NI 43-101 TECHNICAL REPORT
EL PEÑÓN GOLD-SILVER MINE
ANTOFAGASTA REGION, CHILE

Qualified Persons:

Sergio Castro, Registered Member CMC

Marco Velásquez Corrales, Registered Member CMC

Henry Marsden, P.Geo.

Carlos Iturralde, P.Eng.

Royal Bank Plaza, North Tower

200 Bay Street, Suite 2200

Toronto, Ontario M5J 2J3

Effective Date: December 31, 2020

Signature Date: March 25, 2021

YAMANAGOLD

Yamana Gold Inc.
Royal Bank Plaza, North Tower
200 Bay Street, Suite 2200
Toronto, ON, Canada
M5J 2J3

NI 43-101 TECHNICAL REPORT
EL PEÑÓN GOLD-SILVER MINE
ANTOFAGASTA REGION, CHILE

Effective Date: **December 31, 2020**

Signature Date: **March 25, 2021**

Authors:

[Signature]
Sergio Castro
Registered Member CMC
Technical Services Manager, El Peñón
Yamana Gold Inc.

[Signature]
Marco Velásquez Corrales,
Registered Member CMC
Chief Resource Geologist, El Peñón
Yamana Gold Inc.

[Signature]
Henry Marsden, P.Geo.
Senior Vice President, Exploration
Yamana Gold Inc.

[Signature]
Carlos Iturralde, P.Eng.
Director, Tailings, Health, Safety &
Sustainable Development
Yamana Gold Inc.

Reviewer

[Signature]
Sébastien Bernier, P.Geo.
Senior Director, Geology & Mineral
Resources,
Yamana Gold Inc.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains or incorporates by reference “forward-looking statements” and “forward-looking information” under applicable Canadian securities legislation within the meaning of the United States Private Securities Litigation Reform Act of 1995. Forward-looking information includes, but is not limited to: cash flow forecasts, projected capital, operating and exploration expenditures, targeted cost reductions, mine life and production rates, grades, infrastructure, capital, operating and sustaining costs, the future price of gold, potential mineralization and metal or mineral recoveries, estimates of mineral resources and mineral reserves and the realization of such mineral resources and mineral reserves, information pertaining to potential improvements to financial and operating performance and mine life at El Peñón (as defined herein) that may result from expansion projects or other initiatives, maintenance and renewal of permits or mineral tenure, estimates of mine closure obligations, leverage ratios and information with respect to the Company’s (as defined herein) strategy, plans or future financial or operating performance. Forward-looking statements are characterized by words such as “plan,” “expect”, “budget”, “target”, “project”, “intend”, “believe”, “anticipate”, “estimate” and other similar words, or statements that certain events or conditions “may” or “will” occur, including the negative connotations of such terms. Forward-looking statements are statements that are not historical facts and are based on the opinions, assumptions and estimates of Qualified Persons (as defined herein) considered reasonable at the date the statements are made, and are inherently subject to a variety of risks and uncertainties and other known and unknown factors that could cause actual events or results to differ materially from those projected in the forward-looking statements. These factors include, but are not limited to: the impact of general domestic and foreign business; economic and political conditions; global liquidity and credit availability on the timing of cash flows and the values of assets and liabilities based on projected future conditions; fluctuating metal and commodity prices (such as gold, silver, diesel fuel, natural gas and electricity); currency exchange rates (such as the Chilean Peso and the Canadian dollar versus the United States dollar); changes in interest rates; possible variations in ore grade or recovery rates; the speculative nature of mineral exploration and development; changes in mineral production performance, exploitation and exploration successes; diminishing quantities or grades of reserves; increased costs, delays, suspensions, and technical challenges associated with the construction of capital projects; operating or technical difficulties in connection with mining or development activities, including disruptions in the maintenance or provision of required infrastructure and information technology systems; damage to the Company’s or El Peñón’s reputation due to the actual or perceived occurrence of any number of events, including negative publicity with respect to the handling of environmental matters or dealings with community groups, whether true or not; risk of loss due to acts of war, terrorism, sabotage and civil disturbances; risks associated with infectious diseases, including COVID-19; risks associated with nature and climatic conditions; uncertainty regarding whether El Peñón will meet the Company’s capital allocation objectives; the impact of global liquidity and credit availability on the timing of cash flows and the values of assets and liabilities based on projected future cash flows; the impact of inflation; fluctuations in the currency markets; changes in national and local government legislation, taxation, controls or regulations and/or changes in the administration of laws, policies and practices, expropriation or nationalization of property and political or economic developments in Chile; failure to comply with environmental and health and safety laws and regulations; timing of receipt of, or failure to comply with, necessary permits and approvals; changes in project parameters as plans continue to be refined; changes in project development, construction, production and commissioning time frames; contests over title to properties or over access to water, power, and other required infrastructure; increased costs and physical risks including extreme weather events and resource shortages related to climate change; availability and increased costs associated with mining inputs and labor; the possibility of project cost overruns or unanticipated costs and expenses, potential impairment charges, higher prices for fuel, steel, power, labour, and other consumables contributing to higher costs; unexpected changes in mine life; final pricing for concentrate sales; unanticipated results of future studies; seasonality and unanticipated weather changes; costs and timing of the development of new deposits; success of exploration activities; risks related to relying on local advisors and consultants in foreign jurisdictions; unanticipated reclamation expenses; limitations on insurance coverage; timing and possible outcome of pending and outstanding litigation and labour disputes; risks related to enforcing legal rights in foreign jurisdictions, vulnerability of information systems and risks related to global financial conditions. In addition, there are risks and hazards associated with the business of mineral exploration, development, and mining, including environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins, flooding, failure of plant, equipment, or processes to operate as anticipated (and the risk of inadequate insurance, or inability to obtain insurance, to cover these risks), as well as those risk factors discussed or referred to herein and in the Company's Annual Information Form filed with the securities regulatory authorities in all of the provinces and territories of Canada and available under the Company’s profile at www.sedar.com, and the Company’s Annual Report on Form 40-F filed with the United States Securities and Exchange Commission at www.edgar.com. Although the Company has attempted to identify important factors that could cause actual actions, events, or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events, or results not to be anticipated, estimated or intended. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. The Company undertakes no obligation to update forward-looking statements if circumstances or management’s estimates, assumptions, or opinions should change, except as required by applicable law. The reader is cautioned not to place undue reliance on forward-looking statements. The forward-looking information contained herein is presented for the purpose of assisting investors in understanding the Company’s expected financial and operational performance and results as at and for the periods ended on the dates presented in the Company’s plans and objectives and may not be appropriate for other purposes.

Cautionary Note to United States Investors Concerning Estimates of Mineral Reserves and Mineral Resources

This report has been prepared in accordance with the requirements of the securities laws in effect in Canada, which differ in certain material respects from the disclosure requirements promulgated by the Securities and Exchange Commission (SEC). For example, the terms “Mineral Reserve”, “Proven Mineral Reserve”, “Probable Mineral Reserve”, “Mineral Resource”, “Measured Mineral Resource”, “Indicated Mineral Resource” and “Inferred Mineral Resource” are Canadian mining terms as defined in accordance with Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects and the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards on Mineral Resources and Mineral Reserves (May 2014), adopted by the CIM Council, as amended. These definitions differ from the definitions in the disclosure requirements promulgated by the SEC. Accordingly, information contained in this report may not be comparable to similar information made public by U.S. companies reporting pursuant to SEC disclosure requirements.

Non-GAAP Measures

The Company has included certain non-GAAP financial measures and additional line items or subtotals, which the Company believes that, together with measures determined in accordance with IFRS, provide investors with an improved ability to evaluate the underlying performance of the Company. Non-GAAP financial measures do not have any standardized meaning prescribed under IFRS, and therefore they may not be comparable to similar measures employed by other companies. The data is intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. The non-GAAP financial measures included in this report include: free cash flow, cash costs per gold-equivalent ounce sold, and all-in sustaining costs per gold-equivalent ounce sold. Please refer to section 11 of the Company’s current annual Management’s Discussion and Analysis, which is filed under the Company’s profile on SEDAR at www.sedar.com and which includes a detailed discussion of the usefulness of the non-GAAP measures. The Company believes that in addition to conventional measures prepared in accordance with IFRS, the Company and certain investors and analysts use this information to evaluate the Company’s performance. In particular, management uses these measures for internal valuation for the period and to assist with planning and forecasting of future operations.

List of Abbreviations

Units of measurement used in this report conform to the metric system. All currency in this report is listed in US dollars (US$) unless noted otherwise

°	degrees
>	greater than
<	less than
%	percent
a	annum
A	ampere or amp
AAS	atomic absorption spectrometry
Ag	silver
ARD	acid rock drainage
Au	gold
C&F	cut and fill mining method
°C	degree Celsius
CRM	certified reference material
cm	centimetre
cm^2	square centimetre
cog	cut-off grade
d	day
DL	detection limit
DIA	Declaration of Environmental Impacts
dmt	dry metric tonne
EDA	exploratory data analysis
EIA	environmental impact assessment
Fm	formation
g	gram
g	peak ground acceleration
G	giga (billion)
GDMS	geological data management system
g/L	grams per litre
g/t	grams per metric tonne
ha	hectare

HDPE	high-density polyethylene
hp	horsepower
HSEC	Health, Safety, Environment, and Community
ID3	inverse distance cubed
k	kilo (thousand)
kg	kilogram
km	kilometre
km^2	square kilometre
kV	kilovolt
kVA	kilovolt-amperes
kW	kilowatt
kWh	kilowatt-hour
L	litre
LHD	load-haul-dump truck
LOM	life of mine
L/s	litres per second
m	metre
M	Mega, million
m^2	square metre
m^3	cubic metre
masl	metres above sea level
µg	microgram
m^3/h	cubic metres per hour
min	minute
ML	metal leaching
µµ	micrometre, micron
mm	millimetre
Mtpa	million tonnes per year
MVA	megavolt-amperes
MW	megawatt
MWh	megawatt-hour
NN	nearest neighbour

NSR	net smelter return
NPV	net present value
NTU	nephelometric turbidity units
oz	troy ounce (31.1035 g)
PFS	pre-feasibility study
ppm	parts per million
QA/QC	quality assurance/quality control
RAR	return air raise
RC	reverse circulation
RCA	Environmental Qualification Resolutions
RMR89	rock mass rating
s	second
SD	Standard deviation
SMU	selective mining units
SOP	standard operating procedures
t	metric tonne
tpa	metric tonnes per year
tpd	metric tonnes per day
tph	metric tonnes per hour
tpm	metric tonnes per month
US$	United States dollar
TFS	tailings storage facility
V	volt
VFD	variable frequency drive
VSO	Vulcan Stope Optimizer
W	watt
wt %	weight percent

1 SUMMARY

This report documents the El Peñón mine (El Peñón), an underground and open-pit gold-silver mine located in northern Chile in the Atacama Desert. Yamana Gold Inc. (Yamana) holds a 100% interest in El Peñón through its subsidiary, Minera Meridian Limitada (Minera Meridian).

Yamana is a Canadian-based precious metals producer with significant gold and silver production- and development-stage properties, exploration properties, and land positions throughout the Americas, including Canada, Brazil, Chile, and Argentina. Yamana plans to continue to build on this base through expansion and optimization initiatives at existing operating mines, development of new mines, advancement of its exploration properties and, at times, by targeting other consolidation opportunities, with a primary focus on the Americas.

This technical report prepared in accordance with National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101) documents the current mining operation as well as the mineral resource and mineral reserve estimate of El Peñón as of December 31, 2020.

1.1 PROPERTY DESCRIPTION

El Peñón is located approximately 165 km southeast of the city of Antofagasta. The mine site, situated approximately midway between the Pacific Coast and the border with Argentina, is in the Atacama Desert, a desert plateau with one of the driest climates on earth. The mine has been in operation since 1999 and it operates on a year-round basis.

Yamana acquired the property in late 2007 with the purchase of Meridian Gold Inc. (Meridian Gold). The mineral rights consist of 443 individual mining exploitation claims that comprise an area measuring 92,387 ha. It covers the El Peñón core mine area, the Fortuna area, the Laguna area, the Pampa Augusta Vitoria (PAV) area, and the surrounding exploration lands.

Minera Meridian is subject to a royalty tax between 5% and 14% based on the mining gross profit margin and currently pays approximately a 5% to 7% royalty tax on taxable mining income. In addition, El Peñón is also subject to First Category Tax (income tax) in Chile at a rate of 27%.

Minera Meridian has all required permits to continue carrying out mining and processing operations on the El Peñón property.

A 2% Net Smelter Return (NSR) royalty is payable to Maverix Metals Inc. as agreed as part of the purchase of the Nado claims covering the Fortuna area and a further 2% NSR is payable to Soquimich Comercial SA for claims Providencia 1, 2, 3, 4, and 5 and claims Dominador 1, 2, and 4. These claims are also located in the Fortuna area.

1.2 Geology and Mineralization

The discovery of the El Peñón gold-silver deposit was the result of successful grassroots exploration throughout the early 1990s. El Peñón is classified as a low- to intermediate-sulphidation epithermal gold-silver deposit associated with steeply dipping fault-controlled veins emplaced following rhyolite dome emplacement.

The gold-silver mineralization is hosted in near-horizontal to gently dipping Paleocene to Eocene basaltic to rhyolitic volcanic rocks. The deposit comprises many individual tabular and steeply dipping zones that are amenable to mining by both underground and surface methods. Vein thickness range from decimetre-scale to more than 20 metres. The strike length of individual mineralized zones ranges from less than 1 km to 4 km and the down-dip extent reaches up to 350 m.

1.3 Exploration Status

Yamana has been successful in expanding the footprint of mineralization through geological mapping, geochemical characterization, geophysics, and abundant surface and underground drilling within the northeast trend, first starting at the El Peñón area, with Quebrada Orito in the southwest and ending at Angosta in the northeast.

The significant exploration results were obtained by surface and underground core drilling. As of the end of December 2020, over three million metres have been drilled at El Peñón. Yamana continually conducts exploration work to develop drill targets to replenish mineral reserves. Drilling is carried out on a 60 × 60 m grid with infill drill holes on a 30 × 30 m grid pattern.

Drilling activities have been successful in defining and expanding known mineralized zones and have led to the discovery of new mineralized zones. Based on these exploration successes and the production history of El Peñón, good potential exists for the discovery of new mineralized zones in the proximity of the current mine infrastructure and in the strike and dip extents of known mineralized horizons.

Analytical samples include both drill core and channel samples. The drill core samples are generated from exploration and infill drilling programs that are conducted on surface and underground; analytical results are used for target generation and estimation of mineral resources and reserves. The sample preparation, sample security, and analytical procedures at El Peñón are adequate and consistent with industry standards. The verification of the sampling data by Yamana and external consultants, including the analytical quality control data produced by Yamana for samples submitted to various laboratories, suggests that the analytical results delivered by the laboratories are sufficiently reliable for the purpose of mineral resource and mineral reserve estimation.

1.4 Mineral Resource and Mineral Reserve Estimates

Interpreted geological wireframes were constructed based on a three-dimensional and sectional interpretation of geological continuity, assay results, lithological information and structural data. Assays were composited to one-metre lengths, then interpolated using capping and a high-yield restriction for anomalously high grades. Gold and silver grades were interpolated into a sub-blocked model with minimum block size of 0.5 × 0.5 × 0.5 m and a parent block size of 20 × 20 × 20 m. Estimated grades were interpolated into blocks using Inverse Distance Cubed (ID3) and checked using Nearest Neighbor (NN) methods. Block estimates were validated using industry standard validation techniques. Classification of blocks was completed following distance-based criteria.

El Peñón mineral resources have been estimated in conformity with generally accepted standards set out in Canadian Institute of Mining, Metallurgy and Petroleum (CIM) *Mineral Resource and Mineral Reserves Estimation Best Practices Guidelines* (November 2019) and were classified according to *CIM Definition Standards for Mineral Resources and Mineral Reserves* (May 2014) (CIM (2014) Standards). Mineral resources are not mineral reserves and have not demonstrated economic viability. Underground mineral resources are estimated within conceptual underground mining shapes at a cut-off value of US$95.31/t, which corresponds to 75% of the break-even cut-off value used to estimate the mineral reserves. A minimum mining width of 0.60 m as well as 0.30 m of hanging-wall and 0.30 m of footwall overbreak dilution are used to construct the conceptual mining shapes. Mineral resources are reported fully diluted.

Table 1-1: El Peñón Mineral Resource Statement as of December 31, 2020

Mineral Resources	Category	Tonnage	Grade		Contained Metal	
		(kt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
Underground	Measured	667	4.81	143.0	103	3,063
	Indicated	6,355	3.06	105.4	625	21,535
	Total Measured + Indicated	**7,022**	**3.22**	**109.0**	**728**	**24,599**
	Inferred	5,208	3.61	118.0	605	19,758
Tailings	Measured	–	–	–	–	–
	Indicated	–	–	–	–	–
	Total Measured + Indicated	–	–	–	–	–
	Inferred	13,767	0.55	18.9	245	8,380
Stockpiles	Measured	–	–	–	–	–
	Indicated	1,019	1.13	28.8	37	942
	Total Measured + Indicated	**1,019**	**1.13**	**28.8**	**37**	**942**
	Inferred	–	–	–	–	–
Combined	Measured	667	4.81	143.0	103	3,063
	Indicated	7,374	2.79	94.8	662	22,478
	Total Measured + Indicated	**8,041**	**2.96**	**98.8**	**765**	**25,541**
	Inferred	18,975	1.39	46.1	850	28,138

1. *Mineral resources have been estimated by the El Peñón resource geology team under the supervision of Marco Velásquez Corrales, Registered Member of the Chilean Mining Commission, a full-time employee of Minera Meridian Limitada, and a qualified person as defined by NI 43-101. The estimate conforms to the CIM (2014) Standards. Mineral resources are reported exclusive of mineral reserves. Mineral resources were evaluated using an inverse distance weighting algorithm informed by capped composites and constrained by three-dimensional mineralization wireframes. Mineral resources are not mineral reserves and have not demonstrated economic viability. Metal price assumptions of US$1,250/oz for gold and US$18.00/oz for silver were used.*
2. *Underground mineral resources are estimated at a cut-off NSR of US$95.31/t, which corresponds to 75% of the mineral reserves cut-off value. Processing recoveries assumptions range from 84.13% to 97.38% for gold and from 56.47% to 92.33% for silver. The estimation considered the following cost assumptions: mine operating cost of US$80.10/t; processing cost of US$29.42/t; sustaining capital cost of US$4.10/t; and G&A costs of US$13.46/t. A royalty of 2% was also considered for mineral resources contained in the Fortuna zone. Mineral resources are reported fully diluted; they consider a minimum mining width of 0.60 m and hanging wall and footwall overbreak dilutions of 0.30 m each to determine reasonable prospects of economic extraction. Bulk densities ranging from 2.36 g/cm^3 to 2.57 g/cm^3 were used to convert volume to tonnage.*
3. *Mineral resources contained in tailings are reported at a cut-off grade of 0.50 g/t gold-equivalent, using recoveries of 60% for gold and 30% for silver, operating cost of US$2.39/t, and processing cost of US$29.42/t. A bulk density value of 1.75 g/cm^3 was used to convert tailings volume to tonnage.*
4. *Mineral resources contained in stockpiles are reported at a cut-off grade of 0.79 g/t gold-equivalent, using recoveries of 88.0% for gold and 80.8% for silver, operating cost of US$2.39/t, and processing cost of US$29.42/t. A bulk density value of 1.60 g/cm^3 was used to convert the stockpile volume to tonnage.*
5. *Mineral resources are reported as of December 31, 2020.*
6. *All figures are rounded to reflect the relative accuracy of the estimate.*
7. *Numbers may not add up due to rounding.*

The methodology used at El Peñón to convert mineral resources to mineral reserves is summarized as follows:

- Drift and bench (stope) selective mining units (SMUs) are designed using Vulcan Stope Optimiser; design parameters calibrated with actual operational results.
- Long-term metal price assumptions for gold and silver of US$1,250/oz and US$18/oz, respectively, as well as processing recoveries and average operating costs obtained respectively from geometallurgical tests and last year's life of mine (LOM) plan are used to determine an economic score for each SMU. Only measured and indicated mineral resources are considered for conversion to mineral reserves.
- SMUs with positive scores are analyzed for inclusion into the mineral reserve inventory. This is done by analyzing development costs, considering the capital and auxiliary development required to enable mining of the designed SMUs.

- Before including SMUs with positive scores in the mineral reserves inventory, geomechanical considerations are revised. Design is adjusted where required.
- SMUs containing a majority portion of measured or indicated blocks are converted to proven or probable mineral reserves, respectively.

Table 1-2: El Peñón Mineral Reserve Statement as of December 31, 2020

Mineral Reserves	Category	Tonnage	Grade		Contained Metal	
		(kt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
Open Pit	Proven	–	–	–	–	–
	Probable	53	0.34	316.2	1	543
	Total Open Pit	**53**	**0.34**	**316.2**	**1**	**543**
Underground	Proven	368	5.73	213.4	68	2,526
	Probable	5,068	5.07	158.6	826	25,835
	Total Underground	**5,436**	**5.12**	**162.3**	**894**	**28,361**
Stockpile	Proven	9	1.40	54.1	0	16
	Probable	651	1.26	14.1	26	294
	Total Stockpile	**660**	**1.26**	**14.6**	**27**	**310**
Combined	Proven	377	5.63	209.5	68	2,542
	Probable	5,772	4.60	143.7	853	26,672
	Grand Total	**6,149**	**4.66**	**147.8**	**921**	**29,214**

1. *Mineral reserves have been estimated by the El Peñón long-term mine planning team under the supervision of Sergio Castro, Registered Member of the Chilean Mining Commission, a full-time employee of Minera Meridian Limitada, and a qualified person as defined by NI 43-101. The estimate conforms to the CIM (2014) Standards. Mineral reserves are stated at a mill feed reference point and allow for dilution and mining losses. Metal price assumptions of US$1,250/oz for gold and US$18.00/oz for silver were used.*
2. *Open-pit mineral reserves are reported at a cut-off NSR of US$ 49.14/t. Processing recoveries assumptions range from 84.13% to 89.22% for gold and from 79.71% to 81.67% for silver. Mine operating (including transport), processing, and G&A costs assumptions of US$6.27/t and US$29.42/t and US$13.46/t were considered, respectively.*
3. *Underground mineral reserves are reported at an NSR cut-off of US$127.08/t. Processing recoveries assumptions range from 84.13% to 97.38% for gold and from 56.47% to 92.33% for silver. The following cost assumptions were considered: mine operating cost: US$80.10/t; processing cost: US$29.42/t; sustaining capital cost: US$4.10/t; and G&A cost: US$13.46/t. A royalty of 2% was considered for reserves planned to be mined in the Fortuna zone.*
4. *Mineral reserves contained in low-grade stockpiles are reported at a cut-off grade of 0.90 g/t gold-equivalent. Processing recoveries assumptions of 95.2% for gold and 83.0% for silver were used. Operating and processing costs assumptions of US$2.02/t and US$29.42/t, respectively, were considered.*
5. *Mineral reserves are reported as of December 31, 2020.*
6. *All figures are rounded to reflect the relative accuracy of the estimate.*
7. *Numbers may not add up due to rounding*

1.5 Mining and Processing Methods

Ore from underground mines have recently been—and will continue to be—the main source of feed for the El Peñón mill.

The various underground mining zones are accessed by ramps; this type of access is suitable for this mine in light of its shallow depth. The underground workings of the core mine extend approximately ten kilometers along strike and span a vertical extent of approximately 500 m, measured from the highest portal collar elevation to the bottom-most mine workings. The ramps provide flexibility for rapid adjustments for changes in direction and elevation and allow access to the veins at appropriate elevations.

Mining at El Peñón utilizes mainly the bench-and-fill mining method, which is a narrow longhole-stoping method that uses a combination of rockfill and cemented rockfill; a small percentage of cut-and-fill mining is also applied where required, depending on the characteristics of vein geometry and ground conditions. Due to the narrow vein widths, a "split-blasting" technique is used in many areas of the mine to reduce dilution in secondary development in ore zones.

The major assets and facilities associated with El Peñón are: the mining and processing infrastructure, which include office buildings, shops, and equipment; a processing plant which produces gold doré by crushing, grinding, leaching, counter-current decantation (CCD) concentrate solution recovery, zinc precipitation and refining; concrete and cemented backfill plants, and a filtered tailings stack storage facility.

El Peñón is connected to the National Electric Grid through a 66 kV transmission line connected to the Palestina substation.

The tailings produced at the El Peñón mill are stored in a filtered tailings stack storage facility, located 1.5 km southeast of the mineral processing plant. The current filter stack stores 25.4 Mt of tailings. The final design considers an additional storage capacity of 24.5 Mt.

The El Peñón mineral processing plant and associated facilities process run-of-mine as well as stockpiled ore. Comminution comprises a single stage of crushing followed by wet grinding in a SAG mill operating in series with a ball mill; these feed a battery of hydrocyclones. Leaching starts at the SAG mill, where sodium cyanide is added as a leaching agent. The hydrocyclones overflow is subsequently clarified and leached in reactors with mechanical agitators. The leached pulp is finally transported by gravity to a CCD thickener circuit to wash the pulp and recover the pregnant solution for gold and silver by zinc precipitation and refining to doré.

1.6 Environmental Studies, Permitting, and Social or Community Impact

The El Peñón operation submitted its first Environmental Impact Assessment (EIA) in 1997 to the Chilean Environmental Impact Assessment System (SEIA). The Environmental Commission of the Region of Antofagasta (Comision Regional de Medio Ambiente de Antofagasta) approved the application with Exempt Resolution Nr. 043 in 1998.

The El Peñón operation has undergone a series of modifications since its original EIA submission. Required Environmental Qualification Resolutions (RCAs) were granted through a series of Declaration of Environmental Impacts (DIAs). A DIA was approved in 2019. Based on the increase in mineral reserves over the past three years, a new DIA was submitted in February 2021 for a life of mine plan extension; approval is expected in 2021.

El Peñón consists of historical open pits, underground mining operations, a process plant, and other support infrastructure, including waste dumps and a filtered tailings facility with a total storage capacity of 49.8 Mt. The approved plant capacity is 4,800 tpd.

Yamana has implemented an integrated management system covering health, safety, environment, and community through internationally accredited systems that include the ISO 14001 Environment Management System and the OSHAS 18001 Occupational Health and Safety Management System. A risk assessment matrix has been developed for the El Peñón mine operation that integrates risk matrices for ISO 14001:2015 and OHSAS 18001:2007.

Beginning in 2020, El Peñón also began the implementation of the Mining Association of Canada's *Towards Sustainable Mining* framework, as well as the World Gold Council's *Responsible Gold Mining Principles*, each of which included internal assessments and will require external audits within a 3-year timeframe.

Water conservation is a primary focus at El Peñón. The water management system at El Peñón has been designed as a closed circuit. Process water from the mill is recovered in the tailings filter plant and recirculated back to the processing plant.

Even though no communities are located near El Peñón, Yamana has made a number of commitments to the well-being, health, and safety of the communities in the area. As such, the social and community activities conducted by Yamana are concentrated in the Taltal District and are of philanthropic orientation.

El Peñón has developed a closure plan covering all current and approved facilities; this plan is in accordance with applicable legal requirements. The closure plan addresses progressive and final closure actions, post-closure inspections, and monitoring.

1.7 Conclusions and Recommendations

More than 5.3 Moz of gold and 134 Moz of silver have been produced from El Peñón since commercial production commenced in 2000. The mine's current production rate, the result of the rightsizing of the operation initiated in late 2016, increased free cash flow generation and reduced capital expenditures while ensuring the long-term sustainability of the mine, matching production rate with replacement of mineral reserves and mineral resources.

Exploration results at El Peñón continue to highlight the expansion potential of the mine and Yamana's ability to replenish mineral reserves and mineral resources so as to extend the life of mine past its current mineral reserve base. Drilling is effective at adding mineral resources and mineral reserves at El Peñón. Similar to drilling results from the previous two years, the 2020 drilling successfully replenished the 2020 depletion of gold mineral reserves. Based on this successful track record, a drilling program totalling 384,000 m is planned from 2021 to 2023.

El Peñón mineral resources and mineral reserves have been estimated in conformity with generally accepted CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2019) and were classified in accordance with CIM (2014) Standards.

The total proven and probable mineral reserve at El Peñón as of December 31, 2020, is 6.1 Mt averaging 4.66 g/t gold and 147.8 g/t silver, for approximately 0.921 Moz of contained gold and 29.21 Moz of silver. In addition, measured and indicated mineral resources are estimated at 8.0 Mt grading 2.96 g/t gold (0.765 Moz gold) and 98.8 g/t silver (25.5 Moz silver), and inferred mineral resources are estimated at 18.98 Mt grading 1.39 g/t gold (0.850 Moz gold) and 46.1 g/t silver (28.1 Moz silver).

The mineral reserves supporting the life of mine (LOM) plan consists of an integrated operation, mining mainly underground ore and small amounts of ore from the Chiquilla Chica open pit. The ore produced by the mining operations and reclaimed from stockpiles is fed to the mill to sustain a six-year mine life. LOM production is estimated at 866 koz gold and 25,591 koz silver.

Yamana is confident that, based on required infill drilling, the future conversion of mineral resources to mineral reserves will continue to show positive results. In recent years, mineral resources converted to mineral reserves have more than offset the depletion of mineral reserves; this indicates the significant potential of extending the mine life beyond the current LOM and sustaining a strategic mine life of 10 years or more.

The capital and operating cost estimates are based on mine budget data and operating experience, and are appropriate for the known mining methods and production schedule. Under the assumptions in this technical report, El Peñón has positive project economics until the end of mine life, which supports the mineral reserve estimate. Capital costs over the LOM period are estimated at US$167M, consisting mainly of sustaining underground mine development (83%) and capital required for equipment replacement (14%). An additional budget of US$37M is estimated for mine closure purposes.

No environmental or social issues were identified that could materially impact the ability to extract the mineral resources and mineral reserves. El Peñón has all the operational licences required for operation according to the national legislation. The approved licences address the authority's requirements for mining extraction and operation activities. The results of this technical report are subject to variations in operational conditions including, but not limited to the following:

- Assumptions related to commodity and foreign exchange (in particular, the relative movement of gold and the Chilean peso/US dollar exchange rate)
- Unanticipated inflation of capital or operating costs
- Significant changes in equipment productivities
- Geological continuity of the mineralized structures
- Geotechnical assumptions in pit and underground designs
- Ore dilution or loss
- Throughput and recovery rate assumptions
- Changes in political and regulatory requirements that may affect the operation or future closure plans
- Changes in closure plan costs
- Availability of financing and changes in modelled taxes

In the opinion of the qualified persons, there are no reasonably foreseen inputs from risks and uncertainties identified in the technical report that could affect the project's continued economic viability.

Over the past 20 years, El Peñón has established an exploration strategy to continually replace depletion of mineral reserves and extend mine life. The strategy involves maintaining a pipeline of mineral resources and exploration potential to maintain a rolling mine life visibility of at least 10 years. To continue this trend, drilling programs should continue to be carried out with the following objectives:

- Infill drilling to replace production by upgrading and extending known mineral resources.

- Expansion exploration drilling to upgrade inferred mineral resources to measured or indicated categories, or to transform zones of geological potential into inferred mineral resources.

- District exploration to test the extension of little-known areas of mineralization or to discover new primary structures by testing targets identified in mapping, geochemistry, geophysics, or machine learning programs.

Ongoing exploration success could also unlock the opportunity to leverage the available processing capacity which could increase annual gold and silver production and reduce unit costs.

Yamana instituted an Operational Excellence program to improve productivity and control costs. An assessment of the processing plant performed in the first quarter of 2021 has identified several opportunities to improve gold and silver recoveries and/or reduce operating costs. Opportunities include leach solution management, additional filblast in the leaching circuit, optimized automated reagent dosing, thickener Advanced Process Control, and Viper filtration technology. These opportunities could be quickly implemented with minimal capital investment. The El Peñón team should continue to evaluate and prioritize these opportunities and develop an action plan for their implementation.

In the underground mine, El Peñón should continue the implementation of Operational Excellence initiatives with an objective to increase productivity minimize dilution, and control operating costs. Mining initiatives include testing of smaller drift profiles for specific sectors, optimized stoping and development face drill patterns, and opportunities to reduce specific consumption of consumables.

In 2021, El Peñón should initiate the process of certification for ISO 45001 (replacing OSHAS 18001) and recertification of the ISO 14001 Environment Management System; it should also continue the implementation of the Mining Association of Canada's *Towards Sustainable Mining* framework as well as the World Gold Council's *Responsible Gold Mining Principles*.

2 INTRODUCTION

The El Peñón mine (El Peñón) is an underground and open-pit gold-silver mine located in the Atacama Region of Chile, approximately 165 km southeast of the city of Antofagasta. Yamana Gold Inc. (Yamana) holds a 100% interest in El Peñón through its subsidiary, Minera Meridian Limitada (Minera Meridian).

Yamana is a Canadian-based precious metals producer with significant gold and silver production- and development-stage properties, exploration properties, and land positions throughout the Americas, including Canada, Brazil, Chile, and Argentina. Yamana plans to continue to build on this base through the expansion and optimization initiatives at existing operating mines, the development of new mines, advancement of its exploration properties and, at times, by targeting other consolidation opportunities, with a primary focus on the Americas.

Yamana acquired El Peñón when it completed the purchase of Meridian Gold Inc. (Meridian Gold) in 2007.

Yamana's other operations include:

- 100% ownership of the Jacobina underground gold mine located in the state of Bahia in eastern Brazil
- 50% ownership in the Canadian Malartic open-pit gold mine located in Malartic, Québec, Canada
- 100% ownership of the Minera Florida underground gold-silver mine located southwest of Santiago, Chile
- 100% ownership in the Cerro Moro underground and open-pit gold-silver mine located in Santa Cruz province, Argentina

This technical report, prepared in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101) and Form 43-101F1, documents the mineral resource estimate for El Peñón as of December 31, 2020, the mineral reserve estimate for El Peñón as of December 31, 2020, and also summarizes the current mining operation at El Peñón as of December 31, 2020.

The mineral resource and mineral reserve estimates reported herein were prepared in conformity with generally accepted standards set out in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM*) Mineral Resource and Mineral Reserves Estimation Best Practices Guidelines* (November 2019) and were classified according *to CIM Definition Standards for Mineral Resources and Mineral Reserve*s (May 2014) (CIM (2014) Standards).

2.1 Sources of Information

The qualified persons for this technical report are Sergio Castro, Registered Member of the Chilean Mining Commission; Marco Velásquez Corrales, Registered Member of the Chilean Mining Commission; Henry Marsden, P.Geo.; and Carlos Iturralde, P.Eng.; all are full-time employees of Yamana.

Mr. Castro is the Technical Services Manager of El Peñón for Yamana. Mr. Velásquez is Chief Resource Geologist at El Peñón for Yamana. Mr. Castro and Mr. Velásquez are both local employees and work full time at the mine. Mr. Marsden, Senior Vice President, Exploration for Yamana visited the project on many occasions since January 2016 and most recently between March 11 and 13, 2020. Mr. Iturralde, Director, Tailings, Health, Safety & Sustainable Development at Yamana, has not visited the project due to travel restrictions related to the global COVID-19 pandemic.

Sergio Castro is responsible for Sections 13, 15 to 19 (excluding sub-section 18.1), 21 to 22, and 24; he also shares responsibility for related disclosure in Sections 1, 25, 26, and 27 of the technical report. Marco Velásquez Corrales is responsible for Section 11, 12, and 14, and shares responsibility for related disclosure in Sections 1, 25, 26, and 27 of the technical report. Henry Marsden is responsible for Sections 2 to 10, 23, and shares responsibility for related disclosure in Sections 1, 25, 26, and 27 of the technical report. Carlos Iturralde is responsible for Sections 18.1 and 20, and shares responsibility for related disclosure in Sections 1, 25, 26, and 27 of the technical report.

In preparation of this technical report, the qualified persons reviewed technical documents and reports on El Peñón supplied by on-site personnel. The documentation reviewed and other sources of information are listed at the end of this technical report in Section 27 - References.

The prior technical report on El Peñón was compiled by RPA Inc. (RPA) with an effective date and signature date of March 2, 2018 (RPA, 2018). The RPA report served as the foundation for this current technical report, which updates the information as of an effective date of December 31, 2020.

3 RELIANCE ON OTHER EXPERTS

The information, conclusions, opinions, and estimates contained herein in this technical report are based on the following parameters:

- Information available to Yamana at the time of preparation of this technical report
- Assumptions, conditions, and qualifications as set forth in this technical report

The qualified persons have not performed an independent verification of the land title and tenure information, as summarized in Section 4 of this technical report, nor have they verified the legality of any underlying agreement(s) that may exist concerning the permits or other agreement(s) between third parties, as summarized in Section 4 of this technical report. For this topic, the qualified persons of this report have relied on information provided by the legal department of Yamana.

The qualified persons have not performed an independent verification of the permitting and environmental monitoring information and have relied on documents and information provided by Yamana's Health, Safety, Environment, and Community (HSEC) teams.

The qualified persons have relied on various Yamana departments for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the El Peñón mine.

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

4 PROPERTY DESCRIPTION AND LOCATION

El Peñón is located in north-central Chile, at latitude 24°40′ S and longitude 69°50′ W, approximately 165 km southeast of the city of Antofagasta (Figure 4-1). The mine site, situated approximately midway between the Pacific Coast and the border with Argentina, is in the Atacama Desert, a desert plateau with one of the driest climates on earth. The mine operates on a year-round basis.

