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Mineral Resource Update and Preliminary Economic Assessment of the La Fortuna Gold Project, Durango State, Mexico

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13 July 2018

Abbreviations and Acronyms

%	percent
°	degrees
AA	atomic absorption
Argonaut	Argonaut Gold Inc.
Au	gold
Bondar-Clegg	Bondar-Clegg & Company Ltd
C$ or CAD	Canadian dollars
cm	centimetres
CMRI	Colorado Minerals Research Institute
CONAGUA	Comision de Agua (or National Water Commission)
CRM	Consejo de Recursos Minerales
CSA Global	CSA Global Pty Ltd
Cu	copper
CWI	crushing work index
DEXRT	dual energy x-ray transmission
ECT	Especialistas en Ciencias de la Tierra
EIA	Environmental Impact Assessment
ETJ	Estudio Tecnico Justificativo (Technical Justification Study)
g	gram(s)
G&A	general and administrative
g/t	grams per tonne
GPS	global positioning system
GRG	gravity recoverable gold
ha	hectare(s)
ICP	inductively coupled plasma
ID^2	inverse distance squared
ID^3	inverse distance cubed
IRR	internal rate of return
kg	kilogram(s)
km	kilometre(s)
km2	square kilometres
La Fortuna	La Fortuna Gold Project (or “the Project”)
lb/t	pound per tonne
LDL	lower detection limit
LOM	life of mine
m	metre(s)
M	million(s)

m^3	cubic metre(s)
MIA	Manifestacion de Impacto Ambiental (Environmental Impact Statement)
MIBC	methyl isobutyl carbinol
Min-En	Min-En Laboratories Ltd
Minera Alamos	Minera Alamos Inc (or "the Company")
mm	millimetres
Moz	million ounces
Mt	million tonnes
NCR	net cash flow
NI	National Instrument
NPV	net present value
NSR	net smelter return
Osisko	Osisko Gold Royalties Ltd
PAX	potassium amyl xanthate
Pb	lead
PEA	preliminary economic assessment
PPA	Programade Prevencion de Accidentes (Accident Prevention Program)
ppb	parts per billion
ppm	parts per million
PROFEPA	Federal Prosecutor for Environmental Protection
QAQC	quality assurance/quality control
ROM	run of mine
San Fernando	San Fernando Mining Company Ltd
SEMARNAT	Secretariat of Environment and Natural Resources
SEM-EDS	Scanning Electron Microscope equipped with an Energy Dispersive Spectrometer
SG	specific gravity
SGS	SGS Canada Inc.
SMO	Sierra Madre Occidental
st	short ton
t	tonne(s)
t/d	tonnes per day
TCF	tailings containment facility
UOP	units of production
US$	US dollars
Zn	zinc

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1 Summary

1.1 Project Overview

The La Fortuna Project ("La Fortuna" or "Fortuna") is located within the Tamazula District of northwest Durango State, near to Durango-Sinaloa state line at approximately 25°19'N latitude and 107°52'W longitude. The Project can be reached by road from the city of Culiacan (capital of Sinaloa state – population just under 1 million) approximately 100 kilometers to the southwest. Culiacan itself is situated 270 kilometers northwest of Mazatlan, a major port and tourist city, and 200 kilometers southeast of Los Mochis, another major port city.

The climate is typical of north-western Mexico with hot summers and moderate to warm dry winters. The rainy season extends from July to early October and can bring 200 to 500 mm of rainfall. Exploration activities can be conducted year-round, although the rainy season can create some difficulties with respect to accessibility.

Initial development of the La Fortuna Mine occurred in the late 1800's. Early accounts are often incomplete or conflicting. However, detailed surveys and sampling of the underground adits, drifts and stopes were completed in the latter quarter of the 1900's. The San Fernando Mining Company completed extensive drilling during the 1990s which forms the basis of the current drillhole database. In the late 2000s Castle Gold acquired the project and completed six (6) twin hole for the purposes of validating the data as part of a modern NI 43-101 cognizant program. In May 2016 Mineral Alamos Inc. acquired the La Fortuna property from Argonaut Gold Inc.

1.2 Geology and Mineralization

La Fortuna lies within the Sierra Madre Occidental. It is hosted by a granodioritic batholith exposed by erosion of overlying and intruded volcanic complexes. The deposit itself consists of intrusive-related quartz-tourmaline breccias, assumed to be the late mineralization phase of a porphyry system. The deposit is tabular in shape, dipping 30° to the west, and is up to 60m thick. Late stage dykes cut through the mineralization. The mineralization consists mainly of pyrite and chalcopyrite stockwork veinlets, fracture fillings, and disseminations within the breccias. Gold and silver grains and minerals are present along the grain boundaries of the chalcopyrite and pyrite with the gold occurring as relatively coarse "free" grains associated, but not encapsulated, with pyrite

The mineralization at La Fortuna can be best characterized as intrusion-related 'transitional' deposits, assumed to be the mineralized zone within an intrusion related model that occurs in the transition between porphyry mineralization and epithermal mineralization.

1.3 Mineral Resource Estimates

1.3.1 Data

Extensive QAQC and data validation was performed in order to thoroughly verify the data from the 1990's San Fernando drilling campaign. Sample certificates from the program were reviewed in their entirety, and data comparisons were conducted to verify the included results. This is in addition to the twinned holes drilled by Castle Gold. The San Fernando drilling campaign was thoroughly modern in its methods, including QAQC procedures. The author finds that the data is reliable for the purposes of this report.

1.3.2 Resource Estimates

A new mineral resource has been estimated for La Fortuna. The estimate has been completed by Scott Zelligan, P.Geo., an independent Qualified Person (QP) as defined in NI 43-101. The effective date of this resource estimate is July 13, 2018.

The La Fortuna resource is comprised of a mineralized tabular volume intruded by barren dykes. The resource estimate was prepared using GEOVIA Surpac™ software (version 6.3). The estimate was conducted utilizing wireframes to domain the mineralized breccia separate from the barren cross-cutting dykes. Based on geometry as well as the nature of the grade distribution, the deposit was estimated as an upper zone and a lower zone. Inverse-distance-cubed (ID^3) was chosen to interpolate grade for gold, copper, and silver. The density was set at 2.65 t/m^3, based on a conservative rounding down from averaged density studies.

The La Fortuna mineral resources were classified according to the Canadian Institute of Mining and Metallurgy, and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves. For classification, consideration was given to drill and sample spacing, QAQC, deposit-type and mineralization continuity, surface and/or underground mineralization exposure, and/or prior mining experience. With respect to resource classification of the La Fortuna deposit, a combination of a constraining wireframe and the search ellipse of the estimated block was employed to best capture the data density and therefore confidence of the estimated value.

The reported mineral resources of the La Fortuna deposit are as follows:

La Fortuna Mineral Resource Estimates (1.0 g/t Au cutoff grade)

Resource Category	Au (g/t) Cut-off	Tonnes (t)	Au (g/t)	Ag (g/t)	Cu (%)	Au oz	Ag oz	Cu t
Measured	**1.0**	**1,755,375**	**2.96**	**17.50**	**0.23**	**167,000**	**987,800**	**4,000**
Indicated	**1.0**	**1,714,336**	**2.59**	**15.50**	**0.21**	**142,800**	**854,400**	**3,600**
Measured + Indicated	**1.0**	**3,469,711**	**2.78**	**16.51**	**0.22**	**309,800**	**1,842,200**	**7,600**
Inferred	**1.0**	**156,322**	**1.72**	**8.51**	**0.09**	**8,600**	**42,700**	**100**

1.4 Metallurgy

1.4.1 Historic Testwork

Two phases of preliminary metallurgical testwork were commissioned by San Fernando in 1995 which were directed towards "conventional" processing with fine grinding followed by an evaluation of gravity concentration, froth flotation and cyanidation. In 2008, Castle Gold retained SGS Lakefield Canada to perform further testwork to confirm historical results. Preliminary findings included:

- Gravity gold recoveries ranged from 70% to +80%,
- Flotation gold recoveries achieved +95%,

- Ground ore direct cyanidation produced gold recoveries in the high 90s and silver from 50-70%.
- Coarse ore recoverable gold of 60% (or greater) at crush sizes of ¼ - ½ ”

During the 2008 test program. Samples of mineralized material (low and high grade) were also sent to Terra Vision™ for benchtop studies to determine the feasibility of using an automated DEXRT (dual x-ray) ore sorter to separate gold mineralization into a high grade product and a lower grade waste stream. The results indicated that 85%-90% of gold could be recovered into an upgraded concentrate with a mass recovery of 25%. Following the completion of the benchtop studies, bulk samples obtained from an old adit at the Fortuna mine site were sent to be processed via a commercial scale continuous DEXRT machine in the Commodas lab in Germany. The recovery curves for the tests demonstrated results quite similar to those obtained with the benchtop studies with the DEXRT sensors capable of differentiating mineralized material down to a sulphide content equivalent to approximately 0.3 g/t Au at crush sizes of 32-60mm.

1.4.2 2016/17 Metallurgical Testwork Program

The 2016/17 test programs confirmed that gold in La Fortuna deposit is recoverable by most conventional extraction techniques. Although completed to a higher level of detail, this confirmed the results of historical work on the project.

- Gold is associated with sulphide content (primarily pyrite with minor chalcopyrite), which creates an opportunity to upgrade low grade mineralization through ore sorting.
- GRG testwork indicates potential for +80% gold recovery at 70-80 microns, which provides opportunity to recovery majority of gold content by cyanide leach of gravity concentrate. Expected production plant recoveries would be 60-80% of this value depending on where the centrifugal concentrator(s) is placed in the process.
- Bulk flotation gold recoveries up to 98-99% are achievable at typical mass recoveries of 8-10%. A combination of gravity with flotation concentration creates a robust process for achieving high gold (high 90s), copper and silver recoveries despite variations in ore mineralization already encountered.
- Ability to produce saleable copper concentrate (~20% Cu content) with copper recoveries of +90%. Removal of copper sulphides prior to downstream cyanidation (if required) significantly reduces overall process cyanide consumption due to removal of soluble copper species.
- +90% gold contained in flotation concentrate reground to <75 microns.
- Gold contained in gravity concentrate is leachable with extractions in the high 90s in 24 hours. Limited kinetics data indicates rapid leach within 8 to 12 hours.

1.5 Environmental and Permitting

Currently are no known existing environmental liabilities associated with the La Fortuna Project. The Project is located in a remote part of Durango State where mining has been carried out in the past and where it is currently being pursued.

In March 2017, the Company finalized a surface use agreement with local community representatives for the La Fortuna Project site, the result of the Company holding ongoing talks with landowners, hosting community meetings and negotiating with various stakeholders with the goal of receiving local support for a land access agreement. The Company has secured surface access to a 235 Ha area which encompasses the envisioned mine pit, processing facility and all other necessary infrastructure to begin mining. The surface rights agreement covers a period of up to 25 years during which time the Company will be required to pay annual rental payments while operating activities are ongoing. If deemed appropriate, an option to purchase the land outright will be considered by the Company.

With the assistance of Mexico-based environmental consulting firm Consultoria Ambiental Vugalit, S.C., the Company finalized two permit applications for the La Fortuna project for submission to the government: the Environmental Impact Statement (Manifestacion de Impacto Ambiental - MIA), and the Technical Justification Study (Estudio Tecnico Justificativo - ETJ). The most significant components of the two applications include:

- Infrastructure Proposals: detailed plans covering site layout, areas of disturbance, access roads, camps, waste water, electricity generation/access, etc. have been submitted to provide a thorough understanding of the Project's impact on the area.
- Mine Construction: a mine plan based on the current mineral resource has been submitted as well as all ancillary plan elements including access ramps, mine waste locations, storage of surface soil and mine fleet details.
- Plant Design: based on the specifications of the grinding/flotation facility purchased in 2016, an overall plant design has been produced and submitted including design drawings detailing the civil, mechanical and electrical works. All required flowsheets summarizing estimated mass and volume flowrates are included.
- Operational Plans: operation and maintenance procedures including workforce estimates, emissions controls, equipment maintenance, explosives use, and waste generation and management.
- Closure Plans: specifying landscape performance goals, reclamation technologies, methods and plans and long-term monitoring and maintenance.

The Company understands that upon review and final acceptance of these applications, the necessary permits allowing for the commencement of mine construction will be granted. This is currently estimated for completion around the end of 2018.

1.6 Mining

Using a preliminary Whittle pit shell (based on 1,250 $US/oz gold, 2.50 $US/t mining, 30.00 $US/t processing, 95% recovery, 45 degree pit slopes) as a guide, a full open pit mine plan was completed.

Mineralization at La Fortuna extends close to surface and is amenable to conventional open pit methods utilizing front-end loaders and trucks. Mine planning was completed assuming 5 metres bench heights in order to provide good ore/waste selectivity although the use of larger bench heights in zones consisting predominantly of waste should be considered as part of future optimization studies. Overall average pit slopes with the benches/ramps in place are approximately 43° for three sides and 41° overall for the north wall. Rock competency is reasonable and higher pit slopes may be considered once the appropriate geotechnical information is available.

Material from the pit benches was categorized according to grade baskets prior to the application of reasonable dilution and loss factors. Very High Grade ("VHG") and High Grade ("HG"), i.e. >1.6 g/t Au material, was assumed to be direct milling, whereas the Medium Grade ("MG") and Low Grade ("LG"), i.e. 0.8 – 1.6 g/t Au material, are stockpiled and upgraded via ore sorting. Further optimization efforts should be aimed at cut-off grade optimization studies and the smoothing of waste mining activities. No inferred resources were utilized in the PEA mine planning. The proposed mill feed schedule shown is as follows:

Fortuna Processing Plant Mill Feed Schedule (diluted)

Year	Total Mill Feed (tonnes)	Au (g/t)	Ag (g/t)	Cu (%)	Gold (ounces)	Total Mined Material (tonnes)
1	380,000	3.86	21.24	0.29	47,200	2,814,400
2	380,000	3.91	20.27	0.27	47,800	2,848,200
3	410,000	3.39	21.85	0.28	44,700	2,335,700
4	410,000	3.47	19.98	0.29	45,800	4,637,200
5	418,400	3.78	16.79	0.22	50,900	3,095,700
	1,998,400	**3.68**	**19.96**	**0.27**	**236,600**	**15,731,200**

Notes:

1. Mill Feed totals include direct milling material (1,626,000 tonnes) and mid-grade stockpiled material upgraded starting in Year 3 via crushed ore sorting (372,400 tonnes).
2. Mine dilution applied as follows – 10% for direct milling material (dilution grade equivalent to average grade of next lower mine grade basket) and 25% for low-grade material to stockpile (0.5 g/t Au dilution grade
3. Total mined material values include all production from open pit mine (mineralization + waste) for noted intervals.
4. Ore sorting of medium and low grade material is implemented in Year 3.

Mineralized and waste material will be hauled approximately 500 metres (maximum) to the mineralized stockpile and waste dump locations near the mine. Crushed stockpile material is then transported to the plant processing facilities located at a distance of less than 1.5 km from the mine. All drilling/mining/crushing operations at La Fortuna will be accomplished via an open pit mining contractor. Although the contractor will select the final equipment it is anticipated that trucks in the 25 tonne range will be loaded with two front-end loaders in the $5m^3$ to $6m^3$ range. Contractor availability in Mexico is currently high and rates are competitive. The mine will operate 24 hours per day, 7 days per week.

Minera Alamos personnel will work with the contractor to provide survey control of the mining. All blast holes will be sampled and the resulting assays used to guide the mining operations for the optimum separation of ore and waste. Personnel will map and sample faces, using all the information to update sections and future bench plans. Grade control staff will provide round-the-clock coverage.

1.7 Processing

A simplified base case process was utilized for the La Fortuna PEA plant site. Mineralized material from the mine is stockpiled and crushed to a size of <3/4" prior to being transported to the process plant. The overall processing facilities consist of a primary coarse grind to 80% passing 250-300 microns followed by a bulk sulphide concentrate flotation. Bulk concentrate is reground (80 microns) prior to a final flotation producing a copper concentrate. Centrifugal gravity gold recovery circuits are included in both the primary and concentrate reground circuits to extract free gold as a concentrate. Tailings from the flotation circuit are dewatered via filtration and dry-stacked in the tailings containment area adjacent to the processing plant.

Overall gold recovery for the PEA study has been conservatively estimated at 90%. No final gold refining facilities are to be constructed at the Fortuna site although this decision can be revisited in the future should site production rates increase. Approximately half of the gold is extracted as a gravity concentrate which will be cyanide leached at site and loaded onto activated carbon for shipping outside of Mexico for final dore production. The other half of the recovered gold ends up in the copper flotation concentrate (along with the majority of the copper and silver) which is filtered and transported to the port facilities at Guaymas (approximately 500 km) for final sale.

The Company has purchased a used 2000 tpd processing facility (grinding/flotation/filtration) that has been used as the basis for the Fortuna project processing facilities. The size of the major equipment items allows for plant throughput to be increased from the currently assumed 1100 tpd rate as the size of the project resource increases. DEXTR (x-ray) ore sorting has been included in the overall project plans as a method to upgrade mid-grade (0.8-2.0 g/t Au) mineralized material from the mine (and future potential project resources). It is conservatively assumed that an ore sorting machine will be purchased and installed in Year 3 of mining operations to upgrade this material (3.5-4.0 g/t Au product at approximately 80% recovery). During Years 1 and 2 the mined mid-grade material will be stockpiled for processing starting in Year 3. In the current operations plan only 20% of the LOM contained gold ounces sent to the processing plant have been upgraded in this manner.

Summary of La Fortuna Metallurgical Assumptions

Product	Grade			Metal Recoveries (%)		
	Au (g/t)	Silver (g/t)	Copper (%)	Au	Silver	Copper
Mill Feed (LOM)	3.68	20	0.27			
<u>Products</u>						
Gravity Concentrate*1	N/A			45		
Copper Flotation Concentrate	120	1,250	18	45	85	90

*1Gravity concentrate is leached in cyanide and adsorbed onto activated carbon for shipping offsite for final processing. For PEA modelling purposes it was assumed that gold was the only material payable metal recovered by gravity.

1.8 Capital and Operating Costs

Much of the process plant has already been purchased and is containerised ready for transport to Mexico. The equipment purchased to date is oversized and in excess of current design requirements and is therefore considered more than adequate to handle the initial 1100tpd processing rate.

The capital cost estimate was divided into "Pre-production" capital and production "Sustaining" capital. Pre-production capital includes all mine and process costs up to the initiation of commercial mining operations (75% of steady state production). Total pre-production costs at the Fortuna Project are estimated at US$27 M. Sustaining capital costs over the life of mine are estimated at US$7M for a total project capital cost of US$34M. To reduce the initial capital requirements, it was decided that used processing equipment will be incorporated wherever possible (currently widely available) and that all mining and crushing activities will be provided by third party contractors. A breakdown of the project capital costs is summarized as follows:

Project Capital Cost Summary

Area	Initial (US$'000)	Sustaining (US$'000)	Total (US$'000)
Mining (contractor mobilizations)	1,000		1,000
Site Development/Infrastructure	3,500		3,500
Mineral Processing	15,000	7,100	22,100
Tailings Management	2,000		2,000
Closure		3,000	3,000
Salvage Value		(3,000)	(3,000)
Contingencies (incl. owner's costs)	5,400		5,400
Total Project	26,900	7,100	34,000

*Note: Start-up working capital to be provided by concentrate purchasers on credit revolver basis.

The pre-production capital cost estimate of US$27M includes the construction of a stand-alone process facility, Phase 1 of the tailings storage facilities and all necessary site infrastructure to bring the mine into production. A conservative 25% contingency has been included to account for capital requirements that are not detailed in the current study.

The total unit operating costs for the project are estimated at $33.34 /tonne of mineralised material (includes G&A, concentrate shipping and treatment charges). It should be noted that the decision to utilize contractors for mining and crushing has added somewhat to this cost. Should the deposit resource grow in the future it may make sense to perform these activities in-house. The life-of mine operating costs are as follows:

Project Operating Cost Summary

Area	US$/tonne Mineralized Material*2	US$/unit	
Open Pit Mining	11.80	2.15	per tonne mined
Processing	15.95	22.89	per tonne milled
Stockpile/Ore Sorting*[1]	1.73	4.00	per tonne sorted
G&A	3.86	5.54	per tonne milled
All-In OPEX	33.34		

Notes:

1. "Ore Sorting" as used in the table above is a commercial term referring to sensor-based rock sorting technology and is not related to project resources/reserves. Ore sorting equipment is implemented in Year 3 for upgrading of mid-grade stockpiles
2. "Mineralized Material" represents mined material in excess of 0.8 g/t Au cut-off (includes direct milling material + stockpiled material to be upgraded upgraded via ore sorting prior to milling)

Operating costs were developed based on estimated staffing levels, consumables (from testwork and modeling) and expenditures required to support the mine and its associated processing, maintenance and administrative activities. Power requirements were estimated based on operating equipment motor sizes and plant availability, and costs assuming diesel generation with a delivered diesel fuel cost of $US 1 per litre. An overall contingency of 20% was applied to the operating cost totals to account for additional cost items such as outside consultants, laboratory consumables, vehicle fuel requirements, etc.

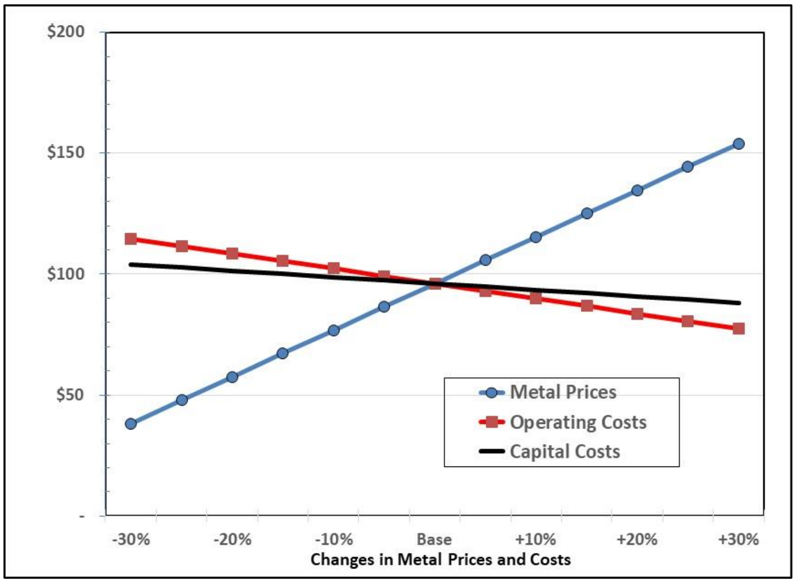
All mine operating activities are assumed to be the responsibility of a third party mine contractor. Contractor rates include drilling, blasting and transportation of the waste/ore. Costs for the Company mine services group were prepared separately and included separately. Crushing was assumed to be the responsibility of a third party contractor using portable crushing equipment (two stage crushing circuit). Contractor rates include crushing, handling and transport of crushed rock to plant facilities.

1.9 Economic Analysis

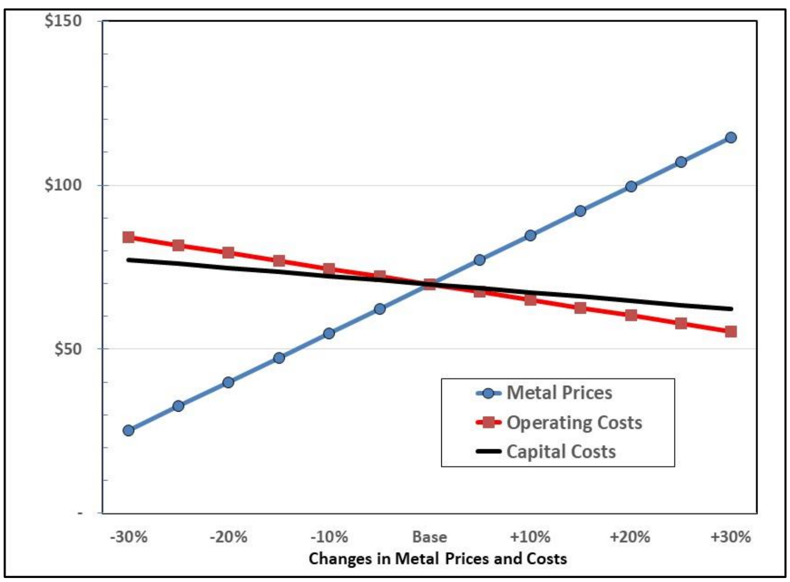
CSA Global's economic modelling and analysis of the Project reveals potential for:

- Robust economics using metals prices (mid July 2018) of $1,250/oz Au, $16/oz Ag, and $5,725/t Cu:
    - All-In Sustaining Cost (AISC) of $440/oz USD [net of by-product credits]
    - After-Tax Net Present Value (NPV) at 7.5% of $69.8M USD and IRR of 93%.
    - Pre-Tax NPV at 7.5% of $103.8M USD and IRR of 122%.
- Low CAPEX and rapid payback:
    - Pre-production Capital of $26.9M USD.
    - Payback period of 11 months after tax.
    - 2,000 t/d mill already purchased awaiting shipment to site reduces up-front capital.

Sensitivity analyses reveals the Project to be most sensitive to metal prices, followed by operating costs and finally capital costs. Nonetheless the Project is extremely robust. Project NCF and NPV (discounted at 7.5%) sensitivity to a -30% to +30% variation in metal prices, operating and capital costs is as follows:



Sensitivity of Project NCF to changes in metal prices and capital and operating costs (US$ millions)



Sensitivity of Project NPV discounted at 7.5% to changes in metal prices and capital and operating costs (US$ millions)

1.10 Conclusions and Recommendations

The QPs have reviewed the Fortuna Project data provided by Minera Alamos, including the drill database, reviewed historic sampling procedures and security and visited the site. The QPs believe the data presented by Minera Alamos to be an accurate and reasonable representation of the Project mineralization. In the QPs' and CSA Global's opinion, the Fortuna Project is potentially very robust and warrants Minera Alamos' continued advancement of the Project towards further feasibility studies.

The gold, silver and copper metals either leach at high recovery and/or report to a saleable flotation concentrate by conventional extraction pathways.

- 2016 testwork confirmed +80% recovery of gold to a gravity circuit.

- 95% of remaining gold was recovered to a flotation step together with +90% of the contained copper and silver at a copper grade of approximately 20% Cu and silver grade of 2000 g/t - 3000g/t for a mass pull of less than 10%.
- A conventional milling and flotation circuit has already been purchased and is slightly oversized and thus adequate for the project.
- The potential for beneficiation of low grade (below cut-off) material by Duel X-ray (XRT) ore sorting has been demonstrated subject to additional confirmatory testwork.

From a processing perspective, the Project presents as robust and the selected plant and equipment and process treatment pathway should comfortably treat this ore at 1100-1200 tonnes/day and at acceptable recovery of gold, silver and copper.

A surface mine was designed for the PEA that would incorporate conventional surface mining methods and a production schedule was created. Production highlights are:

- 5-year mine life based on initial resource “starter pit” with 2.0 Mt of mineralization (3.68 g/t Au, 20 g/t Ag, 0.27% Cu) processed at 1,100 tpd average processing rate.
- Average annual contained-metal production of approximately 50,000oz Gold Equivalent Ounces (43,000oz Gold, 220,000oz Silver, 1,000t Copper).
- 215koz of Gold, 1.1Moz of Silver, and 5kt of Copper produced in concentrates.

Project risks which potentially could affect Project economics include:

- The mineral resource estimate is based on the results from 125 core drill holes completed by previous operators prior to Minera Alamos’ acquisition of the Project in 2016. CSA Global recommends additional drill testing to confirm the historic results.
- Environmental, permitting, legal, title, taxation, socio-economic, marketing, and political or other relevant issues have the potential materially affect access, title or the right or ability to perform the work recommended in this report on the Project. However, at the time of this report, CSA Global is unaware of any such potential issues affecting the Project.
- The Project is most sensitive to metal prices, followed by operating costs and finally capital costs. However, even a 30% reduction in metal prices produces a positive NCF.

1.11 Project Opportunities

Project opportunities which potentially could enhance Project economics include:

- Footprint of the current known deposit is very small compared to the overall land position. Exploration potential exists over the 6100 Ha land package. A number of other areas of historical mining activities have been identified but most of the area has never been explored using modern exploration methods.
- Inferred resources are not utilized in the current PEA mining plans. Step out drilling may be able to define additional extensions of the current resources.
- Additional metallurgical test work to optimize the gold extraction process and further improve overall metal recoveries.

- Reduction of initial start-up CAPEX with a staged plant construction plan (possibly involving earlier use of ore sorting) followed by expansion of the facilities once production is underway.
- Additional mine planning optimization studies to evaluate opportunities to delay portions of early waste removal until later in the mine life
- Further optimization studies are underway to determine if a more aggressive use of ore sorting may offer additional economic benefits for the project (i.e. plant CAPEX reductions, increased mineable gold ounces, etc.)
- Trade-off studies aimed at optimizing cut-off grades (with and without ore sorting) and the incorporation of additional milling capacity – the PEA based on a starting rate of 1,100 tpd but the project is permitted for a 2,000 tpd operation.

To proceed with the assessment of the potential development of the Project, the QPs recommend Minera Alamos continue to assess Project opportunities which potentially could enhance project economics including:

- Expand exploration over the 6,100 Ha land package. Work should initially investigate other areas of known historical mining activities using modern exploration methods.
- Step out drilling at La Fortuna for the purpose of expanding the current Inferred resources not utilized in the PEA reported herein.
- Infill drilling at La Fortuna for the purpose of upgrading Indicated to Measured and Inferred to Indicated resources; metallurgical sampling and QAQC confirmation of historical drilling.
- Additional metallurgical test work to optimize the gold extraction process and further improve overall metal recoveries.
- Metallurgical variability sampling of underground sampling and diamond drill core.
- Further engineering studies should consider the following:
    - A staged plant construction plan (possibly involving earlier use of ore sorting) to further reduce the initial start-up CAPEX and then expand the facilities once production is underway.
    - Additional mine planning optimization studies to evaluate opportunities to delay portions of early waste removal until later in the mine life
    - Further optimization studies (currently underway) to determine if a more aggressive use of ore sorting may offer additional economic benefits for the project (i.e. plant CAPEX reductions, increased mineable gold ounces, etc.)
    - Trade-off studies aimed at optimizing cut-off grades (with and without ore sorting) and the incorporation of additional milling capacity up to 2,000 tpd.

Minera Alamos has proposed a 2018/2019 program estimated to be in the order of US$1 million. CSA Global concurs with the proposed program and budget.

Minera Alamos Proposed 2018/2019 Program and Budget

Description	Estimated Cost
Metallurgical Variability Testing	$100,000
Infill/Condemnation Drilling	$500,000
Further Engineering Studies	$300,000
Permitting and Environmental	$100,000
Total	US$1,000,000

2 Introduction

2.1 Issuer

At the request of Mr Darren Koningen, Director and CEO of Minera Alamos Inc. ("Minera Alamos" or "Company" or "Issuer"), CSA Global Canada Geosciences Ltd (CSA Global) was contracted to prepare a mineral resource update and preliminary economic assessment (PEA) of the Company's wholly owned La Fortuna Gold Project located in Durango State, Mexico ("La Fortuna" or "Project").

Minera Alamos is a TSX Venture Exchange listed issuer focused on acquiring, exploring, and developing base and precious metals projects in Mexico. The Company was incorporated in January 1934, pursuant to the laws of the Province of Ontario. Through various actions at the end of the 1990s up to 2006, the Company reorganized itself and amalgamated various subsidiaries to establish its current form. On 7 May 2014, the Company changed its name from Virgin Metals Inc. to Minera Alamos Inc. as approved by the shareholders on 16 April 2014.

The Company's current and principal place of business is 55 York Street, Suite 402, Toronto, Ontario, M5J 1R7.

2.2 Terms of Reference

CSA Global was commissioned by the Issuer to prepare a technical report on its 100% owned La Fortuna Gold Project. CSA Global's work herein has been completed in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Mineral Resource and Mineral Reserve Definitions referred to in National Instrument (NI) 43-101 Standards of Disclosure for Mineral Projects. Additionally, this Technical Report ("Report") has been prepared in accordance with the requirements of Form 43-101 F1. CSA Global understands that Minera Alamos will use the Report for project development and related financing purposes.

This Report was prepared on behalf of the Issuer for the purpose of completing a mineral resource estimate and scoping-level economics (i.e. a PEA) for a potential surface mining operation that would exploit the Fortuna gold deposit, with recommendations to allow the Issuer and current or potential partners to reach informed decisions.

The Issuer reviewed draft copies of this Report for factual errors. Any changes made because of these reviews did not include alterations to the interpretations and conclusions made. Therefore, the statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this Report.

2.3 Sources of Information

In preparing the Report, the Qualified Persons reviewed the Company's diamond drillhole database, other digital and hard copy data, geological reports, available maps, long- and cross-sections, metallurgical and engineering study reports, miscellaneous company documentation and other public and private information as listed in Section 27 "References" of this report. The information available for the Project consists primarily of reports prepared by previous consultants and data prepared by the Company. The Qualified Persons have taken reasonable steps to verify the information provided where possible. The Qualified Persons has reviewed the land tenure but not independently verified the mineral title or compliance of the underlying inter-company agreements and title transfers with Mexican laws and regulations.

The Report is based on information known to CSA Global as of 13 July 2018 (the "Effective Date").

2.4 Qualified Persons

This Report was prepared by the following Qualified Persons:

Table 1: Qualified Persons who prepared this Report

Qualified Person	Report section responsibility
Ian D. Trinder, M.Sc., P.Geo. Principal Geologist, CSA Global	2–5, 15, 20, 23, 24, 27, 28 and in part 1, 25, 26
Bruce Brady, B.Eng., P.Eng. Senior Associate Mining Engineer, CSA Global	16 and in part 1, 18, 21, 25, 26
Gordon Watts, B.A.Sc., P.Eng. Senior Associate Mineral Economist, CSA Global	22, and in part 1, 19, 25, 26
Chris Campbell-Hicks, FAusIMM, CPMet, MMICA Associate Senior Metallurgist, CSA Global	13, 17 and in part 1, 18, 21, 25, 26
Scott Zelligan, B.Sc., P.Geo. Independent Resource Geologist	6- 12, 14 and in part 1, 25, 26

Minera Alamos accepts that the qualifications, expertise, experience, competence and professional reputation of the Qualified Persons are deemed appropriate and relevant for the preparation of this Report. Minera Alamos has also accepted that the Qualified Persons are members of professional bodies that are appropriate and relevant for the preparation of this Report.

2.5 Qualified Person Property Inspection

On 10 July 2016, Scott Zelligan, P.Geo., visited the Project, accompanied by Miguel Cardona, P.Eng., Vice President of Exploration for Minera Alamos. Level 2 of the underground adits was visited and investigated in order to validate rock descriptions of the mineralized zone, as limited core is currently available. The collar locations of two 1994 drillholes were also confirmed.

The Authors consider the site visit to be "current" under Section 6.2 of NI 43-101.

2.6 Units and Currency

The Metric System or SI System is the primary system of measure used in this Report and length is generally expressed in kilometres (km), metres (m) and centimetres (cm); volume as cubic metres (m^3); mass as metric tonnes (t), area as hectares (ha), and zinc (Zn), copper (Cu) and lead (Pb) grades as percent (%) or parts-per-million (ppm). The precious metal grades are generally expressed as grams/tonne (g/t) but may also be in parts-per-billion (ppb) or ppm. Conversions from the SI or Metric System to the Imperial System are provided below and quoted where practical. Many of the geologic publications and more recent work assessment files now use the SI system but older work assessment files almost exclusively refer to the Imperial System. Metals and minerals acronyms in this Report conform to mineral industry accepted usage and the reader is directed to online resources at:

- https://en.wikipedia.org/wiki/List_of_chemical_elements
- http://cms.unige.ch/sciences/terre/research/Groups/mineral_resources/opaques/ore_abbreviations.php.

Other abbreviations include UTM = Universal Transverse Mercator; WGS = World Geodetic System.

Conversion factors utilized in this report include:

- 1 troy ounce/ton = 34.2857 grams/tonne
- 1 gram/tonne = 0.0292 troy ounces/ton
- 1 troy ounce = 31.1035 grams
- 1 gram = 0.0322 troy ounces
- 1 pound = 0.4536 kilograms (kg)
- 1 foot = 0.3048 metres
- 1 mile = 1.609 kilometres
- 1 acre = 0.4047 hectares
- 1 square mile = 2.590 square kilometres (km^2).

The term gram/tonne or g/t is expressed as “gram per tonne” where 1 gram/tonne = 1 ppm (part-per-million) = 1,000 ppb (part-per-billion).

Other abbreviations include ppb = parts-per-billion; ppm = parts-per-million; oz/t = ounce per short ton; Moz = million ounces; Mt = million tonne; t = tonne (1,000 kilograms); SG = specific gravity; lb/t = pound/ton; and, st = short ton (2,000 pounds).

Unless otherwise mentioned, all UTM coordinates in this Report are provided using the NAD27 datum.

All currency in this report Currency is expressed in Canadian dollars (C$ or CAD) unless otherwise stated.

As of the effective date of this report, the exchange rate for the conversion of Mexican Pesos to US dollars is US$1 = 18.9 Pesos, and the exchange rate between US dollars and Canadian dollars is US$1.00 = C$1.32 (US$0.76 = C$1.00).

3 Reliance on Other Experts

CSA Global has relied upon the Issuer, its management and legal counsel for information related to underlying contracts and agreements pertaining to the acquisition of the mining claims and patented claims and their status (Section 4). The Qualified Person has not independently verified ownership or mineral title with respect to the Project's mineral concessions beyond information that is publicly available or been provided by the Issuer. The Property description presented in this report is not intended to represent a legal, or any other opinion as to title. The Qualified Person has relied upon a 29 June 2017 audit prepared by Carlos Galvan Pastoriza (Mexican attorney) on behalf of Minera Alamos, for information concerning the La Fortuna, Ampliacion La Fortuna, La Fortuna I/II/III, Ampliacion La Fortuna III Fracc. II, La Fortuna V and Ampliacion La Fortuna Reducc. mining concessions as part of the Company's due diligence review requested as part of a financing during that period.

The Qualified Person has relied entirely upon Minera Alamos, its management and legal counsel for information related to documentation pertaining to the ownership of the concessions and the updated status of the La Fortuna I/II/III/V concessions subsequent to the June 2017 title opinion.

4 Property Description and Location

4.1 Project Location

The La Fortuna Project is located within the Tamazula District of northwest Durango State, near to Durango-Sinaloa state line (Figure 1) at approximately 25°19’N latitude and 107°52’W longitude. The Project can be reached by road from city of Culiacan approximately 70 km to the southwest in the State of Sinaloa. Culiacan itself is situated 270 km northwest of Mazatlan, a major port and tourist city, and 200 km southeast of Los Mochis, another major port city.

Figure 1: Property location

4.2 Mineral Tenure and Area of Property

The La Fortuna Gold Project consists of eight contiguous mining concessions encompassing over 6,108 ha. Four mining concessions, including the historic La Fortuna Mine and totalling 994 ha, were originally acquired by Minera Alamos from Argonaut Gold Inc. in May 2016 (red outlines in Figure 2). Four additional concessions totalling 5,114 ha were acquired directly from the federal mining authorities in Mexico (Dirección General de Minas) in August 2016 (blue outlines in Figure 2).

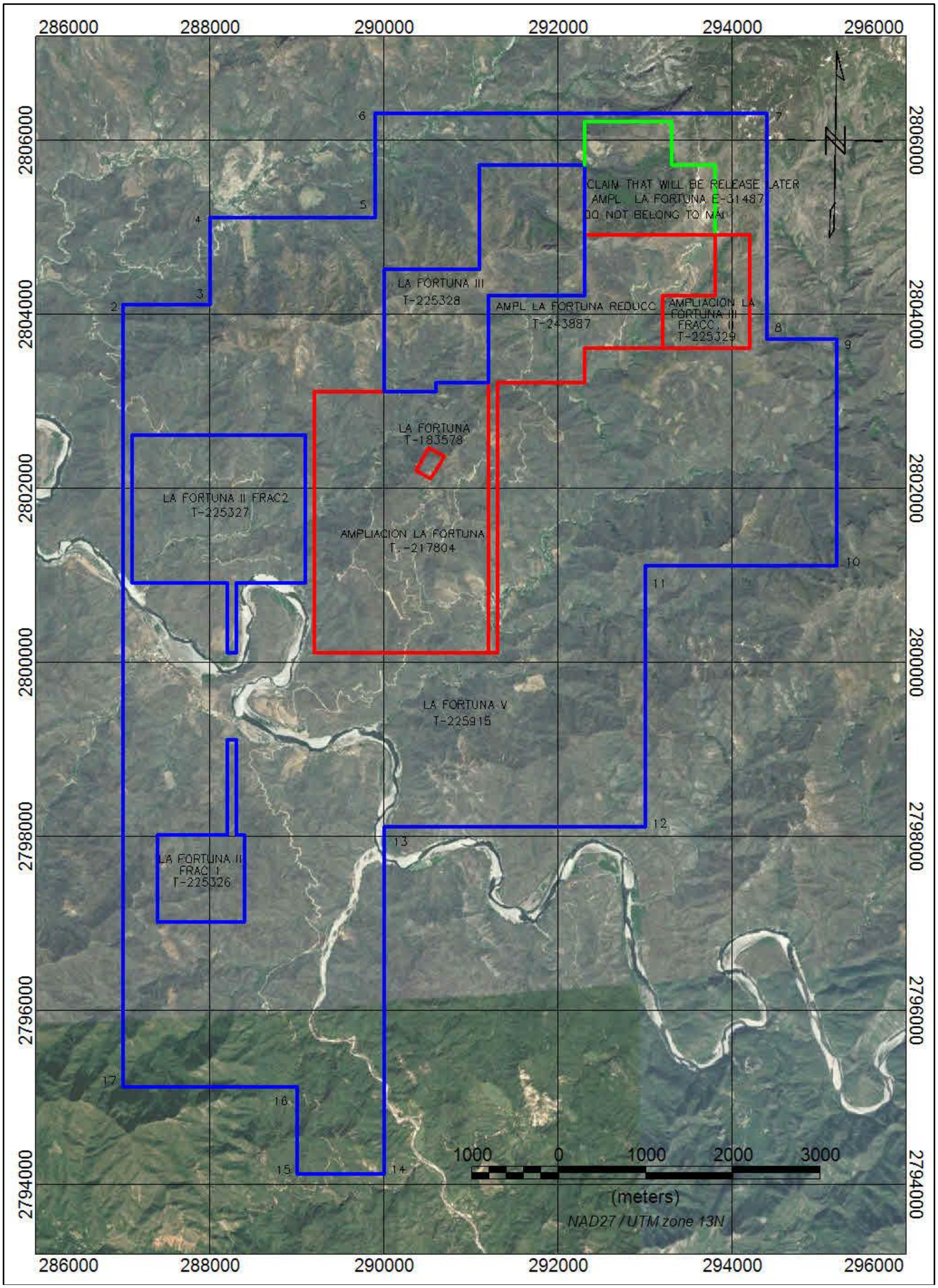


Figure 2: La Fortuna mining concession map

A summary of the current La Fortuna Project mining concessions is provided in Table 2.

Table 2: Minera Alamos concession titles for the La Fortuna Project

Title name	Title number	Surface hectares	Date of application	Validity		Current holder	Municipality	State
				Beginning	End			
LA FORTUNA*	183578	6.0000	30-Sep-78	17-Nov-88	16-Nov-38	MINERA ALAMOS DE SONORA, S.A. DE C.V.	TAMAZULA	DGO
AMPLIACION LA FORTUNA*	217804	600.0000	13-Apr-00	19-Apr-94	22-Aug-52	MINERA ALAMOS DE SONORA, S.A. DE C.V.	TAMAZULA	DGO
AMPLIACION LA FORTUNA III FRACC. II*	225329	88.0000	04-Nov-04	23-Aug-05	22-Aug-55	MINERA ALAMOS DE SONORA, S.A. DE C.V.	TAMAZULA	DGO
AMPLIACION LA FORTUNA REDUCC.*	243887	300.0000	30-Sep-13	09-Aug-05	08-Aug-55	MINERA ALAMOS DE SONORA, S.A. DE C.V.	TAMAZULA	DGO
LA FORTUNA I	245409	111.0000	25-Jul-16	16-Dec-16	15-Dec-66	MINERA ALAMOS DE SONORA, S.A. DE C.V.	TAMAZULA	DGO
LA FORTUNA II	245410	348.0000	25-Jul-16	16-Dec-16	15-Dec-66	MINERA ALAMOS DE SONORA, S.A. DE C.V.	TAMAZULA	DGO
LA FORTUNA III	245411	339.0000	25-Jul-16	16-Dec-16	15-Dec-66	MINERA ALAMOS DE SONORA, S.A. DE C.V.	TAMAZULA	DGO
La Fortuna V	245455	4316.0000	18-Jul-16	28-Feb-17	28-Feb-67	MINERA ALAMOS DE SONORA, S.A. DE C.V.	TAMAZULA	DGO

**Acquired from Argonaut Gold Inc. and its subsidiary Durango Fern Mines in May 2016.*

4.3 Tenure Agreements and Encumbrances

4.3.1 Agreements and Royalties

Argonaut Gold Inc.

On 4 May 2016, Minera Alamos acquired 100% of four mining concessions comprising the La Fortuna Project from Argonaut Gold Inc. (Argonaut) and its wholly-owned Mexican subsidiary, Durango Fern Mines S.A. de C.V.

In addition to the acquisition costs, all four mining concessions are subject to a 2.5% Net Smelter Return Royalty (NSR) on all production to a cumulative maximum of $4.5 million that is payable to Argonaut.

In July 2016, Minera Alamos applied to expand the contiguous land holdings by acquiring the La Fortuna I/II/II and V concessions directly from the Mexico Mining Registry. These titles are not subject to any royalties.

As of 2018, the total annual concession taxes to be paid on all eight concessions currently held by the Company is 368,000 Pesos (US$19,470 or C$25,700). This amount is projected to rise somewhat going forward as the Fortuna I/II/III/V concession payments will increase with time following their initial granting date.

Osisko Gold Royalties Ltd

On 30 May 2017, Osisko Gold Royalties Ltd (Osisko) acquired, on a private placement basis, a 19.9% equity stake in Minera Alamos (22,045,000 common shares).

Pursuant to their investment:

- Osisko has the right to participate in future equity financings up to its pro-rata ownership pre-financing of 19.9% as long as Osisko holds a minimum 10% interest in the Company
- Osisko has the option to purchase up to a 4% NSR on the La Fortuna Project for cash proceeds of $9 million upon a construction decision
- Osisko also retains a Right of First Refusal on any future royalties and streams on any Company property
- Osisko has the right to participate in half of any buybacks of existing royalties pertaining to La Fortuna, as well as acquire a 2% NSR (to be purchased at a reasonable market valuation) on any property acquired within a 250 km radius of the La Fortuna Project.

4.3.2 Surface Rights

In March 2017, the Company finalized a surface use agreement with local community representatives for the La Fortuna Project site, the result of the Company holding ongoing talks with landowners, hosting community meetings and negotiating with various stakeholders with the goal of receiving local support for a land access agreement.

The Company has secured surface access to a 235 ha area which encompasses the envisioned mine pit, processing facility and all other necessary infrastructure to begin mining. The surface rights agreement also provides access to a substantial surrounding land package. Further exploration is planned to be undertaken with the objective of expanding the Project's current resource base.

The surface rights agreement covers a period of up to 25 years during which time the Company will be required to pay annual rental payments while operating activities are ongoing. If deemed appropriate, an option to purchase the land outright will be considered by the Company.

4.3.3 Permits

With the assistance of Mexico-based environmental consulting firm Consultoria Ambiental Vugalit S.C., the Company finalized two permit applications for the La Fortuna Project for submission to the government: the Environmental Impact Statement (Manifestacion de Impacto Ambiental – MIA), and the Technical Justification Study (Estudio Tecnico Justificativo – ETJ). Consultoria Ambiental Vugalit, S.C., performed the necessary environmental studies for these permit applications, as well as managing the Company's submissions to and ongoing relationship with the appropriate government agencies including PROFEPA (Federal Prosecutor for Environmental Protection), SEMARNAT (Secretariat of Environment and Natural Resources).

The most significant components of the two applications include:

- Infrastructure proposals: Detailed plans covering site layout, areas of disturbance, access roads, camps, waste water, electricity generation/access, etc have been submitted to provide a thorough understanding of the Project's impact on the area.
- Mine construction: A mine plan based on the current mineral resource has been submitted as well as all ancillary plan elements including access ramps, mine waste locations, storage of surface soil and mine fleet details.
- Plant design: Based on the specifications of the grinding/flotation facility purchased in 2016, an overall plant design has been produced and submitted including design drawings detailing the civil, mechanical

and electrical works. All required flowsheets summarizing estimated mass and volume flowrates are included.

- Operational plans: Operation and maintenance procedures including workforce estimates, emissions controls, equipment maintenance, explosives use, and waste generation and management.
- Closure plans: Specifying landscape performance goals, reclamation technologies, methods and plans and long-term monitoring and maintenance.

The completion of the surface rights agreement described in Section 4.3.2 allowed the filing of the two applications. The Company understands that upon review and final acceptance of these applications, the necessary permits allowing for the commencement of mine construction will be granted. This is currently estimated for completion around the end of 2018.

4.4 Environmental Liabilities

Currently there are no known existing environmental liabilities associated with the La Fortuna Project. The Project is in a remote part of Durango State where mining has been carried out in the past and where it is currently being pursued. The Company has undertaken baseline environmental studies to determine the status of the current environment as well as identify environmental risks and develop appropriate measures to mitigate these risks.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Accessibility

The Project is accessible by road from Culiacan in neighbouring Sinaloa State, a driving distance of approximately 100 km and driving time of 2.0–2.5 hours (Figure 3). The quality and condition of the road varies, and the government has been systematically upgrading the road by widening and paving the surface in the direction of the Project. At present, the road is paved to within 35 km of the town El Barco situated on the Humaya River which cuts through the southern part of the Project area, approximately 3.5 km south-southwest of the La Fortuna proposed mine area. The remainder of road is gravelled and graded, and of reasonable width for much of the route, though certain sections of the road can be rough, steep and narrow. Construction is currently planned to improve and pave the road through the Project area and beyond, but the scheduled completion date of this work is unknown.

The Humaya River is fordable during the dry season, which extends from January to June. A small hand operated ferry handles light vehicles from July to December. Freight in and out of the small local communities is typically transported via small 1-ton flat-bed trucks.

Direct flights link Culiacan, Mazatlan, and Los Mochis to Los Angeles and Mexico City. The main carrier is AeroMexico.

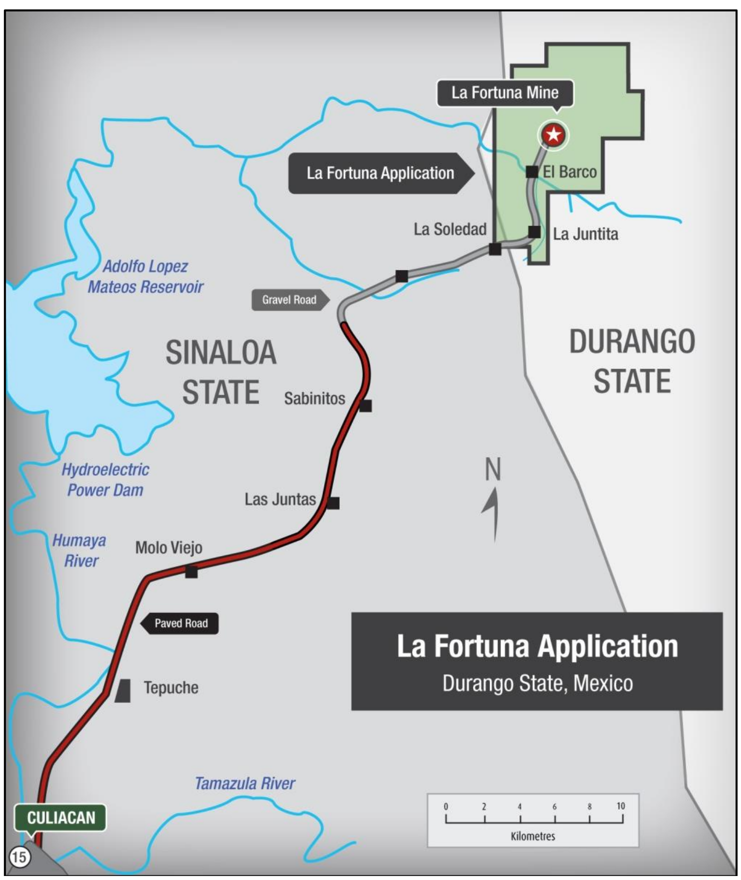


Figure 3: La Fortuna Project location

5.2 Climate

The climate is typical of north-western Mexico with hot summers and moderate to warm dry winters. Climate norms for the period 1981–2010 are available for the Guatenipa, Sinaloa station (00025041-http://smn1.conagua.gob.mx/climatologia/Normales8110/NORMAL25041.TXT), 14 km west of the Project. Monthly average temperatures vary from 31.3°C in June to 20.7°C in January. The rainy season extends from June to September with average monthly rainfalls of 116.5 mm, 293.0 mm, 239.0 mm and 159.0 mm respectively. The driest period extends from February to May with average monthly rainfalls of 16.8 mm, 8.9 mm, 7.1 mm and 10.6 mm respectively. Exploration activities can be conducted year-round, although the rainy season can create some difficulties with respect to accessibility.

