

**Technical Report and Preliminary Economic Assessment
San Agustin Heap Leach Project
Durango, Mexico**

**Prepared for:
ARGONAUT GOLD INC.**



Prepared by:



Kappes, Cassiday & Associates
7950 Security Circle
Reno, NV 89506-1995



Resource Modeling Inc.
124 Lazy J. Drive
Stites, ID 83552

Authors:

Carl Defilippi, SME Registered Member
Michael Lechner, P. Geo

Report Date: February 19, 2015
Effective Date of Resources: October 3, 2014

Table of Contents

1	Executive Summary	1-1
1.1	Introduction.....	1-1
1.2	Property Description and Location	1-1
1.3	Ownership	1-2
1.4	Geology and Mineralization.....	1-2
1.5	Drilling and Sample Analysis.....	1-2
1.6	Mineral Processing and Metallurgical Test Work	1-3
1.7	Mineral Resource Estimate	1-4
1.8	Mining.....	1-6
1.9	Infrastructure	1-6
1.10	Environmental Studies, Permitting and Social Impact.....	1-7
1.11	Capital and Operating Costs	1-8
1.12	Economic Analysis	1-8
1.13	Conclusions.....	1-9
1.14	Recommendations	1-10
2	Introduction and Terms of Reference	2-1
2.1	Technical Report Preparation.....	2-1
2.2	Purpose of Technical Report.....	2-2
2.3	Qualified Persons	2-2
2.4	Sources of Information	2-2
2.5	Personal Inspection of the San Agustin Property.....	2-3
2.6	Units of Measure	2-4
3	Reliance on Other Experts.....	3-1
4	Property Description and Location.....	4-1
4.1	Location.....	4-1
4.2	Mineral Tenure	4-1
4.3	Ownership and Royalties	4-2
4.4	Permits	4-2
4.5	Risk Factors	4-3

5	Accessibility, Climate, Local Resources and Physiography	5-1
5.1	Accessibility.....	5-1
5.2	Physiography.....	5-1
5.3	Climate	5-1
5.4	Local Resources.....	5-2
5.5	Surface Rights.....	5-2
5.6	Availability of Power, Water, and Personnel	5-2
6	History.....	6-1
6.1	Pre-1996 History	6-1
6.2	Monarch (1996 - 1999).....	6-1
6.3	Silver Standard (2002 - 2013)	6-2
6.4	Geologix (2006 - 2009).....	6-2
6.5	Argonaut (2014)	6-3
6.6	Historical Mineral Resource Estimates.....	6-4
6.7	Production	6-4
7	Geological Setting and Mineralization	7-1
7.1	Regional Geology.....	7-1
7.2	Structure.....	7-2
7.3	Property Geology	7-3
7.4	Rock Types	7-4
7.5	Mineralization	7-6
7.6	Alteration	7-6
8	Deposit Types.....	8-1
8.1	The San Agustin Project and Nearby Deposits.....	8-1
8.2	Related Regional Deposits.....	8-1
9	Exploration.....	9-1
9.1	Soil Sampling	9-1
9.2	Ground Geophysics.....	9-1
9.3	Argonaut Geologic Mapping and Sampling.....	9-2
10	Drilling	10-1
10.1	Pre-2014 Drilling.....	10-1
10.2	2014 Argonaut Core Drilling	10-2
10.3	2014 Argonaut RC Drilling.....	10-2

10.4	2014 Drill Hole Collar Surveys	10-4
10.5	2014 Down-hole Surveys	10-4
10.6	2014 Core Logging Procedures	10-5
10.7	2014 RC Logging Procedures	10-5
10.8	Significant Drill Hole Intersections.....	10-6
10.9	Sample Length and True Thickness.....	10-8
10.10	General Discussion	10-8
11	Sample Preparation, Analyses and Security	11-1
11.1	Pre-2014 Sample Preparation, Analyses and Security	11-1
11.2	2014 Argonaut RC Sample Program.....	11-2
11.3	2014 Argonaut RC Assaying Protocols	11-3
11.4	2014 Argonaut Assay Blanks	11-4
11.5	2014 Argonaut Assay Standards.....	11-4
11.6	2014 Argonaut Duplicate Assay Samples	11-5
11.7	2014 Argonaut Check Assaying Program	11-6
11.8	Qualified Person's Comments	11-6
12	Data Verification	12-1
12.1	Electronic Database Verification	12-1
12.2	Drill Hole Collar Locations	12-2
12.3	Drill Hole Logs	12-2
12.4	Quality Assurance - Quality Control	12-2
12.5	Twin Hole Comparisons	12-3
12.6	Qualified Person's Opinion Regarding Adequacy of Data.....	12-8
13	Mineral Processing and Metallurgical Testing.....	13-1
13.1	Mineral Processing Summary	13-1
13.2	Metallurgical Test Work Summary	13-1
13.3	Historical Testing.....	13-2
13.4	PRA Laboratories Metallurgical Testing 2009	13-3
13.5	MLI Metallurgical Testing 2009	13-9
13.6	EC Laboratory Metallurgical Testing 2014	13-14
13.7	KCA Laboratory Metallurgical Testing 2014 (Trench Composites)	13-19
13.8	KCA Laboratory Metallurgical Testing 2014 (Drill Cores).....	13-24
13.9	Metal Recovery and Reagent Consumption Projections.....	13-32

14	Mineral Resource Estimate	14-1
14.1	San Agustin Block Model	14-1
14.2	Data Provided to RMI	14-1
14.3	Gold Assay Grade Distribution	14-2
14.4	Silver Grade Distribution	14-9
14.5	High-Grade Outlier Treatment.....	14-12
14.6	Drill Hole Compositing.....	14-16
14.7	Geologic Constraints	14-18
14.8	Variography	14-18
14.9	Gold Estimation Parameters	14-20
14.10	Silver Estimation Parameters	14-22
14.11	Base Metal Estimation Parameters	14-23
14.12	Grade Model Verification.....	14-23
14.13	Resource Classification.....	14-33
14.14	Topographic Data.....	14-33
14.15	Specific Gravity Data.....	14-33
14.16	Mineral Resources	14-35
14.17	General Discussion	14-39
15	Mineral Reserve Estimate	15-1
16	Mining Methods.....	16-1
16.1	Pit optimization.....	16-2
16.1.1	Pit Optimization Assumptions.....	16-2
16.1.2	Pit Optimization Results and Analysis	16-3
16.2	Open Pit Design	16-4
16.2.1	Pit Design Parameters and Construction	16-4
16.3	Phase Design	16-6
16.4	Schedule Inventory.....	16-9
16.5	Production Schedule	16-9
16.5.1	Dilution, SMU and Bench Configuration	16-11
16.6	Development Requirements.....	16-11
16.6.1	Waste Dumps	16-11
16.7	Mining Fleet and Requirements	16-12
16.7.1	Expected Mine Fleet.....	16-12

16.7.2	Expected Operating Cost	16-13
17	Recovery Methods	17-1
17.1	Summary	17-1
17.2	Processing.....	17-6
17.2.1	Primary Crushing (Fine and Coarse Crush)	17-6
17.2.2	Coarse Ore Stockpile and Reclaim (Fine Crush)	17-7
17.2.3	Crushed Product Stockpile and Reclaim	17-7
17.2.4	Heap Conveying and Stacking	17-7
17.2.5	Heap Leaching	17-7
17.2.6	Adsorption	17-7
17.2.7	Carbon Treatment	17-8
17.2.8	Heap Leach Facilities	17-9
17.2.9	Reagents	17-10
18	Project Infrastructure	18-1
18.1	Summary	18-1
18.2	Access Roads	18-2
18.3	Power Supply	18-2
18.3.1	Estimated Power Consumption	18-2
18.4	Water Supply	18-2
18.4.1	Process Water	18-3
18.4.2	Raw Water	18-3
18.4.3	Potable Water	18-4
18.4.4	Fire Water	18-5
18.5	Project Buildings.....	18-5
18.5.1	Offices	18-5
18.5.2	Guard House	18-5
18.5.3	Change Facility and Locker Storage	18-5
18.5.4	Dining Facilities	18-5
18.5.5	Laboratory	18-6
18.5.6	Reagent Storage	18-6
18.6	Warehouse & Maintenance Areas.....	18-6
18.7	Process Facility	18-7
18.8	Fuel Storage and Delivery Systems	18-7

18.9	Storage Area for Reusable Parts and Tires	18-8
18.10	Explosives Storage.....	18-8
18.11	Security	18-8
18.12	First Aid	18-8
18.13	Communications.....	18-8
18.14	Transportation	18-9
18.15	Waste Disposal	18-9
18.15.1	Sewage.....	18-9
18.15.2	Solid Waste	18-9
19	Market Studies and Contracts.....	19-1
20	Environmental Studies, Permitting and Social Impact	20-1
20.1	Environmental Studies and Background Information	20-1
20.1.1	Baseline Studies.....	20-2
20.1.2	Environmental Conditions of Note	20-3
20.2	Waste Management	20-4
20.2.1	Mining Waste.....	20-4
20.2.2	Waste Water.....	20-6
20.2.3	Hazardous and Non-Hazardous Waste Management.....	20-6
20.2.4	Air and Noise Emissions.....	20-6
20.2.5	Tailings Disposal	20-7
20.3	Site Monitoring	20-7
20.4	Water Management.....	20-8
20.4.1	Water Use.....	20-8
20.5	Environmental Regulatory Framework.....	20-9
20.5.1	Mining Law and Regulations	20-9
20.5.2	General Environmental Laws and Regulations	20-9
20.5.3	Regulations Specific to Gold and Silver Mining Projects.....	20-11
20.5.4	PROFEPA “Clean Industry”	20-11
20.5.5	Environmental Administration System.....	20-12
20.5.6	Other Laws and Regulations	20-14
20.5.7	Land Negotiation	20-15
20.5.8	NAFTA.....	20-16
20.5.9	International Policy and Guidelines	20-16

20.5.10	Permitting Process	20-16
20.5.11	Required Permits and Status.....	20-19
20.6	Social Management Plan and Community Relations	20-21
20.7	Closure and Reclamation Plan	20-22
21	Capital and Operating Costs	21-1
21.1	Summary	21-1
21.2	Capital Costs	21-2
21.3	Basis for Capital Cost.....	21-5
21.3.1	Mining	21-5
21.3.2	Process Plant	21-5
21.3.3	Infrastructure Items.....	21-8
21.3.4	Indirect Costs.....	21-10
21.3.5	Spare Parts.....	21-10
21.3.6	Initial Fills Inventory	21-10
21.3.7	Engineering and Construction	21-10
21.3.8	Contingency.....	21-11
21.3.9	Sustaining Capital Costs	21-11
21.3.10	Pre-Production Mining	21-11
21.3.11	Owners Costs	21-11
21.3.12	Working Capital	21-11
21.3.13	Exclusions	21-12
21.4	Operating Costs	21-12
21.4.1	Mine and Process Area General	21-13
21.4.2	Mining	21-13
21.4.3	Processing.....	21-14
21.4.4	Reagents	21-14
21.4.5	Fuel.....	21-14
21.4.6	Mobile Equipment.....	21-14
21.4.7	Wear, Overhaul and Maintenance.....	21-14
21.4.8	Power	21-15
21.4.9	Personnel and Staffing	21-15
21.4.10	Carbon Transportation to La Colorada	21-17
21.4.11	General and Administrative	21-17

22	Economic Analysis	22-1
22.1	Principal Assumptions	22-1
22.2	Cashflow Forecasts and Annual Production Forecasts.....	22-1
22.3	Taxes, Royalties and Additional Fees	22-3
22.4	Sensitivity Analysis.....	22-3
23	Adjacent Properties.....	23-1
24	Other Relevant Data and Information	24-1
24.1	Geotechnical Issues	24-1
24.1.1	Pit Slope Stability Analysis	24-1
24.1.2	Heap Leach Facilities Geotechnical	24-6
24.2	Hydrology and Hydrogeology	24-7
24.3	Project Implementation.....	24-8
24.4	Opportunities and Risks	24-9
24.4.1	Mineral Resource Growth and Mineral Resource Conversion	24-9
24.4.2	Metallurgy and Processing	24-10
24.4.3	Water Management	24-10
24.4.4	Land Acquisition	24-10
25	Interpretations and Conclusions.....	25-1
26	Recommendations	26-1
27	References.....	27-1
28	Statement of Qualification	28-1

Table of Tables

Table 1.7.1:	San Agustin Conceptual Pit Parameters	1-4
Table 1.7.2:	San Agustin Oxide Resources	1-6
Table 2.3.1:	San Agustin Technical Report Contributors	2-2
Table 2.5.1:	San Agustin Units of Measure and Abbreviations	2-4
Table 3.0.1:	San Agustin Consultant Contributions	3-1
Table 4.2.1:	San Agustin Mineral Claims	4-2
Table 10.3.1:	San Agustin Drill Hole Data Used to Estimate Resources	10-3
Table 10.3.2:	San Agustin 2014 Argonaut San Agustin Drilling Program Summary	10-4
Table 10.8.1:	San Agustin Significant Oxide Intersections	10-6
Table 12.1.1:	San Agustin Summary of Assays Verified By Qualified Person	12-1
Table 13.4.1:	San Agustin PRA Laboratories Head Grade Test Results	13-4
Table 13.4.2:	San Agustin PRA Laboratories Multi-Element Analysis	13-5
Table 13.4.3:	San Agustin PRA Laboratories Bottle Roll Test Results	13-7
Table 13.5.1:	San Agustin MLI Head Grade Test Results	13-10
Table 13.5.2:	San Agustin MLI Bottle Roll Test Results	13-11
Table 13.5.3:	San Agustin MLI Column Leach Results	13-13
Table 13.6.1:	San Agustin EC Laboratory Composite Samples Descriptions	13-14
Table 13.6.2:	San Agustin EC Laboratory Head Analyses	13-15
Table 13.6.3:	San Agustin EC Laboratory Bottle Roll Leach Tests Summary	13-17
Table 13.6.4:	San Agustin EC Laboratory Column Leach Results	13-18
Table 13.7.1:	San Agustin KCA Laboratory Gold and Silver Head Assays	13-19
Table 13.7.2:	San Agustin KCA Laboratory Mercury and Copper	13-19
Table 13.7.3:	San Agustin KCA Laboratory Multi-Element Analysis	13-20
Table 13.7.4:	San Agustin KCA Laboratory Whole Rock Analyses	13-21
Table 13.7.5:	San Agustin KCA Laboratory Bottle Roll Leach Tests	13-22
Table 13.7.6:	San Agustin KCA Laboratory Column Leach Test Summary	13-23
Table 13.8.1:	San Agustin KCA Laboratory Core Composites Information	13-24
Table 13.8.2:	San Agustin KCA Laboratory Head Grade Analyses	13-25
Table 13.8.3:	San Agustin ALS Minerals Kamloops Physical Test Work	13-25
Table 13.8.4:	San Agustin KCA Laboratory Bottle Roll Tests	13-26
Table 13.8.6:	San Agustin KCA Laboratory Column Leach Tests	13-28

Table 13.8.7:	San Agustin KCA Laboratory Mercury and Copper	13-30
Table 13.8.8:	San Agustin KCA Laboratory Compacted Permeability Test Results	13-31
Table 13.9.1:	San Agustin Column Leach Test Work Overall Averages & Projections ...	13-33
Table 13.9.2:	San Agustin Column Test Results for MLI, EC, and KCA Laboratories	13-36
Table 14.1.1:	San Agustin Block Model Dimensions	14-1
Table 14.3.1:	San Agustin Gold Assay Statistics by Company	14-2
Table 14.3.2:	San Agustin Gold Assay Statistics by Logged Lithology	14-3
Table 14.3.3:	San Agustin Gold Assays by Logged Oxidation	14-4
Table 14.3.4:	San Agustin Gold Assay Statistics by Oxidation Relative to the Main Fault	14-5
Table 14.4.1:	San Agustin Silver Assay Statistics by Logged Lithology	14-10
Table 14.4.2:	San Agustin Silver Assay Statistics by Logged Oxidation	14-11
Table 14.4.3:	San Agustin Silver Assay Statistics by Oxidation Relative to the Main Fault	14-12
Table 14.5.1:	San Agustin Gold Distribution by Deciles and Percentiles	14-13
Table 14.5.2:	San Agustin Gold Capping Sensitivity	14-15
Table 14.6.1:	San Agustin Gold Assay Sample Lengths	14-17
Table 14.9.1:	San Agustin Gold Grade Estimation Parameters	14-22
Table 14.10.1:	San Agustin Silver Estimation Parameters	14-23
Table 14.12.1:	San Agustin Unconditional Nearest Neighbor Models vs. Inverse Distance Models	14-28
Table 14.12.2:	San Agustin Conditional Nearest Neighbor Models vs. Inverse Distance Models	14-29
Table 14.15.1:	San Agustin Bulk Density Values	14-34
Table 14.16.1:	San Agustin Block Model Inventory	14-35
Table 14.16.2:	San Agustin Conceptual Resource Pit Parameters	14-36
Table 14.16.3:	San Agustin Mineral Resources	14-37
Table 14.16.4:	San Agustin Resource Sensitivity Due to Metal Prices	14-38
Table 16.1.1:	San Agustin Block Model Parameters	16-2
Table 16.1.2:	San Agustin Pit Optimization Parameters	16-3
Table 16.2.1:	San Agustin Pit Design Parameters	16-5
Table 16.4.1:	San Agustin Resource Schedule Inventory	16-9
Table 16.5.1:	San Agustin Annual Mine Production Schedule	16-10
Table 16.5.2:	San Agustin Annual Crusher Production Schedule	16-10
Table 16.7.1:	San Agustin Mine Equipment	16-13
Table 17.2.1:	San Agustin Reagent Consumptions	17-10

Table 20.5.1:	San Agustin Major Mining Permit and Authorization Requirements.....	20-20
Table 20.6.1:	San Agustin Towns near the Project Site	20-21
Table 21.1.1:	San Agustin Project Capital Cost Summary	21-1
Table 21.1.2:	San Agustin Project Operating Cost Summary	21-1
Table 21.2.1:	San Agustin Summary of Pre-production Capital Costs by Area	21-3
Table 21.2.2:	San Agustin Summary of Pre-production Capital Costs by Category	21-4
Table 21.2.3:	San Agustin Future Capital Costs by Year	21-4
Table 21.3.1:	San Agustin Earthworks/Liners/Materials Unit Costs	21-6
Table 21.3.2:	San Agustin Buildings.....	21-9
Table 21.4.1:	San Agustin Project Operating Cost Summary	21-12
Table 21.4.2:	San Agustin Power Consumed by Area	21-15
Table 21.4.3:	San Agustin Staffing Levels and Salary Schedules.....	21-16
Table 22.1.1:	San Agustin Market Inputs as of December 2014	22-1
Table 22.2.1:	San Agustin Economic Results After-Tax as of December 2014	22-2
Table 22.4.1:	San Agustin Project Sensitivities after Tax as of December 2014	22-3
Table 24.1.1:	San Agustin Slope Stability Analysis Results	24-3
Table 24.2.1:	San Agustin Proposed Water Well Coordinates and Depths	24-8

Table of Figures

Figure 4.5.1:	San Agustin General Location Map.....	4-3
Figure 4.5.2:	San Agustin Concession Map	4-4
Figure 7.1.1:	San Agustin Regional Geologic Map.....	7-2
Figure 7.3.1:	San Agustin Local Geologic Map	7-4
Figure 7.6.1:	San Agustin Photographs of Mineralized Drill Core	7-7
Figure 8.2.1:	San Agustin Regional Mineral Deposits	8-3
Figure 9.3.1:	San Agustin Gold in Soil.....	9-3
Figure 9.3.2:	San Agustin IP Chargeability.....	9-4
Figure 10.3.1:	San Agustin Drill Hole Locations	10-3
Figure 11.8.1:	San Agustin 2014 Gold Blank Performance	11-7
Figure 11.8.2:	San Agustin 2014 Oxide Gold Standard Performance	11-8
Figure 11.8.3:	San Agustin 2014 Sulfide Gold Standard Performance	11-9
Figure 11.8.4:	San Agustin Duplicate vs. Original Gold Assays - Scatter Graph	11-10
Figure 11.8.5:	San Agustin Duplicate vs. Original Gold Assays - QQ Plot.....	11-11
Figure 11.8.6:	San Agustin Relative Percent Difference - Chemex vs. Inspectorate	11-12
Figure 11.8.7:	San Agustin Check Assay QQ Plot - Chemex vs. Inspectorate	11-13
Figure 12.5.1:	San Agustin Monarch RC (SA-070) vs. Argonaut RC (14SAGRC082)	12-3
Figure 12.5.2:	San Agustin Monarch RC (SA-061) vs. Argonaut RC (14SAGRC083)	12-4
Figure 12.5.3:	San Agustin Geologix Core (SA-105) vs. Argonaut RC (14SAGRC076)	12-5
Figure 12.5.4:	San Agustin Geologix RC (SA-167) vs. Argonaut RC (14SAGRC084).....	12-6
Figure 12.5.5:	San Agustin Geologix Core (SA-184) vs. Argonaut RC (14SAGRC077)	12-7
Figure 12.5.6:	San Agustin Geologix Core (SA-192) vs. Argonaut RC (14SAGRC081)	12-8
Figure 13.4.1:	San Agustin PRA Laboratories Column Leach Tests (ENC Composite).....	13-8
Figure 13.4.2:	San Agustin PRA Laboratories Column Leach Tests (HPAL Composite)...	13-9
Figure 13.5.1:	San Agustin MLI Column Leach Results	13-13
Figure 13.6.1:	San Agustin EC Laboratory Composite Sample Locations	13-16
Figure 13.6.2:	San Agustin EC Laboratory Trench.....	13-16
Figure 13.7.1:	San Agustin KCA Laboratory Column Leach Tests Curves	13-23
Figure 13.8.1:	San Agustin KCA Laboratory Core Composites Location	13-24
Figure 13.8.2:	San Agustin KCA Laboratory Column Leach Tests.....	13-29
Figure 13.9.1:	San Agustin Regression Trendline Equations for Recovery Projections...	13-34

Figure 14.3.1:	San Agustin Au Box Plot - Logged Lithology and Oxidation.....	14-6
Figure 14.3.2:	San Agustin Au Box Plot - Modeled Lithology and Oxidation.....	14-7
Figure 14.3.3:	San Agustin Au Contact Plot - Oxidized Dacite Relative to the Main Fault.....	14-8
Figure 14.3.4:	San Agustin Au Contact Plot - Oxidized Dacite versus Oxidized Sediments	14-8
Figure 14.3.5:	San Agustin Au Contact Plot - Oxidized Dacite versus Sulfide Dacite	14-9
Figure 14.5.1:	San Agustin Gold Assay Cumulative Probability Plot - Modeled Dacite....	14-14
Figure 14.5.2:	San Agustin Gold Assay Cumulative Probability Plot - Logged Dacite Breccia	14-14
Figure 14.5.3:	San Agustin Gold Assay Cumulative Probability Plot - Modeled Sediments	14-15
Figure 14.5.4:	San Agustin Silver Assay Cumulative Probability Plot - Logged Dacite	14-16
Figure 14.6.1:	San Agustin Gold Assay Sample Lengths.....	14-17
Figure 14.8.1:	San Agustin Dacite+Breccia Gold Correlograms	14-19
Figure 14.8.2:	San Agustin Dacite+Breccia Gold Variance Contours	14-20
Figure 14.12.1:	San Agustin Block Model Cross Section Reference Lines	14-24
Figure 14.12.2:	San Agustin Block Model Cross Section 1 - Gold	14-25
Figure 14.12.3:	San Agustin Block Model Cross Section 2 - Gold	14-25
Figure 14.12.4:	San Agustin Block Model Cross Section 3 - Gold	14-26
Figure 14.12.5:	San Agustin Block Model Cross Section 1- Silver	14-26
Figure 14.12.6:	San Agustin Block Model Cross Section 2 – Silver	14-27
Figure 14.12.7:	San Agustin Block Model Cross Section 3 – Silver	14-27
Figure 14.12.8:	San Agustin Gold Swath Plot – Eastings.....	14-30
Figure 14.12.9:	San Agustin Gold Swath Plot – Northings.....	14-30
Figure 14.12.10:	San Agustin Gold Swath Plot – Elevations.....	14-31
Figure 14.12.11:	San Agustin Silver Swath Plot - Eastings.....	14-31
Figure 14.12.12:	San Agustin Silver Swath Plot – Northings.....	14-32
Figure 14.12.13:	San Agustin Silver Swath Plot – Elevations	14-32
Figure 14.16.1:	San Agustin Conceptual Pit Grade-Tonnage Curves	14-39
Figure 16.0.1:	San Agustin Pit and Waste Dump Overview	16-1
Figure 16.1.1:	San Agustin Pit Optimization Results	16-4
Figure 16.2.1:	San Agustin Lerchs-Grossman Pit Shell	16-5
Figure 16.2.2:	San Agustin Ultimate Pit Design.....	16-6
Figure 16.3.1:	San Agustin Mining Phases.....	16-8
Figure 17.1.1:	San Agustin General Arrangement – Overall Site	17-2

Figure 17.1.2:	San Agustin General Arrangement – Crushing Area & Mine/Crushing Facilities.....	17-3
Figure 17.1.3:	San Agustin General Arrangement – Process Plant & Facilities	17-4
Figure 17.1.4:	San Agustin Overall Simplified Process Flowsheet.....	17-5
Figure 18.4.1:	San Agustin Proposed Water Wells Locations	18-4
Figure 20.5.1:	San Agustin Permitting Process (1 of 2).....	20-17
Figure 20.5.2:	San Agustin Permitting Process (2 of 2).....	20-18
Figure 22.4.1:	San Agustin Project Sensitivities after Tax as of December 2014	22-3
Figure 24.1.1:	San Agustin Pit Slope Section A	24-1
Figure 24.1.2:	San Agustin Pit Slope Section B	24-2
Figure 24.1.3:	San Agustin Pit Slope Analysis Sections.....	24-2
Figure 24.1.4:	San Agustin Section A Global Static Stability Slip Surface FOS = 2.0	24-4
Figure 24.1.5:	San Agustin Section A Static Stability along Liner Interface FOS = 1.5	24-4
Figure 24.1.6:	San Agustin Section A Global Pseudo-Static Stability Slip Surface FOS= 1.2	24-4
Figure 24.1.7:	San Agustin Section A Pseudo-Static Stability along Liner Interface FOS = 1.2	24-4
Figure 24.1.8:	San Agustin Section B Global Static Stability Slip Surface FOS = 1.9	24-5
Figure 24.1.9:	San Agustin Section B Static Stability along Liner Interface FOS = 1.9	24-5
Figure 24.1.10:	San Agustin Section B Global Pseudo-Static Stability Slip Surface FOS = 1.2	24-5
Figure 24.1.11:	San Agustin Section B Pseudo-Static Stability along Liner Interface FOS = 1.5	24-5

1 Executive Summary

1.1 Introduction

Argonaut Gold Inc. (Argonaut or the Company) commissioned Kappes, Cassiday & Associates (KCA) in conjunction with Resource Modeling Inc. (RMI) to prepare a National Instrument 43-101 (NI 43-101) compliant Technical Report that includes a mineral resource estimate, classification of resources, and a preliminary economic analysis (PEA) of the San Agustin Project. This Technical Report describes the conceptual development of an open pit mine and processing of Indicated gold and silver mineral resources by standard heap leaching methods.

