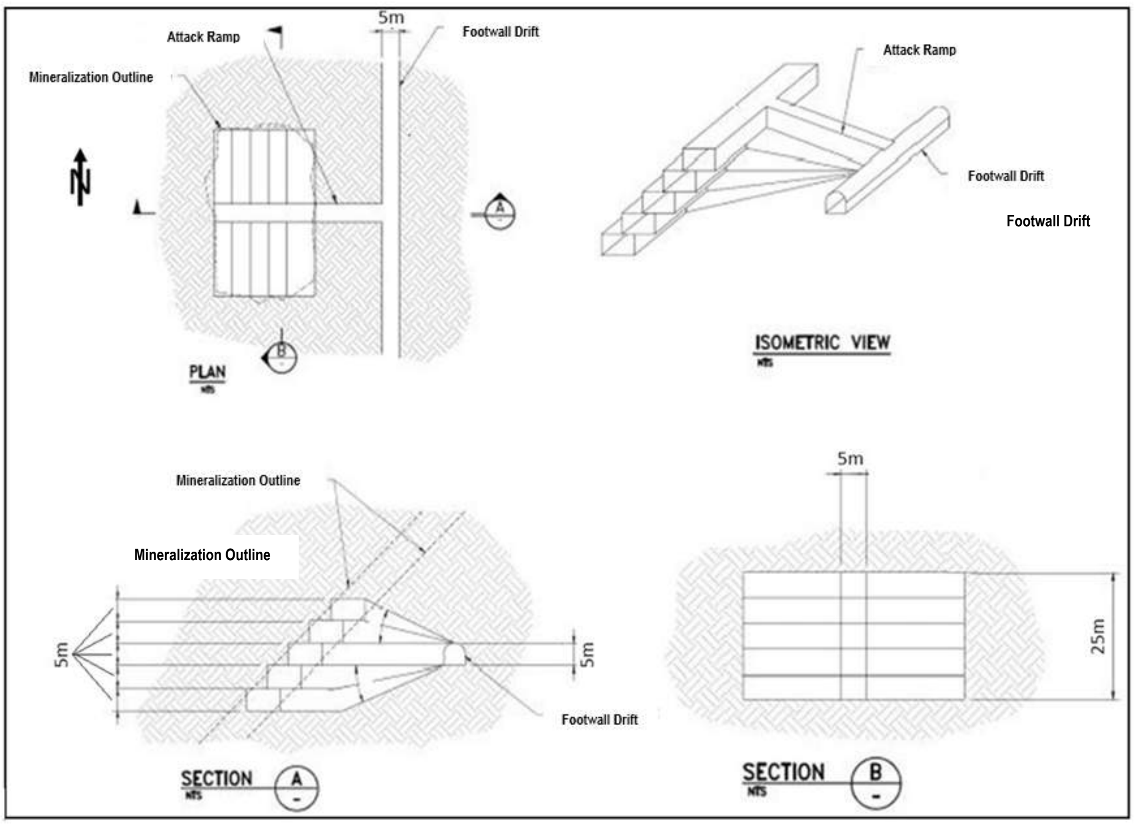


Figure source: Torex, 2015

Figure 16-20: Mechanized Cut and Fill (MCAF) Illustration

16.3.4.2 Mining Sequence

Mining horizons are segregated into areas, each have a series of attack ramps accessing multiple elevations. A minimum of 3 areas are in the mining cycle during steady state production. Cut and fill stopes are developed from the attack ramps and subsequently backfilled with cemented rock fill or unconsolidated rock fill. Cut and fill stopes are extracted in a primary/secondary sequence. Secondary stopes are left as pillars until primary stopes are backfilled. Once the primary stopes have gained the required strength, the secondary stope can be extracted and backfilled.

Once all stopes on the cut elevation have been extracted and backfilled the attack ramp can be extended to the cut above by taking down the back. Cut and fill cuts proceed upward until the stope is fully extracted.

16.3.4.3 Ventilation

Currently, fresh air is supplied to the underground workings by two 112 Kw fans in parallel using 1,800 m of rigid plastic ducting to the bottom of the internal Sub-Sill ramp. Auxiliary fans are used to ventilate ore and waste development headings. Return air exits the mine at Portal No. 1.

Once breakthrough of Portal No. 2 is complete, a pull ventilation system will be commissioned with fresh air being pulled from Portal No.1 and return air exiting at Portal 2. The system will consist of two parallel 350 Kw variable frequency drive fans installed in a by-pass drift at the Portal No. 2 entrance. The operating point selected will be 120 m^3/s per fan. Figure 16-21 illustrates the main ventilation circuit.

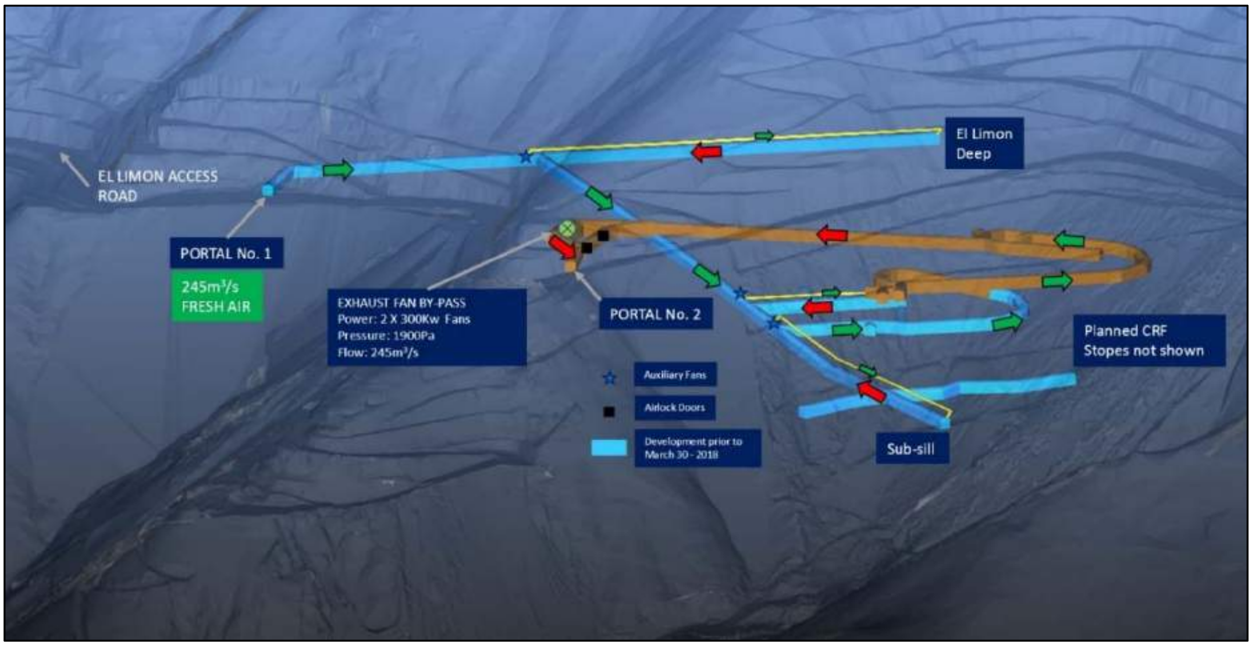


Figure source: Torex, June 2018

Figure 16-21: Sub-Sill Main Ventilation Circuit at Steady State (isometric view looking west)

The main ventilation requirements were estimated based on primary mobile diesel equipment utilization assuming steady state production. Fans were selected to provide airflow in sufficient volumes to remove airborne contaminants produced by explosives, diesel emission and dust, as well as to maintain an acceptable working temperature. This was achieved using the widely accepted requirement of 100CFM (0.0471 m^3/s) of fresh air for every break-horsepower (0.7457 kW) of equipment utilized in the mining process. System ventilation requirements are calculated to be 171 m^3/s as illustrated in Table 16-12.

Table 16-12: Ventilation Requirements at Steady State

Item	Peak Quantity	kW per Unit	Vent Util.	Total m3/s Required
Current Ventilation Requirements				
Telehandlers	2	112	34%	4.79
Scissor Lift	2	112	20%	2.82
Boom Truck	1	110	18%	1.25
Mechanized Bolter	2	116	10%	1.46
2 Boom Jumbo	1	110	20%	1.39
Toyota Mancarrier	1	149	10%	0.94
30T Rock Trucks	2	306	90%	34.69
6 Yard Scooptram	1	220	60%	8.32
8 Yard Scooptram	1	261	60%	9.87
Additional Ventilation Requirements - Steady State Production				
Light Vehicles	3	78	10%	1.48
6 Yard Scooptram	1	220	60%	8.32
Haulage Truck with Ejector	2	306	60%	23.12
3.5 Yard Scooptram	2	144	15%	2.72
1 Boom Jumbo	1	110	15%	1.04
2 Boom Jumbo	1	110	20%	1.39
Mechanized Bolter	1	116	10%	0.73
Mine Kubota	1	37	10%	0.24
Underground Shop	1	186	100%	11.75
Diamond Drill Stations	3	30	100%	5.64
Sub-Total	-	-	-	121.96
Leakage - 10%	-	-	10%	12.20
Contingency - 30%	-	-	30%	36.59
Total	**-**	**-**		**170.75**

16.3.4.4 Backfill

Backfill is important in the overall stability of the underground workings. All mining areas at the Sub-Sill Zone will be backfilled with either cemented (CRF) or uncemented rockfill (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:

- Will there be mining adjacent to the cut and fill stope
- Will there be mining directly beneath the cut and fill stope
- Will there be mining occurring adjacent to the cut and fill stope

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 cut and fill 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 7 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:

- 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

16.3.4.5 Underground Mine Dewatering

The dewatering system at the Sub-Sill has been designed to deliver mine water from the production areas to the main sump. The main sump will have the capacity for water inflow as determined in Section 16.3.3 and mining process water. The main sump consists of a solids settling system of two drifts, each with a permeable fence (Sturda Weir®) and two well sumps with mine dewatering pumps. Water will drain through the permeable fences and report to the well sumps which will alternate in delivering mine water to the existing catchment ditch next to the El Limón Access road. This ditch is part of the ELG water diversion and treatment system. Mine water will be recycled for mine processes as much as possible. Decanted slimes will be mucked into trucks. The clean water well sumps will have the capacity to pump up to 20% solids in case of unplanned overflows of the settling system.

16.3.5 Estimate of Minable Quantities

16.3.5.1 Mine Planning Model

A mineral resource block model was used for mine design and planning. The physicals modeled in this block model are: gold grades, silver grades, copper grades, rock type codes, rock density, and resource classification (i.e., Measured, Indicated or Inferred). Quantities and plant feed estimated are based on Measured and Indicated Mineral Resources and do not include Inferred Resources.

16.3.5.2 Mining Dilution and Recovery

Dilution, mining recovery (ore losses) and adjusting factors were applied to the tonnages and grades of all mining shapes before they were evaluated for inclusion in the mineral reserve.

16.3.5.3 Dilution

Both planned dilution and unplanned dilution was considered in the tonnages of the ore reserve shapes. Planned dilution includes all the material below COG (4.47 g/t) within the mineral resource model captured in the ore mining shapes. Planned dilution for the ore shapes is estimated to be 29%. The low grade incremental shapes were not considered in this calculation.

Unplanned dilution is the waste from outside of the designed mineral reserve shapes that is assumed to be mined with the mineral reserve shapes due to over break or slough. Unplanned dilution was assumed to be an additional 10% of material at 1.93 g/t Au for each ore shape mined shape.

Total dilution is calculated to be 39% (of tonnes) at 1.94 g/t Au for all ore shapes.

16.3.5.4 Mining Recovery

Mining recovery accounts for ore loss due to the imperfect alignment of the mining method to the mineral resource and through mining processes themselves. Mining method ore loss was accounted for through the actual act of designing cut and fill mining shapes against the resource model.

Ore loss through mining processes was accounted for by applying a factor to the in-situ ounces in each mining shape. Mining recovery due to mining processes was assumed to be 90%, meaning 10% of the in-situ tonnes would not be extracted by the mining shapes.

16.3.5.5 Estimated Cut-Off Grade

An in-situ Cut-Off Grade (COG) of 4.47 gpt Au was calculated to determine which mining shapes would be included in the mineral reserve. These shapes were then used to develop the mine plan. The cut-off grade derivation is based on lab recovery tests, long-term metal prices and all applicable costs.

Lab tests indicate that the recovery of gold from ELG Underground Sub-Sill ore at the process plant is expected to vary with copper content. Gold recovery was grouped into three copper content ranges. A COG was calculated for each range which were then averaged (on tonnage) into a single COG.

Long-term gold price and Royalties were $1,200/oz. and 3.00%, respectively. Silver credits were not considered in the COG calculations.

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 in-situ Incremental Cut-off grade (ICOG) of 0.74g/t Au was applied to low grade material that must be broken and removed to access ore in the mine as part of the mineral reserve, but 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 will be sent to the waste storage facility. The incremental material with an Au grade above the ICOG was included in the mineral reserves.

Table 16-13 summarizes the COG assumptions and calculations.

Table 16-13: COG Assumptions & Calculations*

Parameter	Units	Cu < 0.1%	0.1% ≤ Cu ≤ 1.0%	Cu > 1.0%	Wt. Average
Assumptions					
Long Term Gold Price	USD/oz	1,200	1,200	1,200	1,200
Payable	%	99.925%	99.925%	99.925%	99.925%
Royalty	%	3.0%	3.0%	3.0%	3.0%
Treatment, Transportation, Insurance	$/oz	1.89	1.89	1.89	1.89
Value of Recovered Gold in Doré	$/oz	1,161	1,161	1,161	1,161
Process Recovery	%	88%	86%	80%	85%
Dilution, % of in situ	%	10%	10%	10%	10%
Dilution Grade	g/t	1.93	1.93	1.93	1.93
Operating and Sustaining Costs					
Total Direct Mining Costs	$/tonne	49.58	49.58	49.58	49.58
Total Indirect Mining Costs	$/tonne	50.32	50.32	50.32	50.32
Processing Costs	$/tonne	18.94	18.94	18.94	18.94
Support Services	$/tonne	7.28	7.28	7.28	7.28
Sustaining Capital	$/tonne	7.75	7.75	7.75	7.75
Total Operating Costs	**$/tonne**	**133.87**	**133.87**	**133.87**	**133.87**
Cut-off Grade (Insitu)	**g/t**	**4.27**	**4.40**	**4.73**	**4.47**
Plant feed incremental economic cut-off grade					
Additional Ore (vs waste) Mining	$/tonne	2.31	2.31	2.31	2.31
Total Incremental Costs	$/tonne	21.25	21.25	21.25	21.25
Incremental Cut-off Grade (Insitu)	**g/t**	**0.71**	**0.73**	**0.78**	**0.74**

**Note: Wt. Average is based on average planned recovery for the entire LOM of 84.5%*

16.3.6 Development and Production Schedule

16.3.6.1 Development Schedule

A 3D mine design model and schedule were prepared using Deswik mine design software. The following allowances were applied to the design and schedule as follows:

- 90% mine recovery of tonnes for all MCAF stopes (10% loss on mined tonnes)
- A 10% overbreak allowance in waste rock headings.
- A 10% design allowance in waste rock headings to account for safety bays, slashing to round the corners at intersections, and miscellaneous cutouts for electrical equipment, additional remuck bays, and materials storage.

All development in waste rock and MCAF stopes will use conventional drill-blast-muck-bolt techniques. The development advance rates have been estimated for the various heading sizes using first principle analysis and experience with the on-site contractor as shown in Table 16-14. The schedule was produced utilizing 3 development crews and 2 backfill crews per shift for steady state production.

Table 16-14: Development Advance rates and Backfilling Rates

Heading Size	Single Face	Crew Capacity	Available Crews
4 m W x 5 m H	3.10 m per day	6.20 m per day	3
5 m W x 5 m H	2.90 m per day	5.80 m per day	3
6 m W x 5 m H	2.70 m per day	5.40 m per day	3
7 m W x 5 m H	2.65 m per day	5.30 m per day	3
CRF or Waste fill	500 tpd	400/500 tpd	2

Steady state production is achieved in December 2018 when main ventilation is established.

The estimated development quantities are summarized in Table 16-15.

Table 16-15: Sub-Sill Development Quantities (5mWx5mH Equivalent)

Type of Development	2018	2019	2020	Total
Capex Meters Eq. (5x5)	1,298	538	50	1,886
Opex Meters Eq. (5x5)	1,250	4,553	2,228	8,031
Total Meters Eq. (5x5)	2,547	5,091	2,278	9,917

16.3.6.2 Historical Production

Ore was first accessed in August 2017 and exploration drifting continued until November 2, 2017 when an illegal blockade forced suspension of operations. This ore was not part of the mineral reserve which was released in December 2017. The development program was resumed in March 2018. Since the beginning of August 2017 to March 31, 2018 approximately 15,000 tonnes of ore at a grade of 15.87 g/t have been sent to the process plant.

Approximately 4,000 tonnes of incremental ore at a grade of 3.72 g/t was mined in Q1 2018 during the restart and has been included in the LOM but is not included in the current March 31, 2018 reserves.

16.3.6.3 LOM Production Schedule

- LOM production schedule commences in January 2018 with a mine life of 32 months ending in August 2020.
- There is a production ramp up period from January 2018 until December 2018 when ore production will reach 830tpd.
- The mining rate decreases in June 2020 until reserves are exhausted in August 2020.
- The average diluted ROM grade is 10.85 g/t Au for the LOM.
- The mineral reserves shapes have been grouped into 9 distinct mining areas to provide sustain the ramp up period and provide consistent production during steady state. Total production from each mining area are summarized in Table 16-16 and shown in Figure 16-22.

Table 16-16: Sub-Sill Reserves Estimate by Area

Area	Tonnes (t)	Grade (g/t)	Ounces Au
A	54,000	15.58	27,000
B	36,000	11.06	13,000
C	124,000	10.98	44,000
D	60,000	9.46	18,000
E	105,000	12.83	43,000
F	22,000	6.54	5,000
G	19,000	14.07	9,000
H	51,000	6.19	10,000
I	51,000	8.36	14,000
Total	522,000	10.90	183,000

Note that the 4k tonnes of incremental ore extracted in Q1 2018 are not represented in the table above.

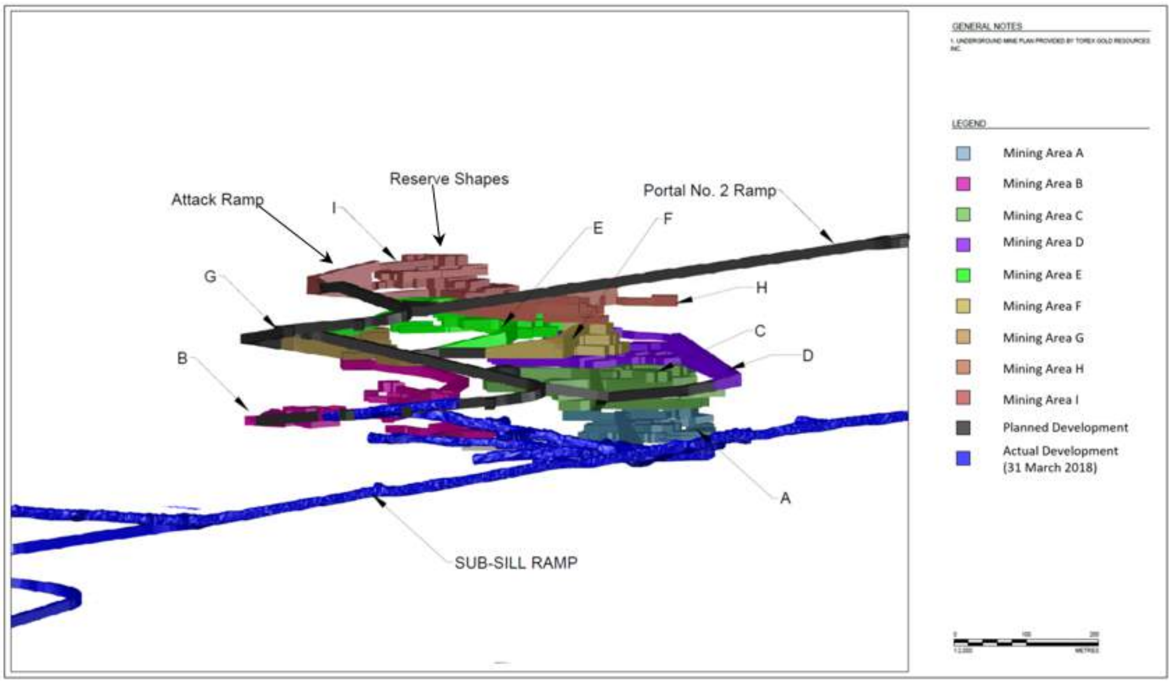


Figure source: Torex, May 2018

Figure 16-22: Isometric View of Sub-Sill Zone Mining Areas (looking south-east)

The annual production for the Sub-Sill Zone is summarized in Table 16-17.

Table 16-17: Annual Production – Probable Reserves

Sub-Sill	Units	Total 2018-24	2018 Q1 actual	2018 Q2-Q4	2019 Year	2020 Year	Total 2018Q2-24
ROM Ore	**Kt**	**485**	**0**	**61**	**281**	**143**	**485**
Au grade	g/t	11.56	0.00	15.33	11.59	9.89	**11.56**
Ag grade	g/t	11.59	0.00	10.94	12.02	11.04	**11.59**
Incremental Ore	**Kt**	**41**	**3**	**2**	**22**	**14**	**37**
Au grade	g/t	2.48	3.72	1.69	2.32	2.55	**2.37**
Ag grade	g/t	5.89	10.80	4.95	6.61	3.77	**5.48**
Total Ore Mined	**Kt**	**526**	**0**	**62**	**302**	**157**	**522**
Au grade	g/t	10.79	0.00	14.94	10.92	9.26	**10.90**
Ag grade	g/t	11.05	0.00	10.77	11.63	10.41	**11.16**

Production from Sub-Sill is planned over 29 months starting in April 2018. The mine will be ramped up to steady state production by December 2018 and continue for 18 months entering a short ramp down period in 2020. A program to explore the immediate area near Sub-Sill and ELD is planned to start in 2018, with the goal of upgrading and discovering additional resources to sustain and expand mining operations. Figure 16-23 illustrates the production plan by month.

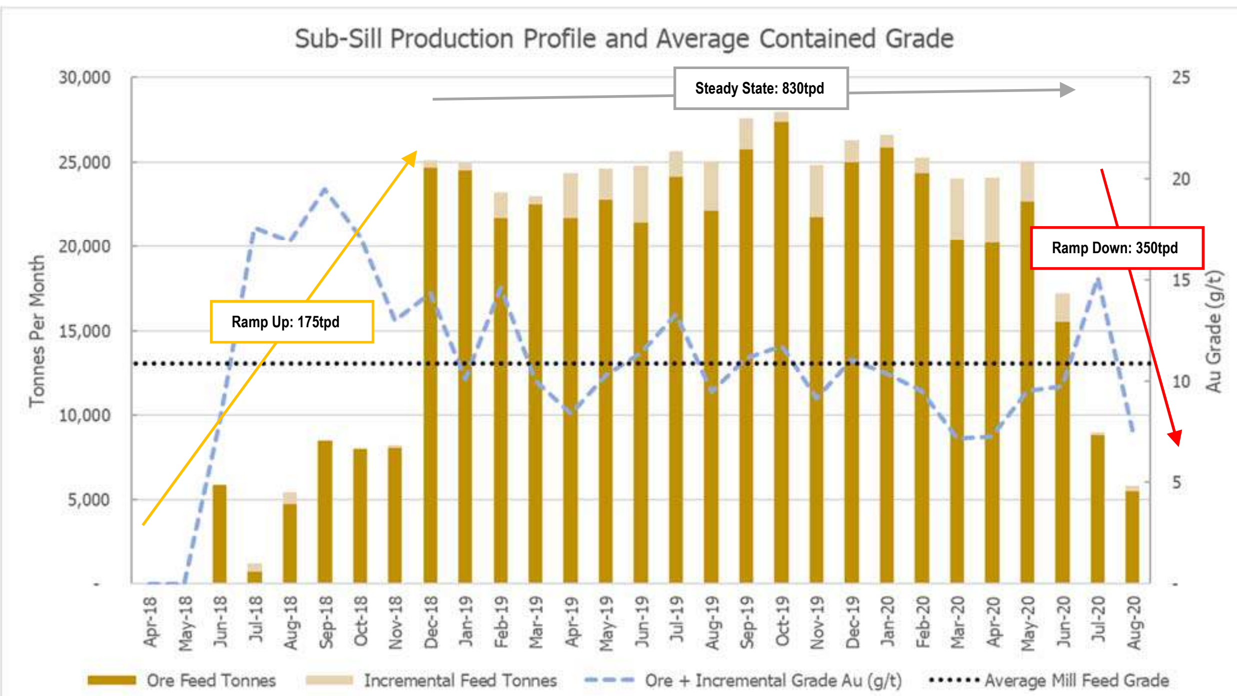


Figure 16-23: Sub-Sill Production Profile and Average Contained Grade

16.3.6.4 Waste Rock

Waste rock will be used as backfill where possible. Otherwise, it will be moved from the surface aggregate stockpile to the ELG waste rock storage facility. The annual tonnages of waste rock generated from development activities is summarized in Table 16-18.

Table 16-18- Annual Waste Rock Tonnage

Waste Tonnes	2018	2019	2020	Total
URF	22,000	22,000	11,000	55,000
Waste Fill to Dump	94,000	81,000	29,000	204,000
Total Waste	**116,000**	**103,000**	**40,000**	**259,000**

16.3.6.5 Backfill Placement

Backfill will either be Cemented Rock Fill (CRF) or Uncemented Rock Fill (URF). CRF will be used in primary cut and fill stopes if they have secondary cut and fill stope mined beside them. High strength CRF will be used in cases where mining will occur directly below a primary or secondary stope. URF will be used when there is no mining adjacent to or below a primary or secondary stope.

Table 16-19 summarizes the annual quantities of CRF and URF required for the LOM production schedule:

Table 16-19: Sub-Sill Backfill Quantities

Backfill Tonnes	2018	2019	2020	Total
CRF Tonnes	40,000	239,000	122,000	401,000
URF Tonnes	23,000	12,000	7,000	42,000
Total Backfill Tonnes	**63,000**	**251,000**	**129,000**	**443,000**

16.3.7 Mine Operations

16.3.7.1 Material Handling

Ore and waste is 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 No. 1. Once, Portal No. 2 is established and the down ramp is connected to the internal Sub-Sill ramp, one-way traffic will be implemented so that empty trucks or trucks loaded with backfill will enter the mine through Portal No. 2 and trucks loaded with muck will exit the mine through Portal No. 1. Truck loading underground is facilitated by utilizing designated intersections in the ramps or on the levels where the drift height has been increased.

Ore and waste is stored and managed in surface stockpiles. A surface loader loads surface trucks to deliver ore to Guajes crusher or waste to El Limón waste 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 No. 2 (when complete) 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 15m boom. Figure 16-24 illustrates the flow of material during operation.

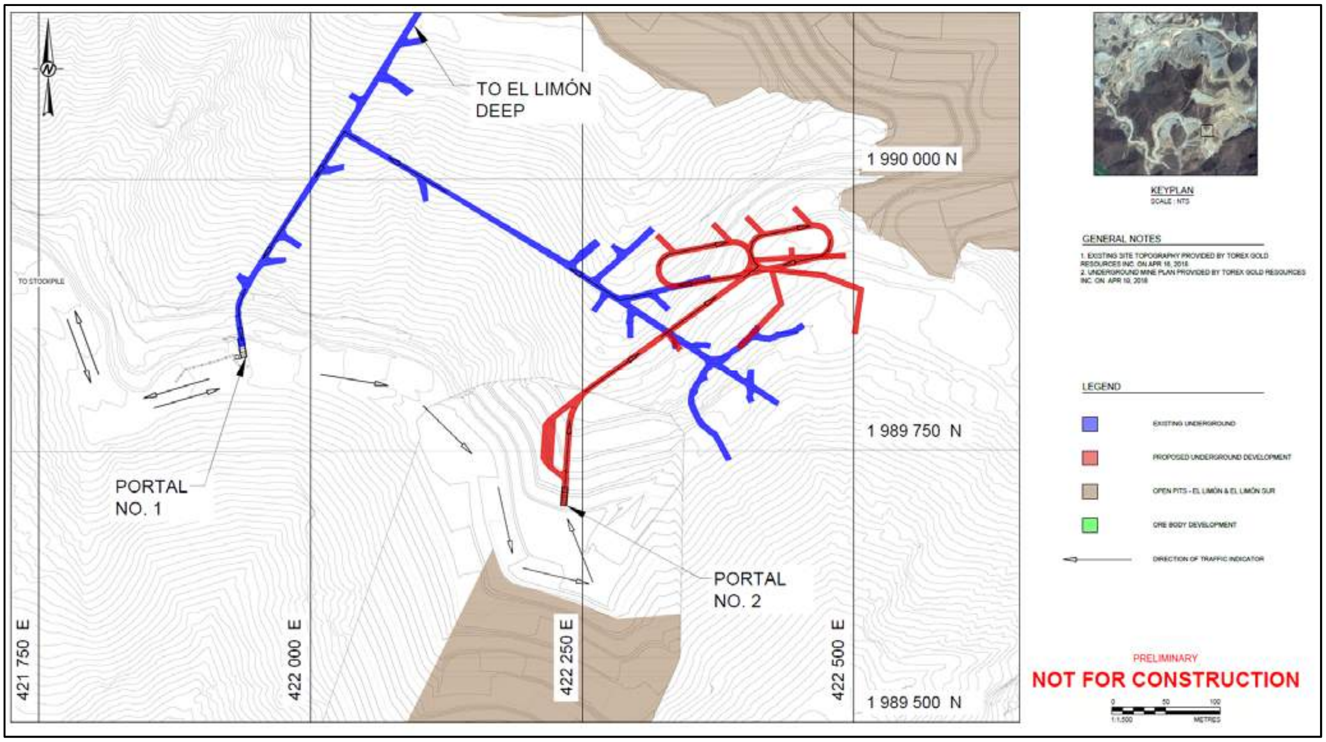


Figure Source: Torex, May 2018

Figure 16-24: Material Handling

16.3.7.2 Backfill Plant

Backfill is required for the overall stability of the underground workings. A backfill study was conducted by Golder Associates to determine backfill production requirements, provide a basis for detailed design, procurement and construction of a CRF plant.

A CRF plant was selected that can produce a product which meets the unconsolidated compressive strength design criteria highlighted in the previous section (270 kPa to 5 MPa). The plant can produce CRF at a rate of 135 tph or up to 2,000 tpd @ 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 8%) to meet the design criteria.

The CRF plant and system is planned to be located at Portal No. 2 and will consist 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

Until the CRF plant is commissioned in November 2018, a temporary backfill area is being prepared which will produce backfill in a trench where cement, water and aggregate will be mixed and loaded into a truck.

Figure 16-25 illustrates the location of the CRF plant and Portal No 2 Infrastructure.

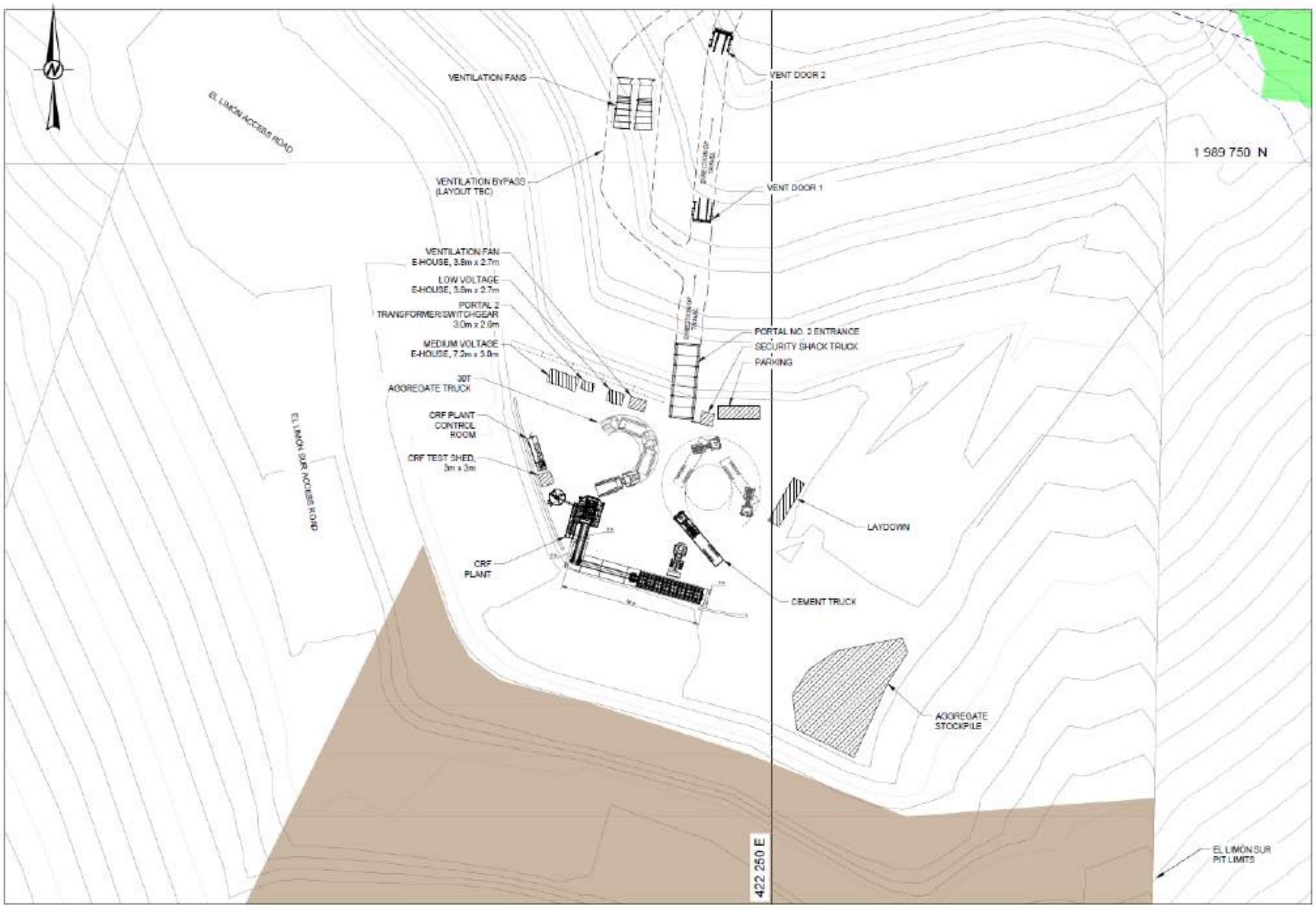


Figure Source: Torex, June 2018

Figure 16-25: CRF Plant and Portal No. 2 General Arrangement

16.3.7.3 Safety

There will be a full-time safety supervisor who will oversee the safety and training initiatives and programs for the underground operation, including emergency preparedness, response plans, and mine rescue.

The underground mine will be equipped with portable, self-contained refuge stations at strategic locations. These stations will be equipped with compressed air, potable water, first aid equipment, emergency lighting, and rations.

The two portals and declines to surface will provide primary and secondary means of egress from the underground mine.

16.3.7.4 Explosives Storage

Explosives used at the ELG Underground Mine are stored in the existing ELG Mine Complex explosives 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.

16.3.7.5 Electrical Power

Currently, power is provided to the ELG Underground mine with leased diesel generators supplying 1,800 kVa for underground and 300 kVa for surface distribution.

In late 2018, electrical power will be supplied from available on-site capacity delivered through an overhead line. Power consuming items during steady state production will include; primary and auxiliary ventilation fans, mobile drilling equipment, dewatering pumps, surface shop, underground service bay and backfill plant. Diesel costs at steady state will primarily be for mobile equipment.

16.3.7.5.1 Surface Electrical Distribution

In late 2018, a 15 kV switchgear and Electrical-house (E-House) will be installed at Portal No. 1 area and will receive power through the 13.8 kV overhead line originating from the Suspended Conveyor area, see General Arrangement Figure 18-1. The overhead line is already in place. This switchgear will consist of five (5) 15 kV breakers, two for incoming power, one for underground main feed, one for low voltage power and one spare.

A transformer installed at Portal 1 will take power from the switchgear down to 480 volts, 3-phase for distribution to office trailers, surface shop and mine compressor.

A second 15 kV switchgear will be installed at the Portal 2 area, this will receive power from the same 13.8 kV overhead line feeding the switchgear at Portal 1. This switchgear will provide power to a 1500 kVA 13.8/0.48 kV transformer for the main ventilation fans motor, backfill plant, and portal development.

An electrical ground bed will be designed and installed to produce good earthing connection to underground electrical equipment.

16.3.7.5.2 Underground Electrical Distribution

Underground power will be delivered from the switchgear at Portal No. 1 to the underground 15 kV Junction box which is currently installed and receiving power from the diesel generators. From here power will be distributed to the Sub-Sill Mine Load Centers (MLC) located strategically throughout the mine as it is developed.

At each MLC, a double S&C switch (or 2 single switch) will be installed to provide downstream cable protection, as well as isolation for the local MLC. This will 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 transformer will be used to stepdown the voltage to 480 V, and supply power to local areas or mobile equipment.

As mentioned above, the second 15 kV switchgear at Portal 2 will supply power to a transformer, taking the power down to 480 volts for use in the Portal 2 down ramp.

16.3.7.6 Communications

Leaky feeder cable has been installed enabling radio communication throughout the mine. All Refuge Stations and electrical bays have been or will be hardwired with telephone lines.

During 2018, an optic-fiber network backbone will be designed and installed in 2019. The initial purpose of this network is to provide communication to the main fan variable frequency drives, the underground service bay, main sump, main electrical substation, and main shop. Expansion of the system to the active workings will be investigated later.

16.3.7.7 Compressed Air

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 4" plastic piping through the main ramps and 2" plastic piping in the access and ore drifts.

This network will be upgraded to 6" piping in the main ramps, 4" piping in the accesses and 2" piping in the ore drifts.

There is an existing compressor installed at Portal No. 1 to facilitate the underground development program supplying compressed air to the mine. A second compressor is required for the Portal No. 2 ramp development which will be removed when breakthrough is achieved.

16.3.7.8 Process Water

Process water for underground activities such as drilling, washing down development headings and dust suppression is supplied from a water tank located at Portal No. 1, and is delivered to the Underground via a network of 4" plastic piping. This system will have sufficient capacity to meet the demands of steady state production estimated to be 4.4 L/s with peak demand of 10.0 L/s.

16.3.7.9 Mobile Equipment Maintenance Shops

Currently all preventative and break down maintenance is carried out in the surface workshop located adjacent to Portal No. 1.

A one bay service shop is planned to be built underground at the 1005 elevation in 2018. This service bay will be used for preventative maintenance and minor repairs. Some preventative maintenance and all large repairs will be carried out at the surface shop.

Planning and performing maintenance on the mobile fleet is the responsibility of the mine contractor.

16.3.8 Underground Equipment

Table 16-20 outlines the equipment currently in operation as well as the fleet required for steady state production.

Table 16-20: Mobile Equipment Fleet Requirements during Stead State Production

Equipment	Make/Model	Quantity
Current Equipment		
Light Vehicles	Various	7
Telehandlers	CAT (Various)	2
Scissor Lift	Walden SLX5000	2
Boom Truck	Walden BTX5100	1
Mechanized Bolter	MacLean 928	2
2 Boom Jumbo	Sandvik DD321	1
Toyota Mancarrier	Landcruiser	1
30T Rock Trucks	CAT / Sandvik (AD30, TH430)	2
6 Yard Scooptram	Sandvik LH410	1
8 Yard Scooptram	Sandvik LH514	1
Additional Proposed Equipment – Steady State Production		
Light Vehicles	CAT R1600	3
6 Yard Scooptram	CAT R1600	1
Haulage Truck with Ejector	Tamrock EJC430	2
3.5 yard Scooptram	Atlas Copco ST710	2
1 Boom Jumbo	Atlas Copco	1
2 Boom Jumbo	Atlas Copco 282	1
Mechanized Bolter	MacLean 928	1
Mine Kubota	Kubota	1

16.3.9 Underground Personnel

The workforce at the ELG Underground Mine consists of MML employees and contractors. In general, all management, technical services and administration will be by MML and operated by mining contractor. Table 16-21 provides a summary of the ELG Underground Mine Workforce during the ramp up, steady state and ramp down operational periods (service providers from ELG Mine Complex are not shown).

Table 16-21: Mine Workforce

Labour Group	Ramp Up	Steady State	Ramp Down
Contractor Direct	58	75	54
Contractor Indirect	58	68	60
Company Indirect	30	37	20
Total	**146**	**180**	**134**

The mine will operate two 12-hour shifts per day, 7 days per week. There will be three crews covering (two crews working each day and one crew on days off) a 20 day on, 10 day off shift rotation.

16.4 PROCESS PLANT FEED

ELG process plant feed from the open pit and underground mine is summarized in Table 16-22. ELG Mine Complex blend plant feed based on four items: Gold grade, Soluble Copper, hardness and fineness. For LOM ore feed schedule, the plant feed sources, in order of priority or precedence, are as follows:

1. Direct feed of Sub-Sill ROM ore mined;
2. Direct feed of high grade open pit ROM ore mined;
3. Rehandle of high grade open pit ROM ore in stockpile;
4. Direct feed of medium grade open pit ROM ore mined;

5. Rehandle of medium grade open pit ROM ore in stockpile;
6. Rehandle of Sub-Sill Incremental ore in Stockpile;
7. Rehandle of ELG Low Grade open pit ore in stockpile (all in 2024).

Table 16-22 shows that the nominal plant capacity of 14,000 tpd is forecast to be achieved from 2019 to 2024. From 2018 to 2023, the process feed gold grade ranges between 2.84 and 3.32 g/t. In 2024, when pit mining is completed and pit closure commences, the LG ore stockpile is rehandled to the process plant and the process head grade declines to an average of 1.24 g/t Au for the year.

Table 16-22: ELG Process Plant Feed

		Total	**Actual**	**Mine Plan**							
	units	**2018 - 2024**	**2018 Q1**	**2018 Q2-Q4**	**2019 Year**	**2020 Year**	**2021 Year**	**2022 Year**	**2023 Year**	**2024 Year**	**Total 2018Q2+**
ELG Stockpiles - Start of Period											
ROM Stockpiles	Mt		0.75	0.54	0.84	1.34	1.94	1.98	2.02	1.15	
LG Stockpiles	Mt		0.00	0.00	0.56	1.20	1.84	2.28	2.99	3.47	
Total Stockpiles	**Mt**		**0.75**	**0.54**	**1.39**	**2.54**	**3.77**	**4.25**	**5.00**	**4.62**	
Au grade	g/t		1.65	1.51	2.37	1.78	1.49	1.44	1.37	1.38	
Ag grade	g/t		4.96	7.90	6.15	4.39	3.26	2.94	2.71	2.69	
Open Pit Ore Mined											
ROM ore mined	Mt	29.91	0.57	3.77	5.26	5.49	5.08	5.08	4.17	0.49	29.34
LG ore mined	Mt	3.45	0.00	0.55	0.62	0.63	0.44	0.71	0.49	0.01	3.45
Total ore mined	**Mt**	**33.36**	**0.57**	**4.32**	**5.88**	**6.12**	**5.52**	**5.79**	**4.66**	**0.50**	**32.79**
Au grade	g/t	2.72	3.28	2.73	2.49	2.45	2.69	2.95	2.98	3.02	2.71
Ag grade	g/t	3.60	5.60	7.28	3.47	2.40	2.30	3.71	2.92	5.45	3.57
UG Ore Mined - Sub-Sill Zone											
ROM ore mined	Mt	0.485	-	0.061	0.281	0.143					0.485
Incremental ore	Mt	0.041	0.004	0.002	0.022	0.014					0.037
Total ore mined	**Mt**	**0.526**	**0.004**	**0.062**	**0.302**	**0.157**					**0.522**
Au grade	g/t	10.85	3.72	14.94	10.92	9.26					10.90
Ag grade	g/t	11.15	10.80	10.77	11.63	10.41					11.16
Process Plant Feed											
UG Feed - Direct	Mt	0.49	-	0.06	0.28	0.14	-	-	-	-	0.48
Pit Feed -Direct	Mt	25.94	0.57	2.84	3.94	4.17	4.56	4.86	4.10	0.50	24.97
Ore Stpl Rehandle	Mt	8.21	0.21	0.63	0.82	0.73	0.48	0.18	0.94	4.62	8.40
Total Feed	**Mt**	**34.63**	**0.79**	**3.53**	**5.04**	**5.04**	**5.04**	**5.04**	**5.04**	**5.12**	**33.84**
Feed rate	ktpd	13.7	8.7	13.1	14.0	14.0	14.0	14.0	14.0	14.2	13.9
Au grade	g/t	2.82	3.29	2.86	3.32	3.04	2.84	3.24	2.85	1.55	2.81
Ag grade	g/t	3.75	5.64	7.84	4.23	3.02	2.47	4.06	2.92	2.95	3.75
Contained Au	Moz	3.14	0.08	0.32	0.54	0.49	0.46	0.52	0.46	0.26	3.06
Contained Ag	Moz	4.17	0.09	0.89	0.69	0.49	0.40	0.66	0.47	0.49	4.08

17 RECOVERY METHODS

The key points of this section are:

- The process design description follows these steps: Fine grind > Cyanide leach > CIP > Electrowinning > Onsite refining to Doré bars.
- The recovery methods described are currently in operation or, in the case of the SART plant (sulfidization-acidification-recycling-thickening), and additional capacity in the filter plant, are in the final stages of construction and commissioning.
- The SART plant added to process to deal with elevated Copper found in the ELG ore during ramp-up
- Tailings generated from the process in the Filtration Plant are stored in a 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, at 90% utilization. Current operation is at ~13,000 tpd (~90% of designed).
- Process water is reclaimed and recycled, minimizing water consumed by process.

17.1 PROCESS PLANT

17.1.1 General

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 tonnes per day at 90% mill availability. The ELG Process Plant has been in commercial operation since March 2016 and is currently operating at ~13,000 tpd. 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 and cold washes, carbon desorption (stripping), carbon regeneration, gold electrowinning, gold refining, 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 alleviate operational issues caused by the presence of soluble copper in the ore. The SART plant is expected to be in full operation July of 2018.

The grinding circuit is decoupled from filtration of tailings. Ground pulp can be stored and leached into up to seven of existing eleven leach tanks. Normal operation only requires leaching in up to six tanks. As such, the grinding and leaching processes can continue for up to six hours while the filtration section is down for maintenance.

17.1.2 Process Overview

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 CIP technology.

- Removal of the loaded carbon from the CIP circuit and further treatment by acid washing, cold washing with concentrated cyanide solution, 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 melting 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.
- Removal of copper 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: sodium cyanide, caustic soda, sodium hydrosulphide, diatomaceous earth, sulphuric acid, flocculant, copper sulphate, sodium metabisulphite, ammonium metabisulphite (MT2000), hydrochloric acid, and lime.

The overall process flow diagram of the processing plant is presented in Figure 17-1.

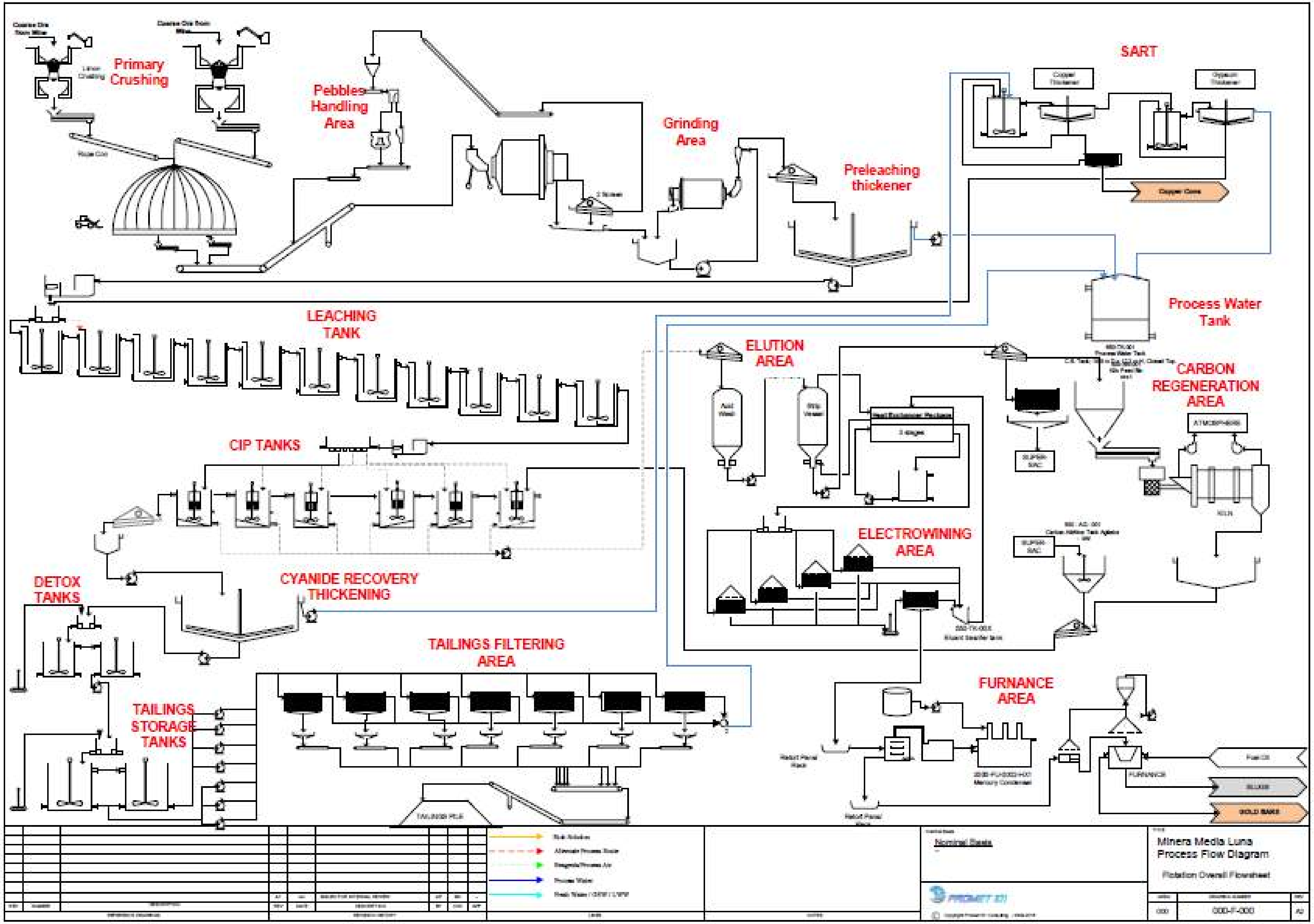


Figure 17-1: Overall Process Flowsheet

17.1.3 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 300 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 feeders delivering feed to the SAG mill in the grinding circuit by a 1.22 m wide by 200 m long conveyor belt.

Ore is currently ground to a final product size averaging 80% minus 83 microns in a SAG primary and ball mill secondary grinding circuit.

Primary grinding is performed in a 9.15-meter diameter by 4.15-meter (effective grinding length) long SAG mill with a 7,000-kilowatt motor. It operates in closed circuit with a SAG mill discharge screen and pebble crusher. Cyanide addition to the grinding circuit although originally done has been discontinued as sufficient cyanide is in recycled process water.

Secondary grinding is effected in a 7.3 m diameter by 12.65 m (effective grinding length) long 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.

The grinding circuit, including the thickener, is decoupled from the back end of the process (tailings filtration) to avoid disruptions to grinding caused by short-term stoppages in the filtration area. The front end can operate up to six hours, prior to having to shut down. During this time, grinding thickener underflow can be stored in up to three leach tanks which are then slowly emptied with slurry processed through the regular leach tanks after the tailings filters are returned to normal operation.

17.1.4 Leaching and CIP

A 32-meter diameter high-rate thickener thickens the grinding cyclone overflow to 50% solids 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 either the thickener underflow at constant density or the thickener at constant solids loading. Thickener underflow is pumped to the leach circuit. Thickener Overflow water containing precious metals dissolved in the grinding and thickening circuit reports to the cyanide recovery thickener overflow tank. This tank combines the overflow of both thickeners with the solution being returned to the process water tank.

The precious metals in the ore is leached in four to eight of eleven installed 15.55 m diameter by 21.34 m high tanks. At a slurry level of 20.1-meter each tank provides a working volume of 3,815 m^3. Operating either 4 or 6 leach tanks provides a retention time of approximately 18 to 26 hours at plug-flow for cyanide leaching at 50 percent solids. Cyanide solution can be added to the first, third, fifth and last leach tank in operation as required. Lime is piped to the first and second leach tanks 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 content in solution. Operations maintain a cyanide to copper molar ratio in the leach of over 3.5.

Gold and silver leached into the cyanide solution (pregnant solution) is 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 50 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 will allow only the ore slurry to pass from tank to tank. On near daily basis, the CIP feed point advances to the next tank in series while the contents of the isolated tank get pumped by recessed impeller pump to the loaded carbon screen ahead of the acid/cold wash vessel. Each cell in the CIP tank holds 12 tonnes of carbon. Harvesting occurs once a day.

After sampling the slurry from the last 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 to the CIP tailing (Cyanide Recovery) thickener. Close to half of the overflow from the CIP tailings thickener is taken off and pumped to the SART plant for precipitation of Copper and the recycling of NaCN. The thickener underflow (slurry) is sent to Detox.

17.1.5 SART Plant

SART is a chemical process that enables the selective removal and recovery of copper from cyanide leach solutions. This has the main benefit of enabling cyanide to be recycled back into the leach through conversion of weak acid dissociable (WAD) cyanide bound to copper into free cyanide. Figure 17-2 illustrates a schematic of the process. SART is capable of removing ~45% of the Cu per cycle from the CN recovery thickener overflow, and will produces a saleable high grade (>50%) Cu_2S precipitate as a secondary benefit.

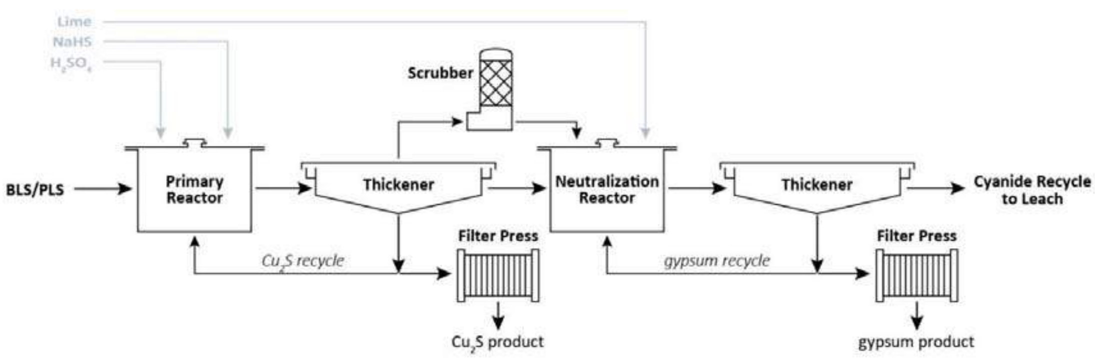


Figure 17-2: Schematic of the SART Plant

Copper removal from cyanide leach solution is materialized through the addition of sulphide at acidic pH of about 4.0 to precipitate copper sulphide as a solid. 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.

Excess solids from the copper thickener underflow will be pumped into the filter feed tank. In this tank, copper slurry is neutralized with sodium hydroxide (50% NaOH) to a pH of about 11.0.

Copper filters are pre-coated with diatomaceous earth to assist with the release of cake from filter cloths. Two horizontal pressure filters 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 of copper filter cake is about 31.8 tonnes per day (wet basis at 50% moisture content) with a copper content of about 42.6% (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 6.7 tonnes per day (as Cu) and "80-percentile" copper production rate at about 3.5 tonnes per day (as Cu) assuming a 91% SART plant availability. The SART plant is bypassed when serviced for maintenance. Design criteria for the SART plant is 15,600 tpd at an expected dissolution of copper in feed of 34% and a copper content of about 1800 ppm in process solution.

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. Contents of the filtrate tank are pumped to the acidification tank.

The copper filter cake will average a moisture content of about 50% by weight. There are five filtration cycles per day, with each complete cycle being four hours in duration. If needed, both filters could be operated simultaneously to double the filtration capacity.

Cake discharged from the copper filters enters cone-bottom hoppers (one hopper per filter), from which it is conveyed into a single 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.

Lime addition to the copper-sulphide thickener overflow neutralizes the solution to pH above 10.5, which is performed in covered 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 leach tanks and acts as an inert medium that is eventually removed into the cyanide recovery thickener underflow.

The overflow of the gypsum thickener at pH 10.5 is collected in an overflow tank and pumped to the process water tank. The overflow tank level will be controlled using variable frequency drive pumps and a feedback control loop.

Process equipment containing low-pH solution is covered and ventilated to prevent the escape of HCN and H_2S gases. The sodium hydrosulphide tank is also covered and ventilated to prevent the escape of H_2S gas. 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 are routed to a stack that will exhaust the clean gas at an elevated location.

17.1.6 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 cyanide content for recirculation to the sump that feeds the grinding circuit. It passes first through the process water tank where this overflow meets the overflow from the grinding thickener. 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 at times employs sodium metabisulfite and air, but for best results, MML typically utilizes MT-2000 (an Ammonium metabisulphite, with oxygen injection). Because of soluble copper in the ore, the solution contains sufficient copper ions that makes the use of copper sulphate as a catalyst unnecessary. 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. Large tanks have been installed from which oxygen is introduced in 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. Once pumped from the cyanide detoxification tank to the filter feed tank, this tank will feed nine tailings filters (8 in operation, 1 standby). Filtrate is returned to the process. Filter cake is deposited of in the FTSF.

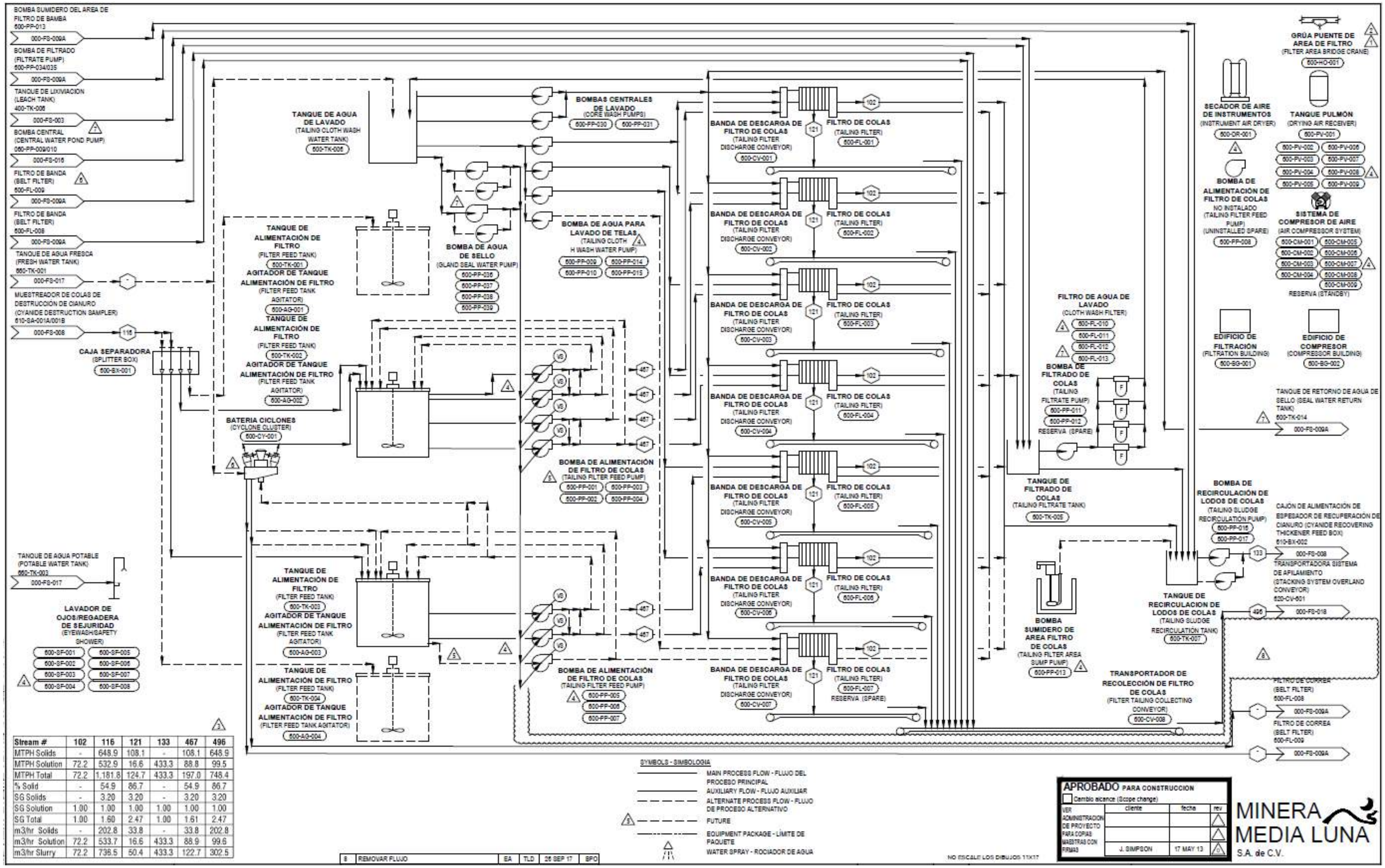
The filter plant consists of seven Diemme pressure filters and two Delkor horizontal belt filters. The pressure filters were identified as a bottleneck to the process during ramp-up as optimization work was done on the Diemme filters the decision was made to install addition filter capacity. To do this, two used horizontal belt filters were purchased and installed. With the operational, maintenance and process improvements, the pressure filters are now capable of operating at the 14,000 tpd capacity. For each of the horizontal belt filters, the throughput at the ELG operation is 100 tonnes per hour, producing a cake at 18% moisture. Taking filter availability at 80% into consideration, the net throughput increase for both filters reaches up to 3,840 tonnes per day. With the addition of the horizontal belt filters, maximum filter plant throughput is estimated to be up to 17,840 tpd. This allows ample flexibility to allow shutdown for preventative maintenance to accommodate daily fluctuations in plant throughput. Each horizontal belt filter has a bed surface of 162 m^2.

A densified feed to the belt filters improves their capacity as shown by test results described in Section 13. Ultrafines are scalped out by cyclones. Cyclone underflow reports to the belt filters, while cyclone overflow returns to the filter feed tanks feeding the Diemme pressure filters. Figure 17-3 and Figure 17-4 present the flow diagram for respectively the cyclone and pressure filters, and the horizontal belt filters. The slight dilution of feed to pressure filters is expected to have minimal effect on their capacity.

The filter cake with about 20% 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 18.6.2.

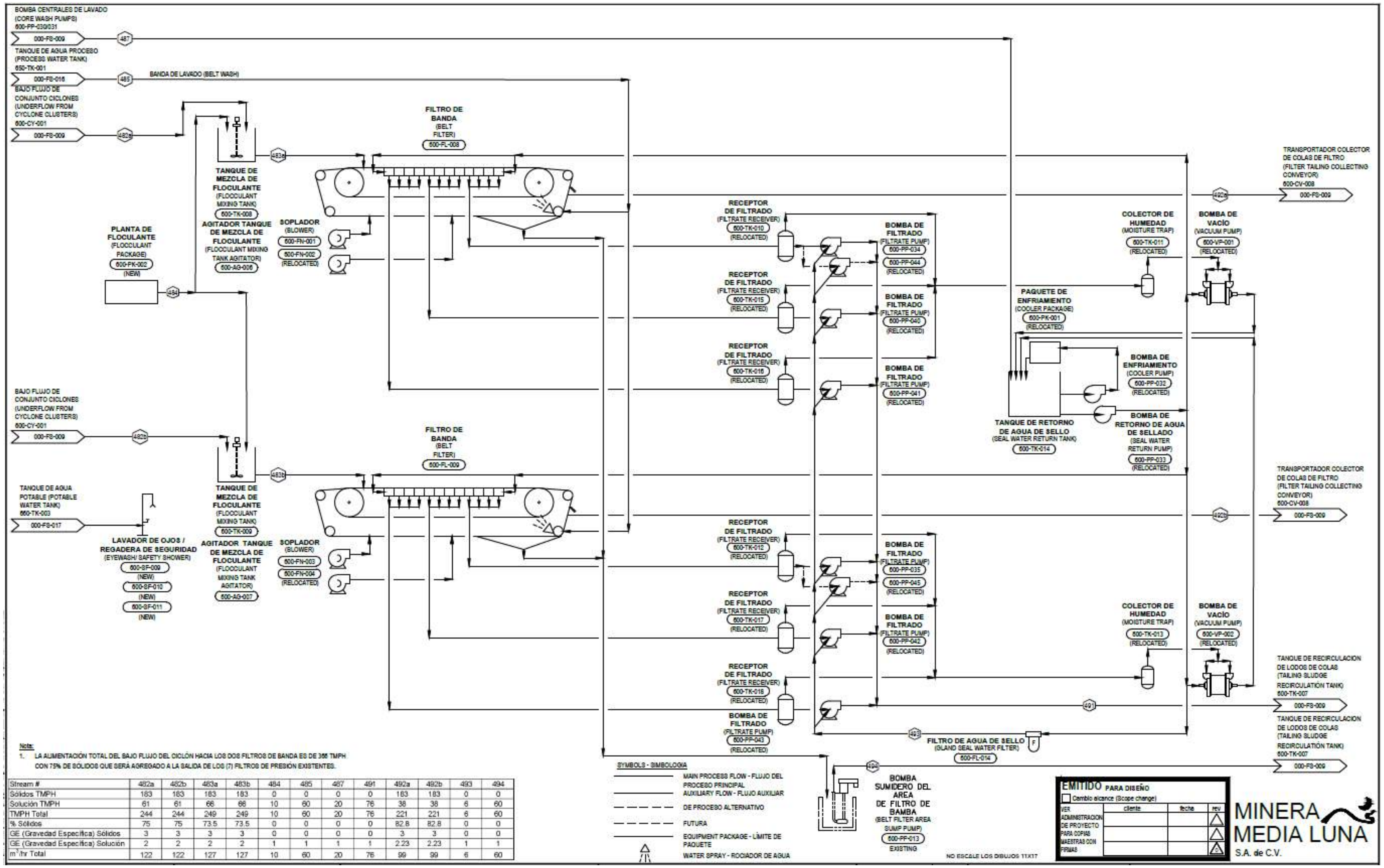
The design criteria and objectives for the storage of filtered tailings include:

- Provision of secure long-term storage of up to 49 million tonnes of tailing, current as projection estimates 42 million tonnes of tailings will be produced.
- Location within the immediate general area of the mine.
- Prevention of airborne release of tailing solids to the environment by provision of dust suppression measures.
- Compliance with all applicable regulations including Mexican BADCT standards for groundwater protection.
- Integration of environmental monitoring technology for water quality assurance.
- Establishment of an effective and efficient reclamation program, with a focus on concurrent reclamation.
- Filtered tailings material is delivered to the FTSF, placed and compacted and fully buttressed with waste rock on the exposed (west and east) faces which optimizes the long-term stability of the tailing and minimizes erosion.



Stream #	102	116	121	133	467	496
MTPH Solids	-	648.9	108.1	-	108.1	648.9
MTPH Solution	72.2	532.9	16.6	433.3	88.8	99.5
MTPH Total	72.2	1,181.8	124.7	433.3	197.0	748.4
% Solid	-	54.9	86.7	-	54.9	86.7
SG Solids	-	3.20	3.20	-	3.20	3.20
SG Solution	1.00	1.00	1.00	1.00	1.00	1.00
SG Total	1.00	1.60	2.47	1.00	1.61	2.47
m3/hr Solids	-	202.8	33.8	-	33.8	202.8
m3/hr Solution	72.2	533.7	16.6	433.3	88.9	99.6
m3/hr Slurry	72.2	736.5	50.4	433.3	122.7	302.5

Figure 17-3: Operation of Diemme Pressure Filters



Stream #	482a	482b	483a	483b	484	485	487	491	492a	492b	493	494
Sólidos TMPH	183	183	183	183	0	0	0	0	183	183	0	0
Solución TMPH	61	61	66	66	10	60	20	76	38	38	6	60
TMPH Total	244	244	249	249	10	60	20	76	221	221	6	60
% Sólidos	75	75	73.5	73.5	0	0	0	0	82.8	82.8	0	0
GE (Gravedad Especifica) Sólidos	3	3	3	3	0	0	0	0	3	3	0	0
GE (Gravedad Especifica) Solución	2	2	2	2	1	1	1	1	2.23	2.23	1	1
m^3/hr Total	122	122	127	127	10	60	20	76	99	99	6	60

Figure 17-4: Operation of Horizontal Belt Filters

17.1.7 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 screen and then discharged by gravity into a 25 m^3 (~12 t carbon) acid wash tank that doubles for a cold wash tank. Carbon is cold washed by recirculation of a cyanide solution containing 50,000 ppm NaCN prior to acid washing. The amount of copper thus stripped from carbon varies between 50 and 80%. Typically, copper loading averages around 2,700 g Cu/t, containing about 1,300 g Cu/t after the cold wash.

Acid washing of the carbon occurs in the same vessel after the cold wash. An acid wash removes inorganic contaminants (mainly calcium) by circulating dilute hydrochloric (possibly nitric) 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.

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 acid wash circuit is pumped 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. 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. The much longer retention times required for reactivation does not allow thermal regeneration of carbon after each 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 discarded and screen oversize is returned to the adsorption circuits.

17.1.8 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 13.71 m^3/h through four 6 m^3 electrowinning cells in series. 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 bullion. 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 melting furnace. After the furnace charge is melted, 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.

17.1.9 Reagents

The following reagents are used in the processing of the ELG Mine Complex ore, each one has a handling, mixing, and distribution systems:

- Flocculant,
- Sodium cyanide,
- Caustic soda,
- Sodium hydroxide,
- Lime,
- Hydrated lime
- Sodium hydrosulphide
- Sodium metabisulfite/ MT-2000 or ammonia metabisulphite,
- Sulfuric Acid,
- Diatomaceous earth, and
- Hydrochloric acid.

17.1.9.1 Flocculant

A 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 super sacks 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 0.25 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.

17.1.9.2 Sodium Cyanide

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 and within the carbon stripping process.

Dry sodium cyanide is delivered in 20-tonne bulk ISO containers or as boxed cyanide as a solid. Delivery is contracted to a supplier who is certified and a signatory to the Cyanide Code.

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 grinding and leach circuits uses timer controlled on-off valves in a circulating loop. Plant trials for chemical efficiency are conducted with a less expensive “boxed” version of cyanide.

17.1.9.3 Caustic Soda

Caustic soda (sodium hydroxide) solution is used to neutralize acidic solutions after acid washing, in the carbon elution process and for pH control for cyanide mixing.

Dry caustic soda is delivered in 500 lb. cardboard drums. The caustic mix system is comprised of a 2.5 m^3 agitated mixing tank and a 3 m^3 holding tank. A 25% solution of caustic is pumped to the various manually controlled addition points.

17.1.9.4 Sodium Hydroxide

Sodium hydroxide solution (50% NaOH) is used in the SART plant, 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:

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 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.

17.1.9.5 Lime

Dry pebble lime is added to the SAG mill feed conveyor to control the pH in the grinding circuit. Milk of lime slurry is produced by slaking pebble quicklime in a packaged lime slaker and distributed to the leach and cyanide destruction circuits using timer controlled on-off valves in a circulating loop.

Pebble quicklime is delivered to the site in bulk quantity by 20 tonne trucks and pneumatically off loaded to either one of two lime silos. The milk of lime silo is 3.7 m diameter by 4.0 m high with storage capacity for 35 tonnes of pebble lime. The bulk lime silo for the SAG mill is 3.7 m diameter by 8.2 m high with a storage capacity of 75 tonnes.

17.1.9.6 Hydrated Lime

Dry hydrated lime ($Ca(OH)_2$) is used within the SART plant and is delivered to site by bulk truck and pneumatically unloaded by the vendor into a lime silo. The lime silo capacity provides approximately eight days of supply to the plant (135 tonnes storage capacity) at design throughput. The lime silo, which was provided as part of a vendor 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 added to the acidification tank for emergency neutralization purposes. Fresh water is utilized to prepare batches of lime slurry.

17.1.9.7 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 vendor. 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.

17.1.9.8 Sulfuric Acid System

Concentrated sulfuric acid (98% H_2SO_4) is delivered to site by bulk truck and unloaded into the sulfuric acid tank by the vendor. 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.

17.1.9.9 Diatomaceous Earth

Diatomaceous earth is used as pre-coat in the copper filters and potentially for body feed to the copper filters. It is delivered to site in one-tonne supersacks. The diatomaceous earth system includes the following equipment. An overhead monorail with electric hoist is used to lift one-tonne sacks of diatomaceous earth above a bag breaker. The bag discharge area is housed to minimize exposure to wind. A covered mix tank is used to prepare batches of diatomaceous earth slurry at 15% solids. Process water is used for slurry preparation. Two slurry pumps (one operating, one spare) provides diatomaceous earth slurry to the points of use. A continuous recirculating diatomaceous earth slurry ring main prevents solids settling in the piping system.

17.1.9.10 Sodium Metabisulphite

Sodium metabisulphite is added to the tailing detoxification circuit as the primary source of SO_2 for the cyanide destruction process.

Dry sodium metabisulphite is delivered in super sacks and stored in a dry area. The metabisulfite mix system will comprise an 18 m^3 agitated mixing tank and a 20 m^3 holding tank. Metering pumps are used to deliver a 20% solution of metabisulfite to the two cyanide destruction reactors.

17.1.9.11 Copper Sulphate

Use of copper sulphate was anticipated in the cyanide destruction reactors to catalyze the SO_2/air cyanide destruction reaction. Sufficient copper is present in plant solution that makes further addition unnecessary.

17.1.9.12 Hydrochloric Acid

Hydrochloric acid is used to acid wash carbon prior to the carbon stripping circuit.

Hydrochloric acid is delivered and stored in drums. A 5% acid solution is prepared by pumping acid directly from the drums into the acid wash circulating tank.

17.1.10 Water System

The water system for the ELG Process Plant site consists 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.

17.1.10.1 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 (650-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
- Chlorinator system (650-WT-001) to produce potable water stored in the potable water tank for 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)

17.1.10.2 Process Water

Underflow from the carbon safety screen and fresh water from the fresh/fire water tank flows to the process water tank for distribution to process usage points. Water is also pumped from the central water pond to the process water tank.

A central water pond (Water Collection Pond) is provided near the process plant site. This pond serves as the central water management facility for all mine-affected discharge, including discharge from the open pits, the tailings dry stack, and the plant area. The central water pond is used as a water supply to process plant, with water from here recycled through the process plant as appropriate to maintain optimal water levels in the central water pond.

17.2 DESIGN CRITERIA

The Design Criteria have been summarized in Appendix B.

18 PROJECT INFRASTRUCTURE

This section describes the infrastructure and logistical requirements for the ELG Mine Complex. This includes:

1. The off-site infrastructure for water and power (wells and electrical switching station).
2. The off-site infrastructure to get people, supplies and services to the site (including water and power).
3. The off-site infrastructure to house people (including the camp).
4. The on-site infrastructure to service and support the operations (the non-process buildings).
5. The on-site infrastructure to secure the site and product (fencing, access control points, and product storage in the refinery).
6. The on-site infrastructure to store and contain waste products (including waste rock, tailings, water, and domestic waste).
7. Geotechnical considerations.

The key points of this section are:

- The infrastructure described is currently operating.
- The water required for the ELG Mine Complex is from supplied purpose-built well field which has more than enough capacity to meet the needs of the ELG Mine Complex.
- 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 two routes; one from the north west, route used for construction, and a purpose-built access route from the east, 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, if required supplies can travel the NW access route.
- A permanent camp for company personnel is located adjacent to the ESR, approximately eight kilometers from the ELG Mine Complex entry. A second camp has been constructed within the complex for onsite visitor accommodation.
- The villages of La Fundición and Real del Limón have been relocated to a new town site called El Potrerillo.
- Access to the ELG Mine Complex is controlled via a gate house on the General Site Access road.
- Tailings material is being placed in the FTSF.
- The waste rock is stored in three Waste Rock Storage Facilities (WRSF). As expected, the waste rock is Non-Acid Generating (NAG).
- Water management infrastructure is completed. The ELG Process Plant recycles water and hence process water is not discharged to the environment. The water control infrastructure installed controls runoff from rain events.

Figure 18-1 provides the relative location of infrastructure described in this section.

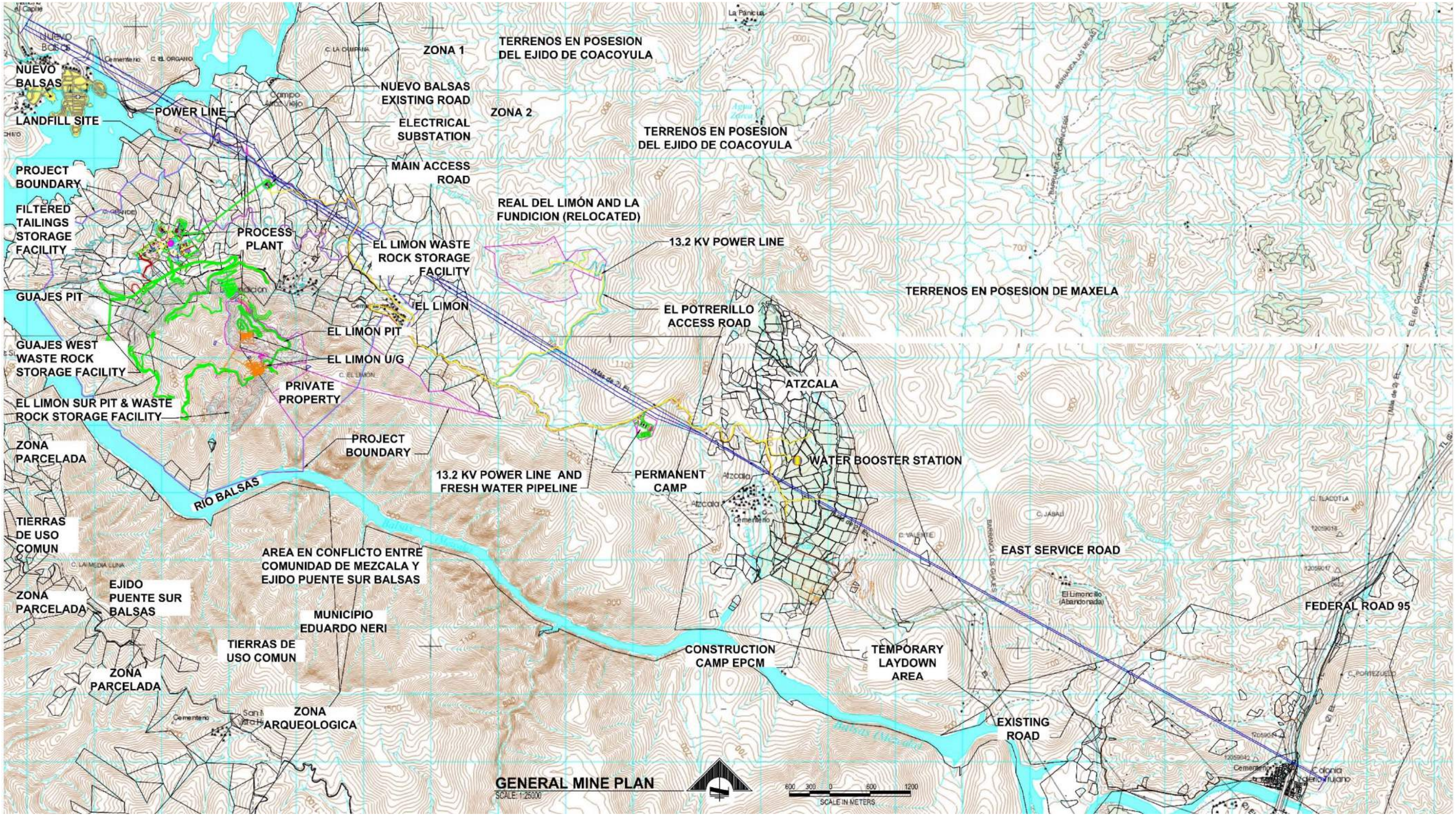


Figure source: M3, 2018

Figure 18-1: ELG Mine Complex Site and Offsite Infrastructure Locations

18.1 GENERAL SITE AREA

The following sections provide a general description of the infrastructure which supports the mining and processing of the ELG ore. The descriptions are divided into off-site and on-site infrastructure. See Figure 18-1 for offsite infrastructure location and Figure 18-2 for onsite infrastructure location.

Off-site infrastructure includes water and power supplies, transportation routes and main camp. Also included in this description is the resettlement site, El Potrerillo for the villages of Real del Limón and La Fundición. The resettlement of the two communities 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 two directions, the northwest or east. Access from the northwest is along the route used during construction, the route from the east is the ESR which is purpose built for the mine with movement of all supplies and most personnel moved via this route. The main well field, power supply and permanent camp are located along the ESR. Access to the mine is controlled with a guardhouse located along the mine access road approximately 4 km from the main facilities.

The ELG Mine Complex on-site infrastructure is focused around 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 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. 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 building is located on the same ridge as the truck shop, set in the side slope of the ridge. The crushed ore stockpile is located on grade between the crusher and the process plant. The administration, assay lab, 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 ensuring all contact water is collected and recycled from the ELG Process Plant area. The main facilities are located within a small footprint (approximately 70 ha) which allows for efficient operations and reduces the impact on the environment. To minimize impact on the village 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 reducing noise and dust impacts to Nuevo Balsas. The new village of El Potrerillo (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.

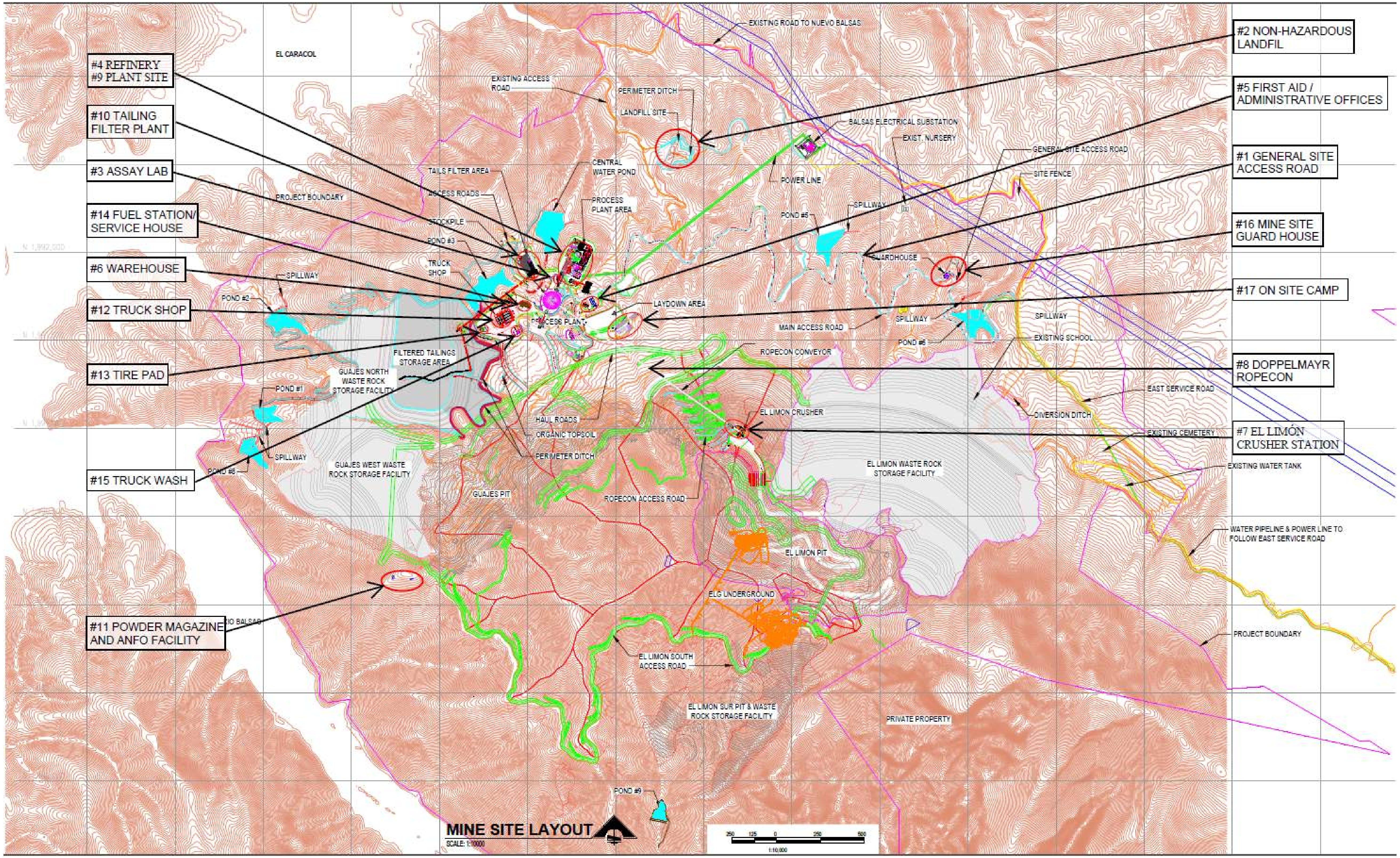


Figure Source: M3, 2018

Figure 18-2: Mine Site Layout

18.2 OFF-SITE INFRASTRUCTURE SUPPLY AND DISTRIBUTION – ROADS, WATER, POWER, AND SERVICES

Following is a description of the off-site infrastructure which supports gold production at the ELG Mine Complex. The infrastructure has been presented as one would view it as you travel to the complex via the East Service Road.

18.2.1 Access

Access to the ELG Mine Complex is available through two routes one from the north west and a second via a new access route purpose built for the mine.

18.2.1.1 North West Access Route

The access from the north west is approximately 60 km along paved public roads from the city of Iguala with the last five km via gravel road to the complex. This route was utilized for the construction of ELG Mine Complex.

18.2.1.2 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. Travel way width is seven meters with a maximum grade of 12%. Currently the road is gravel with work planned to pave portions of this road to reduce dust in areas of higher population. 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 involving water. This was done by moving 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.

18.2.1.3 General Site Access Road (See #1 on Figure 18-2)

The main access to the ELG Mine Complex is off the ESR via the General access road. Total length of this road is approximately four kilometers. The main entrance to site is established approximate one kilometer from the ESR junction.

18.2.1.4 Guard House (at ESR entrance, see #16 on Figure 18-2)

Located along the general site access road, the guard house serves as the main entrance 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. A gated entrance was established for inspection of all incoming and exiting vehicle traffic. The building provides space for security personnel, orientation room and other support space.

18.2.2 Water Wells

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 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 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.

This water from the 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.

18.2.3 Water – Supply & Distribution

18.2.3.1 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 from 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.

18.2.3.2 Potable Water Supply & Distribution System

Fresh water is drawn from the Fresh Water Tank and is then pumped through a packaged treatment plant that filters, treats, and chlorinates the water and then stores the water in the potable water tank. 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.

18.2.3.3 Reclaim Water System

Reclaim Water from the Tailings Filter Plant is piped to the Process Water Tank. Underdrainage and storm water runoff/infiltration from the FTSF are collected in Ponds 1 and 2 downstream of the FTSF. Water in Ponds 1 and 2 are pumped to the Central Water Pond (CWP) via Pond 3 and the water in the CWP is available for reuse in the process.

18.2.4 ELG Mine Complex Power Supply

Power for the plant and mine is via a short connecting line from the CFE 115 kV transmission line located at the north boundary of the mine area. Power at 13.2 kV for the water well field and camp is supplied from the new CFE Balsas Substation, built within the mine area.

18.2.4.1 Plant and Mine 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 has been constructed at the base of the 115 kV line, followed by a two kilometers transmission line to a substation located at the mine site. The switching station is powered by an existing 115 kV power line from CFE El Caracol Substation.

The connected load for the facility is 40 MVA with a demand of 25 MVA. 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. One transformer is large enough to feed the complex in the event of a failure in one unit. The substation is monitored by a 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.

18.2.4.2 Camp and Well Field

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 Balsas Substation. This power line has a connected load of 3.3 MVA.

18.2.5 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.

18.2.6 Process Control System

The 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 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.

A supervisory expert system has not been incorporated at this time.

18.3 OFF-SITE INFRASTRUCTURE – CAMP

18.3.1 Permanent Camp

To enable staffing of the ELG Mine Complex a camp facility was constructed to house non-local workers. The camp provides accommodations for 240 persons and is located along the ESR. An additional on-site 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. A description of the on-site camp is given in Section 18.4.10.

18.3.1.1 General

The permanent camp is located on nine hectares of common land which has been leased from the Atzcala Ejido. The camp is located approximately eight kilometers east of the ELG Mine Complex site via the ESR. The camp includes the following site infrastructure:

1. Electrical distribution
2. Communication
3. Domestic water
4. Fire water
5. Sewage treatment
6. Storm drainage
7. Security fence

18.3.1.2 Overall Camp Site Layout

The layout of the camp focuses the buildings around a central gathering, recreation, and public core, with separate housing for additional privacy.

A security fence with top barbed wire angle extension arms is located around the entire perimeter of the camp site. The perimeter fence line is approximately 1,250 meters in length.

18.3.1.3 Facilities

Facilities at the camp include the following:

- Check-in/Office Building
- Recreation building
- Cafeteria and kitchen
- Utility building
- Housing for 240 people

18.3.2 Resettlement

To enable open pit mining of the El Limón deposit the resettlement of the communities of La Fundición and Real del Limón was required. The following sections describe the resettlement activities in moving the two villages to El Potrerillo (the new village).

18.3.2.1 Resettlement Scope

Included within the land access agreement with the Real del Limón Ejido was the resettlement of the two ejido communities, La Fundición and Real del Limón. Both villages were identified as being impacted by the operation of the ELG Mine Complex. The resettlement was completed under International Financial Corporation standards.

Figure 18-3 provides an aerial view of the two communities prior to resettlement. The guiding principle in the resettlement was that the communities would have homes and services equal to or better then they previously had. The new community also meets all applicable Mexican standards.

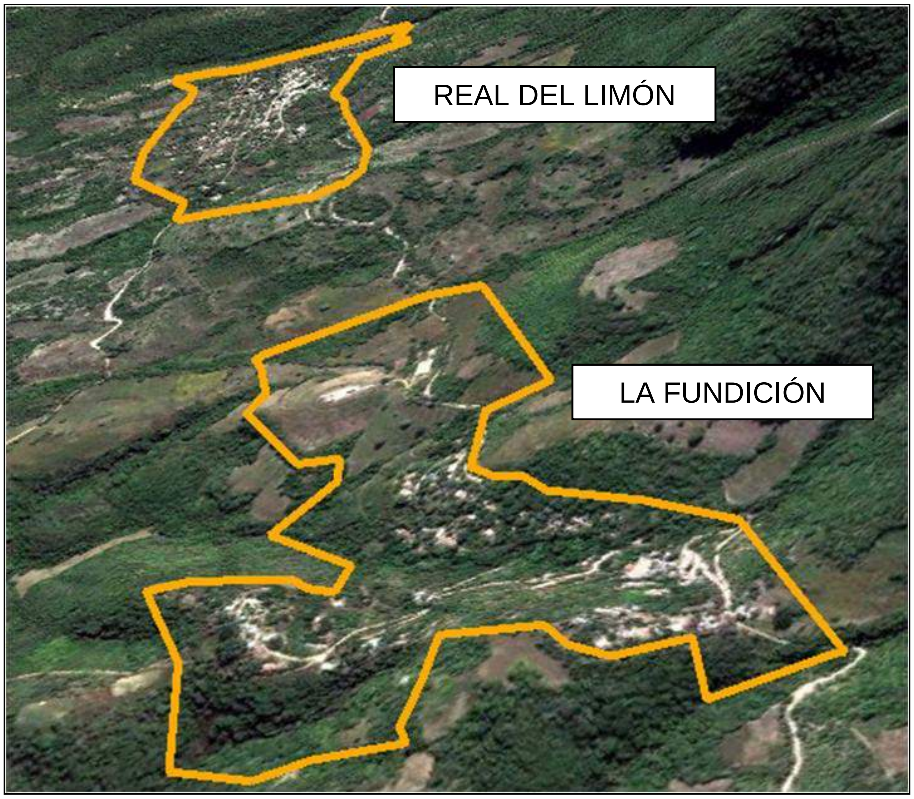


Figure Source: M3, August 2012

Figure 18-3: Existing Settlements – La Fundición & Real del Limón (Looking East)

The resettlement included the relocation of 170 homes along with all community building and infrastructure. The site for the new village, El Potrerillo, is located in the Real del Limón Ejido land and was selected by the community members. El Potrerillo covers approximately 46 Hectares and is located approximately five kilometers east of the ELG Mine Complex site.

18.3.2.2 New Village Design

The new village is on a relatively flat area created cut and fill earthworks to provide areas for the residential sites, public areas and structures. The site is also graded for proper road slopes and storm drainage. Separate residential areas within the new village for the two communities were created at the request of the community members. These two residential areas share some infrastructure, such as sewage and water, while still maintaining a separation of the two original communities.

Figure Source: M3, July 2015

Figure 18-4: The "new" La Fundición within El Potrerillo Village

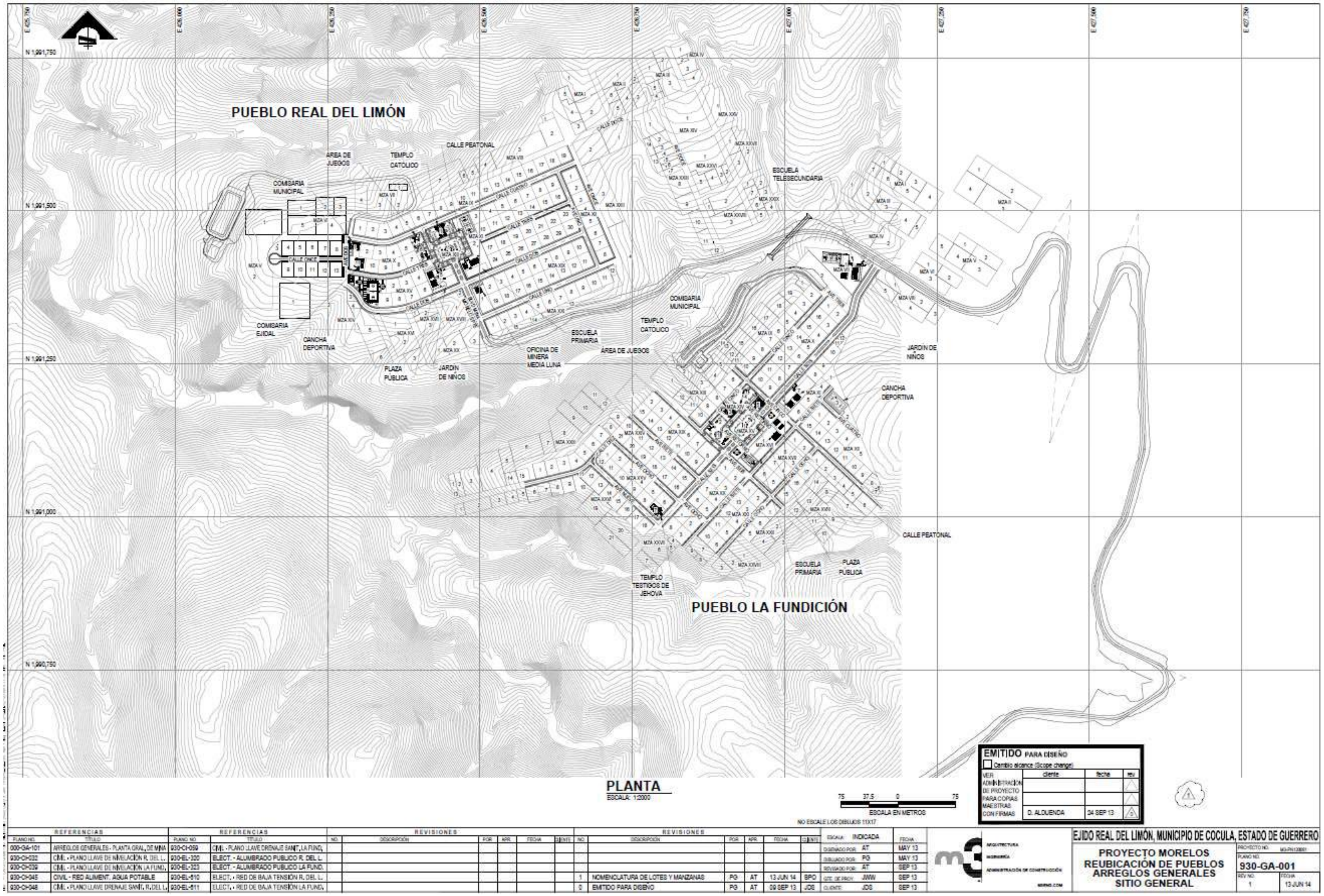


Figure Source: M3, 2014

Figure 18-5: Village Resettlement Map

18.3.2.3 Village Access Road

The access road to the new village is similar in design to the ESR and connects the village to the ESR. This provides access for community members to both Nuevo Balsas (west) and east to the village of Valerio Trujano on highway I-95.

18.3.2.4 Infrastructure

The project infrastructure includes all community roads, and utilities to all homes, public areas and structures. Infrastructure was constructed to meet all Mexican regulations as well as the guiding principles of provided homes and services as good as or better than previous homes. As part of the resettlement plan 5 schools,3 churches, municipal offices, and community meeting hall were constructed. Figure 18-6, Figure 18-7, and Figure 18-8 show pictures of the community facilities that were constructed as part of the village relocation.

Figure Source: Torex, October 2015

Figure 18-6: Elementary School

Figure Source: Torex, October 2015

Figure 18-7: Church and Park

Figure Source: Torex, October 2015

Figure 18-8: Children's Playground

18.3.2.5 Housing

Community members had the choice of three different home designs providing at a minimum the same area and amenities of the previous homes in both communities. The home size varies from 90 to 120 m^2.

The previous homes on Real del Limón and La Fundición had adobe walls and metal panel roof. The new homes have a concrete slab with concrete block walls and concrete slab roof, which the residents would consider an overall improvement to current conditions. All homes have as a minimum electrical, water and sewage services. Figure 18-9 shows the outside of the typical housing in the village resettlement.

Figure Source: Torex, October 2015

Figure 18-9: Village Resettlement Housing

18.3.2.6 Potable Water

The water source for the potable water system comes from a well located northwest of El Potrerillo which was drilled for this purpose.

The water from this well is pumped to a packaged treatment plant that filters and chlorinates the water and stores it in potable water tank for consumption. The potable water is distributed via underground piping to all the homes, schools, churches, offices, etc.

18.3.2.7 Sewage Treatment System

All homes have indoor toilet/washing facilities and are connected to the municipal sewage network. Three sewage plants were constructed to service the new community. Each consists of septic tanks, effluent to feed a wetland, and then to a percolation field.

18.3.2.8 Relocated Village Electrical Supply

Electrical power is supplied to the El Potrerillo Village at 13.8 kV from the Balsas switching substation near the ELG Process Plant.

The projected total connected load to the new village is estimated at 1.5 MVA.

All electrical distribution is underground providing service to all homes, community building and street lighting as required.

El Potrerillo was constructed and occupied by the community members of La Fundición and Real del Limón during 2015 and 2016. Structures within the two old villages were removed with the exception of a historical church and graveyard. Access to these two structures was maintained.

18.4 ON-SITE INFRASTRUCTURE – NON-PROCESS BUILDINGS

Following are descriptions of the on-site infrastructure, details on the ELG Process Plant are provided in Section 17.

For ease of description, the infrastructure has been described in the order a person would see them as they enter the site. The Administration offices is the first building you arrive at after leaving the main guard house.

Northeast of the Administration building is the ELG Process Plant. Directly east is the crushed ore stockpile (14,000 t live capacity) and to the southeast is the Guajes primary crusher station. The tailing filter plant is located approximately 200 m further west of the process plant.

A second primary crusher station is located near the El Limón pit approximately 400 m above the plant site. The El Limón crusher is connected to the process plant at the crushed ore stockpile by a suspended conveyor (RopeCon) provided by Doppelmayr. The RopeCon conveys the crushed ore from the El Limón pit downhill to the stockpile, as it is a downhill conveyor, the RopeCon generates electricity when in operation.

18.4.1 First Aid Clinic (see #5 on Figure 18-2)

A First Aid Clinic has been constructed and staffed on the site and 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.

18.4.2 Administration Offices (see #5 on Figure 18-2)

The Administration Building is located at the entry point of the 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.

18.4.3 Warehouse (see #6 on Figure 18-2)

The 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 (1,200 m^2) adjacent to the warehouse. A second warehouse is located in the truck shop for storage of mobile equipment parts.

18.4.4 Refinery (see #4 on Figure 18-2)

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.

The refinery area includes an electro-winning area, mercury retort, vault, furnace and filter area with a secured, fenced area for shipping and receiving.

18.4.5 Assay Lab (see #3 on Figure 18-2)

The assays for the mine operation are carried out in two locations. A sample prep lab has been established at mine site (near the truck shop). Once the sample has been prepped for assay it is sent to the Assay lab located in the village of Nuevo Balsas. Future plans are to relocate and consolidate both of these to the existing warehouse building.

18.4.6 Truck Shop (see #12 on Figure 18-2)

The truck shop (5,100 m^2) building incorporates three distinct areas, the shop area, parts warehouse and office space for mine maintenance, operations and technical services personnel.

The shop area has 6 drive-through 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 is also used for mine operations and maintenance, dispatch office 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.

18.4.7 Truck Wash (see #15 on Figure 18-2)

The 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.

18.4.8 Fuel Station and Service House (see #14 on Figure 18-2)

The fuel station constructed for the ELG Mine Complex consists of a fuel storage area, 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. Current planning is underway to increase the fuel storage volume by approximately 50% with additional tanks.

18.4.9 Powder Magazines and Ammonium Nitrate Silos (see #11 on Figure 18-2)

Explosive supply and onsite manufacturing is carried out under contract by a Mexican explosive supplier whose responsibility is to supply and operate all explosive storage facilities. These include the magazines, Ammonium Nitrate

(AN) storage silos and the bulk emulsion storage silo. These facilities are located at the start of the El Limón South Access road.

18.4.10 On-site Camp (see #17 on Figure 18-2)

An onsite camp was built in 2016 predominantly using trailers from the construction camp. The camp has accommodation for 112 people and is intended for use as overflow accommodation from the permanent camp or in the event access on and off the site is interrupted or limited. The camp is located east of the administration building, the facilities include the following:

- 9 module kitchen and dining area
- 3 module recreation room
- 3 module training room
- 1 module office
- 1 module laundry
- 14 modules sleeping quarters (112 beds)
- 3 modules for hotel units

18.5 HYDROLOGY AND WATER MANAGEMENT

To support the construction Amec Foster Wheeler was contracted to complete the hydrology component of the ELG Mine Complex. The complete assessment for the site hydrology is presented in the Amec Foster Wheeler Report "Mine Waste Management and Site Water Management Feasibility Designs Morelos Gold Project-Report No. RP-113911-1000-002" (Amec, 2012), Site Water Management Detailed Engineering Report Morelos Gold Project – Report No. 133911-7000-001 (Amec, 2014d), El Limón Sur Feasibility Design Geotechnical Stability and Water Management – Technical Memorandum (Amec, 2015a), Screening Level Water Quality Estimates for El Limón Sur Open Pit – Technical memorandum (Amec, 2015c) and El Limón Buttress Dump Water Management – Technical Memorandum (Amec, 2014b). The main water management components at the ELG Mine Complex site are runoff, groundwater and fresh water drawn from the Atzcala well field for the plant operations. The major outcome of this work was the site water balance and water management plan. Based on two years of operational data, this work has been updated for this report by NewFields and is described below.

18.5.1 Overall Site Water Balance

The overall site water balance flow diagram is presented in Figure 18-10. The ELG Process Plant is designed to be a closed circuit for water as much as possible. The main water-consuming uses include:

- Plant make up water from the loss of water to the filtered tailings
- Domestic use
- Dust control water in the mine and process plant

The main water requiring management is surface run-off from precipitation. The central point for water management is the CWP. 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 18.5.2.

The known sources of water inflows to the CWP are:

- Pumped water from Pond 3 (which includes water pumped from Ponds 1, 2 and Guajes open pit (groundwater inflow plus surface runoff from pit and catchment uphill of the pit);
- Runoff from surrounding catchment areas including the plant site;
- Pumped water from El Limón open pit (groundwater inflow and surface runoff from pit and catchment adjacent to the pit.

The water outflows from the CWP are as follows:

- Evaporation;
- Water recycled to the plant for processing;
- Water discharged to the environment during high rainfall events or from accumulated runoff during the wet season;
- Water lost due to seepage (considered negligible).

A simplified water balance flow diagram is presented in Figure 18-10.

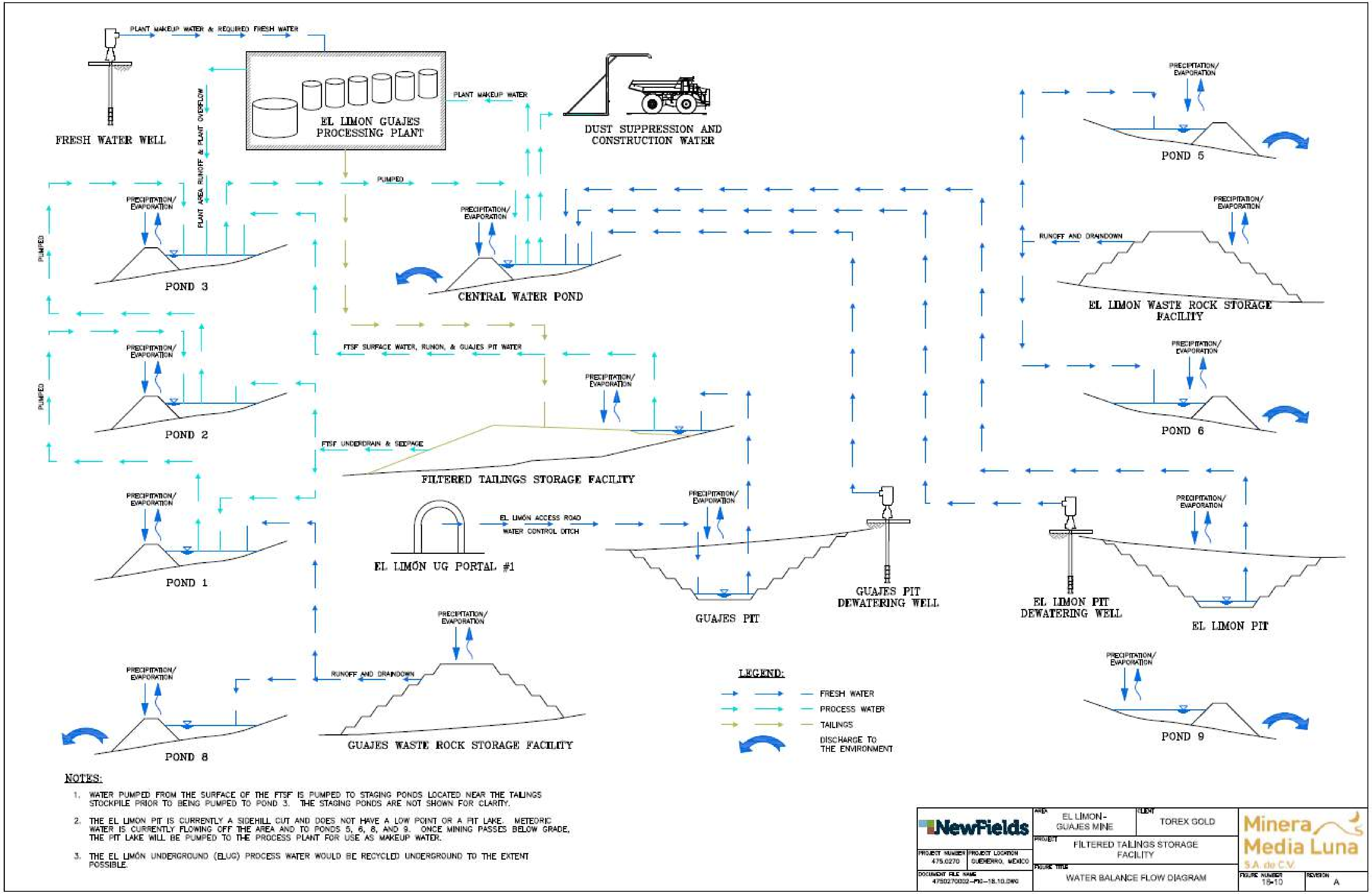


Figure source: NewFields, 2018

Figure 18-10: Site Water Flow Diagram

18.5.2 Water Management – Collection and Reuse

The water management system is operated to collect, reuse and to monitor the water quality prior to release. 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.

In general, the water management plan is to reduce rainfall runoff from coming in contact with mining and plant areas (non-contact water) as much as possible through the use of diversion ditches and placement of infrastructure. This non-contact water is then directed off site. For contact water (water which has contacted mine/plant or waste disposal) it is collected, monitored and directed as required based on level of contact. In the case of runoff which contacts the plant area, pits and FTSF, this water is ultimately directed (pump or gravity) to the CWP for recycling. In the case of the WRSFs, the runoff is captured in sediment ponds to remove suspended solids prior to release to the environment. A portion of the water collected from the Guajes West and Guajes North WRSFs is collected in Pond 1 and Pond 2, respectively and this water is pumped to Pond 3 and CWP for reuse in the process. This is due to the fact that portions of these WRSF are located in the same drainage as the FTSF.

Following is a description of the water management plan for each of the main areas within the ELG Mine Complex.

18.5.2.1 Pit Dewatering System

The Guajes East pit, which receives inflows from surface runoff and groundwater seepage, is currently below grade and requires dewatering after rain events. A diesel-powered sump pump removes water from the pit and the produced water is routed under the haul road to onsite Pond 8. The Guajes East pit water is then pumped to Pond 3 and then to the CWP. The Guajes West, El Limón and El Limón Sur pits will be dewatered once the pits are developed below grade. Water from the El Limón open pit will be pumped to the CWP. Water from El Limón Sur pit will be pumped to Pond 9. Diesel pump systems similar to that at Guajes East are anticipated for these three pits. Completed below-grade phases of pits will be temporarily used as sumps until mining progresses to new benches below the sumps.

As seepage is expected to be minimal, the systems have been designed (Guajes East) or will be designed (El Limón and El Limón Sur) 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 Guajes, El Limón and El Limón Sur open pits, respectively.

A series of dewatering wells have been installed at various locations at the Guajes Pit to reduce groundwater inflows. Approximately 27 m^3 of groundwater is being produced per day from the three wells using submersible pumps. Additional dewatering wells will be installed in the Guajes and the other pits as needed.

18.5.2.2 Filtered Tailings Storage Facility

Runoff and underdrainage from the FTSF is collected in Ponds 1, 2 and 3. Water from Ponds 1 and 2 is pumped to Pond 3 which is pumped to the CWP. Water from the CWP is utilized for plant operations and dust control.

Ponds 1, 2, 3 and the CWP have been designed for an environmental design flood (EDF) of a 1:100-year return event. For Ponds 1 and 2, critical duration was judged to be 90 days and for Pond 3 critical duration was 24 hours, meaning that they will handle water from a 1:100-year storm prior to requiring release to the environment via the spillways.

To ensure structural integrity of the dams during extreme rain events, the spillways for all ponds except Pond 3 have been designed for a threshold design flood (which is the 1:5,000-year return period event) consistent with the Mexican CONAGUA guidelines. A 24-hour balanced hydrograph has been assumed as the critical duration and distribution. The threshold design flood for Pond 3 is the probable maximum flood (PMF) of 24-hour duration.

Spillways for Ponds 1 and 2 will discharge water from events exceeding the EDF up to 1:5,000-year storm event to the Balsas River. Pond 3 spillway discharges to the CWP. Overflow from the CWP will discharge to an existing creek flowing north towards the Rio Cocula.

18.5.2.3 Plant Site

The plant site drains to Pond 3 or the CWP. Water from Pond 3 is pumped to the CWP. The overflow spillway at the CWP will safely discharge water from events exceeding the environmental design flood up to the PMF.

18.5.2.4 Waste Rock Storage Facilities

Ponds 5, 6, 8 and 9 are designed to capture and settle solids generated from runoff from the WRSFs. The overflow spillways associated with these ponds are designed to convey the 1:5,000-year return period runoff event without overtopping the dams. Spillways for Ponds 5 and 6 discharge into existing natural creeks flowing north to the Rio Cocula, whereas the spillways for Ponds 8 and 9 discharge to the Balsas River.

