NI 43-101 Technical Report
Pre-feasibility Study of the
Chinchillas Silver-Lead-Zinc Project
Jujuy Province, Argentina

Prepared for:

Puna Operations Inc., a Joint Venture between

Silver Standard Resources Inc.

and Golden Arrow Resources Corporation

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This NI 43-101 Technical Report ("Technical Report") contains "forward-looking information" and "forward-looking statements" (collectively, "forward-looking statements") within the meaning of applicable Canadian and United States securities legislation. These forward-looking statements include, but are not limited to, Golden Arrow's and Silver Standard's objectives, strategies, intentions, expectations, production, costs, capital and exploration expenditure guidance, including the estimated economics of the Project; expected closing of the transaction between Golden Arrow and Silver Standard; future financial and operating performance and prospects; anticipated production at the Project and processing facilities and events that may affect POI's operations; anticipated cash flows from the Project and related liquidity requirements; the anticipated effect of external factors on revenue, such as commodity prices, estimation of Mineral Reserves and Mineral Resources, mine life projections, recovery rate and concentrate grade projections, reclamation costs, economic outlook, government regulation of mining operations; expectations regarding the timing and ability to obtain the necessary permits for the Project and commencement of operations; and anticipated mine plan. All statements in this Technical report that address events or developments that Golden Arrow and Silver Standard expect to occur in the future are forward-looking statements. Forward-looking statements are statements that are not historical facts and are generally, although not always, identified by words such as “expect”, “plan”, “anticipate”, “project”, “target”, “potential”, “schedule”, “forecast”, “budget”, “estimate”, “intend” or “believe” and similar expressions or their negative connotations, or that events or conditions “will”, “would”, “may”, “could”, “should” or “might” occur. All such forward-looking statements are based on the opinions and estimates of Golden Arrow’s and Silver Standard's management as of the date such statements are made. All of the forward-looking statements in this Technical Report are qualified by this cautionary note.

Forward-looking statements are not, and cannot be, a guarantee of future results or events. Forward-looking statements are based on, among other things, opinions, assumptions, estimates and analyses that, while considered reasonable at the date the forward-looking statements is provided, inherently are subject to significate risks, uncertainties, contingencies and other factors that may cause actual results and events to be materially different from those expressed or implied by the forward-looking statement. The material factors or assumptions that Golden Arrow and Silver Standard identified and were applied by Golden Arrow and Silver Standard in drawing the conclusions or making forecasts or projections set in the forward-looking statements include, but are not limited to: the factors identified in Sections 1.8 and 14.13 and Table 14-10 of this Technical Report which may affect the Mineral Resource estimate; the assumptions identified in Sections 1.11, 15.2 and 15.4.3 and Table 15-6 of this Technical Report which may affect the Mineral Reserve estimate; the equipment assumptions identified in Sections 21.1 and 21.2 and Table 21-2 of this Technical Report; the assumptions identified in Section 22.2 of this Technical Report that may affect the economic analysis; dilution and mining recovery assumptions; assumptions regarding stockpiles; the success of mining, processing, exploration and development activities; the accuracy of geological, mining and metallurgical estimates; anticipated metal prices and the costs of production; no significate unanticipated operational or technical difficulties; the availability of personnel for exploration, development and operation of the Project; maintaining good relations with the communities surrounding the Project; no significate events or changes relating to regulatory, environmental, health and safety matters; certain tax matters and no significate and continuing adverse changes in general economic conditions or conditions in the financial markets (including commodity prices, foreign exchange rates and inflation rates).

The risks, uncertainties, contingencies and other factors that may cause actual results to differ materially from those expressed or implied by the forward-looking statements may include, but are not limited to, risks generally associated with the mining industry, such as economic factors (including future commodity prices, currency fluctuations, inflation rates, energy prices and general cost escalation); uncertainties relating to the development of the Project, including obtaining the necessary permits, the construction of the open pit mine and upgrades to the Pirquitas plant, dependence on key personnel and employee relations; risks relating to political and social unrest or change, operational risk and hazards, including unanticipated environmental, industrial and geological events and developments and the inability to insure against all risks; failure of plant, equipment, processes, transportation and other infrastructure to operate as anticipated; compliance with government and environmental regulations, including permitting requirements and anti-bribery legislation; depletion of Mineral Reserves; the failure to obtain required approvals or clearances from government authorities on a timely basis; uncertainties related to the geology, continuity, grade and estimates of Mineral Reserves and Mineral Resources and the potential for variations in grade and recovery rates; uncertainties relating to reclamation activities; tax refunds; hedging contracts; as well as other factors identified and as described in more detail under the heading "Risk Factors" in each of Golden Arrow's and Silver Standard's most recent Annual Information Form, which may be viewed at www.sedar.com. The list is not exhaustive of the factors that may affect the forward-looking statements. There can be no assurance that such statements will prove to be accurate, and actual results, performance or achievements could differ materially from those expressed in, or implied by, these forward-looking statements. Accordingly, no assurance can be given that any events anticipated by the forward-looking statements will transpire or occur, or if any of them do, what benefits or liabilities Golden Arrow and Silver Standard will derive therefrom. The forward-looking statements reflect the current expectations regarding future events and operating performance and speak only as of the date hereof and neither Golden Arrow nor Silver Standard assume any obligation to update the forward-looking statements if circumstances or management's beliefs, expectations or opinions should change other than as required by applicable law. For the reasons set forth above, undue reliance should not be placed on forward-looking statements.

1 Summary

1.1 Introduction

On September 30, 2015 Golden Arrow Resources Corporation ("Golden Arrow"), Silver Standard Resources Inc. ("Silver Standard") and certain of their affiliates entered into an agreement (the "Agreement") pursuant to which Golden Arrow granted to Silver Standard an option (the "Option") to require the parties to form a joint venture to combine Golden Arrow's Chinchillas property, comprised of its interest in a silver-lead-zinc deposit located in northern Argentina (the "Chinchillas Property") and Silver Standard's Pirquitas project which consists of the San Miguel open pit mine which ceased operations in January 2017 (the "Pirquitas Pit") and the associated mineral processing facilities and proposed tailings facility (the "Pirquitas Operation"). On March 31, 2017 Silver Standard exercised the Option. The contribution of the shares of Valle del Cura S.A. ("VDC"), which owns the Chinchillas Property, and the units of Mina Pirquitas, LLC ("MPLLC") which, through its Argentine branch, Mina Pirquitas, LLC Sucursal Argentina ("MPSA"), owns the Pirquitas Pit and the Pirquitas Operation, to Puna Operations Inc. ("POI") is expected to close on or around May 31, 2017 (the "Transaction"). Upon closing of the Transaction, Golden Arrow will own 25% of POI and Silver Standard will own 75% of POI and POI will own the Chinchillas Property, the Pirquitas Pit and the Pirquitas Operation and their associated assets and liabilities. This Technical Report has been prepared on the basis that the Transaction has closed and that POI has indirectly acquired a 100% interest in the Chinchillas Property, the Pirquitas Operation and the Pirquitas Pit.

The purpose of this Technical Report is to summarize and present the results of a pre-feasibility study ("PFS") for the combined development of the Chinchillas Property and the Pirquitas Operation (the "Project") under the guidelines of the Canadian Securities Administrators' ("CSA") National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and Form 43-101F1 (CSA, 2011). This PFS includes the first reporting of a Mineral Reserve for the Project, estimated in conformity with generally accepted CIM Estimation of Mineral Resources and Mineral Reserves Best Practices Guidelines (CIM, 2003) (the "CIM Guidelines") and reported according to the Canadian Institute of Mining, Metallurgy and Petroleum Counsel – Definitions adopted by the CIM Counsel on May 10, 2014 (CIM, 2014) (the "CIM Standards"). Since operations at the Pirquitas Pit have ceased, the Pirquitas Pit and the associated obligations and liabilities are not included as part of the Project, however, they are described in Section 23.

This PFS envisions a satellite open pit mining operation at the Chinchillas Property with ore processing undertaken using the existing mill and concentrator facility at the Pirquitas Operation, which is located about 42 kilometres west of the Chinchillas Property. Tailings disposal will be done at the Pirquitas Operation, as well as the Pirquitas Operation providing other supporting services as detailed in this Technical Report. The pre-feasibility economic evaluation has been completed on a 100% Project basis, as such the revenue stream and cost profile are generated solely by material mined from the Chinchillas Property.

The following consultants were commissioned to complete the PFS and this Technical Report on behalf of POI and each is considered an independent "qualified person" ("QP") as defined in NI 43-101.

Table 1-1: Qualified Persons

Qualified Person	Company
Ken Kuchling, P. Eng.	P&E Mining Consultants Inc.
Robert Sim, P.Geo.	SIM Geological Inc.
Bruce Davis, Ph.D., F.AusIMM	BD Resource Consulting Inc.
Adrian Dance, Ph.D., P.Eng., F.AusIMM	SRK Consulting (Canada) Inc.
Anoush Ebrahimi, Ph.D., P.Eng.	SRK Consulting (Canada) Inc.
Ken Embree, P.Eng.	Knight Piésold Ltd.

Unless otherwise stated, all units in this Technical Report are metric. All currency values are expressed in U.S. dollars.

1.2 Project Description

The Chinchillas Property is located in the Puna region of northwestern Argentina, in the province of Jujuy, department of Rinconada, approximately 280 kilometres from the provincial capital of San Salvador de Jujuy. The Pirquitas Operation is located approximately 42 kilometres west of the Chinchillas Property and is approximately 355 kilometres northwest of San Salvador de Jujuy.

The Chinchillas Property is composed of three contiguous claims, totaling 2,043 hectares, and the Pirquitas Operation includes surface rights covering an area of approximately 7,500 hectares, which can be used for purposes such as housing, infrastructure facilities, processing facilities, proposed tailings facility and other facilities to support mining operations for the Project. POI holds a 100% interest in the Chinchillas Property claims, with a commitment for a $1.2 million payment to the vendors of the Chinchilla and Chinchilla I Minas upon the decision to build a mine, and the surface rights for the Pirquitas Operation.

Access to the Chinchillas Property is by paved road to the town of Abra Pampa via National Route No. 9 and then 66 kilometres west across public gravel roads, through the village of Santo Domingo. Santo Domingo is equipped with electricity, natural gas, and water services. Abra Pampa has a hospital, and, along with San Salvador, provides other supplies necessary for exploration. Access between the Pirquitas Operation and the Chinchillas Property is via National Route No. 40 that leads to Provincial Route No. 70.

The topography of the Chinchillas Property area is large rounded hills surrounding an elliptical depression, with an altitude ranging from 4,000 to 4,200 metres above sea level (“masl”).

1.3 History

The Chinchillas Property area was first prospected and mined on a small scale in the eighteenth century by Jesuit missionaries and, in the late 1960’s, there was a period of small underground production by a local company using adits and tunnels. In 1994, Aranlee Resources conducted surface sampling and drilled seven reverse circulation drill holes for a total of 780 metres. Silex Argentina S.A. (“Silex”), a subsidiary of Apex Silver, acquired the property and began exploration in 2004. Silex completed 2,220 metres of drilling in seven holes.

In early 2011, Golden Arrow entered into an option agreement for the Chinchillas Property. Exploration work commenced in the spring of 2012 and continued into 2015. In October of 2015, Golden Arrow and Silver Standard announced the Agreement providing for the creation of a joint venture of the Chinchillas Property, the Pirquitas Pit and the Pirquitas Operation (Golden Arrow, 2015a). From then forward, the exploration and pre-development work was undertaken jointly as part Silver Standard’s option for a pre-development period. Six Technical Reports (now non-current) were completed for the Chinchillas

Property by Golden Arrow between 2013 and 2016, detailing Mineral Resource estimates and preliminary economic assessments as the project progressed (Davis and Howie 2013, Davis et al., 2014, Davis et al., 2015, Davis et al., 2016, Kuchling et al., 2014, Kuchling et al., 2015).

On March 31, 2017 Silver Standard exercised its Option. Assuming the Transaction closes, POI will indirectly acquire 100% ownership and operation of Chinchillas Property and the Pirquitas Operation.

The Pirquitas plant was commissioned in 2009 and has since been in continuous operation. The plant has not been expanded since start-up; however, minor changes in the flotation flowsheets have occurred to optimize performance. Please see Section 17.1 for further details.

1.4 Geological Setting and Mineralization

The Chinchillas Property silver-lead-zinc deposit is located in the Puna geological belt. Stratigraphy in the belt includes metamorphosed Proterozoic sediments in the basement, through Paleozoic marine back-arc sediments, to more recent volcanic sequences and continental sediments. The Puna is the most important terrane in Jujuy Province for mineral deposits, including: mesothermal quartz veins with native gold and base metals; polymetallic quartz-sulphide veins with base and precious metals; gold, tin and copper placer deposits; SEDEX deposits with lead-zinc-silver; and Bolivian-type tin-silver sulphide veins related to intrusive stocks.

The Chinchillas Property deposit is considered to be part of the Bolivian tin-silver-zinc belt that extends from the San Rafael tin-copper deposit in southern Peru into the Puna region of Jujuy. Deposits with similar environments and styles of mineralization include San Cristóbal, Potosí, Pulacayo and Pirquitas.

These deposits are generally characterized by intrusion of dacite dome complexes with mineralization hosted in shears and breccias within the dacite domes and / or within shears and breccias within the host rocks. More rarely, as in the case of the Chinchillas Property and San Cristóbal, the deposits also contain disseminated flat lying manto bodies within sediments and pyroclastic rocks that are cut by the "feeder" shears. All the deposits are known to have large vertical extents.

The Chinchillas Property deposit is located in a dacitic volcanic centre. The deposit was controlled by a dilational fault jog within a regional scale east-west trending fault structure where an explosive volcanic vent has cut through marine meta-sedimentary basement rocks. The resulting topographic depression or diatreme volcanic throat is elliptical in shape, approximately two kilometres long by 1.6 kilometres wide, and infilled with pyroclastic rocks (breccias and tuffs). At the contact between pyroclastic volcanics and basement metasediments, a wide zone of hydraulic fracturing and brecciation of the basement has formed. Dacitic lavas, flow domes and subvolcanic intrusions occur on the southern margin of the basin at the contact between metasediments and pyroclastics.

Significant silver-lead-zinc mineralization occurs in four main areas at the Chinchillas Property deposit: the Silver Mantos and Mantos Basement zones in the west part of the Project, and the Socavon del Diablo and Socavon Basement zones in the east part.

The Silver Mantos zone is situated in the western third of the basin, covering an area of approximately 30 hectares. Shallow disseminated silver mineralization occurs within clay altered pyroclastic breccias and tuffs. This is concentrated in layers or "mantos" that average greater than 20 metres in thickness and are generally situated between the surface and 100 metres depth. A second mantos zone has also been defined between 170 and 230 metres depth.

Located below the Silver Mantos, the Mantos Basement comprises an area 600 metres wide and up to 210 metres thick, with an average thickness of 80 metres. It is hosted entirely within the basement pelites and sandstones and is comprised predominantly of breccias, crackle breccias with minor small veinlets, fracture filling and mineralized structures. Mineralization within the Mantos Basement is open to expansion downdip in some areas to the east and south.

The Socavon del Diablo zone is situated in the eastern third of the basin and defined by drilling over an area of approximately five hectares. Mineralization is generally lower in silver content and higher in zinc grade, and is dominated by manto-style disseminated sulphides within favorable shallow dipping volcanic tuff horizons.

The Socavon Basement zone is mainly hosted within the Ordovician interbedded pelite and sandstone basement, situated to the northeast of the main Socavon zone. Immediately to the east of the dacite dome that limits the Socavon, biotitic horizontal tuffs are covering the newly discovered south expansion of the Socavon Basement zone. Here, the mineralization is hosted in open space breccias filled with argentiferous galena plus a stockworking of sphalerite-siderite-galena which in places carries low grade silver-zinc mineralization along widths of over 300 metres.

1.5 Exploration and Drilling

Golden Arrow's surface exploration programs have included detailed mapping with a special emphasis on structures, rock chip sampling, trenching, soil sampling and talus sampling. These programs identified the major structural zones, the strong east-west control on basin formation, and new mineralized target areas. Golden Arrow also completed geophysical surveys (IP ("Induced Polarization")/Resistivity, Controlled-Source Audio-Magnetotelluric Technique ("CSAMT"), Magnetics) and a re-interpretation of the 2008 IP survey. The work resulted in the identification of new structural zones and areas of mineralization around the existing deposit, and the identification of a new target area to the south, called Chinchillas South.

Golden Arrow has completed five drilling programs that contributed to the resource database. The first drilling phase, conducted in May and June 2012, included 27 drill holes for 3,224 metres of drilling. The second, conducted between November 2012 and February 2013, included 49 drill holes and 7,278 metres of drilling. Between February 24, 2014 and June 17, 2014, Golden Arrow completed a Phase III drill program including 38 drill holes and 8,985 metres. The Phase IV program was conducted between November 2014 and April 2015, which included 55 drill holes with 11,175 metres length. Phase V occurred between October 2015 and March 2016, totaling 115 holes with 15,142 metres in length including five geomechanical and eight shallow hydrogeological holes. Prior to Golden Arrow's work, Silex drilled seven core holes in the deposit area for a total of 2,220 metres.

The average recovery from the 45,803 metres of Golden Arrow drilling used in the Mineral Resource was 94.22 percent, including the first six metres where recovery was commonly less than 50 percent.

No other type of drilling or surface sampling was used in the Mineral Resource estimate.

1.6 Sample Preparation, Analyses and Security

All drilling was completed by professional drilling companies using standard industry methods.

Sample and assay procedures applied in the drilling program are consistent with generally accepted industry best practices. The statistical analysis of quality control data show good accuracy and precision with no significant contamination. It is the opinion of the authors that the data are suitable for the estimation of Mineral Resources.

1.7 Data Verification

No material sample bias was identified by the QPs during the review of the drill data and assays. Observation of the drill core during the site visits and inspection and validation of the data collected convinced the QPs that the drill data are adequate for the estimation of Measured, Indicated and Inferred Mineral Resources.

1.8 Mineral Resource Estimate

The Mineral Resource has been estimated in conformity with generally accepted CIM Guidelines and reported according to the CIM Standards in accordance with the NI 43-101 (CSA, 2011). The effective date of the Mineral Resource block model presented in this Technical Report is October 2, 2016. On October 3, 2016, Golden Arrow issued a press release describing the results of a drilling program completed at the Chinchillas Property, including several holes completed in the Socavon area. The results from this drilling has been reviewed and, in the opinion of the QP, this new information would not result in a material change to the Mineral Resource estimate presented in this Technical Report.

Estimations were made from 3D block models based on geostatistical applications using commercial mine planning software (MineSight® v10.60). The model uses a nominal block size of 8 x 8 x 5 metres (LxWxH).

The Mineral Resource estimate has been generated from drill hole sample assay results and the interpretation of a geologic model which relates to the spatial distribution of silver, lead and zinc. Interpolation characteristics were defined based on the geology, drill hole spacing, and geostatistical analysis of the data. The Mineral Resources were classified according to their proximity to sample data locations.

Table 1-2 summarizes the estimate of Mineral Resources for the Project effective as of October 2, 2016, while Table 1-3 shows the sensitivity of Mineral Resources to cut-off grade. Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues. The quantity and grade of reported Inferred Mineral Resources are uncertain in nature and there has been insufficient exploration to classify these Inferred Mineral Resources as Indicated or Measured Mineral Resources. POI intends to conduct further exploration to upgrade the Inferred Mineral Resources; however, due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration.

Due to the polymetallic nature of the deposit, Mineral Resources were calculated on a silver-equivalent (AgEq) basis using the formula: AgEq = Ag g/t + (Pb% ∗ 30.49) + (Zn% * 33.54). Silver equivalents are calculated in model blocks, for use in the floating cone algorithm, using the contributions of silver, lead and zinc and include adjustments for metallurgical recoveries. There are no adjustments for mining losses or dilution.

The following technical and economic parameters were used to generate the Mineral Resource limiting pit shell:

- Metal prices for silver equivalent calculation: silver $22.50/oz, lead $1/lb, zinc $1.10/lb
- Recoveries: 85% silver, 93% lead, 80% zinc
- Royalty: 3%
- Mining cost: $2.50/t

- Process cost: $15.00/t
- General and administrative ("G&A") costs: $6.75/t
- Pit slope: 45 degrees

In determining the cut-off grade, the reasonable prospects for eventual economic extraction requirement generally implies that the quantity and grade estimates meet certain economic thresholds taking into account an open pit extraction scenario with road transport and processing at the Pirquitas Operation. This includes consideration of the technical and economic parameters listed above, but also includes additional operating costs, estimated at $13/t, related to the handling and transportation of ore from the Chinchillas Property to the Pirquitas Operation. Using this operating scenario, the base case cut-off grade is estimated to be 60g/t silver equivalent.

Table 1-2: Mineral Resource Estimate, Chinchillas Project, Argentina, October 2, 2016

Area	Mtonnes	AgEq (g/t)	Ag (g/t)	Pb (%)	Zn (%)	AgEq (Moz)	Ag (Moz)	Pb (Mlbs)	Zn (Mlbs)
Measured									
Mantos	3.1	160	128	0.60	0.41	16	13	41	28
Socavon	0	0	0	0	0	0	0	0	0
All	**3.1**	**160**	**128**	**0.60**	**0.41**	**16**	**13**	**41**	**28**
Indicated									
Mantos	22.4	155	110	0.99	0.46	112	79	490	226
Socavon	3.8	103	33	0.60	1.56	13	4	50	132
All	**26.2**	**148**	**98**	**0.94**	**0.62**	**124**	**83**	**540**	**358**
Measured and Indicated									
Mantos	25.5	156	112	0.95	0.45	127	91	530	254
Socavon	3.8	103	33	0.60	1.56	13	4	50	132
All	**29.3**	**149**	**101**	**0.90**	**0.60**	**140**	**96**	**581**	**386**
Inferred									
Mantos	4.5	117	69	0.82	0.67	17	10	81	67
Socavon	16.4	88	45	0.47	0.85	46	24	168	308
All	**20.9**	**94**	**50**	**0.54**	**0.81**	**63**	**34**	**250**	**374**

Notes to Tables 1-2, 1-3 and 1-4:

1. Mineral Resources estimate was prepared in accordance with the CIM Standards and reported in accordance with NI 43-101 under the direction of Robert Sim, P.Geo., SIM Geological Inc., a qualified person.
2. Mineral Resources estimate has been generated from drill hole sample assay results and the interpretation of a geologic model relating to the spatial distribution of silver, lead and zinc. Interpolation characteristics were defined based on the geology, drill hole spacing, and geostatistical analysis of the data. Grade estimates using ordinary kriging are made into model blocks measuring 8 x 8 x 5 meters (LxWxH). Mineral Resources were classified according to their proximity to sample data locations.
3. Mineral Resources are contained within a pit shell generated using a silver equivalent grade derived from the following formula: AgEq = Ag g/t + (Pb% ∗ 30.49) + (Zn% * 33.54). Mineral Resources estimate is based on metal price assumptions of $22.50/oz silver, $1.00/lb lead and $1.10/lb zinc.
4. The base case cut-off grade, which reflects the transport and processing of ore at Pirquitas, is estimated to be 60 g/t AgEq based on projected operating costs and metal prices listed above.
5. Metallurgical recoveries, used in the generation of the pit shell, are assumed to be 85% silver, 93% lead and 80% for zinc.
6. Mineral Resources are reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. The quantity and grade of Inferred Mineral Resources are uncertain in nature and there has been insufficient exploration to classify these as Indicated or Measured Mineral Resources, but it is reasonably expected that a majority of the reported Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

8. Figures may not total exactly due to rounding. All ounces reported represent troy ounces, and “g/t” represents grams per tonne.
9. The Mineral Resources estimate is effective as of October 2, 2016.

Table 1-3: Sensitivity of Mineral Resources to Cut-off Grade, October 2, 2016

Cut-off AgEq (g/t)	Mtonnes	AgEq (g/t)	Ag (g/t)	Pb (%)	Zn (%)	AgEq (Moz)	Ag (Moz)	Pb (Mlbs)	Zn (Mlbs)
Measured and Indicated									
30	37.4	126	85	0.77	0.54	152	102	631	37.4
40	35.0	133	89	0.80	0.56	149	101	620	35.0
50	32.2	141	95	0.85	0.58	145	98	603	32.2
60	**29.3**	**149**	**101**	**0.90**	**0.60**	**140**	**96**	**581**	**29.3**
70	26.5	158	108	0.95	0.60	134	92	556	26.5
80	23.8	167	116	1.01	0.61	128	89	529	23.8
90	21.3	177	124	1.07	0.60	121	85	500	21.3
100	18.9	187	133	1.12	0.60	114	81	468	18.9
110	16.7	198	142	1.18	0.59	106	76	437	16.7
120	14.8	209	151	1.24	0.58	99	72	405	14.8
130	13.0	220	161	1.30	0.57	92	68	375	13.0
140	11.6	231	170	1.36	0.56	86	63	348	11.6
150	10.3	242	180	1.42	0.55	80	59	321	10.3
Inferred									
30	34.0	76	39	0.43	0.69	83	43	324	518
40	30.5	80	42	0.46	0.73	79	41	309	494
50	26.1	86	45	0.49	0.77	73	38	284	445
60	**20.9**	**94**	**50**	**0.54**	**0.81**	**63**	**34**	**250**	**374**
70	15.7	104	57	0.60	0.86	52	29	208	296
80	11.4	115	64	0.67	0.89	42	24	168	225
90	8.4	126	72	0.74	0.92	34	19	137	169
100	6.2	136	80	0.82	0.94	27	16	113	129
110	4.6	148	88	0.92	0.96	22	13	92	96
120	3.4	159	95	1.02	0.97	18	11	78	73
130	2.6	170	102	1.14	0.97	14	9	65	56
140	2.0	181	110	1.27	0.98	11	7	55	42
150	1.5	193	117	1.40	0.99	9	6	46	32

In order to be consistent with previous reporting of Mineral Resource estimates, these Mineral Resources are segregated in Table 1-4, using the main mineralized zones.

Table 1-4: Mineral Resources by Mineralized Zone, October 2, 2016

Type	Mtonnes	AgEq (g/t)	Ag (g/t)	Pb (%)	Zn (%)	AgEq (Moz)	Ag (Moz)	Pb (Mlbs)	Zn (Mlbs)
Measured									
Silver Mantos	**3.1**	**160**	**128**	**0.60**	**0.41**	**16**	**13**	**41**	**28**
Indicated									
Silver Mantos	9.5	127	82	0.71	0.70	39	25	150	148
Mantos Basement	12.8	176	130	1.20	0.28	73	54	340	78
Socavon	3.8	103	33	0.60	1.56	13	4	50	132
ALL	**26.2**	**148**	**98**	**0.94**	**0.62**	**124**	**83**	**540**	**358**
Measured and Indicated									
Silver Mantos	12.6	135	93	0.69	0.63	55	38	190	176
Mantos Basement	12.8	176	130	1.20	0.28	73	54	340	78
Socavon	3.8	103	33	0.60	1.56	13	4	50	132
ALL	**29.3**	**149**	**101**	**0.90**	**0.60**	**140**	**96**	**581**	**386**
Inferred									
Silver Mantos	3.2	118	62	0.87	0.89	12	6	61	63
Mantos Basement	1.3	113	86	0.70	0.15	5	4	20	4
Socavon	3.8	93	43	0.45	1.07	11	5	38	89
Socavon Basement	12.6	87	46	0.47	0.79	35	19	130	218
ALL	**20.9**	**94**	**50**	**0.54**	**0.81**	**63**	**34**	**250**	**374**

1.9 Mining Development and Operations

The Chinchillas Property deposit is planned to be a conventional open pit mining operation. The ore mined at the Chinchillas Property will be trucked to the mill at the Pirquitas Operation using 35 tonne road trucks over a total road length of 42 kilometres. An existing gravel road connects the two properties, however most sections of this road need to be upgraded for safe passage of heavy traffic. Some haul roads for the on-site waste dump and other facilities will also need to be developed.

A maintenance shop, office buildings and storage areas are among the facilities that need to be constructed at the Chinchillas Property mine site. A small staging area will be located close to the pit rim for ore handling purposes, to facilitate the temporary placement of ore from the pit and re-loading into the 35 tonne road trucks.

Most of the equipment owned by MPSA and personnel from the former Pirquitas mining operation will be deployed to the new Chinchillas Property open pit.

The Chinchillas Property mine consists of a large pit in the west, and a small satellite pit to the east. The pits will be mined in three phases during nine years of operation. There are some Mineral Resources available near surface; however, the majority of high grade ore is in the lower benches that require significant amounts of waste to be mined in the early years. About 4 million tonnes of waste will be mined prior to first ore production. Waste will be segregated by its metal leaching properties and chemical characterization. Waste that has the potential to leach will be stored close to the pit rim so that water drainage can be directed into the pit.

The majority of waste consists of very low grade mineralized material. Higher grade mineralized waste will be separated from barren and very low grade waste. This marginal waste will be dumped separate from the waste (as “mineralized waste”) for potential future use.

1.10 Metallurgy and Processing

The metallurgical testing of Chinchillas ore types commenced in 2013 and continued until 2016. The first testwork was focused on silver recovery by both leaching and flotation methods with flotation proving to be superior at this early stage. The second program continued process development of flotation into separate lead/silver and zinc concentrates. The third testwork campaign was designed to advance the flotation process and test specifically these ore types to the Pirquitas mill flowsheet.

The metallurgical testwork concludes that a two-product sequential flotation process is suitable for Chinchillas material, and the Pirquitas processing plant can successfully produce two flotation concentrates (lead/silver and zinc) from the material with similar processes to those currently used at the Pirquitas Operation. The existing Pirquitas pre-concentrating jig circuit will not be used, and minor changes are required to modify the existing silver cleaner circuit to the testwork flowsheet of a two-stage lead/silver cleaner circuit.

Recoveries are modeled over the life of the mine as 83% to 90% for silver, 93% to 97% for lead and 85% for zinc. Lead concentrate grades range from 4.7 kg/t to 10.8 kg/t silver and 64% to 67% lead over the mine life. Zinc concentrate grades range from 50% to 54% zinc.

1.11 Mineral Reserve Estimate

Table 1-5 summarizes the Chinchillas mineable resource (the “Mineral Reserve”) which is an estimate of the tonnes mined and processed from the design pit. The main inputs to mine design are metal prices, resource model, geotechnical information, operating costs, mineral processing recoveries, off site costs and charges. The parameters have been reviewed by QPs in each technical area.

Table 1-5: Summary Mineral Reserve Estimate, Chinchillas Project, Argentina, December 31, 2016

Category	Quantity	Grade			Content Metal Mined		
		Ag	Pb	Zn	Ag	Pb	Zn
	Mtonnes	g/t	%	%	Moz	Mlbs	Mlbs
Proven	1.64	180	0.75	0.42	9.44	27.01	15.11
Probable	10.07	150	1.27	0.50	48.44	282.48	111.48
Proven and Probable	**11.71**	**154**	**1.20**	**0.49**	**57.88**	**309.49**	**126.59**

Notes:

1. Mineral Reserves estimate was prepared in accordance with the CIM Standards and reported in accordance with NI 43-101 under the direction of Anoush Ebrahimi, Ph.D., P.Eng., SRK Consulting (Canada) Inc., a qualified person.
2. Mineral Reserves estimate is based on metal price assumptions of $18.00/oz silver, $0.90/lb lead and $1.00/lb zinc.
3. Mineral Reserves estimate is reported at a cut-off grade of $32.56 per tonne net smelter return (“NSR”).
4. All figures include dilution. The average mining dilution is calculated to be 11%.
5. Ore loss is estimated at 2%.
6. There is an estimated 54.89 million tonnes of waste in the ultimate pit. The strip ratio is 4.69 (waste:ore).
7. Processing recoveries vary based on the feed grade. The average recovery is estimated to be 85% for silver, 95% for lead and approximately 80% for zinc.
8. Metals shown in this table are the contained metals in ore mined and processed.
9. This Mineral Reserves estimate assumes that all required permits, as discussed under Section 20, will be obtained.
10. Figures may not total exactly due to rounding. All ounces reported represent troy ounces, and “g/t” represents grams per tonne.

1.12 Environment, Communities and Permitting

There are three communities close to the Project, populated by less than 200 people in total, and each of these communities are included in management plans for training and capacity building as the Project proceeds.

The Project does not intrude upon any protected areas. Water quality in the surface waters draining the Project area is typical of a mineralized zone, including some observed elevated metals parameters, but with generally neutral pH. The waste rock is expected to be largely non-acid generating, with a small portion that may be weakly acid generating under certain oxidizing conditions. The waste rock with potential for acid production will be placed so as to have any drainage report to the pit and avoid introduction to the environment.

Although there is no specific mine closure legislation nor bonding requirements in Argentina, a conceptual closure plan has been developed for the Project. Closure costs are estimated at $3.6 million. POI is also responsible for the closure costs associated with the Pirquitas Pit. Please see Section 23 for a description of the Pirquitas Pit and the related closure activities and costs.

An Environmental and Social Impact Assessment ("ESIA") was conducted for the Project and submitted to the Argentine regulatory authorities for review, with expected licensing in mid to late 2017. In addition, a modification to MPSA's ESIA for the Pirquitas mine will be required in order to use the Pirquitas Pit for tailings deposition at the Pirquitas Operation.

1.13 Capital and Operating Costs

Total capital expenditure is estimated to be $125.3 million. Capital costs are separated as initial and sustaining purchases. The initial capital is $81.2 million and the sustaining capital is $44.1 million. The initial capital will be spent in pre-production period that is estimated to be about 12 months. The capital requirement for the rest of mine life is sustaining capital.

The life of mine operating costs are approximately $45.34 per tonne of ore milled, as summarized in Table 1-6.

Table 1-6: Operating Cost Summary

Operating Costs		
	Units	Cost
Mining (ore and waste)	$/t mined	2.88
	$/t milled	15.34
Processing (including $0.07/t in incremental power)	$/t milled	14.72
General and Administrative LOM	$/t milled	7.00
Ore Transport to Pirquitas	$/t milled	7.86
Tailings Management	$/t milled	0.43
Total Operating Costs	**$/t milled**	**45.34**

1.14 Economics

A discounted cash flow model was developed to evaluate the economics for the Project. The economic model is based on a 100% Project basis that examines the overall project economics and does not specifically allocate earnings or cash flows to Silver Standard or Golden Arrow, which own 75% and 25%, respectively, of the issued and outstanding shares of POI.

The economic modelling was done on both a pre-tax and post-tax basis and both results are presented herein.

Metal prices used in the economic modelling differ slightly from the prices used to define the Mineral Reserve (see Table 1-5). Metal prices used in the economic model are $19.50/oz silver, $0.95/lb lead and $1.00/lb zinc.

The economic results are summarized in Table 22-1 and indicate a post-tax net present value ("NPV") of $178.0 million at a 5% discount rate, with a corresponding internal rate of return ("IRR") of 29.1% and a 3.5 year payback. Closure costs specific to the Pirquitas Pit are not included in the cash flow model. For a discussion of the closure obligations and liabilities relating to the Pirquitas Pit, please see Section 23.

Cash costs, which include cost of inventory net of capitalized stripping, and treatment and refining costs, total $7.40 per payable ounce of silver sold net of by-product revenues and estimated capitalized stripping over the life of mine. All-in sustaining costs, which include sustaining capital, capitalized stripping and reclamation, total $9.75 per payable ounce of silver sold net of by-product revenues over the life of mine.

1.15 Conclusions and Recommendations

The Chinchillas deposit has the potential to be developed as a profitable open pit mine in conjunction with the existing processing facility at the Pirquitas Operation. The operation, including construction activities, mining, and reclaiming processing of low grade ore stockpiles, will take about 10 years to be completed.

The authors recommend advancing the Project to a feasibility study.

Specific recommendations and opportunities to further optimize the Project are proposed for the feasibility study stage, and pre-production. These include:

- More detailed Mineral Resource delineation work at the Socavon and the areas between the Socavon and Mantos zones
- Optimization of metal prices and cost input parameters
- More detailed planning and design for rock storage and the general site layout
- Definition of a detailed grade control program
- Additional metallurgical testwork
- Revision of the list of mining equipment available from Pirquitas
- Commence pre-production, particularly access and ore haulage roads, as early as possible
- Use the pit as a borrow pit for construction if necessary
- Survey the exploration tunnels in the Socavon area prior to mining

2 Introduction

2.1 Introduction and Terms of Reference

The purpose of this Technical Report is to summarize and present the results of a PFS for the combined development of the Chinchillas silver-lead-zinc deposit at the Chinchillas Property and the Pirquitas Operation (the "Project") under the guidelines of NI 43-101 and Form 43-101F (CSA, 2011). This PFS includes the first reporting of a Mineral Reserve for the Project, estimated in conformity with generally accepted CIM Guidelines and reported according to the CIM Standards. Since operations at the Pirquitas Pit have ceased, it and the associated obligations and liabilities are not included as part of the Project, however, they are described in Section 23.

The Project is owned by POI, a 75%-25% joint venture between Silver Standard and Golden Arrow. Silver Standard is a Canadian-based mining, development and exploration company with shares listed on the Toronto Stock Exchange under the symbol "SSO" and on the NASDAQ Global Market under the symbol "SSRI". Silver Standard fulfills the requirements of a producing issuer as defined in NI 43-101. Golden Arrow is a Canadian-based exploration company with shares listed on the TSX Venture Exchange under the symbol "GRG".

Upon closing of the Transaction, POI will be created as a business combination of Golden Arrow's Chinchillas Property and Silver Standard's Pirquitas Pit and Pirquitas Operation, as announced on October 1, 2015 (Silver Standard, 2015; Golden Arrow, 2015). The Transaction provides the opportunity to use existing infrastructure at the Pirquitas Operation to offset development and processing requirements for Chinchillas. Details of the Transaction is available in the Information Circular dated November 20, 2015 (Golden Arrow, 2015b). The Transaction is expected to close on or around May 31, 2017. Upon closing of the Transaction, POI will be the owner of both VDC and MPLLC. This Technical Report has been prepared on the basis that the Transaction has closed.

This PFS envisions a satellite open pit mining operation at the Chinchillas Property with ore processing undertaken using the existing mill and concentrator facility at the Pirquitas Operation, which is located about 42 kilometres west of Chinchillas. Tailings disposal will be done at the Pirquitas Operation, with the Pirquitas Operation providing other supporting services as detailed in this Technical Report. Processing of the Chinchillas ore would be done at the cessation of processing ore from the Pirquitas Pit.

The PFS economic evaluation has been completed on a 100% Project basis, therefore the economics do not include contribution to POI revenues from existing ore at the Pirquitas Pit or other material that may be processed at the Pirquitas Operation from other projects. Furthermore, the obligations and liabilities associated with the Pirquitas Pit, including closure costs, are not included in the evaluation.

Background information on the Pirquitas Operation and the Pirquitas Pit was taken from the Technical Report for the Pirquitas mine (Board et al., 2011), with updates to include information about the Pirquitas Operation subsequent to the date of such Technical Report.

2.2 Qualified Persons and Property Inspections

Independent consultants were commissioned to complete the PFS and this Technical Report on behalf of POI. The consultants were selected for their expertise in the fields of geology, exploration, Mineral Resource and Mineral Reserve estimation and classification, geotechnical, environmental, permitting, metallurgical testing, mineral processing, processing design, capital and operating cost estimation, and mineral economics.

The following individuals are considered independent QPs as defined in the NI 43-101, by virtue of their education, experience, membership in good standing of appropriate professional institutions and independent consulting relationships with POI, Golden Arrow or Silver Standard. Table 2.1 summarizes the QPs responsible for specific sections and the dates of their visit to the property, if applicable. Mr. Kuchling supervised the overall preparation of the Technical Report.

Table 2-1: Qualified Persons, Responsibilities, and Site Visits

Qualified Person	Company	Most Recent Site Visit	Report Sections of Responsibility
Ken Kuchling, P. Eng.	P&E Mining Consultants Inc.	03/12/15 to 03/13/15	1-6, 22-27
Robert Sim, P.Geo.	SIM Geological Inc.	n/a	7-10, 14
Bruce Davis, Ph.D., F.AusIMM	BD Resource Consulting Inc.	n/a	11, 12
Adrian Dance, Ph.D., P.Eng., F.AusIMM	SRK Consulting (Canada) Inc.	n/a	13, 17
Anoush Ebrahimi, Ph.D., P.Eng.	SRK Consulting (Canada) Inc.	04/21/16 to 04/24/16	15, 16, 18, 19, 21
Ken Embree, P.Eng.	Knight Piésold Ltd.	10/30/13 to 11/1/13	20

2.3 Sources of Information and Data

In order to prepare the content of the Technical Report, the authors held discussions with personnel of Silver Standard and Golden Arrow, including:

- Mr. Bruce Butcher, Director, Mine Planning, Silver Standard
- Mr. Trevor Yeomans, Director, Metallurgy, Silver Standard
- Ms. Linda Broughton, Acting Vice President, Environment & Community, Silver Standard
- Mr. Carl Edmunds, Chief Geologist, Silver Standard
- Mr. Brian McEwen, VP Exploration and Development, Golden Arrow
- Mr. Hugo Caranza, Chief Geologist, Golden Arrow

This Mineral Resource estimate is based on drill data provided by Golden Arrow, up to and including the final Phase V results released on March 30, 2016. The effective date of the Mineral Resource model is October 2, 2016. The effective date of this Technical Report is December 31, 2016.

Background information on the Pirquitas Operation was taken from the Technical Report for the Pirquitas mine (Board et al., 2011), with updates to include information about the Pirquitas Operation subsequent to the date of such Technical Report.

In addition, the information, conclusions, opinions and estimates contained herein are based on:

- Data, geological reports, maps, documents, Technical Reports and other information supplied by Silver Standard and Golden Arrow employees and consultants. The QPs used their experience to determine if the information from previous Technical Reports was suitable for inclusion in this Technical Report and adjusted information that required amending.
- Third party reports and papers as indicated in the text and detailed in Section 27.
- Other experts as detailed in Section 3.
- The field observations from site visits of the QPs as outlined in Table 2.1.

2.4 Units and Currency

Unless otherwise stated, all units in this Technical Report are metric. All currency values are expressed in U.S. dollars.

3 Reliance on Other Experts

For the purpose of Sections 4 and 23 of this Technical Report, the authors relied on property ownership data provided by Silver Standard and Golden Arrow. This information is believed to be complete and correct to the best of each of the respective author's knowledge and no information has been intentionally withheld that would affect the conclusions made herein. None of the authors of these sections has personally researched the property title or mineral rights for the Project and expresses no personal legal opinion as to the ownership status of the property.

A Pirquitas title opinion dated October 31, 2016 was obtained from Victor Anibal Gamez (Abogado de la Republica Argentina) whose findings confirmed legal status, as described in Section 4.

Section 20, Environmental Studies, Permitting and Social or Community Impact, was compiled by Chris Brodie, R.P.Bio, of Knight Piésold Ltd. ("KP"). Information in Section 20 was largely sequestered from the Chinchillas ESIA dated September 16, 2016 and issued by Knight Piésold Argentina Consultores S.A. as the "Informe De Impacto Ambiental – Etapa Explotación". The ESIA was compiled by a number of experts from Knight Piésold Argentina Consultores on behalf of VDC, represented for the purposes of the ESIA by Gabriel Gustavo Blasco.

The economic model for the Project is described in Section 22. This cash flow model was developed by the Silver Standard accounting team under the direction of David Wiens and was reviewed by the QP. This review was not a detailed audit since aspects of the tax modelling are considered confidential by Silver Standard's experts. However there is no reason to believe that any economic modelling results have been intentionally withheld that would affect the conclusions derived from them.

4 Property Description and Location

4.1 Location

The Chinchillas Property is located in the Puna region of northwestern Argentina, in the province of Jujuy, department of Rinconada, approximately 280 kilometres from the provincial capital of San Salvador de Jujuy. The property is centred at approximately at 3,473,150E and 7,512,360N (Gauss Kruger, Argentina, Posgar Zone 3; 22^{0}30′13″ S, 66°15′39″ W) at elevations ranging from 4,000 to 4,200 masl.

The Pirquitas Operation is also located in the Rinconada Department in the Province of Jujuy. The property is centered at 22 degrees 42 minutes south latitude and 66 degrees 30 minutes west longitude at elevations of between 4,000 and 4,450 masl.

Figure 4-1 shows the relative locations of the Chinchillas Property and the Pirquitas Operation.

Figure 4-1: Location of the Chinchillas Property, the Pirquitas Operation and Other Projects in the District

4.2 Chinchillas Land Tenure

Exploitation concessions in Argentina are called "Minas". Minas are defined by the following categories: First Category Minas include substances such as gold, silver, platinum, iron, lead, copper, zinc, aluminium, lithium, potassium, etc. and Second Category Minas comprise substances such as precious stones in river beds, any metal not included in the first category and others.

The Mina is comprised of one or more “pertenencias” which are units of mining properties. Pertenencias must be rectangular in shape. In disseminated deposits such as Chinchillas, the pertenencias can encompass up to 100 hectares. The mining property fee or “canon” for a Mina is ARS$3,200 per pertenencia per year.

Individuals are entitled to explore for, exploit and dispose of Minas as owners by means of a legal licence or legal concession granted by the competent authority under the provisions of the Argentine Mining Code. The legal concessions granted for the exploitation of Minas are valid for an undetermined period of time, and are considered “real property” giving the concessionaire the right to recover metals from the subsurface vertically underneath the concession, provided that the title holder complies with the obligations set out in the Argentine Mining Code.

The Chinchillas Property consists of three contiguous First Category Minas that cover an area of approximately 2,042.56 hectares, as set out in Table 4-1 (see also Figure 4-2):

Table 4-1: Chinchillas Exploitation Concessions

Concession	File No	Area (hectares)
Chinchilla	469-M-56	329
Chinchilla I	079-D-96	830.98
Chinchilla II	1943-V-2013	882.58

The Chinchilla Mina is broken down into four pertenencias, while the Chinchilla I Mina has 9 pertenencias and Chinchilla II has 9 pertenencias.

By July 2015, VDC completed option payments to earn a 100% interest in the Chinchilla and Chinchilla I properties, to a total of $1,866,000 paid.

VDC must make an additional payment of $1,200,000 to the vendors upon the decision to build a mine on these two properties.

The Chinchilla II Mina was acquired directly by VDC and is not subject to option payments.

All Minas are valid and in good standing.

Concentrates produced at the Project are subject to a maximum 3% “mouth of mine value” royalty that is payable to the Province of Jujuy. This royalty payment is based on the net recoverable value of the contained metals less certain operating costs.

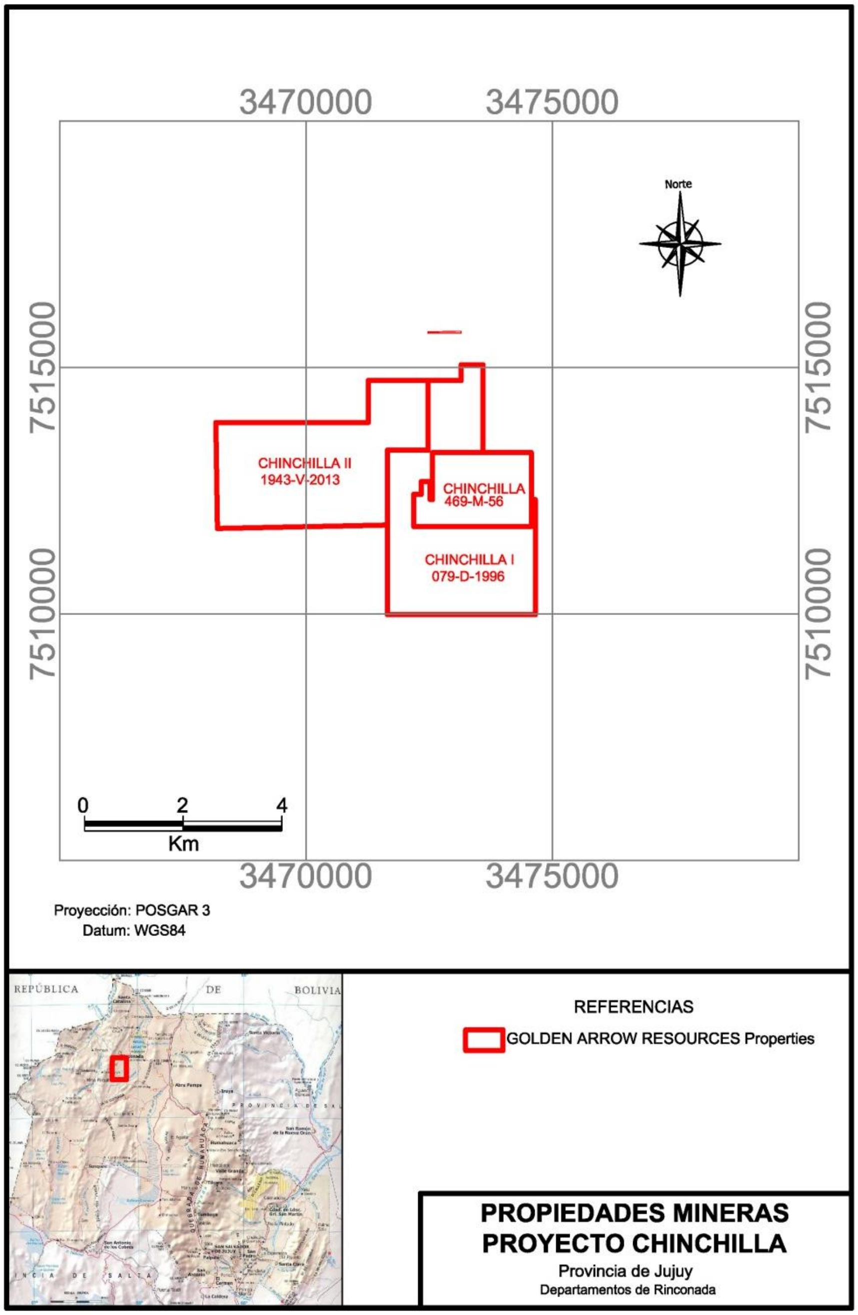

Figure 4-2: Property Map Showing Chinchilla, Chinchilla I and Chinchilla II Concessions

4.3 Chinchillas Surface Rights

Agreements with surface land owners for access to the concessions were negotiated and sustained during all phases of exploration of the Chinchillas Property. POI has initiated plans for long-term agreements or surface right purchases with surface land owners as necessary to operate at the Chinchillas Property and maintain access between Chinchillas and Pirquitas. POI has acquired surface rights to certain of these lands, and is negotiating with two surface land owners to acquire rights to the remaining lands required for the Project. As noted above, all Minas comprising the Chinchillas Property, which provide exploration and exploitation rights, are valid and in good standing.

4.4 Chinchillas Permitting

Government permits required to conduct exploration and drilling on the Chinchillas Property have been obtained. The main focus of mine permitting is the detailed ESIA, which must be submitted prior to commencement of operations. An ESIA for the Project was developed and submitted for review in September 2016 and is subject to review by the relevant authorities. If such process is concluded successfully, an Environmental Impact Declaration ("DIA" for Declaración de Impacto Ambiental) will be issued in respect of the Project. Chinchillas has maintained all previous exploration activity permits in good standing, each of which required the submission of an ESIA and receipt of a DIA. It is expected that the Project will be awarded the DIA in mid to late 2017. (For additional details please refer to Section 20.3.)

4.5 Chinchillas Environmental Liabilities

Prior to initiating work on the Chinchilla Mina, an inspection was performed by the mining and environmental authorities regarding potential pre-existing environmental liabilities. There are remnants of historic mining activities in the Project area, such as small buildings, small areas of workings excavated in the 1960`s, historic drilling platforms, trenches and holes. All of these liabilities were declared as pre-existing in Golden Arrow's ESIA for the Chinchilla Mina, there were no findings and/or requests by the environmental authorities, and the Chinchilla ESIA report was approved.

4.6 Chinchillas Factors and Risks

Except as set out herein, to the extent known, there are no additional factors or risks that may affect the access, title, right or ability to perform work on the Chinchillas Property.

4.7 Pirquitas Operation Surface Rights

The Pirquitas Operation includes the surface rights to a group of nine contiguous land parcels covering an area of approximately 7,500 hectares, as set out in Table 4-2:

Table 4-2: Pirquitas Operation Surface Rights

Parcel No.	Registration No.	Area (hectares)
531	L-1111	1.000.1
532	L-1112	1,000.0
533	L-1113	750.0
534	L-1114	749.6
535	L-1115	1,000.0
536	L-1116	1,000.0
537	L-1117	1,005.7
538	L-1118	496.0
539	L-1119	500.1

Such parcels can be used for purposes such as housing, infrastructure facilities, processing facilities and proposed tailings facility, and other facilities to support the Project's mining operations. MPSA is the freehold title holder of the area covered by such surface rights.

A Pirquitas title opinion dated October 31, 2016 was obtained from Argentine lawyer Victor Anibal Gamez, who stated that:

"1. (MPLLC) acquired Pirquitas by means of an auction proceeding carried out under the pertaining rules set forth by the Federal Code of Procedure of Argentina, and executed the Deed and had it registered before the Registro Inmobiliario de la Provincia de Jujuy and before the Escribania de Minas del Juzgado Administrativo de Minas de la Provincia de Jujuy as required by Argentine law, which constitutes a valid ownership title for Pirquitas.

2. MPLLC is the owner of record of the silver, lead and tin mine in the province of Jujuy, Argentina known the Pirquitas Mine, and all rights and permits necessary and/or desirable to develop and operate Pirquitas.

3. According to the Certificate No 52, MPLLC has paid the fee (canon) up to the first semester of 2016, not owing any amount. Likewise, there are no debts registered in concept of Service Fees (tasas retributivas de servicios).

4. According to the Certificate No 52, and to the best of my knowledge there are no liens on Pirquitas other than the Real Estate Lien.

5. To the best of my knowledge, except for the Real Estate Liens, MPLLC is not a party to any other contract, agreement, lease or instrument, the performance of which would result in or require the immediate creation of a lien on Pirquitas.

6. To the best of my knowledge, neither MPLLC nor Pirquitas has any immunity from the jurisdiction of any court or any legal process under the laws of Argentina.

7. Therefore, in accordance with the above mentioned considerations and qualifications, and to the best of my knowledge, MPLLC has ownership of Pirquitas, which grants MPLLC the legal right, under Argentine law, to:

    a. occupy and enter Pirquitas for purposes related to mining,
    b. build new facilities on Pirquitas,
    c. use and exploit Pirquitas,
    d. extract ore from Pirquitas,
    e. refurbish old and build new ore processing and other facilities at Pirquitas,
    f. process ore into metal,
    g. engage in any process necessary for the concentrate produced at Pirquitas to be ready for sale, and
    h. sell the concentrate produced at Pirquitas."

Since operations at the Pirquitas Pit have ceased, the Pirquitas Pit and the associated obligations and liabilities are not included as part of the Project. For a discussion of environmental liabilities at the Pirquitas Pit, please see Section 23.

4.8 Pirquitas Operation Permitting

The capacity of the current tailings facility at Pirquitas will be full by the time Chinchillas ore is processed. Since mining at the Pirquitas Pit was completed in January 2017, tailings will be transported from the Chinchillas Project to a portion of the Pirquitas Pit through a pipeline for in-pit disposal, tailings in-pit discharge system from the tailings transport pipeline, in-pit water reclaim system, and pipeline from the

Pirquitas Pit to the Pirquitas plant for reuse. These proposed upgrades will allow for additional tailings capacity in connection with the processing of Chinchillas ore.

The use of the Pirquitas Pit for tailings deposition at the Pirquitas Operation is a modification to the mining activities not contemplated in MPSA's ESIA for the Pirquitas mine. The process of this modification has begun and additional documents are being prepared for submission to the regulatory authorities. It is expected that an authorization for such modification will be obtained prior to the end of 2017.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The PFS envisions utilizing both the Chinchillas Property site and the processing plant and facilities at the Pirquitas Operation. Since the Pirquitas plant has been operating for several years, the infrastructure there is well developed. The Chinchillas site has not undergone any development work yet, other than exploration activities and environmental investigations. The existing infrastructure for both these sites are described in the following sections.

5.1 Accessibility

The Chinchillas Property is accessed most directly from the provincial capital of San Salvador de Jujuy via National Route No. 9, northwards along the Humahuaca River to the town of Abra Pampa. The route continues along Provincial Route No. 7 westward for 66 kilometres, through the village of Santo Domingo. The roads are maintained by the Province and are accessible year round. Several temporary rivers cross the route so four wheel drive vehicles are recommended in the rainy season.

The other route to the Chinchillas Property and to the Pirquitas Operation follows National Route No. 9 northwards from San Salvador de Jujuy to Purmamarca, then turns northwest on paved road No. 52 to the town of Susques. From there, National Route No. 40 heads to Provincial Route No. 70 that leads to Chinchillas at the Fundiciones mountain pass. This route is more appropriate for heavy transport vehicles, and is used by traffic to the Pirquitas mine and mill, located 42 kilometres to the southwest of Chinchillas along the route. (Figure 5-1).

Concentrate shipments from Pirquitas are currently trucked to Susques, Jujuy from Pirquitas via Route 77, and from there to Buenos Aires via Route 9. At arrival to the terminal, the material is directly dispatched from the port facilities to the concentrate buyers. It is expected that this same route would be used for shipping concentrates produced when processing the Chinchillas ore at the Pirquitas plant.

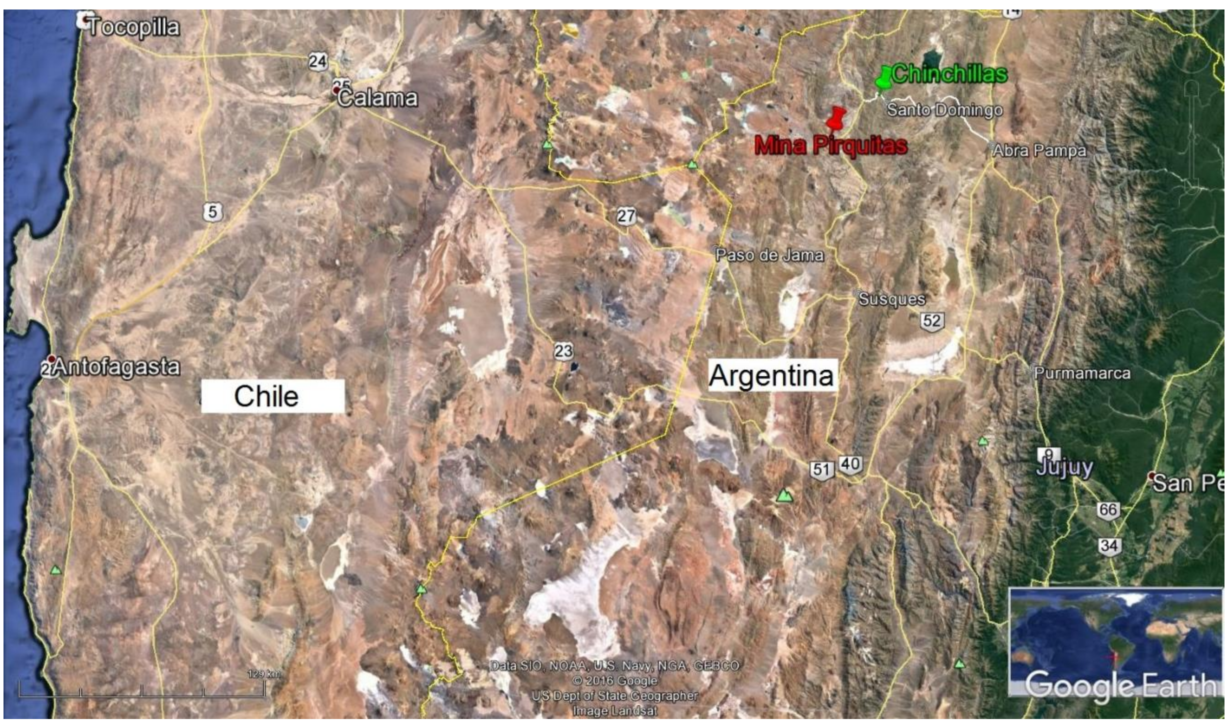

Figure 5-1: Location Map with Access Routes to the Project Area. (Golden Arrow, 2016)

5.2 Physiography, Climate and Vegetation

The Chinchillas deposit terrain has an elliptical, caldera-like shape with steep rolling hills surrounding the caldera depression. It is located near the Fundiciones mountain pass, with the Rinconada and Carahuasi ranges extending from north to south. Elevations range from about 4,000 to 4,200 masl. The highest elevation in the area is Cerro Granada at 5,696 masl, 28 kilometres to the southwest. The Uquillayoc river runs through the Project area, and is fed by many small tributaries.

At Pirquitas, elevations on the property range from 4,000 to 4,450 masl. The processing plant, tailings impoundment and main workers camp are located in the eastern third of the Pirquitas property in an area of relatively open ground that lies at an elevation of 4,100 masl, and the Pirquitas Pit, which ceased mining operations in January 2017, is situated about seven kilometres west of the mill at a slightly higher elevation.

The regional climate is similar at both Chinchillas and Pirquitas and is arid to semi-arid, tropical-subtropical influenced by high desert (Blasco, 2011). Rain is scarce and mainly occurs during the rainy season (November to March), with a mean annual precipitation of 300 millimetres. The annual mean temperature is 18°C, however during the winter it ranges down to -7.7 ºC to 7.5 ºC. Dry and windy conditions often prevail in the area.

Natural vegetation is patchy to sparse and consists of xerophilous and steppe bushes like iro (Festuca ortophylia), and coirón (Stipachrysophylla). Acantoliphia haustata is the predominant species with the Yareta (Azorella compacta), less frequent. The tola (Parastrepia ssp) and small trees like the queñoa (Polylepis tomentella) can be found in depressions (Blasco, 2011).

Animal species found in the area include mammals such as llamas, puna foxes and vizcachas, as well as several mice species, chinchillas and ferrets. Other fauna in the area include lizards, and birds such as small rheas, owls, ducks, condors and falcons (Blasco, 2011).

5.3 Local Resources & Infrastructure

Chinchillas and Pirquitas are located in the rural zone of Rinconada Department, with an approximate population of 2,500 people. It covers an area of 6,407 square kilometres, includes over twenty small communities, and has basic public services including a police department and health center. The nearest community to Chinchillas is the village of Santo Domingo, and nearest to Pirquitas is the village of Nuevo Pirquitas. Historically, the local population was mainly employed in ranching, however the operation at Pirquitas has created a significant local trained mining workforce. Basic amenities are supplied from Susques and Abra Pampa, while supplies for mining will be obtained through the provincial capital of San Salvador de Jujuy, which has an airport with daily commercial air service to Buenos Aires.

The nearest hospital is located in Abra Pampa, 66 kilometres away.

5.3.1 Chinchillas Resources & Infrastructure

There is no mine operating infrastructure yet at the Chinchillas Property. Existing exploration infrastructure includes two office containers, a core logging facility, a core cutting machine, two storage tents, two cisterns for diesel fuel (1,500 and 10,000 litres) and six warehouses of 144 square metres each, for the storage of the core boxes.

Electricity onsite is provided by a 46kva diesel generator, and the local rural powerline passes within approximately one kilometre of the property.

Water supply for human consumption comes from bottled water purchases, and it is expected that water for mining operations will come from local pumping wells.

The Chinchillas Property has sufficient land area available for mining waste rock disposal, and for building the mine infrastructure. POI intends to acquire the surface rights agreements at the Chinchillas Property to cover these areas.

5.3.2 Pirquitas Resources & Infrastructure

Pirquitas has been a permitted commercial mine operated by Silver Standard since December 2009, with existing infrastructure that includes:

- A processing plant;
- A permitted tailings facility;
- A fully serviced workers camp sufficient for approximately 670 personnel;
- A communications system including cellular and intranet access;
- Fully serviced office buildings; and
- Waste water treatment facilities, organic waste landfill and a recycling centre

The Pirquitas processing plant consists of primary, secondary and tertiary crushing operations which deliver ore to a stockpile. The crushing circuit throughput is 6,000 tonnes per day ("tpd"). Ore is transferred from the crushed ore stockpile to a pre-concentration system that consists of jigs to reject waste and upgrade the normal mine head grade to a higher grade product.

The Pirquitas plant uses a tailings thickener to improve water recovery. Post thickened tailings are deposited in the tailings storage facility and secondary water recovery is achieved using barge mounted reclaim pumps.

MPSA has the surface rights covering the Pirquitas Operation.

Electricity is produced from natural gas and diesel generators at the Pirquitas site.

Water supply is from a site known as San Marcos which is located within the property a short distance downstream from where the Pirquitas River drains into the Collahuaima River. Domestic water is pumped from a diversion upstream of the open pit for use at the camp, while potable water is purchased.

Pirquitas has a trained workforce for the processing plant and open pit mining operations, including local workers & operators, supervision, management and senior staff.

6 History

6.1 Chinchillas

Chinchillas was first prospected and mined in small scale in the eighteenth century by Jesuit missionaries. Relics of ancient furnaces used to melt lead and silver can still be found at the Chinchillas Property (Kulemeyer, 2011). In 1956, Mr. Antonio Mercado requested a concession based on the discovery of galena veins in the basement rock. In 1968, the mine was sold to Ing. Pichetti who later formed the Sociedad Pirquihuasi Company together with the Pirquitas Company, and some adits and tunnels were opened for small scale production. In 1982, the mine license expired and the mine was acquired by Shell CAPSA S.A. From December 1982 to 1989, a consulting geologist for Shell, Jorge Daroca, carried out exploration work and, after Shell dropped the property, Mr. Daroca requested it for himself, convinced of the good potential of the area (Daroca, undated). Roads, remnants of infrastructure, and minor underground workings remain from this activity but no records of this work are available.

In 1994, Aranlee Resources conducted surface sampling and drilled seven reverse circulation drill holes for a total of approximately 780 metres. Assay results from this work are available, but there are no samples for re-analysis or quality control information, therefore the data have not been incorporated into the Mineral Resource estimate. In 2004 Silex, a subsidiary of Apex Silver, conducted preliminary reconnaissance work including trenching, pitting and surface sampling, with a total of 165 samples taken. Between October 2007 and July 2008, 40 manual pits and nine trenches were sampled. Surface mapping was also completed at different scales across the Chinchillas property, and a total of 1,036 surface samples were collected. At the beginning of 2008, Quantec Geoscience Argentina S.A. (“Quantec”) performed a 16 kilometre IP resistivity survey, comprising nine sections. The pole-dipole interval was 50 metres with 300 metres depth readings. The objective of the program was to detect and delineate sulphides related to an intermediate to high-sulphidation epithermal system, however the mineralized zones at Chinchillas do not appear to be related to chargeability. Nevertheless, there is a strong resistivity contrast between volcanic units and basement schists and the resistivity data have been an effective tool for imaging the volcanic diatreme shape (Quantec 2008). Silex subsequently drilled 2,220 metres in seven diamond drill holes with drill hole samples taken at one or two metre intervals. Silex had planned to drill 22 holes but cut the program short during the 2008-2009 global financial crisis. In early 2009 Apex entered Chapter 11 bankruptcy protection, and with a payment due on the property, opted to drop Chinchillas in favor of its more advanced El Quevar project. The core from the Silex drill program remains at Chinchillas (Silex, 2008 and Caranza and Carlson, 2012).

In early 2011, Golden Arrow personnel identified the Chinchillas Property as a potential advanced-stage acquisition target. Following a property tour and a review of existing data, the company, through its subsidiary VDC, completed an option agreement with the underlying land owners in August of the same year. Golden Arrow subsequently initiated community relations meetings with the local communities at Santo Domingo, Livaria, and Rinconada as well as with the individual land owners, and submitted a new environmental and social impact statement for exploration drilling. The Government of Jujuy convened meetings of the Provincial Environmental Management Unit (“La Unidad de Gestión Ambiental Provincial” or “UGAMP”) to approve the ESIA and work plans (see Section 20 for additional information). At the UGAMP meeting, all environmental, community, political and mining representatives agreed to Golden Arrow’s exploration plan. The plan was approved in March 2012 for a period of two years and exploration work commenced. Golden Arrow subsequently completed six phases of exploration and drilling (see Sections 9 and 10 for details) with corresponding updates to work plans and approved ESIAs. Six Technical Reports were published by Golden Arrow between 2013 and 2016, detailing Mineral Resource estimates and preliminary economic assessments as the project progressed (Davis and Howie 2013, Davis et al., 2014, Davis et al., 2015, Davis et al., 2016, Kuchling et al., 2014, Kuchling et al., 2015).

In October 2015 Golden Arrow announced that it had entered into the Agreement with Silver Standard to form a joint venture comprising of the Chinchillas Property, the Pirquitas Pit and the Pirquitas Operation. The agreement included an 18-month pre-development period to advance Chinchillas, including the infill drilling, engineering and environmental studies, and permitting that are detailed in this Technical Report.

On March 31, 2017, Silver Standard exercised its Option. Upon closing of the Transaction, which is expected to occur on or around May 31, 2017, POI will assumed 100% ownership and operation of Chinchillas and Pirquitas, as described in Section 2.1.

6.2 Pirquitas Operation

The following sections provide an overview of the ownership history of the Pirquitas Operation and property and the operational history of the Pirquitas mine and its infrastructure, including the processing plant and tailings facility which form part of the development plan for the Project as detailed in later sections of this Technical Report. Except where indicated, this information is summarized from the Technical Report for the Pirquitas mine (Board et al., 2011), with updates to include information about the Pirquitas Operation subsequent to the date of such Technical Report. The reader is also referred to that report for a history of the exploration, Mineral Resource delineation and Mineral Reserve development at the Pirquitas mine, as those Mineral Resources and Mineral Reserves are not a subject of this Technical Report.

6.2.1 Ownership History

Between the 1930s and 1995, the area of the Pirquitas mine had multiple small mining operations to recover silver and tin from placer and vein deposits.

The Argentine branch of Sunshine Mining and Refining Company acquired the Pirquitas mining concessions in November 1995. In the years following its acquisition of Pirquitas, Sunshine Argentina carried out comprehensive mineral exploration on the property, underground rock sampling and multiple programs of revere circulation and diamond drilling. These culminated in a feasibility study in February of 2000.

In May 2002, Silver Standard acquired 43.4% of Sunshine Argentina, Inc. (“Sunshine Argentina”) from Stonehill Capital Management of New York and in October 2004, Silver Standard acquired the remaining 56.6% of Sunshine Argentina from Elliott International L.P., The Liverpool Limited Partnership and Highwood Partners, L.P. Silver Standard operated the Pirquitas mine property as Sunshine Argentina until it changed the company name to Mina Pirquitas, Inc. in May 2008, and further changed the name to MPLLC in December 2014.

On November 24, 2015, POI was incorporated as 1056353 B.C. Ltd., and changed its name to Puna Operations Inc. on May 2, 2017. Upon closing of the Transaction, which is expected to occur on or around May 31, 2017, POI will assume 100% ownership of MPLLC and the operation of Pirquitas, as outlined in Section 2.1.

6.2.2 Operational History

Silver Standard made a positive production decision for the Pirquitas mine in October 2006 followed by pre-construction procurement in the fourth quarter of that year, and the commencement of construction in 2007. Commissioning of infrastructure systems and the processing plant occurred in December 2008, and the estimated capital cost for the project was $230 million plus VAT, as of February 2009 (Silver

Standard MDA December 31, 2008). The mine was formally inaugurated in April of 2009 and commercial production occurred as of December of that year. The Pirquitas processing plant has been in continuous operation since such date.

Discharge from the Pirquitas mill is pumped through a cyclone system and oversize is fed back into the mill for additional grinding. Undersize is fed into a conditioning and reagent addition tank and then flow into the silver and zinc flotation circuits. Tailings from the flotation circuits are thickened and stored at a permitted facility on-site.

The Pirquitas plant has not been expanded since start-up; however, minor changes in the flotation flowsheets have occurred to optimize performance. Since 2010, no tin concentrate production has occurred. During 2015, challenges in producing a marketable zinc concentrate from steadily decreasing zinc grades resulted in zinc concentrate production being curtailed. Please see Section 17.1 for further details.

6.2.3 Prior Mineral Production

Historical records for metal production from the Pirquitas property between 1933 and 1989 indicate that approximately 777,600 kilograms of silver, or about 25 million ounces, along with 18,200 tons of tin were recovered by previous operators. An additional 9,100 tons of tin were reportedly recovered from the placer deposits found downstream from the lode deposits.

From start-up in 2009 to the end of 2016, Silver Standard reported a total production of 60.8 million ounces of silver and 87.8 million pounds of zinc from the Pirquitas Pit (Silver Standard, 2010; Silver Standard, 2011; Silver Standard, 2012; Silver Standard, 2013; Silver Standard, 2014; Silver Standard, 2015; Silver Standard, 2016; Silver Standard, 2017a).

The current status of the Pirquitas operation is that open pit ore mining was completed in mid-January 2017 and the processing plant is expected to continue operating on medium grade stockpiled material until the end of 2017 and possibly low grade stockpiles into early 2018. Since operations at the Pirquitas Pit have ceased, the Pirquitas Pit and the associated obligations and liabilities are not included as part of the Project.

7 Geological Setting and Mineralization

7.1 Regional Geology

The Chinchillas silver-lead-zinc deposit is located in the north-northeast to south-southwest trending Puna geological belt in the western half of Jujuy province (Figure 7.1).

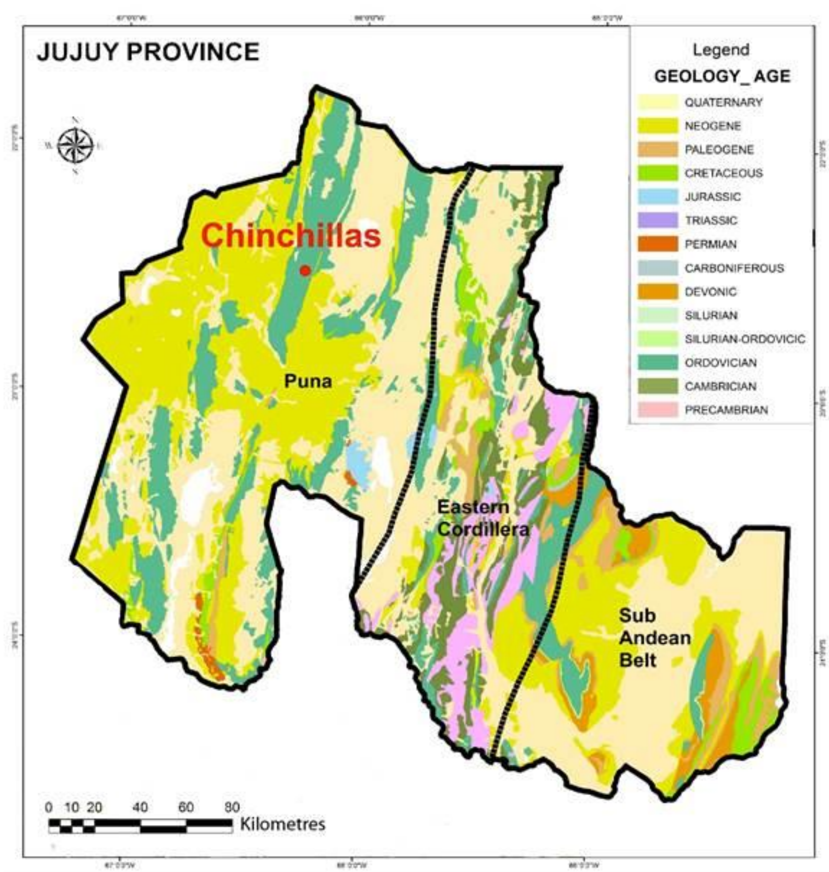

Figure 7-1: Jujuy Regional Geology Map with Geologic Terranes by Age, and Location of the Chinchillas Property. (Golden Arrow, 2013)

The elevation of the Puna ranges from 3,900 to 6,700 masl. Basement rocks include Proterozoic sediments exhibiting medium to low grade metamorphism. A series of units unconformably overlie the basement rocks, including Paleozoic (Acoite Formation) marine sediments deposited in an early to middle Ordivician back arc basin that are overlain by Silurian to Devonian sediments (Board et al., 2011). The Puna was subjected to compressive events in the Late Ordovician to Early Devonian and Paleogene. However, by the late Miocene a basin and range geomorphology had developed and this resulted in the development of andesitic to dacitic stratovolcanoes and large caldera structures with associated extensive ignimbrites. (Soler et al., 2007; Board et al., 2011). This volcanic activity, and its associated mineral deposits, was concentrated along certain corridors defined by lineaments such as Coranzuli-Lipez, El Toro-Olacapato and Arizaro (See Figure 7-2) (Ramos, 1999, Coira et al., 2004, Gorustovich et al., 2011).

In recent times, geological activity in the Puna belt has included basaltic volcanism, continental sedimentation and the creation of salt flats, or salars. The Puna is the most important terrane in Jujuy Province for mineral deposits, including: lithium and borate salar deposits; mesothermal quartz veins with native gold and base metals; polymetallic quartz-sulphide veins with base and precious metals; gold, tin and copper placer deposits; SEDEX deposits with lead-zinc-silver; and Bolivian-type tin-silver-lead-zinc sulphide vein deposits related to intrusive stocks. (Board et al., 2011)

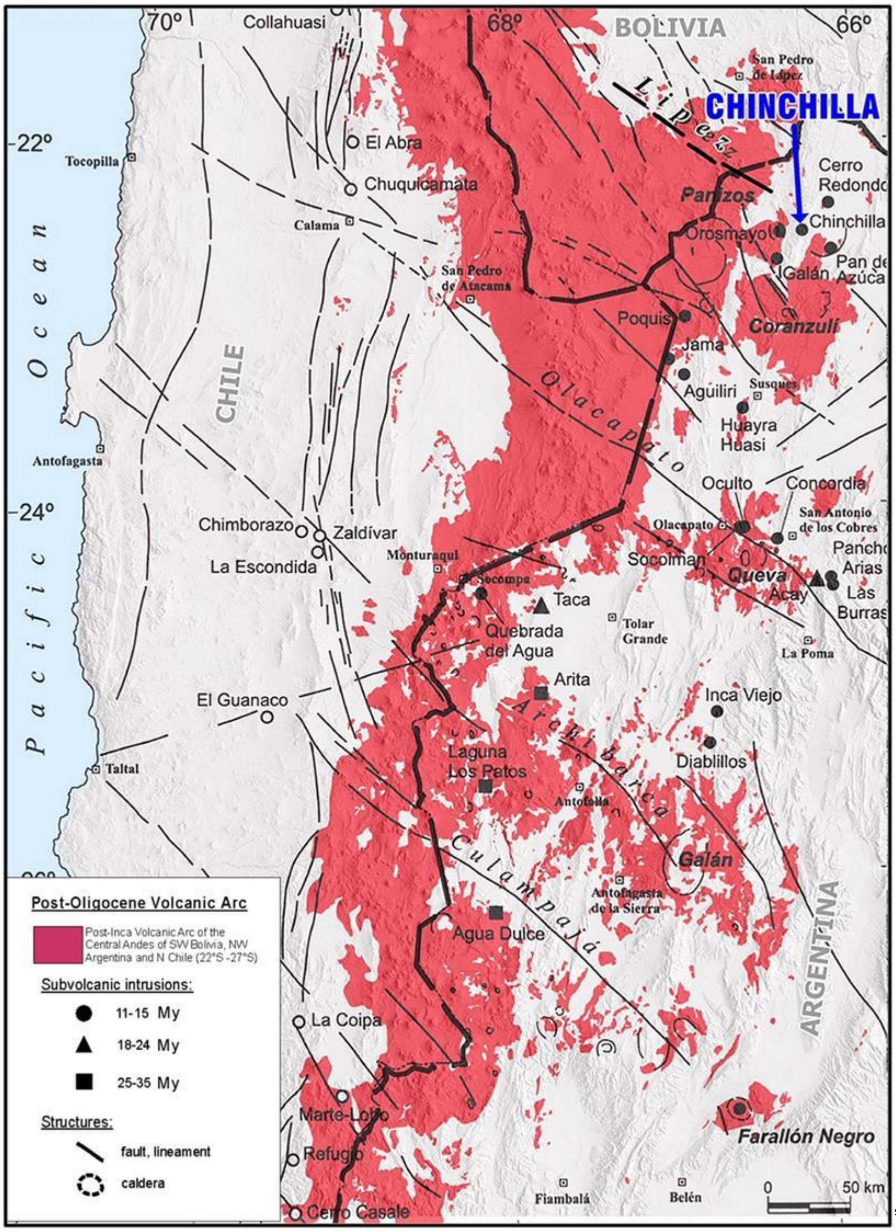

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Figure 7-2: Oligocene-Miocene Volcanic Arc. Subvolcanic intrusions: solid dots 11-15 My. (Modified from Gorustovich S., et al., 2011)

7.2 District Geology

The Chinchillas deposit is located in the southern part of the Rinconada Range (Figure 7-3). The range has a regional north-northeast to south-southwest trend and is delimited by thrust faults to the west and east. Various Miocene age volcanic dome complexes with associated hydrothermal alteration exist in the area, including Cerro Redondo, Pan de Azucar, Rachaite, and the Chinchillas dome complex. High angle faulting and folding also characterize the area. Chinchillas is located within a structural window at the intersection of northwest fracturing associated with the Lipez-Coranzuli regional lineament and east-west controlling structure and lesser northeast trending structures.

The Chinchillas deposit is hosted by the Ordovician Acoite Formation, described by Board et. al., (2011), as a strongly folded package of low-grade metamorphosed marine sandstone, siltstone and minor shale beds. Deformation and folding of these sediments occurred during the Ocloyic Phase (Coira et al., 2004) of late the Ordovician and they are overlain by Cretaceous marine clastic sediments through a major unconformity. These sediments are then overlain by Oligocene to middle Miocene volcanic, continental sedimentary and volcaniclastic lithologies.

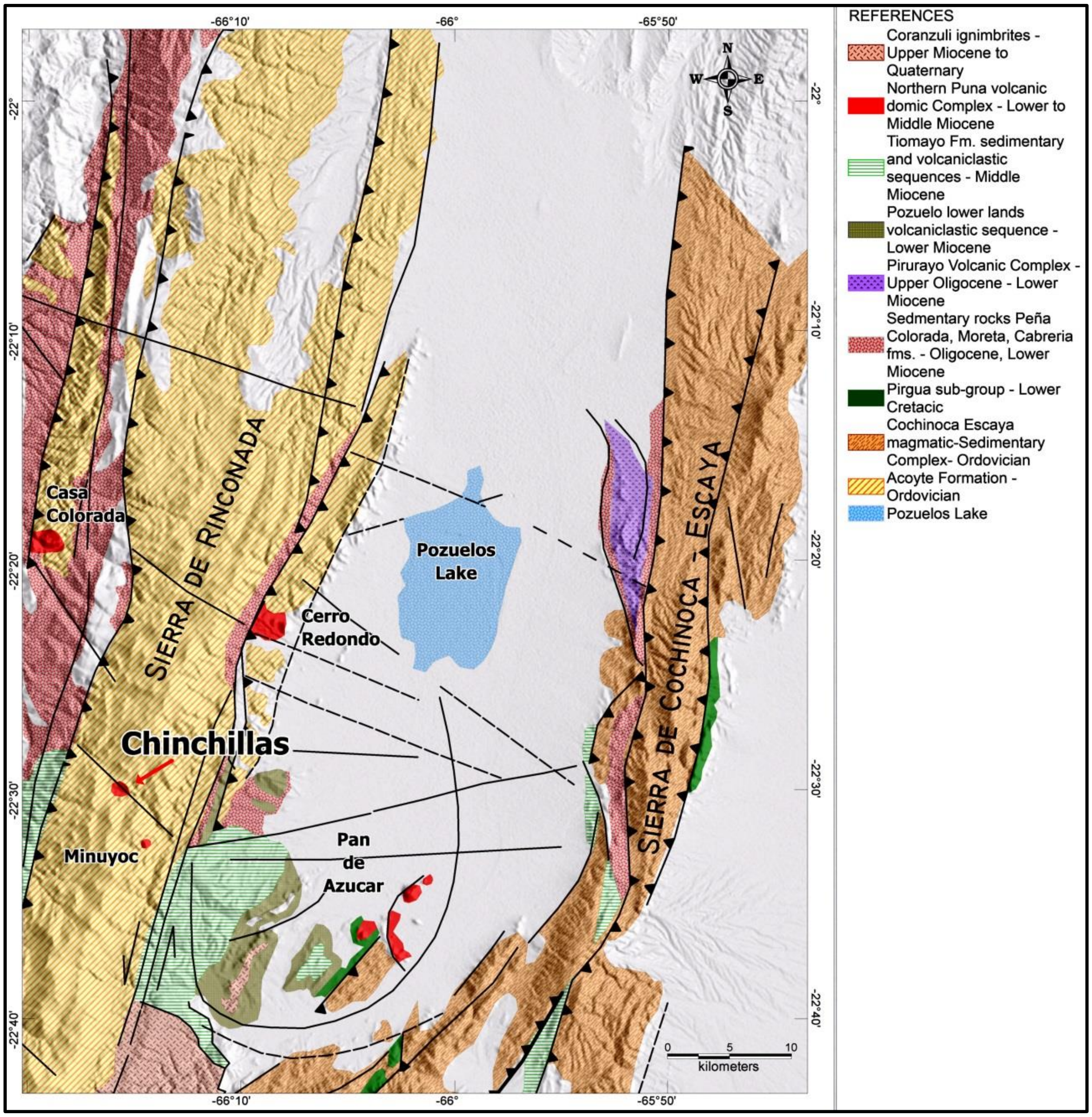


Figure 7-3: Map Showing Tertiary Volcanism from Mega Caldera Complexes Near the Chinchillas Deposit. (Main structures and trends are also shown.) (Modified from Caffe 2002)

7.3 Property Geology

The Chinchillas deposit is located in a dacitic volcanic centre with an age of 13±1 Ma (Caffe and Coira, 2008) as product of a phreatomagmatic diatreme. The deposit was controlled by a dilational fault within a regional scale east-west trending fault structure. At the dilation zone an explosive volcanic vent has cut through marine meta-sedimentary Ordovician basement rocks. The resulting topographic depression or diatreme volcanic throat is elliptical in shape, approximately two kilometres long by 1.6 kilometres wide, and infilled with pyroclastic rocks (breccias and tuffs). At the contact between pyroclastic volcanics and basement metasediments a wide zone of hydraulic fracturing and brecciation of the basement has formed. Dacitic lavas, flow domes and subvolcanic intrusions occur on the southern margin of the basin at the contact between metasediments and pyroclastics (Figures 7-4 and 7-5).

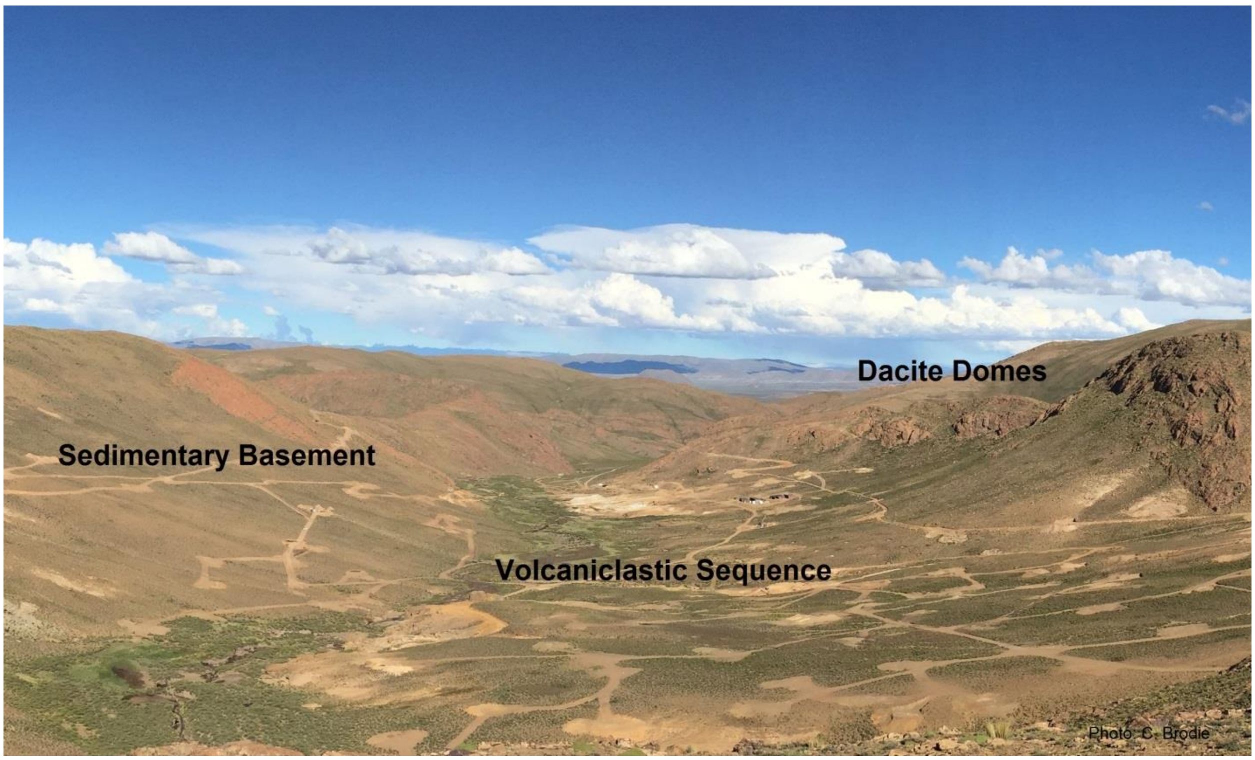


Figure 7-4: Overall View of the Chinchillas Deposit, Looking East. (Note outcrop of the sedimentary basement rocks, the volcaniclastic sequence infilling the depression, and the dacite domes flanking the southern border of the deposit.) (Golden Arrow 2015)

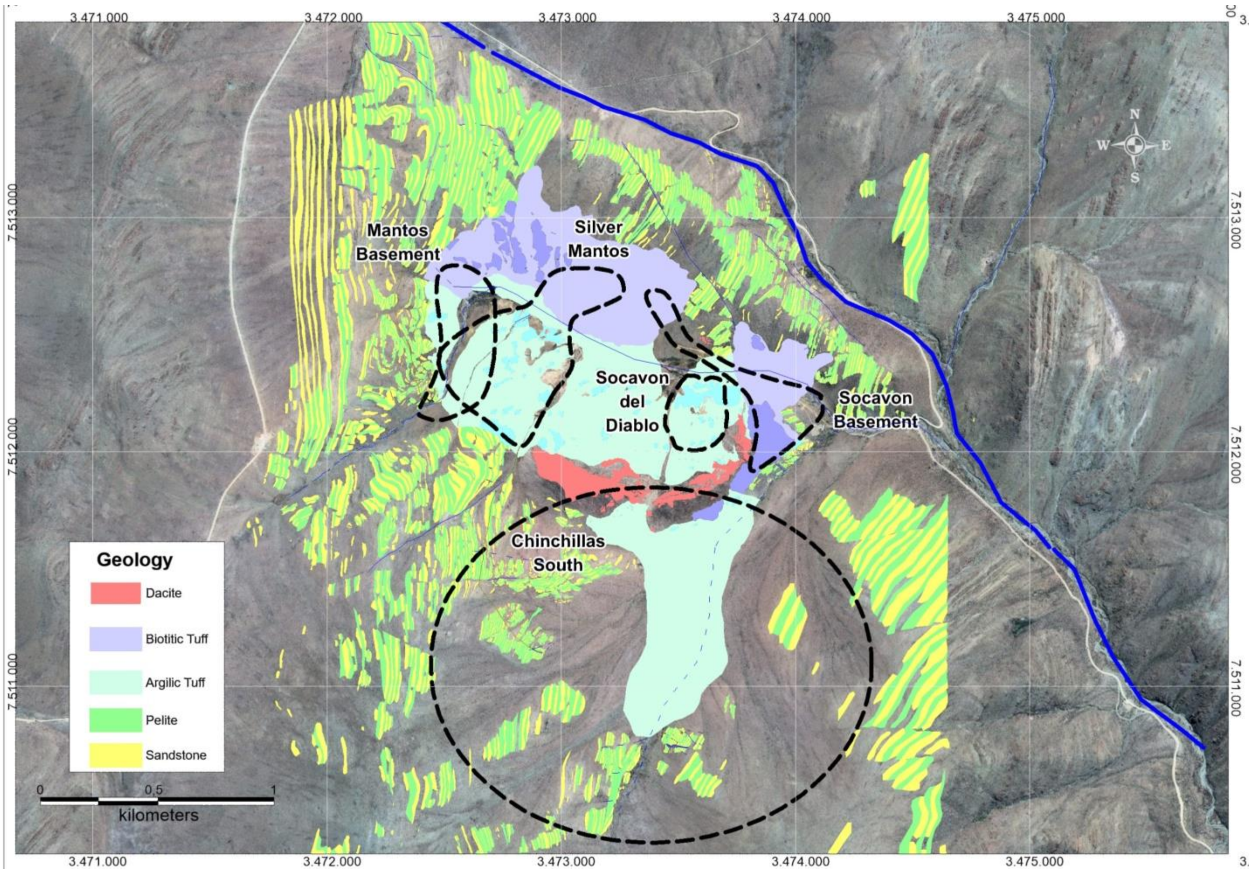


Figure 7-5: Geological Map of the Chinchillas Property Area with Outline of Mineralized Zones Projected to Surface. (Golden Arrow 2016)

7.3.1 Marine Sedimentary Basement Sequence

The Chinchillas basin basement lithology (Figures 7-6 and 7-7) is composed of a succession of interbedded layers of fine-grained marine sandstones and pelites with minor layers of carbonaceous shale. The formation has a low grade of metamorphism and is faulted with local folding. This sedimentary sequence corresponds to the Acoite Formation, of Ordovician age. The Miocene phreatomagmatic explosion produced an intense fracturing and brecciation of the basement that now is in contact with the tuffs and breccias that filled the caldera. The fractured and brecciated basement has a thickness of up to 150 metres and is the main host of basement mineralization.

The same basement sequence is found in the Chinchillas South area, up to 1.5 kilometres south of the Socavon and Silver Mantos areas, and also hosts mineralization (Figure 7-5).

Figure 7-6: Interbedded Sequence of Marine Sandstone and Pelite with Near-Vertical Dip at Chinchillas. (Golden Arrow 2014)

Figure 7-7: Brecciated Basement Sediments with Fine Volcanic Matrix near Contact Between Pyroclastic Sequence and Basement Sediments. (Golden Arrow, 2013)

7.3.2 Pyroclastic Breccias and Tuffs

The pyroclastic breccias and tuffs erupted from the volcanic centre and filled in the resulting depression, contouring the vent walls. This most likely occurred via airfall deposition and flows of ignimbrites as there is no observed evidence of water-lain deposits or sediments. The pyroclastic breccias and tuffs are generally similar in composition and vary mainly in clast size and the ratio of matrix of volcanic, basement and dacite clasts. Contacts between flows are subtle with often just a change in clast size as evidence. The pyroclastics mantle the topography, infilling the basin and dipping moderately towards the centre. Contacts between the underlying basement sediments and breccias are sharp. The breccias and tuffs are mainly matrix-supported but sometimes clast-supported. The clasts are sub-rounded to angular and vary from fine grained to large metre-scale blocks. The clast compositions are predominantly re-worked pyroclastic tuffs, lava fragments, and intrusive fragments of dacitic composition, with lithoclasts of sedimentary basement pelite or sandstone. Most of the volcanic clasts and matrix are altered by intense hydrothermal activity, whereas the sedimentary basement clasts are generally better preserved (Figure 7-8).

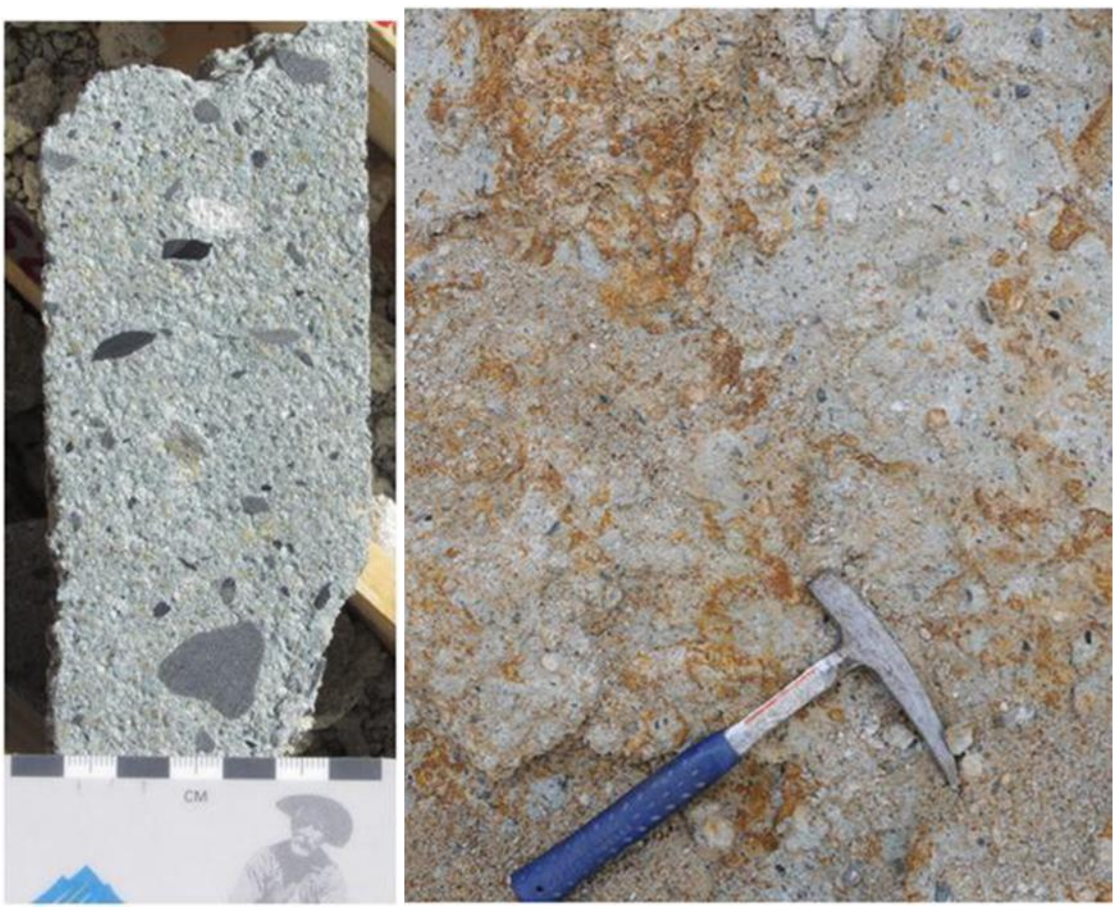


Figure 7-8: Typical Chinchillas Medium Grained Pyroclastic Breccia with Dacitic Volcanic Clasts Dominant and Secondary Dark Grey Clasts of Basement Sandstone and Pelite. (Golden Arrow, 2013)

In some surface outcrops and drill holes, particularly at Socavon del Diablo, a characteristic coarse grained clast-supported breccia is observed (Figure 7-9). Clast type and composition is similar to the rest of the pyroclastics within the basin, with dacitic volcanic fragments and lesser pelite and sandstone clasts.