Several sections of this report were taken verbatim from the resource technical report "Oxide Resource Estimate, San Agustin Project" dated October 3, 2014, and include Sections 1.4, 1.5, 1.7, 1.8, relevant portions of 1.13 and 1.14, 6 through 12, 14, 23, and portions of 24 through 27.

Outside consultants include: Golder Associates Inc. (Golder), PH Consultores Ambientales S. de R.L. (PHCA), and Hidrogeólogos Consultores de Ideas S.A. de C.V. (IDEAS). Golder provided the heap leach pad and solution storage design along with the site-wide water management. PHCA assisted with environmental and socio-economic studies along with the permitting process. IDEAS conducted hydrology and hydrogeology studies.

1.2 Property Description and Location

The San Agustin Project is located four km north of the village of San Agustin de Ocampo and approximately 100 km north of the city of Durango in the state of Durango, Mexico. The San Agustin property consists of four mineral claims totaling 1,065 hectares and is located in the northern San Lucas de Ocampo Mining District. The property is easily accessible year round and is dominated by low rolling hills with a maximum relief of around 100 m. A semi-dry climate dominates the area and rainfall is limited to approximately 500 mm annually.

1.3 Ownership

The San Agustin Project is owned by Minera Real del Oro, S.A. de C.V. (MRO), a wholly owned subsidiary of Argonaut Gold Inc. (Argonaut or the Company). In December of 2013 the San Agustin Project was purchased by Argonaut from Silver Standard Resources Inc. (Silver Standard). Silver Standard and all of its affiliates and Mexican subsidiaries are referred to in this Technical Report as Silver Standard. Argonaut is evaluating the San Agustin property as a potential open pit gold and silver heap leach operation and is currently focused on only the oxidized portion of the mineral deposit. While Argonaut is currently evaluating the oxide portion of the San Agustin mineral system it is aware that the deeper sulfide extent of the system may have economic potential which should be evaluated in the future.

1.4 Geology and Mineralization

The San Agustin property lies in the Altiplano Subprovince of the Sierra Madre Occidental (SMO). The Altiplano Subprovince is on the east flank of the SMO and is comprised of Jurassic to Late Tertiary sedimentary and volcanic rocks. The oldest rocks in the San Agustin area are Cretaceous siltstones, sandstones, and limestones. These rocks are unconformably overlain by a thick sequence of Tertiary volcanic rocks which characterize the SMO. The sequence is comprised of an older andesite dominated series, and a younger pyroclastic dominated rhyolite series. These two main series are referred to as the Lower Volcanic Series (LVS) and Upper Volcanic Series (UVS) respectively.

Mineralization at the San Agustin property is mainly hosted by three main rock types: Cretaceous sedimentary rocks, a dacite dome complex and local hydrothermal breccias. The dacite dome complex is the main rock type of interest and hosts the majority of the resource. It is exposed sporadically and typically forms areas of low relief. The deposit has an oxide cap that averages approximately 60 meters thick.

1.5 Drilling and Sample Analysis

Since acquiring the San Agustin Project in 2014, Argonaut has completed 24,765 meters of reverse circulation (RC) drilling in 240 holes, which were utilized to update oxide resources. In addition to the Argonaut drilling, 264 additional drill holes were completed by three previous companies consisting of Monarch Resources Inc. (Monarch), Silver Standard and Geologix Explorations Inc. (Geologix). The combined Argonaut and previous drilling data were used to estimate oxide mineral resources. To

help verify earlier drill data, 10 of Argonaut's RC holes were drilled to twin selected older core and RC holes that were completed by the previous companies.

The majority of Argonaut's drilling was located within the same general footprint as an earlier resource that was reported in March 2009 by Silver Standard (Wardrop, 2009). Argonaut's resource drilling was done by RC methods and consisted mainly of infill and step-out drilling in the previous Silver Standard resource area to achieve an approximate drill hole spacing of 50 meters. The deposit remains open in several directions and resource definition drilling will continue into the foreseeable future.

Argonaut's drilling was completed with the goal of updating oxide mineral resources. Mr. Michael Lechner, President of Resource Modeling Inc. (RMI) was contracted to estimate mineral resources for the San Agustin Project. An updated resource technical report, "Oxide Resource Estimate, San Agustin Project" dated October 3, 2014 was completed.

For metallurgical studies Argonaut completed 999 meters of PQ core drilling in 13 holes. This test work was completed by Kappes, Cassiday & Associates (KCA) in Reno, Nevada under the direction of Mr. Carl Defilippi. In addition to the drill core composites, three bulk samples were obtained from surface outcrops for additional metallurgical tests that were conducted at Argonaut's nearby El Castillo Mine.

1.6 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 by using two separate circuits for higher-grade and lower-grade material, where the higher-grade material is two-stage crushed to 80% passing 22 mm and the lower-grade material is single-stage crushed to 80% passing 100 mm. The final products from the crushing circuits are combined and conveyed to a stacking system at the heap leach pads.

The heap leach pad was designed by Golder Associates (Golder). The stacked material will be leached with a low concentration sodium cyanide solution. The gold and silver bearing solution will be collected in a pregnant solution pond and pumped into a carbon adsorption circuit to extract the precious metals. 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 involved cyanidation tests, including bottle roll and column leach, that were conducted on composite samples from San Agustin by various laboratories

starting from about 2009. Results from cyanidation tests conducted by McClelland Laboratories Inc. (MLI), El Castillo (EC) and KCA were mainly used in the development of the recoveries for use in this Technical Report.

Final crush sizes of 80% passing 22 mm and 100 mm were selected for the Fine Crushing and Coarse Crushing circuits, respectively. The final crush sizes were selected after conducting a brief crushing cost versus recovery analysis.

The projected gold and silver field recoveries for the fine-crushed material are 66% and 16%, respectively, for coarse-crushed material are 57% and 9%, respectively. Reagent consumptions are expected to be 0.18 and 0.23 kg/t sodium cyanide with 3.5 and 4.0 kg/t lime for coarse-crushed and fine-crushed, respectively. Based on the laboratory data a leach cycle of 75 days was selected for the heap leach.

1.7 Mineral Resource Estimate

Mineral resources were estimated by Michael Lechner of RMI after a thorough review of all available data; Mr. Lechner is a Qualified Person and is independent of Argonaut as defined by NI 43-101 guidelines. Exploratory data and geostatistical analyses were completed which led to the development of a grade estimation plan. Block gold and silver grades were estimated for three key host rocks within two structural domains using MineSight® software. A multi-pass inverse distance estimator was used and the estimated block grades were validated by visual and statistical methods. The estimated blocks were classified as Indicated and Inferred Resources, as defined by the Canadian Institute of Mining, Metallurgy, and Petroleum (CIM) based on mineralized continuity.

Mineral resources were confined to a conceptual Lerchs-Grossmann pit that used parameters summarized in Table 1.7.1.

Table 1.7.1: San Agustin Conceptual Pit Parameters

Parameter	Value
Gold Price (US\$/ounce)	\$ 1,300
Silver Price (US\$/ounce)	\$ 20
Gold Recovery (%) - Crusher	68%
Silver Recovery (%) - Crusher	21%
Mining Cost (US\$/tonne mined)	\$ 1.00
Pad Cost (US\$/tonne leached)	\$ 0.50
Crush/Stack Cost (US\$/tonne leached)	\$ 1.40
Process/Leaching Cost (US\$/tonne leached)	\$ 1.82
G&A Cost (US\$/tonne leached)	\$ 0.50
Pit Slope Angle (degrees)	45

Resources were tabulated using a gold equivalent cutoff grade. The gold equivalent cutoff grade was established using gold and silver price and recovery ratios in the following expression:

$$\text{AuEQ} = (\text{Au} + \text{Ag}/\text{Equivalency Factor}) \text{ where}$$

$$\text{Equivalency Factor} = ((\text{Au price in } \$/\text{g} * \text{Au recovery}) / (\text{Ag price in } \$/\text{g} * \text{Ag recovery}))$$

San Agustin oxide mineral resources contained inside of the conceptual pit are tabulated in Table 1.7.2 using a gold equivalent cutoff grade of 0.18 g/t.

Table 1.7.2: San Agustin Oxide Resources

Material Type	Indicated Resources					
	Tonnes (000)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Contained Ozs (000)	
					Au Ozs	Ag Ozs
Oxide	79,373	0.37	0.32	10.6	817	27,050
Transition	2,837	0.37	0.31	13.3	28	1,213
Total Indicated	82,210	0.37	0.32	10.7	845	28,263

Material Type	Inferred Resources					
	Tonnes (000)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Contained Ozs (000)	
					Au Ozs	Ag Ozs
Oxide	6,800	0.34	0.29	10.6	63	2,317
Transition	164	0.35	0.23	26.9	1	142
Total Inferred	6,964	0.34	0.29	11.0	65	2,459

Note:

Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. Inferred Mineral Resources have a high degree of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of an Inferred Resource will ever be upgraded to a higher category.

Tonnes, grade values, and contained metal quantities may differ due to rounding.

1.8 Mining

For this preliminary economic analysis, a single ultimate pit for San Agustin was prepared by Argonaut's engineer and reviewed by Argonaut's qualified person, Michael Lechner, P. Geo. The pit is designated as the San Agustin Pit and was designed with five mining phases. The resulting pit design defines 72.4 Mt of Indicated resources with an average grade of 0.32 g/t Au and 10.6 g/t Ag. The average strip ratio is 0.39:1. Pit resources are broken into two different materials for processing, high-grade and low-

grade. At a 6M tpy ore production rate of high grade, it is expected that the potential mine life will be 10.5 years. The production schedule targeted a consistent total mine tonnage composed of high and low grade resource and waste material at a mining rate of approximately 10M tpy.

1.9 Infrastructure

The infrastructure and services will need to be developed to support the San Agustin Project since they do not currently exist. The San Agustin Project includes the sharing of supplies and infrastructure items from Argonaut's nearby El Castillo Mine. With a distance between the two projects of approximately 12 km the El Castillo Mine will contain shared infrastructure items such as administration buildings, laboratory, long-term reagent storage, and a complete service truck shop.

Site access to the San Agustin Project site will be available from the north by established dirt roads and from the south by a proposed dirt road from paved Highway 45. Power will be supplied to the Project by means of diesel-fired generators and on-site distribution will include medium voltage overhead electrical lines. Raw water will be available from two on-site wells. Process water will be contained in three separate storage ponds and recycled throughout the plant. The Project facilities will be supplied in the form of modular office trailers, shipping containers for warehouse storage, a simple building for reagent storage, and roofed structures for most other facilities.

1.10 Environmental Studies, Permitting and Social Impact

Early in 2014, Argonaut in coordination with PHCA, IDEAS, Dinamica Social (DS) and Golder started the baseline studies for water, biodiversity, climate, geohydrology, geology, geomorphology and soil characterization, mining waste geochemistry (waste rock and leached ore), and social-economic aspects. Environmental baseline studies were conducted over 8,935 hectares to determine the actual conservation status. The social-economic study was done by DS in the nearby communities of San Agustín, San Lucas de Ocampo, El Resbalon and San Juan del Río.

In January 2014 MRO received authorization from the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) to construct 2.4 km of new roads, build drill pads, and drill 151 RC and core holes in order to continue exploration of the deposit. In January 2015, MRO submitted a new Informe Preventivo (Environmental Impact Prevention Report) to expand the drilling program with another 216 drill holes and drill pads and construct 18.3 km of new roads. This request is under evaluation.

MRO has entered negotiations with the ejidos of the San Agustin and El Resbalon, the San Lucas Agrarian Communities, and five private properties for a surface rights agreement for mine operations. The three social groups and private owners have expressed the acceptance of the Project and are currently negotiating the land occupation terms. There are currently no mining opposition groups in the region.

Permits and authorizations necessary for mineral extraction and beneficiation are in process of being prepared with submission expected in 2015.

1.11 Capital and Operating Costs

Capital and operating costs for the San Agustin Project were estimated by KCA with input from Argonaut and Golder. The total capital cost for the San Agustin Project is US\$90.5 million, which includes a US\$67.1 pre-production capital and US\$23.4 sustaining capital. All costs are presented in 4th quarter 2014 US dollars and include contingencies. For costs provided in Mexican pesos, an exchange rate of 13.4:1 US\$ was used. The costs have been based on the design outlined in this study and are considered to have an accuracy of $\pm 25\%$.

The estimated average life-of-mine (LOM) operating cost totals US\$5.01 per tonne processed including mining, G&A, crushing, heap leaching and precious metal recovery along with loaded carbon transport to the La Colorada Project and carbon treatment costs. Mining costs were estimated by Argonaut based on their nearby El Castillo operation and are US\$1.09 per total tonne of material excavated, or US\$1.52 per tonne processed. The total G&A cost is US\$0.35 per tonne processed. Labor cost has been estimated using staffing and wage scales provided by Argonaut from their existing operations in Mexico. Corporate overhead costs are not included. The process cost is US\$3.14 per tonne processed which includes crushing, stacking, heap leaching, metal recovery and carbon processing. Operating costs have been estimated and are presented without any added contingency allowances. The mine, processing, support and general and administrative operating costs are considered to have an accuracy range of $\pm 20\%$.

1.12 Economic Analysis

The financial analysis results indicate an NPV at a 5% discount rate of US\$101.3 million before taxes and US\$70.2 million after taxes. Payback will be in about 4.1 years after production commences.

The following provides the basis of the LOM plan and economics:

- Gold price of US\$1,200/oz and silver price of US\$17.00/oz;
- Only Indicated resources are included, no inferred resources were included in the mine or production plan;
- A mine operating life of 10.5 years;
- An overall average metallurgical recovery rate of 65% Au over the LOM;
- An overall cash cost of US\$611 calculated on a by-product basis;
- Capital costs of US\$90.5 million, comprising initial capital costs of US\$67.1 million, and sustaining capital over the LOM of US\$23.4 million;
- Mine closure cost, included in the above estimates is US\$5 million;
- The analysis does not include provision for salvage value; and,
- Operating costs are 56% of revenue.

1.13 Conclusions

The Technical Report concludes:

- The San Agustin Project will utilize a single pit designed with five mining phases;
- Pit design defines 72.4 Mt of Indicated resources with an average grade of 0.32 g/t Au and 10.6 g/t Ag;
- Pit resources are broken in two different materials for processing, high grade and low grade;
- At a 6M tpy ore production rate of high grade, it is expected that the potential mine life will be 10.5 years;
- The production schedule targeted a consistent total mine tonnage of approximately 10M tpy;
- Results of metallurgical testing show gold recoveries in the range of 50 to 84% and silver recoveries 8 to 36% in the finer crush sizes;
- Final crush sizes of 80% passing 22 mm and 100 mm were selected for the Fine Crushing and Coarse Crushing circuits, respectively, after conducting a brief crushing cost versus recovery analysis;

- Based on the final crush sizes, projected gold and silver field recoveries for the fine-crushed material are 66% and 16%, respectively, and coarse-crushed material of 57% and 9%, respectively;
- The San Agustin Project requires the sharing of supplies and infrastructure items from the nearby El Castillo Mine, which will contain shared infrastructure items such as administration buildings, laboratory, long-term reagent storage, and a complete service truck shop; and,
- 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, 56% 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.

1.14 Recommendations

Based on discussions with Argonaut's technical staff and the Qualified Persons responsible for this Technical Report, the following recommendations have been made to advance the San Agustin Project:

- Collect additional representative samples for density determination. This includes mineralized and un-mineralized rock types including surficial materials like alluvium and conglomerate. The cost for this is estimated to be \$5,000;
- Consider obtaining at least one additional certified oxide standard with a gold grade of around 0.20 to 0.25 g/t that could be used in a QA/QC program for future drilling programs. The cost for obtaining this material is estimated to be \$2,500;
- Complete a RC condemnation drilling program at San Agustin totaling 10,000 meters. The primary objective of this program is to condemn areas where the Company expects to place process facilities such as leach pads and waste dumps. The approximate cost for this program is estimated to be around \$1,000,000;
- Conduct additional laboratory test work on low grade ore to confirm the gold/silver recoveries on the coarse crushed material. The estimated cost for this activity is \$50,000;

- If the gold price falls below the Project's economic threshold and the variability in the capital and operating costs needs to be lessened, then a feasibility study would be suggested. The cost for this activity is estimated to be \$750,000;
- Obtain surface rights and environmental permitting that would allow Argonaut to potentially proceed with mine development. The cost for this is still being determined as negotiations are ongoing;
- Continue with various ongoing environmental studies including exploratory drilling to define the hydraulic characteristics of the selected areas for the water wells. The cost for this activity is estimated to be \$100,000; and;
- Work with local communities and governmental agencies to obtain the necessary permits and licenses to operate. The estimated cost for this activity is \$200,000.

2 Introduction and Terms of Reference

2.1 Technical Report Preparation

Argonaut Gold Inc. (Argonaut or the Company) commissioned Kappes, Cassiday & Associates (KCA) in conjunction with Resource Modeling Inc. (RMI) to prepare a National Instrument 43-101 (NI 43-101) compliant Technical Report that includes a mineral resource estimate, classification of resources, and a preliminary economic analysis (PEA) of the San Agustin Project.

Support from outside consultants was obtained from Golder Associates Inc. (Golder), PH Consultores Ambientales S. de R.L. (PHCA), and Hidrogeólogos Consultores de Ideas S.A. de C.V. (IDEAS).

Several sections of this report were taken verbatim from the resource technical report, "Oxide Resource Estimate, San Agustin Project" dated October 3, 2014. These sections include:

- Section 1: Executive Summary;
 - Subsections 1.4, 1.5, 1.7, 1.8, and relevant portions of 1.13 and 1.14.
- Section 6: History;
- Section 7: Geological Setting and Mineralization;
- Section 8: Deposit Types;
- Section 9: Exploration;
- Section 10: Drilling;
- Section 11: Sample Preparation, Analyses and Security;
- Section 12: Data Verification;
- Section 14: Mineral Resource Estimate;
- Section 23: Adjacent Properties; and,
- Portions of Sections 24 through 27.

These sections from the resource technical report have been included in this report for completeness.

2.2 Purpose of Technical Report

The purpose of this technical report is to comply with disclosure and reporting requirements set forth in the in the Company Manual of the Toronto Stock Exchange (TSX), National Instrument 43-101, Companion Policy 43-101CP, and Form 43-101F1.

2.3 Qualified Persons

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

- Carl Defilippi, Senior Engineer from KCA is the QP responsible for sections 1.1 through 1.3, 1.6, 1.9 through 1.12, relevant portions of 1.13 and 1.14, 2 through 5, 13, 16.7, 17 through 22, and relevant portions of 24 through 27; and,
- Michael J. Lechner, P. Geo., President of RMI, is the QP responsible for sections 1.4, 1.5, 1.7, 1.8, relevant portions of 1.13 and 1.14, sections 6 through 12, 14, 16, 23, and relevant portions of 24 through 27.

2.4 Sources of Information

Argonaut has worked closely with the contributing companies, in addition to being a direct contributor, to develop this technical report. The contributing companies and their responsibilities are presented in Table 2.3.1.

Table 2.3.1: San Agustin Technical Report Contributors

Company	Contribution
Argonaut	Mine design, costing, environmental, socio-economic, permitting
RMI	Geology, exploration, resources, mining methods
KCA	Process, infrastructure, metallurgical test work, costing

Mr. Bob Rose, Vice President of Technical Services for Argonaut, was the liaison between Argonaut and the contributing companies/individuals. Mr. Rose provided cost unit rates, from Argonaut's existing mining operations such as El Castillo and La

Colorada, for the operating and capital costs in the San Agustin Project. Additional costs were provided by vendors and KCA's internal database.

Ms. Xochitl Valenzuela Verdugo, the mine planning engineer for Argonaut, worked on the development of the pit, phase and production schedule along with the design of the waste rock dump for the San Agustin Project. Ms. Valenzuela contributed to Section 16.

Mr. Angel Aguayo, Environmental Manager for MRO, is the main contributor for section 20.

2.5 Personal Inspection of the San Agustin Property

Mr. Defilippi visited the San Agustin property on July 15, 2014. During his personal site visit to San Agustin his time was initially spent inspecting core and discussing the project with geological and metallurgical personnel from Argonaut. Following this inspection, several hours were spent driving and walking around the property. The mine area and proposed sites for the waste dump, processing facilities, heap leach pad, solution storage ponds and infrastructure were inspected. No issues were found during the site visit which could prevent development of the San Agustin Project as it is currently envisioned.

Mr. Lechner conducted a site visit of the San Agustin Project from March 10, 2014 to March 14, 2014. Two days were spent at the Project site observing RC and diamond core drilling operations and sampling methods. Mr. Lechner was accompanied by three Argonaut geologists (Mr. Tom Burkhart, Mr. Alberto Orozco, and Mr. Isaac Antuna). The Argonaut geologists provided Mr. Lechner with a detailed overview of the San Agustin Project and reviewed preliminary results from the ongoing 2014 drilling campaign.

