NI 43-101 Technical Report on Resources San Antonio Project

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Report Prepared for

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Summary (Item 1)

This report was prepared as a National Instrument 43-101 (NI 43-101) Technical Report for Argonaut Gold, Inc. (Argonaut) by SRK Consulting (U.S.), Inc. (SRK). Contributions were made by Kappes Cassiday and Associates (KCA) and Argonaut as well as by SRK. This report contains a Preliminary Economic Assessment (PEA) of the San Antonio Gold Project.

Property Description

The San Antonio project (San Antonio or the Project) is located in the southern peninsula of the Baja California Sur state of Mexico, approximately 45 km southeast of the city of La Paz and 160 km north of Cabo San Lucas. Coordinates for the Project are longitude 110º02' West and latitude 23º48' North. The Project features the four known gold deposits described in this report, Los Planes, Intermediate, Las Colinas and La Colpa, and a number of exploration targets.

Ownership

The Project is covered by 15 mineral concessions with an area of approximately 46,328 ha. The concessions are held in the name of Compañía Minera Pitalla SA de CV (Pitalla), which is a wholly-owned indirect subsidiary of Argonaut. Pitalla has entered into an agreement to acquire 80% of the ownership of an additional three concessions with an option to acquire the remaining 20% in exchange for a 2% NSR which can be purchased for US$1,500,000 per percentage point.

The mineral resources stated in this report are located completely within Argonaut's Cirio concession.

Pitalla has purchased 2,624 ha of surface rights in the Project area and an additional 310 ha have been leased under occupation and exploration agreements. The surface rights comprise sufficient area for mining and the associated infrastructure described in this report.

Geology and Mineralization

The basement of the Baja California Sur region comprises a chain of Mesozoic granitic bodies and accompanying late Paleozoic to Mesozoic metasedimentary roof pendants. Metasediments are schists, gneiss, and marbles, which are thought to have experienced some regional metamorphism prior to the emplacement of intrusive rocks. Host rocks for mineralization are hornblende-rich intrusives varying in composition between gabbro and quartz-diorite.

The structural geology of the region is dominated by Mesozoic large-scale low-angle thrust faulting featuring cataclasites, mylonites, and mineralized stockwork zones that host the silver and gold mineralization in the area. Shear zones related to thrust faulting exceed 200 m in thickness and are regionally traceable over 45 km.

An extensive pediment comprising sand and gravel covers the great majority of bedrock around the project, and increases in thickness from west to east.

The mineralization at San Antonio has been identified over a strike length of approximately 1.8 km and has been subdivided into four fault-bounded zones referred to from North to South as Los Planes, Intermediate, and Las Colinas; and La Colpa lies to the east of Las Colinas. Los Planes is the best known of the areas and is the most densely drilled. Drilling suggests that a northwest-trending graben basin has displaced the Los Planes deposit by 200 m, over increments of 20 to 100 m. These blocks are bounded by listric faulting and are dropped en echelon down to the northeast along N40W-trending structures.

The gold mineralization at San Antonio is considered to be of mesothermal or orogenic origin.

Exploration Status

Modern exploration has been conducted by Echo Bay Exploration and later by Pitalla. This work included regional and local geologic mapping, rock and soil sampling, reverse circulation and core drilling, ground magnetic and IP geophysical surveys, mineralization characterization studies, and metallurgical testing of samples. Petrographic studies and density measurements on various rock types have also been conducted.

Drilling and Sample Analysis

The Project database includes 589 drillholes comprising 101,898.3 m. Drilling includes reverse circulation (about 80% of the drilling) and core drilling (about 20% of the drilling) methods. The drilling has mostly taken place on the four primary targets of Los Planes, Las Colinas, Intermediate and La Colpa.

Pitalla drill samples were prepared to a pulp at a sample preparation facility operated by ALS Chemex in Hermosillo and pulps were transported by laboratory personnel to the ALS Chemex Vancouver analytical facility. Analysis was by fire assay with atomic absorption (AA) finish. Trace elements were analyzed by inductively-coupled plasma (ICP) analysis following aqua regia digestion. Samples that were over the gold upper detection limit (>10 g/t) were analyzed by fire assay with gravimetric finish.

Pitalla has a laboratory quality assurance/quality control (QA/QC) program in place and the results are regularly monitored.

Mineral Processing and Metallurgical Test Work

The Project has been designed as an open-pit mine with a heap leach operation utilizing a multiple-lift, single-use leach pad. Crushing is accomplished using a three-stage crushing circuit. The crushing circuit is designed to produce a 9.5 mm material. The final product from the crushing circuit will be conveyed to a stacking system at the heap leach pads. The heap leach pads were designed by Golder and Associates (Golder). The stacked material will be leached with a low-grade cyanide solution. The gold and silver bearing solution will collected in a pregnant pond where it is collected and pumped into a carbon adsorption circuit to extract gold and silver. The loaded carbon will be shipped to Argonaut's La Colorada facility in Sonora, Mexico, where the metal from the loaded carbon will be processed and recovered.

Metallurgical test work was performed at the Metcon Laboratory in Tucson, Arizona. Several column tests on various composite samples and crush sizes were performed. This information was used to determine the crush size and reagent consumption used in this report.

Mineral Resource Estimate

The mineral resource estimate was prepared by Leah Mach, SRK Principal Resource Geologist; Ms. Mach is a Qualified Person and is independent of Argonaut as defined by NI 43-101 guidelines. The general procedure used for resource estimation was as follows:

- The drillhole database was imported into Vulcan™ and examined for data errors, such as overlapping intervals, missing data, etc.;
- Wireframes were provided for Los Planes, Las Colinas and Intermediate zones by Argonaut. The wireframes were constructed at a nominal cut-off grade (CoG) of 0.2 g/t gold. A high grade area in Los Planes was constructed at about 0.5 g/t Au. SRK checked the validity of the wireframes and made corrections where necessary;
- SRK prepared wireframes for the La Colpa zone;
- Statistics were run for assays within the wireframes and lognormal probability plots were examined for data outliers;
- The assays were composited into 3 m lengths from the top of the drillhole and statistics were run for the composites within the wireframes;
- A three-dimensional block model was created with 5 m x 5 m x 5 m blocks with percentages inside the wireframes recorded; and
- Block grades were estimated for gold using ordinary kriging (OK) with composites inside the wireframes. Nearest neighbor grades were also estimated, in order to provide a comparative model used to validate the OK grades.

Resources were classified according to the estimation pass and drillhole spacing.

The resources are constrained to a pit optimization shell run with the following parameters:

- Gold price: US$1500;
- Mining cost: US$1.45/t moved;
- Processing cost: US$3.09/t processed;
- G&A: US$0.63/t processed; and
- Recovery: 70% in oxide and transition, 50% in sulfide.

The internal gold CoG (excluding mining cost) is 0.11 g/t Au for oxide and transition and 0.15 g/t Au for sulfide.

The Measured, Indicated and Inferred Resources within the pit optimization shell are given in Table 1. The gold grades are diluted.

Table 1: San Antonio Mineral Resources, at July 25, 2012

Area	Product	Class	Tonnes (000's)	Au (g/t)	Au (oz)
Los Planes	Oxide/Transition	Measured	12,351	0.76	303,000
		Indicated	8,408	0.67	181,000
	Sulfide	Measured	6,649	1.17	250,000
		Indicated	22,065	0.92	653,000
	Oxide/Transition	Inferred	101	0.42	1,000
	Sulfide	Inferred	410	0.99	13,000
Intermediate	Oxide/Transition	Indicated	643	0.39	8,000
	Sulfide	Indicated	4,961	0.77	123,000
	Oxide/Transition	Inferred*	7	0.23	0
	Sulfide	Inferred*	0	0.39	0
Las Colinas	Oxide/Transition	Indicated	1,910	0.62	38,000
	Sulfide	Indicated	8,103	0.69	179,000
	Oxide/Transition	Inferred	61	0.39	1,000
	Sulfide	Inferred*	13	0.69	0
La Colpa	Oxide/Transition	Inferred	4,481	0.27	39,000
	Sulfide	Inferred	1,662	0.32	17,000
Total	Oxide/Transition	Measured	12,351	0.76	303,000
		Indicated	10,961	0.64	227,000
		M&I	23,312	0.71	530,000
	Sulfide	Measured	6,649	1.17	250,000
		Indicated	35,129	0.85	955,000
		M&I	41,778	0.90	1,205,000
	Oxide/Transition	Inferred	4,257	0.27	37,000
	Sulfide	Inferred	1,957	0.47	30,000
	All types	Measured	19,000	0.91	553,000
		Indicated	46,090	0.80	1,182,000
		M&I	65,089	0.83	1,735,000
		Inferred	6,215	0.34	67,000

* Rounding results in less than 1000 tonnes or less than 1000 ounces
(1) Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources estimated will be converted into Mineral Reserves.
(2) Resources are stated at CoG of 0.11 g/t Au for oxide and transition and 0.15 g/t Au for sulfide and are contained within a pit optimization shell.
(3) Pit optimization is based on an assumed gold price of US$1,500/oz, metallurgical recovery of 70% for oxide and transition and 50% for sulfide, mining cost of US$1.45/t of material moved, processing cost of US$3.09/t processed and G&A cost of US$0.63/t processed.
(4) Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
(5) Mineral resource tonnage and grade are reported as diluted.
(6)Gold assays were capped prior to compositing.

Mining

In this preliminary economic analysis, mining of the resource is done through the development of three open pits. The operation will be carried out with the use of a contract miner. Within Mexico, several mining contractors exist with experience and equipment necessary to perform this function. No contractors have been contacted at this point in time; however, Argonaut has experience working with contractors at its other Mexican operations. The resulting pit designs contain 60.2 Mt of Measured and Indicated mineral resources with an average grade of 0.85 g/t Au and 0.5 Mt of Inferred resources with an average grade of 0.84 g/t Au. The average strip ratio of is 3.1:1. At a 4 million tonne per year (MTPY) production rate, it is expected the potential mine life to be in excess of 15 years. The production schedule targeted a consistent total mine tonnage of 18 MTPY from Year

2 onwards. Table 2 details the resource classification breakdown of material defined by the PEA pit design and production schedule used in the economic model.

Table 2: Production Schedule Inventory Classification

	Measured			Indicated			Inferred		
Pit -Resource Type	**Tonnes (000's)**	**Au (g/t)**	**Gold (oz)**	**Tonnes (000's)**	**Au (g/t)**	**Gold (oz)**	**Tonnes (000's)**	**Au (g/t)**	**Gold (oz)**
North - Oxide/Transition	12,334	0.76	302,000	8,220	0.68	179,000	104	0.43	1,000
North -Sulfide	6,655	1.17	250,000	21,817	0.93	650,000	401	0.97	12,000
Intermediate - Oxide/Transition				477	0.46	7,000	2	0.24	0*
Intermediate - Sulfide				3,797	0.78	95,000			
Las Colinas - Oxide/Transition				1,669	0.68	36,000	15	0.46	0*
Las Colinas - Sulfide				5,194	0.73	122,000			
Total	**18,989**	**0.91**	**552,000**	**41,174**	**0.82**	**1,091,000**	**522**	**0.84**	**14,000**

* Rounding results in less than 1000 tonnes or less than 1000 ounces
(1) Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
(2) A preliminary economic assessment is preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized.

There are no current limitations in land positions that restrict the full development of this mining plan. As the project progresses towards production, the mining plan with be reviewed for further optimization.

Infrastructure

There is currently no existing project infrastructure. Exploration crews stay in San Antonio and travel to the site as required. Cell phone coverage is available. The Project is within the San Antonio–Triunfo mining district located about 45 km southeast by paved Highway No.1 of La Paz. The highway passes through the project, so access is good. The closest towns are San Antonio, 8 km south of the Project; El Triunfo, 10 km southwest of the Project; and Los Planes, 15 km northeast of the Project. Power will be supplied to the project via a 34.5 kV line that passes through the project. Portions of the line will have to be upgraded to handle the increased load. Additionally, portions of the transmission line will have to be relocated to allow for project construction.

Environmental Studies and Permitting

The Project is an advanced exploration program and surface disturbance at the site is primarily associated with exploration and a recent hydrogeological investigation. Limited data are available for this early stage of the project, and those documents that are available may not accurately reflect the final conditions of the project or proposed facilities.

Upon Project acquisition, Argonaut re-initiated the baseline data collection studies required as part of the permitting process to obtain the primary environmental authorization for the Project, the *Manifesto Impacto Ambiental* (MIA). The Project is located eight kilometers north of the historic mining town of San Antonio in the lower, transitional foothills leading to the Sierra de la Laguna range. A portion of the Sierra de la Laguna range has been designated by the United Nations

Educational, Scientific and Cultural Organization (UNESCO) as a global biosphere reserve. The Project site is located 18 km from the biosphere buffer zone, and in a completely separate hydrographic basin from the biosphere reserve.

Geochemical characterization programs have been conducted to evaluate the environmental stability of the Project waste rock, mineralized material and spent heap material. Based on the results of the studies, the waste, mineralized and spent leach material can be generally classified as non-acid forming material, and trace metal concentrations in leachates are generally low.

Argonaut has acquired 731,000 m^3 of existing water rights from private owners and ejidos in the Los Planes water basin for use in the operations. Argonaut expects that the amount of water rights acquired exceeds the amount necessary for operations.

The Project open pit, once completed, could possibly be closed as a pit lake, or potentially serve as a waste dump for the overburden from the Colinas pit. If the pit lake option is pursued, groundwater modeling indicates that the pit will take almost 100 years to reach static equilibrium. Based on the data from the geochemical characterization program, the risks associated with the long-term pit lake chemistry should be no greater than those posed by the natural conditions in the area.

Exploration Permitting: According to Argonaut, the required permits for continued exploration of the site have been obtained for its activities at San Antonio. However, in 2012, PROFEPA ordered a cease and desist (injunction) against the San Antonio Exploration Zone under NOM-120. This injunction is currently under administrative review. The most recent program, the Cañada del Aqua Exploration Program received authorization to proceed from Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) in July 2012.

Mining Permitting: Argonaut confirmed to SRK that the permits and authorizations necessary for mineral extraction and beneficiation are being or will be applied for; however, SRK has not conducted an exhaustive investigation as to the current status of all the required permits. The most recent MIA covers only the Los Planes operations (Phase 1). Phase 2 of the project will include the Intermediate and Las Colinas pits, which are located within primary arroyos. As such, this phase of project development will require additional approvals.

On August 2, 2012, Argonaut received notice that the MIA for the Project had been officially denied by SEMARNAT. Principally, the resolution, based on article 35 of the LGEEPA, found that the project was incompatible with the Urban Development Program for the La Paz Population Center (*Programa de Desarrollo Urbano del Centro de Población de La Paz* or PDUCPLP), since according to it, a portion of the land use of the area of the project is oriented towards the preservation of natural resources, and not for industrial exploitation. Argonaut is currently engaged with the local communities and government agencies in addressing this zoning issue. Argonaut is in the process of working to correct the issues regarding the PDUCPLP and other cited reasons in order to resubmit the MIA (Phase 1) for review by SEMARNAT.

Surface access agreements have been negotiated with the ejidos of San Antonio and San Luis, which hold surface rights in the areas of the current exploration. Approximately 2,500 people inhabit the three nearest surrounding communities. Argonaut has advised SRK that, for the most part, local community leaders and residents in the San Antonio, El Triunfo and San Juan de los Planes areas appear to be in favor of Project development. However, regionally, there are well-organized groups that are opposed to mining.

The current (2012) estimate for closure of the Project is US$15.4 million, which is consistent with projects of similar scope and size.

Capital and Operating Costs

The life-of-mine (LoM) capital expenditures required for the Project processing, G&A, infrastructure, pre-production mining and sustaining capital cost are US$97.5 million excluding reclamation and salvage value. Of this capital, US$84.3 million is initial capital and US$13.2 million is sustaining capital. The costs are in second quarter 2012 U.S. dollars. For items not sourced in the U.S., the MXN/US$ conversion rate of 13:1 was used. Capital costs were compiled by KCA. Quotes for major equipment were based on either new quotes from a supplier or from recently received quotes in KCA's files. Minor equipment item costs are based on recent quotes for similar equipment from KCA files, recent quotes from similar sized projects in Mexico or from quotes within their files. Capital estimates are at a scoping level and are accurate within a +/-25% range.

The estimated operating cost is US$3.91 per processed tonne including G&A, crushing, processing, carbon transport to Argonaut's La Colorada Project and carbon treatment costs. Contract mining costs, provided by Argonaut, are US$1.45 per tonne of rock mined, and a $1.30 for sand or alluvium or US$5.50 per processed tonne for the life of the project, excluding pre-production stripping. The mining costs consider using a contractor miner and are based on Argonaut's experience with contract miners at its other Mexican operations. Corporate overhead costs are not included. The costs were developed based on the Project metallurgical test work, scoping level engineering and data from KCA files for operating and maintenance equipment and supplies. Labor has been estimated using staffing and wage requirements based on typical rates in the Mexican mining industry.

Economic Analysis

The financial analysis results, shown in Table 3, indicate an $NPV_{8\%}$ of US$293 million on a pre-tax basis. Payback will be approximately 1.5 years of production. The following provides the basis of the San Antonio LoM plan and economics:

- Measured, Indicated and Inferred resources are included;
- A mine operating life of 15 years;
- An overall average metallurgical recovery rate of 63% Au over the LoM;
- A net operating cost of US$553/Oz. Au;
- Capital costs of US$97.5 million, comprising initial capital costs of US$84.3 million, and sustaining capital over the LoM of US$13.2 million;
- Mine closure cost, included in the above estimates is US$15.4 million;
- The analysis does not include provision for salvage value; and
- Operating costs are 43% of revenue.

Table 3: Financial Analysis Results

Description	Value	Units	Units
Production Summary			
Waste Mined	173,414	kt	
Process Material	60,612	kt	
Oz-Au Refined	1,046	koz	
Avg. LOM Strip Ratio	3.1		
Avg. Annual Production (Oz Au)	74	koz	
Estimate of Cash Flow			
Gross Income	$1,349,671	000's	
Refining	($10,459)	000's	
Net Revenue	$1,339,212	000's	
Operating Costs		**US$/t-crushed**	**US$/oz-Au**
Mining	$333,624	5.50	318.99
Processing	$198,565	3.28	189.85
G&A	$46,250	0.76	44.22
Total Operating	**$578,439**	**$9.54**	**$553.06**
Operating Margin	$760,773	000's	
Initial Capital	$84,309	000's	
LoM Sustaining Capital	$13,201	000's	
Cash Flow Available for Debt Service	$647,862	000's	
NPV 8%	$293,815	000's	

The impact of a 30% tax when applied to the economic model is demonstrated in Table 4.

Table 4: Financial Analysis Results Including Tax

Description	Value (US$)
Operating Margin	760,773
Initial Capital	84,309
LoM Sustaining Capital	13,201
Income Tax	194,371
Cash Flow Available for Debt Service	453,129
NPV 8%	205,605

Conclusions

Exploration

Early exploration on the project was conducted by Echo Bay during the 1990's. Little documentation is available, but it is reasonable to conclude that Echo Bay conducted its exploration programs according to industry standards and analyzed its samples at quality laboratories.

Pitalla has conducted exploration under Pediment and Argonaut during the last five years. The exploration, drilling and sample analysis meet industry standards and has produced a database that is suitable for resource estimation.

Mineral Resource Estimate

The mineral resource estimation was conducted using grade shells provided by Pitalla, except for La Colpa, which was modeled by SRK. The grade shells are well constructed and form a suitable basis for resource estimation. La Colpa mineralization is more diffuse than the other areas and the controls are not currently well defined. For that reason La Colpa resources are classified as inferred.

Process

Gold recoveries are based on multiple column tests on multiple composites conducted at the Metcon Laboratory in Tucson, Arizona. Recoveries for gold ranged from 86% to 46% at a 9.5 mm crush size depending on the type and location of the mineralized material tested. Reagent consumption was low with cyanide being 0.26 kg/t of material processed and lime being 1.3 kg/t of material processed.

The Metcon tests conducted in 2010 were not agglomerated. The Metcon tests conducted in 2012 were agglomerated with 2 kg/t Portland cement. Golder conducted compacted permeability testing on spent material samples from the Metcon 2010 column leach test samples, simulating an equivalent heap height of 70 m, and reported that solution flows over 100 times the projected field flow rates could be achieved through the compacted material. It is recommended that in future column leach tests the compacted permeability tests be repeated.

Mining

Mining will be carried out through the use of a contract miner. There are several experienced contract mining companies in Mexico with the equipment and ability to mine the proposed open pit mines described in this report.

For the PEA, three ultimate pits for San Antonio were prepared by Argonaut's engineer and reviewed by Argonaut's qualified person, Richard Rhoades, P.Eng. The pits include North or Los Planes, Intermediate and Las Colinas pits; the North Pit was designed with three possible phases. The resultant pit designs contain 60.2 Mt of Measured and Indicated mineral resources with an average grade of 0.85 g/t Au and 0.5 Mt of Inferred resources with an average grade of 0.84 g/t Au. The average strip ratio is 3.1:1. At a 4 Mt production rate, it is expected the potential mine life to be in excess of 15 years. The production schedule targeted a total mine tonnage of 18 MTPY.

After review by Argonaut, it was decided that optimization of the production rate and more detailed phase design could add to project viability and economics and will be considered in future engineering and designing studies. Furthermore, as the project advances, Argonaut will enter into discussions with contract mining companies to engage qualified companies to participate in a bid process to award the open pit mining contract.

Financial

The economic analysis indicates that the profitability of the potential operation will be driven by gold price, operating costs and capital costs. Given the lower grade nature of the deposit and the strip ratio, 43% of the revenues are consumed by the operating costs. Therefore, a focus on controlling costs and a continued high gold price will be important in maintaining the robust project economics.

Recommendations

Metallurgical Testing

Column leach tests indicate that the material is amenable to cyanidation by heap leaching techniques. Best recoveries are achieved when crushing to P_{80} 9.5 mm.

The Metcon tests conducted in 2010 were not agglomerated. The Metcon tests conducted in 2012 were agglomerated with 2 kg/t Portland cement. Golder conducted compacted permeability testing on spent material samples from the Metcon 2010 column leach test samples, simulating an equivalent heap height of 70 m, and reported that solution flows over 100 times the projected field flow rates could be achieved through the compacted material. It is recommended that in future column leach tests the compacted permeability tests be repeated. KCA recommends that four composite samples be tested at a cost of about US$25,000.

Environmental and Permitting

Recommendations for additional and ongoing data collection made by SRK include:

- Installation of a meteorological station to collect climatological and air quality data for the site, including, but not limited to: temperature, precipitation, evaporation, wind direction, PM10, SOx, and NOx. Site-specific data from this instrumentation can be used to more precisely develop a closure strategy/closure plan for the property. Estimated cost is US$100,000;
- While the Company has performed geochemical characterization tests on waste rock, mineralized material, and spent heap material, results show the materials are non acid generating and have low possibility to produce metal leachates, the final drain down and post closure water quality will be a major component of the mine closure and another series of testing could be beneficial to confirm the results already received. Estimated cost is US$75,000; and
- While it may not be necessary to distinguish between rock types or sample location from a waste rock ARD management perspective, further testing and evaluation of arsenic leaching potential is recommended to fully evaluate this operational management strategy, and its potential impacts to local water resources. Estimated cost US$50,000.

The San Antonio project can be classified as late exploration stage until the necessary permits and licenses to operate are achieved. Going forward, Argonaut will continue to work with the local communities and government agencies to receive approval of the MIA and CUSTF permits. Argonaut will continue with the permitting process and associated studies. Argonaut estimates that the cost will be approximately US$100,000.

Development

As the permitting process is ongoing, Argonaut will continue to optimize mining plans, review and improve engineering studies on the capital and infrastructure projects and prepare for a construction decision. It is not anticipated that any more exploration will be required in the area of the project as defined in this PEA. Any exploration work would be outside of the defined project area within the San Antonio concession package. Argonaut estimates that the costs for additional mine planning and engineering will be approximately US$100,000.

Argonaut estimates that the costs for detailed plant and infrastructure engineering are estimated to be US$100,000.

Costs

The costs associated with the recommendations total about US$625,000 and are summarized in Table 5.

Table 5: Summary of Recommendations and Costs

Recommendation	Cost (US$)
Compacted Permeability	100,000
Meteorological Station	100,000
ARD Testing	75,000
Arsenic Leaching Potential	50,000
Mine Planning and Engineering	100,000
Detailed Plant and Infrastructure Engineering	100,000
Permitting and Associated Studies	100,000
Total	**625,000**

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Appendices

Appendix A: Certificate of Author Forms

1 Introduction (Item 2)

1.1 Terms of Reference and Purpose of the Report

This report was prepared as a National Instrument 43-101 (NI 43-101) Technical Report for Argonaut Gold, Inc. (Argonaut) by SRK Consulting (U.S.), Inc. (SRK). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in SRK's services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Argonaut subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits Argonaut to file this report as a Technical Report with Canadian securities regulatory authorities pursuant to NI 43-101, Standards of Disclosure for Mineral Projects. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Argonaut. The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued.

This report provides a mineral resource estimate, classification of resources and a preliminary economic analysis (PEA) in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, November 27, 2010 (CIM). A PEA is preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.

1.2 Qualifications of Consultants (SRK)

The SRK Consultants preparing this technical report are specialists in the fields of geology, exploration, mineral resource and mineral reserve estimation and classification, underground and open pit mining, geotechnical, environmental, permitting, metallurgical testing, mineral processing, processing design, capital and operating cost estimation, and mineral economics.

None of the SRK Consultants or any associates employed in the preparation of this report has any beneficial interest in Argonaut. The Consultants are not insiders, associates, or affiliates of Argonaut. The results of this Technical Report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between Argonaut and the Consultants. The Consultants are being paid a fee for their work in accordance with normal professional consulting practice.

1.3 Qualified Persons

The following individuals, by virtue of their education, experience and professional association, are considered Qualified Persons (QP) as defined in the NI 43-101 standard, for this report, and are members in good standing of appropriate professional institutions. The QP's are responsible for specific sections as follows:

- Leah Mach, CPG, SRK Principal Resource Geologist is the QP responsible for Sections 1-10 (excluding 2.5), 12, 21, 22, 23.1, 23.2, and Sections 25 and 26;

- Carl Defilippi of Kappes Cassidy and Associates is the QP responsible for Sections 11, 15, 16, 19 (excluding 19.4), 23.3, 23.5, and 24.1;
- Richard Rhoades, P.E. is an employee of Argonaut and is the QP responsible for 13, 14, 17, 19.4, 20, 23.4, and 24.3; and
- Mark Willow, M.Sc., NV C.E.M., SRK Principal Environmental Scientist, is the QP responsible for Sections 2.5, 18, 23.6 and 24.2.

1.3.1 Details of Inspection

Leah Mach visited the Project between May 10 and May 12, 2012. During that time, Ms. Mach visited the core storage facility where she reviewed drill core and compared it to the drill logs and assays, inspected the sampling area and sample storage area. She also visited the San Antonio site and visited outcrops at Los Planes, Intermediate, La Colpa and Las Colinas.

Carl Defilippi conducted a site visit to the project on August 13, 2012. Mr. Defilippi spent one day reviewing the project and the potential general site layout.

1.4 Reliance on Other Experts (Item 3)

The Consultant’s opinion contained herein is based on information provided to the Consultants by Argonaut throughout the course of the investigations. SRK has relied upon the work of other consultants in the project areas in support of this Technical Report. The sources of information include data and reports supplied by Argonaut personnel as well as documents referenced in Section 25.

The Consultants used their experience to determine if the information from previous reports was suitable for inclusion in this technical report and adjusted information that required amending. This report includes technical information, which required subsequent calculations to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the Consultants do not consider them to be material.

1.4.1 Sources of Information and Extent of Reliance

SRK has relied on Argonaut for information related to the mineral claims and surface ownership of the property. Information on mineral titles was provided by Argonaut as compiled by Mr. Alberto Orozco, Argonaut’s Mexico Exploration Manager. Additionally, a legal opinion on titles was compiled by Mexico City law firm Vazquez & Associates in 2011. Argonaut has confirmed to SRK that the land ownership described in Section 2.4 is correct at the date of this report.

Mr. Alberto Orozco contributed information in Sections 4, 5, 9, 10 and 11.

Ms. Xochitl Valenzuela Verdugo, the mine planning engineer for Argonaut, worked on the development of the pit, phase and production schedule of the San Antonio project. Ms. Valenzuela also designed the waste dumps and potential heap leach areas within the San Antonio site. Ms. Valenzuela contributed to Section 14. Her contributions were reviewed by Mr. Richard Rhoades.

Infrastructure, operating and capital cost assumptions (used in the economic model and stated in the tables) were provided by Mr. Carl Defilippi of KCA, and Mr. Curtis Turner of Argonaut. Their contributions were reviewed by Richard Rhoades and are pertinent to Sections 15 and 18.

1.5 Effective Date

The effective dates of this report are:

- April 11, 2012 – Completion of last drillhole in database;
- May 16, 2012 – Completion of analysis of samples from last drillhole in database;
- July 25, 2012 – Completion of resource estimation; and
- August 15, 2012 – Completion of mine plan and economic model.

The effective date of the report is September 1, 2012.

1.6 Units of Measure

The metric system has been used throughout this report. Tonnes are metric of 1,000 kg, or 2,204.6 lb. All currency is in U.S. dollars (US$) unless otherwise stated.

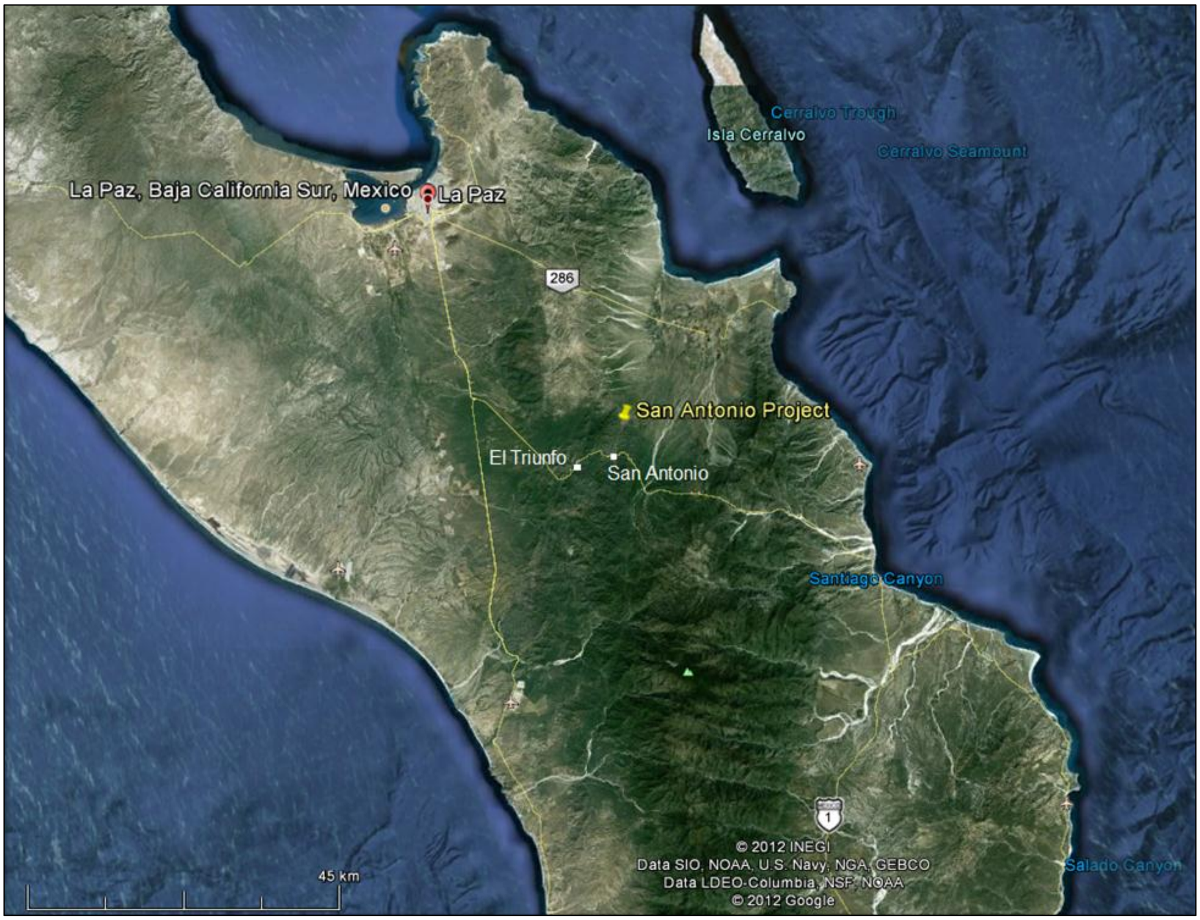
2 Property Description and Location (Item 4)

2.1 Property Description and Location

The San Antonio project is located in the southern peninsula of the Baja California Sur state of Mexico, approximately 45 km southeast of the city of La Paz and 160 km north of Cabo San Lucas. Coordinates for the Project are longitude 110º02' West and latitude 23º48' North (Figures 2.1.1 and 2.1.2). The Project features the four known gold deposits described in this report, Los Planes, Intermediate, Las Colinas and La Colpa, and a number of exploration targets.

Source: Google Earth

Figure 2.1.1: Location Map of San Antonio Project, Baja California Sur, Mexico



Source: Google Earth

Figure 2.1.2: Local Map of San Antonio Project

2.2 Mineral Titles

2.2.1 Mineral Titles in Mexico

This section is summarized from AMEC (2011).

The Mexican Constitution provides that the Mexican Nation has direct of ownership of mineral deposits within its territory. Mining concessions may only be granted to Mexican nationals and companies, ejidos, agrarian communities and communes and Indian communities. Foreign companies can hold mining concessions through Mexican domiciled companies. There is no difference between an exploration concession and a mining concession. All concessions run for a term of 50 years and may be extended for an additional 50 years under certain conditions.

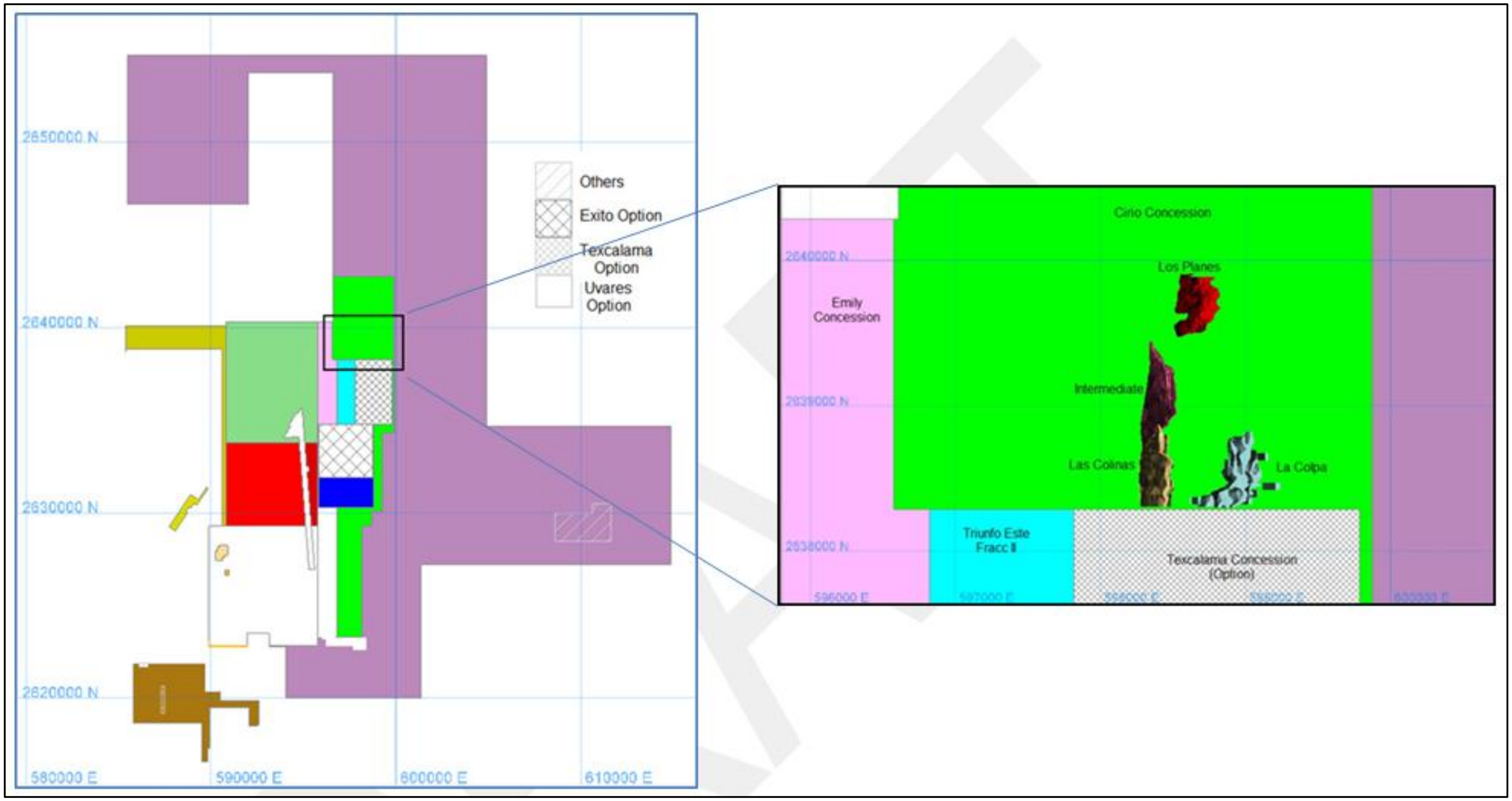
The main obligations which arise from a mining concession, and which must be kept current to avoid its cancellation, are performance of assessment work, payment of mining taxes and compliance with environmental laws.

2.2.2 San Antonio Mineral Titles

The Project is covered by fifteen mineral concessions with an area of approximately 46,328 ha. The concessions are held in the name of Compañía Minera Pitalla SA de CV (Pitalla), which is a wholly-owned indirect subsidiary of Argonaut. The concessions are listed in Table 2.2.2.1 and shown in Figure 2.2.2.1. The mineral resources described in this report are completely contained within the Cirio concession.

On June 28, 2012, Pitalla entered into an agreement with Explotacion Minera El Exito S.A. de C.V. and Compañia Minera Ameca, S.A. de C.V. by which Pitalla could acquire 80% of the mining concessions, Texcalama, Uvares and El Exito. The concessions are shown in Figure 2.2.2.1.

A licensed surveyor has completed a thorough survey of the concessions comprising the Project, as per Mexican requirements for grant of tenure. Annual exploration reports and work commitments have been provided as required. SRK received confirmation from Argonaut as to the validity of all concessions covering the project at the time of this report.



Source: SRK, 2012

Figure 2.2.2.1: Location of Mineral Tenures Covering the San Antonio Project

Table 2.2.2.1: Summary of Mineral Tenures at the San Antonio Project

Concession	Title No.	Title Holder	Surface (has)	Dates of Validity		Comments
Cirio	221072	Compañía Minera Pitalla, S.A. de C.V.	2,789.9356	19-Nov-2003	18-Nov-2053	Initial concessions staked by Pediment /Pitalla
Emily	221074	Compañía Minera Pitalla, S.A. de C.V.	518.2835	19-Nov-2003	18-Nov-2053	Initial concessions staked by Pediment /Pitalla
Trini Fracción I	229908	Compañía Minera Pitalla, S.A. de C.V.	34,450.4779	28-Jun-2007	27-Jun-2057	Following concession staked by Pediment /Pitalla and divided in 4 fractions
Trini Fracción II	229909	Compañía Minera Pitalla, S.A. de C.V.	41.2559	28-Jun-2007	27-Jun-2057	Following concession staked by Pediment /Pitalla and divided in 4 fractions
Trini Fracción III	229910	Compañía Minera Pitalla, S.A. de C.V.	5.6798	28-Jun-2007	27-Jun-2057	Following concession staked by Pediment /Pitalla and divided in 4 fractions
Trini Fracción IV	229911	Compañía Minera Pitalla, S.A. de C.V.	7.5124	28-Jun-2007	27-Jun-2057	Following concession staked by Pediment /Pitalla and divided in 4 fractions
Triunfo Este Fracc.I	227890	Compañía Minera Pitalla, S.A. de C.V.	495.3662	8-Sep-2006	7-Sep-2056	One of five concessions purchased from Cortez Resources.
Triunfo Este Fracc.II	227891	Compañía Minera Pitalla, S.A. de C.V.	350.0000	8-Sep-2006	7-Sep-2056	One of five concessions purchased from Cortez Resources.
Triunfo Este Fracc.III	227892	Compañía Minera Pitalla, S.A. de C.V.	0.3023	8-Sep-2006	7-Sep-2056	One of five concessions purchased from Cortez Resources.
Triunfo Oeste Fracc. I	227893	Compañía Minera Pitalla, S.A. de C.V.	848.6946	8-Sep-2006	7-Sep-2056	One of five concessions purchased from Cortez Resources.
Triunfo Oeste Fracc.II	227894	Compañía Minera Pitalla, S.A. de C.V.	95.0000	8-Sep-2006	7-Sep-2056	One of five concessions purchased from Cortez Resources.
El Triunfo Ampliación	233086	Compañía Minera Pitalla, S.A. de C.V.	3,140.0077	9-Dec-2008	8-Dec-2058	One of four concessions purchased from the Mexican Geological Survey
Reducción El Triunfo Fracción 1	233087	Compañía Minera Pitalla, S.A. de C.V.	1,974.6653	9-Dec-2008	8-Dec-2058	One of four concessions purchased from the Mexican Geological Survey
Reducción El Triunfo Fracción 2	233088	Compañía Minera Pitalla, S.A. de C.V.	136.9238	9-Dec-2008	8-Dec-2058	One of four concessions purchased from the Mexican Geological Survey
Reduccion Valle Perdido	233089	Compañía Minera Pitalla, S.A. de C.V.	1,473.8423	9-Dec-2009	8-Dec-2059	One of four concessions purchased from the Mexican Geological Survey
Total			**46,327.9473**			

2.2.3 Nature and Extent of Issuer's Interest

Pitalla controls 100% interest in the mineral tenures listed in Table 2.2.2.1. Section 2.3 describes the agreement on the El Exito, Uvares and Texcalama concessions.

2.3 Royalties, Agreements and Encumbrances

The Mexican government retains a 1% to 3% net smelter production royalty (NSR) on the claims of the El Triunfo concession group. The exact percentage of the royalty is dependent on the market price of gold.

On June 28, 2012, Pitalla entered into an agreement with Explotacion Minera El Exito S.A. de C.V. (EME) and Compañia Minera Ameca, S.A. de C.V. (CMA) by which Pitalla could acquire 80% of the mining concession denominated Texcalama, Uvares and El Exito by making payments totaling US$500,000 prior to December 20, 2012 and thereafter spending in working commitments:

- US$500,000 during year one;
- US$1,000,000 during year two; and
- US$1,500,000 during year three.

For purpose of this agreement, the investment commitment date begins on December 20, 2012. Pitalla can exercise the commitments earlier. In addition, Pitalla can acquire the remaining 20% by making a payment of US$4,000,000 at which time EME and CMA retain a 2% NSR from minerals obtained from concessions subject to the contract. Furthermore, the NSR can be purchased for US$1,500,000 per percentage point (US$3,000,000 for the full 2% NSR). If the entire NSR is purchased, Pitalla has no additional obligation. Pitalla shall be the operator of the Project during the life of the option.

No other royalties apply to any other concession, including the concessions within which the deposits described in this report are located.

2.4 Surface Rights

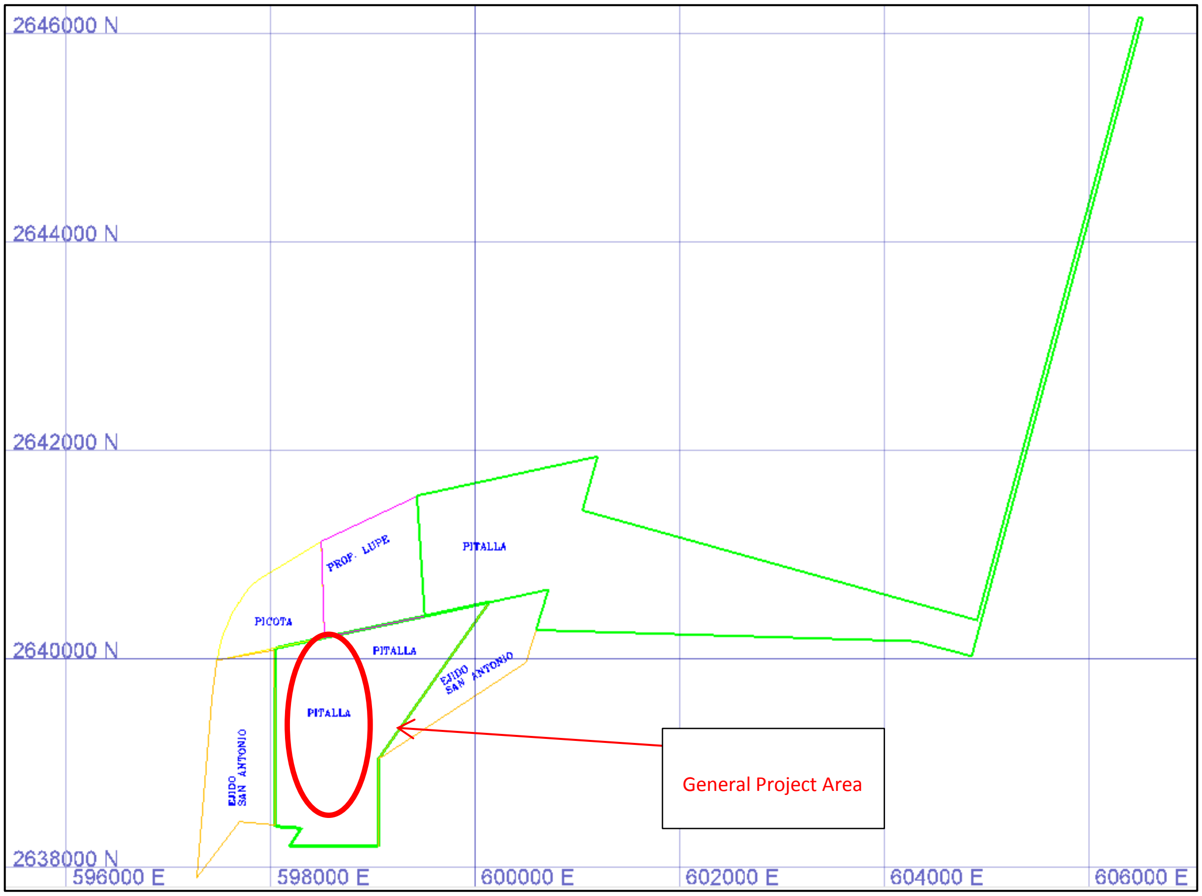
Pitalla has purchased 2,624 ha of surface rights in the Project area. Another 310 ha has been leased under occupation and exploration agreements detailed in Tables 2.4.1 and 2.4.2. The surveyed surface ownership boundaries are shown in Figure 2.4.1.