Clasts range from two to 40 centimetres in diameter. Within the matrix and between clasts there are often voids, large vugs and sulphide mineralization cementing the breccia. Previous companies focused on these breccias and they have often been interpreted as hydrothermal explosion breccias (i.e. Caffe and Coira, 2008). These coarse clast-supported breccias are volumetrically minor within the Project areas. An alternative interpretation is that these breccias are not of hydrothermal origin, rather just a coarse-grained pyroclastic breccia, possibly originating near vents within the basin.

Some drill holes intercepted dykes of tuff-like clastic volcanics at depth intruding into the brecciated basement rocks. These features are interpreted as tuffisite dykes or sills depending on geometry, and range from centimetres to several metres (Figure 7-10). In other cases, blocks of basement rocks of up to 20 metres within the pile of the pyroclastic tuffs and breccias are interpreted as collapses of the host rock inside the diatreme during its formation ("roof pendant").

In the Chinchillas South area (Figure 7-11), recent drilling confirmed the presence of argillic altered tuffs and breccias sub-outcropping or covered by recent sediments. These tuffs, located outside the main basin of Chinchillas, may be related to an additional volcanic center or a ring tuff surrounding the volcanic center.

Figure 7-9: Coarse Grained Clast-Supported Breccia at Socavon del Diablo. Mineralization Infilling Matrix and Open Spaces. (Golden Arrow 2013)

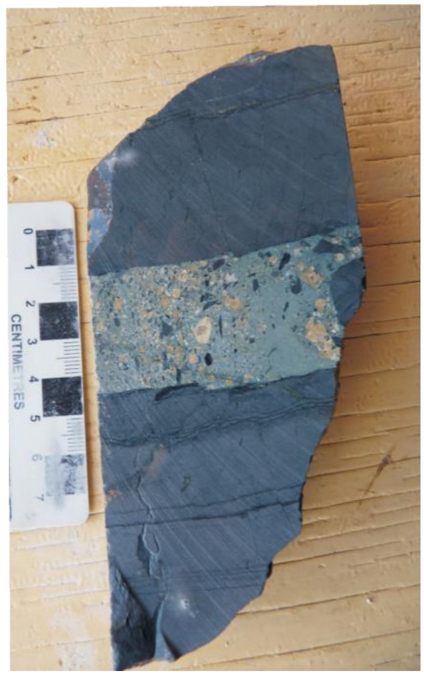


Figure 7-10: Dyke of Tuff in Basement Rocks from Hole CGA-116. (Golden Arrow, 2015)

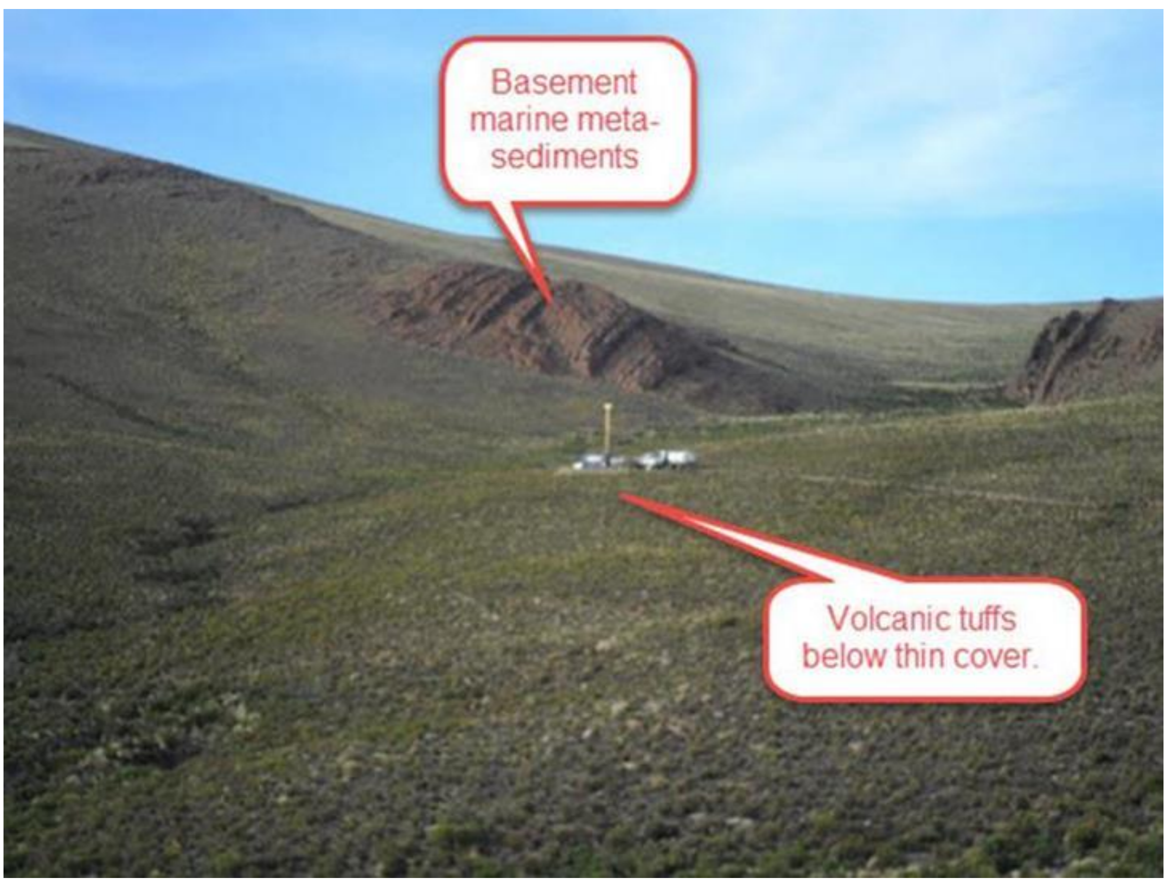


Figure 7-11: Chinchillas South Zone, Looking to the South. Hole CGA-111 intersected volcanic tuffs below thin cover gravels. (Golden Arrow, 2014)

7.3.3 Dacite Domes

Three main dacite domes outcrop along the southeast edge of the Chinchillas basin between the pyroclastic breccias and basement contact. The domes have a medium to fine grained porphyrytic texture with phenocrysts of quartz, (35% to 45%) plagioclase, biotite and minor sanidine (Caffe and Coira, 2008). The dacite domes are generally massive in texture with limited flow banding and some flow brecciation along the margins. Drilling confirms that the dacite outcrops are part of larger bodies located below the Socavon del Diablo area. At surface they lie horizontally above tuff breccias (Figure 7-12).

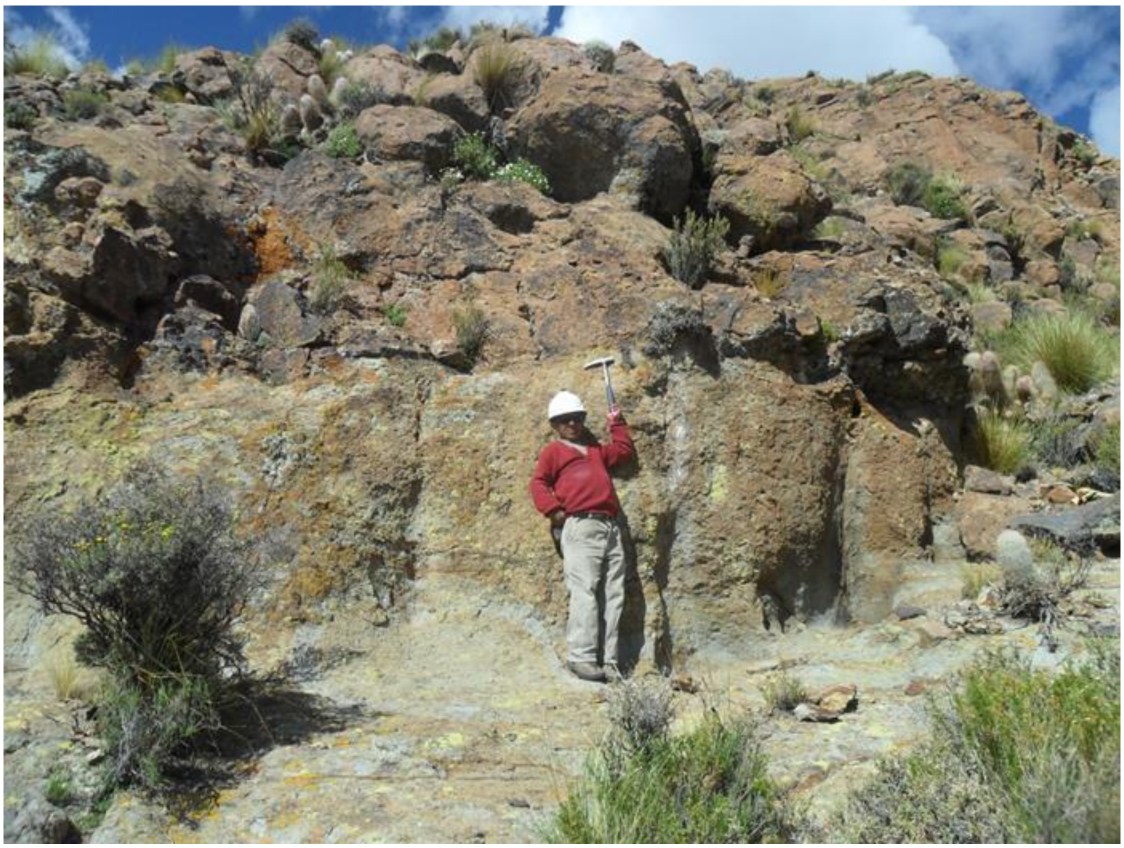


Figure 7-12: Showing Contact Between Dacite Flow Overlaying the Tuff Breccias. (Golden Arrow 2014)

7.4 Alteration

Typical hydrothermal alteration is described below separately for basement sedimentary sequences and pyroclastic volcanics and dacites.

7.4.1 Alteration in the Marine Sedimentary Basement

In the basement sedimentary sequence, mineralization is restricted to breccias, fracture filling, and veinlets with different frequency or intensity. Alteration of the host pelite or sandstone in general is very weak, with carbonate, clay and chlorite alterations close to sheared structures, with abundant siderite filling fractures and minor oxides of iron and manganese observed on fractures. Disseminated crystalline pyrite is abundant and is syngenetic with the sediments. Golden Arrow has not completed detailed petrographic studies on the basement and there may be micro-crystalline pervasive alteration that is not easily visible in hand specimen.

7.4.2 Alteration in Pyroclastic Tuffs and Breccias

The pyroclastic tuffs and breccias have undergone several different types of alteration, including: clay alteration, sericitization, silicification, and carbonate alteration mainly as siderite. The most extensive alteration is the clay alteration with feldspars, silica and pumiceous fragments altered to different assemblages including quartz-adularia-sericite, illite-quartz-sulphides or siderite-sphalerite-pyrite. Biotites are commonly altered to sericite-kaolonite-quartz assemblages (Caffe, 2013). There is also extensive fine-grained silicification within the suite of rocks. The clay alteration, sericitization and silicification are somewhat contemporaneous as they are observed to overprint each other, indicating that the alteration of these rocks was a prolonged and variable event, probably over a range of temperatures and depths. Carbonate alteration is locally pervasive and appears late in the paragenesis based on thin sections studied (Marshall and Mustard, 2012). Plagioclasts are commonly replaced by siderite and illite (Caffe, 2013).

7.4.3 Alteration in the Dacitic Domes

The porphyritic dacites were hydrothermally altered to sericite and siderite with minor silicification. Alteration is more developed in the matrix and in the plagioclasts (Caffe, 2013).

7.5 Mineralization

In terms of in situ value, mineralization at Chinchillas is dominated by silver with lesser amounts of lead and zinc. Mineralization occurs as disseminated sulphides and matrix infilling within the volcanic tuffs and as matrix and fracture filling in breccias within the basement meta-sediments. There are rarely mineralized shears, veinlets or vein-like structures within the dacites and volcanics. Within the basement lithologies shears and structures are more commonly mineralized. Depth of oxidation is just a few metres within the volcanics and is insignificant within the basement rocks. Silver, lead and zinc bearing minerals include silver sulfosalts, freibergite, boulangerite, tetrahedrite, schalenblende, sphalerite (zinc and iron), and galena (including argentiferous examples). Associated mineral assemblages include chalcopyrite, quartz, pyrite, siderite, limonites, manganese oxides, cerusite, smithsonite, anglesite and malachite (Marshall and Mustard, 2012 and Coira et al., 1993).

7.5.1 Main Mineralized Zones

The geologic model for the Chinchillas deposit, as defined to date, includes significant silver-lead-zinc mineralization in four main areas: the Silver Mantos and Mantos Basement zones in the western part of the deposit, and the Socavon del Diablo and Socavon Basement zones in the eastern part (Figure 7-13). The main structural elements controlling the location of mineralization are: the inverted cone shape of the volcanic diatreme forming the contact between basement sediments and overlying volcanic rocks; and the dominant east-west and subordinate north-west, north and north-northeast trending structures that control formation of the Chinchillas volcanic centre (Figure 7-5). The phreatomagmatic explosion that produced the diatreme generated a symmetrical cylindrical shaped caldera, with mineralized brecciated basement rocks along the contacts and horizontal layers in the tuffs with disseminated mineralization (Figure 7-13).

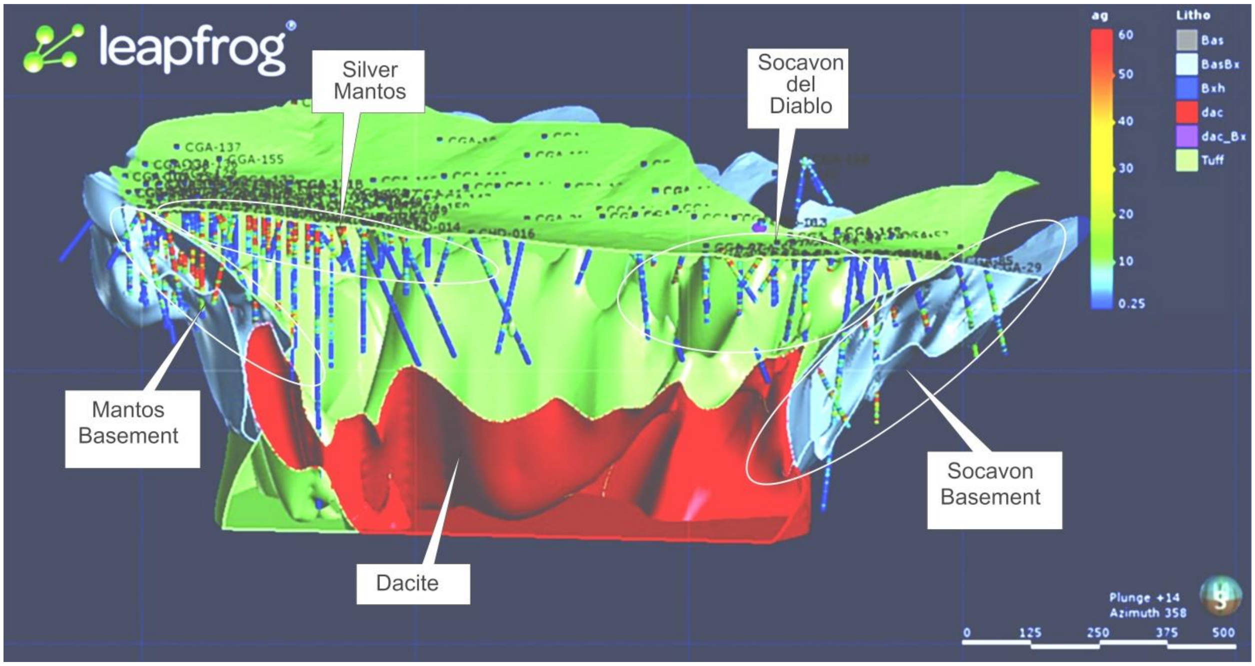


Figure 7-13: Typical W-E Cross Section of Chinchillas Showing Relations Between Mineralized Zones and Dacite. (Golden Arrow, 2015)

7.5.1.1 Silver Mantos

Located in the upper part of the western area of the deposit, the Silver Mantos zone comprises an area of approximately 30 hectares (700 metres by 450 metres) and is currently defined by 71 drill holes, with drill hole spacing ranging from 25 metres to 50 metres (Figure 7-14). The main objective of the Phase V drill program was to infill the previous drill holes to upgrade the Mineral Resources from the Indicated and Inferred to Measured and Indicated categories. The drilling also defined a high-grade core within the Silver Mantos zone. Table 7-1 shows a selection of typical drill hole intercepts from the high-grade core, from various drill programs.

Table 7-1 Select Drill hole averages from high grade core in Silver Mantos

(Drill Intercepts >20 g/t for Ag or >0.5% for Pb or Zn)

HOLE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	(Zn %)
CGA-35	6	35	29.0	631	1.7	0.9
and	39	56	17.0	323		
CGA-38	37	59	22.0	591	1.9	
CGA-39	15	44	29.0	515	0.7	1.2
CGA-203	5	77	72.0	162	0.6	
CGA-219	1	31	30.0	637	2.1	
CGA-223	6	72	66.0	233	0.7	
CGA-237	0	52	52.0	210	0.9	
CGA-247	5	44	39.0	147	0.5	
and	70	92	22.0	220	0.9	
CGA-255	27	47	20.0	245	0.5	0.5
and	60	73	13.0	210	0.7	0.8
CGA-277	49	58	9.0	485	1.9	0.7

Mineralization is disseminated in several shallow (± 5^0) dipping layers hosted within clay altered pyroclastic tuffs and breccias (Figure 7-15). The mineralization occurs between surface and 100 metres depth in sub-horizontal mantos that range between two and 60 metres thick, averaging greater than 20 metres in thickness. These layers are open for expansion to the east. The Phase IV drilling program defined an additional layer at 170 to 230 metres deep, referred to as "Deep Manto". The Deep Manto was defined by 12 drill holes in the south-east part of the Silver Mantos area and remains open for expansion (Figure 7-16).

Good continuity of the mantos mineralized layers is noted from hole to hole. Petrographic studies on samples from the Chinchillas Property indicate that silver occurs mostly in silver sulphosalts, such as freibergite, boulangerite and tetrahedrite, which occur as black fine-grained and disseminated crystals with galena and sphalerite in the volcanic tuffs (Marshall and Mustard, 2012 and Ma and Redfearn, 2014). Sulphide mineralization is also occasionally noted as matrix infill of breccia structures and open spaces in coarser tuffs.

The geometry of the mineralization in the Silver Mantos (near surface and shallow dip towards the centre of the basin) is thought to be controlled by the paleo-water table, where mineralizing fluids or gases have percolated up through the volcanic pile, and/or along the basement contact, and precipitated upon contact with surface waters whose geometry would have reflected the basin topography. In the Silver Mantos area it is thought that several main structures control the development of the Chinchillas volcanic centre and mineralization. The dominant east-west fault and subordinate north and north-northeast faults all intersect at depth and may be the conduits or primary feeder system for mineralization at the Silver Mantos.

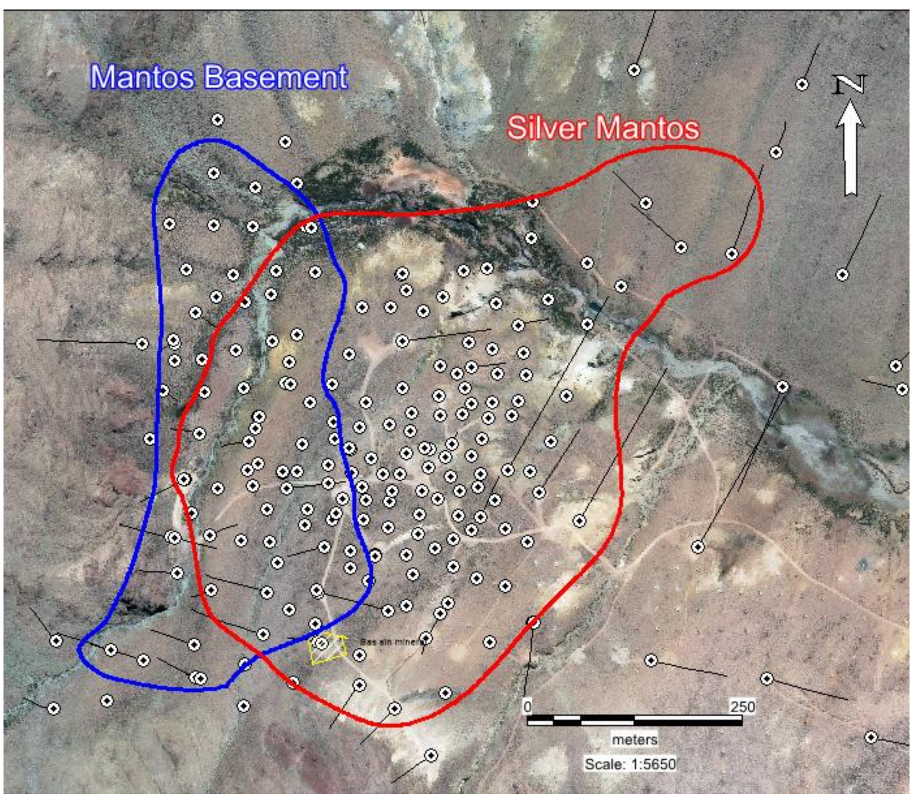


Figure 7-14: Silver Mantos and Mantos Basement Zones with Drill Hole Locations and Mineralized Zones Projected to Surface. (Golden Arrow 2016)

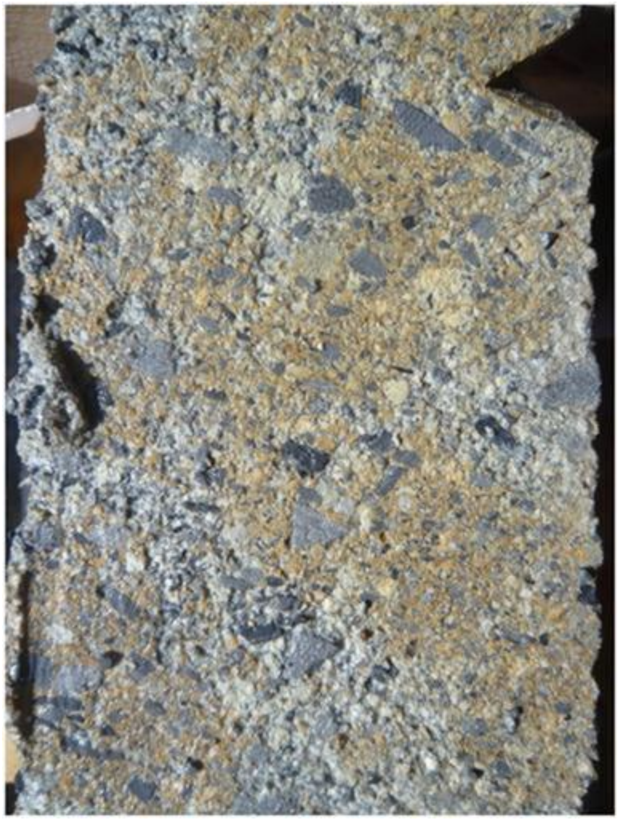


Figure 7-15: Typical Silver Mantos and Socavon del Diablo Style Fine Grained Disseminated Sulphide Mineralization in the Pyroclastic Tuff. (Golden Arrow, 2013)

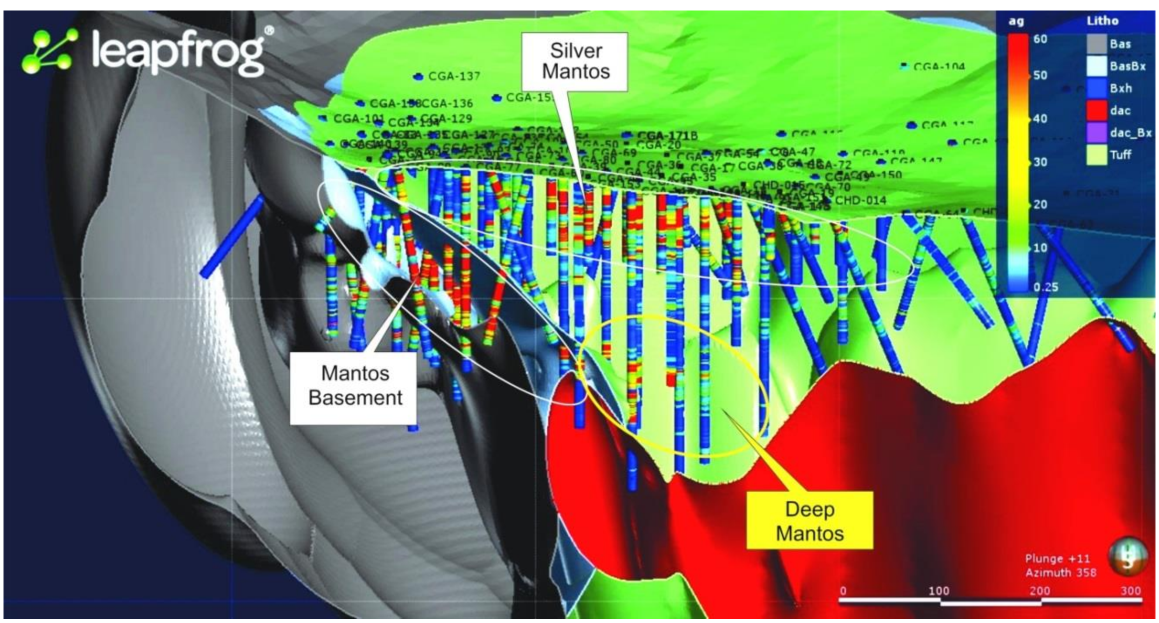


Figure 7-16: East-west Cross Section with Deep Manto mineralization. (Golden Arrow, 2015)

7.5.1.2 Mantos Basement

Located below the Silver Mantos, the Mantos Basement comprises an area 600 metres wide and up to 210 metres thick, with an average thickness of 80 metres, dipping from surface at approximately 40 degrees to the north (Figure 7-14). The zone has been traced down dip approximately 350 metres. The Mantos Basement is hosted entirely within the basement pelites and sandstones and is comprised predominantly of breccias, crackle breccias with minor small veinlets, fracture filling and mineralized structures (Figure 7-17). The Mantos Basement is currently defined by 51 drill holes, with drill hole spacing ranging from 20 to 50 metres.

The mineralized breccias within the Mantos Basement are aligned along the contact between the basement meta-sediments and the overlying pyroclastic breccias. The control on mineralization is thought to be a result of two complementary structural features.

During the violent eruption and development of the volcanic center the basement rocks on the margins of the volcanic diatreme underwent a process of intense fracturing and brecciation. This created space for mineralizing fluids to deposit silver-lead-zinc sulphides as infill and breccia cement during, and post, volcanism.

The location of the Chinchillas volcanic center is coincident with major east–west and subordinate north-south and north-northeast secondary structures and it is likely that the development of the volcanism and emplacement of the dacite intrusion were controlled by these structures. These structures are thought to be “feeders” or mineralizing conduits.

Mineralization within the Mantos Basement is open to expansion downdip in some areas to the east and to the south.

Figure 7-17: Typical Fracture Filling and Breccia Cement Mineralization in Basement. Galena, Sphalerite and Siderite Infilling. (Golden Arrow, 2014).

7.5.1.3 Socavon del Diablo

The Socavon del Diablo zone (“Socavon”) is located in the eastern area of the deposit (Figure 7-18), where 21 drill holes have defined a mineralized area of approximately five hectares (300 metres by 180 metres). Drill hole spacing ranges from 30 to 70 metres. Mineralization is dominated by manto-style disseminated sulphides within favorable shallow dipping volcanic tuff horizons.

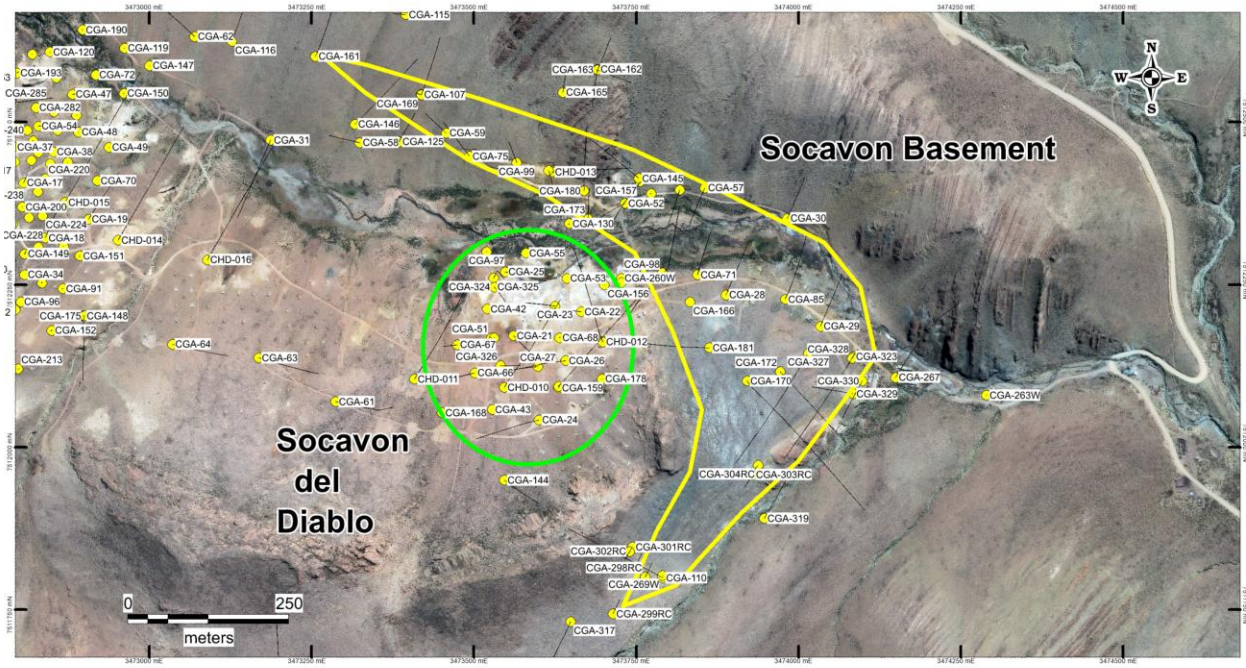


Figure 7-18: Socavon del Diablo and Socavon Basement Zones with Drill Hole Locations and Mineralized Zones Projected to Surface. (Golden Arrow 2016)

Mineral occurrences, textures, alteration and ore types within the volcaniclastic lithologies are similar to those described for the Silver Mantos target (Section 7.5.1.1), but the mineralization is thought to be related to a different fluid event based on compositional differences. There may have been a different vent source within the volcanic centre as the Socavon del Diablo mineralization is generally lower in silver and higher in zinc content.

The mineralization at Socavon is apparently controlled by the intersection of the major basin-forming east-west fault and cross-cutting north trending subordinate structure. At this junction old workings, including a tunnel and surface cut, exposed a small face of coarse, vuggy breccia with clasts up to a half metre in diameter cemented by silver-lead-zinc mineralized sulphides (Figure 7-9). This was typically interpreted by previous explorers as a hydrothermal breccia. Drilling has confirmed this breccia to be volumetrically small and it forms only a minor part of the Socavon mineralized area. The majority of the mineralization occurs as disseminated sulphides within pyroclastic tuffs similar to the Silver Mantos. The shape of the greater mineralization at Socavon is an inverted cone structure which is probably controlled by intersecting faults allowing upward percolating fluids to contact the surface water table.

7.5.1.4 Socavon Basement

The Socavon Basement zone is mainly hosted within the Ordovician interbedded pelite and sandstone basement. This zone was originally defined by nine drill holes (CGA-28, -29, -71, -85, 98, 13, 75, 107 and 115) situated northeast of the main Socavon zone (Figure 7-18). Drilling during Phase IV expanded this zone at deeper levels to the south and to the west. The east limit of the Socavon del Diablo zone is a dacitic dome structure that at depth intruded in the tuff units but at surface flowed over the tuffs (Figure 7-12). Immediately to the east of this dacite dome, biotitic horizontal tuffs of up to 80 metres deep are covering the Socavon Basement zone. Here, the mineralization is hosted in open space breccias filled with argentiferous galena plus a stockworking of sphalerite-siderite-galena within a halo of low grade zinc with a total thickness of up to 320 metres. The stockworking carries low grade silver-zinc mineralization along considerable widths, such as 107 metres averaging 41 g/t silver and 1.1 % zinc as intersected in CGA-166.

The breccias have some high grade silver-lead zones which were intercepted in most of the holes drilled in this zone with widths between two and six metres (Table 7-2). One of these breccias is the newly defined Jesuita Breccia, located in a rotated block of basement rocks which was intercepted near surface with reverse circulation holes CGA-303RC and CGA-304RC. At deeper levels, this breccia was tested with holes CGA-319, CGA-323 and CGA-327 confirming the presence of additional high grade open space bodies with high grade silver-lead-zinc mineralization.

Table 7-2: Select High Grade Breccias in the Socavon Basement

(Drill Intercepts >20 g/t for Ag or >0.5% for Pb or Zn)

HOLE	From (metres)	To (metres)	Length (metres)	Ag g/t	Pb %	Zn %
CGA-160	230	233	3	294		1.1
CGA-166	165	167	2	500	3.4	0.9
CGA-170	171	176	5	749	5.7	2
CGA-179	262	266	4	430		
CGA-181	179	185	6	205	0.9	0.6
CGA-319	172	173	1	396	15.2	2.0
CGA-327	274	280	6	313	2.6	1.2

The Socavon Basement zone was also expanded to the north-west (Figure 7-18) where mineralization was encountered at the contact between the basement rocks and upper volcanic tuffs. Additionally, this zone includes limited breccia and veinlet hosted mineralization within dacite sub-volcanics (Figure 7-19).

Figure 7-19: Galena-Ag Veinlets in Dacite. (Golden Arrow, 2014)

The most significant mineralization in this target is located at more than 150 metres deep from surface. The mineralized fluids might have precipitated the sulphide minerals as a result of interaction with the water table, or pressure.

Condemnation holes drilled in between the Socavon Basement and the Chinchillas South, as described in Section 7.5.2 showed a possible continuity in the mineralization between the two targets.

7.5.2 Chinchillas South

Chinchillas South is located immediately south of the outcropping dacite domes in an area of approximately 1.2 by 1.2 kilometres (Figure 7-20). The area is defined by a structural system with a series of hydrothermal breccias and veinlets/stockworking in a wide altered zone. Magnetic, IP/Resistivity and CSAMT geophysical surveys carried out during 2013, plus detailed geological mapping and sampling, defined a series of targets that were tested with nine core holes in the Phase III drill program, three holes in the Phase V program and seven holes in Phase VI program.

Overall, the drilling encountered wide zones of low grade silver-zinc-lead mineralization, with some significant higher grade intervals. The current Mineral Resource estimate does not include any of the drilling in Chinchillas South.

7.5.2.1 Mn Breccia Target

Within Chinchillas South, the “Mn Breccia” target (Figure 7-20) was tested with three holes. It is a breccia outcropping over an area 600 by 300 metres with a distinct triangular shape. The clasts in the breccia are fragments of pelites and sandstones from the basement with manganese-iron oxides filling open spaces and coating the clasts. The limited drilling on this target intersected mineralization over a wide zone, including 84 metres averaging 26 g/t silver and 0.7% zinc in hole CGA-124, and 15 metres averaging 181 g/t silver and 1.1% lead in hole CGA-113.

7.5.2.2 Pascua Target

The Pascua target (Figure 7-20) is located 1.2 kilometres south of Socavon del Diablo and was delineated based on large geophysical anomalies associated with mineralized stockworking located in the axis of a north-south anticlinal fold. In each of four holes drilled during Phase III, low grade mineralization was encountered throughout the brecciated basement rocks, including microveinlets of sphalerite, galena and siderite in each hole. Three holes drilled during Phase V (CGA-272W, CGA-289 and CGA-291) intercepted high grade intervals associated with massive black sulphide-sphalerite-pyrite veins up to 10 centimetres in width that averaged up to 399 g/t silver, 2.5% lead and 0.8% zinc in a one metre sample within a wide halo of sphalerite-siderite stockworking, unique to this area of the Project. These high grade veinlets have an apparent azimuth of 120°, perpendicular to the axis of the fold. Because of the mineralogy and the setting related with the anticline, these veins resemble the mineralization in the Pirquitas mine. Four holes drilled in this target during the last drilling Phase (CGA-318, CGA-320, CGA-321 and CGA-322) also encountered wide zones of zinc mineralization in the form of sphalerite-siderite-galena veinlets with a best intercept of 83 metres averaging 48 g/t silver, 1% lead and 1.3% zinc in CGA-318.

Additionally, ten holes (CGA-305 through CGA-313 & CGA-317) were completed as part of the condemnation drilling program. Most of these holes also detected mineralization in wide low-grade zones, particularly those closer to the Pascua target as shown in Table 7-3.

Table 7-3: Select Low grade halos in Condemnation holes

(Drill Intercepts >20 g/t for Ag or >0.5% for Pb or Zn)

HOLE	From (metres)	To (metres)	Length (metres)	Ag g/t	Pb %	Zn %
CGA-308	82	186	104	23	0.6	1.0
CGA-311	154	305	151	23		0.8
CGA-312	130	192	62			1.0

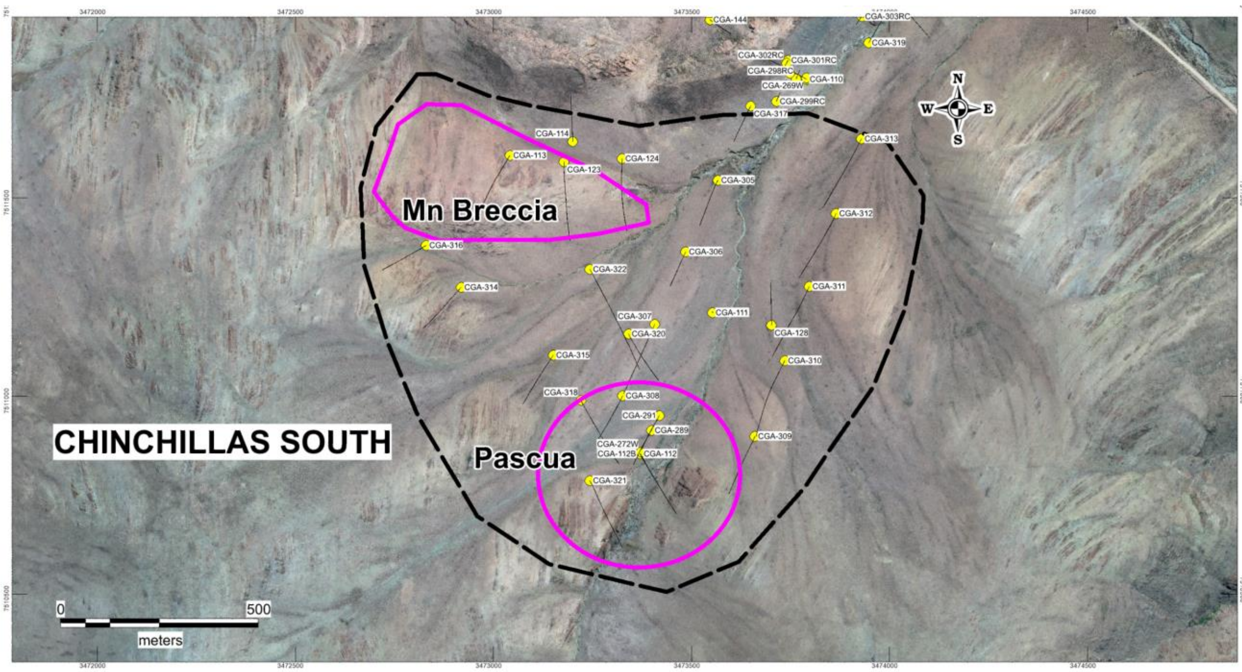


Figure 7-20: Chinchillas South Area Immediately South of the Dacite Domes. (Golden Arrow 2016)

7.5.3 Resource Expansion and Other Target Areas

Mineralization at Chinchillas in the Silver Mantos, Mantos Basement, Socavon Basement and Socavon del Diablo are still open to expansion, particularly the deeper zones of Silver Mantos and Socavon Basement. Chinchillas South shows some potential for additional Mineral Resources. Other targets in the search for additional Mineral Resources include: the northern slope of the basin; the area between the Silver Mantos and Socavon zones; and the dacite domes.

Much of the area within the concessions remains untested.

8 Deposit Types

The Chinchillas deposit is considered to be part of the Bolivian tin-silver-zinc belt which occupies the back-arc portion of the central Andes and extends from the San Rafael tin-copper deposit in southern Peru to northern Argentina (Figure 8-1). The Bolivian tin-silver deposits are associated typically with felsic volcanic domes of broadly rhyodacitic composition (Cunningham et al., 1991). The Chinchillas deposit is modeled as a Tertiary aged diatreme volcanic center that has intruded the Paleozoic basement low grade metamorphic sediments. The resulting depression, filled with volcanic breccias and tuffs is approximately 1.5 kilometres in diameter. Mineralization occurs within the basin, hosted in favorable volcanic tuff units, on the margins of the basin within footwall sediments, and across the sediments-volcanic contacts as on structural zones. The mineralization occurs mostly as disseminations, veinlets and matrix filling.

Figure 8-1: Bolivian Tin-Silver-Zinc Belt with Major Deposits. (Golden Arrow 2013)

The Chinchillas deposit geology has some similarities to the San Cristóbal Mine in Bolivia where silver-zinc-lead is mined from an open pit with a mineralized dacite dome complex and also mineralization disseminated in adjacent basin-filling sediments. Chinchillas has similarities to other nearby Bolivian-type tin-silver-zinc deposits, including Potosí, Pulacayo and Pirquitas.

Each of the nearby deposits has some similar characteristics to Chinchillas, and several have mining histories spanning hundreds of years. The study of these nearby deposits has helped in the understanding of Chinchillas and forms the basis for continuing exploration (Figure 8-2). In particular, all the deposits are known to have large vertical extents, with both Potosí and Pulacayo mined over 1,000 metres of vertical extent, implying that there could be potential for additional mineralization at depth at Chinchillas.

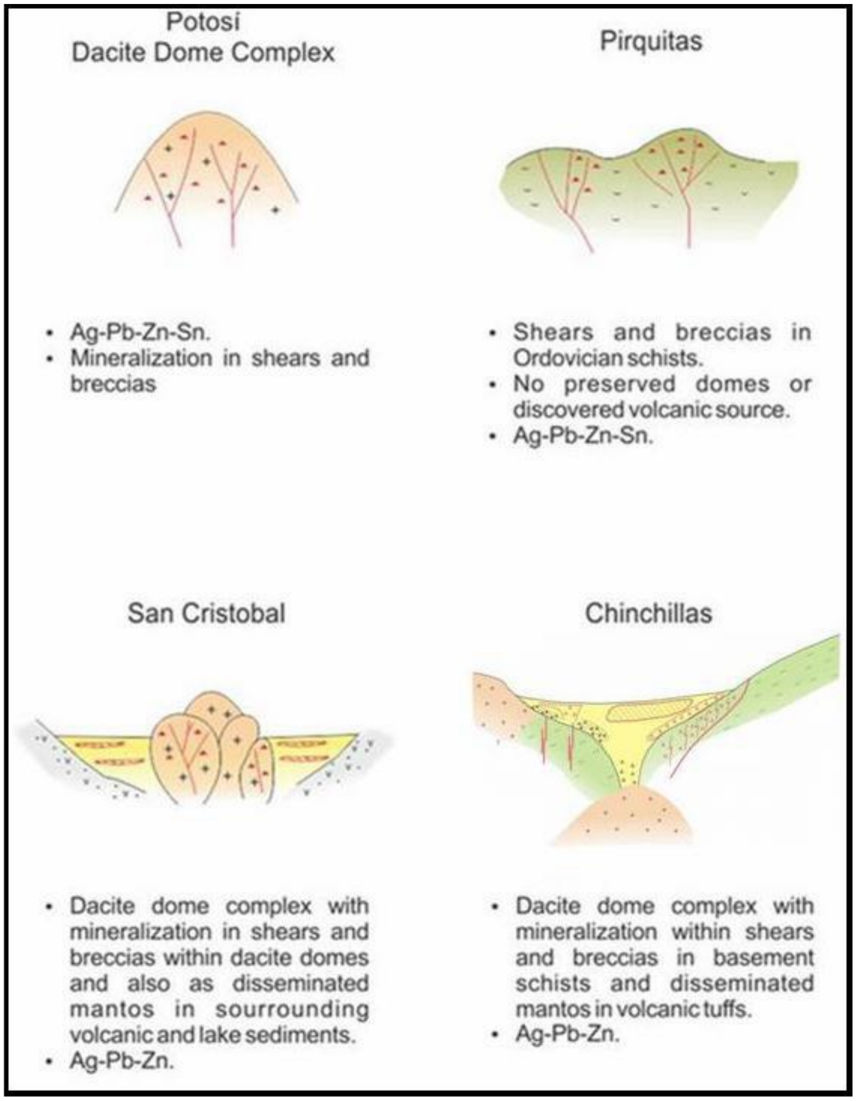
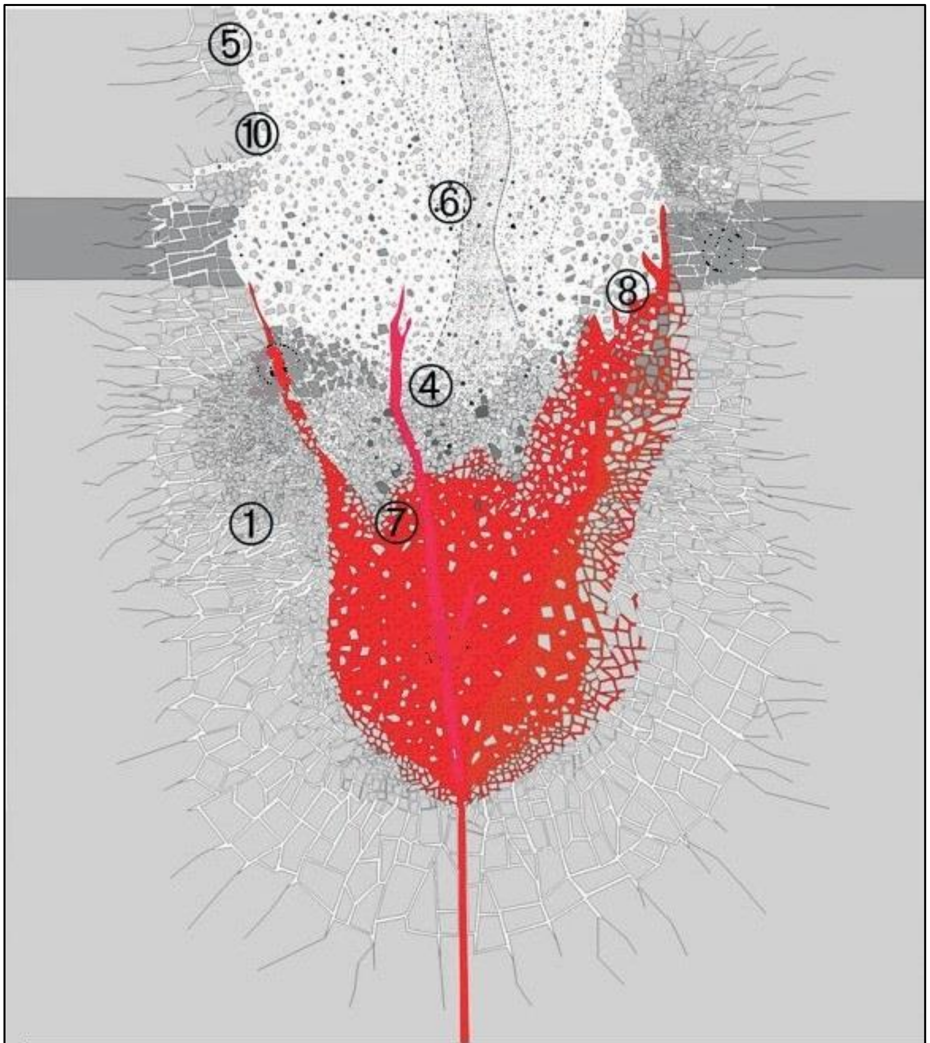


Figure 8-2: Simplified Model of Important Bolivian-style Sn-Ag-Zn-(Pb) Deposits and the Chinchillas Deposit. (Golden Arrow 2013).

Most of these deposits are characterized by the intrusion of dacite dome complexes with mineralization hosted in shears and breccias within the dacite domes and / or within shears and breccias within the host rocks. At Pulacayo, Potosí and San Cristóbal, where associated domes are present there has been significant mineralization found within the domes. More rarely, as in the case of Chinchillas and San Cristóbal, the deposits include disseminated mineralization in flat lying manto bodies within sediments and pyroclastic rocks. Chinchillas demonstrates phreatomagmatic diatreme morphology associated with a dome structure, as shown in Figure 8-3.



1.- Contact between different types of "contact breccias" interpreted as repetitive explosions including different rock types (In Chinchillas: brecciated basement, dacite and volcanic tuffs)

4.- "Contact breccia" in contact with tephra of the lower diatreme. Tephra involves juvenile and country rock clasts (In Chinchillas: Deep Mantos zone in contact with Mantos Basement)

5.- Relics of "contact breccia" in contact with diatreme rocks higher up in the lower levels of the diatremes (In Chinchillas: block of basement sediments inside the volcanic tuffs (roof pendants)).

6.- Contacts between diatreme tephras and feeder conduit tephras (In Chinchillas: Tuff dykes)

7.- Contact between "contact breccia" or mass flow breccias and intrusive (In Chinchillas: brecciated basement rocks and volcanic tuffs in contact with dacite)

8.- Contact between intrusive magma with diatreme zone tephra in the upper root zone (In Chinchillas: dacite at the Socavon del Diablo)

10.- Contact between the various rock types and the unbrecciated or almost unbrecciated country rocks (In Chinchillas: volcanic tuffs in sharp contact with basement rocks and brecciated basement in transitional contact with unbrecciated basement).

Figure 8-3: Schematic Diagram of a Root Zone of a Phreatomagmatic Pipe Model showing zones that apply to the Chinchillas model. (Modified from Lorenz and Kurszlaukis, 2007)

The present model for the mineralization in Chinchillas is show in Figure 8-4 with the diatreme system and possible source of the mineralized solutions.

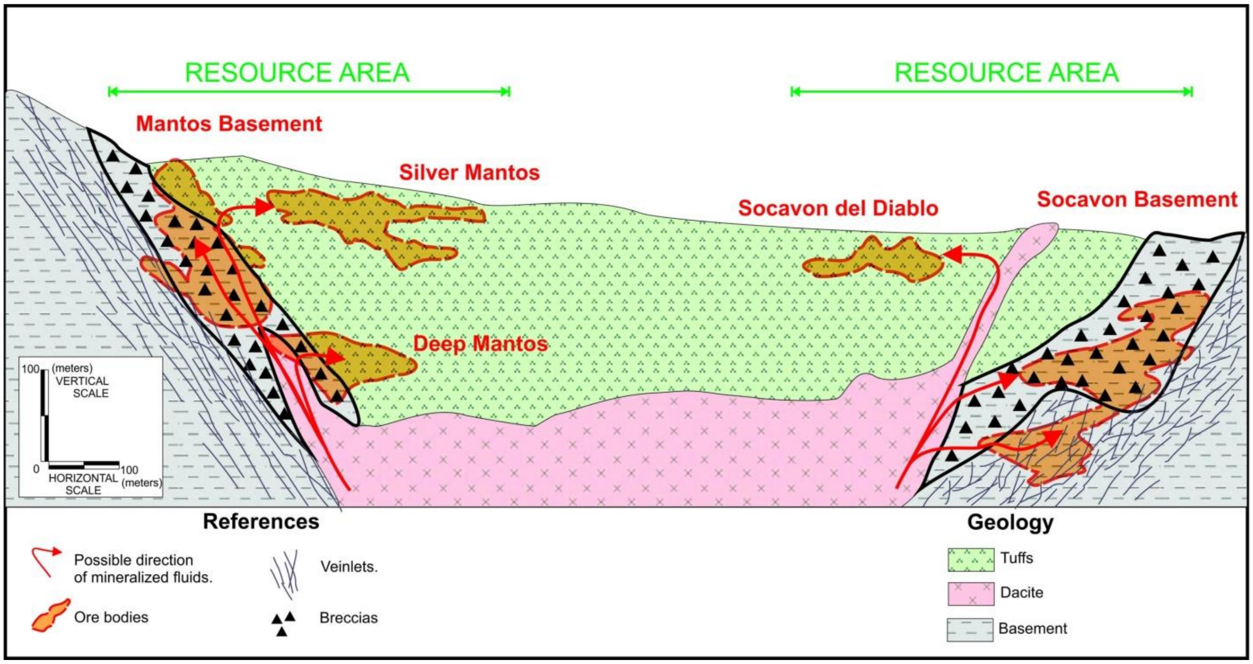


Figure 8-4: Schematic Geological W-E Cross Section with Mineralized Zones. (Golden Arrow 2015)

9 Exploration

Exploration conducted by Golden Arrow since 2011 includes detailed mapping, sampling and geophysics to aid in the targeting of drill holes. Special emphasis was placed on mapping lithologies, alteration and structures to understand the controls of the mineralization. In the basement rocks bedding, foliation and brecciation were recorded.

A handheld X-ray Fluorescence ("XRF") analyzer was used to measure approximate silver, lead and zinc values in all prospective outcrops. A total of 2,609 outcrop data points have been recorded. Additionally 1,043 rock channel samples have been collected and assayed, plus 198 rock chip samples and 505 soil samples. Most of the channel samples were collected in the South Chinchillas area, which, together with new detailed geological mapping, allow a better understanding of the controls over the distribution of mineralization.

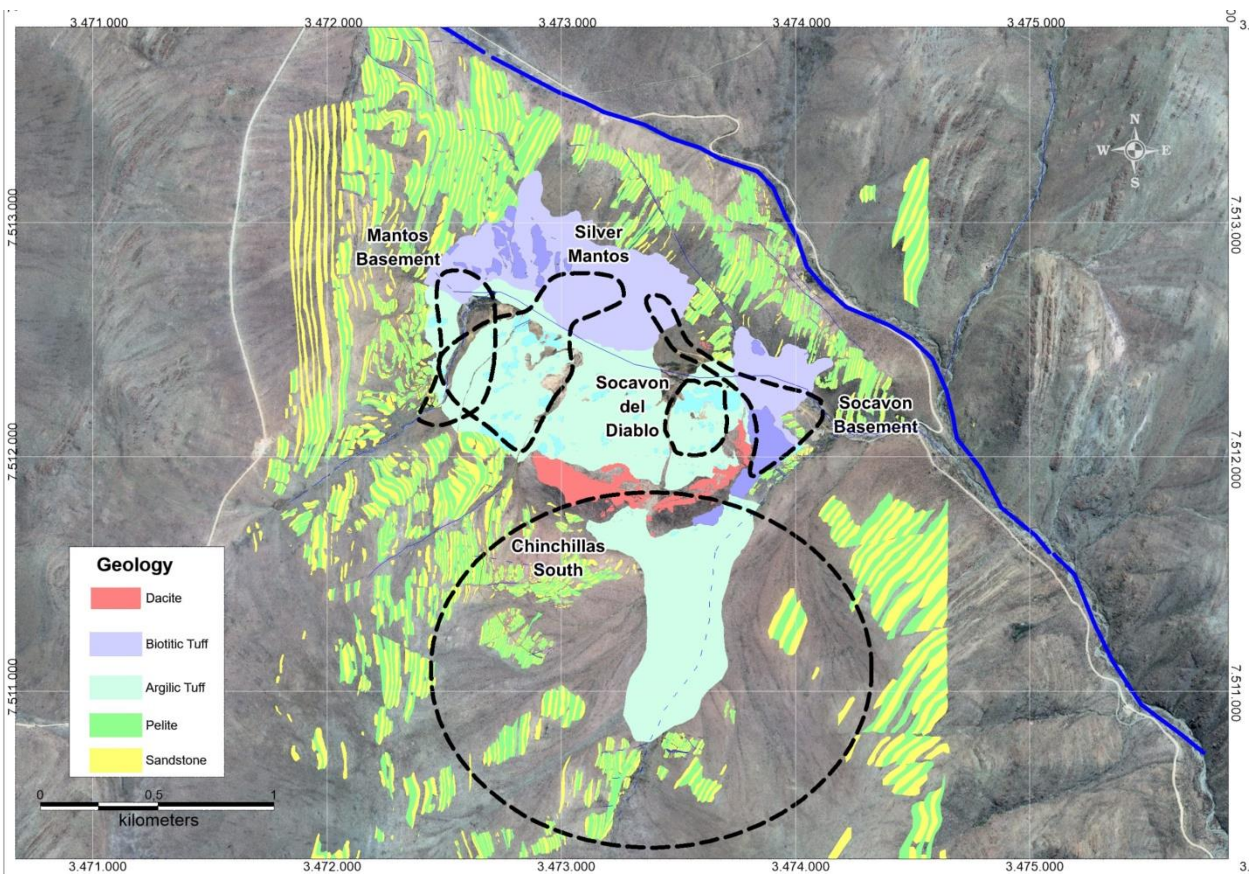


Figure 9-1: Chinchillas Property Geology and Structure with Outline of Mineralized Zones Projected to Surface. (Golden Arrow 2016)

Seven trenches were completed at Chinchillas using an excavator. Two were located at the southern contact of Silver Mantos to sample the tuff unit and the contact with the basement. Another trench was dug 120 metres east of drill hole CGA-31 (see Figure 7-18) and north of the creek at a small showing of a breccia with iron oxides. A breccia, with a strike orientation of N20E, assayed 178 g/t silver over 0.9 metres. It was one of the first indications of mineralization on the north side of the creek. Two additional trenches were excavated north and east of drill hole CGA-158, at the northern contact between the tuffs with the basement. Two of the most recent trenches completed in the Socavon del Diablo, detected a high grade zone that will be evaluated with future drilling. Also at the Socavon del Diablo, two additional trenches were dug that confirmed the presence of high grade Breccia “Z-type” mineralization.

Sampling of talus material was carried out north of the Socavon del Diablo, west of the Mantos Basement and on the south margin of the dacitic dome. Results from the north area showed anomalous values of silver, lead and zinc and follow-up drilling successfully intersected mineralization in holes CGA-59, CGA-75, CGA-107 and CGA-115 (see Figure 7-18). A grid of soil samples was also completed at Chinchillas South.

The 2013 geophysical surveys (IP/Resistivity, CSAMT, Magnetics), together with the re-interpretation of the 2008 IP survey, was useful for targeting the Chinchillas South area, detecting deep structures and defining the contact between the tuff unit and basement rocks.

The methods used to explore the Chinchillas Property adhere to industry standards and there are no indications that there are factors that would result in sample biases.

10 Drilling

10.1 Summary

Nine drilling programs have been completed on the Chinchillas Property (Table 10-1). Aranlee Resources completed the first program in 1994, which comprised seven reverse circulation holes (CH1 to CH7). The results from the Aranlee holes were not used in any Mineral Resource modeling as there is no quality control data.

Table 10-1: Drill Programs Completed at the Chinchillas Property

Drill Program	Holes	Holes	Year	Metres drilled
Aranlee Resources (1994)	CH-1 to CH-7	7	1994	782
Silex Argentina S.A. (2007/8)	CHD-10 to CHD-16	7	2007-2008	2220
Golden Arrow-Phase I	CGA-17 to CGA-43	27	2012	3224.5
Golden Arrow-Phase II	CGA-44 to CGA-92	49	2012-2013	7277.5
Golden Arrow-Phase III	CGA-93 to CGA-129	38	2014	8984.6
Golden Arrow-Phase IV	CGA-130 to CGA-182	55	2014-2015	11174.5
Golden Arrow-Phase V	CGA-183 to CGA-297	115	2015-2016	15141.9
Golden Arrow/Silver Standard-Phase VI	CGA-212W + CGA-298RC to CGA-330	34	2016	7188
Golden Arrow/Silver Standard-Phase VII	CGA-331 to CGA340	10	2016	1757

The Phase V program included five geomechanical holes and eight shallow hydrologic holes to test the underground water table. None of these holes were sampled and analyzed and, as a result, they do not contribute to the Mineral Resource estimate. Phase VI drilling was focused on condemnation drilling in the area of potential waste dumps, as well as drilling some exploration holes outside of Chinchillas deposit area Phase VII drilling was comprised of only geomechanical and water drill holes intended for engineering work. None of the data from Phase VI or VII were used in the development of the Mineral Resource estimate.

The average recovery from the 45,803 metres of Golden Arrow drilling used in the Mineral Resource was 94 percent, including the first six metres where recovery was commonly less than 50 percent.

Figure 10-1 shows the location of drill holes by phase.

Appendices I and II provide tables of the location and orientation of drill holes at the Chinchillas Property, for historic and Golden Arrow drilling, respectively.

10.2 Aranlee Resources

Aranlee Resources drilled seven reverse circulation holes in the project. There is limited data available from this program, including the location of the holes and the assay results. These are old drill holes and the results are not supported by an acceptable quality assurance (“QA”)/quality control (”QC”) program and, as a result, they have not been included in the database used to generate the estimate of Mineral Resources at Chinchillas.

10.3 Silex Argentina S.A. Drilling

Seven HQ3-size (6.11 cm diameter) core holes at the Chinchillas Property were drilled by Silex. Silex introduced a basic QA/QC program including duplicate samples and the insertion of blanks and certified reference materials. Golden Arrow re-surveyed all the Silex drill collars using a differential global positioning system ("DGPS"). The half core remaining from this program was re-logged and re-sampled (quarter core) at select intervals for additional quality control checks. The Silex drilling cut two target zones; Holes CHD-10 and CHD-12 cut mineralized Socavon del Diablo breccias and holes CHD-14, CHD-15 and CHD-16 targeted deep mineralization at the centre of the volcanic throat in the main part of Chinchillas. These holes averaged 350 metres in length and were unsuccessful at locating significant deep mineralization, however, holes CHD-15 and CHD-16 did cut the Silver Mantos target at shallow depths (between 5 and 55 metres below surface). Initially, these Silver Mantos intercepts were interpreted as narrow vertical structures. Subsequent re-logging by Golden Arrow re-interpreted these intercepts as disseminated flat lying mineralization within pyroclastic tuffs and breccias.

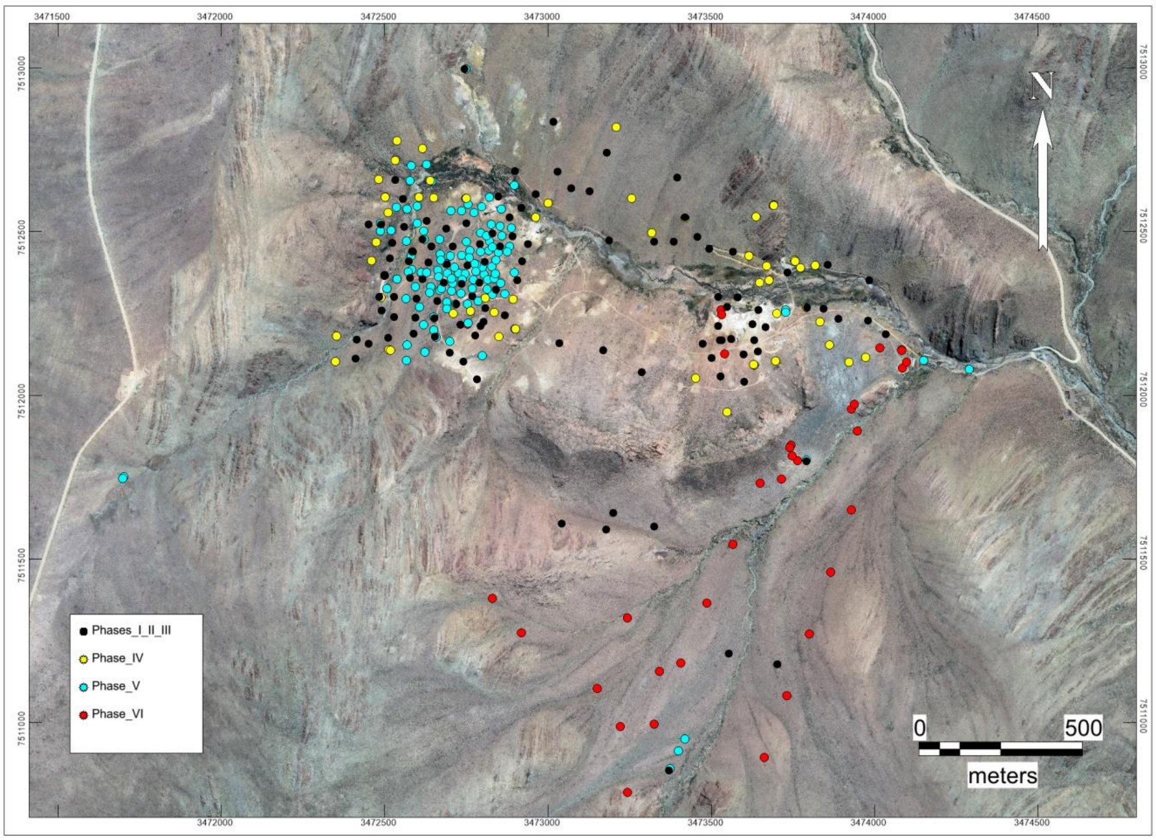


Figure 10-1: Location of Drill Hole Collars at the Chinchillas Deposit. (Golden Arrow 2016)

10.4 Golden Arrow Drilling

Energold Argentina S.A. ("Energold") was the contract diamond driller for Golden Arrow throughout Phase I and II drilling. All drill core was HQ diameter (6.35 centimetre) except for 21 holes, (CGA-44, 53, 55, 57, 59, 60, 62, 65, 67, 69, 70, 72, 73, 74, 77, 81, 82, 85, 87, 89 and 91) which were drilled with the S-3 rig which produced HQ diameter core to depths of 150 metres and then reduced to NTW diameter core (5.71 centimetre) until the end of the hole. Phases III, IV, V and VI drilling were performed by Falcon Drilling Argentina using HQ and HQ3 (6.35 and 6.11 centimetre) diameter core except for holes CGA-127, CGA-149, CGA-170 and CGA-181, which were reduced to NQ (4.76 centimetre) in order to reach deeper depths. Phase VI drilling included 5 reverse circulation holes with a diameter of 5 inches.

10.4.1 Drill Core Handling Protocol

The diamond drill core is extracted from the core tube and placed in appropriate boxes marked with drill hole number and the hole depth in metres. The boxes are transported, by pickup truck, from the drill site to the core shack at the end of each shift by trained Golden Arrow personnel. The drill contractor used a single shot Reflex survey instrument to measure the down hole deviation. This information was transferred to Golden Arrow in digital format for inclusion in the drilling database. Following completion of the hole, the drill pad is cleaned and a PVC tube is cemented at the drill collar with hole number, depth and azimuth inscribed on a metal ticket.

Golden Arrow has prepared a detailed drilling and safety protocol for handling drill core. Once the core boxes have reached the core shed, they are reviewed and organized. Measurements of core recovery and geotechnical measurements (fracture frequencies and rock quality designation (RQD)) are recorded. The core boxes are then photographed and select intervals are temporarily removed for specific gravity measurements as detailed in Section 11.5. Geological descriptions are recorded and the samples for analysis are marked at one metre intervals in mineralized zones and two metre intervals in areas with no expected mineralization. The drill core is split using an electric diamond core saw and sampled according to the marked intervals, as described in Section 11.1.

The practices and procedures followed during drilling programs conducted on the Chinchillas Property adhere to accepted industry standards and there are no factors identified that could materially impact the reliability or accuracy of the results.

11 Sample Preparation, Analysis and Security

The following details the sample preparation, analysis and security details used by Golden Arrow in its drill campaigns at Chinchillas, and remains unchanged from the last Technical Report (Davis et al, 2016). For details of methodologies used by Silex in the earlier drill campaign, the reader is referred to Section 11.1 of such Technical Report (Davis and Howie, 2013).

11.1 Sampling Method and Approach

For details of Golden Arrow drilling core handling protocols please refer to Section 10.4.1. Once in the core boxes, a handheld XRF analyzer is used to measure approximate silver, lead and zinc values every metre of core. These results are useful to identify mineralized intervals and check subsequent assay values.

Following the splitting of core, half the core is returned to the box while the other half is bagged. Corresponding tags are inserted, one in the plastic sample bag and the second in the core box. Quality control samples are inserted in sample bags and allocated in order for the laboratory to have a control sample in every batch.

11.2 Sample Custody and Security

Samples bags are placed in larger sacks (between six and ten samples per sack) and are sealed. Sealing numbers are recorded in the Chain of Custody database. The sacks are shipped by private truck to the Alex Stewart (Assayers) Argentina S.A. laboratory in Mendoza, ("Alex Stewart") where the sample preparation and analysis are performed.

Samples are received by the laboratory and the reception is reported to Golden Arrow. No damage or missing samples were ever reported during transportation.

11.3 Sample Preparation

Samples are prepared by method P-5 which includes drying the samples at 90°C, crushing the entire sample up to 80 percent passing 10 mesh, splitting 1,000 grams with a Jones riffle splitter and pulverizing to 95 percent passing 140 mesh. The pulverized material or pulp is then sampled and 200 grams of pulp is sent to the laboratory.

11.4 Sample Analysis

Alex Stewart is the primary laboratory and ALS in Peru ("ALS") is used as the secondary laboratory for check samples (see Section 11.6.4 for details). All samples are tested for a suite of 39 elements including silver, lead and zinc by a four acid digestion method and analysis by Inductively Coupled Plasma atomic emission spectroscopy ("ICP") (method ICP-MA-39). Silver greater than 200 parts per million ("ppm") is assayed by fire assay using a 50 gram sample with gravimetric finish (method Ag4A-50). Lead and zinc greater than 10,000 ppm are re-assayed by an oxidizing acid digestion for ore grade material and reading by ICP (method ICP-ORE).

In order to speed the reception of assay results, ALS acted as the primary laboratory for one batch of 876 samples in the Phase V program. Quality control procedures were applied in the same manner as with the rest of the samples.

Alex Stewart is an international laboratory certified under ISO 9001:2008, ISO 17025:2008 and ISO 14001: 2004. Alex Stewart is independent from Golden Arrow and Silver Standard.

11.5 Specific Gravity

To determine specific gravity ("SG") samples of drill core measuring about ten centimetres in length, at approximately fifteen metre intervals are collected. Samples are dried for two hours at 90°C in an electric oven. After cooling, the samples are sealed with plastic (cellophane) film. The weight of the plastic is ignored in the calculations since the volume is insignificant (less than 1 gm of plastic film compared with the 900 gram average weight of each sample). The samples are weighed in air and then weighed again while submerged in water. The formula used to calculate SG values is as follows:

$$SG = (Weight\ in\ air) / (Weight\ in\ water)$$

A total of 2,586 samples of drill core were tested for SG from Phases II, III, IV and V drilling. The results averaged 2.59 for the basement rocks, 2.40 for the dacites and 2.08 for the tuffs, with an overall average of 2.31. Figure 11-1 shows the specific gravity results of Phases II, III, IV and V drilling.

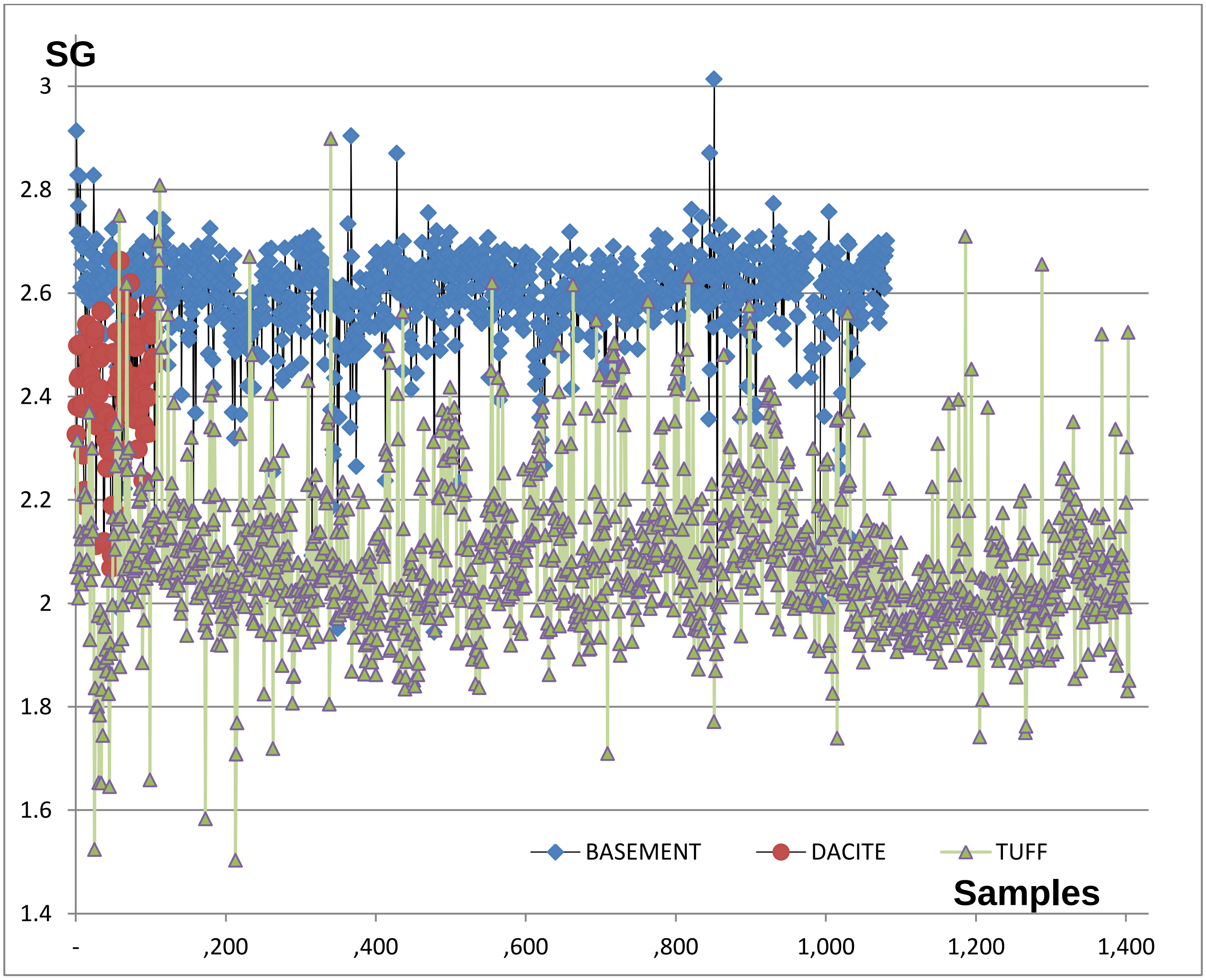


Figure 11-1: Specific Gravity results by Golden Arrow Grouped by Rock Types

11.6 Quality Assurance and Quality Control

Golden Arrow has established a Quality Assurance and Quality Control (QA/QC) system for its drilling programs. The system specifies the procedures for handling and sampling of drill core including, logging procedures, the frequency of inclusion of QC samples and the procedure for the chain of custody between the drill and the assay lab. QC samples, including blanks and certified reference materials ("CRM") are inserted in each batch in the field to check the precision and accuracy of the laboratory. This section reports the results from the Phase V program. Results from prior phases of drilling are detailed in the previous Technical Reports (Davis & Howie, 2013; Davis et al., 2014, Davis et al., 2015). The QC results from previous drilling programs indicate the samples from those programs are of sufficient quality to support Mineral Resource estimation.

A total of 1792 quality control samples were inserted as shown in Table 11-1.

Table 11-1: Summary of QC Samples

Type of Sample	Number of Samples	Percentage of Total (%)
Core samples	10468	85.4
Coarse Blanks	369	3.0
Fine Blanks	377	3.1
Coarse Duplicates Lab 1	185	1.5
Fine Duplicates Lab 1	191	1.6
Fine Duplicates Lab 2	293	2.4
Reference Material	377	3.1
TOTAL	12260	100

11.6.1 Blanks

Coarse and fine blanks were used to detect contamination problems and cross labeling in the process. The blank used was not a certified material from a vendor. The coarse blank, named BL-CH-1G, was made from a tuff breccia with no silver mineralization and low grade base metals values. It was sampled by Golden Arrow personnel and assayed by Alex Stewart Assayers.

The blank material used for QC purposes was not certified by a round robin process at several accredited laboratories; however, assay QC results indicate the material appears to be sufficiently homogeneous to detect sample contamination. The acceptance values were three times the reference value. In the case of the silver the acceptance value was three times the detection limit (1.5 ppm silver). Figure 11-2 shows silver results for the coarse blank.

From the 369 coarse blank samples, all silver, lead and zinc values are under the Acceptance Limit except for one sample with 221 ppm lead, just above the limit of 198 ppm lead.

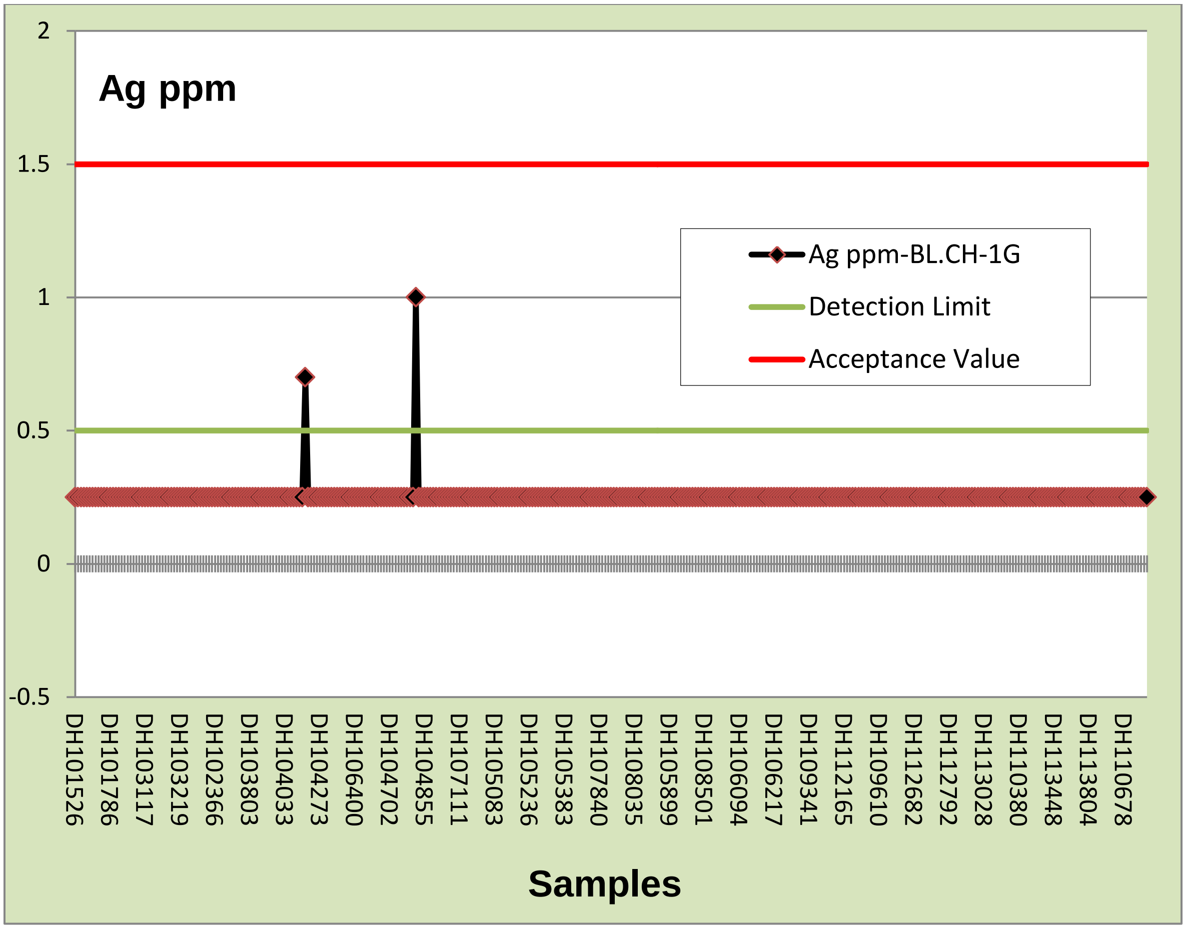


Figure 11-2: Silver values in Coarse Blanks (BL-CH-1G)

The fine blanks were made from the fine rejects of coarse blanks of the previous drilling phase. They were named BL-CH-2F, BL-CH-2aF and BL-CH-3F. The original assays were averaged and internal reports were produced. The acceptance values were three times the reference value. During the Phase V drilling program, a total of 377 fine blanks were inserted in the batches as part of the QC program. Silver values were always below the acceptance limit of 1.5 ppm silver (Figure 11-3). Lead and zinc values were also below the acceptance limit except for two outliers in lead and zinc (Figure 11-4). These outliers might reflect some contamination in the laboratory but the absolute values, even above the acceptance limit, are not considered significant.

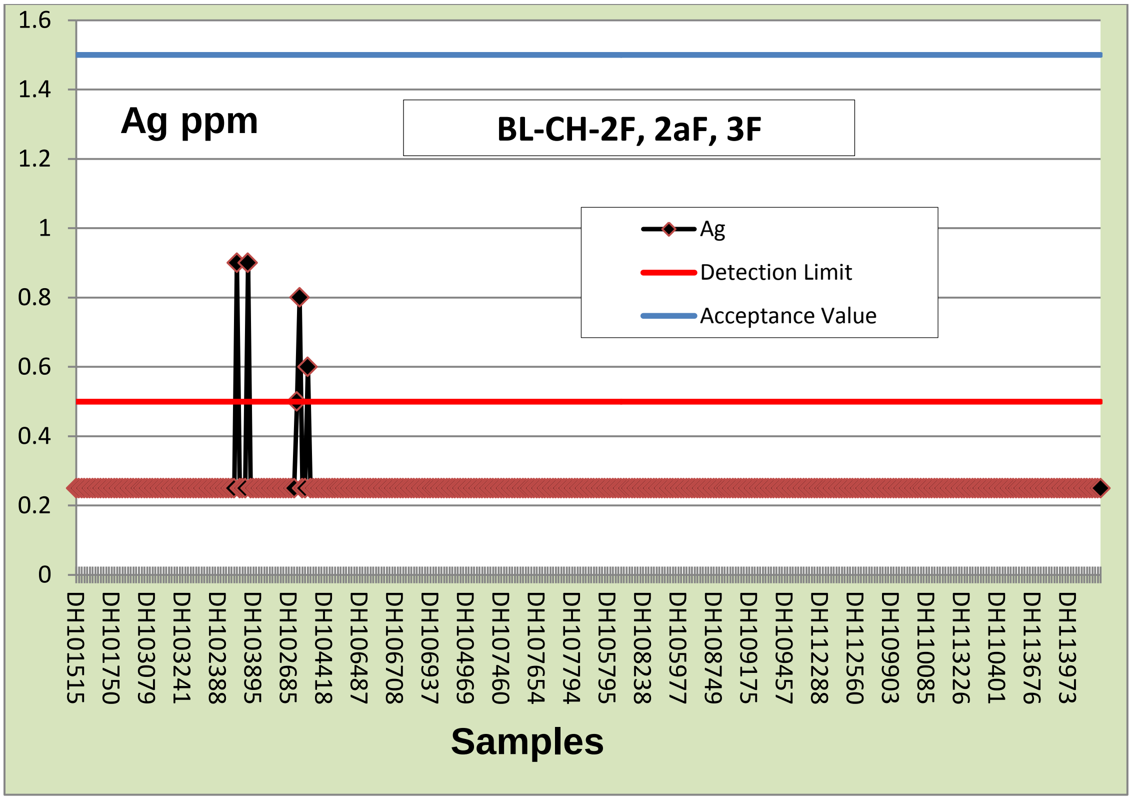


Figure 11-3: Silver values in Fine Blanks (BL-CH-2F, 2aF and 3F)

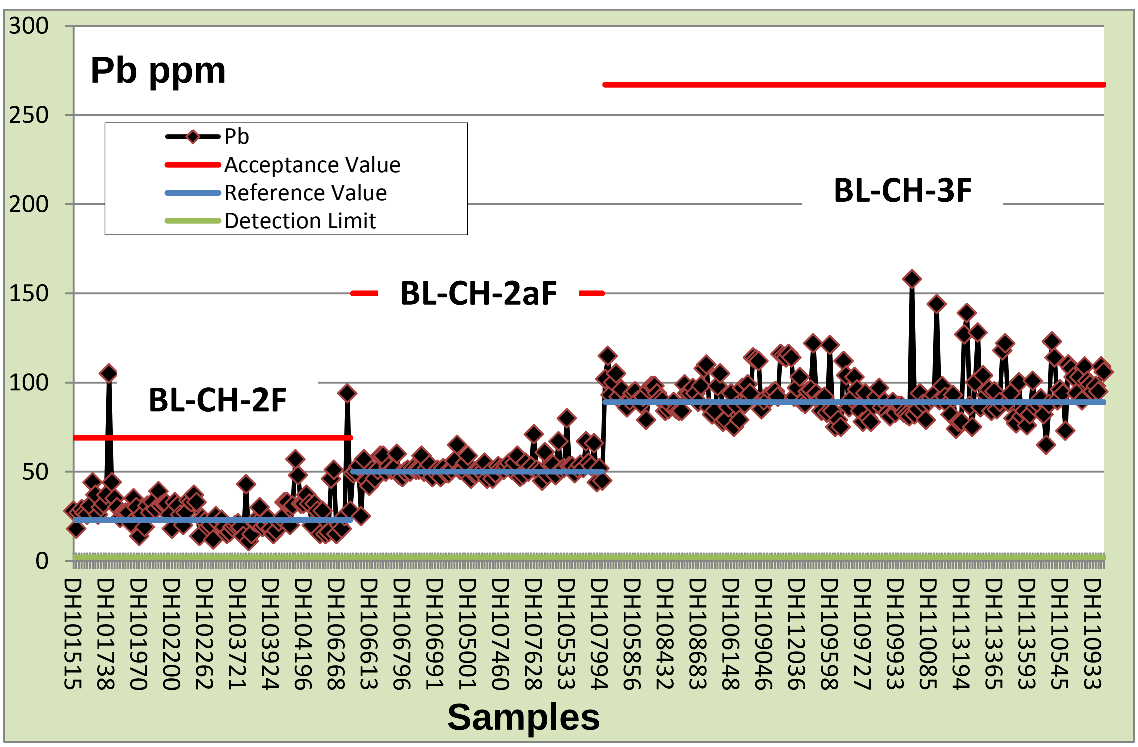


Figure 11-4: Lead values in Fine Blanks (BL-CH-2F, 2aF and 3F)

11.6.2 Coarse and Fine Duplicates

During the Phase V drill program coarse and fine duplicates were incorporated in the quality control process. A total of 185 of the coarse rejects (at 10 mesh) were re-labeled with a new number, re-assayed at Alex Stewart and considered as coarse duplicates. The same procedure was applied to 191 fine rejects (pulps) and these were considered as fine duplicates. Assay of the fine duplicates is not intended to validate the assay process since each part of the duplicate pair was assayed in the same lab. Pairs of values below 3 ppm silver were removed due to the poor precision of results. Figure 11-5 shows a summary of the coarse and fine duplicates for silver comparing the Mean Percentage Difference ("MPD") to the Accumulated MPD. The MPD is calculated as the percentage of Ix1-x2I / (x1+x2)/2.

Curves for lead and zinc show similar tendency as for silver.

Field duplicates were not taken during the Phase V drill program. As shown in previous phases, the comparison between ¼ core versus ½ core had low representativeness and usefulness.

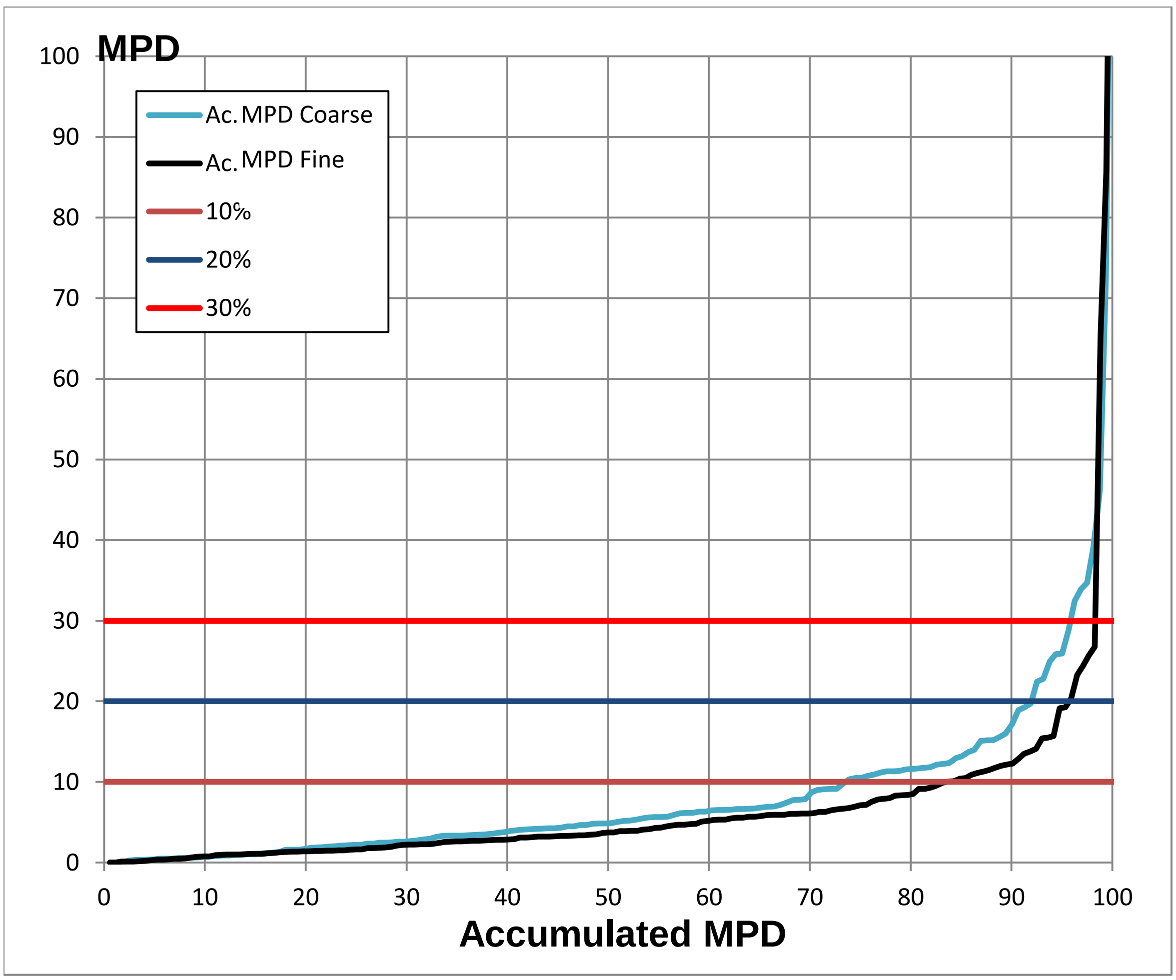


Figure 11-5: Silver Values for the two types of duplicates

11.6.3 Certified Reference Materials

A set of Certified Reference Materials ("CRM") was used to check the accuracy and precision of the laboratory. The same three reference materials used during Phases III and IV were used during the Phase V program, referred to as 1-CH, 2-CH and 3-CH. These standards were originally prepared by ACME-Mendoza, at the request of Golden Arrow, from rejects of previous drill core from the Chinchillas Property. Standards 1-CH and 2-CH have low (41 ppm) and intermediate (146 ppm) silver grades and were packaged in 30 gm envelopes because they do not require fire assay. Standard 3-CH has higher silver content (862 ppm) and, therefore, was packaged in 120 gm envelopes to accommodate the larger sample requirements of the fire assay testing.

A total of 148 CRM of 1-CH, 157 of 2-CH and 72 of 3-CH were inserted along the Phase V drilling. The assay results from the 1-CH all fall within three standard deviations of the accepted value (Figure 11-6). In the case of the 2-CH, only one value is above three standard deviations of the accepted value. The results of 3-CH, shown in Figure 11-7, show that all assay results are within two standard deviations of the accepted value.

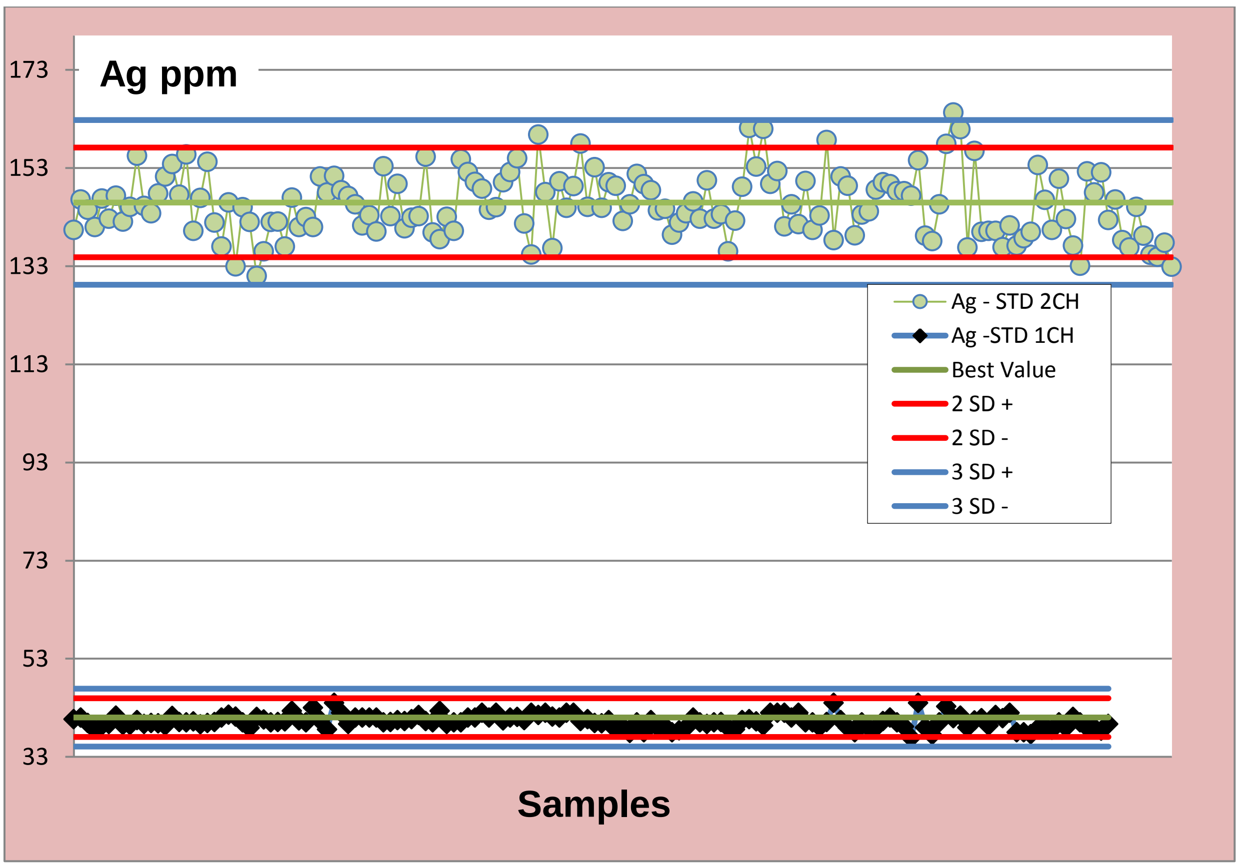


Figure 11-6: Silver values from Reference Materials 1-CH and 2-CH

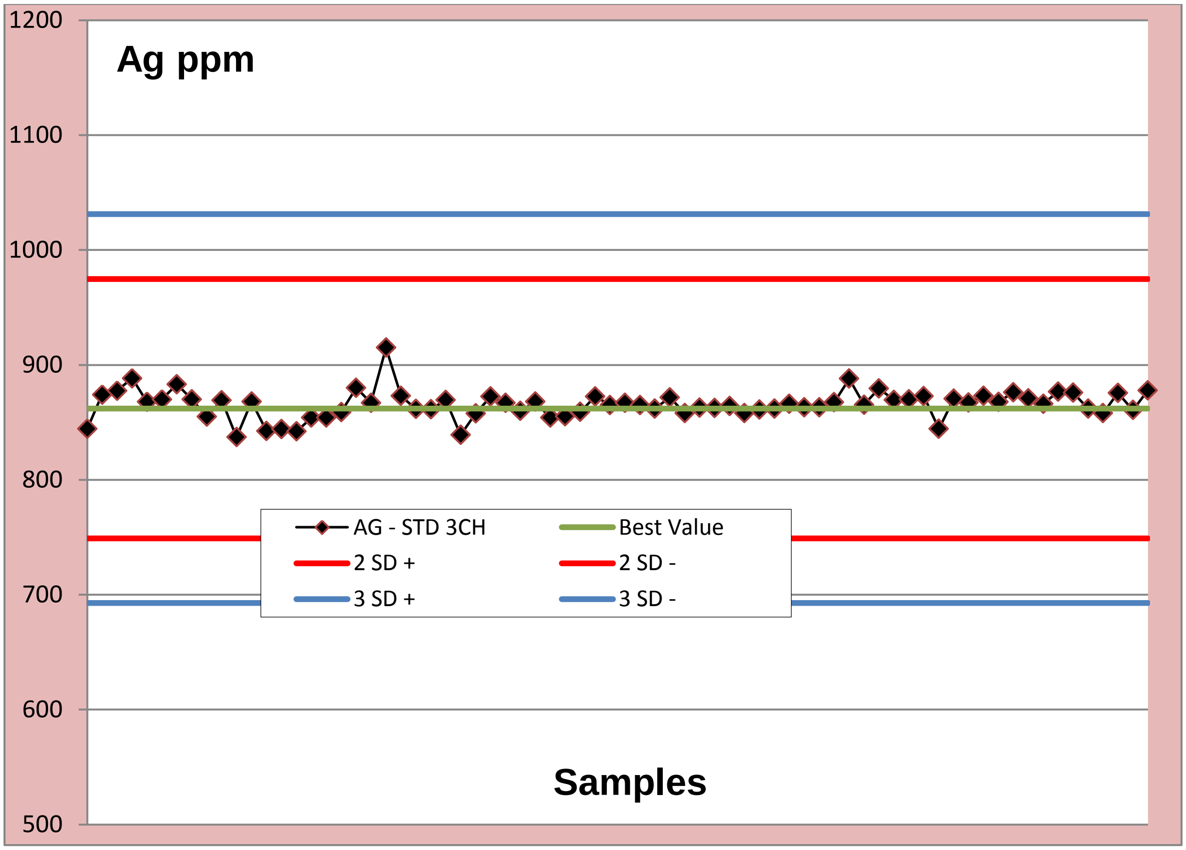


Figure 11-7: Silver values from Reference Material 3-CH

The results for lead, in Figure 11-8, shows some outliers in standard 2-CH. Samples immediately before and after this potentially suspect standard result were re-assayed and no significant difference was detected from the original assays.