2.6 Units of Measure

Units of measure and abbreviations that may occur in this Technical Report are summarized in Table 2.5.1.

Table 2.5.1: San Agustin Units of Measure and Abbreviations

Abbreviation	Description
ALS	ALS Chemex laboratory
AQ	Core diameter (usually ~ 2.7 cm diameter)
Au	Gold
AuEq / AuEqV	Gold equivalent
Ag	Silver
BWI	Bond ball mill work index
Ca(OH) ₂	Calcium hydroxide, hydrated lime
Cdn\$	Canadian currency (dollars)
CIM	Canadian Institute of Mining, Metallurgy, and Petroleum
cm ³	Cubic centimeter
cm ² /s	Centimeter per second
CV	Coefficient of variation
DDH	Diamond drill hole (core)
g or gms	Gram
G&A	General and administrative
g/L	Grams per liter
g/t or g/mt	Grams per metric tonne
Grd-Thk	Grade times thickness product
Ha	Hectare
HDPE	High-density polyethylene
HQ	Drill core diameter (~ 63.5 mm diameter)
ICP	Inductively coupled plasma analytical method
ICP-AES	Inductively coupled plasma analytical method
ID ²	Inverse distance squared
ID ³	Inverse distance cubed
kg/t or kg/mt	Kilogram per tonne
km	Kilometer
km ²	Square kilometers
kW	Kilowatt
kWh	Kilowatt-hour
lb	Pounds
LLDPE	Low-density polyethylene
LpHr/m ²	Liters per hour per square meter
m	Meter
M	Million
Mμ	Microns
m ²	Square meters

Abbreviation	Description
m ³	Cubic meters
m ³ /hr	Cubic meters per hour
masl	Mean elevation above sea level
mm	Millimeter
mg	Milligram
MXN	Mexican currency (peso)
NaCN	Sodium cyanide
NN	Nearest neighbor model
NQ	Drill core diameter (~ 47.6 mm diameter)
NSR	Net smelter return
oz	Troy ounce approximately (31.1035 grams)
PEA	Preliminary economic assessment
ppb	Parts per billion
ppm	Parts per million
PQ	Drill core diameter (~ 85.0 mm diameter)
QA/QC	Quality assurance/quality control
QQ	Quantile-quantile plot
RC	Reverse circulation drilling method
RPD	Relative percent difference
RQD	Rock quality designation
SMU	Selective mining unit
t, mt, or MT	Metric tonne (1,000 kg)
tpy or t/y	Tonnes per year
t/d	Tonnes per day
t/h	Tonnes per hour
t/m ³	Tonnes per cubic meter
US\$ or USD	US currency (dollars)
UTM	Universal Transverse Mercator
%	Percent

Some apparent discrepancies in the calculation of contained metal in resource tables may occur due to the rounding of either tonnes and/or gold grades. All currency amounts in this Technical Report are stated in terms of U.S. dollars (US\$) unless otherwise stated.

3 Reliance on Other Experts

The opinions of KCA and RMI contained herein are based on information provided by Argonaut throughout the course of the investigations. KCA and RMI have 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 27. Table 3.0.1 summarizes contributions provided by outside consultants.

Table 3.0.1: San Agustin Consultant Contributions

Company	Scope of Work
Golder	Heap leach pad, solution storage, site-wide water management
PHCA	Environmental, socio-economic, permitting
IDEAS	Hydrology, hydrogeology, water supply

KCA and RMI 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.

4 Property Description and Location

4.1 Location

The San Agustin property is composed of four mining concessions located in the northern San Lucas de Ocampo District, four km north of the village of San Agustin de Ocampo and approximately 100 km north of the city of Durango in the state of Durango, Mexico. Figure 4.5.1 shows the location of the San Agustin Project. Figure 4.5.2 shows the location and general relationship of the four mining concessions. The mining concessions shown in Figure 4.5.2 are geographically referenced by UTM coordinates (NAD 27 Mexico Zone 13). The main part of the San Agustin property is composed of two concessions acquired from Silver Standard in December of 2013. One additional concession, named Nuestra Señora del Carmen, was acquired from Geologix in May of 2014. This concession is located immediately east of and bordering the original concessions acquired from Silver Standard. A second concession called Consejo was also acquired from Geologix in November of 2014. This concession is located immediately west of the Project and bordering the original concessions acquired from Silver Standard.

Surface rights are controlled by two Ejidos, one community and several individual landowners. The current exploration area is located on lands belonging to the San Agustin de Ocampo Ejido and the San Lucas de Ocampo Community. The Company has agreements in place to allow exploration over the resource area and other areas planned for additional exploration. For future mine development, other surface agreements will need to be completed with other surface owners and concession holders.

4.2 Mineral Tenure

The San Agustin property consists of four mineral concessions. Two of the concessions, titled San Agustin and San Agustin 1, were part of the original San Agustin Project purchase from Silver Standard announced by Argonaut in December of 2013. Two other concessions called Consejo 1 and Nuestra Señora del Carmen II (Del Carmen) were purchased by Argonaut from Geologix as announced by Geologix on May 27, 2014. The Del Carmen concession, owned outright by Argonaut, consists of 89.7 hectares and forms the eastern limits of the concession block. Consejo 1 covers an area of 400 hectares and extends the San Agustin concession block to the west.

Table 4.2.1 lists the claims and title number of the exploration concessions for the San Agustin Project. All the concessions are maintained in good standing through semiannual payments to the Mexican government. Compañía Minera La Parreña (Fresnillo PLC) has four small claims located within or adjacent to Argonaut's concessions. These are MKT-A+B Fracc.1 (T. 219565), MKT-A+B Fracc.2 (T. 219566), MKT-A Fracc.1 (T. 219567) and MKT-A Fracc.2 (T. 219568). They are all of a similar shape and size and total approximately 27 hectares (see Figure 4.5.1).

Table 4.2.1: San Agustin Mineral Claims

Claim Name	Title Number	Expiry Date	Area (Ha.)	Location
Nuestra Señora del Carmen II	214975	22/01/2052	89.7531	Durango, Mexico
Consejo 1	217994	29/09/2052	400	Durango, Mexico
San Agustin	219824	21/04/2053	373.2416	Durango, Mexico
San Agustin 1	219825	21/04/2053	203	Durango, Mexico

Taxes for the concessions are paid in January and July and result in a current holding cost of MXN\$275,000 per year, or approximately \$21,000. Also, mining concessions in Mexico have a minimum annual investment requirement, which requires presenting a report of proof of work every May. The minimum investment amount for the San Agustin concession package is MXN\$282,000 per year, or approximately \$21,300.

4.3 Ownership and Royalties

The San Agustin, San Agustin I, Del Carmen, and Consejo 1 concessions are currently 100% owned by Argonaut. The San Agustin property is not subject to any royalties on the oxide resource but Silver Standard holds a 2% net smelter royalty (NSR) on any sulfide mineralization that could be developed in the future. There are no other known royalties, back-in rights, payments, or agreements and encumbrances to which the property is subject. The property has no known environmental liabilities or outstanding issues.

4.4 Permits

Argonaut is currently conducting its exploration activities under a permit called Informe Preventivo (IP). This permit allows for the construction of drill roads and pads. After submitting the work program it generally takes two to four weeks to get approval. For actual mine development and operation it is necessary to prepare a document called a "Manifestación de Impacto Ambiental" (MIA). Argonaut is currently making progress on

preparation of the MIA which will be submitted for approval to the appropriate Mexican authorities.

4.5 Risk Factors

Argonaut does not anticipate any significant risks in developing the San Agustin Project. They have been operating in the region for nearly five years and have developed very good relationships with the Ejidos and local communities. At this stage of the project it appears that any potential operation at San Agustin would be similar to the nearby El Castillo operation where government organizations and local communities have been supportive of mine development. Argonaut does not envision any delays in acquiring all necessary permits within a predictable time table.

Figure 4.5.1: San Agustin General Location Map

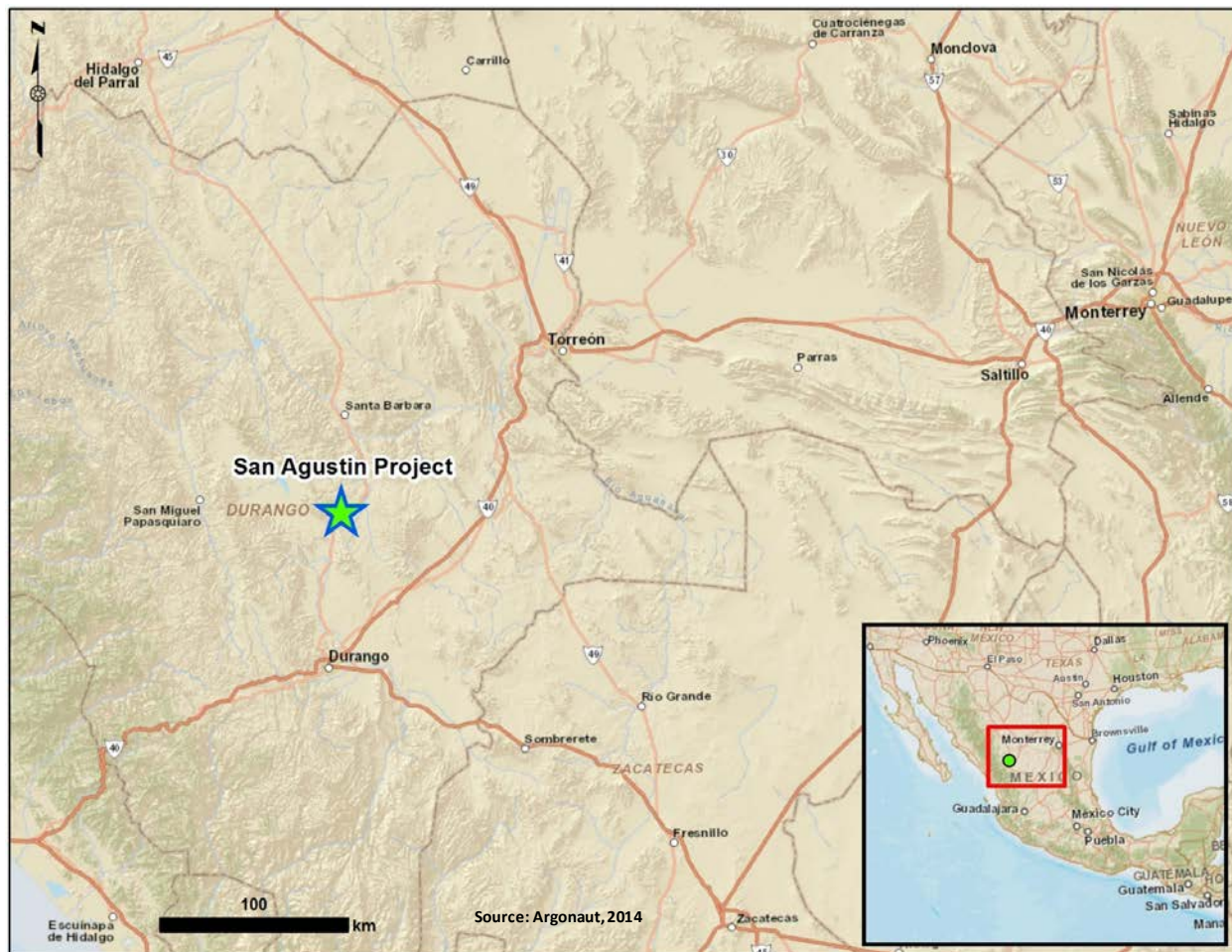
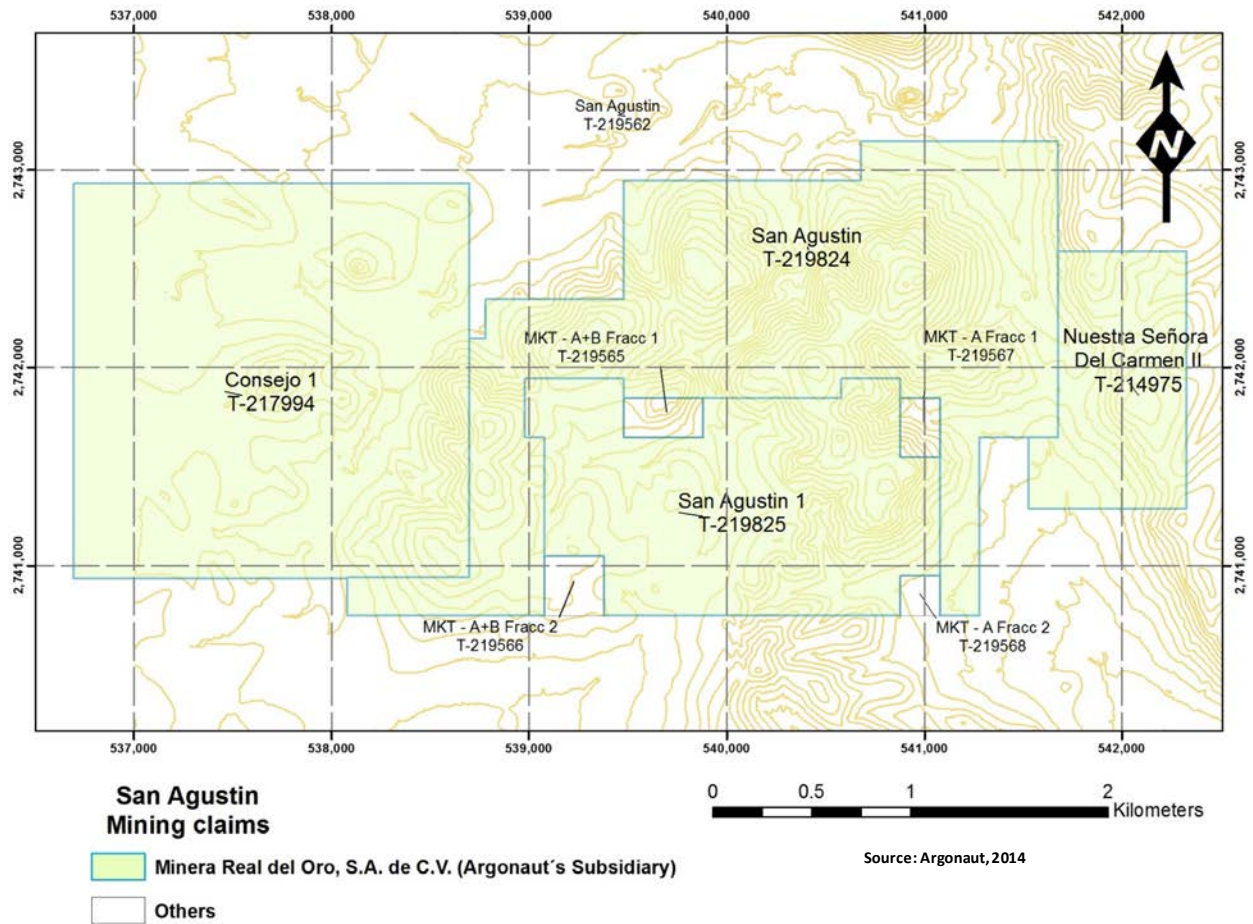


Figure 4.5.2: San Agustin Concession Map



5 Accessibility, Climate, Local Resources and Physiography

5.1 Accessibility

The San Agustin property is easily accessible year round. Initial access to the area can be gained via paved Highway 45 for 90 km north from the city of Durango to San Lucas de Ocampo. The San Agustin Project can be reached from San Lucas de Ocampo by a 10 km all-weather gravel road. Well maintained dirt roads provide access to much of the Company's concession areas and a network of drill roads cover the current resource area. Additional two track roads are also in place, and provide access to surrounding exploration areas.

5.2 Physiography

The San Agustin Project is mainly comprised of low hills with a maximum relief of 100 m with much of the area comprised of flat lying zones that form aprons around the central hills. Absolute relief varies from 1875 m above mean sea level (masl) in stream gullies to near 2000 masl in areas of highest relief. Numerous intermittent streams bisect the landscape and drainage is almost fan-like away from the higher hills on the San Agustin Project. Locally, drainages are more linear and appear to be topographic expressions of fault structures.

Vegetation in the area consists of various species of cactus, mesquite, and other thorny bushes. Fertile areas of the flat-lying fans near prominent streams are under cultivation (corn, beans) while the remainder is used as pasture for cattle.

5.3 Climate

A semi-dry climate dominates the San Agustin area and rainfall is limited to approximately 500 mm annually. The climate is temperate with an average annual temperature of 18°C, maximum temperature reaching 35°C, and minimum temperature falling to 2°C. The rainy season is from June through September, with minimal rainfall occurring from October to May.

5.4 Local Resources

Argonaut is utilizing two rented warehouses situated in the community of San Lucas de Ocampo, approximately 10 km by road from the Project site. One warehouse is utilized to store core and sample rejects generated from previous operators. The other is used as a staging area to process and organize sample shipments and for reject storage. This facility is also used for logging drill core and RC cuttings and for general project organization. Argonaut also rents a three bedroom house in San Lucas de Ocampo that accommodates up to eight geologists. This rental property also serves to store sample rejects generated by previous operators.

Argonaut maintains a large house in nearby San Juan del Rio as an exploration field-office. This facility is equipped with internet and all necessary office and electronic equipment to run a modern and complete exploration operation. This house also houses up to 10 geologists and support personnel. Any personnel overflow utilizes local hotels and/or other Argonaut housing in the area. Argonaut leases a large warehouse in San Juan del Rio where RC sample rejects and drill core from the San Agustin Project are stored.

5.5 Surface Rights

Surface rights at San Agustin are currently controlled by two Ejidos, one community and several individual landowners. The current exploration area is located on lands belonging to the San Agustin de Ocampo Ejido and the San Lucas de Ocampo Community. Argonaut has agreements in place to allow exploration over the resource area and other areas planned for additional exploration. In the event that the San Agustin Project advances toward mine development, other surface agreements will need to be completed with other surface owners. Argonaut enjoys significant community support and negotiations are progressing with various property owners to obtain all of the necessary surface rights that would be required for any future mining operations.

5.6 Availability of Power, Water, and Personnel

Argonaut currently anticipates that they would generate their own power on site utilizing diesel powered generators, as is accomplished at its nearby El Castillo Mine.

They also expect they would be able to complete water wells in the proximity of any future mining operation. Adequate water rights are available and Argonaut anticipates developing all of the necessary water sources as they go forward with the San Agustin

Project. Currently, for drilling operations, water is pumped either from open drill holes or local ponds by the drilling contractors.

Drill helpers and personnel for the San Agustin Project's general labor needs are recruited from local communities including, San Agustin, San Lucas de Ocampo, and San Juan del Rio. Project Geologists and other skilled technical personnel are mainly based in Argonaut's Hermosillo office and rotate to the San Agustin Project on an arranged schedule. The largest city closest to the San Agustin Project is Durango, which serves as the main center for services and as a transportation hub for incoming contractors and equipment. Personnel for a mining operation will likely come from the city of Durango and surrounding areas which already support several ongoing mining operations, including the El Castillo Mine. Management and much of the engineering staff and other skilled positions will be shared with the El Castillo operation. Other necessary technical personnel will be recruited from other parts of Mexico.

6 History

This chapter was taken directly from the October 2014 Resource Technical Report and shown here in its entirety for completeness.

6.1 Pre-1996 History

The immediate area of the San Agustin property has a documented exploration history of about 30 years. A few small adits, shafts, and pits focusing on narrow veins are situated throughout the San Agustin Project area but actual mining appears to have been very limited.

Consejo de Recursos Minerales (Mexican government) conducted exploration in the south and west parts of the San Agustin property (now the Consejo Concession) in the 1980s. This work focused entirely on the evaluation of narrow high-grade veins. Their work included drilling 4,339 m in 35 holes. Only paper copies and maps are available from this work and none of this data is deemed suitable for public disclosure.

The El Carmen property, bordering San Agustin on the east, is the site of a few old workings of unknown date. As far as Argonaut is aware, it has not seen any modern exploration.

6.2 Monarch (1996 - 1999)

In late 1996, Monarch acquired 4,800 ha in the San Agustin area including the current claims. La Cuesta International Inc. (La Cuesta), original locators of the San Agustin Project working on behalf of Monarch, also investigated San Agustin in 1996. Their surface work defined a distinct gold anomalous zone over a 1.5 km² area. Additional silver, lead, zinc, arsenic, and mercury anomalies were also detected.

Monarch carried out a Phase I drilling program between May and July 1997. The program consisted of 35 RC drill holes totaling 3,703 m, and four diamond drill holes totaling 1,002 m. This program was designed to test 200 ppb to 400 ppb gold anomalies in soil samples and resulted in the identification of significant zones of mineralization. In 1998, an additional 29 RC holes totaling 5,651 m were completed. Monarch abandoned the property in 1999.

6.3 Silver Standard (2002 - 2013)

In December of 2002, Silver Standard located the current San Agustin claims, to which they were awarded title in April of 2003. Late in 2003, Silver Standard undertook an extensive mapping and sampling program including the collection of 1,257 surface rock chip samples. This program was followed up by an RC drilling program that consisted of 23 holes totaling 3,917 m. Most of this work was focused in better defining higher grade areas originally identified by Monarch.

In August of 2006, Silver Standard optioned the San Agustin property to Geologix who completed significant work on the project. In February of 2009, Geologix returned the San Agustin property to Silver Standard.

In May of 2009 Silver Standard engaged Wardrop Engineering (Wardrop) to publish an NI 43-101 Technical Report on their behalf (Wardrop, 2009). That technical report contained the same results from a prior technical report that Wardrop had prepared for Geologix in December of 2008 (Wardrop, 2008). Those results are discussed in Section 6.4. The historical resource estimates prepared by Wardrop for Silver Standard used mineral resource categories currently defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM). The Qualified Person responsible for the mineral resources that are the subject of this Technical Report has not done sufficient work to comment on the relevance and reliability of those estimates.

After Geologix terminated their lease option in February of 2009, Silver Standard took control of the San Agustin Project but they did not carry out any additional field exploration on the property.

6.4 Geologix (2006 - 2009)

Geologix undertook a number of exploration activities while their lease option was active. A summary of their geologic exploration activities is summarized below:

- Completed 19.25 line km of IP survey
- Collected 135 soil samples
- Collected 262 rock samples (grab and chip samples)
- Generated continuous chip sampling of 5,416.5 m in 25 trenches

- Generated continuous chip sampling along 898.5 m of road cuts
- Drilled 176 holes totaling 40,717 m
- Systematically sampled of 95 m of underground workings
- Completed detailed geological and alteration mapping over 3 km²
- Re-logged earlier RC drill hole chip samples and diamond drill core
- Compiled all data into a unified computer database

Geologix commissioned Wardrop to estimate mineral resources and to prepare a technical report on the San Agustin Project (Wardrop, 2008). The Wardrop technical report was filed with SEDAR with a date of December 18, 2008. That report disclosed that the San Agustin deposit contained capped Indicated Resources of 121.0 million tonnes grading 0.41 g/t Au, 12.3 g/t Ag, 0.49% Zn, 0.06% Pb and additional Inferred Resources of 92.9 million tonnes grading 0.36 g/t Au, 12.6 g/t Ag, 0.48% Zn, 0.07% Pb, using a cutoff of \$3.40 recoverable metal value (RMV) for oxide and \$6.25 RMV for sulfide. Within this combined oxide/sulfide resource, Wardrop estimated that the oxide portion of the system held an indicated resource of 272,000 ounces of gold and 10.9 million ounces of silver and an Inferred Resource of 127,000 ounces of gold and 5.6 million ounces of silver.

The historical resource estimates prepared by Wardrop for Geologix used mineral resource categories currently defined by the CIM. The Qualified Person responsible for the mineral resources that are the subject of this Technical Report has not done sufficient work to comment on the relevance and reliability of those estimates.

6.5 Argonaut (2014)

In December of 2013, Argonaut purchased the San Agustin property from Silver Standard. In early 2014, Argonaut geologists started a drilling campaign designed to better define the San Agustin resource area that was originally outlined by Monarch, Silver Standard and Geologix. By late June of 2014, Argonaut completed a total of 24,765 m in 240 RC holes and 999 m in 13 core holes. The core holes were used for metallurgical testing.