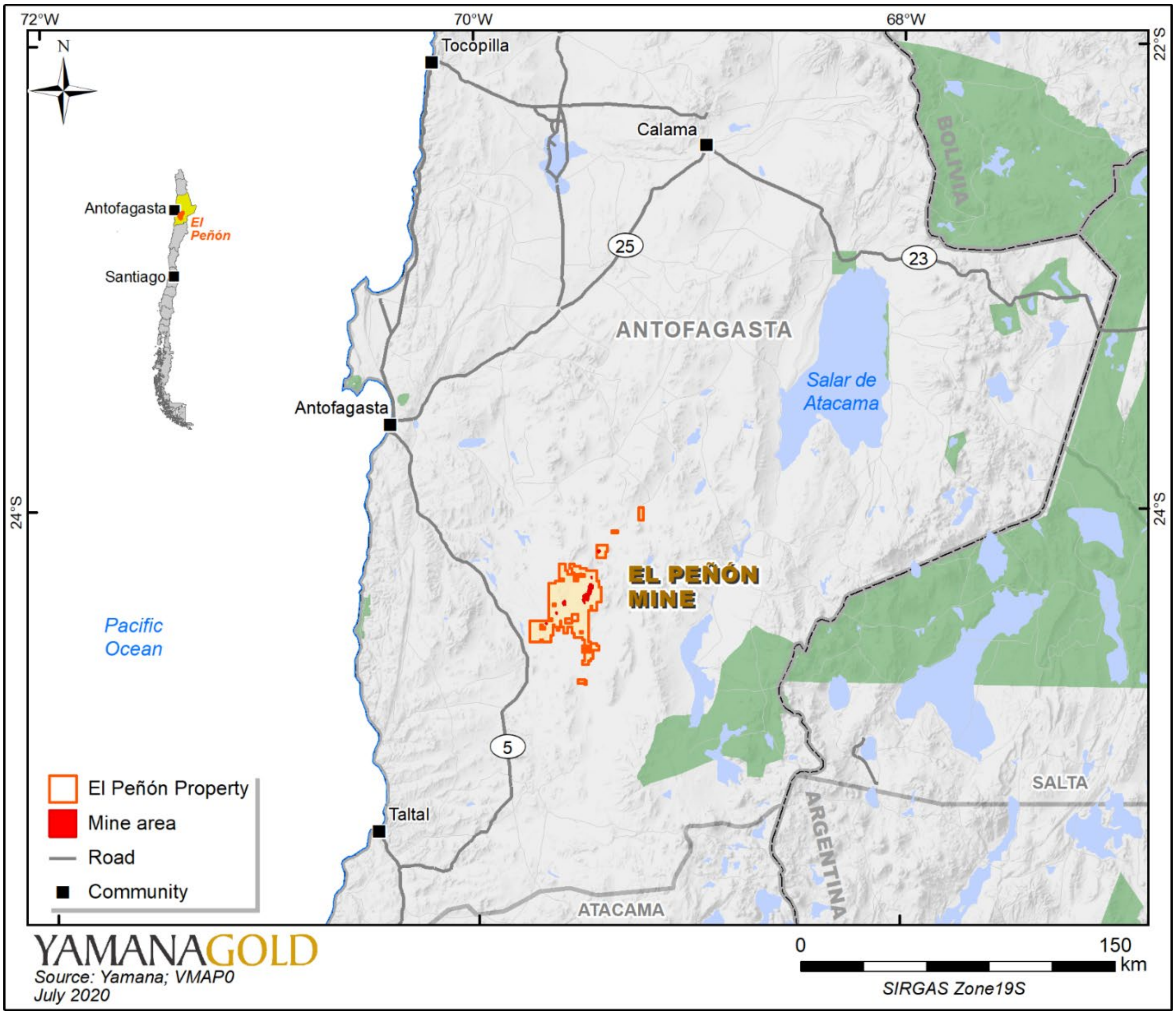


Figure 4-1: General location map

4.1 Mineral and Surface Tenure

The El Peñón property consists of 443 individual mining exploitation claims owned by Minera Meridian Limitada (Minera Meridian), a wholly-owned subsidiary of Yamana. The claims comprise an area measuring 92,387 ha that covers the El Peñón core mine area, the Fortuna area, the Laguna area, the Pampa Augusta Vitoria (PAV) area, and the surrounding exploration lands (Figure 4-2, Figure 4-3, and Table 4-1). Canons are paid annually to maintain the active claim status. The boundaries of the mining exploitation concessions are legally surveyed and are covered by an additional layer of claims for increased legal protection.

El Peñón has been in operation since 1999 and the existing surface rights are deemed sufficient for mining and processing operations. As well, El Peñón has sufficient water, power, and labour supplies and sufficient areas for tailings and waste disposal.

Minera Meridian is subject to a royalty tax between 5% and 14% based on the mining gross profit margin and currently pays approximately a 5% to 7% royalty tax on taxable mining income.

In addition, El Peñón is also subject to First Category Tax (income tax) in Chile at a rate of 27%.

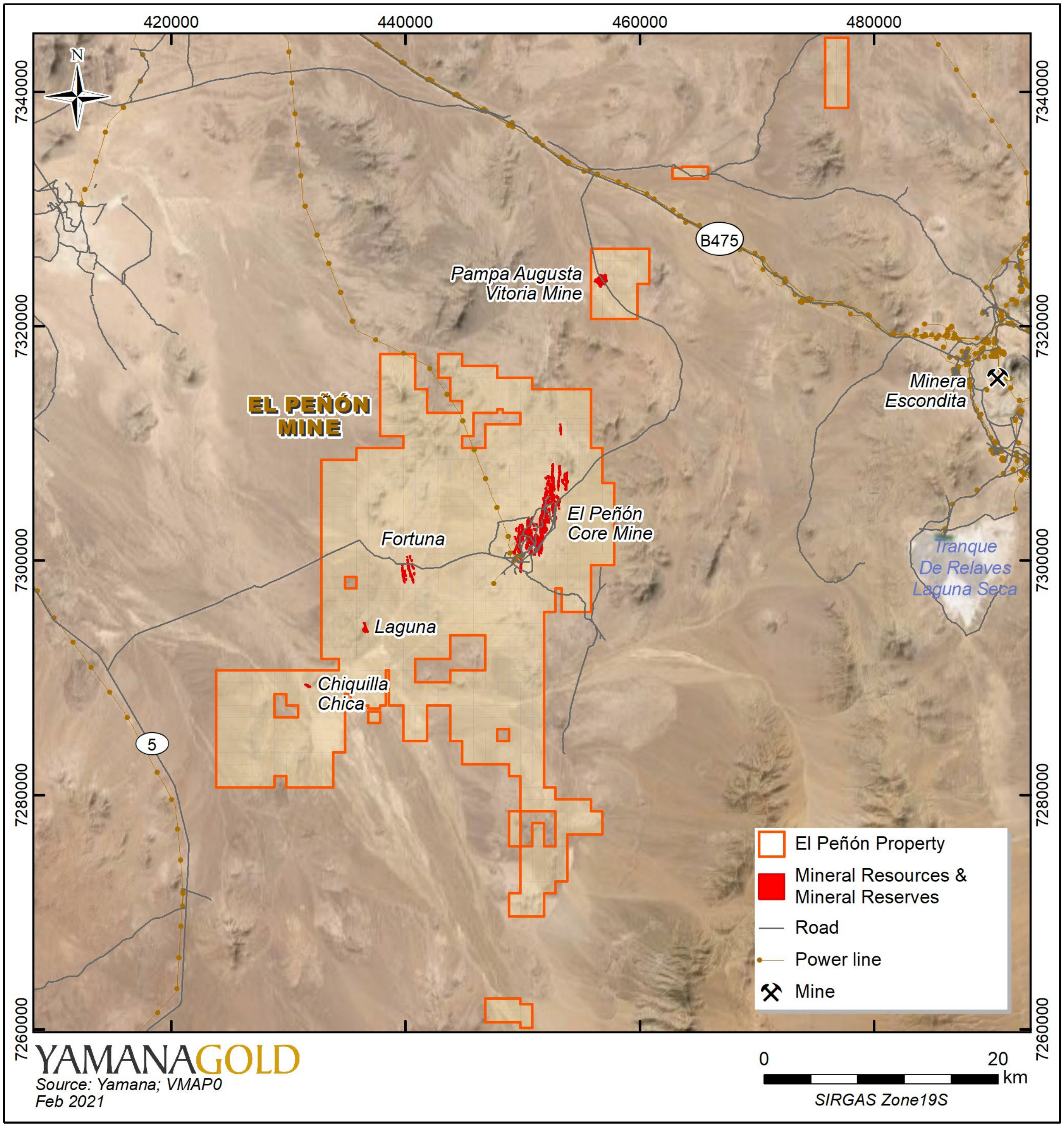


Figure 4-2: Map of mineral tenure

Table 4-1: Mineral tenure list

Name	National Roll	Area (ha)
AURIA 10 1/60	22015122	60
AURIA 11 1/60	22015123	300
AURIA 4 1/60	22015120	300
AURIA 5 1/60	22015121	300
AZUL 01 1/10	22012619	100
AZUL 02 1/10	22012620	100
AZUL 03 1/10	22012621	100
AZUL 04 1/10	22012622	100
AZUL 05 1/10	22012623	100
AZUL 06 1/10	22012624	100
AZUL 07 1/10	22012625	100
AZUL 08 1/10	22012626	100
AZUL 09 1/10	22012627	100
AZUL 10 1/10	22012628	100
AZUL 11 1/10	22012629	100
AZUL 12 1/10	22012630	100
AZUL 13 1/10	22012631	100
AZUL 14 1/10	22012632	100
AZUL 15 1/10	22012633	100
AZUL 16 1/10	22012634	100
AZUL 17 1/10	22012635	100
AZUL 18 1/10	22012636	50
AZUL 19 1/10	22012637	100
AZUL 22 1/5	22012640	50
AZUL 23 1/10	22012641	100
AZUL 24 1/10	22012642	100
BLANCA 1 1/20	22014370	300
BLANCA 1 1/30	22015721	100
BLANCA 10 1/30	22015727	300
BLANCA 11 1/20	22015728	200
BLANCA 12 1/20	22015729	200
BLANCA 13 1/20	22015730	200
BLANCA 14 1/30	22015731	300
BLANCA 15 1/30	22015732	300
BLANCA 16 1/30	22015733	300
BLANCA 17 1/30	22015734	300
BLANCA 18 1/30	22015735	300
BLANCA 3 1/30	22015722	300
BLANCA 5 1/20	22015723	200
BLANCA 7 1/30	22015724	300
BLANCA 8 1/30	22015725	300
BLANCA 9 1/30	22015726	300
BLANCO CHIQUILLA 2 1/16	22016498	300
BLANCO NORTE 110 1/30	22016524	300
BLANCO NORTE 2B 1/20	22016218	200
BLANCO NORTE 3B 1/20	22016215	200
BLANCO NORTE 4B 1/10	22016216	100
BLANCO NORTE 5B 1/10	22016217	100
BLANCO NORTE 8 1/30	22016351	300
BLANCO NORTE 9 1/30	22016352	300
BLANCO SUR 1 1/30	22016499	300
BLANCO SUR 10 1/30	22016508	300
BLANCO SUR 2 1/30	22016500	300
BLANCO SUR 3 1/30	22016501	300
BLANCO SUR 4 1/30	22016502	300
BLANCO SUR 5 1/20	22016503	200
BLANCO SUR 6 1/30	22016504	300
BLANCO SUR 7 1/30	22016505	300
BLANCO SUR 8 1/20	22016506	200
BLANCO SUR 9 1/30	22016507	300
CAMBIAR 131 1/60	22016373	300
CAMBIAR 132 1/60	22016413	300
CAMBIAR 133 1/60	22016374	300
CAMBIAR 134 1/60	22016375	300
CAMBIAR 135 1/40	22016376	200
CAMBIAR 136 1/60	22016377	300
CAMBIAR 137 1/60	22016378	300
CAMBIAR 138 1/60	22016379	300
CERRO 1 1/20	22014311	100
CERRO 2 1/20	22014312	100
CERRO AZUL 01 1/5	22012704	50
CERRO AZUL 02 1/10	22012705	100
CERRO AZUL 03 1/5	22012706	50
CERRO AZUL 04 1/10	22012707	100
CERRO AZUL 05 1/10	22012708	100
CERRO AZUL 06 1/10	22012709	100
CERRO AZUL 07 1/5	22012710	50
CERRO AZUL 08 1/10	22012711	100
CERRO AZUL 09 1/10	22012712	100
CERRO AZUL 10 1/10	22012713	100
CERRO AZUL 11 1/10	22012714	100
CERRO AZUL 12 1/5	22012715	50
CERRO AZUL 13 1/5	22012716	50
CERRO AZUL 14 1/10	22012717	100
CERRO AZUL 15 1/10	22012718	100
CERRO AZUL 16 1/5	22012719	50
CERRO AZUL 17 1/10	22012720	100
CERRO AZUL 18 1/5	22012721	50
CERRO AZUL 19 1/10	22012722	100
CERRO AZUL 20 1/10	22012723	100
CERRO AZUL 21 1/10	22012724	100
CERRO AZUL 22 1/10	22012725	100
CERRO AZUL 23 1/5	22012726	50
CERRO AZUL 24 1/10	22012727	100
CERRO AZUL 25 1/10	22012728	100
CERRO AZUL 26 1/10	22012729	100
CERRO AZUL 27 1/10	22012730	100
CERRO AZUL 28 1/10	22012731	100
CERRO AZUL 29 1/5	22012732	50
CERRO AZUL 30 1/10	22012733	100

Name	National Roll	Area (ha)
CERRO AZUL 31 1/10	22012734	100
CERRO AZUL 32 1/10	22012735	100
CERRO AZUL 33 1/10	22012736	100
CERRO AZUL 34 1/10	22012737	100
CERRO AZUL 35 1/5	22012738	50
CERRO AZUL 36 1/5	22012739	50
CERRO AZUL 37 1/5	22012740	50
CERRO AZUL 38 1/5	22012741	50
CERRO AZUL 39 1/5	22012742	25
CERRO AZUL A 1/10	22012608	100
CERRO AZUL B 1/5	22012609	50
CERRO AZUL PONIENTE A 1/5	22012610	50
CERRO AZUL PONIENTE B 1/10	22012611	100
CERRO AZUL PONIENTE C 1/10	22012612	100
CERRO AZUL PONIENTE D 1/10	22012613	100
CERRO AZUL PONIENTE E 1/5	22012614	50
CERRO AZUL PONIENTE F 1/5	22012615	50
CERRO AZUL PONIENTE G 1/5	22012616	50
CERRO AZUL PONIENTE H 1/10	22012617	100
CERRO AZUL PONIENTE I 1/10	22012618	100
CERRO IMAN 1/30	22011796	300
CERRO IMAN II 1/10	22011845	100
CERRO IMAN III 1/10	22011846	100
CERRO IMAN IV 1/5	22011847	50
CERRO IMAN IX 1/10	22012315	100
CERRO IMAN SUR 1/10	22014488	100
CERRO IMAN SUR 1/5	22012369	50
CERRO IMAN V 1/10	22011848	100
CERRO IMAN VI 1/10	22011849	100
CERRO IMAN VII 1/10	22011850	100
CERRO IMAN VIII 1/10	22012314	100
CERRO IMAN X 1/10	22012316	100
CERRO IMAN XI 1/10	22012317	100
CERRO IMAN XII 1/10	22012318	100
CERRO IMAN XIII 1/10	22012319	100
CERRO IMAN XIV 1/10	22012320	100
CERRO IMAN XV 1/10	22012321	100
CERRO IMAN XVII 1/10	22012450	100
CERRO IMAN XVIII 1/15	22012366	50
CHICA 15 1/20	22015443	200
CHICA 28 1/10	22015444	100
CHICA 29 1/20	22015445	200
CHICA 30 1/20	22015446	200
CHICA 31A 1/10	22015447	75
CHICA 31B 1/10	22015448	100
CHIQUILLA CHICA II 1/30	22014786	300
CHIQUILLA CHICA III 1/30	22014787	300
CHIQUILLA CHICA IV 1/30	22014788	300
CHIQUILLA CHICA IX 1/30	22014792	300
CHIQUILLA CHICA V 1/30	22014789	300
CHIQUILLA CHICA VI 1/30	22014790	300
CHIQUILLA CHICA VII 1/30	22014791	300

Name	National Roll	Area (ha)
CHIQUILLA CHICA VIII 1/30	22014829	300
CHIQUILLA CHICA X 1/30	22014830	300
CHIQUILLA CHICA XI 1/30	22014793	300
CHIQUILLA CHICA XIX 1/30	22014798	300
CHIQUILLA CHICA XVI 1/30	22014832	300
CHIQUILLA CHICA XVII 1/30	22014833	300
CHIQUILLA CHICA XVIII 1/30	22014797	300
CHIQUILLA CHICA XX 1/30	22014799	300
CHIQUILLA CHICA XXIII 1/30	22014801	300
CHIQUILLA CHICA XXIX 1/30	22014804	300
CHIQUILLA CHICA XXVI 1/30	22014834	300
CHIQUILLA CHICA XXVII 1/30	22014802	300
CHIQUILLA CHICA XXVIII 1/30	22014803	300
CHIQUILLA CHICA XXX 1/30	22014805	300
DOMINADOR 1 1/20	22013109	100
DOMINADOR 1 1/5	22012743	50
DOMINADOR 2 1/20	22013110	100
DOMINADOR 2 1/5	22012744	50
DOMINADOR 3 1/20	22013111	100
DOMINADOR 4 1/10	22013112	50
DOMINADOR 4 1/15	22012745	150
EL PENON 10 1/20	22013491	100
EL PENON 11 1/20	22013492	100
EL PENON 12 1/20	22013493	100
EL PENON 13 1/30	22013494	150
EL PENON 14 1/50	22013495	250
EL PENON 15 1/40	22013496	200
EL PENON 16 1/40	22013497	200
EL PENON 17 1/10	22013498	50
EL PENON 18 1/10	22013650	50
EL PENON 18 1/50	22013518	250
EL PENON 19 1/60	22013519	300
EL PENON 20 1/60	22013520	300
EL PENON 21 1/60	22013521	300
EL PENON 22 1/60	22013522	300
EL PENON 23 1/60	22013523	300
EL PENON 24 1/60	22013524	300
EL PENON 25 1/40	22013525	200
EL PENON 26 1/60	22013526	300
EL PENON 27 1/60	22013527	300
EL PENON 28 1/60	22013528	300
EL PENON 29 1/60	22013529	300
EL PENON 3 1/20	22013482	100
EL PENON 30 1/60	22013530	300
EL PENON 31 1/60	22013531	300
EL PENON 32 1/40	22013532	200
EL PENON 33 1/60	22013533	300
EL PENON 34 1/60	22013534	300
EL PENON 35 1/60	22013535	300
EL PENON 36 1/60	22013536	300
EL PENON 37 1/40	22013537	200
EL PENON 38 1/40	22013538	200

Name	National Roll	Area (ha)
EL PENON 39 1/60	22013539	300
EL PENON 4 1/20	22013483	100
EL PENON 40 1/60	22013540	300
EL PENON 41 1/60	22013541	300
EL PENON 42 1/40	22013543	200
EL PENON 42 1/60	22013542	300
EL PENON 43 1/40	22013544	200
EL PENON 44 1/60	22013545	300
EL PENON 45 1/60	22013546	300
EL PENON 46 1/60	22013547	300
EL PENON 5 1/10	22013484	50
EL PENON 6 1/10	22013485	50
EL PENON 7 1/40	22013488	200
EL PENON 8 1/60	22013489	300
EL PENON 9 1/50	22013490	250
ENCANTADA 1 1/60	22013964	300
ENCANTADA 12 1/60	22013968	300
ENCANTADA 13 1/60	22013969	300
ENCANTADA 14 1/60	22013970	300
ENCANTADA 15 1/60	22013971	300
ENCANTADA 16 1/60	22013972	300
ENCANTADA 18 1/40	22014110	200
ENCANTADA 2 1/40	22014109	200
ENCANTADA 21 1/60	22013975	300
ENCANTADA 22 1/20	22013976	100
ENCANTADA 3 1/60	22013965	300
ENCANTADA 44 1/17	22014270	85
ENCANTADA 5 1/40	22013967	200
FRANCISCA XIX 1/20	22014780	200
FRANCISCA XXIII 1/30	22014781	300
FRANCISCA XXIV 1/30	22014782	300
LA SUERTE 1/20	22014965	100
LAGUNA 1 1/60	22014099	300
LAGUNA 2 1/60	22014100	300
LAGUNA 3 1/60	22014101	300
LAGUNA 4 1/60	22014102	300
LAGUNA 5 1/60	22014103	300
LAGUNA 6 1/60	22014104	300
LAGUNA 7 1/60	22014105	300
LAS CONDES 1 1/40	22013147	200
LAS CONDES 10 1/10	22013156	50
LAS CONDES 11 1/10	22013157	50
LAS CONDES 2 1/30	22013148	150
LAS CONDES 3 1/20	22013149	100
LAS CONDES 4 1/60	22013150	300
LAS CONDES 5 1/60	22013151	300
LAS CONDES 6 1/30	22013152	150
LAS CONDES 7 1/30	22013153	150
LAS CONDES 8 1/60	22013154	300
LAS CONDES 9 1/60	22013155	300
LINA 1 1/60	22014251	300
LINA 10 1/10	22014260	50

Name	National Roll	Area (ha)
LINA 11 1/40	22014455	200
LINA 12 1/60	22014456	300
LINA 14 1/10-21/40	22014457	150
LINA 2 1/60	22014252	300
LINA 3 1/20	22014253	100
LINA 4 1/60	22014254	300
LINA 5 1/60	22014255	300
LINA 6 1/60	22014256	300
LINA 7 1/20	22014257	100
LINA 8 1/30	22014258	150
LINA 9 1/30	22014259	150
LINEA 1 1/60	22014136	300
LINEA 2 1/60	22014137	300
LINEA 3 1/60	22014138	300
LINEA 4 1/60	22014139	300
LLANO 1 1/20	22014539	100
LLANO 10 1/20	22014548	100
LLANO 2 1/20	22014540	100
LLANO 3 1/20	22014541	100
LLANO 4 1/20	22014542	100
LLANO 5 1/20	22014543	100
LLANO 6 1/20	22014544	100
LLANO 7 1/20	22014545	100
LLANO 8 1/20	22014546	100
LLANO 9 1/20	22014547	100
LOBA 1 1/60	22014061	300
LOBA 3 1/60	22014063	300
LOBA 34 1/60	22014520	300
LOBA 35 1/60	22014519	300
LOBA 4 1/60	22014064	300
LOBA 5 1/60	22014065	300
LOBA 6 1/60	22014066	300
LOBA 7 1/40	22014067	200
LOBITA 1 1/40	22014002	200
LOBITA 23 1/40	22014024	200
LOBITA 24 1/60	22014025	300
LOBITA 25 1/60	22014026	300
LOBITA 3 1/60	22014004	300
LOBITA 38 1/60	22014106	300
LOBITA 39 1/60	22014035	300
LOBITA 4 1/60	22014005	300
LOBITA 40 1/60	22014036	300
LOBITA 41 1/60	22014037	300
LOBITA 42 1/60	22014038	300
LOBO 18 1/30	22016197	300
LOBO 19 1/30	22016196	300
LOBO 20 1/30	22016195	300
MAGICA 1 1/40	22016565	200
MAGICA 2 1/40	22016566	200
MERLIN 40 1/60	22016656	300
NADIAN 4A 1/40	22016169	200
NADIAN 4B 1/40	22016170	200

Name	National Roll	Area (ha)
NADIAN 7A 1/60	22016171	300
NADIAN 7B 1/60	22016172	300
NADIAN 8A 1/60	22016173	300
NADIAN 8B 1/60	22016174	300
NADIAN 9A 1/40	22016175	200
NADO 1 1/60	22015529	300
NADO 10 1/60	22015538	300
NADO 11 1/60	22015539	300
NADO 12 1/60	22015540	300
NADO 13 1/60	22015541	300
NADO 14 1/60	22015542	300
NADO 15 1/60	22015543	300
NADO 16 1/60	22015544	300
NADO 17 1/60	22015545	300
NADO 18 1/60	22015546	300
NADO 19 1/60	22015547	300
NADO 2 1/60	22015530	300
NADO 20 1/60	22015548	300
NADO 21 1/60	22015549	300
NADO 22 1/60	22015550	300
NADO 23 1/20	22015551	100
NADO 24 1/40	22015552	200
NADO 25 1/60	22015553	300
NADO 26 1/60	22015554	300
NADO 27 1/60	22015555	300
NADO 3 1/60	22015531	300
NADO 4 1/60	22015532	300
NADO 5 1/60	22015533	300
NADO 6 1/60	22015534	300
NADO 7 1/60	22015535	300
NADO 8 1/60	22015536	300
NADO 9 1/60	22015537	300
NIVA 3 1/60	22025455	300
NIVA 4 1/60	22025456	300
NIVA 7 1/40	22025457	200
PAISAJE 1 1/20	22013208	100
PAISAJE 1 1/40	22013651	200
PAISAJE 11 1/60	22013661	300
PAISAJE 12 1/60	22013662	300
PAISAJE 13 1/20	22013663	100
PAISAJE 14 1/20	22013664	100
PAISAJE 18 1/60	22013668	300
PAISAJE 19 1/60	22013669	300
PAISAJE 2 1/40	22013652	200
PAISAJE 20 1/40	22013670	200
PAISAJE 21 1/40	22013671	200
PAISAJE 22 1/40	22013672	200
PAISAJE 23 1/40	22013962	200
PAISAJE 24 1/40	22013963	200
PAISAJE 3 1/40	22013653	200
PAISAJE 4 1/40	22013654	200
PAISAJE 5 1/40	22013655	200

Name	National Roll	Area (ha)
PAISAJE 6 1/40	22013656	200
PAMPA 4 1/60	22014730	300
PAMPA 5 1/60	22014731	300
PAMPA 6 1/40	22014732	200
PAMPA 7 1/60	22014733	300
PAMPA 8 1/60	22014734	300
PAMPA 9 1/60	22014735	300
PAMPA AUGUSTA I 1/59	22015271	292
PENON 50 1/10	22013977	50
PENON 51 1/20	22013978	100
PENON 53 1/60	22013980	300
PENON 54 1/60	22013981	300
PENON 55 1/60	22013982	300
PENON 56 1/60	22013983	300
PENON 57 1/60	22013984	300
PENON 58 1/60	22013985	300
PENON 59 1/60	22013986	300
PENON 60 1/60	22013987	300
PENON 61 1/40	22013988	200
PENON 62 1/40	22013989	200
PENON 63 1/20	22013990	100
PROVIDENCIA 1 1/40	22013073	200
PROVIDENCIA 1 II 1/30	22013556	300
PROVIDENCIA 1 II 31/60	22013557	300
PROVIDENCIA 1 II 61/90	22013558	300
PROVIDENCIA 1 II 91/120	22013559	300
PROVIDENCIA 10 1/10	22013082	50
PROVIDENCIA 11 1/10	22013083	50
PROVIDENCIA 2 1/30	22013074	150
PROVIDENCIA 2 II 1/40	22013561	400
PROVIDENCIA 3 1/20	22013075	100
PROVIDENCIA 3 II 1/30	22013562	300
PROVIDENCIA 3 II 121/150	22013566	300
PROVIDENCIA 3 II 31/60	22013563	300
PROVIDENCIA 3 II 61/90	22013564	300
PROVIDENCIA 3 II 91/120	22013565	300
PROVIDENCIA 4 1/60	22013076	300
PROVIDENCIA 4 II 1/40	22013567	400
PROVIDENCIA 4 II 41/80	22013568	400
PROVIDENCIA 5 1/60	22013077	300
PROVIDENCIA 5 II 1/10	22013569	100
PROVIDENCIA 5 II 31/40	22013570	100
PROVIDENCIA 5 II 61/70	22013571	100
PROVIDENCIA 6 1/30	22013078	150
PROVIDENCIA 7 1/30	22013079	150
PROVIDENCIA 8 1/60	22013080	300
PROVIDENCIA 9 1/60	22013081	300
PUNTA BLANCA 1 1/30	22015474	300
PUNTA BLANCA 2 1/30	22015475	300
PUNTA BLANCA 3 1/30	22015476	300
SERRUCHO 1 1/60	22013591	300
SERRUCHO 2 1/60	22013592	300

Name	National Roll	Area (ha)
SERRUCHO 3 1/60	22013593	300
SERRUCHO 4 1/20	22014600	100
SERRUCHO 5 1/20	22014601	100
TACO 1 1/20	22014154	100
TOSTADO 1 1/60	22013145	300
TOSTADO 1 1/60	22013612	300
TOSTADO 10 1/60	22013621	300
TOSTADO 11 1/20	22013622	100
TOSTADO 12 1/40	22013623	200
TOSTADO 13 1/20	22013624	100
TOSTADO 15 1/40	22013626	200
TOSTADO 16 1/60	22013627	300
TOSTADO 17 1/20	22013628	100
TOSTADO 18 1/40	22013629	200
TOSTADO 19 1/60	22013630	300
TOSTADO 2 1/20	22013146	100
TOSTADO 2 1/60	22013613	300
TOSTADO 20 1/60	22013631	300
TOSTADO 21 1/20	22013632	100
TOSTADO 22 1/60	22013633	300
TOSTADO 23 1/40	22013635	200
TOSTADO 24 1/60	22014186	300
TOSTADO 25 1/40	22014187	200
TOSTADO 3 1/60	22013614	300
TOSTADO 4 1/60	22013615	300
TOSTADO 5 1/60	22013616	300
TOSTADO 6 1/60	22013617	300
TOSTADO 7 1/20	22013618	100
TOSTADO 8 1/40	22013619	200
TOSTADO 9 1/60	22013620	300
VERDE 4 6/10-16/20	22014317	50
Total: 443 claims		**92,387**

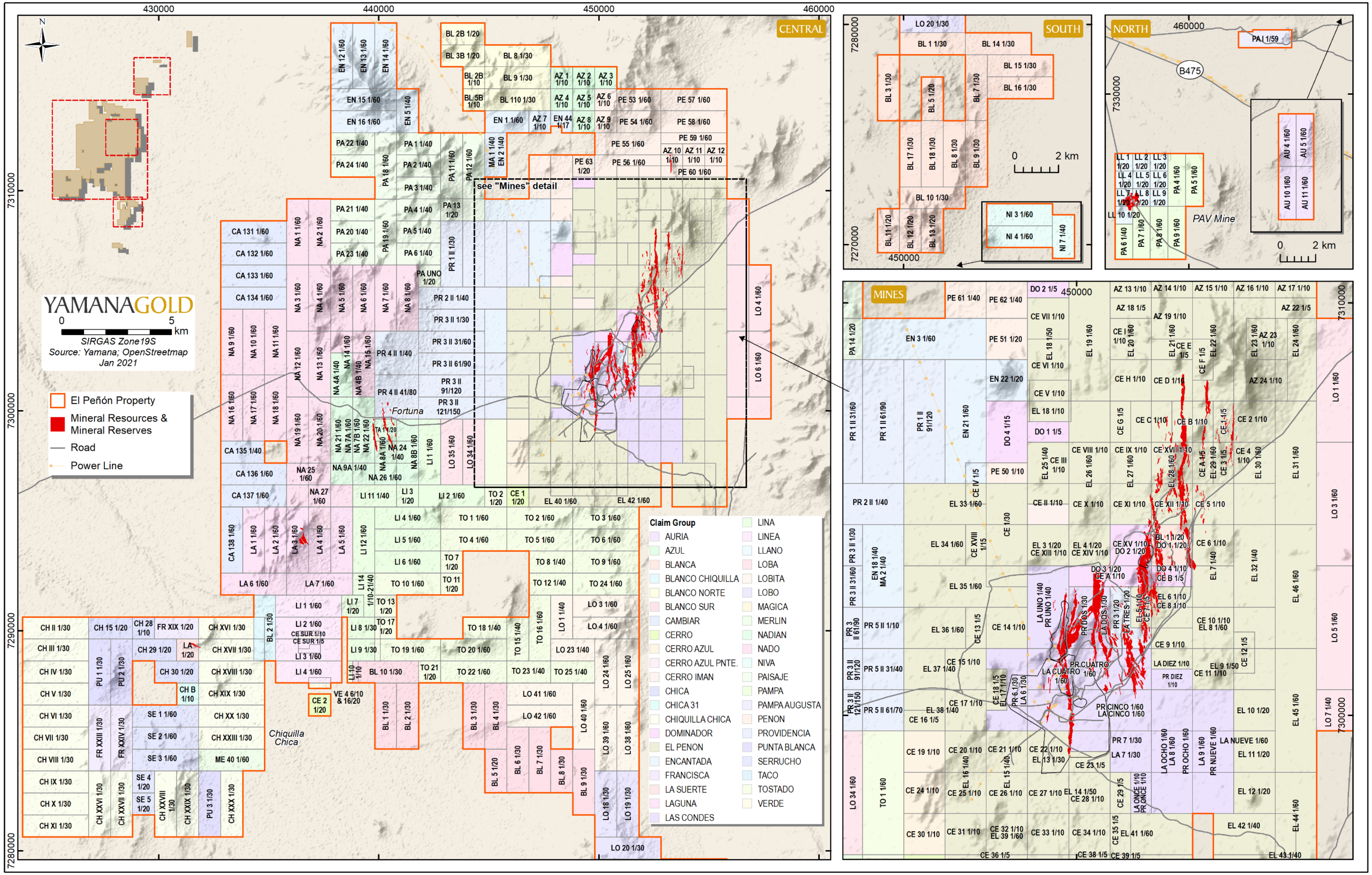


Figure 4-3: Detailed map of mineral tenure

4.2 UNDERLYING AGREEMENTS

A 2% Net Smelter Return (NSR) royalty is payable to Maverix Metals Inc. as agreed as part of the purchase of the Nado claims covering the Fortuna area and a further 2% NSR is payable to Soquimich Comercial SA for claims Providencia 1, 2, 3, 4, and 5 and claims Dominador 1, 2, and 4. These claims are also located in the Fortuna area.

4.3 PERMITS AND AUTHORIZATIONS

Minera Meridian has all required permits to continue carrying out mining and processing operations at El Peñón. Further details of these permits can be found in Section 20 of this technical report.

Government regulations require that a full closure plan be submitted when mine life is less than five years. The latest closure plan was approved through Exempt Resolution Nº 2658/2019. Updates to the closure plan are required whenever the life of mine is extended.

4.4 ENVIRONMENTAL CONSIDERATIONS

The primary environmental considerations and potential liabilities for El Peñón are related to the operations of the tailings storage facility (TSF) and the management of seepage water and mine water. Yamana prioritizes the management of tailings and is in the process of aligning the company’s tailings management system with best practices developed by the Mining Association of Canada (MAC), Canadian Dam Association (CDA) guidelines, and other international standards.

Additional details on tailings infrastructure and management at El Peñón are provided in Sections 17.11 and 20 of this technical report.

The qualified person responsible for this section is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform mining and exploration work on the property.

5 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

5.1 Accessibility

El Peñón is located approximately 165 km southeast of Antofagasta. It is accessible by paved roads, a trip taking approximately 2.5 hours. Antofagasta, the principal source of supplies for the mine, is linked to Santiago (the capital) by daily air service. Minera Meridian has surface rights deemed sufficient for mining and processing operations.

5.2 Climate

The climate in the Atacama Desert is renowned as among the most arid in the world, with a mean annual precipitation between 0 and 15 mm per year, with some areas with no precipitation whatsoever. Temperatures in the area close to the mine can range from -5°C to +30°C. Climatic conditions do not hinder mining operations, which can be carried out throughout the whole year.

5.3 Local Resources

There are no significant population centres or infrastructure in the immediate vicinity of El Peñón. Antofagasta, a port city with a population of 380,000, is the main supply source for the mine. It hosts a variety of commercial establishments, hotels, restaurants, retailers, service suppliers, high schools, and universities as well as hospitals and health clinics. The city also hosts a large number of manufacturing companies and suppliers who serve the mining industry.

Skilled personnel can be easily sourced from Antofagasta or from other cities of the region and country, where mining is the main economic activity.

5.4 Infrastructure

The current major assets and facilities associated with the mining operations at El Peñón are listed as follows:

- Mine and mill infrastructure including office buildings, shops, laboratories, stockpiles, tailing storage facility, and equipment.
- Campsite/housing facilities
- Facilities providing basic infrastructure to the mine, such as access roads, electric power distribution systems connected to national power grid, water treatment and supply and sewage treatment.
- Underground infrastructure including portals, access ramps, ventilation raises, maintenance shops, and mobile fleet equipment.

- The open-pit infrastructure including haulage roads, ramps, and mobile fleet equipment.

5.5 PHYSIOGRAPHY

The mine is located in the Atacama Desert region of Chile at an elevation of approximately 1,800 masl. Relief in the area is modest, with widely spaced hills and peaks separated by broad open valleys. There is little to no vegetation or wildlife in the area around the mine, and the principal land use is mining.

Source: Yamana, October 2020

YAMANAGOLD

Figure 5-1: Infrastructure and typical landscape

A. Atacama Desert and mineral processing plant
B. Orito portal
C. Mine site overview at surface and Atacama Desert

6 HISTORY

The history of El Peñón has been described in Pearson and Rennie (2008) and Collins, Moore and Scott (2010). Information from both reports is summarized below.

The El Peñón gold-silver deposit was discovered by Meridian Gold in the early 1990s and went into production in 1998. Meridian Gold was acquired by Yamana in late 2007.

Regional exploration throughout the 1990s focussed on Early to Mid-Eocene volcanic belts in northern Chile and led to the acquisition of the El Peñón property in 1993. Trenching carried out that year was followed by a 13-hole drilling program which led to the discovery of significant gold-silver mineralization. The next year, the first hole of a follow-up program intersected 100 m grading 10.9 g/t Au and 123.4 g/t Ag in what eventually became the Quebrada Orito deposit.

Various geological, petrographic, and mineralogical studies occurred during the exploration and operation stages of the project. These include Pérez (1999), Robbins (2000), Warren et al. (2004), Zuluaga (2004), Warren (2005), and Cornejo et al. (2006). Various geophysical surveys were performed on the property including transient electromagnetic (TEM) surveys in 2001, a magnetotelluric (CSAMT) survey in 2002, a gravity survey in the El Peñón area in 2003, a very low frequency (VLF) electromagnetic (EM) survey in 2004, and an aeromagnetic and radiometric survey in the El Peñón and Amancaya areas in 2005. Geochemical soil sampling was also undertaken in targeted areas of the deposit. The geophysical and geochemical surveys provided key data to map the lithology, alteration, and structures on the El Peñón property.

Between 1993 and 2007, 1,052,996 metres of exploration drilling and 649,639 metres of infill drilling were carried out for a total of 1,702,635 metres drilled. Additional details on drilling at El Peñón are provided in Section 10 of this technical report

In July 1998, it was decided to advance the property into production, and construction on a 2,000 tpd mine and mill facility commenced later that year. Production began in September 1999, ramping up to full capacity by January 2000. Production has continued uninterrupted to the present day.

6.1 HISTORICAL MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

Although a number of historical mineral resource estimates and mineral reserve estimates have been prepared for El Peñón throughout its life, none of these estimates are currently regarded as significant.

6.2 PAST PRODUCTION

Since September 1999, the operation has run continually at design and increased capacity, treating both open-pit and underground ore. As of December 31, 2020, the mine had processed approximately 23.7 million tonnes (Mt) of ore grading 7.46 g/t gold and 202.7 g/t silver, producing 5.4 million ounces (Moz) of gold and 134.0 Moz of silver, as shown in Table 6-1. In late 2016, Yamana decided to rightsize the El Peñón operation at a production rate of approximately 150 to 160 koz gold and 4,000 to 4,500 koz silver per year, to promote cash flow generation rather than maximizing production.

Table 6-1: Commercial production at El Peñón, January 2000 to December 31, 2020

Year	Processed Tonnes	Au Feed Grade (g/t)	Ag Feed Grade (g/t)	Au Recovery (%)	Ag Recovery (%)	Au Production (oz)	Ag Production (oz)
2000	739,450	13.18	194.4	93.6	89.1	282,718	4,018,397
2001	715,413	14.87	234.4	94.5	89.0	318,012	4,751,758
2002	688,876	15.33	249.5	95.3	90.8	328,061	5,077,188
2003	703,775	14.62	204.5	96.6	92.4	320,998	4,283,436
2004	837,111	11.96	192.7	96.5	92.2	314,080	4,812,152
2005	880,229	11.13	211.1	96.4	92.8	303,508	5,537,589
2006	935,105	8.10	234.6	95.5	92.8	230,145	6,428,905
2007[1]	998,252	7.64	274.6	94.2	91.8	234,598	8,186,718
2008	1,124,567	6.73	305.4	92.0	89.2	224,990	9,864,275
2009	1,271,596	5.79	276.3	91.2	86.9	215,846	9,820,474
2010	1,522,366	5.74	228.5	91.1	84.1	256,530	9,427,207
2011	1,452,090	7.05	215.9	93.0	84.0	306,184	8,470,112
2012	1,415,292	7.47	199.2	93.4	80.0	317,508	7,249,430
2013	1,422,055	7.94	187.2	93.0	75.6	338,231	6,464,623
2014	1,475,857	6.36	212.0	93.3	83.9	282,617	8,475,133
2015	1,418,132	5.32	194.0	93.6	86.9	227,228	7,692,811
2016	1,421,243	5.11	153.9	94.3	85.7	220,209	6,020,758
2017	1,041,199	5.05	148.3	95.1	86.4	160,510	4,282,339
2018	1,103,835	4.53	131.3	94.1	83.6	151,893	3,903,961
2019	1,290,239	4.09	120.6	94.0	86.2	159,515	4,317,292
2020	1,266,829	4.22	138.9	93.7	86.7	160,824	4,917,101
Total	**23,723,511**	**7.46**	**202.7**	**93.8**	**86.3**	**5,354,205**	**134,001,658**

1. *Acquisition by Yamana in late 2007*

7 Geological Setting and Mineralization

The geological setting and mineralization of El Peñón are described in Robbins (2000) and in former technical reports on El Peñón (Pearson and Rennie (2008); Collins, Moore, and Scott (2010)). The most recent update to the regional and district geology is outlined in the Aguas Blancas (Ferrando et al., 2013) and Augusta Victoria (Astudillo et al., 2017) geological maps by SERNAGEOMIN, the Chilean National Geology and Mining Service. This section is based on these reports and maps.