5.3 Physiography

The Project area lies within the Sierra Madre Occidental mountain range, which is topographically rugged with elevations from 600 m to 850 m above sea level within the Project area (Figure 4).

Vegetation consists primarily of scrub consisting of mesquite, prickly pear, nopal and agave, which can become quite thick and dense during the rainy season. Pine and oak forest dominate at higher elevations.

Small-scale logging was carried out until recently; however, there is virtually no commercially exploitable timber remaining.

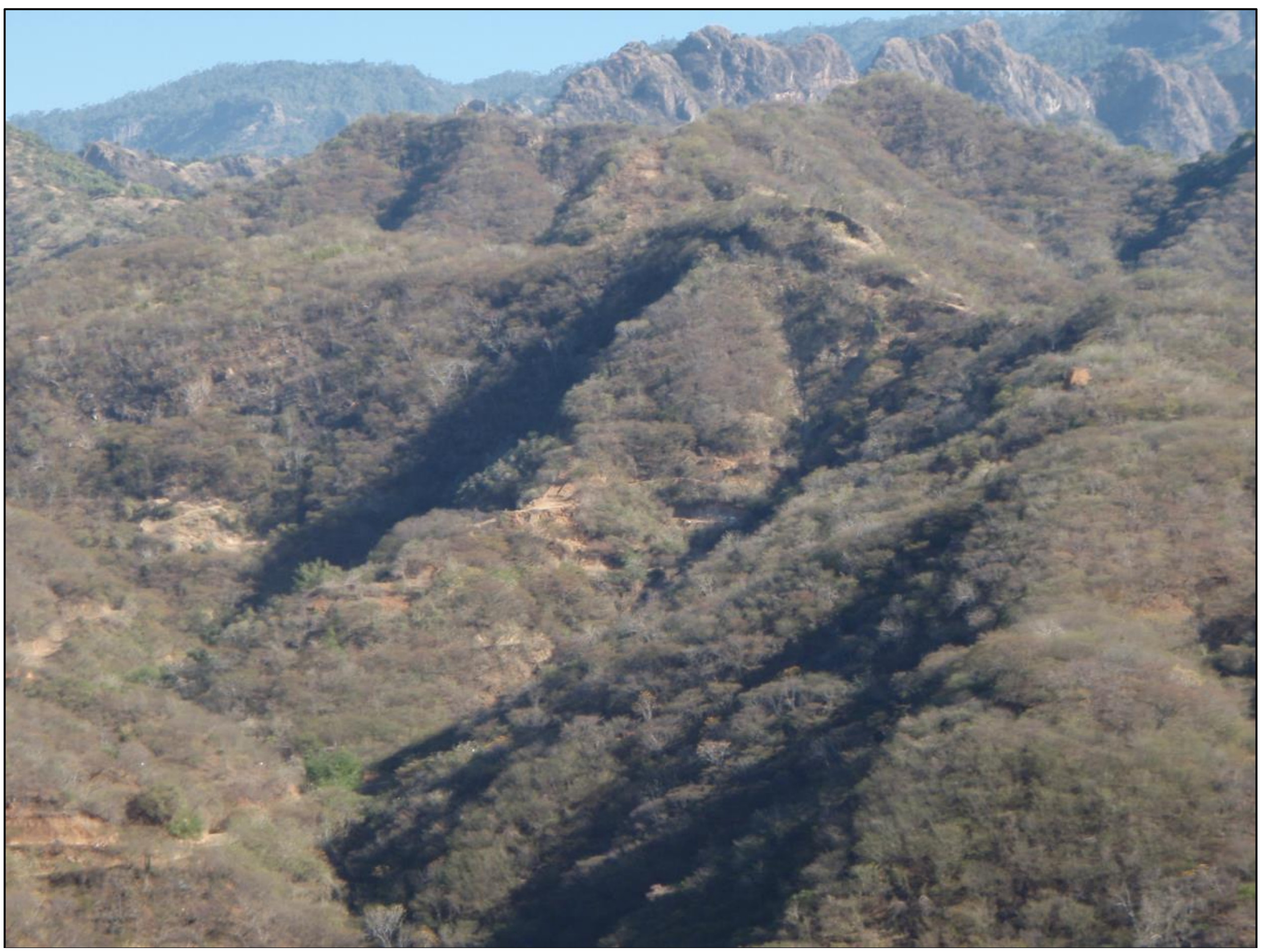


Figure 4: Typical Project area physiography and vegetation

5.4 Local Resources and Infrastructure

Owing to the fact that Durango State has a long history of mining and ranks as one of the world's largest silver-producing regions, the city of Durango contains many mining and exploration support services and businesses and serves as the exploration base for many junior exploration companies in Mexico.

The Project area itself is sparsely populated. There are a number of small settlements within a 10 km radius of the Project that rely on subsistence farming, ranching or timber harvesting as their principle means of survival. Though the villages may serve as a good local source of labour, most if not all required high-skilled labour will need to be sought from outside the Project area.

The Project area has sufficient water for exploration and mining purposes. Water can be sourced year-round from the Humaya River as well as from surface runoff during the wet season. Additionally, a small spring situated about 1 km east of the old La Fortuna Mine supplies some drinking water via a high line, cable suspended hose.

The nearest source of electricity is a major hydro-electric facility located 50 km to the southwest. There is however no powerline currently running through or past the Project area. Where available, power is currently provided via small diesel generators.

Minera Alamos owns and maintains limited housing and storage buildings at the Project site. Additional facilities will be required in order to accommodate site personal during construction and future operations.

6 History

The following is partially adapted from the technical reports by Toren Olson Consulting, dated October 2008 and May 2016 (Olson, 2008 and 2016).

6.1 Development of the La Fortuna Mine

Initial development of the La Fortuna Mine occurred in the late 1800s. Several conflicting accounts have been reviewed by the author (Davies, 1997; Vargas & Bustamente, 1974; Centeno, 1992). The details are inconsistent between these three accounts. Since none of them are based on coincident reports but appear to have been gleaned based on first or second-hand word-of-mouth accounts at least 20 or 30 years post-mining, the author believes the details cannot be trusted. Some of the confusion may be due to the multiple names of the mine/deposit/mining area, as well as the number of different adits that were being exploited in the area at the time.

During the Company's tenure as landholder, the underground workings were surveyed extensively and, based on this work, estimations have been made as to the extent of historical mining. These estimates range from 30,000 t to 50,000 t, including ore and waste.

6.2 Consejo de Recursos Minerales

In 1975, 1980, and 1988, geologists from Consejo de Recursos Minerales (CRM), an agency of the Mexican Government, carried out detailed geological mapping and systematic channel sampling of all the accessible underground workings in 1975, 1980 and 1988 (levels 0, 1, 2, 3, 4 and 5). Surface geochemical surveys and regional mapping was also carried out. Results are summarized in a series of published reports, under the general heading "Exploration in a gold-copper rich area of San Fernando, Municipality of Tamazula, State of Durango."

With the exception of obviously un-mineralized dykes, the mine development headings were continuously channel sampled along one wall at 2 m (and occasionally 1 m) intervals. In 1975, a total of 768 samples were collected, most of which contained fresh sulphides only weakly oxidized post mining. A few narrow faults and fractures contain heavier oxides. In 1980 and 1988, fill-in and duplicate sampling was conducted. The samples were fire assayed with an atomic absorption (AA) finish and were assayed in Mexican government laboratories at Nogales and Hermosillo.

Most original CRM 2 m, moil cut, chest height wall channel samples probably weighed up to 5 kg each and most appear to have been carefully taken. However, those obtained along the northerly-trending drifts tended to follow an overall northerly trending superimposed structure or banding more favourable to mineralization, possibly adding a bias. However, it is felt that this was offset elsewhere where sampling across the backs instead would have intersected more sulphides. Later sampling by someone whose records are not available seemed to recognize this situation.

In 1987, Sr. Jaime Muguiro Pena, acting as agent for the former concession owner, installed an 80 TPD flotation mill in order to process the sulphide ore operating intermittently until 1990. The concentrates were shipped to a Mexican Government smelter. The payments were arbitrarily assigned to the payment of a loan made by the Mexican Government. The accumulation of operating costs, and the lack of cash flow, led to the cessation of operations. Reportedly, 20,000 t were mined from underground and processed.

6.3 Alaska Fern Mines Ltd

In 1989, changes to the Mexican law and a relaxation of foreign ownership restrictions permitted Alaska Fern Mines Ltd, a privately owned British Columbia company to acquire 100% interest in the La Fortuna Mine property totalling 6 ha. Alaska Fern Mines Ltd also acquired the surrounding 5,700 ha Ampliacion La Fortuna Property. Both properties were then sold to San Fernando Mining Company Ltd.

6.4 San Fernando Mining Company Ltd

Between 1991 and 1996, San Fernando Mining Company Ltd (San Fernando) carried out an extensive exploration program with particular emphasis on the La Fortuna Mine area. The objective was to define a reserve of gold-silver-copper sulphide ore amenable to open pit mining, fine grinding, and conventional processing, either by cyanidation or froth flotation.

6.4.1 Verification Channel Sampling

San Fernando's program included detailed mapping and sampling of underground workings, including the verification sampling of selected CRM underground channel sample locations. The CRM sample locations selected for verification sampling were chosen at random.

San Fernando's samples were cut by pick rather than moil and were semi-continuous across the same CRM channel widths. The samples were fire assayed with an AA finish by Rossbacher Labs in Vancouver. Sample weights were less than CRM's, in part accounting for the obvious grade variances (San Fernando's were higher grade). Gunn, of Dupont Exploration Canada, carried out check sampling on the Property and concluded that the variation between the San Fernando and CRM assays may be due to nugget effect and that large samples are necessary for accurate results.

Table 3: Channel sample comparison table (Olson, 2008)

Channel sample #	CRM samples Mexican Lab			Vulimiri samples Rossbacher Labs		
	Au g/t	Ag g/t	Cu %	Au g/t	Ag g/t	Cu %
280	4.2	13.2	0.06	0.40	8.2	0.40
176	2.8	6.4	0.35	0.50	23.7	0.10
175	4.8	118.0	1.04	18.5	837.0	2.60
56	0.8	22.0	0.99	2.2	10.3	0.20
27	1.8	23.2	0.05	1.1	15.0	0.09
71	0.3	4.4	0.14	28.7	132.0	1.74
79	7.3	79.2	0.86	21.6	62.0	0.78
87	1.7	5.2	0.10	3.4	1.0	0.01
147	0.4	28.8	0.01	0.3	1.0	0.01
178	0.7	2.5	0.08	0.0	1.0	0.06
190	40.9	110.0	0.16	3.41	152.0	0.20
259	2.8	10.4	0.03	1.4	24.0	0.28

6.4.2 Diamond Drilling

In the immediate vicinity of the La Fortuna Mine, San Fernando completed 121 diamond drillholes totalling 18,900 m. Core size was NQ and sample length is nominally 2 m. The small percentage of drillholes that were surveyed downhole generally only showed a minor deflection of a few degrees. Drillhole locations and notable intercepts from the drill program are shown in Figure 5 and Table 4 respectively.

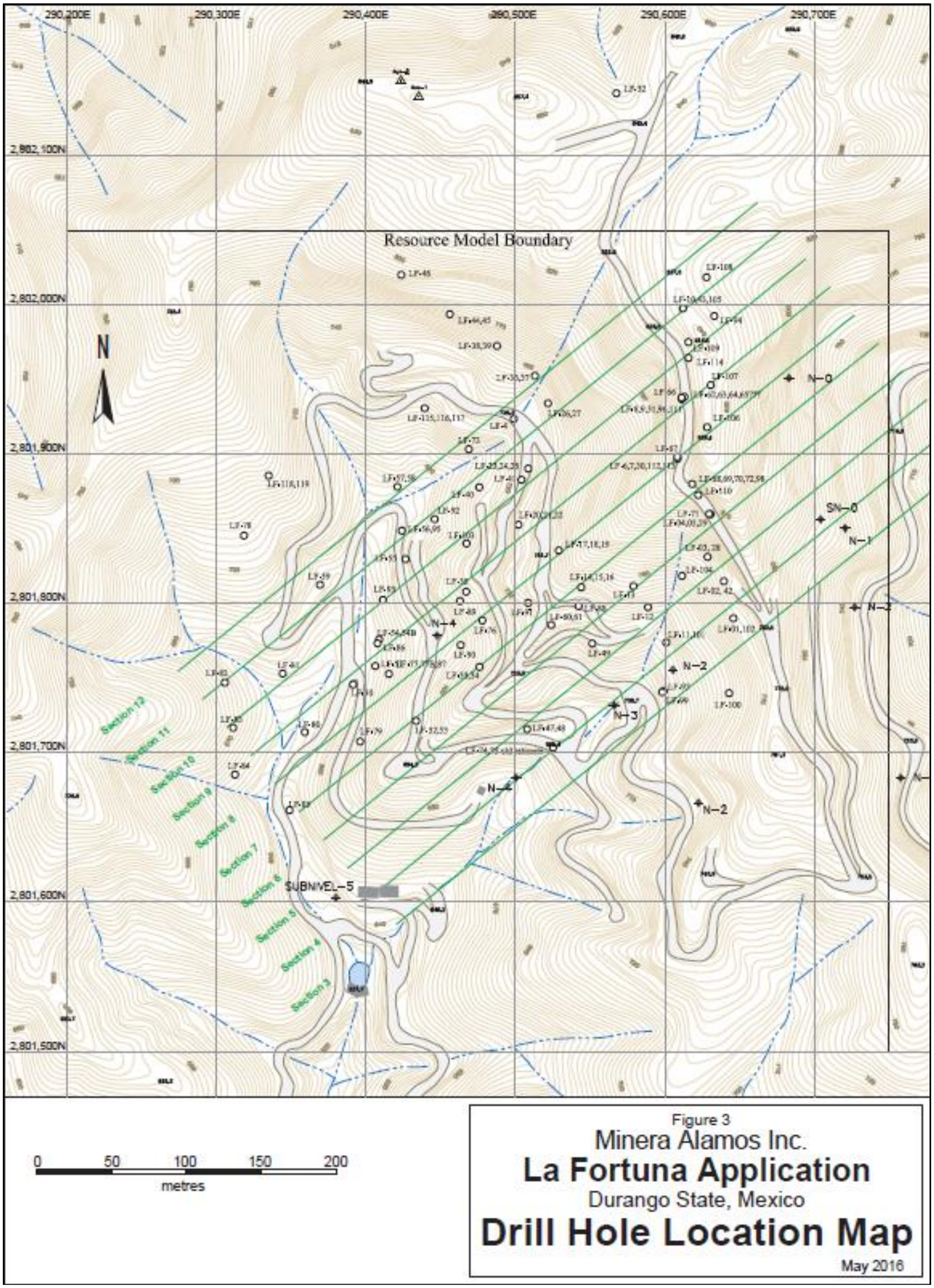


Figure 5: Map of San Fernando drillholes (Olson, 2008)

Table 4: Key intercepts of San Fernando drillholes (adapted from Olson, 2008)

Hole #	Elevation	TD	From	To	Length	Au g/t	Ag g/t	Cu ppm
LF-003	778.779	114.66	27.41	71.62	44.21	6.433	27.13	4,502
LF-004	796.890	85.95	43.18	67.18	24.00	1.624	12.80	1,487
LF-005	796.890	155.75	45.71	74.05	28.34	1.657	18.99	2,902
LF-006	808.700	109.72	51.60	94.00	42.40	7.433	32.25	7,334
LF-007	808.700	93.57	22.55	73.84	51.29	7.392	29.96	5,120
LF-008	820.714	72.23	47.60	72.23	24.63	2.274	25.74	4,655
LF-009	820.714	72.23	56.90	72.23	15.33	1.178	26.31	3,019
LF-012	738.001	24.99	15.18	24.99	9.81	10.021	40.67	6,001
LF-013	736.951	160.02	12.50	43.80	31.30	2.414	20.37	3,264
LF-014	733.660	154.53	35.66	55.76	20.10	0.897	9.77	1,728
LF-015	733.660	111.86	36.90	44.90	8.00	5.844	40.22	2,435
LF-016	733.660	128.01	37.40	53.10	15.70	3.005	14.15	3,321
			91.90	111.05	19.15	1.428	14.77	549
LF-017	740.489	178.91	44.46	50.46	6.00	4.985	47.37	10,111
LF-018	740.489	124.05	59.30	75.30	16.00	1.892	21.90	4,025
LF-019	740.489	148.43	49.40	53.40	4.00	21.361	50.00	14,732
			89.28	99.28	10.00	1.980	26.54	2,420
LF-020	742.661	169.77	52.45	56.75	4.30	7.329	46.33	5
LF-021	742.661	148.43	87.10	100.75	13.65	2.786	19.60	2,768
			53.60	57.10	3.50	14.965	35.51	11,875
LF-022	742.661	191.10	96.00	97.65	1.65	26.724	24.93	5,620
			111.30	117.50	6.20	1.467	24.44	3,855
LF-023	741.817	163.67	46.10	58.35	12.25	3.304	13.40	1,849
			62.35	71.95	9.60	4.139	23.62	6,524
			119.30	127.30	8.00	9.490	27.18	3,529
LF-024	741.817	154.52	46.15	50.10	3.95	10.821	35.47	10,152
			70.35	79.15	8.80	2.830	24.73	3,103
LF-025	741.817	172.82	79.35	94.60	15.25	2.679	15.42	2,873
LF-026	733.708	160.60	53.05	71.70	18.65	2.498	18.00	2,834
			81.70	91.60	9.90	1.841	9.30	1,901
LF-027	733.708	147.21	79.30	115.45	36.15	2.518	11.48	2,161
LF-028	778.779	99.65	44.45	65.00	20.55	5.315	31.00	5,444
LF-029	796.890	128.25	46.06	93.55	47.49	3.292	18.79	1,866
LF-030	808.700	191.71	33.56	75.73	42.17	2.579	21.09	3,339
			122.20	145.00	22.80	2.650	24.36	3,938
LF-031	820.714	151.48	62.00	104.05	42.05	3.813	28.77	2,851
LF-033	695.848	147.32	91.72	118.50	26.78	4.746	24.45	2,490
LF-034	695.848	200.25	104.00	126.40	22.40	6.505	24.05	1,444
LF-035	716.223	169.77	108.32	118.32	10.00	10.373	33.56	6,832
LF-036	729.841	154.35	113.18	117.48	4.30	0.885	1.84	224
LF-037	729.841	160.67	117.53	127.53	10.00	1.049	11.00	592
LF-038	729.747	171.29	123.00	125.00	2.00	0.989	12.10	24
LF-040	720.790	172.82	82.52	102.52	20.00	2.844	23.31	3,351
			136.50	152.50	16.00	2.076	11.23	1,796
LF-041	724.224	148.43	78.00	86.00	8.00	2.039	14.95	2,233
LF-048	697.483	294.74	99.47	101.47	2.00	2.093	16.00	4,499

Hole #	Elevation	TD	From	To	Length	Au g/t	Ag g/t	Cu ppm
LF-054B	692.566	197.20	128.93	138.95	10.02	2.192	20.86	2,590
LF-055	688.469	199.03	115.00	126.95	11.95	3.211	27.22	4,700
LF-056	688.744	212.44	100.50	116.50	16.00	3.202	16.48	1,037
LF-057	688.557	182.88	90.50	104.50	14.00	0.779	20.71	1,187
LF-058	688.557	227.68	102.50	104.50	2.00	1.346	13.90	670
LF-059	662.958	227.68	81.83	85.83	4.00	8.562	33.95	4,073
LF-060	712.798	115.51	56.90	74.90	18.00	5.215	25.64	1,860
LF-061	712.798	121.92	72.20	99.19	26.99	5.547	33.16	4,816
LF-062	826.300	80.10	39.80	56.94	17.14	2.427	29.00	3,658
LF-063	826.300	73.76	49.21	68.36	19.15	5.838	38.84	7,093
LF-064	826.300	73.46	63.00	73.46	10.46	4.753	29.03	4,185
LF-065	826.300	160.62	120.25	124.20	3.95	1.370	22.10	470
LF-066	820.528	158.49	116.00	118.00	2.00	28.286	50.00	10,736
			149.10	157.10	8.00	1.672	21.73	2,805
LF-067	809.579	119.00	82.00	116.65	34.65	2.117	21.10	3,435
LF-068	802.709	110.64	35.90	91.90	56.00	4.586	24.88	4,097
LF-069	802.709	53.95	31.05	53.95	22.90	3.404	26.58	3,662
LF-071	796.822	121.00	51.05	69.20	18.15	2.489	19.89	1,614
LF-072	802.709	172.82	66.50	82.25	15.75	3.138	22.59	3,401
LF-073	713.143	151.48	74.43	78.40	3.97	5.360	50.00	7,527
LF-074	700.000	80.77	8.31	13.58	5.27	4.739	17.20	751
LF-076	718.795	169.77	58.90	64.90	6.00	1.106	6.70	255
LF-077B	695.561	195.98	152.50	158.30	5.80	2.710	10.33	601
LF-079	673.110	320.73	148.00	150.00	2.00	4.390	20.00	2,430
LF-080	671.382	307.01	186.00	194.00	8.00	1.161	5.63	530
LF-081	665.423	218.59	188.00	198.00	10.00	0.649	0.50	19
LF-082	648.640	238.72	166.00	172.00	6.00	2.760	7.17	458
LF-083	643.440	252.13	166.00	170.00	4.00	7.600	32.75	1,300
LF-085	644.897	242.98	174.00	180.00	6.00	2.383	5.17	1,685
LF-086	692.392	297.86	250.00	266.00	16.00	2.142	6.00	194
LF-087	695.561	306.09	204.00	208.00	4.00	1.204	10.00	1,210
LF-088	725.019	66.16	34.00	54.00	20.00	1.671	32.05	4,473
LF-089	715.828	210.97	124.00	128.00	4.00	2.127		9,060
LF-090	707.500	142.39	114.00	118.00	4.00	5.780	67.00	4,510
			136.00	139.80	3.80	3.758	24.61	1,941
LF-091	715.262	135.06	38.00	42.00	4.00	10.400	70.50	4,375
			78.00	96.00	18.00	1.043	13.90	1,492
LF-092	708.272	220.36	100.00	104.00	4.00	5.896		
			114.00	124.00	10.00	2.311		
LF-093	690.757	203.35	142.00	146.00	4.00	2.350	24.00	3,030
LF-094	842.808	114.93	52.00	62.00	10.00	2.107	27.25	2,082
LF-095	688.707	240.15	130.00	138.00	8.00	5.115		
LF-096	820.368	99.70	54.00	99.70	45.70	4.262	37.70	3,855
LF-098	802.709	148.47	28.00	68.00	40.00	2.941		
LF-102	779.252	202.69	44.00	54.00	10.00	2.068	21.55	2,328
LF-103	717.920	160.60	62.00	70.00	8.00	1.242	41.38	2,056
			92.00	104.00	12.00	2.355	21.30	2,179

Hole #	Elevation	TD	From	To	Length	Au g/t	Ag g/t	Cu ppm
LF-104	759.815	74.06	22.00	28.00	6.00	4.273		
			40.00	58.00	18.00	5.180		
LF-105	827.898	214.87	190.00	200.00	10.00	2.534	10.50	485
LF-106	834.365	81.38	40.90	78.30	37.40	3.232	43.50	3,640
LF-107	836.120	102.71	54.00	64.00	10.00	5.432	94.36	3,603
LF-109	825.504	122.83	64.00	75.20	11.20	4.128	42.99	4,855
LF-110	800.500	114.90	38.00	68.80	30.80	5.659	57.42	1,367
LF-111	820.308	194.15	86.00	92.00	6.00	2.569	19.00	2,648
			118.00	140.00	22.00	1.015	8.68	3,002
LF-112	808.919	188.06	49.50	55.50	6.00	7.240	92.33	12,805
			62.00	78.30	16.30	1.290	25.95	425
			178.00	184.00	6.00	4.650		
LF-113	808.919	107.59	44.00	74.00	30.00	6.467		
			98.00	107.59	9.59	1.392		
LF-114	824.244	211.83	84.00	112.00	28.00	2.849	38.75	4,345
			127.00	134.00	7.00	1.464	36.00	6,956
LF-117	688.774	203.29	172.00	176.00	4.00	6.260	13.50	4,915

Preliminary mineral resource and reserve calculations, coupled with process testwork carried out on representative core samples, did not support San Fernando's objectives and the Property was subsequently sold to Alamos Minerals Ltd (now Alamos Gold) in 1996.

6.5 Alamos Minerals Ltd

Alamos Minerals Ltd conducted various metallurgical testwork and commissioned the 1997 Davies report (Davies, 1997). They planned on conducting a 20,000-ton bulk mining and heap leach test. However, due to technical difficulties and the falling gold price the test was abandoned before completion. The Property was subsequently sold to Morgain Minerals in 2006. Morgain Minerals and Aurogin Resources merged in 2007 to form Castle Gold.

6.6 Castle Gold

Following recommendations outlined in a March 2007 La Fortuna Technical Report (Olson, 2008), Castle Gold drilled six twin holes totalling 551 m in 2008 for the purpose of evaluating previous drilling.

The results from these six twin holes compare very well with the previous drilling. Within the six twin holes, 180.6 m of ore intercepts were compared with corresponding intercepts in the original holes. The original holes had 181.8 m of ore intercepts resulting in 0.7% less meterage in the twin holes. When the gold grade is compared, the twin holes averaged 3.58 g/t vs 3.29 g/t in the original holes. This represents an increase of 8.8%. This is a very good comparison considering the abundance of free gold (nugget effect) present in the La Fortuna deposit.

It should be noted that within some intercepts there were large variances in both metres and/or gold grade. Most of the large variances in the intercept lengths were within short intercepts and the larger intercept lengths were much closer on a percentage basis. Some of the large grade variances are most probably due to the presence of free gold.

Table 5: Comparison of 2008 twin holes and original holes

Drillhole	Twin holes				Original holes				Variance (twin vs original)	
	Interval (m)		Interval length	Au ppm	Interval (m)		Interval length	Au ppm	Interval length	Au ppm
	From	To			From	To				
LF28-08	43.80	65.00	21.2	5.578	44.5	65.0	20.55	5.315	3.16%	4.96%
LF29-08	28.00	34.00	6.00	2.833	30.3	32.1	1.74	3.453	244.83%	-17.95%
	38.00	76.00	38.00	2.192	38.1	75.3	37.19	3.188	2.18%	-31.24%
LF30-08	30.51	72.80	42.29	3.762	33.6	75.7	42.17	2.579	0.28%	45.87%
LF40-08	43.10	46.00	2.90	3.850	42.2	46.2	4.00	0.757	-27.50%	408.62%
	58.90	60.40	1.50	2.437	62.2	r166.2	4.00	4.210	-62.50%	-42.12%
	86.00	100.00	14.00	3.426	86.5	102.5	16.00	3.022	-12.50%	13.36%
LF56-08	64.00	72.00	8.00	1.726	63.3	68.5	5.20	0.911	53.85%	89.55%
	100.00	103.45	3.45	0.949	100.5	104.5	4.00	9.474	-13.75%	-89.98%
	110.00	118.00	8.00	1.671	108.5	116.5	8.00	1.812	0.00%	-7.77%
LF61-08	14.00	16.00	2.00	0.490	15.4	17.4	2.00	0.596	0.00%	-17.79%
	32.00	34.00	2.00	1.350	33.4	35.4	2.00	0.364	0.00%	270.88%
	70.76	102.00	31.24	5.523	68.2	103.2	34.99	3.684	-10.72%	49.94%
Total – average			**180.58**	**3.584**			**181.84**	**3.293**	**-0.69%**	**8.84%**

6.7 Argonaut Gold

Argonaut acquired Castle Gold in December 2009 and with it the La Fortuna property.

In the fourth quarter of 2010, Argonaut commenced an evaluation of the historical drilling and metallurgical work as well as an examination of the potential of the property at the La Fortuna Project. A 1,000 m drill program was planned for 2011 to evaluate the exploration potential of several additional gold occurrences known to occur within the property boundary (Argonaut, 2011). It does not appear however that Argonaut completed any drilling on the Property. Instead a geology report of the Fortuna Area, including 256 rock samples, was produced (SPM Mineria S.A. de C.V., 2013) in order to maintain the concessions by meeting the Mexican expenditure requirements (Argonaut, 2015).

6.8 Minera Alamos Inc.

Minera Alamos acquired the La Fortuna property in May 2016 from Argonaut.

7 Geological Setting and Mineralization

7.1 Regional Geology

The La Fortuna Project area sits within the Sierra Madre Occidental (SMO). The SMO is one of the larger silicic volcanic provinces on Earth, and the largest such province from the Cenozoic era (Ferrari *et al.,* 2007). The SMO igneous province covers greater than 300,000 km^2, stretching 2,000 km from the US-Mexico border to the Trans-Mexican Volcanic Belt in southern-central Mexico. The term SMO also refers to a roughly coincident physiographic province, characterized by a high plateau with elevations in excess of 2,000 m above sea level, bounded by deep canyons and the plains of the Gulf of California coast on the western flank and the wide tectonic depressions of the northern mountains and plains and the central plateau on the east.

The SMO is a result of the Cretaceous to Cenozoic magmatic and tectonic episodes caused by and related to the subduction of the Farallon plate beneath the North American plate. It is characterized by five main igneous complexes (see Figure 6) (Ferrari *et al.,* 2007):

1) Late Cretaceous to Paleocene plutonic and volcanic rocks.
2) Eocene andesites and less rhyolites (Lower Volcanic Complex).
3) Various Silicic Ignimbrite pulses mainly of Oligocene and Early Miocene age (Upper Volcanic Supergroup).
4) Transitional basaltic-andesitic lavas coincident with the end of ignimbrite pulses.
5) Post-subduction volcanism of alkaline basalts and ignimbrites in the Late Miocene, Pliocene, and Pleistocene.

The earliest rocks of the SMO, the Lower Volcanic Complex, were affected by moderate contractile deformation during the Laramide orogeny, during the latter stages of which formed east-west to east-northeast to west-southwest trending extensional structures within this unit. This is coincident with the emplacement of the province's world-class porphyry copper deposits. Extensional tectonics beginning in the Oligocene along the eastern portion of the province exhumed lower crustal rocks in the northern parts of the province forming granitoid batholiths and other plutons. Extension migrated westward and eventually formed north-northwest striking normal fault systems with east-northeast and west-southwest tilt domains along the western margin of the SMO. Figure 7 displays the broad tectonic picture of the SMO.

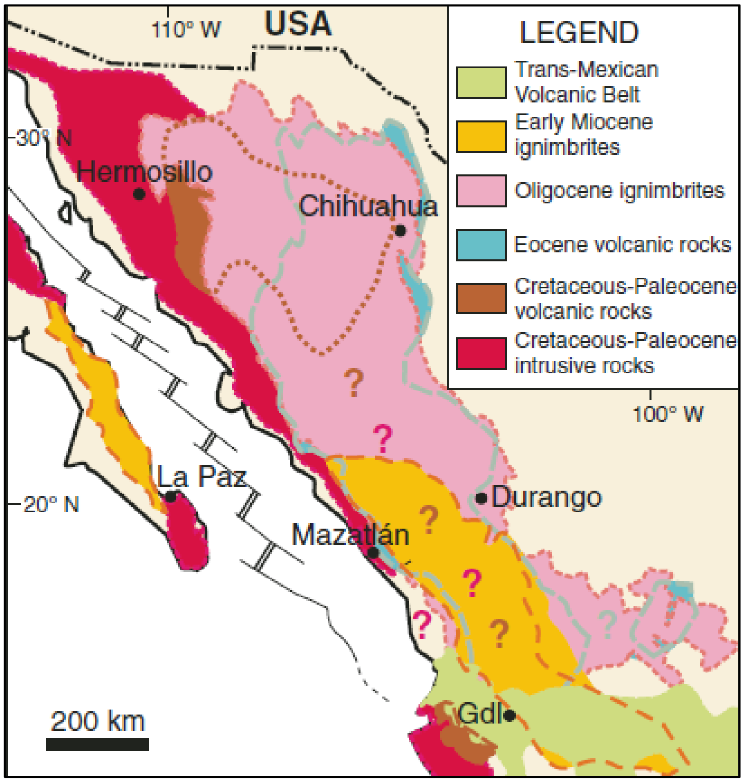


Figure 6: SMO Province, igneous assemblages (Ferrari et al., 2007)

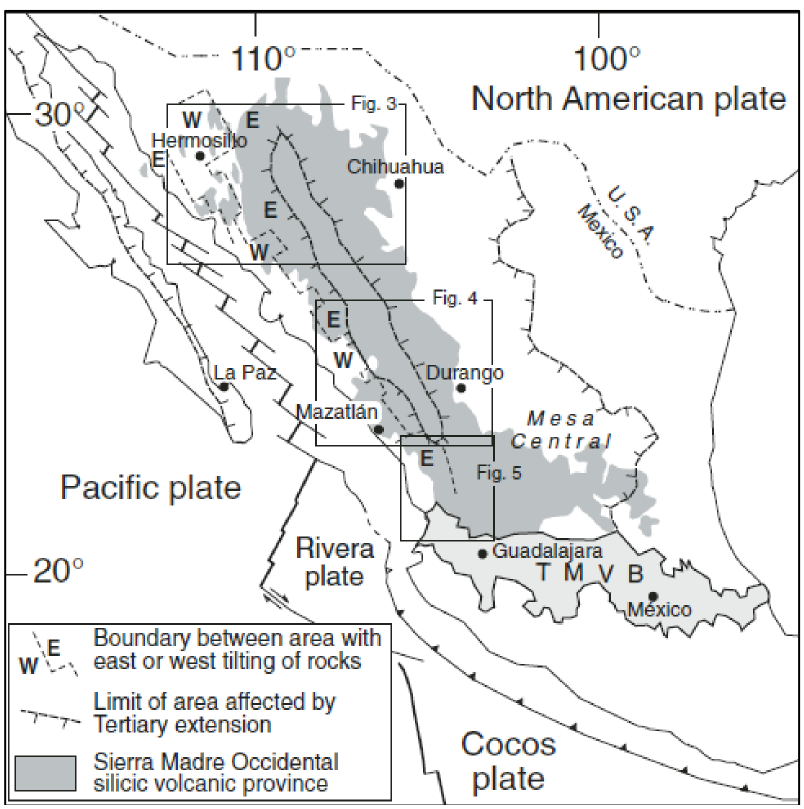


Figure 7: SMO Province, tectonic sketch map (Ferrari et al., 2007)

The Project area is near the western margin of the SMO and is hosted by a granodioritic batholith exposed by erosion of the Upper Volcanic Supergroup and Lower Volcanic Complex. Both the Upper and Lower Volcanics are exposed in the areas surrounding the batholith.

7.2 Metallogeny

The SMO is recognized as a significant gold-copper metallogenic province with potential for porphyry copper-gold mineralization and epithermal gold-silver mineralization related to areas of Tertiary volcanic and subvolcanic intrusive activity. The metallogeny of the volcanic belt generally changes from west to east. The deposits of the western Barrance sub-province are predominantly silver-gold and include the Tayoltita, Santa Rita, and San Antonio mines, while the deposits of the eastern Altas Llanura sub-province tend to be more polymetallic in nature, producing lead and zinc in addition to the silver and gold.

7.3 Property Geology

The La Fortuna Project area is predominantly underlain by intrusive rocks of granodiorite to quartz monzonite composition (Figure 8). Due to the gradual nature of the transition from granodiorite to quartz monzonite, it is interpreted that they were formed from the same intrusion undergoing magmatic differentiation (Centeno, 1992). In the north end of the Project area, these intrusives are overlain by rhyolites and andesites. The deposit itself consists of intrusive-related quartz-tourmaline breccias as a late mineralization phase from a porphyry system. The intrusives, volcanics, and hydrothermal deposits are intruded by late stage dykes of andesitic to basaltic composition trending N10°W and dipping 65°W. The dominant structural features in the region strike northwest-southeast.

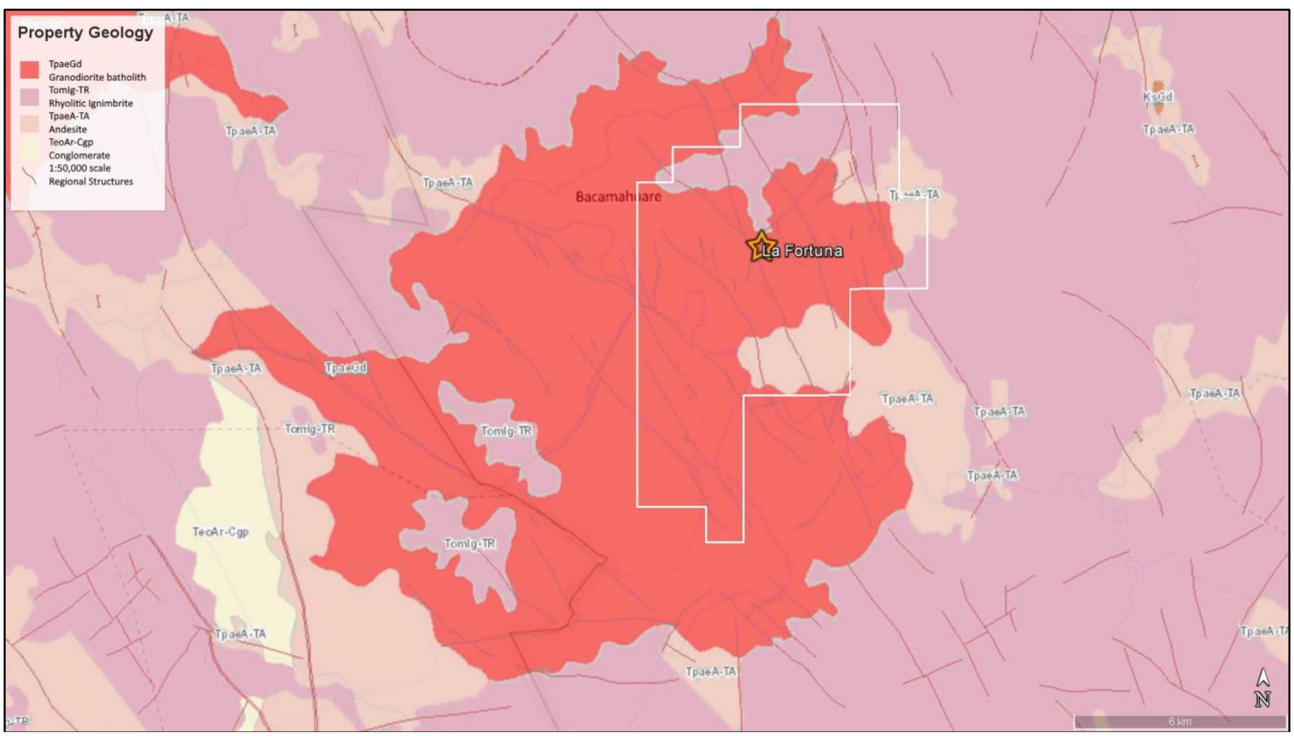


Figure 8: Property geology (adapted from SGM, 2017)

The intrusive rocks host epigenetic native silver veins such as those of Batopilas (near Guadalupe) approximately 60 km to the north of La Fortuna, as well as fracture controlled and disseminated precious metal and copper deposits. The volcanic rocks host several epithermal precious and base metal deposits such as the mines at Topia approximately 40 km to the east of La Fortuna but are unmineralized in the Project area.

The quartz monzonite is porphyritic in texture with phenocrysts of k-feldspar. The ferromagnesian minerals consist of hornblende and biotite. Additional petrography and mineralogy studies (Centeno, 1992) have determined the quartz-tourmaline breccia "bodies" have significant potassic alteration, with veins constituted of quartz-tourmaline-k-feldspar, pyrite-chalcopyrite-quartz, as well as microcrystalline quartz associated with tremolite and actinolite.

The dominant local fracturing and jointing zones appear to strike north-northwest and north-northeast, apparently paralleling those of the intrusive contacts. The rock exposed in the underground mine workings is notably competent with rock fall being limited to a few caved areas where chutes were broken or pulled out.

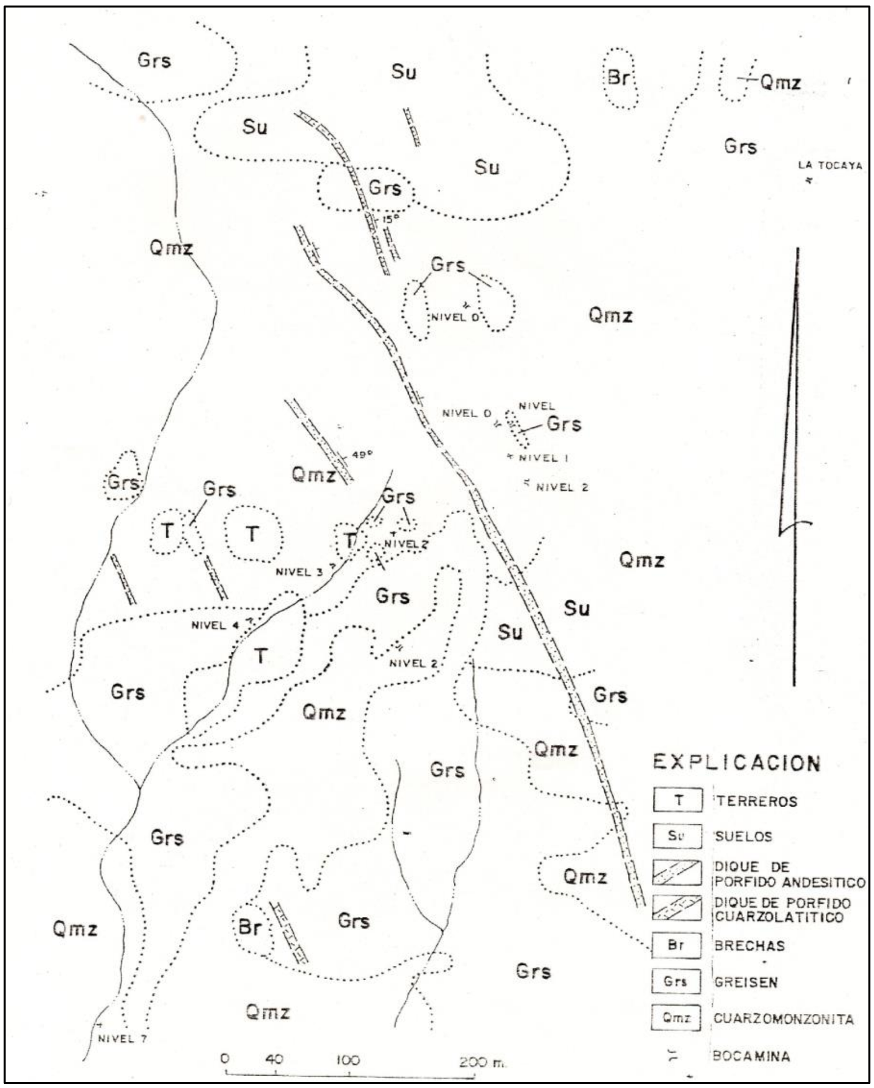


Figure 9: Deposit geology (CRM, 1992)

7.4 Mineralization

The Project area hosts numerous historic adits, and gold-silver showings including the historic La Fortuna Mine (and extensions) and the Ramada, PN, and Cerro Pelon zones to name a few (Figure 10).

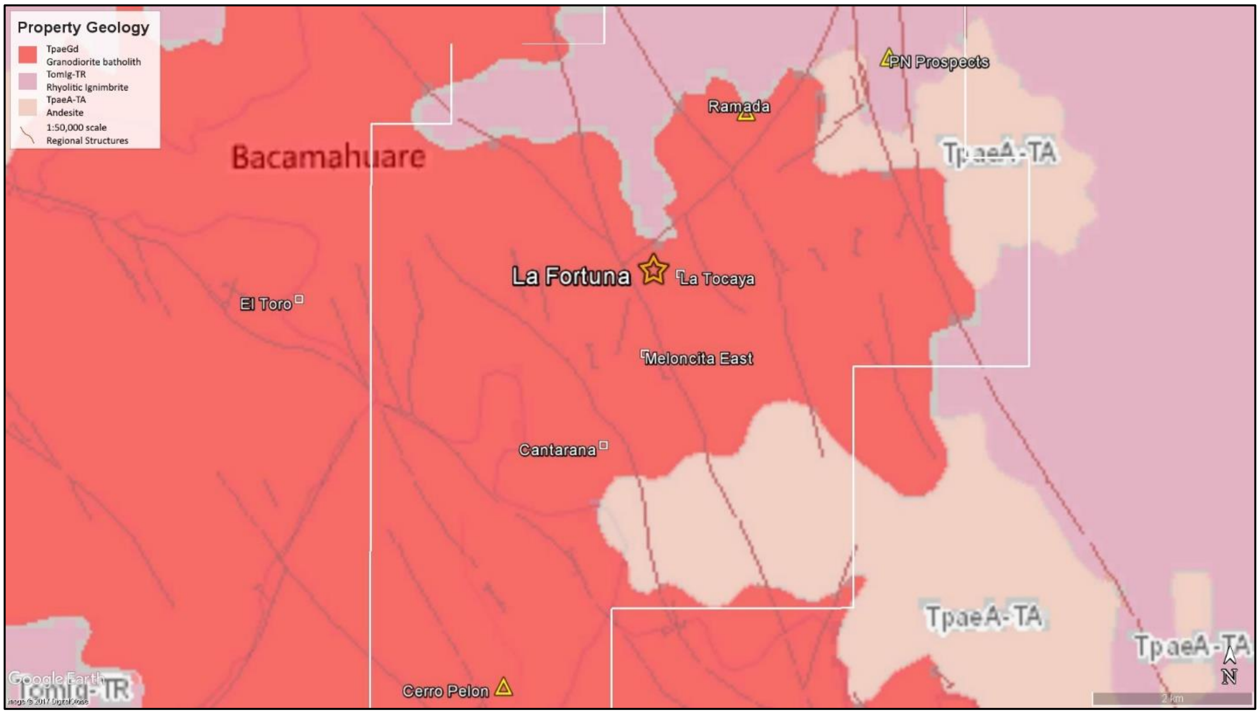


Figure 10: Location of adjacent zones

Mineralization in the La Fortuna Mine area appears to be spatially associated with a series of parallel fault structures (approximately 1.5–2 km apart) and related to tourmalinized quartz monzonite breccia bodies which are located along the periphery or flanks of a north-northwest striking, west dipping, tabular quartz monzonite intrusive that appears to be approximately 60 m wide and forms a prominent topographic ridge prominent in the mine area. These fault structures and tourmaline breccia bodies have been the source of significant historical mining activity within the Project area.

Mineralization consists mainly of pyrite and chalcopyrite stockwork veinlets, fracture fillings and disseminations in amounts consisting up to 10% of the host rock. Minor tetrahedrite, sphalerite and galena are present. The mineralization is apparently associated with sulphides, tourmaline, quartz, chlorite and epidote breccias. Minor mineralization occurs in the weakly tourmalinized quartz monzonite.

Cross-cutting andesite dykes are grayish-green and generally massive. They appear to be post mineral but occasionally contain sulphides occurring in fractures near their contacts. Some of the better sulphide concentrations occur within a few feet of the contacts.

7.4.1 La Fortuna Mine

The La Fortuna deposit is hosted within a tabular mineralized body that is up to 60 m thick and dips 30° to the west. The lower part of the body rests on a healed breccia base while the upper part consists of quartz stringers and veinlets extending up into the hanging wall.

La Fortuna hosts gold, silver and copper mineralization which occurs as disseminations, stockwork veinlets and fracture fillings. It is noteworthy that the degree of mineralization is directly related to the intensity of brecciation or fracturing and the amount of sulphides (pyrite). Mineralization remains open at depth and along strike. Similar style mineralization exists at surface approximately 400–500 m south of the current resource and can be traced along strike for at least 200 m.

Photomicrograph studies of mineral concentrate indicate gold and silver grains and minerals are present along the grain boundaries of the chalcopyrite and pyrite. Disseminated pyrite within the altered and unaltered wall rocks appears to be associated with some precious metal values. Significant values are found with the quartz-sericite-pyrite-chalcopyrite±tourmaline stockworks and the grades are dependent on the intensity of the fracturing. Thin limonite coatings are common on sulphides exposed by earlier mining. Limonite, hematite and malachite plus azurite occur occasionally within the poorly defined oxide zones.

7.4.2 Ramada Zone

The Ramada Zone lies on a parallel fault structure approximately 2 km northeast of the La Fortuna Mine with a strike length that can be traced at surface for over 600 m. Two groups of showings comprise the Ramada Zone:

- A southern group of showings is mostly covered with overburden. However, a 7 m length of quartz vein is exposed which is 3.3 m wide. Samples taken by Fernando Gold across the vein returned assays of 18 g/t Au and 176 g/t Ag over a width of 3.3 m. Further south the vein is exposed in a creek bed and a sample 3.7 m wide returned results of 4.33 g/t Au and 105 g/t Ag. This site also has a small caved adit and may be the location of two core holes drilled by CRM, which had intercepts of 2.2 m at 5.49 g/t Au, 204.8 g/t Ag and 3.3 m at 2.35 g/t Au and 17.6 g/t Ag.
- The northern group of showings consist of a series of small veins which so far have only returned anomalous gold values.

7.4.3 PN Zone

The PN Zone structure is located approximately 1.5 km northeast of the Ramada Zone and can be traced on surface for approximately 1.5 km. The structure host numerous historic mine workings like La Plomosa, Santa Fe, Guadalupe, Higuerita and Buena Vista. Sampling from this area returned gold grades ranging from 1 to 10 g/t Au and 50 to 400 g/t Ag.

7.4.4 Cerro Pelon Zone

The Cerro Pelon Zone (previously Los Cajones) is located to the south of the La Fortuna Mine. The zone was the subject of historical geochemical sampling by the CRM which outlined a large area of "anomalous" gold approximately 1,500 m long and 200–500 m wide. Gold assays included sample values as high as 10.1 g/t.

7.4.5 Other Zones

There are numerous other zones on the Property which have had various names over the years. These include:

- El Toro Zone – The El Toro prospects are located about 3.5 km west-northwest of the old San Fernando plant site. Some pyrite, chalcopyrite and copper carbonates are present on the dump of the old mine workings and in a caved adit. The limonitic zone is reportedly 150 m wide and 700 m in length. Sampling by CRM showed a 1 m sample assaying 28.4 g/t Au and 283 g/t Ag. Another sample averaged 4.8 g/t Au and 67.2 g/t Ag over a 4 m length. A dump sample assayed 3.6 g/t Au and over 50 g/t Ag.
- La Tocaya Zone – The La Tocaya Zone approximately 200 m east of the La Fortuna Mine's Level #2 Eastern Portal. Strong sulphides occur adjacent to a major northwest-trending fault which includes

trace to 1% pyrite, chalcopyrite, and malachite. The alteration zone is approximately 15–20 m wide and 60–70 m long but steep topography inhibits exact measurement. The La Tocaya Zone appears to be a parallel and separate fault related zone from the main La Fortuna Zone.

- Meloncita East Zone – Meloncita East is located approximately 600 m south-southwest of the La Fortuna Mine. A geological mapping and sampling program outlined an alteration zone with highly anomalous gold values extending from the El Fuego zone of the La Fortuna mine area. The alteration and mineralization found at the Meloncita East zone is very similar to the alteration and mineralization found at the La Fortuna mine main surface showing. It is thought that the two zones are in fact the same zone although the exact surface extension of the Meloncita East Zone, to the north, can only be assumed since extensive overburden cover is present. Faulting is assumed to play a significant role in offsetting the zone. The Meloncita East Zone consists of an alteration zone approximately 20–40 m wide extending approximately 700 m north.
- La Cantarana Zone – La Cantarana lies 1.9 km southwest of the La Fortuna mine and 500 m southwest of the Meloncita West Zone. Historical rock sampling returned anomalous values of up to 6 g/t Au over an area covering approximately 300 m x 50 m.

8 Deposit Types

Known mineralization within the La Fortuna Project area is spatially associated with calc-alkaline intrusions, with different zones exhibiting a combination of geological characteristics and gold-silver grades of both porphyry and epithermal mineralization styles. Collectively the zones at La Fortuna may be best characterized as intrusion-related 'transitional' deposits (Figure 11). They consist mainly of a hydrothermally altered breccia "pipe", tabular in shape, similar in nature to other quartz-sulphide gold ± copper ± silver epithermal breccia deposits.

