MINE DEVELOPMENT ASSOCIATES

MINE ENGINEERING SERVICES

Technical Report and Preliminary Feasibility Study for the San Rafael Property, Sinaloa, Mexico

View of the San Rafael deposit area, looking north

Prepared for

AMERICAS SILVER CORPORATION

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1.0 SUMMARY

1.1 Introduction

Mine Development Associates ("MDA") has prepared this Technical Report on the San Rafael silver-copper-gold-lead-zinc deposit in the Cosalá mining district, Sinaloa, Mexico at the request of Americas Silver Corporation ("Americas"). The purpose of this report is to provide a technical summary in support of an updated mineral resource estimate and a new mineral reserve calculation and Preliminary Feasibility Study ("PFS") for the San Rafael deposit. MDA most recently reported estimated mineral resources for the San Rafael property in a report titled "*Technical Report and Preliminary Economic Assessment Nuestra Señora, San Rafael, and El Cajón Deposits Sinaloa, Mexico*" (Dyer et al., 2013).

The current report and associated resource and reserve estimates have been prepared in compliance with the disclosure and reporting requirements set forth in the Canadian Securities Administrators' National Instrument 43-101 ("NI 43-101"), Companion Policy 43-101CP, and Form 43-101F1, as well as with the Canadian Institute of Mining, Metallurgy and Petroleum's "CIM Definition Standards - For Mineral Resources and Reserves, Definitions and Guidelines" ("CIM Standards") adopted by the CIM Council on May 10, 2014.

Americas has historically addressed disclosure relating to the San Rafael deposit together with the Nuestra Señora and El Cajón deposits as all are within Americas land holdings in the Cosalá mining district. Recent work programs, however, have been focused on the San Rafael area. Americas does not view the El Cajón deposit as material at this time and, as such, references in this report to the El Cajón deposit are provided only for historical completeness. It is expected that the San Rafael project will operate independently of the Nuestra Señora mine and is not expected to share infrastructure with Nuestra Señora except as discussed herein. Although a separate and distinct project, the operations of the Nuestra Señora mine provide Americas with insight into processing and mining operations in the district that will be relevant in operating the San Rafael mine and as such certain references to the Nuestra Señora mine have been used in this report for that purpose.

The effective date of the San Rafael database on which the resources and reserves described in this Technical Report are estimated is July 4, 2015. The effective date of the San Rafael resource estimate is October 15, 2015. The effective date of the San Rafael mineral reserve estimate and the PFS is December 8, 2015. The effective date of this report is March 18, 2016.

The current PFS evaluates two of San Rafael's mineralized zones: the Main and the Upper. The Zone 120 is excluded from this economic evaluation. However, the Zone 120 is discussed in the resource

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section and in part presents upside potential which can be advanced with additional metallurgical and exploration work.

San Rafael is an underground project utilizing a cut-and-fill mining method with conventional flotation to produce two concentrates, lead and zinc, with silver by-product. Projected recoveries are 83.8% zinc, 76.3% lead and 47.6% silver. Approximate average annual production, over a 5.24-year life, is 800,000 ounces of silver, 41.1 million pounds of zinc, and 17.5 million pounds of lead. Cash cost is estimated to be $6.73 per silver equivalent ounce ("AgEq") and a total pre-tax cost of $9.88 per AgEq ounce. The all-in sustaining cost is -$0.19 per ounce of silver using zinc and lead revenues as credits. The PFS estimates an undiscounted pre-tax cash flow of US$37.1 million, an internal rate of return ("IRR") of 27%, and average pre-tax annual cash flow of $9.8 million (excluding pre-production).

The economic analysis utilizes metal prices of $16.00 per ounce silver, $0.85 per pound zinc, and $0.85 per pound lead. Metal price sensitivity was determined utilizing near spot values of $15.00 per ounce silver, $0.80 per pound zinc, and $0.80 per pound lead. An exchange rate of 17.0:1 (MXP:USD) is used in the analysis. Total estimated life of mine ("LOM") capital is $59.1 million including 10% contingency for development and initial equipment capital.

San Rafael is scheduled to meet the expanded mill capacity in 15 months from the start of construction. Initially ore production will be stockpiled; the stockpile will then supplement mill feed when the mine reaches commercial production of 1,000 tonnes per day. Mine ramp up will continue until it can sustain 1,800 tonnes per day at which point the stockpile will be exhausted.

1.2 Location and Ownership

The Cosalá mining district is located in the east-central portion of the state of Sinaloa, Mexico. The town of Cosalá is about 240km by road north of Mazatlán. San Rafael is located about 12km north-northeast of the town of Cosalá. The district is accessible from the town of Cosalá via rural paved and dirt roads. All primary access roads can accommodate standard highway vehicles.

Americas' property in the Cosalá mining district, on which the San Rafael deposit is located, consists of 73 mineral concessions that cover approximately 24,657ha. The concessions occur in two non-contiguous blocks, and within both blocks are a number of areas of land that Americas does not control. One such concession not controlled by Americas lies immediately adjacent to the southwest boundary of the San Rafael deposit. Other deposits within the Americas property are El Cajón, which adjoins San Rafael to the southwest, and Nuestra Señora, an active mine located approximately 12km to the southeast of San Rafael.

Americas owns the concessions through its wholly owned subsidiaries, Minera Cosalá, S.A. de C.V. ("Minera Cosalá) and Minera Platte River Gold, S. de R.L. de C.V. Although five of the 73 concessions are subject to a 1.25% net smelter return royalty, the San Rafael resources do not extend onto any of these five concessions.

1.3 History and Exploration

The Cosalá mining district, where polymetallic mineralization occurs as primarily skarn-related deposits, was discovered and locally worked by the Spanish approximately 400 years ago. At the turn of the 19th century, French engineers reportedly developed and worked the Nuestra Señora mine with a 10-

stamp mill that produced 800 to 1,000kg of silver per month. In 1949, Asarco Mexicana ("Asarco") purchased the Nuestra Señora mine and also mined material from the La Estrella mine, located one kilometer north of San Rafael. In addition, Asarco did some work at El Cajón, sending the material to the mill at La Estrella. In or about February 1965, Asarco ceased production and subsequently removed all of the mining equipment. Asarco let its concessions at Nuestra Señora lapse in 1980.

Since 1965, several small Mexican mining operators have worked the mines in the vicinity of San Rafael and El Cajón. Modern exploration was started by Industrias Peñoles, S.A. de C.V. ("Peñoles") in the late 1970s into the 1980s and again in 1999. In 1995, Minas de Oro Hemlo, S.A. de C.V. ("Hemlo") conducted mapping, sampling, and road building, and drilled 15 reverse circulation ("RC") holes primarily within the San Rafael area exploring for precious metals. In early 2000, Noranda Exploraciones Mexico, S.A. de C.V. ("Noranda") completed three IP-resistivity lines over the San Rafael zone in the area of the previous Hemlo drilling. Noranda drilled seven core holes at San Rafael totaling 1,348m in 2001.

Platte River Gold Inc. ("PRG") became interested in the San Rafael-El Cajón-La Verde area in early 2004. On June 1, 2004, PRG, through their Mexican subsidiary, signed a four-year option agreement for 100% of the exploration and mining concessions along with all of the infrastructure and mining equipment used at the La Verde mine and project area, excluding the mill in Cosalá. PRG made the final payment and acquired the property in July 2008. During their tenure, PRG conducted induced polarization ("IP"), resistivity, and ground magnetic surveying; geological mapping; chip-channel sampling of outcrops and road cuts; and the drilling of 371 holes. They tested 15 different targets, but the focus of their work was on San Rafael and El Cajón.

Scorpio acquired PRG in 2010, thereby adding the San Rafael and El Cajón projects to their previously acquired Nuestra Señora project. On March 16, 2011, Scorpio acquired five mineral concessions from Grupo Industrial Minera Mexico S.A. de C.V. in the Cosalá district immediately adjacent to its existing concessions. From 2010 through July 20, 2012, Scorpio's exploration in the San Rafael and El Cajón area has consisted of mapping and the drilling of 282 core holes totaling 35,296m. The focus of the work was on the San Rafael and El Cajón deposits. Scorpio also drilled four other targets including surface and underground drilling at the historic La Verde mine area. In 2010, Quantec Geoscience Ltd. completed a 48-line-kilometer Titan-24 DC/IP geophysical survey centered over the San Rafael area; results of subsequent drilling to test some of the anomalies were not encouraging.

In May, 2015 Scorpio changed its name to Americas Silver Corporation and has proceeded with the advancement of the San Rafael property.

1.4 Geology and Mineralization

The Cosalá mining district lies along the western edge of the Sierra Madre Occidental, an extensive Tertiary volcanic province covering approximately 800,000km^2. Mineralization within the Cosalá mining district is related to granodioritic or granitic intrusions emplaced between 140 and 45 million years ago into Cretaceous sedimentary rocks that overlie older basement terranes.

The property lies within a sub-circular inlier of 33Cretaceous limestone approximately 10km in diameter situated in the eastern part of the 139 to 45 Ma-old Sinaloa Batholith. Contact metamorphism of the limestones created re-crystallized limestone, marble, and skarn. Initial skarn development in the area was contemporaneous with emplacement of the batholith; however, there were several pulses of magmatic and hydrothermal activity. Carbonate replacement-style mantos, veins, chimneys, chimney breccias, and mineralized exoskarn and endoskarn occur within limestone and felsic and lesser mafic intrusions. Pyrite, sphalerite, chalcopyrite, galena, and lesser tetrahedrite are the principal minerals.

In the San Rafael-El Cajón area, Cretaceous limestone, commonly recrystallized and marbleized but only locally skarn-altered, is exposed within windows in Tertiary volcanic rocks. Massive sulfide Main Zone mineralization at San Rafael occurs primarily along the contact of dacite tuff with Cretaceous limestone, with additional mineralization within the dacite in the Upper Zone and within skarn-altered limestone in the Zone 120. The protolith at El Cajón is altered limestone, thought to be of Cretaceous age. San Rafael contains silver, lead, and zinc mineralization with minor gold and copper. The main minerals are pyrite, pyrrhotite, sphalerite, and galena with minor marcasite, chalcopyrite, and magnetite. The El Cajón-type of mineralization, also seen within the San Rafael deposit's Zone 120, is related to skarn alteration of calcareous sediments and occurs as both mantos and chimneys. It consists of silver-copper-gold mineralization in the form of chalcopyrite and tetrahedrite with minor pyrite, galena, sphalerite, arsenopyrite, chalcocite, jalpaite, native silver, copper, and bismuth.

1.5 Metallurgical Testing

Metallurgical testing of material from San Rafael was conducted in seven main phases over a period of roughly ten years (2005 – 2015) on a variety of composites. Both bench-top and locked-cycle flotation testing conducted on the San Rafael Main Zone sulfide mineralization has shown this material can be successfully processed using a sequential flotation process to produce separate lead-silver and zinc concentrate products. Lead head grades ranged from 1.22% to 2.09% while zinc head grades ranged from 2.99% to 4.27%.

The test work confirmed a conventional process approach would serve adequately with crushing and grinding followed by lead rougher floatation, in turn followed by zinc flotation. It was confirmed that a primary grind a P_{80} of 100 to 110μm would be suitable for commercial operation and data was obtained on reagent dosage.

Given the above particle size target, the anticipated lead and zinc recoveries are expected to exceed 75% and 83%, respectively, with total silver recovery approximately 45% to 50%.

1.6 San Rafael Mineral Resource Estimates

The San Rafael resources reported here are based on Americas' database as of July 4, 2015. The effective date of the San Rafael resource estimate is October 15, 2015. The San Rafael resource estimate is based on analytical measurements and geology from 327 drill holes and 14 surface trenches.

Upon completion of the database validation process, MDA modified the 2012 geologic cross-sections, which are evenly spaced on 25m intervals looking northwest at 330°. Individual sets of sections with unique mineral domains were created for zinc, lead, silver, copper, gold, and percent sulfide. The mineral domains represent distinct styles of mineralization with unique statistical characteristics. The cross-sectional domains were sliced to long section on 3m intervals to coincide with the center of each row of blocks in the model. After reinterpretation, the long-section domains were used to code the block model to percent of block in each mineral domain.

The cross-sectional mineral domains for the five metals were used to code the samples. Quantile plots were made to assess validity of these domains and to determine capping levels; MDA capped 26 samples (three zinc, six lead, eight silver, eight gold, and one copper). Compositing was done to 2m down-hole lengths, matching the model block size, honoring all material-type and mineral-domain boundaries. The sulfide domains were used by MDA to assign density values, ranging from 2.55g/cm^3 to 3.88g/cm^3, to the blocks.

The reported estimates were made using inverse distance to the third power; ordinary kriging and nearest neighbor estimates were used for comparison and validation. MDA classified the San Rafael resources by a combination of distance to the nearest sample and the number of samples, while at the same time taking into account reliability of underlying data and understanding and use of the geology.

The stated resource is volume-diluted to 2m by 3m by 2m blocks and is tabulated on a zinc-equivalent ("ZnEq") cutoff grade of 2.5% ZnEq. Using the individual metal grades of each block, the ZnEq grade is calculated using the following formula:

$$\%ZnEq = \%Zn + (0.947368 * \%Pb) + (0.024561 * g\ Ag/t) + (2.947368 * \%Cu) + (1.842105 * g\ Au/t)$$

This formula is based on prices of US$0.95 per pound zinc, US$0.90 per pound lead, US$16.00 per ounce silver, US$2.80 per pound copper, and US$1,200.00 per ounce gold. Note that copper and gold prices are only used for the Mineral Resource estimates and are not included in the determination of Mineral Reserves. No metal recoveries are applied, as this is the *in situ* resource. The San Rafael resources are tabulated in Table 1.1 and are exclusive of reserves.

Table 1.1 Summary Table of San Rafael Resources Exclusive of Reserves

Measured and Indicated Resources (2.5%ZnEq cut-off) - Exclusive of Reserves

Class	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
Measured	1,918,000	1.85	0.81	86.9	0.07	0.20	78,233,000	34,337,000	5,362,000	2,870,000	12,000	5.32
Indicated	4,736,000	1.30	0.56	91.3	0.17	0.17	135,940,000	58,421,000	13,897,000	17,935,000	26,000	4.90
M+I	6,654,000	1.46	0.63	90.0	0.14	0.18	214,173,000	92,758,000	19,258,000	20,805,000	39,000	5.02

Inferred Resource (2.5%ZnEq cut-off) - Exclusive of Reserves

Class	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
Inferred	1,045,000	0.27	1.24	110.6	0.12	0.30	6,283,000	28,600,000	3,718,000	2,766,000	10,000	5.07

The reported resources occur primarily within the Upper Zone and Zone 120, which were not considered for inclusion within the reserve study, and also include mine blocks within the Main Zone that did not make the $54/t NSR reserve cutoff.

The low zinc grade for the Inferred resource in Table 1.1 is a result of the Inferred resources occurring primarily within the silver-dominant Upper Zone and Zone 120. The use of a zinc equivalent cut-off has been done for convenience for combining resources from the different zones into a single table. Using a more appropriate silver equivalent cut-off for these resources would not change the total Inferred tonnes or metal content.

For the Main Zone of the San Rafael deposit, the most important observation that can be presented to the reader is the relatively even distribution of metals, primarily zinc, lead, and silver, within tabular zones that for the most part occur along the volcanic/limestone contact. The recent infill drilling provided increased confidence in the continuity of the mineralization. Additional infill drilling is not expected to materially change the currently defined Main Zone resource.

The Zone 120 silver-copper-gold mineralization occurs within skarn-altered limestone as bedding horizons and irregular zones along intrusive contacts. The Zone 120 is more variable, both in geology and mineral grades, than the Main Zone mineralization. Additional drilling and more density measurements are recommended to bring greater confidence to the interpretation of this mineralization.

The Upper Zone is primarily silver-gold mineralization within a number of small tabular zones sub-parallel to and within the hanging wall of the Main Zone. The Upper Zone is more erratic than the Main Zone, though the recent drilling has provided greater confidence in the continuity of mineralization and the lithologic interpretation. Additional drilling is not expected to materially change the Upper Zone resource.

The depth of oxidation is generally shallow, though in the northeast portion of the deposit, oxidation can reach up to 200m down-dip. Zinc mineralization is strongly leached within the oxide zone, and there are uncertainties as to metallurgical recoveries and processing costs associated with the oxide mineralization. Further work is needed to better characterize the oxide material.

1.7 Mineral Reserves Estimate

The effective date of San Rafael reserves is December 8, 2015. Reserves were developed along CIM guidelines using Measured and Indicated resources. Appropriate modifying factors were used to include costs, recoveries, and dilution in estimating Mineral reserves.

Only non-oxide Main Zone and Upper Zone Measured and Indicated material was used to define reserves.

Reserves have been stated using a net smelter return ("NSR") cutoff grade of $54.00/t. The NSR equations are provided in detail in Section 15.0. The NSR assumes that zinc and lead concentrates would be produced and sold through world markets. The reserves are based on $16.00 per ounce of silver, $0.85 per lb of zinc, and $0.85 per lb of lead.

The reserves estimate included dilution in the form of block dilution, internal dilution, and external dilution. Internal dilution contains metal grades for only material that is designated as Measured and Indicated resource.

Ore loss of 10% was assumed to account for pillars that would be left behind. Fully diluted Proven and Probable reserves are shown in Table 1.2.

Table 1.2 San Rafael Proven and Probable Reserves

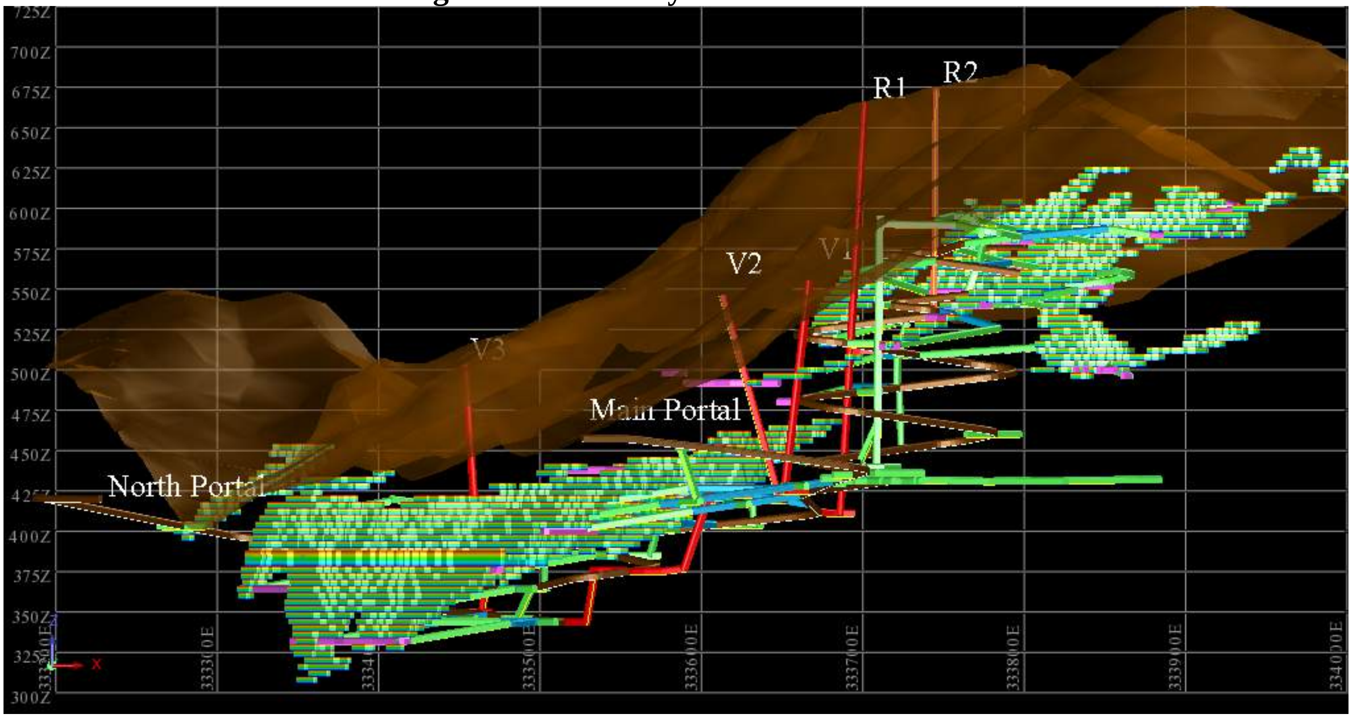
	Fully Diluted Mineral Reserves		
	Proven	**Probable**	**Proven & Probable**
K Tonnes	1,284	1,944	3,229
Zn %	4.32	4.22	4.26
K Lbs Zn	122,423	180,817	303,240
Pb %	1.94	1.69	1.79
K Lbs Pb	55,002	72,239	127,241
g Ag/t	122.57	102.15	110.28
K Oz Ag	5,062	6,386	11,448

- Proven and Probable reserves are based on Measured and Indicated resources at a $54.00 NSR cutoff grade.
- Some apparent discrepancies are due to rounding.

1.8 Mining Method

Reserves have been based on a cut-and-fill mining method. Most of the fill material will be from development. It is not anticipated to use cement with the fill material since no mining against fill will be undertaken. To provide additional ground support pillars will be left in place as required. Cut-and-fill stopes were designed using Measured and Indicated blocks above a $54.00 NSR cutoff. Development designs were created to provide mining access to the different cut-and-fill stopes. The cut-and-fill stopes are based on panel sizes up to 50m long and 16m high. Figure 1.1 shows a section view of the mine development and production locations.

Figure 1.1 Mine Layout in Section View



1.9 Capital and Operating Costs

Americas has extensive experience with underground mining and processing at the nearby Nuestra Señora mine and Cosalá (Los Braceros) process plant. Costs have been estimated using a combination of real world experience at Nuestra Señora and the Los Braceros plant and first principle costing. Note that the cost for cut-and-fill mining is based on performance at Nuestra Señora, and reflects the use of development waste fill without addition of cement.

Operating costs estimates are shown in Table 1.3 and capital cost estimates are shown in Table 1.4.

Table 1.3 Life of Mine Operating Costs

	K USD	$/t Processed
UG Mine Operations	$ 68,295	$ 21.15
Plant Operations	$ 44,125	$ 13.67
Technical Services	$ 5,819	$ 1.80
Safety & Environmental	$ 4,572	$ 1.42
Administration	$ 15,021	$ 4.65
Total Operating Cost	$ 137,833	$ 42.69

Table 1.4 Initial and Sustaining Capital Costs

	Units	Initial	Sustaining	Total LOM
Mine Development	K USD	$ 6,072	$ 20,704	$ 26,776
UG Mining Capital	K USD	$ 7,855	$ 14,678	$ 22,533
Process Capital	K USD	$ 2,011	$ 1,777	$ 3,788
Other	K USD	$ 340	$ 1,883	$ 2,223
Contingency 10%	K USD	$ 1,021	$ 370	$ 1,391
Working Capital	K USD	$ 4,154	$ (4,154)	$ -
Total Capital	K USD	$ 21,452	$ 35,259	$ 56,711

1.10 Economic Analysis

The San Rafael economic results are shown in Table 1.5. The economic model estimates $239.6 million in revenue will be generated over the mine life after payment of concentrate transportation and treatment charges. Corresponding operating costs are estimated to be $137.8 million, government duties and royalties total $8.0 million and capital is estimated to be $56.7 million. The pre-tax LOM free cash flow for San Rafael is estimated to be $37.1 million, showing that the reserves are economically viable and meet the definition of Proven and Probable reserves.

At 5%, the pre-tax net present value is estimated to be $24.7 million. The after-tax payback period is 3.4 years and provides a 27% IRR.

Table 1.5 San Rafael Pre-Tax Economic Results

IRR	27%	
NPV At 5%	$24,744	K USD
NPV At 8%	$19,080	K USD
NPV At 10%	$15,865	K USD
Payback Period	3.4	Years

Pre-tax sensitivities to equivalent Ag price, operating, and capital costs were estimated. The results are tabulated in Table 1.6. The sensitivity results are shown graphically in Figure 1.2.

Table 1.6 Pre-Tax Sensitivity

Pre-Tax Sensitivity - Equivalent Silver Price

	IRR	NPV At 5%	NPV At 8%	Payback
$ 14.00	0%	$ (5,006)	$ (7,465)	NA
$ 14.50	7%	$ 2,432	$ (829)	4.7
$ 15.00	14%	$ 9,869	$ 5,808	4.2
$ 15.50	20%	$ 17,307	$ 12,444	3.8
$ 16.00	27%	$ 24,744	$ 19,080	3.4
$ 16.50	33%	$ 32,181	$ 25,717	3.1
$ 17.00	40%	$ 39,619	$ 32,353	2.7
$ 17.50	46%	$ 46,807	$ 38,767	2.5
$ 18.00	52%	$ 53,950	$ 45,142	2.3

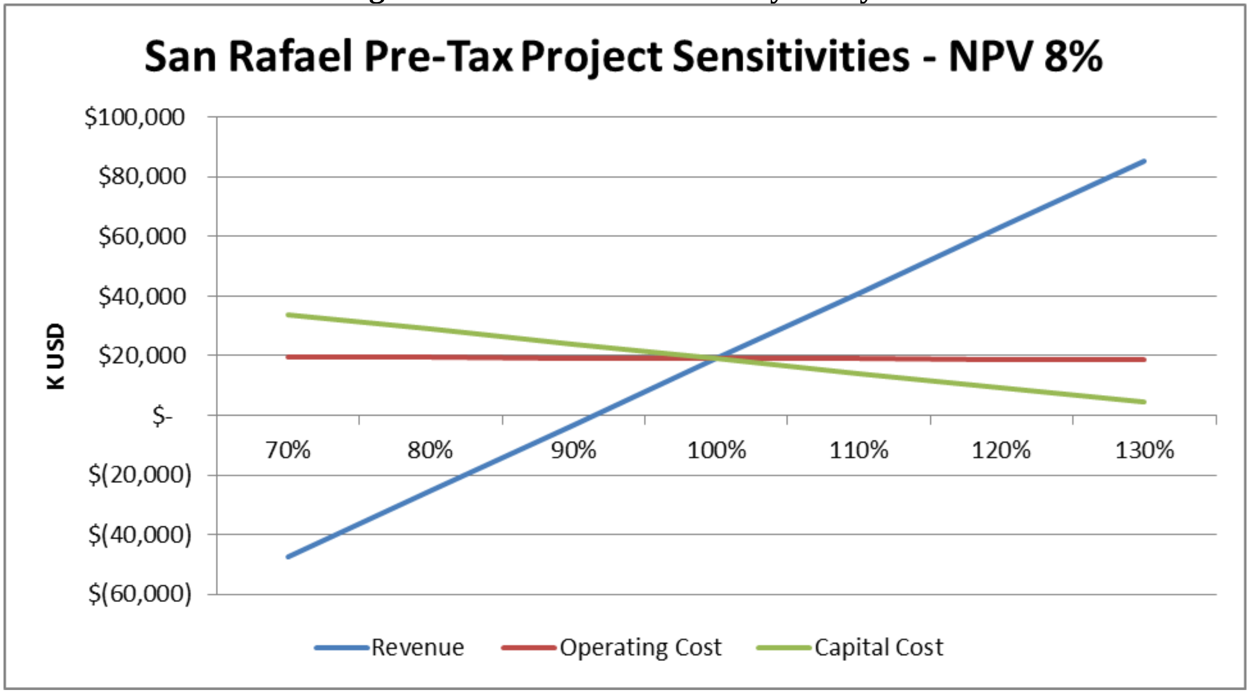
Pre-Tax Sensitivity - Operating Costs

	IRR	NPV At 5%	NPV At 8%	Payback
70%	28%	$ 25,045	$ 19,507	3.3
80%	28%	$ 24,945	$ 19,365	3.3
90%	27%	$ 24,844	$ 19,222	3.4
100%	27%	$ 24,744	$ 19,080	3.4
110%	26%	$ 24,644	$ 18,938	3.4
120%	26%	$ 24,543	$ 18,796	3.4
130%	25%	$ 24,443	$ 18,653	3.5

Pre-Tax Sensitivity - Capital Costs

	IRR	NPV At 5%	NPV At 8%	Payback
70%	55%	$ 40,291	$ 33,840	2.2
80%	43%	$ 35,109	$ 28,920	2.6
90%	34%	$ 29,926	$ 24,000	3.0
100%	27%	$ 24,744	$ 19,080	3.4
110%	21%	$ 19,562	$ 14,160	3.8
120%	16%	$ 14,379	$ 9,240	4.1
130%	11%	$ 9,197	$ 4,320	4.4

Figure 1.2 San Rafael Sensitivity Analysis



1.11 Recommendations

The San Rafael Pre-Feasibility study represents a complete technical report and produces a positive cash flow. However, it is recommended that work continue to complete a Feasibility study for this deposit to enhance the detail of certain aspects. The identified additional work is expected to cost $95,000 and should include:

- A revised geotechnical study;
- Completion of a hydrological model;
- Detailed ventilation design;
- Infrastructure construction plans;
- Detailed confirmation of the mine design; and
- Detailed closure plan.

Preliminary studies have been completed and shall be used to identify potential gaps that will provide a starting point for the proposed work.

The resource estimation has held up to several examinations indicating its validity. An expenditure of $400,000 over 2.5 years for additional exploration is recommended with the goal of advancing nearby Zn-Pb-Ag showings in the immediate area.

2.0 INTRODUCTION AND TERMS OF REFERENCE

2.1 Introduction

Mine Development Associates ("MDA") has prepared this Technical Report on the San Rafael deposit in Sinaloa, Mexico at the request of Americas Silver Corporation ("Americas"), a Canadian company which is listed on the Toronto Stock Exchange (TSX: USA). Americas was formerly known as Scorpio Mining Corporation ("Scorpio"), until May 20th, 2015 when Scorpio changed its name to Americas Silver Corporation. Americas owns the San Rafael and nearby Nuestra Señora and El Cajón deposits, which are located in the Cosalá mining district. Silver, lead, zinc, copper, and gold occur in a variety of deposit types within the district, including skarns, carbonate replacement deposits, breccia deposits, and massive sulfides.

Americas acquired its interest in San Rafael through Scorpio's acquisition of Platte River Gold Inc. and its wholly owned subsidiary Minera Platte River Gold, S. de R.L. de C.V. (collectively referred to as "PRG"); PRG is now a wholly owned subsidiary of Americas. Americas currently operates the Nuestra Señora polymetallic mine and an approximately 1,500tpd-capacity flotation plant east of the town of Cosalá and about 10km southeast of the San Rafael deposit. Americas is currently mining approximately 1,500tpd of skarn-hosted silver-lead-zinc-copper mineralization from the Nuestra Señora mine.

The purpose of this report is to provide a technical summary of: (1) updated mineral resource estimates for the San Rafael deposit, (2) a new mineral reserve calculation for the San Rafael deposit, and (3) a Preliminary Feasibility ("PFS") for San Rafael. The previous resource estimate for San Rafael was reported in a 2012 Technical Report by MDA (Ristorcelli *et al.*, 2012), and was also included in the 2013 Technical Report and Preliminary Economic Assessment by MDA (Dyer *et al.*, 2013). MDA has reviewed results of 21 holes drilled since completion of the 2012 resource estimate for the current, updated resource and reserve estimates reported herein. This report and the resource and reserve estimates have been prepared in compliance with the disclosure and reporting requirements set forth in the Canadian Securities Administrators' National Instrument 43-101 ("NI 43-101"), Companion Policy 43-101CP, and Form 43-101F1, as well as with the Canadian Institute of Mining, Metallurgy and Petroleum's "CIM Definition Standards - For Mineral Resources and Reserves, Definitions and Guidelines" ("CIM Standards") adopted by the CIM Council on May 10, 2014.

Because Americas was formerly named Scorpio, the operator of the San Rafael project has not changed and therefore the company name "Americas" is used throughout much of this report, even when describing events, work done, data and documentation attributable to Scorpio. The scope of this study included a review of pertinent technical reports and data provided to MDA by Americas relative to the general setting, geology, project history, exploration activities and results, methodology, quality assurance, interpretations, drilling programs, and metallurgy. MDA has relied on the data and information provided by Americas for the completion of this report, including the supporting data for the estimation of the mineral resources and reserves. In compiling the background information for this report, MDA relied on information provided by Americas and on other references as cited in Section 27.0, including Technical Reports by MDA on the San Rafael and El Cajón resources (Ristorcelli *et al.*, 2009) and on the Nuestra Señora deposit (Ristorcelli *et al.*, 2012).

MDA has reviewed much of the available data, has made site visits, and has made judgments about the general reliability of the underlying data. Where deemed either inadequate or unreliable, the data were eliminated from use or procedures were modified to account for lack of confidence in that specific information.

This report has been prepared by Edwin R. Peralta, P.E., Project Engineer for MDA; Paul Tietz, C. P. G., Senior Geologist with MDA; Randy Powell, Q.P.M., Metallurgist; and Thomas L. Dyer, P.E., Senior Engineer for MDA. The Mineral Reserve was calculated under the supervision of Mr. Peralta, who also supervised preparation of reserves and the PFS. The Mineral Resources were estimated and classified under the supervision of Mr. Tietz. Mr. Tietz is taking responsibility for the Quality Assurance – Quality Control work presented in Section 12.0. Mr. Powell supervised the preparation of Section 13.0 on Mineral Processing and Metallurgical Testing of the San Rafael deposit as well as Section 17.0 on Processing Methods and the processing costs portions of Section 21.0. Mr. Dyer is responsible for mining and other costs presented in Section 21.0 (Capital and Operating Costs), as well as Section 22.0 Economic Analysis.

Mr. Peralta, Mr. Tietz, Mr. Powell, and Mr. Dyer are qualified persons under NI 43-101. There is no affiliation between Americas and Mr. Peralta, Mr. Tietz, Mr. Powell, and Mr. Dyer except that of an independent consultant/client relationship.

The authors' mandate required on-site inspections and the preparation of this independent Technical Report containing the authors' observations, conclusions, and recommendations. MDA has made such independent investigations as deemed necessary in the professional judgment of the authors to be able to reasonably present the conclusions discussed herein.

For this and previous MDA reports, Mr. Tietz made site visits to San Rafael-El Cajón in January 29 through February 3, 2007, September 19 through September 21, 2007, and September 27 through October 1, 2011 to review drill programs, drilling, logging, and sampling procedures, pertinent geology, and data availability. Mr. Dyer reviewed the underground operations, process plant operations, mining and processing costs, and productivity at Nuestra Señora on June 4th to 5th, 2012. On June 22 – 23rd, 2015, Mr. Peralta visited the San Rafael project and reviewed preliminary mine designs and mine plans being developed by Americas' on-site engineering staff.

The effective date of the San Rafael database on which the current resource was estimated is July 4, 2015. The effective date of the San Rafael resource estimate is October 15, 2015. The effective date of the San Rafael reserve and the PFS is December 8, 2015. The effective date of this report is March 18, 2016.

2.2 Frequently Used Acronyms, Abbreviations, and Units of Measure

In this report, measurements are generally reported in metric units. Unless otherwise indicated, all references to dollars ($) in this report refer to currency of the United States.

The following lists frequently used acronyms and abbreviations:

AA	atomic absorption spectrometry
Ag	silver
Au	gold
Cu	copper

DC/IP	high-resolution, direct-current, resistivity and induced polarization geophysical survey method
DTM	digital topographic model
FA	fire assay
FDH	face-discharge hammer
g/t	grams per tonne
ha	hectare
ICP	inductively coupled plasma analytical technique
ICP-AES	inductively coupled plasma-atomic emission spectroscopy analytical technique
in	inches
km	kilometer
kV	kilovolt
kW	kilowatt
kWh	kilowatt hour
lb	pound (2000 lbs to 1 ton, 2204.6 lbs to 1 tonne)
m	meters
Ma	million years old
MDA	Mine Development Associates, the authors of this technical report
MWh	megawatt hour
MX$	Mexican pesos
NPV	net present value
NSR	net smelter return royalty
oz	troy ounce
Pb	lead
PEA	Preliminary Economic Assessment
PRG	Platte River Gold
RC	reverse circulation drilling method
SAP	systems, applications and products data processing software
ton	short ton (Imperial)
t or tonne	metric tonne
tpd	tonnes per day
XRF	X-ray fluorescence
Zn	zinc

3.0 RELIANCE ON OTHER EXPERTS

Section 4.0 of this report contains information relating to mineral concessions, mineral permits and licenses, environmental liabilities and permitting, regulatory matters, and legal agreements. While the authors have some understanding of these issues in the context of the mineral industry, they are not legal or regulatory professionals. For Section 4.0, MDA has relied entirely upon information provided by Americas and on other experts as cited and contracted by Americas. MDA expresses no opinion, professional or otherwise, concerning this information which is provided as required by NI 43-101.

MDA has relied entirely upon Americas to provide information on the land area, concessions, agreements, and surface rights described in Sections 4.2, 4.3, and 4.4.

MDA has relied entirely upon Americas to provide information on the permitting and environmental liability aspects of the project in Sections 4.5 and 4.6, respectively, and on environmental studies, permitting, and social or community impacts described in Section 20.0. The authors did not conduct any investigations of the environmental or social-economic issues associated with the San Rafael deposit, and the authors are not experts with respect to these issues.

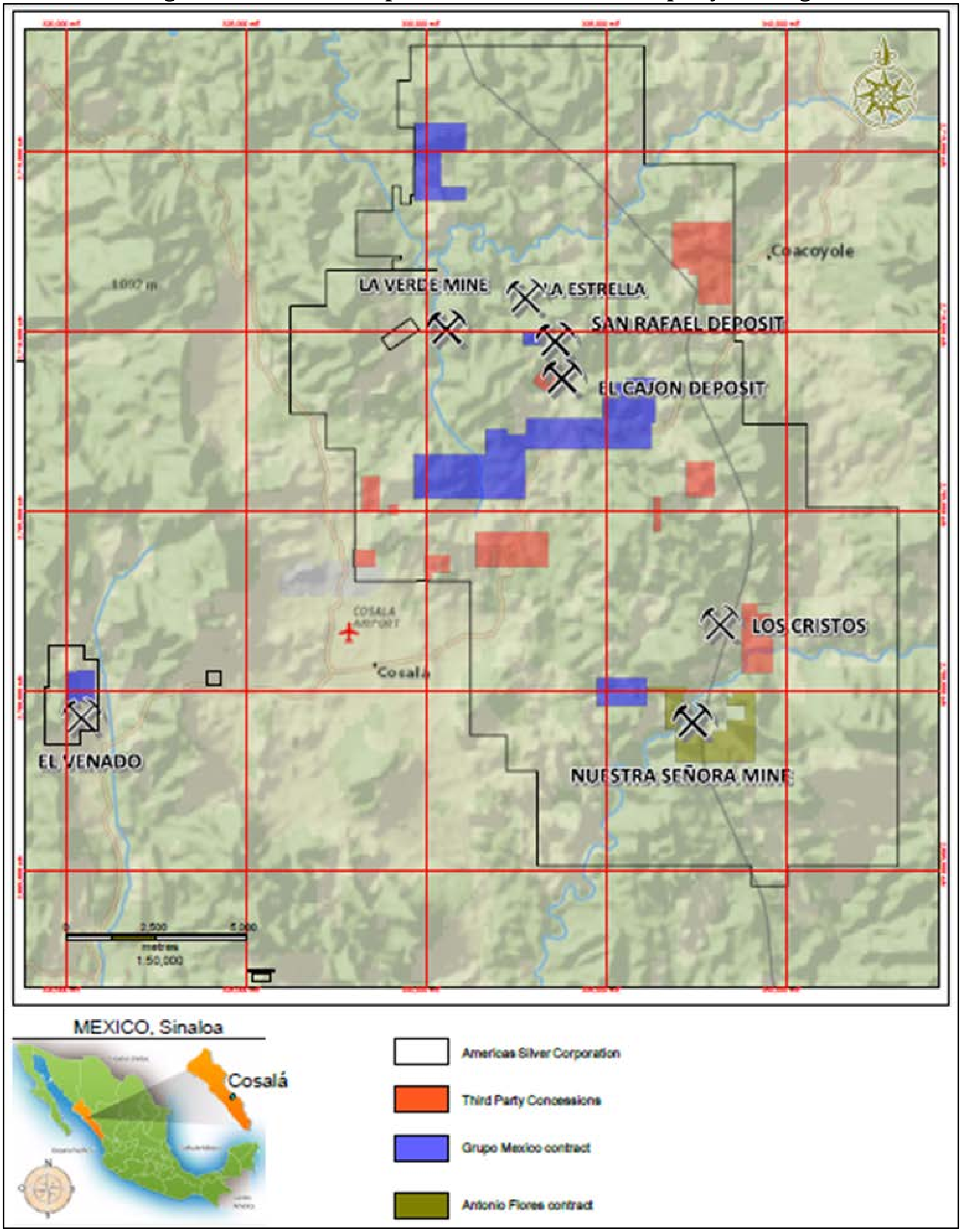
4.0 PROPERTY DESCRIPTION AND LOCATION

MDA and the authors are not experts with respect to land and legal matters. The information presented in this section is based on information provided to MDA by Americas and from additional references as cited. MDA presents this land information to fulfill reporting requirements of NI 43-101. MDA is not qualified to present an opinion on the validity of the concessions or any leases or agreements and has relied on the descriptions in Sections 4.2, 4.3 and 4.4 as provided by Americas and other sources, which MDA has no reason to believe are not reliable.

4.1 Location

Americas' San Rafael deposit is located in the Cosalá mining district in the east-central portion of the state of Sinaloa, Mexico, near 106º 40'W longitude and 24º 29'N latitude; some of the concessions that form the property extend into adjacent Durango state (Figure 4.1). The San Rafael deposit is about 240km by road from Mazatlán and 12km north-northeast of the town of Cosalá. Americas' Nuestra Señora mine is located about 10km east of Cosalá and about 10km southeast of the San Rafael deposit which is the focus of this report (Figure 4.1).

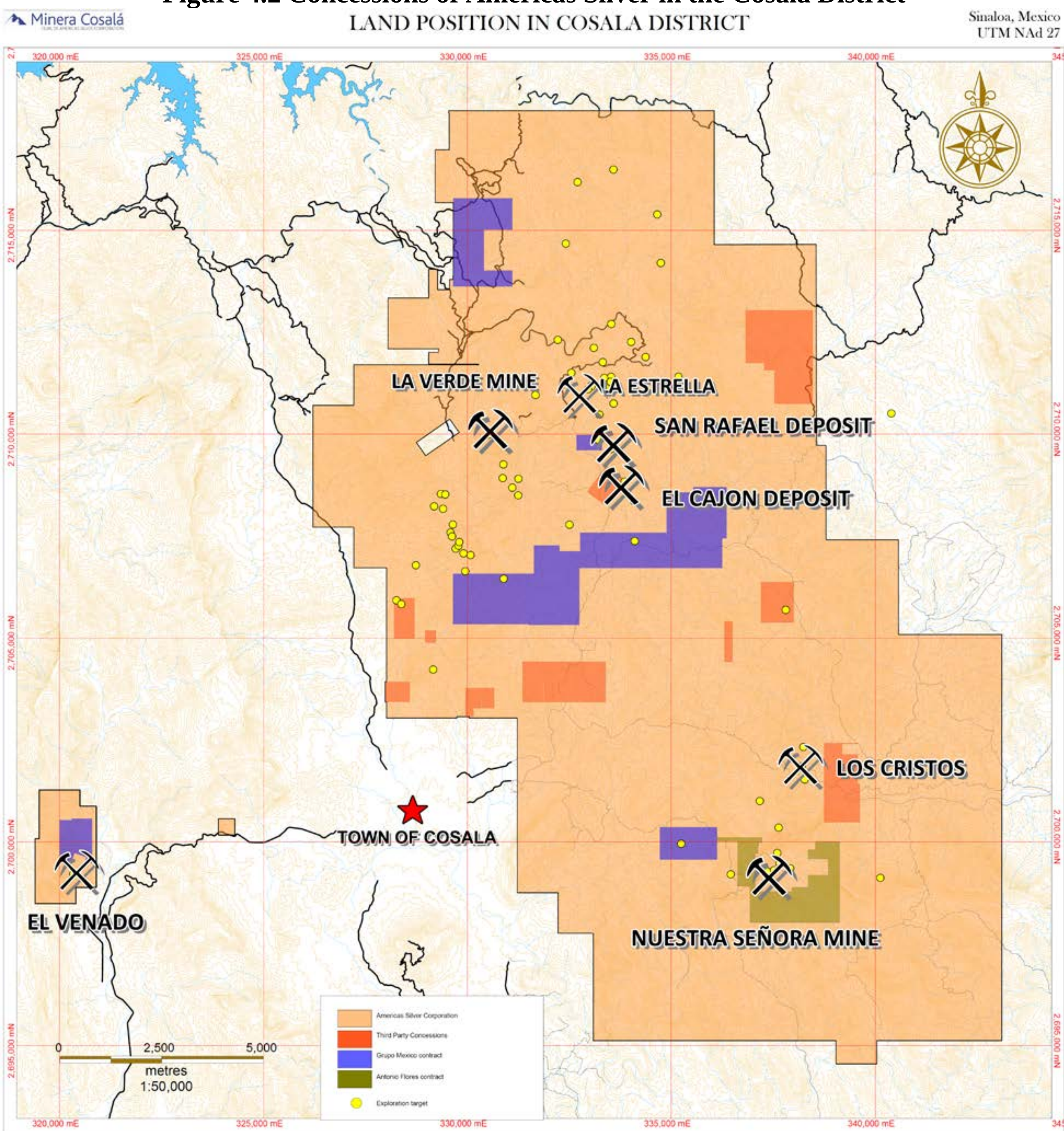
Figure 4.1 Location Map for Americas' Cosalá Property Holdings



4.2 Land Area

Americas' land holdings in the Cosalá mining district, including the San Rafael, Nuestra Señora and El Cajón deposits consists of 73 mineral concessions that cover approximately 24,657 hectares as shown in Figure 4.2. A concession map showing detail in the vicinity of the San Rafael deposit is given in Figure 4.3. The list of concessions is presented in Appendix A. Americas owns the concessions listed in Appendix A through its wholly owned subsidiaries, Minera Cosalá, S.A. de C.V. ("Minera Cosalá) and Minera Platte River Gold, S. de R.L. de C.V. ("PRG").

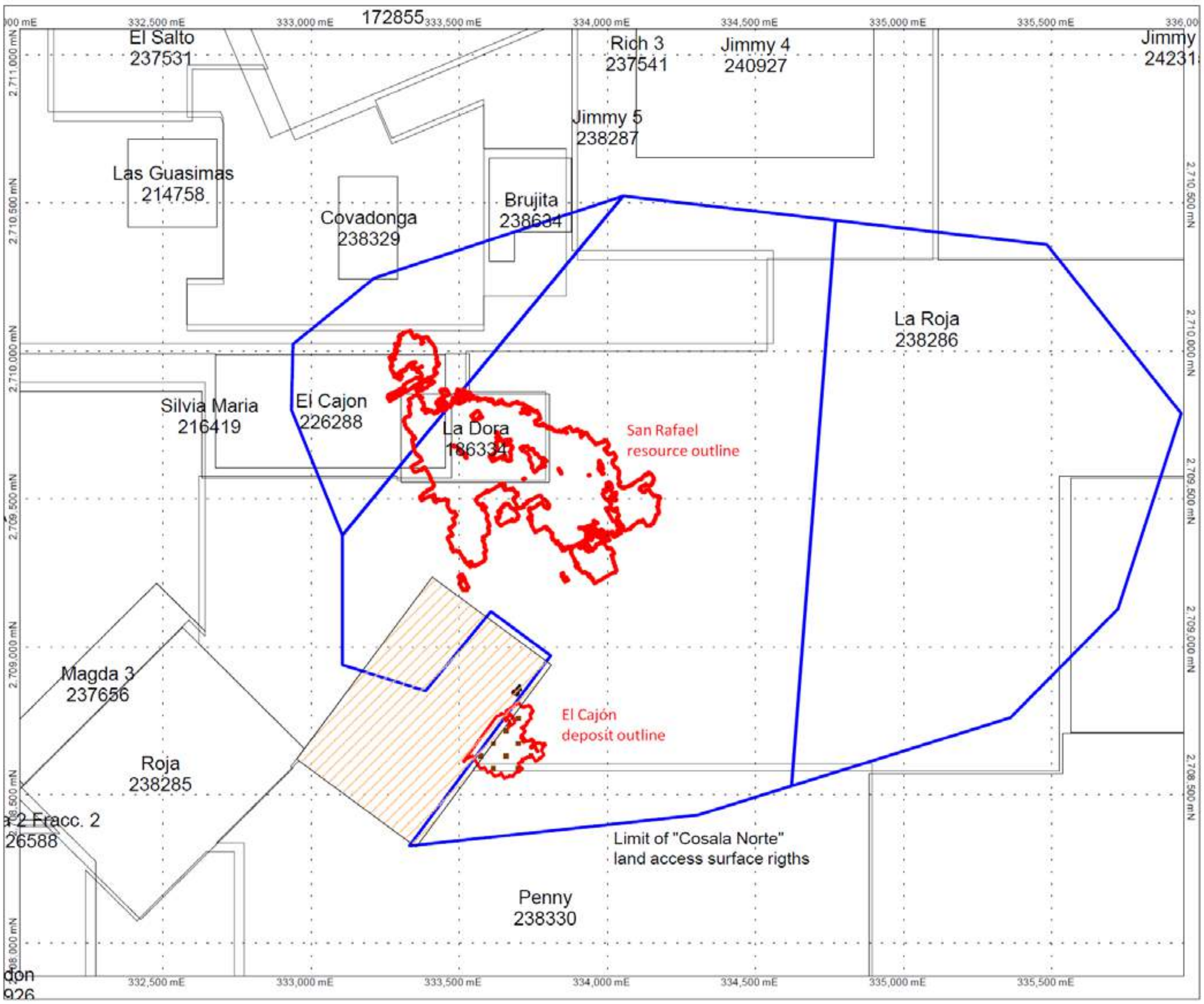
Figure 4.2 Concessions of Americas Silver in the Cosalá District



In September of 2014, PRG signed an agreement to explore two small concessions well west of the main land holdings. These two concessions, Orion Fracc. A, and Orion Fracc. B are controlled by means of a lease with a term of eight years and an option to purchase. Subsequently, in December 2014, through its subsidiary Minera Cosalá, Americas signed an agreement for rights to explore (with an option to purchase) the 302 hectare Cosala 2 concession, which nearly surrounds the Nuestra Señora mine to the east south and west (Figure 4.2). This lease has a term of ten years. With the exception of concessions Cosala 2, Orion Fracc. A, and Orion Fracc B, Americas owns the concessions listed in Appendix A through its wholly owned subsidiaries, Minera Cosalá, and PRG.

Within the concession blocks are a number of areas of land that Americas does not control. One of the concession blocks not under Americas' control (Silvia Maria Title Number 147043; not the same concession also called Silvia Maria listed in Appendix A) lies immediately adjacent to the southwest boundary of the San Rafael resource.

Figure 4.3 Detail of Americas Silver Concessions at San Rafael



All concessions remain valid for 50 years from the date of title as long as the semiannual mining duties are paid and minimum annual work requirements are met. The mining duties are based on the number of years the concession has been held. Total, current, semiannual mining duties for the 70 concessions owned by Americas are approximately MX$8.712 million, payable to the Secretaría de Economía, Coordinación General de Minería, Dirección General de Minas. Americas reports that those payments are up to date. The current total minimum annual work commitment for all of Americas' Cosalá district concessions is approximately MX$85.1 million. The Americas-owned concessions are grouped administratively so that the cost of work performed anywhere on the property can be credited towards these work commitments.

All of the mineral concessions have been legally surveyed by qualified and government-approved surveyors. The surveys have been registered with the titles at the Department of Mines in Mexico City and are in compliance with Mexican mining laws.

4.3 Agreements and Encumbrances

On March 16, 2011, Scorpio (now Americas) acquired five mineral concessions in the Cosalá district, immediately adjacent to its existing concessions, from Grupo Industrial Minera Mexico S.A. de C.V. ("IMMSA"), a subsidiary of Grupo Mexico. These concessions (El Cajón, El Cajón 2, El Magistral, La Escondida, and Simon) covering 1,387 ha are subject to a 1.25% net smelter return ("NSR") royalty payable to IMMSA on future production. The San Rafael resources do not extend onto any of these five concessions.

4.4 Surface Rights

PRG purchased the surface rights to 426 hectares that overlie the main areas of mineralization at San Rafael. The cost of the surface rights was US$172,500 and was paid to the *ejido* Higuera Larga in 2011. *Ejidos* are registered communal organizations that own much of the surface rights to rural land in Mexico.

While the transfer of title for that land was being ratified, a Presidential decree changed the transfer process for all *ejido* lands in Mexico. The new process required the approval of Secretaría de Medio Ambiente y Recursos Naturales ("SEMARNAT") prior to title transfer of *ejido* lands. Following that decree, during 2011 SEMARNAT rejected the title transfer to PRG of the 253 hectares at San Rafael. Although a legal challenge to this rejection was available, Americas chose to negotiate an alternative land access agreement with the *ejido* to grant temporary use of the land for a period of 30 years and including the establishment of mining and processing operations. Negotiations successfully incorporated an additional 174.3 hectares from Higuera Larga and 49.4 hectares from the *ejido* Los Molinos immediately adjacent to the original area for an additional US$250,000. These land access agreements have been registered with the national agrarian authority (Registro Agrario Nacional).

In late 2006, Minera Cosalá's employee Cesar Lemas purchased 118 hectares of surface lands 3km northwest of the Nuestra Señora mine (Figure 4.2) from the *ejido* of the Cosalá area, as a location for the processing plant facility and tailings pond,. In 2007, the ejido's main assembly granted Mr. Lemas full domain over the lands. Mr. Lemas then granted to Minera Cosalá an irrevocable power of attorney allowing Minera Cosalá to act as Mr. Lemas's designee to process the transfer of the land title. On January 26, 2009, the title to the surface lands was issued in the name of Cesar Lemas. The subsequent transfer of the title to these surface lands from Cesar Lemas to Triturados Noroeste S.A. de C.V. was completed in December 2009, and the lands were then immediately transferred to Minera Cosalá. These transactions were registered and confirmed with the government authorities on February 26, 2010.

Figure 4.3 shows the area of surface rights at the San Rafael resource area.

4.5 Environmental Permitting

MDA did not conduct any investigation of the environmental or social-economic issues associated with the San Rafael deposit, and the authors are not experts with respect to these issues. For Sections 4.5 and 4.6, MDA has relied upon information provided by Americas. The information in the report concerning these matters is provided as required by Form 43 101F1 but is not an opinion, professional or otherwise, of the authors.

Americas' activities at its San Rafael deposit is subject to regulation by SEMARNAT, the environmental protection agency of Mexico. Regulations require that an environmental impact statement, known in Mexico as a Manifesto Impacto Ambiental ("MIA"), be prepared by a third-party contractor for submittal to SEMARNAT. Required studies which have been completed to support the MIA include a detailed analysis of the following areas: soil, water, vegetation, wildlife, cultural resources and socio-economic impacts. Proof of local community support for a project must also be provided to gain final approval of the MIA.

Although managed by different departments within SEMARNAT, and as a pre-requisite to the approval of the MIA, separate approvals are also required whenever the surface is modified from its existing state and when activities interfere with water flows. The approval for "change of soil use" (*Cambio de Uso de Suelo*, "CUS") is regulated by the Forestry Department, and water impacts are regulated by the Comision Nacional de Agua ("CONAGUA").

During the evaluation process of each MIA, SEMARNAT may request further information required for its assessment or may deliver notice that it requires more than the stipulated review time to complete its evaluation. At the conclusion of this process, SEMARNAT issues a resolution that either rejects or approves the proposed project. In the case of rejection, a list of deficiencies will be detailed that would require correction in future MIAs. In the case of approval, the resolution will detail the compliance criteria and restrictions under which operations may proceed.

In accordance with the 2012 update of environmental laws regulating mining and exploration (NOM-120-SEMARNAT-2011), on December 14, 2012, an MIA was submitted to SEMARNAT for ongoing exploration activities at El Cajón. A request for additional information was received from SEMARNAT on January 25, 2013, and this information was submitted on March 4, 2013.

An MIA for the underground exploitation at El Cajón and San Rafael was submitted to SEMARNAT on November 26, 2012. A request for additional technical information was received from SEMARNAT on February 18, 2013, and this information was submitted on April 5, 2013.

On December 14, 2012, the Justifying Technical Studies (*Estudio Técnico Justificativo*, "ETJ") for the change of land-use (*Cambio de Uso de Suelo*, "CUS") permits for exploration and exploitation at El Cajón and San Rafael were submitted to SEMARNAT. Requests for additional technical information and clarification were received on January 31, 2013; such information was submitted to SEMARNAT on February 22, 2013. A revised ETJ was submitted in July, 2013 covering 4.6 hectares at the El Cajón mine. SEMARNAT granted the CUS for El Cajón in December, 2013.

An ETJ in support of a CUS at San Rafael was submitted to SEMARNAT in June, 2015. Additional information was supplied to SEMARNAT in September, 2015. The CUS was granted in January 2016.

4.6 Environmental Liability

The following information has been taken from MDA's 2009 Technical Report (Ristorcelli *et al.*, 2009), which is still current, according to Americas. MDA has relied upon information provided by Americas. The information is provided as required by Form 43 101F1 but is not an opinion, professional or otherwise, of the authors.

Americas has not completed, either internally or through a third-party consultant, a complete review of the environmental hazards at San Rafael. The project area is typical of many strongly mineralized areas in Mexico, in which there are numerous prospects and small mines. These areas of historical disturbance contain small dumps (many sulfide-bearing), small pits (generally less than 25,000 tons), and a number of adits.

However, for the final closure plan for the El Cajón mine, Americas is considering a reforestation and slope stabilization program for the areas that were impacted by the change in land use. In early 2015 the estimated cost of implementing this program was approximately $342,000.