7.1 Regional Geology

El Peñón is located in the Central Depression (also known as the Central or Longitudinal Valley), that extends for 650 km from the Chile-Peru border in the north to south-central Chile in the south. In the Atacama Desert, this valley corresponds in part to a Late Cretaceous to Paleogene volcanic belt that separates the Mesozoic magmatic arc, exposed in the Coast Mountains located to the west, from the Paleozoic and Triassic volcanic and sedimentary assemblages of the Domeyko Cordillera to the east.

The Late Cretaceous to Eocene volcanic and intrusive rocks within the Central Depression consist of an alkali-enriched calk-alkaline bimodal suite. Rocks consist of basaltic andesite to rhyolitic lavas and tuffs, subvolcanic porphyritic intrusions, and granitoid stocks. This belt is host to many epithermal deposits and subvolcanic porphyry systems.

Late Cretaceous volcanic and volcaniclastic rocks were deposited in narrow fault-bounded extensional basins (84 Ma to 65 Ma). The margins of the basins were intruded by dioritic to monzonitic plutons. Compressive tectonism, active from 65 Ma to 62 Ma, resulted in the inversion of the Late Cretaceous basins, uplift and erosion of Late Cretaceous plutonic rocks to the west of the basin, and syn-tectonic magmatism along the basin-bounding faults.

Volcanism continued through the Paleocene and into the Middle Eocene, with mafic to felsic magmatism depositing flows, volcaniclastic, epiclastic, and subvolcanic rocks. A sequence of late Paleocene felsic domes, tuffs, and subvolcanic rocks is associated with the hydrothermal veining and brecciation responsible mineralization at El Peñón. These rocks are overlain by Eocene volcanic and subvolcanic rocks (rhyolitic dome complexes, andesites and basalts) that host significant areas of acid sulphate or high-sulphidation alteration.

Deformation occurred in the Middle to Late Eocene with uplift of the pre-Cordillera, triggering copper porphyry emplacement further to the east. Low-angle offset of the El Peñón vein system occurred during this period.

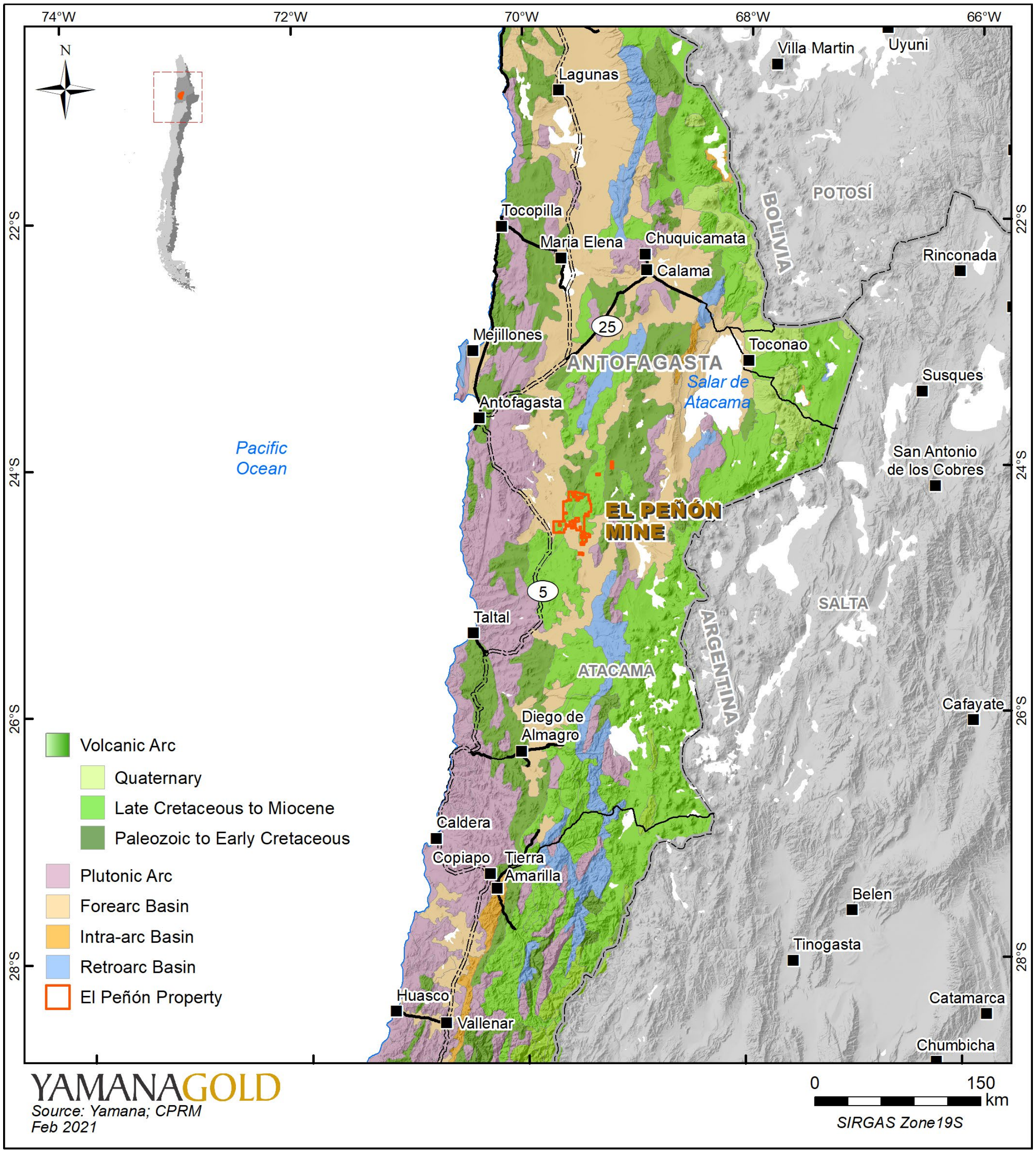


Figure 7-1: Regional geological setting

7.2 Local Geology

The local area is underlain by a fault-bounded north-south trending panel of Paleocene to Eocene volcanic rocks. This panel is bounded to the east and west by rocks of Permian to Cretaceous age. Formation names and ages as reported below are from updated extensive recent work by the Servicio Nacional de Geología y Minería (SERNAGEOMIN), which resulted in significant changes from stratigraphic divisions reported in earlier reports (Robbins, 2000). The Cretaceous sequence (95-90 Ma) dominates and consists of volcanic and minor sedimentary rocks of the Paradero del Desierto Strata Formation and continental sedimentary and volcanic rocks Quebrada Mala Formation. The Paradero del Desierto Strata outcrops northwest of the deposit area. The Upper Cretaceous Quebrada Mala Formation is present to the west, north, and northeast of El Peñón; it consists of volcanic rocks varying in composition from basaltic andesite to high-silica rhyolite; textures vary from flows to ignimbrites (Astudillo et al., 2017; Ferrando et al., 2013). Ignimbrites and other rock types formerly assigned to the Augusta Vitoria Formation are now included in the Quebrada Mala Formation. Away from the deposit, these rocks are intruded by large granitic to dioritic stocks dated at between 40 and 50 Ma.

The geology of the El Peñón deposit area is characterized by the emplacement of a Paleocene to Lower Eocene dacite/rhyolite dome complex into volcanic and tuffaceous rocks of the Chile Alemania Formation (Figure 7-2).

The kilometre-scale Paleocene to Lower Eocene dome consists of several layers or sill-like masses of rhyolite, up to 200 m-thick, intercalated with units of pyroclastic rocks, volcaniclastic rocks, and volcanic flows or intermediate composition assigned to the Chile Alemania Formation (Ferrando et al., 2013; Figure 7-3); these are interpreted to provide important lithological controls for development of vein mineralization.

Extensive colluvium, alluvial gravel, and saline crust deposits cover the bedrock.

The main rock types in the area are described in Table 7-1. The local and property-scale geology of the El Peñón property is illustrated in Figure 7-2.

Table 7-1: Description of main lithologies

Age	Formation	Description
Cretaceous to Eocene		Diorite and monzonite intrusions
Paleocene to Lower Eocene	Chile Alemania Formation	Basalt, andesite, dacite, and rhyolite volcanic rocks. Flow breccia, pyroclastic rocks, and minor epiclastic volcanic sandstone and conglomerate. Prominent rhyolite to dacite domes and highly welded ignimbrites that host mineralization.
Upper Cretaceous	Quebrada Mala Formation	Andesitic lavas, breccia volcaniclastic and epiclastic sandstone, rhyolite and dacite with characteristic quartz phenocrysts.
Lower Cretaceous	Estratos de Paradero del Desierto	Fluvial sandstone, volcanic breccia, andesitic lava, with some dacitic tuff.

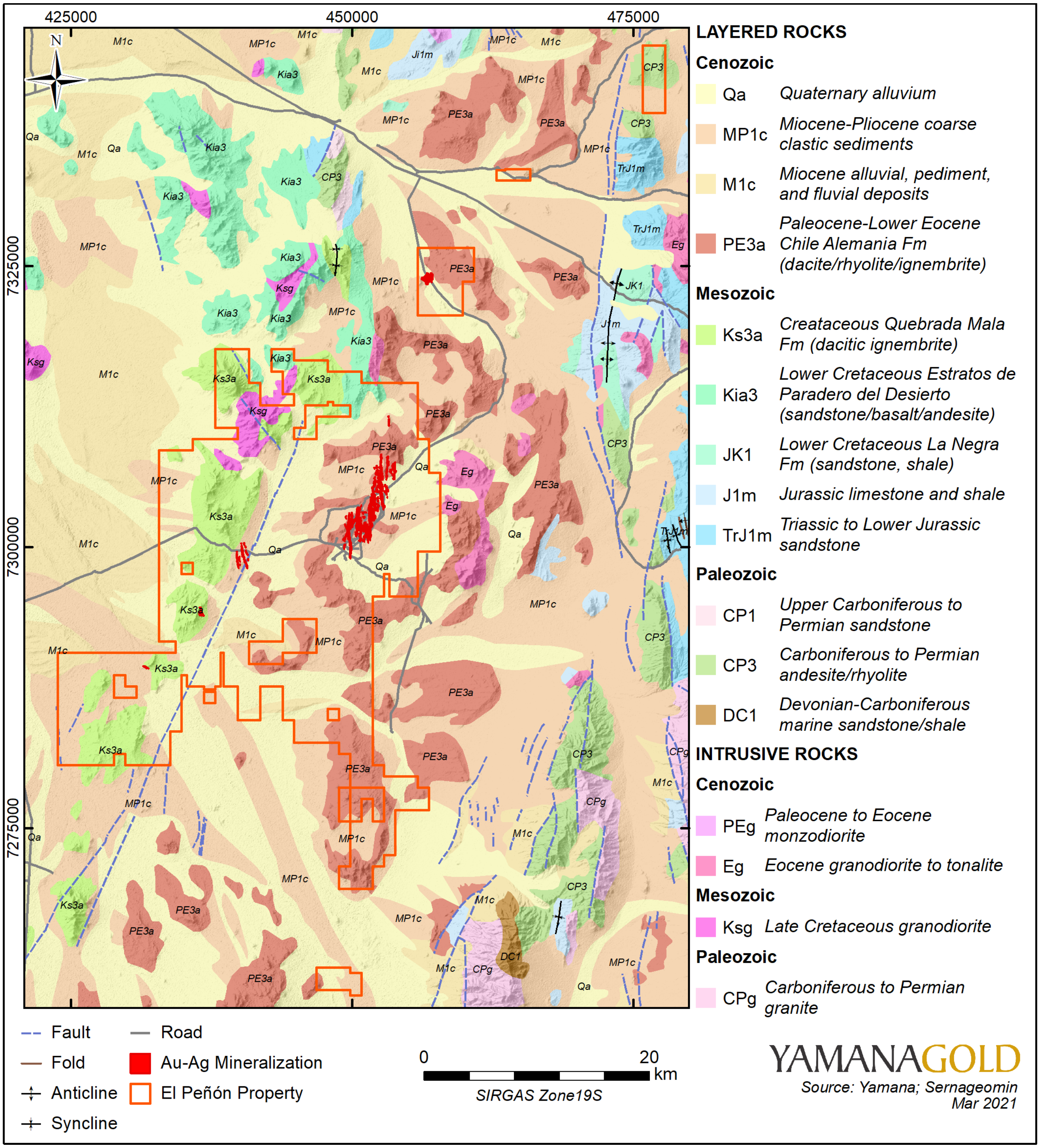


Figure 7-2: Local and property geology

7.3 Property Geology

Surface exposures at El Peñón are not common, and much of the mapping for the area is based on float. The property is mostly underlain by Late Cretaceous to Early Eocene pyroclastic flows and lavas, volcaniclastic breccias, and tuffs of basaltic to rhyolitic composition. Several thin Early Cretaceous rhyolite tuff and dacite to andesite flow layers occur in the northern part of the property. These rocks are intruded by Late Cretaceous diorite and monzodiorite stocks and dacite domes.

The rocks hosting gold-silver mineralization at El Peñón are near-horizontal to gently dipping Paleocene to Eocene basaltic to rhyolitic volcanic rocks. The stratigraphy consists of a lower sequence of volcanic breccias and andesitic to basaltic flows overlain by rhyolitic to dacitic pyroclastic rocks, dacitic to andesitic flows, and volcanic breccias. Rhyolitic intrusions, domes, and associated flows are intercalated with earlier volcanic units.

7.3.1 Structure

The distribution of Cretaceous and Eocene volcanic rocks is controlled by graben structures bounded by north–northeast-trending faults. These are steeply dipping regional-scale structures with displacements in the order of hundreds of metres. The dominant orientation of late dykes and many of the highest-grade mineralized faults is parallel to the bounding faults. Mineralized faults dip steeply eastward on the east side of the property and westward on the west side, in a distribution interpreted as a horst/graben extensional structure (Figure 7-3).

Most of the mining takes place along north-trending veins (dipping 75°–85° W or 55°–80° E). A relatively minor amount of production has also taken place along northeast-striking structures dipping 65°NW. Locally, northeast-trending shallow-dipping faults dipping 20°SE displace the veins.

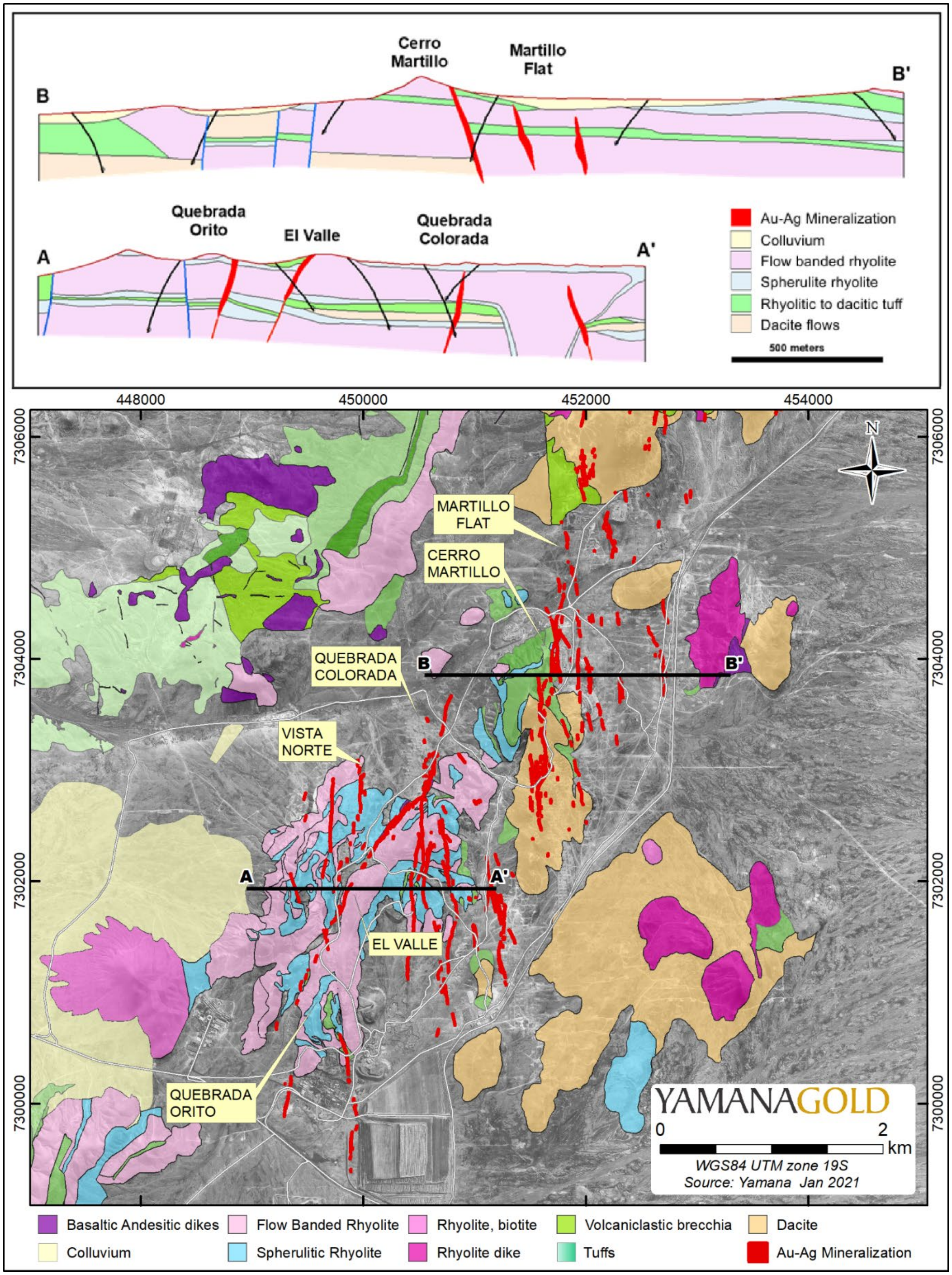


Figure 7-3: Schematic geological plan and cross-sections of the El Peñón deposit

7.4 Mineralization

The gold-silver mineralization at El Peñón is hosted in near-horizontal to gently dipping Paleocene to Eocene basaltic to rhyolitic volcanic rocks. The El Peñón deposit comprises many individual tabular and steeply dipping zones that are amenable to mining by both underground and surface methods. Vein thickness range from decimetre-scale to more than 20 metres. The strike length of individual mineralized zones ranges from less than 1 km to 4 km and the down-dip extent reaches up to 350 m. Photographs depicting examples of the gold-silver mineralization at El Peñón are presented in Figure 7-4.

The known deposit consists of 19 main vein zones and many subsidiary veins. They are grouped in vein systems that have previously supported, currently support, or are planned to support surface and underground mining operations. The 19 principal mineralized veins are listed as follows:

- Abundancia/La Paloma
- Angosta
- Aleste/Bonanza
- Borde Oeste
- Cerro Martillo/Dorada
- Dominador
- El Valle/Discovery Wash
- Esmeralda/Esperanza
- Fortuna
- Laguna
- Martillo Flat
- Pampa Augusta Vitoria (PAV)
- Pampa Campamento/ Sorpresa
- Playa
- Providencia
- Quebrada Colorada
- Quebrada Orito
- Ventura
- Veta NW

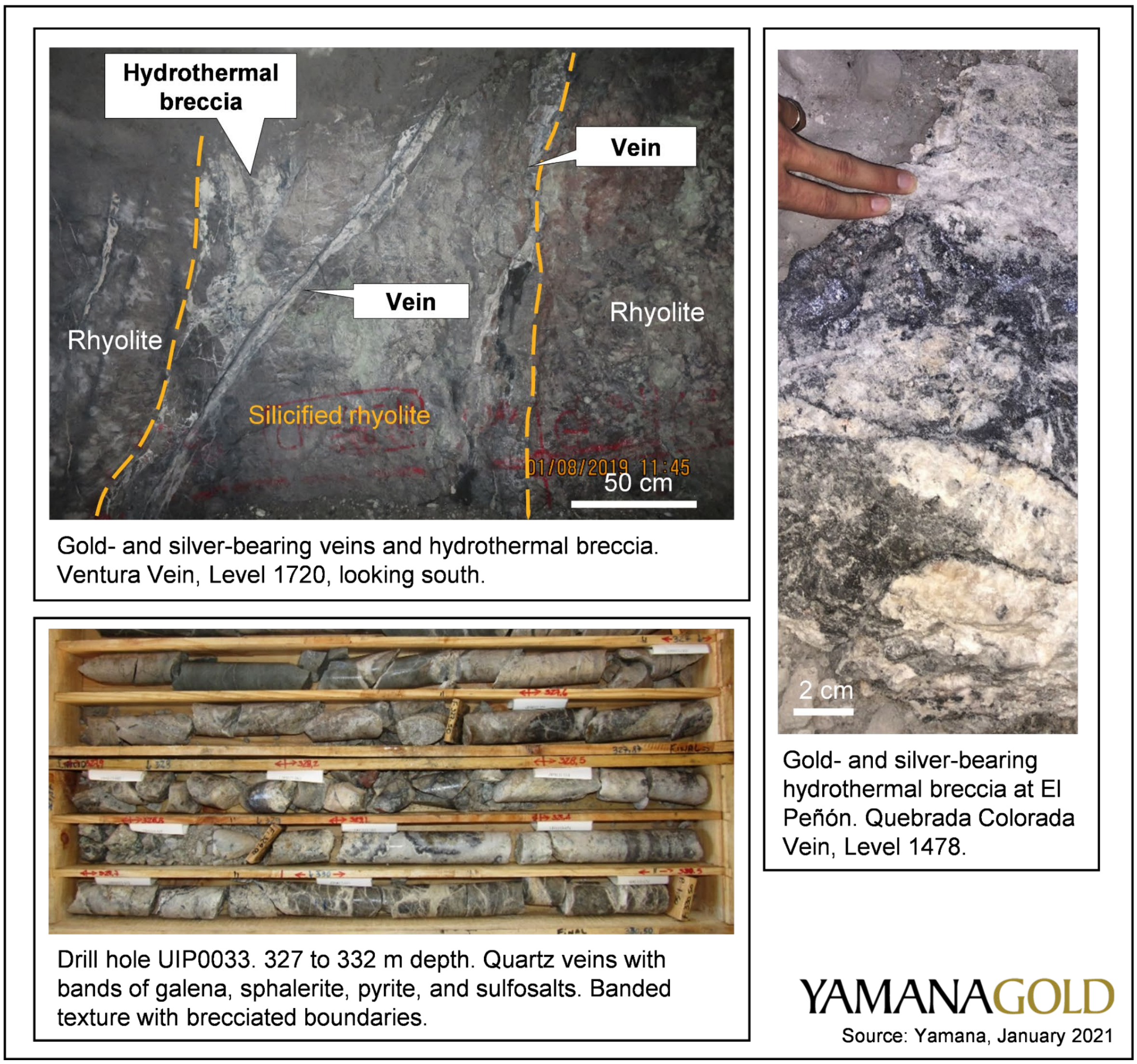
The veins strike predominantly north-south and dip steeply to the east and west. A small proportion of the deposit is also hosted in fault zones striking north–northeast to northeast.

Vein textures often display crustiform textures, although the highest-grade gold and silver mineralization are associated with massive banded quartz-adularia. Gangue minerals occur as open space filling as well as replacements of primary host rock mineral phases.

Gold and silver mineralization occurs as disseminated electrum, acanthite, native gold, native silver, silver sulphosalts, and silver halides; these minerals are hosted in a gangue dominated by quartz, adularia, carbonate, and clay. Precious metals occur mainly as micron- to millimetre-size subrounded and irregular grains of electrum. Two phases of electrum are present: a primary phase, which contains approximately 55 to 65% gold, and a secondary phase where the gold content is usually greater than 95%, due to the supergene remobilization of silver.

Sulphide minerals are relatively rare, except at the northeastern portion of the El Peñón mine area. This paucity of sulphides may be due to oxidation, or to an initial overall low abundance of sulphides as would be expected in a low-sulphidation environment. Iron- and manganeseoxyhydroxides are common, with only trace occurrences of relict sulphides. In order of abundance, trace amounts of pyrite, galena, sphalerite, chalcocite and covellite occur locally.

Age-dating of adularia from the veins at El Peñón suggests that mineralization took place at around 52 Ma to 53 Ma (Early Eocene). Two mineralization and alteration events have been defined from fluid inclusion studies. The principal mineralization event resulted from circulation of neutral reduced fluids that replaced host-rock phenocrysts and groundmass by quartz, adularia, albite, carbonate, clays, calcite, and chlorite. It also produced quartz-adularia flooding and breccia-filling in the vicinity of the veins. Another, more widespread, alteration process was derived from acidic oxidized hydrothermal solutions. This event resulted in the formation of lithocaps of quartz-alunite alteration, quartz-alunite breccia-filling, with minor copper and silver and little or no gold.



Gold- and silver-bearing veins and hydrothermal breccia. Ventura Vein, Level 1720, looking south.

Gold- and silver-bearing hydrothermal breccia at El Peñón. Quebrada Colorada Vein, Level 1478.

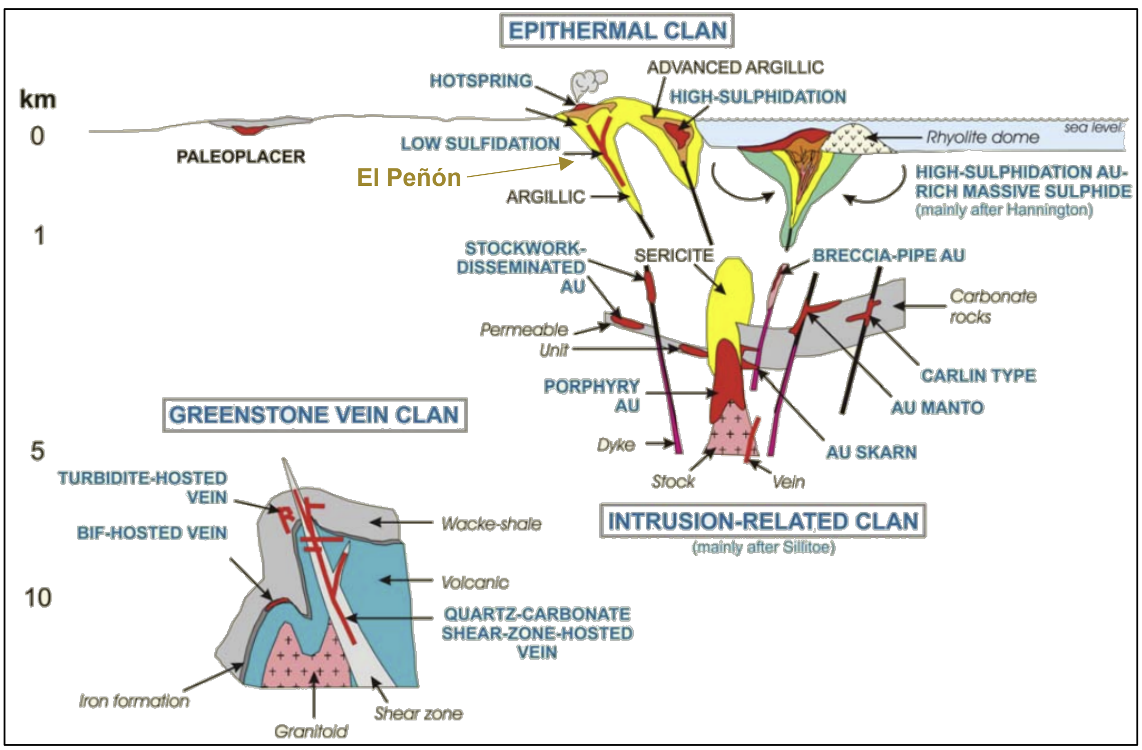
Drill hole UIP0033. 327 to 332 m depth. Quartz veins with bands of galena, sphalerite, pyrite, and sulfosalts. Banded texture with brecciated boundaries.

Figure 7-4: Photographs of mineralization in underground exposures and in drill core

8 Deposit Types

El Peñón is classified as a low- to intermediate-sulphidation epithermal gold-silver deposit associated with steeply dipping fault-controlled veins emplaced following rhyolite dome emplacement. Gold and silver mineralization consists of disseminations of electrum, native gold and silver, acanthite, silver sulphosalts, halides, and accessory pyrite occurring with quartz, adularia, carbonates, and clay minerals (Pearson and Rennie, 2008). Epithermal deposits represent shallow parts of larger, mainly subaerial, hydrothermal systems (Figure 8-1) formed at temperatures as high as about 300°C and at depths from about 50 to as much as 1,500 m below the water table (John et al., 2010).

Analogous epithermal gold-silver deposits set in an extensional-transtensional continental-margin arc are the Comstock Lode in Nevada, Martha Hill in New Zealand, Peñasquito in Mexico, and Hishikari in Japan (John et al., 2010).



Source: modified from Gosselin and Dubé, 2005

YAMANAGOLD

Figure 8-1: Generalized gold deposit types and environments

9 EXPLORATION

Initial regional exploration focused on Early to Mid-Eocene volcanic belts in northern Chile and led to their acquisition of the El Peñón property in 1993. Trenching carried out that year, followed by a 13-hole drilling program, discovered significant gold-silver mineralization. The next year, the first drill hole of a follow-up program intersected 100 m grading 10.9 g/t gold and 123.4 g/t silver in what eventually became the Quebrada Orito deposit.

Since 2007 Yamana has been successful in expanding the footprint of mineralization through geological mapping, geochemical characterization, geophysics, and abundant surface and underground drilling within the northeast trend, first starting at the El Peñón area, with Quebrada Orito in the southwest and ending to Angosta in the northeast.

Exploration has also been successful at the Fortuna and Pampa Augusta Vitoria (PAV) areas located to the southwest and to the north of El Peñón, respectively. Geophysical anomalies and positive drill intersections remain to be followed up in all areas. GoldSpot Discoveries Corp. (GoldSpot) was contracted in 2019 to apply machine learning to target unknown mineralization.

Exploration work completed to date has defined 40 main mineralized zones and subsidiary veins, within ten geological trends.

The significant exploration results at El Peñón that are material to this technical report were obtained by surface and underground core drilling. This work and resulting interpretations are summarized in Sections 10, 14, and 15 of this technical report.

9.1 EXPLORATION POTENTIAL

Exploration conducted between 2018 and 2020 can be divided into three categories: infill, expansion, and district.

- Infill drilling is designed to replace production by upgrading and extending known mineral resources with a combination of reverse circulation (RC) and core drilling methodology (ratio of approximately 70% RC to 30% core drilling).
- Expansion (or step-out) exploration drilling aims to upgrade inferred mineral resources to measured or indicated categories, or to transform zones of geological potential into inferred mineral resources.
- District exploration is meant to test the extension of little-known areas of mineralization or to discover new primary structures by testing targets identified in mapping, geochemistry, geophysics, or machine learning programs.

A total of 384,000 m of drilling has been planned for 2021 through 2023 at a budgeted cost of US$54M. The amount of proposed drilling is based on the past success rate of adding resources at El Peñón.

Infill targets in 2020 included Martillo Flat, Pampa Campamento, El Valle, Dorada, Cerro Martillo and La Paloma. Expansion targets tested in 2020 included Colorada Sur, El Valle-Sorpresa extension, deeper portions of Martillo Flat, Pampa Campamento and La Paloma Profundo. District targets tested in 2020 included Angosta, Augusta Victoria, Chiquilla Chica, Laguna-Fortuna, and Cerro Seco-Estanque de Agua.

Exploration results at El Peñón continue to highlight the expansion potential of the mine and Yamana's ability to replenish mineral reserves and mineral resources so as to extend the life of mine past its current mineral reserve base.

10 DRILLING

Systematic testing of the gold-silver-bearing zones was started by Meridian Gold in 1993 and continued until 2007. Yamana has drilled continuously on the property since 2007 to expand the mineral resources and replace depletion of mineral reserves. To the end of December 2020, over three million metres have been drilled at El Peñón in the Fortuna, El Peñón, and Pampa Augusta Vitoria (PAV) areas (Table 10-1). This includes 130,298 m completed in 2020 (71,263 m exploration and 59,035 m infill drilling), with intersections at Colorada Sur, El Valle, Pampa Campamento, Sorpresa, La Paloma and Dorada veins.

Figure 10-1 illustrates the location of drilling in the El Peñón area. Significant exploration results and interpretations obtained from surface and underground drilling are summarized in Sections 14 and 15 of this technical report.

Table 10-1: Exploration and infill drilling by year and type, 1993 to December 31, 2020

Year	Exploration (m)	Infill (m)	Total (m)
1993	2,507	0	2,507
1994	16,606	0	16,606
1995	51,451	0	51,451
1996	48,370	0	48,370
1997	85,248	0	85,248
1998	73,941	0	73,941
1999	58,561	48,325	106,886
2000	49,388	134,994	184,382
2001	101,440	80,905	182,345
2002	84,753	56,573	141,326
2003	87,581	39,072	126,653
2004	99,674	58,498	158,172
2005	107,443	52,851	160,294
2006	72,526	107,887	180,413

Year	Exploration (m)	Infill (m)	Total (m)
2007[1]	113,507	70,534	184,041
2008	66,917	65,911	132,828
2009	93,690	22,592	116,282
2010	69,470	77,724	147,194
2011	78,746	49,919	128,665
2012	65,401	57,937	123,338
2013	70,323	26,440	96,763
2014	68,582	57,262	125,844
2015	40,950	105,807	146,757
2016	95,701	70,397	166,098
2017	29,240	82,875	112,115
2018	31,179	66,630	97,809
2019	45,325	69,885	115,210
2020	71,263	59,035	130,298
TOTAL	**1,879,783**	**1,462,053**	**3,341,836**

1. *Acquisition by Yamana in late 2007*

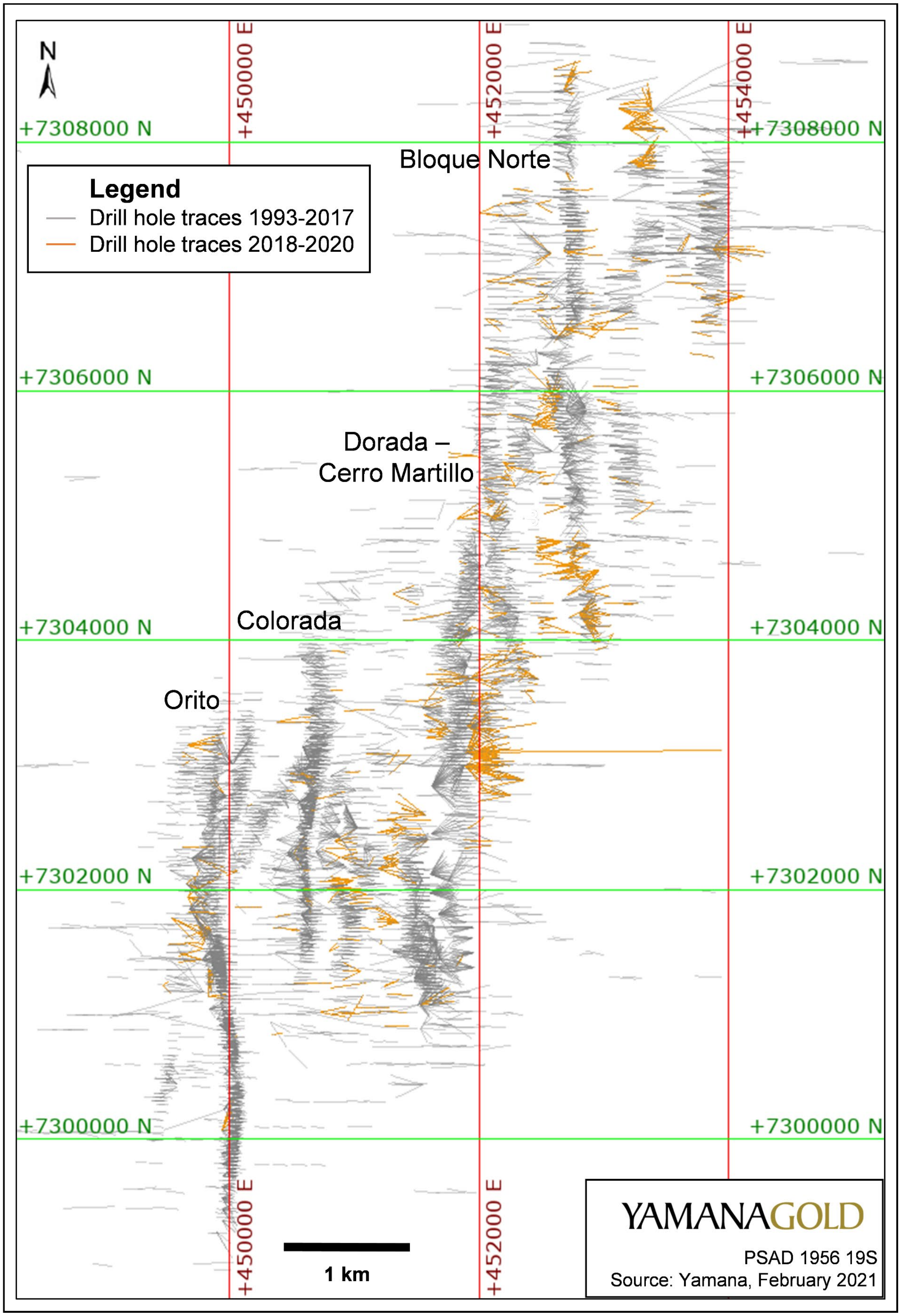


Figure 10-1: Plan view of drill holes in El Peñón core mine area

Yamana continually conducts exploration work to develop drill targets to replenish mineral reserves. Drilling is carried out on a 60 × 60 m grid; infill drill holes are based on a 30 × 30 m grid pattern. Preliminary mineral resource estimates are made using the drill information. Later, the mineral resource models are refined using chip sample assays collected from the underground development. Underground definition core drilling is completed on a 30 × 30 m spacing where required, and short test drill holes are drilled from underground to locate veins and parallel structures and to assist with mining and grade control.

Surface drilling is mostly collared with reverse circulation (RC) and converted to core drilling prior to intersecting the mineralized zone. At least one hole per 30 m section is drilled as a core drill hole for its entire length. Core size is HQ (63.5 mm core diameter), sometimes reduced to NQ (47.6 mm core diameter). RC holes are drilled with 146 mm-diameter equipment, which produces a hole approximately 152 mm in diameter. Drilling on the mine property from 2018 to 2020 was performed by AK Drilling International.