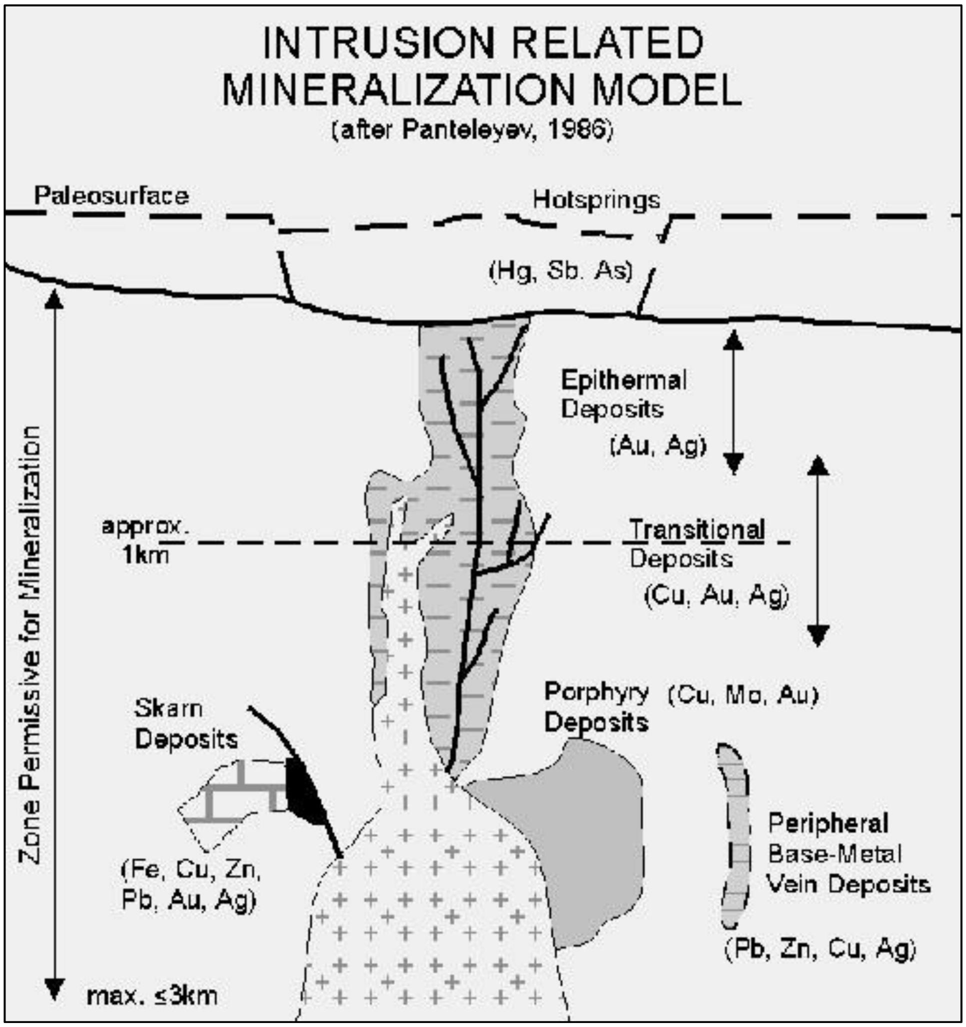


Figure 11: Intrusion related mineralization model (Panteleyev, 1986)

8.1 Epithermal Deposits

Epithermal deposits form in the shallow parts of magma-related hydrothermal systems. They are generally associated with volcanism and intrusions of calc-alkaline magmas, commonly in sub-aerial volcanic arcs. There are two end-member styles of epithermal mineral deposits: low-sulphidation and high-sulphidation.

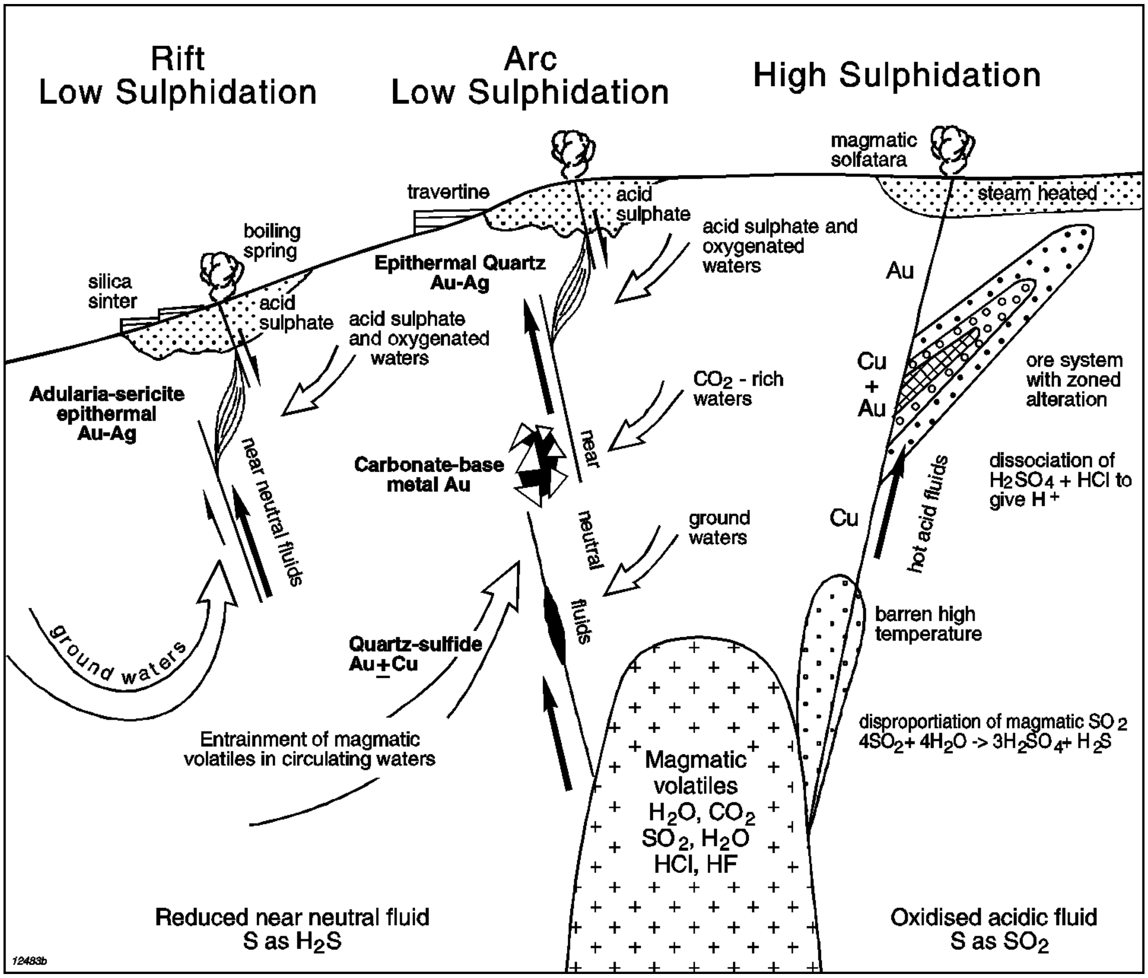


Figure 12: Derivation of low and high sulphidation fluids (Corbett, 2002)

Sulphide mineralization is generally introduced along faults and fractures although mineralization can also be disseminated in permeable rock strata. Sulphide assemblages include electrum, native gold, native silver, argentite, pyrargyrite, proustite, chalcopyrite, sphalerite, galena, tetrahedrite and occasional telluride minerals. Common gangue minerals include quartz, chalcedony, adularia, calcite and amethyst.

Vertical metal zonation is manifested with higher amounts of gold, silver, or gold and silver along with mercury, tellurium and antimony in the upper portions of the system, and higher lead, zinc and copper contents at deeper levels.

Gold and silver grades in low-sulphidation epithermal systems can be very high, occasionally reaching gold grades on the order of tens-of-grams of gold per tonne and kilograms of silver per tonne. Low-sulphidation epithermal deposits typically average around 770,000 t and average 7.5 g/t Au, 110 g/t Ag with minor Cu, Zn, and Pb (Panteleyev, 1996). It should be noted that these grades and tonnages are representative of vein-type low-sulphidation deposits.

La Fortuna has not been mineralogically characterized to a detailed enough level to properly classify it as either low-sulphidation or high-sulphidation. It seems to most closely resemble deposits characterized as low-sulphidation with deep crustal emplacement (i.e. close to the related porphyry intrusion) (Corbett, 2002), including ore shoots exploiting local structures and deposited in fractured carapace or a breccia “field/pipe”, with auriferous quartz-sulphide veining/breccia-filling mineralization.

9 Exploration

Minera Alamos has done limited exploration since acquiring the Project in 2016. The Company's Vice President of Exploration, Miguel Cardona, worked extensively at La Fortuna in the past when he was Senior Geologist for Castle Gold. Consequently, he has brought his geological knowledge and understanding of the Property to Minera Alamos.

During late 2017 and early 2018, the Minera Alamos Exploration team set up a camp in the vicinity of the Fortuna Mine to map and explore the projects around the Fortuna area and also at the Ramada, PN and Cerro Pelon areas. One of the priority areas was the PN area which shows a gold anomaly of at least 1,000 m x 400 m at surface. Additional surface work (including sampling) is planned to establish new drill targets for exploration.

10 Drilling

Minera Alamos has not performed any drilling on the Project since acquiring it in 2016.

11 Sample Preparation, Analyses, and Security

As of the effective date of this report Minera Alamos has conducted limited field exploration at La Fortuna, including initial prospecting and due diligence related to property acquisition. Mineral exploration conducted by previous operators within the Property area is discussed in Section 6, History, and their sample collection, handling, preparation, and analytical procedures described below. Table 6 summarizes the sampling that was conducted by these previous operators.

Table 6: Summary of sampling

Company and Lab	Gold		Silver	Copper	Lead	Zinc	ME	QA/QC results Available
	FA	Gravity	ICP	ICP	ICP	ICP		
Castle Gold (2008)								
ALS Chemex	344	-	344	344	344	344	344	306
San Fernando (1994)								
Bondar Clegg	5,452	3	5,452	5,452	5,452	5,452	168	388
SGS	3,440	6	2,552	2,552	750	2,540	14	1,166
TOTAL	**9,236**	**9**	**8,348**	**8,348**	**6,546**	**8,336**	**526**	**1,860**

11.1 2008 Castle Gold Drill Program

11.1.1 Sample Security

Sample security procedures began at the drill and were laid out as follows:

- Plastic core boxes are labelled, and arrows are used to ensure the core is laid out properly.
- When each core box is filled it is covered and placed away from sources of contamination.
- Core boxes are collected from the drill site by geologists employed by the company and placed in a temporary storage area on the Property.
- A chain of custody document is filled out and signed by the geologist, and in turn handed on to the drivers when core is picked up.
- Core is delivered to the storage facility and logged in San Juan del Rio, Durango. Upon arrival, the shipment is signed for and the chain of custody document is reviewed.
- All core is geologically and geotechnically logged, as well as photographed prior to sampling.
- All core is sampled, with samples not exceeding 2 m, while also being restricted by geological contacts.
- All sampled core is split using a diamond saw, and both halves returned to the core box.
- Geologists review the split core before placing half for analysis into a plastic sample bag with the appropriate sample tags.
- Geologists insert blanks and standards during the sampling.
- Larger bags are used to bundle together groups of samples and are labelled appropriately.
- Shipment log sheets are generated to track each larger bag.
- Only one shipment by courier was required to ship all samples to ALS-Chemex Lab in Hermosillo for assay preparation.

11.1.2 Sample Preparation and Analysis

The 2008 drill program was predominantly sampled at 2 m intervals, except for smaller intervals within the mineralized zone and where necessary to maintain geological contacts. From the six holes (LF-28/29/30/40/56/61), 344 samples were collected and sent to ALS Hermosillo, Mexico for preparation by crushing (70% <2 mm), splitting (by riffle splitter), and pulverization (85% <75 µm). Samples were then shipped to ALS in Vancouver, British Columbia for analysis. Gold was analysed using a 30 g fire assay with AA measurement, with a gravimetric measurement above 10 ppm. Further analysis using aqua regia digestion, followed by a 35-element inductively coupled plasma (ICP) analysis, was also completed to determine quantities of secondary metals, including silver and copper.

During the period of analyses, the ALS laboratory held ISO 9001:2008 certification.

It is the authors' opinion that the 2008 sampling programs were conducted to industry standards applicable at the time the work was conducted.

11.1.3 Quality Assurance and Control

Each hole was analysed as one batch. ALS employed an internal submission of standards and blanks as follows:

- One Gold Standard is inserted every 12 to 15 samples
- A blank is inserted every 12 to 15 samples.

The ALS standards and blanks performed within normal expected ranges.

The failures are not significant, and the duplicate correlation coefficient is 1.00 for Au, Ag, and Cu, which is perfect statistically, and this is the most important result. In the authors' opinion, this data is completely reliable for the purposes of this report.

11.2 1994 San Fernando Drill Program

Detailed descriptions of sample preparation, analyses and security protocols and procedures utilized by San Fernando were not available in review documentation provided to the authors. Although sample security details varied from program to program, all samples were retained at the La Fortuna camp until shipped in various sized allotments to the geochemical laboratories. All drill and geochemical samples collected by San Fernando were analysed by independent commercial laboratories.

11.2.1 Sample Preparation and Analysis

The 1994 drill program was sampled in mostly 2 m intervals:

- 5,452 samples collected from holes LF1 to LF78, 59% of samples in the drill database, were sent to Bondar-Clegg & Company Ltd's ("Bondar-Clegg") Vancouver laboratory.
    - All samples were assayed for gold by fire assay using a 30 g aliquot, with a lower detection limit (LDL) of 5 ppb. Samples that hit the upper detection limit for Au or Ag were re-assayed, (method for re-assay not listed on assay certificates). All samples were also assayed for silver, copper, zinc, and lead by ICP with LDLs of 0.2 ppm Ag, 1 ppm Cu, 2 ppm Pb, and 1 ppm Zn. The first group of samples, 168 in total, were also assayed using a 28 multi-element suite using ICP-ES/MS methods.
- 3,440 samples from holes LF79 to LF119, 37% of samples in the drill database, were sent to the SGS Canada Inc. (SGS) Vancouver laboratory:
    - Further details are not available from the SGS sampling procedure.

During the period of analyses, the SGS laboratory was not yet certified by ISO (certified in 2013). No information is currently available about the certification of the Bondar-Clegg laboratory.

It is the authors' opinion that the historical sampling programs were conducted to industry standards applicable at the time the work was conducted.

11.2.2 Quality Assurance and Control

Internal Laboratory Duplicates, Standards and Blanks

From the records available, the internal Bondar-Clegg sampling procedures included the following (batches ranged in sizes but averaged somewhere around 70–80 samples):

- Duplicates of every 15th to 20th sample
- Three Au standards (Low, High, and BCC Gold Standard 90-3) per batch
- One to three analytical blanks (for Au, Ag, Cu, Pb, and Zn) per batch
- Three BCC (Bondar-Clegg) Geochemical Standards (for Ag, Cu, Pb, and Zn) per batch.

Duplicate data is available for all assays; however, standard and blank sample data are only available for 19 batches. Several types of duplicate analyses were performed; however, records are incomplete as to all the methods employed. Out of a total of 5,452 samples sent to Bondar-Clegg in 1994, 220 were 60 g pulp sample duplicates, and 129 are 90 g pulp sample duplicates. An additional 45 duplicates were labelled as preparation duplicates. For 75 repeat analyses, the duplicate sample type is not recorded. There were also four duplicates of samples higher than 10,000 ppb Au.

Figure 13 to Figure 16 display the plotted duplicate results for the Bondar Clegg assay results. Correlation coefficients for the duplicates are as follows: original Au30 assays and rev1 Au60 duplicates, 0.84; original Au30 assays and rev2 Au90 duplicates, 0.89; rev1 Au60 and rev2 Au90 duplicates, 0.93; original Au30 assays and "prep" duplicates, 0.98; original Au30 assays and unlabelled duplicates, 0.99; original Ag assays and repeat Ag assays, 1.00; original Cu assays and repeat Cu assays, 1.00. There is some observed variation, which may be influenced by the nugget effect, but these results are well within reason for the deposit type and assay methods.

Figures 13 through 16 display the plotted blank and standard results for the Bondar-Clegg assay results. Overall the performance of blanks and standards for the program is satisfactory. One blank Au and one blank Cu results are above threshold but not enormously. The sample size for the Au and Ag standards is quite small so it is not possible to draw anything conclusively from these results. Again, the performance of standards may have influenced the decision to switch labs part way through the program, and if so, that was a good decision and indicates the Company was paying close attention to these results. If anything, the results seem skewed slightly low, so the author has no reservations about including the associated data in the estimation.

Fewer records are available for the SGS quality assurance/quality control (QAQC) procedures. Duplicate results are available and were apparently performed on every 8th to 10th sample (409 duplicates out of 3,440 samples). No standards or blanks are available at this time nor any information about whether any were performed.

Figure 16 displays the plot of the duplicate performance for the SGS repeat assays. The correlation coefficient for these repeats is 0.98. This is an extremely good result and it is clear from the plot that variation occurs relatively tightly, especially at higher grades. Interestingly SGS labs appears to have achieved much better duplicate results; this may have been part of the decision to switch to them part way through the drill program. Results for Ag and Cu are statistically perfect.

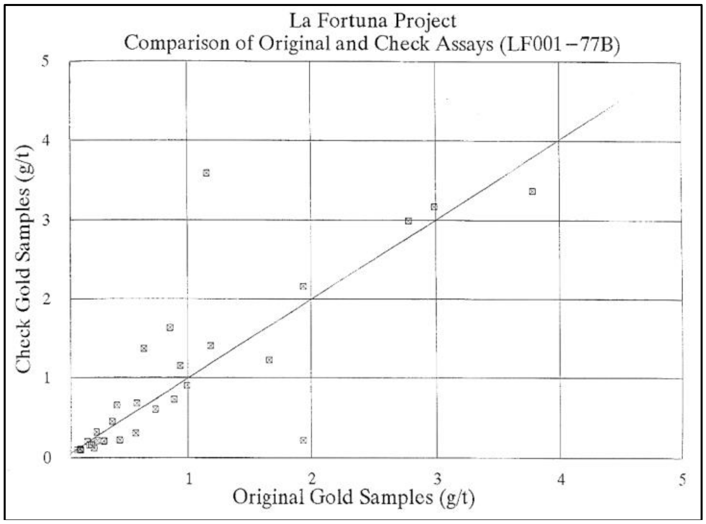


Figure 13: Comparison of Bondar-Clegg originals vs Min-En check assays (Fluor, 1995)

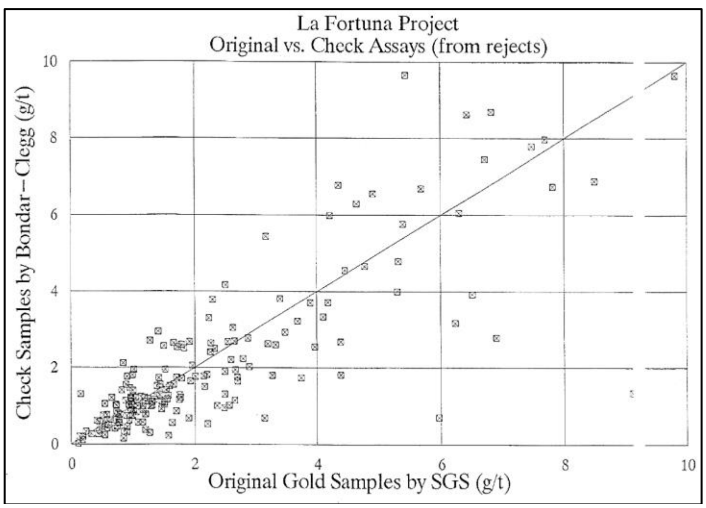


Figure 14: Comparison of SGS originals vs Bondar-Clegg reject check assays (Fluor, 1995)

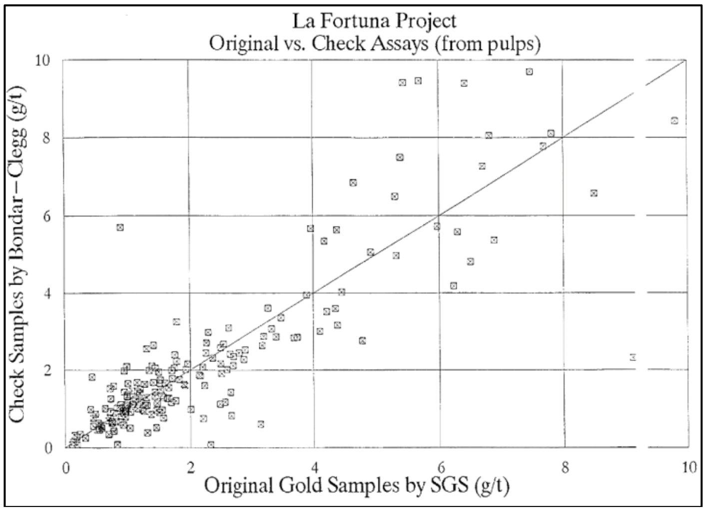


Figure 15: Comparison of SGS originals vs Bondar-Clegg pulp check assays (Fluor, 1995

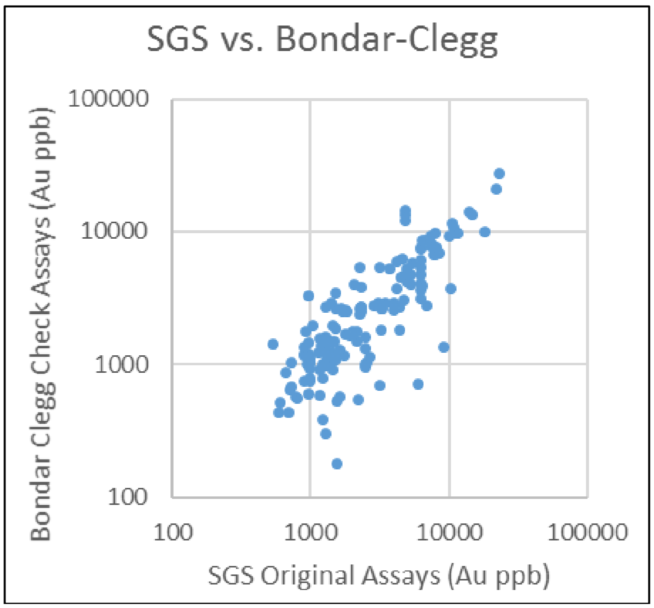


Figure 16: Comparison of SGS original assays vs Bondar-Clegg check assays (plotted from currently available data)

Independent Check Assays

For holes LF1 to LF78, independent check samples were sent to Min-En Laboratories Ltd (Min-En) in Vancouver for analysis (technique not available/described). For holes LF79 to LF119, check samples were sent to Bondar-Clegg in Vancouver for analysis by fire assay using a 30 g aliquot, with an LDL of 5 ppb.

It is stated by Fluor (1995) that 31 check samples were sent to Min-En from Bondar-Clegg, and 192 check samples (both rejects and pulps) were sent to Bondar-Clegg from SGS. Currently data is only available for one set of 150 of the latter, and it is not clear whether the set available is from rejects or pulps.

Fluor (1995) describes the results for the Bondar-Clegg Min-En duplicates as follows:

> *"… there is overall general agreement between the two labs, but with considerable scatter on individual samples, due no doubt in large part to a high nugget effect. The correlation co-efficient is 0.93."*

Fluor (1995) describes the results for the SGS Bondar-Clegg duplicates as follows:

> *"Note the checks based on rejects are about 9% lower than the originals, while the checks based on pulps are about 4% lower. However, in both cases there is considerable scatter, due no doubt in large part to a high nugget effect … The correlation coefficient is not as high as one might hope: 0.84 for original vs. rejects, and 0.85 for original vs. pulps."*

Of the 150 samples available to the author, the duplicate results are about 4% lower, and the correlation coefficient is 0.87. These results are comparative to the pulp results as described above. These results are not deemed inconsistent with typical quartz-dominated gold deposits with high nugget effects.

11.3 Conclusions

The author finds that, despite small discrepancies, the data discussed is reliable for the purposes of this report. Database QAQC protocols have been very thorough and fall well within the exploration guidelines as laid out by CIM best practices (CIM 2000).

12 Data Verification

12.1 Data Validation

Validation of the assay database was undertaken using the original assays communicated by both Bondar-Clegg and SGS for the 1994 drill results, and ALS Chemex for the 2008 drill results. For the 1994 results, 10% of the results (including all duplicated samples) were verified against original documents, while for the 2008 results, 100% of the results were verified.

The 1994 results showed no errors but did show some minor discrepancies in data entry (2.7% of the results had discrepancies):

- LDL samples handled in two different ways; some were set to 0 ppb Au, and some were set to 2.5 ppb Au.
- Duplicated samples where, rather than recording the original result, an average of the original and the duplicate was inserted (the highest value of these is 343 ppb Au).
- Duplicated samples where, rather than recording the original result, the duplicate was inserted (the highest value of these is 133 ppb Au).
- Over limit aliquots were re-assayed, apparently giving values in oz/t. Apparent gold oz/t values were converted into g/t and entered into the assay table. This exercise was not done for all over-limit silver assay values. The upper limit of detection of 50 g/t Ag remains in the assay database for 167 silver assays, despite the correct silver values in available certificates. These silver values should be included in an updated assay table.

The discrepancies are minor and have no effect on the results of the resource estimation, other than perhaps a minor suppression of grades in very low grade areas (well below cut-off grade). It is recommended, however, that these results are corrected going forward.

The 2008 results show no discrepancies or errors.

12.2 Site Visit

On 10 July 2016, Scott Zelligan, P.Geo., visited the Project, accompanied by Miguel Cardona, P.Eng., Vice President of Exploration for Minera Alamos. The visit included Level 2 of the still accessible underground adits, as well as two drill collars from the 1994 drill program. These locations were measured using a Garmin GPSMap 60CSx handheld global positioning system (GPS). Table 7 displays the locations measured and their location according to the drill logs as compared to the validation measurement, in NAD27. The locations correspond well within the accuracy of the device (± 10 m). Photo 1 and Photo 2 display the collars visited.

Table 7: Drillhole survey validation

Drillhole ID	Site visit measurement (easting, northing, elevation)	Drill log location (easting, northing, elevation)
LF-70	290720 m E, 2802038 m N, 810.3 masl	290719.941 m E, 2802036.941 m N, 811.835 masl
LF-113	290702 m E, 2802068 m N, 820.6 masl	290702.882 m E, 2802065.225 m N, 821.051 masl

Photo 1: Collar of drillhole LF-70 (left) and LF-113 (right)

Level 2 of the underground adits was visited and investigated in order to validate rock descriptions of the mineralized zone, as no core is currently available.

Photo 2: Mineralized quartz breccia on Level 2 of adit system (left); Mineralized quartz breccia fragment from Level 2 of adit system (right)

13 Mineral Processing and Metallurgical Testing

13.1 Introduction

Early metallurgical testwork on the Fortuna deposit was carried out in 1995 at the request of the property owners at that time (San Fernando). Additional testwork was performed by Castle Gold in 2008. Several recent testwork programs have been carried out on the deposit since then with the latest round of confirmatory testwork by Minera Alamos in 2016/2017. These testwork programs, as well as the expected processing plant throughput and recoveries of gold, silver and copper, are discussed in more detail in the following sections.

13.2 Historical Testwork

In 1995, preliminary metallurgical testwork was commissioned by San Fernando. The program was carried out in two phases. Phase I work was performed by Colorado Minerals Research Institute (CMRI) and Hazen Research and included fine grinding followed by an evaluation of gravity concentration, froth flotation and cyanidation. Phase II, by CMRI, tested the impact of different grind sizes on leach recoveries.

The Phase I program was a "conventional" process with fine grinding followed by an evaluation of gravity concentration, froth flotation, and cyanidation.

This early work concluded that:

- Gravity gold recoveries ranged from 67% to 84%
- Flotation gold recoveries achieved 96%
- Leach of flotation concentrate had gold recovery of 55%
- Direct cyanidation of the ore produced gold and silver recoveries of 97% and 41% respectively at a grind size of 150 µ.

As an alternative, a heap leaching option was also investigated. However later testwork showed a decisive advantage of gravity recovery followed by flotation as a preferred path forward, particularly for the recovery of silver and the reduction in cyanide consumption due to the removal of copper without exposing it to cyanide.

The phase II test program, performed by CMRI, focused on the effect of grind size on the direct cyanidation leach gold recovery. Three grinding sizes (300 µ ,150 µ and 75 µ) were tested. Gold and silver extractions of 97% and 41% respectively were established at a grind size of 150 µ. This limited variability testwork confirmed previous work that the direct cyanidation of the ore, without an intermediate concentration step, gave the highest recovery of gold and silver compared to all other flow sheet options investigated.

13.3 2008 Testwork Program

In July 2008, three samples were sent to SGS Lakefield Research from what was then Castle Gold Corporation's La Fortuna Project. The samples were identified as N2, N2A, and N3 and consisted of approximately 100 kg (each) of coarse rocks which were removed from three areas in the old underground workings at the mine. The sample locations were selected to obtain material that was representative of the range of mineralization present in the deposit (low, average and high grade).

13.3.1 Sample Analysis

Sample N2 – Low grade material from adit level 2 which consisted of quartz feldspar intrusive with small veins of tourmaline.

Sample N2A – Medium grade material from adit level 2 consisting primarily of tourmaline.

Sample N3 – High grade material from adit level 3 consisting primarily of tourmaline but with strong showings of pyrite in veins and fracture fillings.

Head assays of the samples used are summarized in Table 8 below.

Table 8: Analysis of Fortuna metallurgical samples

Elements	Unit	N2A	N2	N3
Au	g/t	1.46	0.61	14.4
Ag	g/t	12.8	26.0	85.9
S(T)	%	1.05	1.89	3.78
S^{2-}	%	0.76	1.68	3.64
C(T)	%	0.15	<0.01	0.02
C(g)	%	0.01	<0.01	<0.01
TOC	%	0.12	<0.05	<0.05
CO_3	%	0.68	<0.05	<0.05

Source: La Fortuna Summary_Feb 2009_Rev2, Project 11819-002

13.3.2 Ore Hardness

Field observations at the La Fortuna deposit identified the potential that the mineralization host rock was of greater than "average" hardness. The Bond Impact Tests were performed on rocks from each of the three samples and the results of the crushing work index (CWI) is summarized in Table 9 below.

Table 9: Results of low-energy Bond Impact Tests (CWI)

Sample name	Number of specimens	Work index (kWh/t)	Ore density (g/cm^3)	Hardness percentile
N2	20	17.5	2.78	90
N2-A	20	13.1	2.74	74
N3	20	18.6	2.81	91

Source: Extracted from SGS 2008 "CWI Test Results.xls"

The three Fortuna samples can be considered as "hard" to "very hard" with two of the samples positioned in excess of the 90th percentile in the existing SGS Lakefield impact database. The SGS database is not an absolute reference but rather a historical collection of all the impact indices that have been obtained from the various metallurgical samples tested by the laboratory.

During the impact testwork, densities were also calculated for the three samples. These values ranged from 2.74 to 2.81 which is in good agreement with the value of 2.72 which was utilized for mineralized rock.

13.3.3 Coarse Ore Bottle Roll Leach

A series of coarse ore bottle roll tests were performed on samples at different crushing sizes.

Results from the medium grade N2A sample coarse ore leach tests are summarized as follows:

- Gold recoveries improved significantly as the material crushing size was decreased. Unlike the historical testwork results, a noticeable improvement was observed by decreasing the crushing size from 1/2" to 1/4" or smaller. At 1/4" ultimate gold recoveries in excess of 60% appear possible as was observed with the historical data.
- A crushing size of 1/2" appeared optimal for silver recoveries in excess of 40% (slightly higher than with historical testwork).

As shown in Figure 17 and Figure 18 below, relatively slow gold leach kinetics with recoveries still increasing at a noticeable rate after 21 days (equivalent heap/column leach times are usually considerably longer than those observed with coarse ore tests). This information would tend to support the optimal leach times predicted from historical column leach testwork which were in excess of 90 days.

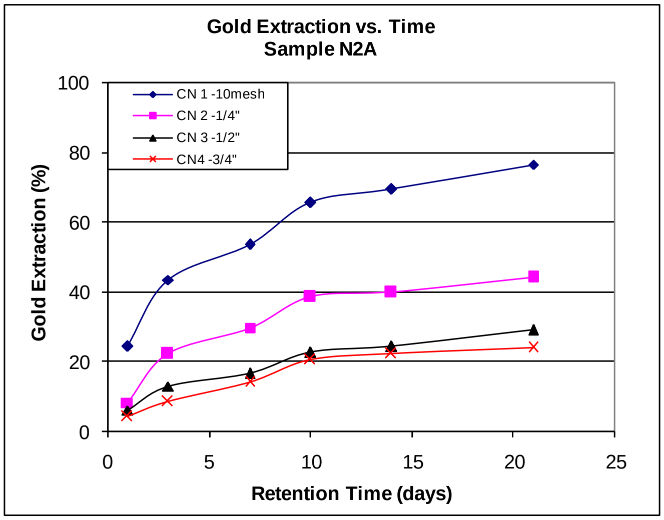


Figure 17: Gold extraction vs Leach time (Sample 2A)

Source: Extracted from La Fortuna Summary_Feb 2009_Rev2, Project 11819-002

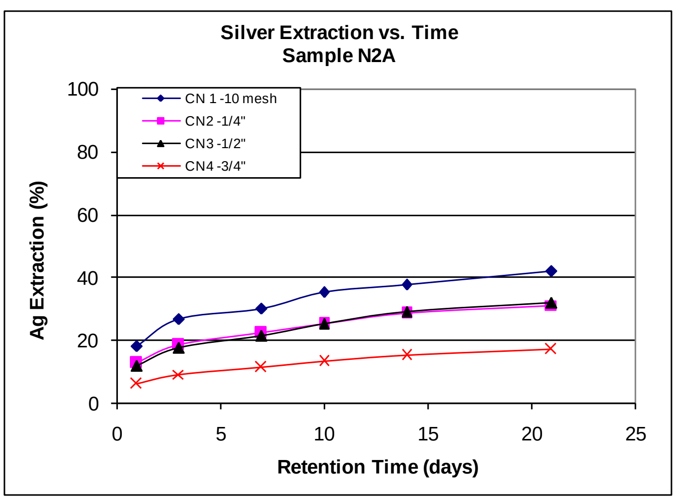


Figure 18: Silver extraction vs Leach time (Sample 2A)

Source: Extracted from La Fortuna Summary_Feb 2009_Rev2, Project 11819-002

13.3.4 Ground Ore Cyanidation

Three standard cyanidation bottle roll tests were performed on sample N2A ground to 75 microns. All tests were conducted at 40% pulp density, pH 10.5-11, and 1.0 g/L NaCN in a bottle for 72 hours. The results are presented in Table 10 below.

Table 10: Results of ground ore cyanidation tests on La Fortuna sample

Test	Particle size (microns)	Au calculated head (g/t)	Au extraction (%)	Overall (gravity + CN)	Ag calculated head (g/t)	Ag extraction (%)	Overall (grav + CN)	Cu extraction (%)*
N2A Head Sample		**1.46**			**12.8**			
CN-G5	73	1.64	97.6		12.5	54.0		21.2
CIL-G1	73	1.40	97.5		12.3	57.2		24.8
N2A – Gravity tails from Test GRAV1								
CN-G6	78	0.21	88.1	99.0	8.6	66.2	79.0	24.1

**Based on final solution and direct head assay*
Source: Extracted from La Fortuna Summary_Feb 2009_Rev2, Project 11819-002

After 72 hours of leach time, the gold recovery to solution in both tests was close to 98% and the silver recovery was approximately 55%. Cyanide consumptions ranged from 2.2 kg/t to 2.3 kg/t in these tests. The results were very similar to the historical testwork completed by the CMRI in 1995.

The key conclusions made from this ground ore cyanidation testwork included:

- The gold in the La Fortuna samples is readily leachable and not encapsulated in the sulphide grains. This is further evidence that majority of the gold is present as free gold grains.
- Excellent cyanidation recoveries (+97% for gold) are achievable even with coarse grind sizes of up to 300 microns (sulphide grains in the ore are coarse in size).
- Cyanide consumptions are reasonable at approximately 2 kg/t.
- Leach times are fast with very little extra recovery of gold after the initial 24-hour leach period.

13.3.5 Gravity Recovery

A gravity-recoverable gold test was performed on the sample N2A using a lab-scale Knelson concentrator. This was a three-pass centrifugal Knelson concentrator test (250/100/75 microns). The gravity tails from the first pass through the Knelson are then ground to a finer size and run through the machine a second time. The procedure is then repeated a third time before a final gravity tailings product is achieved. The purpose of this technique is to obtain an overall gravity recoverable gold curve that can be used for process design. The test results are summarized in Table 11 and Figure 19 below. It can be seen the gold contained in the N2A Fortuna sample is very amenable to gravity separation techniques. This is further confirmation of the coarse nature of the gold grains in the mineralization.

In summary, the gold in the La Fortuna deposit responds positively to gravity separation techniques. Ninety percent of gold is recoverable into concentrate containing 10% of the mass, which confirms/improves on historical data.

Table 11: Gravity recoverable gold from N2A sample (head assay 1.46 g/t Au and 12.8 g/t Ag)

Product	Weight		Assays (g/t)		% distribution	
	g	%	Au	Ag	Au	Ag
1st + 2nd pass Conc.	198.2	4.95	33.1	70.2	86.0	27.5
1st + 2nd + 3rd pass Conc.	285.8	7.14	24.6	67.0	92.0	37.9

Source: Test GRAV1, La Fortuna Summary_Feb 2009_Rev2, Project 11819-002

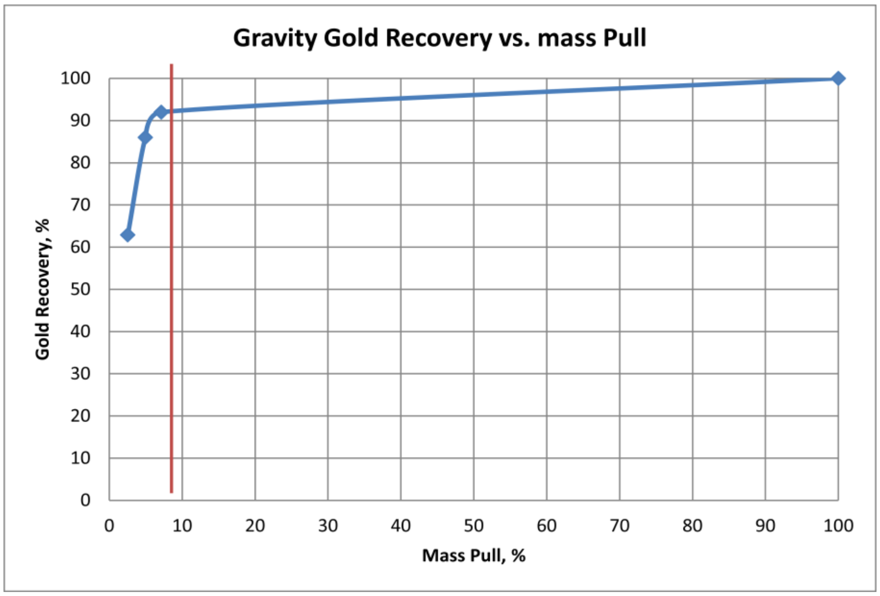


Figure 19: Gravity gold recoveries vs Mass-pull

Source: La Fortuna Summary, Feb 2009_Rev 2, Project 11819-002

13.3.6 Flotation

La Fortuna sample N2A was subjected to a series of rougher flotation tests at different grind sizes in order to examine the ultimate gold recoveries that might be achievable using this technique (assuming further downstream processing will be present). The results of the sample N2A single rougher flotation work are illustrated in Figure 20.

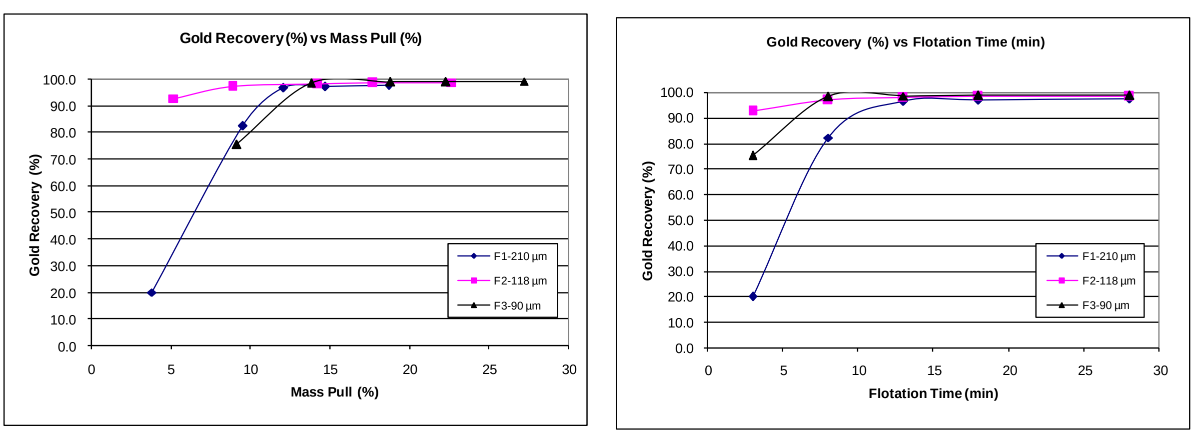


Figure 20: Gold recoveries vs. Mass-pull and flotation time

Source: La Fortuna Summary, Feb 2009_Rev 2, Project 11819-002

Overall, the testwork confirmed previous historical work that indicated rougher flotation recoveries of 96-98% were possible. The key conclusions from this testwork are as follows:

- Overall gold recoveries of +96% are possible using a single rougher flotation stage.
- The optimal mass recoveries for the flotation stage appear to be approximately 10–15%. There is evidence that additional grind size optimization can reduce this mass recovery to <10% without sacrifice of overall recoveries.
- The silver content is recovered with similar efficiencies to those observed for gold. This difference in the silver recoveries via flotation vs gravity techniques indicates that a significant portion of the silver content is likely present in the form of sulfo-salts.

13.3.7 Ore Sorting

In the 2008 test program, ore sorting to improve ore grade was also investigated. Ore sorting is common in Europe and other parts of world to upgrade ore prior to further processing. Two techniques were identified for testing:

- Dual energy x-ray transmission (DEXRT)
- Microwave heating and infrared temperature detection.

The samples from N2 and N3 material were crushed to -1” and 200 particles within the size range +0.5” to 1” were selected from both the N2 and N3 samples. One set of samples was delivered to Terra Vision for a DEXRT bench-scale study, whilst the other was used for microwave testing.

Bench-Scale DEXRT Test

The goal of the benchtop studies was to determine the feasibility of using an automated DEXRT ore sorter to separate gold mineralization into a high-grade product and a lower grade waste stream. Tests were performed by Terra Vision™ using a benchtop ore sorting system that separates various minerals on the basis of their colour, texture, x-ray transmission features and/or UV fluorescence characteristics. In the Fortuna deposit, the gold generally appears in close proximity to sulphide minerals (primarily pyrite) that should be distinguishable using DEXRT methods from the non-sulphide host rocks.

The DEXRT tests showed promising results for both sets of samples as described above. Figure 21 and Figure 22 show the theoretical gold recovery vs mass-pull for both samples. These charts indicate that a good separation between product and waste is possible.

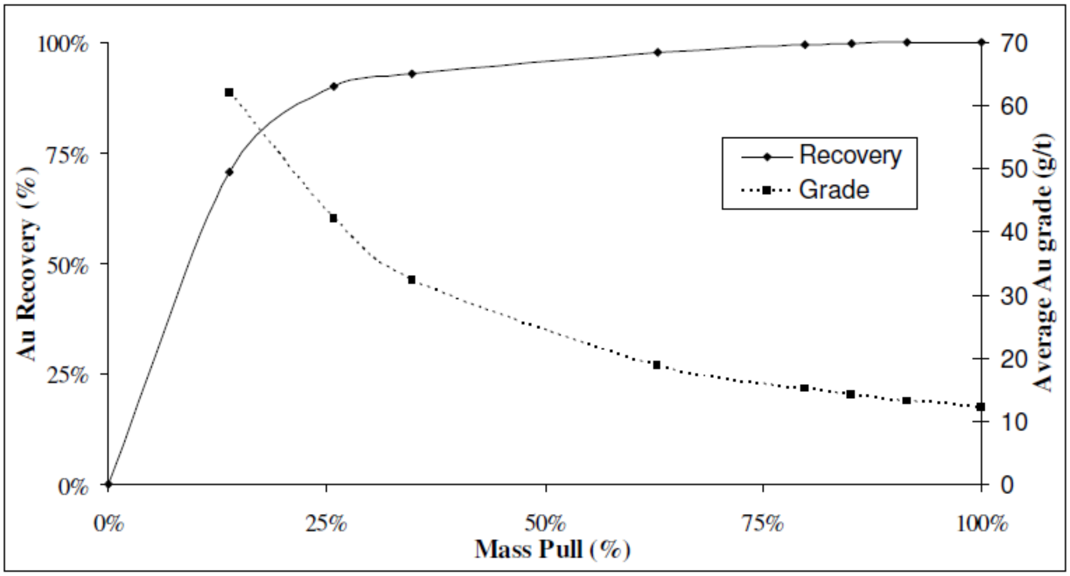


Figure 21: Au recovery against mass-pull for DEXRT test (high grade N3 sample)

Source: SGS report "11819-003 Final Rpt Oct 28"

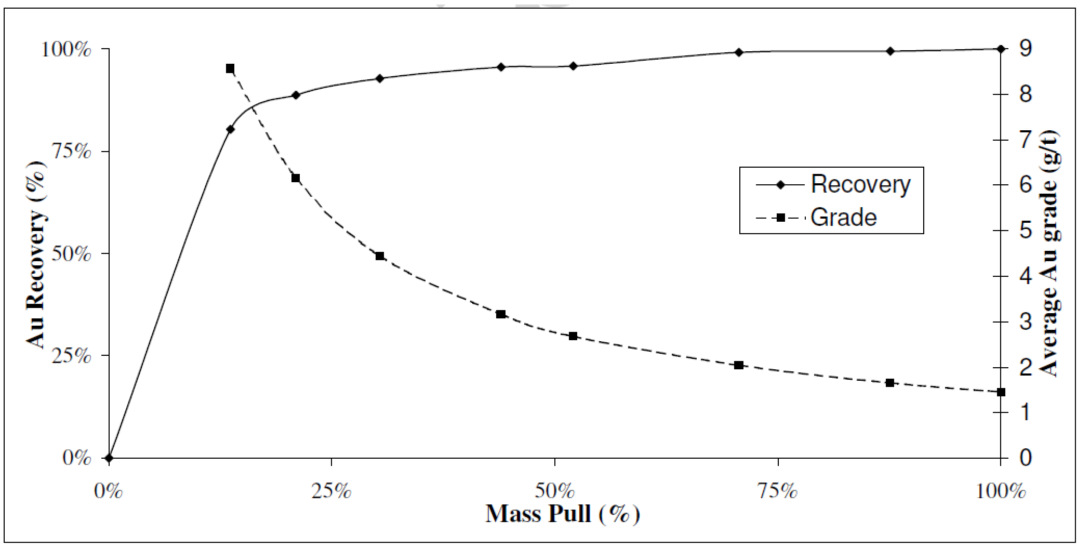


Figure 22: Au recovery against mass-pull for DEXRT test (low grade N2 sample)

Source: SGS Report "Assay Data_DEXRT Sorting_Low Grade Sample_CALR-11819-003"

The results indicated that 85–90% of gold could be recovered into an upgraded concentrate with a mass recovery of 25%. The gold content of the product was 42 g/t from a feed head assay of 12 g/t for the high-grade sample (N3) and 7 g/t for the low-grade material containing 1.46 g/t gold.

The separation curves generated from the batch data are relatively sharp with the DEXRT sensors capable of detecting rocks down to low sulphide contents that equate to a gold content approaching 0.2–0.3 g/t. The testwork shows that in addition to producing high grade concentrate, there is also the potential for the DEXRT system to be used primarily for waste rejection achieving very high gold recoveries. In this arrangement, over 97% of the Au and 96.5% of the Ag can be extracted into 67% of the total sample mass. The grades associated with these recoveries were 21.5 g/t Au and 205 g/t Ag.

Production-Scale DEXRT Test

The objective of these tests was to confirm the results generated in the Terra Vision benchtop tests using a full-scale DEXRT sorter. Several separations of high-grade and low-grade samples from La Fortuna property were undertaken on a production scale DEXRT unit in the Commodas lab in Germany.

Figure 23 below illustrates concept of an ore sorting machine.

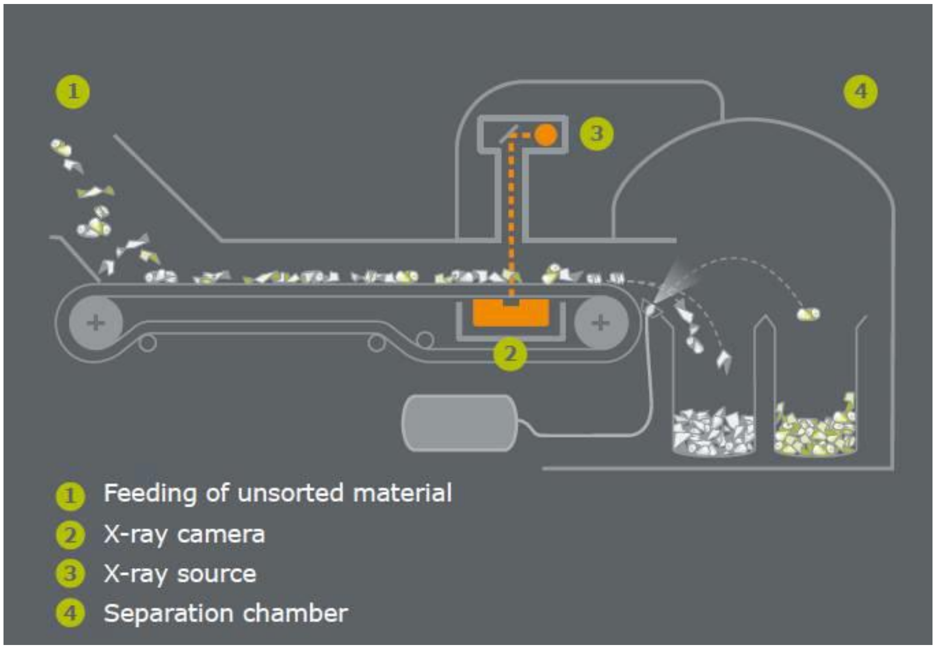


Figure 23: Schematic of operation of a sorter

Source: Terra Vision Report "CastleGold_DEXRT_Germany_2009.05.09_REV1"

Samples from the La Fortuna deposit, referenced as N4 and N5, were provided to the Commodas lab to be sorted by a full-scale DEXRT sorter (MikroSort). Both samples were removed as coarse rock from exposed mineralized surfaces in one of the old adits at the La Fortuna mine site. Sample N4 was selected as a low-grade sample, assumed to be similar to the N2 sample that was used to create the low-grade training set. Sample N5 was selected as a high-grade sample, assumed to be similar to the N3 sample that was used to create the high-grade training set. It should be noted that the assumed grades for both the N4 and N5 samples were taken from previous available wall channel sampling and that neither sample was assayed directly prior to the sorting testwork as the coarse rock was shipped directly for upgrading. Training sets from the earlier benchtop tests were used to configure the MikroSort sorter prior to processing the new bulk samples.

Samples N4 and N5 were crushed to -60 mm and each were screened into several size fractions. The following samples were used in sorting tests:

- N4 and N5, +32 mm – 60 mm
- N4 and N5, +16 mm – 32 mm
- N4 and N5, +10 mm – 16 mm.

The recovery curves for the tests are presented in Figure 24 and Figure 25. Sorting of the high grade N4 sample shows similar results to those attained during the benchtop study with Au recoveries hovering around 90% once the mass-pulls reach 25%. Also of note, all three particle sizes tested gave similar results indicating that fine crushing is not required to obtain efficient sorting separations.

With the low-grade sample, a general recovery curve appears to be present but more scatter exists with respect to recoveries especially with the 32–60 mm rocks. Subsequent analysis of the test results indicated that sample N5 actually contained a very low initial gold content (0.7–0.8 g/t Au) which was well below expected values. Given the low starting point, the recoveries achieved during sorting are consistent with previous work demonstrating a limit to the sorting sensor sensitivity at a sulphide content equivalent to approximately 0.3 g/t Au. At these low sulphide levels, crushing below a size of 32 mm appears to significantly improve the sorting reliability.