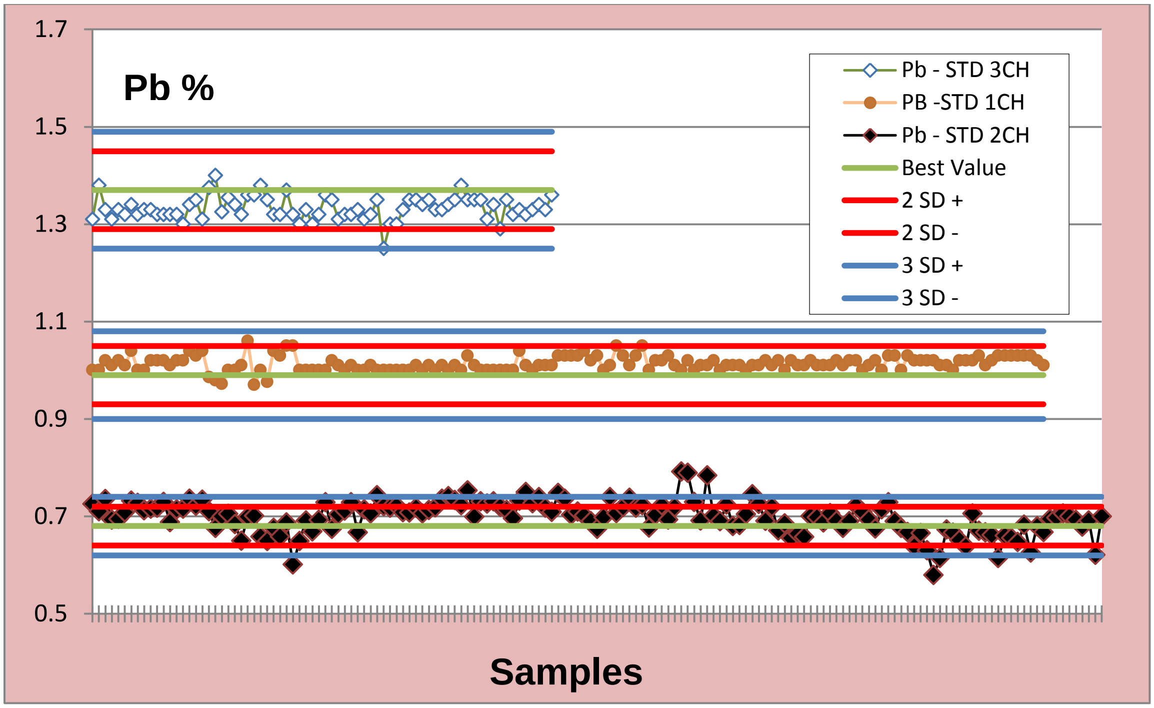


Figure 11-8: Lead values from Reference Materials 1-CH, 2-CH and 3-CH

In the case of the zinc, reference materials 2-CH and 3-CH were assayed by method ICP-MA and all values are within +/- two standard deviations except for one sample that is less than three standard deviations from the accepted value (Figures 11-9 and 11-10).

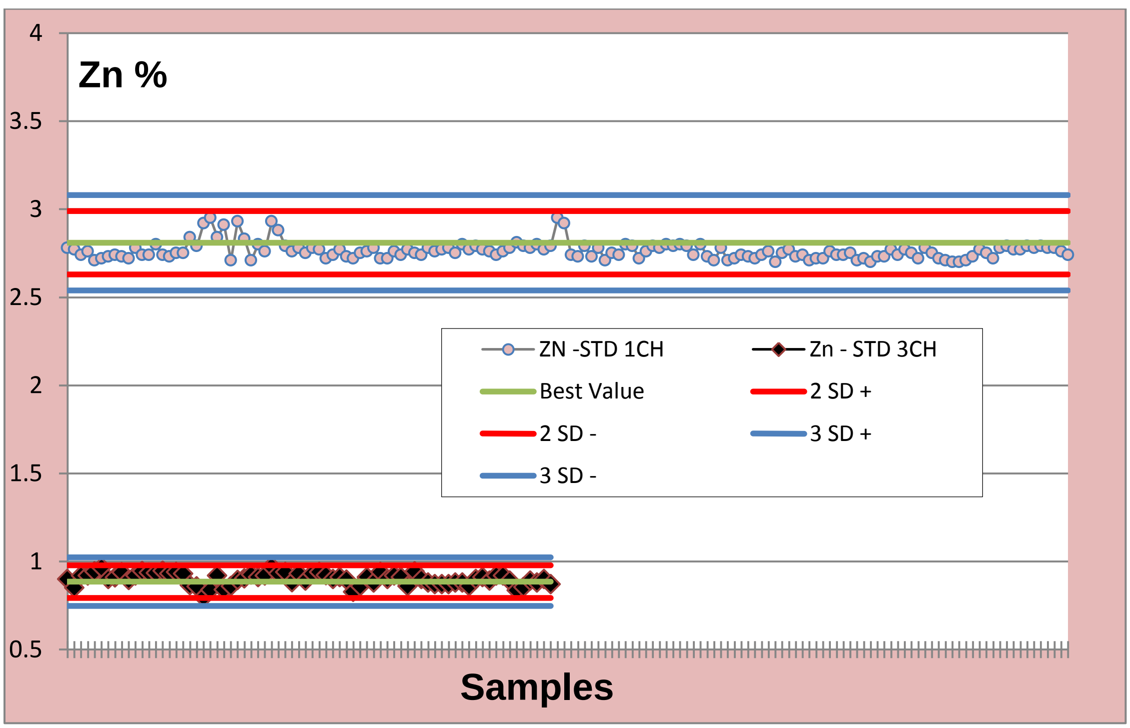


Figure 11-9: Zinc Values from Reference Material 1-CH and 3-CH

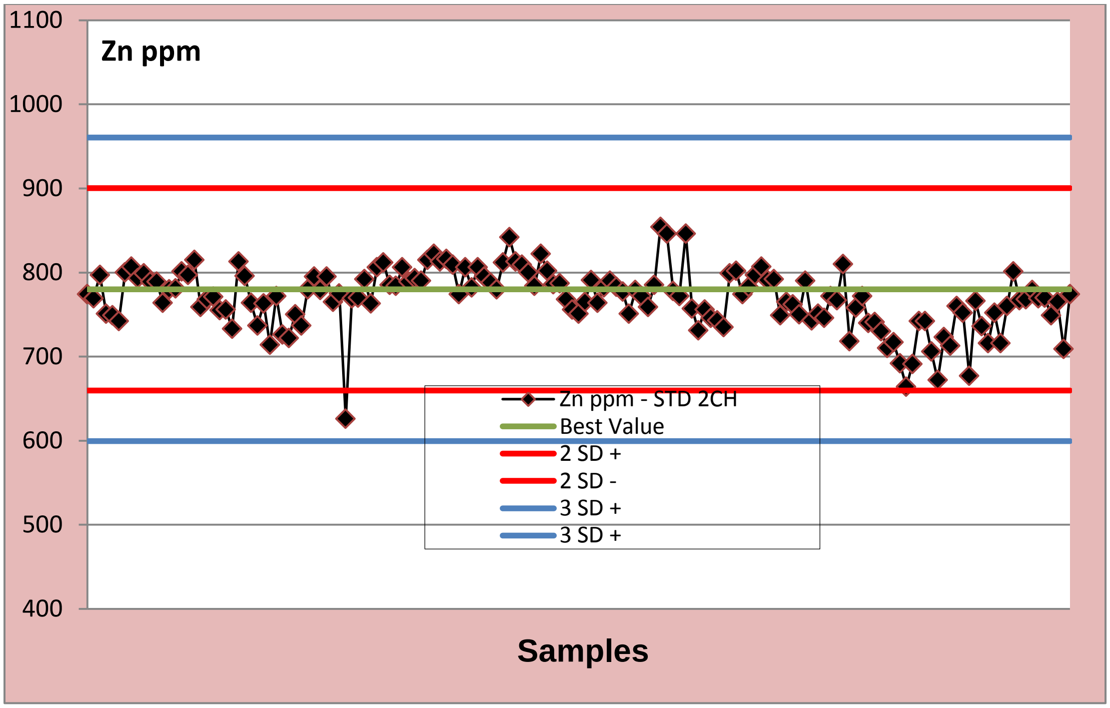


Figure 11-10: Zinc Values from Reference Material 2-CH

11.6.4 Secondary Laboratory for Checks

ALS was used as secondary laboratory. A total of 293 pulps were sent to ALS to be tested by method ME-ICP61 based on a four acid digestion and reading by ICP. Samples greater than one percent lead or zinc were re-tested using ore grade method Pb-OG62 and Zn-OG62. Samples greater than 100 ppm silver were re-assayed by fire assay with gravimetric finish (method Ag-GRA22). ALS is part of an international laboratory system and has ISO 9001:2008 and 17025:2005 certifications. ALS is independent from Golden Arrow and Silver Standard.

As with the field/coarse duplicates, the lab duplicate pairs with values close to the lower limit of detection were removed due to the poor precision of results, leaving only the greater than three ppm silver values.

Figure 11-11 shows the mean percentage difference of the silver-lead-zinc values in check samples between the primary and secondary laboratory.

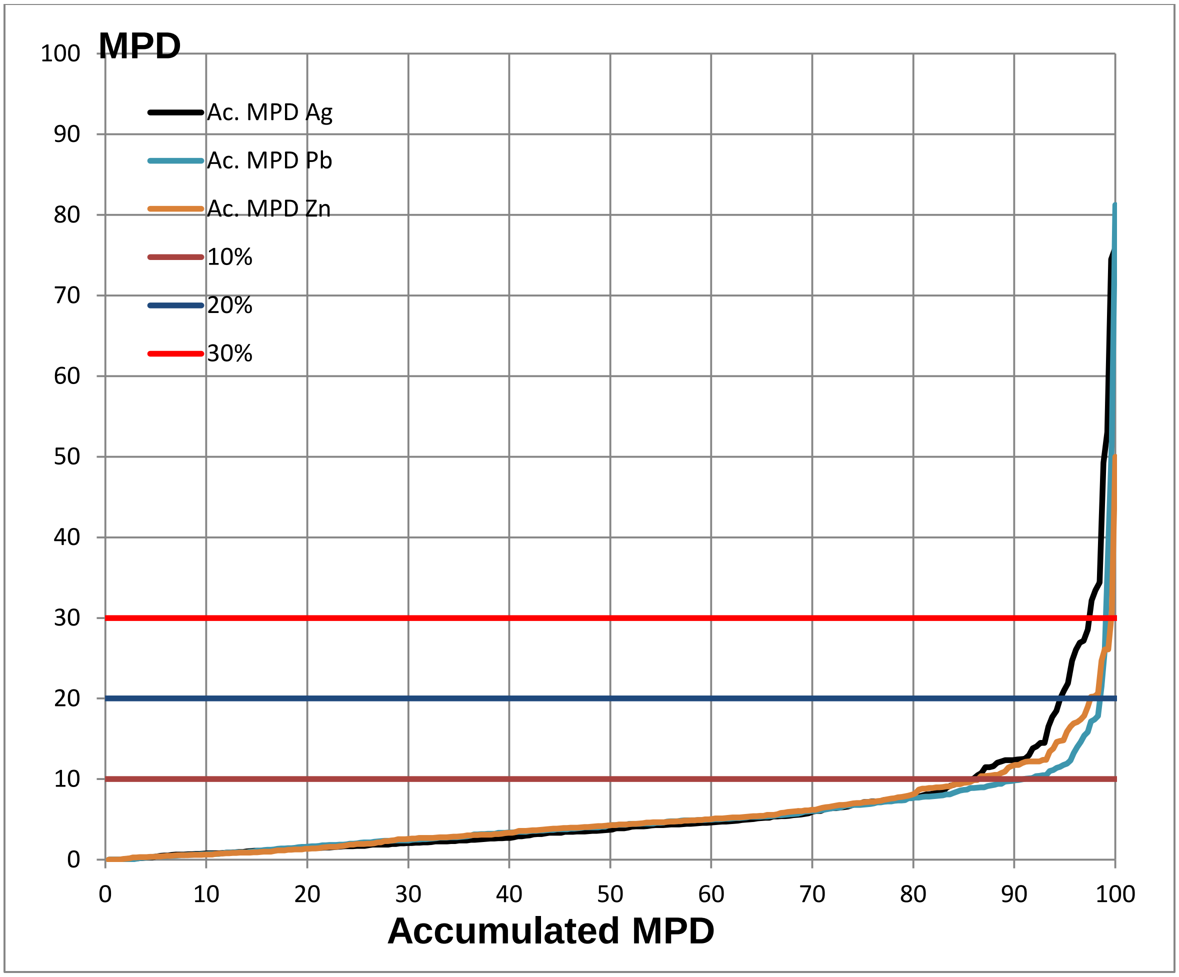


Figure 11-11: Comparison of Silver-lead-zinc Results between Lab Duplicates

11.7 Conclusions and Recommendations

The authors believe that the sample preparation, security and analytical procedures meet or exceed industry standards for data quality and integrity. There are no factors related to sampling or sample preparation that would materially impact the accuracy or reliability of the samples or the assay results. The outcomes of the QA/QC procedures indicate that the assay results are within acceptable levels of accuracy and precision and the resulting database is sufficient to support the estimation of Mineral Resources.

12 Data Verification

12.1 Database Validation

12.1.1 Collar Coordinate Validation

Validation of collar elevation data was done by comparing elevations from DGPS field surveys against the satellite photo digital elevation model ("DEM"). Precision of the DGPS is between 15 and 70 centimetres. The GeoEye high resolution stereo ortho-rectified DEM purchased by Golden Arrow provided elevation values for comparison. Most elevation differences in the collars were less than one metre. The largest difference occurred for hole CGA-212, where the difference of 2.26 metres was due to the pad elevation being below the original topo surface.

12.1.2 Down-Hole Survey Validation

Before the beginning of Phase III drilling it was noted that the correction of the magnetic declination between true north and magnetic north was correct in angle but had the opposite direction. For this reason, all azimuths of drill holes of Phases I and II were corrected by 13 degrees counter clockwise. No other adjustments were necessary for the other drilling phases.

The down-hole survey data were validated by searching for large discrepancies between the dip and azimuth reading against the previous reading. No significant discrepancies were found.

12.1.3 Assay Verification

All the collars, surveys, geology and assays were exported from Micromine Geobank software into EXCEL® files and then into MineSight® software. The validation process of Geobank confirms that each sample ID is associated with a drill hole, there are no identical sample ID's, all FROM_TO data are zero or positive and no interval can exceed the total depth of the hole. To validate the data, the following checks were confirmed:

- The maximum depth of samples were checked against hole depth;
- The values of less than the detection limit were converted into a positive number one-half the detection limit;
- The highest silver values and at least one random value from each drill hole were checked against the original assay certificate;
- The units were converted from ppm into percent (%) for lead and zinc values;
- Silex drill hole assay data were validated as reported in a previous Mineral Resource Estimate (Davis et al, 2013).

12.2 QA/QC Protocol

A review of the QA/QC protocols was conducted prior to drilling and formalized in a detailed QA/QC manual developed by Golden Arrow. Onsite reviews were conducted during all drilling phases by a QP. The procedures for core processing, the insertion of blanks and standards were examined. The QA/QC program has been conducted in accordance with industry best practice as described in Section 11 of this Technical Report.

12.3 Geological Data Verification and Interpretation

While several geology variables were captured during core logging, only lithology was used to constrain the Mineral Resource estimation. Therefore, geology data verification was limited to determining that the lithology designation was correct in each sample interval. This included the following:

- From – to intervals for gaps, overlaps and duplicated intervals;
- Collar and sample id mismatches;
- Correct geology codes.

A geological legend was provided by Golden Arrow and compared to the values logged in the database. Data were loaded into the Leapfrog Geo® software and examined for discrepancies in logging. Leapfrog models were converted to DXF format and exported to MineSight® for inclusion in the resource model.

The geological model is reasonable and adequate for use in the Mineral Resource estimate.

12.4 Assay Database Verification

The assay data from 15 randomly selected drill holes, representing approximately 5% of the database, was dumped from the MineSight software system and manually compared to the original assay certificates. These holes contain a total of 1,890 individual samples, in which eight samples were found to have differences in the values of the second decimal value. Differences of this nature are not considered to be "errors" as they have no measurable impact on the estimation of Mineral Resources. The results of this test indicate the database is sound and free of errors.

12.5 Conclusion

No material sample bias was identified by the QPs during the review of the drill data and assays. Observation of the drill core during the site visits and inspection and validation of the data collected indicate that the drill data is adequate for the estimation of Inferred and Indicated Mineral Resources.

Based on the data verification steps outlined in this Section 12, the section QP considers the data to be suitable for use in the generation of the classified Mineral Resources and Mineral Reserve estimates contained in this Technical Report.

13 Mineral Processing and Metallurgical Testing

The metallurgical development of Chinchillas ore types commenced in 2013 and continued through 2016. The first testwork was focussed on silver recovery by both leaching and flotation methods, with flotation proving to be superior at the early stage. The second program continued process development of flotation into separate lead/silver and zinc concentrates. The third testwork campaign was designed to advance the flotation process and test specifically these ore types to the Pirquitas mill flowsheet.

13.1 Initial Testwork 2013

A scoping metallurgical test program was initiated in January 2013. This testwork was undertaken by Bureau Veritas Commodities Canada Ltd, Inspectorate Metallurgical Division of Richmond, B.C. Canada, under the direction of Mr. John R. W. Fox, B.Sc., P.Eng. of Laurion Inc., independent consultant to Golden Arrow and a QP as defined in National Instrument 43-101. All testing was bench-scale. Results from the early testwork stages are summarized in a previous Technical Report (Kuchling et al, 2014).

13.2 Second Phase Testwork 2014

The second testing program was conducted on composite samples from the silver Mantos zone ("MAN-2"), the Socavon Del Diablo Zone ("SOC-2") and the Mantos Basement zone ("BAS-1"). This program included locked cycle testing and provided the most representative view of the overall metallurgical performance of the samples to date. It was also completed under the direction of Mr. John Fox. The following summary is an excerpt from the final report titled "2014 Project Report on Metallurgical Testing on the Chinchillas Project" prepared by Bureau Veritas Commodities Canada Ltd, Inspectorate Metallurgical Division, (Chen and Redfearn, 2014):

> *"Seven core samples (received on October 15, 2013 weighing 102 kg), were air dried and separated into three composites. Each composite was individually crushed to 6 mesh, mixed and split into the required samples for testing. Silver contents range from 94.2 to 150.6 g/tonne and base metals include lead and zinc.*
>
> *In this testing program, it was confirmed that Chinchillas samples are usually amenable to the conventional lead and zinc sequential flotation process. For most of the samples, the majority of silver was recovered in the lead circuit. Overall silver, lead, and zinc recoveries are above 95%. Most rougher concentrates responded well to the subsequent cleaner flotation stages. Upgrading of composites BAS-1, MAN-2, and SOC-2 generated lead final concentrates with grades ranging from 65% to 79% lead and zinc final concentrates with grades from 52% to 62% zinc."*

Locked cycle tests on three samples (BAS-1, MAN-2, and SOC-2) showed that high silver and lead recoveries in the lead circuit can be achieved along with good lead final concentrate grades. For composites BAS-1 and SOC-2, good final zinc concentrates grading 51.8% and 60.1% respectively were obtained. The overall metallurgical performance is summarized in Table 13-1.

Table 13-1: Summary of 2014 Locked Cycle Flotation Tests

Sample ID	Product	Mass (%)	Grade Ag (g/t)	Grade Pb (%)	Grade Zn (%)	Recovery (%) Ag	Recovery (%) Pb	Recovery (%) Zn
Comp. BAS-1	Pb Concentrate	2.9	4,583	69.2	4.31	96.1	96.3	13.3
	Zn Concentrate	1.6	307	1.40	51.8	3.4	1.0	84.7
	Final Tails	95.5	0.7	0.06	0.02	0.5	2.7	2.0
	Calculated Head	100.0	141	2.12	0.96	100.0	100.0	100.0
Comp. MAN-2	Pb Concentrate	1.0	10,460	62.3	6.41	94.6	97.5	74.1
	Zn Concentrate	0.6	455	0.19	3.15	2.3	0.2	20.3
	Final Tails	98.4	3.5	0.02	0.01	3.1	2.3	5.6
	Calculated Head	100.0	112	0.65	0.09	100.0	100.0	100.0
Comp. SOC-2	Pb Concentrate	1.8	4,219	66.0	13.47	93.4	97.0	11.7
	Zn Concentrate	3.0	133	0.13	60.1	4.9	0.3	86.0
	Final Tails	95.1	1.5	0.03	0.05	1.7	2.6	2.3
	Calculated Head	100.0	83	1.25	2.11	100.0	100.0	100.0

The MAN-2 composite with a very low zinc head grade did not produce a marketable zinc concentrate at only 3.15% Zn. However, the zinc grade recovered into the lead/silver concentrate is consistent with the other two ore composites. The calculated zinc recovery of 20.3% to the lead/silver concentrate is also a result of the low head grade.

This is not expected to be an issue for processing Chinchillas material through the Pirquitas concentrator as the zinc circuit will not be used for zinc recovery, and instead may provide an extended lead/silver circuit for higher recovery. The low zinc grade, Mantos ore type would be processed to produce only a lead/silver concentrate and not a zinc concentrate.

13.2.1 Mineralogy 2014

To assist with future metallurgical development, mineralogical analysis was undertaken of the three ore types (BAS, MAN, SOC) and two flotation testwork concentrates (BAS lead second cleaner concentrate and lead scavenger concentrate generated during one of the flotation tests).

The report titled "Mineralogical Assessment of Five Test Products" prepared by Bureau Veritas Commodities Canada Ltd, Inspectorate Metallurgical Division, (Ma and Redfearn, 2014) summarizes the mineral composition and occurrence of the five samples using QEMSCAN, in Particle Mineral Analysis (PMA) mode on un-sized samples (see Table 13-2 for head sample composition).

Table 13-2: Mineral Percent Composition of the Three Head Composites

Sulphide Minerals	BAS	MAN	SOC	Non-sulphide Minerals	BAS	MAN	SOC
Freibergite	0.07	0.01	0.01	Goethite	4.0	8.0	4.6
Chalcopyrite	0.04	0.03	0.00	Quartz	45.7	58.6	57.3
Galena	2.36	0.70	1.64	Muscovite/Biotite	37.3	29.7	24.4
Bournonite	0.01	0.00	0.00	K-Feldspars	2.6	0.9	0.6
Sphalerite	1.70	0.11	4.01	Chlorite	3.0	0.5	1.5
Pyrite	1.63	0.42	4.82	Calcite	0.2	0.2	0.2
				Apatite/Augelite	0.1	0.3	0.4
				Kaolinite	0.3	0.2	0.2
				Rutile/Anatase	0.6	0.2	0.3
				Others	0.4	1.0	0.3
Total	5.81	1.27	10.5	Total	94.2	99.6	89.7

Notes:
1. Freibergite includes trace amounts of pyrargyrite, stephanite and tetrahedrite
2. Chalcopyrite includes trace amounts of bornite and chalcocite/covellite.
3. Pyrite includes trace amounts of arsenopyrite, krutovite and loellingite.
4. Others includes trace amounts of amphibole, jarosite, chromite and unsolved mineral species

The report concluded:

> *"The three composites assayed 100 to 150 grams per tonne silver and 0.6% to 2.2% lead. Freibergite was the dominant silver bearing mineral, constituting over 75% of the total feed silver. The remaining silver was contained in pyrargyrite, stephanite and tetrahedrite. The lead was mostly contained in galena.*
>
> *The three composites also assayed 70 to 300 grams per tonne copper and 130 to 330 grams per tonne arsenic. The copper was predominantly carried by freibergite and chalcopyrite.*
>
> *The arsenic was mostly carried by arsenopyrite and krutovite."*

Figure 13-1 summarises the main metal deportment between minerals for the three head samples.

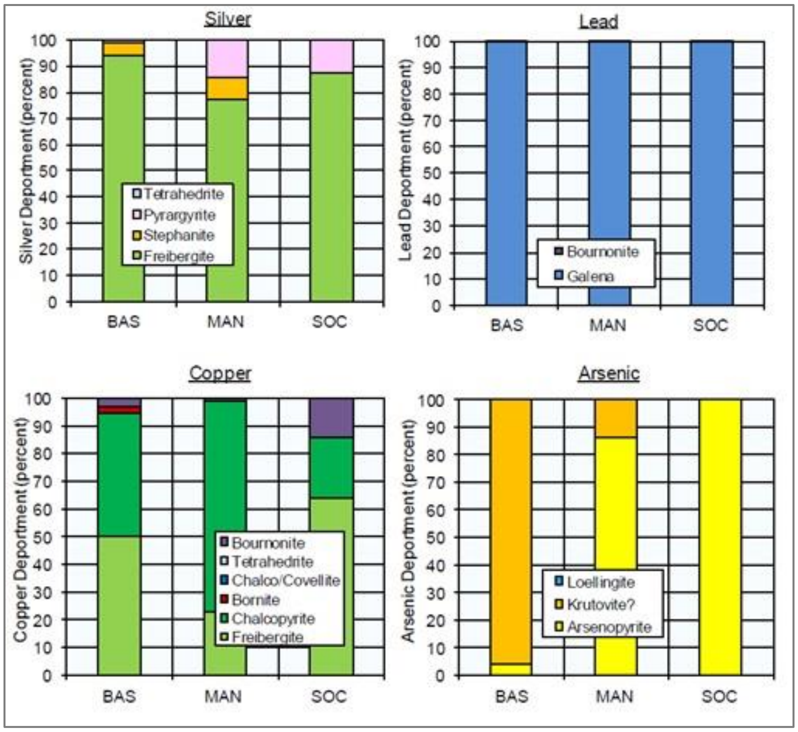


Figure 13-1: Mineral Deportment of the Three Head Composites

Table 13-3 summarises the composition of the BAS second cleaner lead concentrate sample and Figure 13-2 shows the deportment of the main metals between minerals.

Table 13-3: Mineral Percent Composition of BAS Second Cleaner Lead Concentrate

Assays (% or g/t)		Mineral Content (weight percent)			
Element		Sulphide Minerals		Gangue Minerals	
Silver	2.33	Freibergite	11.7	Goethite	0.4
Copper	7.82	Stephanite	0.25	Quartz	20.1
Iron	10.2	Pyrargite	0.32	Muscovite/Biotite	13.4
Lead	7.93	Chalcopyrite	12.9	K-Feldspars	0.5
Zinc	4.86	Bornite	0.13	Chlorite	00.4
Sulphur	18.4	Tetrahedrite	0.39	Calcite	0.7
Arsenic	0.18	Galena	8.11	Apatite/Augelite	0.2
Antimony	3.84	Bournonite	6.76	Kaolinite	0.3
		Sphalerite	9.71	Rutile/Anatase	0.6
		Other Sulphides	0.12	Others	1.6
		Pyrite	11.4		
		Arsenopyrite	0.13		
		Total	61.9	Total	38.1

Analysis of the three ore-type composites and the BAS second cleaner lead concentrate show consistency in mineral types and their respective metal deportments.

Essentially, lead is present as galena and the silver as a series of sulfosalts, which is similar to Pirquitas. Figure 13-3 shows photomicrographs from the BAS second cleaner lead concentrate with examples of locked particles of galena and freibergite.

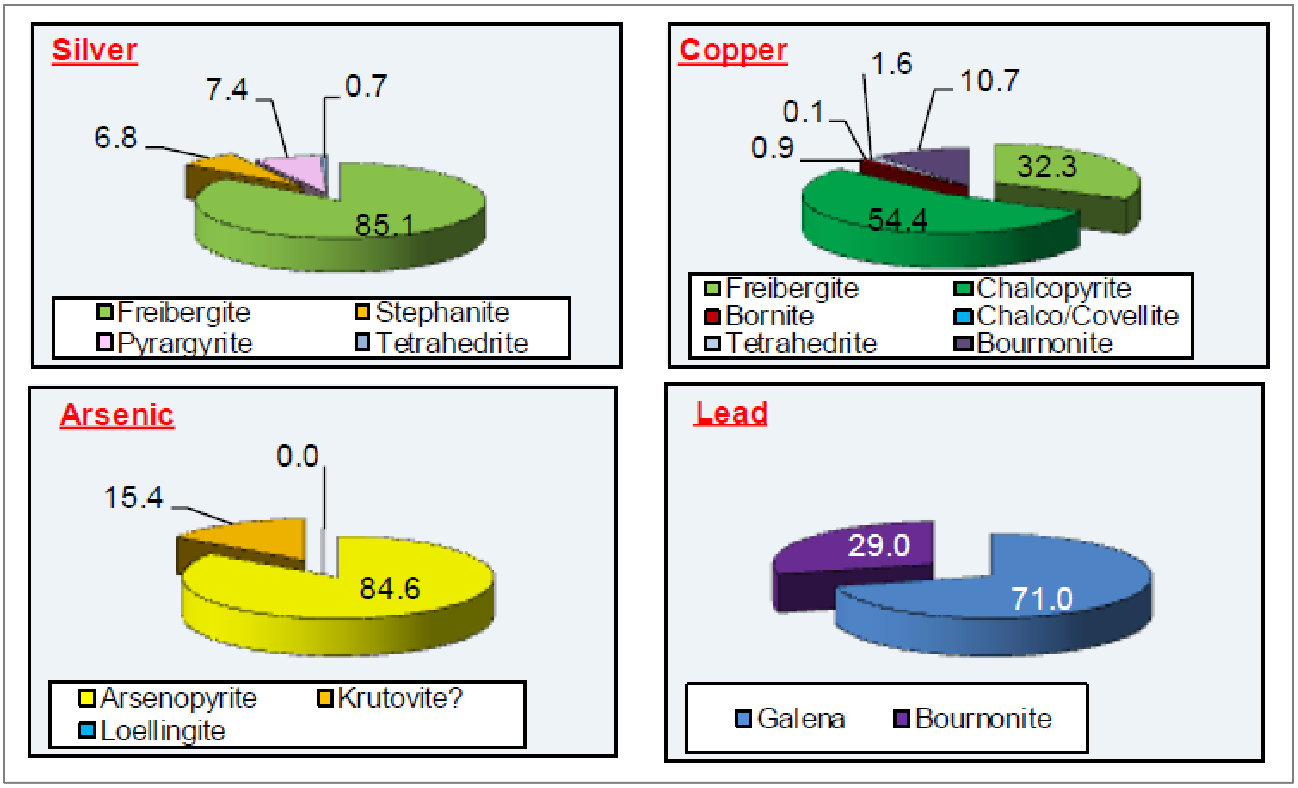


Figure 13.2: Elemental Deportment of BAS Second Cleaner Lead Concentrate

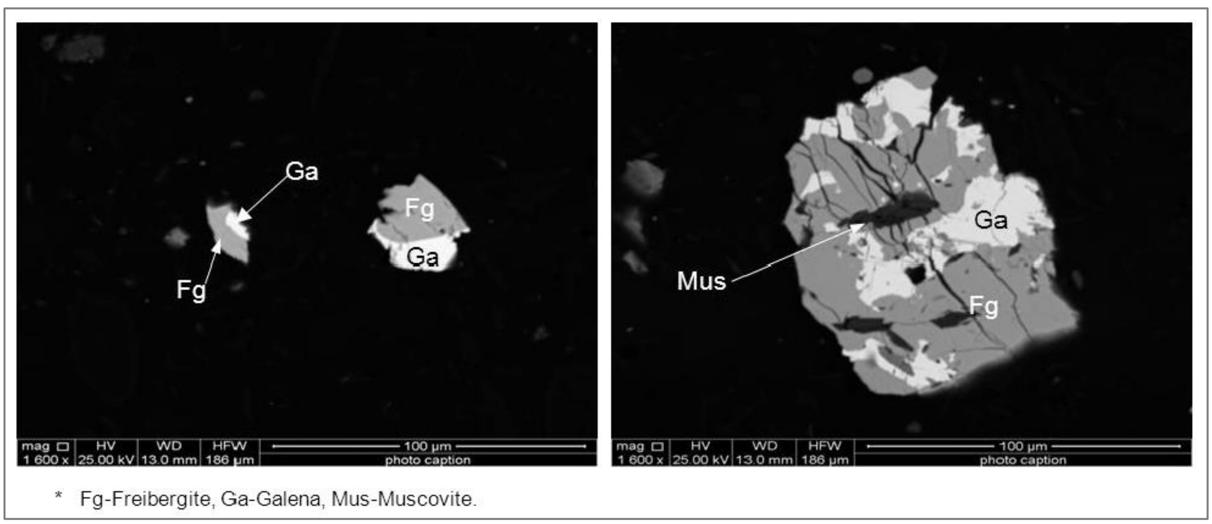


Figure 13-3: BAS 2nd Cleaner Lead Concentrate Particle Photomicrographs

13.2.2 Testwork Conclusions 2014

The objective of this second phase flotation testwork was to produce sequential lead/silver and zinc concentrates. This was successful with high recoveries achieved of the target metals to marketable quality concentrates. The mineralogical analysis highlighted that the lead was contained in galena, and the silver was contained in the very typical series of silver sulphosalt minerals.

13.3 Petrology and Mineral Chemistry

Ore petrology was investigated in 2016 by consultants at the National History Museum (“NHM”) in the United Kingdom on 28 drill core samples collected from the resource area. Two reports were generated from the work:

- The Opaque Mineralogy of 28 Samples from the Pb-Zn-Ag Mineralization of the Chinchillas Property (Stanley and Armstrong, 2016)
- EPMA study of Ag-bearing Minerals from the Pb-Zn-Ag Mineralization of the Chinchillas Property (Armstrong and Spratt, 2016)

What follows is a summary of the key findings of the NHM work.

The core samples provided to NHM were broken out into two groups corresponding to i) veins and vein breccias hosted by pelite and mudstone of the Ordovician and ii) a poly-lithic tuff breccia. These correspond to Mantos Basement and Silver Mantos styles of mineralization respectively.

The ore microscopy shows that main silver and potential silver-bearing phases are pyrargyrite and tetrahedrite respectively. Reflectance values for the tetrahedrites suggest a variable silver content and some values are high enough for freibergite which has been verified by subsequent microprobe analysis.

The Mantos Basement samples show typically vein and fracture controlled mineralization where sulphides show sharp contacts with gangue minerals and are generally coarse grained. An example is shown in Figure 13-4.

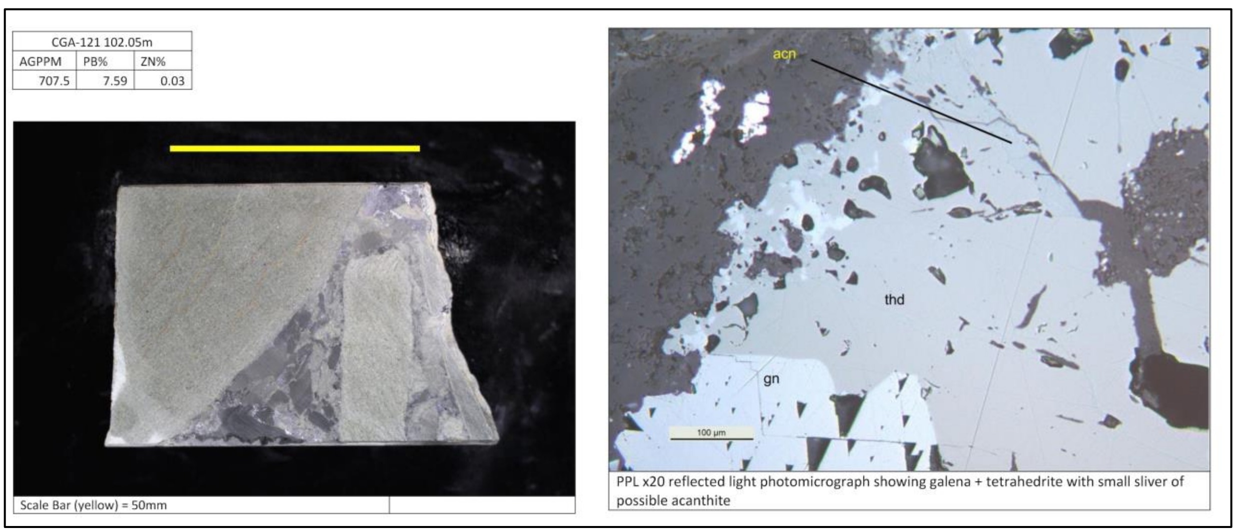


Figure 13-4: Example of Mantos Basement Core and Mineralization

The Silver Mantos tuff-hosted mineralization contains silver-bearing minerals that are interstitial to clasts within the tuff-like rock mass. The sulphide grain-size tends to be finer with spongey intergrowths shown at grain boundaries (see Figure 13-5).

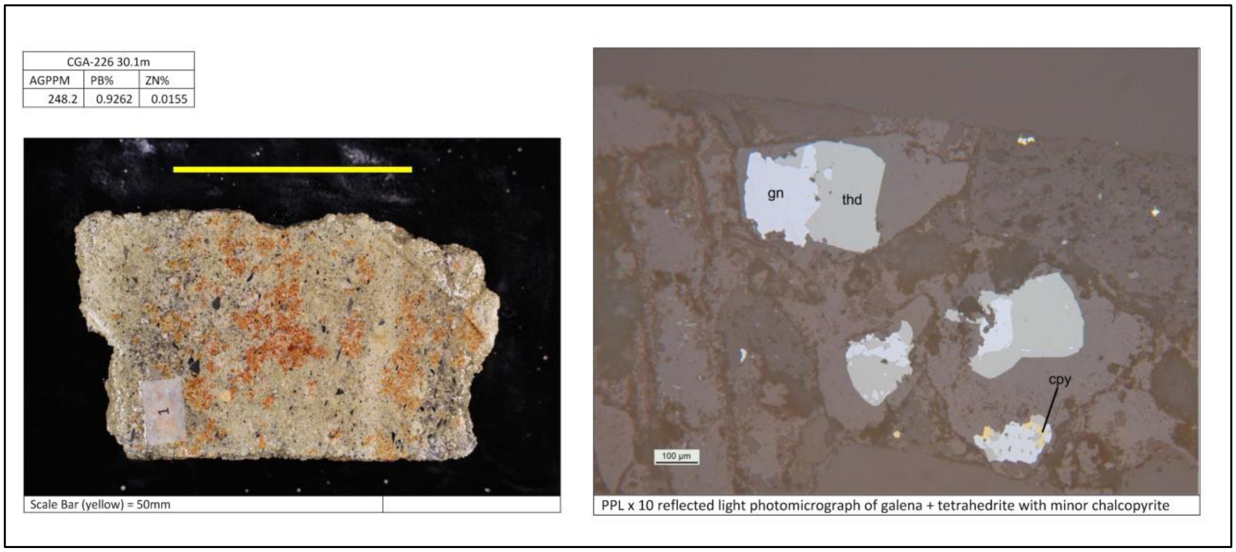


Figure 13-5: Example of Silver Mantos Core and Mineralization

Microprobe analysis was completed in order to investigate the range of metal content in the ore minerals present. Four samples were selected for analyses, with two from each of the Silver Mantos (both at about 40 metres depth) and Mantos Basement (both about 100 metres depth) domains.

The two Silver Mantos samples were very similar in that the silver is mainly tied up in pyrargyrite (56.5% to 66.8% silver), tetrahedrite (24.5 to 49.5% silver) and diaphorite (up to 25.2% silver). The tetrahedrite shows compositions that are variable, but reach up to and exceed the 40% mark for freibergite. The sphalerite is iron-poor with a cadmium content of 0.12-0.79%. A small amount of silver (0.44%) is reporting to inclusion-free galena.

The two Mantos Basement samples were quite different in the occurrence of pyrargyrite. Tetrahedrite was common to both samples; however, unlike the Silver Mantos samples the tetrahedrite had lower silver contents (15.1% to 30.9% silver). The coarser grain size highlighted a strong compositional zoning in the grain margins for silver, copper and zinc. The galena in these examples are very coarse grained and include inclusions of the silver bearing phases. The sphalerite was iron-poor and zoned with some values of cadmium as high as 1.7%.

The NHM probe work specifically for tetrahedrite noted a straight substitution between silver and copper. The positioning of the two sets of samples is weakly suggestive that there may be a depth zonation between these two elements in tetrahedrite (see Figure 13-6 for a number of drill hole intervals).

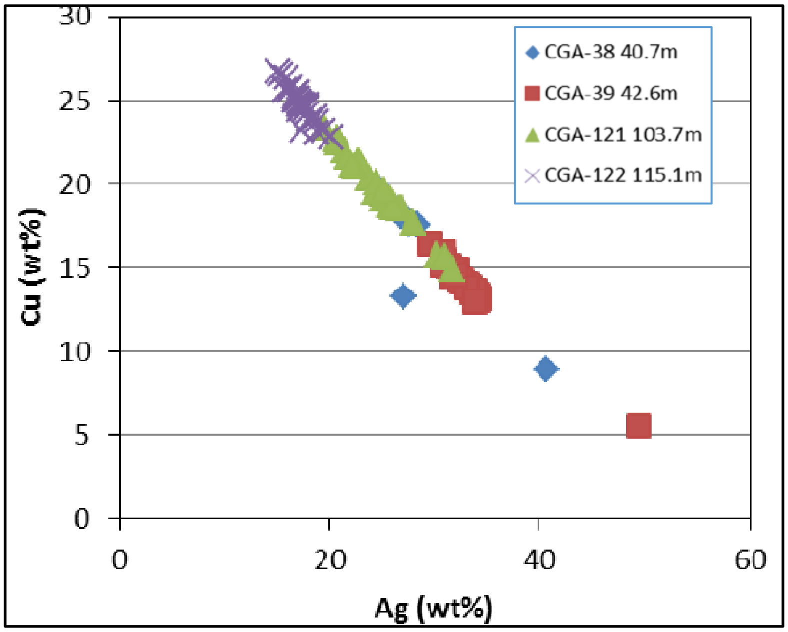


Figure 13-6: Microprobe Results of Silver-Copper Correlation in Tetrahedrite

In summary, both settings of mineralization share key similarities. The main silver-bearing phase is tetrahedrite and pyrargyrite, and some of the tetrahedrites contain enough silver to be freibergite. There is some evidence that the composition of the tetrahedrites may become more copper-rich with depth and this could support further investigation. This feature is not noticeable on a bulk rock chemistry scale and may even not be detectable in the lead or zinc concentrate given some of the other sources of silver.

13.4 Third Phase Testwork 2016

The 2016 flotation testing program was developed to determine the compatibility of Chinchillas mineralization types to the Pirquitas process plant flowsheet and capacity. Testwork included comminution and focused on producing lead/silver and zinc concentrates by sequential flotation. In addition, a comparison between the flotation reagent scheme used in the historical testwork programs and the current Pirquitas scheme was undertaken.

The testwork was completed at ALS Metallurgy, Kamloops, British Columbia, Canada and reported as "Preliminary Metallurgical Assessment of Chinchillas Project Composites", dated February 5, 2016. The testwork was completed under the direction of T. Yeomans, P. Eng., Director, Metallurgy for Silver Standard.

13.4.1 Selection of Drill Intervals for Testing

A review of the drill assay database assays was used to imply mineralogy; specifically iron to sulphur ratio (Fe/S, a proxy for pyrite content). It was suggested at the start of the testwork program that silver might be partially associated with pyrite. A typical example of both silver content and Fe/S versus drill hole depth is shown for drill hole CGA-35 in Figure 13-7. However, the varying iron to sulphur ratio appeared to be independent of silver grade – therefore, a poor association with pyrite.

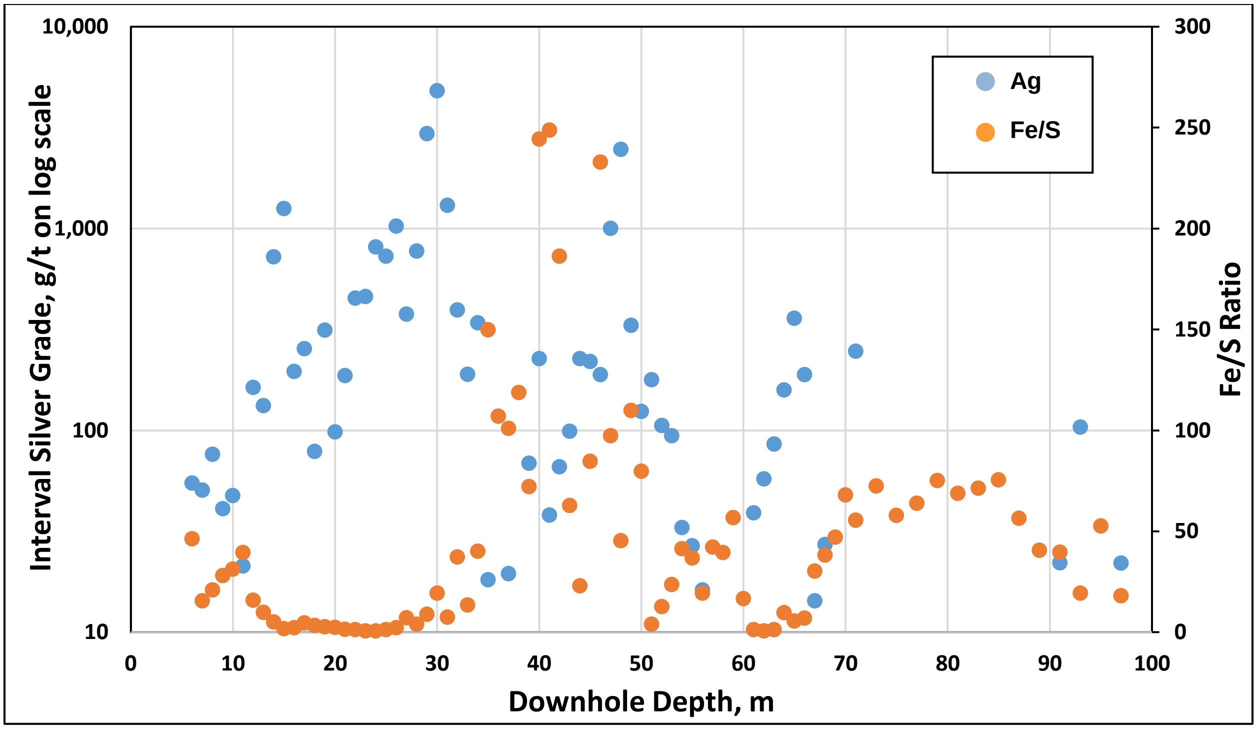


Figure 13-7: Drill Hole CGA, Variation in Silver Grade and Fe/S Ratio Downhole

The criteria for selection of individual drill core intervals for selection for metallurgical testing were:

- Within pit shell (excluding the SOC zone, not in the initial mine plan)
- Silver grades similar to mine plan grades
- Fe/S ratio into High and Low classes
- Lithology into either Manto or Basement

Nominally four separate drill hole intervals were identified for each of the four mineralization types. These were named Manto Low and Manto High, and Basement Low and Basement High with the designations corresponding to Fe/S ranges of >15 or <5 respectively. Figure 13-8 shows the selected drill interval locations within the pit. The pit is planned in two mining phases, the first shown as the red pit shell and the second as the green pit shell.

These identified intervals were recovered from the Chinchillas site drill core library and re-sawn into quarter core by Golden Arrow geological staff. Once securely bagged and labelled, approximately 350 kilograms of material was shipped directly to the laboratory in Kamloops, Canada.

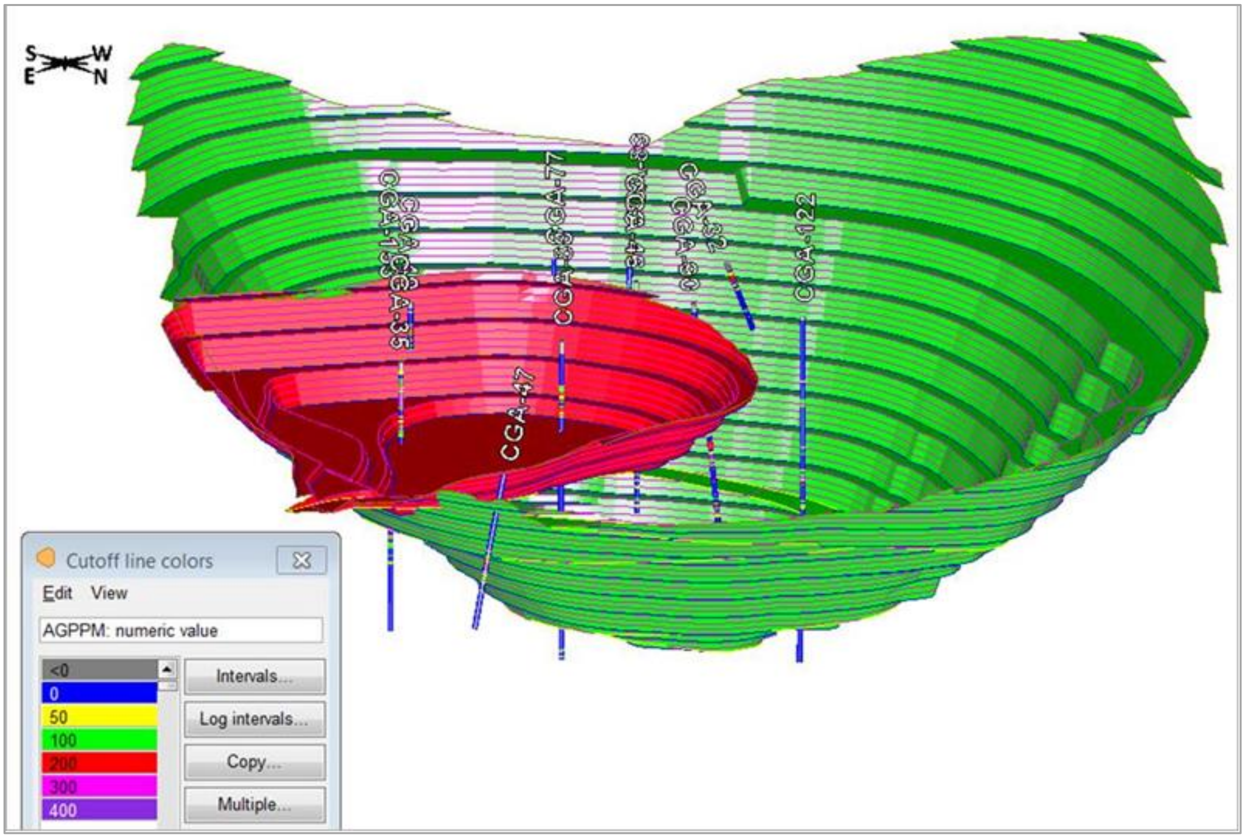


Figure 13-8: Metallurgical Sample Locations within the Two Pit Shells (Mining Phases)

On receipt at ALS Metallurgy in Kamloops, core was inventoried, crushed, composited and analysed. Chemical results are shown in Table 13-4, together with the calculated Fe/S ratios.

In addition to the economic metals, additional analysis was completed for lead and zinc oxides, total and sulphide sulphurs and silver (by both fire assay and three-acid ICP methods).

Observations included:

- Low amounts of lead and zinc oxide with no effect expected on flotation;
- High proportion of the total sulphur is present as sulphide i.e. limited sulphates;
- Variation of silver by the two methods is low which implies most silver is sulphide hosted.

The Master composites ranged in grade between 154g/t and 238g/t silver, 0.31% and 1.77% lead and 0.16% and 1.02% zinc. The iron to sulphur ratio ranged from 5 to 30. In terms of composite grades, the selection of samples was based on an initial mine plan. This initial plan had no mining in Socavon zones and therefore, no samples were selected from this Project area for the 2016 flotation testwork program. Variability samples are selected to cover a range of grades above and below this mine plan. Figure 13-9 shows three scatter plots comparing the quarterly mine plan assays with the Master and Variability composite sample assays.

Table 13-4: Chemical Composition of Master and Variability Composites

Product	Assay (% or g/t)										Ratio
	Cu	Pb	PbOx	Zn	ZnOx	Fe	Ag	S	S(s)	Sb	Fe/S
Manto High Composite	0.015	0.31	0.01	0.16	<0.01	7.1	204	0.24	0.23	0.014	29.58
Manto Low Composite	0.036	0.81	0.03	1.02	<0.01	4.0	253	0.81	0.77	0.021	4.94
Basement High Composite	0.017	0.61	0.02	0.31	<0.01	5.2	164	0.37	0.33	0.018	14.05
Basement Low Composite	0.034	1.77	0.10	0.44	<0.01	3.8	241	0.86	0.81	0.027	4.42
CGA-32 Basement High	0.02	0.18	0.02	0.18	0.01	5.4	202	0.24	0.21	0.019	22.50
CGA-46 Basement High	0.009	0.69	0.02	0.26	<0.01	5.4	112	0.35	0.34	0.009	15.43
CGA-77 Basement High	0.013	0.29	0.01	0.63	0.01	6.4	114	0.42	0.39	0.016	15.24
CGA-90 Basement High	0.014	1.27	0.07	0.08	<0.01	3.3	150	0.38	0.36	0.015	8.68
CGA-77 Basement Low	0.038	2.21	0.12	0.46	<0.01	3.0	212	0.88	0.84	0.029	3.41
CGA-89 Basement Low	0.012	0.54	0.03	1.29	0.02	4.8	114	0.91	0.85	0.011	5.27
CGA-90 Basement Low	0.022	1.77	0.10	0.84	<0.01	5.0	240	1.1	1.07	0.019	4.55
CGA-122 Basement Low	0.032	1.24	0.08	0.05	<0.01	3.2	288	0.62	0.57	0.020	5.16
CGA-35 Manto High	0.021	0.43	0.02	0.14	<0.01	6.6	374	0.21	0.19	0.024	31.43
CGA-40 Manto High	0.016	0.24	<0.01	0.24	<0.01	7.1	80	0.23	0.2	0.007	30.87
CGA-80 Manto High	0.008	0.17	0.01	0.13	<0.01	6.7	136	0.27	0.25	0.008	24.81
CGA-35 Manto Low	0.045	1.98	0.06	0.41	<0.01	3.6	1050	0.72	0.7	0.068	5.00
CGA-40 Manto Low	0.004	0.07	<0.01	0.38	0.02	7.6	14	5.26	5.24	0.003	1.44
CGA-47 Manto Low	0.068	0.71	0.03		<0.01	4.4	214	0.34	0.3	0.014	12.94
CGA-153 Manto Low	0.013	0.52	0.02	1.54	<0.01	4.3	82	0.98	0.95	0.01	4.39

Metallurgical testwork development followed a general plan of:

- comminution testing;
- reagent optimisation on the four Master composites;
- batch rougher/cleaner flotation on Master and Variability composites;
- locked cycle flotation on the four Master composites; and
- additional flotation tailings were generated for thickening tests and water chemistry.

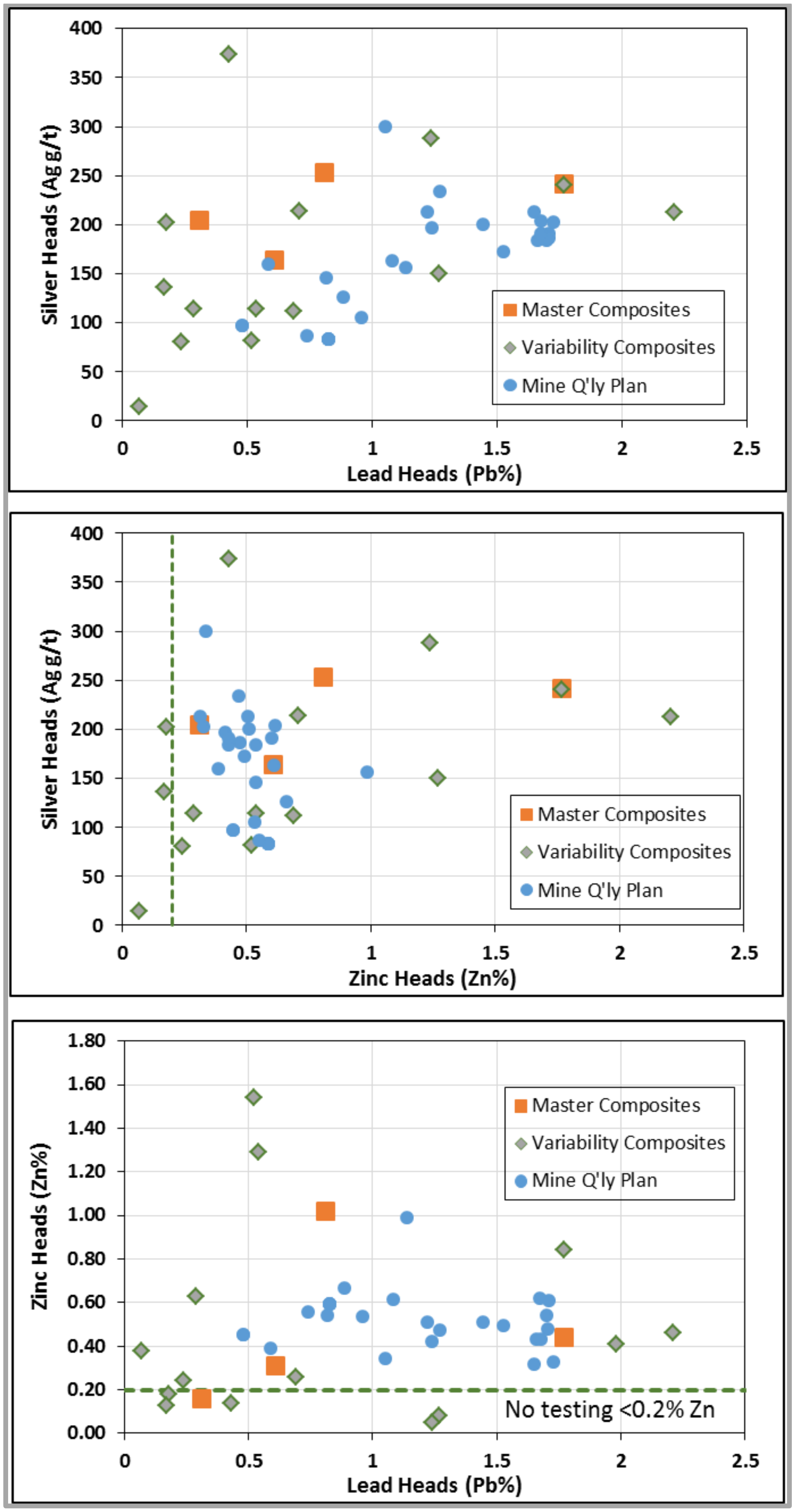


Figure 13-9: Comparison of Master and Variability Composites to Mine Plan

13.4.2 Comminution

Two of the Master composites, Basement Low and Manto Low, and individual composite CGA-89 Manto High, were tested for Bond Work Index values. For comparison, the Pirquitas' plant design was 15.2 kWh/tonne (Jacobs Engineering Group, "Feasibility Study Pirquitas Silver-Tin Project, Vol 1, April 1999).

Table 13-5: Bond Ball Mill Work Index Test Results

Composite Sample	BWi, kWh/t
Basement Low	11.5
Manto Low	15.5
Manto High (CGA-89)	16.2

No abrasion index testing was completed to estimate the media/liner wear rates for the Chinchillas material. In the operating cost estimates provided in Section 21, it was assumed that the Pirquitas metal wear rates would apply for Chinchillas.

The Bond Work Index test results for the BAS sample were considerably lower than the other two Master composites and the single Pirquitas result. Future testwork will focus on identifying softer zones within the deposit and whether they're located only within the BAS ore type.

The testwork results showed a considerable range in grind calibration times to achieve P80 size of 114µm to 140µm. In addition, some impact of grind size on lead recovery was observed in results. Future testwork will identify if this hardness variability will be an issue for lead recovery.

Also, the testwork results showed five minutes of regrind time produced a product P80 size ranging between 15µm and 82µm. The Pirquitas concentrator has two Vertimills for lead/silver and tin concentrate regrinding (to be used for Chinchillas as zinc regrinding). However, no specialised jar testing for Vertimill power requirements has been conducted to date. This will be included in the future testwork program.

13.4.3 Master Composite Rougher Flotation

The previous metallurgical program in 2013 utilised a flotation reagent scheme quite different from the standard Pirquitas flotation reagent scheme. The initial series of batch sequential rougher flotation tests were performed on the four Master composites testing these two alternate reagent schemes. Neither of these schemes utilised sodium cyanide for pyrite or sphalerite depression.

Primary grind was maintained in the target P80 size range of 120µm to 160µm, consistent with both previous testwork and Pirquitas operating experience on similar ore types.

Table 13-6: Rougher Flotation "Previous" Reagent Scheme

	Reagent g/t					Time min	
Process Stage	**SMBS**	**LIME**	**PEX**	**A241**	**MIBC**	**Condition**	**Float**
Grind							
Condition #1		800				3	
Condition #2	3700					3	
Condition #3			20	10		1	
Lead Rougher #1					17		5
Condition #4		400				3	
Condition #5	2000					3	
Condition #6			10	5		1	
Lead Rougher #2							4
Condition #7		25				3	
Condition #8				4		1	
Lead Rougher #3							2.5
Lead Roughers Total							**11.5**

Table 13-7: Rougher Flotation "Pirquitas" Reagent Scheme

	Reagent g/t				Time min	
Process Stage	**ZnSO4**	**LIME**	**AP3418A**	**MIBC**	**Condition**	**Float**
Grind	60	250				
Condition #1			10		1	
Lead Rougher #1				22		2
Condition #2			7		1	
Lead Rougher #2				11		2
Condition #3			7		1	
Lead Rougher #3				11		2
Lead Roughers Total						**6**

The results of rougher flotation comparing the two schemes are shown in Table 13-8.

The Pirquitas reagent scheme recovered more silver to the lead concentrate. For Basement Low and High samples, the increase in silver recovery to the lead/silver concentrates was 3.6% and 11.8%. For Manto Low and High, the increase in silver recovery to the lead/silver concentrates was 19.6% and 28.7%. Therefore, the Pirquitas reagent scheme was used for all subsequent flotation testing (both batch rougher/cleaner and locked cycle work).

13.4.4 Master Composite Rougher/Cleaner Flotation

For each of the four Master composites, a rougher/regrind/cleaner test was completed, yielding separate lead and zinc concentrates. The quality and recovery to both the initial rougher concentrate, and final cleaned concentrate is reported in Table 13-9 together with feed grades.

Table 13-8: Comparison of Rougher Flotation Results

		Lead Rougher Concentrate											
Composite	**Weight**	**Assay (% or g/t)**						**Distribution (%)**					
Reagent Scheme	**%**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**
Basement Low													
Previous	11.3	0.17	13.9	0.56	2.8	3.47	1461	64.4	**97.8**	13.7	8.6	46.3	**81.7**
Pirquitas	13.5	0.17	12.7	0.62	2.9	3.11	1382	72.7	**97.9**	17.6	9.9	50.8	**85.3**
Basement High													
Previous	9.3	0.14	5.51	0.36	3.4	1.55	1307	32.5	**94.5**	11.5	6.3	34.3	**85.1**
Pirquitas	9.6	0.14	5.72	0.37	3.3	1.36	1412	82.8	**92.9**	11.0	6.2	38.1	**96.9**
Manto Low													
Previous	9.8	0.27	7.98	1.52	3.1	2.92	1693	47.7	**97.2**	15.0	7.1	32.4	**73.3**
Pirquitas	12.7	0.21	6.24	1.33	2.8	2.06	1871	81.0	**96.5**	16.6	8.0	33.8	**92.9**
Manto High													
Previous	11.3	0.09	2.43	0.31	5.3	1.04	1021	27.2	**96.2**	20.8	8.5	38.1	**67.6**
Pirquitas	8.0	0.15	3.45	0.35	4.6	0.99	2326	82.5	**93.2**	16.8	5.3	35.3	**96.3**

		Zinc Rougher Concentrate											
Composite	**Weight**	**Assay (% or g/t)**						**Distribution (%)**					
Reagent Scheme	**%**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**
Basement Low													
Previous	8.2	0.17	0.21	7.37	3.8	4.51	666	30.0	0.7	**84.5**	5.4	28.2	**17.5**
Pirquitas	6.7	0.11	0.19	5.75	3.7	3.24	474	22.3	0.7	**81.5**	6.2	26.2	**14.5**
Basement High													
Previous	12.3	0.07	0.05	2.01	4.3	1.64	161	21.4	1.2	**85.8**	10.5	48.0	**13.8**
Pirquitas	9.2	0.01	0.11	2.71	4.5	1.60	29	7.3	1.6	**76.6**	8.0	43.0	**1.9**
Manto Low													
Previous	14.1	0.09	0.05	5.89	3.7	3.75	412	22.5	0.9	**83.5**	12.3	59.9	**25.7**
Pirquitas	20.9	0.02	0.04	3.05	3.6	1.64	81	15.0	1.0	**62.5**	16.9	44.4	**6.6**
Manto High													
Previous	13.6	0.08	0.02	0.91	5.5	0.90	394	26.6	1.2	**74.7**	10.7	39.8	**31.5**
Pirquitas	3.9	0.02	0.07	0.17	4.5	0.18	45	5.6	0.9	**4.1**	2.6	3.1	**0.9**

Table 13-9: Batch Cleaner Flotation Results

		Lead Rougher Concentrate											
Composite	**Weight**	**Assay (% or g/t)**						**Distribution (%)**					
Product	**%**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**
Basement Low													
Heads		0.03	1.76	0.46	3.9	0.87	208						
Rougher	10.5	0.18	16.2	0.61	3.1	3.69	1636	66.2	**97.0**	14.0	8.4	44.6	**83.0**
3rd Cleaner	2.2	0.79	75.6	1.10	1.6	14.6	7560	59.4	**94.4**	5.3	0.9	36.9	**80.2**
Basement High													
Heads		0.02	0.55	0.31	5.3	0.35	146						
Rougher	11.5	0.13	4.54	0.32	3.6	1.17	1221	78.6	**95.2**	12.0	7.9	38.0	**95.9**
3rd Cleaner	0.7	1.65	**72.6**	0.94	0.9	14.3	17600	61.1	**90.3**	2.1	0.1	27.5	**82.0**
Manto Low													
Heads		0.04	0.84	1.09	4.1	0.84	202						
Rougher	10.2	0.26	7.4	1.37	3.0	2.38	1847	69.2	**89.7**	12.8	7.6	29.1	**93.1**
2nd Cleaner	1.1	1.77	**65.1**	3.77	2.1	14.9	14800	53.0	**87.4**	3.9	0.6	20.2	**82.9**
Manto High													
Heads		0.01	0.28	0.16	7.0	0.23	185						
Rougher	6.8	0.16	3.80	0.33	5.1	1.11	2561	80.0	**93.3**	14.0	5.0	32.7	**94.5**
3rd Cleaner	0.4	2.26	67.0	1.77	1.6	15.0	40500	58.8	**87.8**	4.0	0.1	23.6	**79.8**
		Zinc Rougher Concentrate											
Composite	**Weight**	**Assay (% or g/t)**						**Distribution (%)**					
Product	**%**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**
Basement Low													
Rougher	6.3	0.14	0.32	6.1	4.1	3.76	545	31.0	1.1	**84.1**	6.5	27.2	**16.6**
2nd Cleaner	0.7	1.16	1.68	53.1	5.1	30.9	4700	28.1	0.7	**82.2**	0.9	25.1	**16.1**
Basement High													
Rougher	9.5	0.02	0.11	2.75	4.7	1.60	46	12.8	1.9	**85.4**	8.4	43.2	**3.0**
2nd Cleaner	0.4	0.27	1.14	56.8	5.2	31.4	818	6.6	0.9	**83.2**	0.4	40.0	**2.5**
Manto Low													
Rougher	13.8	0.06	0.13	6.82	4.0	4.09	90	20.8	2.1	**85.9**	13.4	67.5	**6.2**
3rd Cleaner	1.8	0.31	0.49	50.4	5.6	29.6	637	15.2	1.1	**85.0**	2.5	65.5	**5.8**
Manto High													
Rougher	No testing due to Zn Heads < 0.2%												
3rd Cleaner													

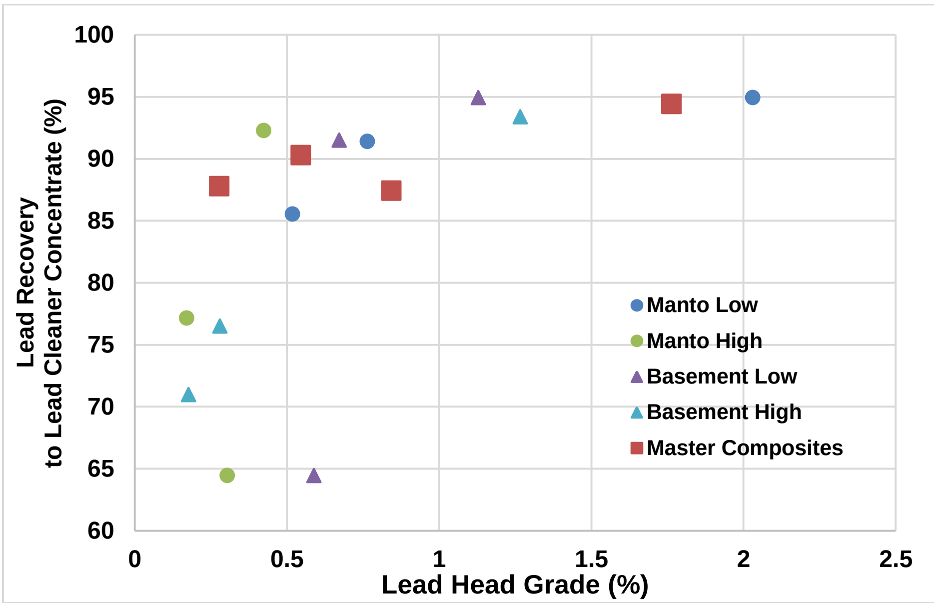
For all Master composites, a high lead grade lead concentrate was produced, with the contained silver grade varying directly with the lead to silver proportion in the heads. Open circuit cleaning recovery was good. For the very low zinc grade Manto High composite, no zinc flotation was attempted. The remaining three Master composites produced marketable zinc concentrates.

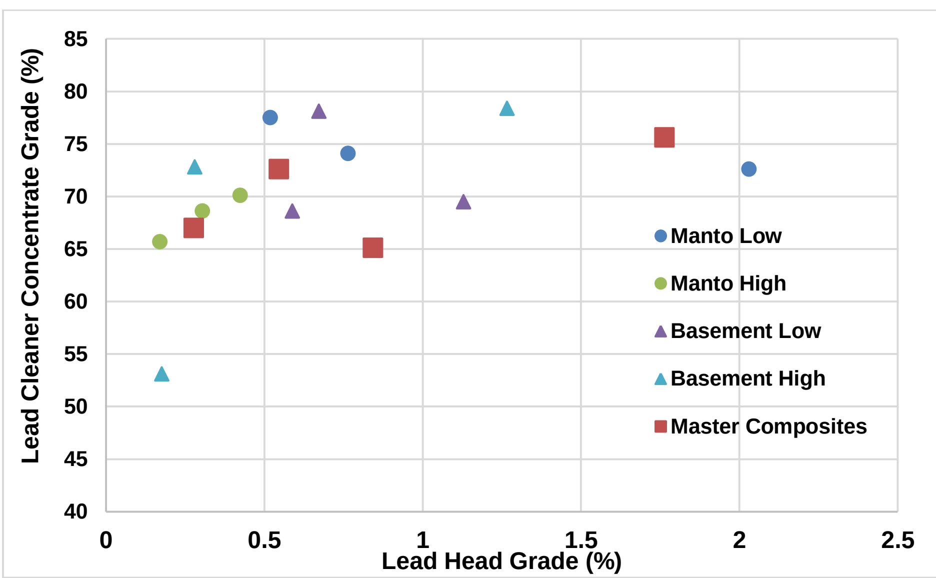
13.4.5 Variability Composite Rougher/Cleaner Flotation

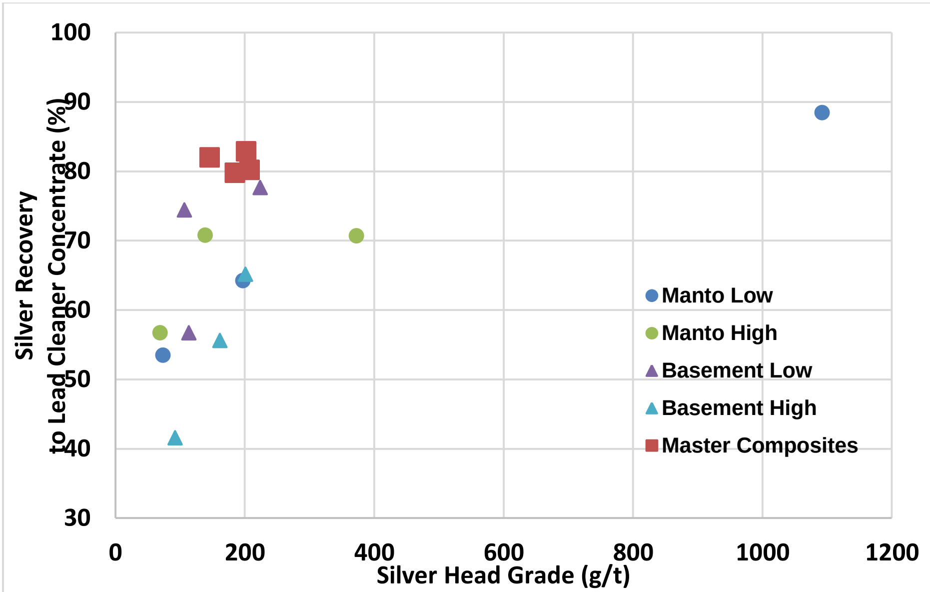
For each of the Variability composites, a rougher/cleaner flotation test was completed to assess the effect of head grade variation on metal recoveries and cleaner concentrate grades.

The Variability test results are shown in the following series of graphs by composite type, with the four Master composite results included for comparison. These results were later used to develop relationships to predict Chinchillas metallurgical performance, summarised in Section 13.5.

As seen in Figure 13-10, there is a consistent flotation performance between all the Master and the various Variability composites.







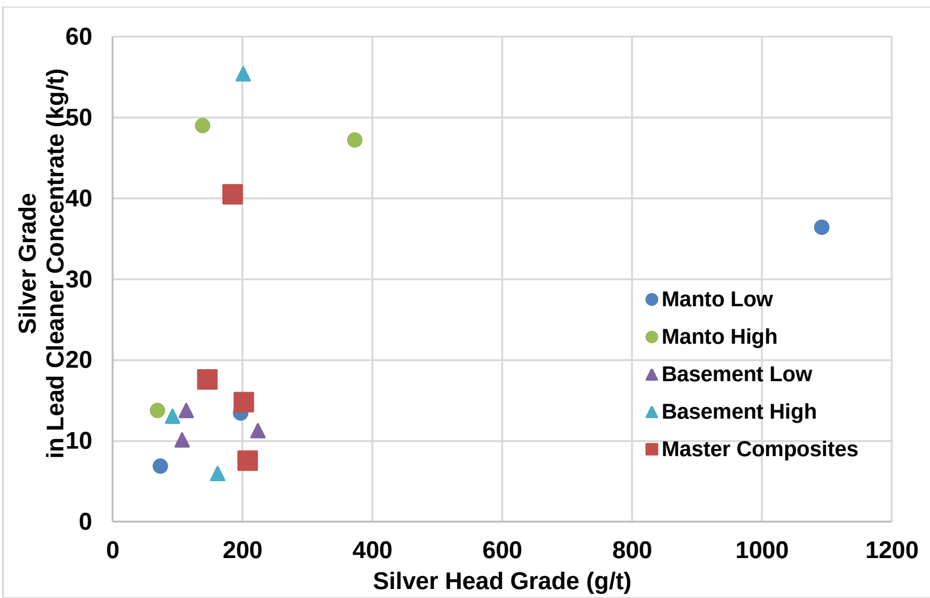
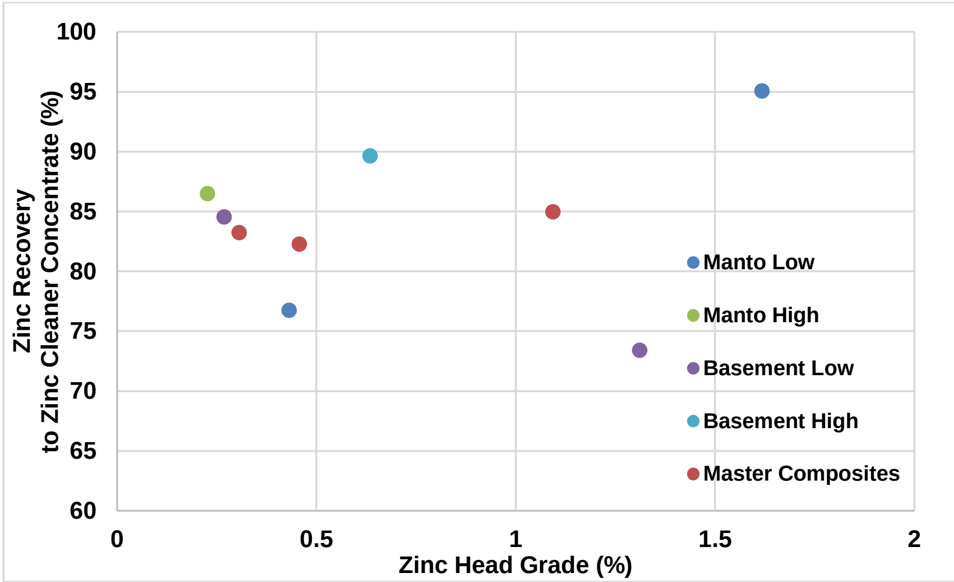


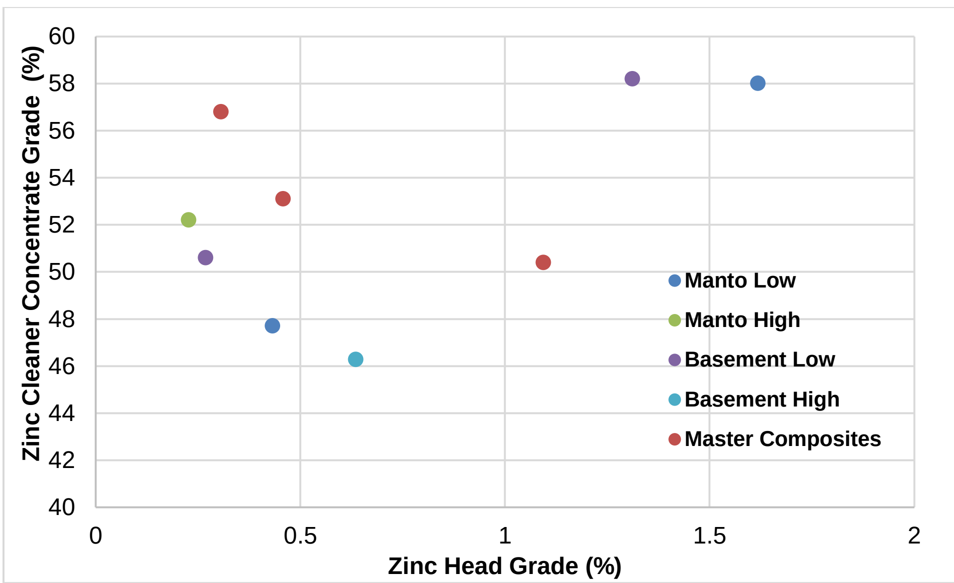
Figure 13-10: Variability Rougher/Cleaner Tests - Lead Concentrate

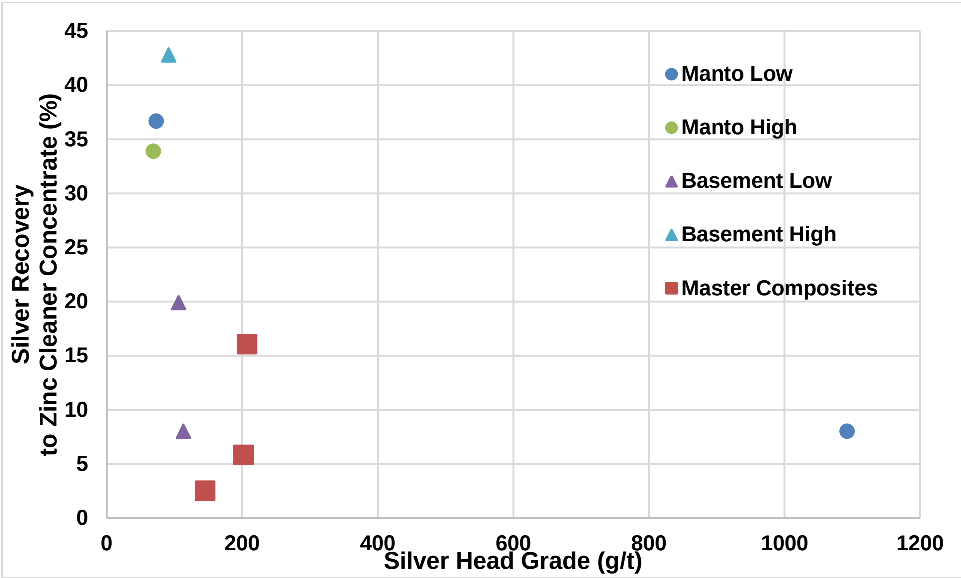
When the Fe/S ratio was used to select drill interval material for composites, the assumption was that the low Fe/S ratio implied a higher pyrite content and a greater likelihood of silver minerals being associated with pyrite. If this assumption was correct, the selective flotation of galena/silver minerals from pyrite (low Fe/S ratio) would have resulted in lower silver recovery. The results show no obvious effect of the iron to sulphur ratio on flotation response. In addition, the silver grade of the lead concentrate varies with the amount of dilution from the recovered galena mass.

Pirquitas' operating experience has demonstrated difficulty in achieving a marketable grade zinc concentrate when zinc feed grades are below 0.4% zinc. For the Chinchillas variability testwork, no zinc flotation was completed for any composite with a head grade below 0.2% zinc.

Figure 13-11 shows similar results from the rougher/cleaner testwork for zinc concentrate production. As with lead/silver flotation, there is generally consistent flotation performance between the Master and the Variability composites.







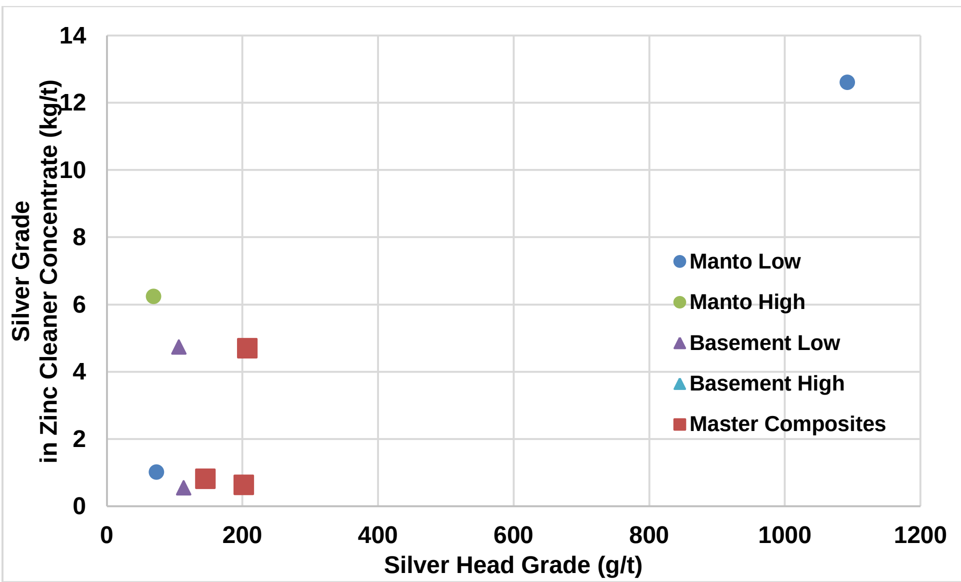


Figure 13-11: Variability Rougher/Cleaner Tests - Zinc Concentrate

13.4.6 Master Composite Locked Cycle Flotation

Locked cycle flotation testing is a laboratory procedure whereby cleaner tailings are recycled to the previous flotation step, thus simulating a continuous plant operation. Five iterations of cleaner tailings recycling were completed to achieve a stable simulated circuit (see Table 13-10).

Each of the four Master composites was tested by this method. The generation of locked cycle lead and zinc concentrates allowed for analysis for minor elements. These are reported in Table 13-11 for lead concentrates and Table 13-12 for zinc concentrates. In both tables, a comparison with typical Pirquitas concentrates is also shown.

Table 13-10: Master Composite Locked Cycle Flotation Results

Composite		Assay (% or g/t)					Distribution (%)						
Product	**Wt %**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**	**Cu**	**Pb**	**Zn**	**Fe**	**S**	**Ag**
Basement Low													
CYCLES IV and V													
Flotation Feed	100.0	0.03	1.70	0.46	3.7	0.82	217	100	**100**	100	100	100	**100**
Lead Con	2.4	0.71	**67.9**	1.22	1.8	13.1	**7298**	58.4	**95.8**	6.4	1.2	38.2	**80.6**
Zinc Con	1.1	0.85	2.13	**38.8**	7.9	27.6	3758	30.6	1.3	**88.9**	2.2	35.4	**18.2**
Zinc 1st Clnr Tail	11.4	0.01	0.09	0.04	3.7	0.63	7	3.7	0.6	1.0	11.3	8.8	0.4
Zinc Ro Tail	85.1	0.00	0.05	0.02	3.7	0.17	2	7.3	2.3	3.7	85.3	17.5	0.8
Basement High													
CYCLES IV and V													
Flotation Feed	100.0	0.02	0.56	0.32	5.3	0.34	147	100	**100**	100	100	100	**100**
Lead Con	0.8	0.90	**67.3**	0.79	1.0	12.0	**12358**	43.4	**91.3**	1.9	0.1	27.0	**63.6**
Zinc Con	0.6	1.05	1.60	**46.5**	6.0	29.3	8094	41.2	1.8	**91.0**	0.7	54.3	**34.2**
Zinc 1st Clnr Tail	14.5	0.01	0.07	0.04	4.6	0.14	8	7.3	1.7	1.8	12.6	6.2	0.8
Zinc Ro Tail	84.1	0.00	0.03	0.02	5.4	0.05	3	8.0	5.3	5.3	86.5	12.5	1.4
Manto Low													
CYCLES IV and V													
Flotation Feed	100.0	0.04	0.79	1.11	4.2	0.9	202	100	**100**	100	100	100	**100**
Lead Con	1.1	1.31	**67.1**	2.93	1.8	14.8	**13064**	41.2	**94.0**	2.9	0.5	19.0	**71.6**
Zinc Con	1.9	0.86	0.69	**54.7**	4.9	32.1	2751	45.2	1.6	**92.3**	2.2	69.3	**25.4**
Zinc 1st Clnr Tail	16.7	0.01	0.04	0.07	3.8	0.1	8	4.5	0.8	1.1	15.2	2.9	0.7
Zinc Ro Tail	80.3	0.00	0.04	0.05	4.3	0.1	6	9.1	3.6	3.6	82.2	8.8	2.4
Manto High													
CYCLES IV and V													
Flotation Feed	100.0	0.01	0.3	0.17	7.0	0.23	201	100	**100**	100	100	100	**100**
Lead Con	0.4	1.48	**64.8**	1.63	1.7	13.4	**33908**	40.5	**86.7**	3.9	0.1	23.3	**67.9**
Lead 1st Clnr Tail	8.1	0.03	0.1	0.21	5.0	0.22	381	18.9	2.7	10.2	5.8	7.7	15.4
Lead Ro Tail	91.5	0.01	0.0	0.16	7.3	0.17	36	40.5	10.7	85.9	94.1	69.0	16.6

Comparing Chinchillas lead/silver concentrate with 2015-2016 Pirquitas silver concentrate shows very similar penalty element levels (As, Sb and Bi). The elements not reported for the 2015-2106 Pirquitas silver concentrate are not routinely assayed and are not considered in the smelter contract terms.

Table 13-11: Locked Cycle Flotation Lead Concentrate Minor Elements

Element	Units	Basement Low	Basement High	Manto Low	Manto High	2015-2016 Pirquitas Silver Concentrate
Antimony	%	0.57	0.75	0.86	2.13	0.42
Arsenic	ppm	457	313	583	182	4400
Bismuth	ppm	2370	1190	5150	4810	3800
Cadmium	ppm	106	98	190	138	
Cobalt	ppm	43	30	18	21	
Copper	%	0.71	0.9	1.31	1.48	
Indium	ppm	23	19	67	187	
Iron	%	1.8	1.0	1.8	1.7	9
Lead	%	67.9	67.3	67.1	64.8	0.5
Mercury	ppm	2	4	2	6	0.86
Molybdenum	ppm	11	7	6	9	
Nickel	ppm	114	73	45	42	
Selenium	ppm	10	10	10	20	
Sulphur	%	13.1	12	14.8	13.4	17
Silver	ppm	7298	12358	13064	33908	16900
Zinc	%	1.22	0.79	2.93	1.63	7.26

Comparing Chinchillas zinc concentrate to 2015-2016 Pirquitas zinc concentrate shows very similar penalty element levels for arsenic and iron.

Table 13-12: Locked Cycle Flotation Zinc Concentrate Minor Elements

Element	Units	Basement Low	Basement High	Manto Low	Manto High	2015-2016 Pirquitas Zinc Concentrate
Antimony	%	0.64	1.1	0.43	No concentrate produced during testwork	0.35
Arsenic	ppm	673	694	906		400
Bismuth	ppm	1820	189	98		
Cadmium	ppm	1820	2560	2640		
Cobalt	ppm	66	73	24		
Copper	%	0.85	1.05	0.86		
Indium	ppm	329	677	467		
Iron	%	7.9	6.0	4.9		8.25
Lead	%	2.13	1.6	0.69		0.1
Mercury	ppm	8	7	13		
Molybdenum	ppm	13	8	2		
Nickel	ppm	220	133	23		
Selenium	ppm	50	60	60		
Sulphur	%	27.6	29.3	32.1		35
Silver	ppm	3758	8094	2751		~3000
Zinc	%	38.8	46.5	54.7		45

Marketing Considerations are summarised in Section 19 and contain details of the possible consequences of these impurity levels on concentrate sales smelter payment and penalty terms.

POI has received indicative terms of the purchase of both lead and zinc concentrates and they do not include any penalties.

A review of the market conditions for both lead and zinc concentrates (Kingston Process Metallurgy," Guidance on Treatment terms for Chinchillas Pb-Ag and Zn concentrates" J. Peacey, September 28th, 2016) suggests no issues with the sale of either concentrate provided Chinese import specifications on As, Cd and Hg are met. None of these elements occur at penalty levels in Chinchillas concentrates.

Future testwork should include mapping of antimony (and possibly silica for zinc concentrate) throughout the deposit to ensure the composite samples are representative of the Chinchillas orebody.

13.5 Tailings and Effluent Testing

The Pirquitas plant uses a tailings thickener to improve water recovery. Post thickened tailings are deposited in the tailings storage facility and secondary water recovery is achieved using barge mounted reclaim pumps.

To generate a composite tailings slurry for settling/thickening testing, batch sequential flotation rougher/first cleaner tests were completed in 2016 on four bulk composite sample. The resulting effluent was analysed for components of possible environmental concern. Table 13-13 shows test worksheet for the BAS Low sample including the reagent types and addition rates.

Table 13-13: Tailings Generation Flotation Testwork Laboratory Worksheet

Process Stage	Reagents (g/t)				Time (min)
	ZnSO4	LIME	AP3418A	MIBC	
Grind	60	250			
Condition #1			10		1
Lead Rougher #1				22	2
Condition #2			7		1
Lead Rougher #2				11	2
Condition #3			7		1
Lead Rougher #3				11	2
Lead Regrinding	15				
Condition Cleaner			10		1
Lead Cleaner				6	4
Condition #1	100	338			5
Condition #2			2		1
Zinc Rougher #1				11	2
Condition #3			2		1
Zinc Rougher #2				5	2
Zinc Regrinding	25	200			
Condition Cleaner		25	5		1
Zinc Cleaning				3	4

This reagent scheme avoids the use of cyanide in the lead flotation stage, thus eliminating any cyanide concerns with tailings effluent and the possible need for cyanide destruction.

13.5.1 Flotation Tailings Thickening

The Pirquitas plant operates a tailings thickener with the underflow pumped at ~58% solids to a lined tailings storage facility. Thickener overflow effluent is recovered to the plant process water system. For Chinchillas tailings, testing was to examine a number of tailings storage options, where thickener underflow is:

- pumped directly to the existing Pirquitas Pit;
- pumped to a new paste thickener at the rim of the Pirquitas Pit;
- pressure filtered for trucking to a dry stack storage area.

The thickening testwork was completed by Takraf Canada at their Burnaby, British Columbia, Canada laboratory. Their report "D1645-Chinchillas TW_TCAN.TH.FP" was issued in October 2016 to Silver Standard.

The objective was to determine thickener design and operating parameters for the different tailings storage options. The scope of the test program included flocculant selection, settling tests, optimum dilution tests, flocculant dosage tests, compaction tests and rise rate tests for thickener selection. Additionally, pressure filtration testing was completed on the thickener underflow to test the option of dry stack tailings disposal.

The testwork objectives were successfully completed and the report conclusions state:

> *"**Paste Thickening***
>
> *We selected a 22m Paste Thickener with 5m tank wall and a floor slope of 30 degrees. The drive model SR160K-4 is designed to operate a yield stress of 150 Pa. The final underflow density of 67% solids is achievable and can possibly go up to 69.8% solids. To maintain a stable thickener operation, we recommend a feed dilution of <12% solids, a flocculant dose of 25 g/t Kemira A100HMW or its equivalent, a rise rate less than 4.9 m3/m2/h and six hours' retention time.*
>
> ***Pressure Filtration***
>
> *Dry stackable tailings are possible using two units of Fluid Actuated Screw Technology (F.A.S.T.)*
>
> *Filter presses model F.A.S.T. FP 2000/96/60/12/M15/A (2000mm plate, 96 chambers, 60mm chamber depth, 12 bar feeding pressure, mixed membrane, 15 bars squeezing pressure, opening all at once). The achievable cake moisture is 16% if membrane squeeze is applied and 18% moisture if membrane squeeze is not applied. The estimated total cycle time is 18.4 minutes."*

These testing results indicate no changes are needed to the existing Pirquitas plant tailings thickening equipment to process Chinchillas material.

13.5.2 Tailings Solids and Effluent Quality

The tailings solids generated from the four Master Composite locked cycle flotation tests were subjected to acid-base accounting ("ABA") tests to assess their acid generating potential. No acid generating potential was observed in the results for all samples (see Table 13-14 for ABA results).

Table 13-14: Flotation Tailings Samples ABA Results

Master	S-Total	S-Sulphate	S-HCl soluble	S-Sulphide	AP	NP	NP/AP
Composite	%	%	%	%	tCaCO3/1Kt	tCaCO3/1Kt	Ratio
Manto Low	0.09	<0.01	0.03	0.09	2.8	7	2.50
Manto High	0.14	<0.01	0.02	0.14	4.4	8	1.82
Basement Low	0.18	<0.01	0.03	0.18	5.6	5	0.89
Basement High	0.05	0.01	0.04	0.04	1.6	8	5.00

The flotation tailings effluent was analysed for typical mining industry components and as shown in Table 13-15, no components of concern were identified.