The procedures used during drilling programs are as follows:

- The collar locations of all drill holes are surveyed and marked by El Peñón crews.
- Directional deviation (for both azimuth and inclination) is surveyed in each drill hole using a REFLEX multi-shot survey instrument by IMDEX Ltd for underground drill holes and using a gyroscope survey instrument by Axis Mining Technology for drill holes drilled from the surface.
- Lithological logging is done on drill core and RC chips. Geotechnical observations are made by company geologists and technicians. All information is recorded on digital tablets using commercial software and depicts all downhole data. This includes recording the following items as appropriate for the drilling method:
    - Drill type
    - Collar coordinates
    - Core diameter
    - Downhole inclination
    - Percent core recovery record
    - Rock Quality Designation (RQD) measurements
    - Lithologic contacts
    - Descriptive geology
    - Core angles
    - Intensity of various alteration types
    - Structural features, such as foliation, fractures, and brecciated zones

- Recording of mineralization, such as quartz type, sulphide type and content
- A photographic record of the core taken with a digital camera

Drill core recoveries are generally good (>95%) but are moderately lower at the Quebrada Orito and El Valle veins (>85%). The lower core recovery in those veins, however, does not have significant impact on the quality of the samples.

Collars of surface drill holes are preserved by a PVC casing. A wooden stake is placed close to each collar; it is affixed with metal plates, on which the code, azimuth, dip, and other relevant drill hole information is recorded

The qualified person responsible for this section of the technical report is of the opinion that the logging and recording procedures are comparable to industry standards. There are no other known drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of results.

11 Sample Preparation, Analyses, and Security

Analytical samples include both drill core and channel samples. The drill core samples are generated from exploration and infill drilling programs that are conducted on surface and underground; they are used for target generation and estimation of mineral resources and mineral reserves. The channel samples come from underground grade-control channels in development drifts; they are used for short-term forecasting and grade control as well as for estimation of mineral resources and reserves.

11.1 Sample Preparation and Analysis

Sample preparation and analysis of drill core and underground channel samples at El Peñón are carried out according to a series of standard operating procedures (SOPs) listed in Table 11-1 and are described below.

Table 11-1: Sample preparation and analytical standard operating procedures

Procedure Number	Description
GE-P06_R02	Sampling of drill core
GE-P11_R02	Validation of results
GE-P14_R01	Quality control of exploration samples
GE-P37_R02	Quality control of Production samples
GE-P03_R02	Sampling and splitting samples in RC drill holes
GE-I02_R02	Creation of dispatch forms
GE-P04_R03	Underground sampling
GE-P07_R02	QA/QC monthly report
GE-P08_R02	CRM control
GE-P09_R02	Sample shipment, storage, and disposal
GE-P36_R02	Procedure for quality control failures

11.1.1 Sampling of Drill Core

Drill core is received in the logging area by technicians who first verify depth markers and reassemble the core so that pieces connect with each other; they then apply depth marks to the core verifying with the wooden block markers placed by the drillers.

Before geological logging, all drill holes are logged for geotechnical parameters; these include core recovery, rock quality designation (RQD), number of fractures, and if core intervals include major structures such as faults. Drill holes are not oriented.

The geological description is then made by an on-site geologist who enters the data directly into the geological data management system (GDMS). In this step, lithology, alteration, structures, mineralization and percentage of quartz vein/veinlets are recorded. The limits of each sample interval are marked with an indelible marker on the core and on the box by the logging geologist. The core boxes are photographed with a digital camera prior to sampling.

Sampling of Exploration Drill Holes

For exploration drill holes, the complete length of the drill hole is sampled and sent for analysis. The sample lengths are determined by the presence or absence of quartz veins or veinlets.

In mineralized zones of Hydrothermal Breccia (unit HyB) or Massive Quartz Vein (MQV) with abundant sulphides, the minimum sample length is 0.35 m and the maximum samples length is 0.5 m. For drill core without veins or sulphides and in exploration areas, the maximum sample length is 2 m.

The exploration drill cores are cut in half along the longitudinal axis, using a hydraulic core splitter. Half of the core is placed in previously labelled plastic bags; the other half is left in the core box as a reference.

Sampling of Infill Drill Holes

For infill drill holes, the minimum and maximum sample lengths in mineralized zones are 0.2 and 0.5 m, respectively. For each interval, the full drill core is sampled; it is broken with a hammer and placed in a previously labelled plastic bag.

Sample shipments

The bagged samples are placed in plastic bins to be sent to the primary laboratory along with the submittal form (Dispatch Order).

In the opinion of the qualified person responsible for this section of the technical report, the sampling methodologies at El Peñón conform to industry standards and are adequate for use in mineral resource estimation.

11.1.2 UNDERGROUND CHANNEL SAMPLING

The sampling of underground faces is carried out systematically by production geologists and technicians in the advance galleries after each advance. After the face is washed and secured, the sample is taken from left to right along a line of constant elevation, generally 1.5 m above the floor. The sample location is determined by measuring the distance and azimuth from the nearest bolt left by the surveying team.

Geological contacts (lithology, alteration, mineralization, structures, etc.) are identified and sampling intervals respect these contacts. Once the limit of the samples has been defined, they are marked with red spray paint. The area to be sampled is then delimited by a rectangle. In mineralized zones mapped as MQV or HyB, the maximum sample length is 1 m, whereas in host rocks the maximum sample length is 2.0 m.

Sampling is done with a rock hammer or with a mallet and wedge. The rock fragments that are detached from the wall are collected in a bag on the ground and then placed in plastic bags properly identified with correlative numbering tags. The samples are then transported to the El Peñón mine laboratory for preparation and assaying.

The results of the underground channel samples are used for short-term forecasting and grade control as well as in the grade estimation process for mineral resource models.

In the opinion of the qualified person responsible for this section of the technical report, the sampling methodologies at El Peñón conform to industry standards and are adequate for use in mineral resource estimation.

11.1.3 Preparation and Analytical Procedures

Primary Exploration and Infill Drilling Analytical Laboratories 2018 to 2020

As of January 2018, the Geoassay Group Ltda. (Geoassay) laboratory in Antofagasta, Chile, was the primary laboratory for exploration and infill drilling samples, but only for one final month as the contract terminated at the end of January 2018. Geossay is independent of Yamana and was not certified at the time.

Starting in February 2018, samples from exploration and infill drilling were prepared and analyzed at SGS Minerals S.A. (SGS) laboratories in Antofagasta and Santiago, Chile. The SGS laboratories are independent of Yamana and hold ISO/IEC 17025 certification. SGS moved its headquarters from Antofagasta to Santiago in September 2019 and transferring the El Peñón samples from Antofagasta to Santiago created significant delays and problems with accuracy. The samples from exploration drilling were processed at SGS in Antofagasta from February 2018 to September 2019, after which they were processed at the Santiago laboratory until March 2020. Samples from infill drilling were processed at SGS in Antofagasta from February 2018 to September 2019, after which they were processed in the Santiago laboratory until May 2020.

For a short period in late 2018, Intertek Caleb Brett Chile S.A. (Intertek) laboratory in Copiapo was also used as a primary laboratory, in parallel with SGS, to help provide analytical results in time for year-end reporting. Intertek is independent of Yamana and was certified to ISO9001:2015 standards by ABS Quality Evaluations.

The primary laboratory for exploration samples was changed to Geoassay in Antofagasta starting in March 2020. In May 2020, Geoassay became the primary laboratory for both exploration and infill drilling program samples. Geossay is a local laboratory independent of Yamana and is in the process of being certified to ISO/IEC 17025 standards.

Umpire Laboratories 2018 to 2020

Umpire laboratory check assays were carried out at Intertek laboratory in Copiapo, Chile, until February 2019 and at Geoassay's laboratory in Antofagasta, Chile, until May 2020, when it became the primary laboratory. Intertek is independent of Yamana and was certified to

ISO9001:2015 standards by ABS Quality Evaluations, but not to ISO/IEC 17025 standards. Geoassay is a local laboratory independent of Yamana and is in the process of being certified to ISO/IEC 17025 standards. The selection process for a new umpire laboratory is ongoing.

Laboratory for Underground Laboratory for Channel Samples 2018 to 2020

Samples from underground channels are assayed at the in-house El Peñón mine laboratory. This laboratory is owned and operated by Yamana and is certified to ISO/IEC 17025 standards.

Analytical Procedures

The following procedures are used for sample preparation and analysis at SGS, Geoassay, Intertek, and El Peñón laboratories:

1. A submittal form (or Dispatch Form) is filled out by an El Peñón geologist or technician and is delivered with the samples to the El Peñón or SGS/Geoassay/Intertek laboratories.
2. Samples are sorted, logged in the laboratory database (LIMS), weighed, and dried in a furnace at 105°C.
3. The complete sample is crushed to 85% less than # 10 mesh (passing 2 mm), and riffle split to obtain 1 kg of material.
4. A 1 kg sample is pulverized at 95% through # 140 mesh (passing 0.105 mm).
5. The laboratories clean the crushing and grinding instruments with compressed air between samples, insert sterile quartz every 10 samples, and perform a granulometric control of crushing and pulverization on at least 3% of the samples.
6. Two pulp packages of 250 g each (labelled A and B) are prepared at SGS, Geoassay, or Intertek laboratories. The master pulp (pulp A) is used for the analysis. Remaining material from pulp A is combined with pulp B, which is returned to site for storage. At the El Peñón mine laboratory, only a single package of 250 g pulp is prepared and used for analysis.
7. To determine the gold content, the samples are analyzed by fire assay (FA) on 30 g samples (prior to February 2018, the fire assays used a 50 g sample). Fluxes, lead oxide litharge, and silver are mixed and fired at 1,100°C to 1,170°C for 50 to 60 minutes to separate the precious metals as a molten lead metallic phase. The samples are removed from the oven and poured into moulds. Next, the slag is removed from the cooled lead button and the button is placed in a cupel and fired at 920°C to 960°C for an hour to oxidize all the lead and make a precious metal bead.

- The cupels are removed from the furnace and the beads are separated by acid digestion using nitric and hydrochloric acid to dissolve the precious metals into solution.
- At SGS, Geoassay, and Intertek laboratories the sample solutions are analyzed by atomic absorption spectrometry (AAS) and samples containing more than 5 g/t gold are finished by gravimetry. At the El Peñón mine laboratory, the analysis is finished by gravimetry.

8. The silver determination is done by AAS at SGS, Geoassay, and Intertek laboratories and by fire assay at the internal El Peñón mine laboratory.
    - At SGS, Geoassay, and Intertek laboratories, a 2 g sample is first digested in a solution of four acids (nitric, hydrochloric, perchloric, and hydrofluoric). The digested solution is brought to volume with hydrochloric acid for the quantification of the analytes through AAS. If the sample contains more than 220 g/t silver, the silver content is quantified by gravimetry.
    - At the El Peñón mine laboratory, the silver is determined in a manner similar to gold, using fire assay and finished by gravimetry.
9. For screened metallic assays, the totality of the coarse fraction is assayed and an aliquot of the fine fraction is analyzed. The gold concentration of the entire sample is determined by weighted average.

At SGS and Geoassay laboratories, each analytical batch contains the following:

- 75 client samples
- 2 preparation blanks (quartz) per batch, one at the beginning and the other at the end of the batch
- 1 pulp duplicate every 50th sample
- 2 reagent blanks per batch
- 2 Certified Reference Materials (CRMs or standards) per batch

In addition, the laboratories perform granulometric control of the crushing and pulverization of 3% of the samples.

At the El Peñón mine laboratory, analytical batches contain 24 samples, described as follows:

- 18 client samples
- 1 preparation blank (quartz)
- 2 CRMs
- 1 analytical blank

In addition, the laboratory performs granulometric controls of the crushing and pulverization every 20th processed sample.

The qualified person responsible for this section of the technical report is of the opinion that the sample preparation, analytical, and assay procedures of channels and drill core samples used for production and exploration are consistent with industry standards and adequate for use in the estimation of mineral resources.

11.2 Quality Assurance/ Quality Control

Yamana employs a comprehensive quality assurance/quality control (QA/QC) program for the El Peñón exploration drilling programs, infill drilling programs, and grade control channel samples. This program applies the following steps to monitor the accuracy and bias of the gold and silver:

- Insertion of CRMs.
- Monitoring of contamination in preparation and analysis by inserting blanks in the preparation and analytical sampling streams.
- Control of the precision by taking duplicates during preparation and analysis.
- Sending pulp samples for umpire check assaying at secondary laboratories.

Yamana has protocols in place for describing the insertion frequency and the type of QA/QC samples as well as failure limits for each type of control sample. The insertion protocol for control samples states that one blank pulp, one coarse blank and two CRMs per batch of 75 samples should be inserted. This results in an insertion rate of quality control samples for exploration and infill drilling of approximately 5% (Table 11-2). There are also established criteria to be followed in case of failure when a failure is flagged in the QA/QC database. The results from the QA/QC program are reviewed and monitored by a geologist who presents the results in monthly reports.

Table 11-2: Summary of analytical quality control data produced between 2018 and 2020

			Production		Exploration and Infill						Source
			El Peñón Lab.		Intertek		SGS		Geoassay		
			Samples	(%)	Samples	(%)	Samples	(%)	Samples	(%)	
Sample Count			**121,946**		**3,836**		**130,481**		**62,793**		
Blanks			**1,775**	**1.5%**	**70**	**1.8%**	**2,562**	**2.0%**	**1,900**	**3.0%**	
Pulp Blank			885		53		2,265		810		CDN Laboratories
Sterile Blank			-		17		36		548		Core from previous drilling
Quartz Blank			890		-		261		542		Winkler milled quartz
CRM	**Au (g/t)**	**Ag (g/t)**	**876**	**0.7%**	**76**	**2.0%**	**2,835**	**2.2%**	**1,214**	**1.9%**	
EP_STD7	0.52	48.6	-		-		18		536		Geoassay from El Peñón material
EP_STD1	0.56	47.0	-		20		268		-		INTEM from El Peñón material
CDN-GS-P5D	0.64	66.0	-		-		384		41		CDN Laboratories
CDN-ME-1403	0.95	53.9	-		-		481		1		CDN Laboratories
EP_STD8	1.91	86.6	-		-		5		162		Geoassay from El Peñón material
CDN-ME-1407	2.12	245.0	-		-		273		19		CDN Laboratories
CDN-ME-1605	2.85	269.0	173		-		33		-		CDN Laboratories
EP_STD3	2.88	184.2	-		18		335		-		INTEM from El Peñón material
EP_STD2	3.07	191.4	15		15		147		-		INTEM from El Peñón material
CDN-ME-1607	3.33	150.0	-		-		440		5		CDN Laboratories
EP_STD9	3.41	173.1	-		-		23		316		Geoassay from El Peñón material
OREAS 603	5.18	284.0	32		-		56		-		Ore Research
EP_STD4	5.96	253.2	49		2		65		-		INTEM from El Peñón material
EP_STD10	8.00	341.0	41		-		2		67		Geoassay from El Peñón material
IN-B156-53	10.02	253.0	47		-		80		11		INTEM from El Peñón material
EP_STD11	13.11	501.8	28		-		4		27		Geoassay from El Peñón material
IN-156-55	13.37	429.0	342		-		113		6		INTEM from El Peñón material
EP_STD5	14.25	633.0	31		13		58		-		INTEM from El Peñón material
EP_STD6	18.84	523.5	99		8		50		-		INTEM from El Peñón material
EP_STD12	25.54	923.0	18		-		-		23		Geoassay from El Peñón material
EP_LP30	30.60	15.5	16		-		-		-		ALS from La Pepa material
Umpire Check Assay Intertek			**1,561**	**1.1%**	**-**		**317**	**0.2%**	**-**		Inter-laboratory check
Umpire Check Assay Geoassay			**1,537**	**1.1%**	**-**		**585**	**0.4%**	**-**		Inter-laboratory check
QA/QC Samples			**5,749**	**4.7%**	**146**	**3.8%**	**6,299**	**4.8%**	**3,114**	**5.0%**	

11.2.1 Certified Reference Materials

Yamana inserts two CRMs (or standards) for every 75 samples submitted to the primary laboratories (SGS, Geoassay, Intertek, and El Peñón laboratories) to control accuracy and bias. The majority of reference materials have been manufactured with material from El Peñón. The CRMs have been prepared by the National Institute of Technology, Standardization and Metrology (INTEM) in Chile, and Geoassay Group, both in Antofagasta, Chile. Each CRM is provided with a certificate listing the round-robin assay results and the expected standard deviation. These CRMs are individually packed in paper envelopes (100 to 120 g per envelope), inserted in plastic bags, and vacuum sealed.

Other reference materials were purchased from Ore Research & Exploration Pty Ltd in Australia, CDN Resource Laboratories Ltd. in Canada, and one CRM prepared by ALS Chemex with material from Yamana's La Pepa project.

El Peñón exploration staff submitted 4,927 CRMs between 2018 and 2020 (Table 11-2). Results from commonly used CRMs at the three primary laboratories are presented in Figure 11-1.

		Laboratory	El Peñón		SGS		Geoassay	
Project	**El Peñón**	**Statistics***	**CDN-ME-1605**	**IN-156-55**	**CDN-ME-1403**	**CDN-ME-1607**	**EP_STD7**	**EP_STD9**
Data Series	2018-2020 Standards	**Sample Count**	164	341	481	439	536	316
Data Type	Drilling and UG Channels	**Expected Value**	2.85	13.37	0.953	3.33	0.519	3.414
Commodity	Au (g/t)	**Standard Deviation**	0.08	0.51	0.039	0.135	0.047	0.245
Analytical Method	Fire Assay - AAS; Grav	**Observed Average**	2.86	13.14	0.967	3.33	0.517	3.456
Detection Limit	0.001 g/t Au	**Mean Bias %**	0.3%	-1.7%	1.4%	0.0%	-0.4%	1.2%
		Failures (> 3 Std. Dev.)	7.3%	4.1%	0.8%	1.1%	0.0%	0.6%
Source	Yamana, March 2021.	*Outliers (e.g. mislabeled entries) removed from statistics						

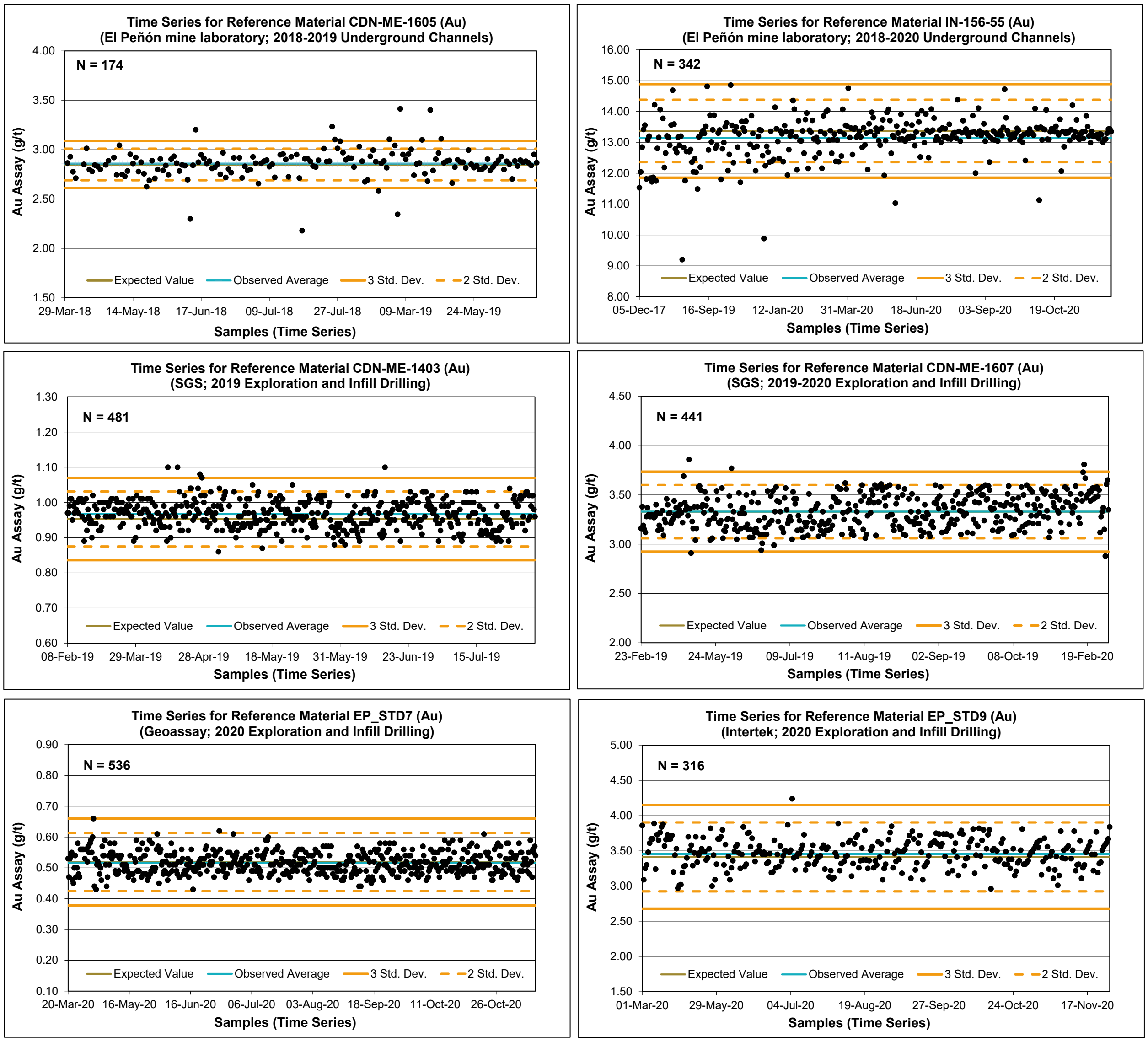


Figure 11-1: Time-series plots: gold assays of select CRMs by laboratory (2018–2020)

11.2.2 Blank Samples

Three types of blank samples are inserted that are known to contain gold and silver grades that are less than the detection limit of the analytical methods. The first type consists of pulp blanks purchased from CDN Resource Laboratories Ltd. in British Columbia, Canada. The second type consists of sterile core from previous drilling campaigns that assayed below detection limit for gold and silver. The third type consists of coarse quartz purchased from Winkler Ltda in Antofagasta, Chile, with granulometry within 2.00 to 2.83 mm.

The insertion protocol establishes that one coarse quartz blank and one pulp blank should be inserted per batch of 75 samples. In addition, a sterile blank should be inserted immediately after an expected mineralized zone. Between 2018 and 2020, El Peñón exploration staff submitted 6,237 blank samples with drilling and channel samples (Table 11-2). The criteria for acceptance or rejection of results due to contamination for all the blank control samples is ten times the lower detection limit (DL x 10) (Table 11-3). Results from select blanks at the three primary laboratories are shown in Figure 11-2.

Table 11-3: Lower detection limits and acceptance limits for blanks

Laboratory	Analyte	Method	Detection Limit (g/t)	Blank Acceptance Limit (DL x 10) (g/t)
El Peñón	Au	FA Grav	0.2	2
	Ag	FA Grav	1	10
SGS	Au	FA AAS	0.02	0.2
		FA Grav	0.5	
	Ag	MA AAS	0.5	5
		Grav	10	
Geoassay	Au	FA AAS	0.02	0.05
		FA Grav	0.2	
	Ag	MA AAS	0.5	5
		Grav	10	
Intertek	Au	FA AAS	0.01	0.1
		FA Grav	0.2	
	Ag	MA AAS	0.5	5
		Grav	10	

Project	El Peñón
Data Series	2018-2020 Blanks
Data Type	Drilling and UG Channels
Commodity	Au (g/t)
Analytical Method	Fire Assay - AAS and Grav.
Detection Limit	El Peñón: 0.2 g/t SGS & Geoassay: 0.02 g/t
Source	Yamana, March 2021.

Laboratory	El Peñón		SGS		Geoassay	
Statistics	Pulp	Quartz	Pulp	Quartz	Pulp	Sterile
Sample Count	906	909	2,347	279	810	548
Detection Limit	0.20	0.20	0.02	0.02	0.02	0.02
Standard Deviation	1.11	0.10	0.00	0.04	0.01	0.01
Observed Average	0.32	0.20	0.01	0.02	0.01	0.01
Upper Limit (10xDL)	1.8%	0.1%	0.0%	0.7%	0.0%	0.0%

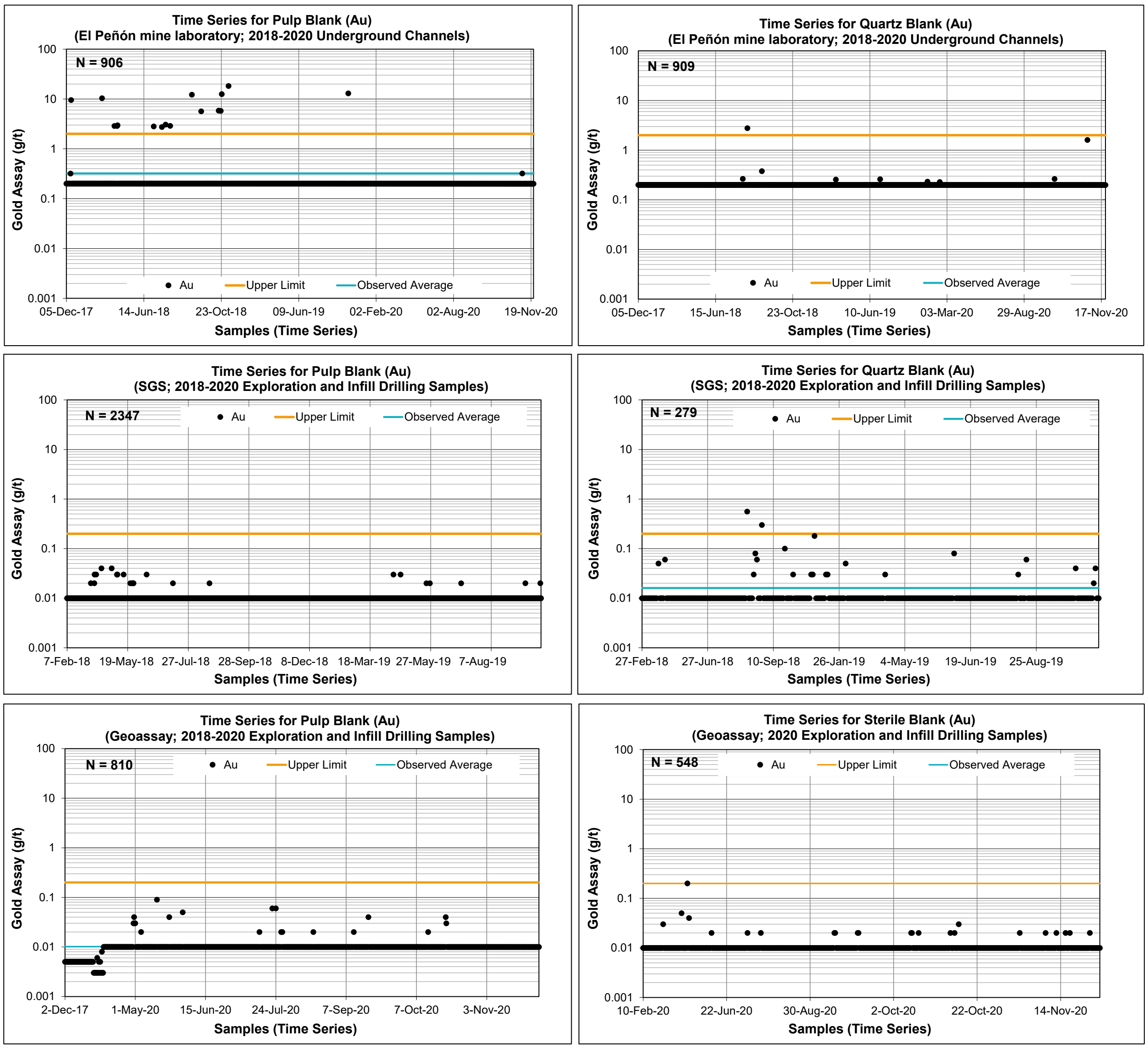


Figure 11-2: Time-series plots: gold assays of select blanks by type and laboratory (2018–2020)

11.2.3 Umpire Laboratory Check Assays

The primary laboratories are requested to send pulp samples, as selected by El Peñón staff, on a monthly basis to the secondary laboratory as defined in Section 11.1.3, for umpire check assays. Analysis of these pulps is useful for measuring the precision of the analytical process of the primary laboratories, including the in-house mine laboratory, assuring a better degree of accuracy and control on assays. A total of 902 pulp samples from drill core and 3,098 channel pulp samples were sent between January 2018 and May 2020 (Table 11-2). Results of umpire check assays comparing SGS and Geoassay are shown in Figure 11-3.

11.3 SAMPLE SECURITY

Samples are handled only by personnel authorized by Yamana. Channel samples from the mining operation are delivered directly to the El Peñón mine laboratory each day upon completion of underground sampling. All drill core from surface and underground drill holes is taken directly to authorized exploration personnel to a drill logging and sampling area within the secured and guarded mine property. The mineralized core intervals are logged, sampled, placed in plastic bags properly labelled for identification. Core samples are subsequently delivered to the primary laboratory in Antofagasta by truck in secured plastic bins along with dispatch forms. The pulps and rejects that are returned by the laboratory are transported inside the plastic bins, by the same truck that collects the samples at the mine.

Each sample is assigned a unique sample number that allows it to be traced through the sampling, database, and analytical procedure workflow, and is validated against the original sample site. For exploration drill holes, the remaining half of the split core is stored on-site as a control sample, available for review and resampling if required. The photographic record of all drill holes is kept as reference.

In the opinion of the qualified person responsible for this section of the technical report, the sample preparation, sample security, and analytical procedures at El Peñón are adequate and consistent with industry standards.

Project	El Peñon	Statistics	SGS	Geoassay
Data Series	2019-2020 Check Assays	Sample Count	585	585
Data Type	Exploration and Infill Drilling Samples	Minimum Value	0.01	0.01
Laboratories	SGS vs. Geoassay	Maximum Value	147.15	136.00
Commodity	Au in g/t	Samples > 10DL	574	
Analytical Method	Fire Assay - AAS: Grav	Pairs +/- 20% RPD if > 10DL	78.2%	
Detection Limit	0.02 g/t Au	Precision = 2xCV		
Original Dataset	Original Assays	Precision 10DL to 2 g/t Au	40.3%	
Paired Dataset	Check Pulp	Precision 2 to 10 g/t Au	24.0%	
		Precision > 10 g/t Au	14.9%	
Source	Yamana, March 2021.			

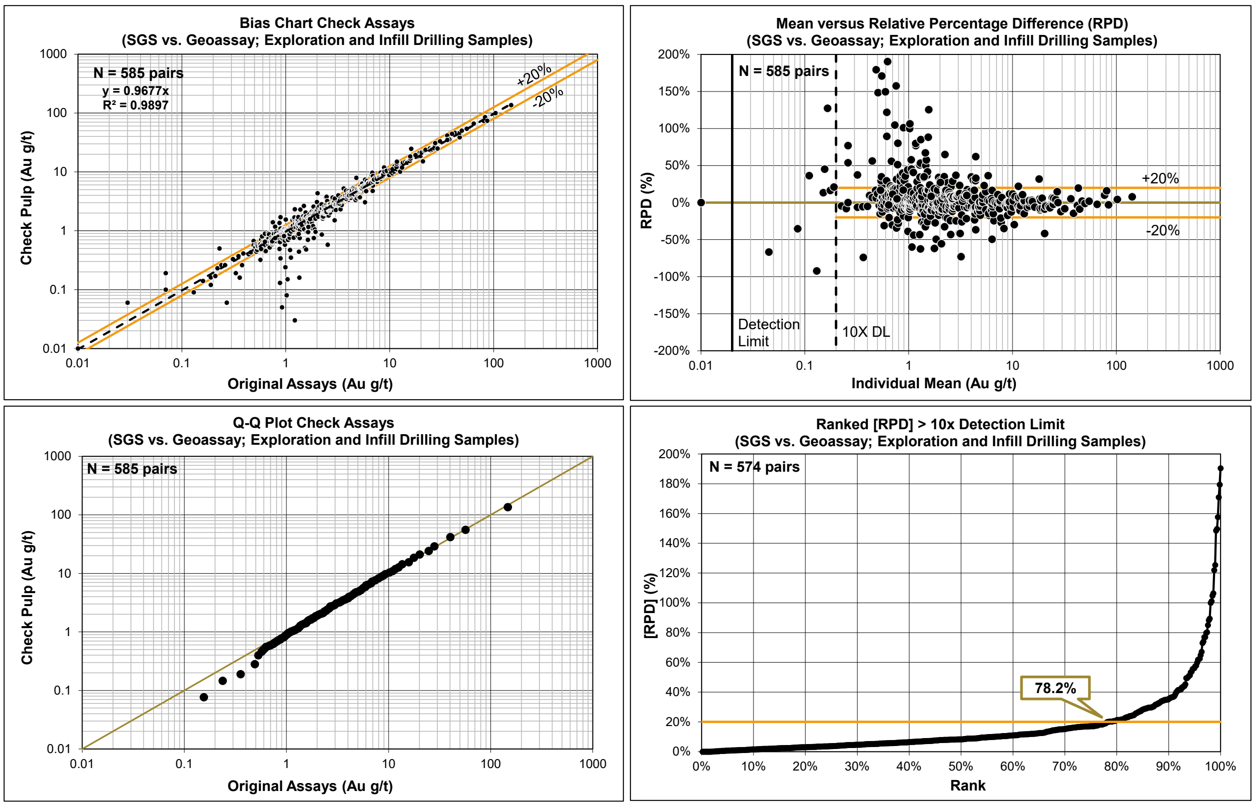


Figure 11-3: Comparison between SGS and Geoassay umpire gold assays (2019-2020)

12 Data Verification

The exploration work carried out on the El Peñón property is conducted by Yamana personnel. Yamana implements a series of routine verification procedures to ensure the collection of reliable exploration data. All work is conducted by appropriately qualified personnel under the supervision of qualified geologists.

El Peñón staff carried out a data verification program for the assay tables included in the drill hole databases by spot-checking 5% of the assay data from a selection of drill holes that intersected the mineralized wireframe domains, thus relevant to the current mineral resource estimate. The validation was done by comparing the selected information entered in the digital database with that of the original laboratory certificates.

Additional checks included a comparison of the drill hole collar location data with the digital models of the surface topography and excavation models, as well as a visual inspection of the downhole survey information. The validation routines in Leapfrog Geo and Maptek Vulcan software, consisting of checking for overlapping samples and duplicate records, were also carried out.

The on-site database administrator, under the supervision of the El Peñón resource geology team, validated the QA/QC results when received from the laboratories. The pre-2018 QA/QC database has been validated by independent consultants, most recently by RPA (2018). The QA/QC database review for the drilling and underground channel sampling from 2018 to 2020 is described in Section 11.2.

There were no limitations in the ability of the qualified person to verify the data. In the opinion of the qualified person responsible for this section of the technical report, the verification of the sampling data, including the data entry and verification procedures, and the analytical quality control data produced by Yamana for samples submitted to various laboratories, indicate that the analytical results delivered by the laboratories are sufficiently reliable for the purpose of mineral resource and mineral reserve estimation.

13 Mineral Processing and Metallurgical Testing

13.1 Processing Plant

The El Peñón processing plant has a nominal production capacity of approximately 1.533 Mtpa, or 4,200 tpd, for stockpiled and mined ore. Mineral processing includes the following principal stages:

- Crushing
- Grinding and pre-leaching thickening
- Leaching
- Recovery of concentrate solution from counter-current decantation
- Pregnant solution clarification
- Gold and silver recovery by zinc precipitation (Merrill-Crowe process)
- Filtering of precipitate
- Refining to doré

Tailings are filtered to recover water and to obtain tailings with an approximate moisture content of about 20%. These are subsequently loaded on trucks and transported to the nearby tailings storage area.

Since 2017, the plant throughput has been lower than design, ranging from 1 Mtpa to 1.3 Mtpa, in line with the mine plan. The lower throughput is beneficial in terms of leach residence time and results in a marginal increase of both gold and silver recovery. Stockpiled ore can be fed to the plant feed system to supplement feed if required.

Manganese and silver salts that occur in zones of high sulphur are deleterious elements that have a negative effect on silver recoveries and therefore on potential economic extraction.

13.2 Metallurgical Testing

Significant metallurgical testwork has been carried out on a continual basis at El Peñón since 2014. Samples, both from drill holes and from chip samples obtained from faces, have been collected across a range of grades and from different zones that include oxides and material with high and low sulphur content. The qualified person considers the samples to be representative of the plant feed expected in the life of mine plan. The following metallurgical tests have been conducted:

- Leaching tests to address gold and silver recoveries as well as cyanide consumption
- Sedimentation and filtration tests
- Mill time or Bond Work Index tests

Tests results have allowed obtaining a gold and silver recovery matrix based by zone, ore type and grade range, which is used to calculate net-smelter returns (NSR) (Section 15.3) on the block models, is considered for mineral resource and mineral reserve estimation, and is updated continually. The recovery matrices for gold and silver are shown in Table 13-1 and Table 13-2 respectively.

Table 13-1: Gold recovery by zone, ore type, and grade category

Zone and Ore Type	Gold Recovery (%)			
	Low-Grade Supplementary Ore[1] (< 3.0 g/t Au)	Low-Grade Ore (3.0–6.0 g/t Au)	Medium-Grade Ore (6.0–15.0 g/t Au)	High-Grade Ore (> 15.0 g/t Au)
El Peñón Core Mine - Oxide	84.13	94.06	96.22	96.64 to 97.38
El Peñón Core Mine - Low Sulphur	84.13	92.98	94.75	92.57
El Peñón Core Mine - High Sulphur	84.13	91.13	93.88	93.49
Fortuna - Oxide	84.13	90.34	90.34	90.34
Fortuna - High Sulphur	84.13	89.95	89.95	89.95
Pampa Augusta Victoria - Oxide	84.13	86.93	89.30	89.30
Pampa Augusta Victoria - High Sulphur	84.13	84.99	92.50	92.50
Laguna - All	84.13	88.74	88.74	88.74
Chiquilla Chica - All	84.13	89.22	89.22	89.22

[1] *Low-grade supplementary ore is defined in Section 15.2.*

Table 13-2: Silver recovery by zone, ore type, and grade category

Zone and Ore Type	Silver Recovery (%)			
	Low-Grade Supplementary Ore-1 (< 3.0 g/t Au)	Low-Grade Ore (3.0–6.0 g/t Au)	Medium-Grade Ore (6.0–15.0 g/t Au)	High-Grade Ore (> 15.0 g/t Au)
El Peñón Core Mine - Oxide	79.71	88.92	90.74	92.31 to 92.33
El Peñón Core Mine - Low Sulphur	79.71	90.96	89.52	75.23
El Peñón Core Mine - High Sulphur	79.71	76.49	74.86	68.76
Fortuna - Oxide	79.71	88.24	88.24	88.24
Fortuna - High Sulphur	79.71	82.29	82.29	82.29
Pampa Augusta Victoria - Oxide	79.71	83.98	83.98	83.98
Pampa Augusta Victoria - High Sulphur	79.71	67.06	56.47	56.47
Laguna - All	79.71	64.42	64.42	64.42
Chiquilla Chica - All	79.71	81.67	81.67	81.67

[1] *Low-grade supplementary ore is defined in section 15.2*

Results from metallurgical tests inform the geometallurgical block model utilized for operational and mine planning purposes. The geometallurgical model includes variables for gold and silver recoveries, cyanide consumption, and sedimentation and filtration rates. Grinding parameters for different ores have also been established. Typically, the ores are relatively hard, with Bond Work Index values of between 19 and 20 kWh/t.

Actual plant-adjusted production figures with gold and silver recoveries for 2019 and 2020 are presented in Table 13-3 and Table 13-4.