Within the concessions controlled by Americas, one significant abandoned historical mine site is present ~600m northwest of the San Rafael resource at the La Estrella mine (Figure 4.2). The Las Estrella mine was operated by Asarco into the 1950s and later by a Mexican owner. A small open pit and unknown amounts of underground workings are present at the site. Most of the dumps have since been removed and processed. Tailings remain from the mill that was present at the site when the mine was in operation. The mill has also been removed.

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

5.1 Access

The San Rafael resource area is accessible from the town of Cosalá via a rural paved and then dirt road for a total of 15km. Both of these roads can accommodate standard highway vehicles. Another dirt road connects the town of Cosalá with the Los Braceros plant and tailing sites.

The Pacific coast highway is located 55km to the west of the project, and 18km further west are the toll highway and the railroad. The toll road connects Mazatlán with Los Mochis and with Nogales, situated at the Mexico/US border.

A small airport at the edge of Cosalá serves the mountain towns and large ranches of the Sierra Madre. Chartered flights are available to both Mazatlán and Culiacán. Daily buses run from Cosalá to the main coast highway, where connections can be made to reach all the major cities in Mexico.

5.2 Climate

The climate ranges from subtropical to high coastal arid, with rainfall averaging 18 inches per year. Rainfall occurs most commonly from mid-June to late October, usually as intense thunderstorms which last for several hours. Until the end of November, occasional tropical to hurricane-strength storms originating in the Pacific Ocean, or moving westerly over the Sierra Madre Mountains from the Caribbean, can cause severe flooding which may temporarily isolate the area.

The weather does not impact on Americas' exploration, development and production activities, except that during severe thunderstorms operations may be suspended temporarily, usually less than a couple of hours, for safety reasons. The exception is for surface drill programs taking place within the canyon of the Habitas River, which is susceptible to flash flooding during the rainy season, and consequently for safety reasons, surface drilling within the canyon is suspended during times of heavy rain. The mining activities at Nuestra Señora and transporting of the ore to the plant site are not affected by the flooding, because the mine entrance and the bridge over the Habitas River connecting the mine portal to the access road are higher than the level of flooding.

5.3 Local Resources and Infrastructure

The town of Cosalá (population of over 17,000) supplies the project with a sufficient labor force to fulfill both its present needs and any requirements in the foreseeable future. Cosalá is the business, education, and governmental center for the region. Rural families subsist on small farms and ranches scattered throughout the area. Modern schools are present, teaching through Grade 12, and the University of Sinaloa campus in the town of Cosalá offers post-secondary education. The town has internet facilities, both as internet cafes and in private connections. Post offices and telephone services are available; cellular telephones are widely used. The Banamex Bank has a branch office providing banking and electronic services. A local hospital can treat minor trauma, although for more serious medical problems one must go to Mazatlán or Culiacán, both cities a two-hour drive from Cosalá.

The ports of Mazatlán, 160km to the southwest, and Los Mochis, 300km to the northwest, are both capable of handling bulk materials as well as containers. Americas currently transports zinc, lead and copper concentrates from the Nuestra Señora mine by road to Manzanillo for transport by sea freight. Several metal-trading companies now have significant infrastructure in Manzanillo to handle, store, and ship concentrates (de Corta, 2011). .

Comisión Federal de Electricidad is the supplier of electricity for Mexico. There is a hydroelectric power plant at the Comedero reservoir with a rated capacity of 100 megawatts, which supplies electricity to Cosalá. A 34.5kV power line provides electricity from the power plant to the Los Braceros processing plant; this line was extended to the Nuestra Señora mine and was activated in January 2011.

The following information on water is taken from the 2011 Genivar Technical Report (de Corta, 2011). Water rights are controlled by the Comisión National del Agua. The Habitas River, which runs all year, is located in a steep-sided canyon approximately 200m deep which traverses the Nuestra Señora area. The Cosalá area is considered to have excess water supplies and has been designated a "Zona de Libre Alumbramiento" – a free water exploitation zone. No permits are required to drill wells for the extraction of water. However, according to the current legislation, individuals or companies must pay for the use of the national waters regardless of how the rights were obtained. These rates are determined by its availability and the method of extraction.

In 2004, Americas purchased the decommissioned San Manuel 1,500 tpd plant in Arizona from Phelps Dodge and, in late 2006, began to move it to Cosalá. Americas also purchased additional plant components, including a 500 tpd ball mill. Commercial production of the plant at Los Braceros began in January 2009.

5.4 Physiography

The San Rafael area lies within the western foothills of the Sierra Madre Occidental, and the project area topography is rugged and steep. The project elevation ranges from 350 to 1,000m above mean sea level with about 350m of relief within the immediate San Rafael area. The town of Cosalá lies at an elevation of about 325m above sea level.

Incised perennial drainages cut through the property, and stream flows are highly variable depending on time of year. Drainage channels are often used for local access, although during the rainy season, many drainages become impassable due to high water flow. The slopes are brush and tree covered making cross-country travel difficult, particularly during the rainy season.

6.0 HISTORY

The Cosalá mining district's mining and exploration history is summarized from an internal company report (PRG, 2006a) with additional information from Henriksen (2004), Spring and Breede (2008), and de Corta (2011). (*Note, it is unclear if the "tpd" used by PRG (2006a) refers to metric tonnes or short tons per day*).

6.1 Exploration and Mining History

The Cosalá district was discovered and locally worked by the Spanish approximately 400 years ago with production of enriched silver ore from the upper levels of the Nuestra Señora mine. However, no records of any kind remain from their activities. At the turn of the 19th century, French engineers through Negociación Minera La República reportedly developed and worked the Nuestra Señora mine with a 10-stamp mill that produced 800kg to 1,000kg of silver per month. Activities in the area may have been halted after the 1910 Mexican Revolution.

In 1949, Asarco Mexicana ("Asarco") purchased the Nuestra Señora mine and property and carried out exploration and development, putting the property into production in 1954. Ore was mined from four nearby deposits (Nuestra Señora, Santo Domingo, Candelaria, and Santa Teresa), with most of the production coming from the Nuestra Señora mine down to the 8th level. The Ag-Zn-Pb-Cu-Au ore was processed in a 450tpd flotation plant. Asarco also mined similar material from the La Estrella mine north of San Rafael. In addition, Asarco did some work at El Cajón, sending the material to the mill at La Estrella.

In or about February 1965, Asarco ceased production from Nuestra Señora, presumably because of anticipated Mexican government policies (Spring and Breede, 2008). Asarco subsequently removed all of the mining equipment. Asarco let their concessions lapse in 1980.

6.1.1 San Rafael Area Prior to 2004

As mentioned above, Asarco operated the La Estrella mine north of San Rafael and did some work at El Cajón during its tenure on the property from 1949 to 1965. In 1965, the Gaitán family worked the La Estrella mine and developed a small open-pit operation around the area previously mined by Asarco. About 50 men were employed to produce 150tpd, and the material was trucked to an 80 to100tpd plant owned by Minera Reyna del Cobre (the Gaitán family) and located 100km from Cosalá at La Minita. The silver-lead and zinc concentrates were trucked to the Industrias Peñoles, S.A. de C.V ("Peñoles") smelter in Torreon, Coahuila.

At about the same time, the small El Mamut and La Verde mines (both Ag-Cu-Au) were operated by Sres. Vicente Cortez, Alonzo Cortez, and Jaime Garriaga, using some of the Asarco infrastructure. The El Mamut mine, located in what is now the El Cajón mineralized area, had also apparently been tested by Asarco with three diamond drill core holes ("core"). The data on these core holes are not available to Americas or MDA. The Cortez and Garriaga families produced approximately 10 to 15tpd from the mines and shipped the ore to the Gaitán mill at La Minita.

During the summer of 1973, Duane Allen Cibula completed fieldwork in the district for his Master of Science Degree thesis in the Department of Geology at the University of Iowa. His thesis titled "*The Geology and Ore Deposits of the Cosalá Mining District, Cosalá Municipality, Sinaloa, Mexico*" was completed and published in 1975. The thesis emphasized the stratigraphy, structure, and mineralization in the district and was financed by Consejo de Recursos Minerales no Renovables.

In the late 1970s or early 1980s, a subsidiary of Peñoles explored the area around the La Estrella mine and El Cajón area and reportedly completed some drilling around La Estrella. They subsequently abandoned their interest in the area. At the same time, Sr. Enrique Gaitán constructed a 100tpd plant near the La Estrella mine to process material from that deposit, as well as from La Profesora, a small mine about 0.5km to the southeast. In the early 1980s, Mr. Gaitán moved the plant to the town of Cosalá, supposedly due to his relationship with the *ejido* that owned the surface in the area and also to procure a more consistent water source.

In 1985, Sr. Jaime Guinea Gonzalez acquired the rights to the La Verde mine concession, from which he processed 50 to 80tpd of dump material and also signed an option to purchase the Gaitán plant in Cosalá. Sr. Guinea developed two new cross cuts to intercept the La Verde zone and increased production to about 190tpd.

Minerales para la Industria, S.A. de C.V. signed an exploration agreement in 1987 with Sr. Guinea and Minera Humaya S.A. de C.V. ("Humaya"), a company controlled by him, and completed mapping and sampling in the area around the La Verde mine and the El Cajón and La Estrella areas. The results of their work were not sufficient to continue in the district. Sr. Guinea subsequently completed 12 reverse circulation ("RC") drill holes along the La Verde zone, and production over the ensuing years was increased to approximately 200tpd. He also acquired substantial additional concessions in the area at this time.

In mid-1995, Minas de Oro Hemlo, S.A de C.V. ("Hemlo"), subsidiary of Hemlo Gold Mines Inc., the first company to show interest in the San Rafael-Los Manueles areas located northwest of San Rafael, signed an exploration agreement with Sr. Guinea and Humaya. After six months of mapping and sampling in those zones, Hemlo decided to build a new road to explore a stockwork zone of Au-Ag mineralization hosted in the rhyolite that overlies the San Rafael base-metal mineralization. On the basis of encouraging rock-sample geochemistry, Hemlo drilled 15 RC holes in 1997 in the San Rafael area and encountered local Au-Ag mineralization in the rhyolite. Americas has copies of drill logs and assays, though none of the data is in digital form. Hemlo's data were not used for the current resource estimate due to QA/QC concerns and a general lack of documentation. Hemlo's drilling targeted the high-level gold and silver mineralization that overlies the massive-sulfide base-metal mineralization, though a number of holes were drilled deep enough to encounter the base-metal zone. Nine holes contained sample intervals assaying greater than 1% Pb and Zn, while three of these holes had 10m or greater drill intervals that assayed >40g Ag/t and over 1% Pb and Zn. The base-metal assay technique employed by Hemlo had an upper limit of 1%, and further analyses were not conducted on the samples whose results exceeded the upper limits. All of the Hemlo holes which encountered sulfide mineralization were later twinned by PRG. A few of the holes were drilled deep enough to discover the buried massive-sulfide base-metal mineralization that has been the focus of Americas' drilling. However, because Hemlo was primarily interested in gold and silver, and also had unrelated legal issues, they did not continue work in the area.

Early in 1997, Sr. Guinea and Humaya signed an option agreement for the property in the San Rafael-El Cajón-La Verde area with Golden Panther, a Canadian junior company. This agreement included all of the claims staked by Humaya (~11,000 hectares), as well as the plant and the offices and houses located in Cosalá. Golden Panther carried out an induced polarization ("IP")-resistivity geophysical program over the La Verde mineralization and completed three core holes, two of which attempted to intercept the mineralization beneath the deepest workings of the La Verde mine. A cross cut was developed to intercept another mineralized structure but was stopped short of the area of interest. Along with the exploration program, Golden Panther increased the capacity of the plant in Cosalá to 450tpd. Golden Panther abandoned the project the following year.

In 1999, Peñoles signed a letter of intent with Sr. Guinea for the San Rafael-El Cajón-La Verde area. Peñoles conducted fieldwork on the project but did not continue with additional work.

In early 2000, Grupo Industrial Minera Mexico S.A. de C.V. ("IMMSA") expressed interest in the San Rafael-El Cajón-La Verde property and made a verbal agreement with Minera Real de Cosalá S.A de C.V. ("MRC"), a new company controlled by Sr. Guinea's wife and daughters. During this time, IMMSA staked three claims within the main claim block that had been allowed to lapse by MRC. After several months, IMMSA declined to pursue its interest in the area, but they kept their concessions. One of IMMSA's concessions is located immediately northwest of the San Rafael mineralized area.

Noranda Exploraciones Mexico, S.A. de C.V. ("Noranda") started negotiations and later signed two option agreements at the end of 2000 with Sr. Guinea and MRC. One agreement was for the La Verde mine area, and the second was for the La Estrella-San Rafael-El Cajón area. Three IP-resistivity lines were completed over the San Rafael zone in the area of the previous Hemlo drilling. A significant IP anomaly was identified that coincided with the base-metal mineralization encountered in several of the Hemlo holes. Noranda subsequently drilled seven vertical core holes totaling 1,348m in 2001. Americas has digital assay, collar, and summary geology data but no hard-copy data. The Noranda drilling targeted the base-metal mineralization encountered in the deeper Hemlo drill holes. Two of the more significant Noranda drill intercepts were 36.8m @ 43.8g Ag/t, 1.54% Pb, and 4.06% Zn (drill hole SR-01-01 from 48.7 to 85.4m) and 23.3m that averaged 45.0g Ag/t, 1.24% Pb, and 3.23% Zn (drill hole SR-01-03 from 116.5 to 139.8m). The results of Noranda's drilling confirmed the presence of the massive-sulfide mineralization, but the size potential was believed to be small, and Noranda abandoned their interest in the property in 2001. Five of the seven Noranda holes were subsequently twinned by PRG. As with the Hemlo data, the Noranda drilling was not used in MDA's 2009 resource estimate for San Rafael and El Cajón because of QA/QC concerns and a general lack of documentation.

6.1.2 San Rafael – El Cajón Area 2004 - 2010

PRG became interested in the San Rafael-El Cajón-La Verde property in early 2004. On June 1, 2004, PRG, through its Mexican subsidiary, signed a four-year option agreement for 100% of the exploration and mining concessions owned by MRC, along with all of the infrastructure and mining equipment used at the La Verde mine and project area, but excluding the processing plant in Cosalá. PRG completed payments and acquired the property in 2008. PRG acquired an additional three concessions from MRC in 2006 and also filed an additional 19 concessions between 2005 and 2008. PRG's exploration is described in Section 9.1. The previous work by Noranda and Hemlo guided PRG's drill program, and many of the previously drilled mineralized holes were twinned by PRG.

6.1.2.1 Drilling by Platte River Gold

PRG initiated exploration in the vicinity of San Rafael and El Cajón in 2004 and conducted four phases of drilling through August 2008. Total PRG drill footage was 65,706m in 371 drill holes, which corresponds to the totals found in the database used by MDA to estimate the 2009 resource. Four additional drill holes (EC5a for 25.9m, EC11a for 15.2m, SR139 for 124.97m, and VE9 for 7.5m) were not entered into the database since they were abandoned or lost, not logged, and re-drilled with a new hole. No additional drilling was conducted by PRG prior to being acquired by Scorpio in August 2010.

The first phase drill program began November 20, 2004, and concluded in June 2005. The Phase I drilling, which consisted of 56 RC holes for a total of 8,423m, tested 12 different targets throughout the San Rafael-El Cajón area that had been identified by surface mapping and sampling. The most significant results of this drilling were indications of continuity of massive-sulfide (silver-lead-zinc) mineralization that had been tested by Hemlo and Noranda at San Rafael. The drilling also discovered significant silver-copper mineralization peripheral to the mineralization exposed in old mine workings at El Cajón.

The second drill phase began October 17, 2005, and ended July 6, 2006. Phase II, which consisted of 91 RC and 37 core holes totaling 18,610m, focused on defining the limits of the San Rafael mineralization and also expanding and defining the El Cajón mineralization. Due to the rugged topography and difficulty in setting up drill pads, both vertical and angle holes were used to test the mineralized zones.

The third phase began in January 2007, and ended in August 2007. Phase III, which consisted of 80 RC and 51 core holes totaling 26,508m, focused on infilling and defining the limits of the El Cajón mineralization in preparation for a maiden, publicly reported resource estimate, and also infilling the San Rafael deposit for the purposes of resource classification upgrading. The Zone 120 was recognized while drilling hole SR120 at the San Rafael deposit during Phase III.

The fourth phase of drilling began in March 2008, and ended in August 2008. Phase IV, which consisted of 56 core holes totaling 12,165m, focused on upgrading and further expanding the Zone 120, defining the limited extents of the oxide mineralization, as well as minor step-out drilling at El Cajón.

At the conclusion of all phases of PRG's exploration program through 2009, there were 194 drill holes and 14 surface trenches in the San Rafael deposit area, and 95 drill holes in the El Cajón deposit area.

6.1.2.2 Geophysical Surveys by Platte River Gold

Geophysical work by PRG, which is summarized by Ellis (2007), was completed in 2005 and 2006 by Quantec Geoscience Inc. of Reno, Nevada (USA). IP, resistivity, and ground magnetics data were collected. The IP and resistivity data were collected to map the distribution of pyrite and chalcopyrite, while the ground magnetics data were collected as a test to determine whether the skarn mineralization and intrusive rocks could be identified by their magnetic properties.

A total of five IP lines were acquired, four lines at El Habal (located west-southwest of El Cajón; see Figure 7.1), and 12 lines covering the San Rafael-El Cajón area for a total of 27.4 line-km of IP and resistivity. IP anomalies correlated with mineralization in all areas. Low-amplitude IP anomalies (<5.0 msec.) seem to correspond to the El Habal mineralization, while high-amplitude IP anomalies (reaching 20msec. or higher) correlated well with mineralization at San Rafael and El Cajón. This amplitude can indicate disseminated sulfide in the range of 3% to 5%. However, the percentage of sulfide can be much higher if the habit of the mineralization is more massive or if it consists of a lower IP-responding sulfide such as chalcopyrite (Ellis, 2007).

Resistivity was not a good indicator of mineralization. Resistivity values varied between 100ohm-m and 500ohm-m. Lateral variations in resistivity probably reflect structure, lithology, or the overprint of alteration.

Ground magnetics data were acquired along two IP lines at El Cajón during the 2006 survey. A GEM system (GSM-19) proton precession magnetometer was used for the survey, and a total of 2.5 line-km of data were acquired and plotted in profile format. The results of the magnetic survey were inconclusive. No clear correlation of magnetic anomalies with mineralization was identified. However, the value of ground magnetics is often in its ability to map lithology, structure, and sometimes alteration and is difficult to assess with limited coverage (Ellis, 2007).

6.1.3 Other Exploration and History 2008 - 2010

In addition to drilling and geophysical surveys, PRG conducted geologic mapping and chip-channel sampling of outcrops and road cuts. Geochemical data from 14 trenches located on the eastern edge of the San Rafael deposit are in the database and were used in the current resource estimate.

Subsequent to August 2008, PRG conducted regional mapping and sampling outside of the resource areas.

A three-year option agreement with MRC was signed by PRG on July 1, 2008, through its Mexican subsidiary, to purchase MRC's processing plant in Cosalá and associated infrastructure. That option was fully paid in May 2011.

On January 1, 2009, PRG signed a three-year option agreement with Contratista de Obras Mineras, S.A. de C.V. ("COMSA"), a Mexican contract-mining company, to sell the Cosalá processing plant. COMSA completed its option payments in June 2011.

As of 2006, the La Verde mine had produced about 1.5 million tonnes of ore, and for the 18 months through January 2006, the average grade had been 152g Ag/t and 0.53% Cu (Armbrust and Chlumsky, 2006). In January 2009, the operation of the La Verde mine was leased to COMSA. That lease agreement allowed COMSA to extract ore from the La Verde mine and process it at the processing plant in Cosalá. A royalty was paid to PRG on the concentrate sales. The La Verde mine operating lease was terminated in February 2011, by which time COMSA had excavated and processed 281,000 tonnes with grades of approximately 114g Ag/t, 0.46% Cu, and 0.10g Au/t. The La Verde portion of Americas' property is not part of the resources described in Section 14.0.

Scorpio (now Americas) acquired all of the outstanding shares of PRG effective April 1, 2010, thereby acquiring the San Rafael-El Cajón-La Verde area concessions. America's exploration in this area is described in Section 9.1, and their drilling is described in Section 10.0.

6.2 Previous Resource Estimates

6.2.1 San Rafael and El Cajón

Previous estimates of the mineral resources of the San Rafael-El Cajón deposits were made in-house by PRG and by independent consultants including MDA, whose work culminated in two draft technical reports in 2007 and 2008 (Ristorcelli and Tietz, 2007; 2008) that were never made public and a published technical report in 2009 (Ristorcelli *et al.*, 2009). Previous estimates by both PRG and MDA are presented here as historical estimates in the interest of complete disclosure. Americas is not treating these previous estimates as current mineral resources. These previous estimates should not be relied upon and are superseded by the current mineral resource estimates for San Rafael reported in Section 14.0.

PRG completed a number of polygonal resource estimates both during and at the completion of their 2005-2006 drill program (Table 6.1). These preliminary resource estimates do not meet NI 43-101 reporting requirements but are included here for completeness and as historical information. The authors have not done sufficient work to classify these historical estimates as current mineral resources, and Americas is not treating these historic estimates as current mineral resources.

Preliminary polygonal resource estimates for the San Rafael mineralization were completed by PRG in December 2005 (Armbrust and Chlumsky, 2006) using cross sections created in Surpac Software's XplorPac program (Table 6.1). The number of drill holes used in the San Rafael estimate was not stated in the Armbrust and Chlumsky report. Mineral shells were created with material exceeding $20/tonne. PRG used a density of 4.0g/cm^3 for San Rafael mineralization.

Updated polygonal resource estimates were completed in May 2006 by PRG (Armbrust and Chlumsky, 2006) based on 41 San Rafael drill holes (Table 6.1). The same specific gravities were used again, but the mineral shells were created with material exceeding $50/tonne.

In August 2006, at the end of the 2006 drill program, PRG completed a final polygonal, cross-section resource estimate for the San Rafael mineralization (Table 6.1). The estimates were based on 101 drill holes at San Rafael, with a final drill spacing of 15 to 60m (PRG, 2006b). Shells created at $50/tonne material (based on $8.25/oz Ag, $0.49/lb Pb, $0.78/lb Zn, $2.01/lb Cu and $493/oz Au) were used.

The San Rafael estimate used a 4.0g/cm^3 density and included only the significant sulfide-bearing drill intercepts. Oxidized mineralization was not included in the August 2006 estimate. The resource was said to be open immediately to the southeast.

In November 25, 2009, MDA completed a Technical Report for PRG and Scorpio that included the first publically reported mineral resource estimates for San Rafael (Ristorcelli *et al*., 2009) (Table 6.2).

Those estimates were based on PRG's drilling through 2008. MDA updated the 2009 resource estimates in a 2013 Technical Report (Dyer *et al.*, 2013) as shown in Table 6.3. The interested reader is referred to that report for details, but those estimates are superseded by the estimates described in Section 14.0 of this report.

Table 6.1 Previous Resource Estimates for the San Rafael and El Cajón Deposits by Platte River Gold (As reported in Armbrust and Chlumsky, 2006 and PRG 2006b)

Date	Area	Tonnes	g Ag/t	g Au/t	Zn %	Pb %	Cu %
December 2005	San Rafael	4,700,000	55		3.0	1.6	
	El Cajón	1,900,000	165	0.33			0.59
May 2006	San Rafael	3,500,000	72		4.2	2.2	
	El Cajón	2,100,000	239	0.43			0.79
August 2006	San Rafael	4,590,000	66.8		4.57	2.02	
	El Cajón	1,630,000	246.1	0.45			0.82

Table 6.2 2009 MDA Resource Estimate for San Rafael

(Ristorcelli *et al*., 2009)

Measured and Indicated

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.50	15,741,000	1.78	0.80	66.0	0.08	0.11	617,219,000	276,417,000	33,416,000	29,258,000	56,000	4.28

Inferred Resource

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.50	545,000	0.38	0.23	72.7	0.15	0.11	4,578,000	2,773,000	1,274,000	1,757,000	2,000	2.69

Table 6.3 2013 MDA Reported Resource Estimate for San Rafael

(Dyer *et al*., 2013)

Measured and Indicated Resources (1.5% ZnEq cut-off)

Class	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
Measured	5,124,000	2.10	0.93	72.9	0.06	0.14	237,277,000	104,906,000	12,013,000	7,187,000	23,000	6.55
Indicated	14,788,000	1.37	0.56	57.6	0.10	0.10	446,863,000	182,409,000	27,409,000	31,776,000	48,000	4.84
M+I	19,912,000	1.56	0.65	61.6	0.09	0.11	684,140,000	287,315,000	39,422,000	38,963,000	71,000	5.28

Inferred Resource (1.5% ZnEq cut-off)

Class	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
Inferred	3,331,000	0.18	0.58	56.1	0.08	0.16	13,170,000	42,619,000	6,006,000	5,584,000	17,000	3.67

7.0 GEOLOGIC SETTING AND MINERALIZATION

7.1 Geologic Setting

7.1.1 Regional Geology

The Cosalá mining district lies along the western edge of the Sierra Madre Occidental, an extensive volcanic province covering approximately 800,000km^2. The pre-volcanic basement consists of a variety of tectonic/stratigraphic terranes of Precambrian, Paleozoic, and Mesozoic rocks. In the Cretaceous, a thick sequence of sedimentary units, primarily limestone, pelitic rocks, and andesitic volcaniclastic units were deposited over the basement terranes. These marine sedimentary and volcanic rocks were intruded episodically from 140 million years ago to 45 million years ago by the composite, gabbroic to dominantly granodiorite and granitic intrusions of the Sinaloa Batholith, and host many of the carbonate replacement and skarn deposits in Mexico. The Cretaceous sedimentary rocks are unconformably overlain by Late Cretaceous and Tertiary volcanic rocks, which have been subdivided into a lower, largely andesitic sequence (70 to 40 Ma) and an upper, mostly rhyolitic sequence (40 to 20 Ma). Both volcanic sequences can range up to 1km or more in thickness. Within the western Sierra Madre Occidental, the Mesozoic rocks have been altered to recrystallized limestone and skarn in many locations.

An extensional, basin and range-type phase of faulting overprinted the western portion of the Sierra Madre Occidental during formation of the Gulf of California in Miocene time. In the Cosalá region this late-Tertiary faulting produced an extensive, northwest-trending graben and related, parallel fault system, along with later northeast-trending dextral faults.

Mineralization within the Cosalá mining district is related to granodioritic or granitic intrusions of the Sinaloa Batholith, a composite gabbroic to granodioritic complex that induced strong contact metamorphism in adjacent sedimentary and volcano-sedimentary units. Exposures of the sedimentary rocks and associated mineralization are small and surrounded by Tertiary volcanic rocks (Armbrust *et al.*, 2006).

7.1.2 Property Geology

7.1.2.1 San Rafael Area

Much of the following information is taken from PRG (2006b and 2006c).

The geology of the San Rafael area is dominated by intrusive and extrusive volcanic rocks that make up much of the Sierra Madre Occidental (Figure 7.1). Cretaceous limestone, commonly recrystallized and marbleized, but only locally skarn-altered, is exposed within windows in the Tertiary volcanic rocks and is the oldest unit identified to date in the San Rafael area. The basal Tertiary unit is a volcaniclastic arenite composed of heterolithic volcanic clasts that are variable in size, sub-angular to sub-rounded, and commonly porphyritic. Clast and grain size generally range from fine-grained sand to medium-sized boulders, and the unit commonly displays graded bedding. The arenite is a really extensive rock type on the property and is also the primary host for skarn alteration/mineralization at the original La Verde mine. The protolith at El Cajón was originally believed to be a fine-grained limestone sub-unit within the Tertiary volcaniclastic arenite, although the current interpretation is that the altered limestone is of Cretaceous age. Overlying the basal arenite are andesitic flows, andesitic tuffs and dacitic tuffs. At San

Rafael, the basal arenite section is missing, and massive sulfide mineralization occurs primarily along the dacite tuff-Cretaceous limestone contact, with additional mineralization within the dacite in the Upper Zone, and skarn-altered limestone, which is the main host rock for the Zone 120. The youngest rock type is felsic rhyolite tuff. The rhyolite tuff contains quartz phenocrysts and small lithic fragments. Although there are silver-gold veinlets that crosscut the tuff, no strong silver-copper-gold or silver-lead-zinc mineralization has been identified in the rhyolite. Figure 7.1 and Figure 7.2 and Figure 7.3 show the geology of the San Rafael area.

Figure 7.1 General Geology of the San Rafael Area

(Area shown in the dark outline is approximately that shown in Figure 4.2)

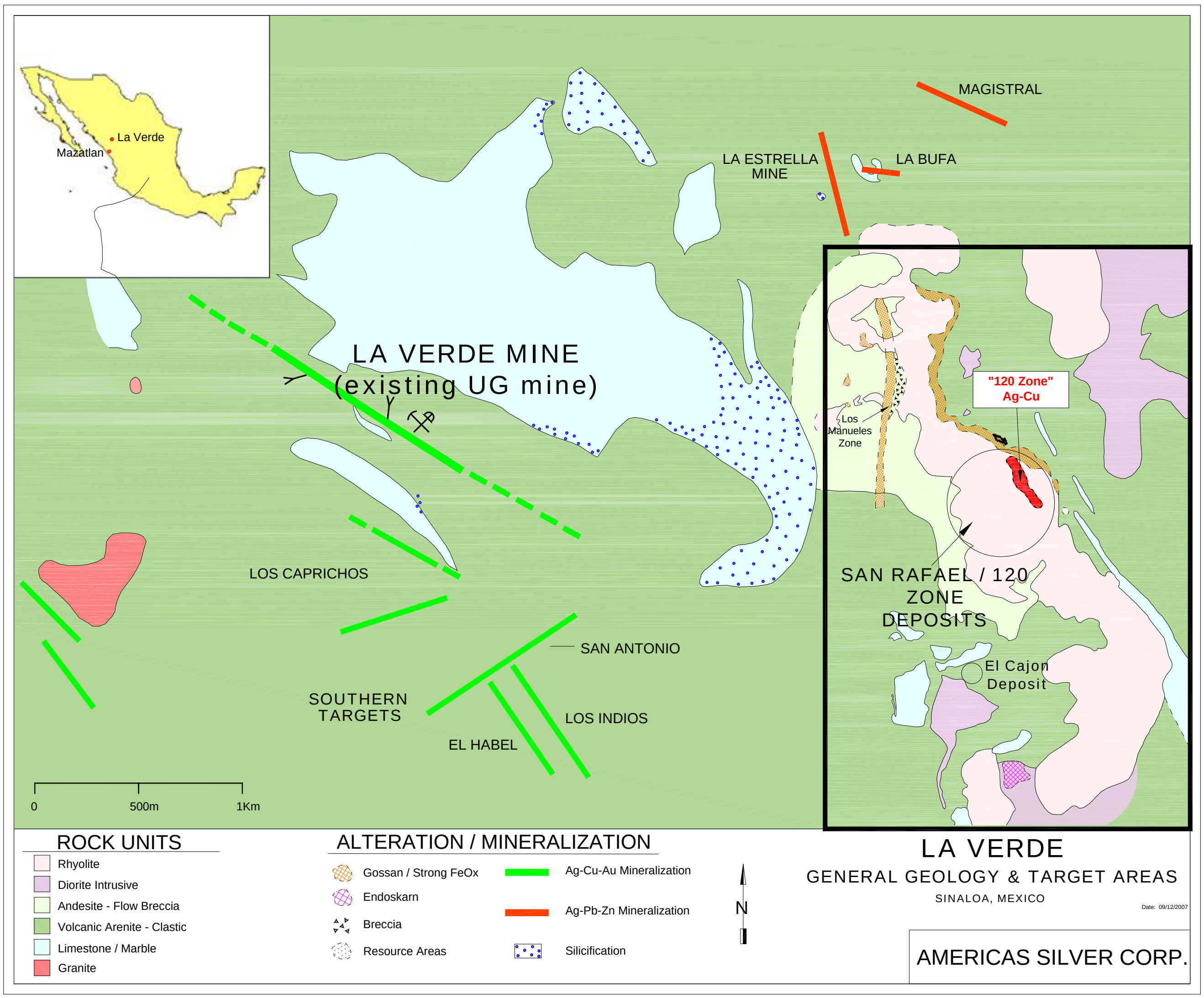
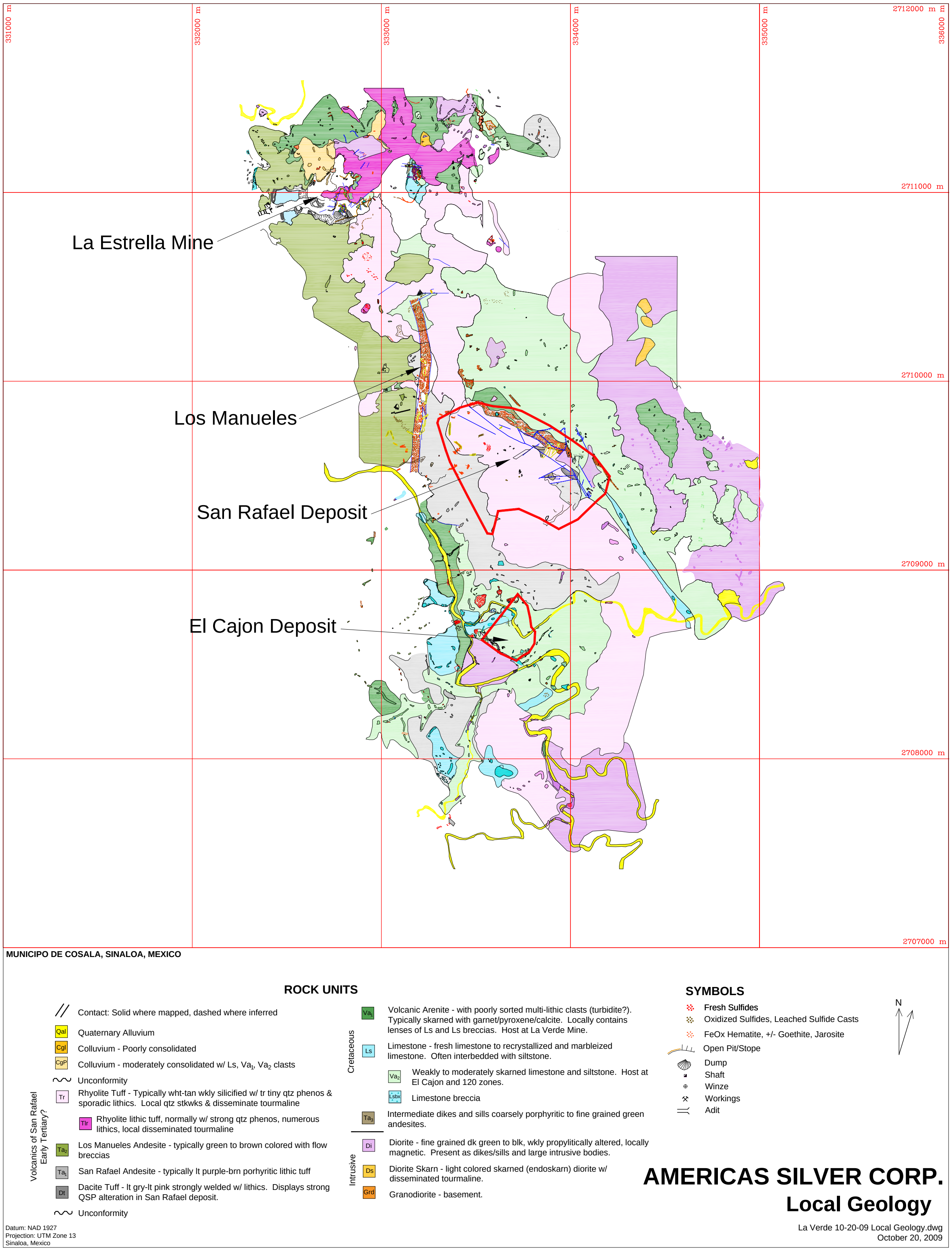


Figure 7.2 Detailed Geology of the La Estrella - San Rafael - El Cajón Area



Three types of intrusions are present in the San Rafael-El Cajón area. Medium- to coarse-grained granodiorite, which is part of the district-wide batholith, crops out in the western part of the project area and was also intersected at the bottom of a number of PRG drill holes in the El Cajón area. There are also large, local intrusions of diorite, often occurring as sills, that are interpreted to be related to the emplacement of the batholith. Andesitic dikes and sills, which are sometimes weakly magnetic, are also present.

The property-wide dioritic intrusions are often weakly magnetic and generally only weakly altered, although the dioritic intrusion(s) spatially associated with the El Cajón mineralization exhibit a pervasive skarn alteration assemblage consisting of albite, tourmaline, scapolite, epidote, calcite, titanite (sphene), and minor quartz. Though pervasively altered, the diorite contains only trace amounts of pyrite and chalcopyrite. The skarn-altered diorite was often logged by earlier geologists as quartz monzonite.

The skarn alteration in the vicinity of San Rafael covers a broad area of at least 20km^2. Paragenetically, from earlier to later stage, typical skarn minerals are garnet (especially andradite and grossularite), pyroxene, wollastonite, and potassium feldspar, followed by calcite, chlorite, epidote, quartz, sericite and pyrite. Calcite and chlorite abundances increase near the mineralized zones. A quartz-sericite-pyrite assemblage is associated with the dominant, massive-textured, sulfide replacement mineralization at San Rafael.

7.2 Mineralization

Much of the following information on the San Rafael and El Cajón mineralization was taken from PRG (2006b), with the more detailed petrographic data from Larson (2005a, 2005b, 2006a, and 2006b).

7.2.1 San Rafael Mineralization

Three principal zones of sulfide mineralization have been identified within a broad area of skarn alteration in the vicinity of San Rafael and nearby El Cajón. The San Rafael Main Zone consists of masses of sulfide grains that occur as replacements at an unconformable contact between what is believed to be Tertiary dacite tuff and Cretaceous limestone. Although it can be difficult to determine the host rock when total sulfide content is 90 to 100%, most of the massive sulfide replacement mineralization appears to be hosted in the dacite tuff. It contains silver, lead, and zinc mineralization with lessor gold and copper. The main minerals are pyrite, pyrrhotite, sphalerite, and galena with minor marcasite, chalcopyrite, and magnetite. This mineralization in the San Rafael Main Zone is often associated with quartz-sericite-pyrite alteration that has been interpreted as more distal skarn alteration. It has also been suggested that the San Rafael Main Zone displays many similarities to volcanogenic massive-sulfide deposits, such as those found in the Guerrero Terrane in central Mexico.

Mineralization within the Main Zone at San Rafael is primarily massive, sulfide-replacement material, which can contain greater than 90% sulfides, dominantly pyrite and pyrrhotite. The sulfide body is discrete, tabular, and lies along the shallow-dipping dacite tuff - limestone contact (Figure 7.3) where it has been referred to as “massive-sulfide mineralization” in previous reports. The zinc, lead, and silver, for the most part, lies within the body of sulfide replacement and consists of sphalerite and galena. The contacts of all elemental zones generally overlap within the massive sulfide, but mineral-shell boundaries and their internal grade distribution are not necessarily coincident.

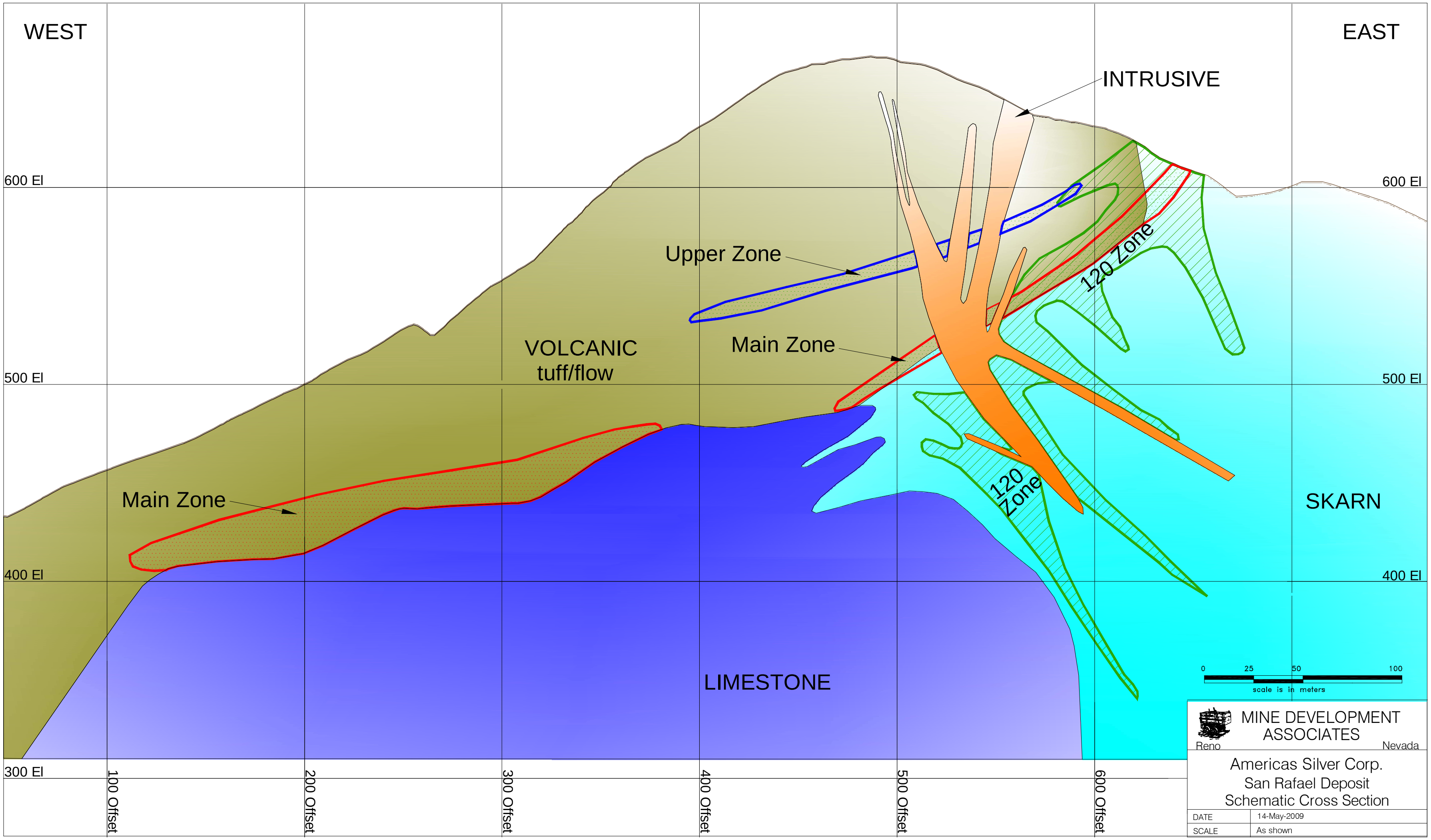
The silver-gold "Upper Zone" lies within the Tertiary volcanic rocks about 50 to 100m above the Main Zone sulfide replacement of the San Rafael deposit. The Upper Zone is composed of irregular, sub-horizontal layers sub-parallel to the Main Zone. Mineralization consists of sulfides, but sulfide content is much less than in the Main Zone. Weak base-metal mineralization occurs with the silver.

The Zone 120 at San Rafael occurs not as a single horizon, but as multiple bedding- and intrusive-contact-related mineralized horizons. The Zone 120 mineralization is interpreted to occur along near-vertical contacts between diorite and skarn-altered limestone in the lower parts, and in quartz-sericite-pyrite-altered volcanic rocks in the upper parts. The Zone 120 mineralization extends upwards to overlap the Main Zone mineralization (Figure 7.3). Mineralization is associated with generally 2 to 10% sulfides and is more irregular in shape and more variable in mineral character than the San Rafael Main Zone. It consists of silver-copper-gold mineralization in the form of chalcopyrite and tetrahedrite with minor pyrite, galena, sphalerite, arsenopyrite, chalcocite, jalpaite, native silver, copper, and bismuth. This mineralization accompanies pyroxene-garnet-calcite skarn alteration. A skarn-altered limestone is the host at El Cajón and is also believed to be one of the host units at the Zone 120. Both skarn alteration and sulfide mineralization are spatially associated with intermediate dikes, sills, and small stocks.

Minor oxide mineralization occurs throughout the San Rafael-El Cajón area. Significant gossan horizons are exposed along road cuts located up dip from the San Rafael sulfide mineralization, and a strong gossan surface trend occurs within the Los Manueles area just north of San Rafael. The exposed San Rafael oxide mineralization has been explored by shallow drill holes and surface trenches and has been sampled for metallurgical test work, but it contributes only incrementally to the current San Rafael resource.

In addition to the mineralization at San Rafael and El Cajón, mineralized material has been mined from the La Verde mine and has been drilled or identified at Magistral, La Bufa, San Antonio, and elsewhere in the neighboring area (Figure 7.1).

Figure 7.3 San Rafael Schematic Geologic Cross-Section with Mineralized Zones



8.0 DEPOSIT TYPES

The Zone 120 in the eastern portion of the San Rafael deposit contains silver-copper-gold mineralization within garnet-pyroxene-calcite skarn. The strong metasomatic alteration and the close spatial relationship with a large dioritic intrusion suggest that the Zone 120 represents a proximal skarn deposit. Silver-lead-zinc mineralization, in the form of massive sulfide replacements in the Main Zone, and to a lesser extent in the Upper Zone, is associated with quartz-sericite-pyrite alteration. This alteration and mineralization type is believed to be a more distal phase of the skarn system.

9.0 EXPLORATION

9.1 San Rafael Area

This section describes exploration of the San Rafael area by Americas and its predecessor Scorpio since the acquisition of PRG by Scorpio. All work completed by Scorpio before the corporate name change is attributed to Americas in the section.

Quantec Geoscience Ltd. completed a 48-line-kilometer Titan-24 DC/IP geophysical survey centered over the San Rafael area in 2010 (Izarra, 2010) at the request of Americas. The survey was initiated in June 2010 and covered a 3km x 3km area, using 100m dipole spacing with a 200m line spacing. Americas acquired the San Rafael and El Cajón properties in August 2010, and drilled seven exploration core holes at El Cajón between September and November 2010 to test some of the anomalies based on interpreted results of the Quantec DC/IP survey. A total of 2,555m was cored by Major Drilling, but the results were not encouraging and have not been followed up by additional drilling. These holes are not located within the San Rafael-El Cajón resource areas.

During 2011 through July 1, 2012, Americas drilled an additional 141 core holes at San Rafael totaling 13,578m. No drilling was conducted at San Rafael in 2013. During 2014 through July, 2015, Americas drilled 21 core holes totaling 2,463m. Details of Americas drilling in 2011 through July, 2015 is described in Section 10.3. Apart from the DC/IP survey and core drilling summarized above, Americas has conducted road building and limited mapping.

10.0 DRILLING

As of July, 2015, 356 drill holes totaling 48,709m have been drilled in the San Rafael area (Table 10.1). This total includes 194 drill holes completed by PRG between 2004 and 2008, and 162 drill holes completed by Scorpio/Americas in 2011, 2012, 2014 and 2015.

Figure 10.1 shows the drill-hole locations at San Rafael and the current resource outline.

Table 10.1 Summary of Drilling in the San Rafael Area

Property	# of RC Drill Holes	Length (meters)	# of Core Drill Holes	Length (meters)	# RC-Core Drill Holes	Length (meters)
Platte River Gold (2004 thru 2008)						
San Rafael	124[1]	18,881.8	43	7,554.1	27	6,018.4
PRG Totals	**124**	**18,882**	**43**	**7,554**	**27**	**6,018**
Scorpio/Americas (2010 thru 2012)						
San Rafael			141	13,792		
Scorpio/Americas (2014 thru July 2015)						
San Rafael			21	2,463		
Scorpio/Americas Totals			**162**	**16,255**		
Grand Total	**124**	**18,882**	**205**	**23,809**	**27**	**6,018**

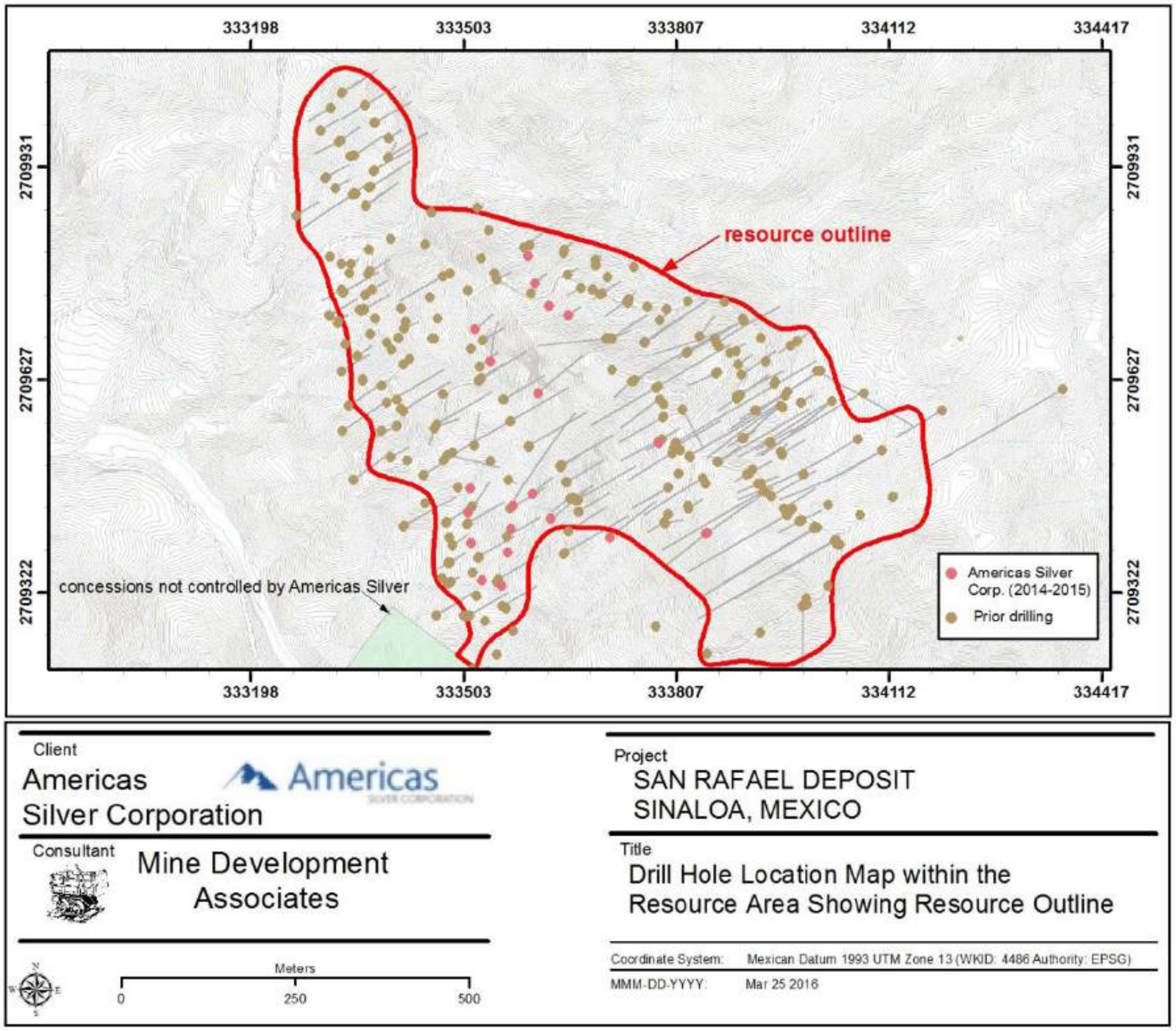
[1] Does not include one RC hole (SR139 totaling 125 meters) which was abandoned and is not in the current database.

10.1 Historical Drilling, San Rafael Area Prior to Platte River Gold

As discussed in Section 6.1, Asarco, Peñoles, Mr. Jaime Guinea Gonzalez, Hemlo, Golden Panther, and Noranda are known to have drilled in the vicinity of San Rafael and El Cajón during their tenure. None of these holes are included in the database, and none were used for the resource estimates of this report. MDA has no details about any of this drilling, contractors or type of rigs used, or down-hole surveying, although PRG has some hard-copy records of some of the historical drilling.

In 1997, Hemlo drilled 15 RC holes in the San Rafael area. Noranda drilled seven vertical core holes in the San Rafael area in 2001. PRG subsequently drilled twins of five of Noranda's holes. Americas has PRG's electronic archive which contains the assay data for six of Noranda's drill holes.

Figure 10.1 2015 San Rafael Drill-Hole Location Map



10.2 Drilling by Platte River Gold

PRG's drilling took place in four phases from late 2004 to 2008. The details of each phase have been reported by Ristorcelli *et al.* (2012) and by Dyer *et al.* (2013). Phase I drill program in late 2004 to mid-2005 tested prospects throughout the San Rafael-El Cajón area. Phase II, drilled in late 2005 through mid-2006, focused on the San Rafael and El Cajón targets. Phase III, drilled in early to mid-July 2007, further delineated the San Rafael and El Cajón targets and also tested other exploration targets on the property. Phase IV drilling focused on upgrading and further expanding the Zone 120 and defining the limited extents of the oxide mineralization, as well as minor step-out drilling at El Cajón.

There were no abandonment procedures upon completion of the Phase I and II drill holes. The holes were left open, and the collar location marked by a large painted rock so as to be identified by the surveyor. The Phase III drill-hole collars have the drill-hole name and number marked on a metal plate attached to a buried rebar post. Phase IV utilized a short piece of PVC tubing with rebar placed in the top to hold the tubing near the top of the hole. The drill-hole locations soon become obscured due to both traffic and slope failures, and then the resulting road reconstruction, especially after the late summer rainy season.

10.2.1 Reverse Circulation Drilling by Platte River Gold

PRG's Phase I RC drilling was done by Layne de Mexico, S.A. de C.V. ("Layne"), which is based out of Hermosillo, Sonora, Mexico. The drilling was completed using a truck-mounted Ingersol Rand TH-100 RC rig with a 900cfm and 350psi compressor. Due to the large volumes of water encountered in the drill holes, a secondary booster compressor was used in the spring of 2005 to improve the penetration rate and the ability to complete the holes to desired depth.

The Phase II, III, and IV RC drilling was done by Layne and Major Drilling de Mexico, S.A. de C.V. ("Major"). Layne utilized a Drill Systems MDP 1500 track-mounted drill with a 900cfm and 350psi compressor, and later a Foremost Prospector buggy rig with 750cfm air. No booster compressor was used by Layne in either the Phase II or III programs. Major utilized Phase a track-mounted UDR-650 drill with RC- and core-drilling capabilities for II, III, and IV RC drilling.

During the Phase I drilling, the general practice was to drill all holes using a 5.25in.-diameter face-discharge hammer ("FDH") bit to minimize sample loss. However, the high volumes of water encountered in many drill holes exceeded the capacity of the FDH, and the bit was changed to a standard Mission hammer, which has the interchange sub 1.5m above the bit. Even using the Mission hammer, the high water volumes stopped completion of several holes above the desired depth. A tricone bit was attempted in a few holes, but the penetration rate was very slow, and the holes were terminated before the desired depth was reached. When the booster compressor arrived in early 2005, it allowed completion of most of the remaining Phase I holes to desired depth using a hammer bit, although high water flows continued to be a problem.

The Phase II, III, and IV RC drilling was completed using only FDH bits. The Layne RC drill rig was used primarily at San Rafael, where most drill holes were completed at shallow depths, and lower volumes of water were present.

In all phases of drilling, the RC holes were drilled using a 5 1/8in to 5 ½in drill bit. Samples were collected every 5ft or 1.5m depending on the drill rig. The sample bags were pre-numbered at the drill site, and chip trays were made as drilling progressed. A geologist logged the hole at the drill site as the hole progressed. A review of the drill logs by MDA indicates that most of the Phase I RC logs contain comments concerning drilling problems, groundwater depths and flows, and approximate sample recovery. Very few of the Phase II, III, or IV RC drill logs comment on these same drilling issues. However, a separate field notebook was kept with similar comments.

10.2.2 Core Drilling by Platte River Gold

Major's core drilling was done with a track-mounted UDR-650 drill. Core recoveries were generally greater than 95%, although lower recoveries occurred when drilling in strongly fractured and cavernous recrystallized limestone. The drill runs were the standard 10ft (3.05m) length, and continuous 1m or greater sticks of core were common.

Core was put into wooden core boxes (3m/box) with wood blocks marking drill depth (in meters) between each run. The core was picked up twice per day by PRG personnel and transported to a secure, gated facility in Cosalá, where it was logged, photographed, and split for samples. The geologic logs are fairly comprehensive, with columns for rock quality data (RQD and core recovery) and various geologic characteristics, including lithology, alteration, comments, and most significantly for the project, both total sulfide percentage and individual sulfide-mineral percentages. The geologist marked the intervals to be sampled, and a technician photographed and then split the core. Only the core to be sampled was photographed. After being logged and sampled, the core was stored outside at the secure Cosalá facility, with no overhead cover to protect the core from the weather. In 2009, the core was moved to a covered storage area at the same Cosalá facility.

10.2.3 Drill-Hole Surveying by Platte River Gold

Drill-hole collars were surveyed with a Trimble total station survey instrument by Servicio Topographic (now Terra Group) of Hermosillo. The surveyor was on-site every two to three months and surveyed the new drill holes and any other significant surface disturbance. Collar surveys are available on 331 of the total 371 drill holes within the San Rafael – El Cajón area and all 14 of the surface trenches used in the San Rafael resource estimate. The majority of drill holes without collar surveys are located away from the San Rafael and El Cajón resource areas. Within the current resource model, collar surveys are not available for one San Rafael drill hole.