Table 2.4.1: Summary of Surface Ownership

Purchased Property	Surface (ha)
Ejido San Antonio	260
Ejido San Luis	500
Valdemar Ibarra - La Pimientilla	533
Sucesion Lupe- La Picota	290
Paulino Hernandez-Inominado	608
Ejido San Antonio	78
Roberto Flores-parcel 29	1
Jesus Flores-parcel 30	1
Sucesion Prof Lupe	1
Fam. Amao y Geraldo- La Picotta	350
2 1-hectare parcels (Manriquez)	2
Total	**2,624**

Table 2.4.2: Summary of Surface Leases

Leased Property	Comments	Surface (ha)
Ejido San Antonio	Temporary Occupancy 5% annual increase exploration enforced for 30 years.	200
Ejido San Antonio	Temporary Occupation exploitation 15 years with fixed terms throughout contract.	90
Ejido El Triunfo (CFE)	Payment Only	5
Ejido San Antonio (CFE and Right of way)	Payment Only	15
Total		**310**



Source: Argonaut, 2012

Figure 2.4.1: Surface Ownership in the Vicinity of the San Antonio Project

It is a reasonable expectation that any additional surface rights that may be required to support any future infrastructure locations can be obtained.

The following information regarding temporary occupation, access, and compensation is excerpted from the AMEC report on the Project, dated June 20, 2011. Updates to the AMEC report are contained within brackets ([ ])

2.4.1 Ejidos

Surface access agreements with the Procuraduria Agraria office in La Paz, Baja California Sur, (paid on an annual basis to the local ejidos) allow for either “low impact” exploration, e.g., prospecting, soil and rock sampling, and hand trenching; or “transition”, e.g., road building, mechanical trenching, and drilling with higher cash payments.

There are two ejidos that pertain to Project activities: the San Antonio ejido and the San Luis ejido. The San Antonio ejido is a very old farm holding dating from 1919 and comprising 10,846 ha. San Luis comprises about 1,000 ha of surface rights in the exploration area and is owned mainly by one family group. The San Luis ejido has more extensive irrigation-farmed areas southeast of Los Planes pueblo.

There are no work commitments and all types of exploration are permitted except mining. Exploration companies are encouraged to use ejido workers whenever possible. Argonaut has endeavored to hire all local staff from the ejidos and have consulted with the local village councils on all aspects of exploration and project development; jobs are relatively high-paying for the local communities and are thus sought after.

2.4.2 Access and Compensation

San Antonio Ejido Land Occupation Agreement

San Antonio ejido has granted to Pitalla, for a term of 30 years in a Land Occupation Agreement dated November 22, 2009:

- Prospecting rights to 8,000 ha of land-in-common-use of the San Antonio ejido, on receipt of a one-time payment of $200,000 Mexican pesos; and
- Occupation rights to 200 ha of land-in-common-use of the San Antonio ejido for exploration and exploitation activities, on payment of an annual exploration fee per hectare of $3,000 Mexican pesos for exploration activities and $10,000 Mexican pesos for exploitation activities (adjusted annually by 5%).

Under the terms of the Land Occupation Agreement, the San Antonio ejido has also granted to Pitalla its authorization to obtain all environmental permitting required by applicable laws to carry out exploration and exploitation activities on the Project. The Land Occupation Agreement was subsequently approved by a meeting of the San Antonio ejido.

The Land Occupation Agreement and Approval has been certified by the National Agrarian Registry (NAR).

San Antonio Ejido Land Assignment Agreement

A Land Assignment Agreement has been completed with the San Antonio ejido, whereby ownership (parcela) rights to 260 ha of land-in-common-use of the San Antonio ejido is transferred to Pitalla's nominee, Jorge Diaz Avalos, on payment by Pitalla of:

- $6,500,000 Mexican pesos;
- The remediation of 50 hectares of ejido land;
- The construction of a greenhouse structure of about 30 m x 8 m, which is intended to act as a test project to attempt to grow commercial feed for cattle using hydroponics, or another agreed-upon project to assist in the cattle-raising business of the ejido;
- Payment of 85% of the costs of electrification of the Aguajito and Texcalama towns (as quoted by the Federal Utilities Commission); and
- Preferential rights on employment vacancies.

Pitalla agreed to transfer back to the San Antonio ejido the 260 ha of agreement lands, upon abandonment or cancellation of the Project mineral tenure concessions, and once appropriate rehabilitation had been completed. The lands cover the Los Planes and Las Colinas deposits and surrounding area.

An additional clause to the Land Assignment Agreement confirmed that should the land transfer not happen due to internal ejido issues or issues arising from agrarian authorities, then Pitalla would be entitled to the occupation rights in and to the 260 ha specified in the Land Assignment Agreement, for a term of 30 years, for the purposes of mining exploration and exploitation. In this instance, no additional payments would be required to be made to the ejido apart from compensation as noted in the bulleted list above.

The Land Assignment Agreement was formally approved by the ejido. The Land Assignment Agreement and Approval was certified by the National Agrarian Registry (NAR) [RAN in Spanish, Registro Agrario Nacional] office. There is a further agreement between Jorge Diaz Avalos and Pitalla, whereby, on payment of $100,000 Mexican Pesos, the 260 ha specified in the Land Assignment Agreement will be transferred from Jorge Diaz Avalos to Pitalla. On November 1, 2011, the NAR ratified and approved the Land Assignment Agreement between Mr. Diaz and Pitalla. Argonaut is in the process of realizing the transfer from Mr. Diaz and expects this transaction to be finalized by the end of 2012.

San Antonio Ejido Assignment of Dumps Agreement

The San Antonio ejido concluded an agreement with Pitalla on December 9, 2009, under which Pitalla has assigned to the ejido all Pitalla's rights to dump materials that fall within Pediment owned concessions, and are within San Antonio ejido land. The dumps are related to previous mining activity. The San Antonio ejido will bear all environmental responsibilities inherent to the removal or disposition of the dumps. In addition, if any of these historic dumps are within the El Triunfo concession group area, then any gold recovered from those dumps will be subject to the royalty payments required by the Mexican Geological Survey (refer to Section 4.5), and such royalty payments must be made by the ejido.

Aguajito and Texcalama Residents Compensation Agreement

A compensation agreement, signed December 8, 2009, was entered into by Pitalla and certain residents of Aguajito and Texcalama, La Paz, B.C.S. Under the agreement, Pitalla indemnifies the Aguajito and Texcalama residents for land impact resulting from mining exploration and exploitation activities in Aguajito and Texcalama, as follows:

- $36,000 Mexican Pesos per month, for a term of 30 years;
- The remediation of 50 ha of ejido land;
- 85% of costs of electrification of the Aguajito and Texcalama towns (as quoted by the Federal Utilities Commission); and
- Preferential rights on employment vacancies.

Mexican Geological Survey Agreement

In July 2008, Pediment acquired the El Triunfo–Valle Perdido concessions from the Mexican Geological Survey and committed to a variable 1% to 3% net smelter return (NSR); payable to the Mexican Geological Survey.

As a guarantee for the payment of NSR, Pitalla has to provide a bond to the Mexican Geological Survey for the amount of MXN506,853; which the Mexican Geological Survey could cash should Argonaut produce and not make its NSR payment. The bond is renewed annually, so the amount of the bond is held in trust for as long as the Mexican Geological Survey has its NSR active. Pitalla will remain responsible for payment of royalties on this material to the Mexican Geological Survey, as non-payment of the royalty will result in concession cancellation.

2.5 Environmental Liabilities and Permitting

2.5.1 Environmental Liabilities

Current environmental liabilities associated with the Project are limited to the various exploration programs and field baseline data investigations that have occurred at the site. Surface disturbance requiring reclamation on the part of Argonaut is primarily associated with roads, drill pads, drill sumps, etc. In addition, a recent hydrogeological investigation included installation of several wells which will need to be properly closed and abandoned once they are no longer needed for monitoring and/or water production. Current disturbance is limited to 720 m^2 for diamond core drilling and 768 m^2 for reverse circulation drilling. The allowance for road disturbances is seven percent of the exploration area to be drill tested under the granted authorization. Claims of Argonaut exceeding the authorized limits on exploration have been made. However, Argonaut maintains that it operates in full compliance with the applicable regulations governing mineral exploration (see below).

2.5.2 Required Permits and Status

According to Argonaut, the required authorizations for continued exploration of the site have been obtained for its activities at San Antonio, and all of the the exploration programs to date have been conducted in accordance with the applicable Mexican Official Standards (*Normas Oficiales Mexicanas*) under NOM-120. The most recent program, the Cañada del Aqua Exploration Program, received authorization to proceed from the federal environmental agency, Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT), in July 2012.

Generally, concessionaires must comply with federal environmental regulations, which require that mining activities be subject to an environmental impact statement authorization. In order to avoid the need to file an environmental impact statement for all exploration activities, NOM-120-ECOL-1997 on *Specifications of Environmental Protection for Direct Exploration Mining Activities* was published in the *Diario Oficial de la Federacion* of November 19, 1998, setting forth certain thresholds that, if not exceeded, make the filing of an impact statement unnecessary (Sanchez-Mejorada, 2000). As such, NOM-120 is not an issued permit, but rather a set of regulations that allow exploration to take place. To work under NOM-120, a company can present a report of initiation of exploration activities and then carry out its exploration staying under a percentage of affectation and observing regulations that include, road and pad dimensions, disposal of waste, etc.

AMEC (2011) noted that a visit by the regulatory enforcement authority, La Procuraduria Federal de Proteccion al Ambiente (PROFEPA), was requested by Pediment for the Project, and conducted in January 2009 to check the status of the exploration disturbance limit at that time. The review indicated several areas were close to maximum disturbance in areas having 25 m drill spacing. Subject to this inspection, the Project was deemed to be in compliance. However, in 2012, PROFEPA ordered a cease-and-desist injunction against the San Antonio Exploration Zone under NOM-120. This injunction is currently under administrative review. Similarly, the Fandango Exploration Program was stopped and fined US$10,000 by PROFEPA. This fine and injunction is also being contested by Argonaut. In both cases, SEMARNAT claimed the allowable disturbance was exceeded under NOM-120, which is generally set at seven percent of the area to be drill tested under the granted permit for road disturbances.

Argonaut confirmed to SRK that the permits and authorizations necessary for mineral extraction and beneficiation are being applied for. SRK has not conducted an exhaustive investigation as to the current status of all the required permits. Additional discussion on the required permits for mineral exploitation, and their current status with respect to the Project as provided in Section 18.3.8.

2.6 Other Significant Factors and Risks

While Argonaut has affirmed that the exploration programs have been, and will continue to be, performed in accordance with Mexican Official Standards (NOM-120), the injunctions and fines order by PROFEPA alleged exceedence of the allowable disturbance (regardless of their validity) damages the credibility and reputation of Argonaut, and could affect future permitting efforts.

Likewise, on August 2, 2012, Argonaut received notice that the environmental permit application, Manifesto Impacto Ambiental (MIA), for the Project had been officially denied by SEMARNAT on the grounds that: 1) it is incompatible with the designated land use in the area, as set forth in the Urban Development Program for the La Paz Population Center (Programa de Desarrollo Urbano del Centro de Población de La Paz or PDUCPLP); 2) that Argonaut failed to publish an extract of the project in the local newspaper following the meeting with SEMARNAT in a timely manner; 3) that insufficient descriptions of the path of the proposed electrical line to the project site were provided; and 4) the MIA was found to be deficient in its response to requests for additional detail and the evaluation of the environmental impact of the project, including cumulative and residual impacts. Argonaut is in the process of working to correct the issues regarding the PDUCPLP and other cited reasons in order to resubmit the MIA for review for SEMARNAT.

3 Accessibility, Climate, Local Resources, Infrastructure and Physiography (Item 5)

3.1 Topography, Elevation and Vegetation

The region is composed of an extensive complex of granitic mountains, valleys, canyons, and plateaus. The Project is located in an area defined by erosional features, and the mineralization is generally covered by an extensive pediment of sand and gravel. Topography is considered to be relatively flat, with local hummocky hills and arroyos. The area is characterized by seasonal wet-dry conditions found in this part of Mexico. The elevation of the project is between 200 to 300 m, and drilling has encountered mineralization below sea level in some instances.

Some elements of the dry forest are present in this community, but xeric elements are dominant and include *Opuntia cholla*, *Bursera microphylla*, *Lysiloma divaricata, Stenocereus thuberii*, *Cnidoscolus angustidens*, *Yucca* sp., and *Ferocactus* spp. Herbaceous elements are present and include *Plantago linearis*, *Bouteloua hirsuta*, and *Commelina coelestis* (Leon et al., 1988).

3.2 Climate and Length of Operating Season

The climate of the region is generally described as arid and hot. Temperatures for Baja California Sur average 24°C during the day and 13°C at night in January. In July, temperatures average 32°C during the day and 27°C at night. The Project routinely experiences temperatures in excess of average temperatures. Average precipitation is approximately 450 mm/y, and is far outpaced by evaporation. Pan evaporation averages over 2,000 mm/y. Rainfall is cyclical, with distinct wet and dry seasons with almost 80% of the annual rainfall between July and September (Schlumberger, 2010).

The potential operation could operate year-round, pending potential delays caused by unpredictable natural phenomena such as hurricanes or flash flooding.

3.3 Sufficiency of Surface Rights

Surface rights are described in Section 2.4. Pitalla controls sufficient surface rights for the proposed operation described in this report.

3.4 Water Rights

3.4.1 Basin Usage

Water usage is controlled by the government agency, Comisión Nacional del Agua (CONAGUA), for allocation and management of water rights. The San Antonio basin is subscribed for about 12 Mm^3 of water per year.

3.4.2 Water Rights Agreements

All of Pitalla's water rights agreements (Table 3.4.2.1) are required to be filed and approved for registration by CONAGUA, and some of the agreements are still pending approval. There is no reason to assume that Argonaut will not be able to acquire the appropriate water rights for the project at this time.

Table 3.4.2.1: Water Rights Acquired for the San Antonio Project

Original Ownership	m^3/year
Ejido San Vicente de los Planes	138,500
Rancho Pimientilla - Valdemar Ibarra	300,000
Ejido Juan Dominguez Cota	167,400
Rancho Hermanos - Mendoza Lucero	31,000
Jorge Geraldo	14,000
Rancho San Igancio - Hermanos lucero	50,000
Rancho Aparejo - Hermanos Bañaga Geraldo	30,000
Total	**730,900**

Source: Argonaut, 2012

The following is a description of the individual water rights agreements and is excerpted from the AMEC report dated June of 2011.

<u>San Vicente de los Planes Ejido</u>

Pitalla and San Vicente de los Planes ejido entered into a water access agreement on October 31, 2009, whereby the ejido transferred to Pitalla all rights and obligations to 128,000 m^3 of water per year attached to water rights concession number 01BCS102404/06IMGR97. The transfer of the water rights was formally approved by the ejido.

In December 2010, Argonaut and Ejido San Vincente de Los Planes terminated the contract for 128,000 m^3, and signed a new contract for 138,500 m^3 with respect to concession number 01BCS101798/061MOC0.

<u>Mendoza Family</u>

On December 2, 2009, Pitalla and members of the Mendoza family entered into an agreement for water rights, whereby the Mendoza family transferred and assigned to Pitalla all rights and obligations to 31,000 m^3 of water per year that were attached to water rights concession number 01BCS104411/06IMGE99.

<u>Juan Dominguez Cota Ejido</u>

In November 2010, Argonaut acquired 40,000 m^3 of water rights from the Ejido Juan Dominguez Cota that were attached to water rights concession number 01BCS101504/06AMOC07.

In June 2011, an additional 70,000 m^3 of water rights, attached to water rights concession number 01BCS101504/06AMOC07, 32,600 m^3 of water rights attached to water rights concession number 01BCS101504/06AMOC07 and 24,800 m^3 of water rights attached to water rights concession number 01BCS101504/06AMOC07 were acquired from the ejido.

<u>Rancho la Pimientilla</u>

In November 2010, Argonaut acquired 300,000 m^3 of water rights from Rancho la Pimientilla. These rights were attached to water rights concession number 01BCS100177/06AMDL09. Argonaut has made a payment of 22% of the required total payment. On June 22, 2012 CONAGUA authorized the transfer of rights to Pitalla and assigned the concession title No. 01BCS100177/06AMDL12 for 300,000m^3 of water annually. Argonaut paid the remaining balance required on August 30, 2012.

Banaga Geraldo Family

In March 2011, Argonaut acquired 30,000 m^3 of water rights from the Banaga Geraldo Family that were attached to water rights concession number 01BCS101165/06AMDL08.

Jorge Geraldo Geraldo

In June 2011, Argonaut acquired 14,000 m^3 of water rights from Jorge Geraldo Gerald attached to water rights concession number 01BCS104669/06AMDL10.

3.5 Infrastructure

Infrastructure requirements and status are described in Section 15.

4 History (Item 6)

4.1 Prior Ownership and Ownership Changes

Mineral rights for the Project were initially acquired by Echo Bay Exploration Inc. (Echo Bay) in 1993.

The Cirio and Emily concessions were acquired Pitalla in 2003. In 2007, the Trini concession and its fractions were all acquired by Pitalla, bringing its combined holdings to 37,813.15 ha. Pitalla was held by a private Mexican company, El Dragon Minerals LLC, which was acquired by Pediment in October 2005.

Five concession fractions (Triunfo Este Fracc. I, II and III and Triunfo Oeste Fracc. I and II) were obtained by Pitalla from Cortez Resources S. de R.L. de C.V., a Mexican company, on March 17, 2008. Pitalla acquired the El Triunfo concession group, held by the federal government as part of the National Zone of Mineral Reserve for more than 40 years, in a competitive bid process. Two sub-groups of concessions are in the El Triunfo group: the Triunfo contiguous group of three concessions composed of the El Triunfo Ampliación, the Reducción El Triunfo Uno Fracc. and the Valle Perdido concession located south of the main sub-group.

On October 19, 2010, Argonaut and Pediment announced that they had entered into a binding agreement to complete a transaction whereby all of Pediment's common shares became exchangeable into the common stock of Argonaut on the basis of 0.625 of a common share of Argonaut for each one Pediment common share. Argonaut completed the business transaction with Pediment on January 27, 2011.

4.2 Previous Exploration and Development Results

The earliest known exploration and exploitation activities in the district commenced around 1748, with small artisanal-scale operations in the Triunfo area and south of the San Antonio district. The Triunfo veins were exploited by the Jesuits during this time, until their expulsion in 1767. A period of relative inactivity existed until 1862, when a resurgence in interest in gold mining resulted in as many as 25 individual mines working in the area (Consejo de Recursos Minerales Baja California Sur Monograph, 2000). This production continued until 1895, when a cyclone/hurricane weather system flooded most of the mines. A rapid decline in activity followed due mainly to water management, poor ventilation, metal prices, and the beginning of the Mexican Revolution. By 1914, large scale mining was largely inactive, with the exception of several artisanal operations that remained active periodically (Herdrick and Giroux, 2009).

The earliest modern exploration activities were carried out by the Mexican Government's Consejo de Recursos Minerales (CRM) in the 1970's. This work consisted of surface and near-surface investigations in the form of mapping, trenching, and magnetic/induced polarization (IP) surveys.

Viceroy Resource Corp. (Viceroy) began exploring the Paredones Amarillos area south of the project in 1990. Echo Bay entered into a joint venture (JV) with Viceroy on the Paredones Amarillos project. Echo Bay acquired mineral titles to the San Antonio area in 1993. Between 1993 and 1998, Echo Bay conducted mapping, sediment sampling, soil sampling, rock chip sampling, trenching, ground electromagnetics, airborne radiometrics, magnetic and very-low frequency electromagnetic surveys (VLFEM), reverse circulation (RC) and diamond core drilling, and metallurgical studies. An initial mineral resource estimate was completed during this time (AMEC, 2011). A total of 31 reverse circulation (RC) holes were drilled for a total of 6,187 m.

These studies identified the Las Colinas zone through the use of the radiometric surveys and drilling, although other zones such as Intermediate, Planes, and La Colpa remained hidden due to the gravel cover (Brown, Reynolds, and Hauck, 1998).

Pediment explored the area from 2005 through 2010 prior to it being acquired by Argonaut in early 2011. Pediment's exploration consisted of rock chip sampling and grab samples from the Echo Bay trenches, soil sampling, reconnaissance Induced Polarization (IP) geophysical surveys, RC and core drilling and metallurgical testwork. Pediment completed a total of 13,600 m in 82 RC holes and 57,802 m in 317 core holes.

4.3 Historic Mineral Resource and Reserve Estimates

The earliest estimate of the contained resource was performed in 1996, by a consulting geologist contracted by Echo Bay. The estimate was based on data collected from 16 drillholes and 5 trenches, and used a cross-sectional method to estimate resources. This method extended mineralization a maximum distance of 25 m from drill intercepts and within the profile of the section a maximum of 50 m. A specific gravity of 2.7 was used to derive tonnages. All assays were used in the estimation, and there is no cut-off stated as a part of the resource estimation. Using the aforementioned parameters, a "geological gold resource" of 2.74 Mt at an average grade of 1.0 g/t Au was estimated. At the request of Echo Bay, additional resources were estimated with projections of 50 m from intervals and 100 m section widths, as well as another incremental resource extending a further 200 m down-dip. The first of these estimates resulted in an estimated resource of 6.84 Mt at a grade of 1.02 g/t Au. The latter resulted in a resource estimate of 3.76 Mt at a grade of 1.01 g/t Au. These estimates were published by Echo Bay and were used as promotional materials by Pediment prior to Argonaut's involvement in the project (AMEC, 2009).

The aforementioned "resources" do not adhere to NI 43-101 standards, and are considered purely historical and informative in nature. The estimates have not been verified by a QP as required by NI 43-101. Argonaut is not treating the historical estimate as current mineral resources or mineral reserves.

The first mineral resource estimate to apply a NI 43-101 resource classification was conducted in 2007 by Dave Laudrum of Ashloo Consultants Ltd. on behalf of Derry, Michener, Booth & Wahl Consultants Ltd. (DMBW). The estimation was based on data from 93 drillholes drilled by both Echo Bay and Pediment. The entire resource was classified as Inferred due to a lack of confidence in the drill spacing. The resource statement from DMBW is shown in Table 4.3.1.

Table 4.3.1: 2007 Summary of Inferred Mineral Resources at the San Antonio Project, reported at a 0.4 g/t Au cut-off

Deposit	Type	Mt	Au (g/t)	Ounces Au
Los Planes	Oxidized	10.54	1.18	400,000
	Sulfide	20.40	1.40	900,000
	Total	30.58	1.32	1,300,000
Las Colinas	Oxidized	0.37	0.92	10,000
	Sulfide	5.25	0.83	140,000
	Total	5.62	0.83	150,000

Source: Thompson and Laudrum, 2007

A subsequent NI 43-101 compliant resource estimation was completed in 2009 by Giroux Consultants Ltd. (Giroux) on behalf of Pediment (AMEC, 2009). This estimation included the Las Colinas, Intermediate, and Los Planes zones and the 242 drillholes. These resources are summarized in Table 4.3.2. More extensive details of this estimation are available in the AMEC report from 2009.

Table 4.3.2: 2009 Summary of Mineral Resources at the San Antonio Project, reported at a 0.4 g/t Au cut-off

Type	Measured and Indicated			Inferred		
	Mt	Au (g/t)	Ounces Au	Mt	Au (g/t)	Ounces Au
Oxide	7.24	0.93	216,000	0.17	0.59	3,000
Mixed	6.61	1.07	227,000	0.19	0.59	4,000
Sulfide	33.5	1.02	1,096,000	5.03	0.64	104,000
Total	**47.35**	**1.01**	**1,539,000**	**5.39**	**0.64**	**110,000**

Source: AMEC, 2010

In 2010, Pediment commissioned a Preliminary Economic Assessment by AMEC (2010). The database included 241 drillholes completed by Echo Bay and Pediment. Resources are contained within a pit optimization shell (Table 4.3.3).

Table 4.3.3: 2010 Summary of Mineral Resources at the San Antonio Project, reported at various Au cut-off grades

Class	Au Cut-off	Tonnes (x 1,000)	Au (g/t)	Total Au grams (x 1,000)	Au ounces (x 1,000)
Oxide/Transition					
Measured	0.17	4,991	0.98	4,882	157
Indicated	0.17	10,963	0.85	9,282	298
Oxide/Transition Measured + Indicated + Indicated	**0.17**	**15,995**	**0.89**	**14,164**	**455**
Inferred	0.17	769	0.65	496	16
Sulfide					
Measured	0.40	2,839	1.32	3,735	120
Indicated	0.40	15,991	1.25	19,945	641
Sulfide Measured + Indicated	**0.40**	**18,830**	**1.26**	**23,679**	**761**
Inferred	0.40	327	1.19	388	12
Total					
Measured	0.40	7,830	1.10	8,617	277
Indicated	0.40	26,954	1.08	29,227	939
Total Measured + Indicated	**0.40**	**34,825**	**1.09**	**37,843**	**1,394**
Inferred	0.40	327	2.70	884	28

Source: Hanson et al, 2010

The latest published NI 43-101 resource estimation was completed in 2011 by Edward J.C. Orbock III (AMEC, 2011) on behalf of Argonaut, and was compiled from a database of 430 drillholes. This resource estimation included Los Planes, Intermediate, Las Colinas, and La Colpa, and was well-documented as to the procedures and parameters used in the modeling. Resources are contained with a pit optimization shell (Table 4.3.4).

Table 4.3.4: 2011 Summary of Mineral Resources at the San Antonio Project, reported at various cut-offs

Deposit	Class	Cut-off (g/t Au)	Tonnes (x 1,000)	Au Grade (g/t)	grams (x 1,000)	ounces (x 1,000)
Las Colinas	**Oxide/Transition**					
	Measured	0.23	248	0.76	187	6
	Indicated	0.23	970	0.71	689	22
	Sulfide					
	Measured	0.26	360	0.72	260	8
	Indicated	0.26	5,447	0.84	4,569	147
	Oxide/Transition					
	Inferred	0.23	25	0.48	12	0.4
Los Planes	**Oxide/Transition**					
	Measured	0.13	6,297	0.92	5,804	187
	Indicated	0.13	8,689	0.90	7,830	252
	Sulfide					
	Measured	0.19	3,935	1.30	5,111	164
	Indicated	0.19	22,098	1.03	22,794	733
	Oxide/Transition					
	Inferred	0.13	407	0.92	375	12
	Sulfide					
	Inferred	0.19	464	0.94	436	14
Intermediate	**Oxide/Transition/Sulfides**					
	Measured	0.21	193	1.12	215	7
	Indicated	0.21	2,955	0.94	2,774	89
	Oxide/Transition/Sulfides					
	Inferred	0.21	9	0.56	5	0.2
La Colpa	**Oxide/Transition**					
	Inferred	0.18	1,109	0.43	473	15
	Sulfide					
	Inferred	0.22	741	0.53	395	13
All Deposits	**Oxide/Transition/Sulfides**					
	Measured	Various	11,032	1.05	11,577	372
	Indicated	Various	40,160	0.96	38,655	1,243
	Oxide/Transition/Sulfides					
	Measured + Indicated	Various	51,192	0.98	50,232	1,615
	Oxide/Transition/Sulfides					
	Inferred	Various	2,755	0.62	1,696	55

Source: AMEC, 2011

4.4 Historic Production

Historic production in the district is poorly documented. The nearby Triunfo district is thought to have produced around 115,000 ounces of gold and approximately 21 million ounces of silver through 1914 (AMEC, 2009). Other production was from the nearby El Tule area, where a flotation mill was operating at some point during the 1940's or 1950's. This time period is taken from the presumed ages of roasting furnaces and chimneys that were constructed in the 1940's south of the San Antonio district in the Cañada del Agua mine area. The most recent production in the district was gold produced by Minera Tepmin at the Testera Mine, located approximately 10 km south of San Antonio. This mine processed approximately 50 tonnes per day and operated intermittently from 1997 to 2000 (AMEC, 2009).

There is no recorded production from the current Project area.

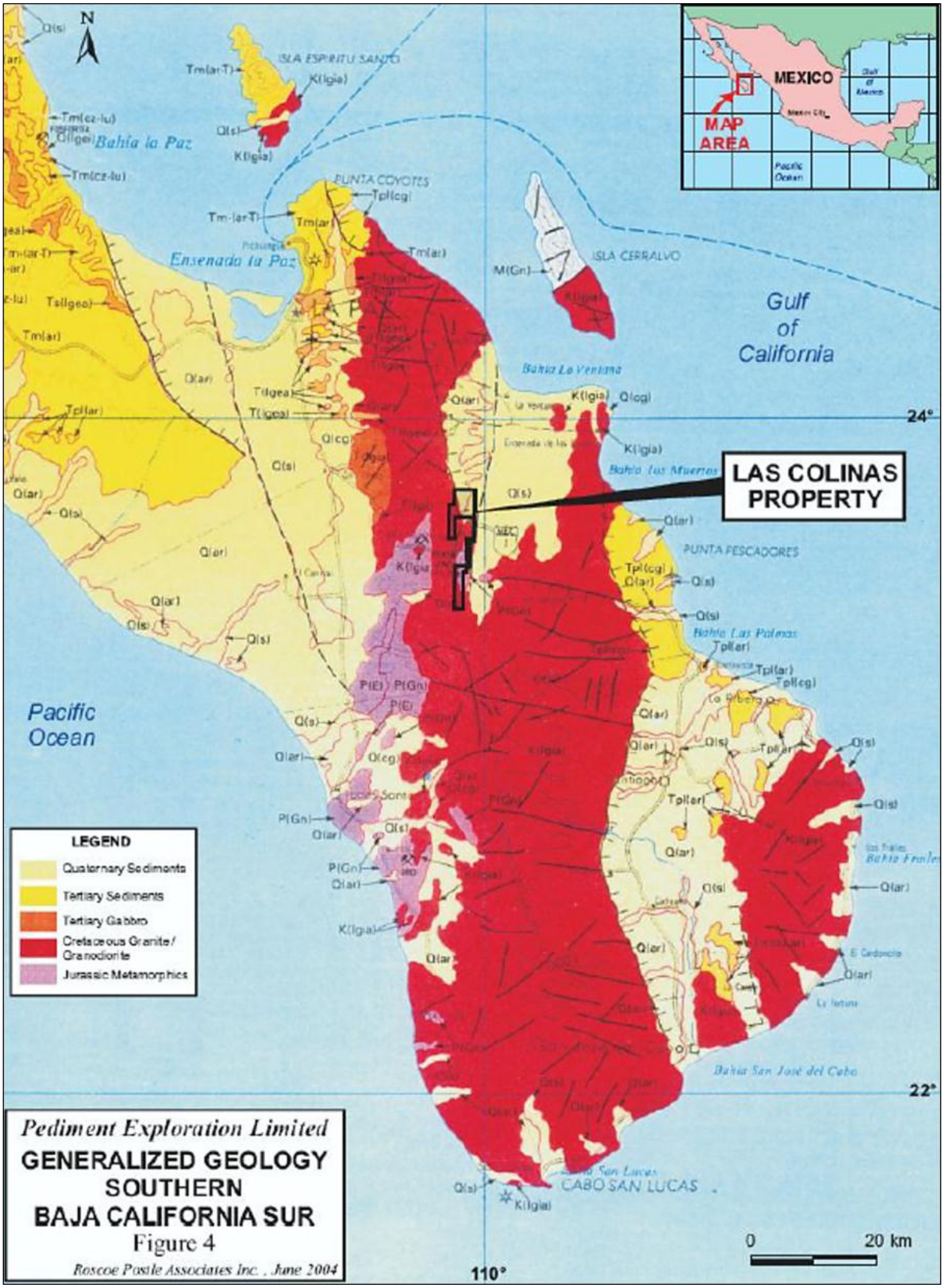
5 Geological Setting and Mineralization (Item 7)

5.1 Regional Geology

The basement of the Baja California Sur region comprises a chain of Mesozoic granitic bodies and accompanying late Paleozoic to Mesozoic metasedimentary roof pendants. Metasediments are schists, gneiss, and marbles, which are thought to have experienced some regional metamorphism prior to the emplacement of intrusive rocks (AMEC, 2009). The crystalline basement complex west of the La Paz fault that includes the San Antonio district is composed of two separate intrusive complexes hosted in sediment-derived schists and gneisses. Host rocks are generally described as a hornblende-rich intrusive varying in composition between gabbro and quartz-diorite. The biotite granodiorite batholith that hosts mineralization at the nearby Concordia (Paredones Amarillo) gold deposit (held by third parties) is considered to be a younger intrusive event (AMEC, 2011). Overlying the basement rocks and the intrusions are Tertiary and Quaternary sediments.

The structural geology of the region is dominated by Mesozoic large-scale low-angle thrust faulting featuring cataclasites, mylonites, and mineralized stockwork zones that host the silver and gold mineralization (AMEC, 2011). Shear zones related to thrust faulting exceed 200 m in thickness and are regionally traceable over 40 km.

Comparisons of the San Antonio district to the nearby Triunfo district indicate that while both districts exhibit similar characteristics, significant differences in the geochemistry exist. Both districts are thought to have a similar age and origin, and mineralization is roughly hosted in the same rock units. However, San Antonio is known to be a gold-dominant system, whereas Triunfo is silver-dominant with associated base metals. Strikes and dips are also dissimilar between the two districts, with San Antonio having a north-south strike and a variable dip to the west, and Triunfo striking roughly 20° to 30° east of north and dipping gently to the east (Herdrick, 2009).



Source: AMEC, 2011

Figure 5.1.1: Regional Geologic Map of the Southern Baja California Peninsula

5.2 Local Geology

Due to the scarcity of outcrop and resultant lack of detailed mapping, the geology in the vicinity of the project is best described from geologic logging of diamond drill core. An extensive pediment comprised of sand and gravel covers the great majority of bedrock around the project, and increases in thickness from west to east. Local outcrops of the mineralization mainly exist around the Colinas area.

5.2.1 Lithology

The bedrock geology of the area is dominated by metamorphic crystalline basement rocks and intrusions of diorites, gabbros, granodiorites, and granites. The distribution of these units is shown in the general geologic map in Figure 5.2.1.1.

The following geologic description is excerpted from AMEC, 2009.

Diorite and Gabbro

Diorite and closely related gabbro are part of the older intrusive sequence with abundant hornblende or augite. These rock units generally have a dark color due to high percentage of mafic minerals. The diorite and gabbro are usually coarse grained although some fine-grained varieties have been observed in the La Colpa area. These more mafic rock units are located only in the south part of the Colinas area and near the La Colpa mine area. Diorite is common in the areas around Paredones Amarillos, Uvares, and Mirador.

Quartz Diorite

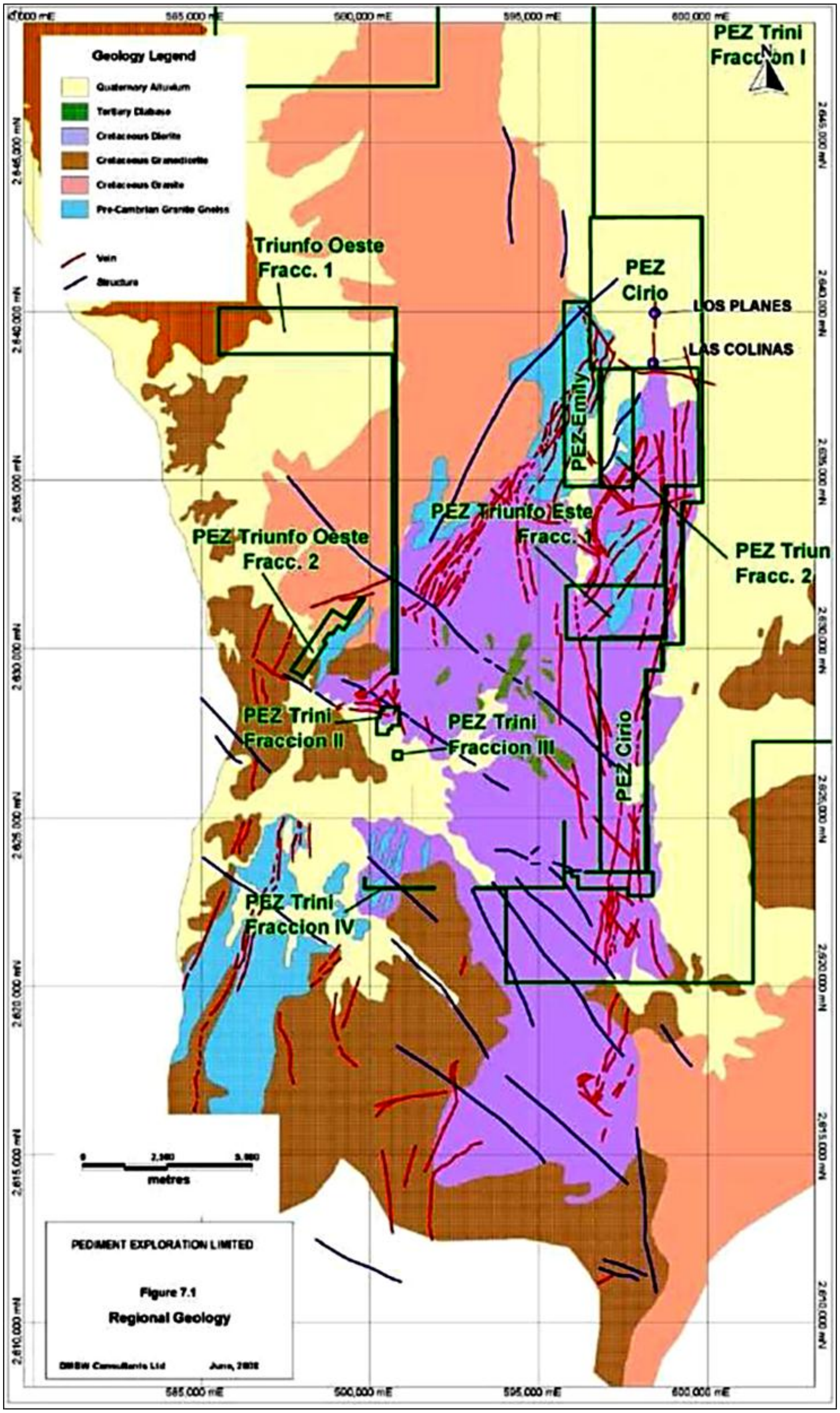
Biotite Hornblende Quartz Diorite is part of a large batholithic mass ranging from gabbro through quartz diorite and granodiorite composition. This igneous mass covers a large area east of La Paz extending south beyond Todos Santos and toward Cabo San Lucas. The intrusives of this mass are characterized by abundant hornblende and minor quantities of magnetite and commonly have illmenite as the dominant opaque mineral. Diorite of this complex is the hangingwall rock type at Paredones Amarillos while the quartz diorite is common in both the hanging-wall and footwall of the Planes deposit. Las Colinas is dominated by a mix of diorite and quartz diorite.

The hornblende rich intrusive complex ranges compositionally from gabbro, to diorite, and hornblende quartz diorite which as stated above are intrusive into older metasedimentary units. Locally foliation is developed within the intrusive units which are cut by numerous small, irregular pegmatitic to aplitic dikes. Coarse grained biotite hornblende quartz diorite is the most common rock type present in the Planes deposit. A similar appearing coarse grained weakly foliated biotite granodiorite is present in the Triunfo district, but it appears to be from a different intrusive complex with biotite the major mafic mineral.

Hornblende from the hornblende gabbro near Paredones is radiometric age dated at 129 ma (plus or minus 5 ma) (Brown, et. al 1998) Age dating by Carrillo-Chavez et al. (1999) also report the coarse grained gabbro, diorite-quartz diorite rocks range in age from 130 to 140 ma as determined by testing of the abundant igneous hornblende. Both the Valle Perdido batholith and the Triunfo batholith intrude those older hornblende bearing igneous rocks that are about 30 to 50 million years older. The aplite and pegmatitic dikes found only in the hangingwall blocks appear to be derived from the Valle Perdido granite batholith located somewhat deeper. The dikes, however, are not present in the Valle Perdido batholith.

Biotite Granodiorite-Granite (Valle Perdido Batholith and Smaller Bodies)

Biotite granodiorite-granite is present as a medium grained quartz rich intrusive beneath the Planes deposit and is seen mainly in the drill holes which penetrate deeper into the hanging-wall of the large shear zone. The intrusive has a weakly porphyritic character with fine grained biotite of a brownish coffee color in drill holes. Rocks of similar texture outcrop south of the Colinas deposit and adjacent to the southeast of the La Colpa mine zone. In surface outcrops the intrusive has a weak pervasive sericitic alteration. This may also be present within the footwall rocks of the Los Planes deposit. The same intrusive is present in the high ridge west of the Planes deposit area continuing north to the Sea of Cortez to the area northwest of the town of El Sargento. Radiometric age dates reported in Carrillo-Chavez et al. (1999) support the possibility that this batholith is the same as the Valle Perdido intrusive.



Source: AMEC, 2011

Figure 5.2.1.1: General Geologic Map of the San Antonio – Triunfo Districts

Biotite granodiorite-granite is documented in part of the Paredones Amarillos area with porphyritic phases present in close proximity to the deposit between the batholith and the mineral deposit zone. Limited sampling including whole rock major element analysis indicates the biotite granodiorite batholith of Valle Perdido that forms part of the footwall adjacent to the Paredones gold deposit is of peraluminous chemical composition, having relatively high alumina content as seen in the ratio of aluminum to the alkali elements. Other intrusive bodies ranging from dikes to batholiths of similar composition are located near other gold deposits appear have a similar age and composition as that batholith (Herdrick, 1998). Age determinations by Echo Bay of the Valle Perdido batholith shows it has a radiometric age of 91.3 ma (plus or minus 2.3 ma) as determined from biotite separates (Gibson, 1996). Study of the Uvares gold deposit, located between Paredones and Planes-Colinas deposits reported age dates of hornblende from a tonalite with an age of 137 ma (plus or minus 6 ma) and a diorite intrusive with an age 128 ma (plus or minus 5 ma) (Carrillo-Chavez et al.,1999). Carrillo-Chavez et al. (1999) determined that the Valle Perdido batholith cooled to a solid state at around 100 to 90 ma and the hydrothermal activity ended shortly thereafter between a range of 90 to 80 ma. Igneous batholiths of this age continue north to the coastline near Sargento and Los Planes where two radiometric age dates report 93 ma and 87 ma, respectively (Carrillo-Chavez et al., 1999). Sericite age dating from the Paredones Amarillos deposit was also done by radiometric analyses of two mineralized samples resulting in ages of 91.3 ma in one with the second sample having a questionable age of 79.1 ma. The age of gold mineralization through the district is concluded to be within this same time range clustering at about 90 ma, including the Los Planes and Las Colinas gold mineralization.

Coarse Grained Biotite Granodiorite of Triunfo

Coarse grained biotite granodiorite is of a slightly different composition than the above biotite granodiorite to granite intrusive by having much coarser and more abundant black biotite, possible occasional hornblende, and more common orthoclase. This batholith extends from the Todos Santos area north of El Triunfo. From El Triunfo the batholith is observed to have a width of about 8 kilometers making up much of the floor of the valley extending north toward La Paz with a length of about 30 km. The batholith appears to have been easily eroded in areas more than a km west of its eastern contact area. The Triunfo veins tend to parallel the batholith margin both inside and outside the intrusive but near its margin as seen in the Triunfo area with the Los Reiles, La Obscuridad, and the Ciega veins (Bustamante-Garcia, 2000).

Medium to fine grained sills of similar character but with sericite and orthoclase alteration are found east of the contact of the batholith following the shear zones similar to the gold mineralized areas of Mirador and Planes. These sills are seen to be up to 30 m thick and show evidence of shearing with foliation parallel to that of surrounding gneiss and schist. The main mineralized areas have not been investigated in detail; however a three km long area around the Humboldt and Ocote mines contains the sill like intrusives that appear to be part of the Triunfo batholith. Future studies should try to confirm this with detailed mapping, age dating, and drilling.

Post Mineral Andesite Dikes

Post mineral, dark colored Andesite Dikes are seen in several locations in the Colinas area and the Arroyo Fandango. A dike clearly cut across mineralized rock near Drill Hole 117 of EBX, and have a N40 W trend and apparent near vertical dip. Thin coatings of limonite on fractures within the dike suggest it contained a small amount of pyrite. Dikes of this form are seen throughout the region and have fairly uniform northwest trends. Similar dikes were also seen in the Paredones Amarillo area where radiometric age determinations were completed. Two post mineral andesitic-dacitic dikes present at Paredones Amarillo have a radiometric determined age of 74.5 ma (Brown, 1998).

Salada Formation

The Salada Formation is a poorly outcropping unconsolidated arkosic sand to gravel unit deposited in the Los Planes mineral deposit area and more than 20 km northward into the Sea of Cortez. Salada Formation is mainly a continental basin fill group of different weakly consolidated and weakly bedded sedimentary units with marine components as well as clastic facies of the unit. The formation appears to be a deltaic deposit formed in a relatively rapidly declining basin. Larger areas of the Salada Fm. are located in the area west of Todos Santos to La Paz. Thickness is possibly about 500 m where exposed in the western area that is now being uplifted and subjected to erosion. The sandy clastic basin fill material northeast of Los Planes drilled area has been documented by drilling to be a relatively consistent arkosic sand material and loosely consolidated.

Pleistocene listric basin forming faults identified mainly in close spaced drilling of the Planes deposit area reveal a deepening basin northeastward from the deposit area. Listric faults offset the basin range from 20 m of movement up to 100 m of movement dropping the blocks down on the northeast side along north 40 west trending faults. The movement appears sequential with older faults to the south west that have been planned by pediment erosion on both sides of the faults, with the more northeastern blocks having gravel-sand filling only on the northeast side of the fault. Deposits of the basin filling material are correlated with part of the Salada Formation of Pliocene to Pleistocene age (5.3 ma to present).

