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SEC S-K 229.1304 INITIAL ASSESSMENT INDIVIDUAL DISCLOSURE FOR THE LOS AZULES PROJECT, ARGENTINA

Effective reporting date: 01 Sep 2017

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MCEWEN MINING INC

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REVIEWERS			

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1 EXECUTIVE SUMMARY

This Individual Disclosure was prepared as an Initial Assessment under S-K §229.1302 and S-K §229.1304 as a compliant Individual Disclosure, in accordance with SEC Subparts S-K §229.1302 and §229.1304—Disclosure by Registrants Engaged in Mining Operations regulations, by McEwen Mining Inc. In accordance with Subparts §229.1300 to §229.1305 regulations, an Initial Assessment is "a preliminary technical and economic study of the economic potential of all or parts of mineralization to support the disclosure of mineral resources. The initial assessment must be prepared by a qualified person and must include appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. An initial assessment is required for disclosure of mineral resources but cannot be used as the basis for disclosure of mineral reserves."

This report was prepared in accordance with S-K §229.1300 – S-K §229.1305 regulations based on a previously filed Canadian Instrument NI43-101 technical report – preliminary analysis for the Los Azules property for McEwen Mining Inc. by Hatch, Ltd. in September, 2017 and subject to the terms and conditions of its agreements with its service providers. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in the authors' services based on: (i) information available at the time of preparation; (ii) data supplied by outside sources and (iii) the assumptions, conditions and qualifications set forth in this report. This report is intended to be read as a whole and sections should not be read or relied upon out of context.

This report was converted to the S-K §229.1300 format by Mining Plus, a firm employing mining engineers and geologists meeting the requirements for qualified persons (each a "QP" and collectively, the "QPs") as defined under S-K §229.1302. Mining Plus is independent of the registrant and of the Los Azules project. As a firm acting as QP, Mining Plus assumes responsibility for all sections or areas of the report that have been prepared without requiring the names of its employees or other qualified persons.

Every registrant must provide the disclosures specified in Subpart §229.1302 of Regulation S-K if its mining operations are material to its business or financial condition. For purposes of Subpart 1300, the term "material" has the same meaning as under Securities Act Rule 405 or Exchange Act Rule 12b-2. Mining Plus has advised the registrant that Los Azules is material based on the analysis of both quantitative and qualitative factors, assessed in the context of the registrant's overall business and financial condition and presented herein.

Forward-Looking Notice:

Sections of the report contain estimates, projections and conclusions that are forward-looking information within the meaning of applicable securities laws. Forward-looking statements are based upon the responsible QP's opinion at the time that they are made but, in most cases, involve significant risk and uncertainty. Although the responsible QP has attempted to identify factors that could cause actual events or results to differ materially from those described in this report, there may be other factors that cause events or results to not be as anticipated, estimated or projected. None of the QPs undertake any obligation to update any forward-looking information. There can be no assurance that forward-looking information in any section of the report will prove to be accurate in such statements or information.

Accordingly, readers should not place undue reliance on forward-looking information.

The Los Azules exploration project is a porphyry copper exploration project located in the Andes Cordilleran region of San Juan Province, Argentina near the border with Chile. A Preliminary Economic Assessment (scoping study) was completed in 2009 and updated in 2010, 2013, and 2017 and the data from these studies is now presented with this individual Initial Assessment disclosure in accordance with S-K §229.1302 and S-K §229.1304.

This Initial Assessment is defined as "a preliminary technical and economic study of the economic potential of all or parts of mineralization to support the disclosure of mineral resources". The initial assessment has been prepared by Mining Plus and includes appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that were necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. An initial assessment is required for disclosure of mineral resources but cannot be used as the basis for disclosure of mineral reserves".

The Los Azules exploration project is projected to be an open pit mine and concentrator plant that produces a copper concentrate as the final product for export. Ancillary facilities including the tailings storage facility and the waste rock storage facility have been optimized that minimises the vertical and horizontal material haulage elements and provides for gravity deposition of the tailings for the life of mine operations. The 2021 initial assessment TRS also incorporates a development strategy of a phased implementation approach with an initial Phase 1 processing rate of 80,000 tons per day increasing by 50% for Phase 2 to 120,000 tonnes per day in Year 5 through to the completion of processing in Year 36.

An appropriate assessment of reasonably assumed technical and economic factors, are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. As a result, annual copper production is estimated to be 186K tons per year from year 1 to year 13 and 153K tons per year over the life of mine timeframe.

In terms of the cost of production, the data set shows that for the first 13 years of operation the average C1 cost is $1.14 per lb copper. The Life of Mine average C1 costs are calculated to be at $1.28 per lb.

The recommended next steps for the Los Azules project are to continue with infill drilling and environmental baseline studies and commencing preliminary engineering such as geotechnical drilling at the tailings dam site and within the pit wall slopes.

1.1 Property Description and Ownership

1.1.1 Location

The Project is approximately 80 km west north west of the small town Calingasta, in the San Juan Province of Argentina at approximately 31° 06' 25" south latitude and 70° 13' 25" west longitude. It is located approximately 6 km from the border with Chile (Figure 1-1). Calingasta is located west of the city of San Juan along Route 12. The terrain elevation at the project site ranges between 3,300 meters above sea level (masl) at the proposed camp location and up to 4,500 masl on the high peaks in proximity to the Project.

The Project area is remote, and no infrastructure is present. There are no nearby towns, indigenous residents, or settlements. Seasonal exploration work typically commences in November or December and terminates in April or early-May. Exploration operations are supported by means of two camps within the Project area.

The Mine is situated in a broad valley, with a central ridge called La Ballena (whaleback). Vegetation is sparse and is virtually absent at higher elevations. Deposits of glacial debris (morainal materials) and scree mantle are present over much of the deposit and adjacent mountainsides. In the Project area, these materials locally exceed 60 m in thickness, but on La Ballena the cover is often 10 m or less.

There are no covered or uncovered "white glaciers" (classic ice glaciers) in the Project, although there are several small rock glaciers near the Project area that are not impacted by exploration or development activities.

1.1.2 Access

The Los Azules Project is currently accessed by 120 km of unimproved road with eight river crossings and two mountain passes (both above 4,100 m elevation). This access is subject to snow accumulation and is generally passable only from December through to May. This TRS projects a potential future access route into Los Azules from Chile at a border crossing within McEwen owned lands that is less affected by snow. Also described is an airstrip currently under permitting. A Google Earth satellite image of the Los Azules property is shown below in 1 and a location map in Figure 1-2.

Figure 1-1 – Google Earth View of the Location of Los Azules in the high Andes

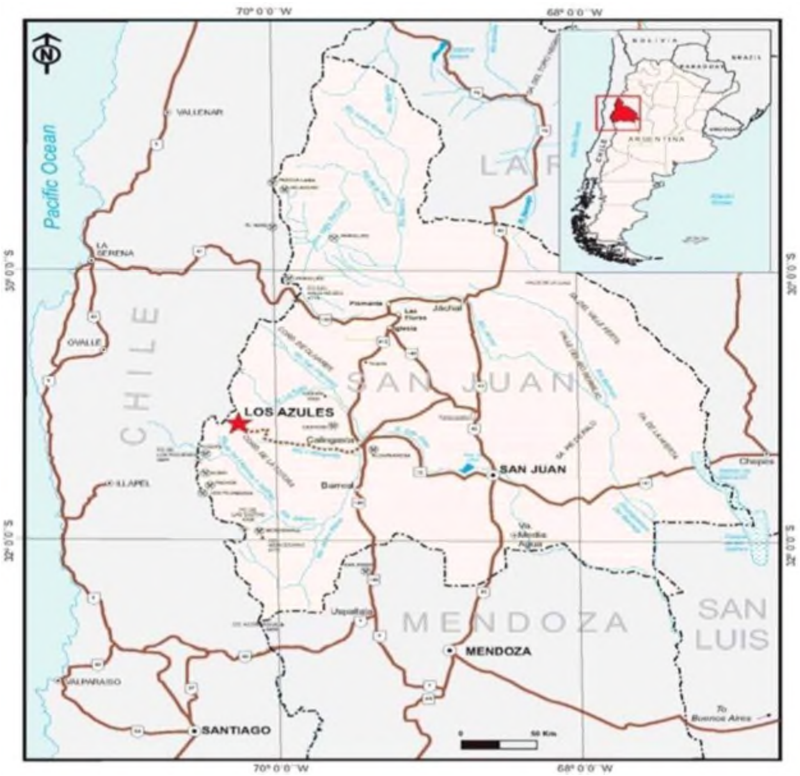


Figure 1-2 – Location Map (Minera Andes, 2009)

1.1.3 Climate

Using weather data from the January 2013 to May 2016 period, the climate is categorized as semi-arid. Most of the precipitation occurs during the winter months as moderate snowfalls during the winter and temperatures as low as -24°C and a large diurnal temperature range of approximately 20 degrees. Average year-round wind speed is approximately 11 km/h with a maximum recorded wind speed at the man camp of 50 km/h.

1.1.4 History

There are no formal records of exploration in the Project area prior to 1980. The only important active project in the area prior to 1980 was the El Pachón porphyry copper project, now owned by Glencore plc (Glencore), which is located approximately 90 km south of Los Azules. Evidence of prospecting (small trenches or pits) exists on some of the concessions.

In the mid-1980s through the mid-1990s, Battle Mountain Gold Corporation (BMG) explored the area and discovered a large hydrothermal alteration zone associated with dacite porphyry intrusions and stockwork zones. BMG drilled 24 reverse circulation holes during 1998 and 1999 looking for a high-level gold deposit. Low-grade porphyry copper style mineralization was detected in the drilling, but BMG was focused on gold exploration.

Concurrently during the mid-1990s, Minera Andes acquired concessions in the area based on regional exploration and Landsat imaging. Minera Andes' claims adjoined the BMG claims to the south.

In December 2003, Minera Andes initiated an exploration program at Los Azules, including geologic mapping and sampling, ground magnetic and induced polarization (IP) geophysical surveys and core drilling. Minera Andes' initial core drilling intersected porphyry-style copper mineralization and in 2006 drilling intersected high-grade intervals up to 1.6% copper over 221 m and 1% copper over 173 m in separate holes. By the end of the 2012-2013 field season, 185 diamond drill holes totaling 59,518 m have been drilled at Los Azules. In addition, 52 reverse circulation holes have been drilled by BMG, Mount Isa Mines (MIM) and Minera Andes/McEwen Mining totaling 10,146 m.

After BMG merged with Newmont in 2000, part of the BMG properties were acquired by Solitario Resources (the "Solitario property"), a Canadian junior exploration company (subsequently called TNR Resources – "TNR") and part were acquired by an individual from San Juan named Hugo Bosque. MIM optioned the Solitario property in May 2004. Xstrata succeeded MIM and in April 2007 it exercised its option to acquire Solitario's concessions. In 2007, Minera Andes (as operator) and MIM-Xstrata entered into an option agreement that consolidated Minera Andes' and MIM-Xstrata's properties. In October 2009, MIM-Xstrata declined to continue to participate in the Project and as a result MIM-Xstrata assigned its properties to Minera Andes and the company now owns 100% of the Project.

In January 2012, Minera Andes Inc. was acquired by US Gold Corporation and the combined company was subsequently renamed McEwen Mining Inc.

Certain portions of the northern part of the Project that were formerly held by MIM-Xstrata and transferred to Minera Andes following the termination of the Option Agreement were subject to an underlying option agreement between MIM-Xstrata and a subsidiary of TNR Gold Corp. This agreement was the subject of litigation in the Supreme Court of British Columbia, Canada.

Pursuant to terms of a settlement agreement, TNR retains a Back-in Right for up to 25% of the equity in the Solitario Properties. The Back-in Right is only exercisable after the completion of a feasibility study. To exercise, TNR must pay two times the expenses attributable to the back-in percentage (i.e. paying 2 × 25% of all the costs attributable to the Solitario Properties). Upon backing-in, TNR may elect to continue to participate in the Project, or upon being diluted down to a 5% or less equity interest, have their interest converted to a 0.6% NSR on Solitario Properties.

1.1.5 Property Description

McEwen Mining controls approximately 32,700 ha of mining rights in the area of the Los Azules deposit. In addition, McEwen Mining owns sufficient surface rights for the Project. The international border with Chile forms the limits of the owned property on the west side (shown as a red and blue line in Figure 1-3. The north east and south limits of the owned property are represented by the dashed red line in Figure 1-3.

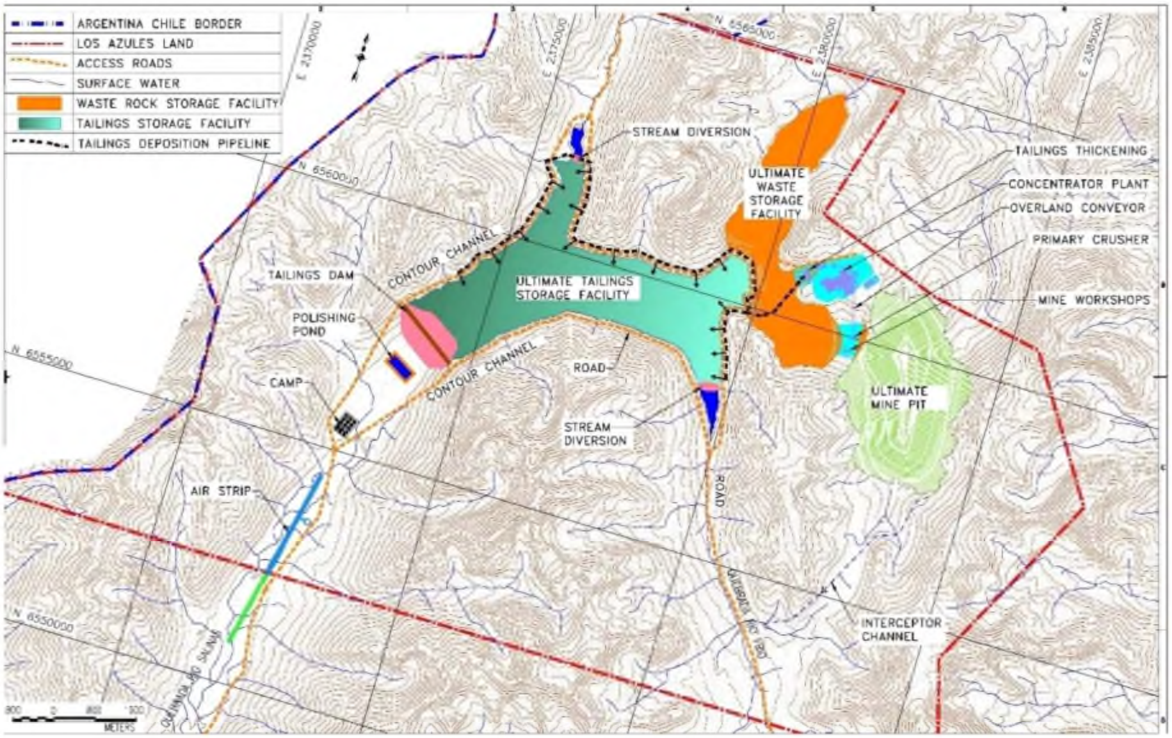


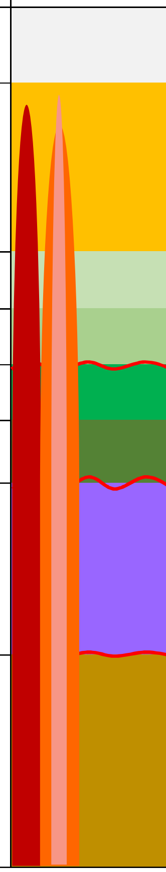
Figure 1-3 – Los Azules Project General Arrangement and Property Limits

1.2 Geology and Mineralization

Los Azules is a porphyry copper deposit located in western San Juan Province in west- central Argentina. This region is characterized by a series of north-south elongated mountain ranges that rise in altitude from east to west to form the rugged Andean Cordillera along the border between Argentina and Chile.

Geology at Los Azules comprises Mesozoic volcanic rocks intruded by a Miocene diorite stock, itself intruded by a sub-parallel suite of diorite-dacite porphyry dikes along a major NNW-striking structural zone. Porphyry copper style mineralization and hydrothermal alteration are spatially, temporally, and genetically related to the diorite stock and the dikes.

In many respects the Los Azules deposit is a classic Andean-style porphyry copper deposit. In the bedrock below a thick surface cover of scree and valley fill, a barren leached zone overlies a zone of secondary or supergene enrichment of variable copper grades and thickness. Primary or hypogene mineralization extends to at least 1,000 m below the present surface. Circulation of meteoric ground water near surface leached primary sulphides (mainly pyrite and chalcopyrite) from the host rocks over the past several million years and the leached copper was redeposited below the water table in a sub-horizontal zone of supergene enrichment as secondary chalcocite and covellite. Hypogene bornite appears at deeper levels together with chalcopyrite. Gold, silver, and molybdenum are present in trace amounts, but copper is by far the most important economic constituent at Los Azules. A stratigraphic column is shown in



ERA	PERIOD	EPOCH	LITHOSTRATIGRAPHIC UNIT	LITHOLOGY	MINERAL DEPOSIT	INTRUSIVES	DESCRIPTION
CENOZOIC	QUATERNARY		QUATERNARY DEPOSITS				Gravels and unconsolidated sands of glacial and fluvial origin
	PALEOGENE-NEOGENE		CENOZOIC SEQUENCE			*Diorite, quartz diorite and monzodiorite, **porphyry dikes with rhyodacitic composition, ***porphyry dikes with dacitic composition	Interlayered volcanic and volcaniclastic rocks intruded by igneous rocks
MESOZOIC	CRETACEOUS	LATE	CRISTO REDENTOR FORMATION				Pyroclastic and volcaniclastic rocks
			JURASSIC FORMATION				Volcanic and pyroclastic rocks
	JURASSIC	LATE	TORDILLOS FORMATION				Conglomerates and sandstones
		MIDDLE	LA MANGA FORMATION				Calcareous rocks.
	TRIASSIC		PRE-JURASSIC BASEMENT – CHOIYOI GROUP				Its lower part is comprised by andesites and dacite; and its upper part consists of rhyolites.
PALEOZOIC	PERMIAN		PRE-JURASSIC BASEMENT – CHOIYOI GROUP		Los Azules		
	PRE-PERMIAN ?		PRE-JURASSIC BASEMENT – BASEMENT 1				The unit consists of clastic sedimentary rocks such as sandstone (arkose) and black shales interlayered with pyroclastic rocks.

** The orange intrusion corresponds to the pre-mineral pluton dated from the Miocene. This pluton is calc-alkaline of different composition phases, from which diorite, quartz diorite and monzodiorite are the most abundant ones.*

*** The dark red intrusion represents the early mineralized porphyry dikes, which are rhyodacitic and abundant in type-A quartz veinlets. These dykes were dated at 9.2 My by Zurcher (2008)*

**** The light red intrusion represents the set of sub-parallel set of porphyry dikes that intruded the pre-mineral pluton. These dikes have a dacitic composition and were dated by Zurcher at 8.2 My. These dykes have low content of type-A quartz veinlets.*

Figure 1-4 Statigraphic column

The Los Azules hydrothermal alteration system is at least 5 km long and 4 km wide and is elongated in an NNW direction along a major structural corridor. The system disappears below volcanic cover to the north, so the ultimate extent is unknown. The altered zone surrounds the Los Azules deposit, which is approximately 4 km long by 2.5 km wide. The limits of the mineralization along strike and at depth have not been entirely constrained by drilling.

Recent geological studies have resulted in a new geologic model that shares many features with other well-known Andean porphyry copper deposits. These studies have defined the temporal sequence and spatial distribution of the following distinct alteration phases and mineralization zones.

1. Intrusion of pre-mineral dioritic stock or pluton.
2. Pervasive chlorite-magnetite alteration accompanied by chalcopyrite mineralization in the upper levels of the pluton grading into potassic alteration with chalcopyrite and bornite mineralization at depth.

3. Intrusion of early mineralized porphyry dike phase.
4. Intrusion of later “inter-mineral” phase porphyry dikes and formation of magmatic- hydrothermal breccia bodies.
5. Late sericite alteration accompanied by pyrite and chalcopyrite.
6. Formation of erratic quartz veins containing base and precious metals.
7. Supergene enrichment.

1.3 Exploration Status

Drilling programs have been undertaken at Los Azules between 1998 and 2017 by three different mineral exploration companies: Battle Mountain Gold (BMG), Xstrata Copper (MIM) Argentina (now Glencore) and Minera Andes Inc. (now McEwen Mining Inc.). Drilling initially focused on gold exploration and subsequently, on diamond drilling for porphyry style copper mineralization.

Drilling conditions have been particularly difficult, especially in faulted intersections or in areas of unconsolidated surface scree/talus, which have resulted in low average drilling rates. Target depth of the drilling has typically been 400 m and numerous holes completed in the 2013 campaign exceeded a depth of 1,000 m in the southwestern part of the deposit.

Table 1-1 depicts exploration drilling by year and by company.

Table 1-1 – Exploration Drilling by Year and by Company

Year	Company	No. of Holes	Meters Drilled
1998	Battle Mountain Gold	16	3,614
1999	Battle Mountain Gold	8	2,067
2004	Xstrata Copper (MIM)	4	864
2003 – 2004	Minera Andes	9	2,064
2005 – 2006	Minera Andes	11	2,602
2006 – 2007	Minera Andes	17	3,501
2007 – 2008	Minera Andes	18	5,469
2009 – 2010	Minera Andes	28	10,229
2010 – 2011	Minera Andes	44	10,405
2011 – 2012	McEwen Mining	8	2,830
2012 – 2013	McEwen Mining	22	15,873
2017	McEwen Mining	17	6,469
Total		**202(1)**	**65,987**

1) This table includes all drilling that has occurred on the property as of the date identified. Some holes were re-drilled due to drilling difficulties and as a result, were not included in the database. Holes that were started in one season and completed the following season are counted in the year they were started, but the meters drilled in each season are shown for the respective seasons.

1.4 Mineral Resource Estimates

The mineral resource estimate for Los Azules was prepared utilizing three-dimensional block models based on geostatistical applications. The mineral resources are estimated using ordinary kriging with a nominal block size of 20 x 20 x 15 m. Block grade estimates are derived from drill hole sample results and the interpretation of a geologic model, which relates to the spatial distribution of copper, gold, silver and molybdenum in the deposit. To ensure the reported resource exhibits reasonable prospects for economic extraction, the mineral resource is limited within a pit shell generated around copper grades in blocks classified in the Indicated and Inferred categories. Generalized technical and economic parameters include a copper price of $2.75/lb, site operating costs of $1.70/t (mining), $5.00/t (processing) and $1.00/t (general and administration), a pit slope of 34° and 90% metallurgical recovery. Some of the deeper mineralization may not be economic due to the increased waste stripping requirements.

It is important to recognize that these discussions of surface mining parameters are used solely to test the "reasonable prospects for economic extraction," and do not represent an attempt to estimate mineral reserves. There are no mineral reserves calculated for the project. These preliminary evaluations are used to prepare a Mineral Resource Statement and to select appropriate reporting assumptions.

The estimated mineral resource for the Los Azules deposit is shown in Table 1-2. Mineral resources are determined using a base case cut-off grade of 0.20% copper, which is based on the projected technical and economic parameters listed above.

Table 1-2: Estimate of Mineral Resources for Los Azules Deposit (0.20% Cu Cut-Off)

TABLE 1 - LOS AZULES PROPERTY - SUMMARY OF COPPER, GOLD, MOLYBDENUM AND SILVER MINERAL RESOURCES AT SEPTEMBER 1, 2017; BASED ON A COPPER PRICE OF $2.75/lb (1-6)

Classification	Cu % Cut-off grades	MTonnes	Cu %	Au (g/t)	Mo (%)	Ag (g/t)	Cu (Blbs)	Au (Moz)	Mo (Mlbs)	Ag (Moz)	Metallurgical recovery %
											Cu
Indicated Mineral Resources	0.20	962	0.48	0.06	0.003	1.8	10.2	1.7	57.3	55.7	90
Inferred Mineral Resources	0.20	2,666	0.33	0.04	0.003	1.6	19.3	3.8	194.0	135.4	90

1) *Mineral Resources are 100% attributable to McEwen Mining property. Mineral Resources are exclusive of Mineral Reserves.*
2) *Mineral Resources does not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.*
3) *Numbers in the table might not add precisely due to rounding.*
4) *Mineral Resource is reported inside of a pit shell, the parameters assumed are a copper price of $2.75/lb, operating costs of $1.70/t mining, $5.00/t for processing and $1.00/t for G&A, and Copper metallurgical recovery of 90%.*
5) *Mineral Resource is reported with a cut-off grade of 0.20% Cu.*
6) *The Mineral Resources in this report were estimated and reporting using the regulations under S-K §229.1300 to S-K §229.1305 of the United States Securities and Exchange Commission ("SEC").*

Note: The mineral resources do not have demonstrated economic viability

1.5 Mineral Reserve Estimate

No mineral reserves are estimated for this Initial Assessment.

1.6 Material Development and Operations

No material development or operations were reviewed for this Initial Assessment.

1.7 Mine Design

This 2021 Initial Assessment mining plan for the Los Azules Project was advanced to determine the economic potential of the resources and incorporates discussions of the mineral processing, material categorization, material handling, waste rock and tailings storage facilities. The IA only considers processing of primary and secondary (enriched) sulphide material to produce a copper concentrate for truck haulage to a Pacific port in Chile for export in order to determine economic potential. There is only a minimal tonnage of oxides and this is very low grade and designated as waste material. A general arrangement has been developed that minimizes vertical and horizontal material haulage distances for both mineralized material and for waste rock material. A 2017 general arrangement of the Los Azules Project is shown below in Figure 1-5 with the mine, waste rock storage facility and tailings storage facility all illustrated at ultimate proposed configuration at 36 years of processing operations. A perspective view looking from the north east is shown in Figure 1-6.

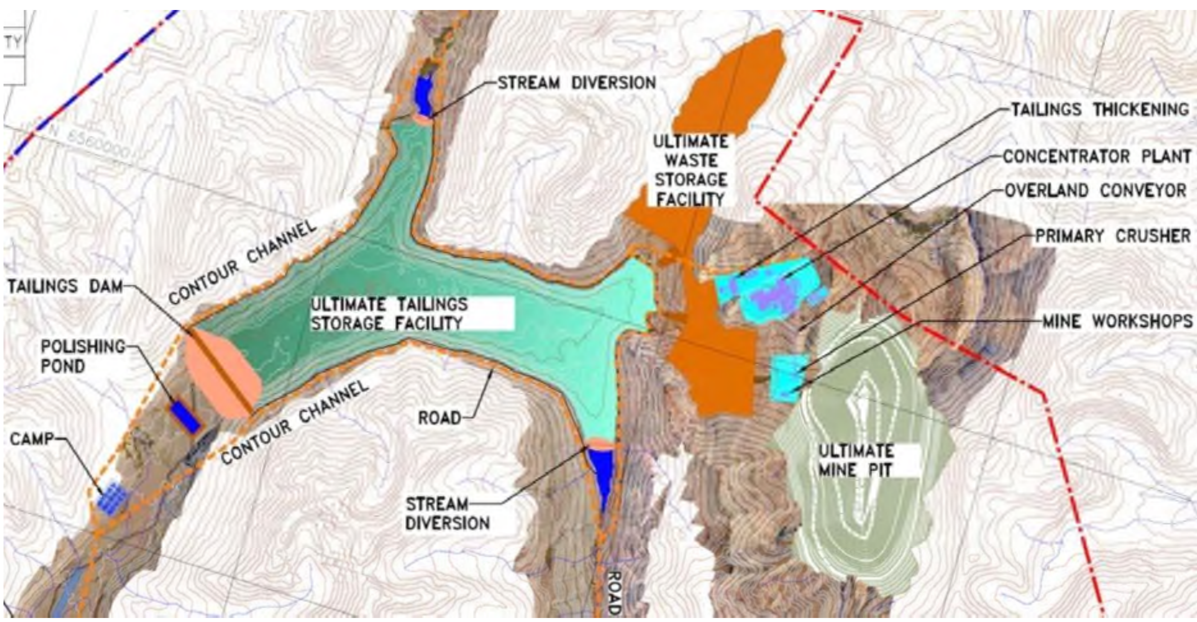


Figure 1-5: General Arrangement of Mining and Processing Facilities

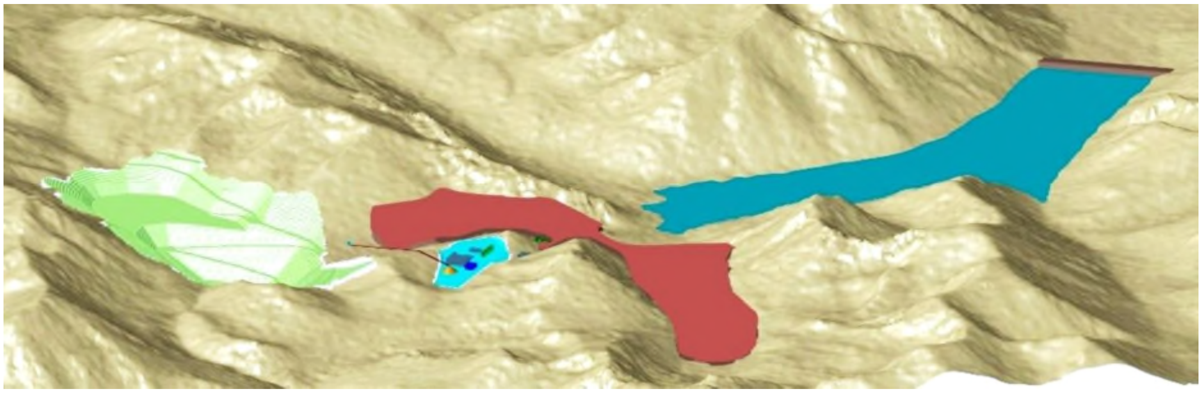


Figure 1-6: Perspective view of the proposed Mining & Processing Facilities

The mine production schedule targets the highest-copper grade material and implements a declining cut-off grade policy to maximize the project present values. In executing this policy, the mine will stockpile any lower than optimum grade mineralized material in pursuit of mining and processing higher grade material.

The concentrator feed in the mine production schedule contains indicated and inferred mineral resources.

This Initial Assessment is preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. Inferred mineral resources have a great amount of uncertainty as to their existence and as to whether they can be mined economically. There is no certainty that the Initial Assessment will be realized.

Mine preproduction stripping will be performed over a period of three years, including site preparation, a gradual build-up of the equipment fleet, and training of personnel. Pre-stripping targets for Years -3, -2 and -1 are 20, 40 and 64 M t, respectively, for a total preproduction stripping tonnage estimated at 124 Mt.

The cross section below, Figure 1-7, illustrates the phased pit development sequence that targets the high copper grade, supergene enriched material to maximize the project's present value. In the first five years of mining 93% of this initial mill feed is presently classified as Indicated mineralized material and the remaining 7% is Inferred mineralized material and of lower grade.

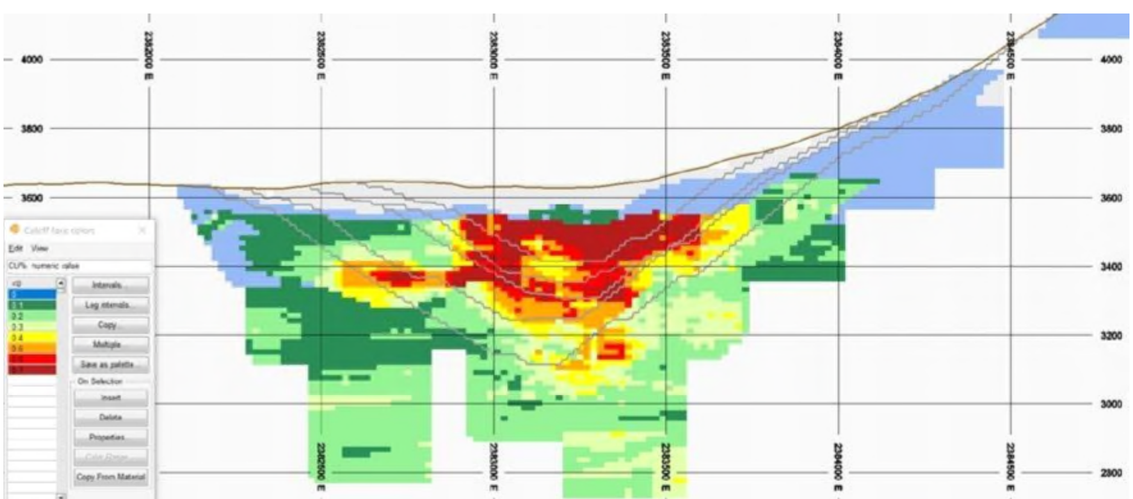


Figure 1-7: Cross Section Showing Phased Pit Development Sequence

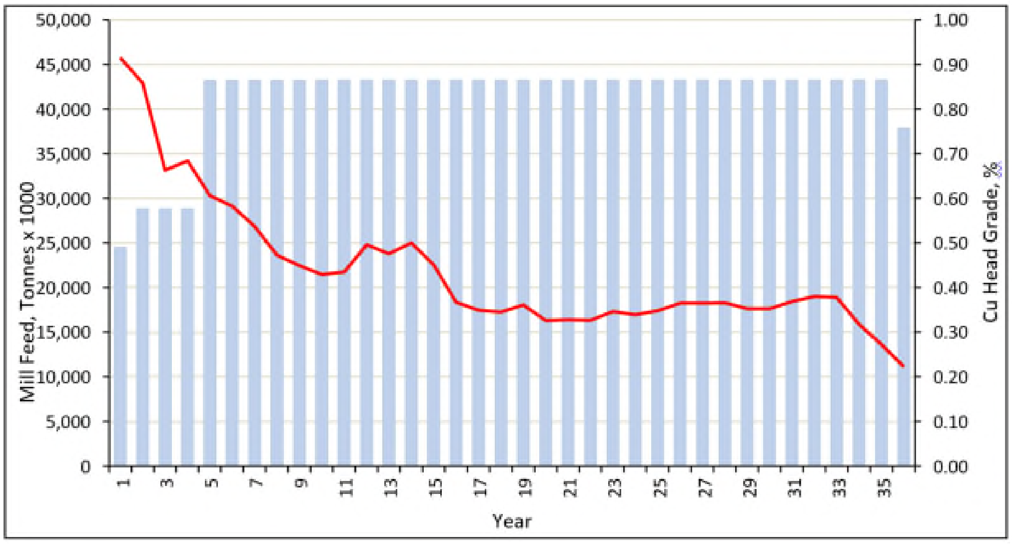


Figure 1-8: Mill Feed Tonnage and Grades

The early years of mining are in the highest grade copper mineralized material as shown on Figure 1-8 above.

The Los Azules deposit is a near surface copper porphyry deposit with glacial overburden and a leached zone overlying the mineralized material. The pre-stripping work proceeding mining of mineralized material is approximately 130 million tons to be performed contemporaneously with the project implementation phase. The Los Azules deposit is amenable to conventional, large scale, open pit mining methods and will utilise large open pit mining equipment operating on 15 meter high cut benches to extract mineralized material and waste rock.

Electric drills and electric rope shovels will be the primary production units because of their lower operating costs and better reliability. The rest of the mining fleet will be diesel-powered equipment and machinery to provide flexibility in mining operations.

To minimize crushing and grinding energy demand , high fragmentation blasting methods will be applied to all concentrator feed material. Lower powder factors will be applied to waste zones.

A portion of the waste rock material will be seamlessly delivered to the tailings dam as demand requires to maintain the dam raises ahead of the tailings deposition.

1.8 Infrastructure, Capital, and Operating Cost Estimates

The nearest settlement is the town of Calingasta, which is located approximately 80 km east of the Project. The road from Calingasta to the Project is 120 km over mostly unimproved dirt roads. Approximately 30 km of newly constructed road and upgrades to approximately 60 km of existing road will be required for the Project.

Calingasta is a historic mining town that was based on exploitation of alum (aluminum sulphate) deposits. The principal current economic activity of the area is agriculture with fruit trees (apple and walnut). According to the 2010 census the population of the San Juan Province, including Calingasta is 8,453 inhabitants and the town of Calingasta has 2,700 inhabitants.

Surface water is available on the property in adequate amounts for McEwen Mining's exploration activities. Preliminary hydrological evaluations have indicated sufficient water exists for the proposed Los Azules mining and processing facilities and to provide the necessary fresh water needed to house employees at the mine site. A more detailed evaluation of available water resources will need to be undertaken for an IIA submission.

A 300 km long 220 kV or 500 kV power transmission line will supply power to the Project. The transmission line would originate either from Gran Mendoza (Mendoza, Argentina) or Rodeo (north west of San Juan) and report into a newly constructed substation and terminate at a step-down substation at the Project site. Alternatively, a power supply could be sourced from Chile. A trade off study should be performed to evaluate country of origin for power and whether the supply is best transmitted in HVAC or HVDC configuration.

Unless otherwise specified all estimates are in US dollars.

A summary of the initial capital estimate is provided in Table 1-3

Table 1-3: Summary of CAPEX

Area	CAPEX (USD Millions)
Mining Equipment	215
Mine Pre-stripping Costs	193
Surface Scope (Concentrator, Powerline, Tailings, etc.)	979
Total Direct Cost	1,387
Total Indirect Costs	508
Contingency	420
Owner's Cost	48
Total Initial Capital Cost	2,363

The Los Azules project has an estimated total operating cost of $15,385M over the life of the mine. With the proposed configuration, the unit costs for mining are estimated to be $0.44/lb Cu, $0.47/lb Cu for processing, $0.21/lb Cu for transportation and $0.13/lb Cu for General and Administrative (G&A). Taking into consideration the Treatment Charges/Refinery Charges (TCs/RCs) and credits related to gold and silver, the effective net costs are estimated to be $1.28/lb Cu. Table 1-4 displays the operating cost summary.

Table 1-4: Operating Cost Summary

Cost Area	$M LOM	$/t Mill Feed	$/t Cu	$/lb Cu
Mining	5,404	3.63	980	0.44

Process	5,774	3.88	1,047	0.47
Transport	2,587	1.74	469	0.21
G&A	1,620	1.09	294	0.13
Subtotal OPEX	15,385	10.34	2,789	1.26
TCs/RCs	2,684	1.8	487	0.22
Au & Ag Credits	-2,449	-1.65	-444	-0.2
Net Costs	15,621	10.5	2,831	1.28

1.9 Market Studies

Based on the Initial Assessment, this information is not required beyond determining the basis for potential economic extraction.

The basis for the price of copper was determined from projections and trends in copper pricing from global sources, taking into consideration the prior 3 years and forecast of the upcoming 3 years (Table 1-5).

Table 1-5: Price of copper concentrate

Copper ($/lb)	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Mean	2.98	2.73	2.76	3.32	3.29	3.27	3.29
Median	2.98	2.72	2.76	3.40	3.26	3.25	3.10
High	3.14	2.85	2.97	3.70	4.00	4.25	4.50
Low	2.75	2.61	2.57	2.75	2.66	2.68	2.99
Std. Dev.	0.07	0.04	0.07	0.25	0.31	0.34	0.39

This long term commodity price forecast was consistent with information provided by McEwen Mining and used in this IA. These prices are summarized in Table 1-6.

Table 1-6: Commodity Forecast Price

Price	Unit	Forecast
Copper	USD$/lb	3.00
Gold	USD$/oz	1,300
Silver	USD$/oz	17

1.10 Environmental, Soci1al and Permitting

Based on the Initial Assessment, this information is not required beyond supporting the determination of the basis for potential economic extraction.

At this time, little to no work has been started towards the permitting and licensing work required to move the project forward. Until such time as the registrant makes such an effort, this area study remains as assumptions for this project to the extent of the basis for potential economic extraction.

1.11 Economic Analysis

A preliminary economic analysis was completed for this initial assessment using only the measured and indicated resources determined in the resource estimate that is summarized in Section 1.4, Table 1-2. The inferred resources used in the overall mine production schedule were moved to waste in accordance with S-K§229.1302(d)(4) guidelines for estimating the economic potential of the deposit.

All other economic parameters and cost/production/performance inputs advanced by Hatch Consultants in the 2017 PEA technical report were used as required for this initial assessment.

The overall production schedule of tonnage for the 35 year mine life totals 899.361 million tonnes, which is 93.5% of the estimated total indicated resource.

The discount rate of 8% is the biggest factor influencing the project's economics, both with and without the inferred contained metals being counted. On an undiscounted basis the after-tax profit is reduced from $10.2 billion to $3.5 billion by not including the inferred contained metals. When discounting at 8%, the after tax NPV only drops from $2.2 billion to $1.0 billion, when you exclude the inferred.

The economic model prepared for the project properly reflects the impact of removing the inferred contained metals and associated revenue, while still processing the original rates of indicated and inferred mineralized material through the concentrator. This has the impact of increasing the amount of waste being processed and placed into tailings during the life of the project. All other model inputs and assumptions remain as they were in the Hatch 2017 PEA analysis. As a result, the only costs that have materially changed are the TCRC's, concentrate shipping costs, royalties, and taxes.

In the financial model is intended to reflect the elimination of the Inferred metal recovery. The summary table of results is found below in Table 1-7.

Table 1-7 Financial inputs and results using M&I resources

Title	Units	2017 Hatch Base Case - M&I only
LOM Production		
Tonnes Processed	Mt	1489
Strip Ratio	W:O	1.01
Cu Grade	%	0.29%
Au Grade	g/t	0.03
Ag Grade	g/t	1.08
Cu Payable	Mt	3.8
Au Payable	Moz	0.9
Ag Payable	Moz	28.4
Cu Price	$/lb	3.00
Au Price	$/oz	1,300
Ag Price	$/oz	17
Revenue - Cu	$M	25,097
Revenue - Au	$M	1,202
Revenue - Ag	$M	483
Total Revenue	$M	26,783
TCs & RCs	$M	(1,846)
Royalties	$M	(695)
Net Revenue	**$M**	**24,242**
OPEX- Mine	$M	(5,404)
OPEX- Process	$M	(5,774)
OPEX- Transport	$M	(1,779)
OPEX- G&A	$M	(1,620)
OPEX	$M	(14,578)
C1 Cost	$/lb cu	1.76
EBITDA	**$M**	**9,665**
Initial CAPEX	$M	(2,363)
Sustaining CAPEX	$M	(1,511)
Δ Working Capital	$M	-
Closure Costs	$M	(200)
Pre-Tax Cash Flow	$M	5,590
Taxes	$M	(2,113)
After-Tax Cash Flow	$M	3,478
After Tax NPV@ 6%	$M	1,408
After Tax NPV@ 8%	**$M**	**1,002**
After Tax NPV@ 10%	$M	679
After Tax NPV@ 12%	$M	420
After Tax NPV@ 15%	$M	120
IRR	**%**	**16.5%**
Payback	yrs	4.1

1.12 Conclusions

This initial assessment included inferred resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves and there is no certainty that an IA based on these resources would be realized.

Based on the results of this Initial Assessment and the aforementioned 2017 PEA by Hatch, Mining Plus is advancing the conclusions of certain contributing authors in accordance with §229.601(b)(96) and recommend that McEwen complete additional work to further de-risk the Project, including more material advanced stages of drilling. A list of these tasks and, summary of the interpretations, conclusions and recommendations to advance the Project are provided in Section 1 and Section 22.

1.13 QP Recommendations

Based on the results of this Initial Assessment, certain contributing authors from Mining Plus and in accordance with §229.601(b)(96), recommend that McEwen Mining complete additional work to further de-risk the Project, including more material advanced stages of drilling. A list of these tasks and, summary of the interpretations, conclusions and recommendations to advance the Project are provided in Section 1 and Section 23.

1.14 Revision Notes

This is the initial revision for the Los Azules exploration project and as such, no revision is noted.

2 INTRODUCTION

2.1 Terms of Reference and Purpose of the Report

This individual Technical Report Summary is written to provide information as required by S-K §229.1300 to S-K §229.1305 regulations regarding the reporting of mineral properties. This report has been prepared for and in collaboration with McEwen Mining ("McEwen"), the registrant, to assess the potential economic viability of the Los Azules property and to provide compliance to SEC reporting requirements.

McEwen was organized under the laws of the State of Colorado on July 24, 1979 and is listed on the New York Stock Exchange (NYSE) and on the Toronto Stock Exchange (TSX) under the symbol MUX. The Company's head office is Toronto, Canada and their principal assets consist of the San José mine (49% interest) and the Los Azules property in Argentina, the El Gallo Gold mine and El Gallo Silver project in Mexico, the Gold Bar project in the USA, and several Timmins projects in Canada. The Los Azules property contains 100% of McEwen's copper resources.

This IA is triggered by recently enacted SEC regulations and McEwen's intention to publicly disclose excerpts of the engineering and optimization studies completed earlier by Hatch in conjunction with McEwen during 2017. The Los Azules property is material to McEwen.

The following information was used to complete the various sections of the report:

- Resource block model incorporating the latest drilling campaign.
- Metallurgical test work reports.
- Previous environmental studies.
- Preliminary revised General Arrangement for the Los Azules development.
- Preliminary concentrate logistics strategy.
- Preliminary tailings storage facility designs.
- Detailed topography from a photogrammetric survey performed in 2017.
- A Project Information Memorandum from Q1, 2017.

2.2 Qualifications of Qualified Persons/Firm

Mining Plus is the qualifying firm on this S-K §229.1304 individual disclosure, and their work is based directly on the 2017 NI 43-101 Technical Report completed for the Los Azules project in 2017 by Hatch Consulting. In accordance with the qualified firm that, pursuant to §229.601(b)(96), Mining Plus has converted the Hatch Technical Report into an Individual Technical Report Summary at the direction of Mr. Luke Willis, Project Manager, McEwen Mining, a mid-sized precious metals mining company headquartered in Toronto, Canada and listed on the NYSE and TSX under the symbol, “MUX”. McEwen has a 100% interest in the Los Azules project.
The contact details for the registrant, McEwen Mining, are:

150 King Street West Suite 2800
Toronto, ON M5H 1J9
Canada

tel: 647-258-0395
toll-free: 1-866-441-0690
fax: 647-258-0408

In 2017, Hatch employed mining engineers and geologists who identified and summarized the required information and conclusions reached by those qualified persons in the NI 43-101 conforming Technical Report provided to McEwen Mining in 2017. In 2021, Mining Plus performed the conversion of that report without changing any information that was developed and presented in the NI 43-101 Technical Report in 2017 with the exception of a specific economic analysis based solely on the measured and indicated resources while using all other developed information from Hatch. Mining Plus is the firm qualifying this 2021 report without naming its employees, member or other affiliated person who prepared the technical report summary. As a firm acting as QP, Mining Plus assumes responsibility for all sections or areas of the report that it has prepared without requiring the names of its employees or other qualified persons. Mining Plus is responsible for the conversion of the previous report into this compliant Technical Report Summary. Mining Plus is independent of the registrant and has no ownership, royalty, or other interest in the property that is the subject of this technical report summary.

2.2.1 Contributing Firm

Mining Plus US performed a conversion of the 2017 Technical Report on the Los Azules project completed in 2017 by Hatch for McEwen Mining. The conversion of that existing document into S-K 1300 regulations as required for the initial assessment was completed by Mining Plus Consultants US of Denver, Colorado USA. To the extent this conversion conforms to the Individual Disclosure

Mining Plus US Corporation, Qualified Firm.

Mining Plus US Corporation, located at 10185 Park Meadows Drive, Creative Density Office #411, Colorado, USA, 80124, do hereby certify that:

1. Mining Plus US Corporation, is contracted by Mc Ewen Mining Inc.
2. This certificate applies to the Technical Report Summary titled "SEC S-K 229.1300 INITIAL ASSESSMENT TECHNICAL REPORT SUMMARY FOR THE LOS AZULES PROJECT, ARGENTINA", (The "Technical Report Summary") with an effective date of April 01, 2021.
3. Mining Plus is a mining technical services provider, consisting of professionals specialising in geology, mining engineering (surface and underground), geotechnical engineering, mine ventilation and operational management. Mining Plus have read the definition of "Qualified Firm" set out in Section S-K 1300 229.1302 and certify that by reason of the experience, (as defined in 229.1302) and past relevant work experience, fulfill the requirements to be a "Qualified Firm" for the purposes of Section 229.1302. The relevant information for the purpose of the Technical Report Summary has been acquired:
   - Mining Plus has completed over 1,850 projects for 630 customers in 40 countries over a range of different commodities, from which we have built a diverse experience base and reputation.
   - The Mining Plus team comprises professionals from various backgrounds including Mining Engineering, Geology, Geotechnical Engineering, Hydro-geology, Risk Management, and Project Management.;
   - Our mining experience in open pit porphyry copper projects similar to Los Azules has included the team members completing this Technical Report Summary;
   - Our "One Team" philosophy and culture which facilitates a culture of knowledge sharing and mentoring to develop all team members and adds value to the work we deliver to our clients. It also allows the best resource to be allocated for the completion of the specified task.
4. Mining Plus US Corporation is responsible for converting Chapters 1 through 11 and Chapters 20 through 25 of this Technical Report Summary from the previous .
5. Mining Plus US Corporation have read Section §229.1302 and Section §229.1304 and this Technical Report Summary has been converted in compliance therewith.
6. As of the effective date of this Technical Report Summary, to the best of Mining Plus US Corporation knowledge, information and belief, the Technical Report Summary contains all scientific and technical information that is required to be disclosed to make the Technical Report Summary at the Initial Assessment level of reporting not misleading.

Effective Date: September 01, 2017
Signing Date: March 22, 2021
{SIGNED AND SEALED}
[Mining Plus US Corporation]

____
Mining Plus US Corporation

2.2.2 Site Visits

No site visit was taken by Mining Plus during, 2020-2021. The COVID-19 pandemic made travel to site during calendar years 2020 and 2021 (to date) impractical for the Mining Plus staff.

As a result, Mining Plus is providing the information and results of previous visits to site, including Donald Brown, CPEng, a former Senior Vice President for Projects for McEwen. Mr. Brown had responsibility for the Los Azules development and visited the Los Azules site three times in 2017, each time for an extended period. Mr. Brown had visited the proposed concentrate logistics route from Los Azules through to the Port of Coquimbo in Chile on three occasions in 2017 and has visited the alternative concentrate logistics route in Argentina from Los Azules to the rail-head on two occasions in 2017.