Ten of the RC holes were drilled as twin holes to verify gold grades from holes drilled by previous companies. Twenty-four RC holes were drilled as part of a Phase 2 program

that was carried out to extend the resource to the northwest and to the southwest of the recognized mineralized system.

6.6 Historical Mineral Resource Estimates

As mentioned in Section 6.3 and 6.4, Wardrop was commissioned by Geologix and Silver Standard to estimate Mineral Resources for the San Agustin deposit and to prepare NI 43-101 Technical Reports. The Technical Reports were prepared for both companies in December of 2008 and May of 2009. The Technical Reports are nearly identical and disclose the same pit constrained resources (Wardrop, 2008) and (Wardrop, 2009).

Argonaut is not treating the 2008 and 2009 Wardrop resource estimates as current Mineral Resources. The Qualified Person responsible for the mineral resources that are the subject of this Technical Report has not done sufficient work to classify the 2008 and 2009 Wardrop resource estimates as current resource estimates.

In October of 2014, Michael J. Lechner, P. Geo from RMI completed an oxide resource estimate Technical Report (following NI 43-101 standards) for the San Agustin Project.

Mineral resources were estimated after a thorough review of all available data. Exploratory data and geostatistical analyses were completed which led to the development of a grade estimation plan.

6.7 Production

A few small adits, shafts, and pits focusing on narrow veins are situated throughout the Project area but actual mining appears to have been very limited. There is no known production from the San Agustin property.

7 Geological Setting and Mineralization

This chapter was taken directly from the October 2014 Resource Technical Report and shown here in its entirety for completeness.

7.1 Regional Geology

The San Agustin Project is located in Northwest Mexico in the east flank of the Sierra Madre Occidental bordering the great Mesa Central Mexicana (Raisz, 1964). The oldest rocks in the region are mica schists and mylonites reported in nearby San Lucas de Ocampo. These are correlated with Permian rocks which the Mexican Geological Survey has dated at $251 \text{ Ma} \pm 20 \text{ Ma}$. These are overlain by a sedimentary flysch sequence mainly composed of an alternating sequence of shale and fine-grained sandstone with occasional horizons of calcareous shale and thin layers of limestone. These units are correlated with the Mezcalera Formation of the Parral Group and are assigned an age of Upper Jurassic to Lower Cretaceous.

The volcanic complex of the Sierra Madre Occidental is present in the area. The Lower Volcanic Complex (LVC) can be seen in the area of San Lucas de Ocampo as agglomerates, tuffs and andesitic flows. The Upper Volcanic Complex (UVC) is present with a sequence of rhyolite tuffs, crystal tuffs and ash tuffs. Discordantly covering all previously mentioned lithologic units is a package of welded rhyolite tuffs that are correlated with a young hyperalkaline event covering large portions of Northwest Mexico which is anorogenic and therefore post formation of the Sierra Madre Occidental.

The most recent igneous unit observed is composed of Pleistocene vesicular basalt flows that cover some of the valleys southeast of the San Agustin Project, in the areas near the town of San Agustin and San Lucas de Ocampo, as well as on the highway to San Juan del Río.

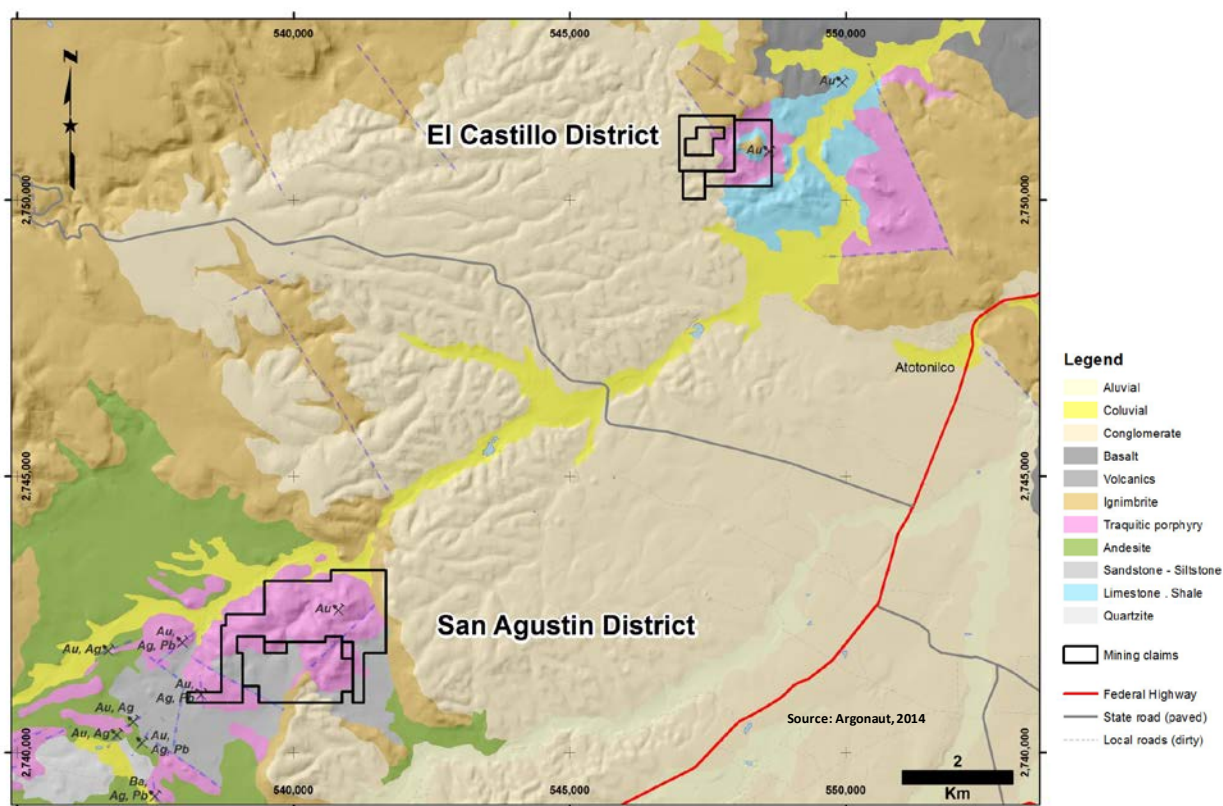
There is a widespread occurrence of a low-classification, poorly consolidated conglomerate that fills wide valleys associated with basin-and-range extensional normal faulting. At the nearby El Castillo Mine, drilling shows this conglomerate can reach a total thickness of 200 meters.

Both at the El Castillo Mine and San Agustin Project a quartz monzonite stock has been dated at $48.5 \text{ Ma} \pm 0.5 \text{ Ma}$ by U-Pb methods in the El Castillo area (Paz-Moreno et al. 2013). It has a phaneritic and glomeroporphyritic texture rich in plagioclase and

feldspars. Quartz eyes are common but vary in proportion. There are also well developed biotite and hornblende crystals in a smaller proportion.

In the area east of El Castillo, a biotite-rich volcanic rhyolite dome has been identified and dated at $41.3 \text{ Ma} \pm 0.5 \text{ Ma}$ (Paz-Moreno et al. 2013). It appears fresh and does not seem to be associated with or affected by the mineralization event. A package of ash and crystal tuffs was dated by the same method at $31.2 \text{ Ma} \pm 0.5 \text{ Ma}$ (Paz-Moreno et al. 2013). These are post mineral and correspond to the UVS of the Sierra Madre Occidental (SMO). Figure 7.1.1 is a geologic map of the nearby region.

Figure 7.1.1: San Agustin Regional Geologic Map



7.2 Structure

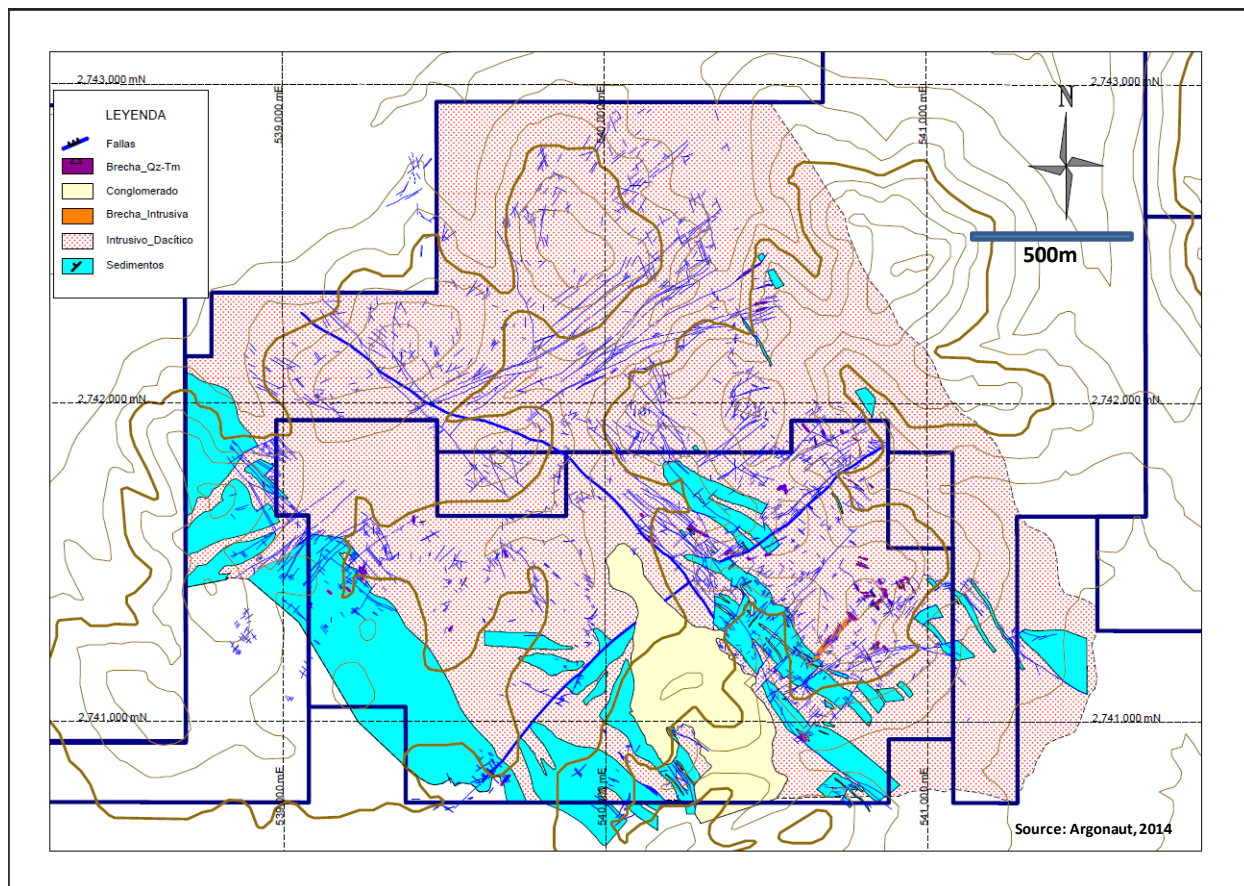
Two main structural trends have been identified in the San Agustin area: northwest (320°) trending lineaments and northeast (050° to 060°) trending lineaments, both of which are sub-vertical. Some of these are likely faults which juxtapose UVS rocks against the dacite dome/sedimentary rocks of the LVS. Definitive offsets have not yet been identified or recognized. Mineralization on the San Agustin property appears to be

related to or associated with the northeast trending structures. The most obvious structure recognized on the property is the Main Fault, which trends northwesterly and dips steeply to the southwest. This fault appears to be a post mineral normal fault that down drops the westerly hangingwall portion of the resource downward relative to the easterly footwall side of the fault. The relationship of this fault as it effects mineralization is discussed later in this Technical Report.

All units on the San Agustin property are fractured. A report documenting oriented core and outcrop data by Barclay (2007) confirmed the primary NE-SW and NW-SE trends as well as identified additional fracture sets in N-S, E-W, and horizontal orientations. The trends identified were independent of fracture filling so fracture filling mineralogy cannot be used to identify or weight gold-silver or base metal potential in any of the fracture trends.

7.3 Property Geology

At the San Agustin Project the area of known mineralization is dominated by an igneous, quartz monzonite dome complex intruding a clastic sedimentary sequence composed of shale, mudstone and less abundant sandstone. Occasionally some calcareous layers are observed in the sedimentary sequence. Both the intrusive and the sedimentary sequence occur on a dominant northwest trend with sub-vertical dips. These two main units are un-conformably covered by post mineral rhyolites and rhyolitic conglomerates of the SMO. Each unit and sub unit is described in detail below. Figure 7.3.1 is a geologic map of the San Agustin deposit area showing three of the mineralized units (sediments, dacite, and breccia). Younger surficial deposits (alluvium and conglomerate) are also shown. Important northwesterly and northeasterly trending structures are shown in blue.

Figure 7.3.1: San Agustin Local Geologic Map

7.4 Rock Types

Sedimentary Sequence

The flysch-type sedimentary sequence is composed of alternating shales, mudstones and fine-grained sandstones with rare occurrence of calcareous horizons. These layers are thinly stratified and follow a northwest strike with sub-vertical dips. Folds can be observed in outcrop scale, with some folds being isoclinal. These sediments are associated with the Mezcalera Formation of Upper Jurassic to Lower Cretaceous.

Quartz Monzonite (Dacite Porphyry)

The Quartz Monzonite porphyry is very similar to the one at the El Castillo Mine. It presents textural variations from phaneritic to porphyritic. Its texture can be obscured by hydrothermal or supergene alteration. In petrographic studies, depending on these

textural variations, it has also been classified as a dacite or porphyritic rhyodacite. It typically presents intense phyllic alteration in almost the entire San Agustin Project area. In more distal zones relative to mineralization alteration decreases but moderate propylitic alteration with chloritized biotite and hornblende is still present. It is in these outcrops that the rock most resembles the intrusive at the El Castillo Mine and can be petrographically classified as a quartz monzonite.

Banded Dacite

The banded dacite represents a fluidal stage within the dome and is seen cross cutting the dacite porphyry, sometimes developing carapace-type breccias on its borders. It has a porphyritic texture with an arrangement of phenocrysts in bands. It is sericitized and has disseminated pyrite following flow bands. A petrographic study classified it as a subvolcanic flow of dacitic composition (Pérez-Segura, 2014).

Dacite Pebble Dykes

The dacite pebble dykes are interpreted as a late phase within the formation of a dacite dome complex and occur as a series of dikes with rounded fragments and typically only a few meters thick. They present rounded fragments of the dacite and surrounding rock types cemented in a dacite porphyritic matrix. Fragments can be up to 5 cm in diameter. These dykes are locally cut by mineralized structures.

Dacite Breccia

The dacite breccia represents some carapace-type breccias typically formed by flow fragments that have been broken and rotated, some up to 30 cm in diameter. The fragments are angular and not directly related to mineralization but they can be cut by mineralized structures. Some of these breccias can be more than 10 m thick.

There is also a series of intrusive breccias that cut both the sediments and the dacite porphyry. These are generally emplaced along a northeasterly trend and appear to be associated with mineralization. They are characterized by silicification and irregular vug and fracture fillings of quartz and pyrite.

Rhyolite

Although the rhyolite does not outcrop within the main San Agustin Project area, it can be found northeast of the El Carmen concession. This unit forms sub-horizontal bodies less than one meter in thickness composed of welded rhyolite tuffs associated to hyper alkaline magmatism. These rhyolites are post SMO.

Conglomerate

The conglomerates are continental, poorly classified, poorly consolidated and occur in the southern portion of the San Agustin Project. They are polymictic with a predominance of rhyolite clasts. They are estimated to be up to 50 m thick in the San Agustin Project area and were deposited as fill material in the areas as basin and range associated valleys.

7.5 Mineralization

The host rocks for mineralization at San Agustin and El Castillo deposits are quartz monzonite-dacite bodies and the sedimentary sequence they intrude. Mineralization is emplaced through a strong and widespread system of sulfide rich veins, veinlets and fissure fillings that make the system similar to a disseminated deposit. These fracture systems follow two main project-scale fracture systems that run northeast and northwest. Locally mineralization can be observed following lithological controls in the sediments especially where they run parallel to the sediment-intrusive contact. Mineralization is also observed in the flow facies of the intrusive and is usually characterized by disseminated pyrite and in parallel veinlets. A component of the pyrite is thought to be pre-mineral and associated with early phyllic alteration. The mineral system has very little silica and is more related to sulfide fracture filling. Epithermal boiling textures have been observed locally such as bladed textures, coliform silica or drusy quartz. These epithermal textures are not common. Some structures with cryptocrystalline jasperoid have also been found in deeper drill intercepts within sulfide zones. Two late phases of mineralization have been identified with one carrying sphalerite and pyrite, and the other, galena and sphalerite.

The Main Fault, an important northwest striking and westerly dipping post-mineral fault bisects the resource area showing differences in mineralization on either side. On the hanging wall (west side) it is common to find structures rich in manganese and barite that are not observed in the footwall. The hanging wall block also presents higher values of silver and lead than the footwall block.

7.6 Alteration

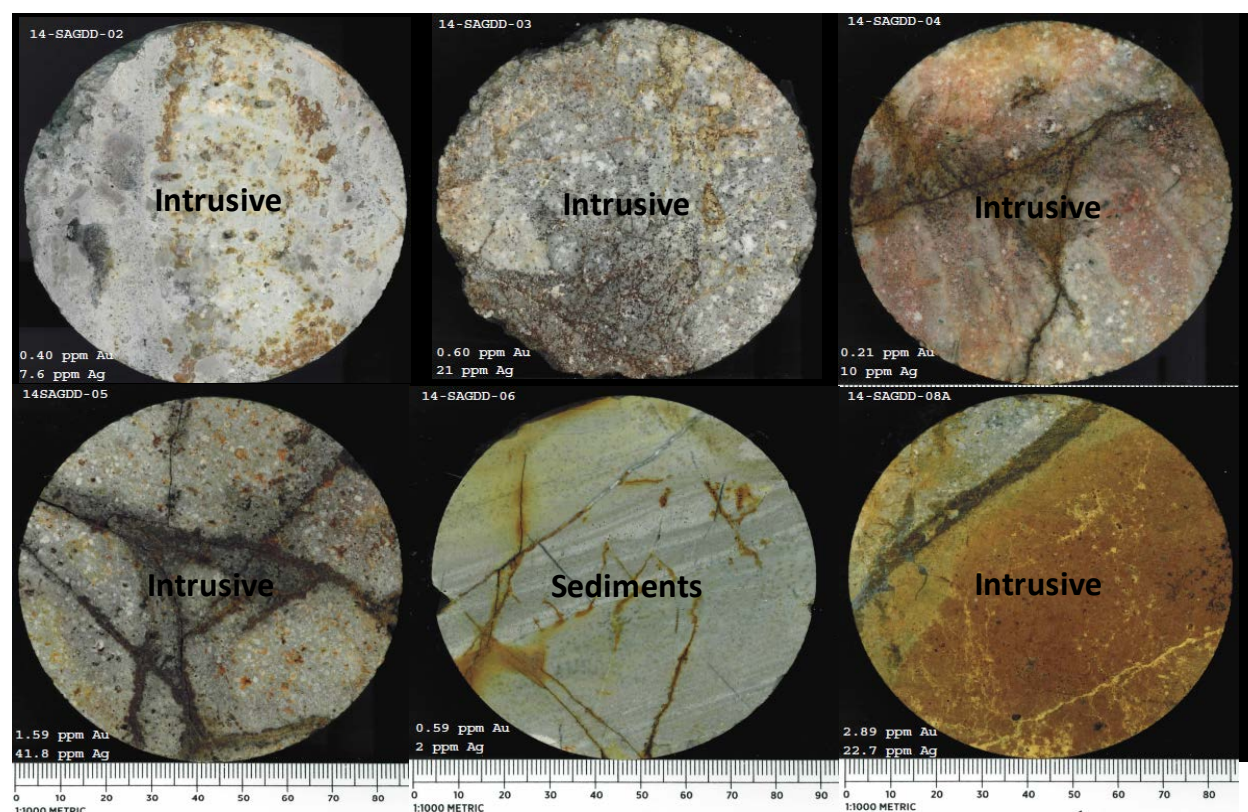
The most dominant alteration type is phyllic characterized as an assemblage of sericite-quartz-pyrite mineralization. In some areas it appears that the host rock was pervasively altered, destroying the original texture and converting biotite and feldspars to sericite. The matrix also shows the presence of sericite, silicification and disseminated pyrite. In some areas veinlets of jarosite and alunite are observed. These seem to be associated with acid leaching of pyrite more than hydrothermal alteration.

A phase of early potassic alteration has been observed but is less common. These zones are characterized by the presence of moderate to pervasive secondary biotite associated with veinlets of quartz-magnetite and disseminated magnetite. Phyllic alteration is superimposed on this early potassic alteration with the latter being closely associated with the mineralization.

In the areas more distal to the mineralization, the intrusive is typically phaneritic with a coarse porphyritic texture with only propylitic alteration shown by moderate chlorite replacement of ferromagnesian minerals.

Figure 7.6.1 shows photographs of various mineralized drill core that are typical of the main rock types found at San Agustin. The samples were collected from Argonaut's 2014 metallurgical drill core program.

Figure 7.6.1: San Agustin Photographs of Mineralized Drill Core



8 Deposit Types

This chapter was taken directly from the October 2014 Resource Technical Report and shown here in its entirety for completeness.

8.1 The San Agustin Project and Nearby Deposits

As with the nearby El Castillo property, the San Agustin Project does not fit entirely into an epithermal classification. The San Agustin deposit appears genetically and spatially related to a quartz monzonite stock with intense phyllic alteration and local tourmaline breccias. These factors may point towards a telescoped system associated with a deeper porphyry center. This is supported by broad zones of potassic alteration that are overlapped by pervasive phyllic alteration; however, locally on surface and in some drill holes boiling textures, suggestive of an epithermal system do occur. Mineralization is mainly associated with sulfides that fill fractures and occur in the matrix of hydrothermal breccias. These form an extensive system of sulfide stockworks dominated by pyrite with lesser percentages of sphalerite and galena. Mineralization is often contained within adularia haloes and can be associated with calcite veinlets.

Petrographic studies report intense phyllic alteration and the presence of two-phase inclusions that evidence boiling (Pérez-Segura, 2014).

Based on the above it could be concluded that the San Agustin deposit is an intermediate sulfidation style epithermal gold-silver system with vertical base-metal zonation associated with a dacite dome complex. Early potassic alteration could be associated to tourmaline breccias with a possible genetic connection to a porphyry that may be located either vertically or laterally to the deposit. Potassic alteration appears to be overprinted by the mineral system.