A thin mantling along the top planar alluvial surface of the pediment contains numerous scattered exotic cobbles and occasional boulders of schist and gneiss. The same schist and gneiss rock units are more common in the adjacent ridges and mountains located immediately to the west and these fragments probably were carried by erosion down from that adjacent area.

5.3 Property Geology

The property geology is defined by mineralization hosted in a regional shear zone, possibly a Mesozoic-age thrust fault. The shear dips to the west at about 45°, and is dominated by stockwork, cataclasites, and mylonites.

The mineralization has been identified over approximately 1.8 km of strike length at the Project and has been subdivided into four fault-bounded zones referred to as Los Planes, Intermediate, Las Colinas, and La Colpa, Los Planes is the best known of the areas and is the most densely drilled. Local normal and listric faulting displaces and truncates the mineralized zones (Herdrick, 2009). Much of the outcrop is covered by pediment that thickens to the east, featuring cobbles and boulders of schist and gneiss.

Current drilling suggests that a northwest-trending graben basin has displaced the Los Planes deposit by more than 200 m, over increments between 20 to 100 m. These blocks are bounded by listric faulting and are dropped en echelon down to the northeast along N40W-trending structures (AMEC, 2011).

5.4 Significant Mineralized Zones

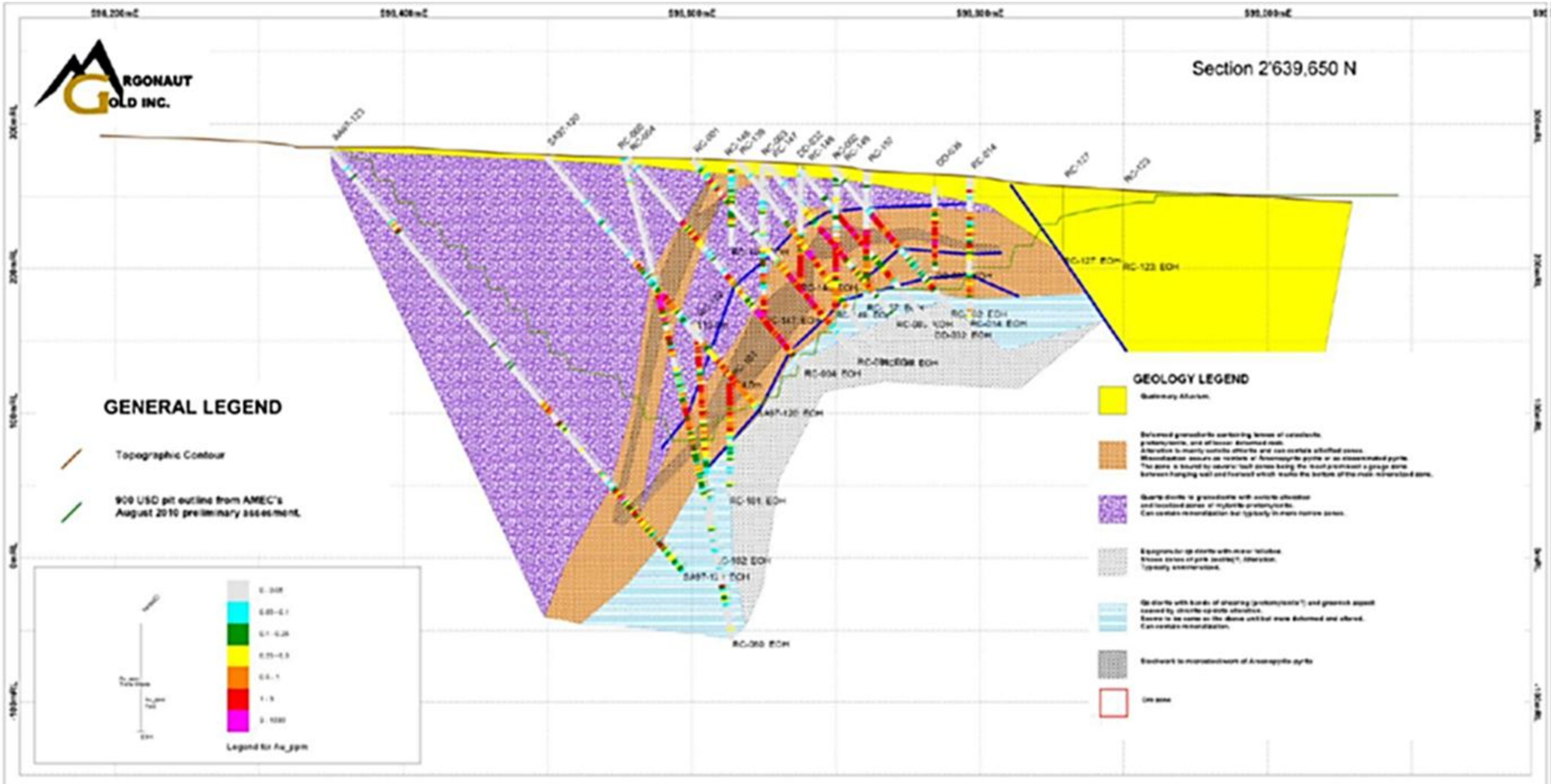
5.4.1 Los Planes

Mineralization extends along a north-south strike length of approximately 800 m. Drilling has encountered continuous mineralization to depths of 380 m from the surface. Mineralization generally varies between 1 and 20 m in thickness. Mineralization thickness is highly variable due to the stockwork-style of mineralization, and zones can locally coalesce into broader intervals over 100 m in thickness. Mineralization is interpreted to be open along strike to the north and at depth.

Mineralization is hosted in diorites and gabbros within a large shear zone that dips between 75º and 45º to the west and horizontally to very shallowly to the east. The shear zone is broken into subunits that are defined by their structure, alteration, and degree of mineralization. These units are described as:

- Hanging Wall 1 (HW1) – Strong deformation, foliated intrusive, microbreccia, cataclastite,variable dip, strong sericite/chlorite alteration;
- Stockwork – breccia zones, cemented by Fe sulfides, elevated Au grades, interpreted as a primary fluid pathway for mineralization;
- Hanging Wall 2 (HW2) – Transition from HW1, weakly altered, less sulfide mineralization; and
- Footwall – below faulted/gouge zone, subtle deformation, unmineralized.

The HW1 and stockwork zones host the great majority of the Au mineralization. Mineralization is intimately associated with sulfides, although near-surface oxidation affects Los Planes to depths in excess of 100 m along faults and fracture zones. The current interpretation of the geology at Los Planes is shown in the cross section in Figure 5.4.1.1.



Source: Argonaut Gold Inc., 2012

Figure 5.4.1.1: General Geologic Cross Section of the Los Planes Zone

5.4.2 Las Colinas & Intermediate

Las Colinas and Intermediate zones appear to be genetically related, and are separated by post-mineral normal faults that effectively truncate mineralization between the northern (Intermediate) and southern (Las Colinas) zones (Figure 5.4.2.1). The faults that bound Intermediate to the north and south dip away from each other at 50º to the north and 55º to the south, respectively. Known mineralization in the Colinas zone is truncated to the south by the mineral tenement boundaries. The deposits dip approximately 50º to 60º to the west, and are hosted in shear zones measuring over a km in strike length. Shear zones are generally competent in both zones, and is described as being composed of potassium feldspar and quartz in a matrix of sericite, chlorite, and quartz (AMEC, 2011). The mineralized zones vary in thickness, and are generally thinner to the south in the Las Colinas zone. Perhaps the most notable difference between the zones is the conspicuous absence of a well-developed stockwork zone at Las Colinas. Much like the mineralization at Los Planes, Au grades in the Intermediate zone are best associated with the stockwork zones characterized by elevated sulfide content.

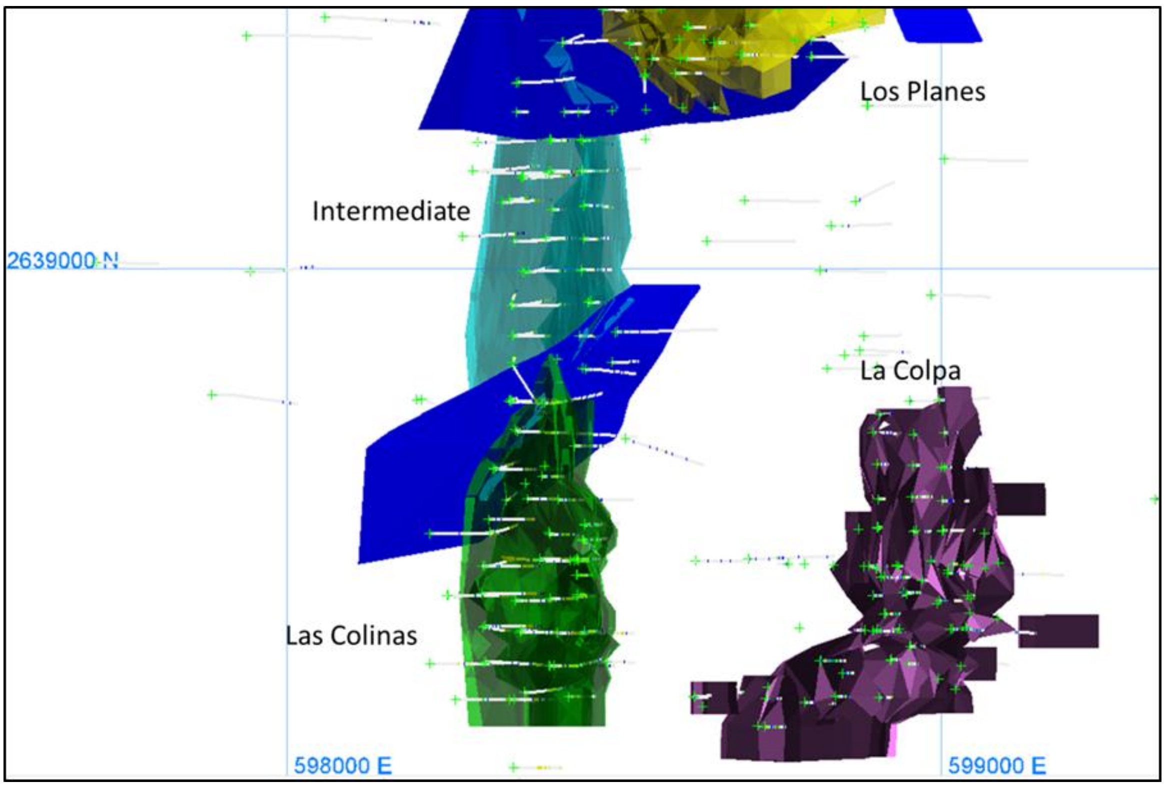


Figure 5.4.2.1: Plan View of the Mineralized Zones of Las Colinas and Intermediate, shown with post-mineral faulting in dark blue

5.4.3 La Colpa

Mineralization at La Colpa is interpreted to be a sheeted vein complex with intermediate stockwork zones. Due to the unpredictable nature of this mineralization, the number of parallel veins varies within the zone from two to six sequential structures. The stockwork zones are hosted in cataclastic units with a schist footwall, and are weakly chlorite/sericite altered. Originally, the mineralization was interpreted to be hosted in a shear zone dipping to the west at about 10º to 20º and composed of cataclasite and mylonite, with alteration dominated by sericite, silicification, and local K-feldspar. The dip of these units has been reinterpreted to be about 50º to 60º dip after more information was acquired in the recent expanded drilling program. This dip is more consistent with the dips observed in the southern end of the property such as those at Las Colinas. Grade shells were built by SRK that reflect this steeper dip (Figure 5.4.3.1).

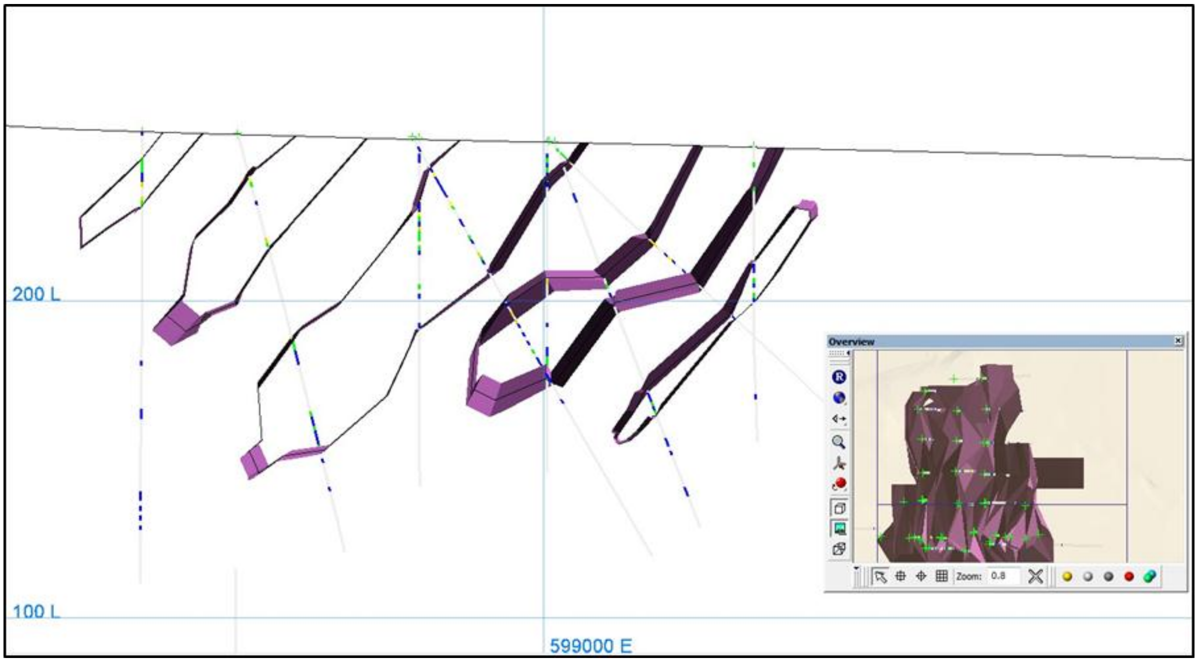


Figure 5.4.3.1: Cross Section of the Mineralized Stockwork Zones in the La Colpa Zone

6 Deposit Type (Item 8)

6.1 Mineral Deposit

The mineral deposits described in the previous sections are considered to be mesothermal or orogenic origin. These deposits are historically important throughout many major gold-producing districts worldwide and have been described in multiple peer-reviewed publications. The following description is taken from the excellent discussion of these deposits and their classification in Groves et al., 2003.

Orogenic gold deposits are almost always characterized by their association with deformed metamorphic terranes, independent of age. The great majority of these deposits are thought to have been formed during the Middle Precambrian to the Later Precambrian, and continuously throughout the Phanerozoic (AMEC, 2011). There is evidence for a strong correlation between greenschist facies metamorphism and gold in many of these deposits, although some deposits are known to occur along with higher metamorphic grades. The mineralogy of these deposits is typified by quartz-dominant veins with 3 to 5% sulfides and 5 to 15% carbonate minerals (Groves et al., 2003). Mineralization can be continuous over vertical ranges in excess of 1 to 2 km with very little change in grade or mineralogy, although deposits with significant vertical zonation do exist. Gold to silver ratios generally range from 10 (normal) to 1 (less common). The San Antonio district falls in this range, although it generally appears to be closer to the 1:1 ratio (AMEC, 2011). Sulfides are typically Fe-rich, although arsenopyrite and pyrrhotite are commonly found in metasediments and metamorphosed igneous rocks respectively (Groves et al., 2003).

Hydrothermal alteration typically exhibits a strong lateral zonation from proximal to distal assemblages on the scale of meters. Assemblages are highly variable and depend heavily on wall-rock composition and crustal level. The alteration mineralogy can be summarized as:

*Most commonly, carbonates include ankerite, dolomite or calcite; sulfides include pyrite, pyrrhotite or arsenopyrite; alkali metasomatism involves sericitization or, less commonly, formation of fuchsite, biotite or K-feldspar and albitization and mafic minerals are highly chloritized. Amphibole or diopside occur at progressively deeper crustal levels and carbonate minerals are less abundant. Sulfidization is extreme in BIF and Fe-rich mafic host rocks. Wall-rock alteration in greenschist facies rocks involves the addition of significant amounts of CO_2, S, K, H_2O, SiO_2 Na and LILE (*Groves et al., 2003).

These deposits typically occur along first-order crustal-scale fault zones, which can be hundreds of kilometers long and several kilometers wide (AMEC, 2011). Deposition of Au occurs in the related second or third-order structures, in stockwork zones or breccias within the fractured or sheared host rocks. These structures can actually be highly variable in type, including brittle faults, ductile shear zones, fracture arrays, low angle compressive structures, foliated zones, fold hinges in turbidite sequences, and more (Groves et al., 2003).

6.2 Geological Model

The geological model was constructed by both Pitalla and SRK and was built to reflect the major geological domains that could influence the resource estimation. The geological model is based on the concept of parallel veins and stockwork zones hosted in broad shear zones. Three-dimensional wireframes were created in Vulcan 3D software using grade shells generally based on a 0.2 g/t Au cut-off. Other wireframes were provided from Argonaut that limit the zones of sulfidation, oxidation, etc.

SRK is of the opinion that the geological model used by Argonaut is appropriate for exploration and resource estimation.

7 Exploration (Item 9)

7.1 Relevant Exploration Work

Modern exploration has been conducted by Echo Bay and later by Pediment and Argonaut through Pitalla. These modern activities include regional and local geologic mapping, rock and soil sampling, reverse circulation and core drilling, ground magnetic and IP geophysical surveys, mineralization characterization studies, and metallurgical testing of samples. Petrographic studies and density measurements on various rock types have also been conducted.

7.2 Surveys and Investigations

7.2.1 Grids and Surveys

The datum currently being used for the project is NAD-27 Zone 12.

The topographic survey was flown by Intrasearch in the late 1990's, and covers the majority of the Project area, including all area relevant to the mineralization considered in the resource estimation. In addition, topographic contours are available from INEGI as 1:50,000-scale sheets, with topographic contours at 20 m intervals. These sheets cover the entire Project area and beyond in all directions. These data are provided in WGS- 84 datum and can be easily converted to NAD-27 by a conversion factor provided by INEGI (AMEC, 2011).

7.2.2 Geological Mapping

During 2008, Pediment performed prospect-scale geological mapping of the Las Colinas and Intermediate zones as well as the Fandango prospect. The mapping of this area was essentially abandoned due to the paucity of outcrop, and drilling was designated the preferred method of exploration. In 2010, the area from Los Planes through Las Colinas including the La Colpa zone was mapped in detail by consulting geologist Thomas Chapin (AMEC, 2011).

During 2010, Pediment undertook 1:2,000 scale mapping over the Triunfo area by geologists Tom Chapin and Héctor Córdova. Chapin focused primarily on detailed geology and Córdova on detailed mapping of mine showings and old dumps. The program was conducted primarily on the northeast end of the Triunfo trend and identified general areas of alteration, structure, and mineralization at outcrop level (AMEC, 2011).

7.2.3 Geochemistry

Geochemical sampling was performed by Echo Bay and CRM and included rock-chip, grab, and soil sampling. Rock and trench samples were collected by qualified Mexican geologists/prospectors with relevant data, including UTM coordinates, lithology and mineralization recorded in field books.

Soil samples were collected mainly in 2007 and the results have not been contoured. A total of 3,600 samples were collected every 50 m east–west across the trend of the mineralized zones, on lines 200 m apart north–south. The sample depth was about 10 to 30 cm, as samples were designed to test the B zone of the pediment cover (AMEC, 2011).

The surveys identified two gold anomalous trends that were related to the northern extent of the Las Colinas trend and the northern trend from Mina La Colpa. A large western zone, Fandango, showed anomalous gold values. The La Virgen zone also returned a broad low-level gold anomaly. Anomalous As, Ag, Pb, and Sb, characteristic of the El Triunfo mineralization, occurred in a zone with no outcrop, called the 602 anomaly, near the east side of the Trini concession.

A small number of trial pits were reportedly dug in areas of anomalous IP response, stronger sulfide mineralization, or shearing. Other than LCOT-19 in 2006, results were not compiled by Pitalla and are superseded by drilling (AMEC, 2011).

7.2.4 Geophysical Surveys

During the mid-1990s, Echo Bay completed an IP survey over the Las Colinas deposit, using 100 m dipole spacing on lines spaced 200 m apart. Additional lines to the north were run using 50 m dipoles on 200 m line spacing. Results of the survey indicated continuation of the Las Colinas mineralization to the north of the then-existing drilling.

Reconnaissance IP was completed by Pitalla in 2006, comprising 16 east–west lines, with 100 m dipoles stationed along lines that were 3 to 5 km in length. Results of the survey showed two large polarization anomalous areas which extended off the Cirio concession north and east. The central IP anomaly was concluded to probably connect to the Las Colinas deposit area, while the eastern chargeable anomaly was located out east of the concession in the 602,000 east UTM coordinate. The Los Planes zone could be traced in the IP data a distance of 600 m further north from Line 2639800N (AMEC, 2011).

7.2.5 Trenching

Trenches were excavated by Echo Bay; however, there is limited information on this program.

In 2006 Pitalla completed a resampling program of four Echo Bay trenches and widespread rock chip sampling over an area 550 m north–south by 700 m east–west. Results confirmed gold mineralization in the trenches.

Two additional trenches of about 40 m length each were dug and bulk sampled in 2008 to provide samples of gold mineralization averaging about 1 g/t Au for leach testing. The grade of the sampled parts of the trenches averaged about 0.4 g/t Au (AMEC, 2011).

7.2.6 Geotechnical and Hydrological

Geotechnical studies of the Project have been performed by Golder to examine Quaternary seismicity, pit slope stability, and the feasibility level design of the heap-leach facility.

Hydrological studies of the Project have been performed by Schlumberger to evaluate and develop the water resources, quality, and groundwater control methods that could be implemented over the life of the Project. A subsequent study was recently completed to develop a groundwater flow model for the Los Planes basin.

7.2.7 Other Studies

To the knowledge of Argonaut staff, only two thesis studies have been undertaken in the general Project area. One PhD study, through the University of Arizona, commenced on the Project area in 2007, and although a preliminary report is available, it is not clear if the thesis was ever submitted. A second PhD study, through the same university, was on the Quaternary faulting regime in the area. One district-scale Quaternary fault was identified in the Project area.

8 Drilling (Item 10)

8.1 Type and Extent

The Project database provided to SRK on May 10, 2012 includes 589 drillholes comprising 101,898.3 m drilled using various methods and contractors. Of these drillholes, eight have been excluded as they were drilled for water monitoring purposes rather than exploration activities. The drilling is summarized by drilling method in Table 8.1.1. The drilling has mostly taken place on the four primary targets of Los Planes, Las Colinas, Intermediate and La Colpa. Other areas of drilling include the Fandango and La Virgen. Drilling locations are shown in Figure 8.1.1.

The drilling includes 31 RC holes drilled by Echo Bay from 1995 to 1997, totaling an estimated 6,187 m. No records or historical information are available from this program, with the exception of the basic drilling information contained in the database.

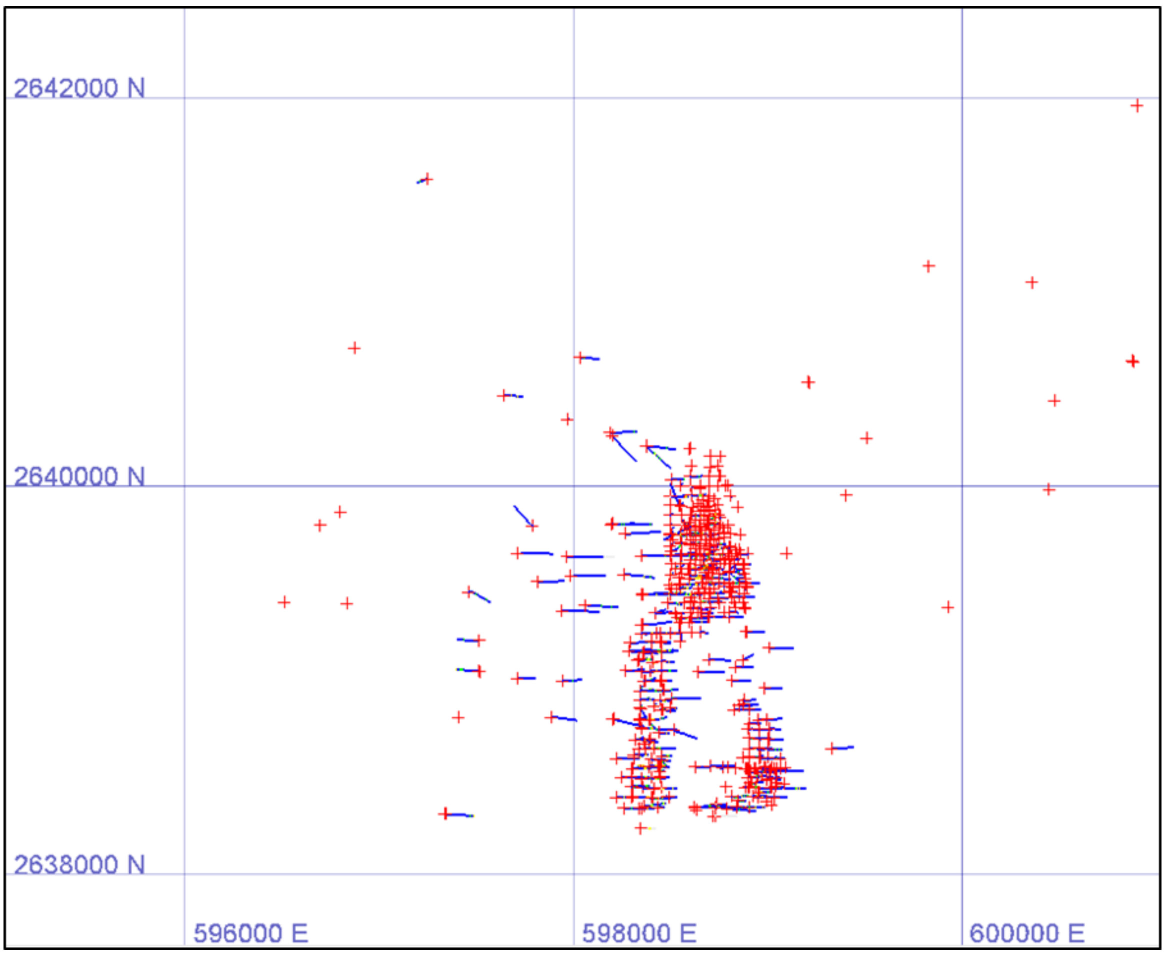


Figure 8.1.1: Location Map of Drilling to Date at the San Antonio Project

Table 8.1.1: Summary of Drillholes to Date at the San Antonio Project

Year	Area	Company	RC/Percussion Drill Holes		Core Drill Holes	
			Number	Meters*	Number	Meters*
1995	La Colpa	Echo Bay	2	310		
1996	La Colpa	Echo Bay	2	398		
	Intermediate	Echo Bay	1	144		
	Las Colinas	Echo Bay	14	2,628.00		
1997	La Colpa	Echo Bay	1	150		
	Las Colinas	Echo Bay	3	528		
	Los Planes	Echo Bay	6	1,599		
	Intermediate	Echo Bay	2	431		
2007	La Colpa	Pediment			9	476
	Las Colinas	Pediment			5	823
	Los Planes	Pediment	74	14,851	5	673
	Intermediate	Pediment	1	129		
2008	La Colpa	Pediment	9	950		
	Las Colinas	Pediment	1	129	7	614
	Los Planes	Pediment	76	13,616	11	2,031
	Intermediate	Pediment	7	1,382		
	Fandango–La Virgen	Pediment			6	1405
2010	La Colpa	Pediment	5	1,215	3	753
	Las Colinas	Pediment	20	3,815	13	1,085
	Los Planes	Pediment	79	12,734	15	2,611
	Intermediate	Pediment	31	5,650	13	2,450
	Oriented Geotechnical Drilling	Pediment			6	1,399
	Condemnation	Pediment	12	2978	6	917
	Water-monitor Well	Pediment	2	355	1	109
2011-2012	La Colpa	Argonaut	52	7033	8	746
	Las Colinas	Argonaut	3	659	0	0
	Los Planes	Argonaut	29	3,695	9	2,183
	Intermediate	Argonaut	3	412	0	0
	Oriented Geotechnical Drilling	Argonaut	0	0	0	0
	Condemnation	Argonaut	17	3471	7	1890
	Water-monitor Well	Argonaut	13	2476		
Total			**465**	**81,735**	**124**	**20,164**

Source: Modified from AMEC, 2011
*Meterage has been rounded

8.2 Procedures

There is limited information available from the Echo Bay programs. Echo Bay completed 31 RC holes totaling 6,187.0 m, but no record of the drill contractors, chip trays, logging methods or other data are available.

From February 24 to March 30, 2007, a total of five HQ core drill holes, LCDD 9, 11, 12, 13, and 22, totaling 823 m, were drilled at Las Colinas using a Longyear 44 rig, by Diamond Drilling Specialists, of New Mexico. Prior to the main RC program, three short core holes, LCDD18, 19, and 20 (398.2 m) were drilled by Diamond Drilling Specialists, of Arizona, in May 2007 using a Longyear 44 drill, to confirm the near surface gold mineralization in the central–north section of the Los Planes zone. From February 11 to May 9, 2007, nine BTW thin-wall (4.7 cm) Hydro-Winkie holes, were drilled by Diamond Drilling Specialists using a JKS 300 skid-based drill machine (AMEC, 2011).

Layne Christiansen Drilling Co. of Hermosillo completed the 2007, 2008, and 2010 RC drill programs. The RC/core rig was a truck-mounted Schramm drill. A large hammer-driven drilling machine with air circulation recovery of coarse sample material, a Becker Hammer AP 1000, was used for cutting through less consolidated material was used in the Planes pediment covered area of the Project. About 25 drill holes were pre-collared with this machine that would move off the drill hole for the Schramm RC machine to complete drilling RC in rock, and then the Becker Hammer machine would return to reclaim the casing set (AMEC, 2011).

Layne also conducted the RC drilling in 2011 and 2012 using a buggy-mounted RC rig. The majority of these holes were targeting the Colpa zone, although other infill drilling was completed on the other mineralized zones. A diamond core drill rig was also supplied by Layne and was a modern hydraulic-based Atlas Copco CS 1500 skid based setup capable of drilling PQ, HQ, and smaller core sizes. All drilling was done with standard HQ diameter core (63.5 mm) except for the metallurgical drill holes, which were drilled at PQ size (81 mm) (AMEC, 2011).

8.3 Interpretation and Relevant Results

Reverse circulation cuttings were logged at the drill rig by experienced Pitalla geologists. Geological interpretations were sometimes checked in detail by viewing rock chips under a binocular microscope.

Diamond-drilled core is first washed carefully to remove drilling fluids, and photographed by Pitalla personnel. Recovery is recorded by geotechnicians measuring the amount of core present between wooden drilling run markers compared to the expected lengths. Drillers mark the individual core runs in feet and meters. Geological logging is performed by experienced Pitalla geologists using standard logging procedures. Standardized geological logging forms and legends have been developed for the project. Unique features not present in the standardized legends are noted as written comments (AMEC, 2011).

Geotechnical logs were completed in sequence prior to geological logging, including;

- digital photo records;
- recovery measurements;
- rock quality designations (RQD);
- fracture types;
- fracture density;
- structural information; and
- rock strength factors (hardness, weathering, etc.).

Oriented geotechnical drillholes were logged in more detail by personnel from Golder, who recorded other geotechnical parameters such as total and solid core recovery, RQD, joint condition ratings, strength and weathering indices, detailed continuity data, and gouge and rubble details (AMEC, 2011).

8.3.1 Surveys

Drillhole locations are surveyed prior to drilling using Brunton compass and hip-chains, measuring from a surveyed grid. Completed holes were marked with cement monuments, with identification scribed into the cement. These drill holes were then surveyed using total station GPS or Z-Max surveying system by professional surveyors out of La Paz (AMEC, 2011).

Drillholes from the Echo Bay programs were re-located using the grid markers present at the project and the historic exploration grid.

Any downhole surveys were taken using a Reflex Easy Shot system by the drilling contractor.

9 Sample Preparation, Analysis and Security (Item 11)

9.1 Methods

The following text is excerpted from the AMEC, 2011 report, unless otherwise noted.

9.1.1 Geochemical Sampling

Surface geochemical samples collected during the early phases of exploration aided in targeting for subsequent drilling programs, and are superseded by the drill data. Trenches were also developed on the project, and were generally sampled as 3 m chipped intervals along the bottom of the trench. Samples were placed in standard plastic rock sample bags, tagged with identification numbers, and locations recorded using GPS. Bags are sealed using zip ties and are taken to the logging facility for dispatch to the laboratory.

9.1.2 RC Sampling

Cuttings were sampled in 5 ft (1.52 m) increments regardless of lithology, alteration, or mineralization. In the sample recovery process, a cyclone is set up to initially split the material in half using a vertical and a lateral discharge. When normal samples are collected, material from the vertical discharge (50%) is discarded and the side discharge goes through a second splitter to obtain two samples, each representing 25% of the total discharge. These two samples are collected and sealed with plastic pull ties in pre-numbered cloth bags (for wet material) or plastic bags (for dry material). One of the bags is later weighed and stored in large rice sacks in the fenced yard at the Pitalla warehouse as a duplicate, while the other is weighed and sent to the ALS Chemex preparation laboratory in Hermosillo.

All samples are taken by Pitalla staff in a pickup truck at the end of the shift to the central logging facility at San Antonio (about 10 minute drive) where they are stored in a gated and fenced compound with security guards watching the premises 24 hours per day. The core shack and yard in San Antonio village is rented from the family of one of the staff who acts as a daytime security guard.

The samples are packaged in rice sacks and trucked to the city of La Paz by bonded carrier and then by truck ferry (8 hours) to the Mexican mainland in Sinaloa State. The truck then proceeds to Hermosillo, Sonora (8 hours) and to the ALS Chemex preparation facility.

9.1.3 Core Sampling

All sampling is generally carried out at 1.52 m intervals. In a few areas of poor recovery, core samples can be combined into lengths greater than 1.52 m. The 1.52 m sample intervals are not tied to lithology, alteration, or structure.

Core is split using a diamond saw. Fault zones (clay gouge) and other alteration, or small rubble zones are split with a spoon. Oxide core is normally solid clay and is cut in half (lengthwise) using a sturdy knife; solid lumps are split with a hammer splitter.

One half of the core is put into individual sample bags while the other remaining half is retained in the core boxes and stored on site in San Antonio. The plasticized cardboard core boxes, standard in Mexico, can store four runs of 1.52 m.

9.2 Security Measures

Sample security is reliant upon the fact that the samples were always attended or locked at the sample dispatch facility. Sample collection and transportation have always been undertaken by company or laboratory personnel using corporate-owned vehicles.

Drill samples were prepared to a pulp at a sample preparation facility operated by ALS Chemex in Hermosillo, and pulps were transported by laboratory personnel to the Vancouver analytical facility.

Chain of custody procedures consisted of filling out sample submittal forms that were sent to the laboratory with sample shipments to make certain that all samples were received by the laboratory.

9.3 Sample Preparation

Samples are prepared at the ALS Chemex laboratory in Hermosillo, Mexico. ALS Chemex is an independent, privately-owned analytical laboratory group. The ALS Chemex preparation facility in Mexico is ISO-9000 accredited. A standard sample preparation procedure was used for samples, comprising:

- Crushing: >70% of crushed sample passes through a 2 mm screen;
- Ring pulverizing: >85% of the ring pulverized sample passes through a 75 micron screen (Tyler 200 mesh); and
- Samples received as pulps: >80% of the sample passes through a 75 micron screen.

9.4 Analytical Laboratories

The primary analytical laboratory for the Pitalla drill programs has been ALS Chemex, Vancouver, Canada. The Vancouver laboratory holds ISO 17025 accreditation. Analysis was by fire assay with atomic absorption (AA) finish. Trace elements were analyzed by inductively-coupled plasma (ICP) analysis following aqua regia digestion. Samples that were over the gold upper detection limit (>10 g/t) were analyzed by fire assay with gravimetric finish.

Starting in the 2010 drill program, Inspectorate America Corporation Laboratories (Inspectorate), based in Reno, Nevada, USA, and a subsidiary of Bureau Veritas Group of Companies, has been the secondary laboratory.

9.5 QA/QC Procedures

SRK was able to assess quality assurance and quality control (QA/QC) procedures that have been used at the San Antonio project since the start of the 2010 drilling program. Data from 2010-2012 includes blank, duplicates, and certified reference materials or standards. Blank samples are pulps that consist of unmineralized material, and are used to check cross contamination during the prep and analytical processes. Duplicates are identical intervals submitted as separate samples and are used as a check in the consistency of analysis. Standards are materials that have undergone rigorous testing to determine that they contain a defined amount of elements that are subject to analysis. Standards are a check on the precision and accuracy of the analysis. Control samples were inserted into the sample stream at a rate of one per 10 drilled samples. All standards and blank materials were obtained from RockLabs Limited (AMEC, 2010).

9.5.1 Duplicates

The database consists of 1,003 duplicate samples that were split at the time of sampling and inserted into the sample stream, in this case immediately after the original sample. Duplicates from the RC program were split using a standard riffle splitter, and core samples were split using a hammer splitter or motorized saw. AMEC reported in 2010 that duplicate data from 2007 and 2008 showed that only 60% of the pairs were within +/-30% of each other. SRK considers +/-20% an acceptable failure rate, although some allowances are made for deposits with significant nugget effects. The failure limits also depend on the type of duplicate, as a split-core duplicate should have a more generous passing envelope than a laboratory pulp duplicate. Using the 20% failure criteria, 450 pairs (45%) exhibited values with more than a 20% difference, with an average of 80% difference and an average grade of 0.254 ppm Au. Using a +/-40% failure criteria, 275 (27%) pairs do not pass and have an average difference of 112% and an average grade of 0.203 ppm Au.

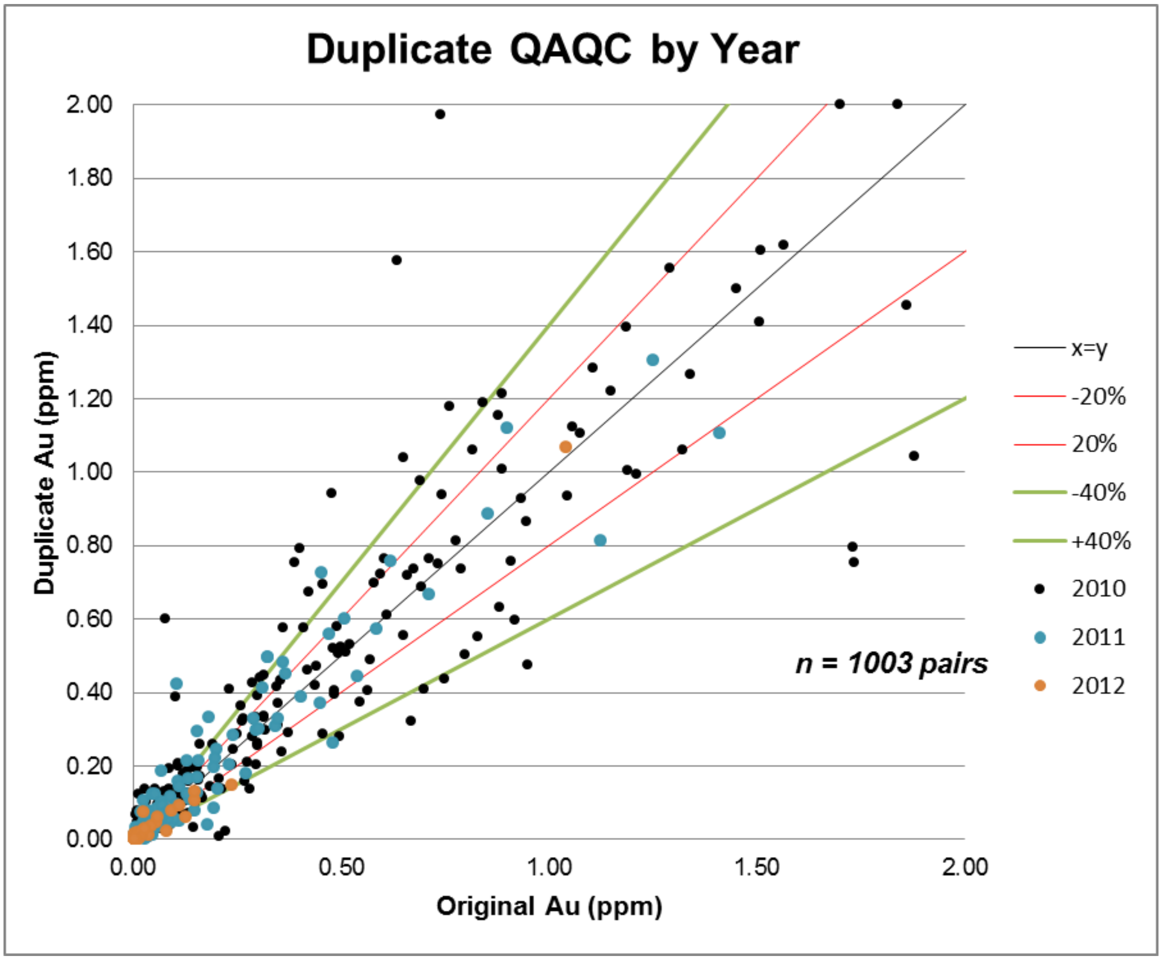


Figure 9.5.1.1: Duplicate Scatter Plot

9.5.2 Blanks

For the 1,109 blank control samples, a failure limit of 0.015 ppm Au was established and is six times the lower limit of detection of 0.0025. SRK is of the opinion that this is acceptable based on the available data. Within the blanks database, only two samples were found to be above the failure limit, representing 0.18% failure rate. The two sample failures are suspected to be sample mix-ups, but the batches are scheduled to be reanalyzed.

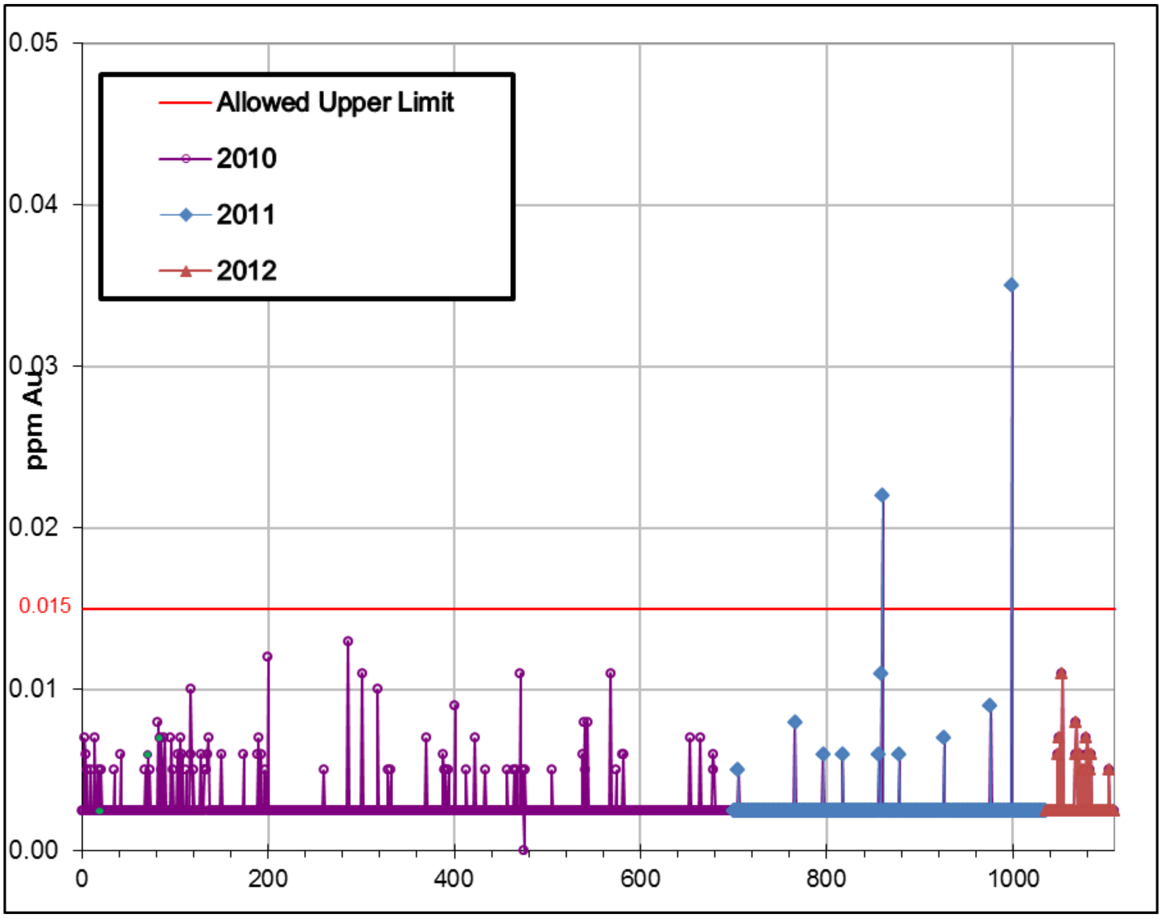


Figure 9.5.2.1: Blank Samples Plot

9.5.3 Certified Reference Materials

For the start of the 2010 program, a total of nine certified reference material samples (standards) were inserted into the sample stream. These standards vary in their expected grade, material type, and frequency of insertion. Pitalla uses a +/-3 standard deviation failure criteria, resulting in generally low failure rates. The standards used throughout the past three years are summarized in Table 9.5.3.1. Failures of the standards prompted reanalysis of the batches containing the standards, and appropriate measures were taken to evaluate the failure. In most cases, the reanalysis of the batch was consistent, indicating that the certified reference material did not assay as expected. Pitalla personnel attribute this to the smaller than usual sample size of the standard (Argonaut Personal Communication, 2012).