Jim Duff, P. Geol, former COO of Minera Andes and a part-time consultant to McEwen Mining, visited the site once in 2009, three times in each of 2010, 2011 and 2012 and most recently March 2013. Mr. Duff was COO of Minera Andes from March 2009 to January 2012, during which time he was responsible for exploration and engineering activities at Los Azules.

Mining Plus offers the above mentioned personal inspections to constitute a valid "current personal inspection" in accordance with S-K §229.1302.

2.3 Source of information

The information in this section was provided or developed by the registrant and used by Mining Plus along with other available data.

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2.4 Units of Measure & Glossary of Terms

Unless otherwise stated all units used in this Technical Report Summary are metric. Gold and silver assay values ("Au" and "Ag") are reported in grams of metal per tonne ("g/t Au") unless ounces per ton ("oz/T Au") are specifically stated. The USA Dollar (US$) is used throughout this Technical Report Summary unless otherwise specifically stated.

3 PROPERTY DESCRIPTION

3.1 Property Location, Country, Regional and Government Setting

The Los Azules Project is located in the Frontal Cordillera of Argentina near 31° 06' 25" south latitude and 70° 13' 25" west longitude in the western limits of San Juan Province, Calingasta Department, Argentina. It is approximately 6 km to the Chilean border as shown in Figure 3-1. Elevation ranges from 3,300 masl to 4,500 masl with moderate to high relief.

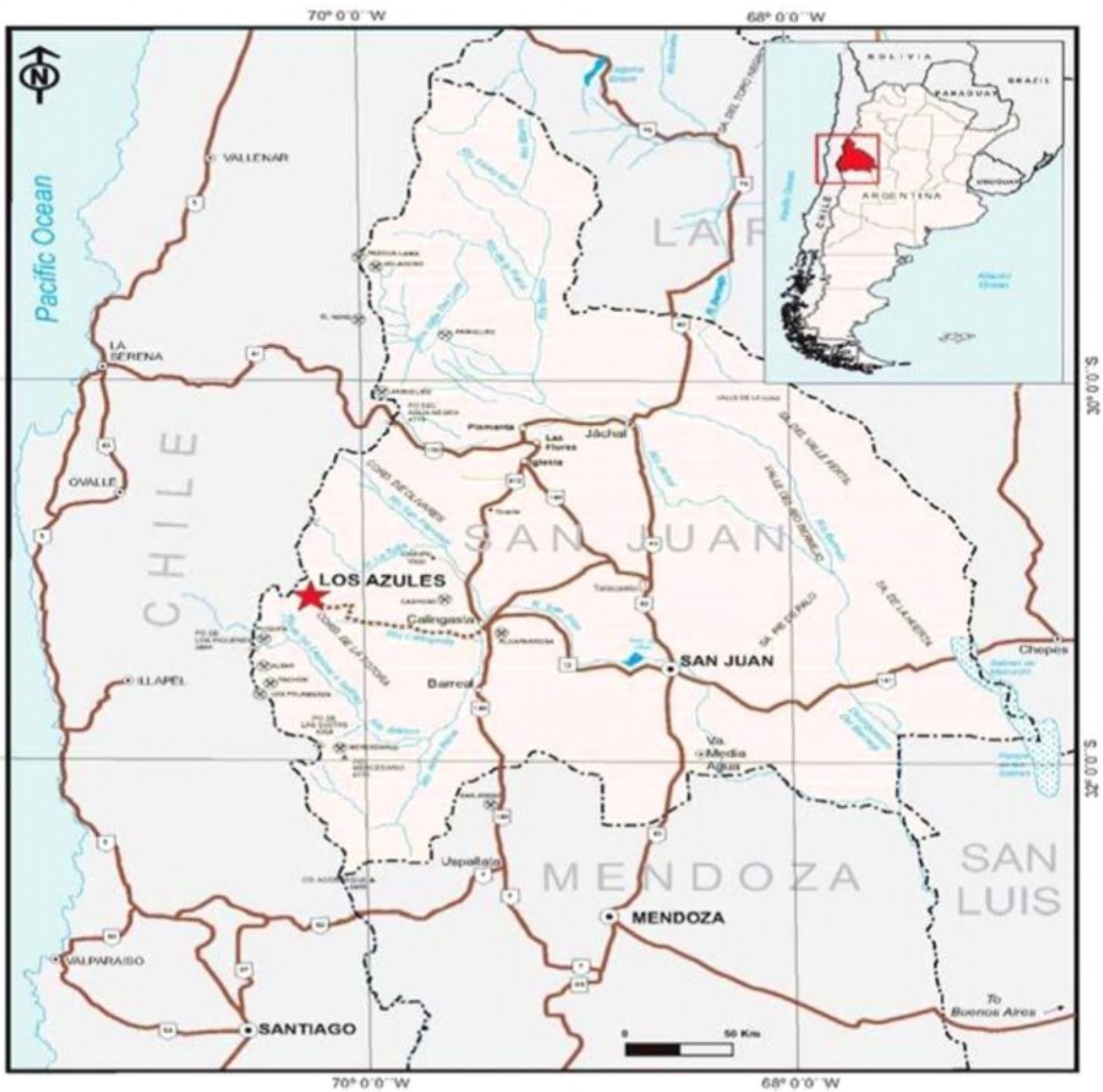

Figure 3-1: Project Location (Minera Andes 2009)

McEwen Mining controls approximately 32,700 ha of mining rights and 18,000 ha of surface rights in the area of the Los Azules project.

Aerial photography and global positioning were utilized to locate the property in the field; the coordinates of the corners of the property are established in the government documents granting the mining rights.

The laws, procedures and terminology regarding mineral title in Argentina differ considerably from those in the United States and in Canada. Mineral rights in Argentina are separate from surface ownership and are owned and administered by the provincial governments. The following summarizes some of the relevant provisions of the Argentine Mining Code and Argentinean mining law terminology to aid in understanding the McEwen Mining land holdings in Argentina.

The provinces are the owners of the natural resources located within their territories and each province retains the power to administer and regulate mineral rights according to the Federal Mining Code and supplemental provincial laws and regulations.

Surface rights are separate from mineral rights and they are treated separately under Argentine law. The Mining Code establishes that mining is in the public interest and the material surface owners cannot prevent the granting of mining rights and properties or commencement and/or continuity of mining activities on their property, but surface owners have a right to collect an indemnity as a consequence of the use of the land by the miner and the damages derived from mining activities. Land over which a mining concession has been granted is legally subject to different types of easements (e.g. right of way, occupation of land, use of water, etc.), provided that an indemnity is paid to the owner of such land.

Mineral rights are considered forms of real property and can be sold, leased or assigned to third parties on a commercial basis. “Cateos” (exploration permit) and “minas” (mining concession) can be forfeited if minimum work requirements are not performed or if annual payments are not made. Generally, notice and an opportunity to remedy defaults are provided to the owner of such rights.

Grants of mining rights, including water rights, are subject to the rights of prior users. Further, the mining code contains environmental and safety provisions administered by the provinces. Prior to conducting operations, applicants must submit an environmental impact report (“Informe de Impacto Ambiental” or IIA in Spanish) to the provincial mining authority describing the proposed operation and the methods to be used to prevent undue environmental damage. When the provincial mining authority approves the IIA it issues a permit in the form of an official declaration (“Declaratorio de Impacto Ambiental” or DIA in Spanish). The IIA must be updated every two years, with a report on the results of the protection measures taken. If protection measures are deemed inadequate, additional environmental protection may be required. Mine operators are liable for environmental damage. Violations of environmental standards may cause exploration or mining operations to be shut down but without prejudice to mining title.

3.2 Mineral Tenure, Agreement and Royalties

3.2.1 Surface Rights

According to Argentine law, mineral rights supersede the overlying surface rights and the holder of the latter is legally unable to impede access to the exploration or extraction of underlying mineralization. Fair compensation is provided to the surface rights holder for access and usage of the land in conjunction with exploration activities and mining operations. In January 2010 "Minera Andes", a company 100% owned by McEwen Mining Inc., purchased 18,000 ha of surface rights covering the Los Azules deposit and the associated surface facilities, as they are currently envisioned. The extent of surface rights and the proposed surface facilities are illustrated in the Los Azules General Arrangement in Figure 3-2.

3.2.2 Mineral Rights

The Project is comprised of properties (the "Properties") owned by Andes Corporación Minera S.A. (Andes Corp.), an Argentine subsidiary of McEwen Mining.

In 1994, Minera Andes S.A. (MASA), an Argentine subsidiary of Minera Andes, was granted the Cordon de Los Azules Cateo 545.957-D-94. This cateo was divided and converted into two MDs on October 17, 1998, known as Azul 1 and Azul 2. These MDs cover part of the southern portion of the Project. In 2009 MASA transferred these two MDs to Andes Corp. The central portion of the Project is covered by MD Mirta and the northern portion by Escorpio II, all owned by Andes Corp.

McEwen Mining, through one or more subsidiaries has made application to acquire or has acquired cateos and MDs in respect of the area surrounding the Project area. A list of those land holdings is detailed in Table 3-1 and shown on Figure 3-2. The size of the property covered by those tenements, once actually granted, however, may differ from those set out in Table 3-1.

Table 3-1: Minera Andes S.A. Mineral Claim Status

Name	File Number	Hectares (ha)	Claim Type
Principal Mineral Holdings			
Azul 1	520-0279-M98	2098	MD
Azul 2	520-0280-M98	1320	MD
Mirta	1124.0141-M-09	354	MD
Escorpio II	0154-C-96	1991	MD
Peripheral Mineral Holdings			
Azul 3	1124.121-A-06	167	MD
Azul Este	1124.186-A-07	2373	MD
Azul Norte	1124.668-M-07	132	MD

Name	File Number	Hectares (ha)	Claim Type
Azul 4	1124.473-M-08	903	MD
Escorpio I	0153-C-96	169	MD
Escorpio III	0155-C-96	199	MD
Escorpio IV	425.213-C-03	4412	MD
Totora	414.1324-C-05	505	MD
Totora II	520.496-C-99	1561	MD
Mercedes	0644-M-96	842	MD
Sofia	1124.157-A-07	3325	MD
Azul 5	1124.119-A-09	3001	MD
Marcela	1124.495-A-09	2953	MD
Agostina	1124.108-A-10	1184	MD
Rosario	1124.169-A-10	1768	MD
Gina	1124.168-A-10	1763	MD
Cecilia	1124.035-A-12	1702	MD

The extent of the inferred resource is indicated by the red outline in Figure 3-2.

During January 2012, the acquisition of Minera Andes Inc. by US Gold Corporation was completed. The combined business was renamed McEwen Mining Inc. All of Andes Corp.'s mining rights in the Province of San Juan are in good standing and have been duly registered, or are being duly registered.

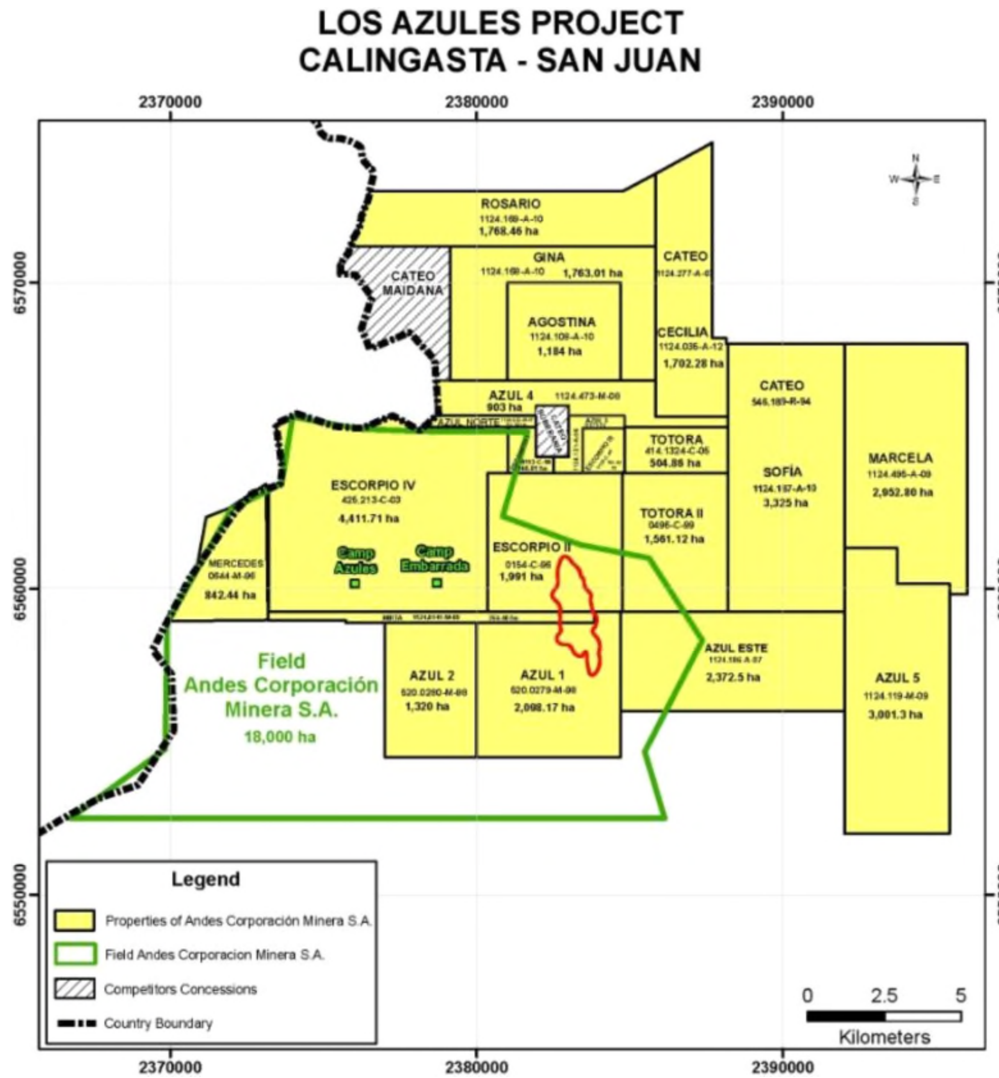

Figure 3-2: Map of Mineral Claims and Surface Ownership (McEwen 2017)

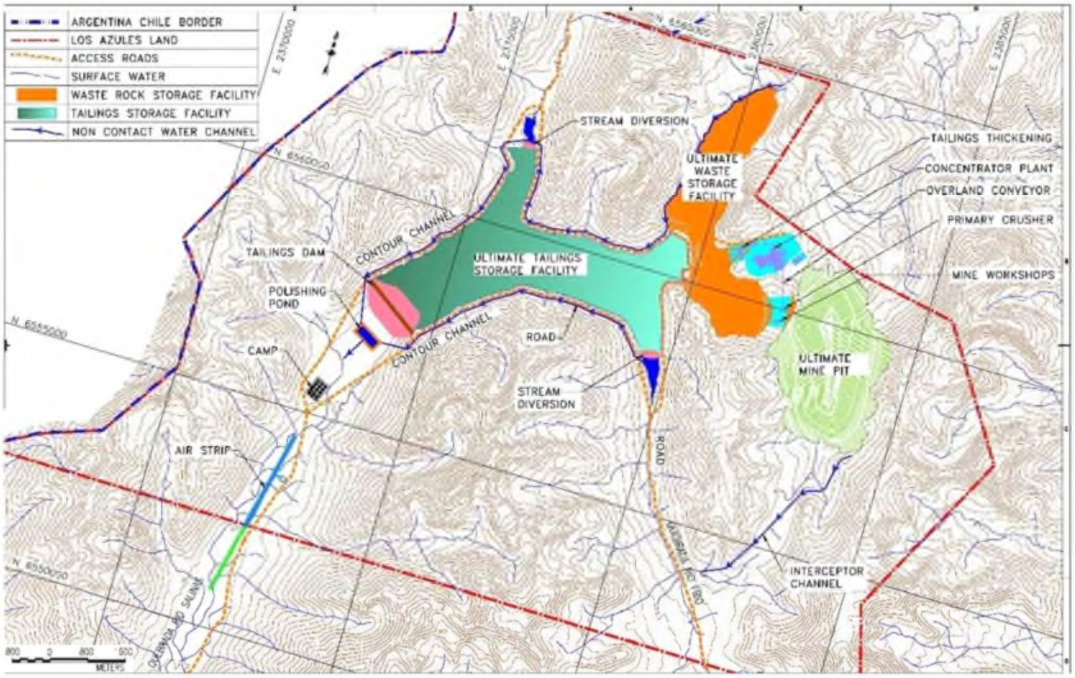

Figure 3-3: Map of project site area

The red dashed lines on Figure 3-3 indicate the limits of McEwen surface rights (land holdings). The western boundary of the property is the border with Chile.

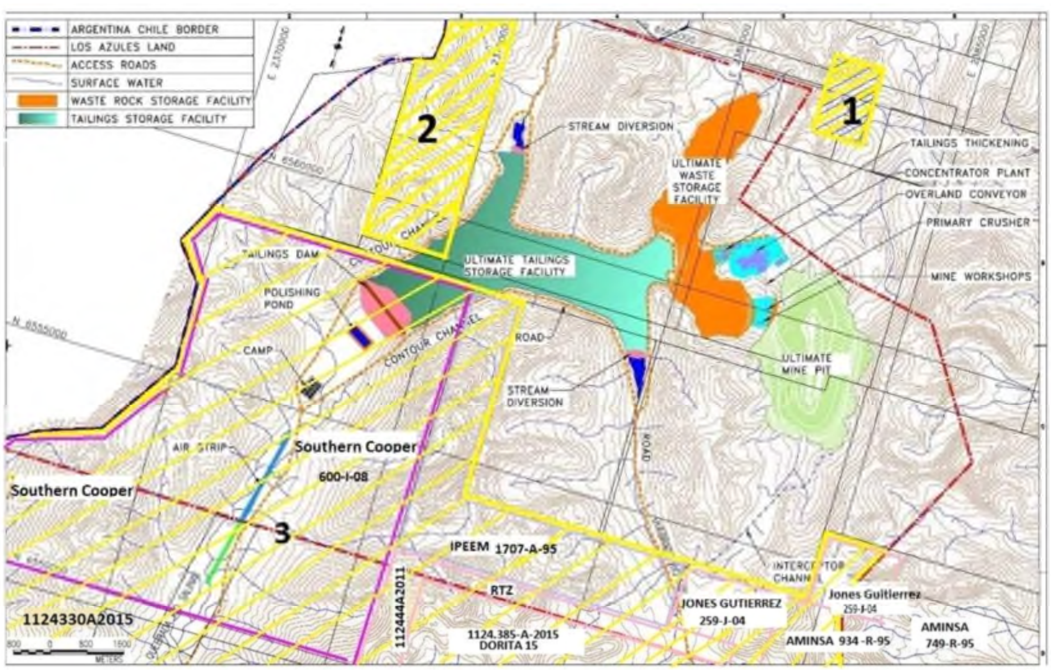

Figure 3-4: Map of mineral concessions within or adjacent to project area

Mineral concessions hatched in yellow on Figure 3-4 are not owned by McEwen at this time with the exception of the area labeled “2” which is owned by McEwen but has some boundary definition issues pending. None of the mineral concessions that are not owned by McEwen but that fall within the McEwen owned lands (surface rights) will have any impact upon the Los Azules Project development. At the Los Azules tailings storage facility McEwen has the surface rights which includes rights for superficial material extraction and dam development under Argentina law. The mining concession holder must demonstrate a resource development potential is affected by the tailings storage facility location for an issue to arise. If such an issue did arise Los Azules has other tailings storage facility solutions available.

3.2.3 Mining Royalties

There are no outstanding royalties, payments, or other agreements or encumbrances to which the property is subject other than a one-time $500,000 payment to be made to Hugo Bosque upon delivery of a feasibility study.

San Juan Province charges a three percent royalty based on “mine mouth value.” By definition, the three percent is charged on the value of the contained metal minus all costs associated with the extraction of the metals as far as the pit rim but not including crushing, processing or any administration costs.

In addition, the San Juan province has an unlegislated practice of negotiating a voluntary contribution to a trust fund (“fideicomiso” in Spanish) with mining operations that primarily produce gold, as long as the price of gold remains above US $1,000 per ounce. These contributions are intended to be used to finance infrastructure projects in the province, especially in the local area impacted by the mining operation.

TNR holds a 0.4% NSR on the entire project.

3.3 Environmental Liabilities and Other Permitting Requirements

At the present time, there are no known environmental liabilities at the Project site, since it is an exploration project. Reclamation activities are comprised of re-grading the drill pad sites, access roads at site and some portions of the main access road to the Project site.

There are two principal activities that have environmental impacts in the Project area. One is the overgrazing of pasture lands and the second is access roads and drill platforms on the property.

Seasonal grazing by “veranadas” from Chile takes place on sparse foraging resources and wetlands in the Project area. The “veranadas” with large animal herds (primarily goats) have affected:

- Vegetation coverage on the grazing land.
- Erosion of the borders of streams.
- The surface drainage capacity due to compaction.

There are numerous previously existing excavation areas for exploration roads in the Project and surrounding areas, including drilling platforms.

There are five main legal requirements that impact the Project during the different stages of development: environmental regulation, mining regulation, hazardous waste regulation, health and safety regulation and the Mining Investment Law.

Environmental regulations applicable to Mining have essentially four sources:

(i) environmental specific regulations applicable to mining arising from the Mining Code;

(ii) environmental laws issued by Federal Congress as MEPSL applicable to all activities including mining,

(iii) local environmental regulations issued by the provinces the MEPSL and applicable to all activities including mining;

(iv) additional local/provincial environmental legislation as long as this does not contradict or is less stringent than a MEPSL.

Lack of compliance or other infringement of the environmental obligation may result in penalties ranging from fines to suspension of works or closure of the mine, but without effect upon title or ownership of the mining concession.

The acquisition, exploitation and use of minerals are regulated by the Mining Code (National Law 1919) and Provincial Law 7199. In addition, the province of San Juan has adopted National Law 24585, environmental protection for mining activities.

Other regulations affecting the Project are related to Hazardous Waste regulations set forth in National Law 24051, adopted by the province of San Juan. This law regulates the generation, handling, transportation, treatment and disposal of hazardous waste materials.

Health and safety regulations require that a mining company must hire an Occupational Hazard Insurer (ART, as per the acronym in Spanish) in order to identify and evaluate occupational hazards and to design preventive and emergency programs. For the mining sector, companies must give priority to riskier occupational activities and employee training.

Mining Investment Law 240196 includes article 23, which relates to the preservation of the environment. In order to prevent and correct any impacts to the environment due to mining activities, companies may establish a special accounting provision for that purpose. The annual amount shall be left to the criterion of the company, but shall be considered deductible for income tax purposes up to a sum equivalent to five percent of the operational costs of material extraction.

In 2010 Argentina passed Federal Legislation to protect its water resources contained in glaciers prohibiting activities which could affect these resources.

It mandates cataloguing all glaciers in the territory and their status of conservation or impact.

The legislation created a conflict with regard to federal versus provincial (state) ownership of the natural resources which sits now in front of the Supreme Court.

Following suit In July 2010, the Province of San Juan enacted provincial law 8144, “Glacier Protection Law”, in a compromise with Federal Law, which, among other things, restricts disturbance of glaciers by mining activities. In addition, the federal Congress issued a MESPL on the protection of glaciers and periglacial environment (Law 26639), which is different from the provincial law.

Since 2011, several independent studies have been conducted by the Company.

- No uncovered, or “white glaciers” ice glaciers, have been identified on Los Azules property; however, several small “rock glaciers” have been mapped onsite.
- The company believes it is in full compliance with the law, not having disturbed any glaciers that could be deemed a water resource.
- The provincial inventory has been completed with no rock glaciers having been found to be affected by exploration activities at Los Azules.
- None of these rock glaciers will be impacted by the company’s future exploration activities or the development of a mining project.
- The water storage and watershed contribution from any rock glaciers mapped will be evaluated as part of the Environmental Baseline Studies required for permitting.

The Los Azules exploration area was audited by a multi-agency environmental audit team in March 2013. There were no adverse findings and the audit results indicated that McEwen Mining is in full compliance in all areas protected by the provincial law.

In 2016 the Provincial government started to catalogue the glaciers present in the provincial territory to determine if any impacts have taken place or if any glaciers could impede mineral development in the province.

Between 2007 – 2012 Ausenco Vector has monitored and collected environmental baseline data on surface and groundwater volumes and quality, soils, flora and fauna, archeology and weather. Ausenco Vector has also studied the boggy wetlands, locally referred to as “Vegas”.

Ausenco Vector implemented a plan to relocate or compensate the Vegas where they may be impacted by the project. The plan did not produce satisfactory results. Andes Corporación Minera S.A. requested to the provincial environmental authority to propose an alternative compensation criteria however there has not been any response from the authority to date.

Dr. Andres Meglioli, of Mountain Pass LLC, has been monitoring cryogenic landforms in the project area since 2011.

The environmental baseline data on surface and groundwater volumes and quality as well as the flora and fauna data collection and additional studies on the vegas (including a compensation proposal) have been conducted since 2013 by the Insituto de Investigaciones Hidraulicas, a research center of the National University of San Juan, through their senior biologists Juan C. Acosta and Hector J. Villavicencio. These are ongoing studies contracted by

McEwen. After each drilling season, a report is prepared by the consultants and issued to McEwen that summarizes the work completed through the season.

McEwen in conjunction with consultants and specialists have commenced full year baseline studies for fauna, flora and hydrology through all seasons. Geotechnical studies such as water permeability tests are also scheduled to be performed to enhance the existing data set. However, no additional work has been submitted to governmental authorities for review and/or approval as of the effective date.

3.4 Mineral and Surface Purchase Agreements

In January 2010, Andes Corp. purchased 18,000 ha of surface rights in the Los Azules area. The purchase of this property, located near the Argentina/Chile border region, was subject to governmental approval. Such approval was granted on August 31, 2010, by Resolution #907 of the Ministerio del Interior. Figure 3-5 shows the purchased surface rights. The surface rights currently held by Andes Corp cover the area currently being explored by McEwen Mining. The area represented by the surface rights are also considered to be more material than adequate for potential development of the mine, associated processing facilities and infrastructure considered in this technical report.

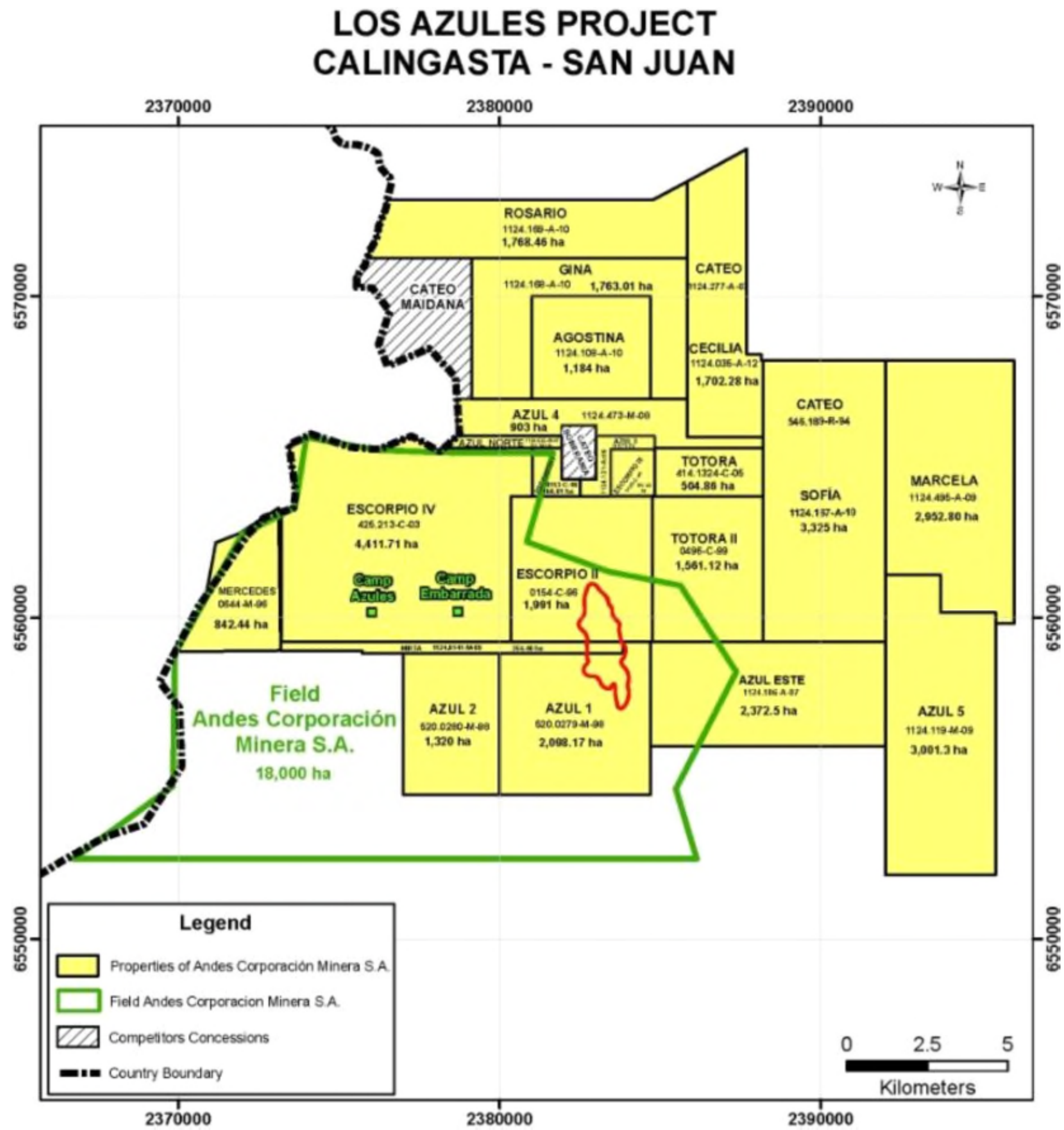

Figure 3-5: Map of Mineral Claims and Surface Ownership (McEwen 2017)

4 ACCESSIBILITY, CLIMATE, PHYSIOGRAPHY, LOCAL RESOURCES, AND INFRASTRUCTURE

4.1 Accessibility

The Los Azules porphyry copper deposit is approximately 6 km to the east of the border between Chile and Argentina. The Project is west-north-west of Calingasta and accessed by 120 km of unimproved dirt road with eight river crossings and two mountain passes, which are both above 4,100 masl. Calingasta is located west of the city of San Juan along Route 12. The last 95 km of the 120 km dirt road to the Project was constructed by Battle Mountain Gold, prior to which access was by mules. The current driving time from Calingasta to the Project site is approximately five hours. Without snow clearing the road generally becomes impassable for at least six months each year between May and November.

Figure 4-1 below illustrates the existing Access Road route between Los Azules and Calingasta. Other routes are under evaluation including a longer southern route to Calingasta and a western route from Los Azules into Chile, however none of these other routes are formed or passable at this time.

Figure 4-1: Map of Surrounding Region and Site Access Routes

4.2 Topography, Elevation, Vegetation and Climate

Typically, the field season at Los Azules starts in December and runs through to the end of April. In some years, however, drilling has continued through mid-May, and depending upon the winter snow pack conditions, it is possible in some years to access the site as early as October.

A weather station was installed near the camp site in mid-2010 in order to obtain local climatic information. The station is powered by a solar panel and collects meteorological parameters at 30 minute intervals. The station was manufactured by Coastal Environmental and is built around the ZENO® 3200 datalogger. Data communication is via an iridium satellite modem. Data is downloaded using a companion base station located in the United States. The weather station uses a stand-alone tower with sensors to obtain the following parameters:

- Wind direction (degrees).
- Wind speed (m/s).
- Wind gust (m/s).
- Standard deviation of wind direction (degrees).
- Air temperature (°C).
- Relative humidity (%).
- Barometric pressure (mPa).
- SW solar radiation (W/m2).
- Rain intensity (mm/min).
- Accumulative precipitation (mm) in precipitation bucket.
- Contents of precipitation bucket (mm3).
- Snow depth (mm) (installed Q2 2013).

Considering the types of recorded parameters, the Los Azules meteorological station meets the World Meteorological Organization (WMO) standards for a Principal Climatological Station.

Figure 4-2, Figure 4-3 and Figure 4-4 which were obtained from the site meteorological station, present monthly weather data for temperature, total precipitation and wind speed. Snowfall accumulations are recorded by the station as snow water equivalent. Snowfall in the Project area is relatively light, although heavy winter accumulations are common on the two high passes on the access road.

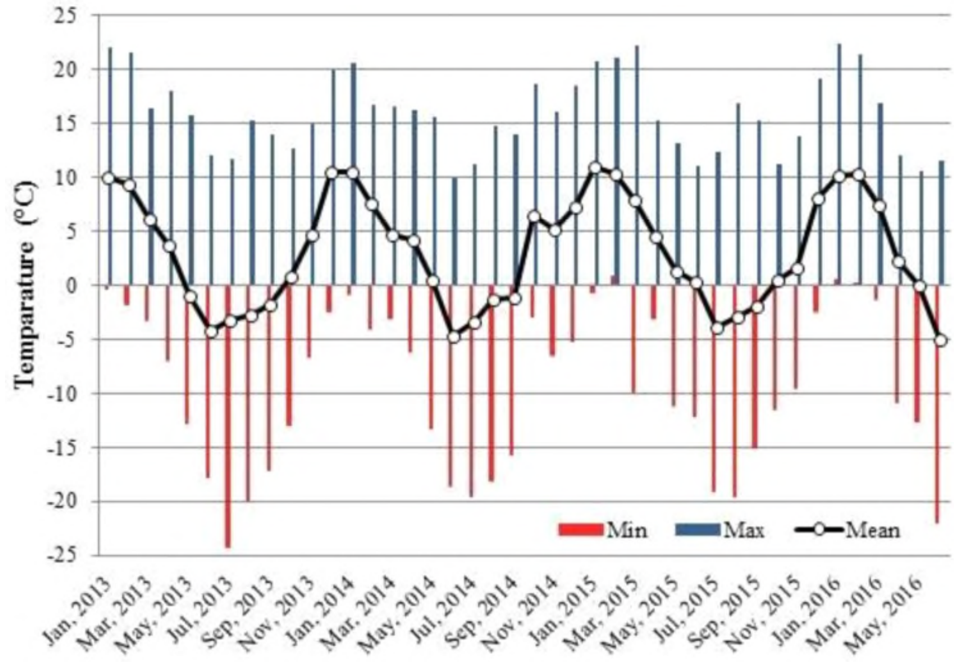

Figure 4-2: Monthly Temperature Data (McEwen 2016)

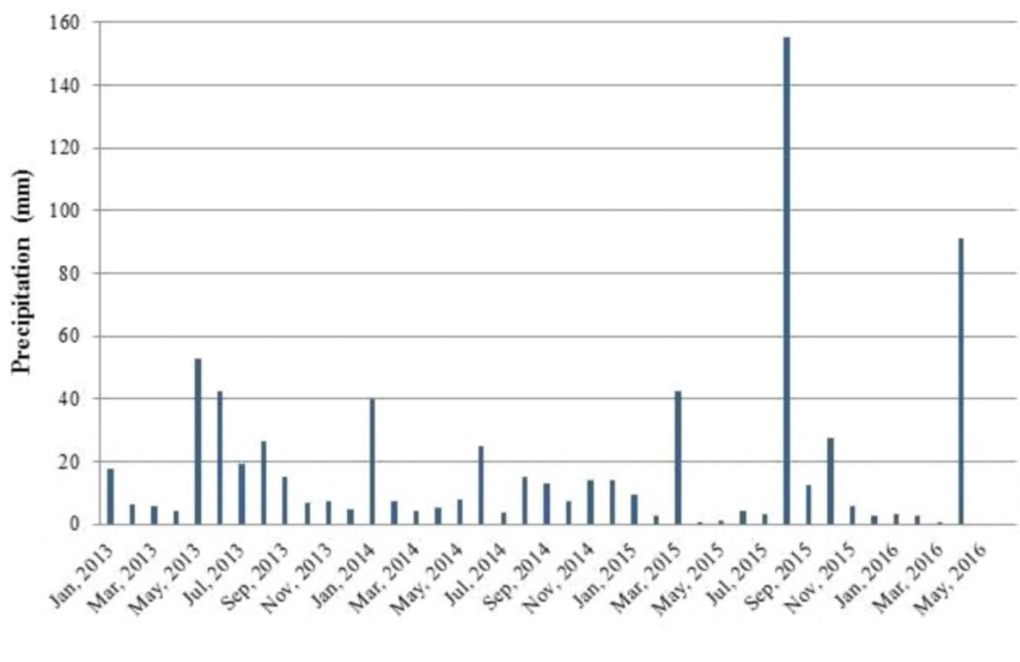

Figure 4-3: Monthly Total Precipitation Data (McEwen 2016)

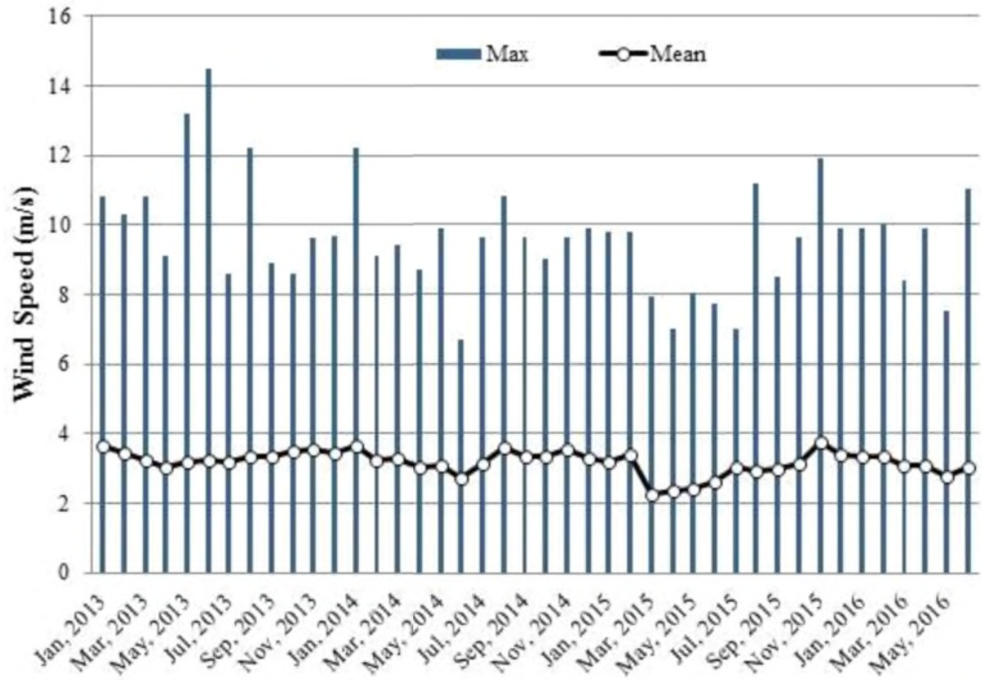

Figure 4-4: Monthly Wind Speed Data (McEwen 2016)

The Project is centered on La Ballena ridge (English translation: the whale), a low NNW-SSE trending ridge. The Project area is rugged and ranges in elevation from 3,500 to nearly 4,500 masl. Vegetation is sparse and is virtually absent at higher elevations. A photograph of the La Ballena ridge is shown in Figure 4-5.

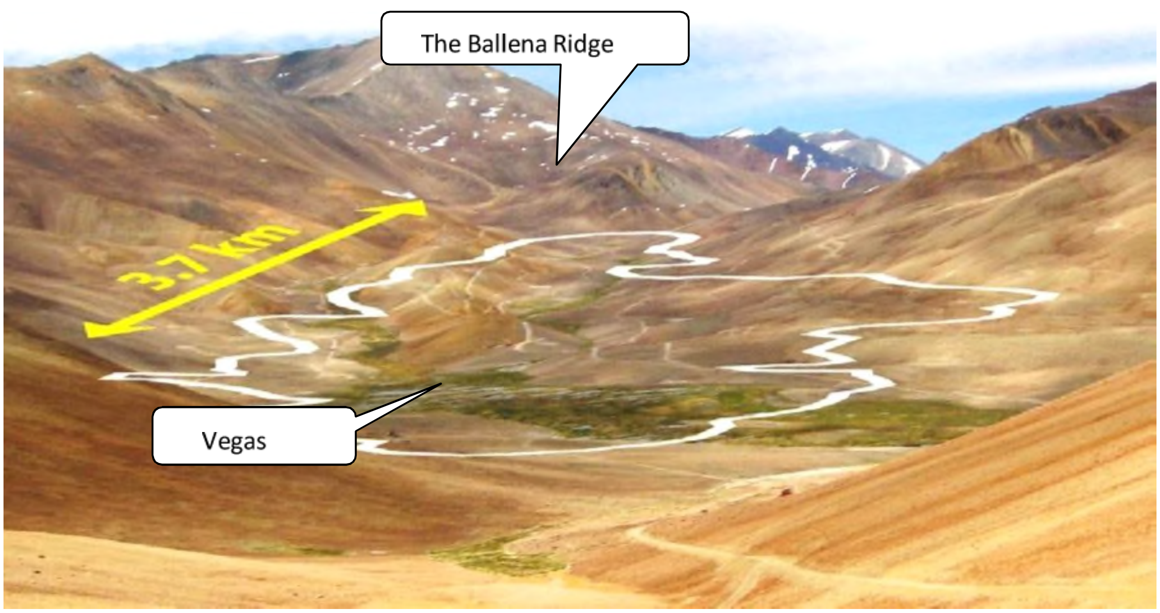

Figure 4-5: Los Azules deposit, looking south towards the Ballena Ridge in the centre distance

Long, narrow vegetated areas ("vegas" in Spanish) occupy the valley floors on either side of La Ballena. These vegas are fed by spring-water and snowmelt, but apparently also reflect the groundwater regime as well, with standing water levels at approximately 3,600 m in elevation. Springs are noted at approximately 3,790 m in elevation upstream of the vegas along the west side of La Ballena ridge. Groundwater-fed springs and marshes are also noted around the range to the west of La Ballena between 3,800 and 3,900 m in elevation and along the eastern flank of the Cordillera de la Totora. These vegas feed the westerly flowing Rio La Embarrada, which joins the Rio Frio to the west befmineralized material turning south into the Rio de las Salinas, a main tributary to the San Juan River.

Deposits of glacial debris (morainal materials) and scree account for much of the surface area covering the Los Azules deposit and adjacent mountainsides. In the area of the deposit, these materials locally exceed 60 m in thickness, but on La Ballena ridge, the cover is from up to 10 m.

There are no covered or uncovered "white glaciers" (classic ice glaciers) within the Project area, although there are several small rock glaciers near the Project area but these will not be impacted by McEwen Mining's exploration or Project development activities.

4.3 Local Infrastructure and Resources

The Project area is remote and no infrastructure is present in the Project area. There are no nearby towns and/or settlements. Exploration operations are carried out by means of two man camps within the Project development area.

Historically, Villa Calingasta was a mining town whose economy was supported by the mining of alum, which is used in water purification. The United Nations Development Program (UNDP) and other national and international agencies have established programs to help remediate certain environmental liabilities associated with this activity.

The current principal economic activity of the area is agriculture with fruit trees (apple and walnut) as the principal activity, in addition to employment in the public sector. Lesser activities include the following:

- Timber and vegetables.
- Wood manufacturing activities.
- Cider manufacturing.
- Tourism (hotels, restaurants).
- Commercial activities (shops).
- Public service (health, safety, education).

According to the Argentine National Census Bureau (INDEC) 2010 census, the population of the San Juan Province(county) was 8,453 people.

Hugo Gil Figueroa & Asociados (Hugo Gil) of Buenos Aires completed a scoping level power supply study in July 2012 and an update to this study was prepared in July 2013 using revised estimated electrical loads and schedule need dates. An update was provided by the same consultant describing the actual status of the power supply including a realistic overview of the future possibilities regarding the latest regulations established by the new administration as of December 2015 and the alternative of importing electricity from Chile.

Surface water is available on the property in adequate amounts for McEwen Mining's exploration activities. Preliminary hydrological evaluations conducted by Ausenco Vector have indicated that there are sufficient sources of water to operate the Los Azules mining and processing facilities and to provide the necessary fresh water needed to house employees at the mine site.

5 HISTORY

5.1 Historical Exploration and Drill Programs

In 1994, Minera Andes, through its subsidiary Minera Andes S.A. (MASA), acquired lands in the southern portion of the Los Azules area. Battle Mountain Gold Company (BMG), acquired lands immediately to the north through an option from Solitario Argentina S.A. (SASA). For the next couple of years, both companies independently explored for gold on their respective land holdings.

In 1998, a new access road was constructed by BMG while it conducted airborne geophysical surveys, mapping, trenching and drilled several reverse circulation (RC) holes. A large hydrothermal alteration zone associated with dacite porphyry intrusions and stockwork structural zones was recognized in the Project area and Minera Andes signed a Letter of Intent with BMG to form a joint venture to explored the combined land package.

In 1999, Minera Andes and BMG signed a definitive joint venture agreement. BMG subsequently drilled additional RC holes and porphyry copper mineralization was intersected close to the property boundary; however, no drilling was done on the Minera Andes properties.

In 2000, BMG merged with Newmont Mining Corporation (NMC). No further work was done by BMG/NMC and the joint venture was allowed to dissolve without BMG earning any interest in the Minera Andes or Solitario lands. At that time, capitalizing on a surveying error, Mr Hugo Bosque, an attorney from San Juan, acquired a small strip of land between the Minera Andes and Solitario lands.

In 2003, MIM Argentina S.A. (MIM) optioned the Bosque and Solitario lands and began exploration work. Independently Minera Andes began exploration on its own lands at Los Azules.

In 2005, a Letter of Intent was drafted between Minera Andes and Xstrata Copper (successor to MIM) for earn-in rights on the combined land package. More exploration occurred over the next couple of years.

On November 2, 2007, Minera Andes Inc. entered into an Option Agreement with MIM-Xstrata whereby the exclusive right was granted to Minera Andes to explore and evaluate the area called “Los Azules” which included several properties owned by MIM-Xstrata as defined in the Option Agreement.

On May 15, 2009, the parties to the Option Agreement, together with Andes Corp. and Los Azules Mining, Inc. (LAMI), each wholly-owned subsidiaries of Minera Andes, signed an Assignment and Amending Agreement whereby Minera Andes properties “Azul 1” and

“Azul 2” were transferred to Andes Corp. together with the right to acquire from MIM-Xstrata 100% interest in and to the Los Azules properties (as defined in the Option Agreement). In addition, Minera Andes S.A. assigned and transferred to LAMI all of MASA’s right, title, benefit and interest in, to and under the Option Agreement (as defined in the Assignment and Amending Agreement).

On May 29, 2009, Los Azules Mining Inc., exercised the option, by delivery of an Earn-in Notice (pursuant to the Option Agreement as amended by the Assignment and Amending Agreement) to acquire 100 percent interest in Los Azules properties (as defined in the Option Agreement). As a consequence, MIM-Xstrata subsequently transferred to Andes Corp. all of its properties located in the Los Azules area.

On September 30, 2009, MIM-Xstrata elected not to exercise its option to acquire a 51% interest in the Project and has no remaining interests in Los Azules.

In January 2012, Minera Andes Inc., was acquired by US Gold Corporation and the combined company was subsequently renamed McEwen Mining.

As of 2017 McEwen Mining continues to hold 100% of the Los Azules development and associated land holdings and mineral concessions and easements and continues to perform seasonal infill drilling and studies with a view to eventual project development

5.2 Historical Resource and Reserve Estimates

No historical resources are registered in this Initial Assessment.

A previous comparison with the Estimation of Resources in 2013 is located in Appendix C : comparison with previous resource estimated.

5.3 Historical Production

No production is registered in this Initial Assessment.

6 GEOLOGICAL SETTING AND MINERALIZATION AND DEPOSIT

This section relies heavily on geological studies conducted by Richard Sillitoe (2014) and Vázquez (2015) as well as other references cited in the section.

6.1 Regional Geology

Los Azules is a porphyry copper deposit located in western San Juan Province in west- central Argentina. This region is characterized by a series of north-south elongated mountain ranges that rise in altitude from east to west to form the rugged Andean Cordillera along the border between Argentina and Chile. Los Azules lies within the highest altitude Cordillera Principal at an elevation of about 3,700 masl (Figure 6-1).

The Cordillera Principal is composed of strongly folded, faulted and elevated Paleozoic- Mesozoic sedimentary and volcanic lithologies (Gondwanide orogeny) overlain by extensive Upper Miocene ignimbrites (Andean orogeny) as shown in Figure 6-2. Eocene to early Miocene volcaniclastic strata in the region accumulated in an extensional basin followed by plutonic intrusion and contractional deformation from 19 million years (My) to 16 My. These units were overlain and intruded by 16 My to 7 My volcanic flows and pyroclastic units with comagmatic 12 My to 8 My plutons and porphyry systems. This was followed by a compressional event at 8 My to 5 My with important crustal shortening, thickening, and regional uplift (Sillitoe and Perello, 2005). Figure 6-2 also shows the relative locations of other major mining projects in the area.