The majority of RC holes in Phase II and Phase III were surveyed down-hole with a Reflex EZ-Shot survey tool giving digital readings. The RC hole surveys were taken inside the drill rods due to a concern over losing the survey instrument in the open hole. This procedure provides accurate dips but meaningless azimuth readings due to the magnetic effects of the drill rods. As a result of the unusable azimuth readings, all vertical RC holes remain as undeviating vertical holes in the database. For angle holes, the azimuth reading in the database is the estimated collar reading determined by the geologist using a Brunton compass. In Phase I and Phase II, the drill site was flagged with a predetermined azimuth, and after the rig was set up, there was usually no further reading on orientation. During Phase III and Phase IV, the rig orientation was routinely checked by the responsible geologist using a Brunton compass. Corrections to actual rig orientation were noted and changed on the drill log before being entered into the database. While in the field, MDA did not observe the down-hole survey procedures at either the RC drill rig or the core rig.

None of the Phase II core holes were surveyed down-the-hole. The Phase III, and IV core down-hole surveys were taken below the drill rods, and the azimuth and dip readings were used in the database. The magnetic nature of some of the project lithologies, especially the dioritic intrusions on the east side of San Rafael, resulted in a number of azimuth readings which had significant deviations from either the collar set-up orientation or from adjacent down-hole readings. To aid in determining the “accepted” survey values, the magnetic field data, as recorded by the driller for each survey reading, were analyzed with particular attention to spurious magnetic field values significantly different from the general magnetic field. This information was recorded and compared to the coincident azimuth values. The result showed a high correlation between spurious magnetic field readings and erratic azimuth values. As a result of this analysis, 13 individual survey readings out of a total of over 1,000 were removed from the database.

10.3 Core Drilling by Americas

As of July 2015, Americas has completed a total of 162 core holes for 16,255m in the San Rafael deposit. This drilling was primarily shallow (100m average depth), with vertical and angle holes targeting extensions of mineralization to the northwest and along the east edges of the San Rafael deposit. Infill holes were also drilled to test and upgrade the resource classification.

Americas' core drilling in the San Rafael resource area included 10 geotechnical core holes completed in 2012 and 8 metallurgical holes completed in 2015. The geology from the geotechnical holes was used to guide the geologic model, but assay data were not available to be used in the resource estimate. Assay data was available for the metallurgical holes and was used in the current resource estimate.

Americas began core drilling within the San Rafael mineralized area in the fall of 2011. MAZA Drilling out of Mazatlán was the operator, and the rigs were drilling HQ-size core. Americas also drilled four other areas in the vicinity, including surface and underground targets at the La Verde mine area, and seven core holes were drilled in the El Cajón area from September to November 2010 to test geophysical anomalies.

Americas reported that in the summer of 2012 at San Rafael they were using Forage Val d'Or 38 rigs, drilling HQ core and reducing to NQ when necessary. For Americas metallurgical drilling in 2015, MAZA Drilling was the operator, and the rig was drilling PQ-size core.

The core was collected from the rig once or twice per day and transported to Americas' camp outside of Cosalá. Geotechnical and geologic logging and photography of the core were completed in Cosalá.

The 2011 and 2012 drill collars were located by total-station surveying provided by Hector Martinez, a licensed surveyor. The 2014 and 2015 drill collars were surveyed with a total station or triangulation by Americas' Nuestra Señora mine personel. Down-hole survey information for all drill programs was collected using Reflex survey tools.

10.4 San Rafael Core Recovery

PRG and Americas collected and recorded core-recovery data for all but three of the San Rafael core drill holes. The recovery data were based on the drill-run lengths, which in optimal drilling conditions were usually a standard 3.05m or 3m length, respectively for the PRG and Scorpio drilling. Drill runs were often smaller in zones of broken ground. The recovery data, both the measured total core pieces and the calculated recovery in percent, were recorded on the drill log and then entered into a spreadsheet for analysis.

The average core recovery for the San Rafael holes, based on 8,383 drill runs with calculated recovery data, is 92.2% while the median value is 98%. Removed from this data set are the initial collar intervals (drill runs starting at <3m depth), which often have low recoveries due to surficial soil and/or highly broken ground. Approximately 20% of the core footage has recoveries less than 90% and only 3% of the San Rafael drill runs had calculated recoveries less than 50%. Core recovery from San Rafael is good to excellent and can be used to support the resource estimate.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Sampling Methods at San Rafael

The following information refers only to the work of PRG and Americas. MDA has no information on sample preparation, analyses, or security used by prior operators, but none of their samples are used in the resource estimate.

11.1.1 RC Sampling by Platte River Gold

Samples were collected every 5ft or 1.5m depending on the drill rig. The samples were split at the drill rig with a mechanical splitter for the dry samples and a rotating splitter for the wet samples. A Gilson splitter was used at the UDR drill rig, while a Jones three-tiered splitter was used by the Layne rig. PRG stated that for Phase I and Phase II, a 12.5% split was generally collected for the dry samples, while the wet samples were usually a 16.6% split. During Phase III, PRG changed to larger sample bags that allowed for a 41.7% dry split and a 20.8% wet sample split. The sample splits were varied at times when sample return was very low to assure sufficient sample size (PRG, 2006d). The change in sample split occurred between samples and never within an individual sample. In areas of bad ground and resulting poor sample recovery, such as observed by MDA during their site visit, it was at times necessary to collect all of the sample returned to have a sufficient sample size for assaying. PRG noted the drilling conditions and significant changes in sample procedures for each hole.

The split dry samples were collected in 11x17in cloth sample bags in Phases I and II. During Phase III, PRG changed to 20x24in cloth bags that fit inside a 5-gallon bucket. The wet samples were collected in 5-gallon buckets, with the excess water allowed to overflow the bucket. There was some loss of sample due to the overflow, which could have been substantial when drilling in high-water zones. At the end of the sample interval, the bucket was removed and replaced with a clean bucket for the next sample. In Phases I and II, the complete sample was collected by decanting the water and filling an 11x17in cloth sample bag with the remaining solids. During MDA's site visit in 2007, it was observed that there was a minor amount of spillage and sample loss when filling the sample bag. MDA suggested PRG use larger sample bags to both avoid any sample spillage and simplify the sample collection. During Phase III, PRG changed to 20x24in cloth sample bags. Sample collection was greatly improved using the larger sample bag and bucket combination for both wet and dry samples, and larger sample splits were collected for RC samples.

Duplicate samples were collected every 20th sample for submission to a second laboratory. At the geologist's discretion, duplicate samples were also collected within the mineralized zones and sent to the primary lab for analysis. The mineralized duplicate samples were taken every time from the same side of the splitter and were given unique sample numbers to assure anonymity.

When the RC hole was completed, the samples to be submitted for analysis were selected, and appropriate blanks and standards were inserted blind into the sample sequence. In general, one blank and one standard were inserted for every 40 samples. The samples for analysis were placed into large rice sacks, sealed, and moved to PRG's secure facility in Cosalá, where they were stored until they were shipped to the laboratory.

11.1.2 Core Sampling by Platte River Gold

PRG's core samples were split in half using a hydraulic splitter, a traditional splitter, or a simple hammer; the hardness of the rock made splitting very difficult. No core was sawed. Half the sample intercept was put into 11x17in sample bags, while the remaining half was left in the core box. Once the core hole was completely logged, split, and sampled, appropriate standards and blanks were added to the sample stream, and the samples then shipped to ALS Minerals ("ALS") in Hermosillo, Sonora, Mexico. The remaining split core was stored in Cosalá at a secure site, but until 2009 was only covered with waterproof tar paper. In 2009, the core was moved to a covered storage area at the same Cosalá facility.

11.2 San Rafael Core Sampling by Americas

The following information is based on a site visit by MDA in fall 2011 (Tietz and Lindholm, 2011) and information provided by Americas.

After geotechnical and geologic logging at a secure core processing facility near Cosalá, the core was marked for sampling. The geologist determined sample intervals using geology as a guide, but only mineralized core (where sulfides are noted) was sampled as of September, 2011. Core was split using a hydraulic splitter, although at the time of MDA's 2011 site visit, some select pieces were cut using a diamond saw to provide a smooth surface for viewing sulfide mineralization. The mineralized zones are not generally highly fractured, and the split core appeared to provide an adequate sample split. Half core was sampled and bagged in poly cloth bags with sample numbers written on bags; no sample tag was inserted into the bag. Sample numbers were based on a pre-determined scheme that allowed for insertion of standards, blanks, and duplicates. Blanks and standards were added to the sample stream in a random fashion, with an approximate average of one standard, one blank, and one duplicate in every 20 samples. Samples were bagged in rice bags and stored for shipment by truck, using an independent contractor, to the ALS lab in Hermosillo.

11.3 San Rafael Sample Preparation and Analysis

All of PRG's primary RC and core samples were sent to ALS for sample preparation and analysis. Silver, copper, lead, and zinc were analyzed by four-acid (HF-HNO_3-$HClO_4$-HCl) digestion and inductively coupled plasma atomic-emission spectrometry ("ICP-AES") and/or AA finish (ALS method OG62). Gold was analyzed by 30g fire assay with atomic absorption finish ("FA-AA"). Sample preparation took place in ALS's Hermosillo laboratory, and coarse rejects were stored in Hermosillo in a PRG warehouse. Pulps were sent by ALS from Hermosillo to the ALS assay laboratory in North Vancouver, B.C., Canada, for analysis.

RC rig duplicates were regularly checked by a second lab during drilling Phases I through III. PRG used SGS de México S.A. de C.V. ("SGS") for the Phase I and II (years 2005 and 2006) second-lab check assaying of the ALS results. SGS has a sample preparation facility in Durango City, Durango, Mexico, and the pulps were sent to Toronto, Canada for analysis. SGS used a similar multi-acid digestion and ICP-AES analysis (SGS method ICP90A), for the base-metal and silver, and a FA-AA process for the gold. PRG used International Plasma Labs Limited ("IPL") for the Phase III (year 2007) second-lab check assaying of the ALS results. IPL had a sample preparation facility in Hermosillo, Sonora, Mexico, and the pulps were sent to Richmond, British Columbia, Canada for analysis. IPL used a similar multi-acid digestion for the base-metal and silver analysis, and a FA-AA process for the gold. No second-lab check samples were submitted from PRG's Phase IV samples.

For drilling in 2011 and 2012, samples were delivered to ALS's preparation laboratory in either Hermosillo or Chihuahua for drying, crushing, and pulverizing. ALS then shipped the pulps by air-freight to ALS in North Vancouver for assaying. Gold was analyzed by FA-AA on a 30g sample (ALS method Au-AA23). Silver, lead, zinc, and copper were analyzed by HF-HNO_3-$HClO_4$ digestion with HCl leach and inductively-coupled plasmanatomic-emission spectrometry ("ICP-AES") or AA finish (ALS method OG62). For Scorpio's (now Americas) 2014-2015 drilling, the samples were analyzed for gold by 30g FA-AA, and for 33 major, minor and trace elements by ICP-AES following a 4-acid digestion (ALS method ME-ICP61). Overlimits were re-analyzed by atomic absorption (ALS method OG62) for silver, copper, lead and zinc.

The QA/QC program used by Americas included standards, blanks, and duplicate pulps sent to a second laboratory as described in Section 12.3.

11.4 Security

For Americas' drilling, samples are kept within a guarded compound until shipping. Samples are delivered by a company driver and vehicle to a contract shipper, who ships the samples to the preparation laboratory. A signature is acquired from the representative of the contract shipper. On rare occasions, Americas' driver will deliver samples directly to the laboratory.

As of MDA's visit in September 2011, the pre-2011 San Rafael core drilled by PRG was stored at the Cosalá geology and mine office compound on the west side of Cosalá. The post-2011San Rafael drill core is stored at the Camp 3 facility just outside of Cosalá.

12.0 DATA VERIFICATION

All work completed by Scorpio before the corporate name change is attributed to Americas in this section.

12.1 San Rafael Project Database

The San Rafael project database contains geochemical and geologic data on 356 drill holes and 14 surface trenches. The data verification for the 2009 Technical Report (Ristorcelli *et al*., 2009) addressed all of the holes drilled by PRG. Holes drilled by Americas in 2011 and 2012 were verified in 2012 (Ristorcelli *et al.* 2012) while the 21 Americas holes drilled in 2014 and 2015 were verified for this current report.

The database contains geochemical data for 18,070 drill-hole and trench sample intervals within the San Rafael deposit. Where there are no geochemical data, the geochemical database lists the sample-interval footage, though with no geochemical data entered into the columns. However, at the bottom of some of the drill holes, the last drill interval entered corresponds to the last sample interval containing geochemical data and not the last drill interval at the actual bottom of the hole. This situation is common in the San Rafael deposit, where the bottom of many holes ends in visually unmineralized limestone or marble that was not sampled and assayed.

For all assay campaigns, less-than-detection-limit geochemical results are entered as a value equal to one half the detection limit (i.e., 0.005% Zn for a <0.01% Zn analytical result).

The drill-hole geologic data are in digital form, and the database contains lithologic and alteration mineralogy, along with detailed sulfide percentages, both total sulfide and individual sulfide species, for each sample interval.

The Americas database used in the resource estimate includes all corrections noted below and is considered adequate for use in future modeling and resource work.

12.1.1 Geochemical Database Audit

<u>2006-2008</u>

MDA audited the San Rafael Phase I and II data in November 2006 in preparation for the initial San Rafael resource estimate. Another audit was completed in September 2007 on the San Rafael and El Cajón drill data, and PRG's Phase IV drill-hole geochemical data were audited in September 2008.

For the November 2006 audit, a total of 481 intervals containing 1,635 individual assays (18% of the San Rafael data) were checked for errors against the hard copy assay certificates received from the lab. Thirty errors were noted, though only two were deemed significant. Two Ag assays in drill hole SR22 are duplicate samples that were listed in the database as unique assays; they have been removed from the database. The remaining errors all were less-than-detection Ag and Pb values that were listed in the database as the detection level, i.e., a <1 ppm Ag lab assay was in the database as 1 ppm. None of these minor errors would have any effect on the resource estimate.

The September 2007 audit consisted of electronically comparing the total database against a compilation of all assay data provided in digital form by the analytical laboratories. This analysis specifically checked both for numeric errors in the assay data and for sample data currently in the database though not supported by laboratory results. This work did not check for analytical results missing from the database. To augment this wholesale audit, an additional 430 sample intervals from the San Rafael and El Cajón deposits were individually checked for errors against laboratory assay certificates. Seventeen errors arose from these audits, while 36 additional gold assays were added to the database. Nine of the errors are considered significant, though all nine were from the same drill hole (EC19) and resulted from a shift in the sample sequence. The 36 added values all were from one early San Rafael drill hole (SR7).

The September 2008 audit of the Phase IV geochemical data consisted of electronically comparing the total database against a compilation of all assay data provided in digital form by the analytical laboratories. This analysis specifically checked both for numeric errors in the assay data and for sample data currently in the database though not supported by laboratory results. This work did not check for analytical results missing from the database. No additional errors arose from this latest audit.

2012

For Americas' 2011 and 2012 drilling, MDA first manually audited the database sample-interval data against the geologic log sample data for 22 drill holes (about 21% of the drill data). Six errors were noted and corrected in the database. MDA's assay audit consisted of electronically comparing the 2012 database against a compilation of all assay data provided in digital form by ALS. The audit specifically checked for numeric errors in the existing assay data along with proper correlation between sample ID and database "from-to" sample intervals. This work did not check for analytical results missing from the database. The audit of the complete assay database resulted in corrections to the data within 183 sample intervals. The high number of corrections primarily reflects swapped lead and zinc values for nine drill holes (119 sample intervals). There were also 15 incorrect assay values likely due to isolated data entry errors. All of the above errors were considered significant, and all have been corrected. MDA noted and corrected errors in the conversion of less-than-detection silver and copper values; none of these errors are considered significant.

2014 - 2015

MDA electronically compared the 2014-2015 drill data against a compilation of all assay data provided in digital form by ALS. The audit specifically checked for numeric errors in the existing assay data along with proper correlation between sample ID and database "from-to" sample intervals. One insignificant error was found in the analytical data and one error was found in the sample ID designation. Both were corrected for use in the current resource estimate.

12.1.2 Drill Collar Database Audit

2009

The collar coordinates for all of PRG's San Rafael drill holes were checked against digital files supplied to PRG by the contracted surveyor (Servicio Topographic of Hermosillo). MDA found no errors in the existing database coordinates, but five El Cajón holes and one San Rafael hole were missing survey data and were likely not surveyed.

MDA checked the drill-hole final depths listed in the database with the depths noted on the drill logs. Errors were noted in five holes, and these data points were corrected. In four of the cases, the final depth was in error by 1.5m, while the fifth was off by 3m. These changes had minimal effect on the geologic model and subsequent resource estimate.

2012

The collar coordinates for all of Americas' San Rafael drill holes were checked against digital files supplied to Scorpio by the contracted surveyor (Terra Group of Hermosillo). MDA audited all of the database collar coordinates against the original spreadsheet data and found no errors in the drill-hole location data.

The drill-hole locations were also viewed on-screen and checked against the current topography. One collar location (SR275) did not coincide with the topographic surface. Americas re-surveyed the collar location for this drill hole and the new, corrected coordinates were entered into the database.

MDA checked the total-depth data and found a number of minor discrepancies with the drill logs and/or drill reports for holes in the sequence between SR294 through SR320. MDA corrected the total-depth data; none of these changes are considered significant.

2014 - 2015

The collar coordinates for Americas' 2014 and 2015 San Rafael drill holes were checked against digital files supplied by Americas. MDA audited all of the database collar coordinates against the original spreadsheet data and found no errors in the drill-hole location data.

12.1.3 Down-Hole Survey Database Audit

2006-2008

The database contains down-hole survey data for the majority of the PRG RC holes and the Phase III and IV core holes. MDA audited the down-hole data for just the San Rafael drill holes.

MDA's November 2006 audit of the Phase I and II down-hole survey data indicated that of the 114 total RC holes, PRG had down-hole survey data for 83 RC holes. The survey readings were taken at approximate 30m down-hole intervals, with the bottom reading usually taken at a depth 5 to 10m above the drill-hole's final drill depth. MDA found no significant discrepancies between the survey field notes, the geologic logs, and the database for the 83 holes.

MDA's September 2007 audit of the Phase III San Rafael down-hole surveys found no significant discrepancies between the survey field notes, the geologic logs, and the database.

MDA's September 2008 audit of the Phase IV San Rafael down-hole surveys found no significant discrepancies between the survey field notes and the database. Six core holes from 2008 were not surveyed down-hole; the database contains the collar set-up orientation for these six holes.

All of the Phase I, II, and III RC down-hole survey readings were taken inside the drill rods, due to a concern over losing the survey instrument in the open hole, and the azimuth readings were considered meaningless due to the magnetic effects of the drill rods. As a result of the unusable azimuth readings, all vertical holes remain as undeviating vertical holes in the database. The one exception within the PRG database was drill hole SR10, where the actual down-hole dip readings were used. This database input error makes the hole trend to the north (using the standard 0^o azimuth reading) at a steep dip that ends with a -86^o dip reading at the drill hole's 121m final depth. The database has been changed by removing the actual dip readings and using the standard 0^o azimuth and -90^o dip values. For RC angle holes, the azimuth data are based on a Brunton compass reading taken by the field geologist. For the majority of drill holes, this reading is taken on a flagged orientation at the drill site, which is then used by the drill crew to set up and orient the drill rig.

The Phase III and IV core down-hole survey data contained a number of erratic azimuth readings which were attributed to the magnetic nature of some of the project lithologies, especially the dioritic intrusions both on the east side of San Rafael and also within the center of the El Cajón deposit. To aid in determining the "accepted" survey values, the magnetic field data, as recorded by the driller for each survey reading, were analyzed with particular attention to spurious magnetic field values significantly different from the general magnetic field. This information was recorded and compared to the coincident azimuth values. The result showed a high correlation between spurious magnetic field readings and erratic azimuth values. As a result of this analysis, 18 individual survey readings, out of a total of over 1,150, were removed from the database.

2012

There were down-hole survey readings for 126 of the 141 Americas holes drilled at San Rafael prior to the 2012 database audit. The drill holes were surveyed down hole using a Reflex EZ-shot survey instrument providing digital readings. The majority of holes had multiple readings taken at approximately 25m down-hole intervals. For holes with just one survey reading, the down-hole reading was usually collected near the bottom of the hole. MDA audited all of the survey data against the original survey measurements provided by Americas. As a result, MDA added survey data to seven drill holes and made minor corrections to the data in two drill holes. Besides the azimuth and dip data, the down-hole survey readings included magnetic field data, and one survey reading was removed from the database due to anomalous magnetic readings. None of these changes are considered significant because the corrected data did not vary in a material amount from the original survey readings or drill-collar set-up orientation.

2015

MDA was provided the raw Reflex EZ-shot down-hole survey data for all 21 core holes drilled in 2014 and 2015. Each hole had multiple readings taken at approximately 40m to 50m down-hole intervals. After removing two survey readings due spurious azimuth readings, which coincided with anomalous magnetic readings, the data was loaded into the database.

12.2 MDA Site Visits

Mr. Tietz visited the San Rafael project site from January 29 through February 3, 2007 and again from September 19 through September 21, 2007. The purpose of MDA's visits were to a) collect drill hole and surface verification samples, b) validate existing data, and c) develop greater insight into the Zone 120 geology.

Mr. Tietz and Mr. Lindholm also visited San Rafael from September 27 through October 1, 2011. During that visit, they reviewed the active drill program, including an evaluation of drilling, logging, and sampling procedures, core storage, and deposit geology. MDA surveyed five Americas drill-hole collars using a hand-held GPS.

Mr. Dyer reviewed the underground operations, process plant operations, mining and processing costs, and productivity at Nuestra Señora on June 4th to 5th, 2012.

The core handling and sampling procedures at San Rafael were considered to be of good quality, and no significant issues were apparent that would negatively impact the resource models.

Mr. Ristorcelli of MDA visited the site on June 12, 2015, for the current 2015 resource estimation update. MDA reviewed the current drill program with Americas and surveyed 13 drill-hole collars using a hand-held GPS.

On June 22 – 23rd, 2015, Mr. Peralta visited the San Rafael project and reviewed preliminary mine designs and mine plans being developed by Americas' on-site engineering staff.

12.2.1 MDA Drill Collar Field Verification

During the various site visits, an effort was made by MDA, using a handheld GPS unit with a station accuracy ranging from 3 to 6m, to verify the locations of exploration holes drilled from surface locations

PRG Phase I and II drill holes were located during the January 2007 site visit. In comparing the GPS coordinates to the database, there was a difference in hole locations of between 2 and 7m, with the greatest difference coinciding with those hole locations which also had the least precision in GPS accuracy. During the September 2007 field visit, MDA confirmed the locations of a number of Phase III drill holes relative to the detail of the drill map (about 5m). MDA considers that this adequately verified the PRG drill-hole locations.

Five of Americas' 2011 drill holes were field verified during the 2011 MDA site visit while an additional thirteen drill holes from 2012 through 2015 were verified during the 2015 site visit. No significant differences in survey location were noted with the database values.

During the initial January 2007 site visit, and in every site visit thereafter, MDA noted that many of the drill-hole collar locations were no longer visibly evident on the ground. Road traffic and road reconstruction, along with the significant amount of slope failures and washouts during the rainy season, soon obscured or covered many of the hole locations. Even along those access spur roads with no further road traffic or slope failures, there are still a few hole locations that cannot be located accurately without resurveying the hole location. All drill sites, and especially the more historical drilling, are subject to road-cut slumping and collapse due to the very steep ground and high run-off during the summer rainy season.

12.2.2 MDA Verification Core Sampling

During the January 2007 site visit, MDA collected a total of 12 core samples from strongly mineralized intervals in four San Rafael holes and four El Cajón holes. The core samples consisted of the remaining half core from an existing sample interval (usually around 1.5m in length). The samples were shipped to

ALS for analysis on February 3, 2007. The samples were analyzed for Au, Ag, Cu, Pb, and Zn using the same analytical techniques used by PRG for their San Rafael-El Cajón samples. Besides serving as independent verification of the San Rafael and El Cajón mineralization, the MDA samples are also a quality-control check on the initial assay results. The results of the core sampling analysis are shown in Table 12.1.

Table 12.1 MDA Core Sample Comparison of MDA versus PRG Results – San Rafael-El Cajón Project

MDA ID	Hole ID	Intercept (m)	**MDA Ag** ppm	**PRG Ag** ppm	**Diff** %	**MDA Pb** %	**PRG Pb** %	**Diff** %	**MDA Zn** %	**PRG Zn** %	**Diff** %	**MDA Cu** %	**PRG Cu** %	**Diff** %	**MDA Au** ppm	**PRG Au** ppm	**Diff** %
LVPT-1	SR70	116.5-117.8	75	76	1%	2.38	2.4	1%	6.6	5.1	-23%	0.02	NA		0.329	NA*	
LVPT-2	SR70	126-127	100	89	-11%	4.08	3.4	-17%	8.97	9.3	4%	0.03	NA		0.086	NA	
LVPT-3	SR73	121.6-123.1	238	255	7%	6.22	7.5	21%	9.16	10.2	11%	0.82	NA		0.529	NA	
LVPT-4	SR75	75.3-76.8	57	73	28%	0.78	0.7	-10%	2.51	1.7	-32%	0.07	NA		0.114	NA	
LVPT-5	SR78	70.5-72.0	113	120	6%	4.35	5.1	17%	7.4	6.3	-15%	0.02	NA		0.047	NA	
LVPT-6	SR78	76.6-78.1	236	40	-83%	2.5	2.2	-12%	3.41	6.3	85%	0.01	NA		0.041	NA	
LVPT-7	EC42	143.9-145.5	1250	1750	40%	4.48	5.3	18%	2.51	2.4	-4%	1.74	2.2	26%	0.557	0.86	54%
LVPT-8	EC42	153-154	836	716	-14%	6.41	6.7	5%	0.3	0.2	-33%	1.89	1.2	-37%	0.073	0.08	10%
LVPT-9	EC15	190.8-192.3	260	263	1%	0.29	NA		0.09	NA		0.49	0.6	22%	0.292	0.29	-1%
LVPT-10	EC22	224.7-225.9	81	112	38%	0.04	NA		0.04	NA		0.3	0.4	33%	0.1	0.19	90%
LVPT-11	EC22	230.3-231.8	709	615	-13%	0.01	NA		0.23	NA		2.51	2.3	-8%	0.62	0.7	13%
LVPT-12	EC26	191.5-192.8	250	313	25%	0.02	NA		0.05	NA		0.64	0.8	25%	0.423	0.47	11%
		Average	350.42	368.50	2%	3.90	4.16	3%	5.11	5.19	-1%	1.26	1.25	10%	0.34	0.43	30%

12.2.3 MDA Verification Surface Sampling

MDA collected six surface samples from the San Rafael-El Cajón project area during the January 2007 site visit. Four San Rafael surface samples were collected from strongly oxidized "gossan" outcrops which are exposed within road cuts along the northeast side of the San Rafael deposit. These exposures are believed to be the up-dip portion of the main massive-sulfide zone. The two El Cajón samples were collected from the historical El Cajón mine, a small mine located within the main drainage on the northwest side of the deposit. The samples were shipped with the MDA core samples to ALS for analysis on February 3, 2007. The results of the surface sample analysis are shown in Table 12.2.

Table 12.2 MDA Surface Sampling Results – San Rafael-El Cajón Project

MDA Sample ID	Easting	Northing	Area	Ag ppm	Pb %	Zn %	Cu %	Au ppm
LVPT-13	333395	2708720	El Cajon	320	0.05	0.17	1.16	0.479
LVPT-14	333380	2708720	El Cajon	186	0.74	0.06	1.69	0.096
LVPT-15	333689	2709783	San Rafael	76	1.3	0.03	0.15	0.233
LVPT-16	333715	2709793	San Rafael	9	0.22	0.25	0.25	0.086
LVPT-17	333760	2709726	San Rafael	60	0.17	0.43	0.45	0.119
LVPT-18	333792	2709729	San Rafael	76	1.76	0.5	0.04	0.22

12.3 Quality Assurance/Quality Control

MDA has no evidence that any QA/QC work was performed on the historical RC drilling samples collected by Hemlo. Noranda used both blanks and standards for their core drilling program, although there is no evidence of any check analysis on the core samples, as either random assay checks, or specific check assays on mineralized intervals.

12.3.1 QA/QC by Platte River Gold

PRG undertook a QA/QC program on their exploration drilling. MDA analyzed the results post-drilling. The QA/QC data evaluated here comprise results from standards, rig duplicates, and blanks.

Taylor (2006a, 2006b) conducted two statistical analyses of the assay data from the El Cajón and San Rafael areas. Those results are superseded by, but are included in the analysis in the present report.

PRG used "blind" duplicates, standards, and blanks for QA/QC since the start of the drilling in Phase I. For the Phase I and II RC drilling, one duplicate sample was taken at the RC drill rig every 20 samples and was sent to SGS as a check on ALS's results. For the Phase III drilling, one duplicate sample was taken at the RC drill rig every 10 samples and was sent to IPL as a check on ALS's results. A variable number of additional duplicate samples, collected at the RC rig at the geologists' discretion, were taken in strongly mineralized zones and sent to ALS. The mineralized duplicates were moved to the end of the sample sequence and were treated as additional samples. Except for a limited test of 20 duplicate pulps from one San Rafael RC hole, there was no systematic re-analysis of high-grade assays using coarse rejects or pulps. No duplicate check analyses were completed on any of the core samples.

One blank was inserted into the sample sequence every 40 samples, with the original sample being moved to the end of the sequence and re-numbered. Blanks were inserted in mineralized intervals to check for contamination in sample preparation. Unmineralized rock was collected on site and was lightly crushed to resemble RC chips to be used for blanks in the RC drill program while unmineralized core was used as blank material in the core drilling program.

One "standard" reference material pulp was inserted into the sequence every 40 samples, with the original sample being moved to the end of the sequence and re-numbered. Low-grade and high-grade reference materials were used for the "standard". They were prepared by McClelland Laboratories, Inc. ("McClelland") from material collected from the La Verde mine. Each reference material was analyzed five times by five different laboratories.

Two PRG RC holes were twinned with core holes to provide an additional check on the RC assay results. Both RC-core twin pairs are within the San Rafael deposit.

RC Drill Rig Duplicate

Two sets of duplicate samples were taken, both at the RC drill rig. These rig-duplicate sample analyses test the reproducibility and bias for the entire sampling system, thereby showing total sampling variance. MDA believes rig-duplicate samples are the best type of QA/QC samples.

One set of duplicate checks, collected at variable intervals at the geologist's discretion, was analyzed at the same laboratory as the primary sample (ALS). PRG collected a total of 179 same-lab duplicate samples. This total included 30 duplicate trench samples taken from two trenches along the up-dip exposure of the San Rafael deposit. The data from these trenches are included within the current MDA resource estimate. From the rig-duplicate comparative statistics in Table 12.3, it is evident that differences in same-lab duplicate grades are not high, especially in light of the fact that these are drill-rig duplicates, which incorporate all error in the sampling procedures (except down-hole error, which is never evaluated). There is not much difference between well-mineralized and weakly mineralized sample material reproducibility. Overall, variability between samples remains the same at between 10 and 20% at all grades, except for some outliers which are scattered throughout the grade ranges. Increased variability is seen in the gold data, though this could be a reflection of the small sample size and generally low values. No significant biases are apparent in the data. Examples of the lack of bias and relatively low variability are seen in the relative difference and absolute relative difference graphs, respectively, of zinc in Figure 12.1 and Figure 12.2.

Table 12.3 Descriptive Statistics of Platte River Same-Lab RC Rig Duplicates: Zn, Ag, and Pb

All zinc values (%)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	138	138		138	138	138
Median	1.67	1.67	2%	1.71	0%	8%
Mean	2.36	2.37	-1%	2.36	2%	16%
Std. Dev.	2.64	2.61		2.71		
CV	1.12	1.10		1.15		
Minimum	0.01	0.01		0.01	-93%	0%
Maximum	14.65	13.10		16.20	150%	150%

Greater than 0.3 % Zn (mean value)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	100	100		100	100	100
Median	2.63	2.63	3%	2.72	0%	7%
Mean	3.21	3.22	-1%	3.20	0%	14%
Std. Dev.	2.65	2.60		2.74		
CV	0.82	0.81		0.86		
Minimum	0.32	0.27		0.31	-93%	0%
Maximum	14.65	13.10		16.20	74%	93%

CV = Standard Deviation / Mean

All lead values (%)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	137	137		137	137	137
Median	0.49	0.46	9%	0.50	0%	8%
Mean	0.86	0.87	-1%	0.85	4%	22%
Std. Dev.	1.04	1.05		1.03		
CV	1.21	1.21		1.21		
Minimum	0.01	0.01		0.01	-305%	0%
Maximum	6.90	6.60		7.19	300%	305%

Greater than 0.3 % Pb (mean value)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	81	81		81	81	81
Median	1.18	1.19	-5%	1.13	-1%	9%
Mean	1.38	1.39	-2%	1.36	-5%	18%
Std. Dev.	1.08	1.10		1.08		
CV	0.79	0.79		0.79		
Minimum	0.30	0.28		0.21	-305%	0%
Maximum	6.90	6.60		7.19	42%	305%

All silver values (ppm)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	144	144		144	144	144
Median	27.00	27.00	-2%	26.50	0%	10%
Mean	50.97	50.95	0%	51.00	-4%	21%
Std. Dev.	83.19	82.31		85.46		
CV	1.63	1.62		1.68		
Minimum	0.75	0.50		1.00	-200%	0%
Maximum	654.00	651.00		657.00	150%	200%

Greater than 6 ppm Ag (mean value)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	123	123		123	123	123
Median	34.50	32.00	9%	35.00	0%	9%
Mean	59.09	59.02	0%	59.16	-1%	17%
Std. Dev.	87.50	86.55		90.00		
CV	1.48	1.47		1.52		
Minimum	6.00	5.00		6.00	-182%	0%
Maximum	654.00	651.00		657.00	116%	182%

Table 12.3 Descriptive Statistics of Platte River Same-Lab RC Rig Duplicates (continued): Cu and Au

All copper values (%)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	39	39		39	39	39
Median	0.05	0.04	25%	0.05	0%	12%
Mean	0.24	0.24	0%	0.24	10%	32%
Std. Dev.	0.42	0.43		0.41		
CV	1.75	1.82		1.73		
Minimum	0.00	0.00		0.00	-105%	0%
Maximum	1.80	1.86		1.73	200%	200%

Greater than 0.05% Cu (mean value)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	19	19		19	19	19
Median	0.22	0.22	0%	0.22	0%	10%
Mean	0.46	0.46	0%	0.46	5%	23%
Std. Dev.	0.51	0.54		0.50		
CV	1.10	1.16		1.08		
Minimum	0.06	0.06		0.05	-82%	0%
Maximum	1.80	1.86		1.73	158%	158%

CV = Standard Deviation / Mean

All gold values (ppm)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	30	30		30	30	30
Median	0.12	0.12	15%	0.13	-2%	15%
Mean	0.29	0.30	-3%	0.29	14%	37%
Std. Dev.	0.35	0.38		0.34		
CV	1.18	1.27		1.18		
Minimum	0.01	0.01		0.01	-87%	0%
Maximum	1.21	1.58		1.12	200%	200%

Greater than 0.1 ppm Au (mean value)

	Mean	Original	Difference	Duplicate	Rel Diff.(%)	Abs. Diff.(%)
Count	17	17		17	17	17
Median	0.28	0.29	-3%	0.28	-5%	20%
Mean	0.49	0.50	-4%	0.48	2%	31%
Std. Dev.	0.36	0.40		0.36		
CV	0.74	0.81		0.75		
Minimum	0.11	0.08		0.11	-87%	0%
Maximum	1.21	1.58		1.12	133%	133%

Figure 12.1 Relative Difference Graph for Same Lab Rig Duplicates – Zinc

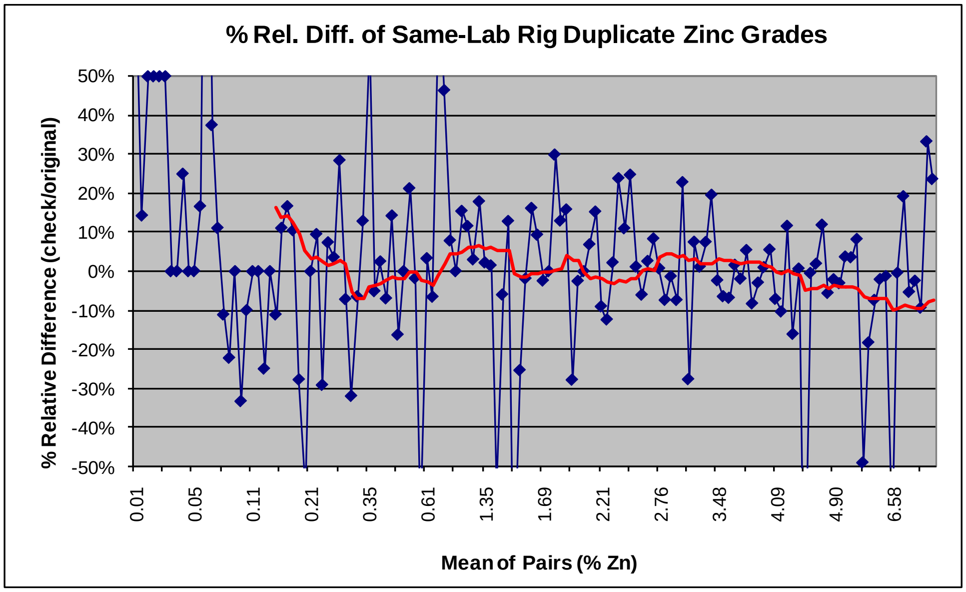
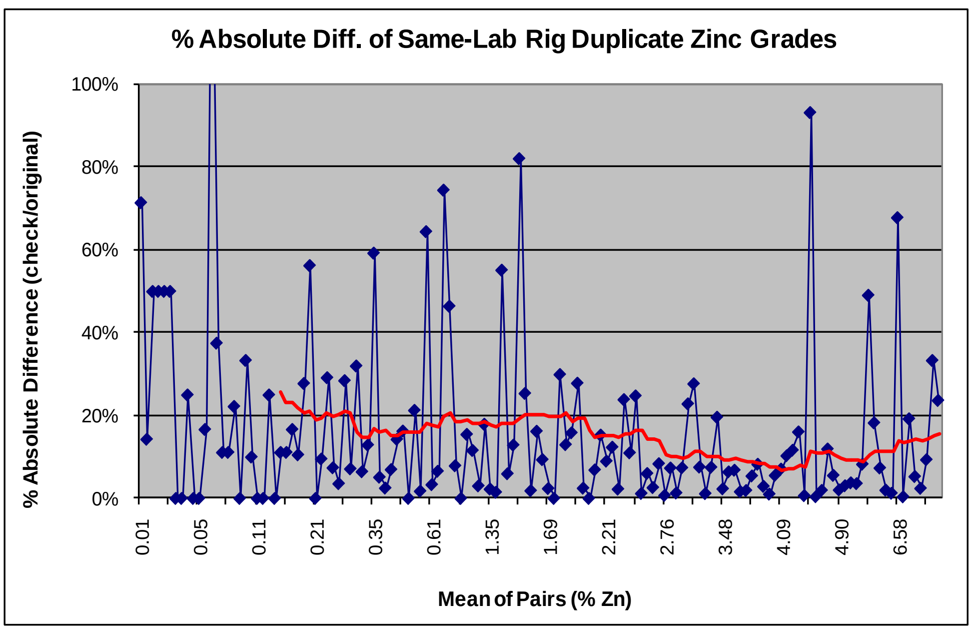


Figure 12.2 Absolute Relative Difference Graph for Same Lab Rig Duplicates - Zinc



Different-lab rig duplicate samples were sent to SGS (95 samples) and IPL (114 samples). Similar comparative statistics and relative difference graphs as shown above were evaluated for the different-lab rig duplicate samples. The variability is slightly higher, and there are minor negative biases (<10%) for the zinc, lead, and silver pairs for both the SGS and IPL analyses. Both labs also show increased variability and higher negative biases for the copper and gold pairs, but the small sample populations above economic cutoff for these elements does not allow for any meaningful determinations as to the quality of the copper and gold duplicate data.

In conclusion, MDA believes that the sampling on PRG's RC rigs was reliable even with the occasional sampling variability noted in the field. Duplicate sampling should continue during project development.

Blank Sample Results

PRG made five different blank samples – four to be used for the RC drilling and a fifth for the core drilling. The four RC blanks (Blank PR1, Blank PR2, Blank PR3, and Blank PR4) were used separately for each of PRG's four drill phases, though Blank PR4 was only used once due to the limited amount of Phase IV RC drilling. For the RC sample blanks, PRG collected about 400kg of rock (volcanic arenite for PR1 and weathered diorite for PR2, PR3, and PR4) and ran it through a crusher to ¼in., giving it an appearance similar to RC cuttings. These blank RC samples were placed in RC bags and then into the sample sequence that was sent to the lab. For the core blank sample (Blank Di) used in all four drill phases, blank diorite that had been drilled in previous campaigns was split in a core splitter and placed into a bag as if it was a normal core sample.

Descriptive statistics of the round-robin analyses of PRG's five blanks are given in Table 12.4. Sample analytical precision and varying detection limits between the round-robin analyses and the blanks analyzed during the course of drilling create uncertainty in the determination of blank "failures," especially for the Blank PR1 and PR2 programs.

Table 12.4 Descriptive Statistics of Platte River Blanks

Blank PR1

	Au (ppm)	Ag (ppm)	Cu %	Pb %	Zn %
Count	8	8	8	5	5
Mean	0.006	2.375	0.005	0.002	0.005
Std. Dev.	0.003	1.482	0.004	0.001	0.001
CV	0.587	0.624	0.769	0.498	0.101
Minimum	0.003	0.500	0.001	0.001	0.005
Maximum	0.012	4.000	0.010	0.004	0.006

Blank PR2

	Au (ppm)	Ag (ppm)	Cu %	Pb %	Zn %
Count	9	9	9	9	9
Mean	0.003	2.000	0.0005	0.002	0.010
Std. Dev.	0.001	1.323	0.0000	0.002	0.001
CV	0.300	0.661	0.0000	0.772	0.076
Minimum	0.003	1.000	0.0005	0.001	0.009
Maximum	0.005	5.000	0.0005	0.006	0.011

Blank PR3

	Au (ppm)	Ag (ppm)	Cu %	Pb %	Zn %
Count	12	13	13	13	13
Mean	0.007	0.577	0.005	0.005	0.010
Std. Dev.	0.005	0.313	0.000	0.000	0.000
CV	0.709	0.542	0.000	0.000	0.000
Minimum	0.003	0.250	0.005	0.005	0.010
Maximum	0.013	1.000	0.005	0.005	0.010

Blank PR4

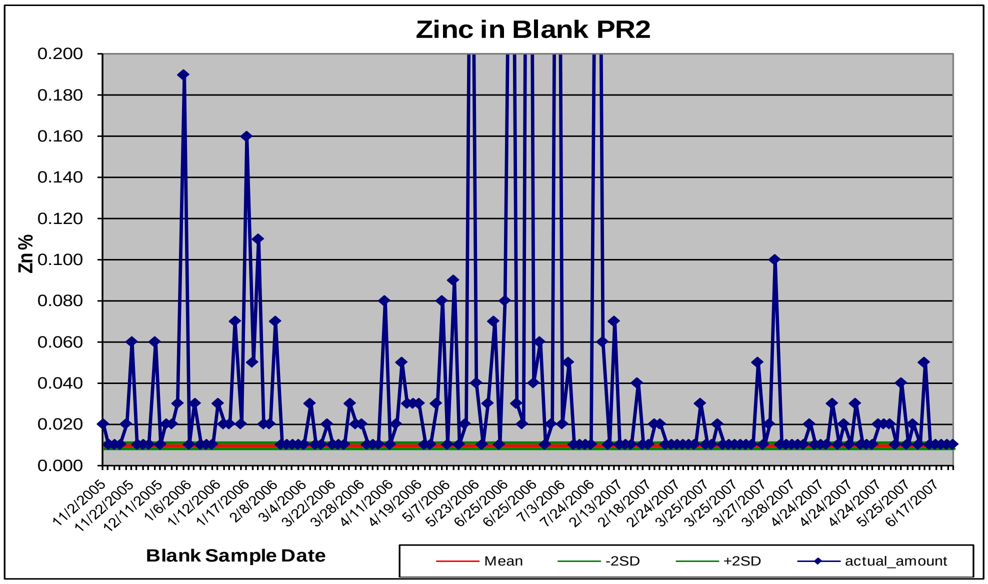
	Au (ppm)	Ag (ppm)	Cu %	Pb %	Zn %
Count	8	8	8	8	8
Mean	0.003	0.438	0.004	0.008	0.011
Std. Dev.	0.000	0.259	0.003	0.003	0.001
CV	0.000	0.591	0.929	0.356	0.134
Minimum	0.003	0.250	0.001	0.005	0.010
Maximum	0.003	1.000	0.010	0.010	0.014

Blank Di

	Au (ppm)	Ag (ppm)	Cu %	Pb %	Zn %
Count	15	15	20	20	20
Mean	0.004	0.500	0.005	0.005	0.010
Std. Dev.	0.002	0.000	0.001	0.000	0.003
CV	0.436	0.000	0.301	0.000	0.281
Minimum	0.003	0.500	0.002	0.005	0.008
Maximum	0.008	0.500	0.010	0.005	0.020

The blank test results all show some possible sample contamination, mostly in isolated failures. Though there are significant and consistent levels of elevated zinc and lead in the Blank PR2 samples analyzed in the first half of 2006, MDA questions whether this was a result of sample preparation contamination, analytical contamination, or if the blanks are, in fact, not barren of metal. Figure 12.3 shows the Blank PR2 zinc analyses. Similar graphs were created for all metals for all five blank samples.

Figure 12.3 PR2 Blank Sample Analyses – Zinc



To aid in determining the probable cause of the systemic failures, the PR2 results for zinc and lead were evaluated in relation to the grade of the previous primary sample in the sample stream (Figure 12.4 and Figure 12.5). It is clear that all of the blank failures correlate with high-grade previous-sample values, indicating lab contamination. The presence of non-barren blanks would be indicated if there were blank failures across the range of previous-sample values, but this is not the case. A 1% contamination limit (noted in yellow) is noted on both figures. This limit marks the % Zn or % Pb value equal to 1% of the previous-sample value (noted in red). MDA has limited the contamination boundary to a value of 0.01% for the previous-sample grades below 1% Zn, since this is the detection limit used in the blank test analyses. It is clear that above 0.5% Zn, the blanks are consistently above the 1% contamination boundary as noted by the moving averages for the blank samples (noted as light blue line). For zinc, there are no blank test results at the "accepted" 0.01% value; all tests show some contamination. Statistics on the blank/previous-sample ratio indicate that above 1% Zn, the blanks show an average contamination of 4% with a median value of 2%.

This pattern of Blank PR2 failures correlating with high previous-sample values occurs in all metals, though the level and number of failures are not as high as for the Zn results. Similar analyses on the three other blanks (PR1, PR3 and Di) show the pattern of increased failures with high previous grades is still present, though there are many less failures.

Figure 12.4 Blank PR2 Zn versus Previous Sample Zn Grade

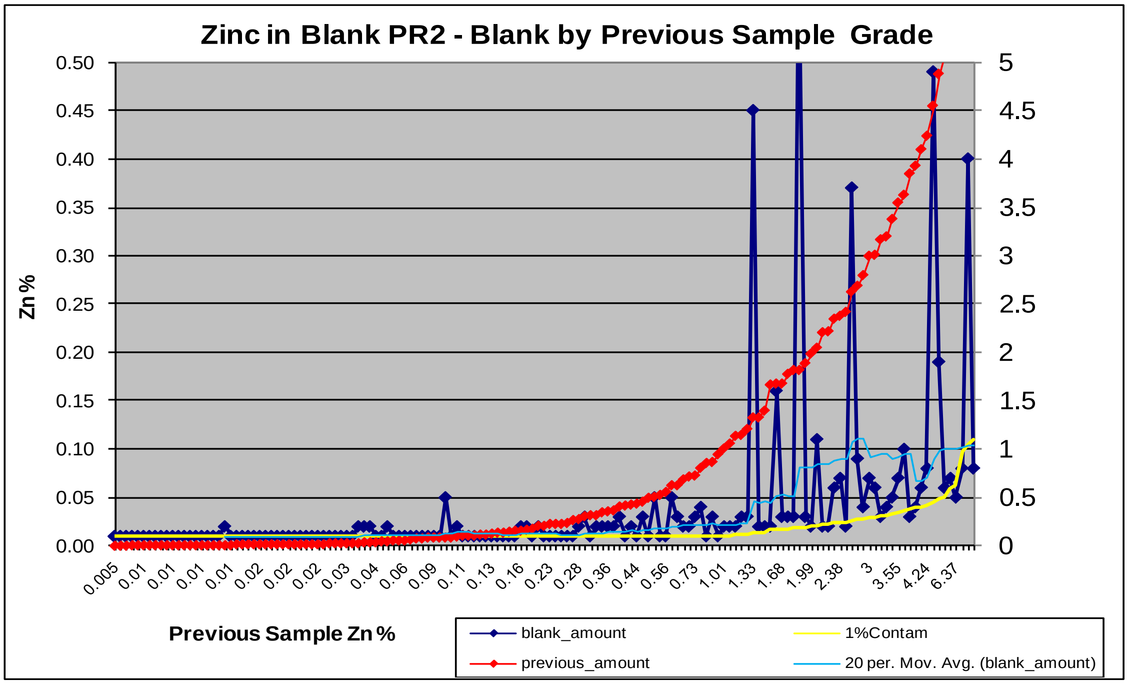
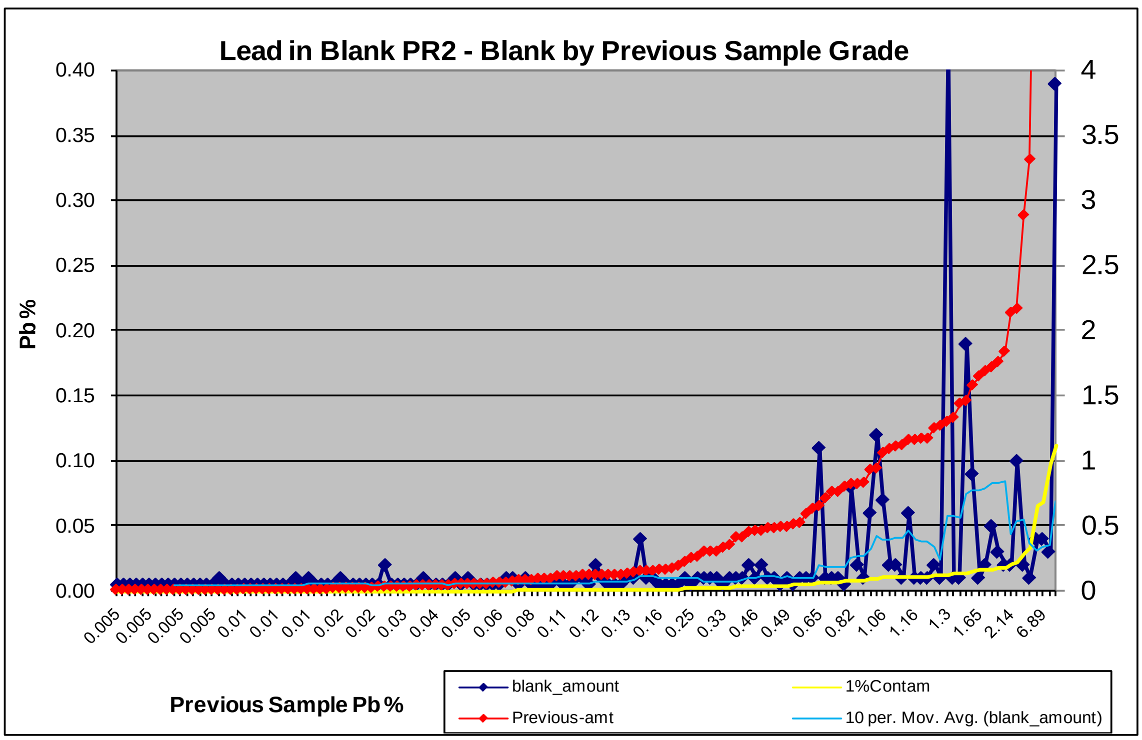


Figure 12.5 Blank PR2 Pb versus Previous Sample Pb Grade



Standard Sample Results

PRG made their "standard" reference material from San Rafael-El Cajón project site rock. Four "standards" were created: standards 688 and 689 were used in all four drill phases, while standards 690 and 691 were used only in the Phase IV drill program. The procedures for making "standards" are described below (PRG, 2007 and 2008, personal communication):

- Mineralized rock from mine dumps on the property was collected and separated, based on visual inspection, into two groups. Group 1 was low-grade (Standards 688 and 691), and Group 2 was high-grade (Standards 689 and 690).
- The two bulk samples, each weighing approximately 50kg, were shipped to McClelland in Sparks, Nevada.
- McClelland crushed and then pulverized the samples (McClelland, 2006, written communication via PRG):

PHASE 1 Preparation Procedure

1) stage crush 50kg samples to -10 mesh
2) blend and split each sample (50kg) in entirety 3 times to obtain three 1kg splits for triplicate head assay to confirm desired grade range
3) save -10M rejects (~50kg) for phase 2 prep
4) blend and split 1kg splits from 2 above to obtain 250g for pulverizing
5) save -10M rejects from 4 above (~750g) for recombining with rejects from 3 above for phase 2 prep
6) ring & puck pulverize each 250g split from 4 above to just passing 200M (100% -200M)
7) roll blend each 250g split of -200M feed to obtain 100g for head assay (3, 100g assay splits for each sample)
8) save -200M rejects from 7 above (3 splits at 150g each, or 450g of each assay standard) for recombine with initial 50kg assay standard sample for phase 2 prep
9) place all 100g initial triplicate assay pulps into pulp bags and label with sample # and assay split (A, B, C)
10) submit initial assay splits to Chemex [ALS] *for triplicate Au, Ag, Cu assay---Au and Ag assays, fire assay fusion with gravimetric finish*

Wait for above assay results before proceeding with phase 2 prep to ensure that desired grade ranges and reproducibility are met

PHASE 2 Preparation Procedure

1) recombine all rejects from phase 1 prep with the initial 50kg assay standard sample (at -10 and -200M)
2) pulverize (ring & puck) the entire quantity of each assay standard sample (50kg each) to 100% -200M as in phase 1
3) after each 50kg assay standard sample is at -200M, do the following:
A) roll blend each 50kg standard, flatten, and quarter (or use rotary splitter)
B) separate each quarter (~12.5kg)
C) roll blend each quarter of each standard and quarter again (~3.1kg/quarter)

D) roll blend each 3.1kg quarter and weigh out 31, 100g assay samples from each of the 3.1kg quarters and place into pulp bags
E) when A-D above is complete, there should be 500 assay pulp bags each containing 100g assay splits for each assay standard sample---each assay pulp bag should be labeled with the assay standard sample designation only
F) randomly select 15 assay pulps from each standard and submit 10 to Chemex [ALS] for Au, Ag, Cu assay, and save 5 assay pulps for the client---Chemex [ALS] used fire assay fusion/AA finish for Au assays, and 4 acid digestion and AA or ICP analyses for Ag and Cu analyses

- Pulps from the two now-pulverized samples were sent out to seven laboratories for round-robin analyses.

MDA reviewed the round-robin data and found the results to be unconvincing. Some problems of variable grade results were caused by varying detection limits for the different laboratories. Some differences in grade were caused by one laboratory using different digestion methods; others might be due to one lab using a different analytical procedure. The assays that resulted from these different procedures were excluded from the round-robin grade assigned to the standard by MDA. The round-robin results selected by MDA to be representative are given in Table 12.5. MDA believes that additional round-robin testing should have been done to verify these grades and develop a higher confidence in the standards. The precision is not what it should be, and only gross errors might be determined from these standards' data.