Table 9.5.3.1: Standards Used at the San Antonio Project, 2010-2012

ID	Type	Year	N	Expected Mean	Avg. Grade	Out 3SD	Failure %
OXE21	Oxide	2010 2011 2012	65	0.651	0.620	7	10.8
OXI23	Oxide	2010 2011 2012	40	1.844	1.766	4	10.0
SF23	Sulfide	2010 2011 2012	16	0.831	0.774	0	0.0
OXD57	Oxide	2010 2011 2012	59	0.413	0.404	0	0.0
OXE74	Oxide	2010 2011 2012	219 75	0.615 0.615	0.607 0.609	0 0	0.0 0.0
OXF65	Oxide	2010 2011 2012	70	0.805	0.798	0	0.0
SG31	Sulfide	2010 2011 2012	9	0.996	0.952	0	0.0
SG40	Sulfide	2010 2011 2012	299 184	0.976 0.976	0.970 0.970	4 4	1.3 2.2
SH41	Sulfide	2010 2011 2012	119	1.344	1.352	0	0.0
OXE86	Oxide	2010 2011 2012	 76 13	 0.613 0.613	 0.607 0.590	 0 0	 0.0 0.0
SG56	Sulfide	2010 2011 2012	37	1.027	1.013	0	0.0

9.6 Opinion on Adequacy

SRK is of the opinion that the QA/QC methods and procedures employed by Argonaut are appropriate and consistent with industry standards.

10 Data Verification (Item 12)

10.1 Procedures

SRK randomly spot-checked ten assay certificates from various stages of the project. Although there were differences in the sample identification prefixes, visual comparison yielded no errors.

SRK also attempted a more thorough comparison of the drillhole database to the analytical certificates, and reviewed certificates via mathematical comparison. A selection (333) of certificates in Microsoft Excel format were merged into one large spreadsheet, and were then sorted based on sample number. Sample numbers found in the analytical certificates were then compared to sample numbers in the drillhole database using the VLOOKUP function in Excel. The values selected for this comparison were taken only from samples that were above detection limits, below overrun limits, and from samples with only numeric ID numbers. The nomenclature of sample numbers in the laboratory certificates compared to the nomenclature of the samples in the database only allowed for a direct comparison of 4,039 samples of the 27,206 from the selected analytical certificates. These samples cover the history of the exploration program, and represent approximately 15% of the total database. Further discrepancies between assay certificates and the database are due, in part, to a significant amount of duplicate samples, blanks, and standards present in the assay certificates that are not found in the database. SRK finds this to be a reasonable number of samples with which to make a comparison.

Of the 4,039 samples reviewed by SRK, there were 31 errors in which the sample value from the analytical certificate did not match the sample in the drillhole database. This constitutes an error rate of 0.7%. A similar error rate can be assumed for the remainder of the data based on this assessment. This error rate is considered low by SRK and the errors present appear to be explainable and are being investigated by Argonaut. The errors found in the drillhole database as compared to the errors found in the database can be attributed to the following:

- Re-assays not incorporated into the database correctly;
- Numbers at the lower limit of detection without < signs. In the database, there are some values of 0.0025 where the certificate value is 0.005 rather than the standard lower limit of detection of <0.005;
- Typographical errors; and
- Sample number mix-ups.

10.2 Limitations

SRK only reviewed a random selection of approximately 15% of the database, and cannot attest to the validity of all 100% of the data. Particularly absent from the assay certificates are all of the Echo Bay drillholes.

10.3 Data Adequacy

SRK is of the opinion that the database is adequate for the purposes of resource estimation.

11 Mineral Processing and Metallurgical Testing (Item 13)

Testing of metallurgical samples from Argonaut's San Antonio Gold Project located in Baja California Sur, Mexico has consisted of gravity concentration, flotation, bottle roll leach, column leach testing and preliminary environmental testing. The samples tested have demonstrated amenability to flotation and heap leach cyanide leaching. Gold recovery in laboratory column leach testing varied from 47% to 91%, depending on material type. For study purposes, KCA normally discounts the laboratory results by two to three percentage points when projecting field recovery. Field gold recovery by heap leaching is therefore estimated to range from 44% to 86% considering averages of similar material types and pit locations and crushing to P80 9.5 mm (3/8 inch). Cyanide consumption will be low to moderate on the order of 0.26 kg/t, and lime consumption will be moderate on the order of 1.3 kg/tonne.

11.1 Historical Testing

In 1997, two reverse circulation drill cutting samples were submitted by Echo Bay to the Colorado Mineral Research Institute (CMRI) in 1997 for metallurgical testing. The sample source, location and depth from which the samples were collected were not noted. The samples were assayed and found to contain 1.07 and 1.6 g/t Au. The samples contained pyrite and other sulfides, along with very fine-grained gold. Gold recovery was tested by gravity concentration, flotation and bottle leach cyanidation.

Gravity concentration testing was poor, recovering only 9% and 16% of the contained gold respectively. Direct cyanidation of the drill cuttings, nominally 7 to 10 mm in size, resulted in gold recoveries ranging from 48 to 63%. Cyanide consumption was 1 kg/t. The samples responded well to flotation and cyanidation of the reground concentrate, yielding 98 and 99% of the contained gold. Cyanide consumption for the reground concentrates was higher at 2.7 to 2.8 kg/t of material processed due to the presence of copper sulfides in the concentrate.

11.2 SGS Mineral Services Metallurgical Testing 2008

Metallurgical testing, including bottle roll and bulk leach extractable gold (bleg) testing, was conducted on nine composites representing oxides, oxides-sulfides, and sulfides submitted by Pediment from the Project. The nine composites were prepared from 99 individual samples as instructed by the client. The composites were labeled SAMT-001 through SAMT-009, and represented oxides, oxides-sulfides and sulfides.

Conventional bottle roll leach tests were conducted on the as-received samples. The particle size of the samples tested was as-received, approximately 80% minus 10 mesh. The sodium cyanide concentration at the start of the test was 3,000 ppm. The pH was approximately 11. The length of the test was 96 hours, and each 500 g composite was tested at 33% solids. The bottle roll leach test results are presented in the following Table 11.2.1 and Figure 11.2.1.

Table 11.2.1: SGS Metallurgical Testing Bottle Roll Leach Tests 2008

Composite	Type	Residue (g/t)		Extraction (%)		Reagent Consumption	
		Au	Ag*	Au	Ag*	NaCN	CaO
SATM-001	Oxides	1.26	<3.0	88.63	NA	2.24	6.22
SATM-002	Oxides	0.465	<3.0	78.07	NA	1.66	4.79
SATM-003	Oxides	0.119	<3.0	85.02	NA	1.37	3.63
SATM-004	Oxides / Sulfides	2.83	<3.0	79.27	NA	7.06	8.12
SATM-005	Oxides / Sulfides	0.448	<3.0	76.27	NA	2.24	5.71
SATM-006	Oxides / Sulfides	0.144	<3.0	86.29	NA	2.12	4.78
SATM-007	Sulfides	5.25	<3.0	67.74	NA	3.14	3.38
SATM-008	Sulfides	0.765	<3.0	73.61	NA	2.38	3.57
SATM-009	Sulfides	0.179	<3.0	71.72	NA	2.7	3.05

Silver recovery was not documented due to the low silver head grade.

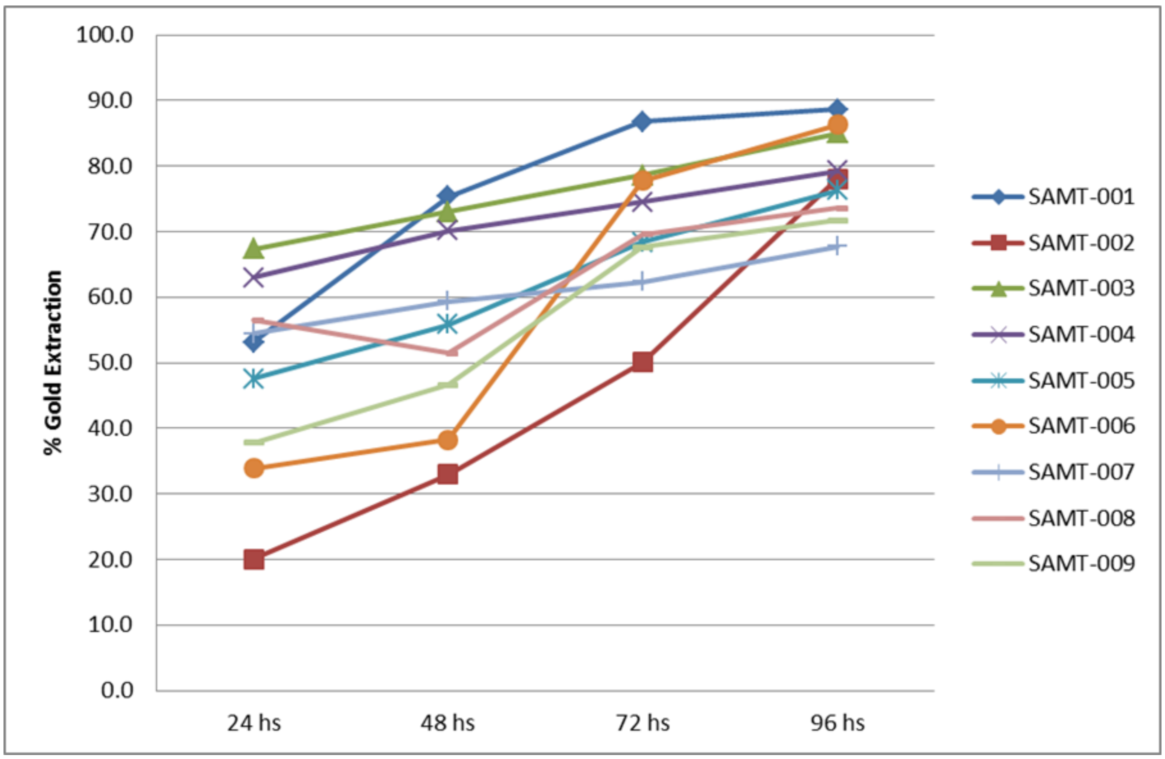


Figure 11.2.1: San Antonio Bottle Roll Gold Extraction vs. Time

Bleg testing was conducted on each composite. A 3 kg sample was agitated by rolling for 96 hours with 6 l of 3,000 ppm NaCN solution. After rolling the leach solution was assayed for gold and silver. The collected solutions each contained gold in relative proportion to the head grade of the composites. All of the solutions had less that 3 g/t silver in solution. The composite tails were not assayed and as such no gold recovery percentage can be calculated from the testing.

11.3 Metcon Metallurgical Testing 2008

Oxidized, mixed and sulfide types of split diamond drill core from the Los Planes area provided by Pediment was tested by column leaching by Metcon Research laboratory in Tucson, Arizona. The oxide material was column leach tested at two sizes: one sized to P_{80} 9.5 mm (3/8 inch) and the other sized to P_{80} 38 mm (1½ inch). The transition and sulfide was tested at only the P_{80} 9.5 mm size. The results are summarized in Table 11.3.1 and further examined in Figure 11.3.1.

Table 11.3.1: Metcon 2008 Column Leach Tests

Test no.	Sample ID	Crush Size	Extraction (%)		Reagent Consumption (kg/t)	
			Au	Ag	NaCN	CaO
CL-01	Oxide	P_{80} 9.5 mm	80.7%	64.1%	0.06	1.8
CL-02	Oxide	P_{80} 38 mm	75.2%	61.4%	0.06	1.58
CL-03	Transition	P_{80} 9.5 mm	71.9%	35.6%	0.33	1.84
CL-04	Sulfide	P_{80} 9.5 mm	47.1%	26.2%	0.45	0.92

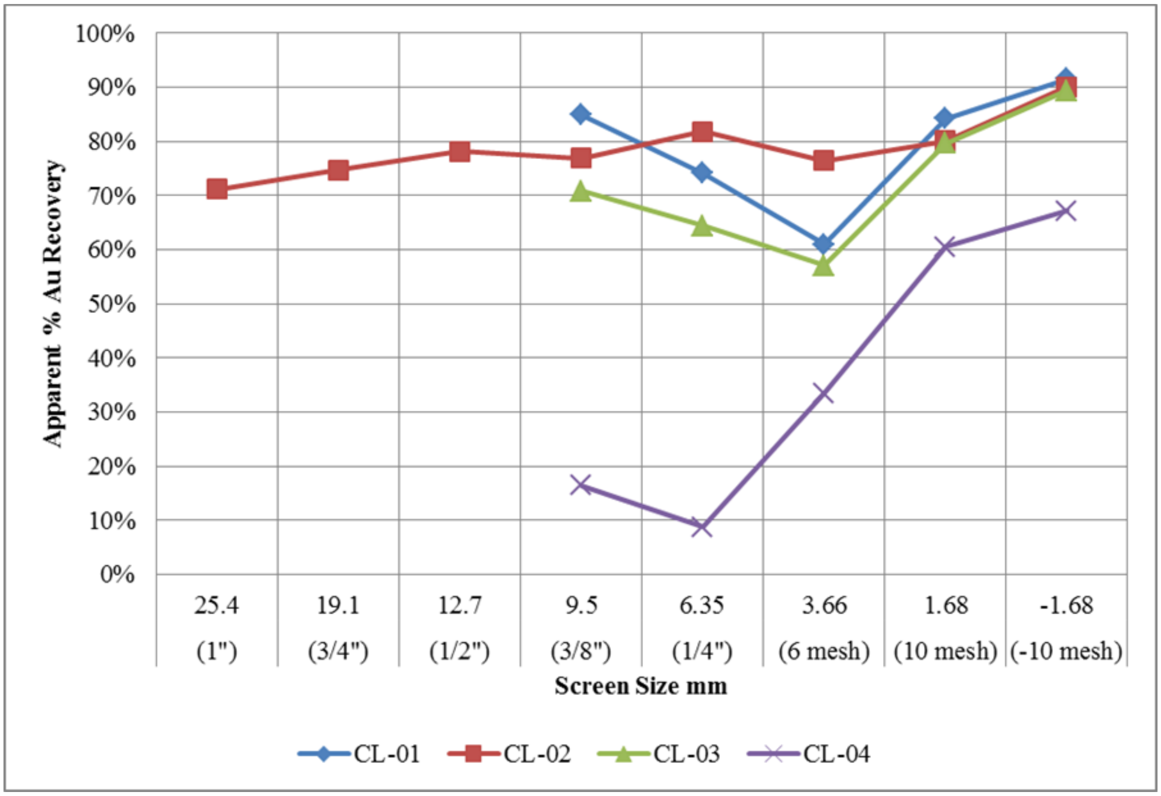
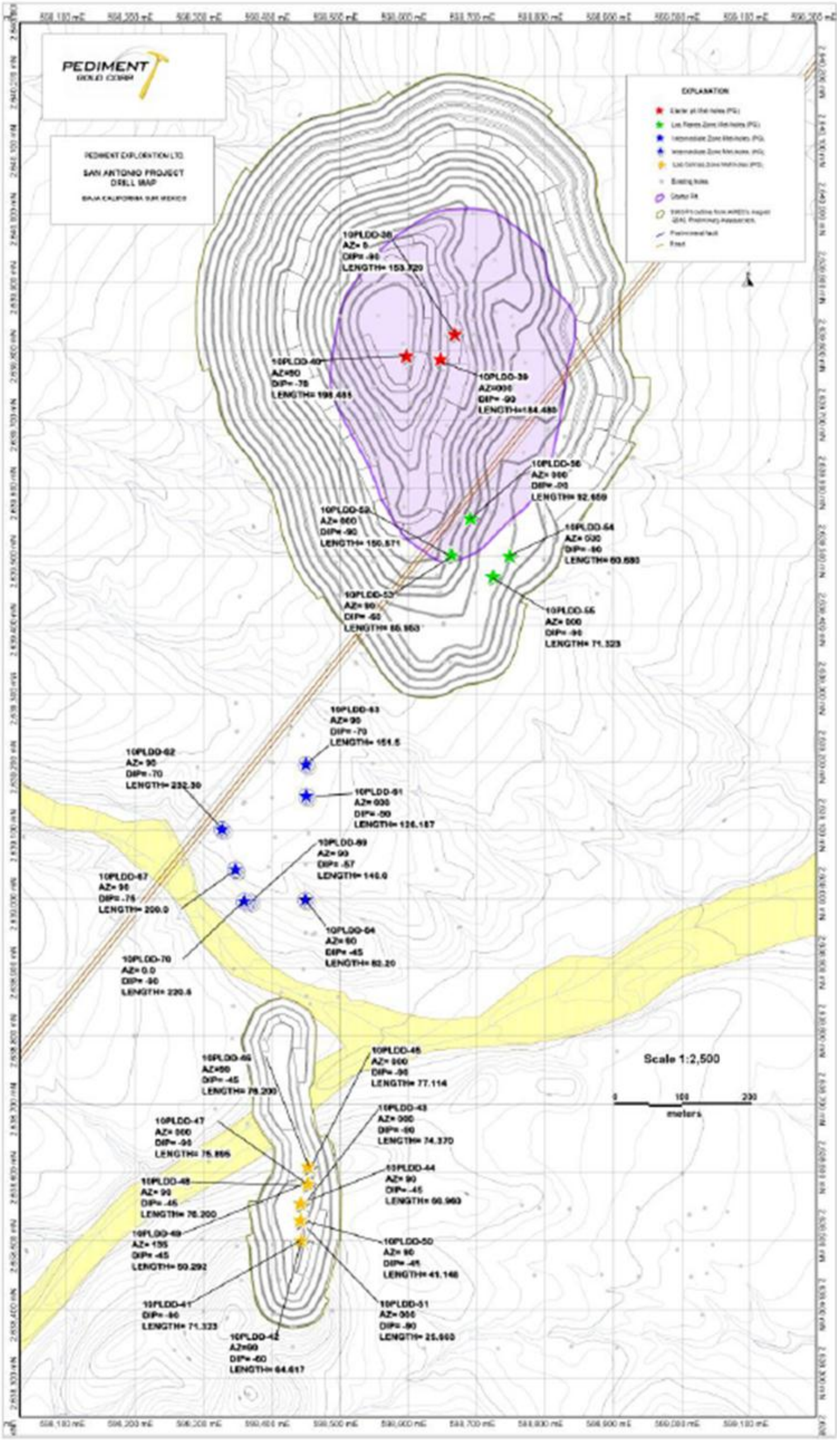


Figure 11.3.1: Metcon 2008 Apparent Au Recovery by Size Fraction

Figure 11.3.1 represents a screen analysis of each column test residue compared to the pre-test residue. Prior to testing, a screen analysis was conducted on the test material. The material was then reconstituted and the column leach tests run. Following testing, the column residue was then re-screened and the resulting screen portions assayed and compared to pre-test assay results. It can be seen that gold recovery increases as particle size decreases, most clearly demonstrated in the sulfide material. Oxidized material types have higher gold recovery compared to the transition and sulfide materials. Cyanide consumption is low to moderate for all material types tested, but higher for transition and sulfide types as compared to oxidized types. CaO consumption was moderate for all material types tested.

11.4 Metcon Metallurgical Testing 2010

In September, October and November of 2010, Metcon received 1,206 interval samples (PQ drill core samples) from the San Antonio project. The sample locations are depicted in Figure 11.4.1.



Source: Argonaut

Figure 11.4.1: 2010 Drillhole Locations, Metallurgical Testwork Program

Seven composites were prepared by compositing by mineralization, either oxide, mixed or sulfide, and by location as directed by the client. The Starter Pit refers to easily assessable material within the Los Planes pit. The Intermediate Pit is located between Las Colinas and Los Planes. Table 11.4.1 presents the interval samples and classification, composite description and average calculated head screen assay of each composite.

Table 11.4.1: Metcon 2010 Composites for Testing

Ore Body	Ore Type	Interval Samples	Composite ID	Average Calculate Head Screen Assay (g/t)	
				Au	Ag
Starter Pit	Oxide Mixed	135 33	Starter Pit, Oxide + Mixed	1.12	0.92
	Sulfide	188	Starter Pit, Sulfide	1.76	1.34
Las Colinas	Oxide Mixed	68 107	Las Colinas, Oxide + Mixed	0.82	1.04
	Sulfide	185	Las Colinas, Sulfide	0.90	1.15
Los Planes	Oxide Mixed	134 53	Los Planes, Oxide + Mixed	0.87	1.02
	Sulfide	48	Los Planes, Sulfide	0.90	1.35
Intermediate	Oxide Mixed Sulfide	24 15 216	Intermediate, Oxide + Mixed + Sulfide	0.94	1.12

The composites were submitted for physical testing. The results of the Bond Work Index (Wi), Abrasion Index testing (Ai), bulk density (ASTM-C188-89) and specific gravity (Le Chatelier flask and kerosene displacement) are presented in Table 11.4.2.

Table 11.4.2: Metcon 2010 Composite Physical Properties

Composite ID	W*i* (kW-hr/t)	A*i*	Bulk density (g/cm^3)	Specific Gravity
Starter Pit - Oxide ,Mixed	5.16	0.0744	2.56	2.82
Starter Pit – Sulfide	9.32	0.1439	2.52	2.80
Las Colinas - Oxide, Mixed	4.05	0.0569	2.45	2.72
Las Colinas – Sulfide	3.94	0.0198	2.49	2.79
Los Planes - Oxide, Mixed	3.88	0.0642	2.62	2.75
Los Planes- Sulfide	8.09	0.0732	2.48	2.80
Intermediate – Oxide, Mixed, Sulfide	7.00	0.0799	2.49	2.85

Bottle roll cyanidation testing was conducted on the composite samples at four sizes: P_{100} 10 mesh, P_{80} 149 micron, P_{80} 105 micron, and P_{80} 74 micron. The tests were conducted for 72 hours at 45% solids, 2 g/L NaCN and a pH of 10.5-11. The results are summarized in Table 11.4.3 and Figure 11.4.2.

Table 11.4.3: Metcon 2010 Bottle Roll Leach Testing Results

Composite ID	Test No.	Grind Size	Extraction (%)		Reagent Consumption (kg/t)	
			Au	Ag	NaCN	CaO
Starter Pit - Oxide ,Mixed	BR-01	P_{100} 10 mesh	67.82	40.82	1.03	1.21
	BR-02	P_{80} 149 micron	77.61	46.87	0.60	1.23
	BR-03	P_{80} 105 micron	85.34	80.58	0.71	1.29
	BR-04	P_{80} 74 micron	88.30	82.89	1.48	1.85
Starter Pit – Sulfide	BR-05	P_{100} 10 mesh	52.04	38.75	1.86	0.64
	BR-06	P_{80} 149 micron	84.14	46.10	1.29	0.65
	BR-07	P_{80} 105 micron	85.54	47.17	1.79	0.74
	BR-08	P_{80} 74 micron	88.08	51.56	1.56	0.93
Los Planes - Oxide, Mixed	BR-09	P_{100} 10 mesh	79.57	32.12	1.00	1.22
	BR-10	P_{80} 149 micron	93.07	35.28	0.66	1.24
	BR-11	P_{80} 105 micron	93.63	41.64	0.58	1.42
	BR-12	P_{80} 74 micron	92.32	36.02	0.69	1.51
Los Planes- Sulfide	BR-13	P_{100} 10 mesh	63.15	38.17	1.37	0.72
	BR-14	P_{80} 149 micron	86.71	58.80	0.78	0.63
	BR-15	P_{80} 105 micron	87.41	58.93	0.75	0.94
	BR-16	P_{80} 74 micron	89.84	61.30	0.52	0.98
Las Colinas - Oxide, Mixed	BR-17	P_{100} 10 mesh	66.28	24.63	0.66	2.17
	BR-18	P_{80} 149 micron	74.81	49.26	0.26	2.15
	BR-19	P_{80} 105 micron	74.94	28.27	0.46	2.32
	BR-20	P_{80} 74 micron	77.00	48.42	0.45	2.90
Las Colinas – Sulfide	BR-21	P_{100} 10 mesh	58.53	24.03	1.17	0.67
	BR-22	P_{80} 149 micron	81.26	32.49	0.45	1.19
	BR-23	P_{80} 105 micron	81.33	41.61	0.57	1.19
	BR-24	P_{80} 74 micron	85.18	53.23	0.44	1.49
Intermediate – Oxide, Mixed, Sulfide	BR-25	P_{100} 10 mesh	62.77	27.41	1.30	0.67
	BR-26	P_{80} 149 micron	84.14	34.72	0.33	0.95
	BR-27	P_{80} 105 micron	87.74	45.91	0.28	1.15
	BR-28	P_{80} 74 micron	89.44	37.54	0.30	1.15

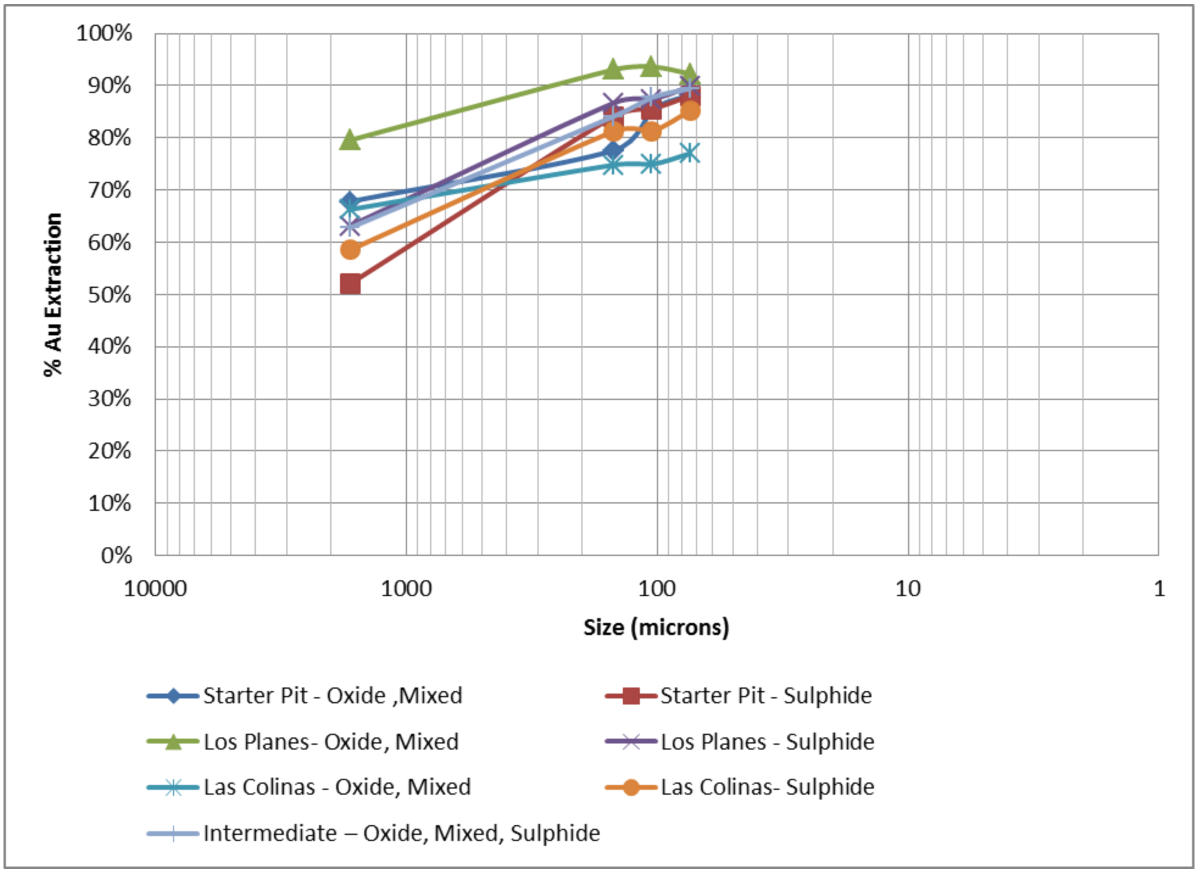


Figure 11.4.2: Metcon 2010 Bottle Roll Leach Testing Particle Size vs. Au Extraction

It can be seen from the chart that for the samples submitted from the Project that gold extraction in bottle roll leach testing increases as particle size decreases.

Locked cycle column leach testing was conducted on the composites from the Project. Each composite was subjected to three column leach tests at various particle sizes. The particle sizes for each composite was P_{100} 102 mm (4 inch), P_{80} 19 mm (0.75 inches) and P_{80} 9.5 mm (0.375 inches) excepting the Los Planes sulfide composite which was tested at the P_{80} 19.1 mm (0.75 inches and P_{80} 9.5 mm (0.375 inches) only. The column leach tests were conducted in 4-inch and 12-inch diameter and 6 m tall PVC columns. Prior to loading each column, an aliquot of CaO equal to the consumption of the 72-hour bottle roll leach test was mixed with the sample for protective alkalinity. The samples were loaded into the columns and a leaching solution with a 10.5-11.0 pH containing 1.0 g of NaCN per liter of solution was administered at a constant rate equal to 7.3 liters per hour per square meter for 99 days of leaching followed by 14 days of tap water rinsing and at least four days of draining. The results of the column leach tests are presented in Table 11.4.4 and Figure 11.4.3.

Table 11.4.4: Metcon 2010 Column Leach Testing Results

Composite ID	Test No.	Grind Size	Calculated Head (g/t)		Head Assay (g/t)		Extraction (%)		Reagent Consumption (kg/t)	
			Au	Ag	Au	Ag	Au	Ag	NaCN	CaO
Starter Pit - Oxide ,Mixed	CL-01	P_{100} 101 mm	1.06	0.88	0.90	1.01	74.70	11.25	0.46	1.18
	CL-07	P_{80} 19.1 mm	1.14	0.71	1.25	0.75	83.75	18.61	0.47	1.29
	CL-08	P_{80} 9.5 mm	1.19	0.93	1.21	1.00	91.43	18.71	0.32	1.30
Starter Pit - Sulfide	CL-02	P_{100} 101 mm	1.74	1.37	1.98	1.45	18.21	07.67	0.35	0.54
	CL-09	P_{80} 19.1 mm	1.84	1.18	1.54	1.05	51.49	19.26	0.55	0.76
	CL-10	P_{80} 9.45 mm	1.97	1.50	1.76	1.52	51.70	24.56	0.65	0.79
Las Colinas - Oxide, Mixed	CL-04	P_{100} 101 mm	0.70	0.94	0.78	1.06	36.46	7.06	0.78	1.85
	CL-15	P_{80} 19.1 mm	0.74	0.89	0.80	1.02	37.16	10.34	0.45	2.08
	CL-16	P_{80} 9.5 mm	0.77	0.85	0.89	1.03	58.36	16.81	1.42	2.04
Las Colinas - Sulfide	CL-05	P_{100} 101 mm	0.86	1.04	0.87	1.16	13.13	3.96	0.53	0.54
	CL-17	P_{80} 19.1 mm	0.83	1.15	0.92	1.28	31.97	9.51	0.58	0.63
	CL-18	P_{80} 9.5 mm	0.91	0.87	0.92	1.00	46.59	13.94	0.46	2.25
Los Planes - Oxide, Mixed	CL-03	P_{100} 101 mm	0.86	1.04	0.90	1.04	54.62	11.70	0.51	1.19
	CL-11	P_{80} 19.1 mm	0.73	0.99	0.78	1.02	87.13	17.87	0.42	1.26
	CL-12	P_{80} 9.5 mm	097	1.07	0.92	1.01	87.05	20.85	0.34	1.29
Los Planes- Sulfide	CL-13	P_{80} 19.1 mm	0.93	1.36	0.89	1.24	63.75	18.98	0.49	1.28
	CL-14	P_{80} 9.5 mm	0.86	1.32	0.91	1.47	72.51	16.70	0.41	1.28
Intermediate – Oxide, Mixed, Sulfide	CL-06	P_{100} 101 mm	1.06	1.00	095	1.06	23.31	14.06	0.41	0.61
	CL-19	P_{80} 19.1 mm	0.80	1.15	0.86	1.27	37.68	13.98	0.46	0.76
	CL-20	P_{80} 9.5 mm	0.94	1.03	0.99	1.03	57.28	25.01	0.46	0.74

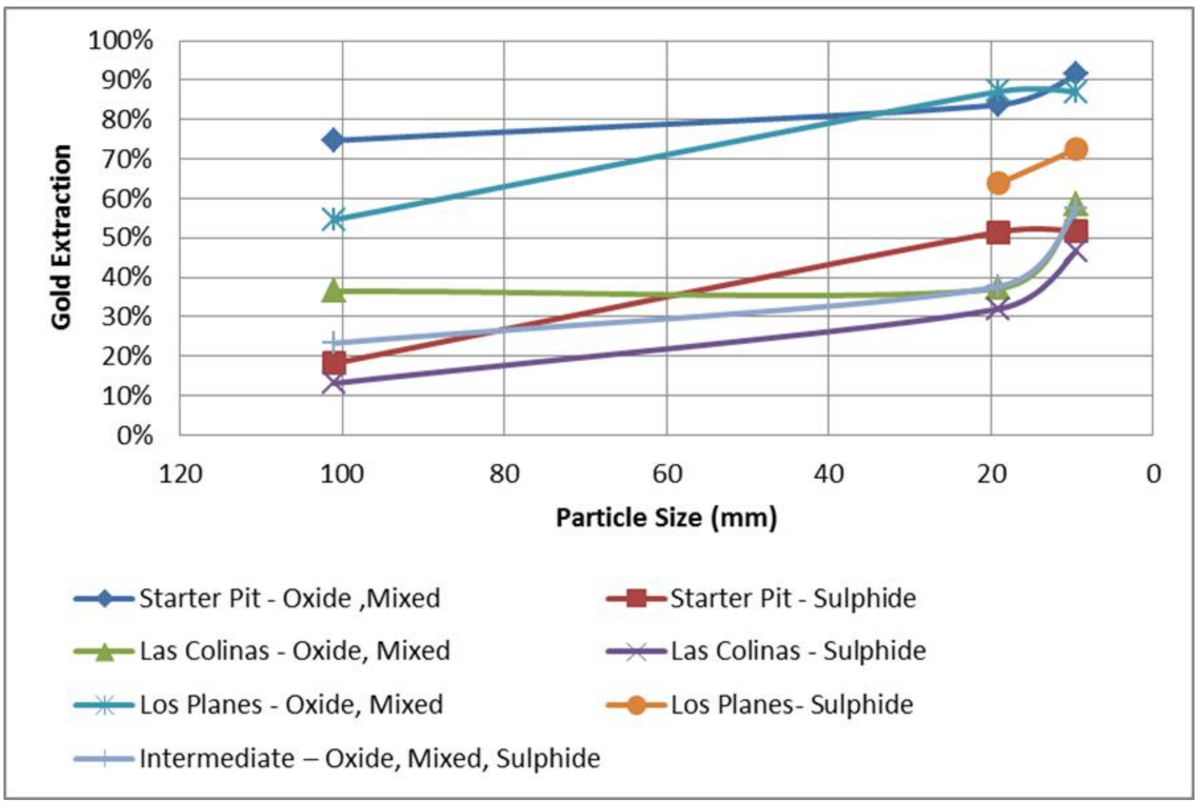


Figure 11.4.3: Metcon 2010 Column Leach Au Extraction vs. Particle Crush Size

As can be seen from Table 11.4.4 and Figure 11.4.3, for the column leach tests, gold recovery increases with decreasing particle size as was indicated in the bottle roll tests. The average recovery of all material crushed to P_{100} 101 mm was 36.7%; the average recovery of all material when crushed to P_{80} 19.1 mm was 56.1%; and the average recovery for all material when crushed to P_{80} 9.5 mm was 66.4%. Considering all tests, gold recovery increased by 19.4% when decreasing the particle size from P_{100} 101 mm to P_{80} 19.1 mm, and by 29.7% when decreasing the particle size from P_{100} 101 mm to P_{80} 9.5 mm.

Best gold recoveries were demonstrated by oxide portions of the Starter and Los Planes Pits composites when crushed to P_{80} 9.5 mm, yielding 91% and 87% respectively. Silver recovery was low in all cases, but did generally increase as the testing particle sizes decreased. Average silver recovery for all composites when crushed to P_{80} 9.5 mm was 19.5%.

11.5 Environmental Testing

During the column leach testing conducted by Metcon, daily samples were collected and composited weekly for each column test and submitted for ICP scans. Mercury and cadmium were not detected in any of the pregnant solution samples. Arsenic was detected in the pregnant solution composites ranging from one to 19 ppm.

After the column leach test was complete, approximately 150 g of the leach residue was collected and submitted for acid-base accounting (ABA) testing. The ABA testing is used as a predicting test to define which residue may be further oxidized and be prone to producing acidic waters upon exposure to meteoric events after the leach pad is spent. Based on the results of the ABA testing, indicating the potential for acid generation, five of the columns were selected for kinetic testing. A five kg aliquot was split from the residue and submitted to SGS for testing. The columns selected are presented in Table 11.5.1.

Table 11.5.1: San Antonio Leach Residue Samples for Kinetic Testing

Column Test	Composite ID
CL-10	Starter Pit – Sulfide
CL-14	Los Planes – Sulfide
CL-16	Las Colinas – Oxide + Mixed
CL-18	Las Colinas - Sulfide
CL-20	Intermediate – Oxide + Mixed + Sulfide

Kinetic testing is used to predict water quality from the spent leach pad as a result of meteoric events (rain) washing through the residue and dissolving metals potentially contributing to poor water quality. Certain constituents (sulfides) can be oxidized in the future after heap leaching is complete and allow meteoric waters to become acidic and leach metals from the leach pad residue, creating a poor water quality which could eventually affect drinking water in the area aquifers.

Kinetic testing is accomplished by repeatedly flooding and draining a column containing the leach pad residue. Air is frequently pumped through the residue during the drain cycles to accelerate the process of predicting future water quality. A sample of the draining rinse waters are collected and analyzed for metals and other physical properties relating to water quality.

It is anticipated that a full report of the environmental testing will be issued by SGS, but a brief review of the analysis shows low metal content, low sulfate and near neutral pH, leading one to the conclusion that future drainage from the spent leach pad residue will not be overly detrimental to surface and ground waters assuming the samples tested represent material to be stacked on the leach pad, and that the leach pad has been constructed and managed in a responsible manner. However, it is unlikely that drinking water quality will be achieved in the effluent produced as a result of meteoric events and mitigation measures such as regrading, contouring and capping to minimize infiltration will be required.

Additionally, a 25 kg aliquot was split from the following column leach resides and submitted to Golder for geotechnical testing. The samples removed for geotechnical testing will be used to define the construction parameters for the leach pad and long term stability of the leach pad post-closure. Table 11.5.2 presents the samples submitted for geotechnical testing:

Table 11.5.2: San Antonio Leach Residue Samples for Geotechnical Testing

Column Test	Composite ID
CL-08	Starter Pit – Oxide + Mixed
CL-10	Starter Pit – Sulfide
CL-16	Las Colinas – Oxide + Mixed
CL-18	Las Colinas – Sulfide
CL-12	Los Planes – Oxide + Mixed
CL-14	Los Planes – Sulfide
CL-20	Intermediate – Oxide + Mixed + Sulfide

11.6 Metcon Metallurgical Testing 2012

In November and December of 2011, Metcon received interval samples from the Project. The samples represented the Los Planes, deep sulfides; Los Planes massive sulfides; La Colpa Oxide and Transition; and the La Colpa sulfides.

The samples were submitted for head assays including ICP scans, bottle roll leach testing and locked cycle column leach testing. The composites were stage crushed to P_{80} 9.5 mm, screened then portions were reconstituted for head analysis, bottle roll leach testing and locked cycle column leach testing. Table 11.6.1 presents the results of the head analysis of the composites. The cyanide soluble assays are on samples pulverized to approximately P_{100} 150 micron. The calculated cyanide soluble content is by comparison to the fire assay result.

Table 11.6.1: 2012 Metcon Head Analysis

Composite Sample ID	Fire Assays (g/t)		Cyanide Soluble Assays (g/t)		Calculated Cyanide Soluble Content (%)	
	Au	Ag	Au	Ag	Au	Ag
SA-2011-01, Los Planes, Deep Sulfide	0.79	1.12	0.45	0.29	57.0	30.5
SA-2011-02, Los Planes, Deep Sulfide	0.43	1.15	0.09	0.15	23.1	13.0
SA-2011-03, Los Planes, Deep Sulfide	0.35	1.19	0.07	0.16	22.6	13.5
SA-2011-04, Los Planes, Deep Sulfide	0.62	1.17	0.24	0.21	38.7	19.1
SA-2011-05&06, Los Planes, Deep Sulfide	2.50	1.68	1.39	0.43	61.0	25.6
SA-2011-07, Los Planes, Massive Sulfide	5.03	1.79	3.25	0.80	77.2	50.3
SA-2011-08, La Colpa Oxide Transition	0.36	1.04	0.26	0.23	72.2	22.1
SA-2011-09, La Colpa Sulfide	0.35	0.92	0.11	0.17	33.3	18.5

A 30 element ICP scan was conducted on the composites and is presented in the original report: Column Leach Study on Composite Samples, Metcon Research August 2012. The following comments relate to the ICP data developed on head composites:

- Arsenic was detected and ranged from approximately 44 ppm to approximately 31,000 ppm;
- Mercury was not detected in the head composite samples;
- Aluminum content in the head composite samples ranged from 19,390 ppm to 28,850 ppm; and
- Iron and Magnesium are also present in significant amounts in all samples.

Bottle roll testing was conducted on each composite at P_{100} 1.7 mm. The tests were conducted for 72 hours at 45% solids. The results are presented in Table 11.6.2.

Table 11.6.2: 2012 Metcon Bottle Roll Leach Test Results

Leach Test No.	Composite Sample ID	NaCN Consumption (kg/t)	CaO Consumption (kg/t)	Leach Time (hr)	Extraction (%)	
					Au	Ag
BR-01	SA-2011-01, Los Planes, Deep Sulfide	1.15	0.71	72	68.1	20.8
BR-02	SA-2011-02, Los Planes, Deep Sulfide	1.15	0.89	72	40.3	11.2
BR-03	SA-2011-03, Los Planes, Deep Sulfide	0.74	0.65	72	65.2	12.3
BR-04	SA-2011-04, Los Planes, Deep Sulfide	0.64	0.58	72	50.7	12.7
BR-05	SA-2011-05&06, Los Planes, Deep Sulfide	1.06	0.67	72	56.8	19.6
BR-06	SA-2011-07, Los Planes, Massive Sulfide	1.15	0.78	72	71.9	39.9
BR-07	SA-2011-08, La Colpa Oxide Transition	0.77	1.35	72	73.4	16.0
BR-08	SA-2011-09, La Colpa Sulfide	0.99	0.69	72	43.8	27.4

Locked cycle column leach tests were conducted on the composites at a size of P_{80} 9.5 mm. All composites were agglomerated using 2.0 kg/tonne of Portland cement (0.32 kg/tonne equivalent CaO per kg) and 100% of the CaO consumption of the 72 hour bottle roll leach tests. The columns were irrigated with leach solution at a rate of 7.3 $L/hr/m^2$. The tests continued for 95 days of leaching followed by a 6 day wash cycle and at least three days of draining. The results of the column leach tests are presented in Table 11.6.3.

Table 11.6.3: 2012 Metcon Column Leach Tests

Test No.	Sample ID	Leach Day	Head Assay Screen (g/t)		Calculated Head		Extraction (%)		Reagent Consumption (kg/t)	
			Au	Ag	Au	Ag	Au	Ag	NaCN	CaO*
CL-01	SA-2011-01, Los Planes, Deep Sulfide	95	0.79	1.12	0.83	1.12	54.8	14.6	0.79	0.85
CL-02	SA-2011-02, Los Planes, Deep Sulfide	95	0.43	1.15	0.48	1.22	32.6	7.7	0.63	0.96
CL-03	SA-2011-03, Los Planes, Deep Sulfide	95	0.35	1.19	0.4	1.12	57.7	8.3	0.50	0.76
CL-04	SA-2011-04, Los Planes, Deep Sulfide	95	0.62	1.17	0.65	1.20	43.1	8.9	0.61	0.71
CL-05	SA-2011-05&06, Los Planes, Deep Sulfide	95	2.50	1.68	2.62	1.71	68.7	16.2	0.60	0.71
CL-06	SA-2011-07, Los Planes, Massive Sulfide	95	5.03	1.79	5.76	2.06	46.6	28.3	1.00	0.86
CL-07	SA-2011-08, La Colpa Oxide Transition	95	0.36	1.04	0.46	0.85	75.4	11.7	0.60	0.84
CL-08	SA-2011-09, La Colpa Sulfide	95	0.35	0.92	0.41	0.95	47.9	4.4	0.53	0.89

* CaO consumption does not include Portland cement addition, 0.64 kg/tonne CaO equivalent

For study purposes, KCA normally discounts laboratory gold recovery by two to three percentage points when estimating field recoveries, assuming the material to be processed will be similar to the samples tested. KCA normally discounts silver by five percentage points when estimating field recoveries. KCA normally discounts field cyanide consumption as compared to laboratory results by

33%. CaO consumption for field is 100% of laboratory results. This assumes a well-managed heap leach operation, and if agglomeration is required, it is assumed that this process is completed correctly. Table 11.6.4 presents an estimated field recovery of gold by pit and material type from the Project when crushed and heap leached at P_{80} 9.5 mm particle sizes.

Table 11.6.4: 2012 San Antonio Projected Field Heap Leach Recoveries by Pit/Ore Type

Ore Type/Pit	Extraction (%)		Reagent Consumption (kg/t)	
	Au	Ag	NaCN	CaO
Los Planes - Oxide, Mixed	86	14	0.11	1.3
Las Colinas - Oxide, Mixed	55	11	0.47	2.0
Los Planes- Sulfide	55	9	0.20	1.3
Las Colinas - Sulfide	44	9	0.15	2.3
Intermediate – Oxide, Mixed, Sulfide	54	20	0.15	0.7
La Colpa Oxide Transition	72	6	0.20	1.5
La Colpa Sulfide	44	0	0.17	1.5

12 Mineral Resource Estimate (Item 14)

The mineral resource estimate was prepared by Leah Mach, SRK Principal Resource Geologist; Ms. Mach is a Qualified Person and is independent of Argonaut as defined by NI 43-101 guidelines. In addition, oxidation state and resource classification codes were assigned to each block. The resource estimation was conducted using Maptek's Vulcan™ (v8.1.4) software.