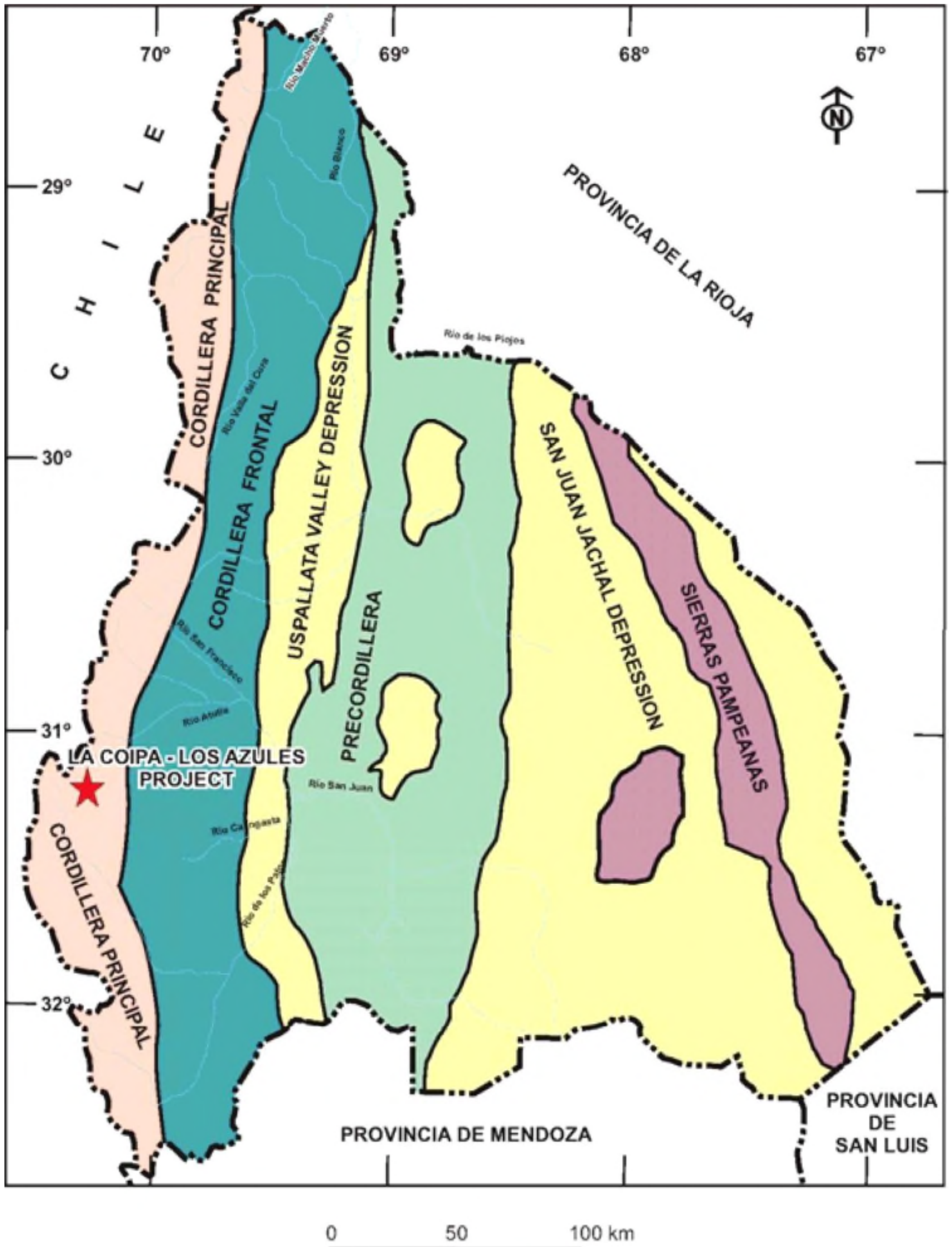

Figure 6-1: Physiographic features of San Juan Province, Argentina (Rojas 2010)

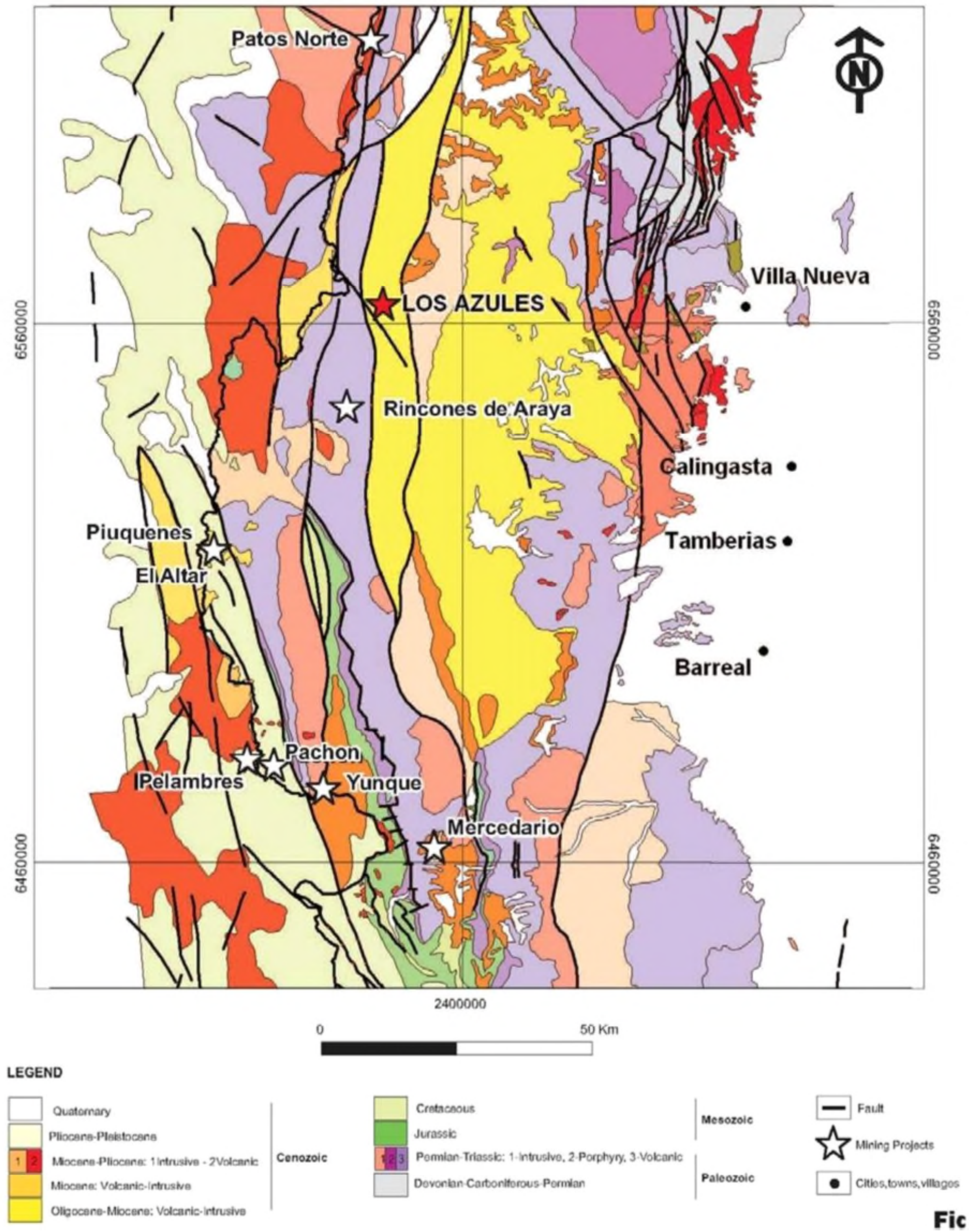

Figure 6-2: Regional geology of the Andean Cordillera of Argentina and Chile (Rojas 2010)

A stratigraphic column is shown in Figure 6.3 below.

ERA	PERIOD	EPOCH	LITHOSTRATIGRAPHIC UNIT	LITHOLOGY	MINERAL DEPOSIT	INTRUSIVES	DESCRIPTION
CENOZOIC	QUATERNARY		QUATERNARY DEPOSITS				Gravels and unconsolidated sands of glacial and fluvial origin
	PALEOGENE-NEOGENE		CENOZOIC SEQUENCE			*Diorite, quartz diorite and monzodiorite, **porphyry dikes with rhyodacitic composition, ***porphyry dikes with dacitic composition	Interlayered volcanic and volcaniclastic rocks intruded by igneous rocks
MESOZOIC	CRETACEOUS	LATE	CRISTO REDENTOR FORMATION				Pyroclastic and volcaniclastic rocks
			JURASSIC FORMATION				Volcanic and pyroclastic rocks
	JURASSIC	LATE	TORDILLOS FORMATION				Conglomerates and sandstones
		MIDDLE	LA MANGA FORMATION				Calcareous rocks.
	TRIASSIC		PRE-JURASSIC BASEMENT – CHOIYOI GROUP				Its lower part is comprised by andesites and dacite; and its upper part consists of rhyolites.
PALEOZOIC	PERMIAN				Los Azules		
	PRE-PERMIAN ?		PRE-JURASSIC BASEMENT – BASEMENT 1				The unit consists of clastic sedimentary rocks such as sandstone (arkose) and black shales interlayered with pyroclastic rocks.

** The orange intrusion corresponds to the pre-mineral pluton dated from the Miocene. This pluton is calc-alkaline of different composition phases, from which diorite, quartz diorite and monzodiorite are the most abundant ones.*

*** The dark red intrusion represents the early mineralized porphyry dikes, which are rhyodacitic and abundant in type-A quartz veinlets. These dykes were dated at 9.2 My by Zurcher (2008)*

**** The light red intrusion represents the set of sub-parallel set of porphyry dikes that intruded the pre-mineral pluton. These dikes have a dacitic composition and were dated by Zurcher at 8.2 My. These dykes have low content of type-A quartz veinlets.*

Figure 6-3. Stratigraphic column of Los Azules geology.

6.2 Local and Property Geology

Los Azules has been geologically mapped on at least four separate occasions (Rojas, 2007; Zurcher, 2009; Almandoz, 2010; Pratt, 2010). The resulting geological maps and interpretations are in general agreement but differ in detail, and Jemielita (2010) reconciled most of the differences. The entire area comprising the Los Azules deposit is covered by thick scree or valley fill, so none of the rocks or structures are exposed in outcrop, although some near-surface exposures have been exposed in shallow trenching at the crest of the La Ballena ridge. Consequently, the interpretation of the structures and intrusive bodies is based almost entirely upon drill hole data.

In many respects the Los Azules deposit is a classic Andean-style porphyry copper deposit. In the bedrock below the surface cover a barren leached zone overlies a zone of secondary supergene enrichment of variable copper grades and thickness, and primary hypogene mineralization extends to at least 1,000 m below the present surface. The Los Azules hydrothermal alteration system is at least 5 km long and 4 km wide and is elongated in a NNW direction along a major structural corridor. The system disappears below volcanic cover to the north, so the ultimate extent is unknown. The altered zone surrounds the Los Azules deposit, which is approximately 4 km long by 2.5 km wide. The limits of the mineralization along strike and at depth have not been entirely constrained by drilling. In fact, almost all holes in the core resource area have been terminated in mineralization that exceeds the cut- off grade of 0.20% Cu.

Hypogene Minerals include chalcopyrite, lesser bornite, chalcocite-digenite, idaite and trace molybdenite, magnetite and lesser hematite, usually deposited on igneous mafic minerals. Chalcopyrite is the most important hypogene copper mineral in the upper levels of the deposit, and hypogene bornite appears at deeper levels together with chalcopyrite. Copper sulfides rarely exceed 2% to 3% of rock volume. Intervals of 0.1% to 0.35% copper are common in hypogene mineralization. Silver (approximately 1 gram/tonne), anomalous gold (up to approximately 150 parts per billion) and molybdenum (up to approximately 600 parts per million) are reported in some intersections.

Circulation of meteoric ground water leached primary sulfides (mainly pyrite and chalcopyrite) from the host rocks over the past several million years, and the leached copper was redeposited below the water table in a sub-horizontal zone, or blanket, of supergene enrichment as secondary chalcocite and covellite. The intensity of secondary enrichment diminishes with depth, except along major structures where it may extend to great depth.

Starting at the boundary between the barren leached zone and the supergene mineralization, secondary enrichment mineralization gradually transitions to predominately hypogene mineralization at depth.

Sillitoe (2014) examined about 9,000 m (approximately 25%) of the available drill core and proposed a revised geologic interpretation for Los Azules, which is shown in Figure 6-4.

Sillitoe's interpretive model has features in common with the giant Río Blanco-Los Bronces and Los Pelambres deposits in Chile; both are part of the same Miocene-Pliocene porphyry copper belt as Los Azules. Vázquez (2015) subsequently relogged 44,000 m from 98 drill holes representing essentially all of the drill core available at that time. Vázquez confirmed Sillitoe's interpretation, and he also refined the temporal sequence and spatial distribution of distinct phases of alteration and mineralization.

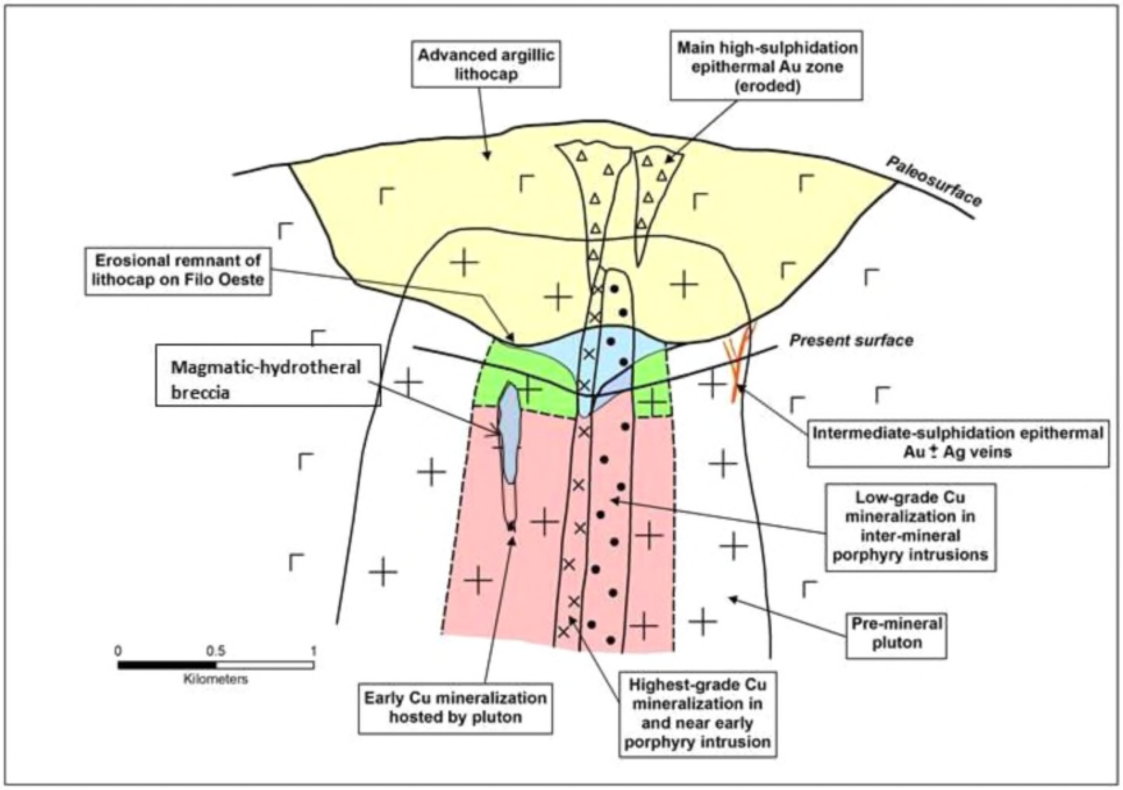

Figure 6-4: Model for Los Azules (pink: potassic alteration, green: chloritic alteration, blue: sericitic alteration, yellow: advanced argillic lithocap), (Sillitoe, 2014)

Sillitoe recognized the presence and importance of an early mineralized porphyry dike phase of igneous intrusion. Much of the hypogene mineralization as well as the supergene mineralization is associated with this phase; later dikes are not as well mineralized. Sillitoe referred to the later dikes as "inter-mineral" stage dikes.

Vásquez established the following sequence of igneous and hydrothermal events at Los Azules:

1. Intrusion of pre-mineral dioritic stock (or pluton).
2. Pervasive chlorite-magnetite alteration accompanied by chalcopyrite mineralization in the upper levels of the pluton grading into potassic alteration with chalcopyrite and bornite mineralization at depth.
3. Intrusion of the early mineralized porphyry dike phase.
4. Intrusion of the later "inter-mineral" phase porphyry dikes and formation of magmatic- hydrothermal breccia bodies.
5. Late sericite alteration accompanied by pyrite and chalcopyrite.
6. Formation of erratic quartz veins containing base and precious metals.
7. Supergene enrichment.

Figure 6-5 shows a geological map of the area of Los Azules.

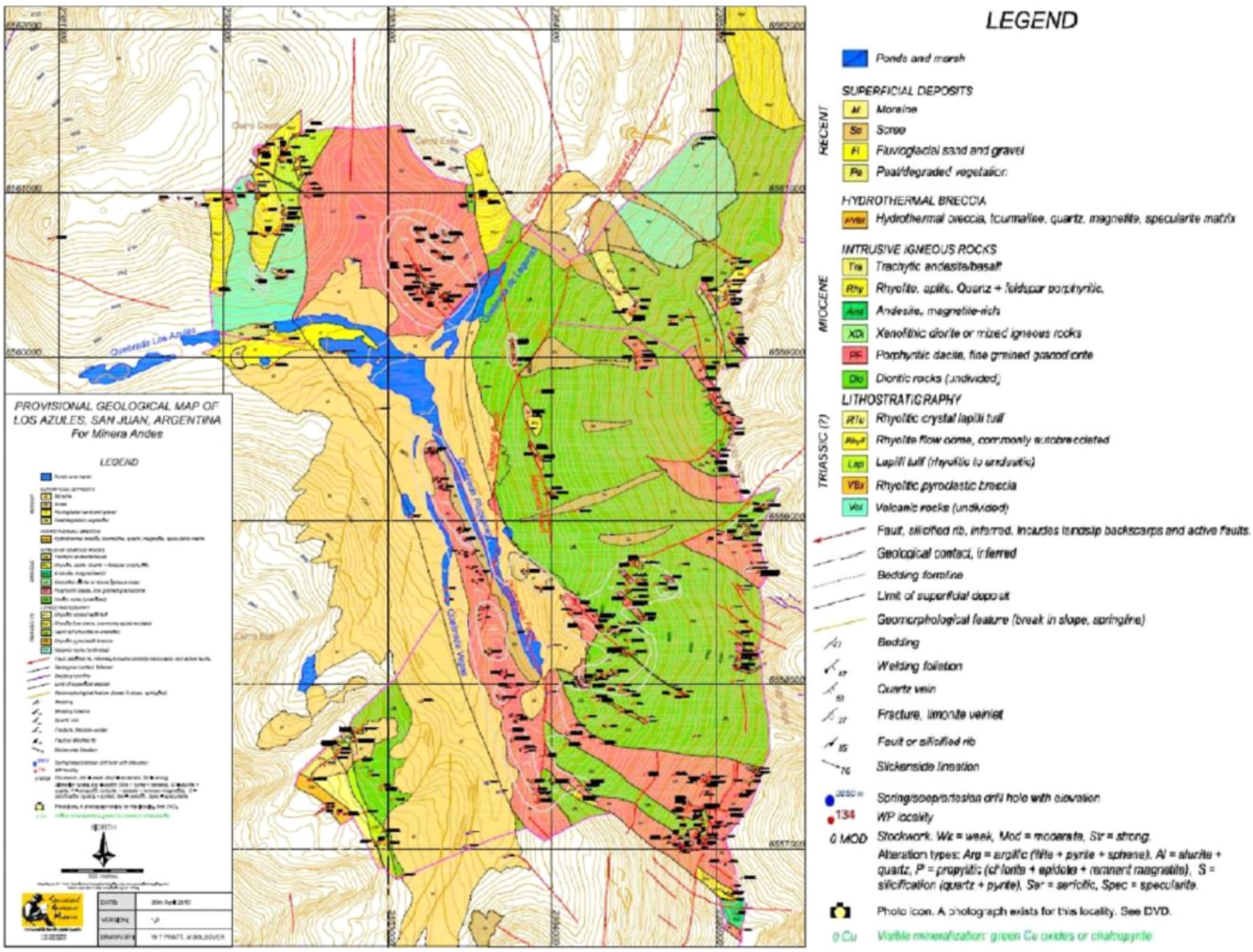

Figure 6-5: Geologic map of Los Azules (Pratt and Bolsover 2010)

6.3 Mineralization

Battle Mountain Gold explored Los Azules during 1998-1999 for gold and did three drill holes in altered pyroclastic volcanic rocks in a strongly pyrite-mineralized zone at La Hoya in the extreme northwest of the area. The company could have been attracted by hydrothermal breccias with associated kaolinite-illite-dickite-quartz- alunite alteration that are reported in volcanic lithologies intruded by small intrusions and dikes of feldspar porphyry in the Cerros Centrales (Cerro Oeste) area.

Indications of potential gold-silver mineralization around the Los Azules porphyry copper system include late-stage, intermediate-sulfidation epithermal quartz veins described by Pratt (2010). These veins are mainly quartz (with minor sphalerite and galena). A variety of precious metals deposits commonly occur peripheral to many porphyry copper systems, but the district around Los Azules has not been systematically explored for such mineralization.

The existence of a thick leached cap and supergene chalcocite blanket at Los Azules indicates that oxidation, dissolution, vertical transportation and redeposition of copper occurred in the system. Copper may also have been transported laterally away from the deposit and redeposited to form so-called "exotic" copper mineralization (Sillitoe, 2010). No exploration for this style of mineralization has been undertaken in the vicinity of Los Azules.

6.4 **Deposit Types**

Los Azules is located within the Central Chile segment (400 km-long) of the Miocene-early Pliocene porphyry copper belt (6,000 km-long) of the north and Central Andes as shown in Figure 6-6. The figure also shows locations of the major porphyry copper and related epithermal deposits, limits of the porphyry copper belt and permissive northwest-trending structural corridors that influence the location of mineralization along the porphyry belt.

Porphyry copper deposits in this sub-belt are 12 to 4 My in age and include the world-class Los Pelambres (Cu-Mo), Rio Blanco-Los Bronces (Cu-Mo) and El Teniente (Cu-Mo) porphyry deposits, the Maracunga belt porphyries (Cu-Au) in Chile and El Pachón (Cu) and Bajo de la Alumbrera (Cu-Au) in Argentina, as well as numerous other porphyry and related deposits (Sillitoe and Perello, 2005).

Mineralization at Los Azules is Andean-Cordilleran, late Miocene, (quartz-) diorite-hosted, oxidized porphyry copper style with a well-developed leached cap and supergene chalcocite- covellite blanket. Los Azules displays numerous features in common with other porphyry deposits as described below.

Panteleyev (1995) describes the common features of porphyry deposits as large zones of hydrothermally-altered rock containing quartz veins and stockworks, sulphide-bearing veinlets, fractures and lesser disseminations in areas up to 10 km2 in size. These are commonly associated with hydrothermal and/or intrusion breccias and/or dike swarms.

Deposit boundaries are determined by economic factors that define higher grade zones located within larger areas of low-grade, often concentrically zoned mineralization. Important geological controls on porphyry mineralization include igneous contacts, cupolas and the uppermost, bifurcating, parts of stocks and dike swarms. Intrusive and hydrothermal breccias and zones of intensely developed fracturing, respectively due to intersecting or parallel multiple mineralized fracture sets, commonly coincide with the highest metal concentrations.

Surface oxidation commonly modifies porphyry deposits in weathered environments. Low pH meteoric waters leach copper from the oxide zone which is then transported and redeposited as secondary chalcocite and covellite usually immediately below the water table to form sub- horizontal, tabular zones of supergene copper enrichment. This process forms a copper-poor leached cap above a relatively thin but often high-grade zone of supergene copper enrichment that itself caps a thicker zone of often moderate grade hypogene copper mineralization at depth.

Alternatively, or additionally, porphyry systems can exhibit hypogene enrichment related to the introduction of late hydrothermal, copper-enriched fluids along structurally prepared pathways, or the leaching and redeposition of hypogene copper, or a combination of the two. Hypogene copper mineralogy in this instance comprises covellite and chalcocite, often with elevated hypogene copper grades.

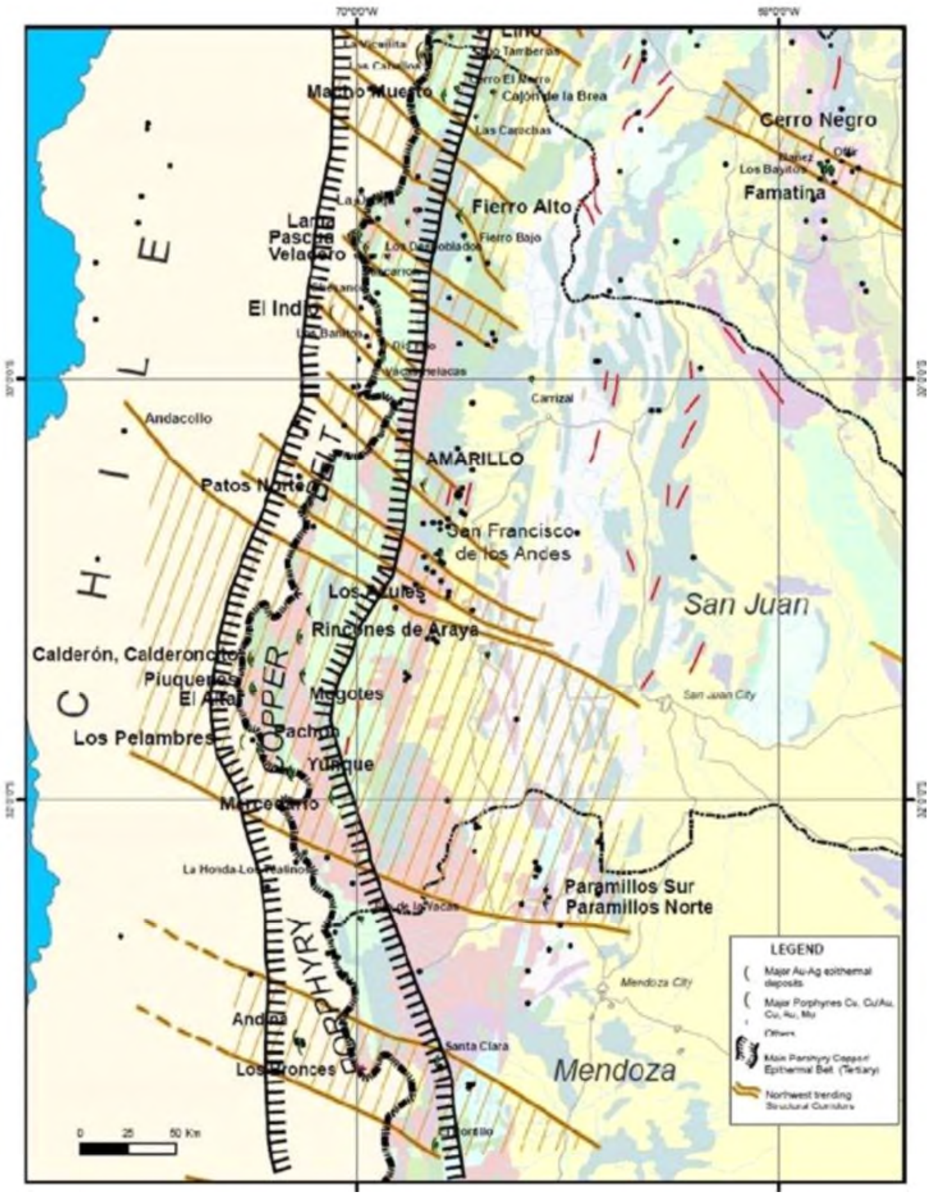

Figure 6-6: Part of the Central Chile Segment of the Miocene-early Pliocene Porphyry Copper Belt (Rojas 2008)

Other deposit styles often spatially, temporally and genetically associated with porphyry deposits include:

- Exotic copper deposits, formed by the lateral migration of copper-bearing fluids away from the main body of porphyry mineralization,
- Mineralized breccia pipes, skarns, sedimentary replacements (mantos) and precious metals-bearing mesothermal-epithermal vein deposits located peripheral to and progressively distant (laterally and vertically) from, the porphyry copper center as shown in Figure 6-7.

The figure shows the spatial relationships between a porphyry copper system and its surrounding environment including host rocks and peripheral styles of mineralization such as skarns, carbonate replacement (chimneymanto), sediment-hosted disseminated sulphides, mesothermal polymetallic veins and higher-level high/intermediate/low sulphidation epithermal gold-silver veins and disseminated deposits.

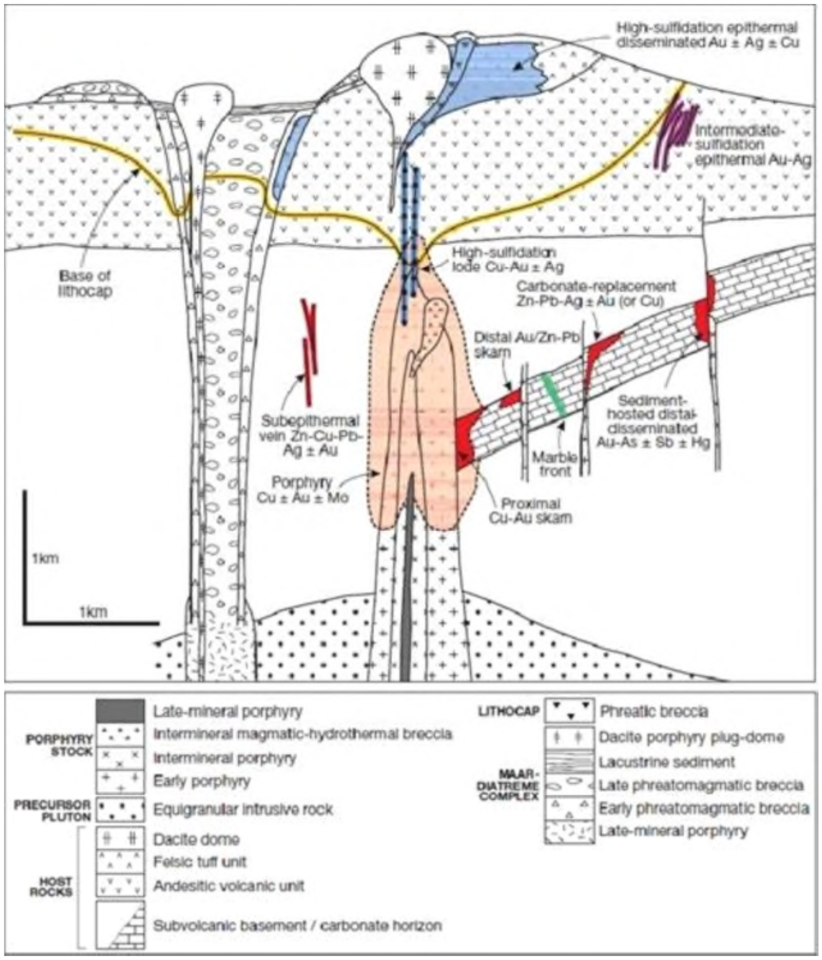

Figure 6-7: Diagram Showing Spatial Relationships between a Porphyry Copper System and the Surrounding Environment (Sillitoe 2010)

Battle Mountain Gold explored Los Azules during 1998-1999 for gold and drilled three holes in altered pyroclastic volcanic rocks in a strongly pyrite-mineralized zone at La Hoya in the extreme northwest of the area, apparently without significant success. The company may have been attracted by hydrothermal breccias with associated kaolinite-illite-dickite-quartz- alunite alteration that are reported in volcanic lithologies intruded by small intrusions and dikes of feldspar porphyry in the Cerros Centrales (Cerro Oeste) area.

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7 EXPLORATION

7.1 Surface Sampling

More than 27,000 samples have been taken from Los Azules by Battle Mountain Gold, Xstrata, and Minera Andes/McEwen Mining and analyzed and the information processed. Samples include surface, drill hole and control samples such as duplicate samples, blanks and standard samples. These were mostly assayed for gold, silver, copper, molybdenum, zinc, lead and arsenic. Sequential copper analysis has been done on selected drill-hole samples.

Battle Mountain Gold (1996-1998), MIM-Xstrata (2004) and Minera Andes/McEwen Mining (2004-present) together collected 912 surface samples that were analyzed for copper, molybdenum, gold, silver, lead, zinc and arsenic and, in some cases, antimony and mercury. A summary of the samples taken are provided in Table 7-1 and Figure 7-1 to Figure 7-7. In some sectors with little geochemical data and/or recent sediment cover near surface bedrock drill hole samples substituted for outcrop samples. Analytical results were classified as not anomalous through weakly and moderately to highly anomalous as shown in Table 7-2, then contour plotted to produce geochemical anomaly maps shown in Figure 7-1 to Figure 7-7.

The contour plots clearly show a strong positive correlation between anomalous molybdenum and copper corresponding with the Ballena ridge and the underlying porphyry copper system at Los Azules as shown in Figure 7-1 and Figure 7-2. Other metals including gold, silver, lead, zinc and arsenic as shown in Figure 7-3 to Figure 7-7, are clearly concentrated in areas peripheral to, and at higher altitudes than, the molybdenum and copper anomalies in a zonation pattern typical of porphyry copper deposits.

Table 7-1: Outcrop and Drill Hole Proxy Samples.

Sample Type	Company	Total Samples	Period	Laboratory Employed
Drill Hole	Minera Andes	32	2004-2008	ALS- ACME
Drill Hole	BMG	24	1998-1999	ALS-GEOLAB
Drill Hole	Xstrata Copper (MIM)	4	2,004	unknown
Surface	Minera Andes	216	2,004	ALS CHEMEX
Surface	BMG	479	1996-1997	ALS GEOLAB, CIMM
Talus	BMG	157	1,998	ALS GEOLAB, CIMM
Total		**912**		

Table 7-2: Range of Anomalous Values in Outcrops.

Anomalies	Au ppm	Ag ppm	As ppm	Mo ppm	Pb ppm	Zn ppm	Cu ppm
Not Anomalous	0.00-0.10	0.0-3.0	0-100	0-10	0-200	0-100	0-100
Weakly Anomalous	0.11-0.30	3.1-10.0	101-300	11-,30	201-500	101-300	101-300
Moderately Anomalous	0.31-1.00	10.1-30.0	301-1000	31-50	501-2000	301-1000	301-1000
Highly Anomalous	>1.00	>30.0	>1000	>50	>2000	>1000	>1000

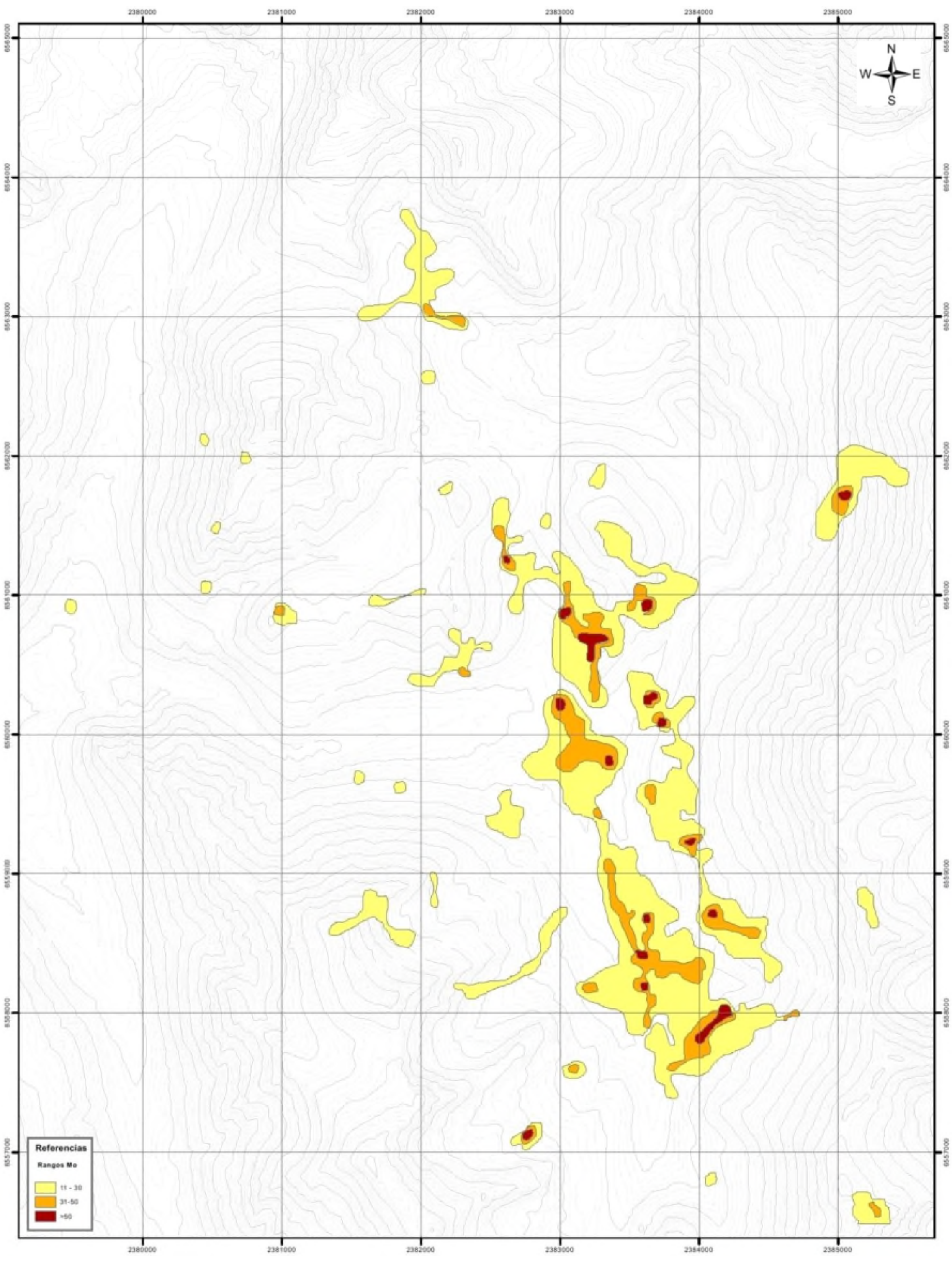

Figure 7-1: Contour Plot Showing Surface Sample Molybdenum Values at Los Azules (Rojas 2008).

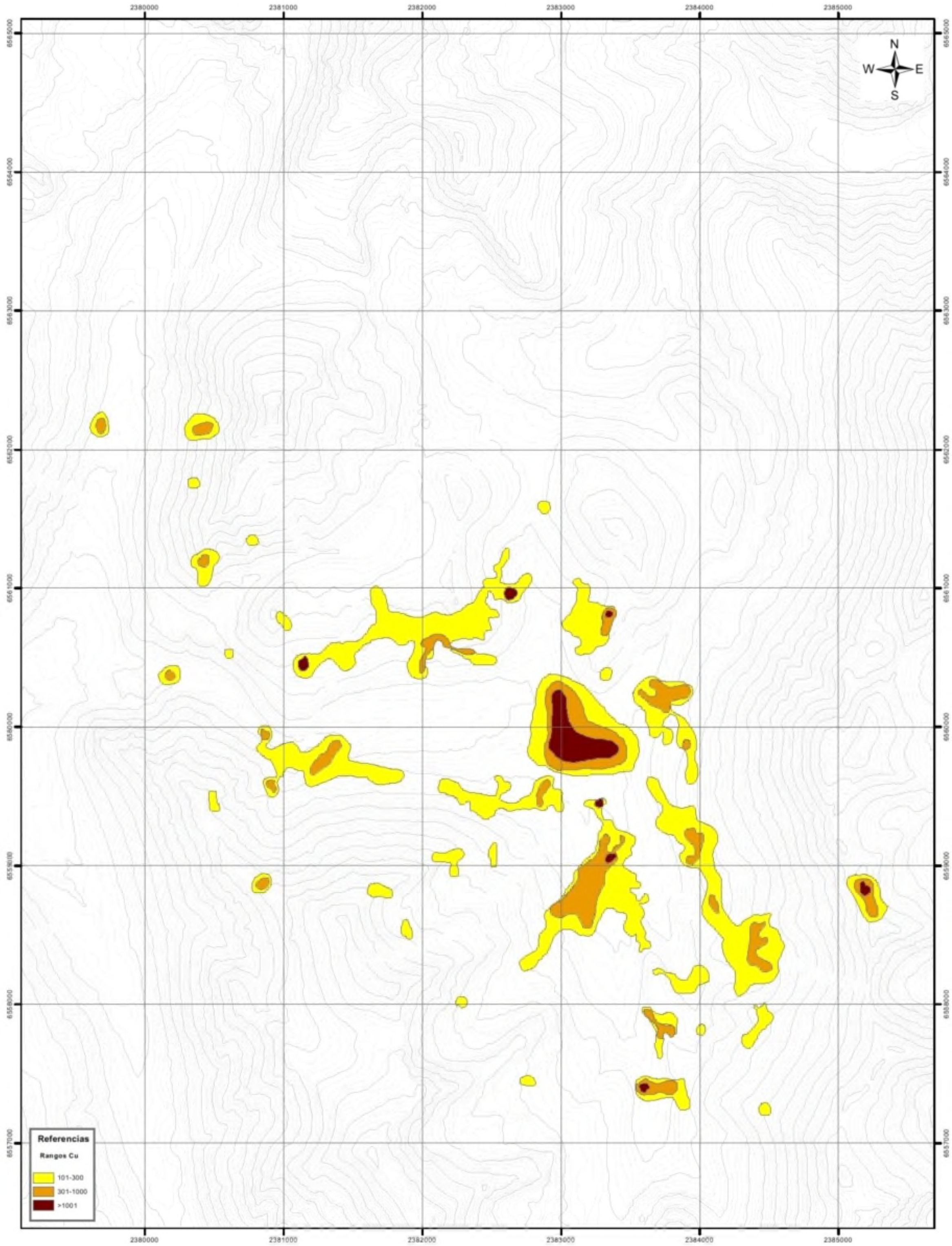

Figure 7-2: Contour Plot Showing Surface Sample Copper Values at Los Azules (Rojas 2008).

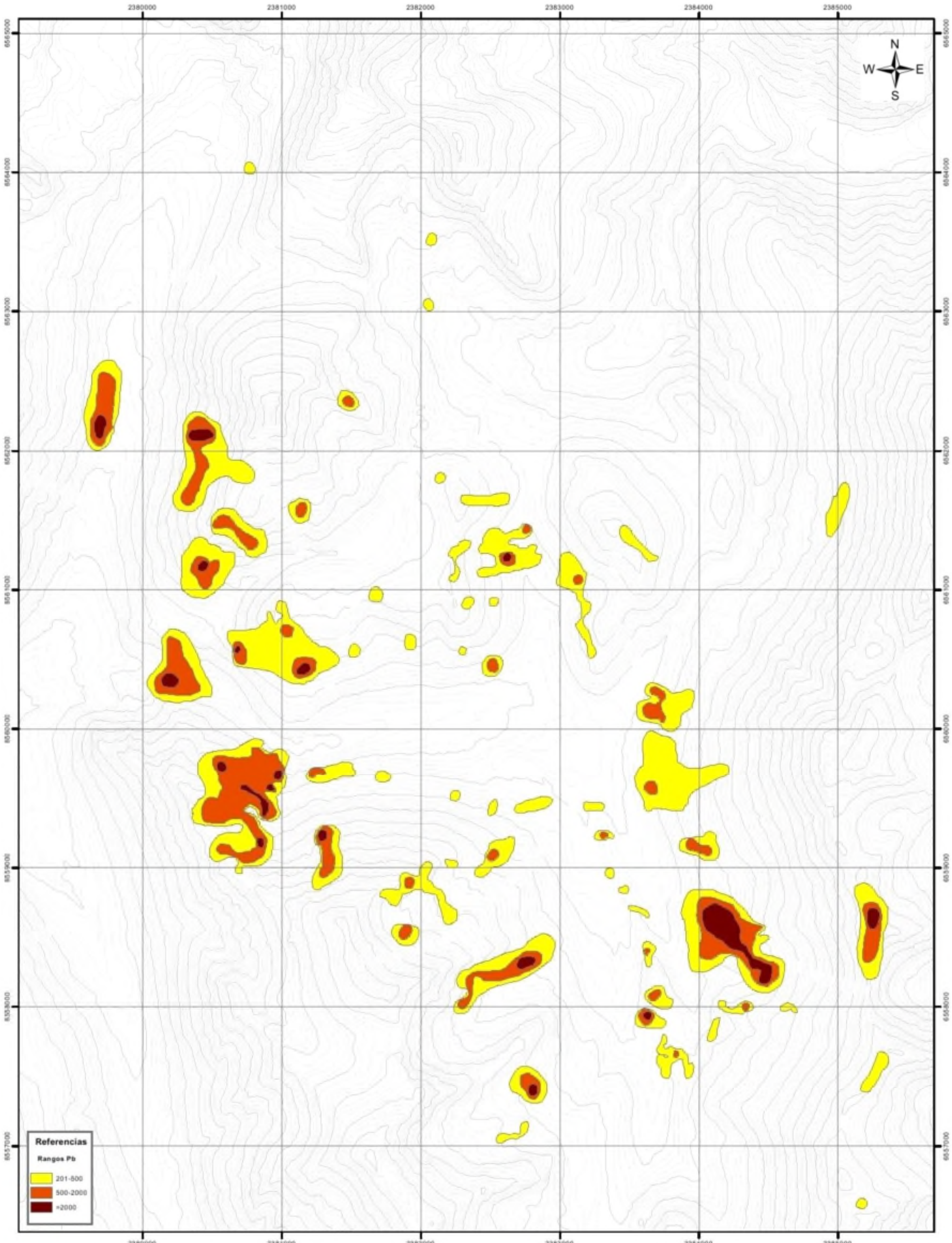

Figure 7-3: Contour Plot Showing Surface Sample Lead Values at Los Azules (Rojas 2008).

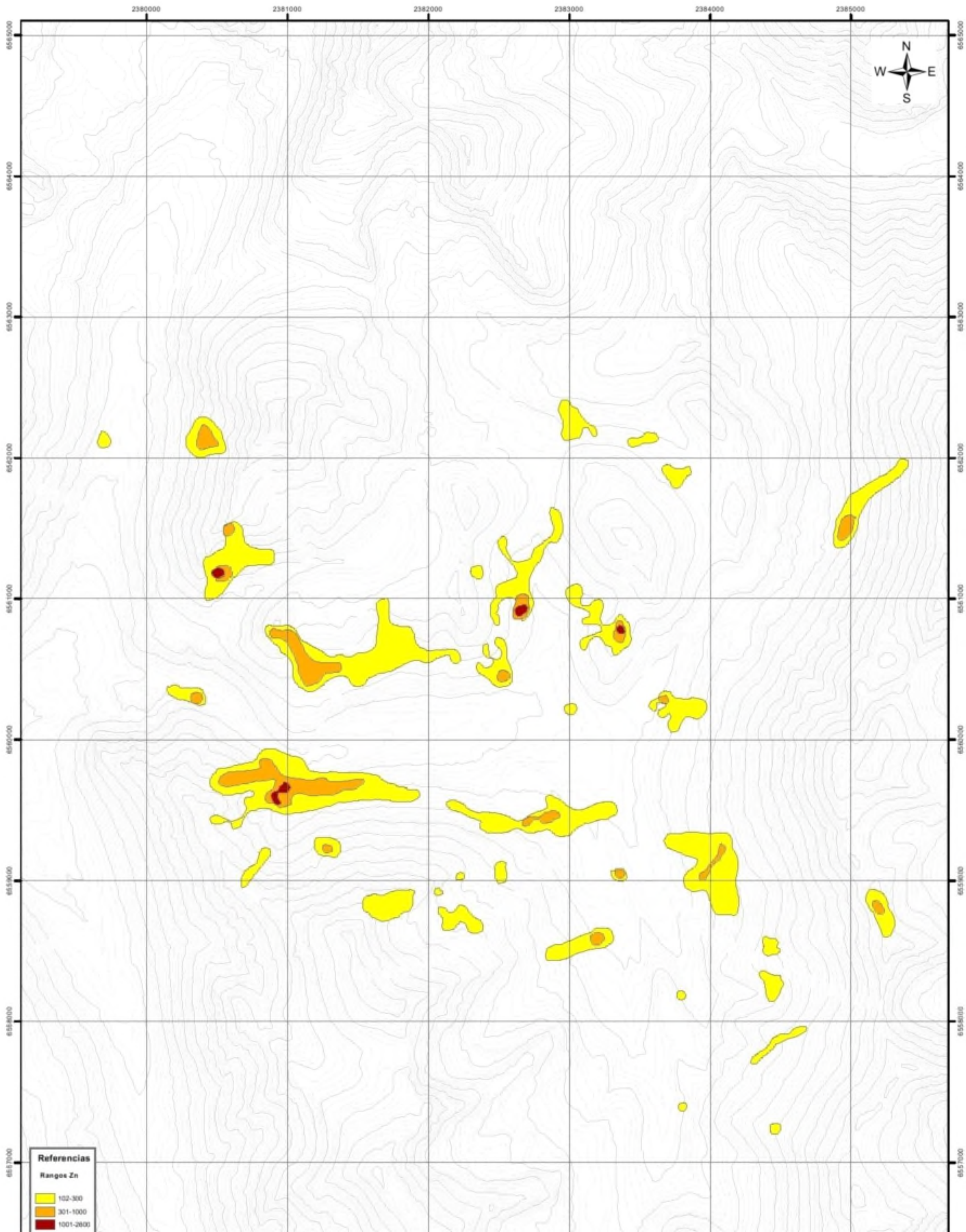

Figure 7-4: Contour Plot Showing Surface Sample Zinc Values at Los Azules (Rojas 2008).