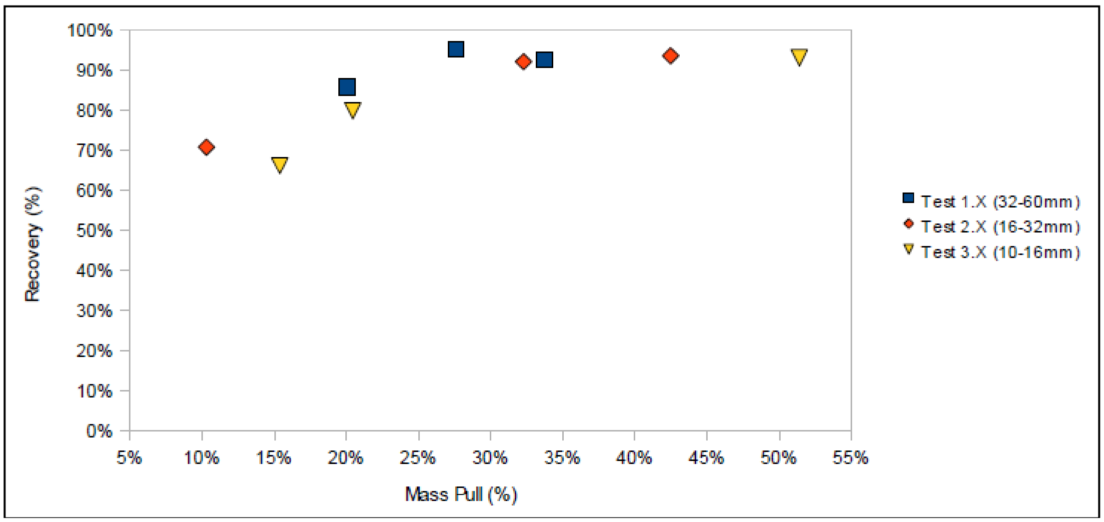


Figure 24: Au recovery vs Mass-pull from full-scale DEXRT sorting trials (N4 high-grade sample)

Source: Terra Vision Report "CastleGold_DEXRT_Germany_2009.05.09_REV1"

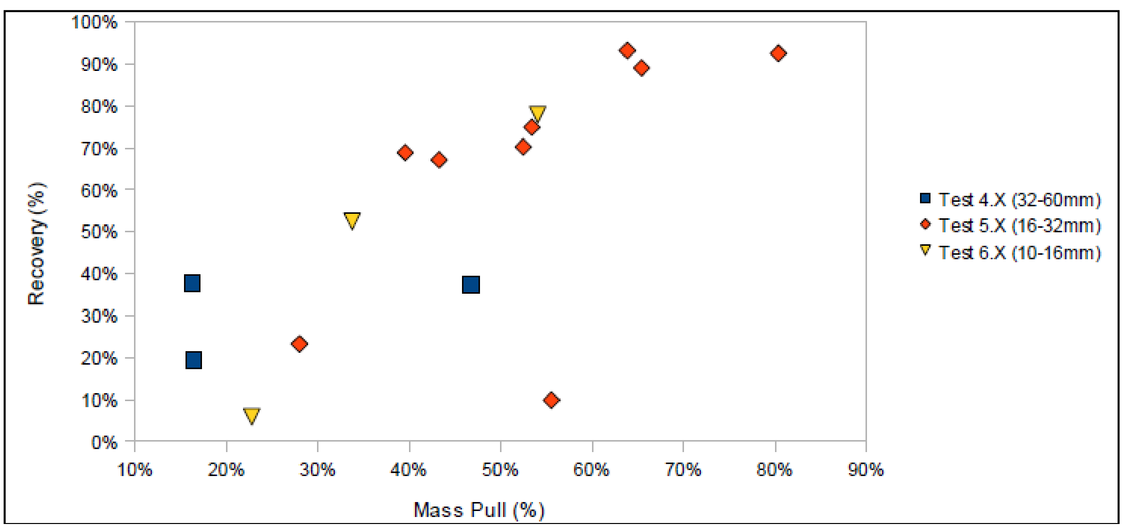


Figure 25: Au recovery vs Mass-pull from full-scale DEXRT sorting trials (N5 low-grade sample)

Source: Terra Vision Report "CastleGold_DEXRT_Germany_2009.05.09_REV1"

Microwave Sorting

The objective of this work was to study the possibility of upgrading a sample of La Fortuna ore by sorting rocks as a response to microwave radiation heating. Microwave heating/sorting is a new method at the early stage of testing by various sorting equipment manufacturers but is not yet commercially available. The lab-scale batch testwork was completed at the result of one of these manufacturers in order to expand their development database for the technology.

The tests were performed on two samples taken from composites N2 and N3 described above. Microwave ore sorting on the high grade N3 sample achieved a 91 g/t concentrate grade at 90% gold recovery and 16% mass-pull from a head grade of 15.7 g/t. With the low-grade N2 sample, the sorting concentrate had a grade of 4.5 g/t at 75% gold recovery and 13% mass-pull. The tests indicated conceptually that the use of microwave pre-heating and sorting was capable of separating low-grade waste material prior to downstream gold recovery. The results largely confirmed the results from the DEXRT sorting work where rocks containing gold largely correlate with the presence of sulphides that can be detected by both systems.

13.4 2016/2017 Testwork Program

The 2016/2017 testwork program conducted at SGS (Lakefield) focused on improving and optimizing the results from previous programs in the 1990s and 2008 and obtaining additional information required for flowsheet development and equipment sizing purposes. Metallurgical work focused primarily of maximizing gold recovery by combinations of gravity and flotation and leaching in addition to determining physical parameters related to comminution, filtration etc. The program was successful, verifying and improving on previous results to provide a robust overall flowsheet for the potential development of the Project.

13.4.1 Metallurgical Testwork Samples

Two batches of mineralized material (quarter-core from 2007 twin holes) were sent to the SGS Lakefield facilities in January and July of 2016 for the planned testwork programs. Samples were identified as composite samples #1 and #2 with the drill core intervals and assays summarized in Table 12 and Table 13 below.

Table 12: Composite sample #1 assay intervals

Sample ID	Drillhole	From	To	Width	Au (ppm)	Cu (ppm)	Weight (kg)
F-01	LF56-08	62.0	72.0	10.0	1.426	1277	15.85
F-02	LF56-08	110.0	120.0	10.0	1.343	722	16.56
F-03	LF61-08	69.6	77.3	7.7	1.848	2590	12.98
F-04	LF61-08	92.0	104.0	12.5	1.788	1205	19.42
F-05	LF28-08	52.0	55.6	3.6	11.22	9183	6.06
F-06	LF61-08	77.3	80.5	3.2	13.084	11631	5.44
F-07	LF30-08	65.7	67.5	1.8	9.764	8115	4.50
F-08	LF28-08	43.8	49.4	5.6	9.562	6203	10.05

Source: "Met Samples Fortuna Summary.xls"

Table 13: Composite sample #2 assay intervals

Sample ID	Drillhole	From	To	Width	Au (ppm)	Ag (ppm)	Cu (ppm)	Weight (kg)
LF30A	LF30-08	32.0	42.0	10.0	1.171	21.3	1588	17.40
LF30B	LF30-08	42.0	50.0	8.0	1.683	27.9	3154	14.05
LF30C	LF30-08	50.0	60.0	10.0	4.169	51.3	3532	16.35
LF30D	LF30-08	60.0	65.2	5.2	6.621	43.6	2834	7.75
LF30E	LF30-08	66.5	72.0	5.5	6.690	39.4	3873	5.60
LF100A	LF29-08	47.0	54.0	3.4	2.715	13.5	1735	9.25
LF100B	LF29-08	54.9	60.0	3.2	2.590	38.1	2403	9.05
LF100C	LF29-08	60.0	67.1	5.1	8.361	35.9	2938	11.40

Source: "Met Samples Fortuna Summary.xls"

The composite samples were selected to represent a range of higher (#1) and lower (#2) copper areas of the gold mineralized zones. An analysis was performed to illustrate that the Cu/Au relationships in both samples (red dots in figure) were reasonably representative of these areas of the deposit (graph below).

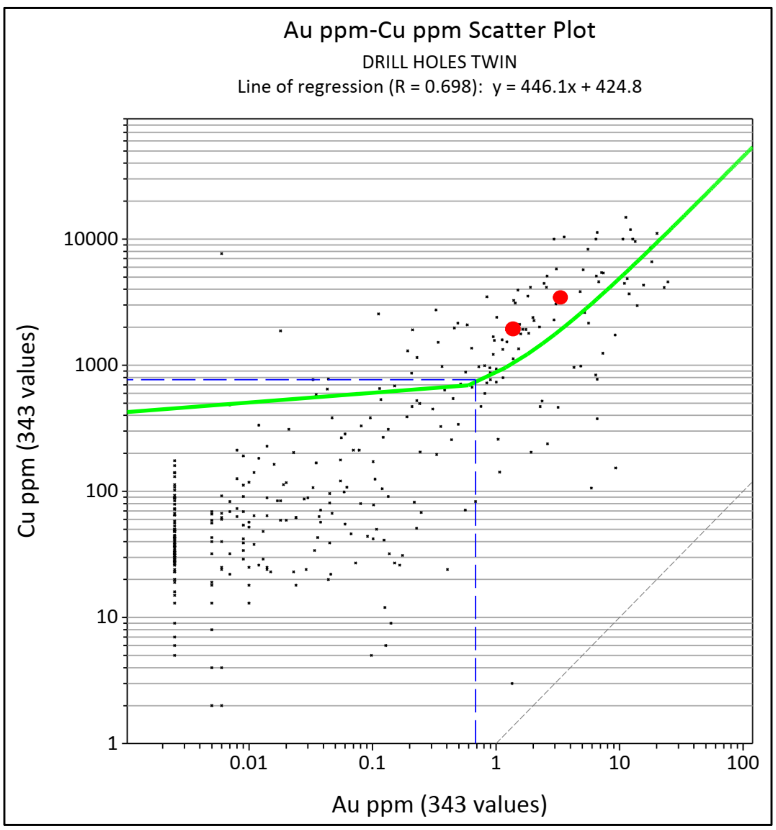


Figure 26: Cu vs Au relationship in Fortuna deposit based on drill core composite assay database

Note: Blue line represent approximate resource cut-off/red dots are value for two 2016/2017 SGS metallurgical composites.

13.4.2 Mineralogy

Both QEMSCAN and gold deportment studies were performed at different phases of the testwork program in order to have a more complete understanding of the make-up of the mineral assemblages in the deposit and the distribution of the gold.

Flotation Composite Feed

Prior to the initiation of flotation studies, a sample of the flotation feed composite was subjected to a QEMSCAN evaluation at the SGS Lakefield Advanced Mineralogy Facility. Sulphides were identified primarily as pyrite with a minor amount of chalcopyrite. Other sulphides including galena and sphalerite were identified at trace levels. The grain size distributions for the various components in the mineralized sample (as received) are illustrated in the figure below. The pyrite grains are relatively coarse (d80 ~150 µm) and the chalcopyrite somewhat finer and similar to the quartz/feldspar components (d80~ 90–100 µm). Overall, the two primary sulphide minerals in the deposit (pyrite/chalcopyrite) are relatively coarse with majority of grains categorized as free or liberated (little locked sulphide material).

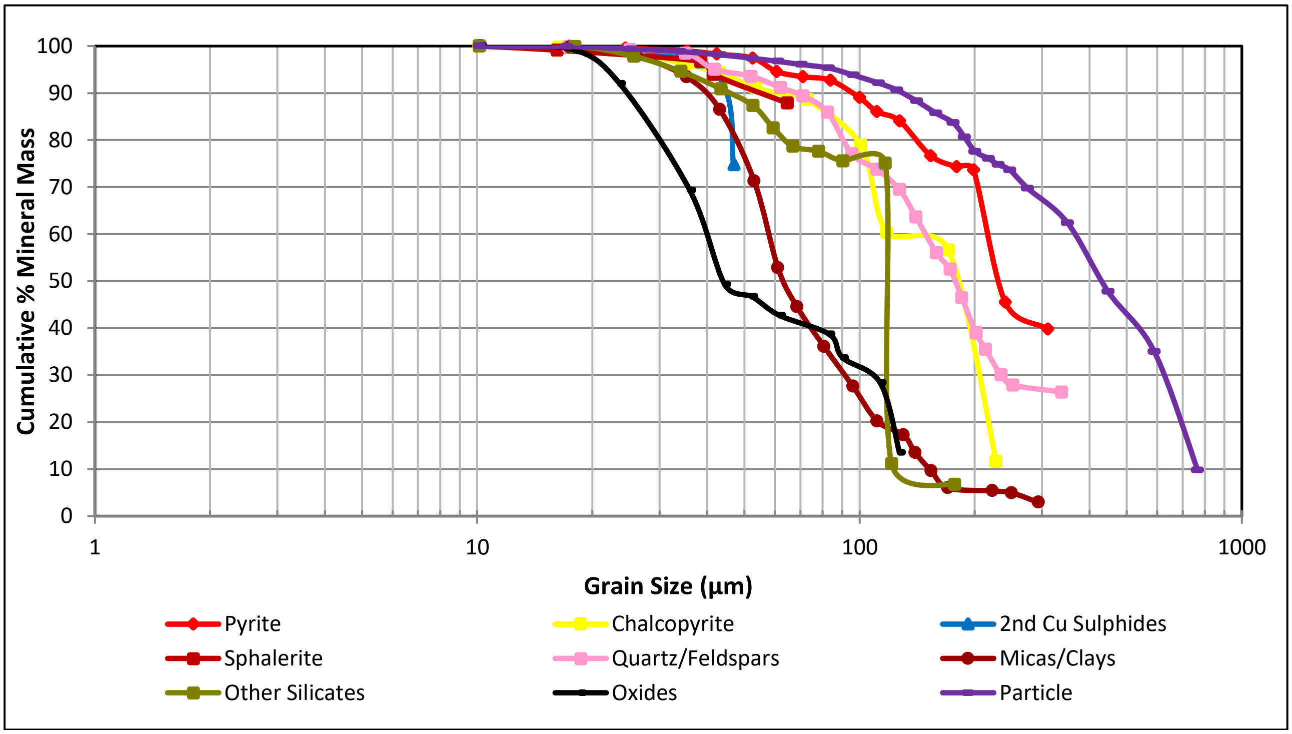


Figure 27: Mineral grain size distributions in metallurgical testwork sample (unground)

Bulk Concentrate Gold Deportment

Following the initiation of flotation studies, a composite rougher flotation concentrate sample (referred to as F3F5 Com Ro Conc) was sent to the Advanced Mineralogy Facility at the SGS Lakefield site and prepared for bulk mineralogy and gold deportment study. The bulk concentrates had been produced via flotation at coarse grind sizes (d80 >200 µm). The mineralogical analysis was conducted with QEMSCAN analysis and a Tescan Scanning Electron Microscope equipped with an Energy Dispersive Spectrometer (SEM-EDS) to determine the mineralogical characteristics of the as-received samples.

The sample was screened into three size fractions and analyzed without any pre-concentration. The gold grade was 27 g/t and the silver grade 383 g/t. Sulphur is 29.6%, copper 3.45%, iron 26.8%, arsenic 0.041%, antimony 0.15% and mercury 0.8 g/t.

Gold mineralogy by SEM-EDS observed a total of 64 gold grains in the size fractions. The gold grains include electrum, native gold and Au-Ag-(Bi) tellurides and indicated that liberated gold accounts for 52%, exposed for 6%, and locked for 42%.The bulk mineralogy of samples obtained by QEMSCAN analysis consists mainly of sulphides including pyrite (53%), chalcopyrite (10%), sphalerite (2%), galena (1%), tetrahedrite (0.5%), 2nd Cu Sulphides (0.3%) and other sulphides (0.02%). The remainder is made of quartz (21%), micas (7%), chlorite (2%), and other minerals in trace amounts (less than 1%).

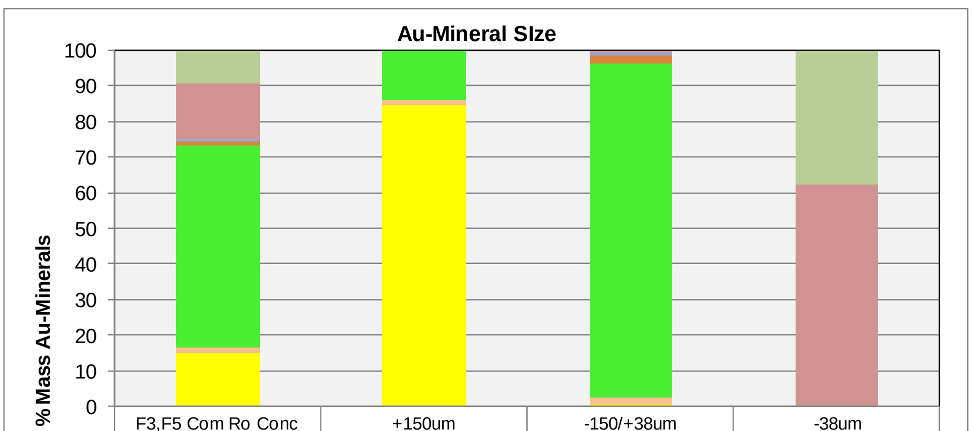
A total of 132 gold mineral grains were identified at SGS by QEMSCAN are in Table 14 below.

Table 14: Identified gold particle size range

	+150 µm			**-150/+38 µm**			**-38 µm**		
Number of Au grains	5	10	11	16	32	26	7	10	15
Total	**26**			**74**			**32**		

Source: "SGS 15480-002-gold report_V2, An Investigation into the Mineralogical Characteristics of A Flotation Concentrate From A Copper-Gold Deposit, Mexico"

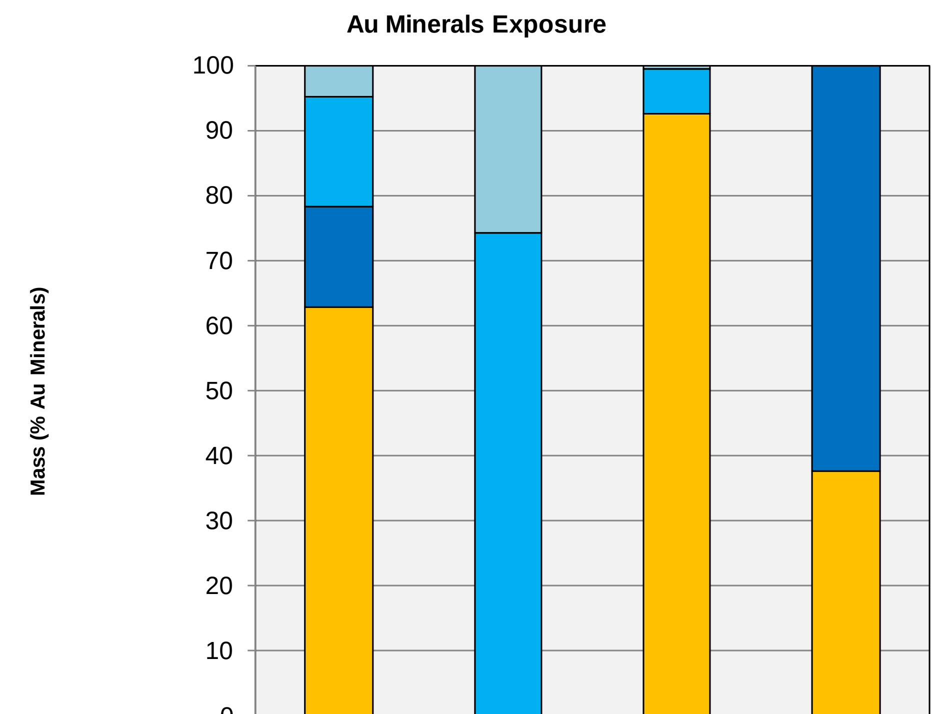
The mass of gold minerals (%) as a function of grain size and gold exposure are shown in Figure 28 and Figure 29 below. Approximately 63% of the gold minerals occur as free and liberated, and 37% as locked. The analysis shows that the non-liberated gold minerals occur as binary middling particles with pyrite (32%), and as complex particles (6%). Gold minerals that are exposed at greater than >20% (surface area) account for 78% in the sample. Given the coarse grind sizes utilized prior to flotation the data obtained support the amenability of Fortuna mineralization to high gravity recoverable gold (GRG) recoveries and cyanide leachability.



	F3,F5 Com Ro Conc	+150um	-150/+38um	-38um
-25	9.27	0.00	0.00	37.50
25-40	15.53	0.00	0.13	62.50
40-55	0.78	0.00	1.35	0.00
55-70	1.25	0.00	2.16	0.00
70-85	0.00	0.00	0.00	0.00
85-100	0.00	0.00	0.00	0.00
100-125	56.69	13.71	93.93	0.00
125-150	1.37	1.61	1.89	0.00
+150	15.10	84.68	0.54	0.00

Figure 28: Mass % of Au-minerals as a function of grain size in the bulk concentrate

Source: "QEMData_Minera Alamos_MI5014-MAY16-Gold Deportment_A-F3,F5 Com Ro Conc"



	F3,F5 Com Ro Conc	+150um	-150/+38um	-38um
Locked Au	4.8	25.8	0.5	0.0
>0-10% Exposed Au	17.0	74.2	7.0	0.0
10-20% Exposed Au	15.5	0.0	0.0	62.5
20-30% Exposed Au	0.0	0.0	0.0	0.0
30-40% Exposed Au	0.0	0.0	0.0	0.0
40-50% Exposed Au	0.0	0.0	0.0	0.0
50-60% Exposed Au	0.0	0.0	0.0	0.0
60-70% Exposed Au	0.0	0.0	0.0	0.0
70-80% Exposed Au	0.0	0.0	0.0	0.0
Exposed Au	62.7	0.0	92.4	37.5

Figure 29: Mass % of Au-minerals as a function of Au exposure in the bulk concentrate

Source: "QEMData_Minera Alamos_MI5014-MAY16-Gold Deportment_A-F3,F5 Com Ro Conc"

13.4.3 Gravity Recoverable Gold

Testwork was performed to examine the amenability of the flotation testwork composite to gold recovery by gravity separation. Samples were ground to the target size and then passed through a Knelson concentrator. A concentrate and a tailing were collected. The Knelson concentrate was upgraded on a Mozley table and the Mozley tailings then combined with the Knelson tailings and submitted for subsequent testwork. Tests G1 and G2 were performed on flotation composite. Test G3 was done on low-grade composite and material was ground to P_{80} of 305 microns. Table 15 presents the results from tests.

Table 15: Gravity separation results

Test ID	Product	Mass (%)	Assays (g/t)		% Distribution	
			Au	Ag	Au	Ag
G1	Mozley Conc.	0.06	3,300	3,933	36.0	5.5
	Combined Grav. Tail	99.94	3.47**	39.7**	64.0	94.5
	Head (calc.)	100.0	5.41	42.0	100.0	100.0
	Direct		3.35	43.7		
G2	Mozley Conc.	0.07	2,530	3,522	32.0	5.4
	Combined Grav. Tail	99.93	3.57**	41.2**	68.0	94.6
	Head (calc.)	100.0	5.24	43.5	100.0	100.0
	Direct		3.35	43.7		
G3	Knelson Conc.	0.40	96.1	198	26.3	4.5
	Knelson Grav. Tail	99.60	1.09	17.2**	73.7	95.5
	Head (calc.)	100.0	1.47	17.9	100.0	100.0
	Direct		2.42	16.2		

*** from Calculated heads of flotation tests.*
Source: "Final G-1-2-3, GRG-1.xls"

In addition, a three-pass gravity separation test (GRG) testwork was performed. The GRG testwork consists of an initial grind to a relatively coarse target size followed by a pass through the Knelson centrifugal concentrator. The tailings from this first pass are then ground finer and sent back through the concentrator for a second pass. This process is then repeated a third time at a final target size that is in the range of what would be expected during actual plant operations. The simulation is intended to provide an indication of the maximum amount of GRG that could be theoretically recovered during process plant grinding operations.

The result presented in Table 16 indicate a potential for +80% gold recovery at 70–80 µ. This would be as expected given the mineralogical study results that demonstrated the majority of gold mass is present as free grains >40–50 µ. Gravity recovery and the required mass-pulls are shown below in Figure 30 and Figure 31.

Table 16: GRG concentrate

Size -80% passing	Cumulative recovery (%)		
	Mass	Au	Cu
451	2.03	36.4	6.9
187	3.18	62.7	12.9
82	4.21	80.8	13.8

Source: "Final G-1-2-3, GRG-1.xls"

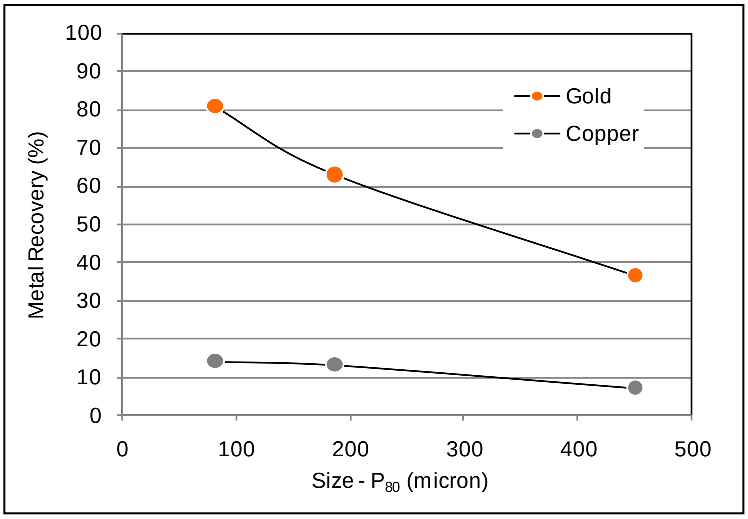


Figure 30: GRG gold recovery vs Grind size (2.2 g/t sample), (Final G-1-2-3, GRG-1)

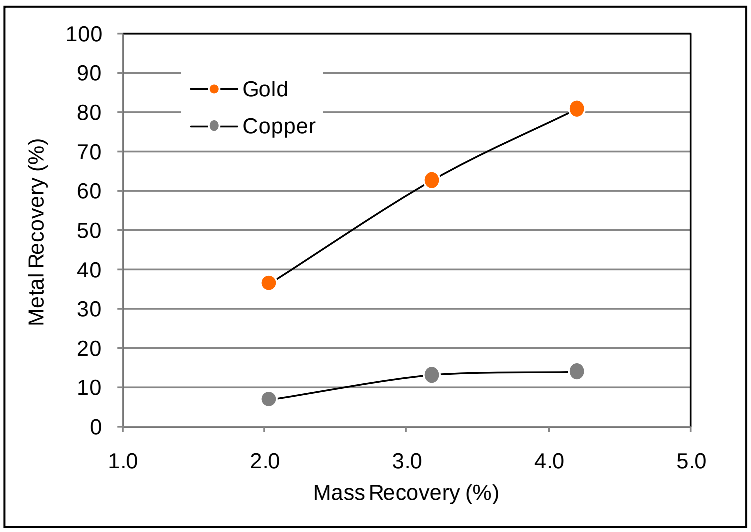


Figure 31: GRG gold recovery vs Mass recovery (2.2 g/t sample), (Final G-1-2-3, GRG-1)

The results from the recent gravity testwork studies largely mirror those from previous historical work. Due to process inefficiencies (and depending on where the centrifugal concentrator is included in the process) expected gravity recoveries during actual plant operations would be somewhat reduced from laboratory values. In addition, plant mass-pulls (and copper recoveries) are typically significantly less than those achieved in the laboratory due to the relatively small lab sample sizes which are processed.

13.4.4 Flotation Concentration

Historical flotation testwork at the La Fortuna Project demonstrated the potential for high gold recoveries via flotation. Both free gold and associated sulphides (pyrite/chalcopyrite) float easily. A series of tests was performed to examine the amenability of the flotation composite gravity tailings to gold extraction through flotation.

Bulk Flotation of Gravity Separation Tails

Initial tests were completed using basic reagents (i.e. potassium amyl xanthate (PAX) collector and methyl isobutyl carbinol (MIBC) frother) achieved bulk flotation gold recoveries up to 98–99%. Gold sulphides also floated aggressively. Typical mass recoveries (mass-pulls) of 8–10% (maximum) were recorded. Bulk concentrate gold recoveries in the high 90s were achieved at a grind size of 300 µ (Figure 32). Table 18 presents key element analysis of the bulk flotation concentrate.

Table 17: Bulk flotation test results

Test No.	Feed	P_{80} µm	Product	Wt %	Assays, g/t, % Au	Ag	S	Distribution, % Au	Ag	S	Flot+Gsp Rec'y, % Au	Ag
G1			Grav Conc								**33.9**	**5.4**
F1	G-1 tail	123	3 min Ro Conc	5.24	51.5	589	44.3	73.6	75.4	76.9	82.6	76.7
			6 min Ro Conc	6.91	48.2	540	41.2	90.8	91.0	94.2	93.9	91.4
			10 min Ro Conc	7.73	45.4	500	37.8	95.7	94.4	96.9	97.2	94.7
			13 min Ro Conc	8.23	43.3	474	35.8	97.2	95.3	97.6	98.2	95.5
			Rougher Tail	91.77	0.11	2.1	0.08	2.8	4.7	2.4		
			Head (calc)	100.00	3.67	41.0	3.02	100.0	100.0	100.0		
F2	G-1 tail	180	3 min Ro Conc	6.70	52.7	515	40.4	89.8	85.6	88.0	93.2	86.4
			6 min Ro Conc	8.34	46.4	459	35.9	98.3	95.0	97.3	98.9	95.3
			10 min Ro Conc	9.09	42.8	427	33.3	98.8	96.4	98.2	99.2	96.6
			13 min Ro Conc	9.57	40.7	408	31.7	99.0	96.9	98.5	99.3	97.0
			Rougher Tail	90.43	0.05	1.4	0.05	1.0	3.1	1.5		
			Head (calc)	100.00	3.93	40.3	3.08	100.0	100.0	100.0		
F3	G-1 tail	208	13 min Ro Conc	9.61	28.0	378	29.8	96.3	95.7	98.4	97.5	95.9
			Rougher Tail	90.39	0.12	1.80	0.05	3.7	4.3	1.6		
			Head (calc)	100.00	2.79	37.9	2.91	100.0	100.0	100.0		
G2											**31.7**	**5.5**
F4	G-2 tail	310	3 min Ro Conc	6.36	45.2	543	41.2	79.6	85.4	88.1	86.0	86.2
			6 min Ro Conc	8.21	40.7	458	34.8	92.5	93.1	96.1	94.9	93.5
			10 min Ro Conc	9.41	37.7	410	30.9	98.1	95.4	97.6	98.7	95.7
			13 min Ro Conc	10.05	35.4	386	29.0	98.4	96.0	98.0	98.9	96.2
			Rougher Tail	89.95	0.07	1.8	0.07	1.6	4.0	2.0		
			Head (calc)	100.00	3.61	40.4	2.97	100.0	100.0	100.0		
F5	G-2 tail	310	13 min Ro Conc	10.61	32.2	381	30.0	97.1	96.2	98.3	98.0	96.4
			Rougher Tail	89.39	0.12	1.80	0.06	2.9	3.8	1.7		
			Head (calc)	100.00	3.52	42.0	3.24	100.0	100.0	100.0		

Source: "Flotation_F1 to F4"

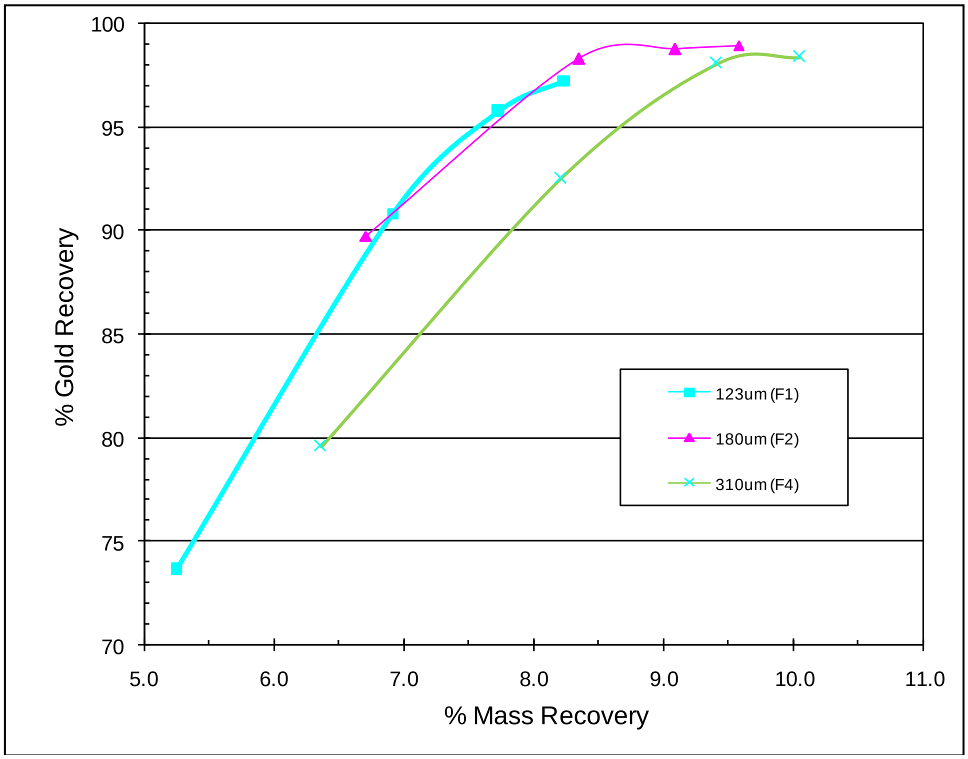


Figure 32: Grinding size impact on bulk flotation recovery

Source: "Flotation_F1 to F4"

Table 18: Bulk concentrate key element analysis

Element		F3, F5 Comb, Ro Conc
Au, average	g/t	28
Ag, average	g/t	383
S	%	29.6
Cu	%	3.45
Fe	%	26.8
As	%	0.041
Sb	%	0.15
Hg	g/t	0.8

Source: "Copy of Flot Product Analysis"

Copper Cleaner Flotation

A second phase of testwork was completed to examine the use of copper cleaner flotation following the bulk flotation to produce saleable copper concentrate approaching 20% (or greater) copper content. The goal of the cleaner flotation route was to provide the ability to regrind a bulk concentrate and use modified reagent scheme(s) to produce a salable copper concentrate prior to cyanidation of a flotation tail (if required). The elimination of copper sulphides prior to concentrate cyanidation can also significantly lower overall cyanide consumptions if the concentrate can be sold directly.

Copper flotation response, including the results of locked-cycle test LCT1, is shown in Figure 33 below. Mass-pull, copper recoveries and grade of copper concentrate are presented in Table 19 and Table 20. Tests F13, F15, and LCT1 were performed using composite #1, and the rest using composite #2.

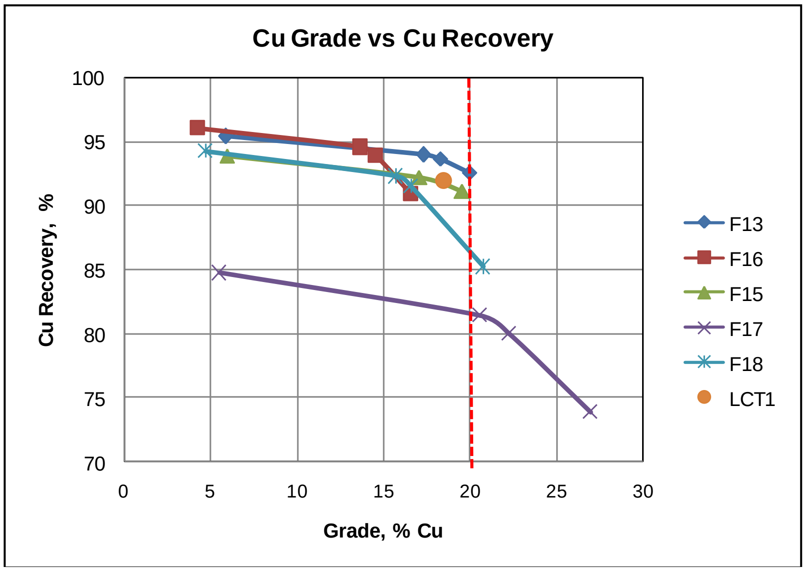


Figure 33: Copper grade vs Recovery curves

Source: "003 Flotation-2.xls"

Table 19: Bench copper cleaner flotation test results

Test no. feed	Regrind P_{80}, µm	Product	Mass-pull (wt%)	Assays (g/t, %)				Distribution (%)				Flot+Gsp Recovery (%)	
				Au	Ag	Cu	S	Au	Ag	Cu	S	Au	Ag
F13	40	Cu 2nd Cl Conc	1.86	127	1,788	20.0	37.9	95.5	83.3	92.6	36.1	97.1	84.9
F15	47	Cu 2nd Cl Conc	1.91	127	1,765	19.6	39.2	91.3	81.6	91.1	37.3	94.5	83.4
F16	50	Cu 2nd Cl Conc	1.77	140	1,745	16.6	40.6	89.6	81.7	90.9	34.1	94.4	83.6
F17	49	Cu 2nd Cl Conc	0.90	197	2,179	27.0	34.8	75.6	52.0	73.9	15.2	86.8	57.1
F18	70	Cu 2nd Cl Conc	1.33	157	1,969	20.8	37.6	83.2	69.2	85.2	24.2	90.9	72.4

Source: "003 Flotation-2.xls"

Table 20: LCT copper cleaner flotation results

Product	Weight (g)	Weight (t)	Assays (g/t, %)				Distribution (%)			
			Au	Ag	Cu	S	Au	Ag	Cu	S
2nd Cleaner Conc	124.3	2.0	125	1,664	18.5	40.3	94.0	83.8	91.9	41.8
1st Cleaner Scav Tail	283.8	4.7	1.62	73.7	0.17	23.1	2.8	8.5	1.9	54.7
Rougher Tail	5,664.9	93.3	0.09	3.38	0.027	0.07	3.2	7.8	6.2	3.5
Combined Tail	5,948.7	98.0	0.17	6.74	0.034	1.17	6.0	16.2	8.1	58.2
Rougher Conc	408.1	6.7	39.2	558	5.76	28.3	96.8	92.2	93.8	96.5
Head	6,073.0	100.0	2.72	40.7	0.41	1.97	100.0	100.0	100.0	100.0

Source: "Locked Cycle LCT-1.xls"

Both bench-scale and LCT test results confirmed that recovery of +90% of contained copper is attainable into a final concentrate grading approximately 20%. The copper concentrate contains high contents (1,500 g/t to 2,000 g/t) of silver that is saleable in concentrate but largely unleachable by conventional cyanidation (sulphides/sulfosalts unleachable in cyanide).

13.4.5 Cyanidation of Gravity Concentrates

Testwork was completed to examine the cyanide leaching of gold from gravity concentrates. Cyanidation of gravity concentrate was performed on materials generated in gravity concentration tests. Three tests (CN-16, CN-32 and CN-33) were performed and results are given in Table 21 below.

Test CN-16 examined the cyanide leach response of a low-grade composite gravity concentrate generated in the G-3 gravity concentration test. The leach was performed at 20% solids and maintained at 20 g/L NaCN in solution for 48 hours.

Table 21: Low-grade composite gravity concentrate cyanidation result

Product	Amount (g, mL)	Assays (mg/L, g/t, %)			% Distribution		
		Au	Ag	Cu	Au	Ag	Cu
24 h Preg Sample	254	14.5	20.4	512	91.1	44.8	60.0
Final Preg Solution	248	15.2	19.3	521	96.9	43.2	62.0
Final Residue	63.6	2.01	104	0.13	3.1	56.8	38.0
Head (calc.)	63.6	63.7	182	0.34	100.0	100.0	100.0

Source: "Copy of CN 13 - 17 Conc leaches_Include gravity conc CN16"

CN-32 and CN-33 were arranged as a two-stage cyanide leach using gravity concentrate from Mozley concentrates. The first stage (CN-32) was maintained at low cyanide strength (1.5 g/L) to monitor how quickly cyanide is consumed for the duration of the test and second stage (CN-33) was to determine the additional gold recovery from the CN-32 residue by intensive cyanidation at 20 g/L NaCN concentration.

Table 22: Flotation composite Mozley gravity concentrate cyanidation result

Product	Amount (g, mL)	Assays (mg/L, g/t)		% Distribution	
		Au	Ag	Au	Ag
2 h Preg Solution	53	353	110	60.1	7.1
4 h Preg Solution	52	364	109	74.4	8.5
7 h Preg Solution	54	333	96.9	85.4	9.6
Final Stage 1 Preg Solution	51	333	96.2	95.0	10.6
4 h Preg Solution	143	8.84	23.2	4.1	4.0
8 h Preg Solution	131	9.46	25.0	4.3	4.3
Final Stage 2 Preg Solution	123	9.67	28.0	4.5	4.9
Final Residue	13.1	10.7	5,270	0.4	84.5
Head (calc.)	13.1	2,373	6,239	100.0	100.0
Combined Stage 1 + Stage 2 Recovery				**99.6**	**15.5**

Source: File "Gravity Conc ICN.xls"

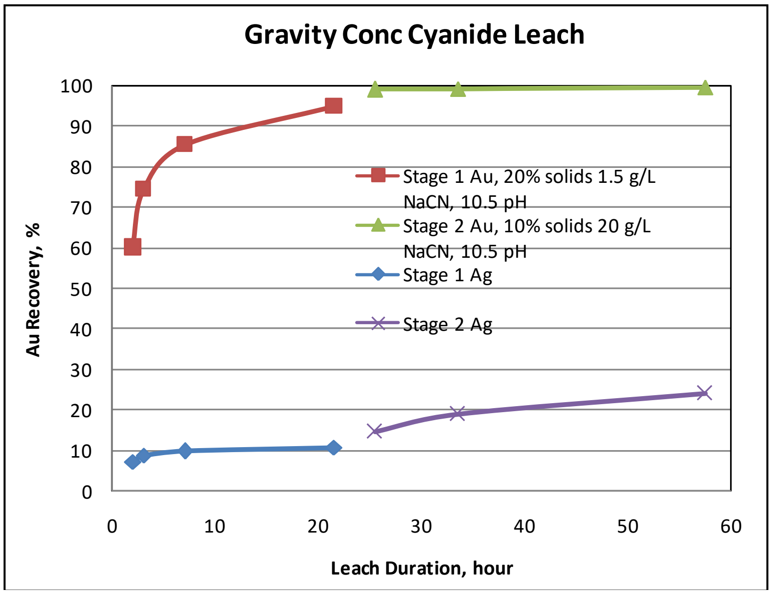


Figure 34: Gravity concentrate leach curve

Source: "Gravity Conc ICN.xls"

Test results demonstrated that the gravity concentrate is readily available for leaching (i.e. gold is exposed) and not encapsulated. Leach recoveries are largely unaffected by original gold content in samples and gold leach kinetics are fast with recoveries typically at 96–98% in 24 hours leach time. The results also showed that elevated cyanidation concentrations only slightly improved gold recovery.

Silver leach recovery was relatively low in the testwork and leach kinetics were slow. Additional testwork may be warranted to examine how intensive cyanidation can increase the silver recoveries. Oxygen assisted leaching will also improve both gold and silver recoveries.

13.4.6 Grinding

During the 2016 test program, additional grindability tests were performed.

- The first test was done on material identified as heap leach composite which was drill core material that averaged approximately 2 g/t Au. The BWI of this material is reported at 16.1 kWh/t (metric).
- An estimated modified BWI (named as MBI) was obtained for a flotation composite which was also material from drill core but was blended to get a higher grade of approximately of 4 g/t Au. The MBI of flotation composite is 15.6 kWh/t.
- Later a grindability test was performed on a sample of sorting composite. The BWI of this material is 18 kWh/t (metric), which is very similar to the results, 17.5–18.6 kWh/t, obtained from 2008 testwork.

13.5 2016/2017 Testwork Conclusions

The 2016/2017 test programs confirmed that gold in La Fortuna deposit is recoverable by most conventional extraction techniques. Although completed to a higher level of detail, this confirmed the results of historical work on the Project:

- Gold is associated with sulphide content (primarily pyrite with minor chalcopyrite), which creates an opportunity to upgrade low-grade mineralization through ore sorting. DEXRT sorting techniques appear to be able to reject material containing approximately 0.3 g/t Au or less.

- GRG testwork indicates potential for +80% gold recovery at 70–80 microns, which provides opportunity to recovery majority of gold content by cyanide leach of gravity concentrate. Expected production plant recoveries would be 60–80% of this value depending on where the centrifugal concentrator(s) is placed in the process.
- Bulk flotation gold recoveries up to 98–99% are achievable at typical mass recoveries of 8–10%. A combination of gravity with flotation concentration creates a robust process for achieving high gold (high 90s), copper and silver recoveries despite variations in ore mineralization already encountered.
- Ability to produce saleable copper concentrate (~20% Cu content) prior to cyanide leach by regrinding bulk concentrate and using modified reagent scheme. Copper recoveries of +90% are achievable with ~20% copper content. Removal of copper sulphides prior to downstream cyanidation (if required) significantly reduces overall process cyanide consumption due to removal of soluble copper species.
- +90% gold contained in flotation concentrate reground to <75 microns is leachable in 48 hours.
- Gold contained in gravity concentrate is leachable with extractions in the high 90s in 24 hours. Limited kinetics data indicates rapid leach within 8 to 12 hours. Leach recoveries/kinetics appear similar when at low (1.5 g/L) and high (20 g/L) cyanide strength.

14 Mineral Resource Estimates

This PEA is based on a new mineral resource estimate prepared for the La Fortuna Project by Scott Zelligan, P.Geo. The resource estimate is based on the results from 125 core drillholes completed to date on the Project.

14.1 Data

Drillhole data (.csv files), wireframes (.dxf and .dtm files), and contours (.dwg and .str files) for this resource estimate were supplied by Minera Alamos and imported into GEOVIA Surpac™ software (version 6.3) and subsequently verified by standard internal Surpac™ processes. These .csv files contain collar, survey, lithological and assay data collated by Minera Alamos and confirmed by the author. Data includes underground wall sampling and diamond drill core.

Minera Alamos supplied sectional interpretations, wireframes, contours, and string outlines to assist in modelling the deposit. These were imported and verified in Surpac™ software prior to implementation into the block model. These include, but are not limited to:

- Hand-drawn geological cross sections and mining plans
- Surface topography
- Underground mine workings.

Additional files provided by Minera Alamos included geological interpretations of the position and extent of individual mineralized structures. These were also imported into Surpac™ software, but were, in this situation, used as a guide in developing an independent interpretation by the author of the main zones of mineralization for the resource estimate.

14.2 Interpretation

14.2.1 Geological Interpretation

The deposit is largely found within a zone of mineralized breccia/stockwork/veining hosted within a quartz monzonite pluton, overlain by rhyolites and andesites. The pluton is also intruded by dykes ranging from basaltic to andesitic composition. Tourmaline alteration dominates the mineralized envelope.

Visual trends and statistical trends also indicate an internal network of vertical structures in the upper portions of the deposit within higher grade concentrations of mineralization; however, an attempt to wireframe these was unsuccessful, and these trends were represented naturally in the ID^3 estimation. The highest grades occur at higher elevations, likely coinciding with stronger alteration.

Distinguishing the zones of high and low grade by segregating the areas proved difficult, as there appears to be a gradual decrease in average grade down dip. This appears to be due to the density of mineralization, as opposed to a change in the style of mineralization.

Grade-carrying structures visually appear to be in parallel planes to the overall dip of the mineralized breccia as elevation decreases. This was not entirely evident in variographic studies; however, holes drilled closer to down-dip in these areas did have larger ranges to the sill (approximately ~20 m vs ~10 m) in downhole variographic studies.

In order to represent this in the estimation, the lower portion of the deposit was estimated with an elongated search ellipse in the down dip and along strike directions.

14.2.2 Wireframing

Wireframes were constructed to represent the mineralized breccia volume and the barren dykes intruding the mineralized breccia encountered in the drill logs and in the Level 2 accessible adit.

Figure 35 displays the modeled wireframes of the mineralized breccia volume (in red) and the barren dykes (in yellow).

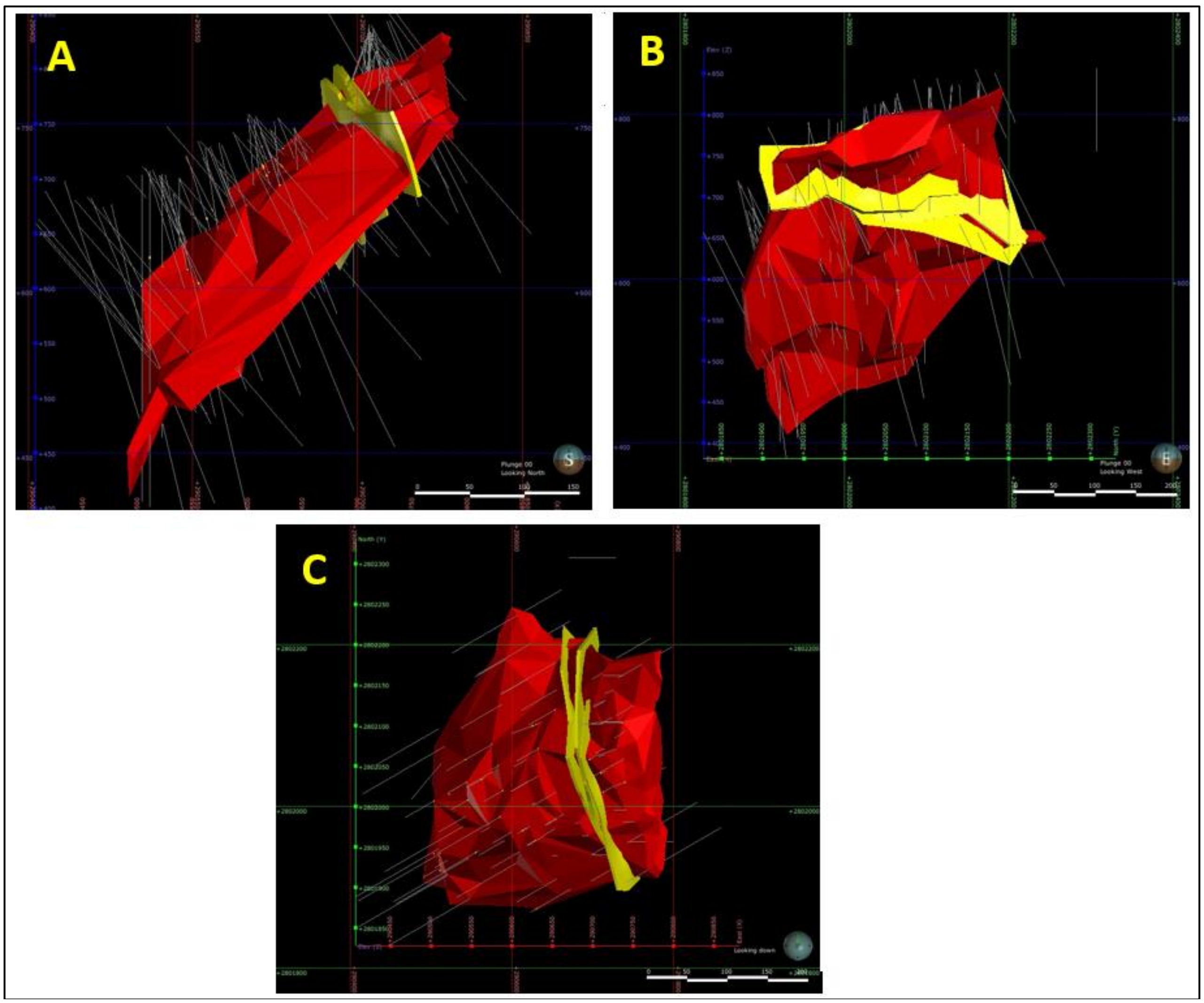


Figure 35: 3D orthogonal view of modeled wireframes: A – looking north; B – looking west; C – plan view (red – mineralized breccia, yellow – barren dykes)

To test the validity of these models, and to determine the ideal method for treating the wireframe boundaries, contact profiles were generated, and are discussed in the next subsection.

14.2.3 Contact Profiles

Contact profiles were generated to test the validity of the wireframe models and to determine the ideal method for treating wireframe boundaries. Contact plots were developed between the samples within the mineralized breccia volume and the external "waste" rock.

This boundary appears to be hard/sharp for all metals based on these plots. Figure 36 to Figure 38 display the plots.