8.2 Related Regional Deposits

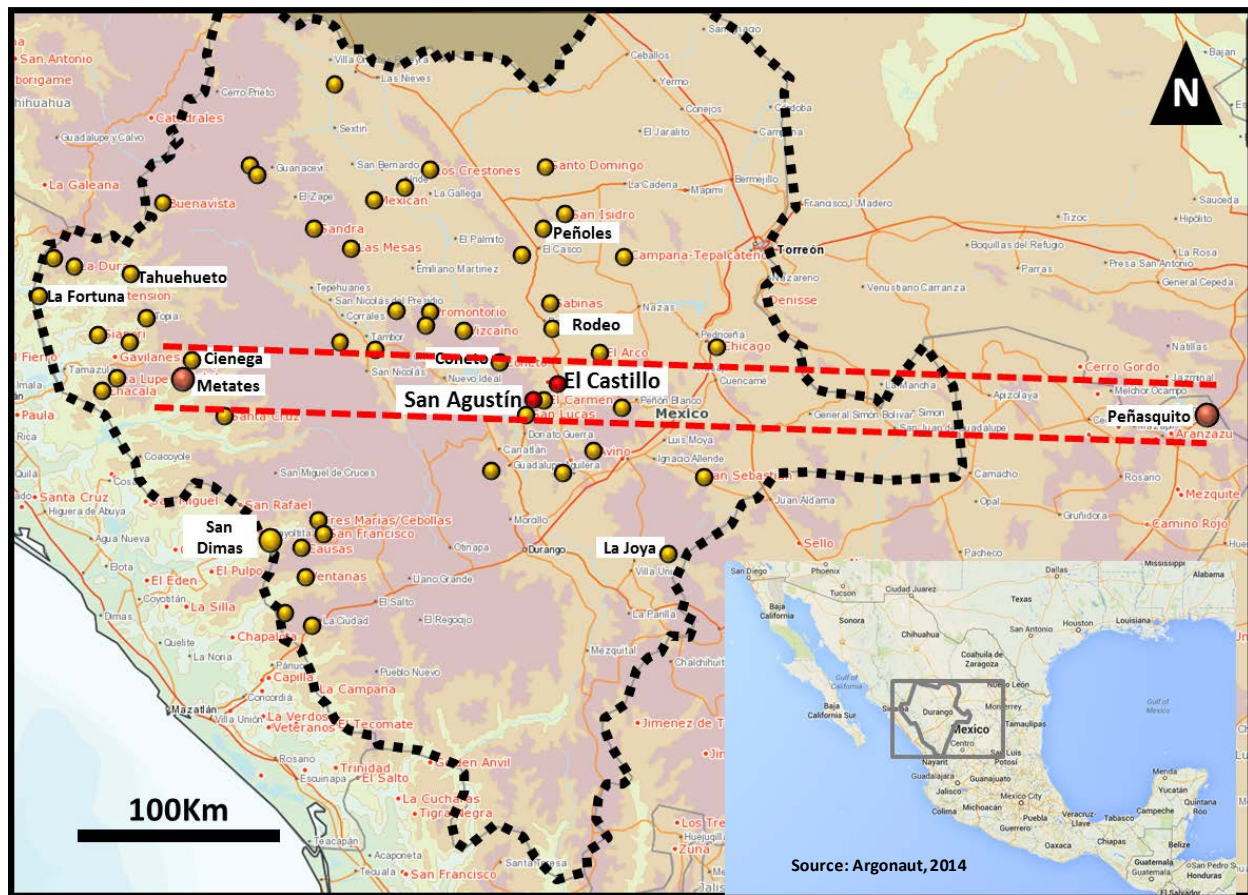
In the near vicinity of the San Agustin Project, the most similar mineral system is the El Castillo gold deposit, located only 12 km to the northeast. At the El Castillo Mine the host rocks and style of mineralization are very similar to San Agustin; however the former has more lithological control than the latter and San Agustin is richer in silver and base metals than El Castillo. Additionally, phyllic alteration is more intense at San Agustin and El Castillo has no reported tourmaline breccias.

The Metates Project has a number of similarities with San Agustin. Metates is located 180 km to the west near the town of San Juan de Camarones, also in the State of Durango and is held and operated by Chesapeake Gold. At Metates there is also a sequence of flysch type sediments that could be correlated with the same sedimentary sequence as at San Agustin and which is also intruded by a stock or latite dome. Mineralization at Metates is similar, emplaced in veins of pyrite, sphalerite and galena. Alteration is phyllic and mineralization is low-grade gold, silver, and zinc.

Another similar deposit is the Peñasquito mine operated by Goldcorp which is located in Zacatecas State, 300 km to the east of San Agustin. Peñasquito also has low-grade gold-silver-zinc-lead with mineralization related to diatreme breccia pipes emplaced in a Cretaceous sedimentary sequence and a Tertiary intrusive complex. The alteration is similar with a core of strong phyllic alteration and a pyrite-carbonate halo.

Figure 8.2.1 is a regional map that shows a number of precious and precious/base metal deposits along the same regionally extensive mineral trend as the San Agustin and El Castillo properties. The dashed red lines define an east-west alignment of similar deposits.

Figure 8.2.1: San Agustin Regional Mineral Deposits



9 Exploration

This chapter was taken directly from the October 2014 Resource Technical Report and shown here in its entirety for completeness.

9.1 Soil Sampling

Prior to 2014, Silver Standard and Geologix collected over 2,700 soil samples at the San Agustin property. Those samples were analyzed for gold and other elements. Argonaut has not collected their own soil samples but has thoroughly examined and interpreted the data from the prior sampling programs which was then used to complement drill hole targeting. The data shows the strongest gold-in-soil anomaly (>0.3 ppm Au) in the main drill area of the San Agustin Project, but continues with a lower strength anomaly as a halo around the main zone (0.1 ppm Au) which covers most of the San Agustin and San Agustin 1 concessions. On a project scale, it can be seen that the anomalies seem to follow northwest and northeast structural trends that have been identified by Argonaut through its geological mapping efforts. Figure 9.3.1 shows gold grade contours based on the soil sample assays collected by Silver Standard and Geologix. Important northwest and northeast trending structures are shown by dashed blue lines.

9.2 Ground Geophysics

Zonge International Inc. (Zonge) was contracted by previous operators in 2010 to conduct geophysical work. Their report was titled dipole-dipole Complex Resistivity IP (CRIP), Natural Source AMT, Gravity, Ground Magnetic and Radiometric geophysical surveys. Argonaut obtained the report and raw data from this survey and has included it in its geographical information system (GIS) database. Several chargeability anomalies have been observed and will be used as part of the information for targeting drill holes at the San Agustin Project. Figure 9.3.2 shows IP chargeability contours based on the Zonge survey. Warmer colors indicate higher chargeability that is thought to reflect sulfide conductors at depth. Important northwest and northeast trending structures are shown by dashed blue lines.

9.3 Argonaut Geologic Mapping and Sampling

In the San Agustin resource area numerous small mining prospects dot the landscape. The majority of these were excavated on small polymetallic veins that appear to be a peripheral expression of the San Agustin mineral system. Argonaut visited most of these small workings and mapped their locations and orientations. The largest workings are situated on their Consejo concession and explore an approximately two meter wide vein called “Cerro de en medio” that can be traced on strike for upwards of 100 meters. This was one of the targets that was drilled by CRM in the mid-eighties (López-Medina, 1985). The most significant drill intercept reported here by the CRM was a down hole thickness of 1.3 meters grading 2.85 grams of gold per tonne, 3,224 grams of silver per tonne, 15% lead and 8.7% zinc. Argonaut considers the peripheral vein system as additional evidence that the San Agustin mineral system is much more wide-spread than currently explored but the aforementioned veins are currently low priority targets.

Argonaut’s surface work included detailed geological mapping over an area of approximately 330 hectares. Mapping focused on structure, fracture density, alteration and rock-type. Argonaut also collected 939 rock chip samples from surface exposures. The samples represent continuous rock chips and average 1.5 meters wide. When possible, sampling was done along 50 to 100 meter spaced sample lines that were oriented perpendicularly to the main recognized structural systems. These samples were combined into the data base with the existing surface rock samples that were collected by previous operators.

Hand held GPS units were utilized to locate the surface rock samples. Along the sample lines the actual sample locations were a function of outcrop exposure and sample spacing varied because of this. Where there were good rock exposures, samples were taken approximately three meters apart.

Argonaut’s samples were tagged in the field with aluminum tags and sent to ALS Chemex (Chemex) labs for fire assay of gold and ICP multi elemental assay (Au AA-23 and ME-ICP 41). The samples were picked up by Chemex directly on site and prepared in their Zacatecas lab. The samples were then sent for assay at Chemex’s North Vancouver laboratory.

The results of the rock chip sampling program show mineralization occurring in most of the San Agustin and San Agustin 1 concessions, being strongest in the current resource area. Gold is the most widespread anomalous element, followed by zinc. Silver and lead seem to be more restricted to certain structural trends.

Figure 9.3.1: San Agustin Gold in Soil

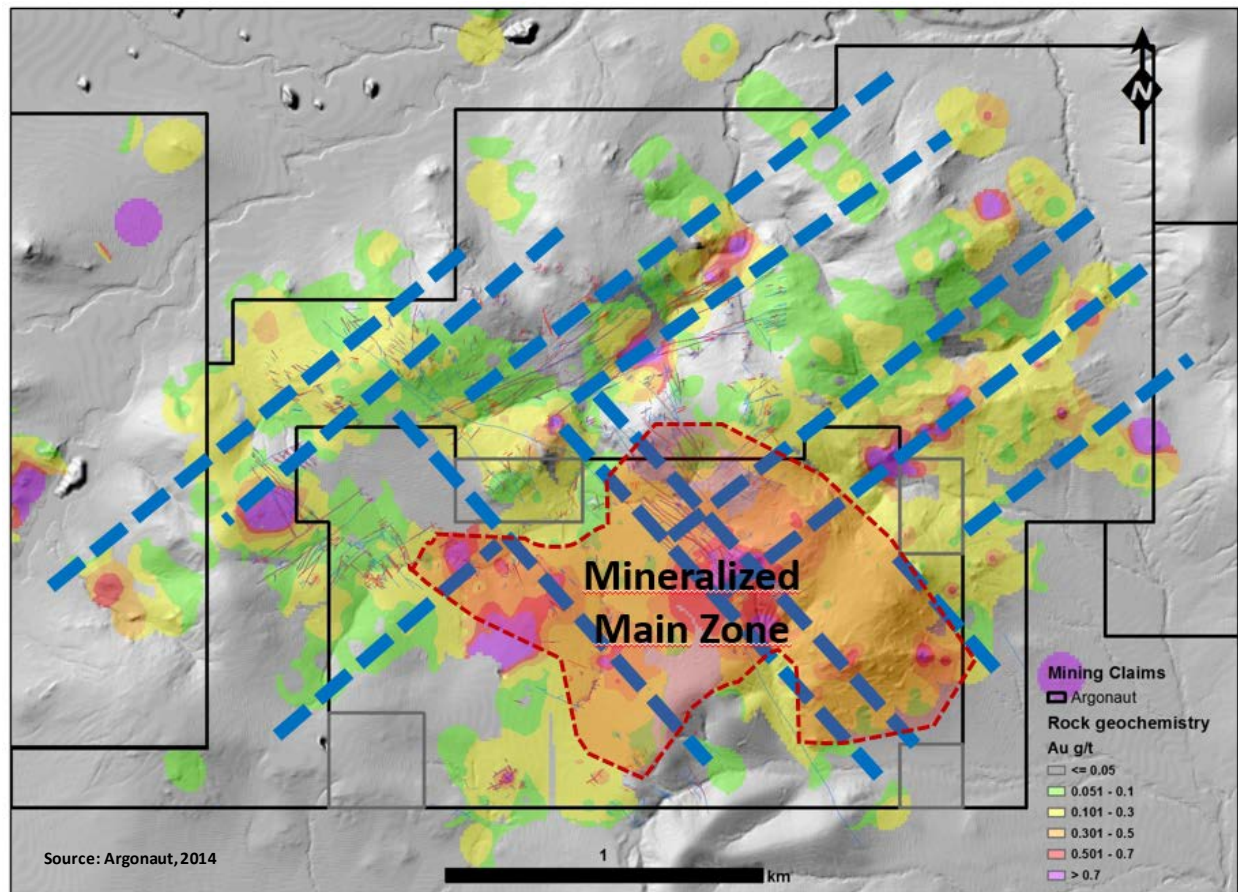
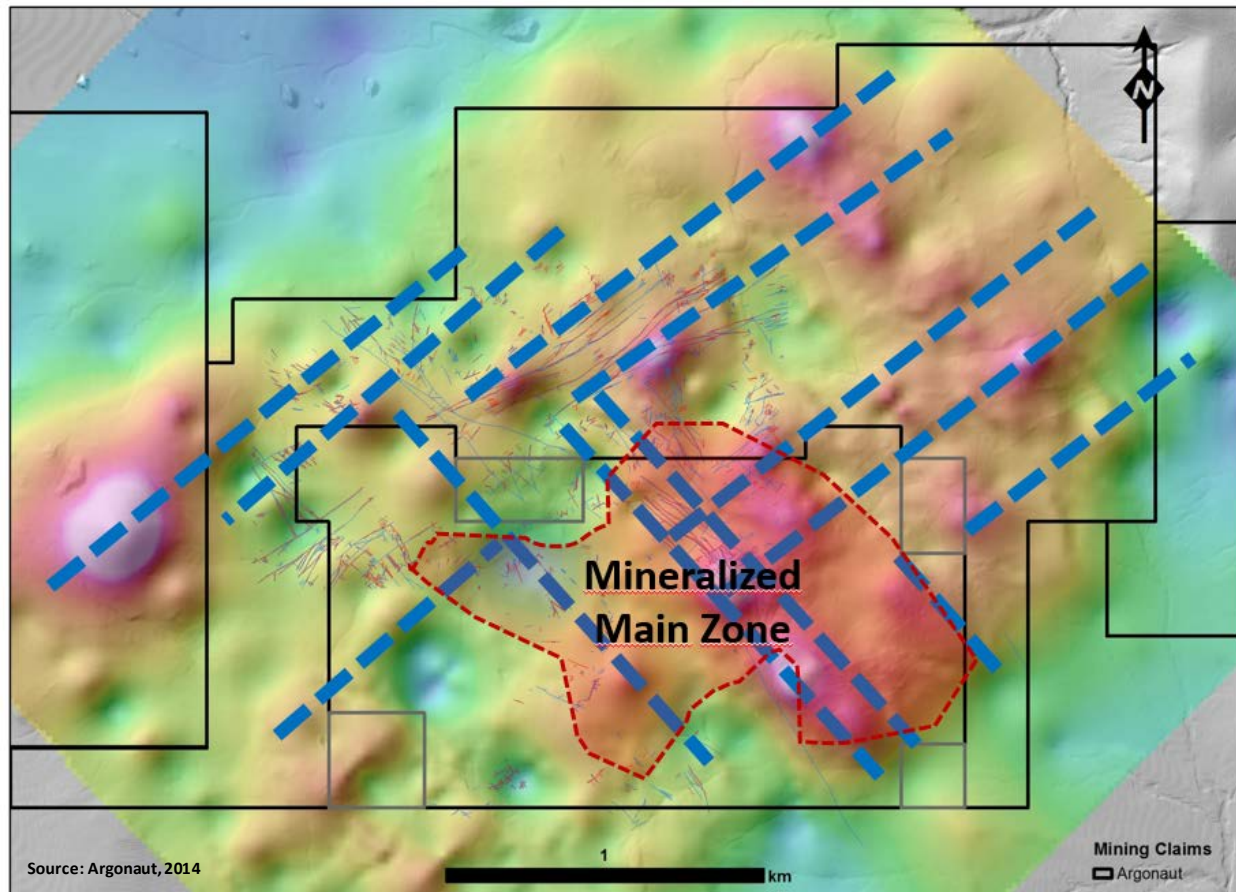


Figure 9.3.2: San Agustin IP Chargeability



10 Drilling

This chapter was taken directly from the October 2014 Resource Technical Report and shown here in its entirety for completeness.

10.1 Pre-2014 Drilling

The following information regarding pre-2014 drilling methods was excerpted from the Wardrop 2009 technical report:

"The initial RC drilling program in 1997 by Monarch utilized an Ingersol-Rand TH-100 drill with a 750 cfm and 350 psi compressor. For the 1998 program, the same drill with a 900 cfm compressor was used initially; however, as strong water flow was being encountered in many holes below a depth of 70 m, the drill rig was exchanged for an Ingersol-Rand TH-75 drill rig with a 1,200 cfm compressor."

"The 1997 diamond drilling was carried out with a skid mounted CS-1000 rig drilling HQ size core".

"The type of RC drill rig used for Silver Standard's drilling program in 2004 was not recorded."

"All the Geologix drilling is carried out by Intercore Limited using a skid mounted diamond drill producing HQ sized core. Where difficult drilling conditions have been encountered, core size is usually reduced to NQ diameter in order to advance the hole to its target depth and continue collecting core."

"There is no documentation for methods of drill site location and surveying for any of the Monarch or Silver Standard drill holes. For most holes, a cement plug or block was poured around the casing indicating hole position."

"Layout of drill hole locations by Geologix was by hand-held Global Positioning System (GPS) units with an accuracy of 2 to 4 m. The collar marked by plastic PVC piping that is left in the hole is picked up again by hand-held GPS after drilling is completed."

"Several control points surveyed around the area and most drill hole collars have now been located using a total station."

"No down hole surveys were collected during the Monarch and Silver Standard drilling programs. As a majority of these holes were drilled to depths of less than 200 m and all were at angles of greater than -50°, combined with the thicker RC drill string, down hole deviation was probably minimal."

"Geologix collected down hole survey information at approximately every 50 m using a digital Reflex down hole survey instrument."

10.2 2014 Argonaut Core Drilling

Argonaut completed a total of 999 meters of PQ sized core (3.35" or 8.5 cm diameter) in 13 holes with hole-depths ranging from 33 to 146 meters. The objective of the core program was to obtain samples for metallurgical testing. The entire volume of the drill core was consumed for metallurgical testwork so these holes were not used to estimate mineral resources. The core drilling program was carried out by Falcon Drilling Ltd. (Falcon) utilizing a model F3000 drill rig. Core hole numbering was systematic and included a prefix indicating year, project, and type of drilling (e.g. 14SAGDDH001).

10.3 2014 Argonaut RC Drilling

Argonaut completed a total of 240 RC drill holes at the San Agustin Project in 2014 as part of a Phase 1 program totaling 24,765 meters. The majority of that drilling was focused within the currently recognized resource area that is informally subdivided into the "north east" and "south west" areas. A Phase 2 drilling program totaling 24 holes was positioned in areas of potential located outside of the current resource area. The drilling diameter was 5 1/8 inches for all of the 2014 RC holes.

As with the core drilling, the year, project abbreviation and drill type were used as prefixes to number the RC holes (e.g. 14SAGRC001).

Table 10.3.1 tabulates the drill hole database that was used to estimate mineral resources that are the subject of this Technical Report.

Table 10.3.1: San Agustin Drill Hole Data Used to Estimate Resources

Date	Company	Type	Number of Holes	Number of Meters	Average Hole Length (m)	Drilling Contractor
1997	Monarch Phase I	RC	33	3,503	106.2	Boytec Sondajes
1997	Monarch Phase	Diamond	4	1,002	250.5	Boytec Sondajes
1998	Monarch Phase II	RC	29	5,651	194.9	Boytec Sondajes
2004	Silver Standard	RC	23	3,917	170.3	Layne Drilling
2007	Geologix Phase I	Diamond	8	2,700	337.5	Intercore Ltd.
2007	Geologix Phase II	Diamond	67	13,437	200.6	Intercore Ltd.
2008	Geologix Phase III	Diamond	83	20,686	249.2	Intercore Ltd.
2008	Geologix Phase III	RC	13	2,350	180.8	Layne de Mexico
2008	Geologix Phase III	RC+Core	4	1,346	336.4	Layne de Mexico
2014	Argonaut	RC	240	24,765	103.2	Layne de Mexico
Total	n/a	n/a	504	79,357	157.5	n/a

Figure 10.3.1 shows drill hole locations (collar and hole trace) by which company drilled the hole. Argonaut's 2014 metallurgical core holes are shown with larger red symbols.

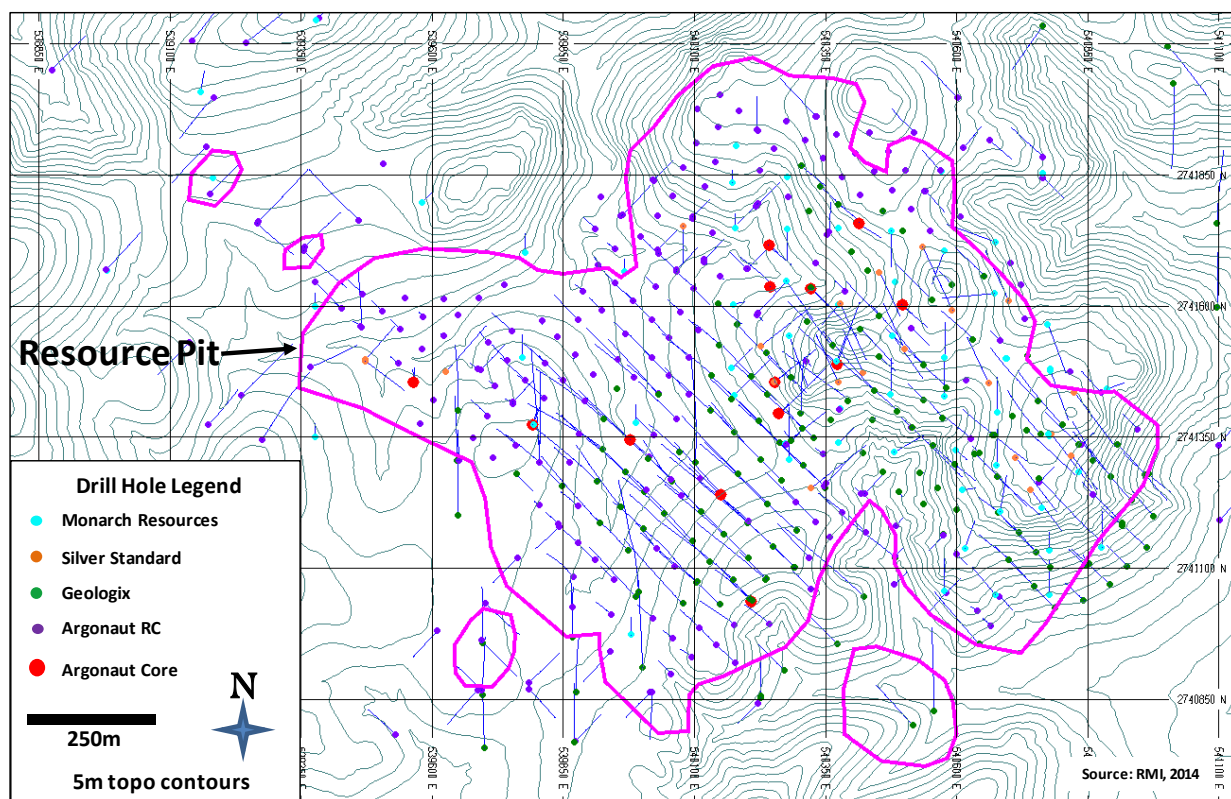
Figure 10.3.1: San Agustin Drill Hole Locations

Table 10.3.2 summarizes Argonaut's total 2014 drilling program by drilling type and localized area. The core holes were used for metallurgical testwork and were not used to estimate mineral resources.

Table 10.3.2: San Agustin 2014 Argonaut San Agustin Drilling Program Summary

Drilling Method	Area	Number of Holes	Number of Meters
RC	North East	103	8,307.32
	South West	113	12,780.26
	Phase 2	24	3,677.41
Core	North East	8	432.5
	South West	5	566.3
	Phase 2	0	0

10.4 2014 Drill Hole Collar Surveys

The initial position of drill pads for the RC holes (and the metallurgical core holes) was set up by Argonaut geologists using a handheld GPS device. After the drill holes were completed the sites were marked with a section of polyvinyl chloride (PVC) pipe, which was encased in a cement monument that was labeled with the corresponding drill-hole number.

After the drill hole monuments were in place all of the holes were surveyed by Argonaut personnel using a High-Precision Trimble GPS (model R8-M3GNSS). The definitive location of the drill holes was sent to Argonaut's database personnel and then updated in the master Microsoft Access database.

10.5 2014 Down-hole Surveys

Eight of the metallurgical core holes were oriented with azimuths bearing either 135° or 315° with inclinations (dip) ranging between -55° and -60°. Five of the metallurgical core holes were oriented at different azimuths. The orientation of the drill holes was marked on the drill pads using a Brunton compass and rope so the rig could be aligned parallel to the oriented rope.

Approximately 40% of all RC holes were oriented with azimuth bearings of 315°; 25% were drilled vertical and 27% were oriented with azimuths of 45°, 135°, or 225°. More than half of the RC holes were inclined at either -50° or -90°, while the remaining holes varied between -55° and -85°.

Down-hole surveys were provided by qualified drilling personnel using a Reflex camera. Survey operations were directed and supervised by Argonaut geologists. Readings were transferred to Argonaut geologists on prepared forms and signed by the drilling contractors.

On the longer holes, down-hole readings were made every 50 meters. Down-hole surveys were recorded at the middle and bottom of shallower holes.

If the drill hole appeared to deviate more than 10° to 12° from a previous survey point the process was repeated. Suspect survey readings were discarded by the field geologists or database personnel.