The general procedure used for resource estimation was as follows:

- The drillhole database was imported into Vulcan™ and examined for data errors, such as overlapping intervals, missing data, etc.;
- Wireframes were provided for Los Planes, Las Colinas and Intermediate zones by Argonaut. The wireframes were constructed at a nominal cut-off grade (CoG) of 0.2 g/t gold. A high grade area in Los Planes was constructed at about 0.5 g/t Au. SRK checked the validity of the wireframes and made corrections where necessary;
- SRK prepared wireframes for the La Colpa zone;
- Statistics were run for assays within the wireframes and lognormal probability plots were examined for data outliers;
- The assays were composited into 3 m lengths from the top of the drillhole and statistics were run for the composites within the wireframes;
- A three-dimensional block model was created with 5 m x 5 m x 5 m blocks with percentages inside the wireframes recorded;
- Block grades were estimated for gold using ordinary kriging (OK) with composites inside the wireframes. Nearest neighbor grades were also estimated, in order to provide a comparative model used to validate the OK grades; and
- Resources were classified according to the estimation pass and drillhole spacing.

12.1 Drillhole Database

The drillhole database was constructed by SRK from data and information provided by Argonaut, and is determined to be of high quality. The database consists of eight Microsoft Excel® spreadsheets containing collar locations surveyed in UTM NAD83 coordinates, downhole deviation surveys, assay intervals with elemental analyses, and geologic intervals with rock types, alteration, oxidation, etc. Appropriate codes for missing samples and no recovery were used during the modeling procedures.

The database contains information from 465 RC/percussion drillholes and 124 diamond core holes totaling approximately 101,000 m of drilling. Drillholes are named appropriately with a naming convention that describes the area drilled, the company, and the year of the drilling program. The maximum drillhole depth is 421 m and the average is 171 m. Holes are predominantly drilled perpendicular to the average strike and average dip of the mineralization, which locally changes dramatically. Downhole deviation surveys are in the database for every hole included in the database. Many of these appear to be simple orientation surveys taken from the collar of the drillhole using a handheld inclinometer or Brunton compass. Null values in the data are recorded as -1's in the database. Basic database statistics by analysis are presented in Table 12.1.1.

Table 12.1.1: Basic Drillhole Database Statistics

Variable	Records	Mean	Min	Max	Null/Unsampled
length	61443	1.654	0.0024	329.8	0
au_ppm	61322	0.269	0.0005	84.3	121
ag_ppm	58380	0.247	0.05	1685	3063
cu_ppm	57240	46.35	0.5	2220	4203
pb_ppm	56057	7.10	1	8733	5386
zn_ppm	56057	42.20	1	14100	5386

A log histogram of the Au grades (Figure12.1.1) fail to illustrate significant populations that should be broken down based on the simple statistics alone. Histograms for other metals show similar distributions. Of the roughly 101,000 m of drilling in the database, approximately 97,000 m were assayed for Au.

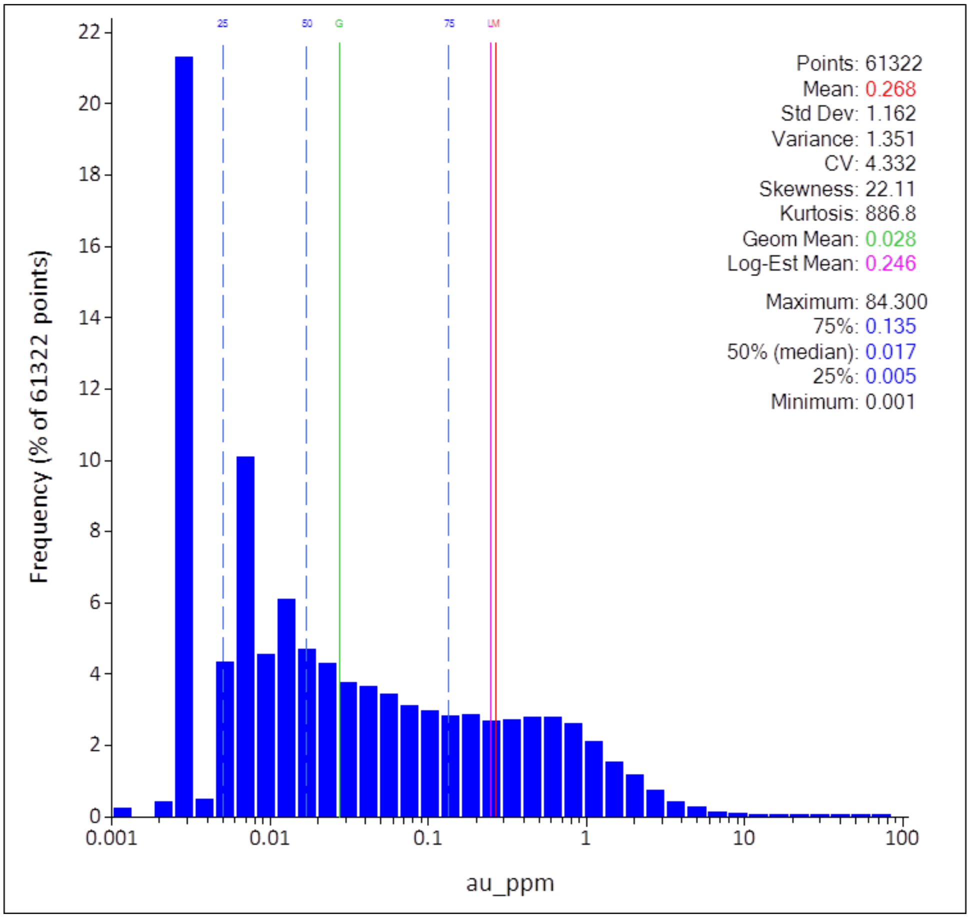


Figure 12.1.1: Log Histogram of Au Grades in Raw Drilling Data

12.2 Geologic Model

Geologic wireframes were provided to SRK by Pitalla for Los Planes, Intermediate, and Las Colinas (SA 2012). These wireframes (Figure 12.2.1) were edited in Vulcan to ensure closure and removal of all inconsistencies or crossing triangles. Wireframes of the faults were also provided by Pitalla, and were used to limit the wireframes extent and essentially bound the individual zones. SRK constructed simple grade shells and surfaces for the complex La Colpa zone. Other surfaces were provided by Pitalla for the purposes of modeling oxide, sulfide, transition, and overburden zones (IAI). SRK also created two wireframes to denote Los Planes East which is nearly horizontal and Los Planes West which is more steeply dipping to the west.

Basic statistics for the various zones are summarized in Table 12.2.1.

Table 12.2.1: Basic Statistics for Uncapped Samples in the Mineralized Zones

Statistic Assay	All Au (ppm)	Los Planes High Grade Au (ppm)	Los Planes Low Grade Au (ppm)	Intermediate Au (ppm)	Las Colinas Au (ppm)	La Colpa Au (ppm)
Samples	771	771	5253	5253	624	624
Minimum	0.003	0.003	0.003	0.003	0.003	0.003
Maximum	35.70	27.00	36.51	15.00	18.16	6.47
Mean	3.00	2.97	0.72	0.71	0.85	0.75
Standard deviation	3.76	3.42	1.20	0.91	1.57	0.88
CV	1.25	1.17	1.67	1.31	1.85	1.19
Geometric mean	14.14	11.65	1.43	0.84	2.46	0.77

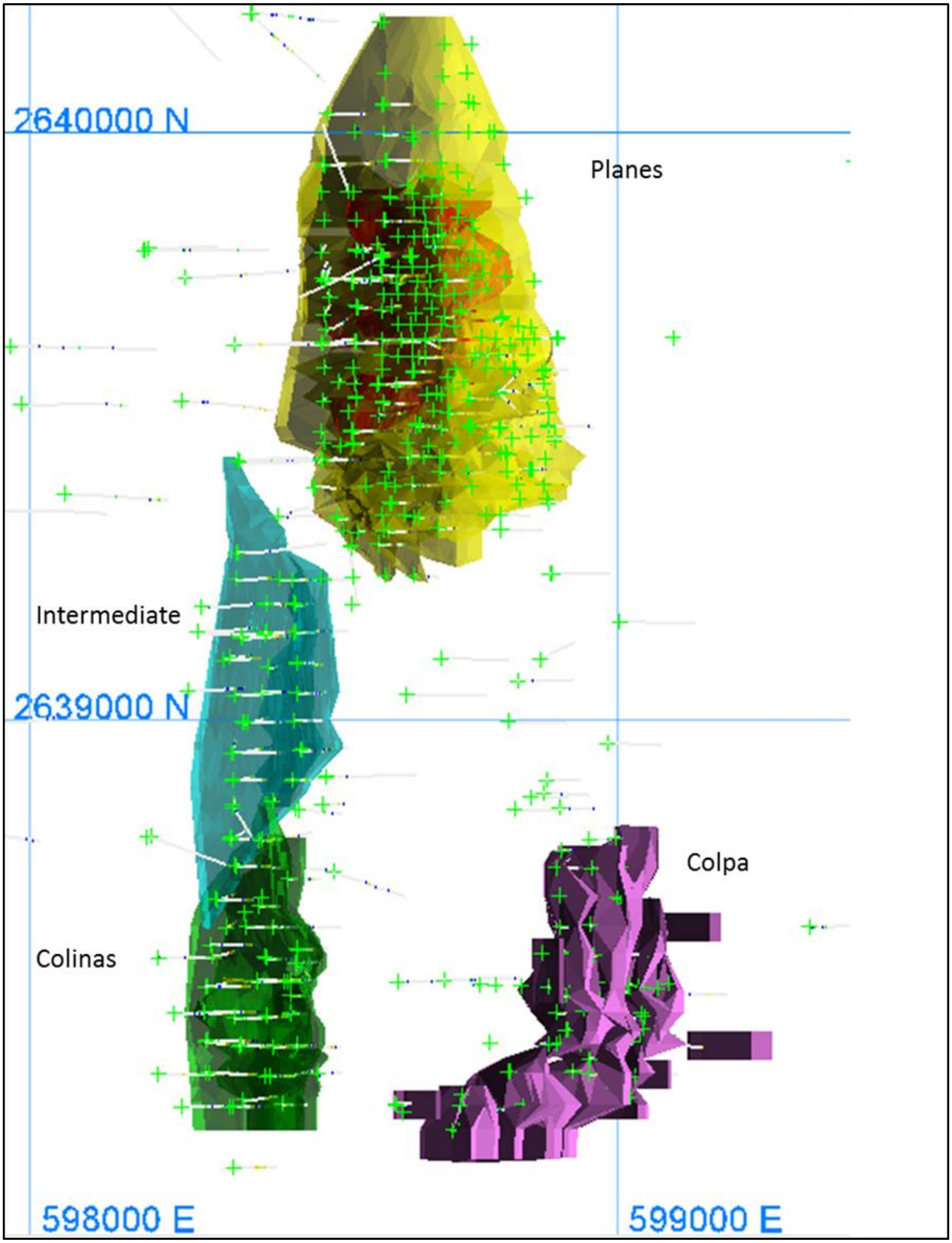


Figure 12.2.1: Plan Map of Geologic Model Showing Wireframes

12.3 Outliers and Compositing

A capping analysis was performed for each zone using cumulative probability plots to determine the populations within each zone that were likely to influence the grade estimation due to high grades inconsistent with the general trend of the other samples.

Drillhole intervals were composited to 3 m run lengths and broken at the boundaries of the mineralization wireframes. Geologic information was recorded into the composites using a majority code, and percentages of that majority were recorded as well. Basic statistics of the capped and composited data are presented in Table 12.3.1.

Table 12.3.1: General Statistics of Capped and Composited (3 m) Data

	Los Planes_HG		Los Planes_LG		Intermediate		Las Colinas		La Colpa	
Statistic Assay	Au ppm	27 ppm Au cap	Au ppm	15 ppm Au cap	Au ppm	7 ppm Au cap	Au ppm	4.25 ppm Au cap	Au ppm	Au cap
Samples	771	771	5253	5253	624	624	946	946	1356	1356
Minimum	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Maximum	35.7	27	36.51	15	18.16	6.472	4.145	4.145	2.47	2.47
Mean	3.00	2.97	0.72	0.71	0.85	0.75	0.72	0.70	0.24	0.24
Standard deviation	3.76	3.42	1.20	0.91	1.57	0.88	0.62	0.61	0.27	0.259
CV	1.253	1.17	1.67	1.31	1.85	1.19	0.86	0.867	1.13	1.09
Variance	14.14	11.65	1.43	0.834	2.46	0.77	0.38	0.37	0.08	0.07

12.4 Density

Density was assigned to the block model by domains coded from surfaces provided by Argonaut. These surfaces delineated zones of overburden, waste, oxide, transition, and sulfide. Bulk densities are compiled from measurements on 119 pieces of drill core from the Los Planes and Las Colinas areas. Samples were submitted to Oestec de Mexico S.A. de C.V. in Hermosillo, Mexico for measurements. Simple specific gravities were calculated based on dry and wet weights, and volume displacements of the samples coated in wax and submersed in water. The specific gravities for each of the defined units are shown in Table 12.4.1.

Table 12.4.1: Density Assigned to Blocks

Domain	SG (g/cm^3)
Sand/Overburden	2.00
Waste	2.65
Oxide	2.62
Transition	2.69
Sulfide	2.69

12.5 Variogram Analysis and Modeling

All variogram analysis and modeling was completed using 3 m capped and composited data.

Downhole experimental variograms were calculated to determine the nugget effect for each domain. The data spacing in the various zones ranges dramatically from as small as 10 m in the Los Planes zone to over 150 m locally in the La Colpa zone. Generally, the drillhole spacing is approximately 20 to 40 m. Experimental directional variograms were calculated using lag spacings appropriate to the individual domain. In the case of Los Planes, the samples were further separated to calculate variograms separately in the steeply dipping and horizontal orientations of the Los Planes mineralization. Continuity maps were generated for the horizontal, strike, and dip planes and were used to determine optimum directions for the calculation of the variograms. Variograms were then calculated in the three directions determined from the continuity maps, and were modeled in Snowden Supervisor.

The parameters for the calculated variograms are summarized in Table 12.5.1.

Table 12.5.1: Variogram Model Parameters

Area		Spherical Structures				Orientation		
Zone	**Subset**	**Nugget**	**C1**	**C2**	**Total Sill**	**Bearing**		**Total Range**
Los Planes	Zone 1W	0.45	0.403	0.137	0.990	Major	00,000	97
						Semi	-70,270	75
						Minor	20,270	25
	Zone 1E	0.20	0.412	0.387	0.990	Major	10,020	110
						Semi	10,288	67
						Minor	75,155	25
Intermediate	Zone 2	0.12	0.60	0.245	0.965	Major	00,000	80
						Semi	-60,270	50
						Minor	30,270	25
Las Colinas	Zone 3	0.12	0.60	0.245	0.965	Major	00,000	80
						Semi	-60,270	50
						Minor	30,270	25
La Colpa	Zone 4	0.65	0.34		0.990	Major	00,000	80
						Semi	-35,270	50
						Minor	55,270	35

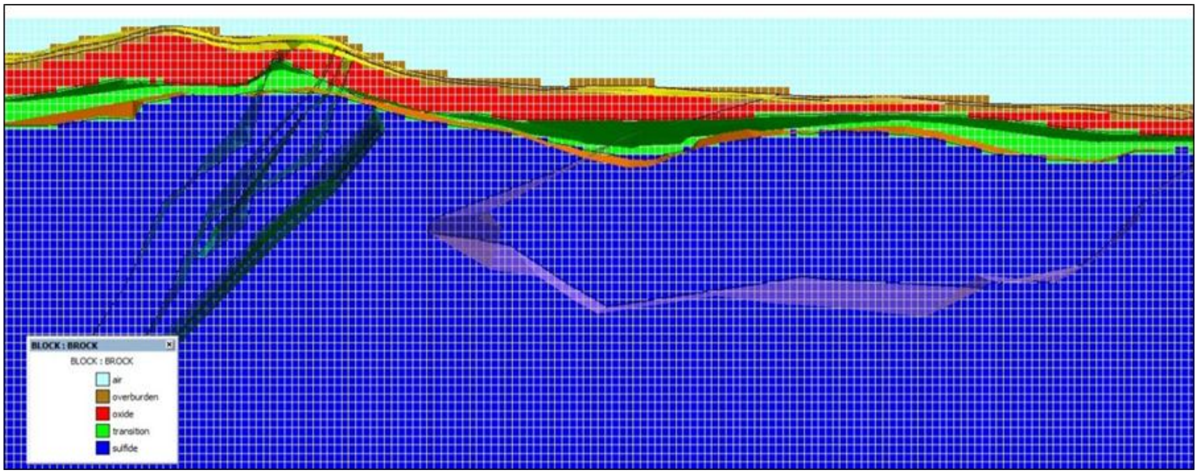
12.6 Block Model

The block model was constructed using Maptek Vulcan 3D software. Details of the block model are summarized in Table 12.6.1.

Table 12.6.1: San Antonio Block Model Dimensions

	Min	Max	Size	Number
X	598100	599200	5	220
Y	2638200	2640400	5	440
Z	-154	308	6	77

Blocks were coded by zone, oxide, sulfide, etc. from the geologic model (Figure 12.6.1). The block model contains a variable for percentage inside each of the grade shells.



Source: SRK, 2012

Figure 12.6.1: Cross Section Showing Coded Blocks by Material Type

12.7 Estimation Methodology

The block gold grades were estimated with ordinary kriging with the parameters shown in Table 12.7.1 and search orientations shown for the variograms in Table 12.5.1. Only composites specific to each area were used in the estimation of each area.

The high-grade blocks at Los Planes were defined by having a volume of 50% inside the high grade wireframe. Those blocks were estimated separately from the low-grade blocks using only the high grade composites. The same parameters shown below were used for both the high-grade and low-grade blocks. The East and West portions of Los Planes were estimated separately in order to have the correct orientation for the search ellipse. Only composites inside the Los Planes wireframes were used in the estimation, but there was no restriction on presence in the east or west portion of the wireframe.

Table 12.7.1: Block Estimation Parameters

Area	Pass	Number of Samples		Maximum per DH	Search Distance		
		Minimum	Maximum		Major	Semi	Minor
Los Planes East	Pass 1	6	20	5	110	65	25
	Pass 2	3	20	5	150	100	40
Los Planes West	Pass 1	6	20	5	100	75	25
	Pass 2	3	20	5	150	100	40
Intermediate	Pass 1	6	20	5	80	50	25
	Pass 2	3	20	5	150	100	40
Las Colinas	Pass 1	6	20	5	80	50	25
	Pass 2	3	20	5	150	100	40
La Colpa	Pass 1	6	20	5	80	50	25
	Pass2	3	20	5	150	100	40

A second estimation was run to estimate block gold grades for dilution. This estimation was run on the blocks where the percentage inside the grade shell was greater than 0 but less than 100, that is, for blocks just at the edges of the wireframes. The estimation was run with the same parameters as in Pass 2 Table 12.7.1 except that the minor distance was 25 m in all cases. The final block grades were then weight-averaged by the percentage within the wireframe to arrive at a diluted gold grade.

12.8 Model Validation

The model was validated using three techniques:

- A visual assessment of the blocks in comparison with modeled geology and composite sample grades;
- A statistical comparison of composite grades to block grades; and
- A statistical comparison of kriged block grades to nearest-neighbor block grades.

The visual comparison of block and composite grades was done by vertical sections oriented east-west and horizontal sections. There was good agreement overall, with the Los Planes area showing a good spatial distribution due to the two orientations used in the estimation. Figure 12.8.1 shows an example of kriged block grades to composite grades.

Table 12.8.1 shows a comparison between composite and kriged block grades. The Los Planes high-grade blocks are about 1% lower than the composite grades and the Intermediate blocks are about 5% lower. The Los Planes low-grade, Las Colinas and La Colpa block grades are the same as the composite grades. This is a very good correlation between estimated and composite grades.

Table 12.8.2 shows a comparison between nearest neighbor and kriged block grades. The kriged grades are higher than the nearest neighbor block grades except for La Colpa. The greatest difference is at Intermediate where the kriged grades are 6% higher than the nearest neighbor grades. Again this is a very good correlation.

Table 12.8.1: Comparison of Mean Grades of Composites to Kriged Blocks

	Los Planes High	Los Planes Low	Intermediate	Las Colinas	La Colpa
Composites	2.97	0.71	0.75	0.70	0.24
Kriged Block	2.94	0.71	0.71	0.70	0.24
Mean % Diff	-1.0%	0.0%	-5.3%	0.0%	0.0%

Table 12.8.2: Comparison of Mean Block Grades Estimated with Kriging and Nearest Neighbor

	Los Planes High	Los Planes Low	Intermediate	Las Colinas	La Colpa
NN	2.92	0.70	0.67	0.67	0.24
Kriged	2.94	0.71	0.71	0.70	0.24
Mean % Diff	0.7%	1.4%	6.0%	4.5%	0.0%

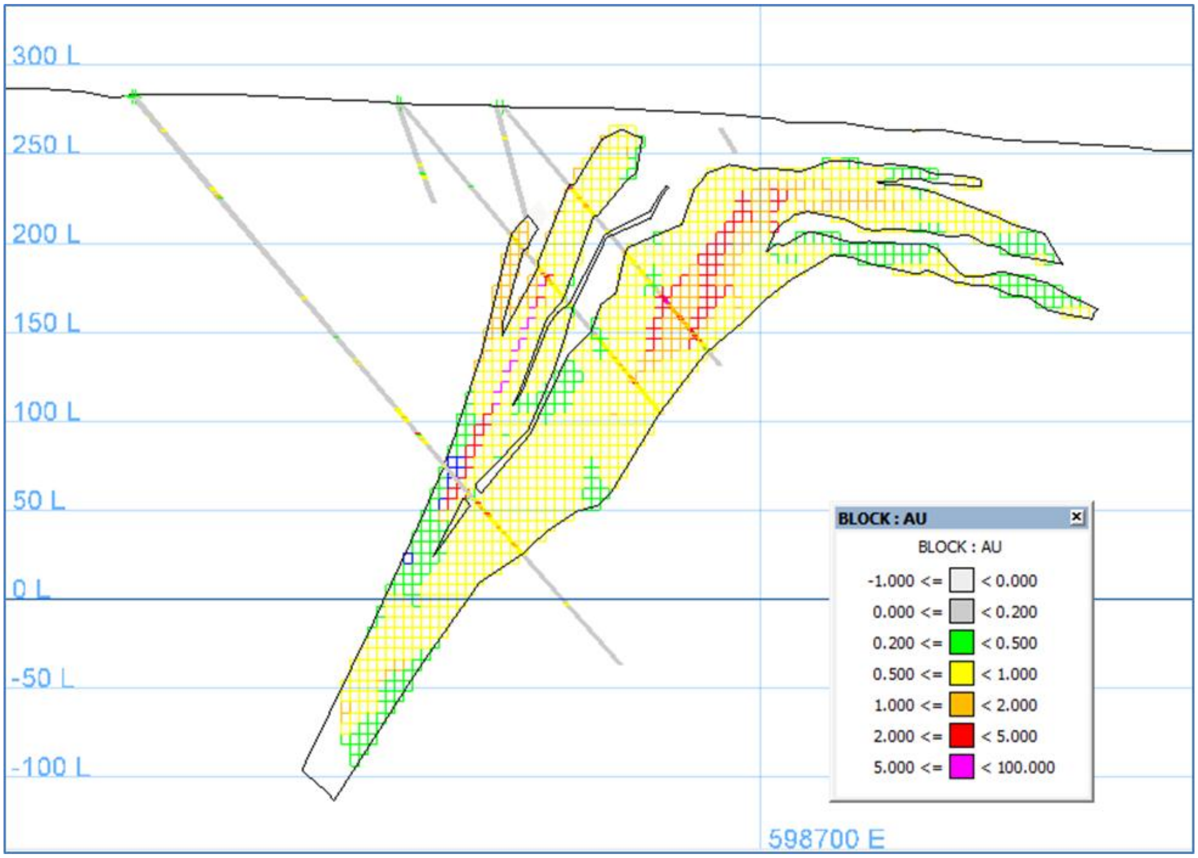


Figure 12.8.1: Example of Visual Drillhole to Block Comparison, Section 263950 North

12.9 Resource Classification

Mineral Resources are classified under the categories of Measured, Indicated and Inferred according to CIM guidelines. Classification of the mineral resources reflects the relative confidence of the grade estimates. This is based on several factors including; sample spacing relative to geological and geo-statistical observations regarding the continuity of mineralization, data verification to original sources, specific gravity determinations, accuracy of drill collar locations, accuracy of topographic surface, quality of the assay data and many other factors, which influence the confidence of the mineral estimation. No single factor controls the resource classification rather each factor influences the end result.

The blocks were classified as Indicated if they were estimated in the first pass with more than two drillholes. This requirement correlates to a drillhole spacing of about 50 m. The Indicated blocks were then classified as Measured if they were located within a wireframe constructed to define an area where drilling is on about a 25 m spacing. The remainder of the blocks were classified as Inferred.

12.10 Mineral Resource Statement

The resources are constrained to a pit optimization shell run with the following parameters:

- Gold price: US$1500;

- Mining cost: US$1.45/t moved;
- Processing cost: US$3.09/t processed;
- G&A: US$0.63/t processed; and
- Recovery: 70% in oxide and transition, 50% in sulfide.

The internal gold CoG (excluding mining cost) is 0.11 g/t Au for oxide and transition and 0.15 g/t Au for sulfide.

The Measured, Indicated and Inferred Resources within the pit optimization shell are given in Table 12.10.1. The gold grades are diluted.

Table 12.10.1: San Antonio Mineral Resources, at July 25, 2012

Area	Product	Class	Tonnes (000's)	Au (g/t)	Au Ounces
Los Planes	Oxide/Transition	Measured	12,351	0.76	303,000
		Indicated	8,408	0.67	181,000
	Sulfide	Measured	6,649	1.17	250,000
		Indicated	22,065	0.92	653,000
	Oxide/Transition	Inferred	101	0.42	1,000
	Sulfide	Inferred	410	0.99	13,000
Intermediate	Oxide/Transition	Indicated	643	0.39	8,000
	Sulfide	Indicated	4,961	0.77	123,000
	Oxide/Transition	Inferred*	7	0.23	0
	Sulfide	Inferred*	0	0.39	0
Las Colinas	Oxide/Transition	Indicated	1,910	0.62	38,000
	Sulfide	Indicated	8,103	0.69	179,000
	Oxide/Transition	Inferred	61	0.39	1,000
	Sulfide	Inferred*	13	0.69	0
La Colpa	Oxide/Transition	Inferred	4,481	0.27	39,000
	Sulfide	Inferred	1,662	0.32	17,000
Total	Oxide/Transition	Measured	12,351	0.76	303,000
		Indicated	10,961	0.64	227,000
		M&I	23,312	0.71	530,000
	Sulfide	Measured	6,649	1.17	250,000
		Indicated	35,129	0.85	955,000
		M&I	41,778	0.90	1,205,000
	Oxide/Transition	Inferred	4,257	0.27	37,000
	Sulfide	Inferred	1,957	0.47	30,000
	All types	Measured	19,000	0.91	553,000
		Indicated	46,090	0.80	1,182,000
		M&I	65,089	0.83	1,735,000
		Inferred	6,215	0.34	67,000

* Rounding results in less than 1000 tonnes or less than 1000 ounces

(1) Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources estimated will be converted into Mineral Reserves.

(2) Resources are stated at CoG of 0.11 g/t Au for oxide and transition and 0.15 g/t Au for sulfide and are contained within a pit optimization shell.

(3) Pit optimization is based on an assumed gold price of US$1,500/oz, metallurgical recovery of 70% for oxide and transition and 50% for sulfide, mining cost of US$1.45/t of material moved, processing cost of US$3.09/t processed and G&A cost of US$0.63/t processed.

(4) Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.

(5) Mineral resource tonnage and grade are reported as diluted.

(6)Gold assays were capped prior to compositing.

12.11 Mineral Resource Sensitivity

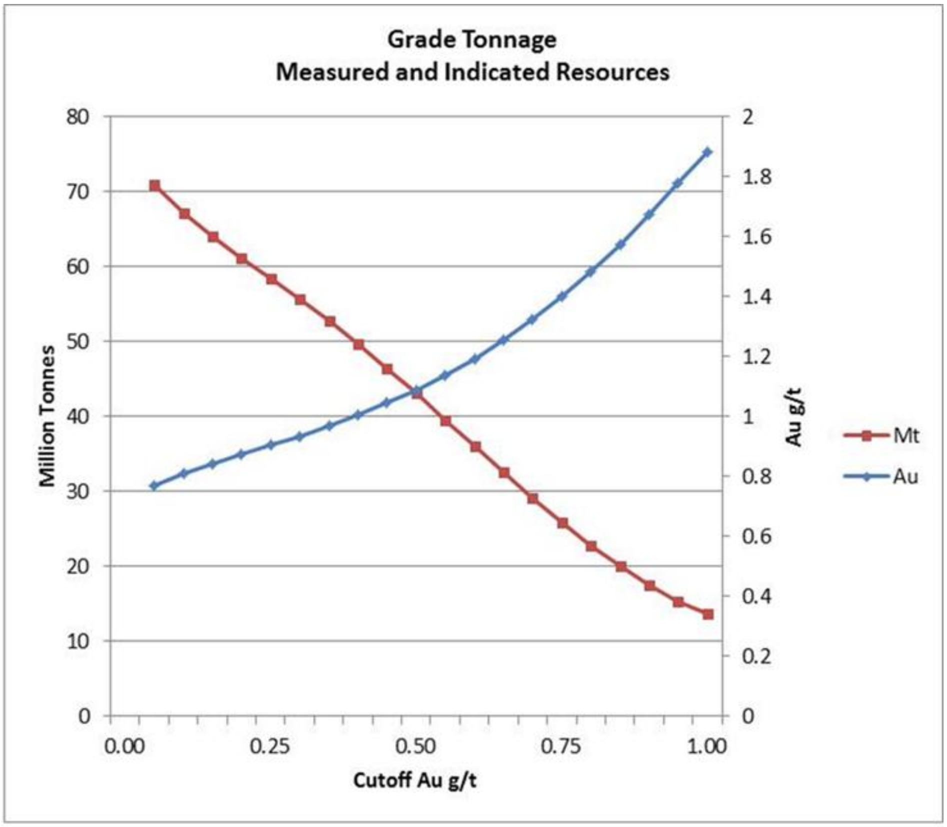
Grade and tonnage at various CoG's are given in Table 12.11.1 for Measured and Indicated Resources and for Inferred Resources in Table 12.11.2, and in graphical format in Figure 12.11.1.

Table 12.11.1: Grade Tonnage Data for Measured and Indicated Resources

Cut-off g/t Au	Au (g/t)	Mt
0.05	0.77	70.94
0.10	0.81	66.99
0.15	0.84	63.93
0.20	0.87	61.11
0.25	0.90	58.37
0.30	0.93	55.58
0.35	0.97	52.65
0.40	1.01	49.59
0.45	1.05	46.37
0.50	1.09	43.03
0.55	1.14	39.53
0.60	1.19	36.05
0.65	1.26	32.56
0.70	1.32	29.14
0.75	1.40	25.85
0.80	1.48	22.78
0.85	1.57	20.01
0.90	1.67	17.53
0.95	1.78	15.38
1.00	1.88	13.62

Table 12.11.2: Grade Tonnage Data for Inferred Resources

Cut-off g/t Au	Au (g/t)	Mt
0.05	0.29	8.74
0.10	0.31	7.97
0.15	0.34	7.01
0.20	0.37	5.80
0.25	0.41	4.53
0.30	0.47	3.22
0.35	0.54	2.09
0.40	0.65	1.32
0.45	0.76	0.86
0.50	0.89	0.60
0.55	1.01	0.45
0.60	1.11	0.37
0.65	1.16	0.33
0.70	1.20	0.31
0.75	1.25	0.28
0.80	1.31	0.25
0.85	1.36	0.22
0.90	1.41	0.20
0.95	1.46	0.18
1.00	1.53	0.16



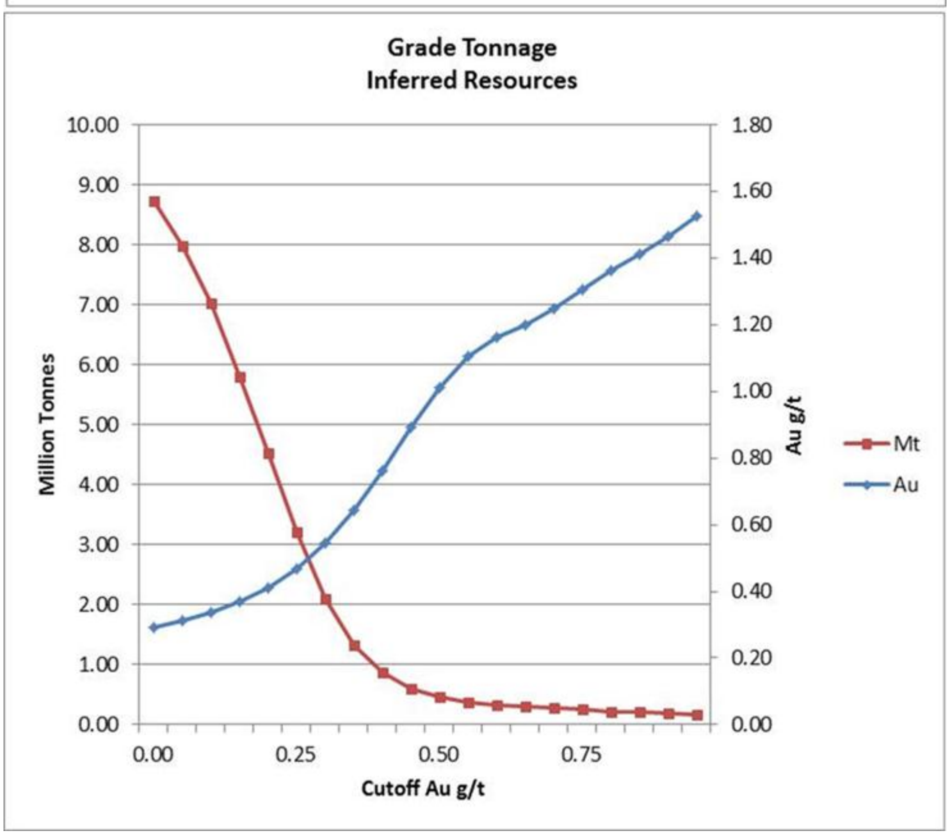


Figure 12.11.1: Grade Tonnage Curves for Measured and Indicated Resources Combined and Inferred Resources

12.12 Relevant Factors

SRK has not identified any legal, title, taxation, or marketing factors that would materially affect the resources stated in this section. Environmental, social and permitting factors are discussed in section 18.3.

13 Mineral Reserve Estimation (Item 15)

Mineral reserves are not stated in this PEA.

14 Mining Methods (Item 16)

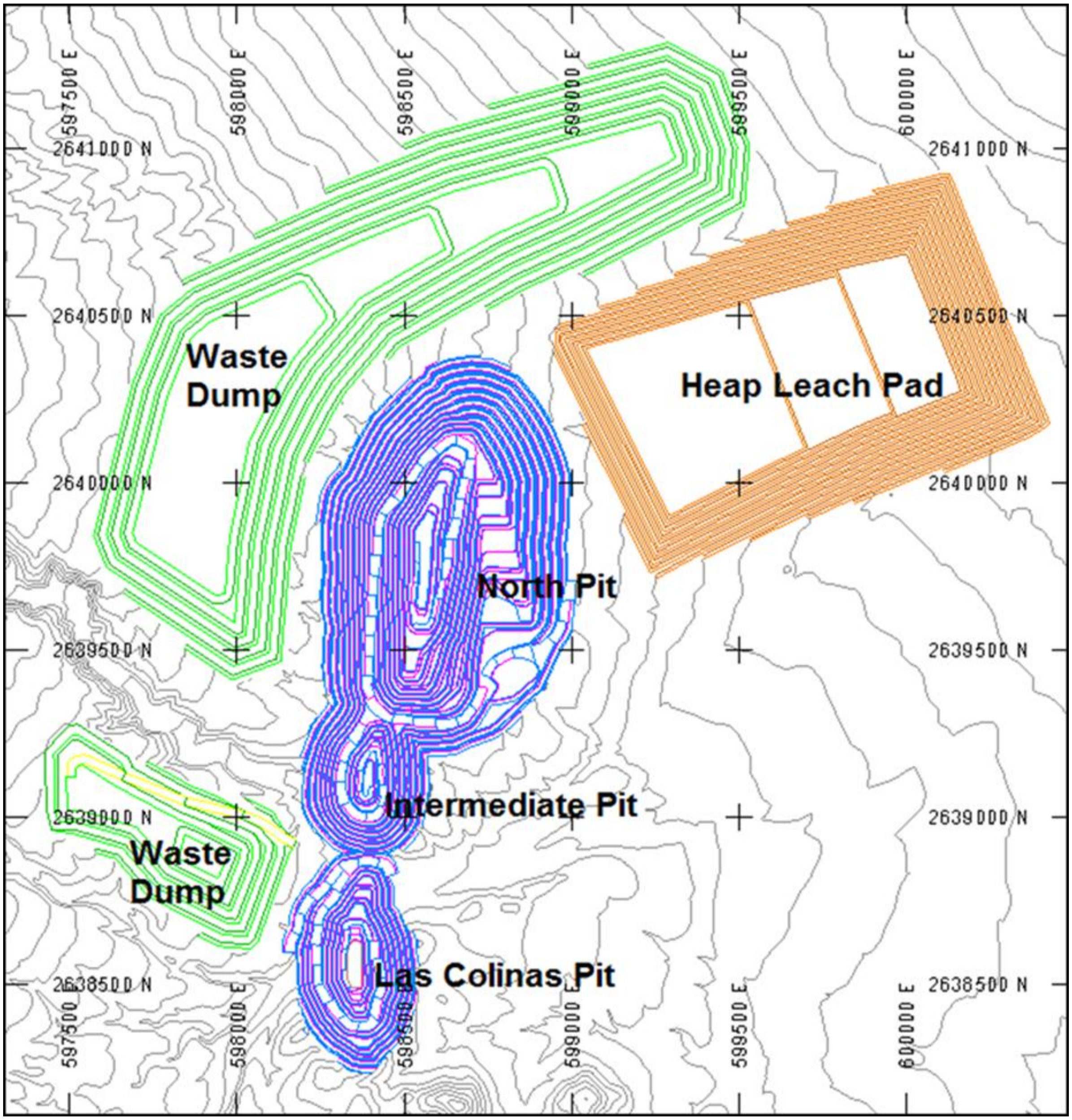
For the PEA, three ultimate pits for San Antonio were prepared by Argonaut's engineer and reviewed by Argonaut's qualified person, Richard Rhoades, P.Eng. The pits are designated as North or Los Planes, Intermediate and Las Colinas pits; the North Pit was designed with three phases. The resulting pit designs defined 60.2 Mt of Measured and Indicated resource with an average grade of 0.85 g/t Au and 0.5 Mt of Inferred resources averaging 0.84 g/t Au. The average strip ratio is 3.1:1. At a 4 MTPY production rate, it is expected the potential mine life to be in excess of 15 years. The production schedule targeted a consistent total mine tonnage of approximately 18 MTPY.

The final dimensions of the proposed open pits detail the potential size of the operation and are not limited by infrastructure restrictions. Potential restrictions may include additional required permitted space for future heap leach pads and partial relocation of the highway that connects the towns of San Antonio and San Juan de los Planes.

Dimensions of the North Pit are 1200m north-south and 800 m east-west. The Intermediate pit is 400 m x 400 m and it merges with the North Pit where both pits share the main ramp. The Colinas pit is located to the south of the Intermediate Pit and has a dimension of 650 m in the north-south direction and 400 m in the west-east direction.

Two primary waste dumps are located to store waste from the North, Intermediate and Las Colinas pits. The North waste dump is located 100 m west and north of the North Pit, and will contain the waste rock produced by the North pit and part of the Intermediate pit. The second waste dump is located west of the Las Colinas Pit and will be used during stripping of the Intermediate Pit. The North pit could potentially be used for waste from the Intermediate and Las Colinas pits.

A site overview is detailed in Figure 14.1.



Source: Argonaut Gold

Figure 14.1: Site Overview

14.1 Pit Optimization

As part of the resource evaluation, pit optimizations were carried out on the San Antonio project, using MineSight® and the Lerchs Grossman Algorithm. In particular, the areas defined as North, Intermediate and Las Colinas were used in the pit optimization. As part of the PEA, the pit optimization results have been used as a guide for pit and waste dump construction. Inputs used for the optimization do not necessarily conform with those quoted in the final preliminary economic model. In all cases, Measured, Indicated and Inferred resources were considered during pit optimization.

14.1.1 Pit Optimization Parameters

The block model parameters used for San Antonio are detailed in Table 14.1.1.1.

Table 14.1.1.1: San Antonio Block Model Parameters

Pit Optimization Parameter	Type	Value
Resource Class		
Measured, Indicated, Inferred	Au	grams
Block Model Dimensions		**meters**
	X	5
	Y	5
	Z	6
Block Model Dimensions		**Number Blocks**
	X	220
	Y	440
	Z	77
Slope Angle	**Zone**	**Angle**
	Value	Slope Angle
	2 –East	46
	3- Alluvium	35

The financial assumptions made at the time of optimization are detailed in Table 14.1.1.2.

Table 14.1.1.2: San Antonio Financial Assumptions

Pit Optimization Parameter	Type	Value
Mining Cost	Reference Mining Cost ($/t)	1.45
Processing		
Rock Type	Process Name Rock type 1	Heap All oxidation types
Process Cost (US$/crushed-t)	Material Selection Method Process Cost ($/t processed) General and Administration ($/t processed	Cash Flow 3.09 0.63
Au Recoveries (%)	North Oxide/Transition	84
	North Sulfide	59
	Intermediate Oxide/Transition	53
	Intermediate Sulfide	53
	Las Colinas Oxide/Transition	49
	Las Colinas Sulfide	40
Revenue and Selling Cost		
	Au Units Au Price(US$/oz)	oz $1,200
Royalty, Refining, Transport etc.		
	Au Selling Cost (US$/oz)	3
Operational Scenario – Limits		
	Mining Limit Process Limit t/yr	None 4,000,000

14.2 Open Pit Design

The North, Intermediate and Las Colinas pit designs combine site access, mining width requirements and generalized geotechnical parameters to study the possible extraction of the resources through open pit techniques in a practical manner. As such, no restrictions were placed on any of the pits.

Argonaut selected the pit shell at US$1,200 per ounce of gold after evaluation of the scheduled NPV between the design cases of US$1,200 and US$1,500. Upon visual inspection, the differences between shells appears small (Table 14.2.1), but shell US$1,200 resulted in higher NPV using a gold price of US$1,500/oz. This would suggest the incremental stripping associated with mining a shell constructed using a US$1,500 and associated mining width requirements, negatively impact the NPV due to time cost of money (Discount rate) for waste stripping at the end of the mine life. As a result, the US$1,200 pit has been used as a target for open pit design.

Table 14.2.1: San Antonio Pit Shell Price Sensitivity

Au US$/oz	M & I			Inf.		
	t (000's)	g/t	oz	t (000's)	g/t	oz
1,500	65,089	0.83	1,734,642	6,734	0.33	71,826
1,400	61,827	0.85	1,686,011	5,856	0.34	64,376
1,300	59,752	0.86	1,653,397	4,960	0.35	55,994
1,200	57,109	0.87	1,603,747	3,877	0.36	45,154
1,100	54,687	0.89	1,558,963	2,809	0.38	34,112
1,000	51,931	0.90	1,509,000	1,981	0.41	25,917

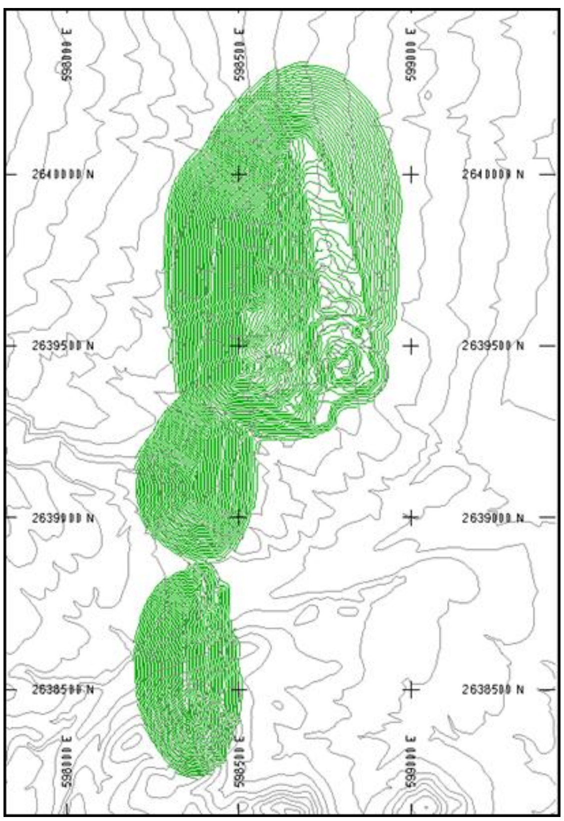
Golder (2011) conducted a geotechnical study for pit slope angles. Six slope sectors were defined for the North Pit and two sectors for Las Colinas where the inter-ramp and bench face angle were specified for each sector. There is no information for Intermediate, so the Colinas slope configuration was applied as a default. The slope configurations are illustrated in Table 14.2.1.1.

14.2.1 Pit Design Parameters and Construction

For all three pits, the ramp width has been sized at 25 m (truck factor of 3.5) which can safely support Cat 777 (or equivalent) sized mining trucks. While this ramp size penalizes the stripping ratio, the operational savings in using the larger equipment during stripping campaigns will be vital especially in the North Pit. One way access of 15 m has been applied at the six bottom pit benches after stripping requirements have been met. Table 14.2.1.1 shows the San Antonio pit parameters, and Figure 14.2.1.1 shows the Lerchs Grossman Shell and Figure 14.2.1.2 shows the Ultimate Pit design.