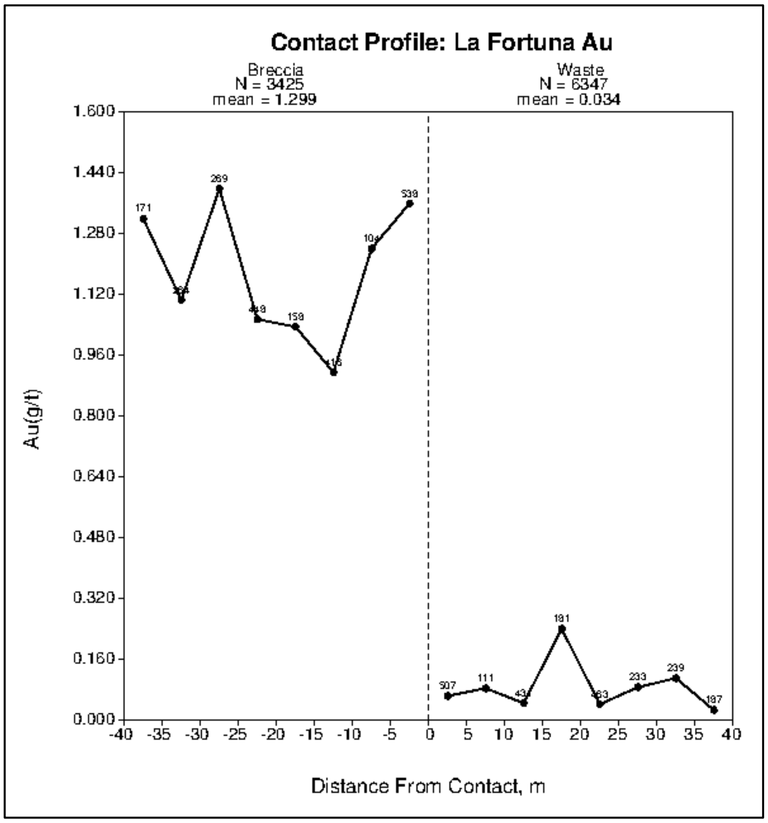


Figure 36: Contact profile between mineralized breccia and wall rock for Au

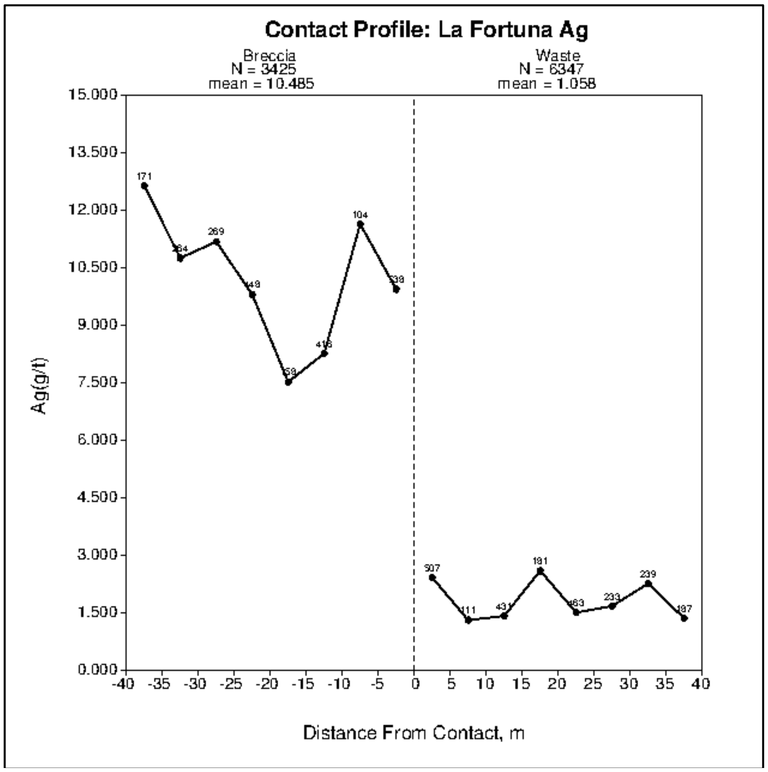


Figure 37: Contact profile between mineralized breccia and wall rock for Ag

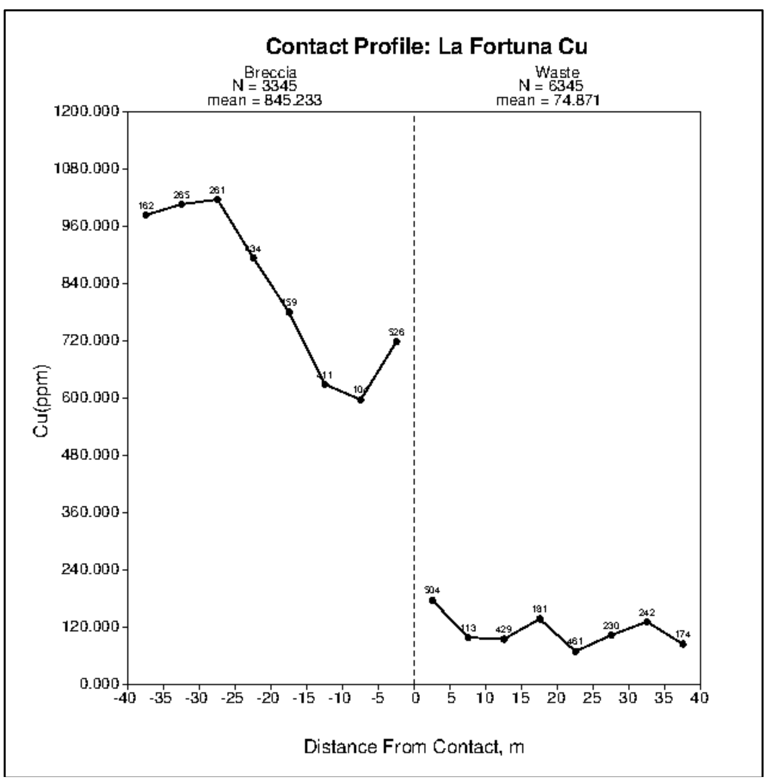


Figure 38: Contact profile between mineralized breccia and wall rock for Cu

14.3 Exploratory Data Analysis

14.3.1 Raw Data Assays and Statistics

Summary statistics for the raw assay data for each different zone is shown in Table 23.

Table 23: Raw sample data by mineralization zone

	Mineralized volume			Upper zone			Lower zone		
	Au	**Ag**	**Cu**	**Au**	**Ag**	**Cu**	**Au**	**Ag**	**Cu**
No. of samples	3,328	3,100	3,100	1,303	1,207	1,207	2,025	1,893	1,893
Minimum	0	0	0	0	0	0	0	0	0
Maximum	74.57	422	3.9	71.8	422	3.9	74.57	203	2.0
Mean	1.28	9.52	0.12	1.96	14.26	0.17	0.84	6.51	0.080
Variance	17.31	439.26	0.086	28.28	810.12	0.13	9.76	179.38	0.055
Standard deviation	4.16	20.96	0.29	5.32	28.46	0.36	3.12	13.39	0.24
Skewness	8.50	7.50	4.96	6.74	6.58	4.19	10.81	4.41	5.63
Kurtosis	107.80	101.98	36.13	65.47	69.83	27.93	190.22	37.91	39.87

14.4 Compositing

Assay results from drilling were composited to 2 m, as majority of the samples were either 2 m or 1 m and therefore this resulted in the least amount of unnecessary sample blending.

Rather than force samples to exactly 2 m, the compositing process approximated as closely to 2 m as possible within each drillhole interval.

Due to the nature of the contact boundary, the mineralized zone was composited separately from the lower grade host-rock. Barren dykes within the mineralized zone were not estimated.

Absent data within the raw data set was assumed to be 0 grade.

14.5 Outlier Management and Capping Strategy

14.5.1 Gold

Gold grades were capped at 30 g/t (after compositing) based on the histogram/probability plot analysis and decile analysis. This resulted in the capping of six samples and 3% of the total metal content.

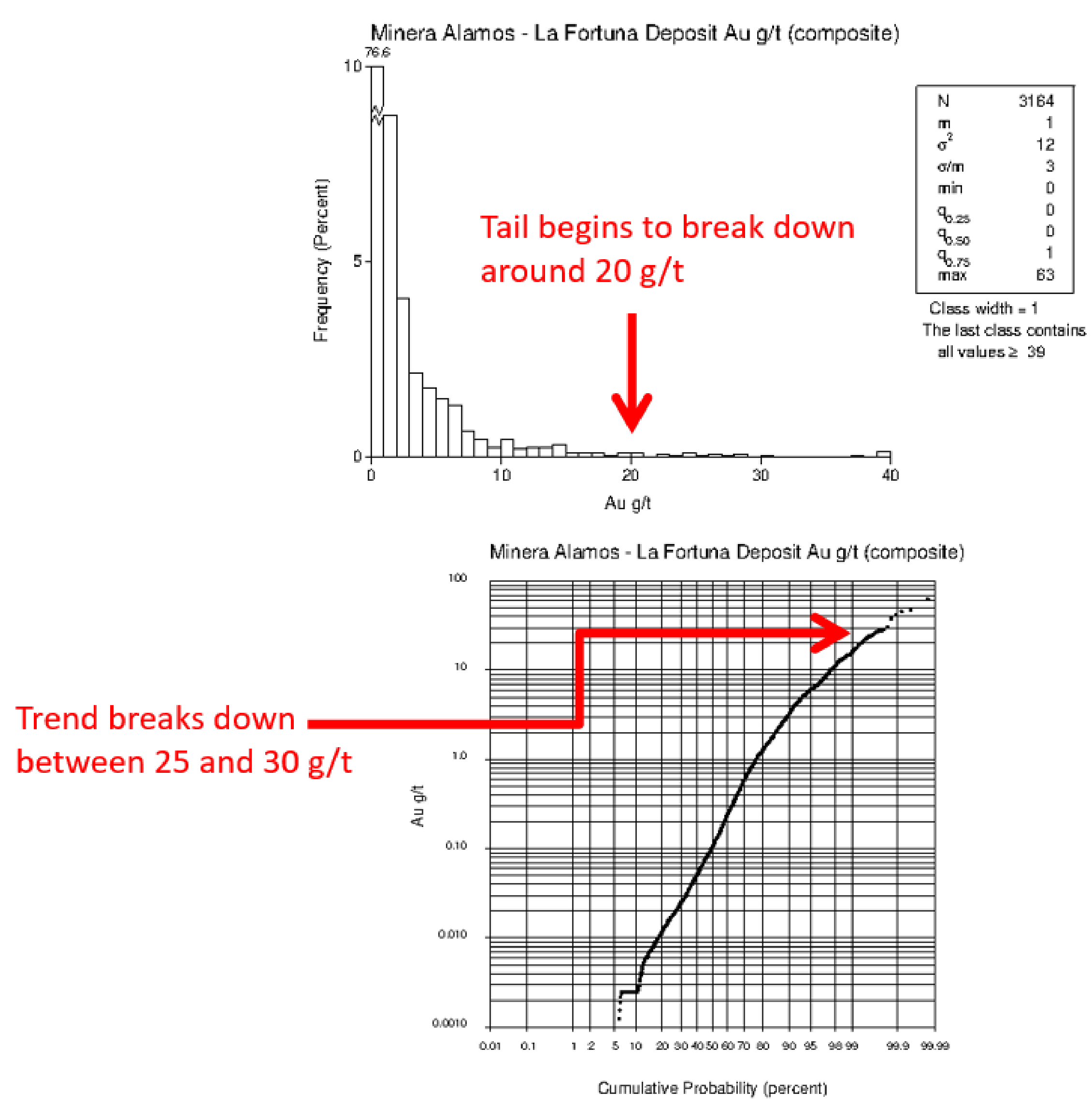


Figure 39: Drillhole histogram and probability plot of Au g/t

14.5.2 Silver

Silver grades were capped at 60 g/t based on the combined histogram/probability plot analysis and decile analysis. There is a portion of the database for which silver (Ag) assays appear to be "capped" at 50 g/t due to the samples assaying above the detection limit of the assay technique, which shows up as a big spike in the histogram and probability plot. These samples were never re-assayed to determine their actual value, so 50 g/t is maintained in the sample database. This effectively acts as a second cap and results in a slightly conservative estimate of the higher-grade silver areas of the deposit.

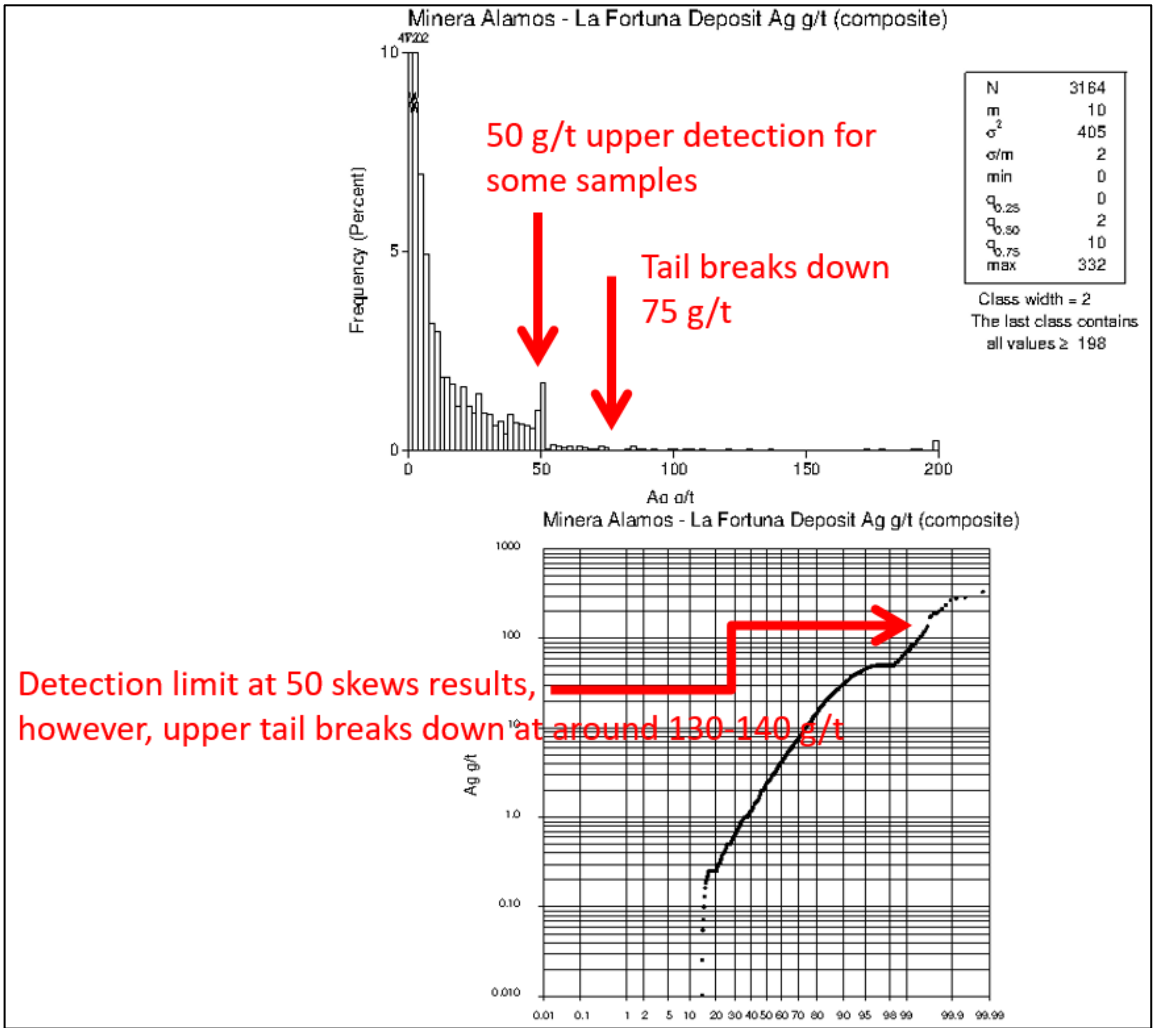


Figure 40: Drillhole histogram and probability plot of Ag g/t

14.5.3 Copper

Cu grades were capped at 1% (10,000 ppm) based on the histogram/probability plot analysis.

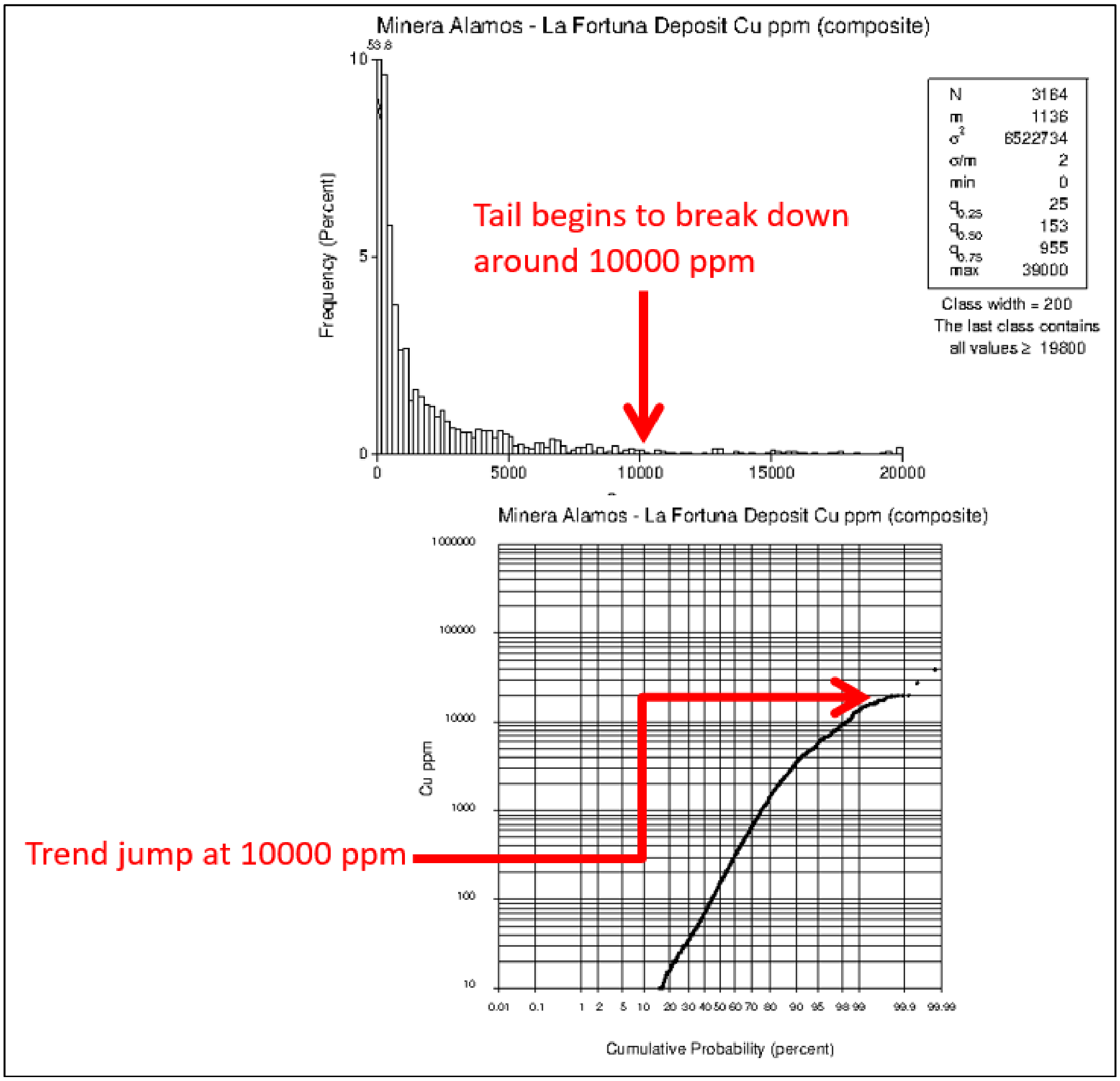


Figure 41: Drillhole Histogram and Probability Plot of Cu ppm

14.6 Density

A density of 2.65 t/m^3 was chosen for the tonnage estimate. Dry bulk density studies were performed on the 2008 twin holes. Mineralized material had an average density of 2.72 t/m^3, while the quartz monzonite material had an average density of 2.61 t/m^3. The value of 2.65 was chosen by averaging the two then rounding down to the nearest 0.05 interval to be conservative.

14.7 Previously Extracted Material

The deposit has been explored since the 1880s, and two periods of minor exploitation occurred; in the late 1800s, for which records are scarce, and in the 1980s, during which (reportedly) approximately 20,000 t were mined. Based on mapping of the adits, it has been calculated that the total extracted material is approximately 40,000 t. Since this only accounts for approximately 2% of the resource at the reported cut-off, this has been ignored since it is well within the margin of error. Significantly, drilling at the site has encountered very few openings (and all openings have been set to 0 grade), and all drill results are from after the mining period, so no previously mined grades are being included in this resource.

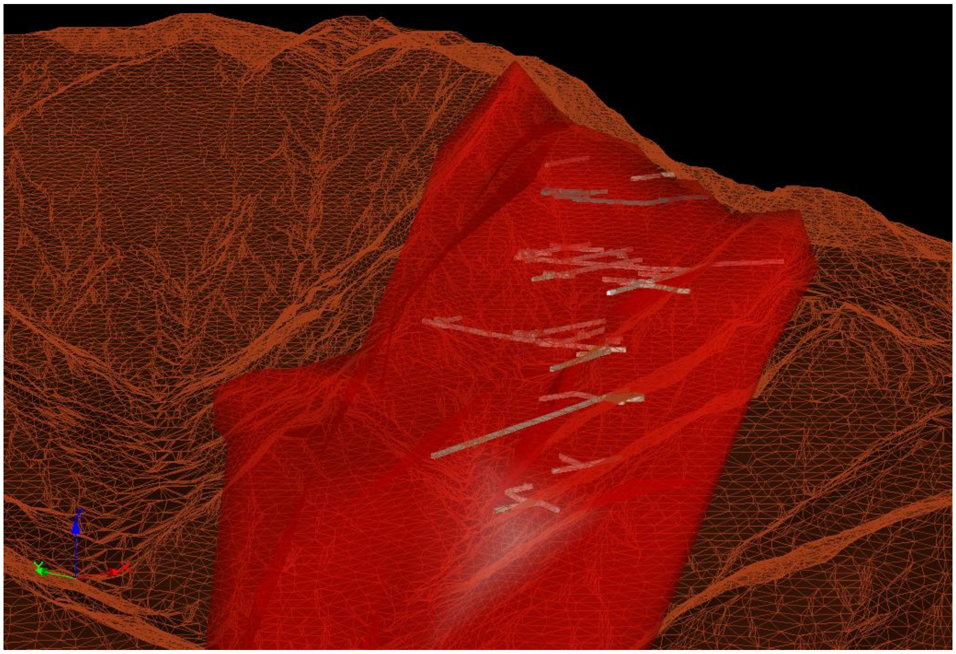


Figure 42: 3D view (looking northeast) displaying digitized adits

Topography – translucent brown triangles; mineralized breccia – translucent red smoothed wireframe; adits – white solids.

14.8 Interpolation Plan

Inverse-distance-cubed (ID^3) was chosen as the interpolation method. Variography was performed using various parameters and sample selections, however, the results were unsatisfactory. Drillhole spacing was generally in a good grid pattern which lends itself nicely to a more accurate and precise ID^3 estimation. ID^3 was chosen over ID^2 after both were tested iteratively, as the heavier weighting of closer samples better reflected the grade distribution in the sample data.

Due to the geometry of the deposit and the nature of the grade distribution, as discussed in Section 14.2, the estimation was divided between the upper and lower portions of the mineralized volume (see Figure 43). This was only used to restrict which blocks (either those enclosed in the upper or lower zones of the mineralized volume) were estimated during which estimation run (discussed in Section 14.9), not which samples were used, so that blocks in the upper zone were estimated isotropically, while those in the lower zone were estimated using an anisotropy parallel to the dip of that portion of the mineralized volume. These parameters are discussed in Section 14.9.

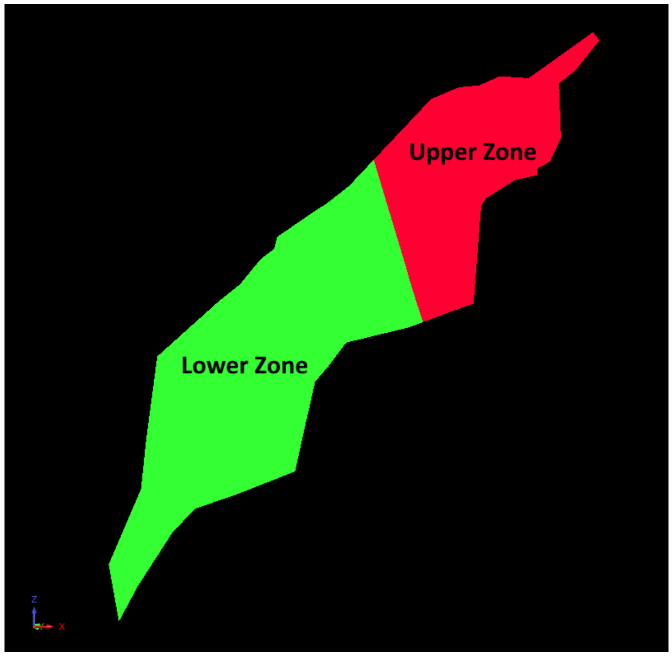


Figure 43: 3D view (looking north) displaying the Upper Zone and Lower Zone of the mineralized volume

14.9 Block Model Parameters

The Block Model was created with parent cells of 5 x 5 x 5 m, and a minimum sub-cell size of 0.625 x 0.625 x 0.625 m. Four interpolations were performed to populate the final grades into the block model. Both the blocks in the upper and lower zones were estimated using two search ellipses, each with a smaller search ellipse to estimate the best-informed blocks, and then a larger search ellipse to fill out those with wider spacing between samples. As discussed previously, the lower zone interpolation was performed using an anisotropy parallel with the zone to better reflect sample grade distribution. Table 24 and Table 25 display the search parameters and estimation parameters used in the estimation.

Table 24: Search parameters

	Search Ellipse 1			Search Ellipse 2		
	Au	Ag	Cu	Au	Ag	Cu
Minimum samples	10	10	10	10	10	10
Maximum samples	30	30	30	30	30	30
Maximum per drillhole	5	5	5	5	5	5
Maximum range	25	25	25	50	50	50
Samples used	All samples within mineralized zone					

Table 25: Estimation parameters

	Upper Zone			Lower Zone		
	Au	Ag	Cu	Au	Ag	Cu
Ellipsoid plunge	0	0	0	0	0	0
Ellipsoid bearing	0	0	0	160	160	160
Ellipsoid dip	0	0	0	-45	-45	-45
Major:Semi-major ratio	1.0	1.0	1.0	1.0	1.0	1.0
Major:Minor ratio	1.0	1.0	1.0	2.0	2.0	2.0

14.10 Resource Block Model

14.10.1 Configuration

The geometrical configuration of the block model is summarized in Table 26.

Table 26: La Fortuna block model configuration

Origin (NAD27 UTM)			Block size (m)			Minimum block size (m)			Number of blocks			Extent (m)		
X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
290350	2801750	350	5	5	5	0.625	0.625	0.625	220	240	220	1,100	1,200	1,100

14.10.2 Cell Attributes

The cell attributes of the block model are summarized in Table 27.

Table 27: La Fortuna block model attributes

Attribute	Type	Decimals	Description
AGCAPFIN	Real	2	Estimated Ag grade (g/t Ag)
AUCAPFIN	Real	2	Estimated Au grade (g/t Au)
CUCAPFIN	Real	2	Estimated Cu grade (% Cu)
RESCAT	Integer	-	Resource classification (0 – Unclassified, 1 – Measured, 2 – Indicated, 3 – Inferred)

14.10.3 Resource Categorization

Mineral Resource classification is the application of Measured, Indicated and Inferred categories, in order of decreasing geological confidence, to the resource block model. These are CIM definition standards (adopted by the CIM Council on 10 May 2014) for reporting on mineral resources and reserves, which are incorporated, by reference, in NI 43-101.As per CIM (2014):

Measured Resource

A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

Indicated Resource

An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

Inferred Resource

An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.

These categories are applied in consideration of, but not limited to, drill and sample spacing, QAQC, deposit-type and mineralization continuity, surface and/or underground mineralization exposure and/or prior mining experience. With respect to resource classification of the La Fortuna deposit, a combination of a constraining wireframe and the search ellipse of the estimated block was employed to best capture the data density and therefore confidence of the estimated value.

Measured Resources were constrained within a wireframe designed to limit them to the most highly informed (approximate minimum drillhole spacing of approximately <15 m) part of the host mineralized breccia, and to estimated blocks from the first search ellipse pass (see Section 14.9).

Indicated Resources were constrained within a wireframe designed to limit them to an informing drillhole spacing of approximately <25 m).

Inferred Resources were all other estimated blocks within the host mineralized breccia.

14.11 Model Validation

14.11.1 Statistics

As in all estimates, the grade average between the estimate and the originating samples has lowered. This is common in part because sampling is inevitably clustered around high-grade areas, creating a bias in the input which is rectified geometrically in the estimation process. Capping also plays a role in this effect.

Table 28: Overall statistics in the mineralized volume

	Raw data			Composite			Capped			Block model		
	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu
No. of samples	3,328	3,100	3,100	3,105	3,105	3,105	3,105	3,105	3,105	47,034	47,034	47,034
Minimum	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	74.57	422	3.9	63.17	332	3.9	30	60	1	25.53	58.80	0.96
Mean	1.28	9.52	0.12	1.25	8.95	0.11	1.22	8.31	0.10	0.97	7.16	0.085
Variance	17.31	439.26	0.086	12.20	347.79	0.065	9.73	181.15	0.041	2.30	65.97	0.014
Standard deviation	4.16	20.96	0.29	3.49	18.65	0.25	3.12	13.46	0.20	1.52	8.12	0.12
Skewness	8.50	7.50	4.96	7.21	7.04	4.81	5.11	2.07	2.90	3.28	1.72	2.25
Kurtosis	107.80	101.98	36.13	82.12	89.52	37.95	36.46	6.50	11.49	20.87	6.04	9.07

Table 29: Upper Zone statistics in the mineralized volume

	Raw data			Composite			Capped			Block model		
	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu
No. of samples	1,303	1,207	1,207	1,140	1,140	1,140	1,140	1,140	1,140	14,848	14,848	14,848
Minimum	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	71.8	422	3.9	63.17	332	3.9	30	60	1	24.42	58.80	0.92
Mean	1.96	14.26	0.17	2.06	13.94	0.17	1.98	12.48	0.15	1.71	11.66	0.15
Variance	28.28	810.12	0.13	22.50	652.54	0.11	16.59	265.10	0.061	3.82	99.06	0.022
Standard deviation	5.32	28.46	0.36	4.74	25.54	0.32	4.07	16.28	0.25	1.96	9.95	0.15
Skewness	6.74	6.58	4.19	5.92	6.09	3.97	3.98	1.37	2.03	2.28	0.99	1.34
Kurtosis	65.47	69.83	27.93	53.55	60.35	28.06	22.35	3.75	6.48	11.88	3.45	4.70

Table 30: Lower Zone statistics in the mineralized volume

	Raw data			Composite			Capped			Block Model		
	Au	**Ag**	**Cu**	**Au**	**Ag**	**Cu**	**Au**	**Ag**	**Cu**	**Au**	**Ag**	**Cu**
No. of samples	2,025	1,893	1,893	1,965	1,965	1,965	1,965	1,965	1,965	38,632	38,632	38,632
Minimum	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	74.57	203	2.0	41.49	200.15	2.0	30	60	1	25.53	50.40	0.96
Mean	0.84	6.51	0.080	0.78	6.05	0.073	0.78	5.89	0.068	0.55	4.44	0.051
Variance	9.76	179.38	0.055	5.63	148.10	0.038	5.22	116.49	0.026	1.13	35.86	0.007
Standard deviation	3.12	13.39	0.24	2.37	12.17	0.19	2.28	10.79	0.16	1.06	5.99	0.084
Skewness	10.81	4.41	5.63	7.14	4.88	5.31	6.19	2.73	3.89	4.57	2.23	3.16
Kurtosis	190.22	37.91	39.87	79.76	48.43	38.37	55.14	10.33	19.60	40.94	9.22	17.15

14.11.2 Population Distribution

Histograms are used to determine whether the population distribution has been accurately maintained in the estimation process. This ensures that the data has not been unnecessarily smoothed.

The three metals appear to follow the assay histograms well, indicating the estimation is a good representation of the population distribution.

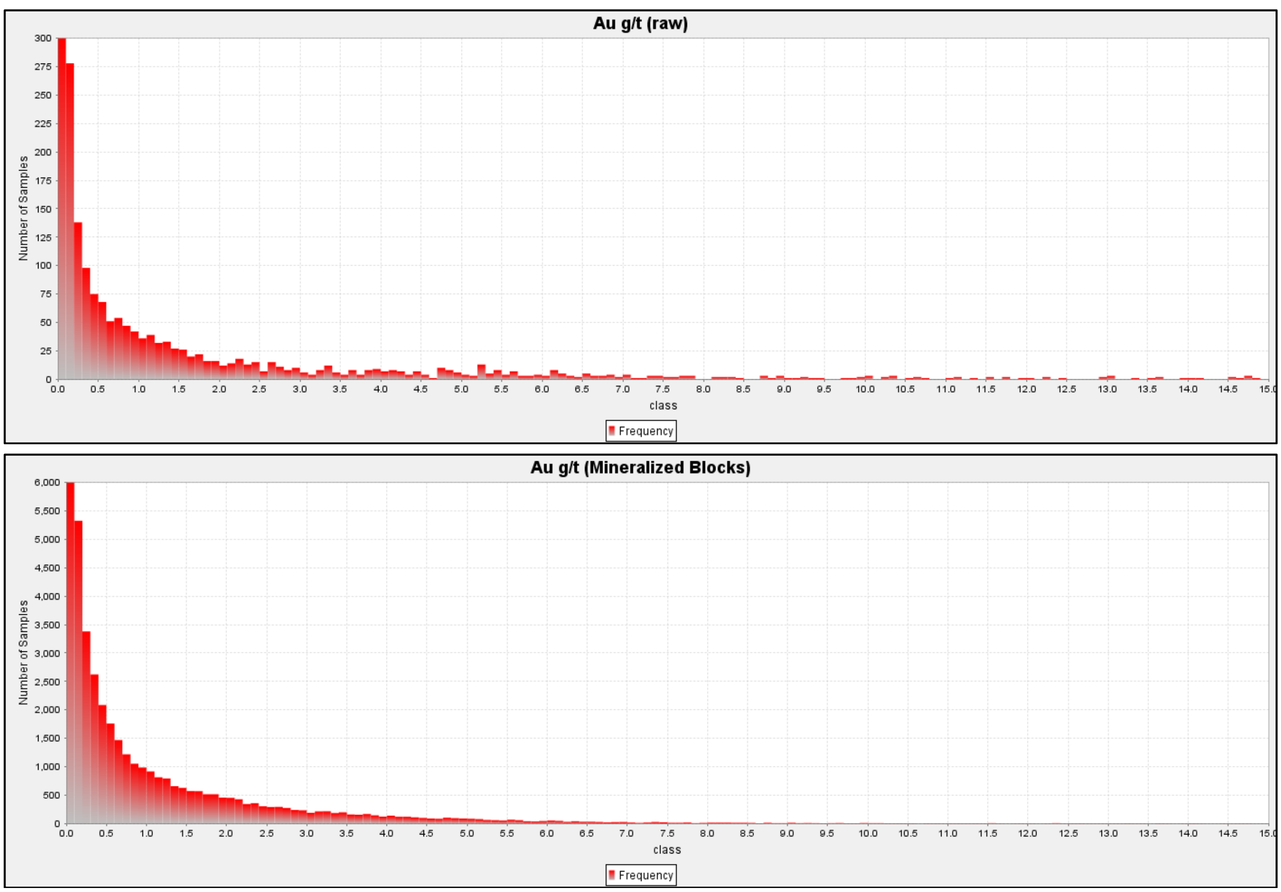


Figure 44: Au histograms, input samples and estimated blocks

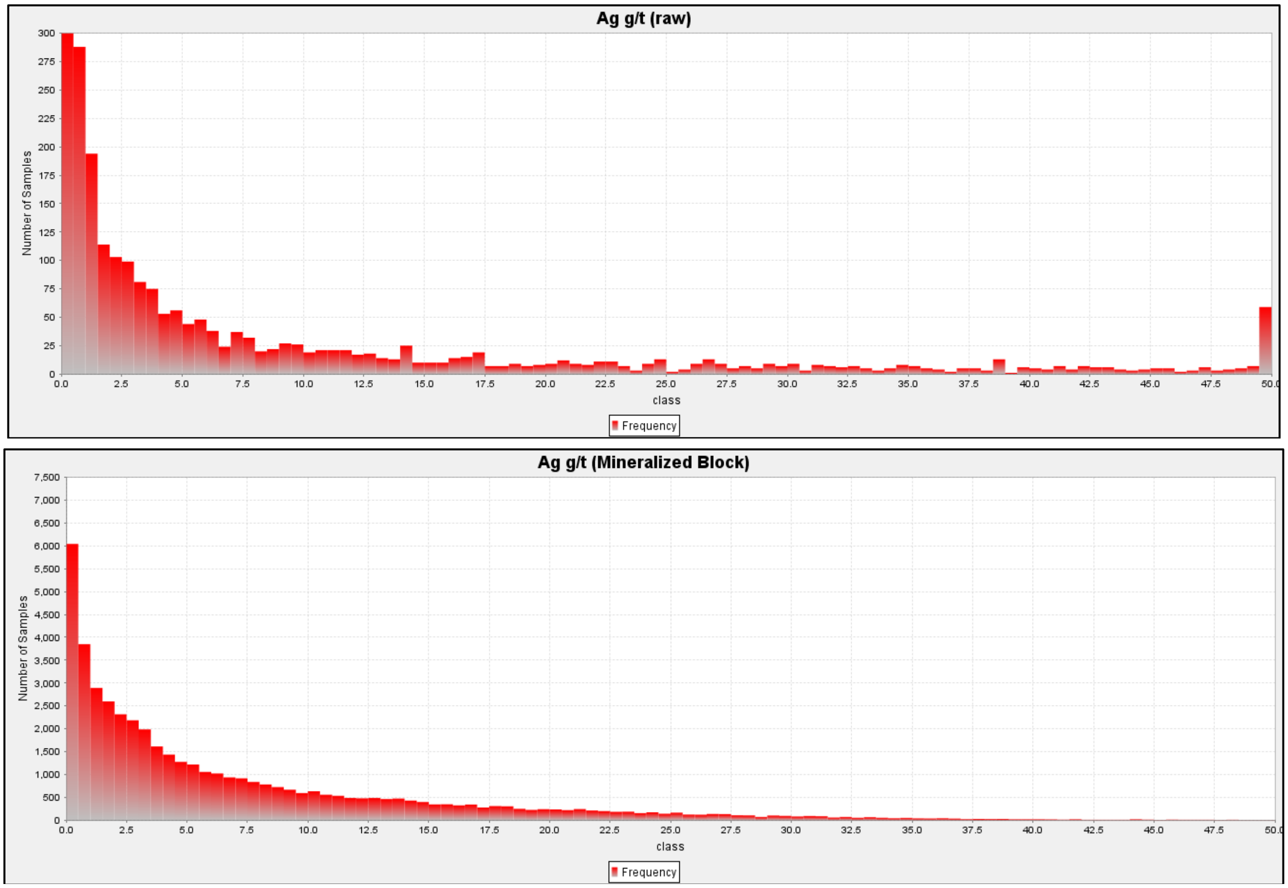


Figure 45: Ag histograms, input samples and estimated blocks

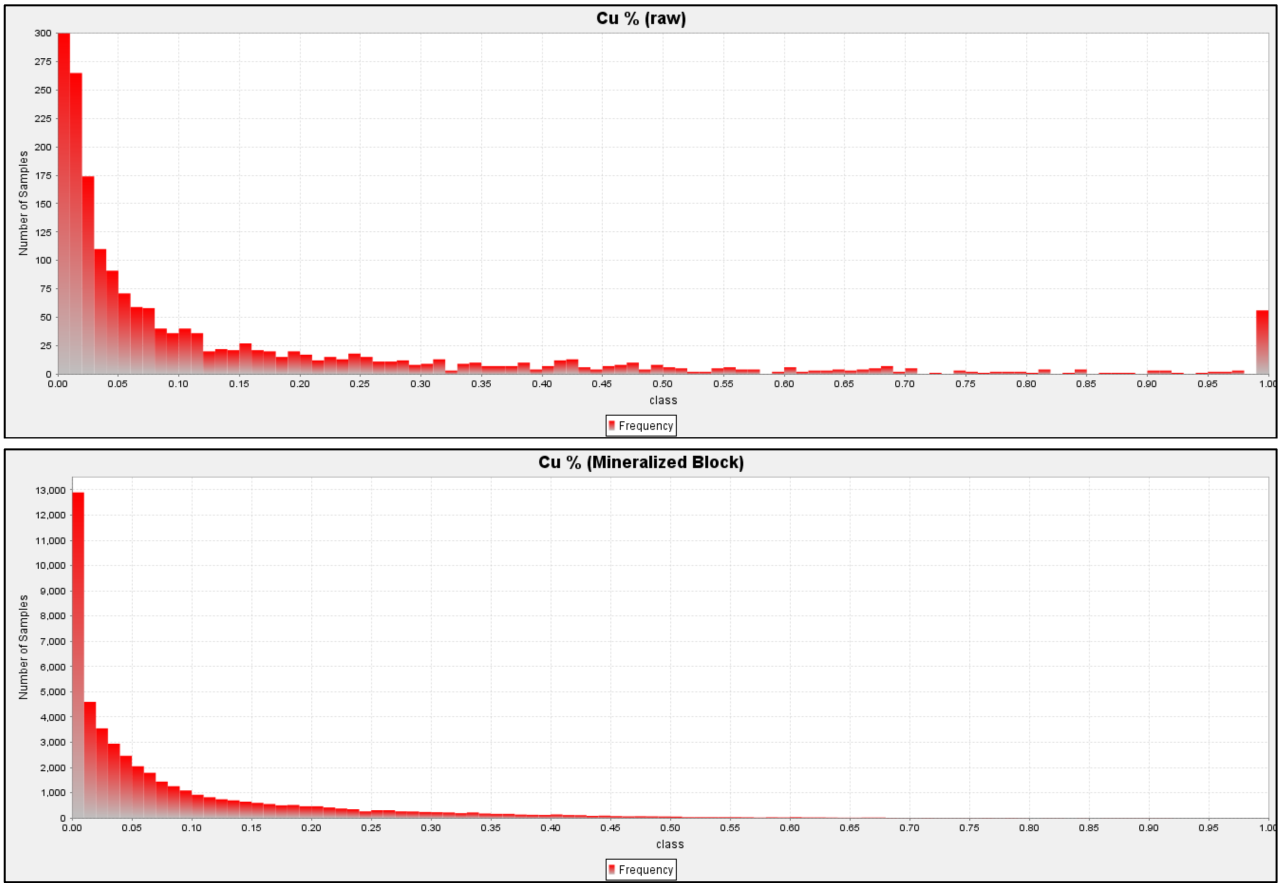


Figure 46: Cu histograms, input samples and estimated blocks

14.11.3 Sections and Plans

Sections and plans confirm the correlation between drill results and estimated grades. Continuity seems logical and there are no glaring mismatches between drillhole grades and block model grades.

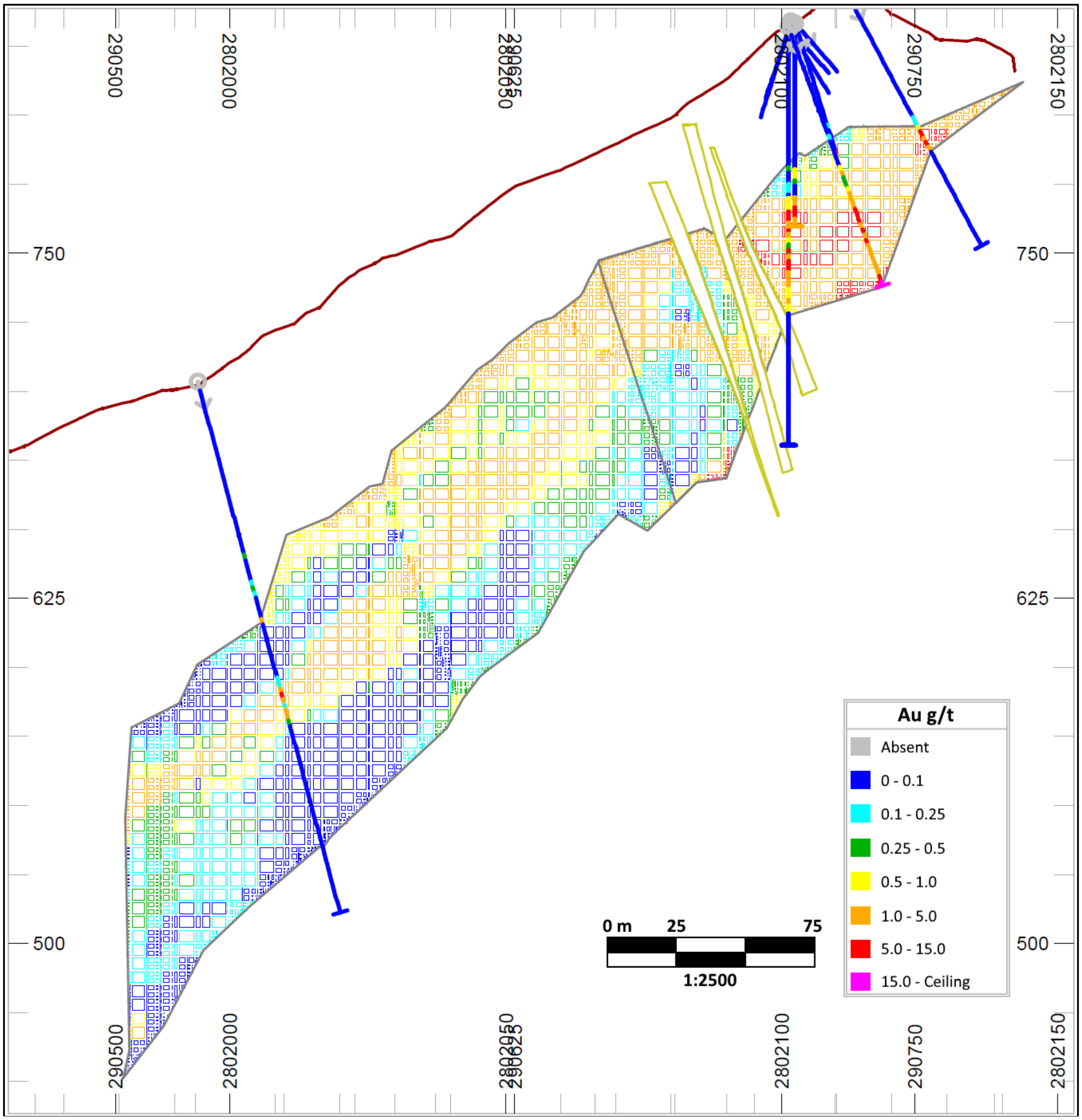


Figure 47: Section 1 – looking N30W, 25 m section width

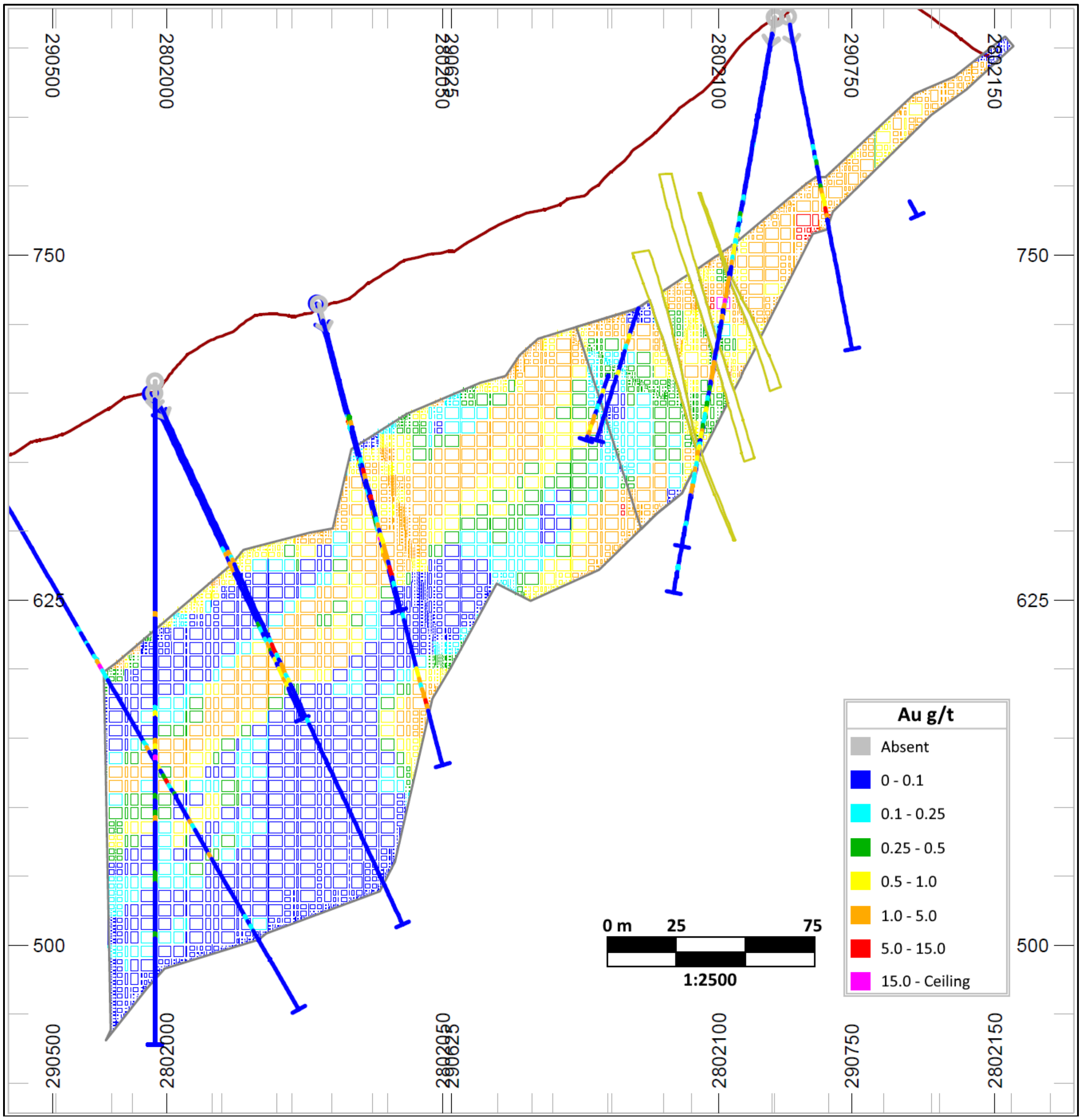


Figure 48: Section 2 – looking N30W, 25 m section width

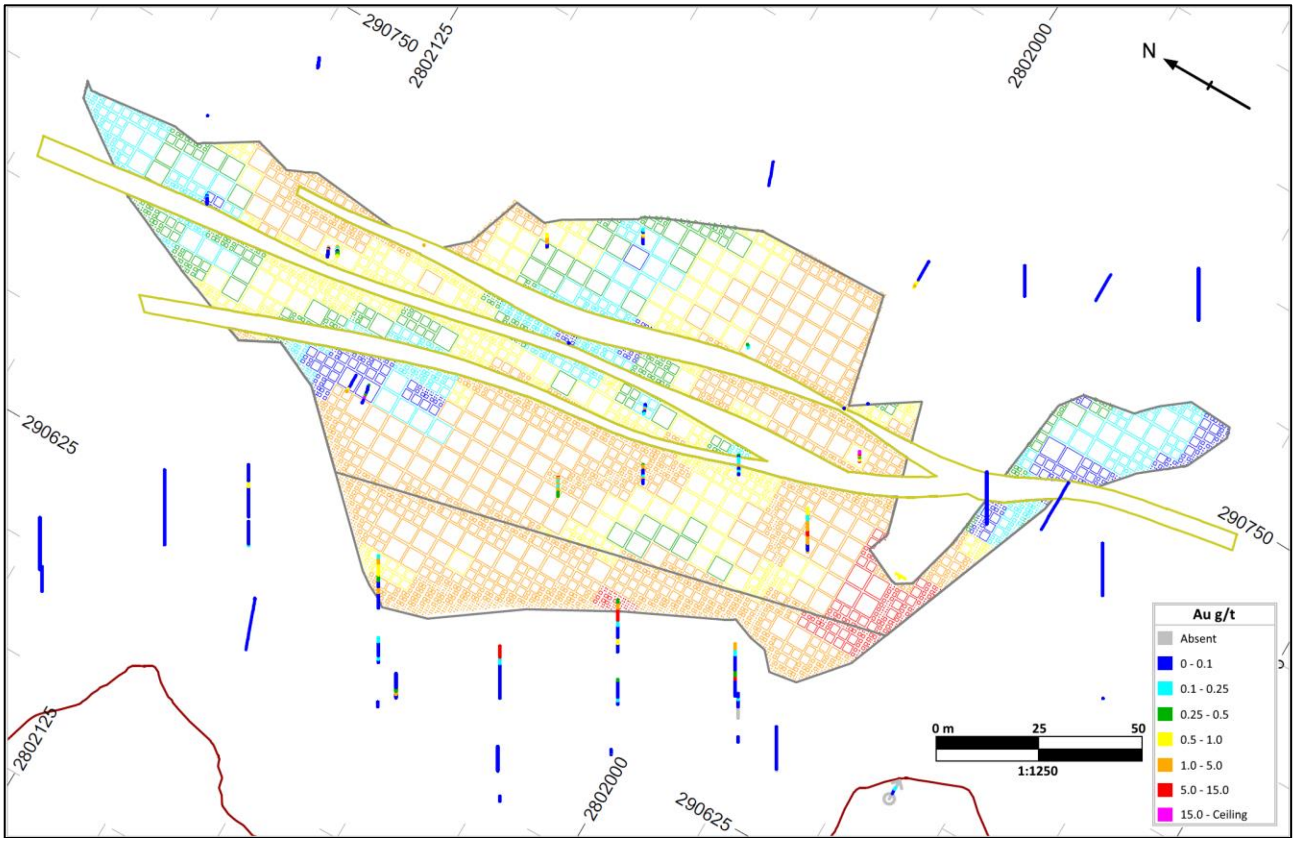


Figure 49: Plan – 725 m elevation (NAD27), 25 m plan width

14.11.4 Trend Analysis

Geographic trends are validated using swath plots. This can identify over-smoothing as well as high grade over-spreading. In this instance, the swath plots confirm the correlation between drillhole assays and estimated grades in all directions. Some variation exists around the margins of the deposit, in areas classified as Inferred. However, the tonnages are very low in these areas.