18.5.2.5 Structural Stability of Pond Embankments

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

18.5.2.6 Contingency Plan

The contingency plan would be enacted in the event that runoff and seepage from the WRSFs exceed relevant water quality guidelines for release. Runoff from the WRSFs is collected in sediment control ponds (Ponds 5, 6, 8 and 9) and is either evaporated or allowed to discharge to the environment. Contact water and water from the FTSF is collected in Ponds 1, 2 and 3 and is pumped to the CWP for reuse as process water. All ponds have been designed to contain runoff, in combination with pumping, from the 1:100-year rainfall event (EDF).

The contingency plan includes collection of runoff from all WRSFs at their base and pumping to the CWP. The upstream slopes of the pond embankments are designed with a geomembrane liner as a low permeability element. Under the contingency plan, the pumping arrangements will be as follows.

- Pond 9 to CWP
- Pond 8 to Pond 1
- Pond 6 to Pond 5
- Pond 5 to CWP
- Pond 3 to CWP
- Pond 2 to Pond 3
- Pond 1 to Pond 2

If necessary, an additional contingency plan could be considered that included a WTP being built northeast of the CWP. Based on the hydrological analyses, the required maximum capacity of the WTP is estimated to be about 3,000 m^3/hr. Water would be pumped to the WTP for treatment from the CWP. The treated water would be discharged to an existing seasonal creek flowing north to the Rio Cocula. The sludge from the WTP would be disposed of in the FTSF interior in isolated cells.

18.6 ON-SITE INFRASTRUCTURE – WASTE STORAGE

18.6.1 Non-Hazardous Landfill (see #2 on Figure 18-2)

A landfill site is located northeast of the plant site and is being developed in accordance with the Mexican regulations and is used for non-hazardous waste (i.e. wood and domestic garbage) within the mine site boundary.

For additional detail on this work, please see Project Landfill Detailed Engineering Report Morelos Gold Project Report No. RP133911-4000-001 (Amec, 2014c).

18.6.2 Filtered Tailing Storage Facility Design and Operation

Tailings are 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 40t articulated trucks or a series of grasshopper conveyors and are placed, spread and compacted in the FTSF. The advantages of the FTSF for the ELG Mine Complex are:

- Reduced tailings footprint (relative to a slurry TSF);
- Maximum usage of recycled water reducing fresh water requirements;
- Reduction to operational risk; and
- Deposition flexibility and expansion potential.

The FTSF is located southwest of the process plant and northwest of the Guajes open pit. The FTSF area is characterized by two valleys formed by abutting hills. The FTSF, with its final crest at minimum elevation of EL 719 m, will accommodate approximately 49 million tonnes of tailings. Current mine design is for the production of approximately 42 million tonnes of filtered tailings from the ELG Mine Complex. Following is a description of the design of the FTSF along with the input design criteria. For a more detailed presentation of the FTSF design refer to the NewFields MDTS Engineering Design Report, Filtered Tailings Storage Facility, El Limón – Guajes Mine (NewFields MDTS 2017).

18.6.2.1 Tailings Characteristics

The tailings are derived mainly from skarn ore which has a SG of 3.1 with lesser amounts derived from oxide ore, breccia and hornfels material. The tailings are geotechnically classified as 'silt'.

Based on laboratory tests to date other relevant characteristics are:

- Saturated vertical hydraulic conductivity: $5.6x10^{-6}$ to $2.7x10^{-5}$ cm/s (k_h/k_v = 4 (assumed))
- Effective shear strength: Cohesion =0 kPa and φ'= 30 to 32 degrees
- In place moist density: 2.14 t/m^3 (average)

Based on static and kinetic testing of tailings samples, the tailings are classified as Non-Acid Generating (NAG). While the tailings are assumed to be non-metal leaching, there is potential for arsenic leaching and additional studies are underway to assess this. Water management systems are in place to monitor water quality and assess arsenic leaching.

18.6.2.1.1 Seismicity

In accordance with the official Mexican norm NOM-141 SEMARNAT-2003, the ELG site is classified under seismic region 'C' and 'D', where the seismic events are common (including major historical earthquakes) and large ground accelerations can exceed 70% of acceleration of gravity (Figure 1 of the norm).

Consequently, a site-specific study on the earthquake ground motion hazard assessment for the ELG site was completed. The primary objective of the study was to characterize site specific probabilistic ground motion hazard for possible future earthquakes in the region leading to the computation of peak ground acceleration (PGA) and spectral acceleration for seismic events for different return periods. The study results were utilized in the design of various components of the ELG Mine Complex.

Stability analyses were undertaken utilizing the results of this study to ensure the FTSF is stable under seismic conditions. Additional information on these analyses is presented in Section 18.6.2.5.

18.6.2.2 Tailings Transport to FTSF

The tailings from the filter plant are transported to the FTSF by conveyors to a radial stacker and placed in the facility with grasshopper conveyors, trucks and bulldozers.

18.6.2.3 Key Design Elements

The key design elements of the FTSF include:

- As tailings placement warrants, the foundation is prepared by removing organics and unsuitable materials and 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 WRSFs.
- 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 the Guajes North and West WRDFs to enhance the stability and provide cover materials to minimize sediment transport (erosion).
- Once the tailings rise above the surrounding topography on the east, those tailings will be buttressed by waste material to enhance 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 from precipitation 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 typical cross-section of the FTSF is shown on Figure 18-11.

18.6.2.4 Filtered Tailings Storage Facility Construction

The FTSF is built to 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 controlled tailings (structural) 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.

Figure 18-12 shows the schematic water management strategy during the mine operation. The main water management structures are described as follows:

- Pond 1 in the south valley downstream of the west toe of the FTSF and the Guajes North WRSF;
- Pond 2 in the north valley downstream of west toe of FTSF and the Guajes West WRSF:
- Pond 3 in the north valley upstream of east toe of FTSF;
- Central Water Pond (CWP) on the west side of the process plant.

The embankments for Ponds 1, 2, 3 and the CWP were constructed of mine waste rock with graded granular filters, underdrains and a geomembrane liner on the upstream slope to serve as a low permeability element to reduce seepage loss. The geomembrane is anchored to a reinforced concrete plinth constructed on competent bedrock.

Runoff and seepage from the FTSF and the WRSFs is collected in Ponds 1 and 2. Water from Ponds 1 and 2 is pumped to Pond 3 and Pond 3 is pumped to the CWP (Figure 18-12). Water from the CWP is used as make-up water for mill operations and dust control. Any excess water would be discharged through the overflow spillway(s).

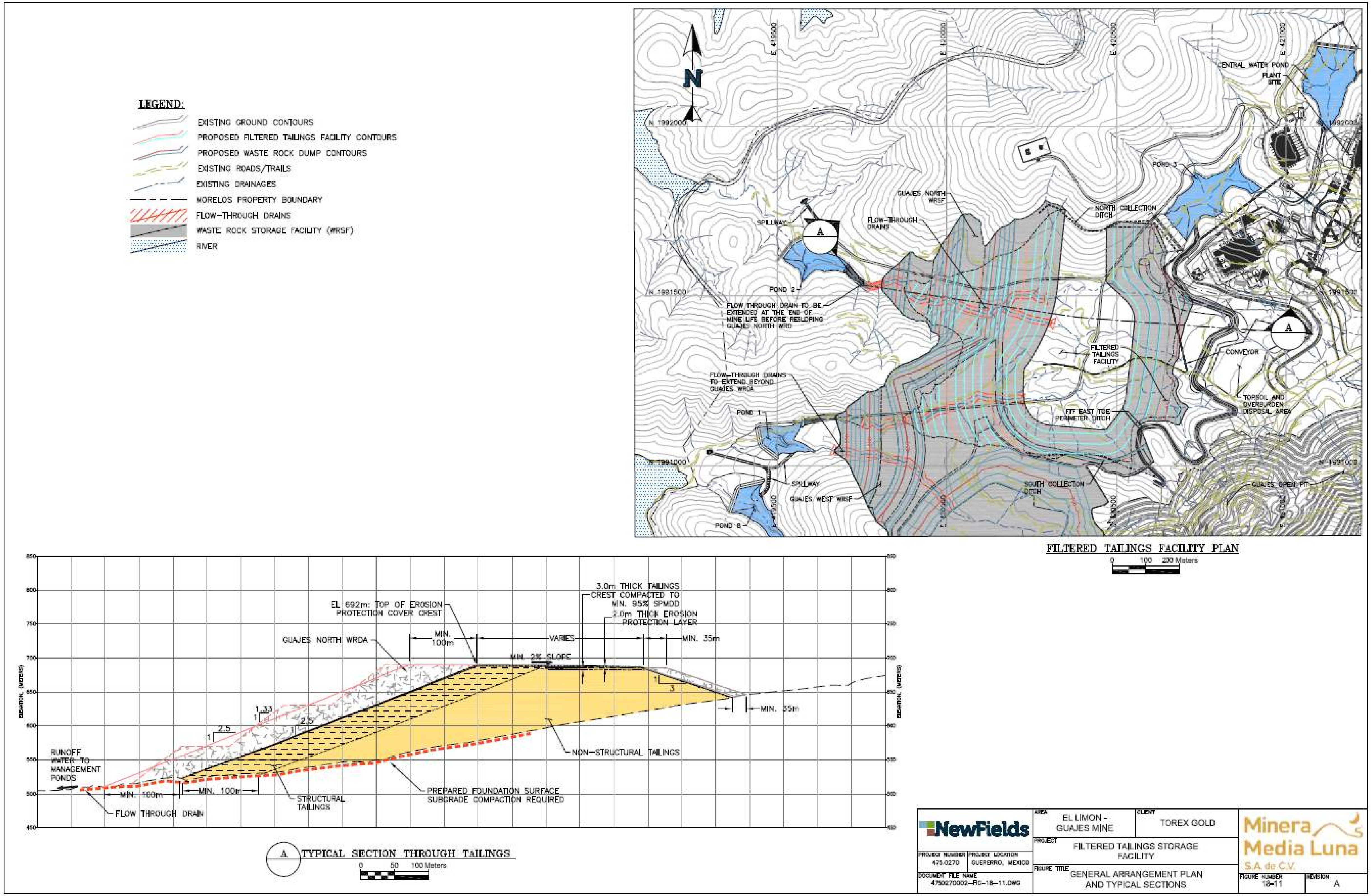
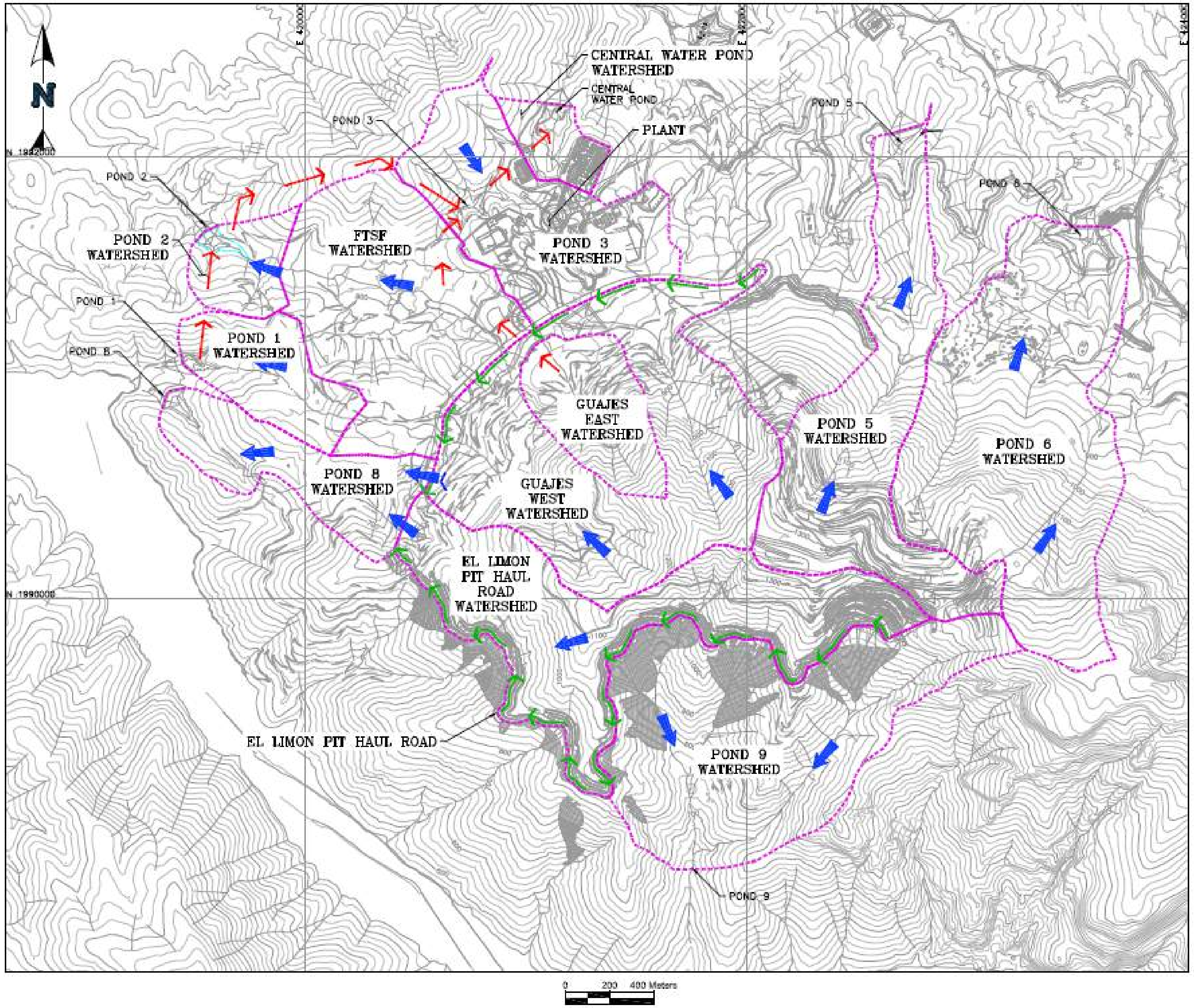


Figure Source: NewFields, 2018

Figure 18-11: Filtered Tailings Storage Facility Plan and Section



LEGEND:

- EXISTING GROUND CONTOURS
- SURFACE FLOW DIRECTION
- DIRECTION OF PUMPING
- HAUL ROAD DIVERSION RUNOFF DIRECTION

WATERSHED INFORMATION		
BASIN	DISCHARGE TO	TOTAL AREA (m^2)
POND 1	POND 2	299,930
POND 2	POND 3	174,164
POND 3	CENTRAL POND	666,826
CENTRAL POND¹	PLANT / NATURAL DRAINAGE	124,779
POND 5	NATURAL DRAINAGE	923,649
POND 6	NATURAL DRAINAGE	1,429,346
POND 8	NATURAL DRAINAGE	395,223
POND 9	NATURAL DRAINAGE	1,258,640
FTSF¹	PONDS 1 & 2 / POND 3	914,165
GUAJES WEST	POND 8 WATERSHED	1,224,678
GUAJES PIT	FTSF WATERSHED	314,700
EL LIMON PIT HAUL ROAD	POND 8 WATERSHED	1,035,099

NOTES:

1. WATER FROM THE CENTRAL WATER POND IS PUMPED TO THE PLANT SITE AS MAKEUP WATER AS NEEDED. IN THE EVENT THE INFLOW VOLUMES EXCEED THE REQUIRED MAKEUP, WATER WILL BE DISCHARGED TO THE DOWNSTREAM NATURAL DRAINAGE.
2. THE TAILINGS FACILITY IS CONSTRUCTED WITH AN UNDERDRAIN SYSTEM THAT CONVEYS SEEPAGE WATER TO PONDS 1 & 2. SURFACE WATER IN THE TAILINGS FACILITY ACCUMULATES IN THE NORTH AND SOUTH CANYON AND IS PUMPED TO POND 3.

NewFields	AREA: EL LIMON - GUAJES MINE	CLIENT: TOREX GOLD	Minera Media Luna S.A. de C.V.
PROJECT NUMBER: 475.0270 / PROJECT LOCATION: GUERRERO, MEXICO	PROJECT: FILTERED TAILINGS STORAGE FACILITY		
DOCUMENT FILE NAME: 4750270002-FIG-18.12.DWG	FIGURE TITLE: WATERSHED MAP		FIGURE NUMBER: 18-12 / REVISION: A

Figure Source: NewFields, 2018

Figure 18-12: Filtered Tailings Storage Facility and Water Management

18.6.2.5 FTSF Stability Analysis

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 (and the east slope later in the facility development) are 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 preclude the migration of tailings into the waste rock. The stability analyses 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 in a seismic event with a 1:10,000 year return period. 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 MDTS 2017).

18.6.3 Waste Rock Storage Facilities (WRSF) Design and Construction

A complete description of the design and analyses of the WRSFs is presented in the reference document "Mine Waste Management and Site Water Management Feasibility Designs Morelos Gold Project, Report No. RP-113911-1000-002" (Amec, 2012), El Limón Buttress Dump- Geotechnical Stability and Buffer Zone Estimation – Technical Memorandum (Amec, 2014a) and El Limón Buttress Dump Water Management – Technical Memorandum (Amec, 2014b). NewFields has reviewed the referenced reports and support the current design concepts.

18.6.3.1 Design Data

The bulk density of waste rock material is considered to be 2.0 t/m^3 with an angle of repose of 37°.

18.6.3.2 WRSF Configuration

18.6.3.2.1 El Limón WRSF

The El Limón WRSF, is located north of the El Limón open pit. El Limón WRSF will be constructed by building a waste rock buttress at the toe of the El Limón WRSF with concurrent development of the El Limón A dump. Once the buttress is in place two wrap around WRSF's are planned, one at elevation 1176 m referred to as El Limón B WRSF and then a second wrap around dump at elevation 1099 m referred to as El Limón C WRSF. The El Limón C WRSF toes into the buttress for long term stability and to reduce resloping at the end of mine life. The buttress will be resloped to 2H:1V slopes prior to rock placement from the El Limón mining operations at higher elevations.

18.6.3.2.2 Guajes West and North WRSFs

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.

18.6.3.2.3 El Limón Sur WRSFs

El Limón Sur WRSFs will be developed on the east and west side of the El Limón Sur open pit. The east WRSF will be developed by end dumping rock from four elevations along the valley forming four crest platforms. The El Limón Sur West WRSF will be developed by dumping rock from one crest platform elevation. Rock will be placed from north to south from upper platforms before placement from lower platforms. Modification to the placement plans may take place to mitigate the potential for sediments entering the watershed.

18.6.3.3 Waste Rock Storage Facility Stability

18.6.3.3.1 Geotechnical Characterization

Based on the general findings of the geotechnical investigations, the colluvial overburden in the foundation of WRSFs is dense to very dense underlain by slightly weathered competent bedrock. The overburden is coarse, free draining, and is a favorable foundation for WRSF development.

18.6.3.3.2 Geochemical Characterization

The waste rock from the El Limón and Guajes pits is not expected to produce acid rock drainage (ARD), therefore there is no infrastructure planned to manage ARD. Assessment work completed has estimated a generally low quantity of potentially acid generating rock (<18%) that is widely dispersed through the El Limón and Guajes pits. The waste rock is low sulphide content (typical range in major rock units of 0.1 to 1%) and available NP mostly in the form of carbonate is also widely present in most rock units. Minor occurrences of breccia in waste rock typically have less than 2.5% sulfur but also have an NPR of 4 or higher and thus not expected to produce acidity.

The El Limón Sur waste rock characteristics are generally similar to the waste rock from the ELG Mine Complex. A higher apparent degree of in-situ oxidation of the El Limón Sur waste rock has been identified, the effect of which (if any) is being assessed. There may be a potential risk that the water that percolates through the waste rock will dissolve arsenic to concentrations that are above acceptable 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 will be monitored. If warranted, mitigation measures will be implemented. Assessment along the El Limón access road identified largely unmineralized rock with little concern for metal leaching and ARD. Rock in transitional areas crossing the limits of the Guajes Pit in the east and El Limón pit in the west is similar to El Limón and Guajes waste rock (Amec, 2015c).

18.6.3.3.3 WRSF Stability during Operations

The compact and often unsaturated native overburden soils are strong, competent and non-liquefiable. No adverse foundation conditions affecting the stability of the WRSFs were identified.

18.6.3.3.4 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.

18.6.3.3.5 Assignment of a Buffer Zone

The design approach for the WRSFs considered the following three methods for determination of 'rock run out' and assignment of a 'buffer zone':

- Empirical approach;
- Buffer zone corresponding to the stable slope of 2H:1V; and
- Rock run out characteristics based on computer modeling, e.g. "Rockfall".

Based on this assessment, the maximum extent of the buffer zone obtained from the above analyses has been established for the WRSFs.

19 MARKET STUDIES AND CONTRACTS

The ELG Mine Complex produces gold/silver doré in the form of bars. A contract for the purchase and refining of these bars has been entered into with Asahi Refining in Salt Lake City (formerly Johnson Matthey Gold and Silver Refinery Inc.), a subsidiary of Asahi Holdings. The terms and conditions described within this contract have been used in the financial modelling of the mine.

The original agreement provides for the refiner to process the doré produced by MML during the first 3-years of production. Transfer of responsibility occurs at the ELG Mine Complex site through the refiners' secure liability carrier who will be responsible for transporting the bars to the refinery.

In January 2017, the contract with Asahi Refining was extended for two years until December 2018. Under this contract, 75% of doré production will be refined by Asahi Refining. The remainder is refined under contract by Republic Metals Corporation (RMC) in Miami.

Refinery treatment, transportation, and deleterious element charges have been agreed to and are typical to charges in the industry. Title to all recoverable metals resides with the mine until arranged to be sold to a third party. Gold and silver sales are expected to be at the precious metal spot prices of the London and New York Metals Exchanges (LME and NYMEX).

Asahi Refining and RMC purchase the silver bullion. All gold bullion is sold to the lending banks at spot prices; no hedging program is in place.

Other than as disclosed elsewhere in this report, including without limitation, the agreements referred to in Section 4.4 – Surface Ownership, and the agreements referred to in this Section 19, there are no contracts material to the issuer that are required for property development. All major contracts are within industry norms.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

The key points of this section are:

- MML has secured the necessary permits and licenses for ELG Mine Complex production, and owns the mineral concessions and secured the surface rights to the land on which the Company operates. All National, State, and Municipal permits/authorizations required for the exploration, development, and operation of the original ELG Mine Complex have been received from the various levels of Mexican government and operations are underway for the ELG Open Pits (ELG OP) and ELG UG Mine.
- To date, the MIAs and the ETJ (Spanish acronym for change of land use) have been completed, submitted, and approved by SEMARNAT for the exploration /development/operation phases of the ELG Mine Complex, the upgrades to the road from Valerio Trujano to Nuevo Balsas (East Service Road), the development of the resettlement site (El Potrerillo), the SART circuit, and advanced exploration of the ELG UG Mine.
- No environmental issues have been identified that will adversely affect the operation on the Morelos Property using the current design.
- Geochemical testing data available to date suggest that waste rock and tailings have a limited ability to produce acidic drainage. Additional geochemical testing will be implemented to further investigate the potential for such drainage.
- Potential effects on groundwater and surface water have been identified and mitigation measures have been implemented.
- Systems are in place to receive feedback from the local communities. However, MML does experience illegal blockades from time to time as the local communities adjust to being part of a large industrial-based economy. From November 2017 to April 2018, the complex was illegally blockaded by the Miners Union (Mineros) supported by some community members. With time, MML's traditionally-strong community relationships re-asserted themselves. It was community support that led to a circumventing of the union blockade in mid-January 2018 and a restart of operations. Mineros dropped their application to take over the collective bargaining agreement at MML and the illegal blockades were removed in April 2018. MML will continue to work with the communities during this post-blockade period of economic/social adjustment.
- The following are highlights from the Torex Gold 2017 Corporate Responsibility Report:
  - 2,369 employees across the business (direct plus contractor). Of these, 98% of workforce is from Mexico, 63% are from the state of Guerrero, and 52% are from local communities. This represented $53M in total wages paid.
  - Zero reportable environmental incidents.
  - $226M in procurement to Mexican firms (>90% of total procurement).
  - $18M in government payments in 2017.
  - $1.3M invested in community projects to date.
  - 94,000+ hours of employee training.
- The Resettlement Action Plan (RAP) for the communities of La Fundición and Real de Limón was successfully completed.
- MML has an advanced stage exploration project, ML. An expanded ETJ has been submitted for advanced exploration of Media Luna - approval is pending. Current exploration drilling is under existing ETJ.
- Aspects which are required to advance the ML beyond the current stage are described in Section 24.20 of this report.

20.1 INTRODUCTION

This section will provide the reader with environmental and socio-economic data, and information on the Morelos Property to date, and will address the known or potential environmental and social-economic risks, and potential impacts associated with the ELG Mine Complex at the current stage of operation and development, as well as providing the mitigation measures.

The ELG Mine Complex is defined to include the following components and modifications:

- ELG Open Pits (ELG OP)
  - El Limón Pit
  - Guajes Pit
  - El Limón Sur Pit
- ELG Process Plant
  - SART plant
- Waste Rock Storage Facilities (WRSFs);
- Filtered Tailings Storage Facilities (FTSF);
- ELG Underground (ELG UG) (previously referred to as El Limón Underground);
- Associated infrastructure
  - MML Camp, well field, access roads.

MML also has the Media Luna advanced exploration project, which is approximately 7 km south of the ELG Mine Complex. The ML Project is currently in advanced exploration with surface drilling and preliminary engineering underway. Permits for an underground exploration and production phase are in place. Section 24 of this report provides a PEA on the ML mineral resource.

Following are some recent changes/additions to the ELG Mine Complex within the Morelos Property:

- The addition of SART - with the implementation of the SART process in mid-2018, the consumption of cyanide will be reduced and a saleable copper precipitate produced.
- Technical studies on the south side of the Balsas River, designated as the Media Luna Project. In-fill drilling commenced in September 2017.
- Exploration, mine development and mining at ELG UG located below the El Limón Pit.
- Mining of the El Limón Sur pit is ongoing and the associated infrastructure for environmental controls are being developed. Waste rock from the pit is dumped into adjoining east valley forming a WRSF. Pond 9 is being constructed downstream of the El Limón Sur WRSF's to settle suspended solids.
- The surface area for the Guajes pit increased 9.2 ha for a total of 33.6 ha in 2016.
- The El Limón Pit development covered 22.2 ha in 2016. In addition, a 15.6 ha buttress was added to its base.

As of May 2018, MML remains in compliance with Mexican regulations for the development of the 'Proyecto Minero El Limón Guajes' (i.e. ELG). During this time, MML has requested 27 environmental approvals (19 are completed and approved, 8 are pending authorization). Five permit applications are planned to be submitted to the regulatory authorities in 2018. ELG UG received a permit for exploration and exploration extension on October 2017. The environmental approval request for the underground mine has been approved by the regulatory authorities.

In line with the company's systems leadership approach, a set of comprehensive management systems has been developed to manage environmental and social risks. In addition, Torex has Board-level committees that work with senior management to provide strategic guidance and oversight in the environmental, stakeholder, and social responsibility areas.

MML follows the Mexican law on cultural heritage resources identified in the ELG Mine Complex and ML Project area, any resources found have been mitigated by INAH-Guerrero.

20.2 REGULATORY, LEGAL AND POLICY FRAMEWORK

20.2.1 Environmental Regulations

All National, State, and Municipal permits/authorizations required for the exploration, development, and operation of the ELG OP Mine have been received from the various levels of Mexican government. The ELG UG has all necessary permits/authorization for exploration and the permit for production has been submitted.

In May 2013, the government of Mexico authorized an Environmental Impact Resolution for the Morelos Property by means of Official Letter No. SGPA/DGIRA/DG-03171. MML's modifications to the project have been approved by the Mexican government as defined in Section 20.1.

In addition to the Mexican laws, the national environmental guidelines followed by MML to develop its environmental programs include the following:

- National Development Plan 2013-2018
- Environmental and Natural Resources Program 2013-2018
- Regional Development Plan 2011-2015
- Federal Natural Protected Areas (Sierra de Huautla Biosphere Reserve)
- State Natural Protected Areas (Grutas de Cacahuamilpa Park)
- Priority Land Regions
- Priority hydrological regions
- Important Areas for Bird Conservation
- Ecological Management Program for the State of Guerrero
- Municipal Development Plan for Cocula, Guerrero, 2015-2018

Environmental work for the El Limón Sur, ELG UG, and Media Luna Underground will continue to satisfy Mexican legislative requirements.

Table 20-1: Environmental Permits and Timeline

1.0 ELG Mine

Permit / Agency	Source Document	Type	When Needed	Transaction Time	Date File	Date Res.	Comments
1.1 ELG Mine Construction							
1.1.1 Environmental Impact Resolution for Morelos Property SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico City	• Environmental Impact Statement (MIA). • Additional Information. • Supplementary Information 1 • Supplementary Information 2	P	Before any construction work may commence.	12 weeks	Sep 2012	May 2013	COMPLETE The authorization was granted on May 15th, 2013 by means of the Environmental Impact Resolution No. S.G.P.A./DGIRA/DG.-03171. The resolution encompasses construction, operation and closure.
1.1.2 Permit to Change the Use of Land SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Technical Economic Justification Study (ETJ) • Additional Information	P	Before any construction work may commence.	60 working days	Dec 2012	Dec 2013	COMPLETE The notification of payment of compensatory duties was received on May 23, 2013 by means of Resolution No. DFG.SGPARN.UARRN.559/2013. The Change in Land Use Permit was issued on December 2, 2013 by means of Resolution No. DFG.SGPARN.UARRN.907/2013
1.1.3 Concession to Extract Underground Water CONAGUA (National Commission for Water) Delegation at Guerrero	• Application form supported by technical documents.	P	Before any water extraction is undertaken	60 working days	Oct 2011	Dec 2011	COMPLETE The concession title to operate 5 wells and extract 5 million cubic meters per annum was issued on December 5, 2011 by means of Title No. 04GRO150254/18EMDL11. Permit valid for 30 years.
1.2 East Service Road Construction							
1.2.1 Environmental Impact Resolution for East Service Road SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Environmental Impact Statement (MIA). • Additional Information.	P	Before any construction work may commence.	12 weeks	Nov 2011	Mar 2012	COMPLETE The authorization was granted on March 20th, 2012 by means of the Environmental Impact Resolution No. DFG-UGA-DIRA-306-2012 NO. DE REF.11267 4. The resolution was, subsequently, modified, to include changes in road design, by means of Resolution No. DFG-UGA-DIRA-1880-2012 dated December 14th, 2012.
1.2.2 Permit to Change the Use of Land SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Technical Economic Justification Study (ETJ) • Additional Information	P	Before any construction work may commence.	60 working days	Nov 2013	Apr 2014	COMPLETE The notification of payment of compensatory duties was received on April 30, 2014 by means of Resolution No. DFG.SGPARN.UARRN.374/2014. Payment of said duties was completed on April 30, 2014. The Change in Land Use Permit was received on May 29, 2014 by means of Resolution No. DFG.SGPARN.UARRN.521/2014. Further modifications include intersection with Federal Highway 95 and inclusion of drop zones and aggregate banks. Road connects Valerio Trujano and Rio Balsas.
1.3 EL POTRERILLO Construction							
1.3.1 Unified Environmental Impact and Change in Land Use Resolution SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Unified Technical Document (DTU) • Additional information.	P	Before any earthworks may commence	60 working days	Nov 2013	Apr 2014	COMPLETE The notification of payment of compensatory duties was received on March 14, 2014 by means of Resolution No. DFG.SGPARN.UARRN.334/2014. Unified environmental impact and change in land use resolution was received on April 30, 2014 by means of Resolution No. DFG.SGPARN.UARRN.495/2014
1.3.2 Environmental Impact Resolution for EL POTRERILLO Settlement SEMARNAT (State Secretariat for the Environment and Natural Resources) Guerrero	• State Environmental Impact Statement (MIA). • Additional Information.	P	Before construction of housing and urban infrastructure may commence	120 working days	Nov 2013	May 2014	COMPLETE The construction of EL POTRERILLO was authorized by SEMAREN, on May 19, 2014, by means of Resolution No. SEMAREN/DIAOT/081/05/14.
1.4 ELG Mine Operation							
1.4.1 Environmental Impact Resolution for Morelos Property SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico City	• Environmental Impact Statement (MIA). • Additional Information. • Supplementary Information 1 • Supplementary Information 2	P	Before plant and mine operation may commence.	12 weeks	Sep 2012	May 2013	COMPLETE The authorization was granted on May 14th, 2013 by means of the Environmental Impact Resolution No. S.G.P.A./DGIRA/DG.-03171. The resolution encompasses construction, operation and closure.
1.4.2 Permit to Change the Use of Land SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Technical Economic Justification Study (ETJ)	P	Before any additional land outside approved polygons, is affected.	60 working days	June 2014	Nov 2014	COMPLETE Additional areas, compared to the approved Change in Land Use (CUS), are required for construction and operation. Therefore, an extended ETJ was filed. The notification of payment of compensatory duties was received on September 9, 2014 by means of Resolution No. DFG.SGPARN.UARRN.1051/2014. The Change in Land Use permit was received on November 14, 2014 by means of Resolution No. DFG.SGPARN.UARRN.1198/2014
1.4.3 Permit to relocate communities SGPARN (Sub-delegation for Environmental Protection and Natural Resources) Guerrero	• Application for relocation • Project description • Environmental impact assessment as compared with the original resolution. • Additional mitigation measures if applicable.	P	Before operation implementation		April 2014	July 2015	COMPLETE Permit granted to relocate the communities of La Fundición and Real de Limón under Resolution No. DFG/SGPARN/UARRN/495/14
1.4.4 Request for Modification of an Environmental Impact Resolution SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico City	• Application for a modification of an environmental impact resolution. • Project description. • Environmental impact assessment as compared with the original resolution. • Additional mitigation measures if applicable.	P	Before any modification of the approved project is implemented	10 working days	Dec 2015	Feb 2016	COMPLETE The authorization was granted on 17th February 2016 by means of the Environmental Impact Resolution No. SGPA/DGIRA/DG/0994. The resolution encompasses construction, operation and closure. Increase of 151.99 ha to the original authorized area (515.90 ha).

1.4.5 Effluent Discharge Permit CONAGUA (National Commission of Waters) Mexico City	• Project description. • Effluent treatment system description. • Estimated analysis of final effluent	T	Before plant and mine operation may commence.	60 working days	Jun 2015	Aug 2016	COMPLETE Effluents from sewage treatment facilities require a discharge permit. A design change was executed, during construction that substitutes a water treatment plant for septic tanks. Pertinent drawings and descriptions were submitted as part of the permitting process. Approval for this change was received from the regulatory authorities (SEMARNAT) in 28 August 2015. See permit SGPA/DGIRA-DG-05782.
1.4.6 Accident Prevention Plan SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico City	• Environmental Impact Statement (MIA) • Level II Environmental Risk Assessment. • Safety audit.	T	Upon completion of plant construction	Not Defined	Jan 2016	July 2016	COMPLETE See DGGIMAR.710.006065 and DGGIMAR.710.0003758
1.4.7 Environmental License SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Positive environmental impact resolution for the plant. • Installation of platforms and monitoring portholes on stacks. • Measurement of air emissions.	M	After plant start up	70 days	Jan 2016	May 2016	COMPLETE See LAU-12/009-2016
1.4.8 License to Operate a Radioactive Source SE – CNSNS (Secretariat of Energy – National Commission for Nuclear Safety and Safeguards) Mexico City	• Description of radioactive source and its installation. • Integration of Radiological Operating Procedures and Safety Manual. • Certified person in charge of radiological procedures and operation of radioactive sources. • Disposal procedures for spent radioactive waste.	M	After source is installed	60 days	Jun 2015	Oct 2015	COMPLETE See SENERS A00.200/0973/2015 and SENER A00.232/1835/2015
1.4.9 Registration as Generator of Hazardous Wastes SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Complete the registration form. • Provide physical and chemical characteristics of the waste. • Provide estimated volume of generation. • Request classification as generator based on the declared yearly volume	M	After plant start up	30 days	Oct 2015	Sep 2015	COMPLETE This registration was submitted and the approval was granted on 11 August 2015. This registration was updated and the approval was granted in 21 June 2017. See SEMARNAT DFG-UGA-DGIRA-183-2015 and SEMARNAT DFG-UGA-DGIMAR-141-2017.
1.5.0 Copper Recovery Circuit (SART/CRC) Plant Environmental Impact Resolution (Secretariat for the Environment and Natural Resources) Mexico City	• Environmental Impact Statement (MIA) • Additional documents	P	Improvement to plant operations		March 2018	PEND	PENDING Document was submitted to SEMARNAT on December 18, 2017. Amendments to the document were requested, and the document was re-submitted to SEMARNAT with the information required on March 28, 2018.
3.1.1 - Explosives permit Secretaría de la Defensa Nacional	• Permiso General No. 4947 – GRO	P	COMPLETED MML continues to use the services of an explosives contractor.	3.1.1 - Explosives permit Secretaría de la Defensa Nacional	Permiso General No. 4947 - GRO	July 2016	COMPLETE MML continues to use the services of an explosives contractor.

2.0 ELG UG (previously referred to as El Limón Underground)

Permit / Agency	Source Document	Type	When Needed	Transaction Time	Date		Comments
					File	Res.	
2.1 ELG UG Exploration							
2.1.1 Amendment to MIA for access tunnel to El Limón Underground Exploration Project SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico city	• Environmental Impact Statement (MIA) • Additional information	P	Before underground mine operation	60 working days	Oct 2016	Nov 2016	COMPLETE Amendment of the authorized environmental impact of the Morelos Property for El Limón Deep and Sub-sill. Ramp extension: 1,350 m deep. The permit was granted on November 1, 2016. See SGPA/DGIRA/DG/08202.
2.1.2 Extension to the El Limón Underground Exploration Project SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico city	• Environmental Impact Statement Extension (MIA - extension) • Additional information	P	Before underground mine operation	10 working days	Oct 2017	Oct 2017	COMPLETE Positive results from El Limón Underground presented a potential for a larger deposit. Subsequently, MML requested a permit to extend the underground exploration area. The notification of permit granted was received on October 16, 2017 by means of Resolution No. SPGA/DGIRA/DG/07549
2.2 ELG UG Production							
2.2.1 El Limón Underground Mine Production SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico City	• Extension to the El Limón Underground Exploration Project • Environmental Impact Statement (MIA-P)	T	Modifications to the El Limón MIA for the production phase to be described in annual report	n/a	July 2018	July 2018	COMPLETE As indicated by SEMARNAT, the development of an amendment to the MIA was required to demonstrate ELG UG's and ELG Mine's materials balance and mitigation measures for new infrastructure for production. Annual reports will address the justification for new infrastructure and compliance with the commitments established in the approved Resolution No. SPGA/DGIRA/DG/07549. The administrative procedures regarding the Land Use Change and Environmental Impact remain applicable for the ELG MIA and El Limón Deep MIA amendment. Since this is going to be underground work, impacts have already been identified, evaluated, and authorized. The permit was granted on July 24, 2018 by means of Resolution No. SGPA/dgira/DG/05324.

3.0 Media Luna

Permit / Agency	Source Document	Type	When Needed	Transaction Time	Date File	Date Res.	Comments
3.1 Media Luna Underground Advanced Exploration							
3.1.1 Permit to Change the Use of Land, Exploration Puente Sur Balsas SEMARNAT (Secretary for the Environment and Natural Resources) Delegation at Guerrero	• Technical Economic Justification (May 2013) • Application supported by technical documents	P	Before any exploration activities take place	60 working days	Nov 2012	May 2013	COMPLETE The Change of Land Use in Forested Areas (CUSF) was granted for 5 years by means of Resolution DFG.SGPARN.UARRN.534/2013 for an extension of 18.95ha.at the Puente Sur Balsas Ejido.
3.1.2 Land Use Change Media Luna Exploration, Permit Renewal Puente Sur Balsas SEMARNAT (Secretary for the Environment and Natural Resources) Delegation at Guerrero	• Land Use Change (CUS) Media Luna Exploration • Additional information	P	Before any exploration activities take place	10 working days	May 2018	June 2018	COMPLETE The exploration permit granted an extension to 2.5 years (May 2018 – October 2020). Media Luna occupied 3.7 ha for exploration. The Mexican law allows the extension of the Exploration permit for the additional land that was approved by the original CUSF.
3.1.3 Environmental Impact Resolution for Media Luna Advanced Exploration Underground PPM Phase II SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico City	• Environmental Impact Statement (MIA-R) • Additional information	P	Before mine operation	60 working days	Q4 2017	Sep 2017	COMPLETE The MIA Phase II includes the permit for El Limón Sur pit and dump complex, fugitive areas for the Morelos Property, Water well 8, and Media Luna exploration. The notification of permit granted was received on September 27 2017 by means of Resolution. SPGA/DGIRA/DG/07100
3.1.4 Permit to Change the Use of Land for Media Luna Advanced Underground Exploration SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Technical Economic Justification Study (ETJ)	P	Before any additional land outside the approved area is affected.	60 working days	Oct 2017	PEND	PENDING SEMARNAT authorities requested additional flora and fauna sampling. Additional sampling and research took place on March 2018. Amendments to the ETJ are underway.
3.1.5 Environmental Impact Resolution for Media Luna Exploration - Extension SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico City	• Environmental Impact Statement (MIA-Extension)	P	Before any modification to the approved project is implemented	10 working days	Mar 2018	April 2018	COMPLETE The permit in place ended in Q1 2018. A formal letter was sent to SEMARNAT to justify a permit extension to 6 months. A new permit was granted for 2.5 years.
3.1.6 Concession to Extract Underground Water CONAGUA (National Commission for Water) Delegation at Guerrero	• Application form supported by technical documents.	P	Before any water extraction is undertaken	60 working days	PEND		PENDING
3.1.7 Permit to build infrastructure and conduct activities in the Balsas River CONAGUA (National Commission for Water)	• MIA authorization	P	Before any activities take place at the Balsas River and Federal land	60- 90 working days	PEND		PENDING
3.2 Media Luna Underground Mine							
Permit / Agency	**Source Document**	**Type**	**When Needed**	**Transaction Time**	**Date File**	**Date Res.**	**Comments**
3.2.1 Use of Rio Balsas CONAGUA (National Commission for Water) Delegation at Guerrero	• Environmental baseline study • Application form supported by technical documents		Before project initiates	90 working days	Q4 2018	PEND	PENDING Regulatory authorities will be consulted to determine the required approach and approvals for the Rio Balsas Use
3.2.2 Permit to Change the Use of Land for Media Luna Advanced Exploration SEMARNAT (Secretariat for the Environment and Natural Resources) Delegation at Guerrero	• Technical Economic Justification Study (ETJ)	P	Before any additional land, over approved area, is affected.	60 working days	Q4 2018	PEND	PENDING The change of Use of Land will be required for underground mine, road and ferry´s operations on Rio Balsas.
3.2.3 Concession to Extract Underground Water in Barranca de Santa Helena CONAGUA (National Commission for Water) Delegation at Guerrero	• Application form supported by technical documents.	P	Before any water extraction is undertaken	60 working days	Q4 2018	PEND	PENDING
3.2.5 Media Luna Mine Production SEMARNAT (Secretariat for the Environment and Natural Resources) Mexico city	• Environmental Impact Statement (MIA-P) • Additional information	P	Before underground mine operation	60 working days	Q4 2018	PEND	PENDING

Type of Permit:
P: Principal (indispensable and could possibly be denied)
T: Technical Review (reviewing agency can only challenge the design, but cannot deny it)
M: Minor (eventually needed, but does not impact development of the project)

20.3 PERMITTING STATUS, SCHEDULE AND PROCESS

20.3.1 Existing and Required Permits and Rights

The main environmental permits required in México are the *Resolución de Impacto Ambiental* for Construction and Operation (RIA) and the Change in Land Use Permit (ETJ) that are issued by *Secretaría de Medio Ambiente y Recursos Naturales* (SEMARNAT). Four primary documents must be submitted for the approval and issuance of these permits by SEMARNAT:

1. MIA; Manifestación de Impacto Ambiental (Mexican Environmental Impact Assessment). MIA modifications, for any changes to the project planning and operations. *Construction and operation.*
2. ETJ; Estudio Técnico Justificativo (Technical Justification Study for the Change in Land Use). *Construction and operation.*
3. Estudio de Riesgo Ambiental Mina Morelos (Environmental Risk Assessment).
4. PPA; Programa para la Prevención de Accidentes (Program to prevent accidents)

A full Environmental and Social Impact Assessment (ESIA) for the original MML Project, compliant with Equator Principles and IFC PS as well as World Bank Group General and Mining Sector Environmental, Health, and Safety (EHS) Guidelines, was completed in September 2014. As part of the ESIA, an Environmental Quality and Monitoring Program was developed.

20.4 PHYSICAL, ECOLOGICAL AND SOCIO-ECONOMIC SETTING

The following subsections present a summary of the environmental and socio-economic setting for the Morelos Property, which encompasses the ELG Mine Complex (surface and underground mining, and its associated infrastructure) and ML advanced exploration project, as well as key findings, potential risks and impacts, and corresponding mitigation measures.

20.4.1 Physical Environment

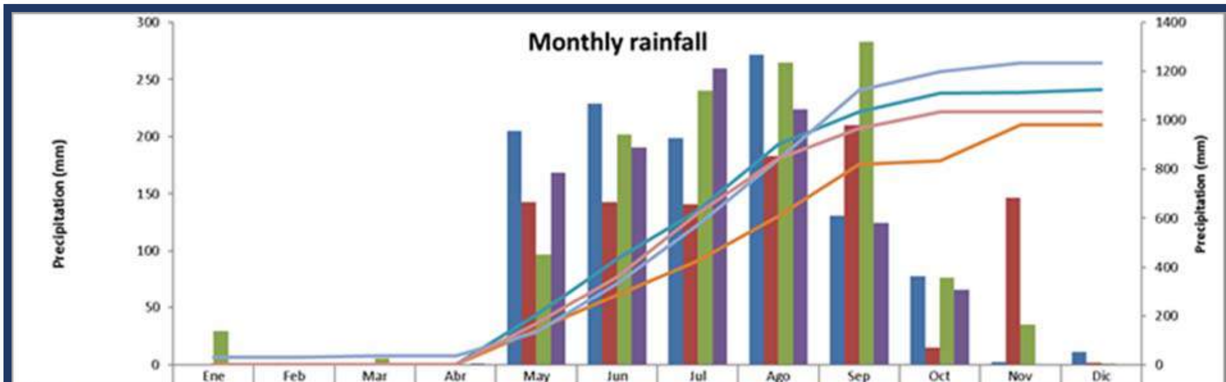
The physical environment includes the following components:

- Atmosphere (air quality, greenhouse gas, climate change, noise and vibration);
- Visual (light and visual aesthetics);
- Water (hydrogeology, hydrology, surface water, and sediment control); and
- Physical (soil, and natural and industrial hazards).

20.4.1.1 Atmosphere

The ELG Mine Complex and ML Project is in a region called the Balsas River Basin, at the convergence of the Trans-Mexican Volcanic Belt and the Sierra Madre del Sur. The regional climate ranges from semi-warm to temperate sub-humid. Using the Koppen climate classification, the climate can be described as a Tropical Wet-Dry category, with year-round, mean temperatures above 18°C.

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. The rainy season is when 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 (Figure 20-1). Annually, evaporation far exceeds the amount of rainfall. MML operates two meteorological stations located on the property.



	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic
Año 2014	0	0	0	0	205	229	199	271	131	78	3	11
Año 2015	0	0	0	0	143	143	141	183	210	15	147	2
Año 2016	30	0	5	0	97	202	240	265	283	77	35	1
Año 2017	0	0	0	1	168	190	260	224	124	66	0	0
Acumulado 2014	0	0	0	0	205	433	632	903	1,034	1,112	1,114	1,126
Acumulado 2015	0	0	0	0	143	285	426	609	819	834	981	983
Acumulado 2016	30	30	35	35	132	334	574	839	1,122	1,198	1,233	1,234
Acumulado 2017	0	0	0	1	169	359	619	843	967	1033	1033	1033

Figure 20-1: Monthly Rainfall from 2014 to 2017

On-site data indicate that the predominant winds are from the southwest and south southwest, with hourly wind speeds between 1 and 5 m/s. The monthly average temperature peaks in April at around 32°C. From July through January, the temperature varies little, with monthly average temperatures between 24°C and 27°C, respectively.

The existing air quality in and around the ELG Mine Complex area is primarily influenced by agricultural activities, open burning, and dust from unpaved roads and waste rock deposits. There are currently no other major industrial sources that contribute to reduced air quality in the area.

Total (air) Suspended Particles (TSP) results for 2016 and 2017 are presented in comparison with relative humidity concentrations (HR%). It is inferred that at a higher humidity, the concentration of TSP is lower. The air quality data indicates that the TSP, concentrations of suspended particles equal or smaller than 10 µm (PM_{10}) and suspended particles equal or smaller than 2.5 µm ($PM_{2.5}$) do not exceed the maximum allowed limits established by the government of Mexico. The concentrations of particles tend to increase during the dry season, while for the rainy season (June, July, August and September) it decreases considerably (See Figure 20-2).

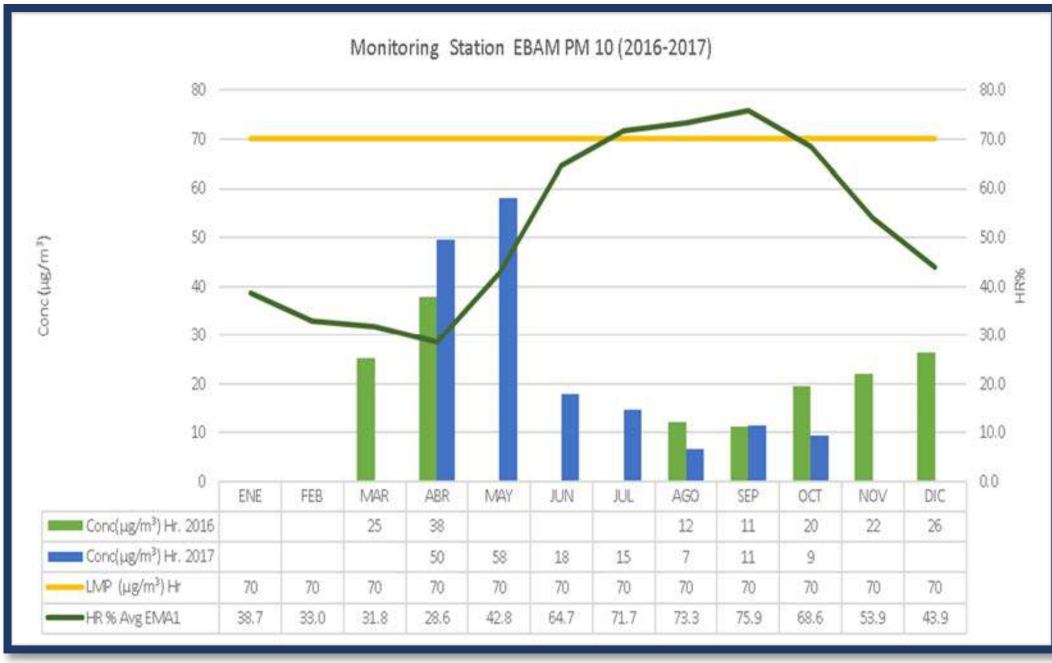


Figure 20-2: Average PM10 Compared to Relative Humidity, 2016 and 2017

As part of the Air Quality Management Plan, periodically, data are collected 24 hours a day around the local communities and at the project site. Gas emissions for NO_2, SO_2, O_3, and CO measured by a mobile unit in the project area remain within the required limits.

In addition to the implementation of mitigation measures described in the Monitoring Plan for Air and Noise, the infrastructure selected for the ELG Mine Complex was done in part to reduce the impact on the air emission and air quality. Two examples of this are:

- Selection of Suspended Conveyor (RopeCon)
    - Reduces the use of conventional truck haulage reducing air emissions and traffic noise;
    - Generates clean energy by producing electricity on its downhill movement of ore and avoiding the burning of diesel fuel;
- Dome constructed over the crushed ore stockpile which minimizes the amount of dust and noise released from the crushed ore stockpile.

Generally, the 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 measurement locations. A Noise and Vibration Management Plan has been developed and implemented aiming to maintain noise levels and vibrations below regulatory requirements based on the findings of an assessment work completed prior to and after construction of the ELG Mine Complex. The key findings of the detailed assessment of atmospheric components (air quality, greenhouse gas, climate change, noise and vibration) are as follows:

- Maximum concentrations of contaminants released into the atmosphere meet the regulatory requirements (Mexican Norm NOM-025-SSA1- 2014);
- Direct contributions of greenhouse gases from Morelos Property are too small to result in a measurable change in global climate;

- An air dispersion modelling (AERMOD) was completed to quantify the potential HCN ground level concentration and distribution from the SART gas scrubbing system that removes HCN and H_2S from gases prior to discharge to the atmosphere through an elevated exhaust stack. Results from this study indicate that HCN emissions will be within the applicable guidelines;
- Results from MML's 2016 Report on Environmental Compliance indicate that their peak noise levels continue to oscillate between 44 and 60 dB - below regulatory requirements (Norm NOM-081-SEMARNAT-1994) - and are barely audible from Nuevo Balsas, Balsas Sur, Campo Arroz, and the resettlement communities at El Potrerillo (Figure 20-3);
- Implementation of a Vibration Evaluation Plan has taken place aiming to ensure that blasting events, air and ground vibrations meet the required limits.

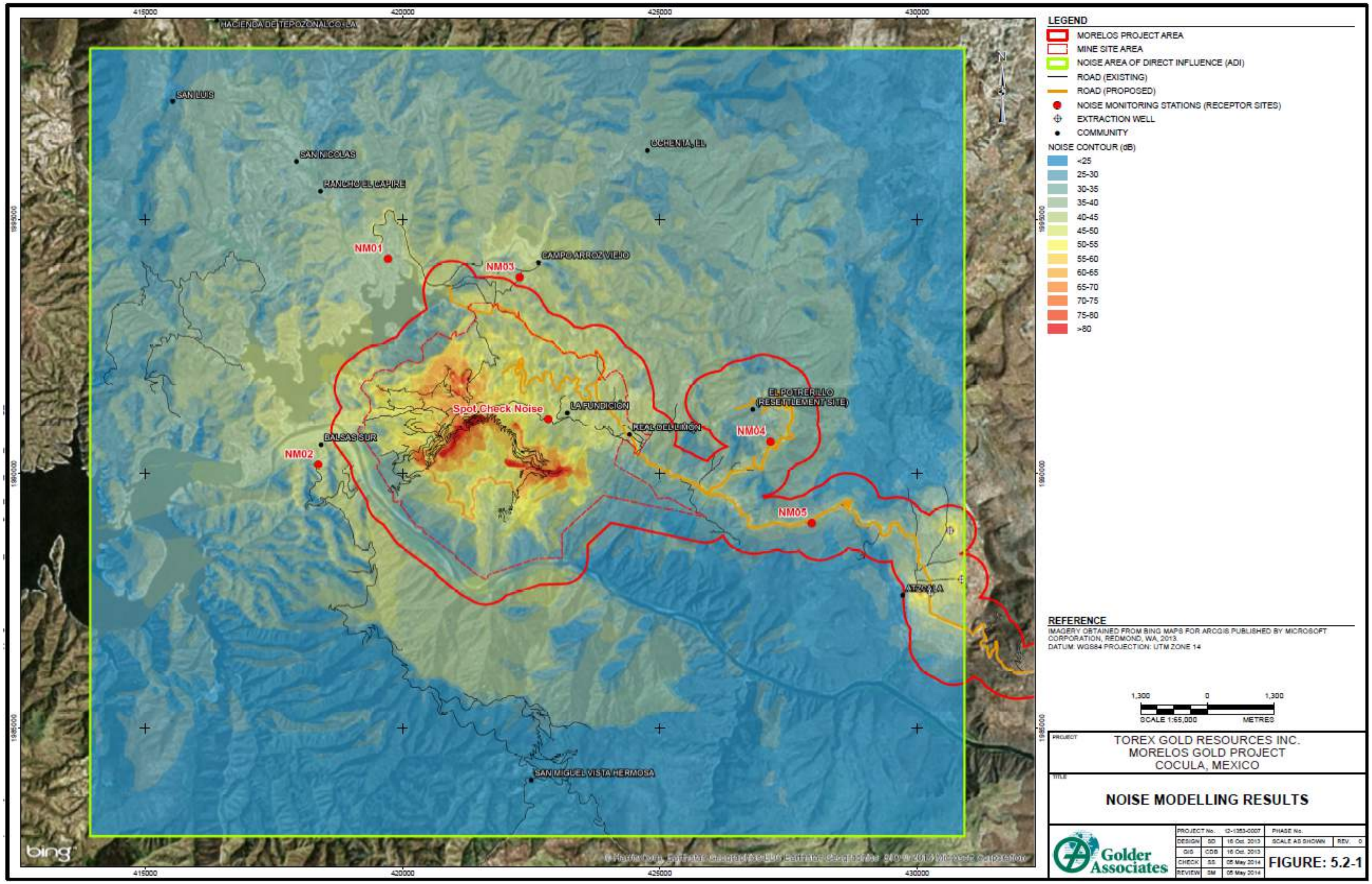


Figure 20-3: Noise Modelling Results

20.4.1.2 ELG Mine Complex Modifications

As part of the Environmental Quality Monitoring Program (PSCA) developed to comply with the Morelos Property MIA (and subsequent modifications), an Air Quality and Acoustics Monitoring Plan has been implemented to address the incremental environmental and social risks associated with changes in the project. In the MIA, air quality and noise effects for El Limón Sur were evaluated as moderate. According to the 2016 Environmental Monitoring Report, the maximum predicted concentrations of contaminants released into the atmosphere in the Balsas Sur are within the regulatory requirements. The ELG UG Mine environmental impact matrix will be developed and described under the environmental permits for each mine development. The PSCA will be updated in 2018 to include this new development area and the SART circuit.

20.4.1.3 Hydrogeology

This section presents basic hydrogeologic information for the ELG Mine Complex. Other sections of this report (including Sections 16 and 18) provide additional data, analysis, and discussions of hydrogeologic conditions and the effects on the groundwater system from mining operations.

Hydrogeological investigations conducted in the ELG Mine Complex area to date indicate that the bedrock has relatively low permeability. Studies completed by SRK and AMEC indicate that the average hydraulic conductivity of the shallow bedrock above approximately 50 m depth was estimated at 3×10^{-7} m/s, while the average hydraulic conductivity of the deep bedrock, below approximately 50 m, was estimated at 8×10^{-9} m/s. Sergio Cosio and Associates (SCS) is currently completing additional hydrogeological investigations. Preliminary results provided by SCS indicate that hydraulic conductivity values obtained recently are within the same order of magnitude as values presented by SRK and AMEC.

Groundwater flow within the vicinity of the mine site area is generally radial (to the west, southwest, and northwest) and mimics the topography. Two important components of flow are: 1) to the northwest toward the Caracol Reservoir, and 2) to the northeast on the eastern side of the site. Groundwater provides baseflow to some local streams.

Geologic mapping and drilling at the ELG Mine Complex have identified a few faults, some of which appear to play an important role in defining the groundwater flow regime. The La Amarilla fault intersects the Guajes pit complex and has an estimated hydraulic conductivity of 4×10^{-6} m/s. The La Amarilla fault trends northeast-southwest and is interpreted to extend from the banks of the Balsas River to the vicinity of the Range Front fault. Groundwater is estimated to discharge to the Presa El Caracol along La Amarilla fault at a rate of approximately 100 m^3/day.

Groundwater is used for a variety of purposes in the ELG Mine Complex area. Locally, hand dug wells, springs, and seeps are used as domestic, livestock, and agricultural water sources. Extraction of groundwater within the ELG Mine Complex footprint has not been documented to date. To the east of the ELG Mine Complex near the town of Atzcala, water wells have been installed in the carbonate rocks, likely associated with the Morelos Formation. The wells at Atzcala serve as the make-up water source for the ELG Mine Complex and domestic water supply for the mine's accommodations.

The effects of mine operations on the hydrogeological conditions in the Mine area are anticipated to include potential changes in groundwater elevations and groundwater quality because of the El Limón, El Limón Sur, and Guajes pit complexes. The effects of pit development were assessed using a numerical groundwater model developed by SRK.

As part of an ongoing monitoring program, the ELG Mine Complex Environmental Department collects water quality data from several springs, streams, and monitoring wells in the mine area.

The potential effects of mine operations on groundwater conditions identified during construction, operations and closure/post closure include:

- Changes in groundwater levels because of mine dewatering; and
- Changes in groundwater levels because of well field pumping.

Mine operations that could affect groundwater quality include the following:

- Development and operation of the open pits.
- Infiltration from the FTSF
- Seepage from the water management ponds 1 and 2, associated with the FTSF.
- Groundwater and surface water impact from pit lake water during post closure.
- Potential releases of acidic drainage to groundwater.

Several analytes exhibited natural, average groundwater concentrations in excess of their applicable standards. These include pH, total dissolved solids (TDS), chlorine, aluminum, antimony, arsenic, barium, iron, manganese, selenium, silver, ammonia nitrogen, phosphorus, and total phenols. A few analytes exhibited average concentrations in spring and seep water in excess of their applicable standards, including aluminum, arsenic, barium, manganese, selenium, ammonia nitrogen, nitrate, and phosphorus.

Several mapped faults are present in the mine area, including the La Amarilla and the La Flaca faults. The former underlies the Guajes Pit, while the latter underlies the El Limón Pit. Current groundwater quality data indicate that dissolved arsenic is naturally discharging to the Presa El Caracol through the La Amarilla fault. Loading through the La Flaca fault is currently considered to be negligible, based on the current understanding of the fault's transmissivity. Loading of analytes from bedrock (*i.e.* not near faults) is considered negligible due to the low hydraulic conductivity of the bedrock.

The primary effects on groundwater quality identified as potential during operations include the possibility of point source releases of contaminants to the groundwater (*e.g.* fuel spills), potential seepage of surface water that has been impounded in ponds downgradient of the FTSF and WRSFs, and acidic drainage originating from tailings and/or waste rock. Potential point source contamination has not been included in the predictive effects assessment as it is assumed that these events, should they occur, will be mitigated at the time of occurrence.

The key findings and results from predictive modelling for water-related components validated during the 2 years of construction and 2 years of operation, are as follows:

- Development of the pits is not expected to cause drawdown of groundwater levels that would affect water levels in the Presa El Caracol or the well fields in El Potrerillo or Atzcala.
- No change to existing contributions of potential contaminants to the Presa El Caracol through groundwater. These represent existing, natural contributions.

The modifications to the ELG Mine Complex are being studied to assess and mitigate any incremental effects associated with El Limón Sur and ELG UG on the hydrogeology. SCS is currently conducting several studies to better understand the potential environmental impacts of the ELG open pits: 1) water table and potentiometric surface monitoring; 2) slope depressurization using horizontal borings in selected pit walls; and 3) a groundwater flow model update for the pit areas.

20.4.1.4 Hydrology

The ELG Mine Complex is in an area with surface water resources that include: Presa El Caracol, the Rios Balsas and Cocula, ephemeral surface streams, and groundwater resources that are used for domestic and livestock water supply. The Presa El Caracol is the predominant surface water feature within the regional project area. This reservoir was formed following construction of hydroelectric El Caracol Dam (Carlos Ramirez Ulloa Dam) in 1986. The reservoir has intrinsic value for the local people, aquatic animals, and environmental and aquatic health, and it supports a commercial and subsistence fishery.

Storm water collection and sedimentation ponds are located downstream of the FTSF and WRSFs, respectively. Under the base case plan, seepage and surface runoff from the FTSF is collected and pumped from these downstream ponds to the central water pond (CWP). Water from the CWP is recycled for process water needs, as per the environmental permits, excess water may be discharged to the environment when it meets the required standards. Seepage and runoff from WRSFs is detained in sedimentation ponds to allow a reduction in TSS and monitoring of the water quality before discharge to the environment (Amec, 2012). All ponds have an overflow spillway to discharge surface water from large rainfall events directly to the environment, which will ultimately reach the Presa El Caracol.

There are several mitigation measures that can be considered if the risk assessment, or ongoing monitoring, indicates that runoff and seepage from the WRSFs exceeds relevant water quality guidelines for release. Such measures may range from pond-specific treatments to the construction of a water treatment plant for the site. Water quality triggers have been implemented manually through a Lab Information Management System (LIMS), and electronic means are being evaluated so the water quality can be monitored and the proposed actions, as described above, can be activated if certain pre-determined concentrations are exceeded. To date, no concerns within the downstream receiving environment have been detected associated with releases from these ponds.

The key results from the predictive modelling for the water components are as follows:

- Potential increases in existing contributions of specific contaminants to the tributaries and the Balsas River.
- The aquatic risk assessment identified the potential for localized effects to aquatic organisms at the outlet of specific tributaries.
- The human health risk assessment determined that naturally elevated concentrations of certain contaminants in the Presa El Caracol exist. There is no expected increase in risk to human health because of Morelos Project activities.

Modifications to the ELG Mine Complex water controls for El Limón Sur and associated infrastructure will follow a similar plan to that currently in operation.

Pond 9 will be constructed downstream of the El Limón Sur mine and dump complex and is designed to release runoff to the environment following settling of suspended solids. The pond will manage suspended solids through retention and passive settling. Management of other water quality parameters (the main parameter of interest being arsenic) will be ensured by water quality monitoring prior to discharge to the environment. Discharge from Pond 9 will be to the Rio Balsas.

20.4.1.5 Surface Water and Sediment Quality

Surface water quality is influenced by geology, climate, and landscape such that seasonal and yearly variability in water quality is expected. The predominant surface water bodies in the study area are:

1. Balsas River to the south and west of the ELG area, flowing east to west along the south perimeter, and
2. Rio Cocula to the north and east of the study area, flowing southwest, to its confluence with the Balsas River.

Water elevations in a section of the Rio Balsas and the lower Rio Cocula are controlled by the hydroelectric dam (El Caracol Dam) approximately 20 km downstream of the ELG Mine Complex and by natural events such as precipitation from hurricanes. There are numerous smaller tributaries in the immediate study area that transfer water from the immediate ELG area to Cocula and Balsas Rivers. Many of these tributaries are ephemeral.

To adequately characterize the existing water quality for the study area, data were collected during the environmental baseline program over temporal and spatial scales and from drainages at the mine site that could potentially be affected by ELG development. The baseline program also collected baseline data from a “reference” area that is outside the influence of the potential development.

Surface water quality is influenced by sediment quality and, thus, an evaluation of sediment quality was conducted as part of the water quality programs. Sediment quality is influenced by landscape topography, landscape cover, geology, watershed disturbance, and amount of runoff. To characterize sediment quality at the ELG Mine Complex site, sediment samples were collected during the environmental baseline from depositional areas within watersheds that could potentially be affected by ELG Mine Complex. Sediments accumulate over longer time frames, and, therefore, seasonal and yearly variability is not usually expected unless development or other changes have occurred in the watershed.

At all stations sampled as part of the surface water and sediment quality baseline data collection program, at least one water quality parameter exceeded the applicable standards or guidelines. Water quality parameters that exceeded standards/guidelines most frequently in the Local Study Area (LSA) were aluminum, barium, iron, manganese, TDS, turbidity, sulfate, hardness, and total phosphorus. Parameters with occasional exceedances were arsenic, cadmium, chromium, cobalt, copper, lead, mercury, nickel, vanadium, zinc, fluoride, ammonia, nitrate, total coliforms, pH and TSS. Metals exceedances were less common in samples from the tributaries and Rio Cocula as compared to samples from Balsas River. Sediment quality parameters that exceeded standards/guidelines in the study area were arsenic, cadmium, chromium, copper, lead, mercury, and zinc.

Established water quality guidelines are used as generic benchmarks to evaluate potential adverse effects to aquatic life or human health. It is not uncommon for mineral-rich areas, such as those developed for mining projects, to have background concentrations in receiving waterbodies that exceed the generic water quality guidelines. As part of the ESIA, these guideline exceedances were interpreted with respect to relevant site-specific and toxicological information, as generic water quality guidelines are not intended to be site-specific. Mitigation measures were presented in the ESIA, including the implementation of ongoing monitoring programs. These monitoring programs have been incorporated into the Environmental Monitoring Program (PSCA) and the Operative Water Management Plan (POMA).

The modifications to the ELG Mine Complex used existing baseline data gathered and evaluated during the MIA and ESIA. Additional studies, if required, will be conducted to assess the incremental environmental and social risk, and the potential impacts associated with the El Limón Sur operation on the surface water and sediment quality along the Balsas River.

Another goal with respect to prevention of the degradation of surface water and sediment quality is to ensure that the results of the geochemical behavior of the principal mine waste is properly managed. The simplest approach is to prevent the potential interaction of tailings, ore stockpiles, and waste rock material with surface water and sediments of local waterways. The geochemical testing to date suggests that waste rock will have a limited, but possible, ability to produce acidic drainage, thereby increasing the content and potential transport of metals (including arsenic) from the waste rock to surface water. Arsenic in some types of rock may be mobilized in neutral drainage scenarios. Similar characteristics apply to the tailings. To date, no acid drainage or mobilization of As has been identified above that predicted in the MIA.

20.4.1.5.1 Cocula River and Balsas River Water Quality Monitoring

ELG's potential contribution of material or elements to the Balsas and Cocula rivers is monitored at up to 15 stations located around the Balsas-Cocula rivers basin (Figure 20-4). There was a limited discharge to the receiving environment in 2016 and 2018. In both isolated cases, the water was within the discharge limits. Details about each monitoring station on these locations are described in Table 20-2.

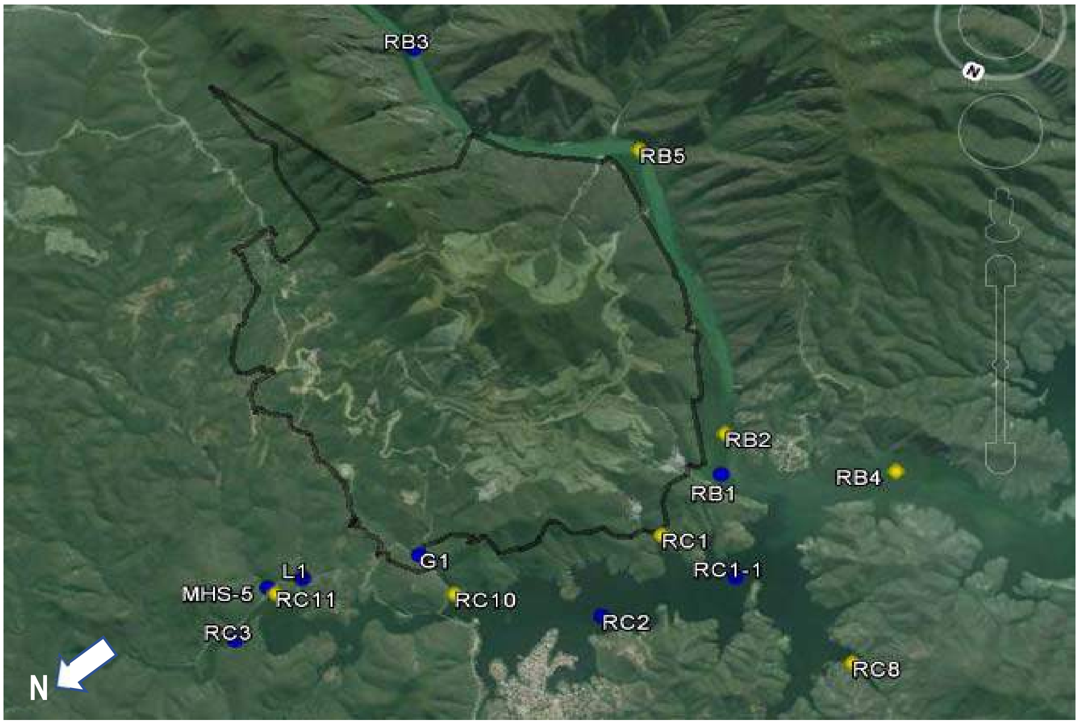


Figure Source: Torex, May 2018

Figure 20-4: ELG Mining Complex Monitoring Stations for Surface Waters Related to the Cocula and Balsas Rivers (photo from Google Earth)

Table 20-2: Balsas and Cocula River Basin Monitoring Stations Nomenclature and Coordinates

River Basin Location	Station Identification	Zone 14Q Coordinates UTM	
		East (m)	North (m)
Balsas River – downstream, prior to confluence with the Presa El Caracol	RB1	418 899	1 990 880
Balsas River – upstream the mine site area	RB3	424 118	1 987 648
Cocula River – downstream	RC1	419 058	1 991 981
Presa El Caracol prior to confluence with the Balsas River	RC2	419 338	1 992 974
Cocula River – upstream, prior to the mine site area	RC3	422 786	1 994 928
Cocula River	RC8	416 667	1 992 320
Cocula River	RC10	420 889	1 993 417
Confluence with Cocula River	RC11	422 632	1 994 240
Confluence with Cocula River	MHS-5	422 735	1 994 214
Confluence of a tributary from CWP with the Presa El Caracol	G1	421 433	1 993 159
Confluence of a tributary from Pond 5 with the Presa El Caracol	L1	422 447	1 993 951

Monitoring results are compared to the maximum permissible limits (MPL) of the Federal Law of Rights (LFD), water quality guidelines, and the Official Mexican Standard NOM-001-SEMARNAT-1996, which establishes the maximum limits permissible pollutants in wastewater discharges into national waters and natural environments.

It should be noted that there is no permanent discharge to surface water from the mine site. Key findings from historical data and ELG's surface water quality monitoring data available between 2015 and 2017 for monitoring stations indicate the following:

- Rio Cocula historical data and baseline study indicates that monitoring points RC1, RC2 (Cocula River downstream) and RC3 (Cocula River upstream) pH ranged from pH 7.16 to pH 8.25 from February 2012 to October 2014. The Balsas river monitoring points RB1 (Balsas river downstream) and RB3 (Rio Balsas upstream) pH ranged from pH 7.62 to pH 8.17 from February 2012 to October 2014.
- To date, the Cocula River and Balsas river pH levels have maintained its natural condition as registered in the baseline study from February 2012 to October 2014. Between April 2015 and September 2017, RC2 and RC3 registered pH between pH 7.31 and pH 8.76 on average. Two unusual and isolated cases of high pH levels were measured on RC3 on November 2015 and December 2016, and one isolated case of low pH 5.03 was detected on RC2 in December 2015; however, this case was not repeated. The Rio Balsas upstream and downstream monitoring stations indicated a pH range between pH 7.31 and pH 8.59 (Figure 20-5).

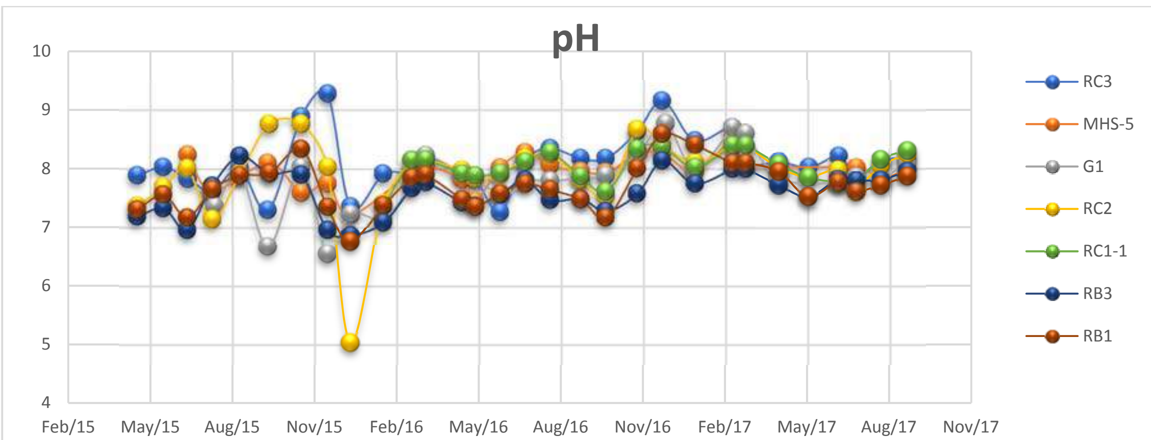


Figure 20-5: pH Value Average for Balsas and Cocula Rivers Between April 2015 and September 2017

- From all stations sampled, water quality parameters that exceeded the applicable standards most frequently during the rainy season were Al, Fe, and As. The tendency for Al indicates that the high and low values on dry and rainy seasons is caused by natural conditions. The tendency for naturally higher As concentrations dropped and maintained below regulatory requirements during 2017. High values for sampling stations located upstream and downstream indicates that the high value tendency for Total Fe is a natural condition of the area during the rainy season. Water quality parameters with naturally higher concentrations than the applicable standards most frequently in different times of the year were Mn (In stations RC3, MHS-5, G1 and RB3), Zn, Sb, Sr, Cl, Va, and Ca. Parameters most frequently found in higher concentrations in G1 were: Na, Co, and HNO_3. Parameters with occasional variable and non-significative concentrations in most sample stations were Ba, Cd, NNO_3, Cu, Cr, Pb, and K, with high concentrations registered in the rainy season. The results from G1 in 2016 and 2017 show reductions in concentrations compared to 2015.
- Turbidity was higher during the rainy season of 2016 ranging from 109 mg/l to 3,400 mg/l and reduced to a range of 6.00 mg/l to 1,500 mg/l during the dry season.
- Higher levels of TSS were found in RB3 and RB1 in 2016. This same situation occurred in 2015.
- Total Cu data revealed naturally higher values on all monitoring sites until January 2016. From then on, copper concentrations results ranged below regulatory requirements, except for G1 with high concentrations reaching

a high of 0.5 mg/l on August 2016, and July 2016 with a high of 0.2 mg/l followed by a drop to 0.02 mg/l and relative stability below regulatory requirements (0.05 mg/l).

- Total CN monitoring results revealed values below limit of detection for all monitoring stations, except for G1 that presented peaks of 0.89 mg/l on September 2016 and 1.49 mg/l on December 2016, which are within the discharge criteria. The water received by G1 included limited seepage from the CWP. These values steadily dropped to below the detection limit in 2017 (0.005 mg/l) as the site team focused on CN destruction within the CWP.
- For As, all the detected concentrations were below regulatory requirements (0.2 mg/l).

Additional studies, if required, will be conducted to assess the incremental environmental and social risk and potential impacts associated with the El Limón Sur open pit mine on the surface water and sediment quality along the Balsas River.

20.4.1.6 Receiving Environment Water Quality/Geochemistry

Chemical weathering of exposed sulphide-bearing rock may result in acid rock drainage and metal leaching. Therefore, handling of mine waste materials, and related contact water, is an integral component of the surface water quality assessment. The following sections provide a summary of the mine waste and water management plans, as discussed in greater detail in AMEC (2012) and AMEC (2013).

Mine Waste Management Plan

Mining the El Limón and Guajes open pits is expected to generate approximately 270 Mt of waste rock and 42 Mt of filtered tailings over the mine life. Waste rock mined from the El Limón open pit is placed in the El Limón WRSF. Waste rock mined from the Guajes pit is stored in two WRSFs: the Guajes North WRSF and the Guajes West WRSF, see section 18 for description of WRSF. Geochemical testing of 645 waste rock samples (Teck, 2004; SRK, 2008; AMEC, 2012) indicates 77% of the waste rock samples had neutralization potential ratios (NPR) >3 and are, thus, characterized as non-potentially acid generating (non-PAG) - according to the Draft Mexican Regulation PROY- NOM -1 57-SEMARNAT-2009. As most of the waste rock is expected to be non-PAG (AMEC, 2012), MML does not segregate PAG and non-PAG waste rock during mining. The drainage from the waste rock will continue to be monitored through the mine life to determine whether mitigation will be required.

Tailings produced from processing of ore is stored in the FTSF. The geochemical properties of tailings were characterized based on five process plant samples (SRK, 2008; AMEC, 2012). A comparison of the NPR measured in the samples to the Mexican Regulation NOM-141-SEMARNAT-2003 NPR threshold (1.2) indicates two of the five pilot plant tailings samples are PAG – to date, no acid generation has been detected in the water quality monitoring results.

Geochemical characterization of waste rock within the El Limón Sur pit suggests that waste rock and tailings have a limited ability to produce acidic drainage but that such drainage cannot be ruled out. Additional geochemical testing is recommended. The lithology is generally comparable to the results from previous investigations of the Guajes and El Limón waste rock. The quantities of skarn rock identified as waste, as well as an increased component of oxidation within the deposit, are unique to El Limón Sur. It has been assumed that, since the scale of mining operations and the similarities to the previous work for Guajes and El Limón, the water quality from El Limón Sur will be largely similar to that predicted for Guajes and El Limón waste rock dumps. Therefore, seepage and drainage water from the dumps should be suitable for discharge to the environment during operations without treatment. However, as for the Guajes and El Limón waste rock dumps, arsenic could be expected to be elevated in drainage; as are local baseline arsenic concentrations. A preliminary water quality model is under development as a screening tool to confirm anticipated water quality expected from development of the El Limón Sur resource both during operations and post closure (Amec, 2015. El Limón Sur Feasibility Design).

Mine Water Management Plan

The Operational Water Management Plan (Plan Operativo de Manejo de Agua - POMA) includes standard operations at the ELG Mine Complex for the protection of ground and surface water. Detailed designs for water management structures and discharges around the project site are based on the AMEC's Detailed Site Water Management Engineering Report (RP-133911-7000-01). MML's environmental team carries out inspections based on the Environmental Quality Monitoring Program.

MML's general strategy for water management focuses on keeping clean water clean as follows:

1. Run-off during the rainy season is diverted around the site as much as possible, to prevent contamination, and discharged to the receiving environment.
2. Water in contact with sediment sources are routed to the sediment control structures before being discharged to the receiving environment or, as required, for its use in the process.
3. Potentially contaminated water (for example, runoff from the filtered tailings storage facility) is directed to the water control structures where the water is tested before, as required, being released to the downstream receiving environment, in compliance with government permits. In general, water is used in the gold-recovery process after being pumped back to the CWP for recycling.
4. Water from within secondary containment structures (for example, areas with secondary containment for reagent mixing) is reused in the process.

With the implementation of the above management strategy, MML minimizes cross-contamination of water in such a way that water that may not be suitable for discharge in the receiving environment is used in operations. The POMA will be updated to consolidate MML's new developments and to include detailed procedures to manage acid rock drainage (ARD).

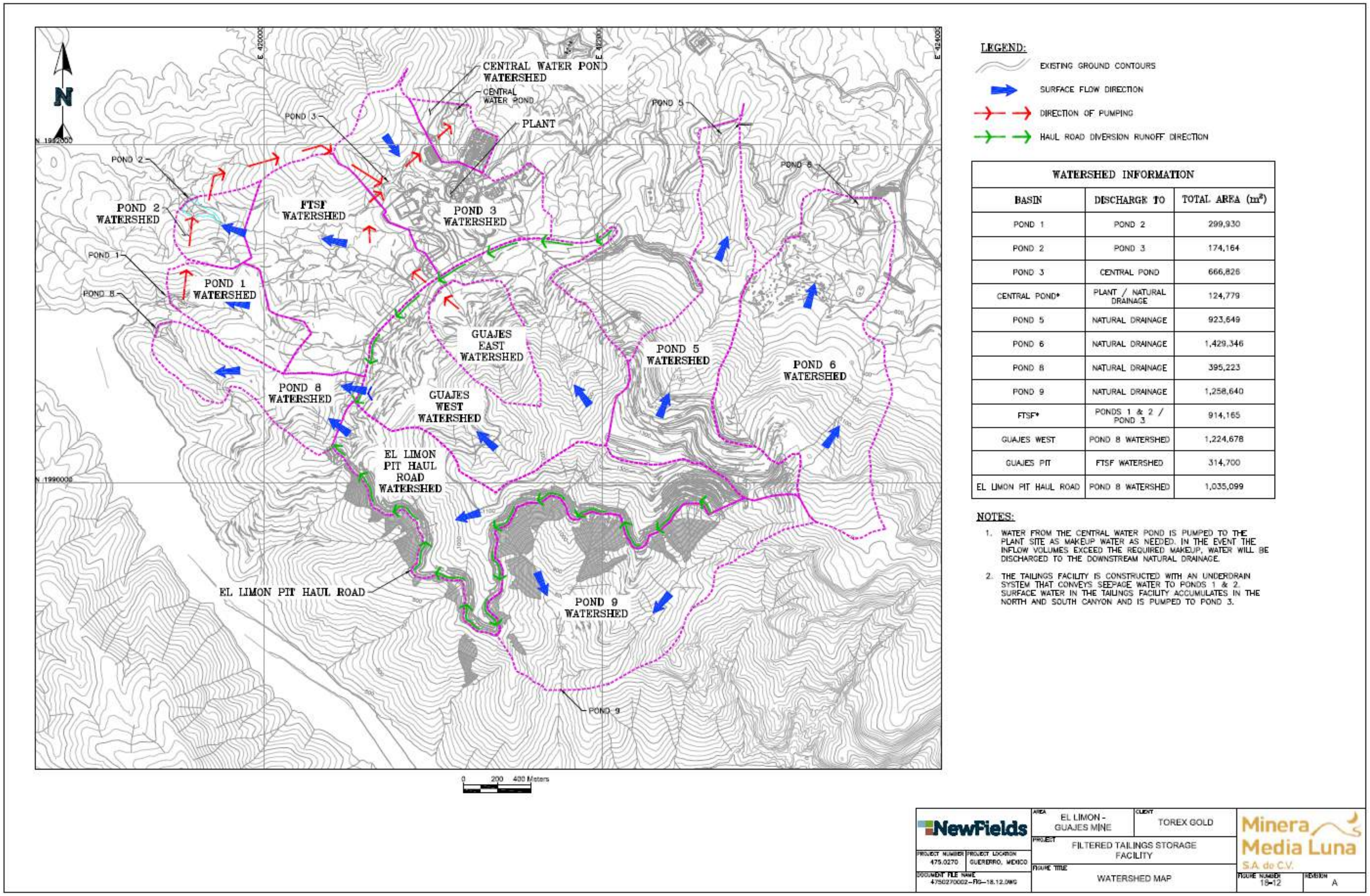
More specific water management strategies are discussed in the following sections for each part of the mine.

Operations

Contact and non-contact water originating from mine site facilities drains towards downstream collection ponds. Ponds 1 to 3, and the CWP are lined – minimal seepage occurs. Hydrogeological modelling indicates approximately 32 and 12 m^3/day of seepage will be lost from Ponds 1 and 2, respectively, and seepage from Pond 3 will drain to Pond 2. For the receiving environment water quality assessment, it was assumed that seepage from Ponds 1 and 2 would report to the Río Balsas and Río Cocula, respectively.

Water stored in Ponds 1 to 3 may be pumped to the CWP. Additionally, water originating from the El Limón and Guajes open pits will be pumped to the CWP if it does not meet the discharge requirements. Water stored in the CWP is used in the process plant. Water stored in the CWP may be released from the CWP to the receiving environment. Water discharged from the CWP will flow to the Río Cocula. Hydrogeological modelling indicates approximately 47 m^3/day will continuously seep through the liner of the CWP. Base seepage from the CWP is expected to report to the Río Cocula.

Ponds 5 and 6 collect runoff and seepage from the El Limón WRSF and Pond 8 collects runoff and seepage from the southern region of the Guajes West WRSF. The primary purpose of these unlined ponds is to reduce sediment in WRSF runoff and seepage, before releasing it to the receiving environment (AMEC, 2012). Ponds 5 and 6 drain to their ephemeral downstream tributaries to the Río Cocula, and Pond 8 drains to the Río Balsas (Figure 20-6). Pond 9 will be constructed downstream of the El Limón Sur WRSF's and is designed to release runoff to the environment following settling of suspended solids. Discharge from Pond 9 will report to the Rio Balsas via the Las Garzas drainage.



WATERSHED INFORMATION		
BASIN	DISCHARGE TO	TOTAL AREA (m²)
POND 1	POND 2	299,930
POND 2	POND 3	174,164
POND 3	CENTRAL POND	666,826
CENTRAL POND*	PLANT / NATURAL DRAINAGE	124,779
POND 5	NATURAL DRAINAGE	923,649
POND 6	NATURAL DRAINAGE	1,429,346
POND 8	NATURAL DRAINAGE	395,223
POND 9	NATURAL DRAINAGE	1,258,640
FTSF*	PONDS 1 & 2 / POND 3	914,165
GUAJES WEST	POND 8 WATERSHED	1,224,678
GUAJES PIT	FTSF WATERSHED	314,700
EL LIMON PIT HAUL ROAD	POND 8 WATERSHED	1,035,099

Figure Source: Newfields, May 2018

Figure 20-6: ELG Mine Complex Water Management System Scheme

20.4.2 Surface Water Quality Monitoring

The detailed monitoring of surface water quality is done monthly at the sites initially identified in Figure 20-4. Water quality monitoring samples are taken from Ponds 1, 2, 3, CWP, 5, 6, and 8, as well as at monitoring stations downstream of ponds 1, 5, 6, and CWP (Figure 20-7) and Table 20-3. The monitoring network is evaluated at least annually and is adjusted to reflect changes or operational needs and improvements in surface water management. Critical concentrations for Al, As, Cu, Fe, total CN, WAD-CN, and NH_3 for Ponds 5, 6, 8, and CWP are summarized in Table 20-4.

Figure source: Torex, May 2018

Figure 20-7: ELG Mine Complex Monitoring Stations Located Downstream Ponds 1,5,6, and CWP, Photo from Google Earth looking North West

Table 20-3: Names and Locations of Monitoring Stations Downstream Ponds 1, 5, 6 and CWP

Monitoring Station	Zone 14Q		
	ID	X	Y
Downstream Pond 1	AAP1	419323	1991034
Downstream Pond 5	AAP5	422680	1992323
Downstream Pond 6	AAP6	423664	1991818
Downstream CWP	AAPC	421217	1992415

As indicated in the POMA, the critical levels for environmental protection were determined from a surface water model in GoldSim and these reflect the lowest of the acute and chronic values for the downstream receiving environment. Cyanide was not modeled: the critical value was set at 50% of the permissible discharge concentration. The critical values identified in Table 20-4 are used for water management actions.

Table 20-4: ELG Mine Complex Ponds Critical Concentrations Summary

Pond	Parameter	Units	Water Quality Range	Critical Concentration
CWP	Aluminum	mg/l	0.01 - 0.06	2.6
	Arsenic	mg/l	0.1 - 0.5	0.3
	Copper	mg/l	0.005 - 0.07	0.02
	Iron	mg/l	0.001 - 0.0014	0.3
	CN-total	mg/l	n.a.5	0.5
	CN-WAD	mg/l	n.a.5	0.25
	Ammonia (NH_3)	mg/l	n.a.6	0.019
Pond 5	Aluminum	mg/l	0.003 - 0.06	12
	Arsenic	mg/l	0.09 - 0.5	0.4
	Copper	mg/l	0.006 - 0.03	1.2
	Iron	mg/l	0.001 - 0.0014	0.4
	Ammonia (NH_3)	mg/l	n.a.6	0.019
Pond 6	Aluminum	mg/l	0.006 - 0.07	4.8
	Arsenic	mg/l	0.09 - 0.4	0.4
	Copper	mg/l	0.009 - 0.07	0.4
	Iron	mg/l	0.001 - 0.0014	0.8
	Ammonia (NH_3)	mg/l	n.a.6	0.019
Pond 8	Aluminum	mg/l	0.006 - 0.07	12
	Arsenic	mg/l	0.09 - 0.4	0.4
	Copper	mg/l	0.009 - 0.07	1.2
	Iron	mg/l	0.001 - 0.0014	0.8
	Ammonia (NH_3)	mg/l	n.a.6	0.019

Key findings and results from surface water quality monitoring data for total metal values from January 2016 to September 2017 on Ponds 1, 2, 3, 5, 6, 8, and CWT and samples downstream of Ponds 1, 5, 6, and CWP are as follows:

- Sampling results on pH levels for AAP1, AAP5, AAP6 and AAWPC show stable values ranging from pH 7.04 to pH 8.74 from 2016 to 2017.
- Total copper levels reached up to 36.6 mg/l on August 2016. The addition of the SART circuit will contribute to the recovery of copper from the ore, Pond 3, CWP, and reduce the use of cyanide.
- As expected, cyanide results show variable high and low values for Ponds 1, 2, 3, and CWP. Ponds 5, 6, and 8 results for total CN are below regulatory requirements. Samples from AAP1 with values above the critical value for total CN and WAD-CN were controlled to comply with regulatory requirements. The CN levels were reduced by dosing the ponds with hydrogen peroxide.
- Monitoring results for total aluminum indicate values ranging from 32.51 mg/l to 0.23 mg/l in Pond 6 and Pond 5 until March 2017. Since then, laboratory results indicate aluminum values comply with regulatory requirements in all ponds to date. Other metals with occasional exceedances were Fe (in Pond 5 and 6) but this water does not reach the downstream Rio Cocula,
- Results for total arsenic presented a range of values, some of which exceeded the trigger values but not the discharge criteria, until June 2017. From this date on concentration values kept within the regulatory water quality range and below the critical value. Water quality monitoring results for arsenic in streams below Ponds 2, 5, 6, CWP, El Limón Sur, Limón A, and a public use spring next to the project area called Palo Amarillo, AAP5, AAP6, and AACWP presented concentrations below the regulatory requirements, AAP1 exceeded

Total As concentration values on June 2017 and actions were taken to correct to comply with regulatory requirements.

- According to data from July to September 2017, levels of ammonia exceeded the critical value in the CWP from July to September 2017. Data for ammonia in Pond 5, 6, and 8 indicated concentrations below critical values in August and September 2017. There was no surface discharge from the CWP.
- During 2017, MML did not release water to the receiving environment from the CWP or Ponds 1, 2, or 3.
- Flows from Ponds 5 and 6 did not reach the Rio Cocula. Any seepage through these embankments enters the groundwater as these are ephemeral creeks in which flows during this period were insufficient to reach the downstream rivers.
- Adjustments to the Operational Water Management system to avoid releases, if required, to the environment included:
    - Seepage control
        - Lining ponds with geomembrane to prevent percolation. Currently CWP, Ponds 1, 2, and 3 are lined.
        - Construction of water retention areas downstream of Pond 2 and CWP
        - Planned installation of pumps to recirculate (as required) seepage back to Pond 2 and CWP.
    - Overflow control
        - Runoff and rain water diversions to avoid additional contributions to the existing water ponds.
    - Cyanide concentration reduction in Ponds 1,2,3, and CWP
        - Implementation of an evaporation system for water oxygenation that is complemented with the addition of peroxide.
        - Use of MT-2000, replacing the use of MBS. The combination of MT-2000/oxygen proved a higher efficiency in the detoxification process.

Groundwater Quality Monitoring

Samples for groundwater were initially conducted quarterly at monitoring stations identified upstream of the ELG project (SRK-WMP-8 and SRK-WMP-7), as well as an intermediate point (WMP-6) and four monitoring stations downstream of the project (SRK-MWP-10, SRK-WMP-11, SRK-12-WM-11 and SRK-WMP-13). The monitoring data analysis was done by a laboratory certified by the Mexican Accreditation Entity. As these water quality stations were within the mine area most them ceased to be in use. To monitor the ground water, 11 new stations were identified and placed in operation. They are located downstream of Ponds 1, 2, 3, CWP, 5, 6, and 8, in the upper part of the Guajes pit and one in the Limón pit (Figure 20-8). The nomenclature for each monitoring station is detailed in Table 20-5.

Figure source: Torex, May 2018. Photo from Google Earth Looking East

Figure 20-8: ELG Mine Complex Groundwater Water Quality Stations

Table 20-5: Nomenclature and Coordinates for ELG Mine Complex Groundwater Monitoring Stations

Monitoring station	Zone 14Q		
	ID	X	Y
Monitoring Water Pond A - upstream	MWP-A	423366	1989731
Monitoring Water Pond Guajes	MWP-GU	420840	1990131
Monitoring Water Pond – downstream Guajes	MWP-YF	420222	1989903
Monitoring Water Pond 8	MWP-8	419284	1990953
Monitoring Water Pond 1	MWP-1	419261	1991102
Monitoring Water Pond 3	MWP-2	419479	1991749
Monitoring Water Central Water Pond	MWCWP	421237	1992474
Monitoring Water Pond La Fundición	MWP-LF	421687	1992597
Monitoring Water Pond 5	MWP-5	422690	1992299
Monitoring Water Pond 6	MWP-6	423630	1991821
Monitoring Water Pond El Limón	MWP-EL	421222	1991349

Key findings from underground water quality stations tested from January 2016 to September 2017 indicate the following:

- The samples taken in the project area for the metals identified in the baselines as elevated (As, Cu, Cd, Cr, Fe, and Mn) did not show detectible changes due to the operation.
- The results obtained in dissolved metals (Ag, Se, TI, W, U, V) show concentrations below the detection limits, however, the behavior of K registers concentrations of 1.89 mg / L up to 7.44 mg, which is typical for areas with marble / limestone host rock.
- The pH in all stations ranged from pH 7.00 – pH 7.70, which is within the standards and neutral.

Closure

Initiation of the mine closure phase corresponds to the cessation of mining in the ELG Mine OP. The closure of the ELG UG will follow the procedures and mitigation commitments described under ELG's MIA and PSCA, openings to be surface will be sealed and portal areas regraded. Before closure, Pond 3 will be filled with tailings. Runoff and some seepage from the FTSF will drain to the CWP. Water balance modelling (AMEC, 2013) indicates the water stored in the CWP during the closure period will only discharge at surface to the Río Cocula during the wet season. Approximately 47 m^3/day of seepage will discharge through the CWP to the Río Cocula during the closure period of the ELG Mine Complex.

Pit lakes will begin to develop from the passive refilling of the El Limón and Guajes open pits but there is no surface discharge from these facilities in the closure period. Hydrogeological modelling (Interralogic, 2012) indicates that the La Amarilla fault, located at the base of the Guajes pit, will transport approximately 200 m^3/day of pit lake seepage to the Río Balsas during the refilling period. Limited seepage is expected to occur from the El Limón open pit during closure.

During closure, active pumping of water stored in Ponds 1 and 2 to the CWP will stop. Ponds 1 and 2 will continue to collect runoff and seepage from the Guajes North WRSF and water stored in these ponds will discharge directly to the Río Balsas and Río Cocula, respectively. Water balance modelling (AMEC, 2013) indicates these ponds will only discharge at surface during the wet season. At closure, approximately 32 m^3/day and 12 m^3/day of seepage will discharge through Ponds 1 and 2, respectively.

Post-Closure

The post-closure phase of the ELG Mine Complex begins after the pit lake elevation in the El Limón and Guajes open pits reaches the spillway elevation. Water balance modelling (Interralogic, 2012) indicates approximately 40 to 60 and 140 to 150 years will be required to develop the El Limón and Guajes pit lakes, respectively. Following filling of the pits, the lakes will discharge at surface to the Río Cocula via constructed channels designed to direct pit lake overflow to downstream tributaries along the same pathway as surface discharges from the CWP. Surface discharge from the El Limón and Guajes pit lakes will only occur during the wet season (Interralogic, 2012). Discharge from mine site collection ponds is expected to continue in post-closure.

20.4.2.1 Soils

The ELG Mine Complex is in the Oaxaca Valley, which is characterized by semi-arid to sub-humid climate with hot temperatures and a summer rainfall pattern. The soils covering this region have been described as dominantly Regosols, Leptosols, Cambisols, and Luvisols. Other soils reported in the regional study area include: Andosols, Phaeozems, Acrisols, Vertisols, and Calcisols (FAO, 2006b). The results of the field surveys in the LSA indicated that Leptosols are the most common soils. Weakly developed Cambisols occur in association with Regosols and Leptosols both in the mountainous and lowland regions. Medium textured and organic rich Phaeozems and Chernozems are found in mid elevation well drained sites throughout the LSA. Fluvisols occur in recent alluvial deposits near along the shorelines of the Balsas River and drainage channels and valley bottoms in the upland areas. Exposed bedrock is commonly found in high elevation mountainous zones.

Soil evaluations around El Limón Sur indicate that Regosols are the most common soils (32%), followed by Leptosols (21%), Cambisols (13%), and Luvisols (9%). Other less extended soils in this area are: Andosols (7%), Feozems (7%), Acrisols (6%), Vertisols (4%) and Calcisols (1%). The general geology of this area is represented by rocks of sedimentary, metamorphic and igneous origin, ranging from the Paleozoic to Recent era (MIA-P, Morelos Property). The El Limón Sur area belongs to a lithological contact zone that is oriented northeast. At its east end, there are granodiorite intrusive rocks of fine to medium grain size. This granodiorite has suffered medium argillic alteration in addition NW-SE discontinuities that have resulted in displacements of greater than one meter. At the west end, there is a zone of limestone altered in places in massive Hornfels with low argillic alteration (AMEC, 2017).

20.4.2.1.1 Change in Land Use

The polygons programmed for construction cover 710 ha out of the total of 1,042.3 ha included in the authorizations for exploration, operation, and roads (62% of the total approved area), within which:

- Approximately 430 ha (over 60% of the 710 ha) of the land disturbed will be reclaimed to pre-project equivalent levels, assuming successful reclamation
- Approximately 236 ha of soil will be permanently lost and replaced by the following permanent project facilities:
    - Maximum boundary of the two open pit areas, which will remain as open pit-lakes post-closure (139 ha).
    - Permanent camp site facilities (23 ha).
    - East service access road upgrade and utilities corridor (27 ha).
    - Resettlement communities at El Potrerillo (47 ha).
    - El Limón Sur pit, located on the northern margin of the Balsas River and the dam El Caracol, is planned to cover 15.24 ha for the open pit area, and 21.29 ha for the waste rock area.

The authorized area for the Media Luna Underground Mine temporary occupation approval to conduct exploration is 70 ha, including:

- Exploration work area (2 ha)
- Waste storage area (10 ha)
- Campsite (1.5 ha)
- Portal area (Including fuel station, ventilation systems, power generators, switchyard - 1 ha)
- Access to vertical ramps (0.5 ha)
- Fertile soil deposit area (1 ha)
- Temporary area for explosives deposit (0.5 ha)
- Additional support areas (53.5 ha)

Under the ELG UG MIA (referred to as El Limón Deep), the waste rock produced will be used as backfill and the remaining waste rock placed in the ELG WRSF.

As part of MML's environmental quality program, and in compliance with the commitments established on the Morelos Property MIA, organic soil was recovered from the construction areas and stockpiled for use in areas requiring erosion control or rehabilitation. Comparative data from 2014, 2015, and 2016 (Figure 20-9) indicate construction areas at the Morelos Project and the total fertile soil recovered.

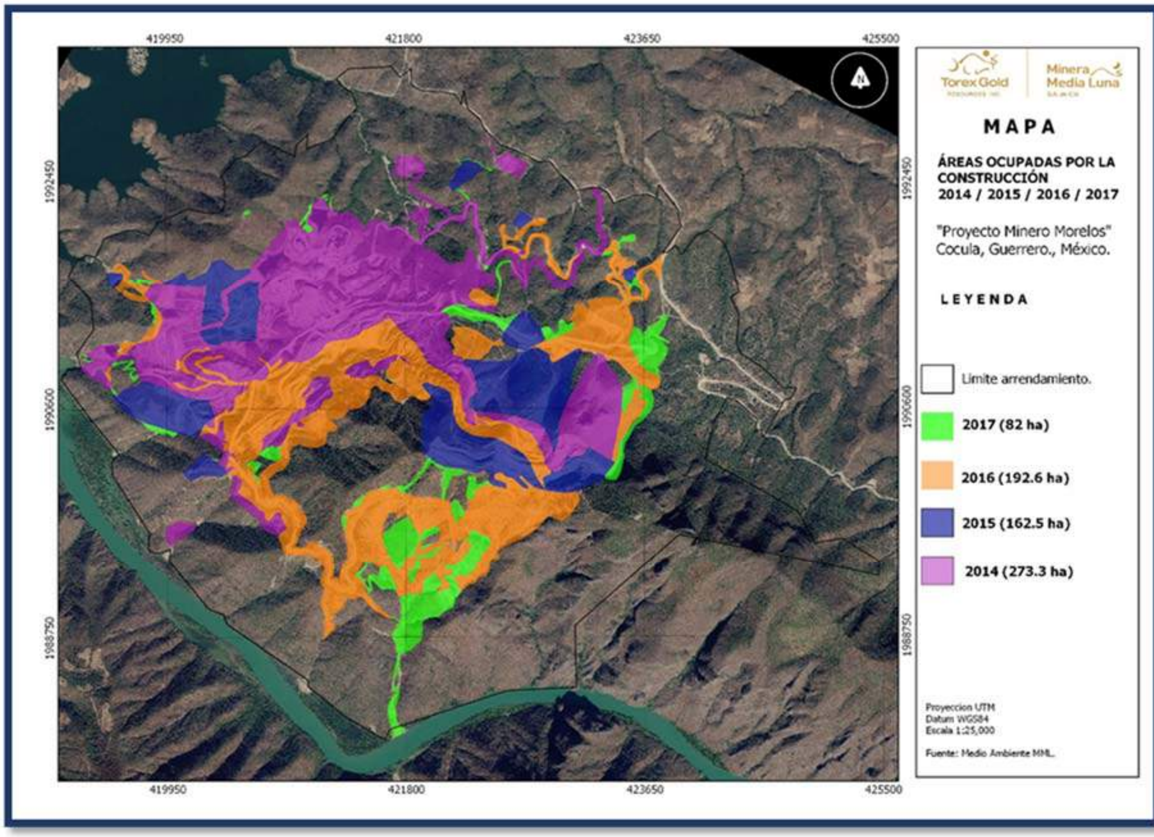


Figure 20-9: Areas in Use by the ELG Mine Complex from 2014 to 2017

20.4.2.2 Natural and Industrial Hazards

A natural and industrial risk assessment was undertaken for the ELG Mine Complex in 2014. This study is still valid with the addition of El Limón Sur and the ELG underground mine. The objective of this assessment was to evaluate the potential risks from major natural hazards (*e.g.* earthquake and flooding) and industrial hazards (*e.g.* industrial accidents, malfunctions, and transportation spills and collisions) that may affect public safety and the environment. From this assessment mitigation measures were identified to address these concerns.

Natural hazards included extreme meteorological, geomorphic, or seismic events that could affect any of the project components. Industrial hazards include potential accidents and malfunctions from all engineered facilities and transportation systems where they could adversely affect the environment or public safety.

Overall, 19 public safety risks, and 51 environmental risks were identified. Each hazard scenario included a consideration of public safety, or environmental risks, or both as appropriate.

None of the hazard scenarios were concluded to be at the highest risk level. Fourteen hazard scenarios were estimated as high risk, including the risk of slope failure at the WRSF, FTSF, and above the pit lake during post-closure; release of mine affected runoff; dam failure; fuel spill; transportation accidents affecting public safety; and post-closure mine discharge not meeting criteria. The risks have been addressed in several ways. For example, the slope failure risk at the FTSF was reduced by placing a waste dump downstream.

MML developed the programs and plans described in Table 20-6 below for the ELG Mine Complex to fulfill the commitments made in the ESMS to include management and monitoring plans, as well as to guide site-specific mitigation measures.

Natural and Industrial Hazards for El Limón Sur, Media Luna Underground, ELG UG and related modifications will be evaluated as part of an updated PSCA.

Table 20-6: Commitments to Management, Monitoring Plans and Mitigation Measures

Commitment to Management Plans, Mitigation and Monitoring Made by Minera Media Luna S.A. de C.V.	Status	Notes
Environmental Risks Evaluation and monitoring	Developed and implemented	RIA and monitoring are evaluated particularly for hazardous materials handling and storage.
Accident Prevention Plan	Developed and implemented	Approved by SEMARNAT on June 2016. Annual audits and monitoring of accidents related to high-risk activities and emissions or contamination to the environment are conducted by the Federal Attorney's Office for Environmental Protection (PROFEPA).
Environmental Quality and Monitoring Program	Developed and Implemented	Known in Spanish as the 'Programa de Seguimiento y Calidad Ambiental – PSCA). This Program is applicable to all the project phases and all employees, including contractors. It includes detailed procedures for the implementation all prevention, mitigation and restoration measures to comply with Mexico's regulatory requirements, commitments established in MML's permits, and the IFC Environmental and Social Performance Standards.
Contingency Response Plan	Developed and implemented	Incorporated into the Environmental Quality and Monitoring Program (Programa de Seguimiento y Calidad Ambiental – PSCA) in compliance with commitments established under MIA.
Erosion and Sediment Control plan	Developed and implemented	Incorporated into the PSCA. MML´s 2016 Annual Environmental Compliance Report described the location of sedimentation basins, dams, gullies stabilization and geogrid that address and control hazards that could potentially release sediments from ground preparation, road construction or stockpile to creeks or rivers (Figure 20-12)

20.4.3 Biological Environment

The following subsections present a summary of existing conditions, key findings, likely impacts, and the corresponding mitigation measures (as appropriate) for the Morelos Property, the bulk of this work was completed in support of the Feasibility Study and has been updated when relevant for operations.

20.4.3.1 Aquatic Biology

In 2014, the aquatic biology assessment included a seasonal characterization of the existing conditions of aquatic biology in the region, to 1) evaluate the direct and indirect effects of contact water runoff and sediment loading on the aquatic communities, and 2) assess the potential surface water quality and potential alterations to downstream flow regimes, which could affect the quality and quantity of habitat available for aquatic organisms. Based on this evaluation and assessment, measures were incorporated into the design of the facilities to mitigate potential effects from the ELG Mine Complex, including the development of water management ponds to manage run-off from the ELG Mine Complex.

The key findings and results from aquatic biology historical information and monitoring data are as follows:

- The use of the water management ponds reduces the sediment loadings from ELG Mine Complex to the Presa El Caracol.
- No measurable change has occurred in zooplankton, and benthic invertebrates.

Fish communities have been reduced at the Presa El Caracol due to heavy fishing by local community members. This was reported in a research study on aquatic biology developed to identify the impact and cumulative effects of MML activities (Campos Mendoza, 2017). As of October 2016, the Presa El Caracol around Nuevo Balsas has a total of 410 fishermen, some of whom were organized in 12 cooperatives. Re-stocking of the lake with fingerlings is carried out in a joint program between MML and the government.

20.4.3.2 Flora and Fauna

The environmental requirements for flora and fauna established by the environmental permit (SGPA/DGIRA/DG. 03171) included: the development of a baseline study, identification of species at risk, identification of fragile and unique environments in the Morelos Property area, recovery of species at risk, *in-situ* conservation of ecosystems, biodiversity, restoration of forested ecosystems and agricultural lands, and compensation for disturbed areas.

The implementation of the mitigation and management plans for flora and fauna is based on the following documents developed by MML:

- Flora Rescue and Conservation Plan
- Fauna Rescue and Relocation Plan
- Environmental Quality and Monitoring Program (PSCA)

In compliance with the national regulation and environmental requirements from MML's permit for ELG Phase I, the following mitigation measures have been implemented from 2015 to date to mitigate potential effects from work on the Morelos Property:

- Relocation of the vegetation propagation area away from process facilities, which could be sources of dust.
- Reduction of footprint from upgrades to the east service road to minimize disturbance.
- Footprint reduction by using a RopeCon to limit the need for additional haul roads.
- Placement of a dome over the fine ore stockpile to reduce dust generation
- Limitation, to the extent feasible, of the amount of disturbance in areas of known large mammal concentrations.
- Transportation through strategic routes and schedules to avoid disruptions over fauna´s habitats.
- Implementation of a 3:1 compensation ratio for all disturbed areas.
- Monitoring of presence or absence of fauna by observation of footprints and other traces, and the use of trail cameras.
- Mammal population census.
- Protected species population estimation.
- Fauna and flora rescue and relocation. Environmental education programs for local communities and employees.
- Road signs for flora and fauna protection.
- Prohibition of flora and fauna use or removal within the mine site.
- Establishment of tree nursery for native species with a production capacity of up to 120,000 individuals/year.

Flora and fauna research studies carried out for the Media Luna MIA Advanced exploration sampled and analyzed flora populations in two seasonal campaigns. A flora taxonomic identification and literature review were completed, and sampling reported a list of species from three strata herbs, bushes, and trees. The population structure was analyzed by comparing different species association patrons with similar value importance.