Table 13-15: Tailings Effluent Quality

	KN5157-01-04 FINAL TAILINGS WATER		
Parameter	**Lowest Detection Limit**	**Units**	**Result**
Physical Tests (Water)			
Conductivity	2.0	uS/cm	300
pH	0.10	pH	8.08
Anions and Nutrients (Water)			
Sulfate (SO4)	0.30	mg/L	47.8
Dissolved Metals (Water)			
Antimony (Sb)-Dissolved	0.20	mg/L	<0.20
Arsenic (As)-Dissolved	0.20	mg/L	<0.20
Bismuth (Bi)-Dissolved	0.20	mg/L	<0.20
Cadmium (Cd)-Dissolved	0.010	mg/L	<0.010
Chromium (Cr)-Dissolved	0.010	mg/L	<0.010
Cobalt (Co)-Dissolved	0.010	mg/L	<0.010
Copper (Cu)-Dissolved	0.010	mg/L	<0.010
Iron (Fe)-Dissolved	0.030	mg/L	<0.030
Lead (Pb)-Dissolved	0.050	mg/L	<0.050
Magnesium (Mg)-Dissolved	0.10	mg/L	2.63
Manganese (Mn)-Dissolved	0.0050	mg/L	0.0086
Molybdenum (Mo)-Dissolved	0.030	mg/L	<0.030
Nickel (Ni)-Dissolved	0.050	mg/L	<0.050
Selenium (Se)-Dissolved	0.20	mg/L	<0.20
Thallium (Tl)-Dissolved	0.20	mg/L	<0.20
Zinc (Zn)-Dissolved	0.0050	mg/L	<0.0050

13.6 Metallurgical Performance Estimates

The 2015 testwork program was designed around investigating the performance of Chinchillas samples being processed through the Pirquitas plant. Instead of the current production of silver and tin concentrates, the Chinchillas material would generate separate lead/silver and zinc concentrates.

The Variability composites were selected to cover a range of ore grades such that testwork flotation performance could be related to feed grades. From these results, a series of mathematical equations were developed for metal recovery to each concentrate. Separate equations were developed to predict cleaner concentrate masses. The resulting concentrate grades are then calculated from the quantity of recovered metal and concentrate mass. The relationships are shown as black lines with associated equation in Figure 13-12 for lead concentrate and Figure 13-13 for zinc concentrate.

As no zinc flotation testing was done on samples with 0.2% Zn or lower, zinc recovery is assigned as zero for such conditions. In the Pirquitas plant, low zinc head grade feed will result in the zinc flotation circuit being converted into an extended lead/silver circuit for higher recovery.

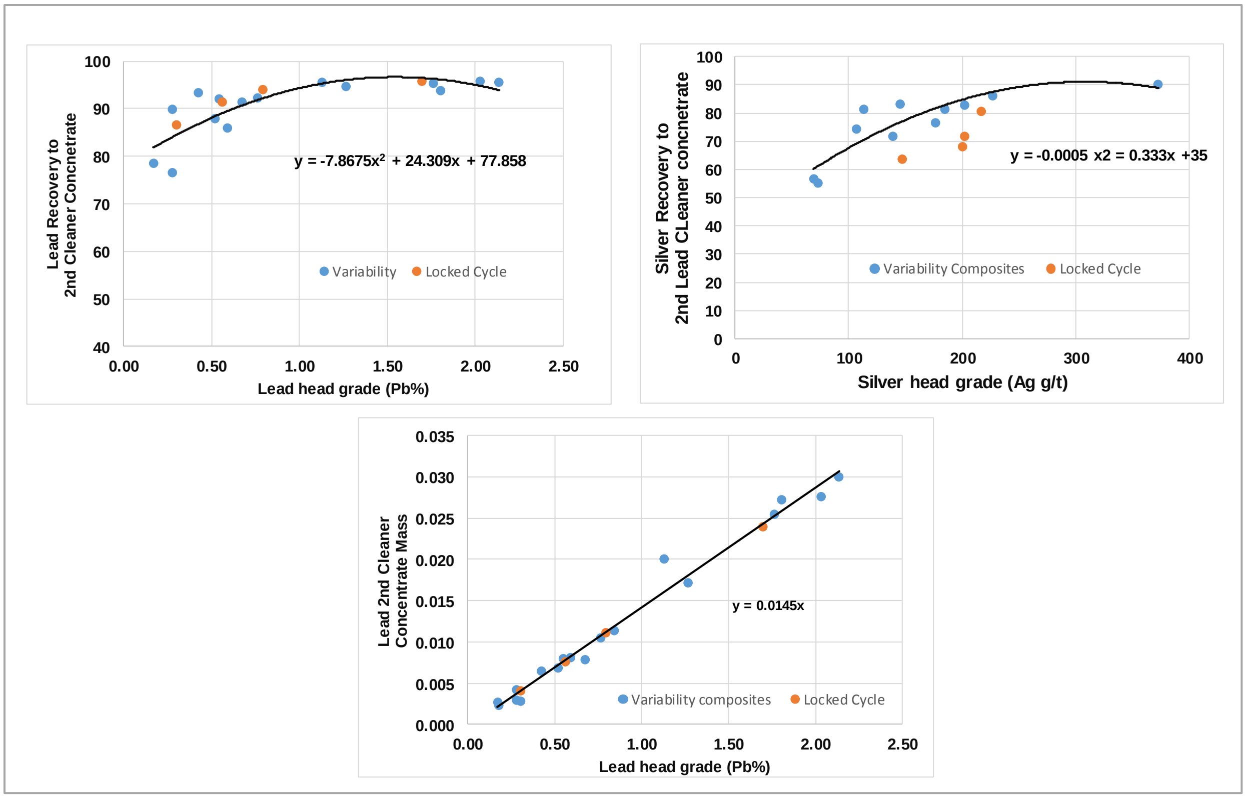


Figure 13-12: Lead/Silver Concentrate Relationships

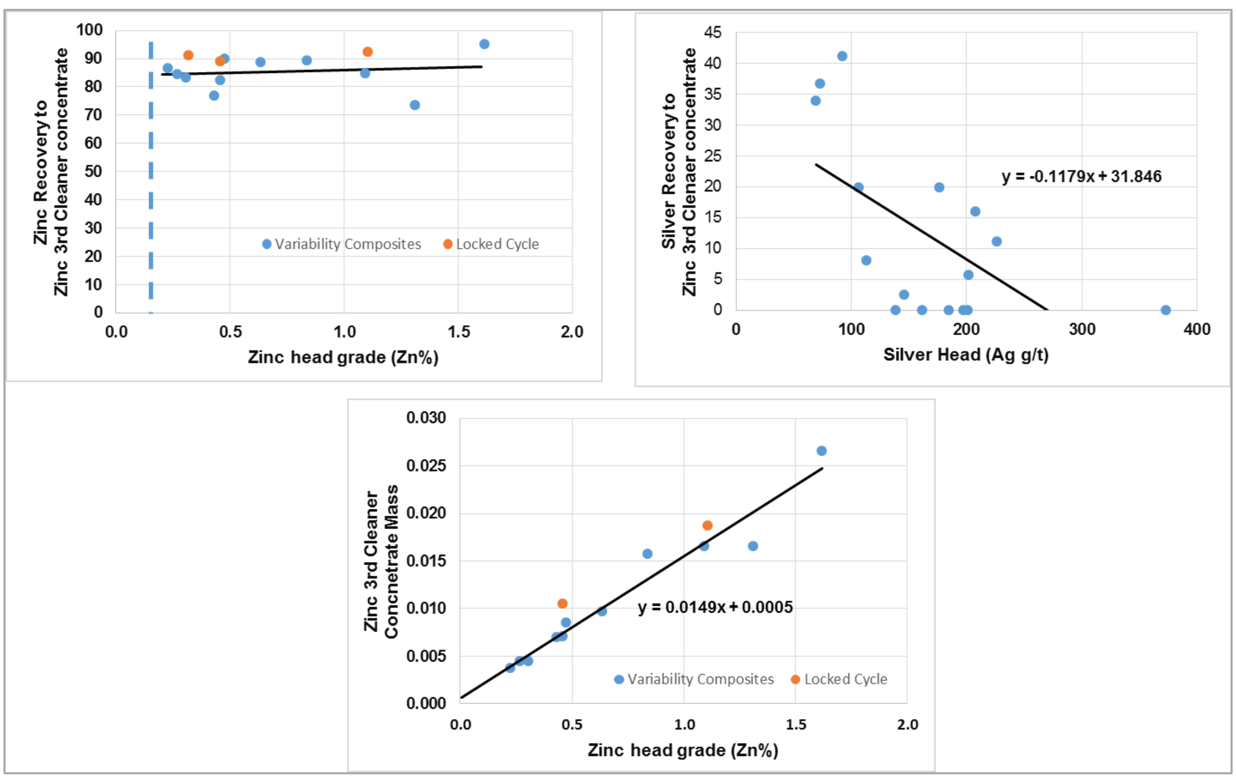


Figure 13-13: Zinc Concentrate Relationships

13.6.1 Comments on Performance Equations

Mass to concentrate is directly influenced by the major recovered mineral; i.e. galena to lead/silver concentrate and sphalerite to zinc concentrate;

Individual metal recoveries are estimated by fitted polynomial equations that reach a maximum recovery value at a specific metal head grade. For head grades over this value, recovery is kept at this maximum value.

The metallurgical performance equations were used to create a NSR model. These equations were used for pit optimisation by assigning an NSR value to each block in the resource model.

Section 17 includes production plan details including expected head grades and estimated concentrate grades/recoveries used by applying these equations. The range of Variability composite head grades exceeded the conditions that these equations were applied.

13.7 Recommendations for Additional Testwork

The completed testwork programs have proven that sequential flotation to produce lead/silver and zinc concentrates is very achievable. The focus of the development program was on treating these ore types through the existing Pirquitas plant. The Pirquitas plant has been successfully processing a similar silver and zinc ore since 2011.

It was identified that low zinc grade material would likely not generate a saleable zinc concentrate and the zinc circuit could be converted to an extended lead/silver recovery circuit.

The Chinchillas mineralogy showed lead occurred predominantly as galena, silver as a series of sulphosalts and zinc as sphalerite. This confirmed that the current Pirquitas silver and zinc reagent schemes were appropriate for processing the Chinchillas ore types.

Additional metallurgical laboratory testwork should include the following:

- Testing of a two-collector scheme, one for galena and one for silver minerals. The objective is to maximise recovery of each mineral to the combined lead/silver concentrate.
- Testwork to identify the optimum rougher concentrate regrind size ahead of cleaning, for both flotation circuits.
- Specialised stirred mill testing to estimate regrind power requirements to the target rougher concentrate regrind size, for both flotation circuits.
- Testing to identify optimum flocculants for both concentrates.
- Testing of the filtering properties for both concentrates.
- Jig testwork to demonstrate possible benefits of pre-concentration ahead of grinding.
- Detailed geometallurgical study to understand the distribution of possible future smelter penalty elements (e.g. antimony for lead concentrate and silica for zinc concentrate).
- Testing of representative samples from the Socavon del Diablo zone.
- Additional Bond Work and Abrasion Index testing on samples throughout the deposit.

14 Mineral Resource Estimates

14.1 Introduction

This section describes the approach used to generate an estimate of Mineral Resources for the Chinchillas deposit. The Mineral Resource estimate is based on a database provided by Golden Arrow on March 23, 2016 which includes drill hole sample data and a series of 3D (wireframe) surfaces and domains representing the distribution of various lithologic units and the surface topography. The previous Mineral Resource estimate for the Chinchillas Property had an effective date of April 12, 2016 and is described in the Technical Report dated May 27, 2016 (Davis, et al., 2016). The current Mineral Resource estimate used the same drill hole database, geologic model and silver equivalent grade probability shell properties as this previous Mineral Resource estimate. Changes have been made to the block size, from 8 x 8 x 4 metres to 8 x 8 x 5 metres in size (LxWxH), and to the technical and economic parameters used to determine the cut-off grade and to ensure that the Mineral Resource exhibits reasonable prospects for eventual economic extraction. These factors are derived from previous work conducted by Golden Arrow for a preliminary economic assessment in 2014, as well as from the nearby Pirquitas mine, taking into account an open pit extraction scenario with road transport and processing at the Pirquitas plant.

The effective date of the resource block model and the Mineral Resource estimate is October 2, 2016. On October 3, 2016, Golden Arrow issued a press release describing the results of a drilling program completed at Chinchillas, including several holes completed in the Socavon area. The results from this drilling has been reviewed and, in the opinion of the QP, this new information would not result in a material change to the Mineral Resource estimate presented in this Technical Report.

This Mineral Resource estimate was prepared under the direction of Robert Sim, P.Geo., SIM Geological Inc., with the assistance of Bruce Davis, Ph.D., F.AusIMM, BD Resource Consulting Inc. Based on education, work experience relevant to this style of mineralization and deposit type, and membership in a recognized professional organization, both Messrs. Sim and Davis are independent QPs within the requirements of NI 43-101 for the purpose of the Mineral Resource estimate contained in this Technical Report.

The Mineral Resource has been estimated in conformity with generally accepted CIM Guidelines and is reported in accordance with NI 43-101. Mineral Resources are not Mineral Reserves and they do not have demonstrated economic viability.

Estimations are made from 3D block models based on geostatistical applications using commercial mine planning software (MineSight® v10.60). The Project limits are based on metric UTM coordinates. The nominal block size in the model is 8 x 8 x 5 metres. Sample data is derived from diamond drill core holes dating back to 2007. The majority of drilling on the property has been conducted by Golden Arrow since 2012.

The Mineral Resource estimate has been generated from drill hole sample assay results and the interpretation of a geologic model which relates to the spatial distribution of silver, lead and zinc. This new block model also includes estimates of (total) sulphur content, intended to provide additional information regarding the acid generation potential of the rocks. Interpolation characteristics were defined based on the geology, drill hole spacing, and geostatistical analysis of the data. The Mineral Resources were classified according to their proximity to sample data locations and were reported, as required by NI 43-101, according to the CIM Standards. All metal prices are listed in U.S. dollars.

14.2 Available Data

On March 23, 2016, Golden Arrow provided the drill hole database in a series of spreadsheet (Excel™) files containing collar and survey data as well as assay results and geologic information for the Chinchillas Property. Also provided were 3D interpretations, in DXF format, representing the various lithologic units in the deposit area. These data were formatted and imported into MineSight®. Silver, lead and zinc mineralization occurs primarily in two areas on the Project which, for the purposes of grade estimation, are separated into a western area termed “Silver Mantos” or simply “Mantos” and eastern termed “Socavon del Diablo” or “Socavon”. The Mantos mineralized area includes the Silver Mantos zone and Mantos Basement zones, while the Socavon area includes the Socavon del Diablo and the Socavon Basement zones. The Silver Mantos and Socavon are hosted mainly in tuffs, with some dacites, and the Mantos Basement and Socavon Basement mineralized zones are hosted in basement pelites and brecciated basement rocks. The zones are described in detail in Section 7.5.1.

Elevated silver, lead and zinc grades tend to occur together throughout the deposit area and, as a result, silver equivalent grades are utilized in the generation and reporting of Mineral Resources at Chinchillas. Sulphur content is relatively low in the Mantos area of the deposit. Visible pyrite is more common in the Socavon area and, as a result, sulphur grades tend to be higher in the eastern part of the deposit.

The database contains information from a total of 291 diamond drill (core) holes with a cumulative length of 48,023 metres. Of these, 276 holes have targeted the mineralization at Chinchillas and contribute to the development of the resource model. The remaining 15 holes are exploratory in nature, testing the surrounding area for satellite deposits. The distribution of drilling relative to the surface topography is shown in Figure 14-1.

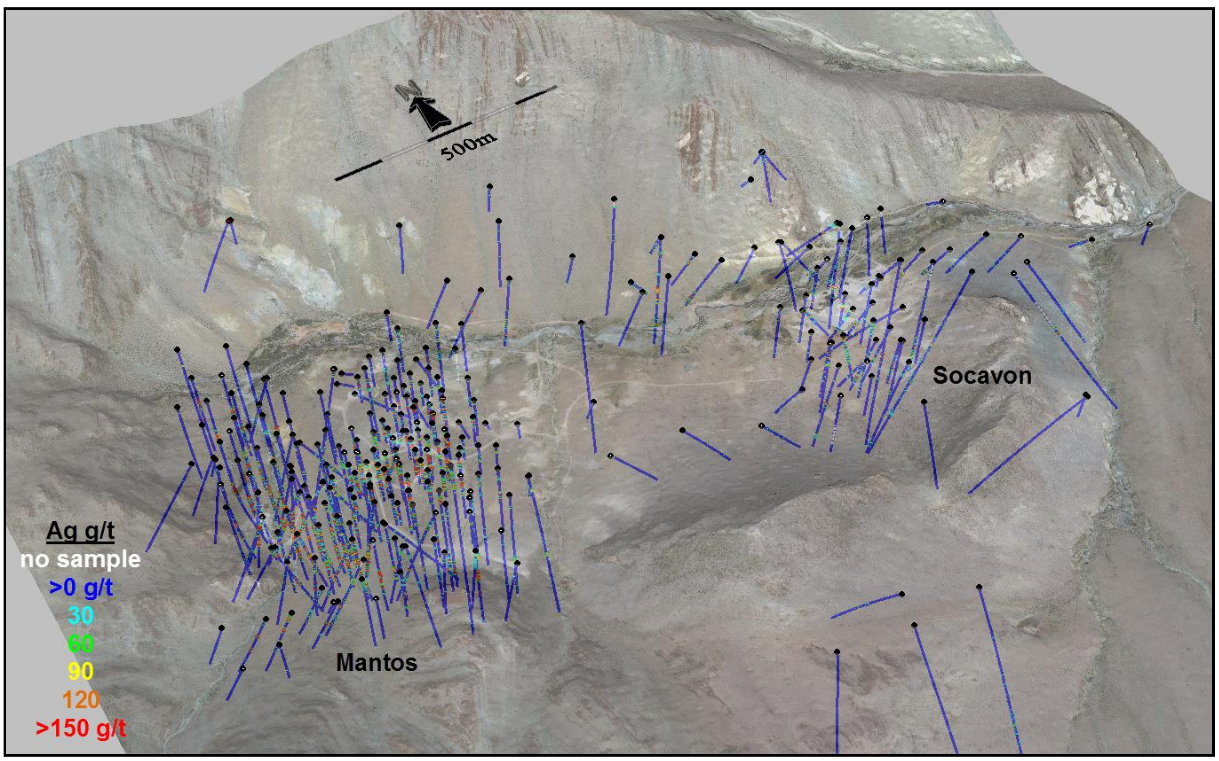


Figure 14-1: Isometric View Showing the Distribution of Silver Grades in Drilling

There are a total of 34,510 individual samples in the assay database. The majority of these samples have been analyzed by ICP for a suite of 39 elements. The silver, lead, zinc and sulphur data has been extracted from the main database and imported into MineSight in the development of the resource model. Prior to importing the data, the original data for lead, zinc and sulphur was converted from ppm to percentage values (ppm/10000=%). A total of 1,736 metres of drilling (3.6%) has not been sampled and analyzed. The majority of these unsampled intervals occur in overburden and the others represent intervals with no core recovery. There have been no adjustments to the database to account for these missing samples, as they were ignored during the development of the resource model.

The database also contains a total of 2,586 samples that have been tested for specific gravity. These samples were obtained from core selected at approximately 15 metre intervals down most drill holes giving a relatively consistent distribution of density data throughout the deposit areas (refer to Section 11.5 for additional details).

Individual assay sample intervals range from 0.1 metres to 10 metres, and average 1.34 metres in length. 72% of the samples are exactly one metre in length and 25% of the samples are two metres long. Values analyzed below the detection limit (<DL) were assigned values equal to one half of the detection limit (½DL). The basic statistical summary of the assay sample data proximal to the Mineral Resource at Chinchillas is shown in Table 14-1 (includes drilling that contributes to the Mineral Resource estimate and excludes exploration drill holes outside of the mineralized areas).

Table 14-1: Statistical Summary of Sample Assay Data Proximal to the Chinchillas Deposit

Element	Number of Samples1	Total Length (m)	Min	Max	Mean2	Standard Deviation	Coefficient of Variation
Silver (g/t)	31,753	43,381	0.25	8,970.34	30.60	129.18	4.222
Lead (%)	31,753	43,381	0	29.64	0.27	0.795	2.962
Zinc (%)	31,753	43,381	0	15.31	0.25	0.630	2.498
Sulphur (%)	31,753	43,381	0.01	23.58	0.63	1.233	1.944
Specific Gravity (t/m3)	2,223	n/a	1.50	3.01	2.29	0.284	0.124

Notes:

1. A few sample intervals were split at geology contacts when the data was loaded into MineSight®. Therefore, the total number of samples listed may be higher than the original data provided by Golden Arrow.
2. Statistics for silver, lead, zinc and sulphur are weighted by sample length.

Diamond drill core recovery averages 96%. Recoveries do not vary significantly between rock types (average recoveries: Tuff 95%, Dacite 98%, Basement Breccia 97% and Basement 97%). There was no indication of a relationship between core recovery and grade.

14.3 Geologic Model, Interpolation Domains and Coding

As described in Section 8, the Chinchillas deposit is interpreted to be formed as a result of a Tertiary aged diatreme intrusion into a host of Paleozoic basement schists. Heat from the intrusion resulted in mineralization in the form of disseminations, veinlets and matrix filling within the volcanic breccias and tuffs as well as within the original schists.

Geologists from Golden Arrow provided a series of three-dimensional wireframe domains representing the various lithologic units present on the property. The general distribution of these units is shown in cross section in Figure 14-2. Note that higher-grade silver (and lead and zinc) mineralization occurs predominantly in the tuffaceous phase of the intrusive rocks and also within the brecciated zone in the underlying basement schists. However, relatively high grade mineralization can be found in all rock types.

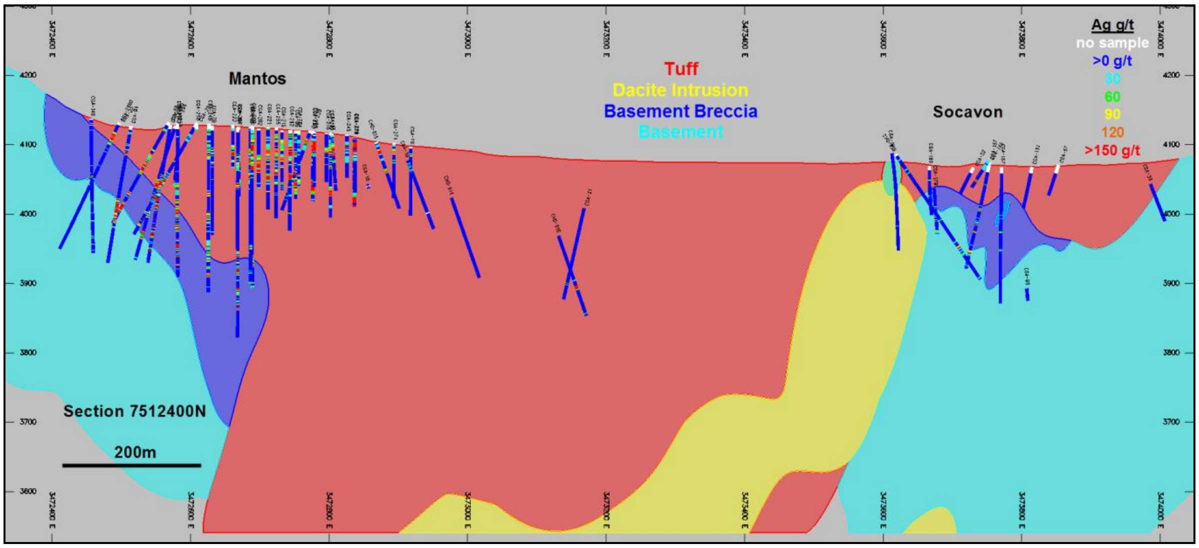


Figure 14-2: Vertical Cross Section Showing Rock Types and Silver Grades in Drilling

The mineralization in the Mantos area of the deposit exhibits two general styles or trends; a more flat-lying mantos-style distribution which is more common in the tuffs and a second basement trend of mineralization which tends to be sub-parallel to the basement / tuff contact. In order to replicate these distributions in the resource block model, a dynamic anisotropy approach, relative to the overall trends of mineralization, has been applied in the western part of the deposit. Three-dimensional planes are interpreted that represent the general trend of the silver mineralization, one oriented for the flat distribution in the tuffs and one oriented roughly parallel to the basement / tuff contact. These "trend planes" are used to control search orientations during subsequent grade interpolations in the block model. Variograms are generated using distances relative to the trend planes rather than the true sample elevations. This approach essentially flattens-out these zones during interpolation relative to the defined trend plane. Generalized Interpolation Domains have been interpreted that encompass zones where mineralization tends to be flat-lying (the "Tuff Domain") verses dipping (the "Basement Domain," which occurs in both tuff near the contact and in basement rock types). Note that the actual lithologic domains are not used here because mineralization tends to straddle the basement / tuff contact. This is addressed in more detail in Section 14.5. Model blocks contained within these domains then utilize the appropriate trend plane during grade interpolation. An example of these domains and the interpreted trend planes is shown in cross section in Figure 14-3. Note that these trends are only interpreted and applied in the Mantos area. Similar trends are not obvious based on the drilling in the Socavon and, as a result, the search orientations during block grade estimation in this eastern area are directed by the anisotropy defined in the variograms.

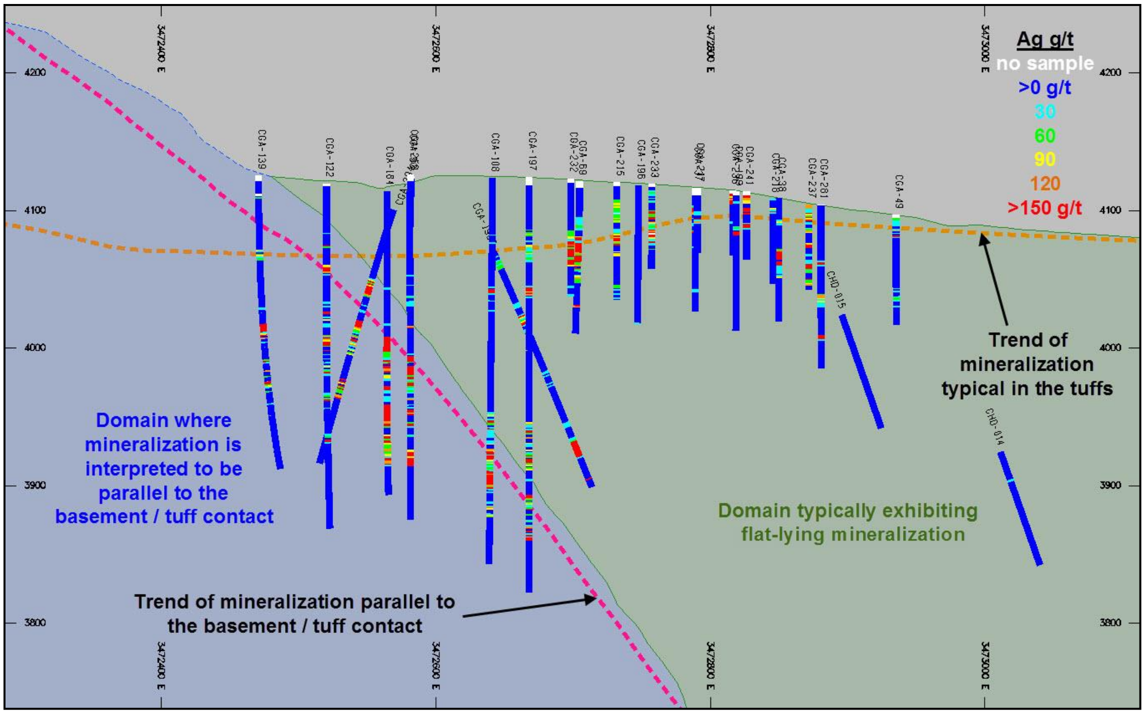


Figure 14-3: Cross section Showing Trends of Mineralization in Western Part of the Deposit

There are no significant zones of oxidation or supergene enrichment and overburden tends to be non-existent or, when present, less than five metres in thickness.

14.4 Compositing

Compositing of drill hole samples is carried out in order to standardize the database for further statistical evaluation. This step eliminates any effect related to the sample length that may exist in the data.

To retain the original characteristics of the underlying data, a composite length is selected which reasonably reflects the average original sample length. The generation of longer composites results in some degree of smoothing which could mask certain features of the data. Sample intervals are relatively consistent in the database: 72% of the samples are exactly one metre in length and 25% of the samples are two metres long. The average sample length is 1.34 metres. As a result, a standard composite length of one metre has been applied to the sample data.

Drill hole composites are length-weighted and have been generated down-the-hole; this means that composites begin at the top of each hole and are generated at one metre intervals down the length of the hole. Several holes were randomly selected and the composited values were checked for accuracy. No errors were found.

14.5 Exploratory Data Analysis

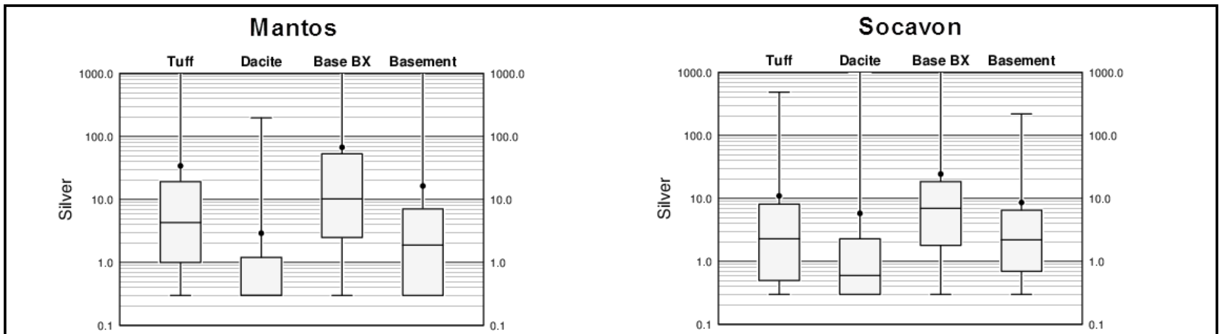
Exploratory data analysis ("EDA") involves the statistical summarization of the database in order to better understand the characteristics of the data that may control grade. One of the main purposes of this exercise is to determine if there is evidence of spatial distinctions in grade which may require the separation and isolation of domains during interpolation. The application of separate domains prevents unwanted mixing of data during grade interpolation so that the resulting grade model will better reflect the unique properties of the deposit. However, applying domain boundaries in areas where the data are not statistically unique may impose a bias in the distribution of grades in the model.

A domain boundary, which segregates the data during interpolation, is typically applied if the average grade in one domain is significantly different from that of another domain. A boundary may also be applied where there is evidence that a significant change in the grade distribution exists across a geologic contact.

14.5.1 Basic Statistics by Lithology Domain

Basic statistics for the distributions of silver, lead, zinc and sulphur were generated by lithology type and are presented in the boxplots below.

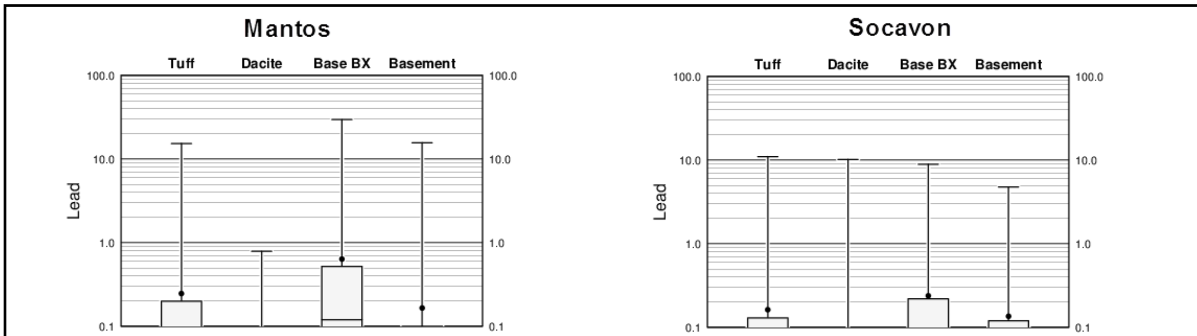
The distributions are similar for all four elements; higher grades in the Tuff and Basement Breccia but relatively high grades can also be found in the Dacite and Basement rocks. Higher zinc grades are present in the Socavon area.



Mantos	Tuff	Dacite	Base BX	Basement
Number of data	20115	444	6052	4024
Mean	34.323	2.923	67.569	16.46
Variance	20405.9	193.653	42469.9	5333.31
Skewness	17.448	11.034	17.299	12.552
Coef of Variation	4.162	4.76	3.05	4.437
Maximum	5395.5	197.9	8970.3	1866.7
Upper quartile	19.3	1.2	53.5	7.1
Median	4.3	0.3	10.2	1.9
Lower quartile	1.0	0.3	2.5	0.3
Minimum	0.3	0.3	0.3	0.3

Socavon	Tuff	Dacite	Base BX	Basement
Number of data	7066	1146	2426	2454
Mean	11.011	5.814	24.478	8.646
Variance	889.147	1794.14	5255.78	385.742
Skewness	7.65	20.008	11.856	4.885
Coef of Variation	2.708	7.286	2.962	2.272
Maximum	488.0	1027.0	1934.8	219.6
Upper quartile	8.1	2.3	18.5	6.5
Median	2.3	0.6	7.0	2.2
Lower quartile	0.5	0.3	1.8	0.7
Minimum	0.3	0.3	0.3	0.3

Figure 14-4: Boxplots of Silver by Lithology Type



Mantos	Tuff	Dacite	Base BX	Basement
Number of data	20115	444	6052	4024
Mean	0.247	0.037	0.638	0.166
Variance	0.417	0.007	2.264	0.417
Skewness	7.74	5.094	6.468	12.956
Coef of Variation	2.61	2.22	2.359	3.884
Maximum	15.38	0.79	29.64	15.7
Upper quartile	0.2	0.03	0.52	0.1
Median	0.06	0.01	0.12	0.05
Lower quartile	0.02	0.01	0.05	0.02
Minimum	0.0	0.0	0.0	0.0

Socavon	Tuff	Dacite	Base BX	Basement
Number of data	7066	1146	2426	2454
Mean	0.163	0.098	0.239	0.136
Variance	0.202	0.226	0.296	0.097
Skewness	9.693	13.474	7.129	6.276
Coef of Variation	2.752	4.846	2.277	2.294
Maximum	11.05	10.19	8.94	4.77
Upper quartile	0.13	0.05	0.22	0.12
Median	0.03	0.01	0.08	0.04
Lower quartile	0.01	0.0	0.02	0.01
Minimum	0.0	0.0	0.0	0.0

Figure 14-5: Boxplots of Lead by Lithology Type

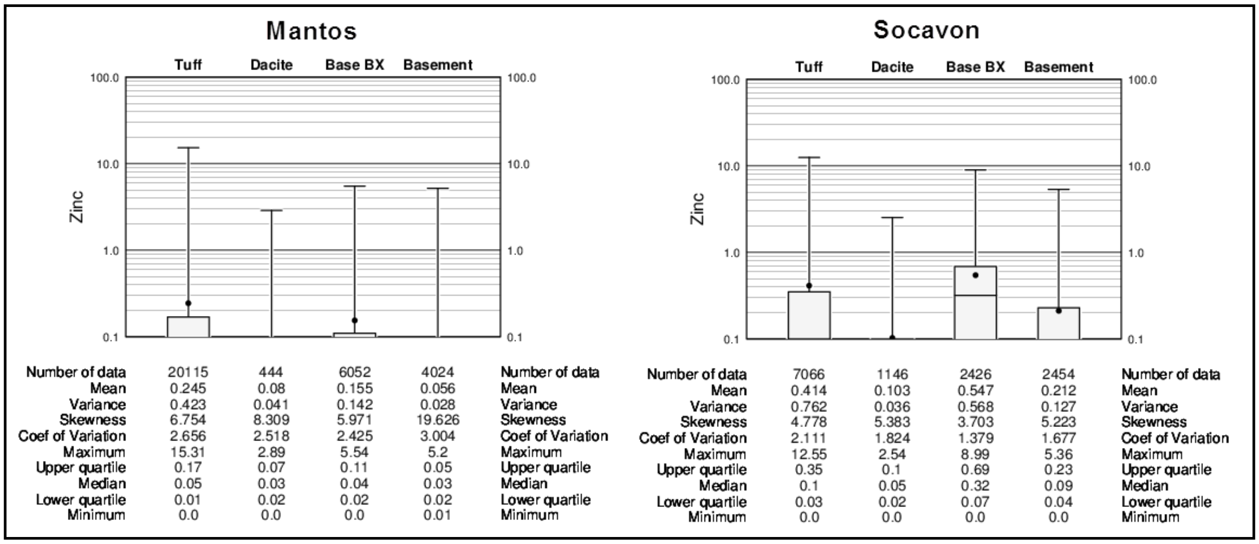


Figure 14-6: Boxplots Showing Zinc by Lithology Type

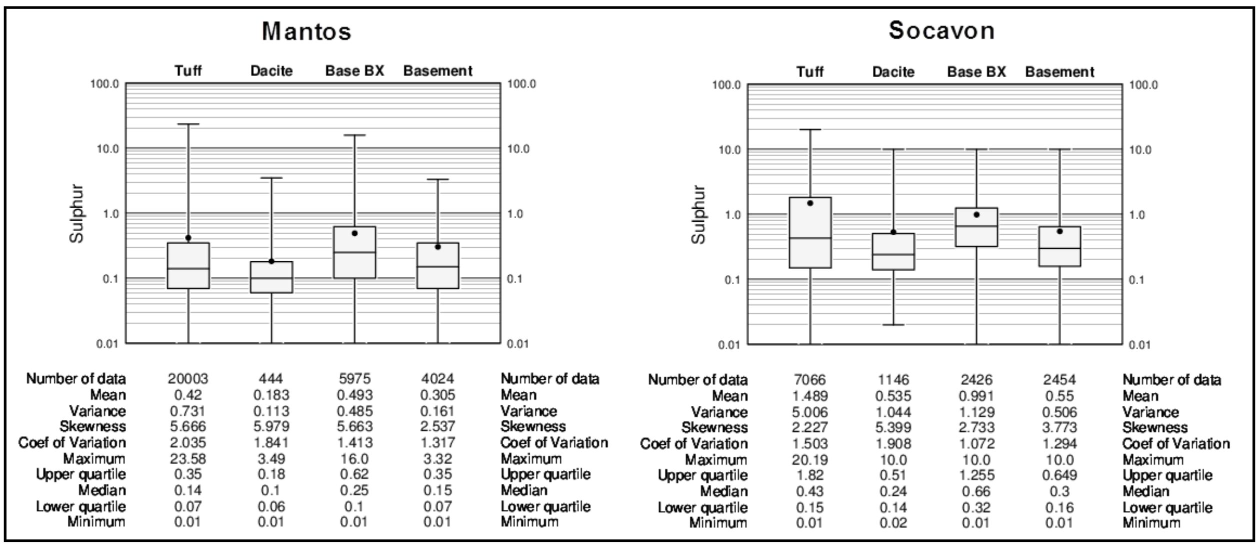


Figure 14-7: Boxplots Showing Sulphur by Lithology Type

14.5.2 Contact Profiles

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

Contact profiles were generated to evaluate the change in grades across prominent lithologic types. The results for silver, lead and zinc are quite similar. Examples of the results for silver are shown in the figures below. The contact profiles for sulphur tend to show similar or transitional grade distributions across the lithologic boundaries.

Figure 14-8 shows similar relatively distinct changes in grade across the boundary between Tuff and Dacite and between Tuff and Basement Breccias.

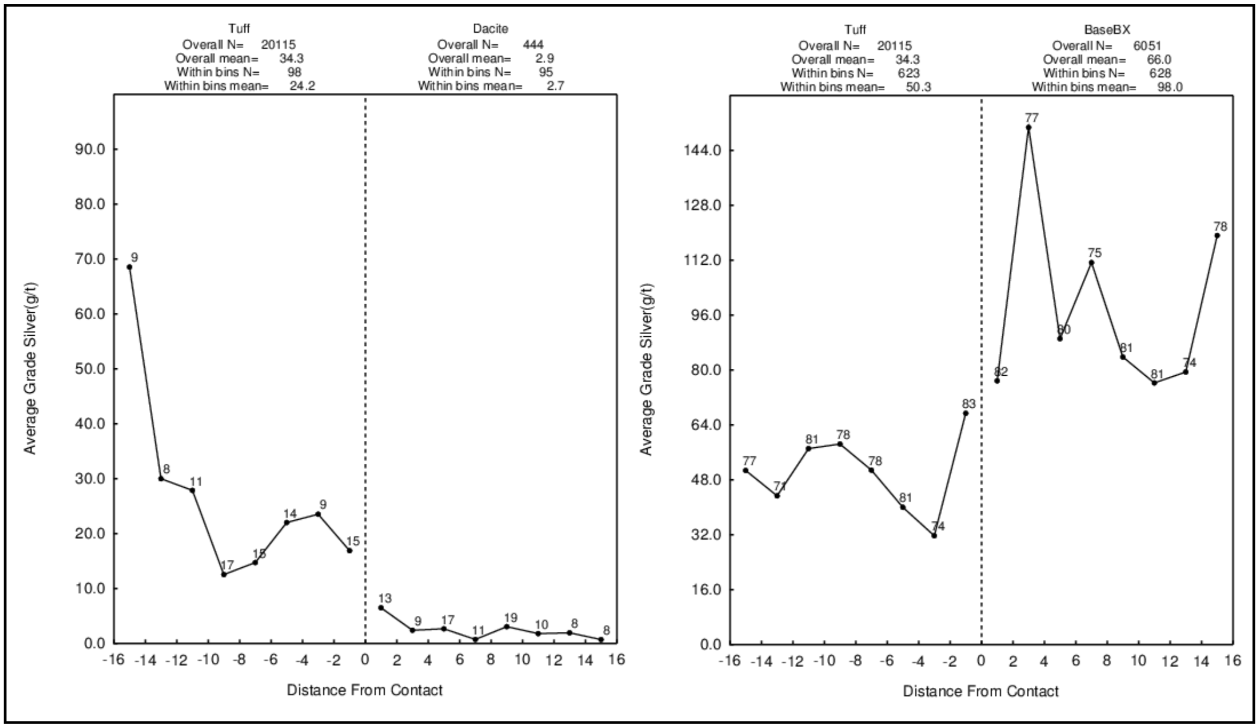


Figure 14-8: Contact Profiles of Silver by Lithology Type

The distributions shown in Figure 14-9 show essentially no change in grade between the Tuff and Basement rocks but an abrupt change in grade between the Basement and Basement Breccia rocks.

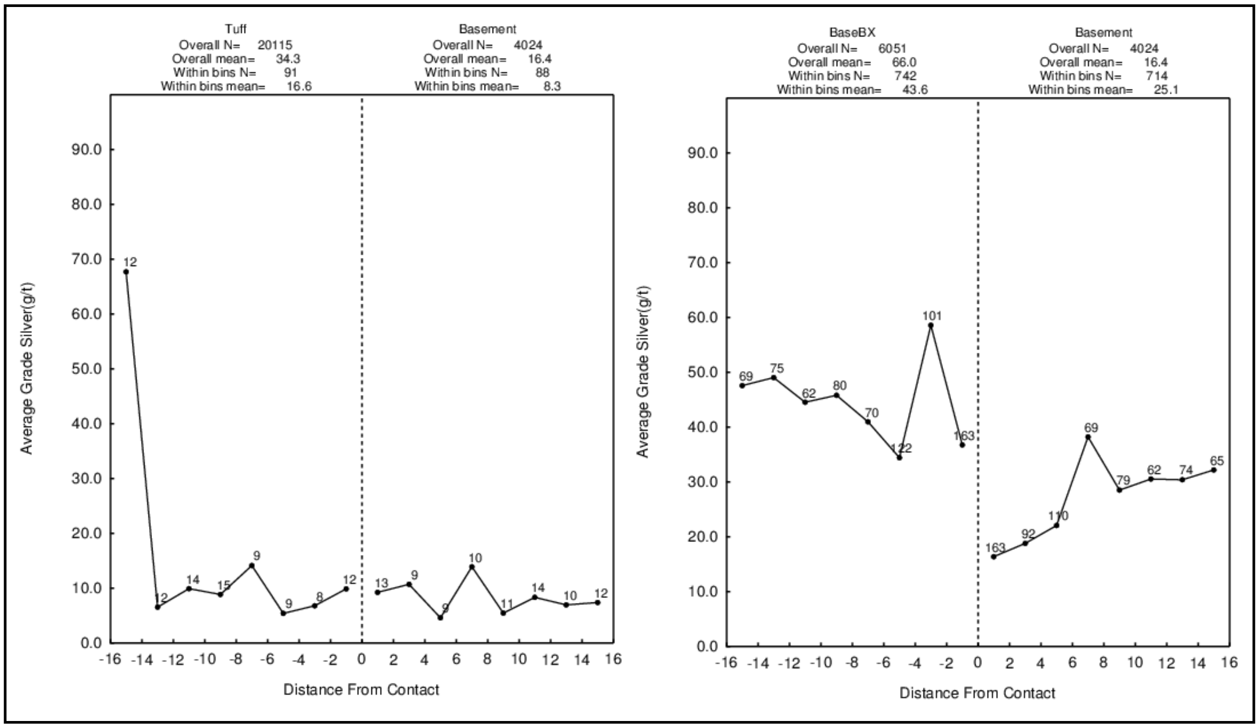


Figure 14-9: Contact Profiles of Silver by Lithology Type

14.5.3 Modeling Implications

The results of the EDA indicate that elevated grades tend to occur in the Tuff and Basement Breccia rocks but high grades can also occur in the other lithologic types. The contact profiles for silver, lead and zinc suggest that relatively abrupt changes in grade occur between some rock types. However, visual review of the data shows that in some areas there are sharp changes in grade at lithologic contacts but in other areas, high-grades persist across these boundaries. Overall, the distribution of grades in the deposit tends to occur near the contact between the intrusive volcanic phases and the host schist rocks and mineralization can occur in any and all rock types. Therefore, lithologic type is not a distinct control over the distribution of mineralization in this deposit.

14.5.4 Generation of Grade Probability Shell

In most parts of the deposit there is a relatively strong correlation between silver, lead and zinc, with silver as the main economic contributor. Parts of Socavon are quite rich in zinc and relatively low in silver content. All metals contribute to the economic potential of the Project and, as a result, these are combined, in a general way, for use in the generation of the grade probability shell domain. The combined silver equivalent (AgEq) grades are calculated for all composited sample intervals based on metal prices of $19/oz for silver and $1/lb for both lead and zinc. (Note: these are original metal prices used when the model was originally generated in April 2016. These differ from the final metal prices used to tabulate the final Mineral Resource estimate in Section 14.13). This results in the following calculation for silver equivalent:

$$AgEq = Au\ g/t + (Pb\% * 36.09) + (Zn\% * 36.09)$$

Indicator values are assigned to samples using a grade threshold of 20 g/t AgEq. This threshold is below the economic cut-off, ensuring that some internal dilution is appropriately retained in the model, but this provides a reasonable segregation of mineralized and unmineralized rocks. Probability estimates were made in model blocks using ordinary kriging, and a shell was created that envelopes areas, within a maximum distance of 150 metres from drilling in the main Mantos area and within 100 metres of drilling in the Socavon area, where there is a >50% probability that the grade will exceed 20 g/t AgEq. Note that separate indicator variograms were generated for the main Mantos and Socavon areas in order to reflect the differing trends of the mineralization in these two areas and the dynamic search orientation approach, described in Section 14.3, was used in the western Mantos area of the deposit. The resulting probability shell is shown in Figure 14-10.

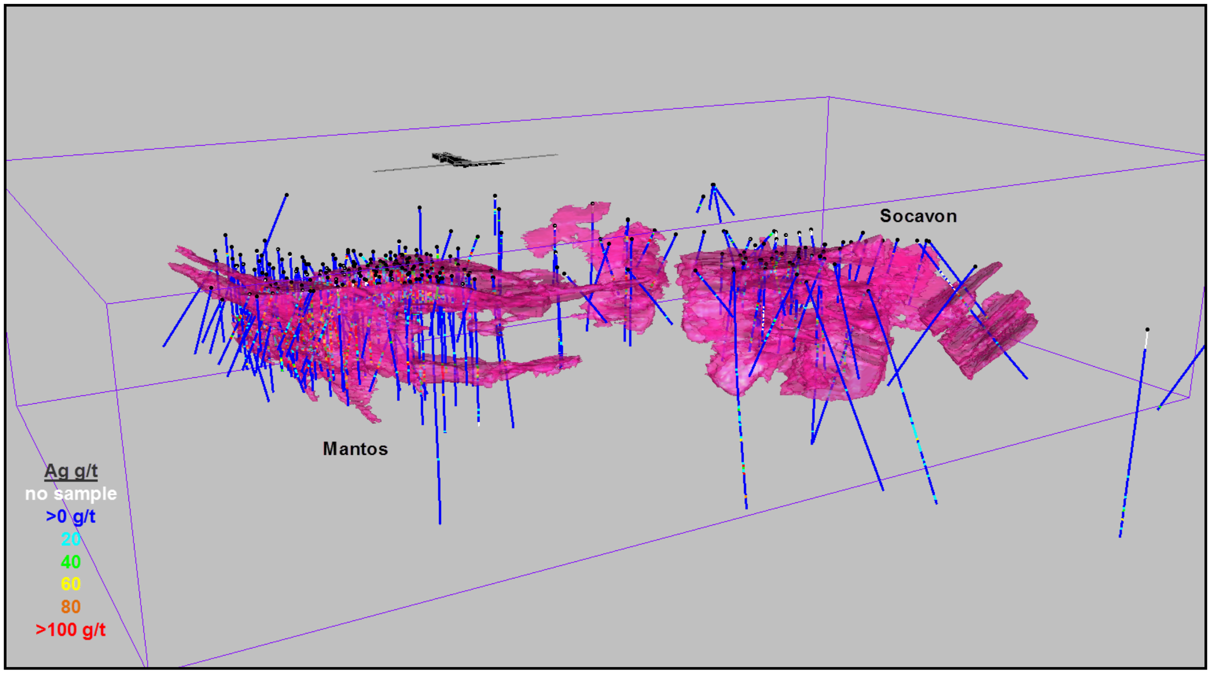


Figure 14-10: Isometric View of 20 g/t Silver Equivalent Probability Shell Domain

14.5.5 Conclusions

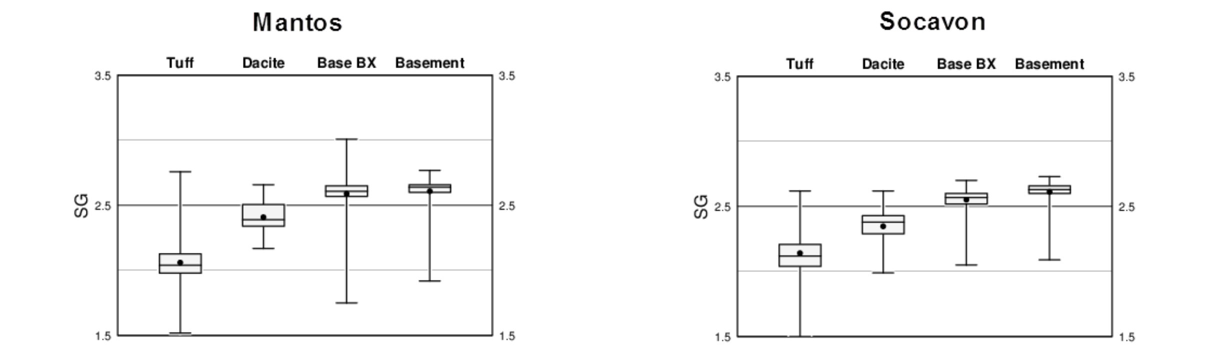
Ultimately, the distributions of silver, lead, zinc and sulphur in the resource model are controlled using the silver equivalent probability shell as a hard boundary domain, meaning sample data inside and outside of the domain is not mixed during block grade interpolation. In the main Mantos area, this is further segregated into separate Interpolation Domains based on whether the mineralization tends to be flat-lying “Tuff” type or dipping “Basement” type.

14.6 Bulk Density Data

Specific gravity (“SG”) measurements were conducted on a total of 2,586 drill core samples from the various drill programs using the methodology described in Section 11.5. These SG measurements are utilized as bulk densities to generate resource tonnages from the block model. Individual density measurements range from 1.5 t/m^3 to 3.01 t/m^3 and average 2.31 t/m^3.

The available density data was loaded into MineSight® and reviewed. It is quite evident that variations on rock density occur in the various lithologic units. The density of the Tuff averages 2.08 t/m^3 and the Dacite is 2.37 t/m^3. The underlying Basement Breccia and Basement rocks are similar with averages of 2.58 t/m3 and 2.61 t/m^3 respectively. The distributions of SG data by lithology types in the Mantos and Socavon areas is shown in the boxplots in Figure 14-11. There is little overlap in these distributions suggesting that these are distinct domains with respect to rock density.

Density measurements have been taken at approximately 15 metre intervals down the majority of the drill holes. The volume and distribution of SG data is considered to be sufficient to allow for direct interpolation of density values into model blocks. The lithologic domains are used to control the distribution of density data during this process.



Mantos	Tuff	Dacite	Base BX	Basement
Number of data	1653	39	520	418
Mean	2.061	2.41	2.59	2.61
Variance	0.018	0.012	0.016	0.011
Skewness	1.054	0.04	-2.839	-3.319
Coef of Variation	0.064	0.045	0.049	0.04
Maximum	2.76	2.66	3.01	2.77
Upper quartile	2.129	2.507	2.65	2.66
Median	2.04	2.39	2.61	2.64
Lower quartile	1.98	2.34	2.57	2.6
Minimum	1.52	2.17	1.75	1.92

Socavon	Tuff	Dacite	Base BX	Basement
Number of data	421	90	178	174
Mean	2.142	2.348	2.553	2.613
Variance	0.026	0.019	0.006	0.007
Skewness	0.219	-0.628	-2.103	-2.825
Coef of Variation	0.076	0.058	0.031	0.031
Maximum	2.62	2.62	2.7	2.73
Upper quartile	2.21	2.43	2.6	2.66
Median	2.12	2.38	2.57	2.63
Lower quartile	2.04	2.29	2.52	2.6
Minimum	1.5	1.99	2.05	2.09

Figure 14-11: Boxplots of Specific Gravity by Lithology Type

14.7 Evaluation of Outlier Grades

Histograms and probability plots of the distribution of all elements were reviewed in order to identify the existence of anomalous outlier grades in the composite database. Potential outlier samples were visually reviewed to determine their location in relation to the surrounding data. It was decided that anomalous samples would be controlled, in most cases, using a combination of traditional top-cutting and outlier limitations. Samples above the outlier limit threshold grades are restricted to a maximum distance of influence during interpolation of 50 metres. This range is increased to 75 metres when interpolating silver grades in the Socavon area only. These ranges are a reflection of the drill hole spacing and nature of the distributions of silver, lead, zinc and sulphur in the deposit areas.

The various controls applied to potentially anomalous sample data are summarized in Table 14-2. In the main Mantos area, these measures have resulted in a reduction in contained metal of 2.8% for silver, 1.1% for lead, 0.5% for zinc and 1.8% for sulphur. In the Socavon area, contained silver is reduced by 3.7%, lead by 2.4%, zinc by 0.4% and sulphur by 0.5% (comparison of blocks within the resource limiting pit shell). The proportion of metal lost in the model due to these controls is considered appropriate for all elements.

Table 14-2: Outlier Grade Controls

Element	Area	In/Out Probability Shell	Maximum	Top-cut Limit	Outlier Limitation
Silver	Mantos	In	8970.34 g/t	4000 g/t	2000 g/t
		Out	5395.45 g/t	1500 g/t	400 g/t
	Socavon	In	1,934.84 g/t	1000 g/t	400 g/t
		Out	455.00 g/t	300 g/t	200 g/t
Lead	Mantos	In	29.64 %	20	15 %
		Out	15.70 %	10	4 %
	Socavon	In	11.05 %	-	4%
		Out	4.69 %	-	2.5%
Zinc	Mantos	In	13.08 %	-	10 %
		Out	15.31 %	5	3 %
	Socavon	In	12.55 %	-	8 %
		Out	8.99 %	-	5 %
Sulphur	Mantos	In	23.58	10	6
		Out	9.16	-	6
	Socavon	In	14.85	-	6
		Out	20.19	10	6

(Outlier controls applied to data composited to 1 m intervals)

14.8 Variography

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

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

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

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

Correlograms were generated using the commercial software package SAGE 2001© (Isaaks & Co.). Multidirectional correlograms were generated for the three metals within the Interpolation Domains as described in Section 14.3. These domains are located inside and outside of the 20g/t AgEq probability shell in the Mantos area and, in each case, separate variograms were generated representing the flat-lying Tuff Domain verses dipping Basement Domain style of mineralization and these are based on the vertical distances relative to the trend planes described previously. Due to a relative lack of sample data in the Socavon area, correlograms were generated using data inside of the probability shell domain and these were used when interpolating grades both inside and outside of the shell domain. The results for silver, lead and zinc are summarized in the tables below.

Table 14-3: Silver Correlograms

Interpolation Domain (Area/Type)				1st Structure			2nd Structure		
	Nugget	S1	S2	Range (m)	AZ	Dip	Range (m)	AZ	Dip
Mantos Area Tuff Inside shell	0.350	0.478	0.172	26	350	51	186	63	1
	Spherical			10	94	11	89	333	-3
				6	192	37	17	312	87
Mantos Area Tuff Outside shell	0.350	0.603	0.047	16	352	8	168	221	34
	Spherical			7	138	80	136	22	55
				6	262	5	41	125	9
Mantos Area Basement Inside shell	0.450	0.390	0.160	35	72	-21	139	339	1
	Spherical			21	325	-37	38	249	-5
				5	5	46	27	233	85
Mantos Area Basement Outside shell	0.400	0.574	0.026	20	13	67	279	17	-14
	Spherical			5	91	-5	138	298	38
				3	179	23	45	90	48
Socavon Inside/Outside shell	0.600	0.307	0.093	87	6	4	220	331	24
	Spherical			21	109	73	194	76	31
				10	274	17	40	31	-49
Note: Correlograms conducted on 1-m drill hole composite data.									

Table 14-4: Lead Correlograms

Interpolation Domain (Area/Type)				1st Structure			2nd Structure		
	Nugget	S1	S2	Range (m)	AZ	Dip	Range (m)	AZ	Dip
Mantos Area Tuff Inside shell	0.375	0.425	0.200	32	340	31	238	96	-4
	Spherical			22	81	17	80	6	0
				8	195	53	23	91	86
Mantos Area Tuff Outside shell	0.450	0.290	0.260	25	337	13	109	59	-14
	Spherical			14	60	-27	38	33	10
				5	90	59	30	97	73
Mantos Area Basement Inside shell	0.450	0.376	0.174	42	343	-50	147	348	-5
	Spherical			13	66	6	46	76	17
				5	330	40	27	275	72
Mantos Area Basement Outside shell	0.450	0.488	0.062	27	324	53	253	49	-12
	Spherical			19	349	-34	84	325	27
				2	71	12	45	118	60
Socavon Inside/Outside shell	0.600	0.262	0.138	35	33	68	316	18	44
	Spherical			11	215	22	86	111	3
				7	125	1	70	25	-46
Note: Correlograms conducted on 1-m drill hole composite data.									

Table 14-5: Zinc Correlograms

Interpolation Domain (Area/Type)				1st Structure			2nd Structure		
	Nugget	S1	S2	Range (m)	AZ	Dip	Range (m)	AZ	Dip
Mantos Area Tuff Inside shell	0.300	0.510	0.190	17	119	-18	300	104	-3
	Spherical			13	34	16	165	13	-17
				10	163	66	66	25	73
Mantos Area Tuff Outside shell	0.500	0.419	0.081	41	83	3	295	2	23
	Spherical			35	357	-58	290	248	44
				8	351	32	121	111	37
Mantos Area Basement Inside shell	0.250	0.530	0.220	24	52	-14	688	325	3
	Spherical			16	330	27	240	56	24
				12	117	59	206	49	-66
Mantos Area Basement Outside shell	0.139	0.765	0.096	15	353	-40	274	279	48
	Spherical			12	98	-18	173	37	23
				4	27	45	149	323	-33
Socavon Inside/Outside shell	0.350	0.483	0.167	33	156	72	263	110	32
	Spherical			14	131	-17	170	224	33
				7	43	7	8	348	40
Note: Correlograms conducted on 1-m drill hole composite data.									

14.9 Model Setup and Limits

A block model was initialized in MineSight® and the dimensions are shown in Table 14-6. The extents of the block model are represented by the purple rectangle shown in Figure 14-10. The selection of a nominal block size measuring 8 x 8 x 5 metres (LxWxH) is considered appropriate with respect to the current drill hole spacing and is a reflection of the current scale of mining used at Silver Standard`s nearby Pirquitas mine. (Note: this is an increase in the block size from 8 x 8 x 4 metres used in the previous, April 12, 2016, resource block model).

Table 14-6: Block Model Limits

Direction	Minimum	Maximum	Block Size (m)	Number of Blocks
East	3472100	3474404	8	288
North	7511700	7513004	8	163
Elevation	3750	4300	5	110

Blocks in the model were coded on a majority basis with the various lithologic and probability shell domains. During this stage, blocks along a domain boundary are coded if >50% of the block occurs within the boundaries of that domain.

The proportion of blocks which occur below the topographic surfaces are also calculated and stored in the model as individual percentage items. These values are used as weighting factors to determining the in-situ Mineral Resources for the deposit.

14.10 Interpolation Parameters

The block model grades for all elements are estimated using ordinary kriging ("OK"). The results of the OK estimation are compared with the Hermitian Polynomial Change of Support method, also referred to as the Discrete Gaussian Correction. This method is described in greater detail in Section 14.11.

The Chinchillas OK models were generated with a relatively limited number of samples in order to match the change of support or "Herco" (HERmitian COrrection) grade distribution. This approach reduces the amount of smoothing or averaging in the model and, while there may be some uncertainty on a localized scale, this approach produces reliable estimations of the recoverable grade and tonnage for the overall deposit.

All grade estimations use length-weighted composite drill hole sample data. The interpolation parameters are summarized in Tables 14-7, 14-8 and 14-9.

Table 14-7: Interpolation Parameters - Silver

Interpolation Domain (Area/Type)	Search Ellipse Range (m)			Number of Composites			Other
	X	Y	Z*	Min/block	Max/block	Max/hole	
Mantos Area Tuff Inside shell	300	300	6	4	40	10	1 DH per octant
Mantos Area Tuff Outside shell	300	300	6	4	24	8	1 DH per octant
Mantos Area Basement Inside shell	300	300	6	4	24	8	1 DH per octant
Mantos Area Basement Outside shell	300	300	6	4	32	8	1 DH per octant
Socavon Inside Shell	300	300	300	5	40	10	
Socavon Outside Shell	300	300	300	5	30	10	

* In main Mantos area, Z-search range is 6m relative to the interpreted trend of mineralization

Table 14-8: Interpolation Parameters - Lead

Interpolation Domain (Area/Type)	Search Ellipse Range (m)			Number of Composites			Other
	X	Y	Z*	Min/block	Max/block	Max/hole	
Mantos Area Tuff Inside shell	300	300	6	4	21	7	1 DH per octant
Mantos Area Tuff Outside shell	300	300	6	4	24	8	1 DH per octant
Mantos Area Basement Inside shell	300	300	6	4	27	9	1 DH per octant
Mantos Area Basement Outside shell	300	300	6	4	32	8	1 DH per octant
Socavon Inside Shell	300	300	300	5	30	10	
Socavon Outside Shell	300	300	300	5	24	8	

* In main Mantos area, Z-search range is 6m relative to the interpreted trend of mineralization

Table 14-9: Interpolation Parameters - Zinc

Interpolation Domain (Area/Type)	Search Ellipse Range (m)			Number of Composites			Other
	X	Y	Z*	Min/block	Max/block	Max/hole	
Mantos Area Tuff Inside shell	300	300	6	4	32	8	1 DH per octant
Mantos Area Tuff Outside shell	300	300	6	4	24	8	1 DH per octant
Mantos Area Basement Inside shell	300	300	6	4	24	8	1 DH per octant
Mantos Area Basement Outside shell	300	300	6	4	27	9	1 DH per octant
Socavon Inside Shell	300	300	300	5	15	5	
Socavon Outside Shell	300	300	300	5	18	6	

* In main Mantos area, Z-search range is 6m relative to the interpreted trend of mineralization

Specific gravity estimates were made in model blocks using the inverse distance weighting to the power of two (“ID2”) interpolation method. Densities are estimated with a maximum of two composites per drill hole and a maximum of six composites in total. The lithology domains provide hard boundary conditions during estimation and samples below 1.75 t/m^3 excluded as these are considered to be anomalous.

14.11 Validation

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

14.11.1 Visual Inspection

A detailed visual inspection of the block model was conducted in both section and plan to ensure the desired results following interpolation. This included confirmation of the proper coding of blocks within the various domains. The distribution of block grades were compared relative to the drill hole samples in order to ensure the proper representation in the model.

14.11.2 Model Checks for Change of Support

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

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

All modeled elements were validated using the Herco approach, even though selectivity (and the economic contribution) is primarily dependent on the silver content. All models show an appropriate degree of correlation with the Herco distributions. Examples from the silver, lead and zinc models, inside the probability shell domain and limited to model blocks within a maximum distance of 50 metres from drilling, are shown in Figures 14-12, 14-13 and 14-14, respectively.

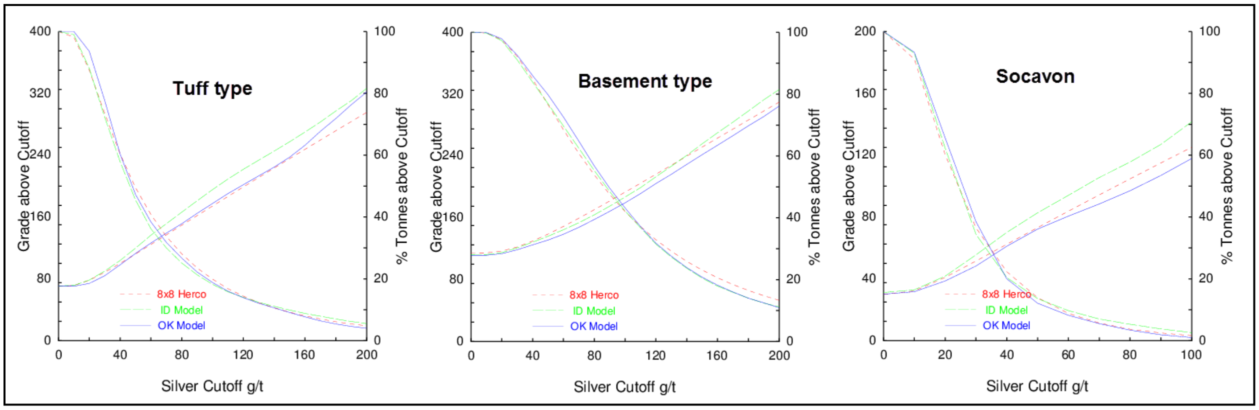


Figure 14-12: Herco Plots of Silver Inside Probability Shell Domain

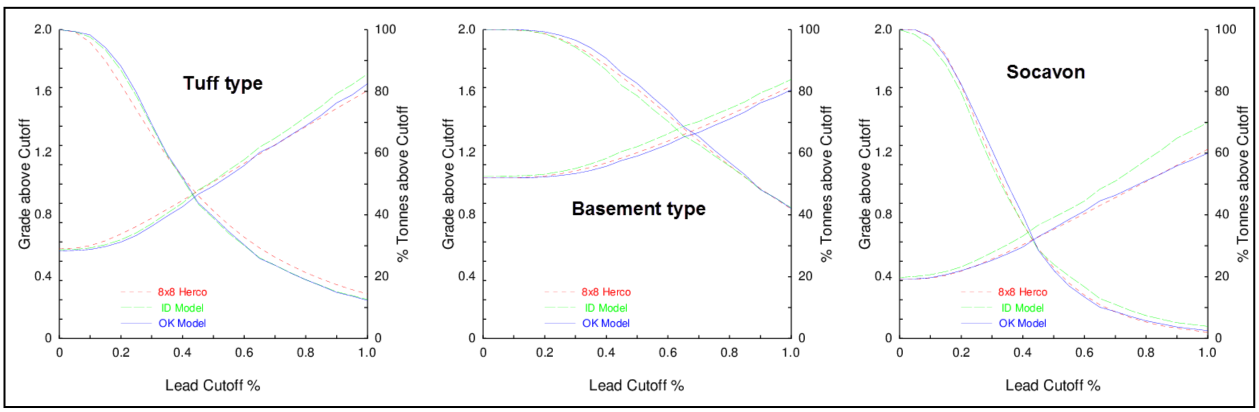


Figure 14-13: Herco Plots of Lead Inside Probability Shell Domain

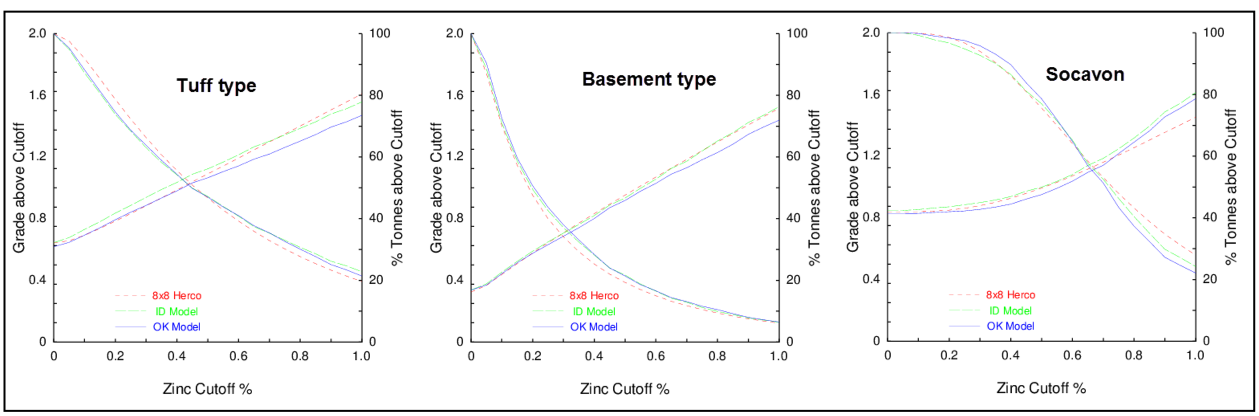


Figure 14-14: Herco Plots of Zinc Inside Probability Shell Domain

14.11.3 Comparison of Interpolation Methods

For comparison purposes, additional grade models were generated using both the inverse distance weighted ("ID") and nearest neighbour ("NN") interpolation methods (Note: The NN model was created using data composited to five metre intervals). The results of these models are compared to the OK models at a series of cut-off grades in a series of grade/tonnage graphs. Examples of blocks inside the probability shell and limited to model blocks within a maximum distance of 50 metres from drilling are shown in Figures 14-15, 14-16 and 14-17. Overall, there is very good correlation between models. The large difference evident in some of the NN models is due to the presence of local high-grade samples that occur in areas where the drill holes are spaced at 50 metre intervals or more. Reproduction of the model using different methods tends to increase the confidence in the overall Mineral Resource.

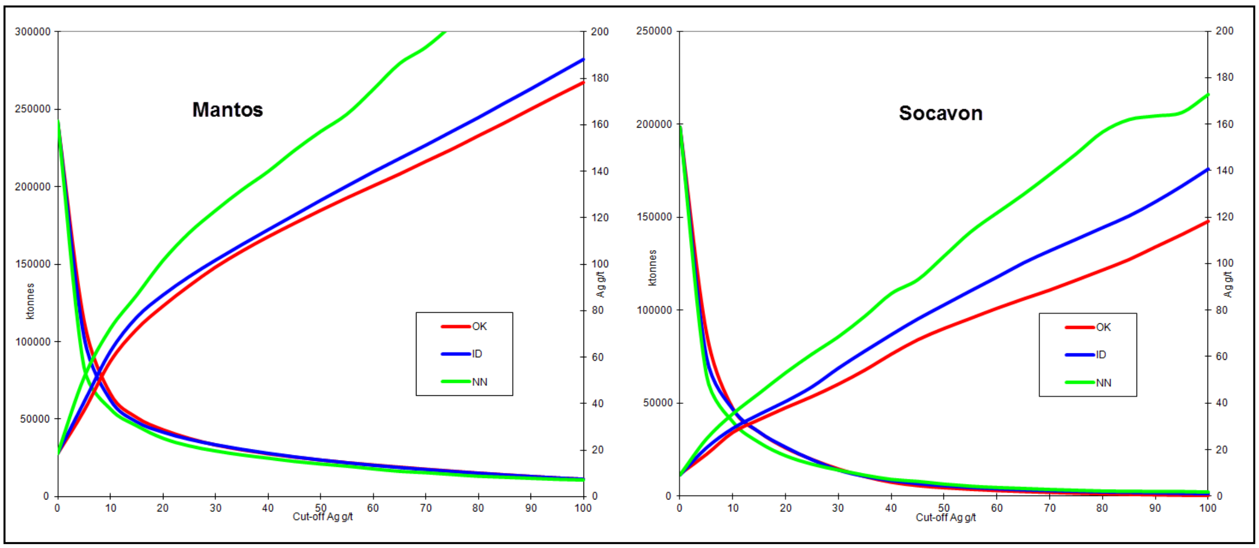


Figure 14-15: Grade Tonnage Comparison of Silver Models

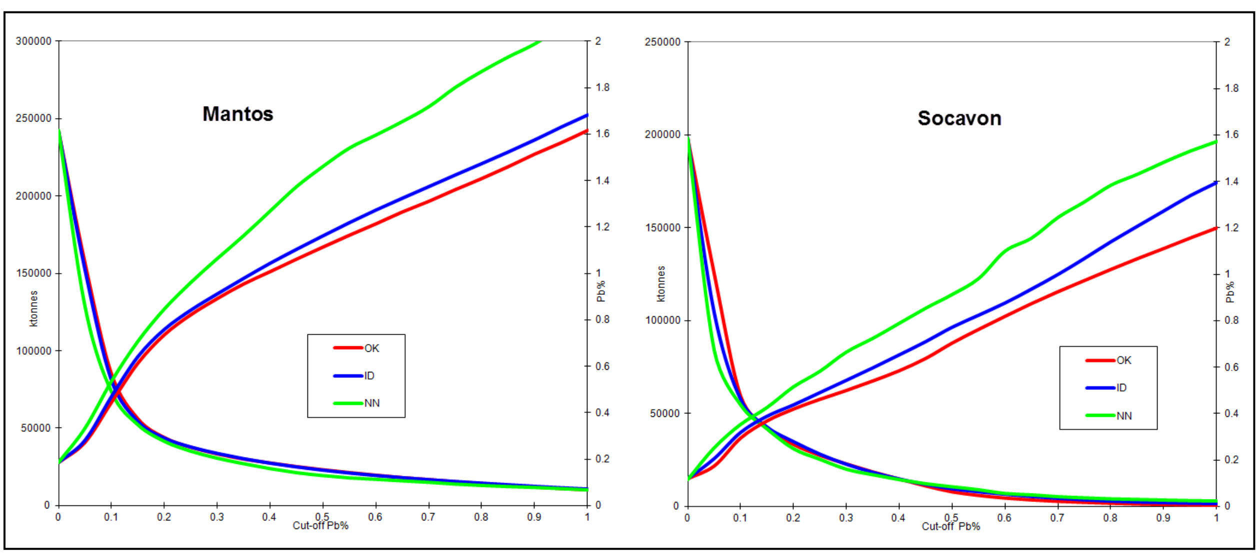


Figure 14-16: Grade Tonnage Comparison of Lead Models

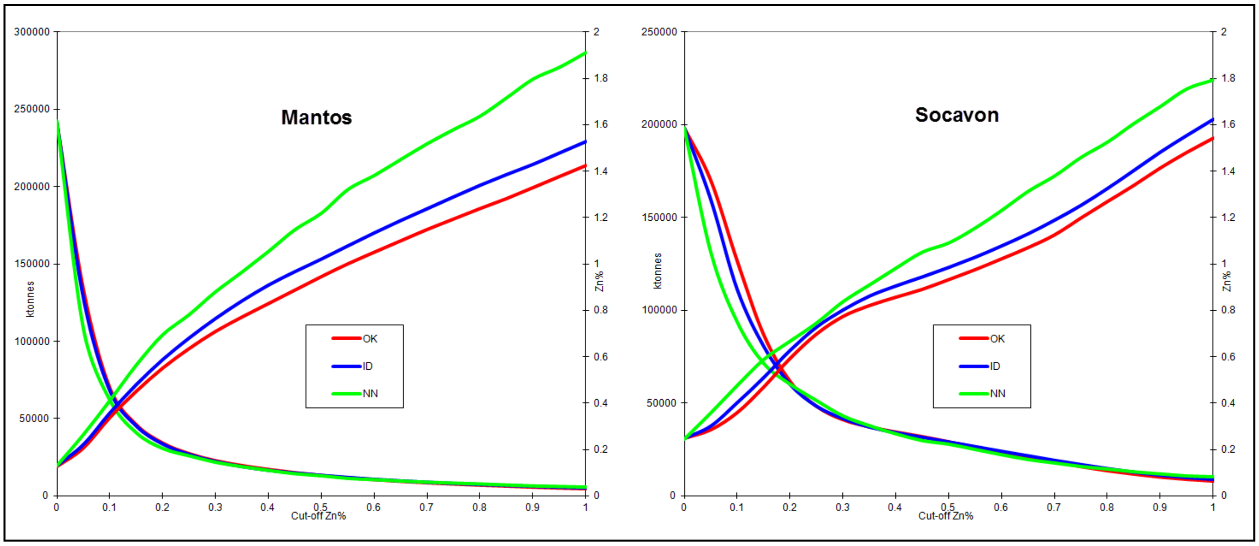


Figure 14-17: Grade Tonnage Comparison of Zinc Models

14.11.4 Swath Plots (Drift Analysis)

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

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

Swath plots were generated in three orthogonal directions for the distributions of all modeled elements. Examples of the silver, lead and zinc models inside the probability shell are shown in Figures 14-18, 14-19 and 14-20. The degree of smoothing in the OK model is evident in the peaks and valleys. The models often deviate on the edges where there is limited drilling data. The majority of the Mantos deposit occurs between 3472500N and 3472900N and the significant Mineral Resources in the Socavon area generally occur between 3473400N and 3473900N. There is very good correspondence in these areas.

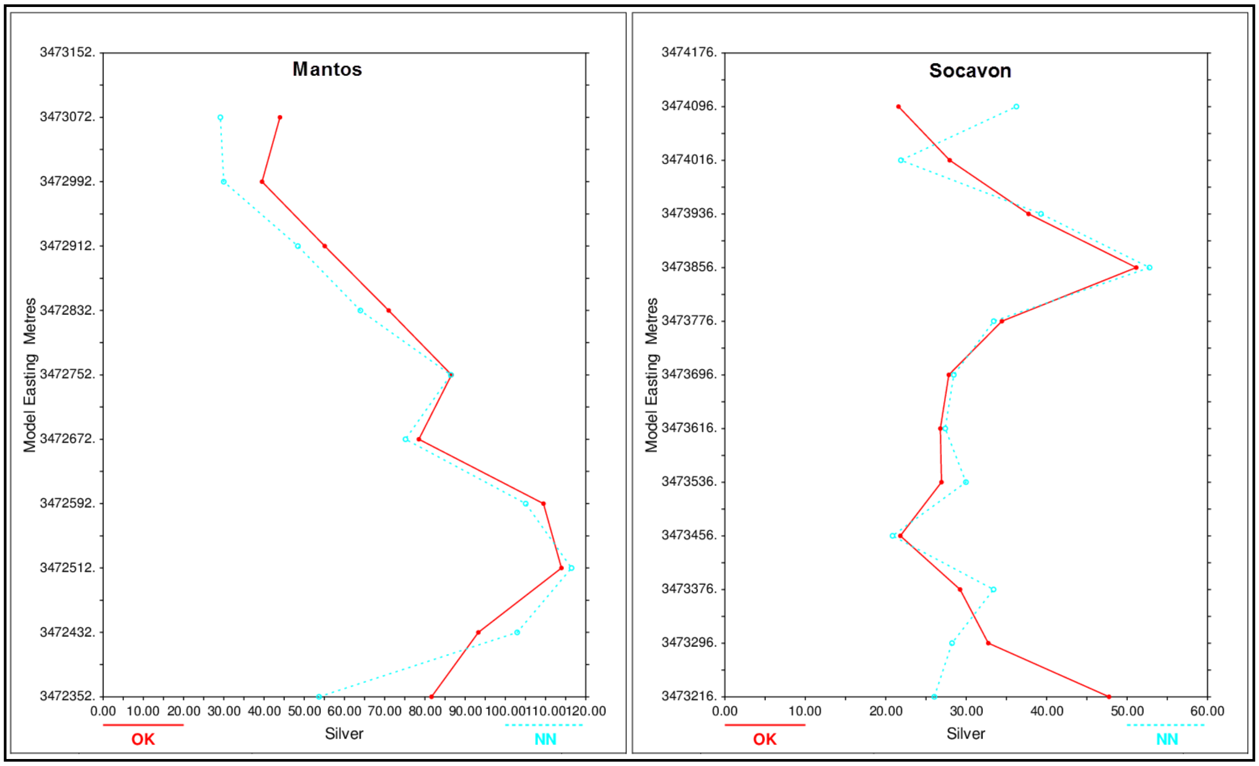


Figure 14-18: Swath Plots by Easting for Silver in OK vs. NN Models

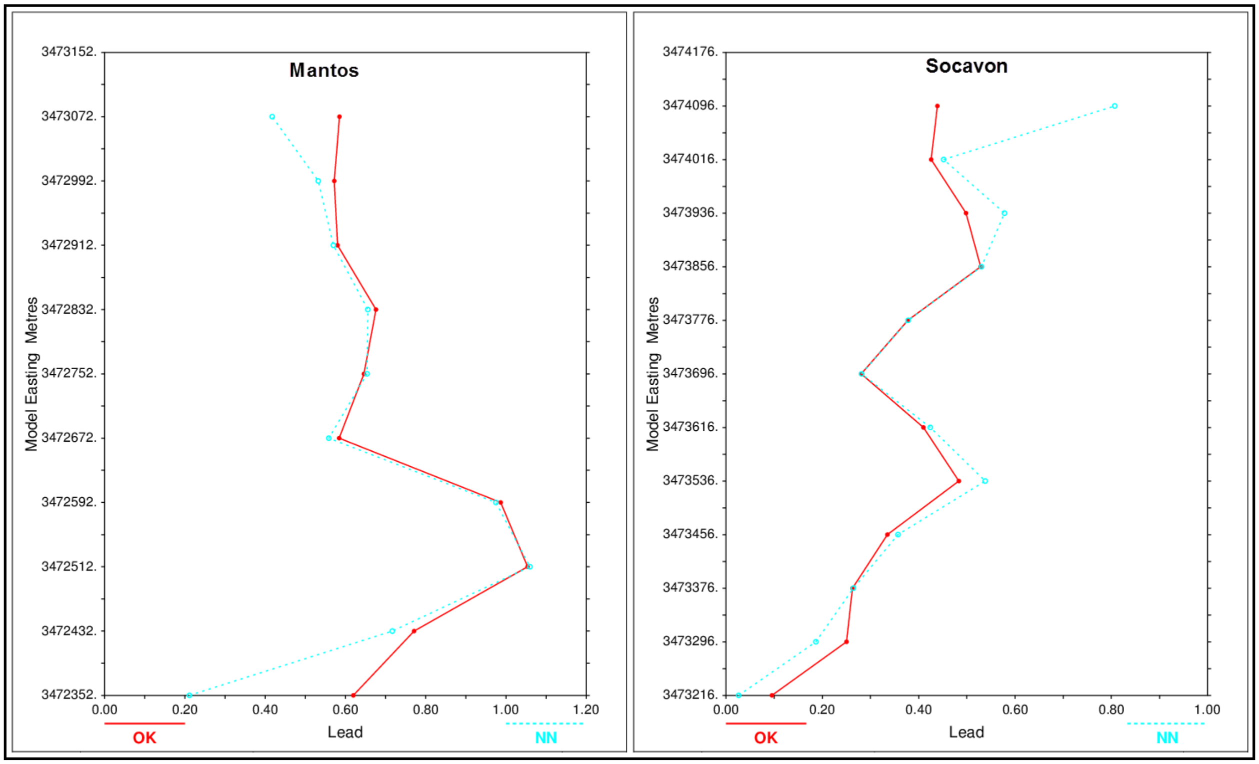


Figure 14-19: Swath Plots by Easting for Lead in OK vs. NN Models

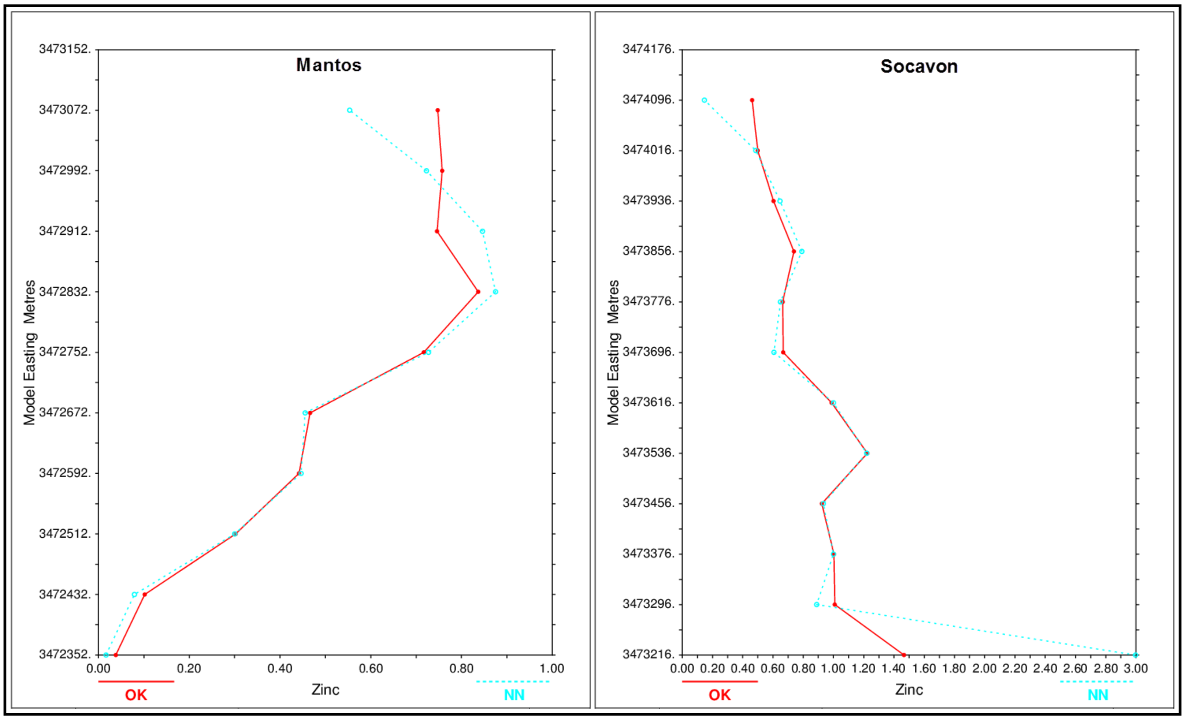


Figure 14-20: Swath Plots by Easting for Zinc in OK vs. NN Models

14.12 Mineral Resource Classification

The Mineral Resources for the Chinchillas deposit were classified in accordance with the CIM Standards. The classification parameters are defined in relation to the distance to sample data and are intended to encompass zones of reasonably continuous mineralization.

Measured Mineral Resources are defined as material in which the continuity of mineralization is demonstrated by the drilling. Similarly, Indicated Mineral Resources are defined as material in which the continuity of mineralization can be reasonably assumed by the drilling. Based on statistical analysis of drilling information and the level of understanding of the geologic environment, continuity of mineralization can be reasonably assumed by drilling spaced at 50 metre intervals to define Indicated Mineral Resources. Drilling spaced at 25 metre intervals is sufficient to define Measured Mineral Resources. Areas of the deposit that consistently meet the criteria were manually outlined with interpreted wireframe domains that are used to classify blocks in the model. This approach ensures that the consistency and continuity is retained in the distribution of these higher-level Mineral Resources.

Indicator variograms generated from silver equivalent sample data shows continuity of mineralization at the projected base cut-off grade of 60g/t AgEq of over 100 metres in some directions. Based on these results, Mineral Resources are included in the Inferred category if they are within a maximum distance of 75 metres from a drill hole.

Measured Mineral Resources – Areas of the block model that are delineated by drilling with holes spaced on a nominal 25 metre grid pattern.

Indicated Mineral Resources – Areas of the block model that are delineated by drilling with holes spaced on a nominal 50 metre grid pattern.

Inferred Mineral Resources – Model blocks which do not meet the criteria for Indicated Mineral Resources but are within a maximum distance of 75 metre from a drill hole.

The distribution of Mineral Resources in the Indicated and Inferred categories is shown in Figure 14-22.

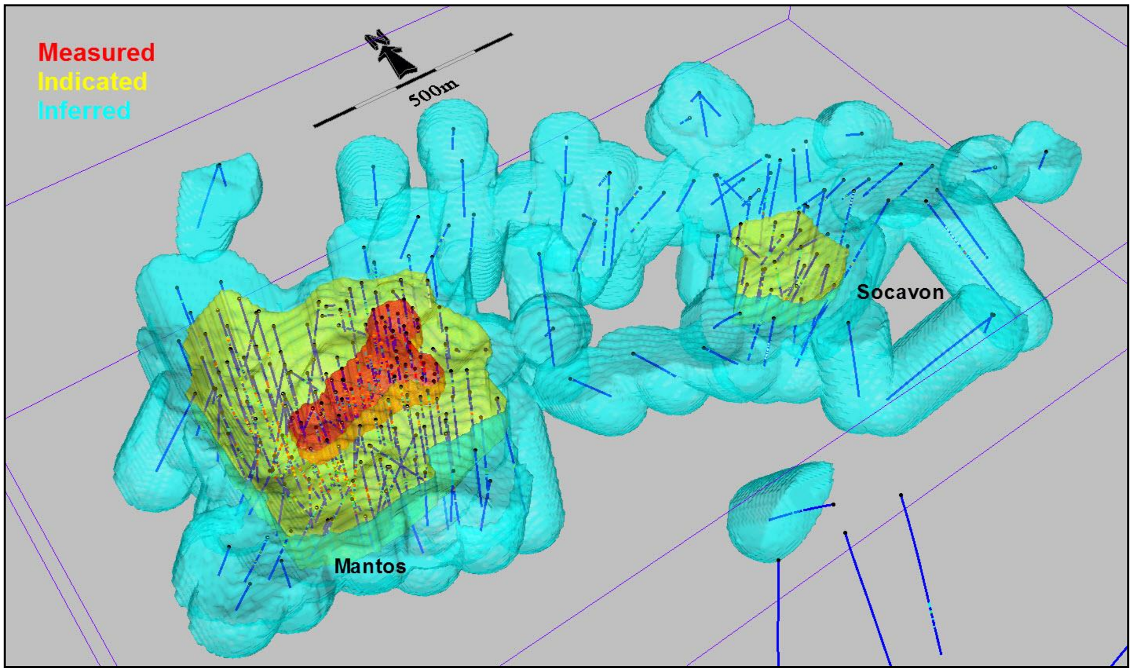


Figure 14-21: Isometric View of the Extent of Zones included in the Measured, Indicated and Inferred Categories

14.13 Mineral Resources

The estimate of Mineral Resources is restricted within a pit shell that has been generated using technical and economic factors that are felt to be appropriate for an operation of this type and location. These factors are derived from previous work conducted by Golden Arrow for a preliminary economic assessment in 2014, as well as from the nearby Pirquitas mine.

Due to the polymetallic nature of the deposit, Mineral Resources are calculated on a silver-equivalent (AgEq) basis using the parameters outlined below. Silver equivalents are calculated in model blocks, for use in the floating cone algorithm, using the contributions of silver, lead and zinc and include adjustments for metallurgical recoveries. There are no adjustments for mining losses or dilution.

The following technical and economic parameters were used to generate a resource limiting pit shell:

- Metal prices for silver equivalent calculation: silver $22.50/oz, lead $1/lb, zinc $1.10/lb
- Recoveries: 85% silver, 93% lead, 80% zinc.
- Royalty: 3%
- Mining cost: $2.50/t
- Process cost: $15.00/t
- G&A: $6.75/t
- Pit slope: 45 degrees

In determining the cut-off grade, the reasonable prospects for eventual economic extraction requirement generally implies that the quantity and grade estimates meet certain economic thresholds taking into account an open pit extraction scenario with road transport and processing at the Pirquitas plant. This includes consideration of the technical and economic parameters listed above, but also includes additional operating costs, estimated at $13 per tonne, related to the handling and transportation of ore from the Chinchillas Property to the Pirquitas plant. Using this operating scenario, the base case cut-off grade is estimated to be 60g/t silver equivalent. It should be noted that this determination considers site operating costs and ignores the pay factors for any concentrate generated and sold to a smelter. Mineral Resources by geographic area, as described in Section 14.2, are listed in Table 14-10. The distribution of Mineral Resources is shown in Figure 14-22.

There are no known factors related to environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which could materially affect the Mineral Resource. Mineral Resources do not have demonstrated economic viability. The quantity and grade of Inferred Mineral Resources are uncertain in nature and there has been insufficient exploration to classify these as Indicated or Measured, but it is reasonably expected that a majority of the reported Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration. Mineral Resources are inclusive of Mineral Reserves.

Table 14-10: Chinchillas Mineral Resource Estimate, October 2, 2016

Area	Mtonnes	AgEq (g/t)	Ag (g/t)	Pb (%)	Zn (%)	AgEq (Moz)	Ag (Moz)	Pb (Mlbs)	Zn (Mlbs)
Measured									
Mantos	3.1	160	128	0.60	0.41	16	13	41	28
Socavon	0	0	0	0	0	0	0	0	0
All	**3.1**	**160**	**128**	**0.60**	**0.41**	**16**	**13**	**41**	**28**
Indicated									
Mantos	22.4	155	110	0.99	0.46	112	79	490	226
Socavon	3.8	103	33	0.60	1.56	13	4	50	132
All	**26.2**	**148**	**98**	**0.94**	**0.62**	**124**	**83**	**540**	**358**
Measured and Indicated									
Mantos	25.5	156	112	0.95	0.45	127	91	530	254
Socavon	3.8	103	33	0.60	1.56	13	4	50	132
All	**29.3**	**149**	**101**	**0.90**	**0.60**	**140**	**96**	**581**	**386**
Inferred									
Mantos	4.5	117	69	0.82	0.67	17	10	81	67
Socavon	16.4	88	45	0.47	0.85	46	24	168	308
All	**20.9**	**94**	**50**	**0.54**	**0.81**	**63**	**34**	**250**	**374**

Notes to Tables 14-10, 14-11 and 14-12:

1. Mineral Resources estimate has been generated from drill hole sample assay results and the interpretation of a geologic model relating to the spatial distribution of silver, lead and zinc. Interpolation characteristics were defined based on the geology, drill hole spacing, and geostatistical analysis of the data. Grade estimates using ordinary kriging are made into model blocks measuring 8 x 8 x 5 meters (LxWxH). Mineral Resources were classified according to their proximity to sample data locations.
2. Mineral Resources are contained within a pit shell generated using a silver equivalent grade derived from the following formula: AgEq = Ag g/t + (Pb% ∗ 30.49) + (Zn% * 33.54). Mineral Resources estimate is based on metal price assumptions of $22.50/oz silver, $1.00/lb lead and $1.10/lb zinc.
3. The base case cut-off grade, which reflects the transport and processing of ore at Pirquitas, is estimated to be 60 g/t AgEq based on projected operating costs and metal prices listed above.
4. Metallurgical recoveries, used in the generation of the pit shell, are assumed to be 85% silver, 93% lead and 80% for zinc.
5. Mineral Resources are reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
6. The quantity and grade of Inferred Mineral Resources are uncertain in nature and there has been insufficient exploration to classify these as Indicated or Measured, but it is reasonably expected that a majority of the reported Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
7. Figures may not total exactly due to rounding. All ounces reported represent troy ounces, and “g/t” represents grams per tonne.
8. The Mineral Resources estimate is effective as of October 2, 2016.

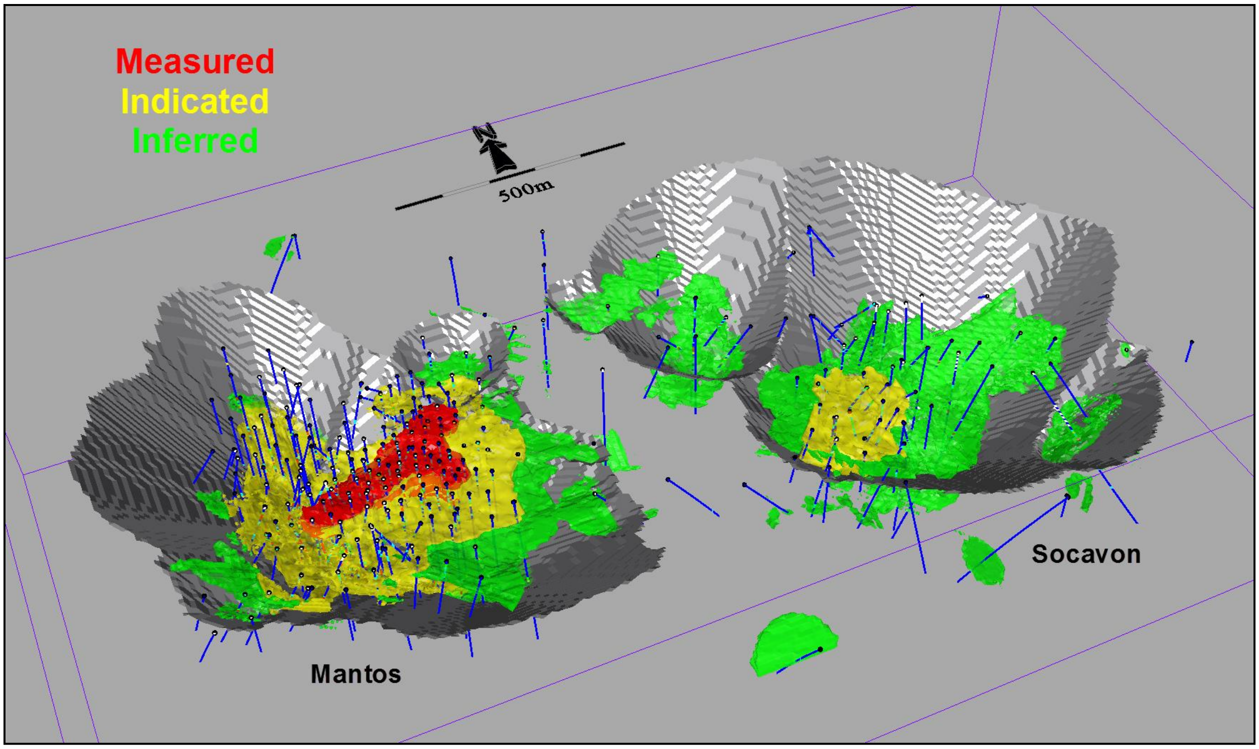


Figure 14-22: Isometric View of Mineral Resource within Limiting Pit Shell

The sensitivity of Mineral Resources to cut-off grade is presented in Table 14-11.