Table 12.5 Descriptive Statistics of Platte River Standards

Std 688

	Au (ppm)	Ag (ppm)	Cu (%)	Pb (%)	Zn (%)
Count	10	30	35	15	15
Mean	0.025	37	0.218	0.030	0.051
Std. Dev.	0.002	5	0.014	0.001	0.007
CV	0.080	0.128	0.064	0.019	0.141
Minimum	0.023	29	0.190	0.028	0.040
Maximum	0.031	46	0.248	0.030	0.063

Std 689

	Au (ppm)	Ag (ppm)	Cu (%)	Pb (%)	Zn (%)
Count	27	35	35	8	14
Mean	0.383	473	1.834	0.091	2.259
Std. Dev.	0.115	41	0.204	0.006	0.062
CV	0.300	0.088	0.111	0.062	0.028
Minimum	0.227	360	1.540	0.080	2.124
Maximum	0.647	523	2.340	0.100	2.370

Std 690

	Au (ppm)	Ag (ppm)	Cu (%)	Pb (%)	Zn (%)
Count	36	24	30	31	31
Mean	1.238	819	2.667	0.019	0.343
Std. Dev.	0.332	27	0.068	0.004	0.030
CV	0.268	0.033	0.026	0.218	0.088
Minimum	0.704	774	2.580	0.011	0.290
Maximum	2.120	880	2.869	0.026	0.390

Std 691

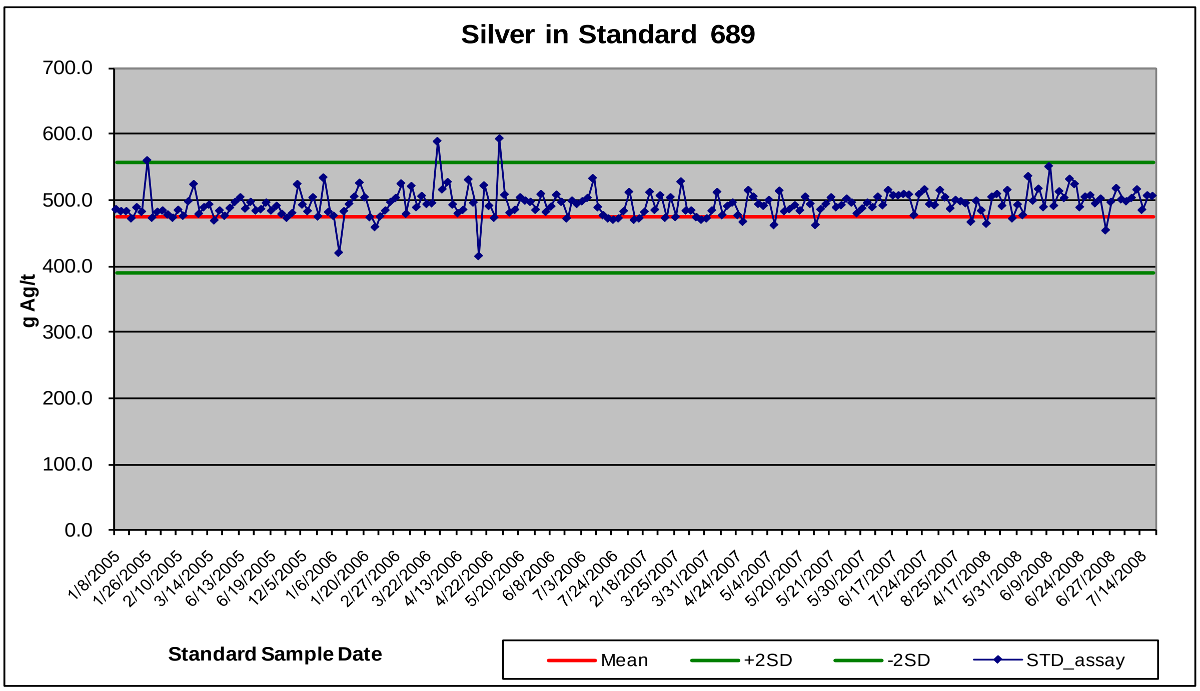
	Au (ppm)	Ag (ppm)	Cu (%)	Pb (%)	Zn (%)
Count	30	36	36	31	31
Mean	0.110	82	0.330	0.017	0.068
Std. Dev.	0.051	9	0.032	0.004	0.007
CV	0.466	0.112	0.097	0.226	0.102
Minimum	0.034	67	0.270	0.011	0.057
Maximum	0.221	104	0.400	0.021	0.088

The standard results, illustrated in the example control chart shown in Figure 12.6, are described briefly below:

- **Standard 688:** Zinc and lead values have a mean grade that reproduces the accepted round-robin values though there are a number of minor high failures that possibly reflect the lab precision at these low grades. Both metals show two significant failures within the 2008 Phase IV results which could be a result of lab clerical error since these same two samples show failures in silver, copper and gold. Silver grades show a consistently high bias, and there is some doubt as to the round-robin silver standard grades. Minor high failures, most reflective of the high bias, occur in the first three drill phase while the two significant high failures, mentioned above, occur within the 2008 Phase IV drilling. Copper results are reasonable with just one minor high failure outside of the two 2008 failures. The standard 688 gold grades show a number of high failures in the late 2006 – early 2007 drilling, these are not critical at these low grades.

- **Standard 689:** Zinc has an apparent low bias in the 2006-2007 analyses with no bias in the 2008 values. There are a number of failures, almost all below the accepted range, which is reflective of the low bias. There is one significant low failure in 2008 which is also observed in copper value for this same sample. Lead grades show good results, with just three minor failures. Silver had reasonable results with a minor high bias and just two minor failures. The copper results show a small negative bias, but that might be because the Inspectorate samples in the round robin are biased high relative to the other labs' values. Gold grades give highly variable though reasonable results; all samples are within the accepted range with just a few minor failures.
- **Standard 690:** Only twelve standard 690 samples were submitted for analyses. One sample shows significant failures in all five metals which could be the result of a lab clerical error. For the other eleven standard samples, the zinc, lead and silver grades are reasonable while the copper appears biased high, and the gold, though highly variable, appears biased low. There is one minor high failure in gold.
- **Standard 691:** Only seven samples were submitted for analyses. The results for all five metals are reasonable though there is one high failure in gold.

Figure 12.6 Standard Analyses – Silver in Standard 689



Overall, MDA deems these standards and the results from these standards to be adequate, but some improvement can be made.

Overflow and Head-Screen Analysis Results

PRG conducted overflow tests on three San Rafael RC holes. The testing was done to ascertain whether allowing the excess water and a significant portion of the fine, suspended solids to overflow the sample bucket compromised the validity of the sample submitted for assay. In concert with the overflow tests, head-screen analysis was conducted on two mineralized samples from San Rafael to determine the distribution of the various metals by size fraction. A large percentage of the metal content within the smaller-size fractions would indicate potential problems with excess water overflow.

The overflow *vs.* non-overflow sampling tests and head-screen results were provided to MDA in summary form. MDA has not evaluated the sample procedures or validated the original laboratory assay results that form the basis for the following conclusions.

The overflow *vs.* non-overflow assay results for 18 mineralized sample intervals within two holes in the San Rafael deposit (SR13 and SR14) indicate that the non-overflow samples, on average, showed a 10% increase in Ag grade and an 18% increase in both Pb and Zn grades. Of the 54 total analyses, only three "non-overflow" assays showed a lower grade than the typical overflow sample. These results for San Rafael Main Zone massive-sulfide mineralization strongly suggest that though the loss is not great, there is a systematic loss of metals that occurs when excess drill water is allowed to overflow the sample bucket.

An additional two sample intervals within one San Rafael drill hole (SR9) were also tested. One sample was from a strongly mineralized interval, while the second was only weakly mineralized. Due to the overall low assay values in the latter sample, the observed difference between the overflow and non-overflow sample resulted in significant, but unrealistic percentage differences, and this sample was not used in MDA's analysis. The assay results for the strongly mineralized sample interval showed little difference in the Ag and Pb values, but the non-overflow sample was slightly higher (6%) in Zn than the overflow sample.

High-grade and low-grade drill samples from San Rafael were submitted to McClelland in Reno for head-screen analysis. For each sample, weights and metal distribution percentages were determined for seven size fractions ranging from +1.7mm to -75µm. The results for the low-grade San Rafael sample (about 1% Zn equivalent) indicated that the metal distribution is fairly uniform, though the smallest size fraction does contain the single highest percentage of Ag, Pb, and Zn, at 22.5, 30.0 and 23.3%, respectively. Conversely, the high-grade San Rafael sample (about 5% Zn equivalent) has over 60% of the Ag, Pb, and Zn in the three largest size fractions (+420µm), with the smallest size fraction containing between 15 and 20% of the total metals. These preliminary results suggest that metal loss due to the overflow of water and fines would be most significant in the lower-grade mineralization.

RC vs. Core Twin Results

PRG drilled two core holes as twins for two RC holes drilled previously by PRG. Table 12.6 shows the metal content for the comparable mineral intervals within each drill pair. For the first pair (SR27 and SR76), the core hole has a higher grade in all metals, while in the second pair (SR22 and SR78), the RC hole is of a higher grade. The individual assays within these mineral intervals do show some differences, which are attributed to the internal, natural variability within the mineralized zone. These initial results do not show an obvious bias, though additional testing would be warranted.

Table 12.6 San Rafael Core/RC Twin Comparison

San Rafael Core/RC Twin Comparison					
Hole ID	Mineral Interval (meters)	Thickness (meters)	Ag ppm	Pb %	Zn %
SR27 - RC	74 - 100	26	31.3	0.93	3.24
SR76 - core	76 - 105	29	37.5	1.21	4.38
			20%	30%	35%
SR22 - RC	55 - 76	21	60.2	1.93	5.09
SR78 - core	56 - 78	22	45.7	1.62	4.2
			-24%	-16%	-17%

12.3.2 QA/QC by Americas

For Americas' drilling at San Rafael, one blank and one standard were inserted into every batch of approximately 40 samples sent to ALS. The blank material is the same material (Blank Di) used by PRG in 2007 and 2008 and consists of drill core from unmineralized diorite intrusive intervals.

The standard materials used in the 2011 and 2012 drill program were the same two standards (standard 690 and standard 691) used by PRG in 2007 and 2008. For the 2014 and 2015 drill program, Americas used three standards (PR 123, PB 128, and PB 130) purchased from a commercial laboratory (WCM Minerals). For both drill campaigns, the standard materials were pulps inserted into the core sample stream so these standard samples were not blind to the laboratory and did not monitor crushing and pulverizing.

The 2011 and 2012 duplicate sampling program consisted of re-analyses at ALS of the initial sample pulp, a replicate pulp made from the coarse reject, and a half-core sample from select sample intervals. Original sample pulps were also sent to Inspectorate as a check on ALS.

The 2014 and 2015 duplicate sampling program consisted of analyses at ALS of half-core samples from select sample intervals. Original sample pulps and replicate pulps made from the coarse reject were also sent to Inspectorate as a check on ALS.

Blanks – 2011 and 2012

MDA's 2012 review of the results for 116 blank samples from the 2011 and 2012 drill program indicated one failure (a value five times the detection limit) in both the gold and silver values with no errors noted in the copper data. The failures noted were both at low levels and not considered significant. The lead and zinc data show a number of low-grade failures (all failures are <0.1% Zn or <0.05% Pb) in the blank samples inserted into the sample stream for holes SR231 through SR279. A preliminary evaluation comparing the blanks with the preceding samples in the sample stream indicates probable low-level contamination in the lead and zinc blanks that follow strongly mineralized (>3%Pb or Zn) sample intervals. A similar issue was noted in the 2009 technical report on PRG's blank samples. The observed contamination is not considered to have a significant effect on the resource estimate.

Blanks – 2014 and 2015

MDA’s 2015 review of the results for 28 blank samples from the 2014 and 2015 drill program indicates one significant failure that appears to be a clerical error. This sample has been removed from the data set. Only one other low-grade failure was noted in the lead data. This failure is not considered significant.

Standards – 2011 and 2012

For their 2011 and 2012 drill program, Americas used two standards (standards 690 and 691) that were created by PRG from San Rafael and El Cajón drill core. As discussed in Section 12.3.1, MDA had reviewed the round-robin analyses for these standards in 2009 and believes that due to rounding issues, there are concerns about the precision of the control values. This concern over precision, combined with the low grades for both lead and zinc in the two standards, reduces the usefulness of the standards results in evaluating the lead and zinc results.

Notwithstanding these concerns, MDA did evaluate the 41 analyses of standard 690 and 72 analyses of standard 691 for San Rafael. Both standards show large errors for one or two samples that appear to be clerical errors. Removing these large errors result in just one minor over-limit failure (a value greater than three standard deviations from the mean) in lead for standard 690 and no failures for standard 691. The gold values for standard 690 do show a 17% low bias, versus the standard control grade (1.04 g Au/t versus 1.26g Au/t). These standards were assayed at ALS in February through May, 2012 and indicate a possible low bias in the gold data for this time period. No other significant issues were noted in the standard results.

Standards – 2014 and 2015

Americas used three standards (standards PB123, PB128, and PB130) for their 2014 and 2015 drill program. These reference materials were purchased as pulps from WCM Minerals, a commercial laboratory in British Columbia. WCM Minerals provided the three standards’ round-robin analyses plus statistical summary (mean, standard deviation, etc.) for four metals (Ag, Cu, Pb, and Zn); no data was provided for gold.

A total of 47 standard pulp samples were included in the original sample stream shipped to ALS while one sample of each standard type was analyzed at Inspectorate. One standard sample analyzed at ALS that showed a significant failure likely due to clerical error was removed from the data set. The ALS results for the fifteen PB123 analyses show a persistent 7% low bias in the copper, lead, and zinc analyses, with numerous and consistent under-limit failures. The PB128 ALS data (a total of 22 analyses) has the same 7% low bias for copper, with four under-limit failures, while the lead and zinc values are reasonable with no failures. The silver results for these two standards show no significant bias and no individual failures. The PB130 results on a limited data set of nine ALS analyses show a minor 4% high bias in the zinc values and a consistent 9% high bias, with seven over-limit failures, in the silver analyses.

Due to the high bias in the PB130 silver values, Americas had ALS re-run 65 original sample pulps that occur on either side of the standards within the original sample stream. The results show an average 3% decrease in silver grade for the pulp re-runs. This difference is not considered significant.

In general, the ALS results indicate a minor low bias in the base metals which would lend a conservative aspect to the assay data and resource estimate. The data set though is limited and all conclusions should be considered preliminary at this time.

Duplicate Samples – 2011 and 2012

A total of 84 sample pulps, 84 coarse rejects, and 118 split-core samples from the San Rafael 2011 and 2012 drill program were sent to ALS for duplicate analysis. The initial 32 core duplicate samples, with blind sample numbers, were included in the original sample stream. The remaining samples were sent in batches to ALS after the receipt of the original assay results.

No significant differences were noted between the original and duplicate values. Disregarding the weakly mineralized samples at sub-economic grades, where relative-difference evaluations are not practical, no evidence of a systematic bias was noted in the pulp and coarse reject for any of the five metals (silver, copper, gold, lead, and zinc). The average relative difference values for all five metals were all under ±5% for both types of duplicate analyses. The core analyses did show a small negative bias with the duplicate samples averaging 5% lower than the original assays. The total variability between duplicate pairs, as measured by the absolute relative difference values, averaged less than 10% for the pulp duplicates, 55 to 15% for the coarse reject pairs, and 20% to 30% for the split-core duplicate samples. These differences are acceptable for the various duplicate analyses.

As a check on ALS, Americas sent 64 original pulps to a second lab (Inspectorate) for analyses. The results show extreme differences between labs within the very low grades, but no significant differences or bias within sample pairs just below or at economic grade ranges. Average relative difference values for the limited number of mineralized sample pairs range from -9% for zinc to +3% for silver and lead. Average total variability ranges from 5% to 20%.

Duplicate Samples – 2014 and 2015

Nine split-core samples from the San Rafael 2014 drill program were sent to ALS for duplicate analysis. The split-core duplicates were given blind sample numbers and inserted into the original sample stream. No significant differences were noted between the original and duplicate values. The average relative difference values for all five metals were all under ±5% while the total variability between duplicate pairs, as measured by the absolute relative difference values, averaged 10% to 17%. These differences are acceptable for the split-core duplicate analyses, although the usefulness of the results is limited due to the small sample size and the relatively low-grade nature of all nine samples.

Thirteen original sample pulps and 19 coarse rejects were sent to Inspectorate as a check on ALS. No material differences were noted although, as with the split-core program, the usefulness of the results is limited due to the small data sets and the low-grade nature of the majority of duplicate sample intervals.

In-House Duplicate Samples – 2015

Although not considered an acceptable duplicate check sample under NI-43-101 guidelines, Americas submitted 205 pulps previously analyzed by ALS to their Cosalá mine laboratory. The primary purpose for these analyses was to test the implications of using the Cosalá laboratory for exploration samples. MDA evaluated the comparative data while at the site in June of 2015. There were significant differences within the lower-grade ranges, especially for silver and copper, that result from dissimilar detection limits and analytical precision at these low grade levels. When the low-grade samples were removed from the comparison, the average relative difference values for all four metals were all under ±5%, while the total variability between duplicate pairs, as measured by the absolute relative difference values, averaged less than 10%. For lead and zinc, the two labs compared quite well in the higher-grade range subsets with no material bias and total average variability less than 5%.

12.3.3 QA/QC Conclusions and Recommendations

Overall PRG did a commendable job of demonstrating sample and analytical reliability for their San Rafael drill program. Although the QA/QC program could have been incrementally improved with the analysis of coarse reject and pulp duplicates, MDA concludes that the PRG data is suitable for use in the resource estimate.

Americas' QA/QC program included blanks, standards, and pulp, coarse reject, and split-core duplicate samples. Some low-level contamination in the San Rafael lead and zinc values were noted, and there are minor concerns over the precision of the standard control values along with a minor low bias in the ALS base metal analyses. The duplicate program could be improved with the inclusion of more higher grade intervals, which would provide a better check on the potentially mineable material. None of these issues is considered significant, and MDA believes the Americas drill data for San Rafael are suitable for use in the resource estimate.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The following information concerning metallurgical testing and mineral processing for the San Rafael Main Zone has been prepared by Mr. Randy Powell, Q.P.M., Metallurgist, of Randy Powell Consulting LLC ("Randy Powell"). The majority of the test work was conducted by SGS Lakefield Research Ltd. ("SGS Lakefield") in Lakefield, Ontario, and by McClelland Laboratory Inc. ("McClelland") in Sparks, Nevada.

Many parts of Section 13.0 are reproduced from previous reports. Randy Powell reviewed the information and edited it as needed. Much of the following text is taken from the *Technical Report and Preliminary Economic Assessment Nuestra Señora, San Rafael, and El Cajón Deposits Sinaloa, Mexico* by Dyer *et al*., (2013). It should be noted that the term "ore" appears in this metallurgical section. When used in this section, the word has no economic significance, but is used to describe well-mineralized rock being used as plant feed source.

As of late 2009, detailed flotation testing had been completed on the San Rafael Main Zone sulfide mineralization, using drill-hole composites located within the western portion of the San Rafael deposit. Only preliminary testing has been completed on three additional San Rafael metallurgical types, all located within the eastern portion of the deposit: oxide mineralization, Zone 120 sulfide mineralization (at depth beneath the Main Zone), and Main/Zone 120 overlap sulfide mineralization. The Main/Zone 120 overlap sulfide material type occurs where the near-surface, up-dip extension of the Main Zone massive sulfide is overprinted by the Zone 120 low-sulfide mineralization.

Pre-production metallurgical studies for various mineralized zones of the San Rafael Main Zone have included petrography, mineralogy, grindability determinations, batch-scale flotation and locked-cycle flotation tests. Although various consultants were engaged for specific investigations, the most recent series of processing test work was performed by SGS during August and September 2015. This test work included batch flotation testing and confirmation testing of a full sequential flow sheet through locked-cycle tests. Interim reports of these tests were delivered in September, 2015.

13.1 2005 Metallurgical Testing

The following information is taken from MDA's 2012 Technical Report (Ristorcelli *et al*., 2012), with updated information provided by Jack McPartland, Q.P.M. McClelland completed all of PRG's metallurgical testing. All samples were derived from either RC cuttings or from core samples, and all testing assumed processing by flotation.

In late 2005, McClelland tested flotation responses on composite mineralized samples from the San Rafael deposit. According to Armbrust and Chlumsky (2006), the flotation test on San Rafael indicated "*that recoveries of about 85 percent for the lead and zinc are possible and that the silver recovery when combining the lead and zinc concentrates could be around 90 percent*."

13.2 January 2007 Metallurgical Testing

McClelland completed metallurgical test work on two composites of coarse rejects from RC drilling from San Rafael in early 2007 (McClelland, 2007). The following is a summary of this initial work. The main purpose for the tests was to develop a technique for selective flotation of lead-silver and zinc concentrates from the San Rafael sulfide ore type. The head assay for the two composites is shown in Table 13.1.

Table 13.1 Head Grades, San Rafael Composites

Head Assays						
Ore Composite	**Au g/t**	**Ag g/t**	**Cu %**	**Pb %**	**Zn %**	**Fe %**
San Rafael Oxide	0.275	122	0.23	0.54	0.38	15.8
San Rafael Sulfide	0.164	83	0.03	2.09	3.09	28.4

An initial bulk sulfide flotation test conducted on the San Rafael sulfide composite showed that the composite did not respond well to bulk sulfide flotation treatment. Although metal recoveries to the flotation concentrate were high, selectivity was very poor. Activation of contained gangue minerals (primarily iron sulfides) during flotation appears to have been a problem. Subsequent testing has been focused on development of a sequential flotation procedure and reagent scheme to allow for selective flotation of a precious metal-lead concentrate and a zinc concentrate. This testing includes over 20 sequential flotation tests. Overall, detailed testing on the San Rafael sulfide composite has shown that it is possible to selectively float a precious metal-lead concentrate that was less than 8% of the feed weight and contained over 75% of the total lead. Zinc flotation of the lead flotation rougher tailings showed that it was possible to generate a zinc concentrate that was less than 8% of the feed weight and contained over 75% of the total zinc. Silver values reporting to the lead and zinc rougher concentrates were equivalent to over 70% of the contained silver. Lead concentrate grades of as high as 52% Pb and 3,500 g Ag/t were achieved during cleaner flotation testing. Zinc concentrate grades of as high as 52% Zn were achieved. Results under optimum conditions showed that approximately 15% of the zinc, 25% of the lead, 30% of the silver, and 50% of the gold contained in the whole ore reported to the final tailings. Final (cleaner) concentrates containing 52% lead and 52% zinc were obtained. The cleaner lead concentrate under optimized conditions was approximately 3% of the feed weight, while the cleaner zinc concentrate was approximately 5% of the feed weight.

An initial bulk sulfide flotation test conducted on the San Rafael oxide composite indicated that the oxide ore did not respond particularly well to conventional flotation treatment at an 80% -106µm feed size. In general, metal recoveries and concentrate grades were low. These results were not altogether unexpected for an oxide ore. No further testing has been conducted on this composite. Additional testing will be required to determine if the oxide ore can be processed using flotation methods. Flotation processing of the oxidized ore is considered to be unlikely.

Follow-up flotation testing included further optimization of reagent additions and optimization of grind size. Finally, locked-cycle flotation testing was planned under the optimized conditions to confirm recoveries and to determine the effects of middlings (cleaner tailings) recycle.

13.3 Additional 2007-2008 Metallurgical Testing

McClelland completed additional metallurgical test work on three San Rafael drill-core composites during late 2007. One drill-core composite representing the San Rafael Main Zone sulfide mineralization type was initially prepared for testing. Sample intercepts from seven drill holes went into the composite. The San Rafael sulfide composite contained 1.8% Pb, 4.2% Zn, and 50 g Ag/t. Using this composite sample, extensive test work followed over a period of several years, as described below.

Two additional composites representing Zone 120 sulfide and the Main/120 overlap sulfide mineralization were prepared later from drill core and drill-cuttings rejects for preliminary flotation testing. The Zone 120 sulfide composite contained 0.51g Au/t, 180g Ag/t, 0.61% Cu, 0.09% Pb, and 0.31% Zn, while the Main/120 overlap sulfide composite contained 0.29g Au/t, 108g Ag/t, 0.54% Cu, 0.26% Pb, and 6.07% Zn.

13.3.1 2008 San Rafael Main Zone Sulfide Composite

The following is taken from a preliminary report on the metallurgical testing by McClelland dated January 18, 2008 (McClelland, 2008). Sequential lead-zinc rougher cleaner flotation testing was conducted on the San Rafael Main Zone sulfide composite. The test used conditions optimized during earlier testing on a San Rafael Main Zone sulfide cuttings composite. The investigation was conducted to confirm response of the drill-core composite to flotation under the optimized conditions and to optimize grind size for flotation. Summary results from those tests are presented in Table 13.2.

Table 13.2 Summary Flotation Test Result-San Rafael Main Zone Sulfide Composite

	Weight Distribution					Assays						Recovery to Rougher Conc.		
	Lead Concentrate		Zinc Concentrate			% Pb		g Ag/t		% Zn		% of Total		
Test	Cleaner	Rougher	Cleaner	Rougher	Ro. Tail	Cl. Conc	Ro. Tail	Cl. Conc	Ro. Tail	Cl Conc	Ro. Tail	Pb	Ag	Zn
F6	2.4	6.6	5.0	7.0	86.4	55.88	0.38	689	32	44.42	1.85	80.3	35.4	56.3
F7	2.6	6.2	5.2	7.2	86.6	50.91	0.31	614	30	43.70	1.81	83.0	35.7	56.0
F13	2.7	5.9	6.8	8.3	85.8	50.84	0.27	550	25	43.65	1.16	85.2	31.8	71.2
F4	3.2	12.4	7.2	9.0	78.6	46.64	0.28	561	25	39.6*	0.78	87.3	45.2	71.7
F23	3.6	8.6	6.7	9.2	82.2	NA	0.20	509	25	NA	1.12	NA	42.8	NA
F5	3.3	12.0	5.9	9.1	78.9	40.45	0.26	511	27	46.5*	0.88	87.2	43.2	70.5

Results from batch flotation tests conducted on the San Rafael Main Zone sulfide composite confirmed amenability of the ore to flotation under the optimized conditions. Lead recoveries to the lead rougher concentrates of greater than 80% were achieved at grind sizes ranging from 80% -150 µm to 80% -45 µm. The ore was not particularly sensitive to grind size with respect to lead recovery. The lead cleaner concentrate grade tended to decrease with decreasing feed size, and ranged from 56% Pb at the 150 µm feed size to 40% Pb at the 53µm feed size, indicating some benefit to a coarser primary grind. The use of a coarser primary grind may require a regrinding stage ahead of the cleaning circuit. Silver recoveries to the same lead concentrates ranged from 35% at the 150 µm feed size, to 45% at the 53 µm grind size. Silver grade of the lead concentrate ranged from 689 g Ag/t to 509 g Ag/t and also tended to decrease with decreasing feed size. Zinc recoveries to the zinc rougher concentrate ranged from 56% at the 150 µm feed size, to 71% at the 75 µm and finer feed sizes. Grinding finer than 75µm in size did not significantly improve zinc recovery. Zinc cleaner concentrate grade ranged from 40% to 47% (calculated) and did not vary much with feed size.

13.3.2 San Rafael Main Zone Sulfide Composite Locked-Cycle Test

A locked-cycle flotation test series was conducted on the San Rafael Main Zone sulfide drill-core composite, at an 80% passing 53 µm feed size, to determine the effects of flotation cleaner tailings recycling. Conditions employed were the same as optimized during earlier batch flotation testing. The 53 µm grind size was selected to maximize silver recovery, and to a lesser degree zinc recovery. It should be noted that there was no apparent benefit to zinc recovery obtained by grinding finer than 75 µm during earlier batch flotation testing. The locked-cycle flotation test procedure consisted of a series of sequential batch flotation tests, where the flotation cleaner tailings (lead and zinc) from the preceding batch test were fed to the corresponding rougher flotation stage during the subsequent batch flotation test. Reclaim solution from the flotation rougher tailings was also recycled and used for grinding and lead rougher flotation during each subsequent batch flotation test. Results from the locked-cycle flotation test showed that, overall, lead and silver recoveries to the lead cleaner concentrate were slightly lower than the corresponding recoveries obtained in the rougher concentrates during batch flotation testing. The overall zinc recovery (63%) was significantly lower than that obtained during batch rougher flotation testing (71%). Zinc recovery to the zinc cleaner concentrates from the individual cycles during locked-cycle testing varied significantly, ranging from 52% to 72%. The cause for the large variations in zinc recovery from cycle to cycle is not understood at this time. Additional testing (discussed later in this section) was conducted to further optimize flotation of the San Rafael Main Zone sulfide ore type. At the time, it was expected that it should be possible to consistently obtain a zinc recovery of approximately 71% to the zinc cleaner concentrate. Follow-up batch flotation testing showed that it was possible to significantly improve zinc flotation from this ore type.

13.3.3 Zone 120 and 120-Main Overlap Zone Composite Batch Flotation Test

A single batch flotation test was conducted on each of the Zone 120 composite and the Zone 120 mixed sulfide (Main/120 overlap) composite. Results from the Zone 120 composite flotation test showed higher than expected weight pulls of 23.4% to the rougher concentrate and 11.8% to the cleaner concentrate. The cleaner concentrate produced from the Zone 120 composite was 11.8% of the feed weight, assayed 1.53 g Au/t, 1,400 g Ag/t and 4.45% Cu, and represented gold, silver and copper recoveries of 70%, 81% and 86%, respectively.

Batch flotation test results showed that the Zone 120 mixed (Main/120 overlap) sulfide composite did not respond particularly well to the sequential lead-zinc flotation procedure optimized earlier for the San Rafael Main Zone composite. The Zone 120 mixed (Main/120 overlap) sulfide composite contained only 0.26% Pb, probably making production of a high-grade lead concentrate difficult. A substantial portion of the contained zinc (32% of total Zn) reported to the lead concentrates, limiting the zinc recovered in the zinc concentrate.

Further flotation-optimization testing was conducted at McClelland in 2008 on the same two composites and did not lead to a significant improvement in flotation response. The results indicated that additional testing is required to prove metals from Zone 120 can be recovered in a saleable concentrate. Additional testing of Main/120 overlap sulfide material containing a more representative lead content is also warranted.

13.4 2009 Metallurgical Work

McClelland completed additional flotation-optimization test work in early 2009 for the San Rafael Main Zone sulfide mineralization. The following discussion on results was issued by McClelland (2009):

Through continued optimization testing on the San Rafael Main Zone sulfide composite, McClelland determined that increasing copper sulfate addition (to 1.0 kg/t ore) during activation before zinc rougher flotation was effective in significantly increasing zinc recovery during flotation. Earlier testing on the San Rafael Main Zone sulfide cuttings composite had indicated the potential for generating a flotation cleaner concentrate with approximately 75% of the contained zinc. This earlier testing included optimization of the copper sulfate addition made for sphalerite activation before zinc rougher flotation.

Results from those tests indicated no significant benefit to a copper sulfate addition of greater than 0.5kg/t ore. Subsequent testing conducted on the San Rafael Main Zone sulfide drill-core composite indicated that it was not possible to achieve a zinc recovery to a flotation rougher concentrate of greater than 70% when a 0.5 kg/t ore copper sulfate addition was employed. This work did not include re-optimization of the copper sulfate addition used before zinc rougher flotation to activate sphalerite. More recent follow-up testing focused on improving zinc recovery from the core composite during flotation showed that by increasing the copper sulfate addition used for zinc rougher flotation to 2.0 lb/ton ore, it is possible to generate a zinc cleaner concentrate with 81% of the total contained zinc, or a zinc rougher concentrate with 84% of the total contained zinc. These results indicate that, for the fresh drill-core composite, the higher copper sulfate addition was effective in significantly improving zinc recovery.

Results from two typical tests (distinguished here as test A and Test B) conducted during the optimization testing using 0.5 kg/t ore copper sulfate for activation are shown below in Table 13.3 and Table 13.4.

Table 13.3 Main Zone Sulfide Flotation Test, Sequential Lead-Zinc Rougher Flotation Test A, San Rafael Master Composite, P_{80} 75µm Feed

	Weight	Assay					Metal Distribution, % of Total		
Product	**%**	**%Cu**	**%Pb**	**%Zn**	**%Fe**	**g Ag/t**	**Pb**	**Zn**	**Ag**
Pb Cl.Conc.	2.1	0.02	58.02	3.74	11.00	571	67.5	1.8	25.4
Pb Cl.Tail #2	0.4	0.02	5.21	5.17	30.10	73	1.2	0.5	0.6
Pb Cl.Tail #1	3.6	0.02	5.21	5.17	30.10	73	10.4	4.4	5.6
Zn Cl. Conc.	8.1	0.15	0.93	42.57	15.05	99	4.2	81.2	17.0
Zn Cl.Tail #2	0.4	0.13	1.29	5.77	30.20	105	0.3	0.5	0.9
Zn Cl.Tail #1	2.0	0.13	1.29	5.77	30.20	105	1.4	2.7	4.5
Ro. Tail	83.4	0.02	0.33	0.45	37.13	26	15.1	8.8	46.0
Composite	100.0	0.04	1.81	4.25	34.35	47	100.0	100.0	100.0

Table 13.4 Main Zone Sulfide Flotation Test, Sequential Lead-Zinc Rougher Flotation Test B San Rafael Master Composite, P_{80} 75µm Feed

	Weight	Assay					Metal Distribution, % of Total		
Product	**%**	**%Cu**	**%Pb**	**%Zn**	**%Fe**	**g Ag/t**	**Pb**	**Zn**	**Ag**
Pb Cl.Conc.	2.1	0.03	53.64	4.35	12.10	732	67.9	2.1	29.1
Pb Cl.Tail #2	0.2	0.02	3.21	5.56	32.20	91	0.4	0.3	0.3
Pb Cl.Tail #1	5.4	0.02	3.21	5.56	32.20	91	10.5	7.0	9.3
Zn Cl. Conc.	9.0	0.13	0.65	38.50	16.50	117	3.5	81.1	19.9
Zn Cl.Tail #2	0.7	0.11	1.46	6.47	30.90	61	0.6	1.1	0.8
Zn Cl.Tail #1	2.1	0.11	1.46	6.47	30.90	61	1.8	3.2	2.4
Ro. Tail	80.5	0.03	0.31	0.28	36.43	25	15.2	5.3	38.1
Composite	100.0	0.04	1.66	4.27	33.74	53	100.0	100.0	100.0

These 2009 results indicate that a zinc cleaner concentrate could be produced, which would be approximately 9% of the feed weight, would assay approximately 40% Zn and would contain approximately 81% of the total zinc values. It is expected that through further cleaning of the zinc concentrate, higher concentrate grades (approaching 45% Zn) could be achieved.

13.5 2009 – 2010 Metallurgical Testing by SGS Lakefield

SGS Lakefield received crushed material that had been previously prepared at McClelland as a composite from seven holes drilled in 2005 – 2007 (Lang, 2010). The composite samples were from hole numbers SR036, SR096, SR102, SR104, SR 170, SR172, and SR180. These drill holes lie near the middle of the Main Zone and the samples are from down-hole depths ranging from 41m to 136m. The sample intervals represent an aggregate thickness (not continuous) of about 10 to 11 meters. Refer to Figure 13.1 in Section 13.9 for a plan map depicting these and other metallurgical holes. The chemical composition of that composite is provided below in Table 13.5.

Table 13.5 Composite Sample Analysis (from Lang, 2010)

	Composite
Element	**SR Composite**
Pb %	1.72
Cu %	0.02
Zn %	4.27
Au g/t	0.11
Ag g/t	49.2
S %	35.0
Fe %	35.2

The 2009 – 2010 SGS Minerals testing further focused on developing and optimizing the bulk silver-lead and sequential-zinc style of flow sheet at the bench scale. The intention of that program was to improve silver recoveries and concentrate quality, specifically the zinc concentrate while maintaining or improving recovery. The information and flow sheet configuration developed in this 2009 study was intended to be used as part of an economic evaluation for processing of material.

Rougher flotation development work was the primary focus, with emphasis placed on improving lead and zinc selectivity, and improving silver units reporting into the lead concentrate. Once a suitable rougher reagent scheme was confirmed, additional batch cleaning tests were completed to explore the roles of reagent and pH on final concentrate grade and recovery relationships. Initial test work observed the effect of soda ash as a pH modifier with the attempt to improve silver recovery in the lead circuit. However, this was met with very high reagent consumption levels and poor concentrate qualities. Increasing the primary grind pH with lime from 8.0 to 9.1 with additional sodium cyanide ("NaCN") significantly improved zinc concentrate quality (44% to ~55% Zn). Table 13.6 summarizes reagent consumptions for each circuit based on locked-cycle testing:

Table 13.6 Reagent Consumption (from Lang, 2010)

	Reagent Consumption (g/t)					
Circuit	**Lime**	**NaCN**	**241**	**5100**	**CuSO4**	**MIBC**
Primary Grind	3500	150	-	-	-	-
Pb Rougher	-	-	20	-	-	10
Pb Regrind	75	10	2.5	-	-	-
Pb Cleaners	-	135	2.5	-	-	7.5
Zn Rougher	450	-	-	15	500	-
Zn Regrind	1000	-	-	-	10	-
Zn Cleaners	200	-	-	-	-	-
TOTALS	5225	295	25	15	510	17.5

Locked-cycle testing was completed by SGS to demonstrate circuit stability and provide metallurgical projections for the same San Rafael composite. The results illustrated in Table 13.7 below indicate separate lead and zinc concentrates can be produced with acceptable quality. The final lead concentrate assayed 58% Pb, and less than 5% Zn, at 78% recovery of lead. The final zinc concentrate assayed 51% Zn at 82% recovery and contained less than 1% Pb (Lang, 2010).

Table 13.7 SGS 2009 – 2010 Float Concentrate Grade and Recovery

	Grade (%, g/t)			Recovery (%)		
Concentrate	**Pb**	**Zn**	**Ag**	**Pb**	**Zn**	**Ag**
Lead Conc.	57.6	3.46	680	77.6	1.9	31.1
Zn Conc.	0.99	51.1	128	3.8	81.8	16.7

In these tests the zinc mass recovery percentage was 6.4 to 8.1, while the lead cleaner concentrate mass recovery was 1.8% to 2.2%. Thus, these tests did follow up and confirm the 2009 results referred to above in Section 13.3.3.

One of the recommendations within the Lang (2010) report was to investigate the impacts to rougher flotation when using a coarser primary grind target. However, this would not be followed up until later test programs.

13.6 Scorpio 2011-2012 Metallurgical Testing

Additional testing was conducted by McClelland on another copper- and silver-bearing Zone 120 drill-core composite in 2011 and 2012 (Olson, 2013). Significant progress was made in reagent optimization and improvement in the flotation response of the Zone 120 material (Olson, 2013).

A total of 48 drill-core intervals from drill holes SR-197 and SR-202 were combined to make a Zone 120 master composite for flotation testing. Average head grades were 0.190g Au/t, 186g Ag/t, 0.58% Cu, 6.75% Fe, 0.09% Pb, and 0.17% Zn. Eighteen batch flotation tests were conducted to optimize conditions and reagents for producing a copper and silver concentrate. A locked-cycle flotation test series was also conducted, using the optimized conditions, to determine the effects of flotation product recycle.

McClelland drew the following conclusions (Olson, 2013):

- The Zone 120 master composite responded well to flotation treatment using two different reagent schemes.
- Dominant copper and silver minerals present were chalcopyrite ($CuFeS_2$) and miargyrite ($AgSbS_2$).
- Indicated optimum primary grind size was 80% -150µm.
- Rougher concentrate regrinding to 80% -45µm significantly improved cleaner concentrate grade.

The locked-cycle flotation testing summarized above showed that it was possible to produce a final cleaner concentrate that was 2.1% of the feed weight, assayed 21.39% Cu and 5,978g Ag/t, and represented copper and silver recoveries of 84.7% and 72.1%, respectively.

13.7 2015 Americas Silver Metallurgical Testing

Additional core drilling was conducted in mid-year 2015, for the purposes of confirmation metallurgical testing. Eight core holes were drilled into the 400 South mineralized zone and mineralized intercepts were combined into a 2015 general composite for testing. The drill holes were SR-PMS-01 to SR-PMS-08 (see Figure 13.1). Summary data for this composite is given in Table 13.8 below[1]:

Table 13.8 San Rafael Master Composite 2015 Analysis and Source
(data from Americas, 2015; g/t = gram per metric tonne)

LABORATORY ANALYSIS (from onsite laboratory, Minera Cosala', S. A. de C.V.)												
		Pb	Cu	Zn	Fe	Au	Ag	As	Sb	Cd	Bi	Interval,
Date	Drill Hole Number	%	%	%	%	g/t	g/t	%	%	%	%	m
7-Jun-15	San Rafael Composito Barreno 1	1.61	0.01	3.18	23.75	0.25	74.03					4.00
7-Jun-15	San Rafael Composito Barreno 2	1.38	0.01	3.48	27.73	0.34	53.28					6.90
7-Jun-15	San Rafael Composito Barreno 3	1.35	0.00	3.20	30.06	0.26	48.39	0.05	0.00	0.04	0.01	10.00
7-Jun-15	San Rafael Composito Barreno 4	1.86	0.10	4.21	24.91	0.18	59.26	0.07	0.00	0.06	0.01	10.45
7-Jun-15	San Rafael Composito Barreno 5	1.51	0.01	2.64	12.92	0.14	49.76	0.04	0.01	0.03	0.00	5.00
7-Jun-15	San Rafael Composito Barreno 6	0.59	0.00	1.69	22.46	0.13	22.87	0.05	0.00	0.00	0.01	not used
7-Jun-15	San Rafael Composito Barreno 7	0.35	0.01	1.03	26.86	0.14	28.86	0.05	0.00	0.00	0.01	not used
7-Jun-15	San Rafael Composito Barreno 8	1.01	0.01	3.26	35.53	0.28	30.44					11.00
19-Jun-15	Composito General SR	1.22	0.01	2.99	22.98	0.19	44.41	0.06	0.00	0.03	0.01	

The 2015 general composite was sent to the SGS laboratory for flotation test work. This test work began during the last week of July 2015, with the goals of confirming results obtained in 2010 testing, conducting locked-cycle testing, and confirming the flow sheet operating parameters.

Bench tests utilized a 2 kg sub-sample with a target primary grind of P_{80} equal to 50µm. The float scenario followed up on the previous work with similar reagents including lime, copper sulfate, Aero 3416, Aero 241, NaCN, and MIBC. As was the case in past testing, the lead was floated in the first stage, with zinc flotation of the 'lead rougher' tails. Both product streams underwent additional grinding and cleaning steps.

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[1] E mail D. Dell to R. Powell, 9/11/15; Excel file 'Compositos Sn Rafael Junio 2015'.

General conditions for the initial lead float were:

- pH = 7.1;
- Rougher P_{80} = 50µm (with regrind =30µm);
- Reagents Lime, Aero 241 and NaCN; and
- Float time = 6 minutes (rougher).

General conditions for zinc flotation were:

- pH = 10.5
- P_{80}, regrind = 21µm
- Reagents Lime, Aero 241 and NaCN

As shown in Table 13.9 and Table 13.10, the initial test results included rougher and cleaner testing and did obtain similar results to those obtained in prior testing at SGS Lakefield in 2010.

Table 13.9 Summary Results 2015 Bench Float
(from Sarinas, 2015)

Metallurgical Balance In Rougher Test Summary							
	Weight - To Ro. Conc.		Rougher Grind	% Metal Distribution in Rougher Concentrate			
Test	Lead, %	Zinc, %	P80, micron	Pb	Zn	Ag in Lead	Ag in Zinc
F 1	4.9	12.2	50	71.6	89.0	21.5	8.9
F 2	6.9	13.2	50	78.7	84.4	33.9	24.4
F 3	9.5	11.5	50	80.7	81.1	36.1	23.5
F 4	8.8	12.2	51	80.8	82.3	36.4	23.1
F 5	7.1	10.7	50	78.6	84.8	33.5	22.9
F 7	6.1	12.6	101	79.5	83.9	32.2	24.8

Table 13.10 Summary Results 2015 Bench Float Concentrate Assay
(from Sarinas, 2015)

Cleaning Tests - Ability to Concentrate: Tests F 1 to F 7							
Last Stg	Weight - %, Last Clnr		Regrind				No of
of Clng	Pb	Zn	P80, micron	Pb, %	Zn, %	Ag, g/t	Stages
Pb	0.1 - 1.9		30 - 27	51 -75	-	569 - 750	2
Zn		2.4 - 5.0	21 - 47	-	49.6 - 53.3		3

After test F 5 was completed it was decided to run a locked-cycle test. This test ran through six cycles of nominal 2 kg charges feeding the 'locked cycle' process. After about three cycles, the recycled streams and flotation performance were in balance. In this case, the primary grind was 49µm. Aggregating finished product streams for cycles D, E, and F gave:

- Head assays for lead and zinc respectively were 1.40% and 3.30%;
- Lead 2nd cleaner concentrate = 51.5% Pb with75.1% recovery in 2% mass pull;
- Zinc 3rd cleaner concentrate = 52.8% Zn with 86.3% recovery in 5.4% mass pull; and
- Silver recoveries were 28.4% in the lead concentrate and 19.2% in the zinc concentrate.

Following the successful locked-cycle test, it was decided to investigate a coarser primary grind. Using the 2015 master composite, the primary grind particle size was increased to a P_{80} of 101µm. Following this grinding, the sample was concentrated using the now standard procedure. The results from that test indicated very similar results to that listed above in Table 13.10:

- Rougher lead recovery = 84.4%;
- Rougher zinc recovery = 93.3%;
- Lead 2nd cleaner concentrate recovery = 72.6%;
- Zinc 3rd cleaner concentrate recovery = 76.3%; and
- Silver aggregate recovery in the aforementioned concentrates = 43.4%

Thus with this test it was confirmed that a coarser particle size (hence reduced energy use for grinding) had a minimal impact to rougher recovery and mass pull. It should be noted that the mineralogy work conducted in 2008, which suggested that a high liberation was achievable with less particle size reduction, was thus confirmed.

Subsequently a coarse grind locked-cycle test was conducted with encouraging results:

- Lead 2nd cleaner concentrate = 50.6% Pb with 74.7% recovery in 2.1% mass pull;
- Zinc 3rd cleaner concentrate = 52.5%, 85.0% recovery in 5.3% mass pull; and
- Silver recoveries were 28.0% in the lead concentrate and 20.4% in the zinc concentrate.

Independent from this flotation test work, a Bond Work index test was carried out in San Luis Potosi, Mexico at the Instituto de Metalurgia on the 2015 master composite, which had been shipped back from SGS Lakefield. The results of this test by Ojeda Escamilla (2015) indicated a Bond work index of 14.07 kWh/tonne.

13.8 Mineralogy

During the 2008 metallurgical testing program at McClelland, select ore and flotation product samples were submitted to Amtel Limited in London, Ontario, Canada, for mineralogical characterization. Included were representative subsamples from the 2008 San Rafael Main Zone sulfide drill-core composite. Select flotation middlings and concentrate products from the same samples were also submitted to aid in interpretation of flotation testing that was ongoing at the time. The samples submitted were subjected to general mineralogical analysis by scanning-electron microscopy, zinc and copper deportment analysis, and in the case of concentrate products, for concentrate diluents analysis.

Zinc deportment in the San Rafael Main Zone sulfide composite was described as being principally sphalerite with lesser amounts of andradite. The sphalerite was described as being mostly liberated at a grind size of ~100µm. Estimated zinc recoveries by flotation at a nominal 75µm grind size were 88%-94%, with a weight pull of 5%-7%. These mineralogical observations indicated some upside potential for further optimization of zinc flotation conditions for the San Rafael Main Zone sulfide mineralization type.

Mineralogical work in 2010 in general confirmed the 2008 testing. Important points include the following comments:

> Data from this work indicates fairly high liberation of sulfides, which could indicate an opportunity to operate at a coarser particle size than P_{80} of 53µm.
>
> Sphalerite recovered into the lead concentrate was in general free and liberated (91%) with only 0.39% of the recovered sphalerite presenting as a binary with galena. As a result of such high levels of free sphalerite being recovered, it is indicative this is a result of pre-activation. Similarly a high proportion of sphalerite within the Zn rougher concentrate is free and liberated (84.7%) (Lang, 2010).

Zinc deportment in the Main/120 overlap sulfides (Zone 120 mixed sulfides) composite was described as also being mainly sphalerite, with a finer (~40µm) liberation size. Zinc recoveries by flotation predicted at that grind size (based on mineralogy) were 86%-95%. Flotation testing on the 2008 Main/120 overlap sulfides composite did not yield encouraging results (McClelland 2008).

Principal diluents adversely affecting zinc concentrate grades were noted as liberated iron sulfides, unliberated gangue, and liberated gangue. Lead activation of iron sulfides, probably by contained galena, was suggested as a possible cause for iron sulfide carry-over into the zinc concentrate products.

The Zone 120 sulfide composite was primarily a copper and silver ore sample, so the focus of analysis on that composite was copper deportment. Principal copper minerals were reported to be chalcopyrite and tetrahedrite, with trace amounts of bornite, covellite, and chalcocite noted. A copper recovery of ~86% with a mass pull of 3% - 4% was predicted for this ore type. That observation suggests the potential for a substantial improvement in flotation response for this ore type. Copper flotation testing on this composite to date has shown significant challenges with respect to concentrate dilution by gangue minerals. Further testing would be required to determine if the response predicted by mineralogical analysis could be achieved.

13.9 Metallurgy Summary

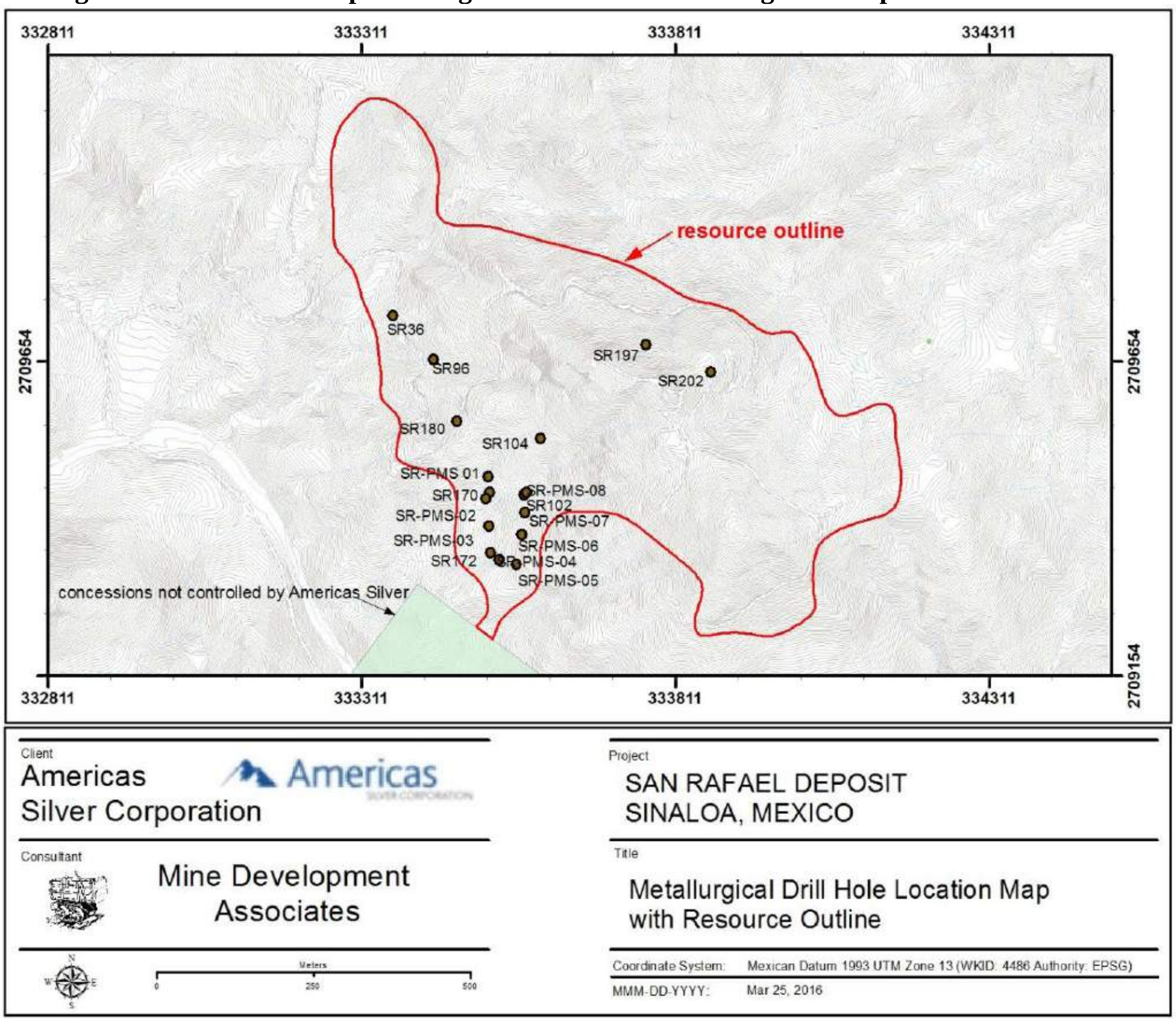
Metallurgical testing of material from San Rafael was conducted in seven main phases over a period of roughly ten years (2005 – 2015) on a total of nine composites of drill cuttings or drill-core at McClelland and SGS. For the 2015 testing eight new core holes were drilled in the San Rafael Main zone for a sulfide composite that was tested at SGS. The 2015 testing was focused exclusively on processing by flotation treatment. The seven phases of testing were:

1. 2005 – 2007 testing on San Rafael oxide and sulfide RC drill-cuttings composites;
2. 2007 – 2008 testing on San Rafael Main Zone sulfide mineralization drill-core composites;

3. 2008 testing on Zone 120 and Main/120 overlap sulfide drill core mineralization drill-core composites;
4. 2008 – 2009 testing on San Rafael Main Zone sulfide mineralization drill-core composites;
5. Late 2009 and early 2010 testing on a Main Zone drill -core composite (drilled 2005 – 2007);
6. 2011- 2012 Testing on the Zone 120 drill-core composite; and
7. 2015 testing on San Rafael Main Zone sulfide using the 2015 drill-core composite.

Figure 13.1 illustrates the San Rafael mineral resource area and the metallurgical core holes that were the sources of the samples used for the various composites tested in 2005 through 2015.

Figure 13.1 Location Map Showing Drill Holes for Metallurgical Composites 2005 - 2015



A summary table of all San Rafael flotation testing is provided in Table 13.11 below.

Table 13.11 Summary of San Rafael Flotation Testing

Metallurgical Summary - Scorpio Laboratory Flotation Testing										
Lab	Date	Composite ID	Drill Holes for Composite	Particle Size, P_{80}, micron	Head Assay Pb, Zn, Ag(%, %, g/t)	Rougher Recovery			Conc Gr, % (Pb / Zn)	Type of test
						Pb	Zn	Ag(cum.)		
McClelland Lab	Late 2005	'composite'	Unk.	Unk.		85	90	Unk.	Unk.	Scoping - bench float
	Early 2007	'San Rafael Sulfide'	1 Drill Hole RC Coarse Rejts.	Unk.	2.09_3.09_83	75	75	70	52 / 52	Bench Flt. = 20 Dev. Selectivity
		San Rafael Oxide	Unknown comp.	106	0.54_.38_122	'low'	'low'	'low'	NA	Bench scoping.
	Late 2007	San Rafael Main Zone Comp.	7 Core Holes; SR 36, 96, 102, 104, 170, 172, 180	150 - 45	1.8_4.2_50	85.24	65.73	39.01	47.6 / 43.5	13 Bench Flt.
		"	"	75	1.8_4.2_50	73.81	84.45	36.60	50.4 / 39.1	Study opt. grind
		San Rafael 120 Z	UNK.	UNK.	UNK.	UNK.	UNK.	81.00	NA	1 Bench Flt.
		SR 120/Main Overlap	UNK.	UNK.	UNK.	UNK.	UNK.	UNK.	NA	I Bench Flt.
	2008	San Rafael Main Zone Comp.	7 Core Holes; SR 36, 96, 102, 104, 170, 172, 180	53	1.8_4.2_50	< 73	63	Unk.	Unk.	**Locked Cycle Fl**
		"	"							
	Early 2009	"	"	75	1.81_4.25_47	77.9	83.90	52.50	58 / 42.6	2 Bench Flt.:
		"	"	75	1.66_4.27_53	78.4	84.30	62.20	53.6 / 38.5	A and B
	2011-2012	San Rafael 120Z; Cu mineralization.	SR-197 & SR-202; 48 core smp into 1 comp.	150	.09_.17_186	No report. Cu rec = 84.7	Unk.	72.10	NA	18 Bench fl. 1 Locked cycle.
SGS	Nov-Dec 2009	San Rafael Main Zone	7 Core Holes; SR 36, 96, 102, 104, 170, 172, 180	42 - 77	1.72_4.27_49.2	86.5	73.80	45.60	NA	13 Bench Flt. F 1-F13. F 23. Opt. reagents
	Nov-Dec 2009	"	"	55	"	77.6	81.80	47.80	57.6 / 51.1	**Locked Cycle Fl**
	2015	2015 Met Composite; 8 DH	SR_PMS-01 to 08. 400 South Zone	5 at 50; 1 at 107	1.22_2.99_40.4	86.2	87.4	50.3	51 - 75 / 50-53	6 Bench Flt.
	2015	2015 Met Composite; 8 DH	SR_PMS-01 to 08. 400 South Zone	51	"	75.1	86.30	48.60	51.7 / 52.8	**Locked Cycle Fl # 1**
	2015	2015 Met Composite; 8 DH	SR_PMS-01 to 08. 400 South Zone	106	"	74.7	85.00	48.40	50.6 / 52.5	**Locked Cycle Fl # 2**

As evidenced in the above table, bench top and locked-cycle testing conducted on the San Rafael Main Zone sulfide mineralization has shown this ore can be processed using a sequential flotation process to produce separate lead-silver and zinc concentrate products. The work included batch single-cycle float testing, reagent optimization, physical testing (Wi), and locked-cycle float testing.

Past testing on the Zone 120 and 120 Main Overlap Zone mineralization types was less successful than the work summarized above for the San Rafael Main Zone sulfide mineralization types. Early attempts at applying the flotation processing schemes optimized for the San Rafael mineralization types to the Zone 120 and Main/120 Overlap Zone mineralization types were not particularly successful. Significant progress was made in reagent optimization and improvement in the flotation response of the Zone 120 material during 2011-2012 testing of a Zone 120 composite. Locked-cycle flotation testing showed that it was possible to produce a final cleaner concentrate that was 2.1% of the feed weight, assayed 21.39% Cu and 5,978g Ag/t, and represented copper and silver recoveries of 84.7% and 72.1%, respectively.

13.10 Production Metallurgical Performance

Given the above results, the following parameters are utilized for future planning and metal scheduling including cash flow modeling for the San Rafael Main Zone sulfide material:

- Primary grind, P_{80}: 100 – 110µm;
- Lead regrind target, P_{80}: 23 – 30µm;
- Zinc regrind target, P_{80}: 46 – 50µm;
- Recovery to lead concentrate: 76.3% Pb and 29.7% Ag;
- Recovery to zinc concentrate: 83.8% Zn and 17.9% Ag;
- Lead and Zinc concentrate grade: 51.9% Pb and 51.9% Zn, respectively;
- Rougher conditioning time, minutes: 5 – 7;
- Rougher float retention time, minutes: 6 – 10;
- Cleaner pre-float conditioning, minutes: 1 – 5; applicable to both Pb and Zn cleaning;
- Stages and minutes for cleaning Pb: 2; 3 – 5 minutes each stage;
- Stages and minutes for cleaning Zn: 3; 3 – 4 minutes each stage; and
- Reagent suite: as per SGS 2015 locked-cycle test # 1 and # 2.

It should be noted that actual recoveries may vary from those obtained in small scale laboratory testing. This variance can be attributed to a wide number of field variables that are not easily modeled in a laboratory setting.