Table 13-3: Processing plant production for 2019

Month	Tonnage	Gold			Silver		
	Tonnes (t)	Grade (g/t Au)	Production (Au oz)	Recovery (% Au)	Grade (g/t Ag)	Production (Ag oz)	Recovery (% Ag)
January	109,847	3.62	11,964	93.11	121.3	366,197	84.20
February	92,079	3.91	11,011	93.62	123.7	311,695	83.10
March	114,515	3.24	11,050	92.93	100.7	316,917	85.68
April	96,634	3.18	9,238	93.26	98.8	272,944	87.28
May	96,646	4.00	11,769	94.52	99.8	270,618	87.18
June	112,810	4.06	13,639	93.76	96.2	300,023	86.98
July	100,588	3.99	11,938	92.43	95.8	268,973	87.38
August	109,823	4.36	14,660	94.05	124.3	382,258	88.68
September	108,211	5.00	16,116	94.39	148.6	444,704	86.72
October	117,830	4.72	17,156	94.51	127.1	430,110	86.71
November	111,756	4.42	15,086	94.58	142.2	430,206	86.98
December	119,500	4.40	15,888	94.52	159.8	522,646	84.42
Total 2019	**1,290,239**	**4.09**	**159,515**	**93.96**	**120.6**	**4,317,292**	**86.20**

Table 13-4: Processing plant production for 2020

Month	Tonnage	Gold			Silver		
	Tonnes (t)	Grade (g/t Au)	Production (Au oz)	Recovery (% Au)	Grade (g/t Ag)	Production (Ag oz)	Recovery (% Ag)
January	113,436	4.57	15,734	94.11	156.1	493,664	85.05
February	97,409	4.63	13,759	95.03	168.8	458,479	88.41
March	112,128	3.72	12,738	94.36	124.9	403,768	87.83
April	90,386	4.53	12,113	92.68	196.1	474,100	85.47
May	93,108	4.24	12,011	93.41	139.1	370,957	86.96
June	90,616	4.50	11,636	93.39	184.1	432,181	86.41
July	101,546	4.52	14,083	93.40	183.3	536,760	85.59
August	92,424	4.40	12,462	93.85	174.7	467,049	88.00
September	118,680	3.65	12,777	93.13	106.9	357,190	87.45
October	117,920	3.59	12,630	93.37	100.1	323,819	85.67
November	120,443	4.04	14,589	94.26	84.2	292,879	88.71
December	118,733	4.57	16,292	93.41	93.5	306,255	86.40
Total 2020	**1,266,829**	**4.22**	**160,824**	**93.71**	**138.9**	**4,917,101**	**86.74**

14 MINERAL RESOURCE ESTIMATES

14.1 MINERAL RESOURCE SUMMARY

The mineral resource estimate of El Peñón has been estimated in conformity with generally accepted standards set out in *CIM Mineral Resource and Mineral Reserves Estimation Best Practices Guidelines* (November 2019) and has been classified according to CIM (2014) Standards.

Interpreted geological wireframes were constructed in Vulcan based on geology sections, assay results, lithological information and structural data. Assays were composited to one-metre lengths, then interpolated using capping and a high-yield restriction for anomalously high grades. Gold and silver grades were interpolated into a sub-blocked model with minimum block size of 0.5 × 0.5 × 0.5 m and a parent block size of 20 × 20 × 20 m. Estimated grades were interpolated into blocks using Inverse Distance Cubed (ID3) and checked using Nearest Neighbor (NN) methods. Block estimates were validated using industry standard validation techniques. Classification of blocks was completed following distance-based criteria.

Mineral resources are reported exclusive of mineral reserves. Mineral resources are not mineral reserves and have not demonstrated economic viability. Underground mineral resources are estimated within conceptual underground mining shapes at a cut-off value of US$95.31/t, which corresponds to 75% of the break-even cut-off value used to estimate the mineral reserves. A minimum mining width of 0.60 m as well as 0.30 m of hanging-wall and 0.30 m of footwall overbreak dilution are used to construct the conceptual mining shapes. Mineral resources are reported fully diluted.

The Mineral Resource Statement of El Peñón as of December 31, 2020, exclusive of mineral reserves, is presented in Table 14-1.

Table 14-1: El Peñón Mineral Resource Statement as of December 31, 2020

Mineral Resources	Category	Tonnage	Grade		Contained Metal	
		(kt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
Underground	Measured	667	4.81	143.0	103	3,063
	Indicated	6,355	3.06	105.4	625	21,535
	Total Measured + Indicated	**7,022**	**3.22**	**109.0**	**728**	**24,599**
	Inferred	5,208	3.61	118.0	605	19,758
Tailings	Measured	–	–	–	–	–
	Indicated	–	–	–	–	–
	Total Measured + Indicated	–	–	–	–	–
	Inferred	13,767	0.55	18.9	245	8,380
Stockpiles	Measured	–	–	–	–	–
	Indicated	1,019	1.13	28.8	37	942
	Total Measured + Indicated	**1,019**	**1.13**	**28.8**	**37**	**942**
	Inferred	–	–	–	–	–
Combined	Measured	667	4.81	143.0	103	3,063
	Indicated	7,374	2.79	94.8	662	22,478
	Total Measured + Indicated	**8,041**	**2.96**	**98.8**	**765**	**25,541**
	Inferred	18,975	1.39	46.1	850	28,138

1. *Mineral resources have been estimated by the El Peñón resource geology team under the supervision of Marco Velásquez Corrales, Registered Member of the Chilean Mining Commission, a full-time employee of Minera Meridian Limitada, and a qualified person as defined by NI 43-101. The estimate conforms to the CIM (2014) Standards. Mineral resources are reported exclusive of mineral reserves. Mineral resources were evaluated using an inverse distance weighting algorithm informed by capped composites and constrained by three-dimensional mineralization wireframes. Mineral resources are not mineral reserves and have not demonstrated economic viability. Metal price assumptions of US$1,250/oz for gold and US$18.00/oz for silver were used.*
2. *Underground mineral resources are estimated at a cut-off NSR of US$95.31/t, which corresponds to 75% of the mineral reserves cut-off value. Processing recoveries assumptions range from 84.13% to 97.38% for gold and from 56.47% to 92.33% for silver. The estimation considered the following cost assumptions: mine operating cost of US$80.10/t; processing cost of US$29.42/t; sustaining capital cost of US$4.10/t; and G&A costs of US$13.46/t. A royalty of 2% was also considered for mineral resources contained in the Fortuna zone. Mineral resources are reported fully diluted; they consider a minimum mining width of 0.60 m and hanging wall and footwall overbreak dilutions of 0.30 m each to determine reasonable prospects of economic extraction. Bulk densities ranging from 2.36 g/cm^3 to 2.57 g/cm^3 were used to convert volume to tonnage.*
3. *Mineral resources contained in tailings are reported at a cut-off grade of 0.50 g/t gold-equivalent, using recoveries of 60% for gold and 30% for silver, operating cost of US$2.39/t, and processing cost of US$29.42/t. A bulk density value of 1.75 g/cm^3 was used to convert tailings volume to tonnage.*
4. *Mineral resources contained in stockpiles are reported at a cut-off grade of 0.79 g/t gold-equivalent, using recoveries of 88.0% for gold and 80.8% for silver, operating cost of US$2.39/t, and processing cost of US$29.42/t. A bulk density value of 1.60 g/cm^3 was used to convert the stockpile volume to tonnage.*
5. *Mineral resources are reported as of December 31, 2020.*

6. *All figures are rounded to reflect the relative accuracy of the estimate.*
7. *Numbers may not add up due to rounding.*

14.2 Resource Database and Validation

All information used for the mineral resource and mineral reserve estimates, including drill core, survey, geological, and assay data, is verified and approved by the El Peñón geological staff and is maintained in on-site databases. Verification is done using the Maptek Vulcan software data validation tools. Drill hole data are stored in 6 databases; underground face samples are stored in 26 databases (one database per mining zone).

14.3 Definition and Interpretation of Estimation Domains

The mineral resource models of El Peñón are supported by geological domains defined by samples logged as either massive quartz vein (MQV), hydrothermal breccia (HYB), or stockwork (STW). These domains are modelled in the Vulcan software by snapping the limit of the selected samples in each drill hole or underground face sample. No cut-off grade or value is used to define the estimation domains. Wireframes are classified into two different zones:

- Wireframes in zones supported by drill hole information extend a maximum of 60 m from the last sample along the dip and strike directions.
- Wireframes in zones supported by underground face samples extend 10 m along the dip direction of the vein and 2 to 3 m along the strike direction.

The resultant wireframes define the mineral resource estimation domains at El Peñón (Figure 14-1). Each independent splay or parallel vein is considered as an independent estimation domain to avoid sharing samples between adjacent structures. It is important to note that wireframes have to be spatially disconnected to be considered to be an independent structure and domain.

The modelling process results in two sets of wireframes per mining zone:

- The first wireframe corresponds to all the interpreted veins located within the zone; the wireframe is used to code drill hole and channel databases, is used as a hard boundary for the generation of composites, and is coded into a variable called “shellug” contained in the composites database.
- The second wireframe corresponds to each individual vein or vein splay which define the estimation domains at El Peñón. This second set of wireframes is used to code the “ug” variable in the composites database according to the position of the centre of each composite.

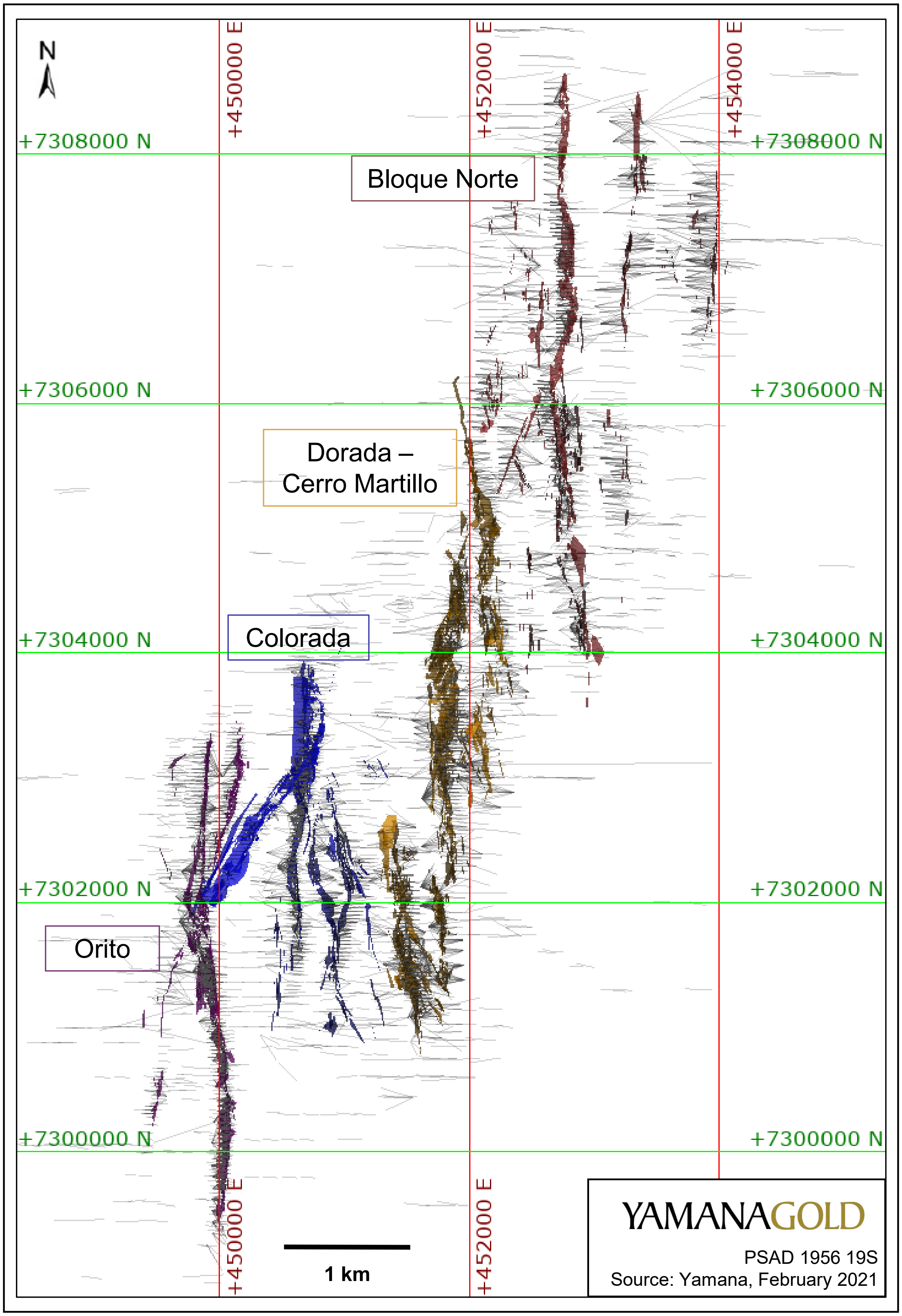


Figure 14-1: Plan view of estimation domains in El Peñón core mine area

14.4 Compositing Methods

A sample length of 1.0 m is the most common sample length at El Peñón. Therefore, a regular composite length of 1.0 m was selected for all drill holes and channel samples to try to minimize the splitting of assays into different composites. Interpreted vein wireframes are used as a hard boundary for compositing. Generation of equal-length composites commonly results in fractional length composites, especially at the last interval of each drill hole contained within the constraining wireframes. Composites shorter than 0.10 m were discarded for mineral resource estimation purposes.

Before exploratory data analysis (EDA) is carried out, coordinates of the centre of each composite as well as vein- and splay-codes were assigned.

14.5 Basic Statistics

Descriptive statistics were computed for every interpreted vein domain on composite datasets; the exploratory data analysis was done performed using histograms, probability plots, and box-plots.

Since, the presence of local high-grade outliers could potentially affect the accuracy of the mineral resource estimate, composite samples were statistically examined for the presence of grade outliers using a combination of methodologies, such as inspection of probability plots, histogram analysis, and the Parrish method. Based on historical calibration with production data, outliers were usually defined for channel samples at the 96th percentile of the cumulative distribution, while for drill hole data this threshold was generally set at close to the 99th percentile.

Once defined, both capping and high-yield restriction were used to control the influence of the high-grade composites on the block model. High-yield restrictions were used by setting the thresholds equal to the capping threshold and by limiting the influence to a 5.0 × 2.5 × 2.5 m search ellipse, measured along the strike, dip, and width directions, respectively. Threshold used for capping and high-yield restriction for each zone are summarized in Table 14-2.

Table 14-2: Summary of gold and silver capping values by zone

Vein	Gold			Silver		
	Drill Hole Samples (g/t)	UG Samples (g/t)	Surface Samples (g/t)	Drill Hole Samples (g/t)	UG Samples (g/t)	Surface Samples (g/t)
505	101	45	40	1,000	537	520
506	60	40	N/A	324	433	N/A
Abundancia	40	195	N/A	750	1,750	N/A
Aleste	50	145	N/A	3,500	4,954	N/A
Angosta	30	N/A	N/A	500	N/A	N/A

Vein	Gold			Silver		
	Drill Hole Samples (g/t)	UG Samples (g/t)	Surface Samples (g/t)	Drill Hole Samples (g/t)	UG Samples (g/t)	Surface Samples (g/t)
Bermellón	30	150	N/A	800	3,320	N/A
Bermuda	25	N/A	N/A	400	N/A	N/A
Bonanza	169	100	N/A	1,944	1,150	N/A
Borde Oeste	70	N/A	N/A	1,990	N/A	N/A
Caracoles	N/A	N/A	N/A	N/A	N/A	N/A
Carmín	90	157	N/A	800	2,020	N/A
Cerro Martillo	25	36	N/A	1,407	1,311	N/A
Cerro Martillo Central Sur	36	137	N/A	2,346	6,155	N/A
Chiquilla Chica	2	N/A	8	1,730	N/A	3,336
Diablada	70	103	N/A	312	438	N/A
Discovery Wash	25	20	N/A	700	536	N/A
Dominador	45	35	N/A	1,540	920	N/A
Dorada	20	40	N/A	1,385	2,090	N/A
Dorada SW	29	47	N/A	2,281	3,000	N/A
El Valle	50	23	N/A	1,190	773	N/A
Elizabeth	15	65	N/A	1,420	10,927	N/A
Esmeralda	40	137	N/A	1,517	5,678	N/A
Esperanza	86	46	N/A	1,655	1,949	N/A
Fortuna Este	20	N/A	N/A	1,400	N/A	N/A
Fortuna Norte	27	105	N/A	2,000	6,200	N/A
Fortuna Sur	35	55	N/A	3,500	3,675	N/A
La Paloma	75	53	N/A	1,300	1,110	N/A
Laguna	36	53	N/A	370	524	N/A
Lazo	10	N/A	N/A	200	N/A	N/A
Magenta	64	115	N/A	1,080	2,140	N/A
Martillo Flat	60	44	N/A	2,131	2,648	N/A
Orito Norte	50	54	127	308	320	1,357
Orito Sur	40	41	N/A	817	778	N/A
Orito West	35	N/A	N/A	1,500	N/A	N/A
Pampa Campamento	56	56	N/A	1,569	1,200	N/A
Pampa Providencia	35	N/A	N/A	600	N/A	N/A
Providencia	41	33	N/A	1,726	2,001	N/A
Quebrada Colorada Sur	60	N/A	N/A	1,200	N/A	N/A
Rieles	N/A	N/A	N/A	N/A	N/A	N/A
Sorpresa	40	47	N/A	1,561	1,743	N/A
Ventura	70	99	N/A	2,100	7,246	N/A
Veta NW	56	24	N/A	2,314	1,054	N/A
Victoria	36	97	N/A	1,235	3,012	N/A
Vista Norte	63	90	N/A	508	1,041	N/A

14.6 SPECIFIC GRAVITY

Specific gravity (or density) measurements using the water immersion method were performed on core samples and on specimens collected underground. Approximately 670 samples were analyzed at the University of Antofagasta between September 2011 and July 2014, and 7% of those samples were cross-checked at Laboratorio Geoanalítica in Antofagasta. Average bulk densities were calculated for each zone (Table 14-3) and single density values were assigned to the block models for each zone for both mineralization and waste.

Table 14-3: Specific gravity density values assigned to each zone

Zone	SG	Zone	SG	Zone	SG
505	2.36	Discovery Wash	2.43	Orito West	2.44
506	2.36	Dominador	2.40	La Paloma	2.40
Abundancia	2.40	Dorada	2.40	Pampa Campamento	2.43
Aleste	2.57	Dorada SW	2.40	Pampa Providencia	2.40
Angelina	2.44	El Valle	2.43	PAV	2.50
Angosta	2.40	Escarlata	2.43	Playa	2.36
Bermellón	2.43	Esmeralda	2.40	Providencia	2.40
Bermuda	2.40	Esperanza	2.40	Púrpura	2.43
Bonanza	2.57	Fortuna	2.40	Quebrada Colorada Sur	2.43
Borde Oeste	2.40	Fortuna Este	2.40	Rieles	2.40
Caracoles	2.40	Laguna	2.40	Sorpresa	2.43
Carmín	2.43	Lazo	2.43	Ventura	2.57
Cerro Martillo	2.40	Magenta	2.43	Veta NW	2.40
Cerro Martillo CS	2.40	Martillo Flat	2.40	Vista Norte	2.44
Chiquilla Chica	2.40	Orito Norte	2.44		
Diablada	2.44	Orito Sur	2.36		

14.7 VARIOGRAPHY

Variography used at El Peñón for mineral resource estimation is based on the report “Actualización de modelos variográficos – El Peñón” dated August 5, 2015 and authored by independent consultants Octal Ingeniería y Desarrollo and Magri Consultores Limitada. The methodology used by the consultants is described below.

Correlograms were computed for every vein, since, in the presence of high-grade outliers, correlograms are more stable than traditional semi-variograms. Experimental correlograms were calculated in the strike, dip, and pole direction of each vein using combined drill hole and underground channel data, considering data from all the splays as part of a single population. Nugget effect values were obtained from “down-the-hole” correlograms. Typical experimental correlogram calculation parameters are shown in Table 14-4. Examples of typical experimental correlograms and adjusted models are shown in Figure 14-2 for the 505 and Magenta veins. Variogram model parameters for both zones are used as examples and are shown in Table 14-5.

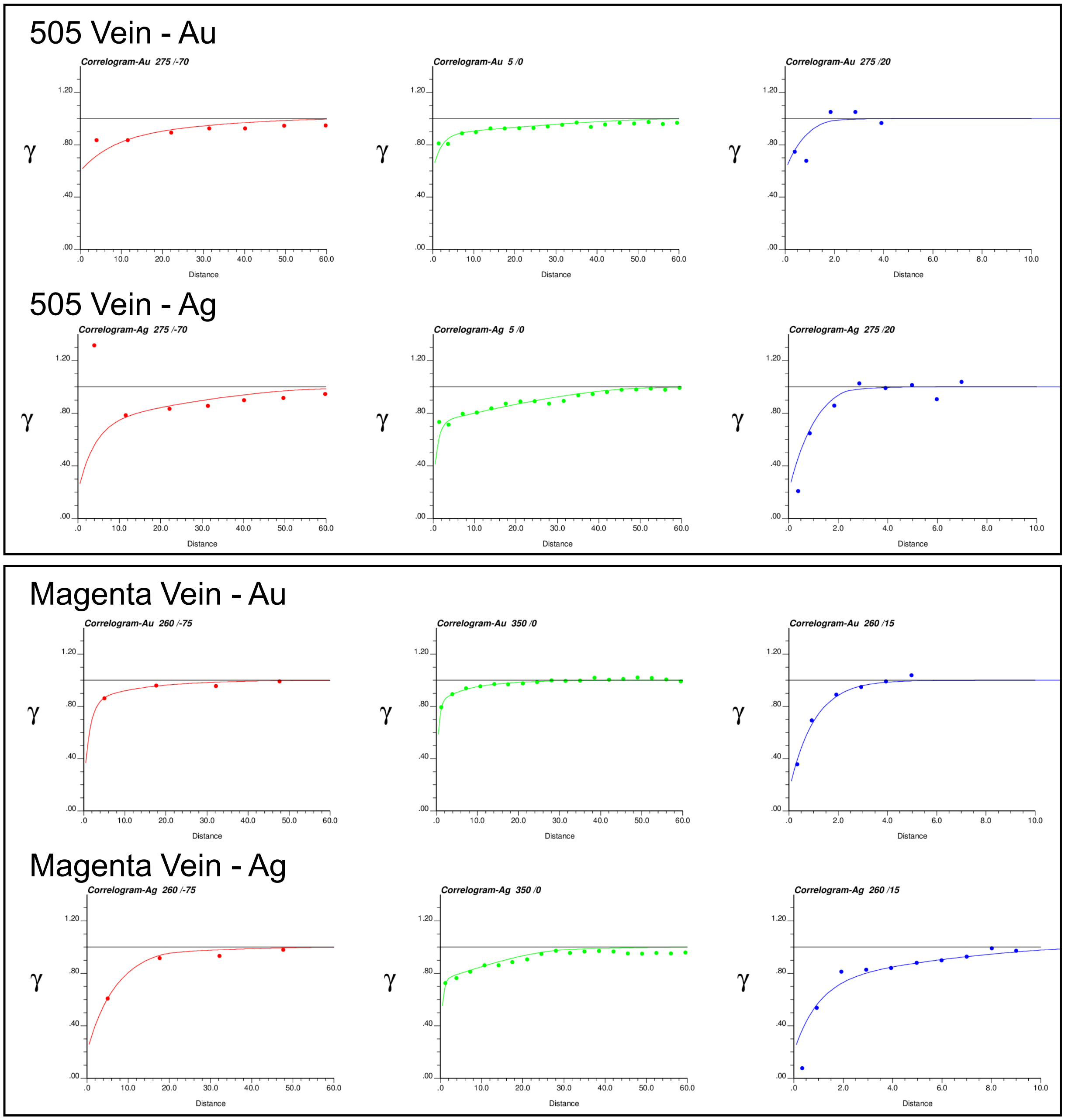
Table 14-4: Typical calculation parameters for experimental correlograms

Color	Direction	Azimuth Tolerance	Azimuth Band	Dip Tolerance	Dip Band	Lag	Lag Tolerance
Red	Dip	22.5°	15 m	22.5°	30 m	Level Spacing	1/2 Lag
Green	Strike	22.5°	30 m	22.5°	1/2 Level Spacing	Face Sample Spacing	1/2 Lag
Blue	Pole	22.5°	10 m	22.5°	1/2 Level Spacing	1m	1/2 Lag

Table 14-5: Correlogram model parameters for 505 and Magenta veins

Element	Vein	Structure	Contribution	Model	R1x (m)	R1y (m)	R1z (m)	Angle[1] 1 (°)	Angle[1] 2 (°)	Angle[1] 3 (°)
Au	505	C0	0.15	Nugget	-	-	-	-	-	-
		C1	0.67	Exp	4.0	1.5	3.0	260	-75	0
		C2	0.15	Exp	32.5	19.5	3.0	260	-75	0
		C3	0.03	Sph	60.0	44.0	3.0	260	-75	0
	Magenta	C0	0.60	Nugget	-	-	-	-	-	-
		C1	0.28	Exp	25.0	6.0	2.0	275	-70	0
		C2	0.12	Sph	70.0	65.0	2.0	275	-70	0
Ag	505	C0	0.20	Nugget	-	-	-	-	-	-
		C1	0.55	Exp	16.0	1.5	3.0	260	-75	0
		C2	0.19	Sph	21.0	32.0	13.0	260	-75	0
		C3	0.06	Sph	65.0	60.0	15.0	260	-75	0
	Magenta	C0	0.20	Nugget	-	-	-	-	-	-
		C1	0.53	Exp	12.0	3.0	2.5	275	-70	0
		C2	0.19	Sph	60.0	52.0	2.5	275	-70	0
		C3	0.08	Sph	95.0	70.0	2.5	275	-70	0

[1] *The rotation angles are shown in GSLIB convention.*



Source: Yamana, February 2021

YAMANAGOLD

Figure 14-2: Experimental gold and silver correlograms and fitted correlograms models for the 505 and Magenta veins

14.8 Block Models

A total of 39 independent block models were constructed for every mining zones at El Peñón. Typical block models contain one to three main veins. Block models were constructed using a common parent block size of 20 × 20 × 20 m and sub-block size of 0.5 × 0.5 × 0.5 m. The main block model variables are described in Table 14-6. Additional flag and distance variables are not shown. A summary of the 39 block models, as well as the zones in which each one is located, are shown in Table 14-7.

Table 14-6: Generalized block model variables

Variable	Format	Description
Density	Float (Real * 4)	Bulk density assigned per vein
Shellug	Integer (Integer * 4)	Vein code
ug	Integer (Integer * 4)	Splay (estimation domain) code
au1	Float (Real * 4)	Estimated gold grade (g/t)
ag1	Float (Real * 4)	Estimated silver grade (g/t)
Categ	Integer (Integer * 4)	Original resource classification
Class	Integer (Integer * 4)	Resource classification based on majority criteria
aunn1	Float (Real * 4)	Gold grade estimated by nearest neighbour (g/t)
agnn1	Float (Real * 4)	Silver grade estimated by nearest neighbour (g/t)

Table 14-7: Block models per veins and per mining zones

Veins	Mining Zone	Model Name
505 and 506	Orito	ye20_505_506_class.bmf
Abundancia	Bloque Norte	ye20_abundancia_class.bmf
Aleste	Bloque Norte	ye20_aleste_class.bmf
Angelina, Diablada, Orito Norte	Orito	ye20_oritonorte_class.bmf
Angosta	Bloque Norte	ye20_angosta_class.bmf
Bermellón	Quebrada Colorada	ye20_bermellon_class.bmf
Bermuda	Quebrada Colorada	ye20_bermuda_class.bmf
Bonanza	Bloque Norte	ye20_Bonanza_class.bmf
Borde Oeste	Bloque Norte	ye20_bordeoeste_class.bmf
Caracoles, Dominador	Fortuna	ye20_Dom_Cac_class.bmf
Carmín, Escarlata	Quebrada Colorada	ye20_carmin_class.bmf
Cerro Martillo	Dorada - Cerro Martillo	ye20_cma_class.bmf
Cerro Martillo Central Sur	Dorada - Cerro Martillo	ye20_cmcs_class.bmf
Chiquilla Chica	Chiquilla Chica	ye20_chiquilla_class.bmf
Discovery Wash	Quebrada Colorada	ye20_dwa_class.bmf
Dorada	Dorada - Cerro Martillo	ye20_dorada_class_v1.bmf
Dorada SW	Dorada - Cerro Martillo	ye20_dorada-sw_class.bmf
El Valle	Quebrada Colorada	ye20_eva_class.bmf
Esmeralda, Esperanza	Bloque Norte	ye20_esm-esp_class.bmf
Fortuna	Fortuna	ye20_fortuna_class.bmf
Fortuna Este	Fortuna	ye20_fortuna_este_class.bmf
Laguna, Laguna West	Laguna	y20_lag_class.bmf
Lazo	Quebrada Colorada	ye20_lazo_class.bmf
Magenta	Quebrada Colorada	ye20_mag_class.bmf
Martillo Flat	Dorada - Cerro Martillo	ye20_mflt_class_v2.bmf
Orito Sur	Orito	ye20_oritosur_class.bmf
Orito West	Orito	ye20_orito_west_class.bmf
La Paloma	Bloque Norte	ye20_paloma_class_v2.bmf
Pampa Campamento, Sorpresa	Quebrada Colorada	ye20_pca_sor_class_v1.bmf
Pampa Providencia	Quebrada Colorada	ye20_pprv_class.bmf
PAV (Elizabeth, Victoria)	Pampa Augusta Victoria	ye20_PAV_class.bmf
Playa	Orito	ye20_playa_class.bmf
Providencia	Dorada - Cerro Martillo	ye20_providencia_class_v1.bmf
Púrpura	Quebrada Colorada	ye20_purpura_class.bmf
Quebrada Colorada Sur	Quebrada Colorada	ye20_colorada_sur_class.bmf
Rieles	Bloque Norte	ye20_rieles_class.bmf
Ventura	Bloque Norte	ye20_ventura_class.bmf
Veta NW	Dorada - Cerro Martillo	ye20_vnw_class.bmf
Vista Norte	Orito	ye20_vistanorte_class.bmf

Gold and silver grades were interpolated into block using ID3, taking into account anisotropic distances for weight calculations and considering hard boundaries between domains. Search ellipses were rotated to orient the first axis along the strike direction of the vein, the second axis along the dip direction, and the third axis along the pole direction. Anisotropic distance factors were generally set equal to 80% to 100% of the range of the correlogram model. A summary of typical estimation and search parameters is shown in Table 14-8.

Table 14-8: Summary of the typical estimation search parameters

Estimation Pass[1]	1st	2nd	3rd	4th	5th	6th
Block type[2]	ST	ST	ST	LT	LT	LT
Sample type[3]	CH	CH	CH	CH+DH	DH	DH
Interpolation method	ID3	ID3	ID3	ID3	ID3	ID3
Search range X (m) - Along strike	5	15	30	15	35	60
Search range Y (m) - Along dip	20	30	30	15	35	60
Search range Z (m) - Perpendicular	5	10	15	5	10	15
Minimum number of composites	6	4	3	4	3	1
Maximum number of composites	8	8	8	8	8	8
Octant search	No	No	No	No	No	No
Minimum number of octant	-	-	-	-	-	-
Minimum number of composites/octant	-	-	-	-	-	-
Maximum number of composites/octant	-	-	-	-	-	-
Maximum number of composites/DH	2	2	2	2	2	-

[1] Parameters can change slightly for some veins

[2] ST: Blocks located in zones supported by channels; LT: Blocks located in zones supported by drill holes

[3] CH: Channel samples; DH: Drill hole samples

14.9 Block Model Validation

Block models were validated by means of global bias checks (between estimated means and declustered composite means obtained by Nearest Neighbor estimation), swath-plots against Nearest Neighbor estimates, and graphic analysis of charts showing results displaying both the estimated grades and the informing composite grades in plan views and long sections. The following tables and figures illustrate examples of the validations and results obtained for the 505 and Magenta veins. Table 14-9 and Table 14-10 show the statistical differences between the ID3 and NN model results. Figure 14-3 and Figure 14-4 show swath-plots for the 505 and Magenta veins, with the average gold grades estimated by ID3 (in red) and by NN (in black), and the informing capped composites (in blue).

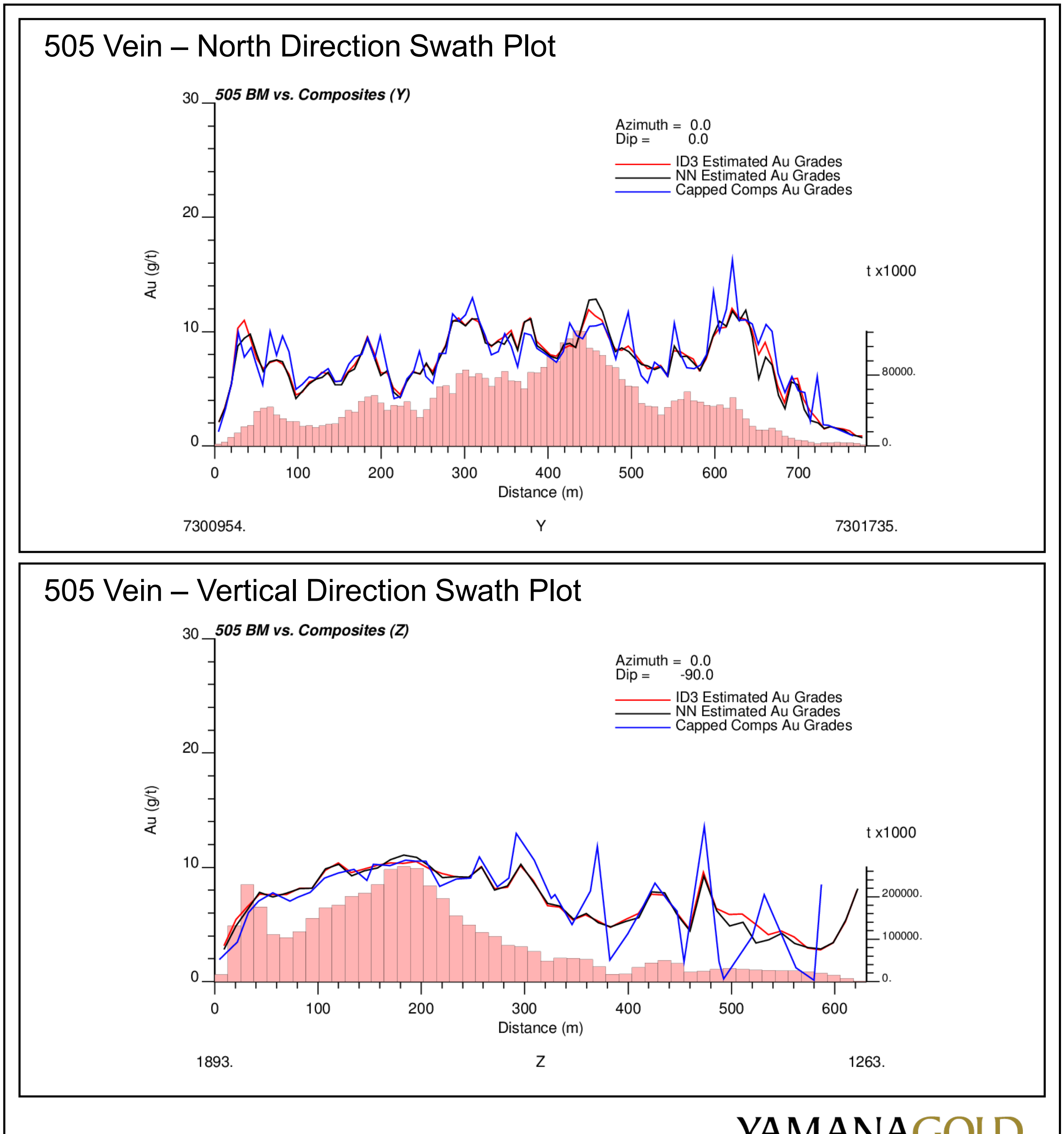
The results of the validation are considered to be adequate, demonstrating that the estimated models honour the input data both visually and statistically.

Table 14-9: Statistical validation of the estimated block model – 505 Vein

Vein: 505	ID3	NN
Number of Blocks	4,769,947	4,769,947
Gold Statistics (Au g/t)		
Minimum	0.01	0.01
Q1	3.72	2.65
Median	6.56	5.51
Q3	10.98	10.61
Maximum	101.00	101.00
Mean	8.62	8.61
Standard Deviation	7.70	9.60
Variance	59.31	92.07
Coefficient of Variation	0.89	1.11

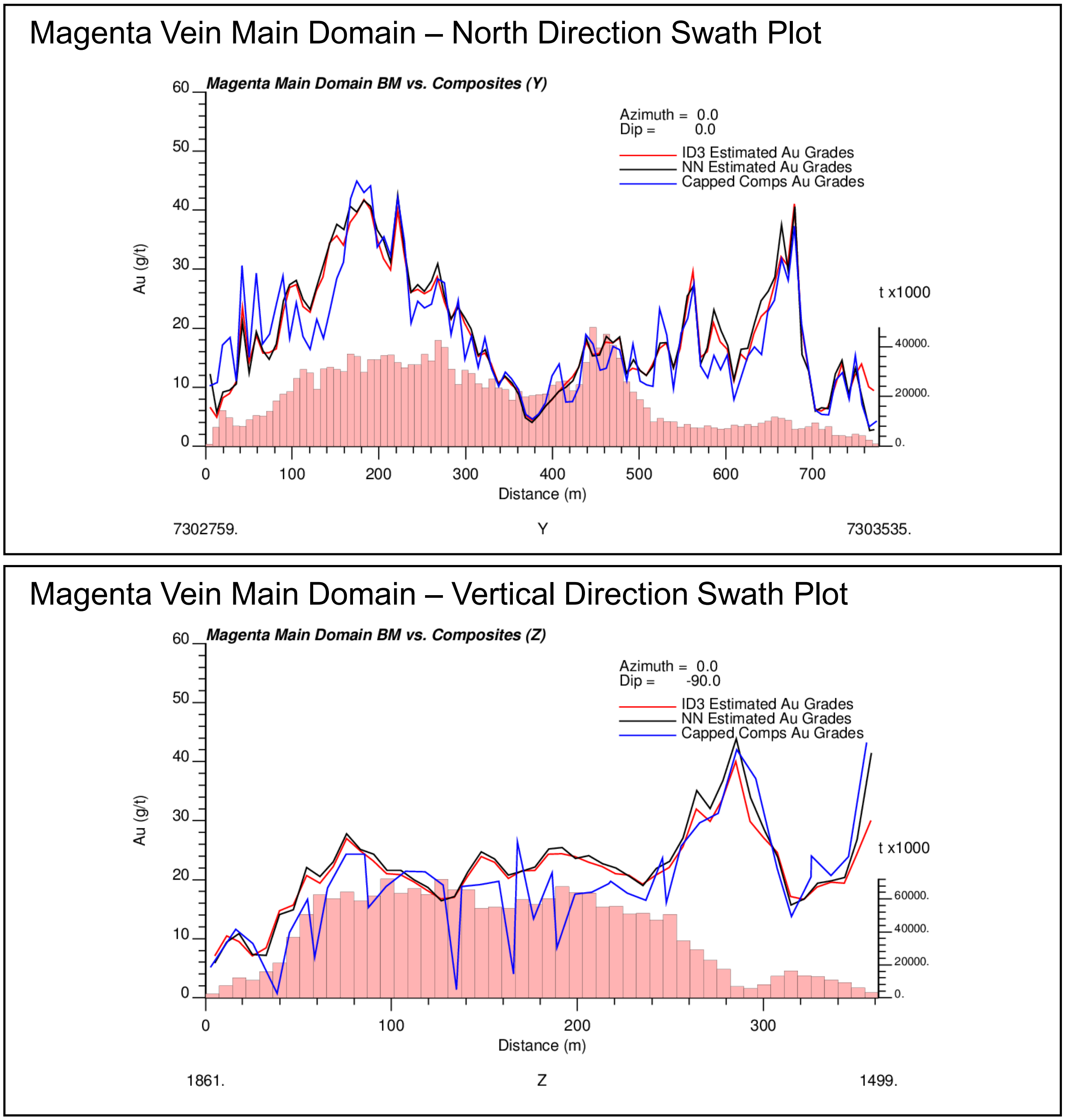
Table 14-10: Statistical validation of the estimated block model – Magenta Vein

Vein: Magenta	ID3	NN
Number of Blocks	4,667,316	4,667,316
Gold Statistics (Au g/t)		
Minimum	0.00	0.00
Q1	0.75	0.39
Median	3.91	3.26
Q3	13.10	11.31
Maximum	115.46	115.46
Mean	11.30	11.55
Standard Deviation	18.17	21.16
Variance	330.06	447.79
Coefficient of Variation	1.61	1.83



Source: Yamana, February 2021

Figure 14-3: Gold swath plots for 505 Vein



Source: Yamana, February 2021

Figure 14-4: Gold swath plots for Magenta Vein

14.10 Resource Classification

Resource classification was completed using an in-house algorithm which works according to the following workflow:

- Blocks located in areas supported by underground channel samples are classified as measured mineral resources.
- Blocks located in areas supported by drill hole information and that are within a 10 m-radius from underground channel samples are classified as indicated mineral resources.
- Blocks supported only by drillholes are classified as indicated mineral resources if they meet both following criteria: Blocks are contained within a 26.25 m-search square from a single informing intercept AND the informing intercept is contained within a 52.5 m search square that includes at least one additional informing intercept. Distances defining both search squares are measured in the plane of the vein plane (in the strike and dip directions) and from the centre (intercept position) to the edge of the search square.
- The remainder of the blocks estimated within the interpreted vein wireframes are classified as inferred mineral resources.
- Blocks located outside the vein wireframes are not classified and are considered dilution for mineral resources reporting.
- Finally, the mineral resource classification results are smoothed, using an in-house algorithm based on local classification proportions, to remove geometrical artifacts. The local proportions are calculated in a 10 × 10 m moving window.