Table 14-11: Sensitivity of Mineral Resources to Cut-off Grade, October 2, 2016

Cut-off AgEq (g/t)	Mtonnes	AgEq (g/t)	Ag (g/t)	Pb (%)	Zn (%)	AgEq (Moz)	Ag (Moz)	Pb (Mlbs)	Zn (Mlbs)
Measured and Indicated									
30	37.4	126	85	0.77	0.54	152	102	631	37.4
40	35.0	133	89	0.80	0.56	149	101	620	35.0
50	32.2	141	95	0.85	0.58	145	98	603	32.2
60	**29.3**	**149**	**101**	**0.90**	**0.60**	**140**	**96**	**581**	**29.3**
70	26.5	158	108	0.95	0.60	134	92	556	26.5
80	23.8	167	116	1.01	0.61	128	89	529	23.8
90	21.3	177	124	1.07	0.60	121	85	500	21.3
100	18.9	187	133	1.12	0.60	114	81	468	18.9
110	16.7	198	142	1.18	0.59	106	76	437	16.7
120	14.8	209	151	1.24	0.58	99	72	405	14.8
130	13.0	220	161	1.30	0.57	92	68	375	13.0
140	11.6	231	170	1.36	0.56	86	63	348	11.6
150	10.3	242	180	1.42	0.55	80	59	321	10.3
Inferred									
30	34.0	76	39	0.43	0.69	83	43	324	518
40	30.5	80	42	0.46	0.73	79	41	309	494
50	26.1	86	45	0.49	0.77	73	38	284	445
60	**20.9**	**94**	**50**	**0.54**	**0.81**	**63**	**34**	**250**	**374**
70	15.7	104	57	0.60	0.86	52	29	208	296
80	11.4	115	64	0.67	0.89	42	24	168	225
90	8.4	126	72	0.74	0.92	34	19	137	169
100	6.2	136	80	0.82	0.94	27	16	113	129
110	4.6	148	88	0.92	0.96	22	13	92	96
120	3.4	159	95	1.02	0.97	18	11	78	73
130	2.6	170	102	1.14	0.97	14	9	65	56
140	2.0	181	110	1.27	0.98	11	7	55	42
150	1.5	193	117	1.40	0.99	9	6	46	32
Please see Notes to Table 14-10.									

In order to be consistent with previous reporting of Mineral Resource estimates, these are segregated in Table 14-12, using the mineralized zones as summarized in Section 14.2 and described in detail in Section 7.5.1.

Table 14-12: Mineral Resources by Mineralized Zone, October 2, 2016

Type	Mtonnes	AgEq (g/t)	Ag (g/t)	Pb (%)	Zn (%)	AgEq (Moz)	Ag (Moz)	Pb (Mlbs)	Zn (Mlbs)
Measured									
Silver Mantos	**3.1**	**160**	**128**	**0.60**	**0.41**	**16**	**13**	**41**	**28**
Indicated									
Silver Mantos	9.5	127	82	0.71	0.70	39	25	150	148
Mantos Basement	12.8	176	130	1.20	0.28	73	54	340	78
Socavon	3.8	103	33	0.60	1.56	13	4	50	132
ALL	**26.2**	**148**	**98**	**0.94**	**0.62**	**124**	**83**	**540**	**358**
Measured and Indicated									
Silver Mantos	12.6	135	93	0.69	0.63	55	38	190	176
Mantos Basement	12.8	176	130	1.20	0.28	73	54	340	78
Socavon	3.8	103	33	0.60	1.56	13	4	50	132
ALL	**29.3**	**149**	**101**	**0.90**	**0.60**	**140**	**96**	**581**	**386**
Inferred									
Silver Mantos	3.2	118	62	0.87	0.89	12	6	61	63
Mantos Basement	1.3	113	86	0.70	0.15	5	4	20	4
Socavon	3.8	93	43	0.45	1.07	11	5	38	89
Socavon Basement	12.6	87	46	0.47	0.79	35	19	130	218
ALL	**20.9**	**94**	**50**	**0.54**	**0.81**	**63**	**34**	**250**	**374**
Please see notes to Table 14-10.									

14.14 Comparison with Previous Estimates

In this section, the new Mineral Resource estimate is compared to the previous Mineral Resource estimate dated April 12, 2016 and supported by the Technical Report dated May 27, 2016 (Davis et al., 2016).

The Mineral Resources estimated at April 12, 2016 are contained within a pit shell generated using a silver price of $25/oz. Silver equivalent grades, and the base case cut-off grade of 45g/t AgEq, are based on metal prices of $19/oz silver and $1/lb for lead and zinc.

The new Mineral Resources estimate is based on metal prices of $22.50/oz silver, $1.10/lb zinc and $1/lb lead. There are minor differences in the projected operating costs used to generate the resource limiting pit shell. The base case cut-off grade is increased from 45g/t AgEq to 60g/t AgEq as a reflection of the additional costs associated with the assumption that Mineral Resources will be transported and processed at the Pirquitas Operation.

In the Mantos area, Measured and Indicated Mineral Resources have decreased by 3.6 million tonnes but with increases in average silver and lead grades, resulting in only minor decreases in the amount of contained metal. There is a change in Inferred Mineral Resources in the main Mantos area compared to the April 2016 estimate.

In the Socavon area, the reduction of Mineral Resources is primarily due to the increase in the cut-off grade in the new estimate.

Table 14-13: Comparison of the New Mineral Resource Estimate with the April 2016 Model

Zone	Date	Mtonnes	AgEq (g/t)	Ag (g/t)	Pb (%)	Zn (%)	AgEq (Moz)	Ag (Moz)	Pb (Mlbs)	Zn (Mlbs)
Mantos	**Measured + Indicated**									
	October 2016	25.5	156	112	0.95	0.45	127	91	530	254
	April 2016	29.1	149	102	0.87	0.44	140	96	558	279
	Inferred									
	October 2016	4.5	117	69	0.82	0.67	17	10	81	67
	April 2016	5.7	113	63	0.74	0.64	21	12	93	81
Socavon	**Measured + Indicated**									
	October 2016	3.8	103	33	0.60	1.56	13	4	50	132
	April 2016	5.0	98	29	0.54	1.37	16	5	59	152
	Inferred									
	October 2016	16.4	88	45	0.47	0.85	46	24	168	308
	April 2016	27.2	79	37	0.38	0.78	69	33	230	468
Combined	**Measured + Indicated**									
	October 2016	29.3	149	101	0.90	0.60	140	96	581	386
	April 2016	34.2	142	91	0.82	0.57	155	100	618	431
	Inferred									
	October 2016	20.9	94	50	0.54	0.81	63	34	250	374
	April 2016	32.9	85	42	0.44	0.76	90	44	322	548

15 Mineral Reserve Estimates

15.1 Introduction

The Mineral Reserves statement reported herein is a collaborative effort between POI, SRK Consulting (Canada) Inc. ("SRK"), KP and other QPs. The resource model, topography, metallurgical information, geotechnical data, selling costs and metal prices were provided by Golden Arrow. SRK reviewed the resource model, metallurgical parameters and geotechnical report. In the opinion of the section QP, information provided by Golden Arrow is acceptable for a pre-feasibility level study and hence can be used to define Mineral Reserves.

This section is based on information collected by the section QP during a site visit performed between April 21, 2016 and April 25, 2016 and on additional information provided by Golden Arrow throughout the course of this PFS. Other information was obtained from the public domain. The section QP has no reason to doubt the reliability of the information provided by Golden Arrow. This section is based on the following sources of information:

- Discussions with Golden Arrow personnel;
- Inspection of the Project area, including the Pirquitas Operation;
- Review of the resource model, metallurgical and geotechnical report provided by Golden Arrow; and
- Additional information from public domain sources.

15.2 Mine Design Input Parameters

The Mineral Reserves are an estimate of the tonnes mined and processed from the design pit. This section describes the input parameters that were used for pit optimization and mine design. The main inputs to mine design are metal prices, resource model, geotechnical information, operating costs, mineral processing recoveries, off site costs and charges. The parameters have been reviewed by QPs in each technical area.

The results of the mine design, including the Mineral Reserves estimate, are presented at the end of this section.

15.2.1 Commodity Price Inputs

Commodity selling price is the most influential factor in mine design. Forecasting a reliable selling price for the life of mine is often difficult and involves many uncertainties. Metal prices of $18.00/oz, $1.00/lb and $0.90/lb for silver, zinc and lead, respectively, have been used for mine planning and Mineral Reserve definition. Silver has the highest share in generating revenue for the Project and therefore has the greatest impact on the pit design. On average, revenue from this scenario of the Project consists of 72% silver, 21% lead and 7% zinc.

15.2.2 Resource Model

SRK was provided with a resource block model in CSV format. Resource models are not rotated in any direction. Table 15-1 shows the model coordinates. The model was developed by SIM Geological Inc. The model is a regularized model that consists of eight metre (Easting) by eight metre (Northing) by five metre (Elevation) size blocks. The model included information about the grades, density and geologic classification. Table 15-1 summarizes the information about the block model.

Table 15-1: Summary of Chinchillas Resource Model

Type	Y	X	Z
Minimum Coordinates	7,511,700	3,472,100	3,750
Maximum Coordinates	7,513,004	3,474,404	4,300
Block Size (metres)	8	8	5
Number of blocks	163	288	110
Rotation	0	0	0

For quality control purposes the resource model was reviewed by an SRK geologist. The review included the following items:

- Visual validation of a block model with drill hole data on sections (silver estimates)
- Visual validation of Mineral Resource categories
- Comparison of local "well-informed" block grades with composites contained within those blocks and (silver and lead estimates)
- Comparison of average assay grades with average block estimates along different directions - swath plots (silver and lead estimates)

Based on the review, there were no concerns with the model. Figure 15-1 shows a general view of the block model embedded into the topography. The model is colored by the classification of Mineral Resource, blocks in red are Inferred, green are Indicated and light blue are Measured. The dark blue shows the boundary of the block model and is the unclassified materials (primarily waste rocks).

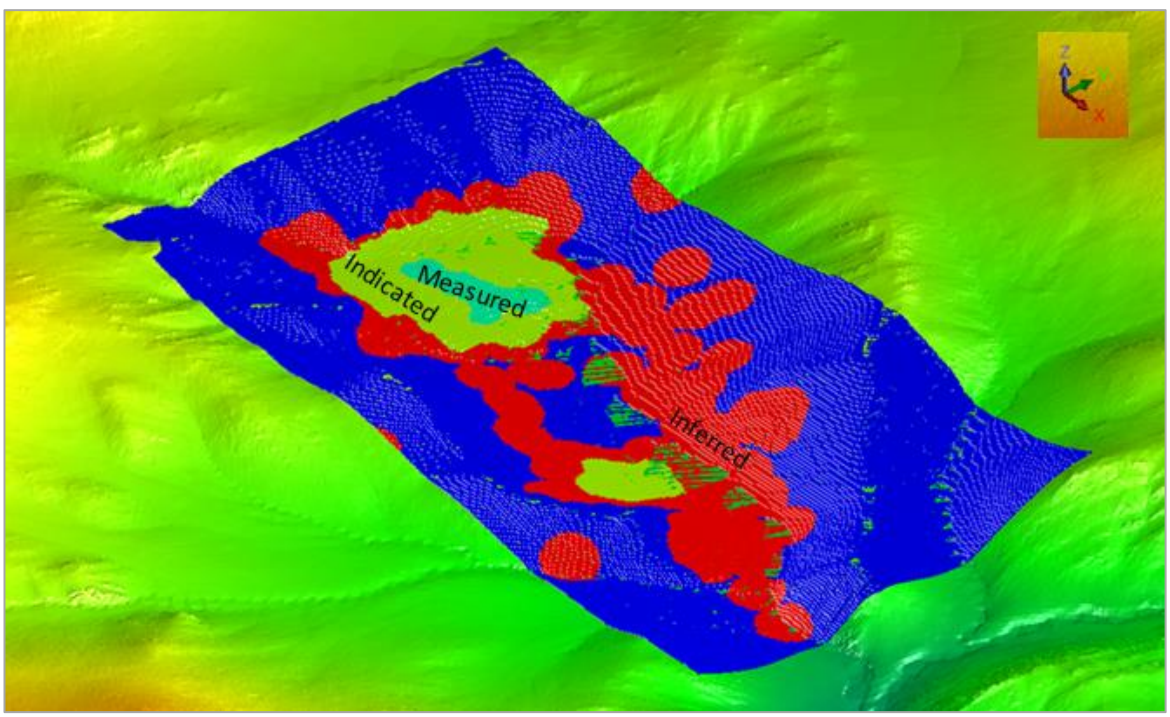


Figure 15-1: A general view of the block model

The bulk density varies between 2.0 to 2.8 tonnes per cubic metre. Density is modeled into the resource model based on samples taken from the field. Density varies based on rock type and grade of the metals.

15.2.3 Topography

The Chinchillas deposit is located in the high lands of the Andes. The topography of the property consists of several mountains and hills on the sides of property with a small valley in the middle. The orebody is located mainly in the bottom of the valley with extensions stretching to the west on the hillside. The elevation varies from about 4,090 masl in the east side of the valley to 4,300 masl on the peaks in the west. There is a small creek in the middle of valley running from west to the east.

Figure 15-2 shows a general view of the Chinchillas exploration area. The elevations are marked at a few points on the map. The existing exploration and access roads are in white.

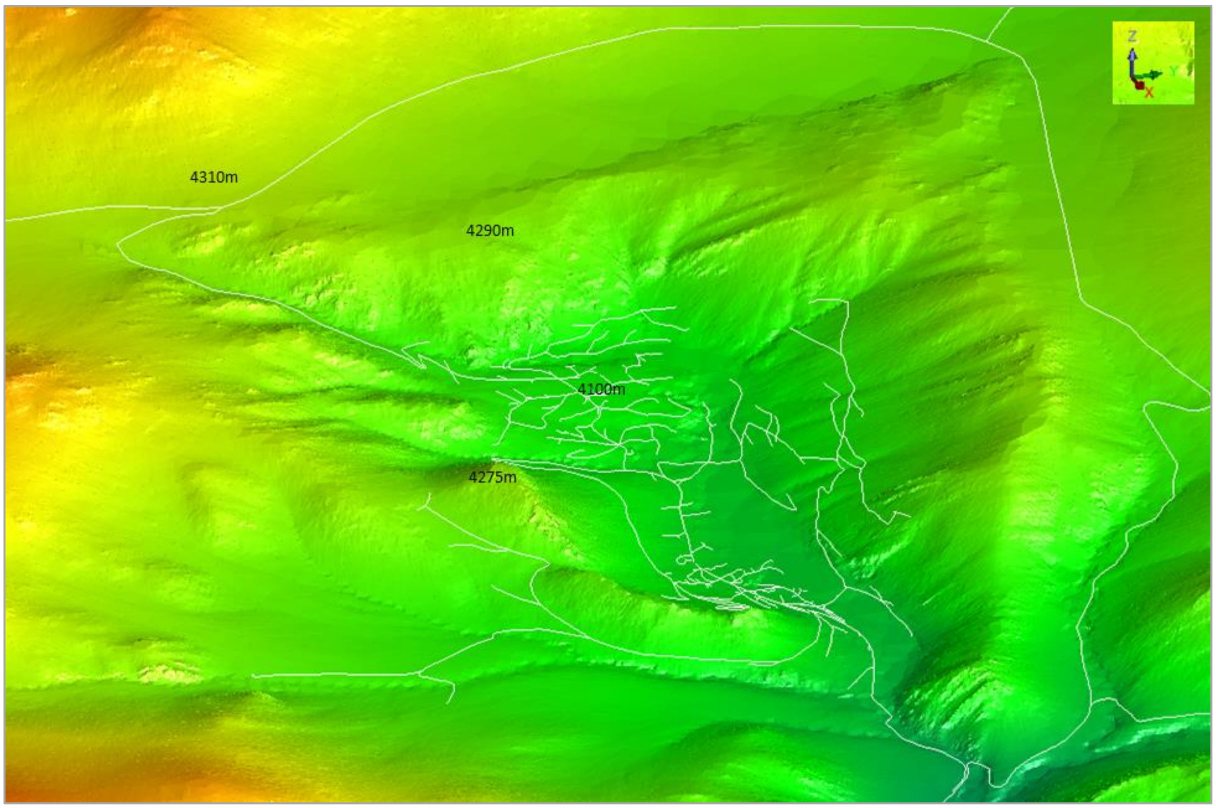


Figure 15-2: General view of the topography of Chinchillas with existing exploration roads

15.2.4 Pit Slope Criteria

KP performed pre-feasibility level geotechnical site investigations in the fall of 2015. KP recommended pit slope angles to be used for the basis of mine design. KP identified four different geotechnical zones in the pit area. The inter-ramp angle is 43 degrees on the east wall and 49 degrees on the west wall. The east wall is in tuff rocks that are commonly a weaker rock compared to sandstone that is the dominated rock type for the west wall. Table 15-2 summarizes the geotechnical inputs that were used for pit optimization and design. KP recommended a 20 to 30 metre wide geotechnical berm for every 150 metres of slope height. In the optimization stage, the overall slope angles were reduced by three degrees to allow for haulage and geotechnical berms.

Table 15-2: Recommended Inter-ramp Angles (Assuming Quadruple Benching)

Pit Design Sector	Geotechnical Unit	Bench Face Angle (^{0})	Bench Height (m)	Bench Width (m)	Inter-ramp Angle (^{0})
East	Pyroclastic	60	20	10	43
South	Basement Sandstone & Pyroclastic	60	20	10	43
Southwest	Basement Sandstone	70	20	10	49
Northwest	Basement Sandstone	70	20	10	49

The outlines provided by KP were used to model the geotechnical zones in the optimization model and for final design purposes.

15.2.5 Processing Method Inputs

The existing plant facility at the Pirquitas Operation will process the Chinchillas ore. The current plant has the capacity to mill 4,000 tpd of ore. After some modifications and improvements, the processing plant will produce lead and zinc concentrates using Chinchillas ore. Lead concentrate carries most of the silver. The following equations have been provided by Golden Arrow and were used to calculate the NSR.

Equation 1:
Silver recovery in Lead concentrate = $(-0.0005 * Ag^2) + (0.333 * Ag) + 35$
If Ag > 325g/t then Silver recovery in Lead concentrate = 90.3%

Equation 2:
Silver recovery in Zinc concentrate = $(-0.118 * Ag) + 31.8$
If Ag > 200g/t then Silver recovery in Zinc concentrate = 7.5%

Equation 3:
Lead recovery in Lead concentrate= $(-7.8675 * Pb^2) + (24.309 * Pb) + 77.858$
If Pb > 1.5% then Lead recovery = 96.6%

Equation 4:
Zinc recovery in Zinc concentrate= = $(2.03 * Zn) + 84$
If zn < 0.2% then zinc recovery = 0%

Where:

1. Ag is silver grade by grams per tonne
2. Pb is lead grade by percent
3. Zn is zinc grade by percent

In support of the processing inputs for the NSR calculation provided by Golden Arrow (dated January 2016), the results of metallurgical testwork were reviewed, and found to be acceptable. As of January 2016, Round 1 scoping tests had been completed by ALS Minerals Division, Metallurgy in Kamloops, British Columbia, Canada on four composite and 14 variability samples. Samples were divided into Mantos and Basement material as well as high and low iron to sulphide ratios. This metallurgical testwork program followed a program in 2014 on six composite samples for Golden Arrow conducted by Bureau Veritas – Inspectorate Metallurgical in Richmond BC. Section 13 provides more details about the metallurgical test program.

The recovery equations were reviewed and found to suitably represent the results from the latest testwork program. These equations estimated the recovery of silver, lead and zinc to both lead and zinc concentrates (six possible combinations). Based on these equations, when the head grade is below 0.2% zinc, no zinc concentrate is produced, therefore no revenue is associated with the concentrate. Additional equations estimated the lead and zinc concentrate mass pull percentage as a function of head grade. From the recovery and concentrate masses, the concentrate grades are calculated. SRK verified that the mass estimates agreed with the testwork results.

15.2.6 Off-Site Costs Used in NSR Calculation

Off-site costs are provided by Golden Arrow and are based on the experience of selling similar products from Pirquitas. The shipping cost of both zinc and lead concentrate is $330/t by truck and ocean freight. Treatment costs are $303/t and $203 per dry metric tonne ("dmt") for lead and zinc concentrates respectively. Treatment cost of lead concentrate is higher because of the high silver content of this product and it includes $40/dmt for penalties and $13/dmt for extra charges. There is also an additional cost of $1.50 per ounce of silver for a refining charge to be charged to silver content of concentrates. See Section 21 for further details.

15.2.7 NSR Calculation

Revenue for the Project comes from selling three metals, reporting to two concentrates. Due to the complexity of metallurgical recovery versus head grade relationship, a macro has been developed to compute NSR values inside the resource model. These NSR values are then used for the block revenue in pit optimization. Table 15-3 shows an example of the NSR calculation. According to this example, by processing a tonne of ore with 158 g/t silver, 1.22% lead and 0.48% zinc grades, 17.7 kilograms of silver / lead and 7.7 kilograms of zinc concentrates will be produced. These amounts of concentrates will generate total revenue of $103.36 per tonne of ore. After applying the smelter deductions and off-site costs, the NSR value for this ore is calculated to be $80.16 per tonne.

Table 15-3: Example of NSR Calculation per Tonne for Chinchillas PFS

Item	Value	Unit
Lead	1.22	%
Zinc	0.48	%
Silver	158	g/t
Lead recovered	25.77	lbs
Zinc recovered	8.99	lbs
Silver recovered in Lead con	3.817	ozs
Silver recovered in Zinc con	0.668	ozs
Pb Con (t)	0.01769	DMT
Zn Con (t)	0.00765	DMT
Shipping cost for Lead Con	5.838	$
Shipping cost for Zinc Con	2.525	$
Treatment charge for Lead	5.36	$
Treatment charge for Zinc	1.553	$
Refining charges for Silver	5.439	$
Total off-site cost	20.71	$
Lead payable	24.48	lbs
Zinc Payable	7.643	lbs
Silver payable in Lead con	3.626	ozs
Silver payable in Zinc con	0.468	ozs
Revenue Lead	22.03	$
Revenue Zinc	7.64	$
Revenue Silver	73.68	$
Total revenue	103.36	$
NSR	80.16	$

15.2.8 Mining Dilution

Due to the shape of the Chinchillas ore zones and also due to the irregular grade distribution, there is expected to be significant dilution in some parts of this deposit. It is recommended to develop a procedure for dilution control as soon as the mine is in operation. For this PFS, the following methodology has been developed to estimate the dilution. Figure 15-3 explains the methodology.

Step 1

NSR values are calculated

Step 2

A grade shell for grades above cut-off grade is created.

Step 3

The number of neighboring blocks that are below cut-off grade is calculated

Step 4

Dilution is assigned to each block: each side block 12.5% and each corner block 1.5%

Step 5

A shell around the above cut-off grade is formed. The grades of below cut-off grade in this shell is calculated. This is used as diluting grade.

Step 6

Using diluting grades calculated in step 5 the grades are modified based on dilution calculated in step 4.

Step 7

Density of diluted blocks are modified to account for the additional materials. Density of waste materials inside the shell, created in step 5 is reduced to make the total in-pit mass balanced.

Figure 15-3: Steps taken in dilution estimation

A new NSR Value is then calculated using diluted grades. This diluted model was used for pit optimization. For reporting tonnages, the cut-off grades are applied to the diluted NSR.

Figure 15-4 shows a plan view of the orebody inside the pit for the 4090 bench. As expected, the isolated blocks incur more dilution compared with blocks that are either adjoining other ore blocks or are entirely inside the orebody.

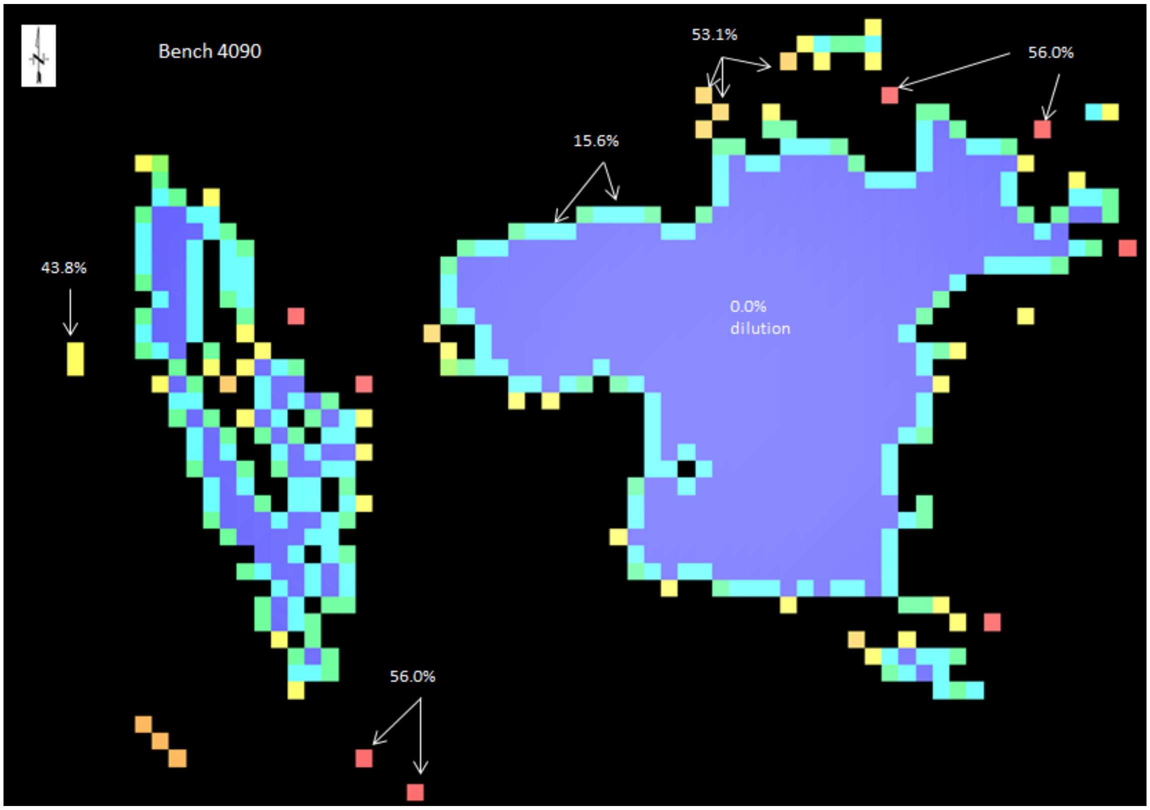


Figure 15-4: Dilution figures for bench 4090

Because of the changes in the shape of ore zones as well as grade distribution the amount of dilution varies inside the pit in different elevations (benches). Figure 15-5 shows dilution on different benches of the pit shell 38. Dilution varies between 6% and 50%. Higher benches consist of narrower and more scattered shapes; therefore, the dilution is greater in those areas. This is the same at the bottom of the pit where higher dilution will occur. The average in-pit dilution is calculated to be 11%.

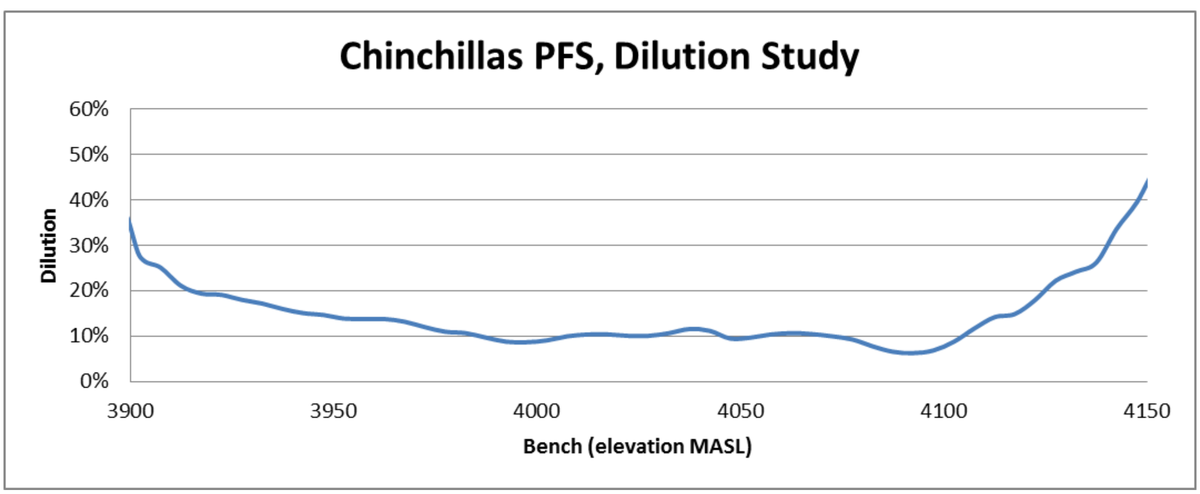


Figure 15-5: Dilution by Benches at Chinchillas Pit

It is important to note that dilution parameters can change if the design parameters change. This includes any change in the price of metals, selling costs or recovery. Therefore if a new set of input parameters are introduced for mine design it is highly recommended to recalculate the dilution.

15.2.9 Ore Loss

Some of the ore planned for mining and processing will be lost due to several factors, including loading, blending with waste after blasting and human errors. A mining recovery of 98% has been applied to account for this type of ore loss, based on experience and engineering judgment.

15.2.10 Mining and Processing Operating Cost Inputs

The Pirquitas mine provides a basis for cost estimation for the Project, with mining and processing cost inputs for optimization at Chinchillas derived from actual operating data provided from Pirquitas. The mining cost for ore and waste is estimated to be $2.54/t mined. This includes the mine general and administration cost and is based on the 4090 bench which is the approximate elevation of the pit exit point. An additional cost of $0.01/t is applied to the mining cost for uphill haulage for each five metres below 4090. In addition it is estimated to cost $0.005/t for downhill haulage for each five metres above 4090. The mining unit cost includes drilling, blasting, loading, haulage, support and mine administration. For mining of ore an additional cost of $2.89/t has been applied for grade control, stockpiling and road maintenance costs.

Haulage of ore from Chinchillas to the mill at Pirquitas is estimated to be $7.79/t using 35 tonne trucks. The ore haulage will be operated by contractors. The processing cost, including crushing, is $14.76/t. The general and administration cost per year is expected to vary for each year. Based on the experience at Pirquitas, on average, general and administrative costs are estimated to be about $9.30 million per year which equals $6.69/t milled.

Sustaining capital costs are estimated to be $2.03/t milled ($2.84 million per annum) for the operation.

Table 15-4 summarizes the operating cost and sustaining capitals costs used in pit optimization.

Table 15-4: Operating Cost for Chinchillas PFS

Items	Units	Values
Mining (ore and waste)	$/t mined	$ 2.54
Incremental mining cost	$/t mined	$ 0.01
Extra mining cost for ore	$/t milled	$ 2.89
Processing	$/t milled	$ 14.76
Haulage ore to mill	$/t milled	$ 7.79
G&A	$/t milled	$ 6.69
Sustaining CAPEX	$/t milled	$ 2.03
Tailing operating cost	$/t milled	$ 0.43

15.2.11 Cut-off Grade Calculation

Cut-off grade is a grade where two different actions can be taken if the grade is below or above that grade. Milling cut-off grade is the minimum grade that if milled the product can pay off all the milling costs and related general and administration cost. The total operating cost of processing a tonne of ore is calculated at $32.56. Therefore if a tonne of ore contains a minimum of $32.56 NSR value it can be milled. So the milling cut-off grade for the Project is calculated to be $32.56/t NSR.

It is estimated that the sustaining capital for the operation is $2.03/t of milled. This amount varies by year. Sustaining capital is to maintain the mill, mining equipment, and other incurred capital expenses. As a stockpiling policy, a higher cut-off grade has been applied for the life of mine to cover the sustaining capital and to accelerate the expected pay-back period. The cut-off grade for the duration of mining is set to $35.00/t. The Mineral Resources with grades between $32.56/t and $35.00/t will be stockpiled as low grade ore for the duration of mining. This will be milled at the end of mine life. Stockpiles are part of the Mineral Reserve.

15.3 Pit Optimization

The open pit was optimized using Geovia's Whittle™ software and Lerchs-Grossmann ("LG") optimization algorithms. Pit optimization was carried out using the resource block model issued in April 2016 along with technical and economic data recommended by the QPs for this study and Golden Arrow personnel.

A range of revenue factors were used from 0.2 to 1.2 with 0.02 increments to run 51 optimizations. That means a series of optimization was done for the metal prices changing from 0.2 times base case price up to 1.2 times base case price with 0.02 increments ($3.6/oz up to $21.6/oz silver).

15.3.1 Results

Table 15-5 summarizes the results of pit optimization for a range of silver prices from $9.00/oz up to $21.60/oz. For the base case scenario ($18.00/oz silver price), 12.8 million tonnes of Mineral Resource can be mined, that contains 62.1 million ounces of silver, 332.9 million pounds of lead and 135.8 million pounds of zinc. The strip ratio for the base case pit shell is 4.25:1 (waste:ore). Note that the numbers provided in this table are reported within optimized pit shells and not detailed pit design. After designing the selected final pit shell, which involves adding ramps and safety berms, the grade and tonnes may change.

Pit 41 corresponds to the 100% revenue factor price ($18/oz for silver) but, as will be explained in Section 15.4.2, Pit 38 (revenue factor of 0.94) was eventually selected for the mine design.

Table 15-5: Results of Pit Optimization

Pit	Prices	Total mined	Waste	Ore	SR	NSR	Silver		Lead		Zinc	
	Silver $/oz	Tonnes	Tonnes	Tonnes	W:O	$/t	g/t	M Ozs	%	M Lbs	%	M Lbs
16	9.00	23,086,415	20,267,120	2,819,295	7.19	127.67	249.6	22.621	1.61	99.848	0.49	30.660
17	9.36	24,063,169	20,980,473	3,082,696	6.81	123.75	241.7	23.952	1.59	108.079	0.50	34.144
18	9.72	24,520,108	21,191,861	3,328,247	6.37	119.75	234.1	25.053	1.56	114.121	0.51	37.101
19	10.08	25,884,946	22,201,361	3,683,585	6.03	115.59	225.9	26.756	1.53	123.998	0.52	41.940
20	10.44	27,005,346	22,962,366	4,042,980	5.68	111.56	218.1	28.347	1.49	132.933	0.53	46.995
21	10.80	27,258,053	23,034,725	4,223,328	5.45	109.37	213.8	29.036	1.47	136.905	0.54	49.820
22	11.16	27,374,193	22,972,316	4,401,877	5.22	107.18	209.5	29.655	1.45	140.716	0.54	52.760
23	11.52	28,386,509	23,670,183	4,716,326	5.02	104.32	203.9	30.920	1.43	148.432	0.55	57.592
24	11.88	34,894,930	29,464,507	5,430,423	5.43	101.92	199.5	34.835	1.44	172.178	0.53	63.723
25	12.24	35,866,530	30,133,961	5,732,569	5.26	99.74	195.5	36.032	1.42	179.071	0.53	67.373
26	12.60	36,011,471	30,105,888	5,905,583	5.10	98.27	192.7	36.590	1.40	182.412	0.54	69.839
27	12.96	37,208,931	30,930,384	6,278,547	4.93	95.82	188.1	37.961	1.38	190.835	0.54	74.700
28	13.32	54,260,833	45,993,429	8,267,404	5.56	90.64	181.4	48.217	1.34	244.573	0.46	84.011
29	13.68	54,883,452	46,325,333	8,558,119	5.41	89.26	178.9	49.218	1.33	250.490	0.46	86.955
30	14.04	56,243,946	47,285,572	8,958,374	5.28	87.66	175.9	50.655	1.31	259.300	0.46	91.237
31	14.40	56,951,879	47,665,778	9,286,101	5.13	86.25	173.2	51.704	1.30	265.909	0.47	95.236
32	14.76	58,349,967	48,693,309	9,656,658	5.04	84.93	170.8	53.029	1.29	273.796	0.46	98.696
33	15.12	58,704,580	48,790,444	9,914,136	4.92	83.84	168.8	53.790	1.28	278.825	0.47	101.568
34	15.48	58,871,017	48,705,776	10,165,241	4.79	82.75	166.7	54.496	1.26	283.377	0.46	104.002
35	15.84	60,808,579	50,214,661	10,593,918	4.74	81.44	164.2	55.916	1.25	292.639	0.47	108.919
36	16.20	61,586,037	50,622,250	10,963,787	4.62	80.11	161.4	56.907	1.24	299.632	0.48	115.257
37	16.56	61,813,775	50,592,720	11,221,055	4.51	79.14	159.6	57.580	1.23	304.060	0.48	118.100
38	**16.92**	**62,147,413**	**50,646,521**	**11,500,892**	**4.40**	**78.14**	**157.7**	**58.308**	**1.22**	**308.751**	**0.48**	**121.451**
39	17.28	66,304,907	54,106,240	12,198,667	4.44	76.56	154.8	60.692	1.20	322.995	0.47	127.513
40	17.64	66,811,727	54,319,015	12,492,712	4.35	75.64	153.0	61.447	1.19	328.084	0.48	130.917
41	**18.00**	**67,067,507**	**54,288,463**	**12,779,044**	**4.25**	**74.73**	**151.1**	**62.079**	**1.18**	**332.872**	**0.48**	**135.783**
42	18.36	67,239,263	54,217,585	13,021,678	4.16	73.96	149.6	62.624	1.17	336.495	0.49	139.272
43	18.72	68,645,032	55,083,585	13,561,447	4.06	72.52	146.7	63.948	1.16	345.342	0.49	147.487
44	19.08	69,589,618	55,540,263	14,049,355	3.95	71.23	144.2	65.144	1.14	353.034	0.50	153.180
45	19.44	70,096,850	55,557,138	14,539,712	3.82	69.92	141.6	66.205	1.12	360.345	0.50	160.468
46	19.80	70,903,261	55,908,783	14,994,478	3.73	68.82	139.6	67.278	1.11	367.700	0.50	165.450
47	20.16	71,874,271	56,426,924	15,447,347	3.65	67.81	137.6	68.352	1.10	374.749	0.50	170.428
48	20.52	72,178,497	56,326,512	15,851,985	3.55	66.84	135.8	69.201	1.09	380.518	0.50	175.412
49	20.88	73,561,971	57,086,553	16,475,418	3.46	65.56	132.8	70.362	1.07	390.129	0.52	189.473
50	21.24	74,254,233	57,329,876	16,924,357	3.39	64.64	130.8	71.159	1.06	396.096	0.54	200.009
51	21.60	74,629,401	57,301,320	17,328,081	3.31	63.81	129.1	71.911	1.05	401.366	0.54	206.869

The optimization results show the size of pit is sensitive to the variation of metal prices. This can be seen in Figure 15-6. The size of pit particularly shows significant sensitivity below $14.00/oz silver price. The shape of orebody and topography (the high wall on the west) are the main reasons for this sensitivity. The rate of mine size expansion decreases after $14.00/oz silver price. This is mainly due to the high wall in the west that acts as a natural barrier for the mine expansion and also to the orebody getting narrower at depth.

For the base case condition (marked by green square), the size of pit is 67.1 million tonnes. The size of the pit does not change significantly around the base case price.

Strip ratio (blue line) decreases as the pit gets larger. This is due to the nature of the deposit that consists of a very strong tail of low grade Mineral Resource. As the price increases a significant amount of marginal mineralized waste inside the pit converts to mineable ore as the cut-off grade decreases.

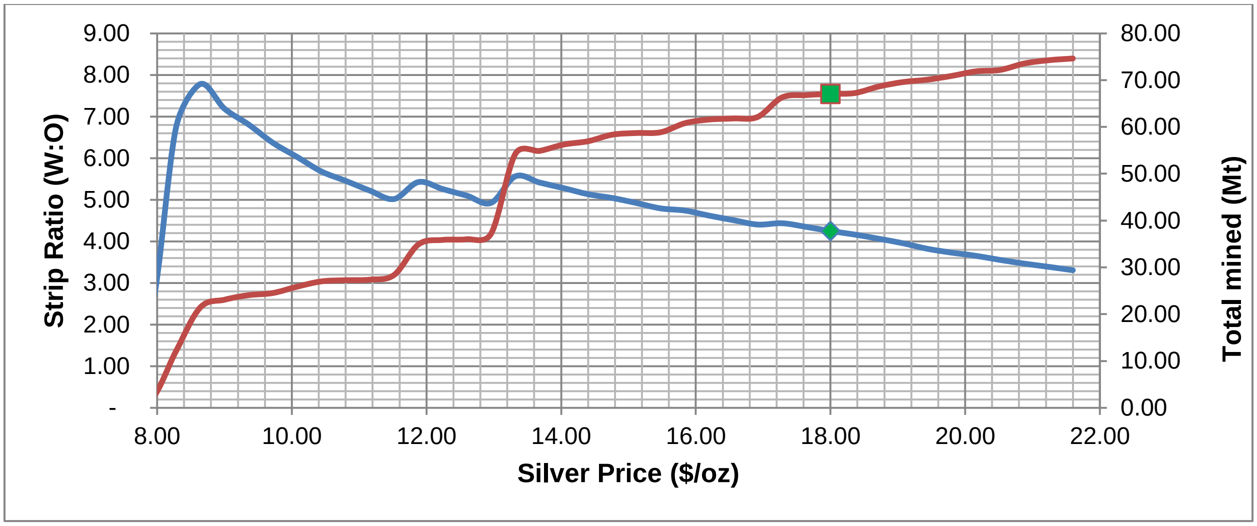


Figure 15-6: Total rock mined (red) and strip ratio (blue) for different silver prices

Figure 15-7 shows the optimization results for the mineable resources based on the silver price. As the price of silver increases the mineable ore also increases. There is less than 4.0 million tonnes of mineable resource at $10/oz. This amount will increase to about 15.0 million tonnes if the price of silver increases to $20/oz. At $9/oz and $13/oz prices, there are sudden increases in the amount of mineable resource. This is mainly due to the shape of orebody which consists of multiple horizontal structures and a dipping structure. When the pit reaches one of the horizontal structures, there is a jump in the amount of ore available to be mined.

As previously mentioned, due to the strong low grade component of the deposit, some of the changes in the amount of mineable resource comes from the marginal mineralized waste which, at higher prices, becomes profitable to mill. This fact explains the smoothness of the graph after the $14/oz pit shell.

The red square on the graph marks the result of base case optimization. In order to select the optimal pit shell to use for design, a strategic planning exercise was undertaken as described in Section 15.4.1.

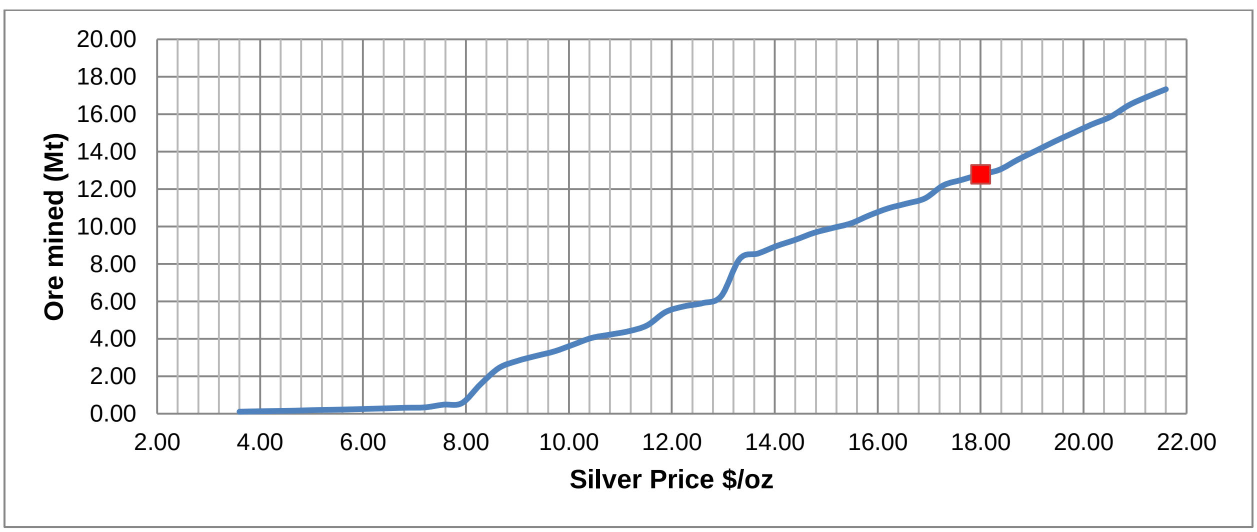


Figure 15-7: Mineable resources based on the silver price

15.4 Mineral Reserves Estimate

15.4.1 Strategic Mine Planning

Strategic mine planning is a tool to help make fundamental decisions about a mining project such as ultimate pit selection, mining/milling rate and stockpiling policy. A series of strategic mine planning exercises were conducted in several stages of this Project to help make better decisions to advance the Project. This section focuses on the latest strategic mine planning that was done to select the ultimate pit and to help with developing a stockpiling policy.

15.4.2 Ultimate Pit Selection

After pit optimization a series of production schedule options are set for the optimum pit shells that are listed in Table 15-5. Figure 15-8 shows the seven scenarios that were examined during the latest strategic mine planning. These scenarios are set based on:

- Stockpiling policy: This is based on NSR cut-off grades. In this preliminary planning, four different cut-off grades were used for stockpiling lower grade Mineral Resources, namely $39/t, $41/t, $43/t, $45/t.
- Ramp-up period strategy: Combinations of 3.0 kt/day, 3.5 kt/day and 4.0 kt/day for first few years were considered.
- Pit size: pit 41 is the base case optimum pit shells. Two other smaller pit shells have been looked at in detail as well.

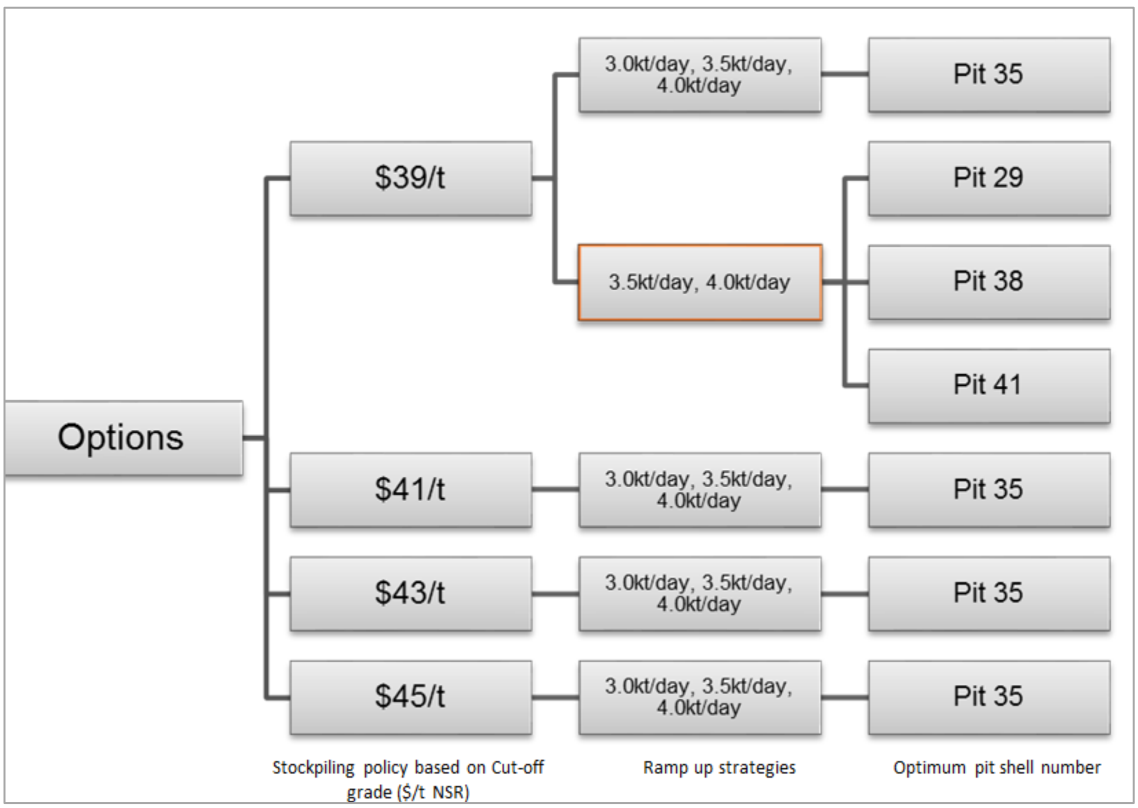


Figure 15-8: Options for Strategic Mine Planning Purposes

A preliminary economic analysis is done for each scenario and for each optimized pit shell. The results of economic analysis are then used to observe the sensitivity of the pit shells under the given condition.

Figure 15-9 shows the discounted (at 8%) value of pit shells for the best and worst case scenarios. As can be seen, pit values don't change significantly for the pit sizes from 29 to 41. The differences between these pit shells were investigated and it was concluded that pit shell 38 provides the best overall outcome in terms of economics and practicality. Therefore pit 38 was selected for final design.

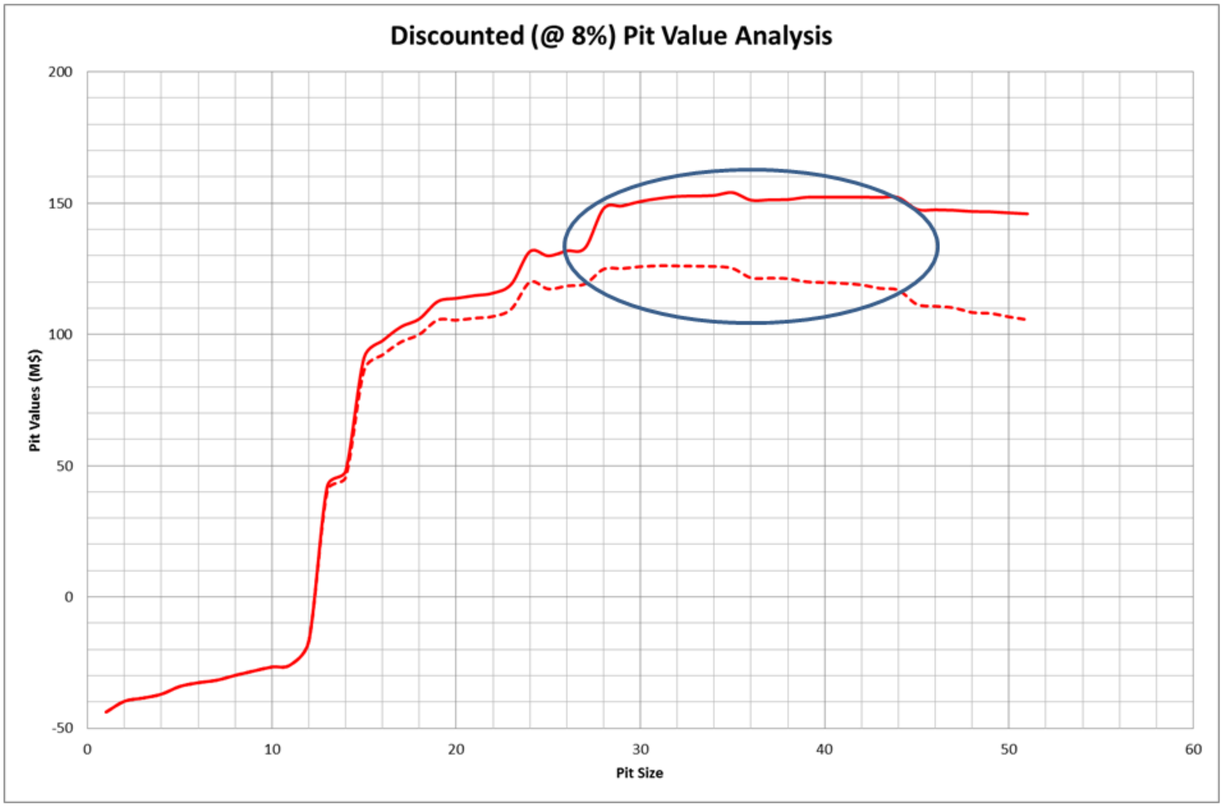


Figure 15-9: Pit Value Analysis for Chinchillas Optimum Pit Shells

While Pit 38 mines most of the ore in base case pit shell (Pit 41), it leaves in the ground a small amount of ore that is deep and requires significant amount of extra stripping, representing the less profitable sections of Pit 41. Figure 15-10 shows a section with Mineral Resources above cut-off grade and pit shells 38 and 41.

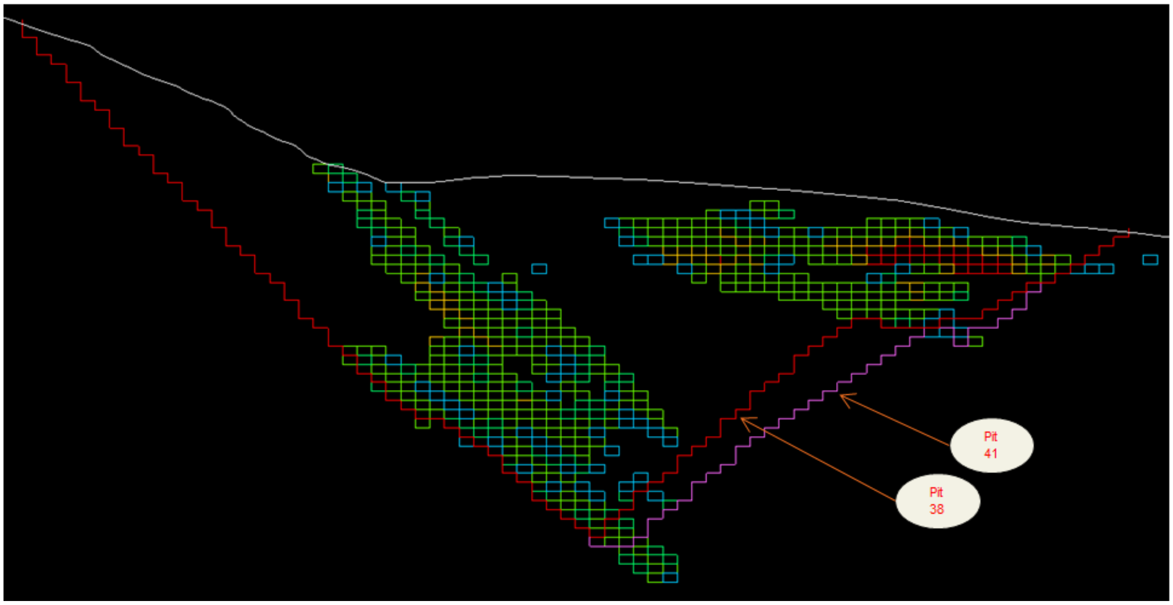


Figure 15-10: Pit Shells 38 and 41 with ore above cut-off grade

15.4.3 Factors that Affect the Mineral Reserves Estimates

Factors that affect the Mineral Reserve estimates include, but are not limited to: dilution; metal prices; off-site costs; metallurgical recoveries, pit slope designs; capital and operating cost estimates; and the effectiveness of managing environmental impacts. The section QP is of the opinion that these potential modifying factors have been adequately accounted for using the assumptions in this Technical Report by other QPs and experts. The main factors that affect the Mineral Reserve estimations reported in this section are:

- Commodity prices, particularly silver price
- Processing recoveries
- The effectiveness of managing environmental impacts for waste rock and downstream water flows

The Mineral Reserves estimate has taken into account all known legal, political, environmental or other risks that could materially affect the potential development of the Mineral Reserves, as discussed in various sections of this Technical Report.

15.4.4 Mineral Reserves Summary

Table 15-6 summarizes the Mineral Reserves for the Project as calculated in this PFS.

Table 15-6: Chinchillas Mineral Reserve Estimate, December 31, 2016

Zone	Tonnes (kt)	Ag g/t	Pb %	Zn %	Silver Moz	Lead Mlbs	Zinc Mlbs
Proven Mineral Reserves							
Mantos	1,636	180	0.75	0.42	9.44	27.01	15.11
Socavon	-	-	-	-	-	-	-
Total	**1,636**	**180**	**0.75**	**0.42**	**9.44**	**27.01**	**15.11**
Probable Mineral Reserves							
Mantos	9,766	153	1.28	0.44	47.98	276.24	94.09
Socavon	308	47	0.92	2.56	0.46	6.24	17.39
Total	**10,074**	**150**	**1.27**	**0.50**	**48.44**	**282.48**	**111.48**
Proven and Probable Mineral Reserves							
Mantos	11,402	157	1.21	0.43	57.42	303.25	109.20
Socavon	308	47	0.92	2.56	0.46	6.24	17.39
Total	**11,710**	**154**	**1.20**	**0.49**	**57.88**	**309.49**	**126.59**

Notes:

1. Mineral Reserves estimate is based on metal price assumptions of $18.00/oz silver, $0.90/lb lead and $1.00/lb zinc.
2. Mineral Reserves estimate is reported at a cut-off grade of $32.56 per tonne net smelter return ("NSR").
3. All figures include dilution. The average mining dilution is calculated to be 11%.
4. Ore loss is estimated at 2%.
5. There is an estimated 54.89 million tonnes of waste in the ultimate pit. The strip ratio is 4.69 (waste:ore).
6. Processing recoveries vary based on the feed grade. The average recovery is estimated to be 85% for silver, 95% for lead and approximately 80% for zinc.
7. Metals shown in this table are the contained metals in ore mined and processed.
8. This Mineral Reserves estimate assumes that all required permits, as discussed under Section 20, will be obtained.
9. Figures may not total exactly due to rounding. All ounces reported represent troy ounces, and "g/t" represents grams per tonne.

15.5 Declaration

The section QP's opinion contained herein and effective December 31, 2016, is based on information collected by SRK throughout the course of the PFS, which in turn reflect various technical and economic conditions at the time of writing. Given 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 favorable.

This Technical Report may include technical information that requires subsequent calculations to derive sub-totals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the section QP does not consider them to be material.

Neither SRK nor the section QP is an insider, associate or an affiliate of POI, Golden Arrow or Silver Standard, and neither SRK nor the section QP nor any affiliate has acted as advisor to POI, Golden Arrow or Silver Standard, or each of their respective subsidiaries or affiliates in connection with this

Project. The results of the technical work by SRK are not dependent on any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings.

16 Mining Methods

The Chinchillas deposit will be mined as a conventional open pit operation. Most of the in-pit haulage for both ore and waste will be carried out using 100 tonne haulage trucks. Ore will be mined in five metre benches and stockpiled in a staging area close to the pit. In the staging area, ore will be loaded onto 35 tonne road trucks to be transported to the crusher at the Pirquitas Operation which is 42 kilometres away from the Chinchillas Property. Throughout the mining operation, low grade ore will be stockpiled near the pit rim to be processed at the end of mine life.

Waste rock will be mined and hauled to two major on-site rock storage facilities based on their geochemical characteristics. Some of the mineralized waste will be stockpiled near the pit so that it can be recovered in the case that silver price exceeds $18/oz.

The mining operation will be conducted by the owner and the ore haulage is a contractor-based operation.

16.1 Mine Design Criteria

The open pit roads, benches and waste storage facilities are designed using the criteria listed in Table 16-1. The pit slope angles for both pit and dumps were recommended by KP. Ore and waste are mined in five metre benches. Final wall 20 metre benches are formed by joining four working benches together. Haulage roads are 30 metres wide, which is sufficient for 2-way traffic of 100 tonne trucks, plus enough space to build a ditch and a safety berm. Inter-ramp angles for the west and east walls are 49 and 43 degrees, respectively. For every 150 metres of slope height, either a 20 metre geotechnical berm or a haulage road will be added to the slope.

Table 16-1: Mine Design Criteria

Criteria	Unit	Value	Remarks
Bench height (final wall)	m	20	Ore and waste will be mined in 5 m benches
Bench face angle	degree	60 & 70	60 degrees in East and South; the rest 70 degrees
Catch bench width	m	10	On final walls
Geotechnical berm	m	20	For every 150 m height
Inter-Ramp angle	degree	43 & 49	43 degrees in East and South; the rest 49 degrees
Haulage road width	m	30	2-way roads, includes berm and ditch
Maximum road slope	%	10	
Rock dump face angle	degree	35	25 m lifts and overall slope of 26 degrees

Figure 16-1 shows a section of road profile for 2-way traffic that will be used for common 100 tonne off-highway trucks in Chinchillas.

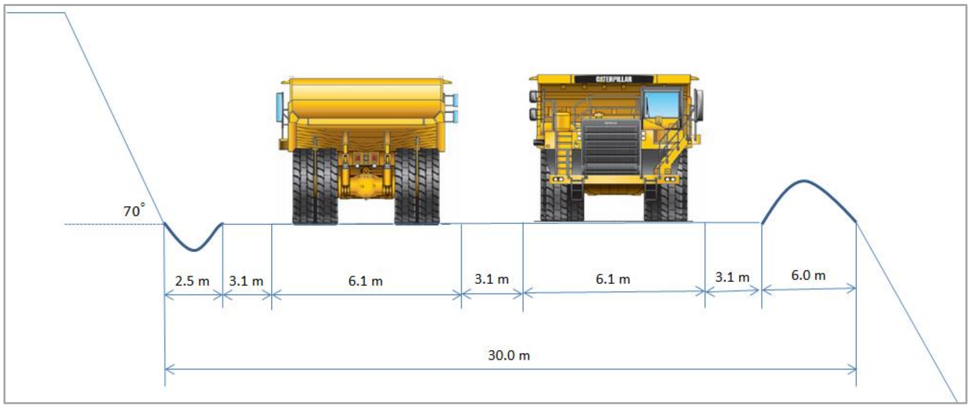


Figure 16-1: Haulage Road Profile for 2-way Traffic of Common 100 Ton Trucks

16.2 Ultimate Pit Design

The ultimate pit consists of the main pit in the west and a small satellite pit to the east in the Socavon area (see Section 14.2). Figure 16-2 shows a general view of the Chinchillas open pit area including the main pit, Socavon pit, ore staging area and haulage roads. The main pit is 920 metres long (south to north) and 730 metres wide (east to west). The lowest bench of the pit is at 3925 masl and the highest point is at 4245 masl. The highest wall of the main pit is on the west side and is 320 metres high. This high wall is broken into three sections by a 20 metre geotechnical berm and a 30 metre haulage ramp. In the main pit there are 64 working benches.

The in-pit haul road is a clockwise spiral ramp started at the bottom of the pit and reaching to the natural topography at 4090 bench. The road is designed at 30 metres width and 10 percent gradient. The road for three benches at the bottom of the pit is 23 metres wide and is considered to be a single lane road in this section. There is a switchback turn at 3065 bench to reduce the strip ratio and also to ease the access to the ore staging area. There are two temporarily access roads to the high wall that will be used in the first year of operation. Due to the shape of the orebody there are a few drop cuts in the east area of the main pit that may provide back fill opportunities.

The inter-ramp slope angle for the east wall of the main pit is shallower at 43 degrees compared to 49 degrees in the west wall.

The Socavon pit is a small and round pit that consists of maximum nine benches on the south west side of the pit. The highest wall in this pit is just 45 metres. In total 630 kt of rock will be mined from the Socavon pit. There are a few small exploration tunnels in the Socavon pit that operations need to be cautious about. These are very small in size and shallow so there will not be any operational concern associated with them. The total quantity of material mined historically from these tunnels was 1,200 tonnes that are mainly dumped in front of the tunnels. The Socavon pit contains low grade ore so it is planned to be mined in the last year of mine life.

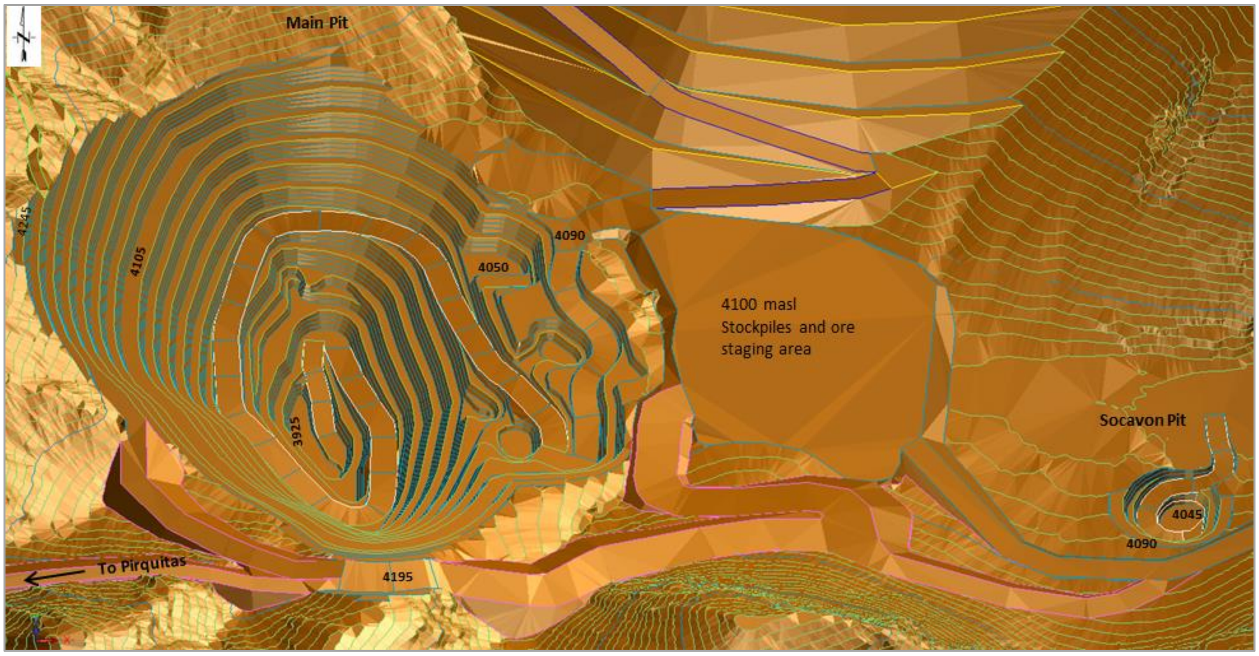


Figure 16-2: A Perspective View of Chinchillas Ultimate Pit

Figure 16-3 shows a section of the main pit from east to west. It shows the ore staging area on the east side of the pit and the high wall with its key elevations.

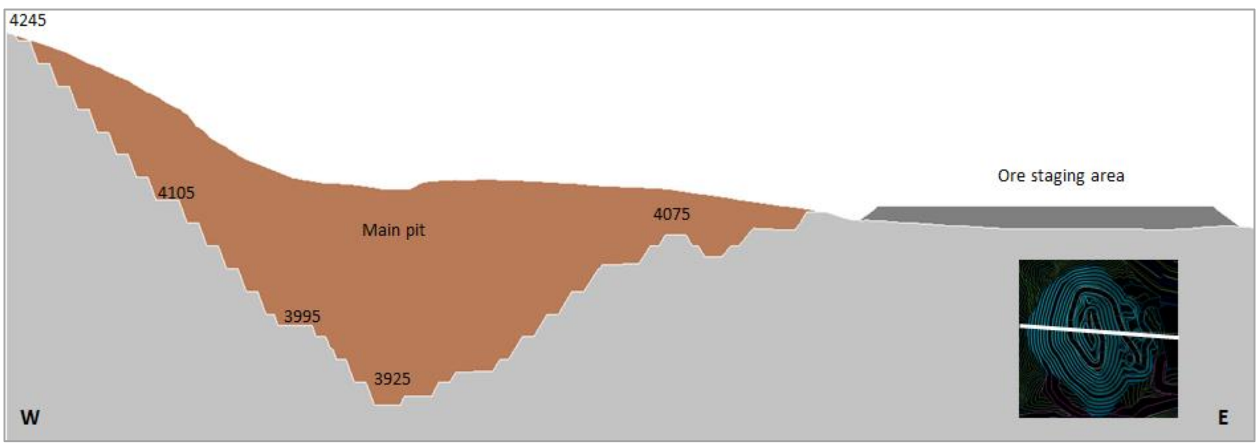


Figure 16-3: Long Section of the Main Pit

16.2.1 Pit Phase Designs

To enhance the economics of the mine the pit is designed to be mined in sequences. The general approach for mine sequencing is to advance mining high grade ore and delay mining the waste as much as possible. In the pit optimization stage, using revenue factors, a series of nested pit shells are produced that are used for pit sequencing and production scheduling. The smaller pits in Section 15 target the most valuable parts of the orebody with the least amount of stripping. Pit shells 13, 23 and 38 were selected to become the basis of the main phases or pushbacks of the pit. The strategic mine planning showed that pit shell 38 overall provides better economic outputs with lower risk of operation, therefore it was selected as the ultimate pit. Phase 1 includes pre-production that by itself is called phase zero. These phases are coded into the block model and then were used to develop yearly mine plans. Figure 16-4 depicts a south-north section of the main pit with 4 main stages of mining shown in different colors.

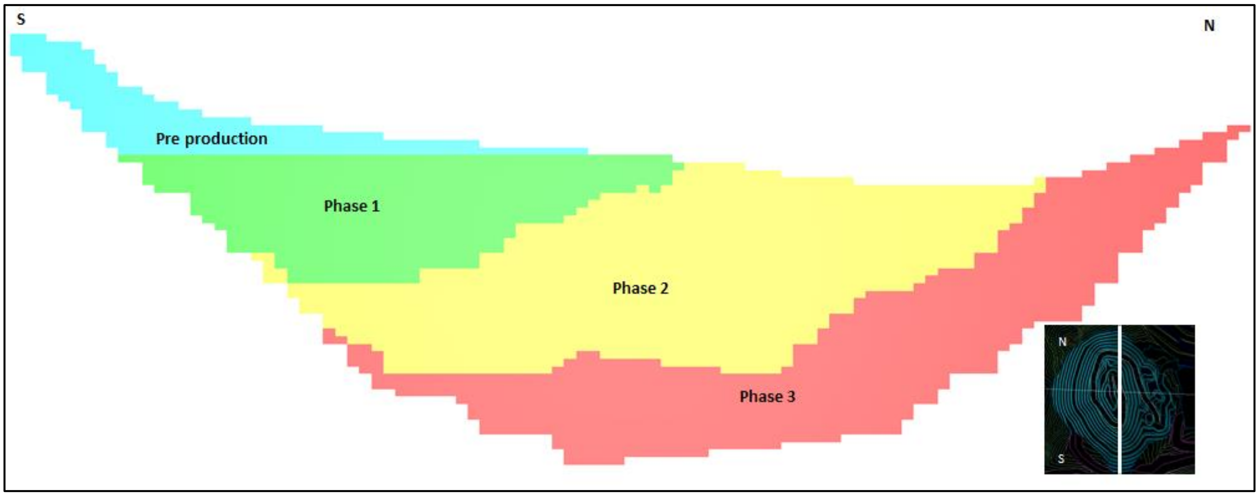


Figure 16-4: A Section of the Pit with Pit Phases

Table 16-2 summarizes the contained ore and waste in each phase. As shown, higher grade ore is mined in early stages of mining as much as possible so phase one contains ore with highest grade of silver. The strip ratio is also smaller for first phase compared to phase 2 and 3.

Table 16-2: Chinchillas Mineral Reserve by Phases

Phases	Proven and Probable Ore Mined							Waste	Total	Strip Ratio
	(Kt)	Ag (g/t)	Pb (%)	Zn (%)	Silver Moz	Lead Mlbs	Zinc Mlbs	(kt)	(Kt)	W:O
Phase 0	199	92	0.75	0.69	0.58	3.30	3.00	5,996	6,195	29.23
Phase 1	3,344	165	1.12	0.55	17.78	82.36	40.62	8,196	11,540	2.34
Phase 2	3,644	151	1.25	0.69	17.68	100.71	55.73	12,8521	16,496	3.39
Phase 3	4,523	151	1.24	0.27	21.93	123.43	27.13	27,842	32,366	5.93
Total	11,710	154	1.20	0.49	57.98	309.80	126.48	54,887	66,597	4.69

Some of the material from phases 3 and 4 must be mined in advance due to safety considerations and also to balance the equipment utilization. Although it is desirable to mine phases in order of their priority, due to operational constraints more than one phase will be mined in each period. Figure 16-5 shows the progress of mining by phases in different periods. Although more than one phase is mined in each year, they are mined in order of their priority as much as possible.

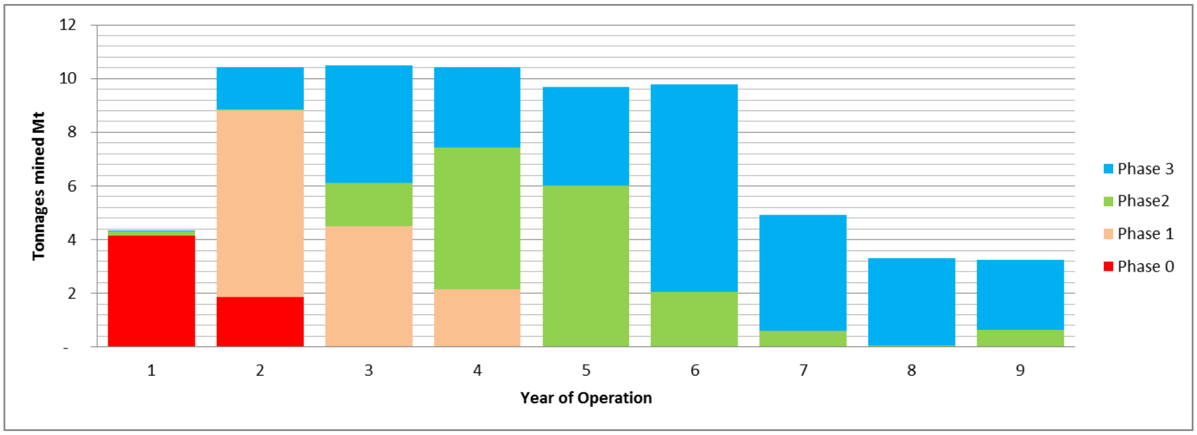


Figure 16-5: Tonnages of Total Material Mined per Year from Each Phase

16.3 Production Scheduling

The mine life is nine years including six months of pre-production activities. The mining activities will be terminated in Year 9. Some of the low grade ore stockpiled throughout the mine life will gradually be transported to the mill in Year 10 while the mine is closed.

Using phase designs defined above, a detailed production schedule was developed. In total, 16 detailed mine period plans were developed. For the first 2.5 years of the mine life, ten plans are developed, one for each quarter. Thereafter six yearly plans are developed to the end of the mine life. Tonnages of ore and waste are calculated using the 16 mine plans for each period.

16.3.1 Pre-Production Activities

The pre-production period is one of the most crucial stages toward producing ore in Chinchillas. Developing access roads to mining areas as well as to the rock storage areas, building ore staging pads, offices, facilities and most important, developing and upgrading the ore haulage road are among the activities in this period.

The main approach for road construction and ground preparation is to minimize the cuts and use waste from the pit as much as possible. Two small access roads will be built for the high wall to the west in order to advance mining of the top benches as much as possible. This will provide material for road and pad construction and also will make it safe to work on lower benches in later years. In the pre-production period 4.3 million tonnes of waste mining is planned. Most of this material will be used to build the pads and roads. If necessary, for construction of offices and other facilities, some additional material can be mined within the pit area from lower elevations.

There is approximately 500 kt of high grade ore available close to the surface that can be mined in the first year of operation. However the majority of ore is at depth requiring significant waste removal. For a smooth operation, it is fundamental for Chinchillas to accelerate mining waste in the early years. This will avoid peaks in the number of mining equipment required in later years.

Figure 16-6 shows the shape of the mine at the end of pre-production period. The pre-production period is estimated to take six months to complete.

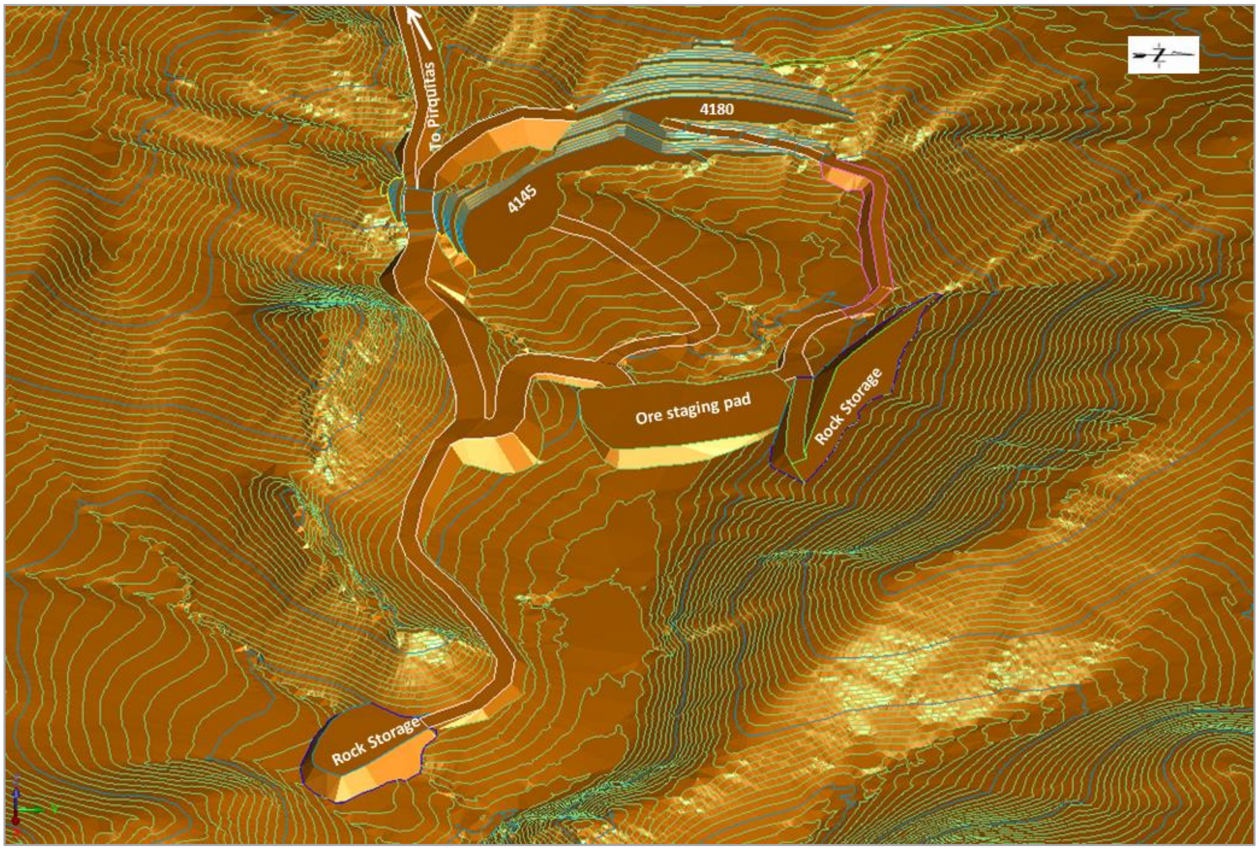


Figure 16-6: Pre-production Developments

16.3.2 Results of Production Schedule

The mining operation will take approximately nine years to complete including the pre-production period. The first and last years of operation are partial years. After mining activity is terminated in Year 9, there will be some stockpile reclamation at the Project. Figure 16-7 is a graph showing the production schedule for the Project.

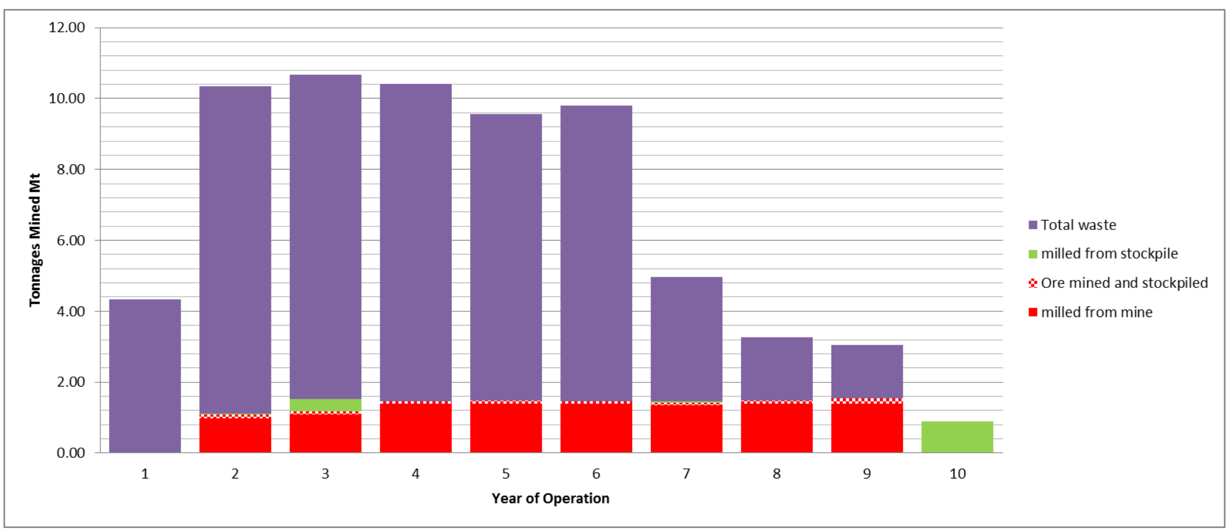


Figure 16-7: Chinchillas PFS Production Schedule

Table 16-3 shows the detailed production schedule. Materials mined in the pit are separated by their grade and geochemical characteristics. These are clearly reported in different rows. Production is reported on a quarterly basis for the first 2.5 years and on a yearly basis thereafter.

Ore is classified into two groups: low grade and high grade ore. Milling cut-off grade is calculated to be $32.56/t NSR. Ore below $35.00/t NSR is considered as low grade ore and will be stockpiled in low grade stockpiles close to the pit on a pad. This is called the long-term stockpile. There is 690 kt of low grade ore to be placed in the long-term stockpile over the life of mine. This will be milled at the end of the mine life.

High grade ore will be placed in the ore staging area as it is mined in the pit. This then will be loaded on 35 tonne haul trucks and transferred to the mill on a daily basis. In some periods, extra high grade ore will be mined. This will be stockpiled at the ore staging area as a short-term stockpile and will be transported to the mill when there is a shortage of high grade ore.

Waste is classified and reported in three groups "A", "B" and "C" based on geochemical characteristics. In addition to these three waste types, some mineralized waste that has the potential to become ore is separated. This will be stored alongside the type "A" waste, close to the pit.

There is a ramp-up period for ore haulage. Ore will be transported to the mill at about 1,500 tpd for the first six months and then gradually it will reach its peak of capacity at 4,000 tpd in the fourth quarter of operation.

The mining equipment will move about 10 million tonnes of rocks per year at the peak of operation that are years two, three and four.

Table 16-3: Production Schedule for Chinchillas PFS Project

Production Schedule, Chinchillas PFS			Total	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Ore mined and milled	Tonne		10,404,913		-	128,886	142,387	347,444	360,000	360,000	347,887	360,000	15,109	1,400,000	1,400,000	1,398,391	1,344,809	1,400,000	1,400,000	-
	Ag	g/t	159		-	115	95	109	155	184	223	168	168	169	156	164	167	159	137	-
	Pb	%	1.24		-	0.80	0.78	0.82	0.97	1.05	0.79	0.96	0.96	1.28	1.24	1.39	1.41	1.44	1.15	-
	Zn	%	0.48		-	0.41	0.79	0.69	0.72	0.48	0.39	0.50	0.50	0.53	0.58	0.52	0.25	0.27	0.63	-
Ore mined and stockpiled (long term)	Tonne		689,361		1,018	23,768	22,509	49,355	19,283	28,998	18,786	32,022	919	55,970	87,679	62,819	60,100	74,474	151,660	
	Ag	g/t	73		79	81	74	69	74	72	70	72	29	75	72	72	86	78	69	
	Pb	%	0.71		0.29	0.61	0.61	0.55	0.46	0.66	0.60	0.75	0.71	0.68	0.67	0.69	0.85	0.90	0.72	
	Zn	%	0.52		0.24	0.29	0.44	0.69	0.63	0.50	0.62	0.44	2.18	0.49	0.57	0.50	0.18	0.24	0.75	
Ore mined and stockpiled (short term)	Tonne		615,916		5,786	-	-	-	83,441	203,553	-	-	-	-	118,875	-	-	35,007	169,254	
	Ag	g/t	79		81	-	-	-	155	184	-	-	-	-	156	-	-	159	134	
	Pb	%	0.64		0.76	-	-	-	0.97	1.05	-	-	-	-	1.24	-	-	1.44	1.14	
	Zn	%	0.30		0.31	-	-	-	0.72	0.48	-	-	-	-	0.58	-	-	0.27	0.70	
Ore milled from stockpile	Tonne		1,305,277		-	5,786	-	-	-	-	12,113	-	344,891	-	-	1,609	55,191	-	-	885,687
	Ag	g/t	115		-	81	-	-	-	-	184	-	158	-	-	156	156	-	-	94
	Pb	%	0.90		-	0.76	-	-	-	-	1.05	-	0.97	-	-	1.24	1.24	-	-	0.85
	Zn	%	0.54		-	0.31	-	-	-	-	0.48	-	0.54	-	-	0.58	0.58	-	-	0.53
Total ore milled from mine and stockpile combined	Tonne		11,710,190		-	134,672	142,387	347,444	360,000	360,000	360,000	360,000	360,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	885,687
	Ag	g/t	154		-	113	95	109	155	184	222	168	159	169	156	164	166	159	137	94
	Pb	%	1.20		-	0.80	0.78	0.82	0.97	1.05	0.80	0.96	0.97	1.28	1.24	1.39	1.41	1.44	1.15	0.85
	Zn	%	0.49		-	0.40	0.79	0.69	0.72	0.48	0.39	0.50	0.54	0.53	0.58	0.52	0.26	0.27	0.63	0.53
Ore Haulage rate	Tonne / day					1,496	1,582	3,860	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Mineralized waste mined and stockpiled	Tonne		3,833,499		30,252	198,416	161,434	317,454	163,339	281,087	94,887	156,667	2,765	512,494	425,930	295,385	262,593	317,872	612,924	
	Ag	g/t	59		64	70	58	59	62.51	60	63	61	37	63	64	60	76	73	63	
	Pb	%	0.58		0.57	0.57	0.54	0.50	0.39	0.52	0.48	0.53	0.63	0.59	0.52	0.57	0.79	0.82	0.70	
	Zn	%	0.46		0.30	0.30	0.66	0.66	0.65	0.61	0.53	0.55	1.58	0.53	0.50	0.62	0.14	0.17	0.60	
Waste A	Tonne		10,243,845		231,172	876,985	790,462	529,643	600,739	789,593	293,482	410,558	385,884	1,714,193	1,136,506	882,404	612,728	392,794	596,704	
Waste B	Tonne		17,604,439		522,061	946,861	994,664	654,574	389,781	717,172	519,516	839,636	1,059,025	3,056,500	3,051,498	2,818,316	1,198,459	629,876	206,500	
Waste C	Tonne		23,204,756	1,545,922	2,002,780	498,184	431,146	837,544	847,176	436,220	1,328,658	829,533	1,001,059	3,675,962	3,453,798	4,338,848	1,432,913	456,080	88,933	
Waste mined	Tonne		54,886,539	1,545,922	2,786,265	2,520,446	2,377,706	2,339,215	2,001,035	2,224,072	2,236,543	2,236,394	2,448,733	8,959,149	8,067,732	8,334,953	3,506,693	1,796,622	1,505,061	-
Total rock mined	Tonne		66,596,730	1,545,922	2,793,069	2,673,100	2,542,602	2,736,014	2,463,760	2,816,623	2,603,216	2,628,416	2,464,761	10,415,119	9,674,285	9,796,163	4,911,602	3,306,103	3,225,975	-
Strip Ratio	W:O		4.69		409.50	16.51	14.42	5.90	4.32	3.75	6.10	5.70	152.78	6.15	5.02	5.70	2.50	1.19	0.87	

16.4 Rock Storage Facilities

Work to date indicates that some of the waste mined has the potential to leach metals and therefore should be separated from the neutral waste material. Based on geochemical characteristics, waste is classified into three groups designated A, B and C. More information about waste rock classification can be found in Section 20. Type "A" waste is to be stored close to the pit so that its drainage can be collected in the pit and if necessary be treated. Type B and C are to be stored together. The mine plan shows that throughout the mine life 10.2 million tonnes of type "A" waste will be mined. Similarly, 17.6 million tonnes and 23.2 million tonnes of type "B" and "C", respectively, will also be mined.

According to this classification, two waste rock storage facilities have been designed for Chinchillas to accommodate different rock types. These can be seen in the general site layout Figure 16-10.

Rock storage "A" (Figure 16-8) is close to the pit. This is located on the northeast side of the pit on the hill side. The toe of the dump is 100 metre offset from the pit rim. Dumps are built with 25 metre lifts and 15 metre berms. The slope angle of the dump is 35 degree for each lift. The overall slope angle of dumps is 26 degrees. Access to the dump is by 30 metre wide haulage roads. The total height of this dump is 100 metre.

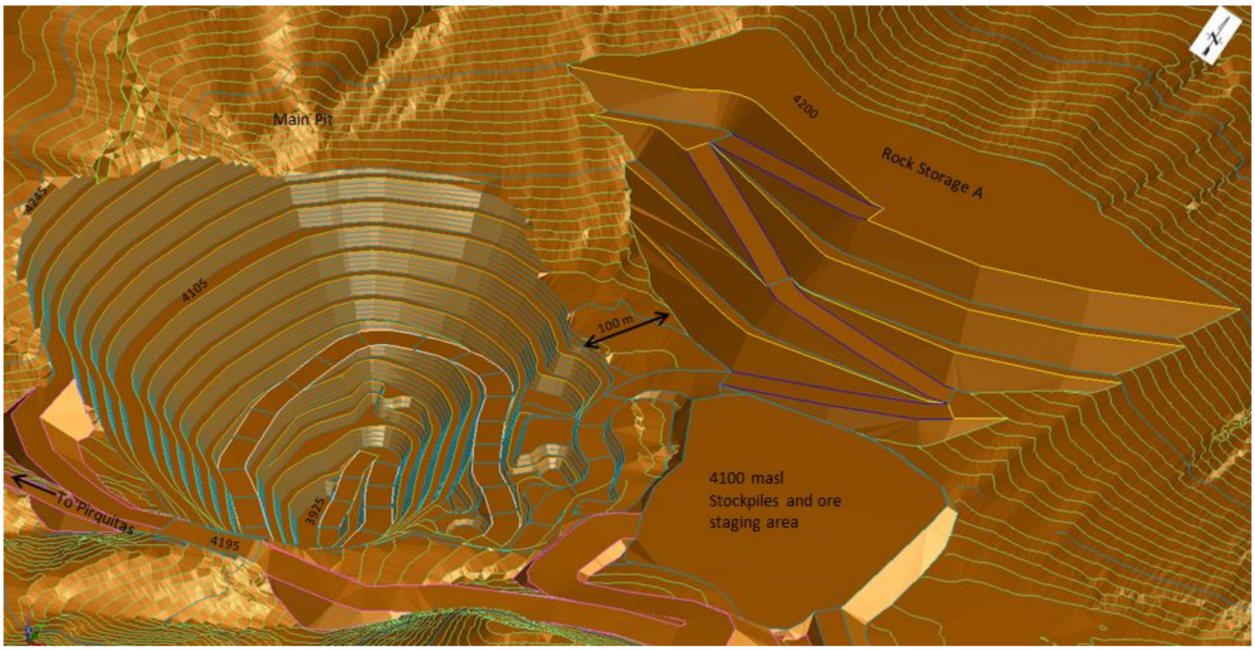


Figure 16-8: Rock Storage "A"

Figure 16-9 illustrates two sections of the dump. Waste Rock storage "A" has the capacity to store 10.2 million tonnes of type "A" rocks as well as 3.8 million tonnes of mineralized waste that has the potential to be reclaimed when the silver market improves.

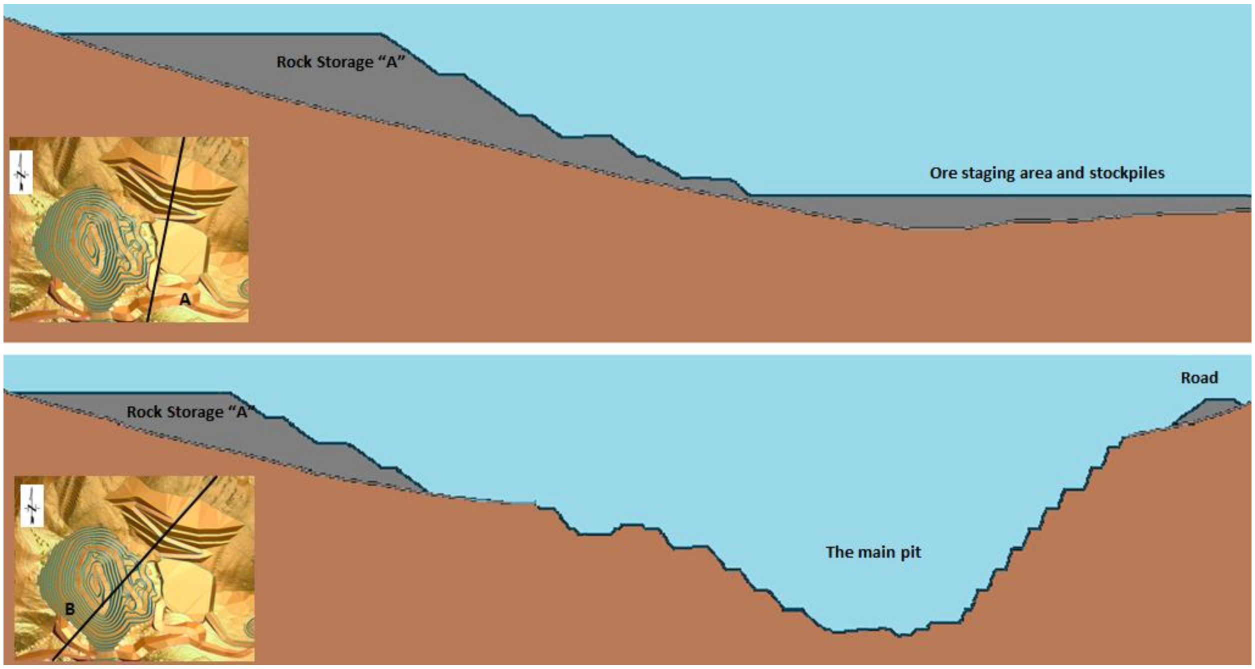


Figure 16-9: Two Sections of Waste Rock Storage "A"

16.5 Mining Equipment and Personnel

The mine is scheduled to operate 355 days a year with two 12-hour shifts a day. At maximum capacity the mine can move 31 kt of material a day.

The amount of mining equipment required for the operation varies by tonnages of material moved in each period. Using the production schedule that is developed in the previous sections, a list of mining equipment is estimated for each period.

The general approach is to transfer Pirquitas' mining equipment that is in sufficient shape to Chinchillas, therefore the condition of the mining equipment at the Pirquitas mine was evaluated. From Pirquitas, a total of nine 100-tonne trucks will be transferred to Chinchillas, with allowance for component change outs before pre-production and in year one. Two high-hour 16-cubic yard ("cu-yd") wheel loaders will be transferred, with appropriate allowance for component rebuilds, and one new loader will be purchased. Similarly, one production drill will be repaired and transferred and a new one will also be purchased. Other smaller auxiliary equipment generally follow the same pattern; repair the best unit and purchase a new one. All fuel, lube and mobile mechanical trucks will be purchased new. Other major capital expenditures include the provision for a fleet management system.

Mining operation will utilize 16-cu-yd wheel loaders to load 100-tonne off-highway trucks. At the peak of operation, two wheel loaders will load seven haul trucks. A 7.1-cu-yd backhoe will be used to help loading ore in places that need to be more selective. Two main drills and two smaller drills will be sufficient for the life of mine. Three D9 dozers will be utilized at various points and locations such as during road construction, stockpiles and on the benches. There are four graders that will be used both at the site and also for maintaining the 42 kilometre long ore haulage road.

For ore transportation to the mill a fleet of 35-tonne highway haul trucks will be used. This is a type of truck that has been widely used in Pirquitas for the past years and has proven productivity record. It is estimated that a maximum of 22 trucks are required in each period. For the ramp up period only 9 trucks will be sufficient. All 35 tonne highway haul trucks will be supplied by the Ore Contractor and therefore not included in the mining capital cost estimates.

The mining personnel are grouped into three sections as operation, maintenance and management/technical. The operation will work in two 12-hour shifts. A 4-crew rotation is considered for the operation. Maintenance and management/technical will work mainly on one shift. On average, there will be 221 personnel that will work in four rotations and in two shifts. On average there will be about 80 people at site for the day shifts and about 30 people for the night shifts plus a few security personnel.

Table 16-4 lists major mining equipment required by period as well as mining personnel for different sections. More information about mining equipment and personnel can be found in Section 21 where mining capital and operating costs are discussed.