MML recorded the information on the traditional use of the local floral species in two season campaigns. The degree of endemism was investigated looking for the known distribution of each species, as far as possible. It was determined if the species are endemic to Mexico, to the states surrounding Guerrero or if it is exclusive to the state of Guerrero. Species identified as native weeds or invasive exotic plants were searched in various databases and identified in tables. This information was useful to identify bioindicators and decision making. The key findings and results from monitoring data of flora and fauna are as follows:

- No changes in hydrological regimes that influence the composition of floral communities.
- Rescue actions of flora and fauna were implemented in areas with well-preserved vegetation, high availability of shelter spaces. A total of 20,604 individuals were rescued and relocated, representing a total of 87 flora species, and 2,376 individuals representing a total of 85 fauna species from 2014 to 2016 (Table 20-7 and Figure 20-10). The individuals captured were released in areas with the similar conditions to the rescue site.
- Limited potential for increased exposure of fauna to increased levels of potential contaminants.
- Increased fragmentation and degradation of plant communities and habitat areas around the area of the Morelos Property due to anthropogenic activities related mostly to agriculture and cattle raising. Therefore, fauna and flora rescue efforts by MML have taken place in areas where the environmental characteristics show reduced signs of impact. A total of 46.8 ha has been reforested (Environmental Report, Hatch 2016). The reforested areas are distributed in areas adjacent to the ELG Mine Complex, access road and roads within the ELG Mine Complex (Figure 20-11)

Table 20-7 below shows the area for the implementation of flora and fauna rescue during construction and operation of ELG Mine Complex. The species captured where relocated/released in areas with equal conditions to the rescue site; by legal requirement, the survival and welfare of the species must be guaranteed. Sites for releases are excluded from the construction footprint, agricultural and livestock areas, and roads are restricted or have a difficult access by vehicles.

Table 20-7: Comparative Data of Flora and Fauna Rescued Species 2014/2015/2016

<table>
<tr><th>Concept</th><th>Rescue area, 2014</th><th>Species number</th><th>Individuals number (1)</th><th>Rescue area, 2015</th><th>Species number</th><th>Individuals number (1)</th><th>Rescue area, 2016</th><th>Species number</th><th>Individuals number (1)</th></tr>
<tr><td>Flora (Vascular plants)</td><td rowspan="2">273.3 ha</td><td>36</td><td>14,520</td><td rowspan="2">102.5 ha</td><td>32</td><td>4,941</td><td rowspan="2">22.8 ha</td><td>19</td><td>1,143</td></tr>
<tr><td>Fauna (Amphibians, Reptiles, Birds and Mammals)</td><td>20</td><td>637</td><td>26</td><td>1,698</td><td>39</td><td>354</td></tr>
</table>

(1): The number of flora and fauna individuals rescued include plants and fauna relocations.

The species relocated are those classified by their rarity, biological condition, or status of legal protection.

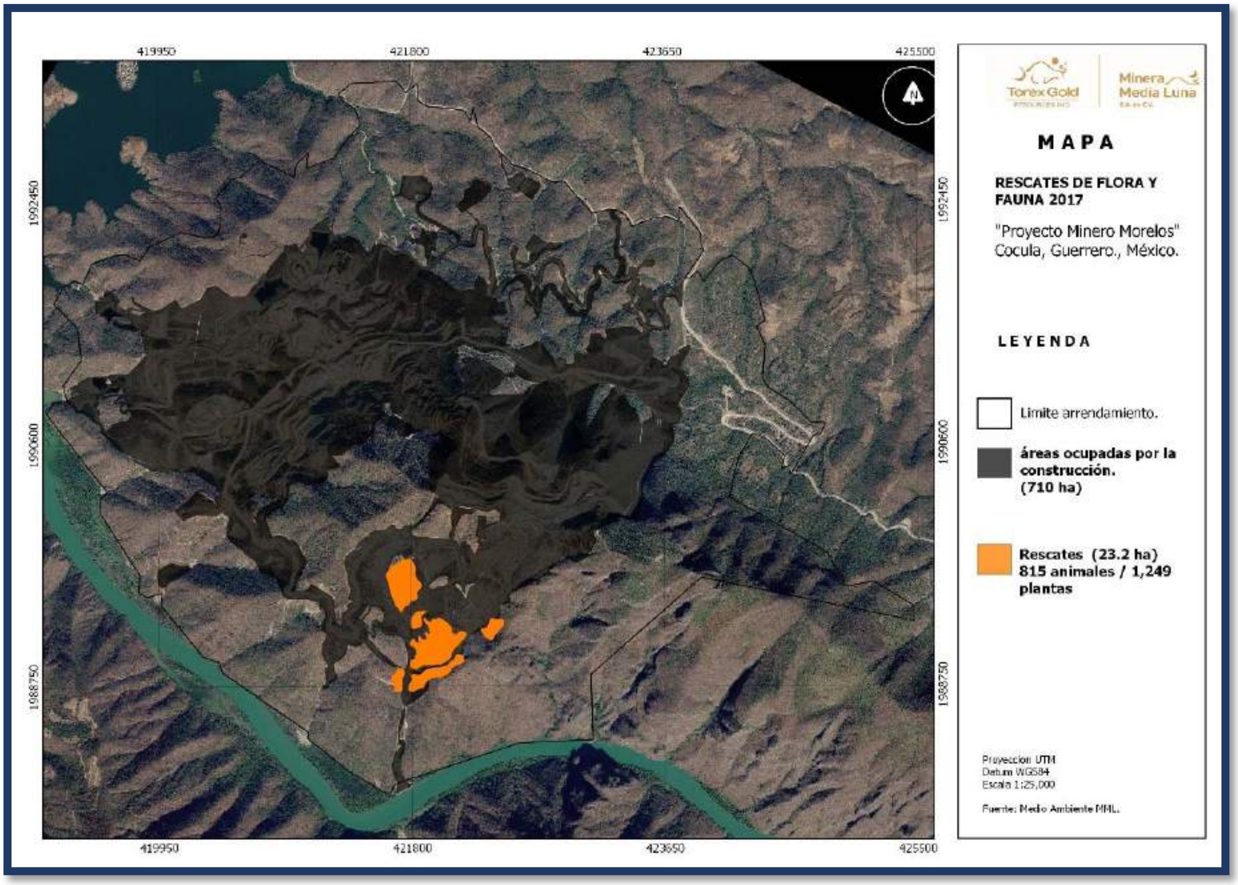


Figure 20-10: Flora and Fauna Rescue Locations 2017

The environmental impact analysis for ELG UG shows no alteration or cumulative effects on flora and fauna given that the area is already affected, and the development will be underground.

MML will develop an environmental baseline study for the Media Luna Project area. The Media Luna Project planning process is conducted in close consultation with MML's environmental team to consider potential environmental effects and associated mitigation measures to reduce the project's footprint.

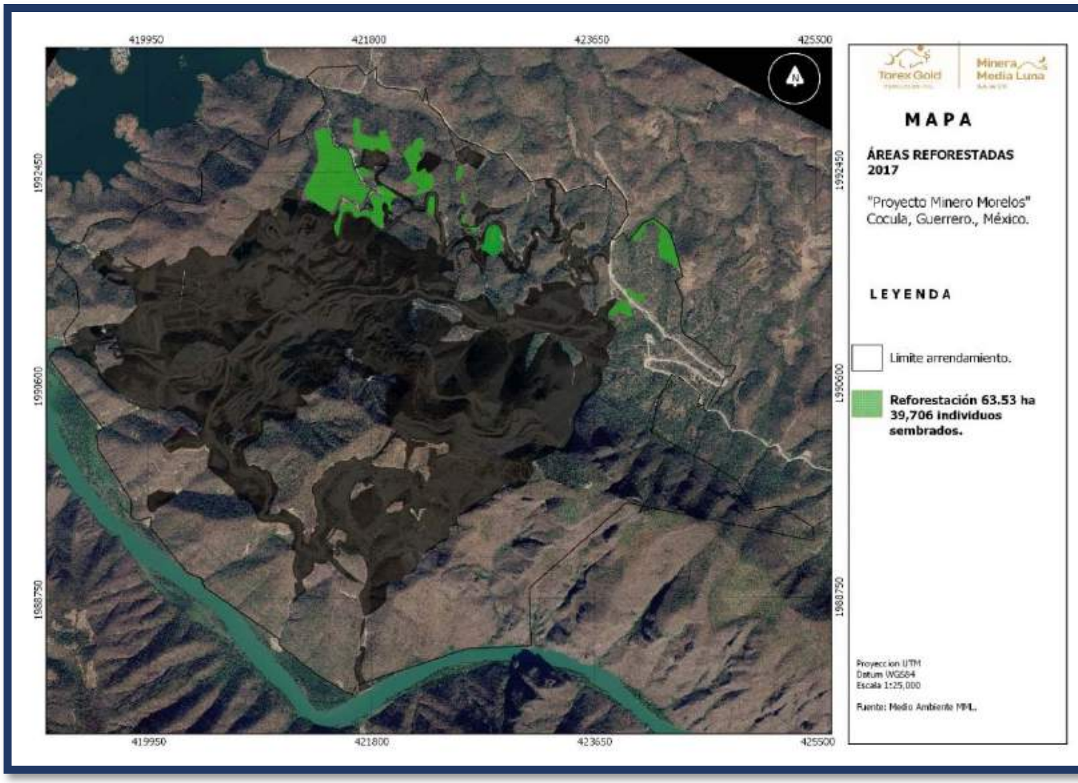


Figure 20-11: ELG Areas Reforested with ~ 40,000 Native Trees, 2017

20.4.3.3 Biodiversity

The impact assessment work evaluated the ELG Mine Complex effects in the context of natural habitat; critical habitat; degradation and fragmentation; invasive species; hydrological changes; atmospheric pollution; and direct mortality to individuals. Mitigation measures to avoid, minimize, and/or control any predicted effects were incorporated into the Environmental Quality Monitoring Program (Programa de Seguimiento de Calidad Ambiental – PSCA).

The ELG area is primarily occupied by deciduous forests, which represent approximately 63% of the land area. The plant communities and habitat areas at the ELG Mine Complex are more than 75% "natural", or relatively unaffected by anthropogenic activities. Modified ecosystem units, including tilled fields, pasturelands, and plantations, which represent "modified" habitat occupy approximately 1,620 ha, representing just under 25% of the area. This is reflective of the traditional use of the areas around the mine site where very little of the land is used for agricultural production.

Many of the mitigation measures were incorporated into the MIA and are being implemented as conditions of permit approval. Furthermore, additional measures have been identified as part of the ELG Mine ESIA that have been addressed in the PSCA. The physical footprint of the ELG Mine Complex has been reduced (and refined) to avoid such potential effects on natural and critical habitats. ELG facilities have been sited and mitigation implemented to eliminate or minimize impacts to species present in the Area of Indirect Influence (AII) that are designated as 'species at risk'. It is estimated that the development of the ELG Mine Complex will not have a measurable negative effect on biodiversity within the AII and beyond. It must be noted that the ELG Mine Complex will result in the direct loss of approximately 540 ha of natural habitat. One endangered species (IUCN, 2012), the golden-cheeked warbler, has been identified at ELG; the species is a winter migrant that is not restricted to a particular habitat type. As a result, no "critical habitat" for this species, as defined by the IUCN (2012), is being impacted by the ELG Mine Complex. No critically-endangered species has been identified in the AII.

One species identified in the ADI of ELG, the lesser long-nosed bat, is designated as nationally threatened (SEMARNAT, 2010) and as vulnerable by the IUCN (2012). This species is of conservation concern and is described to congregate in specific localized habitat. As a result, two caverns directly affected by the ELG Mine Complex were identified as Criteria 1, Tier 2 Critical Habitat. A negative effect has been identified for this species for the ELG Mine Complex. A Flora and Fauna Rescue and Protection Plan, approved by SEMARNAT, has been implemented.

The Morelos Property is within one of nine bird conservation areas in Guerrero. This area, called the 'Zopilote Canyon' ('Cañón del Zopilote'), is considered a Terrestrial Priority Region (Región Terrestre Prioritaria 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 *Bursera* species. Consideration for protection/preservation of this area will be given as development and design of the ML Project advances.

Three bird species in the area have been listed as vulnerable according to the IUCN and the Mexican norm NOM-059-ECOL-2001 (See Table 20-8 below).

Table 20-8: List of Bird Species Identified as Some Level of Risk Within the Media Luna Area

Species at risk	Common name	Risk level according to IUCN Red List of Threatened Species	Risk level according to Mexican Norm NOM-059-ECOL-2001	Residence	Endemism
Ara militaris	Military Macaw	Vulnerable (VU)	Endangered (E)	Resident	Not endemic
Vireo atricapilla	Black-capped Vireo	Vulnerable (VU)	Endangered (E)	Migratory (summer and winter)	Semi endemic (during a time of the year)
Megascops seductus	Balsas Screech-Owl	Low concern (LC)	Vulnerable	Resident	Endemic

The flora sampling units within the Media Luna area reported 187 species distributed in 130 general and 45 families. The most common families were Fabaceae, Burseraceae and Asteraceae. A total of 15 species identified as endemic to Mexico were found in the area, which corresponds to 8.02% of the species registered for the study area. From these, *Bursera xochipalensis, Bursera lancifolia,* and *Recchia sessiliflora* have a distribution more restricted to the State of Guerrero. In addition, 2 protected species were found within the sampled sites: *Leucaena esculenta* (Cactaceae) classified by IUCN as an endangered species, and *Opuntia atropes* (Fabaceae).

The fauna research study carried out in 90.62 ha of the Media Luna area reported a total of 103 species including: 8 amphibia, 14 reptiles, 17 mammals, and 66 birds. From these, 36 species are classified as very rare (34.9% of the total species registered on site), 26 rare species (25.4%), 29 common species (28%), and 12 abundant species (11.6%). Species registered under a category on risk or endemic include 5 endangered species, 1 specie in danger of extinction, and only 23 are endemic to Mexico (See Table 20-9).

Table 20-9: Fauna Species Under Risk Category

Scientific Name	Common Name	NOM-059-SEMARNAT-2010	Endemic	CITES	UICN
Heloderma horridum	Mexican beaded lizard	E	-	II	LC
Ctenosaura pectinata	Spiny tailed iguana	E	En	-	-
Puma yagouaroundi	Jaguarundi, Eyra cat	E	-	I	LC
Spilogale pigmea	Pigmy spotted skunk	E	En	-	VU
Amazona finschi	Lilac-crowned parrot	E	En	I	VU
Aspidoscelis communis	Colima giant whiptail	Pr	En	-	LC
Rhadinea hesperia	Occidental brown snake	Pr	En	-	LC
Eupsittula canicularis	Orange-fronted Parakeet	Pr	-	-	LC
Ara militaris	Military Macaw	P	-	I	VU

Symbols: E- Endangered, Pr - Protected, En - Endemic, I - , II - , LC – Least concern, VU - Vulnerable

Category 1, Tier 2 Critical Habitat can be mitigated by a habitat offset but it is important to demonstrate that the replacement habitat represents "like-for-like" and can satisfy the habitat requirements of the species at risk. Additional direct loss of natural habitat resulting from the Media Luna Project addition will be further evaluated to assess the potential impacts to biodiversity.

20.4.3.4 Aquatic Health Risk Assessment

The aquatic health risk assessment evaluated the potential interactions between ELG Mine Complex and surface water quality, and the potential effects on aquatic life. Identified interactions were then assessed for environmental and social consequences based on ELG Mine Complex design elements or mitigation strategies to avoid or manage the potential risks.

The assessment considered potential exposure of receptors in three streams that drain the ELG Mine Complex site area and flow into the Presa El Caracol. These streams are dry for most of the year and only experience intermittent flows during the wet season (ephemeral) that may reach the downstream receiving environment; they are not considered suitable habitat for fish or most other aquatic life. ELG Mine Complex baseline studies did identify the ability of small fish to intermittently access the lowest reach of tributary MHS-5 under wet conditions.

Two exposure scenarios were identified for evaluation in the aquatic health impact assessment:

- An assessment of the potential for effects to aquatic life in the downstream receiving environment at assessment nodes RC2 in the Presa El Caracol and RB1 in the Balsas River (ADI), and at RB4 downstream of the confluence of the Balsas River and the Rio Cocula. Direct (waterborne) exposure and indirect (tissue) exposure of aquatic biota in the Presa El Caracol to mine discharges were considered in the impact assessment of chronic effects on aquatic ecosystem health.
- An assessment of the potential for localized effects in the north-east basin of the Presa El Caracol due to waterborne exposure in the mixing zones of streams represented by assessment nodes L1, G1, and MHS-5, because of potential mine-related discharges conveyed to the Presa El Caracol via these tributary streams. Tributary mixing zones represent a small fraction of aquatic habitat in the Presa El Caracol. The assessment of potential effects in these mixing zones focused on potential acute effects related to intermittent exposure of biota to conditions like those predicted at assessment nodes L1, G1, and MHS-5 (Figure 20-12).

The key findings and results from the aquatic risk assessment are as follows:

- Potential increases in existing contributions of specific contaminants to the tributaries and the Balsas River.

The aquatic risk assessment identified the potential for localized effects to aquatic organisms at the outlet of specific tributaries; however, there is no expected increased risk to human health as a result.

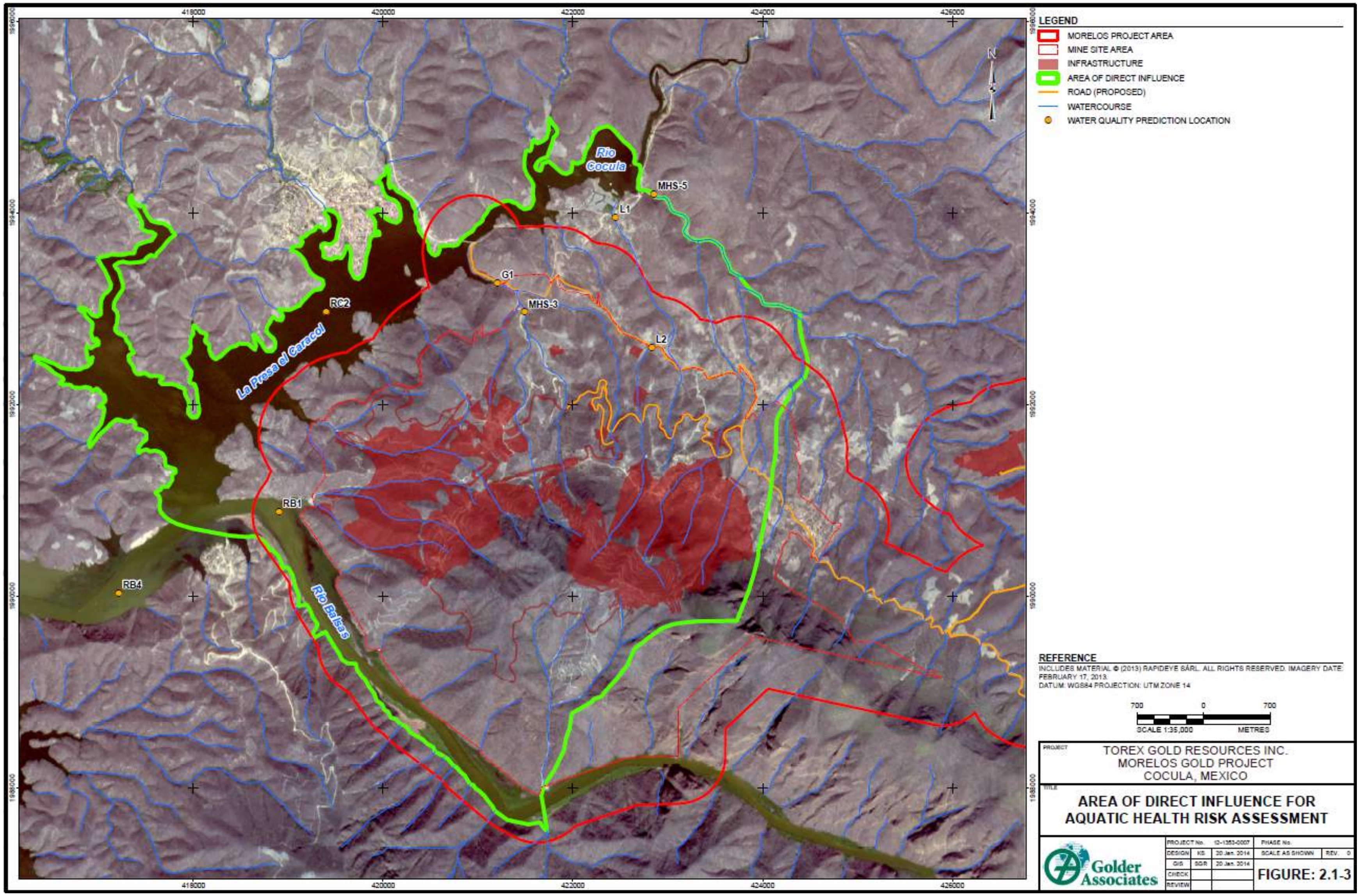


Figure 20-12: ELG Area of Direct Influence for Aquatic Health Risk Assessment

20.4.3.5 Human and Terrestrial Wildlife Health Risk Assessment

The human and terrestrial wildlife health risk assessment evaluated the potential for the ELG Mine Complex to result in adverse effects to human and terrestrial wildlife health via predicted changes to soil, surface water, and air (human only) quality. Contaminants of Potential Concern (COPCs) were identified by comparing predicted concentrations of surface water, groundwater, soil, and air quality to relevant and available numerical guideline values.

The human and terrestrial wildlife health risk assessment is comprised of three components:

1. An air quality risk assessment to evaluate the acute and chronic effects to human health associated with certain airborne or gaseous substances (i.e., only present in air). The air quality assessment also includes the evaluation of acute and chronic effects associated with inhalation of particulate matter.
2. A multimedia assessment to evaluate risks to human health from contaminants that might be present in air, soil, water, and food pathways.
3. A multimedia assessment to evaluate risks to wildlife health from contaminants that might be present in soil, water, and food pathways.

The key findings and results from the human and terrestrial wildlife risk assessment are as follows:

- COPCs that could be emitted or released by the ELG Mine Complex to which people may be exposed included gases (*e.g.*, SO_2, NO_2), particulate matter, volatile organic carbons (VOCs), metals, and polycyclic hydrocarbons. The human health acute air inhalation assessment for parameters identified as COPCs in the 1-hour and 24-hour assessment were accomplished by comparing the concentration predicted for each location with toxicity benchmarks for the baseline and impact cases. The magnitude of risk of incremental increases in COPCs concentrations associated with ELG Mine Complex activities was negligible.
- The human health risk assessment determined that naturally elevated concentrations of certain contaminants in the Presa El Caracol do exist. There is no expected increase in risk to human health because of the ELG Mine Complex.
- The wildlife multi-media assessment concludes that residual effects from the project wildlife receptors are not significant. Terrestrial-feeding wildlife were not evaluated quantitatively in the risk assessment but the lack of COPCs for terrestrial environments indicates that the residual effects on terrestrial-feeding receptors would also not be significant.

20.4.4 Social Environment

20.4.4.1 Socio-economics

The following section focuses on the development and implementation of MML's management systems for socio-economic aspects at the local and regional level, which have had implications for the local economy, population and demographics, education, infrastructure (*e.g.* water, wastewater, housing, transportation), community health, safety and security, as well as land use and sustainability.

The key findings from the development and implementation of social management systems, MML's economic development program established by the corporate responsibility department, and Torex Gold's 2017 Corporate Responsibility Report are summarized as follows:

- The ELG Mine Complex represents a large mining operation in México, with implications for the State of Guerrero, where ELG's initial capital investment represents one of the largest investment in the State's recent history and provides for a substantial economic contribution to the national economy.

- MML has contributed to the creation of direct and indirect employment, as well as business development, with preferential hiring practices for local residents. In 2017, MML spent $226 million in procurement to Mexican firms, and paid $53 million in wages to 2,369 employees (including contractors); 98% of the workforce is from Mexico, including 63% from Guerrero and 52% from the local communities. In addition, $1.3 million was invested in community projects.
- MML's sustainable development program has created the following opportunities for the five communities located in ELG Mine Complex area of direct impact (Atzcala, Valerio Trujano, Nuevo Balsas, La Fundición, and Real de Limón):
  - Availability and accessibility to education and skills-based training programs to build the capacity of workers, and local community members for economic development opportunities related or unrelated to ELG Mine Complex activities, for example, MML contributes continuing specialized advice for local fishermen;
  - Development of a public-private partnership scheme to create strategic alliances among three levels of government, local universities, local community members, I&D institutions and Torex Gold;
  - Development of an agribusiness linked to regional vocational potential. One of our successful experiences has been the development and follow-up of 11 fishing cooperatives, providing new technologies applied to best practices in fisheries management;
  - Implementation of a sustainable livelihoods program aimed at relocated communities;
  - Development of microenterprises to be integrated into MML's mining supply chain, such as collection of non-hazardous materials (scrap metals), transportation services, restaurant / food services for MML employees and contractors;
  - MML, in partnership with international organizations like Project C.U.R.E., has contributed to the improvement of health services, as well as improved access to services and resources for medical emergencies. Over $600,000 has been invested in health care (medical equipment, doctors and medicine).
- The social responsibility team focused their effort on the following strategic areas: education, health, economic development, vulnerable groups, social fabric, and cultural heritage.
- At the corporate level, efforts have been directed to improve Torex's corporate responsibility strategy through the development of a structure that provides interconnectivity throughout the company systems. New and existing systems have been put in place including performance motivators (Torex policies, the values continua system, commitments with the governments at all levels, commitments with communities, and alignment with the Sustainable Development Goals), Corporate Responsibility Goals, a system structure for community relations, a system structure for community development, and the integration of complementary systems such as the grievance mechanism, performance monitoring (Internal Key Performance Indicators (KPIs), and external community monitoring, to be developed in 2018), a communications system (internal, external and crisis communication), and the formation of a participatory environmental monitoring committee.

A training program has been developed and implemented for blockade prevention and management, and to improve MML's corporate responsibility team's ability to manage social risks in a timely and efficient manner.

The following key mitigation measures were incorporated (and implemented) into the design and planning for the facilities to mitigate potential impact effects from the ELG Mine Complex:

- Active and on-going engagement and consultation with local stakeholders.
- Implementation and completion of a successful Resettlement Action Plan for the communities of La Fundición and Real de Limón.
- Implementation of local hiring practices and skills training programs. As of June 2018, MML had a total of 731 employees on site, of which 98.6% are Mexican. From these, 320 are from local communities, 110 from other communities in Guerrero State, and 291 are from other Mexican States.
- Development of an irrigated agriculture pilot project in Atzcala.

- Implementation and operation of temporary housing for workers from outside the local area throughout the life of ELG Mine Complex.
- Financial support for infrastructure improvements in some of the nearby communities by direct contribution from MML´s development fund, and MML's royalties ('Fondo Minero'). The latter is controlled by the Municipality of Cocula but MML assists with project definition so that funding can be obtained.
- On-going financial compensation for the occupation of the land used for the mine and associated infrastructure.
- On-going financial support for medical and nursing resources to the existing health services facilities in the area.
- Implementation of a convoy transportation system to minimize disruption to communities along the road to the mine.
- Development of a grievance mechanism with an additional manual for resettled communities.
- Implementation of a commitments tracker system to improve the efficiency of responses local community petitions and grievance mechanism.
- Development and implementation of infrastructure improvement plans, including:
    - Water and wastewater systems
    - Construction and outfitting of a purpose built well to supply drinking water in El Potrerillo (new communities of Real de Limón and La Fundición)
    - Solid waste management system
    - New schools and recreational areas.
- Implementation of a socio-environmental program to educate school children and adults on waste management and environmental stewardship.
- Establishment of a community-based environmental monitoring committee to ensure local communities participation on MML's water management program.
- Upgrade of the existing road to improve road safety.
- Development of a new public road from I-95 to the ELG Mine Complex (and on to Nuevo Balsas) providing improved access for local communities.

20.4.4.2 Cultural Heritage

MML established a close relationship with the National Institute of Archeology and History (INAH) early in the project (2011) to safeguard, study, and rescue paleontological, archeological, and historical sites in the project area. In 2013, the Puente Sur Balsas and Potrerillo areas were surveyed to establish conservation strategies for archaeological sites. The same year, an assessment of cultural heritage as included in the ESIA was prepared to satisfy the requirements of the Mexican legislation and IFC PS8. 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.
- Incorporation of the following mitigation measures into the design and planning for the facilities to mitigate potential effects from the ELG Mine Complex:
    - Active and on-going consultation with the National Institute of Archaeology and History (INAH).
    - Adoption of INAH's Chance Find Procedure to address cultural heritage discoveries during construction and operations.
    - Protection of the Colonial Church at Real de Limón in accordance with the recommendations from INAH-Guerrero.
    - Protection of the cemetery in Real del Limón and development of a new access route to the cemetery.
    - Implementation of all INAH-required mitigation for specific sites.

The key findings and results from the assessment of cultural heritage are as follows:

- There will be project-related effects on cultural heritage resources; however, mitigation measures (*e.g.*, salvage of artefacts) will be completed in accordance with the INAH requirements.
- A cultural heritage plan – the implementation of which identified, in 2016, a cave with rock carvings that was previously not classified or registered.

20.4.4.3 Resettlement Action Plan

Land access for the ELG Mine Complex required the relocation of two villages - the community of Real de Limón was located within the 500 m safety buffer zone of the proposed El Limón pit and the community of La Fundición was located within the active mining area. Both communities were in Ejido Real del Limón lands.

These communities were successfully relocated to a new area, approximately 5 km east of the mine site area, referred to as El Potrerillo. Both communities requested to be in the same area but in two independent locations. The residential zone in the new communities was developed considering three different model homes that local community members chose according to each family's individual preferences.

The design of the communities included layouts of all residential plots, locations for public services and community infrastructure, internal and external access roads, and patrimonial land. A total of 144 project-affected households, along with all community building and infrastructure were relocated to the communities that consist of 170 dwellings - additional homes were built to reduce overcrowding. The resettlement site includes community access roads, public services to all homes, and community infrastructure. Water supply for El Potrerillo is from a well located within the community. The well water is treated and flows from a header tank to the houses.

The resettlement was conducted in accordance with the federal laws pertaining to land use changes and the creation of a new human settlement under the Agrarian Law and guided by the recommendations in the IFC's PS5 on Land Acquisition and Involuntary Resettlement. A Resettlement Action Plan (RAP) was developed to describe the procedures and practices MML should follow to properly resettle and compensate the communities requiring resettlement for the development of the ELG Mine Complex. The RAP identified the stakeholders involved, the processes for resettlement planning, and MML's on-going commitments to implement resettlement in a manner that is transparent and fair. Some additional activities implemented during and after the resettlement process included the following:

- Payments for additional lands owned by community members near each relocated community,
- Initiatives to help local communities adapt to their new homes,
- Environmental education programs focused on recycling and waste reduction,
- Community educational programs led by the National Council of Education Advancement (CONAFE) with the objective of reducing education inequities in rural areas,
- Program for livelihoods restoration, including economic development training programs,

After relocation, MML has continued to engage with the resettled stakeholders through use of the legal Ejido processes, community meetings, public information meetings, and informal meetings with individuals and families.

MML employs a monitoring and evaluation program, a commitment tracker system, and a manual to provide the company with timely information about the community requests, and to track MML community commitments to manage potential impacts or risks that may have emerged during the resettlement process.

Performance monitoring has been conducted throughout the resettlement process and measure specific achievements against pre-set targets. Throughout the process, the Community Relations Team identified and measured changes that have occurred after resettlement. The evaluation of these changes is accomplished through regular dialogue with community members and surveys of a representative subset of individuals from each of the affected communities.

To be aware of, and respond to, concerns and complaints from resettlement stakeholders, and to facilitate the resolution of grievances, MML has established a grievance and dispute resolution process. The grievance and dispute resolution process is part of MML's broader process for stakeholder engagement, and the quality and compliance assurance system for application during development, construction, operation, and closure. The high volume of requests by relocated community members to MML led to the development of additional procedures and guidance for MML Community Relations Team members and local populations to manage expectations and avoid social risks.

The modifications to the ELG Mine Complex will not result in any economic or physical displacement.

20.5 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM (ESMS)

MML has established an ESMS as described below 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.

As part of the ESMS, an over-arching ELG Mine Complex specific policy that defines the environmental and social objectives and principles have been established to guide the ELG and all associated projects (such as the modifications to ELG Mine Complex and Media Luna exploration) to achieve environmental and social compliance through a process of continuous evaluation.

Torex policies in place to date that define the environmental and social objectives and principles established to guide ELG and all associated projects are:

- Social Harmony and Human Rights
- Environmental Protection
- Code of Business Conduct and Ethics
- Antibribery and Anticorruption

Horizontal systems applicable to all MML social and environmental systems are the following:

- Grievance mechanism
- Communications system (internal and external)
- Crisis management, complemented by Blockades Prevention and Management, and Risk Analysis
- Participatory environmental monitoring mechanism

A system on performance monitoring and evaluation will be developed to include internal KPIs and community perception evaluations, designed to understand the perception of MML's performance from the external stakeholders' point of view and identify improvement opportunities.

20.5.1 Environmental Management Plan (EMP)

The ESMS includes environmental plans specific to site activities, and an Environmental Training Program. Successful implementation of the ESMS is based on the work of the MML team, comprised of members of the Environmental Team, in close collaboration with a socio-environmental team member, and MML's Training Department. These team members are responsible for creating and implementing an "environmental culture" from the onset of the ELG Mine Complex and are also is responsible for updating and implementing the specific environmental plans and providing training to MML personnel and contractors.

The ESMS outlines and recommends policies, standards, guidelines, procedures, and processes to be used by the ELG management team and contractors. It defines roles and responsibilities during the various operational phases of the ELG Mine Complex. Additional environmental management plans are outlined in Table 20-6 above.

MML environmental management plans are organized into an over-arching Environmental Management Plan (EMP) covering all major aspects of the physical and biological environment, and some key social aspects (*i.e.*, external communication for topics that are frequently of major concern, like water management and erosion mitigation). The EMP is included in contract tender packages/specifications (contractual requirement) and is available to all ELG Mine Complex personnel (employees and contractors).

As part of the EMP, there is a chance find procedure for cultural heritage resources. To date, all cultural heritage procedures have followed national regulations.

The objective of the ESMS and Torex policies are to promote the following concepts:

- Achieve compliance with Mexican legislation.
- Maintain good will and relations with communities, civil society, and governments at local and national levels.
- Develop a culture of environmental awareness among operations teams, ELG teams and contractors including a verification and corrective management consistent with the objectives of the ELG Mine Complex,
- Foster employee involvement to promote ownership of and commitment to the ELG Mine Complex through activities such as training and capacity building.
- Provide a systematic approach for the identification of major environmental risks, objectives and targets.
- Minimize and/or manage negative impacts on the environment.
- Communicate benefits arising from the ELG Mine Complex activities and, where possible, enhance dialogue between MML and the local communities and stakeholders.
- Establish a water management and sediment control system
- Establish a soil management system to address removal and stockpiling of soils.
- Establish a performance monitoring plan to track overall environmental performance including regular monitoring, and promptly address non-conformances with applicable standards.
- Maintain regular internal and external communications regarding environmental performance.

20.5.2 Social and Community Relations Management

20.5.2.1 Social Management

The social management plan includes impact mitigation and benefit enhancement measures to address general categories of socioeconomic effects. Together, these present a strategic plan and a preliminary social management plan, which are divided into two main systems for application at the Morelos Property as outlined in the following:

Community Relations System

- Effects on services and infrastructure.
- Effects on community health and safety.
- Information disclosure/external communications strategy:
  - Stakeholder engagement
  - Social risk prevention and management
  - Commitments management
  - Requests for support
  - Expectations management
  - Legacy issues management

- Economic Development System
  - Management measures to support economic benefits
  - Government-led consultations and negotiations
  - Record keeping and information engagement
  - Resettlement management (livelihoods restoration, infrastructure matters management, support with legal/documentation matters)
  - Local development initiatives (irrigation, fishing productive modules, scholarships, local procurement, support for government capacity building, training and skills development)
  - Regional development (initiatives to improve regional governance capacities, mining cluster, mining fund).

Both systems (Economic Development and Community Relations) are responsible for collaboratively implementing and continuously improving the following:

- Stakeholder consultation and participation (engagement design and strategies at local, regional and international levels)
- Reporting
- Government-led consultation and negotiations
- Response to emergencies, and blockade prevention and management
- Mine closure effects
- Management of in-migration and population effect

20.5.2.2 Social Responsibility Management

MML's Social Responsibility Team (CSR) for the Morelos Property operate with offices at the ELG Mine Complex, in Nuevo Balsas and La Fundición, is led by a Corporate Social Responsibility Manager. The team is comprised of 3 Managers (external affairs, regional affairs, and economic development), 3 Superintendents (social programs supervision and monitoring), 3 Senior Community Relations Officers, 2 Junior Community Relations Officers, 1 Administrative Support Staff, and 1 Community Relations Support Staff (from local communities).

20.6 RECLAMATION AND CLOSURE

20.6.1 Objectives

The purpose of the mine closure plan is to describe mitigating actions for potential impacts to environmental resources in the ELG Mine Complex area caused by ELG Mine Complex development and operations. The main objectives of the closure plan are:

- Protect public safety
- Minimize and mitigate long-term ELG impacts;
- Remove, to the extent practical, mine- and mill-related structures;
- Make landforms stable;
- Restore, to the extent practical, the original land use;
- Progressively rehabilitate;
- Monitor the water quality until suitable for discharge to the environment; and
- Return the land for use by the local community as far as practical.

These objectives consider the following areas for closure and rehabilitation:

- Land use;

- Process site;
- Waste rock storage facilities;
- Filtered tailings storage facility;
- Landfill;
- Pit lake management (post closure);
- Monitoring and surveillance; and
- Stakeholder consultation.

The Mine Waste Management and Site Water Management Feasibility Designs (AMEC 2012b), the Torex Closure Plan, and the Asset Retirement Obligations (Torex, 2016) present details concerning the closure design for the Morelos Property. This Section 20.6 presents a summary of the closure activities.

20.6.2 Land Use

The land use after mining is anticipated to be open land for basic farming/ranching, like much of the surrounding area except along the slopes of the filtered tailings storage facility and waste rock storage facilities, which will remain as exposed rock, which would be similar to natural talus slopes. The process plant and stockpile areas will be revegetated. The open pits will remain as pits and may flood naturally. The top of the filtered tailings storage facility will be revegetated. Evaluation of the potential for metal uptake by vegetation will be assessed prior to returning the land to the pervious land use.

20.6.3 Soil Salvage and Vegetation Management

Overburden and grubbed material obtained during construction, including trees, bushes, shrubs, undergrowth, and other forms of organic material have been stockpiled and will used for revegetation efforts during closure and reclamation. Non-woody biomass may be mulched and used for erosion control.

20.6.4 Soil Placement and Revegetation

Revegetation is subject to the availability of topsoil/organics and next land use. As appropriate, the priority will be to revegetate the flatter areas so that they may be used productively by the local communities.

The required overburden and grubbed material for closure will be obtained from the overburden and top soil stockpiles. A material balance will be developed during detailed design and updated during construction.

20.6.5 Decommissioning of the Process Site

After closure, equipment associated with the process plant and other facilities will be removed. Lubricants, oils and other industrial materials will be disposed of in accordance with applicable regulations. Unless required for another use, buildings and building foundations will be demolished, covered or removed from the site as per Mexican regulatory requirements applicable at the time of closure. As required, the process site will be graded to promote surface water drainage and will be revegetated.

20.6.6 Waste Rock Storage Facilities

The flow through drains of the WRSFs will be extended to the bottom of the valleys prior to re-grading the slopes. Stable slopes 2H: 1V: a stacking footprint is projected consistent with the calculated stability of the slopes. Placement of vegetative cover on the crest will depend on the availability of organic materials, the next land use, and slope.

If water quality monitoring demonstrates that these ponds are no longer needed, and the local farmers do not want them for water for cattle, then the ponds associated with the WRSFs (Ponds 5, 6, and 8) may be removed, Rockfill dams may be moved to the base of the dumps, stockpiled, and graded to stable slopes.

The WRSF design was developed considering the parameters listed on Table 20-10 as follows:

Table 20-10: Waste Rock Storage Facilities Design Parameters

Description	Sources of Information
Project topographic plan	Figure II.1. TOREX GOLD; ref. WGS84
Waste generation volumes based on the current mining plan.	El Limón – 100 Mm^3 (SRK CONSULTING – June 2011)
	Guajes Este – 11 Mm^3 (SRK CONSULTING – Jan 2012)
	Guajes Sur – 12.5 Mm^3 (SRK CONSULTING – Jan 2012)
	Guajes Oeste – 46 Mm^3 (SRK CONSULTING – Jan 2012)
Waste rock relative density	2.8 (TOREX GOLD – May 2011)
Gross density	2.07 t/m^3 (TOREX GOLD – May 2011)
Grading	Grading estimation based on the Fragmentation Model (TOREX GOLD – July 2011)
Tilt angle	37°
Base floor	Colluvial rock and residual soils with high rock content
Weight	2.0 t/m^3
Friction angle to constant volume	40° a 43° for colluvial rock and residual soils

20.6.7 Filtered Tailings Storage Facility

The top of the filtered tailings storage facility will be re-vegetated, and the potential for metal uptake by vegetation will be assessed prior to returning the land to agricultural/pastoral uses.

Ponds 1 and 2 may be removed if water quality monitoring demonstrates that these ponds are no longer needed. Pond 3 will be filled with filtered tailings.

20.6.8 Landfill

The landfill will contain only non-hazardous waste and will be closed in accordance with applicable regulations at the time of closure.

20.6.9 Open Pit Lakes

The Guajes and El Limón open pits will be allowed to flood, forming pit lakes. Based on post-closure water quality for the pits (Interralogic, 2012), the water quality in the proposed pit lakes is predicted to meet Mexican NOM-001-ECOL-1996 (SEMARNAT, 1996) for all discharge parameters except arsenic. The predicted arsenic concentration for both pits is about 0.5 mg/L, which below the pre-mine concentrations. This will be confirmed with additional studies to be assessed based on the results of the ongoing geochemical characterization and modeling.

20.6.10 Rehabilitation Monitoring

Water quality in the collection ponds and monitoring wells downstream of dams and the filtered tailings storage facility will be monitored for at least two years after closure.

Rehabilitated areas will be monitored for evidence of erosion, invasive species ingress, native species cover and health, and wildlife usage. Monitoring will continue until a mature, self-sustaining community has developed and land can be returned to the local community.

20.7 STAKEHOLDER CONSULTATION AND INFORMATION DISSEMINATION

MML has involved stakeholders in the development of the ELG Mine Complex since 2010 and has documented the outcomes from consulting and engaging with stakeholders over a period of three years. Stakeholder engagement is one of the seven key components in MML's ESMS.

Engagement to date has been divided into four phases:

- A pre-scoping phase that ended in December 2011. The purpose of engagement in this phase was to secure land access for exploration drilling in the MML concession area. Engagement was focused on negotiations with surface rights holders (ejidatarios) in the MML concession area. The phase concluded with MML's decision to prepare an ESIA on the ELG Mine Complex to IFC and Equator Principle standards.
- A scoping phase from January to December 2012, including completion of the ELG Mine Complex feasibility study. Scoping stage engagement confirmed the key issues for review in the ESIA. This was accomplished by providing stakeholders with information on the ELG Mine Complex and holding formal consultations to identify environmental and social concerns and expectations. A stakeholder engagement plan and grievance mechanism for the ELG Mine Complex was prepared in April 2012.
- An ESIA preparation and disclosure phase was initiated in January 2013 for the ELG Mine Complex. Baseline data collection was completed and the ESIA was prepared. Formal disclosure of the ESIA began in late 2013, continued throughout the completion of the ESIA in September 2014, and will continue through the cooperation and closure phases of the ELG Mine Complex. The purpose of engagement was to inform all affected and interested stakeholders about the ELG Mine Complex and the preliminary findings of the ESIA, and to offer a meaningful opportunity for affected stakeholders to comment on and influence the final project design.
- Ongoing consultation with the stakeholder communities as the project evolves. The participatory monitoring program and use of external consultants (*e.g.* UAGro) provide opportunities to share monitoring data with the communities. Programs for air quality monitoring are extended to some of the proximal stakeholder communities and, as part of community support, the water quality from their community water supplies is also monitored and the data shared.

The stakeholder engagement plan will be updated for the new development and the exploration drilling associated with the Media Luna project.

The stakeholders in ELG fall into two groups:

- **Directly affected stakeholders**: these stakeholders live in eight small communities located near the mine area: Nuevo Balsas, San Nicolas, La Fundición, Real de Limón, Atzcala, Balsas Sur, San Miguel Vista Hermosa (affected by exploration only) and Valerio Trujano. As of 2010, these communities had a total population of 3,277. Less than 20% the stakeholders are ejidatarios – small-scale farmers who hold land usage rights through a form of communal land ownership protected under Mexican legislation. There are also two indirectly affected communities, Mazapa and Mezcala, located 25 km south of ELG that have been growing rapidly since the Los Filos gold mine opened in 2007. MML recently (August 2017) signed a land use agreement with the community of San Miguel for Media Luna advanced exploration.

  The ejidatarios belong to five Ejidos in the ELG Mine Complex area – Ejido de Real de Limón, Ejido de Rio Balsas, Ejido de Atzcala, Ejido de Puente Sur Balsas and Ejido de Valerio Trujano. The Ejidos are legal entities with some of which MML has signed long-term land leases and land purchase agreements to allow construction of ELG and associated facilities.

- **Interested stakeholders**: these are key interested stakeholders from three levels of government – Municipal, State, and Federal. A small number of civil society organizations, local institutions, and individuals have also been identified as interested parties but have not taken any notable positions on ELG Mine Complex during consultation.

Perceptions from local community members have changed from 2014 to present. In 2014, there were divergent and numerous expectations. Today, local communities' expectations have become more focused due to the information and engagement. In general, 70% have a good perception of MML, 20% hold negative attitudes towards MML (due to diverse factors like: personal interests, political interests, legacies), and 10% are not interested (this group consists mainly of senior citizens).

In 2017, MML had a total of 23 complaints received, and 16 solved (Table 20-11). As part of a continuous improvement program to the grievance mechanism, a Commitments Tracker System (CTS) was implemented to manage the documentation of past and current grievances, and to enable the tracking of trends and key issues to be proactive with respect to community complaints. The CTS initiated pilot tests in November 2017.

No grievances were received in December 2017 as the mine was shut down by the illegal activity.

Table 20-11: Grievance Record by Month for 2017

	2016	2017										
Community	**Total**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Ago**	**Sept**	**Oct**	**Nov**
Nuevo Balsas	5	0	0	0	0	0	0	1	0	0	0	0
La Fundición	6	0	1	0	0	0	0	2	0	0	1	0
Real de Limón	2	4	1	0	0	1	2	0	0	0	0	0
Atzcala	17	2	0	1	0	0	0	4	0	1	0	0
Valerio Trujano	0	0	0	0	0	0	0	1	0	0	0	0
Las Mesas	0	1	0	0	0	0	0	0	0	0	0	0
Complaints Received	31	7	2	1	0	1	2	8	0	1	1	0
Complaints Resolved	27	0	2	0	0	2	3	4	1	2	2	0
Complaints Pending	4	7	7	8	0	7	8	12	11	10	7	7

The key concerns and interests of project stakeholders have generally been consistent since the pre-scoping phase of ELG Mine Complex. These include:

- Water pollution, especially contamination of the Balsas River, potential economic losses linked to fishing in the Presa El Caracol, potential pollution to cattle drinking water.
- Environmental pollution, especially potential soil and water contamination from cyanide leakage and possible spillage during transportation, and dust from construction and operations.
- Human health risks due to chemical usage, exposure and disposal arrangements for chemicals.
- Employment and training.
- Investment and economic benefits.
- Mine closure arrangements, especially the rehabilitation of pits and mined areas.

MML has made a variety of project modifications to accommodate stakeholder concerns and interests including:

- Local hiring policy
- Building a new service road to bypass communities on the main access route to the ELG Mine Complex
- Using a filtered tailings system to protect the Presa Caracol
- Replacing ore haul trucks with a conveyor system (RopeCon®) from the EL Limón pit to the Process Plant that reduces dust and noise as well as the environmental footprint

MML has complied with the applicable Mexican requirements and procedures related to public access to information as part of the MIA approvals process.

Additionally, MML recognizes the responsibility to prevent and mitigate negative human rights impacts that arise from the business relationships. Therefore, in 2016, MML commissioned an independent human rights review of the company's top suppliers of goods and services. The review uncovered some minor human rights concerns and risks, all of which were determined to be of low significance. However, corrective actions were taken to help ensure that negative human rights impacts do not arise from these relationships. By conducting the due diligence – and taking appropriate corrective actions (Torex Gold Corporate Responsibility Report 2016 and 2017) - MML endeavours to protect the human rights within its area of influence.

MML´s operations have been interrupted several times by illegal blockades, most recently in November 2017. Operations were re-established in January 2018 with full access in April 2018. The November 2017 blockade was established by a minority of workers who tried to demand the company change the union representation from CTM to the Miners Union (Los Mineros). It is the Company's position that the Miners Union made unsubstantiated claims to damage Company relationships with local communities and, thereby, bolster their case for a change in union. As with many negative advertising campaigns, initially this tactic met with some success.

With a bit of time, MML's traditionally strong community relationships re-asserted themselves and it was community support that led to a circumventing of the illegal union blockade in mid-January 2018 and a restart of operations. Community support for the Company has continued to grow since the restart of operations in mid-January, as is evidenced by blockades of the 'blockaders' and a growing chorus for government intervention to provide the Company with unfettered access to all of its facilities. The Mineros Union withdrew its challenge for the change of union on April 2018 and the illegal blockades were then removed and full access to the site and infrastructure were restored.

MML continues to work to understand the communities and aim to mitigate the root causes of blockades. Emphasis is being placed on the development and implementation of a local procurement system, based on the integration of all company departments. This will help to enhance local procurement benefits, eliminate factors contributing to benefit asymmetries, increase transparency in the value chain system, and reduce dependency of locals on MML's activities. This new procurement system will be complemented with other measures that are currently being considered. MML continues to listen to our local communities and then to work with them aiming to provide an environment that is free from blockades, so allowing operations to continue to the benefit of all our stakeholders.

20.8 ECONOMIC DEVELOPMENT

In 2016, MML began to pay royalties on gold produced, some of which will be used to fund development within local communities through a fund developed by the Mexican government (Fondo Minero). However, these funds were not made available until early in 2018. In 2016, the MML Development Foundation was established, to help bridge the gap between community development needs and the availability of the royalty funds for development. The Foundation was funded with MXP20 per ounce of gold produced, with about MXP5.5M contributed in 2016. The funds were invested in projects selected by the local communities ranging from roads to public toilets (Torex Gold Corporate Responsibility Report 2016).

MML has implemented a variety of sustainable livelihoods programs to diversify economic development and provide long-term benefits lasting beyond the mine. In collaboration with the Government of Guerrero and the federal agencies responsible for fisheries, MML's Social Responsibility team conducts a sustainable livelihoods program with local fishermen operating in the Presa El Caracol. MML also contributes with coordination, capacity-building, and other support (*e.g.* demonstration projects) to the project. Since the program's inception in 2013, 11 fishing cooperatives have been set up, which are the first to do so in the area, so allowing them access to government programs. To date, some 2,720,000 fingerlings have been released into the lake - Presa El Caracol. (Torex Gold Corporate Responsibility Report 2016).

During the 2nd quarter of 2018, MML started implementing Community Development Agreements (CDAs) with 7 communities close to the project (Valerio Trujano, Atzcala, La Fundición, Real de Limón, Nuevo Balsas, Puente Sur

Balsas and San Nicolas), and 4 communities from the Transportation Corridor from Nuevo Balsas to Cocula. The aim of the CDAs is to empower local communities to participate in decisions related to their economic development and for a fair and transparent distribution of benefits, so contributing the local harmony and mitigating the risk of blockades.

21 CAPITAL AND OPERATING COSTS

The key points of this section are:

- Production and operating costs for the LOM include actual production and spending in January, February and March of 2018. Estimates were developed and used from April 1, 2018 to end of mine life. Mineral reserves stated in Section 15 are as of March 31, 2018.
- ELG open pit and process plant declared commercial production in March 2016, historical costs served as basis for cost estimate when applicable. Historical development costs for ELG underground were used as the basis for ELG underground mining cost estimates.
- ELG open pits cost estimates:
  - Average mining cost per tonne mined – $2.18
  - Strip ratio waste: ore 5.8:1
  - Average mining cost per tonne processed – $14.35
- ELG underground mining cost estimates:
  - Average mining cost per ore tonne mined – $100.88
- ELG Process Plant cost estimates:
  - Average processing cost per tonne processed – $19.94
- ELG Site Support costs estimates
  - Average site support cost per tonne processed – $9.49
- ELG Mine Complex Capital:
  - Non- Sustaining & Growth – $53.5 Million
  - Sustaining – $253.0 Million (includes Deferred Stripping)

21.1 CAPITAL COSTS ESTIMATE

21.1.1 ELG Open Pit Mine and Technical Services Capital Cost

The ELG Mine Complex declared commercial production in March 2016. ELG open pit capital is deemed to be sustaining capital and is shown for the remainder of the mine life in Table 21-1 with a total of $220.0 million. Included in the mine capital is the deferred stripping; deferred stripping is carried under operating costs and then "capitalized" based on strip ratios of the various pits phases. The deferred stripping cost is shown within Table 21-1 but is also included in mine operating costs.

Table 21-1: ELG Open Pit Capital Costs ($M)

	LOM	2018	2019	2020	2021	2022	2023
Equipment additions	7.3	6.1	1.2				
Equipment replacements	14.0		7.9	6.1			
Major overhauls	29.4	4.8	11.7	11.7	1.2		
Other sustaining capital	9.1	1.8	2.3	1.7	1.7	0.8	0.8
Technical Services	10.7	4.2	2.2	2.2	1.0	0.6	0.5
Sub Total Open Pit Capital	**70.5**	**16.9**	**25.3**	**21.7**	**3.9**	**1.4**	**1.3**
Deferred Stripping	149.5	62.3	26.5	42.6	14. 6	3.5	
Total Open Pit Capital	**220.0**	**79.2**	**51.8**	**64.3**	**18.5**	**4.9**	**1.3**

21.1.2 ELG Underground Mine Capital Costs – Sub-Sill

A total of $25.6M of capital is required for the ELG Underground Mine Sub-Sill Zone over the LOM. The Sub-Sill zone is in ramp up until December 2018 when steady state production is expected to be achieved. Table 21-2 summarizes the areas where the capital spending is required.

Table 21-2: ELG UG Capital Costs (Sub-Sill Zone) ($M)

	LOM	2018	2019	2020
Capital Development	10.8	8.4	2.2	0.2
Surface Infrastructure	3.2	2.5	0.6	
Underground Infrastructure	11.7	10.5	1.2	
Grand Total	**25.6**	**21.4**	**4.0**	**0.2**
Sustaining	3.4	0.1	3.1	0.2
Non-Sustaining	22.1	21.3	0.8	

The largest capital spend is Underground Infrastructure at $11.7M which includes the main ventilation ($3.8M) and underground electrical ($3.4M) infrastructure. The next largest capital spend is Capital Development at $10.8M and includes the development from the existing Sub-Sill ramp to Portal #2. Finally, Surface Infrastructure requires $3.2M which mainly consists of the cemented rock fill plant ($1.6M) and temporary offices ($0.9M).

The total capital spend is grouped into $22.1M of non-sustaining and $3.5M in sustaining costs. Non-sustaining capital spending would consist of capital incurred during the ramp up period to steady state production expected to be achieved in December 2018. Sustaining capital spending consists of capital incurred after the ramp up period to steady state production is achieved and is required to maintain production.

21.1.3 ELG Process Plant Capital Cost

The ELG process plant capital expenditures are shown as sustaining. which are capital expenditures required to continue current operations at the existing levels. Non-sustaining or growth capital are capital expenditures required to materially expand asset capacity beyond the current capability of the existing facility, plant and equipment. Table 21-3 summarizes the process plant capital expenditures.

Table 21-3: ELG Process Plant Capital Cost ($M)

	LOM	2018	2019	2020	2021
Sustaining					
Equipment	7.3	4.3	1.5	0.5	1.0
Infrastructure	6.1	6.1			
Sub-total	13.4	10.4	1.5	0.5	1.0
Non-Sustaining SART	3.4	3.4			
Total	**16.8**	**13.8**	**1.5**	**0.5**	**1.0**

21.1.4 ELG Site Support and Development (ML) Capital Cost

The capital expenditures for site support are shown as site support and development at Media Luna. These costs are shown in Table 21-4. Site support is considered sustaining while the infill drilling program and feasibility study for ML (Development (ML)) is considered non-sustaining.

Table 21-4: ELG Site Support and Development (ML) Capital Cost ($M)

	LOM	2018	2019	2020	2021	2022	2023	2024
Site Support- Sustaining	16.1	10.4	2.4	1.3	0.9	0.6	0.4	0.3
Development (ML)- Non-Sustaining	28.0	10.0	14.0	4.0				

21.1.5 Capital Cost Tabulation

Total capital cost estimates for the ELG Mine Complex including advancing of the ML Project contained in the LOM are as follows:

Table 21-5: Capital Total Costs ($M)

	LOM	2018	2019	2020	2021	2022	2023	2024
Sustaining								
Mine	70.5	16.9	25.3	21.7	3.9	1.4	1.3	
Sub-Sill Zone	3.4	0.1	3.1	0.2				
Process Plant	13.4	10.4	1.5	0.5	1			
Site Support and Exploration	16.3	10.4	2.4	1.3	0.9	0.6	0.4	0.3
Sub-total	*103.6*	*37.8*	*32.3*	*23.7*	*5.8*	*2.0*	*1.7*	*0.3*
Deferred Stripping	149.5	62.3	26.5	42.6	14.6	3.5		
Total Sustaining	**253.1**	**100.0**	**58.8**	**66.3**	**20.4**	**5.5**	**1.7**	**0.3**
Non- Sustaining								
SART	3.4	3.4						
Sub-Sill Zone	22.1	21.3	0.8					
Development	28.0	10.0	14.0	4.0				
Total Non-Sustaining	**53.5**	**34.7**	**14.8**	**4.0**				
Total	**306.6**	**134.7**	**73.6**	**70.3**	**20.4**	**5.5**	**1.7**	**0.3**

21.2 OPERATING COSTS ESTIMATE

This section presents operating costs for the ELG Mine Complex, separated based on type of work:

- Mining costs, separated by open pit and underground
- Process plant operating & maintenance cost
- Site support costs

Operating costs were determined annually for the life of the mine. Actual labor rates and contractual supply rates as available are used as basis for the cost summary. No escalation was included within this study.

Key inputs for operating costs:

- Labor rates for the various job classifications as per current labor contract, including appropriate burden for each category to cover items such as overtime, health care, vacation, and federal holidays. Work rotation travel costs for employees living in other states of Mexico are included with labor costs.
- A portion of the workforce lives in the permanent camp. Camp costs (catering, etc.), transportation for employees who live in camp, and bussing costs for local employees are included within Support Services cost estimates and excluded from labor rates and mining cost estimates.
- No VAT or import duties are included in the mining cost estimates.
- Diesel costs: $0.90/ltr
- Electricity: $0.084/kWh
- Exchange rate: 18:1 MXN:USD

21.2.1 ELG Open Pit Mine Operating Costs

In addition to the Key inputs stated at the start of this section, mine operating cost parameters include the following:

- Mine operating costs extend from January 1, 2018 to the end of mine life in 2024.
- Continuous 24 hours per day mining operation for 365 days per year. The mine labor is based on three operating crews on a 20-day-on-10-day-off rotation.
- Maintenance of production equipment from current MARC contract to owner's workforce is being phased in during 2018 and fully in place 2019.
- Blasting based on an average explosive powder factor of 0.22 kg/t, using 50% anfo-50% emulsion explosives. Explosives costs estimates based on current full-service contract with an explosives supplier.

Mine operating costs are summarized in Table 21-6. Mine operating costs average $2.18/t mined over the mine life. LOM mine operating costs total $489.5 million of which $149.5 million is capitalized as deferred stripping and included in Table 21-1.

Table 21-6: ELG Open Pit Mining Costs

		LOM	2018	2019	2020	2021	2022	2023	2024
Production (open pit only)									
Ore mined	Mt	33.36	4.89	5.88	6.12	5.52	5.79	4.66	0.50
Total mined	Mt	224.90	35.64	50.07	48.09	41.26	32.08	16.48	1.29
Total moved	Mt	237.63	37.33	51.78	49.75	42.72	32.60	17.53	5.91
Plant feed	Mt	34.11	4.25	4.76	4.90	5.04	5.04	5.04	5.08
Mining cost									
Drilling	$M	78.34	13.11	17.13	16.55	14.58	10.95	5.45	0.57
Blasting	$M	89.04	14.44	18.85	18.20	16.00	13.06	7.99	0.51
Loading	$M	53.92	11.77	13.75	9.29	8.21	6.21	3.96	0.73
Hauling	$M	103.88	19.01	25.54	21.09	20.43	11.21	5.95	0.65
Rehandling	$M	4.58	0.69	0.66	0.65	0.58	0.16	0.36	1.49
Indirects	$M	100.61	19.65	17.92	15.53	15.71	15.16	13.22	3.43
Tech. Serv. / Infill	$M	59.23	13.21	10.06	10.06	10.06	10.06	4.53	1.25
Total	**$M**	**489.61**	**91.88**	**103.90**	**91.36**	**85.57**	**66.81**	**41.46**	**8.63**
Unit mining cost									
Drilling	$/t mined	0.35	0.37	0.34	0.34	0.35	0.34	0.33	0.44
Blasting	$/t mined	0.40	0.40	0.38	0.38	0.39	0.41	0.48	0.40
Loading	$/t mined	0.24	0.33	0.27	0.19	0.20	0.19	0.24	0.57
Hauling	$/t mined	0.46	0.53	0.51	0.44	0.50	0.35	0.36	0.50
Rehandling	$/t mined	0.02	0.02	0.01	0.01	0.01	0.01	0.02	1.16
Indirects	$/t mined	0.45	0.55	0.36	0.32	0.38	0.47	0.80	2.66
Tech. Serv. / Infill	$/t mined	0.26	0.37	0.20	0.21	0.24	0.31	0.28	0.97
Total unit cost	**$/t mined**	**2.18**	**2.58**	**2.08**	**1.90**	**2.07**	**2.08**	**2.52**	**6.71**
Total unit cost	$/t moved	2.06	2.46	2.01	1.84	2.00	2.05	2.36	1.46
Total unit cost	$/t processed	14.36	21.62	21.83	18.66	16.98	13.26	8.23	1.70

21.2.2 ELG Underground Mine Operating Costs- Sub-Sill

Key mine operating cost parameters include the following:

- Mine operating costs extend from January 1, 2018 to the end of the mine life in 2020 and average $100.88/tonne of ore mined.
- The mine is to be operated by a contractor as a continuous 24 hour per day mining operation for 365 days per year. The mine labor is based on three operating crews on a 20-day-on-10-day-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. Work rotation travel costs for employees living in other states of Mexico is included with labor costs.
- MML provides technical support to the contractor's mining crews.
- Costs for maintenance of development and production equipment provided by contractor.
- Operating costs for the LOM include actual spending from January, February and March of 2018 and therefore are slightly different than the underground mine costs presented in Section 15 which states mineral reserves as of March 31, 2018. The difference in cut-off grade due to the difference in operating cost between the mineral reserve and LOM operating costs is seen as immaterial to the mineral reserve.

Mine operating costs are summarized in Table 21-7.

Table 21-7: ELG Underground Mining Costs

Production	Unit	LOM	2018	2019	2020
Ore Mined	kt	526.05	66.69	302.32	157.04
Mining Cost	$M	53.07	10.88	26.68	15.51
Unit Cost	$/t mined	100.88	163.17	88.23	98.78

21.2.3 ELG Process Plant Operating Costs

Key process plant operating cost parameters include the following:

- Consumption rates before the SART facility are based on the current operations. Regent consumptions for the processing plant operating with the SART facility have been estimated based on test work and industry practice. Reagents for the process plants are estimated to be approximately $30 Million per year.
- Grinding media consumption and wear items (liners) are based on the current crushing and grinding operations. The wear item prices are based on current supply costs or existing contractual agreements. Total annual cost for grinding media and liners is estimated at approximately $11 Million.
- 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. Maintenance cost are estimated to be approximately $9.0 million annually.
- 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. The process supplies, and services costs are estimated to be approximately $19.5 Million annually.

Table 21-8: Process Plant Operating Cost for LOM

Ore Processed kt	34,633	
	LOM Costs ($M)	**$/tonne Ore Processed**
Crushing	$18.03	$0.52
Grinding	$186.70	$5.39
Leaching & Thickening	$207.41	$5.99
Carbon Handling & Refinery	$23.09	$0.67
Cyanide Destruction	$27.38	$0.79
Filtering	$88.03	$2.54
Tailing	$51.48	$1.49
Ancillary	$8.00	$0.23
Plant Indirect	$56.86	$1.64
SART	$23.56	$0.68
Total Process Plant	**$690.54**	**$19.94**

21.2.4 ELG Site Support Cost

Site support costs include labor and fringe benefits (including profitability bonus) 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, profit share (employee profitability bonus) and other expenses in the administrative area. Note that for cut-off grade calculation profitability bonus is not included. The site support costs are summarized below.

Table 21-9: Site Support Cost for LOM

Ore Processed kt	34,633	
	LOM Cost ($M)	**$/tonne Ore Processed**
General Management (incl. Profit Share)	$147.92	$4.27
G&A	$19.20	$0.55
Human Resources & Training	$21.91	$0.63
Community Relations	$24.82	$0.72
HSE	$27.11	$0.78
Camp & Security	$87.77	$2.53
Total Site Support Cost	**$328.73**	**$9.49**

21.2.5 Closure Costs

The estimated closure cost for the ELG Mine Complex at the completion of production is about $25M plus contingencies and site support. There are minimal cash flows until the closure of the two open pits as both the open pits and their associated waste dumps are active to the end of mining. The cash flow is shown in Table 21-10 below.

Table 21-10: Estimated Cash Flow for the Closure of the ELG Mine Complex ($M)

Year	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**LOM**
Cost ($M)	$5.7	$9.1	$5.6	$1.8	$1.4	$0.4	$0.4	$0.2	$24.7

21.2.6 Operating Cost Tabulation

Table 21-11 shows operating costs in a more detailed fashion.

Table 21-11: Detailed Operating Cost

	LOM		**2018**		**2019**		**2020**		**2021**		**2022**		**2023**		**2024**	
Processed Ore Tonnes (000)	34,633		4,315		5,040		5,040		5,040		5,040		5,040		5,118	
Mined Tonnes (000)	225,428		35,711		50,369		48,244		41,256		32,084		16,478		1,286	
Mining	**LOM Cost**	**$/ore processed**	**Annual Cost**	**$/ore processed**	**Annual Cost**	**$/ore processed**	**Annual Cost**	**$/ore processed**	**Annual Cost**	**$/ore processed**	**Annual Cost**	**$/ore processed**	**Annual Cost**	**$/ore processed**	**Annual Cost**	**$/ore processed**
Drilling	78.337	2.26	13,108	3.04	17,126	3.40	16,550	3.28	14,580	2.89	10,953	2.17	5,450	1.08	570	0.11
Blasting	89,044	2.57	14,435	3.35	18,846	3.74	18,201	3.61	15,999	3.17	13,058	2.59	7,992	1.59	513	0.10
Loading	53,924	1.56	11,772	2.73	13,754	2.73	9,290	1.84	8,214	1.63	6,206	1.23	3,958	0.79	731	0.14
Hauling	103,882	3.00	19,014	4.41	25,538	5.07	21,088	4.18	20,430	4.05	11,214	2.23	5,951	1.18	646	0.13
Mine Indirect	100,613	2.91	19,654	4.55	17,917	3.55	15,526	3.08	15,710	3.12	15,160	3.01	13,221	2.62	3,426	0.67
Rehandling	4,583	0.13	686	0.16	660	0.13	646	0.13	579	0.11	164	0.03	357	0.07	1,491	0.29
Technical Services	59,226	1.71	13,206	3.06	10,060	2.00	10,060	2.00	10,060	2.00	10,060	2.00	4,533	0.90	1,248	0.24
Underground	53,070	1.53	10,882	2.52	26,675	5.29	15,512	3.08	-	-	-	-	-	-	-	-
Total	**542,679**	**15.67**	**102,757**	**23.81**	**130,575**	**25.91**	**106,873**	**21.20**	**85,572**	**16.98**	**66,814**	**13.26**	**41,461**	**8.23**	**8,625**	**1.68**
Process Plant																
Crushing	18,034	0.52	4,201	0.97	2,255	0.45	2,309	0.46	2,309	0.46	2,309	0.46	2,309	0.46	2,340	0.46
Grinding	186,695	5.39	22,901	5.31	27,236	5.40	27,236	5.40	27,236	5.40	27,236	5.40	27,236	5.40	27,614	5.40
Leaching & Thickening	207,408	5.99	36,626	8.49	29,305	5.81	26,535	5.26	27,356	5.43	32,589	6.47	28,895	5.73	26,103	5.10
Carbon handling & Refinery	23,094	0.67	2,948	0.68	3,350	0.66	3,350	0.66	3,350	0.66	3,350	0.66	3,350	0.66	3,394	0.66
Cyanide Destruction	27,379	0.79	14,727	3.41	1,899	0.38	1,833	0.36	2,032	0.40	2,697	0.54	2,265	0.45	1,925	0.38
Filtering	88,030	2.54	15,032	3.48	12,129	2.41	12,129	2.41	12,129	2.41	12,129	2.41	12,129	2.41	12,354	2.41
Tailing	51,481	1.49	6,465	1.50	7,484	1.48	7,484	1.48	7,484	1.48	7,484	1.48	7,484	1.48	7,594	1.48
Ancillary	8,002	0.23	1,006	0.23	1,163	0.23	1,163	0.23	1,163	0.23	1,163	0.23	1,163	0.23	1,180	0.23
Plant Indirect	56,858	1.64	7,668	1.78	8,189	1.62	8,189	1.62	8,189	1.62	8,189	1.62	8,189	1.62	8,245	1.61
SART	23,558	0.68	1,885	0.44	3,604	0.72	3,604	0.72	3,604	0.72	3,604	0.72	3,604	0.72	3,653	0.71
Total	**690,540**	**19.94**	**113,459**	**26.29**	**96,616**	**19.17**	**93,833**	**18.62**	**94,854**	**18.82**	**100,752**	**19.99**	**96,625**	**19.17**	**94,400**	**18.45**
Site Support (including Profit Share)	**328,727**	**9.49**	**55,647**	**12.90**	**50,786**	**10.08**	**46,975**	**9.32**	**46,722**	**9.27**	**53,407**	**10.60**	**49,032**	**9.73**	**26,157**	**5.11**
Treatment & Refinery	**12,804**	**0.37**	**1,968**	**0.46**	**1,852**	**0.37**	**1,676**	**0.33**	**1,706**	**0.34**	**2,318**	**0.46**	**1,878**	**0.37**	**1,407**	**0.27**
Total Mine Site Operating Cost	**1,574,750**	**45.47**	**273,831**	**63.46**	**279,829**	**55.52**	**249,357**	**49.48**	**228,854**	**45.41**	**223,291**	**44.30**	**188,996**	**37.50**	**130,589**	**25.52**

22 ECONOMIC ANALYSIS

The key points of this section are:

- Economic analysis based on the model prepared by Torex and reviewed by M3
- ELG Mine Complex operates both open pit and underground mines combined
  - Operating Cost/oz Au = $554.49
  - AISC/oz Au = $734.34
- Sustaining Capital for ELG (including deferred stripping) is $253.1M
- Closure cost is estimated at $24.7M starting in 2024 at end of active mining in pits
- Metal prices used for base case are $1,200/oz gold, $17/oz silver and $3/lb copper
- ELG Mine Complex provides the following economic results over mine life after repayment of the outstanding loan in the amount of $352.8M

Cumulative Cash Flow After Tax (Before Debt Repayment) (US$M)	$1.29
After Tax NAV @ 5% (US$M)	$706
2018 EBITDA* (US$M)	$206

*Earnings Before Interest Taxes Depreciation and Amortization before corporate initiatives

22.1 INTRODUCTION

The following section presents the results of the economic analysis of the 2018 ELG Mine Complex Life of Mine (LOM) Plan. The analysis is based on current production plans and estimated operating and capital cost to determine the financial indicators for the mine complex. The sales revenue is based on the production of gold and silver doré and copper precipitate. The estimates of capital expenditures include both Sustaining and Non-Sustaining & Growth Capital. Production, capital and operating cost for the ELG Mine Complex were presented in earlier sections of this report. Within the plan, the 2018 1st quarter costs and production are actual and the remainder are estimations.

Within this report, the Net Asset Value (NAV) is calculated by taking the Net Present Value (NPV) based on proven and probable reserves less the long-term debt plus cash on hand (excluding corporate initiatives).

22.2 MINE PRODUCTION STATISTICS

Mine production is reported as ore and waste from the mining operation. The annual production figures were obtained from the mine plan as reported earlier in this report.

The life of mine ore, waste quantities and ore grade are presented in Table 22-1. This is for material mined after December 31, 2017, Mineral Reserves stated in section 15 are as of the end of March 2018, 2018 first quarter production and costs are actuals.

Table 22-1: Life of Mine Ore, Waste Quantities, and Ore Grade

Open Pit	Tonnes (kt)	Gold Grade (g/t)	Silver Grade (g/t)
Ore	33,357	2.72	3.60
Waste	191,545	-	-
Underground Ore	526	10.85	11.15
Total Tonnes Mined	**225,428**	-	-

22.3 PLANT PRODUCTION STATISTICS

The design basis for the process plant is 14,000 tonnes per day at 92% mill availability. The gold recovery is projected to be 86.5% for 2018 and 87% for gold 2019 until end of mine life, and 23.0% for silver over the life of the mine. In addition, a SART plant has been added to the process and is operational since July 2018. Average year production of copper is 190 tonnes as a product of the SART plant.

	Tonnes (kt)	Gold Grade (g/t)	Silver Grade (g/t)
Ore Processed*	34,633	2.82	3.75

* Note mined tonnage and process tonnes do not match due to stockpile

22.3.1 Refinery Return Factors

The refining, transportation and insurance charges are based on the current agreement Torex has with Asahi Holding Inc. (Asahi) and Republic Metals.

22.3.2 Capital Expenditure

A schedule of capital cost expenditures during the production period was estimated and included in the financial analysis. The total life of mine capital is estimated to be $297.7 million. It is categorized as follows:

- Deferred Stripping: $149.5M
- Sustaining Capital: $103.6M
- Non-Sustaining Capital: $53.5M
- Closure Costs: $24.7M
- Salvage Value: $33.7M

The bulk of this capital will be expended during the seven year mine life with closure cost extending out to 2031.

22.3.3 Working Capital

Working capital is based on account receivable, account payables and warehouse inventory and product inventory. The working capital cash flow amounts to $79 million.

22.3.4 Salvage Value

A $33.7 million allowance for salvage value has been included in the cash flow analysis at the end of mine life. Salvage value is 10% of the purchase price of the equipment.

22.4 REVENUE

Annual revenue is determined by applying estimated metal prices to the annual payable metal estimated for each operating year. Sales prices have been applied to all life of mine production without escalation or 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 as follows:

Table 22-2: Metal Prices

Gold	$1,200.00
Silver	$17.00
Copper	$3.00

22.5 OPERATING COST

The average Cash Operating Cost over the life of the mine (2018 – 2024) is estimated to be $41.15 per tonne of ore processed, excluding the cost of the deferred stripping. Cash Operating Cost includes mine operations, process plant operations, site support cost, refining charges and shipping charges. Table 22-3 shows the estimated operating cost by area per metric tonne of ore processed (from 2018 through 2024).

Table 22-3: Operating Cost

Operating Cost	$/ore tonne
Open Pit Mining	$9.82
Underground Mining	$100.88
Process Plant	$19.94
General Administration	$9.49
Smelting/Refining Treatment	$0.37
Total Operating Cost	**$41.15**

22.6 TOTAL CASH COST

The average total cash cost over the life of the mine is estimated to be $43.82 per tonne of ore processed. Total cash cost is the total cash operating cost plus royalties, inventory movement and by-product credits.

22.6.1 Royalty

A royalty payment is based on 2.5% of the gross metal sales starting the first year of production and a 0.5% royalty based on total precious metal revenues. The estimated royalty payments are $99.2 million.

22.6.2 Reclamation & Closure

An allowance of $24.7 million for the cost of reclamation and closure of the ELG Mine Complex has been included in the cash flow projection.

22.6.3 Depreciation

Depreciation was calculated using the unit of production method. The depreciation includes a beginning balance for assets acquired before the analysis.

22.6.4 Mining Royalty Tax

Production costs include a mining royalty tax:

- A 7.5% royalty tax has been applied to include from mining activities. The tax is calculated on a base of earnings before interest, taxes depreciation and amortization (EBITDA) it is estimated at $125.2 million.

22.6.5 Corporate Income Tax

The ELG Mine Complex is evaluated with a 30% corporate tax based taxable income from the operations. A loss carry forward of $140.9 million and other deductions for unclaimed expenditures of $104.5 million were included in the tax calculation.

Corporate income taxes paid are estimated to be $127.7 million.

22.7 ELG MINE COMPLEX FINANCING

Financing of the ELG Mine Complex was completed by a combination of equity and debt financing. In 2017, Torex entered into an Amended and Restated Credit Agreement with 6 banks as joint Lenders of a US$400M debt facility, comprising a US$300M term loan and a US$100M revolving loan facility. Currently, $352.8M is outstanding under the Amended and Restated Credit Agreement. Repayment of the debt facility is reflected in the LOM financial model, in accordance with the Amended and Restated Credit Agreement.

22.8 CUMULATIVE CASH FLOW AFTER TAX AND DEBT SERVICES

Cumulative cash flow after tax and debt services amounts to $954.0 million.

22.9 NET ASSETS VALUE (NAV) SENSITIVITIES

The economic analysis indicates that the ELG Mine Complex has a Net Asset Value (NAV) (at 5% discount rate) of $706 million after taxes at the base case. Table 22-4 below compares the base case financial indicators with the financial indicators for other cases when the metal sales price, the amount of capital expenditures, the operating cost, and ore grade are varied from the base case. This continues to reinforce the fact that the ELG Mine Complex is most sensitive to changes in gold prices and grade and less sensitive to changes in capital and operating costs. The gold recovery sensitivity of +/- 0.5% shown in the table below changes the NAV by approximately $10 million.

Table 22-4: Sensitivity Analysis ($M) – After-Taxes

	NAV @ 0%	NAV @ 5%	NAV @ 8%
Base Case	$941	$706	$593
Gold Price $1,400	$1.26	$972	$836
Gold Price $1,000	$6171	$428	$338
Capital (not including deferred stripping) +15%	$930	$696	$584
Capital (not including deferred stripping) -15%	$951	$716	$603
Operating Cost +15%	$841	$620	$514
Operating Cost -15%	$1.01	$769	$654
Ore Grade +5%	$1.05	$797	$676
Ore Grade - 5%	$833	$615	$510
Au Recovery at 87.5%	$952	$715	$602
Au Recovery at 86.5%	$930	$696	$585

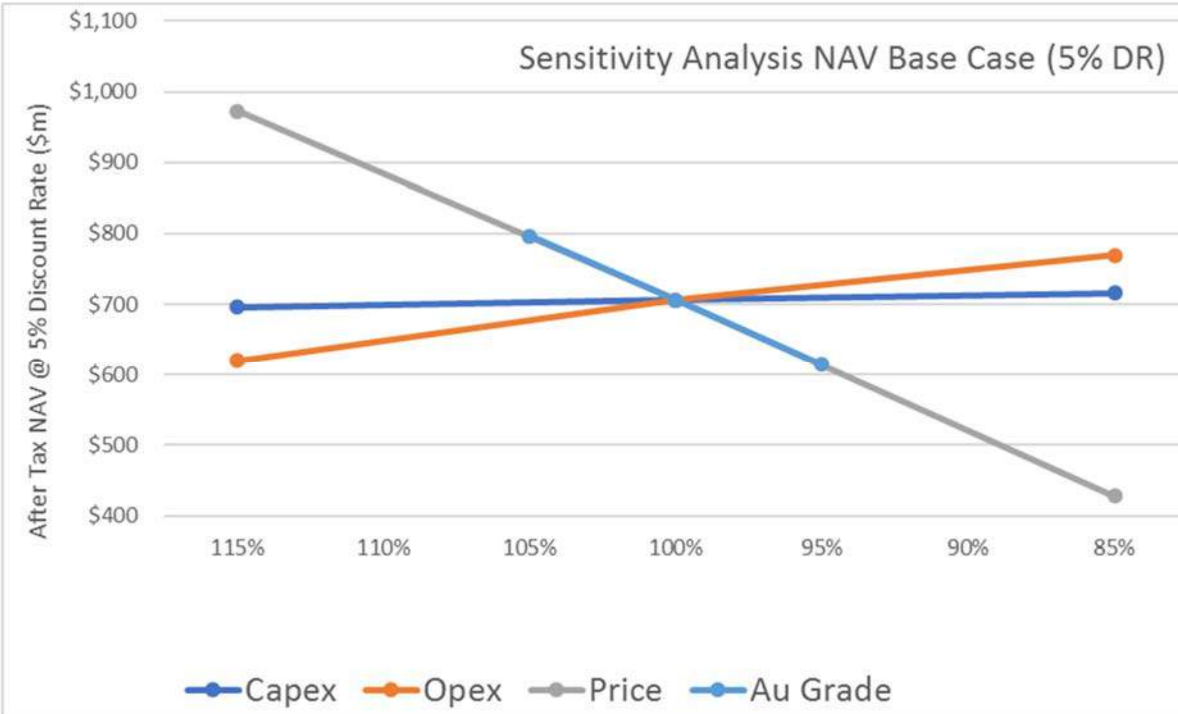


Figure 22-1: Sensitivity Analysis – NAV @ 5% - After-Taxes ($M)

Table 22-5: Base Case Detail Financial Model

	Unit	Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1) Operational Statistics																
1) Mining Operations																
Summary (Open Pit + UG)																
Total Reserves - Opening Balance	kt		33,883	28,925	22,740	16,465	10,944	5,155	497	-	-	-	-	-	-	-
Total Ore Mined	kt	**33,883**	4,958	6,185	6,275	5,521	5,789	4,658	497	-	-	-	-	-	-	-
Total Waste		**191,545**	30,753	44,184	41,969	35,735	26,295	11,820	789	-	-	-	-	-	-	-
Total tonnes mined (Ore and Waste)	kt	**225,428**	35,711	50,369	48,244	41,256	32,084	16,478	1,286	-	-	-	-	-	-	-
Averge Gold Grade	gpt	**2.84**	2.94	2.90	2.62	2.69	2.95	2.98	3.02	-	-	-	-	-	-	-
Average Silver Grade	gpt	**3.72**	7.14	3.86	2.60	2.30	3.71	2.92	5.45	-	-	-	-	-	-	-
Total Contained Gold	Koz	**3,096**	469	577	529	477	548	447	48	-	-	-	-	-	-	-
Total Contained Silver	Koz	**4,054**	1,137	769	526	408	691	437	87	-	-	-	-	-	-	-
2) Processing Plant																
2.3) Summary																
Ore Processed	Kt	**34,633**	4,315	5,040	5,040	5,040	5,040	5,040	5,118	-	-	-	-	-	-	-
Au Head Grade	gpt	**2.82**	2.91	3.32	3.04	2.84	3.24	2.85	1.55	-	-	-	-	-	-	-
Ag Head Grade	gpt	**3.75**	7.08	4.23	3.02	2.47	4.06	2.92	2.95	-	-	-	-	-	-	-
Ag Recovery	%	**87%**	86%	87%	87%	87%	87%	87%	87%	-	-	-	-	-	-	-
Ag Recovery	%	**23%**	23%	23%	23%	23%	23%	23%	23%	-	-	-	-	-	-	-
Gold Recovered	koz	**2,725**	348	467	429	401	457	402	222	-	-	-	-	-	-	-
Silver Recovered	koz	**958**	223	159	113	92	151	109	112	-	-	-	-	-	-	-
2) Sales & Revenue																
Gold Sales - Commercial	koz	**2,737**	348	467	428	400	456	401	236	-	-	-	-	-	-	-
Silver Sales - Commercial	koz	**954**	221	158	112	92	150	108	111	-	-	-	-	-	-	-
Copper Sales - Commercial	Klbs	**2,576**	393	304	289	338	517	401	334	-	-	-	-	-	-	-
Realized Gold Price	$/oz	**1,200.0**	1,200	1,200	1,200	1,200	1,200	1,200	1,200	-	-	-	-	-	-	-
Realized Silver Price	$/oz	**17.0**	17	17	17	17	17	17	17	-	-	-	-	-	-	-
Realized Copper Price	$/lbs	**3.0**	3	3	3	3	3	3	3	-	-	-	-	-	-	-
Gold	000's	**3,284,333**	417,860	559,916	514,071	480,595	547,583	481,459	282,851	-	-	-	-	-	-	-
Silver	000's	**16,211**	3,765	2,687	1,910	1,557	2,558	1,841	1,893	-	-	-	-	-	-	-
Copper	000's	**7,728**	1,179	911	867	1,015	1,550	1,204	1,003	-	-	-	-	-	-	-
Total Revenue	000's	**3,308,273**	**422,803**	**563,513**	**516,848**	**483,167**	**551,691**	**484,504**	**285,747**	-	-	-	-	-	-	-
3) Cost - Breakdown																
Mining Cost (ops + pre stripping)	000's	**(489,609)**	(91,876)	(103,900)	(91,360)	(85,572)	(66,814)	(41,461)	(8,625)	-	-	-	-	-	-	-
Mining Cost - Underground	000's	**(53,070)**	(10,882)	(26,675)	(15,512)	-	-	-	-	-	-	-	-	-	-	-
Mining Cost - Deferred Stripping (not in use for LoM purp	000's	**149,505**	62,266	26,542	42,611	14,554	3,533	-	-	-	-	-	-	-	-	-
Processing Cost	000's	**(690,540)**	(113,459)	(96,616)	(93,833)	(94,854)	(100,752)	(96,625)	(94,400)	-	-	-	-	-	-	-
General overheads	000's	**(328,727)**	(55,647)	(50,786)	(46,975)	(46,722)	(53,407)	(49,032)	(26,157)	-	-	-	-	-	-	-
Treatment & Logistic Cost	000's	**(12,804)**	(1,968)	(1,852)	(1,676)	(1,706)	(2,318)	(1,878)	(1,407)	-	-	-	-	-	-	-
Royalties (Geological Mexican Institute)	000's	**(99,210)**	(12,678)	(16,901)	(15,501)	(14,490)	(16,543)	(14,529)	(8,567)	-	-	-	-	-	-	-
Stockpile Inventory Movements Adjust	000's	**(17,099)**	7,534	29,482	8,843	11,103	5,088	(12,284)	(66,864)	-	-	-	-	-	-	-
Total Operating Costs	**000's**	**(1,541,553)**	**(216,711)**	**(240,706)**	**(213,404)**	**(217,686)**	**(231,213)**	**(215,811)**	**(206,020)**	-	-	-	-	-	-	-
4) Capital Expenditure																
Non Sustaining - Growth	000's	**(25,545)**	(24,721)	(824)	-	-	-	-	-	-	-	-	-	-	-	-
Sustaining	000's	**(253,133)**	(100,164)	(58,826)	(66,263)	(20,354)	(5,548)	(1,713)	(265)	-	-	-	-	-	-	-
Development Project	000's	**(28,014)**	(10,014)	(14,000)	(4,000)	-	-	-	-	-	-	-	-	-	-	-
Rehabilitation	000's	**(24,716)**	(50)	-	-	-	-	-	(5,665)	(9,103)	(5,569)	(1,832)	(1,439)	(422)	(422)	(214)
Assets Sold	000's	**33,681**	-	790	607	-	1,459	1,387	2,523	26,914	-	-	-	-	-	-
TOTAL CAPEX	**000's**	**(297,727)**	**(134,950)**	**(72,859)**	**(69,656)**	**(20,354)**	**(4,089)**	**(326)**	**(3,406)**	**17,810**	**(5,569)**	**(1,832)**	**(1,439)**	**(422)**	**(422)**	**(214)**
5) Financing Activities																
Interest Paid (lease and term loan)	000's	**(75,214)**	(23,033)	(19,620)	(16,138)	(10,611)	(5,812)	-	-	-	-	-	-	-	-	-
Leasing Operation	000's	**(18,213)**	(4,709)	(4,986)	(5,279)	(3,239)	-	-	-	-	-	-	-	-	-	-
Lease Repayment	000's	**(3,181)**	(1,590)	(1,590)	-	-	-	-	-	-	-	-	-	-	-	-
Term Loan repayment	000's	**(300,000)**	(49,500)	(75,900)	(84,300)	(39,300)	(51,000)	-	-	-	-	-	-	-	-	-
Revolver repayment	000's	**(75,000)**	-	-	(75,000)	-	-	-	-	-	-	-	-	-	-	-
Share Offering	000's	**48,100**	48,100	0	0	-	0	-	-	-	-	-	-	-	-	-
Total	**000's**	**(423,508)**	**(30,733)**	**(102,096)**	**(180,717)**	**(53,151)**	**(56,812)**	-	-	-	-	-	-	-	-	-
6) Cash Flow																
Revenue	000's	**3,308,273**	422,803	563,513	516,848	483,167	551,691	484,504	285,747	-	-	-	-	-	-	-
Cash Operating Cost (excluding Exploration and Corpor	000's	**(1,541,553)**	(216,711)	(240,706)	(213,404)	(217,686)	(231,213)	(215,811)	(206,020)	-	-	-	-	-	-	-
Working Capital Mov.	000's	**79,200**	22,008	(34,379)	(9,748)	(10,577)	2,930	10,804	86,844	11,317	-	-	-	-	-	-
Capex	000's	**(331,408)**	(134,950)	(73,650)	(70,263)	(20,354)	(5,548)	(1,713)	(5,930)	(9,103)	(5,569)	(1,832)	(1,439)	(422)	(422)	(214)
Asset Disposal	000's	**33,681**	0	790	607	0	1,459	1,387	2,523	26,914	-	-	-	-	-	-
Income taxes & Royalties (7.5%) - cash	000's	**(262,797)**	(7,257)	(11,462)	(37,169)	(46,710)	(66,323)	(64,412)	(20,942)	(8,522)	-	-	-	-	-	-
Cash Flow After Taxes and Royalties	**000's**	**1,285,395**	**85,894**	**204,106**	**186,871**	**187,840**	**252,996**	**214,759**	**142,222**	**20,605**	**(5,569)**	**(1,832)**	**(1,439)**	**(422)**	**(422)**	**(214)**
Exploration Greenfield	000's	**(9,407)**	(9,407)	-	-	-	-	-	-	-	-	-	-	-	-	-
Corporate	000's	**(155,248)**	(18,243)	(18,206)	(18,206)	(18,206)	(18,206)	(18,206)	(18,206)	(14,025)	(7,306)	(3,195)	(1,841)	(780)	(468)	(156)
Realized Hedges gain/ loss	000's	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Financing Activities	000's	**(27,114)**	25,067	(19,620)	(16,138)	(10,611)	(5,812)	-	-	-	-	-	-	-	-	-
Lease and Loan Equipment Repayment	000's	**(21,394)**	(6,299)	(6,576)	(5,279)	(3,239)	-	-	-	-	-	-	-	-	-	-
Term Loan and Revolver Facility repayment	000's	**(375,000)**	(49,500)	(75,900)	(159,300)	(39,300)	(51,000)	-	-	-	-	-	-	-	-	-
Cash Flow After Interest, Taxes, Financing Explorat	**000's**	**697,233**	**27,512**	**83,805**	**(12,052)**	**116,483**	**177,978**	**196,553**	**124,016**	**6,581**	**(12,875)**	**(5,027)**	**(3,280)**	**(1,201)**	**(889)**	**(370)**
7) Total Cash Cost and AISC Breakdown																
Total Cash Cost																
Mining Cost	000'$	**542,679**	102,757	130,575	106,873	85,572	66,814	41,461	8,625	-	-	-	-	-	-	-
Mining Cost - Pre-stripping	000'$	**(149,505)**	(62,266)	(26,542)	(42,611)	(14,554)	(3,533)	-	-	-	-	-	-	-	-	-
Processing Cost	000'$	**690,540**	113,459	96,616	93,833	94,854	100,752	96,625	94,400	-	-	-	-	-	-	-
Site Support and others G&A	000'$	**328,727**	55,647	50,786	46,975	46,722	53,407	49,032	26,157	-	-	-	-	-	-	-
Third party smelting and refining	000'$	**12,804**	1,968	1,852	1,676	1,706	2,318	1,878	1,407	-	-	-	-	-	-	-
Royalty expense (see comment below)	000'$	**99,210**	12,678	16,901	15,501	14,490	16,543	14,529	8,567	-	-	-	-	-	-	-
Depreciation and amortisation (excluding Mineral Prope	000'$	**1,053,674**	128,441	174,582	165,638	156,477	180,487	159,659	88,391	-	-	-	-	-	-	-
Mineral Property Depreciation	000'$	**231,100**	29,708	39,619	36,334	33,948	38,680	34,009	18,802	-	-	-	-	-	-	-
Inventory Adjustment	000'$	**17,099**	(7,534)	(29,482)	(8,843)	(11,103)	(5,088)	12,284	66,864	-	-	-	-	-	-	-
Total cost of sales	**000'$**	**2,826,327**	374,859	454,907	415,377	408,111	450,380	409,478	313,214	-	-	-	-	-	-	-
Cash Cost																
Total cost of sales	000'$	**2,826,327**	374,859	454,907	415,377	408,111	450,380	409,478	313,214	-	-	-	-	-	-	-
Deduct: depreciation and amortisation	000'$	**(1,284,774)**	(158,149)	(214,201)	(201,973)	(190,425)	(219,166)	(193,667)	(107,193)	-	-	-	-	-	-	-
Deduct: By-product revenue (Silver + Copper)	000'$	**(23,939)**	(4,944)	(3,598)	(2,777)	(2,572)	(4,108)	(3,044)	(2,896)	-	-	-	-	-	-	-
Total cash cost	**000'$**	**1,517,613**	**211,767**	**237,109**	**210,627**	**215,114**	**227,105**	**212,766**	**203,124**	-	-	-	-	-	-	-
Total ounces sold in Commercial Phase	**Koz**	**2,737**	348	467	428	400	456	401	236	-	-	-	-	-	-	-
Cash cost per ounce sold	**$/oz**	**554.5**	608	508	492	537	498	530	862	-	-	-	-	-	-	-
Cash cost per ounce Equivalent sold	**$/oz eq**	**559.2**	615	513	495	541	503	535	865	-	-	-	-	-	-	-
AISC																
Total cash cost	000'$	**1,517,613**	211,767	237,109	210,627	215,114	227,105	212,766	203,124	-	-	-	-	-	-	-
Corporate Administration (including SBC)	000'$	**155,248**	18,243	18,206	18,206	18,206	18,206	18,206	18,206	14,025	7,306	3,195	1,841	780	468	156
Share Based Payment (see corporate adm.)	000'$	**57,950**	6,809	6,796	6,796	6,796	6,796	6,796	6,796	5,235	2,727	1,193	688	291	175	59
Sustaining Capex (including Deferred Stripping)	000'$	**253,133**	100,164	58,826	66,263	20,354	5,548	1,713	265	-	-	-	-	-	-	-
ARO (Accretion + Amortization)	000'$	**21,257**	2,564	3,218	3,034	2,909	3,238	2,969	2,030	653	341	149	86	37	22	8
Exploration (at Site/ sustaining)	000'$	**4,655**	4,655	-	-	-	-	-	-	-	-	-	-	-	-	-
Total AISC	**000'$**	**2,009,857**	**344,203**	**324,154**	**304,926**	**263,379**	**260,893**	**242,449**	**230,421**	**19,913**	**10,374**	**4,536**	**2,616**	**1,107**	**665**	**223**
Total ounces sold in Commercial Phase	**Koz**	**2,737**	**348**	**467**	**428**	**400**	**456**	**401**	**236**	-	-	-	-	-	-	-
AISC per ounce sold	**$/oz**	**734**	**988**	**695**	**712**	**658**	**572**	**604**	**978**	-	-	-	-	-	-	-
AISC per ounce Equivalent sold	**$/oz eq**	**738**	**991**	**698**	**714**	**661**	**576**	**608**	**980**	-	-	-	-	-	-	-

23 ADJACENT PROPERTIES

This section is not relevant to this report.

24 OTHER RELEVANT DATA AND INFORMATION – MEDIA LUNA PROJECT PRELIMINARY ECONOMIC ASSESSMENT

24.1 SUMMARY

Section 24 of the report has been prepared to disclose relevant information concerning the PEA for the ML Project. Within this section, the conceptual mining plan and an alternate mining method (described in Section 24.24) for the ML Project is presented. Economic analysis for ML Project is presented as a "standalone" in that no cost nor revenue is considered for mining/processing of ore from the ELG Mine Complex within the financial modeling. However, the ML Project considers the use of the existing ELG Mine Complex as required, and it is also assumed that "room" is made in the ELG process plant to accommodate processing of the ML mineralized material.

The resulting economic indicators from this conceptual mining plan and an alternate mining method are outlined in this section. The PEA is preliminary in nature. It includes inferred mineral resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the results set forth in the PEA will be realized. Mineral resources that are not mineral reserves do not demonstrate economic viability.

An executive summary on the ML Project is presented in Section 1 of this report. The key concepts of this study are presented below:

- ML mineral resource would be processed through an existing/enhanced ELG Process Plant.
- ML mineral resource recovered via underground mining methods.
- ML mineral resource transported to ELG Process Plant site via an underground/aerial conveyor (suspended conveyor).
- Access for personnel and material to ML would be via a Ropeway from the ELG Mine Complex site.
- ELG processing plan altered to make "room" for ML mineral resource in enhanced ELG Process Plant during the processing overlap period. This alternate ELG processing plan will see material from the ELG pits being stockpiled during the years 2023 to 2024 for processing later. The period where both ELG ore and ML mineralized material is to be processed is referred to as the "overlap" period and occurs from 2023 to 2027. During this overlap period, the enhanced ELG Process Plant operates at full capacity, batching the two feed sources. Once the ELG stockpiles are exhausted the Plant is operated in a campaign mode at approximately half capacity.
- The economic analysis for ML includes capital and operating, processing and site supports costs for mining and processing of only the ML mineral resource. Revenues used in the analysis are generated solely from the ML mineral resource. The cost and revenue associated with the ELG ore during the overlap period is not included.

ML Project Key Information

The ML Project key information presented below is only for the ML costs and revenue generated by mining and processing of the ML mineralized material as presented in this section. The ML mineralized material would be processed by the ELG Process Plant on a cost per tonne basis, based on the estimated processing cost for the enhanced plant.

Table 24-1 summarizes the key project data for the ML conceptual project plan. Table 24-2 presents the before and after taxes of the ML Project. Unless noted otherwise, the currency used in the technical report is U.S. dollars.

Table 24-1: ML "Standalone" Key Conceptual Project Data

Media Luna (ML)	
Mineralized Material (ktonnes)	30,937
Copper Grade (%)	1.03%
Gold Grade (g/t)	2.58
Silver Grade (g/t)	27.59
Gold Equivalent (g/t)	4.77
Total Tonnes Mined (ktonnes)	30,937
Process Plant	
Tonne Processed (ktonnes)	30,937
Bullion Production	
Gold Production (kozs)	849
Gold Recovery - %	33.1%
Silver Production (kozs)	1,372
Silver Recovery - %	5%
Copper Concentrate Production	
Copper Concentrate (ktonnes)	1,124
Copper Production (klbs)	624,219
Copper Recovery %	88.8%
Gold Production (kozs)	1,333
Gold Recovery - %	52%
Silver Production (kozs)	19,212
Silver Recovery - %	70%
Total Production and Recoveries (Bullion + Copper Concentrate)	
Copper Production (klbs)	624,219
Copper Recovery %	88.8%
Gold Production (kozs)	2,182
Gold Recovery - %	85.1%
Silver Production (kozs)	20,585
Silver Recovery - %	75%

Metal Prices	
Copper ($/lb)	$3.00
Gold ($/oz)	$1,200
Silver ($/oz)	$17
ML Economic Indicators Before Taxes	
Revenues ($000)	4,515,7
Project Capital – ML ($000), including mine pre-development prior to production	496.5
Pre-Commercial Capital	411.4
Sustaining Capital – ML ($000) including mine development	109.4
Mining Cost - ML ($/tonne mined)	23.64
Processing Plant ($/tonne processed)	23.47
Site Support ($/tonne processed)	14.11
Treatment & Refining Charges ($/tonne processed)	10.03
Total Operating Cost ($/tonne processed)	71.23
Average Cash Cost per oz Au Eq	596.08
Average AISC per oz Au Eq	619.34
NPV @ 0% ($M)	1.77
NPV @ 5% ($M)	977
NPV @ 8% ($M)	688
IRR %	37.3
Payback - years	5.3
ML Economic Indicators After-Taxes	
NPV @ 0% ($M)	1.11
NPV @ 5% ($M)	582
NPV @ 8% ($M)	392
IRR %	27.3
Payback – years	5.8

Table 24-2: ML "Standalone" Project Financial Data

	Before-Taxes	After-Taxes
IRR	37.3%	27.3%
NPV @ 5% ($M)	977	582
NPV @ 8% ($M)	688	392
Cumulative Undiscounted Cash Flow ($M)	1.77	1.11
CAPEX Payback (years)	5.3	5.8
Mine Life (years)	12	12

Property Description and Ownership

The ML Project is located in Guerrero State, Mexico, approximately 200 km south–southwest of Mexico City. The project consists of a skarn-hosted copper–gold–silver deposit at Media Luna and a number of prospects. Approximate centroids for the Media Luna deposit are 17.9597 N, 99.7322 W.

Accessibility, Climate, Local Resources, Infrastructure and Physiography

The ML Project is located approximately 48 km south–southwest of Iguala and 13 km west of Mezcala. The ML deposit can be accessed from ELG Mine Complex by crossing El Caracol reservoir by boat and then via a 4.5 km single-lane gravel road or by gravel road from Mezcala (~22km).

Mineral Processing and Metallurgical Testing

For Media Luna mineralized material, laboratory tests indicate estimated expected recoveries of 88.8% for copper, 85.1% for gold and 75% for silver. Following is the proposed process flow for ML mineralized material. After grinding in the existing comminution circuit, ML mineralized material will be processed in a sequential flotation circuit to generate two concentrates. One is a commercial grade copper/gold/silver concentrate for sale onto the world market, the other an Fe-S concentrate that will be leached for precious metals prior to use as backfill material. Flotation tailings will be leached in the existing ELG cyanidation/CIP process to recover precious metals as doré. Liquid/solid separation tests on residue of leached flotation tails achieved high-pressure filtration rates with good discharge and stacking properties at reasonable drying times. The expectation is that Media Luna tailings can be handled by the existing ELG tailing filters.

ELG Processing Plan within Conceptual PEA Plan

Within the ML PEA the ELG process feed plan is altered to “make room” for the ML mineralized material. During the overlap period, a portion of the ELG ore is displaced and processed later. For the purposes of the ML Project PEA, no costs or revenues are assumed for the processing of the ELG ore.

Media Luna Underground Mining

Mining Concept

The ML mineral resources are a shallow dipping skarn deposit with a dip of approximately 35° to the southwest and mineralization thickness varying between 5 m and 70 m. The mineralized skarn is located between marble hanging wall and granodiorite footwall.

A review of the ML mineral resource identified two distinct and separate areas of higher tonnage and grade, and a third geographic separated. Based on this assessment, a conceptual mining plan was developed which establishes three independent mining zones of which two are in operation at any given time. The plan provides operational flexibility for planning and scheduling while targeting high grade material early in production life. The conceptual mine design considers the three zones as independent mining areas that share a main materials handling system to transport mineralized material across the Balsas River to the ELG process plant.

Mine Access

Access to the Media Luna resource during the development and production period would be from the ELG site using a Ropeway which would provide access across the Balsas River to the two tunnels which will be used to access the ML deposit. Once completed, one of the tunnels will be used for access, named the Service Access, and the second will be used for installation of the Suspended Conveyor, and is referred to as the Suspended Conveyor Access. During the development of the two tunnels, the Ropeway will be used for transportation of waste as well as movement of personnel and material. Once the Suspended Conveyor is installed, the Ropeway would provide only the movement of personnel and material, with the Suspended Conveyor moving both mineralized material and waste from ML to the ELG Mine Complex and tailings from ELG to ML for use as backfill. The route of the Suspended Conveyor would see its head end at the ELG plant running through a tunnel under the El Limón Ridge exiting the tunnel spanning the Balsas River and then entering a tunnel on the north side of the ML Ridge where it would reach the ML deposit at the 655 elevation. A suspended conveyor was the preferred material handling system and was chosen based on safety, efficiency, and low environmental impact, while also providing a means for delivery of filtered tailings to the backfill plant.

Mining Method Selection

Based on a review of the geology and shape of the Media Luna resource along with a high level geotechnical review, Long Hole Open Stoping (LHOS) was selected as the main mining method. In areas where the resource is narrow, Cut and Fill Stoping (C&F stoping) would be utilized. Based on the conceptual mine plan, LHOS would contribute approximately 66% of the total production with the remaining 34% being C&F.

Potential Mining Inventory

Based on the conceptual mining plan described, the potential mining inventory is estimated at 31M tonnes at 2.58 g/t Au, 27.59 g/t Ag and 1.03% Cu for an equivalent grade of 4.77 g/t AuEQ. To arrive at this, an estimated cut-off grade of 2.6 g/t AuEQ was used for the ML upper and ML lower zones (for both LHOS and C&F). While the cut-off grade for the EPO zone was set at 4.0 g/t AuEQ and 3.5 g/t for LHOS and C&F, respectively. Mining recovery ranges from 80% to 95% depending on the mining method.

Underground Development

Total underground development was estimated at 113,100 meters, including main accesses, ramps, sublevels and raises. ML Project development amounts to 21,900 meters, during the initial capital phase, and 91,200 meters during the sustaining capital phase.

Geotechnical Considerations

Initial geotechnical assessment anticipates good ground conditions with minor areas of poor ground. The assessment was based on existing information: core logs, RQD data, and high-quality core photos. A 25 meter stand-off pillar was used for permanent development headings. Three types of ground conditions (good, poor and very poor) were identified for development and ground support requirements selected for each condition.

Labor Requirements

Initial access/mine development would be conducted by a mining contractor during the first 4 years of development, with company crews phasing in during years 2 and 3 and continuing until end of project life. A training period for company crews is planned to begin in Year 2. The steady state workforce would be approximately 370 employees.

Ventilation and Backfill

A pull ventilation system has been designed for ML including six exhaust raises developed from the underground workings to surface. Each raise would be fitted with a high-performance fan exhausting air from the underground. The negative pressure from these fans draws fresh air into the surface access ramps, as well as one fresh air raise. All raises to surface would be raisebored at a diameter of 4 m. Based on the anticipated equipment list, the overall airflow was estimated at 700 m^3/s. The criteria used to determine air quantities is 0.06 m^3/s per kW of diesel power.

Both C&F and LHOS methods would require backfill. When waste rock is available, the post pillar C&F stopes and secondary LHOS would be filled with waste rockfill. The remaining stopes, as well as the primary LHOS would be filled with cemented paste backfill. Cement content would be dependent on mining sequence and geotechnical requirements.

ML Project Infrastructure and Recovery Methods

ML Project Infrastructure

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. For all intents and purposes, the new infrastructure are enhancements to existing process plant or new for access or material handling to ML deposit.

New includes:

- A purpose-built suspended conveyor system is planned to be utilized to transport mineralized material from the Media Luna mineral resource to ELG Mine Complex and tailing from ELG Mine Complex back for use as backfill.
- A Ropeway is planned to provide access to the ML portal location for personnel and supplies for the life of the ML operation. Prior to construction of the suspended conveyor, the Ropeway will also be used for movement of development waste from the ML tunnels to ELG Mine Complex for disposal.

Enhancements include:

- The addition of flotation circuits, copper concentrate loadout and dedicated Fe-S leach/CIP leach circuit, all within the current ELG Mine Complex footprint.
- Additional electrical feed from the CFE grid to meet the Mine and enhanced power requirement.
- Installation of necessary conveyor for tailings transfer to enable the use of the permitted FTSF in conjunction with the use of the mined out Guajes open pit to deposit the tailings produced from the existing ELG plant and use of the Fe-S leach residue as paste backfill in the ML deposit.

Process Plant

The following is the listing of the process operations that will be used to extract copper, gold and silver from the ML mineralized material:

- Primary crushing – existing ELG circuit
- SAG Mill/Ball Mill Grinding – existing ELG circuit
- Cu-Au-Ag flotation circuit, consisting of copper rougher stage, consisting of six (6) 100 m^3 flotation cells
- Three stages of Cu-Au-Ag cleaner flotation, and copper cleaner-scavenger. Their configuration is a row of six flotation cells of each 60-m^3 for the first stage, a row of four flotation cells of each 40-m^3 in the second cleaner stage, and for the third copper cleaner stage a row of four 20-m^3 cells.
- Cu-Au-Ag rougher regrind circuit
- Cu-Au-Ag concentrate dewatering and handling
- Fe-S rougher flotation stage, consisting of four (4) 100 m^3 flotation cells
- Flotation tailing dewatering in existing Pre-leach thickener
- Flotation tailing Leach/Carbon-in-Pulp process for in existing ELG circuit
- Fe-S rougher concentrate pre-leach regrind

- Fe-S rougher concentrate dewatering
- Fe-S rougher flotation concentrate leaching/CIP in dedicated circuit
- Separate water circuits for flotation and leach
- Leached Fe-S rougher concentrate storage for use in backfill
- Flotation Tailing Filtration in existing ELG circuit, handling and disposal
- Reagent storage, preparation and distribution

Waste Disposal

The conceptual plan for tailings from the processing of the ML resource would be for placement in one of three areas, the existing ELG FTSF, a FTSF to be developed in the Guajes Pit once it is mined out, or underground as backfill.

The conceptual plan for waste rock from the development of the ML resource would be for placement in existing WRSFs at the ELG site, or within the ML workings as backfill.

Filtered tailings stored on the surface are currently being evaluated to determine if they are Non-PAG or PAG or will leach constituents of concern. Some preliminary bench test results suggest the filtered ML surface tailings will be Non-PAG since the proposed process plant circuit includes a process to remove sulfides. If the tailings placed in the disposal facility are PAG, then a design element would be necessary to minimize the generation of acid and metals in leachate. The design element could include one or more of the following; a low permeability cover to eliminate acidic leachate, tailings amendments to neutralize leachate pH, or tailings leachate capture and treatment systems.

Environmental, Permitting and Social or Community Impact

The climate in the project area is tropical wet dry with year-round mean temperatures above 18°C and a pronounced wet (May to October) and dry season (November to April). In the area, the air quality is mainly affected by anthropogenic activity (the ELG Mine Complex, farming, travel on roads) and by natural wind-borne particulates during the dry season. The project is located adjacent to the Rio Balsas River which is affected by the control of water in the Presa Caracol Reservoir and causes water levels to fluctuate.

There are no real concerns over water quality. However, in some locations there are naturally elevated concentrations of certain elements (*e.g.* arsenic) due to the mineralization of the rocks in the project area. During the rainy season, the Rio Balsas River flows brown due to the sediment loadings from the extensive drainage basin upstream of the project where erosion is caused by the seasonal rains.

Ground water flows tend to be from the high ground towards the rivers and during the dry season, some of the base flow in the Rio Balsas River is from groundwater contributions. There are some natural springs in the area that are used by both domestic animals and wildlife.

There are some species of interest around the project (*e.g. Aras militaris* Military Macaw). However, the design of the project and the fact that it is an underground mine mean that these species are unlikely to be affected. Furthermore, we have found that some of the species of wild cats stay within the overall ELG Mine Complex as it is a more protected area where hunting is prohibited.

There are no communities in the planned development area of the mine. The closest communities are San Miguel (south of the project on the other side of the mountain) and Puente Sur Balsas (downstream), which are small farming, and farming and fishing communities, respectively. These communities have relatively poor public services and children need to leave the communities to complete school. Consequently, the level of education is generally low, along with incomes.

Permits are in place for the initial ongoing work to explore the Media Luna Project. Based on the experience with the ELG Mine Complex and the modifications included in this operation, there is a reasonable expectation that any additional permits required for exploration, construction, operations, and closure for the project are obtainable. The fact that the mine is planned as an underground mine and that the processing and storage of waste will be at the existing ELG Mine Complex should facilitate the process.

Land access for the project has been secured through a long-term (25 year) rental agreement with the Ejido of Puente Sur Balsas.