14.11 Resource Estimation of Stockpiles and Tailings

In addition to the 39 block models constructed by applying the methodologies previously described, mineral resources contained within the Escarlata low-grade stockpile and within tailings are also reported.

In January 2018, El Peñón commissioned a conceptual metallurgical study to explore alternative extraction processes to recover metal from tailings. Heap leaching was proposed as a viable option for metal extraction from tailings. Twenty shallow boreholes were drilled on a 100 m-grid spacing, while the stockpile was drilled by 32 drill holes at a 25 m-grid spacing. Grade estimations for the tailings and stockpile were based on capped assay data interpolated using ordinary kriging in three estimation passes. Mineral resources contained in the stockpile are classified as indicated, while mineral resources contained in tailings are classified as inferred.

14.12 Mineral Resource Estimate

The mineral resources are reported at El Peñón exclusive of mineral reserves and are prepared using conceptual mining shapes (from Vulcan Stope Optimiser (VSO)) that are based on a cut-off value of US$95.31/t, which corresponds to 75% of the cut-off value used to estimate mineral reserves (described in Section 15.3). The cut-off value is based on the calculation parameters shown in Table 14-11.

Mined out, sterilized (non- mineable blocks), and current mineral reserves are subtracted from the block models. SMUs measuring 5 m-long × 4 m-high, similar to cut-and-fill SMUs, are then constructed using Vulcan Stope Optimiser (VSO) using a minimum mining width of 0.60 m and hanging wall and footwall overbreaks of 0.30 m (per side).

Blocks lying outside the interpreted geological vein wireframes are considered to have zero gold and silver grades for stope optimization. Subsequently, the constructed SMUs are classified by majority criteria into measured, indicated, or inferred categories, and are included into the mineral resources inventory and reported fully diluted.

Mineral resources are reported at cut-off grades of 0.50 g/t gold-equivalent for resources contained in tailings and at 0.79 g/t gold-equivalent for those contained in stockpiles.

The use of constraining conceptual mining shapes to report underground mineral resources and cut-offs to report mineral resources contained in stockpiles and tailings demonstrate that the "reasonable prospects for eventual economic extraction" criteria, as defined in the CIM (2014) Standards, is met.

Table 14-11: Resource NSR cut-off value calculation parameters

Parameters	Units	Value
Gold Price	US$/oz	1,250
Silver Price	US$/oz	18
Gold Selling Cost	US$/oz	11.22
Silver Selling Cost	US$/oz	0.13
Gold Metallurgical Recovery	%	Model
Silver Metallurgical Recovery	%	Model
Underground Mining Cost	US$/t ore mined	80.10
Process Cost	US$/t processed	29.42
G&A Cost	US$/t processed	13.46
Sustaining Capital Cost	US$/t processed	4.10
Premium on Cut-Off	%	25
Mineral Resources Cut-Off Value	US$/t	95.31

The Mineral Resource Statement for El Peñón as of December 31, 2020, exclusive of mineral reserves, is presented at the beginning of this Section 14 in Table 14-1. A summary of the mineral resources by mining block is presented in Table 14-12.

The qualified person responsible for this section of the technical report is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant factors that could materially affect the mineral resource estimate.

Table 14-12: Summary of El Peñón mineral resources by zone, as of December 31, 2020

Zone	Tonnage (kt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
Measured					
Bloque Norte	142	5.59	212.7	26	971
Chiquilla Chica	9	0.61	645.8	0	189
Dorada - Cerro Martillo	109	3.64	189	13	661
Fortuna	15	3.62	240.6	2	118
Laguna	8	7.97	74.7	2	19
Pampa Augusta Victoria	39	3.98	196	5	246
Quebrada Colorada	142	4.82	105.1	22	479
Quebrada Orito	203	5.21	58.3	34	379
Stockpile	–	–	–	–	–
Tailings	–	–	–	–	–
Total Measured	**667**	**4.81**	**143**	**103**	**3,063**
Indicated					
Bloque Norte	1,194	3.38	113.8	130	4,370
Chiquilla Chica	84	0.42	298.5	1	809
Dorada - Cerro Martillo	2,645	2.63	117	224	9,950
Fortuna	251	2.62	183.6	21	1,485
Laguna	50	3.52	30.6	6	50
Pampa Augusta Victoria	213	2.89	95.6	20	654
Quebrada Colorada	1,103	3.17	84.1	112	2,983
Quebrada Orito	814	4.25	47.2	111	1,235
Stockpile	1,019	1.13	28.8	37	942
Tailings	–	–	–	–	–
Total Indicated	**7,374**	**2.79**	**94.8**	**662**	**22,478**
Measured + Indicated					
Bloque Norte	1,336	3.61	124.3	155	5,342
Chiquilla Chica	93	0.44	332.4	1	999
Dorada - Cerro Martillo	2,754	2.67	119.8	236	10,612
Fortuna	267	2.68	186.9	23	1,602
Laguna	58	4.13	36.7	8	69
Pampa Augusta Victoria	252	3.06	111.2	25	900
Quebrada Colorada	1,244	3.36	86.5	134	3,462
Quebrada Orito	1,017	4.44	49.4	145	1,614
Stockpile	1,019	1.13	28.8	37	942
Tailings	–	–	–	–	–
Total M+I	**8,041**	**2.96**	**98.8**	**765**	**25,541**

Zone	Tonnage	Au	Ag	Au	Ag
	(kt	(g/t)	(g/t)	(koz)	(koz)
Inferred					
Bloque Norte	1,414	4.23	115	192	5,227
Chiquilla Chica	286	0.31	288.4	3	2,656
Dorada - Cerro Martillo	1,141	3.19	123	117	4,510
Fortuna	243	3.11	221.8	24	1,734
Laguna	18	2.94	36.6	2	21
Pampa Augusta Victoria	147	2.68	171.3	13	810
Quebrada Colorada	1,291	3.78	101.2	157	4,198
Quebrada Orito	668	4.54	28	98	602
Stockpile	–	–	–	–	–
Tailings	13,767	0.55	18.9	245	8,380
Total Inferred	**18,975**	**1.39**	**46.1**	**850**	**28,138**

1. *Mineral resources are reported exclusive of mineral reserves*
2. *Mineral resources are not mineral reserves and do not have demonstrated economic viability*
3. *Underground mineral resources are estimated at a cut-off NSR of US$95.31/t, which corresponds to 75% of the mineral reserves cut-off value. Underground mineral resources are reported fully diluted within constraining conceptual mining shapes: they consider a minimum mining width of 0.60 m and hanging wall and footwall overbreak dilutions of 0.30 m each to determine reasonable prospects of economic extraction.*
4. *Mineral resources contained in tailings and stockpiles are reported at a cut-off grade of 0.50 g/t and 0.79 g/t gold-equivalent, respectively.*
5. *All figures are rounded to reflect the relative accuracy of the estimate*
6. *Numbers may not add up due to rounding*

15 MINERAL RESERVE ESTIMATES

15.1 MINERAL RESERVE SUMMARY

The Mineral Reserve Statement of El Peñón as of December 31, 2020, is presented in Table 15-1.

Table 15-1: El Peñón Mineral Reserve Statement as of December 31, 2020

Mineral Reserves	Category	Tonnage	Grade		Contained Metal	
		(kt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
Open Pit	Proven	–	–	–	–	–
	Probable	53	0.34	316.2	1	543
	Total Open Pit	**53**	**0.34**	**316.2**	**1**	**543**
Underground	Proven	368	5.73	213.4	68	2,526
	Probable	5,068	5.07	158.6	826	25,835
	Total Underground	**5,436**	**5.12**	**162.3**	**894**	**28,361**
Stockpile	Proven	9	1.40	54.1	0	16
	Probable	651	1.26	14.1	26	294
	Total Stockpile	**660**	**1.26**	**14.6**	**27**	**310**
Combined	Proven	377	5.63	209.5	68	2,542
	Probable	5,772	4.60	143.7	853	26,672
	Grand Total	**6,149**	**4.66**	**147.8**	**921**	**29,214**

1. *Mineral reserves have been estimated by the El Peñón long-term mine planning team under the supervision of Sergio Castro, Registered Member of the Chilean Mining Commission, a full-time employee of Minera Meridian Limitada, and a qualified person as defined by National Instrument 43-101. The estimate conforms to the CIM Definition Standards on Mineral Resources and Reserves. Mineral reserves are stated at a mill feed reference point and allow for dilution and mining losses. Metal price assumptions of US$1,250/oz for gold and US$18.00/oz for silver were used.*
2. *Open-pit mineral reserves are reported at a cut-off NSR of US$ 49.14/t. Processing recoveries assumptions range from 84.13% to 89.22% for gold and from 79.71% to 81.67% for silver. Mine operating (including transport), processing and G&A costs assumptions of US$6.27/t and US$29.42/t and US$13.46/t were considered, respectively.*
3. *Underground mineral reserves are reported at an NSR cut-off of US$127.08/t (Section 15.3). Processing recoveries assumptions range from 84.13% to 97.38% for gold and from 56.47% to 92.33% for silver. The following cost assumptions were considered: mine-operating cost: US$80.10/t; processing cost: US$29.42/t; sustaining capital cost: US$4.10/t, and G&A cost: US$13.46/t. A royalty of 2% was considered for reserves planned to be mined in the Fortuna zone.*
4. *Mineral reserves contained in low-grade stockpiles are reported at a cut-off grade of 0.90 g/t gold-equivalent. Processing recoveries assumptions of 95.2% for gold and 83.0% for silver were used. Operating and processing costs assumptions of US$2.02/t and US$29.42/t, respectively, were considered.*
5. *Mineral reserves are reported as of December 31, 2020.*
6. *All figures are rounded to reflect the relative accuracy of the estimate.*
7. *Numbers may not add up due to rounding.*

15.2 Conversion Methodology

The methodology used at El Peñón to convert mineral resources to mineral reserves is summarized as follows:

- Drift and bench (stope) selective mining units (SMUs) are designed using Vulcan Stope Optimiser, based on the design parameters summarized in Table 15-3 and Table 15-4.
- The metal prices, processing recoveries, and operating costs summarized in Table 15-2 are used to determine an economic score for each SMU. Only measured and indicated mineral resources are considered for conversion to mineral reserves.
- SMUs with positive scores are analyzed for inclusion into the mineral reserve inventory. This is done by analyzing development costs, considering the capital and auxiliary development required to enable mining of the designed SMUs, such as the cost of ramps, ventilation, materials handling, and development of access and infrastructure.
- Before including SMUs with positive scores in the mineral reserves inventory, geomechanical considerations are revised, especially in areas with known poor ground conditions or were pillars between the new stopes and previously backfilled areas are thin. Design is adjusted when required.
- Finally, small amounts of supplementary lower-grade drift segment that must be developed to enable mining of the higher-grade mineral reserves are also included in the mineral reserves inventory, since this improves the cashflow generation profile. This material represents approximately 1% of the mineral reserves inventory.
- SMUs containing a majority portion of measured or indicated blocks are converted to proven or probable mineral reserves, respectively.

15.3 NSR Cut-Off Value

The mineral reserves for El Peñón were completed using a break-even cut-off value of US$49.14/t for open pit and US$127.08/t for underground.

The cut-off grade used for reporting mineral reserves contained in the low-grade stockpiles was 0.90 g/t gold-equivalent. The parameters used to determine the NSR cut-off value are summarized in Table 15-2.

Table 15-2: NSR cut-off value calculation parameters for mineral reserves

Parameters	Units	Value
Gold Price	US$/oz	1,250
Silver Price	US$/oz	18
Gold Selling Cost	US$/oz	11.22
Silver Selling Cost	US$/oz	0.13
Gold Metallurgical Recovery	%	Model
Silver Metallurgical Recovery	%	Model
Underground Mining Cost	US$/t ore mined	80.10
Process Cost	US$/t processed	29.42
G&A Cost	US$/t processed	13.46
Sustaining Capital Cost	US$/t processed	4.10
Underground NSR Cut-Off Value	US$/t	127.08

15.4 Design, Dilution, and Mining Recovery Parameters

Key stope SMU design parameters used for generating the underground mineral reserves stope shapes are summarized by zone in Table 15-3. Due to the narrow vein width, split-blasting is usually applied at El Peñón, and ore drift SMUs are therefore designed accordingly. Drift design parameters used for mineral reserve estimation are summarized in Table 15-4.

Table 15-3: Stope SMU design parameters by zone

Zone	Stope Length	Minimum Mining Width	Minimum Waste Pillar Width	Hanging Wall Overbreak	Footwall Overbreak	Mining Recovery
	(m)	(m)	(m)	(m)	(m)	%
Bloque Norte	5	0.8 to 1.0	3	0.35 to 0.50	0.35 to 0.50	97.5
Dorada - Cerro Martillo	5	0.8 to 1.0	3	0.25 to 0.35	0.25 to 0.35	97.5
Fortuna	5	0.8 to 1.0	3	0.20 to 0.80	0.20 to 0.80	97.5
Laguna	5	0.8 to 1.0	3	0.20 to 0.40	0.20 to 0.40	97.5
Pampa Augusta Victoria	5	0.8 to 1.0	3	0.35 to 0.50	0.35 to 0.50	97.5
Quebrada Colorada	5	0.8 to 1.0	3	0.30 to 0.60	0.30 to 0.60	97.5
Quebrada Orito	5	0.8 to 1.0	3	0.50 to 1.10	0.50 to 1.10	97.5

Table 15-4: Drift (split blasting) SMU design parameters

Parameter	Units	All Zones
Drift Height	m	4
Drift Length	m	5
Minimum Mining Width	m	0.60
Hanging Wall Overbreak	m	0.25
Footwall Overbreak	m	0.25
Mining Recovery	%	100.0

Hanging wall and footwall overbreaks are applied to the stope design of mineral reserves. The overbreaks consider actual stope reconciliation for each zone and the stope span, which is determined by the sub-level spacing and maximum stope length opened before the backfill cycle is started.

Mining recovery factors are based on Cavity Monitoring System measurements taken from actual 2020 results.

15.5 Reconciliation

Mine to mill reconciliation for the period comprised between January 2018 and December 2020 is presented in Table 15-5. Differences are within the expected ranges.

Table 15-5: Reconciliation

Reconciliation 2018-2020	Tonnage (kt)	Au (g/t)	Ag (g/t)
Total mined and reclaimed from stockpiles - 2018	1,104	4.47	139.6
Processed feed reported 2018	1,104	4.53	131.3
Difference 2018 (%)	**0.0%**	**1.4%**	**-5.9%**
Total mined and reclaimed from stockpiles - 2019	1,290	4.09	124.0
Processed feed reported 2019	1,290	4.09	120.7
Difference 2019 (%)	**0.0%**	**0.0%**	**-2.7%**
Total mined and reclaimed from stockpiles - 2020	1,267	4.26	141.5
Processed feed reported 2020	1,267	4.22	138.9
Difference 2020 (%)	**0.0%**	**-0.9%**	**-1.9%**
Total mined and reclaimed from stockpiles - 2018 to 2020	**3,661**	**4.26**	**134.8**
Processed feed reported 2018 to 2020	**3,661**	**4.27**	**130.2**
Difference 2018 to 2020 (%)	**0.0%**	**0.1%**	**-3.4%**

15.6 Mineral Reserve Estimate

The Mineral Reserve Statement for El Peñón as of December 31, 2020, is presented at the beginning of Section 15 in Table 15-1. A summary of the mineral reserves by mining block is presented in Table 15-6.

The qualified person responsible for this section of the technical report is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the mineral reserve estimate.

Table 15-6: Summary of El Peñón mineral reserves by zone, as of December 31, 2020

	Proven					Probable					Proven + Probable				
	Tonnage	Grade		Contained Metal		Tonnage	Grade		Contained Metal		Tonnage	Grade		Contained Metal	
	(kt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)	(kt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)	(kt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
Underground															
Bloque Norte	18	6.07	230.4	3	132	1,043	5.80	139.7	195	4,683	1,061	5.81	141.2	198	4,815
Dorada - Cerro Martillo	160	4.32	277.1	22	1,428	1,778	3.93	200.4	225	11,459	1,939	3.96	206.8	247	12,887
Fortuna	25	4.73	300.2	4	238	240	4.46	310.2	34	2,390	264	4.49	309.3	38	2,628
Laguna	13	7.94	61.9	3	27	208	8.80	86.7	59	581	222	8.75	85.2	62	607
Pampa Augusta Victoria	5	5.93	279.0	1	44	4	3.85	80.9	1	11	9	4.96	187.2	1	55
Quebrada Colorada	93	8.09	181.8	24	541	1,348	5.29	132.5	229	5,741	1,441	5.47	135.6	253	6,283
Quebrada Orito	54	5.65	66.1	10	116	446	5.84	67.6	84	969	501	5.82	67.4	94	1,085
Subtotal Underground	**368**	**5.73**	**213.4**	**68**	**2,526**	**5,068**	**5.07**	**158.6**	**826**	**25,835**	**5,436**	**5.12**	**162.3**	**894**	**28,361**
Open-Pit															
Chiquilla Chica	-	-	-	-	-	53	0.34	316.2	1	543	53	0.34	316.2	1	543
Subtotal Open Pit	-	-	-	-	-	**53**	**0.34**	**316.2**	**1**	**543**	**53**	**0.34**	**316.2**	**1**	**543**
Totals															
UG and Open-Pit Mine	368	5.73	213.4	68	2,526	5,121	5.02	160.2	827	26,378	5,489	5.07	163.8	895	28,904
Stockpile	9	1.40	54.1	0	16	651	1.26	14.1	26	294	660	1.26	14.6	27	310
Total Mineral Reserves	**377**	**5.63**	**209.5**	**68**	**2,542**	**5,772**	**4.60**	**143.7**	**853**	**26,672**	**6,149**	**4.66**	**147.8**	**921**	**29,214**

1. *Mineral reserves are stated at a mill feed reference point and allow for dilution and mining losses. Metal price assumptions of US$1,250/oz for gold and US$18.00/oz for silver were used.*

2. *Open-pit mineral reserves are reported at a cut-off NSR of US$ 49.14/t. Processing recoveries assumptions range from 84.13% to 89.22% for gold and from 79.71% to 81.67% for silver. Mine operating (including transport), processing and G&A costs assumptions of US$6.27/t and US$29.42/t and US$13.46/t were considered, respectively.*
3. *Underground mineral reserves are reported at an NSR cut-off of US$127.08/t (Section 15.3). Processing recoveries assumptions range from 84.13% to 97.38% for gold and from 56.47% to 92.33% for silver. The following cost assumptions were considered: mine-operating cost: US$80.10/t; processing cost: US$29.42/t; sustaining capital cost: US$4.10/t; and G&A cost: US$13.46/t. A royalty of 2% was considered for reserves planned to be mined in the Fortuna zone.*
4. *Mineral reserves contained in low-grade stockpiles are reported at a cut-off grade of 0.90 g/t gold-equivalent. Processing recoveries assumptions of 95.2% for gold and 83.0% for silver were used. Operating and processing costs assumptions of US$2.02/t and US$29.42/t, respectively, were considered.*
5. *All figures are rounded to reflect the relative accuracy of the estimate.*
6. *Numbers may not add up due to rounding.*

16 Mining Methods

Ore from underground mines have recently been—and will continue to be—the main source of feed for the El Peñón mill. Currently, ore is sourced from one small active open pit mine (Chiquilla Chica) and from five of the seven major underground mining zones.

The various underground mining zones are accessed by ramps; this type of access is suitable for this mine in light of its shallow depth. The underground workings of the core mine extend approximately ten kilometres along strike and span a vertical extent of approximately 500 m, measured from the highest portal collar elevation to the bottom-most mine workings. The ramps provide flexibility for rapid adjustments for changes in direction and elevation and allow access to the veins at appropriate elevations.

Mining at El Peñón utilizes mainly the bench-and-fill mining method (B&F); a small percentage of cut-and-fill mining (C&F) is also applied where required, depending on the characteristics of vein geometry and ground conditions.

Yamana continue to apply its Operational Excellence program across all departments to increase productivity, minimize dilution, and identify opportunities to reduce operating costs. Initiatives under this program include testing of smaller drift profiles in specific sectors, optimization of stoping and of development-face drill patterns, and minimizing the use of consumables.

16.1 Underground Mining Methods

The main mining method utilized at El Peñón is the bench-and-fill method, which is a narrow longhole-stoping method that uses a combination of rockfill and cemented rockfill. The method involves ore development at regular level intervals, which, at El Peñón, range generally between 10 and 20 m. Due to the narrow vein widths, a “split-blasting” technique is used in many areas of the mine to reduce dilution in secondary development of ore zones. The minimum mining width of a split blast is of 0.6 m, plus 0.5 m of total overbreak, generating a minimum blast void of 1.1 m width. Once the split-blast ore is mucked out, the remaining waste is slashed out and used for rockfill purposes. A schematic cross-section of a split blasting face is shown in Figure 16-1. The split-blasting technique has been refined and improved at El Peñón since 2016, reducing the achievable ore mining width from 2.1 m to 1.1 m, minimizing dilution and ore loss, and improving productivities for faster face cycle times. The result is increased gold and silver mining grades. In some cases, development rounds that would have previously been mined as waste if blasted to the full drift dimensions, are now mined selectively as separate ore and waste rounds, resulting in increased mineral reserves.

Stopes are formed by drilling blast holes between levels. After blasting, the broken ore is extracted from the lower level using conventional and remotely operated load-haul-dumps

(LHDs). Bench-and-fill is a bottom-up method, in which mining takes place above and adjacent to previously mined and backfilled stope voids. Once the maximum-allowed stope span is reached, and after completion of ore extraction from the blasted stope, stopes are filled with rockfill and selective use of cemented rockfill.

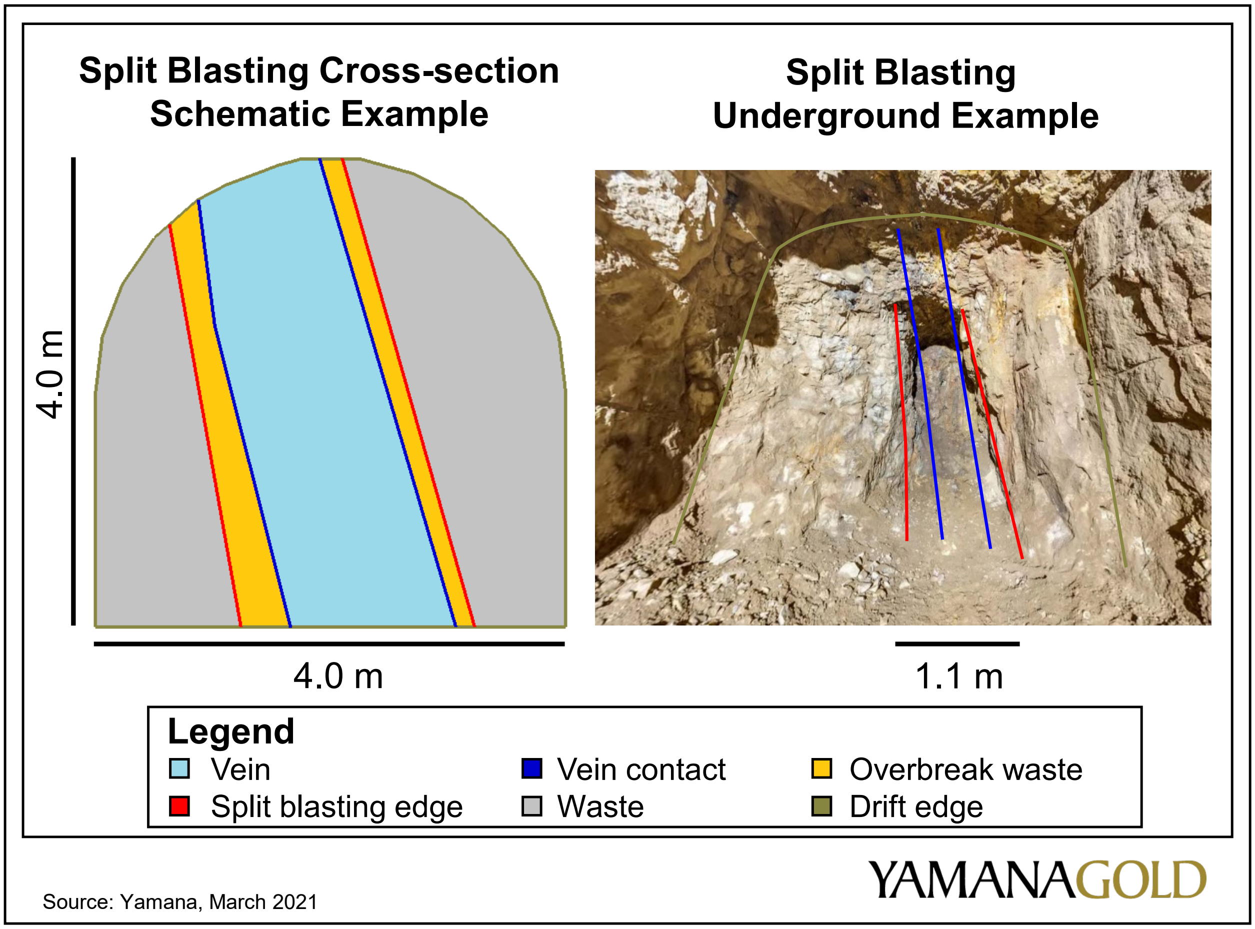


Figure 16-1: Schematic cross-section of drift and vein showing extent of split-blasting technique

16.2 Underground Mine Design

Mine access is achieved via spiral declines generally located in the footwall of veins. The declines have section dimensions of 4.3 m wide × 4.5 m high at a gradient of up to ± 16% and a minimum turning radius of 15 m. Access to the ore is made approximately every 10 to 20 vertical metres via crosscuts. Infrastructure generally included at every intersection of declines with crosscuts consists of service bays, ventilation drifts to connect crosscuts to return air raises, remucks, and dewatering infrastructure when required.

Drifts are designed at 4.0 m wide x 4.0 m high and are developed, as mentioned in the previous section, using a split-blasting technique when required. The drift dimensions enable the use of medium-sized equipment for improved productivity. Ore drift development is guided by geological controls to ensure that development closely follows the mineralization. All ore drifts are therefore sampled for grade control during every drill, blast, load, and haul cycle, at approximately 3.3 m intervals. These samples are used to delimit the economic portion of each stope, which generally varies in width between 1.2 and 6.0 m. An example of a bench-and-fill mining panel is shown in Figure 16-2.

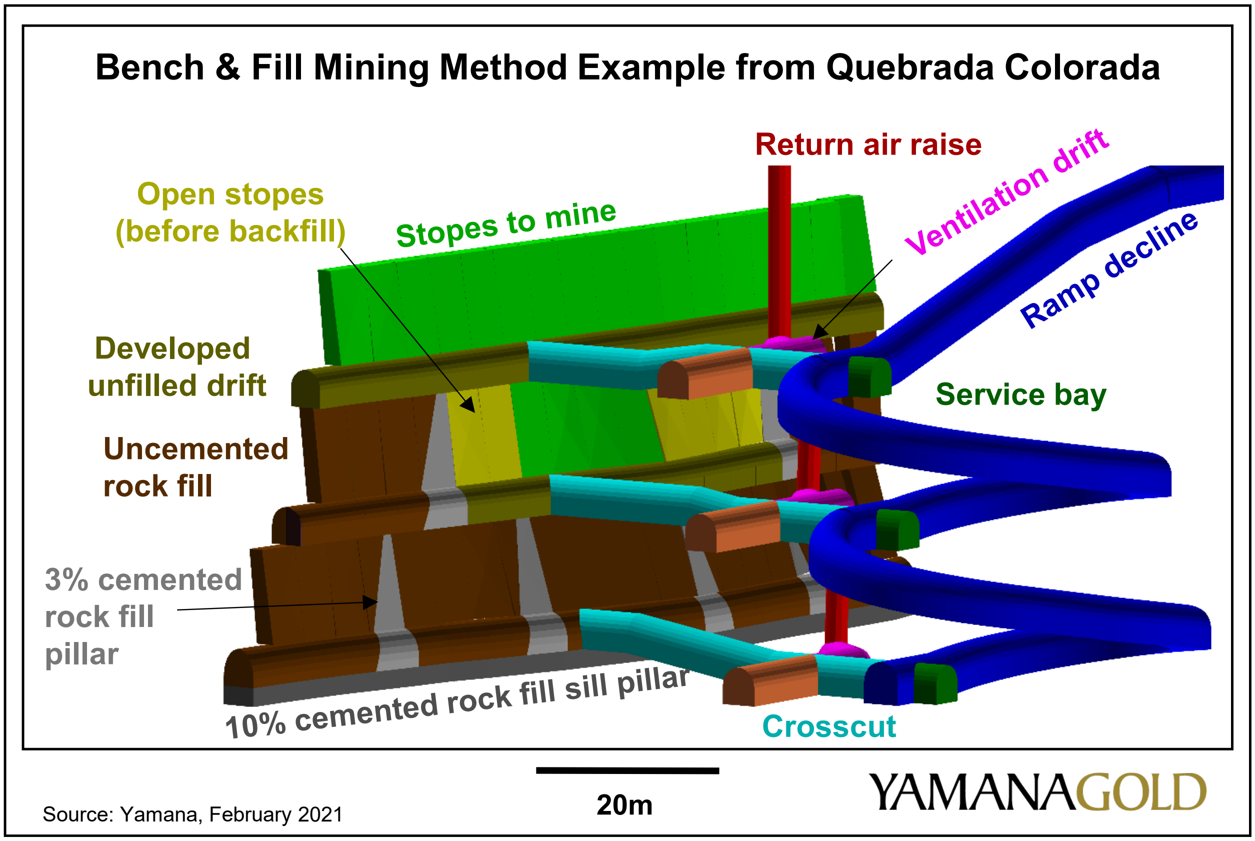


Figure 16-2: Schematic example of bench-and-fill mining method

16.3 Mining Sequence

The underground mining sequence starts with the development of the spiral decline. Once the ramp decline reaches the required level elevation, three faces are generated which consist of the continuation of the ramp decline, the access crosscut to the ore and the service bay, which is located opposite the crosscut at the ramp. The crosscut development continues until the vein is intersected. During the development of the crosscut, the remuck and the ventilation drift (which is subsequently connected to the upper-level ventilation drift via drop raising) are also developed. Once services are available at the crosscut, the drift development starts, generally in both directions along the vein strike. The ramp decline development continues in parallel towards the next level, where the development sequence is repeated.

For mining sequence optimization purposes, large mining zones are divided into mining panels, generally consisting of three to four levels per panel. The bottom-level drift is developed in a 4 m-wide × 6 m-high section; the bottom 2 m is then filled with 10% cemented rockfill, creating a stable sill pillar to separate mining panels. This allows stoping to commence while ramp decline development continues and ensures maximum recovery of the mineralization.

Once the drift reaches the vein edge, to start stoping of the ore between levels, vertical slot raises are excavated at both extremities of the level to generate free faces for production blasting. Once the slot is opened, the stoping sequence retreats towards the crosscut. Typically, open-stope spans measuring 15 to 60 m along strike can be achieved before backfilling.

The following procedure is implemented to minimize dilution. When the maximum stope span is reached (as determined by geotechnical considerations and laser scan measurements), a cemented barricade is constructed and 3% cemented rockfill is placed in the stope from the upper level until a 2 m-wide solid pillar is generated. Then, the remainder of the stope void is filled with rockfill from waste development and split-blast slashing. Subsequently, a new slot raise is constructed beside the cemented pillar and stoping continues towards the access. Backfilled stopes are also used subsequently as working floors for the mining of the upper levels of the production panel. The sequence is finished when the top level of the panel is mined by undercutting the back, beneath the overlying panel's sill pillar.

16.4 Geomechanics and Ground Support

The El Peñón deposit comprises multiple geomechanical domains within the epithermal deposit. The steeply dipping mineralization is structurally controlled and primarily associated with north-south-trending major faults which cut across the volcanic rock. Vein dips are moderate to steep, ranging between 50° and 90°.

The competency of the rock mass is primarily affected by argillic siliceous alteration. Other types of alteration are present but to a lesser extent. The mineralized veins are associated with intense to moderate argillic alteration haloes which typically result in a weakened rock mass on the vein margins. This argillic alteration grades into siliceous alteration further away from the veins. The intense argillic alteration haloes around the mineralized zones vary in thickness (1 to 2 m); the moderate argillic alteration haloes extend up to 10 m away from the veins.

The structural model includes major, intermediate, and minor structures. The major structures are persistent faults when compared to the mine scale and their thickness exceed 10 cm. The mineralization is hosted within these structures. The major faults are oriented along the primary structural trend but local variations are observed. Intermediate structures are not associated with specific orientations, have a shorter persistence than the major faults, their thickness does not exceed 10 cm. The minor discontinuities consist primarily of joints.

The various combinations of alteration type, alteration intensity, and structures result in highly variable rock mass properties. The mineralized zone is typically associated with strong fracture intensity and intense alteration which results in a weak rock mass (RMR89: 15 to 40). The extent of this weak zone varies from 1 to 10 m. Further away from the mineralized veins, the rock mass is less fractured and without weakening alteration (RMR89: 45 to 70). The mining operation is in a region where the horizontal stress is slightly higher than vertical stress. The k-ratio is estimated at between 1.1 and 1.4.

The stope design recommendation is based on the stope height, rock mass quality, vein inclination, and unplanned dilution. The recommendations are generated using the Matthews method to predict the unplanned overbreak. Each abacus is based on a specific stope height while considering a range of stope lengths, rock mass quality (RMR89), stope inclination, and stope widths. Dilution calculations are continually calibrated with actual stope reconciliation: these results are integrated into the design parameters applied to the mineral reserves stope optimization process.

Ground support for development consists of shotcrete, wire mesh, and rockbolts. Shotcrete (50 mm-thick) is applied to the back and walls in areas associated with weak rock mass. Where excavations are located in more competent rock, wire mesh is installed along the back and shoulders. Rock bolts (2.4 to 2.8 m-long) are installed to support the back and sidewalls. The bolt length and spacing vary depending on the condition of the rock mass and on the dimension of the excavation.

16.5 Mine Equipment

All underground mining operations are carried out by Yamana, while the open pit mining operations, representing only a very small proportion of the production over the LOM, are carried out by a contractor.

A list of the active mine equipment at El Peñón is shown in Table 16-1 and Table 16-2. Equipment varies in types, models, and ages.

Table 16-1: Underground mobile equipment for development & production

Underground Equipment	Model	Description	Units
Development Jumbo drills	Atlas Copco Boomer S2	Jumbo	3
Development Jumbo drills	Atlas Copco Boomer M2C	Jumbo	7
Development Jumbo drills	Epiroc Boomer S1D	Jumbo	1
Long hole production drills	Atlas Copco Simba H-1254	Simba	3
Long hole production drills	Atlas Copco Simba S7D	Simba	5
Long hole production drills	Epiroc Simba S7C	Simba	1
LHD 6 yd^3	Cat R-1600G	Scoop	8
LHD 6 yd^3	Cat R-1600H	Scoop	7
LHD 2 yd^3	TORO LH-203	Scoop	4
Conventional trucks	Scania P400	Trucks	13
Conventional trucks	Mercedes Benz Arocs 4848K	Trucks	4
Conventional trucks	Mercedes Benz Axor 3344	Trucks	4

Underground Equipment	Model	Description	Units
Ejection bed trucks	Cat AD-30	Dumper	5
Ejection bed trucks	Mercedes Benz Axor 3344	Trucks	2
Bolters	Boltec Atlas Apernador H235S	Boltec	4
Bolters	Jumbo Resemin Bolter 99	Boltec	1
Roboshots	Normet Alpha 20	Roboshots	4
Roboshots	Normet Alpha 30	Roboshots	3
Mixers	Normet Variomec MF050	Mixer	4
Mixers	Normet Tornado S2	Mixer	3

Table 16-2: Support mobile equipment

Support Equipment	Model	Description	Units
Wheel Loaders	Volvo L220G	Wheel Loaders	1
Wheel Loaders	Volvo L260H	Wheel Loaders	1
Wheel Loaders	Volvo L120F	Wheel Loaders	4
Wheel Loaders	SDLG LG 968	Wheel Loaders	1
Scalers	CAT 416F2	Scalers	8
Telescope crane	Manitou MT1030S	Crane	16
Telescope crane	Manitou MT1030ST	Crane	2
Scissor lift	Normet Utilift 1430	Normet	1
Grader	Komatsu GD675	Grader	2
Grader	Caterpillar 140H	Grader	1
Grader	Caterpillar UG20K	Grader	1
Service trucks	Various		4
Excavators	Various		2
Water trucks	Various		6

16.6 Mine Services

16.6.1 Dewatering

Three pumping systems are currently operating at the mine. The auxiliary pumping system collects water at the faces and pumps it to the secondary pumping stations using Grindex portable pumps; these have a dewatering capacity of 10 L/s, maximum power of 20 kW, and can handle water columns of up to 40 m. Secondary pumping stations are therefore constructed every 40 vertical metres. These secondary pumping stations consist of a fibre pool and centrifugal multistage 40 hp pumps of 20 L/s capacity. Water is pumped from there towards the main pumping stations.