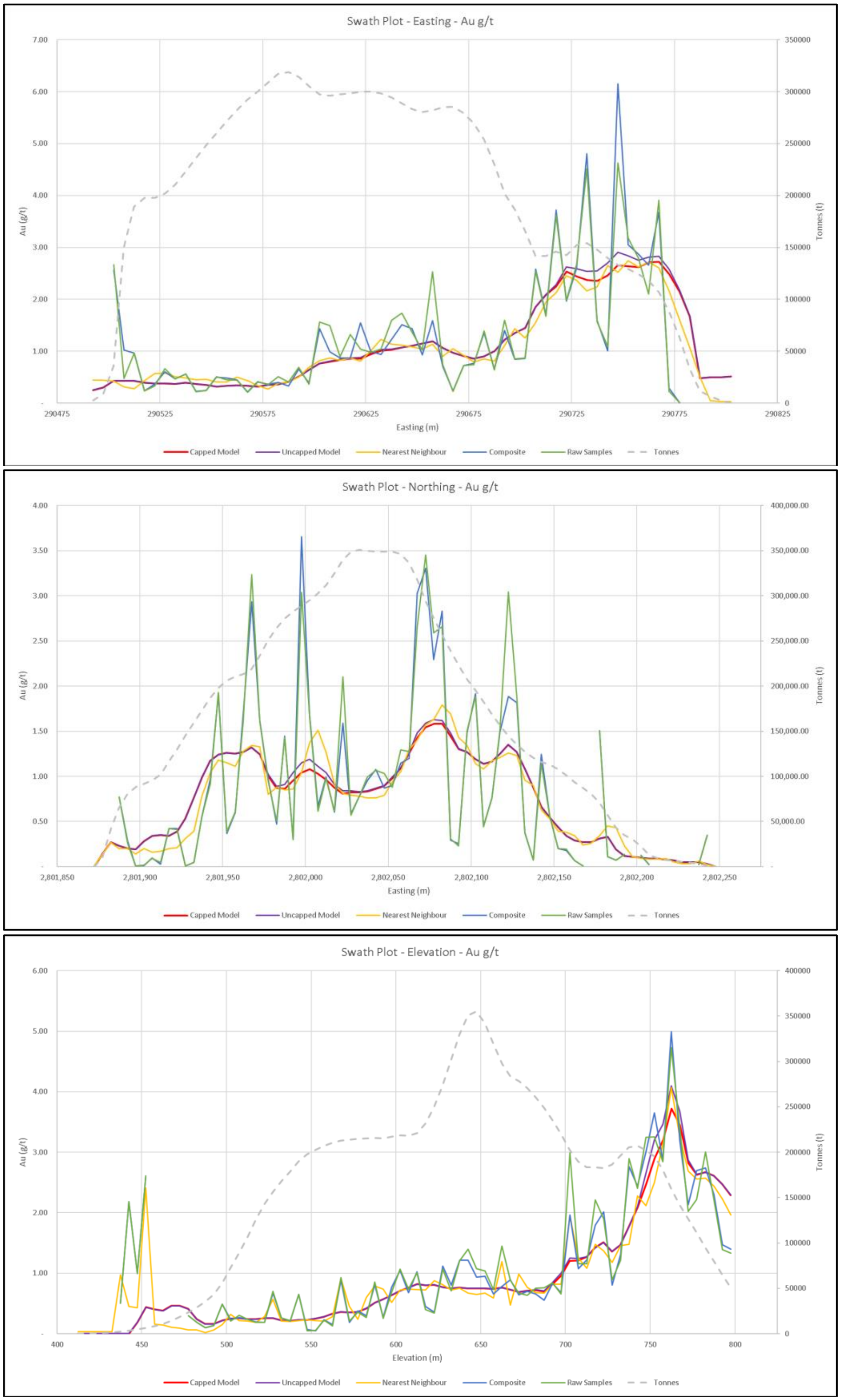


Figure 50: Au swath plots

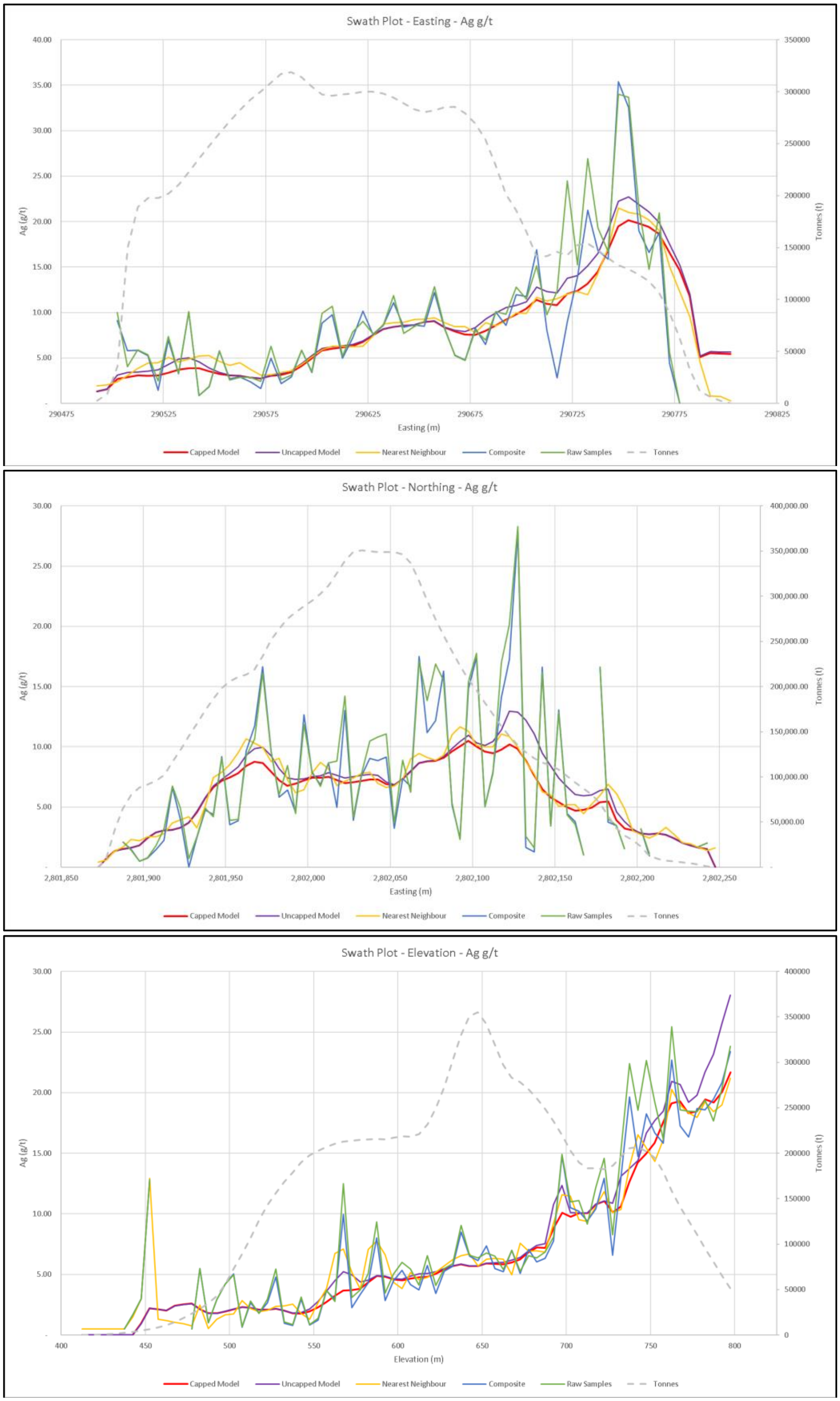


Figure 51: Ag swath plots

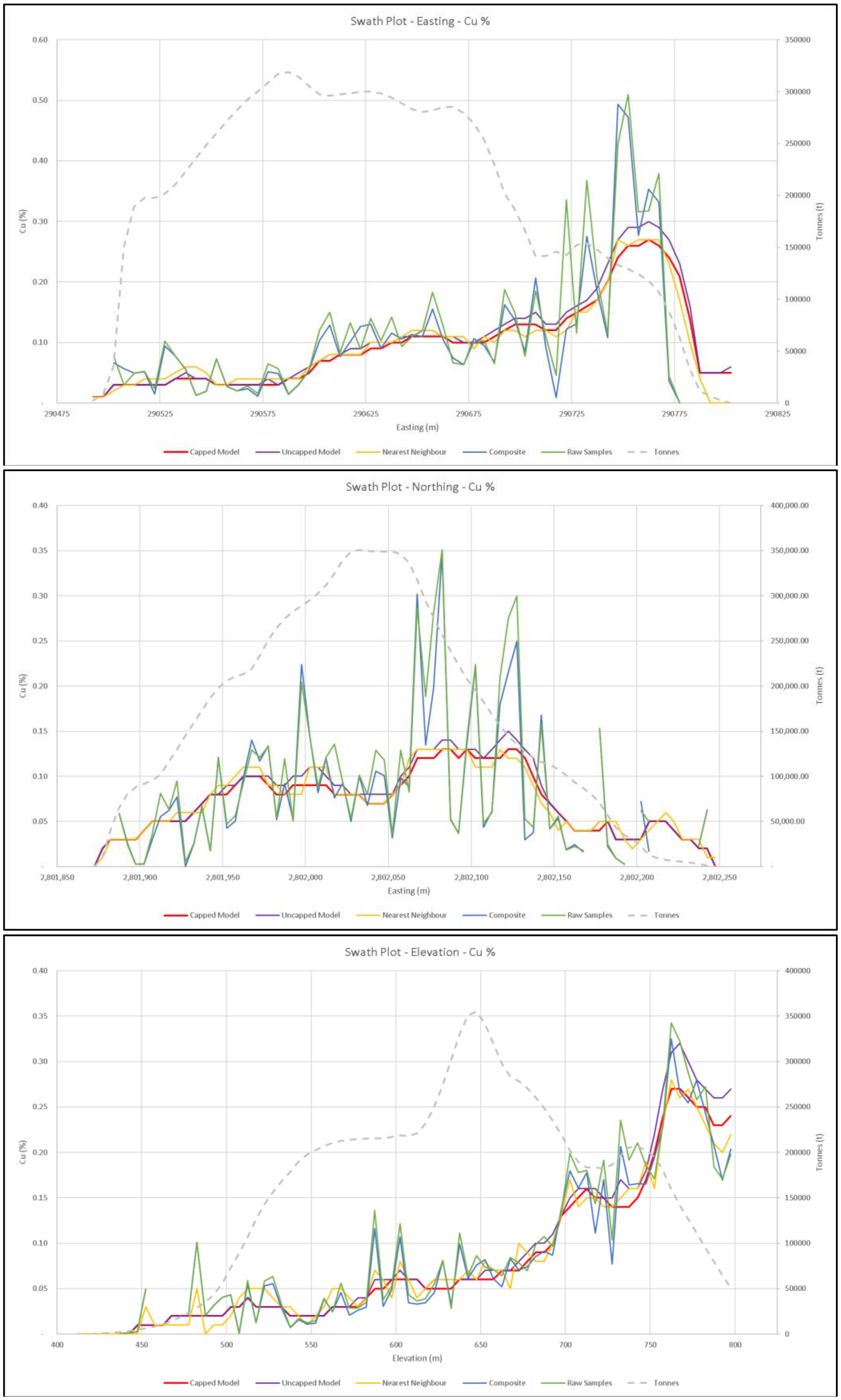


Figure 52: Cu swath plots

14.12 Mineral Resources

For reporting purposes, the La Fortuna Mineral Resource is tabulated at various Au (g/t) cut-offs (Table 31). A cut-off of 1.0 g/t was chosen based on the results of metallurgical and rock-sorting studies and is considered reasonable and consistent for this type of deposit with open pit mining methods.

Table 31: Mineral Resource estimate (1.0 g/t Au cut-off grade)

Resource category	Au (g/t) cut-off	Tonnes (t)	Au (g/t)	Ag (g/t)	Cu (%)	Au (oz)	Ag (oz)	Cu (t)
Measured	**1.0**	**1,755,375**	**2.96**	**17.50**	**0.23**	**167,000**	**987,800**	**4,000**
	1.5	1,309,722	3.55	19.52	0.25			
	2.0	1,012,118	4.09	21.03	0.28			
	2.5	795,346	4.59	22.44	0.30			
	3.0	639,411	5.04	23.51	0.32			
Indicated	**1.0**	**1,714,336**	**2.59**	**15.50**	**0.21**	**142,800**	**854,400**	**3,600**
	1.5	1,241,352	3.11	17.52	0.24			
	2.0	886,356	3.65	19.28	0.27			
	2.5	626,608	4.24	21.05	0.30			
	3.0	458,542	4.80	22.21	0.32			
Measured + Indicated	**1.0**	**3,469,711**	**2.78**	**16.51**	**0.22**	**309,800**	**1,842,200**	**7,600**
	1.5	2,551,074	3.34	18.55	0.24			
	2.0	1,898,474	3.88	20.21	0.27			
	2.5	1,421,954	4.44	21.83	0.30			
	3.0	1,097,953	4.94	22.97	0.32			
Inferred	**1.0**	**156,322**	**1.72**	**8.51**	**0.09**	**8,600**	**42,700**	**100**
	1.5	78,612	2.21	9.22	0.10			
	2.0	38,059	2.73	11.14	0.12			
	2.5	18,169	3.28	13.11	0.14			
	3.0	7,589	4.04	15.57	0.18			

Notes:

1. *The effective date for this Mineral Resource estimate for La Fortuna Project is 13 July 2018. All material tonnes and metal values are undiluted.*
2. *Mineral Resources are calculated assuming a cut-off grade of 1.0 g/t Au, which is considered reasonable and consistent for this type of deposit with open pit mining methods.*
3. *Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, socio-political, marketing, or other relevant issues.*
4. *The Mineral Resources presented here were estimated using a block model with a parent block size of 5 m x 5 m x 5 m sub-blocked to a minimum block size of 0.6 m x 0.6 m x 0.6 m using ID^3 methods for grade estimation as this method best represented the grade distribution in the sample data.*
5. *Due to the geometry of the deposit and the nature of the grade distribution, the estimation was divided between the upper and lower portions of the mineralized volume with search parameters optimized for each portion.*
6. *Individual composite assays were capped at the following values according to histogram/probability and decile analyses – 30 g/t gold, 60 g/t silver, 1% copper.*
7. *A density of 2.65 t/m³ was chosen for the tonnage estimate. Data available from dry bulk density studies indicated an average density of 2.72 t/m³ for mineralized material, while the quartz monzonite material had an average density of 2.61 t/m³. The value of 2.65 was chosen by averaging the two then rounding down to the nearest 0.05 interval to be conservative.*
8. *The Mineral Resources presented here were estimated using the CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council 10 May 2014.*
9. *The Mineral Resource estimate was prepared by Scott Zelligan, B.Sc., P.Geo., and independent resource geologist of Coldwater, Ontario.*
10. *Gold price is US$1,250/oz, silver price is US$16/oz, and copper price is US$5,725/t.*
11. *The number of metric tonnes is rounded to the nearest hundred. Any discrepancies in the totals are due to rounding effects.*

14.12.1 Grade-Tonnage Curves

Figure 53 to Figure 55 illustrate the grade-tonnage curves for the three Mineral Resource categories.

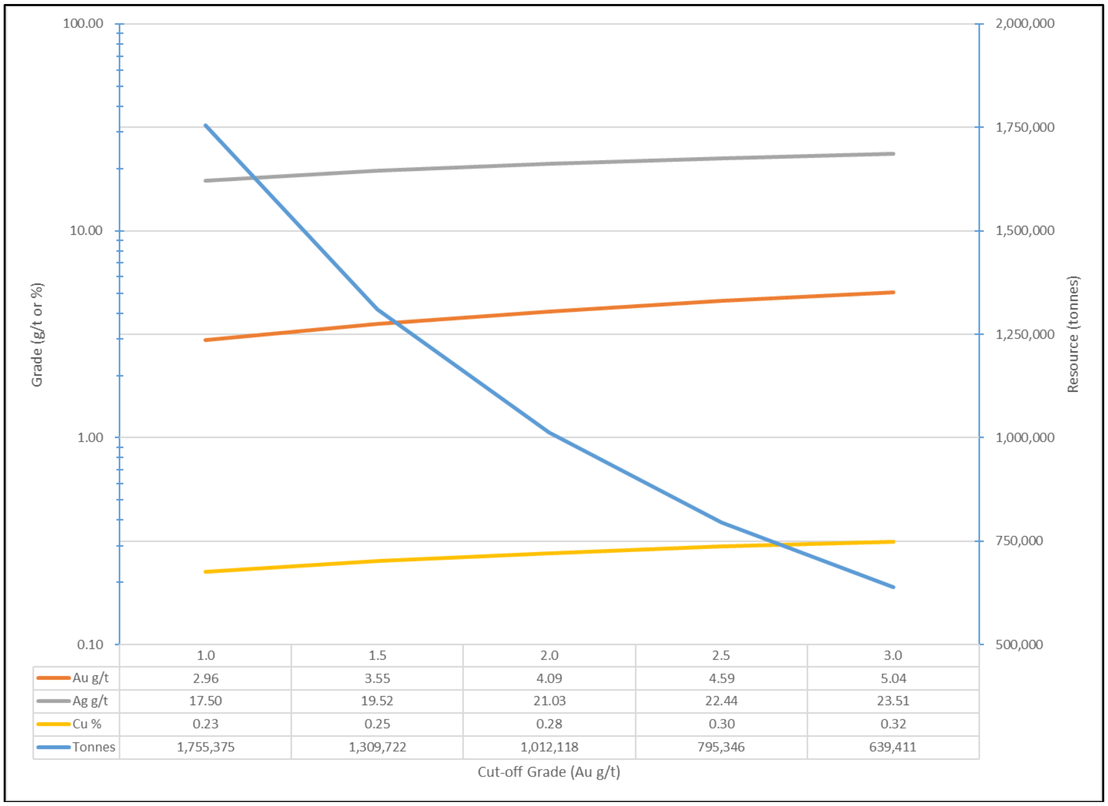
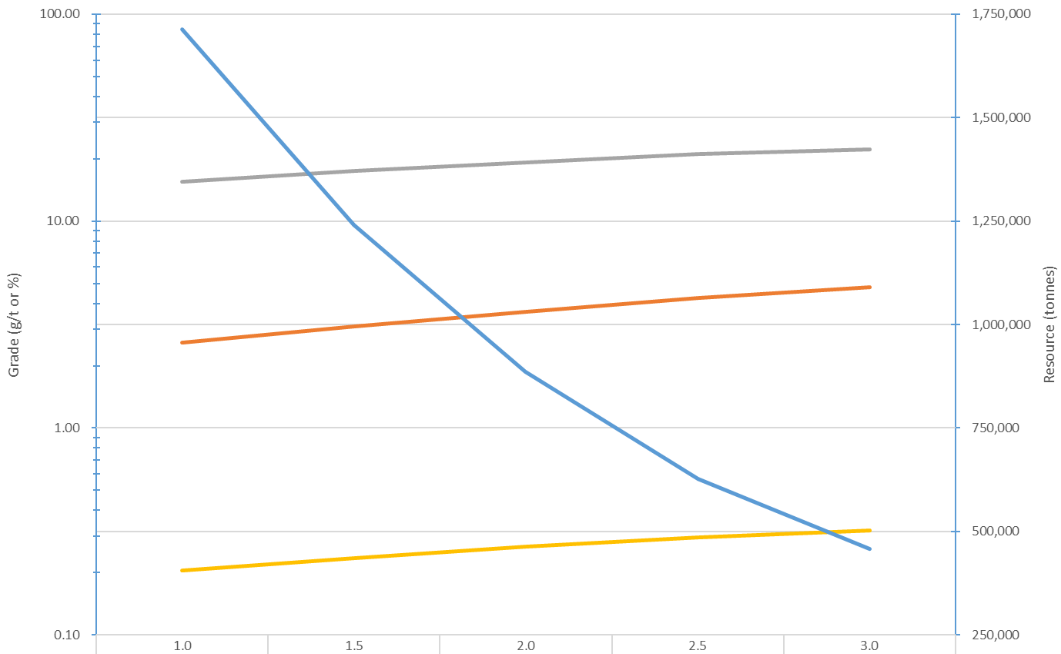


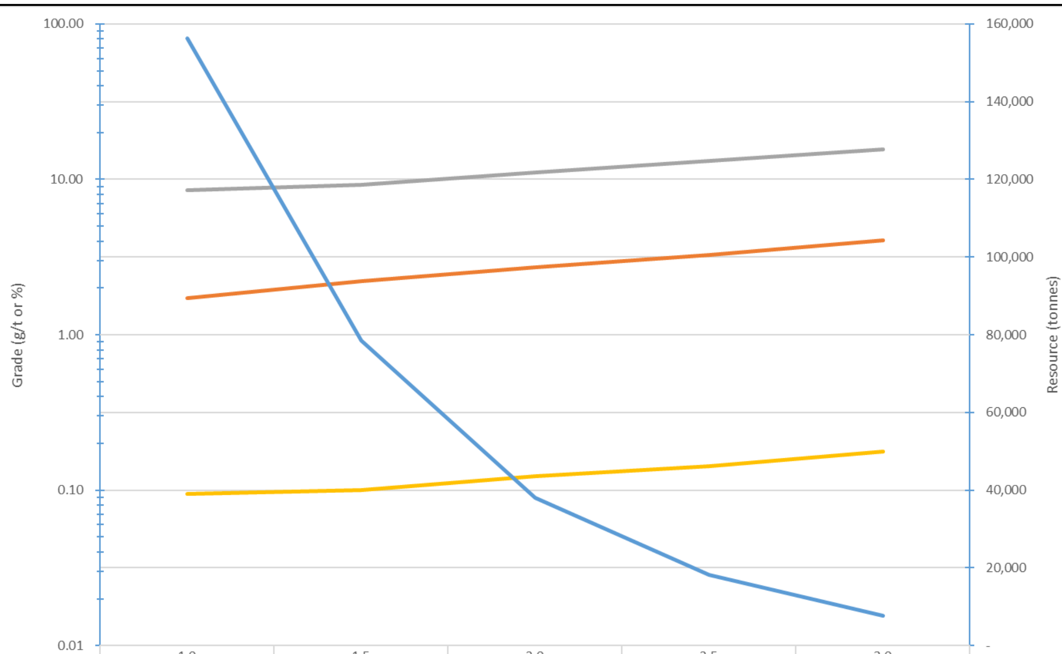
Figure 53: Measured grade-tonnage curves



	1.0	1.5	2.0	2.5	3.0
Au g/t	2.59	3.11	3.65	4.24	4.80
Ag g/t	15.50	17.52	19.28	21.05	22.21
Cu %	0.21	0.24	0.27	0.30	0.32
Tonnes	1,714,336	1,241,352	886,356	626,608	458,542

Cut-off Grade (Au g/t)

Figure 54: Indicated grade-tonnage curves



	1.0	1.5	2.0	2.5	3.0
Au g/t	1.72	2.21	2.73	3.28	4.04
Ag g/t	8.51	9.22	11.14	13.11	15.57
Cu %	0.09	0.10	0.12	0.14	0.18
Tonnes	156,322	78,612	38,059	18,169	7,589

Cut-off Grade (Au g/t)

Figure 55: Inferred grade-tonnage curves

15 Mineral Reserve Estimates

No Mineral Reserves have been determined for the Project.

16 Mining Methods

16.1 Introduction

Mineralization at La Fortuna extends close to surface and is amenable to conventional open pit methods utilizing front-end loaders and trucks. Pit bench heights are assumed to be 5 m in order to provide good ore/waste selectivity, although the use of larger bench heights in zones consisting predominantly of waste should be considered as part of future optimization studies.

Overall average pit slopes with the benches/ramps in place are approximately 43° for three sides and 41° overall for the north wall. Rock competency is reasonable and higher pit slopes may be considered once the appropriate geotechnical information is available.

Mineralized and waste material will be hauled using 25-t trucks approximately 500 m (maximum) to the mineralized stockpile and waste dump locations near the mine. Crushed stockpile material is then transported to the plant processing facilities located at a distance of less than 1.5 km from the mine.

16.2 Production

Using a preliminary Whittle pit shell (based on US$1,250/oz gold, US$2.50/t mining, US$30.00/t processing, 95% recovery, 45° pit slopes) as a guide, a full open pit mine plan was completed.

Material from the pit benches was categorized as Very High Grade or “VHG” (>2.0 g/t Au), High Grade or “HG” (1.6–2.0 g/t Au), Medium Grade or “MG” (1.2–1.6 g/t Au), and Low Grade or “LG” (0.8–1.2 g/t Au) zones. Inter-zone dilution and losses have been applied; VHG and HG have 10% dilution and 10% losses, MG and LG have 25% dilution and 25% losses. VHG and HG (i.e. >1.6 g/t Au) were assumed to be direct milling material whereas the MG and LG (i.e. 0.8–1.6 g/t Au) are stockpiled and upgraded via ore sorting. Further optimization efforts should be aimed at cut-off grade optimization studies and the smoothing of waste mining activities. No Inferred Resources were utilized in the PEA mine planning. Cut-off grades and dilution grades are shown in Table 32 and the proposed mill feed schedule shown in Table 33 below.

Table 32: Cut-off and dilution grades

Description	Cut-off grade (g/t Au)	Dilution grade (g/t Au)
VHG	2.0	1.2
HG	1.6	1.2
MG	1.2	0.5
LG	0.8	0.5

Table 33: Fortuna processing plant mill feed schedule (diluted)

Year	Total Mill Feed (t)	Au (g/t)	Ag (g/t)	Cu (%)	Gold (oz)	Total mined material (t)
1	380,000	3.86	21.24	0.29	47,200	2,814,400
2	380,000	3.91	20.27	0.27	47,800	2,848,200
3	410,000	3.39	21.85	0.28	44,700	2,335,700
4	410,000	3.47	19.98	0.29	45,800	4,637,200
5	418,400	3.78	16.79	0.22	50,900	3,095,700
	1,998,400	**3.68**	**19.96**	**0.27**	**236,600**	**15,731,200**

Notes:

1. *Mill Feed totals include direct milling material (1,626,000 t) and mid-grade stockpiled material upgraded starting in Year 3 via crushed ore sorting (372,400 t).*
2. *Mine dilution applied as follows – 10% for direct milling material (dilution grade equivalent to average grade of next lower mine grade basket) and 25% for low-grade material to stockpile (0.5 g/t Au dilution grade*
3. *Total mined material values include all production from open pit mine (mineralization + waste) for noted intervals.*
4. *Ore sorting of medium and low grade material is implemented in Year 3..*

16.2.1 Mining Equipment

Minera Alamos will employ a mining contractor; the contractor will select the final equipment. Dump trucks in the 25-t range will be loaded with two front-end loaders in the 5–6 m^3 range. The major mining equipment fleet will resemble the list shown in Table 34 below.

Table 34: Major mining equipment

Item	Quantity
Front-end loader (5–6 m^3)	2
Front-end loader (3 m^3)	1
Haul truck (25-t)	5
Production drill (90–100 mm)	2
Motor grader	1
Explosives truck	1
Explosives air compressor	1
Water truck	1
Mechanic/Welder truck	1
Service truck	1

16.2.2 Drill and Blast

Standard drill and blast techniques will be used. Blast holes will have a diameter in the 90 mm to 100 mm range.

16.2.3 Load and Haul

Ore will be hauled to the feeder at the processing plant and waste rock to piles adjacent to the pit. In both cases, the haulage distance will be less than 500 m.

16.3 Mine Services

16.3.1 Road Maintenance

Haul roads and the mine access road will be maintained using a motor grader.

16.3.2 Pumping

Runoff will be diverted away from the pit.

16.3.3 Communications

Operating and technical personnel will communicate using mobile radios.

16.4 Technical Services

16.4.1 Grade Control

Minera Alamos personnel will sample the blast holes and use the resulting assays to guide the mining operations for the optimum separation of ore and waste. They will map and sample faces, using all the information to update sections and future bench plans. Grade control staff will provide round-the-clock coverage.

16.4.2 Mine Engineering

Minera Alamos personnel will work with the contractor to provide survey control of the mining. All blast holes will be surveyed in conjunction with grade control and blast design. As cost and geotechnical information is gathered, the pit design will be periodically reviewed and optimized.

16.4.3 Geotechnical Monitoring

Initially, slopes will be monitored with simple surveying techniques and with extensometers as required. Geology and survey staff will assist with geotechnical mapping.

16.5 Mining Personnel

All drilling/mining/crushing operations at La Fortuna will be accomplished via an open pit mining contractor. Contractor availability in Mexico is currently high and rates are competitive. The mine will operate 24 hours per day, 7 days per week. The estimated personnel requirement is shown in Table 35 below.

Mine planning and supervision activities will be performed by Minera Alamos personnel.

Table 35: Contract mining personnel

Description	Quantity
Mine Superintendent	1
Mine Technician – Surveyor	3
Mine Geologist	2
Geological Technician – Sampler	4
General Foreman	1
Shift Foreman	4
Front- end Loader Operator	4
Haul Truck Driver	10
Production Drill Operator	4
Heavy Equipment Operator	5
Mine Labourer	5
Blaster	2
Blasting Crew	2
Maintenance Supervisor	1
Maintenance Planner	1
Maintenance Foreman	4
Mechanic	4
Welder	2
Mechanical Assistant	4
Total Mining	**63**

17 Recovery Methods

A simplified base case process was utilized for the La Fortuna PEA plant site. Mineralized material from the mine is stockpiled and crushed to a size of <3/4" prior to being transported to the process plant. The overall processing facilities consist of a primary coarse grind to 80% passing 250–300 microns followed by a bulk sulphide concentrate flotation. Bulk concentrate is reground (80 microns) prior to a final flotation producing a copper concentrate. Centrifugal gravity gold recovery circuits are included in both the primary and concentrate reground circuits to extract free gold as a concentrate. Tailings from the flotation circuit are dewatered via filtration and dry-stacked in the tailings containment area adjacent to the processing plant.

Overall gold recovery for the PEA study has been conservatively estimated at 90%. No final gold refining facilities are to be constructed at the Fortuna site although this decision can be revisited in the future should site production rates increase. Approximately half of the gold is extracted as a gravity concentrate which will be cyanide leached at site and loaded onto activated carbon for shipping outside of Mexico for final doré production. The other half of the recovered gold ends up in the copper flotation concentrate (along with majority of the copper and silver) which is filtered and transported to the port facilities at Guaymas (approximately 500 km) for final sale.

Minera Alamos has purchased a used 2,000 tonnes per day (t/d) processing facility (grinding/flotation/filtration) that has been used as the basis for the La Fortuna Project processing facilities. The size of the major equipment items allows for plant throughput to be increased from the currently assumed 1,100 t/d rate as the size of the project resource increases.

DEXTR (x-ray) ore sorting has been included in the overall project plans as a method to upgrade mid-grade (0.8–2.0 g/t Au) mineralized material from the mine (and future potential project resources). Testwork has demonstrated that sorting of this material at normal project crush sizes can recover +80% of the contained gold into a sorted concentrate with gold contents similar to the high grade (3.5–4.0 g/t Au) direct milling material from the mine. It is conservatively assumed that an ore sorting machine will be purchased and installed in Year 3 of mining operations to upgrade this material. During Years 1 and 2, the mined mid-grade material will be stockpiled for processing starting in Year 3. In the current operations plan, only 20% of the life of mine (LOM) contained gold ounces sent to the processing plant have been upgraded in this manner.

Table 36: Summary of La Fortuna metallurgical assumptions

Product	Grade			Metal recoveries (%)		
	Gold (g/t)	Silver (g/t)	Copper (%)	Gold	Silver	Copper
Mill Feed (LOM)	3.68	20	0.27			
Products						
Gravity Concentrate*1	N/A			45		
Copper Flotation Concentrate	120	1,250	18	45	85	90

*[*1]Gravity concentrate is leached in cyanide and adsorbed onto activated carbon for shipping offsite for final processing. For PEA modelling purposes, it was assumed that gold was the only material payable metal recovered by gravity.*

17.1 Current Flowsheet

The 2016/2017 testwork suggested the issue of elevated cyanide consumption (due to the presence of copper) and low silver recovery (due to the silver occurring mainly as sulphides and sulphosalts) could be better addressed by flotation of the gravity tails and sale of the copper/silver/gold concentrate. Based on the successful results of this testwork program, a proposed flowsheet is shown in the Process Description hereafter.

This flowsheet has assumed the potential to cyanide leach the flotation tail; however, this option is currently not likely to be economic as it contains less than 5% of the gold. This decision can be revisited in the future should the project resources expand and the economics surrounding the additional cyanidation stages are positive.

17.2 Process Description

17.2.1 Crushing and Stockpiling

Portable crushing and screening equipment will be utilized at the mine site to process approximately 1,200 t daily. Crushing operations are planned as a two-stage circuit with a screen to separate the final product size material for grinding.

Crushing will be performed on a nominal six days per week schedule. Coarse ore and fine (crushed) ore stockpiles are utilized to separate the mining and milling operation.

Run of mine (ROM) material is trucked to the crushing plant and dumped into stockpiles located near the crushing equipment. The two-stage crushing reduces the rock from a maximum feed size of 400 mm down to 80% passing 18 mm. The crushed material is trucked to two fine (crushed) ore stockpiles feeding to each mill.

An external contractor will supply and operate the crushing equipment as well as the transfer of crushed coarse material to the stockpiles located at the mill site. All crushing and transfer equipment will be portable in nature and independently powered via diesel drives.

17.2.2 Process Plant

Based on the metallurgical testwork completed on samples of the La Fortuna mineralization, the process plant for the recovery of gold, silver and copper concentrates includes the following basic stages:

1) Single-stage primary grinding with ball mills to produce material of 80% passing 300 microns.
2) Production of a gold concentrate via the use of centrifugal gravity concentrators incorporated into the primary grinding circuit.
3) Bulk flotation on the gravity concentrator tails to produce a sulphide/gold bulk concentrate.
4) Regrinding of the bulk concentrate and cleaner flotation to produce a copper/silver concentrate for sale.
5) Production of additional gravity gold concentrate via the use of centrifugal gravity concentrators incorporated into the regrinding circuit.
6) Thickening of the bulk flotation tailings for filtration and containment at site.
7) Cyanide leaching of the gravity concentrates to extract the gold/silver.
8) Recovery of gold/silver from leach solutions to produce a concentrate (on carbon) for shipment for final gold/silver production.
9) Treatment of a “bleed” stream from the solution not recycled to leaching to destroy any residual cyanide prior to its disposal to tailings.

The overall flow of the process stages is shown in Figure 56 below.

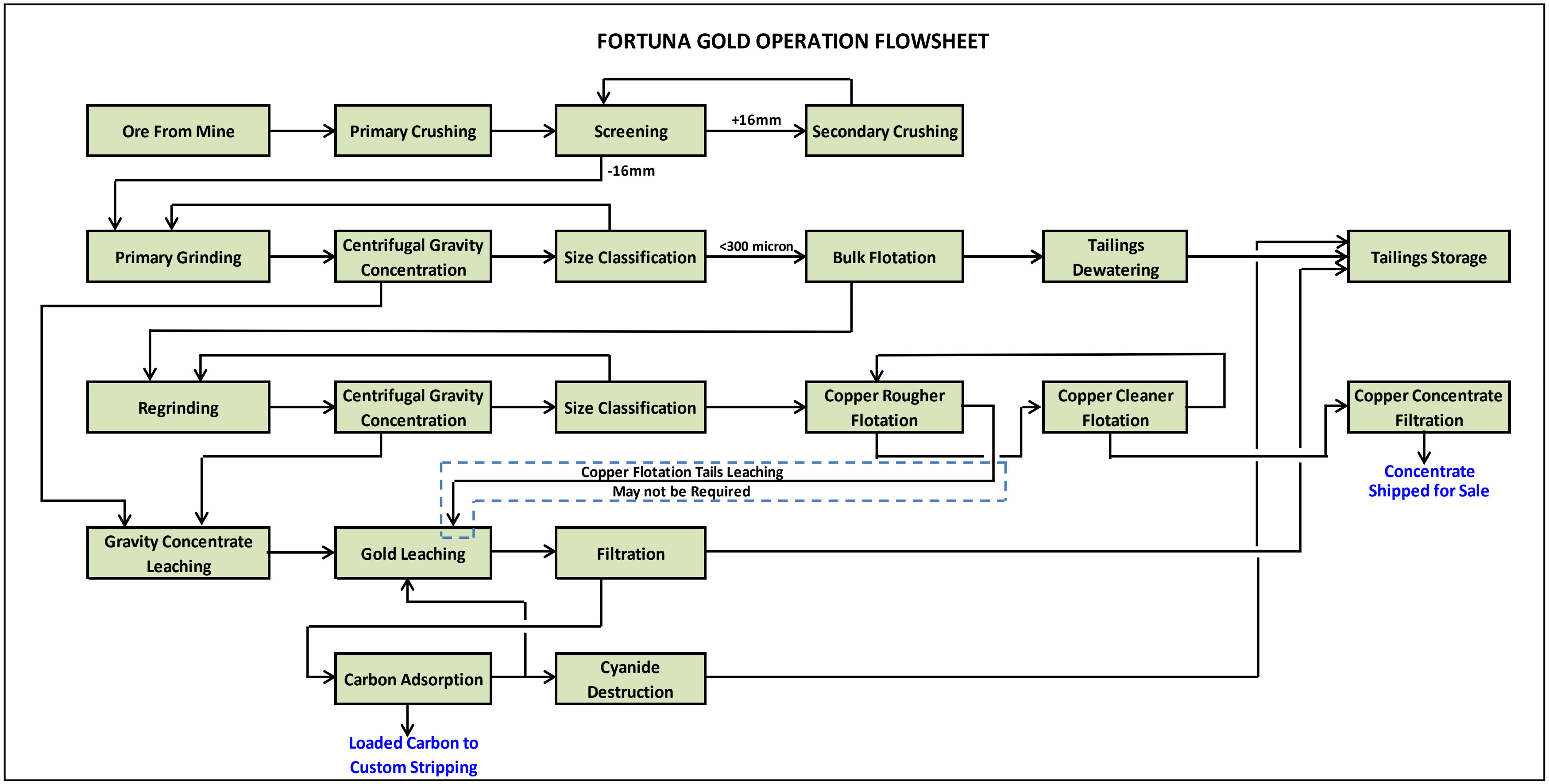


Figure 56: Current flowsheet

Grinding and Gravity Concentration

Crushed material is reclaimed from the stockpile on a seven-days-per-week basis at a rate of approximately 1,200 t/d by a front-end loader and is dumped into two parallel reclaim hoppers with feeders feeding to two parallel primary grinding mills. Rock is ground from particle size F_{80} of 18 mm down to P_{80} of approximately 300 µ.

Discharges from the two ball mills are collected in a common pump box and then pumped to a centrifugal gravity concentrator for "free" gold recovery. The gravity concentrator tail slurry is pumped to a hydrocyclone for size classification. Cyclone underflow returns to the ball mills which are operated in a wet-overflow-closed-circuit arrangement with a circulating load. Final cyclone overflow with a particle size of 80% passing 250 µ flows by gravity to a flotation conditioning tank where it is mixed with reagents prior to feeding to the bulk flotation stage.

Gravity concentrate from the centrifugal concentrators is regularly removed and pumped to gravity concentrate cyanide leach circuit for gold recovery. A semi-batch automatic centre discharge centrifugal concentrator has been assumed.

Bulk Flotation

A bulk rougher flotation line is incorporated for the bulk flotation stage which produces a copper/gold/silver rougher concentrate. The slurry from the grinding circuit is pumped to a conditioning tank where lime and flotation reagents are added at their pre-determined dosages to adjust pH and prepare for flotation.

Mill process water is also added (as required) to adjust slurry density prior to flotation. Rougher concentrate is collected via concentrate launders to the concentrate pump box from where it is pumped to the concentrate regrinding area.

Rougher tails are collected in a pump box and pumped to a bulk flotation tailings thickener for dewatering and filtration prior to being disposed to the tailings containment area.

Overall, the mass recovery in the bulk flotation stage is estimated at 8–10% of mill feed with gold/silver recoveries of +95% (combined flotation + gravity recovery)

Regrinding and Copper Flotation

The bulk concentrate needs to be further reduced in size prior to copper flotation. Concentrate is pumped to a regrinding ball mill operating in closed circuit with an additional centrifugal gravity concentrator for gold recovery and a hydrocyclone for size classification. The size of the bulk concentrate particles is reduced from a F_{80} of approximately 250 µ to a P_{80} of less than 80 µ.

Following regrinding the concentrate is pumped to a conditioning tank where it is mixed with further flotation reagents added at pre-set doses. The conditioned slurry then passes through a series of cleaner flotation cells where a copper/silver/gold concentrate is produced. Final concentrate flows through overflow launders into a pump box where it is pumped to a Cu concentrate thickener followed by a filter for solid/liquid separation. Wet filter cake is collected and loaded into trucks for transport to be sold.

Final flotation tailings from the cleaner separation stages consists of a sulphide (primarily pyrite) containing some residual gold (4–5% of total feed to the mill). In the future consideration can be given to processing this material in a cyanide leaching circuit for additional gold/silver recovery.

Gravity Concentrate Leaching

Based on test results, the La Fortuna ore gravity concentrate does not require intensive cyanide leaching to recover contained gold. The leach flowsheet is designed to operate in a batch mode, using two tanks alternatively.

Gravity concentrates from the primary and regrinding gravity concentrators are pumped to a decant tank in the gravity gold leaching area to drain excess water. Slurry from the decant tank is fed to one of two leach tanks. To start leach, fresh cyanide solution, milk of lime, as well as compressed air are added to the tank. When leaching completed after 24 hours, slurry is pumped to the carbon column circuit for gold recovery. In the future should a pyrite leach area be included this slurry can be pumped to that circuit where residue gold can be further recovered, and remaining cyanide can be consumed for pyrite leaching.

Flotation Concentrate (Pyrite) Leaching [For Future Consideration Only]

The pyrite leach is completed in six agitated tanks arranged in steps allowing for gravity flow. Tanks are sized to provide a total leach time of approximately 48 hours to achieve +95% gold extraction. Final flotation tails (pyrite) is pumped to the first tank where it is combined with recycled and fresh cyanide solution and then flows by gravity to next tank. Compressed air is sparged from bottom into each tank to provide oxygen essential to dissolve gold into leach solution.

Slurry discharging from the last leach tank is collected in a filter feed tank prior to be pumped to a pressure filter. Filtrate containing dissolved gold and silver is pumped to the carbon column gold recovery circuit. Mill process water containing no cyanide is used to wash the final filter cake to remove any residual soluble gold, silver and cyanide prior to being discharged and sent to tailings containment.

Precious Metals Recovery

Gold and silver are recovered from the pregnant leach solution through a series of columns filled with activated carbon. Solution is pumped to the first column in series where it flows up through the bed of carbon and then overflows from the top of the column to pass through the next column in series. The process repeats itself until the solution exits the final column, via a carbon safety screen catching fine carbon particles, to a barren overflow tank from where it is pumped to a cyanide process water tank for recycle.

During the carbon recovery stage gold/silver cyanide species contained in solution are adsorbed into the porous activated carbon particles. When carbon in a column reaches maximum loading capacity (typically containing +5 kg/t of combined gold/silver) this column is bypassed and taken off the circuit and the "rich" carbon in the column is removed. The carbon is loaded into porous polypropylene bulk bags that are hung from frames to allow the bulk of the liquid to drain so it can be captured and reused. Once no further free liquid remains, the bags of rich carbon are transported off site for final gold/silver recover. Fresh carbon is loaded into the empty column which will be placed back to the circuit.

Tailings Containment

An allowance has been included for the installation of a filtered tailings system. Flotation tailings are pumped to a conventional thickening system with recovered water returned to the plant process water tank where it is combined with fresh water for plant requirements. Plans have been completed for the design of the tailings containment strategy which includes the installation of vacuum disk filtration equipment for the production of final solids that are then transported by truck to a nearby containment area where they are distributed and compacted. Additional studies are to be completed to look at potential improvements including pressure filtration, staged containment construction, etc.

Reagents

Reagent preparation and storage facilities have been included in the design, including:

- Lime mixing and holding tanks with distribution pumps to deliver milk of lime to various process users
- Reagent preparation and storage for various flotation reagents defined by preliminary testwork
- Flocculant preparation unit.

Water Management

Fresh water and process water tanks are included in the design. Gland water required for some slurry pumps will be taken from the fresh water tank and delivered to users by dedicated gland water pumps. Two tanks are provided to store mill water and CN containing process water separately. Each tank is designed with a four-hour retention time. Both process water tanks are placed at an elevated location which allows water to flow to the plant by gravity.

Compressed Air

Air compressors are provided for process and instrumentation application. An air dryer is provided to dry the compressed air before its being distributed to various instrument air users. Dedicated blowers are provided for flotation air to all flotation stages.

Fuel and Power Requirement

Fuel required in the plant is mainly diesel for mobile equipment, such as front-end loader for crushed material reclaiming from stockpile. A fuel storage and handling system is provided for dispensing diesel. The installed operating power for the process plant, including warehouse, lab and office is estimated at about 2 MW. Diesel power generators are included in the design to meet plant power demand.

18 Project Infrastructure

Given the early stage of development, there is limited infrastructure currently available at the La Fortuna Project site.

18.1 Access

The La Fortuna Project is accessible by road from Culiacan (Sinaloa state capital), a driving distance of approximately 100 km (Figure 57). The quality of the road is variable. On an annual basis, the government has been upgrading the road in the direction of the Project by widening it and paving the surface in both directions. Ultimately it will pass through the southern concession limits and continue to the northeast towards Chihuahua. The project completion date is currently unknown. Along with the upgrading of the highway, grid electricity that is being extended along the side of the highway.

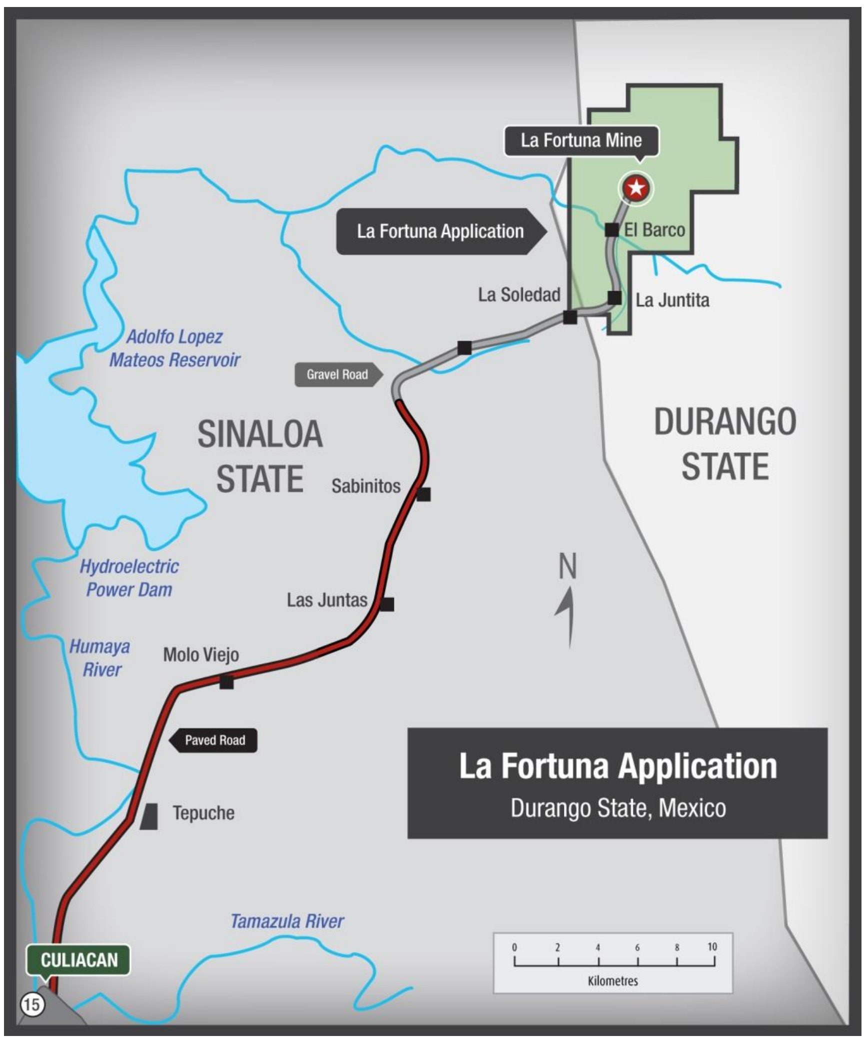


Figure 57: La Fortuna Project site location

At present the road is paved to within approximately 30 km of the town El Barco which is situated at the river immediately south of the Project area. The remaining road is graveled, graded and of reasonable width for much of the route. Sections can be rough and deeply cut into the steeply inclined bedrock resulting in the road being steep and narrow in places. It would be anticipated that some relatively minor upgrading of portions of this road (primarily in areas with a sharp turning radius) will be required in order to improve access for larger trucks to access the La Fortuna Project area.

A large metal barge is present at El Barco and utilized for the short river crossing to the road which enters the La Fortuna mine area and provides access to the small local towns in the area. The current barge is sufficient for the transport vehicles up to the size of normal non-articulated highway trucks. Larger loads will need to be unloaded in El Barco and transported via smaller trucks to the mine. It is possible that in the future the river crossing could be enhanced via a larger barge or the construction of a concrete "vado" type structure. However, Minera Alamos believe the current infrastructure is sufficient for the planned construction and operation of the Project.

During the much of the year (excluding the rain seasons) access conditions along sections of the final gravel road can improved by utilizing wide areas of exposed river gravel beds as bypass routes. It is anticipated that during construction and with later operations that the company will utilize this window to transport larger loads of supplies which can then be stored/warehoused at site for use during the rainy season.

Preliminary engineering has been completed to locate new access roads required for start of the La Fortuna Project operations. This includes a total of approximately 5 km of gravel surface suitable for the operation of mining trucks.

- Road from planned open pit to new processing plant area – 1.5 km
- Initial mine truck access roads around planned open pit – 2 km
- Miscellaneous additional access roads around mine/plant (i.e. to crushing area, tailings, etc) – 1.5 km.

A full evaluation of the upgrades required to existing gravel roads around the Project area has yet to be to be completed. General work activities include:

- Widening of sections of existing local roads that pass through the project concession area near the planned mining operations in order to better accommodate two-way truck traffic.
- Reworking sections of the existing gravel road extending from the main paved highway (from Culiacan) to El Barco. This will be focused primarily on short radius curves in the road that will need to be widened and modified in at least five or six locations.