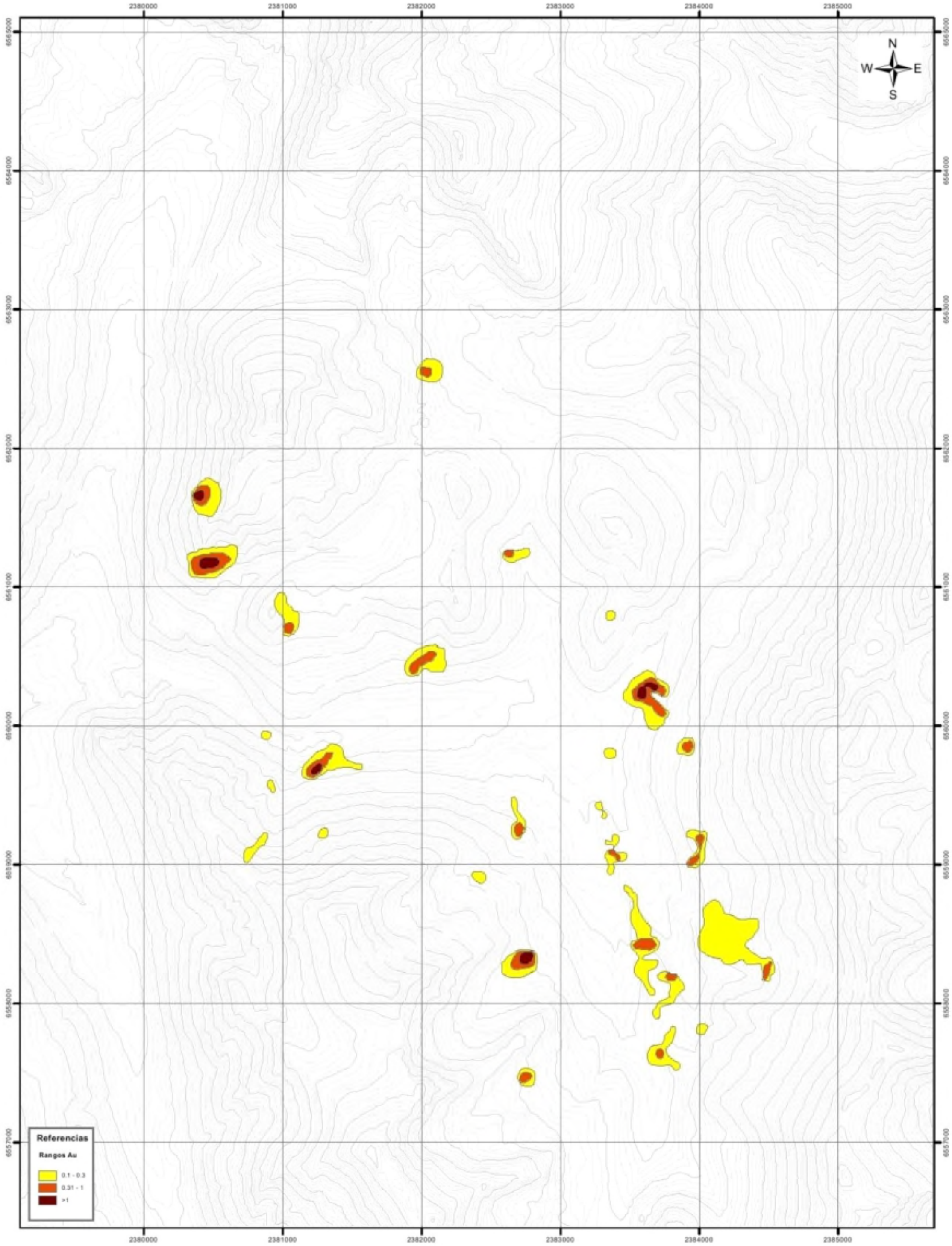

Figure 7-5: Contour Plot Showing the Spotty Distribution of Surface Sample Gold Values at Los Azules (Rojas 2008).

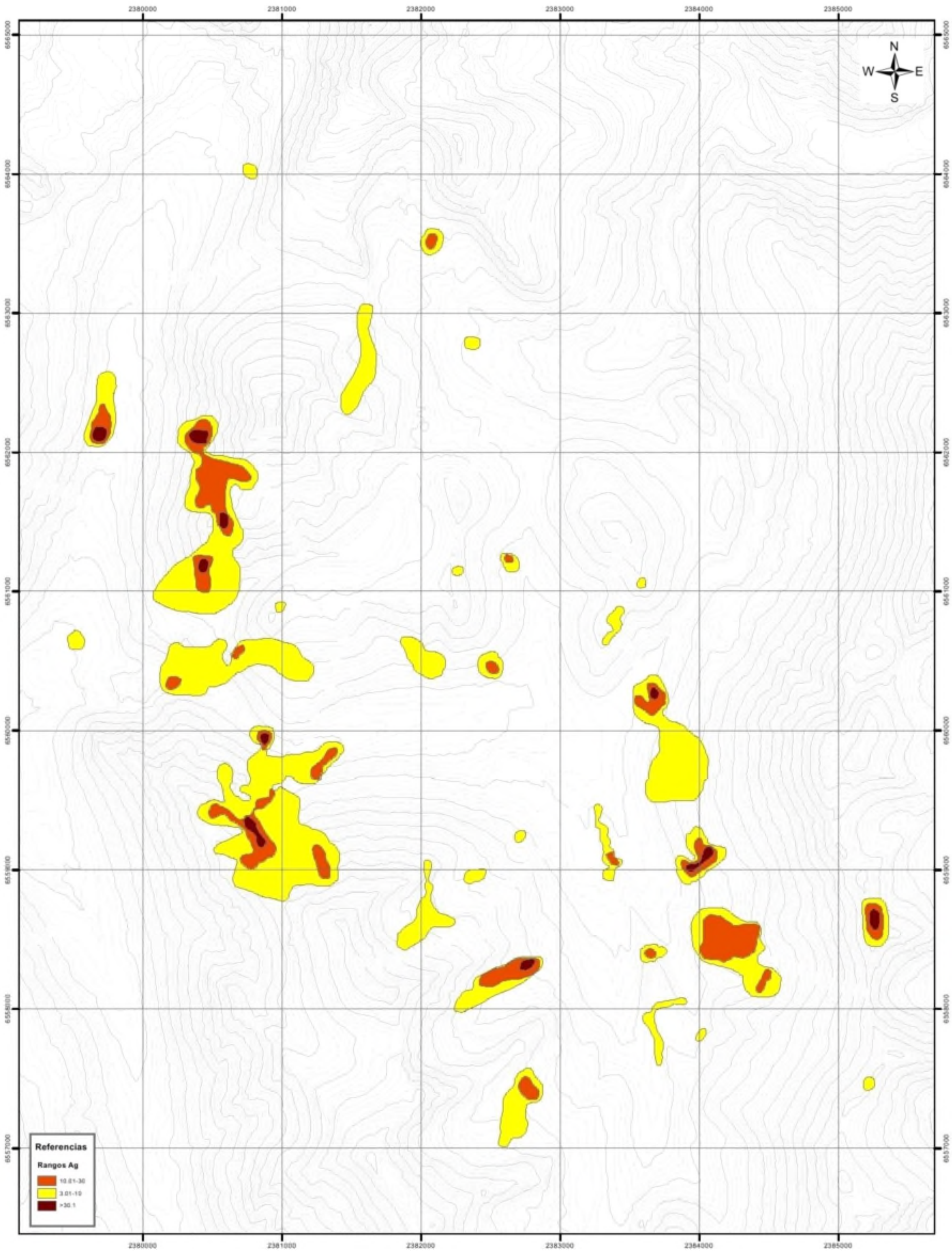

Figure 7-6: Contour Plot Showing Surface Sample Silver Values at Los Azules (Rojas 2008).

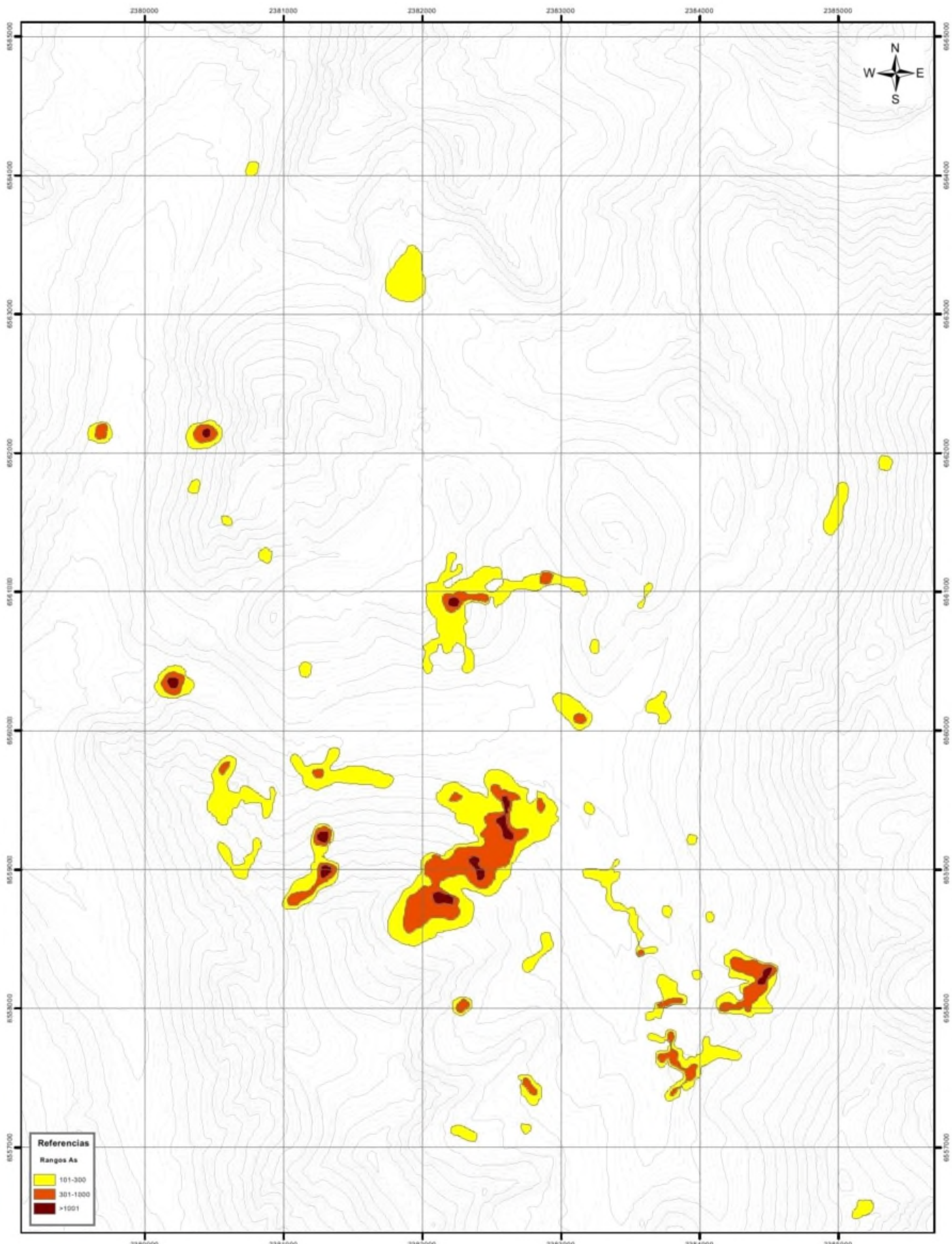

Figure 7-7: Contour Plot Showing Surface Sample Arsenic Values at Los Azules (Rojas 2008).

7.2 Aeromagnetic and Aero-Radiometric Survey

Various geophysical studies were conducted at Los Azules by Battle Mountain Gold and by MIM-Xstrata respectively in 1998-1999 and 2004 and by Minera Andes (Quantec) in early 2010 and McEwen Mining (Quantec) in 2012. Work done and results for these surveys are summarized as follow:

- GEODATOS, a Chilean geophysical company, conducted an airborne geophysical survey in early 1998. The survey covered a 20 km by 10 km area elongated east-west including the Los Azules and Paso de la Coipa areas.
- Four lines of induced polarization (IP) were oriented east-west averaging two kilometers long and spaced at 600 m to 900 m apart.
- Two ground magnetic surveys totaling 103 km were conducted in the area of the Los Azules mineralized porphyry and the nearby Sector Mantos, which is 1 km west of Cerro Oeste.
- During 2003-2004 MIM-Xstrata carried out a magnetic survey of approximately 70 line km at Los Azules. In addition, MIM-Xstrata ran eleven lines of MIMDas (MIM-Xstrata proprietary IP system) with a total surveying by MIMDas was 23.1 km.
- During April and May 2010, twelve parallel lines with magnetotelluric resistivity (MT) covering 42.9 km, ten spreads of direct current resistivity (DC), and induced polarization (IP) data were acquired covering 35.7 km.
- During January 2012, Quantec Geoscience Argentina S.A. performed a ground magnetic survey on the southwest portion of the Project. The survey consisted of 37 lines ranging from 1.1 km to 2.5 km, for a total of 57.2 line-km.

Appendix B: Geophysical studies, details each one of the studies aforementioned

An example of the geophysics surveys is shown in Figure 7-8. Figure 7-8 is the Total Magnetic Field map for the 2012 survey overlain the Magnetic Map of Los Azules (Reduced to Pole; 1 kilometer square grid- Rojas 2008). The 2012 magnetic data shows a discontinuous north-northwest trending magnetic low southwest of and roughly parallel to the prominent magnetic low that corresponds to the location of the main Los Azules deposit.

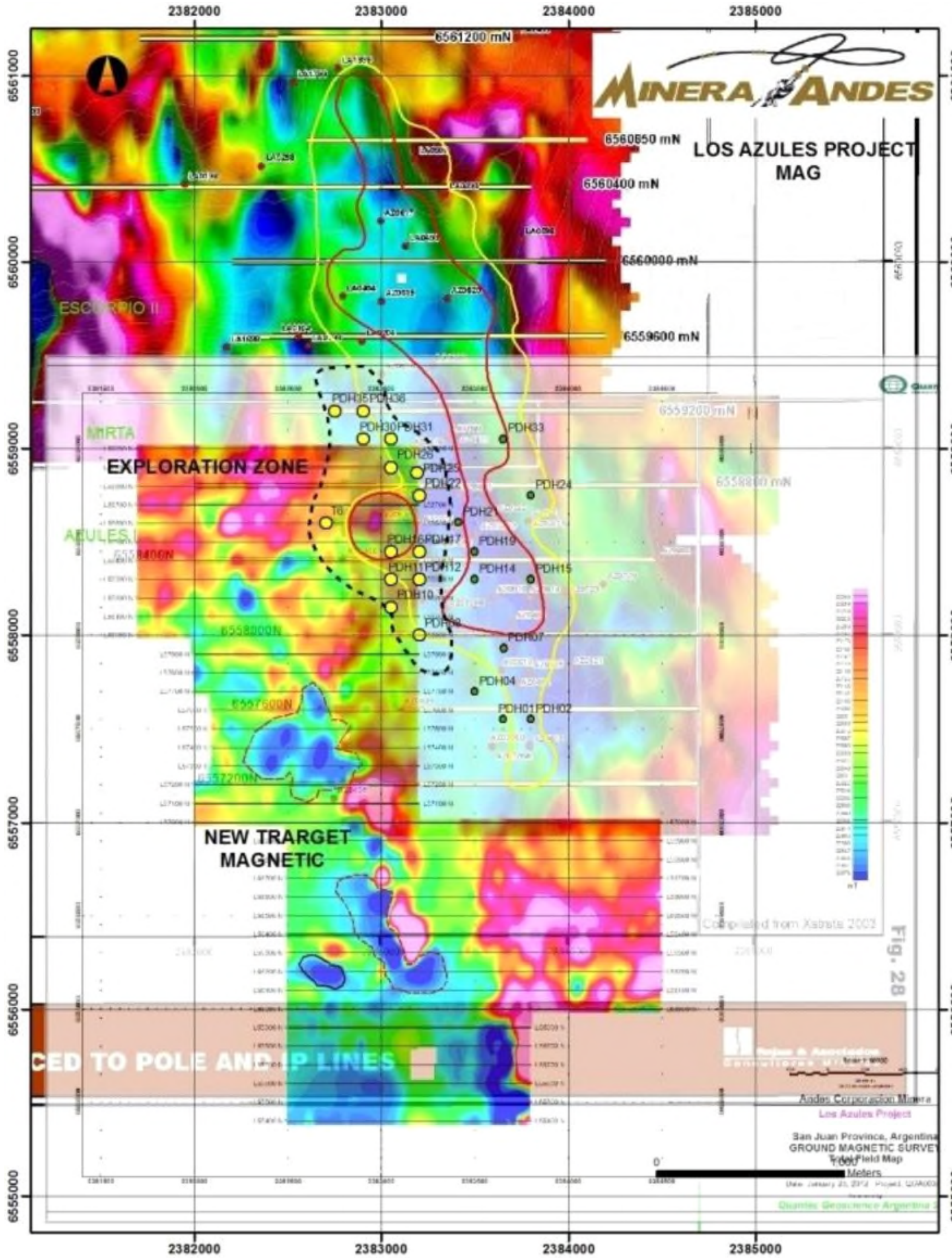

Figure 7-8: Total Magnetic Field for 2012 Survey Overlain (McEwen 2012)

7.3 Hydrogeology

An initial hydrogeologic investigation was completed in 2010 and a more extensive hydrologic and hydrogeologic investigation of the proposed pit area was completed in 2011 (Ausenco Vector, 2011). A total of eight standpipe piezometers and six vibrating wire piezometers have been installed, sixteen in-situ permeability tests have been performed and groundwater and surface water quality samples were collected and analyzed by an off-site laboratory. These studies have led to a conceptual understanding of the hydrology and hydrogeology in the area of the proposed open pit.

During pit development, saturated overburden and Tertiary volcanics including porphyritic dacite, dacite, and rhyolite tuff will be encountered. The overburden includes thick deposits of glacial outwash and alluvial materials in the valleys and the northern sectors of the pit, where the thickness can be over 80 m. The permeability of these materials is very high, although the spatial extent, as defined by bore drilling and a seismic investigation, are limited. Once groundwater is removed from storage the flows from the overburden would be limited to the rate from abutting materials and infiltration.

Groundwater flow in the volcanic bedrock is primarily controlled by ubiquitous fracturing of the porphyritic diorite and geologic structures in the area. The steeply dipping Piuquenes Fault and possibly the Diagonal and Lagunas Fault could be areas of higher groundwater inflow and potentially inter-basin flow. As such, these fault zones warrant further investigation as part of subsequent studies. The degree of fracturing of the porphyritic diorite and the permeability associated with the hydrothermal breccia and fault zones suggest that groundwater inflow to the pit will be high. Numerical groundwater flow modeling suggests that during later stages of pit development the groundwater inflow to the pit will be in excess of 600 L/s.

Given the shallow depth to groundwater and the high permeability of the geologic units in the pit area, high capacity vertical dewatering wells both in-pit and outside the pit boundaries will be necessary. The in-pit wells will be used to remove groundwater occupying the pore and fractures in the rock mass within and surrounding the pit shell. These wells would be operated in advance of mining and are wells that would be consumed by the ultimate pit configuration. In all likelihood these wells will include both overburden and bedrock pumping wells. Overburden pumping could also be supplemented with pumping from shallow excavations (drains) in the areas where the depth to groundwater is shallow. Pit perimeter wells will also be needed to intercept water flowing to the pit from the surrounding groundwater system and to lower the water table behind the pit slopes. These wells will target primary groundwater flow paths and likely be targeted such that they intercept major fault zones (e.g. Piuquenes fault south of the pit). A sump or series of sumps will also be used to pump water out from the pit bottom accumulating from pit wall runoff and/or groundwater inflow not captured by wells.

Prior to discharge of mine water, pit water would be used in the process plant, or if not, routed either to a sediment pond or rapid infiltration basin (RIB). Additional geochemical studies are necessary to evaluate the geochemical characteristics of the pit wall rocks and the potential for acid rock drainage, which could result in the need for treatment of in-pit waters. Most groundwater will be intercepted prior to seeping into the pit using wells. Initial water quality data suggest that this approach may permit discharge of these waters without treatment (e.g. pH, metals, sediment etc.).

Additional hydrogeologic data collected outside the area of mineralization and at greater depths will refine the long-term dewatering requirements and cost estimates. Pumping tests should also be completed to determine the large scale hydraulic properties of the geologic materials in the pit area and evaluate boundary conditions in the flow system that may exert strong controls over groundwater flow in the area.

An initial hydrogeologic investigation was completed in 2010 and a more extensive hydrologic and hydrogeologic investigation of the proposed pit area was completed in 2011 (Ausenco Vector, 2011). A total of eight standpipe piezometers and six vibrating wire piezometers have been installed. A total of 16 in-situ permeability tests have been performed.

The environmental baseline data on surface and groundwater volumes have been conducted since 2007 by the Insituto de Investigaciones Hidraulicas, a research center of the National University of San Juan. These are ongoing studies contracted by McEwen. After each drilling season, a report is prepared by the consultants and issued to McEwen that summarizes the work completed through the season.

The surface and ground water baseline monitoring has been ongoing since Q1 2007. Water quality monitoring was conducted in 2015 and 2016 for a total of 19 samples and 24 samples respectively, to determine a number of "in-situ" parameters which included electrical conductivity, pH, dissolved oxygen parameters (concentration and saturation) and temperature. Flow measurements were conducted for 12 points along the main watercourses of the Project area and area of influence. The groundwater monitoring included the measurement of the water level in the well and the height of the wellhead. The samples were analyzed in an off-site laboratory for all parameters identified in Annex IV, Table 1 of National Law no. 24,585/95 and other legislation of environmental significance such as Cyanide WAD, HTP, etc. All monitoring reports have been submitted to the responsible authorities for review.

7.4 Gravity Surveys

No gravity surveys were performed for this Initial assessment.

7.5 Drilling

Drilling programs have been undertaken at Los Azules between 1998 and 2017 by three different mineral exploration companies including BMG, MIM Argentina (now Glencore material) and Minera Andes/McEwen Mining. Drilling included reversed circulation programs mostly for gold exploration and diamond drilling focusing of supergene and hypogene porphyry-style copper mineralization. Descriptions of these programs are detailed in the following sections. Table 7-3 provides a summary of the drilling information.

There are a total of 202 drill holes in the Los Azules database with a cumulative length of 65,987 m with a drill spacing ranges from 150 to 200 m; a total of 30,675 samples analyzed for a suite of elements including total copper, gold, silver and molybdenum. A total of 137 of the drill holes have some portion of the sample intervals tested for sequential copper analysis.

Table 7-3: Exploration Drilling by Year and by Company

Year	Company	No. of	Meters
1998	Battle Mountain Gold	16	3,614
1999	Battle Mountain Gold	8	2,067
2004	MIM-Xstrata	4	864
2003 - 2004	Minera Andes	9	2,064
2005 - 2006	Minera Andes	11	2,602
2006 - 2007	Minera Andes	17	3,501
2007 - 2008	Minera Andes	18	5,469
2009 - 2010	Minera Andes	28	10,229
2010 - 2011	Minera Andes	44	10,405
2011 - 2012	McEwen Mining	8	2,830
2012 – 2013	McEwen Mining	22	15,873
2017	McEwen Mining	17	6,469
Total		**202(1)**	**65,987**

1. This table includes all drilling that has occurred on the property. Some holes were re-drilled due to drilling difficulties and are not included in the database. Holes that were started in one season and completed the following season are counted in the year they were started, but the meters drilled in each season are shown for the respective seasons.

The drill plan showing collar locations, drill hole numbers and drill hole type is shown in Figure 7-9

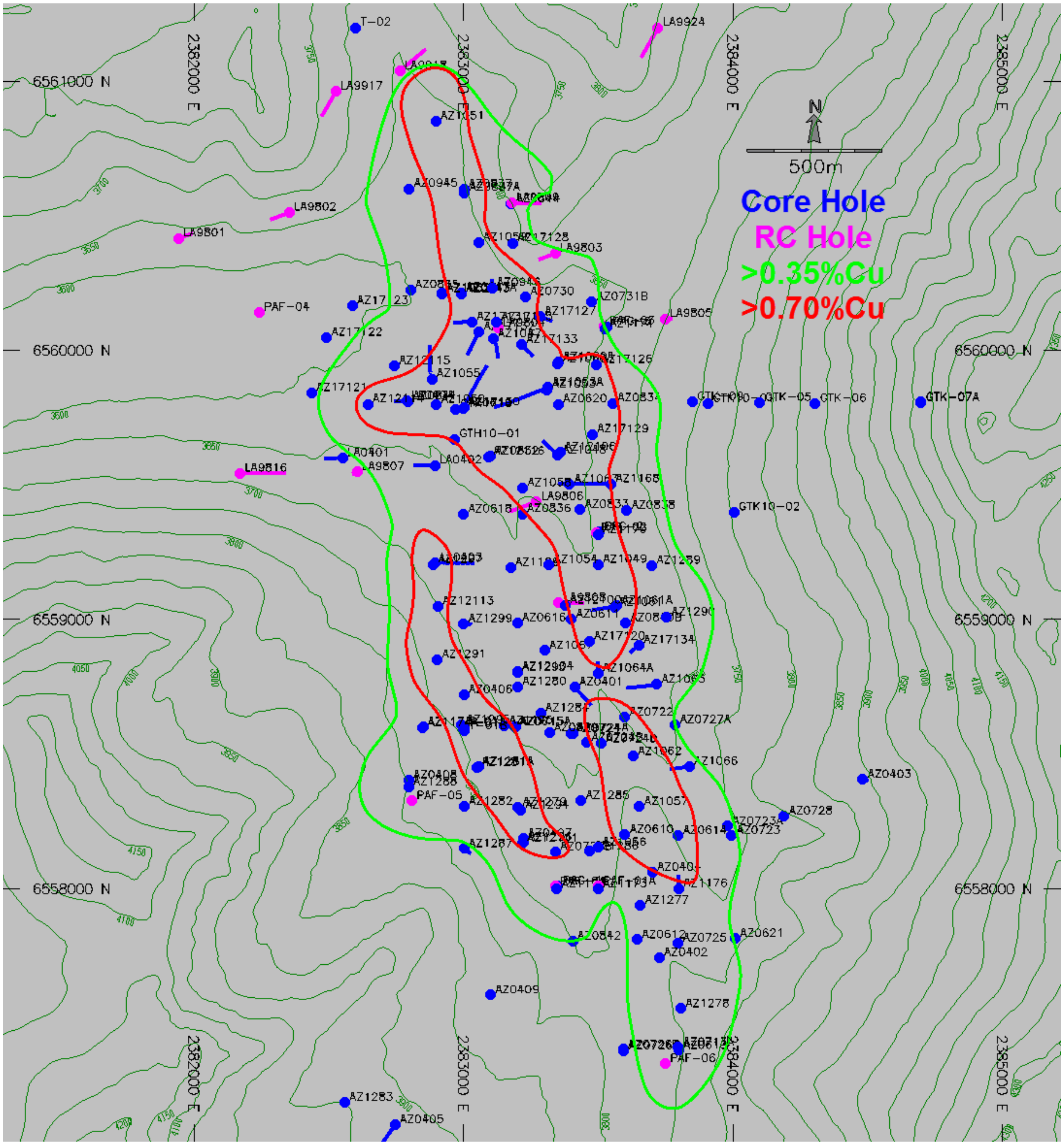

Figure 7-9: Plan Showing Copper Mineralization Distribution and Locations and Type of drill holes at Los Azules (SIM 2017)

Drilling has confirmed the presence of a hypogene porphyry copper deposit in a continuous body, as well as the presence and continuity of an overlying supergene chalcocite enrichment blanket. The extent of the mineral resource measures approximately 4 km north-south by 1.5 km west-east. Many of the drill holes in the central and northern parts of the deposit have been terminated in mineralization that exceeds the base case cut-off grade of 0.20%Cu. Drilling during the 2012-2013 campaign extended the depth of the mineralized system in the southwestern part of the deposit to at least 1,000 m (Table 7-4).

Table 7-4 Examples of Significant Drilling Results

Drill Hole ID	TD (m)	Intersection From (m)	Intersection To (m)	Interval (m)	Total Copper (%)
AZ0401	195	130	195	65	1
Including		150	192	42	1
AZ0402	331	164	304	140	0
Including		164	190	26	0
Including		230	304	74	0
AZ0404	301	162	282	120	1
Including		162	202	40	1
Including		236	282	46	1
AZ0407	169	96	152	56	0
Including		126	152	26	1
AZ0610	261	174	261	87.35	1
AZ0611	271	112	271	158.7	1
AZ0614	225	132	180	48	1
Including		136	158	22	1
AZ0617	184	66	184	117.5	1
Including		66	124	58	1
AZ0619	299	78.25	299	221.15	2
Including		78.25	116	37.75	2
Including		134	146	12	4
AZ0620	253	80	226	146	1
Including		80	106	26	2
AZ0722	271	119	155	36	1
AZ0724D	278	124	160	36	1
AZ0729B	227	130	214	84	1
Including		172	204	32	1
AZ0730	343	123	324	200.8	1
Including		140	253	113	1
AZ0832	420	80	140	60	1
AZ0833	388	73	313	240	1
AZ0837A	541	326	516	190	1
AZ0841	400	241	285	44	2
AZ0843	176	67	131	64	1
AZ0946	469	110	469	360.4	1
Including		115	260	145	1
AZ1047	493	74	493	401.8	1
Including		102	182	76.8	1
AZ1048	466	105	466	359.1	1
Including		123	339	216	1
AZ1049	491	62	491	429.2	1
Including		62	298	236	1
AZ1050	409	94	409	238	0

Drill Hole ID	TD (m)	Intersection From (m)	Intersection To (m)	Interval (m)	Total Copper (%)
Including		94	132	38	1
AZ1051	620	69	620	551.2	0
Including		363.5	426	62.5	1
AZ1052	425	103	425	322	0
AZ1053A	650	48.9	650	541.1	1
Including		122	230	101.5	1
AZ1055	409	116	409	282.5	1
AZ1056	295	70	295	226.4	0
Including		192	223	31	1
AZ1057	504	173	504	330.6	0
Including		173	225	52	1
Including		255	293	38	1
AZ1058	452	70	452	381.8	1
Including		96	181	84	1
AZ1059	656	88	656	568.4	0
Including		330	404	74	1
AZ1060A	403	116	403	285.5	1
Including		130	170	40	1
AZ1061A	293	71	293	209	1
Including		71	250	168.2	1
AZ1062	280	130	280	150	1
Including		130	248	118	1
AZ1063	427	94	427	333.1	1
Including		94	232	138	1
AZ1064	170	136	170	34.1	0
AZ1064A	404	120	248	128	1
And		248	404	156.4	0
AZ 1168	569	148	569	395.4	1
AZ 1169	316	86	316	229.8	0
AZ 1170	349	112	349	349.3	1
AZ 1175	355	74	340	266	0
And		340	355	15.2	1
AZ 1176	393	162	292	130	1
T-01B	656	80	192	112	0
And		387	656	269	1
AZ 1279	623	272	456	184	0
And		456	623	166.7	1
AZ 1282	482	309.5	314	7.5	3
AZ 1289	367	220	367	147	0
AZ 1291	891	72	232	160	1
And		562	790	228	0

Drill Hole ID	TD (m)	Intersection From (m)	Intersection To (m)	Interval (m)	Total Copper (%)
And		790	891	100.5	1
AZ 1294	862	62.2	74	11.8	1
And		252	862	609.9	0
AZ 1295	1,045	422	1,045	618.5	1
Including		580	618	38	1
Including		720	744	24	1
Including		970	1,045	74.5	1
AZ 1296	523	156	244	88	1
AZ 1297	981	276	690	414	1
Including		436	490	54	1
AZ 1299	1,075	78	94	16	1
And		546	1,075	528.6	0
AZ 12101	237	168	237	69	1
AZ 12114	815	224	374	150	1

Source: Minera Andes press releases dated May 5, 2004, May 31, 2007, November 14, 2007, April 16, 2008, June 6, 2008, March 8, 2010, June 21, 2010 and June 27, 2011 and McEwen Mining press releases dated May 10, 2012, January 17, 2013 and March 28, 2013.

Supergene mineralization forms a sub-horizontal zone measuring over 5 km north-south by 1.5 km west-east. It is underlain by hypogene mineralization that extends to depths greater than 1 km below surface. The disseminated and relatively homogeneous nature of the porphyry style mineralization at Los Azules means that intersections, with predominantly vertically oriented drill holes, effectively represent the true thicknesses of mineralization.

Samples taken from drill holes at Los Azules are logged at the Project camp by geologists employed or contracted by McEwen Mining. Emphasis is given to recording rock-types, alteration associations, types and distribution of mineralization and the presence of various types of veinlets and structures. These features are logged onsite then transferred to a digital database.

Geotechnical parameters are recorded including percentage of core recovery, RQD, fracture density and angle relative to the length of the hole, as well as fracture fill material. This information is transferred to the digital database. Geotechnical observations were made for 19,281 sample intervals.

Log sheets are coded and details recorded for interval depth, interval width, lithology, alteration types, alteration intensities, alteration minerals, structure, percentage vein quartz, percentage total disseminated sulphides, mineralization minerals, mineral zone (hypogene or supergene), jarosite, goethite, hematite, covellite, chalcocite, pyrite, chalcopyrite, bornite and other observations.

7.5.1 Historical drilling

There are 28 rotary (RC) holes in the database that were drilled bore Minera Andes/McEwen Mining drilling was involved in the project. Only five of these holes are located in the main mineralized area of the deposit. The geologic and assay results from these RC holes are similar to proximal core holes and, as a result, they were included in the development of the resource model, without modifications or adjustments.

- **Battle Mountain Gold (1998-99)**

In 1998 and 1999 BMG drilled 24 reverse circulation (RC) holes for a total of 5,681 m during a gold exploration program. Chalcopyrite, chalcocite and covellite mineralization was encountered in at least three drill holes (Rojas, 2010).

- **MIM-Xstrata (2004)**

In 2004 MIM Argentina (now Glencore) drilled four RC holes (864 m) at Los Azules (Rojas,2010).

7.5.2 Minera Andes/McEwen Mining drilling (2004-2017)

Drilling by McEwen Mining Inc. was contracted to various drilling companies including Connors Drilling, Patagonia Drill Mining Services, Adviser Drilling, Boland Minera, Major Drilling, Boart Longyear and McEwen Mining. Drilling conditions have been particularly difficult especially in faulted intersections or in areas of unconsolidated surface scree/talus.

Samples taken from drill holes at Los Azules are logged at the Project camp by geologists employed or contracted by McEwen Mining. Emphasis is given to recording rock-types, alteration associations, types and distribution of mineralization and the presence of various types of veinlets and structures. These features are logged onsite then transferred to a digital database.

Geotechnical parameters are recorded including percentage of core recovery, RQD, fracture density and angle relative to the length of the hole, as well as fracture fill material. This information is transferred to the digital database. Geotechnical observations were made for 19,281 sample intervals.

Log sheets are coded and details recorded for interval depth, interval width, lithology, alteration types, alteration intensities, alteration minerals, structure, percentage vein quartz, percentage total disseminated sulphides, mineralization minerals, mineral zone (hypogene or supergene), jarosite, goethite, hematite, covellite, chalcocite, pyrite, chalcopyrite, bornite and other observations.

According to McEwen Mining Inc. staff, downhole surveying is done on drill holes by the drilling contractors using REFLEX and/or Sperry-Sun tools. Density determinations were also made for 915 drill core samples.

RQD measurements and core recovery are measured at the drill rig by Minera Andes/McEwen Mining personnel prior to the core being boxed. The core is placed in core boxes by the drill crew and is systematically logged by the geology staff at the core shed almost as soon as it becomes available. Core boxes are marked by the geologist every two meters for sampling. Subsequently the core is photographed three boxes at a time by the sampling staff. Core is cut with a pneumatic splitter in order to minimize loss of sooty chalcocite, which could be lost by washing during cutting by the diamond saw.

Alternating core halves are selected for assay. No particular scrutiny that might bias the results is applied to the alternating halves selected. The core inventory system is scrupulously maintained. The sample is bagged immediately after splitting. A lab generated sample ticket is inserted with the sample and a second ticket is stapled into the throat of the bag. Nylon cable ties are used to seal the bags. The bags are then weighed and five to six sample bags are sealed in a larger ripstop-mesh sack. The sacks are sealed with a larger cable tie, labelled and secured with a number attached. Samples are shipped at least once a week.

Drill core recovery is recorded at the drill site and ranges from 0% to 100%. Drill core recovery averages 88% from the supergene and primary mineral zones. Even though core recovery in zones of rubble may be less than 70%, there is no indication sample grades are related to recovery or that there is a bias associated with core recovery.

All drill core from the Project is stored at a well-organized core storage warehouse owned by McEwen in Calingasta. Sampling procedures produce samples that are appropriate for subsequent use in resource estimation

8 SAMPLE PREPARATION, ANALYSES AND SECURITY

Independent qualified persons visited the Los Azules property during the period of March 30-31, 2008, March 21-23, 2010, and January 23-25, 2012. Topics during results of the most recent drilling program were discussed with the Project staff and select intervals from a series of drill holes were reviewed. A series of surface exposures were visited at the deposit site. Active drill sites were visited and a series of (completed) drill holes collars were observed.

Both visits reviewed the sampling procedures and Quality Assurance/Quality Control (QA/QC) practices used during the drilling program and one presented a one- day QA/QC seminar to the Project staff. The sampling practices were found to adhere to accepted industry standards. Standard reference material (SRM) was prepared and certified by Alex Stewart laboratory in Mendoza, Argentina from local source rocks. Blank material was initially made from "barren" quartz with a small portion of leached material "to add some color" (i.e. in an attempt to appear anonymous in the sample sequence). As discussed later in the section, this material is not completely sterile and another source of blank material was obtained for QA/QC programs after 2008. "Coarse" duplicates taken at site in 2008 were actually core duplicates obtained from quarter core splits. Coarse reject duplicates were eventually submitted for 2008 and included in the 2009 and subsequent programs.

Assay results from blank material fell within acceptable limits in all programs after 2009 when silica sand was used instead of the previous blank material.

The visits included inspecting the old Minera Andes office and the old core storage facility in Mendoza on April 2, 2008 and again on March 24, 2010. Drill core was observed from a series of random intervals and comparisons made between the assay results and the visual presence of copper bearing minerals. The assay results were confirmed by visual observations and checking against original assay certificates. In addition, one QP visited the new core storage warehouse in Calingasta (January 2012) when it was being renovated and before the entire core had been moved into the warehouse.

The samples were sent initially to the Alex Stewart lab in Mendoza and later to the ACME lab in Mendoza, for sample preparation and assaying duplicates. The analytical lab of ACME in Chile runs total copper on all samples. Any interval that is greater than 0.20% total copper is analyzed using sequential copper analyses, which consists of acid soluble copper, cyanide soluble copper and residual copper.

Laboratories utilized by McEwen have internal QC samples used in each batch of sampled material provided by McEwen. Each assay certificate lists the drill sample results, plus the laboratory's internal sample control results that consist of its own duplicates, blank and reference standard pulp with each batch assayed for its internal quality control on precision, instrument drift and accuracy in order to determine if there are any sampling issues for that particular run. Anomalously high values within batches are verified by re-assay as a matter of routine.

Assay results from the laboratory are reported to McEwen in electronic format using both Excel files and PDF format. Complete and final assays are prepared by the labs in PDF format with the lab certification results included with each batch.

8.1 Sample Preparation and Analyses

Drill hole samples are bagged and numbered when split. Subsequently five to six samples are placed in sacks containing approximately 25 kg. These sacks are closed with numbered bag ties. The sacks are not opened until they reach the laboratory where the bag tie number is recorded by laboratory personnel. Samples are transported by project personnel from the Project to the laboratory. Once the samples are bagged at the Project site no McEwen employee is involved with any subsequent sample preparation.

During the 2004 and 2006 field season, sample pulps were prepared by Alex Stewart employees and shipped to the ALS Chemex laboratory in Chile for analysis. For the 2007 field season and initially during the 2008 field season, samples were taken to the Alex Stewart Laboratory in Mendoza for sample preparation. Subsequently, field samples were taken directly to the ACME laboratory in Mendoza which only does sample preparation work. Sample pulps prepared at Alex Stewart and later at the ACME laboratory in Mendoza, were shipped by ACME to ACME's analytical laboratory in Santiago, Chile.

ALS Chemex, Alex Stewart laboratory, and ACME are all ISO 9001:2000 certified.

The sample preparation protocol consists of samples being dried at 60ºC until the desired moisture content is achieved. The entire sample is crushed to 85% passing 2 mm (10 mesh). The crusher is cleaned with high pressure air after every sample. The entire sample is then run through a Jones or riffle splitter to obtain 500 g. Rejects are retained.

The 500 g sample is pulverized in a ring-and-puck pulverizer to 95% passing 65 µm (150 mesh). The particle size of the samples is checked by screening random samples. The pulverizer is cleaned after every sample with high pressure air.

A 150 g split of the pulp is placed in a pulp envelope, numbered and sent to the assay lab. The remainder of the 500 g pulp sample is saved as a pulp reject. These pulp rejects have been used for later check analysis at the Alex Stewart Laboratory in Mendoza.

8.2 Reverse Circulation Procedures

The drilling programs that have occurred on the Los Azules property since 1998 have used both reverse circulation (RC) and diamond core (core) equipment. All holes drilled by BMG in 1998 and 1999 were RC type. MIM, now Glencore, drilled four RC holes in 2004. Since 2004, Minera Andes/McEwen Mining has mainly used core-drilling techniques

8.3 Core Handling Procedures

Sample preparation begins at the man camp where the core is labelled and photographed as whole core. The core is split using a pneumatic core splitter. Core that is not whole, or is significantly rubble-ized is divided with a trowel in order to obtain a reasonable sample. One-half of the core of 2 m sample length is placed in plastic sample bags and tagged accordingly. Both the sample bag and tag are marked with a sample number such that an inventory of samples prepared can be recorded by Minera Andes/McEwen Mining and checked against an inventory prepared by the lab receiving the samples.

8.4 Sample Shipment and Security

The chain of custody has been outlined in the previous paragraphs in this section. It appears that any tampering with individual bags or the ties would be immediately evident when the samples arrived at the lab. Any tampering with the larger bags would also be apparent on arrival at the lab. Documentation was provided such that it would be difficult for a mix up in the samples to occur either during shipment or at the lab.

All procedures were being carefully attended to and met or exceeded industry standards for collection, handling and transport of drill core samples.

8.5 Specific Gravity Measurements

Measurements for bulk density were conducted by McEwen Mining on a series of drill core samples using the water displacement method. Solid pieces of drill core, measuring between 10 cm and 15 cm in length, were sealed with paraffin wax and weighed in air and then weighed again under water.

The bulk density is calculated using the following formula:

Bulk density = weight in air / (weight in air – weight in water)

Before 2012, all selected samples were coated in paraffin wax for bulk density determinations. Studies conducted at the Mining Research Institute of Argentina indicated that the rocks found at Los Azules were not porous and, therefore, they were not required to be sealed in wax during the procedure. Therefore, a wax seal was not used for any of the density measurements taken during the 2012, 2013 or 2017 field seasons. Observations during site visits confirm that the competent rocks used for bulk density measurements do not show any visual signs of porosity and, therefore, it is likely that sealed versus non-sealed measurements would produce similar results.

A total of 1,196 samples were tested for bulk density or specific gravity (SG); values ranged between 1.44 t/m3 and 3.60 t/m3, with a mean of 2.54 t/m3. These data were loaded into MineSight® and visual observations indicate that the spatial distribution is insufficient to support direct interpolation of SG values into model blocks. As an alternative, average densities were determined for the MinZone domains and the following SG values were assigned to blocks in the model:

- Overburden Zone: 2.00 t/m^3
- Leach Zone: 2.44 t/m^3

- Supergene Zone: 2.51 t/m^3
- Primary Zone: 2.58 t/m^3

These density averages are considered to be appropriate for calculating resource tonnages for the Los Azules deposit.

8.6 QA / QC Procedures

Control samples consist of blanks, duplicates and reference standard samples in addition to submitting an appropriate number of check samples to outside, independent laboratories to assure assaying accuracy. Blank samples test for contamination; duplicates test for contamination, precision and intra-sample grade variation; and reference standards test for assay precision and accuracy.

Standard Reference Materials (Standards)

Control standards and blanks used during the 2007 and 2008 field season were prepared using composites of course rejects from the 2006 field season. Color was added to the blanks by adding small amounts of course reject from the leached horizon of the deposit. Six standards ("SRM") were prepared with distinct copper and gold contents as shown in Table 8-1.

Table 8-1: Sample Control Standards (2006-2007)

Sample	Total Cu%	Au (ppm)
STD B	0.0047	0.0500
STD 01	0.1096	0.0470
STD 03	0.3135	0.0330
STD 06	0.5300	0.0260
STD 08	0.8830	0.0680
STD 20	1.9540	0.0670

For the programs after 2007 through 2013, Alex Stewart Laboratory prepared and certified additional standard material with the same certified values for copper. It should be noted that the lack of precision in the gold assays precluded their use as gold SRM. This was due to the generally low gold values and assay detection limit effects. It was not a failing of either sample preparation or assaying.

For the 2017 program, Acme Laboratories prepared and certified standard material as shown in Table 8-2. The gold values were, again, affected by detection limit effects and not used as SRM.

Table 8-2 Sample Control Standards (2017).

Sample	Total Cu%	Au (ppm)
STD 01	0.1010	0.0140
STD 03	0.2780	0.0390
STD 10	1.0300	0.0590

Standard Reference Material (SRM) Sample Performance

The performance of SRM is evaluated using the criterion that 90% of the results must fall within ±10% of the accepted value for the assay process to be in control. Results are presented using statistical process control charts, an example of which is provided in Figure 11-1. In the chart, the average value appears as a black horizontal line (middle line) and the certified value of the standard is listed near the average value line. Control limits at ±10% of the accepted value appear as red lines above and below the black line showing the accepted value. The assay values for the standard appear on the chart as green triangles.

Results for the copper SRM fall within the control limits above the prescribed rate over the various field programs. The results shown for STD03 during the 2010-2011 field season (Figure 8-1) are typical.

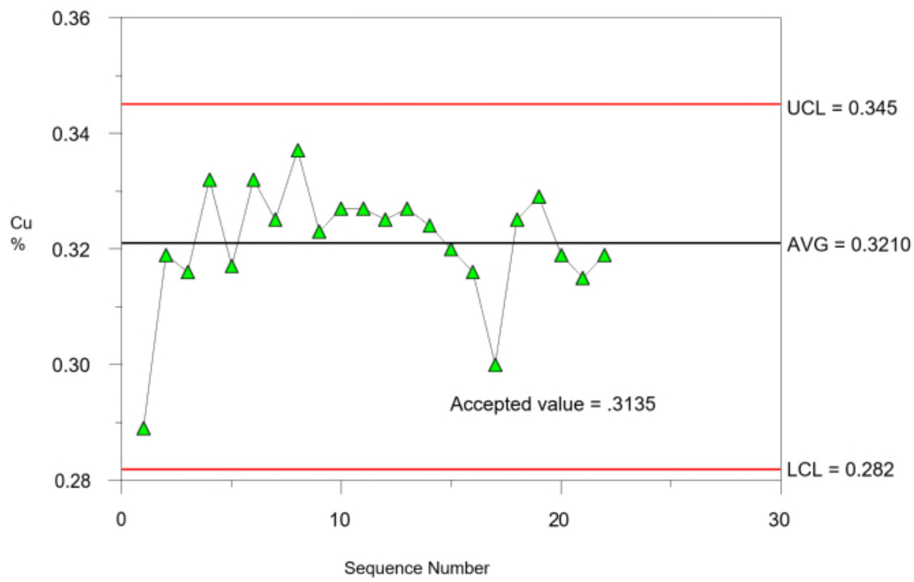

Figure 8-1: Example SRM Control Chart from 2010 Drilling (Davis 2013)

The performance of copper standards was generally similar across the drilling from 2007 through the 2017 field seasons with exceptions as outlined. In the 2009-2010 field season, hole 1049 produced significant QC errors which were addressed by remedial assaying for that hole. In the 2010-2011 field season standards indicated copper values were consistently higher than expected. The errors were addressed by a program of re-assaying in 2012. Original values in the database were replaced by the 2012 re-assay results which were validated by control values. The 2011-2012, 2012-2013 and 2017 field seasons assaying produced no significant QC errors.

Gold and Molybdenum

Due to the generally low values of gold and molybdenum, control using standards of comparable values is not possible due to the lack of precision in the assay process; however, duplicates show no indication of systematic assay problems in either gold or molybdenum.

Blank Sample Performance

In the field seasons prior to 2009, the blank material was discovered to be mineralized. This generated a significant number of false positive results. All out of control results during this period were subjected to remedial procedures. No evidence of contamination from sample to sample was detected by the remedial work.

In the 2009-2010 and subsequent field seasons, the blank was silica sand. There were no out of control results for the blank samples submitted during these drilling seasons.

Coarse Duplicate Sample Performance

Duplicate samples of coarse reject material are assayed to check the sample preparation protocol. If the protocol is adequate, 90% of the duplicate pairs of assays should fall within ±30% of each other. During all field seasons, coarse reject copper duplicates fell within control limits. Gold duplicates fell within the control limits at above the prescribed rate.

Pulp Duplicate Sample Performance

Duplicate samples of pulp (or the final sample product) material are assayed as another check on assay accuracy and precision. For all seasons where duplicates were taken, copper duplicates from pulp material fell within control limits above the prescribed rate of 90% within ±10%. Differences with gold duplicates in 2009 – 2010 have been addressed. There are no other outstanding issues with pulp duplicate performance.

8.7 QA / QC Conclusion

Results from the control sample analysis indicate that the copper, gold and molybdenum assay processes are under sufficient control to produce reliable sample assay data for resource estimation and release of drill hole assay results. Inadequate standards from early field seasons were eliminated. Material that was assumed to be blank but contained low copper values was replaced.

All past deficiencies in the QC program have been addressed. The Los Azules sampling and assaying program appears to be producing sample information that meets industry standards for copper, gold and molybdenum accuracy and reliability. The assay results are sufficiently accurate and precise for use in resource estimation and the release of drill hole results on a hole by hole basis.

9 DATA VERIFICATION

9.1 Database check

In 2008, eight holes were randomly selected and the data was sent to independent consultant Nivaldo Rojas of Rojas and Associates in Mendoza, Argentina. The contained information, including collar locations, down-hole survey data, geology codes and assay values were verified back to the original source. The collar location and directional data was traced back to the original survey sheets. The geology data was traced back to the original drill logs and the assay data was compared to the original assay certificates.

There were no errors found in the drill hole collar locations and survey data. Only two assay value errors were identified during this process. A series of differences were noted between geology codes and these "errors" were attributed to relogging of older drill holes. None of the errors identified are considered significant with respect to resource model development.

Similar manual validations were conducted following resource model updates conducted in 2012, 2013 and following the most recent resource model in 2017. No significant errors were found.