16.6 General Mine Site Layout

Figure 16-10 shows the general site layout of Chinchillas mine. When optimizing the site layout the following items were considered:

Safety; According to regulation explosive magazines and nitrate storage area are more than 600m away from public roads. A separate road has been designed in west to keep mine traffic away from public roads.

There is small chance that Socavon pit may be expanded beyond the current design. The potential expansion has been considered in the site layout arrangement.

Buildings are accessible using a single road that connects east of the site to the west.

Facilities and buildings are kept in lower elevations to minimize the fuel consumptions as well as to save on commuting between pit and workshop/offices.

Water diversion and flood control systems are shown in Figure 20-2 in Section 20.

The site layout can further been optimized based on new findings and further developments in a feasibility study.

Table 16-4: List of Major Mining Equipment and Their Requirements by Period

Major Mining Equipment	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4	Y3Q1	Y3Q2	Y3Q3	Y3Q4	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Drill; crawler-mounted, rotary tri-cone, 6.5-in	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	0
Drill; crawler-mounted, percussion, 5.0-in	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Drill; crawler-mounted, percussion, 6.0-in	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Wheel loader; diesel 16-cu-yd	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	0
Wheel loader; diesel 5-cu-yd	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Backhoe; diesel, 7.1 cu-yd	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Backhoe; diesel, 2.5 cu-yd	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0
Haul truck; 100-ton class	1	5	5	6	6	5	6	6	7	7	6	6	7	4	3	3	0
Highway haul truck; 35-tonne class for ore	0	0	9	9	22	22	22	22	22	22	22	22	22	22	22	22	22
Dozer; D9-class 15.8’ blade	3	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	0
Dozer; D9-class 15.8’ blade	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Wheel dozer; 834H-class 15.2’ blade	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Grader; 16H-class 16’ blade	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	0
Grader; 14H-class 14’ blade	0	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
Water truck; 70-ton class 15,000 gallon	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Water truck; 35-tonne class, 8000 gallon	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mining Personnel																	
Operations	66	84	86	104	104	104	104	104	109	111	109	99	111	75	57	52	9
Maintenance	78	77	77	96	103	95	103	103	105	105	103	103	105	81	70	62	17
Management/technical	34	34	34	34	34	34	34	34	34	34	34	34	34	34	26	17	17
Total mining personnel	178	195	197	234	241	233	241	241	248	250	246	236	250	190	152	131	43

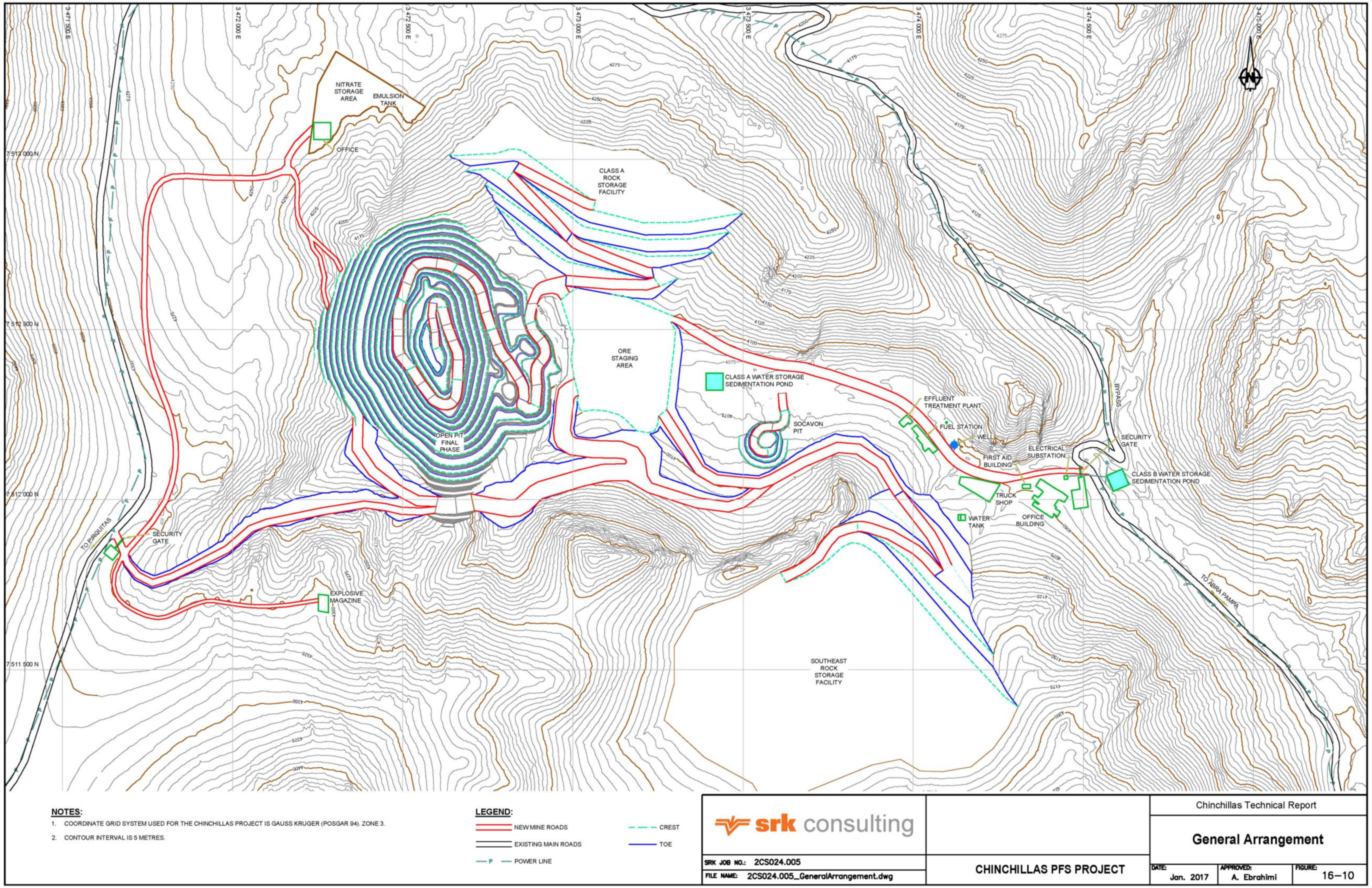


Figure 16-10: Chinchillas' General Mine Site Layout

17 Recovery Methods

The Chinchillas material will be processed at a rate of up to 4,000 tpd through the existing Pirquitas Operation process plant. This section discusses the existing Pirquitas Operation plant performance followed by a description of how the plant flowsheet will be modified to suit the Chinchillas ore types, based on the testwork program results described in Section 13.

17.1 Pirquitas Plant

17.1.1 History

The Pirquitas plant was commissioned in 2009 and has since been in continuous operation. The following description of the plant was extracted from "NI 43-101 Technical Report on the Pirquitas Mine, Jujuy Province, Argentina" (Board et al. 2011):

> "The Pirquitas Mine processing plant consists of primary, secondary and tertiary crushing operations which deliver ore to a stockpile. The maximum crushing circuit throughput is currently 6,000 tpd. Ore is transferred from the stockpile to a pre-concentration system that consists of jigs to upgrade the normal mine grade to a higher grade product.
>
> Wet milling is performed on the feed from the jig plant and can be augmented by a by-pass feed system in the event of jig downtime or milling capacity in excess of jig capacity. The maximum wet milling throughput is currently 4,000 tpd. Mill discharge is pumped through a cyclone system and oversize is fed back into the mill for additional grinding. Fines are fed into a conditioning and reagent addition tank and then flow into the silver flotation circuit.
>
> The tailings from the silver flotation process are routed to a separate conditioning tank and from there flows to the zinc flotation circuit. Tails from the zinc flotation circuit can be directed to the tin circuit or to the tailings thickener, as appropriate. Tailings are thickened and stored at a permitted facility on-site".

The plant has not been expanded since start-up; however, minor changes in the flotation flowsheets have occurred to optimize performance. Since 2010, no tin concentrate production has occurred. During 2015, challenges in producing a marketable zinc concentrate from steadily decreasing zinc grades resulted in zinc concentrate production being curtailed.

17.1.2 Pirquitas Historic Operating Data

Quarterly operating performance for 2011 to 2015, is displayed in the following series of trend graphs. Figure 17-1 shows crushed tonnes and Figure 17-2 shows milled tonnes, where 350,000 tonnes equates to 4,000 tpd.

Figure 17-3 shows silver and zinc head grades, with the decrease in zinc grade since mid-2014 evident. Figure 17-4 shows the silver and zinc concentrate grades. Figure 17-5 displays the recovery of silver, which has averaged approximately 70%, and zinc, which has averaged approximately 50%.

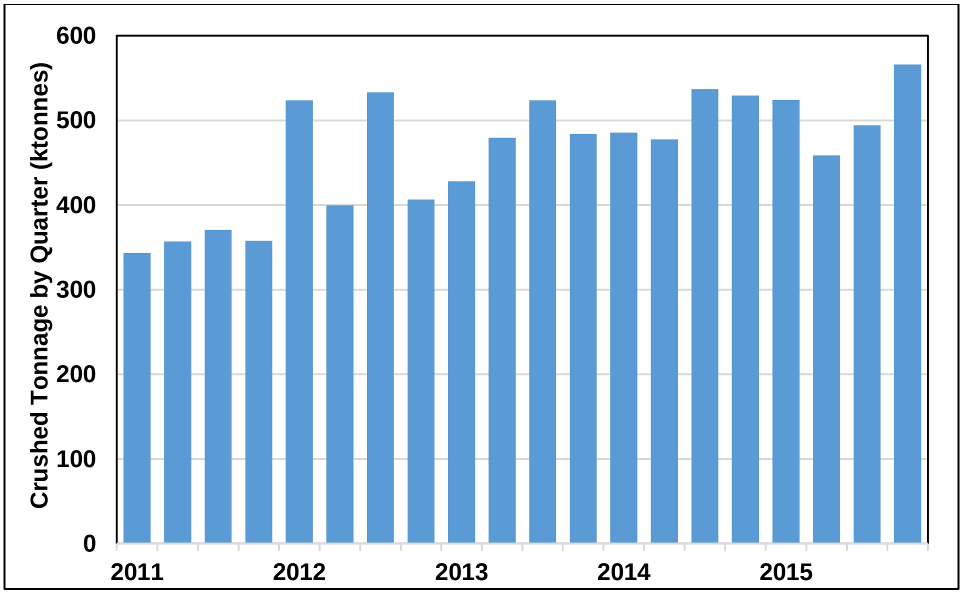


Figure 17-1: 2011 to 2015 Pirquitas Tonnes Crushed by Quarter

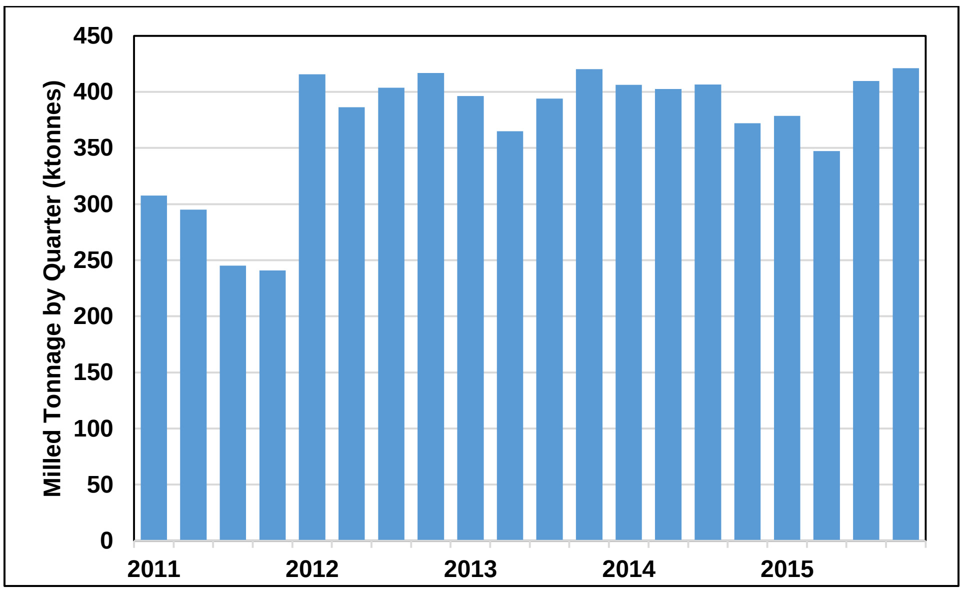


Figure 17-2: 2011 to 2015 Pirquitas Tonnes Milled by Quarter

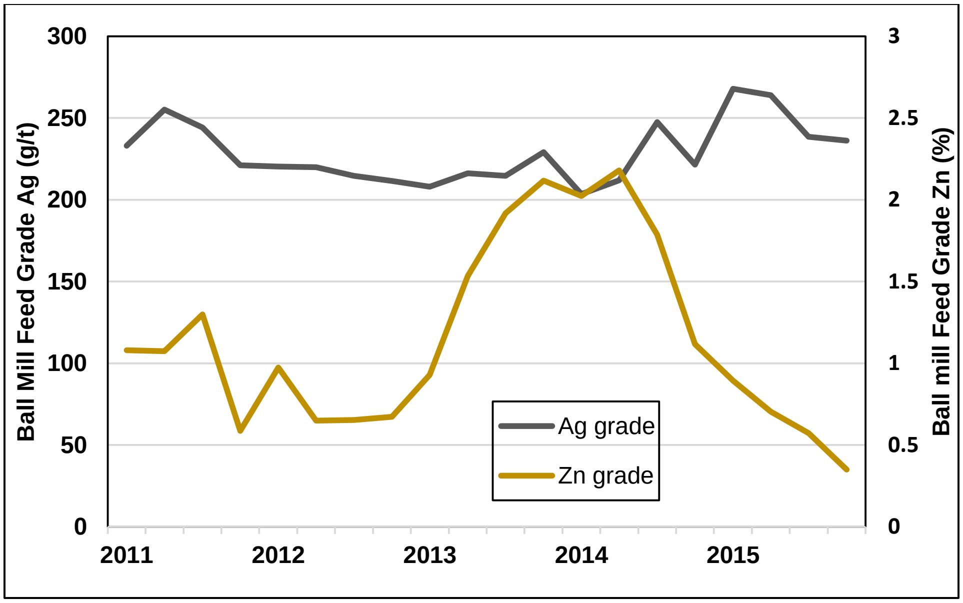


Figure 17-3: 2011 to 2015 Pirquitas Silver & Zinc Head Grade

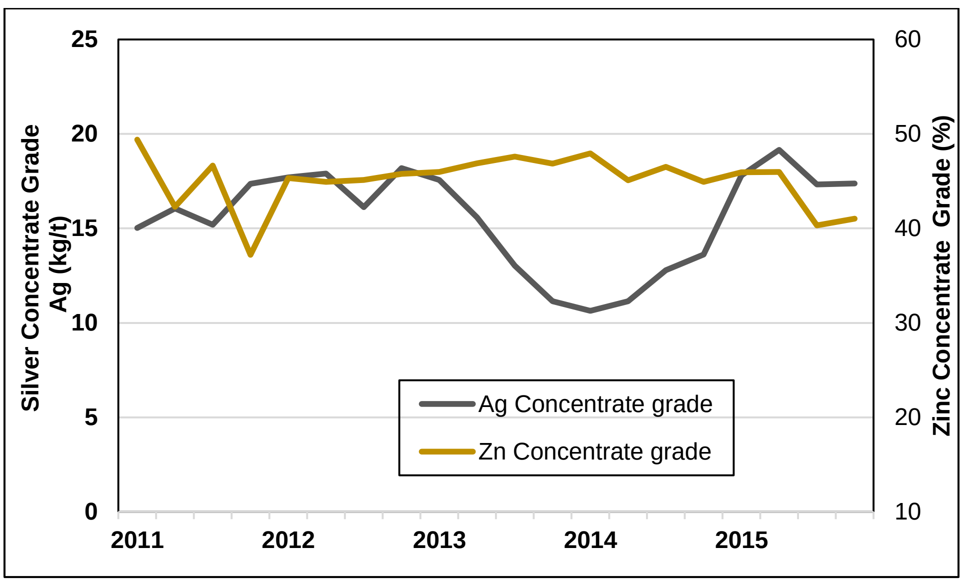


Figure 17-4: 2011 to 2015 Pirquitas Silver & Zinc Concentrate Grade

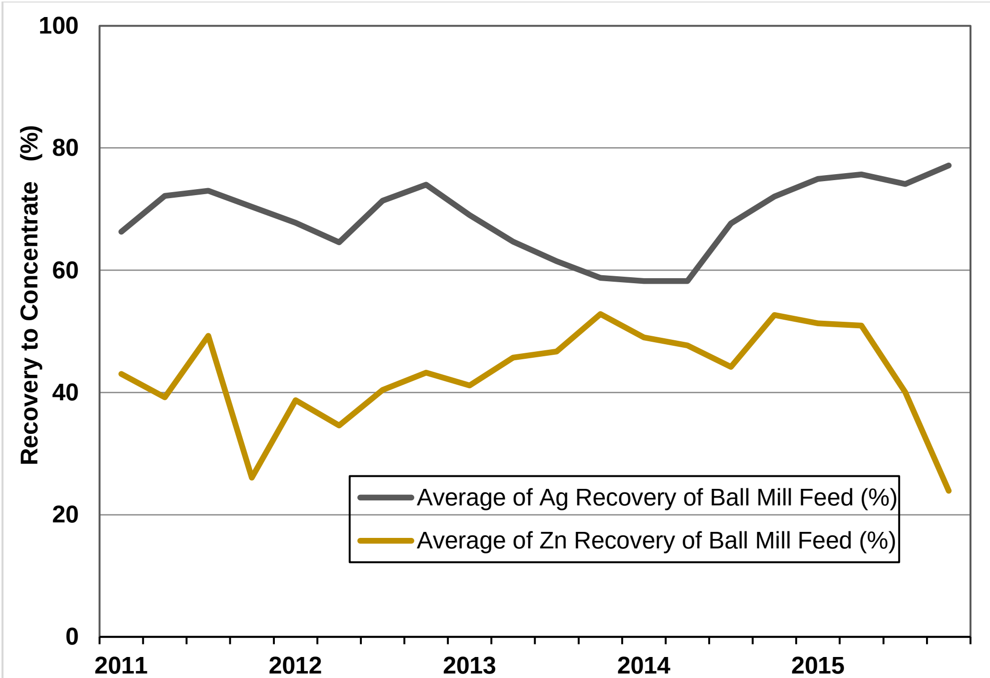


Figure 17-5: 2011 to 2015 Pirquitas Silver & Zinc Recovery

17.2 Process Overview for Chinchillas

The existing Pirquitas plant will be used to process the Chinchillas ore types. The plant will require minor re-piping of the silver flotation circuit to accommodate the Chinchillas feed. The Pirquitas pre-concentration jig plant will not be used for Chinchillas feed, so the overall flowsheet becomes:

- Primary, secondary and tertiary crushing operations delivering material to an intermediate crushed stockpile.
- Grinding is performed on the feed from the crushed stockpile. Ball mill discharge is pumped through a cyclone system and the oversize is returned to the mill.
- Cyclone overflow is fed into a conditioning tank and flows to the lead/silver flotation circuit.
- The lead/silver recovery circuit includes rougher flotation, rougher concentrate regrinding, and two stages of flotation concentrate cleaning.
- The lead/silver second cleaner concentrate is thickened/filtered and bagged for shipment.
- The tailings from the lead/silver flotation process are routed to a separate conditioning tank ahead of the zinc flotation circuit.
- The zinc recovery circuit includes rougher flotation, rougher concentrate regrinding, and two stages of flotation concentrate cleaning.
- The zinc cleaner concentrate is thickened/filtered and bagged for shipment.
- Tailings from the zinc flotation circuit flow to the tailings thickener.
- Tailings are thickened and stored at a permitted facility on site.

A schematic diagram of the Chinchillas process flowsheet is shown in Figure 17-6.

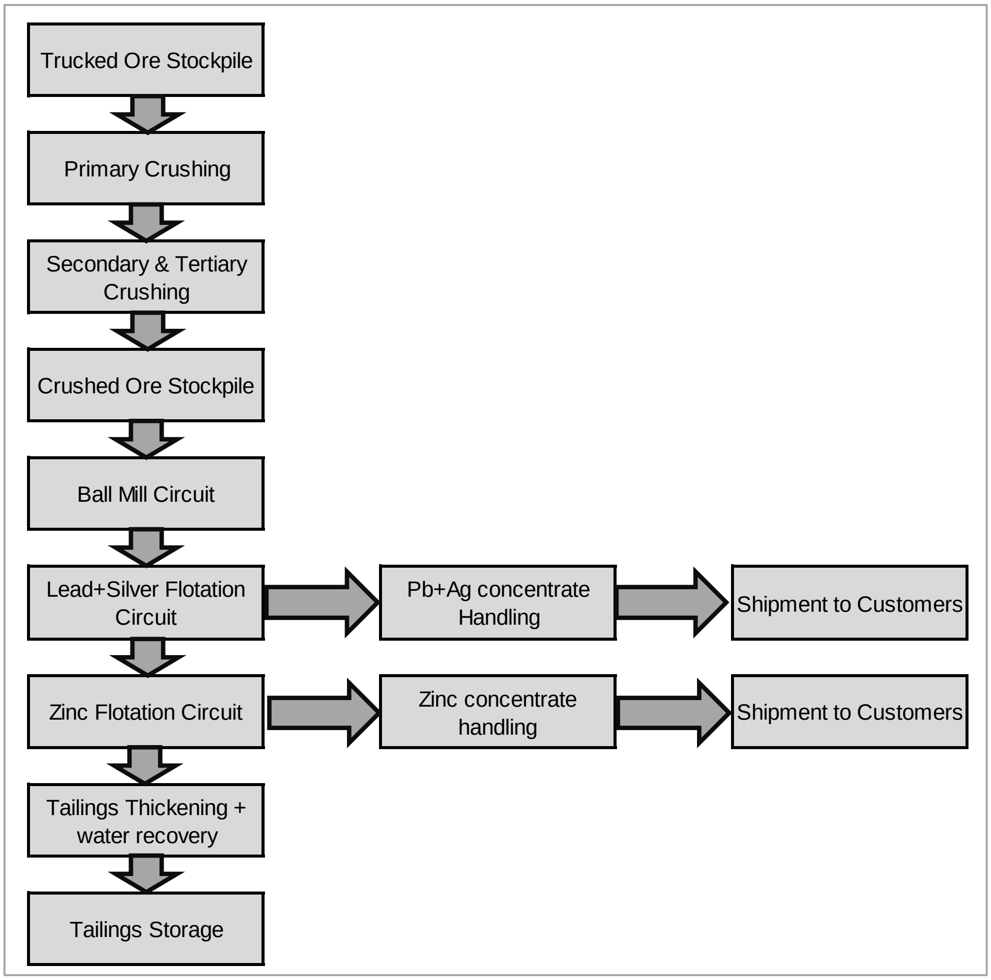


Figure 17-6: Chinchillas Processing Flowsheet Overview

17.2.1 Stockpiling and Crushing

The trucked material will be delivered to suitable stockpiles at the primary jaw crusher. The jaw crusher can be fed directly via 25- to 30-tonne truck dumping or with a front-end loader, and produces a 15cm product size.

Secondary/tertiary crushing and screening operations will reduce this material to an 80% passing size of 9mm. This material is discharged onto a crushed feed stockpile with four feeders located beneath the stockpile.

The crushing circuit was designed to deliver 6,000 tpd of Pirquitas material, and for Chinchillas feed will need to achieve 4,000 tpd to keep up with the grinding circuit.

Figure 17-7 shows the crushing circuit flowsheet and Table 17-1 lists the major equipment details.

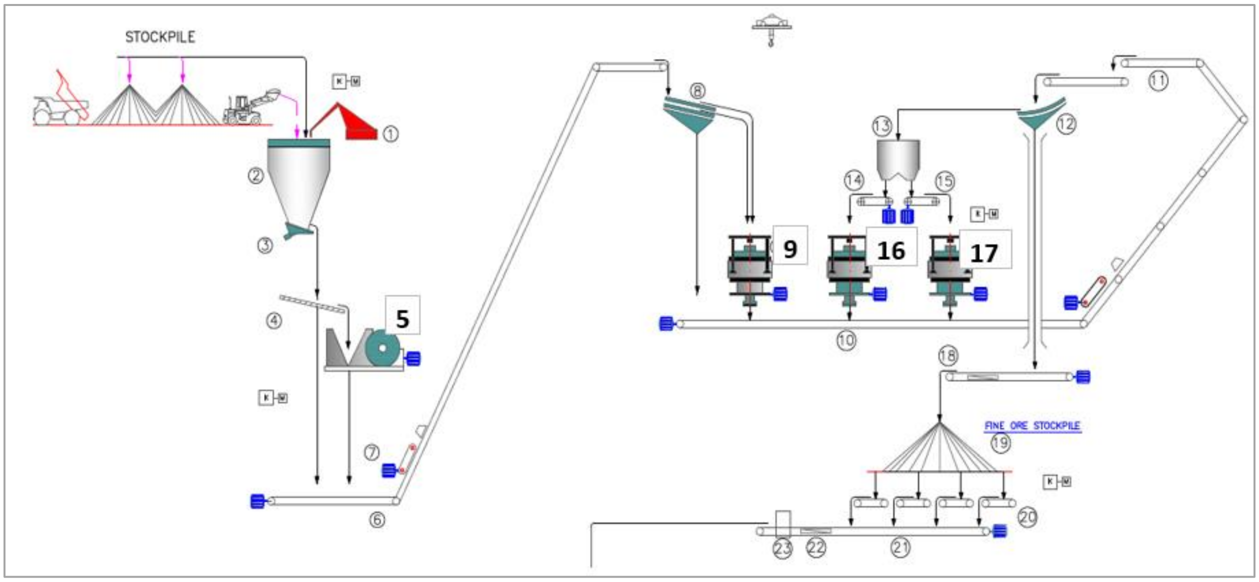


Figure 17-7: Chinchillas Crushing Circuit

Table 17.1: Crushing Circuit Equipment

Figure 17-7 Reference #	Name	Make/Model		Power, kW
5	Jaw Crusher	Sandvik	42" x 56"	160
9	Secondary Cone	Sandvik	CH660	315
16	Tertiary Cone	Sandvik	H6800	315
17	Tertiary Cone	Metso	HP500	355

17.2.2 Jigging

For Pirquitas ore, a pre-concentration stage of jigging rejected a low-value coarse tailings. The jig concentrate was then fed to the ball mill. For Chinchillas ore, the jig circuit will not be used and crushed ore will feed the ball mill circuit directly.

17.2.3 Grinding

The ball mill circuit grinds crushed ore to the optimum size at a rate of 4,000 tpd. The ball mill is 4.8 metres in diameter by 6.25 metres long with 2,400kW of installed power. The Pirquitas plant was designed for 4,000 tpd. Considering the relative hardness of the two ores and similar target grind size (P80 sizes of 140µm to 160µm), no alterations to the grinding circuit are required. Mill discharge is pumped to a cyclone nest where the underflow is returned to milling operations and the overflow reports to flotation.

The addition of granular lime to the ball mill feed belt is done for flotation pH control. The lead/silver flotation collector and the pyrite/sphalerite depressant are also added into the mill. A frother is added to the cyclone overflow.

17.2.4 Lead/Silver Flotation

The lead/silver flotation section will consist of rougher, rougher concentrate regrinding and two stages of countercurrent concentrate cleaning (see Table 17-2). Feedrate and residence time estimates for 1% and 1.5% lead head grades are shown in Table 17-2 compared to the Pirquitas design.

Table 17-2: Lead/Silver Flotation Circuit Equipment

Figure 17-8 Reference #	Name	Equipment	Feedrate			Residence Time		
			Tonnes per Hour			Minutes		
		Make/Model/ Size	PQ	CH	CH	PQ	CH	CH
			Design	1% Pb	1.5% Pb		1% Pb	1.5% Pb
57	Conditioner	3.5m by 4m				6	6	6
58,59	Lead Rougher	Wemco 190, 1+1 1+3+3 cells				32	32	32
151	Lead Regrind	Metso Vertimill VTM-200-WB	40	20	28		Operatin g	Operatin g
63	Lead 1st Cleaner	Wemco 144 1+1 2+3 cells	17	23	25	50	37	25*
62	Lead 2nd Cleaner	Wemco 144 1+1 2 cells	6	7	8	30	26	19*
						* additional existing cells could be reconfigured		
Notes: PQ=Pirquitas, CH=Chinchillas								

All of the required equipment exists in the Pirquitas Operation, plus optional use of a column flotation cell for additional cleaning. Minor pump and piping changes are required. An existing rougher concentrate 200HP (149kW) Vertimill regrind mill will be recommissioned for Chinchillas ore. All changes will be completed prior to processing.

Figure 17-8 shows the existing Pirquitas silver recovery circuit and Figure 17-9 shows the lead/silver recovery circuit for Chinchillas with the required modifications shown in red.

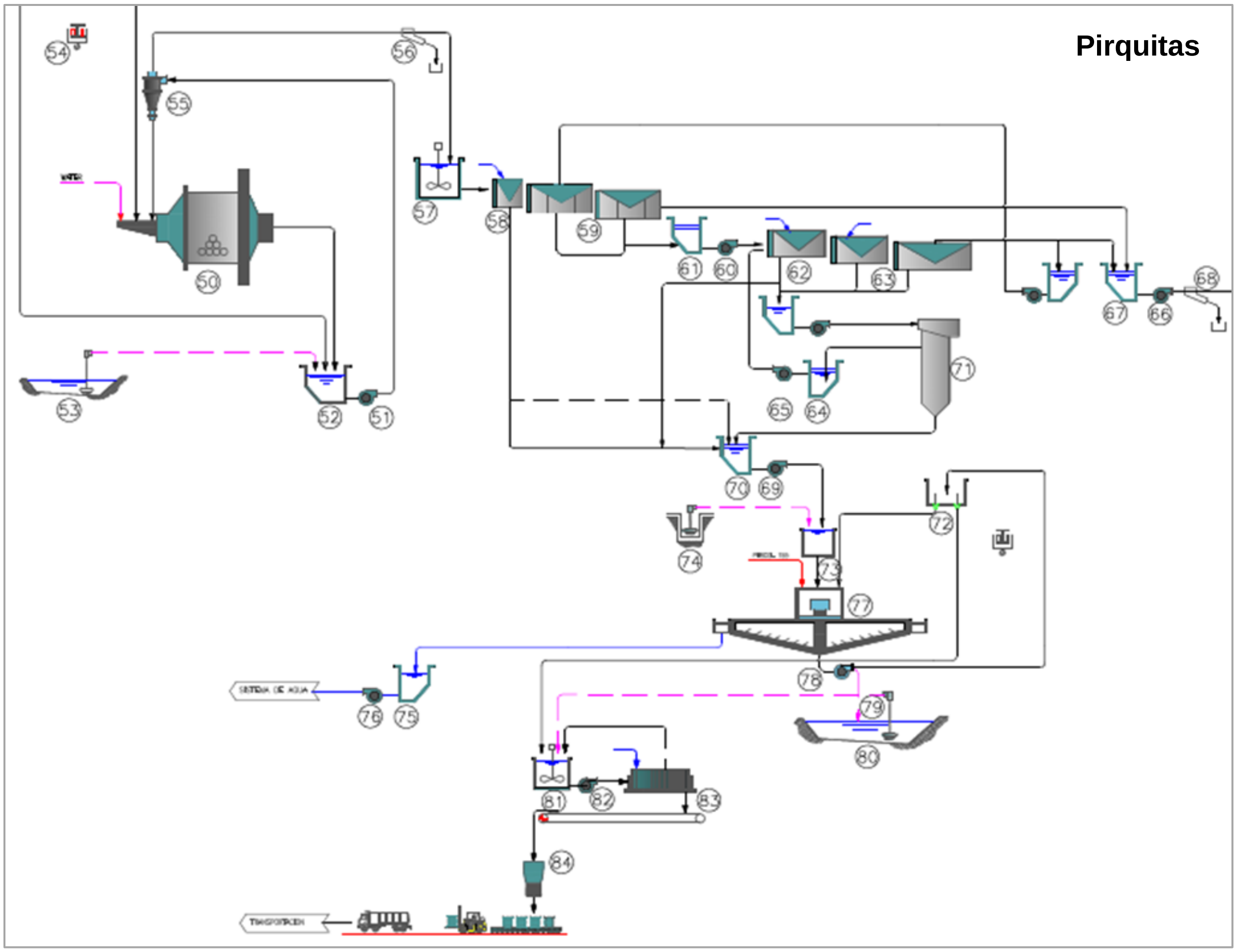


Figure 17-8: Grinding and Silver Recovery Circuits for Pirquitas

Section 13.3 detailed the development testwork for Chinchillas ore and the resulting flotation reagent scheme with expected addition rates are shown in Table 17-3.

Table 17-3: Flotation Reagent Scheme

	Reagents Added (g/t)					
Circuit	LIME	ZnSO4	Cytec 3418A	MIBC	CuSO4	SIPX
Lead+Silver Flotation	250	60	50	20		
Zinc Flotation	390			10	50	10

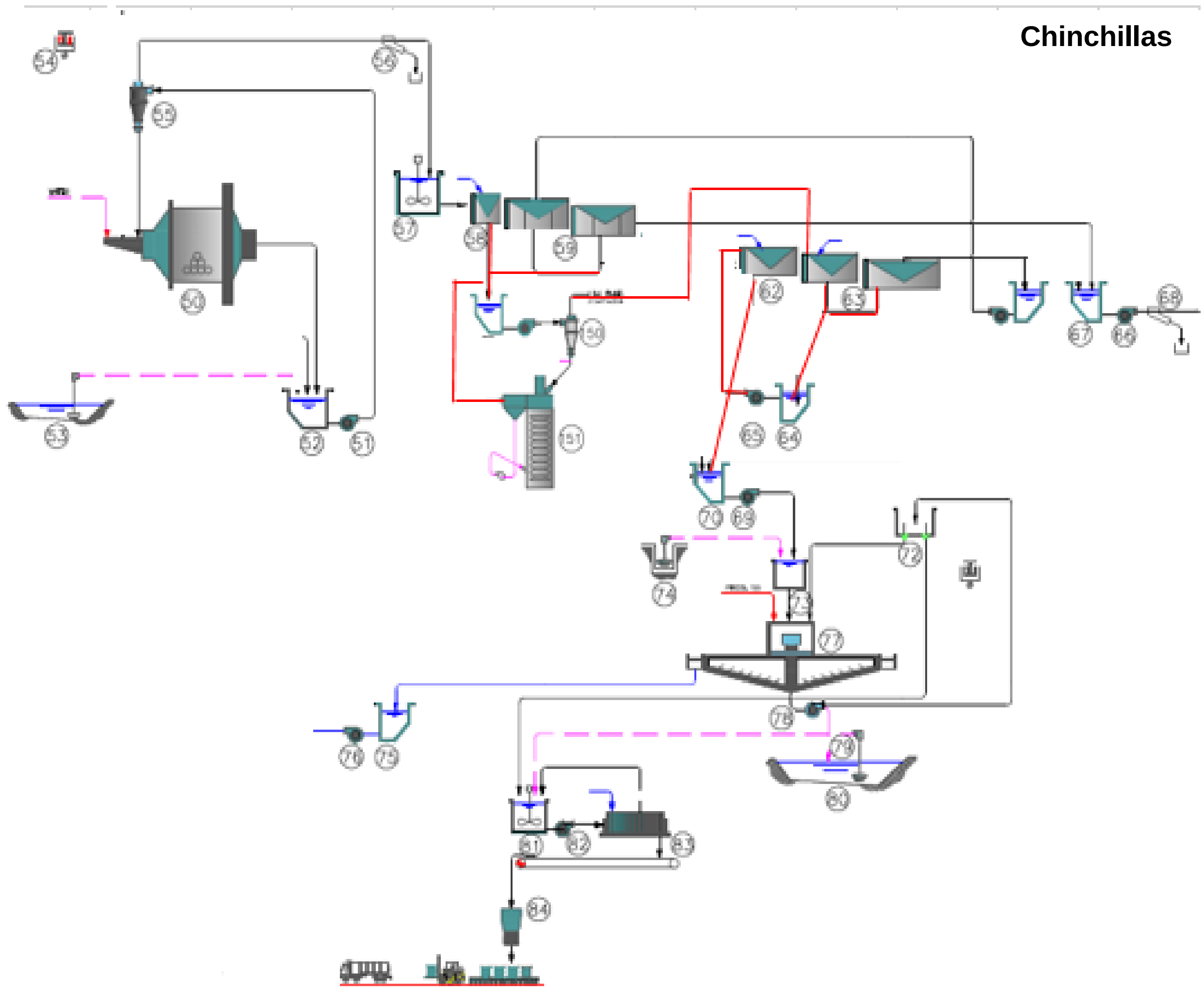


Figure 17-9: Grinding and Lead/Silver Recovery Circuits for Chinchillas

Note: Red flows identify required piping changes

17.2.5 Zinc Flotation

The zinc flotation section will consist of rougher, rougher concentrate regrinding and one stage of conventional cell concentrate cleaning followed by one stage of column cell cleaning. An existing rougher concentrate 500HP (373kW) Vertimill regrind mill will be recommissioned for Chinchillas ore. All of the required equipment exists in the Pirquitas Operation with no pump or piping changes required.

Table 17-4 shows the zinc flotation circuit equipment details and Figure 17-10 shows the zinc recovery flowsheet for processing Chinchillas material. Table 17-4 also includes the feedrate and residence time requirements for 0.6% zinc head grade compared with Pirquitas design.

Table 17-4: Zinc Flotation Circuit Equipment

Figure 17-10 Reference #	Name	Equipment	Feedrate		Residence Time	
			Tonnes per Hour		Minutes	
		Make/Model/ Size	Pirquitas	Chinchillas	Pirquitas	Chinchillas
			Design	@ 0.6% Zn		@ 0.6% Zn
85	Conditioner	3.5m by 4m			6	6
86	Zinc Rougher	Wemco 190, 1+1 4 cells			32	32
92	Zinc Regrind	Metso Vertimill VTM-500-WB	40	20	Operating	Operating
93	Zinc 1st Cleaner	Wemco 144 1+1 3+3 cells	17	23	31	31
99	Zinc 2nd Cleaner	Dorr Oliver Column 2m x 11m	6	7	30	26

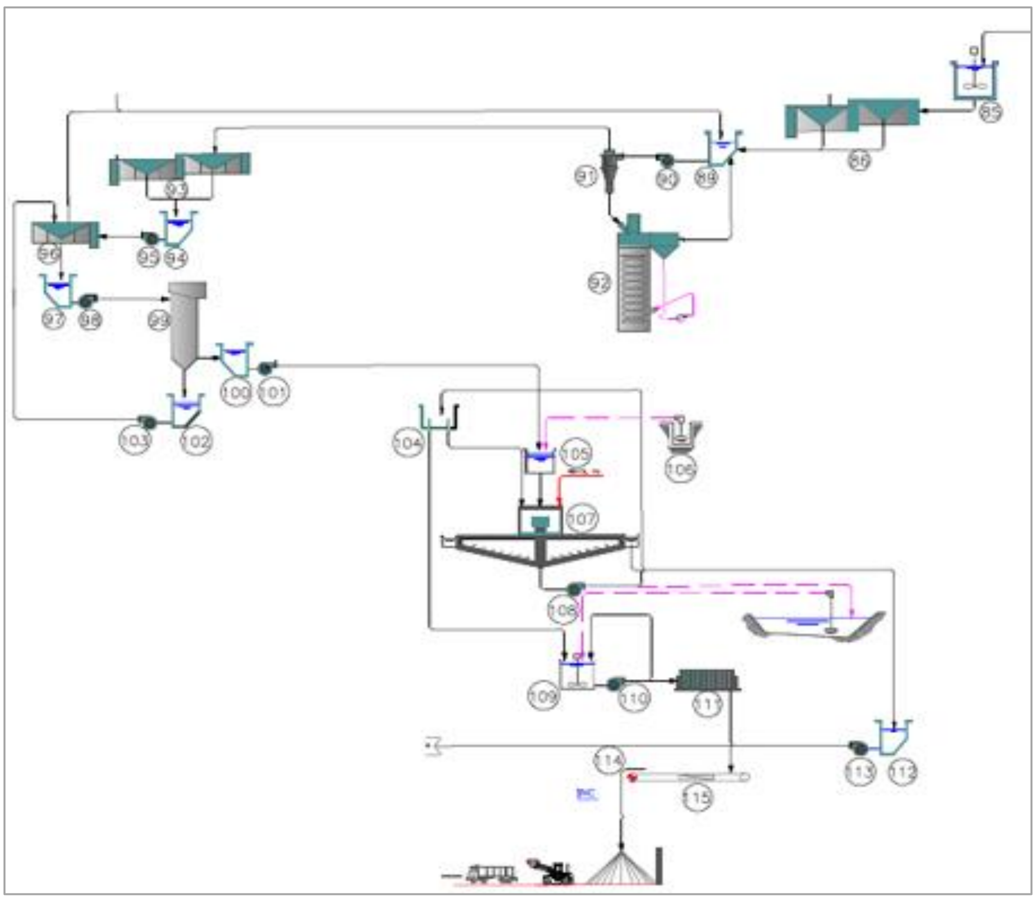


Figure 17-10: Zinc Recovery Circuit for Chinchillas

17.2.6 Concentrate Handling

The Pirquitas silver concentrate dewatering circuit consists of a thickener, holding tank and pressure filter. The capacity is appropriate for Chinchillas lead concentrate production from a 1% lead head grade. However, as higher lead feed grades are mined after the first few years of operation, the existing tin concentrate thickener will be recommissioned along with an additional new filter press to handle the higher lead/silver concentrate production.

Table 17-5: Lead Concentrate Dewatering Circuit Equipment

			Feedrate			Residence Time		
Figure 17-8 Reference #	Name	Equipment	Tonnes per Hour			Minutes		
		Make/ Model/ Size	PQ	CH	CH	PQ	CH	CH
			Design	@ 1% Pb	@ 1.5% Pb		@ 1% Pb	@ 1.5% Pb
72	Concentrate Thickener	Delkor 5m Dia	40	45	85	During Year 2 of processing the existing 'tin' thickener & a 2nd new filter press added		
83	Concentrate Filter	FLSmidth M9000FBM	40	45	85			
Notes: PQ=Pirquitas CH=Chinchillas								

Table 17-5 shows the lead concentrate dewatering circuit equipment along with the expansion requirements to match lead concentrate production. Feedrate for 1% and 1.5% lead head grades compared with Pirquitas design is also shown in Table 17-5.

The Pirquitas zinc concentrate dewatering circuit consists of a thickener, holding tank and filter. The capacity is appropriate for Chinchillas zinc concentrate production (see Table 17-6). Feedrate for 0.6% zinc head grade compared with Pirquitas design is shown in Table 17-6.

Table 17-6: Zinc Concentrate Dewatering Circuit Equipment

			Feedrate	
Figure 17-10 Reference #	Name	Equipment	Tonnes per Hour	
		Make/Model/ Size	Pirquitas	Chinchillas
			Design	@ 0.6% Zn
107	Concentrate Thickener	Delkor 5m Dia	30	30
111	Concentrate Filter	FLSmidth M9000FBM	30	30

After filtering, the concentrates will be bagged into one tonne bulk bags. Sampling will be by manually inserted spear samplers. Pirquitas' current practice is to composite bulk bag samples for both 12-hour shift production as well as a moving-average, composite of 100 bulk bags for each shipment lot sample.

17.2.7 Tailings Handling

The existing Pirquitas plant tailings thickener was designed to treat a low density, tin circuit tailings (~20% solids) at 4,090 tpd. The Pirquitas plant has operated successfully on zinc tailings at higher tonnages. The thickened solids (55% to 58% solids) are pumped to the permitted tailings storage facility. Water recovery is a combination of thickener overflow and tailings pond decant recycled to the plant reclaim water system.

The same tailings thickener will be used for Chinchillas material. Testing by Takraf (see Section 13.4) has shown underflow densities in the 55% to 60% solids range are achievable. However, the thickened tailings will be pumped six kilometres to a portion of the mined-out Pirquitas Pit for storage. Water recovery will be a combination of tailings thickener overflow and in-pit pond, both recycled to the plant reclaim water system.

17.3 Plant Control

The current plant is operated from a central control room with each circuit having their own control screens. This will continue to be used for Chinchillas with no changes planned. An example control screen for the Pirquitas silver flotation circuit is shown in Figure 17-11.

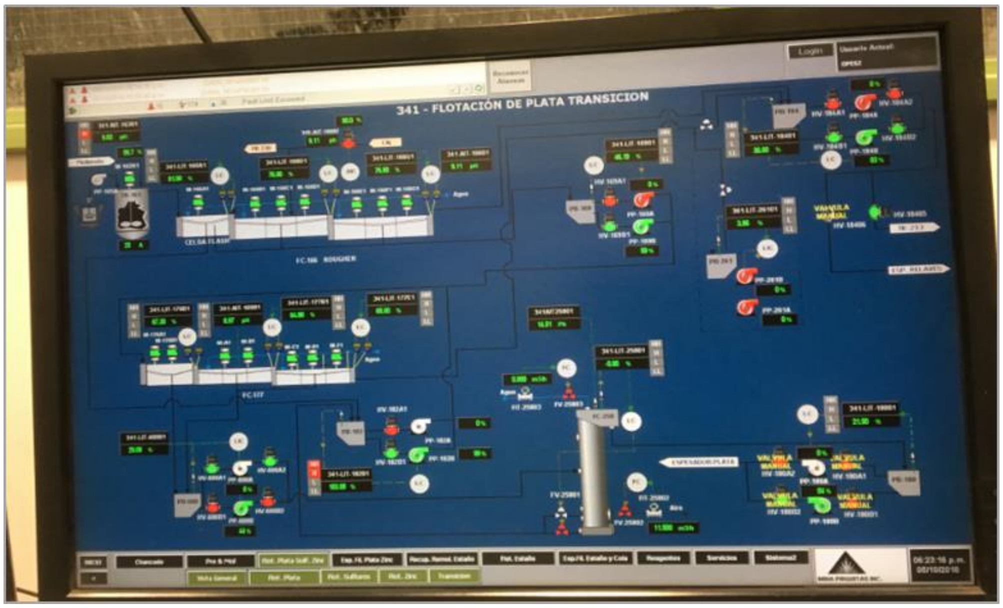


Figure 17-11: Example of Pirquitas Control Screen for Silver Flotation

The plant operates with both a particle size analyser and a Courier 6 on-line x-ray analysis system.

From appropriate locations in the flotation circuits, process streams are sampled with individual dedicated transfer pumps to deliver these samples to multiplexers ahead of the Courier 6. Slurry streams are x-ray analyzed in sequence and regularly updated calibrations performed against lab assay results.

This system will be used for Chinchillas and calibrations modified to include lead assays.

17.4 Unit Consumables

The expected consumables of the Pirquitas plant processing Chinchillas feed are stated below:

1. For crushing (crusher liners/screen media, etc.), Pirquitas values were assumed in the absence of Abrasion Index values;
2. For grinding liner and media wear rates, Pirquitas consumptions were assumed as the Ball Mill Work Index values are similar;
3. Pirquitas total mill power consumption was assumed as the Ball Mill Work Index values are similar and the grinding circuit draws most of the plant power.

The metallurgical testwork described in Section 13 details the individual flotation reagent consumptions (Table 13-15 as an example). Reported Pirquitas plant consumables for January through September

2015 are shown in Table 17-7 (with the zinc circuit operational). Reagent additions were reasonably steady over this period.

Table 17-7: Pirquitas Plant Consumables (grams per tonne)

	Grinding Circuit		Silver Flotation			Zinc Flotation			Plant	
Month-Year	Grinding Balls	Zinc sulphate	Methyl Isobutyl Carbinol	Cytec AP 3410	Sodium Ethyl Xanthate	Copper Sulphate	Dow Froth	Sodium Isopropyl Xanthate	Total Lime	Clarifloc
Jan-15	522	18.6	1.1	55.1	0.6	204	2.9	25.6	3698	18.1
Feb-15	713	6.7	2.5	52.0	0.9	193	6.5	23.8	6302	19.3
Mar-15	611	8.6	3.4	47.2	0.9	213	2.9	21.6	4344	17.3
Apr-15	531	10.4	5.1	43.9	1.0	203	3.3	22.0	1715	14.6
May-15	627	12.6	5.6	46.4	1.9	242	7.2	25.1	2344	18.1
Jun-15	627	5.9	2.7	43.6	1.7	173	7.0	21.8	1237	13.6
Jul-15	627	8.1	4.7	48.6	1.5	207	12.1	20.6	2095	19.3
Aug-15	622	10.7	4.6	39.3	1.3	219	8.8	19.6	2925	16.6
Sep-15	821	6.8	7.9	39.3	1.9	207	20.1	17.4	1395	14.7
Average	633	9.8	4.2	46.2	1.3	207	7.9	22.0	2895	16.8

17.5 Expected Flotation Performance

The metallurgical performance relationships discussed in Section 13.5 were applied to the latest mine production plan of expected plant feedrate and head grades. The trends below show the estimated plant performance for the Project, annually.

The mine production plan expects mill throughput to ramp up to 4,000 tpd over a two-year period. Figure 17-12 shows the expected mill head grades annually for silver, lead and zinc.

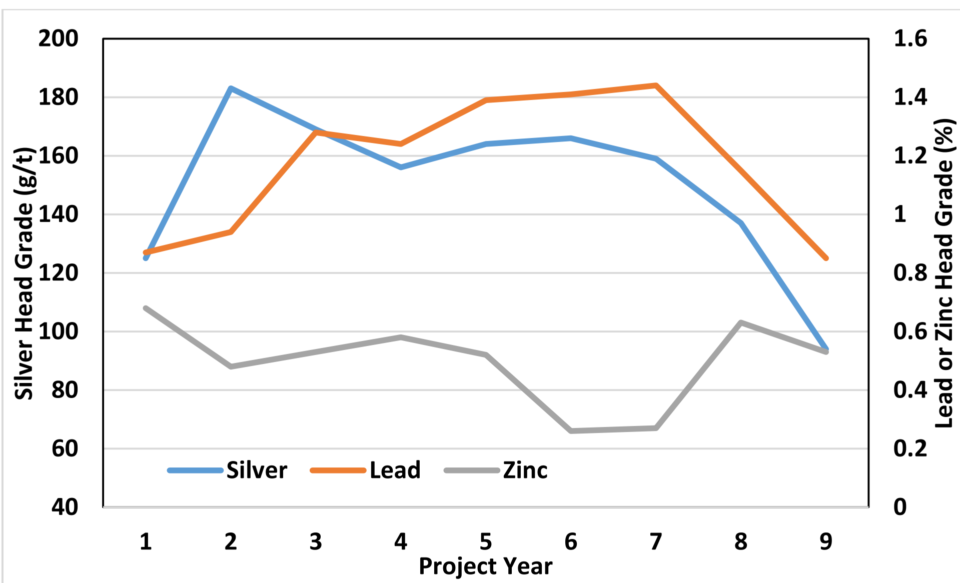


Figure 17-12: Expected Chinchillas Mill Feed Grades

Estimated concentrate tonnages, concentrate grades and recoveries using the developed equations are shown in Figure 17-13, Figure 17-14 and Figure 17-15.

It is assumed that any periods when the zinc head grade fell below 0.2% Zn, then no zinc concentrate would be produced. Instead, the zinc circuit would be converted into an extended lead/silver circuit for higher recovery.

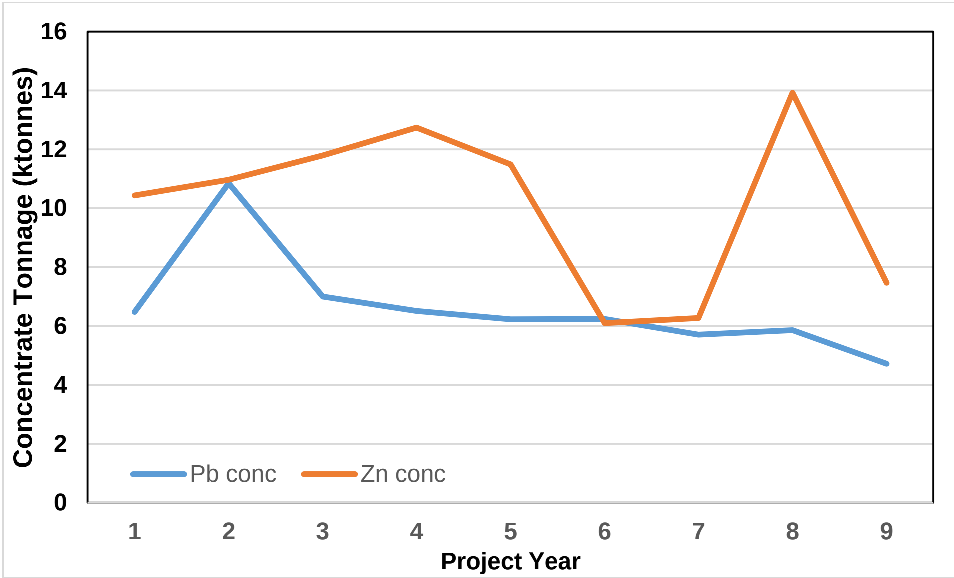


Figure 17-13: Expected Chinchillas Lead/Silver & Zinc Concentrate Tonnages

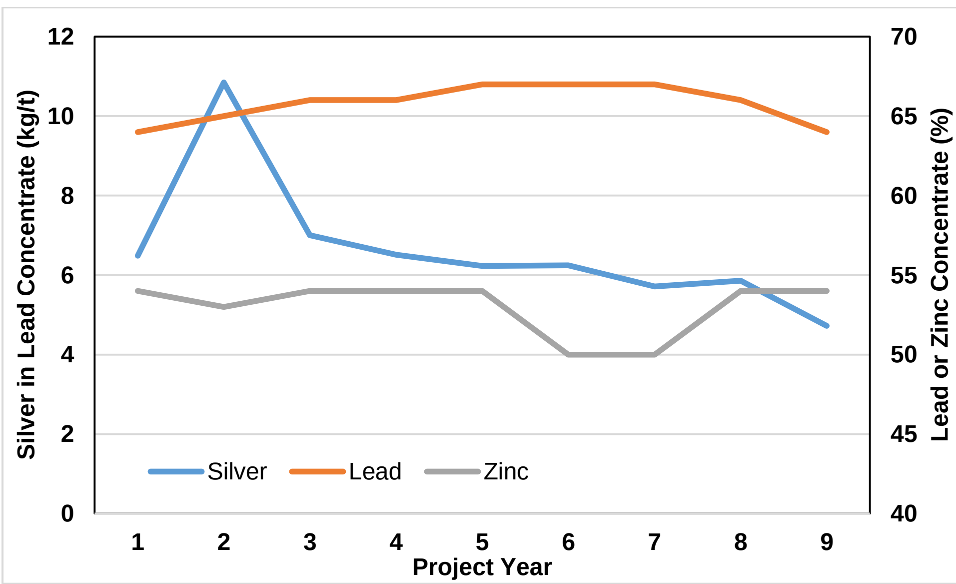


Figure 17-14: Expected Chinchillas Concentrate Grades

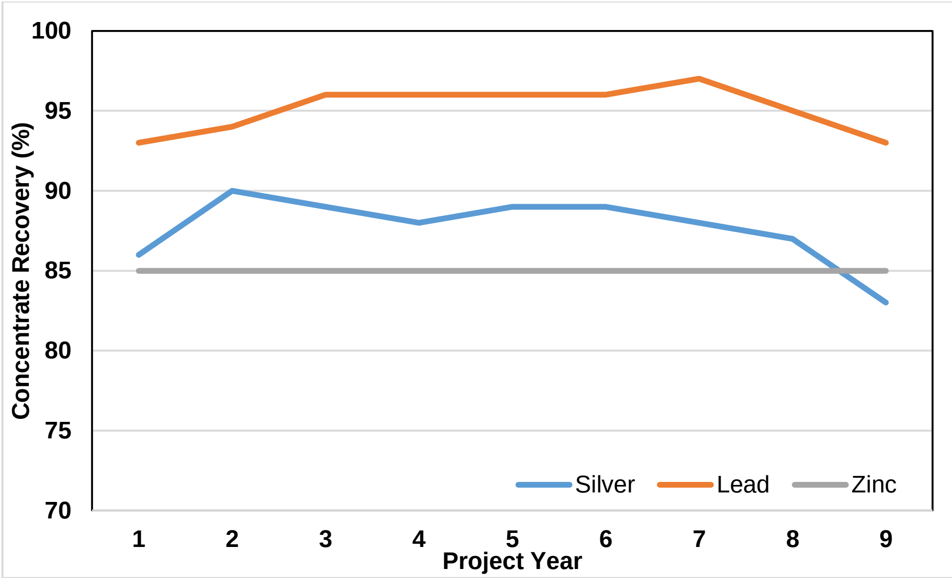


Figure 17-15: Expected Chinchillas Recoveries to Concentrates

The following points summarize the plant operation:

- The testwork discussed in Section 13 concluded that a two-product sequential flotation process was suitable for Chinchillas material and the Pirquitas plant has been successfully producing two flotation concentrates. Minor changes are required to modify the existing silver cleaner circuit to the testwork flowsheet of a two-stage lead/silver cleaner circuit.
- With the increased mass of Chinchillas lead/silver concentrate compared with the current Pirquitas silver concentrate, the currently unused tin concentrate thickener will be used as a second concentrate thickener. A new concentrate filter press will be added in place of the current tin filter, doubling lead/silver concentrate filtering capacity.
- The pre-concentration jig circuit used for Pirquitas ore will not be used for Chinchillas feed. (It could be evaluated in the future during additional Chinchillas testwork programs.)
- It is not expected that any manpower changes will be necessary in the operation/maintenance of the concentrator as the additional lead/silver concentrate dewatering requirements are offset by the idled jig circuit.
- For low zinc feed grades, the current Pirquitas ore practice is simply to stop addition of copper sulphate (as a sphalerite activator) and operate the zinc flotation cells as extended silver recovery units. The same practice will continue for Chinchillas material to achieve higher lead/silver concentrate recovery.

17.5.1 Commissioning/Opportunities

The ramp-up in mining rate of delivered ore in the first two years of production will allow tuning and adjustments of the process plant under lower feedrate conditions. Typical adjustments include minor flow rate pumping capacities around the flotation cleaning circuits. During this ramp-up period, actual mined ore samples will be laboratory-tested on the planned flowsheet and chemistry to confirm their performance.

In addition, the Courier 6 on-stream analysis system will be calibrated to include lead assays. As well, concentrate thickening and filtering will be optimized using available plant concentrates. This will include changes in flocculants selection/addition and filter press cycle times.

Testwork programs reported in Section 13 were focused on producing two flotation products using the existing Pirquitas plant. Additional opportunities to be investigated in testwork include:

- Pre-concentration: testing on crushed Chinchillas feed ahead of the milling circuit.
- Lead rougher concentrate regrinding: the original Pirquitas flowsheet had silver rougher concentrate regrinding ahead of flotation cleaning. In practice, the Pirquitas silver minerals were found to overgrind (slime) easily and the rougher concentrate regrinding step was abandoned. It is possible that the Chinchillas lead/silver minerals will behave in a similar manner and allow the rougher concentrate regrinding step to be avoided.

18 Project Infrastructure

The main approach to infrastructure for the Project is to maximize the use of existing infrastructure and facilities at the Pirquitas Operation and minimize the building of new items at the Chinchillas site.

The Pirquitas Operation includes significant infrastructure used to sustain mining and processing operations over the last seven years, much of which remains suitable for continued operation. These facilities include roads, a gas pipeline, power generation facilities, water diversion systems, tailings dams, mine waste stockpiles, camp facilities, office buildings, maintenance shops and communications systems.

A pipeline will be built for a new tailings disposal facility at Pirquitas to accommodate the ore feed from Chinchillas. The Chinchillas mine itself is essentially a greenfields project and will require new infrastructure to support the mining project, as discussed below. Construction at the Chinchillas mine site will use modular units to minimize development as well as closure efforts.

Total capital costs for the Chinchillas site infrastructure including contingency is estimated to be $13.9 million. Please see Section 21 for a discussion of the capital cost estimates associated with the Project, including in respect of tailings upgrades.

18.1 Ore Haulage Road

The proposed ore transport road from Pirquitas to Chinchillas is the National Route No. 40 that leads to Provincial Route No. 70. The route will require upgrading in order to have the increased traffic, including 35-tonne ore haulage trucks, safely and efficiently travel the route. A road survey was completed and a road design was developed to widen roads and improve route conditions, including bypasses of the local villages of Orosmayo and Liviara to minimize social impacts. This design, along with improved river and creek crossings and the requirement for road surface topping, is budgeted at an estimated $3.9 million in the capital cost estimate. The road distance from Chinchillas to Pirquitas is 42 kilometres. Figure 18-1 shows the access road and proposed improvements.

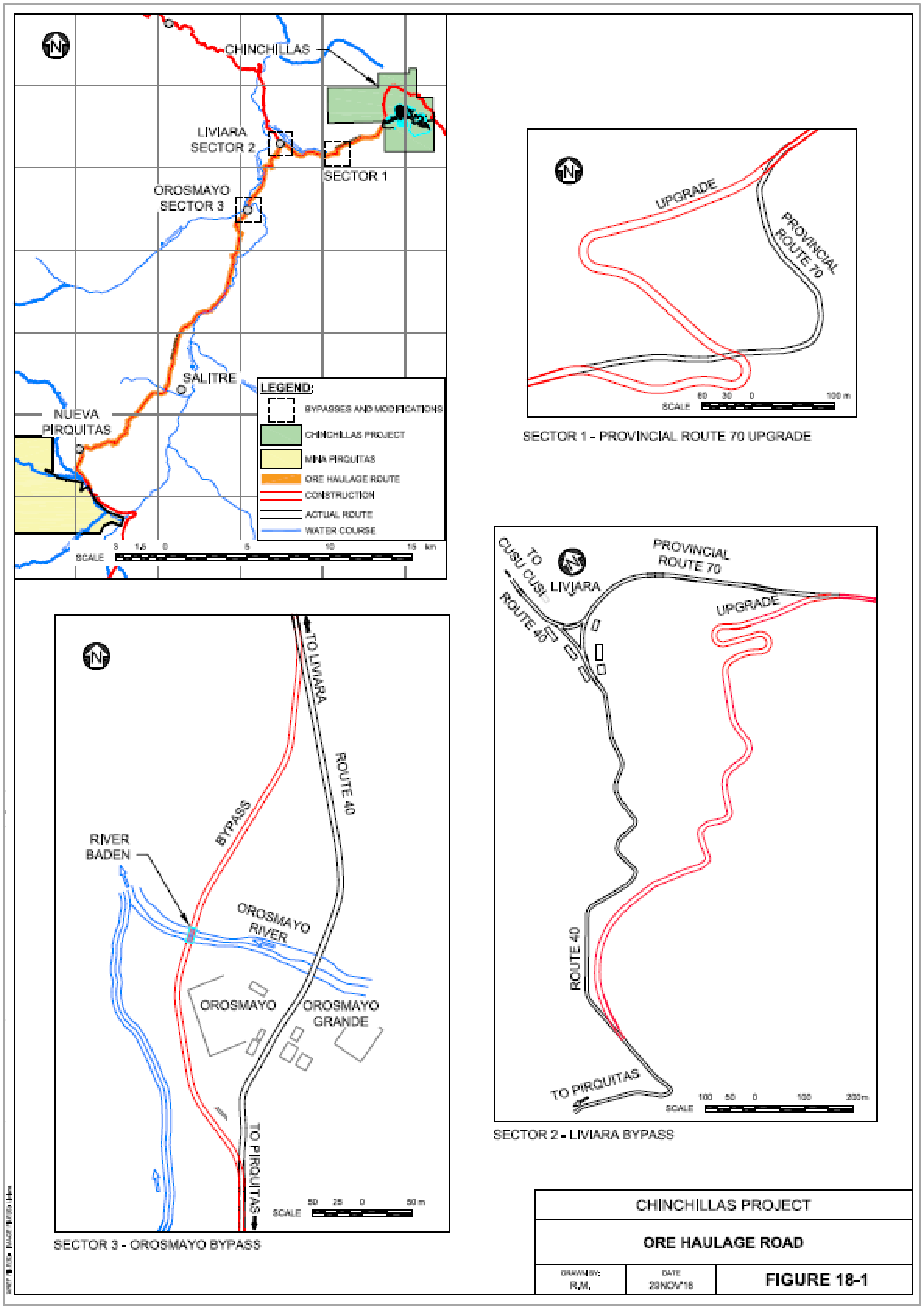


Figure 18-1: Access road for the Project and proposed modifications

18.2 Gas Pipeline and Power Supply

For its source of electricity the Pirquitas Operation uses natural gas to power three Wärtsila generator sets, each with a capacity of five megawatts ("MW") per hour. In addition, the same electrical plant has three diesel-powered Cummins generators, each yielding 1.1 MW per hour. There is 6.7 kilometres of gas pipeline on the Pirquitas property. The pipeline is 6" diameter, constructed of API5L Grade B steel with 4.8-mm wall thickness in normal applications and 7.1-mm wall thickness at river or drainage crossings.

The plan for the Chinchillas mine site is to supply power along existing power lines from the gas powered generators at Pirquitas. EJESA is the local power authority that owns the lines. The power line from Pirquitas that goes directly past the rural EJESA line at the town of Nuevo Pirquitas (approximately five kilometres from Pirquitas), will be upgraded to the required 1MW of power. The rural power line then goes from Nuevo Pirquitas to all villages along Route No. 40 and Route No. 70 and directly to Santo Domingo. This line is able to carry the 1MW load for Chinchillas, with a small spur line (approximately four kilometres in length) to be constructed to take power into the mine. Costs of the spur line and associated transformers, plus a monthly lease rates paid to EJESA have been captured in the operating and capital costs.

No ore processing will be done at Chinchillas therefore power requirements are minimal. In the event of power loss at Pirquitas, there will be back-up power from the EJESA grid that would amount to 100 kva. This back-up power will be designated for critical telecommunications systems and the first aid building.

18.3 Water Supply

Water supply for the Pirquitas Operation comes from the northwards flowing Collahuaima River which lies immediately east of the property. Water is pumped seven kilometres to the mill from a site known as San Marcos located within the mine property, a short distance downstream from where the Pirquitas River drains into the Collahuaima River. By means of Permit No. 201/002, originally granted to Sunshine Argentina by the Dirección Provincial de Recursos Hidricos de Jujuy and recorded by the Ministerio de Obras y Servicios Publicos on July 23, 1998, the mine is allowed to draw up to 32 litres per second of water from the river.

Water supply for the Chinchillas mine will be supplied via local pumping wells. There is allowance for a water distribution system, equipment washing, road dust control, sewage and fire water facilities. Potable water for Chinchillas will be supplied by bottles and larger water totes.

18.4 Tailings

The capacity of the current tailings facility at Pirquitas will be full by the time Chinchillas ore is processed. No tailings facility is required at Chinchillas.

Since mining at the Pirquitas Pit was completed in January 2017, thickened tailings (55% solids) will be transported to a portion of the Pirquitas Pit through a pipeline for in-pit disposal, tailings in-pit discharge system from the tailings transport pipeline, in-pit water reclaim system, and pipeline from the Pirquitas Pit to the Pirquitas plant for reuse. Water recovery will be a combination of tailings thickener overflow and in-pit pond, both recycled to the plant reclaim water system. These proposed upgrades will allow for additional tailings capacity in connection with the processing of Chinchillas ore. The capital cost of this upgrade is expected to be $15 million with an operating cost of $0.43/t milled. The distance from the Pirquitas plant to the Pirquitas Pit is six kilometres and the grades vary from 1.7% to 3.0% uphill. The alignment and gradient is shown in Figure 18-2.

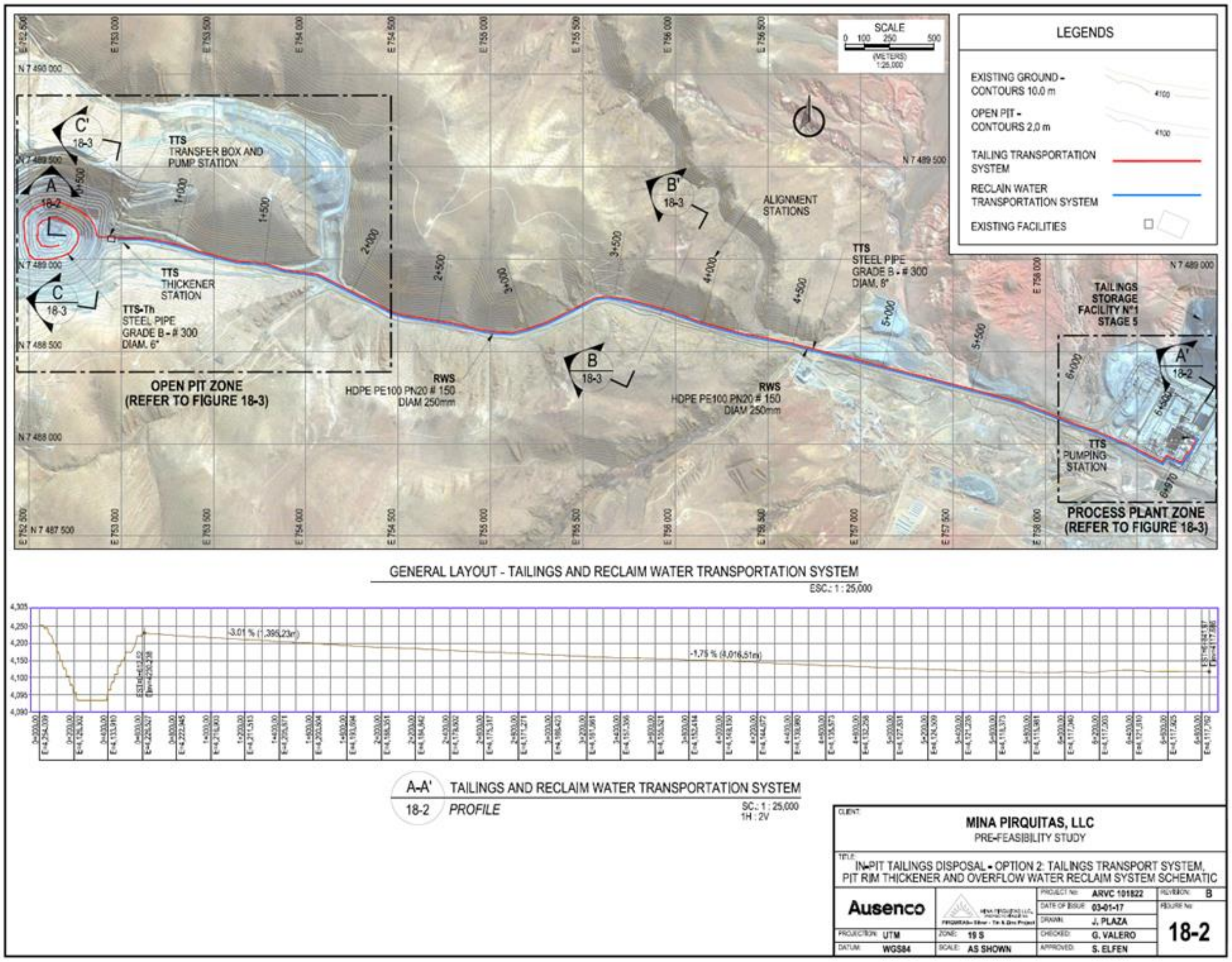


Figure 18-2: Alignment and gradient of the tailings line for in-pit disposal

18.5 Communications Systems

The Pirquitas site is equipped with both cellular and desktop telephones and intranet. This equipment uses cell phone towers to communicate to Abra Pampa and is connected via a land line to the Pirquitas mine offices and buildings. A fiber optic line is planned between Chinchillas and the Pirquitas mill site for efficient communication. On-site communication at Chinchillas will be via radio communication and local phone.

18.6 Camp, Office and Chinchillas Infrastructure

The Pirquitas camp site is equipped with housing sufficient for a maximum of 673 personnel. This housing is a mix of rehabilitated housing from prior mining operations and modular housing that was installed during construction. It is anticipated that Chinchillas and Pirquitas operating management and senior staff will be housed at the Pirquitas camp while local workers and operators will be transported to their local villages.

Camp food is catered by a contractor and is provided on a seven day per week schedule. Food as required by Chinchillas workers will be delivered daily to Chinchillas.

Office buildings at Pirquitas are a mix of rehabilitated offices from prior mining operations and modular office space installed during mine construction.

At Chinchillas the following facilities and works are required:

- Mine and administration offices
- Truck shop
- Lunch room (food preparation and storage is at the Pirquitas camp – daily delivery)
- Change room / Bathrooms / Training room
- Water wells, distribution and sewage system
- Lighting and heating facilities
- IT network
- Explosives magazines, and transfer of emulsion silos from MPLLC
- Fire and lightening protection
- Oil and fuel storage
- Security and first aid buildings
- Solid waste storage facility

Solid waste materials will be collected at the mine site and will be delivered to Pirquitas for recycling. A small landfill facility will be developed at Chinchillas site for small amount of solid waste produced at site.

For the explosives facilities the powder and cap magazines will be relocated from Pirquitas in accordance with Argentine mining regulations. An Emulsion Plant with 30,000kg capacity will be included as well as a truck service area and an ammonium nitrate storage facility with 56,000kg capacity. The ammonium nitrate (prill) is delivered via transport truck in 1-tonne tote bags that are then transferred into the explosives loading truck.

The infrastructure and facilities listed above can be seen in general site layout in Figure 16-10.

Capital cost required to build the infrastructure at Chinchillas Property is estimated to be $13.9 million including contingency, and is further detailed in Section 21.

18.7 Mine Short Term/Long Term Ore Stockpiles

In the east side of the pit, adjacent to the pit rim, a pad will be developed using type C waste materials for multipurpose tasks. The size of the pad will be approximately 400 metres by 300 metres. This will include a staging area for loading ore onto the haulage trucks to be transported to the mill. A short-term ore stockpile of ore will be formed in this area, with the amount of stockpiling varying by period. A small amount (690kt) of low-grade ore will also be stockpiled on this pad as long-term stockpile. This will be milled at the end of mine life before closing the mine. Refer to Figure 16-10 for general site layout where the location of short-term and long-term stockpiles are shown.

18.8 Rock Storage Facilities

The mine currently has two waste stockpiles as described in Section 16.4. Rock storage facilities will be classified by their geochemistry attributes as discussed in Section 20. Potential Acid Generating (Type A) will be disposed close to the pit rim so that its drainage will be collected in the pit and treated accordingly at closure. Mineralized waste will be separated and stockpiled with Type A material, but adjacent to the ore stockpiles, for potential processing opportunities at a later date (see Figures 16-8 & 16-9). High metal leaching materials (Type B) will be stored with Type C (non-hazardous materials) with a controlled drainage system. Rock storage facilities can be seen in general site layout at Figure 16-10. More information about managing Type A and B materials can be found in Section 20.

18.9 Other Pirquitas Infrastructure

The Pirquitas site has a permitted waste water treatment facility for treatment of liquid waste from camp operations. This system is designed to allow for discharge of treated waste-water to national standards.

The site has a landfill for organic waste and a recycling center for plastics, wood and metal products. Most wood products are donated to the local communities and are used as fuel or for construction supplies. Scrap steel and specialty steels are recycled via local vendors.

Domestic water comes from a water diversion located in the Medano Canyon area which is approximately 300 metres upstream from the Pirquitas mine open pit. Water is pumped from that location to a site water treatment facility for filtering and chlorination and is then used within the camp site. At the date of this Technical Report, potable water is currently supplied by bottles and totes for drinking and cooking purposes.

Concentrate shipments from Pirquitas are currently trucked to Susques, Jujuy from Pirquitas via Route 77, and from there to Buenos Aires via Route 9. At arrival to the terminal, the material is directly dispatched from the port facilities to the concentrate buyers. It is expected that this same route would be used for shipping concentrates produced when processing the Chinchillas ore at the Pirquitas plant.

19 Market Studies and Contracts

The Project is a poly-metallic project containing three principal metals – silver, lead and zinc. Production will result in two separate concentrates: a high silver content lead concentrate and a zinc concentrate.

The lead concentrate will contain most of the recovered silver metal and will be the more valuable of the two concentrates. Trace amounts of minor penalty elements will also be present in both of the concentrates.

19.1 Metals Pricing

Silver is traded on a global basis on a number of metals and commodity market exchanges. The price is determined by a number of factors that follow short and long-term trends and is most commonly established on the London Metal Exchange.

The price of silver is primarily affected by the availability of supply vs. fabrication demand.

Lead and zinc are considered base metals, but are traded in a similar manner to silver.

For the economic evaluation in this PFS the prices of silver, zinc and lead used are $19.50/oz, $1.00/lb and $0.95/lb respectively. These prices are consistent with long-term pricing for market reports published in the first quarter of 2017, and similar projects. The prices are kept fixed for the duration of the Project. Slightly more conservative metal prices of $18.00/oz, $1.00/lb and $0.90/lb for silver, zinc and lead, respectively, have been used for mine planning.

19.2 Concentrate Terms

The Chinchillas concentrates are commodities that will be sold and traded to global markets. Sales can be either made directly to smelter operations or through commodity traders.

For the purpose of this PFS, it is assumed that both concentrates will be exported and sold on the global market.

The Pirquitas mine has been producing and exporting concentrates since 2009. The logistics, required Customs procedures, and exporting requirements are therefore well understood by POI.

Kingston Process Metallurgy was commissioned to complete an independent marketing study for the Chinchillas concentrates (Peacey, 2016).

The individual concentrate qualities were sourced from the metallurgical testwork, specified in Section 13.2.5.

The independent study concluded for the lead/silver concentrate that the volume to be produced by Chinchillas would not disrupt the market and the terms should be 95% payable for both silver and lead, due to the high Ag content. Only relatively minor penalties are expected for both bismuth and antimony.

The study further concluded that the zinc concentrate should attract 85% payable terms for zinc with a minimum deduction of eight units. Silver payable terms are typically 70% after a three ounce deduction. For high silver zinc concentrates (such as Chinchillas and Pirquitas) should attract a higher silver payable of 75%. Based on the current market, the terms for the small quantities of Chinchillas high silver zinc concentrates (i.e. 10 to 15 ktpa) should be the same as benchmark.

The independent review of world concentrate markets and recent terms (including treatment, payment, and penalties) resulted in guidance values for these items. These terms are displayed in Tables 19.1 and 19.2, and were used both for mine optimization and financial modelling.

Recent experience from the Pirquitas mine for total freight charges (ground haulage, customs and port fees and offshore shipping) were used for both the lead/silver and zinc concentrate terms.

Table 19-1: Lead/Silver Concentrate Marketing Terms

Lead/Silver Concentrate			
Payability		Charges	
Silver	95%	Treatment ($/t)	200
Lead	95%	Freight ($/t)	230
Zinc	0%		
		Impure Penalty ($/t)	60
		Silver Refining ($/oz)	1.5

Table 19-2: Zinc Concentrate Marketing Terms

Zinc Concentrate			
Payability		Charges ($/t)	
Silver	75%	Treatment	230
Deduction Silver	3 oz/t	Freight	230
Zinc	85%		
Deduction Zinc	8%	Impure Penalty	25

The concentrate quantities produced by period are displayed graphically in Figure 17-13 and are derived from the annual mine production schedule.

20 Environmental Studies, Permitting and Social or Community Impact

Significant environmental and social study and analysis has been conducted for the Project. A comprehensive Environmental and Social Impact Assessment has been submitted to the provincial regulatory authorities. This section draws on that document to summarize environmental and social information.

20.1 Environmental Studies

A summary of key physical, chemical, and biological environments is provided in the following sub-sections.

20.1.1 Surface Hydrology and Water Quality

The Chinchillas Property is located in a small contained valley near the headwaters of the Colquimayo and Orosmayo rivers. Drainage from small ephemeral streams into the Project area collect in the valley bottom in the Arroyo Uquillayoc, which drains to the east into Rio Colquimayo.

Flows in the small tributaries that drain the Project area are governed primarily by rainfall, which is typically highest between December and March. Typical flows in the Arroyo Uquillayoc near the Project site are low, ranging from 0 to 1.5 liters per second (“L/s”) during the dry period, and between 0.3 and 20.0 L/s during the rainy season.

Surface water quality samples were obtained and analysed from 22 sites between 2011 and 2016, from within the Project area in the Arroyo Uquillayoc as well as far-field sites site in Quebrada San Pedro, the Rio Colquimayo and Rio Cincel, as well as the Rio Orosmayo.

Both surface and groundwater baseline sampling show the influence of native mineralization in the host rock. While surface water chemistry is generally circumneutral, Arroyo Uquillayoc near the Project site seasonally shows variation from acidic (pH 5.9) during higher flows to basic (maximum pH 8.0) during lower flows. Annual average pH at these sites was neutral, between 6.8 and 7.2.

In Argentina, the Environmental Protection for Mining Activity Law (Ley de Protección Ambiental para la Actividad Minera in Spanish) specifies limits of parameter concentrations in water quality in the absence of site-specific data for various end uses, including drinking water, aquatic life, irrigation, and livestock watering. Metals such as aluminum, antimony, arsenic, barium, boron, cadmium, copper, chromium, iron, lead, manganese, nickel, vanadium, and zinc occasionally are at, or exceed, these concentrations in the baseline water sampling.

Surface water parameters in the Quebrada de San Pedro exhibited generally more neutral pH, but with similar metal concentrations.

The sampling location in the Arroyo Uquillayoc as it exits the Chinchillas valley will be used during operations as a point of control to monitor water quality during operations. In the baseline condition, samples from the Arroyo Uquillayoc at the outlet of the Chinchillas valley exhibited exceedances for a number of the limits set by the Environmental Protection for Mining Activity Law. This suggests that some metal parameters occur naturally in higher concentrations in Project area waters, which would be expected, as they are draining the valley that contains the mineralized zone. Mitigation and management programs will be required as part of the Project permitting. These programs will consider the naturally elevated baseline parameters when setting compliance targets.

20.1.2 Hydrogeology

The Chinchillas site is located in a caldera or bowl-like feature in the side of the mountain range, resulting in some flow towards the bowl from the north and south as well as from the east. The bowl is somewhat like a shallow open pit.

Groundwater discharges to topographic lows, such as the local drainage in the deposit area depression and to the regional low elevation at the base of the range to the east and west of the Project area. Elevations are highest along the SSW-NNE divide of the Sierras and decrease towards the east and west. Groundwater gradients are therefore steepest towards the east and west, and groundwater is expected to generally flow in these directions following topography.

Hydrogeological data were collected during a 2015 site investigation consisting of drill hole logs, hydraulic conductivity testing (packer tests and open-hole tests), water level observations, and drilling circulation records. Sixteen packer tests and nine open-hole falling head tests were completed in three geotechnical drill holes in the deposit area. Hydraulic conductivity values estimated from the packer tests range from less than $1x10^{-8}$ m/s to $1x10^{-5}$ m/s (Figure 20-1).

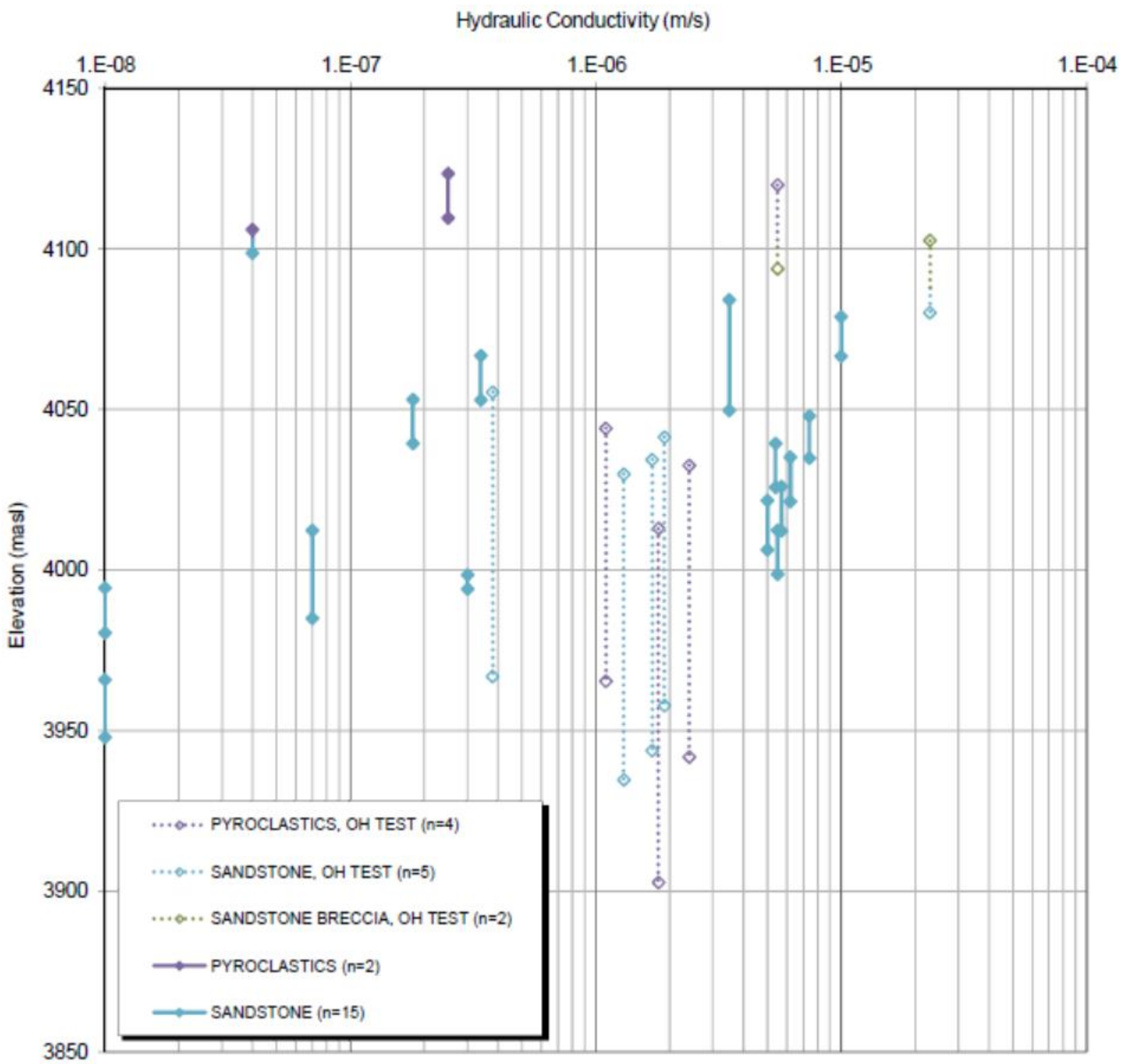


Figure 20-1: Response Test Hydraulic Conductivity by Lithology

The metasediments outside the caldera feature are expected to have a relatively low hydraulic conductivity. Storage values are expected to be low, provided almost entirely by joints, fractures, bedding planes and faults. Within approximately 300 metres from the contact margins with the overlying tertiary pyroclastics, the permeability of the metasediments increases due to the strongly fractured nature of the rock.

Northwest trending faults likely provide partial barriers to groundwater flow across the faults and enhanced flow parallel to faults. The fractured zone adjacent to the metasediments has relatively high hydraulic conductivity, likely in excess of $1x10^{-6}$ m/s.

Groundwater discharges occur primarily in topographic lows, often into stream beds. The indications from the available surface flow measurements are that groundwater discharge contributes from 1.5 L/s to upwards of 4 L/s to stream flows at the eastern extent of the Chinchillas valley. The groundwater reporting to the pit area is estimated to be 1.8 L/s.

Arid climatic conditions result in relatively high evapotranspiration rates that ultimately minimize the amount of precipitation available for groundwater recharge. The variation in annual precipitation impacts the precipitation available for groundwater recharge from one year to the next.

Recharge could vary from insignificant to about 50 mm per year, depending on climatic conditions and surface materials. This is expected to result in water level increases of a few metres in wet years, which would decrease over drier years. Smaller variations can be expected on a seasonal basis.

In order to limit contact water, inflows to the pit from groundwater will be minimised through a dewatering system that will consist of wells containing submersible well pumps. The discharge pipes of several well pumps will be connected together at surface into a common discharge header pipe. The header pipe(s) will discharge at a downstream location to the natural streambed.

Groundwater quality samples from monitoring wells immediately adjacent to the Project area were collected in 2015 and 2016. Similar water quality parameters were observed in the groundwater to those identified in the surface water samples discussed above.

Sample results were compared to limits specified in the Environmental Protection for Mining Activity Law. As was noted in the surface water, exceedances were noted in the baseline condition for some metals parameters. These variably included exceedances of the drinking water, aquatic life, irrigation, and livestock watering limits. However, these exceedances are considered natural and represent water that drains from within and around the mineralized zone, and are carefully documented as part of the baseline monitoring program.

20.1.3 Geochemistry

Geochemical investigations were undertaken in order to assess the potential for net acid generation and the potential for metal leaching. As described above, both surface water samples and groundwater samples in the area of the mineralization show circum-neutral pH values. Water samples exhibited slightly elevated sulphates (ranging from <25 mg/L SO_4 to 100 mg/L SO_4), alkalinity up to 100 mg/L and a range of dissolved and total metals. There are no strongly acidic seepages found in the Project area, either in the surface drainage or the groundwater. Of particular interest in the prediction of water chemistry from the Project, there are slightly elevated values of aluminum, zinc, cadmium, iron, manganese and antimony found in some baseline samples. These metals are consistent with the mineralization of the Project area and the Chinchillas deposit.

The regional geology (described in detail in Section 7) comprises a package of sediments overlain by volcanics. Within this region, the deposit was formed by a major east-west trending fault structure along which volcanic intrusions and mineralizing events have resulted a zone of pyroclastic rocks (breccias, tuffs and ash) forming a roughly elliptical deposit. The deposit has undergone several different types of alteration, primarily clay alteration with lesser sericitization, silicification, and carbonate alteration. The deposit lithology is therefore broadly grouped by lithology into (meta)sediments and volcanics, and further by alteration.

Silver, lead and zinc bearing minerals include silver sulfosalts, boulangerite, tetrahedrite, freibergite, sphalerite, and galena. Associated mineral assemblages include chalcopyrite, pyrite, siderite, limonites, manganese oxides, and malachite. The mineralization occurs as disseminated within the breccias but primarily along structure within the volcanics and basement rocks. Considering the environmental geochemistry, this deposit would be considered a low sulphide system and a low carbonate (alkalinity) system.

A suite of 34 samples were selected for geochemical testing to provide spatial coverage of the expected mine areas and to evaluate the characteristics of the various lithologic and alteration units, and mineralization within ore and waste for the deposit. The extensive exploration ICP database was evaluated before selecting the samples in order to ensure that representatives of low grade ore and waste rock were selected.

Testing included both standard elemental analyses (by ICP) and acid base accounting to characterize the range of sulphide content (and therefore potential for acid generation) and carbonate content (and therefore potential for neutralization).

The static test results are consistent with those expected from the deposit geology; relatively low sulphur content and low carbonate content, and mineralization concentrated in the breccias. The metal contents reflect the main minerals in the deposit, with zinc and cadmium associated with the sphalerite, aluminum associated with the clay alteration, and copper occurring in the freibergite and chalcopyrite.

The key findings with respect to the potential for net acid generation are:

- Paste pH of the samples range from neutral to slightly acidic, with the majority of the samples between paste pH of 5.7 to 8.1.
- Total sulphide content of the samples is low, ranging from <0.01% to 4% S, with one sample of breccia at 7% S. This is consistent with the statistical analysis of the entire exploration IPC database of the deposit (including ore) which shows sulphide concentrations range from <0.1 wt % to >10 wt % with an average of 0.75 wt % for the deposit.
- Carbonate concentrations are relatively low, ranging from less than detection to 4.3kg/t $CaCO_3$ equivalent.
- Sulphate sulphur concentrations are low in the rock samples, indicating minimal in situ oxidation of the sulphides. This is consistent with the geologic model of a shallow oxidation front.
- The ratio of neutralization potential to acid potential (NP/AP) is used to indicate the potential for net acid generation from a static test. Approximately 75% of the samples are considered non-acid generating based on the NP:AP ratio or the low sulphur content. Approximately 25% of the samples could be considered potentially weakly acid generating, however given the relatively low sulphide content this may represent only local zones of potential net acidity.

This is consistent with the baseline observations of generally circum-neutral water quality in the baseline.

Selected samples were tested using a various short-term leach extraction tests to provide an indication of potential metal leaching from these samples. These tests are designed as "batch" or instantaneous tests to maximize dissolution of metals from a sample; these tests can overestimate actual drainage water chemistry in the longer term. The short-term filter extraction tests were used to indicate the potential for metal leaching for the range of rock samples encountered in both waste rock and low grade materials. Sample results indicated that certain units of waste rock may have leachable aluminum, cadmium, copper, lead, and zinc where lower pH values occur.

The static tests and the evaluation of the ICP database confirm that the samples selected cover the range of expected sulfide concentrations in the mining material. On-site materials have a low neutralization potential. Therefore, the classification of materials is primarily a function of the content of sulfur and metal. These results indicate that most of the waste rock has low potential for acid drainage and metal leaching, mainly due to relatively low sulfide and mineralization outside the ore zones.

A combination of sulphide, zinc and paste pH will be used to identify waste rock that is a potential source of metals leaching or acid drainage. These parameters will be included in the mine block model and will be used for the design of the waste rock handling.

The mine block model will be used to manage the waste rock according to the net acid generation potential and / or metal leaching potential in the waste rock storage areas. This will be accomplished through segregation of potentially reactive waste rock ("Class A") placement in the dumps with contained drainage. These waste rock storage areas have controlled drainage and, in the long term, can be directed to the open pit if necessary. Non-reactive waste rock ("Class B or C") will be placed separately further downstream in the catchment.

20.1.4 Water Management

During the Project life, water quantity and quality will be managed to maximize diversions and maintain "non-contact" water. The site water management plan is designed to "keep clean water clean" as much as possible. Diversion ditches have been designed around the dumps, pit and stockpiles to convey clean or non-contact freshwater around these disturbed areas, where it is physically practical. The "Class A" Rock Storage Area will store potentially reactive rock and is located such that it can drain into sumps or the pit, to allow monitoring and batch treatment if required before discharge.

Water that accumulates on Project infrastructure will be collected for settling and testing prior to any discharge. No water will be discharged to the environment that would have adverse environmental impact.

The dewatering and water management plan is comprised of three systems:

- Diversion Ditches
- Pit Groundwater Dewatering Wells (non-contact water)
- Surface Contact Water Runoff Dewatering

Dewatering wells will target the fractured boundary metasediments, screened at an elevation below the base of the pit, to drain the groundwater in the pit area and to reduce pore pressure in the high wall at the latter stages of mine life.

The pumped water will be connected together at surface into a common discharge header pipe. The header pipe will discharge at a downstream location in the Arroyo Uquillayoc.

Water collected within the catchments of the open pit and each waste rock dump area will be directed to small holding sumps excavated at the low point of each area. Portable centrifugal pumps will suction water from these sumps and deliver to a sediment pond or multiple sediment ponds for testing and release. A general arrangement of this system is included in Figure 20-2.

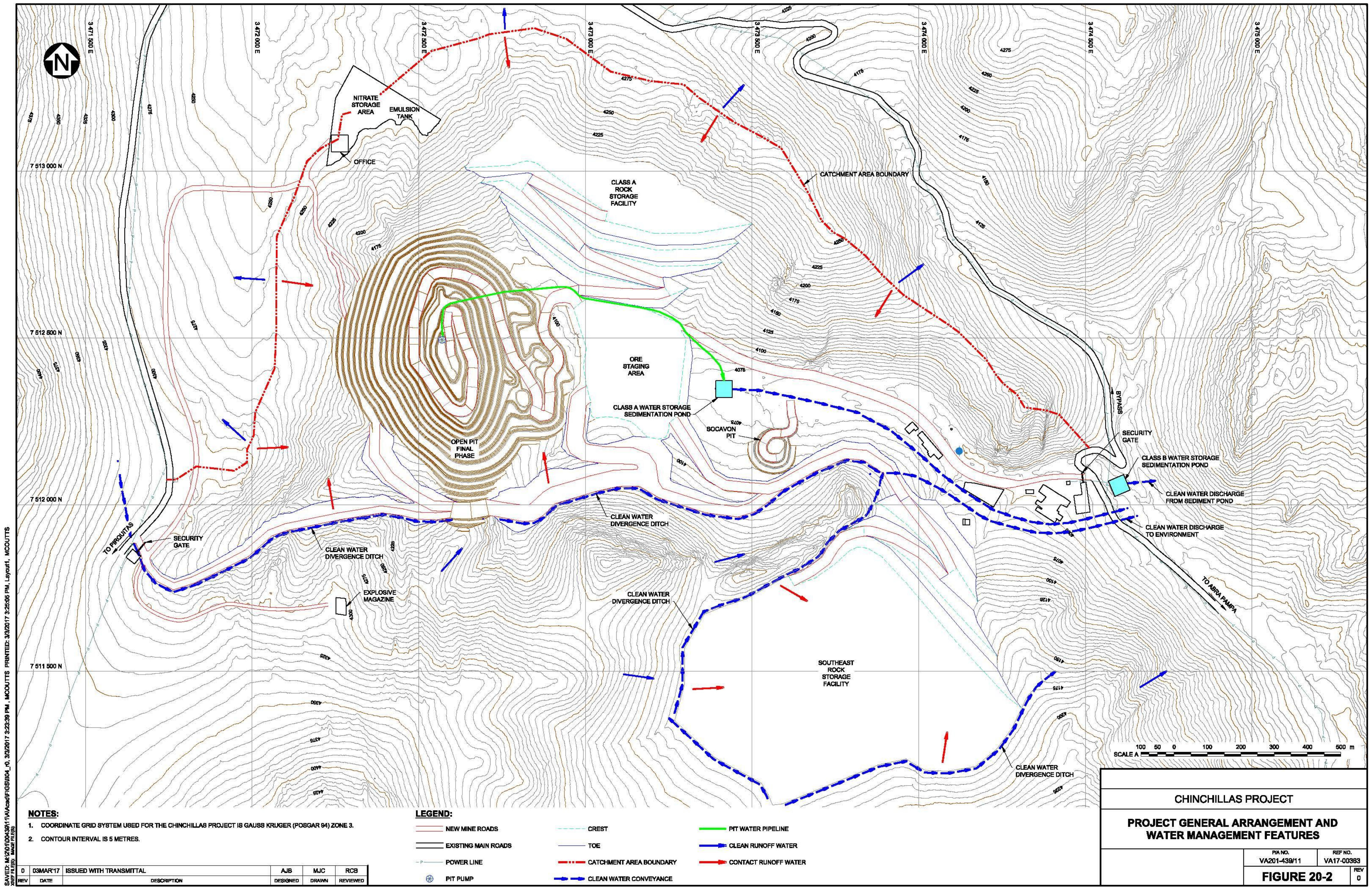


Figure 20-2: Project General Arrangement and Water Management Features

20.1.5 Flora and Fauna

The Chinchillas Property area is a mix of high Andean plains and Puna landscape, characterized by grassy steppes and low-growing shrub land (Figures 20-3 and 20-4), interspersed with bare soil and alkaline wetlands ("peladares"). Where standing water is encountered, such as at ponds and streams, surrounding wetland vegetation are collectively known as "vegas", dominated by the families Juncaceae, Cyperaceae, Poaceae, Oxalidáceas and Scrofulariaceas (Figure 20-5). In upland drier zones, cactus such as *Maihueniopsis* and *Lobivia* can be found.