18.2 Power

The closest small villages to the Project site are El Barco and San Fernando. Both areas have less than 100 inhabitants and are not serviced via the national power grid. Grid power is being extended along the state highway from Culiacan as it is widened and paved. Currently, it comes within approximately 30 km from the town of El Barco in the southern part of the La Fortuna concession area. It is unknown when grid power will ultimately be available at the site and what load capacity would be available.

For the purposes of this study, it is assumed for the foreseeable future that all power required for the Fortuna project will be generated at site via diesel generators. The total operating plant power load is estimated at approximately 2 MW which will be supplied via multiple generator units (operating + standby) to build in redundancy for maintenance, etc. Primary generators are to be located within close proximity to the processing plant area, so site powerline requirements will be negligible. Wherever possible, large power consumers not associated with the processing plant (i.e. portable crushers) will be self-contained with local diesel hydraulic/electric generation. Small auxiliary generators will be utilized as necessary for minor requirements (i.e. plant camp/offices).

Typical diesel power generation consumes 0.25–0.30 L/kWh. At current fuel prices in Mexico, this is equivalent to an electric power cost of US$0.25–0.30/kWh, which has been used for budgeting. Should grid power eventually arrive at the Project area, power costs for the Project would be reduced by 50% or more.

18.2.1 Process Plant Power Requirements

Based on the PEA mill flowsheet as previously described, the estimated process plant operating power requirements are detailed below.

Table 37: Estimated mill power requirements

Plant area	Operating load (kW)
Primary grinding	1,240
Bulk flotation	310
Bulk concentrate regrinding and Cu flotation	220
Cyanidation and carbon columns	50
Reagents/Fuel/Water	50
Air supply	140
Total Process Plant	**2,010**

18.3 Water Management

The Humaya River flows roughly northwest-southeast approximately 500 m from the planned La Fortuna processing plant area. This river has a year-round supply of flowing surface water and discussions with the relevant permitting authorities have indicated that the project would be permitted to extract river water directly for processing uses. In addition, a seasonal creek bed that runs east-west and connects with the Humaya River is located a few hundred metres south of the plant site. Although hydrogeological studies have not been completed, it is likely that sources of groundwater suitable for the project's requirement also exist in this southern area.

Based on local observations, it is expected that river/groundwater levels occur at the 250–300 m elevation (above sea level). Water would be pumped from this elevation the short distance to the plant site which is located just above 500 m (above sea level). Process water removed from the plant filtered tailings will also be recycled as much as possible in order to minimize fresh process water make-up requirements. Overall make-up water requirements are currently estimated at less than 20 m^3/hr.

18.4 Tailings

As part of the ongoing La Fortuna Project environmental permitting process, Especialistas en Ciencias de la Tierra (ECT – Earth Sciences Specialists) was commissioned to complete a dry-filtered tailings study. The following information is taken directly from that report (Design of the mine tailings disposal site "La Fortuna" – April 2018) the details of which were also included in the Project permitting documentation.

The scope of the tailings facilities design work which has been completed to date includes:

- Field work: Topography, geophysics, geology and soil mechanics
- Laboratory work: Soil mechanics
- Office work: Geometry design, stability analysis, building procedures, basic instrumentation during the operational and close-out phases
- Hydrologic study and design of hydraulic constructions.

A Project site review identified two ideal areas for the disposal of filtered tailings located within close proximity to the La Fortuna process plant area (Figure 58). The "Phase 2" (Etapa 2) area was selected for the initial Fortuna tailings containment area with the "Phase 1" (Etapa 1) area available for future development if the project resource base is increased. The total estimated containment capacity for the Phase 2 tailings containment facility (TCF) design is 1.4 MM m^3 which equates to approximately 2.5 MM tonnes of dry tailings solids which is more than sufficient for the current La Fortuna Project resource base.

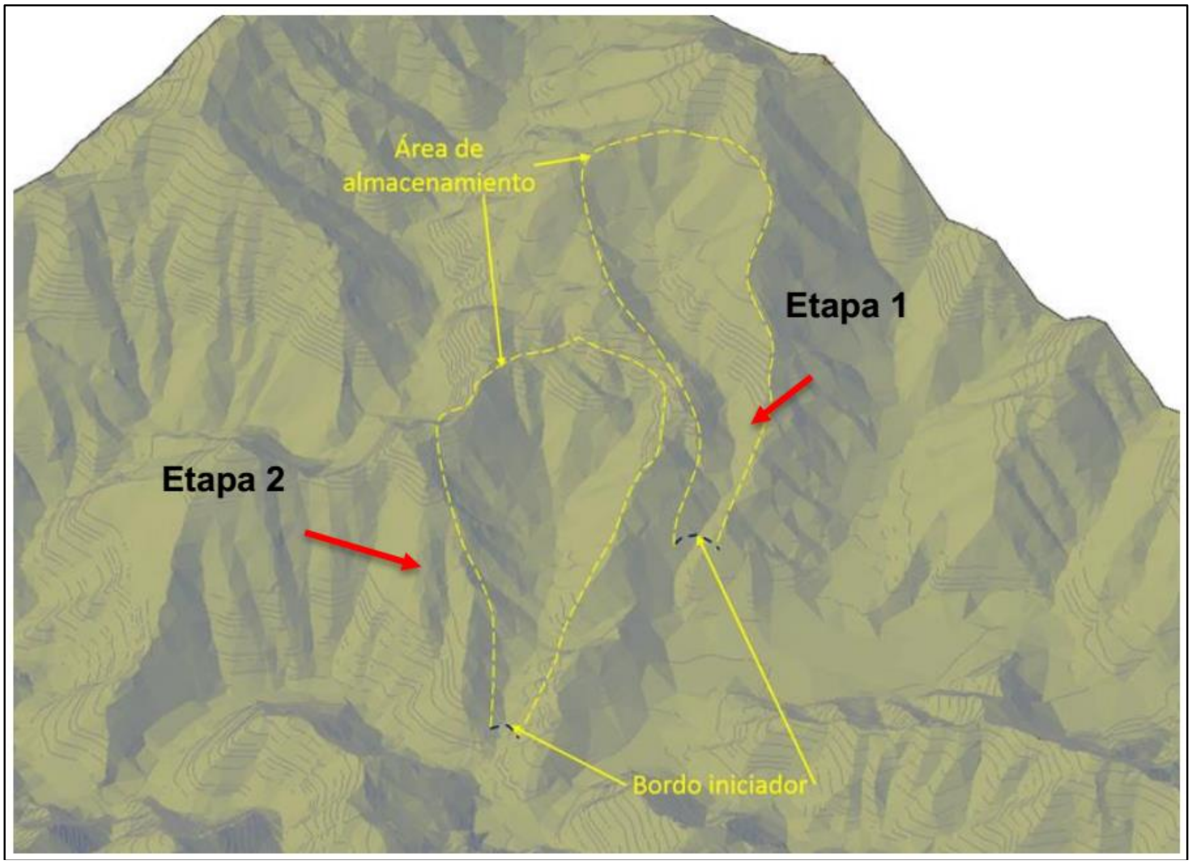


Figure 58: La Fortuna Project available tailings containment areas

Samples of tailings material from the metallurgical testwork programs completed at SGS Lakefield Research in Canada were submitted to both ECT (for determination of TCF design parameters) and also to CEC Mining Systems for evaluation to determine the sizing of the ceramic disk tailings filtration units currently planned for the Project. Laboratory testwork evaluations by ECT established the basic geotechnical design parameters to be utilized for the ultimate designs. A brief summary of these parameters includes:

- Ultimate compacted density: 1.75 t/m^3 (dry solids)
- Internal friction angle: >30°
- Final compacted moisture content: 10–13%.

Using these parameters, a tailings design geometry was completed consisting of a 20,000 m^3 initiator dam followed by six phases of tailings deposition/compaction (see Figure 59). Each phase consists of a 15 m lift of material with 8 m wide berms sufficient for access at each level. The overall slopes guiding the design are approximately 1.8H:1V which is equivalent to an angle of 29°. The volumes for each phase of the TCF construction are summarized below.

Etapa de depositación	Volumen almacenado parcial (m^3)	Volumen almacenado Acumulado (m^3)
1	138,558	138,558
2	189,595	328,153
3	245,596	573,749
4	282,478	856,227
5	312,481	1,168,708
6	255,781	1,424,489

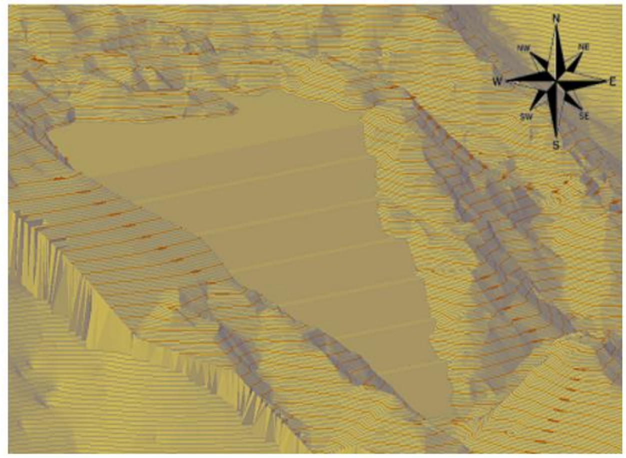


Figure 59: TCF

The basic construction of the TCF is as follows:

- Removal of all organics, soil cover and weathered rock within the TCF area.
- Construction of the initiator dam in 30 cm compacted layers until the ultimate dam height is reached.
- Construction of the site drainage channels and hydraulic protection structures.
- Deposition of filtered tailings material in 30 cm lifts followed by compaction.
- Following the completion of three layers above the initiator dam, the slopes are to be covered with an erosion protection layer consisting of <15 cm crushed rocks. Low-grade ore (or waste) from the mine can be utilized for the cover layer material.

A network of hydraulic protection structures is incorporated into the design and are illustrated in Figure 60. These include:

- An upper diversion channel to collect any runoff coming from elevations above the compacted tailings complete with a weir structure to divert the flow to the base of the TCF
- Lateral protection channels on the left and right sides of the area
- A central gallery through the middle of the design area to allow for the draining of any water coming from the basin during the construction and deposition of tailings material.

Detailed specifications are provided for all phases of the construction including the hydraulic protection features. In addition, surface benchmarks are to be installed in order to monitor movements within the deposit.

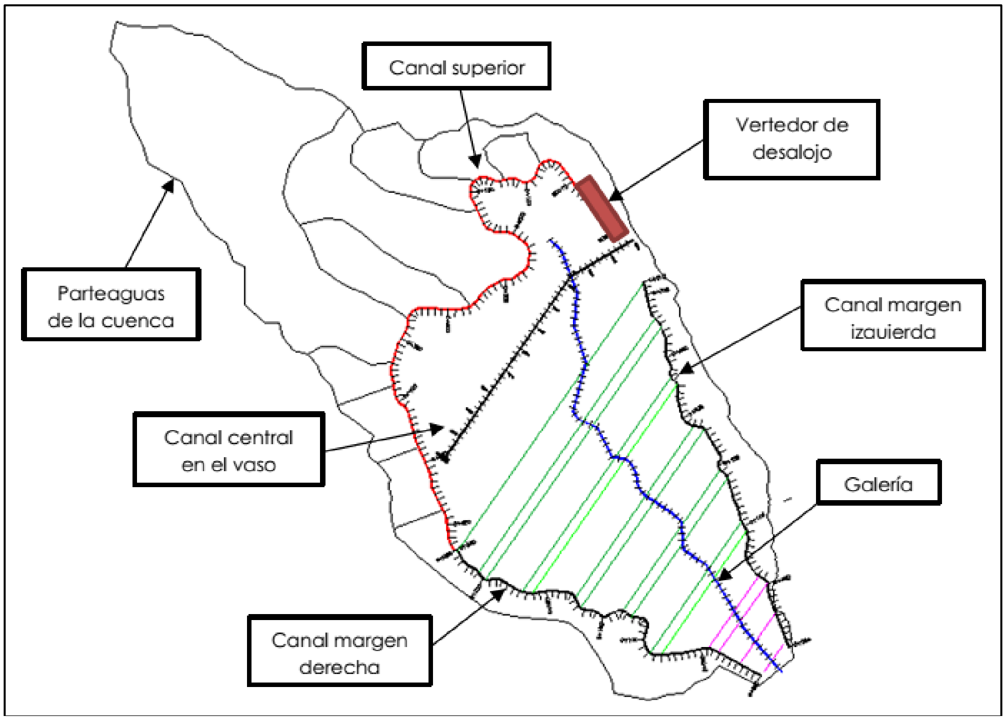


Figure 60: Location of the hydraulic protection structures for the La Fortuna Project tailings disposal site

18.5 Other Infrastructure

Other infrastructure at the project includes an office, lab, warehouse and truck shop. An allowance has been made for the truck shop area, but the shop structure(s) will be provided by the mine contractor as is common practice in Mexico. Detailed designs for the other items have not been completed but basic area allowances have been included in the site arrangements for permitting. Simple buildings are planned with a combination of trailers/container units and locally constructed concrete block structures. Only very basic lab services are planned for the site with majority of samples/analysis being completed in the Culiacan area at third party facilities.

18.6 General and Administration

The PEA model is based on the assumption that Minera Alamos will provide overall site management, technical support and surface and mill personnel. Mining and crushing activities will be completed by contractors and all personnel other than high level supervision and planning are included in the contractor costs.

It is anticipated that wherever possible basic operations labour will be sourced locally from the San Fernando area or other small nearby villages. Management and more skilled personnel that are not locally available can be sourced from the Culiacan general area and basic camp facilities suitable for 30 people have been included in the Project plans. Minera Alamos will provide basic transportation services (by road) for operations personnel.

Minera Alamos maintains and existing office in Culiacan that is capable of managing administrative/accounting functions for the Project as part of its overall operations activities. The Culiacan area is a major industrial center and capable of providing all basic supplies and contract services required for the Project operations.

19 Market Studies and Contracts

19.1 Products

The La Fortuna Project will produce two salable products:

- A gold gravity concentrate, which is leached with cyanide and then absorbed onto activated carbon for shipment off-site for final processing
- A copper flotation concentrate, which also contains the remaining recoverable gold as well as majority of the recovered silver.

19.1.1 Gold-Loaded Carbon

Minera Alamos management have been involved with a number of previous projects in Mexico and Latin America where gold-loaded carbon was loaded into 1 m^3 super-sacs and shipped off-site for final processing. Current processing costs for the carbon are approximately US$1,000/t and the final doré is then shipped to a refiner for final processing and payment. It is currently planned for the carbon processing to be completed in the southern US with doré shipped to any one of the well-known refineries in the area.

19.1.2 Copper/Precious Metals Concentrate

Testwork has demonstrated that a copper flotation concentrate can be produced at the La Fortuna Project with extremely high (+90%) recoveries of gold/silver remaining in the mineral slurries after gravity recovery has been completed. Copper grades in the high teens (approaching 20%) are easily achievable with gold and silver contents of +100 g/t and 1,000–2,000 g/t, respectively. Minera Alamos has provided concentrate specifications to a couple of trading groups active in Mexico to confirm concentrate salability. Concentrate can be shipped by truck from the site to the port of Guaymas on the Pacific coast of Mexico which is located approximately 500 km by road from the site.

For the purposes of the current economic models, the standard copper concentrate treatment terms have been assumed. Minera Alamos is currently in discussions to best optimize final concentrate treatment facilities and terms.

Concentrate payables:

- Cu: Min Max Payable
  - Below 15% 96.5%, subject to minimum deduction of 1.5 units
  - 15% 17% 96.5%, subject to minimum deduction of 1.2 units
  - 17% 20% 96.5%, subject to minimum deduction of 1.1 units
  - 20% 29% 96.5%, subject to minimum deduction of 1.0 unit
  - 29% 32% 96.60%
  - 32% 34% 96.65%
  - 34% > 96.75%.
- Ag: If the final Ag content is greater than 30 g/dmt, pay for 90% of the full content.
- Au: Pay according to the following schedule for deliveries to China:
  - Nil if less than or equal to 1 g/dmt
  - 90% if over 1 g/dmt and up to and including 3 g/dmt

- 92% if over 3 g/dmt and up to and including 5 g/dmt
- 93% if over 5 g/dmt and up to and including 8 g/dmt
- 94% if over 8 g/dmt and up to and including 10 g/dmt
- 95% if over 10 g/dmt and up to and including 15 g/dmt
- 95.5% if over 15 g/dmt.

Treatment charge:

- $80/dmt.

Refining charges:

- Cu: $0.08/lb payable Cu
- Ag: $0.50/oz payable Ag
- Au: $6.00/oz payable Au.

19.2 Metal Prices

19.2.1 Copper Prices

For the determination of Project economics in the current PEA a conservative long-term copper price of US$5,725/t (US$2.60/lb) is used. Below are the historical prices for the metal.

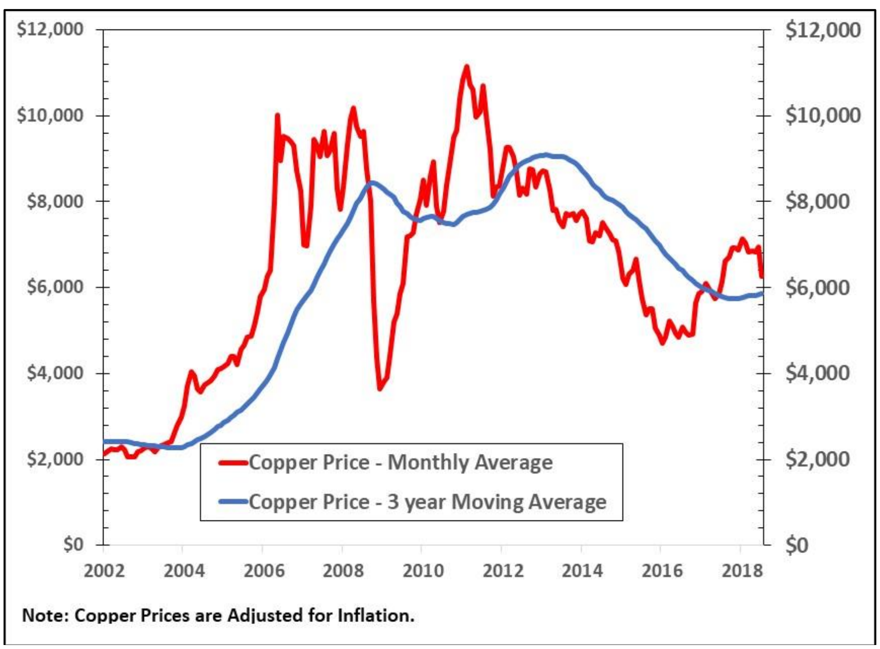


Figure 61: Monthly and three-year average copper prices, 2002–2018 (US$/t)

19.2.2 Gold/Silver Prices

For the determination of Project economics in the current PEA conservative long-term gold and silver prices of US$1,250/oz Au and US$16/oz Ag are used.

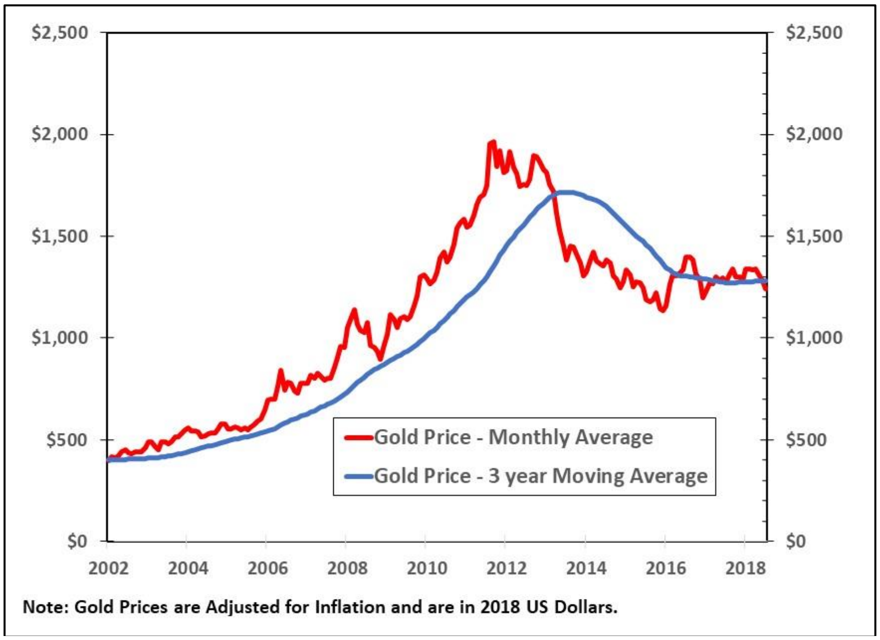


Figure 62: Monthly and three-year average gold prices (US$/oz)

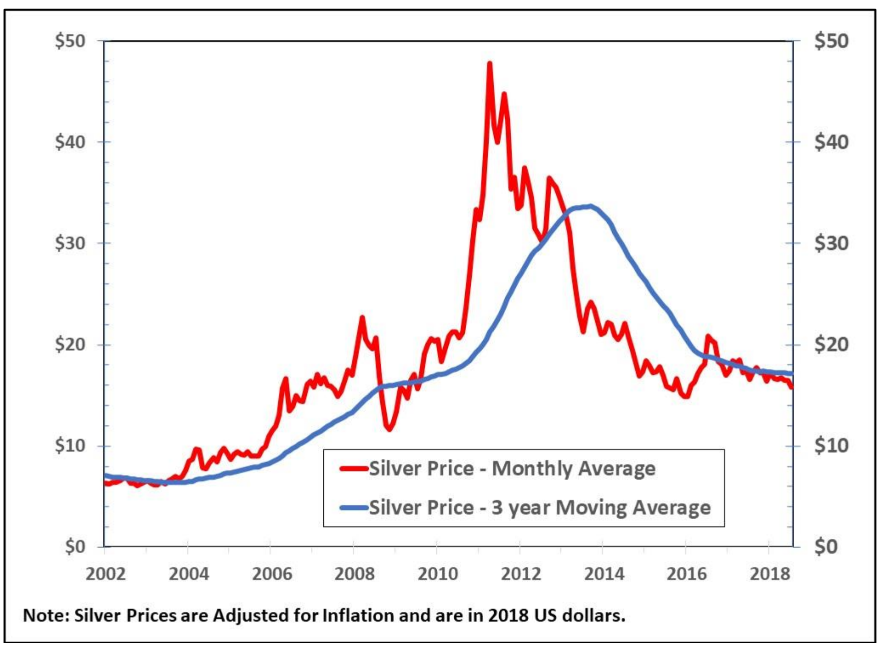


Figure 63: Monthly and three-year moving average silver prices (US$/oz)

19.3 Contracts

Minera Alamos currently has no contracts in place for the development of the La Fortuna deposit.

20 Environmental Studies, Permitting, and Social or Community Impact

20.1 Environmental Impact Assessment Permitting

The Environmental Impact Assessment (EIA) for mining projects in Mexico starts with an application for the following primary permitting documents:

- MIA - Manifestación de Impacto Ambiental (Environmental Impact Statement)
- ETJ – Estudio Tecnico Justificativo (Technical Justification Study) that includes the Estudio de Riesgo (Risk Study) and PPA - Programa de Prevención de Accidentes (Accident Prevention Program).

The MIA-ETJ permit applications were submitted by Minera Alamos for the La Fortuna Project early in 2018 and are pending. The submitted permitting documents included an expanded scope of processing facilities that included additional stages not required for the current start-up plan (i.e. concentrate cyanidation and detoxification). This provides the Company with added flexibility in the future to modify the existing operation in order to accommodate new potential regional sources of mineralization.

Descriptions of the major permitting requirements and documents are provided below.

20.1.1 MIA – Manifestación de Impacto Ambiental (Environmental Impact Statement)

The objective of this document is to evaluate, mitigate, and communicate the potential environment effects related to the Project. The MIA should include:

- General project information
- Mine construction and operation plans
- Description of the physical, natural, and social environment where the project will be developed
- Description of the measures and designs that will be implemented to comply with the environmental norms
- Identification and evaluation of potential impacts
- Description of the proposed mitigation measures for the identified impacts.

MIAs include detailed analyses of the following subjects: soil, water, vegetation, wildlife, cultural resources, and socio-economic impact. Waste water discharges into national bodies of water, and waste water infiltration into soil where groundwater may be affected are under federal jurisdiction.

SEMARNAT or the project proponent may arrange public meetings. Any person can request a public meeting within 10 days of the publication of the MIA summary. Once SEMARNAT receives the request, it has five days to respond. The project proponent has another five days to publish a response to public concern. After that, the general public has 10 days to file a request for a copy of the entire MIA from SEMARNAT. Once the entire MIA is available to the public, anyone can propose, in writing, changes to the MIA, including changes to designs and mitigations.

SEMARNAT then prepares a resolution indicating whether the project is environmentally viable. The final resolution must be published and include public consultations, proposed alternatives, agency and public comments, and proponent responses.

20.1.2 ETJ – Estudio Técnico Justificativo (Technical Justification Study)

The ETJ is the technical document that includes the designs, actions, procedures, and monitoring for the protection, conservation, and restoration of forest ecosystems. The ETJ should include the conceptual description of the mine plan of operations. The ETJ must demonstrate compliance with the following basic provisions:

- The project will not compromise biodiversity
- The project will not cause soil erosion
- The project will prevent deterioration of the water quality
- The project will limit water use
- The proposed change in land use will be more productive long-term than the existing land use

Change of Land Use in Forested Areas

Since a portion of the Project area is forested, Minera Alamos is required to submit to SEMARNAT, under the ETJ, an application for change in land use for forested areas disturbed by mining activities. Changes in the forest land use may only be granted when the provisions listed above are satisfied.

20.2 Other Permits

Following the completion of the ETJ-MIA process a number of other registrations and local/state permits are required in advance of various site development stages and the start of commercial production. These include:

- "Water Use" – Comisión de Agua (National Water Commission or CONAGUA). Once a final tailings containment design is complete an application is required for a final water use permit based on the Project fresh water pumping requirements for the Project. CONAGUA has stated that the Humaya River can supply the water requirements, but the Company is required to apply for this service. Prior to this application, some groundwater well flow studies should be completed to evaluate the quantities of available groundwater flows.
- "Explosives Use" – Covers projected explosives requirements and design of explosives storage facilities.
- "Exploration Permits" – As required when surface disturbances are created for site drilling purposes.
- "Construction Permits" – Obtained from the local municipality.

20.3 Social Impacts

Minera Alamos does not currently own any surface rights in the La Fortuna area. The surface rights over the area are held jointly by the residents of the Tabahueto ejido (a Mexican agricultural cooperative). In recent years, the Mexican Federal Government has changed the EIA permitting procedure such that the company applying for these permits must first demonstrate that they have a legal and binding agreement in place for the surface rights covering the area to be permitted. SEMARNAT will no longer accept the ETJ-MIA permit application documents unless proof of such rights is presented with the application.

In 2016, Minera Alamos started discussions with the ejido regarding the necessary surface rights for the development of the La Fortuna Project. On 16 February 2017 at a general meeting, the community voted unanimously to enter into a 25-year agreement to rent 235 a of surface area required by the Company (agreement signed formally in June 2017).

21 Capital and Operating Costs

21.1 Assumptions

Capital and operating cost estimates were prepared assuming a greenfields installation of mining and processing facilities. Costs are considered to be accurate within a range of ±30%. Key assumptions utilized during the estimating process were as follows:

1) Average daily milling capacity of approximately 1,000–1,100 t.
2) Plant operating 24 hours a day and 365 days a year at approximately 95% mill availability.
3) Mine plans are based on current resource models (Measured + Indicated only). No Inferred Resources have been considered for the analysis.
4) Developed open pit mining sequences were prepared in accordance with parameters outlined in Section 16 (Mining Methods) of the Report (including reasonable parameters for mine recoveries and dilution). Mineralized material was aggregated into a series of grade “baskets” for production planning purposes using estimated gold grades only -->2 g/t, 1.6–2.0 g/t, 1.2–1.6 g/t, 0.8–1.2 g/t. Material with <0.8 g/t Au was considered as waste for PEA planning purposes.
5) Mineralized material with >1.6 g/t Au was considered as “direct milling” material for economic modelling purposes. “Sub-grade” Material containing 0.8–1.6 g/t Au is sent for DEXTR ore sorting with the concentrate from sorting combined with the direct milling material for gold recovery operations. For planning purposes, the sub-grade material from the first two years of operations was stockpiled with ore sorting operations being implemented in Year 3.
6) 90/90/85% overall recoveries for copper, gold and silver.
7) Milling facilities were designed to maximize the use of equipment from a previously purchased used processing plant (grinding/flotation) with specific modifications as detailed in Section 17 to best suit the flowsheet developed for the La Fortune Project.
8) Gold refining circuits are not included in the designs. Two products will be produced for sale – loaded carbon containing gold (50% of recoverable gold/minor silver value) for shipment to be processed at a third-party facility and a copper flotation concentrate containing significant amounts of gold/silver (50% of recoverable gold/100% of recoverable silver) to be sold directly.
9) Flotation tailings are to be filtered and “dry stacked” at site. Testwork and designs have been completed using third party consultants/suppliers for both the tailings filtration equipment and the dry stack tailings impoundment area.
10) All power for the site operations is to be produced through diesel generators located at site.
11) A basic camp arrangement is to be constructed to house site personnel not sourced from local communities.

21.2 Cost Estimate Methodology

The general methodology utilized for the development of the PEA study operating and capital costs estimates was as follows:

1) A Whittle™ ultimate pit shell was completed using initial estimated economic parameters for the project variable costs in order to define an initial mineable resource. The Whittle™ shell was then used as a rough guideline for the production of mine production schedules that also incorporated operational requirements such as roads, etc. Efforts were made at the PEA stage to consider waste

mining sequencing in order to better manage fleet utilization but further optimizations are recommended to improve the overall project economics.

2) A complete metallurgical processing model was completed using Metsim® software, testwork data obtained primarily from SGS, Lakefield, Ontario, equipment vendors and experience from similar previous projects.
3) All major process equipment items were sized and selected based on the mass flows output directly from the process model and vendor product catalogues and information. Wherever possible, existing equipment items from the Company's used plant facilities were selected for use in the plant arrangements. Items not available were identified for future sourcing as new/used items.
4) A process plant arrangement and overall site layout were completed for the Project (see Figure 64).
5) Overall process plant capital costs utilizing used equipment were estimated based on mill capital cost factors available from other similar facilities constructed in Mexico using significant quantities of used equipment.
6) A conservative contingency was added to the overall project capital cost estimates to account for items that were not specifically identified at this stage of the study.
7) Operations and administrative operating costs were developed based on estimated staffing levels, consumables (from testwork and modelling) and expenditures required to support the mine and its associated processing, maintenance and administrative activities. Power requirements were calculated based on estimated equipment motor sizes and assuming power generated via on-site diesel generation.
8) Direct mining and crushing costs were excluded from the analysis outlined in Item 6 and will be performed by contractors on fixed unit rates. Contractor rates were developed from first principals with appropriate allowances for profit margins and benchmarked based on recent Minera Alamos management operating experience. The Company will provide overall supervision/planning for the miner operations and costs for this mine services group were detailed separately.
9) Additional operating cost allowances were included for outside contractors, laboratory consumables, vehicle fuel requirements, etc.
10) An overall contingency of 20% was applied to the operating cost totals to account for additional cost items such as outside contractors, laboratory consumables, vehicle fuel requirements, etc.
11) Infrastructure costs were estimated based on a site layout as presented in Section 21.3.3, which was utilized for the submission of the appropriate mining permits. Infrastructure requirements include road upgrades, power generation, site preparations and facilities such as a laboratory and administration buildings.
12) Excluded from owner's costs are corporate overheads, land acquisition costs (previously settled by Company) and working capital. Minera Alamos is in discussions with potential mine contracting groups and concentrate traders and initial indications are that the majority of working capital requirements can be funded via these groups. In addition, the Company will have other operations with positive cash flow that can be utilized as required to cover temporary La Fortuna Project start-up requirements.

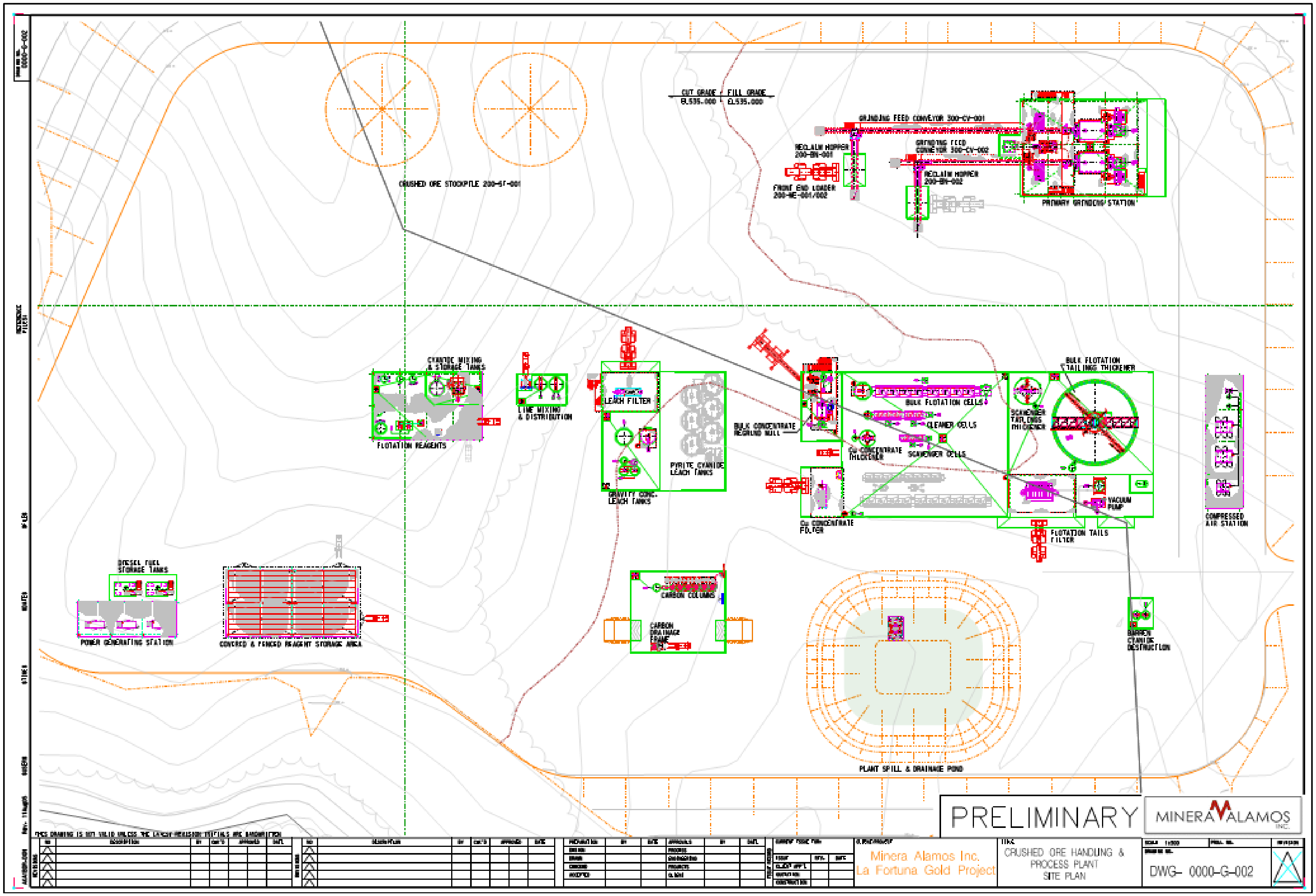


Figure 64: Layout of La Fortuna plant and crushing area

21.3 Capital Costs

The capital cost estimate was divided into "pre-production" capital and production "sustaining" capital.

Pre-production capital includes all mine and process costs up to the initiation of commercial mining operations (75% of steady state production). Total pre-production costs at the La Fortuna Project are estimated at US$27 million. Sustaining capital costs over the LOM are estimated at US$7 million for a total Project capital cost of US$34 million. A breakdown of the Project capital costs is summarized in Table 38.

To reduce the initial capital requirements, it was decided that all mining and crushing activities will be provided by third party contractors.

Table 38: Project capital cost summary

Area	Initial (US$'000)	Sustaining (US$'000)	Total (US$'000)
Mining (contractor mobilizations)	1,000		1,000
Site development/infrastructure	3,500		3,500
Mineral processing	15,000	7,100	22,100
Tailings management	2,000		2,000
Closure		3,000	3,000
Salvage value		(3,000)	(3,000)
Contingencies (including owner's costs)	5,400		5,400
Total Project	**26,900**	**7,100**	**34,000**

**Note: Start-up working capital to be provided by concentrate purchasers on credit revolver basis.*

The pre-production capital cost estimate of US$27 million includes the construction of a stand-alone process facility, Phase 1 of the tailings storage facilities and all necessary site infrastructure to bring the mine into production. A conservative 25% contingency has been included to account for capital requirements that are not detailed in the current study.

To reduce upfront capital requirements, Minera Alamos will utilize contractors for both mining and crushing activities. In addition, used processing equipment will be incorporated wherever reasonable based on the current widespread availability of such items. The Company has already purchased a used flotation facility (2,000 t/d capacity) that was loaded previously into sea containers for shipping and assembly at a base metals project that was subsequently cancelled. The equipment was inspected by a number of parties and appears to be in good condition (including electronics).

21.3.1 Mine Pre-Stripping

Mineralization at the La Fortuna Project extends close to topographic surfaces and therefore no pre-stripping was included in the estimates. Annual mine plans as prepared include all ore/waste to be removed from the open pit during the normal course of operations.

21.3.2 Process Plant

A conceptual layout for the processing plant and crushing/stockpile arrangement is shown in Figure 64. In order to provide maximum flexibility for future expansions, the original design completed and submitted for permitting was for an expanded case that included future potential processing circuits as outlined in previous sections of the Report. Subsequently, additional testwork and engineering indicated that the preferred development route (lowest initial CAPEX) would be to limit the scale of the facilities at Project start-up.

This involved removing the following areas from the plant design:

- Pyrite flotation (separate circuit from copper concentrate flotation)
- Cyanidation of pyrite flotation concentrate
- Thickening/filtration of cyanidation tailings
- Cyanide destruction.

Allowances were maintained in the site layout (shown in grey) for the later addition of these areas should they be economically justified. In addition, area was included (i.e. second flotation circuit) should a future decision be made to increase the plant throughput towards 2,000 t/d due to the definition of addition project resources. Although the overall site layout considered options for future expansion capacity, no allowances were made in the current report for the additional capital required for these modifications.

A decision was made early on by the company to purchase a used processing facility (grinding/flotation) that was suitable for the scale of facilities being planned for the La Fortuna Project. In addition, the widespread current availability of used processing equipment makes it likely that much of the remaining mechanical equipment required for the Project can also be acquired in used condition. Minera Alamos is currently evaluating the availability of new/used remaining equipment items and detailing mechanical/civil/ electrical works such that material take-offs can be completed.

For the purposes of the PEA, a capital cost estimate for the construction of La Fortuna processing facilities was derived from an evaluation of recent similar facilities constructed in Mexico using large quantities of used equipment. A summary of data collected for a number of such projects over the last 10 years was provided by Minera Alamos to CSA Global. Following CSA Global's review of the information a conservative final value of US$15 MM (<US$15,000 per t/d of plant throughput) was selected as reasonable based on the extent of previously purchased equipment and recent grinding/flotation plant experience in Mexico. The factor is exclusive of other site infrastructure including power generation, tailings and general site grading, roads and camp/office facilities. As a further benchmark, the value was compared to that utilized for one of the more recently published PEA reports for a similar used facility in Mexico (Santacruz Silver San Felipe Project/2014).

Based on the available data, the selection of the cost factor utilized for the La Fortuna Project is in the conservative part of the construction cost ranges when the following considerations are included:

- Minera Alamos has already purchased most of the mechanical equipment required for the processing facilities and these "sunk costs" are excluded from the following estimates. The scope of the purchased equipment is significant and includes electronics, major valving, pumps, etc.
- No crushing facilities are to be constructed for the Project as this work will be completed by contractors.
- Options exist to further reduce the scope of the facilities to be constructed at start-up following the completion of further engineering studies (i.e. the initial installation of only one of the two available grinding lines).
- The current value of the Mexico Peso (~19 per US$) which is at the lower end of its valuation over the last decade.

21.3.3 Infrastructure

Infrastructure estimates were developed based on a plant site location approximately 2 km of the mine site. A conceptual site layout is illustrated in Figure 65. Included on the layout are the area polygons utilized for environmental permitting purposes.

An estimate of US$3.5 million is included to cover pre-production infrastructure activities. Included in this cost are the following:

Roads

A total allowance of US$900,000 for the construction/upgrading of gravel roads around the site. This includes:

- 5 kilometres of new site roads suitable for the operation of mining trucks (US$80,000 per km)
- General upgrades to existing roads into and around project area (conservative US$500,000 allowance)

Power

A total power requirement of approximately 2 MW was estimated for the main La Fortuna processing facilities. In order to provide maximum operational flexibility, three (two operating/one standby) diesel generator units each with 1.5–2.0 MW capacity are to be installed. Initial searches indicated that used units (trailer/skid mounted) are available at a cost of US$150,000 to US$200,000 each. Including installation and required transformers/switchgear, a total allowance of US$1 million has been estimated for process site power generation.

Camp/Offices

Camp facilities suitable for 30 personnel are currently estimated as suitable for the Project's non-local employees. No details have been completed but initial inquiries regarding the purchase of container-style (or trailer) rooms/facilities have been completed. The selected camp area already contains some existing concrete block buildings that can be renovated for use as office/kitchen facilities. Overall, based on the data available and previous project experience, a conservative estimated allowance of US$500,000 has been included.

General Site Earthworks

Preliminary site grading estimates were completed for the major project work areas and assuming the cut and fill volumes are to be balanced as much as possible. Including a contingency for currently unspecified requirements a conservative total volume of approximately 1.5 MM tonnes of material was estimated to be required to be moved. Further detailed studies (including some geotechnical work) will be required in order to better optimize these requirements.

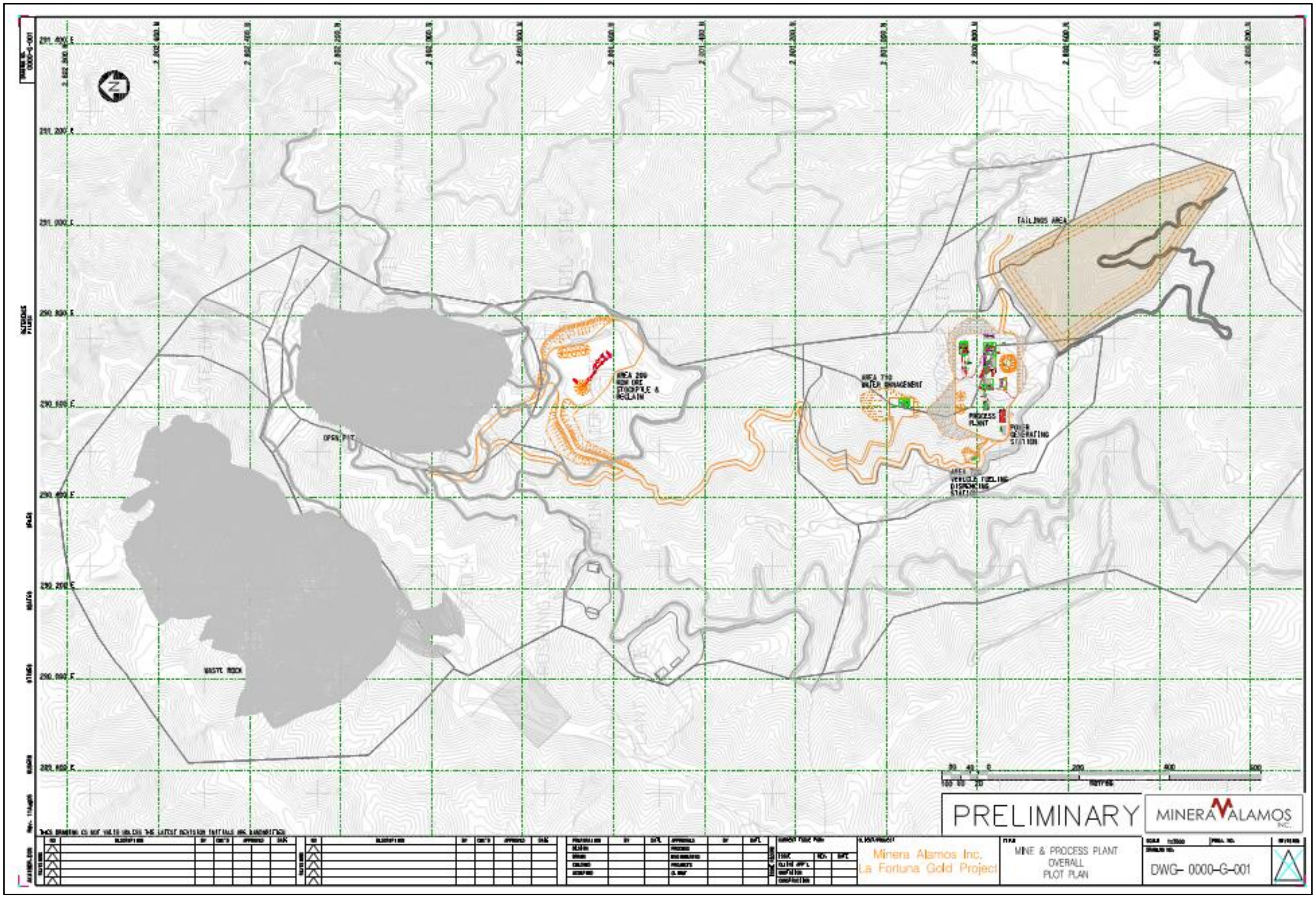


Figure 65: La Fortuna site layout

21.3.4 Tailings Facilities

Conceptual capital costs of US$2 million were estimated for the TCFs based on the following:

- Samples of La Fortuna tailings material were provided to one of the third-party manufacturers of ceramic disk vacuum tailings filtration equipment for detailed testwork. Based on the testwork results and the design throughput for the La Fortuna processing facilities final equipment designs were provided. The manufacturer provided budgetary pricing of approximately US$500,000 for the recent supply and installation of a similar sized system in Mexico.
- A detailed engineering study was completed by ECT (see Section 18.4) for the initial phase of tailings containment (>2MM tonnes) at the La Fortuna Project. Minera Alamos is currently evaluating the detailed specifications in the study document in order to prepare a full budget for the construction. Based on the data provided (disturbed area, initial starter dam volume, hydraulic control structures, etc) a conservative allowance of US$1.5 million was included in the report. It is worth noting that only a portion of the full TCF design is actually required to be completed prior to the initiation of commercial operations and that the final earthworks can be completed while the Project is operational.

21.3.5 Mine Closure

An allowance of US$3 million has been included for final closure costs related to the mine and processing plant. This estimate was based on experience with similar projects in Mexico and will need to be re-evaluated once a full site closure plan has been completed. US$3 million has been assigned as the final salvage value for the constructed mine facilities at the end of the mine life.

21.3.6 Ongoing Sustaining Capital

An allowance of US$1.5 million has been included for the purchase and installation of an ore sorting machine for use starting in Year 3 of operations. The estimate is based on budget pricing from the sorting manufacturer combined with costs associated with other recent installations.

An annual allowance of 7.0% of the original project capital costs has been to account for ongoing sustaining capital requirements. The allowance was based on the use of significant quantities of used equipment.

21.3.7 Exclusions

No allowances have been made in the current capital cost estimates for the following:

- Working capital (preliminary discussions with mine contractors and concentrate traders have indicated that majority of working capital requirements can be funded via these third parties at minimal interest costs)
- Corporate costs (Minera Alamos will manage via existing operations group that will be in place for other operations)
- Additional preconstruction civil works beyond basic requirements assuming soils suitable for the proposed construction activities.
- Taxes (assumes IVA will be refunded to Minera Alamos quarterly as construction progresses, as the Company will be an operating producer at other projects)
- Bonding
- Inflation.

21.4 Operating Costs

The total unit operating costs for the Project are estimated at US$33.34/t of mineralised material (includes general and administrative (G&A), concentrate shipping and treatment charges). It should be noted that the decision to utilize contractors for mining and crushing has added somewhat to this cost. Should the deposit resource grow in the future it may make sense to perform these activities in-house.

The LOM operating costs are summarized in Table 39. Details of these costs are discussed later in this section.

Table 39: Project operating cost summary

Area	US$/t mineralized material*2	US$/unit	
Open pit mining	11.80	2.15	per tonne mined
Processing	15.95	22.89	per tonne milled
Stockpile/Ore sorting*1	1.73	4.00	per tonne sorted
G&A	3.86	5.54	per tonne milled
All-in OPEX	**33.34**		

Notes:

1. *"Ore Sorting" as used in the context of Table 39 is a commercial term referring to sensor-based rock sorting technology and is not related to project resources/reserves. Ore sorting equipment is implemented in Year 3 for upgrading of mid-grade stockpiles.*
2. *"Mineralized Material" represents mined material in excess of 0.8 g/t Au cut-off (includes direct milling material + stockpiled material to be upgraded via ore sorting prior to milling).*

Operating costs were developed based on estimated staffing levels, consumables (from testwork and modeling) and expenditures required to support the mine and its associated processing, maintenance and administrative activities.

Power requirements were estimated based on operating equipment motor sizes and plant availability, and costs assuming diesel generation with a delivered diesel fuel cost of US$1/litre. It is anticipated at some point in the future that grid power will arrive close to the property allowing for a significant reduction in site power costs. However, it is currently not known when this situation will occur.

An overall contingency of 20% was applied to the operating cost totals to account for additional cost items such as outside consultants, laboratory consumables, vehicle fuel requirements, etc.

All mine operating activities are assumed to be the responsibility of a third party mine contractor. Contractor rates include drilling, blasting and transportation of the waste/ore. Costs for the Company mine services group were prepared separately and included separately.

Crushing was assumed to be the responsibility of a third-party contractor using portable crushing equipment (two stage crushing circuit). Contractor rates include crushing, handling and transport of crushed rock to plant facilities.

21.4.1 Mining and Crushing Costs

All mine production activities are assumed to be the responsibility of a third party mine contractor. Contractor rates include drilling, blasting and transportation of the waste/ore. Current costs derived from first principals using the expected mine production rates and "typical" fleet parameters listed previously. Costs were then increased using a conservative factor to account for expected contractor profit margins. Ultimately, a conservative value of US$2.15/t was applied. This value is in excess of recent actual contract values at similar size projects operated by the Company management group and provides an allowance for the more remote nature of the site. The same cost was utilized for both ore and waste.

Mineralized material from the open pit mining operations is planned to be stockpiled and crushed (two stages) prior to downstream processing. Direct milling ore is transported directly to the grinding facilities and mid-grade material is upgraded via ore sorting prior to grinding (stockpiled first two years before installation of sorting system in Year 3). All crushing/re-handling operations are to be performed using mobile equipment via a third-party contractor. An average cost of US$4/t has been included to account for these operations.

It is expected that during actual contractor negotiations some savings may be achievable with respect to the unit costs assumed in this report. These discussions should include:

- Reduced unit costs for waste material (shorter haulage and less blasting requirements)
- Utilization of same contractor to manage all the mining and crushing/re-handling operations.

21.4.2 Process Plant Cost

A breakdown of the overall process plant operating costs is presented in Table 40 below.

Table 40: Process plant operating cost

Area	US$/year	US$/unit[1]	
Labour (excluding mine)	1,060,000	2.80	per tonne milled
Reagents and consumables[2]	1,370,000	3.60	per tonne milled
Maintenance allowance	1,000,000	2.65	per tonne milled
Other fixed (supplies/rentals etc.)	500,000	1.33	per tonne milled
Diesel for power generation[3]	3,300,000	8.70	per tonne milled
Contingency (20%)		3.81	
Total		**22.89**	**per tonne milled**

Notes:
1. *Unit rates calculated assuming an average annual mill throughput of 380,000 t (actual annual throughputs vary slightly).*
2. *15% shipping costs included.*
3. *Estimated based on diesel prices of approximately US$1/litre.*

Labour

Labour costs were developed by preparing a complete manpower schedule for the processing operations and then applying typical base salary and burdens for current operations in the Sonora area. The plant manpower schedule is summarized in Table 41. Total annual salary costs (including 33% burden) are estimated at US$1,060,000 to US$815,000 for Plant Operations and US$245,000 for Maintenance.