10.6 2014 Core Logging Procedures

Core material was collected by Falcon's personnel in plastic core boxes that were previously marked with the hole and box numbers. The core boxes were then transported by Argonaut's personnel by field vehicle to a core shed/warehouse located in the town of San Lucas de Ocampo, where the core was logged in detail by Argonaut geologists.

Logging of core was accomplished on a series of paper formats customized by Argonaut, which included descriptions of lithology, structures, redox boundaries, alteration, mineralization, as well as geotechnical data.

Data from the paper drill logs were entered into an Argonaut customized Microsoft Excel data form which was then imported into the master Microsoft Access database.

10.7 2014 RC Logging Procedures

All of the RC samples were logged by Argonaut's geologists in the field using a hand lens and sometimes a binocular microscope. A small amount of RC cuttings was stored in plastic chip trays previously marked with the number of hole, the interval depth and sample number; chip trays were later transported to Argonaut's field office in San Juan del Rio.

Paper log forms were used to record lithology, structure, alteration, mineralization and redox boundaries (The contact between oxide and sulfide material). The information was later entered into a Microsoft Excel data form and then imported into the master Microsoft Access database.

10.8 Significant Drill Hole Intersections

Table 10.8.1 contains a list of significant drill hole gold intersections from the drill hole data that were used to estimate mineral resources. The list consists of 70 continuous oxide and/or transition intersections in excess of 0.5 g/t gold that are greater than six meters in length. The 0.5 g/t cutoff is approximately three times the resource cutoff grade. The drill hole intersections in Table 10.8.1 are sorted by decreasing gold grade.

Table 10.8.1: San Agustin Significant Oxide Intersections

Drill Hole	From (m)	To (m)	Length (m)	Au g/t	Ag (g/t)	Lithology	Company	Type
14SAGRC196	32.00	41.15	9.15	6.127	23.8	Dacite	Argonaut	RC
SA-034	14.00	48.00	34.00	5.757	63.7	Dacite	Monarch	RC
SA-038	6.85	15.65	8.80	5.386	0.5	Dacite	Monarch	Core
14SAGRC229	36.58	47.24	10.66	3.265	1.0	Dacite	Argonaut	RC
SA-036	21.72	48.19	26.47	3.209	45.0	Dacite	Monarch	Core
SA-095	55.00	67.00	12.00	2.938	25.5	Dacite	Geologix	Core
SA-230	25.80	35.00	9.20	2.449	5.9	Breccia	Geologix	Core
14SAGRC082	50.29	62.48	12.19	2.067	34.3	Breccia	Argonaut	RC
SA-074	28.00	35.00	7.00	1.776	73.0	Breccia	SSRI	RC
14SAGRC198	79.25	86.87	7.62	1.691	23.4	Breccia	Argonaut	RC
14SAGRC005	48.77	56.39	7.62	1.687	100.9	Dacite	Argonaut	RC
14SAGRC146	13.72	19.81	6.09	1.628	6.0	Breccia	Argonaut	RC
SA-095	33.00	43.00	10.00	1.518	12.1	Sediment	Geologix	Core
14SAGRC002	9.14	18.29	9.15	1.400	9.8	Dacite	Argonaut	RC
SA-013	74.00	84.00	10.00	1.335	48.0	Breccia	Monarch	RC
SA-107	29.30	38.50	9.20	1.286	18.8	Dacite	Geologix	Core
SA-071	9.00	44.00	35.00	1.280	12.7	Dacite	SSRI	RC
14SAGRC098	0.00	6.10	6.10	1.277	10.1	Breccia	Argonaut	RC
14SAGRC124	56.39	62.48	6.09	1.246	11.1	Dacite	Argonaut	RC
SA-191	35.60	52.00	16.40	1.241	163.7	Sediment	Geologix	Core
SA-196	44.00	53.80	9.80	1.224	16.1	Breccia	Geologix	Core
SA-115	28.15	35.50	7.35	1.154	12.0	Dacite	Geologix	Core
14SAGRC037	28.96	38.10	9.14	1.124	1.2	Dacite	Argonaut	RC
SA-130	65.20	74.65	9.45	1.122	58.3	Sediment	Geologix	Core
14SAGRC163	22.86	28.96	6.10	1.120	34.4	Breccia	Argonaut	RC
SA-221	34.00	42.00	8.00	1.109	266.0	Sediment	Geologix	Core
SA-221	21.95	32.00	10.05	1.097	113.3	Dacite	Geologix	Core
SA-191	54.00	62.00	8.00	1.096	103.8	Dacite	Geologix	Core
14SAGRC168	6.10	12.19	6.09	1.083	10.5	Breccia	Argonaut	RC
SA-074	19.00	26.00	7.00	1.073	12.7	Breccia	SSRI	RC
SA-126	90.50	98.00	7.50	1.072	171.5	Sediment	Geologix	Core
SA-194	26.00	36.00	10.00	1.056	10.2	Dacite	Geologix	Core

Drill Hole	From (m)	To (m)	Length (m)	Au g/t	Ag (g/t)	Lithology	Company	Type
14SAGRC034	45.72	51.82	6.10	0.990	24.2	Dacite	Argonaut	RC
14SAGRC098	27.43	35.05	7.62	0.980	23.3	Dacite	Argonaut	RC
14SAGRC078	96.01	108.20	12.19	0.953	7.5	Breccia	Argonaut	RC
SA-164	9.25	17.30	8.05	0.921	216.1	Dacite	Geologix	Core
SA-144	0.00	8.50	8.50	0.890	3.6	Breccia	Geologix	Core
SA-153	20.15	29.00	8.85	0.888	42.6	Dacite	Geologix	Core
SA-252	4.40	11.00	6.60	0.886	16.8	Breccia	Geologix	Core
SA-048	22.00	31.00	9.00	0.878	26.5	Dacite	Monarch	RC
SA-141	29.50	46.00	16.50	0.867	23.4	Dacite	Geologix	Core
14SAGRC129	50.29	60.96	10.67	0.866	63.3	Dacite	Argonaut	RC
14SAGRC201	0.00	12.19	12.19	0.863	1.0	Breccia	Argonaut	RC
SA-117	4.55	11.25	6.70	0.857	11.3	Breccia	Geologix	Core
14SAGRC003	12.19	30.48	18.29	0.855	35.8	Dacite	Argonaut	RC
SA-229	21.30	37.00	15.70	0.838	5.9	Dacite	Geologix	Core
14SAGRC049	0.00	9.14	9.14	0.831	1.0	Breccia	Argonaut	RC
SA-107	41.85	48.60	6.75	0.819	13.0	Dacite	Geologix	Core
14SAGRC022	0.00	6.10	6.10	0.816	4.9	Sediment	Argonaut	RC
14SAGRC212	15.24	24.38	9.14	0.809	3.1	Dacite	Argonaut	RC
SA-151	35.00	50.00	15.00	0.779	8.0	Breccia	Geologix	Core
14SAGRC098	7.62	18.29	10.67	0.776	6.9	Breccia	Argonaut	RC
SA-117	13.70	20.00	6.30	0.774	20.7	Breccia	Geologix	Core
14SAGRC012	65.53	74.68	9.15	0.768	10.6	Sediment	Argonaut	RC
14SAGRC201	21.34	30.48	9.14	0.765	1.4	Breccia	Argonaut	RC
14SAGRC012	41.15	47.24	6.09	0.762	34.8	Sediment	Argonaut	RC
SA-147	10.00	22.00	12.00	0.758	5.5	Dacite	Geologix	Core
SA-191	20.35	32.50	12.15	0.757	69.3	Sediment	Geologix	Core
SA-035	24.00	34.00	10.00	0.711	2.3	Dacite	Monarch	RC
SA-020	36.00	50.00	14.00	0.702	91.0	Dacite	Monarch	RC
SA-036	12.75	20.17	7.42	0.697	10.1	Dacite	Monarch	Core
SA-035	2.00	10.00	8.00	0.690	0.7	Dacite	Monarch	RC
14SAGRC073	7.62	13.72	6.10	0.672	48.9	Dacite	Argonaut	RC
14SAGRC202	7.62	13.72	6.10	0.670	1.1	Dacite	Argonaut	RC
SA-194	0.00	7.00	7.00	0.661	9.9	Dacite	Geologix	Core
SA-066	0.00	7.00	7.00	0.654	6.3	Dacite	Monarch	RC
SA-095	2.00	8.20	6.20	0.650	7.6	Sediment	Geologix	Core
14SAGRC020	6.10	12.19	6.09	0.647	16.6	Sediment	Argonaut	RC
14SAGRC039	33.53	39.62	6.09	0.617	2.9	Dacite	Argonaut	RC
SA-151	6.00	15.00	9.00	0.583	8.8	Breccia	Geologix	Core

10.9 Sample Length and True Thickness

Most of the original assay samples were in the range of 1.52 to 2.00 meters long. Many drill holes were oriented with azimuths and dips to best intersect the two currently recognized mineralized trends at San Agustin (northwesterly and northeasterly). In general, the drill hole intersections are somewhat representative of true mineralized thickness but not all intersections are believed to represent the true thickness of mineralization.

10.10 General Discussion

There do not appear to be any sampling or recovery factors associated with the upper oxidized portion of the San Agustin deposit which is the focus of this Technical Report. In general, core recovery was near 100% except in isolated cases where narrow structures were intersected. In those cases, only minor core loss was recorded. Some of the initial RC drilling below 70 meters encountered high flows of ground water which necessitated a larger compressor (Wardrop, 2009). Those intersections typically were located below the oxidized surface and are not subject to the resources discussed in this Technical Report.

11 Sample Preparation, Analyses and Security

This chapter was taken directly from the October 2014 Resource Technical Report and shown here in its entirety for completeness.

11.1 Pre-2014 Sample Preparation, Analyses and Security

The Qualified Person responsible for this section of the Technical Report has carefully reviewed the description of sample preparation, analyses, and security that were described in the Wardrop 2009 technical report that was prepared for Silver Standard.

Drill hole samples that were collected by Monarch, Silver Standard, and Geologix were assayed by large, well recognized commercial laboratories (Bondar-Clegg, BSI, and ALS Chemex). The samples were prepared and analyzed using industry standard practices.

QA/QC results from the initial Monarch and Silver Standard drilling programs were apparently somewhat limited (Wardrop, 2009). Geologix was able to locate coarse rejects from the Monarch and Silver Standard drilling programs and sent approximately 5% (182 samples) of those samples to ALS Chemex in Vancouver for gold assaying along with standard reference material (SRM) at a rate of one SRM for every 20 samples (Wardrop, 2009). The Wardrop report did not disclose the results from that check assaying program.

Geologix used commercially prepared SRM's (CDN Labs, Rocklabs and Ore Research & Exploration) for their drilling programs at San Agustin at a rate of one SRM for every 20 samples. They used pre-packaged pool filter sand as a blank. Duplicate samples were collected by Geologix for about 5% of the drilling data. They also sent 5% of their ALS Chemex pulps to Acme Analytical Laboratories (Acme) in Vancouver.

The Wardrop 2009 technical report provided graphs that showed the performance of standards, blanks, duplicates, and check assays for the Geologix drilling programs. Those graphs showed results for gold and lead. Based on the performance of those QA/QC samples Wardrop made the following statements:

- The SRM's rarely fell outside of three standard deviations of the expected value
- In some cases samples were re-assayed due to failures

- The pool filter sand used as blank was too fine grained
- A coarser blank material was recommended

Wardrop did not comment on the results from Geologix's duplicate sample and check assay results that were graphically presented in their 2009 technical report. The Qualified Person responsible for this section of this Technical Report believes that the gold and lead duplicate sample results appear reasonable with no pronounced biases. There does appear to be a slight high bias associated with the Chemex gold and silver assays relative to the Acme results from assaying the Chemex pulps.

The Qualified Person responsible for this section of this Technical Report did make gold grade comparisons between select Monarch, Silver Standard, and Geologix drill hole assays and 2014 Argonaut RC samples (see Section 12.5). Based on a review of the Wardrop 2009 report and comparisons with Argonaut's assay results, it is the opinion of the Qualified Person responsible for this section of this Technical Report that the pre-Argonaut assay samples are suitable to be used to estimate mineral resources.

11.2 2014 Argonaut RC Sample Program

Argonaut trained local technicians to collect samples at the drill rig from their 2014 RC drilling program. Those technicians were always under the supervision of a project geologist. RC cuttings were systematically collected every 1.52 meters (five feet), regardless of their geologic characteristics.

The RC drill-rig was equipped with a cyclone that had both vertical and lateral discharge ports. With the exception of the field duplicate samples, all material from the vertical discharge port was passed through a riffle splitter to obtain two samples of equal weight and volume. One sample (representing half of the total) was completely discarded and the other half was split again to obtain two sub-samples, each representing $\frac{1}{4}$ of the original sample. Those final two samples were bagged in 6-mil poly bags, sealed with plastic ties, and marked with the sample number. A $\frac{1}{4}$ split was sent for assay and the other $\frac{1}{4}$ split saved as a backup sample.

Field duplicate samples were collected at a rate of approximately one duplicate for every 30 samples. When preparing field duplicates, the sample splitting process at the drill rig was slightly different than for regular samples. As described above, the material from the vertical discharge was riffle split to generate two samples. Instead of discarding one of the half splits it was set aside to be used as a backup sample. Two sub-samples were then split from one of the initial half splits so that two $\frac{1}{4}$ split samples

were created. One of the $\frac{1}{4}$ splits was assayed as an "original" and the other $\frac{1}{4}$ split assayed as a "duplicate" sample.

All of the sample bags were transported to the San Lucas de Ocampo warehouse by Argonaut personnel where they were inventoried, checked for tears or rips, weighed and loaded into rice bags for transportation to the ALS Chemex preparation laboratory located in Zacatecas, Mexico. Sample dispatch forms covering 40 to 60 samples were prepared for each shipment. Samples from different drill holes were not mixed in the sample batches. The samples were picked up about every three days by a Chemex employee who drove them to Zacatecas.

Technicians under the supervision of an Argonaut geologist inserted one of three QA/QC samples (standard, blank, or duplicate) into the sample stream. Argonaut's sampling protocol resulted in the submission of one control sample for every nine drill hole samples which meant that every batch of samples contained at least three QA/QC samples.

Based on chain of custody protocols established by Argonaut, their RC samples were always under the control of Argonaut's personnel, locked in a secure warehouse facility, and picked up by laboratory personnel.

11.3 2014 Argonaut RC Assaying Protocols

When the samples arrived at the Chemex lab in Zacatecas they were logged into a tracking system that assigned a unique lab number to each sample with an associated bar code label that was attached to the sample bag. Excessively wet samples were dried in ovens at a maximum 120°C. The sample was then crushed to better than 70% of the sample passing two mm (Tyler 9 mesh, US Std. No.10). The crushed samples were then split using a riffle splitter until around 250 grams were obtained. The sample split was pulverized to better than 85% of the sample passing 75 microns (Tyler 200 mesh, US Std. No. 200). The resulting pulp was then shipped to be assayed at the Chemex lab located in Vancouver, Canada. Chemex employs a global quality management system that meets all requirements of International Standards (ISO/IEC 17025:2005 and ISO 9001:2008).

The samples were assayed for gold using Chemex protocol Au-AA23, which is a 30 gram fire assay with atomic absorption finish. That assay protocol consists of fusing a 30 gram charge of pulverized sample with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents where required, inquarted with a six mg of gold-free silver and then cupelled to yield a precious metal bead. The precious metal bead is

initially digested in 0.5 mL of dilute nitric acid in a microwave oven and then 0.5 mL of concentrated hydrochloric acid is added to the solution so that the bead is further digested in the microwave oven at a lower power setting. The digested solution is cooled, diluted to a total volume of four mL with de-mineralized water and analyzed by atomic absorption spectroscopy and validated with matrix-matched standards. The detection limit for the Au-AA23 protocol is 0.005 ppm with an upper detection limit of 10 ppm. Over limit assays are automatically re-analyzed using fire-assay/gravimetric methods (Chemex protocol Au-GRA21).

Trace element geochemistry was run on the 2014 RC samples using Chemex protocol ME ICP41 which uses conventional induced coupled plasma methods to generate values for 35 elements. This protocol consists of digesting a pulverized sample in aqua regia in a graphite block. After cooling, the resulting solution is diluted to 12.5 mL with deionized water, mixed, and analyzed by inductively coupled plasma-atomic emission spectrometry. The analytical results are corrected for inter-element spectral interferences. In the majority of geological matrices, data reported from an aqua regia leach should be considered as representing only the leachable portion of the particular analyte.

After the gold and geochemical results are certified by Chemex, Argonaut personnel thoroughly review the results from their QA/QC samples that were submitted. Drill hole samples associated with QA/QC failures are re-analyzed by Chemex.

11.4 2014 Argonaut Assay Blanks

Argonaut obtained barren or "blank" samples from Rocklabs through a Mexican distributor. 570 commercial blanks were inserted into the sample stream at a frequency of approximately one blank for every 28 regular samples. Argonaut's QA/QC procedures established that blank material yielding gold grades in excess of 0.015 ppm gold were considered to be failures. No blank samples approached that failure limit for the 2014 Argonaut drilling program. Figure 11.8.1 shows the performance of blank material assayed by Chemex for the 2014 drilling program.

11.5 2014 Argonaut Assay Standards

Argonaut used two standards for their 2014 RC drilling campaign, one for oxide and another for sulfide material. The standards were purchased from Rocklabs via a Mexican vendor. The oxide standard (OXD108) has an expected gold value of 0.414 g/t with a standard deviation of 0.012. The sulfide standard (SG66) has an expected gold value of 1.086 g/t with a standard deviation of 0.032. The two Rocklabs standards

were inserted into the RC sample stream based on the type of material type that was intersected in the drill hole. A total of 650 standards were inserted into the sample stream at a frequency of about one standard for every 25 regular samples.

The Chemex assay results for the oxide standard were consistently within the allowed limits for the 2014 RC drilling campaign, so none of the oxide samples required re-assaying due to SRM failure. Figure 11.8.2 shows the performance of 450 OXD108 standards.

The sulfide standard showed more variation than the oxide standard and five samples were requested to be re-assayed after Chemex returned values below three standard deviations. Figure 11.8.3 shows the performance of 200 SG66 standards that were assayed by Chemex.

11.6 2014 Argonaut Duplicate Assay Samples

During the course of the 2014 RC drilling campaign, a total of 462 duplicate samples were submitted to Chemex representing a submission rate of approximately one duplicate for every 35 regular samples. The field duplicate results were evaluated statistically and graphically by using the Spearman Rank's correlation coefficient, the Pearson coefficient, the determination coefficient (R^2), scatter plots and quantile-quantile (QQ) plots.

The three evaluated coefficients can reflect good positive correlations as their values get closer to one; however, the Spearman coefficient considers differences in gold value sorting ranks while Pearson's determination coefficients verify the direct correlation level. Figure 11.8.4 is a scatter graph that compares the duplicate sample (Y-axis) with the original sample (X-axis). While Argonaut's evaluation relies heavily on strength of the positive correlation coefficients, re-assays are requested when a duplicate sample assay result is $\pm 50\%$ different than the original sample provided the samples are above a 0.1 g/t threshold.

A QQ plot was generated to check for possible biases throughout a wide grade range of gold grades for the two sample populations. There does not appear to be any systemic bias as illustrated by Figure 11.8.5, which is a QQ plot that compares the original sample with the duplicate sample.

11.7 2014 Argonaut Check Assaying Program

Argonaut's standard QA/QC procedures include sending coarse reject samples to a second lab for check assaying purposes. The criteria for sample selection was to send assays for entire drill holes that represent at least 10% of the total number of drilled holes. The selection of holes to send for check assay was based on the geographical distribution of the drilling data along with gold grade variability. The rationale behind this sample selection process is that representative samples, both from an areal distribution and differing grade ranges are cross checked by an accredited secondary lab.

For the 2014 RC drilling program 83% of the check assays were performed by IPL Inspectorate (Inspectorate) and the remaining 17% by SGS. The majority of the coarse reject samples represented "original" RC samples but 56 field duplicate samples were also included in the sample population.

A total of 27 holes were sent to Inspectorate (1,615 samples from 24 holes) and SGS (324 samples from three holes) for check assaying. The data pairs were compared by generating relative percent difference and QQ plots. Typically, 90% of coarse reject gold samples should be within $\pm 30\%$ of one another. The tolerance is narrower for same pulp assays where 90% of the samples should be within $\pm 10\%$ of one another. Ninety percent of the 1,615 samples that Inspectorate crushed, pulverized, and assayed were within $\pm 37\%$ of the ALS Chemex results. While this is slightly higher than the target of $\pm 30\%$ it is still respectable given that there is not a pronounced bias when the entire population of the values is compared. Figure 11.8.6 is a relative percent difference graph that compares the ALS Chemex assays against the coarse reject samples analyzed by Inspectorate. The two red lines show $\pm 30\%$ difference thresholds. Figure 11.8.7 is a QQ plot that compares gold results from the same data as shown in Figure 11.8.6.

11.8 Qualified Person's Comments

Based on a review of all available QA/QC data for the San Agustin Project the Qualified Person believes that the sample preparation, security, and analytical procedures were adequate and that the samples are suitable to be used to estimate mineral resources.