The main pumping stations decant water and pump it to HDPE-lined ponds on surface. The main pumping stations consist of a pond with multistage centrifugal 220 hp pumps of 30 L/s capacity. These pumps can handle water columns of up to 320 m, which is approximately equivalent to a maximum operating pressure of 30 bars. The equipment uses a variable frequency drive (VFD) which allows the regulation of the speed of the motor and the optimization of the electrical and mechanical operation of the pumps.

16.6.2 VENTILATION

Ventilation of the underground mines at El Peñón is provided through the use of primary and secondary ventilation systems. The primary ventilation system is an exhaust/pull system. Fresh air is supplied through portals, intake ventilation raises, and declines. Return air is exhausted through return air raises (RAR) to surface by main exhaust-air axial fans usually positioned on surface. The first section of the vertical RAR, from the surface to the first underground levels, is typically a 2.4 m- or 3.1 m-diameter raise bore. The remaining RAR connections to the different levels are staggered and excavated via drop-raising.

The distribution of airflows is different for each mining zone and depends on the elevation of active production levels and the airflows required by regulations. The sum of the airflow required under maximum expected production rates, plus expected leaking losses, define the required fan capacity. All the main fans are controlled online via a telemetry system and are equipped with VFD; this allows for the continuous control of the airflow requirements and for the adjustment of fan power, thereby saving energy.

The secondary ventilation system is used for ventilation of blind development faces and production faces. This system is a push system which forces fresh air from declines to the work faces via auxiliary ventilation fans (of varying power and models depending on the local air flow requirements) through 900 mm-diameter flexible ventilation ducts. Ventilation duct ends are located at a maximum distance of 30 m from the face. Air flows back through the drift to the RAR, where it is pulled to surface by the main ventilation system.

An example of the ventilation circuit of the Pampa Augusta Victoria underground mine is shown in Figure 16-3.

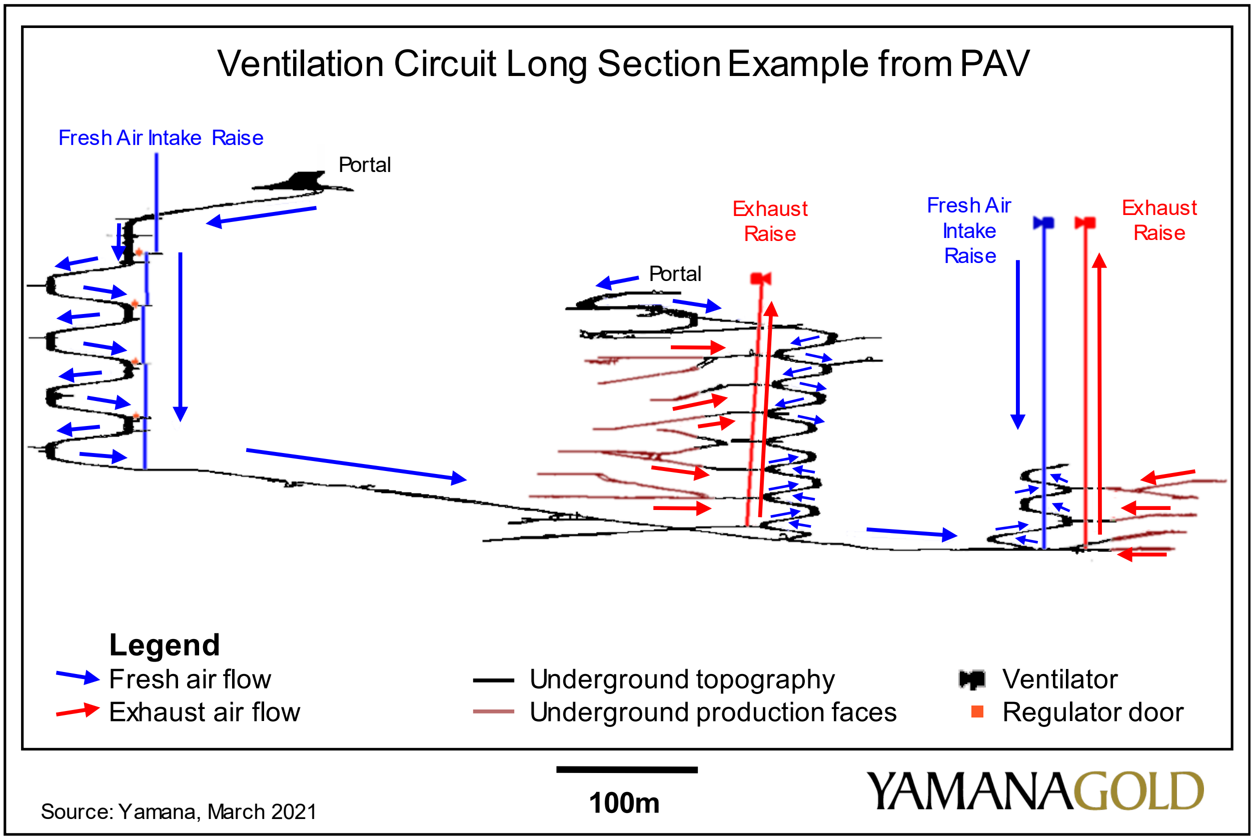


Figure 16-3: Ventilation circuit of the Pampa Augusta Victoria underground mine

16.6.3 Electrical

El Peñón is connected to the National Electric Grid by a 66 kV transmission line to the Palestina substation.

From the main substation at El Peñón, at 66 kV / 6.6 kV and 20 MVA, power is distributed to the camp, processing plant, and administrative facilities as well as to two mine feeders for distribution to areas southeast of the Core mine area. From the main substation, power is also delivered to three distribution substations:

- One for the Fortuna–Dominador satellite mining zone located west of the core mine area, at 6.6 kV / 23 kV and 2.5 MVA
- Two for the areas northeast of the core mine area, at 6.6 kV / 23 kV and 4 MVA each

Several underground substations, at 23 kV / 400 V and 750 kVA or 6.6 kV / 400 V and 750 kVA, are used to provide 400 V power and distribute energy to all electrical loads.

16.6.4 Compressed Air

Compressed air supply is done through a network of carbon steel pipes of 6” diameter on surface and 4” diameter underground, at a constant pressure of 8 bar. Boosters are installed in remote zones, which are activated when pressure losses occur along the network. Delivered compressed air is dried and cleaned through a system of networks and purifiers.

Two main compressors are currently active at the El Peñón core mine area; they are located near the Orito and Bonanza portals. The compressor located near the Orito portal supplies compressed air to the Quebrada Orito, Quebrada Colorada and Dorada zones, while the compressor located near the Bonanza portal supplies the Cerro Martillo and Bloque Norte zones.

16.6.5 Communications

Underground communications are carried out with the use of a Leaky Feeder system, which keeps mine supervisors in continuous contact with operating and service crews throughout the different mines.

16.7 Life of Mine Plan

The life of mine (LOM) plan is based on an integrated operation producing mainly from underground mines and from the Chiquilla Chica open pit. The ore produced by the mining operations and reclaimed from stockpiles is fed to the mill. Considering current mineral reserves, the LOM indicates a total mine life of six years. However, El Peñón has a track-record spanning more than 20 years of replacing mineral reserves through discoveries of new deposits while maintaining 5 to 8 years of mineral reserves. In recent years, mineral resources converted to mineral reserves have more than offset the depletion of mineral reserves; this indicates the significant potential of extending the mine life beyond the current LOM and sustaining a strategic mine life of 10 years or more.

The LOM mining and processing plans are shown in Table 16-3. Mining recovery and dilution factors considered for production scheduling are disclosed in section 15.4 of this technical report. The LOM aligns with the rightsizing of El Peñón that was completed in 2017. Continued exploration success would unlock opportunities to leverage on the existing processing capacity of 4,200 tpd (1.533 Mtpa), which would bring forward gold production in the mine plan. Minimal capital investment would be required to achieve the higher processing rate.

Table 16-3: Life of mine plan (LOM)

LOM	Planned Production	units	2021	2022	2023	2024	2025	2026	Total
Bloque Norte	Ore mined	kt	145	141	234	115	159	266	**1,061**
	Gold grade	g/t	5.72	6.56	7.41	5.50	4.81	4.79	**5.81**
	Silver grade	g/t	84.7	82.7	66.9	191.1	221.9	198.2	**141.2**
Chiquilla Chica (Open Pit)	Ore mined	kt	53	–	–	–	–	–	**53**
	Gold grade	g/t	0.34	–	–	–	–	–	**0.34**
	Silver grade	g/t	316.2	–	–	–	–	–	**316.2**
Dorada - Cerro Martillo	Ore mined	kt	322	291	376	451	413	85	**1,939**
	Gold grade	g/t	4.26	4.40	3.99	3.83	3.51	4.09	**3.96**
	Silver grade	g/t	217.0	197.0	186.9	205.4	228.3	191.8	**206.8**
Fortuna	Ore mined	kt	–	88	128	49	–	–	**264**
	Gold grade	g/t	–	4.19	4.72	4.40	–	–	**4.49**
	Silver grade	g/t	–	273.7	348.3	271.0	–	–	**309.26**
Laguna	Ore mined	kt	102	79	42	–	–	–	**222**
	Gold grade	g/t	9.57	8.24	7.72	–	–	–	**8.75**
	Silver grade	g/t	97.8	78.0	68.0	–	–	–	**85.2**
Quebrada Colorada	Ore mined	kt	360	354	290	241	160	36	**1,441**
	Gold grade	g/t	6.06	6.35	5.64	4.11	4.14	4.62	**5.47**
	Silver grade	g/t	131.1	103.8	120.3	145.9	203.7	248.3	**135.6**
Quebrada Orito	Ore mined	kt	106	135	67	111	82	–	**501**
	Gold grade	g/t	5.87	4.85	6.58	5.18	7.55	–	**5.82**
	Silver grade	g/t	38.7	60.5	37.2	111.4	81.3	–	**67.4**
Pampa Augusta Victoria	Ore mined	kt	–	–	9	–	–	–	**9**
	Gold grade	g/t	–	–	4.96	–	–	–	**4.96**
	Silver grade	g/t	–	–	187.2	–	–	–	**187.2**
Processing	Ore processed	kt	1,319	1,312	1,159	1,098	815	446	**6,149**
	Gold grade	g/t	4.01	4.18	4.71	4.97	6.26	4.20	**4.66**
	Silver grade	g/t	119.7	117.6	141.5	146.2	206.4	232.7	**147.8**
	Gold recovery	%	94.07%	93.65%	94.00%	94.18%	94.25%	93.86%	**94.02%**
	Silver recovery	%	88.66%	88.13%	85.36%	87.52%	88.59%	87.26%	**87.60%**
	Gold produced	koz	160	165	165	165	155	57	**866**
	Silver produced	koz	4,500	4,370	4,500	4,519	4,789	2,913	**25,591**

17 Recovery Methods

The El Peñón processing plant and associated facilities process run-of-mine as well as stockpiled ore, using the main processes listed below:

- Crushing
- Grinding and pre-leaching thickening
- Leaching
- Counter-current decantation (CCD) concentrate solution recovery
- Clarification, zinc precipitation, and precipitate filtering
- Refining
- Tailings filtering and disposal

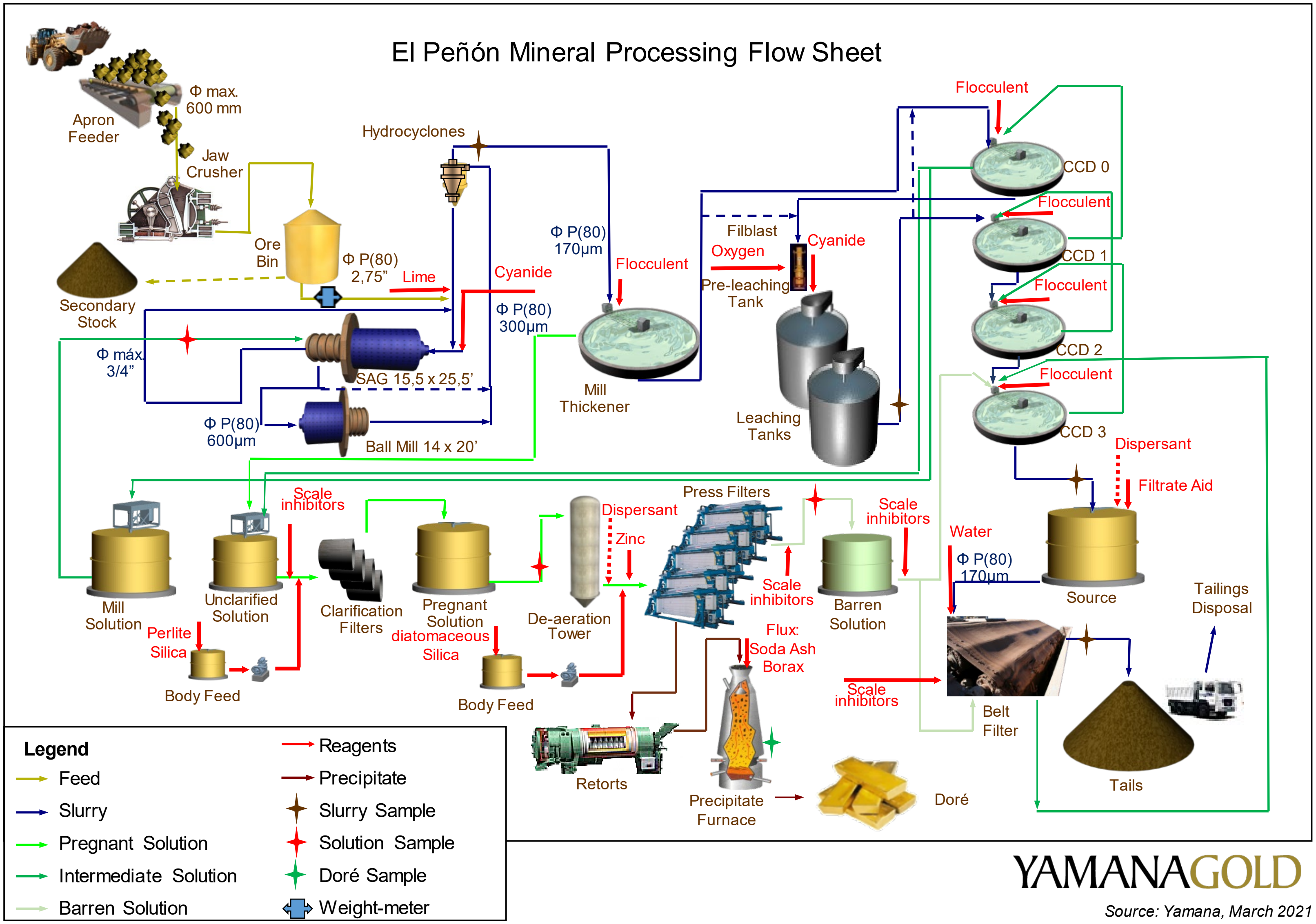
The process flowsheet is shown in Figure 17-1. The processing plant has a nominal production capacity of approximately 1.533 Mtpa. The plant processed 3,461 tonnes per calendar day (tpd) during 2020.

17.1 Primary Crushing

Run-of-mine or stockpiled ore is dumped from a 7 m^3 capacity (CAT 988H) front-end loader and screened through a 600 mm square-grid grizzly into a 100 t-capacity hopper. Fine material is collected and transported directly to the conveyor belt that carries primary crushed material. A 1,500 mm-wide apron feeder is used to transfer ore from the dump hopper to the jaw crusher. Coarse material is fed into a 950 mm × 1,250 mm jaw crusher and crushed to a P_{80} size of 63.5 mm. The crushed ore is transported by a conveyor belt to a 1,500 t-capacity silo. Additionally, an auxiliary stockpile for crushing product is located to the northwest of the silo. The stockpile has a capacity of 10,800 t and covers an area measuring approximately 40 m × 60 m.

The ore stored in the silo is transported by a variable-speed mill-feed conveyor belt, which has a nominal capacity of 250 tonnes per hour (tph), to a transfer chute that discharges onto the conveyor belt that feeds the SAG mill.

The ore from the auxiliary stockpile is fed via a front-end loader to an encapsulated hopper with suppressor system to mitigate dust emissions. The hopper discharges onto a belt which transports the ore to the mill-feeder conveyor belt.



Source: Yamana, March 2021

Figure 17-1: Mineral processing flowsheet

17.2 Grinding and Pre-Leach Thickening

Crushed ore and sodium cyanide process solution are fed into the SAG mill; the sodium cyanide solution is used as leaching agent.

The SAG mill operates in series with a ball mill, which feeds a battery of hydrocyclones. The underflow of the hydrocyclones returns to the SAG mill. Pebbles formed in the SAG mill are discharged by a trommel onto a conveyor belt, which transports the pebbles to a chute returning them to the mill-feeder conveyor belt. Alternatively, the pebbles can be mixed with crushed material to be recirculated to the grinding circuit. The density of the pulp fed to the hydrocyclone circuit is controlled online via density measurements using a nuclear densitometer.

The classification circuit consists of six hydrocyclones. Generally, four hydrocyclones operate while two remain on standby. The cyclone overflow pulp contains between 42% and 46% solids with a P_{80} of 170 µm. Particle size is measured online through a PSI 300 particle-size analyzer and is controlled by changing hydrocyclones operating pressures. The hydrocyclones overflow is fed to the grinding thickener and the underflow is recirculated to the SAG mill feed. Spills are pumped to the mill's discharge sump using a floor pump located in the area.

Flocculant is added to the grinding thickener to promote solid-liquid separation by decantation. The underflow of the thickener, containing 50% solids, is pumped to the first leach tank. The thickener underflow discharge has two variable speed pumps (generally one operating and one on standby) with a flow rate capacity of 250 m^3/h and a 31 m discharge height. The pumping rate is controlled according to the density of the pulp, which is measured online through a nuclear densimeter. The overflow of the grinding thickener, which is called "unclarified pregnant solution" is sent by gravity to a storage tank.

17.3 Clarification

From the storage tank, the unclarified pregnant solution is pumped to four clarifying filters which clarify the solution to a maximum turbidity of 1 NTU. The clarified solution is transported into the clarified pregnant solution tank for the subsequent zinc precipitation step.

17.4 Leaching

Gold and silver leaching starts at the SAG mill, where sodium cyanide is added as a leaching agent. An extraction of around 75% is reached in this step.

Six reactors, with a combined capacity of 7,279 m^3 using mechanical agitators, leach the underflow of the grinding thickener.

Oxygen is also added to maximize dissolution kinetics. The oxygen is homogenized with the pulp through recirculation pumps that propel the pulp to an oxygen mixer. Oxygen is supplied from a liquid-oxygen storage tank.

Leach tanks are arranged in series with cascading heights to facilitate the transport of pulp by gravity. The reactors are fed from the bottom to reduce the potential for the leach slurry to short-circuit between tanks. Under normal operating conditions, the discharge of the last reactor is sent to the first thickener of the CCD concentrate solution recovery circuit.

17.5 CCD Concentrate Solution Recovery

The leached pulp, with a concentration of 48% to 55% solids, is transported by gravity to the CCD circuit, which consists of four high-capacity counter-current thickeners. The objective of this circuit is to wash the pulp and recover the pregnant solution. The wash-solution flows counter-current to the solids flow, increasing the precious metal concentration of the solution. The overflow of the first CCD thickener (CCD0) is transported by gravity to the pregnant solution storage tank, while the discharge of the last CCD thickener (CCD3) is pumped to the filtration area.

17.6 Pregnant Solution Precipitation

In normal operation conditions, the Merrill-Crowe process consists of the following stages:

- Deaeration of the clarified solution by circulating the fluid through a vacuum tower.
- Precipitation of gold and silver by the addition of zinc to the deaerated solution.
- Filtering of gold, silver, and zinc precipitates.

The clarified pregnant solution (maximum flow of 275 m^3/h) is deaerated through a vacuum tower before entering the zinc precipitation stage. The vacuum tower is a 10.4 m^3- capacity reactor which achieves a rich deaerated solution with an oxygen (O_2) concentration of less than 1 ppm. The reject solution that exits the tower is fed to the press filters.

The zinc pulp is fed with five peristatic pumps to the feed line of each of the press filters. The contact of the zinc pulp with the rich deaerated solution occurs in the filter piping feed and causes gold, silver, and impurities to precipitate onto the zinc surface. The dosage of zinc is controlled by assays of the rich and barren solutions every two hours.

The filtration stage is carried out in five filter presses. Before feeding a filter press with the solution from the precipitation stage, 2 m^3 of pulp containing 37.5 g/L of diatomaceous earth are recirculated for 45 minutes to form an initial layer on the filter surface. The diatomaceous earth layer prevents blockage by the very fine undissolved zinc. After the initial layer is formed, the precipitate solution is filtered. The solution that exits the filter is transported to the barren solution tank. To unload, a filter press is opened and the material is removed using a spatula and sent to the retort furnaces.

17.7 Refining

Precipitates obtained from the filter presses are deposited in trays with a capacity of approximately 50 kg of precipitate with 30% moisture content. Four retort furnaces eliminate the humidity and the mercury contained in the precipitate. Each furnace is loaded with eight trays and kept at a temperature of 538°C for about 20 hours under vacuum conditions. The product (calcine) is fed to the melting furnaces.

A reverberation furnace, which uses liquefied gas and air/oxygen to reach 1,220°C is used for smelting. Calcine is fed to the furnace through a screw feeder. The melt consists of two phases:

- The upper part of the slag, which is of lower density (2.5 g/L) and melts at 850°C, is formed of silica (flux) and impurities such as copper, iron, zinc, and others.

- The lower phase of the slag consists of doré. This lower phase is of higher density (15 g/L), melts at 1,000°C, and is mainly composed of silver and gold, with a small proportion of impurities.

The slag is poured into 50 kg-capacity conical steel containers, while the doré is poured into 165 kg-capacity ingot molds. Emissions from the refining furnace are collected by a hood and pass through a high-temperature bag filter to recover the precious metal particles contained in the gases. The solidified slag is recirculated to the crushing stage of the plant to recover any residual gold and silver. The doré is removed from the ingot mold and loaded with a forklift to the bar cleaner to remove the attached slag. After this process, the bars are removed and stored for weighing and shipping.

17.8 Tailings Filtering and Disposal

The objective of the tailings filtration is to obtain dischargeable tailings containing a moisture content of about 20%. The CCD circuit and filter cake wash step ensure the liquid contained in the filtered tailings has minimum concentration of cyanide and dissolved metals. The pulp is pumped to a filtering system consisting of four 54 m^2 and one 82 m^2 horizontal vacuum belt filters.

The filtered tailings are transported by two conveyor belts (equipped with a weight-meter and sampler) to two stockpiles, one for each belt. The storage area consists of a 220 m^2 concrete slab and retaining wall (to protect the belts). A floor pump is located in the area to collect solutions and cleaning water, which are recycled to the filtration area.

The collected tailings are loaded on trucks by a front-end loader and transported to the tailings storage area, located approximately two kilometres away.

17.9 Metallurgical Reporting

The processed tonnes are determined by weight-meter readings that are located on the SAG mill-feed conveyor belt and the tailings discharge conveyors. Daily analytical results from feed and tailings solids samples and solutions samples of discharged tailings are used to calculate plant metallurgical performance. Metal sales and inventory contained in the circuit and refinery are determined at the end of each month and appropriate adjustments are made. The mill reports the back-calculated head grades of the mill feed from this information

17.10 Plant Consumption

Water consumption by the processing plant is approximately 0.28 m^3/t, while the tailings disposal operations require 0.10 m^3/t. The energy consumption by the processing plant is estimated at between 46 and 48 kW/dmt. Other reagents and supplies consumptions for 2020 are summarized in Table 17-1 and Table 17-2, respectively.

Table 17-1: Consumption of reagents for 2020

Reagent	Consumption	Units
Sodium Cyanide	2.51	kg/t
Zinc	2.07	kg/kg $_{(Au+Ag)}$
Lime	0.36	kg/t
Diatomaceous Earth	0.49	kg/t
Celite 545	18.90	g/t
Celite 7F	10.10	g/t
Flocculant (CCD)	79.00	g/t
Filtering Aid	63.00	g/t
Antiscalant (CCD)	58.90	g/t
Antiscalant (Precipitation)	73.30	g/t
Antiscalant (Retort)	7.90	g/t
Dispersant	100.00	g/t
Oxygen	0.34	l/ t
Borax	0.34	kg/kg $_{(Au+Ag)}$
Soda Ash	0.16	kg/kg $_{(Au+Ag)}$
Gas	2.54	l/kg $_{(Au+Ag)}$

Table 17-2: Consumption of processing supplies for 2020

Item	Consumption	Units
Balls (Ball Mill)	0.19	kg/t
Balls (SAG Mill)	1.09	kg/t
Refractories	2.20	tpm
Doré Packages	0.008	Boxes/kg $_{(Au+Ag)}$
Clarifying Filter Fabric	56	Fabric/month
Press Filter Fabric	56	Fabric/month
Band Filter Fabric	1	Fabric/28,000t

17.11 Optimization Opportunities

In 2021, Yamana initiated a new review of the El Peñón processing plant to identify opportunities for increased throughput, increased recovery, and reduced operating costs. The review, conducted by Paterson & Cooke from Denver, Colorado, USA, and the El Peñón processing team, has identified several opportunities as summarized in a preliminary report (Paterson & Cooke, 2021). Some of these opportunities are summarized below.

The grinding circuit can be optimized to reduce over-grinding by separating the circuit into primary and secondary grinding. Separating the circuit would require an additional classification mechanism incorporated between the SAG mill and the ball mill.

In the leaching circuit, managing the leach solution to decrease the precious metal concentrations can promote a more favorable conditions for leaching.

Thickener operation can be improved by adding controls for circuit automation. Improving reagent control will unlock further opportunities to implement new coagulant/flocculant addition schemes that can limit potential overdosing of flocculant. Installing bed depth indicators will also improve thickener performance monitoring and enable future advancements in thickener control.

Implementing an advanced process control system (APC) to the CCD circuit will enable continued optimal performance.

The viability of each opportunity outlined in the report will be evaluated by the site team. The viable opportunities will be assessed for qualitative implementation costs, probable benefit, and execution risk. The outputs will be compiled into a solution and opportunities matrix and an implementation roadmap developed for the highest priority projects.

18 Project Infrastructure

El Peñón is accessed by a paved road approximately 165 km southeast of Antofagasta. Travel time from Antofagasta is approximately 2.5 hours. Antofagasta is the principal source of supplies for the mine. It is a port city with a population of 380,000; it is linked by daily air service to Santiago. Power is supplied to the mine site via national power grid. Auxiliary or backup power from generators is also available with 10 MW of power capacity on site.

The mine consists of multiple gold and silver deposits that are mainly mined by underground mining methods. Open-pit production was extensive in the past, but now comprises a small proportion of the LOM. Four main mining blocks are currently in operation at the core mine zone. These are: Quebrada Orito, Quebrada Colorada, Dorada-Cerro Martillo and Bloque Norte. Several satellite deposits are or have been active in the past such as Chiquilla Chica, Laguna, Fortuna-Dominador, located to the south west of the core mine, and Pampa Augusta Victoria located to the north.

El Peñón has all the required infrastructure for a mining complex, illustrated in Figure 18-1. The main infrastructure includes the following features:

- Underground and open pit mines with all the associated access, power, ventilation compressed air ventilation, industrial water supply, and dewatering infrastructure
- Process plant and refinery
- Stockpiles and waste dumps
- Tailings storage area
- Concrete and cemented backfill plants
- Groundwater well system for water supply
- Main administration building and offices
- Campsite, cafeterias, and change rooms
- Energy supply and transmission system
- Telecommunications system
- Water ponds
- Water distribution system
- Workshops and sheds
- Materials storage areas
- Laboratory
- Core shed
- Sewage treatment system
- Storage areas for explosives
- Facilities for storage and distribution of fuel, oil, and lubricants
- Mine workshops, maintenance facilities, and warehouses

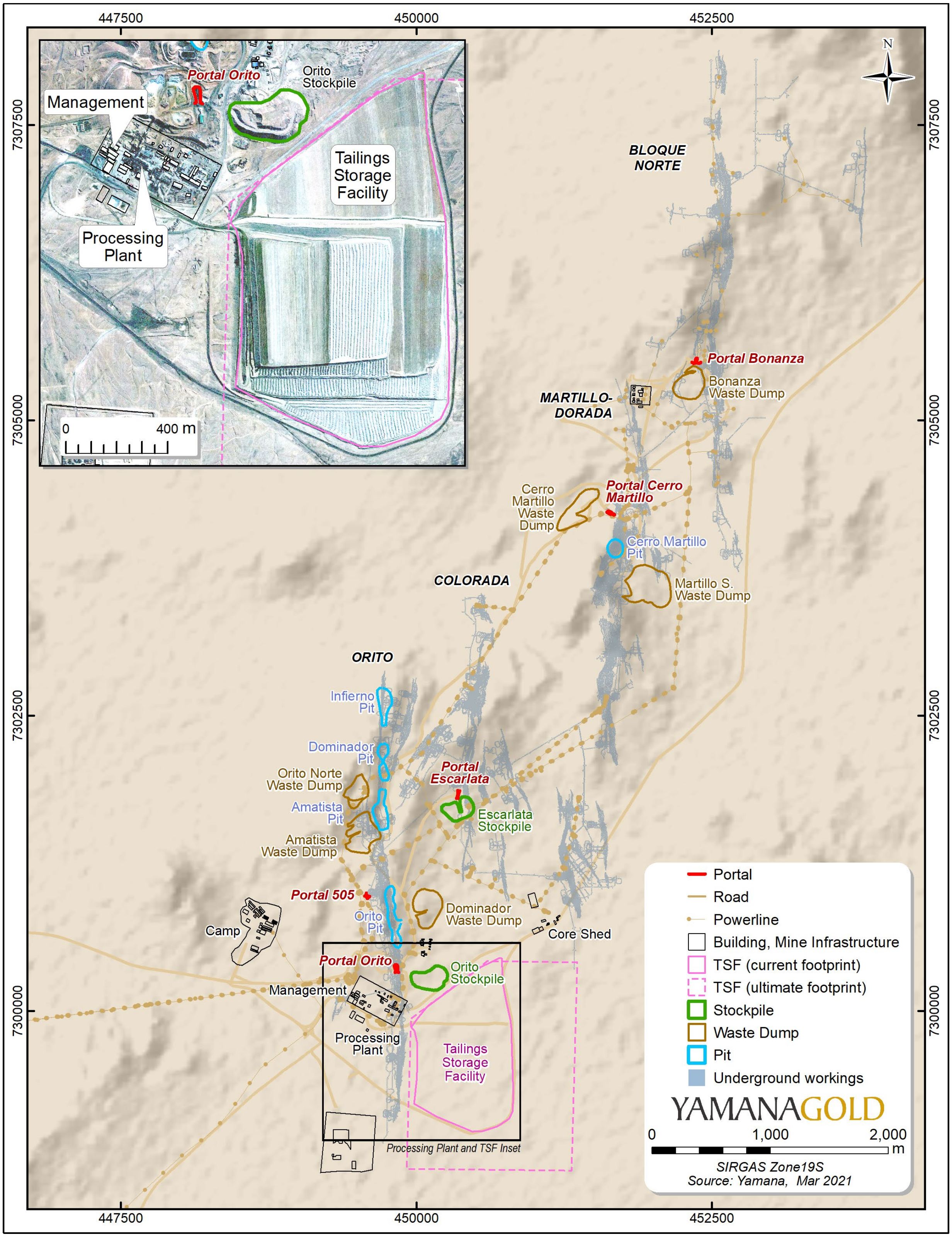


Figure 18-1: Plan map of main infrastructure at El Peñón

18.1 Filtered Tailings Stack Design and Construction

The El Peñón filter stack is located 1.5 km southeast of the processing plant and stores approximately 25.4 Mt. (Figure 18-1). The updated TSF designs included in the newest Declaration of Environmental Impact (DIA) submitted in February 2021 considers a reduction in the ultimate TSF capacity from 58.1 Mt (RCA 270/2010) to 49.8Mt, which is sufficient capacity for current mineral reserves plus an additional capacity of approximately 18.5 Mt.

The filtered tailings stack is raised in three platforms to an ultimate elevation ranging between 1835 masl to 1850 masl in the northern section of the facility. Each platform is approximately 10 m in height with slopes of approximately 1.25H:1V. A 5 m-bench is left between platforms, forming an overall approximate slope angle for the filtered tailings stack of approximately 2.5H:1V (Figure 18-2).

The eastern portion of the TSF is raised in only two platforms, each with a maximum height of 10 m and slopes of 1.25H:1V. A 5 m-bench between each platform allows for a flatter overall stack slope.

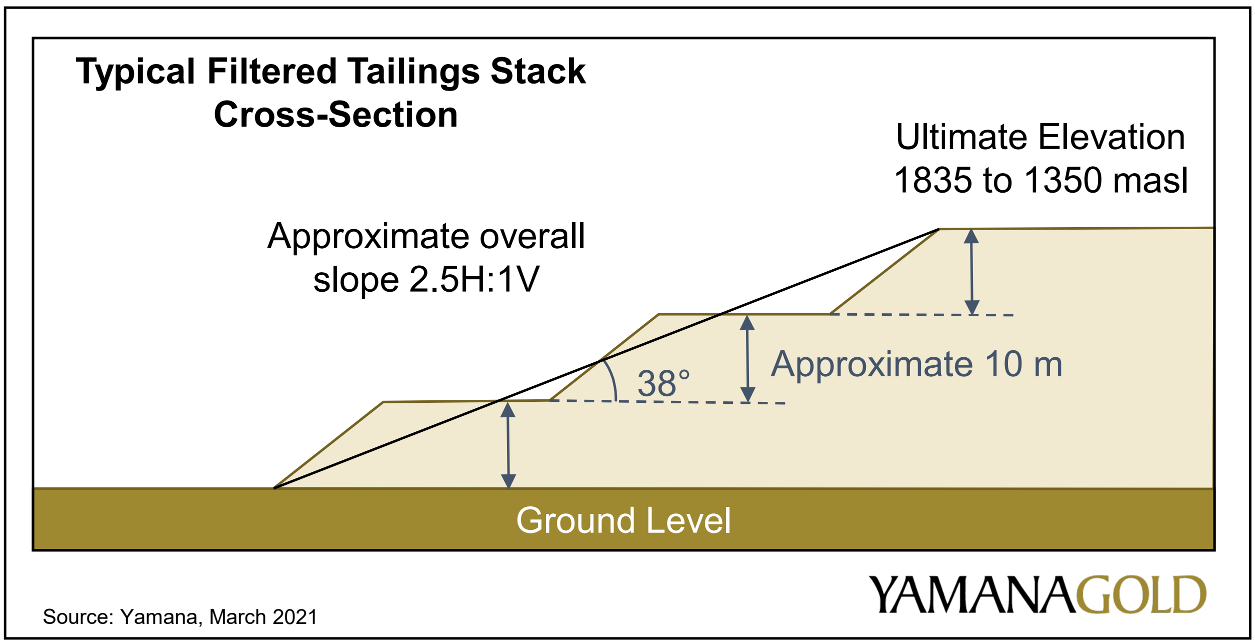


Figure 18-2: Schematic cross-section of western face of filtered tailings stack

The filtered tailings are a non-plastic sandy silt; they consist of about 60% fines with fine- to medium-grained sand particles and have a volumetric moisture content when leaving the filter plant of about 18% (gravimetric moisture content of about 22%) and a specific gravity of about 2.63.

Filtered tailings are transported to two stockpiles by conveyor belts, one for each stockpile. Stockpiled tailings are loaded into haul trucks by a front-end loader and transported about 2 km to the TSF. At the TSF, tailings are deposited in mounds and spread into 0.15 to 0.3 m-thick layers with a dozer to promote further aeration and cyanide degradation. Tailings are then turned with a grader and irrigated with process water from the waste water treatment plan to reduce the concentration of cyanide in the solids; this decreases the in-situ moisture content of the tailings. This aeration-and-water process is repeated until the cyanide concentration is less than 2 ppm. The density of the tailings is recorded and measured against a target 90% modified proctor. Once compacted, a new layer of tailings is incorporated into the dry stack and the process is repeated.

Quarterly operational reports and monthly quality-control reports are generated for the El Peñón TSF. These reports include test results from samples from every new lift; these tests include in-situ density testing, particle size analysis, and moisture content. In addition, the cyanide content of the tailing is tested regularly.

Slope stability assessments of the dry stack facility were conducted by E-Mining and FF GeoMechanics in 2019 and 2020. Results indicate that the facility is stable under static and seismic conditions. Seismic design criteria assume a peak ground acceleration (PGA) of 0.49 *g*. The proposed PGA seems adequate for the region. Undrained stability is not a concern in this facility as there is no phreatic surface in the filtered stack.

In addition, stability analysis completed by FF GeoMechanics (2020) indicate a maximum runoff of the dry tailings material, in case of a slope failure, to be less than 2 m. The mine infrastructure is located approximately 200 m of the facility. As such, a slope failure of the filtered tailings at El Peñón does not pose a risk to the environment or to people. Regardless, as a preventive measure, the mine constructed containment berms located 5 m from the toe of the TSF stack to prevent the spread of tailings, should a localized slope failure occur. These berms also divert surface runoff away from the filtered tailings toe, in the unlikely event of a strong precipitation event in the region.

A dam inspection by a third-party geotechnical specialist is planned for 2021 to confirm that the current designs align with evolving international best industry practices proposed for this type of structures. In addition, the site needs to develop an updated Operations, Maintenance, and Surveillance (OMS) manual that aligns with the latest guidelines from the Mining Association of Canada on tailings management. In addition, it is recommended for site to update the closure plan for the TSF area, considering potential changes to the design, such as stack final geometry, water management, long-term geochemical effects, management frameworks and requirements for regulatory compliance and closure permitting.

19 Market Studies and Contracts

19.1 Market Studies

The principal commodities produced at El Peñón are gold and silver in the form of doré bars, which are freely traded, at prices that are widely known, so that prospects for sale of any production are virtually assured. Gold prices of US$1,250/oz and silver prices of US$18/oz were used for mineral reserve estimation as well as for completing the economic analysis outlined in Section 22 of this technical report, which ensures the project is cash-flow positive and therefore supports the mineral reserve estimate.

19.2 Contracts

Yamana, via its subsidiary Minera Meridian, has four collective bargaining agreements currently in place. The maximum term allowed for collective bargaining agreements by the current legislation is of 36 months. The following agreements are currently in place:

- Union #1A – Mine. Feb.1, 2020, to January 31, 2023: 36-month term (512 employees)
- Union #1B – Plant. July 23, 2018, to July 22, 2021: 36-month term (194 employees)
- Union #2 – Plant. Oct. 13, 2020, to Oct. 12, 2023: 36-month term (351 employees)
- Union #3 – Supervisors. March 1, 2020, to Feb. 23, 2023: 36-month term (121 employees)

Yamana also has contracts in place for the operation of the Chiquilla Chica open-pit project; electrical power supply; personnel transport services; catering and camp services; fuel supply services; exploration drilling; and for mine and plant consumables, including drilling products, explosives and cyanide supply.

Average prices for consumables during 2020 were as follows:

- Power: US$78.35/MWh
- Fuel: US$0.54/L
- Cyanide: US$2.11/kg
- Flocculant: US$5.19/kg
- Mill balls: US$1.06/kg

The qualified person responsible for this section of the technical report has reviewed the market studies and contracts. The results of the review support the assumptions laid out in the technical report. The terms, rates, or charges for material contracts are within industry norms.

20 Environmental Studies, Permitting, and Social or Community Impact

The information presented in this section is based on a review of previous technical reports available for the site and on discussions with Yamana's Health, Safety, Environment, and Community (HSEC) team.