14.0 MINERAL RESOURCE ESTIMATES

This section describes the current resource estimate for the San Rafael deposit, which has been updated from those estimates reported by Ristorcelli *et al.* (2012) and Dyer *et al.* (2013).

14.1 Resource Classification

Although MDA is not an expert with respect to any of the following aspects of the project, MDA is not aware of any unusual environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors that may materially affect the San Rafael mineral resources as of the date of this report.

MDA classifies resources in order of increasing geological and quantitative confidence into Inferred, Indicated, and Measured categories to be in accordance with the "CIM Definition Standards - For Mineral Resources and Mineral Reserves" (2014) and therefore Canadian National Instrument 43-101. CIM mineral resource definitions are given below, with CIM's explanatory material shown in italics:

Mineral Resource

Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

Material of economic interest refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals.

The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of Modifying Factors. The phrase 'reasonable prospects for eventual economic extraction' implies a judgment by the Qualified Person in respect of the technical and economic factors likely to influence the prospect of economic extraction. The Qualified Person should consider and clearly state the basis for determining that the material has reasonable prospects for eventual economic extraction. Assumptions should include estimates of cutoff grade and geological continuity at the selected cut-off, metallurgical recovery, smelter payments, commodity price or product value, mining and processing method and mining, processing and general and administrative costs. The Qualified Person should state if the assessment is *based on any direct evidence and testing.*

Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some coal, iron, potash deposits and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However, for many gold deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time.

Inferred Mineral Resource

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

An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.

There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource. Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource.

Indicated Mineral Resource

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

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

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Pre-Feasibility Study which can serve as the basis for major development decisions.

Measured Mineral Resource

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

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

A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade or quality of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit.

Modifying Factors

Modifying Factors are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

14.2 San Rafael Resource Estimate

The San Rafael drill-hole assay database was updated to include the 21 core holes drilled at San Rafael in 2014 and through July 1, 2015, since the 2012 MDA resource estimate. The current database contains 10,904 zinc assays, 10,904 silver assays, 10,372 lead assays, 7,583 copper assays, and 7,819 gold assays (listed in order of each metal's economic importance) including data within the Silvia Maria concession.

All of the San Rafael sample data were used in developing the San Rafael models, estimating the resource, and determining resource classification. However, the reported resource estimate for San Rafael specifically excludes the small fraction of the total deposit volume that lies within the Silvia Maria (title number 147043) concession, which Americas does not presently control.

For the previous resource estimates, MDA had audited the drill data, analyzed QA/QC data, made two site visits, and collected samples of drill core from the deposit. For the current 2015 estimation update, MDA audited the 2014-2015 Scorpio (now Americas) drill data (21 core holes), including an analysis of the QA/QC data, and a site visit was made in June, 2015 to review drilling and analytical procedures. No additional sampling was conducted by MDA because the 2014-2015 drill program did not target new geographic areas or encounter unique geologic features.

The work done by MDA for the 2015 resource estimate includes modifying the 2013 San Rafael geologic model and subsequent mineral-domain models. The zinc, lead, silver, copper, and gold mineral-domain models were largely defined by the geology in conjunction with assay grades and formed the basis of the resource models described and reported in this document.

The San Rafael resources reported here are based on Americas' database as of July 4, 2015. The effective date of the San Rafael resource estimate is October 15, 2015.

14.2.1 Procedures

Upon completion of the database validation process, MDA modified the 2013 geologic cross-sections, which are evenly spaced on 25m intervals looking northwest at 330°. Individual sets of sections with unique mineral domains were created for zinc, lead, silver, copper, gold, and percent sulfide. The mineral domains represent distinct styles of mineralization with unique statistical characteristics. Lithology, oxidation, and the topographic surface were also plotted on the cross sections. The cross-sectional domains were sliced to long section on 3m intervals to coincide with the center of each row of blocks in the model. After reinterpretation, the long-section domains were used to code the block model to percent of block in each mineral domain.

The cross-sectional mineral domains for the five metals were used to code the samples. Quantile plots were made to assess validity of these domains and to determine capping levels; MDA capped 26 samples (4 zinc, 6 lead, 7 silver, 8 gold, and 1 copper). Compositing was done to 2m down-hole lengths, matching the model's vertical block size, and honoring all material-type and mineral-domain boundaries. The sulfide domains were used by MDA to assign density values, ranging from 2.50g/cm^3 to 3.88g/cm^3, to the blocks.

The reported estimates were made using inverse distance to the third power. Ordinary kriging and nearest neighbor estimates were used for comparison and validation. MDA classified the San Rafael resources by a combination of distance to the nearest sample and the number of samples, while at the same time taking into account reliability of underlying data and understanding and use of the geology.

14.2.2 Geologic Background

The San Rafael deposit contains both distal and proximal skarn mineralization. The distal mineralization is represented by the Main Zone, a discrete, tabular, massive-sulfide body that is zinc, lead, and silver dominant. The Main Zone lies along the shallowly dipping volcanic/limestone contact, and though it does extend up-dip and crops out along the eastern edge of the deposit, it is most continuous and of highest grade at depth within the west half of the deposit. The proximal skarn mineralization is represented by the Zone 120 (named after the PRG discovery hole), where silver, copper, and gold mineralization is more common. The Zone 120 lies within the eastern portion of the San Rafael deposit and occurs primarily as irregular bedding and intrusive-contact-related bodies within skarn-altered limestone and the overlying volcanic units. The geologic and spatial relationships between the Main Zone and the Zone 120 indicate that Main Zone pre-dates the Zone 120 mineralization and is likely related to a different intrusive event.

The Main Zone as currently defined has a 1,000m strike length, is 15 to 20m thick, and extends down dip continuously for 300m and discontinuously for up to 600m. The Main Zone deposit strikes 320^{o} and dips variably between 10° and 30° towards the southwest. The Main Zone sulfide mineralization has been oxidized to a variable depth below surface, usually less than 30m, though in the northeast portion of the deposit oxidation can extend down dip for as much as 200m. Where oxidized, zinc grades are appreciably lower due to supergene leaching.

The great majority of the Main Zone zinc and lead mineralization consists of sphalerite and galena in the massive sulfide replacement, and the external contacts are usually coincident. Only occasionally do the limits of zinc and lead diverge from the massive sulfide. Besides zinc and lead, the Main Zone also contains appreciable silver but has apparently weak copper and gold mineralization. The actual extent and tenor of the copper and gold mineralization within the Main Zone are not well-defined, since many of the historical drill holes were not assayed for these elements. The silver, copper, and gold all occur primarily within the massive sulfide, but all three metals also extend in many instances outside the massive-sulfide limits.

The Zone 120 mineralization occurs not as a single horizon, but as multiple bedding- and intrusive-contact-related mineralized horizons. As currently defined, the Zone 120 mineralization occurs within a rock volume that is about 500m long, 250m wide, and extends to a depth of about 350m below the surface. The Zone 120 geologic setting and mineralogy are similar to the nearby El Cajón deposit in that the silver-copper-gold mineralization occurs primarily within weakly sulfide-bearing (<6% by volume) pyroxene skarn that is spatially and possibly genetically related to diorite intrusive sills and dikes.

The Zone 120 occurs primarily below the up-dip extension of the Main Zone zinc- and lead-rich massive sulfide, though both styles of mineralization do overlap in the near-surface. Below the massive sulfide, the Zone 120 mineralization occurs within moderately to strongly skarn-altered limestone. Near the surface, within and above the Main Zone, the Zone 120 mineralization occurs within weakly to moderately skarn-altered volcanic rocks. The Zone 120 skarn mineralization generally strikes 330°, and below the massive sulfide, the bedding-related mineralization dips steeply to the northeast at about 50°, reflecting the orientation of the host limestone formation and also the numerous sill-like dioritic intrusive bodies.

The Upper Zone mineralization occurs within the volcanic rocks about 50m to 100m stratigraphically above, and sub-parallel to, the up-dip extension of the Main Zone massive sulfide. The primary mineralized horizon within the Upper Zone is localized along bedding or possibly a sub-horizontal, bedding-parallel structure. The mineralized horizon can be up to 15m thick but often is about 5m thick. Within localized areas, multiple "stacked" mineralized horizons do occur, often spatially related to intrusive dikes, which cut through all rock types and extend to the topographic surface. Upper Zone mineralization is dominantly silver and gold, with decreased sulfide and base metal contents. The Upper

Zone silver values are similar to those within the Zone 120, but the gold values are significantly higher than within the 120 or Main Zones. For assay coding and cross-sectional modeling, the Upper Zone has been included with the Zone 120 mineralization; both zones are within the eastern portion of the deposit. The Upper Zone's genetic relationship to either the Main or Zone 120 is in question, but its metal content and spatial association with intrusive dikes suggest that the Upper Zone mineralization is an upper-level, distal expression of the Zone 120 mineralization.

14.2.3 Geologic Model

The drill-hole information, including lithology, oxidation, metal grades, and percent sulfide, and the topographic surface were plotted on the northwest-looking cross sections. Individual sets of sections were modified for each of the five metals (zinc, lead, silver, copper, and gold) and percent sulfide.

14.2.3.1 Oxidation Model

The increased drill density within the eastern portion of the deposit has allowed for the modeling of an oxide surface that marks the transition between oxide- and sulfide-dominant mineralization. The oxide material is less dense than sulfide material, and there is more uncertainty as to the metallurgical characteristics and potential processing costs associated with the oxide mineralization. In general, the oxide surface is 20m-30m below topography, but in the central and northeast portions of the deposit, oxidation can occur up to 150-200m down-dip within the dominant southwest-dipping structures. Zinc is leached from the oxide material, so deep oxidation has a pronounced effect on zinc grades; there is a much less of an effect on the other four metals.

MDA modeled the oxide surface on the cross-sections then created an oxide solid used to code the block model on a block-in, block-out basis. The oxide coding is used to assign density to the model, and blocks coded as oxide are restricted to an Inferred-only resource classification.

14.2.3.2 Mineral Domain Models

Quantile plots of the five metals and percent sulfide were made to help define the natural populations of metal grades. The analytical population breaks indicated on the quantile plots were used to guide the creation of distinct mineral domains which controlled grade estimation and density.

The distribution plots of all five metals were first created using all deposit-wide assay data. Additional plots were then made after subdividing the assay data into west and east portions of the deposit, which correlate to the Main Zone mineralization in the west and to the Zone 120 and Upper Zone mineralization in the east. A review of the quantile plots, along with a consideration for the spatial location of the individual metal assays, resulted in the use of the deposit-wide populations of zinc and lead assays for further statistical analyses and sectional modeling. For silver, there was a statistical difference between the west and east assays, and two unique population sets were used in creating the silver mineral domains. Copper and gold mineralization occurs primarily within the eastern portion of the deposit, with limited data in the west, so the analytical breaks in the east assay populations were used in creating the deposit-wide copper and gold mineral domains. Table 14.1 shows the assay population grade ranges associated with each mineral domain while Table 14.2 provides general geologic descriptions for the mineral domains coded into the geologic model.

Table 14.1 San Rafael Assay Populations

Metal	Low-Grade	Mid-Grade	High-Grade	Very High-Grade
Zn (%)	0.4 - 2.6	2.6 - 9.0	>9.0	-
Pb (%)	0.18 - 1.0	1.0 - 4.0	4.0 - 10.0	>10.0
Ag West (g/t)	6 - 30	30 - 125	125 - 350	> 350
Ag East (g/t)	15 - 60	60 - 145	145 - 500	> 500
Cu (%)	0.035 - 0.135	0.135 - 0.37	0.37 - 1.40	> 1.40
Au (g/t)	0.09 - 0.8	0.8 - 2.2	> 2.2	-
sulfide (%)	6 - 50	> 50	-	-

Table 14.2 Coding and Description of the San Rafael Geologic Model

Mineral Domain Code	Description
100	Primarily low-grade zinc, lead, silver, gold, and copper and low sulfide; each element modeled independently. Associated with weak mineralization and alteration peripheral to the Main Zone massive sulfide and/or the Zone 120 intrusive-contact-related skarn.
200	Primarily high-sulfide and mid-grade, zinc, lead, silver, gold, and copper; each unique. Characterized by the more sulfide-rich Main Zone and moderate to strong skarn alteration within the Zone 120.
300	High-grade zinc, lead, silver, gold, and copper; each unique. Characterized by favorable horizons of increased base-metal sulfides within the Main Zone massive sulfide (sulfide domain 200) and strong intrusive- and bedding-related skarn alteration within the Zone 120.
400	Very high-grade lead and silver; each unique. Occurs as isolated zones primarily within the western area.

MDA used a combination of geology and logged sulfide percentages to model the percent sulfide domains. Zinc, lead, silver, copper, and gold, were each modeled separately using the geology and percent sulfide as a guide. The mineral domains as modeled and drawn on the cross sections are not strict grade shells, but are created using geologic information such as orientation, geometry, lithologic contacts, and continuity. Each of these domains represents a distinct style of mineralization with unique statistical characteristics. While all metals are spatially related in the deposit, they are not necessarily completely co-spatial, thereby requiring separate domains for each metal.

The cross sections were sliced to long section on 3m intervals to coincide with the center of each row of blocks in the model. The sliced sections were reinterpreted on those 3m intervals, and these interpretations were used to code the block model to percent of block in each mineral domain.

Typical cross sections of the San Rafael geologic model with the zinc mineral domains are given in Figure 14.1 and Figure 14.2.

Figure 14.1 Section 300 San Rafael Geologic Model with Zinc Domains

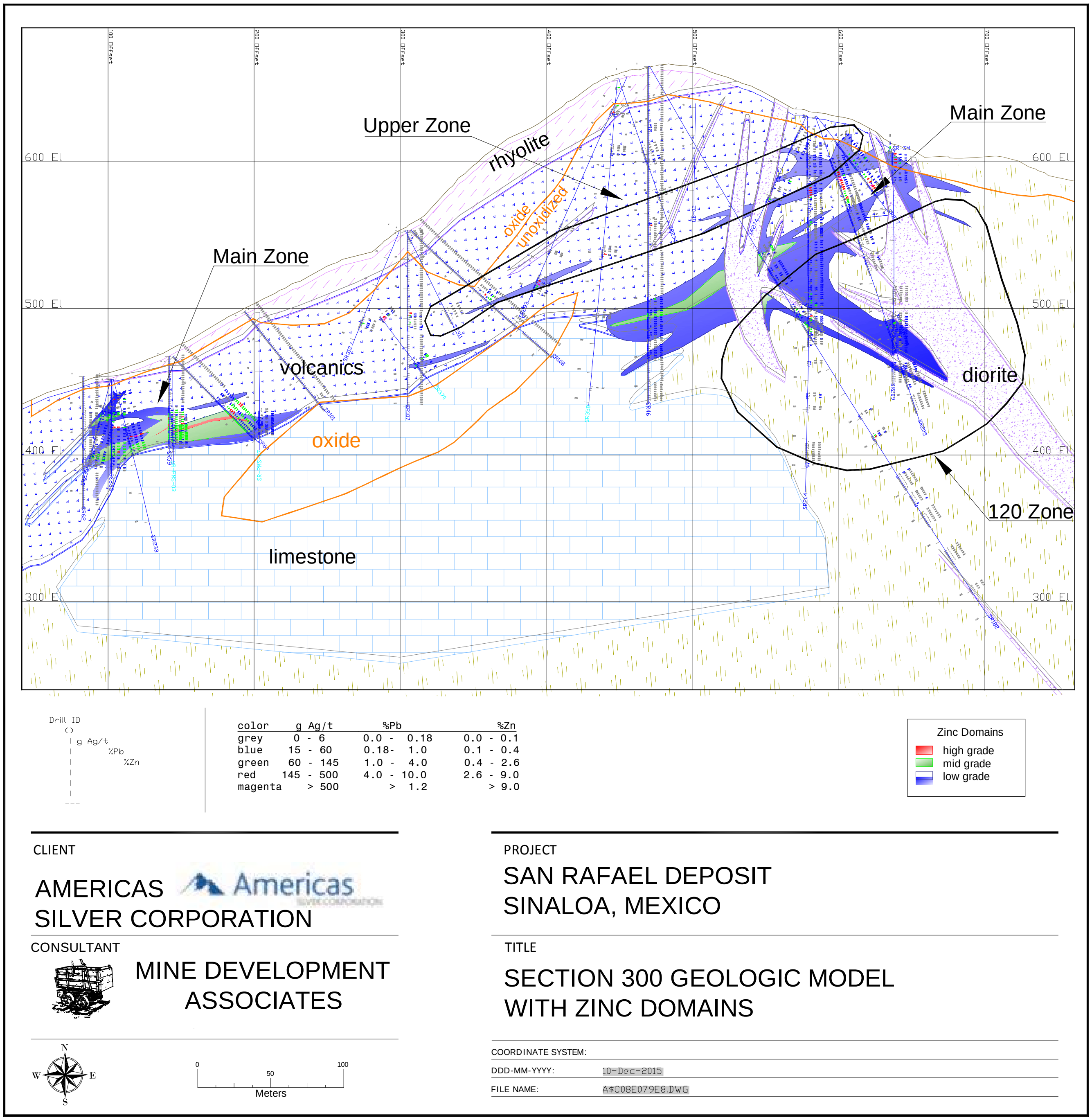
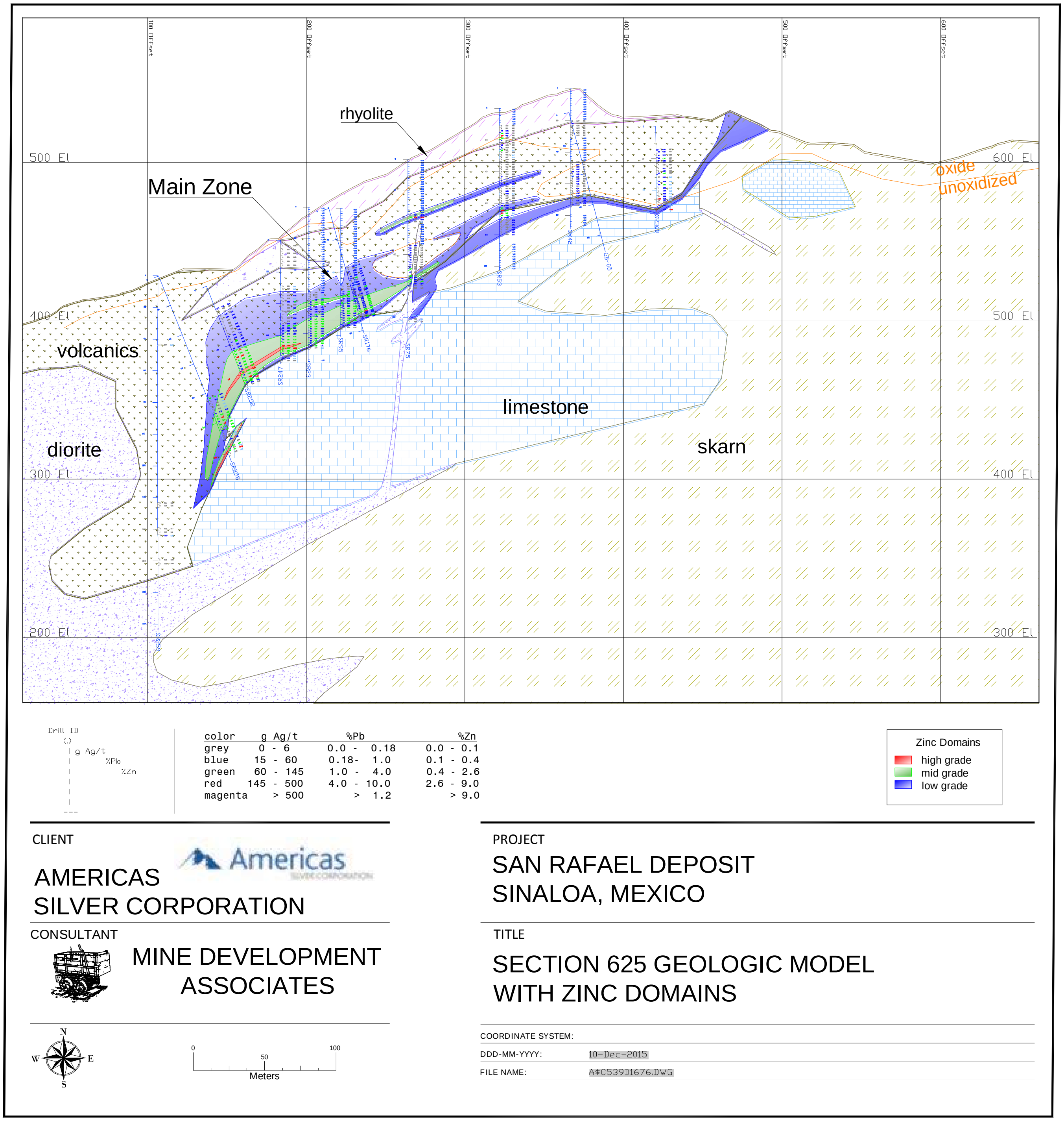


Figure 14.2 Section 625 San Rafael Geologic Model with Zinc Domains



14.2.4 Sample Coding and Compositing

The metal mineral-domain polygons were used to code drill and surface-trench samples. Quantile plots, along with domain statistics and spatial location of higher-grade samples, were made to assess validity of these domains and to determine capping levels for the individual mineral domain populations. After these analyses, MDA chose to cap 26 high-grade assays (4 zinc, 6 lead, 7 silver, 8 gold, and 1 copper) which MDA believe are not representative of their domain populations and which have a high probability of over-estimating local grade. The capped assays represent less than 0.2% of the assays used in the resource estimation. Assay descriptive statistics, including the capping levels and effects of capping on the assay statistics, are presented in Table 14.3 and Table 14.4.

Table 14.3 San Rafael Mineral Domain Assay Descriptive Statistics – Silver and Gold

Ag West Assays - San Rafael

Silver Domain	Assays	Count	Mean (g Ag/t)	Median (g Ag/t)	Std. Dev.	CV*	Min. (g Ag/t)	Max. (g Ag/t)
100	Ag	1234	14.7	12.0	9.9	0.67	0.25	70.0
	Ag Cap	1234	14.7	12.0	9.9	0.67	0.25	70.0
200	Ag	820	55.2	49.0	27.7	0.50	1.00	206.0
	Ag Cap	820	55.2	49.0	27.7	0.50	1.00	206.0
300	Ag	113	220.0	200.0	103.0	0.47	92.00	651.0
	Ag Cap	113	220.0	200.0	103.0	0.47	92.00	651.0
400	Ag	17	474.0	424.0	304.1	0.64	1.60	1060.0
	Ag Cap	17	474.0	424.0	304.1	0.64	1.60	1060.0
All	*Ag*	*2184*	*43.4*	*23.0*	*72.0*	*1.66*	*0.25*	*1060.0*
	Ag Cap	*2184*	*43.4*	*23.0*	*72.0*	*1.66*	*0.25*	*1060.0*

Ag East Assays - San Rafael

Gold Domain	Assays	Count	Mean (g Ag/t)	Median (g Ag/t)	Std. Dev.	CV*	Min. (g Ag/t)	Max. (g Ag/t)
100	Ag	1826	27.2	22.0	21.4	0.79	0.50	345.0
	Ag Cap	1826	27.2	22.0	20.7	0.76	0.50	225.0
200	Ag	515	91.7	87.0	45.6	0.50	1.00	411.0
	Ag Cap	515	91.5	87.0	44.6	0.49	1.00	350.0
300	Ag	346	279.6	237.0	152.2	0.54	8.00	1480.0
	Ag Cap	346	278.7	237.0	146.6	0.53	8.00	1000.0
400	Ag	52	1278.9	851.0	1266.6	0.99	134.00	8130.0
	Ag Cap	52	1161.5	851.0	824.1	0.71	134.00	3200.0
All	*Ag*	*2739*	*92.8*	*34.0*	*251.9*	*2.71*	*0.50*	*8130.0*
	Ag Cap	*2739*	*90.6*	*34.0*	*205.8*	*2.27*	*0.50*	*3200.0*

Au Assays - San Rafael

Gold Domain	Assays	Count	Mean (g Au/t)	Median (g Au/t)	Std. Dev.	CV*	Min. (g Au/t)	Max. (g Au/t)
100	Au	1815	0.230	0.164	0.201	0.870	0.003	2.250
	Au Cap	1815	0.228	0.164	0.187	0.820	0.003	1.200
200	Au	132	1.264	1.080	0.625	0.490	0.107	5.300
	Au Cap	132	1.243	1.080	0.518	0.420	0.107	3.000
300	Au	26	3.947	3.050	2.184	0.550	0.801	10.350
	Au Cap	26	3.947	3.050	2.184	0.550	0.801	10.350
All	*Au*	*1973*	*0.343*	*0.181*	*0.579*	*1.690*	*0.003*	*10.350*
	Au Cap	*1973*	*0.340*	*0.181*	*0.565*	*1.660*	*0.003*	*10.350*

* Coefficient of Variation (Std.Dev. / Mean)

Table 14.4 San Rafael Mineral Domain Assay Descriptive Statistics – Copper, Lead and Zinc

Cu Assays - San Rafael

Copper Domain	Assays	Count	Mean (%Cu)	Median (%Cu)	Std. Dev.	CV*	Min. (%Cu)	Max. (%Cu)
100	Cu	1586	0.071	0.059	0.048	0.680	0.001	0.447
	Cu Cap	1586	0.071	0.059	0.048	0.680	0.001	0.447
200	Cu	391	0.229	0.209	0.108	0.470	0.015	0.733
	Cu Cap	391	0.229	0.209	0.108	0.470	0.015	0.733
300	Cu	313	0.892	0.613	1.145	1.280	0.029	12.750
	Cu Cap	313	0.871	0.613	0.958	1.100	0.029	8.000
All	*Cu*	*2290*	*0.203*	*0.083*	*0.494*	*2.430*	*0.001*	*12.750*
	Cu Cap	*2290*	*0.201*	*0.083*	*0.436*	*2.170*	*0.001*	*8.000*

Pb Assays - San Rafael

Lead Domain	Assays	Count	Mean (%Pb)	Median (%Pb)	Std. Dev.	CV*	Min. (%Pb)	Max. (%Pb)
100	Pb	2619	0.388	0.300	0.324	0.840	0.001	4.440
	Pb Cap	2619	0.388	0.300	0.324	0.840	0.001	4.440
200	Pb	877	1.800	1.540	1.041	0.580	0.020	11.750
	Pb Cap	877	1.794	1.540	0.999	0.560	0.020	7.500
300	Pb	84	6.760	5.990	2.689	0.400	2.420	17.250
	Pb Cap	84	6.716	5.990	2.567	0.380	2.420	12.500
400	Pb	13	12.491	12.500	8.407	0.670	0.165	30.000
	Pb Cap	13	12.491	12.500	8.407	0.670	0.165	30.000
All	*Pb*	*3593*	*0.906*	*0.428*	*1.542*	*1.700*	*0.001*	*30.000*
	Pb Cap	*3593*	*0.904*	*0.428*	*1.527*	*1.690*	*0.001*	*30.000*

Zn Assays - San Rafael

Zinc Domain	Assays	Count	Mean (%Zn)	Median (%Zn)	Std. Dev.	CV*	Min. (%Zn)	Max. (%Zn)
100	Zn	2862	0.790	0.560	0.714	0.900	0.008	9.380
	Zn Cap	2862	0.788	0.560	0.698	0.890	0.008	7.200
200	Zn	861	4.226	3.850	1.912	0.450	0.060	17.400
	Zn Cap	861	4.212	3.850	1.836	0.440	0.060	12.000
300	Zn	75	13.126	11.650	5.139	0.390	4.500	31.820
	Zn Cap	75	13.126	11.650	5.139	0.390	4.500	31.820
All	*Zn*	*3798*	*1.759*	*0.820*	*2.466*	*1.400*	*0.008*	*31.820*
	Zn Cap	*3798*	*1.755*	*0.820*	*2.447*	*1.390*	*0.008*	*31.820*

* Coefficient of Variation (Std.Dev. / Mean)

Compositing was done to 2m down-hole lengths (the model's vertical block size), honoring all material-type and mineral-domain boundaries. The volume inside each mineral domain was estimated using only composites from inside that domain. Composite descriptive statistics are presented in Table 14.5.

Table 14.5 San Rafael Mineral Domain Composite Descriptive Statistics

Ag West Composites - San Rafael

Silver Domain	Count	Mean (g Ag/t)	Median (g Ag/t)	Std. Dev.	CV*	Min. (g Ag/t)	Max. (g Ag/t)
100	1007	14.8	13.0	8.70	0.588	0.5	65.0
200	682	55.3	49.4	23.70	0.420	4.7	164.0
300	113	225.1	197.0	106.30	0.445	98.0	651.0
400	17	459.3	424.0	301.20	0.652	1.8	1060.0
All	1819	47.2	24.7	76.90	1.627	0.5	1060.0

Ag East Composites - San Rafael

Silver Domain	Count	Mean (g Ag/t)	Median (g Ag/t)	Std. Dev.	CV*	Min. (g Ag/t)	Max. (g Ag/t)
100	1546	27.2	23.0	17.80	0.643	1.0	204.0
200	487	92.1	87.0	39.20	0.411	10.5	350.0
300	334	279.7	239.8	134.10	0.461	28.0	1000.0
400	47	1180.6	886.0	762.40	0.653	259.6	3197.0
All	2414	97.7	36.0	211.40	2.190	1.0	3197.0

Au Composites - San Rafael

Gold Domain	Count	Mean (g Au/t)	Median (g Au/t)	Std. Dev.	CV*	Min. (g Au/t)	Max. (g Au/t)
100	1553	0.229	0.174	0.168	0.733	0.003	1.200
200	137	1.247	1.080	0.488	0.389	0.182	3.000
300	26	4.104	3.048	2.300	0.542	2.230	10.350
All	1716	0.369	0.193	0.642	1.638	0.003	10.350

Cu Composites - San Rafael

Copper Domain	Count	Mean (%Cu)	Median (%Cu)	Std. Dev.	CV*	Min. (%Cu)	Max. (%Cu)
100	1314	0.070	0.060	0.040	0.573	0.000	0.350
200	367	0.230	0.220	0.090	0.392	0.030	0.640
300	274	0.860	0.630	0.850	1.016	0.120	7.930
All	1955	0.210	0.090	0.420	2.062	0.000	7.930

Pb Composites - San Rafael

Lead Domain	Count	Mean (%Pb)	Median (%Pb)	Std. Dev.	CV*	Min. (%Pb)	Max. (%Pb)
100	2148	0.390	0.310	0.280	0.713	0.000	3.600
200	753	1.800	1.580	0.890	0.493	0.180	7.500
300	82	6.930	6.220	2.640	0.363	2.420	12.500
400	12	12.460	13.210	9.190	0.689	0.190	30.000
All	2995	0.970	0.450	1.630	1.656	0.000	30.000

Zn Composites - San Rafael

Zinc Domain	Count	Mean (%Zn)	Median (%Zn)	Std. Dev.	CV*	Min. (%Zn)	Max. (%Zn)
100	2306	0.790	0.610	0.610	0.759	0.010	7.200
200	708	4.200	3.870	1.590	0.372	0.210	12.000
300	67	13.060	12.330	4.870	0.377	5.050	31.010
All	3081	1.840	0.900	2.490	1.354	0.010	31.010

* Coefficient of Variation (Std.Dev. / Mean)

14.2.5 Density

The density values used in the updated resource estimate are based on 831 density measurements collected by PRG and Americas from diamond drill core in the San Rafael resource area. Approximately half (446 samples) of the density data was obtained in 2011, 2012, and 2015.

The majority of the San Rafael density measurements were taken on samples from drill holes located in the massive-sulfide Main Zone. Most of the PRG density samples were from the down-dip portion of the Main Zone, while Americas' samples were from the down-dip and eastern up-dip portion where the Main Zone and Zone 120 over-lap. Americas also collected density samples from the up-dip portion of the Upper Zone and a limited number of density samples (39) from the oxidized portion of the deposit. Americas' drilling did not target the deeper portions of the Zone 120, so the database contains only the 42 density samples collected by PRG. Additional density measurements for the oxide material and 120-Zone mineralization are recommended before an increase in resource classification should be considered.

MDA grouped the density data into high sulfide, low sulfide, outside sulfide, and oxide categories using the percent sulfide domains and the oxidation model. There is a separate "Outside Sulfide" (<6% sulfide) group for the Zone 120 due to the observed difference in density values between the Zone 120 and the Main and Upper Zone for this sulfide category. MDA reviewed all of the density data, and after eliminating 12 of these samples as being outliers or improbable, there were 819 samples used for the density analysis. Due to potential sample collection bias (the use of whole solid core versus fractured, possibly less-dense core), MDA reduced the mean values of each group by about 1% for use in the current resource estimate. The density values used in the estimate are shown in the "Model SG" column in Table 14.6.

Table 14.6 List of Density Values Used in San Rafael Model

Sulfide Zone	Valid N	Mean	Median	Std. Dev.	Minimum	Maximum	Model SG
Oxide only	39	2.49	2.56	0.42	1.29	3.26	**2.50**
Outside Sulfide (<6%)	179	2.78	2.71	0.26	1.96	4.01	**2.72**
Outside Sulfide (<6%) 120 Zone	33	2.94	3.01	0.38	1.80	3.41	**2.94**
Low Sulfide (6% - 50%)	194	3.08	2.99	0.41	2.59	4.70	**3.00**
High Sulfide (>50%)	374	3.87	3.96	0.52	2.54	5.12	**3.88**
All Groups	819	3.34	3.19	0.67	1.29	5.12	

14.2.6 Resource Model and Estimation

The San Rafael resource block model replicates the relatively evenly distributed metal grades that are zoned within the generally tabular Main Zone and Upper Zone mineral domains. The block model also reflects the more variable metal grades and mineral-domain morphology within the Zone 120.

The resource has been estimated using the assay data from 214 core holes, 113 RC holes, and 14 trenches. As described in Section 14.2.3.2, the silver assays and composites have been subdivided into west and east populations. Silver grade estimation in the west area uses only silver west composites, while the east area uses only east composites. The other four metal assay and composite data sets have not been subdivided.

Mineral domains aid in controlling the grade distribution, and the estimation used inverse distance to the second power ("ID^3") to interpolate grades into the domains, as this technique was judged to provide results superior to those obtained by ordinary kriging. Ordinary kriging and nearest neighbor estimates were also made as checks on the ID^3 estimate. To aid in determining search distances, variograms for each metal were made in numerous orientations and at various lag lengths. MDA attempted to develop variogram profiles for each domain but found that the data were too limited in number and spatially erratic to construct useable variogram models. When the mineral domains were combined, variograms could be sufficiently modeled to aid in determining search distances for each of the estimation passes.

The Zone 120 mineral domains have a significantly different orientation than the sub-parallel Main Zone and Upper Zone mineralization, and as a result, two separate estimations were completed at San Rafael; one for the Main and Upper Zones and a second for the Zone 120. Both estimations used three search passes. Within the Main Zone, the initial 20m pass incorporated the surface trench data, while the latter two estimation passes excluded the trench samples. The estimation parameters for the Main Zone and Upper Zone are shown in Table 14.7 and for the Zone 120 in Table 14.8.

Table 14.7 San Rafael Main and Upper Zone: Estimation Parameters

Description	Parameter
SEARCH ELLIPSOID PARAMETERS: All Metals	
Search Bearing/Plunge/Tilt (all searches)	330^o / 0^o / 20^o
First Pass Search (m): major/semimajor/minor (includes trench samples)	20/ 20 /10
First Pass Samples: minimum/maximum/maximum per hole	2/ 10 / 4
Second Pass Search (m): major/semimajor/minor	120/ 120/ 30
First Pass Samples: minimum/maximum/maximum per hole	2/ 12 / 4
Third Pass Search (m): major/semimajor/minor	250/ 250 / 63
Third Pass Samples: minimum/maximum/maximum per hole	1 / 16 / 4

Table 14.8 San Rafael Zone 120: Estimation Parameters

Description	Parameter
SEARCH ELLIPSOID PARAMETERS: All Metals	
Search Bearing/Plunge/Tilt (all searches)	330^o / 0^o / -50^o
First Pass Search (m): major/semimajor/minor (includes trench samples)	12/ 12 /12
First Pass Samples: minimum/maximum/maximum per hole	2/ 9 / 4
Second Pass Search (m): major/semimajor/minor	120/ 120/ 30
First Pass Samples: minimum/maximum/maximum per hole	2/ 12 / 4
Third Pass Search (m): major/semimajor/minor	250/ 250 / 63
Third Pass Samples: minimum/maximum/maximum per hole	1 / 16/ 4

14.3 San Rafael Mineral Resources

MDA classified the San Rafael resources by a combination of distance to the nearest sample and the number of samples, while at the same time taking into account reliability of underlying data and understanding and use of the geology. All of the San Rafael sample data, including the limited data within the Silvia Maria concession not controlled by Americas, were used in resource classification, although the stated resource discussed below specifically excludes the small fraction of total deposit mineralization that lies within the Silvia Maria concession. The samples used for the classification criteria stated above are independent of the modeled domains. The criteria for resource classification are given in Table 14.9.

Table 14.9 Criteria for San Rafael Resource Classification

Main and Upper Zone	
Measured	
Minimum no. of samples /minimum no. of holes / maximum distance (m)	2 / 1 / 12
Indicated	
Minimum no. of samples /minimum no. of holes / maximum distance (m)	2 / 1 / 30 or 2 / 2 / 50
Zone 120	
No Measured Resource	
Indicated	
Minimum no. of samples /minimum no. of holes / maximum distance (m)	2 / 1 / 25 or 2 / 2 / 40
All material not classified above but lying within the modeled mineralized domains is Inferred	
Oxide Resource – All Inferred	

There are no Measured resources within the Zone 120 at this time, primarily due to limited density data and some spatial uncertainty in the mineral domain shape and extents. The maximum distance criteria for Indicated resources within the Zone 120 are less than for the Main and Upper Zones due to the greater variability in domain morphology and metal grades. There are no Measured or Indicated resources in the oxidized portion of the deposit due to limited density data and uncertain metallurgy and processing economics. None of these issues detracts from the overall confidence in the global project resource estimate, but they do detract from confidence which MDA believes is required for Measured and Indicated in these specific areas. The resource classifications will likely rise when those issues listed above are resolved.

Because of the requirement that the resource exists “in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction,” MDA is reporting the resources at approximate economic cutoff grades that are reasonable for deposits of this nature that will likely be mined primarily by underground methods. As such, some economic considerations were used to determine cutoff grades at which the resource is presented. MDA considered reasonable metal prices and extraction costs and recoveries, and then factored those down to account for that material that would become economic using internal cutoffs.

The San Rafael reported resource is shown in Table 14.10 while the total San Rafael resources are tabulated at various cutoff grades in Table 14.11. The reported resources are inclusive of reserves, which are stated in Section 15.5.

The stated resource is fully diluted to 2m by 3m by 2m blocks and is tabulated on a zinc-equivalent (“ZnEq”) cutoff grade of 2.5% ZnEq. All material, regardless of which metal is present and which is absent, is tabulated. Because multiple metals exist, but do not on a local scale necessarily co-exist, the

ZnEq grade is used for tabulation. Using the individual metal grades of each block, the ZnEq grade is calculated using the following formula:

$$\%ZnEq = \%Zn + (0.947368 * \%Pb) + (0.024561 * g\ Ag/t) + (2.947368 * \%Cu) + (1.842105 * g\ Au/t)$$

This formula is based on prices of US$0.95 per pound zinc, US$0.90 per pound lead, US$16.00 per ounce silver, US$2.80 per pound copper, and US$1,200.00 per ounce gold. No metal recoveries are applied, as this is the *in situ* resource. Typical cross sections through the San Rafael block model showing ZnEq block grades are given in Figure 14.3 and Figure 14.4.

The economic analysis used to establish Mineral Reserves is based on an underground-only mining scenario limited to the Main Zone. The decision as to the appropriate mining method(s) for other areas within the San Rafael deposit awaits further evaluation, and there is the potential that a combination of open-pit and underground methods would be optimal. The 2m by 3m by 2m block size was used to provide the operator the ability to evaluate the deposit using underground mining methods, but this block size likely understates the dilution expected from standard open-pit mining methods. For evaluating open-pit methods, re-blocking to a more appropriate larger block size with resulting increased block dilution should be used. If open-pit mining methods are chosen for a portion of the deposit, the resource estimate used in the economic evaluation could be re-stated using a lower cutoff grade.

Table 14.11 provides the resource numbers at various ZnEq cutoff grades to be used in further optimization studies.

Table 14.10 San Rafael Reported Resource

Measured and Indicated Resources (2.5%ZnEq cut-off)

Class	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
Measured	3,284,000	2.95	1.32	103.7	0.09	0.19	213,815,000	95,254,000	10,948,000	6,541,000	20,000	7.35
Indicated	6,812,000	2.24	0.92	95.6	0.15	0.16	336,179,000	138,354,000	20,934,000	23,108,000	35,000	6.21
M+I	10,096,000	2.47	1.05	98.2	0.13	0.17	549,994,000	233,608,000	31,882,000	29,648,000	54,000	6.58

Inferred Resource (2.5%ZnEq cut-off)

Class	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
Inferred	1,051,000	0.28	1.24	111.6	0.12	0.30	6,422,000	28,701,000	3,770,000	2,827,000	10,000	5.11

Due to the Zone 120's unique geologic setting and mineralization style, MDA sub-divided the total San Rafael resources and report the Zone 120 and Main Zone resources separately. The Main Zone resources, which include the Upper Zone mineralization, are tabulated in Table 14.12 by ZnEq cutoffs. The Zone 120 resources are tabulated in Table 14.13 and Table 14.14 by ZnEq and silver-equivalent ("AgEq") cutoffs, respectively.

The Main Zone resources (Table 14.12) and the Zone 120 resources tabulated by ZnEq cutoffs (Table 14.13) use the same fully diluted blocks (2m by 3m by 2m) and the same metal prices and %ZnEq formula as for the total San Rafael resource. Table 14.12 and Table 14.13 provide the resource estimates at various ZnEq cutoff grades to better assess grade-tonnage curves.

The Zone 120 resources are also tabulated using AgEq cutoff grades (Table 14.14), due to the dominance of silver grades over zinc grades within the Zone 120 proximal skarn. The same metal prices were used for this tabulation as for the total San Rafael deposit. Using the individual metal grades of each block, the AgEq grade is calculated using the following formula:

$$g\ AgEq/t = g\ Ag/t + (40.714286 * \%Zn) + (38.571429 * \%Pb) + (120 * \%Cu) + (75 * g\ Au/t)$$

The stated Zone 120 resource in Table 14.14 is tabulated using a 90g AgEq/t cutoff grade (comparable to a 2.5% ZnEq cutoff grade at reported prices). Table 14.14 provides the resource numbers at various AgEq cutoff grades to better assess grade-tonnage curves.

Table 14.11 San Rafael Total Resource ZnEq Tabulation

Measured Material:

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	5,545,000	2.03	0.90	69.5	0.06	0.14	248,676,000	109,594,000	12,399,000	7,203,000	25,000	5.02
1.20	5,122,000	2.16	0.96	74.2	0.06	0.15	244,271,000	107,915,000	12,224,000	7,120,000	24,000	5.35
1.40	4,726,000	2.30	1.02	79.1	0.07	0.15	239,395,000	105,971,000	12,026,000	7,029,000	23,000	5.68
1.50	4,548,000	2.36	1.05	81.6	0.07	0.16	236,895,000	104,971,000	11,930,000	6,980,000	23,000	5.85
1.60	4,380,000	2.43	1.08	84.0	0.07	0.16	234,415,000	103,961,000	11,830,000	6,931,000	22,000	6.02
1.80	4,091,000	2.55	1.13	88.5	0.08	0.17	229,701,000	102,069,000	11,643,000	6,845,000	22,000	6.32
2.00	3,823,000	2.67	1.19	93.1	0.08	0.17	224,821,000	100,054,000	11,445,000	6,759,000	21,000	6.63
2.50	**3,284,000**	**2.95**	**1.32**	**103.7**	**0.09**	**0.19**	**213,815,000**	**95,254,000**	**10,948,000**	**6,541,000**	**20,000**	**7.35**
3.00	2,887,000	3.21	1.43	113.0	0.10	0.20	204,030,000	90,990,000	10,485,000	6,329,000	18,000	7.99
3.50	2,597,000	3.42	1.53	120.7	0.11	0.20	195,801,000	87,316,000	10,073,000	6,143,000	17,000	8.52
4.00	2,364,000	3.60	1.61	127.7	0.11	0.21	187,862,000	83,956,000	9,708,000	5,963,000	16,000	8.99
4.50	2,163,000	3.77	1.69	134.7	0.12	0.22	179,574,000	80,668,000	9,367,000	5,790,000	15,000	9.43
5.00	1,972,000	3.92	1.77	142.3	0.13	0.22	170,333,000	77,073,000	9,025,000	5,630,000	14,000	9.88
6.00	1,595,000	4.20	1.94	162.1	0.15	0.25	147,733,000	68,296,000	8,313,000	5,323,000	13,000	10.92
7.00	1,227,000	4.48	2.14	190.5	0.19	0.29	121,305,000	57,775,000	7,516,000	5,010,000	11,000	12.25
8.00	915,000	4.74	2.34	229.5	0.23	0.33	95,568,000	47,193,000	6,752,000	4,671,000	10,000	13.89
9.00	695,000	4.94	2.53	273.0	0.28	0.39	75,764,000	38,854,000	6,104,000	4,343,000	9,000	15.61
10.00	549,000	5.14	2.71	314.5	0.33	0.45	62,256,000	32,824,000	5,554,000	4,022,000	8,000	17.25

Indicated Material:

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	15,126,000	1.31	0.53	56.1	0.10	0.10	438,288,000	178,326,000	27,266,000	32,060,000	50,000	3.67
1.20	13,291,000	1.45	0.59	61.1	0.10	0.11	425,770,000	174,281,000	26,091,000	30,318,000	48,000	4.03
1.40	11,880,000	1.57	0.65	65.9	0.11	0.12	412,327,000	169,452,000	25,179,000	28,917,000	46,000	4.35
1.50	11,223,000	1.64	0.67	68.5	0.11	0.12	404,976,000	166,825,000	24,732,000	28,199,000	44,000	4.52
1.60	10,573,000	1.70	0.70	71.4	0.12	0.13	396,939,000	163,948,000	24,273,000	27,461,000	43,000	4.7
1.80	9,470,000	1.83	0.76	77.1	0.13	0.14	381,225,000	157,980,000	23,460,000	26,283,000	41,000	5.06
2.00	8,510,000	1.95	0.81	82.9	0.13	0.14	366,083,000	151,549,000	22,673,000	25,217,000	39,000	5.41
2.50	**6,812,000**	**2.24**	**0.92**	**95.6**	**0.15**	**0.16**	**336,179,000**	**138,354,000**	**20,934,000**	**23,108,000**	**35,000**	**6.21**
3.00	5,714,000	2.50	1.02	105.7	0.17	0.17	315,356,000	128,724,000	19,417,000	21,187,000	31,000	6.87
3.50	4,879,000	2.78	1.12	114.3	0.18	0.18	298,542,000	120,858,000	17,927,000	19,258,000	28,000	7.5
4.00	4,287,000	3.00	1.21	121.5	0.19	0.18	283,330,000	114,404,000	16,742,000	17,799,000	25,000	8.02
4.50	3,823,000	3.18	1.28	128.4	0.20	0.19	268,231,000	108,134,000	15,784,000	16,572,000	23,000	8.48
5.00	3,443,000	3.33	1.35	135.0	0.21	0.19	252,929,000	102,537,000	14,944,000	15,559,000	22,000	8.89
6.00	2,791,000	3.55	1.46	149.9	0.23	0.21	218,713,000	90,134,000	13,448,000	14,029,000	19,000	9.69
7.00	2,026,000	3.73	1.57	178.1	0.28	0.25	166,612,000	70,039,000	11,601,000	12,506,000	16,000	10.88
8.00	1,270,000	3.81	1.66	234.9	0.39	0.33	106,635,000	46,481,000	9,592,000	10,965,000	14,000	12.91
9.00	913,000	4.00	1.77	279.7	0.47	0.40	80,539,000	35,685,000	8,214,000	9,484,000	12,000	14.67
10.00	701,000	4.40	1.93	312.1	0.52	0.44	68,061,000	29,877,000	7,037,000	8,011,000	10,000	16.24

Table 14.11 San Rafael Total Resource ZnEq Tabulation (continued)

Measured and Indicated

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	20,671,000	1.51	0.63	59.7	0.09	0.11	686,964,000	287,920,000	39,665,000	39,263,000	75,000	4.03
1.20	18,413,000	1.65	0.70	64.7	0.09	0.12	670,041,000	282,197,000	38,316,000	37,438,000	72,000	4.39
1.40	16,606,000	1.78	0.75	69.7	0.10	0.13	651,722,000	275,423,000	37,205,000	35,946,000	69,000	4.73
1.50	15,771,000	1.85	0.78	72.3	0.10	0.13	641,871,000	271,796,000	36,661,000	35,180,000	67,000	4.90
1.60	14,953,000	1.92	0.81	75.1	0.10	0.14	631,354,000	267,908,000	36,104,000	34,393,000	66,000	5.09
1.80	13,560,000	2.04	0.87	80.5	0.11	0.14	610,926,000	260,050,000	35,104,000	33,128,000	63,000	5.44
2.00	12,333,000	2.17	0.93	86.0	0.12	0.15	590,903,000	251,603,000	34,118,000	31,975,000	60,000	5.79
2.50	**10,096,000**	**2.47**	**1.05**	**98.2**	**0.13**	**0.17**	**549,994,000**	**233,608,000**	**31,882,000**	**29,648,000**	**54,000**	**6.58**
3.00	8,601,000	2.74	1.16	108.1	0.15	0.18	519,386,000	219,714,000	29,902,000	27,516,000	49,000	7.25
3.50	7,476,000	3.00	1.26	116.5	0.15	0.19	494,344,000	208,174,000	28,000,000	25,401,000	45,000	7.85
4.00	6,651,000	3.21	1.35	123.7	0.16	0.19	471,192,000	198,360,000	26,450,000	23,762,000	41,000	8.36
4.50	5,985,000	3.39	1.43	130.7	0.17	0.20	447,804,000	188,802,000	25,151,000	22,362,000	38,000	8.82
5.00	5,415,000	3.55	1.50	137.7	0.18	0.20	423,262,000	179,609,000	23,970,000	21,189,000	36,000	9.25
6.00	4,386,000	3.79	1.64	154.3	0.20	0.22	366,446,000	158,429,000	21,761,000	19,352,000	32,000	10.14
7.00	3,253,000	4.01	1.78	182.8	0.24	0.26	287,917,000	127,814,000	19,118,000	17,516,000	28,000	11.40
8.00	2,185,000	4.20	1.94	232.6	0.32	0.33	202,203,000	93,675,000	16,344,000	15,637,000	23,000	13.32
9.00	1,609,000	4.41	2.10	276.8	0.39	0.40	156,303,000	74,539,000	14,319,000	13,827,000	20,000	15.07
10.00	1,251,000	4.73	2.27	313.2	0.44	0.45	130,317,000	62,700,000	12,591,000	12,034,000	18,000	16.68

Inferred Material:

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	3,613,000	0.16	0.59	54.2	0.07	0.17	12,610,000	47,318,000	6,301,000	5,672,000	20,000	2.58
1.20	2,985,000	0.18	0.69	60.3	0.08	0.20	11,995,000	45,176,000	5,782,000	5,068,000	19,000	2.9
1.40	2,440,000	0.21	0.79	67.1	0.08	0.22	11,413,000	42,704,000	5,266,000	4,410,000	17,000	3.26
1.50	2,250,000	0.22	0.83	70.6	0.09	0.23	11,065,000	41,287,000	5,105,000	4,239,000	16,000	3.41
1.60	2,078,000	0.23	0.87	74.2	0.09	0.23	10,703,000	39,788,000	4,955,000	4,100,000	15,000	3.57
1.80	1,785,000	0.25	0.94	81.4	0.10	0.24	9,977,000	37,093,000	4,674,000	3,821,000	14,000	3.87
2.00	1,536,000	0.27	1.01	89.6	0.11	0.25	9,029,000	34,349,000	4,426,000	3,569,000	12,000	4.19
2.50	**1,051,000**	**0.28**	**1.24**	**111.6**	**0.12**	**0.30**	**6,422,000**	**28,701,000**	**3,770,000**	**2,827,000**	**10,000**	**5.11**
3.00	761,000	0.30	1.47	133.7	0.14	0.34	5,032,000	24,714,000	3,274,000	2,322,000	8,000	6.01
3.50	586,000	0.31	1.68	154.6	0.16	0.37	3,961,000	21,718,000	2,913,000	2,034,000	7,000	6.85
4.00	469,000	0.31	1.86	174.4	0.18	0.40	3,232,000	19,201,000	2,631,000	1,876,000	6,000	7.62
4.50	383,000	0.33	2.02	194.1	0.21	0.42	2,809,000	17,046,000	2,390,000	1,742,000	5,000	8.38
5.00	329,000	0.34	2.15	210.3	0.22	0.42	2,493,000	15,582,000	2,224,000	1,630,000	4,000	8.99
6.00	254,000	0.34	2.39	239.5	0.25	0.44	1,896,000	13,365,000	1,956,000	1,421,000	4,000	10.04
7.00	209,000	0.33	2.57	260.1	0.27	0.46	1,537,000	11,856,000	1,751,000	1,259,000	3,000	10.8
8.00	160,000	0.36	3.00	281.3	0.28	0.49	1,285,000	10,553,000	1,445,000	971,000	3,000	11.82
9.00	122,000	0.40	3.50	301.3	0.27	0.51	1,073,000	9,411,000	1,182,000	738,000	2,000	12.86
10.00	94,000	0.43	4.03	320.6	0.27	0.52	902,000	8,375,000	972,000	558,000	2,000	13.87

Figure 14.3 Section 300 San Rafael Block Model: ZnEq Block Grades

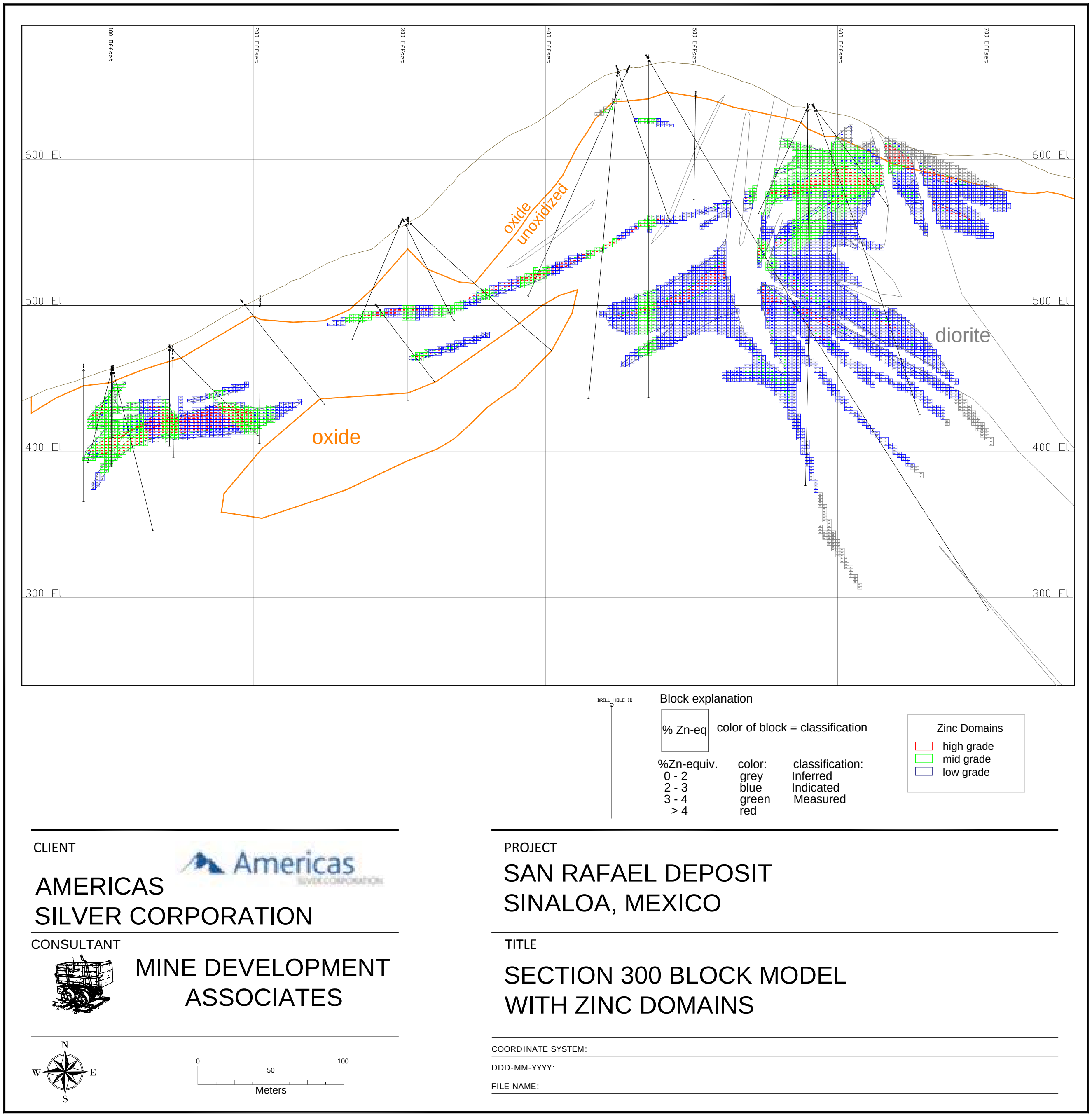


Figure 14.4 Section 625 San Rafael Block Model: ZnEq Block Grades

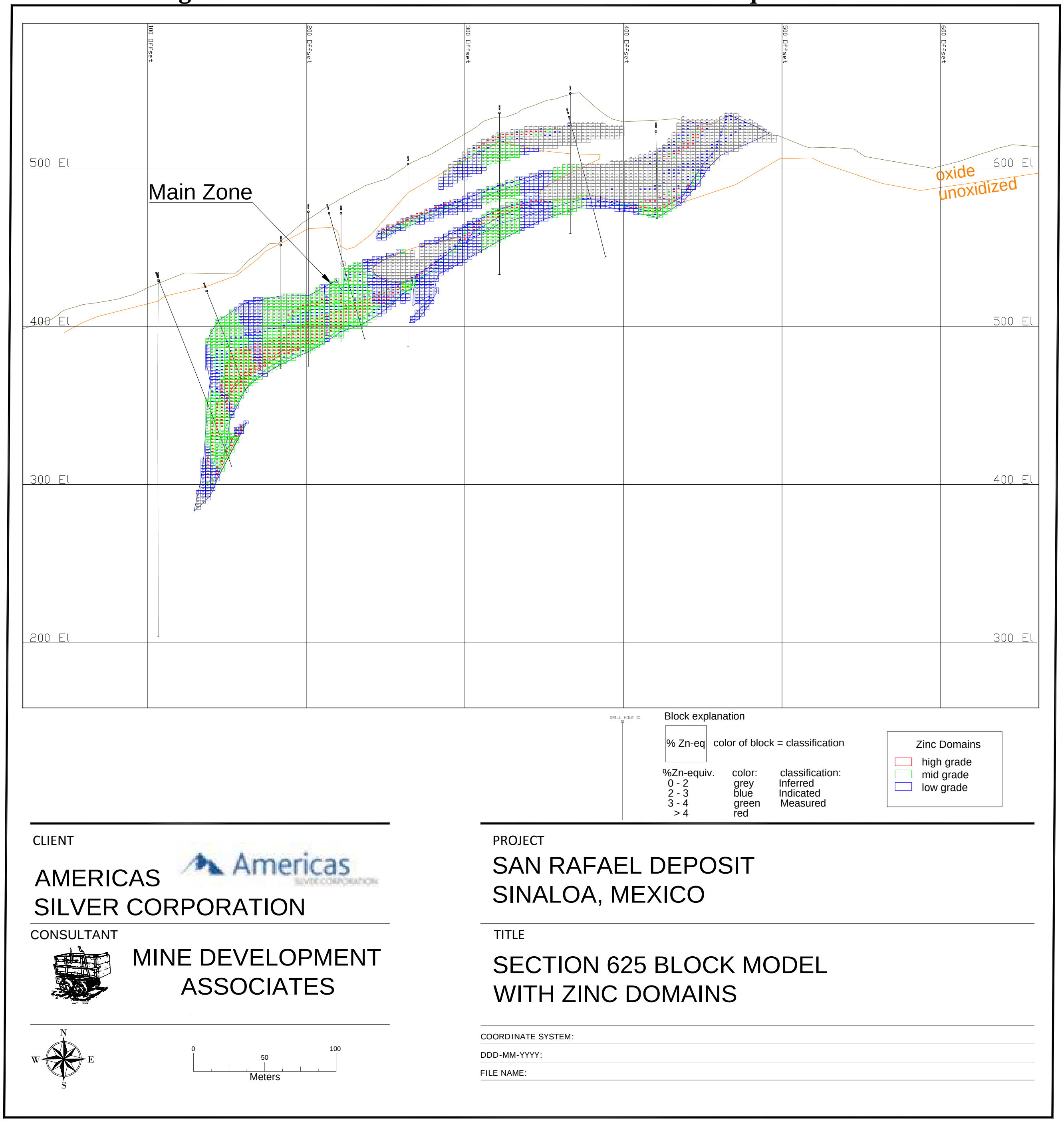


Table 14.12 San Rafael Main and Upper Zones ZnEq Resource Tabulation

Measured Resource:

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	5,546,000	2.03	0.90	69.6	0.06	0.138	248,714,000	109,602,000	12,401,000	7,204,000	25,000	5.02
1.20	5,122,000	2.16	0.96	74.2	0.06	0.145	244,311,000	107,923,000	12,226,000	7,121,000	24,000	5.35
1.40	4,727,000	2.30	1.02	79.1	0.07	0.152	239,434,000	105,979,000	12,027,000	7,030,000	23,000	5.68
1.50	4,549,000	2.36	1.05	81.6	0.07	0.156	236,936,000	104,980,000	11,931,000	6,982,000	23,000	5.85
1.60	4,381,000	2.43	1.08	84.0	0.07	0.159	234,455,000	103,969,000	11,832,000	6,932,000	22,000	6.02
1.80	4,091,000	2.55	1.13	88.5	0.08	0.165	229,741,000	102,078,000	11,644,000	6,846,000	22,000	6.32
2.00	3,823,000	2.67	1.19	93.1	0.08	0.171	224,859,000	100,063,000	11,446,000	6,760,000	21,000	6.63
2.50	**3,285,000**	**2.95**	**1.32**	**103.7**	**0.09**	**0.185**	**213,855,000**	**95,264,000**	**10,950,000**	**6,541,000**	**20,000**	**7.35**
3.00	2,887,000	3.21	1.43	113.0	0.10	0.196	204,075,000	91,002,000	10,487,000	6,330,000	18,000	7.99
3.50	2,597,000	3.42	1.53	120.7	0.11	0.203	195,838,000	87,325,000	10,075,000	6,144,000	17,000	8.52
4.00	2,364,000	3.60	1.61	127.7	0.11	0.209	187,879,000	83,957,000	9,709,000	5,963,000	16,000	8.99
4.50	2,163,000	3.77	1.69	134.7	0.12	0.215	179,601,000	80,676,000	9,368,000	5,791,000	15,000	9.43
5.00	1,973,000	3.92	1.77	142.3	0.13	0.223	170,366,000	77,080,000	9,027,000	5,631,000	14,000	9.88
6.00	1,596,000	4.20	1.94	162.1	0.15	0.247	147,771,000	68,309,000	8,314,000	5,324,000	13,000	10.92
7.00	1,228,000	4.48	2.14	190.5	0.19	0.285	121,335,000	57,784,000	7,517,000	5,011,000	11,000	12.25
8.00	915,000	4.74	2.34	229.5	0.23	0.334	95,609,000	47,211,000	6,754,000	4,674,000	10,000	13.89
9.00	696,000	4.94	2.53	273.0	0.28	0.393	75,793,000	38,862,000	6,106,000	4,347,000	9,000	15.60
10.00	549,000	5.14	2.71	314.5	0.33	0.451	62,279,000	32,833,000	5,554,000	4,023,000	8,000	17.24

Indicated Resource:

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	9,815,000	1.84	0.76	52.4	0.05	0.10	397,421,000	165,204,000	16,539,000	10,917,000	33,000	4.19
1.20	9,024,000	1.95	0.81	56.0	0.05	0.11	388,261,000	161,944,000	16,239,000	10,787,000	32,000	4.46
1.40	8,280,000	2.07	0.87	59.7	0.06	0.12	378,385,000	158,032,000	15,896,000	10,631,000	31,000	4.74
1.50	7,907,000	2.14	0.89	61.8	0.06	0.12	372,871,000	155,861,000	15,704,000	10,532,000	30,000	4.90
1.60	7,519,000	2.21	0.93	64.1	0.06	0.12	366,707,000	153,471,000	15,491,000	10,411,000	29,000	5.07
1.80	6,814,000	2.36	0.99	68.7	0.07	0.13	354,682,000	148,534,000	15,054,000	10,177,000	28,000	5.42
2.00	6,191,000	2.51	1.05	73.4	0.07	0.14	343,074,000	143,410,000	14,614,000	9,945,000	27,000	5.78
2.50	**5,028,000**	**2.87**	**1.19**	**84.2**	**0.08**	**0.15**	**318,608,000**	**132,326,000**	**13,606,000**	**9,393,000**	**24,000**	**6.60**
3.00	4,293,000	3.18	1.31	92.6	0.09	0.16	300,860,000	123,830,000	12,785,000	8,916,000	22,000	7.26
3.50	3,781,000	3.44	1.40	99.6	0.10	0.16	286,469,000	116,754,000	12,104,000	8,476,000	20,000	7.80
4.00	3,418,000	3.64	1.47	105.1	0.11	0.16	274,125,000	111,071,000	11,546,000	8,169,000	18,000	8.24
4.50	3,110,000	3.81	1.54	110.4	0.12	0.17	261,353,000	105,491,000	11,042,000	7,902,000	17,000	8.63
5.00	2,828,000	3.97	1.61	116.0	0.12	0.17	247,296,000	100,300,000	10,542,000	7,655,000	16,000	9.02
6.00	2,306,000	4.22	1.74	129.5	0.14	0.19	214,451,000	88,395,000	9,605,000	7,269,000	14,000	9.82
7.00	1,655,000	4.48	1.88	157.5	0.19	0.23	163,472,000	68,690,000	8,379,000	6,874,000	12,000	11.11
8.00	996,000	4.75	2.07	218.7	0.29	0.32	104,253,000	45,394,000	7,006,000	6,455,000	10,000	13.53
9.00	715,000	4.99	2.21	269.0	0.38	0.39	78,660,000	34,860,000	6,180,000	6,030,000	9,000	15.54
10.00	571,000	5.31	2.33	303.3	0.44	0.43	66,834,000	29,324,000	5,572,000	5,590,000	8,000	17.07

Table 14.12 San Rafael Main and Upper Zone ZnEq Resource Tabulation (cont.)

Measured and Indicated

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	15,361,000	1.91	0.81	58.6	0.05	0.12	646,135,000	274,806,000	28,940,000	18,121,000	57,000	4.49
1.20	14,146,000	2.03	0.87	62.6	0.06	0.12	632,572,000	269,868,000	28,465,000	17,908,000	56,000	4.78
1.40	13,006,000	2.15	0.92	66.8	0.06	0.13	617,819,000	264,011,000	27,924,000	17,661,000	54,000	5.08
1.50	12,456,000	2.22	0.95	69.0	0.06	0.13	609,807,000	260,841,000	27,635,000	17,514,000	53,000	5.25
1.60	11,900,000	2.29	0.98	71.4	0.07	0.13	601,162,000	257,440,000	27,323,000	17,343,000	52,000	5.42
1.80	10,906,000	2.43	1.04	76.1	0.07	0.14	584,423,000	250,612,000	26,699,000	17,023,000	50,000	5.76
2.00	10,014,000	2.57	1.10	80.9	0.08	0.15	567,932,000	243,473,000	26,060,000	16,704,000	48,000	6.10
2.50	**8,313,000**	**2.91**	**1.24**	**91.9**	**0.09**	**0.16**	**532,464,000**	**227,591,000**	**24,555,000**	**15,934,000**	**44,000**	**6.90**
3.00	7,181,000	3.19	1.36	100.8	0.10	0.17	504,935,000	214,832,000	23,272,000	15,246,000	40,000	7.55
3.50	6,378,000	3.43	1.45	108.2	0.10	0.18	482,307,000	204,079,000	22,178,000	14,621,000	36,000	8.10
4.00	5,782,000	3.62	1.53	114.3	0.11	0.18	462,003,000	195,027,000	21,255,000	14,132,000	34,000	8.54
4.50	5,273,000	3.79	1.60	120.4	0.12	0.19	440,955,000	186,166,000	20,410,000	13,693,000	32,000	8.96
5.00	4,801,000	3.95	1.68	126.8	0.13	0.19	417,662,000	177,379,000	19,568,000	13,286,000	30,000	9.38
6.00	3,902,000	4.21	1.82	142.8	0.15	0.21	362,223,000	156,705,000	17,919,000	12,593,000	27,000	10.27
7.00	2,882,000	4.48	1.99	171.5	0.19	0.25	284,807,000	126,473,000	15,897,000	11,885,000	23,000	11.60
8.00	1,912,000	4.74	2.20	223.9	0.26	0.33	199,862,000	92,606,000	13,759,000	11,130,000	20,000	13.70
9.00	1,410,000	4.97	2.37	271.0	0.33	0.39	154,452,000	73,722,000	12,287,000	10,377,000	18,000	15.57
10.00	1,121,000	5.23	2.52	308.8	0.39	0.44	129,113,000	62,157,000	11,126,000	9,614,000	16,000	17.15

Inferred Resource:

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	2,345,000	0.20	0.90	56.0	0.04	0.23	10,355,000	46,611,000	4,220,000	2,289,000	18,000	2.99
1.20	2,078,000	0.22	0.97	60.9	0.05	0.25	9,938,000	44,496,000	4,071,000	2,234,000	17,000	3.23
1.40	1,825,000	0.24	1.05	66.7	0.05	0.26	9,566,000	42,063,000	3,913,000	2,172,000	15,000	3.50
1.50	1,698,000	0.25	1.09	70.1	0.06	0.26	9,340,000	40,681,000	3,827,000	2,136,000	14,000	3.65
1.60	1,572,000	0.26	1.13	73.9	0.06	0.27	9,110,000	39,224,000	3,736,000	2,097,000	14,000	3.82
1.80	1,363,000	0.29	1.22	81.5	0.07	0.28	8,621,000	36,656,000	3,570,000	2,006,000	12,000	4.15
2.00	1,175,000	0.30	1.31	90.4	0.07	0.28	7,881,000	34,038,000	3,416,000	1,911,000	11,000	4.51
2.50	**855,000**	**0.31**	**1.51**	**112.1**	**0.09**	**0.33**	**5,854,000**	**28,484,000**	**3,081,000**	**1,695,000**	**9,000**	**5.37**
3.00	656,000	0.32	1.70	132.5	0.11	0.36	4,611,000	24,560,000	2,793,000	1,558,000	8,000	6.17
3.50	517,000	0.32	1.89	152.4	0.13	0.40	3,651,000	21,600,000	2,535,000	1,438,000	7,000	6.96
4.00	415,000	0.33	2.09	172.2	0.15	0.42	3,016,000	19,126,000	2,297,000	1,343,000	6,000	7.76
4.50	339,000	0.36	2.28	192.5	0.17	0.44	2,665,000	17,001,000	2,096,000	1,249,000	5,000	8.55
5.00	290,000	0.37	2.43	209.4	0.18	0.45	2,389,000	15,554,000	1,951,000	1,168,000	4,000	9.19
6.00	221,000	0.38	2.75	241.0	0.21	0.47	1,853,000	13,352,000	1,709,000	1,005,000	3,000	10.38
7.00	181,000	0.38	2.97	263.4	0.22	0.49	1,519,000	11,854,000	1,535,000	892,000	3,000	11.22
8.00	147,000	0.40	3.27	284.0	0.24	0.51	1,277,000	10,552,000	1,338,000	773,000	2,000	12.11
9.00	118,000	0.41	3.62	302.6	0.26	0.52	1,074,000	9,411,000	1,146,000	666,000	2,000	12.99
10.00	94,000	0.43	4.03	320.6	0.27	0.52	902,000	8,375,000	972,000	558,000	2,000	13.87

Table 14.13 San Rafael Zone 120 ZnEq Resource Tabulation

Indicated Resource:

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	5,313,000	0.35	0.11	62.8	0.18	0.10	40,915,000	13,144,000	10,731,000	21,147,000	17,000	2.72
1.20	4,269,000	0.40	0.13	71.8	0.21	0.12	37,558,000	12,360,000	9,855,000	19,535,000	16,000	3.11
1.40	3,602,000	0.43	0.14	80.2	0.23	0.13	33,990,000	11,442,000	9,285,000	18,290,000	15,000	3.45
1.50	3,317,000	0.44	0.15	84.7	0.24	0.14	32,156,000	10,986,000	9,030,000	17,670,000	15,000	3.62
1.60	3,055,000	0.45	0.16	89.4	0.25	0.14	30,287,000	10,501,000	8,785,000	17,054,000	14,000	3.80
1.80	2,656,000	0.45	0.16	98.5	0.28	0.15	26,595,000	9,469,000	8,408,000	16,108,000	13,000	4.12
2.00	2,320,000	0.45	0.16	108.0	0.30	0.17	23,069,000	8,164,000	8,061,000	15,275,000	12,000	4.44
2.50	**1,784,000**	**0.45**	**0.15**	**127.8**	**0.35**	**0.19**	**17,621,000**	**6,052,000**	**7,330,000**	**13,718,000**	**11,000**	**5.11**
3.00	1,422,000	0.46	0.16	145.1	0.39	0.21	14,542,000	4,914,000	6,633,000	12,274,000	10,000	5.72
3.50	1,099,000	0.50	0.17	164.9	0.45	0.23	12,114,000	4,122,000	5,825,000	10,785,000	8,000	6.45
4.00	869,000	0.48	0.18	186.0	0.50	0.25	9,246,000	3,357,000	5,198,000	9,636,000	7,000	7.16
4.50	713,000	0.44	0.17	206.9	0.55	0.27	6,909,000	2,658,000	4,744,000	8,674,000	6,000	7.81
5.00	615,000	0.42	0.17	222.7	0.58	0.29	5,663,000	2,253,000	4,404,000	7,905,000	6,000	8.30
6.00	485,000	0.40	0.16	246.5	0.63	0.32	4,281,000	1,751,000	3,845,000	6,762,000	5,000	9.06
7.00	372,000	0.39	0.17	269.7	0.69	0.35	3,172,000	1,371,000	3,224,000	5,634,000	4,000	9.84
8.00	275,000	0.40	0.18	293.0	0.74	0.39	2,429,000	1,107,000	2,588,000	4,511,000	3,000	10.68
9.00	199,000	0.43	0.19	318.0	0.79	0.43	1,889,000	833,000	2,035,000	3,454,000	3,000	11.53
10.00	130,000	0.43	0.19	350.4	0.84	0.49	1,233,000	557,000	1,465,000	2,420,000	2,000	12.61

Inferred Resource:

Cutoff ZnEq%	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
1.00	1,268,000	0.08	0.03	51.1	0.12	0.07	2,258,000	710,000	2,082,000	3,384,000	3,000	1.84
1.20	907,000	0.10	0.03	58.7	0.14	0.08	2,061,000	683,000	1,712,000	2,835,000	2,000	2.14
1.40	615,000	0.14	0.05	68.5	0.17	0.10	1,849,000	642,000	1,354,000	2,239,000	2,000	2.54
1.50	552,000	0.14	0.05	72.0	0.17	0.11	1,727,000	609,000	1,279,000	2,103,000	2,000	2.66
1.60	506,000	0.14	0.05	75.0	0.18	0.11	1,595,000	566,000	1,219,000	2,004,000	2,000	2.77
1.80	423,000	0.15	0.05	81.3	0.19	0.12	1,359,000	439,000	1,104,000	1,816,000	2,000	2.98
2.00	361,000	0.14	0.04	87.0	0.21	0.12	1,150,000	312,000	1,010,000	1,659,000	1,000	3.16
2.50	**196,000**	**0.13**	**0.05**	**109.4**	**0.26**	**0.17**	**572,000**	**218,000**	**690,000**	**1,133,000**	**1,000**	**3.96**
3.00	106,000	0.18	0.07	141.2	0.33	0.19	423,000	154,000	481,000	764,000	1,000	5.02
3.50	69,000	0.21	0.08	171.4	0.39	0.19	312,000	117,000	379,000	596,000	-	6.00
4.00	55,000	0.18	0.06	190.4	0.44	0.20	218,000	76,000	334,000	533,000	-	6.59
4.50	45,000	0.15	0.05	206.2	0.50	0.21	147,000	45,000	295,000	493,000	-	7.13
5.00	39,000	0.12	0.03	217.0	0.53	0.22	105,000	28,000	273,000	462,000	-	7.46
6.00	33,000	0.06	0.02	230.2	0.57	0.22	44,000	13,000	247,000	416,000	-	7.81
7.00	28,000	0.03	0.00	238.8	0.59	0.23	19,000	3,000	216,000	367,000	-	8.06
8.00	13,000	0.04	0.00	251.7	0.68	0.25	10,000	1,000	107,000	198,000	-	8.69
9.00	4,000	0.00	0.00	265.3	0.78	0.29	-	-	36,000	72,000	-	9.35
10.00	-	0.00	0.00	0.0	0.00	0.00	-	-	-	-	-	0.00

Table 14.14 San Rafael Zone 120 AgEq Resource Tabulation

Indicated Resource:

Cutoff g AgEq/t	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	AgEq (g/t)
60.00	3,380,000	0.44	0.15	83.6	0.24	0.134	32,583,000	11,091,000	9,087,000	17,818,000	15,000	145.90
70.00	2,796,000	0.45	0.16	95.0	0.27	0.150	27,970,000	9,876,000	8,542,000	16,449,000	13,000	162.90
80.00	2,368,000	0.45	0.16	106.5	0.29	0.164	23,611,000	8,358,000	8,113,000	15,393,000	13,000	178.80
84.00	2,229,000	0.45	0.16	111.0	0.31	0.170	22,049,000	7,775,000	7,959,000	15,036,000	12,000	184.90
88.00	2,109,000	0.45	0.16	115.1	0.32	0.175	20,794,000	7,289,000	7,808,000	14,715,000	12,000	190.50
90.00	**2,051,000**	**0.45**	**0.16**	**117.3**	**0.32**	**0.178**	**20,182,000**	**7,051,000**	**7,730,000**	**14,555,000**	**12,000**	**193.40**
92.00	1,998,000	0.45	0.16	119.2	0.33	0.180	19,653,000	6,845,000	7,657,000	14,405,000	12,000	196.10
94.00	1,949,000	0.45	0.15	121.1	0.33	0.183	19,161,000	6,657,000	7,586,000	14,258,000	11,000	198.70
96.00	1,904,000	0.45	0.15	122.9	0.34	0.185	18,725,000	6,490,000	7,520,000	14,112,000	11,000	201.20
98.00	1,863,000	0.45	0.15	124.5	0.34	0.187	18,315,000	6,326,000	7,458,000	13,983,000	11,000	203.50
100.00	1,819,000	0.45	0.15	126.3	0.35	0.189	17,912,000	6,164,000	7,388,000	13,837,000	11,000	206.00
104.00	1,737,000	0.45	0.15	129.8	0.35	0.192	17,205,000	5,895,000	7,249,000	13,549,000	11,000	210.90
110.00	1,617,000	0.46	0.16	135.2	0.37	0.199	16,252,000	5,536,000	7,027,000	13,072,000	10,000	218.70
120.00	1,454,000	0.46	0.16	143.4	0.39	0.208	14,805,000	5,009,000	6,703,000	12,414,000	10,000	230.30
130.00	1,285,000	0.48	0.16	152.8	0.41	0.218	13,498,000	4,562,000	6,313,000	11,658,000	9,000	244.10
140.00	1,129,000	0.50	0.17	162.7	0.44	0.228	12,361,000	4,198,000	5,907,000	10,932,000	8,000	259.20
150.00	1,005,000	0.50	0.17	172.6	0.47	0.238	11,000,000	3,819,000	5,577,000	10,347,000	8,000	273.40
160.00	895,000	0.48	0.17	183.4	0.50	0.249	9,547,000	3,439,000	5,274,000	9,776,000	7,000	288.00

Inferred Resource:

Cutoff g AgEq/t	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	AgEq (g/t)
60.00	565,000	0.14	0.05	71.3	0.17	0.105	1,756,000	618,000	1,295,000	2,130,000	2,000	107.30
70.00	454,000	0.14	0.05	78.7	0.19	0.114	1,437,000	505,000	1,150,000	1,888,000	2,000	117.70
80.00	371,000	0.15	0.04	86.0	0.21	0.122	1,189,000	333,000	1,025,000	1,686,000	1,000	127.40
84.00	342,000	0.14	0.04	89.1	0.21	0.127	1,045,000	293,000	979,000	1,603,000	1,000	131.30
88.00	295,000	0.13	0.04	94.0	0.23	0.142	828,000	265,000	890,000	1,469,000	1,000	138.50
90.00	**272,000**	**0.12**	**0.04**	**97.1**	**0.23**	**0.150**	**697,000**	**254,000**	**848,000**	**1,397,000**	**1,000**	**142.70**
92.00	252,000	0.12	0.04	99.7	0.24	0.158	646,000	246,000	808,000	1,331,000	1,000	146.70
94.00	236,000	0.12	0.05	102.0	0.25	0.163	620,000	240,000	774,000	1,278,000	1,000	150.40
96.00	225,000	0.12	0.05	103.9	0.25	0.167	602,000	230,000	750,000	1,241,000	1,000	153.20
98.00	215,000	0.13	0.05	105.5	0.25	0.170	594,000	224,000	730,000	1,206,000	1,000	155.70
100.00	205,000	0.13	0.05	107.5	0.26	0.171	581,000	220,000	709,000	1,167,000	1,000	158.50
104.00	179,000	0.14	0.05	113.3	0.27	0.175	559,000	211,000	653,000	1,067,000	1,000	166.60
110.00	148,000	0.16	0.06	122.5	0.29	0.177	523,000	198,000	582,000	940,000	1,000	179.30
120.00	110,000	0.18	0.07	138.8	0.32	0.188	447,000	159,000	492,000	780,000	1,000	201.30
130.00	91,000	0.18	0.07	151.4	0.35	0.195	353,000	136,000	441,000	701,000	1,000	217.90
140.00	71,000	0.21	0.08	168.9	0.39	0.191	327,000	125,000	384,000	604,000	-	241.40
150.00	63,000	0.20	0.07	178.7	0.41	0.192	272,000	100,000	362,000	572,000	-	253.40
160.00	57,000	0.18	0.06	187.9	0.43	0.195	226,000	79,000	342,000	541,000	-	264.50

Checks were made on the San Rafael resource model in the following manner:

- Block-model information, such as metal grade and geology coding, number of samples, and classification, was checked visually on the computer by domain and lithology on sections and long-sections;
- Cross-section mineral domain volumes to long-section mineral domain volumes were checked;
- Nearest-neighbor and ordinary-kriged models were made for comparison;
- A simple polygonal model was made with the original modeled section domains; and
- Normal-quantile distribution plots of assays, composites, and block-model grades were made to evaluate differences in distributions of metals.

The resource estimate is reasonable, honors the geology, and is supported by the geologic model.

14.4 Discussion, Risks, and Recommendations

For the Main Zone of the San Rafael deposit, the most important observation that can be presented to the reader is the relatively even distribution of metals, primarily zinc, lead, and silver, within tabular zones that for the most part occur along the volcanic-limestone contact. The recent infill drilling provided increased confidence in the continuity of the Main Zone mineralization and additional infill drilling is not expected to materially change the currently defined Main Zone resource.

The Upper Zone consists primarily of silver-gold mineralization within a number of small tabular zones sub-parallel to, and within, the hanging wall of the Main Zone. The Upper Zone is more erratic than the Main Zone, though the recent drilling has provided greater confidence in the continuity of mineralization and the geologic interpretation. Additional drilling is not expected to materially change the Upper Zone resource.

The Zone 120 silver-copper-gold mineralization occurs within skarn-altered limestone along bedding horizons and irregular zones along intrusive contacts. The Zone 120 is more variable, both in geology and mineral grades, than the Main Zone mineralization. The Zone 120 is open at depth to the east and northeast. Mining of the deeper portions of the Zone 120 will likely require underground mining methods, due to the orientation and depth of mineralization.

The primary risk to the Main Zone and Upper Zone resource is the variable depth of oxidation. The depth of oxidation is generally shallow, though in the northeast portion of the deposit, oxidation can reach down to 200m below the surface. Zinc is strongly leached within the oxide zone and there are uncertainties as to metallurgical recoveries and processing costs associated with the oxide mineralization.

The primary risk to the Zone 120 resource is the generally more widely-spaced drilling, and the resulting reduced confidence in the Zone 120 geologic interpretation, as compared to the Main or Upper zones. The differing character of the Zone 120 mineralization (silver dominant versus the zinc-lead dominant Main Zone mineralization) also results in some uncertainty as to metallurgical recoveries and possible mining scenarios.

Further definition of the Zone 120 will require more closely spaced drilling. This additional drilling, combined with more density measurements, is recommended to bring greater confidence to the interpretation and resource classification of this mineralization.

14.5 San Rafael Resources Exclusive of Reserves

The reported San Rafael resources exclusive of the reserves stated in Section 15.5 are shown in Table 14.15.

Table 14.15 San Rafael Reported Resources Exclusive of Reserves

Measured and Indicated Resources (2.5%ZnEq cut-off) - Exclusive of Reserves

Class	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
Measured	1,918,000	1.85	0.81	86.9	0.07	0.20	78,233,000	34,337,000	5,362,000	2,870,000	12,000	5.32
Indicated	4,736,000	1.30	0.56	91.3	0.17	0.17	135,940,000	58,421,000	13,897,000	17,935,000	26,000	4.90
M+I	6,654,000	1.46	0.63	90.0	0.14	0.18	214,173,000	92,758,000	19,258,000	20,805,000	39,000	5.02

Inferred Resource (2.5%ZnEq cut-off) - Exclusive of Reserves

Class	Tonnes	Zinc (%)	Lead (%)	Silver (g Ag/t)	Copper (%)	Gold (g Au/t)	Zinc (lbs)	Lead (lbs)	Silver (oz)	Copper (lbs)	Gold (oz)	ZnEq (%)
Inferred	1,045,000	0.27	1.24	110.6	0.12	0.30	6,283,000	28,600,000	3,718,000	2,766,000	10,000	5.07

These remaining resources occur outside of the mine design solids, as discussed in Section 15.3 and are primarily within the Upper Zone and Zone 120, which were not considered for inclusion within the reserve study, and also include fringe mine blocks within the Main Zone that did not make the $54/t NSR reserve cutoff. A more detailed comparison of the reported resources and reserves is discussed in Section 15.6.

15.0 MINERAL RESERVE ESTIMATES

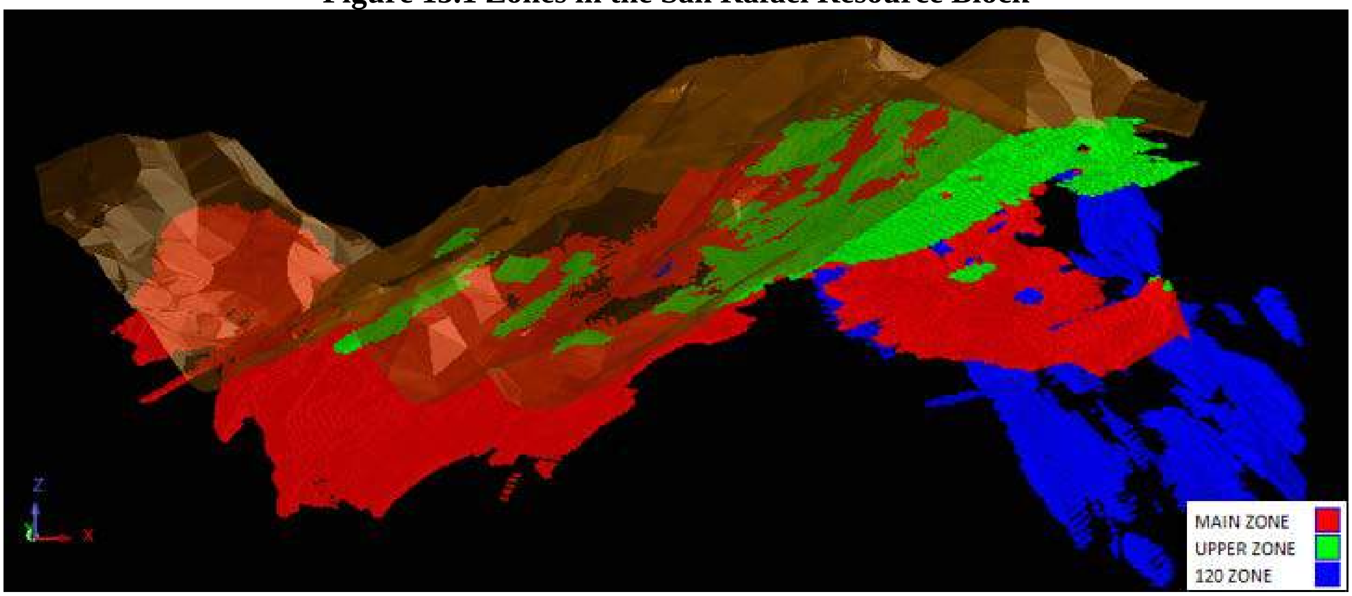
The effective date of the reserves given below is December 8, 2015. Reserves were developed in accordance with CIM guidelines using Measured and Indicated resources. Appropriate modifying factors were applied including costs, recoveries, and dilution in estimating Mineral Reserves.

The following sections provide details on the assumptions and design criteria used for estimating and reporting of Proven and Probable reserves.

15.1 Mining Model

For the purpose of this study, three zones have been identified in the resource model: the Main Zone, Upper Zone and the Zone 120. These zones are shown below in Figure 15.1. Only material in the Main and Upper zones was used to define the production schedule and the resulting reserves.

Figure 15.1 Zones in the San Rafael Resource Block



15.2 Economic Parameters and Net Smelter Return ("NSR") Calculation

San Rafael material will be processed through Americas' Los Braceros mill to produce both lead and zinc concentrates, which would both be shipped to smelters for further processing and refinement. NSR values for each of the two San Rafael concentrate types and the silver value from each concentrate were calculated and the results were then combined into a single NSR value. The single NSR value considers revenues from sellable metals, less the costs for treatment, marketing, smelting, penalties, and refining. Silver, lead and zinc were considered in the NSR calculation. The NSR calculations utilized the formulas shown in Equations 1 through 4.

Equation 1. Net Smelter Return for Lead

$$NSR_{Pb} = \left(\frac{Pb}{100} * Rec_{Pb} * Pay_{Pb} * 2204.623 * Price_{Pb}\right) - \left((Treat_{Pb} + Pen_{Pb} + Trans_{Pb} + Mark_{Pb}) * \frac{Pb}{100} * \frac{Rec_{Pb}}{Con_{Pb}} * 100\right)$$

Where: Pb is the grade of lead in percent;
Rec_{Pb} is the recovery of lead;
Pay_{Pb} is the payable percent received from the smelter;
$Price_{Pb}$ is the metal price of lead in $/lb Pb;
$Treat_{Pb}$ is the treatment cost in $/t of concentrate;
Pen_{Pb} is the penalty cost in $/t of concentrate;
$Trans_{Pb}$ is the transportation cost in $/t of concentrate;
$Mark_{Pb}$ is the marketing cost in $/t of concentrate; and
Con_{Pb} is the assumed lead grade of lead concentrate.

Equation 2. Net Smelter Return for Zinc

$$NSR_{Zn} = \left(\frac{Zn}{100} * Rec_{Zn} * Pay_{Zn} * 2204.623 * Price_{Zn}\right) - \left((Treat_{Zn} + Pen_{Zn} + Trans_{Zn} + Mark_{Zn}) * \frac{Zn}{100} * \frac{Rec_{Zn}}{Con_{Zn}} * 100\right)$$

Where: Zn is the grade of zinc in percent;
Rec_{Zn} is the recovery of zinc;
Pay_{Zn} is the payable percent received from the smelter;
$Price_{Zn}$ is the metal price of zinc in $/lb Zn;
$Treat_{Zn}$ is the treatment cost in $/t of concentrate;
Pen_{Zn} is the penalty cost in $/t of concentrate;
$Trans_{Zn}$ is the transportation cost in $/t of concentrate;
$Mark_{Zn}$ is the marketing cost in $/t of concentrate; and
Con_{Zn} is the assumed zinc grade of zinc concentrate.

Equation 3. Net Smelter Return for Silver

$$NSR_{Ag} = \frac{Ag}{31.10348} * \left(Ag * Rec_{Ag\_Pb} * Pay_{Ag\_Pb} * \left(Price_{Ag} - Ref_{Ag\_Pb}\right) + Ag * Rec_{Ag\_Zn} * Pay_{Ag\_Zn} * \left(Price_{Ag} - Ref_{Ag\_Zn}\right)\right)$$

Where: Ag is the grade of silver in g/t;
$Price_{Ag}$ is the silver metal price in $/ounce Ag;
Rec_{Ag_Pb} is the recovery of silver in lead concentrates;
Pay_{Ag_Pb} is the payable percent for silver in the lead concentrate;
Ref_{Ag_Pb} is the refining cost in $/oz Ag for silver in lead concentrate;
Rec_{Ag_Zn} is the recovery of silver in zinc concentrates;
Pay_{Ag_Zn} is the payable percent for silver in the zinc concentrate;
Ref_{Ag_Zn} is the refining cost in $/oz Ag for silver in zinc concentrate;

Equation 4. Total Net Smelter Return

$$NSR_{Tot} = NSR_{Pb} + NSR_{Zn} + NSR_{Ag}$$

Smelter parameters were provided by Americas, based on metallurgical studies and smelting and transportation contracts, and experience with the Nuestra Señora concentrates. Initial and cash-flow values used for each NSR parameter are shown in Table 15.1. The initial values were used along with the $54/t NSR cutoff to define underground mineable materials for reserves. Note that the cash-flow metal prices are lower, which reduces the NSR value. In addition, the transportation costs in the final cash flow were increased by splitting the costs into land and sea transportation. This was partially offset by a decrease in treatment costs.

In order to confirm the reserves stated, MDA re-calculated the NSR values to report within the mineable areas. While the value did go down slightly in some areas, it should be noted that the $54/t NSR cutoff grade could be reduced to around $43/t based on the final operating costs. At the lower cost, the resulting reserves remain economically viable and justifiable.

Table 15.1 Smelter Parameters

	Variable	Initial Parameters	Cash-Flow Parameters	Units
Metal Prices	$Price_Pb	$ 0.90	$ 0.85	$/lb
	$Price_Zn	$ 0.95	$ 0.85	$/lb
	$Price_Ag	$ 16.00	$ 16.00	$/oz
Treatment Cost	$Treat_Pb	$ 257.00	$ 210.00	$/t Con
	$Treat_Zn	$ 250.00	$ 160.00	$/t Con
Penalties	$Pen_Pb	$ 11.00	$ 11.00	$/t Con
	$Pen_Zn	$ 8.00	$ 8.00	$/t Con
Transportation - Land	$LandTrans_Pb	$ 62.00	$ 48.48	$/t Con
	$TransLand_Zn	$ 62.00	$ 48.48	$/t Con
Transportation - Sea	$SeaTrans_Pb		$ 45.00	$/t Con
	$SeaLand_Zn		$ 45.00	$/t Con
Marketing	$Mark_Pb	$ -	$ -	$/t Con
	$Mark_Zn	$ -	$ -	$/t Con
Refining	$Ref_Ag_Pb	$ 1.50	$ 1.50	$/oz Ag
	$Ref_Ag_Zn	$ 1.50	$ -	$/oz Au
Assumed Con Grade	$Con_Pb	51.9	51.9	% Pb
	$Con_Zn	51.9	51.9	% Zn
Recoveries	$Rec_Pb	76.30%	76.30%	
	$Rec_Zn	83.80%	83.80%	
	$Rec_Ag_Pb	29.70%	29.70%	
	$Rec_Ag_Zn	17.90%	17.90%	
Payable	$Pay_Pb	94.20%	95.00%	
	$Pay_Zn	84.60%	84.60%	
	$Pay_Ag_Pb	95.00%	95.00%	
	$Pay_Ag_Zn	67.50%	67.50%	

By design, the NSR value does not include mining, processing, or general and administrative ("G&A") costs in the calculation. The total of these costs was put into terms of $/tonne processed and applied as a cutoff grade against the NSR. Note that an initial mining, processing, and G&A cost of $54.00 per tonne was used as the NSR cutoff grade for delineation of stopes. The final operating costs summarized in Section 21.1 are estimated to total $42.69 per tonne. Since the cutoff grade defined by the final operating costs is lower, the reserves remain reasonable. The initial and final life of mine ("LOM") operating costs are shown in Table 15.2.

Reserves are anticipated to be mined by cut-and-fill mining methods which are defined in Section 16.2. The initial mining cost for cut-and-fill stoping at the San Rafael mine is estimated to be $27.75/t, based on a combination of Americas' costs at the Nuestra Señora mine and first principle estimates of hours for equipment and personnel. Initial processing costs are based on a combination of Americas' costs at the Los Braceros mill and first principle estimates. Initial G&A costs are estimated to be $10.00/t based on Americas' operating experience.

Table 15.2 Estimated San Rafael Operating Costs

	Initial Cost Estimates	Units
Cut and Fill Mining Cost	$ 27.75	$/t
Process Plant Costs	$ 16.25	$/t
Administration	$ 10.00	$/t
Total Cut and Fill Cost	$ 54.00	$/t

15.3 Underground Mine Design

Based on preliminary costs in Table 15.2, a $54/t NSR cutoff grade was calculated. Designs for underground production were completed using the resource block model and applying the $54/t NSR as the mining cutoff. Cut-and-fill stopes were designed to exploit continuous blocks above the $54/t NSR value and areas with isolated blocks without nearby development were excluded from the designs.

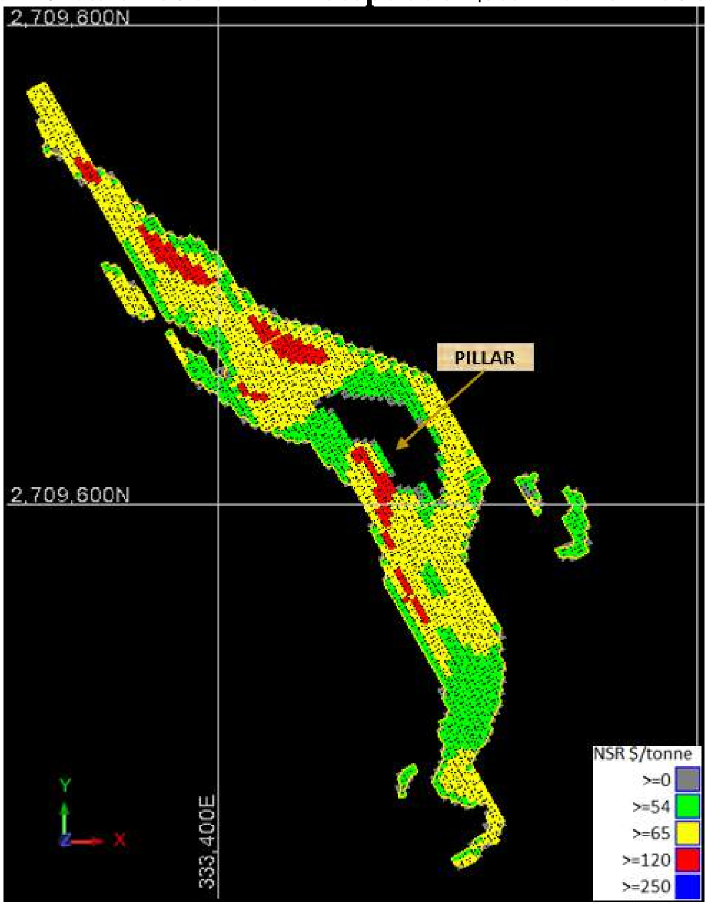
Pillars will be left for geomechanical stability in areas with wide mineralization zones while mining occurs. Based on the geotechnical recommendations, it has been estimated that approximately 10% of the reserves will be left in place as pillars within the stopes. Accordingly, final reserves consider 10% ore loss to account for the pillars.

Underground development was designed to access all the production locations using primary ramps, haulage level drifts, and attack ramps. The main infrastructure in the lower portions of the Main Zone is located in the footwall, and main access in the upper portions of the Main Zone is designed to be developed in the hanging-wall. Preliminary ventilation raises have also been designed and they will be revised as the project goes into production. The ventilation raise will also serve as secondary escapeways. A second portal is planned to be developed for a secondary egress, to haul back-fill material, and ventilation considerations.

15.3.1 Production Locations - Cut-and-fill Design

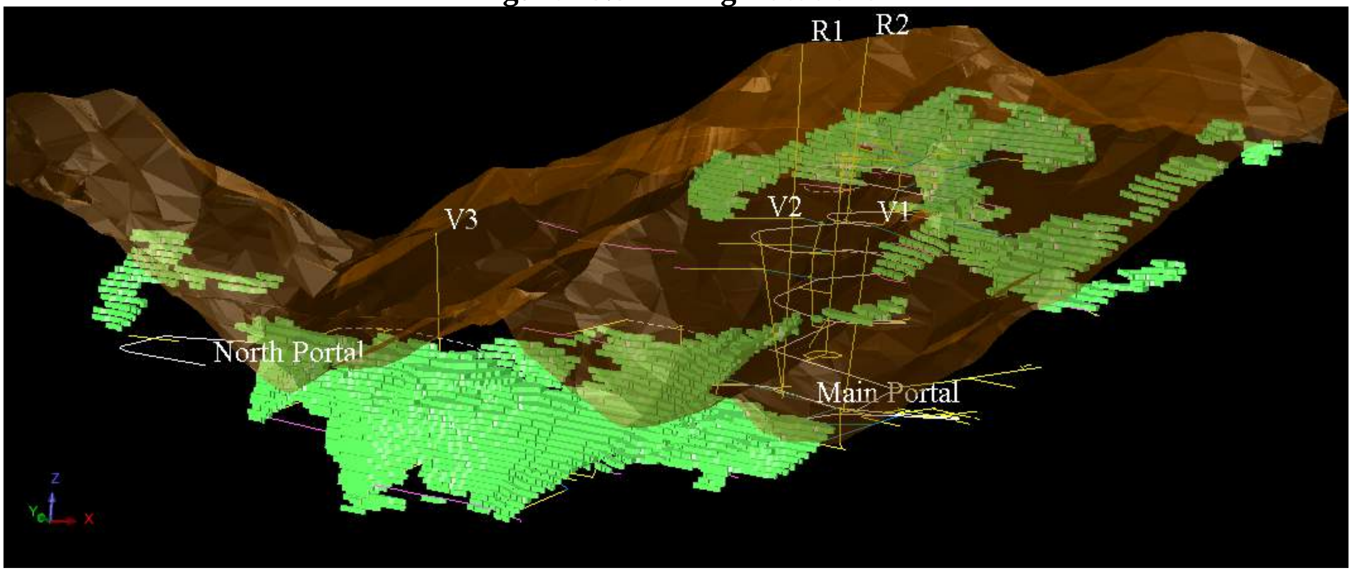
Cut-and-fill mining methods will be used in all mining locations. Designs for cut-and-fill mining were generated by applying the $54/t cutoff value to the resource model. Outlines of the mining locations were defined by combining blocks with continuous NSR values greater than or equal to the cutoff NSR in 4m vertical levels. In this process, some blocks with values below the cutoff were also included in the stope outlines. These blocks are considered as internal dilution. Areas containing large groups of blocks below the cutoff were identified and these areas will be left as pillars. Additional areas with a smaller number of below-cutoff blocks can be mined selectively or left in place as pillars to further reduce the internal dilution. Figure 15.2 shows an example of an area in Level 387 where areas of below-cutoff blocks will be left in place as pillars.

Figure 15.2 Plan View of Cut-and-fill Stope at 54$/tonne NSR Cutoff (387 Level)



The process was repeated at 4m vertical intervals to construct a set of outlines defining the mining locations. The outlines were then used to build solids, which were used to flag the resource blocks to be included as potentially minable material. Figure 15.3 below shows the resulting solids (green) used to define mining locations and mineral reserves for the mine plan.

Figure 15.3 Mining Locations

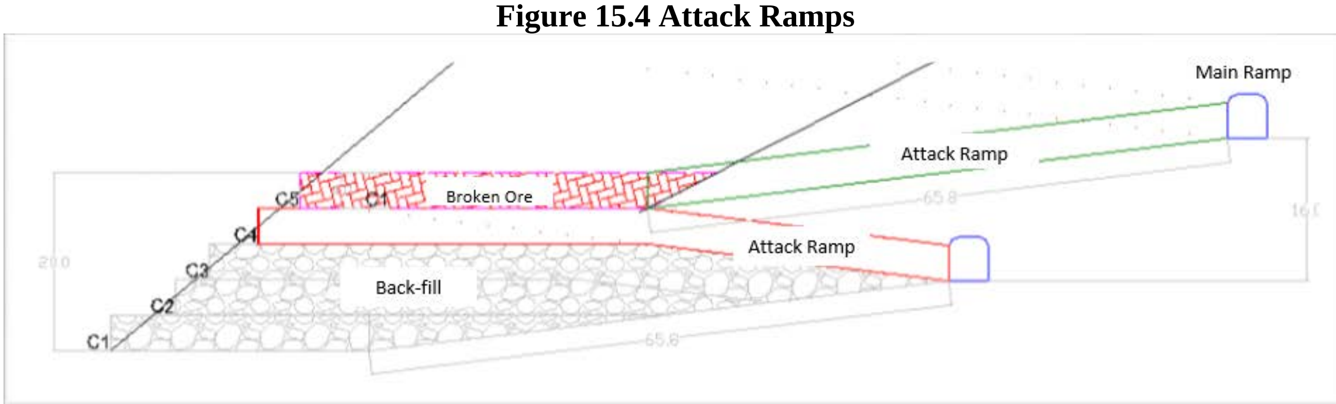


15.3.2 Underground Development

Access to the mine will be through the main portal located south of the deposit. The portal is located at an elevation of 455 m.a.s.l. The main portal will also serve as the main ore haulage way and main ventilation intake. A second portal is to be located north of the deposit; this secondary portal will primarily serve as secondary egress, access for haulage of back-fill material for the mined-out locations and for ventilation. Main development is designed at a maximum gradient of 12%. Main ramps and haulage drifts will have a cross-section of 4.0m x 4.5m, which is necessary to accommodate the selected equipment. Ventilation raises will be developed using raise bore machines in combination with conventional raises.

Access to production locations will be by means of “attack ramps” spaced at a maximum distance of 100m horizontally along strike and 16m vertically (Figure 15.4). These attack ramps are designed at a maximum gradient of 16%, which requires the main ramps to be constructed approximately 65m away from the planned stopes.

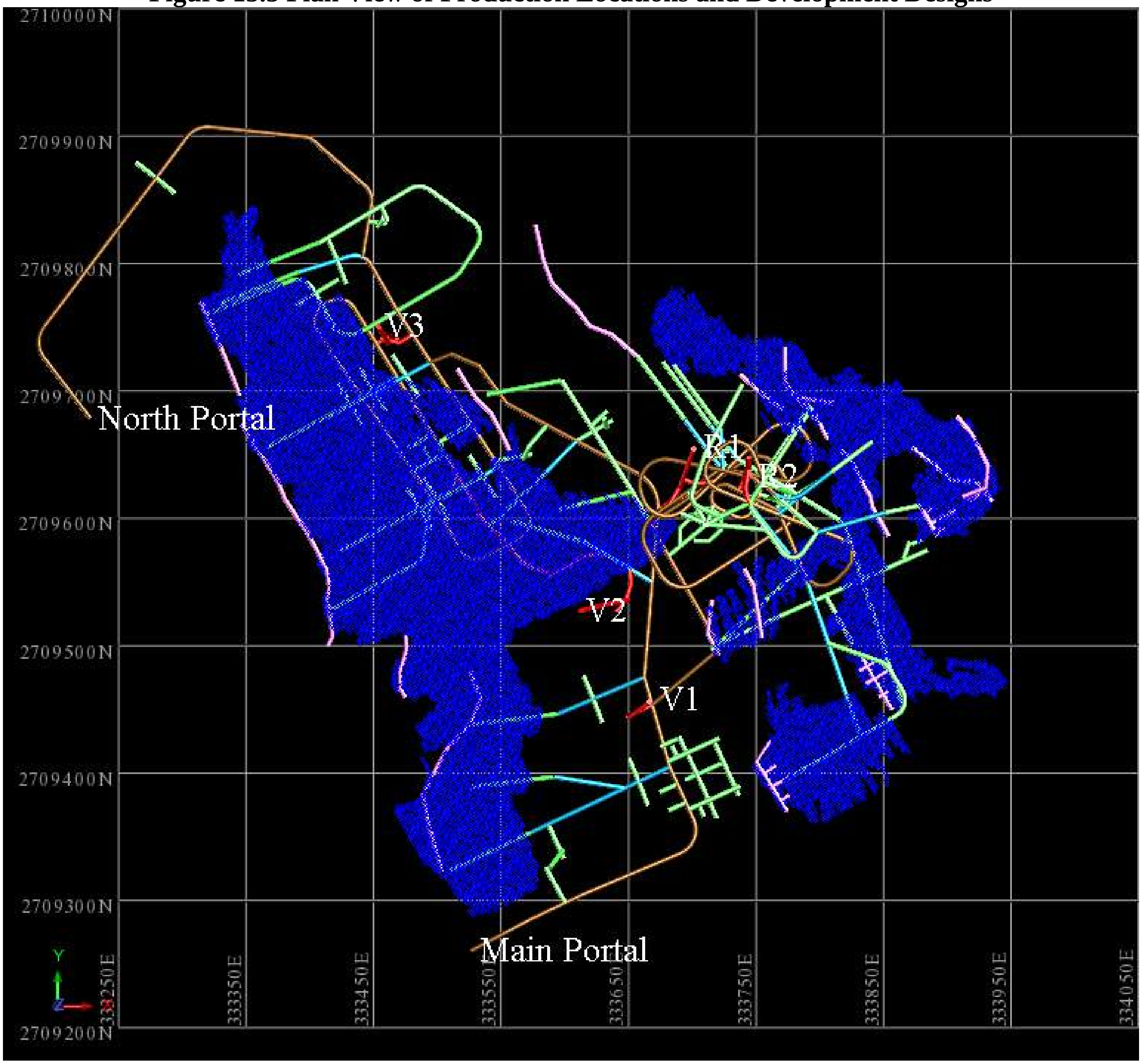
Figure 15.4 Attack Ramps



Backfill will be placed using either development waste or waste from a nearby quarry. The waste will be placed and packed without cement. No mining next to the backfill is anticipated, and this method of fill significantly reduces the mining cost. Note that the pillars left in place will provide additional support, which also justifies the ability to backfill without the use of cement and additional handling that cemented rock fill would require.

Figure 15.5 shows a plan view of the production locations and development designs.

Figure 15.5 Plan View of Production Locations and Development Designs



15.4 Dilution and Ore Loss

Dilution has been included in the statement of reserves through block dilution, internal dilution, and external dilution.

Block dilution was included in the estimation of the resource model. The resource block model was developed using 3m in X, by 2m in Y, by 2m in Z blocks.

Internal dilution was included based on the underground designs. The stope designs were made to capture value from continuous blocks above cutoff grade, but some volumes of waste or material below the NSR cutoff have been included within the stope design in order to capture the greater value of continuous volumes above cutoff grade. MDA has assumed that all of the material from a mined stope will be sent to the process facility, and the waste and sub-grade material constitute internal dilution. Internal dilution by Inferred or undefined material has been added at a zero NSR value and metal content. Internal dilution by Measured and Indicated material includes the NSR value and metal content for definition of reserves.

External dilution is realized through over-break of material beyond stope designs. Because diluted blocks were used in the generation of the stope outlines, no external dilution due to overbreak was included in the reserve estimations. The cut-and-fill mining method is selective and it is assumed that dilution due to overbreak can be controlled.

Ore loss occurs where ore grade material cannot be physically mined from its designed stope due to unforeseen circumstances or misclassification of material during mining. Additionally, some areas will be required to be left in place as pillars to provide safe working conditions. Ore loss due to pillars is estimated to be 10% of the material within the design stopes.

15.5 Mineral Reserves

Mineral reserves for the San Rafael project were developed and classified by applying relevant economic criteria in order to define the economically extractable portions of the reported current resources. MDA classifies reserves in order of increasing confidence into Probable and Proven categories in accordance with the “CIM Definition Standards - For Mineral Resources and Mineral Reserves” (2014) and therefore Canadian National Instrument 43-101. CIM mineral reserve definitions are given below, with CIM’s explanatory material shown in italics:

Mineral Reserve

Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proven Mineral Reserves. A Probable Mineral Reserve has a lower level of confidence than a Proven Mineral Reserve.

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

The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

The public disclosure of a Mineral Reserve must be demonstrated by a Pre-Feasibility Study or Feasibility Study.

Mineral Reserves are those parts of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the Qualified Person(s) making the estimates, is the basis of an economically viable project after taking account of all relevant Modifying Factors. Mineral Reserves are inclusive of diluting material that will be mined in conjunction with the Mineral Reserves and delivered to the treatment plant or equivalent facility. The term 'Mineral Reserve' need not necessarily signify that extraction facilities are in place or operative or that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals.

'Reference point' refers to the mining or process point at which the Qualified Person prepares a Mineral Reserve. For example, most metal deposits disclose mineral reserves with a "mill feed" reference point. In these cases, reserves are reported as mined ore delivered to the plant and do not include reductions attributed to anticipated plant losses. In contrast, coal reserves have traditionally been reported as tonnes of "clean coal". In this coal example, reserves are reported as a "saleable product" reference point and include reductions for plant yield (recovery). The Qualified Person must clearly state the 'reference point' used in the Mineral Reserve estimate.

Probable Mineral Reserve

A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proven Mineral Reserve.

A *The Qualified Person(s) may elect, to convert Measured Mineral Resources to Probable Mineral Reserves if the confidence in the Modifying Factors is lower than that applied to a Proven Mineral Reserve. Probable Mineral Reserve estimates must be demonstrated to be economic, at the time of reporting, by at least a Pre-Feasibility Study.*

Proven Mineral Reserve

A Proven Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proven Mineral Reserve implies a high degree of confidence in the Modifying Factors.

Application of the Proven Mineral Reserve category implies that the Qualified Person has the highest degree of confidence in the estimate with the consequent expectation in *the minds of the readers of the report. The term should be restricted to that part of the deposit where production planning is taking place and for which any variation in the estimate would not significantly affect the potential economic viability of the deposit. Proven Mineral Reserve estimates must be demonstrated to be economic, at the time of reporting, by at least a Pre-Feasibility Study. Within the CIM Definition standards the term Proved Mineral Reserve is an equivalent term to a Proven Mineral Reserve.*

Modifying Factors

Modifying Factors are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

Proven and Probable reserves have been estimated using only the San Rafael Measured and Indicated resources. The estimates use the economic and dilution factors described in the previous sections. The reserves were calculated based on the proportion and NSR values of the resource blocks contained within each designed stope.

Table 15.3 shows the fully diluted Proven and Probable reserves.