Figure 11.8.1: San Agustin 2014 Gold Blank Performance

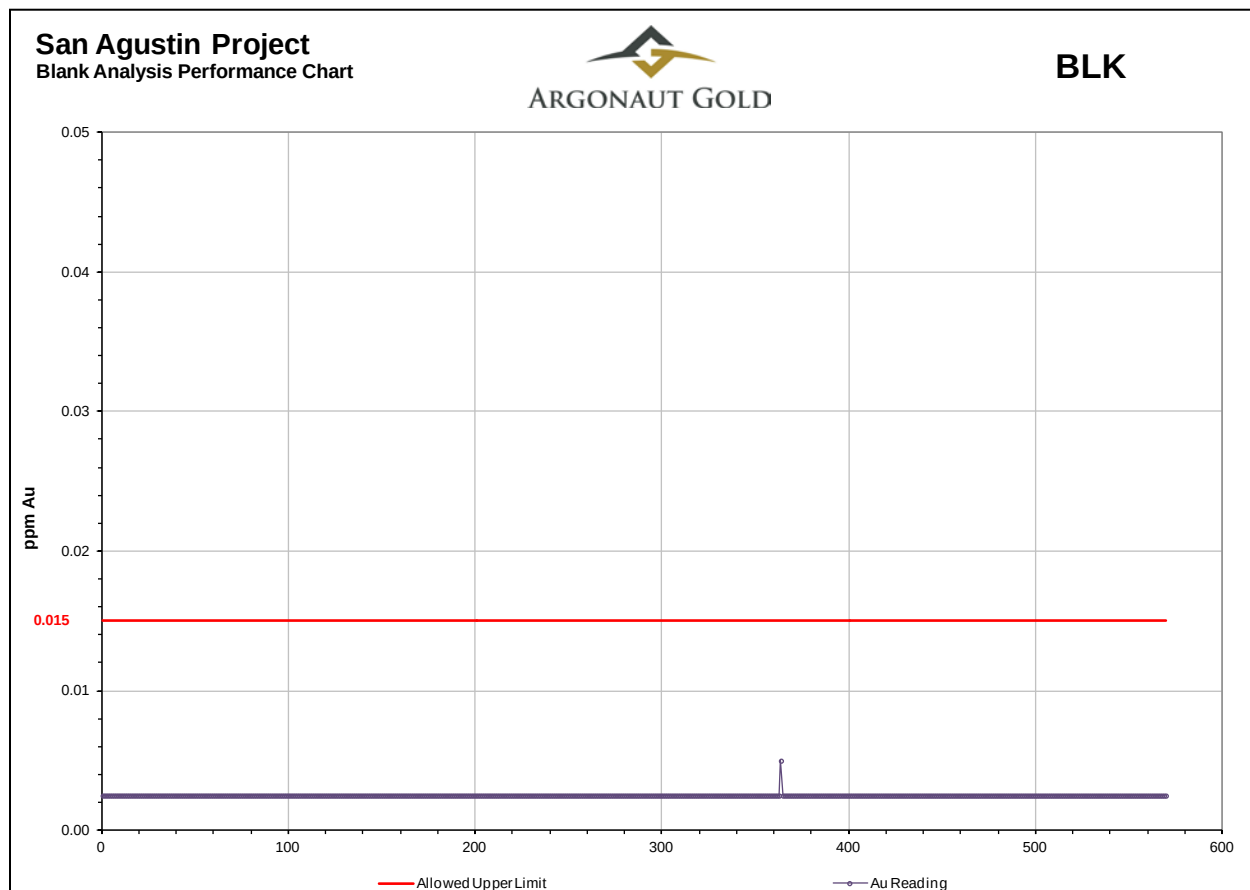


Figure 11.8.2: San Agustin 2014 Oxide Gold Standard Performance

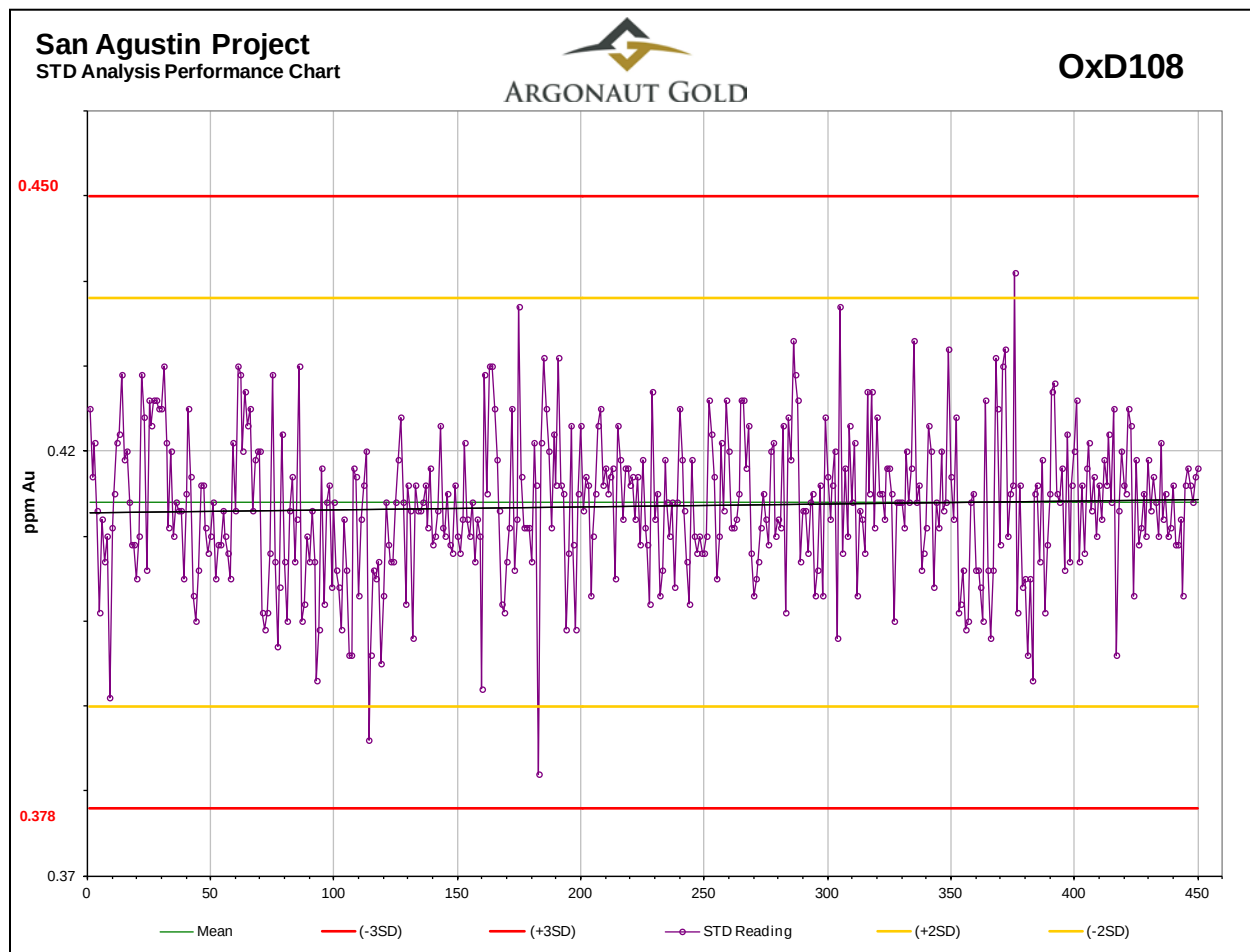


Figure 11.8.3: San Agustin 2014 Sulfide Gold Standard Performance

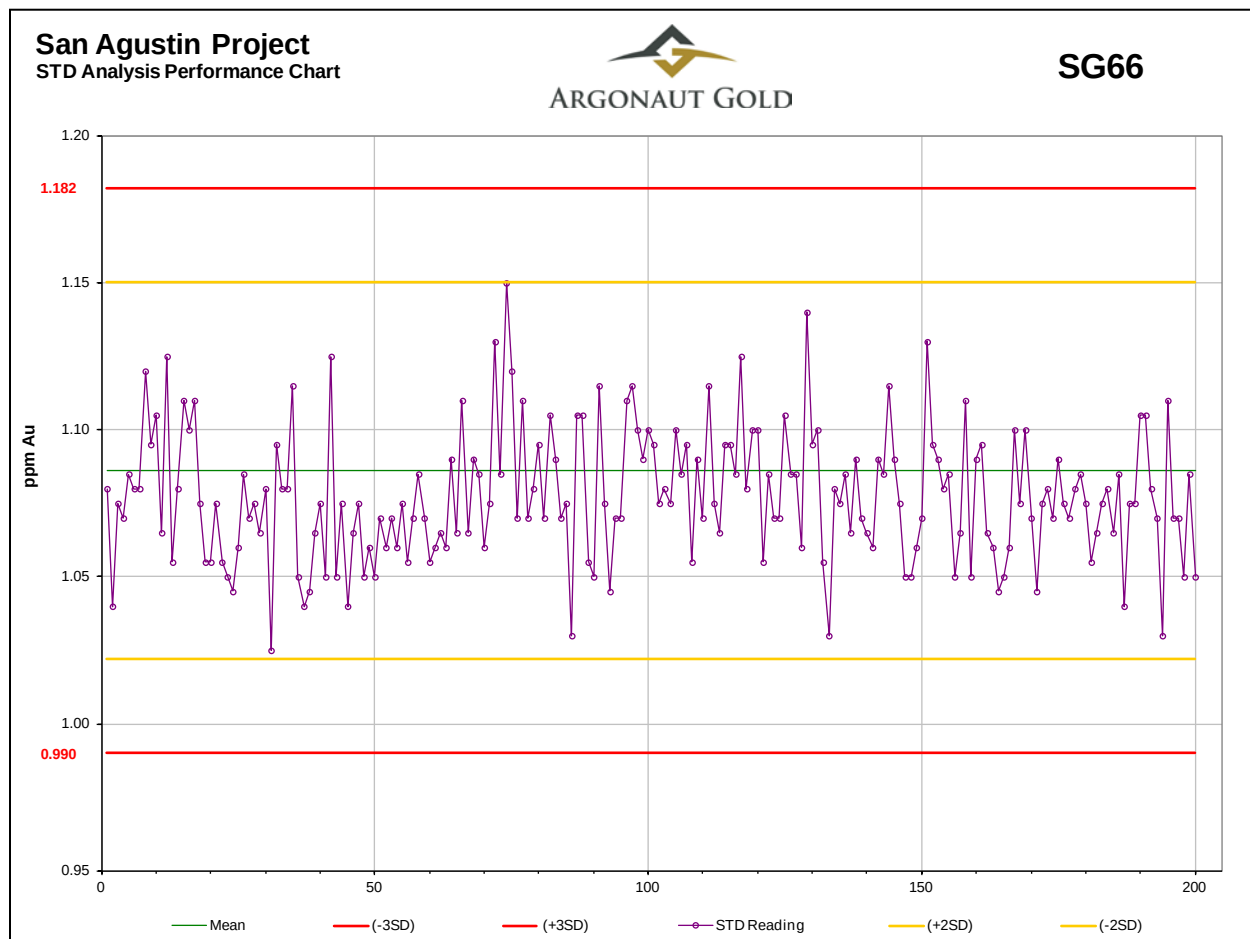


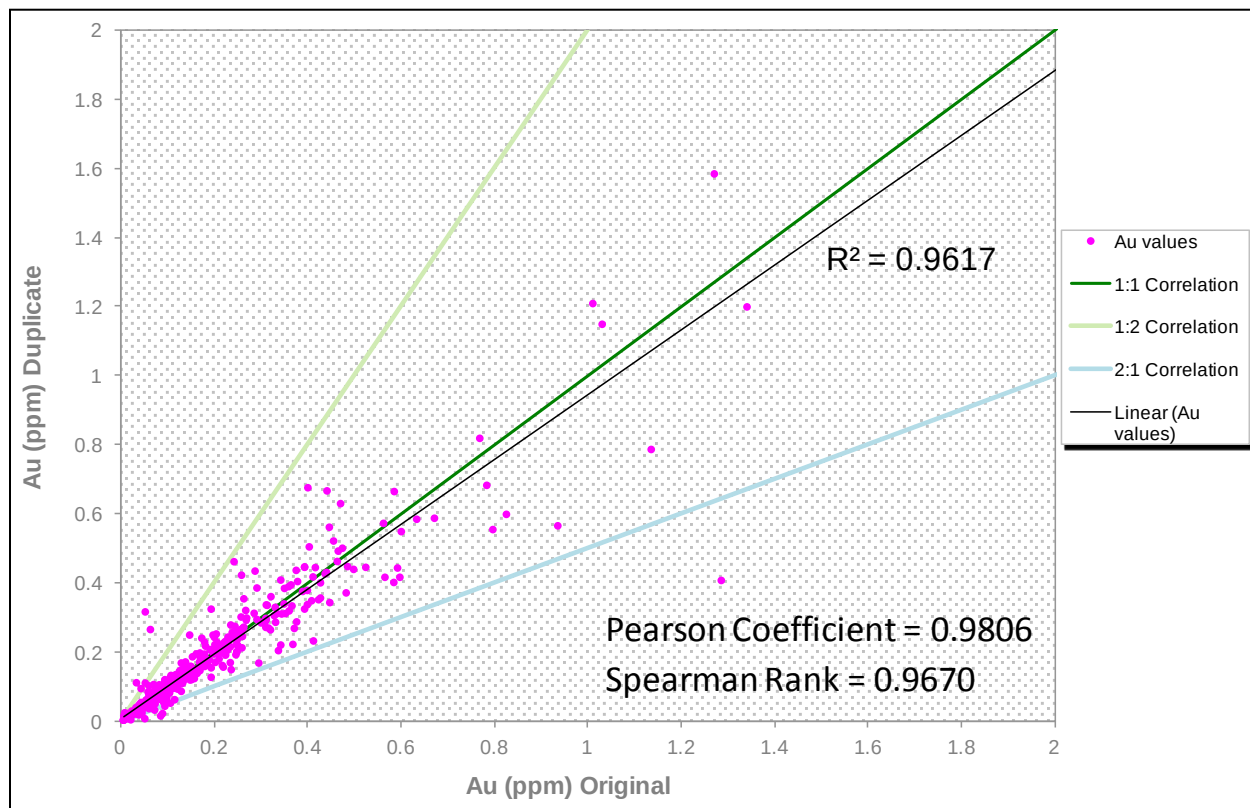
Figure 11.8.4: San Agustin Duplicate vs. Original Gold Assays - Scatter Graph

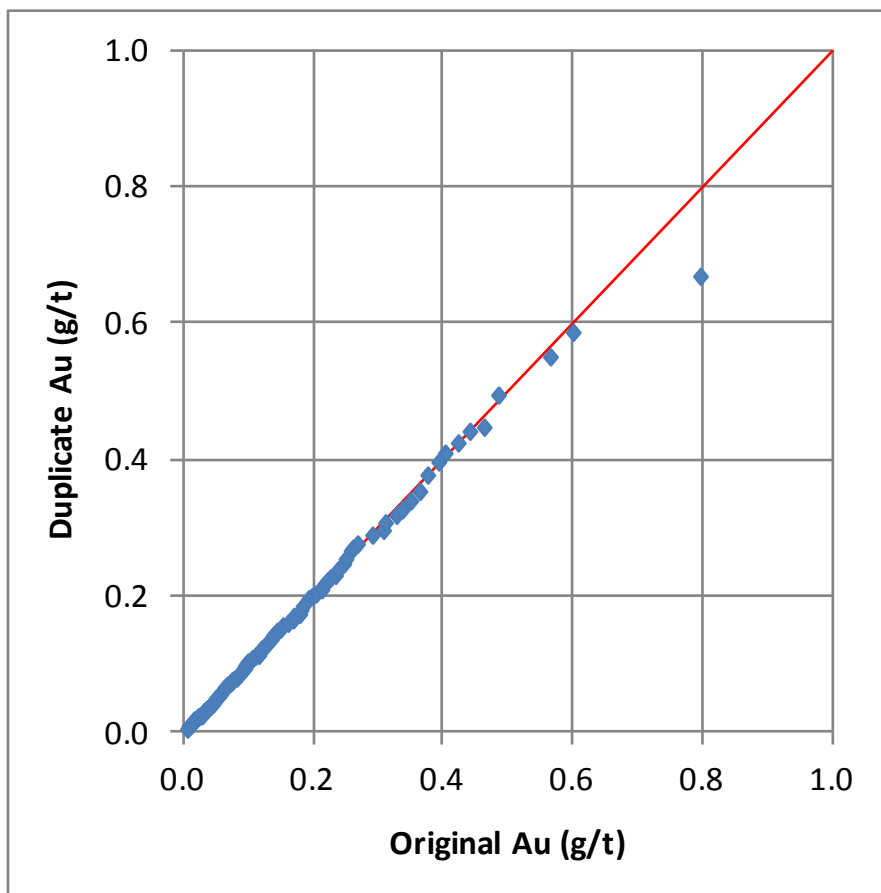
Figure 11.8.5: San Agustin Duplicate vs. Original Gold Assays - QQ Plot

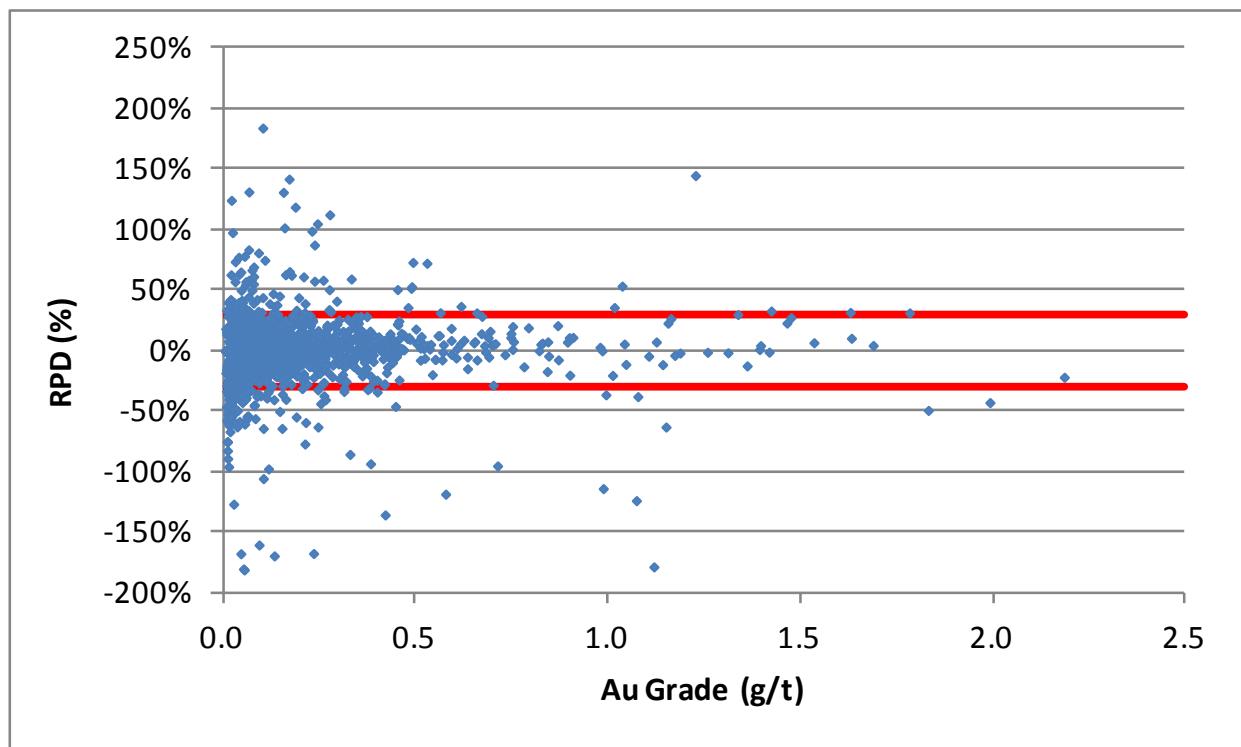
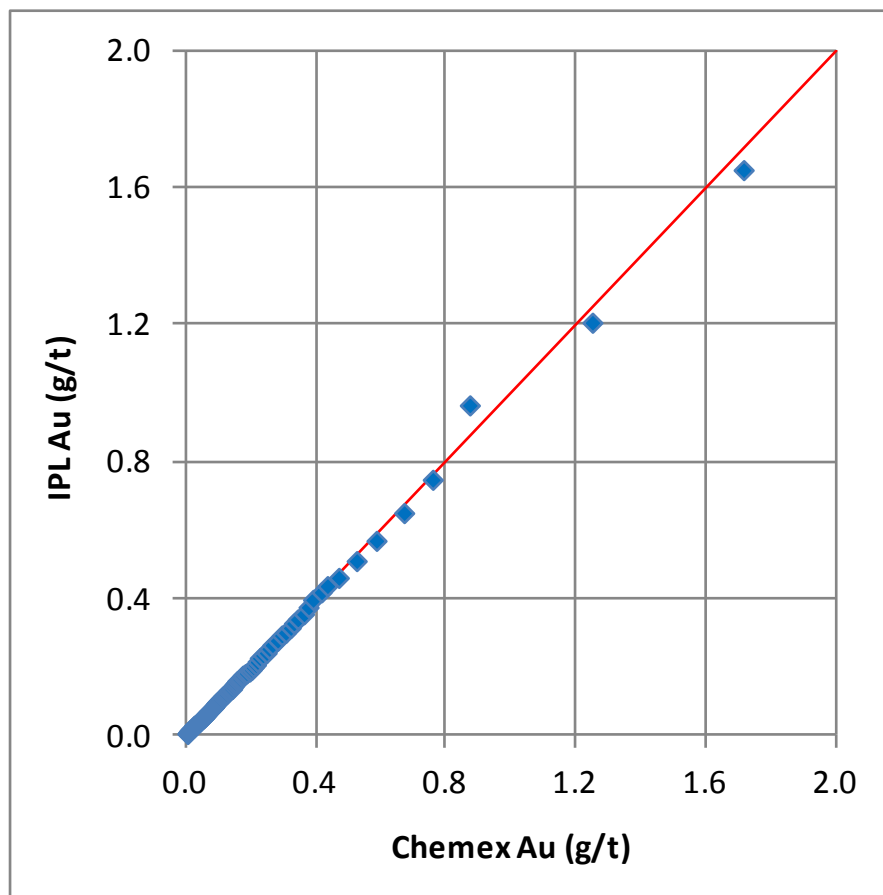
Figure 11.8.6: San Agustin Relative Percent Difference - Chemex vs. Inspectorate

Figure 11.8.7: San Agustin Check Assay QQ Plot - Chemex vs. Inspectorate

12 Data Verification

This chapter was taken directly from the October 2014 Resource Technical Report and shown here in its entirety for completeness.

12.1 Electronic Database Verification

The Qualified Person responsible for the Mineral Resource that is the subject of this Technical Report personally verified assay records for a significant portion of the San Agustin drill hole database that was provided by Argonaut. The Qualified Person was able to review and examine Argonaut's drill hole database that contains assay, survey, and various geologic information for data collected from Argonaut's own drilling program and historical drill hole data that were inherited from prior companies and imported into their database. Because the Qualified Person was able to see how Argonaut's own data were acquired and imported into their Microsoft Access database, more effort was undertaken to check a larger percentage of the pre-Argonaut data.

Table 12.1.1 summarizes records stored in Argonaut's Microsoft Access database that were compared against Microsoft Excel spreadsheet and common separated value (CSV) files that were obtained from Bondar-Clegg and ALS Chemex. Approximately 28,000 gold and silver records were compared for seven drill campaigns representing about 62% of the entire San Agustin Project drill hole assay database. Using sample numbers as a unique relational lookup value, records from the raw lab furnished files were extracted and compared against Argonaut's Access database.

Table 12.1.1: San Agustin Summary of Assays Verified By Qualified Person

Program	No. Holes	No. Intervals	No. Meters	% of Program
1997 Monarch	21	1,175	2,859	61%
1998 Monarch	9	681	1,645	29%
2004 Silver Standard	19	3,160	3,160	81%
2007 Geologix Phase 1	8	1,380	2,622	97%
2007 Geologix Phase 2	65	7,514	12,797	95%
2008 Geologix Phase 3	100	11,716	23,456	95%
2014 Argonaut RC	47	2,293	3,495	14%
Total	269	27,919	50,034	62%

No errors were discovered in this review by the Qualified Person for nearly 28,000 records. Assay records from the laboratories with values less than their detection limit

contained non-numeric characters (e.g. <0.005) which generated false errors because those records were entered into Argonaut's database at one half of the lab's detection limit. In the Qualified Person's opinion, this is the correct way to treat those values and is essentially an industry best practice standard operating policy. All of the over limit assay records were correctly entered into the Microsoft Access database.

A 100% check of the database was undertaken to check for overlapping assay intervals and abnormally high or unexplained negative values. No errors were found.

12.2 Drill Hole Collar Locations

The Qualified Person checked for potentially mis-located drill holes by comparing collar locations against the provided topographic surface. Approximately 15 holes were found with collar elevations more than three meters above surface topography. Nearly all of those locations were beyond the resource area and represent older drill holes. Some of the errors were known about but the correct elevations had not yet been entered into the database. The remaining apparent high drill hole collars were re-surveyed by Argonaut and the correct elevations entered into the database.

12.3 Drill Hole Logs

During the Qualified Person's site visit, a small population of drill hole logs for metallurgical core holes and resource definition RC holes were compared to drill core and RC cuttings. In the opinion of the Qualified Person, the Argonaut drill hole logs were constructed in a professional manner and are consistent with standard industry practice.

12.4 Quality Assurance - Quality Control

The Qualified Person reviewed Argonaut's QA/QC protocols and subsequent results. Based on that review, the Qualified Person believes that Argonaut's QA/QC program was designed within acceptable industry practices and the results demonstrate that the Argonaut assays are reproducible and are suitable for estimating resources.

For pre-Argonaut San Agustin drilling data, the Qualified Person thoroughly read the Wardrop 2009 report regarding QA/QC protocols and results. According to that technical report, limited QA/QC data were generated for the Monarch and Silver Standard programs (Wardrop, 2009). However, Geologix was able to collect 182 coarse rejects from the Monarch and Silver Standard programs and these samples

were submitted to ALS Chemex in Vancouver along with standard reference materials. No mention was made of the results from those rejects (Wardrop, 2009).

12.5 Twin Hole Comparisons

The Qualified Person compared ten 2014 Argonaut RC holes that twinned older RC and diamond core holes to check for any potential biases in the drill hole assay data of the older drilling data. The gold grades from the oxide portions of each hole were plotted against one another along with down-hole cumulative grade-thickness products. Six of these graphically comparisons are shown as Figure 12.5.1 through Figure 12.5.6.