The project uses, to the maximum extent possible, the existing facilities and footprint of the ELG Mine Complex. While there will be a need for new facilities including rock transport and enhancements to the process plant, most of the other infrastructure is used or repurposed. Waste products can be placed in either existing facilities with excess permitted capacity (*e.g.* waste rock storage facility) or re-purposed infrastructure (*e.g.* placement of tailings in mined-out Guajes Pit).

The environmental and socioeconomic impact assessment will be completed using a quantitative model that determines the positive and negative effects of the project on the local socioeconomic and natural environment. This will allow key potential effects to be identified and the appropriate management plans to be implemented. The existing social and environmental management system will be used as the foundation for the ML Project management system. Where possible, proven management plans will be used, so building on the experience gained in the operating ELG Mine Complex.

ML Capital and Operating Costs

Capital Costs

Capital cost estimates for the surface and process plant were completed by M3 and mine development cost estimates were completed by Torex. The accuracy of the process plant estimate is ±25% while the accuracy of the underground mining estimate is ±23%. All costs are in US Dollars (as of Q1 2018). Capital expenditure were defined as follows based on the commercial production date:

- Project capital is defined as all capital costs through to the end of the construction period (second quarter 2023) not including pre-commercial operating costs. This period is Years 1 to 4 or 2020 to 2023.
- Pre-commercial capital cost is defined as all Project capital cost, and operating cost less revenue generated prior to commercial production.
- Sustaining capital is defined as all capital expenditures after commercial production is obtained, start of the third quarter 2023.

Table 24-3 summarizes project capital costs.

Table 24-3:ML Project Capital and Pre-commercial Capital

	$M
Surface and Process Plant	$271.5
Underground Development	$225.0
Sub-Total Project capital	**$496.5**
Pre-Commercial Operating Cost	$92.5
Pre-Commercial Revenue	-$177.6
Total Pre-Commercial Capital	**$411.4**

Sustaining capital cost for the underground mining of the ML mineral resource was estimated at $109 million.

No sustaining capital was estimated for the process plant and surface infrastructure at this level of study.

Operating Costs

Operating costs were built up based on anticipated labor and estimated consumption rates. Table 24-4 summarizes operating costs on a cost per mineralized tonne processed for the ML Project by presenting a typical year of operations during the overlap with ELG Mine Complex and ML Project only after ELG ore has been exhausted.

Table 24-4: Operating Cost Summary for LOM of Project

	$/mineralized tonne
Underground Mining	$23.64
Process Plant	$23.47
Site Support	$14.11
Treatment & Refining	$10.03
Total	**$71.23**

Economic Analysis

The ML Project economics were done using a discounted cash flow model. The financial indicators examined for the project included the Net Present Value (NPV), Internal Rate of Return (IRR) and payback period (time in years to recapture the initial capital investment). Annual cash flow projections were estimated over the life of the mine based on capital expenditures, production costs, transportation and treatment charges and sales revenue. Metal price assumptions are $1,200/oz gold, $17/oz silver, and $3.00/lb copper. The financial indicators for the ML Project are based on a 100% equity case with no debt financing being assumed and are summarized in Table 24-5.

Tax assumption

Taxes in the ML Project financial model were calculated based only on costs and revenue related to the ML Project and treated as a "Standalone" project. The calculations do not include any revenue, expense or tax information or effects related to ELG Mine Complex.

Table 24-5: ML "Standalone" PEA Project Financial Data

	Before-Taxes	**After-Taxes**
NPV @ 0% ($M)	1.77	1.11
NPV @ 5% ($M)	977	582
NPV @ 8% ($M)	688	392
IRR %	37.3	27.3
Payback (years)	5.3	5.8

Muckahi Mining Method

Section 24.24 presents a Torex proprietary mining method that has been named the Muckahi Mining System (Muckahi). Section 24.24 describes Muckahi as well as using the ML Project as a platform for comparison to demonstrate to the reader the potential benefits of utilizing the Muckahi Mining method on this deposit, or any other deposit that does not employ caving methods.

24.2 INTRODUCTION

Please refer to Section 2 of this Report for the relevant Introduction.

24.3 RELIANCE ON OTHER EXPERTS

Please refer to Section 3 of this Report for the relevant Reliance on Other Experts.

24.4 PROPERTY DESCRIPTION AND LOCATION

Please refer to Section 4 of this Report for the relevant Property Description and Location.

24.5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

Please refer to Section 5 of this Report for the relevant Accessibility, Climate, Local Resources, Infrastructure, and Physiography.

24.6 HISTORY

Please refer to Section 6 of this Report for the relevant Project history discussion.

24.7 GEOLOGICAL SETTING AND MINERALIZATION

Please refer to Section 7 of this Report for the relevant discussions on geology and mineralization. The section also includes example geological maps and deposit cross-sections.

24.8 DEPOSIT TYPES

The deposit model being used for exploration targeting is described in Section 8 of this Report.

24.9 EXPLORATION

Exploration completed on the Project area is outlined in Section 9 of this Report.

24.10 DRILLING

Drilling completed on the Project area is summarized in Section 10 of this Report.

24.11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

Sample preparation and analytical methods, together with the sample security measures taken for Project samples are included in Section 11 of this Report.

24.12 DATA VERIFICATION

Data verification undertaken on the data collected is outlined in Section 12 of this Report

24.13 MINERAL PROCESSING AND METALLURGICAL TESTING

The key points of this section are as follows:

- The tests were conducted by independent commercial laboratories, SGS METCON of Tucson, Arizona (SGS) and Base Metallurgical Laboratories, Ltd., Kamloops, (BaseMet).
- Test work shows that the ML mineralized material is amendable to a Sulphide flotation to create a gold, silver and copper concentrate followed by Cyanide leach - CIP process of flotation tailings for final recovery of gold and silver.
- Test work demonstrated that grinding of the ML mineralized material to K80 of 90-100-micron, can be accomplished with the existing ELG Processing Plant grinding circuit.
- Estimated overall recovery of the process is 88.8% for copper, 85.1% for gold and 75% for silver.
- No deleterious elements that would adversely impact recoveries were found.
- Selected treatment process requires a simple reagent scheme and normal reagent dosages.
- Liquid/solid separation tests on leached flotation tails residue achieved high-pressure filtration rates with good discharge and stacking properties at reasonable drying times. The expectation is that Media Luna tailings can be handled by the existing ELG tailing filters.
- Flotation concentrates from the EPO area contain high arsenic levels that may attract penalties if shipped on its own. Arsenic depression will be considered in further development work.

Metallurgical test work was completed by independent commercial metallurgical laboratories. The bulk of this work was completed 2012 to 2014 to support the initial PEA presented in the 2015 Technical Report, a follow-up metallurgical test program was started in February 2018 with the purpose of confirming current understanding and supporting further design work. Based on this test work a sequential flotation process was identified as the most practical process from a capital cost, operational and performance perspective.

Based on test work completed to date the following process design is envision for the ML mineral resource.

Processing of the ML mineralized material is designed to recover gold, silver and copper via flotation circuit to produce a copper, gold and silver concentrate, followed by CN Leach and CIP of the tailings product for final recovery of gold and silver to doré. As the ML material contains iron-sulphides (Fe-S) an additional flotation circuit will be included within the process. This Fe-S float circuit is intended to remove iron sulphides as a separate product, which would be leached separately for gold and silver. The Fe-S leach residue will then be placed underground as paste fill. With this strategy in place, it is envisioned that the remaining tailings from ML will be Non-Acid Generating. Media Luna mineralized material will be batch-processed separately from ELG ore making use of the ELG comminution circuit/CN Leach/CIP/Filter circuits. Flotation will be completed in a circuit to be constructed.

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.

24.13.1 General

In November 2012, Torex initiated test work to provide a better understanding of the metallurgical response of the Media Luna sulphide mineralized material and to establish design criteria for the mineral extraction process. This initial work was completed over three phases, with each phase advancing the metallurgical understanding of the mineral resource. In 2018, a fourth phase of testing was commenced. The following outlines the scope of metallurgical testing conducted during the four phases.

I. The Phase I metallurgical testing included initial scoping studies, flotation process development for sulphide material, leaching in cyanide solution, development for the sulphide concentrate and evaluation of magnetic separation to ascertain the effect on flotation.

II. Phase II metallurgical testing consisted of flowsheet development to improve the quality of concentrate, to upgrade copper content, reduce arsenic content and conduct cyanidation tests on the sulphide concentrates and sample ML- 46M.

III. Phase III metallurgical testing was conducted to optimize the flotation and cyanidation flowsheet selected in the Phase II testing on the two mineralized material types identified as Massive Sulphide/Oxide (MSO) and SKARN from the Media Luna area and the new area identified as the EPO area. The objective of Phase III testing was to produce a clean copper flotation concentrate, maximize gold recovery and generate a separate Fe-S concentrate, which would be leached for the recovery of gold and silver using samples of different grades and mineralogy. (Because of the significant pyrrhotite content in the mineralization, it is preferred to refer to an Fe-S concentrate, rather than pyrite concentrate).

IV. Phase IV commenced in February of 2018 with the purpose of confirming current understanding and supporting further design work. This work is currently underway at BaseMet Labs.

The test results are reported in the following documents and relevant tests are summarized below.

- "Preliminary Metallurgical Froth Flotation Study on Three Composites", Project No. M-806-02, May 2013, SGS METCON/KD Engineering, Tucson, Arizona.
- "Preliminary Metallurgical Study on Three Composites (Phase II)", Project No. M-806-04, August 2013, SGS METCON/KD Engineering, Tucson, Arizona.
- "Metallurgical Studies on Media Luna South Mineralized Material Composites" Project No. M-806-06, February 2015, SGS North American Inc., Tucson, Arizona.
- In February 2018, preliminary testing started at BaseMet on existing core samples of Media Luna mineralized material. The adopted process follows a sequential flotation process route, with leaching of Fe-S concentrate and of flotation tailings. Results presented are from open circuit testing only, while locked-cycle testing is expected to be performed later in 2018. Test conditions have not been optimized yet. This test work forms the basis of the estimated recoveries used in this study. No official report has been issued on this test work to date.

24.13.2 Summary of Results

24.13.2.1 Phase I (2013) Test Results

The results of process development tests in Phase I, scoping and flotation, are summarized as follows:

- Results showed that ML mineralized material was amenable to flotation to produce a copper concentrate, however additional development work was required to improve the copper concentrate grade.
- Mineralogical studies conducted on the head composite samples indicated that the main minerals present were pyroxene, pyrrhotite and iron oxide/hydroxide with chalcopyrite being the main copper mineral.
- Comminution testing of a (1:1:1) composite sample gave a Bond Crusher Work Index of 7.95 kW-hr/MT, Bond Rod Mill Work Index of 13.71 kW-hr/MT, Bond Ball Mill Work Index of 11.53 kW-hr/MT, and Abrasion Index of 0.1885 Lb/kWh.

- Cu-Au rougher flotation kinetics testing conducted at three grinding sizes of 50 percent passing 74 microns, 60 percent passing 74 microns and 75 percent passing 74 microns showed that the finest grind size of 75 percent passing 74 microns achieved the highest copper, gold and silver recoveries.
- Collector dosage evaluation using caustic soda (NaOH) and lime (CaO) for pH modification showed that using lime with the selected collector A-7249 generated significantly lower recoveries for all samples when compared to a combination of caustic soda with A-7249.
- Characterization testing on a (1:1:1) composite of the three samples of the Media Luna mineralized material, showed that 91.9% copper, 71.2% gold and 71.6% silver were recovered into the Cu-Au rougher concentrate; 1.34% copper, 15.92% gold and 4.32% silver were recovered in the agitated cyanide leaching step. Overall metal recovery attained 93.3% copper, 87.1% gold and 75.9% silver.
- Magnetic separation produced a concentrate containing 62% iron, 0.18% copper, 4.63% gold and 8.04% silver. Magnetic separation conducted ahead of flotation to evaluate the effect on metal recovery and concentrate grade showed that there is no benefit of including this process step due to losses of gold and silver to magnetic concentrate.

24.13.2.2 Phase II (2013) Test Results

The results of the Phase II flotation development testing are summarized as follows:

- In these tests, results were positive in improving the copper concentrate grade to nearly 22%. Further upgrading will be required to produce a saleable copper concentrate.
- The Cu-Au 2nd cleaner flotation, magnetic separation and agitated cyanide leach testing results on the 1:1:1 composite achieved recoveries for copper, gold and silver of respectively 87.5%, 69.7% and 76.6% into a Cu-Au 2nd cleaner concentrate.
- Copper rougher tailings were subjected to a Fe-S flotation step. The first cleaner concentrate of the Fe-S float was leached in cyanide. Agitation leaching in cyanide extracted an additional 1.89% copper, 12.52% gold and 2.93% silver. The total metal recoveries achieved (flotation concentrate plus pregnant solution) being 89.4% copper, 82.2% gold and 79.6% silver.
- A magnetic concentrate, produced from the Fe-S flotation tailings, containing 61.4% iron recovered 1% copper, 6.1% gold and 3% silver. Testing a (1:1) blend of ML-2M and ML-5M composites recovered 90.9% copper, 81.0% gold and 81.8% silver into a Cu-Au 2nd cleaner concentrate. In addition, the copper grade of this concentrate improved to over 23%. Leaching the flotation tailings in cyanide recovered an additional 0.02% copper, 5.7% gold and 0.05% silver, for an overall recovery into concentrate and pregnant solution of 90.9% copper, 86.7% gold and 81.9% silver. Further upgrading of the copper concentrate would enhance its saleability but may adversely effect the final gold and silver recoveries.
- A magnetic concentrate, produced from the Fe-S flotation tailings, containing 63% iron recovered 1% copper, 2.74% gold and 2.28% silver.
- Testing composite ML-46M by itself, produced a poor cleaner copper concentrate of less than 11% copper, while recovering 77.4% copper, 31.8% gold and 57.3% silver. Agitation leaching of flotation tailings in cyanide extracted another 0.8% copper, 33.1% gold and 3% silver. Total precious metal recovery into flotation concentrate and into pregnant solution (from which it must still be recovered into doré) accounted for 78.2% copper, 64.9% gold and 60.3% silver.
- A magnetic concentrate, produced from pyrite flotation tailings, containing 60.2% iron, collected 2.1% copper, 17.3% gold and 7.9% silver. There is no benefit of including this process step due to losses of gold and silver to magnetic concentrate.

- Whole ore leaching of the ML-46M composite in an agitated cyanide leach produced a gold extraction of 87.3%, silver of 14.1% and copper of 16.0% in a 48-hour bottle roll test.
- No leaching was conducted on copper rougher tailings to test for leaching of gold and silver that it may have contained.

24.13.2.3 Phase III (2013) Test Results

The results of the Phase III flotation optimization and mineralized material type and grade recovery evaluation testing results are summarized as follows:

- Locked cycle flotation tests results on a weighted average of the following mineralized material types: MSO, SKARN, EPO MSO, EPO SKARN produced a good grade copper-gold concentrate at a copper recovery more than 90%. A saleable copper concentrate was generated containing about 34% of gold and 76% of silver.
- Head sample assays of the Media Luna project mineralized material showed gold assays ranging from 0.86 g/t to 6.31 g/t, silver assays were from 11.3 g/t to 73 g/t and copper assays ranged from 0.31% to 3.21% with high arsenic content identified in the EPO samples.
- Mineralogical analysis of the samples tested showed that chalcopyrite is the primary and virtually only copper mineral in the Media Luna head samples. Pyrrhotite, pyrite and arsenopyrite were the major sulphides and pyroxene is the main non-sulphide gangue except in the MSO composite where iron oxide is 50%.
- Regrind optimization tests showed that flotation results were not improved by regrinding the rougher flotation concentrate ahead of cleaning flotation. Future development test work will attempt to employ a coarser primary grind, thus requiring a concentrate regrind to result in a better separation between copper and Fe-S minerals in the cleaner stage.
- A new collector MC-47 that worked at lower pH with lower dosage of 10 g/t was found to replace Phase II collector A-7249 that required rougher pH of 11.5 and dosage of 32 g/t.
- Grade variability tests did not show strong relationship between grade and recovery with all the samples showing good copper recoveries to the Cu-Au 2nd cleaner concentrate with good grades.
- Metallurgical response of the EPO material showed good copper recoveries to the Cu-Au 2nd cleaner concentrate for the EPO MSO and EPO Skarn samples with lower gold recoveries and high arsenic contents. The Media Luna MSO/Skarn composite sample gave a high-grade concentrate with higher gold recovery. All the Cu-Au 2nd cleaner concentrates produced acceptable concentrate grades between 24% to 26% copper.
- Bottle roll tests run on sulphide flotation concentrates to verify whether pre-aeration would be beneficial to cyanidation showed that there was no great benefit to be realized by pre-aeration.
- Copper recovery to the MSO composite to the 2nd cleaner concentrate was 96.6%, but with a grade of only 10.4% copper.
- The results of Solid-Liquid separation tests on the Cu-Au 2nd Cleaner Concentrate, Iron sulphide Rougher Tailings and Combined Cyanide Leach residue samples conducted by Pocock Industrial Inc. showed that non-ionic flocculant worked with the solids with high rate thickener underflow density of 72.5% for the flotation tails. Pressure filtration tests gave cakes with low moistures and good discharge and stacking properties.

24.13.2.4 Phase IV BaseMet (2018) Test Results

The results of the BaseMet testing results are summarized as follows:

- Grinding characteristics were determined on 28 samples of varying Media Luna mineralized material, providing an average Bond Ball Mill work index of 14.1 kWh/t at a Closed Size screen size of 150 microns.
- All samples tested for grinding expected to result in a minimum plant throughput capacity of 600 tonnes per hour; with 75% of the material indicating that the grinding circuit capacity should exceed 700 t/h.
- A bulk composite was prepared utilizing 18 samples to achieve a head grade similar to the proposed average life of mine feed of average gold, silver and copper grades of 1.56 g/t, 18.04 g/t and 0.78% (3.15 g/t AuEQ) respectively.
- A flotation feed grind of P_{80} of 100 microns was selected for this testing.
- Variability testing of the selected flowsheet was conducted on the individual 30 samples.

24.13.3 Phase I (2013) Metallurgical Study

24.13.3.1 Sample Preparation and Head Assays

The three composite samples used in the Phases I and II metallurgical testing were compiled using only copper grade information (high, medium, and low copper grade) since mineralogical and lithological information were not yet included in the drillhole data base. These samples were considered adequate to get a first indication of a potential metallurgical route. Sampling of Phase III test composites incorporated the mineralogy and lithology of the Media Luna mineral resource; Phase III test composites were prepared statistically to be more representative of the mineral resource.

In Phase I, three composites were generated and subjected to sample preparation, sample characterization and froth rougher flotation testing. Table 24-6 establishes the mineralogy as conducted by Qemscan analysis. Of importance is noting the high quantity of pyrrhotite in all three composites. Among the potential deleterious effects of pyrrhotite are rapid oxidation of the mineral and high cyanide consumption when exposed to leaching.

Traces of sulphate are present, but also iron oxides/hydroxides. This would often indicate that not all copper was present as chalcopyrite, but could also be found as oxides/hydroxides, or as secondary sulphide minerals. This provides an indication of potential presence of cyanide soluble copper.

Table 24-6: Qemscan Results of the Three Composites Prepared for Testing in Phase I

	ML-02M:	ML-05M:	ML-46M:
Ag trap	Tr	Tr	Tr
Quartz	1.6	0.6	0.7
Feldspar	0.2	Tr	Tr
Muscovite	3.9	1.5	1.1
Biotite/Chlorite	5.2	1.5	3.9
Hornblende	1.6	2.1	5.9
Pyroxene-Augite	6.7	14.7	24.6
Pyroxene-Diopside	16.3	13.3	22.8
Petedunnite	-	-	0.2
Carbonates	6.5	1.6	6.3
Fe-ox/hydroxide	26.8	2.7	20.7
Ti-minerals	0.1	Tr	0.1
Pyrite	2.7	0.2	1.7
Pyrrhotite	20.8	46.4	10.2
Sphalerite	2.2	0.3	0.1
Arsenopyrite	-	-	0.1
Chalcopyrite	5.0	14.8	1.3
Bismuthinite	-	Tr	0.2
Sulphate	0.1	Tr	0.1
Others	0.2	0.1	0.1
tr = <0.05%			

In the Phase II test campaign, the composites were subjected to flotation development tests. The head assays of the composites and a (1:1:1) blend of these composites used in these tests are listed in Table 24-7 below.

Table 24-7: Head Assays on Phase I & II (2013) Composite Samples

Sample ID	Cu (%)	Au (g/t)	Ag (g/t)	As (ppm)	Fe (%)	S_T (%)	Zn (%)	Insol (%)
ML - 02M	1.04	2.34	35.5	122	40.73	8.93	1.01	18.59
ML - 05M	3.43	5.18	52.0	75	33.50	19.05	0.18	21.91
ML - 46M	0.37	3.10	15.4	3,189	29.43	4.75	0.04	41.97
1:1:1 Blend	1.92	2.96	39.0	1,269	39.9	12.45	0.49	29.30

Note: S_T = total sulfur

24.13.3.2 Mineralized Material Characterization on a Blend of the Three Composites

In Phase 1, scoping tests were conducted for reagent selection, grind size determination, and generation of flotation and cyanidation parameters prior to advancing to mineralized material characterization tests on a (1:1:1) blend of composites ML-2M, ML-5M, and ML-46M. Characterization mineralized material followed the simplified flowsheet shown in Figure 24-1. Results are summarized in Table 24-9 and in Figure 24-2.

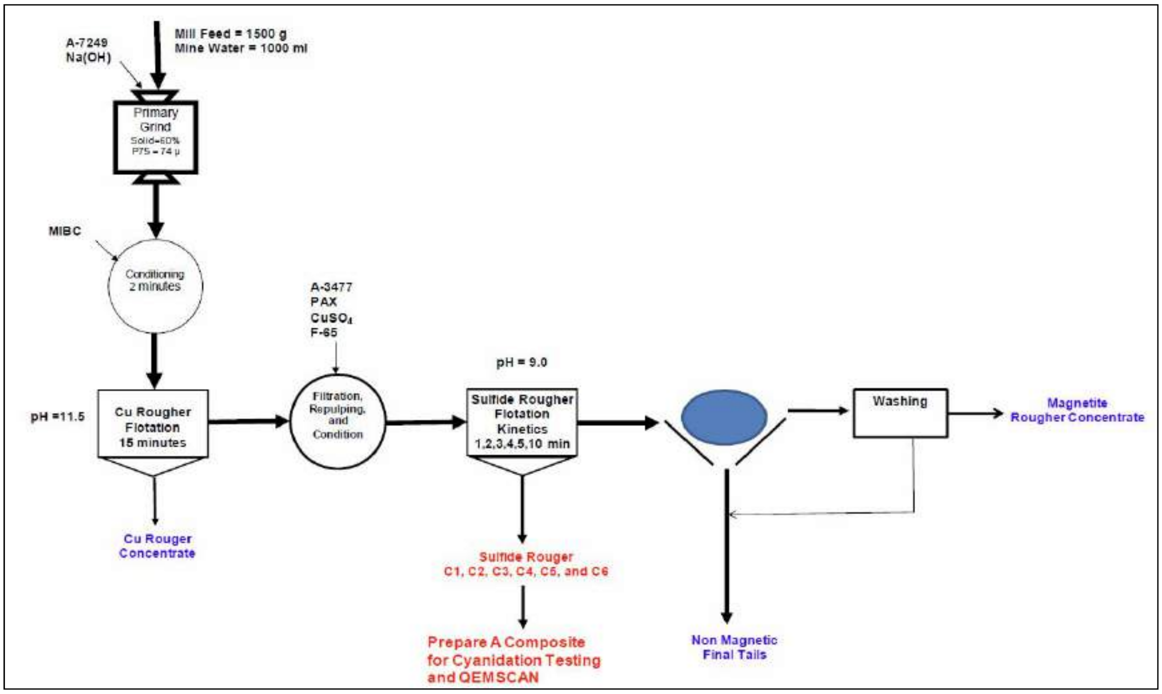


Figure 24-1: Phase I- Flowsheet for Characterization of (1:1:1) Blend of ML-2M, ML-5M, and ML-46M Composites

Phase I metallurgical report provides the following information on mineralized material hardness for a (1:1:1) blend of the three composites ML-02M, 05M and 46M. Table 24-8 summarizes the results. SGS typically reports the Abrasion Index in Lb/kWh units, but these units have not been identified in the test report.

Table 24-8: Characteristics of hardness for a 1:1:1 blend of the three composites ML-02M, ML-05M and ML-46M

	CWi (kW-hr/st)	CWi (kW-hr/mt)	Lb/kWh
Bond Crusher Work Index	7.21	7.95	
Bond Rod Mill Work Index	12.43	13.71	
Bond Ball Mill Work Index	10.46	11.53	
Abrasion Index			0. 19

The (1:1:1) blend of the three composites, ML-2M, 5M, and 46M were tested following the flow diagram in Figure 24-1. Most of the copper, gold and silver was recovered into a copper flotation concentrate, with a substantial quantity reporting to an iron sulphide concentrate. When leached in a cyanide solution, the iron sulphide concentrate extracted about 70 to 75% of the gold into a pregnant solution. Test results on the (1:1:1) Blend of the three composites are presented in Table 24-9.

Table 24-9: Phase I- Test Results of 1:1:1 Blend of ML-2M, ML-5M, and ML-46M Composites

Cu Flotation and Agitated Cyanide Leach on The Fe Sulfide Concentrate ML-2M, ML-5M, and ML-46M Blend Composite - Overall Summary of Results									
Products	Weight (%)	Grade				Distribution			
		Cu (%)	Au (g/t)	Ag (g/t)	Fe (%)	Cu (%)	Au (%)	Ag (%)	Fe (%)
Cu Concentrate	**9.92**	**16.10**	**24.40**	**290.0**	**26.40**	**91.91**	**71.19**	**71.56**	**6.78**
Fe-Sulphide concentrate	**35.6**	**0.36**	**2.06**	**18.4**	**49.2**	**7.44**	**21.6**	**16.3**	**45.3**
Pregnant Solution		**0.04**	**0.91**	**2.7**		**1.34**	**15.92**	**4.32**	
Leach Residue	35.58	0.34	0.56	12.5	49.2	6.10	5.65	11.93	45.34
Magnetite Concentrate	26.71	0.01	0.59	12.1	62.0	0.18	4.63	8.04	42.85
Flotation Tails	27.79	0.03	0.32	6.0	7.0	0.46	2.61	4.15	5.03
Calculated Head		1.74	3.40	40.2	38.6	100.00	100.00	100.00	100.00
Head Assay		1.92	2.96	39.0	39.9				
Total Recovery (Cu Concentrate + Pregnant Solution)						93.25	87.11	75.89	

This test work demonstrated that the combined Copper and Fe-S concentrates recovered just over 98% of the sulphides, a fact that may be exploited in the development of the final ML process flowsheet. The recovery of precious metals can be further enhanced by leaching of the Fe-S concentrate.

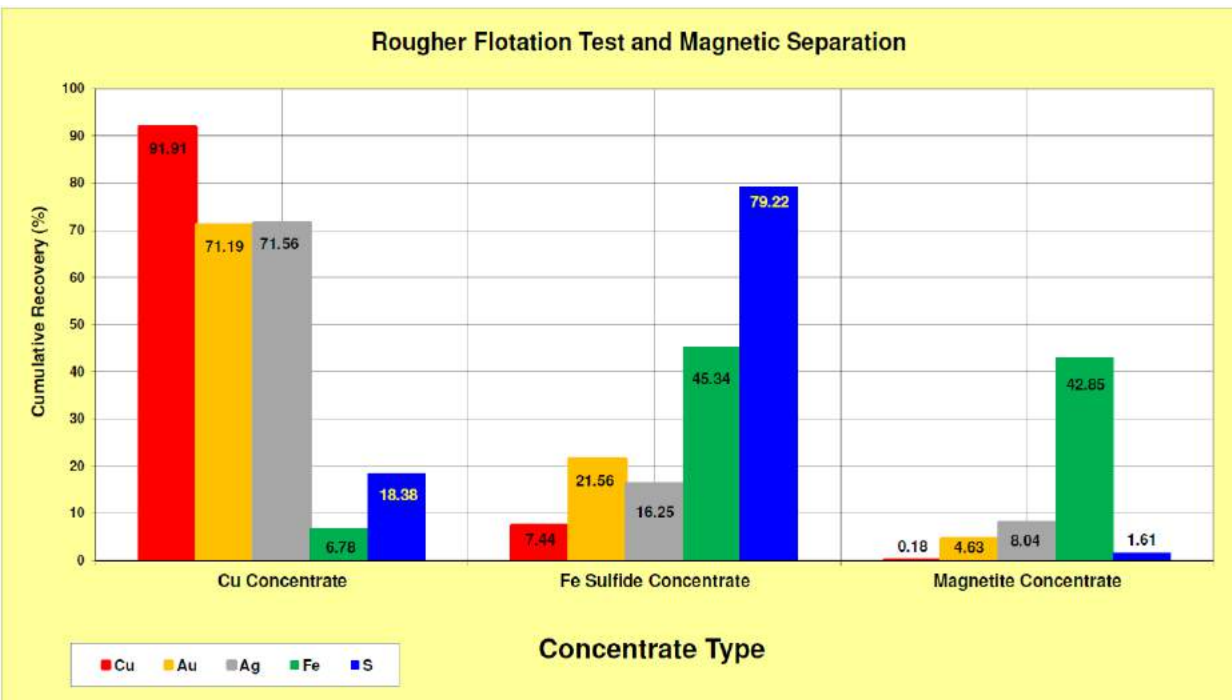


Figure 24-2: Phase I - Mineralized Material Characterization – Rougher Flotation Test and Magnetic Separation

Although nearly 5% of the gold in the original blend reported into a magnetic concentrate, the grade is considered to be too low to warrant a separate process step to produce a product of high gold grade.

Table 24-9 indicates a total gold and copper recovery of respectively 87.1% and 93.3%. However, further cleaning of copper concentrate would be required to produce a saleable copper concentrate product. Work on overall recoveries were undertaken in Phase II and phase III.

Magnetic concentrate was relatively effective in concentrating iron, gold and silver from the flotation tails into a separate concentrate with two-thirds of the gold reporting to the concentrate. Magnetic separation at this stage did not seem effective for copper recovery and most of the precious metals in flotation tailings are not associated to copper. Over 70% of the copper fed to magnetic separation reported to the non-magnetic fraction.

24.13.4 Phase II (2013) Metallurgical Study

The Phase II program was a continuum of Phase I with finer primary grinding, the addition of cleaner flotation and regrinding of the Cu-Au first cleaner concentrate. The Phase II study adopted the simplified flowsheet depicted in Figure 24-3 with test results shown in Table 24-10 below. The copper rougher flotation tails were subjected to iron sulphide rougher flotation with iron sulphide rougher tails subjected to magnetic separation. The iron sulphide 1st cleaner concentrate was subjected to agitation leaching in cyanide for 72 hours.

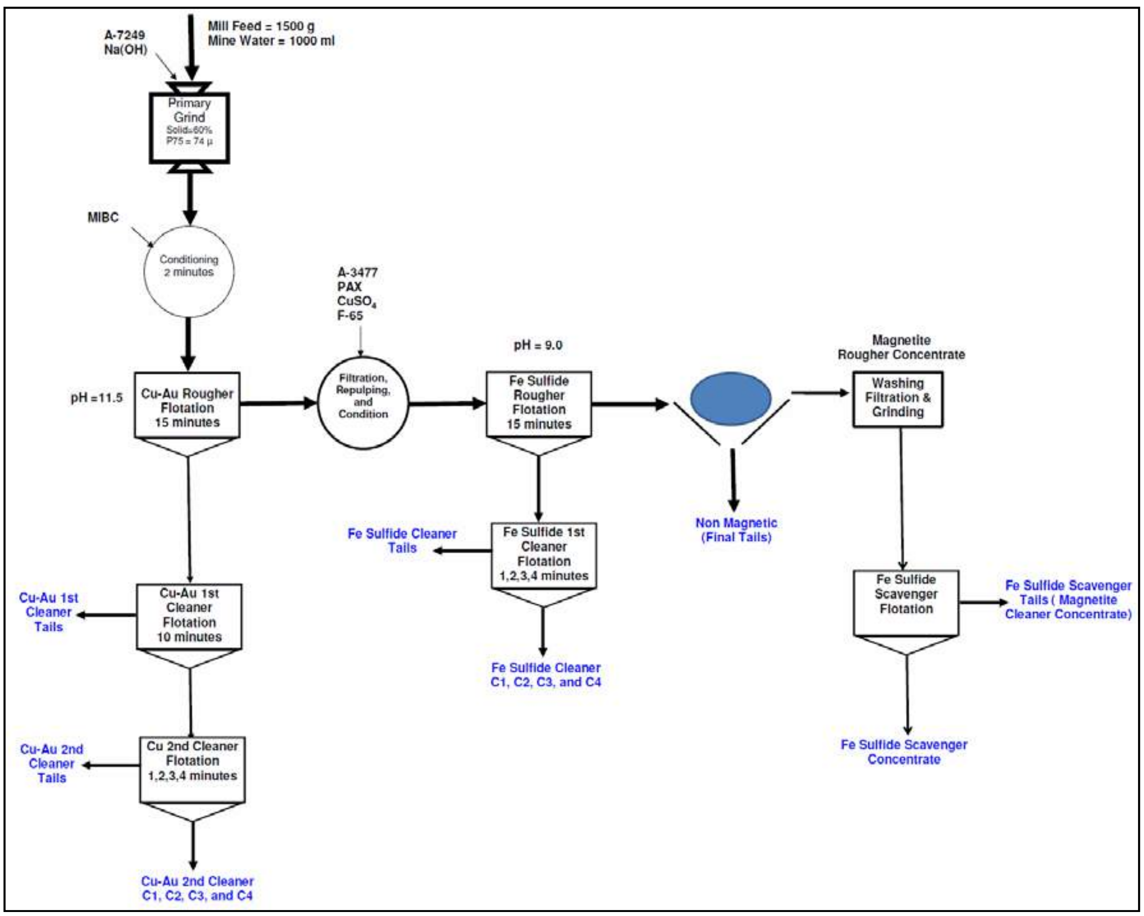


Figure 24-3: Phase II - Flowsheet of Cu-Au 2nd Cleaner Flotation Kinetics Test on the (1:1:1) Blend of ML-2M, 5M and 46M

Table 24-10: Phase II- Cu-Au 2nd Cleaner Flotation Kinetics Test Results on the (1:1:1) Blend of ML-2M, 5M and 46M

Products	Weight (%)	Grade				Distribution			
		Cu (%)	Au (g/t)	Ag (g/t)	Fe (%)	Cu (%)	Au (%)	Ag (%)	Fe (%)
Cu-Au 2nd Cleaner Concentrate	*6.86*	*21.96*	*31.63*	*415*	*28.5*	*87.47*	*69.71*	*76.61*	*5.13*
Cu-Au 1st Cleaner Concentrate	8.64	18.35	26.64	351.1	28.3	91.99	73.88	81.55	6.41
Cu-Au Rougher Concentrate	12.09	13.37	19.37	258.5	27.6	93.79	75.2	84.06	8.75
Pregnant Solution		*0.08*	*1.22*	*3.4*		*1.89*	*12.52*	*2.93*	
Leach Residue		0.07	0.57	10.5		1.28	4.23	6.99	
Magnetite Concentrate	25.6	0.07	0.41	2.9	61.4	0.96	6.1	2.99	9.9
Flotation Tails	28.44	0.09	0.24	3.1	6.6	0.94	3.36	2.92	11
Calculated Head		1.72	3.11	37.19	38.2				
Head Assay		1.92	2.96	39	39.8				
Precious Metals Total Recovery (Cu-Au 2nd Cleaner Concentrate + Pregnant Solution)						*89.36*	*82.23*	*79.55*	

Flotation test results on a (1:1) composite of ML-2M and ML-5M produced better flotation results in terms of both recovery and grade and are shown in Table 24-11. Results yielded copper concentrate grade of 23.75%, which is an acceptable concentrate grade, however, copper concentrates in excess of 25% Copper are preferred with further test work to improve the copper concentrate grade in Phase III.

Table 24-11: Cu-Au 2nd Cleaner Flotation Kinetics Test Results on 1:1 Composite of ML-2M and ML-5M

ML-2M:ML-5M Composite Sample (1:1 Ratio)									
Products	Weight (%)	Grade				Distribution			
		Cu (%)	Au (g/t)	Ag (g/t)	Fe (%)	Cu (%)	Au (%)	Ag (%)	Fe (%)
Cu-Au 2nd Cleaner Concentrate	*8.85*	*23.75*	*31.16*	*455.4*	*30.2*	*90.87*	*81.02*	*81.81*	*6.5*
Cu-Au 1st Cleaner Concentrate	10.11	21.43	28.19	414.4	30.7	93.69	83.76	85.07	7.53
Cu-Au Rougher Concentrate	13.12	16.68	22.05	325.1	31	94.63	85	86.6	9.86
Pregnant Solution		*0*	*0.45*	*0.1*		*0.02*	*5.7*	*0.05*	
Leach Residue		0.19	0.44	13.5		3.49	4.19	8.73	
Magnetite Concentrate	22.27	0.06	0.17	3.7	63	1.01	2.74	2.28	10.9
Flotation Tails	24.81	0.09	0.33	3.3	8.53	1.22	3.62	3.12	15.1
Calculated Head		2.31	3.4	49.27	41.2				
Head Assay		2.42	3.63	44	42.9				
Precious Metals Total Recovery (Cu-Au 2nd Cleaner Concentrate + Pregnant Solution)						*90.88*	*86.73*	*81.86*	

Magnetic concentration of Fe-S flotation tailings does not seem to contribute to gold and silver recovery into a saleable product, and as such is not effective in the flowsheet.

Flotation test results on composite ML-46M produced the results listed in Table 24-12. It is evident that this material was less amenable to flotation. Overall recoveries are unsatisfactory compared to leaching this material directly, while the copper concentrate grade achieved was far too low to be considered as a saleable concentrate.

Table 24-12: Phase II - Cu-Au 2nd Cleaner Flotation Kinetics Test Results on ML-46M Sample

Products	Weight (%)	Grade				Distribution			
		Cu (%)	Au (g/t)	Ag (g/t)	Fe (%)	Cu (%)	Au (%)	Ag (%)	Fe (%)
Cu-Au 2nd Cleaner Concentrate	**3.17**	**10.66**	**25.64**	**294.2**	**17.21**	**77.42**	**31.83**	**57.27**	**1.71**
Cu-Au 1st Cleaner Concentrate	4.92	7.22	18.01	202.7	15.91	81.22	34.64	61.12	2.45
Cu-Au Rougher Concentrate	10.11	3.58	9.61	104.7	16.1	82.81	38.03	64.94	5.11
Pregnant Solution		**0.01**	**4.2**	**2.6**		**0.78**	**33.07**	**3**	
Leach Residue		0.13	2.43	22.7		5.1	12.36	17.74	
Magnetite Concentrate	33.59	0.06	0.78	3.4	60.2	2.12	17.28	7.89	6.06
Flotation Tails	34.54	0.07	0.14	2.1	4.42	1.48	7.38	4.43	5.99
Calculated Head		0.44	2.56	16.31	31.89	250.9	174.5	216.3	21.3
Head Assay		0.37	3.1	15.4	29.43				
Precious Metals Total Recovery (Cu-Au 2nd Cleaner Concentrate + Pregnant (Solution)						**78.2**	**64.9**	**60.26**	

Bulk leaching of the ML-46M composite produced the results that are summarised in Table 24-13. It is evident that this material is more amenable to direct leaching than to a combination of flotation and leaching of cyanide tailings. However, due to the sulphide content within this composite, it would be important to evaluate on the potential effect on acid drainage potential from leach tailings of this material.

The metallurgical testing results summarized in Table 24-13 below showed that gold extraction of 89.3% was obtained after 48 hours leaching as compared to 77.4% recovery in the froth flotation testing.

Table 24-13: Phase II - Agitated Cyanide Leach Testing of ML-46M Composite

Leach Time	Pregnant Solution Grade (ppm)			Cumulative Extraction					
	Au	Ag	Cu	Au (%)	Ag (%)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (g/t)
2	1.2	0.46	93	58.9	3.59	3.26	1.5	0.58	116
4	1.37	0.92	128	68.67	7.28	4.57	1.75	1.17	163
6	1.56	1.1	173	79.61	8.86	6.26	2.03	1.42	223
24	1.64	0.15	333	85.37	1.64	12.02	2.18	0.26	429
48	*1.64*	*1.74*	*438*	*87.29*	*14.09*	*15.98*	*2.23*	*2.26*	*570*
72	1.64	1.74	438	87.29	14.09	15.98	2.23	2.26	570
96	1.59	2.12	515	88.65	17.77	19.45	2.26	2.85	694

Table 24-14: Phase II - Partial ICP Scan on Flotation Products

Element	Unit	Cu-Au 2nd Cleaner Concentrate			Fe Sulfides 1st Cleaner Concentrate			Final Tails (None Magnetic Particle)		
		2M:5M:46M	2M:5M	ML-46M	2M:5M:46M	2M:5M	ML-46M	2M:5M:46M	2M:5M	ML-46M
As	ppm	755	294	1,300	3,160	167	15,900	110	76	112
Bi	ppm	2,720	<1	24,200	762	48	5,790	77	25	225
Cu	%	23.00	25.00	9.41	0.32	0.37	0.18	0.03	0.04	0.08
Fe	%	30.60	32.60	16.90	54.90	57.60	41.20	7.53	9.46	4.81
Na	%	0.59	0.54	0.58	0.59	0.63	1.25	0.74	0.63	1.16
Zn	%	1.23	1.28	0.19	1.34	1.68	0.28	0.04	0.05	0.16

Assays of a few selected elements from the ICP scan of flotation products in Table 24-14 indicates that composite ML-46M is the most significant contributor of arsenic and bismuth to flotation concentrates. This provides a potential incentive to whole-ore cyanidation leaching of this composite.

24.13.5 Phase III (2013) Metallurgical Study

24.13.5.1 Phase III (2013) Sample Selection

Phase III Metallurgical test work was focused on better understanding of the ML metallurgical response by mining area, rock type and grade as well as providing guidance on process design and reagent consumptions for use in the PEA work.

The selection of drill core was made with the usual standard care for samples submitted for testing representing all the mineralized rock types within the mineralized area. Analytical Solutions Ltd., a geochemical consulting firm familiar with the Media Luna deposit, worked with Torex project geologists to define drill core intervals to represent 10 different possible mineralized material types based on lithology, gold-copper-silver grades and spatial distribution. The NQ-sized drill core that had been previously sawn in half was sampled with a minimum 0.5 m to 1 m core length to create approximately 30 kg samples of each mineralized material type.

Drill core samples were taken from drill core stored as split core in core boxes. The dry climate in the storage area and the drill core being stored in larger sized pieces are considered to be mitigating factors preventing significant oxidation or weathering while in storage. Preference was given to drill core less than 3 years old and additional testing was performed to document that samples were substantially free of oxidation.

Head assays of the ten composite samples used in the Phase III testing, which represents Media Luna South Mineralized material, are presented in Table 24-15 below.

Table 24-15: Phase III - Sample Head Assays

Sample ID	Au (g/t)	Ag (g/t)	Cu (%)	Fe (%)	Total S (%)	AuEq (g/t)
High Grade MSO	2.81	73.0	3.21	41.13	15.80	9.09
Mid Grade MSO Lower Mine	1.36	29.6	0.94	48.55	4.80	3.34
Mid Grade MSO Upper Mine	1.57	15.0	0.95	41.73	15.68	3.31
Low Grade MSO	0.86	20.3	0.85	44.51	16.19	2.54
High Grade SKARN	6.31	20.2	1.90	11.66	5.77	9.62
Mid Grade SKARN Upper Mine	1.62	16.2	0.44	9.03	2.06	2.59
Mid Grade SKARN Lower Mine	2.96	23.3	0.61	11.87	5.92	4.32
Low Grade SKARN	1.52	11.3	0.31	6.87	1.11	2.20
EPO MSO	3.90	50.7	2.03	35.37	19.10	7.95
EPO SKARN	3.00	42.2	1.42	14.88	7.95	5.95
MSO Composite	1.72	34.7	1.51	44.73	13.61	4.68
SKARN Composite	3. 09	25.6	0.86	10.07	3.85	4.88

Table 24-16: Phase III - ICP on Head Composite Samples

Element	Unit	High Grade MSO	Mid Grade MSO Lower Mine	Mid Grade MSO Upper Mine	Low Grado MSO	High Grado SKARN	Mid Grado SKARN Upper Mine	Mid Grado SKARN Lower Mine	Low Grade SKARN	EPO MSO	EPO SKARN	MSO Composite	SKARN Composite
As	ppm	148	123	19	3	605	3,048	1,687	1,879	11,650	6,663	123	2,360
Bi	ppm	<1	<1	<1	<1	<1	119	60	57	365	245	<1	36
Cu	%	3.46	1.03	1.07	0.81	2.14	0.48	0.68	0.32	2.24	1.61	1.58	0.90
Fe	%	43.81	52.62	46.65	48.32	12.98	10.53	12.96	7.94	37.56	18.71	47.18	10.62
Pb	ppm	44	26	28	19	20	<1	8	<1	49	96	51	220
Zn	%	2.54	0.71	1.29	0.98	0.09	0.05	0.00	0.03	0.23	0.03	1.34	0.04

Table 24-16 presents a partial ICP scan of all composites tested in this Phase. Note the variation in arsenic content among the composites with EPO material being the highest contributor of this element. Mineralogical assessment indicated that arsenopyrite content was substantial in the EPO MSO and EPO SKARN samples ranging from 4.3 percent to 6.8 percent. MSO Composite and SKARN Composite samples showed lower content of arsenopyrite. The MSO composite sample contained less than 0.1 percent of arsenopyrite, whilst the SKARN Composite sample contained 1.7 percent of arsenopyrite.

A few samples contain Bismuth; it appears that Bismuth and Gold in those samples are associated, as is the case in ELG ore. Lead and zinc minerals do not appear to be associated to each other. Of note is the high zinc content in some of the mineralized material, which may get collected into the copper concentrate.

Further flotation tests were conducted in Phase III to optimize the Phase II results achieved and validate the parameters selected in the Phase I and II test programs. This test program included regrind optimization, new reagent evaluation, flotation response based on rock type and grade, agitated cyanide leach response of flotation products, pre-aeration requirement for sulphide flotation concentrates, locked cycle flotation tests and liquid/solid separation tests.

The results of the flotation tests with and without Cu-Au rougher concentrate regrinding are summarized in Table 24-17 and Table 24-18 for respectively the Media Luna MSO and Skarn composites. The results show that a finer regrind of rougher concentrate did not improve flotation results. The Primary grind was established at P_{80} of 60 microns.

Table 24-17: Phase III - Cu-Au Second Cleaner Flotation Kinetics on MSO Composite Summary of Results

Cu-Au Rougher Concentrate Regrind at P80 of 25 microns	Cumulative 2nd Cleaner Retention Time (Minute)	Mass Recovery (%)	Cumulative Grade (%)						Cumulative Recovery (%)					
			Cu	Au (g/t)	Ag (g/t)	Fe	ST	As (ppm)	Cu	Au	Ag	Fe	Total S	As
No	1	1.28	21.6	16.7	425	31.43	35.77	669	18.07	12.08	15.51	0.93	3.43	2.4
	3	4.05	22.28	17.9	463	30.67	35.26	599	58.81	40.88	53.26	2.86	10.65	6.77
	6	**5.72**	**23.13**	**19.3**	**478**	**30.38**	**35.22**	**534**	**86.1**	**62.11**	**77.6**	**3.99**	**15.01**	**8.51**
	10	6.11	22.57	18.3	468	30.32	34.96	545	89.86	63.13	81.33	4.26	15.93	9.3
Yes	1	1.89	21.9	18	460	29.63	35.03	652	27.26	20.19	25.84	1.27	4.94	3.71
	3	4.39	20.99	16.2	429	29.93	35.58	722	60.76	42.37	56.08	2.99	11.66	9.56
	6	**5.89**	**20.79**	**16.2**	**424**	**29.81**	**35.26**	**719**	**80.62**	**56.74**	**74.23**	**3.99**	**15.48**	**12.75**
	10	6.36	19.99	17.5	411	30.02	35.1	760	83.8	65.96	77.8	4.34	16.67	14.57

Table 24-18: Phase III - Cu-Au Second Cleaner Flotation Kinetics on SKARN Composite Summary of Results

Cu-Au Rougher Concentrate Regrind at P80 of 25 microns	Cumulative 2nd Cleaner Retention Time (Minute)	Mass Recovery (%)	Cumulative Grade (%)						Cumulative Recovery (%)					
			Cu	Au (g/t)	Ag (g/t)	Fe	ST	As (ppm)	Cu	Au	Ag	Fe	Total S	As
No	1	1.39	25.4	47.1	578	23.74	27.99	1299	40.01	19.54	32.11	3.13	9.32	0.35
	3	2.22	23.48	44.6	570	26.15	31	1102	59.27	29.62	50.7	5.52	16.54	0.47
	6	**3.13**	**23.43**	**43.1**	**563**	**25.16**	**29.73**	**1217**	**83.16**	**40.32**	**70.49**	**7.48**	**22.32**	**0.74**
	10	3.51	22.36	41.4	541	24.2	28.36	1452	89.17	43.48	76.15	8.08	23.91	0.99
Yes	1	0.76	26.3	42.9	629	23.74	27.9	1678	23.35	11.23	20.89	1.81	5.6	0.23
	3	1.81	24.51	44.3	584	22.98	27.11	1784	51.62	27.5	46.05	4.16	12.92	0.59
	6	**2.75**	**23.85**	**43.1**	**568**	**22.57**	**26.77**	**1833**	**76.46**	**40.77**	**68.08**	**6.21**	**19.41**	**0.92**
	10	3.12	22.24	40.4	501	21.54	25.2	2106	80.76	43.24	68.08	6.72	20.71	1.19

24.13.5.2 Phase III Copper Collector Evaluation on Mid-Grade MSO Upper Mine Composite

MC-47 (Chevron Phillips, Sulfur-Based Collector) copper collector dosages were evaluated versus Cu-Au collector Aero 7249 (Cytec, dithio-phosphate/monothio-phosphate) on Cu-Au rougher flotation to verify the impact on recovery and grade on the Mid-Grade MSO Upper Mine sample. Cu-Au rougher flotation kinetics were conducted over a 15 minute period at a grind size of approximately 80 percent passing 60 microns, followed by a first cleaner stage of 10 minutes and a second stage cleaner of six minutes.

The metallurgical data developed are summarized in Table 24-19 below.

Table 24-19: Phase III - Cu-Au 2nd Cleaner Flotation Kinetics Test on Mid-Grade MSO Upper Mine Sample

Cu Collector		pH	Flotation Cumulative Time (Minute)	Mass Recovery (%)	Cumulative Grade %							Cumulative Recovery %						
Type	Dosage (g/t)				Cu	Au (g/t)	Ag (g/t)	Fe	S_T	Insol	As (ppm)	Cu	Au	Ag	Fe	S_T	Insol	As
A-7249	32	11.5	1	1.19	22.6	24.7	283	30.8	32.59	4.65	290	26.39	17.34	21.42	0.87	2.51	0.39	2.96
			3	2.98	22	24.34	275.2	30.46	32.19	4.92	294	64.52	42.9	52.3	2.16	6.22	1.03	7.54
			6	4.14	21.94	23.96	277.4	30.38	32.11	5.12	278	89.32	58.63	73.17	2.99	8.61	1.49	9.9
		11.5	1st Cleaner	6.02	15.8	18.84	208.6	32.28	33.17	6.12	457	93.62	67.1	80.09	4.62	12.94	2.6	23.68
		11.5	Rougher	8.51	11.3	13.86	153.2	32.78	30.53	8.9	432	94.6	69.71	83.09	6.63	16.82	5.33	31.58
MC-47	10	11.5	1	1.64	19.2	20.9	235	32.04	34.29	5.7	426	30.51	21.62	24.69	1.23	3.53	0.65	6.3
			3	4.08	20.16	22.04	244	31.44	32.95	4.89	375	79.61	56.65	63.71	3	8.42	1.4	13.78
			6	5.27	18.13	19.43	225.9	31.87	33.09	5.67	425	92.53	64.53	76.22	3.92	10.93	2.09	20.19
		11.5	1st Cleaner	8.14	12.01	14.03	156.1	34.15	35.22	5.98	656	94.7	72.05	81.43	6.5	17.98	3.41	48.16
		9.5	Rougher	12.28	8.05	9.84	107.8	36.3	32.57	8.23	545	95.75	76.21	84.82	10.42	25.08	7.07	60.42
MC-47	15	11.5	1	1.91	18.5	23.2	227	33.15	34.91	4.5	487	33.94	24.8	27.7	1.43	4.11	0.59	9.09
			3	4.45	18.39	22.63	228.4	32.72	34.36	4.84	456	78.63	56.38	64.4	3.3	9.43	1.48	19.84
			6	5.98	16.32	20.78	207.4	32.83	34.11	5.59	487	93.77	69.57	79.26	4.45	12.58	2.3	28.46
		11.5	1st Cleaner	9.51	10.47	14.4	139.2	35.49	36.01	5.96	670	95.77	76.76	84.67	7.66	21.15	3.9	62.32
		9.5	Rougher	14.86	6.76	9.67	92.6	38.05	33.04	7.73	522	96.84	80.44	88.02	12.82	30.3	7.9	75.85
MC-47	20	11.5	1	1.72	20.7	22.2	250	31.34	33.78	3.95	382	35.74	24	27.9	1.26	3.7	0.48	6.17
			3	3.97	20.64	22.43	255.1	30.87	33.41	3.98	355	82.43	56.09	65.85	2.86	8.46	1.11	13.26
			6	5.14	17.81	19.6	227.3	31.43	33.24	5.22	422	92.07	63.45	75.96	3.77	10.9	1.88	20.41
		11.5	1st Cleaner	9.3	10.18	12.55	137.7	35.1	36.74	5.47	741	95.2	73.54	83.27	7.62	21.8	3.57	64.86
		9.5	Rougher	14.68	6.53	8.5	91.5	37.54	33.42	7.33	585	96.4	78.51	87.25	12.86	31.28	7.55	80.73

When comparing the grade results between the last test with MC 47 in this Table to the two previous tests, results show that MC-47 dosage of 10 g/t should be added at the primary grind stage to improve copper grade. However, overall grades would not satisfy the requirement for a saleable copper concentrate. Future test work required to focus on improved cleaning of concentrate.

24.13.5.3 Phase III - Cu-Au 2nd Cleaner Flotation Kinetics on MSO and Skarn Type Samples

The remaining samples of the Phase III flotation test work the laboratory applied a dosage of 10 g/t of MC- 47 Cu-Au collector. Cu-Au rougher flotation kinetics tests were conducted for 15 minutes at a grind size of approximately 80 percent passing 60 microns followed by a first cleaner flotation stage of six minutes and a second stage of cleaner of three minutes. The rougher flotation tails was subjected to Fe-S rougher flotation for 15 minutes. Rougher and cleaner flotation testing were conducted according to the following simplified flowsheet depicted in Figure 24-4.

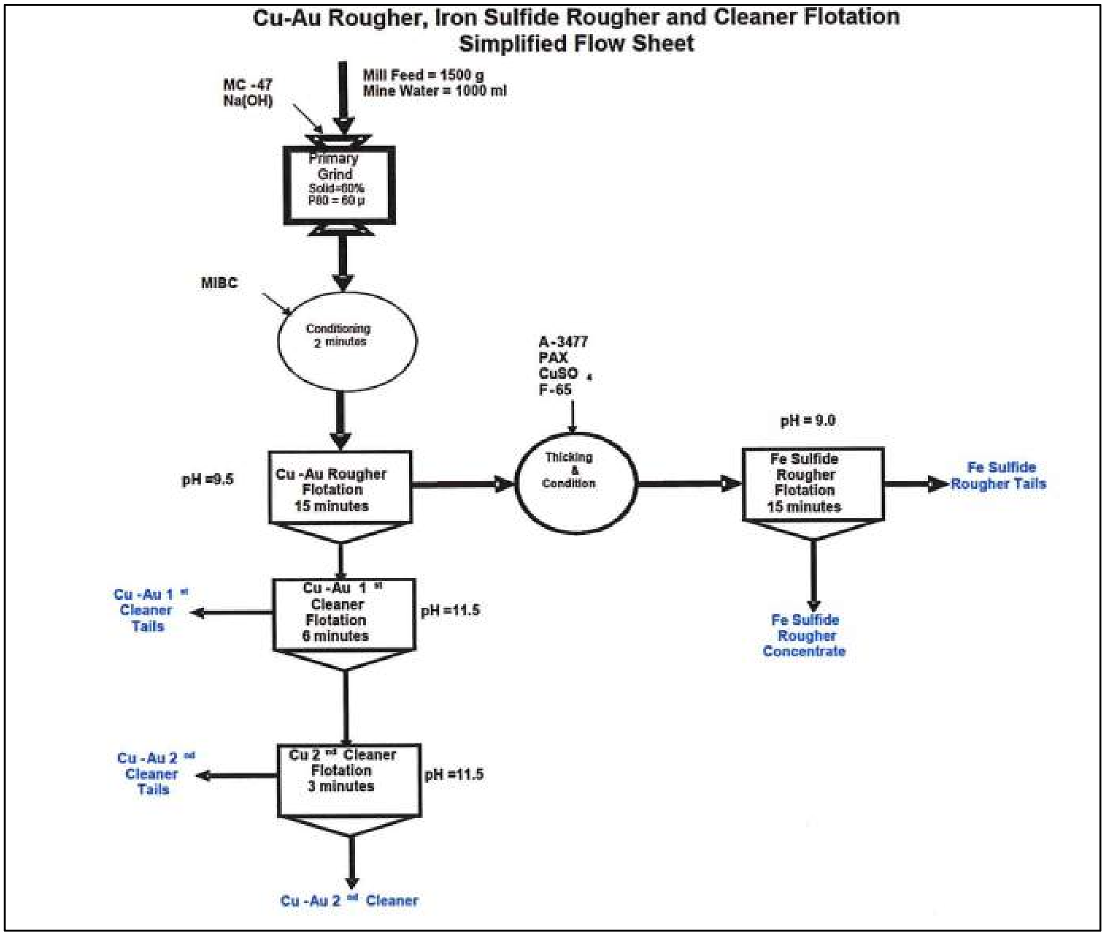


Figure 24-4: Phase III-Simplified Flowsheet for Cu-Au Rougher, Fe-S Rougher and Cleaner Flotation

The flotation test results for the four grade samples of the Media Luna MSO samples are summarized in Table 24-20 and depicted in Figure 24-5 below.

Table 24-20: Phase III - Summary of Results for Cu-Au 2nd cleaner flotation kinetics and Fe-S rougher concentrate production on the MSO Composites

Composite ID	Product	Mass Recovery (%)	Cumulative Grade (%)							Cumulative Recovery (%)						
			Cu	Au (g/t)	Ag (g/t)	Fe	S_T	Insol.	As (ppm)	Cu	Au	Ag	Fe	S_T	Insol.	As
High Grade MSO	2nd Cleaner	10.79	22.20	9.13	484.00	30.41	35.70	150	718	72.54	45.56	64.44	8.15	23.32	120	13.21
	1st Cleaner	19.18	16.22	8.46	375.91	33.34	36.29	2.09	1566	94.25	75.08	88.99	15.89	42.16	2.99	5122
	Rougher	24.23	13.33	7.40	312.14	35.08	34.13	3.36	1477	97.88	82.98	93.36	2112	50.10	6.07	6101
	Fe Sulfide	32.21	0.17	0.75	14.40	47.40	24.88	6.40	703	170	11.18	5.73	37.95	48.55	15.36	38.62
	Calculated Head		3.30	2.16	8101	40.24	16.51	13.43	586							
Mid Grade MSO Lower Mine	2nd Cleaner	3.48	24.90	24.80	718.00	27.22	29.14	6.40	507	85.82	53.39	8169	191	20.15	186	3.23
	1st Cleaner	5.30	18.08	20.35	532.58	27.55	25.52	12.57	1567	95.06	66.86	92.46	2.96	26.94	5.58	15.23
	Rougher	8.40	11.56	13.26	342.49	29.76	19.16	17.31	1203	96.24	68.95	94.14	5.05	32.02	12.17	18.52
	Fe Sulfide	18.04	0.14	2.29	8.30	46.16	17.62	11.70	2444	2.45	25.59	4.90	16.84	63.25	17.66	80.81
	Calculated Head		101	161	30.55	49.44	5.03	11.95	546							
Mid Grade MSO Upper Mine	2nd Cleaner	3.36	25.00	13.60	29100	29.46	3155	2.90	207	8151	29.92	63.58	2.22	6.57	0.73	5.32
	1st Cleaner	7.63	12.66	11.70	161.16	34.15	35.60	5.00	683	93.73	58.43	79.97	5.85	16.83	2.85	39.87
	Rougher	12.12	8.11	8.22	106.93	36.62	33.24	7.34	576	95.40	65.26	84.32	9.97	24.97	6.64	53.43
	Fe Sulfide	43.74	0.07	0.92	4.50	50.22	26.76	5.45	134	3.10	26.35	12.80	49.34	72.55	17.79	44.88
	Calculated Head		103	153	15.37	44.51	16.13	13.40	131							
Low Grade MSO	2nd Cleaner	3.32	19.90	12.80	368.00	3177	33.53	3.00	498	76.15	48.05	6195	2.32	6.89	0.78	17.36
	1st Cleaner	8.20	9.57	7.76	194.82	36.05	37.04	4.99	984	90.50	71.97	8105	6.50	18.82	3.23	84.82
	Rougher	12.71	6.39	5.48	134.73	38.47	33.75	6.36	715	93.66	78.69	86.83	10.74	26.56	6.36	95.42
	Fe Sulfide	46.19	0.10	0.31	5.00	50.84	25.40	6.60	5	5.48	16.19	11.71	5161	72.66	24.00	2.43
	Calculated Head		0.87	0.88	19.72	45.50	16.15	12.70	95							

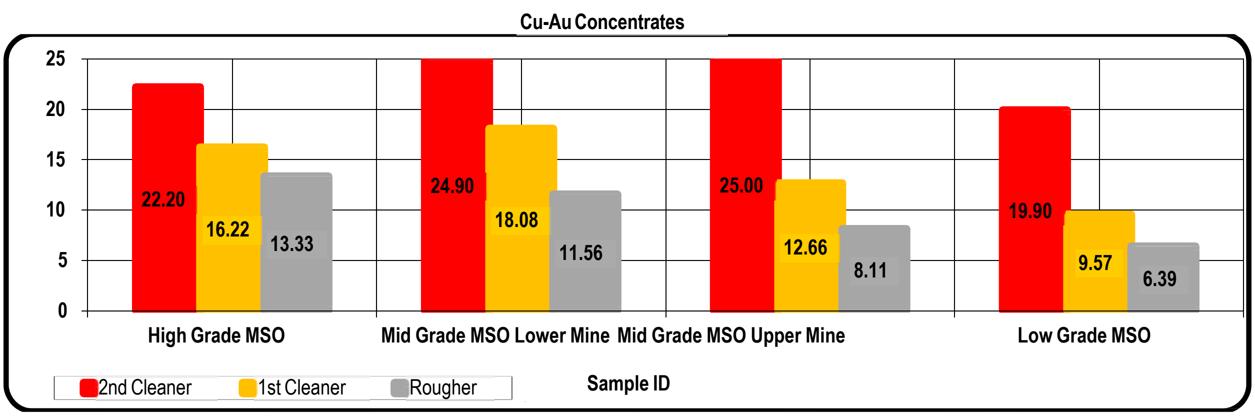


Figure 24-5: Phase III - Cu-Au 2nd Cleaner Flotation on MSO Type Samples Cu-Au Concentrates

Only for the Mid-grade MSO mineralized material, was the Cu grade target of 25% achieved showing a recovery of copper to that concentrate of around 80% to 85%. Further upgrading would be required. Gold recovery to the concentrates produced ranged from 30% to 53%, and silver from 62% to just over 80%.

The metallurgical data developed for Media Luna Skarn Samples are summarized in Table 24-21 and depicted in Figure 24-6.

Table 24-21: Summary of Results for Cu-Au 2nd cleaner flotation kinetics and Fe-S rougher concentrate production on the SKARN Composites

Composite ID	Product	Mass Recovery (%)	Cumulative Grade (%) Cu	Au (g/t)	Ag (g/t)	Fe	S	Insol.	As (ppm)	Cumulative Recovery (%) Cu	Au	Ag	Fe	S	Insol.	As
	2nd Cleaner	5.89	29.00	45.10	661.00	26.94	31.77	4.80	623	83.40	71.75	77.30	13.17	31.70	0.48	1.54
	1st Cleaner	8.61	22.68	34.20	527.05	26.42	28.50	12.29	3445	95.36	79.54	90.10	18.87	41.56	1.78	12.46
	Rougher	12.38	16.01	25.31	375.44	22.40	21.81	25.60	3236	96.81	84.66	92.30	23.02	45.75	5.35	16.84
	Fe Sulfide	20.83	0.25	0.93	13.80	25.14	15.07	39.95	8990	2.53	5.23	5.71	43.46	53.18	14.03	78.70
High Grade SKARN	Calculated Head		2.05	3.70	50.35	12.05	5.90	59.29	2379							
	2nd Cleaner	1.33	24.70	60.00	592.00	23.86	26.92	10.55	2270	71.68	37.44	52.33	3.36	16.54	0.23	0.26
	1st Cleaner	2.76	15.56	43.80	423.29	18.61	18.83	26.17	8847	93.93	56.83	77.81	5.46	24.06	1.20	2.11
	Rougher	5.22	8.36	24.36	233.28	14.10	11.09	40.52	8821	95.35	59.72	81.01	7.81	26.77	3.51	3.98
Mid Grade SKARN	Fe Sulfide	15.12	0.09	4.46	13.60	18.48	10.15	42.00	72650	2.91	31.68	13.69	29.66	70.99	10.55	94.88
Upper Mine	Calculated Head		0.46	2.13	15.03	9.42	2.16	60.23	11581							
	2nd Cleaner	2.61	21.40	40.40	661.00	22.00	24.31	22.85	1322	86.83	34.77	76.78	4.99	10.85	0.99	0.54
	1st Cleaner	5.37	11.36	27.05	362.44	15.06	15.08	44.75	3561	94.71	47.85	86.55	7.02	13.83	3.99	3.00
	Rougher	10.00	6.20	15.88	200.88	11.37	9.77	54.39	3675	96.30	52.34	89.37	9.88	16.70	9.03	5.77
Mid Grade SKARN	Fe Sulfide	26.66	0.07	5.21	7.30	27.75	18.11	34.00	22230	2.82	45.78	8.66	64.27	82.50	15.05	93.00
Low er Mine	Calculated Head		0.64	3.03	22.48	11.51	5.85	60.21	6373							
	2nd Cleaner	0.79	24.40	32.60	622.00	24.20	27.05	9.65	10030	61.34	19.43	40.72	2.70	18.97	0.12	1.21
	1st Cleaner	1.65	17.55	36.02	533.30	20.12	21.02	20.46	20124	91.68	44.60	72.54	4.67	30.63	0.51	5.03
	Rougher	5.00	5.96	13.44	189.91	11.47	7.80	46.37	11207	94.50	50.49	78.38	8.08	34.47	3.51	8.50
	Fe Sulfide	9.66	0.10	5.14	16.50	13.69	7.07	49.75	60740	3.06	37.32	13.16	18.64	60.39	7.28	88.99
Low Grade SKARN	Calculated Head		0.32	1.33	12.11	7.10	1.13	66.01	6594							

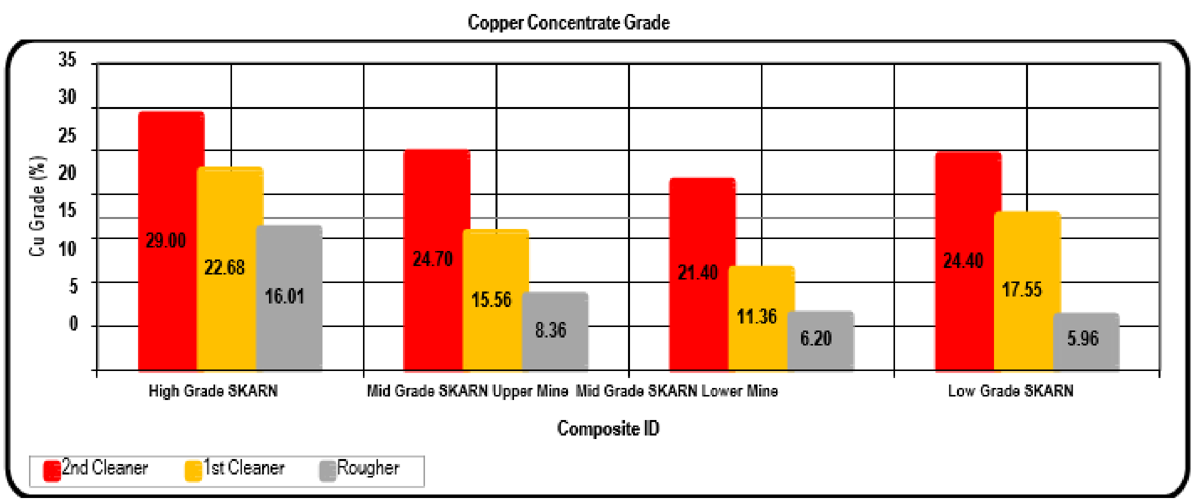


Figure 24-6: Phase III- Cu-Au 2nd Cleaner Flotation on SKARN Composites

This test work also demonstrated that more cleaning will be required to produce a readily saleable copper concentrate from the Skarn samples, except for the high-grade Skarn. Copper recoveries into a final copper concentrate will range from about 60% to low 80%. Gold recoveries into a final copper concentrate will be relatively low, ranging from mid-teens to mid-thirties in percentage, while silver would be expected to do marginally better.

24.13.5.4 Phase III - Cu-Au 2nd Cleaner Flotation Kinetics on composite samples of EPO MSO, EPO SKARN and MSO/SKARN

A similar flowsheet as shown in Figure 24-4 was employed to test EPO MSO, EPO Skarn and MSO/Skarn composites. Results are summarized in Table 24-22 and depicted in Figure 24-7 below.

Table 24-22: Phase III - Summary of Results for Cu-Au 2nd cleaner flotation kinetics and Fe-S rougher concentrate production on the EPO MSO, EPO SKARN and MSO/SKARN Composites

Composite ID	Product	Mass Recovery (%)	Cumulative Grade (%)							Cumulative Recovery (%)						
			Cu	Au (g/t)	Ag (g/t)	Fe	ST	Insol.	As (ppm)	Cu	Au	Ag	Fe	ST	Insol.	As
EPO MSO	2nd Cleaner	6.81	26.20	15.40	502.00	30.24	31.58	4.65	10090	83.19	28.07	63.76	5.49	11.08	1.32	2.10
	1st Cleaner	11.81	17.03	14.64	361.24	32.89	30.49	9.12	45001	93.87	46.32	79.66	10.37	18.57	4.49	16.23
	Rougher	17.55	11.63	11.22	253.44	34.71	28.00	13.12	45693	95.19	52.71	82.99	16.25	25.33	9.59	24.47
	Fe Sulfide	52.45	0.18	3.00	15.60	46.11	27.17	13.00	44100	4.40	42.15	15.27	64.53	73.48	28.42	70.61
	Calculated Head		2.14	3.73	53.58	37.48	19.39	23.99	32760							
EPO SKARN	2nd Cleaner	5.40	25.20	15.60	526.00	29.87	29.43	9.80	3831	88.37	28.88	65.95	10.15	19.36	0.93	1.14
	1st Cleaner	8.31	17.91	15.53	417.49	28.53	25.72	18.80	12057	96.64	44.24	80.54	14.92	26.03	2.75	5.53
	Rougher	12.39	12.12	11.45	289.17	25.20	20.11	29.84	13269	97.51	48.63	83.16	19.65	30.35	6.52	9.08
	Fe Sulfide	27.02	0.11	4.85	23.70	33.34	20.86	29.02	59630	1.98	44.93	14.87	56.72	68.68	13.83	89.02
	Calculated Head		1.54	2.92	43.07	15.88	8.21	56.72	18101							
MSO/SKARN Composite	2nd Cleaner	4.42	23.70	26.90	521.00	29.23	33.08	4.80	1386	84.57	46.55	73.11	4.48	16.22	0.58	1.92
	1st Cleaner	7.50	15.83	23.36	371.38	29.34	30.00	11.05	5802	95.90	68.65	88.48	7.63	24.98	2.25	13.63
	Rougher	9.51	12.57	18.92	297.41	28.34	26.39	16.72	5487	96.59	70.51	89.86	9.35	27.87	4.32	16.34
	Fe Sulfide	25.38	0.13	2.40	10.00	44.20	23.95	15.15	10390	2.63	23.87	8.07	38.92	67.51	10.44	82.64
	Calculated Head		1.24	2.55	31.46	28.82	9.00	36.82	3191							

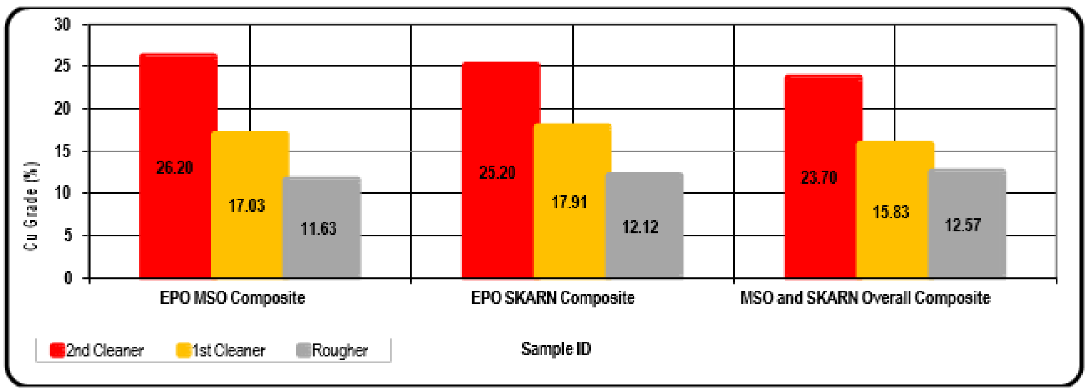


Figure 24-7: Phase III - Cu-Au 2nd Cleaner Flotation on EPO MSO, EPO SKARN and MSO/SKARN Composites Copper Concentrate Grade

This testing showed that only the MSO/Skarn material would require some upgrading to attain the goal of producing a concentrate grade of at least 25% copper. Copper recoveries to final concentrate range 83-88%. Gold recovery was below 30% to the Cu Conc for both EPO composites and 46% for the MSO and Skarn overall composite. For the MSO and Skarn composite it is expected that the recovery of gold to the Cu concentrate would be reduced after further stages of cleaning. Silver recoveries to the Cu concentrate were higher than gold, ranging from 63 to 73%. For the EPO composites elevated As is noted (1.1 to 2.1%) which could result in smelter penalties if not reduced (by processing or blending). Further work is required to address this.

A locked cycle flotation test was conducted on a composite sample made up of a weighted average of the following mineralized material types: MSO, SKARN, EPO MSO, EPO SKARN. Table 24-23 below summarizes the results for the final cycle of the six-cycle test. The locked-cycle test flotation program is shown in Figure 24-8. This test produced a good grade copper-gold concentrate at a copper recovery more than 90%. It is evidence that each type of mineralized material should be able to produce a saleable copper concentrate containing about 34% of the gold and 76% of the silver. Predictions of future recoveries are based on the test results of the locked cycle tests.

The locked cycle test produced a copper concentrate only, not a pyrite concentrate. Flotation tailings were leached. The locked cycle test was conducted on a composite of all mineralized material types. Estimates of flotation recovery, leach extraction and recovery of dissolved gold and silver into doré were made from test results for high grade MSO and Skarn only.

Table 24-23: Phase III (2015) Results of a six-cycle locked cycle flotation test on a weighted mineralized material blend of MSO, SKARN, EPO MSO, EPO SKARN

METALLURGICAL RESULTS																	
PRODUCTS	WEIGHT	ASSAYS								DISTRIBUTION (%)							
		Cu	Au	Ag	Fe	ST	Insol.	As	Zn	Cu	Au	Ag	Fe	ST	Insol.	As	Zn
	(%)	(%)	(g/t)	(g/t)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Cu-Au 2nd Cleaner Concentrate	4.99	27.76	19.00	533.0	27.30	29.50	5.95	0.105	2.40	91.68	34.30	76.00	4.64	14.31	0.81	0.64	21.87
Cu-Au 2nd Cleaner Tails		8.68	9.00	216.0	26.90	19.70	24.50	0.383	1.87								
Cu-Au 1st Cleaner Scavenger Concentrate		6.02	8.30	159.0	25.80	22.40	24.65	0.501	2.86								
Cu-Au 1st Cleaner Scavenger Tails	1.65	1.35	2.60	45.4	30.40	11.10	37.10	0.619	0.48	1.47	1.55	2.13	1.70	1.77	1.66	1.24	1.44
Cu-Au Rougher Tails	93.36	0.11	1.90	8.2	29.50	9.25	38.48	0.865	0.45	6.85	64.15	21.86	93.66	83.91	97.54	98.13	76.69
Calculated Head (CH)	100.00	1.51	2.77	35.0	29.40	10.29	36.83	0.823	0.55	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Assay Head		1.35	2.59	30.2	28.93	9.88	38.87	0.769	0.54								

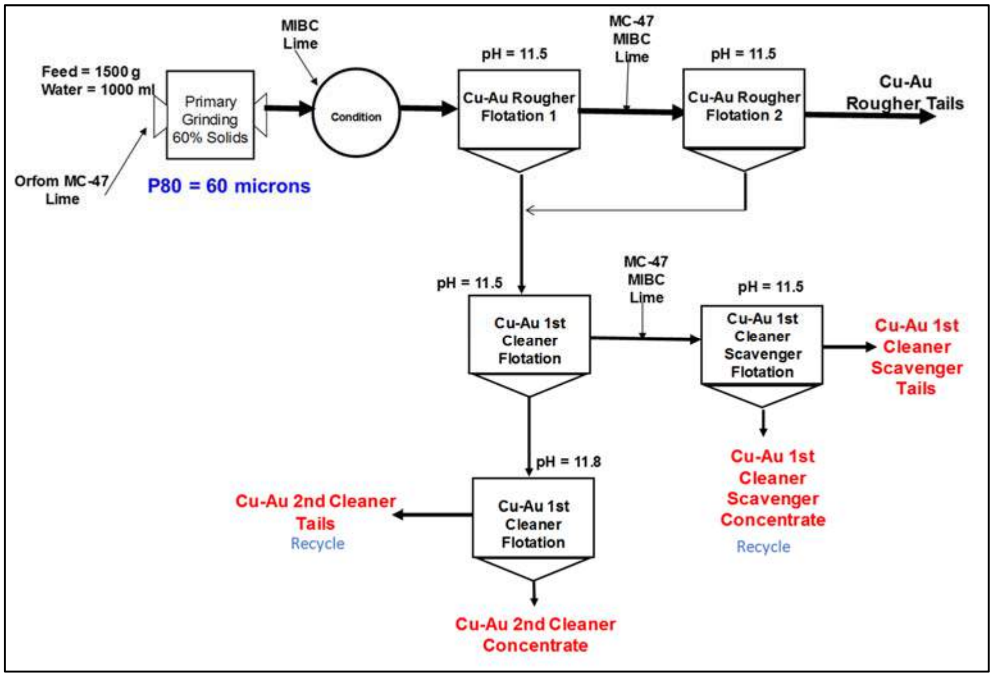


Figure 24-8: Phase III - Locked Cycle Test for weighted mineralized material blend of MSO, SKARN, EPO MSO, EPO SKARN

24.13.5.5 Phase III - Bottle Roll Leach Testing on Fe Sulfide Concentrate and Tailings

Table 24-24 summarizes the results of bottle roll tests conducted on Fe-S concentrates and tailings. The lines shaded in light blue are the tailings results. The key to the tests numbering is provided in Table 24-25. Each series consists of aeration at 0, 2 and 6 hours, while the last test (blue-shaded area) in each series is the leach test of the Fe-S tailings from that mineralized material type.

Table 24-24: Phase III - Summary of Bottle Roll Test Results for Fe-S Concentrates and Tailings

BR Test	Head Grade				Residue Grade		PLS Grade		% Extraction based on				Consumptions	
	Assay Head		Calculated Head		Au	Ag	Au	Ag	Assay Head		Calculated Head		NaCN	CaO
No.	Au, ppm	Ag, ppm	Au, ppm	Ag, ppm	Au, ppm	Ag, ppm	Au, ppm	Ag, ppm	Au	Ag	Au	Ag	kg/t	kg/t
BR-01			1.35	7.57	0.78	6.30	0.50	1.20	66.81	17.24	42.34	16.91	2.05	4.09
BR-02	0.86	7.43	0.97	7.57	0.38	6.00	0.49	1.43	68.73	21.25	60.80	20.86	2.06	3.58
BR-03			1.14	7.52	0.54	6.00	0.50	1.47	70.18	20.71	52.74	20.46	2.11	3.45
BR-04	0.19	0.87	0.30	0.65	0.07	0.30	0.17	0.35	120.00	40.52	76.72	54.14	0.96	1.66
BR-05			5.84	13.26	3.30	9.80	2.79	3.75	66.98	29.76	43.69	26.31	1.91	3.29
BR-06	3.81	11.72	5.70	11.86	3.15	9.10	2.48	2.90	67.79	24.29	45.28	24.00	1.70	2.99
BR-07			5.85	12.63	2.90	9.30	2.59	3.07	77.75	28.81	50.65	26.73	1.77	3.06
BR-08	0.26	1.11	0.26	0.67	0.08	0.30	0.15	0.33	67.65	33.91	69.01	55.59	0.24	1.38
BR-09			2.92	14.67	1.49	14.30	1.25	0.39	47.58	1.91	48.81	2.03	2.21	6.94
BR-10	3.00	15.60	2.99	14.73	1.52	14.40	1.24	0.28	48.87	2.10	49.09	2.22	2.47	5.50
BR-11			2.56	14.55	1.10	13.90	1.26	0.60	48.69	4.13	57.04	4.43	2.67	5.46
BR-12	0.64	3.10	0.70	2.67	0.25	1.70	0.36	0.84	70.94	31.39	64.58	36.50	0.48	1.76
BR-13			5.10	23.80	3.11	20.30	1.86	3.56	41.13	14.85	39.10	14.79	1.92	4.49
BR-14	4.85	23.70	5.00	24.10	2.92	20.20	1.85	3.75	42.87	16.48	41.60	16.21	2.18	4.09
BR-15			5.26	23.73	3.10	19.60	1.86	3.75	44.84	17.81	41.34	17.78	1.91	3.85
BR-16	0.31	1.40	0.31	1.14	0.11	0.70	0.18	0.40	63.68	31.77	64.27	38.91	0.34	1.46
BR-17			2.58	9.49	1.33	7.50	1.13	1.91	52.07	19.91	48.45	20.98	1.49	2.84
BR-18	2.40	10.00	2.41	9.94	0.98	7.70	1.19	1.90	59.46	22.44	59.31	22.59	1.60	2.45
BR-19			2.48	9.84	0.97	7.50	1.23	2.03	63.09	23.59	61.01	23.97	1.46	2.16
BR-20	0.22	1.00	0.42	0.99	0.12	0.60	0.23	0.43	135.27	39.16	71.29	39.52	0.36	1.08
BR-21	2.48	9.00	2.35	9.37	1.25	7.40	1.09	1.96	44.45	21.91	46.87	21.04	2.71	3.45

Extraction results are calculated based on both the assayed head grade of the composite and on the calculated head grades based on product assays after the bottle roll test. In further development test work, the focus will be on accurate sampling to generate a solid mass balance and to investigate reported reagent consumptions. High cyanide consumption could be due to the presence of pyrrhotite and cyanide-soluble copper.

Table 24-25: Phase III - Key to the numbering of the leach tests summarized in Table 24-24

	Tests
MSO	1-4
Skarn	5-8
EPO MSO	9-12
EPO Skarn	13-16
MSO/Skarn	17-20
Locked Cycle Flotation on MSO/SKARN	21

Results indicate that aeration for up to six hours is effective for gold, resulting in higher extraction, but not for silver. No aeration was employed in leaching Fe-S tailings.

24.13.5.6 Phase III - Overall Recoveries Estimate from Lock Cycle Test

After the publication of Phase III test work, information from Lock Cycle Flotation testing became available. Based on this information, the overall metal recoveries for processing of the ML mineralized material are presented in Table 24-26. These results are based on the use of a bulk flotation followed by cleaners to produce a Cu Conc and Fe-S conc. The tailing from both streams would be leached in the existing ELG CN/CIP circuits and the Fe-S concentrate leached in a new CN/CIP circuit to be constructed. The prediction of future recoveries of copper, gold and silver to a saleable copper concentrate is based on the results of the locked-cycle test (Table 24-23). For the recovery of gold and silver from leaching of the tailings and Fe-S concentrate, the estimates are based on the leach tests presented in Table 24-24.

Table 24-26: Phase III - Locked Cycle Summary of Recovery of Gold, Silver and Copper

	Flotation Recovery To a Final Cu Concentrate			Cu Conc. Grade	Flotation Recovery To Fes Concentrate		Rejection to Total Float Tailing	
	Cu	Au	Ag		Au	Ag	Au	Ag
Estimate, based on combination locked cycle test and flotation of High grade Skarn/MSO	91.7	34.3	76.0	27.8	8.5	5.7	57.2	18.3

	Estimated Extraction				Overall Recovery into Concentrate and Doré		
	From FeS Conc		From Float Tailing				
	Au	Ag	Au	Ag	Cu	Au	Ag
Dissolution	51.7	23.6	72.9	54.9			
Recovery into doré	49.7	21.6	70.9	52.9	91.7	79.0	86.9

The methodology used to evaluate the overall recovery considers the individual processing stages of copper flotation, to the Fe-S flotation and concentrate leaching, leaching of the flotation tails followed by estimation of absorption recoveries. To complete this estimate the following assumptions were made.

1. Copper, gold and silver reporting to the copper concentrate is based on the locked cycle test.
2. The estimate of where the remaining gold and silver reports (between the flotation tailings and the Fe-S concentrate) was based on results from the Phase III test work (Table 24-20, Table 24-21 and Table 24-22). The minimum saleable copper concentrate grade was assumed to be 23% Copper. Recoveries reporting to the second copper cleaner concentrates were taken at an equivalent copper concentrate grade of 23% Cu. For the cases where the copper grade was below 23%, recoveries were adjusted to provide a minimum copper grade of 23%, which results in less gold and silver estimated to report to the Cu Concentrate and more to the tailings and Fe-S concentrate.
3. The gold and silver within the flotation tailings and the Fe-S concentrate are planned to be further recovered with CN leach.
4. Gold and silver extraction percentages were reduced by 2% to account for the recovery of these metals from solution to doré. Industry expectations are that this value is typically in the 1 to 2% range for an operation running at best practice.

24.13.6 BaseMet (2018) Metallurgical Study Phase IV

In early 2018, Torex initiated follow-up test work the ML mineral resource material, the purpose of this being as follows:

1. Confirm/develop all key design input to allow for design, metal recovery estimates and costing (Capital and Operating) of the process plant for the Media Luna mineral resource material.
2. Provide sufficient samples of concentrate and tails as follows:
   a. Copper concentrate

   i. Marketability of Concentrate, including any deleterious elements
   ii. Information required for design of transportation systems
b. Fe-S concentrate leach tails and flotation tails after leach
   i. Geotechnical (for placement in disposal area) parameters
   ii. Geochemistry parameters (for water treatment/permitting use)
   iii. Information required for use in Paste backfill

Management of the test work is being carried out jointly by Huls/Promet101 on behalf of Torex.

This test work is currently underway. Based on the decision to utilize a sequential flotation process for this study, earlier work had considered a bulk float process, initial test work within Phase IV was adjusted to provide information to support the preliminary design, estimated reagent consumption and recoveries of a sequential flotation process assumed in this PEA. This early work has been completed including initial bulk composite testing and the initial phase of testing on variability samples.

The metallurgical testing philosophy being followed for the 2018 Media Luna testing at BaseMet labs is to:

1. select individual variability samples from resource drill core provided by Torex selection by Promet101,
2. complete mineralogical assessment on individual variability samples,
3. prepare an initial grade-based composite for initial flowsheet definition,
4. use the selected flowsheet for testing of individual variability samples,
5. followed by mineralized material type selection using the results of variability samples
6. subsequent optimisation testing of these composites.
7. solid liquid separation testing
8. associated tests including a lock cycle tests to support process design are to be completed.

24.13.6.1 Phase IV - Sample Selection (2018) Base Met Labs

Table 24-27 provides a summary of assays of the 30 variability samples of Media Luna material that have been generated and are in the process of being tested at BaseMet. All assays are generated by Atomic Absorption with the exception of the As assay, which is from an ICP scan. Table 24-28 provides the assays of the composite material.

For the initial composite selection, 18 samples were used to generate a composite with target grade as close as possible to the potential mining inventory of the ML mineral resource with regard to grades for gold, silver and copper. Target sample grade was 2.56 g/t Au, 27.45 g/t Ag and 1.03% Cu. (4.77g/t AuEQ), 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. The Torex mine drill core assays were used for the variability sample selection process, with BaseMet lab assays on individual variability samples obtained later. Although the composite sample grade is on the low side it is a reasonable predictor for recoveries. Copper and silver grades are within 90% of target. Gold grade, however, is lower than target at 61% of target grades

Table 24-27: Phase IV - Grades of Major Elements in the Individual Media Luna Material Samples

Samples	Elemental assays % & ppm												
	Cu	Pb	Zn	Fe	S(t)	C(t)	Ag	Au	CuOx	CuCN	S(SO4)	S(S2-)	TOC
29-WZML-25B Hd	0.26	0.020	0.01	5.70	1.68	0.37	8	0.36	0.001	0.004	0.04	1.64	0.02
31-ML-115 Hd	0.31	0.006	0.01	47.6	12.9	0.07	4	0.43	0.019	0.014	<0.01	12.9	0.03
32-WZML-28 Hd	1.28	0.003	0.05	38.8	6.79	0.66	40	0.70	0.173	0.191	0.08	6.71	0.06
33-WZML-57 Hd	0.22	0.008	0.02	43.2	7.98	0.17	7	3.26	0.069	0.020	0.03	7.95	0.05
35-MLN-21 Hd	0.28	0.015	0.01	2.76	0.94	0.07	9	1.75	0.003	0.005	0.05	0.89	0.03
36-ML-35 Hd	1.14	0.010	0.02	4.52	2.71	1.02	47	27.2	0.009	0.015	0.01	2.70	0.07
38-SS-02 Hd	2.01	0.005	0.03	17.5	9.31	0.31	34	0.85	0.014	0.032	0.01	9.30	0.02
40-MLN-16 Hd	0.94	0.003	0.03	47.2	19.10	0.18	16	0.21	0.012	0.024	0.02	19.08	0.03
42-NWZML-25A Hd	0.86	0.004	0.02	50.0	26.2	0.13	17	0.47	0.017	0.030	<0.01	26.2	0.07
43-WZML-33 Hd	2.06	0.002	0.04	24.4	5.47	0.78	80	1.10	0.018	0.030	0.03	5.44	0.05
46-ML-46A Hd	1.02	0.008	0.02	11.0	2.01	0.63	33	0.25	0.009	0.019	<0.01	2.01	0.05
47-MLN-06A Hd	1.22	0.009	0.03	5.76	2.72	0.50	39	0.31	0.012	0.016	<0.01	2.72	0.02
49-NWZML-25A Hd	1.30	0.009	0.02	6.40	3.34	0.09	35	0.98	0.019	0.031	<0.01	3.35	0.02
50-WZML-20 Hd	0.43	0.004	0.01	18.36	6.88	0.24	15	0.45	0.003	0.015	0.07	6.81	0.06
51-ML-09A Hd	0.14	0.003	0.01	37.2	4.73	0.43	5	0.91	0.002	0.006	0.04	4.69	0.08
53-ML-115 Hd	0.10	0.016	0.01	14.0	4.02	0.30	14	1.17	0.001	0.005	0.04	3.98	0.06
54-ML-08 Hd	0.49	0.008	0.01	6.80	3.73	0.21	14	2.17	0.001	0.025	<0.01	3.74	0.02
57-WZML-36 Hd	0.49	0.007	0.02	36.0	6.41	0.09	15	0.64	0.009	0.020	0.02	6.39	0.03
58-NWZML-23 Hd	0.33	0.005	0.01	25.6	11.2	0.29	9	0.58	0.004	0.008	<0.01	11.2	0.06
60-WZML-08 Hd	0.91	0.004	0.38	50.8	4.93	0.06	24	1.66	0.013	0.028	0.03	4.90	0.03
62-ML-01 Hd	0.74	0.006	0.11	48.8	18.1	0.49	12	1.15	0.037	0.025	<0.01	18.1	0.03
64-WZML-08 Hd	1.01	0.005	2.37	50.0	6.41	0.25	25	3.05	0.009	0.030	0.01	6.40	0.03
65-NWZML-22 Hd	0.44	0.012	0.02	4.24	7.20	0.22	72	0.30	0.015	0.020	0.01	7.19	0.09
67-ML-11A Hd	0.49	0.007	3.14	28.0	1.39	4.67	25	1.08	0.221	0.192	<0.01	1.39	0.02
69-ML-79 Hd	1.78	0.002	0.05	38.0	18.6	0.36	31	14.0	0.023	0.058	0.14	18.46	0.06
70-NEZML-27 Hd	2.63	0.009	2.58	28.0	14.7	0.34	38	3.81	0.016	0.054	0.06	14.6	0.03
71-NEZML-12 Hd	0.33	0.006	0.01	6.24	0.93	0.54	8	2.21	0.004	0.005	0.03	0.90	0.04
75-NEZML-27 Hd	1.01	0.009	0.05	52.0	17.00	0.14	11	0.87	0.013	0.037	<0.01	17.00	0.02
77-CZML-19 Hd	0.18	0.008	0.01	1.52	0.52	2.54	9	1.25	0.005	0.004	0.03	0.49	0.01
78-ML-04 Hd	0.33	0.008	0.01	9.56	3.13	0.50	6	3.60	0.003	0.009	0.03	3.10	0.04

Table 24-28: Phase IV - Grades of Major Elements of the Media Luna Material Composite

Assay – Percent or g/t				
Cu	Fe	S	Ag	Au
0.78	29.17	7.52	18.04	1.56

24.13.6.2 Phase IV - Mineralogy

A mineralogical assessment was conducted on the thirty individual variability Media Luna samples. The purpose of this work being to identify the primary minerals contained in the ML minerals material, followed by test work to understand liberation of the copper and iron sulphides. Figure 24-9 presents the overall mineral content of each sample, Figure 24-10 the liberation profile of copper minerals and Figure 24-11 the liberation profile of pyrrhotite, being the dominant Fe-S species present in Media Luna material. In the Figures below Cs refers to copper sulphides in general, Sp to sphalerite, Po to pyrrhotite, Os to other sulphides, and Gn to gangue.

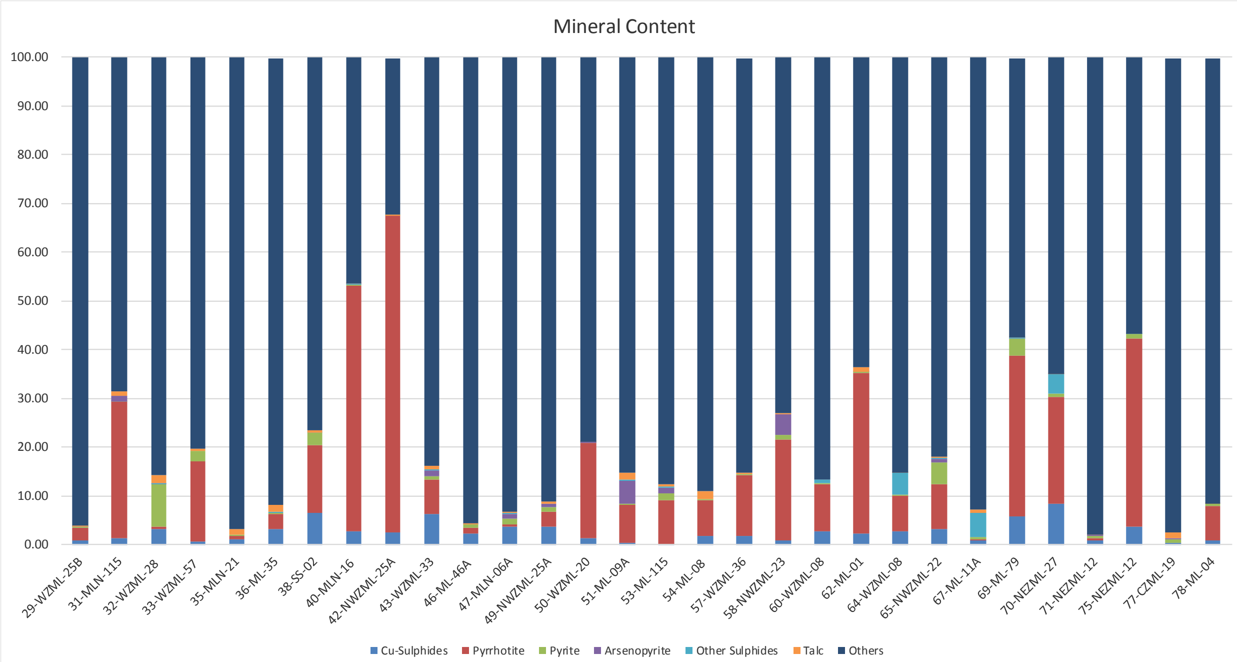


Figure 24-9: Phase IV - Mineralogy of Media Luna Variability Samples

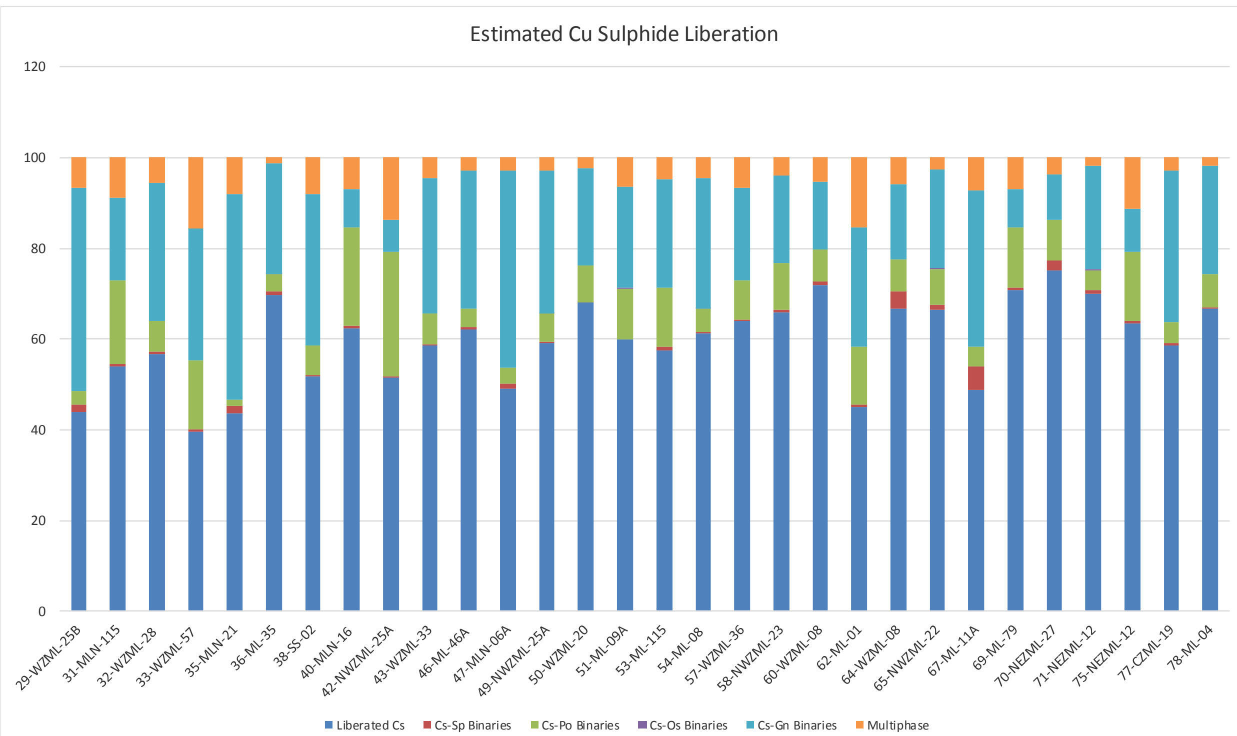


Figure 24-10: Phase IV - Evaluation of Copper Sulphide Liberation of Media Luna Variability Samples

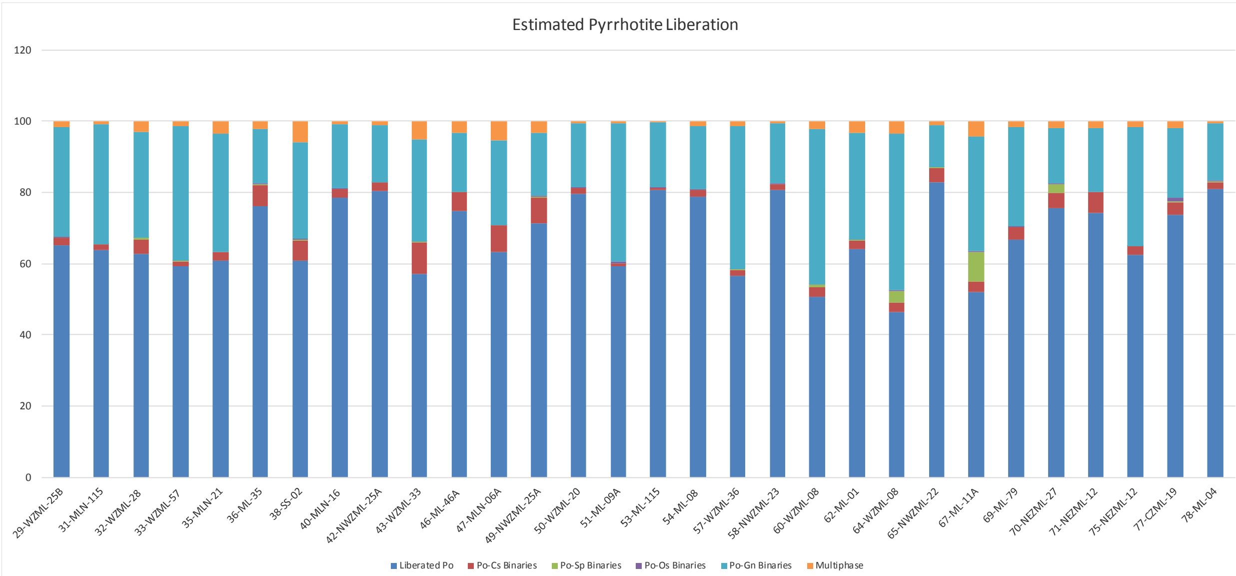


Figure 24-11: Phase IV - Evaluation of Pyrrhotite Liberation of Media Luna Variability Samples

As shown in Figure 24-9 and Table 24-29 Copper Sulphides on average make up about 2.5% of the samples with Chalcopyrite (2.28%) being the dominant copper mineral. Copper is also 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 cicuit as this would be expected to report to the concentrates. Most of the chalcocite will be recovered into the copper concentrate, consisting primarily of chalcopyrite.

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. Based on previous test work and this current program As, Bi and Zn are not projected to be problematic, but follow-up work is required to confirm this.

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

Figure 24-12 presents a summary of size-by-size liberation of minerals in the bulk composite. Liberation assessment at 110 microns indicates that gangue very likely will be liberated (~94%) and should be easily rejected in a flotation circuit. Copper is not well liberated (~50%) at the 110 microns and will require regrind of rougher concentrate to about 10 microns. Regrinding copper rougher concentrate is common practice to liberate copper from iron sulfides.

A large part of chalcopyrite shows intergrowth with pyrrhotite in the Fe-S concentrate, which likely requires a regrind prior to leaching Fe-S concentrate, allowing higher extraction of both copper and gold in the CN leach circuit for ultimate recovery in the CIP and SART circuits.

Table 24-29: 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

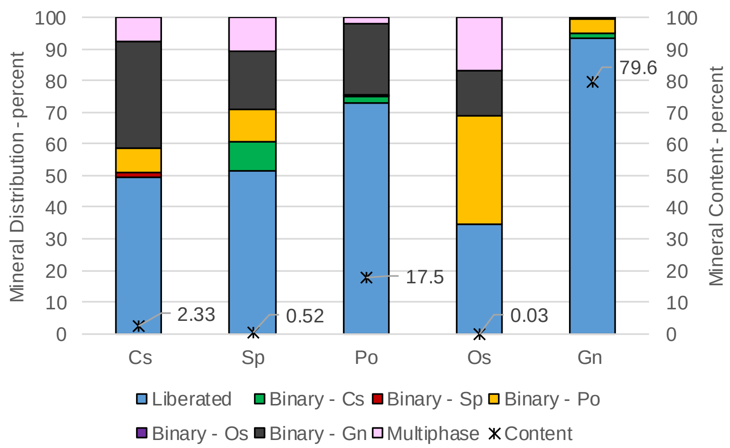


Figure 24-12: Phase IV Liberation Summary of the Composite at 110 microns

24.13.6.3 Phase IV - Hardness of Mineralized Material

Twenty-eight intervals of quarter-diameter NQ drill core were selected for comminution testing. The intervals were selected to represent the approximate proportions of the four main lithologies present in Media Luna:

- Massive sulphide
- Endoskarn
- Exoskarn
- Other

The intervals were also selected to provide a histogram for copper and gold that roughly corresponds to the mining sequence envisioned within the PEA mine plan.

The following comminution tests were performed at BaseMet Labs.

- Bond ball mill work index using a 150 µm closing screen on all comminution samples;
- SMC Test™, including an mineralized material density determination, on all comminution samples;
- Bond abrasion index on selected comminution samples; and

- Duplicate Bond ball mill work index tests using 106 µm and 212 µm screens on three samples.

As a quality-control procedure, six samples were selected for a Bond rod mill work index test to be performed at the ALS Mineral Services laboratory, also in Kamloops. The rod mill work index is used as a quality-control check on the SMC Test™.

Comminution results on the twenty-eight Balsas Sur samples can generally be described as "medium to hard" with ball mill work index values between 10 and 20 metric units for nearly all samples. The SMC Test™ reported five samples with A×b of less than 35, with the remainder generally described as "medium". Summary of test results is provided in Table 24-30. Abrasion character is highly variable with a range from "negligible" to "somewhat high".

Table 24-30: Phase IV - Comminution Test Result Summary

Name	Wi_{BM} Metric	Wi_{RM}metric	Density t/m^3	A×b	Mia	Mib	Ai	Litho
01-SWZML-04	13.7		3.3	73.0	11.6	16.4		Massive Sulphide Oxide/Endoskarn
02-WZML-29	13.3		3.5	62.3	13.0	15.9	0.01	Massive Sulphide Oxide/Endoskarn
03-ML-61	15.4		3.5	48.6	15.9	19.0		Endoskarn/Massive Sulphide Oxide
04-ML-72	14.3		3.5	26.7	25.9	18.4		Massive Sulphide Oxide/Exoskarn
05-WZML-31	13.7		4.2	53.3	14.3	16.4	0.01	Massive Sulphide Oxide
06-ML-200	13.1		3.5	39.3	18.8	16.0	0.01	Exoskarn/Massive Sulphide Oxide
07-ML-46A	17.6		3.3	31.9	22.4	23.2		Exoskarn
08-WZML-07	12.6		3.3	37.9	19.7	14.8	0.24	Exoskarn/Endoskarn
09-MLN-10	20.0		3.2	39.2	19.3	26.3	0.36	Endoskarn/Massive Sulphide Oxide
10-NWZML-27	15.0		3.6	38.3	19.1	18.8		Exoskarn/Massive Sulphide Oxide
11-WZML-24	9.0	9.5	3.2	100.7	9.0	9.9		Massive Sulphide Oxide
12-MLN-21	16.5		3.3	29.0	24.5	20.7		Exoskarn/Endoskarn
13-ML-09A	10.7		3.7	74.1	11.2	12.1	0.01	Massive Sulphide Oxide/Endoskarn
14-WZML-34	14.1		3.6	54.0	14.6	17.2		Exoskarn/Massive Sulphide Oxide
15-NWZML-07	17.4		2.7	57.9	14.6	22.1		Massive Sulphide Oxide/Granodio
16-MLN-08	17.0	16.4	3.2	35.1	20.9	21.7	0.23	Endoskarn
17-WZML-06	10.4		4.3	71.5	11.2	11.6		Massive Sulphide Oxide
18-WZML-36	10.7		4.1	64.3	12.3	12.1	0.01	Massive Sulphide Oxide
19-NWZML-05	15.6		3.1	40.2	18.9	19.7	0.01	Endoskarn/Exoskarn
20-ML-02	14.8		3.4	42.2	17.9	18.6		Exoskarn/Massive Sulphide Oxide
21-NWZML-01B	15.7		3.2	44.3	17.4	19.9		Massive Sulphide Oxide/Exoskarn
22-NEZML-10	18.3		2.7	35.7	21.3	23.3		Endoskarn
23-NEZML-15	16.1		3.3	31.9	22.5	20.2		Exoskarn/Endoskarn
24-NEZML-22	11.5	13.0	3.5	55.6	14.3	13.5		Massive Sulphide Oxide
25-NEZML-06	18.7	17.7	2.6	31.9	23.5	24.1		Endoskarn
26-ML-05A	15.4	15.2	3.1	46.0	17.0	19.0		Massive Sulphide Oxide/Endoskarn
27-NEZML-25	17.5	17.8	3.4	34.3	21.2	22.3		Endoskarn/Massive Sulphide Oxide
28-CZML-24	14.6		3.8	62.4	12.8	18.1		Massive Sulphide Oxide/Endoskarn

The ball mill work index test was conducted with a closing screen size of 150 µm resulting in an average product size P80 of 110 µm. Three samples were selected for additional ball mill testing to observe the sensitivity to closing mesh size; result is given in Table 24-31.

Table 24-31: Phase IV - Ball Mill Work Index Closing Screen Trials

Sample	Closing screen, µm	Test F_{80}, µm	Test P_{80}, µm	grams per rev	Ball mill Wi, metric units	Morrell Mib, kWh/t	Hukki exponent (Bond = 0.5)
16-MLN-08	106	2414	80	1.08	17.1	24.2	0.61
16-MLN-08	150	2414	109	1.26	17	21.7	
16-MLN-08	212	2414	149	1.42	17.4	20.3	
18-WZML-36	106	2499	86	1.85	11.5	14.5	0.82
18-WZML-36	150	2499	116	2.31	10.7	12.1	
18-WZML-36	212	2499	159	2.81	10.3	10.5	
24-NEZML-22	106	2501	82	1.63	12.4	16.1	0.68
24-NEZML-22	150	2501	107	1.99	11.5	13.5	
24-NEZML-22	212	2501	147	2.19	12	13	

Only the 18-WXML-36 sample shows a significant work index deviation with size; the other two samples display deviation that is within the experimental error of tests of this type. Deviation with product size is more pronounced in the Morrell Mib index, so it is more important to operate the ball mill test to achieve a P_{80} close to the desired modelling P_{80} when using the Morrell Mi equations.

The ball mill work index tests in Table 24-31 were all operated with a 150 µm closing screen and resulted in a P_{80} typical range between 90–115 µm. These tests are all suitable for operating both Bond and Morrell type models with a 100 µm target size.

24.13.6.4 Phase IV - Comminution Throughput Predictions

Comminution throughput prediction were performed with 100% of the samples predicted to enable throughputs of greater the 600 tphr (14,400 tpd) through the existing ELG Process Plant grinding circuit.

Comminution modelling was performed using the Morrell Mi model and a set of check calculations were done using the Bond/Barratt model. The SAGMILLING.COM software was used to run both sets of calculations.

The existing grinding circuit at the ELG Process Plant is modelled based on three circuit surveys conducted by Metso Process Optimisation Services (wherein the SAG power draw ranges from 5.8 MW to 6.2 MW at mill shell). Softer mineralized material types were observed to reduce SAG power draw as the mill load level will drop when processing such mineralized material.

The target product size for the grinding circuit is a P_{80} of 100 µm feeding the leaching circuit. All twenty-eight comminution samples were run against the Morrell Mi model implemented in the SAGMILLING.COM software to predict the plant throughput. A quality-control check was conducted by running the Bond/Barratt model against a sub-set of six samples to corroborate the Morrell Mi model predictions. The range of throughput predictions, and the corroboration, is presented in Figure 24-13. The axis is 'percentiles of throughput': the 0^{th} percentile is the lowest throughput, meaning all material exceeds 600 t/h. The mark at the 25^{th} percentile means that 75% of the material will exceed 700 t/h, and only 25 percent of the material exceeds 1000 t/h at the 75^{th} percentile.