Table 15.3 San Rafael Proven and Probable Reserves

	K Tonnes	Zn %	Pb %	g Ag/t	K Lbs Zn	K Lbs Pb	K Ozs Ag
Mineral Inventory within Designs (NSR >= 54)							
Proven	1,170	4.90	2.22	139.08	126,345	57,162	5,230
Probable	1,779	4.74	1.90	113.68	185,711	74,377	6,501
Proven & Probable	*2,948*	*4.80*	*2.02*	*123.76*	*312,056*	*131,539*	*11,732*
Internal Dilution (NSR < 54)							
Internal Dilution - Proven	259	1.80	0.74	47.01	10,260	4,238	392
Internal Dilution - Probable	384	1.90	0.74	47.90	16,053	6,266	592
Internal Dilution - Proven & Probable	*643*	*1.86*	*0.74*	*47.54*	*26,313*	*10,504*	*983*
Ore Loss (10%)							
Ore Loss - Proven	144	4.46	2.01	120.71	14,182	6,398	560
Ore Loss - Probable	218	4.35	1.75	100.61	20,947	8,403	707
Ore Loss - Proven & Probable	*363*	*4.39*	*1.85*	*108.61*	*35,129*	*14,802*	*1,267*
Fully Diluted Reserves							
Proven Reserves	1,284	4.32	1.94	122.57	122,423	55,002	5,062
Probable Reserves	1,944	4.22	1.69	102.15	180,817	72,239	6,386
Fuly Diluted Proven & Probable Reserves	*3,229*	*4.26*	*1.79*	*110.28*	*303,240*	*127,241*	*11,448*

- Proven and Probable reserves are based on Measured and Indicated resources.
- Proven and Probable reserves are based on a $54.00 NSR cutoff grade.
- Internal dilution includes grades from only Measured and Indicated resources.
- 10% ore loss is estimated based on pillar requirements.
- Some apparent discrepancies are due to rounding.

15.6 Discussion of Reserves and Comparison to Measured and Indicated Resources

The following factors account for portions of the resources not being converted to reserves at this time:

- Application of the NSR cutoff of $54/t;
- Exclusion of the 120 resources
- Resource blocks above the NSR cutoff in some areas are discontinuous or are too far from planned development and would require development costs in excess of the NSR values; and
- Ore loss in pillars and other structures.

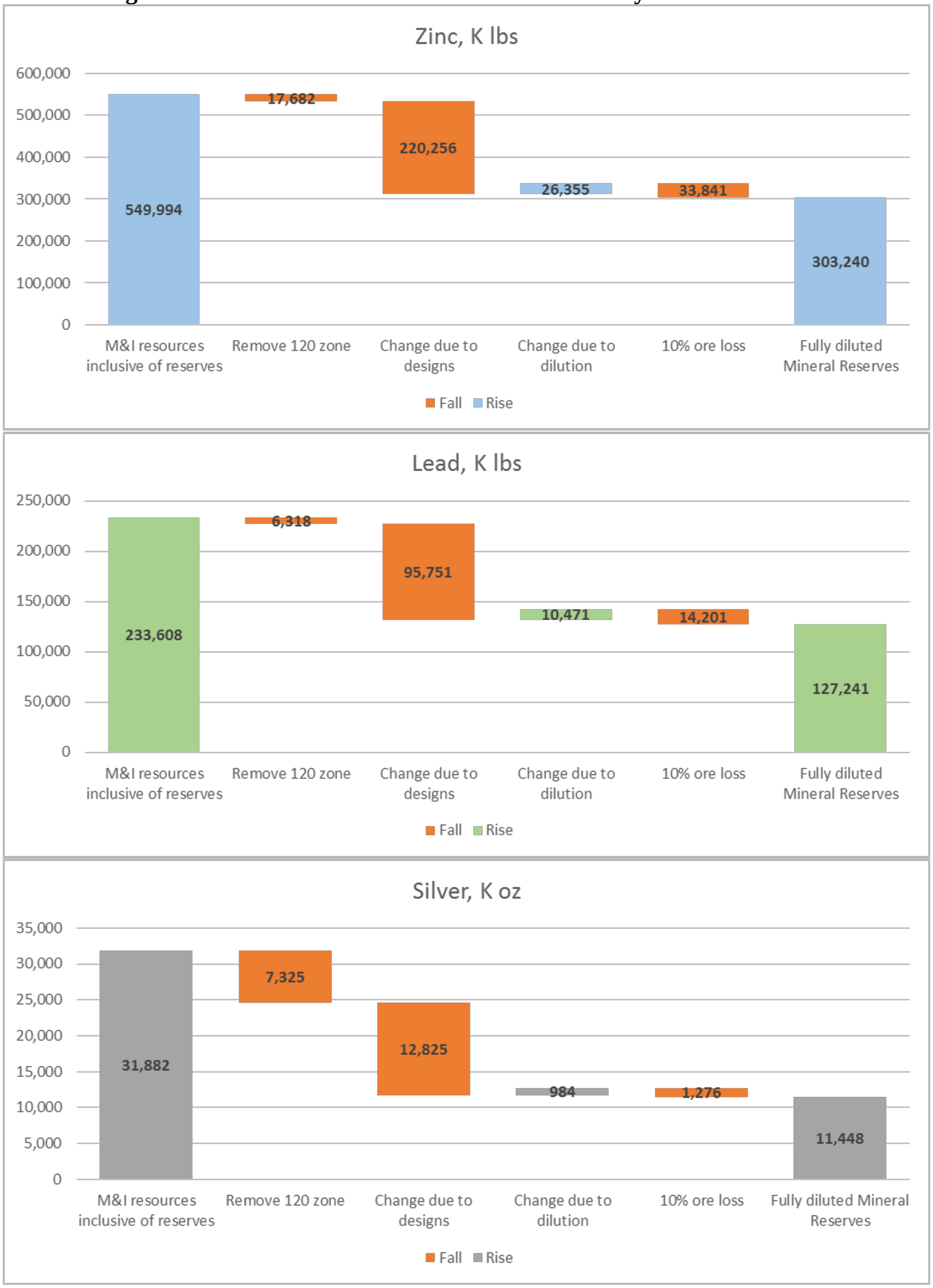
The Measured and Indicated resources were reported at 2.5% zinc equivalent, or approximately $45/tonne. A portion of the resources were therefore excluded from reserves when applying the $54/tonne mining cutoff to the resources. Also, material from the Zone 120, and the northwest extension of the Main Zone, has been left out of the designs due to the low frequency of the drill data and mineralogical recovery issues using the current processing flow-sheet. A comparison of the overall Measured and Indicated resources and their conversion to reserves is shown in Table 15.4, Figure 15.6 and Figure 15.7.

Table 15.4 Conversion of San Rafael Resources to Reserves

	K Tonnes	Zinc (K lbs)	Lead (K lbs)	Silver (K oz)
M&I resources inclusive of reserves	10,096	549,994	233,608	31,882
Remove 120 zone	-1,784	-17,682	-6,318	-7,325
Change due to designs	-5,364	-220,256	-95,751	-12,825
Change due to dilution	644	26,355	10,471	984
10% ore loss	-359	-33,841	-14,201	-1,276
Fully diluted Mineral Reserves	3,229	303,240	127,241	11,448

Figure 15.6 Conversion of Resources to Reserves by Tonnes

Figure 15.7 Conversion of Resources to Reserves by Contained Metal



16.0 MINING METHODS

A hybrid underground cut-and-fill/room and pillar mining method has been selected to extract material from the Main and Upper Zones at San Rafael due to the depth, the shallow-dipping angle of the mineralization and the variable thickness of the mineralization. Flow diagrams such as those of Boshkov and Wright (1973) and Hartman (1987), along with a quantitative analysis developed by Nicholas (1981), were used to support the selection of the mining method. Mine access and the mining method are summarized below. Figure 16.1 shows a section view of the mine layout. Figure 16.2 shows a plan view for the general mine layout.

Figure 16.1 Mine Layout in Section-View

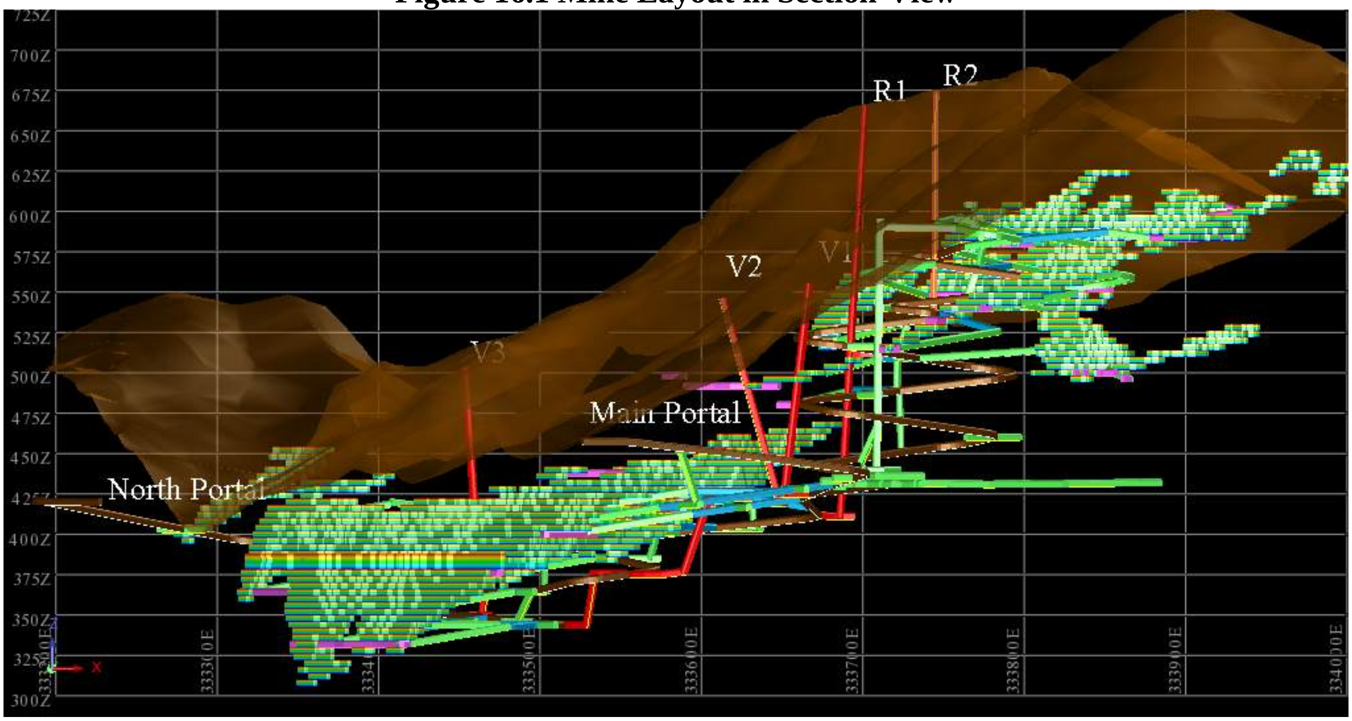


Figure 16.2 Mine Layout in Plan-View

16.1 Mine Access and Development

Access to the production locations will be through the main portal located south of the deposit and a main ramp which will connect to haulage drifts. The haulage drift will be connected to attack ramps or stope access ramps. All active mining locations and underground facilities will be provided with fresh air through a series of ventilation raises connecting the main underground development with the surface. Along with the main development, safety bays, utility bays, sumps, and loading stations will also be developed. A secondary portal located north of the deposit will be established later in the mine life and used for ventilation and transportation of backfill as needed. The need for construction of this secondary portal may be re-evaluated at a future time. Table 16.1 shows the LOM totals for the main underground development.

Table 16.1 Main Life of Mine Underground Infrastructure

Primary Development		Total Meters
4.0m x 4.0m	Crosscuts	4,202
4.0m x 4.0m	Headings	1,563
4.5m x 5.0m	Ramps	4,309
	Total Primary	10,074
Infrastructure Development		
4.0m x 4.0m	Loading Stations	480
3.5m x 3.0m	Ventilation Drifts	299
4.0m x 4.0m	Shop	147
	Total Infrastructure	926
Raises		
4.0m Diam	Raise Bore	1,068
2.0m Diam	Conventional	348
	Total Raises	1,416
Total Development Meters		12,416

The main ramp and all secondary development will be constructed using conventional drill and blast mining methods similar to what is currently being used at the Americas operating Nuestra Señora mine. Main ventilation raises at San Rafael will be developed using raise boring machines. The mining cycle for all ramps and secondary development is assumed to be the same regardless of the cross-sectional dimensions. The typical mining cycle for the San Rafael mine is described below.

Primary and secondary development will be advanced utilizing two-boom jumbos for the drilling requirements. The jumbos are estimate to achieve 80% mechanical availability and 60% utilization resulting in the production of approximately 55 holes per shift at an average length of 4.3 meters. Conventional blasting will utilize ammonium nitrate – fuel oil (“ANFO”) and/or packaged emulsion. The calculated powder factor ranges from 0.3kg/tonne in ore to 0.73kg/tonne in waste.

Broken material will be mucked to temporary loading stations using load-haul-dump units (“LHD’s”) or, ideally, directly to trucks that will haul the material to either underground or surface locations. At early stages, waste material will be stockpiled near the portal or used for surface fill material. Once production mining starts, waste material will be stored underground or used as backfill. Ore will be hauled with 20 ton trucks from loading stations directly to the processing plant to avoid re-handling. The processing plant is located approximately 15km from the portal.

To ensure safe ground conditions, all permanent development will be bolted using 8ft long bolts installed on a 0.80m x 0.80m base pattern. Some areas may require additional support and will be re-enforced with 2.5m x 3.0m wire-mesh and shotcrete as required. Production headings will be re-enforced with wire-mesh and shotcrete as needed.

16.2 Cut-and-Fill Mining

For the purpose of mine planning, the mining zones were grouped in 16m high x 50m long mining panels. Access to the panels will be provided by attack ramps located approximately 65m away from the panels to allow for the appropriate maximum ramp gradient. Attack ramps will provide access to adjacent panels. A main production drift and a series of cross-cuts will be developed at the sill of each panel. Then the panels will be mined sequentially in 4m lifts by driving 4m x 4m drifts; the drifts will have a maximum length of 50m leaving vertical pillars as required for ground control and stability. Figure 16.3 shows the first cut or sill preparation layout in plan view. Figure 16.4 shows a long-section of a mining panel with the corresponding access shown in a cross-section.

Figure 16.3 Plan-View of a Typical Sill Preparation (1st Cut)

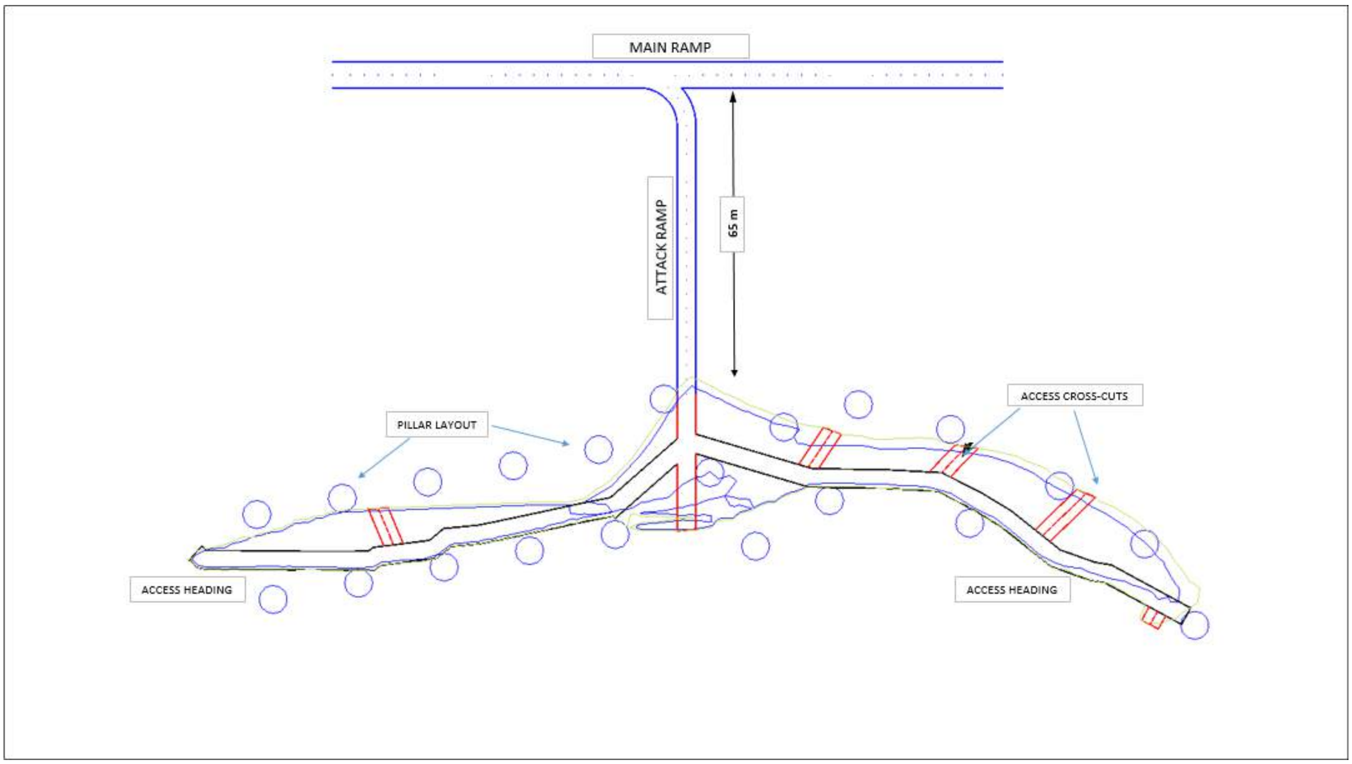
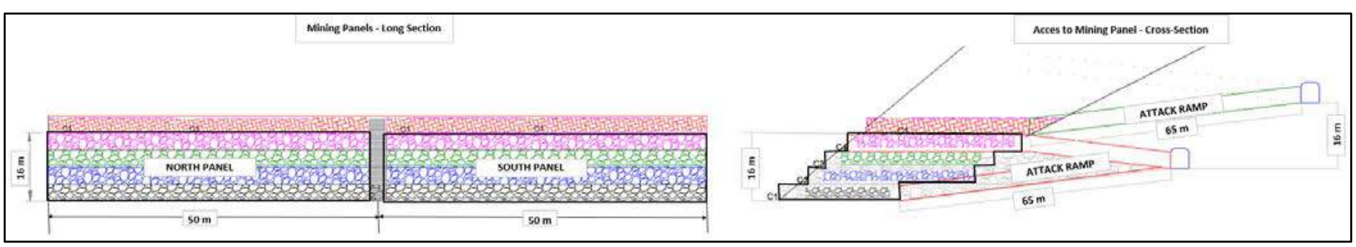


Figure 16.4 Typical Mining Panels with Attack Ramp Access



Once each lift is mined out it will be back filled with waste material from the various access development headings and, if necessary, with material hauled from the La Estrella quarry, located 3km from the North Portal.

The mining cycle for cut-and-fill mining at San Rafael will be similar to the mining cycle described for access development in Section 16.1. The main difference is that all the mined-out locations will be back filled with waste material.

16.2.1 Back-fill Materials

During early production periods, back-fill material will be supplied from the waste dump located near the El Cajón mine. Later, when in full production, back-fill material will come from waste development and if necessary it will be supplied from the La Estrella quarry. Trucks transporting the ore to the plant will return to the mine loaded with back-fill material and dump it in the mined-out locations. LHD's will distribute and compact the back-fill material.

16.2.2 Panel Definition Drilling

Panel definition drilling will be done to further define the mineralization and boundaries and geological characteristics of the deposit. Drilling will be done from drilling stations located along the main ramp or main haulage drifts. This drilling will be done by a drilling contractor using a diamond-core drill to complement the production mining cycle. It is assumed based on experience at the Nuestra Señora mine that 1m of diamond drilling will be necessary for defining 300 tonnes of ore to be extracted at San Rafael.

16.3 Utilities, Ventilation and Dewatering

16.3.1 Utilities

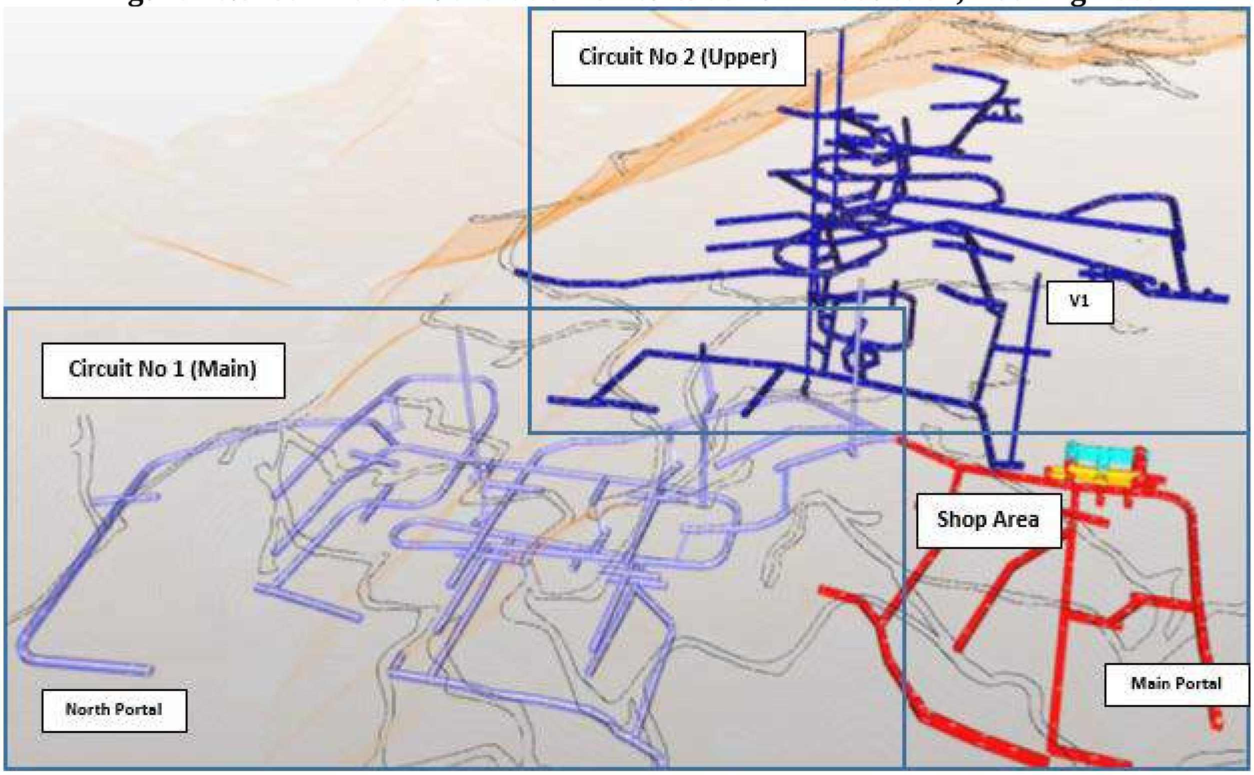
Water for underground operations and dust control will be supplied through a network of 4in pipes. Mine discharge water will be collected through a series of sumps and returned to the surface. A series of air compressor will be installed near the portal to supply the necessary air for operations.

16.3.2 Ventilation

Fresh air will be drawn from the North portal once developed or through a series of raises into the main ramp system and then diverted into all active headings and underground infrastructure. During early stages of mine development, fresh air will be supplied to working faces via the main portal using ventilation ducting, and then exhausted out the main ramp. Once a connection is established to the surface with the first ventilation raise the main supply fan will be relocated to the ventilation raise where it will work as an exhaust fan. Fresh air will be drawn from the portal through the main ramp and diverted to active headings using auxiliary fans, ventilation controls and secondary raises.

Once in full production, two main ventilation circuits with a total capacity of 540,000cfm will be established and ventilate the mine, including the maintenance shop area. The first circuit will provide fresh air to the lower and primary levels of the Main zone. The upper levels of the Main zone will be ventilated with the second circuit. The Main and North portals will be used as fresh-air intakes. Figure 16.5 shows the main ventilation circuits of the San Rafael mine at full production.

Figure 16.5 San Rafael Ventilation Circuits at Full Production, Looking East



16.3.3 Dewatering

Underground water is not expected to be a major issue during mine development or production stages. The majority of the development and production will occur above the 360 m a.s.l. elevation at which it is expected to encounter the water table. However, seasonal surface-water inflows are expected. Surface-water inflow to the mine, as well as water resulting from drilling or other sources, will be diverted or pumped to underground sumps and then, pumped to a sedimentation tank near the portal. This water will be used for dust control on surface roads or hauled to the Nuestra Señora plant for use as makeup water.

16.4 Mine Development and Production Schedule

For the purpose of scheduling and mine planning, mining panels were grouped in 7 regions shown in Figure 16.6 and the production schedule was produced based on the availability of access to these regions. A summary of the tonnes in these 7 regions considered for design and scheduling is shown in Table 16.2. Note that tonnage in Table 16.2 includes pillars and thus does not reflect the same tonnage as stated in the Mineral Reserves. It is estimated that approximately 10% of the initial mineral inventory will be left in place as pillars.

Figure 16.6 San Rafael Reserves - Mining Regions

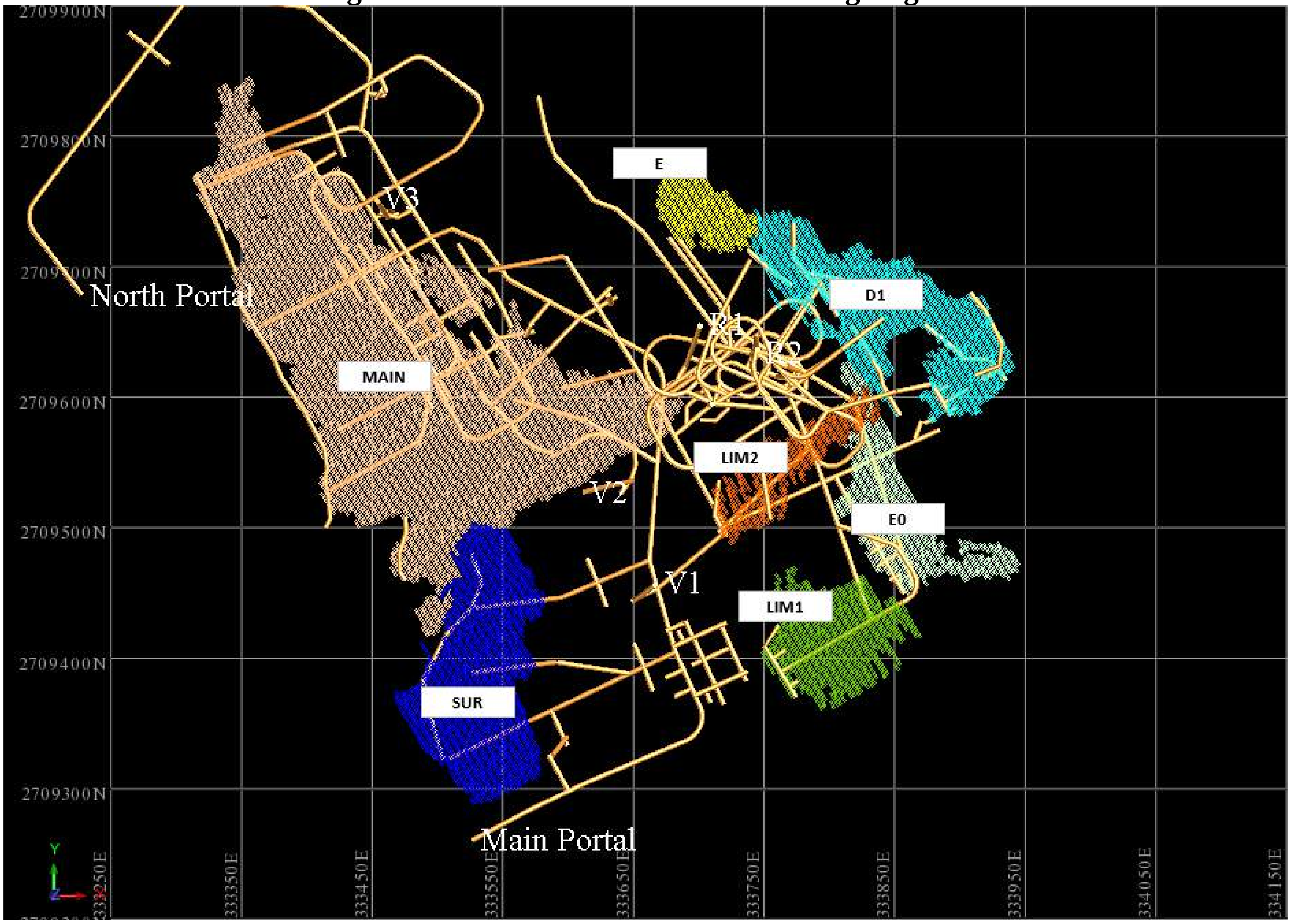


Table 16.2 San Rafael Mining Regions Used in Mine Schedule

Name	K Tonnes	Zn (%)	Pb (%)	Ag (gr/ton)
Main	2,337	4.79	2.08	64.68
Sur	508	4.74	1.97	64.95
D1	369	2.52	0.55	316.97
E0	153	3.97	1.30	33.55
Lim1	114	0.32	0.60	576.58
E	68	1.89	1.03	198.67
Lim2	45	0.51	0.56	218.21

Table 16.3 shows the development schedule. Most of the main access development occurs during the first 3 years. The progress of mine development is shown in Figure 16.7, Figure 16.8, Figure 16.9 and Figure 16.10. The production schedule defines 5.24 years of mine life, as shown in Table 16.4.

Table 16.3 Mine Development Schedule

Primary Development		Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
4.5m x 5.0m	Ramps	m	968	1,777	1,277	287	-	-	-	-	4,309
4.0m x 4.0m	Crosscuts	m	923	1,277	1,439	563	-	-	-	-	4,202
4.0m x 4.0m	Headings	m	176	286	758	344	-	-	-	-	1,563
	Total Primary	m	2,067	3,340	3,473	1,194	-	-	-	-	10,074
Infrastructure Development											
4.0m x 4.0m	Loading Stations	m	80	200	160	40	-	-	-	-	480
3.5m x 3.0m	Ventilation Drifts	m	85	155	46	13	-	-	-	-	299
4.0m x 4.0m	Shop	m	21	81	45	-	-	-	-	-	147
	Total Infrastructure	m	186	436	251	53	-	-	-	-	926
Raises											
3.0m Diam	Raise Bore	m	397	479	192	-	-	-	-	-	1,068
3.0m Diam	Conventional	m	80	172	96	-	-	-	-	-	348
	Total Raises	m	478	651	288	-	-	-	-	-	1,416

Table 16.4 Mine Production Schedule

	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
K Tonnes	44	511	643	643	642	604	142	-	3,229
g Ag/t	61.08	142.76	112.72	85.81	112.43	112.15	90.49	-	110.28
K Oz Ag	86	2,346	2,329	1,773	2,322	2,179	413	-	11,448
% Zn	4.26	3.92	3.87	4.44	4.07	4.81	4.93	-	4.26
K Lbs Zn	4,106	44,181	54,855	62,966	57,653	64,020	15,458	-	303,240
% Pb	2.01	1.81	1.78	1.77	1.53	2.04	1.88	-	1.79
K Lbs Pb	1,936	20,348	25,208	25,100	21,598	27,153	5,898	-	127,241

Figure 16.7 Mine Development – Month 6

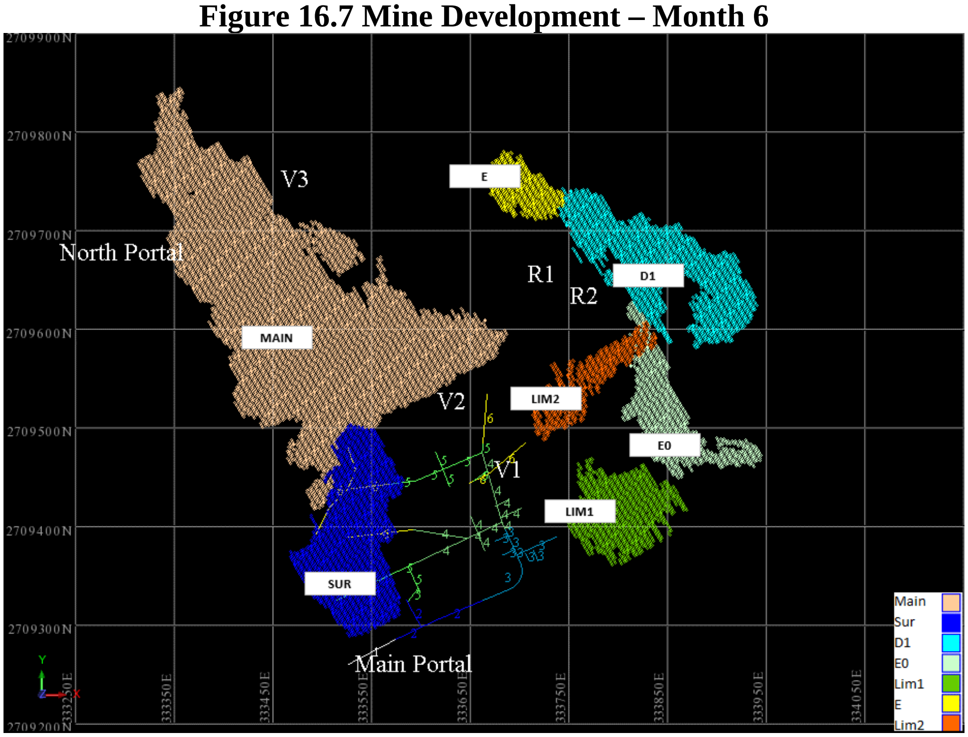


Figure 16.8 Mine Development – Month 12

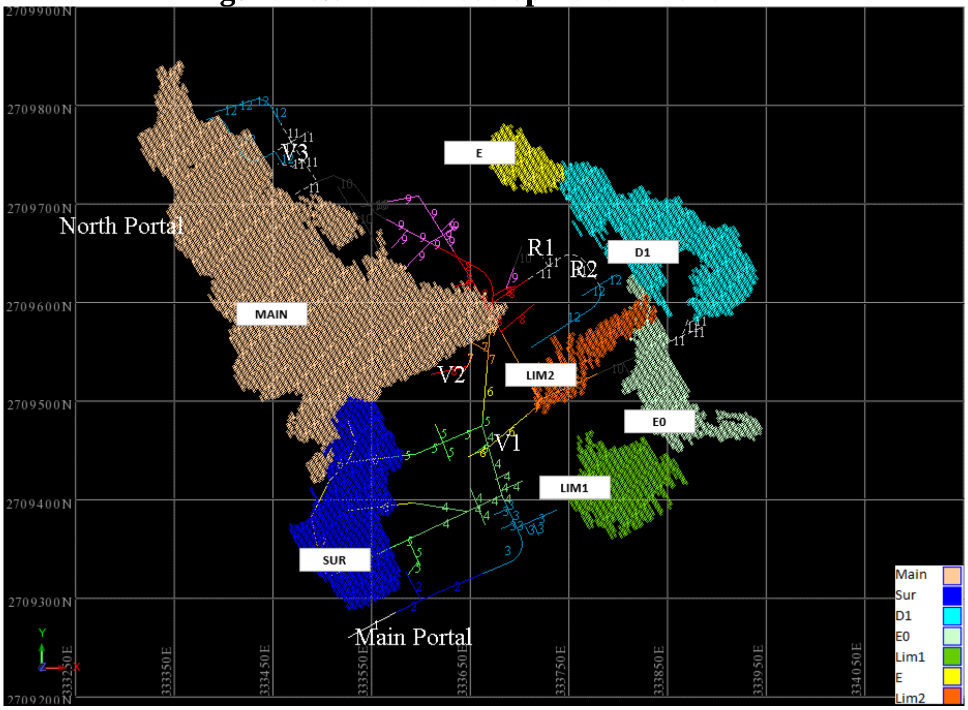


Figure 16.9 Mine Development – Month 24

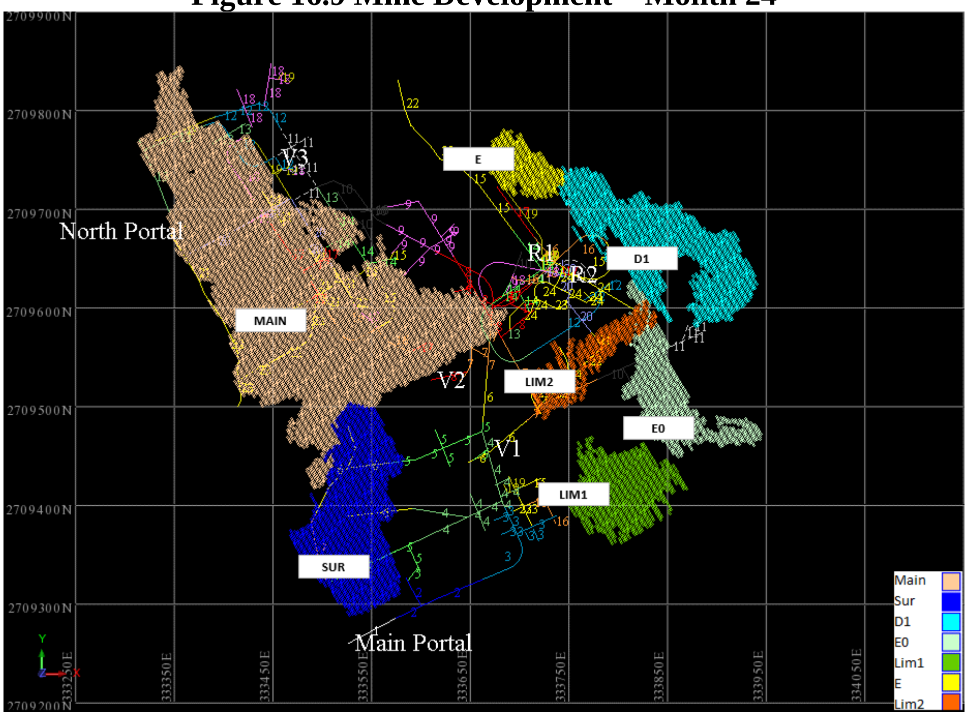
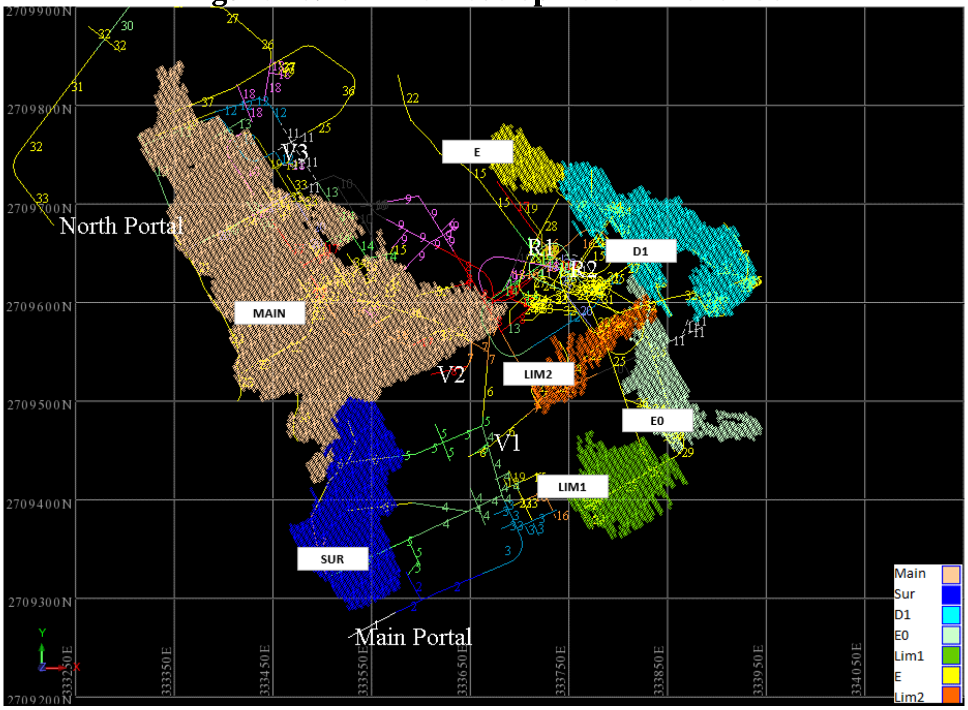


Figure 16.10 Mine Development – Month 36



16.5 Mine Equipment Requirements

Mobile equipment for mine development and production is summarized below in Table 16.5. Ore haulage from the production locations to the processing facilities will be done by mining contractors.

Table 16.5 Underground Mobile Equipment

Equipment	Units
Jumbo Mesh Bolter	2
Jumbo - 2 Boom (Prod & Dev)	4
Longhole Drill	1
30 ton Low Profile Truck	3
Grader	1
Backhoe (420 class)	2
6yd LHD	4
Scaler	2
Personnel Truck	1
Telehandler	3
Shotcrete equipment	2
Self-Loading Concrete Mixer	4
Light Vehicle	10

16.6 Manpower Requirements

Manpower requirements were estimated based on productivities obtained from Americas' active operation at the Nuestra Señora mine. To achieve full production, it is planned to work on two 10½-hour shifts per day with a 2-days on to 1-day off ratio, similar to Nuestra Señora. Manpower requirements for salaried personnel is shown in Table 16.6 and hourly personnel requirements is summarized in Table 16.7.

Table 16.6 Supervision and Technical Services Personnel

	Number of People	
Position	**Per shift**	**Total (Including rotation)**
Surpevision		
Mine Manager	1	1
Mine Superintendent	2	1
Mine Foreman	2	3
Subtotal	5	5
Engineering & Technical Services		
Mining Enginner	1	2
Geologist	1	2
Sampler	2	3
Surveyor	2	3
Surveyor Helper	2	3
Systems Analyst / IT	2	3
Ventilation Engineer	1	1
Geotechnical Engineer	1	1
Subtotal	12	18
Total Salaried Personnel	**17**	**23**

Table 16.7 Operations Personnel

	Number of People	
Position	**Per shift**	**Total (Including rotation)**
Maintenance		
Maintenance Superintendent	1	2
Maintenance Foreman	1	2
Maintenance Supervisor	2	3
Maintenance Planner	2	3
Mechanic	6	8
Electrician	1	2
Electrician Helper	1	2
Mechanic Helper	6	8
Subtotal	20	30
Mine Development		
Jumbo Operator	2	3
Jumbo Helper	2	3
Bolter Operator	1	3
Bolter Helper	1	3
LHD Operator	4	5
Utilities Vehicle Operator	2	3
Blast Foreman	2	3
Blast Helper	2	3
General Helper	6	8
Personnel Truck Driver	1	3
Shotcrete Operator	4	5
Shotcrete Helper	12	16
Electrician	2	3
Electrician Helper	2	3
Subtotal	43	64
Mine Production		
Jumbo Operator	2	3
Jumbo Helper	2	3
Bolter	2	3
Bolter Operator	2	3
LHD Operator	2	3
Utilities Operator	1	3
Blasting Foreman	2	3
Blasting Helper	2	3
General Helper	4	5
Lamp Room	2	3
Personnel Truck Driver	1	3
Subtotal	22	35
Total Mine Personnel	**85**	**129**

17.0 RECOVERY METHODS

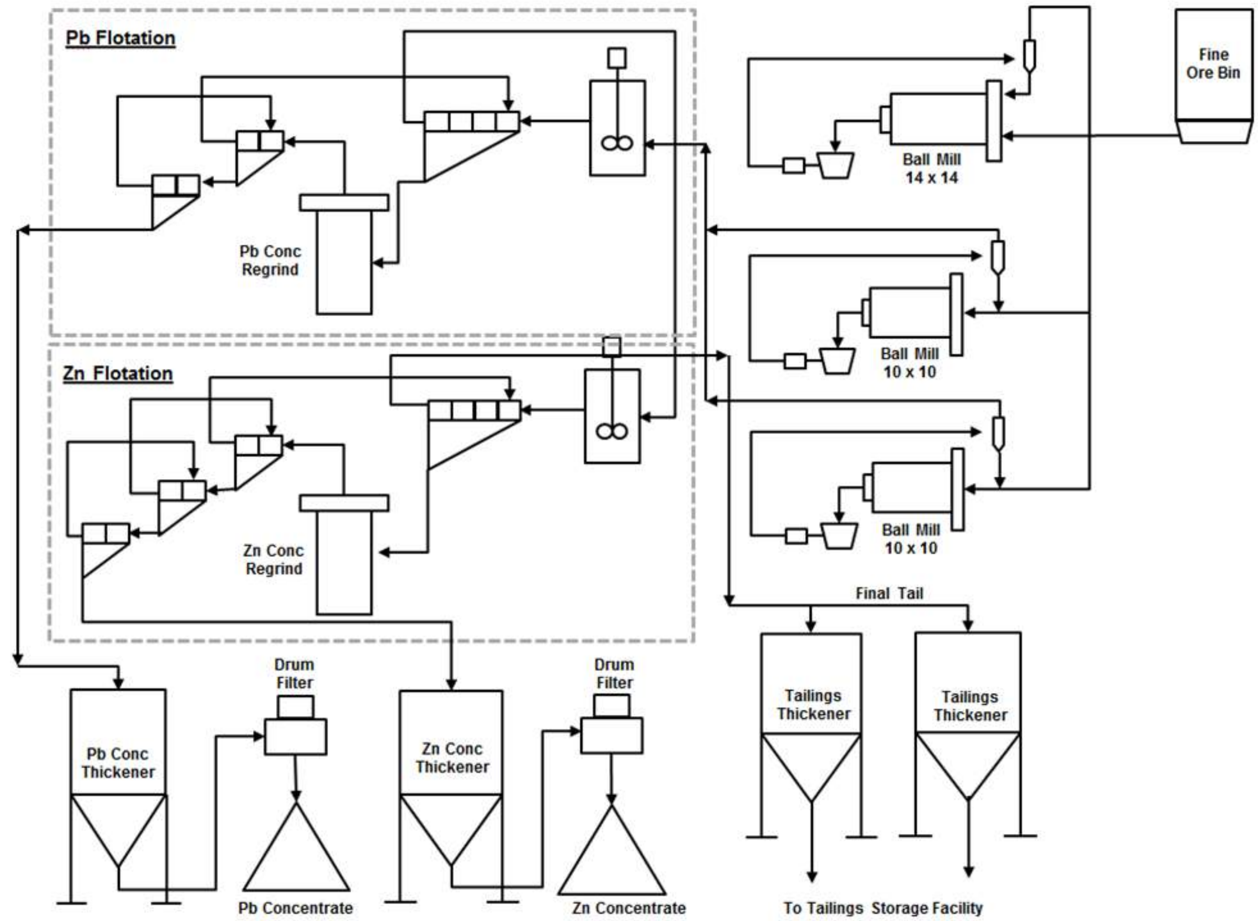
The San Rafael deposit encompasses several mineralized zones with differing mineralogical and metallurgical characteristics. This section is focused on the San Rafael Main Zone. Metallurgical testing has demonstrated that the Main Zone can yield zinc and lead concentrates using conventional flotation. Both concentrates contain silver as a by-product. Refer to Section 13.0 for key metallurgical parameters.

In 2004, Americas purchased the decommissioned San Manuel plant from Phelps Dodge in Arizona. After a few years of storage the concentrator was transported to Cosalá, where it was re- named the Los Braceros plant, and was commissioned and went into commercial production in early 2009. During 2014 the plant had a throughput of 536,336 tonnes; in 2015 the throughput was 506,148 tonnes. Availability during 2015 was 90.9%.

Since start-up, the metallurgical performance of the plant has undergone a continual process of improvement. These improvements have been achieved through the replacement of aging equipment components, on-line analytical controls, operational controls, and reagent optimization.

The Los Braceros process plant is a conventional polymetallic concentrator currently producing zinc, lead, and copper concentrates. It is currently treating ore from the Nuestra Señora mine at a nominal throughput of 1,500 tonnes per day. For the San Rafael ores, only lead and zinc concentrates will be produced with a design nominal daily throughput of 1,800 tonnes per day. The increased throughput will be possible following installation of a different primary ball mill (see below) and conversion of the two existing ball mills to secondary mills. Adequate capacity already exists in the flotation, dewatering and tailings handling circuits. The revised process flow diagram is illustrated below in Figure 17.1

Figure 17.1 Simplified San Rafael Flow Sheet



To process the San Rafael sulfide ore at 1,800 tonnes per day and a P_{80} of 106μm, additional grinding capacity is required and will be in the form of a 3.4 meter diameter, 4.3 meter long 1,119 kW ball mill. This mill will serve as the primary grinding mill and will discharge to the existing two ball mills currently serving as primary mills. The new grinding mill and much of the infrastructure exists at the plant site today, but remains to be installed and commissioned.

Key processing equipment includes:

- Three-stage crushing plant; 0.76 meter x 1.07 meter jaw crusher, 1.67 meter standard cone crusher, 1.67 meter shorthead cone crusher;
- 800 tonne fine ore bin;
- Primary ball mill: 3.4 meter x 4.3 meter, 1119 kW (new addition);
- Secondary grinding mills: Two each, 3.0 meter x 3.2 meter, 600 kW;
- Concentrate regrind mills; two vertical mills (new addition);
- Wemco 300ft^3 rougher cells (lead and zinc);
- Galigher Agitair 54C x 40 and Denver Sub-A cleaner cells (lead and zinc);

- Four each 2.44 meter diameter x 3.65 meter drum filters;
- Bins and hoppers;
- Related support equipment – tanks, pumps, blowers, feeders, and instrumentation; and
- Engineered tailing storage facility.

Electrical power for the plant is supplied from the national grid. Electrical consumption currently averages approximately 1.2 MWh per month, or 27.5 kWh/tonne processed. For the San Rafael operating scenario, it is estimated this figure will be increased to 28.5 kWh/tonne due to the requirement for concentrate regrinding prior to cleaning.

Of the total water used in the process plant, between 67% and 75% is recovered from the tailings thickeners and recirculation from the tailings storage facility. Fresh, make-up water is provided from operational dewatering of the Nuestra Señora mine and nearby wells.

For the processing of San Rafael ore the most important process inputs and relative consumptions are shown in Table 17.1.

Table 17.1 Anticipated Consumption of Reagents – San Rafael Ore

San Rafael Commodities & Consumption Estimate		
Crushing	Consumption	Units
Primary liners	0.66	sets/year
Secondary liners	2.63	sets/year
Tertiary liners	5.26	sets/year
Grinding		
Grinding media - primary	0.02	kg/kWh
Liners - primary	1.03	sets/year
Grinding media - secondary	0.02	kg/kWh
Liners - secondary	2.12	sets/year
Grinding media - Zn regrind	0.02	kg/kWh
Liners - Zn regrind	1.00	sets/year
Grinding media - Pb regrind	0.02	kg/kWh
Liners - Pb regrind	1.00	sets/year
Electrical Power		
Crushing	1.5	kWh/t
Primary grinding	9.1	kWh/t
Secondary grinding	9.4	kWh/t
Zn concentrate regrind	0.9	kWh/t
Pb concentrate regrind	0.5	kWh/t
Remainder of plant	7.0	kWh/t
Summary of power =	28.5	kWh/t
Reagents		
Lime	8.0	kg/t
Frother	30	g/t
Aerofloat 241	35	g/t
Aero 5100	15	g/t
Cyanide	115	g/t
Copper sulphate	510	g/t
Flocculant	22	g/t

18.0 PROJECT INFRASTRUCTURE

The San Rafael project is located approximately 15km northeast of the town of Cosalá in the state of Sinaloa, Mexico. As described in Section 4.1, the principal Pacific coast highway is located 55km to the west of Cosalá, and 18km farther west are a toll highway and the railway. The ports at Mazatlán, 160km southwest of Cosalá, Topolobampo (Los Mochis), 300km northwest, and Manzanillo, 870km southwest, are all capable of handling bulk materials as well as containers. Concentrate shipments from San Rafael are expecedd to be handled through Manzanillo.

Main access to the San Rafael mine will be via an existing road from the town of Cosalá. The road from Cosalá can accommodate standard highway vehicles and heavy equipment. Approximately 1.5km of road improvements are needed to upgrade the final section to the San Rafael main portal. Figure 18.1 shows the access road to the San Rafael mine.

Figure 18.1 Access to the San Rafael Mine

Mine office buildings, change rooms and emergency medical assistance buildings were previously constructed for the El Cajón project (see Figure 18.2). Additional support infrastructure, as well as the maintenance shop and a warehouse, will be installed underground at the San Rafael mine. Designated areas for the power generators, air compressors and fuel storage have been planned near the Main San Rafael portal area.

Waste material produced from underground excavation will be used for mine backfill; thus no permanent waste storage facilities are considered for San Rafael. Waste material produced in early stages of the mine will be stored in the El Cajón waste dump facility, which is located 0.5 km from the main San Rafael portal. This material will be hauled back to the San Rafael mine for backfill once the mine starts production.

Figure 18.2 View of Existing Infrastructure, San Rafael Project

Mineralized material will be processed at the Los Braceros process plant. All tailings will be stored in the existing tailings facility.

Portable diesel power generators will be used during construction of the portal and during the first 16 months of mining at San Rafael. To satisfy the electrical power demand at full production, Americas is planning to connect San Rafael to the national electric grid at the town of La Estancia, located 9 km south of the San Rafael main portal. Capital for constructing a powerline from La Estancia capable of handling the mine electrical requirements is included in this PFS.

Water for equipment use in the San Rafael mine will be collected from behind a small dam located in a nearby creek. The water will be pumped to a storage tank located above the main portal for distribution within the mine.

A fuel storage tank with a capacity of 12,500 liters will be installed near the main portal. The tank will be within a cement structure to contain spillage in the event of leakage from the tank. The containment structure will be equipped with oil-trap tanks to collect any spillage of fuel.

A security station will be built at the gate of the property. All surface facilities will be fenced.

The powder magazine will be built underground. The structure will have the capacity to store 41,600 kg of ANFO and 5,000 kg of emulsion, which is the estimated quantity for 300m of development and the production of 60,000 tonnes of ore per month.

Underground communications will be through a standard "leaky feeder" radio communication system. The system will be installed throughout the mine. Mine foremen and leadmen, mechanics, and other key personnel will be equipped with portable two-way radios to facilitate communication.

19.0 MARKET STUDIES AND CONTRACTS

Americas has been producing and selling concentrates from the Nuestra Señora mine since 2008. Over the years, buyers have included several of the major metal concentrate trading firms. The duration of sales contracts is typically for six or twelve months. Contracts are based upon standard industry terms adjusted for current market conditions in accordance with the characteristics of each product.

For the purpose of this study, it has been assumed that two concentrates (a lead-silver concentrate and a zinc-silver concentrate) will be delivered by truck to buyers located in Manzanillo, Mexico, at which point title will be transferred. Both concentrates are expected to be relatively clean and smelter penalties for impurities will be nominal based on metallurgical testing of San Rafael potential ore.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

Permitting requirements for the San Rafael project are described in Section 4.5. As an exploration project, rehabilitation of disturbed areas is regulated by Mexico's NOM-120-SEMARNAT-2011 as mentioned in Section 4.6. Water management is described in Section 16.0 and Section 17.0. The following information has been provided by Americas:

20.1 Environmental Studies

Americas' environmental management systems for the San Rafael project are under continual development. These systems include:

- Annual and quarterly reporting to SEMARNAT and PROFEPA (the policing, auditing, and inspection authority of SEMARNAT);
- Water quality monitoring at Arroyo Higuera Larga upstream and downstream from the El Cajón mine, as well as discharge at the mine portal;
- Hazardous waste control systems;
- Compliance with NOM 120-SEMARNAT-2011 regulations which dictate environmental protection and permitting requirements for exploration activities;
- Participation in PROFEPA's national Environmental Leadership Program; and
- Participation in PROFEPA's certified national Environmental Audit Program.

As part of the permitting process, Americas has completed archaeological surveys in operational and project areas, including the San Rafael-El Cajón area.

20.2 Community Relations

There are 11 communities in the vicinity of Americas' mining concessions, including the capital of the municipality, Cosalá. Americas is the major local employer. The majority of the Company's 227 local employees live in the municipality of Cosalá. There is also a small administrative office located in Mazatlán.

Americas has created the Social Assistance Committee of Minera Cosalá ("CASMIC") to support the local community. CASMIC is formed of a group of local community leaders that accepts requests, reviews those requests, and distributes assistance for initiatives that meet the basic needs of the Cosalá community, in accordance with the regulatory guidelines. CASMIC has been working since February 2, 2011, and is chaired by the Human Resources Manager of Minera Cosalá on behalf of Americas.

In the past, Americas has provided infrastructure projects (power, water, and communications) to local communities. Currently Americas is supporting various programs that promote education, local business development, road maintenance, and local communities (*ejidos*).

21.0 CAPITAL AND OPERATING COSTS

This section summarizes Capital and Operating costs for the San Rafael underground mine. Americas has extensive experience with underground mining at the nearby Nuestra Señora mine and processing at the Los Braceros plant. Most of these costs have been estimated using real world experience at Nuestra Señora and the Los Braceros plant.

Process capital and process operating costs have been estimated under the supervision of Mr. Randy Powell. Mining and other operating and capital costs have been estimated under the supervision of Mr. Thomas Dyer and MDA.

21.1 Operating Costs

Overall operating cost is estimated to be $42.69 per tonne of ore processed. All operating costs are based on an exchange rate of 17.0 Mexican Pesos to 1.0 US Dollar. Table 21.1 summarizes the overall cost per tonne. Note that this does not include smelting costs which are considered based on concentrate tonnages and recoveries (described in Section 21.2).