9.2 Site Visit

Mining Plus personnel have not visited the site due to the ongoing impact of the global pandemic from COVID-19, making international travel all but impossible for safety reasons. However, independent qualified persons performing work in accordance the previous NI43-101 technical report preparations visited the Los Azules site from March 30 - April 1, 2008, and again from March 21-23, 2010. During the period from January 23-25, 2012, a third qualified person also visited the Project site. During each of these visits, a series of randomly selected drill hole intervals were reviewed and, in all cases, the type and content of copper minerals observed support the assay results obtained. The visits also included inspecting the McEwen Mining core storage facilities in Mendoza and Calingasta and similar comparisons between visual/assay copper grades were observed on a random series of drill holes. There were no discrepancies noted during this test.

During each site visit, the qualified persons visited numerous drill site locations on the Los Azules property. The locations of these drill hole collars match the survey and topographic information in the database. Active drilling activities were also observed in several locations. The drill core handling and sampling procedures followed on the property were also observed and discussed with site personnel during the site visits. These practices follow accepted industry standards.

9.3 Conclusion

Observations during the site visits confirm the physical presence of the drilling activities completed on the deposit. Sampling procedures have been followed according to accepted industry standards. Observations of the contained mineralogy in the rocks support the assay results and these have been monitored through an appropriate QA/QC program.

The results of the data verification indicate that the database is sound and reliable for the purposes of resource estimation.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 Initial Characterization and Scoping Studies

Mining Plus presents information prepared for the NI43-101 Technical Report for Los Azules as prepared by Samuel Engineering in 2013 and the NI43-101 Technical Report for Los Azules as prepared by Hatch, Ltd. in 2017. Further, Mining Plus has made use of test work results from SGS (2016, 2017), based on the verification performed and presented in that study in drawing the conclusions presented in this section.

10.2 Metallurgical Laboratory Test-Work Program

The first recorded testwork on flotation optimization is described in the Plenge Labratorio report (May-Sept 2008). The optimization was completed on three main composites (No 1, No 2 and No 3)[1,2]. The second program of optimization testwork was carried out from July until August 2013 on two composites taken from the primary and supergene zones. In total there were five samples, two of which were used as the references for the current, concentrate production only, engineering design included in this report. These two were selected because the copper grades of those samples are near to the average copper grade of the deposit.

This engineering design has been used to estimate capital and operating costs for this initial assessment of the economic viability of the project. The processing plant will consist of a grinding circuit and a flotation concentrator that produces a copper concentrate.

10.3 Metallurgical Results

Samples from 10 different drill cores and depths of the Los Azules deposit, representing the first five years of operation, were sent to SGS Minerals Services in Santiago, Chile in early June 2017. SMC Tests were conducted on each of the 10 samples to determine the JKSimMet and SMC Test comminution parameters that could then be used to assess sample behavior in the proposed process flowsheet. SMC Test results are summarized in Table 10-1.

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[1] Metallurgical Investigation No. 7026-7027, Minera Andes Incorporated Los Azules Copper Project, Metallurgical Scoping Study

[2] Metallurgical Investigation No. 7028, Minera Andes Incorporated Los Azules Copper Project, Composite No. 3

[3] Metallurgical Investigation No. 9247-69, Minera Andes Incorporated Los Azules Copper Project, Flotation variability and optimization.

Table 10-1: SMC Test Results by Sample

Type	Sample	DWi (kWh/m^3)	A x b[4]
Primary	AZ0836	7.55	34
	AZ12116	5.35	47

	AZ1047	4	64
	AZ1050	5.22	48
	AZ1053A	2.74	90
	AZ17130-148	4.96	50
Supergene	AZ1048	3.47	73
	AZ17125	5.93	43
	AZ17106	5.45	47
	AZ17130-290	4.44	60

The A x b values for the tested Los Azules samples were compared by SGS to the JKTech database. The vertical red lines shown in Figure 10-1 represent the values for Los Azules and the green line represents the frequency distribution from the JKTech database.

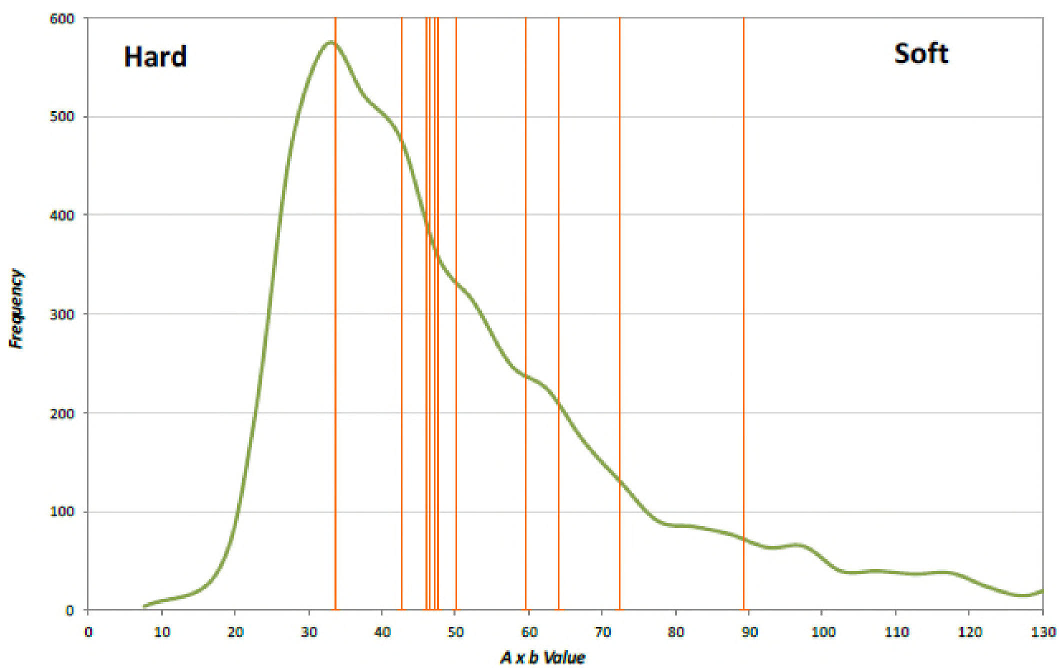


Figure 10-1: Frequency Distribution of A x b values in JKTech Database (SGS, 2017)

Along with Figure 10-1,for each sample, SGS provided the percentage of material in the JK Tech database that is softer. Taking the average of these percentages across the 10 samples gave 41% i.e. 41% of the material in the JK Tech database is softer (59% is harder).

[4] A x b values are derived from the outputs of the SMC Test Results and are presented in the SGS Report.

A plot of the A x b values by mean depth below collar is presented below in Figure 10-2.

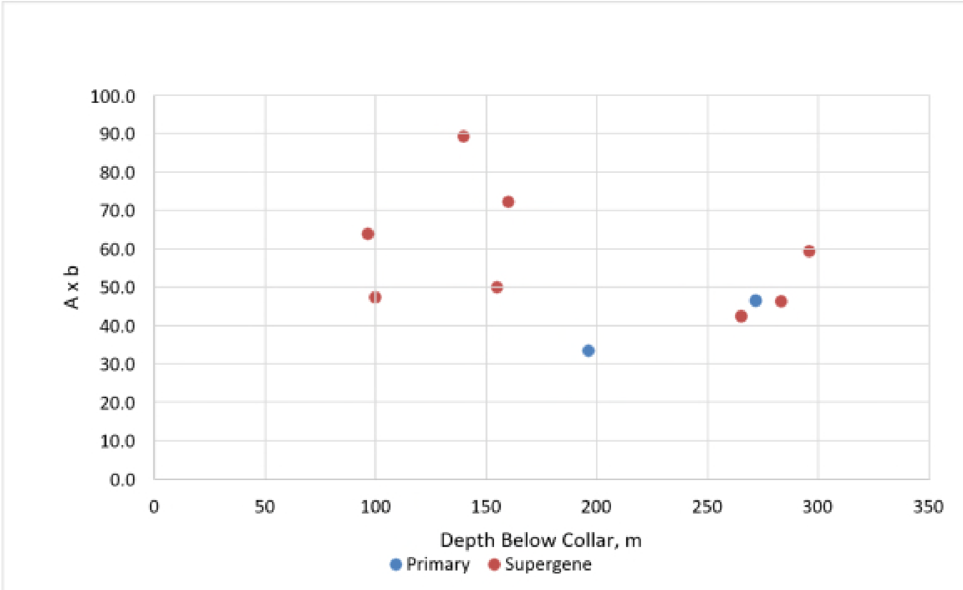


Figure 10-2: A x b Values as Function of Depth

From the 10 mineralized material samples tested the A x b values decrease (i.e. the mineralized material becomes harder) with depth. Further the two samples tested of the primary sulphide mineralized material type show lower A x b values than the supergene material. The primary domain makes up a larger portion of the concentrator feed blend starting in Y24 of plant life.

10.4 Metallurgical Performance Predictions

Increasing, or coarsening, the grind size shows a decrease in the overall flotation recovery of both the primary and supergene samples. However, increasing the grind size improves the enrichment ratio in both types of samples and the final concentrate contains a higher copper grade. In coarse particle flotation the amount of entrained gangue in the concentrate normally decreases. Figure 10-3 shows the correlations of recovery and enrichment ratio with grind size. Based on the recovery and enrichment ratio correlations with the grind size, a P80 of 175 µm is the optimum grind size for the primary and supergene samples. The concentrate regrind size in cleaner flotation did not show a significant effect on the recovery but the enrichment ratio decreased by increasing the grind size in the primary samples.

Therefore, a P80 of 25 µm is likely the optimum grind size to maximize the flotation efficiency Table 10-2

Table 10-2: Copper Distribution in Rougher Tails of Samples

Primary zone						**Supergene zone**				
Grind Size P80 microns						Grind Size P80 microns				
Sample	150µm	75 µm	45 µm	-45 µm		Sample	150µm	75 µm	45 µm	-45 µm
9247	56	17	10	17		9,257	17	7	6	71
9,248	6	32	18	45		9,258	11	15	16	58
9,249	24	13	11	52		9,259	43	27	7	24
9,250	48	7	21	24		9,260	21	15	16	48
9,251	9	12	9	70		9,261	31	18	7	44
9,252	47	20	8	26		9,262	7	5	9	79
9,253	24	14	13	48		9,263	63	7	7	24
9,254	18	18	10	55		9,264	28	13	6	54
9,255	33	10	7	50		9,265	17	14	8	60
9,256	30	14	7	49		9,266	34	12	8	45
Average	**30**	**16**	**11**	**44**		9,267	6	3	14	78
						9,268	14	10	8	68
						9,269	25	3	15	58
						Average	**24**	**11**	**10**	**55**

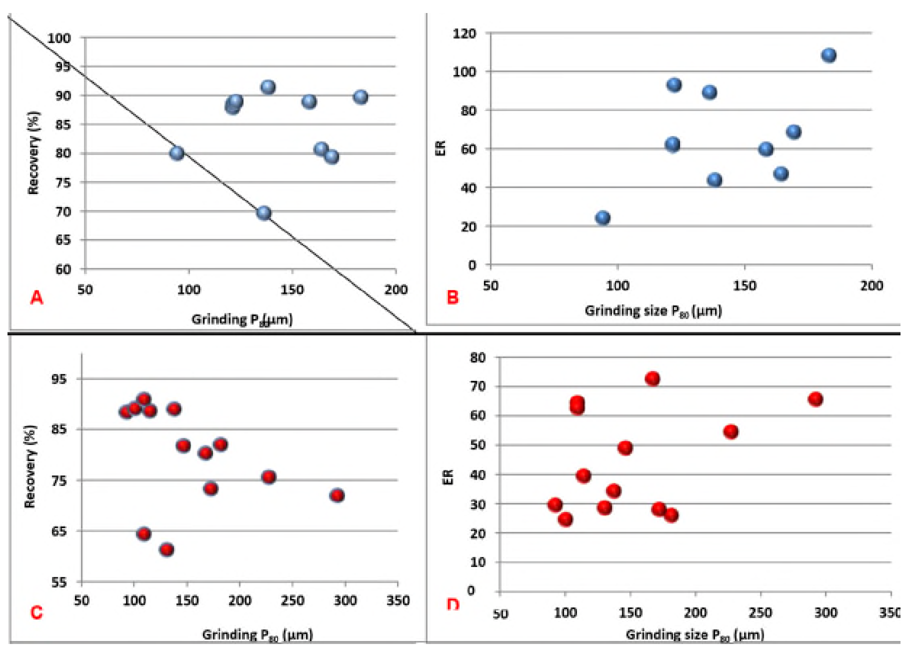


Figure 10-3:

a) Grind Size and Recovery of the Primary Samples,
b) Grind size and ER of the Primary Samples,
c) Grind Size and Recovery of the Supergene Samples,
d) Grind Size and ER of the Supergene Samples

An investigation into coarse mineralized material flotation was carried out by SGS Lakefield laboratories in the summer of 2016. Based on the overall life of mine plan tonnages, a blend of 45% from the primary zone and 55% from the supergene zone was tested. The flotation conditions were selected based on the optimum flotation conditions determined from the previously reported tests on the primary and supergene samples. In this regard, the following reagents were selected for the coarse flotation tests: lime as a modifier, A-3477, Flexon 715 and SIBX as collectors and F-150 as frother and the overall flotation retention time was 19 min for the kinetic tests. Figure 10-4 shows neither a fine (92 µm) nor a coarse grind size (262 µm) provide the optimum metallurgical performance. Instead, the medium grind size (134 µm) demonstrates better metallurgical results.

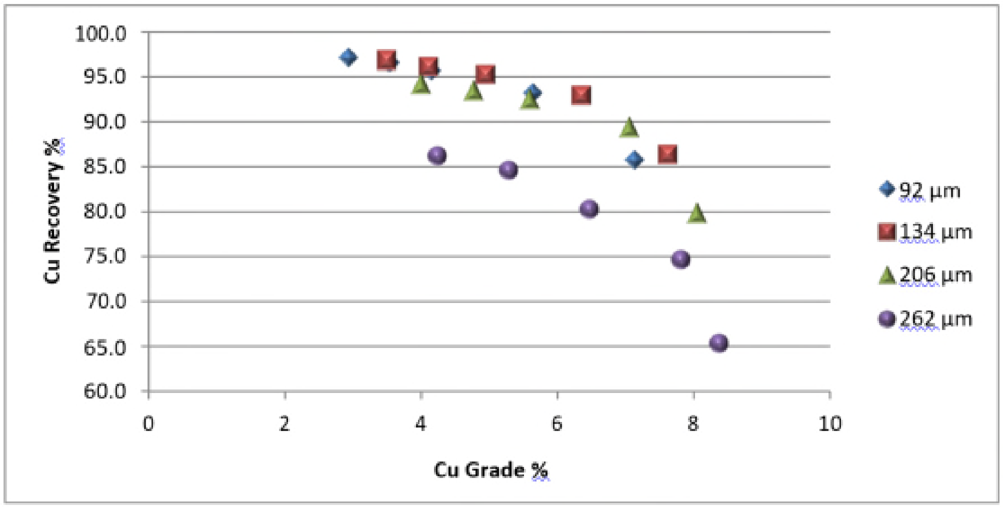


Figure 10-4: Grade-Recovery Curve as a Function of Flotation Feed Particle Size

On the other hand, Table 10-3 demonstrates that increasing the grind size from 125 µm to 206 µm decreases the rougher mass pull by 25% and increases the rougher concentrate grade from 4.49% to 4.76% after 10 minutes of flotation. Copper recovery decreases by 2.7%.

Table 10-3: A Summary of Mass Pull, Grade and Recovery of the Copper Concentrate

	Grind size (µm)						
	92	**125**	**134**	**150**	**175**	**206**	**262**
Mass pull %	16	14.2	14	13.1	12	11.4	9
Copper Conc. Grade %	4	3.97	4	4.24	4	4.76	5
Copper Recovery%	97	96.2	96	95.5	95	93.5	85

An optimum therefore exists based on capital and operational cost savings versus reduced recovery at coarser grind sizes. A preliminary trade-off study was conducted which recommended a 175 µm grind size as it allows for smaller equipment sizes without a drastic loss in overall recovery.

Figure 10-5 shows the rate of recovery of the sulphide minerals (chalcopyrite, bornite and chalcocite) increases as the grind size increases. However, the copper recovery decreases as a result of losing the locked, unliberated copper. Because of this, improving sulphide mineral recovery through coarse flotation does not result in an increase in copper recovery. Figure 10-6 presents the results of kinetic testwork on four grind sizes.

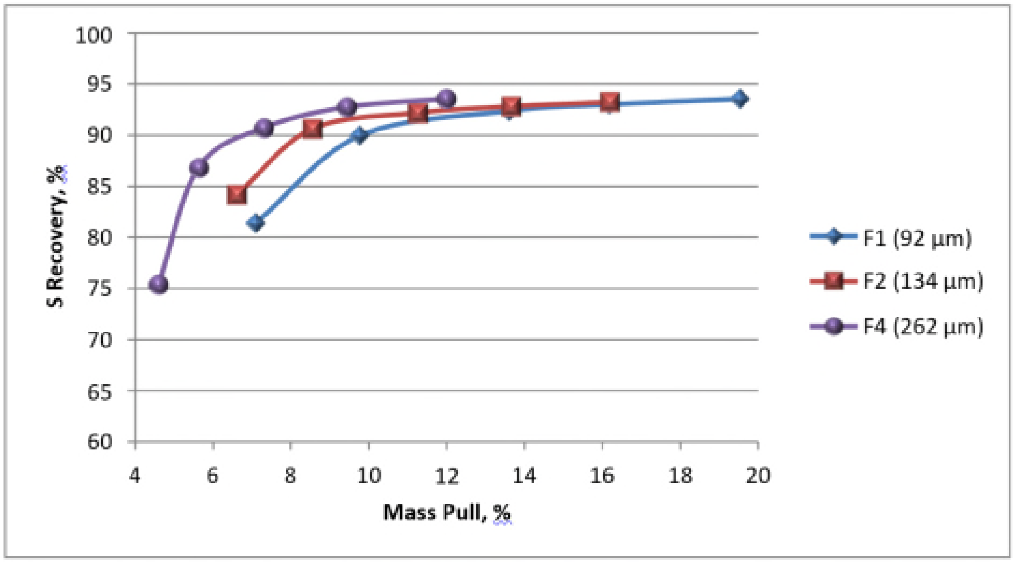


Figure 10-5: Sulphur Recovery Variations in Four Grind Sizes

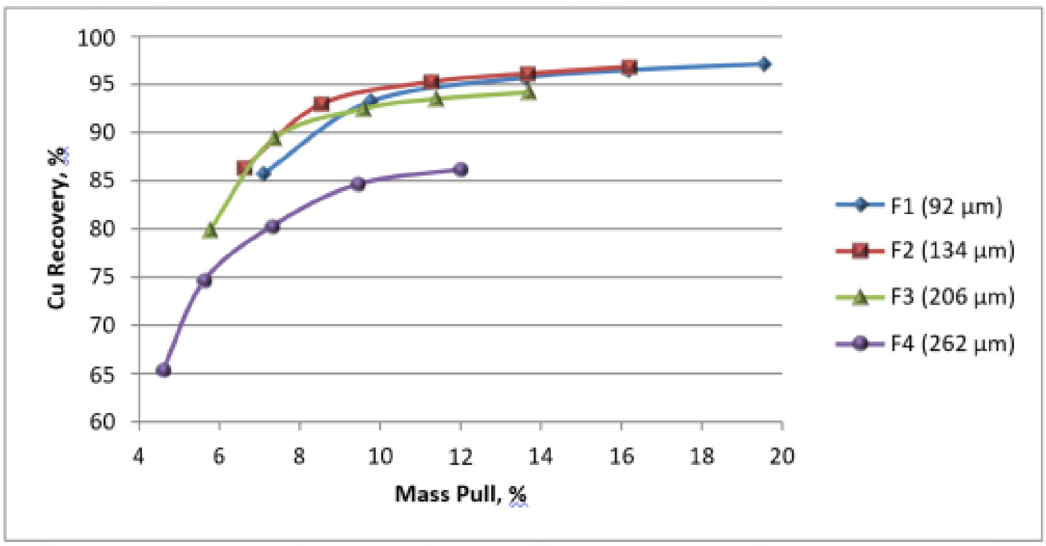


Figure 10-6: Copper Recovery Variations for Four Grind Sizes

11 MINERAL RESOURCE ESTIMATES

11.1 Data Used for Mineralized Material Grade Estimation

Mining Plus is a firm employing mining engineers and geologists and is the independent Qualified Firm (QP) for presenting the estimation of mineral resources encompassed in this report, prepared under the requirements of the SEC S-K §229.1302 and S-K §229.1304 guidelines for individual property reporting.

This section of the technical report describes the resource estimation methodology and summarizes the key assumptions considered by the Qualified Firm to prepare the resource model for the copper, gold, molybdenum and silver mineralization at the Los Azules project. This is an update of mineral resource estimates for the Los Azules project based on drilling results and sample data prepared for McEwen Mining Inc. (McEwen Mining) on June 3, 2017 and includes data from the 2017 infill drilling campaign. The previous resource estimate was generated in August 2013 and presented in a technical report dated November 1, 2013.

In the opinion of the Qualified Firm, the resource evaluation reported herein is a reasonable representation of the mineralization found at the Los Azules project at the current level of sampling. The mineral resource has been estimated by conforming to the generally accepted CFR Standard Instructions for Filing Forms Under Securities Act of 1933 (February 24, 2021) and is reported in accordance with the Securities and Exchanges Commission' S-K-§229.1300 to S-K §229.1305 regulations for an initial individual property assessment. Mineral resources are not mineral reserves, and they do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into a mineral reserve upon application of modifying factors.

Estimations are made from 3D block models based on geostatistical applications using commercial mine planning software (MineSight® v12.0). The project limits are based in the UTM coordinate system using a nominal block size of 20 x 20 x 15 m (L x W x H). The majority of drilling was conducted using vertical holes, with the exception of a few rare-angled holes in areas where surface access wasn't possible. Drill holes are generally spaced between 150 m and 400 m intervals over the main area of the resource; the resource measures approximately 4,000 m north-south by 1,500 m west-east. A geologic interpretation of pertinent domains was conducted using a series of vertical west-east-oriented cross sections spaced at 150 m intervals throughout the deposit.

The resource estimate was generated using drill hole sample assay results and the interpretation of a geologic model that relates to the spatial distribution of copper, gold, molybdenum and silver in the deposit. Interpolation characteristics were defined based on the geology, drill hole spacing and geostatistical analysis of the data. In addition to elements listed here, a series of other elements were estimated in the resource model; these include zinc, lead, sulphur and arsenic. The resources were classified according to their proximity to copper sample data locations and were reported, as required by §229.1302 and described in Table 1 to Paragraph (d).

On June 3, 2017, McEwen Mining provided the drill hole database in an MS Excel® spreadsheet file that contained collar data, assay results, geologic information and geotechnical data for 17 drill holes completed during the 2017 program. Fourteen of these are delineation holes targeting the Los Azules deposit, two holes test the geotechnical conditions of a potential tailings dam site located 6 km west of Los Azules and one hole was completed to evaluate the characteristics of the near-surface pre-strip material overlying the deposit. The data for these newer drill holes were formatted and appended to the previous MineSight® database. The location of the new drill holes, in relation to previous drilling, is shown in Figure 11-1. The majority of the new drill holes are located on the central and northern part of the deposit. The objective of the 2017 program was to test areas where gaps existed in the drilling pattern, and, ultimately, upgrade several zones of previously determined Inferred mineral resources to the Indicated category.

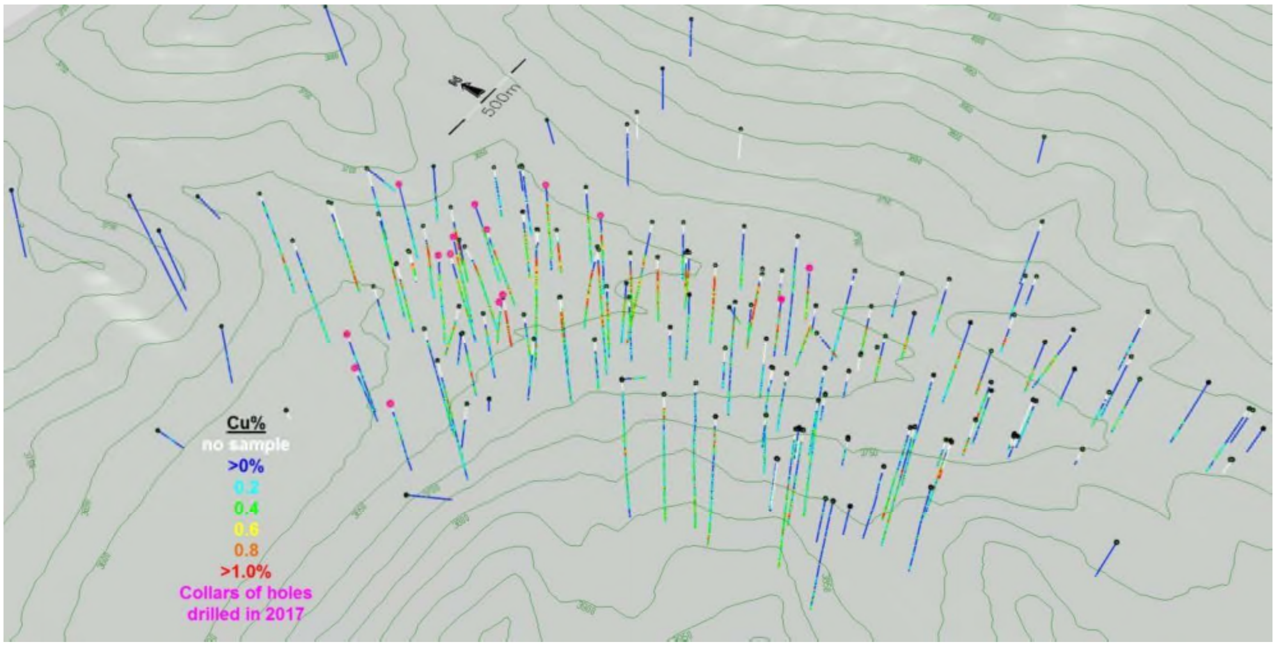


Figure 11-1: Isometric View Showing Copper Grades and Location of New Drill Holes (Sim, 2017)

There are a total of 202 drill holes in the database with a total length of 65,987 m. Twenty holes in the database have no sample results because either problem were encountered during drilling and they had to be terminated and re-drilled, or they were drilled for geotechnical or condemnation purposes. Twenty-four holes in the database were exploratory in nature and tested for satellite deposits. Therefore, there are a total of 158 drill holes located in the vicinity of the Los Azules deposit and the sampling results and geologic information from these holes have been used to generate the resource model. Figure 11-1 shows the distribution of these drill holes.

There are 28 rotary (RC) holes in the database that were drilled before McEwen Mining was involved in the project. Only five of these holes are located in the main mineralized area of the deposit. The geologic and assay results from these RC holes are similar to proximal core holes and, as a result, they were included in the development of the resource model, without modifications or adjustments.

Drill holes are spaced at intervals of between 150 m and 400 m. Since 2009, efforts have been made to delineate the deposit on a nominal 150 m grid. This was hampered by local topography and the presence of a series of vegas (small wetlands) in the northern area of the deposit. The majority of holes are vertically oriented, but some are inclined at angles between -82° and -50°, with various azimuths. There is no apparent difference in the results encountered in vertical versus inclined drill holes.

There are 30,675 individual samples in the database with sample intervals that range between 0.1 m and 12.55 m long, with an average length of 1.83 m. Since 2010, McEwen Mining has standardized samples over 2 m intervals, except where dictated by geologic contacts. A full 40-element assay suite was run during a recent drilling program and includes: copper, gold, silver, arsenic, molybdenum, lead, zinc and sulphur; previous programs analyzed only select elements. Several of these elements (i.e., arsenic, lead, zinc and sulphur) have not been verified with certified standards, but they were included in the resource model to provide additional insight into the nature of the deposit.

Portions of 137 drill holes have also been analyzed for sequential copper concentrations. The cyanide-soluble copper grades provide useful information to locate the base of the supergene horizon. Acid-soluble copper percent and cyanide-soluble copper percent grades have not been validated with a QA/QC program.

The sample results that were originally defined as below the detection limit in the database (total copper < 0.01) were entered at one-half the detection limit value.

A basic statistical summary of assay data information is shown in Table 11-1.

Table 11-1: Summary of Assay Data

Element	Samples	Total Length (m)	Minimum	Maximum	Mean	Standard Deviation
Copper (%)	30,675	56,382	0	13	0	0
Gold (g/t)	30,610	56,250	0	10	0	0
Silver (g/t)	30,533	56,019	0	954	2	6
Molybdenum (%)	30,677	56,382	0	0	0	0
Arsenic (%)	30,534	56,020	0	1	0	0
Lead (%)	29,615	54,187	0	8	0	0
Zinc (%)	29,615	54,187	0	25	0	0
AS Copper (%)	19,672	39,714	0	1	0	0
CS Copper (%)	19,672	39,714	0	7	0	0
Sulphur (%)	11,704	23,647	0	18	1	1

Locally, drill hole recoveries were poor due to blocky ground conditions that are common in the area. The average core recovery for the sample intervals in the supergene and primary zones is 88%, with approximately only 6% of sample intervals with recoveries below 50%.

There is no correlation between copper grade and recovery. There have been no adjustments to or exclusions of data in relation to recoveries prior to block grade estimations.

The geologic information is derived from observations during logging and includes lithology, alteration type and mineral zone (MinZone) type.

11.2 Resource Estimate Methodology, Assumptions and Parameters

Geology at Los Azules comprises Mesozoic volcanic rocks intruded by a Miocene diorite stock which is intruded by a sub-parallel suite of diorite-dacite dikes along a major north- northwest-striking fault zone. Porphyry copper-style mineralization and hydrothermal alteration are spatially, temporally and genetically related to the dikes followed by some remobilization of the higher, near surface, mineralization. In many respects, the Los Azules deposit is a classic, Andean-style porphyry copper deposit. Mineralization consists of pyrite, chalcopyrite and bornite in the primary or hypogene zone, and secondary chalcocite with subsidiary covellite in the secondary or supergene enrichment blanket that overlies the hypogene mineralization.

The supergene enrichment zone was produced by the circulation of acidic, meteoric waters that were created by the breakdown of pyrite. These acidic solutions circulated through the upper oxidized portions of the original deposit leaching out the copper; the copper was re- deposited at lower levels, superimposed on and replacing the original hypogene mineralization. The secondary enrichment zone underlies a barren leached zone, and the primary hypogene mineralization is present below the secondary enrichment zone.

Separate domains have been interpreted for Overburden (OVB), Leach (LX), Supergene (SS) and Primary (PR) zones using a combination of mineral-zone logging (i.e., a visual observation of enrichment minerals, such as chalcocite and/or covellite) and assay grades. In many areas, the base of the SS is defined by intervals with greater than 50% cyanide-soluble copper; the ratio of cyanide-soluble copper (CSCu) divided by total copper (CuT) is expressed as a percentage. Soluble copper assay data are not present in all drill holes, and, in these cases, visual observation information is used.

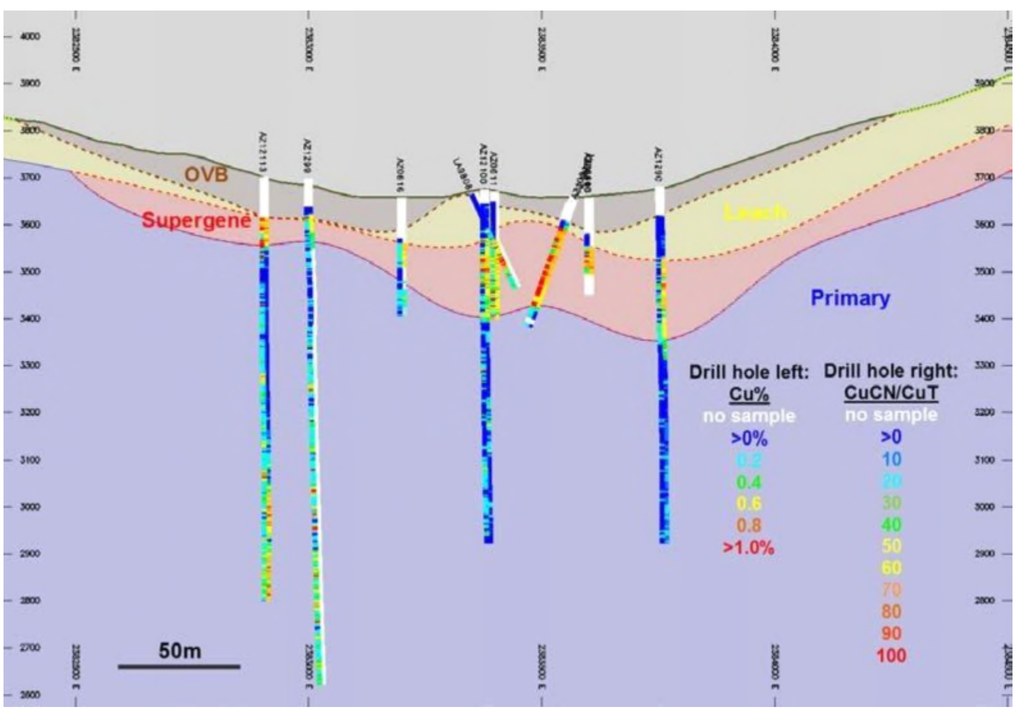


Figure 11-2: Vertical Cross Section 6559050N Showing Copper Grade, Ratio Cyanide-Soluble Copper and MinZone Domains (Sim, 2017)

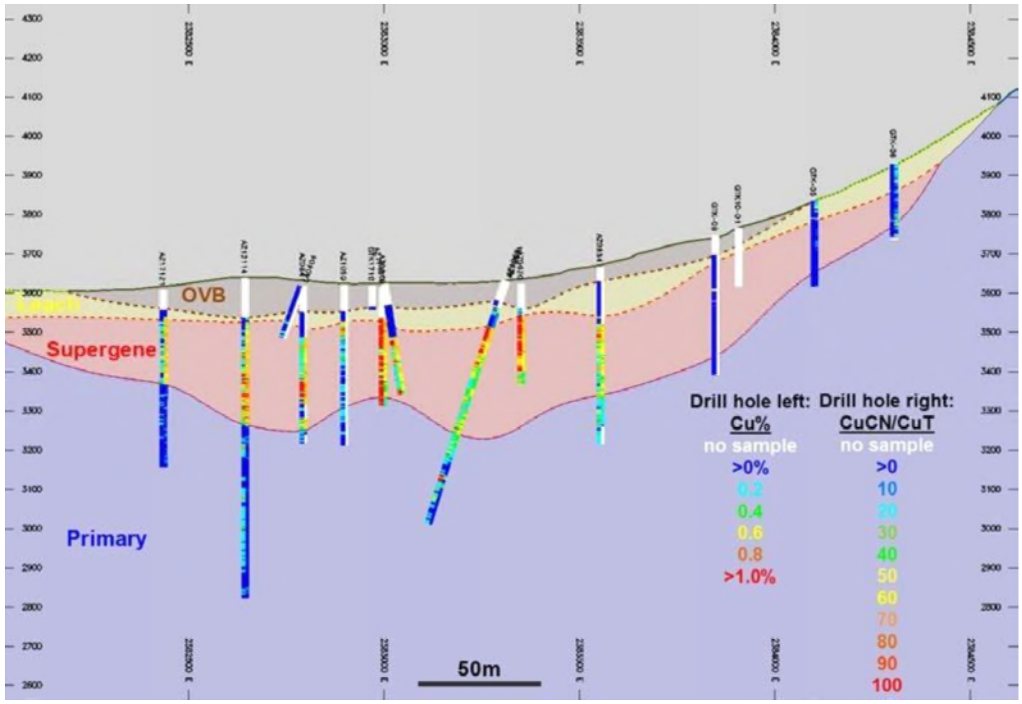


Figure 11-3: Vertical Cross Section 6559800N Showing Copper Grade, Ratio Cyanide-Soluble Copper and MinZone Domains (Sim, 2017)

The OVB zone is thickest in the valley floor and thinnest where the slopes steepen to the west and east. The OVB zone thicknesses are variable and peak at 100 m in some locations, with an average thickness of approximately 60 m above the area of the deposit containing significant copper mineralization. The LX zone is also locally variable in thickness, from non- existent in some drill holes to almost 200 m in others, with an average thickness of approximately 40 m above the deposit. The underlying SS zone is also somewhat variable in thickness from zero to over 250 m, with an average thickness of approximately 70 m. At the northern end of the deposit, visible chalcocite is present to depths of almost 600 m below surface. This deeper, secondary-type mineralization is patchy in nature and may be the result of remobilization along structural features, or it may be primary in nature.

McEwen Mining geologists also produced 3D wireframe domains representing the interpretation of the lithologic units at Los Azules. Figure 11-4 shows the shape and location of two intrusive phases: a rhyodacite porphyry intrusion believed to be related to initial high- grade primary mineralization and a dacite porphyry representing a later-stage that is generally associated with lower-grade areas of mineralization.

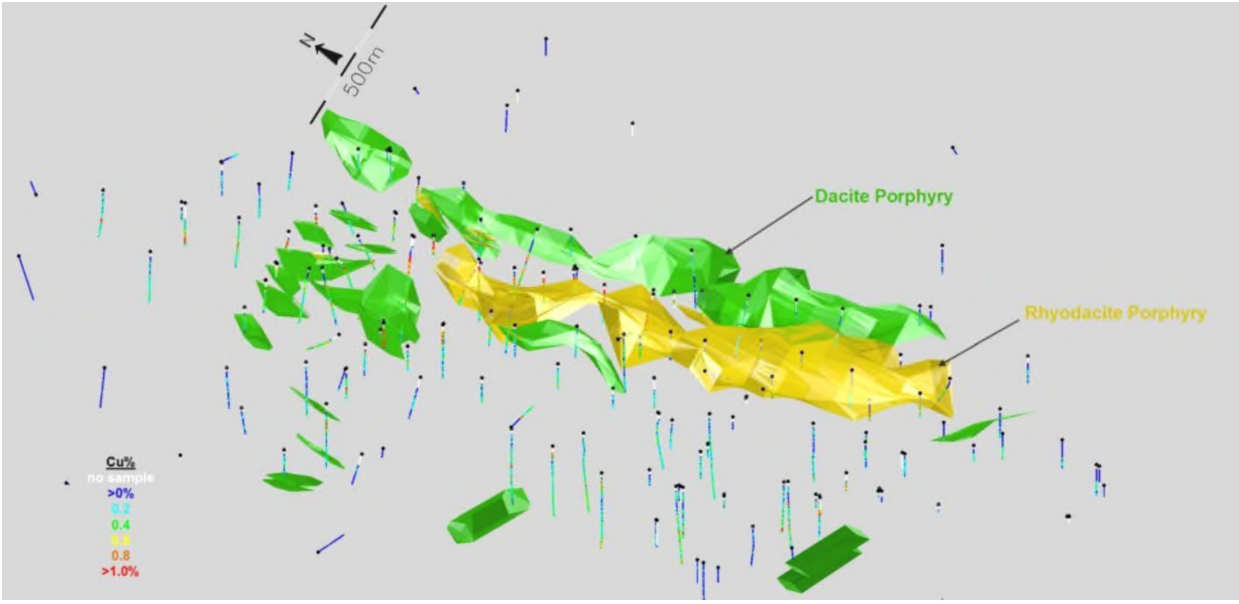


Figure 11-4: Isometric View of Intrusive Dacite and Rhyodacite Porphyries (Sim, 2017)

The distribution of the interpreted sericite and chlorite-sericite alteration domains shown in Figure 11-5 are similar in shape and location to the porphyritic phases shown in Figure 11-4. Other alteration domains include a deep pervasive potassic phase overlain by thick pervasive zone of chlorite alteration.

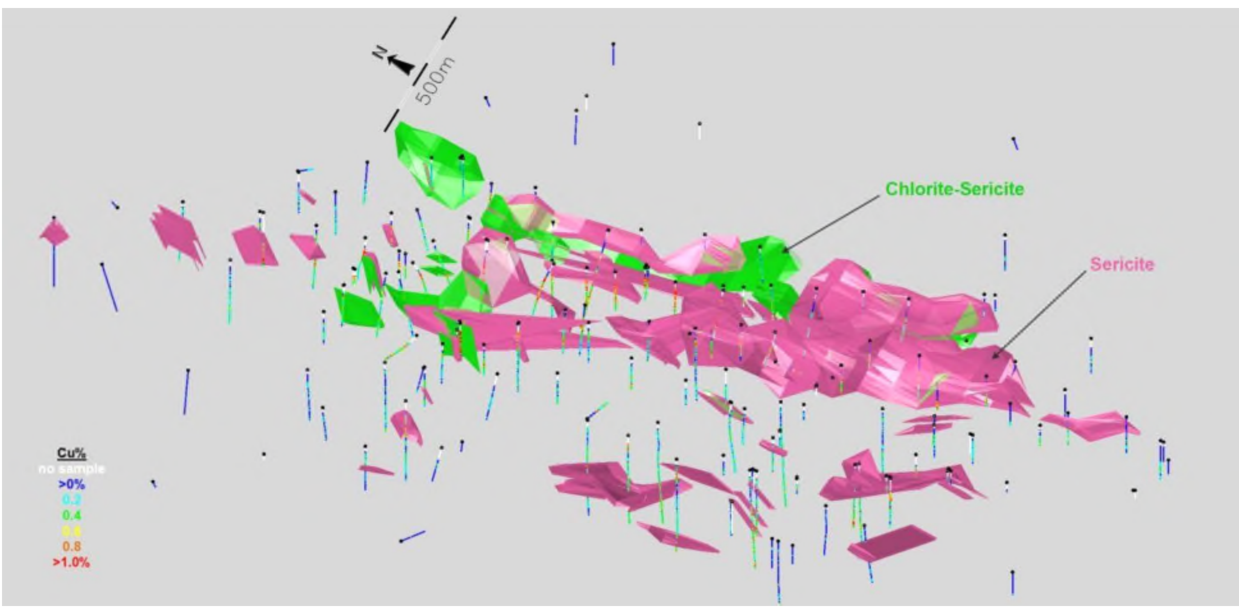


Figure 11-5: Isometric View of Sericite and Chlorite-Sericite Alteration Domains (Sim, 2017)

Finally, McEwen Mining geologists also interpreted zones of hydrothermal breccias that often contain magnetite. The distribution of these zones is shown in Figure 11-6.

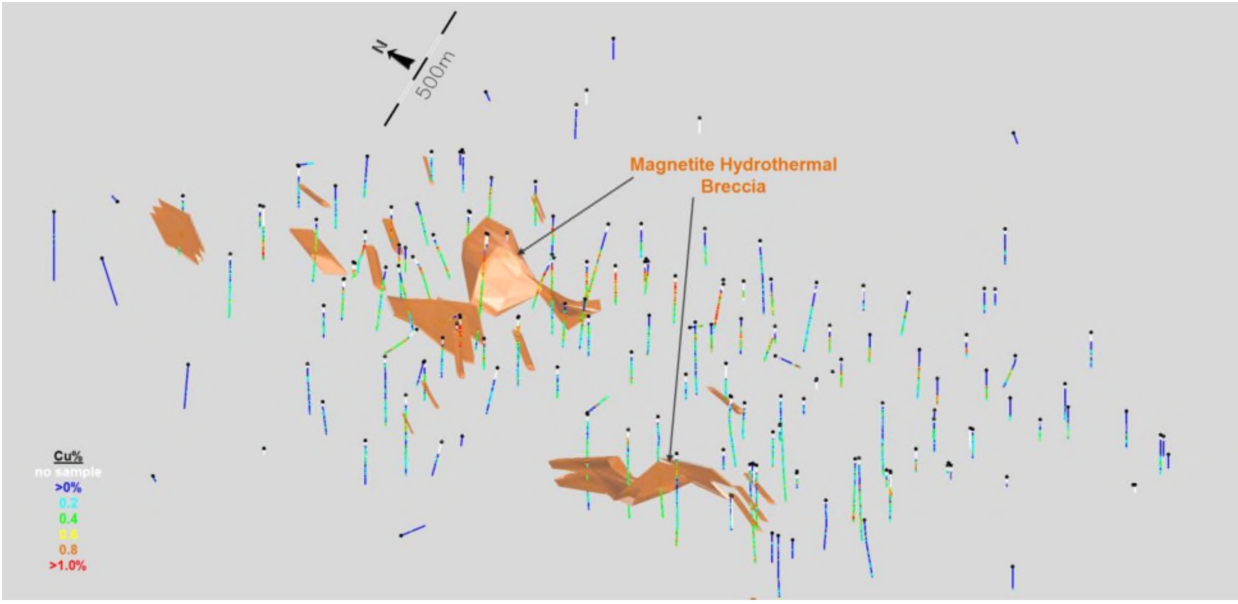


Figure 11-6: Isometric View of Magnetite Hydrothermal Breccias (Sim, 2017)

The various domains interpreted for the Los Azules deposit are listed in Table 11-2.

Table 11-2: Summary of Geologic Domains

Domain	Code	Comments
Mineral Zone		
Overburden (OVB)	1	Surface soil and gravels.
Leach (LX)	2	Rock in which the majority of sulfide mineralization has been leached.
Supergene (SS)	3	Zones where enrichment mineralogy is present (chalcocite and/or covellite); generally > 50% cyanide-soluble copper.
Primary (PR)	4	Hypogene sulfide mineralogy (pyrite, chalcopyrite and bornite).
Lithology		
Diorite	101	Original volcanic host rocks.
Dacite Porphyry	102	Later stage low-grade porphyry.
Rhyodacite Porphyry	103	Early porphyry responsible for higher-grade primary porphyry mineralization.
Alteration		
Chlorite	201	Pervasive upper chlorite alteration.
Potassic	202	Pervasive deeper biotite alteration.
Sericite	203	Sericite zones related to porphyry intrusions.
Chlorite/Sericite	204	Related to porphyry intrusions.
Structure		
Mag. Hydrothermal Breccia	301	Zones of hydrothermal breccias with magnetite.
No Breccia	302	No breccias evident.

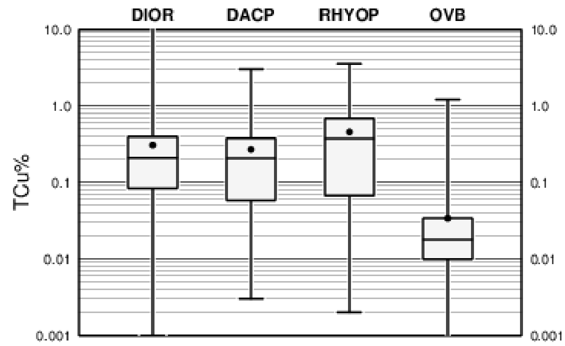
Exploratory data analysis (EDA) involves statistically summarizing the database to quantify the characteristics of the data. The main purpose of EDA is to determine if there is any evidence of spatial distinctions in grade; if this occurs, a separation and isolation of domains during interpolation may be necessary. An unwanted mixing of data is prevented by applying separate domains during interpolation: the result is a grade model that better reflects the unique properties of the deposit. However, applying domain boundaries in areas where the data are not statistically unique may impose a bias in the distribution of grades in the model.

A domain boundary, which segregates the data during interpolation, is typically applied if the average grade in one domain is significantly different from that of another domain.

A boundary may also be applied when there is evidence that a significant change in the grade distribution exists across the contact.

The basic statistics for the distribution of copper, and all other elements included in the block model, were generated by lithology type, alteration type and MinZone type.

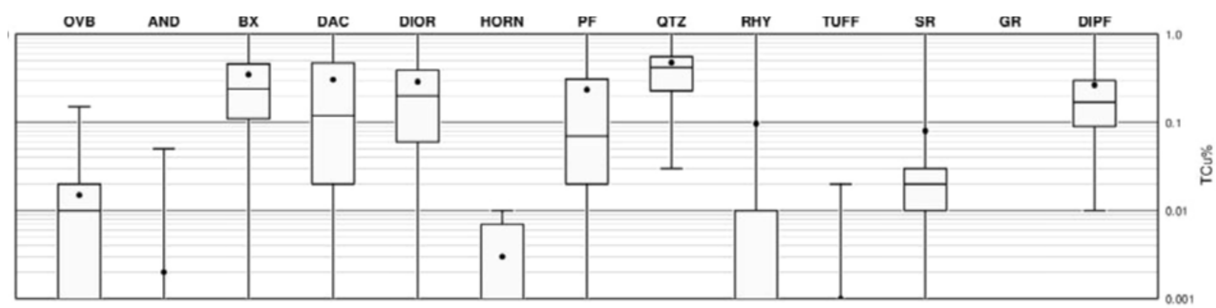
The distribution of total copper (TCu) by interpreted lithology domain, as shown in the boxplot in Figure 11-7, shows similar and overlapping grade distributions in all three lithology domains. Visual observations show that the distribution of copper grade is not distinctly controlled by the lithology domains. This feature is applicable to all elements included in the resource block model.



	DIOR	DACP	RHYOP	OVB	
Number of data	19239	2479	2555	262	Number of data
Mean	0.308	0.27	0.456	0.034	Mean
Variance	0.134	0.078	0.184	0.009	Variance
Skewness	5.569	2.509	1.423	10.091	Skewness
Coef of Variation	1.186	1.035	0.94	2.783	Coef of Variation
Maximum	12.886	3.038	3.523	1.21	Maximum
Upper quartile	0.398	0.38	0.692	0.034	Upper quartile
Median	0.207	0.205	0.376	0.018	Median
Lower quartile	0.084	0.058	0.067	0.01	Lower quartile
Minimum	0.001	0.003	0.002	0.0	Minimum

Figure 11-7: Boxplot of Copper by Lithology Domain (Sim, 2017)

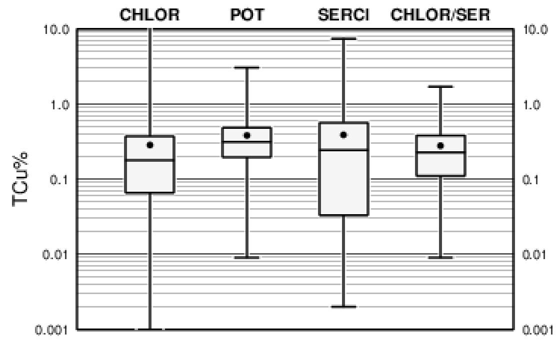
Figure 11-8 is a boxplot showing the distribution of copper by logged rock type. It shows similar copper contents in many rock types (i.e., breccias, dacite, diorite, feldspar porphyry, quartz and feldspar diorite porphyry), which is a further indication that mineralization does not occur in distinct rock units.