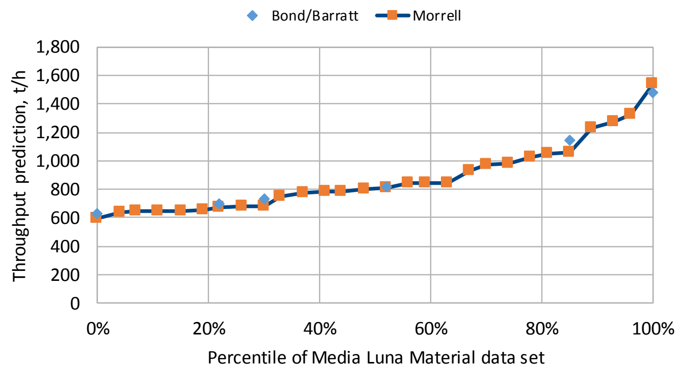


Figure 24-13: Phase IV - Throughput Predictions for twenty-eight Media Luna Samples

24.13.6.5 Phase IV - Flotation and leach results of Media Luna composite

The composite with head assays as shown in Table 24-28, was processed in a sequential float. Composite feed consisted of material ground at a P_{80} of 87 microns. The regrind of copper rougher concentrate was set at a P_{80} of 26 microns. After regrinding, copper rougher concentrate was cleaned in three stages. Copper flotation tailing was subjected to an Fe-S rougher float. This concentrate was not cleaned prior to regrind. Copper cleaner tailing was mixed with Fe-S rougher concentrate and submitted for a regrind prior to leaching in cyanide. Fe-S flotation tailing, which in fact represents final flotation tailing, was dewatered and subjected to a separate cyanide leach. Flotation and leach results are summarized in Table 24-32. The top part of the Table provides the individual flotation recoveries to final copper concentrate and to Fe-S rougher concentrate. The middle part of the Table summarizes leach results of Fe-S concentrate and Fe-S tailing (final flotation tailing). The bottom part of the Table summarizes overall copper recovery to final copper concentrate and to doré.

Table 24-32: Phase IV Estimated Recoveries from Composite to Cu Concentrate and Doré

Flotation to Cu Conc							Does not float to Cu Conc.					
Actual Lab			Actual Lab				Estimated Recovery			Estimated Recovery		
Concrete Grade			Recoveries to Cu Concentrate				Fe-S Con + Cu Scav Tl			Fe-S Rougher Tails		
Cu %	Au g/t	Ag g/t	Cu %	Au %	Ag %		Cu %	Au %	Ag %	Cu %	Au %	Ag %
25.2	26.6	516.0	83.1	52.0	70.0		13.4	25.2	21.4	3.5	22.8	8.6
Leach Results (extraction							Estimated Recovery to Dore / SART from solution					
Actual Extraction			Actual Extraction				Deduct 2% as gap between extraction and rec 95% SART Cu recovery					
From Fe-S Conc			From Fe-S Tailings				From Fe-S Conc			From Fe-S Tailings		
Cu %	Au %	Ag %	Cu %	Au %	Ag %		Cu %	Au %	Ag %	Cu %	Au %	Ag %
35.7	72.0	4.0	36.1	70.0	55.0		33.9	70.0	2.0	34.3	68.0	53.0

	Total Estimated Recovery to a final Cu Concentrate			Cu Conc. Grade	Cu Rec By SART	Estimated Recovery into Doré after leaching float products		Total estimate recovery To Concentrate and Dore		
	Cu %	Au g/t	Ag g/t	%	Cu %	Au %	Ag %	Cu %	Au %	Ag %
Estimated	83.1	52.0	70.0	25.2	5.7	33.1	5.0	88.8	85.1	75.0

24.13.6.6 Phase IV - Flotation results of Media Luna variability testing

The objective of variability testing was to evaluate the potential performance of individual samples of Media Luna mineralized material, using the selected flowsheet, as developed in the bulk composite test work. A similarly good metallurgical response from nearly all the samples would attest to the robustness of the flowsheet. After evaluation of all results, data input into the block model and financial model could then be generated, while sample compositing for a later Phase in the test program would be confirmed. To date variability test results have provide sufficient indication that results attained from the composite is indicative of the ML mineralized mineral. What will require additional work is to understand the high degree of variability seen in the tests and to understand the performance and response of the material.

Despite the lower than expected gold grade in the composite, an overall recovery of gold of 85% was attained. Variability test results eventually will reveal if any upward potential may be expected from higher grade gold mineralized material.

24.13.7 Required operation of the SART plant

Prediction of copper recovery from the SART plant is based on the response of test work on Media Luna composite material, as shown in Table 24-32. Its response is very similar to our experience with Sub-Sill ore from ELG. Also Media Luna mineralized material contains cyanide soluble copper in both Fe-S concentrate and in flotation tailing. The amount of cyanide-soluble copper will drive the need for the operation of the SART plant.

The recovery of copper into concentrate for Media Luna mineralized material is predicted at 83.1%, as shown in flotation of the composite of Media Luna mineralized material. The remainder of copper is produced after precipitation of copper from leach solution using the SART process.

24.13.8 Concentrate Quality

Concentrate quality estimates from the Phase III are assumed to remain valid as Phase IV test work advances this work will be revisited.

During Phase III test work thirty-two element ICP scans were conducted on composite samples of the Cu-Au and Fe-Sulphide flotation concentrates produced in the open circuit cleaner tests conducted in this program. The results of these scans show that:

- The 2M:5M (1:1) and 2M:5M:46M (1:1:1) copper/gold concentrates, which contained about 24% and 22% respectively by weight copper, would both be acceptable to the market based on the prevailing conditions, except that some further cleaning to a minimum copper grade of 23% may be required
- Phase III Cu-Au concentrates obtained showed higher copper grade at 25.5% for the Media Luna main mineralized material body and 26.8% for EPO resourced material. Impurity levels in Media Luna Main mineral resource are below levels that attract penalties. On the other hand, levels of deleterious metals in EPO resource concentrate such as arsenic (0.69%), bismuth (570 ppm), and chlorine (5640 ppm), are above the threshold and therefore may attract penalties. However, it is likely that EPO mineral resource material will be mined and processed together with main body Media Luna mineralized material producing acceptable concentrates to smelters sufficiently high in copper grade.

24.13.9 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.

The estimated reagent consumption rates for flotation and leaching flotation tailings are presented in Table 24-33. As flotation tailings are leached, any cyanide-soluble copper contained within may require subsequent removal from leach solution. The Table below, therefore, contains typical reagent consumption rates for the SART process that removes copper from solution by precipitation as a copper (I) sulfide, Cu_2S. The rates for the SART process are estimated as Media Luna core has not been assayed for cyanide soluble copper at this time.

Table 24-33: Estimated Reagent Consumption Rates

Reagent Suite	**Rate kg/t**
NaCN	2.21
NaOH	0.08
Flocc	0.02
Lime	0.80
HCl	0.18
MBS/MT2000	4.57
Frother	0.10
Collector	0.03
Antiscalant	0.05
Hydrogen peroxide	0.18
Oxygen	-
Carbon	0.12
Copper sulphate	-
SART	
Sodium Hydrosulfide	0.28
Sulfuric Acid	0.86
Hydrated Lime	0.68
Sodium Hydroxide	0.03
Flocculant	0.01
Antiscalant	0.01

Estimates provided are in kg/t and apply to both ELG or Media Luna mineralized material, with the following exceptions:

1. Frother and collector are only consumed with ML mineralized material
2. Flocculant consumption is 0.05 kg/t for Media Luna mineralized material, due to thickening of flotation products, and 0.02 kg/t for ELG ore.
3. Lime consumption is 2.88 kg/t for Media Luna mineralized material, and 2.00 kg/t for ELG ore, due to lime addition in cleaning circuit.

24.13.10 Deleterious Elements

Deleterious element estimates from the Phase III are assumed to remain valid. As Phase IV test work advances this work will be revisited.

The flotation test work has produced Cu-Au concentrates from composite samples 2M:5M (1:1), 2M:5M:46M (1:1:1), and ML-46M. These were analyzed during the test programs for any deleterious elements that could affect marketability. The levels of deleterious elements were considered during the Marketing study and are not considered to have a significant impact on the marketability of the 2M:5M and 2M:5M:46M concentrates. The composite sample ML-46M which produced concentrate that had too low copper content and high levels of deleterious elements would not likely be processed through the plant on its own since it is more profitable to process it directly through the cyanide leaching circuit to produce clean pregnant solution.

Phase III test work produced concentrates from the main Media Luna mineral resource and the EPO mineral resource which were analyzed for their marketability. It was concluded that concentrates from the main Media Luna mineral resource did not have high levels of deleterious elements that would attract penalties. The EPO mineral resource concentrates had levels of arsenic, bismuth and chlorine that may attract penalties if processed on its own.

24.13.11 Test work for the Next Development Phase

Continuation of Phase IV work will cover the following items:

- Maximize the recovery of copper, gold and silver.
- Increase understanding of presence of cyanide-soluble copper, and of pyrrhotite dictate a review of leach conditions. Both cyanide-soluble copper and pyrrhotite consume cyanide, possibly leaving insufficient cyanide for complete extraction of the precious metals. Secondly, the significant presence of pyrrhotite often results in complete consumption of oxygen during a bottle roll cyanidation testing. This again has a detrimental impact on gold and silver extraction.
- The quantity of cyanide-soluble copper, which could be present as oxide or sulphide that is partly soluble in a cyanide solution, was not measured.
- Confirmation of design criteria for the Media Luna material treatment facility.
- Optimization of concentrate grade and determination of final recovery of metals to concentrate for Media Luna mineralized material.
- Produce a concentrate containing 25% copper.
- Flotation response when blending Media Luna mineralized material with ELG ore with tailings reporting to leach.
- Complete tests of hardness of ML mineralized material.
- Determination of optimum/acceptable range of primary grind size for ML mineralized material.
- Requirement for separation of leach solution from flotation with respect to effect of cyanide content on flotation results.
- Evaluation of gold deportment in Media Luna: production of Fe-S concentrate to generate separate sulfides tailings product.
- Leaching gold from Fe-S concentrate separately or from combination of Fe-S concentrate with bulk rougher tailings.
- Determination of acid generating potential of Fe-S flotation tailings and bulk flotation tailings.
- Requirement of SART process when bulk leaching high copper Media Luna mineralized material, and when leaching flotation tailings of Media Luna mineralized material.
- Investigations will be required to determine the content of cyanide-soluble copper in the Media Luna mineralized zones. If quantities of cyanide soluble copper are negligible, bypassing the SART process is possible, when processing leached flotation tailings.
- Evaluation of DETOX requirement of leach tailings for Media Luna mineralized material.
- Evaluation of Liquid-Solids separation with respect to settling rate, rheology, and evaluation of adequacy of installed equipment.
- Mineralogy of mineralized material and process products.
- Generation of samples for downstream testing as follows
  - Concentrates for marketability
  - Concentrates for thickening and filtration
  - Tails samples for filterability, rheology and tails deposition
  - Tails samples for geochem and geotech testing (Media Luna and ELG).

24.13.12 Opportunities

There are many opportunities for improvements to the ML processing system as well as potential improvements for the ELG ore if and when the ML flotation circuit is constructed.

1. Within the PEA the strategy for future processing of ML mineralized material during the overlap with ELG entails batch processing. Test work will evaluate if the opportunity exists for blending ELG with Media Luna for joint processing through flotation and leaching, with the goal of improving recoveries of especially silver, some gold from the ELG ore and to realize copper recovery as well.
2. Opportunities exist to reduce the capital cost and operating costs for the ML processing. Composite testing was conducted at a P_{80} of 87 microns. With the objective of grinding coarser to a P_{80} of between 90 and 110 microns, operating costs will likely be reduced. With a coarser grind, there will be less wear in the grinding circuit, easier filtration of the coarser tailing, and less reagent use through reduction in the creation of mineral surface when grinding coarser.
3. When recovering gold by carbon adsorption from leach solution, about 2% of the gold is lost in the adsorption process. World best practice is 1% for an optimized CIP process.
4. The presence of the gold nugget effect is expected, especially with samples of mineralized material high in gold. During laboratory test work, an evaluation will be made if gravity concentration would result in more effective recovery of gold.
5. After completion of lock cycle testing of Media Luna mineralized material towards the end of the current test program, an evaluation will be required whether leach residue of flotation tailing indeed has no Acid Generation Potential. A magnetic separation step, to remove magnetic pyrrhotite that would not have floated, could be inserted with the magnetic concentrate reporting to the Fe-S concentrate prior to leach.

24.14 MINERAL RESOURCE ESTIMATES

The methods whereby Mineral Resources were estimated, and a tabulation of the resulting estimates is presented in Section 14 of this Report.

24.15 MINERAL RESERVE ESTIMATES

No Mineral Reserves have been estimated for Media Luna at this time.

24.16 MINING METHODS

Key points, Alternate ELG Processing Plan developed for the PEA:

- No change to the base case ELG ore and waste mining schedule presented in Section 16.
- ELG plant feed would be reduced during the overlap period when both feed from ELG and the Media Luna underground are available. This adjustment to the ELG processing schedule is to provide processing capacity for Media Luna feed.
- ELG ore mined in excess of the reduced ELG feed rate would be stockpiled until the pits are complete and then rehandled to the process plant.

Key points, Conceptual Media Luna Mine Plan:

- Access for initial development and production would be from the ELG Mine Complex via a Ropeway and twin tunnels from north side of the Media Luna Ridge. Minimum access on the south side of Media Luna Ridge would be required (development of vent raises only).
- A conventional mining method was considered that includes transverse longhole open stoping (LHOS) for 66% of production and cut and fill stoping (C&F) for 34% of production.
- Transportation of mineralized material from ML to the ELG Mine Complex would be accomplished using a Suspended Conveyor. Tailings for backfill would also be transported from the ELG Mine Complex to ML using the same Suspended Conveyor.
- Mineral resource extracted from three independent mineralized zones termed EPO, Media Luna Lower (MLL) and Media Luna Upper (MLU).
- Three-year initial development phase including a one-year ramp-up to design production levels (7,800 tpd).
- Two tunnels portals installed on the south side of the Rio Balsas would provide Service access and Suspended Conveyor access.

24.16.1 Introduction

This section describes the conceptual mining plan for ML. In the conceptual mine plan, ML is anticipated to achieve full production in 2024 at approximately 7,800 tpd to the ELG Mine Complex and increasing to a peak of 8,500 tpd in 2027. The material would be transported to the process plant via a Suspended Conveyor system. Production from ML is based on an inferred resource that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability. An alternate processing schedule was assumed for ELG ore to allow processing ML mineralized material apart from ELG ore. No cost or revenues from ELG ore is consider within the ML financials contained in this report. Feed to the plant would be carried out on a batch process alternating between ELG ore and ML mineralized material during the processing overlap. To match the two sources of production for Process Plant feed rate of 14,000 tpd, stockpiles will be developed for both ELG Mine Complex and ML.

24.16.2 Media Luna Underground Mining within Conceptual PEA Plan

24.16.2.1 Mining Concept

The ML mineral resource is a shallow dipping skarn deposit with a dip of approximately 35° to the south west and mineralization thickness varying between 5 m and 70 m. The mineralized skarn is located between a marble hanging wall and granodiorite footwall.

A review of the ML mineral resource identified three distinct and separate areas of higher tonnage and grade. Based on this assessment, a conceptual mining plan was developed which establishes three independent but connected mining zones; MLL, MLU and EPO zones. This plan provides operational flexibility for planning and scheduling while targeting high grade material early in production life. The conceptual mine design considers the three zones as independent mining areas that share a main access and materials handling system to transport mineralized material across the Balsas River to the ELG process plant. Processing of the ML mineralized material would take place in the existing ELG process plant, with an additional flotation and thickening circuit added to the plant for copper concentrate production. Details on processing are provided in Section 24.17 of this report.

This approach allows for early mining of higher grade levels in both zones (740 block in the EPO zone and the 690 block in the MLL zone). The MLL and MLU zones would eventually be linked via an internal ramp at which point one sill pillar would be established allowing production to occur independently in each zone. This plan allows two active mining zones at all times (EPO and MLL in the early years, and MLL and MLU in the later years after EPO has been depleted) allowing flexibility to meet the targeted production rate. A plan and cross section of the ML deposit is shown in Figure 24-14 and Figure 24-15.

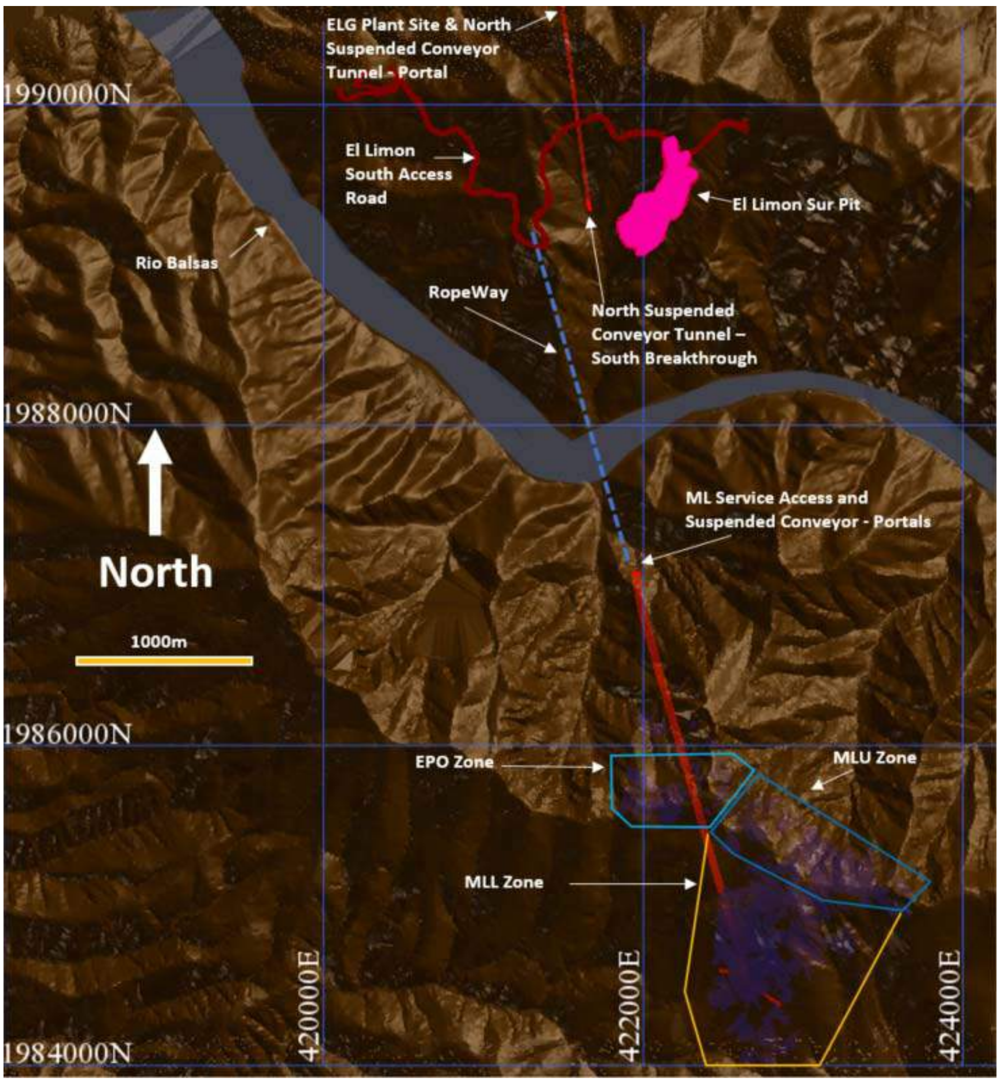


Figure source: Torex, March 2018

Figure 24-14: Media Luna Resource Plan View (Inferred Resource at 2.6g/t AuEQ)

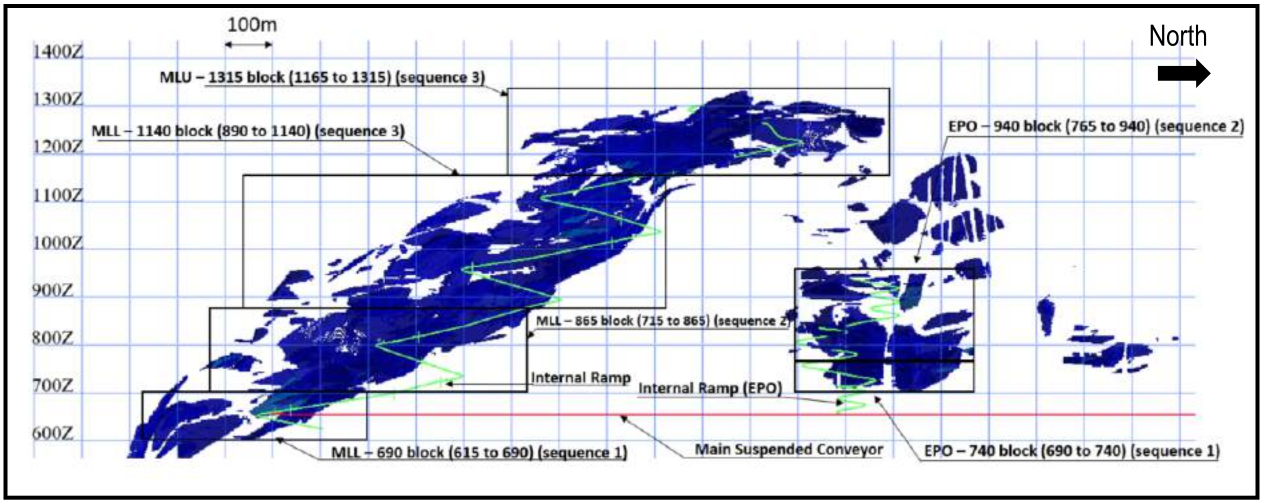


Figure source: Torex, March 2018

Figure 24-15: Mining Horizon (Inferred Resource at 2.6g/t Au EQ) Looking West

24.16.2.2 Mine Access

Access to the Media Luna mineral resource would originate from the ELG Mine Complex and remain in service for the life of the operation. An elevated cable crane system (Ropeway) would be established to cross the Rio Balsas river and access the tunnel collar locations at ML. The Ropeway would provide transportation of equipment, materials and personnel to the twin tunnels during initial development and production. Alternatively, personnel that reside close to the river would travel to ML by boat, followed by road transportation to the portal.

A Suspended Conveyor would be installed from the ELG Mine Complex to the 655 elevation at MLL. The conveyor would travel via a tunnel through the El Limón ridge, continue across the Rio Balsas river, entering the Media Luna ridge and terminate at the MLL mining area. The conveyor would transport mineralized material and waste to the ELG stockpile locations and tailings back for use as backfill. Figure 24-16 provides a sectional view of the proposed access routes.

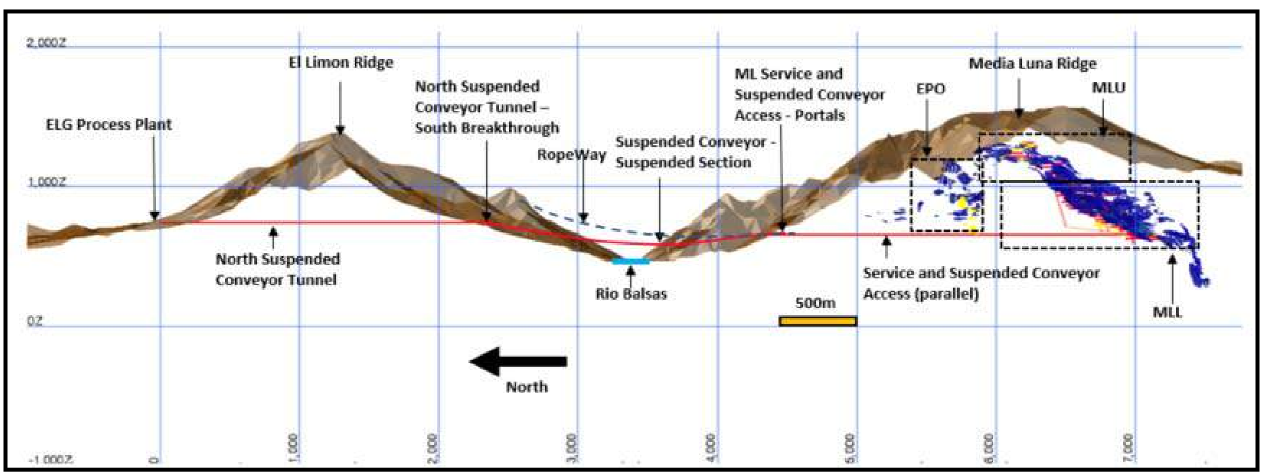


Figure source: Torex, March 2018

Figure 24-16: Media Luna Access Schematic (Looking east)

24.16.2.2.1 Ropeway Elevated Cable Crane System

The Ropeway utilizes an elevated cable crane on track ropes that is anchored at each end of the cable run. The system is common in alpine construction projects for transporting materials and personnel. LCS Cable Cranes of Austria, a manufacturer of this type of equipment, have provided a high-level engineering study and cost estimation for use in this PEA.

Following is a description of the Ropeway as envisioned for use in the ML mine plan.

The Ropeway will transport personnel, equipment and consumables from the ELG Mine Complex to the ML Service Access Portal spanning the Balsas River. Personnel would be transported in a gondola (or similar) carrier system. Equipment and materials would be transported in containers or rigged when required. The Ropeway will have an approximate length of 2.1 km.

During the initial development phase of the ML, prior to the Suspended Conveyor installation, the Ropeway would also be used to transport development waste from the access tunnels to a stockpile at ELG. Development waste would be re-handled by surface mobile equipment for disposal at existing ELG WRSF.

Figure 24-17 shows a Ropeway system currently being used on a construction project in Montafon, Austria and Figure 24-18 shows the planned route for the system for the ML Project.

Figure 24-17: Ropeway Elevated Cable Crane System (Courtesy of LCS)

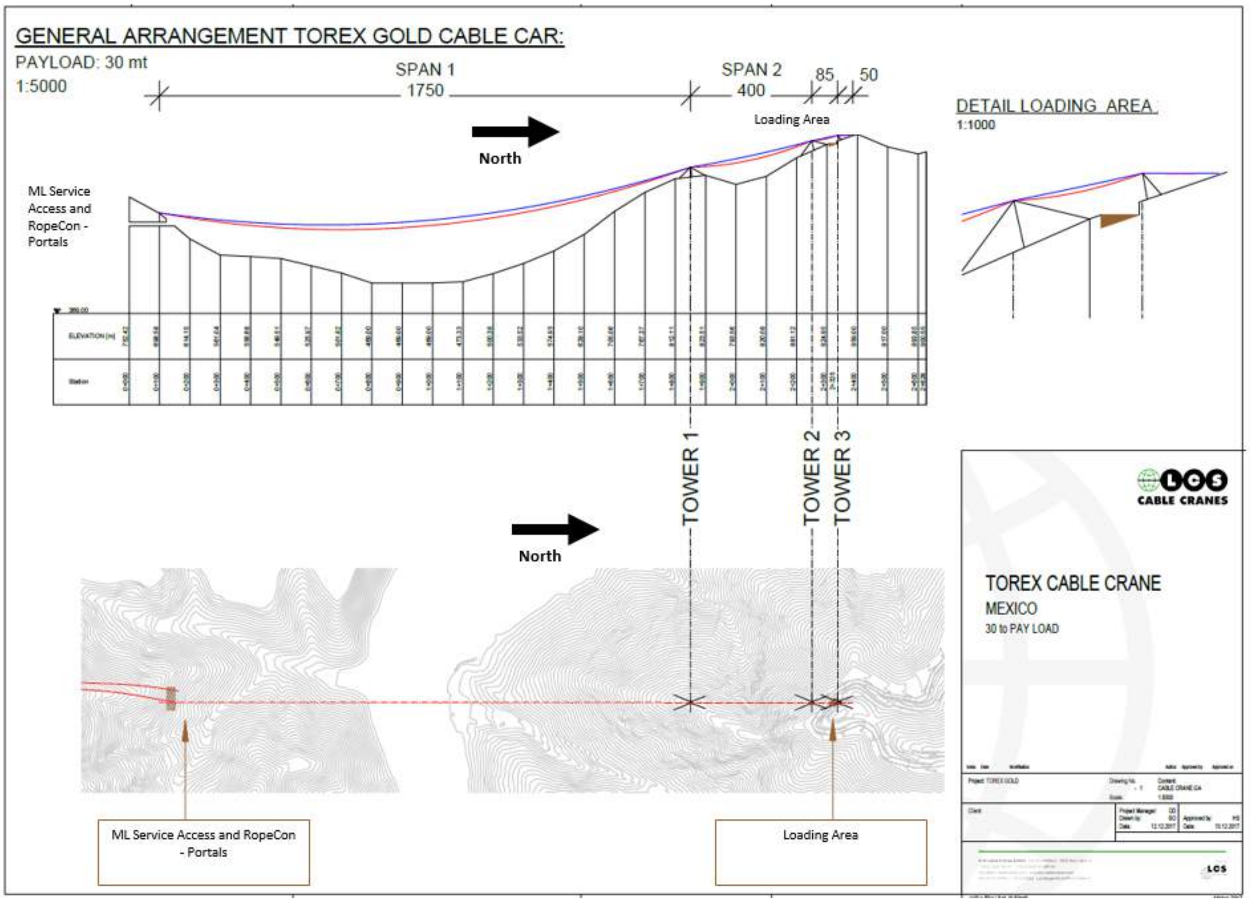


Figure source: LCS, December 2017

Figure 24-18: Ropeway System at ML Project - Plan and Section

24.16.2.2.2 Considerations for Mine Access

The access plan selected for this study was chosen to maintain the ELG Mine Complex as the main access route for ML for development and operation. This selection provides benefits from a social, environmental, security and operational perspective. The Ropeway was selected for its ability to span the Balsas River with limited earthworks/support infrastructure resulting in a low environmental impact, low capital cost and rapid installation schedule.

24.16.2.2.3 Mining Method and Mine Design

Key points in this section:

- Review of the Inferred Mineral Resource indicates the deposit can be mined utilizing the sublevel transverse longhole open stoping (LHOS) method with delayed backfill.
- In areas where the vertical or lateral extent of mineralization is too narrow to utilize LHOS, C&F mining is planned.
- Project infrastructure and ramp access have been designed in the footwall of the deposit in the Granodiorites which appear to be good-quality rock.

- The majority of LHOS stopes are accessed transversely from footwall drifts. C&F stopes are also accessed from the footwall drifts. Post pillar C&F mining is utilized when widths exceed 7 meters.

24.16.2.2.3.1 Mining Method Selection

Media Luna is a shallow dipping skarn deposit with mineralization thickness varying between 5 and 70 meters.

Based on a review of the geology and shape of the Media Luna resource including a preliminary geotechnical review, LHOS was selected as the main mining method. In areas where the mineral resource is narrow, C&F stoping is utilized.

Preliminary mining stope shapes were estimated using Datamine's Minable Shape Optimizer (MSO). The range of stope dimensions evaluated were first constrained by geotechnical parameters and maximum allowable hydraulic radii, followed by an economic evaluation. This work resulted in the selection of LHOS nominal stope size of 25 m high by 20 m wide by 30 m long. Development was planned to provide access using sublevels at 25 m spacing (elevation). C&F stopes were designed in areas where LHOS could not be used. Based on the conceptual mine plan, LHOS would contribute approximately 66% of the total production with the remaining 34% being C&F.

The following is a description of the proposed mining methods.

LHOS with Delayed Backfill

LHOS would be the primary mining method employed. This method was selected based on its lower operating cost, high productive capacity, and flexibility relative to other mining methods. Mining would progress from the bottom-up using a primary-secondary mining sequence. This design and sequencing allows for a number of stopes to be in production simultaneously which supports the planned production rate of 7,800 tpd and increasing to 8,500 tpd later in the mine life.

Longhole stopes would be accessed from undercut and overcut crosscuts (see Figure 24-19). Mucking of blasted material would occur from the undercut, while fan drilling (Figure 24-21) would take place from the overcut. Backfill using waste rock or paste would be placed in the open stope from the overcut (see Figure 24-20). A sublevel interval of 25 meters has been selected and measured from floor of undercut to floor of overcut.

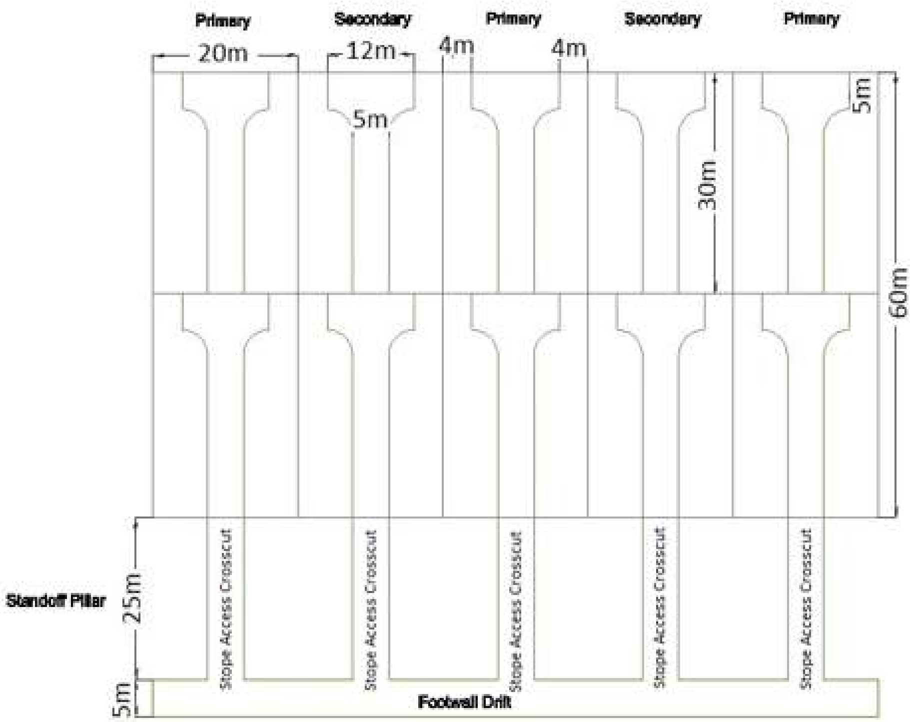


Figure 24-19: LHOS Access Design - Plan View

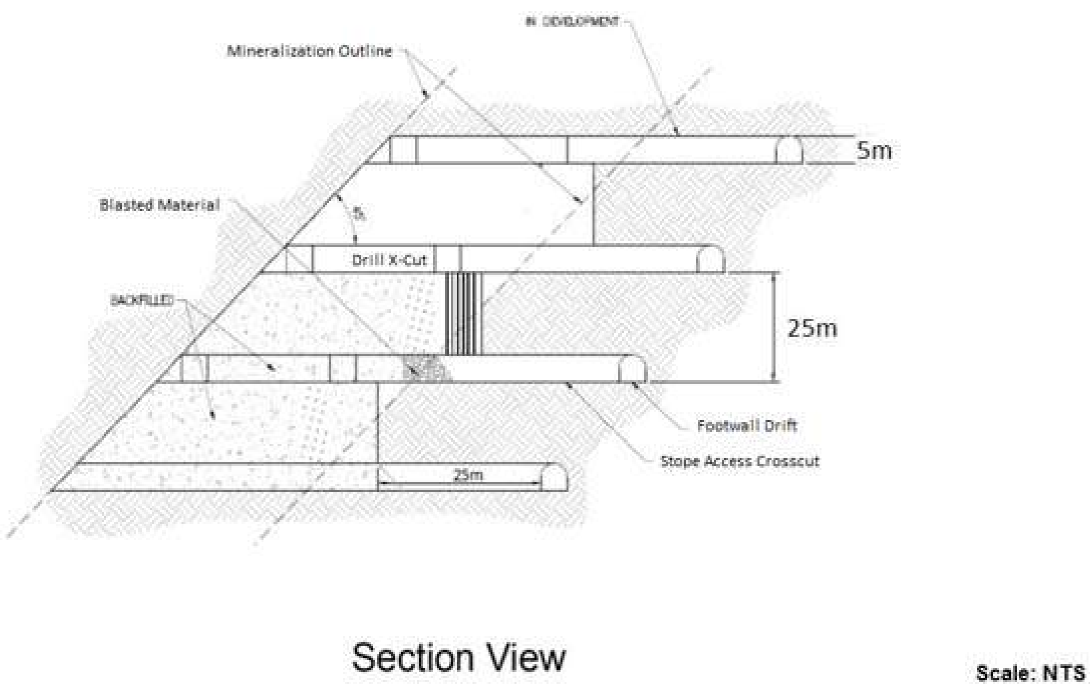


Figure 24-20: LHOS Design – Section (Looking West)

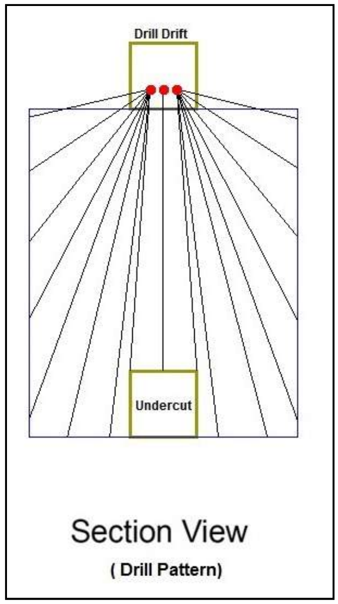


Figure 24-21 LHOS - Section - Production Drilling Ring Design (Looking North)

24.16.2.2.3.2 Cut and Fill (C&F)

In narrow sections of the deposit (less than 7 meters wide), the overhand C&F method would be utilized without pillars as shown in Figure 24-22. In areas with mineralization greater than 7 meters in width, the Post Pillar Cut and Fill (PPC&F) mining method would be utilized to allow for multiple longitudinal cuts prior to backfilling. Pillar dimensions are estimated at 4 meters by 4 meters with a span between pillars of 7 meters. Figure 24-23 through Figure 24-25 illustrate the method.

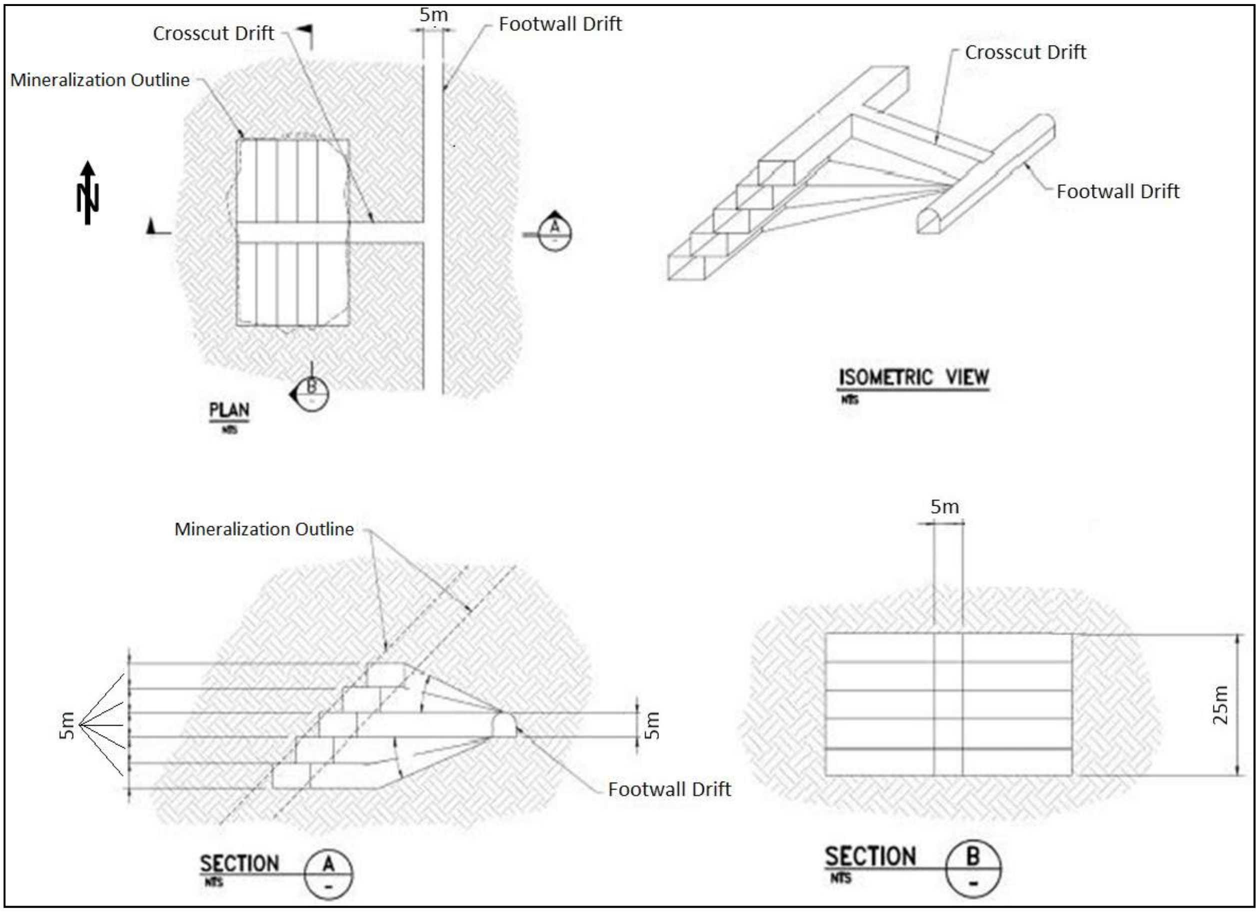


Figure 24-22: Overhand Cut and Fill (C&F) Diagram

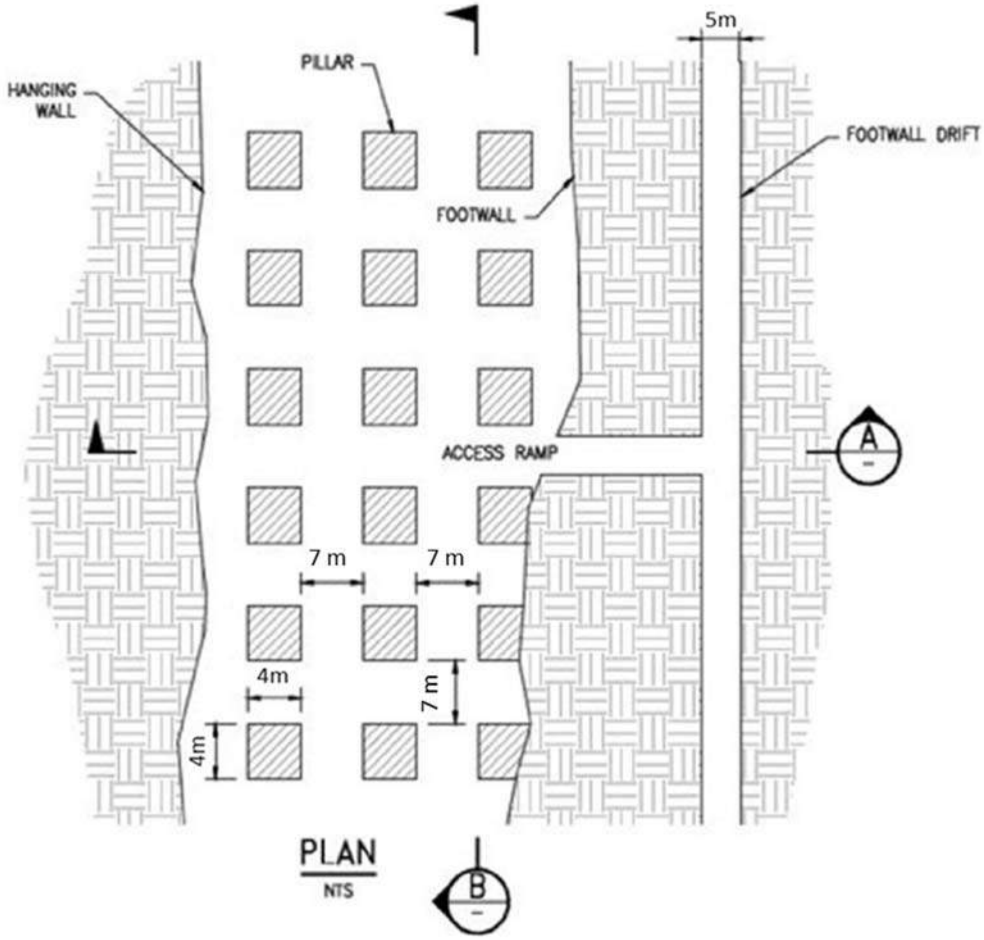
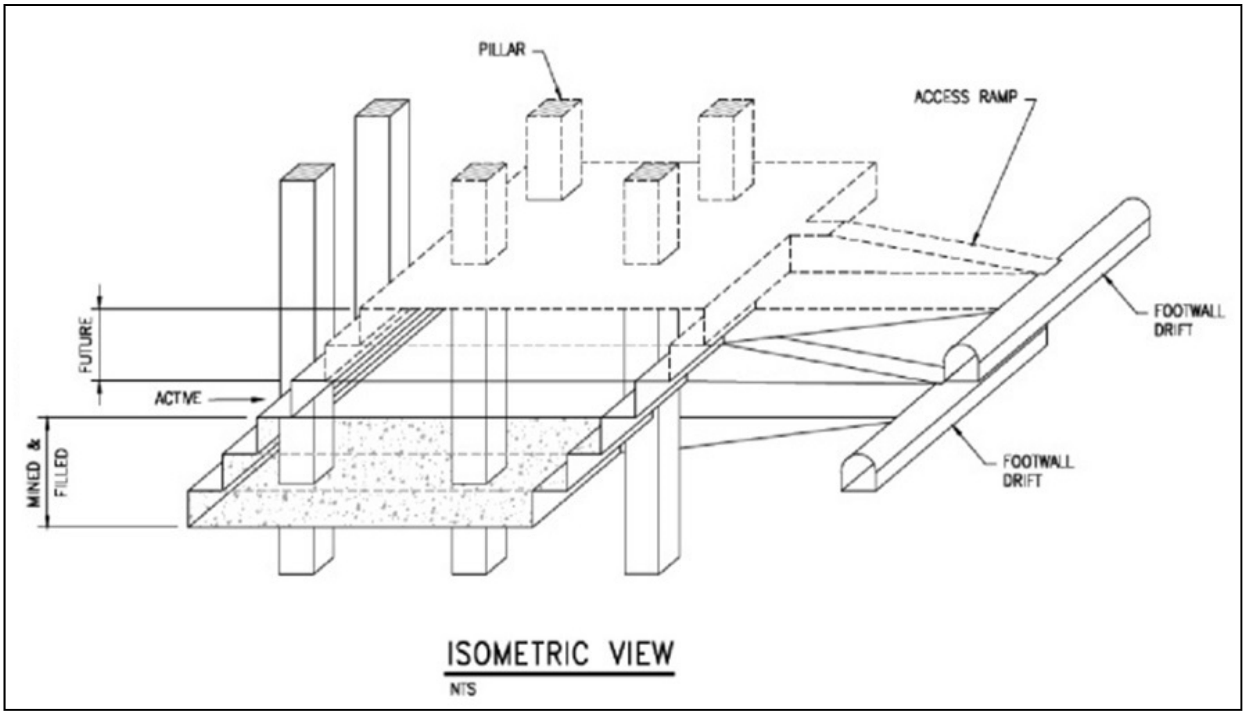
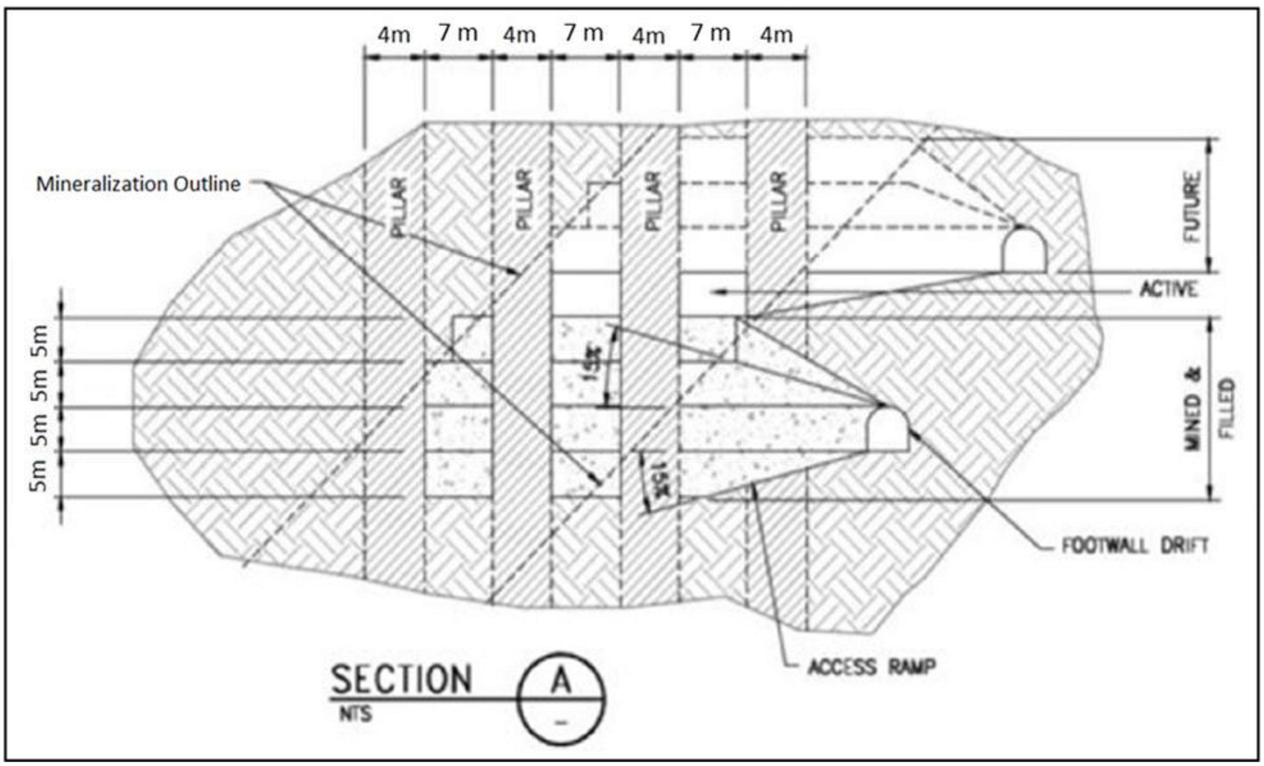


Figure 24-23: Post Pillar Cut and Fill (PPC&F) Plan View



(For illustrative purposes only – Media Luna would have 5 cuts to match with LHOS sub-levels)

Figure 24-24: PPC&F Isometric View



For illustrative purposes only – Media Luna would have 5 cuts to match with LHOS sub-levels)

Figure 24-25: PPC&F Section Looking West

24.16.2.2.4 Stoping Process

24.16.2.2.4.1 LHOS

Once crosscuts (over/undercuts) are established, an ITH drill would be utilized to develop the 20 meter long by 1.2 m diameter slot raises between the overcut and undercut. Production drilling (by top hammer drill) and loading would be performed from the overcut and blasted material would be mucked from the undercut. LHOS would commence on 4 horizons (EPO – 715L and 740L; MLL - 655L and 690L) and target high grade areas in the early years of production. LHOS in the MLU zone at 1165L would commence upon completion of mining at EPO. Mining would advance from bottom up from each horizon. One sill pillar would be established (1140L) and recovered once the stoping is complete. A mining recovery of 88% is assumed for the sill pillars.

24.16.2.2.4.2 C&F

C&F stopes would be mined using a combination of C&F and PPC&F. The stopes would be accessed through a main access ramp and mining would progress perpendicular to the main access following the strike of mineralization.

When mining of a cut is complete and backfilled, breasting of the access ramp would take place to establish the new mining cut. Stopes are 25 meters in height consisting of five cuts per stope.

24.16.2.3 Materials Handling

Key points for this section are as follows:

- Factors considered in materials handling design
  - Development of a materials handling system that promotes high mucking rates from the production areas.
  - Efficient movement of material to the ELG Mining Complex and tailings back to the mining area.
  - Shallow dip of the ML mineral resource.
- Material handling raises established close to production areas to reduce tram distance from the mine face.
- All MLU material would be transferred to the MLL material handling system via passes.
- Three loading systems (one at EPO and two at MLL) would be established on the 655 level to transfer material to the Suspended Conveyor.
- The Suspended Conveyor would transport the mineralized material and waste to ELG Mine Complex for treatment or storage and would transport tailings back to ML for use in back fill.

24.16.2.3.1 Suspended Conveyor System

The Suspended Conveyor will be a conveyor system that travels on track ropes through the tunnels and spanning the Rio Balsas. Several manufacturers supply these systems including Doppelmayr of Austria and Leitner of Italy. Both completed a high-level engineering study and cost estimation for the proposed system at the ML. This technology is currently in use at the ELG Mine Complex (see Section 18). Following is a description of the Suspended Conveyor as it relates to the conceptual ML underground mining plan.

The system consists of a single Suspended Conveyor which would move the mineralized material and waste from 655 elevation at ML to the ELG Mine Complex for processing or storage, a distance of approximately 7 km. Two dump locations would be located at the ELG Mine Complex, one for mineralized material the other for waste. Waste rock would eventually be moved to the existing Guajes WRSF.

The Suspended Conveyor would be designed for transportation of 1,000 tph of ROM material to the ELG process plant and 650 tph simultaneous backhaul of tailings to u/g backfill plant. The system capacity would achieve the planned daily production target of 7,800 tpd in 8 hours of operation per day and the production target of 8,500 tpd in 8.5 hours of operation per day. The excess capacity would allow for production flexibility and future expansion. Additional information on the Suspended Conveyor is available in Section 24.18.

Figure 24-26 shows the planned route for the Suspended Conveyor.

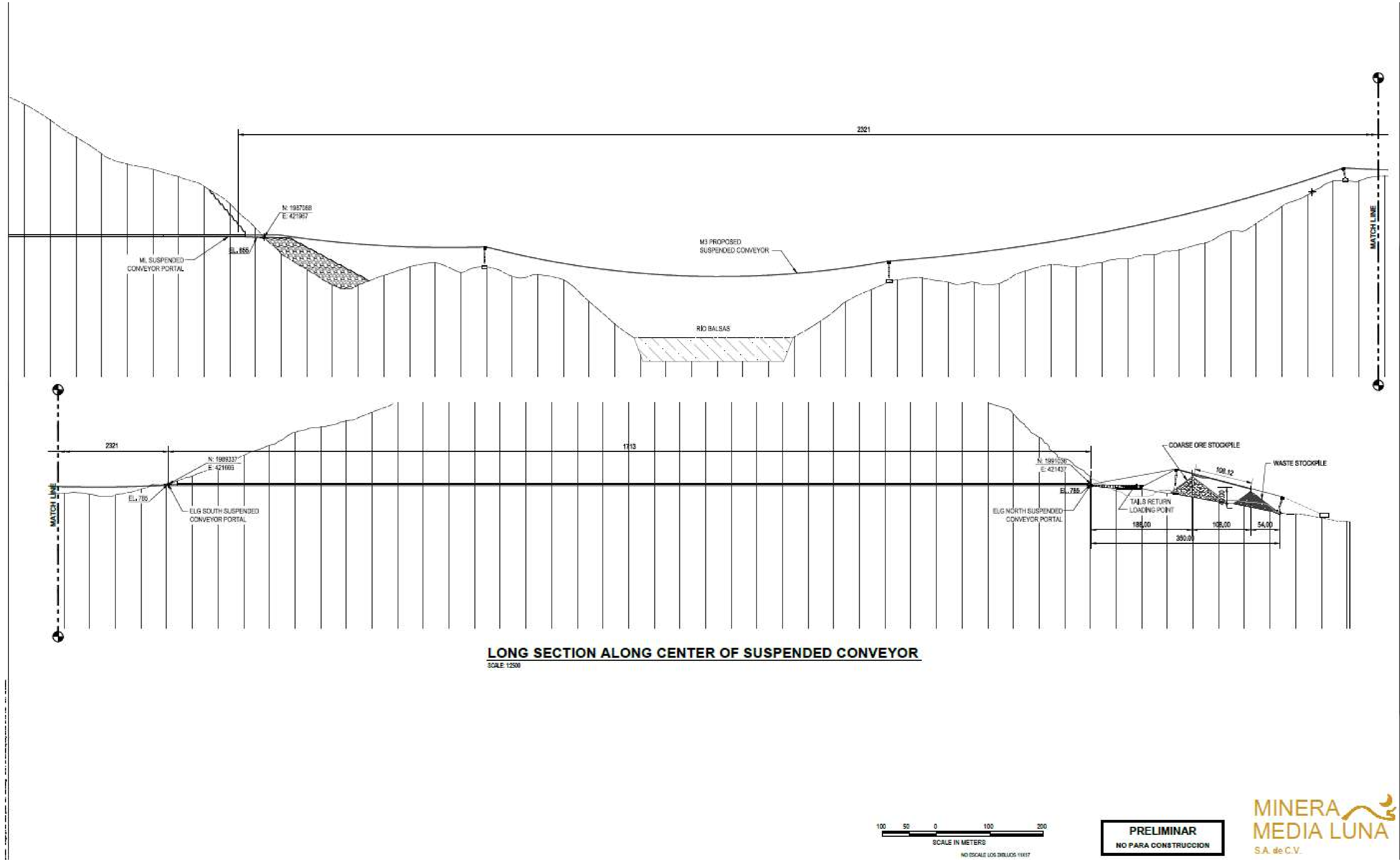


Figure source: M3, March 2018

Figure 24-26: Section Profile of Suspended Conveyor System

24.16.2.3.1.1 Tailings Return to Suspended Conveyor

Tailings from the ELG plant would be transported directly to the underground paste fill plant via the return portion of the Suspended Conveyor at a maximum rate of 650 tph. Tailings would be stored at the at the ELG Mine Complex when not required underground. A storage area for 4,000 tonnes of tailings would be available underground adjacent to the proposed paste plant. The proposed delivery system and storage areas would allow for continuous filling of stopes.

24.16.2.3.2 Internal Materials Handling

The following section describes the methodology for moving material from production levels to the Suspended Conveyor system, as well as waste removal from development drifting.

24.16.2.3.2.1 Upper & Lower ML Zone Materials Handling

Broken mineralized material from stopes would be mucked by Load Haul Dump (LHD) units to a central pass system which would be accessible from each sublevel. Sublevel dump points have been located to limit haulage distance and maximize LHD productivity. The mineralized material would be dumped into finger raises located on each sublevel. Each finger raise would be fitted with a grizzly to prevent oversized material from entering the pass.

Material from the passes would be transported to a grizzly/rock breaker station using haul trucks. A bin and feeder located below the grizzly would feed the Suspended Conveyor. Bins and passes would have a one day production storage capacity. Material from the MLU zone would be transferred to MLL through passes. Material in the uppermost sublevels, which are not serviced by the main passes, would be transported to the passes using truck haulage from the footwall drifts. See Figure 24-27.

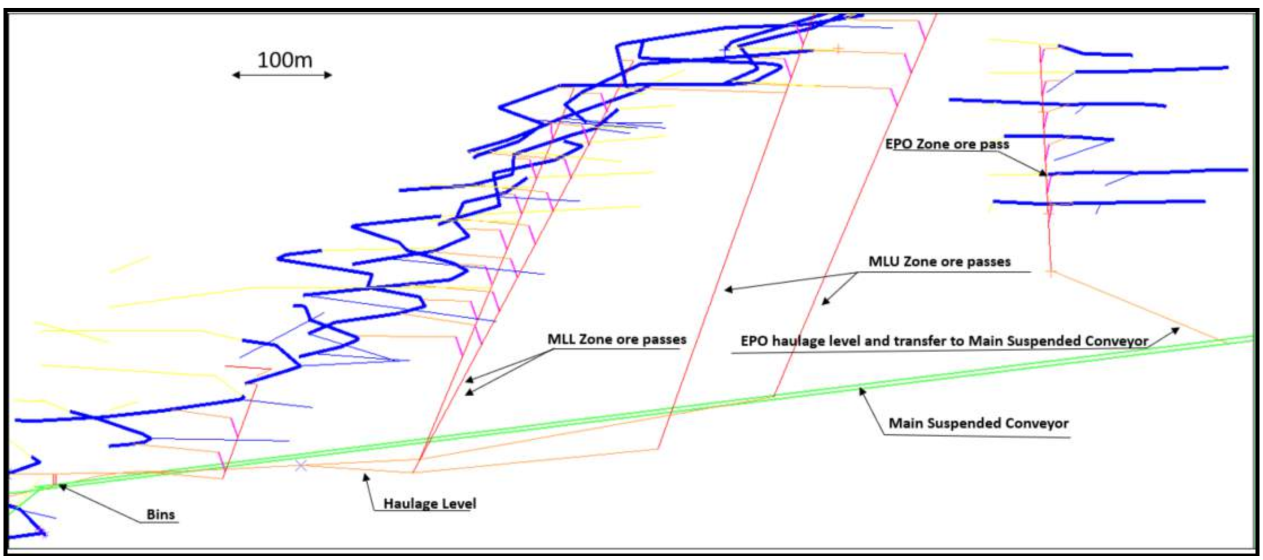


Figure source: Torex, March 2018

Figure 24-27: Lower, Upper and EPO Mine Materials Handling Schematic (Section facing Northwest)

24.16.2.3.2.2 EPO Materials Handling

Material from the EPO zone would be transported into a dedicated pass and then hauled using trucks to the Suspended Conveyor loading station. See Figure 24-27.

24.16.2.3.2.3 Waste Handling

During the development of the access tunnels waste would be trucked to surface. All waste during the development of the Service Access and Suspended Conveyor tunnels would be transported using the Ropeway to ELG and then hauled to the existing WRSF. Waste generated during the production phase that is not placed as backfill will be transported to ELG via the Suspended Conveyor and placed in existing WRSF. It is projected that approximately 3.7 million tonnes of waste will be transported to surface from ML during the life of the project.

24.16.2.4 Potential Inferred Mineral Resource Inventory

Key Points:

- Cut-off Grade of 2.6 g/t AuEQ for upper and lower zones of the ML Inferred Mineral Resource (LHOS & C&F)
- Cut-off Grades of 4.0 g/t AuEQ (LHOS) and 3.5 g/t AuEQ (C&F) for EPO Zone
- Production distribution by mining method and tonnage: 66% LHOS, 34% C&F average over life of operation (20.7M tonnes LHOS, 10.3M tonnes C&F)
- Average life of operation diluted grade of 4.77g/t AuEQ
    - o LHOS: 5.01 g/t AuEQ
    - o C&F: 4.31 g/t AuEQ
- Average Mining Recovery – Main Zones: LHOS – 95%, C&F – 83%
- Average Mining Recovery – EPO: LHOS 95%, C&F – 80%
- Average unplanned dilution: LHOS – 5% at 0.68 g/t AuEQ, C&F – 10% at 0.68 g/t AuEQ

Table 24-34: Life of Mine – Media Luna Potential Inferred Mineral Resource Inventory

		Period	Total
Media Luna - Total Mine	LHOS	Tonnes	20,668,000
		AuEQ (g/t)	5.01
		Au (g/t)	2.68
		Ag (g/t)	28.69
		Cu (%)	1.09
	Cut and Fill	Tonnes	10,269,000
		AuEQ (g/t)	4.31
		Au (g/t)	2.37
		Ag (g/t)	25.38
		Cu (%)	0.91
	TOTAL	**Tonnes**	**30,937,000**
		AuEQ (g/t)	**4.77**
		Au (g/t)	**2.58**
		Ag (g/t)	**27.59**
		Cu (%)	**1.03**

24.16.2.4.1 Cut-Off Grade

A cut-off grade (CoG) of 2.60 g/t AuEQ for the MLU and MLL zones was determined by comparing multiple MSO runs using the nominal LHOS stope dimensions. Grades ranging from 2 g/t to 3 g/t AuEQ were examined. Based on preliminary operating cost estimates, breakeven cut-off grades of 2.2-2.6 g/t AuEQ were estimated. The estimate was further refined following a review of the resulting mining shapes and grades. Grades below the 2.60 g/t AuEQ cut-off were found to be uneconomical at the assumed metal prices. The EPO zone contains a high grade core that appears to be amenable to LHOS and C&F stoping. The CoG used in the EPO is 4.00 g/t AuEQ for LHOS and 3.50 g/t AuEQ for C&F.

The grade tonnage curves at the respective cut-off grade for each mining method and the total mined is provided in Figure 24-28.

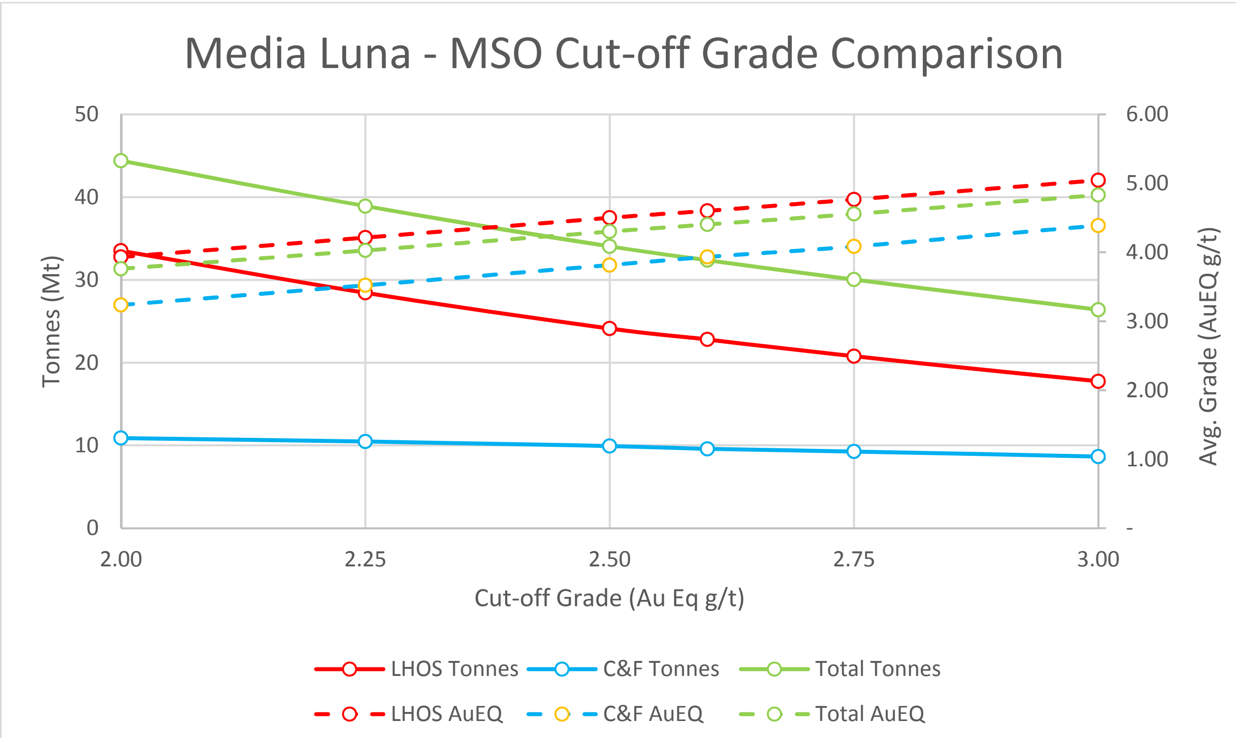


Figure 24-28: MSO Summary – Grade Tonnage Curve for Different Cut-Off Grades (Excluding EPO)

24.16.2.4.2 Dilution Estimation

24.16.2.4.2.1 Planned Dilution

An estimate of the planned dilution was developed using the MSO stope shapes followed by a manual review of the shapes and their orientation as compared to the mineral resource. The mineral resource has been estimated to include 21% internal planned waste dilution in the LHOS stopes and 9% in the C&F stopes. Additional waste material included in the C&F shapes was assumed to be mined and used as fill rather than being sent to the process plant. It is assumed that C&F mining would proceed under geology control, as the skarn mineralization is assumed to be visually identifiable by a trained geologist.

24.16.2.4.2.2 Unplanned Dilution

Unplanned dilution of the longhole stopes was estimated assuming 0.5 m of equivalent linear over break and slough in each wall of the stope. Unplanned dilution has been estimated at 5% at an average grade of 0.68 g/t AuEQ in the LHOS stopes. Unplanned dilution in the C&F stopes has been estimated at an average 10% and grade of 0.68 g/t AuEQ.

24.16.2.4.3 Mining Recovery

Overall recovery of the mineral resource is estimated at 64% of the contained gold equivalent ounces of the resource stated at 2.0 g/t AuEQ cut-off. Approximately 29% of the loss is a result of higher cut-off grades used in the MSO stope optimization. Table 24-35 provides the estimated mining recovery by method.

Table 24-35: Mining Method Recoveries

	Method	Mining Recovery
Media Luna	LHOS - Stope	95.0%
	LHOS - Sill Pillar	88.0%
	C & F Post pillar	80.2%
	C & F Longitudinal	95.0%
	C & F Average	83.5%
EPO	LHOS - Stope	95.0%
	C & F Post pillar	80.2%

24.16.2.5 Mining Schedule

Key Points:

- 3-year initial development phase, including a 9 month ramp-up to commercial production, and full production (7,800 tpd) achieved 9 months later. 8,500 tpd (peak) achieved 3 years later. Commercial production is assumed at 60% of design production levels.
- 360 operating days per year, 3 x 9 hour shifts per day, 7.25 effective hours per shift.
- Use of contractor development in the first 3 years of the initial development phase, progressed at 5 m/d single heading advance rate, and 7 m/d multiple heading advance rate.
- Company development starting in the third year at 4.5 m/d single heading advance rate and an 8.7 m/d multiple heading advance rate.
- Vertical development – Alimak method in passes at a rate of 2 m/d, and raisebore for ventilation raises at 2.8 m/d.

24.16.2.5.1 Development Rates

Development advance rates used in the study are summarized in Table 24-36 below. A contractor would be engaged for the initial development phase of the ML resource (Years 1 to 4). Company crews would start in Year 3 and replace contractors over a one year period on lateral, all raising is assumed to be contracted.

Table 24-36: Development Advance Rates

Advance Rates (m/d)		
Resource	**Single Face**	**Multi-Face**
Contractor	5.0	7.0
Company	4.5	8.7
Raisebore	2.8	N/A
Alimak	2.0	N/A

24.16.2.5.2 Initial Development Schedule

The initial development schedule includes a 7-month period to establish the Ropeway system, portal preparation, collar ground support, and ancillary facility installation prior to start of contractor development activities followed by zone development. Critical path development to satisfy the production schedule would be as follows:

- Ropeway installation
- Primary Access (Service and Suspended Conveyor tunnels)
- Ventilation Raises
- Materials Handling:
  - Suspended Conveyor install/commissioning
  - Haulage levels and passes
  - Bin, Grizzly, Rock breaker and Truck Chute Construction
- Sublevel Development

The total development required over the life of operation amounts to 113 km, including raising. This is comprised of 22 km of development during the initial development ("project") phase, and the remaining 91 km during the production phase of the project. A 20% contingency was added to all development to account for ancillary development such as re-mucks and storage areas.

Operating development including cross-cuts through waste and mineralization material make up the majority of lateral development over the life of project.

Table 24-37: Life of Operation Development Totals

	Zone	Development Type	Drift Profile	Total	Project	Sustaining
Development (m)	Total	Contractor	5m x 5m	13,000	13,000	
		Lateral (Capital)	5m x 5m	34,130	6,230	27,900
		Lateral (Operating)	5m x 5m	59,930		59,930
		Raisebore	4m Diameter	2,950	1,800	1,150
		Alimak and fingers	3m x 3m	3,050	850	2,200
	Total		**ALL**	113,060	21,880	91,180

The annual development schedule is shown in Figure 24-29.

Figure 24-29: Annual Media Luna Development Schedule

24.16.2.5.3 Production Rates

Estimated average daily production for LHOS would be 1,550 tpd and 800 tpd for C&F jumbo crews. The productivities were derived from first principles and estimated cycle times. Production rate estimates are summarized in Table 24-38.

Table 24-38: Estimated Average Unit Productivities for Mining Activities

Task	Qty	Units
LHOS Mining	1,550	t/d
LHOS Production Drilling	156	m/shift
LHOS Loading	9,535	t/d
LHOS Pastefill	180	m^3/hr
C&F Mining	800	t/d
Backfill – Rockfill	1,150	t/d

24.16.2.5.4 Production Schedule

The key production scheduling parameters and constraints are as follows:

- Daily production target of 7,800 t/d and increasing to 8,500 t/d 3 years later from development crews converting to C&F crews.
- Sufficient development to support full production from stopes (over/undercuts, materials handling, ventilation)
- Balanced production from the MLL and EPO zones early in mine life and transition of the MLU zone to maintain the production target and balanced extraction of each of the zones.
- Scheduling priority would be given to the higher tonnage LHOS stopes.

Underground development and production activities have been sequenced to enable an efficient ramp-up of ML production to 7,800 tpd and increasing to 8,500 tpd when additional C&F crews are added. This production plan was developed to maximize the feed to the ELG processing plant, achieving 7,800 tpd within 4 years, including a 9-month production ramp-up between the end of the initial development phase and commencement of production phase.

Annual production by zone and mining method are summarized in Figure 24-30 and Figure 24-31.

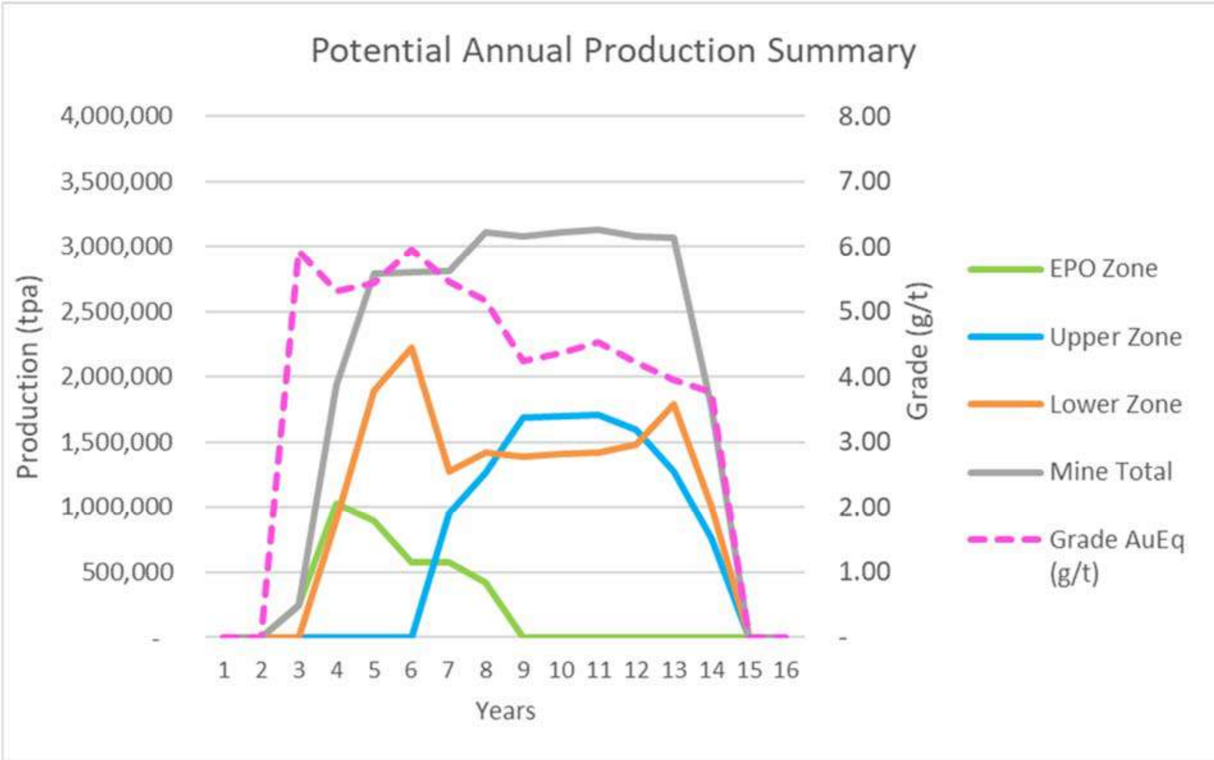


Figure 24-30: Annual Production Chart by Year by Mining Zone

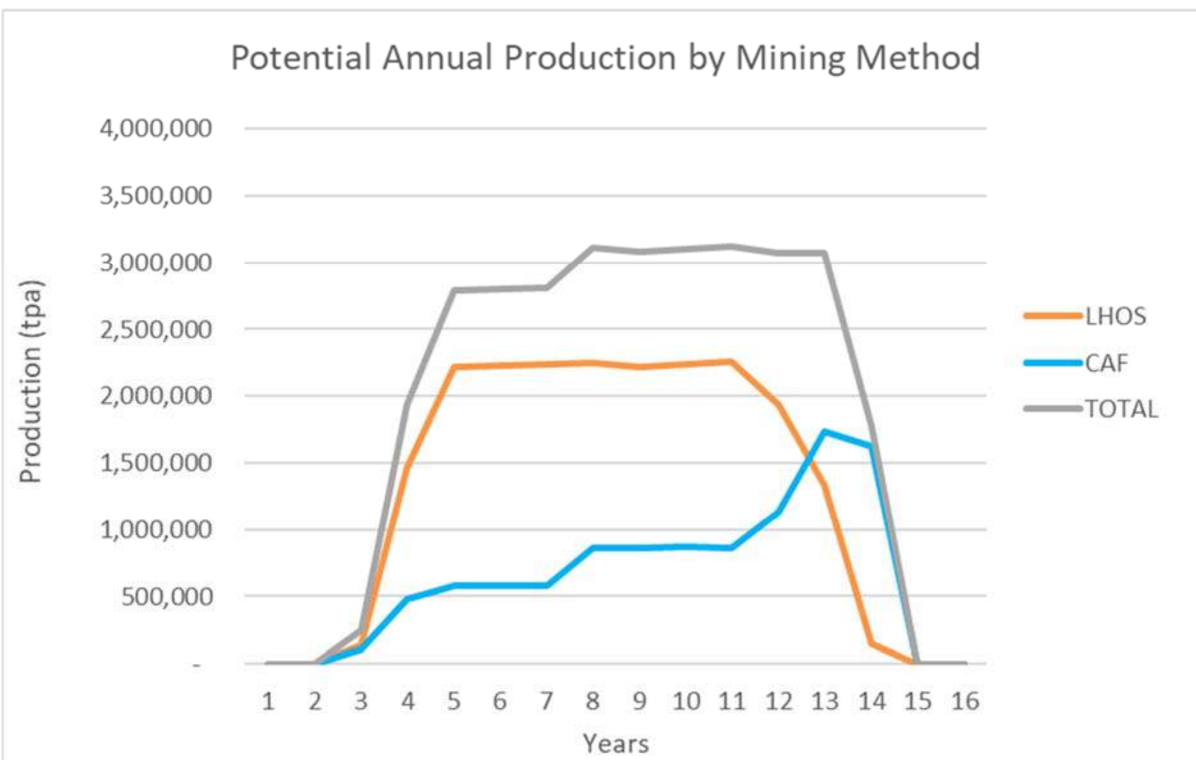


Figure 24-31: Annual Production by Mining Method

24.16.2.6 Mining Equipment

The mobile equipment fleet was determined based on estimated productivities for LHDs, development drills, production drills, and trucks. The remaining fleet consisting primarily of support equipment, was estimated based on the requirements to support the primary production equipment fleet. Table 24-39 shows the peak requirement over the life of operation for each piece of equipment.

Table 24-39: Mobile Equipment Fleet Requirement for Steady State Production

Mobile Equipment Fleet	Peak Requirement
2-Boom Jumbo Drill	7
Top-Hammer Longhole Drill (Production Holes)	4
ITH Drill with reamer (Slot Raising)	2
14 tonne LHD	8
Pneumatic ANFO Loader	3
Haulage Truck, 42 Tonne	7
Bolter	3
Cable Bolter	1
Personnel Carrier	4
Scissor Lift Truck	5
Lubrication Truck	2
Boom Truck	2
Toyota Landcruiser	18
Shotcrete Sprayer	2
Front End Loader	1
Transmixer	1
Forklift	4
Motor Grader	2

24.16.2.7 Geotechnical Considerations

Key Points:

- Initial geotechnical assessment anticipates good ground conditions with minor areas of poor ground. This assessment was based on existing information including; core logs, RQD data, and core photos
- Generally low to moderate stress regime predicted
- The use of routine deep (secondary) support is not anticipated
- 25 m standoff pillar from stopes for permanent development headings
- Systematic bolting is planned in development scheduling; however, spot bolting would be justified in good quality ground with proper scaling, controlled blasting, and QA/QC procedures
- Three ground conditions identified for ground support in permanent and temporary development headings; good, poor, very poor.

Bawden Engineering Limited (Bawden, 2017) was engaged by Torex to provide geotechnical assistance for the preliminary design of the ML Project. Geotechnical recommendations were provided for the short and long terms factors affecting stope design, pillar design, ground support, stope back support, and paste fill design.

24.16.2.7.1 Stope Design

Geotechnical stope design criteria were derived using the empirical Stability Graph design technique. Based on limitations of acceptable maximum hydraulic radius, stope dimensions of 20m W x 30m L x 25m H appear suitable and would not require deep support.

24.16.2.7.2 Pillar Design

At this early design stage there is limited knowledge about pillar requirements. The recommendation for development standoff distance from production stoping is 25 m and used in the conceptual design as a minimum.

For post pillars, loads are expected to be low as the stress would arch over the stopes onto the walls. Assuming a nominal 5 m cut height, a square post pillar dimension of 4 m on 9 m centers was recommended and has been used for design.

24.16.2.7.3 Ground Support

24.16.2.7.3.1 Development Support

Development support was analyzed for three ground conditions, good, poor, and very poor ground. Temporary openings pertain solely to cross cut accesses for LHOS and C&F stopes. All other lateral development headings have been assumed to be permanent. Recommended ground support in these situations have been provided by Bawden as a basis for mine design and is summarized in Table 24-40. It can be inferred based on drill cores and experience at ELG that ground conditions are generally considered good.

Table 24-40: Development Ground Support Recommendations (from Bawden Engineering Ltd)

Development	Option	Ground Quality		
		Good	Poor	Very Poor
Permanent 5m	1	1.8 m rebar at 0.9 m Spacing to within 1.5 m of floor	1.8 m rebar at 0.9 m Spacing to floor. 50 mm Shotcrete	50 mm shotcrete. Bolts and mesh to floor. 2nd coat of shotcrete – 50 mm
	2	Spot Bolting with 1.8 m Rebar and check scaling routine for QA/QC	N/A	N/A
Permanent 7m	1	2.4 m rebar at 1.2 m Spacing to within 1.5 m of floor	2.4 m rebar at 1.2 m Spacing to floor. 50 mm Shotcrete	50 mm shotcrete. Bolts and mesh to floor. 2nd coat of shotcrete – 50 mm
	2	Spot Bolting with 2.4 m Rebar and check scaling routine for QA/QC	N/A	N/A
Temporary 5m		Spot Bolting with 1.8 m Rebar and check scaling routine for QA/QC	1.8 m bolts at 0.9 m spacing (rebar preferred). Bolts & mesh in back and over shoulders.	50 mm shotcrete. Bolts and mesh to floor. 2nd coat of shotcrete if required – 50 mm
Temporary 7m		Spot Bolting with 2.4 m Rebar and check scaling routine for QA/QC	2.4 m bolts at 1.2 m spacing (rebar preferred). Bolts & mesh in back and over shoulders.	50 mm shotcrete. Bolts and mesh to floor. 2nd coat of shotcrete if required – 50 mm
Intersections (3 Way)		Deep support to 1/2 maximum span (diameter of inscribed circle)	Deep support to 1/2 maximum span (diameter of inscribed circle)	Intersections to be avoided. Would require special support design once conditions are known.

24.16.2.7.3.2 LHOS Back Support

Occasional use of deep cable support has been planned for LHOS, however this requirement is anticipated to be minimal as the rock quality is predicted to be good. In areas where poor marble is identified, a “skin” of mineralized skarn would be left in-situ. As the mineral resource definition and project development progress, this ground support plan would be refined.

24.16.2.8 Hydrogeological Considerations – Underground Mine Inflows and Dewatering

Rates of groundwater inflow to the proposed Media Luna underground mine will depend on topography, groundwater elevations and gradients, bedrock hydraulic parameters, locations and dimensions of the underground workings, bedrock structural features, and mining rates and methods. Structural features (e.g., faults and fracture zones) such as the San Miguel Fault could be important controls on groundwater flow in the ML area. This section presents preliminary inflow estimates developed using an analytical model that accounts for some of the above factors. Additional information concerning methods, assumptions, and results is contained in a technical memo provided to Torex (NewFields, 2018).

24.16.2.8.1 Hydraulic Conductivity

Hydraulic conductivity values derived from studies at the existing ELG Mine Complex may represent ML rocks such as intrusives, skarn, and hornfels. Limited bedrock hydraulic data have been collected at ML, and such values are lacking for the Mezcala and Morelos Formations at the Morelos property in general. The lack of reliable hydraulic conductivity estimates (especially for the Morelos Formation) at ML is a key data gap with respect to calculation of groundwater inflows and predicted drawdowns.

24.16.2.8.2 Inflow Estimates – Methodology

An updated estimate was developed for the 2018 PEA using hydrogeological information obtained up to end of 2017. An analytical model for groundwater flow to a tunnel (Su et al., 2017) was used to estimate inflows. The model accounts for drawdown resulting from excavation of underground mine workings. Generally, assumptions associated with the model are consistent with the current conceptual understanding of the rock masses at ML.

24.16.2.8.3 Results

Preliminary inflow rates to the ML underground are provided in Table 24-41 for individual development stages and mine phases. The most accurate inflow rate is provided using calculations based on the best estimate hydraulic conductivity value. The estimates presented in Table 24-41 are for groundwater inflow only and do not account for water contained in cemented paste backfill that may be placed in underground development voids or water associated with drilling activity.

Table 24-41: Media Luna Preliminary Groundwater Inflow Predictions (L/s)

	High K	Moderate K	Low K	Best Estimate K
Inflow by Mine Phase (Year)				
Stage 1 (Year 3)	132	8.7	3.6	53.4
Stage 2 (Year 9)	156	10.2	4.3	57.8
Stage 3 (Year 15)	160	10.7	4.5	59
Inflow by Mine Component				
EPO	7	0.5	0.2	2.7
Media Luna Lower	19	1.3	0.5	7.2
Media Luna Upper	20	1.3	0.6	8
Access Tunnels	114	7.6	3.2	41.1

Estimates in the table above assume that all ML underground workings will be below the water table. While available groundwater elevation data suggest that the proposed underground workings are lower in elevation than the regional potentiometric surface, it is possible that some workings will be in the unsaturated zone. Additional site-specific data will allow for a more precise evaluation of the position of the potentiometric surface relative to the underground workings.

The flow rates obtained using the high and low hydraulic conductivity estimates likely over- and under-estimate actual future inflows. The values are likely not representative 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.

24.16.2.9 Workforce Requirements

Key points in this section:

- The initial development phase would be conducted by a mining contractor during the first 3 years with company crews phasing in the 3rd year and continuing until end of project life.
- A training period for company crews would be planned to begin in Year 3. This would assist in the transition from contractor to company development personnel. The mining contractor would provide training to company crews on completion of the initial development phase.
- Steady state labor requirements were estimated based on productivities derived from first principles and validated with industry benchmarked data where applicable.

24.16.2.9.1 Initial Development Phase Workforce

During the initial development phase, the mining contractor would be responsible for providing labor and supervision. The contractor would also be responsible for site establishment, which would include a temporary shop, construction laydown, office facilities and any necessary temporary ancillaries for the initial construction.

The company labor requirements during initial development were estimated on a crew basis for specific mining activities. The crews would be scheduled to start when development headings become available and sufficient ventilation can be provided. A total of six development crews, including contractor development would be required during peak development periods and then transitioning to four development crews for most of the life of mine. As development crews complete their activities, it is planned that they will transition to C&F activities to increase the production to 8,500 tpd.

Table 24-42 outlines the anticipated Company hired labor for the Initial Development Phase.

Table 24-42: Initial Development Phase Workforce – Total Employment

	Y1				Y2				Y3				Y4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Management	0	0	0	0	0	0	0	0	0	0	11	11	11	11	11	11
Technical Services	0	0	0	0	0	0	0	0	0	0	12	12	12	28	28	28
Operations	0	1	8	9	9	9	6	6	10	43	71	92	188	165	160	150
Maintenance & Logistics	0	0	0	0	0	0	0	0	0	0	0	0	124	124	146	146
Total	**0**	**1**	**8**	**9**	**9**	**9**	**6**	**6**	**10**	**43**	**94**	**115**	**335**	**328**	**345**	**335**

24.16.2.9.2 Operations Workforce

The workforce was estimated based on working 24 hours per day with three 9 hour shifts, working 360 days per year. Crews would operate on a 20 days at work, 10 days off roster. The effective shift length used in productivity estimation is 9 hours to account for lunch, breaks, and travel time to the face. Eight percent of an employee's time was considered non-working time to account for training, vacation time, sick leave, etc. This results in 2,650 working hours per year per employee.

The peak workforce requirement for the operation would be 378 personnel at full production. Workforce estimates have been scheduled over the life of operation.

Table 24-43 summarizes the workforce requirements by year for the life of operation, excluding the initial development phase.

Table 24-43: Production Workforce Requirement

	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16
Management	8	7	7	7	7	7	7	7	7	5	0	0
Technical Services	28	28	28	28	28	28	28	28	28	16	0	0
Operations	178	157	189	192	197	197	191	172	176	131	0	0
Maintenance & Logistics	146	146	146	146	146	146	146	146	146	76	0	0
Total	**360**	**338**	**370**	**373**	**378**	**378**	**372**	**353**	**357**	**228**	**0**	**0**

Figure 24-32 shows the anticipated Workforce profile over the life of operation

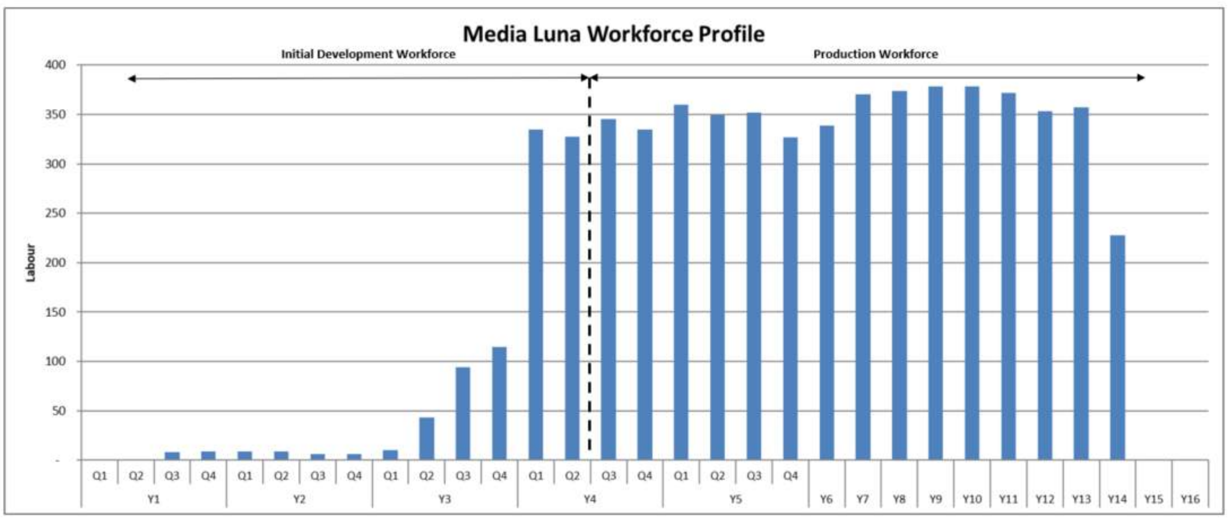


Figure 24-32: Media Luna Workforce Profile

24.16.2.10 Underground Systems

Key points:

- The ventilation system was designed to meet or exceed the requirements of the Mexican and Ontario mining regulations.
- Ventilation was designed to deliver 700 m^3/s of airflow to the underground workings.
- Backfill would be provided by a paste backfill plant using the tailings from the ELG process plant, or rockfill when available.
- Tailings would be delivered to the paste fill plant located underground in the MLL zone via the return belt of the Suspended Conveyor.
- There would be a main dewatering sump at the bottom of each zone, and sumps on each level.
- Water discharge would be recycled as much as possible on site at ML prior to discharge to the ELG Mine Complex.

24.16.2.10.1 Ventilation

Mine ventilation requirements were estimated based on mobile diesel equipment utilization. Airflow is provided in sufficient volumes to remove airborne contaminants from explosives, diesel emission and dust, as well as to maintain an acceptable working temperature.

Preliminary ventilation design requirements were provided by AMC Consultants (AMC 2017). During the initial development phase, a pull ventilation system has been designed to allow independent blasting of the Service Access and Suspended Conveyor tunnels. During production, a push ventilation system has been designed for ML including three fresh air raises and three exhaust raises developed from the underground workings to surface. The Service Access tunnel would be used as a fresh air intake and the Suspended Conveyor tunnel would be used as an exhaust. All raises to surface would be raisebored at a diameter of 4 meters. Based on the anticipated equipment list, the overall airflow was estimated at 700 m^3/s. The criteria used to determine air quantities is 0.06 m^3/s per kW of diesel power.

Table 24-44 summarizes the diesel equipment list and corresponding ventilation requirements.

Table 24-44: Mobile Equipment List and Ventilation Requirements

Description	Kw/Unit Diesel Engine	Total Units (peak-operating)	Util. Factor	m^3/s Required
Jumbo				
2 Boom Jumbo – Tramming	110	7	20%	9.2
Bolting				
Bolter, EC	110	3	50%	9.9
Cable Bolter LC	110	1	50%	3.3
Secondary Breaking System	55	1	30%	1.0
Long Hole Drill				
Top Hammer Production Drill – Tramming	110	4	20%	5.3
ITH Drill w/ Reamer (Slot Raising) – Tramming	92	2	20%	2.2
LHD				
LHD 14t	243	8	85%	99.1
Trucks				
Truck 42t	405	7	85%	144.6
Service Vehicles				
Grader	135	2	85%	13.8
Explosives Truck	129	3	85%	19.7
Mechanics Truck	95	3	60%	10.3
Fuel Truck	129	2	85%	13.2
Supervisor Vehicle	95	9	85%	43.6
Scissor Lift	129	3	75%	17.4
Cassette Carrier	129	3	75%	17.4
Material Supply Truck	129	2	85%	13.2
Personnel Carrier - Minecat 100	22	6	60%	4.8
Shotcrete Robo	150	2	60%	10.8
Transmixer	111	1	60%	4.0
Front End Loader	70	1	60%	2.5
Forklift	100	4	60%	14.4
Shops and Fixed Plant Ventilation				**60**
			Total	**520**
			Leakage 15%	**80**
			Contingency 15%	**90**
			Total	**690**

Figure 24-33 shows the general intake and exhaust arrangement.

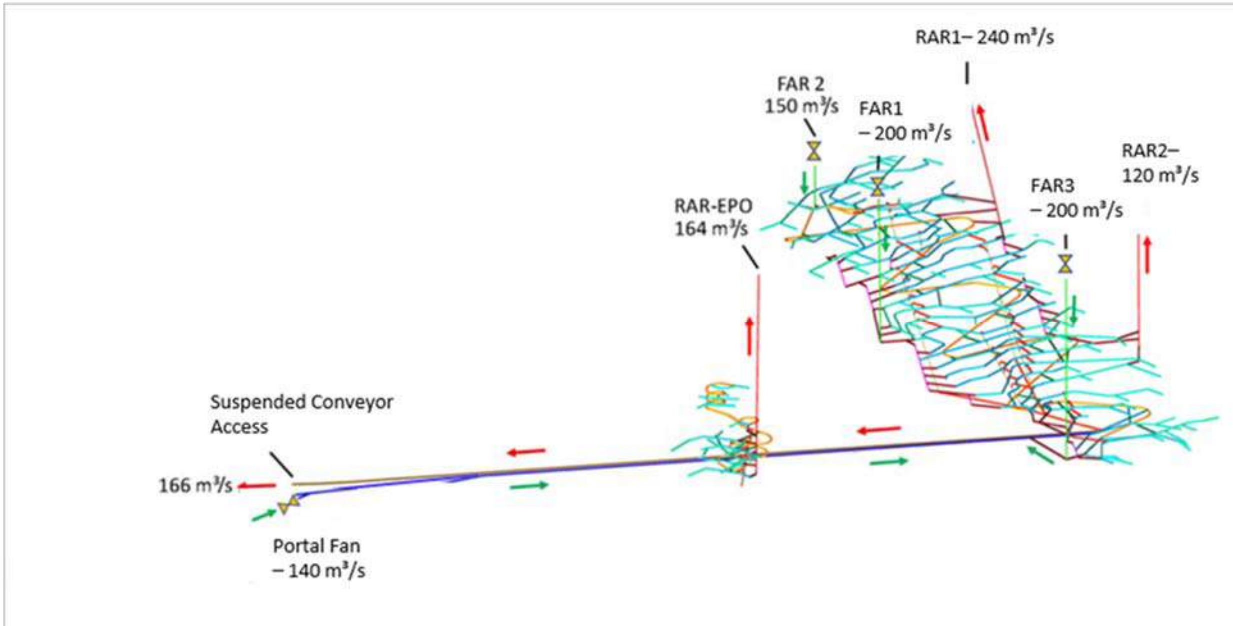


Figure source: Torex, March 2018

Figure 24-33: Media Luna Ventilation Overview (Schematic looking East)

Table 24-45 summarizes the anticipated intake and exhaust flows for each of the portals and raises.

Table 24-45: Fresh and Exhaust Airflow

Location	Fresh Intake (m^3/s)	Exhaust (m^3/s)
RAR1		240
RAR2		120
RAR – EPO		164
Suspended Conveyor Access		166
FAR1	200	
FAR2	150	
FAR3	200	
Service Access	140	
Total	**690**	**690**

Ventilation regulators would be used to control airflows. On each sublevel, fresh air would be directed to the work areas from the internal ramp, and exhausted to return air raises. Figure 24-34 shows the airflow on a typical sublevel.

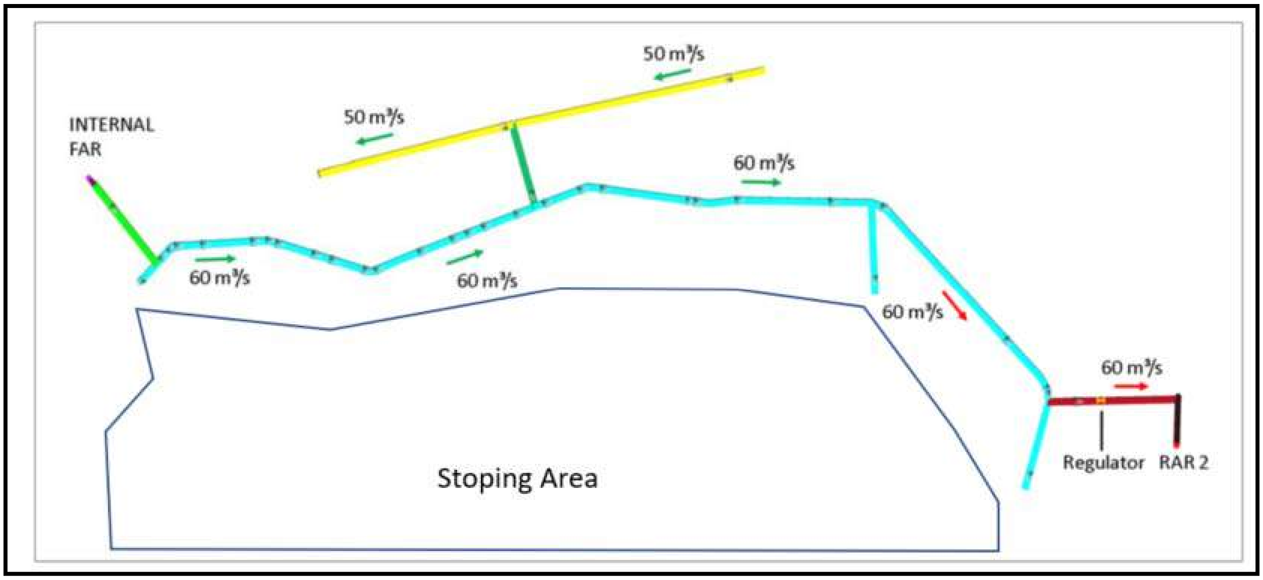


Figure source: Torex, March 2018

Figure 24-34: Typical Ventilation Level Plan

24.16.2.10.2 Other Mine Services

Backfill

Both C&F and LHOS methods would require backfill. When waste rock is available, the post pillar cut and fill stopes and secondary longhole open stopes would be filled with waste rockfill. The remaining stopes, as well as the primary longhole open stopes would be filled with cemented paste backfill. Cement content would be dependent on mining sequence and geotechnical requirements.

Paste backfill was selected based on four complementary reasons:

1) The reduction of environmental impact by partial placement of the ELG plant tailings underground.
2) The productivity improvement of paste fill by enabling fast filling with limited water consumption/dewatering.
3) Reduced water consumption as compared to hydraulic fill.
4) ELG plant Tails are already filtered thereby eliminating the high cost component of a paste fill plant

Preliminary paste plant design was carried out by AMC Consultants (AMC 2018) and paste testing using filtered tailings and cement samples from ELG by United Geo Test (United 2018). The backfill plant would be located underground on the 655L elevation a short distance from the Suspended Conveyor tailings transfer point. The proposed backfill plant has been sized to produce cemented paste backfill at rate up to 180 m³/hr with cement contents between 2% and 10% to produce paste strengths between 200 and 1700 kPa, and average 400 kPa. The paste production rate is achievable when combining a 4,000 tonnes underground tailings stockpile with the Suspended Conveyor tailings transport rate of 650 tph. The production rate is sufficient for continuous filling of LHOS stopes in a single pour.

The underground paste plant infrastructure includes a tailings and cement storage silos, process water tanks, paste mixer, and large positive displacement booster pumps located on the 655L and spaced on levels at approximately 250m – 300m vertically. The lab testing results demonstrated that the filtered tailings produced by the ELG process plant were shown to provide good rheological and strength testing results, with 400 kPa strengths achieved within 21 days using 3% cement. Further rheological and strength testing would be required to assess the suitability of the filtered tailings obtained from the ML mineralized tails.

Dewatering

The main sources of water into the underground workings at ML would be from groundwater inflow, water required for drilling equipment, and moisture from ventilation. A conceptual study was completed in 2014 to estimate expected groundwater flows using limited site specific data, this work was further refined in 2017 when a semi-analytical model was developed (see Section 24.16.2.8.2). Further hydrogeological investigation and modeling will be required to decrease uncertainties regarding predicted groundwater inflows and water level drawdowns.

The ML Mine dewatering system has been designed at a conceptual level for the current underground workings using the predicted inflow. Sumps would be excavated at the bottom of the materials handling levels of each zone. These would be twin bay sumps to allow for settling of suspended solids before pumping. Mine water would be recycled underground as much as possible. Water requiring treatment would be pumped to the treatment facility at ELG through a 6” line that will be installed on the same towers as the Suspended Conveyor.

The total estimated water inflow to the Media Luna project ranges from 44 L/s to 200 L/s. These values include 15 L/s for paste backfill, 25 L/s for drilling, and a range of from 4.0 L/s to 160 L/s as groundwater inflow when the mine is fully developed (see Section 24.16.2.8.3).

Electric Power

Peak electric power requirements for the ML site is estimated at 9 MW. The ELG substation would be upgraded to provide power for the ML site. During development of the Service Access and Suspended Conveyor tunnels, temporary electric power will be supplied from the ELG Mine Complex. During development activities on the north side of Balsas River, power would also be provided from existing infrastructure at ELG. Table 24-46 provides a summary of the power requirements.

Table 24-46: Media Luna Power Draw

Area	Power Draw (MW)
Drilling (longhole, jumbos, bolting)	2.6
Underground Services	2.5
Backfill	1.7
Main Ventilation	2.0
Dewatering, other surface needs	0.4
Total	9.0

Process Water

The ML site would use a combination of process water from the ELG site and recycled water from underground. Process and potable water would be provided by ELG plant site at an average rate of 38 m³/d.

Communications

At a minimum, a leaky feeder system would be used as the main method of underground communication. Telephones would be installed at main fixed plant locations such as the backfill plant, shops, sub-stations, refuge stations and lunchrooms.

Provisions for underground wireless communication (Wi-Fi) will be made to allow for future communication systems reliant on this infrastructure including but not limited to real time location/diagnostic monitoring systems and VOIP.

Compressed Air

A central air compressor plant and distribution system are not included in the estimate. Equipment requiring compressed air would be outfitted with onboard compressors. Portable compressors would satisfy any miscellaneous needs such as blast hole cleaning, pumps, handheld tools, etc. Additionally, each underground shop would be outfitted with a compressor.

24.16.2.11 Mining Support Services

Key Points in this section:

- Initially, the MLL and EPO zones would be treated as separate zones several years into the operating life. As a result, most mining support infrastructure would be dedicated to each zone.
- The support infrastructure used for the MLL zone will be used in the MLU zone once mining activities start.
- Portable refuge chambers would be used to allow for scheduling flexibility in work areas. The refuge stations can be easily relocated to any work area as required.
- The bulk of support infrastructure would be on the 665 level in the MLL zone and the 715 level in the EPO to allow earliest possible infrastructure construction.

Underground Maintenance Shops

Maintenance shops would be located in both the EPO and MLL zones. The EPO zone shop would be located on the 715 level and the MLL zone shop on the 665 level.

Each shop would have space for fixed plant maintenance, as well as mobile equipment maintenance and heavy repairs. The shops would contain the following provisions:

- Wash bay
- Parts storage/warehouse
- Electrical bay
- Maintenance office

The equipment working in the MLU zone would be serviced using the MLL zone shop.

Refuge Chambers

Refuge stations underground would be portable prefabricated units that can be moved to individual work areas. It is estimated that twelve portable refuge stations would be required (9 between EPO and MLL zones and an additional 3 for the MLU zone). The stations would be outfitted with potable water, compressed air and emergency lighting.

The use of portable refuge chambers ensures that the chambers are always near the working areas where they are needed. It also reduces the need to cut permanent refuge stations.

Explosives Magazines

Explosives storage magazines are planned for both the EPO and MLL zones in a central location. This would reduce the travel distance for crews.

Explosives would be transported from surface at ELG Mine Complex to the underground storage magazines at ML using an explosives supply truck that will unload to be transported across the Ropeway.

Emergency Egress

Primary access to the underground would be through the Service Access tunnel and secondary egress would be from the Suspended Conveyor tunnel as well as through manways constructed in ventilation raises in the EPO, MLL and MLU zones.

24.16.2.12 Diamond Drill Program Considerations in PEA

An in-fill drilling program at ML began in October 2017. The purpose of this program is to upgrade, to the Indicated confidence level, certain parts of the current Media Luna inferred mineral resource. The program plan contains 175 holes, averaging 600 meters in depth, for a total of 105,000 meters of drilling. The cost for the program has not been included in the PEA costs. All in-fill drilling is to be completed from underground and will commence during the initial development phase.

24.16.3 Alternate ELG Processing Plan Developed for the PEA

The base case ELG ore and waste mining schedule presented in Section 16 is unchanged. The ELG plant feed would be reduced during the overlap period when both feed from ELG and the Media Luna underground are available. This adjustment to the ELG processing schedule is to provide processing capacity for Media Luna feed. ELG ore mined in excess of the reduced ELG feed rate would be stockpiled until the pits are complete and then rehandled to the process plant. The rehandle costs are applied to the ML Project. Table 24-47 shows the ELG processing plant feed from ML over the life of project. Table 24-48 shows the ELG processing plant feed from the ELG Mine Complex and stockpile.

Table 24-47: Media Luna Feed Tonnage (Media Luna Inferred Resources)

	Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Media Luna tonnes	30,936	0	0	249	1,940	2,792	2,805	2,811	3,112	3,079	3,105	3,126	3,075	3,070	1,772
AuEQ g/t	4.77	0.00	0.00	5.93	5.32	5.44	5.95	5.45	5.18	4.25	4.37	4.53	4.23	3.95	3.76

Table 24-48: El Limón Guajes Feed Tonnage

	Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ELG ktonnes	25,2787	5,040	5,040	4,791	3,100	2,248	2,235	2,229	595	0	0	0	0	0	0

24.17 RECOVERY METHODS

The 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 a copper/gold/silver concentrate, doré containing gold and silver and a copper precipitate from the SART plant.
- The envisioned process would make use of the existing ELG 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 an Fe-S concentrate, with the final Fe-S flotation tailing subject to CN Leach/CIP through the existing ELG plant. 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 after which this leached residue will be used as backfill in the ML mining areas. Gold recovery from the new Fe-S leach circuit would be via a new CIP circuit.
- Flotation tailing is filtered through the existing plant.
- The flowsheet is based on the results of metallurgical testing conducted by SGS METCON, Tucson, AZ, and Base Metal Laboratories (BaseMet) in Kamloops, BC.
- The addition of the Fe-S flotation circuit enables the bulk of the ML tailings to be non-acid generating (NAG) tailing, while concentrating the sulphides into a smaller potentially-acid generating (PAG) tailing (Fe-S leach residue). This PAG tailing will be placed underground as backfill.
- The footprint of the ML process plant fits within the area currently covered by ELG plant area and requires no new disturbances to the area.
- Regrinding of copper rougher flotation concentrate is required to separate 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 BaseMet in Kamloops.
- The next stage of development test work, which entails optimization of operating conditions, will take advantage of opportunities identified in further metallurgical testing or with the objective to minimize both operational and capital costs.

24.17.1 General

The proposed location of the ML process plant situates the facility between the current tailing filter plant and the ELG primary grinding operation. Figure 24-35 provides a general site arrangement drawing, while Figure 24-36 provides the layout of the Media Luna process plant. The process will make use of the existing ELG grinding circuit, agitation leaching and tailing facilities. During the overlap period when both Media Luna mineralized material and ELG ores are available, these will be "batch" processed in 30-day intervals through the ELG grinding facility.

A suspended conveyor will transport material directly to the ELG plant area from the ML underground workings. The ML material will be stockpiled separately from the ELG ores and batch processed through the existing Guajes gyratory crusher and fed to the existing grinding circuit. After grinding, the Media Luna mineralized material will pass through a sequential copper sulphide rougher and sequential Fe-S rougher flotation circuit. The resulting copper rougher concentrate will be reground and cleaned to generate a saleable copper-gold-silver concentrate. The Cu-Au-Ag concentrate will be filtered and loaded onto trucks for shipment to market. Copper Rougher tailing will pass to an 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 tailing from the Fe-S float circuit will be leached in the existing ELG processing plant for additional recovery of Au and Ag. The selected process design basis and the main physical features of the mineralized material processing facility are outlined below.

The design basis for the mineralized material processing facility is 14,000 dry tonnes per day (tpd), nominally operating at 30-day intervals, or 2,520,000 tonnes per year (t/a). The PEA has determined that sufficient mineralized material would be available for 12 years of processing at this rate.