Figure 20-3: Grassland steppes on the western edge of the Project area

Figure 20-4: Shrub land on the northern edge of the Project area

Figure 20-5: Vega habitat

The effects of the high-altitude environment include increased solar radiation, constant winds, and large temperature fluctuations. Soils are typically young with low levels of organic material. These conditions have influenced the development of plant species in this area, where species of different families often show similar morphologies. Grasses typically have a high proportion of cellulose and lignin for added rigidity, and extra layers of cutin or suberin to restrict water loss. Woody plants are typically found as shrubs, with almost no tree layers evident.

Fauna of the Project area are highly correlated to wetter and humid areas, including the vegas. Several species of insects have been recorded, along with three species of amphibians. Three species of reptiles (two lizards and one snake) have also been documented in the area.

There are at least 72 species of birds known to be present for at least part of the year in the Project area. The most abundant of these are the Ash-breasted sierra finch (*Phygilus atriceps*) and the Bright-rumped yellow finch (*Sicalis uropygialis*). Other birds in the area of note include the Andean Condor (*Vultur gryphus*), the Ornate Tinamou (*Nothoprocta ornate*), the Puna Rhea (*Pterocnemia tarapacensis*), the Mountain Parakeet (*Bulborhynchus aurifrons*), and the Bare-faced Ground Dove (*Metriopelia ceciliae*).

Studies completed in 2015 identified 9 native and 1 exotic mammalian species. Numerous domestic species (e.g. llamas) were also noted in the area. The most common native mammals were the Vicuña (*Vicugna vicugna)* and the Vizcacha (*Lagidium viscacia*).

Some displacement of vegetation communities and attendant wildlife habitat will occur within and adjacent to the Project footprint as a result of project development. These impacts have been assessed for consideration by the authorities and are expected to be authorized as part of the mine permits.

20.1.6 Protected Areas

There are 15 protected areas within the Province of Jujuy, however the majority of these are far removed from the Project area. The Laguna de Pozuelos represents the most important protected area within the Chinchillas Property region.

The Laguna de Pozuelos is a large, permanent, high-altitude lake located approximately 25 kilometres from the Project area. It is an important migratory bird stopover, particularly known as habitat for the Andean Flamingo, as well as many other species.

The laguna is located within a National Natural Monument, protected by the “Administracion de Parques Nacionales” (National Parks Administration) as well as a United Nations Educational Scientific and Cultural Organization (“UNESCO”) designated Biosphere Reserve and RAMSAR Wetland of International Importance. The National Natural Monument covers a surface of approximately 16,000 hectares and in this area all economic activities, including mining, are prohibited.

The National Natural Monument is surrounded by a buffer zone of approximately 380,000 hectares defined as a RAMSAR Wetland of International Importance that is administered by the multi-sector organization “Corporación para el Desarrollo de la Cuenca de Pozuelos” (CODEPO: Corporation for the Development of the Pozuelos Watershed) that is responsible for promoting sustainable development in the buffer zone. This buffer zone is recognized by UNESCO, who note that one of the objectives of the Reserve buffer zone is to make development compatible with conservation (www.unesco.org).

As shown in Figure 20-6, the Jujuy Ministry of Mining GIS data indicates that the Chinchillas property is located just inside the buffer zone, while boundaries provided by the University Nacional de Jujuy (“UNJ”) follow the UNESCO model and divide the buffer zone into an outer transition zone, with the Chinchillas property located outside of both zones. Taking the Ministry data of the buffer outline as the most recent and correct suggests that Chinchillas falls within the Ministry buffer zone, and within the UNESCO transition zone. In either case, economic activities, including mining and exploration, are permitted in these areas. This has been previously confirmed by virtue of the exploration and drilling permits issued for the Project, which were subject to government review and approval. Thus, the location of Chinchillas Property relative to the protected areas of the Laguna de Pozuelos does not represent an impediment to the continued development of the Chinchillas deposit.

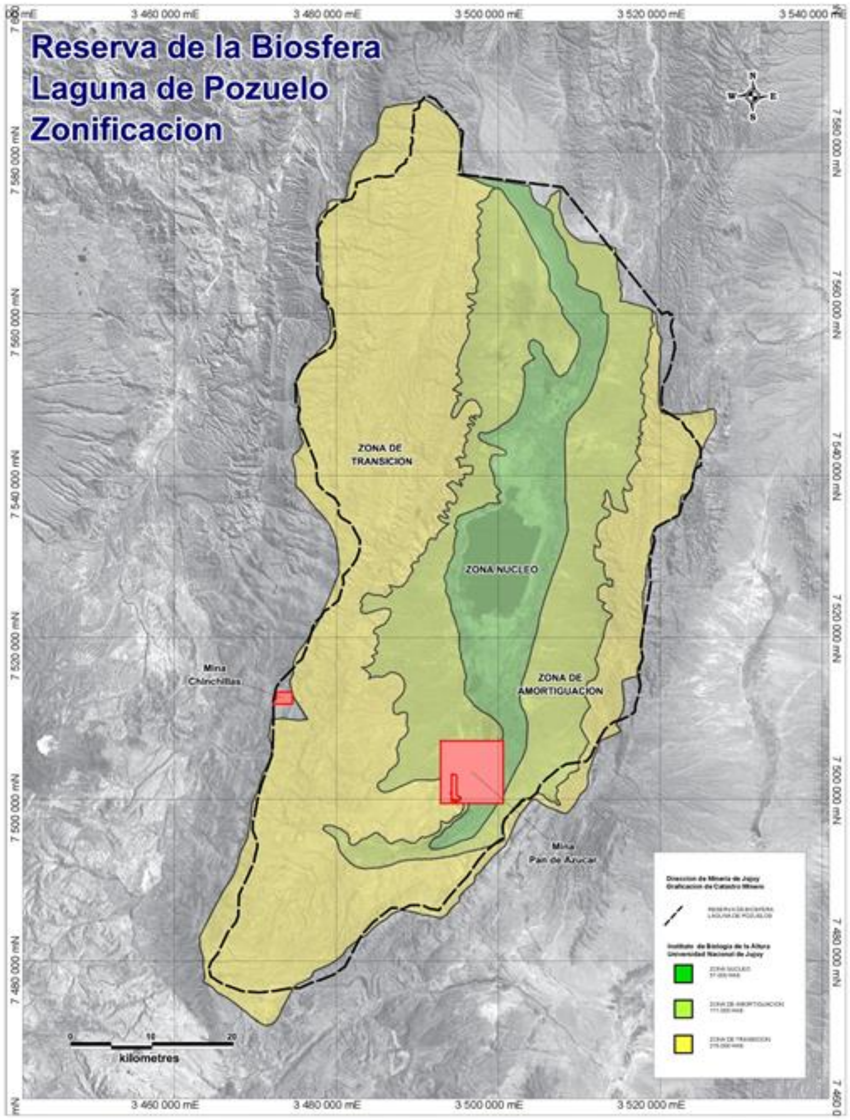


Figure 20-6: Laguna de los Pozuelos Buffer Zones

20.2 Social and Community Engagement

20.2.1 Local Communities

The Project is located in a rural area in the department of Rinconada in the province of Jujuy. The Rinconada department has an area of 6,407 km^2 and a population of only 2,489 (2010 Census). The department is divided into two municipalities; Rinconada Municipality and Mina Pirquitas Municipality.

The nearest population centers to the Project include the village of Santo Domingo (approximately 6 kilometres distant) and the larger city of Abra Pampa (approximately 75 kilometres distant), which is located in the adjacent department of Cochinoca. Additionally there are two villages located between the Chinchillas site and the Pirquitas Operation; Liviara (approximately 9 kilometres distant) and Orosmayo (approximately 14 kilometres distant, see Figure 20-7). Each of Santo Domingo, Liviara, and Orosmayo are considered aboriginal communities, with predominant Qulla ethnicity. Qulla people historically occupied the high Puna regions throughout northern Argentina, western Chile, and southern Bolivia. They traditionally speak a dialect of the Quechua language.

Figure 20-7: Panorama of the Village of Orosmayo

It is estimated that 30 people live in Santo Domingo, the village most proximate to the Project. A further 60 people are estimated to live dispersed throughout the surrounding area. Similarly, an estimated 45 people live in Liviara and 95 in Orosmayo. Abra Pampa, the largest urban area in the region, has a population of approximately 16,000.

The livelihood of the area's population is primarily tied to small-scale livestock management, typically goats and llamas, with some limited production of sheep. Sale of livestock, meat, and wool is typically done in Abra Pampa, from where it may eventually reach markets farther afield such as San Salvador de Jujuy.

Outside of agriculture, regional inhabitants are employed by the public sector (e.g. school teachers), or work in the mining industry. Many local rivers are exploited for low volumes of placer gold, and several hard rock mines, including the Pirquitas mine, have operated in the area. The majority of workers from Liviara and Orosmayo are employees of the Pirquitas mine.

During the exploration of the Chinchillas Property, up to 30 individuals from the surrounding villages were contracted to provide a range of services. As project development progresses, enhanced community engagement is planned that will target education, training, and employment opportunities. Training is planned in stages to include for appropriate staffing as the mine phases progress from construction to operation, with an ultimate target of 70% of mine employees being sourced from local communities.

20.2.2 Archaeology

The Puna region of Argentina has a rich history of occupation, dating from at least 10,000 years before present. Hunter gatherers roamed throughout the region, gradually domesticating llamas and moving to greater reliance on agriculture within the last 3,000 years. The Incas arrived in the region in 1475, which had a great effect on the social order and use of resources. Spanish conquistadors arrived in 1535, further altering the socio-economy of the area and ushering in the colonial era.

Mining occurred historically at the Chinchillas area on a small scale in the eighteenth century by Jesuit missionaries. In the late 1960's, there was a period of small underground production by a local company using adits and tunnels.

An archaeological survey was conducted at the Chinchillas Property in 2015. A total of 11 archaeological sites were identified proximate to the project itself. Other sites were identified in the surrounding area.

Of the sites identified, most correspond to historic mining activity, such as tunnels, shafts, and roads. Other sites included livestock pens created from stacked rocks, many of which, although very old, are still in use. These sites will generally be avoided during project development, or catalogued and safeguarded prior to any disturbance in cooperation with government authorities.

20.3 Project Permitting

The legal framework for mine permitting is derived mainly of the second section of the Mining Code of the Nation and its supporting National Law No. 24.585. The institutional Framework for the permitting process is driven by stipulations in Law No. 24.585, with technical support of UGAMP and the National Mining Secretariat.

The main focus of permitting is the detailed Environmental and Social Impact Assessment, which must be submitted prior to commencement of operations. Upon successful review of the ESIA, a DIA is awarded. Annex III of Law 24.585 establishes the minimum contents of the EIA, which must include:

- Description of the Environment (physical, biological, and socio-economic);
- Project Description;
- Description of Environmental Impacts;
- Environmental Management Plan (which includes measures and actions to prevent and mitigate environmental impact);
- Plan of Action on Environmental Contingencies; and
- Methodology Used.

An ESIA for the Project was developed and submitted for review in September 2016. It is subject to review by the Mining Department and UGAMP, a process that is expected to conclude with issue of a DIA in mid to late 2017. The UGAMP is a multi-stakeholder group chaired by a technical appointee from the Mining Department who recommends approval or rejection of the ESIA and related work application to the provincial mining authorities. Meetings are held to allow UGAMP members to review the proposed materials with members of Golden Arrow. UGAMP representatives appurtenant to the Project include:

- Representatives from the local Communities of Santo Domingo, Orosmayo, Liviara;
- Mining Workers Unions;
- Provincial Department of Water Resources;
- Department of Mines and Energy;
- Provincial Secretary of Mining;
- Surface Landowners;
- Provincial Collage of Geologists;
- Provincial Department of Environment;
- Provincial Department of Human Rights and Indigenous Communities;
- National University of Jujuy;
- Jujuy Chamber Mining;
- National Parks Administration;
- Corporation for the Development of the Pozuelos River;
- Provincial Secretary of Public Health;
- Provincial Department of Agriculture and Livestock Control; and
- Provincial Department of Industry and Commerce

Chinchillas has maintained all previous exploration activity permits in good standing, each of which required the submission of an ESIA and receipt of a DIA. As the review of the mining ESIA proceeds, precedent suggests that the DIA will also be granted.

The use of the Pirquitas Pit for tailings deposition at the Pirquitas Operation is a modification to the mining activities not contemplated in MPSA's ESIA for the Pirquitas mine. The process of this modification has begun and additional documents are being prepared for submission to the regulatory authorities. It is expected that an authorization for such modification will be obtained prior to the end of 2017.

20.4 Mine Closure

A conceptual closure plan and cost has been developed for the Project. There are no specific laws in Argentina that specify mine closure requirements, and there is no bonding requirement. The closure plan for the Project has been developed in consideration of best industry practice. The closure plan was designed to accommodate the following objectives:

- Health and security of the public
- Protection of the environment
- Ensure physical and chemical stability of post-closure structures
- Ensure unrestricted and unimpacted natural surface water flow
- Prevent erosion of post-closure structures from wind or water
- Safe removal of impacted surface structures and buildings
- Safety and security for people, wildlife, and livestock

20.4.1 Closure Activities

Buildings and surface structures will be cleaned of residual fuels, lubricants, reagents, and wastes prior to being deconstructed and dismantled. Recyclable wastes will be reused wherever possible. All structures will be removed to ground level, with concrete slabs or other inert foundations covered with stored topsoil. All access roads to the pit and waste rock storage areas will be blocked for safety using earthen berms accompanied by warning signs.

The water diversion systems employed during operations will be fortified for long term use in managing water post-closure. This will include maintaining all upgradient runoff as non-contact water passed downstream to the Arroyo Uquillayoc.

The pit will be allowed to flood to the phreatic level. A large safety berm accompanied by appropriate signage will be constructed around the pit rim to prevent access.

Ongoing monitoring of the closure measures will be conducted over a period of five years to ensure successful implementation.

Closure costs have been estimated at $3.6 million. These costs relate to incremental closure activities specific to the Project, and do not consider mine or plant closure activities (or associated salvage value) that would otherwise take place if the Project did not proceed, including those activities in respect of the Pirquitas Pit. For a discussion of the closure plan for and obligations and liabilities relating to the Pirquitas Pit, please see Section 23.

21 Capital and Operating Costs

This section summarizes the capital and operating costs for the Project. Each component was estimated by the responsible area QP.

For the purposes of cost estimation, Argentine peso-denominated cost estimates have been converted into U.S. dollar terms based on prevailing exchange rates in the third quarter of 2016. Going forward, Argentine inflation rates in excess of U.S. inflation rates are assumed to be offset by a corresponding devaluation of the Argentine peso against the U.S. dollar, resulting in no changes to Argentine peso-denominated costs in U.S. dollar terms.

21.1 Capital Costs

The Project utilizes the existing processing facilities at the Pirquitas Operation, therefore most capital items are related to the mining equipment and infrastructure required at the mine site. The mill will be slightly modified prior to accepting Chinchillas' ore specially to handle lead ores. A new tailings facility will also be built at Pirquitas' site using the mined out Pirquitas Pit. The main road between the mine and mill also needs modifications and improvements. Capital costs are grouped in mine, infrastructure, processing and environment and closure.

Total capital expenditure is estimated to be $125.3 million. Capital costs are separated as initial and sustaining purchases. The initial capital is $81.2 million and the sustaining capital is $44.1 million. The initial capital will be spent in pre-production period that is estimated to be about 12 months. The capital requirement for the rest of mine life is sustaining capital.

21.1.1 Mine Capital Costs

21.1.1.1 Pre-production and Road Pioneering

Prior to ore production about 4.5 kilometres of the roads within the mine area for rock storage facilities and access to the benches will need to be constructed. The pads for ore haul staging area and stockpile bases also need to be built. In this period a total of 4.3 million tonnes of waste rock will be pre-stripped. The rock mined in this period will mainly be used in construction, most notably for haul roads and the ore haul staging area. Pre-stripping, pioneering and on site road construction is estimated to cost $11.4 million plus 35 percent contingency.

21.1.1.2 Mine Equipment

The mine equipment capital cost is estimated for both primary and ancillary equipment. The primary equipment includes items such as drills, shovels, haul trucks, track dozers, and graders. The ancillary equipment includes light trucks and service vehicles, backhoes, and fuel trucks, along with a number of other required open pit mining support equipment.

The primary equipment CAPEX estimate is based on the mine schedule quantities, determinations of productivities and therefore equipment requirements, and vendor quotations. The ancillary equipment CAPEX estimate is based on benchmark information (CostMine, 2016). Wherever possible, existing Pirquitas mine equipment is to be transferred from Pirquitas and used at Chinchillas.

Included in the ancillary equipment are sump pumps and diesel-electric generators for removing water flowing into the pit from precipitation, horizontal drain outflow, and groundwater not captured by other means.

The open pit mining activities for the Project are assumed to be undertaken by an owner-operated fleet. However, ore is to be hauled from Chinchillas to the Pirquitas mill using a contract haulage service. The mine will be responsible for maintaining the roadways; only the truck loading haulage portion will be contracted.

Waste will be mined predominantly on 5 m benches with 16 yd3 wheeled loaders loading 100 ton trucks. Ore will be loaded and hauled with the same equipment fleet as for waste. There is a 7 yd3 backhoe that partially will be used to load ore in areas that needs more grade control. The ore will be hauled from the pit to a short term stockpile / staging area where the contractor's trucks will receive the load and haul it to the mill.

21.1.1.3 Surface and Groundwater Management

Diversion ditches around the rock storage facilities will be developed to route fresh water around the facility. There will be some water wells around the pit area for dewatering purposes. The surface and groundwater management system is designed by KP. KP estimated the cost of water management at just over $2 million plus contingency.

21.1.2 Infrastructure Capital Cost

The mine will use a 42 kilometres public road to haul ore from Chinchillas to Pirquitas. This road will be upgraded and in some parts modified so that it can handle the extra volume of traffic during mining operation. This will include a few by-passes for villages and also widening of the entire road. It is estimated through Contractor quotes, that the road upgrade will cost $3.9 million that includes 35 percent contingency. Road maintenance cost is accounted for as a mining operating cost.

Infrastructure that will be built on site include a main office, cafeteria, a truck shop, on site access roads, power supply, fuel storage area, sewage treatment, mine communications, dispatch and a first aid and ambulance building.

The cost for mine facilities associated to the storage and disbursement of bulk explosives and an explosives magazine are estimated. The costs for an explosives plant has been accounted for. Bulk explosives supply is an operating cost in Section 21.2.

The infrastructure capital cost has been subdivided into Off Site and Site Infrastructure. The total infrastructure costs are $13.9 million, including 35 percent contingency. This includes $1.3 million for engineering and procurement, including 35 percent contingency.

The infrastructure costs were obtained primarily through contractor quotes, and estimates based on local knowledge.

21.1.3 Process Plant Capital Cost

To modify the existing plant to process Chinchillas ore-types a minimum number of modifications are required. These modifications include:

- Installation of a full dome type cover over the crushed ore stockpile.
- Re-piping of the lead flotation circuit to include rougher concentrate regrinding and two stages of concentrate cleaning.
- Installation of a third concentrate filter. Reusing the tin concentrate thickener as a second lead concentrate thickener, which together with the additional new filter, will allow for filtering of the increased concentrate tonnage.
- Installation of new tailings pumping systems from the existing tailings thickener to the Pirquitas Pit, and reclaim water pumping system and return waterline to the plant site.

Formal quotations were obtained from suppliers for the stockpile cover and concentrate filter. For in-plant re-piping, this was estimated by the Pirquitas plant maintenance team. The total mill-related capital costs are estimated to be $4.4 million plus 20 percent contingency.

The plant will use the Pirquitas Pit for tailings. Ausenco Peru provided a design and costing for the tailings pumping and reclaim water return systems. This is estimated to be $15.0 million that includes a 25 percent contingency.

21.1.4 Environmental and Closure Cost

Buildings and surface structures will be cleaned of residual fuels, lubricants, reagents, and wastes prior to being deconstructed and dismantled. Recyclable wastes will be reused wherever possible. All structures will be removed to ground level, with concrete slabs or other inert foundations covered with stored topsoil. All access roads to the pit and waste rock storage areas will be blocked for safety using earthen berms accompanied by warning signs. The water diversion systems employed during operations will be fortified for long term use in managing water post-closure. This will include maintaining all upgradient runoff as non-contact water passed downstream to the Arroyo Uquillayoc. The pit will be allowed to flood to the phreatic level. A large safety berm accompanied by appropriate signage will be constructed around the pit rim to prevent access. Ongoing monitoring of the closure measures will be conducted over a period of five years to ensure successful implementation. Closure costs for the Project have been estimated at $3.6 million.

Closure activities and costs specific to the Pirquitas Pit are not included in the cash flow model. For a discussion of the closure plan for and obligations and liabilities relating to the Pirquitas Pit, please see Section 23.

21.1.5 Capital Cost Summary

The Project's capital cost estimate (including initial and sustaining costs) is summarized in Table 21-1. Initial capital is defined as capital costs associated to pre-production and ramp up production that takes a total of 12 months. Sustaining capital occurs throughout the mine life.

Table 21-1: Summary of Capital Expenditures

Capital Items	Initial ($000s)	Sustaining ($000s)	Total ($000s)
Road modifications and improvements	2,888.8	0.0	2,888.8
Site construction and infrastructures	9,363.0	0.0	9,363.0
Mining production equipment	7,790.7	22,647.3	30,438.0
Mining support equipment	3,192.4	3,473.7	6,666.1
Freight, commissioning and spares	973.8	2,608.4	3,582.2
Pre stripping, road pioneering	11,442.8	0.0	11,442.8
Pit dewatering and water diversion systems	2,035.4	1,468.7	3,504.1
Processing plant improvements	4,424.0	0.0	4,424.0
Tailings facility construction	11,978.0	0.0	11,978.0
Engineering and procurement	943.6	0.0	943.6
Contingency (average 29%)	16,217.0	8,704.1	24,921.1
Owner's cost	9,971.7	0.0	9,971.7
Other sustaining capital cost	0.0	5,250.0	5,250.0
Total capital	**81,221.2**	**44,152.2**	**125,373.4**

Notes:

1. Figures may not total exactly due to rounding.
2. The value of used mining equipment that is transferred from Pirquitas mine is not included in this estimate. However the cost of upgrading and refurbishing them are in the estimate.
3. Sustaining capital is exclusive of capitalized stripping, estimated at $62 million during the operating period.
4. The overall contingency of the Project, excluding owner's costs and other sustaining capital costs, is 29%. Contingency varies from 15% to 35% based on the level of detail work done for each item. Contingency has not been applied to owner's cost as well as to other sustaining capital cost.
5. Freight and commissioning are 5% of the new equipment costs and spares are estimated as 3% of the total initial equipment costs.

21.2 Operating Costs

Operating costs are estimated using current operating experience at Pirquitas operation, actual quotes from vendors and first principles. Operating costs are estimated for the areas such as mining, processing, tailings and general and administrations. QPs for each section reviewed the estimates and believe that the operating costs presented in this document are at a pre-feasibility study level or better. The following sections summarize the results of the operating cost estimate.

21.2.1 Mine Operating Costs

Mine operating costs are based on first principles and SRK experience, complemented by existing operating cost data for the same mining equipment in use as the Pirquitas mine. For new equipment (ancillary equipment) an industry benchmark equipment cost database (CostMine, 2015) was used.

Equipment efficiency is estimated based on site conditions (e.g., estimated haul routes and cycle time for each bench and waste/ore destination). Local labour rates (for operating, maintenance, and supervision/technical personnel) and estimates on diesel fuel pricing ($0.97/L) were taken into consideration for the mining cost estimate.

The key assumptions of primary mine equipment are provided in Table 21-2. All costs are expressed in U.S. dollars, though Argentine peso-based costs, such as labour, were considered. The exchange rate used to convert Argentine peso-based costs was 14.46 Argentine pesos/U.S. dollar.

Table 21-2: Primary Mine Equipment Unit Operating Cost Assumptions

Item	Function	US$/hour*
Crawler-Mounted, Rotary Tri-Cone, 6.5-in Dia.	Drilling	94.32
Crawler-Mounted, Percussion, 5.0-in Dia.	Drilling	100.57
Diesel 16-cu-yd Wheel Loader	Loading	277.96
100-ton class Haul Truck	Hauling	125.33
Crawler-Mounted, Percussion, 6.0-in Dia.	Aux. Drilling	84.39
D9-class 15.8' blade	Support	80.31
Diesel, 7.1 cu-yd Backhoe	Support	95.16
834H-class 15.2' blade	Support	76.06
16H-class 16' blade	Support	54.44
14H-class 14' blade	Support	51.56
70-ton class 15,000 gallon	Support	53.74
35-tonne class, 8,000 gallon	Support	30.88
*Exclusive of operating labour		

21.2.1.1 Drilling and Loading

The requirements for drills and shovels are based on empirical inputs for productivity which are applied against the mine schedule quantities. The same drilling and loading fleets at Pirquitas are assumed for Chinchillas. Small drills are used for drilling pre-shear holes and grade control holes.

21.2.1.2 Blasting

Blasting in waste and ore is to be performed with ammonium nitrate fuel oil mixture (ANFO) and Emulsion that assumes a 50%/50% split. A 5 m x 6 m pattern is assumed for waste and ore (powder factor of 0.21 kg /t). First principle costing of blasting consumables, together with third party blasting service costs, constitute the blasting costs. Unit blast costs are $0.28/t.

21.2.1.3 Mine Haulage

Truck productivities and fuel consumption rates are derived from the average haul profiles, considering centroids of pit benches and destinations. Existing (Pirquitas) 100 ton haul trucks are selected for waste and ore movement from the open pits.

For ore haulage from Chinchillas to Pirquitas, ore will be re-handled into 35 tonne highway haulers from a staging area adjacent to the main pit. Low grade ore, above economic cut-off, will be temporarily stockpiled near the main pit for haulage to the Pirquitas mill at the end of the mine life. Mineralized waste (greater than $25/t NSR) is also to be stockpiled near the open pits for future consideration.

Waste haulage will be primarily to storage facilities in the next valley south of the mining area. Waste with metal leaching potential is to be stored in a facility north of the pit where drainage from the facility can be directed back into the pit. Backfill opportunities do exist in portions of the open pits, but these are not considered for now so as not to sterilize future Mineral Reserves.

21.2.1.4 Support Equipment

The non-production support equipment requirements (dozers, graders, water trucks, etc.) are factored based on the production equipment requirements and the number of active mining areas. Additional support equipment has been designated for road maintenance of the ore haul.

21.2.1.5 General Mine/Maintenance

General Mine/Maintenance operating costs include those costs associated with ancillary equipment such as light plants and dewatering equipment as well as personnel transport and maintenance service vehicles. Technical services costs also are included in this category.

21.2.1.6 Hourly Operating Labour Requirements

The mine labour requirement was developed. A four crew rotation is considered working 12 hours per shift. The average labour requirements for when the mine is at full production are 110 with about 27 personnel in each crew. Blasting is to be conducted with contract personnel.

21.2.1.7 Mining Equipment Maintenance

The mining equipment will be maintained on-site at the maintenance shop. For major mining equipment maintenance work such as engine or transmission repairs they may be moved to Pirquitas or shipped off site. The number of personnel working in maintenance varies by year. The average personnel requirements for when the mine is at full production are about 105. Maintenance crew mainly work in day shifts. There will be some personnel that will cover night shift duties.

21.2.1.8 Supervision and Technical

Similarly, the manpower requirements for mine supervision and technical personnel have been estimated. These are based on current Pirquitas practices. In general there will be a total of 34 personnel working in supervisory and technical position and mainly in day shifts.

In addition to personnel cost, Mine Supervision and Technical costs include costs related to:

- Computers/software;
- Survey equipment;
- Geotechnical consulting;
- Aerial surveying;
- Office supplies; and
- Miscellaneous.

Factors applied against total material moved are used to derive these costs. The larger share of the total Supervision and Technical costs are attributed to the operating labour costs.

In average there will be about 221 people working for the Project plus some contractors. Mine operation crews work in two shifts a day whereas maintenance and administration/technical personnel work mainly in day shifts. Table 21-3 lists the average personnel requirements for different tasks in the mine.

Table 21-3: List of Personnel Requirements for Chinchillas Mining Operation

Operations	Average
Driller, blasthole	12
Blaster	Contract
Blasting Helper	Contract
Shovel/Loader Operator	8
Truck Driver	21
Track Dozer Operator	10
Wheel Dozer Operator	4
Grader Operator	4
Water Truck Driver	4

Labourer/Trainee	8
Vacation-Sick-Absenteeism allowance (VSA) Operator	13
VSA – Labourer/Trainee	2
Ore Haul Support (Grader, Water Truck, VSA)	15
Surveyor	1
Helpers	4
Ore Control Eng./Technologist	2
Ore Control Field Supervisors	2
Technician/Ore Control	13
Total	**123**
Total/crew	**31**
Maintenance	**Average**
Heavy Equipment Mechanic	7
Welder/Mechanic	6
Electrician/Instrument	6
Lubeman/PM Mechanic	11
Tireman	6
Labourer/Trainee	21
VSA – Tradesman	8
VSA – Labourer	5
Maintenance Superintendent	1
Mtce General Foreman	2
Maintenance Planner	2
Maintenance Shift Supervisors	7
Tire Supervisor	1
Crane operator	2
Total maintenance	**85**
Total maintenance/crew	**34**
Mine Supervision and Technical	**Average**
Mine Manager	1
Mine Superintendent	2
Mine Services	1
Drill & Blast Foreman	2
Mine Supervisors	4
Trainer	4
Dispatch	2
Mining Engineer	2
Geology Superintendent	1
Geotechnical Geologist	1
Exploration Geologist	2
Data Entry	1
Project Manager	2
Field Supervisors	2
Secretary/Clerk	2
Total supervision and technical	**29**
Total on site/set	**18**
Grand total	**237**
Grand total/day shift	**83**

21.2.1.9 Mine Operating Cost Summary

Based on production schedule the operating costs were estimated for different units of operation for each period. Overall the mining operating costs is $2.86 per tonne mined for the life of mine. Haulage is the most expensive part of mining at 22 percent of the total cost followed by supervision and technical services at 19 percent. Figure 21-1 shows the breakdown of mining operating costs by units of operation.

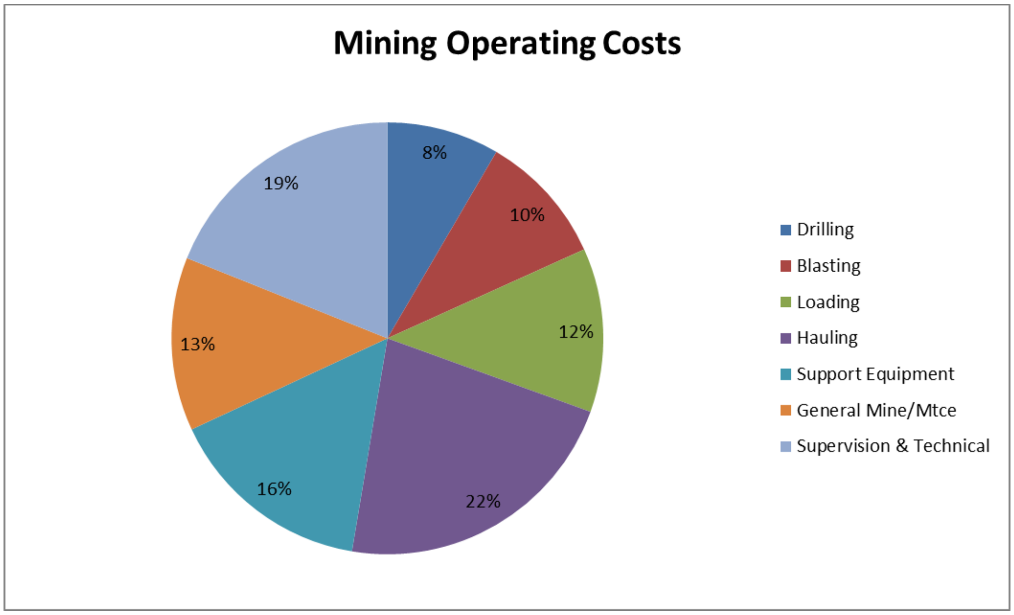


Figure 21-1: Mining Operating Cost by Units

Table 21-4 presents the summary of the operating costs over the life of mine as described above.

Table 21-4: Project Operating Cost Summary

Item	Cost
Direct Mining Costs (000's US$)	
Drilling	$16,071
Blasting	$18,615
Loading	$23,559
Hauling	$41,816
Support Equipment	$29,431
General Mine/Mtce	$24,852
Supervision & Technical	$36,164
Total Mining, Pre-Tax (US$)	**$190,504**
Ore Haul Direct Mining Costs	
Loading	$3,437
Hauling	$70,188
Support	$14,368
Supervision & Technical	$4,054
Total Ore Haul, Pre-Tax (US$)	**$92,054**
Mining Cost (US$/tonne moved)	
Drilling	$0.24
Blasting	$0.28
Loading	$0.35

Hauling	$0.63
Support Equipment	$0.44
General Mine/Mtce	$0.37
Supervision & Technical	$0.54
Total Mining, Pre-Tax (US$/tonne moved):	$2.86
Total Mining US$/tonne ore	$16.27
Ore Haul Mining Costs (US$/tonne)	
Loading	$0.29
Hauling	$6.00
Support and road maintenance	$1.23
Supervision & Technical	$0.35
Total Ore Haul, Pre-Tax (US$)	$7.87

Table 21-5 presents the same mine operating costs by year on a total dollar basis, while Table 21-6 shows mine operating costs on a unit cost basis.

Table 21-5: Project Mine Operating Cost by Year

Description	Life of Mine	-1	1	2	3	4	5	6	7	8	9
Production (ktonnes):											
Ore Mined	11,710	7	1,177	1,367	1,456	1,607	1,461	1,405	1,509	1,721	0
Waste	54,887	4,332	9,238	9,146	8,959	8,068	8,335	3,507	1,797	1,505	0
Total Material	66,596	4,339	10,415	10,513	10,415	9,674	9,796	4,912	3,306	3,226	0
Ore Hauled	11,711	0	985	1,440	1,400	1,400	1,400	1,400	1,400	1,400	886
Strip Ratio	673	636.70	7.85	6.69	6.15	5.02	5.70	2.50	1.19	0.87	0.00
Direct Mining Costs (000's US$)											
Drilling	16,071	1,224	2,300	2,330	2,329	2,132	2,254	1,416	1,078	1,008	0
Blasting	18,615	1,137	2,833	2,848	2,832	2,706	2,727	1,633	1,092	807	0
Loading	23,559	1,484	3,626	3,660	3,635	3,420	3,450	1,747	1,286	1,251	0
Hauling	41,816	1,489	5,388	6,115	6,222	6,077	6,738	4,028	2,885	2,874	0
Roads/Dumps/Support Equipment	29,431	1,978	4,077	4,193	4,171	4,095	4,206	2,441	2,133	2,137	0
General Mine/Mtce	24,852	1,224	2,996	3,718	3,737	3,672	3,727	2,042	1,921	1,815	0
Supervision & Technical	36,164	2,363	5,054	5,055	5,054	5,049	5,050	3,719	2,410	2,410	0
Total Mining, Pre-Tax (US$)	**190,504**	**10,898**	**26,273**	**27,918**	**27,979**	**27,151**	**28,151**	**17,026**	**12,806**	**12,302**	**0**
Ore Haul											
Loading	3,437	0	349	408	404	404	404	404	404	404	256
Hauling	70,188	0	5,907	8,567	8,400	8,400	8,400	8,400	8,400	8,400	5,314
Support	14,368	0	1,370	1,743	1,697	1,697	1,697	1,697	1,697	1,697	1,073
Supervision & Technical Allocation	4,054	0	1,082	1,082	270	270	270	270	270	270	270
Total Ore Haul (US$)	**92,054**	**0**	**8,708**	**11,800**	**10,772**	**10,772**	**10,772**	**10,772**	**10,772**	**10,772**	**6,914**

Table 21-6: Project Unit Mine Operating Cost by Year

Description	Life of Mine	-1	1	2	3	4	5	6	7	8	9
Mining Cost (US$/tonne matl)											
Drilling	0.24	0.28	0.22	0.22	0.22	0.22	0.23	0.29	0.33	0.31	0
Blasting	0.28	0.26	0.27	0.27	0.27	0.28	0.28	0.33	0.33	0.25	0
Loading	0.35	0.34	0.35	0.35	0.35	0.35	0.35	0.36	0.39	0.39	0
Hauling	0.63	0.34	0.52	0.58	0.6	0.63	0.69	0.82	0.87	0.89	0
Support											
Support Equipment	0.44	0.46	0.39	0.4	0.4	0.42	0.43	0.5	0.65	0.66	0
General Mine/Mtce	0.37	0.28	0.29	0.35	0.36	0.38	0.38	0.42	0.58	0.56	0
Supervision & Technical	0.54	0.54	0.49	0.48	0.49	0.52	0.52	0.76	0.73	0.75	0
Subtotal "Support"	1.36	1.28	1.16	1.23	1.24	1.32	1.33	1.67	1.96	1.97	0
Total Mining, Pre-Tax (US$/tonne)	2.86	2.51	2.52	2.66	2.69	2.81	2.87	3.47	3.87	3.81	0
Total Mining US$/tonne ore	**16.27**	**1,601.64**	**22.32**	**20.42**	**19.22**	**16.9**	**19.27**	**12.12**	**8.48**	**7.15**	**0**
Ore Haul											
Loading	0.29	0	0.35	0.28	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Hauling	5.99	0	6	5.95	6	6	6	6	6	6	6
Support	1.23	0	1.39	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Supervision & Technical Allocation	0.34	0	1.1	0.75	0.19	0.19	0.19	0.19	0.19	0.19	0.31
Total Ore Haul US$/tonne ore	**7.86**	**0**	**8.84**	**8.19**	**7.69**	**7.69**	**7.69**	**7.69**	**7.69**	**7.69**	**7.81**

21.2.2 Processing Operating Costs

The operating cost estimate for the process plant has been prepared. This is based on the actual Pirquitas operating expenditures for recent years (2015 and 2016). As the latest Pirquitas operation has been without zinc concentrate production, actual 2015 Q4 zinc circuit operating costs were used. Zinc head grades during this period were similar to future Chinchillas zinc grades (2015 Q4 0.42% Zn versus Chinchillas LOM 0.49% Zn). The costs then were prorated with the expected Chinchillas processing rate that is 4,000 tonne per day. Plant operating costs can be seen in Table 21-7.

Ausenco developed a design and cost estimate for tailings disposal to the Pirquitas Pit. Tailings operating cost is estimated to be $0.43/tonne milled for the life of mine.

Table 21-7: Plant Operating Costs

Plant Operating Area	$/t Milled
Crushing	1.27
Grinding	3.68
Lead and Silver flotation	2.01
Zinc flotation	1.55
Filtration and bagging	1.32
Maintenance	2.71
Plant General and Administrative	2.12
Total plant	14.65
Tailings management operating costs	0.43
Grand Total for Mill and Tailings	15.08

Not included in the table above is a monthly charge by EJESA for the power transmission of $8,100 per month ($0.07/t ore processed), which is included in the cash flow model, but reported separately.

21.2.3 General and Administrative (G&A)

G&A costs that are associated with mine and plant operation are estimated separately in their respective section. The other G&A costs such as security, environmental, community, camp and local office expenses are estimated to be $9.37 million per year equal to $6.69 per tonne ore milled based on a 4,000 tonne per day mill throughput rate. The operating cost for the G&A areas were determined and summarized by cost element based on current operating practice and experience at Pirquitas. The cost elements include labor, supplies, support infrastructure, services, camp catering and other expenses detailed in Table 21-7. A total G&A workforce of 43 is anticipated to support the Administrative area for Chinchillas. These personnel will mainly work at Pirquitas mine camp and Jujuy's local office.

Table 21-8: Annual General and Administrative Costs for Chinchillas

	Headcount	Annual Cost ($ x1000)
Salaries		
Environment	6	389
Security	6	435
Community Relations	3	179
Human Resources	5	333
Procurement & Warehouse	9	545
External Administration (Jujuy)	11	1,009
IT Support	3	215
Sub-Total	**43**	**3,106**
Camp Catering		**1,710**
External Costs		
Insurance		1,000
Audit and Tax Fees		231
Legal Fees		166
Bus Transportation		875
Distributed Power Costs		282
Sub-Total		**2,555**
Other Costs (by Department - operating supplies, training, legal, vehicles)		
Environment		380
Security		333
Community Relations		163
Human Resources		292
Procurement & Warehouse		237
External Administration (Jujuy)		355
IT Support		240
Sub-Total		**2,001**
Total		**9,371**

21.2.4 Operating Costs Summary

The total operating cost for the life of mine is estimated to be $531 million; that is, equal to $45.34 per tonne of ore milled. This includes mining, ore haulage, processing, environment, community, and personnel, general and administrative costs.

The breakdown of operating cost is summarized in Table 21-9.

Table 21-9: Summary of Operating Costs

Operating Costs		
	Units	Cost
Mining (ore and waste)	$/t mined	2.88
	$/t milled	15.33
Processing (including $0.07/t in incremental power)	$/t milled	14.72
General and Administrative LOM	$/t milled	7.00
Ore Transport to Pirquitas	$/t milled	7.86
Tailings Management	$/t milled	0.43
Total Operating Costs	**$/t milled**	**45.34**

22 Economic Analysis

22.1 Summary

A discounted cash flow model was developed to evaluate the economics for the Project. The economic model is based on a 100% Project basis that examines the overall project economics and does not specifically allocate profits, earnings or cash flows to Silver Standard or Golden Arrow, which own 75% and 25%, respectively, of the issued and outstanding shares of POI.

The economic modelling was done on both a pre-tax and post-tax basis and results are presented herein.

The economic results are summarized in Table 22-1 and indicate an after-tax NPV of $178.0 million at a 5% discount rate, with a corresponding IRR of 29.1% and a 3.5 year payback.

Closure costs specific to the Pirquitas Pit are not included in the cash flow model. For a discussion of the closure obligations and liabilities relating to the Pirquitas Pit, please see Section 23.

Table 22-1: Economic Summary

Metal Prices		
Silver ($/oz)		$19.50
Lead ($/lb)		$0.95
Zinc ($/lb)		$1.00
Payable revenues	$M	1,270
Smelter deductions (TC/RC, penalties)	$M	(130)
Freight	$M	(78)
Net revenues	$M	1,062
Mining costs	$M	(272)
Plant costs	$M	(177)
G&A costs	$M	(82)
Provincial royalties	$M	(32)
Land payments	$M	(5)
Operating cash flow	$M	495
VAT (net)	$M	(10)
Puna credits	$M	24
Stamp duty	$M	(16)
Change in NWC	$M	(0)
OCF (incl VAT, Puna, Stamp duty, NWC)	$M	494
Development initial capex	$M	(70)
Pre-stripping	$M	(11)
Sustaining capex	$M	(44)
Severance	$M	(14)
Reclamation	$M	(4)
Pre-tax Cash Flow	$M	351
Tax	$M	(84)
Post-tax Cash Flow	$M	267
Pre-tax Cash Flow (discounted) (5%)	$M	239
Pre-tax Cash Flow (discounted) (10%)	$M	162
Pre-tax Cash Flow (discounted) (15%)	$M	107
Pre-tax IRR	%	35.2%
Post-tax Cash Flow (discounted) (5%)	$M	178
Post-tax Cash Flow (discounted) (10%)	$M	115
Post-tax Cash Flow (discounted) (15%)	$M	71
Post-tax IRR	%	29.1%
Payback period	years	3.5

22.2 Basic Assumptions

The inputs to the discounted cash flow analysis were prepared based on technical and cost inputs as detailed elsewhere in this Technical Report. The financial evaluation uses a discount rate of 5% discounting to the commencement of construction.

22.2.1 Metal Prices

The Project's metal price assumptions are summarized in Table 22-2.

Table 22-2: Metal Price Assumptions

Silver	$19.50	$US/oz
Lead	$0.95	$US/lb
Zinc	$1.00	$US/lb

The majority (72%) of the Project's revenue will be generated from silver with lead providing 21% of the revenue. Zinc is a lesser economic component, responsible for only 7% of the total life-of-mine revenue.

Table 22-3: Metal Revenue Contribution

Silver in Lead Concentrate	$M	804
Lead in Lead Concentrate	$M	267
Silver in Zinc Concentrate	$M	108
Zinc in Zinc Concentrate	$M	91
Total Revenues	**$M**	**1,270**
Silver	71.8%	912
Lead	21.0%	267
Zinc	7.2%	91
Total	**100.0%**	**1,270**

22.2.2 Net Smelter Return

The NSR parameters used in the economic analysis are described in Section 19 (Table 19-1 and Table 19-2).

22.2.3 Recoveries

The Project's metallurgical recovery assumptions are summarized in Section 13.6.

22.2.4 Operating Costs

The Project's operating costs are summarized in Section 21.2.4.

In the economic analysis, all of the waste stripping costs are included in mine operating costs. For accounting and cash cost calculation purposes, some of the waste costs are capitalized, as described in Section 22.5.

22.2.5 Capital Costs

Total life-of-mine capital costs are estimated at $125.3 million as outlined in Section 21, Table 21-1. The initial capital costs are incurred over an initial one-year construction period and are estimated at $81.2 million, while life-of-mine sustaining capital costs are approximately $44.1 million. This does not include capitalized waste stripping, which is included in operating costs for cash flow modelling purposes.

22.2.6 Income Taxes, Mining Taxes, Royalties, Export Duties

Mining operations in Argentina are subject to several categories of taxes. The following is a summary of the significant taxes applicable to the Project. Taxes over the life of the Project are estimated to be approximately $83.6 million.

22.2.7 Federal Income Tax

Income tax is levied on net taxable income from Argentine or from foreign sources obtained by Argentine residents. Corporations pay 35% on their annual taxable income.

22.2.8 Value Added Tax

The value added tax ("VAT") is levied at a standard 21% rate.

VAT tax has been included in the economic analysis and has been applied to all capital costs (excluding capitalized stripping) as well as the majority of operating expenditures. A portion of VAT paid is immediately recoverable, with the balance recovered over time in accordance with current regulations. Foreign exchange losses associated with devaluation of VAT receivables denominated in Argentine pesos have been considered.

22.2.9 Royalty

Concentrates produced at the mine are subject to a maximum 3% "mouth of mine value" royalty that is payable to the Province of Jujuy. This royalty payment is based on the net recoverable value of the contained metals less certain operating costs.

22.2.10 Other Taxes

Other taxes considered include stamp duty on ore and concentrate sales, turnover taxes and applicable withholding taxes.

22.2.11 Land Payments

The economic analysis includes annual land payment costs of $450,000 per year.

22.2.12 Reclamation and Closure

The reclamation and closure costs are estimated at $3.6 million, as described in Section 20. These costs are for the Chinchillas Property and Pirquitas Operation sites only and are applied in Year 10. Severance costs of $13.8 million are also included in Year 10. Closure costs for the Pirquitas Pit are not included in the Project cash flow model. Please see Section 23 for a description of the closure obligations for the Pirquitas Pit.

22.3 Cash Flow Summary

The estimated annual LOM cash flows for the Project are summarized in Table 22-4. The total Project life is approximately 10 years, including a construction period of 1 year, a mine life of 8 years, and processing of ore stockpiles for approximately three quarters thereafter.

22.4 Cash Costs

Cash costs, which include cost of inventory net of capitalized stripping, and treatment and refining costs, are net of by-product revenues, and total $7.40 per payable ounce of silver sold over the life of mine. All-in sustaining costs, which also include sustaining capital, capitalized stripping and reclamation, total $9.75 per payable ounce of silver sold over the life of mine.

Table 22-4: Project Cash Flow Summary

Project Financial Summary (100% Basis) $M unless otherwise stated												
	Year	**-1**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**TOTAL**
Metal Prices												
Silver ($/oz)		19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50
Lead ($/lb)		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Zinc ($/lb)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Free Cash Flow												
Payable revenues		-	73	173	166	157	165	163	158	141	72	1,270
Smelter deductions (TC/RC, penalties)		-	(8)	(17)	(17)	(16)	(17)	(16)	(16)	(15)	(8)	(130)
Freight		-	(5)	(8)	(10)	(10)	(10)	(9)	(9)	(10)	(6)	(78)
Net revenues		**-**	**60**	**148**	**140**	**131**	**138**	**137**	**133**	**116**	**58**	**1,062**
Mining costs			(35)	(40)	(39)	(38)	(39)	(28)	(24)	(23)	(7)	(272)
Plant costs			(15)	(22)	(21)	(21)	(21)	(21)	(21)	(21)	(13)	(177)
G&A costs			(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(7)	(82)
Provincial royalties		-	(2)	(4)	(4)	(4)	(4)	(4)	(4)	(3)	(2)	(32)
Land payments		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(5)
Operating cash flow		**(0)**	**(1)**	**73**	**66**	**58**	**64**	**74**	**74**	**59**	**29**	**495**
VAT (net)		(9)	(2)	4	(1)	(1)	(1)	(1)	(1)	(0)	2	(10)
Puna credits		-	1	3	3	3	3	3	3	3	1	24
Stamp duty		-	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(16)
Change in NWC		-	(18)	(3)	(2)	2	(2)	(0)	0	3	19	(0)
OCF (incl. VAT, Puna, Stamp duty, NWC)		**(10)**	**(20)**	**75**	**64**	**60**	**62**	**74**	**75**	**63**	**50**	**494**
Development initial capex		(70)	-	-	-	-	-	-	-	-	-	(70)
Pre-stripping		(11)										(11)
Sustaining capex		-	(15)	(12)	(1)	(8)	(5)	(3)	(1)	(0)	-	(44)
Severance											(14)	(14)
Reclamation											(4)	(4)
Pre-tax Cash Flow		**(91)**	**(35)**	**64**	**63**	**53**	**58**	**72**	**74**	**62**	**33**	**351**
Tax		(3)	(4)	(5)	(5)	(5)	(5)	(11)	(18)	(18)	(9)	(84)
Post-tax Cash Flow		**(94)**	**(39)**	**58**	**58**	**48**	**53**	**60**	**56**	**44**	**24**	**267**
<u>NPV</u>												
Pre-tax Cash Flow (discounted) (5%)	**239**	(89)	(33)	56	53	42	44	52	52	41	20	
Pre-tax Cash Flow (discounted) (10%)	**162**	(87)	(31)	50	45	34	34	38	36	28	13	
Pre-tax Cash Flow (discounted) (15%)	**107**	(85)	(29)	45	38	28	27	29	26	19	9	
Pre-tax IRR	**35.2%**											
<u>NPV</u>												
Post-tax Cash Flow (discounted) (5%)	**178**	(92)	(36)	51	49	39	40	44	39	29	15	
Post-tax Cash Flow (discounted) (10%)	**115**	(89)	(34)	46	41	31	31	32	27	20	10	
Post-tax Cash Flow (discounted) (15%)	**71**	(88)	(32)	41	35	26	25	24	20	13	6	
Post-tax IRR	**29.1%**											

22.5 Sensitivities

The Project sensitivity analysis was conducted to the following key variables:

- Lead vs. Silver Price NPV5% (Table 22-5)
- Lead vs. Silver Price IRR% (Table 22-6)

The results of the sensitivity analysis for the key variables on the Post-Tax economics are shown in Tables 22-5, 22-6 and 22-7.

Table 22-5: Sensitivity – Lead versus Silver Price (NPV5% Post-Tax)

NPV (5%) Post tax Sensitivities ($M)						
		Silver Price ($/oz)				
		16.00	18.00	19.50	22.00	25.00
Lead Price ($/lb)	0.85	57	119	162	229	307
	0.95	75	136	**178**	244	321
	1.05	93	152	194	259	336
	1.15	110	169	209	274	351
	1.25	128	185	225	289	366

Table 22-6: Sensitivity – Lead versus Silver Price (IRR Post-Tax)

IRR Sensitivities (%)						
		Silver Price ($/oz)				
		16.00	18.00	19.50	22.00	25.00
Lead Price ($/lb)	0.85	13%	22%	27%	36%	45%
	0.95	16%	24%	**29%**	38%	47%
	1.05	18%	26%	31%	39%	49%
	1.15	20%	28%	33%	41%	50%
	1.25	22%	30%	35%	43%	52%

Table 22-7: Sensitivity – Capital Expenditures and Operating Costs (NPV5% Post-Tax)

NPV (5%) Post-Tax Sensitivities ($M)						
		Capex (% change)				
		-20%	-10%	0%	+10%	+20%
Opex (% change)	+20%	170	162	155	148	140
	+10%	181	174	166	159	152
	0%	192	185	**178**	170	163
	-10%	203	196	189	182	174
	-20%	214	207	200	193	185

The sensitivity analysis demonstrates that the Project exhibits positive financial returns across a range of metal prices, and positive NPV across a range of metal prices and operating and capital cost scenarios. In addition, the economics of the Project are relatively more sensitive to metal prices as opposed to operating and capital costs, for any given percentage change. The sensitivity tables do not measure the combined effect of changes in metals prices and operating and capital costs.

22.6 Economics at Reserve Pricing

Since the Mineral Reserves are defined at metal prices of $18.00/oz for silver, $1.00/lb for zinc, and $0.90/lb for lead, the economics of the Project were also evaluated at these metal prices. As shown in Table 22-7, the NPV of the Project at a discount rate of 5% is positive, and therefore Mineral Reserves can be defined for the Project.

Table 22-8: Economic Summary at Reserve Metal Prices

Metal Prices		
Silver ($/oz)		$18.00
Lead ($/lb)		$0.90
Zinc ($/lb)		$1.00
Payable revenues	$M	1,186
Smelter deductions (TC/RC, penalties)	$M	(130)
Freight	$M	(78)
Net revenues	**$M**	**978**
Mining costs	$M	(272)
Plant costs	$M	(177)
G&A costs	$M	(82)
Provincial royalties	$M	(29)
Land payments	$M	(5)
Operating cash flow	**$M**	**413**
VAT (net)	$M	(5)
Puna credits	$M	30
Stamp duty	$M	(12)
Change in NWC	$M	0
OCF (incl VAT, Puna, Stamp duty, NWC)	**$M**	**426**
Development initial capex	$M	(70)
Pre-stripping	$M	(11)
Sustaining capex	$M	(44)
Severance	$M	(14)
Reclamation	$M	(4)
Pre-tax Cash Flow	**$M**	**283**
Tax	$M	(79)
Post-tax Cash Flow	**$M**	**204**
Pre-tax Cash Flow (discounted) (5%)	$M	188
Pre-tax Cash Flow (discounted) (10%)	$M	123
Pre-tax Cash Flow (discounted) (15%)	$M	76
Pre-tax IRR	**%**	**30.3%**
Post-tax Cash Flow (discounted) (5%)	$M	128
Post-tax Cash Flow (discounted) (10%)	$M	75
Post-tax Cash Flow (discounted) (15%)	$M	38
Post-tax IRR	**%**	**22.7%**
Payback period	years	4.0

23 Adjacent Properties

23.1 Pirquitas Pit

23.1.1 Description

Since operations at the Pirquitas Pit ceased in January 2017, the Pirquitas Pit and the associated obligations and liabilities are not included as part of the Project. The Pirquitas Pit consists of semi-contiguous mineral exploitation concessions covering a total area of 3,621 hectares owned by MPSA (Silver Standard, 2017b). As described in Section 4.2, in order to maintain rights to such exploitation concessions, MPSA is required to make annual fee or “canon” payments to the Argentine government. The Pirquitas Pit is also subject to provincial royalties at a rate of 3% on a NSR basis.

Prior to the cessation of mining, the Pirquitas Pit used a standard open pit mining method and conventional drilling and blasting activities with a pre-split to ensure stable wall rock conditions. Medium grade stockpiles currently constitute the mill feed. The Pirquitas plant is expected to process such stockpiles through 2017, conditional upon profitable processing of stockpiles at prevailing market conditions.

23.1.2 Environmental and Closure

In December 1998, consulting engineering firm KP completed an ESIA for Sunshine Argentina. The ESIA contained a description and evaluation of environmental conditions that existed at the time, as well as foreseeable potential effects that development of the Pirquitas mine could have on the surrounding environment. The scope of the ESIA was commensurate with the norms for environmental protection associated with Argentina’s applicable mining laws and guidelines established by international lending institutions such as the World Bank. The discussion below is either paraphrased or taken directly from the ESIA, with updates to include information about the Pirquitas mine subsequent to the date of such ESIA.

Remnants of historic mining activities at the Pirquitas mine included derelict buildings, mine structures and tin-silver jig tailings and tin placer tailings along the Río Pircas. Flotation tailings had been discharged into the Río Pircas and piles of gold placer tailings were left above the current level of the Río Pircas on paleo-river terraces near the mine camp. These areas comprise some 107 hectares of surface disturbance that existed prior to Sunshine Argentina’s acquisition of the property, some of which are now associated with acid rock drainage into the Río Pircas watershed.

Surface and ground waters are known to be acidic and metalliferous down gradient from the historic mines above the Río Pircas canyon at Tres Placas, which is located downstream from the Pirquitas Pit. In addition, acidic and metalliferous ground water is present in the abandoned underground workings and some natural springs in the area, suggesting natural oxidation of sulphide mineralization which is widespread in the rocks found on the property is also contributing to background surface water contamination.

Upon its acquisition of the property, Sunshine Argentina noted that documents in the bankruptcy auction files did not mention environmental liabilities against the property, but did mention that Sunshine Argentina was “grandfathered” against environmental liabilities related to historic mining activities. Furthermore, the only condition the Argentina Ministry of Mines and Energy applied to its approval of Sunshine Argentina’s ESIA, apart from the mandatory two-year update to the report, was the requirement that water quality monitoring be carried out.

In 2008, a second ESIA was completed by KP following start-up of mining activities and initiation of plant construction. While there were no observations or restrictions placed on MPSA at that time, this study began to focus on the water management plan and conceptual plans for mine waste stockpiles. A conceptual water treatment plant for neutralization of acid waters was proposed as a contingency with a treatment capacity estimated to be as much as 150 L/s. Alternative water management measures to date have reduced the source of acidic waters, and such treatment plant has not yet been required.

A party wishing to commence or modify any exploration or mining-related activity under Argentina's mining laws, including property abandonment or mine closure activity, must prepare and submit an ESIA, which must include a description of the nature of the proposed work, its potential risk to the environment and the measures that will be taken to mitigate that risk. The most recent update to MPSA's ESIA for the Pirquitas mine, which included engineering studies for the design of water management structures and mine closure design, was submitted in December 2016 and is currently under review by the regulatory authorities. The preceding update was submitted in December 2014 and formally approved in January 2016. An addendum to this ESIA regarding the closure of the Pirquitas mine was filed in December 2015, which reflected the revised mine plan projecting the completion of the Pirquitas Pit, with lower grade stockpile processing expected to commence upon cessation of open pit mining activities at the Pirquitas Pit. In July 2016, an updated closure plan, which included more detailed engineering of the selected closure measures and costing for both active closure and longer term care and maintenance, was submitted to the regulatory authorities and is currently under review.

The cessation of open pit mining activities at the Pirquitas Pit in January 2017 has resulted in a significant reduction in workforce, as well as reduced indirect economic benefits to the surrounding and supporting communities. A social impact assessment study was commissioned in 2015 and formed the basis of the social closure plan for the Pirquitas mine. The potential risks, as well as actions to reduce those risks and support the employees and the community, were developed as part of the reclamation and closure plan submitted in 2016.

Argentina currently has no specific mine closure legislation other than the requirement to prepare and submit and regularly update an ESIA, including with respect to mine closure activity. However, it is expected that closure options will be proposed as part of the review of MPSA's updated closure plan, and may include passive or active neutralization features to return discharged waters to baseline conditions (acidic at the time of baseline studies) with monitoring requirements. The closure requirements for the Pirquitas Pit may change in the future and POI may be subject to increased obligations for both the technical and social aspects associated with such mine closure and reclamation, which would impact the closure plan and the duration of the associated closure activities.

At the Pirquitas mine, the present value of the current closure and reclamation cost estimate, to be spent over a number of years, using a discount rate of 10%, is approximately $28.5 million, excluding any salvage value. This estimate is based on conceptual level engineering and will be updated to reflect changes in the life of mine plan and more detailed engineering design. The current closure and reclamation plan addresses a range of closure risks, design criteria and costs that are anticipated in order to comply with internationally accepted practices. It considers both the physical reclamation of the site and the social closure plan for the neighbouring communities for whom the mine provides employment and community support. The closure plan considers the short-term decommissioning and reclamation measures, as well as longer term care and maintenance activities and related costs and risks. The actual costs of reclamation and mine closure are uncertain and planned expenditures may differ from the actual expenditures required. Therefore, the amount required to be spent could be materially higher than current estimates.

23.2 Other Properties

Other properties directly adjacent to the Chinchillas Property are not known to contain mineral deposits of real or potential economic significance.

Glencore Xstrata's Aguilar silver, lead, zinc mine is located approximately 90 kilometres southeast of Chinchillas within the same province of Jujuy. Glencore published 2015 Proven and Probable Mineral Reserves of 1.5million tonnes at 7.6% zinc, 9.1% lead and 171 g/t silver (Glencore, 2016). Aguilar has been in almost constant production for 80 years. Lead concentrates produced from the mine are treated in Aguilar's smelter in Palpala, Jujuy and the zinc concentrate is treated at Glencore's AR Zinc smelter, located in Santa Fe province, in central Argentina. Although the Aguilar deposit has different geology (mineralization is hosted in a skarn re-mobilized sedex environment) the mine gives further indications of logistics and economic costs of mining in Jujuy and Argentina, as well as examples of potential alternative ore processing in Argentina.

24 Other Relevant Data and Information

24.1 Project Development Timeline

The development and execution of the Project is expected to start in the third quarter of 2017 and be completed in 2018. First ore production from Chinchillas and delivery to the Pirquitas Operation is envisioned in the second half of 2018.

Permitting of the Project is underway and the timelines for this approval are described in Section 20. However, as with any permitting exercise, there is a level of uncertainty that those permitting and regulatory timelines will be met. Hence, the project timing could change depending on final permit approval.

The Project is essentially a brownfield expansion to the Pirquitas Operation and therefore the amount of detailed engineering required prior to construction is limited. It is anticipated that the detailed engineering required for the Project will be conducted in the second quarter of 2017 by an Argentine-based engineering firm. These engineering services will include plans for the road upgrade, the Chinchillas site water and power supply, maintenance shops, administration and change house buildings, and other mine infrastructure. Additionally, a new tailings disposal system, a dome over the fine ore stockpile, and other minor modifications will be made to the Pirquitas plant to handle the lead concentrate and other variances in the flotation and filtration circuit.

POI's team will be responsible for managing the permitting aspects, the engineering and construction works. POI's team will be supported by technical expertise provided from Silver Standard's management.

The expected project development timeline is shown in Table 24-1. Since the project timing is still influenced by regulatory permitting and securing land access agreements, the production schedule and cash flow modelling in this study make reference to simple Years -2, -1, 1, 2, etc.

Table 24-1: Project Expected Development Timeline

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Land access agreements								
ESIA Review and Approval								
Detailed Engineering								
Procurement and Pre-construction								
Tailings disposal permitting								
Explosives Permits								
Tailings Construction at Pirquitas								
Site Infrastructure Construction								
Road Construction								
Pirquitas Plant modifications								
Mine Pioneering & Pre-strip								
Ore Production from Chinchillas								

25 Interpretations and Conclusions

The authors offer the following conclusions regarding the Project:

25.1 Geology, Resources & Reserves

- There is a good understanding of the geology and mineralization of the deposit.
- Exploration drilling, sampling, sample preparation, assaying, specific gravity measurements and drill hole surveys have been carried out in accordance with industry standard best practices and are suitable to support Mineral Resource and Mineral Reserve estimates. Sampling and assaying include appropriate quality assurance and control procedures.
- The resource model developed for the Chinchillas deposit uses accepted modeling and grade estimation methods. The model is a reasonable reflection of deposit geology. The approach used to generate the block model adheres to accepted industry standards.
- The methods used for the estimate of Mineral Resources and Mineral Reserves adhere to the CIM Standards and are presented in this Technical Report as required by NI 43-101 (CSA, 2011). Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues. The quantity and grade of reported Inferred Mineral Resources are uncertain in nature and there has been insufficient exploration to classify these Inferred Mineral Resources as Indicated or Measured, but it is reasonably expected that a majority of the reported Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
- As detailed in Section 14, the estimated Measured and Indicated Mineral Resource, inclusive of Mineral Reserves, using a cut-off grade of 60 g/t of equivalent silver, is 29.3 million tonnes grading 101g/t silver, 0.90% lead, 0.60% zinc, for a total of 140 million ounces of contained silver equivalent metal. A further Inferred Mineral Resource of 20.9 million tonnes with grades of 50 g/t silver, 0.54% lead, and 0.81% zinc has been estimated using the same cut-off grade.
- Potential remains to expand the current Mineral Resource, and to define new Mineral Resources on the property.
- Under conditions stated in this Technical Report, the Chinchillas deposit contains 11.71 million tonnes of mineable resources at average diluted grades of 154 g/t silver, 1.20% lead and 0.49% zinc. This Mineral Reserve is exclusive of Inferred Mineral Resources.

25.2 Metallurgy and Processing

Metallurgical testwork concludes that a two-product sequential flotation process is suitable for Chinchillas material, and the Pirquitas processing plant can successfully produce two flotation concentrates (lead and zinc) from the material with similar processes to those used for previous Pirquitas ore. The existing pre-concentrating jig circuit will not be used, and minor changes are required to modify the existing silver cleaner circuit to the testwork flowsheet of a two-stage lead/silver cleaner circuit.

Recoveries are modeled over the life of the mine as 83% and 90% for silver, 93% to 97% for lead and 85% for zinc. Lead concentrate grades range from 4.7kg/t to 10.8kg/t silver and 64% to 67% lead over the mine life. Zinc concentrate grades range from 50% to 54% zinc.

25.3 Mining & Infrastructure

- The Chinchillas deposit has the potential to be developed as a profitable open pit mine in conjunction with the existing Pirquitas processing facility. The operation, including pre-production activities, mining, and processing of low grade ore stockpiles, will take about 10 years to be completed.

- Ore will be transported from the Chinchillas mine site to the Pirquitas processing plant, a distance of about 42 kilometres.
- There are significant amounts of pre-production development work, such as road construction, that need to be completed prior to mining any ore. Development and pre-production activities are to be initiated at least 6 months prior to commencing hauling ore to the mill. After that point it takes about 9 months to reach the maximum ore haulage capacity which is 4,000 tpd.
- Stockpiling of low grade ore improves the economics of the mine. About 690kt of lower grade ore will be stockpiled throughout the Chinchillas mine life. This will be milled at the end of open pit mining operation.

25.4 Environment, Communities & Permitting

- An ESIA was conducted for the Project and submitted to the Argentine regulatory authorities for review, with expected licensing in mid to late 2017.
- The ESIA covered a broad range of studies and investigations. Key results include:
  - Water quality in the surface waters draining the Project area is typical of a mineralized zone, including some observed elevated metals parameters, but with generally neutral pH.
  - The waste rock is expected to be largely non-acid generating, with a small portion that may be weakly acid generating under certain oxidizing conditions.
  - Waste rock with potential for acid production will be placed so as to have any drainage report to the pit and avoid introduction to the environment.
  - The Project does not intrude upon any protected areas.
  - There are three communities close to the Project; Santo Domingo (30 people), Liviara (45 people), and Orosmayo (95 people).
  - Each of these communities are included in plans for training and capacity building as the Project proceeds.
  - Although there is no specific mine closure legislation nor bonding requirements in Argentina, a conceptual closure plan has been developed. Closure costs are estimated at $3.6 million.

25.5 Economics

- The economic results indicate the Project has an after-tax NPV of $178.0 million at a 5% discount rate, with a corresponding IRR of 29.1% and a 3.5 year payback. This is based on metal prices of $19.50/oz for silver, $0.95/lb for lead, and $1.00/lb for zinc.
- The initial capital cost is approximately $81.2 million.

Silver generates 72% of the life-of-mine Project revenue.

26 Recommendations

The authors recommend advancing the Project to the feasibility stage. Specific recommendations and opportunities to further optimize the Project include:

26.1 Resources

A detailed study directed specifically on the Socavon zone, including metallurgy, mining and economic analysis, would better characterize the economic viability of this Mineral Resource.

More detailed drill testing in the area between the main Mantos and Socavon zones would delineate the connection, or confirm the separation, between mineralized zones.

26.2 Mining

- The cut-off grade optimization and stockpiling policy used in this study was based on the parameters selected at the time of study. These need to be revisited in the next phase when a new set of metal price and cost input parameters may be set.
- Six months of pre-production activity has been considered for development and construction. The activities such as building access roads to the high wall and ore haulage upgrade are associated with elements (e.g. ground conditions) that are difficult to be correctly predicted. It is recommended to start as early as possible for pre-production activity.
- Based on NSR value only, one grade range of mineralized waste was identified for stockpiling for future potential. It is recommended to have more than one grade range of mineralized waste so that the mine can be more flexible in choosing the optimal resource for the mill when the market for silver improves. This requires more detailed planning and design for rock storage facilities in the next phase of study.
- Rock storage facilities need more detailed design and planning in the next phase. It is not clear yet how to separate type “B” and “C” rocks or type “A” and mineralized waste.
- In the first year of mining, the pit has sufficient operating space to provide more material for construction fill if needed. So it is recommended to use the pit as a borrow pit if additional rock is required for construction.
- The general site layout can be further optimized. For example, a surface water management system should be integrated into the site layout and optimized together.
- In the Socavon area there are some small exploration tunnels inside the pit. It is recommended to survey these small underground excavations prior to initiating the work in this zone.
- Details of the grade control program should be defined in the next phase of study, particularly the execution and operation of items such as sampling and assaying.
- It is recommended to revise the list of mining equipment just prior to construction by using updated information about the availability status of Pirquitas equipment, in order to maximize the use of that equipment.

26.3 Processing

Additional metallurgical testwork should be completed, including:

- Testing of a two-collector scheme, one for galena and one for silver minerals. The objective is to maximise recovery of each mineral to the combined lead/silver concentrate.
- Testwork to identify the optimum rougher concentrate regrind size ahead of cleaning, for both flotation circuits.

- Specialised stirred mill testing to estimate regrind power requirements to the target rougher concentrate regrind size, for both flotation circuits.
- Testing to identify optimum flocculants for both concentrates.
- Testing of the filtering properties for both concentrates.
- Jig testwork to demonstrate possible benefits of pre-concentration ahead of grinding.
- Detailed geometallurgical study to understand the distribution of possible future smelter penalty elements (e.g. antimony for lead concentrate and silica for zinc concentrate).
- Testing of representative samples from the Socovan Del Diablo zone.
- Additional Bond Work and Abrasion Index testing on samples throughout the deposit.

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CERTIFICATE OF QUALIFIED PERSON

I, Ken Kuchling, P. Eng., residing at 33 University Ave., Toronto, Ontario, M5J 2S7, do hereby certify that:

1. I am a senior mining associate with P&E Mining Consultants Inc.
2. This certificate applies to the Technical Report titled "NI 43-101 Technical Report - Pre-feasibility Study of the Chinchillas Silver-Lead-Zinc Project, Jujuy Province, Argentina", dated May 15, 2017 with an effective date of December 31, 2016 (the "Technical Report").
3. I graduated with a Bachelor degree in Mining Engineering in 1980 from McGill University and a M. Eng degree in Mining Engineering from UBC in 1984. I have worked as a mining engineer for a total of 35 years since my graduation from university. My relevant work experience for the purpose of the Technical Report is 15 years as an independent mining consultant in commodities such as gold, copper, potash, diamonds, molybdenum, tungsten, and bauxite. I have practiced my profession continuously since 1980. I am a member of the Professional Engineers of Ontario.

   My relevant experience for the purpose of the Technical Report is:

   - Mining Consultant, KJ Kuchling Consulting Ltd. .... 2000 – Present
   - Senior Mining Engineer, Diavik Diamond Mines Inc., ...1997 – 2000
   - Senior Mining Consultant, KJ Kuchling Consulting Ltd., ...1995 – 1997
   - Senior Geotechnical Engineer, Terracon Geotechnique Ltd., ...1989 - 1995
   - Chief Mine Engineer, Mosaic, Esterhazy K1 Operation...1985 – 1989
   - Mining Engineering, Syncrude Canada Ltd.. ....1980 – 1983
4. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I have visited the Project that is the subject of this Technical Report from March 12 to March 13, 2015.
6. I am responsible for Sections 1 through 6, 22 through 27 and co-authoring Sections 25 of the Technical Report.
7. I am independent of Puna Operations Inc., Silver Standard Resources Inc., and Golden Arrow Resources Corporation, applying all of the tests in section 1.5 of National Instrument 43-101.
8. I have had prior involvement with the Project that is the subject of the Technical Report: I co-authored two previous technical reports prepared for Golden Arrow Resources Corporation, filed on SEDAR dated January 20, 2014 and February 13, 2015 [amended].
9. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
10. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15th day of May, 2017.

(original signed by Ken Kuchling)

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Ken Kuchling P.Eng.

CERTIFICATE OF QUALIFIED PERSON

I, Bruce Davis, Ph.D., FAusIMM, do hereby certify that:

1. I am an Independent Consultant of:

   BD Resource Consulting Inc.
   4253 Cheyenne Drive
   Larkspur, Colorado, USA 80118

2. This certificate applies to the technical report titled "NI 43-101 Technical Report - Pre-feasibility Study of the Chinchillas Silver-Lead-Zinc Project, Jujuy Province, Argentina" dated May 15, 2017 with an effective date of December 31, 2016 (the "Technical Report").
3. I graduated from the University of Wyoming with a Doctor of Philosophy degree (Geostatistics) in 1978.
4. I am a Fellow of the Australasian Institute of Mining and Metallurgy, Registration Number 211185.
5. I have practiced my profession continuously for 36 years and have been involved in geostatistical studies, QA/QC studies, mineral resource and reserve estimations and feasibility studies on numerous underground, open pit and in situ leach deposits in Canada, the United States, Mexico, Central and South America, and Africa.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I am a co-author of the Technical Report. I am responsible for Sections 11 and 12 of the Technical Report.
8. I have not visited the Project that is the subject of this Technical Report.
9. I am responsible for four prior technical reports prepared for Golden Arrow Resources Corporation for the Project that is the subject of this Technical Report filed on SEDAR dated June 20, 2013, October 10, 2014, November 2, 2015 [amended] and May 27, 2016, and co-authored two additional technical reports filed on SEDAR dated January 20, 2014 and February 13, 2015 [amended].
10. I am independent of Puna Operations Inc., Silver Standard Resources Inc., and Golden Arrow Resources Corporation, applying all of the tests in section 1.5 of National Instrument 43-101.
11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15th day of May, 2017.

(original signed by Bruce M. Davis)

Bruce M. Davis, Ph.D., FAusIMM

CERTIFICATE OF QUALIFIED PERSON

I, Robert Sim, P.Geo., do hereby certify that:

1. I am an independent consultant of:

   SIM Geological Inc.
   508 1950 Robson St.
   Vancouver, British Columbia, Canada V6G 1E8

2. This certificate applies to the technical report titled "NI 43-101 Technical Report - Pre-feasibility Study of the Chinchillas Silver-Lead-Zinc Project, Jujuy Province, Argentina" dated May 15, 2017 with an effective date of December 31, 2016 (the "Technical Report").
3. I graduated from Lakehead University with an Honours Bachelor of Science (Geology) in 1984.
4. I am a member, in good standing, of the Association of Professional Engineers and Geoscientists of British Columbia, License Number 24076.
5. I have practiced my profession continuously for 33 years and have been involved in mineral exploration, mine site geology and operations, mineral resource and reserve estimations and feasibility studies on numerous underground and open pit base metal and gold deposits in Canada, the United States, Central and South America, Europe, Asia, Africa and Australia.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I am a co-author of the Technical Report prepared for Puna Operations Inc., Silver Standard Resources Inc. and Golden Arrow Resources Corporation and accept professional responsibility for Sections 7 through 10 and 14 of the Technical Report.
8. I have not visited the Project that is the subject of this Technical Report.
9. I have had prior involvement with the property that is the subject of the Technical Report. I was a co-author of previous Technical Reports prepared for Golden Arrow Resources Corporation dated November 2, 2015 [amended] and May 27, 2016.
10. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
11. I am independent of Puna Operations Inc., Silver Standard Resources Inc., and Golden Arrow Resources Corporation, applying all of the tests in section 1.5 of NI 43-101.
12. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 15th day of May, 2017.

(original signed by Robert Sim)

____

Robert Sim, P.Geo.

CERTIFICATE OF QUALIFIED PERSON

I, Adrian Dance, Ph.D., P.Eng., FAusIMM, do hereby certify that:

1. I am a Principal Consultant (Metallurgy) with the firm of SRK Consulting (Canada) Inc. with an office at 22nd Floor, 1066 West Hastings Street, Vancouver, British Columbia, Canada.
2. This certificate applies to the technical report titled “NI 43-101 Technical Report - Pre-feasibility Study of the Chinchillas Silver-Lead-Zinc Project, Jujuy Province, Argentina” dated May 15, 2017 with an effective date of December 31, 2016 (the “Technical Report”).
3. I am a graduate of the University of British Columbia in 1987 and the University of Queensland in 1991 where I obtained a BASc in Mineral Processing and a PhD in Mineral Processing. I have practiced my profession continuously since 1991 where I have both worked at base metal processing operations in Australia, Canada and Peru as well as consulted on a range of base metal processing projects around the world.
4. I am a professional engineer registered with the APEGBC, license # 37151.
5. I have not personally inspected the Project that is the subject of this Technical Report, but relied on a site visit conducted between 21 April to 24 April 2016 by Anoush Ebrahimi (SRK Consulting), a co-author of this Technical Report.
6. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101 and this Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
7. I, as a “qualified person”, am independent of Puna Operations Inc., Silver Standard Resources Inc., and Golden Arrow Resources Corporation, as defined in section 1.5 of NI 43-101.
8. I am the co-author of this report and responsible for Sections 13, 17 and parts of Section 21 and accept professional responsibility for those sections of this Technical Report.
9. I have had no prior involvement with the Project that is the subject of this Technical Report.
10. I have read NI 43-101 and Form 43-101F1 and confirm that this Technical Report has been prepared in compliance therewith.
11. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15th day of May, 2017.

(original signed by Adrian Dance)

____

Adrian Dance, Ph.D., P.Eng., FAusIMM

CERTIFICATE OF QUALIFIED PERSON

I, Anoush Ebrahimi, Ph.D., P.Eng., do hereby certify that:

1. I am a Principal Consultant (Mining) with the firm of SRK Consulting (Canada) Inc. with an office at 22nd Floor, 1066 West Hastings Street, Vancouver, British Columbia, Canada.
2. This certificate applies to the Technical Report titled "NI 43-101 Technical Report - Pre-feasibility Study of the Chinchillas Silver-Lead-Zinc Project, Jujuy Province, Argentina", dated May 15, 2017 with an effective date of December 31, 2016 (the "Technical Report").
3. I graduated from University of Kerman Iran in 1991 and received Ph.D. degree in mining engineering from University of British Columbia, Canada. I have practiced my profession continuously since 1991 where I have both worked at base metal mines operations as well as consulted on a range of base metal projects around the world.
4. I am a professional engineer registered with the APEGBC, license # 30166.
5. I have visited the Project that is the subject of this Technical Report from 21 April to 24 April 2016.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101 and this Technical Report has been prepared in compliance with NI 43-101.
7. I, as a "qualified person", am independent of Puna Operations Inc., Silver Standard Resources Inc., and Golden Arrow Resources Corporation, as defined in section 1.5 of National Instrument 43-101.
8. I am the co-author of this report and responsible for Sections 15, 16, 18, 19 and 21. I accept professional responsibility for those sections of this Technical Report.
9. I have had no prior involvement with the Project that is the subject of this Technical Report.
10. I have read NI 43-101 and Form 43-101F1 and confirm that this Technical Report has been prepared in compliance therewith.
11. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15th day of May, 2017.

(original signed by Anoush Ebrahimi)

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Anoush Ebrahimi, Ph.D., P.Eng.

CERTIFICATE OF QUALIFIED PERSON

I, Ken Embree, P. Eng., do hereby certify that:

1. I am an Independent Consultant of:

Knight Piésold Ltd.
Suite 1400 – 750 West Pender St,
Vancouver, BC Canada V6C 2T8

2. This certificate applies to the technical report titled "NI 43-101 Technical Report - Pre-feasibility Study of the Chinchillas Silver-Lead-Zinc Project, Jujuy Province, Argentina" dated May 15, 2017 with an effective date of December 31, 2016 (the "Technical Report").
3. I graduated from the University of Saskatchewan with a Degree (B.A.Sc.) in Geological Engineering, 1986.
4. I am a Professional Engineer registered with the Association of Professional Engineers and Geoscientists of British Columbia (No. 17,439).
5. I have practiced my profession continuously since 1986.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I am responsible for Section 20 and co-authoring Section 25 along with those sections of the Summary pertaining thereto, of the Technical Report.
8. I have visited the Project that is the subject of this Technical Report from October 30 to November 1, 2013.
9. I have had prior involvement with the Project that is the subject of the Technical Report: I co-authored two previous technical reports prepared for Golden Arrow Resources Corporation, filed on SEDAR dated January 20, 2014 and February 13, 2015 [amended].
10. I am independent of Puna Operations Inc., Silver Standard Resources Inc., and Golden Arrow Resources Corporation, applying all of the tests in section 1.5 of National Instrument 43-101.
11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15th day of May, 2017.

(original signed by Ken Embree)

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Ken Embree, P.Eng.

APPENDIX I. Results of Historical Drilling

Table AI-1: Silex Argentina S.A. Summary Results of Drilling

TARGET	HOLE	From (m)	To (m)	Length (m)	Silver (g/t)	Lead (%)	Zinc (%)
SOCAVON	CHD-10	3.3	29	25.7	70	0.68	2.29
	and	38	48.3	10.3	45	0.75	1.99
	and	61.2	63	1.8	83	2.12	1.94
	and	73.2	80	6.8	154	3.33	2.39
	and	92	98	6.0	36	0.58	1.5
	and	151	154	3.0	78	1.48	1.59
	and	193	210	17.0	49	0.71	1.21
CENTRAL	CHD-11	8	9	1.0	41		
	and	120	130	10.0			1.01
SOCAVON	CHD-12	8	9.6	1.6	27		2.54
	and	161	166	5.0	69		
NORTH SLOPE	CHD-13	160	176	16.0	62	0.81	0.75
SILVER MANTOS	CHD-14	5	13	8.0	69		
	and	25	43	18.0	81	1.19	
	CHD-15	3	23	20.0	183		
	and	47	55	8.0	229	1.98	
CENTRAL	CHD-16	90	100	10.0			1.74
	and	242	250	8.0	205		

Table AI-2: Historical Drill Hole Locations and Orientation

All drill hole collar coordinates were surveyed in the Gauss Kruger projection, Posgar Zone 3 coordinate system (WGS84 datum).

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	End Of Hole
	EAST	NORTH				
CH1	3473630.98	7512166.52	4081.40	270	-60	169.00
CH2	3473745.14	7512202.16	4077.25	280	-45	100.00
CH3	3473368.00	7512214.00	4081.92	100	-45	100.00
CH4	3473208.04	7512306.09	4085.41	100	-45	98.00
CH5	3472706.72	7512454.77	4121.81	113	-45	100.00
CH6	3472922.59	7512407.95	4097.07	113	-45	102.00
CH7	3473664.34	7512274.04	4068.08	360	-65	107.00
CHD-10	3473546.89	7512092.11	4091.34	30	-55	302.40
CHD-11	3473408.57	7512104.93	4092.38	30	-55	303.80
CHD-12	3473698.20	7512161.81	4083.01	340	-55	291.80
CHD-13	3473619.63	7512423.45	4087.57	90	-55	219.80
CHD-14	3472952.15	7512318.48	4101.05	30	-55	350.50
CHD-15	3472870.11	7512376.60	4104.78	30	-55	401.50
CHD-16	3473089.27	7512288.32	4096.01	30	-55	350.20

APPENDIX II. Results of Chinchillas Drilling

The following tables include all holes reported to the end of Phase V drilling, including all used in the resource model. Intercepts were calculated using a cut-off grade of >20g/t for Ag or >0.5% for Pb or Zn.

Table AII-1: Drilling Highlights.