Table 21.1 Life of Mine Operating Costs

	K USD	$/t Processed
UG Mine Operations	$ 68,295	$ 21.15
Plant Operations	$ 44,125	$ 13.67
Technical Services	$ 5,819	$ 1.80
Safety & Environmental	$ 4,572	$ 1.42
Administration	$ 15,021	$ 4.65
Total Operating Cost	$ 137,833	$ 42.69

21.1.1 Mine Operating Costs

Mine operating costs have been estimated using a combination of first principle cost estimation and experience at Nuestra Señora. Equipment and personnel rates are well known due to ongoing production cost records at Nuestra Señora. Equipment and personnel hours have been estimated by production areas, including drilling, blasting, mucking, hauling, ground support, face cleaning, and definition drilling for the cut-and-fill mining method, and the rates have been provided accordingly.

General services, dewatering, mine administration, mine services, outside services, and other mine operating costs have been estimated as fixed costs. Table 21.2 shows the yearly estimated mine operating costs. Table 21.3 shows the resulting cost per tonne. The LOM estimated mining cost is $21.15 per tonne.

Mining costs are based on the assumption that electrical power will be supplied using Americas' two generators at the San Rafael site. The cost estimate assumes a diesel cost of $0.74 per liter.

Table 21.2 Yearly Mine Operating Cost Estimate

Mining Costs	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
Drilling	K USD	$ 56	$ 655	$ 824	$ 824	$ 824	$ 775	$ 182	$ -	$ 4,140
Blasting	K USD	$ 41	$ 481	$ 605	$ 605	$ 604	$ 568	$ 134	$ -	$ 3,038
Mucking	K USD	$ 105	$ 1,224	$ 1,539	$ 1,539	$ 1,539	$ 1,447	$ 340	$ -	$ 7,734
Hauling	K USD	$ 206	$ 2,405	$ 3,025	$ 3,025	$ 3,023	$ 2,843	$ 669	$ -	$ 15,195
Ground Support	K USD	$ 108	$ 1,267	$ 1,594	$ 1,594	$ 1,593	$ 1,498	$ 352	$ -	$ 8,006
General Services	K USD	$ 348	$ 1,041	$ 1,041	$ 1,041	$ 1,044	$ 1,041	$ 431	$ -	$ 5,986
Cleaning Face	K USD	$ 4	$ 42	$ 53	$ 53	$ 53	$ 50	$ 12	$ -	$ 266
Definition Drilling	K USD	$ 13	$ 153	$ 193	$ 193	$ 193	$ 181	$ 43	$ -	$ 969
Backfill	K USD	$ 214	$ 2,506	$ 3,152	$ 3,152	$ 3,150	$ 2,963	$ 697	$ -	$ 15,834
Dewatering	K USD	$ 58	$ 174	$ 174	$ 174	$ 174	$ 174	$ 72	$ -	$ 1,000
Mine Administration	K USD	$ 93	$ 279	$ 279	$ 279	$ 280	$ 279	$ 115	$ -	$ 1,604
Mine Services	K USD	$ 73	$ 219	$ 219	$ 219	$ 220	$ 219	$ 91	$ -	$ 1,262
Outside Services	K USD	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other	K USD	$ 44	$ 516	$ 649	$ 649	$ 649	$ 610	$ 144	$ -	$ 3,262
Total	K USD	$ 1,364	$ 10,964	$ 13,347	$ 13,347	$ 13,344	$ 12,650	$ 3,281	$ -	$ 68,295

Table 21.3 Yearly Mine Operating Cost Estimate (in $/t mined)

Mining Costs	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
Drilling	$/t	$ 1.28	$ 1.28	$ 1.28	$ 1.28	$ 1.28	$ 1.28	$ 1.28	$ -	$ 1.28
Blasting	$/t	$ 0.94	$ 0.94	$ 0.94	$ 0.94	$ 0.94	$ 0.94	$ 0.94	$ -	$ 0.94
Mucking	$/t	$ 2.40	$ 2.40	$ 2.40	$ 2.40	$ 2.40	$ 2.40	$ 2.40	$ -	$ 2.40
Hauling	$/t	$ 4.71	$ 4.71	$ 4.71	$ 4.71	$ 4.71	$ 4.71	$ 4.71	$ -	$ 4.71
Ground Support	$/t	$ 2.48	$ 2.48	$ 2.48	$ 2.48	$ 2.48	$ 2.48	$ 2.48	$ -	$ 2.48
General Services	$/t	$ 7.96	$ 2.04	$ 1.62	$ 1.62	$ 1.62	$ 1.72	$ 3.03	$ -	$ 1.85
Cleaning Face	$/t	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ -	$ 0.08
Definition Drilling	$/t	$ 0.30	$ 0.30	$ 0.30	$ 0.30	$ 0.30	$ 0.30	$ 0.30	$ -	$ 0.30
Backfill	$/t	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ -	$ 4.90
Dewatering	$/t	$ 1.33	$ 0.34	$ 0.27	$ 0.27	$ 0.27	$ 0.29	$ 0.51	$ -	$ 0.31
Mine Administration	$/t	$ 2.13	$ 0.55	$ 0.43	$ 0.43	$ 0.44	$ 0.46	$ 0.81	$ -	$ 0.50
Mine Services	$/t	$ 1.68	$ 0.43	$ 0.34	$ 0.34	$ 0.34	$ 0.36	$ 0.64	$ -	$ 0.39
Outside Services	$/t	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other	$/t	$ 1.01	$ 1.01	$ 1.01	$ 1.01	$ 1.01	$ 1.01	$ 1.01	$ -	$ 1.01
Total	$/t	$ 31.20	$ 21.45	$ 20.76	$ 20.77	$ 20.77	$ 20.93	$ 23.09	$ -	$ 21.15

21.1.2 Process Operating Costs

The process operating cost was calculated using a combination of first principle cost estimation and 2015 operating costs. Costs are summarized in Table 21.4. Consumptions of reagents, wear materials and energy were derived from 2015 metallurgical test data. A summary of consumables is provided in Section 17.0. The mill labor force includes all production, maintenance, laboratory, and supervisory personnel.

Table 21.4 Yearly Process Cost Estimate

Processing Costs	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
Labor	K USD	$ 52	$ 1,322	$ 1,591	$ 1,591	$ 1,590	$ 1,496	$ 352	$ -	$ 7,995
Crushing and Grinding	K USD	$ 36	$ 908	$ 1,093	$ 1,093	$ 1,092	$ 1,027	$ 242	$ -	$ 5,491
Electricity	K USD	$ 46	$ 1,162	$ 1,399	$ 1,399	$ 1,398	$ 1,315	$ 309	$ -	$ 7,026
Reagents	K USD	$ 73	$ 1,853	$ 2,232	$ 2,232	$ 2,230	$ 2,098	$ 493	$ -	$ 11,211
Other	K USD	$ 81	$ 2,050	$ 2,469	$ 2,469	$ 2,467	$ 2,321	$ 546	$ -	$ 12,402
Total Processing	K USD	$ 287	$ 7,294	$ 8,784	$ 8,783	$ 8,778	$ 8,257	$ 1,942	$ -	$ 44,125
Processing Costs per Tonne										
Labor	$/t	$ 2.48	$ 2.48	$ 2.48	$ 2.48	$ 2.48	$ 2.48	$ 2.48	$ -	$ 2.48
Crushing and Grinding	$/t	$ 1.70	$ 1.70	$ 1.70	$ 1.70	$ 1.70	$ 1.70	$ 1.70	$ -	$ 1.70
Electricity	$/t	$ 2.18	$ 2.18	$ 2.18	$ 2.18	$ 2.18	$ 2.18	$ 2.18	$ -	$ 2.18
Reagents	$/t	$ 3.47	$ 3.47	$ 3.47	$ 3.47	$ 3.47	$ 3.47	$ 3.47	$ -	$ 3.47
Other	$/t	$ 3.84	$ 3.84	$ 3.84	$ 3.84	$ 3.84	$ 3.84	$ 3.84	$ -	$ 3.84
Total Processing	$/t	$ 13.67	$ 13.67	$ 13.67	$ 13.67	$ 13.67	$ 13.67	$ 13.67	$ -	$ 13.67

Concentrate realization costs have been estimated for San Rafael zinc and lead concentrates. The estimate is based on Americas' long term market view for concentrates like those from San Rafael. They include: treatment, price participation, transportation, penalties, and silver refining. The resulting yearly smelting cost estimates are shown in Table 21.5

Table 21.5 Smelting Cost Estimates

Zinc Concentrate	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
Tonnage	t	1,481	33,884	40,176	46,116	42,225	46,887	11,322	-	222,090
Treatment	K USD	$ 237	$ 5,421	$ 6,428	$ 7,379	$ 6,756	$ 7,502	$ 1,811	$ -	$ 35,534
Price Participation	K USD	$ (6)	$ (128)	$ (152)	$ (174)	$ (160)	$ (177)	$ (43)	$ -	$ (840)
Land Transport	K USD	$ 68	$ 1,548	$ 1,835	$ 2,106	$ 1,929	$ 2,142	$ 517	$ -	$ 10,144
Sea Port Cost	K USD	$ 15	$ 339	$ 402	$ 461	$ 422	$ 469	$ 113	$ -	$ 2,221
Sea Freight	K USD	$ 52	$ 1,186	$ 1,406	$ 1,614	$ 1,478	$ 1,641	$ 396	$ -	$ 7,773
Penalties	K USD	$ 12	$ 271	$ 321	$ 369	$ 338	$ 375	$ 91	$ -	$ 1,777
Refining - Ag in Zn Con	K USD	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Zinc Smelting Costs	K USD	$ 378	$ 8,637	$ 10,240	$ 11,755	$ 10,763	$ 11,951	$ 2,886	$ -	$ 56,609
Lead Concentrate										
Tonnage	t	635	14,224	16,810	16,738	14,403	18,107	3,933	-	84,849
Treatment	K USD	$ 133	$ 2,987	$ 3,530	$ 3,515	$ 3,025	$ 3,802	$ 826	$ -	$ 17,818
Price Participation	K USD	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land Transport	K USD	$ 29	$ 650	$ 768	$ 764	$ 658	$ 827	$ 180	$ -	$ 3,875
Sea Port Cost	K USD	$ 6	$ 142	$ 168	$ 167	$ 144	$ 181	$ 39	$ -	$ 848
Sea Freight	K USD	$ 22	$ 498	$ 588	$ 586	$ 504	$ 634	$ 138	$ -	$ 2,970
Penalties	K USD	$ 7	$ 156	$ 185	$ 184	$ 158	$ 199	$ 43	$ -	$ 933
Refining - Ag in Pb Con	K USD	$ 18	$ 1,008	$ 981	$ 745	$ 983	$ 922	$ 174	$ -	$ 4,831
Total Lead Smelting Costs	K USD	$ 216	$ 5,441	$ 6,220	$ 5,962	$ 5,472	$ 6,565	$ 1,400	$ -	$ 31,276

21.2 Other Operating Costs

Other operating costs include Technical Services, Safety and Security, and General and Administration. The estimated costs are shown in Table 21.6. These costs are based on current operating experience at Nuestra Señora.

Table 21.6 Other Operating Costs by Year

	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
Technical Services	K USD	$ 73	$ 864	$ 1,105	$ 1,105	$ 1,108	$ 1,105	$ 457	$ -	$ 5,819
Safety & Security	K USD	$ 58	$ 679	$ 868	$ 868	$ 871	$ 868	$ 359	$ -	$ 4,572
Administration	K USD	$ 189	$ 2,231	$ 2,853	$ 2,853	$ 2,861	$ 2,853	$ 1,180	$ -	$ 15,021
Total G&A	K USD	$ 320	$ 3,775	$ 4,827	$ 4,827	$ 4,840	$ 4,827	$ 1,997	$ -	$ 25,412
Technical Services	$/t	$ 3.49	$ 1.62	$ 1.72	$ 1.72	$ 1.73	$ 1.83	$ 3.22	$ -	$ 1.80
Safety & Security	$/t	$ 2.74	$ 1.27	$ 1.35	$ 1.35	$ 1.36	$ 1.44	$ 2.53	$ -	$ 1.42
Administration	$/t	$ 9.01	$ 4.18	$ 4.44	$ 4.44	$ 4.45	$ 4.72	$ 8.31	$ -	$ 4.65
Total G&A	$/t	$ 15.24	$ 7.07	$ 7.51	$ 7.51	$ 7.53	$ 7.99	$ 14.05	$ -	$ 7.87

21.3 Capital Costs

Mining and other capital costs have been estimated under the supervision of Mr. Thomas Dyer of MDA. Process capital has been estimated under the supervision of Mr. Randy Powell. Table 21.7shows the overall, LOM capital estimate. Where components have been estimated based on Mexican Pesos, an exchange rate of 17.0 Mexican Pesos per 1.0 US Dollar has been used.

Table 21.7 Initial and Sustaining Capital Costs

	Units	Initial	Sustaining	Total LOM
Mine Development	K USD	$ 6,072	$ 20,704	$ 26,776
UG Mining Capital	K USD	$ 7,855	$ 14,678	$ 22,533
Process Capital	K USD	$ 2,011	$ 1,777	$ 3,788
Other	K USD	$ 340	$ 1,883	$ 2,223
Contingency 10%	K USD	$ 1,021	$ 370	$ 1,391
Working Capital	K USD	$ 4,154	$ (4,154)	$ -
Total Capital	K USD	$ 21,452	$ 35,259	$ 56,711

21.3.1 Mining Capital

Mining capital estimates include mobile equipment, maintenance equipment and major rebuild costs, ventilation and infrastructure, and other supporting and development capital. Cost estimates have been provided by Americas based on contractor and vendor quotations. Yearly estimated mining capital is shown in Table 21.8.

Table 21.8 Yearly Estimated Mining Capital

Mining Capital	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
Mine Mobile Equipment	K USD	$ 3,950	$ 3,690	$ 2,400	$ 1,400	$ -	$ -	$ -	$ -	$ 11,440
Maintenance - Equipment & Capital Rebuild	K USD	$ 125	$ 125	$ 70	$ 152	$ 484	$ 805	$ -	$ -	$ 1,760
Ventilation	K USD	$ 1,165	$ 1,102	$ 96	$ 96	$ 81	$ 67	$ 11	$ -	$ 2,618
Infrastructure	K USD	$ 1,811	$ 440	$ 80	$ 200	$ 80	$ -	$ -	$ -	$ 2,610
Development	K USD	$ 6,072	$ 9,661	$ 8,474	$ 2,569	$ -	$ -	$ -	$ -	$ 26,776
Electrical	K USD	$ 355	$ 1,638	$ 115	$ 350	$ 130	$ 30	$ 20	$ -	$ 2,638
Compressed Air	K USD	$ 80	$ 80	$ 80	$ -	$ -	$ -	$ -	$ -	$ 240
Dewatering	K USD	$ 258	$ 239	$ 108	$ 75	$ 159	$ 122	$ 116	$ -	$ 1,076
Miscellaneous	K USD	$ 112	$ 11	$ 6	$ 6	$ 6	$ 6	$ 6	$ -	$ 151
Total Mining Capital	K USD	$ 13,927	$ 16,986	$ 11,429	$ 4,847	$ 939	$ 1,029	$ 152	$ -	$ 49,309

Development costs have been estimated as cost per meter based on contractor quotations and Americas' experience at Nuestra Señora. Cost per meter used is based on development size and types as follows:

- 4.0m x 4.0m crosscuts, headings, loading stations, and shop at a cost of $2,038/m;
- 4.5m x 5.0m main ramps at a cost of $2,314/m;
- 3.5m x 3.0m ventilation drifts at a cost of $1,781/m;
- 4.0m-diameter ventilation raises (boreholes) $3,151/m; and
- 2.0m-diameter ventilation / ore passes raises (conventional) $935/m.

Note that the development unit costs include a 10% contingency. Table 21.9 summarizes the development capital costs.

Table 21.9 Yearly Underground Development Capital

Primary Development		Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
4.0m x 4.0m	Crosscuts	K USD	$ 1,845	$ 2,555	$ 2,878	$ 1,126	$ -	$ -	$ -	$ -	$ 8,404
4.0m x 4.0m	Headings	K USD	$ 351	$ 571	$ 1,515	$ 689	$ -	$ -	$ -	$ -	$ 3,126
4.5m x 5.0m	Ramps	K USD	$ 2,199	$ 4,036	$ 2,899	$ 651	$ -	$ -	$ -	$ -	$ 9,787
	Total Primary	K USD	$ 4,396	$ 7,162	$ 7,293	$ 2,466	$ -	$ -	$ -	$ -	$ 21,317
Infrastructure Development											
4.0m x 4.0m	Loading Stations	K USD	$ 160	$ 400	$ 320	$ 80	$ -	$ -	$ -	$ -	$ 960
3.5m x 3.0m	Ventilation Drifts	K USD	$ 148	$ 271	$ 80	$ 23	$ -	$ -	$ -	$ -	$ 522
4.0m x 4.0m	Shop	K USD	$ 43	$ 162	$ 90	$ -	$ -	$ -	$ -	$ -	$ 294
	Total Infrastructure	K USD	$ 351	$ 833	$ 490	$ 103	$ -	$ -	$ -	$ -	$ 1,776
Raises											
4.0m Diam	Raise Bore	K USD	$ 1,252	$ 1,509	$ 605	$ -	$ -	$ -	$ -	$ -	$ 3,366
2.0m Diam	Conventional	K USD	$ 73	$ 157	$ 87	$ -	$ -	$ -	$ -	$ -	$ 318
	Total Raises	K USD	$ 1,325	$ 1,666	$ 692	$ -	$ -	$ -	$ -	$ -	$ 3,683
	Total Development Cost	K USD	$ 6,072	$ 9,661	$ 8,474	$ 2,569	$ -	$ -	$ -	$ -	$ 26,776

21.3.2 Process Capital

The process capital cost was calculated using vendor quotations obtained by Americas. Capital items included:

- Lime slaking system (20 t/d) and distribution;
- Cyanide storage, mixing and distribution;
- New mill feed conveyor;
- Installation of 3.65m x 4.26m diameter ball mill; and
- Two concentrate regrind mills

The total estimated initial capital cost was estimated at $2,025,000; sustaining capital was estimated to be $1,807,000 including mill expansion in year 1 and tailings expansions in Year 2 and Year 4. The yearly estimated process capital is shown in Table 21.10.

Table 21.10 Estimated Process Capital Costs

Mill / Process Capital	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
Ball Mill Installation	K USD	$ -	$ 1,478	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,478
Mill Feed Conveyor	K USD	$ -	$ 105	$ -	$ -	$ -	$ -	$ -	$ -	$ 105
Regrind	K USD	$ 1,591	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,591
Cyanide Distribution/Mixing System	K USD	$ 75	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 75
Lime Slaker	K USD	$ 249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 249
Tailing dam	K USD	$ 97	$ -	$ 97	$ -	$ 97	$ -	$ -	$ -	$ 291
Total Process Capital	K USD	$ 2,011	$ 1,583	$ 97	$ -	$ 97	$ -	$ -	$ -	$ 3,788

21.3.3 Other Capital Costs

Other capital costs include environmental closure, exploration to increase definition for reserves, safety and security, and administration capital. These costs are shown in Table 21.11 based on estimates provided by Americas for their operations and reviewed by MDA.

Table 21.11 Estimated Other Capital Costs

	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
Environmental Closure	K USD	$ -	$ -	$ -	$ -	$ -	$ -	$ 293	$ -	$ 293
Exploration	K USD	$ 100	$ 200	$ 200	$ 200	$ 200	$ 200	$ 100	$ -	$ 1,200
Safety & Security	K USD	$ 240	$ 250	$ 170	$ 70	$ -	$ -	$ -	$ -	$ 730
Administration	K USD	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Other Capital	K USD	$ 340	$ 450	$ 370	$ 270	$ 200	$ 200	$ 393	$ -	$ 2,223

In addition to the other capital shown in Table 21.11, contingency and working capital has been added. Contingency is based on 10% of the equipment capital, process capital, and other cost during the initial construction through month 14 of the project. Total LOM contingency is $1,391,000 shown in Table 22.2. Note that in addition to the contingency shown; approximately $2.7 million of additional contingency has been included in development cost.

Working capital has been estimated as the first 3 months of operating costs for the project. The working capital is returned to the project in year 6 after mining has ceased.

22.0 ECONOMIC ANALYSIS

MDA has estimated yearly cash flows based on the San Rafael production schedule, operating and capital costs, and tax handling. The economic analysis assesses the internal rate of return ("IRR") and net present values ("NPVs") at 5%, 8%, and 10%. The economic analysis assumes:

- Metal prices of $16.00 per ounce silver, $0.85 per pound zinc, and $0.85 per pound lead;
- All ore is to be processed through the Los Braceros process plant;
- NPV discounting is done using 5%, 8%, and 10% annual rates for sensitivity;
- A 7.5% special mining duty tax is included;
- Only Proven and Probable reserves are used to generate revenue estimates.
- A 17.0MXP:1USD exchange rate has been selected for this evaluation.
- The economic analysis is pre-tax.

The San Rafael project cash flow model assumes mining the Proven and Probable reserves to completion and assumes that the plant would be shut down at the end of mine life. The economic model's physicals are shown in Table 22.1, which describes the material processed and resulting revenues. The economic model cash flow is shown in Table 22.2.

The economic model estimates $239.2 million in revenue will be generated after deduction of concentrate realization costs. Operating costs are estimated to be $137.8 million, and capital is estimated to be $56.7 million. The LOM cash flow for San Rafael is estimated to be $37.1 million before tax, showing that the reserves are economically viable and meet the definition of Proven and Probable reserves.

At 5%, the six- year net present value is estimated to be $24.7 million before tax. The before-tax payback period is 3.4 years and provides a 27% IRR.

MDA has completed the economic analysis pre-tax at the request of Americas Silver. Americas has tax credits available which would be used to reduce cash taxes payable at San Rafael. These credits can not be applied against the 7.5% special mining duty so that burden is included in the analysis.

Table 22.1 San Rafael Pre-Feasibility Economic Model Physicals

	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
UG Ore Mined	K Tonnes	44	511	643	643	642	604	142	-	3,229
Stockpile Rehandle	K Tonnes	6	41	-	-	-	-	-	-	47
Total Material Moved	K Tonnes	50	552	643	643	642	604	142	-	3,276
Development										
Primary Development	m	2,067	3,340	3,473	1,194	-	-	-	-	10,074
Secondary Development	m	186	436	251	53	-	-	-	-	926
Vertical Raises	m	478	651	288	-	-	-	-	-	1,416
Total Development	m	2,731	4,427	4,012	1,247	-	-	-	-	12,416
Processing										
Material to Plant	Tonnes	21	534	643	643	642	604	142	-	3,229
	g Ag/t	63.34	139.20	112.72	85.81	112.43	112.15	90.49	-	110.28
	K Oz Ag	43	2,389	2,329	1,773	2,322	2,179	413	-	11,448
	% Zn	4.37	3.93	3.87	4.44	4.07	4.81	4.93	-	4.26
	K Lbs Zn	2,022	46,264	54,855	62,966	57,653	64,020	15,458	-	303,240
	% Pb	2.06	1.81	1.78	1.77	1.53	2.04	1.88	-	1.79
	K Lbs Pb	953	21,330	25,208	25,100	21,598	27,153	5,898	-	127,240
Net Smelter Return										
Recovered Ag in Concentrates	Oz Ag	20	1,137	1,109	844	1,105	1,037	197	-	5,449
Payable Metal - Ag	K Oz Ag	14	900	861	622	857	789	144	-	4,188
Payable Metal - Zn	K Lbs Zn	1,433	32,794	38,883	44,632	40,866	45,379	10,957	-	214,945
Payable Metal - Pb	K Lbs Pb	685	15,334	18,121	18,044	15,527	19,520	4,240	-	91,471
Payable Equivalent Silver	K Oz Ag	126	3,457	3,890	3,952	3,853	4,237	951	-	20,467
Gross Revenue - Ag	K USD	$ 223	$ 14,405	$ 13,782	$ 9,954	$ 13,718	$ 12,628	$ 2,306	$ -	$ 67,016
Gross Revenue - Zn	K USD	$ 1,218	$ 27,875	$ 33,051	$ 37,938	$ 34,736	$ 38,572	$ 9,314	$ -	$ 182,704
Gross Revenue - Pb	K USD	$ 582	$ 13,034	$ 15,403	$ 15,337	$ 13,198	$ 16,592	$ 3,604	$ -	$ 77,750
Total Gross Revenue	K USD	$ 2,024	$ 55,313	$ 62,236	$ 63,229	$ 61,652	$ 67,792	$ 15,223	$ -	$ 327,469
Shipping, Smelting, and Refining										
Ag	K USD	$ 18	$ 1,008	$ 981	$ 745	$ 983	$ 922	$ 174	$ -	$ 4,831
Smelter Treatment - ZnAg Con	K USD	$ 378	$ 8,637	$ 10,240	$ 11,755	$ 10,763	$ 11,951	$ 2,886	$ -	$ 56,609
Smelter Treatment - PbAg Con	K USD	$ 198	$ 4,433	$ 5,239	$ 5,217	$ 4,489	$ 5,643	$ 1,226	$ -	$ 26,445
Total Offsite Costs	K USD	$ 593	$ 14,078	$ 16,460	$ 17,717	$ 16,234	$ 18,517	$ 4,286	$ -	$ 87,885
Net Smelter Return	K USD	$ 1,430	$ 41,235	$ 45,776	$ 45,513	$ 45,418	$ 49,275	$ 10,938	$ -	$ 239,584
Royalty - NSR Environmental (0.5%)	K USD	$ 1	$ 72	$ 69	$ 50	$ 69	$ 63	$ 12	$ -	$ 335
Net Revenues	K USD	$ 1,429	$ 41,163	$ 45,707	$ 45,463	$ 45,349	$ 49,212	$ 10,926	$ -	$ 239,249

Table 22.2 Economic Model Cash Flow

Operating Costs	Units	Pre-Prod	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Total
UG Mine Operations	K USD	$ 1,364	$ 10,964	$ 13,347	$ 13,347	$ 13,344	$ 12,650	$ 3,281	$ -	$ 68,295
Mine Development - Expensed	K USD	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Plant Operations	K USD	$ 287	$ 7,294	$ 8,784	$ 8,783	$ 8,778	$ 8,257	$ 1,942	$ -	$ 44,125
Technical Services	K USD	$ 73	$ 864	$ 1,105	$ 1,105	$ 1,108	$ 1,105	$ 457	$ -	$ 5,819
Safety & Environment	K USD	$ 58	$ 679	$ 868	$ 868	$ 871	$ 868	$ 359	$ -	$ 4,572
Administration	K USD	$ 189	$ 2,231	$ 2,853	$ 2,853	$ 2,861	$ 2,853	$ 1,180	$ -	$ 15,021
Closure	K USD	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs	K USD	$ 1,971	$ 22,033	$ 26,958	$ 26,957	$ 26,963	$ 25,734	$ 7,219	$ -	$137,833
Capital Costs										
Mine Development	K USD	$ 6,072	$ 9,661	$ 8,474	$ 2,569	$ -	$ -	$ -	$ -	$ 26,776
UG Mining Capital	K USD	$ 7,855	$ 7,325	$ 2,954	$ 2,278	$ 939	$ 1,029	$ 152	$ -	$ 22,533
Process Capital	K USD	$ 2,011	$ 1,583	$ 97	$ -	$ 97	$ -	$ -	$ -	$ 3,788
Other	K USD	$ 340	$ 450	$ 370	$ 270	$ 200	$ 200	$ 393	$ -	$ 2,223
Contingency 10%	K USD	$ 1,021	$ 370	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,391
Working Capital	K USD	$ 4,154	$ -	$ -	$ -	$ -	$ -	$ (4,154)	$ -	$ -
Total Capital	K USD	$ 21,452	$ 19,389	$ 11,896	$ 5,117	$ 1,236	$ 1,229	$ (3,609)	$ -	$ 56,711
Special Mining Duty Tax (7.5%)	K USD		$ 1,435	$ 1,406	$ 1,388	$ 1,379	$ 1,761	$ 278	$ -	$ 7,647
Total Cost	K USD	$ 23,423	$ 42,857	$ 40,260	$ 33,462	$ 29,578	$ 28,724	$ 3,889	$ -	$202,191
Net Operating Cash Flow	K USD	$ (541)	$ 19,130	$ 18,749	$ 18,506	$ 18,387	$ 23,479	$ 3,707	$ -	$ 101,416
Total Pre-Tax Cash Flow	K USD	$ (21,993)	$ (1,694)	$ 5,447	$ 12,001	$ 15,772	$ 20,488	$ 7,037	$ -	$ 37,058
Cumulative Pre-Tax Cash Flow	KUSD	$ (21,993)	$ (23,687)	$ (18,240)	$ (6,239)	$ 9,533	$ 30,021	$ 37,058	$ -	

Pre-Tax Economic Results

IRR	27%	
NPV At 5%	$24,744	K USD
NPV At 8%	$19,080	K USD
NPV At 10%	$15,865	K USD
Payback Period	3.4	Years
Cash cost per Equivalent Ounce Silver	$ 6.73	$/oz AgEq
Total cost per Equivalent Ounce Silver	$ 9.88	$/oz AgEq
All-In Sustaining Cost per Ounce of Silver	$ (0.19)	$/oz Ag

22.1.1 Sensitivity Analysis

Economic model sensitivity to equivalent silver price, operating cost, or capital costs was evaluated for the San Rafael project. Silver price was adjusted from $14.00 per ounce to $18.00 per ounce in $0.50 increments. Costs were adjusted using a change in values of -30% to +30% in increments of 10%. Table 22.3 shows the sensitivity analysis results, and Figure 22.1 shows graphs illustrating the sensitivity. Based on the slope of the graph, the project is most sensitive to metal prices, while it is much less sensitive to operating costs.

Table 22.3 Results of San Rafael Sensitivity Analyses

Pre-Tax Sensitivity - Equivalent Silver Price

	IRR	NPV At 5%	NPV At 8%	Payback
$ 14.00	0%	$ (5,006)	$ (7,465)	NA
$ 14.50	7%	$ 2,432	$ (829)	4.7
$ 15.00	14%	$ 9,869	$ 5,808	4.2
$ 15.50	20%	$ 17,307	$ 12,444	3.8
$ 16.00	27%	$ 24,744	$ 19,080	3.4
$ 16.50	33%	$ 32,181	$ 25,717	3.1
$ 17.00	40%	$ 39,619	$ 32,353	2.7
$ 17.50	46%	$ 46,807	$ 38,767	2.5
$ 18.00	52%	$ 53,950	$ 45,142	2.3

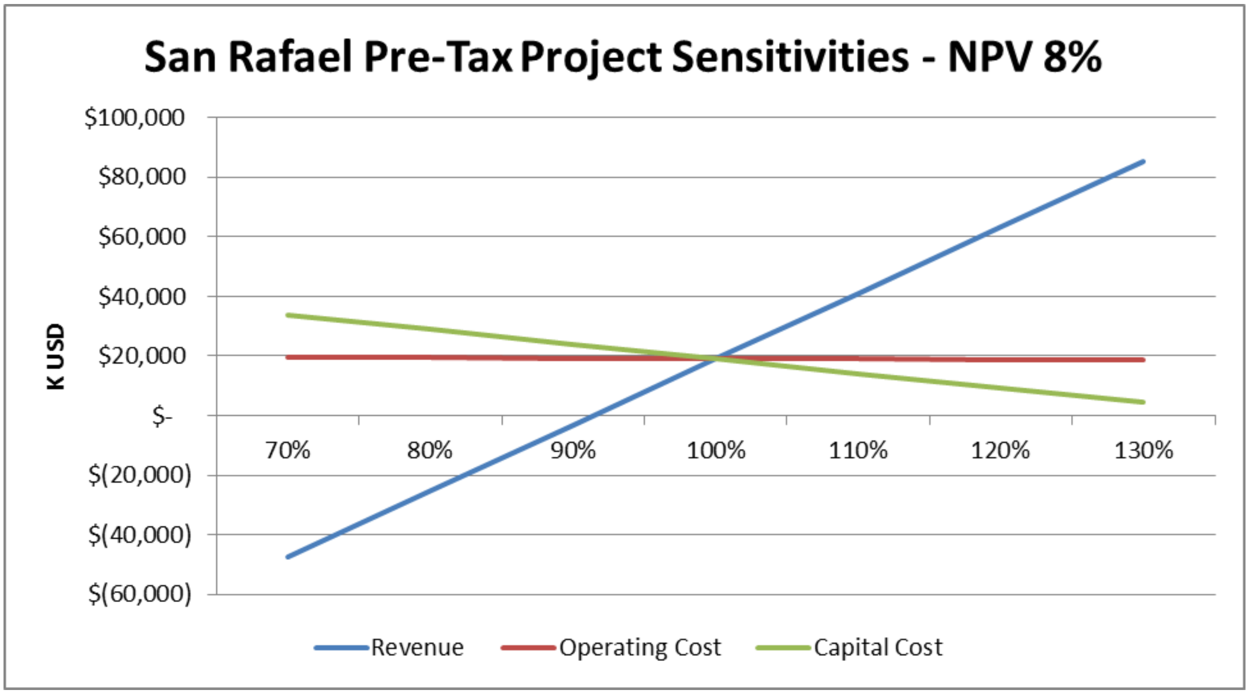
Pre-Tax Sensitivity - Operating Costs

	IRR	NPV At 5%	NPV At 8%	Payback
70%	28%	$ 25,045	$ 19,507	3.3
80%	28%	$ 24,945	$ 19,365	3.3
90%	27%	$ 24,844	$ 19,222	3.4
100%	27%	$ 24,744	$ 19,080	3.4
110%	26%	$ 24,644	$ 18,938	3.4
120%	26%	$ 24,543	$ 18,796	3.4
130%	25%	$ 24,443	$ 18,653	3.5

Pre-Tax Sensitivity - Capital Costs

	IRR	NPV At 5%	NPV At 8%	Payback
70%	55%	$ 40,291	$ 33,840	2.2
80%	43%	$ 35,109	$ 28,920	2.6
90%	34%	$ 29,926	$ 24,000	3.0
100%	27%	$ 24,744	$ 19,080	3.4
110%	21%	$ 19,562	$ 14,160	3.8
120%	16%	$ 14,379	$ 9,240	4.1
130%	11%	$ 9,197	$ 4,320	4.4

Figure 22.1 San Rafael Sensitivity Analysis



23.0 ADJACENT PROPERTIES

The San Rafael deposit is 0.5km northeast of the producing Silvia Maria mine, which has been exploited since 2011 by Minera Tapacoya, a private Mexican company. Material is shipped from the Silvia Maria mine to the 450tpd process plant in the town of Cosalá on an irregular basis. However, production details are not publicly available.

Minera Tapacoya also controls the Magistral 2 concession approximately 6km SE of the San Rafael deposit through a lease agreement. Minera Tapacoya is performing preliminary work to bring a small copper-silver skarn deposit within that concession into production.

Otherwise, MDA has no information on the concessions owned by other parties that lie within or adjacent to Americas property boundaries.

24.0 OTHER RELEVANT DATA AND INFORMATION

MDA is not aware of any other data or information that is relevant to the mineral resource estimates, reserve calculation, or preliminary feasibility study described in this report.

25.0 INTERPRETATION AND CONCLUSIONS

There is potential, primarily to the northwest, for increasing the size of the San Rafael deposit Main Zone massive sulfide mineralization. The Zone 120 at depth beneath the Main Zone is still open to the east and northeast while the Upper Zone could be expanded with further drilling to the south. There are also additional showings of Zn-Pb-Ag mineralization in the immediate vicinity around San Rafael which warrant further exploration work.

Testing conducted on the San Rafael Main Zone sulfide mineralization type has shown this ore type can be processed using a sequential flotation process to produce separate lead-silver concentrate and zinc-silver concentrate products. Further testing is required on the Main/120 Overlap Zone and the Zone 120 mineralization.

The economic analysis for San Rafael shows a positive pre-tax return of 27% and $24.7 million NPV (5%). This shows that San Rafael is a project of merit based on the metal prices used.

26.0 RECOMMENDATIONS

The San Rafael Pre-Feasibility study represents a complete technical report and produces a positive cash flow. However, it is recommended that work continue to complete a Feasibility study for this deposit to enhance the detail of certain aspects. The identified additional work is expected to cost $95,000 and should include:

- A revised geotechnical study;
- Completion of a hydrological model;
- Detailed ventilation design;
- Infrastructure construction plans;
- Detailed confirmation of the mine design; and
- Detailed closure plan.

Preliminary studies have been completed and shall be used to identify potential gaps that will provide a starting point for the proposed work.

The resource estimation has held up to several examinations indicating its validity. Additional exploration drilling is recommended with the goal of expanding the current resource/reserves. In particular, an expenditure of $400,000 over 2.5 years is recommended with the goal of advancing nearby Zn-Pb-Ag showings in the immediate area.

27.0 REFERENCES

Armbrust, G. A., and Chlumsky, G. F., 2006 (May 23), *Technical review La Verde project, Sinaloa, Mexico*: Report prepared by Chlumsky, Armbrust and Meyer LLC for BMO Nesbitt Burns, 33 p.

Boshkov, S.H., and Wright, F.D., 1973, *Underground mining systems and equipment*, in: Cummins, A.B. and Given, I.A., eds., SME Mining Engineering Handbook, New York: SME-AIME.

Cibula, D. A., 1975, *The geology and ore deposits of the Cosalá mining district, Cosalá municipality, Sinaloa, Mexico:* M. S. thesis, University of Iowa.

de Corta, H., 2011 (February 4), *Mineral reserve update – Nuestra Señora – 43-101 technical report*: Report prepared by Genivar Inc. for Scorpio Mining Corp., 86 p. plus appendices.

Dyer, T. L., Ristorcelli, S. J., Tietz, P., Lindholm, M. S., Lacombe, P., and McPartland, J., 2013, (April), *Technical Report and Preliminary Economic Assessment Nuestra Señora, San Rafael, and El Cajon Deposits Sinaloa, Mexico:* report prepared for Scorpio Mining Corp., by Mine Development Associates, 245 p. plus appendices.

Ellis, R. B., 2007, *Summary of geophysical surveys completed on the La Verde project, Sinaloa, Mexico*: Report prepared for Platte River Gold (US) Inc., 3 p.

Hartman, H.L., 1987, Introductory Mining Engineering, John Wiley & Sons, New York, p. 1-6.

Henriksen, G. N., 2004 (July 7, date of revision; original dated September 5, 2003), *Amended & restated summary report on the mineral inventory contained within the Candelaria mine at the Nuestra Señora project, Sinaloa State, Mexico*: Report prepared for Scorpio Mining Corporation, 57 p.

Izarra, C., 2010 (July), *Titan-24 DC/IP survey, final DC/IP inversion results, L0N to L03000N, San Rafael project, Sinaloa state, Mexico*: Presentation by Quantaec Geoscience prepared for Scorpio Mining Corp.

Lang, J., 2010 (March), *An Investigation into the recovery of Ag-Pb / Zn from San Raphael material, page C, SGS Canada Project 12293-001 – DRAFT – Final Report*: prepared by SGS Canada for Scorpio Mining Corp.

Larson, Lawrence T., 2005a (May 2), Letter report to Platte River Gold.

Larson, Lawrence T., 2005b (December 19), Letter report to Platte River Gold.

Larson, Lawrence T., 2006a (June 7), Letter report to Platte River Gold.

Larson, Lawrence T., 2006b (September 13), Letter report to Platte River Gold.

McClelland Laboratories, Inc., 2007 (January 29), *Progress report on conventional flotation testing – La Verde drill core composites, MLI Job No. 3081*: Report prepared for Mr. Richard Lorson, Platte River Gold.

McClelland Laboratories, Inc., 2008 (January 18), *Status update on La Verde flotation testing program*: Report prepared for Mr. Richard Lorson, Platte River Gold.

McClelland Laboratories, Inc., 2009 (Various dates), Email updates on La Verde testing program.

Nicholas, D.E., 1981, *Method selection: a numerical approach,* in: Stewart, D.E ed., Design and Operation of Caving and Sublevel Stoping Mines, SME-AIME, New York, p. 39-53.

Ojeda Escamilla, M., 2015 (September), *Índice de trabajo de molienda, Wi*: report prepared by the Instituto de Metalurgia, Universidad Autónoma de San Luis Potosi for Minera Cosala, S.A. de C.V., 4 p.

Olson, J. L., 2013 (February 28), *Report on flotation optimization and locked cycle testing – San Rafael project, Zone 120 Master Composite, MLI job no. 3509*: Report prepared by McClelland Laboratories, Inc. for Scorpio Mining Corporation, 25 p. plus appendices.

Platte River Gold, 2006a (undated), *La Verde project history*: Platte River Gold internal report, 4 p.

Platte River Gold, 2006b (August), *La Verde project summary*: Platte River Gold internal report, 9 p.

Platte River Gold, 2006c (October 20), *Summary notes from La Verde project*: Platte River Gold internal report, 7 p.

Platte River Gold, 2006d (undated), *Drill rig sampling and QA/QC program La Verde project*: Platte River internal report, 12 p.

Platte River Gold, 2007 (March 8), *La Verde underground and surface disturbance*: Platte River Gold internal memorandum, 1p.

Ristorcelli, S., and Tietz, P., 2007 (March 2), *La Verde project technical report, Sinaloa, Mexico* [DRAFT]: Internal report prepared for Platte River Gold (U.S.) Inc. by Mine Development Associates, 76 p. plus appendices.

Ristorcelli, S., and Tietz, P., 2008, *La Verde project technical report, Sinaloa, Mexico* [DRAFT]: Internal report prepared for Platte River Gold (U.S.) Inc. by Mine Development Associates, 103 p. plus appendices.

Ristorcelli, S., Tietz, P., and McPartland, J., 2009 (November 25), *La Verde project technical report, Sinaloa, Mexico*: Report prepared by Mine Development Associates for Platte River Gold (U.S.) Inc. / Scorpio Mining Corp., 123 p.

Ristorcelli, S., Tietz, P., and McPartland, J., 2009 (November 25), *La Verde project technical report, Sinaloa, Mexico*: Report prepared by Mine Development Associates for Platte River Gold (U.S.) Inc. / Scorpio Mining Corp., 123 p.

Ristorcelli, S., Tietz, P., Lindholm, M. S., Lacombe, P., and McPartland, J., 2012 (August 10), *Resource updates for the Nuestra Señora, San Rafael, and El Cajón deposits, Sinaloa, Mexico*: Report prepared by Mine Development Associates for Scorpio Mining Corp., 196 p. plus appendices.

Sarinas, K., 2016 (April), *An investigation into flotation optimization for the San Raphael deposit*: Report prepared for Americas Silver Corporation by SGS Canada Inc., Project 12293-003 Final Report, 74 p.

Spring, V., and Breede, K., 2008 (June 27), *Technical review and audit of the Nuestra Señora property, Sinaloa State, Mexico*: Report prepared for Scorpio Mining Corporation by Watts, Griffis and McOuat, 93 p.

Taylor, J. D., 2006a (August 24), *Drillhole sample analysis La Verde project – El Cajón Zone, Mexico*: Report prepared for Platt River Gold (U.S.) Inc., 23 p.

Taylor, J. D., 2006b (August 18), *Drillhole sample analysis La Verde project – San Rafael Zone, Mexico*: Report prepared for Platt River Gold (U.S.) Inc., 20 p.

Tietz P., and Lindholm, M., 2011 (October 19), *Cosalá site visit report*: Report prepared by Mine Development Associates for Scorpio Mining Corp., 15 p.

28.0 DATE AND SIGNATURE PAGE

Effective Date of report: March 18, 2016

The effective date of the San Rafael database on which the resources described in this Technical Report were estimated is July 4, 2015. The effective date of the San Rafael resource estimates is October 15, 2015. The effective date of the new San Rafael reserve and the PFS is December 8, 2015.

Report Date: April 29, 2016

"Edwin R. Peralta" April 29, 2016
Edwin R. Peralta, P.E. Date Signed

"Paul Tietz" April 29, 2016
Paul Tietz, C.P.G. Date Signed

"Randy Powell" April 29, 2016
Randy Powell, Q.P.M. Date Signed

"Thomas L. Dyer" April 29, 2016
Thomas L. Dyer, P.E. Date Signed

29.0 CERTIFICATES OF QUALIFIED PERSONS

I, Thomas L. Dyer, P.E., do hereby certify that I am currently employed as Senior Engineer by Mine Development Associates, Inc., 210 South Rock Blvd., Reno, Nevada 89502 and:

1. I graduated with a Bachelor of Science degree in Mine Engineering from South Dakota School of Mines and Technology in 1996. I have worked as a mining engineer for a total of 20 years since my graduation.

2. I am a Registered Professional Engineer in the state of Nevada (#15729) and a Registered Member (#4029995RM) of the Society of Mining, Metallurgy and Exploration.

3. 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. I am independent of Americas Silver Corporation and its subsidiaries, applying all of the tests in section 1.5 of National Instrument 43-101.

4. I am responsible or jointly responsible for sections 1 (excluding 1.5), 2, 18 through 22, 25, and 26 of this technical report titled *Technical Report and Preliminary Feasibility Study for the San Rafael Property, Sinaloa, Mexico* for Americas Silver Corporation dated April 29, 2016 ("Technical Report"). I visited the property on June 4 to June 5, 2012.

5. I have had involvement with San Rafael and El Cajón having worked on a previous Preliminary Economic Assessment for Platte River Gold (U.S.) and Scorpio Mining Corporation as described in this report.

6. As of the effective date of this Technical Report, to the best of my knowledge, information, and belief, those parts of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

7. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 29th day of April 2016,

"Thomas L. Dyer"

Thomas L. Dyer, P.E.
Print Name of Qualified Person

Edwin R Peralta, P.E.

I, Edwin R. Peralta, P.E., do hereby certify that I am currently employed as Project Mining Engineer by Mine Development Associates, Inc., 210 South Rock Blvd., Reno, Nevada 89502 and:

1. I graduated with a Bachelor of Science degree in Mining Engineering in 1995 from the Colorado School of Mines, Golden Colorado. I also have a Master of Science degree in Mining and Earth Systems Engineering from the Colorado School of Mines (2001). I have worked as a mining engineer for a total of 20 years since my graduation from undergraduate school. Relevant experience includes mining exploration, project development, underground construction and mine ventilation. Also, as a mining engineer I have been involved for more than 10 years in mine design, mine planning and project evaluation for open pit and underground mining projects.

2. I am a Professional Engineer (#023216) licensed in the State of Nevada, and I am a Registered Member (#4033387RM) of the Society of Mining, Metallurgy and Exploration.

3. 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 and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. I am independent of Scorpio and its subsidiaries, applying all of the tests in section 1.5 of National Instrument 43-101.

4. I am responsible Sections 15 and 16 of this technical report titled "*Technical Report and Preliminary Feasibility Study for the San Rafael Property, Sinaloa, Mexico*" for Americas Silver Corporation dated April 29, 2016 ("Technical Report"). I most recently visited the San Rafael Project site on June 22 – June 23, 2015.

5. I have had involvement with San Rafael and El Cajón having worked on a previous Preliminary Economic Assessment for Platte River Gold (U.S.) and Scorpio Mining Corporation as described in this report.

6. As of the effective date of this Technical Report, to the best of my knowledge, information, and belief, those parts of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

7. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 29th day of April 2016,

"Edwin Peralta"
Edwin Peralta, P.E.

Edwin Peralta
Print Name of Qualified Person

Paul Tietz, C.P.G.

I, Paul Tietz, C.P.G., do hereby certify that I am currently employed as Senior Geologist by Mine Development Associates, Inc., 210 South Rock Blvd., Reno, Nevada 89502.

1. I graduated with a Bachelor of Science degree in Biology/Geology from the University of Rochester in 1977 and a Master of Science degree in Geology from the University of North Carolina, Chapel Hill in 1981. I also received a Master of Science degree in Geological Engineering from the University of Nevada, Reno in 2004. I have worked as a geologist for a total of 35 years since receiving my Master of Science degree in Geology.

2. I am a Certified Professional Geologist (#11004) with the American Institute of Professional Geologists.

3. 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. I am independent of Americas Silver Corporation and its subsidiaries, applying all of the tests in section 1.5 of National Instrument 43-101.

4. I am responsible or jointly responsible for Sections 1 (excluding 1.5 and 1.7 through 1.9) through 12, 14, and 23 through 27, of this technical report titled *Technical Report and Preliminary Feasibility Study, San Rafael Property, Sinaloa, Mexico* for Americas Silver Corporation dated April 29, 2016 ("Technical Report"). I have relied on other experts for Sections 4.2 through 4.6 as permitted by NI 43-101. I visited the San Rafael project from January 29 through February 3, 2007, September 19 through September 21, 2007, and September 27 through October 1, 2011.

5. I have had involvement with this project having worked on two previous resource estimates for Platte River Gold (U.S.) and one previous resource estimate for Scorpio Mining (now Americas Silver) on San Rafael as described in this report.

6. As of the effective date of this Technical Report, to the best of my knowledge, information, and belief, those parts of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

7. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 29th day of April 2016,

"Paul Tietz"

Paul Tietz
Print Name of Qualified Person

Randy Powell, Q. P. M.

I, Randy Powell, P. E., do hereby certify that I am currently employed as independent consultant by Randy Powell Consulting LLC, 2084 Sawyer Way, Elko Nevada 89801.

I graduated with a Bachelor of Science degree in Metallurgical Engineering from the South Dakota School of Mines and Technology in 1975. I have worked as a metallurgical engineer for a total of 40 years since my graduation from undergraduate university.

1. I am a registered Professional Engineer in Nevada (#06184) with the Nevada Society of Professional Engineers and Land Surveyors. I am also a member (#2585450) of the Society of Mining Metallurgical and Exploration Inc. (SME) of Denver, CO.

2. 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. I am independent of Americas Silver Corporation and its subsidiaries, applying all of the tests in section 1.5 of National Instrument 43-101.

3. I am responsible or jointly responsible for Sections 1.5, Section 13, and Section 17 of this technical report titled *Technical Report and Preliminary Feasibility Study*, *San Rafael Property*, *Sinaloa*, *Mexico* for Americas Silver Corporation dated April 29, 2016 (“Technical Report”). In addition I have reviewed section 21.1 dealing <u>only</u> with the processing cost estimate.

4. I have had no prior involvement with this project.

5. I have not completed a personal inspection of this Property.

6. As of the effective date of this Technical Report, to the best of my knowledge, information, and belief, those parts of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

7. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 29th day of April 2016,

“Randy Powell”

Randy Powell

Randy Powell, Q.P.M.

APPENDIX A

List of Concessions Comprising Americas Silver Corporation's Property, Cosalá District, Sinaloa and Durango States, Mexico

Name	Title #	Initial Date	Valid Until	Area (Has)	Owner	Municipality	State
EL VENADO	155605	30 de septiembre de 1971	29 de septiembre de 2021	21.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
LA VERDE	156662	14 de abril de 1972	13 de abril de 2022	100.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
EL ANGEL TERCERO	167215	22 de octubre de 1980	21 de octubre 2030	64.0000	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
ANEXAS DEL ANGEL	167216	22 de octubre de 1980	21 de octubre 2030	56.0000	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
ANEXAS AL PREDIO	167217	22 de octubre de 1980	21 de octubre 2030	20.0000	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
LA DURA	171975	21 de septiembre de 1983	20 de septiembre de 2033	100.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
LA ESTRELLA	172855	29 de junio de 1984	28 de junio de 2034	55.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
AMPL. LOS CRISTOS	178095	11 de julio de 1986	10 de julio de 2036	95.6962	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	TAMAZULA	DURANGO
LA DORA	186334	29 de marzo de 1990	28 de marzo de 2040	15.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
NORMA	207259	27 de mayo de 1998	26 de mayo de 2048	148.6011	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
REAL DE MONTECRISTO	207640	30 de junio de 1998	29 de junio de 2048	29.2739	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MINA MAGISTRAL	210893	27 de enero de 2000	26 de enero de 2050	84.9234	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
EL CAJON 2*	210988	29 de febrero de 2006	28 de febrero de 2056	922.8364	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
LAS MILPAS	211200	11 de abril de 2000	10 de abril de 2050	20.9499	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
JIMMY 3	213060	2 de marzo de 2001	1 de marzo de 2051	200.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MONICA 2	213820	3 de julio de 2001	2 de julio de 2051	16.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
EL SABINO	213989	13 de julio de 2001	12 de julio de 2051	13.9117	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
LAS GUASIMAS	214758	22 de noviembre de 2001	21 de noviembre de 2051	9.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
SILVIA MARIA	216419	17 de mayo de 2002	16 de mayo de 2052	19.1510	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
ORION FRACC. A	220668	09 de Septiembre 2003	08 de Septiembre 2053	10.0000	CONTRATO CON EL SEÑOR AGUILAR	COSALA	SINALOA
ORION FRACC. B	220669	09 de Septiembre 2003	08 de Septiembre 2053	4.5014	CONTRATO CON EL SEÑOR AGUILAR	COSALA	SINALOA
LOS CRISTOS	221715	17 de marzo de 2004	16 de marzo de 2054	599.3038	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	TAMAZULA	DURANGO
LA SECA FRACC. 1	222214	3 de junio de 2004	2 de junio de 2054	7,514.5800	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
LA SECA FRACC. 2	222215	3 de junio de 2004	2 de junio de 2054	9.7558	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
LA SECA 2 FRACCION 1	223178	29 de octubre de 2004	28 de octubre 2054	3,539.0710	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
LA SECA 2 FRACCION 2	223179	29 de octubre de 2004	28 de octubre 2054	88.2008	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
RICARDO	225146	26 de julio de 2005	25 de julio de 2055	2,144.3300	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
LA SECA 3	225354	24 de agosto de 2005	23 de agosto de 2055	200.0000	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
EL MAGISTRAL*	225864	4 de noviembre de 2005	3 de noviembre de 2055	80.5674	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
LA ESCONDIDA*	225865	4 de noviembre de 2005	3 de noviembre de 2055	112.0000	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
SIMON*	225867	4 de noviembre de 2005	3 de noviembre de 2055	245.7530	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
EL CAJON*	226288	6 de diciembre de 2005	5 de diciembre de 2055	26.1143	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA

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AMPL. EL MAGISTRAL	226527	24 de enero de 2006	23 de enero de 2056	614.5519	MINERA COSALA, S.A. DE C.V.	COSALA	SINALOA
RICH 1	226550	26 de enero de 2006	25 de enero de 2056	179.9372	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MAGDA 2	226587	27 de enero de 2006	26 de enero de 2056	519.7330	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MAGDA 2 FRACCION 2	226588	27 de enero de 2006	26 de enero de 2056	0.5108	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
EL PINO	227527	6 de julio de 2006	5 de julio de 2056	40.0000	MINERA COSALA, S.A. DE C.V.	TAMAZULA	DURANGO
RICH 2	227568	6 de julio de 2006	5 de julio de 2056	199.8364	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
VENADO	228013	26 de septiembre de 2006	25 de septiembre de 2056	85.5091	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
VENADO	228014	26 de septiembre de 2006	25 de septiembre de 2056	100.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
ZAIDA	231635	28 de marzo de 2008	27 de marzo de 2058	1,141.2600	MINERA COSALA, S.A. DE C.V.	TAMAZULA	DURANGO
TANO	235521	11 de diciembre de 2009	10 de diciembre de 2059	596.1570	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
RICH 5	237398	9 de diciembre de 2010	8 de diciembre de 2060	1,601.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
RICH 6	237399	9 de diciembre de 2010	8 de diciembre de 2060	37.1636	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
EL SALTO	237531	21 de diciembre de 2010	20 de diciembre de 2060	30.3760	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
EL GALLO	237532	21 de diciembre de 2010	20 de diciembre de 2060	17.5283	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
BIRO	237533	21 de diciembre de 2010	20 de diciembre de 2060	183.1473	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
RICH 3	237541	21 de diciembre de 2010	20 de diciembre de 2060	1.7425	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MAGDA 3	237656	20 de abril de 2011	19 de abril de 2061	13.3281	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MAGDA 5	237657	20 de abril de 2011	19 de abril de 2061	0.3214	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MAGDA 4	237658	20 de abril de 2011	19 de abril de 2061	0.5423	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MAGDA 6	237659	20 de abril de 2011	19 de abril de 2061	0.7701	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MAGDA 7	237660	20 de abril de 2011	19 de abril de 2061	2.5396	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
EL OLVIDADO	237679	26 de abril de 2011	21 de noviembre de 2051	61.8585	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
RICH 4	237827	29 de abril de 2011	28 de abril de 2061	0.5889	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
ROJA	238285	26 de agosto de 2011	10 de octubre de 2051	47.8902	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
LA ROJA	238286	26 de agosto de 2011	10 de mayo de 2051	590.0487	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
JIMMY 5	238287	26 de agosto de 2011	1 de marzo de 2051	63.1020	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MAGDA FRACC. A	238288	26 de agosto de 2011	14 de marzo de 2050	186.3836	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
SAN JOSE	238289	26 de agosto de 2011	7 de julio de 2047	239.9812	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
HUMAYA	238290	26 de agosto de 2011	7 de octubre de 2049	289.1274	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
COVADONGA	238329	30 de agosto de 2011	25 de octubre de 2055	6.9869	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
PENNY	238330	30 de agosto de 2011	26 de septiembre de 2056	198.8591	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
BRUJITA	238634	11 de octubre de 2011	10 de octubre de 2061	7.7743	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA

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COSALA 2	239504	15 de diciembre 2011	14 de diciembre 2061	307.1945	CONTRATO CON EL SEÑOR FLORES	COSALA	SINALOA
FRANK	240925	15 de agosto de 2012	1 de abril de 2052	60.0785	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
GORDON	240926	15 de agosto de 2012	28 de octubre de 2049	53.0697	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
JIMMY 4	240927	15 de agosto de 2012	1 de marzo de 2051	56.0000	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
SAN RAMON	240928	15 de agosto de 2012	3 de diciembre de 2051	278.4991	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	TAMAZULA-COSALA	DURANGO-SINALOA
MAGDA FRACC. B	240929	15 de agosto de 2012	14 de marzo de 2052	48.9471	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
MONICA	240930	15 de agosto de 2012	12 de julio de 2051	54.6931	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA
JIMMY 6	242315	28 de junio de 2013	1 de octubre de 2051	174.7555	MINERA PLATTE RIVER GOLD, S. DE R.L. DE C.V.	COSALA	SINALOA