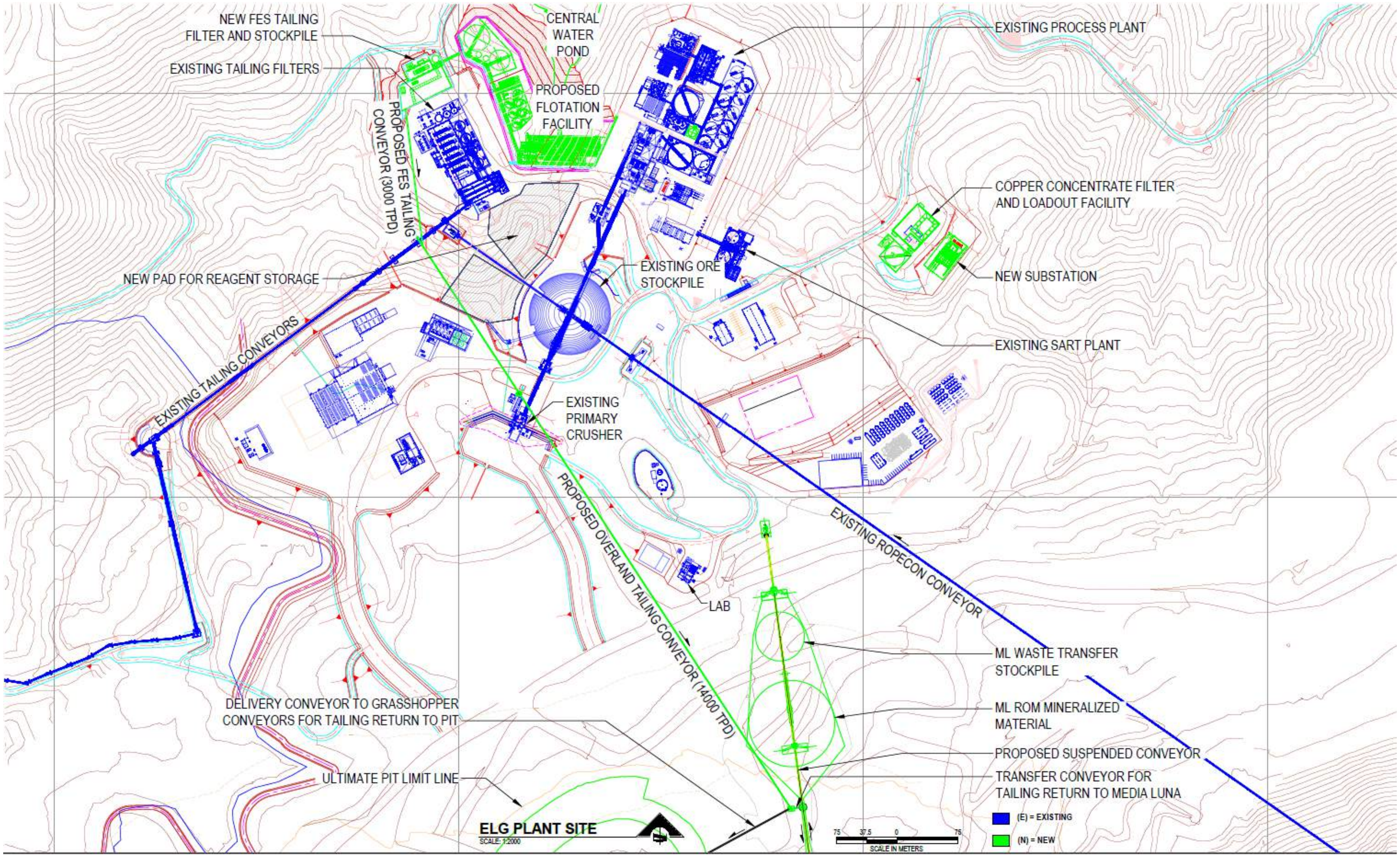


Figure 24-35: General Site Arrangement Showing the Media Luna Operation

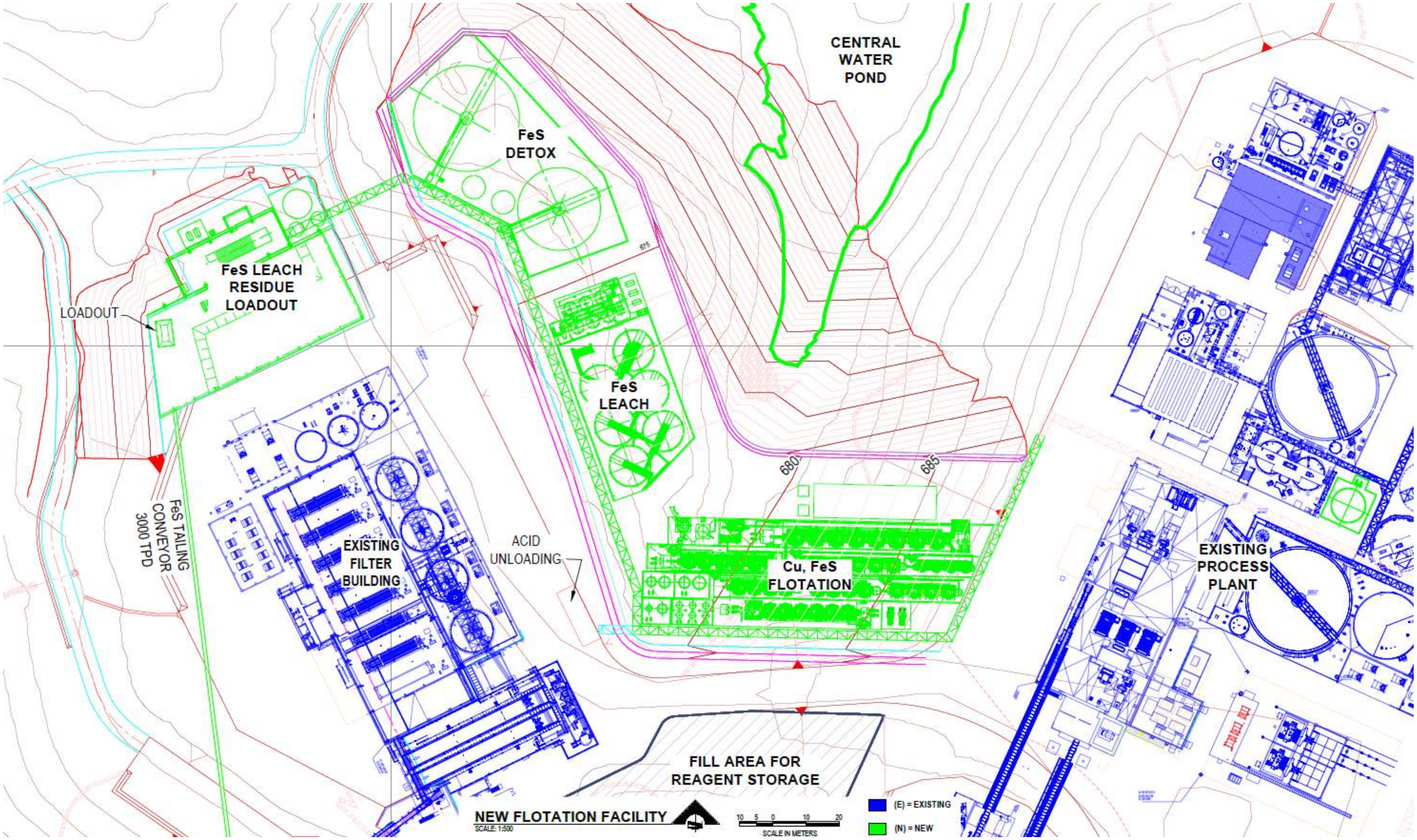


Figure 24-36: Proposed Layout of the Media Luna Flotation Operation

A summary diagram of the overall process flowsheet is presented in Figure 24-38. Process unit operations that will be used include:

- Primary crushing*
- SAG mill grinding*
- Ball mill grinding*
- Copper Sulphide rougher flotation
- Cu-Au-Ag 1st, 2nd and 3rd cleaner flotation
- Fe-S rougher flotation
- Independent cyanidation leach and CIP circuit for Fe-S concentrate
- Independent DETOX for Fe-S Concentrate leach residue
- Separate water systems for fresh and cyanide containing water for flotation and leach circuits respectively
- Dewatering of flotation tailing
- Separate filtration of Cu-Au-Ag and Fe-S concentrates
- Leaching* and CIP* of flotation tailing
- Carbon stripping* and doré production* of carbon harvested from both CIP circuits
- Precipitation of copper in leach liquor via the SART* process
- Transfer of Fe-S Concentrate after filtration of leach residue to ML UG for use as paste
- Filtration* of leached flotation tailing and stacking of filtered tailing*
- Individual process water loops for grinding-flotation and leaching circuits
  * denotes use of existing ELG processing plant equipment

Figure 24-37 presents the proposed process block flow diagram for ML mineralized material, while Figure 24-38 illustrates the process flowsheet. New equipment for ML processing is shown in the light pink boxes in Figure 24-37, and within the dashed box in Figure 24-38.

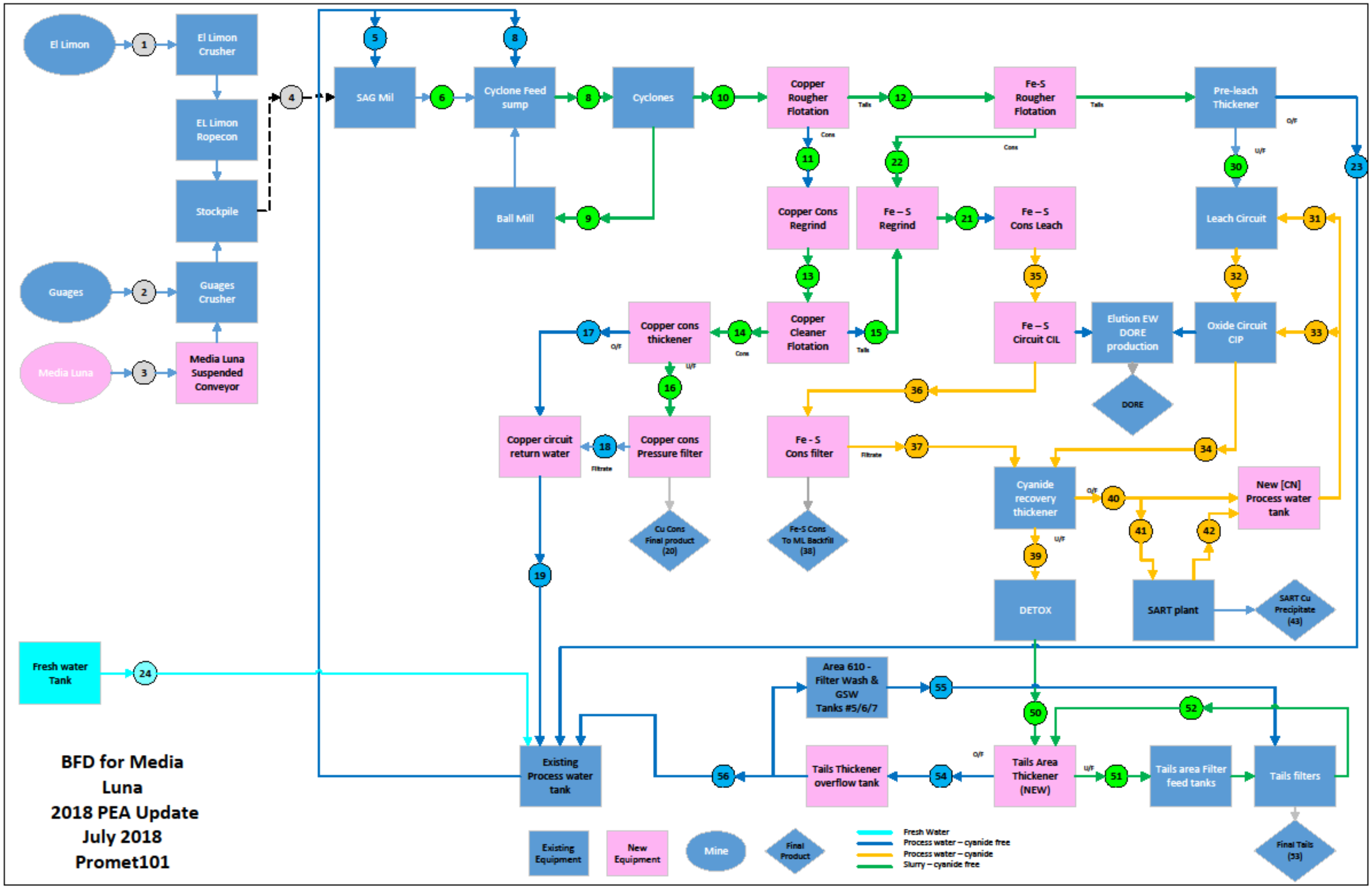


Figure 24-37: Block Flow Diagram of the Media Luna Process and How it Fits within Existing Process Equipment

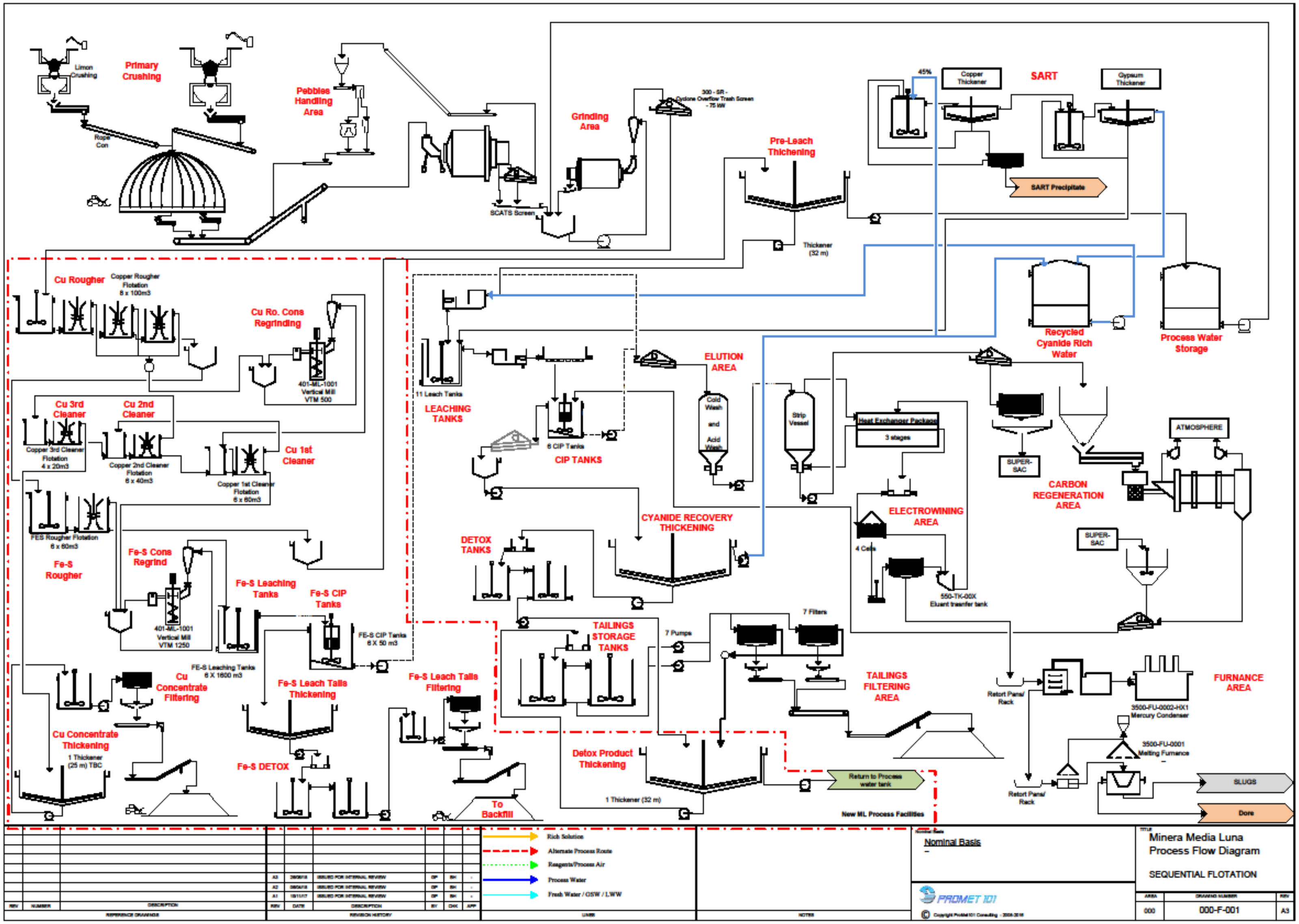


Figure 24-38: Overall Process Flowsheet

24.17.2 Process Description

The following items summarize the process operations required to extract copper, gold, and silver from Media Luna mineralized material:

- ROM mineralized material from the Media Luna deposit will be transported to the ELG Mine Complex via a suspended conveyor and stored separately from ELG ores.
- The ML ROM will be fed into the existing coarse material bin in front of the primary crusher and will be reduced to minus 150 mm with the primary gyratory crusher and placed on the existing 14,000 tonne live stockpile.
- 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 80 to 110 microns to the flotation circuit. The final K_{80} will be defined in follow-up development test work. Media Luna material and ELG ores will be batch processed separately through the existing grinding circuit in a 30-day cycle.
- Separate water circuits will be maintained to prevent process water with high-cyanide from entering the grinding and flotation circuit when processing Medial Luna material. At this stage of design, it is planned to flush the grinding circuit after treatment of ELG ore prior to converting the system over to the treatment of Media Luna material.
- Ground Media Luna material will be directly pumped to the feed box of copper sulphide rougher flotation. Copper sulphide rougher concentrate reports to a regrind circuit prior to three-stage separation and cleaning of a copper-gold-silver concentrate.
- After thickening, the final copper-gold-silver flotation concentrate will be filtered and loaded for shipment to market via over-the-highway trucks.
- Copper rougher tailing will report to an iron-sulphide (Fe-S) (pyrite + pyrrhotite) rougher flotation circuit. The iron-sulphide rougher concentrate will be combined with the copper cleaner tailing and reground to increase liberation of locked precious metals.
- Flotation tailing will report to the existing pre-leach thickener feeding the ELG leaching circuit for additional recovery of gold and silver.
- The combined Fe-S rougher concentrate and copper cleaner tailing will report to a separate leach circuit for the recovery of precious metals, prior to Detox, followed by filtration. Filtered Fe-S leach residue will be stored in a separate storage facility for final disposal as underground as backfill.
- The tailing from the CN Leach/CIP circuit will be passed through a cyanide recovery thickener, DETOX and finally filtered in the existing ELG filtration circuit prior to final deposition on surface.
- Cyanide solution will be recovered to the existing leach circuit
- Reagents used in the Media Luna Cu-Au-Ag flotation process may include: 3418 collector, Potassium Amyl Xanthate, methyl isobutyl carbinol (MIBC, frother), lime, and flocculant. The design allows for the storage and distribution of these reagents. This suite of flotation reagents may change after conducting the next stage of developing test work.

24.17.2.1 Primary Crushing

ROM mineralized material will be transported from the Media Luna mine site using a suspended conveyor system. It will be dumped onto a large ROM mineralized material stockpile with sufficient capacity to store material for 30 days. ROM material will be extracted from the stockpile 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.

24.17.2.2 Grinding

Media Luna mineralized material will be ground to a final product size of 80% minus 80 to 110 µm, final size to be confirmed. Within this study, a grind of K80 of 67 µm was assumed by the existing ELG grinding circuit, consisting of a SAG mill in closed circuit with a Pebble Crusher, followed by a Ball Mill. The product from the grinding circuit will flow directly to the flotation circuit.

24.17.2.3 Flotation

Following is the description of the flotation process used in the PEA based on current understanding of the metallurgical properties of the ML mineral resource. This is a new addition to the existing ELG Processing Plant.

24.17.2.3.1 Copper Sulphide Rougher Flotation Circuit

The purpose of the copper flotation circuit is to separate the majority of copper sulphides from Fe-S and non-sulphide material. Combined copper rougher and cleaner tailing will report to a sequential flotation step to produce an Fe-S rougher concentrate.

The copper rougher flotation circuit configuration consists of six (6) cells of 100 m^3 each. Each flotation cell will be at its own level to allow the use of gravity to move the material. Two distinct water loops will be maintained to avoid high cyanide containing process water entering the grinding-flotation circuit when processing Media Luna feed. Following the rougher flotation, the tailing will be combined with the copper cleaner tailing and pumped to the Fe-S rougher flotation circuit. The rougher concentrate will be sent to a regrind mill.

24.17.2.3.2 Copper Rougher Concentrate Regrind Mill

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. The current design has regrind set at K80 30 µm.

24.17.2.3.3 Copper Cleaner Flotation Circuit

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 60-m^3 for the first stage, a row of four flotation cells of each 40-m^3 in the second cleaner stage, and for the third copper cleaner stage a row of four 20-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. 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.

Tailing from the first cleaner will report to the Fe-S flotation regrind circuit after combination with the Fe-S rougher concentrate.

24.17.2.3.4 Fe-S Flotation

The purpose of the Fe-S flotation is concentration of remaining sulphides to keep the tailing produced from the ELG CN Leach/CIL Process non-acid generating. The Fe-S concentrate will be leached under different conditions to that of the normal leach circuit. The Fe-S concentrate will be leached in a separate CN Leach Circuit to recover gold and silver; the leach residue will then be used as backfill in the ML underground working.

The tailing from the copper rougher will be adjusted with reagents before entering the Fe-S flotation circuit. Present design of this circuit envisions four 100-m^3 cells. Like for all other flotation circuits, the Fe-S flotation circuit will be constructed for gravity flow between cells.

Within current design a separate Fe-S scavenger has been planned to remove sufficient sulphides allowing the sequential flotation tailing stream to report to the existing leach circuit containing sufficiently low quantity of sulphides to have acid generation potential. Further test work will determine if this step is required.

The tailing of the 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 recovery of gold and silver.

24.17.2.3.5 Iron Sulphide Fe-S Rougher Concentrate Regrind Mill

The Fe-S rougher concentrate will be combined with the copper first cleaner tails stream and reground prior to subsequent leaching of precious metals. The target regrind for the combined Fe-S concentrate being 80% passing 30 µm.

24.17.2.4 Leaching

24.17.2.4.1 Leaching of Fe-S Concentrate

Fe-S final concentrate will be treated in a separate leach/CIP circuit for the recovery of gold and silver contained in this concentrate. The intensive leach circuit will consist of six agitated tanks in series. Gold and silver will be recovered from leach solution in a dedicated CIP circuit. The loaded carbon will proceed to the existing carbon elution circuit likely requiring a cold wash to remove loaded copper, an acid wash to remove carbonates, and a hot strip circuit. Hot strip eluate will be mixed with eluate from the ELG leach circuit.

The Fe-S CIP circuit is envisioned to be of Kemix design, similar to the existing ELG circuit.

24.17.2.4.2 Leaching of Sulphide Flotation Tailing

The tailing stream after sequential copper and Fe-S flotation will be combined and 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 either thickener underflow density or thickener solids loading. Underflow from the pre-leach thickener will be pumped using variable speed horizontal centrifugal slurry pumps, (one operating/one standby) at approximately 65% solids to the leach tanks of the ELG process plant. Recycle process water recovered from the cyanide recovery thickener and SART plant will be used to dilute the leach circuit feed to 50% solids.

The leach process of Media Luna flotation tailing will be batched through the existing ELG leach circuit on a 30-day cycle during the production overlap with ELG. On the opposite cycle, the ELG circuit will treat ELG ore.

Only six to eight of existing 11 leach tanks in the ELG plant leach circuit will be required to process the tailing for gold and silver extraction. The 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 six to eight tanks would provide approximately 26 to 35 hours of plug-flow retention time at 50 percent solids. After leaching, the slurry will pass onto the CIP section where gold and silver adsorbs onto carbon. The CIP tailing will proceed to the current cyanide detoxification section. For additional details on the ELG leach /CIP circuit, please see Section 17.

24.17.2.4.3 ML Tailing Disposal

ML Tailing from ELG CN Leach/CIP Circuit

Detoxified tailing from the CIP circuit is planned for disposal in the same manner as the current ELG system as it is considered to be NAG. Final placement for this tailing product will be in current FTFS and once this is full, the tailing will be placed in the mined out Guajes Pit or when required delivered to ML underground for use as backfill. For additional information on tailing placement, see Section 24.18.

ML Fe-S Leached Residue

The leached residue for the Fe-S leach/CIP process will be handled separately from sequential flotation tailing ensuing that only this portion of the waste product is acid generating. From the separate CIP process, the residue is sent to a thickener and then to a new filter plant. Once filtered, the cake is delivered to the ML underground working where it is planned for use as backfill. For additional information on the use of tailing as back fill, see Section 24.16.

24.17.2.5 ML Concentrate Dewatering of Copper-Gold-Silver Concentrate

Final Cu-Au-Ag concentrate will be pumped to the Cu-Au-Ag concentrate thickener feed box. Thickener overflow will flow by gravity to the Cu-Au-Ag concentrate thickener overflow tank, from where it will be pumped to the process water tank. Either Cu-Au-Ag concentrate thickener underflow pump will pump thickener underflow to the agitated Cu-Au-Ag concentrate stock tank. Pumps will provide feed to the Cu-Au-Ag concentrate plate and frame filter from this tank.

Cu-Au-Ag filter cake will discharge to a Cu-Au-Ag concentrate hopper feeding the Cu-Au-Ag concentrate conveyor to transport the cake to the Cu-Au-Ag concentrate stockpile. The Cu-Au-Ag concentrate filter cake will be placed in a storage area and reclaimed by front-end loader onto highway haulage trucks. Cu-Au-Ag filtrate and filter wash water will be collected in the Cu-Au-Ag filtrate storage tank for recycle to the Cu-Au-Ag concentrate thickener using solution pumps.

24.17.2.6 Reagent Storage and Handling

Reagents that would require handling, mixing, and distribution in the Media Luna processing plant are presented in Table 24-49 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 24-49: 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	1.50
Flocculant	Settling Aid	0.10
NaCN to Leach Flotation Tailing	Leachate	3.00
SART Reagents	Acidification, copper precipitation and solution pH re-adjustment.	SART plant operation is anticipated to continue when treating ML material, at this stage assuming equivalent dosage rates as for ELG

24.17.2.7 Water Systems

To support processing of the ML material the existing water distribution system will be modified to keep CN-laden water out of the flotation circuit and water containing flotation reagents out of the leach circuits.

The water systems for the Media Luna Project site will consist of two grades of water, fresh water and process water. In addition, separate process water types will be maintained throughput the circuit to avoid cyanide-laced water entering the flotation circuit as this could detrimentally affect the flotation response. Cyanide contained in the leach circuit depresses flotation of sulfides. The grinding/flotation water loop will operate between the comminution and flotation circuits with water recovery from the pre-leach, copper concentrate and DETOX tailing thickeners. Pre-leach thickener, DETOX tailing and copper concentrate thickener overflows will be collected into the Cu-Au-Ag process water tank for recycle in the Cu-Au-Ag flotation circuit.

The leach liquor loop will operate between the cyanide recovery thickener and SART plant. A new cyanide recovery tank and pumping installation will be installed to return high cyanide content water from the cyanide recovery thickener to the leach circuit. The pre-leach thickener will be operated at as high as possible a pulp density to recover cyanide free water to the process water tank, and maximize the reuse of high cyanide water in the circuit.

In the same manner, the cyanide recovery thickener will also be operated as high as possible pulp density to maximize cyanide recovery. In turn, the feed to the DETOX circuit will need to be diluted with process water for optimum conditions.

Fresh water supply will be from the existing ELG Mine Complex supply. Fresh water requirement for the Media Luna processing plant would be no more than about 100 cubic meters per hour.

24.17.3 Process Design Criteria

24.17.3.1 General

The design of Media Luna facility is based on the following criteria, which have been provided, calculated, or recommended. Each line has a code letter identifying the source of the criteria according to the following designation:

Code letter	Source
A	Client documents or instructions
B	Recommended by Promet 101
C	Industry standards
D	Vendor data
E	Calculated from other data
F	Consultants
G	Reference handbooks

24.17.3.2 Mineralized Material Characteristics

Run-of-Mine Mineralized Material Characteristics		Code Letter
Mineralized material specific gravity	3. 81	F
Bulk density, primary crushed feed, t/m^3	2.0	B
Abrasion index, Bond, (Ai), average	0.1885	F
Mineralized material work index, kWh/t		
Crushing work index, Bond, (CWi)	7.95	F
Rod mill work index, Bond, (RWi)	13.71	F

Ball mill work index, Bond, (BWi)	11.53	F
		Code Letter
Mineralized material moisture content, %		
Design	4	B
Minimum	1	F
Maximum	7	F

24.17.3.3 Production Design Rate

Mineralized material crushing and milling rate, average, t/a	2,520,000	B / A

24.17.3.4 Estimated Metal Production Design Rate

Table 24-50: Metal Production Design

Basic Design	Cu	Au	Ag	Code Letter
Mine Head Grades (%)	1.00			A
Mine Head Grades (g/t)	-	2.56	27.43	A
Cu-Au-Ag 3rd Cleaner Flotation Recovery (%)	91.7	34.3	76	F
Precious Metals recovery into doré from flotation tailing leach	-	44.7	10.9	
Overall Plant % Recovery (Flotation + Leaching)	88.8	85.1	75	E
Production, Average tpd, Cu & oz/d Au/Ag	63.3	448.9	5,291	E

24.18 PROJECT INFRASTRUCTURE

The Media Luna Project is planned to make substantial use of the existing ELG Mine Complex. This section provides information on the additional infrastructure required to support the ML Project. For information on constructed and operating infrastructure of the ELG Mine Complex, please refer to Section 18 of this report.

The key points of this section are:

- Media Luna design 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.
- A purpose-built suspended conveyor system will be utilized to transport mineralized material from the Media Luna mineral resource to ELG Mine Complex and tailing from ELG Mine Complex back for use as backfill.
- A Ropeway will be used to provide access to the ML portal location for personnel and supplies for the life of the ML operation. Prior to construction of the suspended conveyor, the Ropeway will also be used for movement of development waste from the ML tunnels to ELG Mine Complex for disposal.
- A new flotation circuit would be constructed at the ELG Mine Complex. This would be located between the existing ELG Process Plant and filter buildings.
- There is sufficient room in the permitted FTSF in conjunction with the use of the mined out Guajes open pit to deposit the tailings produced.
- Preliminary geochemical testing has resulted in the assumption that Media Luna tailings is potentially acid generating (PAG) for this stage of design. The conceptual plan used within the PEA addresses this assumption with the addition of a Fe-S concentrate circuit to separate the PAG material and safely dispose of this material underground as backfill.

24.18.1 Site Description

The ML deposit is located approximately 7,000 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 ELG Mine Complex and ML deposit are separated by the El Limón ridge (peak of 1,300 MASL) and the Balsas river valley (river elevation approximately 480 MASL). The Media Luna Ridge, which the ML deposit is located in, has a peak elevation of 1,500 MASL. The current ML mineral resource consists of two geological zones dipping to the southwest. The top of the main zone outcrops on the north side of the Media Luna ridge and has been identified down dip to approximately 500 MASL. The second zone is referred to as the EPO zone and lies on strike to the west of the main zone. The topography is rugged and steep, similar to the topography of the ELG Mine Complex.

The concept for mining and processing the ML mineral resource is to utilize the existing ELG Mine Complex infrastructure as much as possible. To achieve this approach, a suspended conveyor system and a Ropeway will be utilized to connect and service the ML workings from the ELG Mine Complex. These connections will enable the use of the existing ELG Process Plant and infrastructure during development and mining of the ML mineral resource. Some additional facilities will be required, these additional facilities will be located within the existing ELG Process Plant with relatively minor civil work and minimal interruption to the ELG Process Plant operations. Figure 24-39, Figure 24-40, Figure 24-41, and Figure 24-42 on the following pages provide an overview of the ML and ELG area, including the suspended conveyor, the Ropeway and the new plant infrastructure.

Section 24.18.2 provides a description of the additional infrastructure required for the ML Project. The processing for ML mineralized material is described in detail in the preceding Section 24.17.

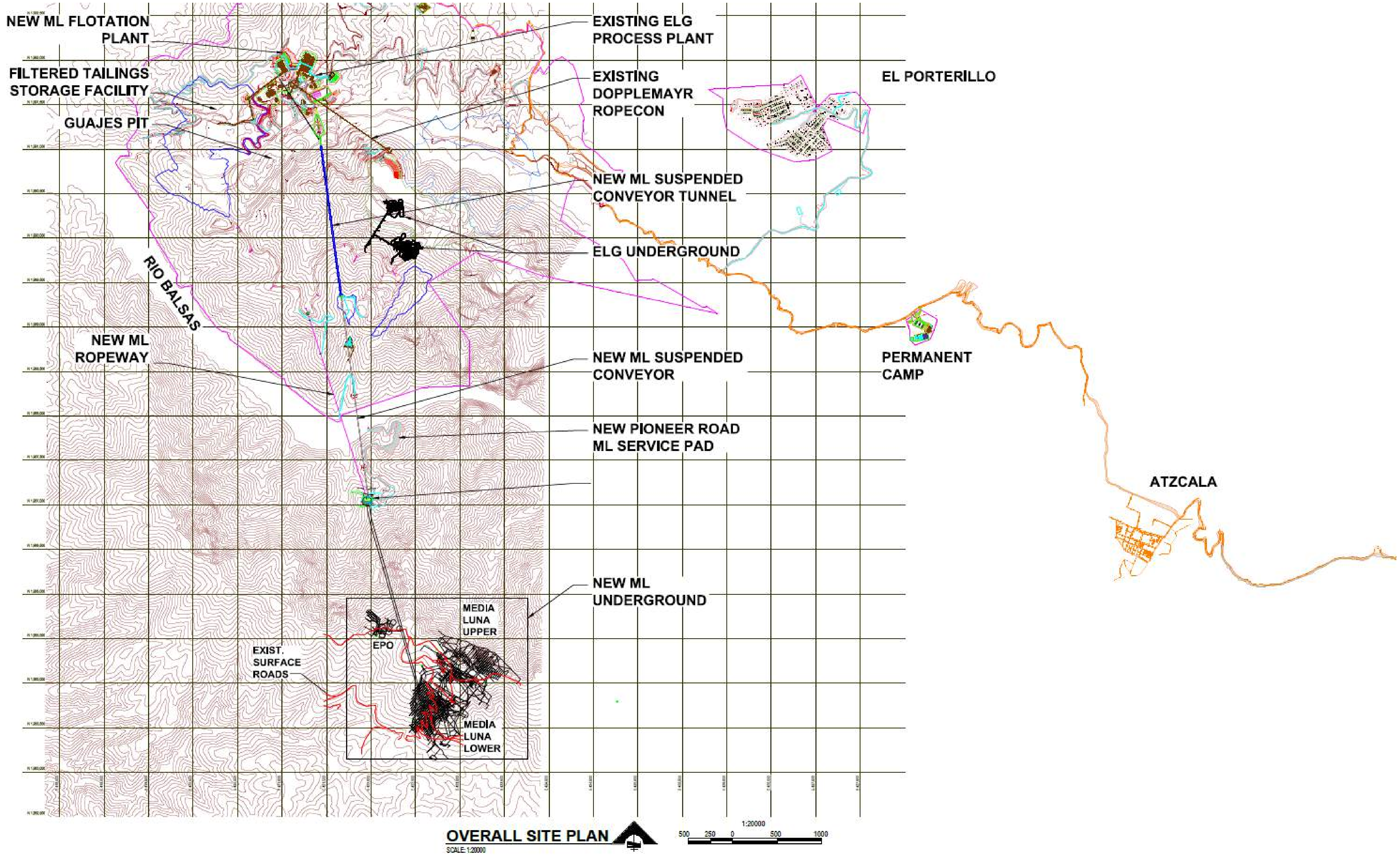
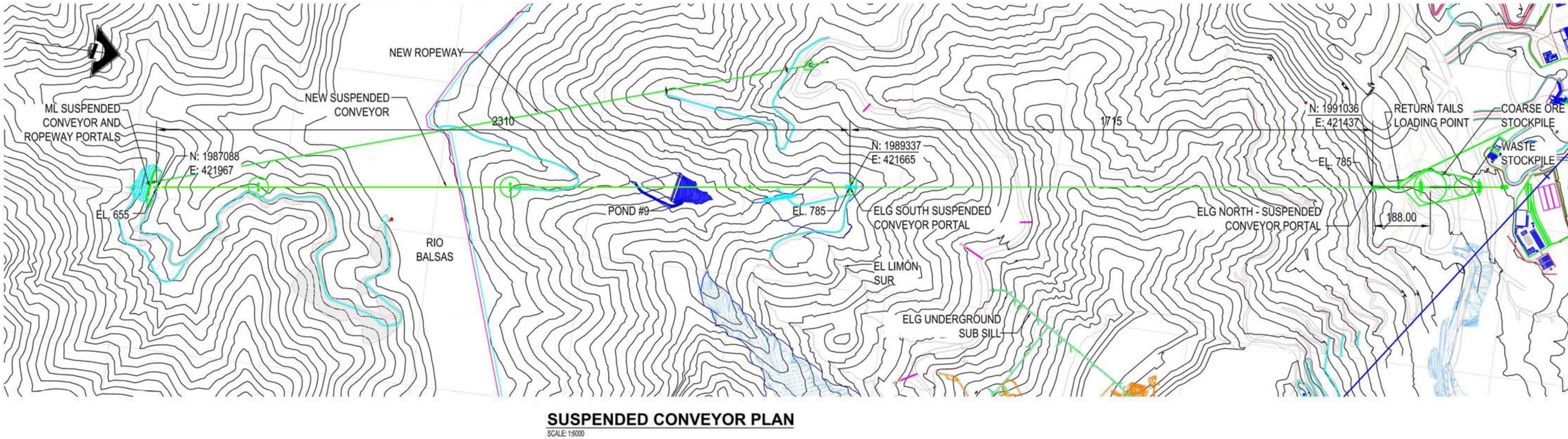


Figure Source: M3, 2018

Figure 24-39: Overall General Arrangement Plan



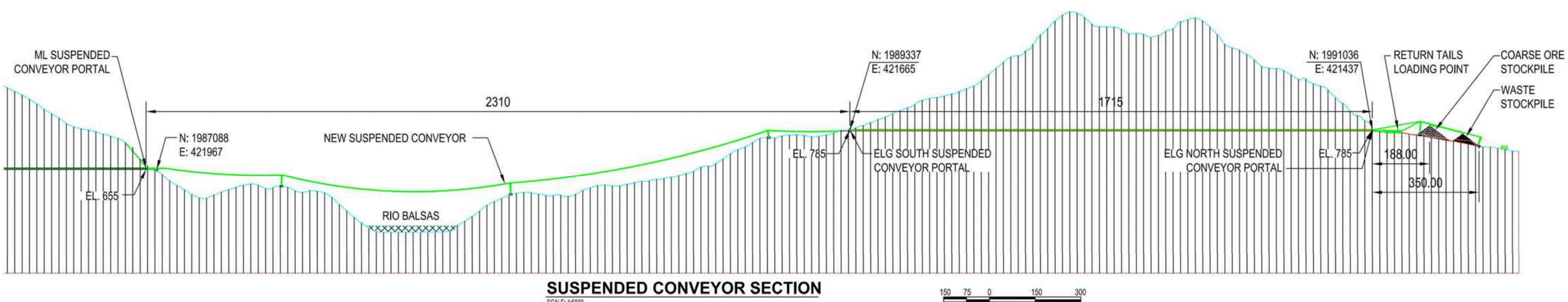


Figure Source: M3, 2018

Figure 24-40: Suspended Conveyor Plan and Section

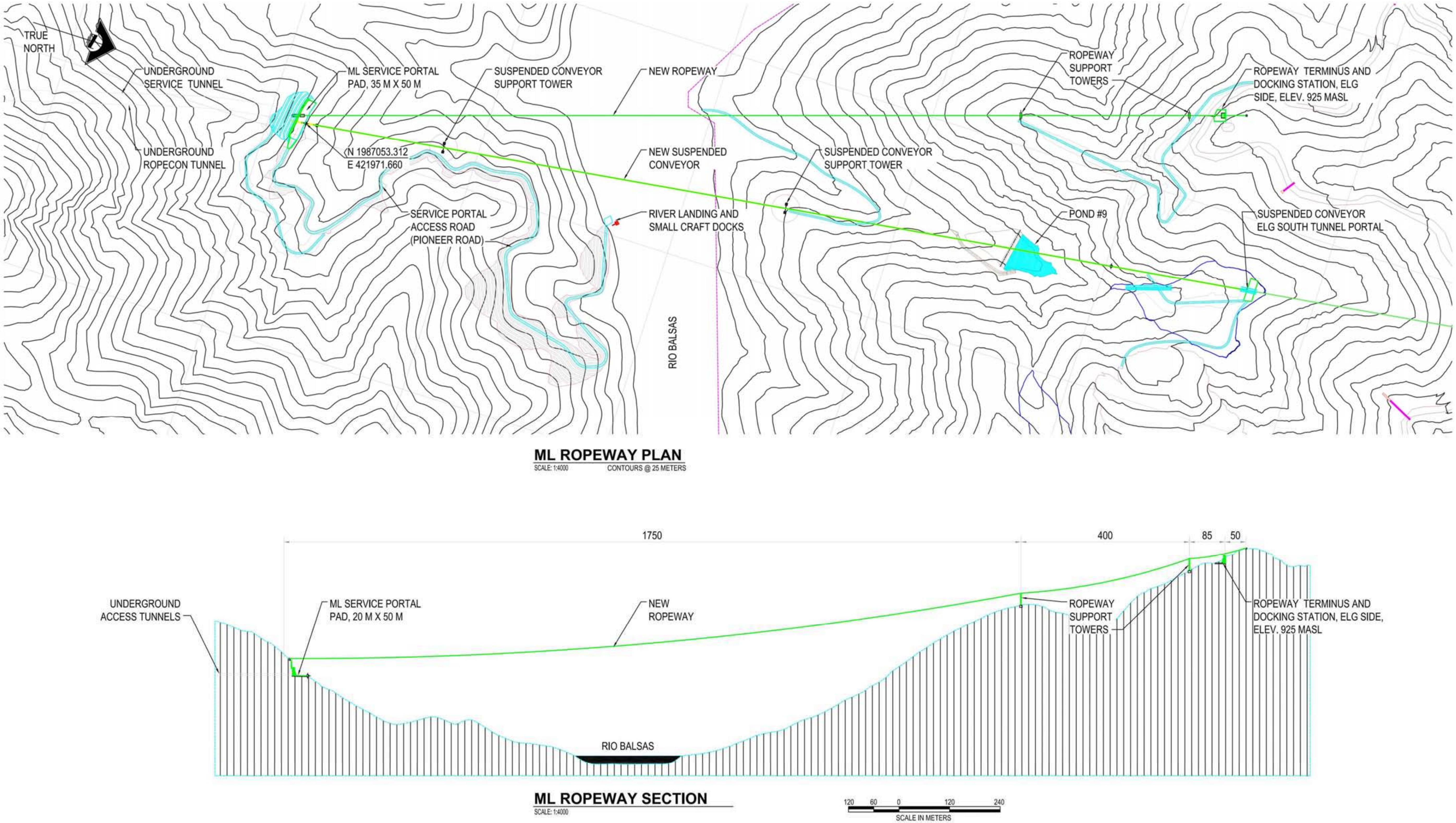


Figure Source: M3, 2018

Figure 24-41: Ropeway Plan and Section

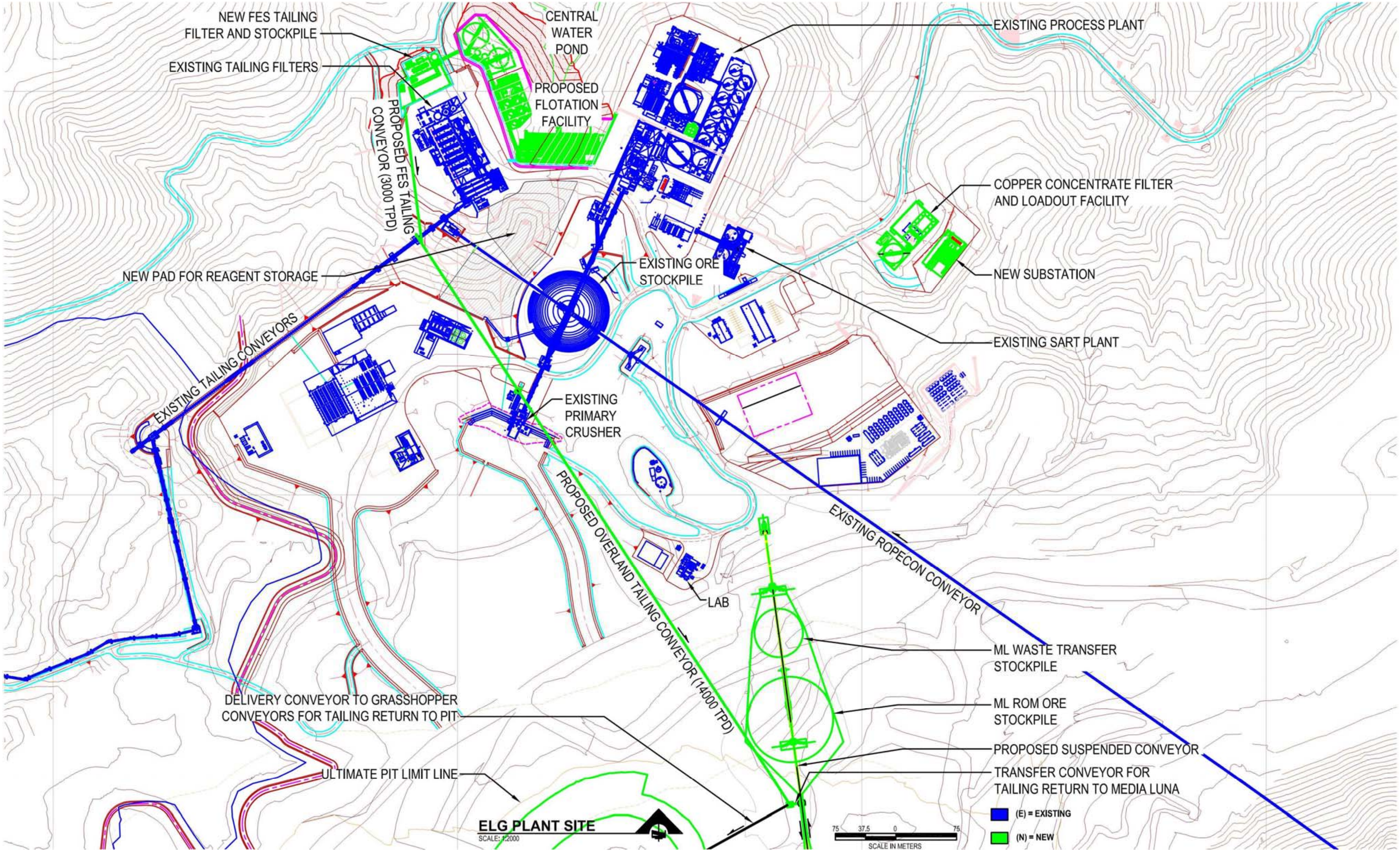


Figure Source: M3, 2018

Figure 24-42: New Plant Infrastructure at ELG Mine Complex

24.18.2 Additional and Modifications to Existing Infrastructure

The following sections give a brief description of the new infrastructure or modifications to existing infrastructure around the ELG Process Plant to allow the development and production of doré and copper concentrate from the ML mineral resource. Information regarding the ELG Process Plant for the ML material is discussed in Section 24.17.

24.18.2.1 Suspended Conveying (Area 080)

As illustrated in the figures above, a single suspended conveyor is planned to transport both mineralized material and waste from the ML workings to the ELG Mine Complex and tailings from ELG to ML for use as backfill. A description of this system as it relates to the mining concept is provided in Section 24.16. In brief, it is planned to load the suspended conveyor system at two points underground at ML workings (EPO and MLL). The route of the conveyor will be a straight line with a total elevation change of approximately 130 m, with the first section of the conveyor being in a tunnel under the Media Luna ridge. The conveyor will then exit the Media Luna ridge and cross over the Balsa river (similar span as the El Limón RopeCon) and then enter a tunnel which runs under the El Limón Ridge. The conveyor then exits the El Limón Ridge to the north of the Guajes Pit where the material will be stockpiled for processing (in the case of mineralized material) or for final storage in the WRSF in the case of waste. The conveying system has been sized to take run of mine material (95% passing 400 mm). The suspended conveyor would have approximately 75% of its 7-km length within tunnels and 25% suspended above the ground. The ability of the suspended conveyor to operate in both conditions while transporting material in both direction were key reasons for selecting this technology for the PEA. Other benefits such as ease of installation, high availability, as well as low operating cost, contributed to its use in the current concept. Design capacity for the suspended conveyor would be 1,000 tph material from ML to the ELG site and 650 tph tailings return from ELG back to the ML workings for use as backfill.

24.18.2.2 Underground Tailings Delivery (Area 081)

Area 081 is the underground tailings delivery system to the proposed paste fill plant from the suspended conveyor. At the ML end of the suspended conveyor, the tailings would be discharged onto a conventional belt conveyor perpendicular to the suspended conveyor. This discharge would be done by introducing two intermediate pulleys to reverse the belts direction of travel for a short length and the discharge conveyor would collect the tailings between the upper and lower belts (effectively a stationary tripper). The tailing discharge conveyor would be 70 meters long and suspended from the roof of a 6-meter-wide tunnel. Multiple belt plows would be used to divert the tailings off the belt to the stockpile below allowing the full length of the tunnel to be used for tailing storage. Tailings stockpile would be approximately 4,000 tonnes. Reclaim would be by mobile equipment to supply the adjacent paste plant.

24.18.2.3 Ropeway (Area 085)

The Ropeway (depicted in Figure 24-41 above) is an aerial cabled supply system that is planned to provide access for personnel and supplies to the ML work area for the life of the project. The Ropeway will be established at the start of the project and will support the development phase as well as the production phase. During the development phase the Ropeway will move waste from the ML to the ELG Mine Complex once the suspended conveyor is operational the Ropeway will move personnel and supplies only. The maximum cargo capacity of the Ropeway is 30 tonnes. The terminus on the ML side of the Rio Balsas will be at a service pad and portal located at 655 MASL, the terminus on the ELG side is along the El Limón South Access road located at 925 MASL. The Ropeway will use gondolas slung under the carts to move personnel, and strong-backs to carry equipment and rectangular containers for material transportation, including waste rock during development.

24.18.2.4 Stockpiles, Reclaim and SAG Mill Feed (Area 130)

As previously outlined mineralized material and waste from ML will be transported via a suspended conveyor to the ELG Mine Complex, at the ELG site it is planned to establish two stockpiles for the ML material. The suspended conveyor will discharge to a short transfer conveyor which will deliver the material to either a stockpile for mineralized material or waste. The mineralized material will be deposited in a 210,000 tonnes uncovered stockpile. A second adjacent stockpile will be established for waste rock at approximately 10,000 tonnes). Reclaim from both stockpiles will be via front end loader to haul trucks, for mineralized material it will be transported to the Guajes crusher, and waste will be hauled to one of the existing WRSF.

24.18.2.5 Tailing and Leached Residue Disposal System to Suspended Conveyor or FTSF (Area 621)

Tailings created during operation of ML will be disposed in three locations, the existing FTSF, underground at ML as backfill (all Fe-S leached residue will be used as backfill supplemented with tailings when required) or in a new tailings storage to be developed in the mined out Guajes Pit. To enable movement of tailings/leached residue to these three locations, a system of conveyor has been planned and costed. This system is shown in Figure 24-42 above. The system will require the installation of three new conveyors. One from the Fe-S filter/storage area to the existing tailings transfer conveyor. Another belt will be installed near the head end of the existing tailings conveyor to a third conveyor which would place the tailings/leached residue directly on the return side of the suspended conveyor. The existing tailing conveyor 620-CV-001 would be modified to include a stationary tripper so that tailings from the existing filter plant could go to the existing storage facility, or be dropped on to the proposed overland conveyor, at the end of this conveyor the material can be directed to either the suspended conveyor to the Guajes Pit Tailings Storage. Initially, the pit backfill would use the existing FTSF grasshopper conveyors and as the distance increased, an extendable conveyor would be installed to increase the range as the pit is filled from east to west. The Fe-S leach residue would be loaded on to an additional conveyor running from the Fe-S leached residue stockpile building, over the top of 620-CV-001 and drop on to the new overland conveyor back to the suspended conveyor. At the suspended conveyor loading point, the return belt idlers would be lowered closer to the ground to increase the vertical distance between the mineralized material carry belt and the return belt, to allow a transfer tower to straddle the return belt to create a dumping point. This dumping point would be to a small bin which would then load the return belt of the suspended conveyor.

24.18.2.6 General Site – Earthworks and Roads (Area 000)

To support the construction, development and production from ML earthworks, access roads and river landings have been conceptualized and costed. This includes the preparation of the portals area, roads to portals, temporary construction roads as well as services to these areas. This includes the following items:

- Roads to the mine ventilation fans on the top of the ML ridge.
- Construction of a small boat landing on the south side of the Balsas river below the ML portals for use before the Ropeway is constructed.
- Pioneer road from the boat landing up to the ML portal area.
- ML Portal area which is 20 meters by 50 meters which accommodates the electrical substation, waste rock loading area for Ropeway, ventilation fans, and mine portals.
- Earthworks/roads to enable placement of the Ropeway and Suspended conveyor components.
- Water control structure below the ML portal area

24.18.2.7 Permanent Camp expansion

Within this PEA plan, the existing ELG permanent camp would be expanded by adding units to accommodate the ML workforce.

24.18.2.8 Power

The utility power system on the nearby 230kV powerline has the capacity to meet the needs of ML as envisioned within this concept. A new switching station would be required for feed from the nearby utility line as well as a new substation installed on the existing pad above the new copper concentrate filter/loadout building.

24.18.3 Hydrology and Water Management

For ELG Mine Complex hydrology and water management please refer to Section 18, the following sections describe changes that would take place to accommodate the ML Project.

24.18.3.1 Overall Site Water Balance

The overall site water flow diagram is presented in Figure 24-43. From a hydrology and water management perspective, the addition of the ML Project to the existing ELG Mine Complex will primarily impact tailings storage.

24.18.3.2 ML Underground Water

Any ground water and process water underground at the ML Project would be recycled for use in the paste plant and ancillary services as much as practical. Any excess water would be piped to ELG Mine Complex CWP and used in the process.

The total estimated water inflow to the Media Luna Project is 98 L/s. This value includes 15 L/s for paste backfill, 25 L/s for drilling, and 58 L/s as groundwater inflow during full mine operation with tunnels and all development stages active (see Section 24.16.2.8.3).

24.18.3.2.1 Guajes Pit FTSF Water Balance

To support the design of ML Project, a preliminary water balance was completed for the Guajes Pit Filtered Tailing Storage Facility (GP FTSF).

The water balance has been completed assuming only direct precipitation would require management and that runoff from areas outside the GP FTSF would be intercepted and routed away from the GP FTSF. Precipitation falling within the pit rim would be pumped to Pond 3 for events smaller than a 1 in 10 year storm and managed internally for larger events. Any water collected in the GP FTSF water management pond would be pumped to Pond 3 and follow the existing ELG overall site water management plan as outlined in Section 18 of this report.

The GP FTSF water balance is presented in Figure 24-43. The major inflows include precipitation and groundwater seepage and the outflows include evaporation, water pumped to Pond 3, water recycled to the process plant for processing and groundwater seepage. At this stage of the project, groundwater movement is anticipated to be relatively small and dominated by the La Amarilla Fault. The migration of contaminants by groundwater including La Amarilla Fault is not considered a concern for the following reasons:

- Geochemical test work on the ML tailings indicates that some of the material may be potentially acid generating. To address this, the ML tailings will be detoxified prior to disposal in the FTSF as described in Section 24.18.2.5. The flotation tailings, will be leached further in the CIL circuit generating filtered tailings for use as UG backfill or to be placed on surface as filtered tailings. The test work for assessing the ABA characteristics of tailings produced from the Fe-S circuit is underway and will allow development of management strategies for these tailings materials if placed in the FTSF.

- Groundwater movement through the tailings to mobilize contaminants into the groundwater is expected to be low due to the low permeability cover material and the low permeability of the filtered tailings. Therefore, the quantity of contaminants that could be mobilized is expected to be low.
- While groundwater movement through the rock is dominated by the La Amarilla Fault, the flow of water is still low and therefore the ability to transport contaminants is considered to be low relative to the receiving waters.

Additional analyses at subsequent design stages would be required. The analyses would focus on the water quality and transport potential related to the tailings and the La Amarilla Fault. The construction of sumps with riser pipes in strategic low points in the pit to allow for the removal of fluids that may accumulate in the base of the pit from stormwater and seepage from the tailings will be evaluated and included in the design if deemed necessary. The effect on the overall ELG water balance and water management facilities is judged to be manageable at this stage of design since there is no increase in the watershed area reporting to the ELG Mine Complex water management facilities. These facilities were designed to manage water from the Guajes open pit.

The water management pond associated with the GP FTSF would be designed to be compatible with the existing water management facilities.

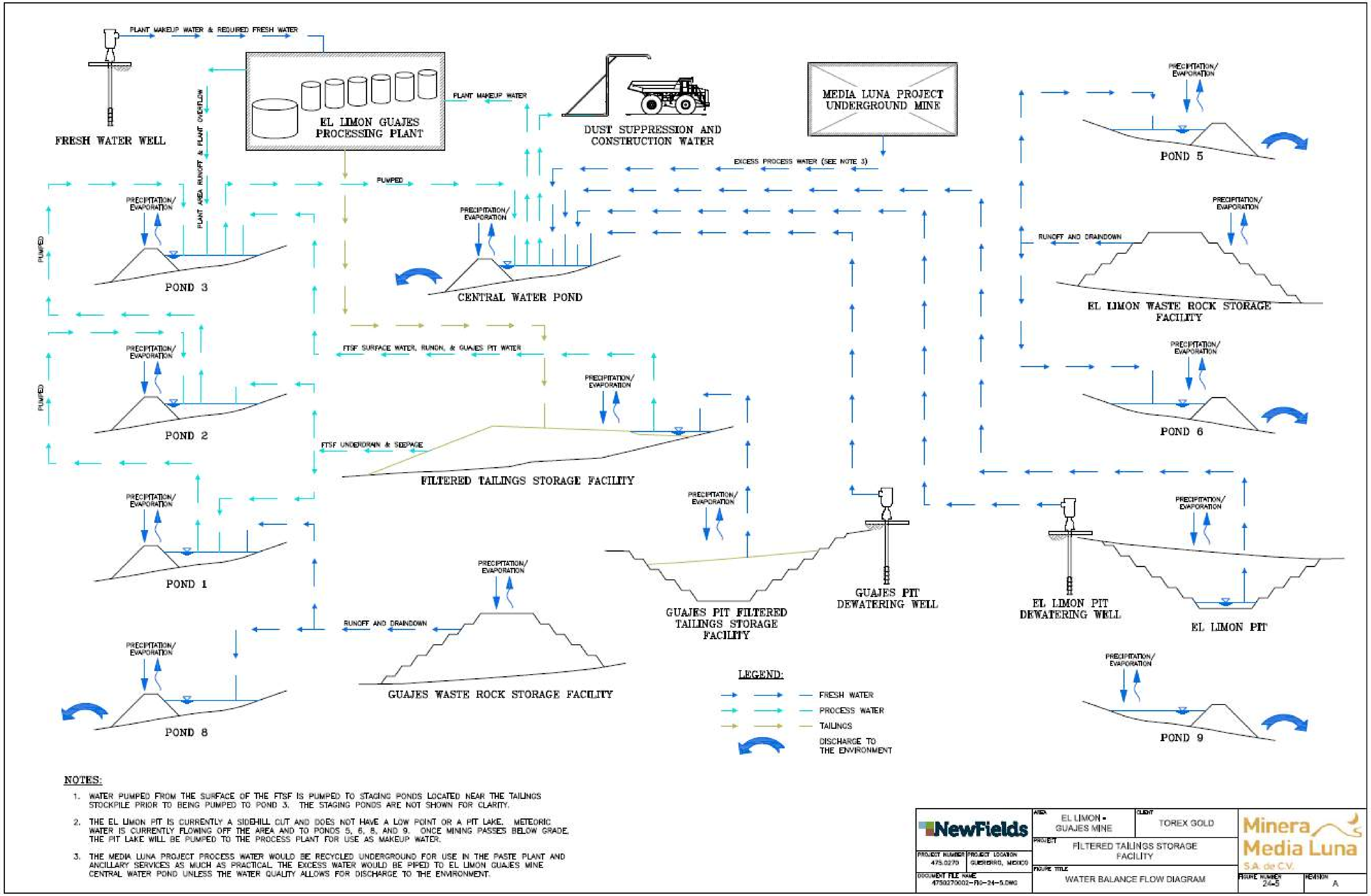


Figure Source: NewFields, 2018

Figure 24-43: Overall Site Water Flow Diagram

24.18.4 On-Site Infrastructure – Waste Storage

24.18.4.1 GP FTSF Design and Operation

To accommodate the additional tailings generated by the ML Project a new tailings disposal is planned for the ELG Mine Complex which would see tailings placed in the mined out Guajes Pit.

The key design elements of the GP FTSF include:

- Tailings in the GP FTSF would be placed into the pit without a requirement for compaction. Current estimates of the required tailings storage will result in tailings being stored below the rim of the Guajes pit. Additional storage capacity could be created by raising the GP FTSF above the rim and this would require additional review and is not part of this study.
- Erosion protection cover (EPC) will be required to prevent erosion from precipitation and wind at end of project life.
- Existing pit benches on the southeast wall are assumed suitable to intercept and collect storm water runoff and direct water to Pond 3 for events smaller than a 1 in 10-year storm. Larger storm events would require in-pit containment and pumping capability to route water to Pond 3. It is anticipated that when deposition is taking place below the pit rim, a designated low area would be utilized to act as a sump. Should tailings be placed above the pit rim, a permanent water management plan would be designed and implemented to control and manage surface water.

A typical schematic cross-section of the GP FTSF is shown on Figure 24-44.

It is anticipated the ML Project would produce approximately 30 million tonnes of tailings/leach residue, of which 25 percent would be used for paste backfill in the underground mine. Considering loss due to metal production and backfill, approximately 21 million tonnes of filtered tailings will be stored on surface in the mined out Guajes pit.

A portion of the combined tailings from both ELG Mine Complex and ML Project would be placed within the permitted ELG FTSF until the facility is filled to capacity. Subsequently, the filtered tailings would be deposited in the mined out Guajes Pit (GP FTSF). Currently, the estimated filtered tailings generated from the ML deposit will be stored within the Guajes pit below the rim of the footwall.

Filtered tailings stored on the surface are currently being evaluated to determine if they are NAG or PAG or will leach constituents of concern. Based on the results to date, the assumption is the ML surface tailings will be NAG since the mill circuit includes a process to remove the most acidic sulfides. As design work on ML processing advances, additional studies will be undertaken to confirm this assumption. If the ML tailings are PAG, the GP FTSF may require low permeability covers or other design elements to minimize the generation of acid or metals leaching. To manage the filtered tailings, the following strategies have been assumed within the conceptual plan:

- Construct sumps that can be pumped to remove accumulated fluids from the base of the Guajes pit if water quality is poor.
- Progressively cover the tailings with the final cover once the tailings reach the final elevation. Passivation systems to prevent oxidation of the tailings is another option under consideration.
- Manage surface water and promote runoff to minimize the water flowing through the tailings to minimize the potential to mobilize contaminants.

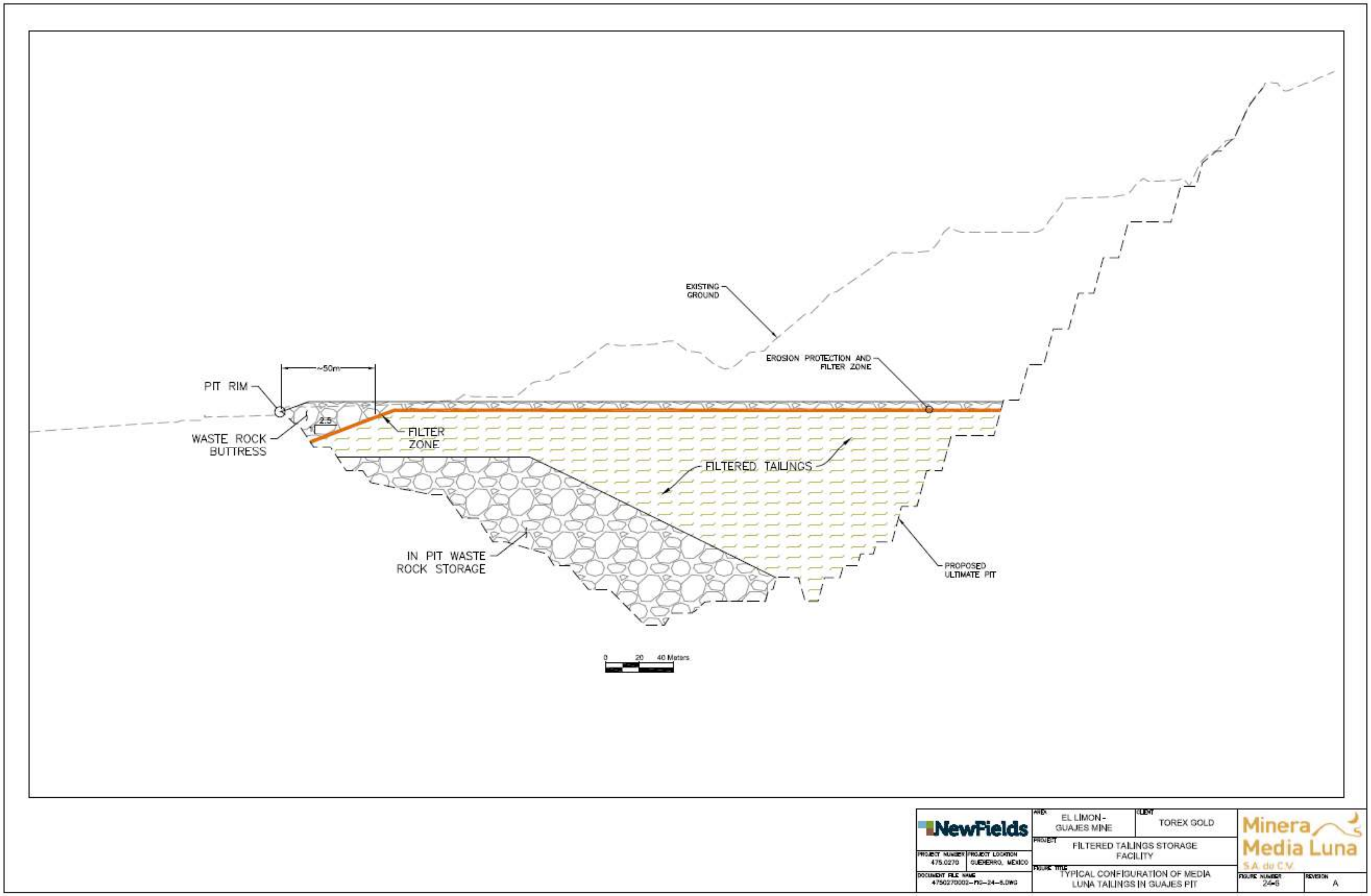


Figure Source: NewFields, 2018

Figure 24-44: Typical GP FTSF Cross Section

With the implementation of these two strategies, water treatment may be avoided. To accomplish these two strategies, careful attention would need to be paid to the deposition plan during future design stages and operation, and a low infiltration final cover may be required over the tailings.

For purposes of the PEA, the final cover of the GP FTSF would include grading to limit infiltration and a cover system appropriate for the tailings materials to minimize erosion, sediment transport and adverse environmental effects.

With respect to the physical slope stability of the GP FTSF, the current projected tailings volume can be stored within the Guajes pit below the rim of the footwall. It is assumed that any tailings placement above the rim of the pit would require a structural outer buttress of waste rock to provide the necessary degree of stability for the filtered tailings.

24.18.4.1.1 Geotechnical Conditions

Within the Guajes open pit, the foundation conditions for construction of the GP FTSF would be exposed rock with some loose mine rock.

24.18.4.1.2 Seismicity

Please refer to Section 18.6.2.1.1.

Since the projected tailings storage is below the rim of the pit, stability is not considered to be an issue. If the tailings will rise above the rim of the pit, stability analyses will be completed to establish minimum geometries for buttressing with mine waste to provide the necessary degree of stability. Preliminary estimates indicate that a 100 m width (horizontal distance) is sufficient to demonstrate stability.

24.18.4.1.3 Tailings Transport to GP FTSF

Please refer to Section 18.6.2.2.

24.18.4.2 El Limón Guajes Filtered Tailings Storage Facility (ELG FTSF) Design Modification

Geochemical test work indicates that some tailings, particularly the ML tailings and especially those derived from the endo and exoskarn gold-bearing rock, produce acidity after buffering minerals are exhausted. Typically, pH will decrease, but due to the generally low sulfide content of all the rock types, pH decrease may not drop much below 4.5. Test work is underway to determine the geochemistry of various planned mill feed blends to assess acid generating potential. Based on the sulfidation characteristics of the ML mineralized material, co-processing of ELG ore and ML material would produce some PAG tailings. To mitigate this, the mill circuit includes a sulfides removal process which should minimize the potential to produce acid generating tailings. Additional testing is proposed to confirm the validity of this scenario. However, the available testing necessitates adopting the same strategy for the ELG FTSF as the GP FTSF, including covering the tailings to limit infiltration of water and oxygen. Other sulfide oxidation preventive measures could also be considered, especially if additional testing indicates that pH decreases are not severe or the proportion of sulfide content in the tailings is low. Additional studies are planned to address these issues.

24.18.4.3 Waste Rock Storage Facility (WRSF) Design and Construction

Within the current designs for the development and production from ML waste will be placed underground as fill or placed on existing WRSF at the ELG Mine Complex. There will not be any WRSF development associated with the ML UG.

24.18.4.3.1 Geochemical Characteristics

Geochemical testing of the waste rock from the development of the ML UG would be completed for the feasibility design stage. The geological information available suggests similarity in waste rock characteristics to those of the ELG Mine Complex.

24.18.4.3.2 ML Portal Water Management

To preclude sediment loading to the river from stormwater runoff in the portal area, a small sediment control structure will be located downstream of the portal and up gradient from the river.

24.18.4.4 Closure Measures

24.18.4.4.1 Access Tunnel, Suspended Conveyor Tunnels and Vent Raises

All vent raises would be provided with reinforced concrete cap anchored to bedrock. The access tunnel and Suspended Conveyor tunnels would be provided with reinforced concrete wall bulkheads at the portals.

24.19 MARKET STUDIES AND CONTRACTS

The key points of this section are:

- The Combined ML Project would produce both Doré Bullion and a Copper/Gold/Silver Concentrate.
- Doré Bullion would be refined under the existing contracts with Asahi Refining and RMC, and sold to major international banks.
- The Copper/Gold/Silver concentrate would be expected to find a wide market place based on its quality.

The Media Luna deposit will be put in operation after 2022. Once placed in operation, the combined ML Project would produce doré as well as copper/gold/silver concentrate.

After comminution, Media Luna mineralized material would be subjected to rougher and cleaner flotation stages to first produce a final copper concentrate, containing gold and silver. Tailings from the flotation process would be subjected to a cyanide leach. In the cyanide leach process, gold and silver would be extracted from the flotation tailings originating from the Media Luna deposit.

After recovery from solution, gold and silver would be melted to produce doré bullion for sale. Any copper in the mineralized material that becomes soluble in the cyanidation leach, would be removed from the circuit through a SART process. The precipitate of that circuit is a synthetic copper sulfide, Cu_2S, containing between 65 and 75% copper. This precipitate could be blended with the copper concentrate from the flotation circuit to be sold as an enriched copper concentrate or the Cu_2S precipitate form the SART process might be marketed separately. The process circuits would be part of the ELG Mine Complex facility.

The salable products would be:

- doré bullion – gold and silver
- copper concentrate – copper, with by-product gold and silver
- copper sulfide precipitate, containing around 70% copper, this product would stand on its own or sold as blend with copper concentrate

Asahi Refining and RMC are expected to continue refining the doré and directly purchasing the silver bullion. All gold bullion would be sold to the lending banks at spot prices; no hedging program is in place.

Gold/silver doré bullion from the Media Luna deposit would be produced concurrently with bullion from the ELG deposit at the existing ELG facility as described in Section 17 of this study. This production would be refined and sold under the terms of the agreements described in Section 19 of this study.

Since the ML Project is presently under early development, sales contracts for metal concentrates projected to be produced are premature. Smelter agreements for the treatment and refining of copper concentrate would be put into place at the time this project would go into production.

24.19.1 Marketing Studies

No marketing studies for bullion are required. A brief marketing study for copper concentrate would be embarked on during the Feasibility Study of the project. However, the expectation is that the annual (or total) volume of mine metal production from both doré bullion and concentrate would not impact world supply, demand, or metal price.

The concentrate produced would be sold into a world market at the market price for the metal contained. Typical TCRC fees would apply. Exen Consulting Services, Oakville, Ontario, Canada performed an assessment of the copper concentrate market in May 2015. Their findings are described in the document “Projected Market Opportunities for Medial Luna Cu-Au Concentrates”, dated on May 13, 2015 and are used in this study (see Section 24.22).

The concentrate sale terms would be subject to changes in the global supply, demand and prices for contained metals in the concentrate. Details on the current supply and demand for these metals, which are of global nature, are available free and at cost from numerous sources, including government entities, banks, investment houses, mineral related consulting firms and academic institutions.

The concentrate market assessment report concluded that based on the concentrate grade and level of deleterious elements predicted to be contained in the concentrate by the metallurgical testing, the concentrates should be marketable. Flotation concentrate from early metallurgical test work and from some of the current mine zones resulted in samples that were inconsistent with respect to concentrate quality. Variations can be expected in concentrate grade, with some samples being of attractive character and some being of lower grade that would be hard to market alone. In practice, lower grade material could be held back for blending with higher grade material to generate a salable product. In addition to the copper metal content grade, the sample assays indicate levels of bismuth, arsenic, antimony, lead, zinc, and mercury that could cause problems in them being classified as an attractive smelter feed stock.

The target markets would be to sell concentrate either directly to smelters or to traders. Traders would buy the concentrate in expectation of blending it with other concentrate for treatment by smelter and refiners under a larger quantity and quality contract. Several metal brokers with established blending operations in Mexico have been identified. The brokers are buyers for concentrate to be blended with better material and shipped to smelters in either Europe or China. Korea and India smelters could also be an alternative smelting location.

24.19.2 Metal Prices

No metal price studies or forecasts were undertaken at this time.

Metal price forecasting is a complex science that is practiced principally by government entities, banks, investment houses, and mineral related consulting firms. As such, the forecasts usually produced tend to be generic in their analysis. Forecasting prices is highly speculative, warranting significant caution in analysis; significant projected changes, especially by governmental entities, could lead to catastrophic effects. Thus, there is a need to balance caution and reality when predicting future prices.

For the purpose of this study, Torex is using the metal prices developed and presented in the economic section of this study.

24.19.3 Smelter Studies

Although certain copper concentrate treatment terms would vary from smelter to smelter and market to market – notably the precious metal payables and penalties – most terms are market-referenced and would be consistent from one buyer to the next. Concentrates with higher levels of impurities may carry a premium on the copper treatment and refining charges, in addition to the penalties.

For the purpose of this study, estimated smelter terms and costs have been developed and reported by Exen Consulting Services and presented in the economic section of this study.

24.20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

The key points of this section are:

- The Mexican environmental authority SEMARNAT approved Minera Media Luna's (MML) Environmental Impact Resolution referred to as the Morelos Mining Project Phase II (MIA PMM Phase II) in September 2017. This permit comprises two main components: a) Modifications to the ELG Mine Complex, and b) Media Luna Advanced Exploration.
- MML is currently exploring the ML mineral resource under an existing Land Use Change (Cambio de Uso de Suelo Forestal (CUSF)), which was granted by SEMARNAT in May 22, 2013 for 18.95 ha, for 5 years. An extension for an additional 2.5 years was issued on June 14, 2018.
- Exploration work is being conducted from land disturbed under an existing ETJ. MML developed an updated ETJ study and submitted the document to SEMARNAT for review in October 2017. SEMARNAT authorities requested additional flora and fauna sampling. Additional sampling and research took place in March 2018. Amendments to the ETJ are underway. Once granted additional roads and drill pads can be developed.
- Torex currently has a common land temporary occupation agreement for 25 years with the owners covering the ML deposit.
- The footprint associated with the exploring and mining of the ML Deposit would be relatively small compared to the ELG Mine Complex as it is envisioned to be mined from underground with all processing and waste material stored at the ELG Mine Complex.
- Based on the preliminary understanding of the ML Project, any social or environmental issues that arise are anticipated to be manageable.
- No indigenous communities were identified in ML's Project area.
- No physical displacement would be required for the ML Project.

The Community Relations Team (CRT) will continue to engage and communicate with the local stakeholders on the proposed modifications to the ELG Mine Complex and ML Deposit.

The purpose of this section is to provide current environmental, socio-economic, and political information on the ML Project, and the considerations to address the known or perceived risks and impacts associated with the development of the project. Section 20 summarizes the environmental studies that have been conducted to date, as well as the planned baseline data collection.

For information on Environmental Studies, Permitting, and Social or Community Impact of the ELG Mine Complex and broader Morelos Property, please refer to Section 20 of this report.

24.20.1 Project Description and Location

The conceptual plan for mining of the ML Deposit is outlined in the previous sections of Section 24 of this report. A list of the key items that may be implemented to reduce social and environmental impacts and surface disturbance is as follows:

- Use of existing ELG infrastructure to the maximum extent possible.
  - Processing and tailings storage of the ML material will be done at ELG Mine Complex in areas already disturbed.
  - Use of the existing ELG infrastructure to support ML, i.e. water supply, power supply, camp and administration facilities.
- Use of underground mining methods to mine the ML Deposit.

- Use of aerial transportation systems from the ML area to ELG, which would minimize surface impact:
  - Ropeway for movement of personnel and mining supplies. The Ropeway will also be used for movement of waste rock prior to the installation of the main rock transportation system.
  - Suspended conveyor to transport rock from ML to ELG and transportation of tailings from ELG to ML for use as mine backfill.
  - Access for development and production for ML will be from the north, so allowing a direct connection to ELG mitigating environmental/social impacts with a southern access.

24.20.2 Regulatory, Legal, and Policy Framework

Section 20.3 presents information on the regulatory framework, and the key permits and authorizations that would be required to develop the ML Deposit and modifications associated with the ELG Mine Complex. Work on the main environmental permits as described in Section 20.3.1 is ongoing, and baseline studies will be conducted to support the environmental approval documentation.

As described in Section 20.2, a Mexican mining concession provides the right and ownership to subsurface resources in the mining lot covered by the concession. Surface access rights must be negotiated separately with the owner of the surface land. If an agreement with the landowner cannot be reached, the Mining Law grants the concessionaire the right to apply to the General Mining Bureau for the expropriation or temporary occupation of the land, which would be granted to the extent that the land is indispensable for the development of the mining project.

MML has successfully negotiated two agreements with the Puente Sur Balsas Ejido on whose land the ML mineral resource is located under for surface access rights:

1. An updated Land Occupation Agreement (Convenio de Ocupación de Temporal - COT) signed on August 2017 with the Puente Sur Balsas Ejido and Bertoldo Pineda Tapia. This agreement is valid for 25 years and includes the terms for tunneling and production for the ML Deposit that were not part of the previous surface rights agreement.
2. An earlier agreement for exploration activities on common use lands held by the Ejido Puente Sur Balsas that was replaced by the agreement above.

The land occupation agreement allows MML access to all common land for the exploration, and a smaller 250 ha footprint that will be defined by MML for the development and production of Media Luna deposit till 2042.

24.20.3 Physical, Ecological and Socio-Economic Setting

The following subsections present a summary of the environmental and social setting for the ML Project, key baseline studies required, and key findings, potential risks and impacts, along with anticipated mitigation measures based on the experience with ELG Mine Complex. For the purposes of the baseline studies required to support the MIA, the physical environment baseline components were defined to include the following, as previously outlined in Section 20.5.1:

- Atmosphere (air quality, greenhouse gas, climate change, noise and vibration);
- Water (hydrogeology, hydrology, surface water and sediment, and risk assessments); and
- Physical (soil, and natural and industrial hazards).

In agreement with the recommendations by the SEMARNAT, an analysis of the abiotic characteristics of the ML Project was carried out for the PMM Phase II MIA, including:

1. Pre-existing conditions - Baseline (A): constituted by the Morelos Mining Project (PMM) and Los Filos Project (to evaluate cumulative environmental effects).
2. Predictions - Project (B): constituted by the ELG Mine Complex and the ML Project including mitigation measures identified for the project.
3. Resulting impact: by A + B

Results from the modelling analysis completed for the permitting of the Media Luna Project Phase II environmental approval indicate that emissions from Los Filos do not have a significant connection with the ELG Mine Complex and ML Project.

24.20.3.1 Atmosphere and Climate

The ML Project is in a region called the Balsas River Basin, at the convergence of the Trans-Mexican Volcanic Belt and the Sierra Madre del Sur. The regional climate ranges from semi-warm to temperate sub-humid. Using the Koppen climate classification, the climate can be described as Tropical Wet-Dry, with year-round mean temperatures above 18°C. The Balsas River Basin experiences distinct dry and wet seasons, with the wet season peaking in July/August and a dry season during the months from November to April. Less than 5% of the total annual rainfall occurs during the dry season. From July to November, there is a period of increased activity of tropical cyclones that may bring large precipitation pulses to the region.

Atmospheric and climatic information indicate that the area has an annual precipitation that ranges from 645.0 to 920.1 mm and an evaporation rate that exceeds the amount of rainfall. Meteorological data are being collected at two on-site stations located within the ELG Mine Complex footprint. These stations were installed in April and May of 2012 and have continued to provide climatology data which has been used to establish the ambient air quality and meteorological baseline information for the ELG Mine Complex ESIA and MIA. The data were used to predict air quality impacts generated by the ELG Mine Complex. Similarly, noise and vibration monitoring were established to assess existing levels near the ELG Mine Complex. Predicted noise and vibration impacts generated by the ELG Mine Complex were assessed, and, with appropriate mitigation measures, comply with the applicable Mexican standards.

The contribution of the ML Project in terms of cumulative impacts on air quality is mainly attributed to waste rock transportation from the ML deposit tunnel to the waste rock dump, road improvements, vehicle and machinery local activities, and blasting. Records of pre-existing noise levels from local communities and noise impact predictions indicate that the increase in pre-existing noise levels is moderate, presenting increases of <10 dBA (7.1 dBA in daytime and 8.5 dBA at night). High magnitude noise levels are equivalent to levels higher than 10 dBA.

Existing noise and vibration emissions indicate that the maximum concentrations applicable for parameters of interest modeled were low, and in compliance with current Mexican regulations (Table 24-51). The applicable Mexican regulation for noise is the Norm NOM-081-SEMARNAT-1994 that establishes the maximum permissible limits of emission of noise. The limit for industrial and commercial zones of day and night noise are 68 dBA and 65 dBA, respectively.

Table 24-51: Noise Level Predictions ML Project

Communities	Predictions (dBA)
Atzcala	18
Balsas Sur	31
Carrizalillo	36
La Parota	23
La Tranca (La Uva)	37
Los Barranqueños	16
Mancilla	49
Mazapa	29
Mezcala	17
Nueva La Fundición	23
Nueva Real del Limón	24
Nuevo Balsas	24
San Juan	19
San Miguel Vista Hermosa	56
Tecomapa	16
Tepehuaje	24

Source: CTA, 2017

Baseline studies to support the ML Project will be developed. Monitoring will be conducted at nearby communities and sensitive receptors in the area of influence of ML Project. Baseline information gathered will be used, along with modeling, to predict potential ambient air quality, as well as noise and vibration impacts from the ML Project.

The proposed modifications to the ELG Mine Complex to accommodate the processing of ML material are all within the overall footprint of the ELG Mine Complex that was evaluated during the MIA and ESIA. The incremental potential environmental and social risk associated with the ML Project activities at the ELG Mine Complex will be evaluated to account for the cumulative effects of the two processing systems, and incremental activities that potentially add to the ELG Mine Complex's impacts previously reported in the MIAs and ESIA.

Project mitigation measures have been updated and included in the MIAs, ESMS, and PSCA aiming to ensure that air quality, noise and vibration levels meet Mexican Standards during all phases of the ML Project.

24.20.3.2 Visual

The proposed modifications to the ELG Mine Complex are included within the overall ELG Mine Complex footprint evaluated during the MIA. Additional studies will be conducted to assess the existing visual landscape conditions prior to the development of the ML Deposit. The assessment would be similar to the assessment previously conducted for the ELG Mine Complex as described in Section 20.4.1.2. Potential visual effects from the development of the ML Deposit would be evaluated during the permitting phase of the ML Project and appropriate mitigation and residual visual impacts would be addressed.

24.20.3.3 Vibrations

Vibrations in soil perceived in local communities near the ML Project present low magnitude levels. The maximum calculated level of 0.54 mm/s occurs in the community of Mancilla, located about 800 m southwest of San Miguel. This predicted vibration level is below the reference standard.

24.20.3.4 Hydrogeology

Baseline hydrogeological characterization of the ML study area is underway to evaluate existing conditions and support predictions of groundwater inflows and drawdowns (see Section 24.26). Given the current understanding of hydrogeological conditions at the ML site, the ultimate discharge point for groundwater would be into the tributaries of the Balsas River, which flows into the Presa el Caracol.

The primary impacts on groundwater quality, which may occur during construction and operations periods, include the possibility of point-source releases of contaminants to the groundwater system (e.g., fuel spills), and the potential seepage (infiltration) of surface water that has been impounded in ponds downgradient of the FTSF and WRSFs.

Preliminary findings indicate that the ML waste rock is not likely acid generating. Preliminary geochemical waste rock testing indicates that most of the common and expected rock types have sufficient buffering capacity and/or low sulfide content to prevent acid generation, except for some hornfels rock types. The limited HCT testing suggest that pH of seepage will remain mostly above circum-neutral pH. Since much of the ML mineralized material is in the higher sulfide-containing rocks, the tailings are assumed (at this stage of planning) to be more likely acid generating. Process technologies are currently being considered to remove sulfides from the ML tailings to reduce the potential to produce acid or leach contaminants of concern. A groundwater assessment should be initiated once the results of the geochemical testing of ML waste rock and tailings are available to establish the parameters of concern.

Geochemical testing of leachate from composite tailings and rock samples indicates that arsenic and, in some instances, copper, lead, and zinc, could be mobilized in leachates from the materials. In general, leachate sample concentrations are low, but occasionally exceed regulated values. To minimize the mixing of leachates from tailings and waste rock generated at the site with surface and groundwater, engineered solutions will be developed and employed.

The filtered tailings from the ML Project would initially be deposited into the existing ELG FTSF, followed by placement in the mined-out Guajes Pit (GP) FTSF. Preliminary plans use the existing ELG FTSF for disposal of both the ELG and ML filtered tailings until the facility reaches the design capacity of 49 million tonnes. Once the ELG FSTF is full, ML tailings will be placed in the GP FTSF. A portion of the filtered tailings will also be placed underground as paste fill. Use of tailings underground will minimize the need for surface disposal of tailings. These options would also be evaluated to determine the potential impacts from the ELG FTSF on groundwater quality. Potential seepage of surface water, which has been impounded in ponds downgradient of the ELG FTSF has been evaluated through the development of a SEEP/w model. This modeling effort would be reevaluated in light of the co-mingling of the ML tailings with the ELG tailings in the ELG FTSF. Development of a three-dimensional groundwater model would also allow for an assessment of mine inflows and drawdown due to dewatering in support of the engineering design and the MIA/ESIA.

24.20.3.5 Surface Water and Sediment Quality

The ML Project has potential to effect surface water and sediment quality. However, the bulk of this impact would be within the ELG Mine Complex where processing and waste storage would occur. The addition of this processing and waste storage to the ELG Mine Complex is not expected to add significantly to the level of impact. Any potential impacts would be mitigated in the same manner as currently done. Some surface work is required on the south side of the Balsas River and would require similar mitigations as used at ELG Mine Complex. Currently, this impact is seen as low.

As work on the ML Project advances the understanding and modeling of potential impacts would also be advanced.

24.20.3.6 Groundwater Quality

The development of the ML deposit could affect groundwater quality in two ways.

1. The development of underground mine will result in contact water (potentially contaminated) being developed, which would then have the potential to enter the groundwater. To understand the potential effects simulation/modeling should be completed as the project advances.
2. The potential of ML waste material stored at ELG Mine Complex effecting groundwater quality is also a possibility for which further study is required. These storage areas are already part of the ELG Mine Complex and have monitoring and mitigation systems in place. The groundwater impact assessment will commence following the characterization of ML waste rock and tailings. The likelihood of groundwater contamination is expected to be low.

24.20.3.7 Soil and Natural Hazards

The effects on soil due to ML activities would be limited as the surface disturbance is small with most of the disturbance planned within the existing ELG footprint. Soil mapping will be limited to the area to be disturbed and associated with ML access on the south side of the Balsas River and any additional minor footprints required on the north side of the river. The overall environmental residual consequence on soil quality due to ML is predicted to be small.

An assessment of the industrial risk, like that undertaken for the ELG Mine Complex, will be conducted for ML Project as it advances. The incremental risk associated with the addition of processing and storage of ML waste products at the ELG site will be evaluated by updating the risk assessment conducted for the ELG Mine Complex. The assessment will include an evaluation of the incremental potential risks from major natural hazards (e.g., earthquake and flooding) and industrial hazards (*e.g.* industrial accidents and malfunctions, and transportation spills and collisions) that may affect public safety and the environment, and to identify the need for any supplementary mitigation measures to avoid, minimize and/or control any identified risks.

Mitigation measures would be implemented along with resources to manage these risks. Risks would continue to be identified, estimated, and managed in ongoing risk management programs throughout detailed design, construction, and operations that would encompass both the ML Deposit and ELG Mine Complex.

24.20.4 Biological Setting

The aquatic biology in ML the area of influence would be characterized during a two-season campaign to assess the seasonal incremental effects on the aquatic biology associated with the addition of the ML Project. Many of the biological effects from the ML Project would be experienced within the ELG footprint. Baseline data would be focused on the following:

1. Evaluate the direct and indirect effects of potential contact water runoff and sediment loading on the aquatic communities near the ML.
2. Assess the potential surface water quality and potential alterations to downstream flow regimes that could affect the quality and quantity of habitat available for aquatic organisms.
3. Assess the presence of species of interest and the mitigation measures to meet compliance with the national regulations.

Based on this evaluation, similar measures that were incorporated into the design and construction of ELG Mine Complex, would also be incorporated into ML such as:

- Designing water management ponds that will capture run-off from the mine site area
- Erosion and sediment control at the portal and ancillary areas associated with ML

The efficiency of the existing infrastructure to control runoff from the new ML mineralized material stockpile and processing area at the ELG Mine Complex site will be evaluated so that runoff from these areas is managed to control the potential impacts to the downstream receiving environment.

Baseline studies of flora and fauna will characterize the main types of vegetation in the study area and identify species of interest, distribution, and conservation status. The floral communities, and the type of species and their composition would be used to characterize the ecosystems within the study area, and the potential impacts to biodiversity from ML Project activities. Fauna surveys would be based on the type of habitat with sufficient coverage of the area of study and representative sampling of all types of habitats.

The species of interest are those species of flora and fauna with endemic or restricted ranges, migratory or congregatory, are of cultural importance, and/or are under any national or international conservation category (also known as protected species or endangered). These will all be identified. The presence of species of interest, their relative populations, seasonal distribution, and specific habitats will be assessed to evaluate the potential impacts on biodiversity.

24.20.4.1 Flora

In preparation for the ML Project MIA application, research studies for the biotic environment, with emphasis on species of interest being included in Norm NOM-059-SEMARNAT-2010 and/or for being identified as endemic, identified seven environmental impacts, all of which are low except for flora removal due to road construction, which had a low intensity, long-term impact. With the implementation of mitigation measures, this impact is expected to be low.

24.20.4.2 Fauna

The impacts matrix for fauna identified 12 impacts, mostly low, except for road construction and rehabilitation during the construction phase. These two impacts are expected to be medium due to a loss of flora coverage, which will cause long-term habitat fragmentation. For all the impacts identified for fauna, it is expected that, with mitigation measures in place, including specific measures to remove felines and birds, the classification of this impact will decrease to low.

24.20.5 Social Environment

24.20.5.1 Socio-economics

As stated in Section 20.4.3.1, the assessment of socio-economics for the ELG Mine Complex included the potential social and economic effects at the local and regional level, which could have implications on the local economy; population and demographics; education; infrastructure (*e.g.*, water, wastewater, housing, transportation); community health, safety and security, and land use and sustainability. The evaluation included predicted macro-economic effects at the state and national levels.

The estimated contribution of the ML Deposit to both the national and local economies will be evaluated. The contribution will consider the foreign direct investment, export values, GDP, and government revenues. Project investment into the local economy and economic benefits, that include direct, indirect and induced, local employment generation, income growth, local business development, training and skill diversification and support for livelihood opportunities would be evaluated against the incremental investment associated with the ML Project. MML implemented a census to identify the local communities' current skills and services. This allowed MML to develop local business opportunities and to implement training programs.

The cumulative effects of population and in-migration to the local communities from the ELG Mine Complex, the ML Project, and other mining projects in the area will be evaluated in terms of employment and business opportunities.

Demographic changes from in-migration will be evaluated, as well as changes in demand for local services and on infrastructure due to population growth, and direct service and infrastructure usage by project.

The incremental socioeconomic effects assessment of ML will also consider the safety, security, and human rights.

The ML Project land rental may affect:

a) land and water access and use;

b) integrity/productivity of resources used for livelihoods (*e.g.* water, crops, grazing areas and livestock, fishing, non-timber forest products); and

c) sustainable livelihoods with respect to food security and income.

These potential effects will be evaluated during the socio-economic assessment of the ML Project.

24.20.6 Environmental and Social Management System

MML´s Environmental and Social Management Systems (EMS and SMS) for the ELG Mine Complex will be updated to address the addition of the ML Project. As part of the overall management system, an over-arching Corporate Responsibility structure applicable to the ELG Mine Complex, the ML Project, and all associated projects has been developed aiming to achieve environmental and social compliance.

24.20.7 Environmental Management Plans

The Environmental and Social Management Plans (EMS and SMS) cover all major aspects of the physical and biological environment as described in Section 20.5.1, and will be updated to incorporate the modifications to the ELG Mine Complex and the ML Project. The Environmental Quality Monitoring Program (Programa de Seguimiento y Calidad Ambiental - PSCA) will be updated.

24.20.8 Social and Community Relations Management

The Environmental and Social Impact assessment conducted for the ELG Mine Complex will be updated to include the ML Project, as will the social management plan, which includes mitigation and benefit enhancement measures to address general categories of socioeconomic effects. These will collectively present a preliminary social management plan for the Project that may include:

- Management of in-migration and population effects
- Management measures to support economic benefits
- Effects on services and infrastructure
- Effects on community health and safety
- Mine closure effects.

Work was completed to re-negotiate and update the temporary occupation agreement with the Puente Sur Balsas Ejido.

MML's Corporate Social Responsibility Team (CSRT) will continue to interact with the stakeholders identified during the ELG Mine Complex ESIA and will update the Stakeholder Engagement Plan to incorporate additional stakeholders associated with the ML Deposit.

24.20.8.1 Stakeholder Engagement

The stakeholder engagement and participatory processes for the ELG Mine Complex will be updated to include the ML Project and would follow the same strategy as described on Section 20.8. The objectives of the updated stakeholder engagement plan may include, but not be limited to: a) defining and managing local stakeholder expectations, b) building positive relationships, c) understanding local stakeholder concerns and issues with the ELG Mine Complex and ML Project, d) Aiming to ensure compliance with commitments acquired in agreements with the communities, and e) building and maintaining MML's social license to operate.

24.21 CAPITAL AND OPERATING COSTS

A PEA was completed for the ML Project which estimated capital and operating cost based on the mining/processing plan described in earlier parts of section 24. The costs presented in this section are for development and operation of the ML Project only and do not contain any costs pertaining to or related to the ELG Mine Complex in respect to processing of the ELG ore. Only costs which are in addition to the current ELG LOM plan described in earlier sections are captured and presented in this section.

This section describes the capital cost to enable exploitation of the ML inferred mineral resources followed by the operating cost for the ML Project.

Commercial production is estimated to begin at the start of the third quarter of 2023. Commercial production is defined when the mine has achieved and maintained 60% of the designed production rate.

Capital expenditure were defined as follows based on the commercial production date:

- Project capital is defined as all capital costs through to the end of the construction period (second quarter 2023) not including pre-commercial operating costs. This period is Years 1 to 4 or 2020 to 2023.
- Pre-commercial capital cost is defined as all Project capital cost, and operating cost prior to commercial production less revenue generated prior to commercial production.
- Sustaining capital is defined as all capital expenditures after the commercial production is obtained, start of the third quarter 2023.

Key Points:

- Estimated Project capital cost of $496.5 million for development of the ML Project. This cost includes $271.5 million for the process plant and surface infrastructure (including Suspended Conveyor) and a total $225.0 million for underground development. The Project capital cost is the expenditure incurred over 3.5 years from year 2020 thru 2023 of the ML Project life.
- Sustaining capital for ML was estimated at $109.4 million to be spent after the project phase.
- Operating costs for mining and processing of the ML mineral resource have been estimated based on current labor rates in use at ELG Mine Complex and budgetary pricing from suppliers.
- Underground mining costs (combined LHOS and C&F) are estimated at $23.64/t.
- Processing cost is based on estimates using current cost for the ELG Process Plant as a guide and is estimated at $23.47/t.
- Site Support cost estimates were developed using current cost at the ELG Mine Complex as a guide and is estimated at $14.11/t.

24.21.1 Capital Cost Estimate

24.21.1.1 ML Project Capital Cost

A project capital cost estimate was prepared for the development, mining and processing elements of the ML Project. Capital cost estimates for the surface and process plant were completed by M3 and mine development cost estimates were completed by Torex. The cost estimate in this section describes the cost for the exploitation of the ML mineral resource. Table 24-52 provides a summary of the costs.

Table 24-52: ML Project Capital and Pre-commercial Capital Summary (Year 2020 to year 2023)

Design Element	Project Capital ($M)	EPCM ($M)	Other Indirects ($M)	Owner's Cost ($M)	Contingency ($M)	TOTAL ($M)
Surface and Process Plant	$171.0	$27.6	$14.1	$5.6	$53.2	$271.5
Underground Development	$163.9	$12.5	$-	$11.1	$37.5	$225.0
Sub-Total Project Capital	**$334.9**	**$40.1**	**$14.1**	**$16.7**	**$90.7**	**$496.5**
					Pre-Commercial Operating Cost	**$92.5**
					Pre-Commercial Revenue	**-$177.6**
					Total Pre-Commercial Capital	**$411.4**

Sustaining capital cost for the underground mining of the ML mineral resource was estimated at $109.4 million.

Process plant and surface infrastructure were identified as not requiring any sustaining capital at this level of study.

24.21.1.1.1 Estimate Accuracy

The accuracy of this estimate for those items identified in the project scope are estimated to be within the range of plus 25% to minus 25%; i.e. the cost could be 25% higher than the estimate or it could be 25% lower. Accuracy is an issue separate from contingency, contingency accounts for undeveloped scope and insufficient data (i.e. geotechnical data).

The following is a summary of the approach used to estimate the costs in the ML Project.

- **Processing Facilities:** Costs for the processing facilities were developed by utilizing a major equipment list, benchmarking similar projects, and information from the completed ELG Mine Complex Operations.
- **Infrastructure:** Costs for the power line were estimated based on the cost per kilometer for a similar installation. Other infrastructure costs were estimated based on similar projects and information from the completed ELG Mine Complex build.
- **Indirect:** Indirect costs are based on standard percentages of direct level costs. EPCM, mobilization, commissioning, owner's costs and first fills are included in indirect costs.
- **Contingency:** Contingency was assumed to be 25% of the total contracted cost for the processing plant and surface infrastructure, and 23% for the underground cost estimate.

24.21.1.2 Surface and Process Plant Capital (M3 estimate)

24.21.1.2.1 Basis of Estimate

In general, M3 based this capital cost estimate on its knowledge and experience gained during the construction of the ELG Mine Complex and of similar types of facilities and work in similar locations. Resources available to M3 included the actual and estimated costs/contracts for construction of the ELG Mine Complex and plant designs for similar process plants under construction, design or study in other locations.

To assist in the estimating, M3 used quantity estimates and allowances for smaller items within each discipline. Equipment costs were based on recent vendor quotations for the specific equipment planned for this plant. The ML Project is assumed to be constructed in a conventional EPCM format similar to what was utilized for construction of the ELG Mine Complex, i.e. Torex would retain a qualified contractor to manage and design the ML Project; bid and procure materials and equipment as agent for Torex; bid and award construction contracts as agent; and manage the construction of the facilities as agent.

Torex would order major material supplies (i.e., structural and mechanical steelwork) as well as bulk orders (i.e. piping and electrical). These would be issued to construction contractors on site using strict inventory control.

All costs to date by the Owner on the ML Project are considered as sunk costs. Any costs incurred for this preliminary economic assessment and the completion of any future feasibility study, including field geotechnical drilling and lab testing, are not included.

"Project Capital" is defined as all capital costs through to the end of the construction period with and overlap in expenditures into the year when commercial production is achieved; this period is Years 1 to 4 (2020 to 2023). Capital costs estimated for later years are "Sustaining Capital" in the financial model. The estimated ML Project capital costs are summarized in Table 24-52.

No escalation has been included. All costs are in US dollars as 1st quarter 2018.

It was assumed that no geo-synthetic bottom liner would be required for the Guajes Pit Tailing Facility and local borrow material is available for use during construction.

24.21.1.2.2 Documents

Documents available to the estimators include the following:

• Design Criteria	No
• Equipment List	Partial
• Equipment Specifications	No
• Construction Specifications	No
• Flowsheets	Yes
• P&IDs	No
• General Arrangements	Partial
• Architectural Drawings	No
• Civil Drawings	Partial
• Concrete Drawings	No
• Structural Steel Drawings	No
• Mechanical Drawings	No
• Electrical Schematics	No
• Electrical Physicals	No
• Instrumentation Schematics	No
• Instrument Log	No
• Pipeline Schedule	No
• Valve List	No
• Cable and Conduit Schedule	No

24.21.1.2.3 Project Capital Cost Tabulation

Table 24-53 shows the surface & process plant project capital cost summary table for the PEA study.

Table 24-53: Surface & Process Plant Project Capital Cost Estimate

SUMMARY

Torex Gold Resources. Inc. **8/1/2018**
PEA ESTIMATE
TOTAL PROJECT COST SUMMARY SHEET
170117 Media Luna Ore Processing

Plant Area	Description	Man-hours	Plant Equipment	Material	Labor	Subcontract	Construction Equipment	Total
	DIRECT COST							
000	General Site	493,832	$2,424,550	$2,516,080	$4,123,152	$0	$7,343,071	$16,406,853
055	Mine Equipment	0	$0	$0	$0	$0	$0	$0
080	Suspended Conveyor	157,523	$31,897,203	$1,243,530	$6,947,840	$0	$4,590,799	$44,679,372
081	Suspended Conveyor To Tailings Storage	19,764	$1,650,000	$218,467	$324,104	$0	$265,824	$2,458,395
085	Ropeway	86,536	$9,004,487	$286,149	$1,092,775	$0	$1,281,117	$11,664,529
401	Flotation	324,158	$13,831,173	$4,461,874	$3,314,342	$0	$2,689,240	$24,296,629
402	Leaching	35,112	$5,523,879	$1,872,583	$1,132,667	$0	$770,092	$9,299,220
501	Concentrate Filtering and Load Out	71,053	$2,373,208	$1,653,006	$878,422	$0	$496,577	$5,401,213
601	Thickening	151,402	$4,800,625	$1,735,756	$1,510,586	$0	$888,933	$8,935,900
611	Cyanide Recovery	5,065	$269,276	$259,491	$56,187	$0	$54,471	$639,424
621	Tailing to Suspended Conveyor	68,836	$5,492,683	$659,366	$789,086	$0	$815,424	$7,756,558
701	Electrical Distribution & Substation	814,480	$10,641,339	$3,787,984	$3,747,981	$0	$1,591,596	$19,768,900
801	Reagents	9,755	$780,861	$243,654	$109,529	$0	$101,543	$1,235,588
940	Media Luna Service Portal Pad	21,828	$746,234	$306,432	$227,069	$0	$114,082	$1,393,817
955	Permanent Camp Expansions	74,053	$0	$204,635	$593,487	$0	$357,717	$1,155,839
	Freight		$8,943,552	$1,944,901	$0	$0	$1,068,024	$11,956,477
	IMMEX		$2,683,066	$583,470	$0	$0	$640,815	$3,907,350
	Subtotal DIRECT COST	**2,333,398**	**$101,062,135**	**$21,977,377**	**$24,847,228**	**$0**	**$23,069,323**	**$170,956,063**

NOTES:

1. Indirect Field Costs are allocated as follows: Mobilization at 1% of Direct Cost, field payroll burden and overhead (included in labor); field supervision, field supervisory burden, and support (included in labor); and the estimated contractor field overhead cost (included in labor & unit rates). Camp and busing costs are included at $3.00 per hour (excludes mining equipment assembly contractor & maintenance & operation personnel).
2. Contractors' fee included in labor rate or unit cost.
3. Management & Accounting included at .75% of Total Constructed Cost w/o Mine Equip.
4. Engineering included at 6.5% of Total Constructed Cost w/o Mine Equip.
5. Project services included at 1% of Total Constructed Cost w/o Mine Equip.
6. Project control included at 0.75% of Total Constructed Cost w/o Mine Equip.
7. Construction Management included at 6% of Total Constructed Cost w/o Mine Equip.
8. Supervision of Specialty Construction included at 1% of Total Constructed Cost w/o Mine Equip
9. Vendor representatives are included at 0.3% of Plant Equipment Costs w/o Mine Equip.
10. Construction Commissioning Spare parts are included at 0.5% of equipment costs w/o Mine Equip. Capital Spare Parts included at: 2% of Plant Equipment w/o Mine Equip or Rope Con, Rope Con at 1.5%.
11. Contingency included as calculated = 25.0%
12. Added Owners Cost allocated by Owner for land acquisition, permitting and environmental studies, owner's project administrative costs, mine development cost, and mine equipment cost, and operator training cost, and all other Owner's Costs are excluded from the estimate. Owner's cost are excluded from this estimate.
13. All costs are in first quarter 2018 dollars with no escalation added.
14. Total Project Cost is projected to be accurate within the range of -25% to +25%.

Note: Construction Manhours do not include subcontract hours.

Indirect labor hours are approximately 15% of total direct labor hours. The costs for indirect labor hours as well as any Contractor profit are captured in the direct hours labor rate.
The following exchange rates from March 30, 2018 were used:

Euros per US Dollar	0.8119
Mexican Pesos per US Dollar	18.168
Canadian Dollars per US Dollar	1.290
Australian Dollars per US Dollar	1.301
Chinese Yuans per US Dollar	6.284
Japanese Yens per US Dollar	106.218

IVA is not included in this estimate.

TOTAL DIRECT FIELD COST	$170,956,063
TOTAL DIRECT FIELD COST w/o Mine Equipment	$170,956,063
Mobilization	$1,709,561
Camp & Busing Costs	$7,000,193
Construction Power	$170,956
FEE - CONTRACTOR (2)	In Direct Cost
TOTAL CONSTRUCTED COST w/o Mine Equip	**$179,836,773**
MANAGEMENT & ACCOUNTING (3)	$1,348,776
ENGINEERING (4)	$9,807,984
PROJECT SERVICES (5)	$1,798,368
PROJECT CONTROL (6)	$1,348,776
CONSTRUCTION MANAGEMENT (7)	$10,790,206
EPCM FEE Fixed	$1,254,705
EPCM FEE At Risk	$1,254,705
EPCM Construction Trailers	$359,674
Supervision of Specialty Construction (8)	$1,010,621
Temporary Construction Facilities	$899,184
Precommissioning	$303,186
VENDOR'S COMMISSIONING (9)	$303,186
CONSTRUCTION COMMISSIONING SPARES (10)	$505,311
Capital Spares (10)	$1,876,519
TOTAL CONTRACTED COST	**$212,697,974**
CONTINGENCY - Total Contracted w/o Mining (11)	$53,174,494
CONTINGENCY - Mining (AMC)	$0
TOTAL CONTRACTED COST With Contingency	**$265,872,468**
Mining Cost (055)	$0
OWNER'S COST Excluding Working Capital (12)	$3,811,619
First Fills	$1,813,320
ESCALATION (Excluded)(13)	$0
TOTAL CAPITAL COST (14)	**$271,497,407**

24.21.1.3 Underground Capital Costs (Torex Estimate)

The project capital cost for underground is estimated at $225M over the three and a half years. The sustaining capital amounts to $109.4M over the life-of-operation (after commercial production is achieved), for a total of $334.4M. A summary of the estimated underground capital and sustaining capital costs is shown in Table 24-54 and Table 24-55.

Table 24-54: Summary of Underground Project Capital Costs

Project Capital	Units	Qty.	Cost ($M)
Development			
Ramps and lateral	Meter	6,200	$19.6
Ventilation raises	Meter	1,800	$11.5
Passes	Meter	850	$3.3
Contractor development	Meter	13,000	$45.0
Auxiliary Ventilation	Lot	1	$1.4
Main dewatering	Ea	2	$1.9
Underground shops	Ea	2	$2.9
Underground services	Lot	1	$0.7
Electrical distribution	Lot	1	$4.9
Mining support	Lot	1	$3.0
Materials handling	Lot	1	$8.1
Paste backfill plant	Ea	1	$19.5
Mobile equipment	Lot	1	$36.0
Water Control Structures	Ea	2	$2.9
Main Ventilation	Lot	1	$3.2
Sub-Total			**$163.9**
EPCM	Lot	1	$12.5
Owners cost	Lot	1	$11.1
Contingency	Lot	1	$37.5
Total Underground Project Capital			**$225.0**

Table 24-55: Summary of Underground Sustaining Capital Costs

Sustaining Capital	Units	Qty.	Cost ($M)
Development			
Ramps and lateral	meter	27,900	$53.7
Ventilation raises	meter	1,150	$7.3
Passes	meter	2,200	$8.5
Ramps and lateral (Contractor)	meter	-	-
Auxiliary Ventilation	lot	1	$0.6
Main dewatering	ea	1	$2.1
Underground shops	ea	1	$1.7
Underground services	lot	1	$0.03
Electrical distribution	lot	1	$2.7
Mining support	lot	1	$0.4
Materials handling	lot	1	$2.2
Paste Backfill Plant	ea	-	$4.9
Mobile equipment	lot	1	$23.3
Main Ventilation	lot	1	$2.1
Total Underground Sustaining Capital			**$109.4**

24.21.1.3.1 EPCM, Owners Cost and Contingency

EPCM and Owner's costs have been estimated at 8% and 6.5% of the project cost respectively. Contingency is estimated at approximately 23% of the total underground cost. Table 24-56 shows the contingency applied to each capital area.

Table 24-56: Capital Contingency

Description	%
Development	25%
Ventilation fans	30%
Main dewatering	30%
Underground shops	30%
Underground services	30%
Electrical distribution	30%
Mining support	30%
Materials handling	35%
Paste backfill plant	35%
Mobile equipment	10%

24.21.1.3.2 Mine Development Capital Cost

A total of 53,200 meters of capital waste development is estimated over the life-of-operation at a cost of $148.9M. The Project Capital cost for development is estimated at $79.5M. A summary of the total meters and costs are shown in Table 24-57. Unit cost for each development type is provided in Table 24-58. Unit costs were estimated based on first principles and include budget prices from Mexican and North American suppliers of consumables. Equipment operating, and maintenance costs were sourced from suppliers or public sources and utilized in the estimate.

Table 24-57: Underground Capital Development Costs

Underground Capital	Project Capital		Sustaining		Total	
	Quantity (m)	Cost ($M)	Quantity (m)	Cost ($M)	Quantity (m)	Cost ($M)
Development						
Ramps and lateral	6,200	$19.6	27,900	$53.7	34,100	$73.3
Ventilation raises	1,800	$11.5	1,200	$7.3	3,000	$18.8
Passes	900	$3.3	2,200	$8.5	3,100	$11.8
Ramps and lateral (Contractor)	13,000	$45.0	-	-	13,000	$45.0
Total	**21,900**	**$79.5**	**31,300**	**$69.4**	**53,200**	**$148.9**

Table 24-58: Unit Cost for Capital Development

Development Type	Unit Cost ($/meter)
5m x 5m ramps and lateral by contractor	$3,500
5m x 5m ramps and lateral by company (project phase)	$3,200
5m x 5m ramps and lateral by company (sustaining phase)	$1,900
Raiseboring by contractor	$6,300
Alimak raising by contractor	$3,900

24.21.1.3.3 Mobile Equipment Costs

The mobile fleet selected shown in Table 24-59 is typical of an LHOS and C&F operation. The total cost for mobile equipment is estimated at $59.3M over the life-of-operation. The quantity of equipment is based on productivities and benchmark data provided. The budget prices were obtained from equipment manufacturers.