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
SILVER MANTOS	**CGA-17**		3	34	31	132		
		includes	*22*	*26*	*4*	*382*		
			39	43	4	84	-	
			73	74	1	104		
SILVER MANTOS	**CGA-18**		17	37.7	20.7	163	2.47	
		includes	*19*	*23*	*4*	*557*	*7.85*	
			46	68	22	64	0.7	1.03
SILVER MANTOS	**CGA-19**		5	22	17	49		1.9
			34	49	15	31		2.36
			66	74	8	-	-	3.13
SILVER MANTOS	**CGA-20**		4.55	14	9.5	31	0.84	-
			23	26	3	80	0.83	-
			46	50	4	61	0.66	
			57	62	5	67	-	-
			79	81	2	40	1	
			102	106	4	82	-	
			139	149	10	23		
SOCAVON	**CGA-21**		2	79	77	64	1.36	3.09
		includes	*2*	*15*	*13*	*130*	*2.67*	*4.43*
			97	102	5	33	0.75	1.21
SOCAVON	**CGA-22**		0	6	6	27	0.52	-
			6	22	16	15	0.66	1.61
			45	57	12	75	1.15	3.98
			60	65	5	21	-	1.3
SOCAVON	**CGA-23**		0	9	9	78		
			12	15	3	28	-	1.37
			18	29	11	47	0.86	1.1
			44	53	9	40	0.78	1.42
SOCAVON	**CGA-24**		5	10	5	30	-	-
			25	32	7	42	1.14	4.22
			164	172	8	38		1.61
			175	178	3	39	0.71	1.42
SOCAVON	**CGA-25**		0	36	36	64	0.6	0.97
			43	51	8	30		1.24

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
SOCAVON	**CGA-26**		8	42	34			1.71
			55	63	8			2.27
			66	72	6	86	1.73	4.09
			76	94	18			1
SOCAVON	**CGA-27**		8	23	15			0.85
			23	38	15	34	0.83	2.18
			38	48	10			0.94
			53	67	14			0.91
			75	95	20	100	2.27	2.36
		includes	*81*	*87*	*6*	*199*	*4.86*	*3.57*
SOCAVON BASEMENT	**CGA-28**		139	173	34	79	0.76	0.82
SOCAVON BASEMENT	**CGA-29**		67	69	2	0	0	1.63
			69	72	3	113	0	1.89
			72	100	28	0	0	1.06
		includes	*90*	*98*	*8*	*34*	*1.07*	*1.12*
			153	159	6	47	0.5	0
SOCAVON BASEMENT	**CGA-30**		no significant mineralization					
Intermediate block	**CGA-31**		205	210	5	35	0	0.51
SILVER MANTOS	**CGA-32**		10	25	15	218	0	0
MANTOS BASEMENT	**CGA-32**		31	35	4	72	0	0
			57	63	6	48	0	0
			68	70	2	38	2.16	0
SILVER MANTOS	**CGA-33**		4	30	26	46	0.73	2.73
SILVER MANTOS	**CGA-34**		16	39	23	217	0.64	0.48
			44	57	13	88		2.32
			61	71	10			2.63
SILVER MANTOS	**CGA-35**		6	35	29	631	1.72	0.93
		includes	*26*	*32*	*6*	*1873*	*2.2*	
			39	56	17	323		
			61	67	6	148	2.02	1.93
			71	73	2	246		
			91	95	4	63		
SILVER MANTOS	**CGA-36**		6	20	14	39	0.5	
			33	39	6	99		
			46	49	3	42		
			65	93	28	155	1.38	
SILVER	**CGA-37**		12	23	11	122		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
MANTOS			25	28	3	40		
			31	34	3	107		
SILVER MANTOS	CGA-38		15	21	6	45	0	0
			37	59	22	591	1.9	0
		includes	*39*	*49*	*10*	*1234*	*4.09*	*0*
SILVER MANTOS	CGA-39		8	12	4	46		
			15	44	29	515	0.68	1.18
		includes	*37*	*44*	*7*	*1463*	*0.49*	*1.2*
SILVER MANTOS	CGA-40		14	28	14	236	1.29	0.98
			33	68	35	71		0.58
SILVER MANTOS	CGA-41		27	37	10	64	0.54	1.18
SOCAVON	CGA-42		4	6	2	65	1.6	1.8
			6	15	9	0	0	1.78
			17	25	8	0	0	1.36
			54	60	6	30	0.58	1.14
			70	78	8	0	0	1.53
			78	84	6	32	0.62	0.89
SOCAVON	CGA-43		7	21	14	0	0	1.37
			70	76	6	0	0	0.81
			53	55	2	0	0	0.83
			85	87	2	0	0	0.99
SILVER MANTOS	CGA-44		6	34	28	101.8	1.29	0
			39	40	1	75	1.49	1.67
			49	58	9	258	1.1	0.74
			69	75	6	70	0	0
			110	112	2	0	0.5	1.02
			172	188	16	72.9	0	0
SILVER MANTOS	CGA-45		46	48	2	54	0	0.6
			102	105	3	29	0	1
MANTOS BASEMENT	CGA-45		120	135	15	233	2.67	1.31
			135	142	7	35	0.58	1.2
			144	146	2	344	3.44	1.01
			151	155	4	149	2.64	0
			159	162	3	110	0	0
SILVER MANTOS	CGA-46		54	67	13	40	0	0
			78	90	12	117	1.6	0.6
MANTOS BASEMENT	CGA-46		90	99	9	40	0.95	0.42
			99	105	6	200	2.82	0.9
			105	168	63	67.83	0.62	0

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
		includes	*157*	*160*	*3*	*230*	*4.15*	*0*
SILVER MANTOS	**CGA-47**		56	62	6	212	0	0
			62	67	5	75	0	0
			67	70	3	444	2.26	0
			70	76	6	110	0	0
			79	84	5	44	0	0
SILVER MANTOS	**CGA-48**		15	18	3	32	0.9	0.5
			21	29	8	77.7	2.23	1.56
			36	39	3	41.9	0	0
			63	71	8	41	0	0
SILVER MANTOS	**CGA-49**		3	17	14	54	0	0
			59	63	4	56	1.3	0
SILVER MANTOS	**CGA-50**		25	31	6	28.2	0	0
			69	70	1	49.1	0	0
			102	104	2	226.59	0	0
SOCAVON	**CGA-51**		6	22	16			1.9
			22	30	8	58	1.8	2.3
			41	54	13			0.9
			54	63	9	49	1	3.3
			63	74	11			1.2
			88	150	62			1
SOCAVON	**CGA-52**		23	29	6			0.7
			80	84	4	49	1.5	
			86	87	1	64		
SOCAVON	**CGA-53**		4	9	5	30	0.5	1.5
			23	40.35	17.4	79	1.2	4
SILVER MANTOS	**CGA-54**		9	17	8	81	0.6	
			27.65	35	7.4	449	3.8	1.1
			37	40	3	130	1.6	1.7
			86	87	1	40	0.7	3.8
SOCAVON	**CGA-55**		29	41	12			2.5
			72	78	6	31		
			94	98	4	62		
			105	107	2	25		
			108	110	2	73		
			114	118	4	41		
SILVER MANTOS	**CGA-56**		8	10	2	60		
			10	12	2	no recovery		
			12	16	4	114		
			22	40	18	82		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			43	45	2	36		
			51	56	5	72		
			134	137	3	52		
MANTOS BASEMENT	CGA-56		184	186	2	90		
SOCAVON BASEMENT	CGA-57		no significant mineralization					
North Slope	CGA-58		112	114	2	27	0.8	
North Slope	CGA-59		10	12	2	68		
			22	35	13	108		
SILVER MANTOS	CGA-60		13	14	1	42		
			16	18	2	25		
			24	31	7	55		
			31	35	4			0.8
			39	43	4			1.7
			43	55	12	51		1.7
			88	91	3			0.9
			91	99	8	45	1.3	3
MANTOS BASEMENT	CGA-60		100	108	8	151	0.9	1.4
			109	110	1	45	1	1.3
			113	118	5	91		
			118	133	15	158	2.5	0.6
			137	140	3	81		
			140	144	4	214	1.1	
			144	150	6	49		
			150	154	4	138	1.5	
			154	159	5	74		0.5
			159	162	3	301	3.4	1.3
			162	167	5	32	0.6	
			167	172	5	52	1.1	
			176	177	1	35	0.6	
Intermediate block	CGA-61		3	4	1	82	0.7	1.5
			16	21	5	33		
			27	28	1	72		
			36	37	1	38		0.5
			57	58	1	38	0.6	2
			72	74	2	50	1.3	3.4
North Slope	CGA-62		1	6	5	103		
			42	46	4	197		
			48	49	1	47		
			53	55	2	43	0.5	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			59	63	4	35		
			63	65	2	368	3.2	
			68	70	2	213	4.3	
			106	107	1	42		
			125	127	2	35	0.7	
			137	140	3	23		
			191	194	3	28		
			198	199	1	77	1	
			205	206	1	108	1.4	
Intermediate block	**CGA-63**		14	15	1	20	0.7	2
			15	18	3			0.9
			75	76	1	62		
			90	91	1	21	1.4	
			130	133	3	54		1.5
Intermediate block	**CGA-64**		25	30	5			1.7
			80	84	4			1.1
SILVER MANTOS	**CGA-65**		13	25	12	60		
			29	30	1	45		2.6
			33	35	2	42		
			62	63	1	23		0.6
			69	73	4	48		0.6
			78	84	6	70	2.4	1.7
			90	93	3	24		
Socavon	**CGA-66**		7	10	3	23	1	
			11	15	4			0.7
			19	31	12			0.9
			31	32	1	103	3.2	
			34	38	4	35	1	
			52	53	1	55	0.7	0.6
			66	67	1	54	1.2	0.6
			71	72	1	35	0.7	1.7
			85	91	6	96	2.1	1.6
			95	99	4	38	0.8	0.6
			120	123	3	51	1	1
			123	128	5			0.9
			128	130	2	26	0.7	0.6
			130	134	4			0.9
			135	138	3	31	0.7	0.7
			138	144	6			0.7
			146	156	10			0.8

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			159	172	13	50	0.9	1.4
			179	180	1	24		2.4
			185	192	7			1
Socavon	**CGA-67**		15	22	7			2.3
			30	32	2			1.8
			41	45	4			0.8
			45	47	2	45	0.6	
			52	54	2			0.8
			58	64	6			1.3
			64	68	4	33	0.7	1.3
			68	74	6			1.1
			79	80	1	25	0.5	1.5
SOCAVON	**CGA-68**		4	6	2	29		
			9	44	35	43	1	3
			54	55	1	21	1.2	
			61	68	7			1.5
			128	145	17			1.3
			145	181	36	61	1	0.6
			188	190	2	41	0.9	
			194	198	4	22		
			200.3	208	7.7			1.2
			212	213	1	68	1.6	
SILVER MANTOS	**CGA-69**		26	36	10	43		
			40	66	26	274	0.7	
			68	74	6	87		
			90	92	2	220		
SILVER MANTOS	**CGA-70**		10	14	4	63		
			24	25	1			1.1
			34	35	1	34	0.6	2.4
			38	41	3			2.9
			53	58	5			1.7
			68	73	5			1.5
SOCAVON BASEMENT	**CGA-71**		117	149	32	112	1.1	0.9
SILVER MANTOS	**CGA-72**		21	26	5	113	0.5	
			34	37	3	262	6.9	
			40	43	3	42	0.9	
			52	54	2	40		
			80	82	2	52		
Silver Mantos	**CGA-73**		33	41	8	51		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			43	45	2	32		
			52	56	4	116		
			59	60	1	43		0.8
			75	78	3	38		
			152	157.75	5.8	28		
SILVER MANTOS	**CGA-74**		75	80	5	90		
			83	85	2	32		
			90	91	1	23		
North Slope	**CGA-75**		19	22	3	21	0.5	0.9
			27	30	3	20	0.6	
			38	41	3			1.9
			65	72	7			0.7
			72	73	1	126		1.3
			73	81	8			0.7
			84	90	6			1.7
			109	117	8	44		1
			119	120	1	394	5.5	1
			121	122	1	79		1.7
			125	144	19	79	0.5	1.9
			145	149	4	216	3.3	2
			149	153	4			1.1
			156	160.4	4.4	25		3.7
Silver Mantos	**CGA-76**		8	13.5	5.5			0.6
			14.47	16	1.5	102		
			20	22	2	29		1.4
			25	33	8	189	3	1
			34	40	6	115	2.1	
Mantos Basement	**CGA-76**		57	77	20	84	0.5	
			109	119	10	34		
Silver Mantos	**CGA-77**		9	25	16	70		0.7
			35	47	12		0.5	1.4
			47	58	11	65	0.6	0.6
Mantos Basement	**CGA-77**		75	183	108	125	1.3	
		includes	*75*	*78*	*3*	*523*	*3.9*	*2.5*
		includes	*92*	*95*	*3*	*712*	*7.7*	
		includes	*132*	*142*	*10*	*308*	*1*	*0.7*
Mantos Basement	**CGA-78**		no significant mineralization					
Mantos Basement	**CGA-79**		9	23	14	47		
			54	74	20	38		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			82	87	5	137	1	
Silver Mantos	**CGA-80**		15	22	7	26	0.7	
			30	56	26	125		
			62	93	31	90		1.7
			123	125	2	117		2.1
			183	202	19	161	0.8	
Mantos Basement	**CGA-80**		220	225	5	53		
			228	231	3	55		
Silver Mantos	**CGA-81**		20	22.24	2.2	39	0.8	3
			26	29	3	34	0.6	2.1
			29	31	2			1.6
Silver Mantos	**CGA-82**		10	18	8	69		0.6
Mantos Basement	**CGA-82**		62	66	4	38		
Silver Mantos	**CGA-83**		Hole finished at 37 m due to water at high pressure					
			No significant mineralization					
Silver Mantos	**CGA-84**		21	24	3	35		
			28	36	8	48		1.2
			43	45	2	89	0.5	
			57	59	2	49		
			74	81	7	48		
Mantos Basement	**CGA-84**		146	184	38	76	0.5	0.6
			196	200	4	38		
SOCAVON BASEMENT	**CGA-85**		44	49	5	62	1.4	0.7
			75	78	3	22	1.1	
			97	101	4			1.1
			115	124	9	26		0.6
			129	142	13			0.9
			148	155	7	27	0.6	0.9
			155	187	32			0.8
			187	190	3	49	1.6	
			198	214	16	30	0.9	0.7
			215	230	15		0.5	0.5
Silver Mantos	**CGA-86**		46	55	9	63		
Mantos Basement	**CGA-86**		55	65	10	64		
			74	78	4	42		
			83	85	2	48	0.6	
			100	107	7	35		
			119	125	6	171	0.8	
			133	138	5	30		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			144	157	13	32		
			167	171	4	437	0.5	
Mantos Basement	**CGA-87**		6	25	19	101		
			34	52	18	91		
			68	76	8	48	0.5	
			87	98	11	24		
Silver Mantos	**CGA-88**		24	34	10	100		0.6
			45	57	12	70	0.6	1.1
Mantos Basement	**CGA-88**		57	105	48	112	1.3	
		includes	*86*	*89*	*3*	*905*	*4.8*	
			128	145	17	42	0.7	
Silver Mantos	**CGA-89**		3	35	32	74	0.7	1.4
Mantos Basement	**CGA-89**		35	41	6	30	0.4	1
			49	66	17	255	1.9	
			72	92	20	379	2.1	
		includes	*87*	*90*	*3*	*1593*	*2.2*	
			100	144	44	133	1	
			158	159	1	225		
Silver Mantos	**CGA-90**		72	102	30	310	2	1.4
		includes	*83*	*85*	*2*	*2614*	*5.3*	*1.6*
Mantos Basement	**CGA-90**		102	165	63	122	1.1	
			170	174	4	28	0.6	
			179	184	5	102	1	
Silver Mantos	**CGA-91**		21	23	2	27		1.3
			27	33	6	55	1	2.1
			61	67.42	6.4	81	1	2.1
			71	90	19	119	0.6	1.4
		includes	*71*	*73*	*2*	*620*		
Socavon	**CGA-92**	re-drill of CGA-51	6	13	7			3.4
			13	26	13	46	1	2.3
			35	47	12	113	1.7	1.6
			55	71	16	72	1.3	3.4
			97.4	99	1.6	102	1.8	1.2
			99	107	8			1
			120	128	8			1
			189	197	8			1.1
SILVER MANTOS	**CGA-93**		73	75	2	36	-	-
			80	81	1	31		
			88	96	8	39	-	-
			109	113	4	103	0.7	-

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
MANTOS BASEMENT	**CGA-93**		130	184	54	290	1.8	0.5
		includes	*132*	*136*	*4*	*882*	*3.3*	*1.3*
		includes	*141*	*146*	*5*	*1172*	*4.2*	*1.4*
			189	191	2	48	-	-
			199	212	13	359	2.4	-
		includes	*208*	*210*	*2*	*1216*	*7.3*	-
SILVER MANTOS	**CGA-94**		5.5	28	22.5	-	0.6	-
			34	43	9	113	0.7	-
MANTOS BASEMENT	**CGA-94**		106	149	43	181	1.3	-
SILVER MANTOS	**CGA-95**		11	55	44	102	0.8	0.8
		includes	*26*	*39*	*13*	*218*	*1.4*	*1.1*
			67	73	6	84	-	-
			178	183	5	-	-	0.8
			183	191	8	42	0.6	0.9
			197	206	9	110	1	0.6
SILVER MANTOS	**CGA-96**		12	18	6	-	-	1.7
			18	37	19	42	0.6	1.3
			58	67	9	47	-	-
			112	117	5	23	0.5	1.3
			143	144	1	47	1.5	1.7
			165	169	4	-	-	0.8
			176	194.3	18.3	78	1.2	1.2
SOCAVON	**CGA-97**		20	23	3	74	0.5	0.7
			23	35	12	-	-	1
			35	38	3	34	1	2.3
			52	55	3	24	0.5	0.9
			61	66	5	-	-	1
			127	129	2	27	-	-
SOCAVON BASEMENT	**CGA-98**		4.6	11	6.4	-	-	0.9
			93	94	1	195	3.7	-
			128	135	7	76	1.2	0.7
			157	185	28	105	1.2	0.9
			189	191	2	36	0.7	0.8
			199	221	22	-	-	0.5
NORTH SLOPE	**CGA-99**		96	97	1	47	1.5	-
			104	105	1	38	0.7	0.7
MANTOS BASEMENT	**CGA-100**		3	32	29	107	0.6	-
		includes	*24*	*30*	*6*	*315*	*0.8*	-
			66	73	7	100	0.7	-

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			95	102	7	106	0.5	-
			107	126	19	151	0.9	-
			134	135	1	36	-	-
			162	165	3	178	-	-
			175	179	4	46	-	-
			187	188	1	41	-	-
MANTOS BASEMENT	**CGA-101**		17	21	4	46	0.8	-
			33	34	1	23	-	-
			37	38	1	30	-	-
			57	59	2	25	-	-
MANTOS BASEMENT	**CGA-102**		3.6	7	3.4	47	-	-
			28	33	5	38	-	-
			48	49	1	63	-	-
			69	71	2	31	-	-
MANTOS BASEMENT	**CGA-103**		4.4	16	11.6	30	-	-
			41	50	9	201	0.6	-
			74	76	2	260	0.6	-
			81	86	5	201	-	-
			104	105	1	59	-	-
NORTH SLOPE	**CGA-104**		114	115	1	30	-	-
			117	119	2	26	-	-
			126	127	1	20	-	-
			130	132	2	25	-	-
NORTH SLOPE	**CGA-105**		12	13	1	39	-	-
			25	26	1	26	-	-
			28	33	5	45	-	-
			63	65	2	31	-	-
			112	118	6	102	0.6	-
			151	152	1	29	-	-
			156	157	1	50	-	-
			160	161	1	40	-	-
NORTH SLOPE	**CGA-106**		no significant mineralization					
NORTH SLOPE	**CGA-107**		23	25	2	27	-	-
			36	46	10	81	-	-
			49	58	9	20	0.5	-
			89	108	19	35	-	-
			123	125	2	76	-	-
			127	232	105	54		1.6
		includes	*127*	*135*	*8*		-	*0.7*

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
		includes	*135*	*153*	*18*	*179*	*1.3*	*1.1*
		includes	*161*	*164*	*3*		-	*3.7*
		includes	*164*	*182*	*18*	*81*	-	*3.2*
		includes	*182*	*216*	*34*		-	*1.3*
		includes	*216*	*227*	*11*	*40*	-	*2*
		includes	*231*	*232*	*1*	*45*	-	*0.6*
			236	237	1	34	-	-
			238	250	12	88	-	0.5
			262	263	1	30	0.7	-
			265	266	1		-	1
			276	277	1		-	0.5
			286	287	1	27	-	-
SILVER MANTOS	**CGA-108**		41	42	1	30	-	-
			47	48	1	33	-	-
			54	55	1	21	-	-
			71	73	2	20	-	-
			79	85	6	196	-	-
		includes	*82*	*84*	*2*	*426*	-	*0.6*
			89	93	4	25	-	-
			96	97	1	55	-	2.5
			118	119	1	-		0.9
			137	138	1	-	-	1.3
			165	166	1	25	-	-
			167	168	1	22	-	-
MANTOS BASEMENT	**CGA-108**		170	241	71	120	1.5	-
		includes	*199*	*205*	*6*	*335*	*3.8*	-
		includes	*217*	*221*	*4*	*446*	*3.1*	-
			243	244	1	-	-	0.7
			244	247	3	75	1.5	1.5
SILVER MANTOS	**CGA-109**		64	70	6	60	-	-
			74	84	10	85	-	-
			89	92	3	92	-	-
			95	96	1	23	-	-
			101	102	1	21	-	-
			104	108	4	36	-	-
			148	149	1	52	0.7	-
MANTOS BASEMENT	**CGA-109**		163	168	5	66	1.4	-
			178	186	8	56	0.5	-
PASCUA	**CGA-110**		163	164	1	-	-	0.7
			167	168	1	-	-	0.8

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			218	235	17	-	0.5	3.4
PASCUA	CGA-111		54	62	8	-	-	0.5
			82	89	7	-	0.6	0.5
			98	100	2	-	-	1.1
			131	138	7	-	0.6	0.6
			151	155	4	-	-	0.5
			186	191	5	-	-	0.7
			192	195	3	-	0.5	-
			204	207	3	-	1	0.8
			215	224	9	-	-	0.7
			227	228	1	-	-	1
			243	244	1	20	0.5	0.8
			244	249	5	-	-	0.7
			250	252	2	38	0.9	0.6
			265	270	5	21	0.4	-
			274	275	1	20	-	-
			277	278	1	20	0.5	0.8
			283	287	4	36	0.8	0.9
			299	302	3	28	0.7	0.7
			304	305	1	117	3.1	2.5
			308	312	4	51	1.5	1.8
			314	320	6	20	0.4	0.5
			325	328	3	80	1.6	0.8
			341	344	3	47	-	-
			353	354	1	41	-	-
PASCUA	CGA-112		47	59	12			1
		includes	*49*	*55*	*6*	*24*	*0.7*	*1.3*
		includes	*57*	*58*	*1*	*47*	*0.6*	*1.3*
			60	62	2	70	0.6	
			74	75	1	52	1	1.1
PASCUA	CGA-112 B		52	59	7	50	0.7	1.5
			60	61	1	27		1.5
			62	67	5	33		
			77	79	2	53	0.8	1.3
			88	94	6			0.6
			99	100	1	58		
			104	105	1			0.9
			134	135	1	32	0.7	
			287	288	1			2
			293	295	2	34	0.8	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			299	300	1	28	0.6	0.9
			305	309	4			0.5
			315	318	3			1.2
PASCUA	CGA-113		37	38	1			0.9
			45	46	1			1.2
			51	52	1	27	0.9	
			56	57	1			0.8
			61	62	1			0.5
			72	73	1	20		0.8
			86	88	2	27		
			91	92	1	50		
			108	109	1			0.7
			112	114	2	22		
			123	124	1			0.5
			128	129	1	20	0.6	1
			131	132	1		0.7	
			138	145	7			0.5
			153	154	1	21	0.6	0.6
			162	166	4	27	1	1.1
			166	167	1			1.7
			170	171	1	49	1.4	1.1
			171	179	8			0.5
			185	188	3			0.8
			188	189	1	25	0.5	2.4
			193	206	13			0.5
			210	214	4	26		
			214	217	3			0.9
			220	231	11	31		
			235	237	2	31		
			239	244	5	35		
			247	252	5	22		
			255	257	2			0.6
			260	261	1	23		
			263	264	1			0.5
			266	269	3			0.9
			269	271	2	62		0.7
			274	276	2	144		0.5
			300	301	1			1.7
			308	323	15	181	1.1	
		includes	*313*	*314*	*1*	*2031*	*9.5*	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			326	330	4	131	1.7	
			342	344	2			0.6
			348	349	1	23		
			355	357	2	24		0.5
			360	363	3	106	1.9	
PASCUA	**CGA-114**		36	38	2			0.8
			91	136	45			0.8
		includes	*106*	*109*	*3*	*70*	*1.1*	*1.5*
		includes	*111*	*113*	*2*	*43*	*0.7*	*2.2*
		includes	*117*	*120*	*3*	*32*		
		includes	*128*	*132*	*4*	*20*	*0.8*	*1.7*
			137	138	1	31		
			141	146	5	46	0.5	
			156	157	1	68	0.6	1.2
			221	222	1	47		
NORTH SLOPE	**CGA-115**		20.75	25	4.3	51		
			93.1	95	1.9	39		0.7
			110	114	4	176		4.8
NORTH SLOPE	**CGA-116**		11	13	2	91		
			18	19	1	64		
			28	32	4	53		
			143	145	2	49	1.5	
			162	163	1	47	1.3	1
			165	167	2			0.7
			185	187	2	82	2.4	
			194	195	1	83	2.5	
			206	210	4	137	2.7	0.6
			221	222	1	62		
			228	233	5	21		
			253	254	1	193		
			263	264	1	119	2.6	
			267	268	1	25	0.6	
			280	281.8	1.8	92	1.4	
			289	291	2	46		
			295	297	2			0.9
NORTH SLOPE	**CGA-117**		6	7	1	24		
			10	12	2	20		
			29	30	1	32		
			82	84	2	32		
			112	113	1	29	1.1	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
SILVER MANTOS	**CGA-118**		no significant mineralization					
NORTH SLOPE	**CGA-119**		15	28	13	58	1.4	
			37.4	41	3.6			2
			41	53	12	79	1.5	1.8
			53	75	22			3.3
			75	86	11	73	1.6	
			86	100	14			1.1
		includes	*92*	*93*	*1*	*47*		*3.3*
		includes	*96*	*100*	*4*	*36*		*1*
			138	155	17			1.6
		includes	*146*	*148*	*2*	*178*		*1.1*
			159	160	1	29		0.7
			166	167	1	30		
SILVER MANTOS	**CGA-120**		17	18.35	1.4	96		
			48	59	11	43	0.8	0.5
			65	71	6	47	0.7	0.7
			73	98	25	46	0.7	
			111	112	1	78	1.4	1.1
SILVER MANTOS	**CGA-121**		87	93	6	52		
MANTOS BASEMENT	**CGA-121**		98	141	43	269	2.8	
		includes	*100*	*104*	*4*	*1218*	*6.4*	
		includes	*137*	*138*	*1*	*621*	*9*	
			142	143	1	25	0.6	0.6
			147	148	1	47	1.2	
			151	167	16	123	1	
			176	185	9	47		
			187	189	2	24	0.8	
SILVER MANTOS	**CGA-122**		36	37	1	45		
			45	47	2	235	0.8	
MANTOS BASEMENT	**CGA-122**		59	68	9	185	2	
		includes	*63*	*64*	*1*	*761*	*6.3*	
			85	91	6	28		
			93	95	2	260	1.5	
			97	100	3	56	0.6	
			102	105	3	34		
			108	122	14	187	1.2	
		includes	*115*	*118*	*3*	*594*	*3*	
			124	125	1	49		
			127	140	13	51	1.6	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			151	158	7	71	0.8	
			161	164	3	30	0.6	
			182	189	7	147	3.8	
		includes	*187*	*188*	*1*	*577*	*15.7*	
SOUTH DOME	CGA-123		7	8	1	22		
			30	31	1			1.1
			34	35	1			0.7
			52	66	14			0.6
		includes	*63*	*64*	*1*	*36*	*0.9*	*1.2*
			82	83	1			0.8
			98	100	2		0.5	0.7
			132	133	1		0.5	0.6
			146	195	49			0.5
		includes	*151*	*156*	*5*			*0.6*
		includes	*160*	*161*	*1*	*29*		
		includes	*163*	*164*	*1*			*0.7*
		includes	*172*	*173*	*1*			*0.8*
		includes	*178*	*186*	*8*			*0.6*
		includes	*189*	*191*	*2*	*29*	*0.7*	*2.6*
		includes	*191*	*193*	*2*			*1*
			213	214	1			3.2
			235	240	5			1
			248	250	2	28	0.7	1.3
			252	253	1			1.2
			281	283	2			1.2
			297	350	53			0.5
		includes	*297*	*299*	*2*			*0.8*
		includes	*302*	*303*	*1*	*34*	*0.5*	*1.2*
		includes	*305*	*306*	*1*			*1.3*
		includes	*315*	*316*	*1*	*29*	*0.7*	*0.8*
		includes	*318*	*320*	*2*			*1*
		includes	*322*	*324*	*2*	*28*		*0.5*
		includes	*336*	*337*	*1*	*28*	*0.6*	*0.7*
		includes	*342*	*343*	*1*	*31*	*0.7*	*1.3*
		includes	*346*	*347*	*1*	*36*	*0.8*	*2.8*
SOUTH DOME	CGA-124		68	70	2	20	0.5	1
			81	90	9			0.9
			90	93	3	34	0.9	1.2
			160	162	2	26	0.6	0.9
			178	184	6	26		0.7

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			185	186	1	36		
			188	230	42			0.5
		includes	198	202	4	26		0.7
		includes	210	211	1	52		
			230	314	84	26		0.7
		includes	*230*	*286*	*56*	*30*	*0.5*	*0.9*
		includes	*286*	*299*	*13*			*0.7*
		includes	*299*	*305*	*6*	*29*		
		includes	*309*	*314*	*5*	*29*		
			321	322	1	20		
			324	327	3			0.9
			330	333	3	42		0.8
			361	363	2	22		1.1
			365	369	4	37		
NORTH SLOPE	**CGA-125**		53	54	1	56	0.6	
			56	57	1	24	0.6	
			57	70	13			0.5
			118	122	4			0.8
			130	131	1			1
			167	168	1	82		2.3
			168	170	2			1
			179	180	1	22		1.1
			225	226	1	24		
SILVER MANTOS	**CGA-126**		15	21	6			0.7
			21	43	22	34	0.5	1.2
			48	50	2			0.5
			70	71	1	36		
			74	76	2	44		
			79	80	1	42		
			87	88	1	21		
			90	91	1	30		
			93	95	2			0.6
			165	195.85	30.9	186	2.4	2.2
			226	228	2	185		
Mantos Basement	**CGA-126**		248	250	2			0.7
			270	271	1	54		
			297	300	3	36	0.6	
Mantos Basement	**CGA-127**		89	112	23	85	0.7	
			118	152	34	209	1.2	
		includes	*130*	*135*	*5*	*1091*	*3*	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			154	156	2	23		
			160	162	2	36		
			165	169	4	60	0.5	
			172	179	7	27		
			181	183	2	70	2.2	
			185	186	1	61		
			198	199	1	21		
Pascua	**CGA-128**		125	128	3			0.6
			160	161	1	24	0.9	0.7
			161	165	4			0.5
			183	189	6		0.5	0.6
			194	207	13			0.6
			207	209	2	89		0.7
			209	211	2		0.7	
MANTOS BASEMENT	**CGA-129**		49	50	1			1.4
			80	85	5	48	1.2	
			91	113	22	212	2.6	
		includes	*95*	*102*	*7*	*515*	*5.7*	
			134	140	6	30		
			142	143	1	52		
			146	147	1	21		
			150	151	1	53		
			154	157	3	134	0.7	
Socavon del Diablo	**CGA-130**		14	19	5	42	-	-
			36	37	1	29		
			38	39	1			2.3
			44	45	1	34		
			54	66	12	33		
			69	74	5	143		0.7
			92	95	3	109		
Socavon Basement	**CGA-131**		no significant mineralization					
Silver Mantos	**CGA-132**		131	146	15	178	1.6	
			148	149	1	43		
			158	160	2	35		
Silver Mantos	**CGA-133**		67.9	70	2.1	83		
Mantos Basement	**CGA-133**		114	146	32	191	2.8	
		includes	*125*	*127*	*2*	*1002*	*10.6*	*1.1*
			152	178	26	86	1.3	
		includes	*169*	*172*	*3*	*333*	*5.5*	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			180	181	1	34	1	
			184	185	1	25	0.8	
			208	210	2	42	0.6	
			217	218	1	23		
Mantos Basement	**CGA-134**		105	106	1	23		
			122	128	6	40	0.6	
			138	143	5	33	0.8	
			147	148	1	36		
			150	152	2	114	2.3	
			159	160	1	21	0.6	
Mantos Basement	**CGA-135**		8	10	2	32		
			53	55	2	52		
			83	85	2	23		
			111	120	9	81	0.5	
			124	125	1	21		
			127	142	15	409	2	
		includes	*130*	*131*	*1*	*966*	*1.7*	
		includes	*136*	*137*	*1*	*1467*	*9.2*	
			144	145	1	72	0.7	
			148	156	8	105	1.3	
			158	159	1	32	0.6	
			169	171	2	37		
			174	178	4	23		
			243	244	1	26		
			266	267	1	40		
Mantos Basement	**CGA-136**		60	72	12	286	1.4	
		includes	*62*	*63*	*1*	*912*	*3*	
			77	78	1	92	2.6	
			80	91	11	130	1.4	
			110	113	3	145	0.6	
Mantos Basement	**CGA-137**		41	46	5	95		
Mantos Basement	**CGA-138**		67	68	1	29		
			72	73	1	27		
			75	76	1	26		
			125	127	2	48	0.9	
Mantos Basement	**CGA-139**		16	19	3	37		
			54	62	8	68		
			96	98	2	38		
			108	122	14	207	1.9	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
		includes	*108*	*112*	*4*	*493*	*4.1*	
			134	137	3	133	1.1	
			139	140	1	22		
			142	143	1	139	1.3	
			145	147	2	56	1	
			150	158	8	97	0.5	
			166	167	1	36	0.5	
Mantos Basement	**CGA-140**		8	9	1	25		
			16	17	1	47		
			43	44	1			1
			67	68	1	53		
			74	76	2	21		
			81	85	4	98		
			114	123	9	29		
			135	136	1	33		
			146	149	3	43		
			169	172	3	36		
			180	182	2	148	0.6	
			189	190	1	35		
Mantos Basement	**CGA-141**		4.5	6.2	1.7	31	0.5	
			7	11	4	33		
			12.2	16	3.8	86	0.5	
			42	43	1	31	0.7	
			54	55	1	26		
			74	76	2	27	0.7	
			83	84	1	23		
Mantos Basement	**CGA-142**		No significant mineralization					
Silver Mantos	**CGA-143**		15	40	25	127	0.5	1.7
		includes	*34*	*37*	*3*	*327*	*0.7*	
			42	43	1	21		
			50	51	1	30		0.6
			51	53	2			1.5
			54	56	2	22		
			58	60	2	21		
			64	70	6	49		
			82	86	4	35		
			159	161	2	22		1
			164	167	3			0.9
			171	199	28	48	0.6	0.9

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			202	209	7	127	1.8	0.5
			212	216	4	68	0.8	
			217	234	17	58		
Socavon del Diablo	**CGA-144**		48	50	2			0.6
Socavon Basement	**CGA-145**		0	17	17	45		
			35	40	5	186	1.2	0.8
			40	47	7			0.6
			86	94	8			0.5
			96	97	1	21		1.2
			104	112	8			0.7
			112	113	1	34		1.8
North Slope	**CGA-146**		4	14	10	37		
			48	54	6	27		
			76	78	2	26		
			96	98	2	32		
			120	121	1	30		
			125	138	13			0.5
			140	142	2	226		0.6
			142	145	3			0.6
			145	165	20	109	1	0.9
		includes	*153*	*157*	*4*	*299*	*1.8*	*1.5*
			166	170	4			0.7
			172	176	4	60		0.5
			179	199	20	29		
			200	204	4	53	0.6	0.8
			216	218	2		0.5	0.5
North Slope	**CGA-147**		no significant mineralization					
Silver Mantos	**CGA-148**		25	26.9	1.9	28	0.6	0.8
			28.75	29	0.3	36	1.1	0.5
			30.1	34	3.9	86	2	0.8
			34	38	4		0.5	2.5
			41	42.25	1.3			1.3
			43.55	47	3.5		0.8	2.2
			59	61	2		0.7	3.5
			81	86	5	25	0.5	1.1
			141	142	1	49	1	
			162	173.45	11.5	79	2	2.6
Silver Mantos (Dacite)	**CGA-148**		175	176	1			1.4
			176	177	1	35		0.7

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			177	183	6			0.5
			223	224	1			2.9
Silver Mantos	**CGA-149**		14	54.9	40.9	81	0.7	2.4
		includes	*36*	*40*	*4*	*246*	*0.5*	*2.8*
			55.3	68	12.7	78		
			179	182	3	47	1.2	0.5
			182	209	27			1.1
			336	338	2			0.8
			368	369	1			1.5
			388	389	1	94	1.5	0.8
			394	395	1	32	0.9	
			405	406	1	26		
			433	434	1	57	0.9	1
Silver Mantos (Dacite)	**CGA-149**		497	498	1	35		
			510	511	1	25		0.8
Silver Mantos	**CGA-150**		58	60	2	31		0.7
Silver Mantos	**CGA-151**		13	23	10	57	0.5	1.1
			32	33	1	79		
			35	41	6			0.7
			51	54	3			1.1
			62	63	1	24	0.5	2.2
			63	64	1			1.3
			69	70	1	43	0.7	1.4
			80	81	1			0.5
			122	125	3			0.6
			133	136	3			0.6
			140	141	1			0.6
			184	185	1			0.6
			208	211	3			0.6
Silver Mantos	**CGA-152**		28	37	9	45	0.6	1.7
			56	59	3			1.2
			128	130	2	31		
			170	172	2			2.8
			172	199	27	67	1.3	2.2
			199	207	8	26		2
			207	216	9			0.9
			216	217	1	36		
Silver Mantos	**CGA-152**		264	268	4	24		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
(Dacite)			279	281	2	62		
Silver Mantos	**CGA-153**		22	35	13	78	0.6	2
			35	38	3			1.6
			38	42	4	99	0.5	1.5
			50	58	8	81	0.5	1.4
			62	64	2	23		
			92	102	10	45		
Mantos Basement	**CGA-153**		161	163	2	24		0.6
			164	166	2			0.8
			174	177	3			0.9
			177	198	21	74	1.2	
		includes	*178*	*180*	*2*	*214*	*3.2*	
Mantos Basement	**CGA-154**		144	153	9	77		
			154	155	1	28		
Silver Mantos	**CGA-155**		114	116	2	35		
			192	193	1	23	0.6	1.2
Socavon del Diablo	**CGA-156**		2.8	4	1.2	63	0.7	1.2
			5	6	1			1.5
			11	19	8			0.5
			37	39	2			0.6
			47	48	1	62	1.4	0.7
			58	61	3			0.7
			76	87	11			0.8
			89	92	3	52		
			93	99	6	35	0.5	1.6
			99	108	9			1
			108	109	1	38	0.5	2.1
Socavon	**CGA-157**		35	36	1	90	0.8	2.3
			38	39	1			0.6
			44	57	13			1
			66	67	1			0.8
			67	76	9	66	0.9	1.8
Socavon Basement	**CGA-157**		35	109	74			0.8
		includes	*76*	*82*	*6*			*0.5*
		includes	*82*	*99*	*17*	*43*	*0.5*	*0.9*
		includes	*99*	*104*	*5*			*0.6*
		includes	*104*	*109*	*5*	*79*	*0.7*	
			114	118	4			0.6
			127	128	1	37		
			135	200	65			0.7

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
		includes	*135*	*146*	*11*	*163*	*0.6*	*0.6*
		includes	*148*	*155*	*7*			*0.5*
		includes	*157*	*160*	*3*	*43*		*1.1*
		includes	*160*	*166*	*6*			*0.5*
		includes	*166*	*169*	*3*	*20*		*1.2*
		includes	*169*	*172*	*3*			*1*
		includes	*172*	*174*	*2*	*35*		*1.4*
		includes	*179*	*180*	*1*	*27*		*1.5*
		includes	*182*	*185*	*3*			*0.8*
		includes	*190*	*200*	*10*			*0.8*
			201	202	1	78		
			206	207	1	37		
North Slope	**CGA-158**		39	49	10	53		
			52	54	2	37		
			78	82	4	24		
Socavon del Diablo	**CGA-159**		143	154	11	58	0.8	1.1
			154	157	3			1
Socavon Basement	**CGA-160**		5	8	3			0.9
			28	31	3			1
			42	43	1			2.9
			168	170	2	29		
			210	222	12			0.6
			222	223	1	49		2.1
			223	230	7			0.7
			230	242	12	105		0.6
		includes	*230*	*231*	*1*	*666*		*1.8*
			242	248	6			1
			248	256	8	38	0.7	1
			256	261	5			0.7
			262	263	1	25		0.6
			263	268	5			0.9
			268	272	4	33	0.7	1.8
			275	276	1	23		0.6
			278	288	10			0.6
			291	294	3			0.9
			294	298	4	37	0.6	1.5
			298	301	3			0.5
			301	303	2	55		0.9
			312	323	11			0.9
			329	333	4			0.6

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			339	357	18			0.9
		includes	*342*	*343*	*1*	*33*	*1.2*	*3.6*
		includes	*352*	*353*	*1*	*31*	*1.1*	
			365	375	10			0.6
			382	393	11			0.8
			398	413	15			0.7
			422	427	5			1.2
			430	432	2			0.7
			441	442	1	21		
			445	446	1	112		
North Slope	**CGA-161**		17	21	4	20		2.3
			21	34	13			3.6
			34	40	6	174		0.6
		includes	*36*	*38*	*2*	*392*		*1.2*
			74	75	1	80	1.3	
			103	104	1			0.6
			108	109	1		0.6	
			133	135	2	27		0.6
			140	141	1	34		1.2
			163	164	1		0.6	
			173	176	3	32	0.5	
			193	194	1	24		
Potrero	**CGA-162**		3	4	1	23		
			6	7	1		1	
			10	11	1	23	0.5	
			13	14	1		1.9	
			16	17	1	87		
			19	23	4	23	1	
			28	33	5			0.7
			50	54	4			1
			60	61	1			0.5
Potrero	**CGA-163**		0	1	1	36	1	
			9	13	4	28		
			15	16	1		0.5	
			26	28	2	26	0.9	
			28	30	2		0.8	
			35	36	1		0.5	
			62	64	2			0.5
			70	72	2	22		
Potrero	**CGA-164**		3	4	1	61	1.2	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			7	9	2	49	0.8	
Potrero	**CGA-165**		21	22	1	34		
			29	33	4	77		
Socavon Basement	**CGA-166**		88	90	2			0.8
			90	102	12	32		0.6
			108	111	3	26		
			123	132	9			0.5
			132	134	2	59	0.8	0.6
			137	139	2	46		0.9
			139	146	7			0.5
			149	153	4	26		
			158	164	6			0.5
			164	170	6	189	1.5	0.6
		includes	*165*	*167*	*2*	*500*	*3.4*	*0.9*
			170	171	1			0.6
			180	181	1			0.6
			184	185	1			0.6
			198	210	12			0.7
			210	317	107	41	0.4	1.1
		includes	*210*	*220*	*10*	*62*		*1.3*
		includes	*220*	*230*	*10*			*0.8*
		includes	*230*	*241*	*11*	*42*		*2.1*
		includes	*241*	*245*	*4*			*0.6*
		includes	*245*	*317*	*72*	*44*	*0.5*	*0.9*
Socavon Basement	**CGA-167**		11	13	2			1.1
			21	24	3			0.9
			46	155	109			0.6
		includes	*46*	*56*	*10*			*0.7*
		includes	*66*	*70*	*4*	*25*	*0.5*	*0.8*
		includes	*73*	*79*	*6*	*29*	*0.5*	*0.7*
		includes	*79*	*89*	*10*			*0.5*
		includes	*89*	*95*	*6*	*36*	*1*	*1.7*
		includes	*95*	*97*	*2*			*1*
		includes	*105*	*119*	*14*			*0.5*
		includes	*119*	*123*	*4*	*31*		
		includes	*127*	*155*	*28*			*0.6*
			193	195	2	30		0.6
Socavon del Diablo	**CGA-168**		22	28	6		0.5	1.3
			142	146	4			0.7
North Slope	**CGA-169**		29	35	6	63	1.5	0.5

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			52	63	11	94	0.6	
		includes	*60*	*61*	*1*	*206*	*2.1*	*0.7*
			67	75	8	38	0.7	1.9
			97	104	7			1
			106	114	8	46		
			116	118	2	136	1	
Socavon Basement	**CGA-170**		150	180	30	176	1.5	0.8
		includes	*171*	*176*	*5*	*749*	*5.7*	*2*
			180	189	9			1
			192	194	2	83	2.7	0.6
			197	199	2	40	1	
			213	215	2	35		5.1
			217	223	6			0.5
			251	253	2	102	1.4	1
			262	271	9			1
			294	297	3	36	1.3	
			300	303	3	50		
Silver Mantos	**CGA-171**		hole re-drilled by CGA-171B					
Silver Mantos	**CGA-171B**		7	15	8	135		
			17	20	3	94		
			97	104	7	76	1.2	
Socavon Basement	**CGA-172**		132	134	2			0.6
			134	136	2	47	1.7	0.8
			136	142	6			0.7
			142	145	3	39	0.5	
			173	174	1	36	1.2	
			214	230	16	36	0.9	
Socavon del Diablo	**CGA-173**		37	43	6	24		
			61	65	4	45		
			71	72	1	37	1.4	
			74	80	6	54	1.4	
			83	86	3	34	0.6	
			99	107	8	62		
Mantos Basement	**CGA-174**		hole re-drilled by CGA-174B					
Mantos Basement	**CGA-174B**		54	61	7	466	5.8	
		includes	59	61	2	1306	9.8	
			88	92	4	36		
Silver Mantos	**CGA-175**		24	37	13	57	1.1	1
			37	43	6			1.4

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			49	55	6	33	0.5	1.4
Silver Mantos	**CGA-176**		14	35	21	66	1.1	1
		includes	*29*	*32*	*3*	*191*	*2.5*	*1.8*
			37	46	9	23		1.7
			53	62	9	41	0.8	3.5
			62	63	1			1
			118	119	1	26	0.6	
			156	159	3	30	0.7	0.8
			168	169	1			1.6
			169	170	1	30	0.8	0.6
			180	185	5	44	1	1.7
			185	202	17			1.1
			209	210	1	22		
			210	211	1			1.2
Mantos Basement	**CGA-177**		no significant mineralization					
Socavon del Diablo	**CGA-178**		14	22	8			1.5
			61	88	27			0.5
		includes	*76*	*78*	*2*	*23*		*1.7*
Socavon Basement	**CGA-179**		24	46	22			0.7
			62	66	4			0.7
			116	117	1	29		1.1
			127	128	1	20		1.6
			131	137	6	34	0.6	1
			141	142	1	38	0.8	0.7
			148	152	4			1.2
			152	157	5	43	1.1	1.9
			160	164	4			1.3
			185	189	4	44	1	
			191	194	3	654	6.2	
			195	196	1	92	1	
			208	209	1	143	2.6	
			237	242	5	44		
			243	257	14	57		0.8
			259	266	7	266		
		includes	*263*	*264*	*1*	*1109*		*0.6*
			268	273	5	142		
			276	281	5	114		0.8
			282	286	4			0.7
			290	293	3			0.6

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			298	305	7			0.8
			305	307	2	55	1.1	
			310	322	12	82		1.1
			322	332	10			0.8
			335	349	14			0.5
			349	351	2	26	0.5	1.3
			351	372	21			0.9
		includes	*362*	*363*	*1*	*28*	*0.6*	*0.9*
		includes	*369*	*370*	*1*	*21*		*1.7*
			372	377	5	113	1	3.3
			380	388	8	37	0.5	1.5
			390	398	8			0.8
Socavon Basement	**CGA-180**		23	25	2	80	0.9	
			26	27	1	28		
			34	38	4	25		
			52	58	6			0.7
			82	86	4	28	0.8	0.6
			96	100	4	20		
			107	110	3	94	1	0.8
			118	120	2	31	0.8	0.6
			137	138	1	58	1.9	
Socavon Basement	**CGA-181**		102	421	319	21		0.6
		includes	*102*	*118*	*16*			*0.7*
		includes	*119*	*123*	*4*	*25*	*0.5*	*0.5*
		includes	*126*	*136*	*10*	*26*	*0.8*	*0.6*
		includes	*140*	*144*	*4*	*43*		*0.6*
		includes	*153*	*156*	*3*			*0.5*
		includes	*161*	*168*	*7*	*27*	*0.6*	*0.6*
		includes	*176*	*188*	*12*	*128*	*0.7*	*0.5*
		includes	*188*	*198*	*10*	*27*		*0.5*
		includes	*203*	*209*	*6*	*30*		*0.5*
		includes	*218*	*219*	*1*	*40*		
		includes	*224*	*240*	*16*	*26*		*0.6*
		includes	*246*	*253*	*7*			*0.5*
		includes	*257*	*258*	*1*	*42*		
		includes	*263*	*268*	*5*	*34*		*0.5*
		includes	*272*	*275*	*3*			*0.8*
		includes	*275*	*276*	*1*	*25*	*0.6*	
		includes	*278*	*287*	*9*	*30*		*0.5*
		includes	*288*	*290*	*2*	*99*	*0.9*	*1.3*

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
		includes	*290*	*301*	*11*			*0.5*
		includes	*301*	*307*	*6*	*30*		
		includes	*307*	*309*	*2*			*0.9*
		includes	*309*	*315*	*6*	*32*	*0.5*	*0.5*
		includes	*316*	*324*	*8*			*0.5*
		includes	*324*	*325*	*1*	*42*	*0.6*	*1.9*
		includes	*325*	*329*	*4*			*0.8*
		includes	*329*	*332*	*3*	*33*	*0.6*	*0.6*
		includes	*333*	*336*	*3*	*20*		*0.6*
		includes	*342*	*343*	*1*	*48*	*1.2*	*1.1*
		includes	*344*	*352*	*8*			*0.7*
		includes	*355*	*360*	*5*			*0.5*
		includes	*361*	*368*	*7*	*22*	*0.5*	*1.5*
		includes	*369*	*383*	*14*	*33*	*0.8*	*2.4*
		includes	*383*	*421*	*38*			*0.9*
Socavon Basement	**CGA-182**		64	65	1	26	0.5	
			77	78	1	22	0.7	
			80	81	1		0.6	
			86	88	2	22	0.5	
			115	116	1	44	1.3	
Silver Mantos	**CGA-183**		9	13	4.0		0.5	1
			13	19	6.0	41		1
Mantos Basement	**CGA-183**		28	31	3.0	154	1.5	
			33	35	2.0	714	7.2	
			36	37	1.0	39		
			39	45	6.0	59		
			65	72	7.0	91		
			92	111	19.0	117	0.8	
			145	157	12.0	62	0.6	
			166	170	4.0	57		
Silver Mantos	**CGA-184**		41	42	1.0	27	0.5	
			68	77	9.0	24		
			88	90	2.0	22	0.8	
			96	99	3.0	30	0.6	
Mantos Basement	**CGA-184**		106	172	66.0	278	2.4	
		includes	*107*	*117*	*10.0*	*1069*	*10.2*	
			176	202	26.0	159	1.0	
Mantos Basement	**CGA-185**		53	58	5.0	26		
			96	114	18.0	184	1.1	
		includes	*98*	*100*	*2.0*	*646*	*2.2*	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			116	120	4.0	108	0.6	
			122	128	6.0	166	2.7	
			131	141	10.0	196	3.1	
			143	147	4.0	33	0.5	
			149	150	1.0	113	3.0	
			152	157	5.0	145	2.0	
			166	182	16.0	22	0.6	
			185	189	4.0	20	0.7	
			194	195	1.0	41	1.4	
Mantos Basement	**CGA-186**		87	174	87.0	112	0.9	
		includes	*116*	*119*	*3.0*	*985*	*2.7*	
Silver Mantos	**CGA-187**		89	92	3.0	64	3.1	
Mantos Basement	**CGA-187**		94	113	19.0	108	1.9	
			116	121	5.0	22		
			123	129	6.0	28	0.6	
			130	132	2.0	34		
			137	145	8.0	56	0.8	
			149	151	2.0	87	1.5	
			156	164	8.0	88	0.8	
Silver Mantos	**CGA-188**		84	87	3.0	41	0.6	
Mantos Basement	**CGA-188**		88	103	15.0	183	2.0	
		includes	*98*	*100*	*2.0*	*471*	*5.1*	
			104	110	6.0	44	1.3	
			115	127	12.0	86	1.8	
Silver Mantos	**CGA-189**	no significant mineralization						
Silver Mantos	**CGA-190**		12	18	6.0	57	0.7	
			24	28	4.0	65		
			32	34	2.0	37	1.1	
			37	44	7.0	75	1.3	
			50	52	2.0	100	3.2	
			58	63	5.0	27		
			76	80	4.0	69	1.5	
			86	87	1.0	87	1.0	
			88	89	1.0	176	3.8	
			95	106	11.0	27		
Silver Mantos	**CGA-191-G**		13	25	12.0	32		
			28	30	2.0	24		1
			34	38	4.0	27		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			42	43	1.0	22	0.9	
			44	47	3.0		0.5	
			49	50	1.0	61	1	
			53	57	4.0		0.7	
			68	72	4.0	32		0.6
			74	75	1.0	24		
			78	84	6.0	20	0.8	3.3
			84	86	2.0			0.7
Manto Basement	**CGA-191-G**		108	109	1.0	35		
			110	112	2.0	62	0.5	
			125	126	1.0	32	0.6	
			165	166	1.0	71	1	
Silver Mantos	**CGA-192**		113	114	1.0	54		
			130	134	4.0	30	0.9	
			136	142	6.0	49	0.6	
			143	147	4.0	90	1.3	
			188	198	10.0	37		
			238	245	7.0	27		
			247	252	5.0	43	0.7	
			260	264	4.0		1	
Silver Mantos	**CGA-193**		28	30	2.0			1
			30	40	10.0	89	0.9	
			46	47	1.0	30	0.8	
			47	51	4.0	3748	5.2	2
			51	52	1.0	28	0.7	
			54	65	11.0	58	0.6	0.7
			87	89	2.0	22	0.6	
			97	100	3.0			0.6
			102	105	3.0	322	2.4	
			106	108	2.0	313	3.5	
			112	114	2.0	29	0.7	
			118	122	4.0	36		
			124	126	2.0	22		
			131	132	1.0	67	0.7	0.8
			136	138	2.0	27		
			145	147	2.0	35	0.5	
			183	189	6.0	60	0.9	
			190	193	3.0	106	0.6	
Silver Mantos	**CGA-194-G**		23	25	2.0	21		
			36	42	6.0	53		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			56	62	6.0	27		
			65	66	1.0	28		0.5
			70	72	2.0	70		
			74	82	8.0	33		
			103	106	3.0	39		
			108	109	1.0	21		
			112	113	1.0	26		
			115	119	4.0	49		0.5
			194	196	2.0			0.6
			196	198	2.0	28	0.5	1.5
			198	200	2.0			1.3
Mantos Basement	**CGA-194-G**		204	209	5.0			1
			219	226	7.0	229	4.6	0.6
			235	237	2.0	31	0.8	
			239	249	10.0	46	1	
			250	251	1.0	24		
Silver Mantos	**CGA-195**	no significant mineralization						
Silver Mantos	**CGA-196**		82	88	6.0			0.5
			100	101	1.0	41		0.6
Silver Mantos	**CGA-197**		37	43	6.0	60	1.1	
			46	62	16.0	61		
			79	88	9.0	150		0.7
			89	90	1.0	20		
			91	92	1.0	23		
			122	126	4.0			0.7
			146	153	7.0			0.8
			178	196	18.0	132		
		includes	*185*	*186*	*1.0*	*1355*	*1.6*	*0.5*
Mantos Basement	**CGA-197**		198	213	15.0	152	0.8	
		includes	*205*	*208*	*3.0*	*479*	*1.6*	
			215	216	1.0	24		
			218	224	6.0	25		
			231	242	11.0	110		
			245	246	1.0	86		
			249	258	9.0	99		
			259	264	5.0	189	2.2	1
Silver Mantos	**CGA-198-G**		41	71	30.0	41	0.6	
			98	116	18.0	76		
			118	124	6.0	46	0.5	
			152	154	2.0	35		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			155	156	1.0	42	0.6	
			161	164	3.0	32		0.6
			188	200	12.0	31		
			204	220	16.0	273	4.8	0.5
		includes	*215*	*217*	*2.0*	*842*	*7.7*	*0.9*
			236	237	1.0	160	0.7	
Silver Mantos	**CGA-199**		7	9	2.0	44	0.6	1
			15	17	2.0	22		
			21	23	2.0	21		
			25	28	3.0	63		
			29	35	6.0	351		
		includes	*30*	*31*	*1.0*	*1140*	*1.1*	
Silver Mantos	**CGA-200**		9	33	24.0	117	0.5	
			35	37	2.0	30		
			39	55	16.0	72		
			70	74	4.0	20		
			77	91	14.0	152	0.6	
			100	108	8.0	30	0.5	
Silver Mantos	**CGA-201-G**	no significant mineralization						
Silver Mantos	**CGA-202**		5	12	7.0	55	0.8	
			15	46	31.0	159	1	
		includes	*26*	*29*	*3.0*	*405*	*3.8*	
		includes	*34*	*37*	*3.0*	*437*	*2.3*	
			50	52	2.0	43		
			60	62	2.0	22		
			63	72	9.0	424	1.9	0.8
			82	86	4.0	38		
			89	91	2.0			0.7
			91	96	5.0	23		1.3
			96	98	2.0			0.6
			104	117	13.0			0.7
			117	122	5.0	42		0.5
Silver Mantos	**CGA-203**		5	77	72.0	162	0.6	
		includes	*42*	*43*	*1.0*	*1075*		*1.2*
		includes	*57*	*62*	*5.0*	*873*	*1.3*	
Mantos Basement	**CGA-203**		171	177	6.0	52		
			207	209	2.0	36		
			211	212	1.0	50		
			222	227	5.0	46		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
Silver Mantos	**CGA-204**		16	20	4.0	26		
			28	32	4.0			0.6
			38	40	2.0			0.6
			46	50	4.0			0.8
			68	69	1.0	59		5.9
			82	85	3.0			0.6
			85	104	19.0	75	1.3	0.5
Mantos Basement	**CGA-204**		106	137	31.0	180	1.6	
		includes	*110*	*112*	*2.0*	*429*	*6.4*	
			138	139	1.0	49		
			143	158	15.0	173	0.8	
		includes	*151*	*153*	*2.0*	*632*	*2.6*	*0.7*
			165	168	3.0	287	4.6	
			168	171	3.0	21	4.6	
			173	193	20.0	235	1.7	
		includes	*173*	*178*	*5.0*	*522*	*2.8*	*0.8*
			201	206	5.0	71		
			209	210	1.0	32		
Silver Mantos	**CGA-205**		9	10	1.0	50	1.6	3.7
			12	13	1.0	25	0.9	
			27	41	14.0	115	0.5	0.7
			41	43	2.0			1
			47	50	3.0	33	0.9	0.8
Mantos Basement	**CGA-205**		52	85	33.0	284	2.7	
		includes	*74*	*79*	*5.0*	*880*	*7.7*	
			94	118	24.0	161	1.2	
			120	132	12.0	131	0.5	
			135	140	5.0	238	4	
			142	145	3.0	65	1.1	
Silver Mantos	**CGA-206**		11	27	16.0	54		0.7
			31	40	9.0			0.5
			44	50	6.0			1
			50	57	7.0	59		0.7
			62	68	6.0			0.8
			68	104	36.0	114	1.7	2.1
Mantos Basement	**CGA-206**		107	108	1.0	44	0.7	
			116	117	1.0	84		
			119	177	58.0	177	0.9	
		includes	*121*	*123*	*2.0*	*669*	*2.8*	*1.9*
		includes	*173*	*175*	*2.0*	*627*	*2.2*	*0.5*

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			187	188	1.0	142		
Silver Mantos	**CGA-207**		11	31	20.0	86	1.4	3.9
Silver Mantos	**CGA-207**		34	35	1.0	38		1.4
Silver Mantos	**CGA-207**		38	57	19.0	121	0.9	2.1
Silver Mantos	**CGA-207**		57	62	5.0			0.6
Mantos Basement	**CGA-207**		62	76	14.0	50	1.5	0.8
Mantos Basement	**CGA-207**		80	87	7.0	57	2	0.5
Mantos Basement	**CGA-207**		96	97	1.0	34	1.5	
Mantos Basement	**CGA-207**		100	127	27.0	122	1.7	
Mantos Basement	**CGA-207**		130	134	4.0	655	6.4	
Mantos Basement	**CGA-207**		141	142	1.0	35	0.9	
Mantos Basement	**CGA-207**		143	148	5.0	386	5.8	
Mantos Basement	**CGA-207**		153	155	2.0	59	1.6	
Mantos Basement	**CGA-207**		158	165	7.0	20		
Silver Mantos	**CGA-208**		14	18	4.0	22		
Silver Mantos	**CGA-208**		22	27	5.0	39		
Silver Mantos	**CGA-208**		38	43	5.0	52		1.3
Silver Mantos	**CGA-208**		46	49	3.0			0.9
Silver Mantos	**CGA-208**		50	61	11.0	146	0.7	2
Silver Mantos	**CGA-208**		63	71	8.0	48	1.7	0.8
Mantos Basement	**CGA-208**		75	87	12.0	207	2.3	1
Mantos Basement	**CGA-208**		99	149	50.0	136	2.4	0.5
Mantos Basement	**CGA-208**	*includes*	*100*	*102*	*2.0*	*816*	*7*	
Mantos Basement	**CGA-208**		151	154	3.0	26		
Mantos Basement	**CGA-208**		156	157	1.0	167	2.9	
Mantos Basement	**CGA-208**		158	167	9.0	61	1.1	
Mantos Basement	**CGA-208**		169	171	2.0	26		
Mantos Basement	**CGA-208**		173	182	9.0	45		
Mantos Basement	**CGA-208**		210	211	1.0	26		
Silver Mantos	**CGA-209G**		6	8	2.0		0.7	
Silver Mantos	**CGA-209G**		9	29	20.0	162		
Mantos Basement	**CGA-209G**		30	34	4.0	74		
Mantos Basement	**CGA-209G**		40	41	1.0	68		
Mantos Basement	**CGA-209G**		45	47	2.0	40	0.5	
Mantos Basement	**CGA-209G**		67	69	2.0	29	0.7	
Mantos Basement	**CGA-209G**		87	89	2.0	45	0.6	
Mantos Basement	**CGA-209G**		91	92	1.0	63		
Mantos Basement	**CGA-209G**		97	99	2.0	58		
Silver Mantos	**CGA-210**		23	25	2.0	34		
Silver Mantos	**CGA-210**		38	42	4.0			1.3

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
Mantos Basement	**CGA-210**		81	130	49.0	673	4	0.8
		includes	*86*	*99*	*13.0*	*1589*	*7.5*	*1*
		includes	*112*	*114*	*2.0*	*1402*	*13.1*	*0.9*
		includes	*126*	*129*	*3.0*	*1143*	*10.5*	
			135	137	2.0	83	0.7	
			144	154	10.0	33		
Silver Mantos	**CGA-211**		8	47	39.0	40		
Mantos Basement	**CGA-211**		48	51	3.0	291	0.8	
Silver Mantos	**CGA-212**		14	19	5.0			0.9
			19	23	4.0	30		1.1
			23	28	5.0		0.5	3.3
			30	31	1.0			1.1
			31	35	4.0	63	0.8	2.4
			45	47	2.0	50		0.5
			62	68	6.0	33		
			86	90	4.0	28		
			96	98	2.0			0.6
			111	112	1.0	23		1.2
			146	148	2.0	44	0.5	
			165	166	1.0		0.5	1.4
			166	169	3.0	59	1.1	1.7
			172	178	6.0	66	0.5	0.9
			181	183	2.0	21		
			185	190	5.0	550	4.2	1.1
			193	201	8.0	130	3.3	0.5
			203	209	6.0	82	2.4	
			212	214	2.0	24	0.6	
Silver Mantos	**CGA-213**		36	42	6.0	30		0.6
			83	85	2.0	23		
			97	99	2.0			0.9
			118	120	2.0			1.1
			129	132	3.0			0.7
			136	141	5.0			0.6
			144	145	1.0			1.1
			147	149	2.0	34		
			151	152	1.0			0.7
			154	155	1.0	34	1.2	0.5
Mantos Basement	**CGA-213**		189	190	1.0	45	0.9	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
Silver Mantos	**CGA-214**		15	29	14.0	28		
			54	55	1.0	111		
			73	80	7.0	24		1.9
			81	86	5.0			0.6
			93	100	7.0	32	0.9	1.4
			102	104	2.0	34	0.8	
			111	113	2.0	31		
Mantos Basement	**CGA-214**		114	118	4.0	40	0.5	1.2
			118	119	1.0			0.9
			120	122	2.0	21		
			154	156	2.0	123		
			157	158	1.0	478		0.9
			160	162	2.0	21		0.6
			167	169	2.0	59		1.2
Silver Mantos	**CGA-215**		8	11	3.0	26		
			13	22.3	9.3	81		0.8
			23	31	8.0	72		
			33	50.7	17.7	122		
			52	56	4.0	66		
			75	86	11.0	33		0.5
Silver Mantos	**CGA-216**		9	10	1.0	24		
			18	30	12.0	238		
		includes	*28*	*30*	*2.0*	*1061*		
			35	36	1.0	31		
			45	48	3.0	23		
Silver Mantos	**CGA-217**		17	20	3.0	39		
			22	26	4.0	130		
Silver Mantos	**CGA-218**		0	1	1.0	31		
			7	11	4.0	84	1.8	0.9
			14	15	1.0	27		
			44	48	4.0	28		
Silver Mantos	**CGA-219**		1	31	30.0	637	2.1	
		includes	*20*	*29*	*9.0*	*1896*	*3.8*	
			34	47	13.0	72	0.5	
			51	57	6.0	69	0.5	
			65	74	9.0	56	0.6	1
Silver Mantos	**CGA-220**		0	4	4.0	109		
			5	15	10.0	562	1.8	
		includes	*6*	*9*	*3.0*	*898*	*3.4*	
			18	26	8.0	365	1.2	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
		includes	*19*	*21*	*2.0*	*1035*	*4*	
			27.1	34	6.9	36		
			58	61	3.0			1.1
Silver Mantos	**CGA-221**		2	4	2.0	69		
			14	49	35.0	95		
			51	55	4.0	89		
			60	62	2.0	167	1.1	0.8
			67	83	16.0	306	1.5	0.5
			83	88	5.0			1.8
			88	95	7.0	48	0.8	2.6
Silver Mantos	**CGA-222**		5	12	7.0	34		
			24	54	30.0	94	0.7	
		includes	*39*	*41*	*2.0*	*445*	*2.6*	*0.5*
			60	62	2.0	34		
Silver Mantos	**CGA-223**		6	72	66.0	233	0.7	
		includes	*26*	*34*	*8.0*	*910*		
Silver Mantos	**CGA-224**		0	6	6.0	40	0.6	
			14	31	17.0	469	1.6	
		includes	*25*	*27*	*2.0*	*1374*		
			34	35	1.0	32		2.4
			35	38	3.0			0.7
			38	49	11.0	30		0.6
Silver Mantos	**CGA-225**		5.9	10	4.1	45		
			20	49	29.0	99	0.6	1.4
Silver Manto	**CGA-226**		12	34	22.0	219	1.9	
			35	53	18.0	97	0.7	
			59	77	18.0	130	1.8	
Silver Mantos	**CGA-227**		8	10	2.0	103		
			20	24	4.0			0.6
			26	33	7.0	77	0.5	
			38	39	1.0	30		0.9
			39	43	4.0			0.7
			43	44	1.0	29		1.7
Silver Mantos	**CGA-228**		7	18	11.0	91		0.5
			18	20	2.0			0.6
			20	34	14.0	436	4.4	0.7
			37	47	10.0	105	1	
			52	60	8.0	92	0.6	0.7
			66	68	2.0	30		
Silver Mantos	**CGA-229**		12	13	1.0	24		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			16	18	2.0	58		
			27	34	7.0	111	0.5	0.5
			36	43	7.0	43		0.6
			46	51	5.0	43	0.7	1.8
			53	66	13.0	44		0.7
Silver Mantos	**CGA-230**		16	24	8.0	52	0.7	
			24	31	7.0	135	1.1	2.6
			37	39	2.0			0.8
			40	48	8.0	39		0.9
			51	53	2.0	30		1.1
			53	58	5.0			1.7
			58	62	4.0	54		0.8
Silver Mantos	**CGA-231**		32	37	5.0	30		
			40	58	18.0	116	1.2	
		includes	*52*	*56*	*4.0*	*290*	*2.9*	
			62	64	2.0	31		
			73	86	13.0	69	0.5	0.9
			87	88	1.0	38		2
			91	93	2.0			0.6
			98	99	1.0	20	0.7	1.3
Silver Mantos	**CGA-232**		21	25	4.0	24	0.7	
			38	64	26.0	192		
		includes	*53*	*54*	*1.0*	*1110*		
			78	86	8.0	27		
Silver Mantos	**CGA-233**		4	35.8	31.8	89		
			36.65	48	11.4	138		
Silver Mantos	**CGA-234**		5	7	2.0	76		
			13	44	31.0	29		
			48	50	2.0	32		
			62	66	4.0	280	0.6	
			70	78	8.0	64	0.5	
Silver Mantos	**CGA-235**		9	36	27.0	255		
		includes	*23*	*28*	*5.0*	*733*		
Silver Mantos	**CGA-236**		2	10	8.0	208	1.4	
			22	26	4.0	28		
Silver Mantos	**CGA-237**		0	52	52.0	210	0.9	
		includes	*29*	*32*	*3.0*	*1024*	*3.1*	
		includes	*43*	*47*	*4.0*	*1324*	*4.8*	
			54	61	7.0	89		
Silver Mantos	**CGA-238**		10	30	20.0	86		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			46	48	2.0	218		
			50	51	1.0	62		
			58	70	12.0	106		
			73	76	3.0	82	0.7	
			79	95	16.0	83	1.4	
			100	107	7.0	24	0.5	
Silver Mantos	**CGA-239**		7	13	6.0	50		
Silver Mantos	**CGA-240**		18	20	2.0		0.6	1.6
			21	23	2.0	29		
			27	36	9.0	191		
			45	48	3.0	315	1.4	
			48	51	3.0	39	0.5	
Silver Mantos	**CGA-241**		3	9	6.0	148	0.6	
			12	15	3.0	538	2.9	
			16	17	1.0	209		1.1
			23	28	5.0	176	0.5	
Silver Mantos	**CGA-242**		5	13	8.0	42	0.7	0.6
			25	38	13.0	39		
Silver Mantos	**CGA-243**		8	17	9.0	65		
			24	52	28.0	89	0.5	
		includes	*45*	*47*	*2.0*	*335*	*2.3*	*1.1*
			94	*105*	*11.0*	*71*		
		includes	*102*	*103*	*1.0*	*301*		
			117	118	1.0			1.0
			126	127	1.0	178	0.8	
			127	128	1.0			1.2
Mantos Basement	**CGA-243**		*129*	*146*	*17.0*	*90*	*0.9*	
		includes	*132*	*134*	*2.0*	*302*	*1.7*	
			147	148	1.0			1.2
			148	149	1.0	33		0.8
			154	156	2.0	29		
			163	165	2.0	21		
			168	*226*	*58.0*	*64*		
		includes	*217*	*221*	*4.0*	*204*	*0.8*	
			235	236	1.0	39	1.5	
Silver Mantos	**CGA-244**		6	11	5.0	41		
			13	14	1.0	54		
			17	29	12.0	126	0.6	
			31	33	2.0	209	2.4	0.8

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			34	43	9.0	244	0.5	
			45	55	10.0	160		
Silver Mantos	**CGA-245**		4	41	37.0	46		
Silver Mantos	**CGA-246**		5	6	1.0	48	0.6	
			8	21	13.0		0.5	
			22	24	2.0	177	0.5	
			29	55	26.0	95		
		includes	*47*	*51*	*4.0*	*246*		
			61	62	1.0		0.6	0.9
			62	83	21.0	116		1
		includes	*70*	*73*	*3.0*	*474*	*0.5*	*0.5*
			83	89	6.0			0.9
			89	92	3.0	37	0.5	2.3
			115	128	13.0			1
			181	200	19.0	68	0.5	
			210	212	2.0	50		
Silver Mantos	**CGA-247**		5	44	39.0	147	0.5	
		includes	*26*	*32*	*6.0*	*444*		
			48	50	2.0	36		
			70	92	22.0	220	0.9	
			98	100	2.0	36		
Silver Mantos	**CGA-248**		20	38	18.0	89		0.8
			50	51	1.0	27		0.5
			60	61	1.0	26		
Silver Mantos	**CGA-249**		11	32	21.0	203	1.6	1
		includes	*22*	*28*	*6.0*	*388*	*2.6*	*1.4*
			36	41	5.0	21		
			46	48	2.0			1
			48	50	2.0	58		4.1
			56	62	6.0	32		
Silver Mantos	**CGA-250**		13	40	27.0	102	0.5	0.5
		includes	*25*	*27*	*2.0*	*309*	*1.2*	*1.1*
			42	52	10.0	82	0.5	1.7
			57	58	1.0	26		
			65	66.5	1.5	22		
Silver Mantos	**CGA-251**		10	12	2.0	39		
			16	18	2.0	29		0.6
			20	37	17.0	125		0.8
			40	47	7.0	34	0.6	0.6

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
Silver Mantos	**CGA-252**		26	32	6.0	157	0.5	0.8
			46	60.5	14.5	37		0.7
Silver Mantos	**CGA-253**	no significant mineralization						
Silver Mantos	**CGA-254**		5	55	50.0	150	1.0	0.5
		includes	*30*	*33*	*3.0*	*700*	*3.4*	*1.8*
			61	76	15.0	46		
Silver Mantos	**CGA-255**		7	9	2.0		0.6	
			9	21	12.0	65	1.2	
			27	47	20.0	245	0.5	0.5
		includes	*42*	*44*	*2.0*	*853*		*0.6*
			49	53	4.0	35		
			55	57	2.0	42		
			60	73	13.0	210	0.7	0.8
		includes	*65*	*67*	*2.0*	*895*	*2.2*	
			73	74	1.0			1.1
			75	82	7.0	48		
			82	84	2.0			0.7
			84	88	4.0	22	0.6	2.4
			88	91	3.0			1.2
			91	108	17.0	22	0.5	1.3
			108	116	8.0			0.8
Silver Mantos	**CGA-256**		50	54	4.0	85		
			136	138	2.0	22	1.0	
Silver Mantos	**CGA-257**		17	31	14.0	240	1.3	1.1
			32	34	2.0	43		
			35	40	5.0	69	0.6	1.2
			43	70	27.0	73		0.5
Silver Mantos	**CGA-258**		10	40	30.0	36		
			86	92	6.0			1.4
			92	96	4.0		0.6	2.8
			96	103	7.0	47	1.1	2.4
			104	105	1.0		0.6	2
			105	106	1.0	33	0.6	1.8
			106	108	2.0		0.6	2.3
Mantos Basement	**CGA-258**		110	171	61.0	151	2	1.3
		includes	*115*	*116*	*1.0*	*675*	*4.4*	*3.4*
		includes	*157*	*160*	*3.0*	*403*	*3.7*	*1.2*
		includes	*166*	*168*	*2.0*	*640*	*8.6*	
			173	174	1.0	51	0.5	0.5
			174	176	2.0		0.5	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			177	197	20.0	110	1.2	
			199	207	8.0	97	1.5	
Silver Mantos	**CGA-259**		54	60	6.0		0.8	
			81	82	1.0	154	1.8	15.3
			82	94	12.0			1.1
Mantos Basement	**CGA-259**		101	129	28.0	144	1.8	0.7
		includes	*125*	*127*	*2.0*	*740*	*2.9*	*2.4*
			131	136	5.0	37		0.6
			139	141	2.0	36		
			142	143	1.0	102		
			145	183	38.0	186	1.1	0.5
		includes	*146*	*151*	*5.0*	*347*	*0.8*	*0.6*
		includes	*163*	*165*	*2.0*	*420*	*5.5*	*0.7*
			184	185	1.0	31	1.1	
			188	189	1.0	69		
			191	192	1.0	33	0.5	
			194	196	2.0	25	0.8	
			202	206	4.0	37	0.7	
			215	216	1.0	36	0.7	
Socavon del Diablo	**CGA-260W**		2	6	4.0			0.8
			20	30.5	10.5			4.3
Silver Mantos	**CGA-261**		8	9	1.0	30		
			19	33	14.0	36		
			52	57	5.0			1.1
			62	66	4.0	185	0.7	
			66	71	5.0			0.6
Mantos Basement	**CGA-261**		83	102	19.0	73	1.6	0.5
			103	115	12.0	207	4.4	0.5
		includes	*108*	*111*	*3.0*	*566*	*10.6*	*0.8*
			118	132	14.0	86	0.6	0.5
			146	149	3.0	57	0.5	
			150	153	3.0	44		
			158	159	1.0	190	1.9	
			162	171	9.0	85	1.4	
Socavon del Diablo	**CGA-262W**	no samples - drilled with tricone						
Socavon Basement	**CGA-263W**	no significant mineralization in hole for water monitoring						
Mantos Basement	**CGA-264**	no significant mineralization						
Silver Mantos	**CGA-265**		22	29	7	52	0.5	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			30	33	3		0.8	
			33	38	5	35	1.4	
			49	51	2	25	0.9	
			54	56	2	32		0.5
			58	61	3	145	1.4	0.6
			63	64	1	35		
Mantos Basement	**CGA-265**		67	75	8	130		
		includes	68	71	3	296		0.8
			94	108	14	41		
Mantos Basement	**CGA-266W**		14	18	4	25		
Socavon Basement	**CGA-267**		8	9	1	37	0.6	
			13	17	4	97	2.3	1.4
			23	24	1	43		
			50	52	2		0.8	1.7
			55	56	1	23		
			60	62	2	48	0.9	0.9
			66	67	1	31	0.8	0.5
			79.05	81	1.95	44		0.8
			82	83	1	23		
			87	88	1	65		
Mantos Basement	**CGA-268W**	no significant mineralization in hole for water monitoring						
South Chinchilla	**CGA-269W**	no significant mineralization in hole for water monitoring						
Silver Mantos	**CGA-270**		13	38	25	75	1	
			45	50	5			1
			50	53	3	34		1
			53	57	4			0.6
			59	65.8	6.8	184	1.5	1.8
			65.8	67.3	1.5	no recovery		
			67.3	70	2.7	147		
			73.4	74	0.6	81	0.6	0.6
Mantos Basement	**CGA-271W**	no significant mineralization in hole for water monitoring						
South Chinchilla	**CGA-272W**		32	41	9	30	0.6	
			42	43	1	271	2.7	1.7
			44	47	3			0.6
			47	62	15	69	1.1	1.9
		includes	*47*	*48*	*1*	*121*	*2.6*	*1.3*
		includes	*48*	*53*	*5*			*0.9*

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
		includes	*53*	*54*	*1*	*188*	*3*	*1.8*
		includes	*54*	*59*	*5*	*32*	*0.5*	*1.9*
		includes	*59*	*62*	*3*	*165*	*2*	*3.6*
Silver Mantos	**CGA-273**		22	24	2	83	0.9	3.3
			24	26	2			1.4
			26	30	4	59		3.4
			32	43	11	46	0.5	1.1
			43	45	2	184	1.8	
			45	48	3	34	0.7	
			50	55	5			1.2
			62	63	1	29	0.5	1.3
			68	70	2			0.8
			70	71	1	23		
Silver Mantos	**CGA-274**		3	5	2	45		
			7	11	4	46	0.5	
			11	16	5	157	2.6	
			16	19	3	34		
			24	30	6	44		
Silver Mantos	**CGA-275**		7	14	7	70	1	
			14	28	14	854		
		includes	*21*	*26*	*5*	*1611*		
			28	36	8	75		
			44	50	6	66		
			52	56	4	28		
			64	67	3	30	0.6	6.1
			67	70	3			1.5
			74	86	12	45	1	0.8
			86	94	8	316	0.6	
			98	101	3	209	0.7	
Silver Mantos	**CGA-276**		5	7	2	24	0.6	
			13	15	2	35	0.6	
			15	17	2			0.7
			17	18	1	21		
			23	30	7	104	1.4	1
			30	34	4			0.6
			34	43	9	68	0.8	1.4
			43	45	2			0.7
Silver Mantos	**CGA-277**		3	15	12	89	0.6	
			17	43	26	125	1.3	0.7
		includes	*26*	*30*	*4*	*290*	*1.1*	*1*

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
		includes	*40*	*41*	*1*	*606*	*6.4*	
			45	46	1	33		
			49	58	9	485	1.9	0.7
		includes	*51*	*53*	*2*	*1507*	*5.2*	*1.1*
			60	62	2	51		
			69	71	2	67		
			74	75	1	27		
			85	87	2	70		
Silver Mantos	**CGA-278**		5	46	41	106	0.8	0.5
		includes	*30*	*33*	*3*	*316*	*2.8*	
			53	61	8	353	0.5	0.7
		includes	*57*	*59*	*2*	*787*		
Silver Mantos	**CGA-279**		17	18	1	38		
			20	21	1			0.8
			23	26	3	82	0.8	1
			28	42	14	59		1
			44	49	5	37		
			100	101	1			0.8
Mantos Basement	**CGA-279**		126	132	6	170	3.1	2.1
			135	136	1	22		
			158	159	1	22		
			167	171	4	25		
			175	176	1	61	1	1.3
			187	202	15	80	1.6	
			204	213	9	122	1.3	
Silver Mantos	**CGA-280**		17	18	1	31	1.2	
			41	43	2	31	0.5	
			44	51	7	66	1.2	
			55	58	3	43	0.6	
			59	67	8	77	1.4	
			90	98	8	125	0.5	
		includes	*93*	*95*	*2*	*339*	*1*	*0.6*
			106	108	2	102		
			156	164	8	35		
			168	170	2	21		
Mantos Basement	**CGA-280**		170	172	2	420	1.1	1.7
			173	176	3	25	0.6	
			179	180	1	30	0.9	
			183	184	1	22	0.7	
			186	191	5	46		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			194	201	7	235	0.7	0.7
			202	213	11	75	0.9	
			218	219	1	611	5	
			220	222	2	49	1.4	
			223	238	15	57	0.6	
Silver Mantos	**CGA-281**		40	45	5	248		
		includes	*42*	*44*	*2*	*571*		
			65	75	10	76		
			83	91	8			0.9
			95	99	4	162		
Silver Mantos	**CGA-282**		6	9	3			1.0
			9	10	1	24		1.0
			48	49	1	106	2.0	
			50	62	12	73	1.3	
			66	68	2	26	0.7	0.8
Silver Mantos	**CGA-283**		47	48	1	41		
			50	52	2	135	2.1	
			56	61	5	89		
			66	68	2	52		
Silver Mantos	**CGA-284**		4	8	4	28		
			18	28	10	47		
			31	36	5	83		
			36	41	5			0.7
			58	60	2			3.2
Silver Mantos	**CGA-285**		3	9	6	108		
			12	14	2	226		
			18	19	1	21		
			20	21	1	164		
			27	29	2	299	1.5	
			30	33	3	37	1.4	
Silver Mantos	**CGA-286**		28	31	3	44		0.5
			43	44	1	34	1.0	0.9
			66	67	1	20	0.5	1.6
Silver Mantos	**CGA-287**		42	51	9	54	0.9	
Mantos Basement	**CGA-287**		*113*	*155*	*42*	*219*	*2.2*	
		includes	*115*	*132*	*17*	*442*	*4.8*	
			159	169	10	83	0.6	
			173	176	3	46		
			183	184	1	31		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			190	191	1	40	1.2	
Mantos Basement	**CGA-288**		102	107	5	36		
			109	*119*	*10*	*162*	*1.6*	
		includes	*111*	*115*	*4*	*320*	*2.7*	
			122	*144*	*22*	*287*	*1.8*	
		includes	*125*	*129*	*4*	*731*	*2.4*	
			146	150	4	41	0.7	
			153	154	1	35	0.8	
			159	160	1	86	2.0	
			163	164	1	62	1.2	1.1
			175	179	4	54	0.9	
South Chinchilla	**CGA-289**		*48*	*95*	*47*	*51*	*0.7*	*1.2*
		includes	*50*	*51*	*1*	*399*	*2.5*	*0.8*
		includes	*84*	*86*	*2*	*104*	*1.6*	*2.0*
			95	102	7			0.5
			102	109	7	42		1.6
			111	113	2			0.6
			114	118	4	47	0.7	1.0
			121	122	1	41	0.7	
			127	*135*	*8*	*87*	*0.9*	*1.4*
		includes	*131*	*132*	*1*	*459*	*3.5*	*2.6*
			147	150	3			0.5
			160	161	1	22		0.5
			192	193	1	21		
			193	194	1			0.9
			196	198	2	22		
Silver Mantos	**CGA-290**		108	117	9	118		
			121	123	2	48		
			133	145	12	51	1.1	
			153	155	2	26		
South Chinchilla	**CGA-291**		45	53	8			0.9
			53	59	6	39		0.6
			64	78	14	51		0.5
			80	*122*	*42*	*44*		*0.8*
		includes	*112*	*113*	*1*	*129*	*1.5*	*1.9*
		includes	*117*	*122*	*5*	*47*	*0.7*	*1.7*
			131	132	1	30	0.6	1.1
			133	134	1	204	3.1	0.9
			137	138	1	60	1.2	1.1
			143	144	1	21	0.6	

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			148	150	2			0.6
			150	151	1	30	0.6	
			157	168	11	28	0.6	1.5
			174	182	8	30	0.5	2.3
			183	184	1	21		
			186	187	1	29	0.6	
Silver Mantos	**CGA-292**		76	80	4	30		
			92	94	2	27		
			120	121	1	94	1.8	
Mantos Basement	**CGA-292**		127	128	1	40		
			130	138	8	383	2.4	0.9
			144	*155*	*11*	*192*	*1.1*	
		includes	*148*	*149*	*1*	*787*	*2.1*	*0.9*
			156.85	162	5.15	70	0.8	
			165	*188*	*23*	*108*	*0.7*	
		includes	*175*	*176*	*1*	*771*	*4.8*	*0.9*
			192	193	1	27		
Silver Mantos	**CGA-293**		72	74	2	27		
			114	116	2			2.5
			119	124	5	79	1.8	
Mantos Basement	**CGA-293**		131	133	2	82	1.6	
			135	*155*	*20*	*169*	*2.7*	
		includes	*138*	*139*	*1*	*1393*	*7.7*	
			158	161	3	86	1.3	
			165	173	8	39		
			175	186	11	107	0.5	
			189	190	1	39		
			190	191	1	1538	1.5	
			193	196	3	91	0.7	
			207	209	2	73	1.6	
Silver Mantos	**CGA-294**		81	96	15	168	1.5	
Mantos Basement	**CGA-294**		98	103	5	25		
			105	107	2	49		
			110	111	1	22		
			113	139	26	125	1.4	
			156	172	16	132	1.5	
			183	188	5	24		
			198	203	5	25		
Silver Mantos	**CGA-295**		9	15	6	45		

TARGET	HOLE	NOTE	From (metres)	To (metres)	Length (metres)	Ag (g/t)	Pb (%)	Zn (%)
			21	23	2	28	0.6	1.2
			41	43	2		0.6	1.3
			45	50	5	59	1.2	1.8
			51	*86*	*35*	*182*	*1.3*	*0.6*
		includes	*71*	*73*	*2*	*363*	*2.1*	*1.7*
		includes	*76*	*80*	*4*	*456*	*3.3*	*1.4*
Mantos Basement	**CGA-295**		115	128	*13*	*115*	*0.6*	
			131	*149*	*18*	*376*	*1.5*	
		includes	*141*	*144*	*3*	*987*	*4.5*	
			159	160	*1*	*26*		
Silver Mantos	**CGA-296**		13	15	2	26		
			25	29	4	51		
			33	35	2	85		
			53	55	2			0.8
			70	72	2			0.8
			75	76	1	29	0.5	1.5
			78	84	6	27	1.2	3.6
			85	86	1			0.9
			87	95	8	47	1.6	3.4
Silver Mantos	**CGA-297**		34	40	6	30		

Table AII-2: Chinchillas Drill Hole locations and orientation

All drill hole collar coordinates were surveyed in the Gauss Kruger projection. Posgar Zone 3 coordinate system (WGS84 datum).

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	END OF HOLE
	EAST	NORTH				
CGA-17	3472806.47	7512406.84	4116.45	23	-80	84.25
CGA-18	3472839.73	7512322.11	4110.40	23	-55	88.7
CGA-19	3472906.49	7512350.85	4102.31	33	-55	150
CGA-20	3472749.78	7512524.92	4116.31	83	-55	179.05
CGA-21	3473561.07	7512171.69	4081.34	137	-75	131.5
CGA-22	3473664.96	7512208.50	4074.70	277	-55	83
CGA-23	3473624.81	7512217.48	4074.65	277	-55	80
CGA-24	3473599.93	7512041.92	4102.81	257	-55	191.3
CGA-25	3473548.19	7512269.83	4070.02	103	-55	114
CGA-26	3473641.27	7512133.24	4086.74	263	-60	123
CGA-27	3473598.74	7512124.39	4086.89	263	-60	111
CGA-28	3473888.12	7512234.29	4070.37	23	-60	183
CGA-29	3474033.35	7512186.20	4063.65	23	-65	201

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	END OF HOLE
	EAST	NORTH				
CGA-30	3473982.54	7512352.06	4058.52	23	-45	96
CGA-31	3473186.65	7512472.60	4078.74	203	-60	261
CGA-32	3472499.58	7512365.71	4130.31	243	-50	87
CGA-33	3472741.05	7512103.48	4147.40	223	-55	99
CGA-34	3472808.06	7512265.48	4118.81	0	-90	120
CGA-35	3472789.64	7512343.72	4119.49	0	-90	99
CGA-36	3472754.27	7512396.31	4120.98	0	-90	99
CGA-37	3472791.49	7512461.87	4116.73	0	-90	90
CGA-38	3472852.47	7512454.39	4109.07	0	-90	90
CGA-39	3472680.55	7512343.61	4128.85	0	-90	90
CGA-40	3472718.73	7512279.13	4130.33	0	-90	90
CGA-41	3472776.74	7512183.64	4133.19	0	-90	90
CGA-42	3473520.07	7512212.58	4078.10	0	-90	84
CGA-43	3473527.81	7512058.14	4095.24	0	-90	109.7
CGA-44	3472735.00	7512340.00	4124.70	0	-90	198.5
CGA-45	3472652.00	7512236.00	4139.31	0	-90	165
CGA-46	3472578.00	7512358.00	4132.33	0	-90	168
CGA-47	3472882.00	7512543.00	4106.47	83	-70	108.5
CGA-48	3472891.00	7512485.00	4106.58	0	-90	99
CGA-49	3472937.76	7512461.36	4096.73	0	-90	80
CGA-50	3472688.35	7512509.01	4119.53	0	-90	120
CGA-51	3473526.70	7512168.52	4082.57	0	-90	150
CGA-52	3473732.47	7512375.39	4065.83	243	-60	96
CGA-53	3473643.00	7512260.00	4067.71	0	-90	99
CGA-54	3472829.00	7512494.00	4113.86	83	-75	150
CGA-55	3473580.11	7512298.57	4067.99	0	-90	132
CGA-56	3472616.00	7512355.00	4131.69	83	-70	198
CGA-57	3473855.50	7512399.03	4070.20	203	-50	90
CGA-58	3473323.96	7512468.63	4084.25	283	-70	141
CGA-59	3473457.16	7512483.52	4098.34	313	-65	102
CGA-60	3472660.24	7512288.35	4133.52	263	-75	177
CGA-61	3473287.13	7512070.25	4111.65	103	-50	141.5
CGA-62	3473069.91	7512631.71	4098.99	313	-70	214.5
CGA-63	3473168.56	7512137.62	4113.40	103	-50	156
CGA-64	3473035.32	7512158.48	4118.76	103	-50	141
CGA-65	3472653.06	7512178.71	4144.75	283	-75	145.5
CGA-66	3473500.87	7512114.46	4089.18	257	-75	192
CGA-67	3473473.88	7512157.69	4083.72	263	-75	81
CGA-68	3473631.42	7512168.39	4081.20	0	-90	222
CGA-69	3472707.37	7512455.00	4121.26	0	-90	111

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	END OF HOLE
	EAST	NORTH				
CGA-70	3472920.30	7512410.15	4096.92	0	-90	99
CGA-71	3473844.04	7512265.13	4066.96	17	-65	165
CGA-72	3472917.58	7512572.93	4087.63	0	-90	120
CGA-73	3472633.88	7512405.76	4127.57	0	-90	157.75
CGA-74	3472615.32	7512476.14	4123.43	0	-90	102
CGA-75	3473493.00	7512447.60	4090.20	327	-65	162
CGA-76	3472529.04	7512238.68	4143.40	257	-80	141
CGA-77	3472596.99	7512294.82	4137.24	0	-90	205.5
CGA-78	3472410.32	7512111.86	4169.45	0	-90	99
CGA-79	3472510.87	7512176.30	4151.41	287	-65	120
CGA-80	3472689.79	7512400.01	4125.04	0	-90	231
CGA-81	3472782.59	7512049.40	4144.55	237	-55	100.5
CGA-82	3472699.64	7512130.36	4146.93	217	-55	103.5
CGA-83	3472488.63	7512522.05	4125.81	257	-65	37
CGA-84	3472732.33	7512214.89	4130.44	287	-65	231
CGA-85	3473979.13	7512227.56	4065.16	23	-60	234.75
CGA-86	3472588.85	7512188.08	4148.85	287	-65	204
CGA-87	3472451.50	7512158.29	4157.92	287	-65	150
CGA-88	3472594.65	7512236.57	4142.25	287	-65	186
CGA-89	3472528.79	7512301.30	4135.74	61	-79	198
CGA-90	3472573.53	7512409.78	4127.80	267	-78	201
CGA-91	3472867.01	7512243.89	4117.97	0	-90	150
CGA-92	3473530.91	7512168.49	4082.90	0	-90	201
CGA-93	3472583.98	7512438.08	4126.10	0	-90	251
CGA-94	3472516.63	7512418.67	4126.62	280	-80	200.5
CGA-95	3472767.47	7512303.30	4123.27	0	-90	250
CGA-96	3472802.55	7512223.77	4125.00	0	-90	194.3
CGA-97	3473519.75	7512301.02	4070.14	0	-90	143.5
CGA-98	3473791.58	7512267.38	4067.47	10	-60	221
CGA-99	3473565.92	7512437.89	4091.04	340	-75	121.5
CGA-100	3472483.27	7512300.25	4135.62	100	-78	222
CGA-101	3472450.11	7512522.19	4141.38	270	-55	200
CGA-102	3472490.89	7512258.64	4139.22	270	-75	152
CGA-103	3472414.57	7512170.34	4158.98	288	-65	140
CGA-104	3473016.15	7512835.15	4136.15	20	-70	211.1
CGA-105	3473179.08	7512741.96	4131.79	20	-80	215
CGA-106	3472744.44	7512996.79	4167.51	300	-65	200
CGA-107	3473418.42	7512542.79	4115.10	0	-90	299
CGA-108	3472643.67	7512454.65	4123.65	0	-90	281
CGA-109	3472629.06	7512532.78	4117.05	0	-90	284

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	END OF HOLE
	EAST	NORTH				
CGA-110	3473790.49	7511799.04	4114.01	300	-55	302
CGA-111	3473553.11	7511210.01	4168.05	0	-90	358.5
CGA-112	3473370.56	7510854.46	4215.58	150	-60	75
CGA-112B	3473370.00	7510854.00	4215.58	150	-60	351
CGA-113	3473041.53	7511607.47	4240.20	210	-55	381
CGA-114	3473199.64	7511641.50	4208.14	0	-60	247
CGA-115	3473394.91	7512665.34	4135.69	0	-90	320
CGA-116	3473127.37	7512624.28	4102.43	20	-70	320
CGA-117	3473028.34	7512683.07	4106.74	314	-70	150
CGA-118	3472898.96	7512684.16	4096.86	0	-90	80
CGA-119	3472961.85	7512614.11	4090.87	0	-90	191
CGA-120	3472847.19	7512607.88	4093.23	0	-90	149
CGA-121	3472558.72	7512513.88	4114.85	0	-90	221
CGA-122	3472522.99	7512466.55	4119.74	0	-90	251
CGA-123	3473178.10	7511590.41	4208.10	180	-55	362
CGA-124	3473324.22	7511599.11	4171.63	180	-55	380
CGA-125	3473384.60	7512469.93	4088.77	25	-80	281
CGA-126	3472793.39	7512211.36	4128.52	210	-80	302
CGA-127	3472555.81	7512600.51	4110.51	0	-90	217.2
CGA-128	3473701.17	7511178.24	4170.11	0	-60	218
CGA-129	3472532.82	7512657.76	4115.49	0	-90	242
CGA-130	3473646.59	7512343.87	4067.16	0	-90	112.5
CGA-131	3473817.33	7512396.29	4067.54	200	-60	121.2
CGA-132	3472638.76	7512655.64	4105.01	0	-90	211.5
CGA-133	3472604.86	7512604.55	4107.20	0	-90	250.5
CGA-134	3472501.93	7512606.14	4121.63	150	-90	202.5
CGA-135	3472511.18	7512557.25	4118.97	180	-90	298.5
CGA-136	3472532.35	7512717.81	4119.99	0	-90	205.5
CGA-137	3472536.90	7512778.21	4135.01	0	-90	199.5
CGA-138	3472482.18	7512659.45	4130.23	0	-90	199.5
CGA-139	3472473.68	7512467.84	4125.68	0	-90	214.5
CGA-140	3472459.41	7512411.72	4137.55	0	-90	193.5
CGA-141	3472488.21	7512298.28	4134.14	280	-60	130.5
CGA-142	3472348.89	7512102.57	4174.73	280	-60	82.5
CGA-143	3472761.98	7512257.60	4121.10	0	-90	301.5
CGA-144	3473546.88	7511949.34	4117.05	130	-75	251
CGA-145	3473754.09	7512413.61	4075.30	310	-50	140
CGA-146	3473316.72	7512496.80	4090.71	45	-50	219.8
CGA-147	3472999.93	7512587.08	4088.23	0	-90	130
CGA-148	3472898.70	7512202.02	4117.96	180	-70	296

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	END OF HOLE
	EAST	NORTH				
CGA-149	3472807.94	7512297.35	4111.80	0	-90	539
CGA-150	3472961.09	7512544.40	4083.48	0	-90	91.5
CGA-151	3472893.32	7512294.19	4108.92	0	-90	241.5
CGA-152	3472850.03	7512179.77	4126.92	0	-90	300
CGA-153	3472710.03	7512250.02	4129.43	0	-90	247
CGA-154	3472649.84	7512604.24	4108.08	0	-90	200
CGA-155	3472615.07	7512753.12	4118.93	0	-90	230
CGA-156	3473700.83	7512249.67	4069.66	0	-90	170
CGA-157	3473756.10	7512408.59	4074.90	212	-70	233
CGA-158	3473208.17	7512818.53	4149.08	20	-65	122
CGA-159	3473630.41	7512091.49	4095.08	0	-90	202
CGA-160	3473790.20	7512267.97	4067.64	225	-80	478
CGA-161	3473255.54	7512601.20	4108.73	25	-60	197
CGA-162	3473690.25	7512581.31	4169.04	190	-59	101
CGA-163	3473689.55	7512580.56	4168.96	112	-55	97
CGA-164	3473690.24	7512580.58	4168.98	25	-55	91.5
CGA-165	3473636.96	7512545.91	4149.66	9	-53	58.5
CGA-166	3473832.44	7512223.59	4075.59	0	-90	317
CGA-167	3473773.30	7512390.33	4067.78	0	-90	197
CGA-168	3473450.96	7512053.08	4097.51	0	-90	158
CGA-169	3473419.16	7512541.90	4117.11	20	-55	163.5
CGA-170	3473920.28	7512102.02	4093.67	140	-50	400
CGA-171	3472748.44	7512600.96	4111.02	270	-75	11
CGA-171B	3472749.76	7512601.91	4111.04	270	-75	225
CGA-172	3473971.75	7512116.10	4083.32	136	-50	232
CGA-173	3473676.08	7512351.02	4066.81	0	-65	107
CGA-174	3472512.45	7512138.60	4159.42	287	-65	28.5
CGA-174B	3472518.01	7512136.96	4158.84	287	-65	133
CGA-175	3472900.33	7512202.05	4117.84	0	-90	56
CGA-176	3472834.63	7512252.84	4118.54	0	-90	271
CGA-177	3472352.50	7512181.33	4176.59	315	-70	134
CGA-178	3473697.15	7512105.13	4098.88	0	-90	121
CGA-179	3473630.00	7512093.75	4094.98	43	-60	400
CGA-180	3473669.13	7512394.51	4069.42	0	-60	202
CGA-181	3473862.19	7512153.19	4089.72	270	-70	499
CGA-182	3473614.98	7512425.93	4088.01	163	-65	160
CGA-183	3472506.68	7512326.58	4129.64	0	-90	173
CGA-184	3472566.95	7512471.20	4114.10	0	-90	221
CGA-185	3472518.69	7512503.86	4118.41	0	-90	209
CGA-186	3472567.88	7512569.04	4109.65	0	-90	179.2

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	END OF HOLE
	EAST	NORTH				
CGA-187	3472577.97	7512656.43	4108.12	0	-90	178.8
CGA-188	3472580.79	7512700.66	4110.14	0	-90	200
CGA-189	3472856.58	7512568.58	4095.40	0	-90	101
CGA-190	3472896.99	7512642.12	4091.41	0	-90	122
CGA-191G	3472656.57	7512177.17	4143.32	180	-65	201
CGA-192	3472628.29	7512704.83	4106.21	0	-90	267
CGA-193	3472796.40	7512575.66	4107.31	0	-90	209
CGA-194G	3472650.61	7512238.50	4140.69	90	-65	271
CGA-195	3472702.52	7512563.29	4114.73	0	-90	200
CGA-196	3472749.97	7512470.09	4118.26	0	-90	101
CGA-197	3472670.72	7512431.92	4124.19	0	-90	302
CGA-198G	3472620.48	7512475.81	4122.94	90	-65	243
CGA-199	3472821.18	7512471.27	4113.71	0	-90	101
CGA-200	3472804.39	7512369.52	4116.70	0	-90	122
CGA-201G	3472486.87	7512526.31	4125.45	315	-65	210
CGA-202	3472746.47	7512372.16	4121.86	0	-90	146
CGA-203	3472691.63	7512373.48	4126.51	0	-90	227
CGA-204	3472583.53	7512384.69	4130.26	0	-90	221
CGA-205	3472537.14	7512355.72	4129.97	0	-90	200.5
CGA-206	3472594.42	7512331.79	4134.10	0	-90	206
CGA-207	3472564.06	7512295.68	4138.03	0	-90	200
CGA-208	3472606.35	7512270.44	4138.64	0	-90	221
CGA-209G	3472499.03	7512366.34	4130.04	270	-65	201
CGA-210	3472620.04	7512216.22	4143.80	0	-90	200
CGA-211	3472568.23	7512154.14	4154.49	0	-90	200
CGA-212	3472754.49	7512221.44	4130.87	0	-90	248
CGA-213	3472798.13	7512120.93	4137.44	0	-90	200.3
CGA-214	3472699.70	7512163.77	4142.79	0	-90	200
CGA-215	3472734.61	7512428.34	4120.79	0	-90	86
CGA-216	3472798.94	7512391.49	4117.13	0	-90	71
CGA-217	3472793.06	7512439.14	4116.17	0	-90	47
CGA-218	3472847.93	7512436.61	4108.58	0	-90	62
CGA-219	3472814.85	7512353.35	4112.84	0	-90	80
CGA-220	3472840.10	7512413.02	4110.86	0	-90	80
CGA-221	3472714.26	7512390.60	4125.30	0	-90	119
CGA-222	3472663.60	7512382.89	4128.38	0	-90	62
CGA-223	3472771.82	7512353.10	4122.09	0	-90	95
CGA-224	3472835.89	7512356.43	4111.08	0	-90	65
CGA-225	3472640.67	7512331.85	4133.32	0	-90	65
CGA-226	3472813.56	7512324.94	4115.83	0	-90	80

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	END OF HOLE
	EAST	NORTH				
CGA-227	3472703.97	7512319.53	4129.74	0	-90	50
CGA-228	3472768.22	7512326.30	4123.54	0	-90	80
CGA-229	3472689.96	7512283.72	4133.24	0	-90	83
CGA-230	3472753.89	7512278.84	4127.20	0	-90	62
CGA-231	3472671.53	7512412.56	4125.70	0	-90	100
CGA-232	3472700.83	7512426.19	4123.28	0	-90	86
CGA-233	3472759.79	7512442.34	4119.33	0	-90	62
CGA-234	3472758.64	7512421.22	4120.41	0	-90	80
CGA-235	3472781.17	7512399.93	4119.15	0	-90	80
CGA-236	3472818.74	7512441.34	4114.43	0	-90	47
CGA-237	3472874.36	7512438.85	4104.40	0	-90	62
CGA-238	3472775.51	7512401.77	4119.39	270	-70	122
CGA-239	3472793.43	7512496.18	4115.57	0	-90	50
CGA-240	3472812.07	7512487.57	4115.30	0	-90	62
CGA-241	3472828.93	7512453.48	4114.10	0	-90	50
CGA-242	3472858.63	7512487.20	4109.35	0	-90	62
CGA-243	3472628.84	7512374.98	4130.66	0	-90	54
CGA-244	3472664.13	7512361.93	4129.30	0	-90	72
CGA-245	3472828.39	7512393.07	4114.63	0	-90	62
CGA-246	3472688.96	7512401.60	4126.33	0	-90	212
CGA-247	3472779.41	7512379.23	4119.70	0	-90	101
CGA-248	3472669.00	7512320.03	4131.44	0	-90	66
CGA-249	3472732.97	7512310.92	4126.94	0	-90	62
CGA-250	3472786.28	7512287.21	4119.95	0	-90	68
CGA-251	3472637.64	7512313.16	4134.24	0	-90	65
CGA-252	3472689.77	7512263.92	4134.29	0	-90	62
CGA-253	3472754.71	7512582.92	4112.97	35	-50	100.5
CGA-254	3472707.77	7512341.80	4127.65	0	-90	80
CGA-255	3472726.54	7512372.45	4124.85	0	-90	131
CGA-256	3472736.05	7512563.82	4115.31	35	-50	145.5
CGA-257	3472717.80	7512278.52	4130.72	0	-90	110
CGA-258	3472611.27	7512373.76	4130.34	180	-50	220.5
CGA-259	3472584.71	7512437.75	4124.95	180	-50	224
CGA-260W	3473726.90	7512260.01	4068.24	0	-90	30.5
CGA-261	3472611.75	7512374.89	4130.29	270	-60	185
CGA-262W	3473726.71	7512253.09	4068.43	0	-90	10
CGA-263W	3474288.95	7512079.98	4042.06	0	-90	56.6
CGA-264	3472567.44	7512106.02	4162.68	0	-90	116
CGA-265	3472623.30	7512132.52	4154.70	0	-90	131
CGA-266W	3472748.11	7512996.25	4167.55	0	-90	62.4

HOLE ID	COORDINATES		ELEVATION	AZIMUTH	DIP	END OF HOLE
	EAST	NORTH				
CGA-267	3474149.06	7512107.25	4054.88	32	-50	227.2
CGA-268W	3471701.47	7511751.36	4291.03	0	-90	23.7
CGA-269W	3473789.99	7511802.82	4114.89	0	-90	61
CGA-270	3472828.85	7512307.83	4113.16	0	-90	101
CGA-271W	3471698.81	7511745.68	4290.97	0	-90	29
CGA-272W	3473372.82	7510858.60	4215.58	0	-90	62
CGA-273	3472868.20	7512309.72	4109.65	0	-90	80
CGA-274	3472896.09	7512374.44	4102.65	0	-90	80
CGA-275	3472839.17	7512371.49	4110.89	0	-90	101
CGA-276	3472855.65	7512341.96	4107.84	0	-90	62
CGA-277	3472703.71	7512356.96	4125.99	0	-90	101
CGA-278	3472737.25	7512353.26	4123.53	0	-90	101
CGA-279	3472673.58	7512326.48	4130.61	270	-80	224
CGA-280	3472668.62	7512475.68	4122.37	270	-75	251
CGA-281	3472883.07	7512455.57	4104.43	0	-90	119.5
CGA-282	3472825.57	7512522.35	4112.05	0	-90	71
CGA-283	3472888.13	7512510.78	4109.10	0	-90	80
CGA-284	3472853.13	7512515.63	4111.31	0	-90	74.5
CGA-285	3472773.13	7512558.80	4113.38	0	-90	71
CGA-286	3472819.64	7512604.80	4096.93	0	-90	83.5
CGA-287	3472598.63	7512578.74	4108.08	0	-90	209
CGA-288	3472536.13	7512575.18	4112.54	0	-90	211.6
CGA-289	3473398.50	7510913.21	4208.59	210	-60	200
CGA-290	3472645.00	7512655.03	4105.14	304	-70	200.5
CGA-291	3473418.84	7510950.48	4205.10	210	-60	193.6
CGA-292	3472599.93	7512524.77	4110.77	0	-90	206
CGA-293	3472619.53	7512501.29	4119.36	270	-70	212
CGA-294	3472580.91	7512424.87	4126.86	270	-71	221
CGA-295	3472571.32	7512377.18	4131.05	270	-60	167
CGA-296	3472650.00	7512200.00	4143.00	0	-90	150
CGA-297	3472487.28	7512502.61	4125.55	270	-75	191