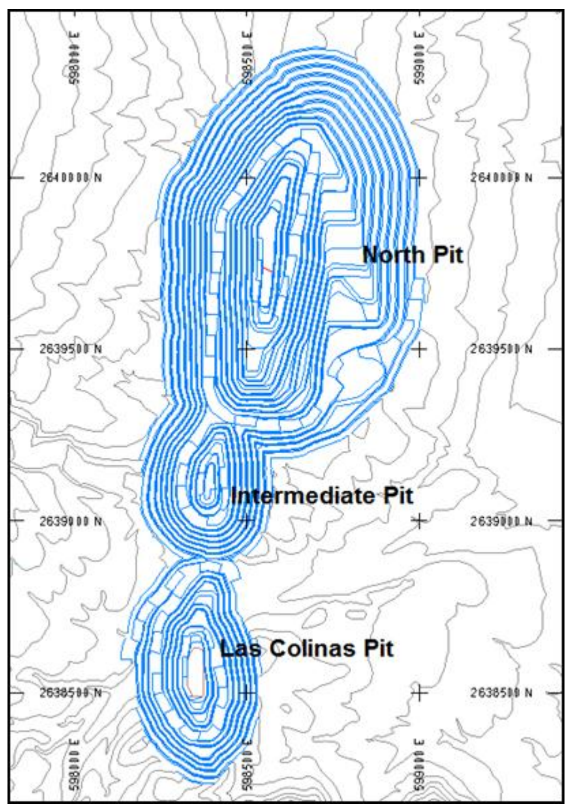
Table 14.2.1.1: San Antonio Project Pit Parameters

Parameter	Unit	Value
Overall Slope Angle	Degrees	North Pit: West Sectors 49 East Sectors 46 Oxide Hanging Wall 41 Alluvium 35 Las Colinas & Intermediate: West Sector 50 East Sector 47
Batter Angle	Degrees	West Sectors 70 East Sectors 65 Oxide Hanging Wall 63.5 Alluvium 53
Bench Height	m	Oxide hanging Wall 12 All Other 18
Berm Width	m	9
Ramp Width – 2 way	m	25
Ramp Width – 1 way	m	15
Ramp Gradient (Shortest)	%	10



Source: Argonaut Gold

Figure 14.2.1.1: US$1,200 Pit Shell



Source: Argonaut Gold

Figure 14.2.1.2: Pit Design

14.3 Phase Design

Phase designs for all pits are largely driven by the effective mining width and its influence on access to the resource with 120 m targeted as the minimum mining width between phases. The same design parameters used in the final pit design have been incorporated into the phase designs.

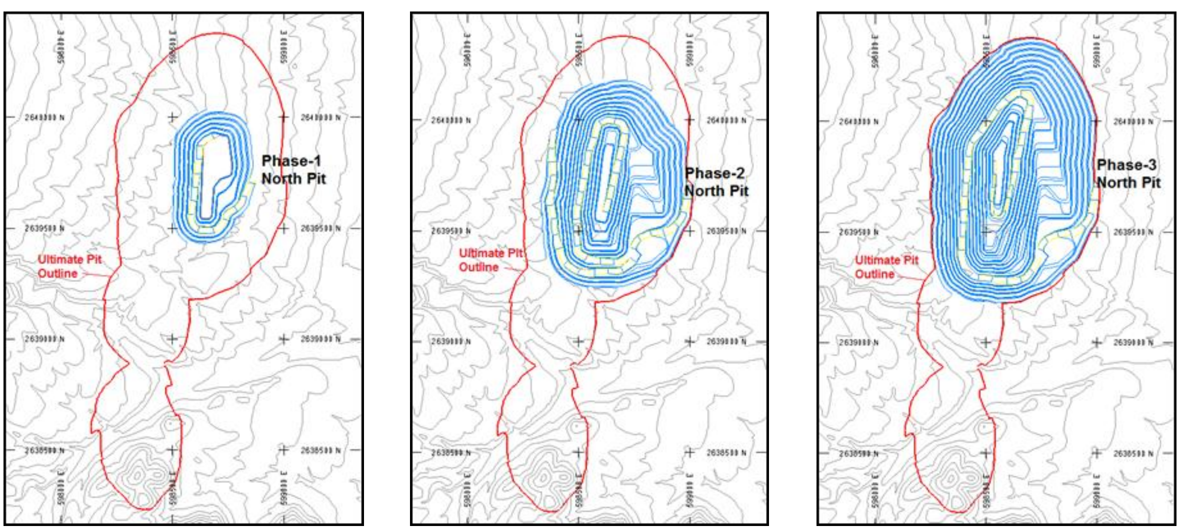
14.3.1 Phase Design Criteria

North Pit Phase Design

The North Pit has been designed with three mining phases. Phase 1 and 2 are independent of each other, phase 1 (starter pit) was designed in the heart of the oxide mineralization with the purpose of mining higher grade, high recovery material. The deepest level is at RL 182 and the final depth of phase 1 is 92 m and all ramps for the phase are designed to the full 25 m width. Phase 1 benefits from a low strip ratio that will enable forward mining of waste in phase 2. This will result in a consistent total tonnage production profile for the mine schedule.

Phase 2 has been designed with two road exits, one on the east and the other on the west side of the phase. The east road is optimized for material movement to the crusher and the west road for hauling waste to the west waste dump. The bottom level of Phase 2 is at RL 80 and the phase depth is 200 m. The minimum mining width of 120 m has been honored between phase 1 and phase 2.

Phase 3 is designed to the final pit limits as defined by the US$1,200 pit shell illustrated in Figure 14.3.1.1. The first seven levels of the east ramp of phase 2 are kept the same between phases as the main ramp of phase 3 continues wrapping around to the south as the pit gets deeper. Phase 3 expands 120 m in the south and east direction and 180 m to the north and terminates at the final depth of RL 8. The total depth of Phase 3 is 282 m.



Source: Argonaut Gold

Figure 14.3.1.1: North Pit Mining Phases

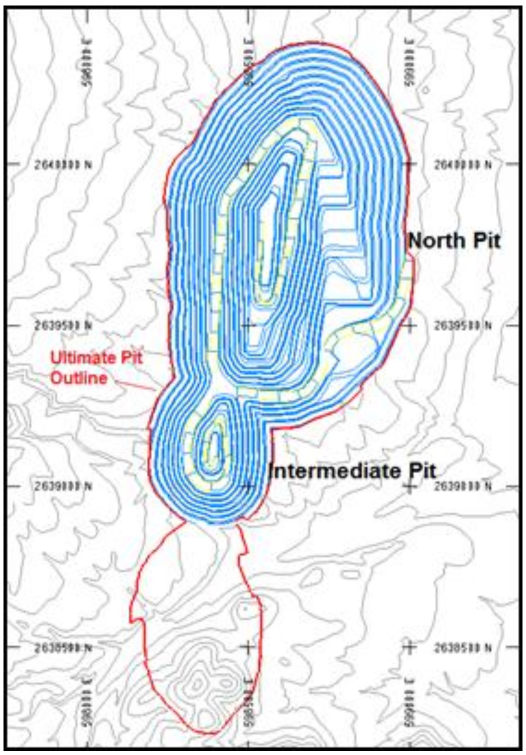
Intermediate Phase Design

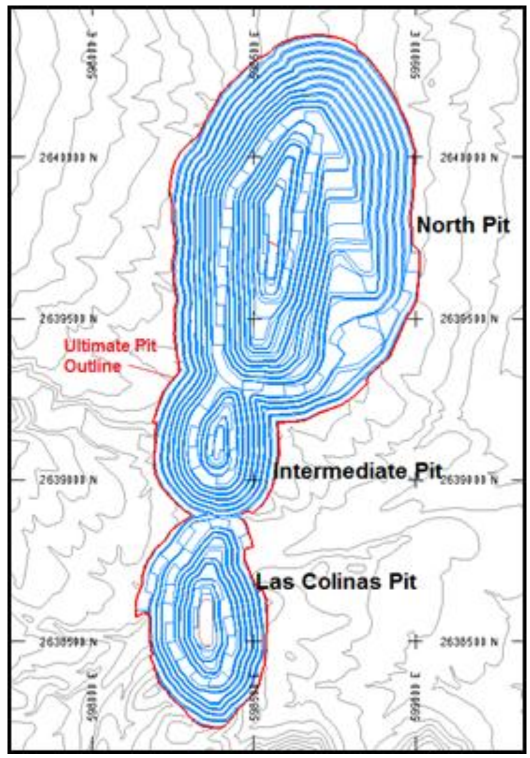
The open pit design for the Intermediate pit is highly sensitive to ramp location and its effect on stripping ratio, so careful placement of ramps that utilize a portion of the North Pit road was considered optimal. The North and Intermediate pits, due to their proximity, become one merged pit. The bottom level of the Intermediate pit is at RL 104 and the final depth is 162 m.

Las Colinas Design

The Las Colinas Pit is an independent pit and will be mined in a single phase. The Colinas pit has been designed with two exits. The west ramp exits near the waste dump and the north ramp exits near the location of the crusher. The main ramp of Las Colinas wraps the pit from north to west as the pit gets deeper. The bottom level is at RL122, diving a total of 162 m.

Figure 14.3.1.2 shows the Las Colinas and Intermediate Pits.





Source: Argonaut Gold

Figure 14.3.1.2: Intermediate and Las Colinas Pits

14.4 Schedule Inventory Results

The production schedule is detailed in Table 14.4.1. Tables 14.4.2, 14.4.3 and 14.4.4 show the scheduled resources broken out by mining phases.

Table 14.4.1 Production Schedule Inventory Classification

	Measured			Indicated			Inferred		
Pit -Resource Type	**Tonnes (000's)**	**Au g/t**	**Gold oz**	**Tonnes (000's)**	**Au g/t**	**Gold oz**	**Tonnes (000's)**	**Au g/t**	**Gold oz**
North - Oxide/Transition	12,334	0.76	302,000	8,220	0.68	179,000	104	0.43	1,000
North -Sulfide	6,655	1.17	250,000	21,817	0.93	650,000	401	0.97	12,000
Intermediate - Oxide/Transition				477	0.46	7,000	2	0.24	0*
Intermediate - Sulfide				3,797	0.78	95,000			
Las Colinas - Oxide/Transition				1,669	0.68	36,000	15	0.46	0*
Las Colinas - Sulfide				5,194	0.73	122,000			
Total	**18,989**	**0.91**	**552,000**	**41,174**	**0.82**	**1,091,000**	**522**	**0.84**	**14,000**

* Rounding results in less than 1000 tonnes or less than 1000 ounces
(1) Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
(2) A preliminary economic assessment is preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized.

The phase tonnage and volumes are separated into bench triangulations and form the basis of the production schedule.

Table 14.4.2: North Pit Phase Inventory

North Pit	**Phase 1**	**Phase 2**	**Phase 3**	**Total**
Total kt	**20,867**	**78,517**	**91,501**	**190,884**
Oxide/Trans Minable Resource kt	8,397	11,339	927	20,662
Sulfide Minable Resource kt	162	14,387	14,281	28,830
Waste kt	12,308	52,791	76,293	141,392
Stripping Ratio	1.4	2.1	5.0	2.9
Gold Ounces	223,000	752,000	420,000	1,395,000
Oxide/Trans Gold grade >0.118	0.80	0.68	0.75	0.73
Sulfide Gold Grade >0.172	1.63	1.09	0.87	0.98

Table 14.4.3: Intermediate Phase Inventory

Intermediate Pit	**Total**
Total kt	**26,818**
Oxide/Trans Minable Resource kt	486
Sulfide Minable Resource kt	3,833
Waste kt	22,498
Stripping Ratio	5.2
Gold Ounces	103,000
Oxide/Trans Gold grade >0.188	0.46
Sulfide Gold Grade >0.188	0.78

Table 14.4.4: Las Colinas Phase Inventory

Las Colinas Pit	Total
Total kt	**30,564**
Oxide/Trans Minable Resource kt	1,684
Sulfide Minable Resource kt	5,194
Waste kt	23,686
Stripping Ratio	3.4
Gold Ounces	159,000
Oxide/Trans Gold grade >0.184	0.67
Sulfide Gold Grade >0.23	0.73

14.5 Production Schedule

The production schedule is used as the basis of the economic model and is comprises predicted waste, resource tonnes, and gold grade. Using the phased pit designs, Argonaut has developed a mine production schedule that is based on producing a minimum of 4 Mt of the resource per year and it has been developed on a yearly basis. Balancing the stripping ratio throughout the life of mine was one of the objectives of the development of the mine plan.

The mine schedule considers the resources above the internal CoG's by type and zone as shown in Table 14.5.1. Table 14.5.2 illustrates the annual schedule for the three pits and mine costs are applied annually based on this schedule.

Table 14.5.1: Mine Schedule Internal Cut-off Using US$1,500 Gold Price

Pit -Resource Type	Au (g/t)
North -Oxide/Transition	0.118
North -Sulfide	0.172
Intermediate -Oxide/Transition	0.188
Intermediate -Sulfide	0.188
Las Colinas -Oxide/Transition	0.184
Las Colinas -Sulfide	0.230

Table 14.5.2: San Antonio Annual Production Schedule

North Pit	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Total
Total tonnes	17,295	17,999	18,000	17,999	17,996	17,998	18,000	18,000	18,000	13,965	6,825	6,500	3,982			192,559
Oxide/Trans tonnes	3,123	4,014	3,854	3,912	2,676	1,621	757	209	98	394		0	0			20,658
Sulfide tonnes	0		161	103	1,336	2,393	3,258	3,806	3,917	3,621	3,577	3,500	3,201			28,873
Waste tonnes	14,172	13,985	13,985	13,984	13,984	13,984	13,985	13,985	13,985	9,950	3,248	3,000	781			143,028
Stripping ratio	4.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.5	0.9	0.9	0.2			2.9
Gold ounces	52	111	96	79	117	122	133	138	132	125	110	98	83			1,395
Oxide/Trans Au grade ≥0.114	0.514	0.863	0.710	0.608	0.839	0.879	0.729	0.696	0.986	0.963		0.000	0.000			0.728
Sulfide Au Grade ≥0.164	0.000		1.637	0.671	1.043	0.986	1.099	1.089	1.021	0.971	0.953	0.870	0.809			0.983
Intermediate																
Total tonnes											6,175	7,003	5,851	3,993	1,825	24,847
Oxide/Trans tonnes											402	77				479
Sulfide tonnes											36	521	815	1,625	800	3,797
Waste tonnes											5,737	6,405	5,036	2,368	1,025	20,571
Stripping ratio											13.1	10.7	6.2	1.3		4.8
Gold ounces											7	10	20	46	21	102
Oxide/Trans Au grade ≥0.114											0.465	0.419				0.458
Sulfide Au Grade ≥0.164											0.475	0.558	0.757	0.852	0.824	0.782
Las Colinas																
Total tonnes													3,669	11,141	16,055	30,865
Oxide/Trans tonnes														1,655	29	1,684
Sulfide tonnes														762	4,432	5,194
Waste tonnes													3,669	8,724	11,594	23,987
Stripping ratio														3.6	2.6	3.5
Gold ounces														52	107	159
Oxide/Trans Au grade ≥0.183														0.679	0.550	0.677
Sulfide Au Grade ≥0.183														0.658	0.745	0.733
Total																
Total tonnes	17,295	17,999	18,000	17,999	17,996	17,998	18,000	18,000	18,000	13,965	13,000	13,503	13,502	15,134	17,880	248,271
Oxide/Trans tonnes	3,123	4,014	3,854	3,912	2,676	1,621	757	209	98	394	402	77	0	1,655	29	22,821
Sulfide tonnes	0	0	161	103	1,336	2,393	3,258	3,806	3,917	3,621	3,613	4,021	4,016	2,387	5,232	37,864
Waste tonnes	14,172	13,985	13,985	13,984	13,984	13,984	13,985	13,985	13,985	9,950	8,985	9,405	9,486	11,092	12,619	187,586
Stripping ratio	4.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.5	2.2	2.3	2.4	2.7	2.4	3.1
Gold ounces	52	111	96	79	117	122	133	138	132	125	116	127	114	98	107	1,667
Oxide/Trans Au grade	0.514	0.863	0.710	0.608	0.839	0.879	0.729	0.696	0.986	0.963	0.465	0.419	0.000	0.679	0.550	0.719
Sulfide Au Grade	0.000	0.000	1.637	0.671	1.043	0.986	1.099	1.089	1.021	0.971	0.949	0.830	0.799	0.812	0.767	0.929

14.5.1 Dilution, SMU and Bench Configuration

The block model is based on 5 m x 5 m x 6 m blocks and represents the Selective Mining Unit (SMU) in relation to CoG and subsequent dilution. Where the interpretation of the mineralization rock intersects a block model block, the percentage of the block within the mineralized shape is recorded. The estimated Au grade is then discounted to the SMU creating a “diluted” grade. In effect, this creates a fuzzy boundary to any geological interpretation.

14.6 Development Requirements

The PEA calls for mining to commence in the second half of 2014 when the appropriate permits are in place. Before that time, Argonaut will be advancing studies, test work and engineering work to prepare for construction once permits are received. The main development programs include:

- Engineering and planning for infrastructure;
- Detailed plant engineering;
- Detailed mine planning and engineering;
- Permitting;
- Construction of leach pads and ponds;
- Construction of Carbon plant;
- Construction of buildings and infrastructure; and
- Pre-stripping and mining.

14.6.1 Waste Dumps

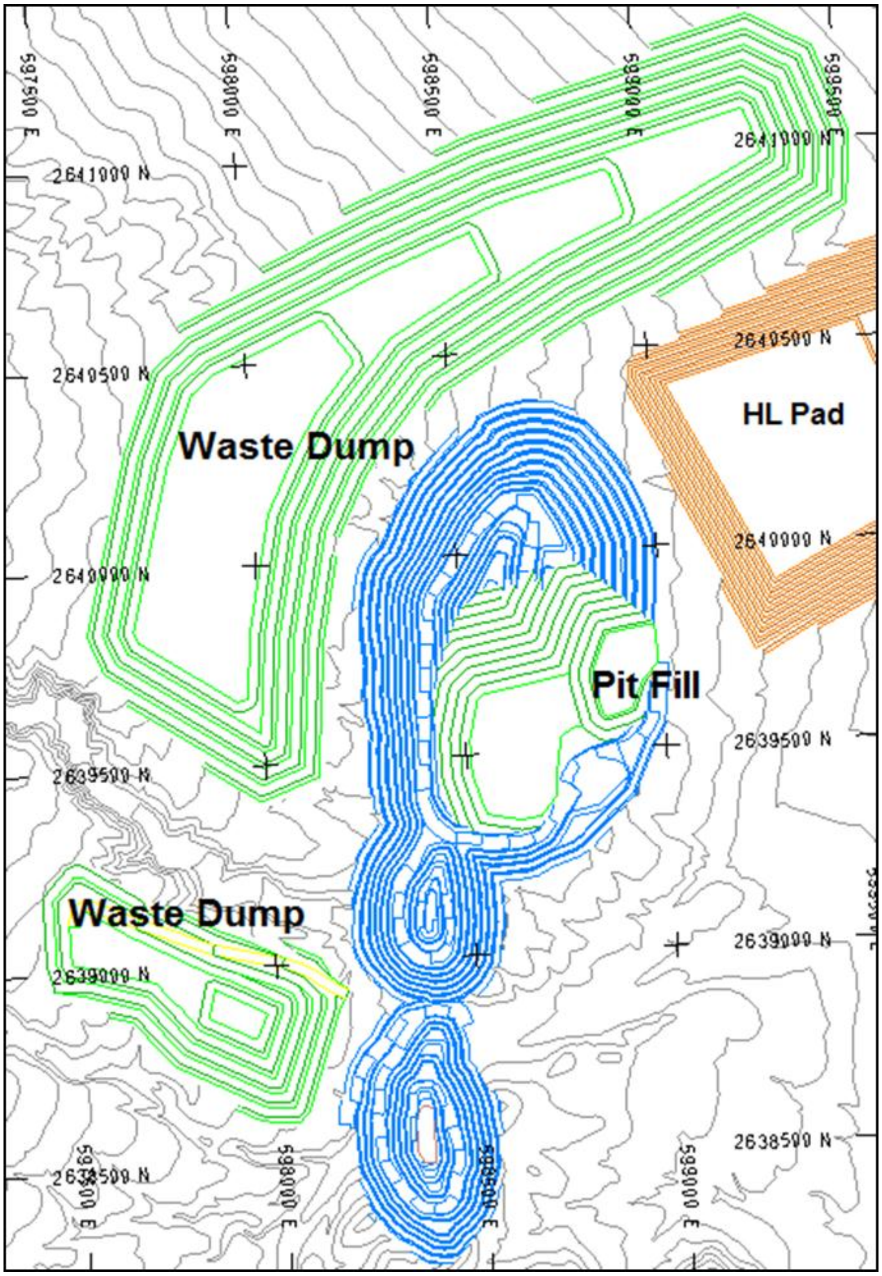
Two primary waste dumps have been located to store waste from the North, Intermediate and Las Colinas pits and are located on land owned by Argonaut.

Dumps are constructed in 18 m lifts with space for a 12 m berm. The resultant overall slope angle is 26 degrees with ramp widths of 25 m.

The main waste dump is located at the western and northern borders of the North Pit with a length of 2.5 km and a width of 600 m, with an average height of 100 m. The average haul distance to the waste dump over the life of the mine is 1.5 km. The capacity of the waste dump is 140 Mt. The second waste dump is designed to be used during the stripping of the Intermediate pit and is located to the southwest of the pit. This waste dump has a capacity for 18 Mt.

The third location option for a waste dump is to back fill the North pit with waste once the mineralized material has been extracted. For purposes of this mine plan, 30 Mt of waste from the Intermediate pit and the Las Colinas pit would be deposited in the North pit, leaving an available capacity for an additional 90 Mt of waste. Figure 14.6.1.1 shows the layout for the waste dumps and back fill of the North pit according to the mine plan presented in the document. Argonaut will study this pit fill option and compare with constructing or expanding the non-pit dumps. This decision will be effected by economics and closure implications. Argonaut believes that additional land is already owned or could be acquired should the pit fill option not be selected.

The density of the waste rock used to calculate area for waste dumps is 1.8 t/m^3.



Source: Argonaut Gold

Figure 14.6.1.1: Waste Dumps Location and Pit Fill

14.7 Mining Fleet and Requirements

A detailed mine fleet estimation has not been completed for San Antonio at this point in time. However, based on Argonaut's experience with its other operations in Mexico, it is anticipated that the San Antonio project will be mined using a contract miner. There are several capable contract miners within Mexico that would be capable of providing the mining equipment and executing the mining plan provided by Argonaut's engineers. At the appropriate time prior to operations, Argonaut will compile a list of qualified contractors and solicit bids for the pre-production stripping and mining and mine activities once full operations have commenced. Based on several factors including price, expenses, equipment availability, etc., Argonaut will select the best option and award the mining contract. Argonaut is of the opinion that the strength of contractors within Mexico and the ability to raise capital for fleet expansions by potential contractors should not be a limiting factor going forward.

14.7.1 Expected Mine Fleet

Based on past performance and common practice for this size of mine, it is likely Caterpillar 777 (100 t or equivalent) size trucks will be used along with Caterpillar 992 (or equivalent) front end loaders. If it is determined that excavators will be beneficial to operations, the selected contractor will need to source new equipment and obtain trained operators from other mines. Atlas Copco Roc 9's are used in similar operations by contractors for mining operations; therefore it is likely that similar sized machinery would be employed at San Antonio.

14.7.2 Expected Operating Cost

As mining will be conducted by contractors, the mine operating cost will follow the standard Mexican model where costs are quoted for drilling, load, haul and ancillary operations. For the purposes of this PEA and founded on Argonaut's experience at its two operations in Mexico, which operate with contract miners, a US$1.05/t-mined estimate has been included. Explosives and diesel are traditionally supplied by the mine owner and are added to the basic contractor cost. This has been estimated at US$0.40/t, giving a total mining cost of US$1.45/t for rock material. Due to lower explosives requirements, costs for mining sand or alluvium material are estimated to be $1.30/t. These costs are based on recently negotiated contracts by Argonaut with an additional contingency factor included as well.

Costs are linked to haul distance of 1.5 km and usually a US$0.15/km hauling costs are added if hauls are over 1.5 km.

Mobilization and demobilization are frequently under US$500,000 and are not a risk in Mexican mine operations. Mobilization and demobilization costs of US$500,000 have been included in the capital costs in the economic model.

14.7.3 Manpower

Due to the proximity of potential mining operations to several local villages, Argonaut will focus on hiring as many un-skilled positions locally as possible. For skilled operators, San Antonio is only a 45 minute drive from the town La Paz. In addition, there are many skilled mining workers within Mexico who are generally able to relocate as necessary. Therefore, the hiring and retention of both operational and technical staff is unlikely to be a limiting feature for further development of San

Antonio operation. Argonaut has already initiated training programs for basic skills to develop electrical, plumbing, mechanical and carpentry/construction skills for residents of the local communities in order to prepare them for jobs during construction and then operations.

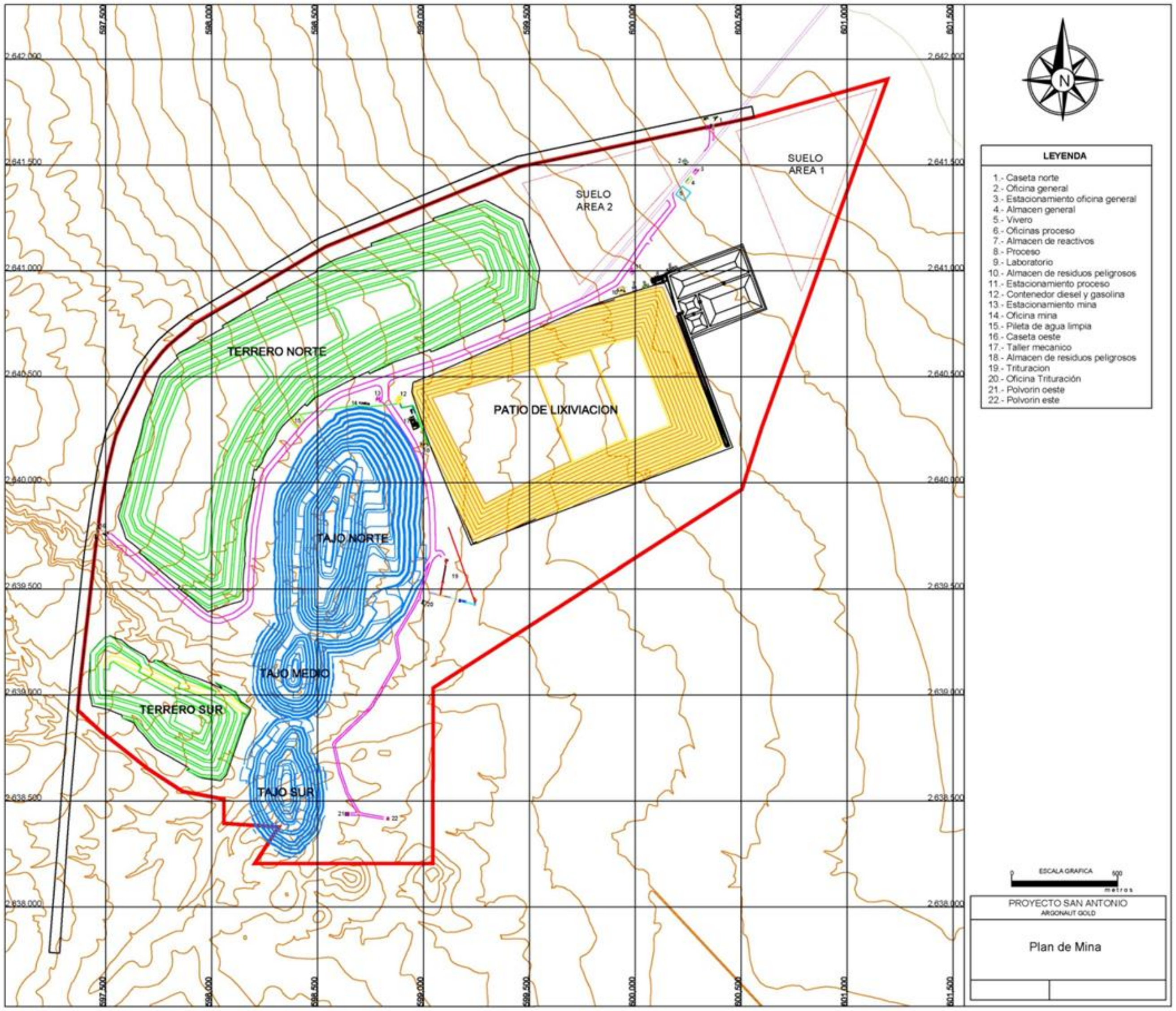
During operations, the projected labor force for general and administration purposes are detailed in Section 19. Argonaut will provide the supervision, engineering and geology personnel to implement the mine plan and direct the contractor. Contractors will employ labor at their own discretion but Argonaut will recommend local labor be sourced where possible.

15 Recovery Methods (Item 17)

15.1 Summary

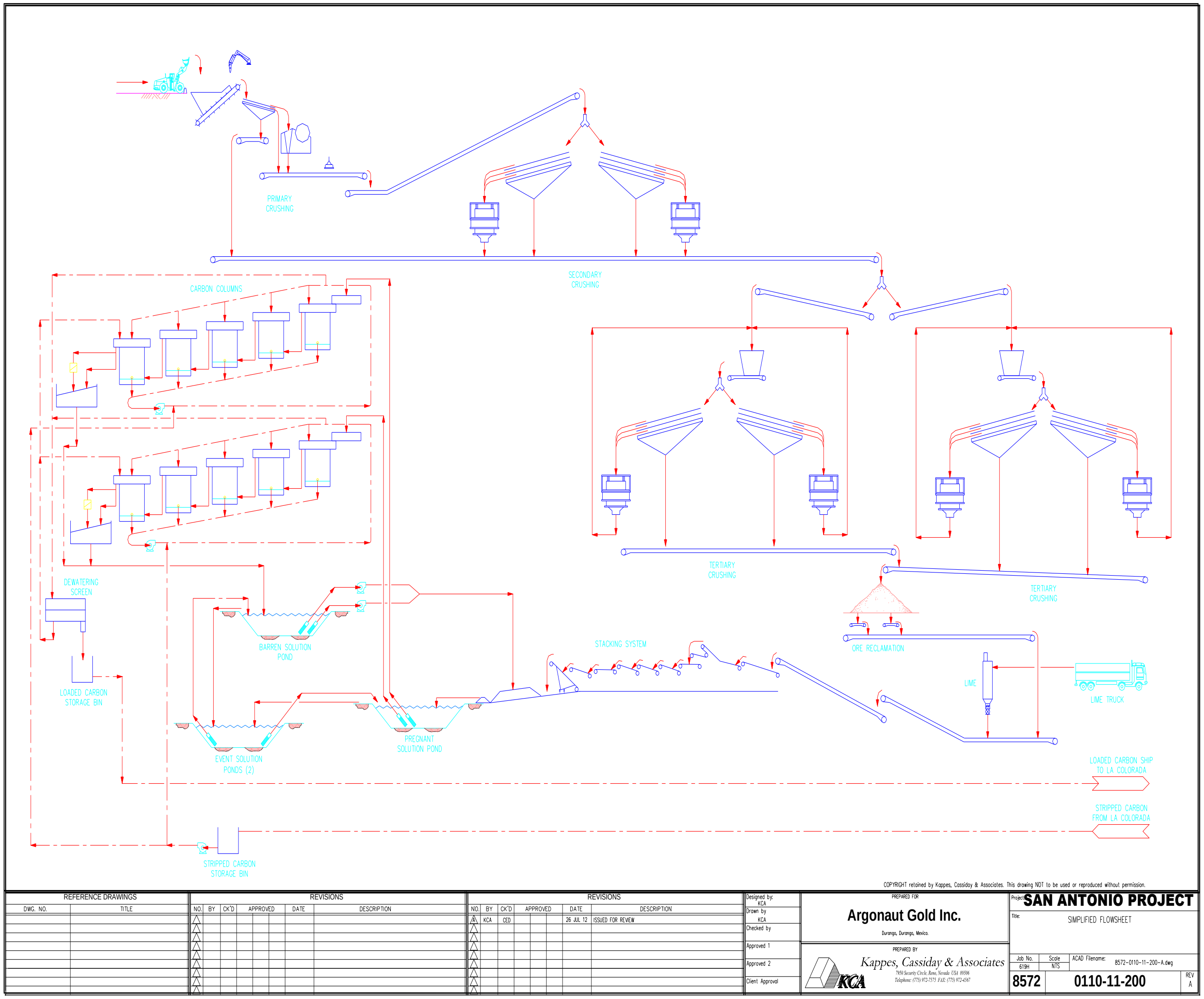
The Project has been designed as an open-pit mine with a heap leach operation utilizing a multiple-lift, single-use leach pad. Leach-grade material will be crushed, stockpiled, reclaimed, and stacked on the leach pads with a stacking system at a nominal rate of 456 t/hr. The stacked material will be leached with a low-grade cyanide solution and the pregnant solution will be processed in a carbon adsorption circuit to extract gold and silver. The final metal recovery from the loaded carbon (desorption) will be processed off-site at a client owned facility (La Colorada Mine).

The general site layout is shown in Figure 15.1.1 and a simplified flow sheet is shown in Figure 15.1.2.



Source: Argonaut

Figure 15.1.1: General Site Layout



Source: KCA

Figure 15.1.2: Simplified Project Flowsheet

15.2 Processing

15.2.1 Primary Crushing

The primary crushing will be by a single 4450 jaw crusher. The 200-t dump hopper will be designed to be fed by directly dumping 100 t dump trucks or reclaimed by front-end loader into the dump hopper situated above the variable speed apron feeder. From the dump hopper the material will pass across a two-deck scalping vibratory screen with the oversize being directed to the jaw crusher, the middling directed to the secondary cone crusher stockpile and the undersize directed to the tertiary crushers. The jaw will have a closed size setting (CSS) of 127 mm. Oversize protection will be provided with a grizzly. Oversize rocks will be reduced in size with a stand mounted hydraulic hammer. Dust control will be by water spray. A magnet will be installed to retrieve any tramp metal that might be fed to the jaw crusher. Transfer conveyors are 914 mm wide.

15.2.2 Coarse Material Stockpile and Reclaim

The jaw crushed material will be stockpiled with a conveyor adjacent to the jaw crusher. Two variable speed feeders located beneath the stockpile will withdraw material from the bottom of the stockpile onto a tunnel conveyor that will in turn feed to a splitter. The tunnel conveyor is 1,219 mm wide.

15.2.3 Secondary Crushing

From the splitter each of the two streams of jaw crushed material will be directed to a three-deck vibratory screen. All material larger than 19 mm will be directed to the cone crusher with a CSS of 31.75 mm. Material smaller than 19 mm will be directed to tertiary crushing. The secondary crushing circuit will be designed to operate at 840 t/hr (20% more than the primary crushing circuit). The secondary crushing circuit operates in an open circuit. Transfer points will be covered and dust control will be by water sprays.

15.2.4 Tertiary Crushing

Material from the secondary crushing circuit is transferred by a 914 mm wide conveyor to a 50:50 splitter. Each stream of material from the splitter is directed to a 30 t surge bin. A variable speed feeder on the surge bin feeds material to another 50:50 feeder with each stream directed to the tertiary three-deck vibratory screens. All material larger than 9.5 mm is directed to the tertiary cone crushers. The CSS of the tertiary cone crushers is 12.7 mm. The discharge from the tertiary cone crushers is recirculated back to the tertiary screens (closed circuit). Material smaller than 9.5 mm will be directed to the 914 mm final product conveyor. Automatic samplers will sample the stream periodically to collect a sample for metallurgical purposes. A belt conveyor weigh scale will record production statistics. Transfer points will be covered and dust control will be by water sprays.

15.2.5 Heap Stacking and Lime Addition

Lime will be added to the crushed material on the conveyor and the material will be transported via conveyor directly to the leach pad for stacking via 914 mm overland conveyors. The overland conveyors will transfer the crushed material to a series of grasshopper transfer conveyors to a horizontal indexing conveyor. The horizontal indexing conveyor will feed the material to a 914 mm wide radial stacker. The heap will be constructed retreating up the slope of the pad. As the stacker retreats, grasshopper conveyors will be removed from the transfer train and relocated to an adjacent cell, so that the heap will be constructed from the down slope toe in an upslope direction.

15.2.6 Heap Leaching

The leach pads will be a multiple-lift, single-use type pad designed for 100 days of leaching. Leaching solution will be supplied to the material with drip emitters and or sprinklers depending on the water balance within the system. Solution will be applied at a rate of 10 L/hr/m^2. The dilute cyanide leach solution will percolate through the stack and collect on the geomembrane liner at the base of the heaps. A series of drainage pipes below the heap and above the liner, in place before stacking, will collect and deliver the solution to the pregnant solution pond. The pregnant and barren solution ponds are identically sized at 35,000 m^3 each.

15.2.7 Adsorption

Solution collected in the pregnant pond will be pumped to the adsorption circuit with submersible pumps. Two 500 m^3/hr pumps will be operating simultaneously. The pregnant pumps will have a fully operational back-up plumbed and wired should there be a pump failure.

The absorption circuit is designed to process 1,000 m^3/hr of pregnant solution. The adsorption plant will consist of two-trains of five each cascade style adsorption vessels containing 3.5 t of activated carbon per vessel. Each train will be capable of processing 500 m^3/hr of pregnant solution.

The columns in each train will be plumbed in series. Each train will have one static discharge screen (65 mesh screen openings) and one solution feed box. Carbon transfer between vessels will be by recessed impellor type pumps.

Following adsorption, the now-barren solution will gravity flow to the barren pond. The barren solution will be refortified with NaCN and pumped back to the leach pad. The barren pump will have a fully functional backup plumbed and wired should there be a pump failure.

15.2.8 Carbon Treatment

The carbon treatment process, including desorption, acid washing and thermal regeneration, will be performed off-site at the La Colorada Project. Twenty-one tonne batches of loaded carbon will be transported to the La Colorada Project for processing weekly.

Transport of the loaded carbon will be accomplished by first loading the carbon into super sacks, and then the sacks will be allowed to drain for a few days. The drained, loaded carbon sacks will then be loaded into steel transport bins. The transport bins are sized to allow double wide and double high stacking in a 12 m standard shipping container. The transport bins will have removable lockable tops to provide some security during transport.

Stripped carbon will be shipped back to the Project from La Colorada in a similar manner and placed back into the adsorption circuit. Each batch of stripped carbon will be acid washed at the La Colorada facility. Approximately every third batch of carbon will be thermally regenerated at La Colorada before being returned to San Antonio.

Precious metals will be stripped and electroplated onto cathodes at the La Colorada Project. The cathodes will be washed, dried and smelted in batches weekly.

15.3 Heap Leach Facilities

The leach pad and ponds were initially designed by Golder. The pad area and pond volumes were increased by KCA as a result of increased resources. The pad will be constructed on a prepared surface with 0.3 m deep clay underliner or a geosynthetic clay liner (GCL) underliner. The prepared surface will be covered with a single 60 mil LLDPE liner. The leach pad will be graded to drain to the pregnant pond. The pregnant pond will be double lined with a 60 mil HDPE underliner and an 80 mil HDPE overliner. Geogrid will be placed between the liners. A leak detection system will be installed in each of the process ponds. The pregnant pond will have a storage capacity of 35,000 m^3. It is designed to contain the design maximum flow of 1,000 m^3/hr for 24 hours in case of pump shutdown, to provide 1 m of dead storage, and a freeboard allowance at the top of the pond of 1 m.

Excessive solution during high rainfall events will overflow by gravity to an event pond. The first phase of construction at the Project will include a leach pad approximately 50% of the ultimate size, pregnant and barren ponds and only one event pond. The remainder of the leach pad and a second event pond will be constructed approximately five years after project start up.

The sum of the volumes contained in the pregnant, barren and excess ponds are sized to contain the sum of the normal operating volume, heap drain down during a 24-hour pump or power outage and precipitation from the modeled random 13 year climate periods selected from daily precipitation records for the San Antonio meteorological station from 1954 to 2009. Solution will be pumped out of the event pond(s) with submersible pumps to the pregnant pond as the solution balance allows. The event ponds will have a capacity of 966,000 m^3.

15.4 Reagents

The reagent consumption is based on metallurgical testing and the design criteria for the project. The project is designed to process 4 Mt of material per year or 10,595 t/d. Cyanide and lime consumption is material type dependent. Table 15.4.1 presents the estimated average annual reagent consumption.

Table 15.4.1: Average Annual Reagent Consumption

Reagent	Consumption/Unit	Annual Consumption
Cyanide	0.26 kg/ore tonne	1.04 million kg
Lime	1.3 kg/ore tonne	5.2 million kg
Carbon	4% carbon fines loss/strip cycle	26 tonnes
Antiscalant	10 ppm/flow stream	97,000 L
Hydrochloric Acid	150 l/acid wash cycle	81,600 L
Caustic	105 kg/acid wash cycle	11,424 kg
Fluxes	0.075 kg/oz produced	7,720 kg

The cyanide mix and metering circuit will include two cyanide addition pumps (one as standby, one as spare), a cyanide transfer pump, a cyanide mix tank, a cyanide mix tank dust box, a cyanide storage tank, cyanide bag hoist, and steel supports and grating for a monorail type hoist for loading super sacks of cyanide briquettes into the cyanide mix tank. Cyanide will be delivered to the property in super sacks and stored in the enclosed, locked and lighted reagent storage facility.

Lime will be added to the crushed material stream by a variable-speed feeder receiving instructions from the weigh scale from the final product conveyor belt from the crushing circuit. Lime will be delivered to the project in a bulk truck and blown into a lime silo adjacent to the final crushed product conveyor belt.

Carbon will be delivered to the project in 1,000 kg super sacks and stored in the reagent storage facility. Carbon will be added to the adsorption tanks as needed to replace carbon lost through attrition.

Antiscalant will be delivered to the project in 500 L carboys. Antiscalant will be added to the barren and pregnant pump inlets via chemical addition pumps to mitigate pipe scale formation. The usual dosage required is 10 ppm.

Hydrochloric acid is used to acid wash the carbon which will be performed at the La Colorada Project. Approximately 150 L is required to adequately wash a 3.5 t batch of carbon. The caustic is used to neutralize the acid washed carbon before being returned to the adsorption circuit. These chemicals will be used at the La Colorada project for the benefit of the San Antonio carbon to be processed there.

Fluxes will be used to mix with the dried gold and silver collected from the stripped San Antonio carbon processed at the La Colorada Project. The mixture of flux, gold and silver will be smelted periodically at the La Colorada Project for the benefit of the Project.

16 Project Infrastructure (Item 18)

16.1 Summary

This section discusses the infrastructure and services required for the San Antonio Gold Project. There is currently no existing project infrastructure. Exploration crews stay in San Antonio and travel to the site as required. Cell phone coverage is available. Each of the following areas will be addressed:

- Access roads to the site, including the relocation of a portion of the highway that crosses the facility;
- Power supply lines from an existing power line and relocation of a portion of the powerline that crosses the facility;
- Diesel-fired generators for back-up power supply to critical areas;
- Water supply;
- Water distribution from the storage tank, including a fire water system;
- Sewage treatment for black and gray water;
- Project buildings for:
  - Mine administration,
  - Laboratory,
  - Warehouse,
  - Process and metallurgical services,
  - Crusher office, workshop and warehouse,
  - Change room, and
  - Guard house.
- Diesel fuel delivery systems for the plant and generators;
- Miscellaneous site services such as:
  - Security,
  - First aid clinic,
  - Communications, and
  - Employee transport.

It was assumed that the mine contractor would supply their own fuel storage and distribution systems, truck shop and change room/lunch facilities.

16.2 Access Roads

The Project is within the San Antonio–Triunfo mining district located about 45 km southeast by paved Highway No.1 from La Paz, the principal sea port and the capital city of the state of Baja California Sur, Mexico. The highway passes near the project, so access is good. The closest towns are San Antonio, 8 km south of the Project; El Triunfo, 10 km southwest of the Project; and Los Planes, 15 km northeast of the Project. Travel time from San Antonio is about 10 minutes.

A road connecting Highway No. 1 and Highway No. 286 crosses through the project boundaries and will necessarily have to be relocated.

16.3 Power Supply

Power will be supplied to the project via a 34.5 kV line that passes through the project. Portions of the line will have to be upgraded to handle the increase load. Additionally, portions of the transmission line will have to be relocated to allow for project construction.

16.3.1 Estimated Power Consumption

The total attached power is 6,610 kW at the Project. Additional power will be consumed at the La Colorada for the benefit of San Antonio. The connected power by area is presented in Table 16.3.1.1.

Table 16.3.1.1: Connected Power by Area

Area	Attached kW
Area 0001 - Site & Utilities General	51
Area 0007 - Power Generation	15
Area 0010 - Plant Water Distribution	439
Area 0012 - Air & Fuel	44
Area 0013 – Laboratory	242
Area 0515 – Crushing	2,885
Area 0518 – Lime	2
Area 0581 - Heap Leach Conveying & Stacking	1,599
Area 0582 - Heap Leach Pads & Ponds	1,323
Area 0590 – Reagents	10
Total San Antonio:	**6,610**
Area 0584 - Heap Leach Recovery Plant (La Colorada)	254
Area 0586 –Refining (La Colorada)	102
Grand Total	**6,967**

16.3.2 Emergency Power

In the event of a power failure, diesel-fired backup generators will be used to supply emergency power for project safety and security. Emergency generators will be located adjacent to the process facility. The San Antonio site will have one 1,650 kW emergency generator. The emergency generator is required to maintain a critical solution balance in the solution storage system during power outages. The fuel tank for the generator will be sized for three days of operation. Backup electric power will be supplied to the following facilities:

- Critical process equipment;
- Site offices;
- First aid clinic; and
- Communications facilities.

Critical process equipment will be energized by the emergency power system to maintain proper solution balances in the process ponds and process plant should the power supply be interrupted. Fire water will be supplied by diesel powered pumps. Table 16.3.2.1 shows the critical equipment that will be energized by the emergency generator in the event of a power failure.

Table 16.3.2.1: San Antonio Critical Equipment for Emergency Power Backup

Area	Attached kW
Area 0001 - Site & Utilities General	51
Area 0582 - Heap Leach Pads & Ponds	1,323
Area 0590 – Reagents	10
Total:	**1,384**

16.4 Water

Water will be used at the project to wet new material stacked on the leach pad, replace evaporation losses on the heap leach pad facilities, provide dust-control for haul roads, access roads, crushing, and construction activities. Peak water requirements for San Antonio as calculated by Golder will be approximately 64.4 m^3/hr (17.8 L/s) and average consumption due to material uptake was 31 m^3/hr (8.6 L/s).

The water source will be underground wells. No new water rights are available in the region. The water rights required for operation have been acquired and this work is still in process. Schlumberger Water Services (SWS) has been contracted to conduct a baseline delineation and characterization of the potential water resources available for development of the mine.