Table 41: Process plant labour (operations/maintenance)

Description	Shift	Day	Quantity
Mill Superintendent		1	1
Metallurgist		1	1
Shift Foreman	1		4
Grinding Operators	1		4
Flotation/Leaching Operators	2		8
Reclaim Loader Operator	1		4
Labourers	1		4
Lab Manager		1	1
Samplers	2		8
Lab Helpers	2		8
Tailings Dumping/Control	1	2	6
Maintenance Superintendent		1	1
Mechanical Foreman		1	1
Electrical Foreman		1	1
Maintenance Helpers	1	2	6
Clerk		1	1
Electrical Helpers		2	2
Welder		2	2
Total Process Plant			**63**

Reagents and Consumables

Reagent and consumable consumption quantities were estimated based on the testwork results to date, mass balance and equipment list generated for the Project. Reagent unit costs were based on information from suppliers' website, quotes or previous similar projects. A summary of the costs by area is included in Table 42.

Table 42: Reagent/Consumables costs (excluding diesel for power generation)

Area	US$/year[2]	US$/unit[1]	
Grinding steel	640,000	1.68	per tonne milled
Flotation reagents	320,000	0.84	per tonne milled
Cyanidation	140,000	0.37	per tonne milled
Miscellaneous	270,000	0.71	per tonne milled
Total	**1,370,000**	**3.60**	**per tonne milled**

Notes:
1. *Unit rates calculated assuming an average annual mill throughput of 380,000 t (actual annual throughputs vary slightly).*
2. *15% shipping costs included.*

Power

Power requirements were estimated based on operating equipment motor sizes and plant availability. A breakdown of the plant operating power requirements is shown in Table 43. After correcting for annual utilization (90%) and draw factors, the estimated total annual diesel fuel costs are US$3,300,000 per year (US$8.70/t of mill feed)

Table 43: Process plant connected operating loads

Plant area	Operating load (kW)
Primary grinding	1,240
Bulk flotation	310
Bulk concentrate regrinding and Cu flotation	220
Cyanidation and carbon columns	50
Reagents/Fuel/Water	50
Air supply	140
Total Process Plant	**2,010**

Maintenance and Other Fixed Costs

Annual maintenance supplies were estimated to be US$1,000,000 (5% of an approximate US$20,000,000 baseline cost for the process plant construction), which appeared reasonable given the scope of the facilities and type of processing equipment being utilized. An additional annual allowance of US$500,000 was included for miscellaneous fixed costs for supplies/rentals/etc.

21.4.3 General and Administrative

G&A costs were developed by preparing a proposed manpower schedule. The schedule covers G&A personnel for the operation as well as the in-house mine planning group responsible for oversight of the mine contractor operations. The manpower schedule is summarized in Table 45 and Table 46. An allowance of US$1,000,000 was included to cover other fixed costs at the project level including supplies, rentals, insurance, etc. along with a 20% overall contingency. Total annual costs are summarized in Table 44.

Table 44: Project site G&A costs

Area	US$/year	US$/unit*1	
Administration	480,000	1.20	per tonne milled
Mine planning	370,000	0.92	per tonne milled
Other fixed (supplies/insurance etc.)	1,000,000	2.50	per tonne milled
Contingency (20%)	370,000	0.92	per tonne milled
Total	**2,220,000**	**5.54**	**per tonne milled**

Notes: 1. Unit rates calculated assuming an average annual mill throughput of 400,000 t (actual annual throughputs vary slightly).

Table 45: Site administration personnel

Description	Shift	Day	Total
General Manager		1	1
Secretary		3	3
Purchaser		1	1
Security	2		8
Controller		1	1
Accounting Assistant		1	1
Environmental Technician		1	1
Safety Technician		2	2
Environmental Helper		3	3
Perimeter Maintenance		2	2
Drivers (Culiacan – Mine)		2	2
Total Administration			**25**

Table 46: In-house mine management personnel

Description	Shift	Day	Total
Mine Superintendent		1	1
Shift Foreman	1		4
Topographer		1	1
Topographer Helpers		2	2
Mine Geologist		1	1
Mine Geologist Helpers	1		4
Mine Planning Helper		1	1
Total Mine Planning			**14**

22 Economic Analysis

22.1 Caution to the Reader

The reader is cautioned that the PEA reported in this Report is preliminary in nature and uses Indicated and Measured Mineral Resources; Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Inferred Mineral Resources have not been utilized in the PEA. There is no certainty that the PEA will be realized.

22.2 Model Assumptions

CSA Global created a Microsoft Excel spreadsheet to analyse the economic potential of the La Fortuna Project. This model calculates the project pre and post-tax Net Cash Flow (NCF), the Net Present Values (NPV) at various discount rates, the Internal Rate of Return (IRR).

In addition, the model calculates the period required to repay the initial capital investment, the gold price required to achieve breakeven, the operating cost per ounce of gold sold, the all-in sustaining cost, the all-in cost and the NCFs at higher and lower metal prices and operating and capital costs.

The underlying assumptions and parameters used are:

- All units of measurement are metric unless otherwise stated.
- All dollars are United States dollars unless otherwise stated.
- No inflation is assumed (i.e. all dollars are real dollars).
- All metal prices are based on the three-year trailing moving average after adjusting for inflation. Inflation is based on the US Consumer Price Index (Economic Research Division, Federal Reserve Bank of St. Louis – https://fred.stlouisfed.org).
- The gold price (US$1,250/oz) is based on the average monthly Comex-CME gold price as reported on the website https://www.indexmundi.com/commodities/?commodity=gold (see Figure 66).

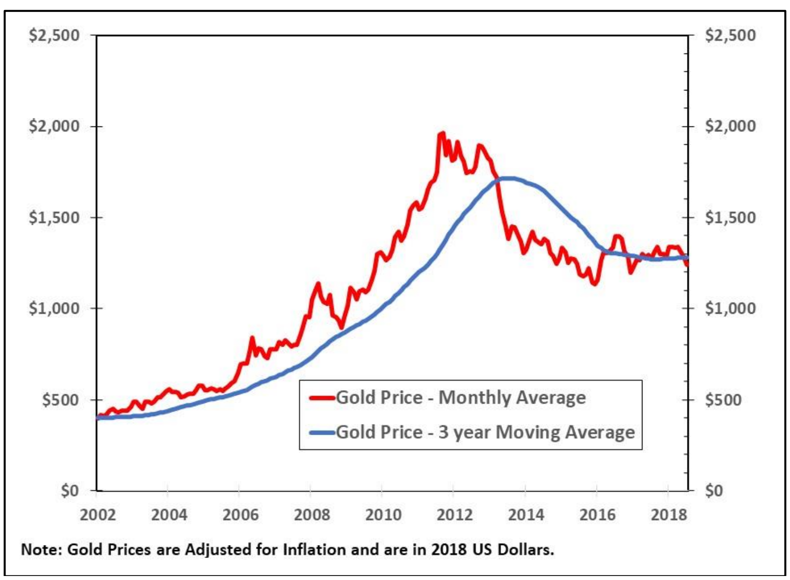


Figure 66: Monthly and three-year average gold prices (US$/oz)

- The silver price (US$16.00/oz) is based on the average monthly Silver (UK), London afternoon fixing as reported on the website https://www.indexmundi.com/commodities/?commodity=silver (see Figure 67).

Figure 67: Monthly and three-year moving average silver prices (US$/oz)

- The copper price (US$5,725/t) is based on the average London Metal Exchange Settlement price for Grade A copper as reported on the website https://www.indexmundi.com/commodities/?commodit=copper (see Figure 68 and Figure 69).

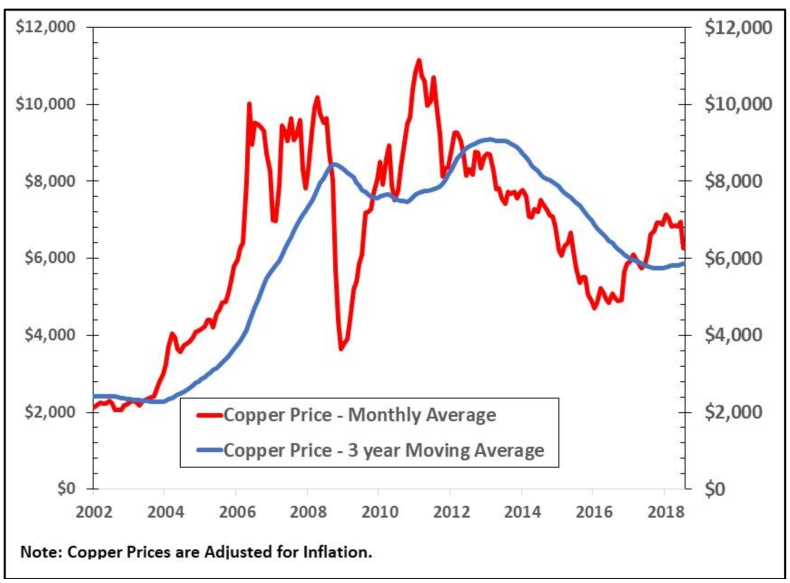


Figure 68: Monthly and three-year average copper prices, 2002–2018 (US$/t)

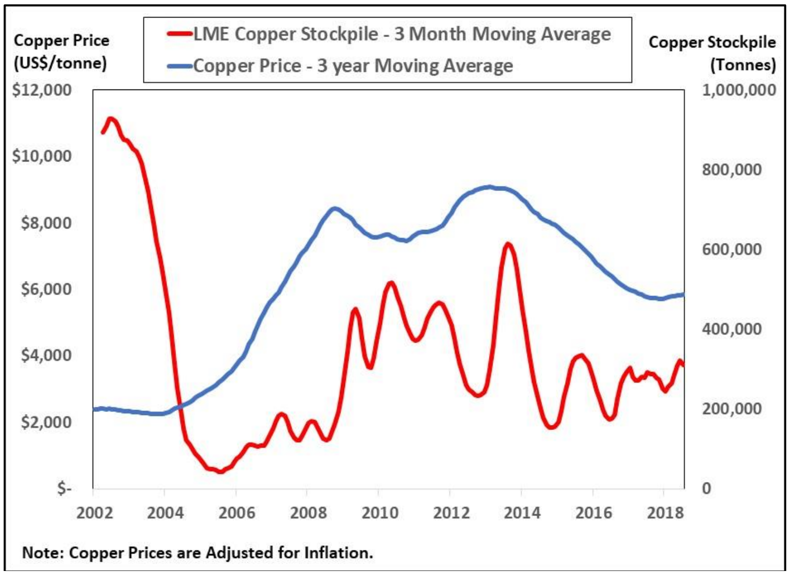


Figure 69: Three-year average copper price and three-month average London Metal Exchange Copper Stockpile

- The model allows for a one-year pre-production period. This should be sufficient time to complete the permitting process and modify and assemble the previously purchased used processing plant.
- The model assumes a five-year mine life. During the first two years of production the mine processes higher-grade ore while stockpiling lower-grade ore. In the final three years, the mill processes direct high-grade ore plus material from the stockpiles that has been upgraded in the on-site sorting plant. The sorting plant recovers 85% of the metal with a mass recovery of 30%.
- The processing plant produces two products:
  - A high-grade gravity gold concentrate (~5,000 g/t) with 45% of the gold in the plant feed reporting to the gold concentrate.
  - A copper concentrate with gold and silver credits. 90% of the copper in the plant feed is recovered in the copper concentrate. As well, 85% of the silver and 45% of the gold reports to the copper concentrate. The grade of the copper concentrate is 18% copper, and an average of 122.2 g of gold per tonne and 1,255 g of silver per tonne. The NSR and gravity calculations are based on industry standard values. Figure 70 shows the revenue distribution from the three metals with gold accounting for 88.4% of the net revenue.

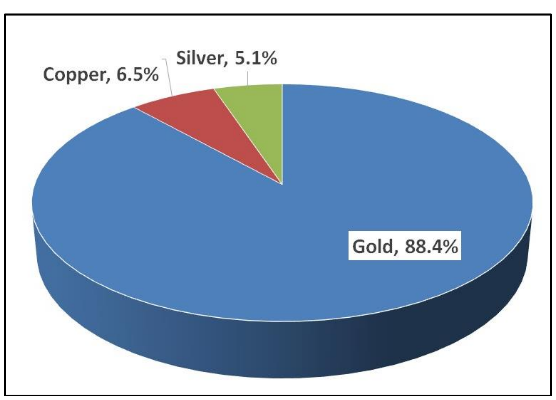


Figure 70: Source of net revenue from gold, copper and silver

- Operating cost estimates.
  - Mining costs are based on quotes received by Minera Alamos from local Mexican contractors and have been reviewed by the author and appear reasonable
  - Stockpile reclamation and ore sorting costs are US$1.00/t of stockpile processed
  - Processing costs were developed by the author
  - G&A costs were developed by Minera Alamos and appear reasonable in the author's opinion.
- Capital costs are relatively low as Minera Alamos has already purchased a used processing plant. The mill however will have to be customized to process the La Fortuna ore and installed. There are no provisions for mining capital as all the mining will be performed by Mexican contractors.
  - Processing plant – US$15 million based on an estimate of US$15,000/t of daily capacity. The US$15,000 is derived from a survey of similar plants in Mexico and the Southern US.
  - Sorting plant – US$1.5 million. This is based on Minera Alamosa's best estimate and believed to be reasonable by the author.
- A sustaining capital rate of 7% of initial capital for the production Year 2 to Year 4.
- The economic model assumes 100% equity-based financing.
- The model assumes that due to the short life of the mining operation, the sale of the processing plant will cover the costs of reclamation
- Argonaut Royalty. The Project is required to pay a 2.5% NSR royalty to Argonaut to a maximum of US$4,500,000.
- The model calculates book depreciation using the Units of Production (UOP) method.
- Taxes and government royalties deducted by the CSA Global model include:
  - Special Mining Duty. 7.5% of earnings before income tax, depreciation and amortization. The Special Mining Duty is deductible for corporate taxes (see below).
  - Extraordinary Mining Duty. 0.5% of gold and silver NSR. Also deductible before calculating Mexican Corporate Taxes.
  - Mexican Corporate Taxes. 30% of net income where net income is defined as cash operating profit less the above duties, any opening tax pools and depreciation. Tax depreciation is calculated using the straight-line method with a rate of either 12% or 72% (accelerated depreciation) for one year. The model uses the 72% rate. The model assumes opening tax pools of US$2.0 million.
- Working capital requirements. Working capital represents the money required to fund the operations until the funds generated by the Project are received. The model calculates Working Capital as equal to Concentrate Inventory Plus Accounts Receivable Spare Parts and Supplies less Accounts Payable. Working capital is recaptured at the end of the mine life. The parameters used in calculating working capital are:
  - Gold gravity concentrate inventory – two weeks of concentrate NSR
  - Copper concentrate – three weeks of concentrate NSR
  - Accounts Receivable – four weeks of concentrate NSR
  - Spare parts and supplies – US$1,500,000
  - Accounts payable – two weeks of operating costs.

- The model assumes the Company will receive advance payments for the concentrate in the first two years of production to mitigate the impact of increases in working capital requirements on cash flow. Minera Alamos pays a fee of 2% of the concentrate value for these advance payments.
- NCF is calculated as NSR less:
  - Argonaut royalty
  - Operating costs
  - Mining duties and taxes
  - Capital investment
  - Changes in working capital.

22.3 Results

On an **after-tax** basis, the Project returns an IRR of 92.7% and a payback period of 11 months from the start of mine production. In addition, the total NCF is US$96.1 million and the NPVs at various discount rates are:

- 5%a – US$77.5 million
- 7.5% – US$69.8 million
- 10% – US$63.0 million
- 15% – US$51.6 million.

On a **pre-tax** basis, the Project returns an IRR of 121.6% and a payback period of nine months from the start of mine production. In addition, the total NCF is US$140.5 million and the NPVs at various discount rates are:

- 5% – US$114.5 million
- 7.5% – US$103.8 million
- 10% – US$94.2 million
- 15% – US$78.3 million.

Table 47 (the Summary Table) contains a list of the inputs and the results of CSA Global's analysis of the La Fortuna Project.

Table 47: Summary of model inputs and results

PRODUCTION AND REVENUE		
Preproduction Period	1	Years
Mine Life	5	Years
Preproduction Waste Stripping	None	
Production Waste Stripping	12,863,948	tonnes
Total Waste Mined	12,863,948	tonnes
Ore Mined and Milled Directly	1,625,950	tonnes
Gold Grade	3.68	g/t
Silver Grade	19.96	g/t
Copper Grade	0.27%	
Ore to Stockpile	1,241,353	tonnes
Gold Grade	1.48	g/t
Ore Sorter Mass Recovery	30%	
Ore Sorter Metal Recovery	80%	
Sorted Ore from Stockpile	372,406	

Gold Grade	3.96	g/t
Silver Grade	21.61	g/t
Copper Grade	0.29%	
Total Ore Milled	1,998,356	tonnes
Gold Grade	3.68	g/t
Silver Grade	19.99	g/t
Copper Grade	0.27%	
Metal Contained in Concentrates		
Gold		
Gold in Gold Conc.	106,325	ozs
Gold in Copper Conc.	106,325	ozs
Total Gold	212,649	ozs
Copper in Copper Conc.	4,872	tonnes
Silver in Copper Conc.	1,091,649	ozs
Metal Prices		
Gold	$1,250	US$/oz
Silver	$16.00	US$/oz
Copper	$5,725	US$/tonne
Gold Concentrate		
Gold Recovery to Concentrate	45%	
Concentrate Gold Grade	5,000	g/t
Concentrate Produced	661	tonnes
Value per tonne of Concentrate	$195,835	
Total Revenue	$129,522,989	
Copper Concentrate		
Copper Recovery to Concentrate	90%	
Gold Recovery to Concentrate	45%	
Silver Recovery to Concentrate	85%	
Concentrate Produced	27,065	tonnes
Copper Grade	18%	
Gold Grade	122.2	g/t
Silver Grade	1,255	g/t
Value per tonne of Concentrate	$5,938.83	
Total Value	$160,732,042	
Total Revenue	$290,255,031	
OPERATING COSTS		
Waste Mining	$2.15	/t waste
Ore Mining	$2.15	/t ore
Stockpile Re-handling and Ore Sorting	$4.00	/t
Processing	$22.89	/t ore processed
General and Administration	$5.54	/t ore processed
Waste Mining (Total)	$27,657,489	
Ore Mining (Total)	$6,164,701	
Stockpile Rehandling (Total)	$2,482,706	
Ore Sorting (Total)	$2,482,706	
Processing (Total)	$45,742,363	
General and Administration (Total)	$11,069,705	
Total Operating Cost	**$95,599,707**	
Argonaut Gold Royalty	$4,500,000	

ECONOMIC RESULTS		
EBITDA	$190,155,360	
Less: Book Depreciation	**$34,018,750**	
Special Mining Duty	**$14,261,652**	
Extraordinary Mining Duty	**$1,355,337**	
Mexican Corporate Taxes	**$44,413,461**	
Net Earnings After Tax & Depreciation	$96,106,160	
AFTER TAX RESULTS		
NET CASH FLOW TO PROJECT	$96,106,160	
PROJECT INTERNAL RATE OF RETURN	92.7%	
NET PRESENT VALUES		
Discounted at 5%	$77,477,360	
Discounted at 7.5%	$69,803,063	
Discounted at 10%	$63,013,715	
Discounted at 15%	$51,613,841	
PAYBACK PERIOD	11 Months	From Start of Production
Operating Costs per Oz. Gold Sold	**$413.14**	/oz
All-in Sustaining Costs per Oz. Gold Sold	**$440.29**	/oz
All-in Costs per oz. of Gold Sold	**$576.80**	/oz
Breakeven Gold Price	**$622.87**	/oz
PRE-TAX RESULTS		
NET CASH FLOW TO PROJECT	$140,519,621	
PROJECT INTERNAL RATE OF RETURN	121.6%	
NET PRESENT VALUES		
Discounted at 5%	$114,490,304	
Discounted at 7.5%	$103,752,486	
Discounted at 10%	$94,244,790	
Discounted at 15%	$78,261,612	
PAYBACK PERIOD	9 Months	From Start of Production

Note: CSA/Global has used the World Gold Council definitions of Operating Costs, All-In-Sustaining Costs and All-In Costs. In the current project, Operating Costs include all operating costs less by-product credits. All-In-Sustaining Costs include operating costs plus sustaining capital less by-product credits. Finally, All-In Costs include operating costs, initial capital, sustaining capital less by-product credits. The Breakeven Gold Price is the gold price that just returns the capital investment, i.e. a zero IRR. The Breakeven Gold Price is higher than the All-in cost as it allows for corporate income taxes.

22.4 Risk Analysis

CSA Global has analyzed the sensitivity of the La Fortuna Project NCF and NPV discounted at 7.5% to changes in metal prices and capital and operating costs. Prices and costs were varied from -30% to +30%. Figure 71 and Figure 72 show the results. As would be expected, the Project is most sensitive to metal prices, followed by operating costs and finally capital costs. Basically, the La Fortuna Project is extremely robust. Even a 30% reduction in metal prices produces a positive NCF of US$38.3 million and an NPV discounted at 7.5% of US$25.1 million.

In addition, the model calculates the lowest gold price that would return a zero IRR (i.e. the gold price at which the Project returns invested capital but no profit. That gold price is US$623/oz.

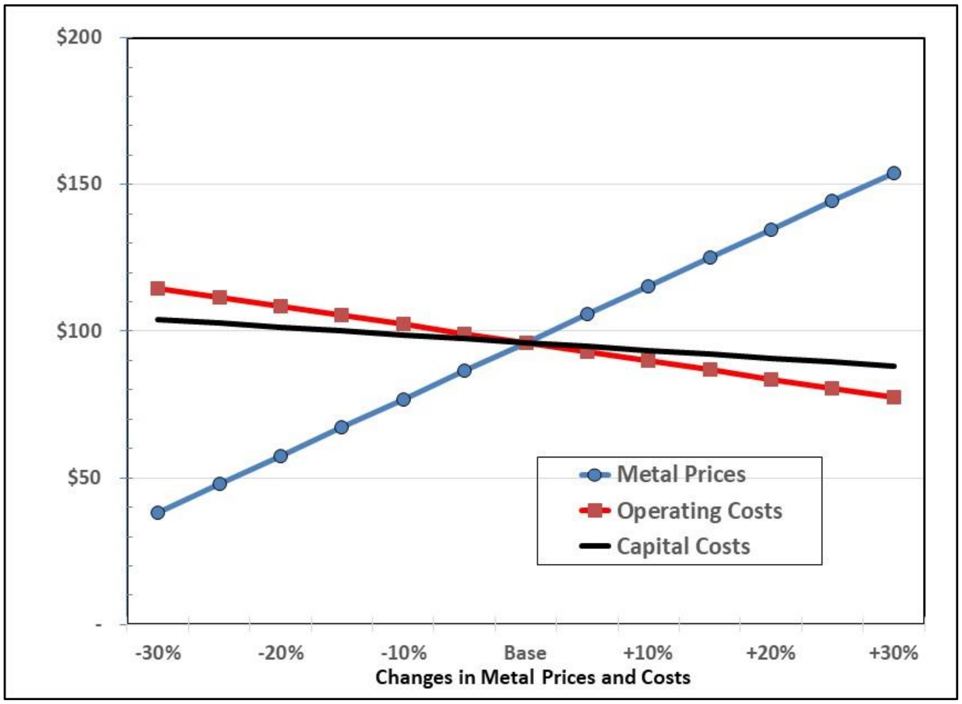


Figure 71: Sensitivity of Project NCF to changes in metal prices and capital and operating costs (US$ millions)

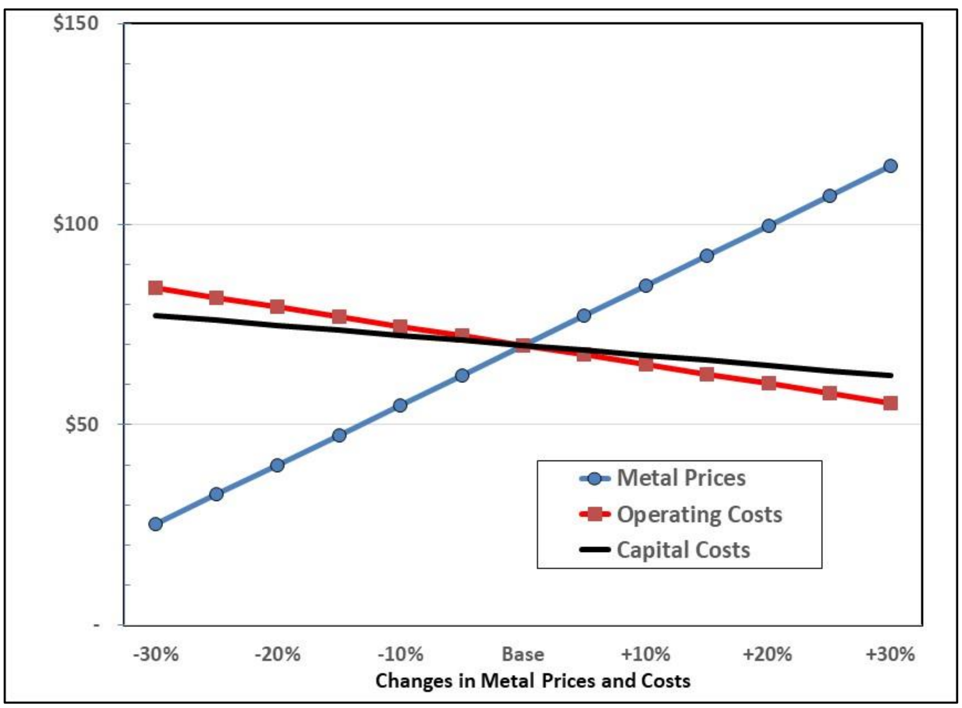


Figure 72: Sensitivity of Project NPV discounted at 7.5% to changes in metal prices and capital and operating costs (US$ millions)

23 Adjacent Properties

Except for a limited number of small privately held properties, there are no other significant properties adjacent to the La Fortuna Project.

24 Other Relevant Data and Information

There is no other relevant information on the Project known to the authors that would make this Report more understandable or if undisclosed would make this Report misleading.

25 Interpretation and Conclusions

The Qualified Persons have reviewed the La Fortuna Project data provided by Minera Alamos (including the drill database), reviewed historical sampling procedures and security, and visited the site. The Qualified Persons believe the data presented by Minera Alamos to be an accurate and reasonable representation of the Project mineralization.

The PEA is based on a Mineral Resource estimate prepared for the La Fortuna Project by Scott Zelligan, P.Geo.; Section 14 of this Report. The Mineral Resource estimate is based on the results from 125 core drillholes completed by previous operators prior to the Company's acquisition of the Project in 2016.

The 2018 Mineral Resource estimate for the La Fortuna Project includes Measured and Indicated Mineral Resources of 3,469,711 tonnes at 2.78 g/t Au, 16.51 g/t Ag and 0.22% Cu for 309,800 contained oz Au, 1,842,200 contained oz Ag and 7,600 contained tonnes Cu. The estimate also includes Inferred Mineral Resources of 156,322 tonnes at 1.72 g/t Au, 8.51 g/t Ag and 0.09% Cu for 8,600 contained oz Au, 42,700 contained oz Ag and 100 contained tonnes Cu.

Based on results of metallurgical and rock-sorting studies, estimated operating costs and gold recovery, an average gold price of US$1,250/oz, silver price of US$16/oz and copper price of $5,725/t, a cut-off of 1.0 g/t was chosen and is considered reasonable and consistent for this type of deposit with open pit mining methods.

The Fortuna Mineral Resources were estimated using the CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on 10 May 2014. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The quantity and grade of reported Inferred Mineral Resources in this estimation are uncertain in nature, there has been insufficient exploration to define these Inferred Mineral Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.

The gold, silver and copper metals either leach at high recovery and/or report to a saleable flotation concentrate by conventional extraction pathways:

- 2016 testwork confirmed +80% recovery of gold to a gravity circuit
- 95% of remaining gold was recovered to a flotation step together with +90% of the contained copper and silver at a copper grade of approximately 20% Cu and silver grade of 2,000–3,000 g/t for a mass-pull of less than 10%
- A conventional milling and flotation circuit has already been purchased and is slightly oversized and thus adequate for the Project.
- The potential for beneficiation of low grade (below cut-off) material by Duel X-ray (XRT) ore sorting has been demonstrated subject to confirmatory testwork current planned/underway.

From a processing perspective, the Project presents as robust and the selected plant and equipment and process treatment pathway should comfortably treat this ore at 1,100–1,200 t/d and at acceptable recovery of gold, silver and copper.

A surface mine was designed for the PEA that would incorporate conventional surface mining methods and a production schedule was created. Production highlights are:

- Five-year mine life based on initial resource "starter pit" with 2.0 Mt of mineralization (3.68 g/t Au, 20 g/t Ag, 0.27% Cu) processed at 1,100 t/d average processing rate
- Average annual contained-metal production of approximately 50,000 oz gold equivalent (43,000 oz Au, 220,000 oz Ag, 1,000 t Cu)
- 215 koz of gold, 1.1 Moz of silver, and 5 kt of copper produced in concentrates.

CSA Global's economic modelling and analysis of the Project reveals potential for:

- Robust economics using metals prices of US$1,250/oz Au, US$16/oz Ag, and US$5,725/t Cu:
    - All-in sustaining cost (AISC) of US$440/oz [net of by-product credits]
    - After-tax NPV at 7.5% of US$69.8 million and IRR of 93%
    - Pre-tax NPV at 7.5% of US$103.8 million and IRR of 122%.
- Low CAPEX and rapid payback:
    - Pre-production CAPEX of US$26.9 million
    - Payback period of 11 months
    - 2,000 t/d mill already purchased awaiting shipment to site reduces upfront capital.

In the Qualified Persons and CSA Global's opinion, the La Fortuna Project is a potentially very robust one and warrants the Company's continued advancement of the Project towards further feasibility studies.

25.1 Project Risks

Project risks which potentially could affect Project economics include:

- The Mineral Resource estimate is based on the results from 125 core drillholes completed by previous operators prior to the Company's acquisition of the Project in 2016. CSA Global recommends additional drill testing to confirm the historical results.
- Environmental, permitting, legal, title, taxation, socio-economic, marketing, and political or other relevant issues have the potential materially affect access, title or the right or ability to perform the work recommended in this report on the Project. However, at the time of this report, CSA Global is unaware of any such potential issues affecting the Project.
- The Project is most sensitive to metal prices, followed by operating costs and finally capital costs. However, even a 30% reduction in metal prices produces a positive NCF.

25.2 Project Opportunities

Project opportunities which potentially could enhance Project economics include:

- Footprint of the current known deposit is very small compared to the overall land position. Exploration potential exists over the 6,100 ha land package. A number of other areas of historical mining activities have been identified but most of the area has never been explored using modern exploration methods.
- Inferred Resources are not utilized in the current PEA mining plans. Step-out drilling may be able to define additional extensions of the current resources.
- Additional metallurgical testwork to optimize the gold extraction process and further improve overall metal recoveries.

- Reduction of initial start-up CAPEX with a staged plant construction plan (possibly involving earlier use of ore sorting) followed by expansion of the facilities once production is underway.
- Additional mine planning optimization studies to evaluate opportunities to delay portions of early waste removal until later in the mine life.
- Further optimization studies are underway to determine if a more aggressive use of ore sorting may offer additional economic benefits for the Project (i.e. plant CAPEX reductions, increased mineable gold ounces, etc.).
- Trade-off studies aimed at optimizing cut-off grades (with and without ore sorting) and the incorporation of additional milling capacity – the PEA based on a starting rate of 1,100 t/d but the Project is permitted for a 2,000 t/d operation.

26 Recommendations

To proceed with the assessment of the potential development of the Project, the Qualified Persons recommend Minera Alamos continue to assess Project opportunities which potentially could enhance project economics including:

- Expand exploration over the 6,100 ha land package. Work should initially investigate other areas of known historical mining activities using modern exploration methods.
- Step-out drilling at La Fortuna for the purpose of expanding the current Inferred Resources not utilized in the PEA reported herein.
- Infill drilling at La Fortuna for the purpose of upgrading Indicated to Measured and Inferred to Indicated Resources; metallurgical sampling and QAQC confirmation of historical drilling.
- Additional metallurgical testwork to optimize the gold extraction process and further improve overall metal recoveries.
- Metallurgical variability sampling of underground sampling and diamond drill core.
- Further engineering studies should consider the following:
  - A staged plant construction plan (possibly involving earlier use of ore sorting) to further reduce the initial start-up CAPEX and then expand the facilities once production is underway
  - Additional mine planning optimization studies to evaluate opportunities to delay portions of early waste removal until later in the mine life
  - Further optimization studies (currently underway) to determine if a more aggressive use of ore sorting may offer additional economic benefits for the project (i.e. plant CAPEX reductions, increased mineable gold ounces, etc.)
  - Trade-off studies aimed at optimizing cut-off grades (with and without ore sorting) and the incorporation of additional milling capacity up to 2,000 t/d.

Minera Alamos has proposed a 2018/2019 program estimated to be in the order of US$1 million (Table 48). CSA Global concurs with the proposed program and budget.

Table 48: Minera Alamos proposed 2018/2019 program and budget

Description	Estimated cost
Metallurgical variability testing	$100,000
Infill / condemnation drilling	$500,000
Further feasibility studies	$300,000
Permitting and environmental	$100,000
Total	**US$1,000,000**

27 References

Centeno, Miguel Luís Carrasco; 1992. “Descripcion Geologica-Minera Del Y Acimiento Auro Argentifero La Fortuna”, Consejo De Recursos Minerales, March 19, 1992.

Corbett, Greg; 2002. “Epithermal Gold for Explorationists”, AIG Journal – Applied geoscientific practice and research in Australia,Paper 2002-01, February 2002.

Ferrari, L., Valencia-Moreno, M., and Bryan, S., 2007. “Magmatism and tectonics of the Sierra Madre Occidental and its relation with the evolution of the western margin of North America”, in Alaniz-Álvarez, S.A., and Nieto-Samaniego, Á.F., eds., Geology of México: Celebrating the Centenary of the Geological Society of México: Geological Society of America Special Paper 422, p. 1–39.

Panteleyev, A.; 1986. “A Canadian Cordilleran model for epithermal gold-silver deposits”, Geoscience Canada, v. 13, p. 101-111.

Panteleyev, A.; 1996. “Epithermal Au-Ag: Low Sulphidation”, in Selected British Columbia Mineral Deposit Profiles, Volume 2 – Metallic Deposits, Lefebure, D.V. and Hõy, T., Editors, British Columbia Ministry of Employment and Investment, Open File 1996-13, pages 45-48.

Vargas, José & Bustamente Y., Marco; 1974. “Reconocimiento Geologico Minero De La Zona Mineralizada De San Fernando Mpio. De Tamazula, Estado De Durango”, Consejo De Recursos Naturales Sinaloa, CRM T1074CAVJ0001_1, October 1974.

27.1 Company Reports

Argonaut; 2011. “Annual Information Form”, Argonaut Gold Inc. Filing, March 29, 2011.

Argonaut; 2015. “Annual Information Form”, Argonaut Gold Inc. Filing, March 11, 2015.

Davies, J. Peter; 1997. “Alamos Minerals Ltd. La Fortuna Project, Durango, Mexico”, internal company report, June 12, 1997.

Fluor Daniel Wright;1995. “Preliminary Report on La Fortuna Reserves”, part of Feasibility Study for San Fernando Mining Co. Ltd.,October 30, 1995.

Olson, Toren; 2008. “La Fortuna Project, Durango, Mexico – Updated Technical Report for Castle Gold”, NI 43-101 Report, October 21, 2008.

Olson, Toren; 2016. “La Fortuna Project, Durango, Mexico – Updated Technical Report for Minera Alamos”, NI 43-101 Report,

SPM Mineria S.A. de C.V.; 2013. “Proyecto La Fortuna, Informe Reconocimiento Geológico”, internal contractor report, February 2013.

27.2 Websites

CIM; 2000. “Exploration Best Practice Guidelines”. August 20, 2000. (http://web.cim.org/standards/documents/Block465_Doc21.pdf)

CIM; 2014. “CIM Definition Standards for Mineral Resources and Mineral Reserves”. Prepared by the CIM Standing Committee on Reserve Definitions; Adopted by CIM Council on May 10, 2014. (http://www.cim.org/~/media/Files/PDF/Subsites/CIM_DEFINITION_STANDARDS_20142)

SGM; 2017. “SGM GeoInfoMexGobMx”, SGM online map utility, accessed September 15, 2017. (https://www.sgm.gob.mx/GeoInfoMexGobMx/)

28 Certificates of Qualification

28.1 Certificate of Qualification – Ian D. Trinder

I, Ian D. Trinder, M.Sc., P.Geo. (ON, MAN), do hereby certify that:

1) I am employed as a Principal Geologist by CSA Global Canada Geosciences Ltd located at 365 Bay St., Suite 501, Toronto, Ontario, Canada. M5H 2V1.
2) I graduated with a degree in Bachelor of Science Honours, Geology, from the University of Manitoba in 1983 and a Master of Science, Geology, from the University of Western Ontario in 1989.
3) I am a Professional Geoscientist (P.Geo.) registered with the Association of Professional Engineers and Geoscientists of Manitoba (APEGM, No. 22924) and with the Association of Professional Geoscientists of Ontario (APGO, No. 452). I am a member of the Society of Economic Geologists and of the Prospectors and Developers Association of Canada.
4) I have approximately 30 years of direct experience with precious and base metals mineral exploration in Canada, USA and the Philippines including project evaluation and management. Additional experience includes the completion of various National Policy 2A and NI 43-101 technical reports for gold and base metal projects.
5) I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6) I have visited the Temagami Copper East Property on 29 May 2018.
7) I am the co-author of the technical report titled: "NI43-101 Technical Report, Mineral Resource Update & Preliminary Economic Assessment of the La Fortuna Gold Project, Durango State, Mexico" for Minera Alamos Inc. and dated 13 July 2018 (the "Report"). I am responsible for sections 2-5, 15, 20, 23, 24, 27, 28 and in part, sections 1, 25 and 26 of the Report.
8) I have no prior involvement with the Issuer or the Property.
9) As of the Effective Date of the technical report (13 July 2018), to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
10) I am independent of the Issuer, and the Property applying all the tests in section 1.5 of NI 43-101.
11) I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with that instrument and form.
12) I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 12th day of December 2018

["SIGNED AND SEALED"]

____

Ian D. Trinder, M.Sc., P. Geo.

28.2 Certificate of Qualification – Bruce Brady

I, Bruce Brady, P.Eng., do hereby certify that:

1) I am a Senior Associate Mining Engineer with CSA Global Canada Geosciences Ltd. My office address is 501 – 365 Bay Street, Toronto, Ontario M5H 2V1.
2) I am a professional engineer having graduated with a BEng (Mining) from McGill University.
3) I am a member of Professional Engineers Ontario and the Order of Engineers of Quebec.
4) I have approximately 45 years of mining experience since graduation. This includes the completion of various National Policy 2A and NI 43-101 technical reports for gold projects.
5) I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6) I have not visited the La Fortuna project.
7) I am an author of the technical report titled: "NI43 101 Technical Report, Mineral Resource Update & Preliminary Economic Assessment of the La Fortuna Gold Project, Durango State, Mexico" for Minera Alamos Inc. and dated 13 July 2018 (the "Report"). I am responsible for Section 16, as well as the Mining items in Sections 1, 18, 21, 25, and 26 of the Report.
8) I have no prior involvement with the Issuer or the Property.
9) As of the Effective Date of the technical report (13 July 2018), to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
10) I am independent of the Issuer, and the Property applying all the tests in section 1.5 of NI 43-101.
11) I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12) I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 12th day of December 2018

["SIGNED AND SEALED"]

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Bruce Brady, P.Eng.

28.3 Certificate of Qualification – Gordon Watts

I, Gordon Watts, B.A.Sc . P.Eng. (ON), do hereby certify that:

1. I am an Associate Mineral Economist of CSA Global Canada Geosciences Ltd located at 365 Bay St., Suite 501, Toronto, Ontario, Canada. M5H 2V1.
2. I graduated with a degree in Mining Engineering, from the University of Toronto in 1966.
3. I am a Professional Engineer(P.Eng) registered with the Association of Professional Engineers Ontario (Membership Number 49149016). I am also a member of of the Prospectors and Developers Association of Canada.
4. I have approximately 50 years of direct experience with precious and base metals mineral exploration in Canada, USA and other countries including project evaluation and management. Additional experience includes the completion of various National Policy 2A and NI 43-101 technical reports for gold and base metal projects.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I have not visited the La Fortuna project
7. I am the author of the technical report titled: "*NI43 101 Technical Report, Mineral Resource Update & Preliminary Economic Assessment of the La Fortuna Gold Project, Durango State, Mexico*" for Minera Alamos Inc. and dated 13 July 2018 (the "Report"). I am responsible for sections 22 and parts of 1, 19,25 and 26 of the Report.
8. I have no prior involvement with the Issuer or the Property.
9. As of the Effective Date of the technical report (13 July 2018), to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
10. I am independent of the Issuer, and the Property applying all the tests in section 1.5 of NI 43-101.
11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 12th day of December 2018

["SIGNED AND SEALED"]

Gordon Watts, BASc., P.Eng.

28.4 Certificate of Author – Chris Campbell-Hicks

I, Chris Campbell-Hicks, BSc, Associate Senior Metallurgist do hereby certify that:

1) I am employed as a Principal Metallurgist by CSA Global Canada Geosciences Ltd located at 365 Bay St., Suite 501, Toronto, Ontario, Canada. M5H 2V1.
2) 2. I graduated with a degree in Bachelor of Science, (Mineral Science), from Murdoch University (Perth, Western Australia) in 1992.
3) 3. I am a Fellow of the Australian Institute of Mining and Metallurgy (FAusIMM) and a Member of the Mineral Industry Consultants Association (MMICA).
4) 4. I have more than 30 years of direct experience in precious and base metal extraction in Australia, Canada, USA, Mexico, Russia, Indonesia, Kazakhstan, Fiji, Ghana, French Guinea, Turkey, RSA, Botswana and Swaziland, including design and management of metallurgical testwork programs. Additional experience includes contribution to Scoping, Pre-feasibility and Feasibility Studies and the completion of various technical reports, for gold and base metal projects, under NI 43-101 and JORC 2012
5) 5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43 101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6) 6. I am a contributing author of the technical report titled: “NI43 101 Technical Report, Mineral Resource Update & Preliminary Economic Assessment of the La Fortuna Gold Project, Durango State, Mexico” for Minera Alamos Inc. and dated 13 July 2018 (the “Report”). I am responsible for sections 13, 17 and in part 1, 18, 21, 25 and 26 of the Report.
7) 7. I have no prior involvement with the Issuer or the Property.
8) 8. As of the Effective Date of the technical report (13 July 2018), to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
9) 9. I am independent of the Issuer, and the Property applying all the tests in section 1.5 of NI 43-101.
10) 10.I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11) 11.I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 12th day of December 2018

[“SIGNED AND SEALED”]

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Chris Campbell-Hicks, BSc., FAusIMM (CP Metallurgy), MMICA

28.5 Certificate of Qualification – Scott Zelligan

I, Scott Zelligan, B.Sc. (Honours), P.Geo. (ON), do hereby certify that:

1) I am currently a self-employed Consulting Geologist residing at 3357 Beechwood Drive, Coldwater, Ontario, L0K 1E0.
2) I graduated with a degree in Bachelor of Science Honours, Earth Sciences, from Carleton University (Ottawa, Ontario) in 2008.
3) I am a Professional Geoscientist (P.Geo.) registered with the Association of Professional Engineers and Geoscientists of Ontario (No. 2078). I am a member of the Prospectors and Developers Association of Canada.
4) I have practiced my profession as a geologist for a total of ten years since my graduation from university; as an employee of major and junior mining companies, as an employee of engineering consulting firms, and as an independent consultant, including: five months working underground in a producing gold mine; three years working in exploration for numerous commodities (including base, precious, and other minerals); and seven years of resource estimation work including modelling, estimating, and evaluating mineral properties of all types (including base, precious, and other minerals) throughout North America and occasionally globally. I have previously been the primary author on three NI 43-101 technical reports as well as secondary author or contributor on several others. I have worked on numerous properties with similar mineralization styles to the Project.
5) I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6) I have visited the La Fortuna Project on 10 July 2016.
7) I am the author of the technical report titled: "NI43 101 Technical Report, Mineral Resource Update & Preliminary Economic Assessment of the La Fortuna Gold Project, Durango State, Mexico" for Minera Alamos Inc. and dated 13 July 2018 (the "Report"). I am responsible for sections 6-12, 14, and in part 1, 25, and 26 of the Report.
8) I have been engaged previously as a consulting geologist with the Issuer; I have no prior experience with the Property.
9) As of the Effective Date of the technical report (13 July 2018), to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
10) I am independent of the Issuer, and the Property applying all the tests in section 1.5 of NI 43-101.
11) I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12) I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 12th day of December 2018

["SIGNED AND SEALED"]

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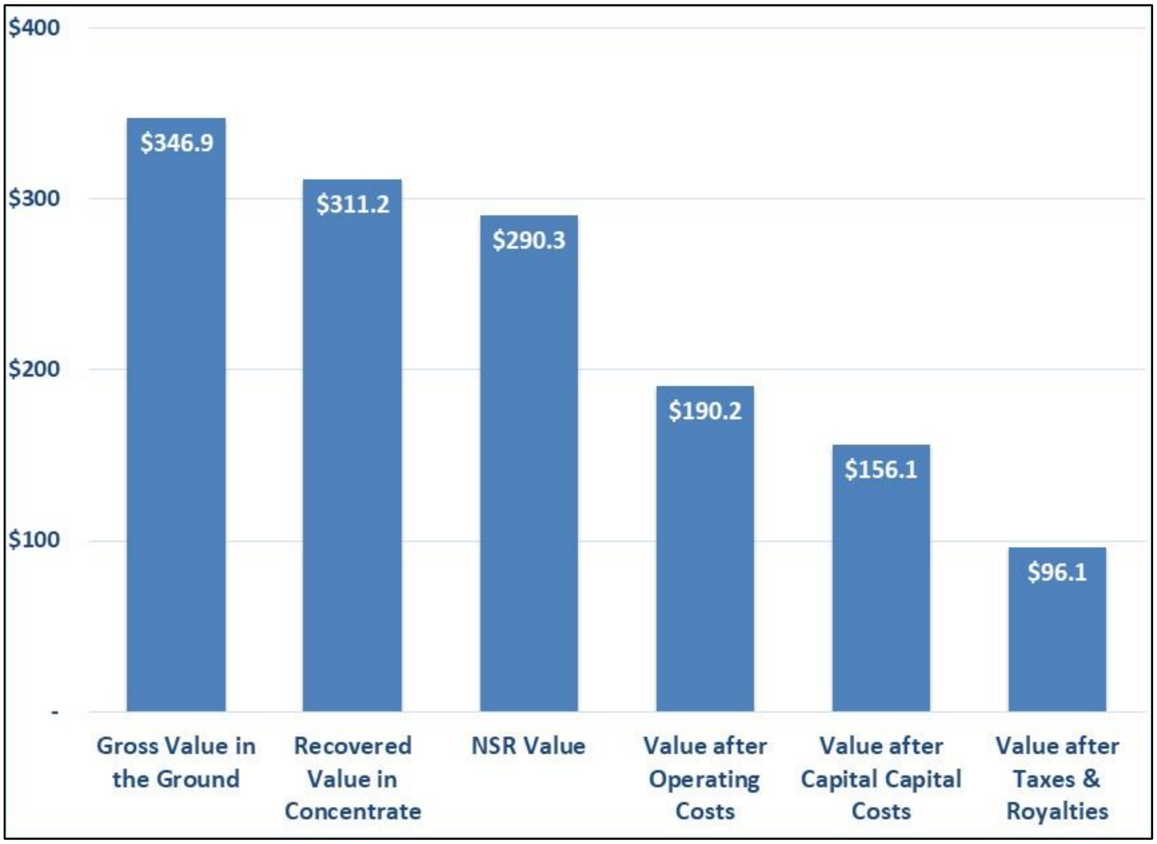
Scott Zelligan, B.Sc., P. Geo.

Appendix 1 Net Cash Flow Calculation

	Units	Totals/ Average	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Notes:
PRODUCTION									
Waste Mined	kt	**12,864**		2,318	2,413	1,813	3,919	2,401	
Ore Mined (Processed Directly)	kt	**1,626**		380	380	303	282	280	**Gold Price**
Ore Stockpiled	kt	**1,241**		117	55	219	436	414	**US$1,250/oz.**
Sorted Ore to Mill	kt	**372**		-	-	107	128	138	
Ore Processed	kt	**1,998**		380	380	410	410	418	
Gold Grade	g/t	**3.68**		3.86	3.91	3.39	3.47	3.78	**Copper Price**
Silver Grade	g/t	**19.99**		21.24	20.27	21.85	19.98	16.79	**US$5,725/tonne**
Copper Grade	%	**0.27%**		0.29%	0.27%	0.28%	0.29%	0.22%	
Metal Production									
Gravity Plant									**Silver Price**
Gold Recovery	%	**45%**		45%	45%	45%	45%	45%	**US$16.00/oz.**
Concentrate Produced	t	**661.4**		132.0	133.7	125.2	128.1	142.4	
Concentrate Gold Grade	g/t	**5,000**		5,000	5,000	5,000	5,000	5,000	
Gross Value	kUS$	**132,906**		26,525	26,875	25,156	25,735	28,615	**Inflation**
Less: Refining/Advance Pay.	kUS$	**3,383**		993	1,006	438	448	498	**None**
Net Gravity Plant Revenue	US$/t conc.	**195,835**		193,423	193,423	197,442	197,442	197,442	
Net Gravity Plant Revenue	kUS$	**129,523**		25,533	25,869	24,718	25,287	28,117	
Copper Concentrate									**Corporate Tax Rate**
Copper Recovery	%	**90%**		90%	90%	90%	90%	90%	**30%**
Concentrate Produced	t	**27,065**		5,600	5,144	5,748	6,012	4,561	
Gold Recovery	%	**45%**		45%	45%	45%	45%	45%	
Silver Recovery	%	**85%**		85%	85%	85%	85%	85%	**Special Mining Duty**
Copper Grade	%	**18%**		18%	18%	18%	18%	18%	**7.5%**
Gold Grade	g/t	**122.2**		117.9	130.0	108.9	106.5	156.1	
Silver Grade	g/t	**1,255**		1,225	1,273	1,325	1,158	1,309	
Net Smelter Return	kUS$	**160,732**		**31,868**	**31,719**	**31,679**	**32,137**	**33,330**	**Extraordinary**
Total Revenue		**290,255**		57,401	57,588	56,397	57,424	61,446	**Mining Duty**
Less: Argonaut Gold Royalty	kUS$	**4,500**		1,435	1,440	1,410	215	-	**0.5%**
Net Revenue	kUS$	**285,755**		**55,966**	**56,148**	**54,987**	**57,208**	**61,446**	
OPERATING COSTS									
Waste Stripping	kUS$	**27,657**		4,983	5,187	3,899	8,426	5,163	
Ore Mining	kUS$	**6,165**		1,068	936	1,123	1,544	1,493	
Ore Reclaiming/Sorting	kUS$	**4,965**		-	-	1,424	1,701	1,841	
Ore Processing	kUS$	**45,742**		8,698	8,698	9,385	9,385	9,576	
G&A	kUS$	**11,070**		2,105	2,105	2,271	2,271	2,317	
Total Operating Costs	kUS$	**95,600**		16,854	16,927	18,101	23,327	20,390	
EBITDA	kUS$	**190,155**		39,111	39,221	36,885	33,881	41,056	
Less: Book Depreciation	kUS$	**-34,019**		-5,110	-5,552	-7,110	-8,041	-8,205	
Special Mining Duty	kUS$	**-14,262**		-2,933	-2,942	-2,766	-2,541	-3,079	
Extraordinary Mining Duty	kUS$	**-1,355**		-269	-272	-260	-264	-290	
Mexican Corporate Taxes	kUS$	**-44,413**		-4,368	-10,396	-9,427	-8,916	-11,306	
Net Earnings After Tax & Depr.	kUS$	**96,106**		**26,431**	**20,060**	**17,321**	**14,118**	**18,176**	
NET CASH FLOW TO PROJECT									
Net Earnings	kUS$	**96,106**		26,431	20,060	17,321	14,118	18,176	
Plus: Depreciation	kUS$	**34,019**		5,110	5,552	7,110	8,041	8,205	
Less: Capital Investment	kUS$	**-34,019**	-26,875	-	-1,881	-3,381	-1,881	-	
Changes in Working Capital	kUS$	**-**		-852	3	-8,631	43	9,437	
Net Cash Flow to Project	kUS$	**96,106**	-26,875	30,689	23,733	12,419	20,321	35,818	
Accumulated NCF to Project	kUS$	**96,106**	-26,875	3,814	27,548	39,967	60,288	96,106	
Project Internal Rate of Return	%	**92.7%**							
Payback Period	kUS$	**11 Months**	**(from start of Production)**						
NPV at Various Discount Rates	kUS$		**5%**	**77,477**		**7.5%**	**69,803**		
			10%	**63,014**		**15%**	**51,614**		

Appendix 2: Share of Revenue from Gross Value in the Ground to Net Cash Flow



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