OVB	AND	BX	DAC	DIOR	HORN	PF	QTZ	RHY	TUFF	SR	GR	DIPF	
281	263	6009	1291	13537	23	3640	38	1002	68	137	54	1281	Number of data
0.015	0.002	0.349	0.305	0.289	0.003	0.235	0.477	0.097	0.001	0.08	0.0	0.265	Mean
0.0	0.0	0.16	0.153	0.117	0.0	0.14	0.129	0.057	0.0	0.029	0.0	0.096	Variance
2.013	4.518	3.839	1.633	6.438	1.089	3.526	1.566	2.604	3.585	3.834	0.0	3.537	Skewness
1.295	2.98	1.145	1.283	1.183	1.683	1.593	0.753	2.452	3.428	2.157	0.0	1.171	Coef of Variation
0.15	0.05	7.42	2.47	12.89	0.01	5.2	1.64	1.34	0.02	1.26	0.0	3.13	Maximum
0.02	0.0	0.46	0.471	0.39	0.007	0.31	0.554	0.01	0.0	0.03	0.0	0.3	Upper quartile
0.01	0.0	0.24	0.12	0.2	0.0	0.07	0.42	0.0	0.0	0.02	0.0	0.17	Median
0.0	0.0	0.11	0.02	0.06	0.0	0.02	0.228	0.0	0.0	0.01	0.0	0.09	Lower quartile
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.0	0.0	0.0	0.0	0.01	Minimum

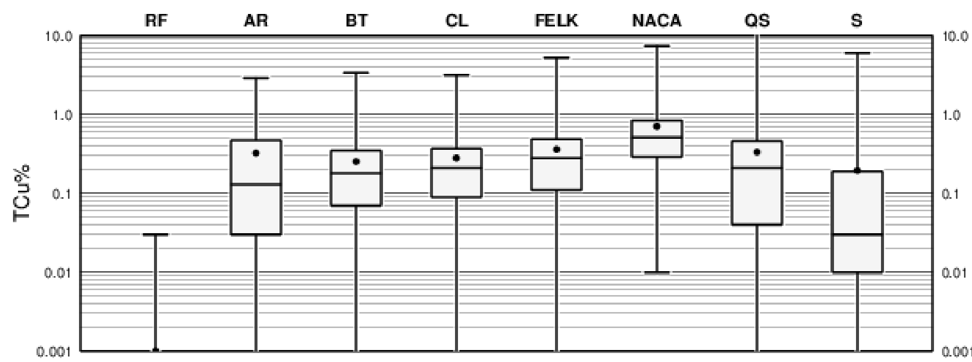
Figure 11-8: Boxplot of Copper by Logged Rock Type (Sim, 2017)

In the boxplot shown in Figure 11-9, the distribution of copper by alteration domain shows similar grade distributions in all alteration types. In the boxplot shown in Figure 11-10, a similar result is generated when comparing copper by logged alteration type, indicating that the distribution of copper is not controlled by alteration. Similar results were observed for all other elements included in the block model.



	CHLOR	POT	SERCI	CHLOR/SER
Number of data	13886	4321	4240	1136
Mean	0.286	0.384	0.391	0.28
Variance	0.127	0.087	0.231	0.05
Skewness	6.124	2.42	3.121	1.36
Coef of Variation	1.248	0.768	1.23	0.796
Maximum	12.886	3.038	7.418	1.695
Upper quartile	0.374	0.487	0.569	0.385
Median	0.18	0.315	0.244	0.228
Lower quartile	0.066	0.197	0.033	0.111
Minimum	0.001	0.009	0.002	0.009

Figure 11-9: Boxplot of Copper by Alteration Domain (Sim 2017)

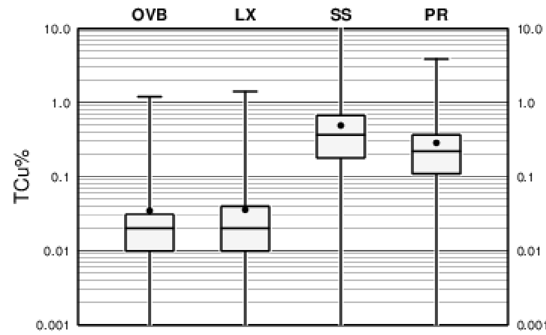


	RF	AR	BT	CL	FELK	NACA	QS	S
Number of data	707	626	7266	5031	1352	273	9010	2847
Mean	0.001	0.325	0.253	0.281	0.361	0.707	0.334	0.195
Variance	0.0	0.185	0.067	0.075	0.166	0.5	0.177	0.15
Skewness	4.456	2.04	2.473	2.725	4.33	4.062	5.277	4.048
Coef of Variation	3.937	1.323	1.023	0.977	1.128	1.001	1.26	1.98
Maximum	0.03	2.92	3.37	3.15	5.2	7.42	12.89	5.99
Upper quartile	0.0	0.47	0.35	0.37	0.49	0.842	0.46	0.19
Median	0.0	0.13	0.18	0.21	0.28	0.51	0.21	0.03
Lower quartile	0.0	0.03	0.07	0.09	0.11	0.29	0.04	0.01
Minimum	0.0	0.0	0.0	0.0	0.0	0.01	0.0	0.0

Figure 11-10: Boxplot of Copper by Logged Alteration Type (Sim, 2017)

Figure 11-11 shows distinct differences in the distribution of copper by MinZone domain. The overburden and leach zones are essentially void of any significant copper mineralization.

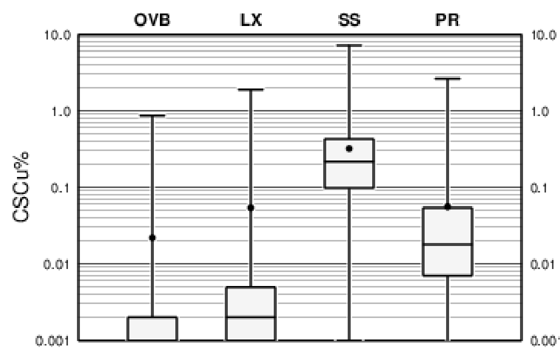
Copper grades are higher in the supergene domain compared to the primary zone, but there is quite a bit of overlap in these distributions suggesting that grades may be similar or transitional at the interface between these two domains.



	OVB	LX	SS	PR
Number of data	262	4518	7541	14017
Mean	0.035	0.036	0.494	0.285
Variance	0.009	0.003	0.227	0.078
Skewness	10.101	9.587	4.845	3.381
Coef of Variation	2.763	1.616	0.965	0.979
Maximum	1.21	1.42	12.89	3.93
Upper quartile	0.031	0.04	0.67	0.37
Median	0.02	0.02	0.37	0.22
Lower quartile	0.01	0.01	0.18	0.11
Minimum	0.0	0.0	0.0	0.0

Figure 11-11: Boxplot of Copper by MinZone Type (Sim, 2017)

Figure 11-12 shows the distribution of cyanide-soluble copper by MinZone domain. There is a distinct difference in the distribution of CSCu between the supergene and primary domains suggesting that these do represent areas with mineralization that is emplaced under different geologic conditions.



	OVB	LX	SS	PR
Number of data	200	1849	6667	10174
Mean	0.022	0.054	0.32	0.056
Variance	0.009	0.035	0.12	0.013
Skewness	5.841	5.107	3.661	6.201
Coef of Variation	4.178	3.461	1.081	2.015
Maximum	0.866	1.908	7.15	2.648
Upper quartile	0.002	0.005	0.43	0.054
Median	0.001	0.002	0.219	0.018
Lower quartile	0.001	0.001	0.098	0.007
Minimum	0.0	0.0	0.001	0.0

Figure 11-12: Boxplot of Cyanide-Soluble Copper by MinZone Type (Sim, 2017)

Additional boxplots by MinZone were generated for the other elements in the block model, and only sulphur was found to follow similar trends to those exhibited for total copper.

Contact profiles evaluate the nature of grade trends between two domains: they graphically display the average grades at increasing distances from the contact boundary. Those contact profiles that show a marked difference in grade across a domain boundary indicate that the two datasets should be isolated during interpolation. Conversely, if a more gradual change in grade occurs across a contact, the introduction of a hard boundary (e.g., segregation during interpolation) may result in a much different trend in the grade model; in this case, the change in grade between domains in the model is often more abrupt than the trends seen in the raw data. Finally, a flat contact profile indicates no grade changes across the boundary; in this case, hard or soft domain boundaries will produce similar results in the model.

Contact profiles were generated to evaluate the change in copper grade across the main MinZone domain boundaries. Figure 11-13 shows a distinct change in grade between the leach and supergene zone domains. There is a relatively distinct, but much less significant, drop in copper grades between the supergene and primary zone domains, as shown in Figure 11-14.

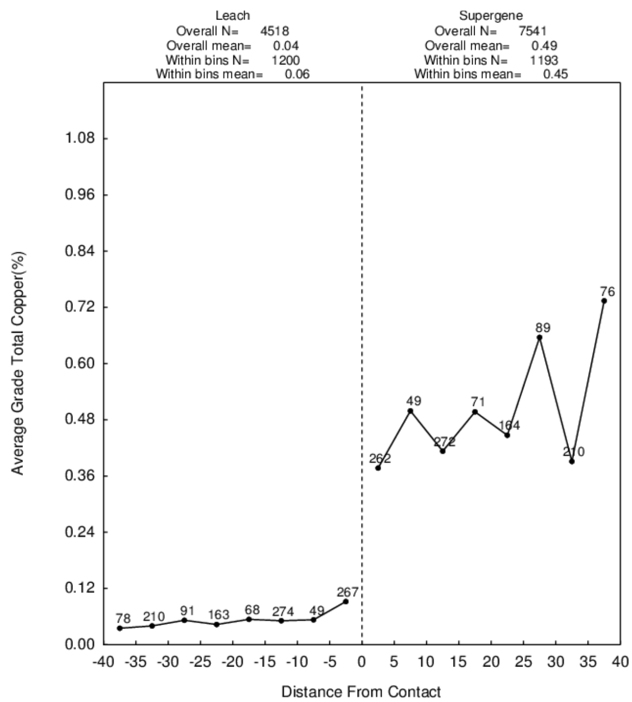


Figure 11-13: Contact Profile of Copper Between Leach and Supergene Domains (Sim, 2017)

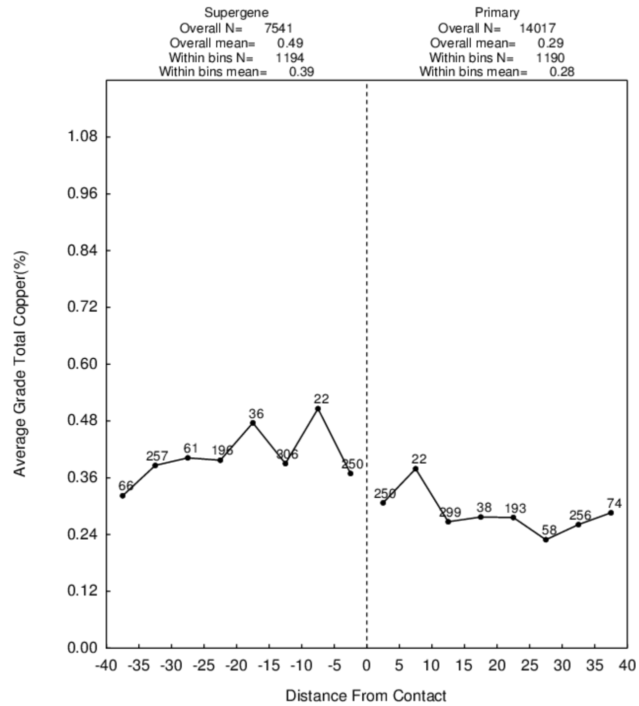


Figure 11-14: Contact Profile of Copper Between Supergene and Primary Domains (Sim, 2017)

Additional contact profiles were generated to evaluate the change in copper grades between the interpreted lithology domains. The results, shown in Figure 11-15, show either no changes or marginally transitional changes in copper grade across these contacts. These results indicate that lithology domains do not contain distinctly different distributions of copper.

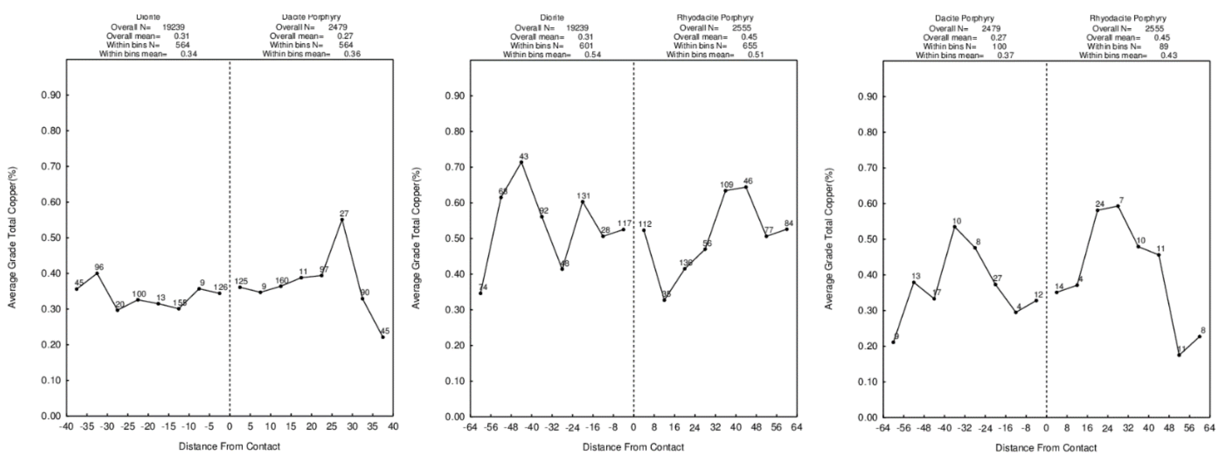


Figure 11-15: Contact Profiles of Copper Between Lithology Domains (Sim, 2017)

The EDA results indicate that there are no distinct properties in the distribution of copper based on the rock type or alteration facies. Although there is geologic evidence that the rhyodacite porphyry may be responsible for the emplacement of higher grade copper mineralization in the southern part of the deposit, this mineralization tends to occur both inside the porphyritic unit and also in the surrounding dioritic host rocks. The original copper mineralization has then been partially leached and remobilized in the supergene zone domain that we see today. The distribution of the chlorite-sericite and sericite alteration generally reflects the shape and location of the rhyodacite porphyry and, as a result, these alteration domains exhibit slightly elevated copper grades, but these are subtle differences and not considered distinct with respect to the distribution of copper in the deposit.

There are significant differences in the distribution of copper between the leach and supergene zone domains. Differences in the distribution of copper between supergene and primary zone domains are not as apparent, but are locally very apparent within the deposit; as a result, all MinZone domains are segregated during estimations of copper distribution in the block model. Similar hard boundary limitations are applied during estimations for sulphur. All other modeled elements do not show distinct distributions by domain and, as a result, limitations were not required during modeling.

The interpolation domains for copper are summarized in Table 11-3.

Table 11-3: Summary of Interpolation Domains

Element	Domain Application
Copper	LX, SS and PR hard boundary domains
Sulphur, ASCu and CSCu	LX, SS and PR hard boundary domains
Au, Ag, Mo, As, Pb and Zn	No internal domains required

The degree of spatial variability in a mineral deposit depends on both the distance and direction between points of comparison. Typically, the variability between samples increases as the distance between those samples increases. If the degree of variability is related to the direction of comparison, then the deposit is said to exhibit anisotropic tendencies which can be summarized with the search ellipse. The semi-variogram is a common function used to measure the spatial variability within a deposit.

The components of the variogram include the nugget, the sill and the range. Often samples compared over very short distances, even samples compared from the same location, show some degree of variability. As a result, the curve of the variogram often begins at some point on the y-axis above the origin: this point is called the nugget. The nugget is a measure of not only the natural variability of the data over very short distances, but also a measure of the variability which can be introduced due to errors during sample collection, preparation and the assay process.

The amount of variability between samples typically increases as the distance between the samples increases. Eventually, the degree of variability between samples reaches a constant, maximum value; this is called the sill and the distance between samples at which this occurs is called the range.

The spatial evaluation of the data in this report was conducted using a correlogram rather than the traditional variogram. The correlogram is normalized to the variance of the data and is less sensitive to outlier values, generally giving better results.

Variograms were generated using the commercial software package SAGE 2001© (Isaacks & Co.). Multidirectional variograms were generated for composited copper samples located within the combined supergene and primary domains. The results for copper are summarized in Table 11-4.

Table 11-4: Variogram Parameters – Copper

Domain	Nugget	S1	S2	1st Structure			2nd Structure		
				Range (m)	Azimuth	Dip	Range (m)	Azimuth	Dip
Leach	0.1	0.682	0.218	79	337	43	2232	200	72
	Spherical			77	75	77	75	8	1533
				9	173	9	173	46	338
Supergene	0.25	0.446	0.304	234	35	-4	1951	337	-5
	Spherical			61	124	15	412	17	83
				54	320	75	303	68	-4
Primary	0.2	0.468	0.332	241	8	343	-25	343	-25
	Spherical			212	59	17	464	335	65
				14	323	19	280	71	3

A block model was initialized in MineSight® and the dimensions are defined in Table 11-5. The selection of a nominal block size measuring 20 x 20 x 15 m (L x W x H) is considered appropriate with respect to the current drill hole spacing, and the selective mining unit (SMU) size is typical of an operation of this type and scale.

Table 11-5: Block Model Limits

Direction	Minimum	Maximum	Block Size (m)	# Blocks
East	2,380,800	2,385,800	20	250
North	6,556,400	6,562,300	20	295
Elevation	2,605	4,390	15	119

Blocks in the model were coded on a majority basis with the MinZone domains. During this stage, blocks along a domain boundary are coded if more than 50% of the block occurs within the boundaries of that domain.

The proportion of blocks that occur below the topographic surface is also calculated and stored within the model as individual percentage items. These values are used as weighting factors to determine the in-situ resources for the deposit.

The block model grades for all elements are estimated using Ordinary Kriging (OK). The results of the OK estimation are compared with the Hermitian Polynomial Change of Support method, also referred to as the Discrete Gaussian Correction.

The Los Azules OK model is generated with a relatively small number of samples to match the change of support, or Herco (Hermitian Correction) grade distribution. This approach reduces the amount of smoothing or averaging in the model, and, while there may be some uncertainty on a localized scale, this approach produces a reliable estimate of the recoverable grades and tonnages for the overall deposit.

All grade estimates use length-weighted composite drill hole sample data. Hard boundaries are applied to the MinZone domains during the interpolation of total copper and sulfur grades. The interpolation parameters are summarized by domain in Table 11-6.

Table 11-6: Interpolation Parameters

Element/ Domain	Search Ellipse Range (m)			# Composites			Other
	X	Y	Z	Min/block	Max/block	Max/hole	
Copper Leach	1,000	1,000	100	7	24	8	1 DH per octant
Supergene	1,000	1,000	100	7	80	20	1 DH per octant
Primary	1,000	1,000	100	7	60	15	1 DH per octant
Gold	1,000	1,000	100	10	100	25	1 DH per octant
Silver	1,000	1,000	100	10	100	25	1 DH per octant
Molybdenum	1,000	1,000	100	8	60	15	1 DH per octant
Arsenic	1,000	1,000	100	8	80	20	1 DH per octant
Lead	1,000	1,000	100	10	30	10	1 DH per octant
Zinc	1,000	1,000	100	10	40	10	1 DH per octant
Sulphur Leach	1,000	1,000	100	5	21	7	1 DH per octant
Supergene	1,000	1,000	100	5	60	15	1 DH per octant
Primary	1,000	1,000	100	5	100	25	1 DH per octant

11.3 Mineral Grade Estimation

Compositing the drill hole samples helps standardize the database for further statistical evaluation. This step eliminates any effect that inconsistent sample lengths might have on the data.

To retain the original characteristics of the underlying data, a composite length was selected that reflects the average original sample length. The generation of longer composites can result in some degree of smoothing which could mask certain features of the data. Sample intervals are relatively small in the database. The average sample length in the whole database is 1.84 m, with 19% of samples exactly 1 m in length and 76% of samples taken at 2 m intervals. A standard 2 m composite sample length was generated for statistical evaluation and was used for grade estimations in the block model.

Drill hole composites are length-weighted and were generated down-the-hole; this means that composites begin at the top of each hole and are generated at 2 m intervals down the length of the hole. The contacts of the MinZone domains were honoured during compositing of drill holes. Several holes were randomly selected and the composited values were checked for accuracy. No errors were found.

The results of the modeling process were validated using several methods. These methods included a thorough visual review of the model grades in relation to the underlying drill hole sample grades; comparisons with the change of support model; comparisons with other estimation methods; and grade distribution comparisons using swath plots.

A detailed visual inspection of the block model was conducted in both the section and plan to ensure the desired results following interpolation. This inspection confirmed that blocks within the respective domains and below the topographic surface were properly coded. To ensure that there is proper representation in the model, the inspection also included a comparison of the distribution of block grades relative to the drill hole samples.

The relative degree of smoothing in the block model estimates was evaluated using the Discrete Gaussian Correction; it is also referred to as the Hermitian Polynomial Change of Support method. (Journel and Huijbregts, 1978). With this method, the distribution of the hypothetical block grades can be directly compared to the estimated OK model through the use of pseudo-grade/tonnage curves. Adjustments are made to the block model interpolation parameters until an acceptable match is made with the Herco distribution. In general, the estimated model should be slightly higher in tonnage and slightly lower in grade when compared to the Herco distribution at the projected cut-off grade. These differences account for selectivity and other potential mineralized material-handling issues which commonly occur during mining.

The Herco distribution is derived from the declustered composite grades which were adjusted to account for the change in support, moving from smaller drill hole composite samples to the larger blocks in the model. The transformation results in a less-skewed distribution but with the same mean as the original declustered samples.

Pseudo grade/tonnage plots were generated for all elements and pertinent domains in the block model and all show the desired degree of correlation between the Herco results and the OK models. Examples for copper in the supergene and primary zones are shown in Figure 11-16.

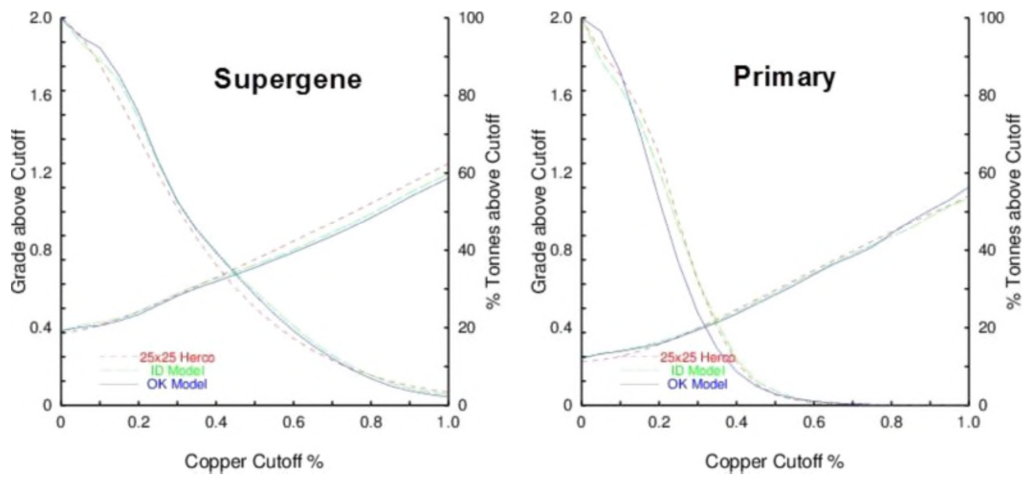


Figure 11-16: Change of Support Curves for Copper in Supergene and Primary Zones (Sim, 2017)

For comparison purposes, additional models have been generated using both the inverse distance-weighted (ID) and nearest neighbour (NN) interpolation methods; the ID estimate to the power of two (ID2) and the NN model are created using data composited to 15 m intervals. The results of these models, restricted to the supergene and primary domains, are compared to the OK models at a series of cut-off grades using a grade/tonnage plot shown in Figure 11-17. Overall, there is very good correlation between these models. Reproduction of the model using these different methods increases the overall confidence in the resource.

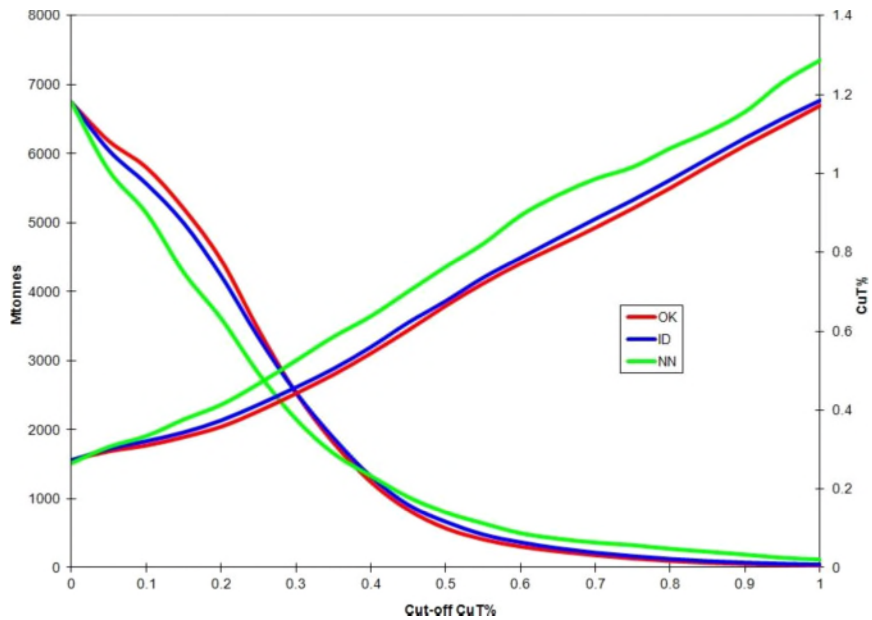


Figure 11-17: Grade-Tonnage Comparison of OK, ID and NN Models (Sim, 2017)

A swath plot is a graphical display of the grade distribution derived from a series of bands, or swaths, generated in several directions throughout the deposit. Using the swath plot, grade variations from the OK model are compared to the distribution derived from the declustered NN grade model.

On a local scale, the NN model does not provide reliable estimations of grade, but, on a much larger scale, it represents an unbiased estimation of the grade distribution based on the underlying data. Therefore, if the OK model is unbiased, the grade trends may show local fluctuations on a swath plot, but the overall trend should be similar to the NN distribution of grade.

Swath plots have been generated in three orthogonal directions for distribution of all modeled elements. An example is shown in Figure 11-18. There is good correspondence between the models in all of these areas. The degree of smoothing in the OK model is evident in the peaks and valleys shown in the swath plots.

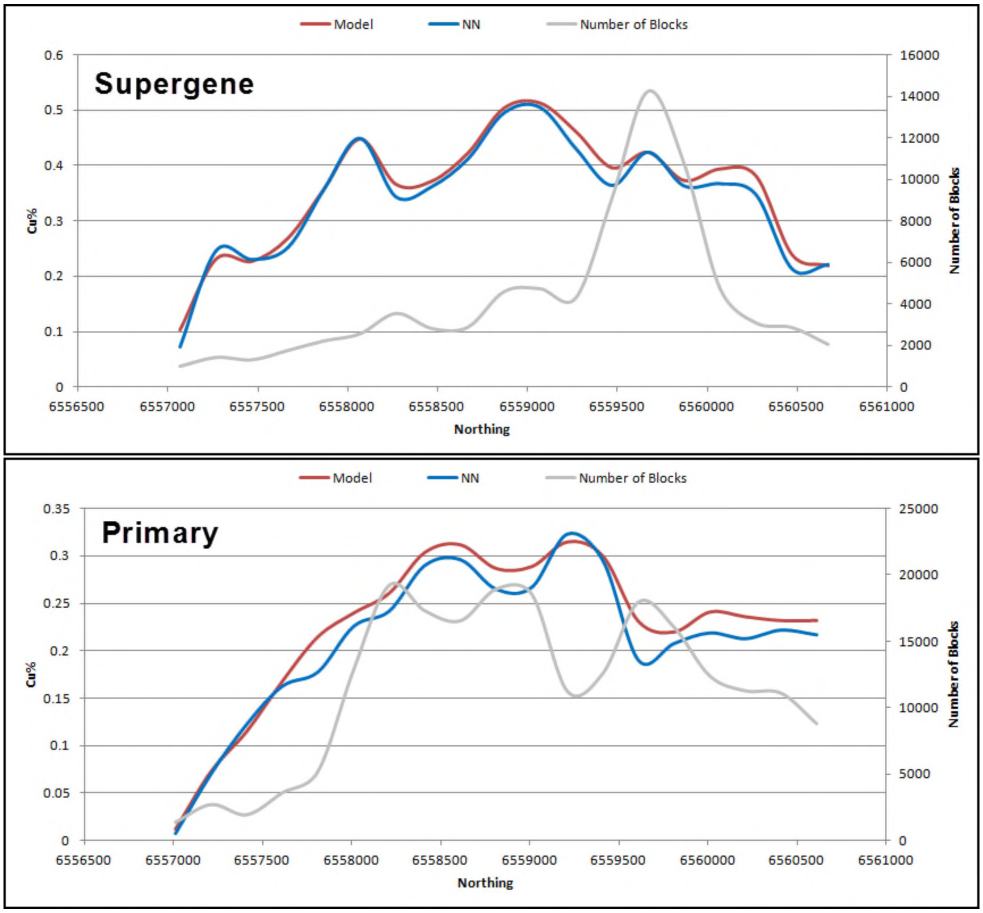


Figure 11-18: East-West Swath Plots of Copper in Supergene and Primary Zones (Sim, 2017)

11.4 Mineral Resource Classification

The mineral resources at the Los Azules deposit have been classified in accordance with the CIM Definition Standards for Mineral Resources and Mineral Reserves (May, 2014). Based on a drill hole spacing study conducted in 2009, it was found that drilling on a nominal grid spacing of 150 m is required to delineate resources in the Indicated category. Blocks in the model are initially defined based on this strict requirement, and the results are visually reviewed. Areas that show potential for inclusion in the Indicated category must exhibit a high degree of consistency and confidence in the distribution of thickness and copper grade.

Ultimately, these areas are defined using manually generated 3D wireframe envelopes that are of reasonable size; defined by sufficient drilling; and, exhibit the degree of confidence necessary to be included in the Indicated category. The extent and location of areas of the deposit considered to be in the Indicated category are shown in Figure 11-19. Note that there are additional areas where drilling is on approximately 150 m spacing, but, at this stage, these areas are too small and isolated and require additional holes to upgrade from an Inferred to Indicated status. The classification parameters for Inferred resources are defined in relation to their distance to sample data and are intended to encompass zones of reasonably continuous mineralization.

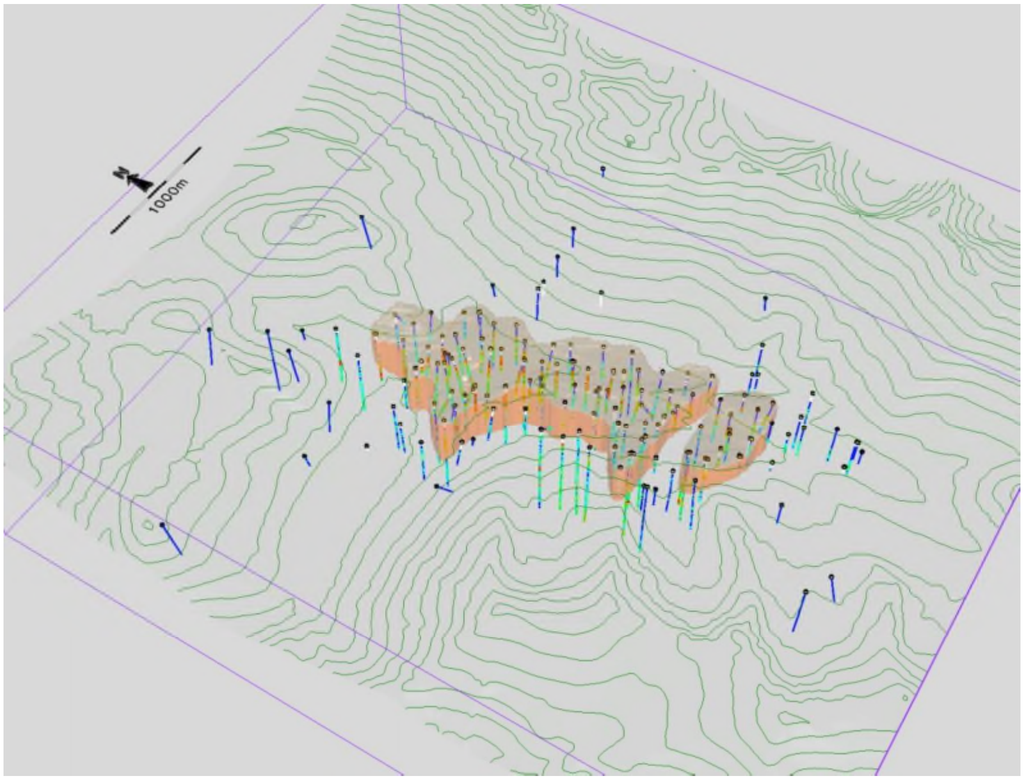


Figure 11-19: Areas of Supergene and Primary Zones Defined in the Indicated Category (Sim, 2017)

Mineral resources are limited to within the supergene and primary zones. The leach domain, by definition, contains little to no potentially economic copper mineralization. Resource categories are defined as follows:

Indicated Mineral Resources – Areas delineated by drilling on 150 m spacing that exhibits a relatively high degree of consistency in the nature of the mineralization.

Inferred Mineral Resources – Blocks in the supergene and primary domains which are a maximum distance of 200 m from a drill hole.

The distance limit for Inferred resources was tested using an indicator variogram generated at a grade threshold of 0.20% Cu (i.e., equivalent to the cut-off grade of the resource estimate). The ranges in this indicator variogram all exceed a distance of 200 m. Note that resources in the Measured category require drill holes spaced on a nominal 75 m grid pattern. There are no resources that meet these criteria at this time.

11.5 **Mineral Resource Estimates**

The estimated mineral resource for the Los Azules deposit is shown in Table 11-7 in accordance with the guidelines defined in S-K §229.1302(d)(1)(iii)(A). The extent and location of these resources in relation to the resource limiting pit shell are shown in Figure 11-20.

To ensure the reported resource exhibits reasonable prospects for eventual economic extraction, the mineral resource is limited within a pit shell generated around copper grades in blocks classified in the Indicated and

Inferred categories. The projected technical and economic parameters used to generate the resource limiting pit shell are based on studies conducted to date on the Los Azules project.

Generalized technical and economic parameters include the following:

- Copper price of $2.75/lb.
- Site operating costs of $1.70/t mining, $5.00/t for processing and $1.00/t for general and administration.
- Pit slope of 34°.
- Copper metallurgical recovery 90%.

This test indicates that some of the deeper mineralization may not be economic due to the increased waste-stripping requirements. It is important to recognize that these discussions of surface mining parameters are only used to test the "reasonable prospects for eventual economic extraction of mineral resources" and do not represent an attempt to estimate mineral reserves.

The estimate of mineral resources for the Los Azules deposit is summarized in Table 11-7. The base case cut-off grade is estimated to be 0.20% copper. By definition, there is lower confidence in resources in the Inferred category compared to mineral resources in the Indicated category. However, it is assumed that the majority of resources in the Inferred category will be upgraded to Indicated status with further exploration. Mineral Resources are 100% attributable to McEwen Mining property. Mineral Resources are exclusive of Mineral Reserves.

Table 11-7: Summary of Copper-Gold Mineral Resources for Los Azules Deposit (0.20% Cu Cut-Off)

TABLE 1 - LOS AZULES PROPERTY - SUMMARY OF COPPER, GOLD, MOLYBDENUM AND SILVER MINERAL RESOURCES AT SEPTEMBER 1, 2017; BASED ON A COPPER PRICE OF $2.75/lb (1-7)												
Classification	**Cu % Cut-off grades**	**MTonnes**	**Cu %**	**Au (g/t)**	**Mo (%)**	**Ag (g/t)**	**Cut-off Grade %**	**Cu (Blbs)**	**Au (Moz)**	**Mo (Mlbs)**	**Ag (Moz)**	**Metallurgical recovery % Cu**
Measured Mineral Resources		0										
Indicated Mineral Resources	0.20	962	0.48	0.06	0.003	1.8	0.20	10.2	1.7	57.3	55.7	90
Measured + Indicated Mineral Resources	0.20	962	0.48	0.06	0.003	1.8	0.20	10.2	1.7	57.3	55.7	90
Inferred Mineral Resources	0.20	2,666	0.33	0.04	0.003	1.6	0.20	19.3	3.8	194.0	135.4	90

1) *Mineral Resources are 100% attributable to McEwen Mining property. Mineral Resources are exclusive of Mineral Reserves.*
2) *The Mineral Resource was first estimated by Robert Sim, PGeo, of SIM Geological Inc., with the assistance of Bruce Davis, PhD, FAusIMM, of BD Resource Consulting Inc. Mining Plus has confirmed these resources as QP for this work.*
3) *Mineral Resources does not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.*
4) *Numbers in the table might not add precisely due to rounding.*
5) *Mineral Resource is reported inside of a pitshell, the parameters assumed are a copper price of $2.75/lb, operating costs of $1.70/t mining, $5.00/t for processing and $1.00/t for G&A, and Copper metallurgical recovery of 90%.*
6) *Mineral Resource is reported with a cut-off grade of 0.20% Cu.*
7) *The Mineral Resources in this report were estimated and reporting using the regulation S-K 1300 of the United States Securities and Exchange Commission ("SEC").*

Note: The mineral resources do not have demonstrated economic viability

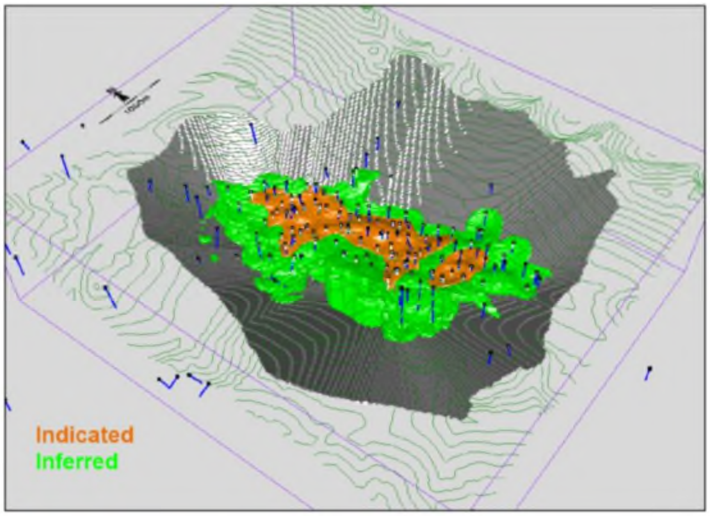


Figure 11-20: Extent of Base Case Resources by Class (Sim, 2017)

To provide information regarding the sensitivity of this resource estimation, the mineral inventory contained within the deposit is shown at a series of copper percent cut-off thresholds in Table 11-8.

Table 11-8: Sensitivity of Mineral Resources

		Average Grade				Contained Metal			
Cut-off Grade (Cu%)	Mtonnes	Cu (%)				Cu (Blbs)			
Indicated									
0.10	1,034	0.46	0.05	0.003	1.80	10.40	1.80	61.60	58.90
0.15	1,016	0.46	0.05	0.003	1.80	10.40	1.80	60.50	58.20
0.20	962	0.48	0.06	0.003	1.80	10.20	1.70	57.30	55.70
0.25	867	0.51	0.06	0.003	1.80	9.70	1.60	51.60	50.40
0.30	750	0.54	0.06	0.003	1.80	9.00	1.50	46.30	44.10
0.35	635	0.58	0.06	0.003	1.90	8.20	1.30	39.20	38.20
0.40	537	0.62	0.07	0.003	1.90	7.30	1.20	33.10	33.00
0.45	444	0.66	0.07	0.003	2.00	6.50	1.00	27.40	27.90
0.50	361	0.71	0.07	0.003	2.00	5.60	0.80	23.10	23.00
0.55	290	0.75	0.07	0.003	2.00	4.80	0.70	18.50	18.70
0.60	234	0.79	0.08	0.003	2.00	4.10	0.60	14.90	15.10
0.65	188	0.83	0.08	0.003	2.00	3.50	0.50	12.00	12.20
0.70	148	0.88	0.08	0.003	2.00	2.90	0.40	9.40	9.40
Inferred									
0.10	3,669	0.28	0.04	0.003	1.50	22.70	4.70	242.70	173.40
0.15	3,196	0.30	0.04	0.003	1.50	21.40	4.30	218.40	157.20
0.20	2,666	0.33	0.04	0.003	1.60	19.30	3.80	194.00	135.40
0.25	1,997	0.36	0.05	0.003	1.70	16.00	3.00	149.70	106.60
0.30	1,384	0.40	0.05	0.004	1.80	12.30	2.20	112.90	77.90
0.35	902	0.45	0.05	0.004	1.80	8.90	1.50	77.50	53.30
0.40	541	0.50	0.06	0.004	1.90	5.90	1.00	47.70	33.60
0.45	314	0.55	0.06	0.004	2.00	3.80	0.60	29.00	20.00
0.50	179	0.60	0.06	0.005	2.00	2.40	0.30	17.70	11.30
0.55	108	0.66	0.06	0.005	1.90	1.60	0.20	11.40	6.70
0.60	68	0.71	0.06	0.005	1.90	1.10	0.10	7.80	4.20
0.65	45	0.76	0.06	0.006	1.90	0.70	0.10	5.50	2.80
0.70	30	0.80	0.06	0.006	1.90	0.50	0.10	4.00	1.80

The estimated base case mineral resource listed by material type is shown in Table 11-9.

Table 11-9: Estimate of Mineral Resources by Type (0.20% Cu cut-off)

Type	Mtonnes	Average Grade				Contained Metal			
		Cu (%)	Au (g/t)	Mo (%)	Ag (g/t)	Cu (Blbs)	Au (Moz)	Mo (Mlbs)	Ag (Moz)
Indicated									
Supergene	497	0.59	0.06	0.003	1.70	6.40	0.90	55.20	27.80
Primary	466	0.37	0.05	0.003	1.90	3.80	0.80	61.50	27.90
Inferred									
Supergene	423	0.34	0.04	0.003	1.20	3.20	0.50	152.80	16.00
Primary	2,243	0.33	0.05	0.003	1.70	16.20	3.30	199.80	119.70

11.6 Potential Risks in Developing the Mineral Resource

Risks include the typical ones foreseen in project development, none of which are insurmountable, but are not defined in this Initial Assessment. The major risks including the following:

- Successful upgrading of resources to reserves through additional core drilling and interpretation.
- Extension and connection of infrastructure to the site in terms of roads, power, water, and supply networks.
- Successful application and granting of governmental approvals for environmental permits, licenses for mining and processing, tailings dam approvals, and miscellaneous permits from state and local community leaders.
- Projected financial returns based on estimated capital and operating costs and market conditions over the proposed life of the project.

11.7 Conclusion

Los Azules is a porphyry deposit comprised of a combination of supergene and hypogene style mineralization with an estimated indicated mineral resource of 962 million tonnes of at an average grade of 0.48% copper plus inferred mineral resources of 2,666 million tonnes at an average grade of 0.33% copper.

19 ECONOMIC ANALYSIS

The key model assumptions and financial results, project returns and cash flows are presented herein.

This updated Initial Assessment is at a scoping level and is preliminary in nature. This option includes Inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves and there is no certainty that the updated Initial Assessment will be realized.

All economic assessments are calculated at the Los Azules project level and therefore; do not include certain costs including corporate office, interest, financing and exploration expenses.

19.1 Summary of Results Project Economics: Base Case

Table 19-1 shows the results of the financial analysis.

Table 19-1 Summary of IA Financial Results

Parameter	Unit	2017 PEA
Initial CAPEX (Real)	US$M	2,363
Phase 2 CAPEX (Real)[11]	US$M	278
$NPV_{8\%}$	US$M	2,239
IRR	%	20.1%
Payback Period	Years	3.6
Long Term Cu Price	US$/lb Cu	3.00
C1 Costs (first 10 yrs)	US$/lb Cu	1.11
C1 Costs (LOM)	US$/lb Cu	1.28
Life of Mine	Years	37

Detailed discussion on the basis and key assumptions used in the financial model are presented in subsequent sections.

19.2 Key Assumptions (Economic Inputs and Assumptions)

The fundamental assumptions used in development of the financial model are shown in Table 19-2.

Table 19-2 Key Financial Model Assumptions

Parameter	Assumption	Description
Units	Metric	The model has been constructed using metric tonnes
Valuation Date	January 1st of Board Approval (year -2)	Post board approval cash flows have been discounted to a valuation date of January 1st of Board Approval (year -2). Costs incurred prior to board approval are considered sunk and are not considered in the economic analysis.

Discount Rate	8%	The financial evaluation has considered 8% as the discount rate. Mid-year discounting has been used in the model. A sensitivity is shown for other discount rates.
Currency	USD	The model has been constructed using US Dollars based on cost estimates developed in USD terms.
Inflation	Real basis	All projected revenue and costs are assumed to be in 2017 real terms over the DCF time frame, with no inflation applied.
Capital Structure	Unlevered	The calculated financial results assume a project financed entirely on equity. No Interest Payments have been assumed.
Royalty	3%	A 3% royalty has been included. No export taxes have been assumed.
Income Tax	35%	A 35% Corporate income taxes have been included in the model.
Tax Depreciation	3 year	3 year (60%, 20%, 20%) depreciation schedule has been utilized in the tax calculations in the analysis as per McEwen guidance regarding the mining investment law in Argentina.
Accounts Receivable	30 days	30 days of total revenue has been assumed for accounts receivable for working capital funding requirements.
Accounts Payable	30 days	30 days of total OPEX has been assumed for accounts payable for working capital funding requirements.
Inventory and Consumables	30 days	30 days of total OPEX has been assumed for inventories and consumables for working capital funding requirements.
Closure and Reclamation Costs	$200 million	$200 million has been included for closure and reclamation costs.
Long Term Prices		
Cu	$3.00/lb	USD
Au	$1300/oz	USD
Ag	$17/oz	USD
Treatment and Refining Charges		
Treatment Charge	$85/t	$85/t of Cu has been used for treatment charges in the model.
Refining Charges	$0.085/lb	$0.085/lb of Cu has been used for refining charges in the model.
Concentrate Transport	$125/wmt	Concentrate transportation charges of $125 per wet tonne including inland and ocean freight costs have been considered in the analysis.

19.3 Pricing Forecast(Product Pricing//Economic Inputs and Assumptions)

The long-term commodity price forecasted in the economic model in 2017 was provided by McEwen Mining. These prices are summarized in Table 19-3.

Table 19-3 Commodity Forecast / Price

Price	Unit	Forecast
Copper	USD$/lb	3.00
Gold	USD$/oz	1,300
Silver	USD$/oz	17

The financial model has been developed in real terms and in US Dollars.

In accordance with the SEC S-K §229.1304 regulations, an economic analysis of the project at the Initial Assessment (IA) stage could be advanced in the study, but using only measured and indicated resources. Such an analysis was performed. As a result, the inferred resources contained within the proposed mine production plan have been shifted into being waste for the purposes of this analysis. No sensitivity analysis was performed at this level of study.

The discount rate of 8% is the biggest factor impacting the project's economics. On an undiscounted basis the after-tax profit is $3.5 billion. When discounting at 8%, the after tax NPV is $1.0 billion.

The financial model reflects the economic impact of removing the inferred tonnes containing metals and the associated revenue from those metals, while still running both the indicated and inferred mineralized material through the concentrator. As shown in table 19-1, all other model inputs and assumptions remain as they were in the 2017 PEA. As a result, the only costs that have materially changed are the TCRC's, concentrate shipping costs, royalties, and taxes.

Table 19-4 Summary of Key Financial Results

Title	Units	2017 Hatch NI 43-101 Base Case - M&I only
Initial CAPEX (Real)	US$M	2,363
Phase 2 CAPEX (real)	US$M	278
NPV8%	US$M	1,002
IRR	%	16.5%
Payback Period	Years	4.1
Long Term Cu Price	US$/lb Cu	]3.00
C1 Costs - first 10 years	US$/lb Cu	1.21

C1 Costs - LOM	US$/lb Cu	1.76
Life of Mine	years	37

Using the Excel© based financial model built for the original analysis in 2017 by Hatch, Mining Plus added a calculating worksheet intended to reflect the elimination of the Inferred metal recovery. Additional data was secured by McEwen to differentiate between the indicated resources and inferred resources by year. Table 19-2 below shows the results of the modeling.

Table 19-5 Results of the financial modeling

Title	Units	2017 Hatch Base Case - M&I only
LOM Production		
Tonnes Processed	Mt	1489
Strip Ratio	W:O	1.01
Cu Grade	%	0.29%
Au Grade	g/t	0.03
Ag Grade	g/t	1.08
Cu Payable	Mt	3.8
Au Payable	Moz	0.9
Ag Payable	Moz	28.4
Cu Price	$/lb	3.00
Au Price	$/oz	1,300
Ag Price	$/oz	17
Revenue - Cu	$M	25,097
Revenue - Au	$M	1,202
Revenue - Ag	$M	483
Total Revenue	$M	26,783
TCs & RCs	$M	(1,846)
Royalties	$M	(695)
Net Revenue	**$M**	**24,242**
OPEX- Mine	$M	(5,404)
OPEX- Process	$M	(5,774)
OPEX- Transport	$M	(1,779)
OPEX- G&A	$M	(1,620)
OPEX	$M	(14,578)
C1 Cost	$/lb cu	1.76
EBITDA	**$M**	**9,665**
Initial CAPEX	$M	(2,363)
Sustaining CAPEX	$M	(1,511)
Δ Working Capital	$M	-
Closure Costs	$M	(200)
Pre-Tax Cash Flow	$M	5,590
Taxes	$M	(2,113)
After-Tax Cash Flow	$M	3,478
After Tax NPV@ 6%	$M	1,408
After Tax NPV@ 8%	**$M**	**1,002**
After Tax NPV@ 10%	$M	679
After Tax NPV@ 12%	$M	420
After Tax NPV@ 15%	$M	120
IRR	**%**	**16.5%**
Payback	yrs	4.1

The results of the financial analysis concludes that an after tax cashflow of $3.4 billion based on a gross revenue of $26.8 billion and will generate an Internal Rate of Return of 16.5% with a payback of 4.1 years using the current M&I resources of the Los Azules deposit. The total tonnes processed was 1.5 billion tonnes of mineralized material & waste with a stripping ratio of 1.01, waste to mineralized material. Average copper grade processed is 0.29%.