Table 24-59: Mobile Equipment Fleet

Mobile Equipment	Project		Sustaining - New		Sustaining - Refurbished		Total ($M)
	Qty	Cost ($M)	Qty (new)	Cost ($M)	Qty (refurb.)	Cost ($M)	
Two boom jumbo drill	6	$6.1	2	$2.0	4	$2.0	$10.1
Longhole production drill	3	$2.7	1	$0.9	4	$1.8	$5.3
Slot raise production drill	2	$2.3	0	-	2	$1.1	$3.4
LHD 14 tonne	6	$5.0	3	$2.5	8	$3.4	$10.9
Pneumatic ANFO loader	3	$1.4	0	-	1	$0.2	$1.6
Haulage truck 42 tonne	6	$5.3	2	$1.8	5	$2.2	$9.3
Bolter	3	$2.7	0	-	2	$0.9	$3.5
Cable bolter	1	$0.9	0	-	1	$0.5	$1.4
Personnel carrier	4	$1.6	0	-	2	$0.4	$2.1
Scissor lift truck	5	$1.9	0	-	3	$0.6	$2.5
Lubrication truck	2	$0.8	0	-	2	$0.4	$1.2
Boom truck	2	$0.8	0	-	2	$0.4	$1.1
Personnel vehicle	9	$0.9	13	$1.3	0	$-	$2.2
Shotcrete sprayer	2	$1.3	0	-	1	$0.3	$1.7
Front end loader	1	$0.3	0	-	0	$0.2	$0.5
Transmixer	1	$0.5	0	-	1	$0.3	$0.8
Forklift	4	$1.0	0	-	0	$-	$1.0
Motor grader	2	$0.4	0	-	2	$0.2	$0.6
Total	**62**	**$36.0**	**21**	**$8.5**	**40**	**$14.8**	**$59.3**

24.21.1.3.4 Fixed Plant and Infrastructure

The total estimated cost for underground fixed plant and infrastructure is $65.2M. Project capital is $48.5M and sustaining capital amounts to $16.7M. A cost breakdown is shown in Table 24-60. Table 24-61 shows the estimated cost for material handling fixed equipment.

Table 24-60: Fixed Plant Project and Sustaining Capital

Infrastructure	Units	Project		Sustaining		Total	
		Quantity	Cost ($M)	Quantity	Cost ($M)	Quantity	Cost ($M)
Auxiliary ventilation	Lot	1	$1.4	1	$0.6	2	$2.0
Main dewatering	Ea	2	$1.9	1	$2.1	3	$3.9
Underground shops	Ea	2	$2.9	1	$1.7	3	$4.6
Underground services	Lot	1	$0.7	1	$0.0	2	$0.8
Electrical distribution	Lot	1	$4.9	1	$2.7	2	$7.5
Mining support	Lot	1	$3.0	1	$0.4	2	$3.3
Materials handling	Lot	1	$8.1	1	$2.2	2	$10.4
Paste backfill plant	Ea	1	$19.5	1	$4.9	1	$24.5
Main ventilation	Lot	1	$3.2	1	$2.1	2	$5.3
Water control structure	Ea	2	$2.9	0	-	2	$2.9
Total Underground			**$48.5**		**$16.7**		**$65.2**

Table 24-61: Materials Handling Equipment Costs

Materials Handling Fixed Equipment	Project		Sustaining - New		Total ($M)
	Quantity	Cost ($M)	Quantity (new)	Cost ($M)	
Grizzly and rockbreaker	3	$1.3	0	-	**$1.3**
Truck chute	2	$1.3	1	$0.6	**$1.9**
Apron feeder	2	$0.6	1	$0.3	**$0.9**
Scalpers	9	$0.6	21	$1.3	**$1.9**
Rock Excavations & Chambers	Lot	$4.3	-	-	**$4.3**

24.21.2 Operating & Maintenance Costs

24.21.2.1 ML Project Operating Cost

An operating cost estimate was produced for the mining and process design elements of ML. This effort includes operating cost estimates for the site support costs, process plant costs (completed by M3) and mining costs (completed by Torex). Costs shown in this section of the report are solely for the ML Project.

Operating cost were determined annually for the life of the mine. No escalation was included within this study.

Key inputs for operating costs:

- Processing of mineralized material begins in 2022-Q4 with the associated operating cost.
- Labor rates for the various job classifications as per current labor contract, including appropriate burden for each category to cover items such as overtime, health care, vacation, and federal holidays. Work rotation travel costs for employees living in other states of Mexico are included with labor costs.
- A portion of the workforce lives in the permanent camp. Camp costs (catering, etc.), transportation for employees who live in camp, and bussing costs for local employees are included within Support Services cost estimates and excluded from labor rates and mining cost estimates.
- No VAT or import duties are included in the mining cost estimates.
- Diesel costs $0.90/ltr.
- Electricity $0.084/kWh.
- Exchange rate: 18:1 MXN:USD.

This section addresses the following costs:

- Surface and Process Plant Operating Cost
- Site Support Costs
- Underground Mining Costs

24.21.2.1.1 Cost Estimates during ELG overlap Period and Post overlap period

The LOM operating cost is estimated $23.47 per tonne processed for the process plant and is estimated at $14.11 per tonne processed for site support and has two distinct periods described as follows:

- ELG Overlap period when ELG ore and ML mineralized material will be stockpiled and then processed in batches and the operating cost is shared equally on a per tonne basis. The concentrator cost in this period is solely allocated to the ML mineralized material.
- Post Overlap period is when the ELG ore is exhausted and the processing plant is only processing ML mineralized material and all cost are attributed to the ML mineralized material.

24.21.2.1.2 Surface and Process Plant Operating Cost

Key process plant operating cost parameters include the following:

- Consumption rates are based on the current operations. Regent consumptions for the concentrator have been estimated based on test work and industry practice. Reagents for the process plants are estimated to be approximately $25 million per year.
- Grinding media consumption and wear items (liners) are based on the current crushing and grinding operations. The wear item prices are based on current supply costs or existing contractual agreements. Total annual cost for grinding media and liners is estimated at approximately $7 million.
- 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. Maintenance cost are estimated to be approximately $6 million annually.
- Allowances for outside consultants, outside contractors, vehicle maintenance, and miscellaneous supplies. The allowances were estimated based on historical spending at the ELG Mine Complex. The process supplies and services costs are estimated to be approximately $10 million annually.

Table 24-62: LOM Operating Costs by Process Area

Media Luna Mineralized Material Processed (kt)	30,937 kt	
Processing Operations	**Total Cost - $M**	**$/tonne material Processed**
Crushing	$14.92	$ 0.48
Grinding	$175.39	$ 5.67
Leaching & Thickening	$176.24	$ 5.70
Carbon handling & Refinery	$20.41	$ 0.66
Cyanide Destruction	$13.02	$ 0.42
Filtering	$74.73	$ 2.42
Tailing	$37.39	$ 1.21
Ancillary	$7.03	$ 0.23
Plant Indirect	$49.93	$ 1.61
SART	$18.71	$ 0.60
Concentrator	$138.21	$ 4.47
Total Processing	**$725.97**	**$23.47**

24.21.2.1.3 Site Support Cost

Site Support costs include labor and fringe benefits (including profitability bonus) for the administrative personnel, human resources, safety and environmental and accounting. Also included are land owner's cost, office supplies, communications, insurance, employee transportation (including bussing while onsite as well as travel for non-local labor) and camp, and other expenses in the administrative area. Table 24-63 provides a summary of the ML Project site support costs.

Table 24-63: ML Project Site Support Costs

Media Luna Mineralized Material Processed (kt)	30,937 kt	
	LOM Cost - $M	**$/tonne processed**
General Management (incl. Profit Share)	$271.81	$8.79
G&A	$17.26	$0.56
Human Resources & Training	$19.64	$0.64
Community Relations	$20.27	$0.66
HSE	$19.49	$0.63
Camp & Security	$87.98	$2.84
Total Site Support Cost	**$436.45**	**$14.11**

24.21.2.2 Underground Mining Operating Cost (estimated by Torex)

24.21.2.2.1 Summary of Operating Costs

Underground operating costs are inclusive of labor, supervision, maintenance, equipment and consumables for the Owner's fleet of mobile haulage and support equipment fleet as well as fixed plant equipment such as ventilation, dewatering and backfill. The total underground operating cost is estimated at $731.2M. A listing of the direct underground operating cost totals and cost per tonne is summarized in Table 24-64. Total underground cost per tonne excluding Site Support is $23.64 per tonne. An overall breakdown of labor, materials and equipment are provided in Table 24-65.

Key mine operating cost parameters include:

- Mine operating costs extend from 2023-Q3 to end of 2033, including a 1-year ramp-up phase until commercial production is declared in 2023-Q3. Note that operating costs prior to commercial production have been capitalized.
- Underground mine operation is based on 3 shifts per day, 9 hours/shift.
- Labor rates are estimated using current labor rates at the ELG Mine Complex with the addition of an "underground premium" and are based on three operating crews on a 20 day on-10 day off rotation.
- Maintenance of all underground equipment (mobile and fix plant) is by company crews.

Table 24-64: Direct Underground Operating Cost Summary

	Tonnes (M)	Cost ($M)	Cost per tonne ($)
LHOS			
Stoping			
Labor	20.7	$8.9	$0.43
Materials	20.7	$38.8	$1.88
Equipment	20.7	$48.6	$2.35
C&F			
Stoping			
Labor	10.3	$16.2	$1.57
Materials	10.3	$55.9	$5.45
Equipment	10.3	$79.7	$7.76
Total Stoping (prorated)	**30.9**	**$248.1**	**$8.02**
Haulage	30.9	$53.8	$1.74
Mine services	30.9	$8.0	$0.26
Diamond drilling	30.9	$28.9	$0.94
Paste backfill	30.9	$103.5	$3.35
Development	30.9	$117.4	$3.80
Maintenance	30.9	$86.5	$2.80
Utilities	30.9	$63.8	$2.06
Mine staff	30.9	$21.3	$0.69
Total*	**30.9**	**$731.2**	**$23.64**

Table 24-65: Labor, Materials, and Equipment Percentage

	Cost ($M)	%
Labor	$133.4	18%
Materials	$284.8	39%
Equipment	$249.3	34%
Utilities	$63.8	9%
Total	**$731.2**	100%

24.21.2.2.2 Labor Cost

Labor costs are estimated based on Torex's current experience at the ELG Mine Complex with an estimated cost increase for underground work.

24.21.2.3 Operating Cost Tabulation

Table 24-66 shows operating costs in a more detailed fashion.

Table 24-66: Detailed Operating Costs

	LOM		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033	
Processed Tonnes (000)	30,937		249		1,940		2,792		2,805		2,811		3,112		3,079		3,105		3,126		3,075		3,070		1,772	
	LOM Cost	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**	**Annual Cost**	**$/t processed**
Mining	$731,204	$23.64	$13,377	$53.71	$59,493	$30.67	$74,478	$26.67	$63,993	$22.81	$66,807	$23.77	$68,544	$22.02	$70,880	$23.02	$69,158	$22.27	$68,661	$21.96	$64,630	$21.02	$66,135	$21.54	$45,046	$25.42
Process Plant	$725,972	$23.47	$6,125	$24.59	$45,284	$23.35	$62,795	$22.49	$65,554	$23.37	$65,274	$23.22	$71,687	$23.03	$73,043	$23.72	$73,569	$23.70	$74,006	$23.67	$72,960	$23.73	$72,866	$23.73	$42,809	$24.16
Site Support (including Profit Share)*	$436,451	$14.11	$2,241	$9.00	$16,686	$8.60	$26,914	$9.64	$42964	$15.32	$46,162	$16.42	$45,854	$14.73	$51,238	$16.64	$42,194	$13.59	$43,424	$13.89	$44,684	41.53	$42,283	$13.77	$27,014	$15.24
Treatment & Refinery	$310,165	$10.03	$5,332	$21.41	$30,031	$15.48	$35,444	$12.69	$33,520	$11.95	$27,620	$9.83	$29,510	$9.48	$28,374	$9.21	$27,981	$9.01	$29,551	$9.45	$25,582	$8.32	$24,551	$8.00	$12,670	$7.15
Total Mine Site Operating Cost	$2,203,792	$71.23	$27,076	$108.72	$151,494	$78.10	$199,631	$71.50	$206,030	$73.45	$205,864	$73.23	$215,595	$69.28	$223,535	$72.60	$212,902	$68.57	$215,642	$68.98	$207,856	$67.59	$205,834	$67.04	$127,538	$71.96

* Site Support total has cost in 2034 not shown on table.

24.22 ECONOMIC ANALYSIS

The economic evaluation for the Media Luna Project was completed by developing a financial model for a conceptual mine plan for the ML Project as described in Section 24 of this report. It is considered a standalone financial model with only cost and revenue incurred and generated by the ML Project being considered in the model. It must be noted that to enable processing of the ML mineralized material starting in late 2022, room is made in the ELG Processing plant by displacing corresponding amount of ELG ore from the plant for processing later. No revenue nor costs has been assumed within this model for the ELG ore. Taxes in the ML Project financial model were calculated based only on costs and revenue related to ML Project and treated as a "Standalone" project. The calculations do not include any revenue, expense, or tax information or effects related to ELG Mine Complex. The economic evaluation for the Media Luna Project includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the ML PEA will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

Key Points

- The ML Project yields an after-tax IRR of 27.3% with an NPV of $582 Million at a discount factor of 5% and a cumulative undiscounted cash-flow of $1.11 Million.
- Total metal produced during the ML Project life is estimated at:
  - Gold = 2.15 M Oz
  - Silver = 18.66 M Oz
  - Copper = 599.5 M Lbs
- Base case metal prices assumed within the PEA are $1,200/oz gold, $17.00/oz silver and $3.00/lb copper.
- The ML Project demonstrates positive economic indicators at a 20% reduction in metal prices used in the Base Case – yielding an after-tax IRR of 16%, an NPV of $253 Million at a discount factor of 5% and a cumulative undiscounted cash-flow of $573 Million. ($960/oz gold, 13.60/oz silver and $2.40/lb copper).

24.22.1 Introduction

This section presents the results of the financial evaluation of the conceptual ML Project. These results are presented in the form of Net Present Value (NPV) (at various discount factors), payback period (time in years to recapture the initial capital investment), and the Internal Rate of Return (IRR) for the ML Project.

For the ML Project, annual cash-flow projections were estimated over the life of the project based on estimates of capital expenditures, production cost and sales revenue. The sales revenue is based on the production of a copper/gold/silver concentrate and gold/silver doré. The estimates of capital expenditures and site production costs have been developed specifically for the new aspects required for mining and recovery of metal from the ML resource presented in earlier Section 24.21 of this report.

24.22.2 Mine Production Statistics

The annual production figures were obtained from the recoveries, mine plan and processing strategy as reported earlier in Section 24.13, 24.16 and 24.17.

Media Luna mineralized material tonnes and grade are presented in Table 24-67.

Table 24-67: Media Luna Potential Inferred Mineral Resource Inventory

	Tonnes (kt)	Copper Grade (%)	Gold Grade (g/t)	Silver Grade (g/t)
Media Luna Potential Inferred Mineral Resource Inventory*	30,937	1.03	2.58	27.59

*Potential Inferred Mineral Resource Inventory is the portion of the ML inferred resource estimated to be mined as per the plan presented in Section 24.16.

24.22.3 Plant Production Statistics

The design basis for the enhanced ELG process plant is 14,000 tonnes per day at a 92% mill availability. The enhanced plant is as described in Section 24.17. The life of mine recoveries and the payable metal production are shown in Table 24-68.

Table 24-68: ML Project Recoveries and Payable Metal Production

	Recoveries			Payable Metals Production			
	Copper	Gold	Silver	Copper (klbs)	Gold (kozs)	Silver (kozs)	Gold EQ (kozs)
Gold Doré							
Media Luna		33.1%	5.0%		848	1,365	867
Copper Concentrate (includes production from SART)							
Media Luna	88.8%	52.0%	70.0%	599,400	1,300	17,291	3,043
Total	**88.8%**	**85.1%**	**75.0%**	**599,400**	**2,148**	**18,656**	**3,910**

24.22.4 Smelter Treatment Factors

Two products are planned to be produced 1) a copper, gold, and silver concentrate from the flotation circuit and 2) a copper precipitate from the SART plant. Both products would be shipped from the site to offsite smelters. Terms would be negotiated at the time of agreement. For the financial model, Table 24-69 shows the assumed smelter charges. Smelter changes were assumed equal for both products.

Table 24-69: Smelter Treatment Factors

Copper/Gold Concentrate	
Payable Copper (%)	96.5%
Minimum Deduction (%)	1%
Payable Gold (%) if over 1 gms/dmt	97.5%
Payable Silver (%) if over 30 gms/dmt	90.0%
Gms/troy oz	31.105
Treatment Charges ($/dmt)	$80.00
Quality Premium ($/dmt)	$5.00
Refining Charge – Au ($/payable oz)	$6.00
Refining Charge – Ag ($/payable oz)	$0.50
Refining Charge – Cu ($/payable lb)	$0.085
Penalties ($/dmt)	None assumed
Transportation ($/wmt)	$117.48

24.22.5 Refinery Return Factors

A gold and silver doré would be shipped from the site to the refining company. Refining treatment charges were assumed to be the same as those currently in place for the ELG Mine Complex.

24.22.6 Capital Expenditure

24.22.6.1 Project and Pre-commercial Capital

The base case financial indicators have been determined with 100% equity financing of the project capital.

The Project Capital for the Media Luna Project includes new construction, mine development, pre-production owner's cost and contingency. Pre-commercial Capital includes Project Capital plus operating cost prior to commercial production less revenue generated by pre-commercial production. Table 24-70 presents the Total project capital.

Table 24-70: ML Project Capital – In $ Millions

	Total
Mining Equipment/Infrastructure/Development	213.9
Process Plant	265.9
Owner's Cost	16.7
Sub total – Project Capital	**496.5**
Pre-production cost less revenues	-85.1
Total – Pre-commercial production	**411.4**

24.22.7 Sustaining Capital

A schedule of capital cost expenditures during the production period was estimated and included in the financial analysis under the category of sustaining capital. The total life of mine sustaining capital is estimated to be $109.4 for ML Project. This sustaining capital would be expended during a 9-year period.

24.22.8 Working Capital

No working capital was included in the analysis.

24.22.9 Salvage Value

A $23.8 Million allowance for salvage value has been included in the cash-flow analysis. Salvage value is 10% of the purchase price of equipment.

24.22.10 Revenue

Annual revenue is determined by applying estimated metal prices to the annual payable metal estimated for each operating year. Sales prices have been applied to all life of mine production without escalation or hedging. The revenue is the gross value of payable metals sold before treatment charges and transportation charges.

Total revenue for the ML Project, including both pre-production and production, is $4.69 Billion.

Metal sales prices used in the evaluation are as follows:

Table 24-71: Life of Mine Metal Prices

Copper	$3.00
Gold	$1,200.00
Silver	$17.00

24.22.11 Operating Cost

The average Cash Operating Cost over the life of the mine for the ML Project is estimated to be $71.23 per tonne of processed material, excluding the pre-commercial and sustaining capital. Cash Operating Cost includes mine operations, process plant operations, general administrative cost, smelting and refining charges and shipping charges. Table 24-72 shows the estimated operating cost for the ML Project by area per tonne of processed material.

Table 24-72: ML Project Operating Cost

	ML Mine Plan
Operating Cost	**$/tonne processed**
Mine	$23.64
Process Plant	$23.47
Site Support	$14.11
Smelting/Refining Treatment	$10.03
Total Operating Cost	**$71.23**

24.22.12 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 $131.8 Million.

24.22.13 Reclamation & Closure

An allowance of $2.0 Million for the cost of reclamation and closure of the ML Project has been included in the cash-flow projection. This allowance is to cover the additional closure cost incurred due to the ML Project, closure of the ELG Mine Complex is not consider in this standalone model.

24.22.14 Total Cash Cost

The average Total Cash Cost over the life of the mine for the ML Project is estimated to be $74.79 per metric tonne of processed material. Total Cash Cost is the Total Cash Operating Cost plus royalties, salvage value, reclamation and closure costs.

24.22.15 Taxation and Depreciation

Taxes in the ML Project financial model were calculated based only on costs and revenue related to Media Luna project only and treated as a "Standalone" project. The calculations do not include any revenue, expense, or tax information or effects related to ELG Mine Complex.

The main assumptions taken in consideration for the calculation are the following:

- Income Tax and Special Mining Duty rates remains the same (30% and 7.5%) throughout the life of the project.
- Expenses related to EPCM and owner's costs were considered fully deductible in each year, generating tax losses that offset the taxable income the first two years of operations.
- 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.
- The remaining tax value of the assets at the last year of operations was considered fully deductible in such year.

24.22.15.1 Mining Royalties

Production cost include a mining royalty taxes:

- A 7.5% royalty tax has been applied to include from mining activities. The tax is calculated on a base of earnings before interest, taxes, depreciation and amortization (i.e. EBITDA). It is estimated to be $180.7 Million.

24.22.16 Corporate Income Tax

The ML Project is evaluated with a 30% corporate tax based taxable income from the operations.

Corporate income taxes paid are estimated to be $479.9 Million.

24.22.17 Project Financing

It is assumed that the ML Project would be all equity financed.

24.22.18 Net Income After-Tax

Net income after-tax amounts to $1.11 Million.

24.22.19 NPV and IRR

The economic analysis indicates that the Media Luna Project has an Internal Rate of Return (IRR) of 27.3% with a payback period of 5.8 years after-taxes.

Table 24-73: ML Project NPV and IRR

After-Tax IRR	27.3%
After-Tax NPV @ 5%	US$582 M
After-Tax NPV @ 8%	US$392 M
Cumulative Undiscounted Cash-Flow	US$1.11 M
CAPEX Payback	5.8 years
Mine Life	12 years
Average Cash Cost per Gold Equivalent Ounce	US$519
Average AISC per Gold Equivalent Ounce	US$619

24.22.20 Sensitivities

Table 24-74 below compares the ML Project “Standalone” base case financial indicators with the financial indicators for other cases when the metal sales price, the amount of capital expenditures, the operating cost, and material grade are varied from the base case. This was accomplished by changing these variables in the ML Project from the sensitivity analysis in Table 24-74 and Figure 24-45, it can be seen that the ML Project is the most sensitive to material grade and metal prices which are similar, these are closely followed by gold recovery.

Table 24-74: Sensitivity Analysis ($M) – After-Taxes

	Undiscounted Cash-Flow @ 0%	Net Present Value @ 5%	Net Present Value @ 8%	IRR %	Payback (yrs)
Base Case	$1.113	$582	$392	27.3%	5.8
Metal Prices +15%	$1.518	$828	$579	34.9%	5.3
Metal Prices +10%	$1.383	$746	$517	32.4%	5.4
Metal Prices -10%	$843	$417	$268	21.8%	6.4
Metal Prices -15%	$708	$335	$206	18.9%	6.7
Project Capital +15%	$1.057	$532	$347	23.3%	6.2
Project Capital +10%	$1.076	$548	$362	24.5%	6.1
Project Capital -10%	$1.151	$615	$423	30.6%	5.6
Project Capital -15%	$1.169	$631	$438	32.4%	5.4
Operating Cost +15%	$960	$490	$323	24.4%	6.1
Operating Cost +10%	$1.011	$520	$346	25.3%	6.0
Operating Cost -10%	$1.215	$643	$439	29.2%	5.7
Operating Cost -15%	$1.266	$674	$462	30.1%	5.6
Gold Recovery +5.0%	$1.187	$626	$426	28.6%	5.7
Gold Recovery +2.5%	$1.150	$604	$409	28.0%	5.8
Gold Recovery -2.5%	$1.076	$560	$376	26.6%	5.9
Gold Recovery -5%	$1.040	$537	$359	25.9%	5.9
Grade All Metals +15%	$1.490	$811	$566	34.4%	5.3
Grade All Metals +10%	$1.364	$735	$508	32.1%	5.5
Grade All Metals -10%	$862	$429	$276	22.2%	6.3
Grade All Metals -15%	$736	$352	$219	19.5%	6.7

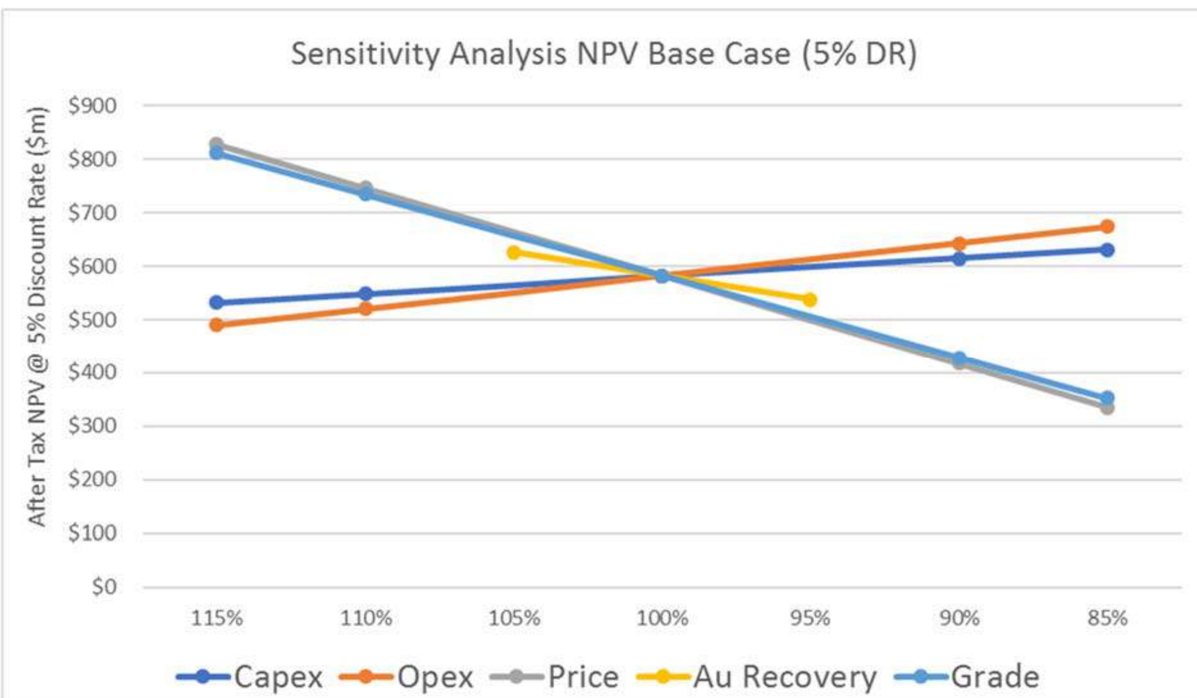


Figure 24-45: Sensitivity Analysis – NPV @ 5% - After-Taxes ($000)

Table 24-75: ML Standalone Model

			Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
1 - Operations																		
Total Ore Mined		kt	**30,937**	-	-	249	1,940	2,792	2,805	2,811	3,112	3,079	3,105	3,126	3,075	3,070	1,772	-
Au grade		g/t	**2.58**	-	-	1.17	1.96	2.60	3.21	3.26	3.15	2.32	2.38	2.42	2.42	2.18	2.39	-
Ag grade		g/t	**27.59**	-	-	52.65	39.73	35.82	39.06	28.84	22.24	23.64	24.76	26.94	20.92	22.15	21.09	-
Cu grade		%	**1.03%**	-	-	2.27%	1.62%	1.31%	1.22%	1.00%	0.97%	0.95%	0.93%	0.97%	0.85%	0.82%	0.73%	-
Contained Au		koz	**2,564**	-	-	9	122	233	289	295	315	230	237	243	239	215	136	-
Contained Ag		koz	**27,446**	-	-	422	2,478	3,216	3,523	2,606	2,225	2,341	2,472	2,708	2,069	2,187	1,201	-
Contained Cu		klbs	**702,949**	-	-	12,436	69,354	80,790	75,336	61,859	66,618	64,512	63,360	66,900	57,918	55,514	28,352	-
Tonnes Processed		kt	**30,937**	-	-	249	1,940	2,792	2,805	2,811	3,112	3,079	3,105	3,126	3,075	3,070	1,772	-
Contained Gold		koz	**2,564**	-	-	9	122	233	289	295	315	230	237	243	239	215	136	-
Contained Silver		koz	**27,446**	-	-	422	2,478	3,216	3,523	2,606	2,225	2,341	2,472	2,708	2,069	2,187	1,201	-
Contained Copper		klbs	**702,949**	-	-	12,436	69,354	80,790	75,336	61,859	66,618	64,512	63,360	66,900	57,918	55,514	28,352	-
Recovery:																		
<u>CIP</u>	Base Case																	
Gold recovery	33.1%	koz	**849**	-	-	3	40	77	96	97	104	76	79	80	79	71	45	-
Silver recovery	5.0%	koz	**1,372**	-	-	21	124	161	176	130	111	117	124	135	103	109	60	-
Copper Recovery	0.0%	klbs	**0**															
<u>Concentrator</u>																		
Copper Recovery (%)	88.8%	koz	**624,219**	-	-	11,044	61,586	71,741	66,898	54,931	59,157	57,287	56,264	59,407	51,431	49,296	25,176	-
Gold Recovery (%)	52.0%	koz	**1,333**	-	-	5	63	121	150	153	164	119	123	126	124	112	71	-
Silver Recovery (%)	70.0%	klbs	**19,212**	-	-	295	1,735	2,251	2,466	1,824	1,557	1,638	1,730	1,896	1,448	1,531	841	-
Copper Concentrate Grade	25.2%																	
Moisture	8.0%																	
Minimum Deduction	1.0%																	
Metal Payable																		
<u>CIP</u>																		
Gold recovery	99.9%	koz	**848.1**	-	-	3	40	77	96	97	104	76	79	80	79	71	45	-
Silver recovery	99.5%	koz	**1,365**	-	-	21	123	160	175	130	111	116	123	135	103	109	60	-
<u>Floatation</u>																		
Copper Recovery (%)	96.5%	koz	**599,448**	-	-	10,605	59,143	68,894	64,243	52,751	56,809	55,013	54,031	57,050	49,391	47,340	24,177	-
Gold Recovery (%)	97.5%	koz	**1,300**	-	-	5	62	118	147	149	160	116	120	123	121	109	69	-
Silver Recovery (%)	90.0%	klbs	**17,291**	-	-	266	1,561	2,026	2,219	1,642	1,402	1,475	1,557	1,706	1,303	1,378	757	-
2 - Revenues																		
Metal Sold																		
Gold Sold		**koz**	**2,148**	**-**	**-**	**8**	**102**	**195**	**242**	**247**	**264**	**192**	**199**	**203**	**200**	**180**	**114**	**-**
Pre Commercial		koz	**49**	-	-	8	41	-	-	-	-	-	-	-	-	-	-	-
Commercial		koz	**2,099**	-	-	-	61	195	242	247	264	192	199	203	200	180	114	-
Silver Sold		**koz**	**18,657**	**-**	**-**	**287**	**1,684**	**2,186**	**2,395**	**1,772**	**1,512**	**1,591**	**1,680**	**1,841**	**1,406**	**1,487**	**817**	**-**
Pre Commercial		koz	**960**	-	-	287	674	-	-	-	-	-	-	-	-	-	-	-
Commercial		koz	**17,696**	-	-	-	1,011	2,186	2,395	1,772	1,512	1,591	1,680	1,841	1,406	1,487	817	-
Copper Sold		**klbs**	**599,448**	**-**	**-**	**10,605**	**59,143**	**68,894**	**64,243**	**52,751**	**56,809**	**55,013**	**54,031**	**57,050**	**49,391**	**47,340**	**24,177**	**-**
Pre Commercial		klbs	**34,262**	-	-	10,605	23,657	-	-	-	-	-	-	-	-	-	-	-
Commercial		klbs	**565,186**	-	-	-	35,486	68,894	64,243	52,751	56,809	55,013	54,031	57,050	49,391	47,340	24,177	-
Au Eq (kozs)		**koz eq**	**3,911**	**-**	**-**	**38**	**274**	**399**	**437**	**404**	**427**	**352**	**358**	**372**	**344**	**320**	**186**	**-**
Pre Commercial		koz eq	**148**	-	-	38	110	-	-	-	-	-	-	-	-	-	-	-
Commercial		koz eq	**3,763**	-	-	-	164	399	437	404	427	352	358	372	344	320	186	-

			Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenue	Base Case																	
Gold	1,200.0	000's	**2,577,802**	-	-	9,412	122,595	234,586	290,954	296,095	316,583	230,869	238,679	244,107	240,483	216,398	137,040	-
Silver	17.0	000's	**317,164**	-	-	4,871	28,635	37,159	40,710	30,116	25,710	27,048	28,564	31,292	23,903	25,272	13,884	-
Copper	3.0	000's	**1,798,345**	-	-	31,816	177,428	206,683	192,730	158,253	170,428	165,040	162,094	171,150	148,172	142,020	72,532	-
Total		000's	**4,693,310**	**-**	**-**	**46,099**	**328,658**	**478,428**	**524,394**	**484,464**	**512,722**	**422,957**	**429,337**	**446,549**	**412,557**	**383,690**	**223,456**	**-**
Pre Commercial Revenue		000's	**177,562**	-	-	46,099	131,463	-	-	-	-	-	-	-	-	-	-	-
Commercial Revenue		000's	**4,515,748**			-	197,195	478,428	524,394	484,464	512,722	422,957	429,337	446,549	412,557	383,690	223,456	-
Total		**000's**	**4,693,310**	**-**	**-**	**46,099**	**328,658**	**478,428**	**524,394**	**484,464**	**512,722**	**422,957**	**429,337**	**446,549**	**412,557**	**383,690**	**223,456**	**-**
3 - Operating Cost																		
Unit Cost																		
Mining		$/t		-	-	53.71	30.67	26.67	22.81	23.77	22.02	23.02	22.27	21.96	21.02	21.54	25.42	-
Plant		$/t		-	-	19.96	18.96	18.15	19.03	18.88	18.61	19.21	19.19	19.18	19.22	19.22	19.27	-
Concentrator		$/t		-	-	4.63	4.39	4.34	4.34	4.34	4.42	4.51	4.50	4.50	4.51	4.51	4.88	-
Site Support		$/t		-	-	9.00	8.60	7.72	7.63	7.57	7.93	9.28	9.15	9.02	9.18	9.18	8.65	-
Dore Treatment		$/oz		-	-	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Treatment Charges		$/dmt		-	-	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Quality Premium Charges		$/dmt		-	-	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Gold Refining Charges - Payable		$/Oz		-	-	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Silver Refining Charges		$/Oz		-	-	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Copper Refining Charges - payable		$/lbs		-	-	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Transportation (wmt)		$/wmt		-	-	117.48	117.48	117.48	117.48	117.48	117.48	117.48	117.48	117.48	117.48	117.48	117.48	117.48
Mining		000's	**731,204**	-	-	13,377	59,493	74,478	63,993	66,807	68,544	70,880	69,158	68,661	64,630	66,135	45,046	-
Plant		000's	**587,760**	-	-	4,971	36,768	50,684	53,376	53,070	57,922	59,165	59,590	59,944	59,097	59,020	34,152	-
Concentrator		000's	**138,212**	-	-	1,154	8,516	12,111	12,178	12,204	13,765	13,879	13,979	14,062	13,863	13,845	8,656	-
Site Support		000's	**436,449**	-	-	2,241	16,686	26,913	42,963	46,162	45,854	51,238	42,193	43,424	44,683	42,283	27,015	4,794
Dore Shipment & Treatment Cost		000's	**3,786**	-	-	42	274	399	457	390	374	330	347	366	314	310	183	-
Concentrated shipment & treatment cost		000's	**306,379**	-	-	5,291	29,757	35,045	33,062	27,231	29,136	28,044	27,634	29,185	25,268	24,240	12,487	-
Incremental PTUs		000's	**0**	-	-	-	-											
Royalties (0.5% + 2.5%)		000's	**131,808**	-	-	1,224	8,973	13,319	14,768	13,743	14,530	11,864	12,070	12,541	11,636	10,801	6,341	-
Total Operating Cost		**000's**	**2,335,597**	**-**	**-**	**28,300**	**160,467**	**212,950**	**220,798**	**219,607**	**230,124**	**235,399**	**224,971**	**228,182**	**219,491**	**216,635**	**133,880**	**4,794**
Pre Commercial Commercial		000's	**92,486**	-	-	28,300	64,187	-	-	-	-	-	-	-	-	-	-	-
Commercial Commercial		000's	**2,243,111**			-	96,280	212,950	220,798	219,607	230,124	235,399	224,971	228,182	219,491	216,635	133,880	4,794
Total		**000's**	**2,335,597**	**-**	**-**	**28,300**	**160,467**	**212,950**	**220,798**	**219,607**	**230,124**	**235,399**	**224,971**	**228,182**	**219,491**	**216,635**	**133,880**	**4,794**
4 - Capital Expenditure																		
Plant		000's	**238,268**	29,762	49,526	138,257	20,723	-	-	-	-	-	-	-	-	-	-	-
Mine		000's	**121,926**	14,696	27,109	58,182	21,940	-	-	-	-	-	-	-	-	-	-	-
EPCM/ Owners Cost/ Development		000's	**128,602**	17,617	42,371	56,663	11,951	-	-	-	-	-	-	-	-	-	-	-
Capitalized Ops Cost		000's	**7,661**	1,598	1,908	4,155	-	-	-	-	-	-	-	-	-	-	-	-
Pre Commercial Revenue		000's	**(177,562)**	-	-	(46,099)	(131,463)	-	-	-	-	-	-	-	-	-	-	-
Pre commercial Cost		000's	**92,486**	-	-	28,300	64,187	-	-	-	-	-	-	-	-	-	-	-
Sustaining		000's	**109,377**	-	-	-	12,710	17,349	20,263	12,059	16,823	10,413	9,765	7,478	2,516	-	-	-
Reclamation and closure cost		000's	**1,978**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,978
Salvage value		000's	**(23,827)**	-	-	-	-	-	-	-	-	-	-	-	-	-	(23,827)	-
Total Capital Cost		**000's**	**498,910**	**63,673**	**120,913**	**239,458**	**47**	**17,349**	**20,263**	**12,059**	**16,823**	**10,413**	**9,765**	**7,478**	**2,516**	**-**	**(23,827)**	**1,978**

			Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
4 - Depreciation																		
EPCM/ Owners Cost/ Development	100%	000's	**128,602**	17,617	42,371	56,663	11,951	-	-	-	-	-	-	-	-	-	-	-
Plant/ Mine/ Cap Ops Cost/ Sustaining	10%	000's	**368,330**	-	-	-	27,166	28,901	30,927	32,133	33,816	34,857	35,834	36,581	36,833	36,833	34,448	(0)
Total		**000's**	**496,932**	**17,617**	**42,371**	**56,663**	**39,117**	**28,901**	**30,927**	**32,133**	**33,816**	**34,857**	**35,834**	**36,581**	**36,833**	**36,833**	**34,448**	**(0)**
5 - Taxes & Royalties																		
EBITDA		000's	**2,272,638**	-	-	-	100,914	265,478	303,596	264,858	282,597	187,559	204,366	218,367	193,066	167,055	89,576	(4,794)
Royalties (7.5%)		000's	**180,693**	-	-	92	8,242	20,910	23,877	20,895	22,284	14,957	16,233	17,318	15,353	13,339	7,194	-
Depreciation		000's	**496,932**	17,617	42,371	56,663	39,117	28,901	30,927	32,133	33,816	34,857	35,834	36,581	36,833	36,833	34,448	(0)
Net Income After Depreciation		000's	**1,595,013**	(17,617)	(42,371)	(56,755)	53,556	215,667	248,791	211,829	226,497	137,745	152,300	164,467	140,880	116,883	47,935	(4,794)
Net Income before NOL's		000's		(17,617)	(42,371)	(56,755)	53,556	215,667	248,791	211,829	226,497	137,745	152,300	164,467	140,880	116,883	47,935	(4,794)
NOL's applied		000's		0	0	0	(53,556)	(63,187)	0	0	0	0	0	0	0	0	0	0
NOL's balance		000's	**0**	(17,617)	(59,988)	(116,743)	(63,187)	0	0	0	0	0	0	0	0	0	0	(4,794)
Net Income before Taxes		000's		(17,617)	(42,371)	(56,755)	0	152,479	248,791	211,829	226,497	137,745	152,300	164,467	140,880	116,883	47,935	(4,794)
Pre-production Revenues less Expenses		000's																
Tax Rate		000's	**30%**	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Income taxes		000's	**479,942**	0	0	0	0	45,744	74,637	63,549	67,949	41,324	45,690	49,340	42,264	35,065	14,381	0
Total Taxes & Royalties		**000's**	**660,635**	**-**	**-**	**92**	**8,242**	**66,654**	**98,515**	**84,444**	**90,234**	**56,280**	**61,923**	**66,658**	**57,617**	**48,404**	**21,574**	**-**
6 - Cash Flow																		
Revenue		000's	**4,515,748**	-	-	-	197,195	478,428	524,394	484,464	512,722	422,957	429,337	446,549	412,557	383,690	223,456	-
Operating Cost		000's	**(2,243,111)**	-	-	-	(96,280)	(212,950)	(220,798)	(219,607)	(230,124)	(235,399)	(224,971)	(228,182)	(219,491)	(216,635)	(133,880)	(4,794)
Capital Expenditure		000's	**(498,910)**	(63,673)	(120,913)	(239,458)	(47)	(17,349)	(20,263)	(12,059)	(16,823)	(10,413)	(9,765)	(7,478)	(2,516)	-	23,827	(1,978)
Working Capital		000's	**-**															
Total Before Taxes		**000's**	**1,773,728**	**(63,673)**	**(120,913)**	**(239,458)**	**100,867**	**248,128**	**283,333**	**252,799**	**265,774**	**177,146**	**194,601**	**210,889**	**190,550**	**167,055**	**113,403**	**(6,772)**
Taxes & Royalties		000's	**(660,635)**	-	-	(92)	(8,242)	(66,654)	(98,515)	(84,444)	(90,234)	(56,280)	(61,923)	(66,658)	(57,617)	(48,404)	(21,574)	-
Total After Taxes		**000's**	**1,113,093**	**(63,673)**	**(120,913)**	**(239,550)**	**92,626**	**181,475**	**184,818**	**168,355**	**175,540**	**120,866**	**132,678**	**144,230**	**132,933**	**118,651**	**91,829**	**(6,772)**
7 - Valuation																		
Discount Rate			**5%**															
Discounted cash Flow - Before Tax			**976,764**	(55,003)	(99,476)	(187,621)	75,269	176,340	191,771	162,956	163,162	103,574	108,361	111,839	96,241	80,356	51,951	(2,954)
Discounted cash Flow - After Tax			**581,662**	(55,003)	(99,476)	(187,693)	69,119	128,971	125,092	108,523	107,766	70,668	73,880	76,488	67,140	57,073	42,068	(2,954)
IRR			**27.3%**															
Payback			**5.8**															

24.23 ADJACENT PROPERTIES

Please refer to Section 23 of this Report.

24.24 OTHER RELEVANT DATA AND INFORMATION

In this section, Torex presents a new and innovative mining system named the Muckahi Mining System (Muckahi). The system challenges the status quo in many ways with the goal of establishing more efficient and cost effective alternatives to established mining processes. The purpose of this section is to inform the reader of Torex's current activities and future plans for the system. It is important for the reader to understand that Muckahi has not been proven yet and is just entering the prototyping stage of development. This section does not represent a trade-off study for the PEA or alternative to the base case study but is included to demonstrate the potential benefits of Muckahi using Media Luna as an example.

24.24.1 Cautionary Statement

The Muckahi Mining System is experimental in nature and has not been tested in an operating mine. Many aspects of the system are conceptual, and proof of concept has not been demonstrated. Drill and blast fundamentals, standards and best practices for underground hard rock mining are applied in Muckahi, where applicable. The proposed application of a monorail system for underground transportation for mine development and production mining is unique to underground hard rock mining to the Authors knowledge. There are existing underground hard rock mines that use a monorail system for transportation of materials and equipment, however not in the capacity described in this study. Aspects of Muckahi mining equipment are currently in the design stage. The mine design, equipment performance and cost estimations are conceptual in nature, and do not demonstrate technical or economic viability. The approximate timeframe to develop and test the concept would be approximately two years for the mine development and production activities. Further test mining beyond two years would be required to verify the viability of the system and achieve the productivities as described in this section of the report.

The Muckahi conceptual mine plan applied to the Media Luna mineral resource includes a development schedule, production plan, and cost estimation. The level of detail is similar to the conventional mine method presented in Section 24 of the Technical Report. The study included in this Section 24.24 on the Media Luna mineral resource according to the definition in NI 43-101 is a preliminary economic assessment and is preliminary in nature. However, Muckahi is not intended as a "trade off study" but is shown to merely demonstrate the potential benefits Muckahi may have using the ML deposit as an example. It includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

24.24.2 The Muckahi Mining System

Key Points

- Benefits of utilizing Muckahi will vary by deposit. The goal when designing the system was that averaged over several installations, underground mine build CAPEX, mine build schedule, and mine OPEX, would all be reduced by 30%. For the Media Luna mineral resource, this study predicts potential improvements from utilizing Muckahi versus conventional mining systems of 30% less total underground capital, a 44% in time to first mineralized material (reduction of 1 year), and a 20% reduction in mine OPEX.
- The design of the mining system recognizes that mining processes consists of steps that either transform rock (making it smaller), transport rock, or store rock. If primary blast fragmentation is properly controlled, then the transport processes can be made much more efficient, and the storage processes can be largely eliminated, which has the potential to generate savings in CAPEX, OPEX, and mine build schedule.
- If we choose to invest in accurate drilling and placement of explosives, we know that we can achieve appropriate fragmentation.

- The additional investment in drilling and blasting required by Muckahi to produce a finer mineralized material for processing, is expected to be recovered through reduced costs in the crushing and grinding circuit. (This study does not include any savings in the crushing and grinding circuit.)
- It is believed that efficiency in transport can be enhanced if there is a move from 'underground single lane roads' to 'underground two-lane roads'. Muckahi accomplishes this by changing from wide, tall, and short trucks, to narrow, low, and long 'Tramming Conveyors'. These Tramming Conveyors are the critical innovation that underpins the design of the system.
- The Tramming Conveyor is a conveyor system that can vary in length, but for purposes of illustration, consider it to be 100 m in length. The conveyor belt is end loaded at the face or drawpoint, until the full 100 m of the belt is loaded with rock. The belt then stops turning and the conveyor drives away to the dump point. At the dump point the conveyor belt re-starts and the rock is discharged off the leading end. The Tramming Conveyor then drives back to the face or drawpoint to get reloaded.
- 'Driving' in a Muckahi mine, for all equipment including the Tramming Conveyor, is performed while suspended from an overhead monorail that is supported by the tunnel roof (back). These monorails and the associated drive systems are not new. There are over 800 installations in the European and Asian coal industries.
- With Muckahi there would be two monorails installed in each tunnel. One for in-bound traffic, and the other for out-bound. With the twin monorails, simultaneous two-way traffic can be achieved in a tunnel of cross sectional dimensions of 4m x 4m. This is approximately half the cross-sectional area of a 'rubber-tired' mine tunnel that utilizes 50 tonne trucks. This reduction in tunnel dimensions is expected to reduce CAPEX and mine build schedule.
- Transport on the monorail, eliminates the need to steer, which simplifies the challenges to achieve automation. The system is also fully amenable to electrification. A Muckahi mine is expected to be fully electric, with no operation of diesel equipment and the associated ventilation costs.
- Transport on the monorail, with a cog drive, also eliminates the limitations on conventional ramp gradients that are dictated by tire-spin on rubber-tired equipment. A cog drive monorail can operate on a 30-degree gradient, which is 4 times steeper than used with rubber-tired equipment. A ramp that is 4 times steeper is ¼ the length to achieve the same elevation change. A ramp that is ¼ the length, can be driven 'straight', and a straight ramp can be equipped with a conveyor. This then allows for the Tramming Conveyor to discharge onto a steep ramp conveyor, eliminating the need for rock storage and all the associated CAPEX and re-handling OPEX. In effect, the rock is picked up at the face/drawpoint, put on a conveyor, and it does not touch the ground again until it reaches surface.
- Proprietary Muckahi equipment is currently being designed and manufactured and will be tested in El Limón Deep starting in early 2019. It will be well tested before a decision is made to incorporate the technology in Media Luna or elsewhere.

24.24.3 Concept Overview

The following is a narrative from the originator of the Muckahi Mining System, Fred Stanford. It describes the highlights of an assessment of the current mine design paradigms, which led to design objectives for a revised system. These objectives set the stage for the innovations that enable the potential for the Muckahi Mining System to reduce costs and mine build schedule.

The metal production system, from primary blast through mineral processing, is a series of processes that either:

1. *Transform the rock (break it, or extract something from it.)*
2. *Transport the rock, or*
3. *Store the rock*

The production system in a mine is effectively a serial set of processes, with the ultimate objective of delivering rock, at specification, to the processing facilities. Each process step will have a primary design objective of either *transformation, transport, or storage. In some processes there will also be inadvertent, non-design, transformation. This inadvertent transformation is generally not a desired outcome. (ore pass slough, oxidation, etc.)*

In a production system of serial processes, there are factors of up-stream processes that will affect the need for certain downstream processes, and/or the efficiency of those downstream processes. The key factors are:

- *Quality of the transformation (Example Size distribution of the rock product, ore-pass rock slough, etc.)*
- *Rate of transformation or transport (Example tonnes/ blast, tonnes/hour)*
- *Availability of the processes that transform or transport (Example 23 out 24 hours in a day)*

It is quite common for the 'rates' or 'availability' of processes in a serial set of processes to be out of alignment/coordination with each other. When this is the case, the productive capability of the entire system is reduced. To increase the productive capability of the system, designers frequently insert storage processes between transformation and/or transport (T&T) processes. These storage processes serve to reduce the inter-dependence between T&T processes and thereby increase throughput. This can be an effective design feature to maximize output, but it is expensive. In an underground mine these storage facilities, whether they are for rock or supplies, must be excavated and equipped, which consumes capital. They frequently also require re-handling, which consumes operating dollars. A design objective for Muckahi was to eliminate the need for storage processes by finding ways to bring into alignment, the rates and availability of the entire set of T&T processes.

If the quality (size) of the rock product from the primary blast is not adequate for downstream processes, then a secondary sizing process will need to be added to the 'set of processes'. Having ore-passes in the mine design will also force a requirement for a secondary sizing process. This is due to the uncontrolled size of the wall rock that, over time, will slough into, and dilute, the ore product. Secondary sizing processes, particularly underground crushers are expensive and time consuming to build and expensive to operate. A design objective for Muckahi is to eliminate large size secondary size reduction processes and just deal with minor oversize management with mobile rocker breakers or 'chunk' blasting.

In summary, to materially reduce the capital, operating cost, and mine build schedule, the Muckahi design approach sought ways to:

1. *Reduce the number of process steps*
2. *Make the remaining process steps more efficient.*

To reduce the number of process steps the design effort focused on:

1. *Eliminate secondary sizing processes that required 'constructed' facilities (Example Crusher station)*
    a. *If secondary sizing facilities are to be eliminated then by definition, ore-passes needed to be eliminated as well. (oversize slough rock from the ore pass wall, would require size reduction prior to downstream transport processes)*
2. *Eliminate storage facilities of all type, rock, mining supplies, fuel, etc.*
    a. *This will require the alignment of the rates and availability of transport processes*

To increase the efficiency of the remaining transport processes, the design focussed on:

1. *Replacing the current logistics model of one-way traffic in large tunnels, with two-way traffic in tunnels that are half the size (cost and schedule saving if tunnels can be made smaller). Two-way traffic will make it possible to have predictable 'rates' for the transport processes. (There is too much variability in rates on a single lane road to be able to make a useful prediction as to when a supply, or rock, will be delivered to a specified point.)*

   a. *This will require transport processes that are 'long and skinny' versus the current processes (trucks) that are 'short and wide'*
   b. *'Long and skinny' for rock transport on gradients is going to have to be a conveyor. To make conveyor transport on ramps a possibility, the ramps would need to be much steeper than conventional ramps. (If they are 4 times steeper, they are ¼ the length. If they are ¼ the length they can be driven straight and equipped with a conveyor)*

The design challenge effectively came down to:

1. *How to design a primary blast that delivered a rock product that was 95% passing -400mm so that it could be placed directly onto a conveyor?*
   a. *The other 5% can be dealt with at a local level. (secondary blasting, mobile rock breakers, etc.)*
2. *How to pick up rock at the face/drawpoint, immediately put it on a conveyor, and keep it on a conveyor until it gets to surface or the hoisting shaft if there is one in the mine design?*
   a. *Keeping it on a conveyor eliminates the need for storage and allows for alignment of transport capacity and process availability (conveyors have predictable transfer rates, and high availability)*
3. *How to deal with the 'first mile' where typical ore-body geometry is not conducive to the straight lines that are needed for typical conveyors?*
4. *How to steer and keep 'long and skinny' transport vehicles from tipping over?*
5. *How to reduce the dimensions of tunnel development equipment such that each piece of equipment can get past any other piece of equipment in a tunnel of 4m x 4m cross section?*
6. *How to excavate steep ramps at 30 degrees?*
7. *How to operate the transport processes on the steep ramps*
8. *How to eliminate underground storage of supplies, including fuel?*
   a. *This meant Just-In-Time (JIT) delivery, and an all electric mine. (No diesel equipment)*
9. *How to achieve development advance rates that are three times faster than conventional expectations and have all the required services in place when the tunnels reach the deposit?*

The Muckahi Mining System design team has conceptually answered these challenges. There are many subtleties to the design, the big five solutions are:

1. *Primary blast design*
   a. *This is the Achilles Heel of the Muckahi Mining System. If the rock is to go directly onto a conveyor, then the rock product of the primary blast must be in the range of 95% passing -400mm. Achieving this specification is not a challenge for 'short hole' primary blasts, such as used in development or cut and fill production mining methods. For 'long hole' production methods, it will require much tighter control of drilling procedures, explosives placement, and detonator timing. This level of control has not been required with large 8-yard buckets on the loading equipment of conventional mining. It will be required in a Muckahi Mine. It can be done with effective process management and leadership.*
   b. *It is a generally accepted industry paradigm that "the cheapest way to break rock is with explosives." In a Muckahi production system, it is expected that the additional investments made to break rock smaller in the primary blast, will be recovered in reduced costs in the crushing and grinding circuit in the processing plant.*
2. *Twin roof (back) mounted monorails in all tunnels*

   a. *This technology from the European coal industry solves several of the design challenges. It provides a stable platform for 'long and skinny' loads. A cog drive on the monorail locomotives allows for climbing the steep 30-degree ramps. The twin monorails provide for two-way traffic (one rail for inbound traffic and the other for outbound). The locomotives can be electrically powered, either by batteries or by a sliding conductor on a power cable by the monorail (like an electric streetcar).*
   b. *A rail-based transport process is much easier to automate than a rubber tired based process, due to the absence of the need to 'steer' in a rail process.*

3. *A new transport concept named a 'Tramming Conveyor'*
   a. *This machine deals with the 'first mile' from the face/drawpoint, when straight lines for conventional conveyors are not an option. The conveyor is end loaded at the drawpoint until the belt is fully loaded. The belt then stops 'turning' and the whole unit drives away on the outbound rail to the discharge point. At the discharge point the belts starts turning again and discharges its load (conveyor to conveyor transfer). The unit then switches to the inbound rail and returns to the drawpoint. While it was away from the drawpoint other units have been loaded. Hence, one of the benefit of two-way traffic.*
4. *Ramps at 30-degrees instead of the conventional 7.5-degrees*
   a. *The rubber tires on conventional equipment lose traction on gradients that are much steeper than 7.5 degrees. The back mounted monorails remove the need for rubber tires, hence the ability to steepen the ramps to the 30-degree gradient that can be handled by the cog drive system.*
   b. *At 4 times the gradient, a ramp to achieve the same elevation change is ¼ the length. This reduces excavation cost and schedule, and the ramps can be driven straight, which allows for conveyor transport processes for rock, throughout the mine.*
5. *Twin tunnels in waste*
   a. *The tunnels in a Muckahi mine are ½ the volume of the tunnels required for a 50-tonne truck in a conventional mine. ½ the volume means less rock to remove, less ground support, fewer holes to drill and load in the face, etc. This means that they can be driven much more quickly. In a Muckahi Mine there are also no muck bays to be driven, which reduces meterage by approximately 20%. The net effect is that excavation rates in a 4m x 4m tunnel should be 2 - 3 times faster than in conventional tunnel of 5.5m x 5.5m.*
   b. *Driving twin 4m x 4m tunnels in waste will effectively remove the same amount of rock as a single 5.5m x 5.5m tunnel (advance rates will be similar to advance rates in a single 4m x 4m tunnel). However, there are significant benefits to having two tunnels. One can function as the fresh air intake and access for personnel and materials. The second can function as the return air exhaust, house the conveyors, and provide a second means of egress. With two tunnels, once the deposit is accessed, all services are in place and mining can begin immediately. Conceptually this materially shortens the time between investment and revenue from production.*

There are many other details that could be described. However, these are the critical concepts that describe the intention behind the design of the Muckahi Mining System and the innovations that were the result of the effort.

24.24.3.1 Current Status of Development

Torex has engaged Medatech Engineering Services Limited ("Medatech") to design the monorail mounted mobile equipment fleet for the Muckahi system. The monorail infrastructure and associated equipment propulsion systems are commercially available. SMT SHARF Group and Becker Mining Systems are two companies currently supplying monorail transportation systems to the mining industry.

Torex and Medatech have investigated several equipment configurations and operational specifications have been developed for the rock drilling, ground support platform, mucking equipment and Tramming Conveyors. As of the date of this report, prototype equipment development is in the design stage.

Initial equipment testing and field trials are planned to be carried out on surface followed by test mining and proof of concept at Torex's ELG underground mine. A project implementation timeline for the initial equipment testing and field trials is expected in late 2018.

24.24.4 Muckahi Mining Equipment

Key characteristics and benefits of the equipment include:

- The One Boom Jumbo Drill, Service Platform, Mucking Machine and Tramming Conveyor, generally use conventional, off-the-shelf equipment at the 'working end' of the machine. The design effort on these machines is focussed on attaching the 'working end' to a smaller carrier that fits in smaller tunnels and operates from the monorail transportation system.
- Significantly reduced size and complexity of the units with the removal of the unit's diesel engines and drive trains and replacement of small electric drive system for local travel and the use of locomotives for longer travel. Units able to pass in narrower opening and ability to position multiple pieces of equipment at the face for increased face utilization.
- The concept considers that all equipment is electrically powered with batteries for travel and connecting to the main electrical distribution system during operation at the workplace. A conductor bar is an alternative electric power source that could be used in place of the battery to supply power for travel.

24.24.4.1 Equipment Overview

The primary mining equipment consists of a One Boom Jumbo, Service Platform, Mucking Machine and Tramming Conveyor. Mine development and C& F mining would utilize the same Muckahi equipment. LHOS production would utilize the Muckahi mucking and material transport concepts with the addition of a conventional production drill for longholes. All the Muckahi equipment would travel and operate in inclined drifts, upwards of 15° (or 28%) routinely, but also at 30° (58%) when required.

24.24.4.2 Monorail Transport System

A distinctive aspect of Muckahi is the addition of two or more parallel monorails supported from the back of the underground excavations to transport personnel, mining equipment and materials as shown in Figure 24-46. The technology is commercially available and is currently used for transporting materials, equipment and personnel in several soft rock mines, predominantly in coal mining. Applications in hard rock mines are single monorail installations for transportation of personnel, materials and equipment.

SMT SHARF Group and Becker Mining Systems are two companies currently supplying these systems to the mining industry. The equipment is powered by electrical drives which are energized with a conductor bar or battery. A three-drive system loaded with 20 tonnes is estimated to travel at 5 meters per second on a 2° inclination and 1.5 meters per second on a 15° inclination. Payloads of upwards of 40 tonnes have been estimated to travel at 4 meters per second on a 2° inclination with a three-drive system. Greater inclinations are possible but requires connecting more drive units in series. It has been assumed for the study that a three-drive system loaded with 20 tonnes can operate on a 2° inclination at 2 meters per second and at 1 meter per second on a 15° inclination. The study does not include monorail rock transport on inclinations greater than 15°. Figure 24-47 shows a monorail section and associated equipment.

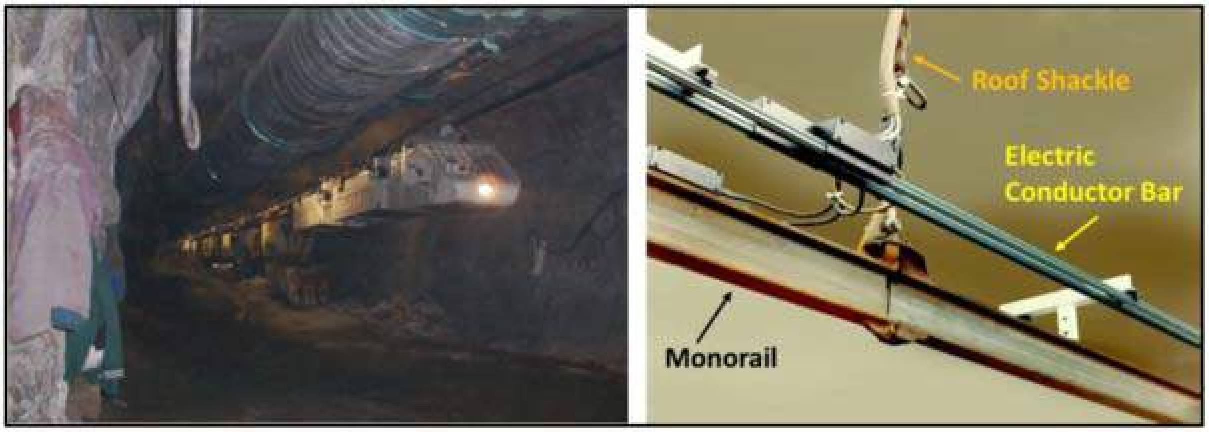


Figure 24-46: Transportation Backbone – Back-Mounted Monorail System (Source SMT Scharf AG)

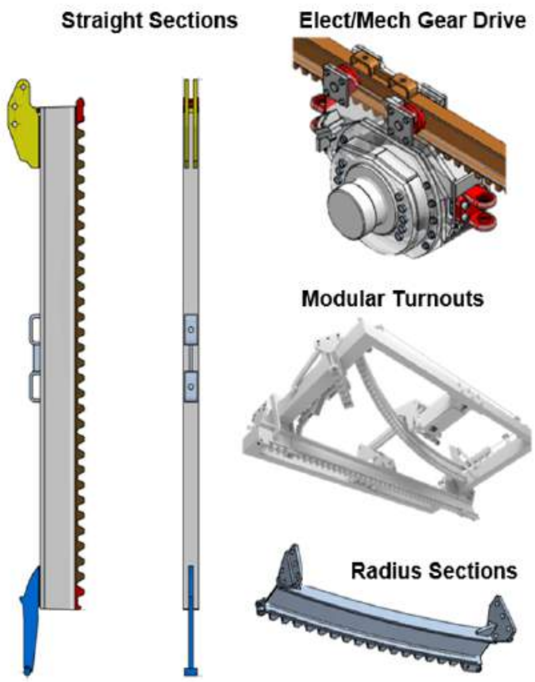


Figure 24-47: Transportation Backbone - Back-Mounted Monorail System (Source Becker Mining Systems)

24.24.4.3 Face and Ground Support Drilling

Drilling for ground support and blasting is carried out by the One Boom Jumbo which is both transported and operated from the monorail. During ground support and face drilling two jumbos are operated side by side as shown in Figure 24-48 and Figure 24-49. Electrical power required for the drilling is provided by connection to the main electrical distribution system in the same manner used for conventional drill equipment.

Key components of the One Boom Jumbo include:

- electro/mechanical gear drive for positioning and tramming

- unit is suspended from the monorail during transportation and operation
- stabilizers to absorb reaction forces
- working envelope of the Jumbo allows two machines to work simultaneously in a 4 meter by 4 meter heading
- drill, feed, boom and power pack utilize standard equipment, carrier modified for the 4 meter wide heading and monorail suspension.

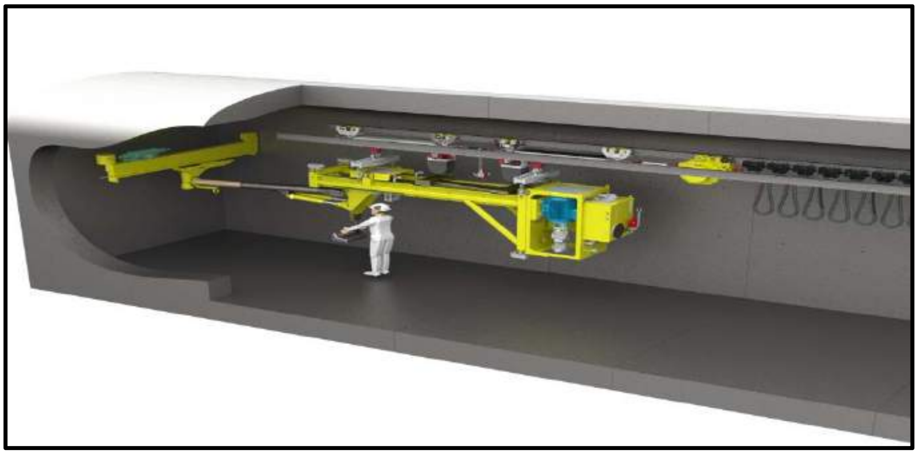


Figure 24-48: Ground Support – One Single-Boom Jumbo Drilling Bolt Holes in a 4x4m Heading (only one drill is shown in the figure for clarity)

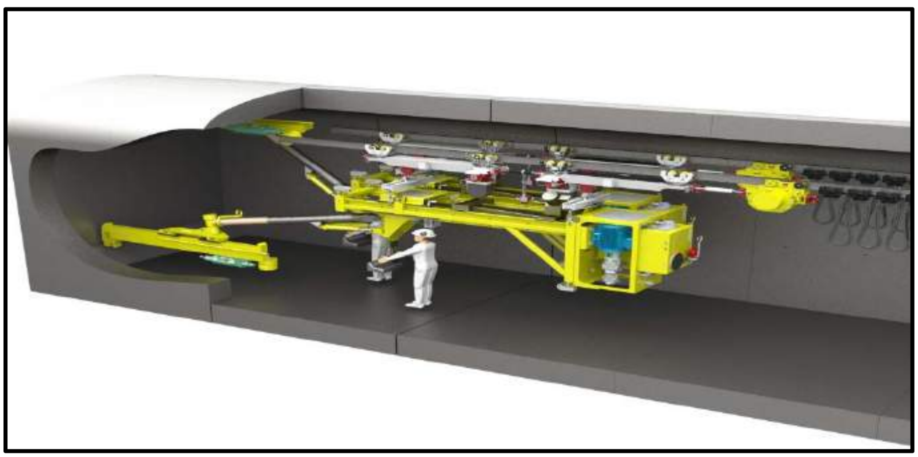


Figure 24-49: Drilling – Two Single-Boom Jumbos Drilling the Face in a 4x4m Heading

24.24.4.4 Service Platform

Access to the back and face for ground support installation, loading of explosives and installing services would be provided by the Service Platform. The Service Platform would travel and operate suspended from the monorail.

Key components of the Service Platform include:

- electro/mechanical gear drive for positioning and local tramming
- for moves beyond local positioning, the unit is towed by a locomotive
- suspended from the monorail
- stabilizers to absorb reaction forces

- working envelope of the platform permits working full width of back and walls of the 4 meter by 4 meter heading
- power during operation via mine distribution system

Figure 24-50 and Figure 24-51 illustrate the Service Platform during ground support and explosives loading.

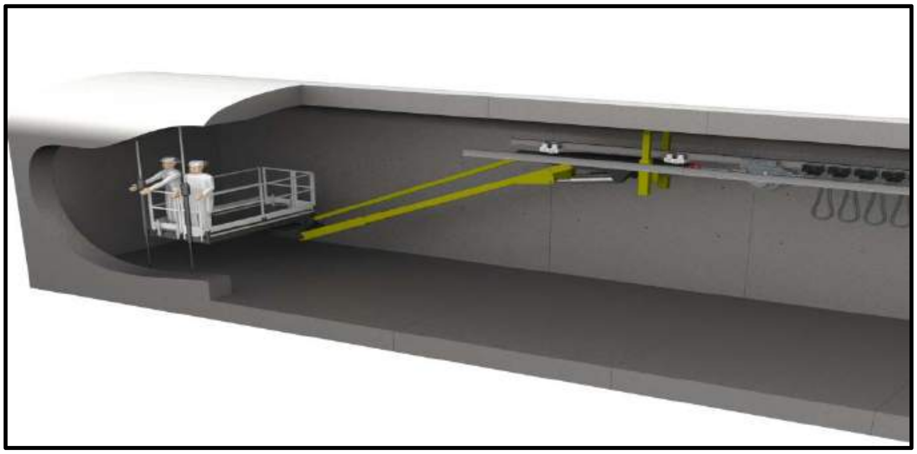


Figure 24-50: Ground Support – Service Platform for Ground Support and Services Installation in a 4x4m Heading

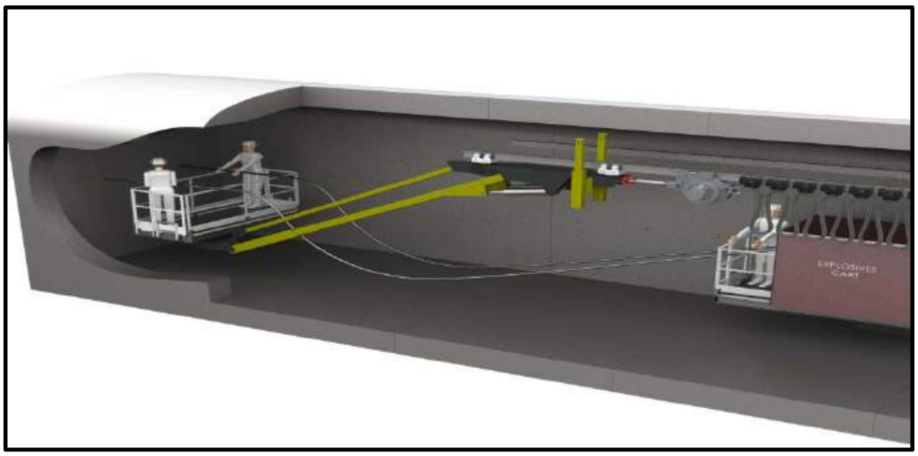


Figure 24-51: Loading – Loading the Face from the Service Platform in a 4x4m Heading

24.24.4.5 Mucking Systems

The materials handling system is designed such that muck handling is continuous, material removed from the active face is loaded on to a conveying system that transports material directly to the processing plant or waste disposal. Figure 24-52 shows the material handling equipment and rock flow from the active heading to the processing plant or waste disposal.

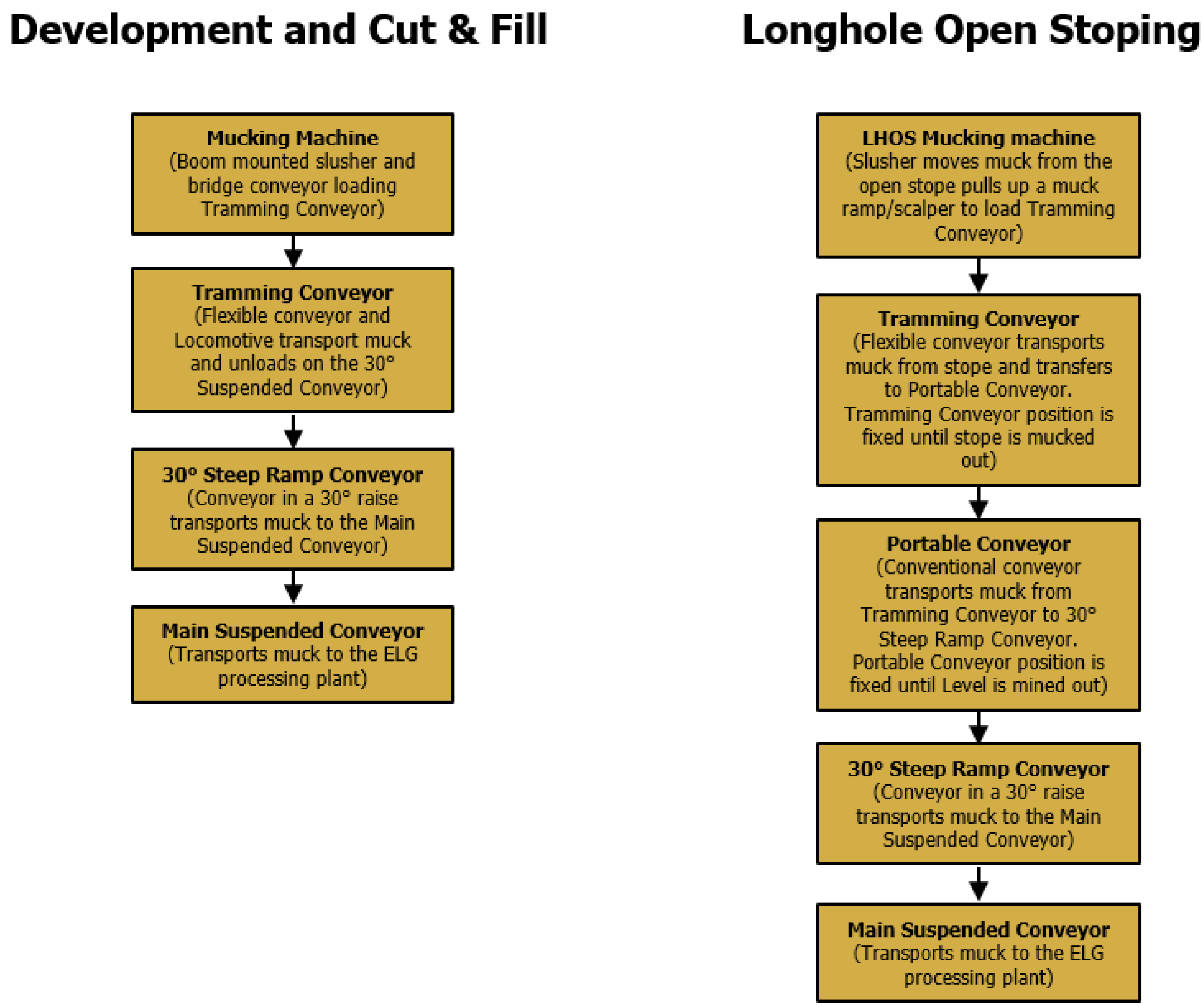


Figure 24-52: Muckahi Material Handling Equipment and Rock Flow

24.24.4.6 Mucking Machine

The Mucking Machine is comprised of a slusher, adjustable boom for anchoring the sheave block and bridge conveyor for loading the Tramming Conveyor. The machine travels and operates from the monorail.

Key components of the Mucking Machine include:

- Electro/Mechanical gear drive allows the unit to move independently during loading, during tramming unit is moved by locomotive
- Slusher/cable winch pulls a scraper that pulls muck to the Bridge Conveyor
- Bridge Conveyor lifts muck from the ground to the Tramming Conveyor
- Assumed mucking rate of 2 cubic meters per minute.

Figure 24-53 and Figure 24-54 illustrate the current design concepts for the mucking machine.

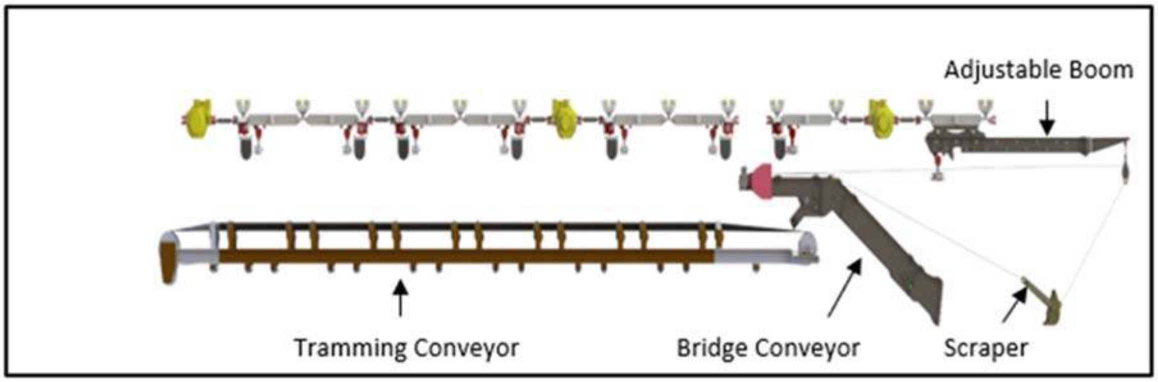


Figure 24-53: Mucking Machine – Monorail Mounted Slusher with Bridge Conveyor and Tramming Conveyor

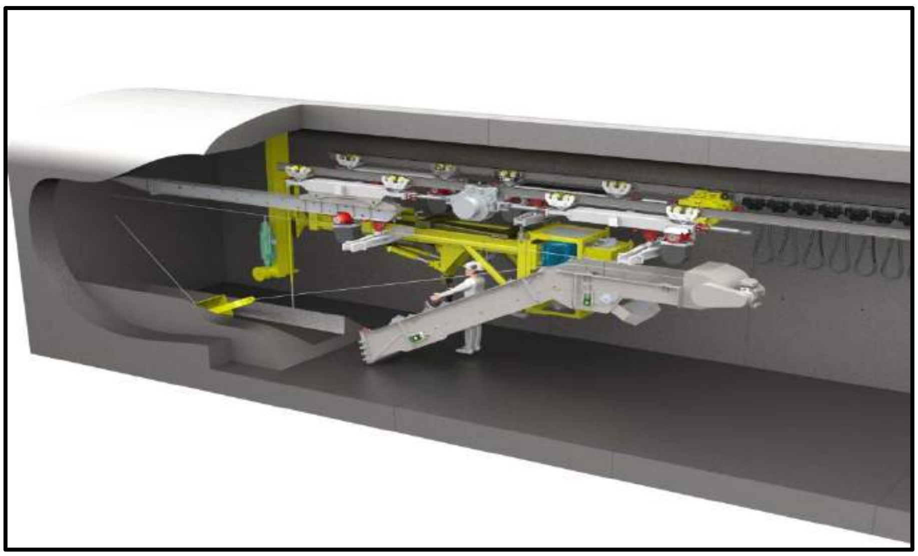


Figure 24-54: Mucking and Loading – Monorail Mounted Slusher with Bridge Conveyor

24.24.4.7 Tramming Conveyors

The Tramming Conveyor design is based on commercially available conveyors used in the soft rock mining industry and adapted for hard rock application. The conveyors are modified for operation on the monorail system. Envelope dimensions of the Tramming Conveyors are sized to allow two units to pass in a 4m x 4m opening. Loaded Tramming Conveyors would be capable of operating on grades up to 15^{o} being towed by locomotives. During the mucking cycle, Tramming Conveyors are queued on the monorail adjacent to the Mucking Machine in preparation for loading. The process allows for continuous mucking and loading of the conveyors.

Key components of the Tramming Conveyors include:

- flexible conveyor system with a minimum turning radius of 10 meters
- conveyor length would range from 25 to 100 meters, representing a capacity of 12.5 to 50 tonne payload
- electro/mechanical gear drive for tramming and conveyor operation
- bi-directional operation of the belt

The capacity of a Tramming Conveyor is dependent on the length of the unit. The length of Tramming Conveyors is based on the working conditions and duty cycle. During initial development of the Main Access Tunnels, the capacity (length) of the Tramming Conveyors will be maximized to take advantage of the relatively long straight drive. Shorter Tramming Conveyors with lower capacity would be used for sub level development and C&F production.

Figure 24-55 and Figure 24-56 show the proposed design for the Tramming Conveyor including the monorail attachment.

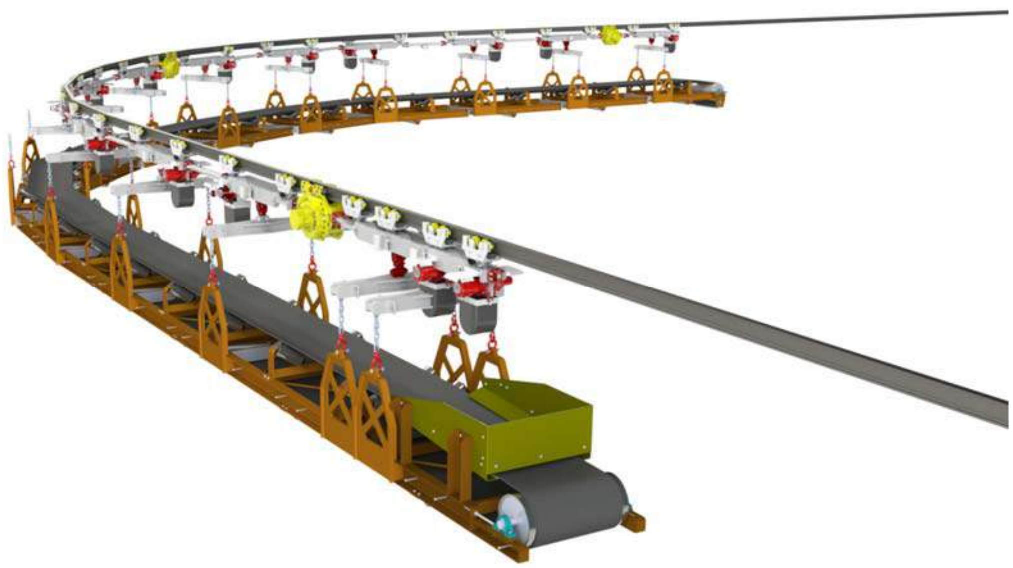


Figure 24-55: Mucking and Loading – Tramming Conveyor on the Monorail in Tramming Mode

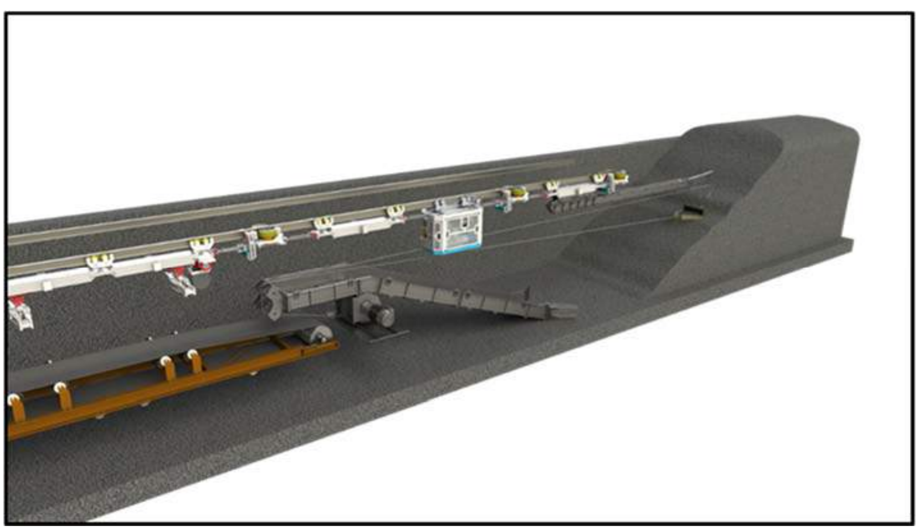


Figure 24-56: Mucking and Loading – Mucking Machine Loading Tramming Conveyor on the Monorail – Section

24.24.4.8 30° Steep Ramp Conveyors

As part of the main material handling system, conveyors would be installed in one of the two 30° access Steep Ramps that would service the EPO, MLL and MLU Zones. All muck on the sub levels would be off loaded onto the 30° Steep Ramp Conveyors. The conveyors would have a minimum capacity of 650 tonnes per hour and deliver muck to the Main Suspended Conveyor. The equipment would operate at a similar inclination to the El Limón RopeCon currently in operation at ELG Mine Complex.

Figure 24-57 shows the current El Limón RopeCon which spans ~1.3 km and has a vertical drop of ~300 meters.

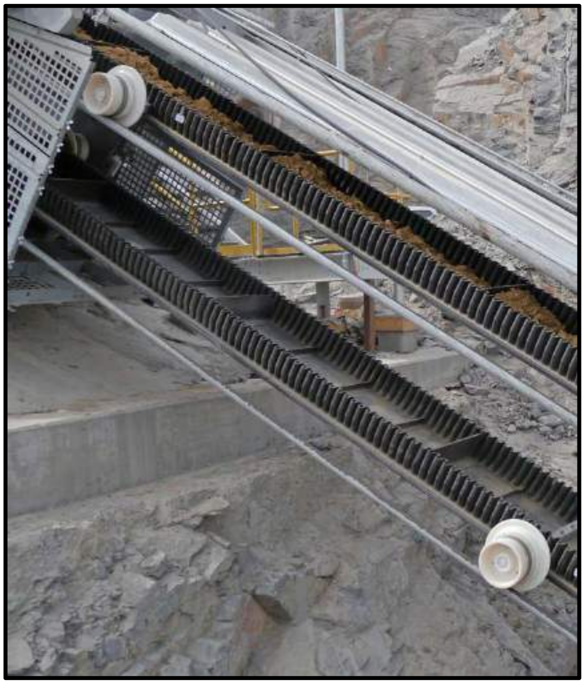


Figure 24-57: El Limon RopeCon - a Suspended Conveyor System at Torex's ELG Mine Complex

24.24.5 Muckahi Mine Design

The Muckahi Mining System is experimental in nature and has not been tested in an operating mine. Many aspects of the system are conceptual, and proof of concept has not been demonstrated.

24.24.5.1 Design Overview

The following section describes the key aspects of the Muckahi System when applied to the Media Luna conceptual mine design.

The key expected benefits of Muckahi are:

- Continuous muck handling system and the elimination of re-handle and storages
- All electric operation and significant reduction in ventilation requirements
- Ability to travel on ±30° (58%) slope and major reduction in both permanent and operating development
- Ability for bi-direction travel in 4m x 4m tunnels

Figure 24-58 illustrates the difference in conceptual development designs for the Conventional approach (shown in the top figure) and Muckahi (shown below).

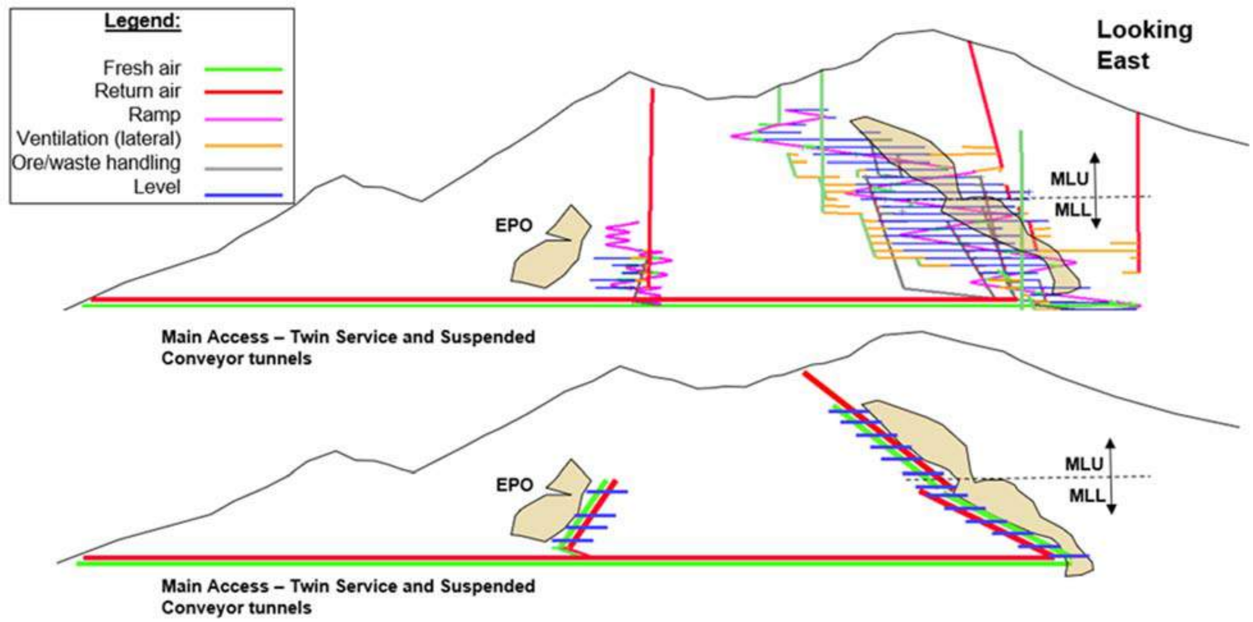


Figure 24-58: Comparison of Development Arrangement - Conventional (top) and Muckahi (bottom)

The following is a list of similarities and differences between the Muckahi and Conventional development approaches.

- Main access (twin tunnels) to the deposit are in the same location and length.
- Main accesses are 4 meters x 4 meters in the Muckahi and 5 meters x 5 meters in the Conventional.
- Mining methods used for recovery of the mineral resource are the same in both approaches (67% LHOS and 33% C&F).
- Ramps and passes in the Conventional approach are replaced with two inclined 30° Steep Ramps in the Muckahi, one for service and the other for material handling (muck).
- The Muckahi ventilation design provides for one short raise (30 meters) to surface to serve as a return-air raise. The Conventional will require six (6) raises due to the ventilation requirements for diesel equipment.
- Sub-level capital waste development is expected to be reduced by 86%. The footwall drifts at 25 m level spacing in the Conventional are replaced by sub levels at 50 m spacing. Conventional footwall drifts are replaced with centralized drifts located in the mineralization.
- Operating waste development is essentially same (reduction of 6%) as crosscuts to access the deposit are replaced with 15° attack ramps.
- Operating mineralized material development is increased by 44% as the footwall development to reach the extents of the deposit are replaced with central drifts in the mineralized zones.
- Development rate is estimated at 8.0 – 10.8 m/day due to increased face utilization and productivity.
- The life of mine development requirements is estimated at 86 km versus 113 km for Conventional.

24.24.5.2 Primary Access

Primary access for the Muckahi would use the same approach as the Conventional mine plan described in Section 24.16. The twin tunnels would be driven from the north side of ML to access the deposit, a Service Access and

Suspended Conveyor tunnel. A Ropeway would be constructed to cross the Rio Balsas to the ELG site and provide access for personnel, equipment and materials. A suspended conveyor system would be installed to transport the mineralized material to the processing plant and return tailing to the underground backfill plant.

24.24.5.3 30° Steep Ramps

Access to the EPO and ML zones would be accomplished with two 30° Steep Ramps, as opposed to a 15% ramp described in the Conventional mine concept. The EPO access would be accessed from the 655 level with twin 15° ramps to the 695 level followed by two 30° Steep Ramps to the top of the EPO zone at elevation 940. Access to the MLL and MLU zones would be in two stages, twin 30° Steep Ramps from the 655 to 920 level to access the MLL zone, followed by twin 30° Steep Ramps from the 920 level to 1235 level to provide access to the MLU zone. A total of 19 sub levels at 50 meter intervals are driven from the 30° Steep Ramps (4 for EPO, 7 for MLL, 8 for MLU). An isometric view of the main access tunnels and 30° Steep Ramps are shown in Figure 24-59 followed by a long section view in Figure 24-60.

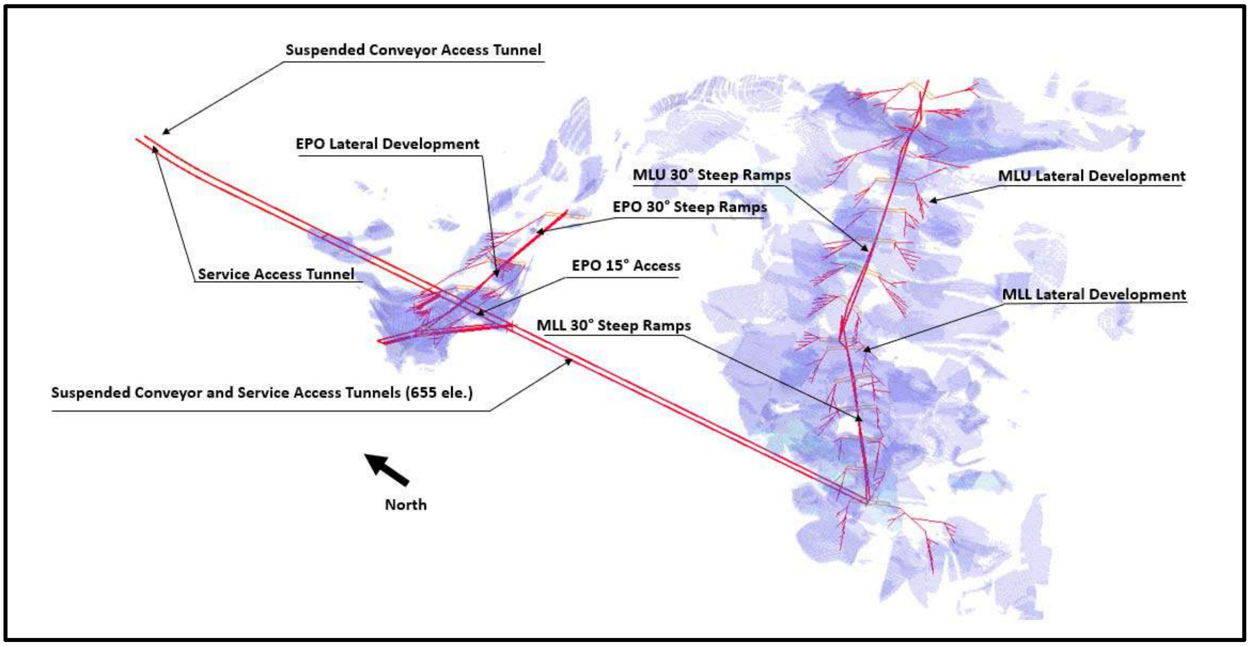


Figure 24-59: Muckahi Development Plan Iso-View

C&F mineralized material will be transported from the active face to the 30° Steep Ramp Conveyor utilizing Tramming Conveyors. For LHOS, this will be accomplished using fixed Tramming Conveyors and Portable Conveyors. The 30° Steep Ramp Conveyor will transfer material to the Main Access Suspended Conveyor which in turn delivers material directly to the ELG Processing Plant. It is assumed that the LHOS and C&F will not require substantial material sizing equipment as fragmentation management would deliver muck with a size distribution of 95% passing 400 mm.

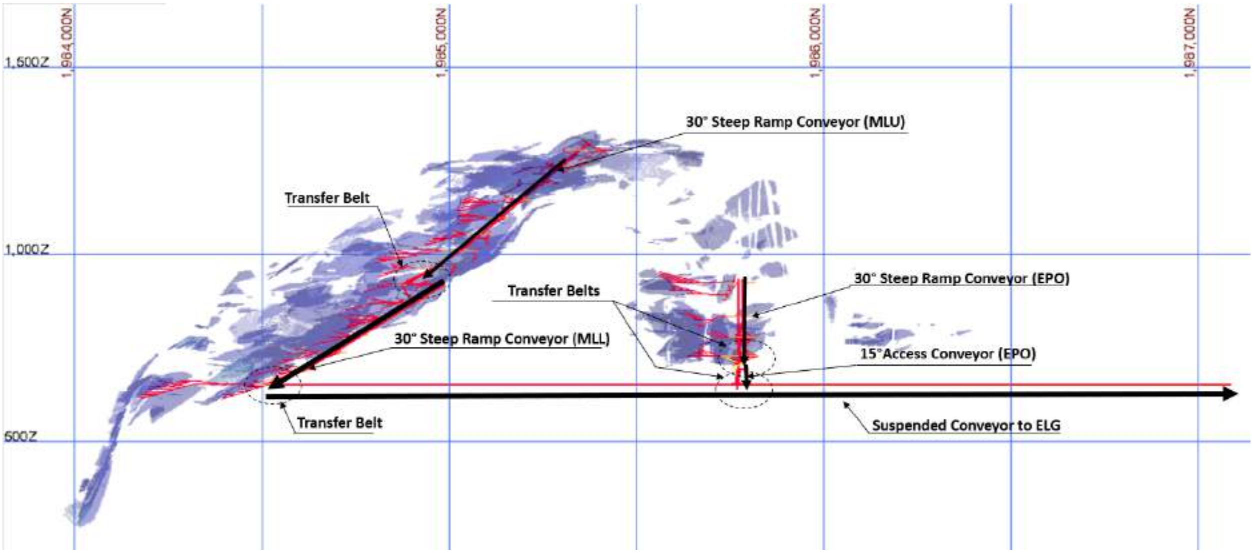


Figure 24-60: Muckahi Material Handling System Sectional View Looking West

24.24.5.4 Level Development

Level development consists of two parallel drifts intersecting the 30° Conveyor Steep Ramp and Service Steep Ramp, along with two cross cut drifts accessing the deposit as shown in Figure 24-61. C&F stopes are accessed from the sub level with a 15° attack ramp, subsequent cuts are driven from the attack ramp.

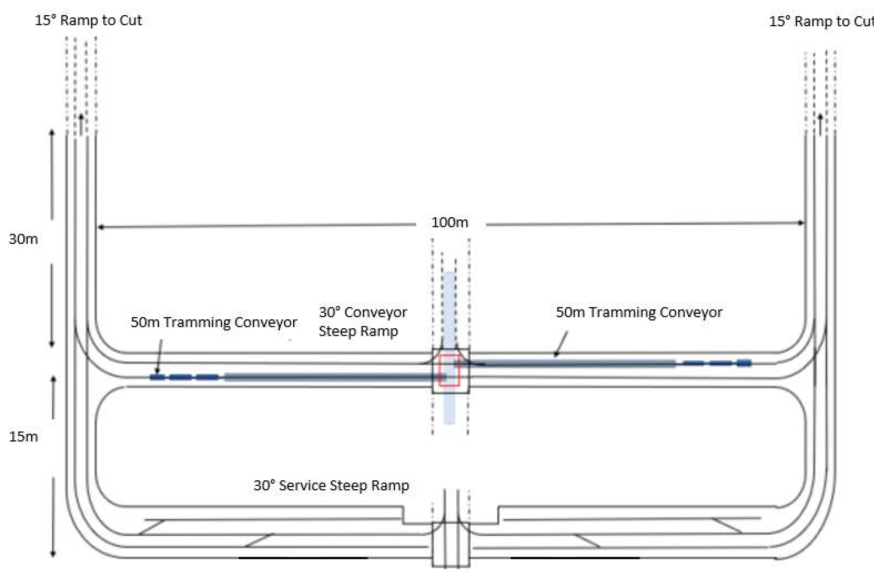


Figure 24-61: Level Access General Arrangement

All development is designed at 4 meter x 4 meter cross sectional area with some exceptions to accommodate 'parking' in the footwall. Two or three monorails would be installed in the drift backs to allow for bi-directional travel of the mobile equipment provide a marshalling area for equipment and materials. A typical drift section is shown in Figure 24-62. The monorails are lifted and positioned using a monorail lifting device built into the Service Platforms. The rails are supported by roof shackles chained to grouted rebars installed during the ground support activity. Monorail turnouts (switches) are installed at intersecting drifts comparable to that found in conventional floor mounted rail systems.

Equipment envelope dimensions allow for approximately 0.45 meter clearance from the tunnel walls and other units located on the other monorail. Services are installed on the walls and ventilation duct suspended from the drift backs. Services, electrical and communications would be installed from the Service Platforms.

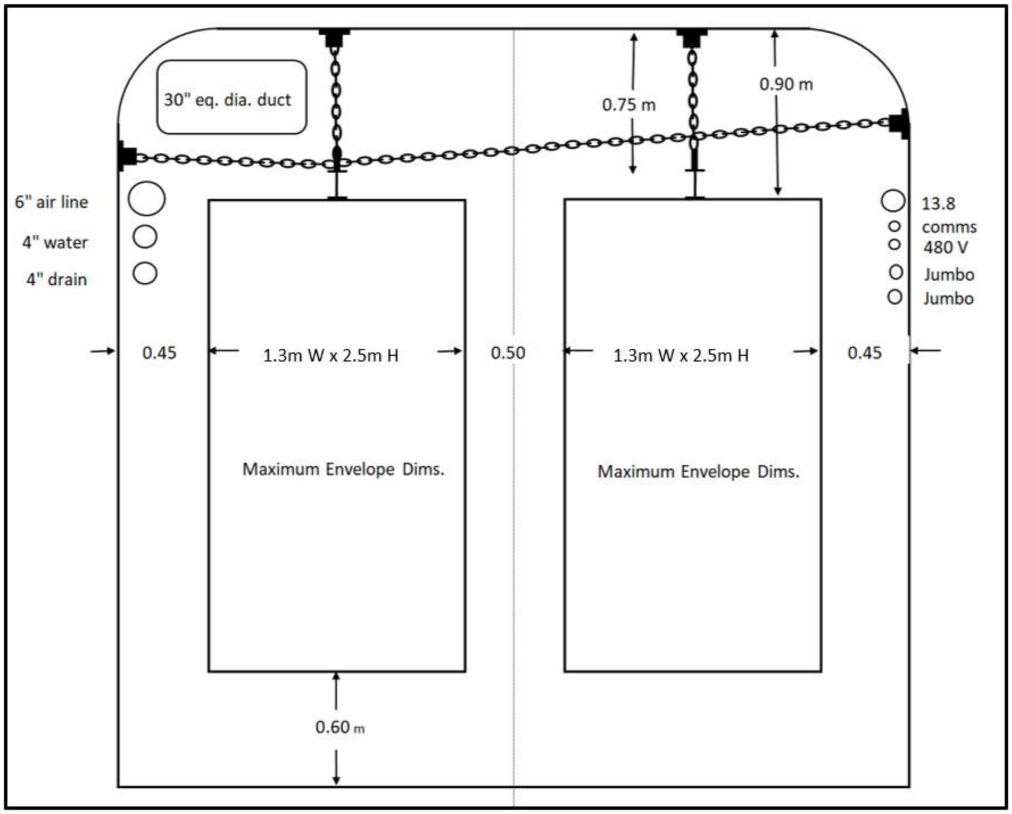


Figure 24-62: Typical Section of 4m x 4m Drift

24.24.5.5 Ventilation

A pulling ventilation system has been designed for the initial development to clear blasting fumes as quickly as possible. Ventilation requirements for initial development are determined by achieving minimum required airflows for control of heat and dust (minimum quantity of 0.5 m/s) in the heading. In comparison to conventional diesel equipment mining, ventilation requirements have been substantially reduced due to the electric equipment. Rigid ventilation ducting would be mounted in drift backs during initial development.

Preliminary ventilation design would be a push ventilation system once the main access development is completed. During the initial years of production in MLL and EPO, fresh air will be delivered to the zones through the Main Service Access drift and 30° Service Steep Ramp and return air through the 30° Conveyor Steep Ramp to the Main Suspended Conveyor access tunnel. Fresh air will be delivered to each level by auxiliary fans from the 30° Service Steep Ramp to the production headings using ducting. When production begins in MLU, the 30° Conveyor Steep Ramp will be broken through to surface and will act as a return-air raise.

Total airflow requirements are estimated at 170 m^3/s assuming six active production areas and four active development areas. The design airflow is based on achieving a minimum air velocity of 0.5 m/s in working areas. Airflow is achieved using 1,529 kW of electrical power prior to the breakthrough 30° Service Steep Ramp to surface and 1,145 kW following the breakthrough. Intake fans would be located at the Service Access drift portal, as well as auxiliary fans installed throughout the development. Airflow between levels is controlled by bulkheads and ventilation doors installed at various level entry points. In comparison to conventional diesel equipment mining, airflow requirements are reduced by 75% due to the electric equipment and reduced development.

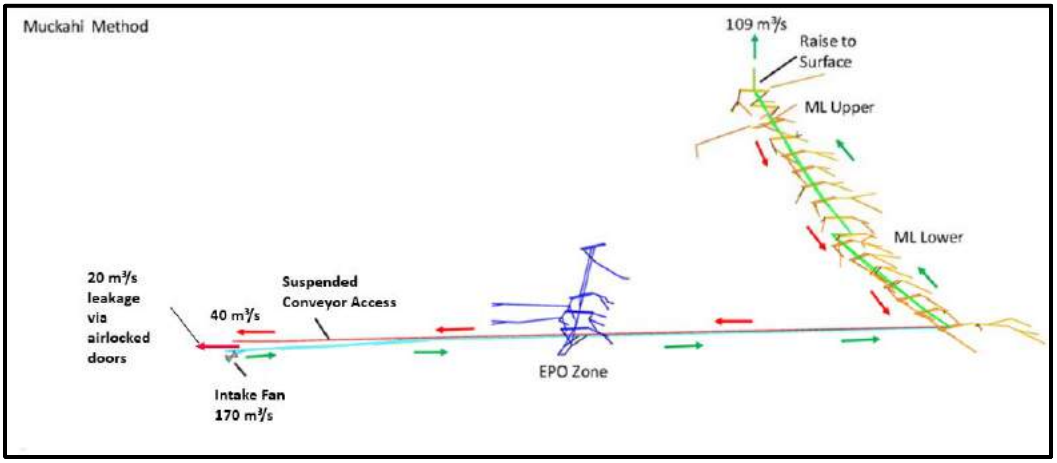


Figure 24-63: Muckahi Ventilation Configuration

24.24.5.6 Development Schedule

Cycle time estimates for the Muckahi are based on similar rates (drill penetration, etc.) used for conventional development. These rates were used to develop the cycle time for the Muckahi process, several assumptions were made regarding productivity, setup and teardown times due to the unproven aspects of Muckahi System.

Development rates for Muckahi versus conventional development are shown in Table 24-76. Development rates are estimated to be 54% faster due the reduced size of opening (16m^2 vs 25m^2), increased mucking rates and the ability to move/operate two pieces of equipment simultaneously at the active face.

Development rates and unit cost assumptions for Muckahi are summarized in Table 24-76. Development rates are estimated to be higher in the Service & Suspended Conveyor Access Tunnels than for sub level development and stope access due the use of higher capacity Tramming Conveyors. Development rates for the 30° Steep Ramps are lower due to the added complexity of driving steep inclinations and equipment performances.

Table 24-76: Muckahi Estimated Development Rates & Unit Costs

Development Type	Units	Single Face	Multi-Face
Service and Suspended Conveyor Access Tunnels	m/day	10.8	13.0
Level Development & Stope Access	m/day	9	10.8
Mineralized Material Development	m/day	8	9.6
30° Steep Ramps	m/day	5.0	-

The Muckahi development schedule is shown in Figure 24-64 and development summary in Table 24-77. The initial development phase includes Year 1 through Year 3, with production achieved in Year 3. Contingencies were applied to the total development quantities to account for ancillary excavations for initial development, as well as potential uncertainty. The total development is approximately 86 km. Overall, the Muckahi approach indicates a reduction of 25% in total development (including drifting in mineralized zones) as compared to the Conventional approach.

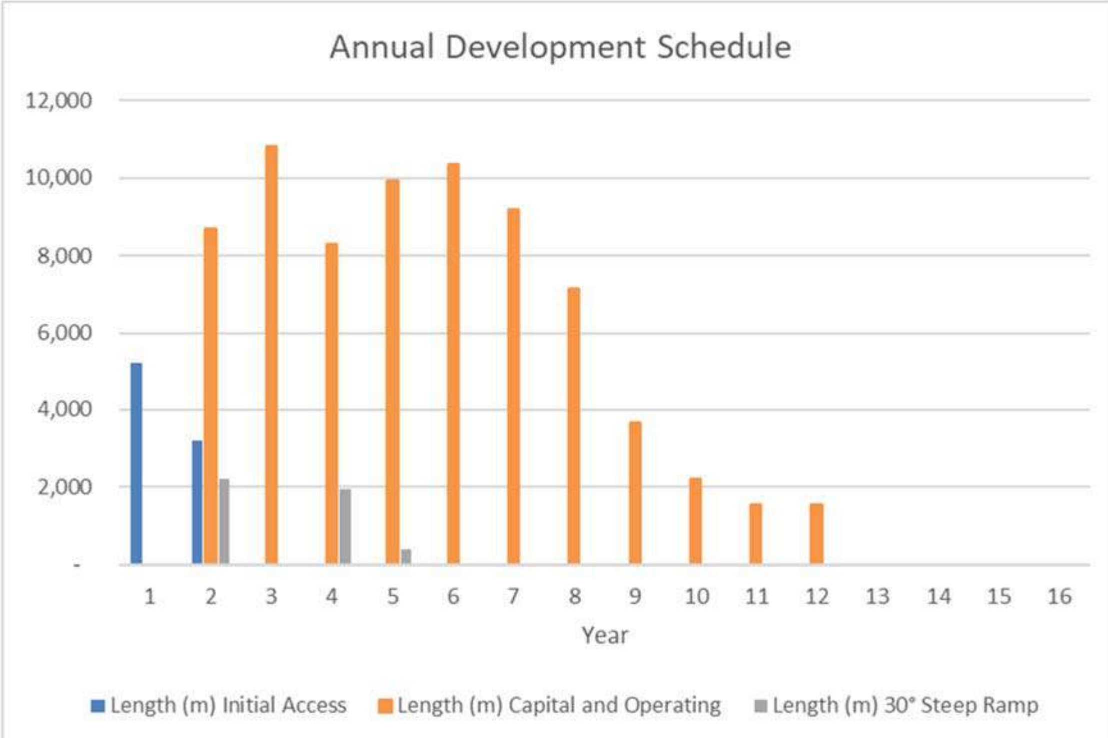


Figure 24-64: Muckahi Annual Development Schedule

Table 24-77: Muckahi Mineralized Material and Waste Development Summary

Development Type	Size	Initial Phase (m)	Sustaining & Operating (m)	Total (m)
Main Access Tunnels	4m x 4m	8,430	-	8,430
Level Development	4m x 4m	1,930	2,760	4,690
Attack Ramps	4m x 4m	-	32,580	32,580
Stope Access	5m x 5m (mineralized material)	-	36,150	36,150
30° Steep Ramps	4m x 4m	2,200	2,320	4,520
Total	-	**12,560**	**73,810**	**86,370**

24.24.5.7 Mining Methods

24.24.5.7.1 Muckahi LHOS

The following section describes the LHOS mining method design parameters and methodology.

Key highlights of the Muckahi LHOS:

- Three mining horizons would be established. One or two active mucking stopes per mining horizon, for a total of 4 stopes producing 1,800 tonnes per day or 7,200 tonnes per day.
- Primary mucking is accomplished with a combination of a Mucking Machine with 60 hp slusher (LHOS Mucking Machine) and 7 tonne LHD.
- Mineralized material would be loaded on to a Tramming Conveyors at the stope.

- Tramming Conveyor position would be fixed until stope has been mucked out.
- Tramming Conveyor would transfer material to Portable Conveyor.
- Portable conveyor would transfer material to the 30° Steep Ramp Conveyor.

It is expected that LHOS would be the primary mining method utilized. The method was selected based on its lower operating cost, high productive capacity, and flexibility relative to other mining methods. Development dimensions, sub level spacing and stope dimensions are consistent with the Conventional approach as described in Section 24.16 of the PEA Report. LHOS has been planned from the bottom-up using a primary-secondary mining sequence. In the wide zones, stopes are retreated to a central cross cut as shown in Figure 24-66. Longitudinal retreat is planned in narrow areas. Three mining horizons would be established, two in the MLL and one in the EPO zone, as mining progresses mining horizons will be established in MLU. Sub-levels would be established from the main 30° steep ramps at 50 meter intervals. Over-cut and under-cut drifts would be accessed from access ramps as shown in Figure 24-66. Stope design, mining sequence and quantity of mineralized material per sub level indicates that ten (10) active stopes would be required on each mining horizon. Six (6) stopes would be in the production drilling, preparation/set up or backfill processes, and one or two stopes would be in the mucking cycle, producing 1,800 tonnes per day each, which supports the estimated LHOS production rate of 7,200 tonnes per day.

Production drilling patterns and drilling equipment are similar to the Conventional approach.

Primary stope mucking will be accomplished using a LHOS Mucking Machine in combination with a 7 tonne LHD. The LHOS Mucking Machine will load a Tramming Conveyor. If required to maintain mucking rates, a development/C&F Mucking Machine has been included in the estimate. The Tramming Conveyor position will be fixed until the stope has been mucked out and will discharge directly on the Portable Conveyor. The Portable Conveyor will be established prior to the start of LHOS production. The Portable Conveyor will transport material to the 30° Steep Ramp Conveyor. The 7-tonne LHD's will be required for moving over size material and final stope mucking.

As mining retreats to the central cross cut, the Tramming Conveyor position will retreat with the Active Stope while continuing to overlap the Portable Conveyor. This will result in continuous muck transfer for the entire duration of the level. The Portable Conveyor will remain in position until mining is complete on a level. Once a level has been completed, the Portable Conveyor will be transported to the next LHOS level using the monorail system. A typical level plan is shown in Figure 24-65.

Backfill using waste rock or paste fill would be introduced to the open stope from the overcut. Backfill stand up strengths and filling rates would be similar to conventional. Figure 24-66 illustrates a typical LHOS cross section.