20.1 Project Permitting and Authorizations

The first Environmental Impact Assessment (EIA[1]) was submitted to the Chilean Environmental Impact Assessment System (SEIA) in 1997. The Environmental Commission of the Region of Antofagasta (Comision Regional de Medio Ambiente de Antofagasta) approved the application with Exempt Resolution Nr. 043 in 1998.

El Peñón has undergone a series of modifications since its original EIA submission. Required Environmental Qualification Resolutions (RCAs) were granted through a series of Declaration of Environmental Impacts[2] (DIAs). A DIA was approved in 2019 to extend the life of mine until 2023; a new DIA was recently presented in February 2021 considering a life of mine extension until 2026 and closure by 2028. Approval is expected in 2021.

El Peñón consists of historical open pits, underground mining operations, a process plant, and other support infrastructure, including waste dumps and a filtered tailings facility with a total storage capacity of 49.8 Mt. The approved plant capacity is 4,800 tpd.

Table 20-1 list resolutions granted to El Peñón since 1998. This list was reviewed and confirmed with HSEC management team in El Peñón.

[1] An EIA must be submitted by the proponent for projects or project modifications where significant environmental impacts are expected to occur, and where specific measures for impact avoidance, mitigation or compensation will need to be agreed upon.

[2] A DIA must be submitted by the proponent for projects or project modifications that are significant enough to warrant environmental review, but which are not expected to result in significant environmental impacts, as these are defined legally.

Table 20-1: Summary of environmental resolutions since 1998

Resolutions	Activities
Resolution 043-98 El Peñón Project	Health report
	Change in land use
	Tailings storage
	Waste dumps
	Construction waste disposal
	Household waste disposal
	Sewage treatment and disposal
Resolution 086-99 Power Supply	Power supply
Resolution 0179-02 Explosive Handling	Explosives
Resolution 050-03 and 227- 04 Extension of Underground Mine	Mine expansion
Resolution 0163-07 Expansion and Optimization El Peñón Mine	Tailings storage area construction
Resolution 0192-07 and 056-2011 Production Fortuna Area	Waste dumps
	Sewage treatment and disposal
	Change in land use
Resolution 106- 2010 Extension of Bonanza and Expansion of Transport and Handling of Explosives	Waste dumps
	Sewage treatment and disposal
	Household waste treatment and disposal
	Industrial designation
	Change in land use
Resolution 0270-2010 Expansion of Tailings Storage Area until 2021	Tailings storage area
Resolution 0233-2012 Open-Pit Mine Production Pampa Augusta Victoria	Waste dumps
	Construction waste disposal
	Mining waste disposal
	Sewage treatment and disposal
	Household waste disposal
	Industrial designation
	Change in land use
Resolution 0229-14 Underground Mine Production Pampa Augusta Victoria	Waste dumps
	Sewage treatment and disposal
	Industrial designation
	Change in land use
Resolution 206 -2018 Production Laguna Underground Mine	New underground mine operation
Resolution 168 -2019 Extension of Process Plant Operations and Ancillary Infrastructure until 2023	Process plant
	Tailings facility
	Waste dump
	Ancillary infrastructure

Other sectoral licences and permits have been obtained and applications for renewals have been filed. These permits are granted by some of the following agencies:

- Dirección General de Aguas (DGA)
- Servicio Nacional de Geología y Minería, (SERNAGEOMIN)
- Ministerio de Salud de Chile
- Concejo de Monumentos Nacionales (CMN)
- Comisión y Servicio de Evaluación Ambiental
- Dirección de Obras Hidráulicas
- Superintendencia de Electricidad y Combustibles (SEC)
- Servicio de Salud de Antofagasta (SSA)
- Ministerio de Defensa Nacional (MDN)
- Municipalidad de Antofagasta
- Dirección General de Movilización Nacional (DGMN)
- Ministerio de Vivienda y Urbanismo
- Servicio Agrícola y Ganadero (SAG)

The operation has not been subject to sanctioning for environmental compliance by any of the regulatory agencies.

20.2 Environmental Management

20.2.1 Environmental Management System

El Peñón has implemented an integrated management system covering health, safety, environment, and community through internationally accredited systems that include the ISO 14001 Environment Management System and the OSHAS 18001 Occupational Health and Safety Management System. A risk assessment matrix has been developed for El Peñón that integrates risk matrices for ISO 14001:2015 and OHSAS 18001:2007.

Activities for 2021 include the process of certification for ISO 45001 (replacing OSHAS 18001) and recertification of the ISO 14001 Environment Management System. In addition, Yamana is signatory to the International Cyanide Management Code. A standard for operational processes has been developed for the management of other hazardous and non-hazardous solid waste (Certified NCh-ISO 17025 INN – Instituto de Normalizacion Chilena)

In 2016, Yamana updated its Integrated Management System by developing a Health, Safety, Environment, and Community (HSEC) (2016) framework that was integrated in the company's approach to health & safety, environmental management, and management of social risk. The framework establishes a common understanding across Yamana operations of its general approach to HSEC management and indicates how to achieve its vision. Yamana acknowledges that every operation is at a unique stage of development and is situated in unique socio-political and legal contexts. Yamana provides this framework to offer the following guidance:

- Outline industry best practices for HSEC management.
- Guide the development of new tools, processes, procedures, policies, and/or standards, either at the site or at the corporate level.
- Assist operations in any evaluations or self-evaluations of their current state of practice.
- Improve the overall integration of HSEC into the operations.

Beginning in 2020, El Peñón also began the implementation of the Mining Association of Canada's *Towards Sustainable Mining* framework as well as the World Gold Council's *Responsible Gold Mining Principles*, each of which included internal assessments and will require external audits within a 3-year timeframe.

20.2.2 Tailings Management

Yamana prioritizes the management of tailings and it is currently in the process of aligning the company's tailings management system with best practices proposed by the Mining Association of Canada (MAC), Canadian Dam Association (CDA) guidelines, and other international standards, including technical guidance provided by the International Committee of Large Dams (ICOLD). Yamana currently has a dedicated Corporate Director whose sole responsibility is the governance of the tailings management system and to provide technical guidance and support.

Since 2017, Yamana has implemented a tailings management system known as SYGBAR. The system is built on a six-point management system that focuses on the following protocols:

- Standards for design and construction, and the use of design reviews
- Constant TSF monitoring and site-specific key performance indicators for development and performance management
- Periodic safety inspection
- Documentation and monthly reporting
- Training and continuous improvement
- Emergency response plans with dam failure analysis

As a member of the MAC, Yamana is updating its current tailings management systems considering the recommendations included in the tailings framework proposed in MAC (2019). MAC's tailings management systems and guidelines have been adopted by mining associations in Canada, Argentina, and Brazil, among others, in recent years. The MAC systems include the completion of a Dam Safety Review (DSR) that follows the guidelines and recommendations provided in CDA dam safety guidelines (CDA, 2007) and its corresponding mining bulletin.

The tailings produced at the El Peñón mill are presently stored in a filtered tailings stack in operations since 1998. The TSF is monitored on an ongoing basis for chemical and physical stability conditions by collecting data on cyanide and by conducting visual inspections and regular surveys for potential signs of deformation or other physical instabilities. Volumes of deposited tailings, grain size distribution, and tailings density are recorded on a regular basis. Samples are collected and tested by a registered third-party laboratory. In addition, a network of monitoring wells is used for monitoring any changes in water levels and water quality in the area of the mine, including in the TSF area. Section 20.2.3 outlines additional details on water management and monitoring.

As part of the mine's tailings management system, a geotechnical stability inspection was completed by FF Geomechanics, an independent specialized firm, in 2019 and 2020. The review confirmed the filtered tailings stack are stable and safe.

The current closure plan for the TSF area is presently at a conceptual level and will be updated to reflect the most recent TSF designs, corresponding budgets, and implementation schedules.

20.2.3 Water Management

Water conservation is a primary focus at El Peñón. The water management system at El Peñón has been designed as a closed circuit. Process water from the mill is recovered in the tailings filter plant and recirculated back to the processing plant.

Pampa Buenos Aires Aquifer

The Pampa Buenos Aires aquifer is the main source of fresh water for El Peñón; the aquifer is located 25 km from the mine; eight pumping wells intersect the aquifer. The mine has been approved by the regional water authority (DGA) for a consumption of up to 50.4 L/s. Daily consumption to date averages less than half of the approved amount: the average flowrate recorded for 2020 was 22 L/s.

Considering the desert characteristics of the area, no risks of groundwater contamination from the mine operations have been identified in the reviewed documentation.

A detailed hydrogeological model has been developed for the Pampa Buenos Aires aquifer to monitor and assess recharge, specific yield, storativity, and other important hydrogeological parameters. This model is continually updated to reflect the most recent conditions.

Water levels and water chemistry information collected for the Pampa Buenos Aires aquifer is shared with the regional water authority via their online portal every 15 days.

Water recycled from Underground Developments

El Peñón recycles the water that accumulates in underground mines; this water derives from mining operations and not from a regional aquifer, as the underground mines at El Peñón are at shallower depths than the regional aquifers, therefore do not intersect them.

Water collected in the underground mine is conveyed through a complex drainage system and pumped into fully lined collection ponds. This water is then recirculated to the process plant as needed by the operation. The system is managed, controlled, and monitored using an automatized system.

Waste Dumps and Water Management

El Peñón has several mine waste dumps in the core mine area (illustrated in Figure 18-1) as well as at the satellite deposits of Fortuna, Pampa Augusta Vitoria, Laguna, and Chiquilla Chica. Several of these dumps are not being operated and are in temporary closure. Although precipitation in the area is low, a surface water management system is in place in all dumps as a preventive measure; it consists of a surface water collection and drainage system to collect contact water and a system of contour channels for diversion of non-contact water.

No acid rock drainage (ARD) and metal leaching (ML) issues associated with the operation and with waste dumps have been identified. Waste rock material does not contain pyrite. Various acid-base accounting (ABA) tests results for the site confirm these observations. In addition, the low precipitation typical for this arid region does not promote acid generation.

Monitoring

To comply with environmental legislation and applicable standards, El Peñón carries out environmental monitoring in all areas influenced by the operation. Monitoring is performed by internal and external staff who are qualified for execution and evaluation of the monitoring activities. Key current monitoring is ongoing for water, air, noise, soil, impact on wildlife, and cultural resources.

The monitoring program at El Peñón relies on 8 groundwater wells, 4 air quality stations, and a weather station located in the camp area. Water quality samples are analyzed for chlorine, pH, and free cyanide in a certified laboratory located at El Peñón. In addition, El Peñón has samples regularly tested for these and other parameters at certified third-party laboratories.

No surface water streams exist in the area, and no groundwater quality issues were reported for El Peñón. It is important to note that the risk of groundwater contamination from the waste rock dumps in El Peñón is negligible as aquifers are located at great depths and precipitation in the area is low. In addition, waste rock material in the dumps has a low pyrite content and the mine has implemented adequate controls and environmental monitoring systems.

Archeological inspections are completed annually by third-party experts. There is no permanent wildlife in the area, but the site has implemented a visual inspection protocol. Fauna that are rescued are taken to the Wild Fauna Rescue and Rehabilitation Centre at the University of Antofagasta.

20.3 Community Relations

20.3.1 General Social Context

There are no communities in the immediate vicinity of El Peñón. The city of Antofagasta, located approximately 160 km northwest of the mine, is the main source of labour supply. It is a port city with a population of approximately 380,000 inhabitants, and hosts a large number of manufacturers and suppliers that serve the mining industry.

20.3.2 Social and Environmental Assessment and Management Systems

At the corporate level, Yamana has an Integrated Health, Safety, Environment and Community (HSEC) Framework (2016), which provides guidance across operations to meet the following goals:

- Outline evolving international best practice for HSEC management.
- Guide the development of new tools, processes, procedures, policies and/or standards.
- Assist operations in any evaluations or self-evaluations of their current state of practice.
- Improve the overall integration of HSEC into the operations.

The HSEC Framework includes guidance for (1) Health and Safety, (2) Environmental Management, and (3) Social Risk Management. The HSEC Framework provides guidance to Yamana and its operations on the collection of information on relevant stakeholders, assessment of potential impacts, and development of mitigation measures.

Of relevance to this technical report and this section is the HSEC Framework guidance for Social Risk Management, which includes the components listed in Table 20-2.

Table 20-2: Social risk management element of Yamana's HSEC Framework (2016)

Management Element	Component
Stakeholder Engagement	Stakeholder identification and analysis (mapping)
	Stakeholder engagement
	Issues identification
	Feedback management
Impact Management	Impact identification
	Impact management
	Community baseline information tracking
	Plans for closure
Benefit Management	Expectation management
	Local employment and procurement
	Community investment

In accordance with these guidance documents, Yamana has been tracking stakeholder issues and risks related to El Peñón and communicates project activities and other programs with stakeholders and members of the public on an ongoing basis.

El Peñón has developed and implemented a site-level grievance mechanism; there have been no complaints registered in recent years, in part due to the fact that there are no host communities located in proximity to the operation. The mine continues to engage with communities located a distance from the mine, including Taltal, and to support community initiatives such as education and cultural projects.

20.3.3 WORKPLACE HEALTH AND SAFETY

El Peñón prioritizes providing a safe and healthy workplace and building an exceptional safety culture. A number of guidance documents provide the framework for health and safety measures at El Peñón. Yamana's HSEC Framework (2016) provides guidance to the company and its operations on the development of site-specific health and safety procedures and on how to improve operations, based on monitoring and health and safety performance.

Of relevance to this report and this section is the guidance for Health and Safety, which includes the components listed in Table 20-3.

Table 20-3: Health and safety management elements of Yamana's HSEC Framework (2016)

Management Element	Component
Leadership	Positive recognition
	Leadership training
Risk and Hazard Management	Hazard identification
	Job hazard analysis
	Field-level risk assessment
	Employee reporting and at-risk behaviour
	Standard operating procedures
	Hazardous materials
	Safety design reviews
Health, Hygiene and Medical	Health and hygiene
	Medical
	Drug and alcohol

Furthermore, El Peñón has established a system to promote worker health and safety, including ISO 14001 and 45001 environmental management and occupational health and safety (OH&S) standards, respectively.

Regular audits and reports on worker health and safety are conducted for El Peñón and recommendations are made to improve performance based on the audit findings. Monthly and annual audit reports are generated, presenting a number of safety performance indicators that include the following information:

- Frequency of accidents with injury
- Severity and frequency of accidents with and without loss of time
- Accidents by type and company

20.3.4 Support for Community Priorities

Even though no communities are located near to El Peñón, Yamana has made a number of commitments to the well-being, health, safety, and development of the communities in the area. As such, the social and community activities conducted by Yamana are concentrated in the Taltal District and support educational, health-related and cultural priorities. A summary of activities completed in a typical year include the following:

- Open door policy: visits of 100 stakeholders to mining facilities
- High school scholarships for 10 students
- Free pre-university for students who take the Taltal district University Selection Test
- Support of medical services in Taltal
- Participation in the Business Advisory Council of the Liceo Politécnico
- Broadcasting radio tips to the Taltal community on environmental care and precautions to consider for risks in the home
- Integration Day: a fair held in December in Taltal
- Donations in infrastructure, services, and equipment: donations to kindergartens, schools, dance groups, among others
- Partnership seminar: partnerships with 7 local groups to provide economic development
- Meetings with communities: the main activities developed in support of the commune of Taltal are presented to the community and stakeholders. The following list enumerates some of the topics agreed upon: the application for Partnership Seminar projects, scholarships, free pre-university, medical operation campaigns, and others.
- A socio-economic diagnostic report of the areas of influence within the Taltal region
- Entrepreneurship project to help vulnerable students in the region develop competencies and skills and undertake new projects

20.3.5 Cultural Heritage

In the area of the El Peñón operation and its surroundings, 15 archaeological sites have been identified. They are protected by fencing and are monitored twice annually to verify their state of conservation by a professional archeologist recognized by the local cultural agency (Consejo de monumentos).

20.4 Mine Closure

El Peñón has developed a closure plan and cost estimate covering all current and approved facilities; this plan is in accordance with applicable legal requirements, specifically Law 20.551/2011 and Supreme Decree N°41/2012, and is updated regularly as the life of mine is extended. The competent authority for approving mine closure plans in Chile is SERNAGEOMIN. Under current law, mining projects with an extraction capacity of over 10,000 tonnes per month (tpm) must provide a financial guarantee, the amount of which is to be determined based on the periodic re-evaluation of the closure plan implementation and management costs. The amount of the guarantee must be determined in UF currency (Chilean Unit of Account) from the present-value estimated cost of implementing all measures covered by the closure plan. The latest closure plan for El Peñón was approved through Exempt Resolution Nº 2658/2019. Updates to the closure plan are required whenever the life of mine is extended.

The approved 2019 mine closure plan addresses progressive and final closure actions, post-closure inspections, and monitoring. Based on the increase in mineral reserves over the past three years, a new DIA was submitted in February 2021 for an extended life of mine plan. The mine closure costs will be updated according to the extended life of mine.

The 2019 closure plan is subdivided by area and includes consideration for the underground operations, waste dumps, tailings facility, infrastructure, and ancillary facilities. It also considers the following post-closure activities:

- Physical stability monitoring in waste dumps
- Biannual monitoring (twice per year) and inspection of downstream control wells and dumps
- Biannual monitoring (twice per year) of control wells associated with the TSF
- Annual monitoring of the El Peñón landfill
- Visual inspection, cleaning, and maintenance of signage, walls, and perimeter closure

The closure plan costs are summarized in Table 20-4.

Table 20-4: Mine closure costs

Mine Closure	Total Cost (US$M)
Direct costs	17.3
Indirect cost and administration	3.5
Contingency	5.2
Chilean sales tax (19%)	4.9
Subtotal closure measures	**30.8**
Post-closure monitoring	6.5
Total mine closure cost	**37.4**

No environmental or permitting issues were identified from the documentation available for review that could materially impact the ability to extract the mineral resources and mineral reserves.

21 Capital and Operating Costs

The capital and operating costs outlined in this section of the technical report are based on the LOM presented in section 16.7 of this technical report. The capital and operating cost estimates were prepared based on recent operating performance and on Yamana's current budget forecast. All costs in this section are in US dollars and are based on an exchange rate assumption of 800 CLP: 1 USD.

21.1 Capital Costs

The LOM capital cost estimate is approximately US$167M and is assumed to support sustaining capital requirements for the mining and processing of mineral reserves over the project's six-year LOM as well as a small amount of expansionary underground mine development. A summary of the LOM capital costs for El Peñón is given in Table 21-1.

Table 21-1: Life of mine capital costs

Item	Total LOM (US$000)
Mine Development	138,304
Building and Infrastructure	3,348
Hardware and Software	592
Machinery and Equipment	1,132
Vehicles	23,262
Sustaining Capital Cost	**166,637**
Expansionary Capital Cost	**579**
Total	**167,217**

Capitalized development consists of 52,324 m, or an average of 10,718 m per year, over the first four years and subsequently declining towards the end of the mine life. Mine closure costs are listed in Table 20-4 in section 20.4 of this technical report and consider progressive and final closure actions as well as post-closure inspection and monitoring.

The expected run rate for sustaining capital, including infrastructure, equipment, and mine development is averaged at US$32M per year for the next five years, with spending decreasing in the last year of the mine life.

The following are excluded from the capital cost estimate:

- Project financing and interest charges
- Working capital
- Sunk costs

21.2 Operating Costs

Operating costs are defined as the direct operating costs and include mining, processing as well as general and administrative costs.

The production plan drove the calculation of the mining and processing costs, as the mining mobile equipment fleet, manpower, contractors, power, and consumables requirements were calculated based on specific consumption rates. Consumable prices and labour rates are based on current contracts and agreements.

Mining operating costs are forecasted to average US$80.18/t mined over the LOM period, or US$71.57/t processed, when including the 660,000 tonnes of stockpile planned to be reclaimed over the LOM period. Total operating costs are forecasted to average US$116.49/t processed as set out in Table 21-2.

Table 21-2: LOM average unit operating costs

Item	Total LOM (US$/t processed)
Mining	71.57
Process	29.72
G&A	15.20
Total	**116.49**

22 ECONOMIC ANALYSIS

Financial information has been excluded from this technical report as Yamana is a producing issuer and El Peñón is currently in production.

Yamana has performed an economic analysis of the current project using a gold price of US$1,250/oz at the forecasted production rates, metal recoveries, and capital and operating cost estimated in this technical report.

Yamana confirms that the outcome is a positive cash flow that supports the mineral reserve estimate. Due to the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results may be significantly more or less favourable.

23 Adjacent Properties

There are no adjacent properties that are relevant to this technical report.

24 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data or information regarding El Peñón.

25 INTERPRETATION AND CONCLUSIONS

More than 5.3 Moz of gold and 134 Moz of silver has been produced at El Peñón since commercial production commenced in 2000. El Peñón's current production rate, the result of the rightsizing of the operation initiated in late 2016, increased free cash flow generation, reduced capital expenditures while ensuring the long-term sustainability of the mine matching production rate with mineral reserves and mineral resources replacement.

Exploration results at El Peñón continue to highlight the expansion potential of the mine and Yamana's ability to replenish mineral reserves and mineral resources so as to extend the LOM past its current mineral reserve base. Drilling is effective at adding mineral resources and mineral reserves at El Peñón. Similar to drilling results from the previous two years, the 2020 drilling successfully replenished the 2020 depletion of gold mineral reserves. Based on this successful track record, a drilling program totalling 384,000 m is planned from 2021 to 2023.

El Peñón mineral resources and mineral reserves have been estimated in conformity with generally accepted CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2019) and classified in accordance with CIM (2014) Standards. The total proven and probable mineral reserve at El Peñón as of December 31, 2020, is 6.1 Mt averaging 4.66 g/t gold and 147.8 g/t silver, with a metal content of approximately 0.921 Moz of gold and 29.21 Moz of silver. In addition, measured and indicated mineral resources are estimated at 8.0 Mt grading 2.96 g/t gold (0.765 Moz gold) and 98.8 g/t silver (25.5 Moz silver), and inferred mineral resources are estimated at 18.98 Mt grading 1.39 g/t gold (0.850 Moz gold) and 46.1 g/t silver (28.1 Moz silver).

The mineral reserves supporting the LOM plan consists of an integrated operation, mining mainly underground ore and a small amount of ore from the Chiquilla Chica open pit. The ore produced by the mining operations and reclaimed from stockpiles is fed to the mill to sustain a six-year mine life. LOM production is estimated at 866 koz gold and 25,591 koz silver.

Yamana is confident that, based on required infill drilling, the future conversion of mineral resources to mineral reserves will continue to show positive results. In recent years, mineral resources converted to mineral reserves have more than offset the depletion of mineral reserves; this indicates the significant potential of extending the mine life beyond the current LOM and sustain a strategic mine life of 10 years or more.

The capital and operating cost estimates are based on mine budget data and operating experience, and are appropriate for the known mining methods and production schedule. Under the assumptions in this technical report, El Peñón has positive project economics until the end of mine life, which supports the mineral reserve estimate. Capital costs over the LOM period are estimated at US$167M consisting mainly of sustaining underground mine development (83%)

and capital required for equipment replacement (14%). An additional US$37M are estimated for mine closure purposes.

No environmental or social issues were identified that could materially impact the ability to extract the mineral resources and mineral reserves. Yamana has implemented an integrated HSEC management system covering health, safety, environment, and community through internationally accredited systems that include the ISO 14001 Environment Management System and the OSHAS 18001 Occupational Health and Safety Management System. El Peñón has all the operational licences required for operation according to the national legislation. The approved licences address the authority's requirements for mining extraction and operation activities.

The results of this technical report are subject to variations in operational conditions including, but not limited to the following:

- Assumptions related to commodity and foreign exchange (in particular, the relative movement of gold and the Chilean peso/US dollar exchange rate)
- Unanticipated inflation of capital or operating costs
- Significant changes in equipment productivities
- Geological continuity of the mineralized structures
- Geotechnical assumptions in pit and underground designs
- Ore dilution or loss
- Throughput and recovery rate assumptions
- Changes in political and regulatory requirements that may affect the operation or future closure plans
- Changes in closure plan costs
- Availability of financing and changes in modelled taxes

In the opinion of the qualified persons, there are no reasonably foreseen inputs from risks and uncertainties identified in the technical report that could affect the project's continued economic viability.

26 RECOMMENDATIONS

Based on the information presented in this technical report, the qualified persons recommend the following action items.

Over the past 20 years, El Peñón has established an exploration strategy to continually replace depletion of mineral reserves and extend mine life. The strategy involves maintaining a pipeline of mineral resources and exploration potential to maintain a rolling mine life visibility of at least 10 years. To continue this trend, drilling programs should continue to be carried out with the following objectives:

- Infill drilling to replace production by upgrading and extending known mineral resources.
- Expansion exploration drilling to upgrade inferred mineral resources to measured or indicated categories, or to transform zones of geological potential into inferred mineral resources.
- District exploration to test the extension of little-known areas of mineralization or to discover new primary structures by testing targets identified in mapping, geochemistry, geophysics, or machine learning programs.

Ongoing exploration success could also unlock the opportunity to leverage the available processing capacity which could increase annual gold and silver production and reduce unit costs.

Yamana instituted an Operational Excellence program to improve productivity and control costs. El Peñón should continue to evaluate and prioritize processing plant optimization opportunities and develop an action plan for their implementation.

In the underground mine, El Peñón should continue the implementation of Operational Excellence initiatives with an objective to increase productivity, minimize dilution, and reduce operating costs. Mining initiatives include testing of smaller drift profiles for specific sectors, optimized stoping and development face drill patterns, and opportunities to reduce specific consumption of consumables.

In 2021, El Peñón should initiate the process of certification for ISO 45001 (replacing OSHAS 18001) and recertification of the ISO 14001 Environment Management System; it should also continue the implementation of the Mining Association of Canada's *Towards Sustainable Mining* framework as well as the World Gold Council's *Responsible Gold Mining Principles.*

27 REFERENCES

Astudillo, N.; Ferrando, R.; Montecino, D.; Espinoza, F.; Venegas, C.; Matthews, S.; Cornejo, P.; Arévalo, C. 2017: Carta Augusta Victoria, Región de Antofagasta.Servicio Nacional de Geología y Minería, Carta Geológica de Chile, Serie Geología Básica 189: 97 p., 1 mapa escala 1:100.000. Santiago.

Bottinelli, O. C. A., and Valencia, A. M. E., 2016: Informe Técnico de Vida Útil de la Operación Minera (para Ley N° 20.551 sobre Cierre de Faenas e Instalaciones Mineras); Ley N° 20.819 que modifica Ley N° 20.551; Revisión N° 3, August 1, 2016.

Canadian Dam Association Dam Safety Guidelines 2007 (2013 Edition). Report available at www.cda.ca

Chacón, M. E., Pérez, S. C. M., 2017: Yamana Gold, El Peñón Mine, Region of Antofagasta, Chile, NI 43-101 Technical Report, 144 pp., May 23, 2017.

Collins, S. E., Moore, C. M., and Scott, K. C., 2010: Technical Report on the El Peñón Mine, Northern Chile, prepared for Yamana Gold Inc., 132 pp., December 7, 2010.

Commission for the Geological Map of the World (CGMW), 2019: Tectonic Map of South America. Second edition, scale 1:5 000 000. ISBN 978-2-917310-26-7.

Cornejo, P.; Mpodozis, C.; Rivera, O. & Matthews, S.J., 2006: Carta Exploradora, Regiones de Antofagasta y Atacama. Servicio Nacional de Geología y Minería (SERNAGEOMIN), Santiago, Chile, Carta Geológica de Chile, Serie Geológica Básica, 1:100.000.

Donoso, F., 2012: Caracterización Mineralógica de las vetas Bonanza-Aleste y sus implicancias geometalúrgicas, Mina El Peñón, Región de Antofagasta, Memoria para optar al título de Geólogo, Universidad Católica del Norte, Antofagasta, Chile.

E-Mining Technology S.A., 2010: Proyecto de Expansion del Deposito de Relaves Filtrado El Peñón. Report prepared for Yamana Gold Inc., April 2010.

Ferrando, R.; Espinoza, F.; Matthews, S.; Cornejo, P.; Arévalo, C., 2013: Carta Aguas Blancas, Región de Antofagasta. Servicio Nacional de Geología y Minería, Carta Geológica de Chile, Serie Geología Básica 160. 1 mapa escala 1:100.000. Santiago.

FF GeoMechanics Ing. Ltda., 2020: Informe Tecnico de Estabilidad Deposito de Relaves Filtrados El Peñón, Rev 2. Report prepared for Minera Meridian Ltda., January 2020.

Gosselin, P., Dubé, B., 2005: Gold deposits of the world: distribution, geological parameters and gold content. Geological Survey of Canada, Open File 4895, 1 CD-ROM.

Jorquera, H., 2016: QAQC Annual Report 2016, prepared for Minera Meridian Ltda., 36 pp., December 15, 2016.

John, D.A., Vikre, P.G., du Bray, E.A., Blakely, R.J., Fey, D.L., Rockwell, B.W., Mauk, J.L., Anderson, E.D., and Graybeal, F.T., 2018: Descriptive models for epithermal gold-silver deposits: U.S. Geological Survey Scientific Investigations Report 2010–5070–Q, 247 p., https://doi.org/10.3133/sir20105070Q.

Minera Meridian Ltda., 2017: various presentations, procedures, and spreadsheets for El Peñón Mine.

Octal Ingeniería y Desarrollo and Magri Consultores Limitada, 2015: Actualización de modelos variográficos – El Peñón, prepared for Yamana Gold Inc., August 5, 2015.

Órdenes, J., 2014: Influencia de la Mineralogía de la veta Bonanza en el Procesos Hidrometalúrgico de Lixiviación de Au y Ag, Yacimiento El Peñón, Chile. Tesis para optar al grado de Magíster en Geometalurgia. Universidad Católica del Norte, Antofagasta, Chile, 168 p.

Paterson & Cooke, 2021: El Peñon Process Audits. Report prepared for Yamana Gold Inc. Dated February 22, 2021. P&C Project No.: YMA-31-1256. 14p.

Pearson, J. L., and Rennie, D. W., 2008: Technical Report on the El Peñón Mine, Chile, Resource Audit, prepared for Yamana Gold Inc., 130 pp., February 11, 2008.

Pérez, M., 1999: Alteración Hidrotermal en el Depósito Epitermal de Au-Ag El Peñón, II Región Antofagasta. Memoria para optar al título de Geólogo. Universidad de Chile, Santiago, Chile, 109 p.

Robbins, C.H., 2000: Geology of El Peñón Gold-silver Deposit, Northern Chile: The Great Basin and beyond, Geological Society of Nevada, Symposium, Reno 2000, Proceedings, pp. 249-264.

RPA, 2018: Technical Report on the El Peñón Mine, Antofagasta Region (II), Chile. NI 43-101 Technical Report prepared by H. Krutzelmann, N. Lecuyer, C.M. Moore, for Yamana Gold Inc. 170 p. March 2, 2018. Available at www.sedar.com.

Warren, I., 2005: Geology, Geochemistry and Ore of the El Peñón Epithermal Au-Ag Deposit, Northern Chile: Characteristics of a bonanza-grade deposit and techniques for exploration. PhD Thesis – Geology, University of Auckland.

Warren, I., Zuluaga, J. I., Robbins, C. H., Wulftange, W. H., and Simmons, S. F., 2004: Geology and Geochemistry of Epithermal Au-Ag Mineralization in the El Peñón District, Northern Chile; Society of Economic Geologists, Special Publication 11, pp. 113-139.

Vega, A. M., 2015: QAQC Annual Report 2015, prepared for Minera Meridian Ltda., 46 pp., December 15, 2015.

Vega, A. M., 2014: QAQC Annual Report 2014, prepared for Minera Meridian Ltda., 34 pp., November 2014.

Yamana, 2016: Integrated HSEC Framework. Internal document prepared by Yamana, 21 pp., April 2016.

Zuluaga, J.I. (2004): Geología y Mineralización del Distrito El Peñón, Segunda Región de Antofagasta, Chile. Tesis de Magíster en Geología Económica, Universidad Católica del Norte, Antofagasta, Chile, 150 p.

28 CERTIFICATES OF QUALIFIED PERSONS

CERTIFICATE OF QUALIFIED PERSON – SERGIO CASTRO

I, Sergio Castro, Registered Member of the Chilean Mining Commission, as an author of this report entitled "NI 43-101 Technical Report, El Peñón Gold-Silver Mine, Antofagasta Region, Chile" prepared for Yamana Gold Inc. (the Issuer) and dated effective as of December 31, 2020 (the Technical Report), do hereby certify the following:

1. I am Technical Services Manager, El Peñón Mine, at Minera Meridian Limitada, a subsidiary of the Issuer, with an office at Cerro Colorado 5240, Torre Parque II, 9th Floor, Las Condes, Santiago, Chile.
2. I graduated from the Universidad de Antofagasta in 1997 with a degree in Mining Civil Engineering. I am a member of the Chilean Institute of Mining Engineers of Chile and a member of the Chilean Mining Commission N°0225. I have worked as a mining engineer for approximately 23 years since my graduation. My relevant experience for the purpose of the Technical Report is over ten years of experience at El Peñón as mining engineer, currently focused on planning and developing mineral reserves, as well as estimating economic scenarios for short-term, medium-term, and long-term planning.
3. I have read the definition of "qualified person" set out in National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
4. I work at El Peñón on a weekly basis and was most recently at the project on March 25, 2021.
5. I am responsible for Sections 13, 15 to 19 (excluding sub-section 18.1), 21, 22 and 24, and share responsibility for related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
6. I am not independent of the Issuer. I am a full-time employee of Minera Meridian Limitada, a subsidiary of the Issuer.
7. I have had prior involvement with the property that is the subject of the Technical Report in my role at Minera Meridian Limitada since 2009.
8. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.
9. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 13, 15 to 19 (excluding sub-section 18.1), 21, 22 and 24 and related disclosure in Sections 1, 25, 26, and 27 in the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"Signature"
Sergio Castro, Registered Member CMC

Dated this 25th day of March, 2021

CERTIFICATE OF QUALIFIED PERSON – MARCO VELÁSQUEZ CORRALES

I, Marco Velásquez Corrales, Registered Member of the Chilean Mining Commission, as an author of this report entitled “NI 43-101 Technical Report, El Peñón Gold-Silver Mine, Antofagasta Region, Chile” prepared for Yamana Gold Inc. (the Issuer) and dated effective as of December 31, 2020 (the Technical Report), do hereby certify the following:

1. I am Chief Resource Geologist, El Peñón Mine, at Minera Meridian Limitada, a subsidiary of the Issuer, with an office at Cerro Colorado 5240, Torre Parque II, 9th Floor, Las Condes, Santiago, Chile.
2. I graduated from the Universidad Catolica Del Norte in Antofagasta, Chile in 1995 with a degree in Geology. I am a member of the Chilean Mining Commission N°402. I have practised my profession continuously since 1995. My relevant experience for the purpose of the Technical Report is:
    - Resource geologist since 2009 at El Peñón underground/open-pit gold-silver mine Antofagasta, Chile. I am currently the Chief Resource Geologist at the mine.
    - Senior production geologist and resource geologist with mining companies in Chile (Mantos Blancos, Minera El Abra, Cerro Colorado), focusing on data quality, sampling, reconciliation, geological modelling, and resource estimation.
3. I have read the definition of "qualified person" set out in National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
4. I work at El Peñón on a weekly basis and was most recently at the project on March 25, 2021.
5. I am responsible for Section 11, 12, and 14, and share responsibility for related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
6. I am not independent of the Issuer. I am a full-time employee of Minera Meridian Limitada, a subsidiary of the Issuer.
7. I have had prior involvement with the property that is the subject of the Technical Report in my role at Minera Meridian Limitada since 2009.
8. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.
9. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Section 11, 12, and 14, and related disclosure in Sections 1, 25, 26, and 27 in the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

“Signature”
Marco Velásquez Corrales, Registered Member CMC   Dated this 25th day of March, 2021

CERTIFICATE OF QUALIFIED PERSON – HENRY MARSDEN

I, Henry Marsden, P.Geo., as an author of this report entitled "NI 43-101 Technical Report, El Peñón Gold-Silver Mine, Antofagasta Region, Chile" prepared for Yamana Gold Inc. (the Issuer) and dated effective as of December 31, 2020 (the Technical Report), do hereby certify the following:

1. I am Senior Vice President, Exploration of the Issuer, with an office at Royal Bank Plaza, North Tower, 200 Bay Street, Suite 2200, Toronto, Ontario M5J 2J3
2. I am a graduate of Carleton University, Ottawa, Ontario, with a Master of Science degree in Earth Sciences in 1991, and of the University of British Columbia with a Bachelor of Science degree in Geology in 1987. I am a Professional Geologist, registered the Association of Professional Geoscientists of Ontario (APGO #0885). My relevant experience for the purpose of the Technical Report is:
    - I have worked as a geologist for over 30 years since my graduation including over 20 years as a consulting geologist working with a variety of clients and focusing on field exploration work.
    - I have played a key role in the discovery and advancement of several mineral deposits including Rio Blanco and Pico Machay in Peru, and the Timmins West gold deposit in Timmins, Ontario.
3. I have read the definition of "qualified person" set out in National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
4. I visited the El Peñón project on many occasions since January 2016 and most recently between March 11 and 13, 2020.
5. I am responsible for Sections 2 to 10, 23, and share responsibility for related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
6. I am not independent of the Issuer. I am a full-time employee of the Issuer.
7. I have had prior involvement on the property in my role with the Issuer and as a consultant geologist on contract in 2016.
8. I have read NI 43-101, and the sections of Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.
9. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 2 to 10, 23, and related disclosure in Sections 1, 25, 26, and 27 in the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"Signature"
Henry Marsden, P.Geo.

Dated this 25th day of March, 2021

CERTIFICATE OF QUALIFIED PERSON – CARLOS ITURRALDE

I, Carlos Iturralde, P.Eng., as an author of this report entitled "NI 43-101 Technical Report, El Peñón Gold-Silver Mine, Antofagasta Region, Chile" prepared for Yamana Gold Inc. (the Issuer) and dated effective as of December 31, 2020 (the Technical Report), do hereby certify the following:

1. I am Director, Tailings of the Issuer, with an office at Royal Bank Plaza, North Tower,200 Bay Street, Suite 2200, Toronto, Ontario M5J 2J3
2. I graduated from the University of Kansas with a dual major in Civil Engineering and Mathematics in 2002. I received a MSc. from the University of Tübingen in Applied Environmental Geosciences in 2007. I am a professional engineer with Engineers and Geoscientist British Columbia since 2010 (License # 40153). I have over 18 years of professional experience in the mining industry in technical and management aspects related to tailings management and related infrastructure, including:
    - Completion of designs and engineering studies and dam safety reviews of tailings facilities
    - Best management practices following the Mining Association of Canada (MAC) and Canadian Dam Association (CDA) proposed framework and dam safety criteria.
    - Implementation of risk management and quality management strategies, including QA/QC programs and risk evaluation and mitigation through identification of critical controls.
    - Since 2015 I have been an active member of MAC's tailings working group (TWG) and participated in the development of the 3rd edition of MAC's tailings management guidelines.
3. I have read the definition of "qualified person" set out in National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
4. I have not visited the El Peñón project due to travel restrictions related to the global COVID-19 pandemic.
5. I am responsible for Sections 18.1 and 20 and share responsibility for related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
6. I am not independent of the Issuer. I am a full-time employee of the Issuer.
7. I have had no prior involvement with the property that is the subject of the Technical Report.
8. I have read NI 43-101, and the sections of Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.
9. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 18.1 and 20 and related disclosure in Sections 1, 25, 26, and 27 in the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"Signature"
Carlos Iturralde, P.Eng.

Dated this 25th day of March, 2021