20 ADJACENT PROPERTIES

The space required for development of the project corresponds to a surface property owned by McEwen Mining's Argentinean subsidiary, Corporación Minera Andes S.A. Under this surface property, portions of it overlay mineral tenements held by McEwen Mining or by third parties.

Shown on Figure 20-1, the surface property boundary is shown with the underlying mineral tenements held by third parties in the cross-hatched numbered polygons. Areas 1 and 3 belong to third parties; while Area 2 belongs to Andes Corp and may become subject to litigation regarding its boundaries.

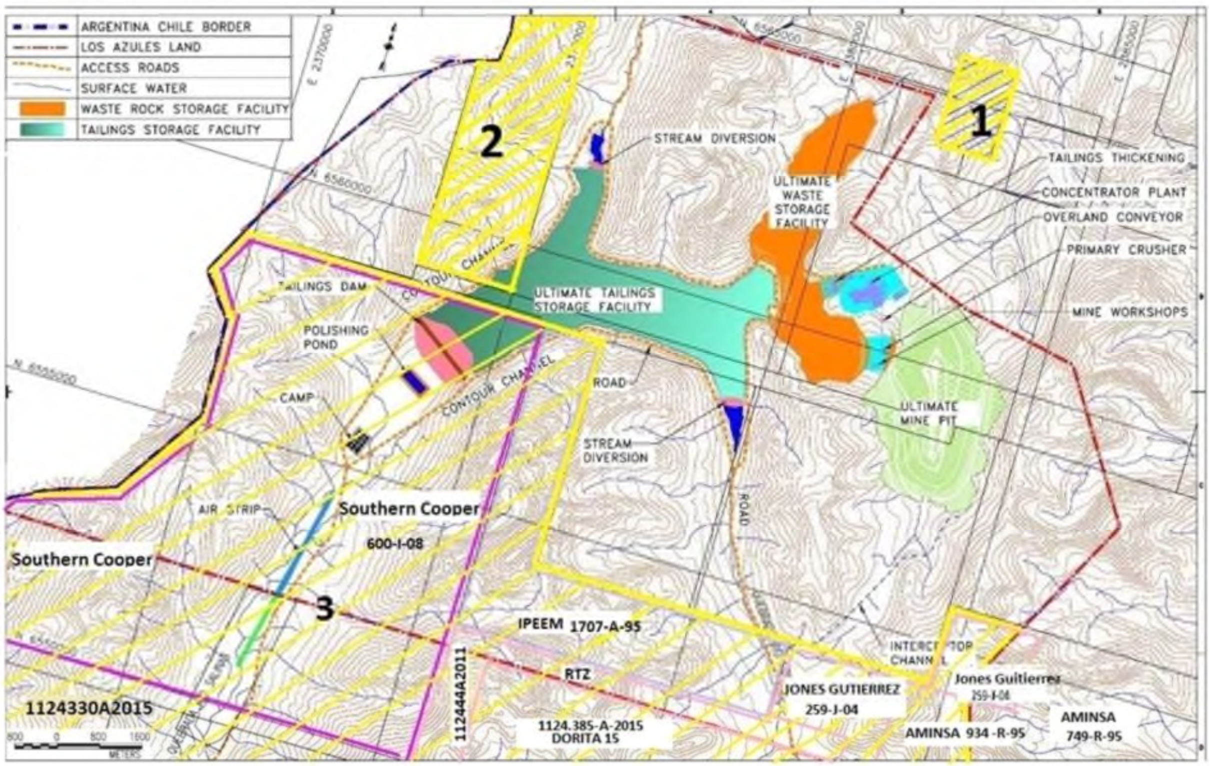


Figure 20-1: Surface property VS. third party mineral tenements

As shown on Figure 20-1 portions of the tailings dam, camp and airstrip are all within McEwen owned lands but not underlain by mineral concessions owned by Andes Corp.

Surface land ownership grants McEwen the right to use the land and all non-metal bearing rocks and minerals in it. This are able to quarry sand and gravel deposits for construction use.

Mining Law in Argentina grants the mineral tenement the right of primacy over the surface land property. In order to stop McEwen from developing surface facilities on its land overlying third parties' mineral tenements, those other parties must demonstrate factually that those lands hold economic mineralization which would be condemned by the planned surface installations. McEwen's own exploration and observations deem such an occurrence of economic mineralization unlikely.

Any future extension of the proposed airstrip to the south outside of McEwen owned surface lands will require an agreement with the neighboring land owner for use of that land.

In conclusion, there are no adjacent properties that are material to the proposed project development described in this report.

21 OTHER RELEVANT DATA AND INFORMATION

21.1 Risk and Opportunity Assessment

A list of the Project's potential risks as stated in previous technical studies are presented by Mining Plus as follows:

Mining

- Geotechnical risks within the pit are significant given the possible height of the pit walls, low RQDs and potential groundwater issues. The planned open pit presented in this PEA is very large and will have pit slopes that climb the valley walls to high elevation. Flatter slopes would result in reduced mill feeds and/or higher stripping ratios and correspondingly higher mining costs. Geotechnical and hydrogeological investigations are needed to bring a higher degree of confidence to the groundwater conditions.
- There is a future opportunity to optimize overall pit slopes by incorporating controlled blasting and/or single benching to steepen bench face angles as well as an opportunity to lessen the degree of pit slope depressurization required from mine dewatering.

Mineral Processing and Metallurgical Testwork

- Initial metallurgical testwork on the supergene and primary mineralized material has not included a full variability program. The range of metallurgical performance is therefore not completely defined and averaged performance used in this report may not be achieved.

Tailings

- The current design of Tailings Storage Facility (TSF) requires placement of large quantities of inert rockfill to construct the embankment. The dam site is within an area of extensive glacial debris and outwash material of undefined depth but estimated at 16 metres. This overburden depth and the overburden material quality must be defined along with the dam foundation condition.
- If availability of mined waste rock from the mine pit is constrained by acid forming rock, even though this is considered unlikely, there may be a dam embankment material shortage and schedule delay.
- Mitigating this is the availability of local borrow pits that could be developed in the glacial outwash gravels.

Project Infrastructure

- The preliminary design and the capital costs of the site access road proposed from Calingasta needs to be taken up to a detailed design using the recently performed photogrammetric data. The earlier considered northern route needs to be revisited in view of the fact that it does not cross high mountain passes and may be more optimal for power transmission.
- The access and power options and concentrate logistics through Chile delivers security of access and supply through the winter months. Permitting and other studies need priority to convert this opportunity.
- The establishment of an airstrip at Los Azules has assumed higher priority to enable year-round support of exploration drilling and environmental baselining studies. The current application for a permit is to be given priority to accelerate processing.

Environmental

- Maintaining a good line of communication with the community will be important in future work as no formal social or community work has been done in the last five years.

There exists several opportunities moving forward to improve the Project viability and economics. These include:

Geology

- The origin of the gold at Los Azules is not well understood. A detailed analysis of the distribution of gold in the deposit with respect to sulphide mineralization, alteration, structure and other features might lead to the development of exploration targeting vectors and might also lead to opportunities to optimize gold production.

Drilling

- Geophysics investigations in particular IP surveys should be performed to understand potential northern extensions of the resource. Focus with drilling is to drill the 5 years mine pit to measured category requiring a closer hole spacing but not requiring great hole depth.
- Priority must be to prolong the drilling season such as by access from Argentina by helicopter or by mules and earthmoving plant clearing tracks from Chile until such times as Los Azules can have its own airstrip.

Mineral Resources

- The deposit remains "open" to further expansion at depth. Most of the drill holes in the central and northern part of the deposit are terminated in mineralization that exceeds the base case cut-off threshold of 0.20% copper.

Mineral Processing and Metallurgical Testwork

- The opportunity exists that further metallurgical testwork can improve the recovery and grade of the supergene material. The pyrite could be suppressed to improve the grade of the supergene concentrate while decreasing both the mass and the sulphur content.
- Further investigation of coarse particle size flotation could reduce primary grinding costs.
- Newer, more efficient, copper flotation collectors, such as emulsions, are being developed and should be included in future testing programs to assess their value.
- Further investigation of the primary zone competency of the mineralized material could provide opportunity to revisit selected SAG and ball mill for sizes for the 120,000 tpd expansion.
- More innovative processing routes could be investigated for the expansion phase taking advantage of emerging material efficient and cost saving technologies.
- The opportunity for gold extraction at site from concentrates represents a potential to accelerate cash flow which should be investigated.

Tailings

- If proved viable (based on review of further chemical test results), the construction of embankments with coarse cyclone tailings will reduce the dependability on the mine plan for waste material as well as lowering the total storage capacity required for disposing fine tailings.
- The porous concrete facing for the dam embankment will require suitable concrete aggregates and some sand. A crushing and screening plant is envisaged to be established in proximity to the tailings dam to screen the glacial outwash materials for concrete aggregates, road materials and blast hole stemming.
- The proposed tailings dam site can be expanded in capacity if there is a later proven extension to mining operations.

Project Financials

- Additional capital expenditure savings could be realized if the entire mining fleet were to be leased.
- Given 35 year mine life supported by inferred mineral resources, there is potential to improve

economic results through economies of scale and higher ultimate throughput.

- Potential for phased project development to reduce initial capex and pay for subsequent expansions from operating cash flows.
- Potential for further pit optimization during mine start-up to increase project IRR by prioritizing high grade material.
- Investigate low cost equipment sourcing.

21.2 Other relevant information

Access Routes

No consideration of a bi-national approach for accessing Los Azules for the development and operations phases had received serious consideration until McEwen completed a review in 2017.

During 2017 McEwen completed a review of access roads and concentrate logistics options in both Chile and Argentina as a bi-national approach to the Los Azules development. The preferred outcome promoted and costed in the 2017 PEA is an access road into Los Azules from Chile that links Los Azules to a Chile National Road 55 with connections to the operating port of Coquimbo in vicinity of La Serena.

Appendix D : Access routes, provides additional information discussing access routes, shows the routes, all the access routes considered in the evaluation.

Power Supply

Previous studies for the power supply for Los Azules have focused to a supply from Argentina. There has been previous uncertainly of a defined timetable for a viable supply to be available from a viable connection point for Los Azules, presumably Calingasta substation.

During 2016 and 2017 McEwen Mining (McEwen) had engaged in reviews of the potential for a power supply from Chile. Barrick Gold's Veladero mine (also in San Juan province), is in the process of obtaining approval for a power connection to the Chile network. Non-bi national and bi-national arrangements anticipate other power interconnections between Argentina and Chile. In addition to connections from Argentina and from Chile, McEwen is also evaluating renewable energy opportunities.

The McEwen review is a work-in-progress and is also considering power supply solutions to Los Azules in HVAC (High Voltage Alternating Current) and in HVDC (High Voltage Direct Current). The motivation to consider HVDC is that power can be delivered in either underground or overhead lines or a combination. The underground option is an advantage for environmental conditions and also gives greater security of supply i.e. it is more robust compared to HVAC during winter conditions where exposed transmission towers (over high passes) may not meet required reliability.

This 2021 Initial Assessment considers the costs of a conventional HVAC power supply for Los Azules connected to the Calingasta substation. For Calingasta substation to be a useful point of connection it must be energised at 500 kV, either from Gran Mendoza to the south or from Rodeo substation to the north.

Table 21-1 show the planned scope and timetable for network expansion by EPRE (Ente Regulador Provincial de Electricidad) the Provincial Electricity Regulator Entity.

Table 21-1: EPRE Proposed Timelines for Implementation

(i)	Extra High Voltage Line ET New San Juan-ET Rodeo to be built with 500 kV technology and initially operated at 132 kV Start June 2017, Completion December 2018.
(ii)	Extra High Voltage Line 500 kV ET Calingasta-ET Gran Mendoza Start July 2018, Completion February 2021.

The substation at Rodeo is currently being connected to a new 500kV transmission line from San Juan, which will connect to Rodeo in 2019. Though the line will be constructed at 500 kV it will only be energised at 132 kV.

The scope of the works included in this PEA to secure a power connection for Los Azules is as follows:

- From San Juan to Rodeo: the power infrastructure is being constructed for 500 kV (energized to only 132 kV). This section of grid must be upgraded for energization at 500 kV.
- From Rodeo to Calingasta: the existing power infrastructure is also constructed as500 kV and energised only at 132 kV into Calingasta. This section of grid will also need to be upgraded for energization at 500 kV, requiring new switchgear in Calingasta and Rodeo substations.
- From Calingasta Substation to the future substation at Los Azules: an overhead HVAC transmission tower line (likely energised to 220 kV) will deliver the current estimated load of 230 MW.

The capital allowance included in the study estimate should be sufficient for these works. Nonetheless McEwen is continuing with studies to determine not only the most cost and schedule efficient power connection for Los Azules, but also the most robust solution.

Furthermore, Los Azules needs a comprehensive solution that satisfies the requirement for a portion of the energy consumed at Los Azules to be from renewable energy sources.

Figure 21-1 shows the bi-national power scenarios in relation to Los Azules.

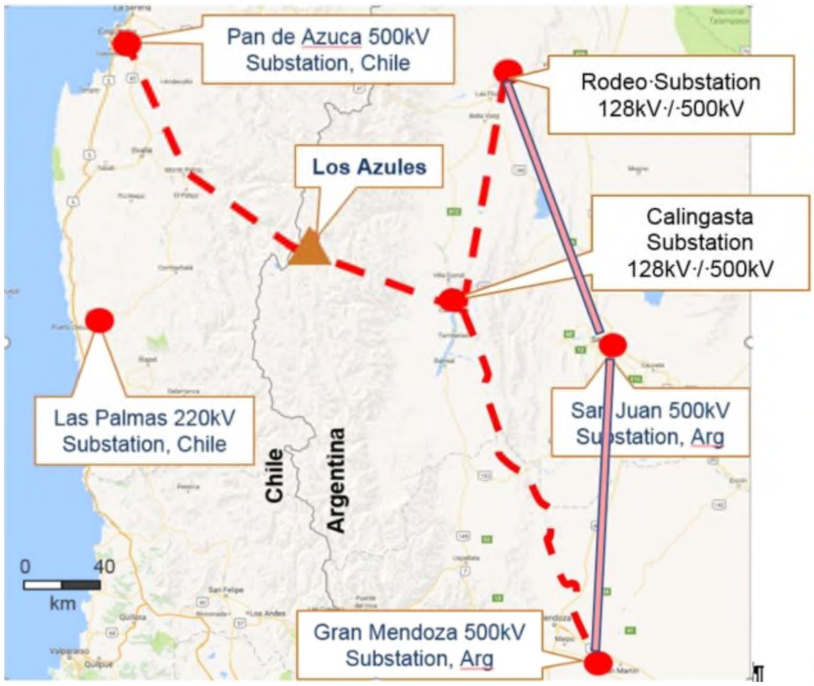


Figure 21-1: Preliminary summary of Bi-National possibilities for a power connection to Los Azules from Chile and Argentina

The 500 kV line from Gran Mendoza to San Juan already exists. The 500 kV line from San Juan to Rodeo is presently under development and will be completed by 2020. It will initially only be energised at 132 kV. The 500 kV transmission line from Gran Mendoza to Calingasta is proposed for completion in 2021.

In Chile, the "New Pan de Azucar" substation is presently under construction on the 500 kV interconnection between the north and south national grids. The existing Las Palmas substation in Chile is situated on the 220 kV network. This network does not presently have available capacity to feed Los Azules and will not be connected to the 500 kV network.

A solution from Chile at this stage would therefore appear to be an HVDC solution with buried cables alongside existing linear infrastructure such as roads. Transmission towers could be used in limited areas. This solution has been discussed with authorities in Chile and received favourable support. However any power supply solution for Los Azules coming from Chile will require environmental baseline studies and an EIA submission in Chile. The experience of others such as Barrick is this process alone needs five years if the EIA is unopposed.

Furthermore, the power line will need to be 100% funded by Los Azules.

As the power and transmission line is a major component of the project, it is recommended that the following activities are carried out:

- The status of the Gran Mendoza-San Juan-Rodeo transmission line projects by EPRE are monitored. Having some equity stake in this project may expedite outcomes (as has been past

experience with Barrick and others), and may also result in overall cost savings for the Project.
- Corridor assessment to identify the potential corridor, corridor length and any fatal flaws. A cost-effective opportunity may exist to construct a transmission line directly from Los Azules to Rodeo and avoid the high-altitude section and passes. This alignment would more or less follow the proposed "northern route" in Samuel Engineering's road access study. Refer to Section 18.2.
- Desktop environmental assessment in support of the above.
- Load flow study.
- Preliminary selection of conductor and tower types.
- Trade off between HVAC and HVDC in Argentina.
- Trade off between Argentina and Chile as the source for power to Los Azules. Note that a Chile based power solution requiring an EIA process within Chile will probably be a five year process (assuming EIA is uncontested). This would likely be misaligned to the current Los Azules development schedule.

The area around Calingasta offers some of the highest renewable energy generation potential in Argentina. This includes power from photo voltaic panels (PV), wind turbines and to a lesser extent, hydro power.

Water Supply

The fresh water available at Los Azules from natural surface streams that progressively confluence to form the Rio Salinas exceeds the projected water consumption demands of the project development and mining operation phases.

The envisaged mine dewatering borehole for lowering the level of the groundwater level around the mine pit will also deliver water. Future dewatering of the actual mine pit sumps will also be a source of water, even it is contact water.

The estimated process water demand for Los Azules when operating at 120,000 t per day of concentrator feed is approximately 3,000 L of water per second. This is based on similar operations of similar capacity. Approximately 80% of the process water demand will be satisfied from water reclaimed within the processing plant and from the tailings storage facility. The remaining 20% of the demand (ie. 600 L per second) is make-up water taken from fresh water sources such as the proposed mine area dewatering boreholes or otherwise collected from surface stream flows.

Surface water flowing from the Los Azules development is all contained within a single watershed. At the location of the proposed tailings dam, the Rio Salinas represents flows at approximately 800 L per second (average annualised flow rate). This flow is in significant surplus to the 600 L per second required for long term make-up water and the surplus is further augmented when mine area dewatering water is considered. Peak flows generally occur in November and December, coinciding with rapid snow melting and minimal flows occur around July and August.

In conclusion, the Los Azules development has available water resources exceeding the water demand.

To manage the excess water, non contact water such as stream flow water and dewatering borehole water need to be managed by a network of stream diversions, contour channels and pipes. This will deliver the surplus non-contact water back into the environment at a point downstream of the tailings dam.

It is recommended that more studies into water management are performed as a part of baseline environmental assessments, including:

- Ground-water level measurement over a whole year, including winter
- Stream flow gauging measured over a whole year.
- Permeability testing in the area to be dewatered around the mine pit to assess probable dewatering extraction volumes and to confirm dewatering water quality is suitable as non-contact water.

A detailed contact water / non-contact water management plan needs to be developed to support the IIA permitting process including the design and location of water diversion structures, and the staged formation of any contour channels. This will be further supported by an engineered project water balance. At the same time as the IIA Application submission, Los Azules will apply for the water rights and the associated water use permits where Los Azules is granted to have beneficial use of its water rights

G&A

The General and Administrative (G&A) costs were estimated to be $45M per annum. The G&A costs were estimated based on typical benchmarks for similar sized mines in South America. The methodology employed used benchmarks for several G&A cost categories. The following categories were used to build the total G&A cost estimate:

- Management: Salaried Labour costs
- Overhead: Costs associated with Permits, Corporate Allocations, Insurance, Power, Professional Membership, etc.
- Supply Chain: Costs associated with Warehousing, Administrative Supplies, Purchasing and Logistics.
- HSEC and Security: Costs associated with Health and Safety, Environment, Community and Security

Site Services: Costs associated with HR and training, IT and Communications, Finance and Accounting, Camp Services and other miscellaneous site services.

Onsite Infrastructure

Given the remote location of the Project, a permanent man-camp facility will be constructed on the Los Azules site. The camp is envisaged to provide facilities for approximately 2,000 individuals in residence at any given time. The camp will be run as a hotel where personnel at check-in are assigned a room only for the duration of their work roster and they will check out at the end of their work roster. In general an individual is assigned a different room in the camp at the commencement of each work roster. Most camp rooms will be shared occupancy, at least between day shift and night shift personnel. When work rosters are considered a camp with 1,000 rooms caters for a workforce of approximately 4,000 persons. Some contractors will also negotiate to have their own facilities outside of the main camp.

The intention is to convert the construction camp and perform some upgrades to form the facility into the permanent operations camp. The conversion happens as construction nears completion and production ramps up. This eliminates the need for a duplication of facilities.

The construction camp will be formed of insulated panel type, prefabricated modules that can be assembled into single story, 2-story and 3-story blocks for use as offices, support facilities and accommodation units. Used throughout construction, the offices and accommodation revert to become the mine operations offices and mine camp.

Meals, food storage, kitchen, dining, recreation, ablution and accommodation facilities will be provided. An outside contractor will be responsible for meals, housekeeping and maintenance services.

The location of the camp is to be on a level, well drained site downstream of the tailings storage facility, and in proximity to the proposed Los Azules airport. This site is the lowest available elevation (lowest altitude) at approx. 3,300 masl (10,800 ft) and in an area unaffected by avalanches or unstable ground.

Priority will be given to camp construction happening as soon as practical in the project implementation schedule. This avoids the accommodation bottleneck so often encountered in remote projects and that reports as delayed worked man hours and delays to the delivery schedule.

It is assumed that all employees will be housed in the Los Azules camp facilities. Transportation of employees to the various worksites will be provided by on-site buses and light vehicles. Generally, all management will have assigned light vehicles. Lunchtime will generally be taken on board mobile equipment or at designated lunchroom facilities established at each major facility location during the construction phase.

Transportation between the Los Azules site and the city of San Juan for staff embarking on, or returning from work rotation, will be by company aircraft or otherwise by a bus service. The preferred long term solution for Los Azules is a fly-in-fly-out operation from San Juan airport to Los Azules. Flight time is anticipated to be approximately one hour. The workers coming into rotation arrive to the San Juan airport at 05.00 and commence their shift per normal start time at site. On finishing the shift at end of rotation the workers report to the airport and are home early that same evening.

Issues with acclimatisation at the altitude of Los Azules are minimal. In any event medical checks will be required of personnel on arrival and again later in the day. Persons will be trained to recognise and understand any effects, just as they are trained in hot climates about dehydration symptoms.

Flights arriving and departing Los Azules will inevitably suffer delays from time to time due to VFR (Visual Flight Rules) constraints requiring personnel to bus to site. Given technological advances Los Azules may eventually upgrade to a FMS (Flight Management System) where auto pilot landing procedures are used on arriving and departing aircraft. All fly-in-fly-out developments and operations suffer climatic delays to flights but all develop work-around solutions.

22 INTERPRETATION AND CONCLUSIONS

22.1 Project Summary

This Initial Individual Assessment included Inferred Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves and there is no certainty that a project based on these resources will be realized.

22.2 Geology and Resources

Geology

- The Los Azules deposit is a near surface, strongly folded and faulted porphyry copper deposit located in the high Andes Mountains of Argentina at an altitude of approx. 3600 metres. The deposit is situated within the lower elevations of a broad glacial valley with slopes extending to over 4000 metres elevation and is mostly overlain by unconsolidated glacial outwash materials of up to 60 metres thickness.
- A barren leached (oxide) zone overlies a zone of secondary or supergene enriched mineralized material of variable copper grades and thickness and a primary or hypogene mineralized zone that extends to at least 1,000 m below the present surface.
- Gold, silver, and molybdenum are present in trace amounts, but copper is by far the most important economic constituent at Los Azules.
- The Los Azules hydrothermal alteration system is at least 5 km long and 4 km wide and is elongated in an NNW direction along a major structural corridor. The system disappears below volcanic cover to the north, so the ultimate extent is presently unknown. The altered zone surrounds the Los Azules copper deposit, which is approximately 4 km long by 2.5 km wide. The limits of the mineralization along strike and at depth have not been entirely constrained by drilling.
- Geological studies have resulted in a geological model that shares many features with other well-known Andean porphyry copper deposits. These studies have defined the temporal sequence and the spatial distribution of distinct alteration phases and mineralization zones.

Mineral Resources

- Los Azules is a porphyry deposit comprised of a combination of supergene and hypogene style mineralization with an estimated indicated mineral resource of 962 million tonnes of at an average grade of 0.48% copper plus inferred mineral resources of 2,666 million tonnes at an average grade of 0.33% copper.

22.3 Mining

A mine production schedule has been developed for a staged expansion of the concentrator, commencing at a nominal mineralized material processing rate of 80,000 t/d and increasing to 120,000 t/d in Year 5 with the addition of another (third) grinding line. Mineralized material processing is anticipated to last nearly 36 years, which will be preceded by a three-year preproduction stripping period. Peak material mining rates, including concentrator feed and waste rock, are estimated at about 330,000 t/d. Phased pit development initially targeting high-grade mineralization and a declining cut-off grade strategy were used to maximize concentrator head grades in the early years of operation.

There are no known factors related to metallurgical, environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which could materially affect the mineral resource estimates.

22.4 Metallurgy and Processing

Initial metallurgical testwork on the supergene and primary mineralized material gave good recoveries into flotation concentrates. The supergene flotation concentrates were lower grade than would have been initially anticipated by the grade of the mineralization and the presence of higher-grade secondary copper minerals. The lower than anticipated grade was caused by the presence of pyrite that floated along with the copper mineralization.

22.5 Infrastructure

The tailings storage facility is proposed as a single embankment across the Rio Salinas. The tailings dam starter embankment will be approximately 50 metres height and after 1.5 billion tons of tailings deposition over 36 years the final embankment height will be in the order of 170 metres. A very flexible PVC composite liner will be installed on the upstream face over a slip cast porous concrete with the bulk of the dam formed from mined waste rock delivered from the mining operations.

22.6 Market Study

Marketing data used to determine the potential for economic extraction was obtained through industry sources and represents market information available in 2017.

22.7 Environmental and Social Issues

The environmental management plans need to be further developed in the next phase of the Project to meet the Environmental Impact Report (IIA) commitments.

The conceptual closure plan needs to be developed during the next project phase to reflect the level of development of the Project facilities more accurately. Advance planning for closure which is best considered in the design development phase.

Environmental studies have been conducted since 2007 and monitoring activities to obtain additional information has been ongoing. Comprehensive environmental baseline work now needs to be performed requiring year-round measurements and observations by subject matter experts. This is basic information required for the individual IIA submission by the registrant.

22.8 Project Costs and Financial Evaluation

With a projected long term copper price of $3.00/lb, the project has an estimated capex of approximately $2.4 billion and an NPV8% of $2,239M and an estimated IRR of 20.1%. The project economics are positive but sensitive to the price of copper, recovery of copper and production rate. The capital payback period for the project is estimated at 3.6 years.

23 RECOMMENDATIONS

23.1 Project Summary

Based on the information contained in this individual IA study, it is expected that McEwen now focuses to further de-risking the Los Azules Project by moving to a more robust knowledge base in several critical areas. The Priority Next Steps should be:

- Enhance the definition of the mineralized material by completing infill drilling programs over two years supported by geological and geophysical work to develop a significant "measured resource" at Los Azules with particular focus to the early years mine pit.
- The performance of all studies, monitoring and engineering related to interactions between the Los Azules Project and naturally occurring water.
- The performance of the environmental baseline work in conjunction with specific engineering to enable an IIA submission to the San Juan authorities with the objective of receiving the permitting for the development of Los Azules going forward.

In addition to the above there are facilities and infrastructure to optimise, improve and de-risk through further on-site work, off-site work and by performing detailed trade off studies as described in the following text.

23.2 Geology and Resources

- Infill drilling and drill-core assaying with a greater focus to the 5-year mine pit to achieve a "measured resource". A closer drill hole spacing is required, preferably using angled holes to intersect sub vertical structures. Approximately 25,000 metres of drilling from 100 holes is needed to complete the re-categorisation to measured within the 5-year mine pit. The extent of drilling will need multi rig drilling campaigns to be performed over two extended drilling seasons.
- The 5-year mine pit includes the so-called "pay back pit" defined as the pit limits after 3.6 years of mining. The 3.6-year mine pit by extension of the financial analysis is the limit of the mine pit development when all funds invested in the Los Azules development will be paid back.
- The infill drilling hole locations needs to be defined by careful and detailed planning paying attention to structures, hole spacing, hole orientation and hole depth. Many angled holes to approximately 250 metres depth are envisaged. Some of these holes may be high on the hillsides.
- With the current location of the processing facility to the northwest of the mine pit, geological and structural mapping of the site is recommended for certainty of stability. At least one deep

condemnation drill hole is recommended.

- Extending the drilling season is possible when an emergency access is available through the "Salinas Pass" into Chile is formed. This relatively low altitude access and egress from Chile in conjunction with legal process will enable personnel and equipment to remain at Los Azules for an extended period towards the winter months without risk of snow blocking the high altitude passes that characterise the existing access road into Los Azules.
- Undertake a detailed analysis of the distribution of gold in the Los Azules deposit with respect to sulphide mineralization, alteration, structure, and other features.
- Induced Polarisation (IP) and other geophysical surveys should be performed to understand any possible northern, north-western, and north-eastern extensions of the copper hosting rocks. It is unlikely that outcomes from this work would influence the location of the early-years mine pit development however it will be useful for confirmation of the later-years pit limits.
- A Remote Spectral Survey was performed in 2017. This may lead to some further recommendations for geological exploration and follow up work on the ground.
- Reprocessing of the existing geophysics surveys and applying the latest available filters can give rise to new interpretations.

Hydrogeology

Priority fundamental data needed for the pending IIA Application for the Los Azules Project will be related to water management, water consumption and water quality issues.

Comprehensive water monitoring and sampling work is now needed to augment existing data and establish quality, robust hydrogeology data baselines within and around the Project footprint that will support the IIA Application and give confidence to the approving authorities and enable the development of optimal engineering designs.

The following hydrogeology work is recommended:

- Develop the work scope, schedule the activities, and identify the professional resources needed to perform the work. Analyze and present the data and conclusions to align to the needs of the IIA submission.
- The phreatic surface and the seasonal variations in level needs to be established as a fundamental input into mine pit slope stability and pit dewatering assessments. Year- round monitoring of the ground water levels using existing cased drill holes where they extend down into the ground water are needed to all sides of the proposed developing mine pit. If information gaps exist, then drilling additional monitoring wells and the installation of staged piezometers may be required.
- For the modeling of pit dewatering designs and assessing water extraction volumes an understanding of ground permeabilities is required while addressing specific features that may produce larger groundwater inflows such as faults or other structural features. During the

proposed infill drilling programme, there will be opportunity to perform permeability testing. Both pumping and falling head permeability tests will be required in boreholes drilled within the proposed mine pit walls. Specifically investigate the Piuquenes, Diagonal and Lagunas Faults to determine the degree of groundwater inflow that the pit may experience from these faults

- Data shortfalls may need specific holes to be drilled. For the phreatic surface and permeability assessments approximately 2,400 metres of drilling is an initial assessment of the extent of drilling required.
- Water sampling for establishing the existing groundwater quality is in progress and should continue. It is recommended the infill drilling is used to improve the water sampling frequency and data quality by extracting samples water from various depths during the drilling.
- Develop a hydrological model and perform groundwater flow modeling at the mine pit.
- Apply engineering analysis and computer modeling to develop the envisaged mine pit dewatering designs. Evaluate if there is a need to collect additional hydrogeologic data outside of the area of mineralization and at greater depths and if this data is needed for accuracy of the pit dewatering requirements.
- When the Water Balance for the project is defined then assess the opportunity to use the pumped pit water as process water or otherwise confirm the water quality is suitable for discharge to the environment as non-contact water.
- Perform geochemical studies to evaluate the characteristics of the pit wall rocks and the potential for acid rock drainage from the mine pit and the waste rock storage facility. This data will also confirm if the mined rock can be used within the tailings storage embankment formation.
- Develop a hydrological model and perform groundwater flow modelling at the tailings storage facility
- For the road crossings on all roads, model the peak stream flows needed for design of the road crossings.

Geotechnical

The geotechnical data gathering for Los Azules needs a work plan and schedule developed. Multiple geotechnical data inputs are necessary to enable permitting, design development of the Project facilities, infrastructure, mine pit and for planning and operations. The tasks can be phased accordingly:

- Geotechnical data needed to support the IIA application,
- Geotechnical data needed to support Front End Engineering & Design (FEED),
- Geotechnical data needed for Detailed Engineering, and
- Geotechnical data need for Operations.

At a high summary level, the recommended geotechnical work will include:

- **Tailings Storage Facility.**

  A high level of detailed design is required for this sensitive project facility to support the IIA application.

  - Foundation interrogation including permeability assessments,
  - Superficial material interrogation for assessment of cut slope stability and environmental effects of the relatively deep foundation excavation works,
  - Stability and route evaluation of lateral non-contact water diversions,
  - Identification and testing of suitable bulk filter, embankment forming and concrete aggregate materials,
  - Complete a site-specific seismic hazard assessment study and including earthquake characterisation,
  - Complete a geotechnical/geochemical characterization of the tailings,
  - Condemnation drilling, and
  - Assessment of the mine pre-strip materials as a source of tailings embankment forming materials. Mine pre-strip materials will be available concurrently with embankment formation.

- **Mine Pit**

  - Mine pit slope stability assessments, probably in conjunction with materials sampling and testing. Specific geotechnical testing drill holes will be required,
  - Identification of local areas of potential instability,
  - Assessment of the mine pre-strip material for use in structural back fill applications, and
  - Assessment of the excavation characteristics of the mine pre-strip materials.

- **Waste Rock Storage Facility**

  - Location interrogation including structural mapping, rock strength testing and stability analysis,
  - Staged construction of the waste rock fill and slope stability analysis,
  - Potential for acid mine drainage from the stored material, and
  - Condemnation drilling.

- **Process Plant Site, Primary Crusher & Overland Conveyor**
  - Foundation interrogation,
  - Site slope stability, and
  - Suitability of excavated material for use in cut to filling operations.

- **Access Road and Linear Infrastructure**
  - Slope stability evaluations, and

- Identification of borrow pits for suitable road surfacing materials.

- **Bulk Materials**

  Identification of suitable sources for quality bulk construction and fill materials at the earliest time possible in a project development is vital. Typically, there are deficiencies of sand material in mountain environments and manufacturing or importing of bulk materials can be very detrimental.

  - Identification of suitable quarry locations for concrete aggregate production including testing the aggregate to prove suitable for specification concretes, and
  - Identification of borrow pits for filter zone materials to be used for tailings dam formation or specified bedding sands including all materials testing.

23.3 Mining

Mining

- Complete an updated detailed mine production scheduling exercise with detailed haulage routing and any geological updates. The schedule should include continued strategic mill feed grade planning, refined pit staging planning, in-pit dumping opportunities and pioneering fleet trade-off assessment.
- Perform a trade-off study to investigate the viability and parameters of utilizing an in-pit crusher conveyor system. Options to be included are semi mobile versus fixed crusher, high angle conveyors and conventional conveying systems.
- Perform a trade-off study to investigate the potential for an alternative overburden material conveyance system to the tailings storage facility.

23.4 Metallurgy and Processing

Mineral Processing and Metallurgical Test work

- Conduct further investigation into coarse particle flotation.
- Investigate new copper collector reagents.
- Assess potential for pyrite depression to improve concentrate grades.
- Investigate potential for gold extraction from concentrates.
- Conduct variability test work to define range of comminution and flotation characteristics to be included in process plant design criteria.

- Use data from the variability testing program together with block model and mine production schedule to better define and optimize metal production.

Geometallurgy

Geometallurgy relates to the practice of combining geology and geostatistics with metallurgy to create a geologically-based predictive model for copper mineral processing plants, where metallurgical recovery, plant throughput rate (tonnes per hour) and reagent consumption such as lime can be predicted.

By mapping the rock types, alteration types and mineralogy including weathering zones, supergene, and fresh with an understanding of the metallurgical responses (derived from test work) metallurgical domains predicting plant behaviour can be derived.

A Metallurgical block model can then be used for reference when scheduling the mine in addition to the usual copper/gold grades.

Los Azules has an excellent analytical database (various Cu Acid Sol, Cu Cn Sol, etc.) and this combined with the current geology model and metallurgical input will define similar metallurgical units.

Also recommended:

- Perform Paste pH measurement to predict Lime Usage, and
- Mineralogical studies to determine mineralogy and distribution of Arsenic.

23.5 Infrastructure

Recommended Trade-Off Studies

The following trade-off studies are recommendations to develop highest confidence outcomes to infrastructure solutions at the Los Azules Project.

- **Trade-off Project Infrastructure - The Los Azules Access Route from Calingasta**

  The existing Los Azules access road is affected by snow where the access road crosses two high passes above 4000 metres elevation and where snowfall related road closure creates safety and access challenges from April to November. These road closures are longer in a winter with heavy snow fall.

  A potential Northern Access Road route was evaluated and deemed unsuitable by Ausenco Vector in earlier studies. The Northern Route offers a continuous descent from the Los Azules site down to Calingasta with no high country passes and is much less affected by snow. The Northern Access Route is undoubtedly a serious challenge but needs to be revisited and revaluated once again as part of a final trade off of the site access route that considers the best long-term solution for Los Azules in terms of access reliability, power transmission route and reliability, and safety of personnel.

The next steps are a review of the reports, photos, land ownership and an aerial reconnaissance. If decision is to continue with evaluations, then a photogrammetry programme and specific site inspections via horseback will be needed. Two sections, one of 5 km, and another of 20 km are very challenging with the valley becoming a very narrow and twisted gorge in places. The northern Route is shown green in Figure 23-1, Figure 23-2 and Figure 23-3.

A characteristic of the potential Northern Route is the adjacent river has a large catchment area and storm events in summer and snow melt water in spring can cause the river to run at very high flows. Any river crossings would therefore need to be minimised and the road platform constructed at a safe height above the river.

Figure 23-1 A google Earth background illustrating the Potential Northern Route (Green) and the existing Central Route (Blue).

Figure 23-2: Close up from Google Earth of the challenging 20km section of the Northern Route

Figure 23-3 A road constructed through the challenging section of the Northern Route would look similar to this road excavated in a very steep rock slope with the road platform well above any potential peak river flow.

If the Northern Road route is deemed constructible and feasible then perform a comprehensive trade off against the existing Central Road route and define the preferred route.

- **Trade-Off Project Infrastructure – Power Transmission to Los Azules**

As the power supply and associated transmission line is a major critical component of the project, many aspects must be focused to in the immediate future to deliver a definitive robust logical and viable solution in which all the stakeholders have confidence and will be supported through the permitting processes and implementation.

It is recommended all of the following aspects are further developed as a priority:

  - Confirm the suitability and availability of a cost-effective power supply from Argentina,
  - Confirm the suitability and availability of a cost-effective power supply from Chile,
  - Performance of power grid load flow studies,
  - Conduct a preliminary selection of conductor and transmission tower types suitable to the various climatic environments any transmission line will pass through,
  - Define the legal easements acquisition challenges and alternative processes. This will potentially eliminate Chile as an option,
  - Define the community engagements that should be performed for social license,
  - Define permitting requirements. This time necessary for any EIA process in Chile and the risk of challenges could eliminate Chile from further consideration. The Argentina authorities have advised the transmission line is to be included in the main IIA for Los Azules,
  - Perform a cost/benefit trade off of HVDC power against HVAC power. HVDV enables transmission cables to be buried underground without noteworthy power losses. Unlike HVAC which must be above ground on transmission towers, HVDV underground cables generally lose < 1% of power per buried kilometer, and
  - Include in the trade off study any benefits from a transmission line also aligned to the potential Northern Route which is relatively snow free.

When the preferred power source and the transmission route are defined, then perform environmental, geotechnical, and preliminary engineering design, such as access for overhead cable pulling and tower construction.

- **Project Infrastructure – Review Renewable Energy for Los Azules**

Renewable Energy is of interest to Los Azules especially in the early years when power will supplied be by diesel generators. In the operating years Los Azules has an obligation to draw a portion of its power from renewable sources. This renewable energy can be purchased or can be developed.

It is recommended some high-level studies are performed to understand the renewable energy generation potential. These studies have commenced in October 2017 and mmineralized material follow up work is needed. The scope of the studies will include:

- Evaluation of micro-hydro and solar generation for the power supply to advance camps and isolated access control sites.
- Trade-off solar verses diesel generation at the site during the project implementation phase.
- Understand the economic potential for a large, reliable, renewable energy power supply. This is envisioned as a generating and storage system, not just a photovoltaic field generating only during the hours of daylight and on cloud-free days.

- **Project Infrastructure – Concentrate Logistics and Export through Chile**

It is recommended that the road route from the Chile border through to the highway at Channaral Alto is given priority attention to secure all necessary land, access easements and agreements for the sections to deliver certainty of outcome.

A Heads of Agreement term sheet should be developed with the Port of Coquimbo, as well as developing a permitting schedule for any necessary infrastructure and port works in Chile.

Any bi-national commission issues and engagements should also be developed.

A legal person, supported by project personnel, should be employed with priority focus to deliver the outcomes needed in Chile.

A conceptual preliminary schedule for recommended next steps is shown below in Figure 23-4.

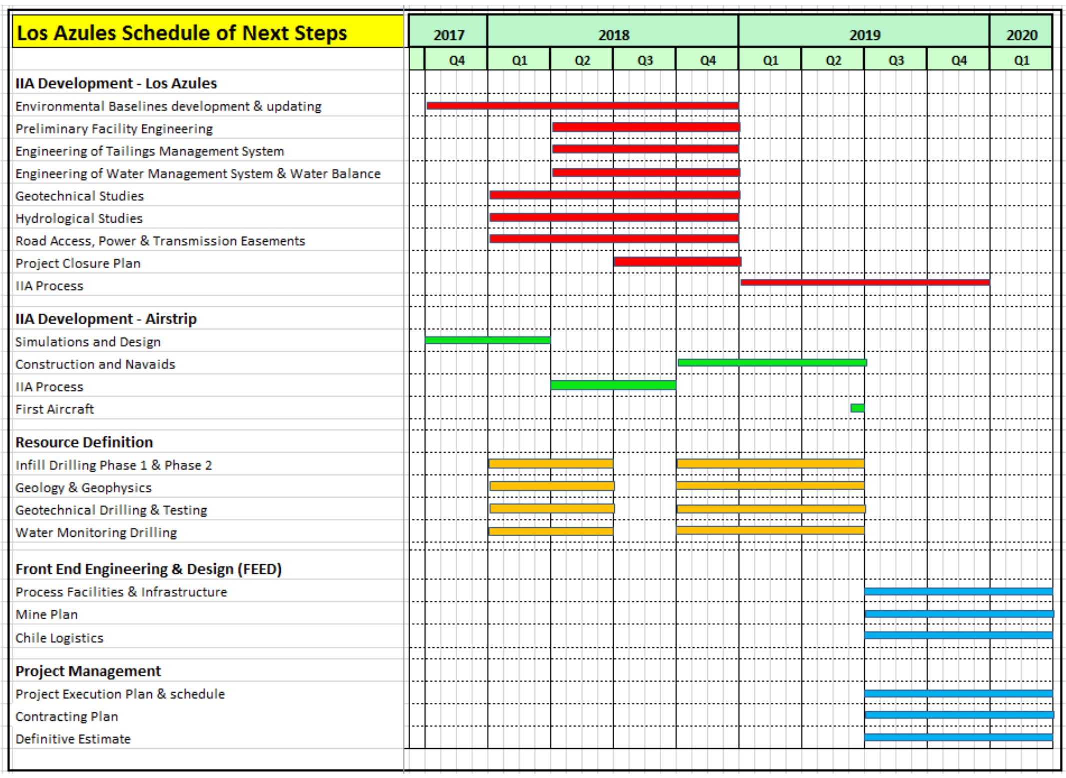


Figure 23-4 Preliminary Schedule Recommended

To define the project beyond the IIA permit application the following proposals should be requested in the market place:

- Proposals from qualified EPCMs,
- Proposals from Specialist Consultants, e.g. tailings dam engineers,
- Proposals from original equipment manufacturers (OEMs),
- Proposals from major civil contractors for specific project elements, e.g. access road development in Chile and in Argentina.

23.6 Market Study

A market study was not required for this individual Initial Assessment of the Los Azules project.

23.7 Environmental and Social Issues

Environmental Activities

Studies of Fauna and Flora have been performed at Los Azules using subject matter experts from the San Juan Province. It is recommended this work continue.

The high-altitude Andes environment around Los Azules is compromised by the intensive grazing of goats during the summer months. Options for possible elimination or management of goat grazing in the project footprint should be developed.

- The fauna and flora monitoring performed over past years should now be consolidated. If possible, monitoring should include fish stocks and fish health in the Salinas river below the proposed site of the tailings dam. Extended season monitoring will also be useful to understand the flora and fauna present when there are no grazing goats. It will be beneficial to understand the flora and fauna are missing from the area by benchmarking to an area not affected by goat herders grazing their animals.
- The environmental permitting regime is well defined, but it is recommended that a permitting register be developed to ensure the tracking of permits and approvals and their status are documented.
- A risk assessment for closure of the Project should be conducted as part of the next update of the conceptual closure plan.
- A Project rehabilitation drawing should be produced illustrating the final landscape and rehabilitation works following closure.
- It is recommended that a compensation planting proposal or an environmental rescue proposal to mitigate or offset environmental disturbances be developed in a timely manner in conjunction with the authorities so it may receive social license.

23.8 Project Costs and Financial Evaluation

Project costs and financial evaluation work was not required for this individual initial assessment beyond determining the potential for economic extraction. The following steps are recommended:

- Additional capital expenditure savings could be realized if the entire mining fleet were to be leased.
- Given 35-year mine life supported by inferred mineral resources, there is potential to improve economic results through economies of scale and higher ultimate throughput.
- Potential for phased project development to reduce initial capex and pay for subsequent expansions from operating cash flows.
- Potential for further pit optimization during mine start-up to increase project IRR by prioritizing high grade material.
- Investigate low-cost equipment sourcing.

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25 RELIANCE ON INFORMATION SUPPLIED BY REGISTRANT

25.1 Information Supplied by Registrant

This individual Technical Report Summary was prepared by Mining Plus, a qualified firm in accordance with S-K §229.1302. The information, conclusions, opinions, and estimates contained herein are based on:

Assumptions, conditions, and qualifications by Mining Plus as set forth in this report.

- Information available to Mining Plus at the time of preparation of this report, including the 2013 Preliminary Economic Assessment and the 2017 NI43-101 Preliminary Assessment Study.
- Categories of information provided by the registrant from existing reports and data include:
  - Core drilling information,
  - Data, reports, and other information supplied by the registrant and others,

For the purpose of this report, Mining Plus has relied on property ownership information provided by McEwen. Mining Plus has not researched property title or mineral rights for the Los Azules property and expresses no opinion as to the ownership status of the property.

A draft copy of the Report has been reviewed for factual errors by McEwen Mining. Any 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.

25.2 Details of Reliance

Mining Plus has prepared the data and recommendations presented in this Individual Disclosure in accordance with the regulations contained in S-K §229.1302 and S-K §229.1304 of the SEC regulations.