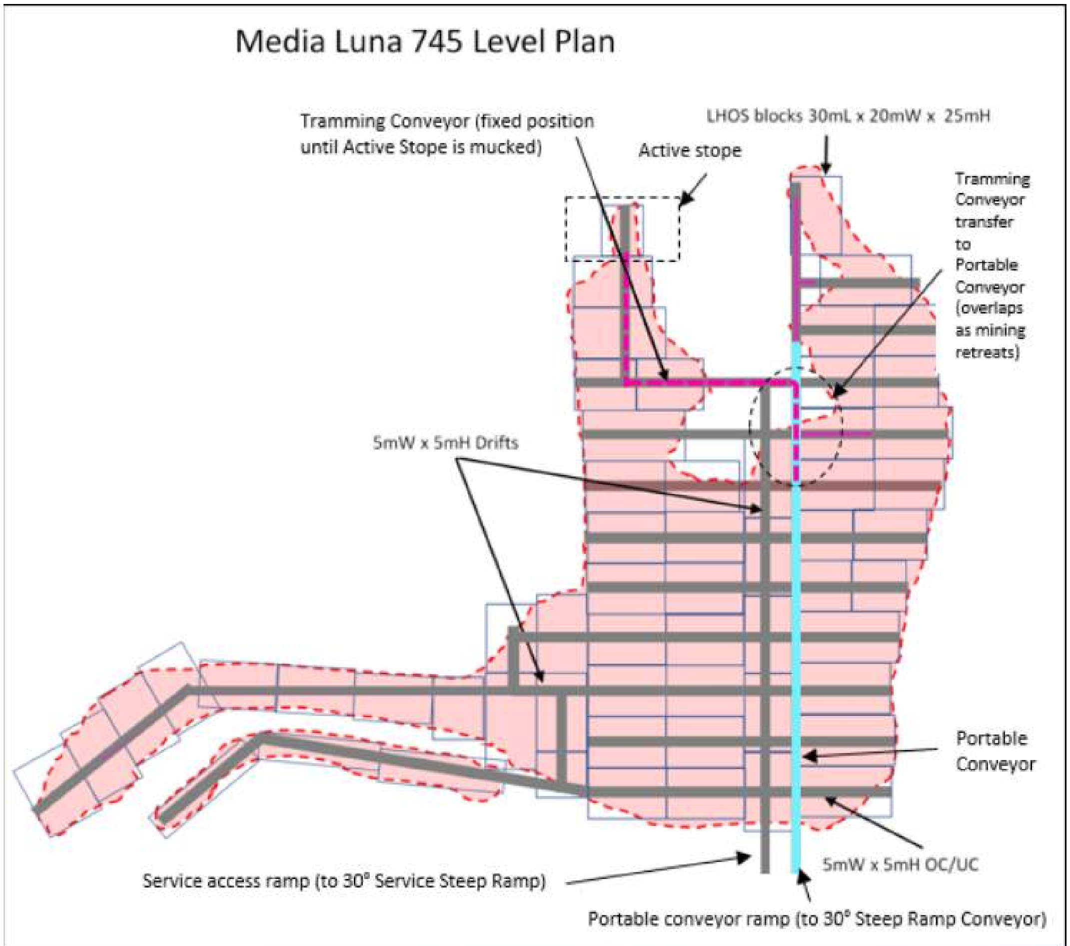


Figure 24-65: Muckahi Typical LHOS Plan

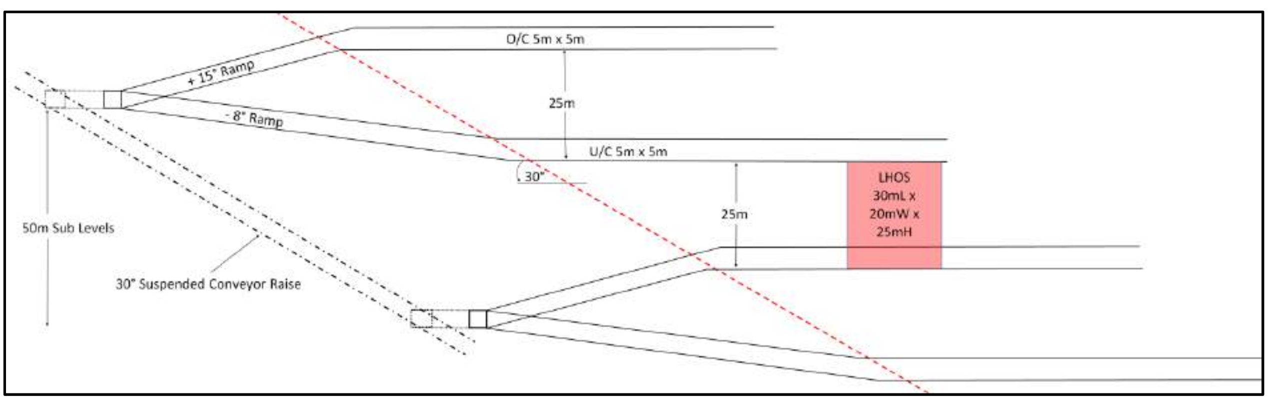


Figure 24-66: Cross-Section of a Typical LHOS Sub-Level

24.24.5.7.2 Muckahi C&F

The following section describes the Muckahi C&F design parameters and methodology.

Key highlights of the Muckahi Cut and Fill (Muckahi C&F), include:

- C&F stopes would be a minimum 4 meters wide. In widths greater than 6 meters, 3 monorails would be installed allowing 3 pieces of equipment to work simultaneously.
- Post pillar C&F would be utilized when spans exceed 9 meters. Posts dimensions would be 4 meters by 4 meters.
- Muckahi development equipment would be used for C&F mining.
- Cut and fill production rate per stope is estimated at 1,000 tpd.

A conceptual stope design and production schedule was estimated using the Muckahi equipment applied to post-pillar C&F mining. Up to 3 parallel monorails would be installed in a heading supporting the use of 3 Muckahi machines performing simultaneous activity at the face. A typical stope plan is shown in Figure 24-68.

Footwall development would be established at each 50 meter sub level and the 5 meter cuts heights would be accessed from 15° attack ramps. C&F spans would be 9 meters wide with 4 meters by 4 meters post pillars. Development waste rock-fill and paste-fill would be used to backfill stopes. A cross section of the C&F stope is shown in Figure 24-67.

Face drilling and ground support installation would be carried out at the face by two or three pieces of equipment operating simultaneously from the three monorails. Ground support and explosives loading would be performed from the Service Platforms.

Blasted material will be mucked from the face to Tramming Conveyors using the Mucking Machine. Tramming Conveyors would deliver the muck from the stope to the 30° Steep Ramp Conveyor. Monorail turnouts (switches) will be required to maintain two-way traffic between the stope face and the 30° Steep Ramps.

It is estimated that two Tramming Conveyors up to 50 meters in length (25 tonne capacity) would be used in the mucking cycle. Unloaded Tramming Conveyors would be queued behind the face waiting to be loaded.

Conceptual cycle times for Muckahi C&F were developed using the performance of conventional equipment such as drilling rates and estimating the increase in efficiency of having 3 machines working simultaneously at the face. Due to the conceptual nature of the equipment, assumptions were made regarding mobilizing, setup, and takedown times.

Production rates and labor productivity estimates for Muckahi are summarized in Table 24-78. The effective stope productivity is estimated at 1,000 tpd.

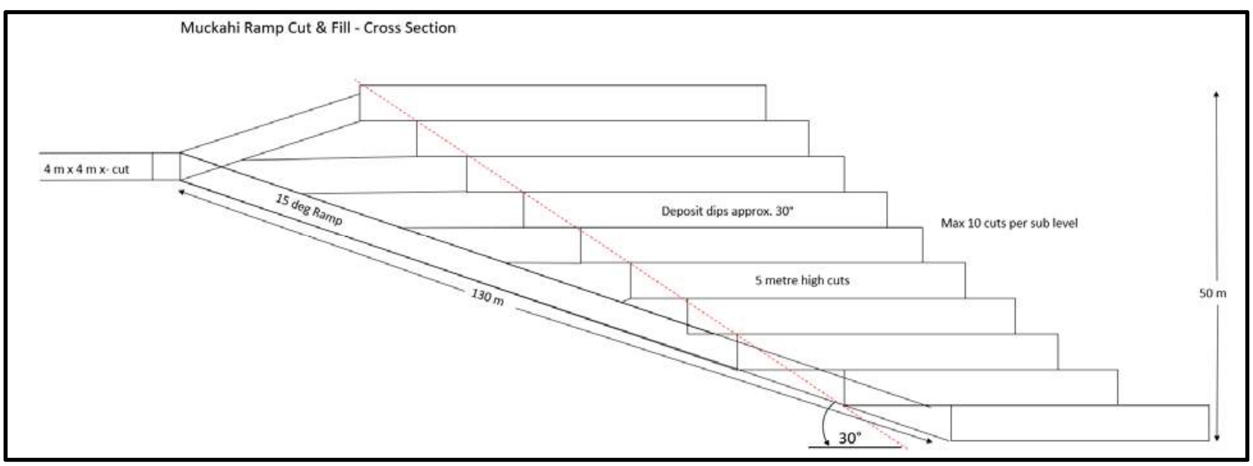


Figure 24-67: Muckahi C&F Long Section

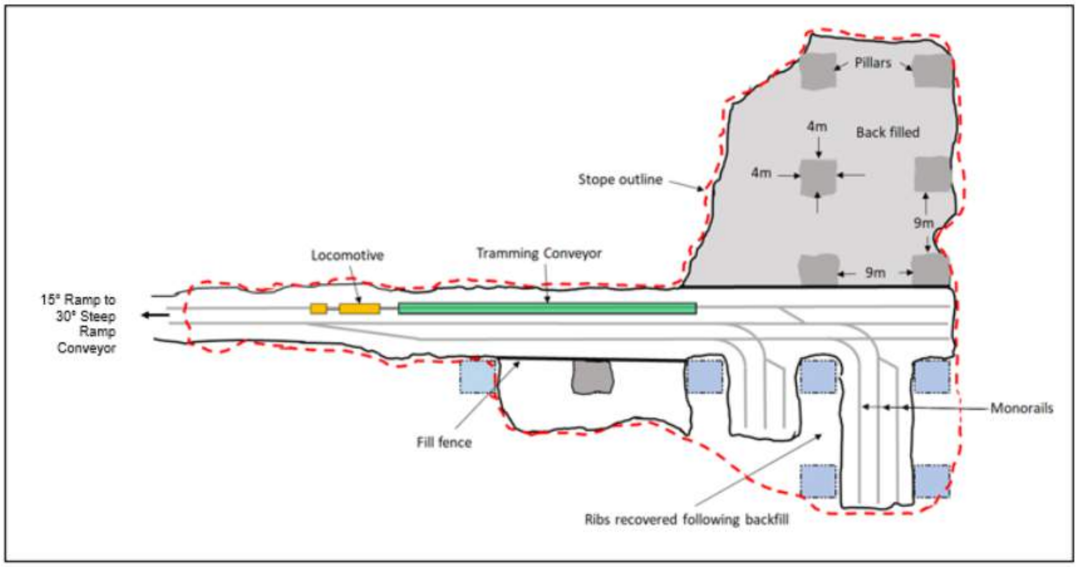


Figure 24-68: Muckahi C&F Post-Pillar General Plan

24.24.5.8 Production Schedule

Muckahi LHOS mucking rates utilizing the 60 hp slusher and Mucking Machine were estimated based on well-established empirical information. Loading of the Tramming Conveyor was based on the manufacturers specifications. Oversize muck and tramp steel are the main risks to the productivity assumptions.

Production rates and labor productivity estimates for Muckahi are summarized in Table 24-78. The effective C&F stope productivity is 1,000 tpd, while the LHOS is 1,800 tpd.

Table 24-78: Muckahi Production Rate Estimates

Parameter	Units	Quantity (LHOS)	Quantity (C&F)
Design Production Rate	Tonne / day	7,200	2,000
Stope Production Rate	Tonne / day	1,800	1,000
Labor Productivity	Tonne / labor-hour	8.7	65
Total Dilution	%	10%	21%
Mining Recovery	%	86%	92%

A production schedule was developed for the Media Luna inferred mineral resource and summarized in Figure 24-69 and Table 24-78. An equivalent cut-off grade of 2.9 gpt (AuEq) was assumed, with 86.1% mine recovery and 9.8% total dilution for C&F mining and 92% mine recovery and 21% total dilution for LHOS mining. Mine recovery losses are related to the post-pillar configurations and some low tonnage mineralization zones which were excluded from the schedule.

Production scheduling is similar to conventional, with first production from the EPO zone, followed by production at the MLL lower levels. For the Muckahi, early production commences in Year 3-Q1 and commercial production (3-consecutive months at 60% of full production) is estimated to commence in Year 3-Q3. Once the EPO is depleted, production would ramp-up at MLU. Overall tonnage and grade profiles are comparable to conventional.

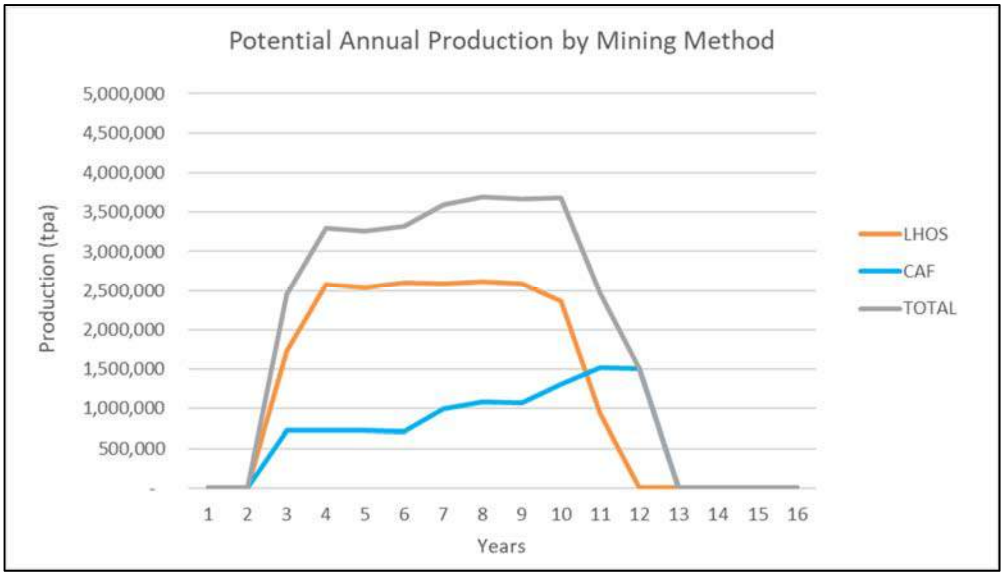


Figure 24-69: Muckahi Production Schedule

24.24.5.9 Backfill

Stope backfilling would be accomplished predominantly with cemented paste backfill delivered by pipe distribution systems from the underground plant. Following the initial development phase, all development waste would be transported to open stopes using the Tramming Conveyors. Preliminary design work was carried out for the paste backfill system, including the preliminary testing program. A summary of waste and paste backfill tonnes is provided in Table 24-79. Muckahi paste backfill quantities are higher than Conventional due to reduced waste tonnes available for backfill.

Table 24-79: Muckahi Backfill Parameters Summary

Parameter	Units	Quantity
Total Waste Backfill	Tonnes	1,143,000
Total Paste Backfill	Tonnes	12,193,000
Average Paste Backfill	Tonnes / day	3,850
Paste Plant Design Capacity	m^3 / hour	235
Paste Dry Bulk Density	Tonnes / m^3	1.43
Paste Cement Content	%	3.5%

24.24.5.10 Mine Services

General mine services such as mine drainage, potable water, communications, refuge, maintenance shops, explosives magazines would be similar to conventional.

Electric power connected is estimated at 13MW, and annual energy consumption of 71 GW-h. An electrical distribution system to the Service Access portal will have similar requirements as conventional. Underground distribution will also be similar, with some modification for the Muckahi battery equipment charging requirements.

Primary access to the underground will be through the Service Access tunnel and secondary egress would be from the Suspended Conveyor tunnel. Once the 30° Conveyor Steep Ramp in MLU has been extended to surface it would serve as a third egress.

24.24.5.11 Equipment

The Muckahi mobile and material handling equipment requirements at peak production are summarized in Table 24-80. The mobile equipment unit costs were estimated by MEDATECH and Torex, however it is noted that these estimates although having operational specifications are early stage estimates, as prototyping and test mining advances these estimates would be refined.

In comparison to the Conventional, the Muckahi requires more mobile (although much smaller) equipment to maximize face utilization. The relative unit cost for the equipment is anticipated to be notably less than conventional systems due to its reduced size and no need for diesel engines and related parts.

Table 24-80: Muckahi Peak Operating Mobile Equipment

Equipment Type	Units	Quantity
Mobile Equipment		
Top-Hammer Longhole drill	Ea.	5
ITH Drill	Ea.	2
7T e-LHD	Ea.	3
Face Jumbo – Single Boom	Ea.	12
Boom Mounted Slusher	Ea.	8
Bridge Conveyor	Ea.	8
Tramming Conveyor	Ea.	14
Portable Conveyor	Ea.	4
Utility Platform	Ea.	15
3-drive Locomotive	Ea.	8
Monorail Lifting System	Ea.	5
Explosives Loader	Ea.	5
Cement Hopper Car	Ea.	20
Personnel Carrier	Ea.	6
Shotcrete Car	Ea.	2
Utility Car	Ea.	11
Forklift	Ea.	2
Monorail	Meters	48,000
Fixed Equipment – Material Handling		
Main Suspended Conveyor	Ea	1
30° Steep Ramp Conveyor	Ea	3
Transfer Belts	Ea	4

24.24.5.12 Workforce

Peak workforce requirements for the Muckahi are comparable to the Conventional and are summarized in Table 24-81. The work schedule assumed in the Muckahi option is the same as the conventional (three nine hour shifts per day).

Table 24-81: Muckahi Peak Operating Labor

Labor Type	Employees
Management & Tech Services	35
Mine Operators & Laborers	229
Maintenance & Logistics	141
Total	**405**

24.24.6 Muckahi Cost Estimate

The following section outlines the life of mine capital and operating cost estimates for the Muckahi Mining System. Capital and operating cost estimates were carried out to a similar level of detail as previously outlined for the conventional approach, as shown in Section 24.21, **however equipment costs and performance are considered speculative as some of the equipment has not yet been built or used.** A cash flow analysis was carried out for Muckahi to provide comparison to the conventional as well as to highlight notable potential differences with the approaches.

Key highlights of the Muckahi concept in comparison the Conventional mine method include:

- 43% expected reduction in waste development meters significantly reducing development capital costs, and accelerating time to commercial production. Savings in capital development costs are partially offset by marginally higher mobile equipment costs as well as the addition of the 30° Steep Ramp Conveyors.
- 20% expected reduction in life of mine operating costs mainly driven by reduced overheads from increased productivity, and reduced equipment operating costs due to the all-electric fleet and smaller equipment sizing. Savings in operating costs are partially offset by increased requirements for paste backfilling due to less waste rock available from waste development.
- 17% expected increase in life of mine operating cash flow after-taxes, with corresponding boost in NPV and IRR. Operating cash flows are partially offset by increased taxes and royalties associated with the higher profitably associated with the Muckahi mining concept.

24.24.6.1 Capital Costs

The initial and sustaining capital requirements for the Muckahi conceptual mine design are summarized in Table 24-82. Initial capital includes mine operating development costs prior to achieving commercial production, which is assumed at 60% of design production in Year 3-Q3. Contingency and EPCM charges have been estimated in-line with assumptions previously outlined in Section 24.21. The underground initial and sustaining costs are in addition to the surface and process plant capital costs summarized in Section 24.21. At this level of study, no major changes are anticipated for the Surface and Process Plant design for the Muckahi mining concept.

In comparison to the Conventional capital cost estimate, notable cost estimate reductions for Muckahi are driven by the significant reduction in development meters and cost. Notable capital cost estimate increases are due to the increased mobile equipment quantities, and the 30° Steep Ramp Conveyors.

Table 24-82: Muckahi Underground Initial & Sustaining Capital Cost Estimates

Capital Item	Units	Initial		Sustaining	
		Qty.	Cost ($M)	Qty.	Cost ($M)
Development					
Lateral & Level Development	meter	1,930	2.4	2,760	3.4
30° Steep Ramps	meter	2,200	3.9	2,320	4.1
Contractor & Main Access	meter	8,430	17.2	-	-
Total Development	**meter**	**12,560**	**23.5**	**5,080**	**7.5**
Capitalized Operating Development*	lot	-	14.4	-	-
Auxiliary Ventilation	lot	1	0.5	1	0.2
Main Dewatering	ea	2	1.6	1	2.3
Underground Shops	ea	2	2.9	1	1.7
Underground Services	lot	1	0.3	-	-
Electrical Distribution	lot	1	2.7	1	4.7
Mining Support	lot	1	3.0	1	0.3
Materials Handling	lot	1	1.2	1	0.4
Paste Backfill Plant	ea	1	19.3	-	5.0
Mobile Equipment	lot	1	53.2	1	19.1
Water Control Structures	ea	2	2.9	-	-
Main Ventilation	lot	1	2.7	-	-
30° Steep Ramp Conveyors	ea	2	12.6	1	5.6
Total			**140.8**		**46.9**
EPCM	lot	1	10.1	-	-
Owners Cost	lot	1	10.7	-	-
Contingency	lot	1	24.6	-	-
Total Underground			**186.3**		**46.9**

**includes capitalized operating development, utilities and diamond drilling prior to production*

24.24.6.2 Operating Costs

Muckahi underground operating cost estimates are inclusive of labor, supervision, maintenance, equipment and consumables for the Owner's fleet of mobile equipment as well as fixed plant equipment such as ventilation, dewatering and backfill. Labor and material unit rates follow the conventional estimates for shift scheduling and costs. A listing of the direct underground operating cost totals and cost per tonne is summarized in Table 24-83. The total operating cost and average cost per tonne as reported do not include adjustment of capitalized operating costs for the initial development phase of the project.

In comparison to the Conventional operating cost estimate, notable cost estimate reductions for Muckahi are expected to include; reduction in operating development costs, increased productivity for LHOS and C&F stoping, reduced haulage fleet costs, and reduction in mine overhead costs driven by higher productivity. Notable operating cost estimate increases are mainly due to increased paste backfill costs associated with less waste development rock available for backfill as well as higher binder content required for some stopes.

Table 24-83: Muckahi Underground Operating Cost Estimates

	Tonnes (M)	Cost ($M)	Average Cost per Tonne ($/t)
LHOS			
Stoping			
Labor	20.5	$10.80	$0.53
Materials	20.5	$45.60	$2.22
Equipment	20.5	$49.70	$2.42
			C&F
Stoping			
Labor	10.4	$13.70	$1.32
Materials	10.4	$61.20	$5.89
Equipment	10.4	$20.50	$1.98
Total Stoping (prorated)	**30.9**	**$201.50**	**$6.52**
Haulage	30.9	$2.10	$0.07
Mine services	30.9	$7.50	$0.24
Diamond drilling	30.9	$27.60	$0.89
Paste backfill	30.9	$122.70	$3.97
Development	30.9	$73.80	$2.39
Maintenance	30.9	$68.80	$2.23
Utilities	30.9	$61.60	$1.99
Mine staff	30.9	$18.70	$0.61
Total	**30.9**	**$584.4**	**$18.90**

24.24.6.3 Concept Cost Comparison Summary

Table 24-84 shows a comparison between the Conventional approach and Muckahi. Underground mine development, production, and cost summaries are also provided. Muckahi indicates a development reduction of 43%, life of project underground capital costs reduced by 30% and mine operating costs reduction of 20% when compared to the Conventional approach. Commercial production is achieved one year ahead of the Conventional. Processing and surface capital, processing and surface operating costs, and general overheads are assumed the same for both mine methods and not included in the comparison. A cash flow analysis was carried out for Muckahi using the same cash flow modelling process used for the PEA, as described in Section 24.21. Results of the economic analysis indicates a potential increase of 34% in NPV and 19% incremental increase in IRR. The reader is again reminded that Muckahi system is just entering the prototyping stage of design and has not been proven. The comparison of the ML Conventional and Muckahi is not intended as a "trade off study" but is shown to merely demonstrate the potential benefits Muckahi may have using the ML deposit as an example.

The comparison summary provides an indication of potential opportunity associated with the Muckahi, including; significant expected reduction in waste development meters and cost, increased mine productivity, accelerated timeline to commercial production, and overall increase in operating cash flow and project internal rate of return.

The studies are preliminary in nature and include inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

Table 24-84: Muckahi and Conventional Mine Method Comparison Summary

Mine Design & Mine Cost Components	Units	Conventional (30.9M Tonne)	Muckahi (30.9M Tonne)	Difference
Development				
Mine Access, Ramps, and Passes	Meters	16,040	12,920	-19%
Ventilation Raises	Meters	2,990	30	-99%
Level Capital Development	Meters	34,120	4,690	-86%
Level Operating Development (waste)	Meters	34,800	32,580	-6%
Total Waste Development	**Meters**	**87,950**	**50,220**	**-43%**
Total Mineralized Material Development	Meters	25,130	36,150	44%
Production				
Total Mine Production	M Tonne	30.9	30.9	-
Design Production Rate	Tonnes/day	7,800	9,200	+1400 tpd
Achieve Commercial Production (60%)	Period	Y4-Q3	Y3-Q3	-1 year
Commercial Production Life	Years	10.5	8	-2.5 years
Underground Capital Costs				
Project Capital - Underground	$ Millions	$225	$186	-17%
Sustaining Capital – Underground	$ Millions	$109	$47	-57%
Total Underground Capital Costs	**$ Millions**	**$334**	**$233**	**-30%**
Operating Costs				
Operating Cost – LHOS	$/Tonne	$21.02	$17.94	-13%
Operating Cost - C&F	$/Tonne	$29.64	$20.83	-30%
Average Mine Operating Cost	**$/Tonne**	**$23.65**	**$18.90**	**-20%**
Media Luna Cash Flow Analysis				
Revenue (Commercial)	$ Millions	4,515	4,390	
Total Capital Cost (Less Pre-Commercial Revenue)	$ Millions	499	306	
Total Operating Cost (Commercial)	$ Millions	2,243	2,039	
Cash Flow Before-Taxes	**$ Millions**	**1,774**	**2,046**	15%
Taxes & Royalties	$ Millions	661	746	
Cash Flow After-Taxes	$ Millions	1,113	1,300	17%
Net Present Value After-Taxes (5%)	**$ Millions**	**582**	**779**	**34%**
Internal Rate of Return	**%**	**27%**	**46%**	
Payback	**Years**	**5.8**	**3.9**	

24.24.7 Conclusions

24.24.7.1 Opportunities

In comparison to Conventional approach, there are several opportunities with the Muckahi concept as applied to the Media Luna mineral resource or other mineralized deposits, most notably:

- Capital development reductions which has the potential to reduce cost and accelerate project timelines.
- Potential increase in stope productivity resulting in reduced overhead costs, and increased cash flow.
- Potential operating and capital cost reduction of 20% to 30%.
- Potential total cash flow increase of 15% to 20%, and potential discounted cash flow increase over 30%.
- More environmentally friendly and healthier due to less mine waste and all-electric mining.
- Monorail systems potentially conducive to automation for further cost reduction opportunities.

Other Muckahi opportunities include accelerated development timelines, reduced environmental footprint, and ultimately the creation of an innovative mining system which could add significant value to other future projects.

24.24.7.2 Challenges

In addition to opportunities, there are several key challenges that will need to be addressed as the Muckahi System is developed, most notably:

- Fragmentation management – producing a consistent blasted product in LHOS that will facilitate the use of a conveyor haulage system.
- Addressing several core functional requirements of the mobile equipment such as:
  - Drilling, blasting, and mucking in steeply inclined development
  - Materials handling of muck oversize and tramp steel
  - Equipment space envelope for traveling and face functionality
  - Tramming Conveyor functionality on inclined or tight turning radius
- Design and implementation of 30° Steep Ramp systems or alternative haulage system amenable to steeply inclined development.
- Design and prototype development for support services equipment suited for the monorail systems such as; shotcrete systems, explosives carriers, cable bolt systems, etc.

24.24.8 Recommendations

Given the opportunities and value that Muckahi could potentially offer, Torex is proceeding with prototype equipment design/fabrication in 2018 and expect to field test the equipment at the beginning of 2019.

24.25 INTERPRETATION AND CONCLUSIONS

Following are the interpretation and conclusion from the ML Project PEA.

24.25.1 Conclusions

24.25.1.1 Surface Infrastructure and Economical Analysis (M3 Engineering & Technology)

This PEA of the ML Project indicates that the ML Project has potentially positive economics at $1,200/ounce Au, $17/ounce Ag and $3.00/lb Cu. The base case NPV (5%) is approximately $582 million with an IRR of 27.3% and a payback period of 5.8 years. The PEA is preliminary in nature. It includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the results set forth in the PEA would be realized. Mineral resources that are not mineral reserves do not demonstrate economic viability.

The ML Project 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 the ML Project can utilize. There is sufficient water capacity within the current well field to meet the estimated requirements for the ML Project. Power from the 230 kV line near the site can be brought to site to supply the ML Project power requirements. Camp facilities are established at the ELG Mine Complex and can be used for the ML Project.

The suspended conveyor planned for the ML Project to transport mineralized material and tailing material is similar to the RopeCon system being utilized at the ELG Mine Complex and therefore operations and maintenance personnel will be familiar with this type of system. The Ropeway to move material and personnel to the south side of the Rio Balsas has been utilized in other facilities for similar service.

Capital and operating costs (to a PEA level of detail) were developed for the ML Project utilizing current contract pricing from the ELG Mine Complex operations (when applicable), Torex supply contracts and labor rates for the ELG Mine Complex (when available and applicable), budgetary equipment quotations, as well as M3 in house data and material quantity take-offs.

24.25.1.2 Waste Management Facilities (NewFields)

Based on the design of the waste management and site water management system there are no flaws or unresolvable issues anticipated.

24.25.1.3 Mineral Processing and Metallurgical Testing (Huls Consulting)

Media Luna mineralized material was tested using sequential copper and Fe-S flotation following crushing and grinding followed by cyanide leaching.

Copper concentrate accumulates a significant portion of the gold, and the major portion of silver, and is thus referred to as Cu-Au-Ag concentrate. Cleaning of Fe-S rougher concentrate is not required as the objective of this concentrate is to collect nearly all Fe-S minerals. The ratio of pyrrhotite to pyrite on the average is in the order of 10. Test work has indicated that regrinding the Fe-S rougher concentrate prior to leaching for gold and silver will yield a higher extraction of precious metals. After leaching Fe-S rougher concentrate for gold, silver and cyanide-soluble copper, this material is returned to the mine as paste fill with the goal to avoid a surface PAG tailing facility. This leach/CIP process will be conducted in a dedicate circuit. Final flotation tailing is leached in the existing ELG circuit. Water systems for the leach and flotation circuits will be kept separate to avoid cyanide entering copper flotation, which is detrimental for the recovery of copper into the copper concentrate.

Predicted recoveries of gold, silver and copper in flotation copper concentrate and doré are respectively 85.1%, 75% and 88.8%. Some of the copper is expected to be recovered in the form of a SART copper concentrate. Test work has indicated a significant amount of cyanide-soluble copper is present in final flotation tailings, likely in the form of oxides, and to lesser extent, as residual secondary sulfides. The leach residue generated after adsorption and DETOX will be filtered in the existing ELG filtration circuit, and deposited. This residue is expected to have no acid generating potential and will be stored in a filtered tailings storage facility.

Variability testing of individual samples from the Media Luna deposit has indicated that nearly all material is susceptible to the sequential flotation and leaching process. A few samples project lower than average recoveries; further testing continues to determine how to adapt process conditions to boost their recovery.

Twenty-eight intervals of quarter-diameter NQ drill core were selected for comminution testing. The intervals were selected to represent the approximate proportions of the four main lithologies present in Media Luna. The intervals were also selected to provide a histogram for copper and gold that roughly corresponds to the mine plan for those two metals (as at the time of sample selection). Results from all samples tested indicate that the grinding circuit should be capable of processing mineralized material at a rate of 600 tonnes per hour. About 65% of the samples indicated a potential processing capacity of up to 800 tonnes per hour.

24.25.1.4 ELG Process Plan

Within the ML PEA room is created in the enhanced process plant to accommodate the ML mineralized material. To enable this additional stockpile areas would be developed. This stockpiled material would be then rehandled into the process plant.

24.25.1.5 Underground Mine Design (Torex)

24.25.1.5.1 Underground Conceptual Mine Design

The mine design concepts and equipment proposed in the conventional mine plan assessment have been tested and proven in many mines globally. The application of LHOS and C&F mining methods are established and well understood in the mining industry and appear to be suited to the deposit. Mining rates and productivities are consistent with similar operations in North America. The production rate of 7,800 tonnes per day with a ramp up to 8,500 per day is seen to be obtainable based on the current level of understanding of the deposit.

24.25.1.5.2 Underground Capital and Operating Costs

Underground capital and operating costs for the Conventional plan have been estimated using common methods in the mining industry. All costs have been estimated based on supplier budget prices, Torex's current experience in Mexico or from industry benchmarks. The conceptual mine design including main accesses, sublevels, stope accesses and ventilation system were modeled in three dimensions to provide development quantities and timeline for the estimates. Fixed plant and mobile equipment cost estimates are current budget prices obtained from manufacturers and suppliers. Capital and Operating costs are reasonable and appear to be comparable to similar operations in Mexico.

24.25.1.6 Environmental and Social Impacts (Torex)

The Media Luna 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 Minera Media Luna to the local, regional, and state economies and providing the opportunity for a positive change in the standard of living of many local families.

Environmental approvals have been obtained for all the exploration work to date and there is a reasonable expectation that any future environmental approvals can be obtained. The underground mine has a reduced project footprint; therefore, environmental concerns are generally less than a similar-sized open pit operation.

Land access has been secured through a long-term (25 year) land lease agreement with the Ejido of Puente Sur Balsas. The Media Luna Project has broad community support and it is reasonable to expect that this support will continue as the project advances. However, there will always be a small number of people who are not aligned with the operation and will seek to damage the operation for their own gain. This may result in limitations to access to the site from time to time.

24.25.2 Risks

24.25.2.1 Surface Infrastructure (M3 Engineering & Technology)

- Location of process plant facilities are based on assumed good foundation material which needs to be verified in further studies.

24.25.2.2 Waste Management Facilities (NewFields)

- A risk for the development of a FTSF in the Guajes pit (GPFTSF) relates to seepage water quality through the La Amarilla fault and the potential concentration of arsenic (and other constituents of concern) from the tailings above natural background levels. To address these issues additional studies have been recommended. The recommended water quality studies would integrate with baseline surface and groundwater quality data.
- The timing related to completing mining the Guajes open pit is a potential risk. If the pit is not mined out when the GPFTSF is required, it may lead to mineralization in the Guajes pit being sterilized, or the requirement to develop an alternative filtered tailings storage location.
- Water management at the GPFTSF related to the La Amarilla fault and the diversion of the upstream watersheds on mining benches are dependent on further investigations and the as constructed pit layout.
- ML filtered tailings will be stored on surface in the ELG and GP FTSFs and will be placed in the ML underground as cemented paste fill. The ML tailings are currently being evaluated to determine if they are non-PAG or PAG or will leach constituents of concern such as arsenic. Based on the results to date, the assumption is the ML tailings will be non-PAG since the mill circuit includes a process to remove the most acidic sulfides. As design work on ML processing advances, additional studies will be undertaken to confirm this assumption. If the ML tailings are PAG, the FTSFs may require low permeability covers or other design elements to minimize the generation of acid or metals leaching.

24.25.2.3 Hydrogeologic (NewFields)

- No major risks were identified with respect to hydrogeologic considerations.
- The hydrogeology of the proposed underground mine area is currently being studied to further characterize groundwater occurrence, flow characteristics, potentiometric surface elevations, the hydraulic conductivity and transmissivity of key lithologic units (including the Morelos Formation), and groundwater quality. More accurate estimates of groundwater inflows and the effects of geologic structure over the life of the mine are needed to minimize risk

24.25.2.4 ELG Processing Plan

- There are limited locations to stockpile addition low grade ore in the vicinity of the El Limón pit due to terrain constraints. It may be necessary to crush low grade El Limón ore mined, transport the crushed ore via the ore conveyor to the plant site, and rehandle the crushed ore to potential long term stockpile locations near the plant site or Guajes pit.

24.25.2.5 Underground Mine Design (Torex)

24.25.2.5.1 Underground Conceptual Mine Design

- Due to the depth (600 m average) of the mineral resource below ground surface, definition of the full mineral resource through surface exploration will not be possible within the development time frame presented in this report. Alternatives for early work planning including underground development for definition drilling will be considered, in conjunction with targeted definition of higher tonnage zones from surface.
- No significant geotechnical risk was identified given the current level of analysis and understanding of the deposit. Encountering extensive areas of poor ground conditions during initial mine development and stoping would appear to be a notable risk to the project schedule and costs.
- Hydrogeological data are also limited. Risks such as higher than anticipated ground water inflow, and excavation instability can also impact project schedule and costs.
- There is potential for PAG rock to be present in stopes and development tunnels close to mineralized zones, leading to possible degraded water quality. Should this occur, management in the form of water interception and treatment, or sealing and flooding of the mine workings prior to onset of ARD, would be required.

24.25.2.5.2 Underground Capital and Operating Costs.

- Contingencies have been applied to the Initial Capital, however a provision for escalation has not been included in the Operating Costs.
- Mineral resource and lithology continuity as well as ground conditions are a major driver for mine method selection, having significant impacts on Operating Cost. Locations of the mineral resource not amenable to lower cost bulk mining methods (LHOS) would require application of higher cost selective mining methods (C&F). Mineral resource continuity and ground conditions will be a focus of future study through additional infill drilling and testing.
- All costs have been assumed in present day United States dollars derived or benchmarked to the to the Mexican mining market. Costs could be susceptible to economic factors beyond the operations control, including; currency adjustments, labor rates, taxes/tariffs, and various other impacts.

24.25.2.6 Mineral Processing (Huls Consulting)

The amount of cyanide-soluble copper that may report to the ELG CN/CIP circuit from proposed flotation circuits is not yet clearly understood. The estimation for operation of the existing ELG SART plant is based on current experience and ELG test work. A risk exists if the operation of the SART plant does not perform for the ML flotation tailings as currently envisioned this has the potential to affect both recovery and cost. More study is required in this area.

The sequential flotation process collects some of the Fe-S into the final Cu-Au-Ag concentrate, and most in the Fe-S rougher concentrate. The purpose of the Fe-S float circuit is to render the ML tailings after processing through the existing ELG CIL/CIP process “NAG”. There is potential that additional steps may be required to do this, this has the risk of increasing capital cost and operating costs. This concern is caused by the presents of both forms of Pyrrhotite (hexagonal and monoclinic), a potential solution maybe the use of magnetic separation but more test work is required to determine if it is an issue and if so the solution.

24.25.2.7 Environmental & Social (Torex)

- There is a potential for PAG rock to be present in stopes and development tunnels close to mineralized zones leading to possible degraded water quality within the mine. Should this occur, management in the form of interception and water treatment would be required during operations. To prevent long-term problems, the areas would be sealed or flooded at closure.
- There is broad community support for the project as the benefits for the local communities are clear. There is a risk associated with a small number of individuals who may oppose the operation of the mine.
- Skilled labour is available across Mexico. However, the location of the operation in Guerrero could result in some small challenged in sourcing and training of skilled labor force.
- All government permits required have been obtained in a timely manner. There is, however, as risk that permits may be delayed or not obtained.
- Incremental risk of impacts to surface and groundwater from the addition of ML waste rock and tailings to ELG disposal facilities. Additional studies would be conducted to evaluate these effects.

24.25.3 Opportunities

24.25.3.1 Surface Infrastructure (M3 Engineering & Technology)

Explore the timing and opportunity to relocate and reuse the 600-CV-620 conveyor trusses going to the ELG TFSF on the 600-CV-621 conveyor used to bring back tailings to either the Guajes pit when it is mined out, or back to the Media Luna underground mine for storage.

Explore the opportunity and timing to share the cost of bringing the required 230kV power line to the mine with other developing mines in the same vicinity.

24.25.3.2 Geochemistry (NewFields)

The tailings characterization work coupled with the metallurgical development of circuits for sulfides removal may provide opportunities for both material and water re-use and recycling which could provide a cost savings for material handling. As the data from the testing develops, water and material re-use can be evaluated more specifically.

24.25.3.3 Mineral Resource (MPH Consulting)

See Section 25.

24.25.3.4 Mineral Processing (Huls Consulting)

The 2018 metallurgical testing program used as the basis for the development of the process facilities, including a sequential flotation circuit and prediction of recoveries, has not been completed, and indications are that the current recoveries based on these preliminary and previous metallurgical test results are considered to be conservative. Testing of the bulk composite prepared using available drill core to generate a suitable copper head grade resulted in lower than life of mine gold grade. Optimization of metallurgical parameters is still in progress, which together with a more suitable gold grade composite has the potential to result in an increase in the predicted copper and gold recoveries with a subsequent positive impact on project financials.

The impact of liberation on metallurgical performance has not been exhaustively examined. Testing carried out in 2015 indicated that gold dissolutions at a primary grind in excess of 80% passing 125 um, were greater than the operating plant results achieved at a primary grind of 80% passing 60 µm. This implies that other factors may be driving the dissolution and recovery process in the operating plant. The Media Luna and Sub-Sill copper and iron sulphide mineralization is visible to the naked eye and thus relatively coarse grained, implying that a coarser primary grind could be suitable for the sulphide flotation. The liberation characteristics of the residual gold and silver mineralization along with more detailed assessment of the key drivers of dissolution and precious metal recovery needs to be advanced.

The presence of phyrrotite in the Media Luna mineralized samples implies an increased consumption of oxygen in the leach circuit. This, along with bottle roll tests visibly consuming oxygen, provides the key to investigating the potential opportunity to increase current gold dissolution in the existing CN/CIP operating plant via increasing dissolved oxygen levels.

The proposed operating methodology is currently to batch process ELG ore and Media Luna mineralized material on a campaign basis. If these feed streams could be blended, without detrimental impact on process performance, then capital cost savings could be achieved, operational complexity reduced and overall metallurgical performance improved.

Based on operational experience in the ELG plant, the use of a floatation circuit to remove sulphides could improve operations and metal recovery from the ELG ore. This represents an opportunity to improve performance of the ELG ores if they were processed through the proposed facilities for the Media Luna mineralized material.

Preliminary testing of the Fe-S concentrates has indicated that a regrind for liberation has a positive impact on precious metal dissolution. Further assessment of how far to economically regrind this stream is to be completed during the metallurgical testing program.

No gravity recoverable gold testing has been carried out to date. The potential of recovering a portion of the gold early in the process through gravity separation may exist and testing of this will be carried out on higher grade gold samples.

The Media Luna mineralized material is on average softer then the ELG ores and higher throughputs through the process grinding facilities than original design basis could be possible and would need to be assessed.

The selection of process route and sizing of process equipment has been conservative due to the level of metallurgical data available to date. Further optimization of metallurgical parameters will result in a subsequent review and could provide optimization of process facility design and plant foot print. This review has the opportunity to reduce capital, specifically in earth works and construction.

24.25.3.5 Underground Mine Design (Torex)

24.25.3.5.1 Underground Conceptual Mine Design

- Rapid development systems applied to conventional equipment would be an opportunity to reduce unit costs of development and reduce development time to access the resource. Rapid development systems could include alternative ground support systems, and semi-continuous mucking equipment such as hag loaders combined with conveyors or rail transport. Torex may examine these alternative systems in subsequent study.
- Early development planning to access and define the mineral resource in a phased process, in order to reduce initial capital commitment as well as generate early revenue. Torex may examine alternative development and exploration scenarios in order to assess opportunities for reduced capital expenditure and decreased time required to prove and access the mineral resource.

- Potential synergies may exist between Media Luna and ELG UG mineral resource development to advanced exploration, reduce operating costs and reducing ramp-up time. Synergies include; transfer of mineralization knowledge, sharing of capital processing equipment, training of labor force, and development of operating control processes.

24.25.3.5.2 Underground Capital and Operating Costs.

- Purchase and use of second-hand capital equipment to reduce upfront capital costs. For example, Torex has identified commercial sources for second-hand suspended conveyor and ropeway systems.
- Optimization of the grade, sublevel interval and extraction sequence are opportunities to improve the mine design and reduce lengths of ramp and lateral development, reducing operating and capital costs. This could include integration of continuous haulage systems with optimized level plans, including conveyors and ore sorting systems.
- As the mineral resource is inferred through further investigation, the conversion of C&F to LHOS may be possible and would provide opportunity to lower capital and operating costs.
- The integration of digital technologies may have the potential for value creation and risk reduction. This could include fixed plant remote controls systems, remote or autonomous systems applied to mobile equipment, and information systems for short interval controls.

24.25.3.6 Environmental & Social (Torex)

- Disposal of some of the sulphidic tailings underground with paste backfill.
- Conceptual designs include opportunities for low impact to surface environment including RopeCon and RopeWay system would save thousands of metres of road construction earthworks.
- Water requirements for mining would be minimized through collection and re-use of underground water inflow into mine workings. Additional sources of water (if required) would be locally sourced.
- The footprint associated with ML Project is relatively small compared to the ELG Mine Complex, which, combined with the concept of processing of the ML mineralized material and disposal of the ML tailings at the ELG Mine Complex would minimize the additional potential environmental and social impacts.
- The Community Relations Team (CRT) has established good working relationships with the neighboring communities and is well prepared to engage and communicate with the local stakeholders on the proposed modifications to the ELG Mine Complex and ML Project and any potential effects and mitigation associated with ML Project.
- The use of tunnels and conveyor systems that would transport personnel, equipment and mineralized material to ELG Mine Complex would minimize the surface bio-physical, environmental and social impacts associated with ML Project resulting in an overall net positive benefit.
- Local people could be up-skilled to work in the underground mine.

24.26 RECOMMENDATIONS

For information on Recommendations for the ELG Mine Complex please refer to Section 26 of this report. The following recommendations are related to the ML Project PEA.

24.26.1 General ML PEA Study Recommendation

All authors involved in the ML Preliminary Economic Assessment, recommend that Torex continue with the current infill drill program and to move the project forward into the next stage of study, Pre-Feasibility Study or Feasibility Study.

Table 24-85 provide a summary of the total estimate for the two phases of work recommended by the various authors of the report. Note that some of the work is currently underway.

Table 24-85: Summary of Total Estimate for Two Phases

Phase (level of study)	Work	Approximate Cost Estimate $M	Status	Recommended by
Resource Upgrade	Surface Infill Drilling (upgrade ~25% of resource)	15.0	on going	
Pre-feasibility/ Feasibility Study	Metallurgical Test work, Analysis and Market Study	1.0	on going	Huls
	Process Plant & Surface Infrastructure Capital Costing and Operating Costing	2.5	recommended	M3
	ELG Process Plan	0.1	recommended	Torex
	Waste Management Facilities	0.3	recommended	NewFields
	Hydrogeological	0.7	recommended	NewFields
	ML Underground Mine Design	3.2	recommended	Torex
	Environmental, Social and Permitting	1.2	on going/ recommended	Torex
	Total Pre-Feasibility/Feasibility Study	**9.0**		

24.26.2 MPH Consulting Recommendations

See Section 26.

24.26.3 Huls Consulting Inc. Recommendation: Mineral Processing and Metallurgical testing, and Market Studies

Huls Consulting Inc. recommends that the full test work planned and currently underway at BaseMetal Labs be completed to provide sufficient information to support a Feasibility Study and once completed a market study be undertaken for the concentrates produced. Estimated costs: $1.0M

Key items are:

- Completion of the optimization phase followed by locked cycle testing.
- Testing of ELG ore in a flotation circuit as well as when blended with ML mineralized material is also planned and should be completed.

- Complete work to fully understand how best to remove or reduce the presences of iron-sulphide from flotation tailing to ensure the CN leach/CIP tailings are NAG. This test work to examine the presences and reaction of the two forms of Pyrrhotite in various methods of concentration, removal from the tailings.
- Complete a market study on the copper, gold and silver concentrate once process flow is finalized to determine marketability and typical smelter terms and conditions for the concentrate.

24.26.4 M3 Recommendations: Process Plant & Surface Infrastructure

M3 notes that the economic results of the PEA for the ML Project using the assumptions presented in this Report, are positive and recommends that the ML Project proceed to a pre-feasibility or feasibility study at a cost of approximately $2.5M.

24.26.5 Torex Recommendations: ELG Process Plan

Further studies of ML Project should consider the benefits and costs of the ML Project as a true incremental project included in/supported by studies proposed by M3/Torex/Huls approximate cost $0.1M. Such studies should examine:

- The benefit of stockpiling and preferential feeding higher grade ELG ore to the process plant and low-grade material later during the overlap period as well as the cost of creating the stockpile locations and rehandle.
- Potential of processing ELG Ore through the flotation circuit, to improve operations and recovery.

24.26.6 NewFields Recommendations

24.26.6.1 Waste Management Facilities

- A risk for the development of a FTSF in the Guajes pit (GPFTSF) relates to seepage water quality through the La Amarilla fault and the potential concentration of arsenic (and other constituents of concern) from the tailings above natural background levels. To address these issues additional studies have been recommended. The recommended water quality studies would integrate with baseline surface and groundwater quality data. The estimated cost for this program is $0.2M.
- ML filtered tailings will be stored on surface within the designated ELG and GP FTSF areas and will be placed in the ML underground as cemented paste. The ML tailings are currently being evaluated to determine if they are non-PAG or PAG or will leach constituents of concern such as arsenic. Based on the results to date, the assumption is the ML tailings will be non-PAG since the process circuit includes a process to remove the most acidic sulfides. As design work on ML processing advances, additional studies have been recommended to confirm this assumption. The recommended program is estimated to cost $0.1M.

24.26.6.2 Hydrogeologic

- A comprehensive hydrogeological baseline program of the proposed underground mine area should be competed to characterize groundwater occurrence, flow characteristics, potentiometric surface elevations, the hydraulic conductivity and transmissivity of key lithologic units (including the Morelos Formation), and groundwater quality. Planning for a full-scale hydrogeological baseline investigation is underway as of the date of this report. The estimated cost for this program is $0.5M.
- A three-dimensional numerical groundwater flow model should be developed to provide more accurate estimates of groundwater inflows over the life of the mine and to predict water level drawdown over time. The model would allow for an assessment of potential effects on the environment in support of the engineering design of the underground development. The estimated cost for this modelling is $0.1M.

- Based on the testing designed to determine potential leachate and leachate water quality from the tailings, it is recommended that options be developed for the passive and effective water treatment, should it be required. The estimated cost to develop alternatives is $0.1M.

24.26.7 Torex Recommendations: Underground Mining

Continue with the current infill drilling program at Media Luna. After the completion of the drilling program, a measured and indicated mineral resource estimate will be prepared, and this will form the basis for a Media Luna feasibility study, which is can then be undertaken, some work (noted below) can be undertaken prior to the completion of the infill program.

- Development planning trade-off studies prior to, or in conjunction with, the mine feasibility design, including:
    - Early development planning for phased development and resource definition
    - Alternative portal locations for constructability and operability
    - High speed development methods with conventional
    - Development planning studies estimated budget of $0.2M
- Production planning trade-off studies prior to, or in conjunction with, the mine feasibility design, including:
    - Early production planning for phased production and resource definition
    - Conversion of C&F to LHOS including level planning and haulage
    - Geology and geochemistry impacts to optimizing cut-off grade
    - Material sorting and pre-concentration for reducing processing and haulage costs
    - Digital systems implementation for operations controls and information management
    - Production trade-off studies estimated budget of $0.2M
- Geotechnical studies required for the mine feasibility design including:
    - Detailed geotechnical logging of future drill core in select boreholes providing representative coverage of future mine areas, including at least 100 m above the mineral resource in the hangingwall and 5 0m below the mineral resource in the footwall. Also general geotechnical logging of basic parameters in all future boreholes.
    - Structural data collection from drill core using oriented core systems or borehole imaging for the definition of rock mass fabric trends and major structures orientation.
    - Full suite of laboratory strength testing for lithologies in the footwall, mineralization and hangingwall.
    - Development of a 3D geotechnical & hydrogeological model with domains characterized by rock mass quality, structure, strength, and hydraulic conductivity.
    - Conduct 2D and 3D numerical modelling simulations. Geotechnical simulations to focus on stress-strain behavior in defining excavation stability and ground support parameters for mine design.
    - Total estimated budget for geotechnical and hydrogeological studies at the feasibility level are $0.6M.
- Paste backfill studies required for the mine feasibility design including:
    - Confirmation rheological and strength testing of paste backfill samples using tailings sourced from the Media Luna processed mineralization.

- Design alternatives for the materials handling systems for filtered tailings and bulk cement delivery to the plant.
- Detailed study of the paste reticulation routes and timing of booster pump station installation.
- Total estimated budget for paste backfill studies at the feasibility level are $0.2M.

- Underground mine design at the feasibility level including:
  - Development planning including 3D geometry, schedule, and classification of development type, including details for ground support, drill & blast, and services.
  - Production planning including 3D stope configurations, schedule, reserves, dilution estimates, and stope designs by type, including details for ground support, drill & blast, and services.
  - 30% engineering design for mine infrastructure systems including shops, electrical, water, ventilation, Suspended Conveyor, RopeWay, and surface infrastructure.
  - Detailed equipment, labor and materials schedules.
  - Preliminary quotations from suppliers for all major equipment purchases.
  - Total estimated budget for underground mine design at the feasibility level is $2.0M.

24.26.8 Torex Recommendations: Environmental, Social & Permitting Studies

The following items should be included in future studies:

- Modeling to predict potential ambient air quality concentrations, noise and vibration impacts from the ML Deposit activities.
- Assess the effects of the Deposit's mining activities, such as dewatering, the waste dump area and ore stockpile, the use of the Guajes Pit as tailings disposal on the groundwater regime that ultimately discharges to near tributaries that feed into the Balsas River, which in turn feeds into the Presa el Caracol.
- Initiate a study to allow the approval of the river crossing and the use of the river as an initial access route during the construction (and operations) phases.
- Complete the environmental baseline work to allow the environmental permits to be developed based on sound environmental data.
- Carry out a community consultation program about the exploration, construction, operations, and closure of the project.
- Complete a skills assessment for the communities that may be affected by the project to allow the development of education programs to allow people the opportunity to be incorporated into the project workforce.
- Identify potential project effects and the management systems at the ELG Mine Complex that can be used to mitigate any impacts.
- These studies would be carried out in the next stage of the design. The cost of these studies is estimated to be approximately $1.2M.

24.27 REFERENCES

The Qualified Persons have used the allowance under Instruction (4) to the Form NI43-101F1 whereby disclosure included under one heading is not required to be repeated under another heading, and have compiled all references used in collating this Report in Section 27.

25 INTERPRETATION AND CONCLUSIONS

This section shows the major interpretations and conclusions reached by the main contributors in this study excluding those from Section 24. Interpretation and Conclusions for the ML PEA contained in Section 24 can be found in Section 24.25.

25.1 CONCLUSIONS BY M3 – INFRASTRUCTURE AND COSTING

- The ELG Mine Complex is a successful and viable operating venture. Exploitation by proven and conventional mining methods as outlined in this report should continue.
- The current ELG Mine Complex infrastructure is sufficient for the remainder of the mine life. Power and water supply are adequate to meet the current demand. The power capacity is near maximum with maintaining 100% redundancy but 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.
- The project revenue less operational cost provides for positive cash flow through the end of the mine life.

25.2 CONCLUSIONS BY MPH – GEOLOGY AND MINERAL RESOURCE

- The knowledge of the deposit setting, lithologies and structural and alteration controls on mineralization in the Guajes, El Limón, Sub-Sill, and Media Luna deposits is sufficient to support the Mineral Resource estimation. The other 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 for such other prospects. The other prospects retain exploration potential and represent upside potential.
- The deposits and occurrences on the Property are considered to be examples of Au- and Au–Cu-type skarns. Most are hosted in exoskarn. Gold, silver and copper concentrations are found primarily within exoskarn developed in Morelos Formation marble 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. The skarn deposit type is an appropriate model for exploration and for support of the geological models used in mineral resource estimation.
- The exploration programs completed to date are appropriate to the style of the deposits and prospects within the Property. Exploration and samples have been collected in a manner such that they are representative and not biased. Additional exploration has a likelihood of generating further exploration successes particularly down-dip of known zones and along strike from the known deposit. Potential for additional underground mineral resource exist below ELG open pits with further exploration. The ML underground mineral resource has the potential for expansion along strike and at depth below existing mineral resources. There are a significant number of prospects and occurrences remaining to be drill tested and fully evaluated. 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, both north and south of the Balsas River.
- The quantity and quality of the logging, geotechnical, collar and down-hole survey data collected in the Torex exploration and infill drill programs are sufficient to support the mineral resource estimation in this report. No significant factors were identified with the data collection from the drill programs that could affect the mineral resource estimation contained in this report.

- Sampling methods are acceptable, meet industry-standard practice and are adequate for mineral resource estimation. Sample security has relied upon the fact that the samples were always attended to or locked in the on-site sample preparation facility.
- The data verification programs undertaken by the QPs on the data collected adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in the mineral resource estimation in this report. Since 2005 to 2017 data audits and QA/QC results have been performed and checked continuously and reviewed before each resource modelling iteration.
- The mineral resources have been estimated using core drill data and channel sampling data, have been performed to industry practices, and conform to the definitions set forth in CIM (2014). One of the most valuable tools for model validation is reconciling actual production to mineral resource model estimation. Reconciliation at ELG Open Pits since the start of mining shows a mill production compared to mineral reserve of 0.97 on contained ounces of gold. This supports the conclusion that the mineral resource estimation is accurate.

25.3 CONCLUSIONS BY HULS CONSULTING – METALLURGY AND PROCESS DESIGN

- Plant operating results since declaration of commercial production gold recovery has averaged 86.1% (range of 75 – 90%) and silver has averaged 22.8% (range of 3 - 43%). These values are at or close to those predicted in the original feasibility study. The high copper tenor in recycling process water during pre-SART operation provided challenges in maintaining sufficiently high free cyanide concentration in leach and CIP solution. Insufficient levels at times affected gold extraction and resulted in preferred adsorption of copper to carbon. High concentrations of copper-cyanide loaded onto carbon affected complete desorption of gold and return of carbon to CIP with higher than desired residual gold.
- A SART process was installed to reduce the copper tenor in the recirculating process water. The recovery numbers reported above do not incorporate SART plant operation.
- Filtration proved to be an early bottleneck in the circuit. It has been solved through a combination of decoupling the comminution process from the filtration, and improved operation and maintenance practices. The addition of two horizontal filters will further reduce the risk of the filtration process becoming a bottleneck in the future. Once the filter bottleneck was removed, the SAG mill became the bottleneck. Efforts to improve the size distribution of material entering the SAG mill are well underway and plant should soon be able to process ore consistently at the per design rate.

25.4 CONCLUSIONS BY NEWFIELDS – WASTE STORAGE AND WATER MANAGEMENT

- Based on the design of the waste management and site water management system there are no flaws or unresolvable issues anticipated.

25.5 CONCLUSIONS BY TOREX

25.5.1 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, and will continue to contribute, to the development of the local economy lifting people out of poverty. MML has obtained the required environmental approvals for the operation of the mine and can reasonably expect to obtain any further approvals required for ongoing operations and changes to that operation.

- The ELG Mine Complex has broad stakeholder support and the local, state and federal levels and can expect to maintain this support. However, there will always be a small number of people who are not aligned with the operation and will seek to damage the operation for their own gain. This may result in limitations to access to the site from time to time.

25.5.2 ELG Open Pit

- The ELG open pits is well-established, with over 4 years of development and operation. The open pit mining operations as implemented 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.

25.5.3 ELG Underground Mine

- Exploration work at the Sub-Sill Zone since 2015 has been successful leading to an increase is mineral resources
- Exploration work since 2015 has resulted in an increase in the mineral resources at the Sub-Sill zone, leading to a high-grade mineral reserve estimate based on a mechanized cut and fill mine design.
- There is very good potential for successful exploitation of the Sub-Sill zone given its size, grade, selected mining method, metallurgical characteristics, developed and planned infrastructure, and the knowledge and experience of Company management and the engaged mine contractor.

25.6 CONCLUSION BY JDS- OPEN PIT GEOTECH

- Overall the rock mass has proven to be competent with geologic structure controlling stable bench face and interramp slope angles.
- Local areas of heavily fractured and weak rock have been encountered within the upper, weathered materials.
- The slope designs continue to be reviewed and updated as additional data is collected and experience gained.

25.7 RISKS AND UNCERTAINTIES

According to the study QPs, the ELG Mine Complex carries the following risks and uncertainties:

25.7.1 Waste Management Facilities

The most significant risks and uncertainties with respect to the design of the waste management facilities relates to the concentration of arsenic expected from the tailings and the WRSFs relative to natural background and high angle of repose WRSFs. To address these issues, the following actions are identified:

- Continue laboratory testing of waste rock and tailings humidity cells collecting long term data.
- Risks associated with end-dumping waste rock are largely related to development of high angle of repose slopes due to the nature of the rock particles. Long, angle of repose slopes could result in unsafe work conditions and lend themselves difficult to reduce for closure. Mitigation of this risk is primarily through on-going operations and ensuring necessary slope set-backs and benching are implemented at the appropriate times.

- Risks for the FTSF include not following the design requirements for ongoing waste rock buttressing, filter materials production and placement and the placement and compaction of the structural and non-structural filtered tailings.

25.7.2 Mineral Resources

- Mineral Resources are estimates. Mining and reconciliations have demonstrated the estimations to be robust and reliable, as with any estimate there are always some risk. New mineral resources continue to be added, an example being the new Sub-Sill resource, time will prove the reliability of the underground mineral resource estimate.

25.7.3 Pit Geotechnical

- Failure to achieve and maintain design slope angles. If operational slope angles are slightly flatter than design angles over several benches the result is significantly less ore available at the bottom of a mining phase than anticipated.
- Instability of interramp or overall slopes. Pit wall failure could result in delays in production, increased mining costs and/or sterilization of ore.
- The potential for large voids to be encountered in the El Limón northeast pit wall presents risk primarily to the project schedule and budget as any large voids encountered will require delineation and backfilling.

25.7.4 Mineral Reserves and Mining

- ELG mineralization is principally located in skarn rock that is quite variable in terms of continuity and grade. Reconciliation results to date support the continued use of mineral resource model and mining dilution/loss estimates for the estimation of ore quantities and grade, but there remains a risk that open pit and underground mine plan production quantities and grades may not be achieved.

25.7.5 Processing

- A large variety of ELG ore types has been processed since plant start-up. No risks are foreseen.
- Successful operation of the SART plant is important in reducing copper tenor in process water to sufficiently low levels that overall processing becomes more accommodating in maintaining sufficient free cyanide concentration in process solution.

25.7.6 Environmental, Permitting, Community and Social

- The permitting risk is small. Torex / MML has been able to obtain all permits required for its ongoing development in a timely manner and has developed a good working relationship with the regulatory authorities in this area
- There is an ongoing risk of community blockades. However, Torex believes that this is manageable as the local communities now broadly support the project. The current working model with the communities is to link their success to the mine's success. However, in the event of access problems with the mine, all the communities will lose and are, therefore, likely to pressure any blockaders to remove the blockade and open dialog with the company.

25.7.7 Operating Cost

- The costing for the operating costs was completed in constant US dollars and therefore can be affected by fluctuations in the exchange rate and inflation over time.
- Estimates for reagent consumption post SART operation is based on estimated effectiveness of the SART plant along with estimates for amount of soluble copper present in future ore feed.

25.8 OPPORTUNITIES

The QPs of the study believe that the ELG Mine Complex has the following opportunities, as noted in their areas of expertise:

25.8.1 Waste Management

- Potential of reuse and recycle of mine waste materials may present themselves during the life of the mine, including the production of aggregate for construction materials.

25.8.2 MPH Consulting

- Gold and silver mineralization is currently open-ended along strike and down dip at El Limón Deep and exploration potential remains in these areas.
- Additional regional exploration opportunities exist, for example at the Media Luna deposit, and these targets are being actively explored and/or drill tested.

25.8.3 Environmental

- The existing open pits could be used as co-placement locations for tailings and waste rock.

25.8.4 Processing and Metal Recovery

- Sub-Sill material, containing over 0.1% copper, and especially over 1% copper, would benefit from pre-leach flotation of a copper concentrate. Copper concentrate will collect chalcopyrite, which does not dissolve in cyanide. Most of the silver is associated with copper and would thus also be recovered. Building the Media Luna flotation plant early, while leaving Sub-Sill ore containing over 1% copper in the ground for mining at later date, would improve overall copper recovery to about 78% and silver to about 84%.
- Higher throughput potential
  - Earlier plant performance data indicated that the grind could be coarsened up to P_{80} of 100 microns from current less than 90 microns. A coarser grind would allow higher production rates and higher filtration rates.
  - A 2016 review of the grinding circuit concluded that an increase in circuit throughput is achievable using the existing spare capacity in the ball mill. This could be affected by smaller SAG mill feed top size, an increase in open area in the discharge grate and larger aperture size of the SAG discharge screens.
  - With the current decoupling of the grinding and leaching from filtration, the opportunity may exist to maximize throughput by optimization of the decoupled system.
- When recovering gold by carbon adsorption from leach solution, about 2% of the gold is lost in the adsorption process. World best practice is 1% for an optimized CIP process.

25.8.5 Operating Costs

- Estimates for reagent consumption post SART operation is based on estimated effectiveness of the SART plant along with estimates for amount of soluble copper present in future ore feed, this has the potential to be lower, operating history will provide better guidance.

25.8.6 ELG Open Pit Mining

- LOM plan mining rates peak at about 50 Mt/a in 2019 and 2020, with corresponding high ROM ore stockpiles. If lower ROM ore stockpiles are feasible, this presents an opportunity to defer stripping and reduce the LOM plan peak mining rates.
- The El Limón ultimate pit has been subdivided into three pit phases. The original concept, based on pit optimization results, was to mine the pit in four phases, however haulage road access constraints forced two of the phases to be combined into the Phase E2 pit. With further mine planning, there may be an opportunity to advance the mining of low strip ratio ore through a redesign of the El Limón Phase E2 pit more closely guided by an appropriate pit optimization nested pit shell.

26 RECOMMENDATIONS

26.1 RECOMMENDATIONS BY MPH CONSULTING – GEOLOGY

The work program recommendations provided by MPH are designed to support potential upgrade of mineral resources to a higher classification, and further evaluate outlying exploration targets.

26.1.1 Sub-Sill

- Continue infill drilling program and underground development to upgrade Inferred and Indicated Mineral Resources and complete a new mineral resource model with the infill results. Estimated cost: $2 Million.

26.1.2 Media Luna

- Continue infill drilling program upgrade Inferred Mineral Resources and complete a new mineral resource model with the infill results. Estimated cost: $15 Million.

26.1.3 ELG Deep Mineralization

- Implement drill program and study to exploit known deep high strip ratio mineralization and to test prospective areas for underground mining. Two programs are recommended:
  - Exploration and infill drilling of deep El Limón resources – Estimated cost: $1Million
  - Exploration drilling to test new prospective areas – Estimated cost: $2.5 Million

26.1.4 Exploration

- Key aims of the program are to continue exploration efforts on previously-identified outlying prospects and exploration of outlying unexplored or lightly-explored target areas based on reconnaissance knowledge and generation of new targets through further geological work. Estimated cost: $1 Million.

26.2 RECOMMENDATIONS BY HULS CONSULTING – PROCESSING AND METAL RECOVERIES

- Consideration to be given to developing a geometallurgical model to assist in planning for the process plant. Estimated cost: $0.1 Million

26.3 RECOMMENDATIONS BY JDS AND TOREX – MINING

26.3.1 JDS Consulting – Open Pit Geotechnical

- Geotechnical mapping should be carried out as benches are developed with particular attention to the variation in persistence, spacing, and orientation of discontinuities such as faults, bedding planes and joint sets. Bench and interramp slope designs should be refined as necessary based on the newly acquired information;
- Benches excavated in the Guajes Pit highwall should be mapped and evaluated with particular attention to the identification and characterization of any persistent La Amarilla parallel structures;
- The 3D geologic structural model should be updated with any new major fault structures mapped. The updated model should be reviewed regularly to identify new geotechnical domains as well as any geologic structures with potential to cause bench and multi-bench instabilities when daylighted;

- Several geotechnical core holes were drilled into the Guajes highwall prior to the suspension of operations in 2017 to investigate the possibility of additional La Amarilla parallel structures. Core from these drillholes should be geotechnically logged and reviewed to confirm whether not potential for additional adversely oriented structures exists;
- Performance of critical slopes should be continued to be monitored during mining with the Slope Stability Radars on site;
- The potential for significantly large voids in the El Limón northeast pit wall should be further evaluated based on the existing resource drillhole database and mapping of new excavations in the area. Depending on the results of this evaluation, additional drilling and cavity surveying may be required to further identify and delineate potential large voids. Experience gained from the voids encountered in the bottom of GE pit should be applied.
- Recommendation cost assumed in ELG Mining Complex plan.

26.3.2 Torex – Open Pit

- Continue successful operation of the WRSF. With the reduction of waste, the design and operating procedures for the El Limón WRSF requires review and updates to ensure continued safe and efficient operation and allow resloping at closure.
- Recommend improving effective equipment utilization of the loading and haulage fleet by advancing the operational team's use of the Fleet Management System.
- Recommend the establishment of procedures for the development and maintenance of the Low-Grade Ore stockpile need to be established.
- Recommendation costs assumed in ELG Mining Complex plan.

26.3.3 Torex – Underground

- Based on financial, technical exploration success and project advances to date, it is recommended that Torex continue with the development and infrastructure to bring the Sub-Sill zone to full production by the end of 2018.
- It is recommended that the company continue with their plans to add reserves to replace depletion and grow the ELG Underground Mine. This work to be focused first in 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 resources to become reserves.
- Recommendation costs assumed in ELG Mining Complex plan.

26.4 RECOMMENDATIONS BY NEWFIELDS – WASTE STORAGE AND WATER MANAGEMENT

26.4.1 Geochemistry

The following studies are ongoing in the current plan and should be continued.

- Continue laboratory testing of waste rock and tailings humidity cells collecting long term data.
- Continue to monitor waste rock and tailings drainage water quality at the field scale.
- Continue analyses of ore mixtures (ELG UG and OP) and the effect on resultant tailings acid base chemistry.
- Further development of the site water quality model supported by the field and laboratory data.

- Continue to monitor site water quality data and compare to established trigger or permit-level concentrations.
- Recommendation costs assumed in ELG Mine Complex plan.

26.5 RECOMMENDATIONS BY M3 – INFRASTRUCTURE

- Consider implementing a reoccurring technical audit recommended on an 18-month interval to alternate 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. Estimated cost: $50,000 per audit.
- Review current site electrical usage, capacity, and future requirements. Understanding the capacity of the system after the installation of the additional tailing belt filters and SART facility will help to understand the current system load and identify the need for additional equipment if future loads are added. Estimated cost: $40,000.

26.6 RECOMMENDATIONS BY TOREX – ENVIRONMENTAL AND PERMITTING

- Use the existing data to validate the predictions of the groundwater model that was included in the original environmental permit documents.
- Complete an evaluation of the operational effects of the El Limón Sur mine on the surface water quality in the Rio Balsas River.
- Evaluate the control parameters for discharges to the receiving environment downstream of the WRSF and the potential effects on the Rio Balsas River and the Rio Cocula River.
- Develop the environmental and socioeconomic baseline for the Media Luna Project area.
- Update the environmental management plans to include the newly developed projects.
- Recommendation cost assumed in ELG Mine Complex plan.

26.7 RECOMMENDATIONS BY TOREX – SOCIAL AND COMMUNITY

- Evaluate the effects of the resettlement of community livelihoods.
- Implement a comprehensive, clan-based livelihoods restoration plan.
- Recommendation cost assumed in ELG Mine Complex plan.

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APPENDIX A: FEASIBILITY STUDY CONTRIBUTORS AND PROFESSIONAL QUALIFICATIONS

ARCHITECTURE
ENGINEERING
CONSTRUCTION MANAGEMENT

CERTIFICATE OF QUALIFIED PERSON

I, Daniel H. Neff, P.E., am employed as President by M3 Engineering & Technology Corporation, 2051 W. Sunset Rd. Suite 101, Tucson, AZ 85704, USA.

This certificate applies to the 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 (the "technical report").

I am a Registered Professional Engineer in the State of Arizona (No. 11804 and 13848). I graduated from the University of Arizona and received a Bachelor of Science degree in Civil Engineering in 1973 and a Master of Science degree in Civil Engineering in 1981.

I have practiced civil and structural engineering and project management for 44 years. I have worked for engineering consulting companies for 12 years and for M3 Engineering & Technology Corporation for 32 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).

I last visited the Morelos Property on April 28, 2016.

I am responsible for Sections 2, 3, 4, 5, 18.1-18.4, 21.1.3, 21.1.4, 21.1.5, 21.2, 21.2.3, 21.2.4, 21.2.6, 22, 27, and those portions of the summary, interpretations and conclusions, recommendations, and references to these sections of the technical report.

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 that is subject of the technical report. I was a contributing author of a previous technical report 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.

I have read NI 43–101 and the sections 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 sections 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: September 4, 2018

(Signed) (Sealed)
Daniel H. Neff, P.E.

ARCHITECTURE
ENGINEERING
CONSTRUCTION MANAGEMENT

CERTIFICATE OF QUALIFIED PERSON

I, Robert Davidson, P.E., 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 "NI 43-101 Technical Report ELG Mine Complex Life 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 (the "technical report").

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 13 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 Morelos Property on November 18, 2014.

I am responsible for Sections 24.2, 24.3, 24.4, 24.5, 24.18.1, 24.18.2, 24.21.1.1, 24.21.1.2, 24.21.2.1, 24.21.2.1.2, 24.21.2.3, 24.22, and those portions of the 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 a previous technical report 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.

I have read NI 43–101 and the sections 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 sections 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: September 4, 2018

(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

Certificate of Qualified Person

I, Dawson Proudfoot am Vice President of Engineering for Torex Gold Resources Inc., with an office at 130 King Street West, Suite 740, Toronto, Ontario, M5X 2A2, and am a Mining Engineer profession.

This certificate applies to the technical report titled "NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Preliminary Economic Assessment", which has an effective date of March 31, 2018 and a filing date of 4 September, 2018 (the "Technical Report").

I am a member of Professional Engineers Ontario # 37567500. I graduated from the Queen's University at Kingston in 1985 with a bachelor's degree in applied science, Mining Option. I have practiced my profession for over 30 years since graduation. I have been directly involved in mine design, mine operations, and project management of both base metals and gold and silver mines.

Based on 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 have been involved in the Morelos property since Torex acquired the property in 2009-2010. I have and still visit the ELG Mine Complex and property as a whole in my current role with Torex, having most recently been to ELG Mine Complex the week of July 9, 2018.

I am responsible for the following sections of the Technical Report: 15.1, 15.2, 16.1, 16.2.5, 16.2.6, 16.2.8, 16.2.9, 16.2.10, 16.2.11, 16.2.12, 16.4 (open pit only), 18.6.1, 20, 21.1.1. 21.2.1, 21.2.5 and 24.20 and those portions of the summary, interpretation and conclusions and recommendations that pertain to these sections of the Technical Report, and references to these sections of the Technical Report.

I am an employee of Torex Gold Resources Inc., first joining the company in 2010, I am not considered independent as described by Section 1.5 of NI 43-101.

I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that instrument.

To the best of my knowledge, information and belief, as of the effective date of the Technical Report, 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 those sections of the Technical Report not misleading.

DATED this 4th day of September, 2018.

(Signed and sealed) "Dawson Proudfoot"

Dawson Proudfoot, PEng
Torex Gold Resources
Membership Professional Engineers Ontario # 37567500

Certificate of Qualified Person

I, Clifford Lafleur am Director of Technical Services for Torex Gold Resources Inc., with an office at 130 King Street West, Suite 740, Toronto, Ontario, M5X 2A2, and I am a Professional Mining Engineer recognized in the province of Ontario.

This certificate applies to the technical report titled "NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Preliminary Economic Assessment", which has an effective date of March 31, 2018 and a filing date of 4 September, 2018 (the "Technical Report").

I am a member of Professional Engineers of Ontario #100064362. I graduated from Laurentian University in 1999 with a bachelor's degree in Mining Engineering. I have been practicing in my profession for over 19 years. I have been directly involved in mine design, mine operations, project management, reserves disclosure and technical reports of both base metals and gold and silver mines. Based on 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 have been involved in the Morelos property since March 2017 when I joined Torex. I visit the ELG Mine site regularly as part of my current role with Torex, most recently the week of July 9, 2018.

I am responsible for the following sections of the Technical Report; 15.3, 16.3, 21.1.2, 21.2.2, 25.5.2, 26.3.2 and those portions of the summary, interpretations and conclusions, recommendations pertaining to these sections of the Technical Report, and references to these sections of the Technical Report.

I am an employee of Torex Gold Resources Inc., first joining the company in 2017, I am not considered independent as described by Section 1.5 of NI 43-101.

I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that instrument.

To the best of my knowledge, information and belief, as of the effective date of the Technical Report, 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 those sections of the Technical Report not misleading.

DATED this 4th day of September, 2018.

(Signed and sealed) "Clifford Lafleur"

Clifford Lafleur, PEng
Torex Gold Resources
Membership Professional Engineers Ontario #100064362

CERTIFICATE OF QUALIFIED PERSON

I, James Joseph Monaghan P. Eng. (ON), am employed as a Principal Mining Engineer with Torex Gold Resources Inc. with an office at 130 King Street West, Suite 740, Toronto, Ontario, M5X 2A2.

This certificate applies to the technical report titled Morelos Project, "NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Preliminary Economic Assessment", Guerrero State, Mexico, that has an effective date of March 31, 2018 and a filing date of September 4, 2018 (the "technical report").

I am a member of Professional Engineers Ontario #100028961. I graduated from Laurentian University with a B. Eng (Mining) in 1984.

I have practiced my profession for 33 years since graduation. I have been directly involved in underground mining of bulk and narrow vein gold and base metal mineral deposits for 28 years.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Morelos Property on 19 November 2014.

I am responsible for the underground mining content of Sections 24.15, 24.16, 24.21.1.3, 24.21.2.1.1, 24.21.2.1.3, 24.21.2.2 and 24.24 and and those portions of the summary, interpretations and conclusions, recommendations pertaining to these sections of the technical report, and references to these sections to these sections of the technical report.

I was a Qualified Person for the technical report titled Morelos Project, NI 43-101 Technical Report, El Limon Guajes Mine Plan, and Media Luna Preliminary Economic Assessment, Guerrero State, Mexico, that has an effective date of 17 August 2015. My primary role in the study was Qualified Person for the Media Luna PEA underground mining sections.

I have read NI 43–101 and the sections 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 sections 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: this 4th day of September
2018

(Signed and Sealed)

"James Joseph Monaghan"

James Joseph Monaghan P.Eng (ON)

1301 N McCarran Blvd., Suite 101
Sparks, NV 89431

T: 775.525.2575
F: 775.525.2577

CERTIFICATE OF QUALIFIED PERSON

I, Paul Kaplan, P.E., am employed as a Principal Engineer at NewFields Mining Design and Technical Services (NewFields) with a business address at 1301 N McCarran Blvd., Suite 101, Sparks, NV 89431.

This certificate applies to a technical report titled "NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Preliminary Economic Assessment" and dated effective March 31, 2018 and a filing date of September 4, 2018 (the "technical report").

I am a Professional Engineer registered in the following states in the USA: Nevada (8034), Washington (50215), Montana (16917), Utah (7667), and California (C046683). I graduated from Arizona State University in 1980 with a B.S. in Civil Engineering and in 1983 with an M.S. in Civil Engineering.

I have more than 35 years of experience in civil and geotechnical engineering related to tailings storage and mine waste management.

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 last visited the project site on 12-14 September 2017.

I am responsible for content related to the filtered tailings storage facility (FTSF); geotechnical, hydrologic, hydrogeologic and geochemistry aspects of the waste rock storage facilities (WRSF) and tailings. Specifically, the relevant portions of Sections 16.2.2, 16.2.3, 16.2.4, 16.2.7, 16.3.3, 18.5, 18.6.2, 18.6.3, 20.4.1.3, 20.4.1.4, 24.18.3, 24.18.4, 24.20.3.4, 24.20.3.5, 24.20.3.6, and those portions of the summary, interpretations and conclusions, recommendations from NewFields 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 not had prior involvement with the property that is the subject of the Technical Report.

I have read NI 43-101 and the sections 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 sections 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: September 4, 2018

"Paul Kaplan" (signed and sealed)

Paul Kaplan, P.E.
NewFields Mining Design & Technical Services

Huls Consulting
3303 Belford Rd, Reno, NV
89509
+1 303 803 7757
bertjhuls@gmail.com

Certificate of Qualified Person

I, Bert J Huls, am President of Huls Consulting Inc., and am Metallurgical Engineer by Profession.

This certificate applies to the technical report titled “NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Preliminary Economic Assessment”, which has an effective date of March 31, 2018 and a filing date of September 4, 2018 (the “Technical Report”).

I am a member of Professional Engineers Ontario # 20869277. I graduated from the Technical University of Delft in April, 1978 with a MSc. Degree in Mining and Petroleum Engineering, and received my Doctor of Science Degree from this same University in September 1990.

I have practiced my profession for 40 years since graduation. I have been directly involved in operation of metallurgical facilities, technology development and metallurgical engineering and project management of metallurgical facilities for Base Metals, Industrial Minerals, and Gold and Silver Minerals. I have received various papers and am widely published in my field.

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 have visited the Morelos property for an extended length of time between January 2016 and June 2016, with sporadic visits after that period.

I am responsible for the metallurgical and process contents of sections 13 and 24.13 Mineral Processing and Metallurgical Testing, of sections 17 and 24.17 Recovery Methods, as well as for the marketing sections 19 and 24.19 Market Studies and Contracts, and those portions of the summary, interpretation and conclusions and recommendations that pertain to these sections of the Technical Report.

I am independent of Torex Gold Resources Inc., as independence is described by Section 1.5 of NI 43-101.

I have not had prior involvement with the property that is the subject of the Technical Report.

I have read NI 43-101 and the sections of the technical report for which I am responsible have been prepared in compliance with that instrument.

To the best of my knowledge, information and belief, as of the effective date of the Technical Report, 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 those sections of the Technical Report not misleading.

DATED this 4th day of September, 2018.

(Signed and sealed) "Bert J Huls"

Dr. Bert J Huls, PEng
Huls Consulting Inc.
Membership Professional Engineers Ontario # 20869277

MPH Consulting

CERTIFICATE OF QUALIFIED PERSON

I, Mark P Hertel, SME Registered Member, am employed as a Principal Geologist with MPH Consulting (MPH).

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 Preliminary Economic Assessment, Guerrero State, Mexico" that has an effective date of 31 March 2018 and a filing date of September 4, 2018 (the "Technical Report").

I am a Registered Member of the Society of Mining, Metallurgy and Exploration (# 4046984).

I graduated from Southern Illinois University, Carbondale, Illinois in 1978 with a B.S. degree in Geology and from Metropolitan State College, Denver Colorado, in 1987 with a B.S. degree in Mathematics. I have practiced my profession continuously since 1988 and have been involved in mining operations in Nevada and Arizona. I have been directly involved in exploration, resource and reserve estimation, geologic modeling and mine planning for a variety of commodities including uranium, oil, copper, cobalt, gold, silver and industrial minerals.

I visited the Morelos Property on 1 to 3 March, 2011, and from 7 to 10 April, 2013, and from 8 to 10 September 2014 and again from 10 to 13 July 2017.

I am responsible for Sections 6, 7, 8, 9, 10, 11, 12, 14, 23, 24.6, 24.7, 24.8, 24.9, 24.10, 24.11, 24.12, 24.14, 24.23, 25.2, and 26.1 of the Technical Report and those portions of the summary, interpretation and conclusions and recommendations that pertain to these sections of the Technical Report, and references to these sections of the Technical Report.

I am independent of the issuer, Torex Gold Resources Inc. as independence is described by Section 1.5 of National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have been involved with the Morelos Property since 2009 during the preparation of a mineral resource estimate and subsequent completion of a technical report, and was a subsequent co-author on the following technical reports:

Orbock, E., Long, S., Hertel, M., Kozak, A., 2009: Gleichen Resources Ltd. Morelos Gold Project, Guerrero, Mexico NI 43-101 Technical Report: effective date 06 October, 2009.

Neff, D., Orbock, E., Drielick, T., 2011: Torex Gold Resources Inc. Morelos Gold Project Guerrero, Mexico NI 43-101 Technical Report – Underground and Open Pit Resources: effective date 22 October 2010.

Neff, D., Drielick, T., Orbock, E., Hertel, M., 2012: Torex Gold Resources Inc. Morelos Gold Project Guajes and El Limon Open Pit Deposits Updated Mineral Resource Statement Form 43- 101F1 Technical Report Guerrero, Mexico: effective date 13 June 2012

Neff, D.H., Drielick, T.L., Orbock, E.J.C., Hertel, M., Connolly, B., Susi, B., Levy, M., Habbu, P. and Ugorets, V., 2012: Morelos Gold Project, 43 -101 Technical Report Feasibility Study, Guerrero, Mexico: technical report prepared by M3 Engineering and Technology Corporation, Amec Foster Wheeler E&C Services Inc, SRK Consulting Inc. and Golder Associates Inc. for Torex, effective date 4 September 2012

Hertel, M., and Rust, J., 2013: Media Luna Gold–Copper Project, Guerrero State, Mexico, NI 43-101 Technical Report: technical report prepared by Amec Foster Wheeler E&C Services Inc for Torex, effective date 13 September 2013

Daniel H. Neff, P.E., Robert Davidson, P.E., Thomas L. Drielick, P.E., Brian Connolly, P. Eng., Mark Hertel, RM-SME, Edward J.C. Orbock III, RM-SME, Benny Susi, P.E., Prabhat Habbu, P.Eng., Michael Levy, P.E., P.G., Vladimir Ugorets, MMSAQP, James Joseph Monaghan, P.Eng., Morelos Property, NI 43-101 Technical Report El Limón Guajes Mine Plan and Media Luna Preliminary Economic Assessment Guerrero State, Mexico: technical report prepared by M3 Engineering and Technology Corporation, Amec Foster Wheeler E&C Services Inc., SRK Consulting Inc. and Golder Associates Inc. for Torex, effective date 3 September 2015.

As a result of my education, relevant experience and qualifications, I am a Qualified Person as defined NI 43-101.

I have read NI 43–101, and the portions 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 sections 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: 4 September 2018

(Signed and Sealed) “Mark P Hertel”

Mark P Hertel, RM SME

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 Levy, P. Eng., do hereby certify that:

1. I am currently employed as Geotechnical Engineering Manager with JDS Energy & Mining Inc. with an office at Suite 100 – 14143 Denver West Parkway, Golden, Colorado, 80401;
2. This certificate applies to the technical report (Report) entitled "NI 43-101 Technical Report ELG Mine Complex Life of Mine Plan and Media Luna Preliminary Economic Assessment" with an effective date of March 31, 2018 and a filing date of September 4, 2018;
3. I am a Professional Civil Engineer (P.Eng. #2692) registered with the Association of Professional Engineers Yukon and Colorado (P.E. #40268). I am a current member of the International Society for Rock Mechanics (ISRM) and the American Society of Civil Engineers (ASCE). 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 a numerous mining and civil geotechnical projects across the Americas;
4. I last visited the project September 13 – 15, 2017;
5. I am responsible for section 16.2.1 of the Technical Report and those portions of the summary, interpretations and conclusions, recommendations pertaining to this section and references to this section;
6. I am independent of the issuer, Torex Gold Resources Inc., as defined in Section 1.5 of NI 43-101;
7. I have been involved with geotechnical engineering of excavation slopes at the El Limon Guajes mine since 2010 and I was a Qualified Person for the technical report titled 43-101 Technical Report Feasibility Study, Guerrero, Mexico, that has an effective date of 4 September 2012 and the technical report titled Morelos Project, NI 43-101 Technical Report, El Limon Guajes Mine Plan, and Media Luna Preliminary Economic Assessment, Guerrero State, Mexico, that has an effective date of 17 August 2015;
8. 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, and past relevant experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101;
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1; and,
10. As of the effective date of the Report, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Date: September 4, 2018

(Signed and sealed) "Michael Levy"

Michael Levy, P. Eng.

APPENDIX B: DESIGN CRITERIA

The design of the ELG Process facility is based on the following criteria.

Run-of-Mine Ore Characteristics

Maximum mine-run ore size, mm	1,000
Ore specific gravity, design	3.2
Ore bulk density, t/m^3, design	1.8
Ore moisture content, %, design	3

Production Schedule

Milling Rate, dry tonne per year	5,110,000
Mine Operating Schedule	
Days per year	360
Hours per day	24
Shifts per day	2
Hours per shift	12
Shifts per week	13

Primary Crusher Operating Schedule	
Days per year	365
Hours per day	24
Shifts per day	2
Hours per shift	12
Shifts per week	13
Percent availability	75

Mill Operating Schedule	
Days per year	365
Hours per day	24
Shifts per day	2
Hours per shift	12
Shifts per week	14
Percent availability	90

Carbon Stripping and Refining Operating Schedule	
Days per year	360
Hours per day	12
Shifts per day	1
Hours per shift	12
Shifts per week	7
Percent availability	Batch Operation

Process Rate Schedules	
Primary Crushing, tonne per week, average (5,110,00 / 365) x 7	98,000
Primary Crushing, t/h, design	1,000
Primary Crushing, t/h, average	838

	(5,110,000 x 7) / (365 x 13 x 12 x 75%)	
	Milling, t/h, design	648
	Milling, dry tonnes per day, average	14,000
	(5,110,000 / 365)	
Metal Production Schedules		
	Ore Grade, gold, g/t, average	2.70
	Mineralized Grade, silver, g/t, average	4.36
	Gold Recovery, percent	87.33
	Silver Recovery, percent	32.46
	Gold Production, grams per day, average	32,886
	(5,110,000 / 365) x 2.7 x 87%)	
	Silver Production, grams per day, average	14,039
	(5,110,000 / 365) x 4.36x23%)	

Primary Crushing and Coarse Ore Reclaim Area

	Mine Truck - Capacity, tonne	100
	Dump Pocket	
	Number	2*
	Mode of Feeding	Truck
	Pocket Capacity, tonne	200
	Rock Breaker	
	Number	2
	Type	NPK-B9500H/D
	Primary Crusher Discharge Hopper	
	Number	2
	Pocket Capacity, tonnes	200
Primary Crusher		
	Number	2
	Type	Gyratory
	Size, mm	1,067 x 1,651
Primary Crusher Discharge Feeder		
	Number	2
	Type	Apron
	Drive	Hydraulic, variable speed
	Turndown	50%
	Size, width x length, mm x m	1372 x 6
	Capacity, flowsheet design, DMTPH	778
	Capacity, operating maximum, DMTPH	1000
	Power Installed, kW	200
Crushing Area Dust Collector		
	Number	2

RopeCon Conveyor		
	Horizontal length, m	1298
	Vertical fall, m	385
	Hourly Capacity, t/h	1000
	Maximum lump size, mm	200
	Bulk Density, t/m^3	1.6 to 2.0
	Continuous operating speed, m/sec	0 to 3.6
	Belt Width, mm	660
	Belt utilization width, mm	510
	Side wall height, mm	200
	Power required, continuously, kW	-906**
	**Regenerative	
Coarse Ore Stockpile Feed Conveyor (100-CV-001)		
	Number	1
	Size, width, mm, length, m, lift, m	1,219 x 149 x 30
	Capacity, flowsheet design,	DMTPH 778
	Capacity, operating maximum,	DMTPH 1297
	Power installed	>kW 300
Coarse Ore Stockpile		
	Number	1
	Live capacity, tonne	14,000
	Type	Covered
	*Identical Primary crushing systems for El Limón and Guajes pits.	
SAG Mill Feed Conveyor (200-CV-001)		
	Number	1
	Size, width, mm, length, m, lift, m	1,219 x 200 x 31
	Capacity, flowsheet design,	DMTPH 648
	Capacity, operating maximum,	DMTPH 1080
	Power installed	kW 300

Grinding Area

Primary Grinding SAG Mill		
	Number	1
	Mill Size:	
	Diameter inside shell, meters	9.15
	Effective grinding length, meters	4.15
	Mill Speed, % critical speed	75
	Mill Motor, kilowatt	7,000
	Mode of Operation	Closed circuit
	Horsepower Calculation:	
	Ore Bond Work Index	17.5
	Feed Size, 80% passing, µm	150,000
	Product Size, 80% passing, µm	2000
	Calculated kW/t, Sag mill pinion	8.97
	Kilowatts required at 648.8 t /h	5,814
	Circuit Operating Characteristics:	

	Mill feed slurry, % solids	70
	Mill circulating load, %	20
	Ball top size, mm	127
SAG Mill Discharge Screen		
	Type	Double Deck Vibrating
	Number	1
	Screen Size:	
	Width, meters	3.05
	Length, meters	6.10
	Deck material	Polyurethane
	Screen opening size, mm	12.5
	Power Installed, kW	75
Pebble Crusher		
	Type	Cone HP400
	Number	1
	Size, Discharge opening diameter, mm	1,726
	Crushed Feed, F80, mm	20
	Crushed Product, P80, mm	9
	Capacity, Flow Sheet Design, tph	207
	Capacity, Operating Maximum, tph	260
	Power Required, kW, calculated	268
	Power Installed, kW	300
Pebble Crusher Feeder		
	Number	1
	Type	Belt
	Drive Hydraulic	Variable Speed
	Capacity Range, tph	180-300
	Size, Width x Length, m x m	1.219 x 10
	Capacity, Flow Sheet Design, tph	242
Secondary Grinding-Ball Mill		
	Number	1
	Mill Size:	
	Diameter inside shell, meters	7.33
	Effective grinding length, meters	12.65
	Mill Speed, % critical speed	75
	Mill Motor, kilowatts	7,000 (2)
	Mode of Operation	Closed circuit
	Ball Mill, Bond Work Index	17.5
	Feed Size, 80% passing, µm	2000
	Product Size, 80% passing, µm	60
	Calculated kW/t, ball mill pinion	20.55
	Kilowatts required at 648.8 t/h	13,320
	Circuit Operating Characteristics:	
	Mill feed slurry, % solids	75
	Mill circulating load, %	300

	Ball top size, inches	2
Hydrocyclones		
	Model/Size	WEIR, 650CVX13
	Number Operating	6
	Number Standby	1
	Feed Pressure, psig	10
	Feed, % solids, design	52
	Overflow, % solids, design	29.3
	Underflow, % solids, design	70
	Overflow size, P80, µm	60
Grinding Circuit Trash Screen		
	Type	Linear
	Number	1
	Screen Size:	
	Width, meters	5.0
	Length, meters	6.0
	Number of screen decks	1
	Deck material	Fabric
	Screen opening, size, µm	2000
	Screen opening, type	Square
Leach and CIP Area		
Pre-Leach Thickener		
	Type	High rate
	Size, diameter, m	32
	Number	1
	Specific Area Requirement, t/h/m^2	1.0
	Operating Characteristics:	
	Thickener Feed:	
	Slurry, % solids w/w, design	29.3
	Thickener Underflow:	
	Slurry, % solids w/w, design	50
Leach Tanks		
	Type	Open Top with Agitator
	Number	11
	Tanks in operation	4 to 6
	Tanks used for storage in decoupled mode	5 to 7
	Size, meters:	
	Diameter	15.55
	Height	21.34
	Freeboard	1
	Mode of operation	Series
	Residence time, hours, total	49
	Residence time, hours, each	4.45
	Operating Characteristics:	
	Tank Feed Rate:	
	Slurry, % solids w/w, design	50

CIP Tanks		
	Carbon in Pulp (CIP)	
	Type	Open Top with pump cell
	Number	6
	Size, meters:	
	Volume, (m^3)	250
	Diameter	7
	Height	8
	Freeboard	0.3
	Mode of operation	Carousel
	Residence time, hours, total	1.75
	Residence time, min., each	17.5
	Operating Characteristics:	
	Slurry, % solids w/w, design	50
	Carbon:	
	Carbon size, mesh	6. X 12
	Carbon concentration in CIP tank slurry, g/L	48
CIP Intertank Screens		
	Type	AAC Pump Cell
	Number	1 per CIP tank
	Screen surface material	Stainless Steel
	Screen opening size, µm	630
	Screen opening type	slotted wedge wire
	Specific flow rate, m^3, slurry/hour/m^2, design	20.5
CIP Carbon Advance Pumps		
	Type	Horizontal
	Number	1
	Operating Characteristics:	
	Mode of Operation	Intermittent
Thickening and Tailing Detox Area		
Cyanide Recovering Thickener		
	Type	High Rate
	Number	1
	Unit Area Requirement, t/h/m^2	1.0
	Operating Characteristics:	1
	Thickener Feed:	
	Slurry, % solids w/w, design	35
	Thickener Underflow:	
	Slurry, % solids w/w, design	55
Carbon Safety Screen		
	Type	Vibrating
	Number	1
	Screen Size:	
	Width, meters	1.83
	Length, meters	3.66
	Number of screen decks	1

	Deck material	Polyurethane
	Screen opening, size, mm	0.200
	Screen opening, type	Slotted
Tailing Detoxification Tank		
	Type	flat top w/agitator
	Number	2
	Tank Size, meters:	
	Diameter	9.7
	Height	11.6
	Freeboard	0.3
	Residence time, minutes, total	120
	Residence time, minutes, each	60
	Operating Characteristics:	
	Tank Feed:	
	Slurry, % solids w/w, design	55
Tailing Filter		
	Type	Plate and Frame Pressure Filter
	Number	7
	Size, Each Filter Unit:	
	Numbers of Plates	127
	Total Filter Area, m^2	1,204.56
	Specific Flow Rate, $m^3/h/m^2$	0.478
	Feed Flow Rate, per 24-h	
	Flow Sheet Design, dt/d	15,574
	Maximum, dt/d	23,360
	Flow Sheet Design, m^3/d, slurry	17,676
	Feed	
	Solids, Specific Gravity	3.20
	Slurry, % Solids	54.9
	80% Passing, Microns	60
	Filter Cake	
	Moisture, % w/w	
	metallurgical	16-17
	geotechnical	19-20
	Bulk Density, kg/m3	1.8
	Type	Horizontal Vacuum Belt Filter
	Number	2 (2 operating, 0 standby)
	Size, Each Filter Unit:	
	Total Filter Area, m^2	162
	Cake Loading, kg/m^2	33
	Feed Flow Rate, per 24-h	
	Flow Sheet Design, dt/d	3,840
	Maximum, dt/d	329 TPH at 18% moisture
	Flow Sheet Design, m^3/d, slurry	4,980
	Feed	
	Type	Cyclone Underflow
	Solids, Specific Gravity	3.20

	Slurry, Max% Solids	77
	80% Passing, Microns	100
	Filter Cake	
	Moisture (geotechnical), % w/w	19-21
	Bulk Density, kg/m^3	1.8

Carbon Stripping Area

Activated Carbon		
	Type	Coconut Shell
	Size, mesh (new)	6 x 12
	Bulk density, dry	480
	Bulk density, wet	961
	Voids in settled carbon, % by volume	40
Acid Wash Circuit		
	Type	Hydrochloric Acid Wash Sodium Hydroxide Neutralization
	Mode of operation	Batch
	Batch size, design, t carbon	12
	Batches per day, design	1
	Batches per day possible in available time	2
Elution Circuit		
	Type	Pressure Zadra
	Mode of operation	Batch
	Batch size, design, t carbon	12
	Carbon metal loading, g/t	
	Loaded carbon, gold	3,862
	Loaded carbon, silver	4,406
	Stripped carbon, gold	50
	Stripped carbon, silver	50

Refining Area

Electrowinning Circuit		
	Type	DC Electric Current
	Stainless Steel Anodes	
	Knitted Stainless Steel Mesh Cathodes	
	Mode of Operation	Continuous Sludging
	Number of Cells	4
	Cell configuration	series
Refining Circuit		
	Type	Diesel Melting Furnace
	Mode of Operation	Batch
	Batches per day	-
	Days per week	2
	Number of furnaces	1

Carbon Reactivation Area

Carbon Reactivation Circuit		
	Type	Horizontal kiln Electric
	Mode of Operation	Continuous
	Batch Size, design, t carbon	12
	Batches per day, design	1

Reagents Area

Sodium Cyanide Solution System		
	Delivered Form	Flow Bins or Bulk
	Method of Storage	Solution
	Solution Mixing Concentration	25%
	Usage Rate, kg/t	1.0
Caustic Solution System		
	Delivered Form	Dry Flakes in Cardboard Drums
	Method of Storage	Dry in Drums and in Solution
	Solution Mixing Concentration	25%
	Usage Rate, kg/t	0.125
Package Flocculant System		
	Delivered Form	Dry Flakes
	Method of Storage	Dry on Pallets and in Solution
	Solution Mixing Concentration	0.25%
	Usage Rate, kg/t	0.05
Copper Flocculant System (SART)		
	Delivered Form	Dry Flakes
	Method of Storage	Dry on Pallets and in Solution
	Solution Mixing Concentration	0.25%
	Usage Rate, kg/t	0.04
Gypsum Flocculant System (SART)		
	Delivered Form	Dry Flakes
	Method of Storage	Dry on Pallets and in Solution
	Solution Mixing Concentration	0.25%
	Usage Rate, kg/t	0.04
Copper Sulphate System		
	Delivered Form	Dry, Crystals
	Method of Storage	Dry on Pallets and in Solution
	Solution Mixing Concentration	10%
	Usage Rate, kg/t	0.00
Lime System		
	Delivered Form	Dry, Pebble Pneumatic Unloading Delivery Truck 20 to 30 Ton Truck Capacity

	Method of Storage	Dry in Bin and Slurry
	Slurry Mixing Concentration, % w/w/ solids	10%
	Usage Rate, kg/t	2.7
Hydrated Lime (SART)		
	Delivered Form	Solid
	Method of Storage	95 % $Ca(OH)_2$
	Mixing Concentration	15% solids
	Usage Rate, kg/t	5.8
HCl Acid System		
	Delivered Form	Drums of 34% solution
	Method of storage	Drums
	Solution mixing concentration	5%
	Usage rate, kg/t	0.1
Sodium Metabisulphite System		
	Delivered Form	dry, powder Super Sacs
	Method of storage	Dry on pallets
	Solution mixing concentration	20%
	Usage rate, kg/t	0.836
Sulfuric Acid System (SART)		
	Delivered Form	tank truck
	Method of storage	94 m^3 tank
	Solution mixing concentration	98% H_2SO_4
	Usage rate, kg/t	0.95 to 1.45
Sodium Hydrosulphide System (SART)		
	Delivered Form	tank truck
	Method of storage	50 m^3 tank
	Solution mixing concentration	45% NaHS
	Usage rate, kg/t	0.3 to 0.5
Sodium Hydroxide System (SART)		
	Delivered Form	tank truck
	Method of storage	28 m^3 tank
	Solution mixing concentration	50% NaOH
	Usage rate, kg/t	0.03 to 0.04
Diatomaceous Earth (SART)		
	Delivered Form	solid
	Method of storage	1000 kg sacks
	Mixing concentration	15% solids
	Usage rate, kg/t Cu precipitate	10-50 (estim.)

SART Plant

SART Feed Solution (Cyanide Recovery Thickener Overflow)

		MAX	AVG
	Flow, m^3/hr	600	440
	pH		10.5
	Temperature, °C	50	45
	WAD Cyanide, mg/L CN	978	574
	Gold, mg/L	0.12	0.12
	Silver, mg/L	0.39	0.40
	Copper, mg/L	698	391
SART Feed Pumps			
	Number of Pumps Installed		2
	Location		Outdoors
	Pump Type		Centrifugal
	Pump Speed		Variable
	Pumping Rate, m^3/hr	600	440
	Fluid Density, kg/L		1.00
	Fluid Viscosity, cP		1.1
	Fluid Solids Content, wt% solids	5%	<1%
Pre-Leach Thickener Overflow Tank			
	Number of Tanks		1
	Location		Outdoors
	Hydraulic Retention Time,		min 5
	Hydraulic Throughput, m^3/hr	900	674
	Tank Design Fluid s.g.		1.10
	Operating pH		10.5
	Tank Dimensions (Vertical Tank):		
	Volume (Working), m^3		56
	Diameter, m		3.25
	Height (Working), m		7.25
	Freeboard, m		0.75
	Heel, m		0.50
	Height (Total), m		8.00
	Covered & Vented		No
	Insulated		No
	Baffles		None
	Material of Construction		CS
	Interior Coating		Epoxy
Acidification Tank (Tanque de Acidificación)			
	Number of Tanks		1
	Location		Outdoors
	Hydraulic Retention Time,		min 8
	Hydraulic Throughput, m^3/hr	632	475
	Tank Design Fluid s.g.		1.10
	Operating pH	4.5	4.0
	Silver Precipitation, %		98%
	Copper Precipitation, %		98%
	Tank Dimensions (Vertical Tank):		
	Volume (Working), m^3		63

	Diameter, m		4.00
	Height (Working), m		5.00
	Freeboard, m		0.75
	Heel, m		0.00
	Height (Total), m		5.75
	Covered & Vented		Yes
	Insulated		No
Sodium Hydrosulphide Static Mixer			
	Number of Mixers		1
	Location		Outdoors
	Process Fluid Flow, m^3/hr	600	475
	Injected Fluid		45% NaHS
	Injected Fluid Flow, L/hr	247	138
Sulfuric Acid Static Mixer			
	Number of Mixers		1
	Location		Outdoors
	Process Fluid Flow, m^3/hr	625	475
	Injected Fluid		98% H_2SO_4
	Injected Fluid Flow, L/hr	458	299
Copper Thickener			
	Number of Thickeners		1
	Location		Outdoors
	Thickener Type		Conventional
	Rake Lift		Yes - Auto
	Hydraulic Rise Rate, $m^3/hr/m^2$		3.00
	Thickener Feed Rate, m^3/hr	639	475
	Thickener Dimensions: Diameter, m		16.0
	Covered & Vented		Yes
	Insulated		No
	Design Pressure (Headspace), kPa -		Gauge -1.25
	Thickener Feed Solids, wt%		1.0%
	Underflow Density, wt% solids		15%
	Overflow Solids Content, mg/L		100
	Tank Design Fluid s.g.		1.25
	Tank Material of Construction		SS 316
	Tank Interior Coating		None
	Rake Material of Construction		SS 316
Copper Filter Feed Tank			
	Number of Tanks		1
	Location		Outdoors
	Hydraulic Retention Time, hr		13
	Hydraulic Throughput, m^3/day	94	39
	Tank Design Liquid s.g.		1.25
	Operating pH	12.0	11.0
	Tank Dimensions (Vertical Tank):		
	Volume (Working), m^3		50
	Diameter, m		4.00
	Height (Working), m		4.50

	Freeboard, m		1.25
	Heel, m		0.50
	Height (Total), m		5.25
	Covered & Vented		Yes
	Insulated		No
	Baffles		4 @ 90°
	Design Pressure (Headspace), kPa -		Gauge -1.25
	Material of Construction		SS 316
Filtrate Tank			
	Number of Tanks		1
	Location		Outdoors
	Hydraulic Throughput, m^3/day	121	51
	Tank Capacity, hours		7.6
	Tank Design Liquid s.g.		1.15
	Operating pH		10.5
	Tank Dimensions (Vertical Tank):		
	Volume (Working), m^3		38
	Diameter, m		3.50
	Height (Working), m		4.50
	Freeboard, m		0.75
	Heel, m		0.50
	Height (Total), m		5.25
	Covered & Vented		No
	Insulated		No
	Baffles		4 @ 90°
	Design Pressure (Headspace), kPa -		Gauge NA
	Material of Construction		CS
	Interior Coating		Epoxy
Neutralization Tanks			
	Number of Tanks		2
	Location		Outdoors
	Hydraulic Retention Time, min		27
	Hydraulic Throughput, m^3/hr	684	526
	Tank Design Fluid s.g.		1.10
	Operating pH 10.5		
	Tank Dimensions (Vertical Tank):		
	Volume (Working), m^3		241
	Diameter, m		6.50
	Height (Working), m		7.25
	Freeboard, m		0.75
	Heel, m		0.00
	Height (Total), m		8.00
	Covered & Vented		Yes
	Insulated		No
	Baffles		4 @ 90°
	Design Pressure (Headspace), kPa -		Gauge -1.25
	Material of Construction		CS
	Interior Coating		Epoxy
Gypsum Thickener			

	Number of Thickeners		1
	Location		Outdoors
	Thickener Type		Conventional
	Rake Lift		Yes - Auto
	Hydraulic Rise Rate, $m^3/hr/m^2$		3.00
	Thickener Feed Rate, m^3/hr	691	526
	Thickener Dimensions:		
	Diameter, m		16.0
	Covered & Vented		No
	Insulated		None
	Thickener Feed Solids, wt%		2.3%
	Underflow Density, wt% solids		15%
	Overflow Solids Content, mg/L		100
	Tank Design Fluid s.g.		1.25
	Tank Material of Construction		CS
	Tank Interior Coating		Epoxy
	Rake Material of Construction		CS
	Cover Material of Construction		No Cover
Copper Filters			
	Number of Filters		2 x 100%
	Location		Under Cover
	Filter Operating Time, hr/day		20
	Filter Type		Plate/Frame
	Feed Slurry Solids Content, wt% solids		15%
	Filter Cake Moisture Content, wt% H_2O		50%
	Cake Wash Water, Pore Volume Displacements		3.0
	Cake Wash Efficiency, % per Pore Volume		65%
	Cake Wash Water Source		Fresh Water
	Solids Loss to Filtrate, % of feed solids		0.1%
	Filter Cake Porosity, %		25%
	Filter Cake Production Rate, t/day (wet)	31.8	13.4
	Filter Cake Production Rate, t/day (dry)	15.9	6.7
	Filter Cake Bulk Density, t/m^3 (wet)	1.55	1.62
	Filter Cake Production, m^3/day (wet)	20.5	8.3
Copper Hoppers			
	Number of Hoppers		2
	Location		Under Cover
	Hopper Volume (Live), m^3		9.7
	Solids Throughput, t/day (wet) (Mass Balance)	31.8	13.4
	Solids Throughput, t/day (wet) (Design)		37.6
	Solids Bulk Density, t/m^3	1.55	1.62
	Sidewall Slope (Minimum)		70°
	Material of Construction		SS
Copper Screw Feeder			
	Number of Screw Feeders		2
	Location		Under Cover
	Solids Throughput, t/day (Mass Balance)	31.8	13.4

	Solids Throughput, t/day (Design)		168
	Solids Bulk Density, t/m^3	1.55	1.62
Copper Bagging System			
	Number of Bagging Systems		1
	Location		Under Cover
	Bagging System Operating Time, hr/day		10
	Bagging Rate, t/day (wet) (Mass Balance)	31.8	13.4
	Bagging Rate, t/day (wet) (Design)		123
	Solids Moisture Content, wt% H_2O		50%
	Solids Bulk Density, t/m^3	1.55	1.62
	Bag Fill Capacity, kg (wet)		1,200
	Bag Filling Rate, number/day (Mass Balance)	26	11
	Bag Filling Rate, number/day (Design)		72
Gas Scrubber			
	Number of Scrubbers		1
	Location		Outdoors
	Insulated		No
	Scrubber Type		Packed Bed
	Scrubber Diameter, m		0.762
	Packing Depth, m		3.50
	Packing Type		Tellerette
	Packing Size, mm nominal #2		Type K
	Packing Material		PP
	Scrubber Vessel Material		SS 316
	Liquid Recirculation Rate, m^3/hr		6.81
	Gas Throughput, A m^3/hr		3,600
	HCN Volatilization in Tanks & Thickener, % of HCN in feed solution		0.5%
	H_2S Volatilization in Tanks & Thickener, % of H_2S in feed solution		0.5%
	Feed Gas HCN, ppm	673	394
	Feed Gas H_2S, ppm		7 4
	HCN Capture Efficiency, %		99.9%
	H_2S Capture Efficiency, %		99.9%
	CO_2 Capture Efficiency, %		99.9%
	Exhaust Gas HCN, ppm		<5
	Exhaust Gas H_2S, ppm		<5
	Scrubber Make-Up NaOH Strength, wt% NaOH		50%
	Scrubber Operating NaOH Strength, wt% NaOH		10%
	Excess NaOH Usage in Scrubber, %		10%
	Scrubber Blowdown Rate, m^3/day	2.0	1.6
Scrubber Stack			
	Number of Stacks		1
	Location		Outdoors
	Volumetric Gas Flow, A m^3/hr		3,600
	Stack Exhaust Gas Velocity, m/sec		20
	Stack Diameter, mm		300
	Stack Height, m		25 (Estimated)