16.4.1 Raw Water System

Raw water will be pumped to a tank in the crusher area. The raw/fire water tank will have 820 m^3 total capacity; the bottom 623 m^3 will be dedicated to fire water use while the remaining 197 m^3 will provide raw water to the process facilities, domestic uses and dust control. From the raw/fire water tank, raw water needs will be met using pumps and gravity flow. Two dedicated fire water pumps, one electric and one diesel powered, will deliver fire water should a fire event occur.

16.4.2 Potable Water

Bottled water will be provided as drinking water for the mine employees.

16.4.3 Sewage Treatment Systems

Two sewage treatment systems will be installed at the San Antonio project. One will be constructed in the process area and the other constructed near the crusher facility to treat non-toxic wastes generated on the site. Sewage will be collected and directed to a septic tank with a biological filter to process both black and grey water. Laboratory metallurgical wastes will be directed to the process ponds.

16.5 Project Buildings

16.5.1 Administration Building

The administration building will consist of a complex of four modular office trailers. Each will be 3.5 m wide and 12 m in length. The building will be sized to accommodate key administration, supervisory, engineering, geology, and accounting personnel.

The complex will include office space for key personnel, a conference and training area, and men's and women's toilet facilities.

16.5.2 Laboratory

The laboratory will be housed in two modular trailers, each 3.5 m by 12 m, and a covered 20 m by 20 m concrete slab. The sample preparation facility will be contained in the open-air covered slab. The fire assay furnaces will be placed in the open air covered facility adjacent to the sample preparation facility. The laboratory will be designed to process up to 150 rock samples per day from the mine, and all process metallurgical samples as required. The facility will have men's and women's toilet facilities.

16.5.3 Warehouse

A 36 m by 17 m warehouse will be constructed and serve as a central receiving area for incoming repair parts and consumables. An uncovered fenced area with a concrete slab floor will be constructed adjacent to the building for heavier items. There will be an office area for warehouse supervision, a break area for warehouse personnel and men's and women's toilet facilities.

16.5.4 Heap Leach Process Facilities

The heap leach recovery plant will not be covered and as such only a slab foundation will be required. A modular office trailer, 3.5 m wide and 12 m in length will serve as the process and metallurgical services office. The facility will have men's and women's toilet facilities.

Adjacent to the process and metallurgical services office will be a covered concrete slab and fenced service area. The area will be used as a workshop for the process components, and small warehouse for high use consumables.

16.5.5 Crusher Office, Workshop and Warehouse

The crusher office, workshop and warehouse facility will be housed in a single 19 m by 18 m metal building with an adjacent fenced area for storage. Office space will be provided for crusher management personnel, a break area for the workers, a workshop area for component repairs and a warehouse for consumables. The facility will have men's and women's toilet facilities.

16.5.6 Change Room

Two modular change rooms, 3.5 m wide and 12 m in length, will be located near the entrance to the San Antonio project. The change room will include a set of "clean clothes" lockers, showers, washrooms and "work lockers." Segregated change facilities will be provided for 150 men and approximately 10 women.

16.5.7 Guard House

A six m^2 guard house will be erected at the entrance to the property. Entrance to the property will be monitored continuously.

16.6 Diesel Fuel Delivery and Storage Systems

Diesel fuel will be delivered to the mine site via tanker trucks and stored in a tank adjacent to the emergency generators. The storage tank will be placed in a lined basin to ensure that no fuel is leaked to the environment. Since mining will be by contract miners, it was assumed that they would handle their own fuel storage and dispensing.

16.7 Site Services

16.7.1 Security

The San Antonio site will be fenced to provide for the safety and security of the workers and the general public. A livestock fence will surround the property and chain link fences will surround the carbon plant and process pond areas. A guardhouse will be staffed at the property entrance and will be manned 24 hours per day. In addition, roaming guards will be assigned to patrol the facilities.

16.7.2 First Aid Clinic

A first aid clinic will be housed in a 3.5 m by 6 m modular trailer. An ambulance will be available for emergency transport of workers.

16.7.3 Communications

A satellite communication system will be installed at the general office. The system will include data, voice and internet connections. The site system will link via the satellite to the National Mexican telecom grid for off-site communication.

On-site communications will be by network computer e-mail system and both fixed and portable FM radios. The radios will be used for communications between the operators, security personnel, and supervisors of the various production departments. Cell phone coverage is good in the area.

16.7.4 Transportation

Personnel busses will be provided to transport workers to the project site. It is expected that most personnel will be transported form La Paz, a 45 minute bus commute each way.

16.7.5 Solid Waste Disposal

Waste will be managed in dumpsters or other appropriate waste containers. All containers will be covered (or covered and weighted, if covers are not attached) to reduce the potential for blowing trash. Containers used on site will be labeled. Trash from office and lunch areas will be bagged. Municipalities and/or waste disposal companies will be contracted as necessary for off-site transportation and disposal.

On-site burning of any waste materials, vegetation, domestic waste, etc. will not be allowed. No waste will be disposed of or buried on site. Illegal dumping on site, along public roads or in the surrounding areas will not be allowed.

17 Market Studies and Contracts (Item 19)

17.1 Summary of Information

Gold markets are mature, global markets with reputable smelters and refiners located throughout the world. Demand is presently high with prices for gold ranging between $1,537 and $1,895 during the past 12 months. Markets for doré are readily available. San Antonio will ship its loaded carbon to Argonaut’s La Colorada project, located near Hermosillo, Sonora, Mexico, which possesses a gold room for the production of doré; the final decision on metal refining has not been made at this time; however, Argonaut has refining and purchase and sale agreements in place for the doré from its two other operations in Mexico and expects to be able to put in place a contract with the same terms and conditions on the doré material produced from the San Antonio material.

17.2 Commodity Price Projections

The one year moving average for gold as of July 2012 was approximately US$1,675 oz Au. However, a lower gold price was used in considering the resource and economic model. The resource was calculated using a US$1,500/oz Au and the mining plan used a US$1,200/oz Au price to model the pits. Table 17.2.1 shows the historical averages for gold. Table 17.2.2 shows the gold prices used in the economic model.

Table 17.2.1: Monthly and Trailing Averages for Gold Prices

Year	Month	Monthly Average	Trailing Average	
2012	July	1,594	12 month average	1,675
	June	1,597	24 month average	1,539
	May	1,586	36 month average	1,397
	April	1,650		
	March	1,674		
	February	1,743		
	January	1,656		
2011	December	1,652		
	November	1,739		
	October	1,665		
	September	1,772		
	August	1,756		

Source: Based on Kitco pricing – London PM Fix – US$
Trailing averages are for the prior 12, 24 or 36 month periods as of July 31, 2012

Table 17.2.2: Gold Price used in Economic Model

Year	1	2	3	4	5+
US$/oz Au	$1,595	$1476	$1,346	$1,292	$1,250

17.3 Contracts and Status

Due to the stage of development of this project, there are no long-term contracts or commitments in place. As the project advances, Argonaut will continue to work with engineering firms and equipment and materials vendors to be prepared to further advance the San Antonio project.

18 Environmental Studies, Permitting and Social or Community Impact (Item 20)

SRK's environmental specialist did not conduct a site visit of the Project. As such, the following assessment is predicated on a review of available documentation and direct communications with the Project owner. The Project is a late exploration project and surface disturbance at the site is primarily associated with exploration (e.g., roads, drill pads, drill sumps, etc.) and a recent hydrogeological investigation. Limited data and documents are available for this stage of the project. In addition, several of the documents were conceptual or only available in draft form and may not accurately reflect the final conditions of the project or proposed facilities.

18.1 Environmental Studies and Background Information

18.1.1 Baseline Studies

Environmental baseline studies were begun for the project in 2008, but were suspended prior to completion. Upon Project acquisition, Argonaut retained third-party consultants to re-initiate the baseline studies required as part of the permitting process to obtain the primary environmental authorization for the Project, the *Manifesto Impacto Ambiental* (MIA). These studies, including flora, fauna, soil characterization, and air quality studies were completed and submitted as part of the MIA. Water studies are contracted to Schlumberger Water Services (SWS); geotechnical studies and heap leach material, spent heap leach material and waste rock characterization studies are contracted to Golder Associates (Golder); Centro de Investigaciones Biologicos del Norte (CIBNOR) conducted the flora, fauna, air quality and soil characterization studies; and Dinamica Socia (DS) performed the socioeconomic studies.

18.1.2 Environmental Conditions of Note

The Project is located eight km north of the historic mining town of San Antonio in the lower, transitional foothills leading to the Sierra de la Laguna mountain range. The Sierra de la Laguna lies at the southern end of the peninsula in the state of Baja California Sur, and was designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a global biosphere reserve. It includes a core area centered on the higher-elevation oak-pine forests, with transitions buffer zones at lower elevations. The Project site is located 18 km from the biosphere buffer zone, and in a completely separate hydrographic basin from the biosphere reserve.

San Antonio and the nearby village of El Triunfo, while now largely agricultural communities, were important gold and silver producing centers, respectively, over the last two centuries. A resurgence of mine exploration focused activities has occurred over the last 20 years. There is a strong community interest in the benefits of resuming mining activity. Numerous residents of these two communities continue to be active with small scale gambusino (artisanal) production with limited cyanide leaching of gold performed on material that is taken back to the pueblo area (AMEC, 2011).

Access to the site is generally from the port city of La Paz, 45 km northeast, or the resort town of Cabo San Lucas, 160 km to the south; both along Federal Highway 1. Alternatively, the site can be accessed from the east along a two lane, paved road from San Juan de Los Planes. This road connects State Highway 286 with Federal Highway 1 in San Antonio, and passes directly through the proposed Project site. As such, a portion of this road will require relocation as part of project development. A separate MIA will be prepared for this aspect of the Project, and submitted to the State Highway Department.

18.2 Waste Management

Water and wastewater discharge is regulated by CONAGUA and a permit is required for most industrial discharges. The quality of the discharge must generally meet Mexican regulatory standards (NOMs), although CONAGUA may issue site-specific limits. Authorization is also required from CONAGUA for the deviation, extraction or diversion of national waters.

A mine site must submit a Hazardous Waste Notification to SEMARNAT, Mexico's environment ministry, prior to generating the waste or using a hazardous waste management facility.

18.2.1 Geochemistry and Waste Management

A comprehensive geochemical characterization program (Golder, 2011) was conducted to evaluate the environmental stability of the Project waste rock. The focus of the program was on the potential for generation of acid rock drainage (ARD) and metal leaching (ML). The program included the following components:

- Chemical analysis of solids;
- Mineralogical analysis;
- Acid base accounting (ABA);
- Net acid generation (NAG) testing; and
- Leach extraction test (LET).

Based on the results of the study, the waste rock can be classified as non-acid forming material. Leach testing indicated that trace metal concentrations in leachates are generally low. However, NAG pH values are lower than observed in the LET leachates, and metal leaching over the long term may be more pronounced than indicated by the LET results. These results are consistent with those for low-sulfide, gold-quartz vein deposits such as the Project. According to Plumlee, et al. (1999), mine discharges from these deposits are generally near-neutral, with low dissolved metal concentrations because of their low base metal sulfide contents. Arsenic typically is the exception due to the presence of arsenopyrite. Although arsenopyrite was not identified in the mineralogical analysis, it is known to be present (AMEC, 2011), as supported by the elevated solid phase arsenic content relative to crustal abundances.

In all, it may not be necessary to distinguish between rock types or sample location from a waste rock ARD management perspective; however, further testing and evaluation of arsenic leaching potential is recommended to fully evaluate this operational management strategy.

18.2.2 Tailings Disposal

There are no tailings disposal areas currently proposed or included in the project.

18.2.3 Site Monitoring

Baseline monitoring has been conducted as part of the environmental impact assessment process for both the original exploration as well as the currently proposed exploitation projects. Groundwater and surface water samples were collected for analysis. Studies of the local flora and fauna were also undertaken. This information is presented in the current MIA document submitted to SEMARNAT in December 2011.

18.2.4 Water Management

Production Water

The Project is located within the Los Planes hydrologic basin that is bounded by the Gulf of California to the north, the Sierra La Salecita to the south, the Sierra La Gata to the east and the Sierra La Trinchera to the west. The basin has an approximate area of 930 km^2. Water resources within this basin and Project area include creeks with intermittent flows during the year and a generally unconfined aquifer.

Groundwater has been detected in drill holes at the site as shallow as 30 m below ground surface (bgs). Groundwater quality in the Los Planes basin has historically been degraded by agricultural runoff containing nitrate, naturally-occurring arsenic in the mineralized zones, and geothermal activity.

Water usage is controlled by CONAGUA, for allocation and management of water rights. The Los Planes aquifer has been considered over-exploited since 1954, having been used heavily for agriculture purposes; approximately 11 million m^3 is withdrawn per year (AMEC, 2011). No additional water rights can be licensed and all groundwater users must have a water right. Pediment was told by CONAGUA that water rights obtained from the Los Planes agricultural users lower in the basin can be transferred nearer to the site, and that new wells can provide water needed for the Project (AMEC, 2011).

SWS was retained to commence a baseline delineation and characterization of the potential water resources available for development of the mine. At the end of July 2010, SWS had met with CONAGUA officials, reviewed area well and mine shaft data, and conducted site surveys. A preliminary report confirmed that the basin where the Project is located has no new water rights and that those must be purchased from existing users. SWS also noted that the most likely sources of water needed for the Project will be groundwater wells that could be sited in the alluvium east of the Project. There could also be some potential contribution from surface runoff that can be captured and, later in the mine life, pit dewatering.

Pitalla has acquired 731,000 m^3 of existing water rights from private owners and ejidos in the Los Planes water basin for use in the operations. Argonaut expects that the amount of water rights acquired exceeds the amount required for operations.

Other potential water supply alternatives that may be reviewed during the course of Project development include the use of sea water directly or desalinated and the construction of reservoirs to capture and use surface run-off during the rainy season. Two arroyo diversions and one diversion berm could be constructed to manage surface water flows through the project site. In total, 1.6 km of diversion berm are constructed to channel water around the Colinas pit and to channel water between the Planes waste rock facility and the leach pad. About 225 m of diversion berm is planned to be built adjacent to the proposed Colinas pit to divert surface water away from the pit. The diversion of the arroyos will require federal approval from SEMARNAT and CONAGUA.

As noted above, the Project lies within a separate hydrographic watershed from the Sierra La Laguna Biosphere Reserve. As such, impacts to the reserve should not occur.

Post-Closure Pit Water

The Project open pit, once completed, could possibly be closed as a pit a lake, or potentially serve as a waste dump for the overburden from the Colinas pit. If the pit lake options is pursued, once mining is completed, dewatering of the pit will be halted and the pit will gradually fill. SWS has completed groundwater model runs and water balance analyses of pit filling (Schlumberger, 2012) which indicate that the pit will take almost 100 years to reach static equilibrium at an elevation of approximately 140 m. As the pit fills, the constituent concentrations in the pit lake will gradually increase in concentration. Metals, such as arsenic, are expected to reach a geochemical equilibrium concentration. Conservative long-term concentrations after 100 years, based on local groundwater conditions as well as data from the geochemical characterization program (Golder, 2011) are anticipated to be similar to those measured in local groundwater and surface water. When considered in conjunction with restricted human and wildlife access, the risks associated with the pit lake chemistry will be no greater than those posed by the natural conditions in the area.

18.3 Environmental Regulatory Framework

18.3.1 Mining Law and Regulations

Mining in Mexico is regulated through the Mining Law, approved on June 26, 1992 and amended by decree on December 24, 1996, Article 27 of the Mexican Constitution.

- Article 6 of the Mining Law states that mining exploration; exploitation and beneficiation are public utilities and have preference over any other use or utilization of the land, subject to compliance with laws and regulations;
- Article 19 specifies the right to obtain easements, the right to use the water flowing from the mine for both industrial and domestic use, and the right to obtain a preferential right for a concession of the mine waters; and
- Articles 27, 37 and 39 rule that exploration; exploitation and beneficiation activities must comply with environment laws and regulations and should incorporate technical standards in matters such as mine safety, ecological balance and environmental protection.

The Mining Law Regulation of February 15, 1999 repealed the previous regulation of March 29, 1993. Article 62 of the regulation requires mining projects to comply with the General Environmental Law, its regulations, and all applicable norms.

18.3.2 General Environmental Laws and Regulations

Mexico's environmental protection system is based on the General Environmental Law known as *Ley General del Equilibrio Ecológico y la Protección al Ambiente* - LGEEPA (General Law of Ecological Equilibrium and the Protection of the Environment), approved on January 28, 1988 and updated December 13, 1996.

The Mexican federal authority over the environment, SEMARNAT, formerly known as SEDESOL, was formed in 1994. On November 30, 2000, the Federal Public Administration Law was amended giving rise to SEMARNAT. The change in name corresponded to the movement of the fisheries subsector to the *Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación* -

SAGARPA (Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food), through which an increased emphasis was given to environmental protection and sustainable development.

SEMARNAT is organized into a number of sub-secretariats and the following main divisions:

- INE – *Instituto Nacional de Ecología* (National Institute of Ecology), an entity responsible for planning, research and development, conservation of national protection areas and approval of environmental standards and regulations;
- PROFEPA - *Procuraduría Federal de Protección al Ambiente* (Federal Attorney General for the Protection of the Environment) responsible for law enforcement, public participation and environmental education. PROFEPA is in charge of carrying out environmental inspections and negotiating compliance agreements. Voluntary environmental audits, coordinated through PROFEPA, are encouraged under the LGEEPA;
- CONAGUA – *Comisión Nacional del Agua* (National Water Commission), responsible for assessing fees related to water use and discharges;
- Mexican Institute of Water Technology; and
- CONANP – *Comisión Nacional de Areas Naturales Protegidas* (National Commission of Natural Protected Areas).

The federal delegation or state agencies of SEMARNAT are known as *Consejo Estatal de Ecología* – COEDE (State Council of Ecology).

Under LGEEPA, a number of regulations and standards related to environmental impact assessment, air and water pollution, solid and hazardous waste management and noise have been issued. LGEEPA specifies compliance by the states and municipalities, and outlines the corresponding duties.

PROFEPA "Clean Industry"

PROFEPA administers a voluntary environmental audit program and certifies businesses [*Certificados de industria limpia* (CIL)] with a "Clean Industry" designation if they successfully complete the audit process. The voluntary audit program was established by legislative mandate in 1996 with a directive for businesses to be certified once they meet a list of requirements including the implementation of international best practices, applicable engineering and preventative corrective measures.

In the Environmental Audit, companies contract third-party, PROFEPA-accredited auditors, considered experts in fields such as risk management and water quality, to conduct the audit process. During this audit, called "Industrial Verification," auditors determine if facilities are in compliance with applicable environmental laws and regulations. If a site passes, it receives designation as a "Clean Industry" and is able to utilize the Clean Industry logo as a message to consumers and the community that it fulfills its legal responsibilities. If a site does not pass, the government can close part or all of a facility if it deems it necessary. However, PROFEPA wishes to avoid such extreme actions and instead prefers to work with the business to create an "Action Plan" to correct problem areas.

The Action Plan is established between the government and the business based on suggestions of the auditor from the Industrial Verification. It creates a time frame and specific actions a site needs to take in order to be in compliance and solve existing or potential problems. An agreement is then signed by both parties to complete the process. When a facility successfully completes the Action Plan, it is then eligible to receive the Clean Industry designation.

PROFEPA believes this program fosters a better relationship between regulators and industry, provides a green label for businesses to promote themselves and reduces insurance premiums for certified facilities. The most important aspect, however, is the assurance of legal compliance through the use of the Action Plan, a guarantee that ISO 14001 and other Environmental Management Systems cannot make.

According to mine personnel, Argonaut intends to seek Clean Industry certification, which it has already received for its El Castillo Mine.

SIGA

Many companies in Mexico adopt the corporate policy, *Sistema Integral de Gestión Ambiental* (SIGA) (Integral System of Environmental Management), for the protection of the environmental and prevention of adverse environmental impacts. SIGA emphasizes a commitment to environmental protection along with sustainable development, as well as a commitment to strict adherence to environmental legislation and regulation and a process of continuous review and improvement of company policies and programs. The companies continue to improve their commitments to environmental stewardship through the use of the latest technologies that are proven, available, and economically viable. According to mine personnel, Argonaut intends to adopt SIGA once production has begun and is stable.

Other industry programs that Argonaut participates in, or intends to participate in, include:

- the Social Responsible Company (ESR) Distinctive, which was awarded to Argonaut's Mexican subsidiary, Pitalla, by the Mexican Center of Philanthropy;
- the Industria limpia (Clean industry) certification program – awarded to Argonaut's Mexican subsidiary, Minera Real del Oro by PROFEPA; and
- accreditation under the voluntary self-management program for health and safety with the Mexican Department of Labor and Social Welfare (PASST).

18.3.3 Other Laws and Regulations

Water Resources

Water resources are regulated under the National Water Law, December 1, 1992 and its regulation, January 12, 1994 (amended by decree, December 4, 1997). In Mexico, ecological criteria for water quality is set forth in the Regulation by which the Ecological Criteria for Water Quality are Established, CE-CCA-001/89, dated December 2, 1989. These criteria are used to classify bodies of water for suitable uses including drinking water supply, recreational activities, agricultural irrigation, livestock use, aquaculture use and for the development and preservation of aquatic life. The quality standards listed in the regulation indicate the maximum acceptable concentrations of chemical parameters and are used to establish wastewater effluent limits. Ecological water quality standards defined for water used for drinking water, protection of aquatic life, agricultural irrigation and irrigation water and livestock. Discharge limits have been established for particular industrial sources, although limits specific to mining projects have not been developed. NOM-001-ECOL-1996, January 6, 1997, establishes maximum permissible limits of contaminants in wastewater discharges to surface water and national "goods" (waters under the jurisdiction of the CONAGUA).

Daily and monthly effluent limits are listed for discharges to rivers used for agricultural irrigation, urban public use and for protection of aquatic life; for discharges to natural and artificial reservoirs used for agricultural irrigation and urban public use; for discharges to coastal waters used for recreation, fishing, navigation and other uses and to estuaries; and discharges to soils and to wetlands. Effluent limitations for discharges to rivers used for agricultural irrigation, for protection of aquatic life and for discharges to reservoirs used for agricultural irrigation have also been established.

Ecological Resources

In 2000, CONANP (formerly CONABIO, the National Commission for Knowledge and Use of Biodiversity) was created as a decentralized entity of SEMARNAT. As of November 2001, 127 land and marine Natural Protected Areas had been proclaimed, including biosphere reserves, national parks, national monuments, flora and fauna reserves, and natural resource reserves.

Ecological resources are protected under the *Ley General de Vida Silvestre* (General Wildlife Law). NOM-059-ECOL-2000 specifies protection of native flora and fauna of Mexico. It also includes conservation policy, measures and actions, and a generalized methodology to determine the risk category of a species.

Other laws and regulations include:

- Forest Law, December 22, 1992, amended November 31, 2001, and the Forest Law Regulation, September 25, 1998;
- Fisheries Law, June 25, 1992, and the Fisheries Law Regulations, September 29, 1999; and
- Federal Ocean Law, January 8, 1986.

Regulations Specific to Mining Projects

All aspects related to Mine Safety and Occupational Health are regulated in Mexico by NOM-023-STPS-2003 issued by the Secretariat of Labor.

NOM-120-ECOL-1997, November 19, 1998 specifies environmental protection measures for mining explorations activities in temperate and dry climate zones that would affect xerophytic brushwood (matorral xerofilo), tropical (caducifolio) forests, or conifer or oak (encinos) forests. The regulation applies to “direct” exploration projects defined as drilling, trenching, and underground excavations. A permit from SEMARNAT is required prior to initiating activities and SEMARNAT must be notified when the activities have been completed. Development and implementation of a Supervision Program for environmental protection and consultation with CONAGUA is required if aquifers may be affected. Environmental protection measures are specified in the regulations, including materials management, road construction, reclamation of disturbance and closure of drill holes. Limits on the areas of disturbance by access roads, camps, equipment areas, drill pads, portals, trenches, etc. are also specified.

18.3.4 Expropriations

Expropriation of ejido and communal properties is subject to the provisions of agrarian laws.

18.3.5 NAFTA

Canada, the United States and Mexico participate in the North American Free Trade Agreement (NAFTA). NAFTA addresses the issue of environmental protection, but each country is responsible for establishing its own environmental rules and regulations. However, the three countries must comply with the treaties between themselves; and the countries must not reduce their environmental standards as a means of attracting trade.

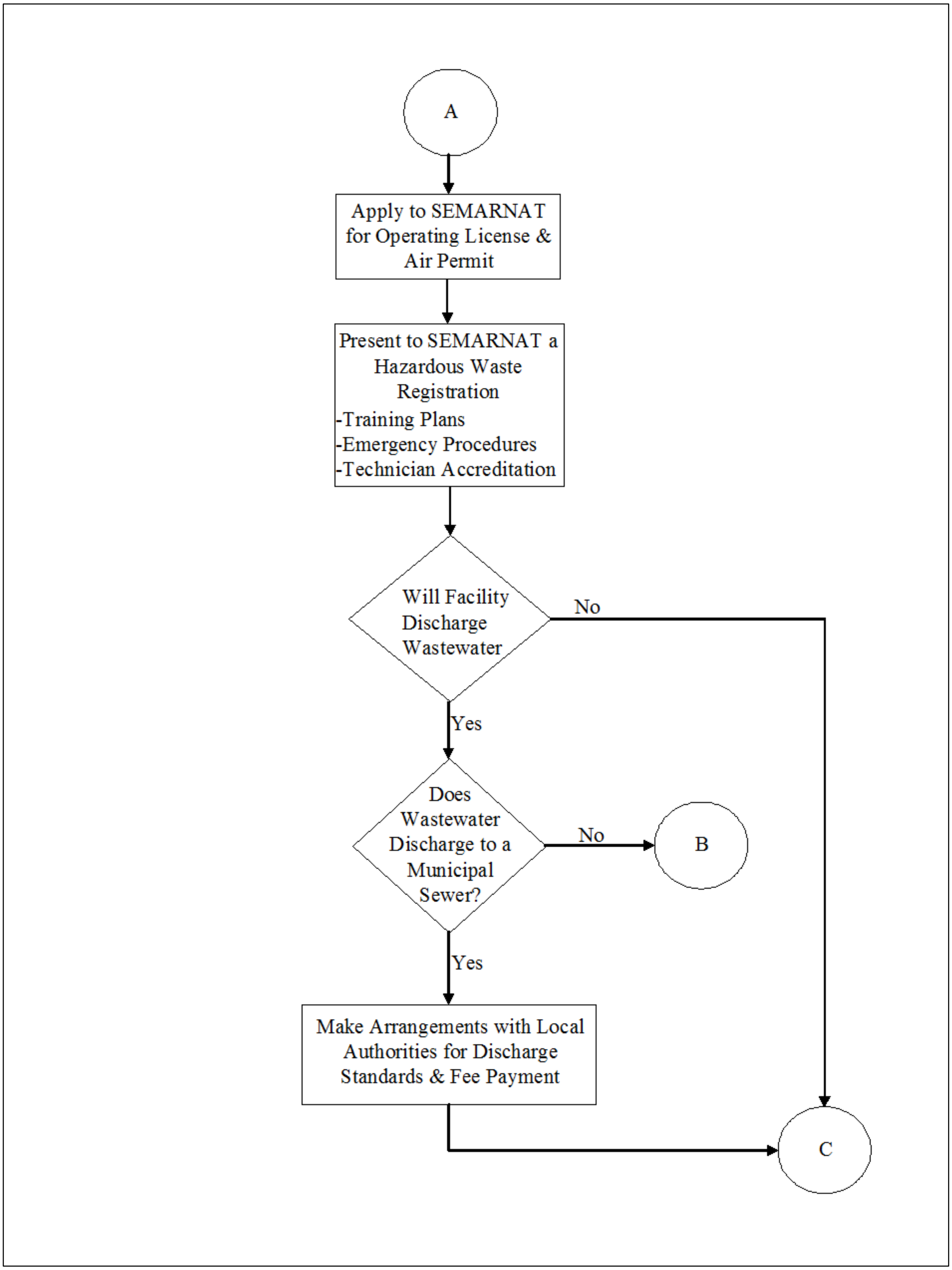
18.3.6 International Policy and Guidelines

International policies and/or guidelines that may be relevant to the Project include:

- International Finance Corporation (Performance Standards) – social and environmental management planning; and
- World Bank Guidelines (Operational Policies and Environmental Guidelines).

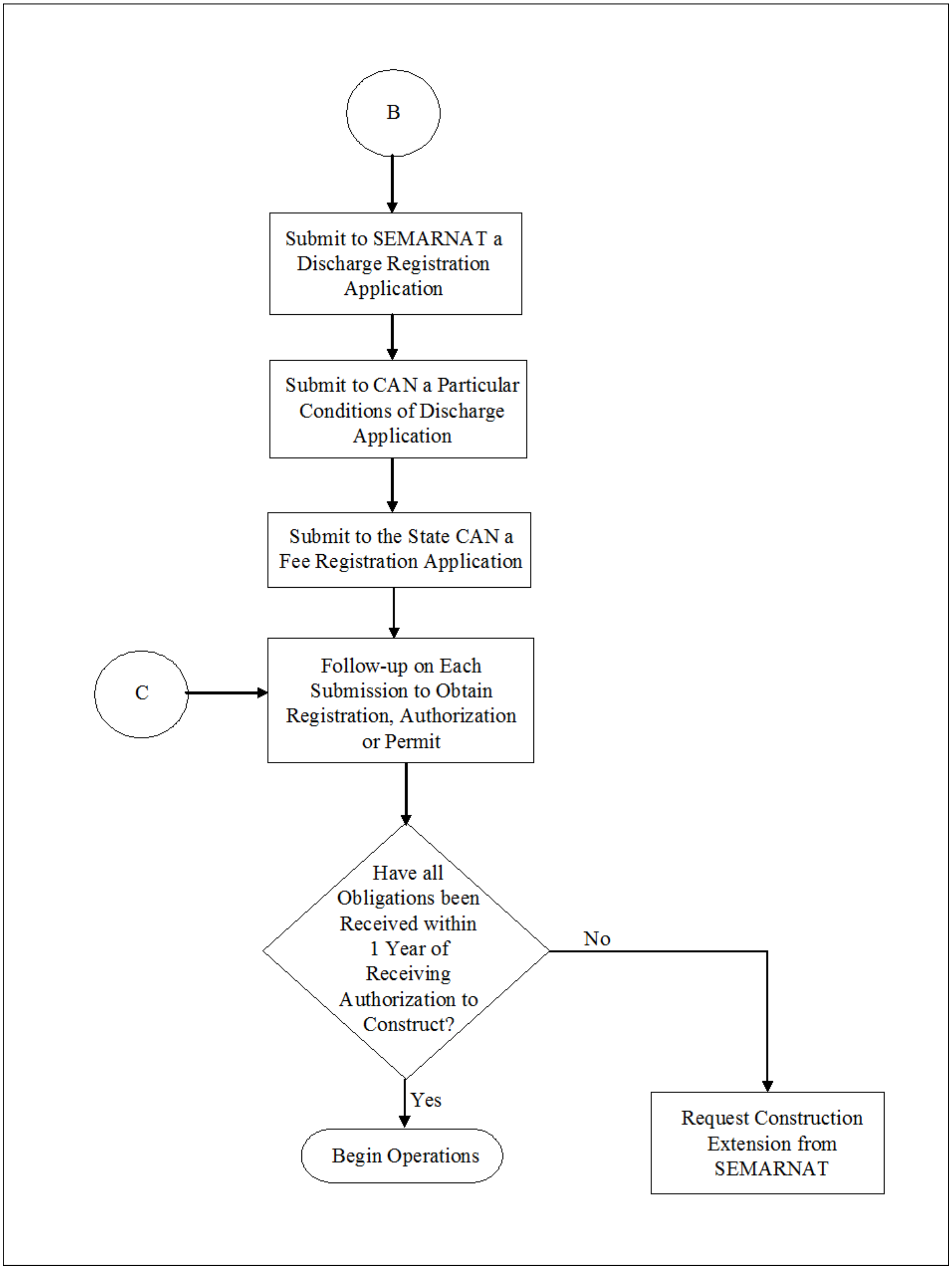
18.3.7 The Permitting Process

Environmental permits are required from various federal and state agencies. The general process for obtaining authorization to construct a new industrial facility is shown in Figure 18.3.7.1.



Source: Argonaut, 2012

Figure 18.3.7.1: Construction and Start-up Authorization for Industrial Facilities



Source: Argonaut, 2012

Figure 18.3.7.1 (Cont.): Construction and Start-up Authorization for Industrial Facilities

18.3.8 Required Permits and Status

Exploration

According to Argonaut, the required permits for continued exploration of the site have been obtained for its activities at San Antonio. The most recent program, the Cañada del Aqua Exploration Program received authorization to proceed from SEMARNAT in July 2012.

While Argonaut has affirmed that the exploration programs have been, and will continue to be, performed in accordance with Mexican Official Standards (NOM-120), PROFEPA ordered a cease-and-desist injunction against the San Antonio Exploration Zone. This injunction is currently under administrative review. Similarly, the Fandango Exploration Program was stopped and fined US$10,000 by PROFEPA. This fine and injunction is also being contested by Argonaut. In both cases, SEMARNAT claimed exceedence in the allowable disturbance under NOM-120, which is generally set at seven percent of the area to be drill tested under the granted permit for road disturbances. In 2009, these programs were found to be in compliance, though approaching their permit limits.

Mining

Argonaut confirmed to SRK that the permits and authorizations necessary for mineral extraction and beneficiation are being applied for. SRK has not conducted an exhaustive investigation as to the current status of all the required permits. The following information (Table 18.3.8.1) regarding the exploration and mining permits was provided by Argonaut.

Table 18.3.8.1: Major Mining Permit and Authorization Requirements

Permit/Authorization	Agency	Description	Status
Mining Law Concession	President via the Minister of Commerce and Industrial and the General Directorate of Mines Promotion - Mexican Secretaría de Economía	Mining concessions are granted for an initial term of 50 years that can be extended upon request to the Ministry of Economy within five years prior to the expiration date	Pitalla holds or has agreements in place for all of the concessions necessary for the project.
Manifestación de Impacto Ambiental (MIA) - Environmental Impact Statement	SEMARNAT	Specific for mining operations at a “Particular” level, the MIA should include sufficient environmental and social baseline studies to adequately assess project impacts.	The MIA for exploitation of the Project was submitted to SEMARNAT in December 2011. On August 2, 2012, the project was denied under Article 35 of LGEEPA (see details below). Pitalla is in the process of reviewing the MIA to re-submit and follow the normal process for MIA approval.
Análisis de Riesgo - Risk Analysis Report	SEMARNAT	An assessment of the potential risks of a project, typically focused on geotechnical and environmental risks such as slope stabilities issues, process water containment, and hazardous materials management (e.g., explosives, process chemicals, etc.,).	The risk assessment report will be included as part of the MIA approval process.
Operating License (and Air Quality Permit)	SEMARNAT	Article 18 and 19 of the Regulation of LGEEPA, on the Prevention and Control of Atmospheric Contamination, requires mining operations to obtain an Operating License. The license largely addresses air emissions, but additional conditions can be included. Additional conditions may prescribe activities associated with hazardous materials, safety, remediation and reclamation.	Not yet applied for. Generally follows MIA.
Cambio de Uso de Suelo - Land Use Change Permit	SEMARNAT	Generally focuses on area flora and fauna, land use issues including post-closure land use and reclamation planning.	Not yet applied for.
Concession Title for Underground Water Extraction	CONAGUA	A permit is required for the extraction and use of groundwater and surface water (e.g., wells to supply potable water). The use of groundwater is regulated by CONAGUA and mine operators must pay for the water used. However, mine dewatering is regulated under the Mining Law and no permit is required to extract mine water.	Pitalla has acquired the rights to 731,000 m^3 of water within the basin. Argonaut is in the process of applying for a permit to relocate the abstraction point away from the coast, which is currently over exploited and leading to saltwater encroachment.

Permit/Authorization	Agency	Description	Status
Wastewater Discharge Permit	CONAGUA	Water discharge is regulated by CONAGUA and a permit is required for most industrial discharges. The quality of the discharge must meet NOMs, although CONAGUA may issue particular limits.	Not yet applied for.
Stream Diversions	CONAGUA	An authorization is required for the deviation, extraction or diversion of national waters.	Will be required during Phase 2 permitting of the proposed operations when diversion of the existing arroyos is necessary.
Hazardous Waste Registration	SEMARNAT	A mine site must submit a Hazardous Waste Notification to SEMARNAT prior to generating the waste or using a hazardous waste management facility.	Not yet applied for. Generally follows MIA approval.
Explosives Use Permit	Secretaría de la Defensa Nacional (SEDENA)	The use of explosives for industrial and mining activities requires a specific permit. Renewed annually.	Not yet applied for. This will occur after the MIA approval as operational start up nears.
Land Use License	Municipio La Paz	The project activities must be compatible with the provisions and land use set forth in the applicable urban development program.	Not yet applied for.

On August 2, 2012, Pitalla received notice that the MIA for the Project had been officially denied by SEMARNAT. Principally, the Resolution, based on article 35 of the LGEEPA, found that the project was incompatible with the Urban Development Programme for the La Paz Population Center (*Programa de Desarrollo Urbano del Centro de Población de La Paz* or "PDUCPLP"), since according to it, a portion of the land use of the area of the project is oriented towards the preservation of natural resources, and not for industrial exploitation. Pitalla is currently engaged with the local communities and government agencies in addressing this "zoning" issue. In addition, failure to duly publish an extract of the project in the local newspaper following the meeting with SEMARNAT, and insufficient descriptions of the path of the proposed electrical line to the project site, were also cited as lesser reasons for the denial. Finally, the MIA was found to be deficient in its response to requests for additional detail and the evaluation of the environmental impact of the project, including cumulative and residual impacts. Pitalla is in the process of working to correct the issues regarding the PDUCPLP and other cited reasons in order to resubmit the MIA for review for SEMARNAT.

The current MIA covers only the Los Planes Pit operations (Phase 1). Phase 2 of the project will include the Intermediate and Las Colinas pits, which are located within primary arroyos. As such, this phase of project development will require separate approval. As noted above, supplemental environmental impact assessments and MIA applications will need to be prepared and submitted for the diversion and damming of the two arroyos for development of the additional pits and storage/use as production water. Pitalla intends to submit this application once the operational MIA has been approved.

18.4 Social Management Plan and Community Relations

Surface access agreements have been negotiated with the ejidos of San Antonio and San Luis, which hold surface rights in the areas of the current exploration programs. San Antonio is a small town in La Paz Municipality in the Mexican state of Baja California Sur, located near El Triunfo on Federal Highway 1. It had a 2010 census population of 463 inhabitants. Pitalla has entered negotiations with the ejido for an exploitation contract for mine operations.

DS Dinamica Social, a consulting firm based in Hermosillo, Sonora was contracted in June 2010 to conduct field work and investigations relating to community relations and social impacts of the planned project. Throughout the summer of 2010, a team of interviewers went house-to-house conducting surveys in villages near the project site. In addition, several key government and community leaders were interviewed (AMEC, 2011).

Approximately 2,500 people inhabit the three surrounding communities. Argonaut has advised SRK that, for the most part, local community leaders and residents in the San Antonio, El Triunfo and San Juan de los Planes areas appear to be in favor of Project development.

Pitalla has initiated several social programs in the local communities which include:

- Educational assistance and scholarship programs for primary and secondary school-aged students;
- Technical skills classes for local residents to prepare them for future employment opportunities, including at the San Antonio project;
- Medical assistance, including providing a medical doctor to attend to the local rural communities who do not have direct access to a licensed physician;
- Training of emergency response teams and financial assistance to maintain a functioning ambulance and crew in the local communities; and
- Financial support of other programs to benefit various community, educational and sport activities and groups.

Regionally, there is significant opposition from well-organized groups from the population centers of Todos Santos, La Paz and Los Cabos to the Concordia Gold Project (formerly the Paredones Amarillos Project) which is located approximately 30 km from the Project (AMEC, 2011). This opposition appears to stem mainly from fears of water pollution caused by the liberation of arsenic and use of cyanide, since the Concordia Project is located in a basin which drains waters to the Pacific and in the headwaters of drainages that flow near Todos Santos. The San Antonio is located on the other side of the divide with waters draining north into the Gulf of California, outside of major population centers. However, this opposition has grown to include all mining activities in the region, including the San Antonio project. Opposition to mining in the region also focuses on the impacts associated with fugitive dust from mining operations, though this is easily mitigated through the use of Best Management Practices (BMPs).

18.5 Closure and Reclamation Plan

Current regulations in México require that a preliminary closure program be included in the MIA and a definite program be developed and submitted to the authorities during the operation of the mine (generally accepted as three years into the operation). The *San Antonio Gold Project Closure Plan* was prepared by Strategic Engineering & Science, Inc. (SES) and SRK Consulting (Mexico) (SRK

Mexico) in May 2012 as a supplemental submission to the project MIA, using a risk-based approach which involves characterizing the existing concentrations of metals (e.g., arsenic) in the soils and of metals and salts in the groundwater, and designing a closure plan to ensure the risks to human health and the environment after closure are acceptable and that they are no higher than the current pre-mining baseline conditions.

In addition to ensuring risks to human health and the environment are managed, the current closure plan also conforms to the requirements set for in the MIA as well as NOM-052-SEMARNAT-2007, which applies to the closure of precious metal leach piles.

The costs associated with closure operations and construction activities in the current plan include:

- Closure permitting, design, procurement, project administration and construction management;
- Plant and surface facilities demolition and disposal;
- North Pit closure including perimeter barrier construction;
- North Waste Pile closure including final grading, cover placement and vegetation;
- Heap leach pad closure including rinsing, water evaporation, grading, cover construction and vegetation;
- Closure of process and event ponds;
- Closure of stockpile areas, facilities pads, and roads;
- Revegetation of stockpile areas; and
- Estimating contingencies.

The current (2012) estimate for closure of the Project is US$15.4 million, which is consistent with projects of similar scope and size.

While Mexico requires the preparation of a reclamation and closure plan, as well as a commitment on the part of the operator to implement the plan, no financial surety (bonding) has thus far been required of mining companies. Environmental damages, if not remediated by the owner/operator, can give rise to civil, administrative and criminal liability, depending on the action or omission carried out. PROFEPA is responsible for the enforcement and recovery for those damages, or any other person or group of people with an interest in the matter. Also, recent reforms introduced class actions as a means to demand environmental responsibility from damage to natural resources.

19 Capital and Operating Costs (Item 21)

The life-of-mine (LoM) capital expenditures required for the Project processing, G&A, infrastructure, pre-production mining and sustaining capital cost are US$97.5 million excluding reclamation and salvage value. The costs are in second quarter 2012 US dollars. For items not sourced in the U.S., the MXN/US$ conversion rate of 13:1 was used.

The estimated operating cost is US$3.91 per processed tonne including G&A, crushing, processing, carbon transport to the La Colorada Project and carbon treatment costs. Contract mining costs, provided by Argonaut, are US$1.45 per tonne of rock material moved and $1.30 for sand material moved ($1.43 overall average), or US$5.50 per processed t for the life of the project. Corporate overhead costs are not included. The costs were developed based on the Project metallurgical test work, scoping level engineering and data from KCA files for operating and maintenance equipment and supplies. Labor has been estimated using staffing and wage requirements based on typical rates in the Mexican mining industry.

19.1 Capital Costs

The capital expenditures required for the project are summarized in Table 19.1.1. The costs are based on the scoping level design as outlined in this report and are considered to have an accuracy of +/-25%.

There were several consultants and engineers involved with the preparation of the capital costs including the following:

- Argonaut – contract mining costs, pre-production mining and G&A;
- KCA – process and infrastructure, expanded heap leach facilities;
- Golder – initial heap leach facilities, earthwork and liner unit rates;
- URBICON – Highway relocation; and
- Aa Electrificaciones – Powerline relocation.

Equipment and material requirements are based on the design information described in previous sections. For capital items, budgetary quotes were used for all major equipment items, either new quotes from a supplier or from recently received quotes in KCA's files. Minor equipment item costs are based on recent quotes for similar equipment from KCA files. Estimates for piping, electrical and instrumentation were based on percentages of mechanical equipment costs. Earthworks are based on material takeoffs and unit costs supplied by Golder. An increase in resources led to revised pad areas and KCA modified pad and pond volumes proportionally. Civil costs are based on data from KCA files for similar installations in Mexico.

Table 19.1.1: Capital Costs

Pre-Production Plant Direct Costs	Total Supply Cost (US$)	Install (US$)	Grand Total (US$)
Area 0001 - Site & Utilities General	7,088,718	3,105,065	10,193,783
Area 0007 - Power Generation	841,524	131,000	972,524
Area 0010 - Plant Water Distribution	712,135	175,481	887,616
Area 0011 - Mobile Equipment	1,261,148	0	1,261,148
Area 0012 - Air & Fuel	346,520	76,756	423,276
Area 0013 - Laboratory	816,686	510,445	1,327,131
Area 0515 - Crushing	11,848,155	1,696,384	13,544,539
Area 0518 - Lime	154,143	36,300	190,443
Area 0584 - Heap Leach Recovery Plant	5,026,223	285,180	5,311,403
Area 0586 - Refining	0	0	0
Area 0581 - Heap Leach Conveying & Stacking	5,471,487	484,521	5,956,008
Area 0582 - Heap Leach Pads & Ponds	11,704,049	4,373,177	16,077,226
Area 0590 - Reagents	299,481	37,958	337,439
Total Pre-Production Plant Direct Costs	**$45,570,268**	**$10,912,267**	**$56,482,535**
Spare Parts	1,172,209		1,172,209
Sub Total with Spare Parts			**57,654,744**
Contingency	9,568,525		9,568,525
Plant Total Pre-Production Direct Costs with Contingency			**$67,223,269**
Plant Totals Indirect Costs			
Indirect Field Costs			3,234,800
Indirect Field Costs Contingency			646,960
Plant Total Indirect Costs			**$3,881,760**
Initial Fills			825,638
Sub Total Pre-production Cost Before EPCM			**$71,930,667**
EPCM	11%		7,394,560
Sub Total Pre-production Plant Cost			**$79,325,227**
Pre-Production Mining Provision			4,041,000
Pre-Production Studies and Permitting			900,000
Total Pre-Production Capital Cost (IVA & Working Capital Not Included)			**$84,266,227**
Sustaining Capital Cost			13,201,651
Total Cost (IVA & Working Capital Not Included)			**$97,467,878**
Working Capital (Not included above)			7,024,834

19.2 Basis for Capital Costs

19.2.1 Process Plant

The cost basis of each facility, such as crushing, heap leach recovery plant, etc., in the capital cost table is separated into the following categories where applicable: earthworks, buildings, civils (concrete), structural steel, mechanical equipment, piping, electrical, and instrumentation.