APPENDIX A : GLOSSARY OF TERMS

above mean sea level	-	amsl
Ampere	-	A
annum (year)	-	a
Argentine Peso	-	AR$
Billion	-	B
British thermal unit	-	BTU
centimetre	-	cm
cubic centimetre	-	cm^3
cubic feet per minute	-	cfm
cubic feet per second	-	ft^3/s
cubic foot	-	ft^3
cubic inch	-	in^3
cubic metre	-	m^3
cubic yard	-	yd^3
Coefficients of Variation	-	CVs
day	-	d
days per week	-	d/wk
days per year (annum)	-	d/a
dead weight tonnes	-	DWT
decibel adjusted	-	dBa
decibel	-	dB
degree	-	°
degrees Celsius	-	°C
diameter	-	ø
dollar (American)	-	US$
dollar (Canadian)	-	CDN$
dry metric ton	-	dmt
foot	-	ft
gallon	-	gal
gallons per minute (US)	-	gpm
Gigajoule	-	GJ
gigapascal	-	GPa
gigawatt	-	GW
gram	-	g
grams per litre	-	g/L
grams per tonne	-	g/t
greater than	-	>
hectare (10,000 m2)	-	ha
hertz	-	Hz
horsepower	-	hp
hour	-	h
hours per day	-	h/d
hours per week	-	h/wk
hours per year	-	h/a
inch	-	in
kilo (thousand	-	k
kilogram	-	kg
kilograms per cubic metre	-	kg/m^3
kilograms per hour	-	kg/h
kilograms per square metre	-	kg/m^2
kilometre	-	km
kilometres per hour	-	km/h
kilopascal	-	kPa
kilotonne	-	kt

kilovolt	- kV
kilovolt-ampere	- kVA
Kilovolts	- kV
kilowatt	- kW
kilowatt hour	- kWh
kilowatt hours per tonne	- kWh/t
kilowatt hours per year	- kWh/a
less than	- <
litre	- L
litres per minute	- L/m
megabytes per second	- Mb/s
megapascal	- MPa
megavolt-ampere	- MVA
megawatt	- MW
metre	- m
metres above sea level	- masl
metres Baltic sea level	- mbsl
metres per minute	- m/min
metres per second	- m/s
micron	- µm
milligram	- mg
milligrams per litre	- mg/L
millilitre	- mL
millimetre	- mm
million	- M
million bank cubic metres	- Mbm3
million bank cubic metres per annum	- Mbm3/a
million tonnes	- Mt
minute (plane angle)	- '
minute (time)	- min
month	- mo
ounce	- oz
pascal	- Pa
centipoise	- mPa·s
parts per million	- ppm
parts per billion	- ppb
percent	- %
pound(s)	- lb
pounds per square inch	- psi
revolutions per minute	- rpm
second (plane angle)	- "
second (time)	- s
short ton (2,000 lb)	- st
short tons per day	- st/d
short tons per year	- st/y
specific gravity	- SG
square centimetre	- cm2
square foot	- ft2
square inch	- in2
square kilometre	- km2
square metre	- m2
three-dimensional	- 3D
tonne (1,000 kg) (metric ton)	- t
tonnes per day	- t/d
tonnes per hour	- t/h
tonnes per year	- t/a
tonnes seconds per hour metre cubed	- ts/hm3
volt	- V
week	- wk
weight/weight	- w/w

wet metric ton	-	wmt

The following terms and units of measure are used in this report:

Abbreviations and Acronyms:

acid generating	-	AG
acid rock drainage	-	ARD
alternating current	-	AC
ammonium nitrate fuel oil	-	ANFO
Association for the Advancement of Cost Engineering	-	AACE
autogenous/ball mill/crushing	-	ABC
Battle Mountain Gold	-	BMG
Bond ball mill work index	-	BWi
inductively coupled plasma	-	ICP
Canadian Institute of Mining, Metallurgy and Petroleum	-	CIM
Certificate of Approval	-	CofA
close-circuit fully-autogenous grinding milling	-	FAC
Committee for Mineral Reserves International Reporting Standards (CRIRSCO)	-	CRIRSCO
Conceptual Closure and Rehabilitation Plan	-	CRP
Construction Quality Assurance	-	CQA
direct current	-	DC
early mineralized porphyry dike	-	EMD
enrichment ratio	-	ER
Environmental Impact Assessment	-	EIA
Environmental Impact Review	-	EIR
exploratory data analysis	-	EDA
Ground Engaging Tools	-	GET
induced polarization	-	IP
internal rate of return	-	IRR
International Organization for Standardization	-	ISO
in-the-hole	-	ITH
inverse distance-weighted	-	ID
leach zone	-	LX
Lerchs-Grossman	-	LG
life-of-mine	-	LOM

load-haul-dump	-	LHD
Los Azules Mining, Inc	-	LAMI
Magnetotelluric	-	MT
Mine Block Intrusion	-	MBI
Minera Andes S.A.	-	MASA
Minimum environmental protection – standard laws	-	MEPSL
Mount Isa Mines	-	MIM
National Instrument 43-101	-	NI 43-101
nearest neighbor	-	NN
net present value	-	NPV
net smelter royalty	-	NSR
New York Stock Exchange	-	NYSE
Newmont Mining Corporation	-	NMC
ordinary kriging	-	OK
overburden zone	-	OVB
potential acid generating	-	PAG
portable infrared spectrometer	-	PIMA
preliminary economic assessment	-	PEA
primary zone	-	PR
Qualified Persons	-	QPs
quality assurance	-	QA
quality control	-	QC
relative bulk strength	-	RBS
reverse circulation	-	RC
rock quality designation	-	RQD
run-of-mine	-	ROM
selective mining unit	-	SMU
semi-autogenous	-	SAG
semi-autogenous/ball mill/crushing	-	SABC
SGS Lakefield Research Ltd.	-	SGS
Solitario Argentina S.A	-	SASA
specific gravity	-	SG
standard reference material	-	SRM
supergene zone	-	SS
tailings storage facility	-	TSF
Toronto Stock Exchange	-	TSX
unidirectional solidification texture	-	UST
United Nations Development Program	-	UNDP
Waste Rock Storage Facility	-	WRSF
World Meteorological Organization	-	WMO

APPENDIX B: GEOPHYSICAL STUDIES

Various geophysical studies were conducted at Los Azules by Battle Mountain Gold and by MIM-Xstrata respectively in 1998-1999 and 2004 and by Minera Andes (Quantec) in early 2010 and McEwen Mining (Quantec) in 2012. Work done and results for these surveys are described in the following section.

GEODATOS, a Chilean geophysical company, conducted an airborne geophysical survey in early 1998. The survey covered a 20 km by 10 km area elongated east-west including the Los Azules and Paso de la Coipa areas. Lines were flown north-south at 200 m intervals and control lines were flown east-west at 1,000 m intervals. Instrument altitude was maintained at 20 m during flights.

Results suggested the existence of a structural corridor striking northwest and structures striking east-northeast associated with strong to moderate magnetic low signatures in the Los Azules mineralized body. A total field magnetic plot identified a magnetic high anomaly surrounding a central magnetic low that extended 6 km north-northwest and 3 km northeast as shown below. Battle Mountain Gold interpreted the magnetic low as altered rocks associated with the mineralized body.

Four lines of induced polarization (IP) were oriented east-west averaging two kilometers long and spaced at 600 m to 900 m apart. The lines were positioned to cross the locations of mineralized drill holes LA04-98, LA-06-98 and LA-08-98. One of the lines extended north to lithocap outcrops with anomalous copper (advanced argillic alteration possibly associated with gold mineralization and underlying porphyry copper mineralization). IP results indicated high chargeability and low resistivity corresponding with the location of the Los Azules porphyry copper deposit.

Two ground magnetic surveys totaling 103 km were conducted in the area of the Los Azules mineralized porphyry and the nearby Sector Mantos, which is 1 km west of Cerro Oeste.

Lines were oriented east-west at 100 m spacing and 10 m stations. Results confirmed the existence of north-northwest- and north-northeast-striking structures as indicated by aeromagnetics. Results also confirmed the presence of a magnetic low anomaly in the vicinity of drill holes LA-98-04, LA-98-06 and LA-98-08 and suggested the presence of a magnetic low along the alteration system of La Ballena ridge.

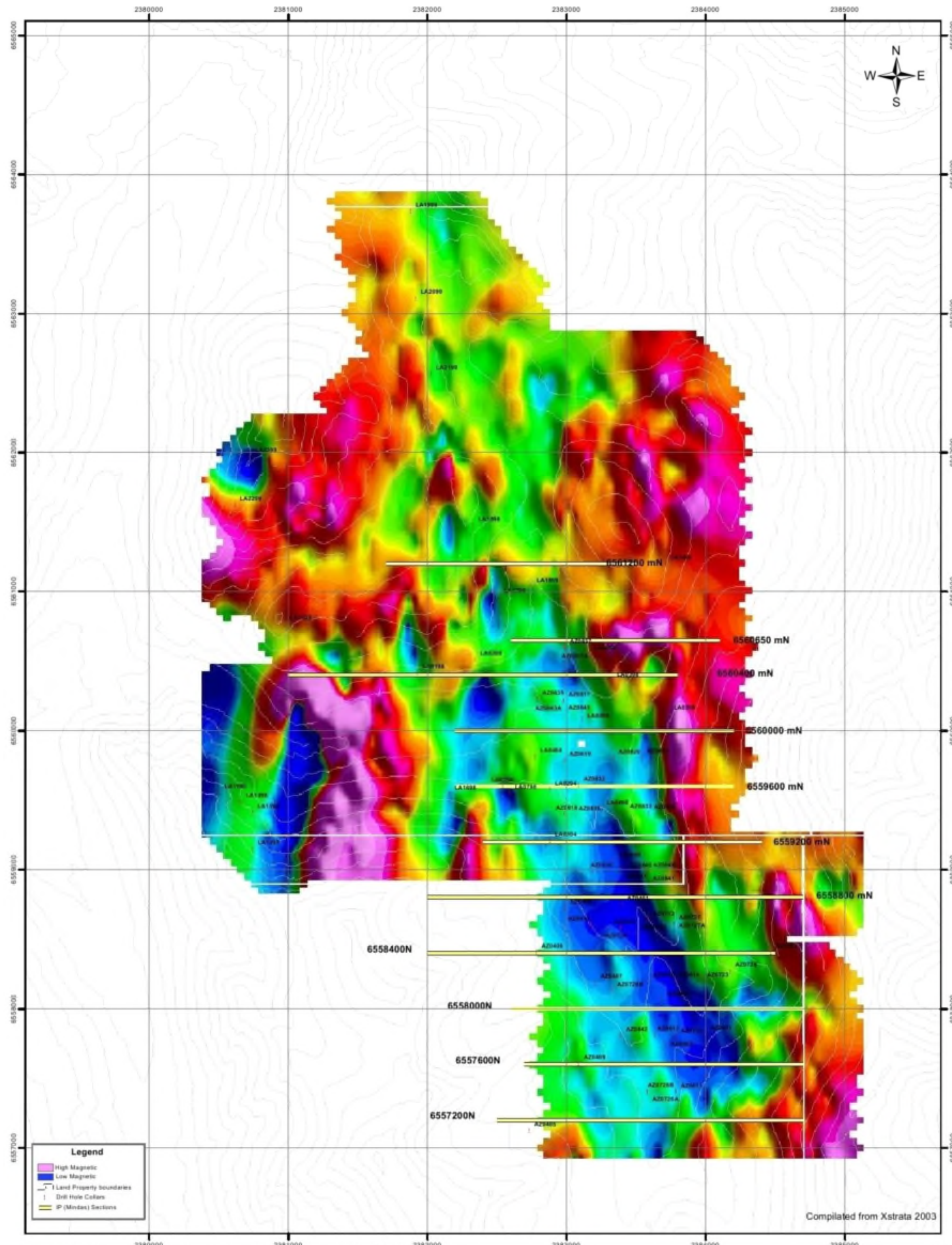


Figure 9-8: Magnetic Map of Los Azules (Reduced to Pole; 1 km^2 grid) (Rojas 2008)

Magnetic Map of Los Azules (Reduced to Pole; 1 kilometer square grid) (Rojas 2008).

During 2003-2004 MIM-Xstrata carried out a magnetic survey of approximately 70 line km at Los Azules. Lines were oriented east-west across the area controlled by the company at that time. In addition, MIM-

Xstrata ran six lines of MIMDas (MIM-Xstrata proprietary IP system) east-west totaling 11.8 km. At the request of Minera Andes, MIM-Xstrata extended their geophysical lines south into Minera Andes ground completing five additional lines for a total 11.3 km in 2004. Total surveying by MIMDas was 23.1 km.

Magnetrometry indicated a magnetic low beneath the Los Azules porphyry copper system and suggested that it extended north-northwest towards the La Hoya zone (Cerros Oeste and Este). The total field plot identified a magnetic high anomaly surrounding the magnetic low.

The magnetic low extends 7 km to 8 km north-northwest and up to 2 km east-northeast confirming the interpretations made by Battle Mountain Gold.

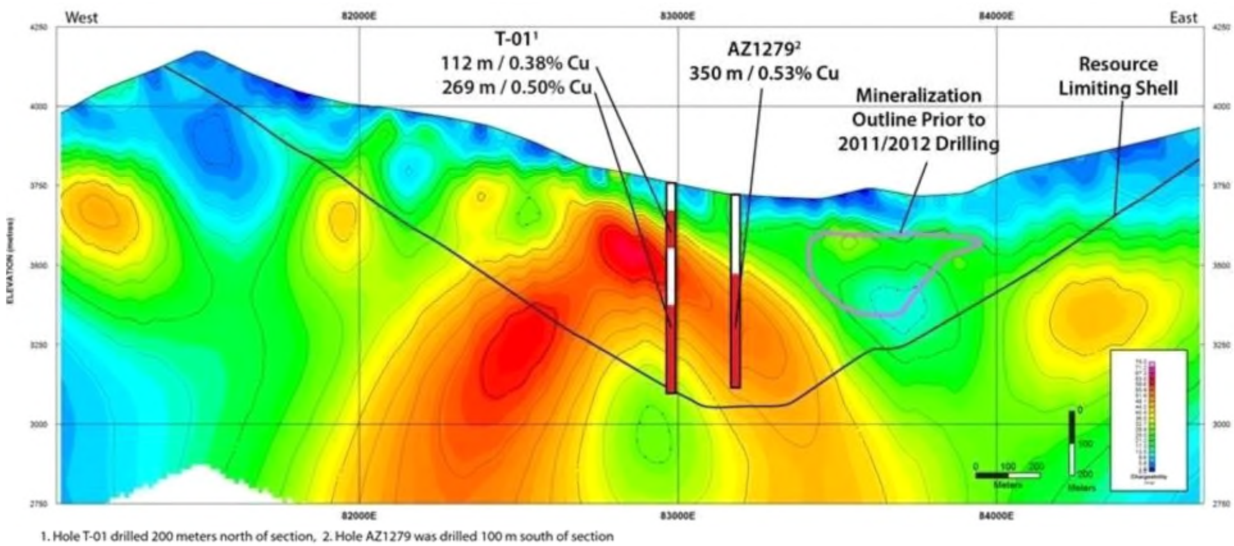
MIMDas IP surveying (2003-2004) indicated high resistivity in the north-northwest zones at Los Azules with much lower resistivity within the porphyry copper system. Chargeability is relatively low to the north but becomes much lower at the porphyry although it increases significantly at depth. These results reflects the occurrence of more superficial sulfides in the Lagunas area of the system (north of the porphyry deposit) and a thicker leached cap in the more altered part of the system.

Titan-24 DC-IP-MT data were acquired at Los Azules during April and May 2010 by Quantec Geoscience Ltd., on behalf of Minera Andes Inc. The Titan-24 system acquires three types of geophysical data– magnetotelluric resistivity (MT), direct current resistivity (DC), and induced polarization (IP). The survey consisted of twelve parallel lines (L58400 N to L62450 N). From L58400 N to L62000 N the lines were 400 m apart, L62550N was 550 m north of L62000 N and L63450 N was 900 m further north. Each line comprised one single spread of 3.6 km, except for L63450 N that was 3.3 km long. Full MT tensor data was acquired in all the lines and DC/IP was collected in all but L59200 N and L59600 N. In total ten spreads of DC and IP data were acquired covering 35.7 km and twelve spreads of MT covering 42.9 km. Grid azimuth was 90° and the station interval was 150 m.

Over 130 IP anomalies were identified. Of these, 20 were classed as priority 1, 20 as priority 2, and 12 as priority 3. The first priority anomalies are generally larger targets, at least 200 m across, and described by Quantec as being consistent with the porphyry and near- porphyry mineralization model.

Two large deep resistivity anomalies, one high to the east, generally under the Los Azules mineralization, and one low to west are well defined by the MT survey. The anomalies occur at depths to center ranging from 800 m to 1.5 km. Depth to top is rarely less than 500 m. The width of the anomalies is 800 m to 1 km for the resistivity low and 500 m to 800 m for the resistivity high. Quantec postulated that the deep anomalies are most likely related to conductive sulfides perhaps in a disseminated pyrite/sulfide shell surrounding a concealed porphyry intrusion. These anomalies, which are referred to as the "Southwest Target", are the targets that were tested in Hole T-01B in 2011 and Hole 1279 in 2012.

Hole T-01B is located 200 m north of section 58,400N, and Hole 1279 is located 100 m south of the drill section. The section shows the limit of the mineralization prior to the 2010 and 2011 drilling campaigns.

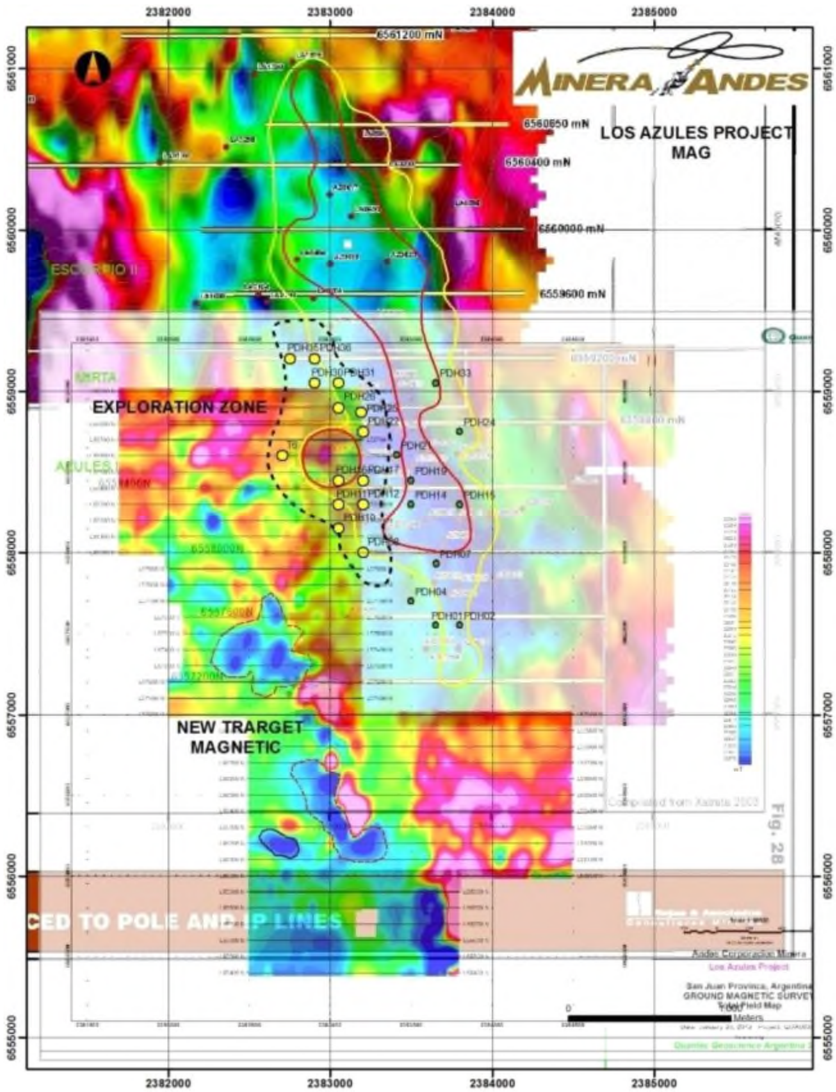


Section 58,400N Showing 2D IP Inversion Anomaly (Southwest Target) (McEwen 2012).

During January 2012, Quantec Geoscience Argentina S.A. performed a ground magnetic survey on the southwest portion of the Project. The survey consisted of 37 lines ranging from 1.1 km to 2.5 km, for a total of 57.2 line-km. The objective of the survey was to identify anomalous magnetic signatures that might be related to copper porphyries. The survey was acquired on a "stop-and-go" configuration, collecting data at 10 m intervals. The data was presented as maps of the Total Magnetic Field, Reduction to the Pole transform, Analytic Signal, Tilt Derivative and First Vertical Derivative.

The 2012 magnetic data shows a discontinuous north-northwest trending magnetic low southwest of and roughly parallel to the prominent magnetic low that corresponds to the location of the main Los Azules deposit.

Areas of high magnetic response indicate the presence of elevated levels of magnetic minerals such as magnetite, pyrrhotite and hematite, whereas areas of low magnetic response may be caused by alteration processes such as magnetite destruction or may simply indicate rock types that never had magnetic minerals. This anomaly was tested with one drill hole during the 2012 season, but the hole, which was drilled to a depth of 501 m, intersected only traces of copper mineralization.



Total Magnetic Field for 2012 Survey Overlain

APPENDIX C : COMPARISON WITH PREVIOUS RESOURCE ESTIMATED

The previous estimate of mineral resources for the Los Azules deposit was presented in a technical report dated November 1, 2013 (effective date August 1, 2013). There are differences in the technical and economic parameters used to report mineral resources in 2013 compared with the current estimate. Mineral resources stated in 2013 were based on a cut-off threshold grade of 0.35% copper, a somewhat elevated value that had been retained, for comparison purposes, from the first estimate of mineral resources conducted in 2008. The base case cut-off grade is now reduced to 0.20% copper in order to reflect the current (2017) technical and economic parameters.

The table below compares the new resource estimate, at 0.20%Cu cut-off, with the mineral resources presented in the November 2013 technical report at a cut-off grade of 0.35%Cu.

Comparison with Previous Resource Estimate

Type	Mtonnes	Average Grade				Contained Metal			
		Cu (%)	Au (g/t)	Mo (%)	Ag (g/t)	Cu (Blbs)	Au (Moz)	Mo (Mlbs)	Ag (Moz)
Indicated									
Jun-17	962	0.48	0.06	0.003	1.80	10.20	1.70	57.30	55.70
Nov-13	389	0.63	0.07	0.003	1.80	5.40	0.80	25.70	22.90
Inferred									
Jun-17	2,666	0.33	0.04	0.003	1.60	19.30	3.80	194.00	135.40
Nov-13	1,397	0.46	0.06	0.004	1.90	14.30	2.60	114.00	85.80

The comparison in the table shows that the amount of contained copper in Indicated class resources has almost doubled to 10.2 billion pounds. Contained copper in Inferred class resources has increased by 35%. There are three main factors that contribute to the change in mineral resources since 2013 as described below:

First, since the previous estimate of mineral resources in 2013, McEwen Mining has drilled 17 additional holes in the Los Azules deposit that has resulted in the conversion of some Inferred resources to the Indicated category and a slight decrease in the average copper grade.

Second, there have been increases to the projected operating costs, as well as the inclusion of projected metallurgical recovery, used in the generation of the resource limiting pit shell. These changes are the result of more recent engineering and metallurgical studies. The technical and economic parameters used to generate the resource limiting pit shells in 2013 and 2017 are summarized below.

2013 parameters:

- Copper price of $2.75/lb
- Site operating costs of $1.00/t mining, $4.25/t for combined processing and general and

administration

- Pit slope of 34°
- There are no adjustments for metallurgical recoveries.

2017 parameters:

- Copper price of $2.75/lb
- Site operating costs of $1.70/t mining, $5.00/t for processing and $1.00/t for general and administration
- Pit slope of 34°.
- Metallurgical recoveries 90% for copper.

Finally, the base case cut-off grade used to calculate the resources has been reduced from 0.35%Cu to 0.20%Cu in order to better reflect the projected operating cost, metal price and metallurgical recovery parameters projected for Los Azules.

Compared to the 2013 resource estimate, increases in the projected operating costs result in a reduction in the depth extent of the resource limiting pit shell, which should result in a reduction in the overall size of the mineral resource. However, this has been offset, to some extent, by a reduction in the base case cut-off grade. These changes are demonstrated, to some degree, by comparing the two resource estimates at a variety of cut-off thresholds.

Comparison of 2017 vs. 2013 Resources at Varying Cut-off Grade

	Jun-17			Nov-13		
Cut-off Grade (Cu%)	Mtonnes	Cu (%)	Cu (Blbs)	Mtonnes	Cu (%)	Cu (Blbs)
Indicated						
0.10	1,034	0.46	10.40	643.00	0.48	6.80
0.15	1,016	0.46	10.40	627.00	0.49	6.70
0.20	962	0.48	10.20	584.00	0.51	6.60
0.25	867	0.51	9.70	523.00	0.54	6.30
0.30	750	0.54	9.00	450.00	0.59	5.80
0.35	635	0.58	8.20	389.00	0.63	5.40
0.40	537	0.62	7.30	338.00	0.67	5.00
0.45	444	0.66	6.50	293.00	0.70	4.60
0.50	361	0.71	5.60	253.00	0.74	4.10
0.55	290	0.75	4.80	217.00	0.78	3.70
0.60	234	0.79	4.10	184.00	0.81	3.30
0.65	188	0.83	3.50	151.00	0.85	2.80
0.70	148	0.88	2.90	120.00	0.90	2.40
Inferred						
0.10	3,669	0.28	22.70	4,572.00	0.30	30.70
0.15	3,196	0.30	21.40	4,141.00	0.32	29.50

0.20	2,666	0.33	19.30	3,583.00	0.35	27.30
0.25	1,997	0.36	16.00	2,785.00	0.38	23.40
0.30	1,384	0.40	12.30	2,016.00	0.42	18.70
0.35	902	0.45	8.90	1,397.00	0.46	14.30
0.40	541	0.50	5.90	910.00	0.51	10.30
0.45	314	0.55	3.80	576.00	0.57	7.20
0.50	179	0.60	2.40	360.00	0.62	4.90
0.55	108	0.66	1.60	233.00	0.68	3.50
0.60	68	0.71	1.10	157.00	0.73	2.50
0.65	45	0.76	0.70	110.00	0.77	1.90
0.70	30	0.80	0.50	76.00	0.81	1.40

APPENDIX D : ACCESS ROUTES

During 2017 McEwen completed a review of access roads and concentrate logistics options in both Chile and Argentina as a bi-national approach to the Los Azules development. The preferred outcome promoted and costed in the 2017 PEA is an access road into Los Azules from Chile that links Los Azules to a Chile National Road 55 with connections to the operating port of Coquimbo in vicinity of La Serena. This route enables over dimension and over weight freight deliveries into Los Azules for the development period and the truck haulage of copper concentrate for export via existing port infrastructure and facilities at Coquimbo for the duration of copper mining operations.

If the preferred bi national approach cannot be supported it is still viable to develop and operate Los Azules utilising an Atlantic port and Argentina in-country infrastructure. It is slightly less cost efficient and more operationally challenged than a bi-national approach but nonetheless viable.

Three potential road options (all within Argentina) for access into the Los Azules site were previously evaluated by Samuel Engineering. They considered the 106 km "northern route" to Villa Nueva, the 115 km "central route" to Calingasta and a 181 km "southern route" to Barreal via Villa Pituil, distances are measured from Los Azules to existing highways. The main site access road subsequently selected by Ausenco Engineers is the "central route" which is the existing route initially created some 20 years ago.

The 106 km Northern Route and the 115 km Central Route to Calingasta with extensions to the Argentina railway network at Canada-Honda.

The Central Route tracks east-south-east from the project site to the small community of Calingasta. The route follows two significant valleys, a valley extending west north west from Calingasta and the other valley extending south east from Los Azules. The connection route between the two valleys traverses two significant mountain passes that are over 4,000 masl. Approximately 60 km of the road is above the snowline (3,000 masl) which presently limits site access to at most the six months between mid November and mid May. Between the winter months from June to October snow removal operations will be necessary to keep the access open. A photo of the existing central route is presented.

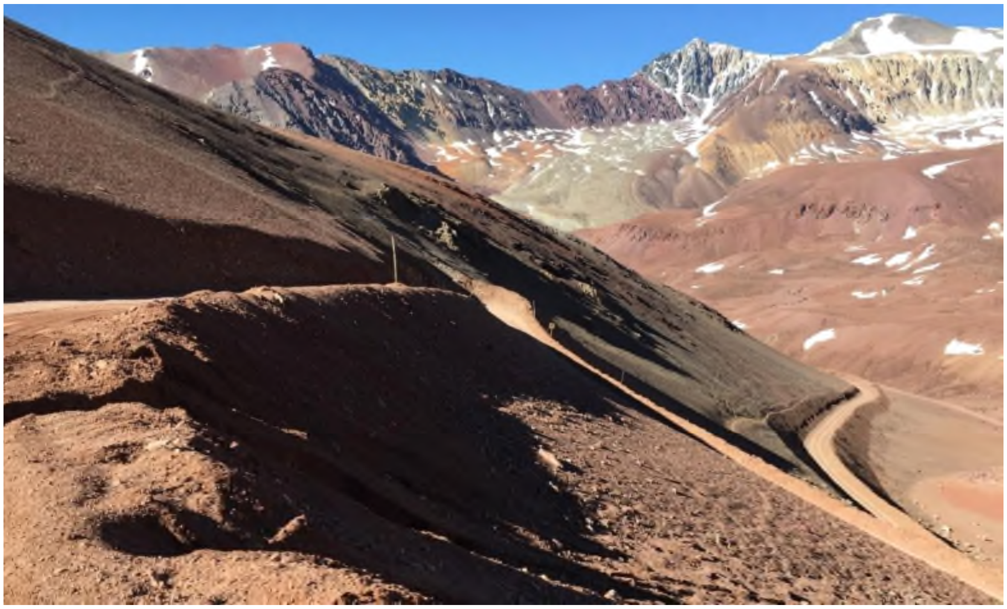


Figure D-1: Recently graded hair pin bends during January 2017 at Totora Pass on the existing central route to Los Azules, elevation ~4,200 masl.

The Ausenco prefeasibility level designs and accompanying cost estimate for the access road advised of 29 km of new constructed road and 64 km of the existing road alignment to be upgraded. The new road was to partially replace the higher elevation sections of the current road, which includes steep grades, short radius curves, narrow travel surfaces and heavy snow accumulation during winter over the 60 km of high country.

During 2017 McEwen Mining performed studies in both Chile and Argentina with a view to the Los Azules development being optimally serviced regardless of political boundaries.

Argentina and Chile have a Bi-National Mining INTECUSION Treaty (TRASDA DE INTERXION MUINERA CHILE _ARGENTINA) to facilitate development of resources in proximity to the international border however resource development and cross border infrastructure can also happen outside of the bi-national treaty.

The principal motivation for evaluating a road access from Los Azules into Chile is the proximity of the operating port at Coquimbo on the Pacific coast and situated only 244 km from Los Azules. The Port of Coquimbo is a multipurpose importing and export facility that in addition to general and seasonal goods also receives, stores, and exports copper concentrates.

The Port of Coquimbo in Chile.

The large sheds in shown are existing concentrate storage facilities. The orange and white shed closest to the sea is a copper concentrate storage facility for Teck Cominco's Andacollo operations. The blue and white shed is a 50,000 t concentrate storage facility for Mitsui's operations at Caserones some 500 km distant from Coquimbo. Mitsui has confirmed to the port operator "Ultramar" that it will vacate its Port of Coquimbo facilities during early 2018 and relocate to a new port closer to it's mining operations.

The Port of Coquimbo has the following attributes:

- Ability to import and handle the oversize and over weight freight needed for the development phase of Los Azules such as mining fleet components, large structural steel members, large tank sections, heavy items of mechanical equipment.
- Able to import and handle bulk consumables during the development and operating phases such as mill balls and explosives.
- Port is under-utilised with considerable berth occupancy time available.
- Existing exporting port for copper concentrates from Chile based mines.
- Port charges at Coquimbo will be in the region of $14 per ton which benchmarks with similar concession port operations eg Matarani in Peru where concentrates from Antapaccay, Cerro Verde and Las Bambas are handled.
- Has copper concentrate receiving, storage (50,000 t) and exporting facilities recently built by Mitsui and soon to be vacated.
- Located on Pacific Ocean and closer to Asian markets for optimal shipping rates.

Wind turbine importing and handling logistics at the Port of Coquimbo in 2017.

The distance by road from Los Azules to the Port of Coquimbo is 244 km. The route is formed of two quite different sections basically a section of on-national highway extending from Coquimbo and a section of off-national highway into the Andes foothills and Andes mountains.

The section of on-national highway extends from the Port of Coquimbo for 132 km and is mostly dual carriageway and forms the route as far as the small settlement of Chanaral Alto in the municipality of Monte Patria. Road reconstruction is in progress during 2017 and 2018 and one or two new toll booths will be installed during 2019. This road is appropriate for trucks carrying copper concentrates.

The section of off-national highway extends from Chanaral Alto to Los Azules for 112 km. The route comprises 100 km of existing unsealed (and in the most part unimproved) roads and exploration tracks. The route selected has virtually no current community interactions and will not have any over the long term. All of the section within Chile falls within the Municipality of Monte Patria. Approximately 40% of the route is in public ownership and 60% in private ownership. 12 km of the 112 km are presently unformed, being 6 km of new road proposed to by-pass above and around the community of Tulahuen. The final 6 km are within Chile up to the border with Argentina. All of the proposed route is very easy grade and without any tight curves.

There are no dwellings encountered in the 60 km on the Chile side preceding the international border. The Municipality of Monte Patria is supportive of the proposed route upgrading. The municipality wishes to facilitate a public access to grow a summer tourism industry for people to visit the high Andes and pass through into Argentina. Los Azules intends to have a memorandum of understanding with the Municipality of Monte Patria.

Road route options between the Port of Coquimbo, Chile and Los Azules.

In the image above the international border is shown as pink. National Highway (shown green and yellow) is unimproved roads. The preferred route is the 112 km route with the northern extension into Los Azules and labelled Route 1 in the image below.

The southern extension route ("Route 2") is a viable option but is 24 km longer and snow affected over approximately 50 km during winter months. Route 2 is preferred by the Municipality of Monte Patria and has a local name "The Lapis Lazuli Route", referring to the local Lapis Lazuli mines alongside the route. It is also known as "Paso La Chapetona". Historically and currently Paso La Chapetona is promoted in Chile and Argentina as a potential Chile/Argentina border crossing route.

Potential road access routes in Chile and in Argentina.

Distances for Access Road Options

Chile	Argentina
Route 1 = 244 km	Route 3 = 306 km
132 km - National highway 112 km - Minor roads & tracks	106 km - National highway 200 km - Minor roads & tracks
Route 2 = 268 km	Route 4 = 335 km
132 km - National highway 136 km - Minor roads & tracks	70 km - National highway - 265 km - Minor roads & tracks

Distances in Chile are measured from Los Azules to the Port of Coquimbo.
Distances in Argentina are measured from Los Azules to the rail-head at Canada-Honda.

The costs to improve the 112 km of Route 1 that is not National Highway to be fit-for-purpose for heavy freight, over size freight and the concentrate logistics is estimated at $30 million.

This is made up of $230,000 per km of road plus $300,000 for each of up to 10 river ford crossings and a further $200,000 per km for sealing of the 6 km of by-pass around Tulahuen for control of dust and noise. shows the existing, unimproved road within Chile in the area approaching the border with Argentina. It is in arid land in weathered granites which enables easy road gradients and no tight radius curves.

Photo of the existing unimproved road within Chile in the border area

The principal attributes for selecting Route 1 as the Preferred Access into Los Azules are:

- Route 1 on the Chile side receives minimal snow. Only 10 km of road from the Los Azules process plant and into Chile is affected by winter snow. This represents the safest, shortest and best route.
- Only one community by pass is needed. The by-pass is at Tulahuen, approximately 70 km from Los Azules. No settlements are passed through. Long term community engagement will be minimal and interfaces with Los Azules traffic minimised.
- The geotechnical conditions for the majority of the Route 1 improvements are weathered granites that can be mechanically excavated and have stable slopes and a durable road platform. This enables simple road maintenance for a safer road .
- One-way travel time for a truck hauling concentrate from Los Azules into the port of Coquimbo will be approximately five hours driving time. This makes round trips in a single work shift a possibility.
- A Memorandum of Understanding (MOU) with landowners and the Municipality of Monte Patria is in formation.

The current existing access road into Los Azules is from the small town of Calingasta in San Juan Province, Argentina. This was referred to as the "Central Route" in the 2013 PEA. This is the only serviceable route into Los Azules and is the preferred long term access route from Argentina.

Route 4 is the route from Barreal to the south of Calingasta. This route was envisaged for the possible future development of the El Pachon Copper resource approximately 70 km south of Los Azules. If El Pachon were to move into development then Los Azules may consider to revise away from the existing

Route 3 to work in conjunction with the El Pachon developers and use Route 4 as the principal access route to Los Azules.

McEwen Mining completed a photogrammetry survey during 2017Q1 using drones to create a digital terrain model for detailed road design of Route 3. The survey was used to define the extent of works necessary to deliver a fit for purpose road access into Los Azules from Calingasta.

If Los Azules is developed as a bi-national development, the access road from Calingasta into Los Azules will not be required to be improved to the same extent necessary for enabling access for over dimension and overweight freight or for concentrate logistics operations. The standard of the road will still be significantly improved by comparison to the road as it exists today for safe functional use of supply trucks and bussing of personnel. The costs for the road improvements are estimated to be about $400,000 per km. For approximately 75 km this equates to $30M.

In the unlikely event a bi-national development proves to not be possible, Los Azules will be developed and supported 100% from within Argentina. A contingency plan has been developed and is outlined below.

Under contingency the scope of Access Road improvements needed for over weight and over dimension freight access into Los Azules increases substantially within Argentina, but reduces to zero in Chile. Tight curves and steep gradients will be eliminated from the access route. The estimated cost of the road improvements increases to $700,000 per km for the Central (existing) Route for a total expenditure of approximately $55M (comparable to the Ausenco's earlier estimated value of $50M included in the 2013 PEA).

A 100% Argentina based concentrate logistics solution has been evaluated as a contingency solution. Trucking to Coquimbo in Chile is eliminated and a bi-modal concentrate transport and export solution as outlined below has been costed in detail and benchmarked against similar activities and installations. The effect on the Los Azules development financials is a reduction to the NPV by approximately $160M and to the IRR by approximately 1.1%.

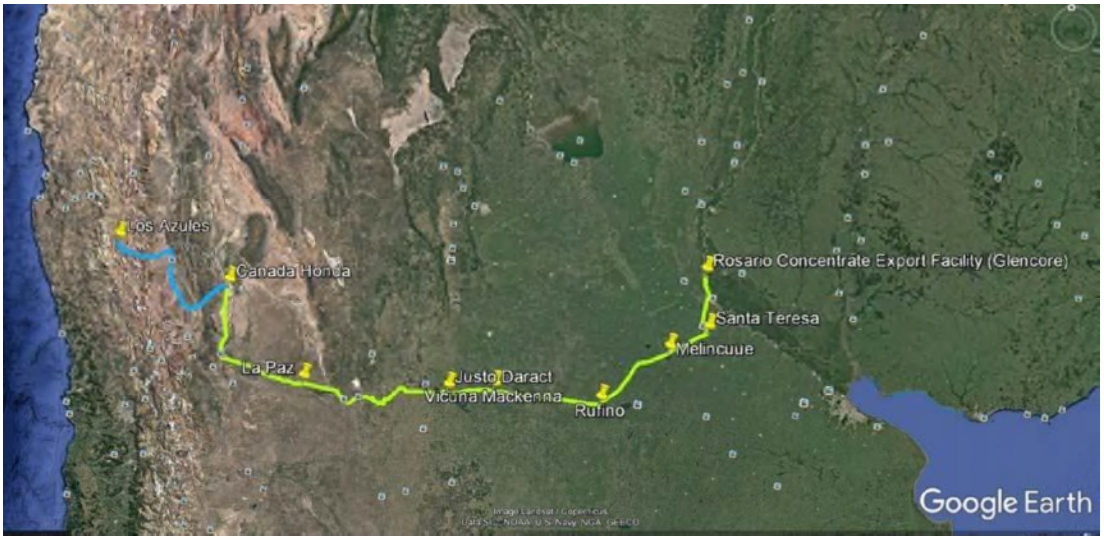
This reduction in value does not significantly detract from the viability of the development but serves to demonstrates the logic in exporting concentrates through Chile and having a reliable all purpose road access through Chile.

An Argentina concentrate logistics solution requires delivery of the Los Azules copper concentrates into an Atlantic port approximately 1,400 km from the mine site. The most cost efficient option through Argentina is bi-modal, where concentrates are trucked 306 km from Los Azules to the closest point of access on to the Argentina standard gauge (1.676 m) rail of the Mendoza San-Juan branch. The rail is operated by Argentina Railways' Freight Service (Ferrocarril Argentinos Cargas) at Canada-Honda. Rail transit is then approximately 1,050 km to the port of Rosario for ship loading and export.

Minera Alumbrera has performed a bimodal concentrate logistics operation in Argentina for 25 years from it's Alumbera mine in Tucuman. It uses a mineral concentrate pipeline followed by rail freight to deliver concentrates to the ship loading facility at the port of Rosario.

The figure below shows three segments of road before connecting to the rail route at Canada- Honda. The road section is 306 km over three road standards with the most challenging section being closest to Los Azules within the high Andes. Rail cars the Canada-Honda facility where locally produced lime is currently loaded on to the Argentina Railways Freight network for domestic distribution.

Road route to connect to the FGSM (Ferrocarril General San Martin) at Canada- Honda.

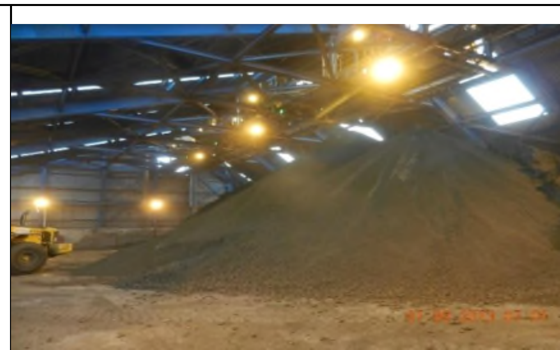
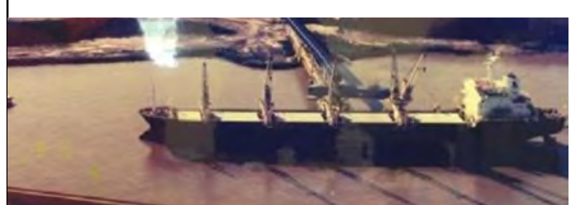


Rail route for copper concentrate from Canada Honda to the port of Rosario on the Atlantic Ocean side of Argentina.

Rail trucks at Canada-Honda

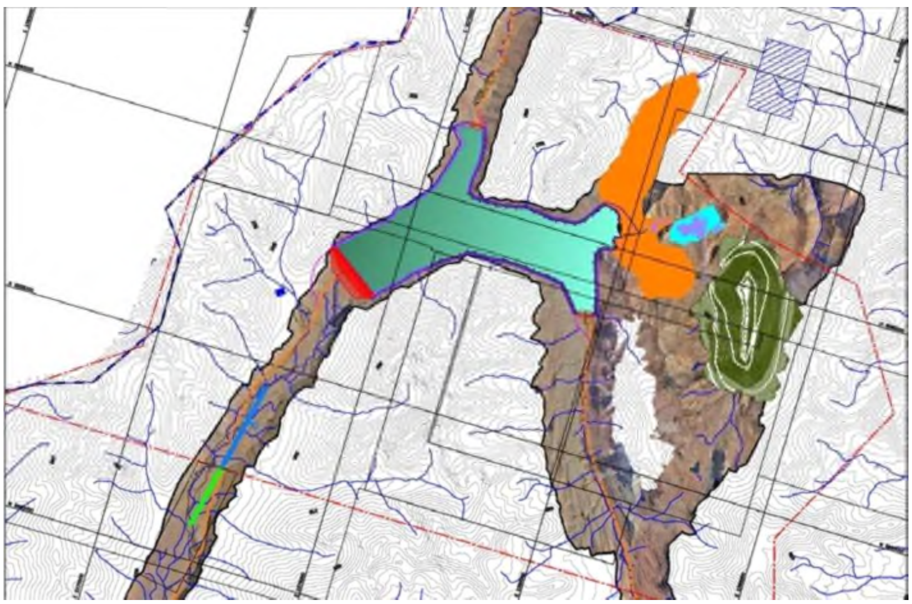
The bi-modal export of copper concentrates from Los Azules to export at the port of Rosario on the Atlantic side of Argentina is illustrated in the following sequence:

A Concentrate Stockpile Building will be built at Los Azules in proximity to the concentrate filter plant	
Trucking concentrate to Canada-Honda 306 km if the Coquimbo port export solution is not available.	

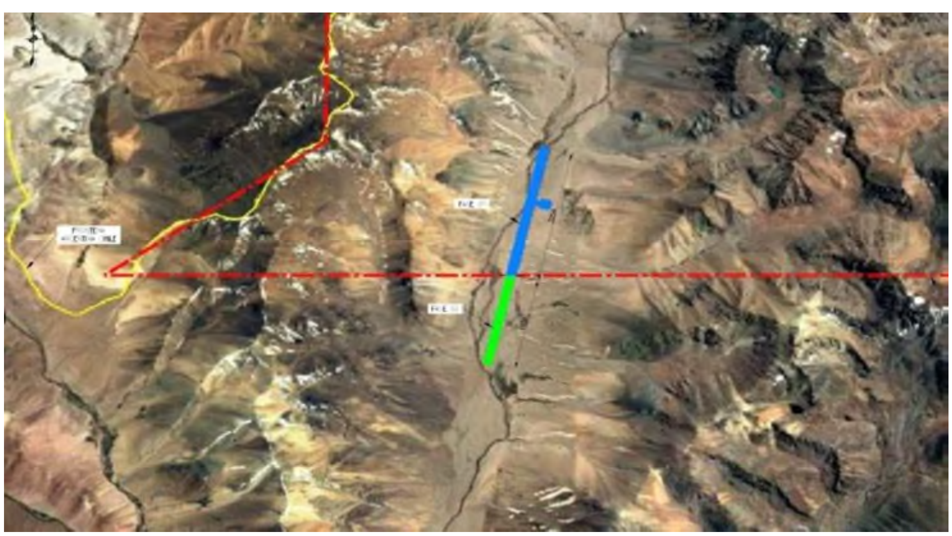
Storage of concentrate in a transfer station at Canada-Honda for loading into rail wagons. The transfer station would be an additional installation if Coquimbo port is unavailable.	
Railway transport of concentrate over approx. 1,050 km from Canada-Honda to the Port of Rosario. The rail transport is a new activity if Coquimbo port is unavailable.	
Unloading concentrate and storage in a transfer station for ship loading. Equivalent activity to what is planned at Coquimbo	
Ship loading concentrate. Equivalent activity to what is planned at Coquimbo	

The Los Azules development is located in the high Andes mountains of western Argentina. To the south west of Los Azules and downstream of the proposed tailings dam the Rio Salinas Valley broadens and straightens. It is of very low gradient and suitable for formation of an airstrip to service Los Azules. The airstrip will be at an altitude of approximately 3,250 masl, 6 km from the proposed camp facility, and 10 km from the proposed mine office.

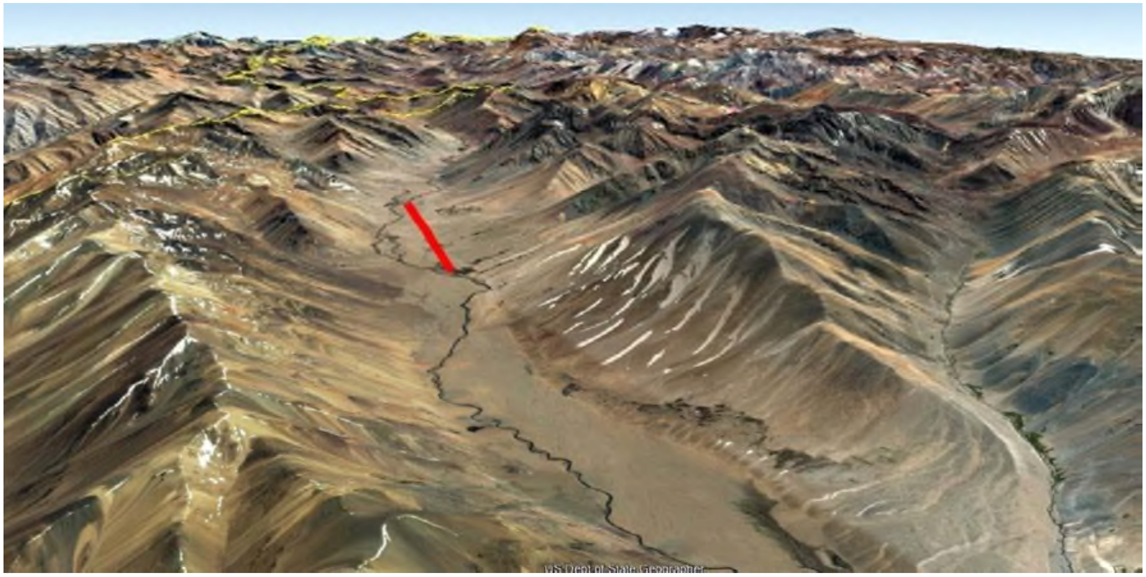
The first stage STOL airstrip is shown in blue. The limit of Los Azules owned lands is shown as red dashed lines in both figures. An future extension to the airstrip is anticipated and shown in green, the extension is to enable larger aircraft types to use the airstrip facility and will require an easement over the affected part of the property to the south of Los Azules lands. A perspective view of the location of the proposed Los Azules airstrip is shown, looking north into the broad and straight Salinas Valley within the high Andes.



Los Azules General Arrangement



Satellite Imagery Showing Proposed Airstrip



Perspective View of Proposed Airstrip, looking north

The proposed airstrip is 180 km from the San Juan Airport with connections to Buenos Aires and other locations within Argentina. Flying time from San Juan to Los Azules will be less than one hour.

Proposed Airstrip in relation to San Juan

A serviceable airstrip at Los Azules delivers the following critical and useful outcomes that, collectively, significantly enhance the exploration, implementation and operating phases of Los Azules development. These include:

- Enables an emergency evacuation and a specialist emergency response.
- Safer personnel travel by aircraft than buses on mountain roads.
- Flying time of less than one hour from San Juan compared to at least 7 hours road travel by bus.
- Enables exploration drilling activities beyond the reliable summer 3-month snow free weather window affecting the high passes and extends the safe drilling season to between nine and 12 months.
- Will enable accelerated timely in-fill drilling and exploration drilling for the mine pit to be drilled from indicated status up to measured status.
- Can be used to supply the Los Azules development if the access road is unserviceable such as from an un-cleared snow fall event.
- Facilitates fly-in-fly-out work rotations per world best practice.
- Facilitates air freight support during development phase.
- Facilitates deliveries of critical air freight needs during development and operations.

By 2017, Q2, the airstrip permit had been applied for to the Argentina authority (ANAC) since approximately 2015. Initially a STOL (Short Take Off and Landing) permit has been requested. The permit will allow construction of an airstrip and for planes such as a DH-6 to land at Los Azules and support the exploration, permitting and early implementation phases of the Los Azules development.

A longer-term vision is to utilise larger aircraft at Los Azules such as a Dash 8 type personnel transport aircraft and potentially a C130 Hercules Transport. These aircraft will require a longer airstrip and probably an easement to be negotiated for the airstrip over the adjacent property to the south.

A detailed topographic survey was performed during 2017. Airstrip design will commence later in 2017. A site inspection confirmed the geotechnical condition is glacial outwash sands and gravels. The survey and geotechnical inspection indicated airstrip formation works are without complexity and suitable construction materials are immediately available at the site by screening of in-situ materials.

Navigation aids, safety and security evaluations and flight simulations are pending for later in 2017. A preliminary costing for the STOL airstrip formation at Los Azules is less than $5M and the airstrip formation works can be completed within a single summer season.