Each category includes costs for freight, customs fees and duties, and installation. Each of these cost types is briefly discussed in the following sections.

Engineering, procurement, and construction management (EPCM), indirect costs, Pre-Production mining, spare parts and initial inventory are included in the total cost.

Freight

Freight costs for equipment and supplies are based on estimates of loads as bulk freight at an average percentage of equipment cost. The cost of transport for equipment items to the jobsite in Mexico was estimated to average 8% of equipment cost.

Duties and Customs Fees

Customs fees for items imported to Mexico are taken at 3.6% of equipment costs, a typical contract rate for customs agents, based on recent KCA experience in Mexico.

Installation

Equipment installation estimates are a factor of equipment cost and were based on equipment type and include all installation labor and equipment usage. An estimate of man hours required for equipment installation was made based upon KCA's experience with similar equipment installations in Mexico. An average contracted crew labor rate of US$25 per hour was calculated and used for all disciplines. This labor rate was estimated based on recent KCA experience with similar projects in Mexico.

Earthworks

Major earthwork quantities were estimated by Golder based on the preliminary site design. Pad area was increased by Argonaut and KCA increased the pad and pond earthworks volumes proportionally. This category only includes the major earthworks for leach pads and ponds, and for providing level areas for the various facilities and interconnecting roads. Detailed earthworks for concrete slabs, footings, etc. are included in the civils cost. The various unit costs for the earthworks and pad and pond lining systems with installation are presented in Table 19.2.1.1. Contractor overhead costs of approximately 4.6% including mobilization, demobilization, direct and indirect costs and profit are not included in the unit costs, but are included in the total earthworks costs.

Table 19.2.1.1 Earthworks/Liners Unit Costs

Item	Unit	US$/Unit
Clear and Grub	m^2	0.22
Rough Grading (Local Soil Cut to Fill)	m^3	5.52
Rough Grading (Local Soil Cut to Export)	m^3	3.84
Rough Grading (Local Rock Cut to Fill)	m^3	15.52
Rough Grading (Local Rock Cut to Export)	m^3	13.84
Rough Grading (Import to Fill)	m^3	4.68
Erosion Protection (Riprap D50=0.3m)	m^3	30.00
Subgrade Preparation	m^2	0.42
Anchor Trench excavation and backfill	m^3	1.78
60 mil (1.5 mm) Double Textured LLDPE geomembrane	m^2	5.38
60 mil (1.5 mm) HDPE geomembrane	m^2	4.85
80 mil (2 mm) HDPE geomembrane	m^2	6.05
Geonet	m^2	3.54
GCL	m^2	6.41

Civils

Civils include detailed earthworks and concrete. Concrete quantities were estimated based on similar installations. Supply costs for cement with gravel and rebar were estimated by KCA based on recent similar KCA installations in Mexico. Concrete cost includes delivery, all installation labor, forms, rebar bending and tie-ins, placement and all other tasks and necessary equipment. Costs based on concrete compressive strength (Fc) are as follows:

- Fc = 300 @ US$975 per cubic meter;
- Fc = 250 @ US$925 per cubic meter; and

- Fc = 200 @ US$850 per cubic meter.

Structural Steel

Structural steel requirements for the various major equipment items and buildings were estimated by KCA based on file data of similar installations. Unit costs for steel supply fabrication and installation labor were estimated by KCA based on similar installations in Mexico. Unit costs vary depending on the type, size and quantity of structural steel to be installed. The installed costs used are as follows:

- Heavy Steel: US$4.70 per kg;
- Medium Steel: US$4.90 per kg; and
- Light Steel: US$5.10 per kg.

Mechanical Equipment

Costs for all major items of new equipment are based on budget quotes from vendors or from projects recently completed by KCA. Minor equipment items are based on supplier quotes, or are from KCA's in-house database. Installation estimates were based on equipment type and include installation labor and equipment usage. A 40-ton rough terrain crane, telehandler, forklift, backhoe and other support equipment are budgeted for purchase and will be used during construction. The installation costs vary by complexity and average approximately 6.8% of the mechanical equipment capital cost.

Piping

Except for major pipelines, piping, fittings, and valve costs are estimated based on a percentage of the mechanical equipment costs. A piping supply rate varying from 2% to 25% of the mechanical equipment cost, depending on the complexity of the particular system, was used to estimate piping purchase costs for each area. The average of the piping installation cost is 13.2% of the piping cost.

Electrical

Electrical costs are estimated based on a percentage of the mechanical equipment cost. A rate varying from 1% to 25% of the equipment cost was used to estimate electrical purchase costs for each area. Electrical component installation hours are estimated based on a factor of electrical equipment costs and average 18.6% of the component cost. On site electrical distribution is based on KCA experience with similar projects recently completed in Mexico.

Instrumentation

Instrumentation costs are also estimated based on a percentage of the mechanical equipment costs. A rate ranging from 1% to 10% of the equipment cost was used to estimate instrumentation purchase costs for each area based upon recent KCA experience on similar projects. Instrumentation installation hours are estimated based on a factor of instrumentation equipment costs.

Buildings

Project buildings include a modular administrative complex, a laboratory, a warehouse, a heap leach process office, a crusher office and workshop facility, a change room, and a guardhouse. Costs are a combination of recent quotations and estimates based on recent KCA experience with similar projects.

19.2.2 Infrastructure Items

Access Roads

A portion of Highway 1, a bitumen highway, passes directly through the Project, and will require realignment of the highway prior to project construction. A quotation of US$3,344,242 was solicited from URBICON for the highway realignment for the initial project arrangement.

Power Supply

Commercial power will be supplied to the project from an existing 34.5 kVA power line that directly crosses the property. The power line will have to be rerouted to allow for project construction. A quotation of US$610,246 was received from Aa Electrificaciones to realign the power line.

Water Supply

It is expected that water will be sourced near the site. Argonaut has acquired a number of water rights and Schlumberger Water Services are in the process of evaluating potential water sources near the property. An allowance of US$205,000 has been made for a near project water well pump and pipeline. No allowance has been made for water well drilling and testing. Capital costs have been included for a raw water storage tank, on-site distribution, and a fire water system with both electrical powered pumps and diesel powered pumps in case of power failure.

Site Fencing

The perimeter of the entire site will be fenced with animal fencing. The process ponds and process facility will be fenced with 2-meter chain link fencing.

Data Management and Communications

A fiber-optic cable currently passes through the Project, and intersects a portion of the area planned for the Las Planes open pit. About 3.2 km of fiber optic cable will need to be removed and then rebuilt around the Project site through the proposed road corridor. An allowance was made for the cost of the relocation.

Phones will be installed in all buildings and facilities. Cellular telephone coverage is currently available in the Project area. An IP (internet protocol) telephone system will be used for off-site communications. On-site communications will be by hand held and base-station radios.

19.2.3 Indirect Costs

Indirect costs include costs for items such as temporary construction facilities and support, surveying, temporary communication systems, temporary warehousing, temporary power and water, quality control and survey support, fenced yards, construction office, support equipment, security, vendor representatives, etc., are based on KCA recent experience with similar projects. An allowance of US$500,000, as provided by Argonaut, was made for mine contractor mobilization and demobilization which was also included in the indirect costs.

19.2.4 Spare Parts

Spare parts are budgeted at 6% of the mechanical equipment costs, based on KCA experience, unless specific recommendations by vendor are received. The allocations for spare parts inventory for the crushing system and the conveying and stacking system are based on vendor recommendations, and are 5.4% and 3.3% respectively.

19.2.5 Initial Fills Inventory

The initial fills inventory consists of a 30-day supply of consumable items stored on site at the outset of operations, excluding lime. The allocation for initial fills includes the costs of the initial charge to fill the system and storage facilities to capacity. The 100 t lime silo will hold only a seven day supply based on metallurgical testing. The list of consumables includes cyanide, lime, antiscalant, activated carbon, and diesel fuel (for crushing, stacking and processing uses only). The allocation for carbon is adequate to completely charge the carbon columns and four off-site shipments of two vessels or 7,000 kg each to La Colorada for stripping.

An allowance is made for hydrochloric acid, caustic and smelting fluxes to be used at the La Colorada Project for the benefit of the Project.

19.2.6 Engineering and Construction

The estimated cost for EPCM for the development of the Project was calculated based on KCA experience with similar projects. The EPCM is approximately 11% of the pre-production direct costs including contingency. The EPCM is made up of detailed engineering 30%; procurement and accounting assistance 15%; construction management 40%; and commissioning 15%.

19.2.7 Contingency

A contingency of 20 to 25% is taken for all direct and indirect plant costs, excluding mechanical equipment which due to recent quotations received on the larger capital cost items from similar projects, a contingency of 10% is allowed. The contingency is 17% of direct pre-production plant and spare parts costs.

19.2.8 Sustaining Capital Costs

Sustaining capital costs for the project include costs to construct the second phase of the leach pad and to construct a second event pond. Sustaining capital costs are US$13.2 million which includes a 25% contingency. Construction of the second phase should start in year 5 based on currently assumed production rates.

19.2.9 Pre-Production Mining

Pre-production mining costs of US$4,041,000 were provided by Argonaut.

19.2.10 Owners Costs

The owner’s costs, to be provided by Argonaut, are excluded from this estimate. This cost is intended to cover the following items at a minimum:

- Owner’s costs for labor, offices, vehicles, and travel during construction;
- Owner’s start-up and commissioning crew;
- Permits, minor taxes (not regional or corporate);
- Work place health and safety costs during construction; and
- Additional studies, (geotechnical, hydrology, metallurgical, feasibility, etc.).

19.2.11 Working Capital

Working capital is calculated to be 2 months operating costs for mining, processing and G&A for the project based upon the operating costs provided in this document. This is calculated assuming full annual production of 4,000,000 t per year at the average unit operating cost/t processed for a two month period for processing and the first two months mining costs.

19.2.12 Exclusions

The following have been excluded:

- Finance charges and interest during construction;
- Escalation costs;
- Currency exchange fluctuations; and
- Penalties or incentives.

19.2.13 Capital Cost Summary

A summary of pre-production capital costs by discipline is presented in Table 19.2.13.1.

Table 19.2.13.1: Summary of Pre-Production Capital Costs

Plant Totals	Cost @ Source (US$)	Freight (US$)	Customs Fees & Duties (US$)	Total Supply Cost (US$)	Install (US$)	Grand Total (US$)
Major Earthworks				0	6,300,643	6,300,643
Liner, GCL & Miscellaneous	10,293,937			10,293,937	0	10,293,937
Civils (Supply & Install)	2,694,550			2,694,550		2,694,550
Structural Steelwork (Supply & Install)	20,400			20,400		20,400
Platework (Supply & Install)	0			0		0
Mechanical Equipment	20,347,796	1,163,863	468,417	21,980,076	1,385,668	23,365,744
Piping	1,310,668	37,943	25,000	1,373,612	173,400	1,547,012
Electrical	2,478,756	75,572	12,350	2,566,678	458,375	3,025,053
Instrumentation	333,135	18,651	8,393	360,179	50,050	410,229
Commissioning and Supervision	196,000			196,000		196,000
Infrastructure	5,956,288	108,144	20,405	6,084,837	2,544,131	8,628,968
Spare Parts				0	0	1,172,209
Contingency						9,568,525
Plant Total Direct Costs	**$43,631,531**	**$1,404,172**	**$534,565**	**$45,570,268**	**$10,912,267**	**$67,223,269**

19.3 Operating Costs

The average annual process and infrastructure operating costs and costs/t of material processed for the production of gold at the Project are summarized by area in Table 19.3.1. The estimated average annual processing, G&A and infrastructure operating costs are US$3.91/t processed. The costs exclude reclamation and closure costs.

Table 19.3.1: Mining, Processing, G&A and Infrastructure Operating Costs

Area	Units	Qty	Unit Costs (US$)	Costs (US$)	US$ per Tonne Processed
Contract Mining	tonne	4,000,000	5.50	22,000,000	5.50
Labor					
Process	ea	72		1,863,738	0.466
Laboratory	ea	11		235,407	0.059
Subtotal				**$2,099,145**	**$0.525**
Primary Crushing					
Power	kWh/t	0.238	0.110	104,595	0.026
988 Loader	h/mo	252	94.00	284,256	0.071
Wear				120,000	0.030
Overhaul and Maintenance				160,000	0.040
Subtotal				**$668,851**	**$0.167**
Secondary & Tertiary Crushing					
Power	kWh/t	1.671	0.110	735,357	0.184
Wear				680,000	0.170
Overhaul and Maintenance				300,000	0.075
Subtotal				**$1,715,357**	**$0.429**
Reclaim					
Power	kWh/t	0.048	0.110	21,142	0.005
Maintenance				60,000	0.015
Subtotal				**$81,142**	**$0.020**
Convey/Stacking					
Power	kWh/t	1.253	0.110	551,215	0.138
D-6 Dozer	h/mo	504	35.00	211,680	0.053
950 Loader	h/mo	50	48.90	29,340	0.007
Maintenance Supplies	lot		0.04	160,000	0.040
Subtotal				**$952,235**	**$0.238**
Heap Leach Systems					
Power	kWh/t	1.443	0.110	634,879	0.159
Piping/Drip tubing	lot			120,000	0.030
Maintenance Supplies	lot			80,000	0.020
Subtotal				**$834,879**	**$0.209**
Carbon ADR Plant					
Power	kWh/t	0.259	0.110	114,120	0.029
Diesel (boiler & kiln)	L/mo	17,000	0.80	163,200	0.041
Carbon	kg/a	22,000	2.44	53,656	0.013
Misc. Operating Supplies	lot			80,000	0.020
Maintenance Supplies	lot			60,000	0.015
Subtotal				**$470,976**	**$0.118**
Refinery					
Power	kWh/t	0.073	0.110	31,911	0.008
Diesel (smelt furnace)	L/mo	1,300	0.800	12,480	0.003
Misc. Operating Supplies	lot			80,000	0.020
Maintenance Supplies	lot			40,000	0.010
Subtotal				**$164,391**	**$0.041**
Reagents					
Power	kWh/t	0.009	0.110	3,763	0.001
Cyanide (Ore)	kg/t	0.26	3.10	3,224,000	0.806
Cyanide (Elution)	kg/a	3,800	3.10	11,780	0.003
Caustic	kg/a	11,000	0.93	10,230	0.003
Lime	kg/t	1.3	0.11	572,000	0.143
Hydrochloric Acid	L/a	82,000	0.43	35,260	0.009
Antiscalant	ppm	10.0	2.55	244,555	0.061
Fluxes	kg/oz	0.075	1.65	10,822	0.003
Maintenance Supplies	lot			40,000	0.010

Area	Units	Qty	Unit Costs (US$)	Costs (US$)	US$ per Tonne Processed
Subtotal				**$4,152,411**	**$1.038**
Water Distribution					
Power	kWh/t	0.285	0.110	125,446	0.031
Maintenance Supplies	lot			40,000	0.010
Subtotal				**$165,446**	**$0.041**
Laboratory					
Assays, Solids	No./d	175	5.00	315,000	0.079
Assays, Solutions	No./d	250	1.50	135,000	0.034
Miscellaneous Supplies	lot			40,000	0.010
Power	kWh/t	0.126	0.110	55,601	0.014
Subtotal				**$545,601**	**$0.136**
Support Services					
Buildings - Power	kWh/t	0.101	0.110	44,536	0.011
Light Vehicles (16)	km/d	1600	0.35	201,600	0.050
Maintenance Trucks (2)	km/d	250	0.45	40,500	0.010
Bobcat Loader	h/mo	240	7.00	20,160	0.005
Forklifts (2)	h/mo	360	7.00	30,240	0.008
Crane (40-t)	h/mo	14	110.00	18,480	0.005
Subtotal				**$355,516**	**$0.089**
Carbon Transport to La Colorada	km/shipment	1,465	12.00	$913,858	$0.228
Subtotal				**$913,858**	**$0.228**
Total Cost (Process Only)				**$13,119,807**	**$3.280**
G&A				3,000,000	0.76
Contingency	0%			0	0.000
Total Cost (Process and GA)				**$16,119,807**	**$3.905**
Contract Mining Cost				22,000,000	5.50
Total Operating Cost				**$38,119,807**	**$9.54**

19.3.1 Operating Cost Basis

Operating costs for the Project have been estimated at a scoping study level and are based upon the information presented in earlier sections in this report.

Operating costs for the project have been estimated using staffing and wage requirements based on typical rates in the Mexican mining industry as provided by Argonaut. Most unit consumptions of materials, supplies, power, and water are based on test work. Other values are based on information for similar operations, or generally accepted industry standards.

The process operating costs and G&A have been estimated and presented with no contingency allowance, and are based upon the scoping study level design and operating criteria present in this report. The operating costs are considered to have an accuracy range of +/-25%.

Operating costs have been based upon information obtained from the following sources:

- Project metallurgical test work and process engineering;
- KCA file data of recent and similar project operating and maintenance supplies and materials; and
- Advice from suppliers.

Operating requirements have been estimated based upon unit costs and consumption, where possible, and have been broken down by area. Presented below are the assumptions and unit costs associated with the development of the operating cost estimate. Delivered costs were used.

19.3.2 Process Area General

Labor costs for process supervision, maintenance supervision, maintenance labor and laboratory personnel are included in the process area general category and are based upon prevailing areas wages for similar operations in Mexico.

The laboratory costs included under the process area general category are based on the number of assays plus supplies. The laboratory work load is estimated at 175 solid analyses and 250 solution assays per day. The unit costs of these are assumed to be US$5.00 and US$1.50 per determination based on KCA's experience. Lab supplies are estimated at a cost of US$0.01/t of material processed. This includes items such as standards, reagents, bottles and pulp envelopes.

19.3.3 Processing

The costs for the primary crushing areas assume that material to be processed will be delivered directly to the primary crusher dump pocket by haul trucks. Costs for a loader feeding material to the dump hopper eight hours per day are included to allow for periods of material delivery interruption.

The jaw crushers, cone crushers and screens annual wear rates were estimated based on KCA file data.

Heap leach piping and drip tubing costs are estimated to be US$0.03/t of material processed. Heap leach maintenance supply costs are taken at US$0.02/t of material processed.

19.3.4 Reagents

Reagent costs are based upon recent quotations by suppliers in Mexico. NaCN and lime consumptions are based upon metallurgical test work. Estimates of reagent consumptions for carbon treatment at La Colorada are included.

19.3.5 Fuel

Diesel fuel consumption for the boiler, carbon regeneration kiln, and smelting furnace is estimated at 20,400 liters per month. These costs will be incurred at La Colorada for the benefit of the San Antonio project. The delivered unit cost of diesel fuel is estimated at US$0.80/L.

19.3.6 Mobile Equipment

Mobile equipment used to support the processing system at San Antonio includes a backhoe loader, bobcat loader, two forklifts and a mobile 40 t crane. Estimated diesel fuel consumption for the mobile support equipment fleet is at 83,000 L/y.

19.3.7 Wear, Overhaul and Maintenance

Annual wear and overhaul and maintenance costs are estimates based on KCA experience and vendor recommendations. Wear and overhaul and maintenance costs for the primary crushing system are based on KCA experience with similar projects and are US$0.03 and US$0.04/t crushed respectively; secondary and tertiary crushing is US$0.17 and US$0.075/t crushed respectively.

Heap leaching and carbon adsorption plant overhaul and maintenance is estimated by KCA based on recent experience and is US$0.01/t processed.

19.3.8 Power

Commercial power will be available for the Project. Power cost is estimated to be US$0.11/kWh, based on published data for the region. Table 19.3.8.15 presents the power consumed by area per day and kWh/t processed. Some of the power costs will be incurred at La Colorada for the benefit of San Antonio.

Table 19.3.8.1: Power Consumed by Area

Area	Attached kW	kWh/d	kWh/t Processed
Area 0001 - Site & Utilities General	51	918	0.053
Area 0007 - Power Generation	15	203	0.012
Area 0010 - Plant Water Distribution	439	4,918	0.285
Area 0012 - Air & Fuel	44	397	0.023
Area 0013 - Laboratory	242	2,180	0.126
Area 0515 - Crushing	2,885	33,759	1.957
Area 0518 – Lime	2	24	0.001
Area 0581 - Heap Leach Conveying & Stacking	1,599	21,587	1.251
Area 0582 - Heap Leach Pads & Ponds	1,323	24,890	1.443
Area 0590 - Reagents	10	148	0.009
Total (San Antonio):	6,611	89,022	5.161
Area 0584 - Heap Leach Recovery Plant (La Colorada)	254	4474	0.259
Area 0586 –Refining (La Colorada)	102	1251	0.073
Total	**6,967**	**94,747**	**5.493**

19.3.9 Personnel and Staffing

Table 19.3.9.1 presents the staffing levels and salary and wage structure for the processing and laboratory personnel at the Project. The wages and salaries for project personnel are based upon typical wage and salary rates in the Mexican mining industry. For continuous operations, there will be four crews with 12 hour shifts. Supervision and technical staff will operate on a flexible schedule to suit operational requirements. The recovery plant operator and refinery operator will be employed at the La Colorada Project where the carbon from the Project will be stripped, acid washed and thermally regenerated before shipment back to San Antonio.

Provisions for overtime, benefits and taxes were included in the wage and salary costs as “burdens”. The “burdens” are based on information from Argonaut and are estimated to be 40% of the base annual pay for the salaried and hourly employees. Most process and laboratory employees are assumed to have permanent homes in the area.

Table 19.3.9.1 Staffing Levels and Salary Schedules

Job Title	Qty.	Base Pay		Overtime	Burdens	Total	Cost (US$)
		Salary	Hourly				
Process							
Supervision							
Process Manager	1	95,000			38,000	133,000	133,000
Metallurgist	1	65,000			26,000	91,000	91,000
Metallurgical Technician	3		8,016	3,348	3,206	14,570	43,711
Administrative Technician	1		8,016	3,348	3,206	14,570	14,570
Process General Foreman	2	40,000			16,000	56,000	112,000
Shift Foreman	6	30,000			12,000	42,000	252,000
Process Maint General Foreman	2	40,000			16,000	56,000	112,000
Crushing							
Primary Crusher Operator	3		12,024	5,023	4,809	21,856	65,567
Secondary Crusher Operator	3		12,024	5,023	4,809	21,856	65,567
Crusher Feed Loader Operator	3		12,024	5,023	4,809	21,856	65,567
Crusher Helper	2		8,016	3,348	3,206	14,570	29,141
Heap Leach							
Heap Leach Operator	3		12,024	5,023	4,809	21,856	65,567
Reagent Operator	3		10,306	4,305	4,122	18,733	56,200
Stacking Operator	3		12,024	5,023	4,809	21,856	65,567
Heap Dozer Operator	3		12,024	5,023	4,809	21,856	65,567
Piping Crew - Heap Leach	7		8,016	3,348	3,206	14,570	101,993
Day Laborer	2		8,016	3,348	3,206	14,570	29,141
Shift Laborer	3		8,016	3,348	3,206	14,570	43,711
Recovery Plant							
Recovery Plant Operator *	3		12,024	5,023	4,809	21,856	65,567
Refining Operator *	1		12,024	5,023	4,809	21,856	21,856
Day Laborer	2		8,016	3,348	3,206	14,570	29,141
Process Maintenance							
Mechanic I	7		12,596	5,262	5,038	22,896	160,275
Planner	1	15,000			6,000	21,000	21,000
Mechanic II	4		12,024	5,023	4,809	21,856	87,423
Electrician	2		12,024	5,023	4,809	21,856	43,711
Instrumentation Technician	1		12,596	5,262	5,038	22,896	22,896
Subtotal Process	72	285,000	211,844	88,495	198,737	784,076	1,863,738
Total Process							**$1,863,738**
US$/ore tonne							0.47
Laboratory							
Lab Manager	1	50,000			20,000	70,000	70,000
Assayers	3		12,024	4,305	4,809	21,138	63,414
Lab Technician	3		8,016	3,348	3,206	14,570	43,711
Sample Preparation Labor	4		8,016	3,348	3,206	14,570	58,282
Subtotal Laboratory	**11**	**50,000**	**28,055**	**11,002**	**31,222**	**120,279**	**235,407**
Total	**83**						**$2,099,145**
US$/ore tonne							0.52

*Employees to be at La Colorada for the benefit of the San Antonio Project

19.3.10 Carbon Transportation to La Colorada

Carbon transportation costs for transporting loaded carbon to the La Colorada Project and transporting stripped, acid washed and thermally regenerated carbon back to the Project is estimated based on shipping rates in Mexico. The carbon will be in secured transport containers. It is assumed that carbon would be packaged and transported weekly at a cost of US$15,630.

19.3.11 G&A

General and administrative costs (G&A) are estimated by Argonaut and based on operations they currently operate in Mexico. General and administrative operating costs will include the following items:

- Administration personnel;
- Maintenance supplies;
- Office Supplies and software;
- Vehicles;
- Man camp;
- Public relations expenses;
- Communications;
- Insurance;
- Safety Supplies;
- Safety Awards;
- Training Supplies;
- Outside auditing costs;
- Travel;
- Legal;
- Data processing;
- Access road maintenance;
- Land Use Fees; and
- Miscellaneous.

During operations, Argonaut projects requiring the administrative and mine management staff as detailed in the Table 19.3.11.1. The labor costs associated with these personnel are included in the general and administrative expenses.

Table 19.3.11.1: Projected General Administrative and Mine Management Staff for San Antonio

G&A	No. of People
GM	1
SHE Supervisor	1
Senior Accountant	1
Accounting Clerk	1
HR supervisor	1
Receptionist	1
G&A Subtotal	**6**
Mine	
Superintendent	1
Engineer	1
Supervisor	3
Surveyors	2
Geology Supervisor	1
Geology	2
Mine Subtotal	**10**

19.4 Contract Mining

Contract mining rates were provided by Argonaut. The cost provided was US$1.45/t of rock material mined. The cost assumes US$1.05/t for material movement, including loading, hauling and dumping. Explosives and fuel were assumed to be an additional US$0.40/t for a total of US$1.45/t. The cost for sand/alluvium material mined is estimated to be US$1.30/t. The lower cost is due to less explosives needed to remove this material. The blended overall average cost is US$1.43/t of material mined.

20 Economic Analysis (Item 22)

20.1 Principal Assumptions

Based on a production rate of 4 Mt of resource being placed on heap leach pads, the price assumptions to determine revenue are detailed in Table 20.1.1.

Table 20.1.1: Market Inputs as of September 1, 2012

Parameter	US$/oz	units
Avg. Life-of-mine Gold Price	$1,355.00	/oz
Gold Refining	$10.00	/oz
Gold Royalty	0%	No applicable NSR/oz included in PEA

20.2 Cashflow Forecasts and Annual Production Forecasts

The financial analysis results, shown in Table 20.2.1, indicate an $NPV_{8\%}$ of US$293 million on a pre-tax basis. Payback will be less than 1.5 years of production. The following provides the basis of the San Antonio LoM plan and economics:

- Measured, Indicated and Inferred resources are included;
- A mine operating life of 15 years;
- An overall average metallurgical recovery rate of 63% Au over the LoM;
- A net operating cost of US$553/oz Au;
- Capital costs of US$97.5 million, comprising initial capital costs of US$84.3 million, and sustaining capital over the LoM of US$13.2 million;
- Mine closure cost, included in the above estimates is US$15.4 million;
- The analysis does not include provision for salvage value; and
- Operating costs are 43% of revenue.

Gold price assumptions are according to consensus of major bank going forward as outlined in the Table 20.2.1.

Table 20.2.1: Gold Price Assumptions

Year	1	2	3	4	5+
US$/oz Au	$1,595	$1476	$1,346	$1,292	$1,250

Table 20.2.2: Economic Results Pre-Tax as of September 1, 2012

Description	Value	Units	Units
Production Summary			
Waste Mined	173,414	kt	
Resource Mined	60,612	kt	
Oz-Au Refined	1,046	koz	
Avg. LOM Strip Ratio	3.1		
Avg Annual Production (Oz Au)	74	koz	
Estimate of Cash Flow			
Gross Income	$1,349,671	000's	
Refining	($10,459)	000's	
Net Revenue	**$1,339,212**	000's	
Operating Costs		**US$/t-crushed**	**US$/oz-Au**
Mining	333,624	5.50	318.99
Processing	198,565	3.28	189.85
G&A	46,250	0.76	44.22
Total Operating	**$578,439**	**$9.54**	**$553.06**
Operating Margin	$760,773	000's	
Initial Capital	$84,309	000's	
LoM Sustaining Capital	$13,201	000's	
Cash Flow Available for Debt Service	$647,862	000's	
NPV 8%	**$293,815**	000's	

Table 20.2.3 illustrates the effect on NPV if a 30% tax is applied to the economic model.

Table 20.2.3: Economic Results After-Tax as of September 1, 2012

Description	Value (US$)
Operating Margin	760,773
Initial Capital	84,309
LoM Sustaining Capital	13,201
Income Tax	194,371
Cash Flow Available for Debt Service	**453,129**
NPV 8%	**205,605**

20.3 Taxes, Royalties and Other Interests

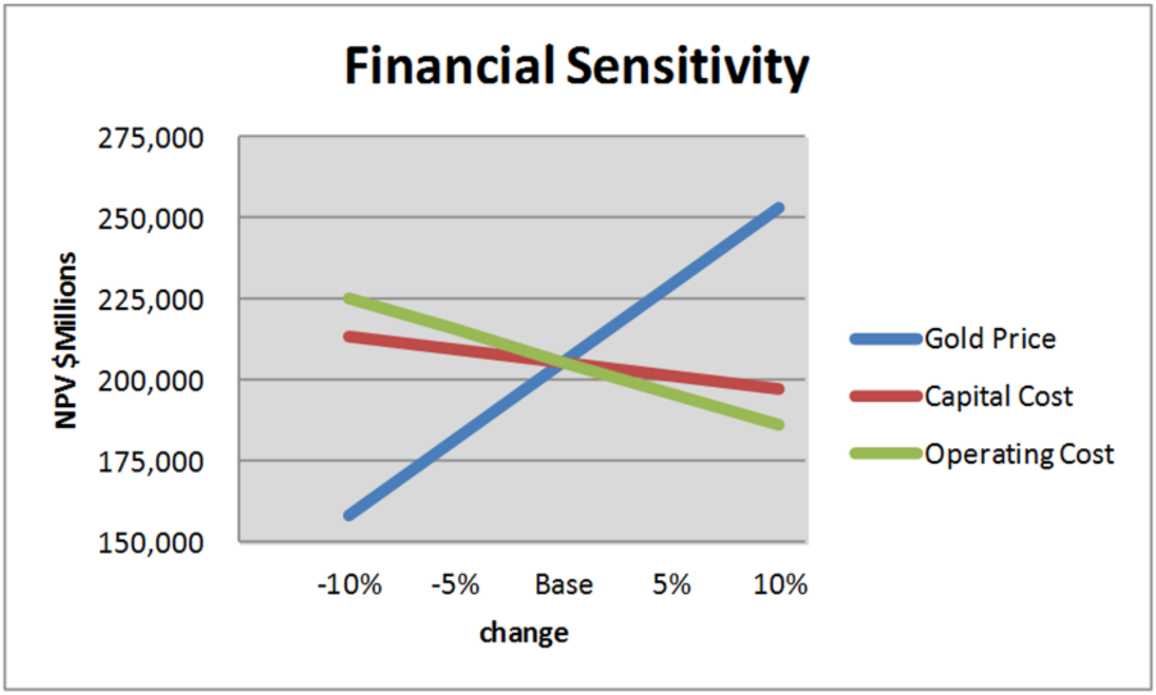
The economic analysis has an estimated tax rate of 30% as per Mexican norm. No costs have been included for royalties or other interests as there is not a royalty applicable to the area included in the resource in this model.

20.4 Sensitivity Analysis

Sensitivity analysis for key economic parameters is shown in Table 20.4.1 and Figure 20.4.1. The Project is nominally most sensitive to metal prices (revenues). The Project's sensitivities to capital and operating costs are quite similar, with the project being least sensitive to capital costs.

Table 20.4.1: Project Sensitivities after Tax as of September 1, 2012

Description	-10%	-5%	Base	5%	10%
Gold Price	158,162	181,884	205,605	229,327	253,048
Capital Costs	213,605	209,631	205,605	201,580	197,554
Operating Costs	225,135	215,370	205;605	195,840	186,075



Source: Argonaut Gold

Figure 20.4.1: Project Sensitivities after Tax as of September 1, 2012

21 Adjacent Properties (Item 23)

There are no adjacent properties to the Project.

22 Other Relevant Data and Information (Item 24)

There are no other relevant data or information.

23 Interpretation and Conclusions (Item 25)

23.1 Exploration

Early exploration on the project was conducted by Echo Bay during the 1990's. Little documentation is available, but Echo Bay conducted its exploration programs according to industry standards at the time and analyzed its samples at well-known laboratories.

Pitalla has conducted exploration under Pediment and Argonaut during the last five years. The exploration, drilling and sample analysis meet industry standards and has produced a database that is suitable for resource estimation.

23.2 Mineral Resource Estimate

The mineral resource estimation was conducted using grade shells provided by Pitalla, except for La Colpa, for which SRK constructed grade shells. The grade shells are well constructed and form a suitable basis for resource estimation. La Colpa mineralization is more diffuse than the other areas and the controls are less known. For that reason La Colpa resources are classified as inferred.

23.3 Metallurgy and Processing

The Project has been designed as an open-pit mine with a heap leach operation utilizing a multiple-lift, single-use leach pad. Leach-grade material will be crushed, stockpiled, reclaimed, and stacked on the leach pads with a stacking system at a nominal rate of 456 t/hr. The project has been designed to include 3 stage crushing circuit to produce a 3/8 inch size material. This material will be transported to heap leach pads via transportation belts. The heap leach pads were designed by Golder. The stacked material will be leached with a low-grade cyanide solution and the pregnant solution will be processed in a carbon adsorption circuit to extract gold and silver. The loaded carbon will be shipped to Argonaut's La Colorada facility, where the final metal recovery from the loaded carbon (desorption) will be processed.

23.4 Mining

Mining of the resource will be done through the exploitation of three open pits. The operation will be carried out through the use of a contract miner. Within Mexico, several mining contractors exist with experience and equipment necessary to perform this function. No contractors have been contacted at this point in time; however, Argonaut has experience working with contractors at its other Mexican operations. Pit models and preliminary mine design show an operation that will produce 4 MTPY of materialized material along with nearly 14 MTPY of waste, once full production is achieved, for a life of mine strip ratio of 3.1. There are no current restrictions in land positions that restrict the full development of this mining plan. As the project progresses towards production, the mining plan with be reviewed for further optimization.

23.5 Capital and Operating Costs

The capital costs have been estimated for construction of a 4 MTPY heap leach operation and carbon plant. Capital costs have been established based on work from several contractors and company information and compiled by KCA. The costs are mainly based on scoping level studies.

Costs for major equipment comes from recent quotes received by KCA or from KCA files for similar sized projects in Mexico. Operating costs are based on Argonaut’s internal information based on its existing Mexican operations and from KCA files for similar sized operations in Mexico. Reagent and materials consumptions are mainly based on test work performed at KCA’s labs. Both capital and operating costs are accurate within a +/- 25% range.

23.6 Environmental and Permitting

While the initial Phase 1 environmental permit application has been rejected by the regulatory authorities, Pitalla continues to work towards environmental permitting of the mining operations in accordance with Mexican regulatory requirements, as well as international best practices. Phase 1 permitting involves the North (Los Planes) Pit and associated leach pads and ponds, waste dumps, crushing facilities, the carbon plant and associated infrastructure and buildings. Phase 2 permitting will involve the Intermediate pit, Las Colinas pit and the waste dumps, leach pad and ponds expansions associated with these areas.

Many opportunities exist for Pitalla to assist the local communities with responsible environmental and social management. Community engagement will be essential given that the perception of Pitalla may have been impacted by the alleged violations during the exploration programs as well as the recent denial of the mining operation MIA.

Opposition to the Project could increase as permitting and development proceed, and will likely focus on potential water quality impacts caused by the use of cyanide, and the possible leaching of arsenic from waste rock deposited on the surface. Opposition to mining in the region also focuses on the impacts associated with fugitive dust from mining operations.

According to mine personnel, Pitalla intends to seek PROFEPA Clean Industry certification, and adopt the *Sistema Integral de Gestión Ambiental* (SIGA) corporate policy and environmental management system for the protection of the environment and prevention of adverse environmental impacts. Other industry programs in which Argonaut participates in, or intends to participate in, include: the Social Responsible Company (ESR) Distinctive, and accreditation under the voluntary self-management program for health and safety with the Mexican Department of Labor and Social Welfare (PASST).

24 Recommendations (Item 26)

24.1 Metallurgical Testing

Column leach tests indicate that the material is amenable to cyanidation by heap leaching techniques. Best recoveries are achieved when crushing to P_{80} 9.5 mm.

The Metcon tests conducted in 2010 were not agglomerated. The Metcon tests conducted in 2012 were agglomerated with 2 kg/tonne Portland cement. Golder conducted compacted permeability testing on spent material samples from the Metcon 2010 column leach test samples, simulating an equivalent heap height of 70 m, and reported that solution flows over 100 times the projected field flow rates could be achieved through the compacted material. It is recommended that in future column leach tests the compacted permeability tests be repeated. KCA recommends that four composite samples be tested at a cost of about US$25,000.

24.2 Environmental and Permitting

Recommendations for additional and ongoing data collection made by SRK include:

- Installation of a meteorological station to collect climatological and air quality data for the site, including, but not limited to: temperature, precipitation, evaporation, wind direction, PM10, SOx, and NOx. Site-specific data from this instrumentation can be used to more precisely develop a closure strategy/closure plan for the property. Estimated cost is US$100,000;
- While the Company has performed geochemical characterization tests on waste rock, mineralized material, and spent heap material, results show the materials are non acid generating and have low possibility to produce metal leachates, the final drain down and post closure water quality will be a major component of the mine closure and another series of testing could be beneficial to confirm the results already received. Estimated cost is US$75,000; and
- While it may not be necessary to distinguish between rock types or sample location from a waste rock ARD management perspective, further testing and evaluation of arsenic leaching potential is recommended to fully evaluate this operational management strategy, and its potential impacts to local water resources. Estimated cost US$50,000.

The San Antonio project can be classified as late exploration stage until the necessary permits and licenses to operate are achieved. Going forward, Argonaut will continue to work with the local communities and government agencies to receive approval of the MIA and CUSTF. Argonaut estimates that the cost of permitting and associated studies will be approximately US$100,000.

24.3 Development

As the permitting process is ongoing, Argonaut will continue to optimize mining plans, review and improve engineering studies on the capital and infrastructure projects and prepare for a construction decision. It is not anticipated that any more exploration will be required in the area of the project as defined in this PEA. Any exploration work would be outside of the defined project area within the San Antonio concession package. Argonaut estimates that the costs for additional mine planning and engineering will be approximately US$100,000.

Argonaut estimates that the cost for detailed plant and infrastructure engineering is estimated to be US$100,000.

24.4 Costs

The recommendations and associated costs are summarized in Table 24.4.1.

Table 24.4.1: Summary of Recommendations and Costs

Recommendation	Cost (US$)
Compacted Permeability	100,000
Meteorological Station	100,000
ARD Testing	75,000
Arsenic Leaching Potential	50,000
Mine Planning and Engineering	100,000
Detailed Plant and Infrastructure Engineering	100,000
Permitting and Associated Studies	100,000
Total	**$625,000**

25 References (Item 27)

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26 Glossary

26.1 Mineral Resources

The mineral resources and mineral reserves have been classified according to the “CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines” (November 27, 2010). Accordingly, the Resources have been classified as Measured, Indicated or Inferred, the Reserves have been classified as Proven, and Probable based on the Measured and Indicated Resources as defined below.

A Mineral Resource is a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth’s crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.

An ‘Inferred Mineral Resource’ is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes.

An ‘Indicated Mineral Resource’ is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

A ‘Measured Mineral Resource’ is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough to confirm both geological and grade continuity.

26.2 Mineral Reserves

A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.

A ‘Probable Mineral Reserve’ is the economically mineable part of an Indicated, and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

A 'Proven Mineral Reserve' is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

26.3 Definition of Terms

The following general mining terms may be used in this report.

Table 25.3.1: Definition of Terms

Term	Definition
Assay	The chemical analysis of mineral samples to determine the metal content.
Capital Expenditure	All other expenditures not classified as operating costs.
Composite	Combining more than one sample result to give an average result over a larger distance.
Crushing	Initial process of reducing particle size to render it more amenable for further processing.
Cut-off Grade (CoG)	The grade of mineralized rock, which determines as to whether or not it is economic to recover its gold content by further concentration.
Dilution	Waste, which is unavoidably mined with process material.
Dip	Angle of inclination of a geological feature/rock from the horizontal.
Fault	The surface of a fracture along which movement has occurred.
Footwall	The underlying side of mineralization
Gangue	Non-valuable components of the material processed.
Grade	The measure of concentration of gold within mineralized rock.
Hangingwall	The overlying side of mineralization.
Haulage	A horizontal underground excavation which is used to transport mined material.
Igneous	Primary crystalline rock formed by the solidification of magma.
Kriging	An interpolation method of assigning values from samples to blocks that minimizes the estimation error.
Level	Horizontal tunnel the primary purpose is the transportation of personnel and materials.
Lithological	Geological description pertaining to different rock types.
LoM Plans	Life-of-Mine plans.
LRP	Long Range Plan.
Material Properties	Mine properties.
Milling	A general term used to describe the process in which the material is crushed and ground and subjected to physical or chemical treatment to extract the valuable metals to a concentrate or finished product.
Mineral/Mining Lease	A lease area for which mineral rights are held.
Mining Assets	The Material Properties and Significant Exploration Properties.
Ongoing Capital	Capital estimates of a routine nature, which is necessary for sustaining operations.
Ore Reserve	See Mineral Reserve.
Pillar	Rock left behind to help support the excavations in an underground mine.
RoM	Run-of-Mine.
Sedimentary	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.
Sill	A thin, tabular, horizontal to sub-horizontal body of igneous rock formed by the injection of magma into planar zones of weakness.
Stope	Underground void created by mining.
Stratigraphy	The study of stratified rocks in terms of time and space.
Strike	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Sulfide	A sulfur bearing mineral.

Term	Definition
Tailings	Finely ground waste rock from which valuable minerals or metals have been extracted.
Total Expenditure	All expenditures including those of an operating and capital nature.
Variogram	A statistical representation of the characteristics (usually grade).

26.4 Abbreviations

The following abbreviations may be used in this report.

Table 25.4.1: Abbreviations

Abbreviation	Unit or Term
°	degree (degrees)
°C	degrees Centigrade
%	percent
µm	micron or microns
AA	atomic absorption
ABA	Acid-base accounting
Ag	silver
ARD	Acid rock drainage
Au	gold
bgs	Below ground surface
CMA	Compañia Minera Ameca, S.A. de C.V.
CoG	cut-off grade
cm	centimeter
cm^2	square centimeter
cm^3	cubic centimeter
d	day
ea	each
EME	Explotacion Minera El Exito S.A. de C.V.
Fc	concrete compressive strength
FM	Frequency modulation
ft	foot (feet)
ft^2	square foot (feet)
ft^3	cubic foot (feet)
g	gram
G&A	General and Administrative
gal	gallon
g/L	gram per liter
gpm	gallons per minute
GPS	Global Positioning System
g/t	grams per tonne
h	hour
h/mo	hours per month
ha	hectares
HDPE	high density polyethylene
hp	horsepower
hr	Hour or hours
ICP	induced couple plasma
ID2	inverse-distance squared
IFC	International Finance Corporation
ILS	Intermediate Leach Solution
IP	Induced polarization
JV	joint venture
kA	kiloamperes
kg	kilograms
kg/a	kilogram per year

Abbreviation	Unit or Term
km	kilometer
km^2	square kilometer
koz	thousand troy ounce
kt	thousand tonnes
kt/d	thousand tonnes per day
kt/y	thousand tonnes per year
kV	kilovolt
kVA	kilovolt-ampere
kW	kilowatt
kWh	kilowatt-hour
kWh/t	kilowatt-hour per metric tonne
kWh/d	kilowatt-hour per day
L	liter
L/mo	Liters per month
L/sec	liters per second
L/sec/m	liters per second per meter
lb	pound
LET	Leach extraction test
LHD	Long-Haul Dump truck
LLDPE	Linear low density polyethylene
LOI	Loss On Ignition
LoM	Life-of-Mine
m	meter
m^2	square meter
m^3	cubic meter
ma	million years
masl	meters above sea level
mg/L	milligrams/liter
MIA	Environmental impact analysis
ML	Metal leaching
mm	millimeter
mm^2	square millimeter
mm^3	cubic millimeter
Mm^3	million cubic meters
mo	month
Moz	million troy ounces
Mt	million tonnes
MTPY	million tonnes per year
MW	million watts
m.y.	million years
NaCn	sodium cyanide
NAG	Net acid generation
NAR	National Agrarian Reformation
NI 43-101	Canadian National Instrument 43-101
NPV	Net Present Value
NSR	Net smelter royalty
NOx	nitrogen oxides
OK	ordinary kriging
OSC	Ontario Securities Commission
oz	troy ounce
PEA	preliminary economic analysis
PLS	Pregnant Leach Solution
PM10	particulate matters
PMF	probable maximum flood
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
RC	rotary circulation drilling
RQD	Rock Quality Description

Abbreviation	Unit or Term
SEC	U.S. Securities & Exchange Commission
sec	second
SOx	sulfur oxides
t	tonne (metric ton) (2,204.6 pounds)
t/hr	tonnes per hour
t/d	tonnes per day
t/y	tonnes per year
TSF	tailings storage facility
TSP	total suspended particulates
UNESCO	United Nations Educational, Scientific and Cultural Organization
US$	United States dollars
V	volts
VLFEM	very-low frequency electromagnetic surveys
VFD	variable frequency drive
W	watt
XRD	x-ray diffraction
y	year

Appendices

Appendix A: Certificate of Author Forms