Figure 12.5.1: San Agustin Monarch RC (SA-070) vs. Argonaut RC (14SAGRC082)

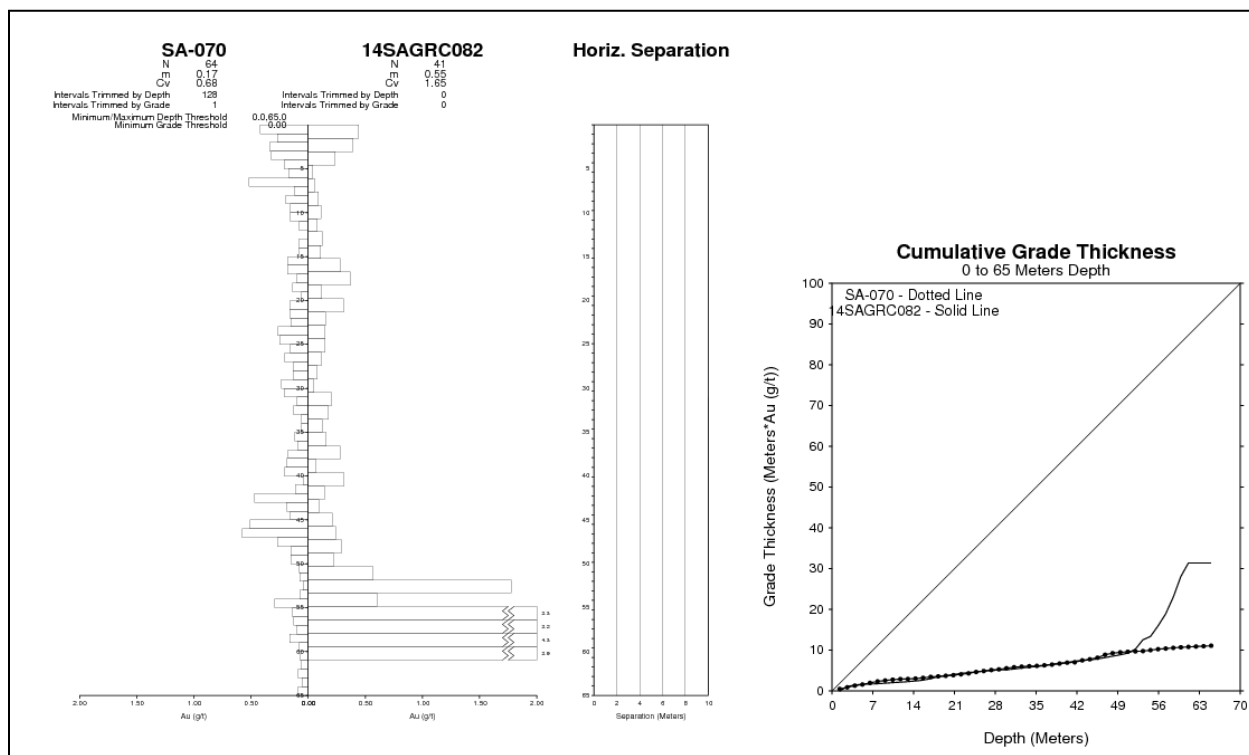


Figure 12.5.2: San Agustin Monarch RC (SA-061) vs. Argonaut RC (14SAGRC083)

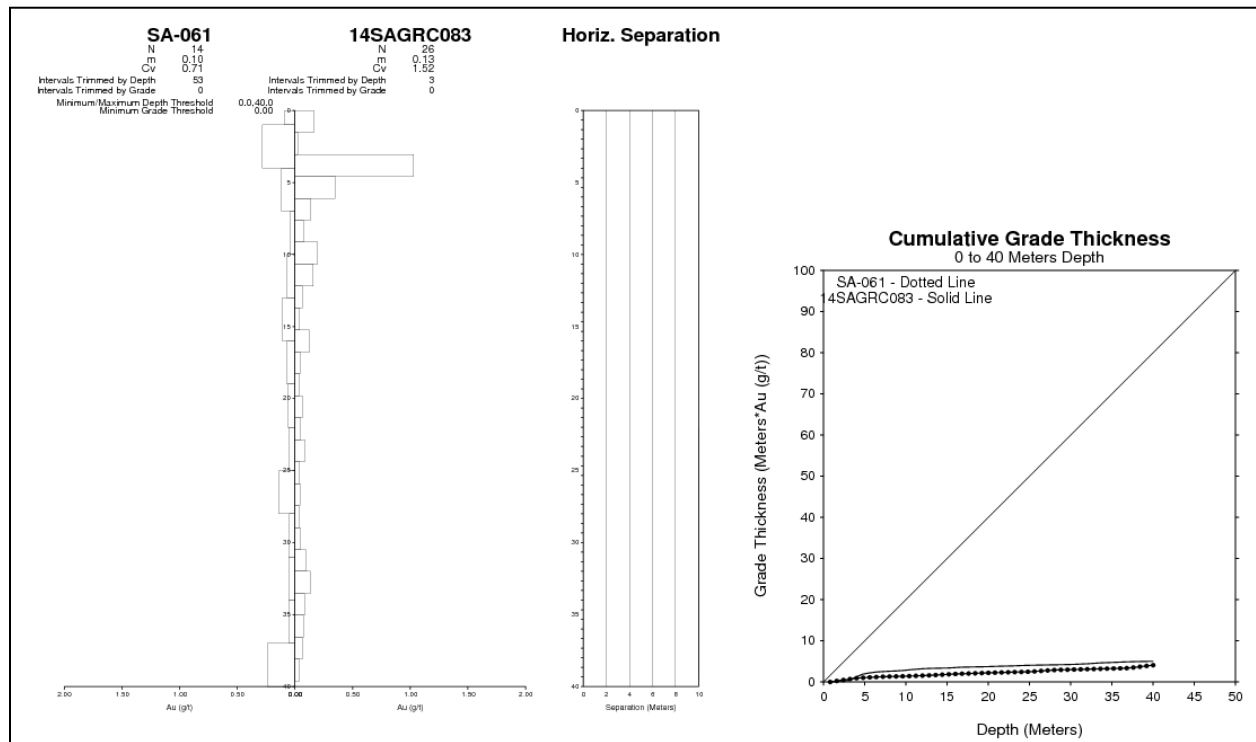


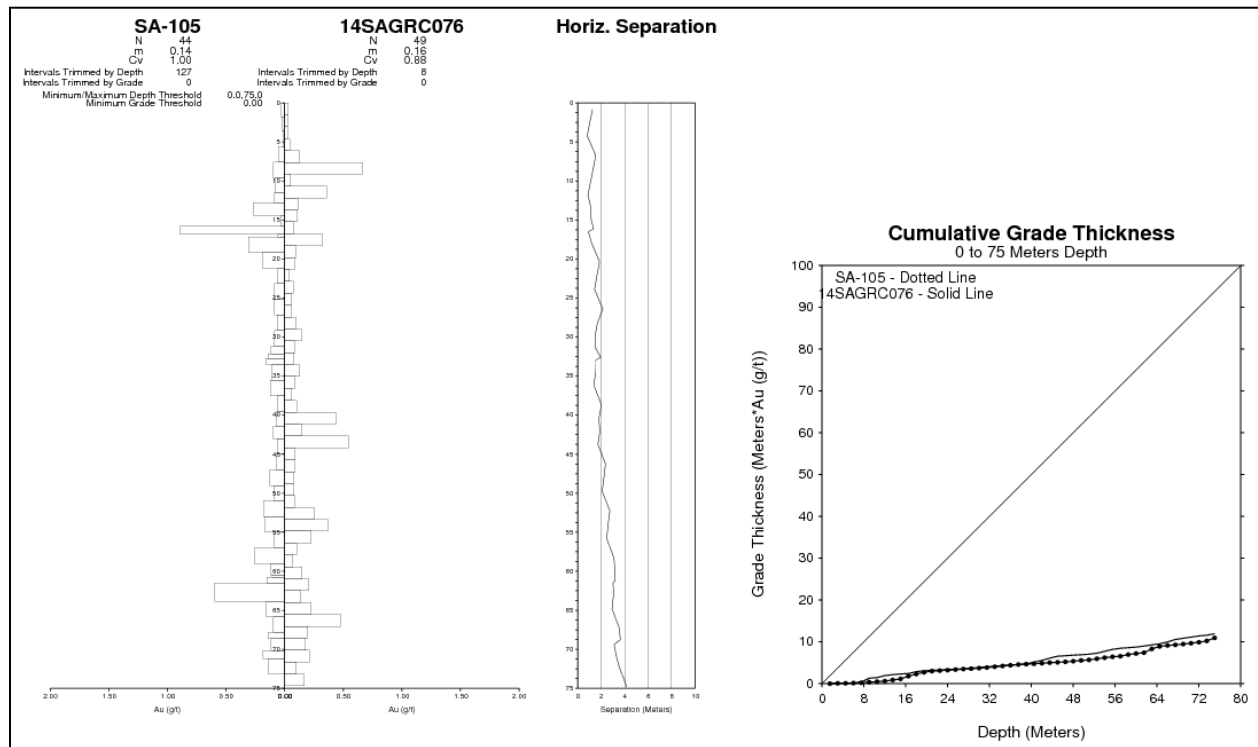
Figure 12.5.3: San Agustin Geologix Core (SA-105) vs. Argonaut RC (14SAGRC076)

Figure 12.5.4: San Agustin Geologix RC (SA-167) vs. Argonaut RC (14SAGRC084)

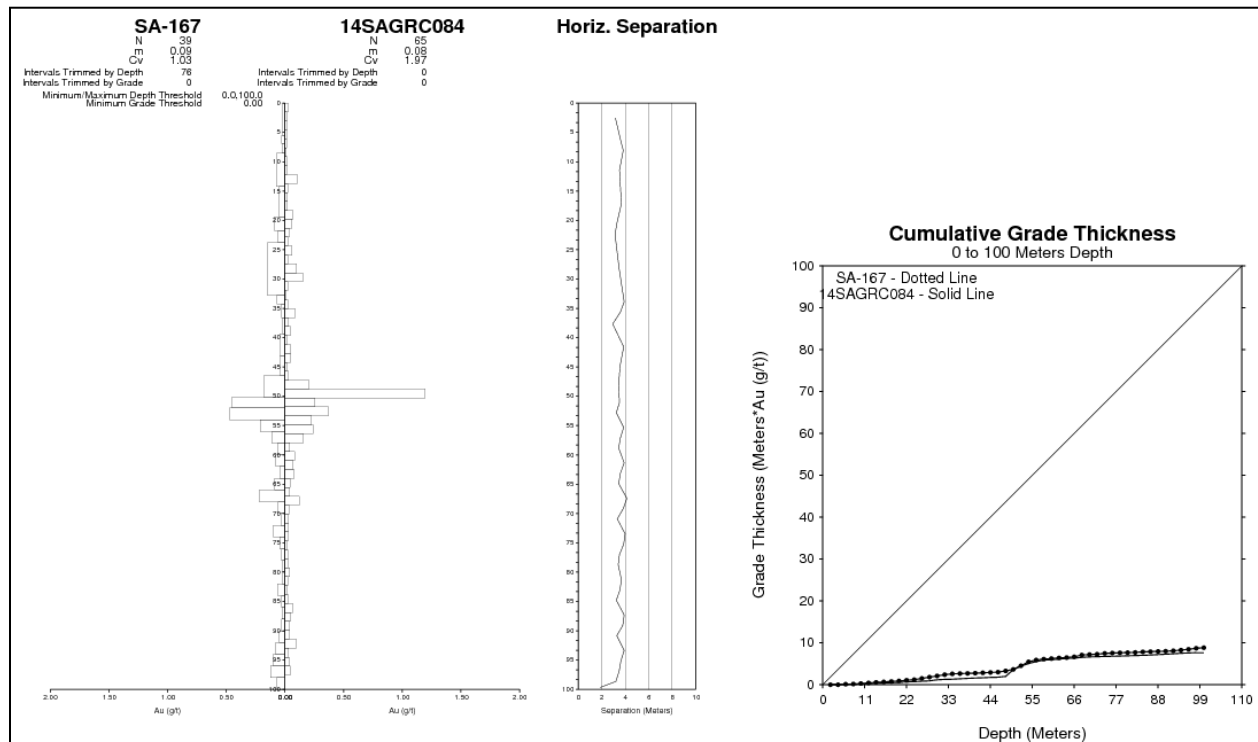


Figure 12.5.5: San Agustin Geologix Core (SA-184) vs. Argonaut RC (14SAGRC077)

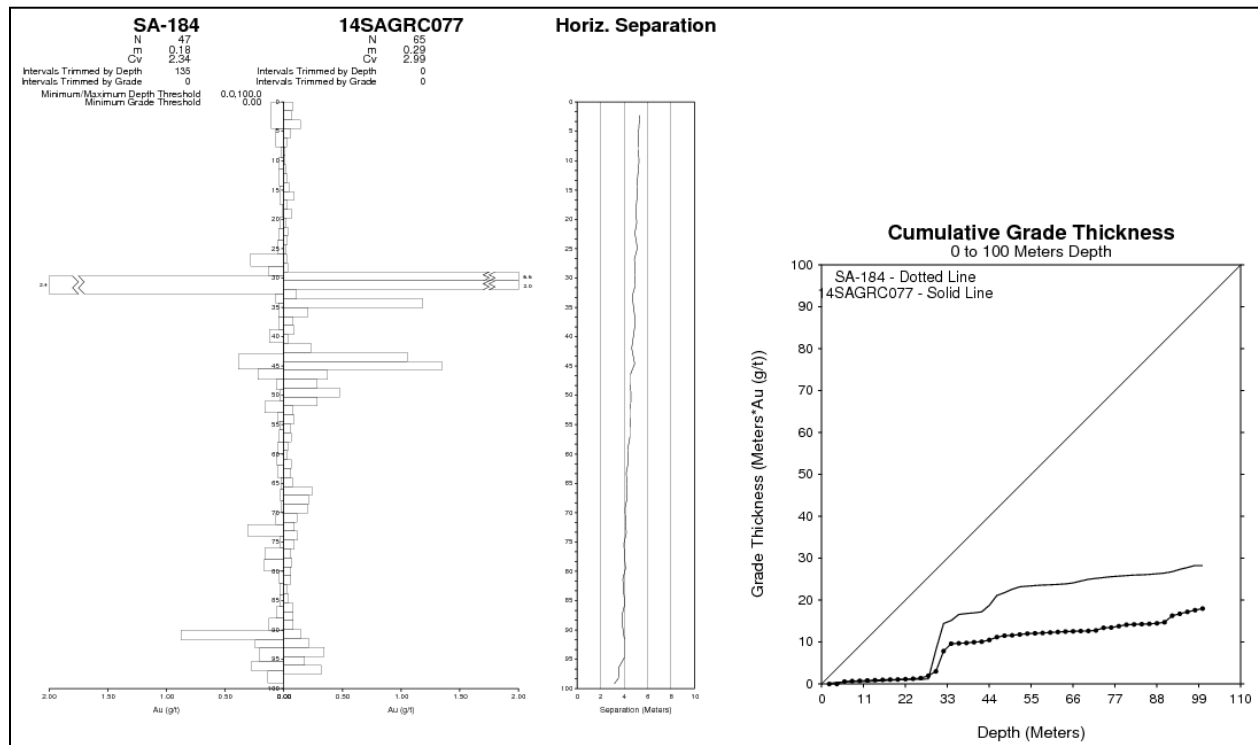
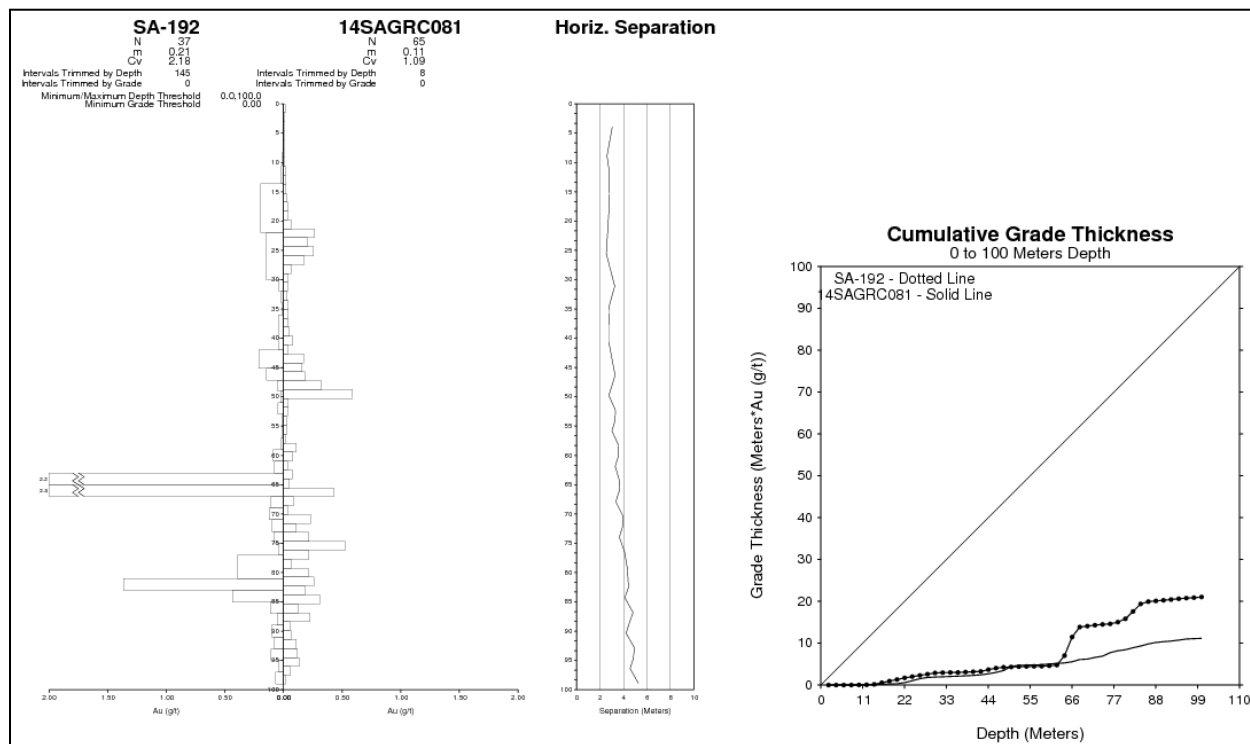


Figure 12.5.6: San Agustin Geologix Core (SA-192) vs. Argonaut RC (14SAGRC081)

In general, there is a close comparison between down-hole gold grades and cumulative grade-thickness products when the older core and RC data are compared against the more modern Argonaut RC assays that have been backed up by adequate QA/QC data. The graph in Figure 12.5.1 shows that there is a very close comparison down the bore holes until near the bottom where the Argonaut RC hole encountered a thicker zone of higher grade mineralization than the Monarch RC hole. That intersection caused a jump in the grade-thickness curve for the Argonaut hole. The graphs for Figure 12.5.2 through Figure 12.5.4 show very close comparisons in grade and grade-thickness. Figure 12.5.5 and Figure 12.5.6 show conflicting relationships with the Argonaut being higher in one instance (Figure 12.5.5) and the Geologix core hole higher in another case (Figure 12.5.6).

12.6 Qualified Person's Opinion Regarding Adequacy of Data

Based on the results of the various data verification procedures that were undertaken and a review of available QA/QC results, it is the opinion of the Qualified Person that the San Agustin Project drill hole data are suitable to be used to estimate resources.

13 Mineral Processing and Metallurgical Testing

13.1 Mineral Processing Summary

The San Agustin Project will be designed as an open-pit mine with a heap leach operation utilizing a multiple-lift, single-use leach pad. Test work evaluated heap leach recoveries of both crushed and run-of-mine (ROM) material.

Preliminary economics indicate that crushing to a size of 80% passing 22 mm is optimal for the majority of the mineralized oxide material at San Agustin. Crushing will be accomplished using a two-stage crushing circuit that will produce a 22 mm product (80% passing size or p80). The final products from the crushing circuit will be conveyed to the heap leach pad where a conveyor/stacking system will place the material in discrete lifts. The resource estimate prepared for this Report is based on crushing all the material. Some low grade material will be coarse crushed to a p80 of 100 mm and leached with the fine crushed ore. The coarse crushed material will be conveyor stacked on the same leach pad as the fine crushed product. Lime will be added to both the final crusher products prior to stacking.

The stacked material will be leached with a low-grade cyanide solution. The gold and silver bearing solution will be collected in a pregnant pond and pumped to a carbon adsorption circuit to extract gold and silver. The resulting barren solution will flow over a carbon safety screen, then to a barren solution storage tank. Make-up sodium cyanide will be added, and then the barren solution will be pumped back up to the heap.

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. Treated barren carbon will be transported back to San Agustin for re-use.

Additional details on processing are presented in Section 17.

13.2 Metallurgical Test Work Summary

Cyanidation tests including bottle roll and column leach have been conducted on composite samples from San Agustin by various laboratories starting from about 2009.

Results from cyanidation tests conducted by McClelland Laboratories Inc. (MLI), El Castillo (EC) and KCA were mainly used in the development of the recoveries for use in

this study. Results from PRA Laboratories were not finalized and not used. There were essentially no differences between the recovery results of surface samples and ones at depth. Generally, there was good correlation between the El Castillo and KCA results and moderately high variability with the MLI recoveries. Additional variability was observed in the sodium cyanide reagent consumptions but was due to the varying laboratory procedures.

The projected field gold and silver recoveries, reagent consumptions, leach time and crush size based on the available test work results are summarized as follows:

- % Au Recovery:
 - 66% (Fine Crush)
 - 57% (Coarse Crush)
- % Ag Recovery:
 - 16% (Fine Crush)
 - 9% (Coarse Crush)
- NaCN:
 - 0.23 kg/t (Fine Crush)
 - 0.18 kg/t (Coarse Crush)
- Lime:
 - 4.0 kg/t (Fine Crush)
 - 3.5 kg/t (Coarse Crush)
- Leach Time:
 - 75 days
- Crush Size:
 - 80% passing 22 mm (Fine Crush)
 - 80% passing 100 mm (Coarse Crush)

The samples tested by KCA have demonstrated amenability to heap leach cyanide leaching and there are no known processing factors or deleterious elements that could have a significant effect on potential economic extraction.

13.3 Historical Testing

Scoping level metallurgical test work was conducted on the San Agustin material in 2009 by PRA Laboratories and MLI. Additional laboratory test work was conducted in 2014 by KCA Laboratory and on-site at Argonaut's El Castillo Mine.

13.4 PRA Laboratories Metallurgical Testing 2009

PRA Laboratories conducted metallurgical testing on a total of fifteen samples consisting of oxides and transition oxides-sulfides. The metallurgical testing consisted of fire assays and multi-element head analyses, bottle roll leach tests for each sample at two separate crush sizes, and column leach tests on two composite samples at two different crush sizes. Final results for bottle roll and column leach tests were not available from PRA Laboratories so interim data are presented.

The gold head grades by fire assay varied between 0.14 g/t to 0.73 g/t and averaged 0.36 g/t for the 15 samples provided. In pulverized bottle roll tests, cyanidable gold ranged from about 50% to almost complete dissolution, averaging 78%. The silver heads ranged from 3.3 g/t to 101 g/t and averaged 23 g/t. Cyanidable silver had from about 30% to a maximum of 87% dissolution, averaging 62%. The multi-element analyses by ICP on a multi-acid digestion indicated low concentrations of zinc below 1%, mercury levels below detectable range of 3 ppm, and arsenic below 0.2% but it was noted that this technique would most likely volatilize portions of mercury and arsenic rendering less accurate results for these specific elements. No further test work was completed for concentrations of arsenic or mercury. The head analyses for each of the fifteen samples are presented in Table 13.4.1, and the multi-element analysis is presented in Table 13.4.2.

Table 13.4.1: San Agustin PRA Laboratories Head Grade Test Results

Elements	Units	Sample ID														Average	Analytical	
		SA-113 Oxide	SA-113 Transition	SA-129 Oxide	SA-140 Oxide	SA-144 Oxide	SA-144 Transition	SA-145 Oxide	SA-150 Transition	SA-154 Oxide	SA-164 Oxide	SA-192 Oxide	SA-221 Oxide	SA-227 Oxide-1	SA-227 Oxide-2		SA-239 Oxide	Method
Au	g/MT	0.41	0.29	0.73	0.54	0.41	0.34	0.18	0.41	0.28	0.40	0.14	0.45	0.44	0.24	0.16	0.36	FA/AAS
Au(CN)	g/MT	0.33	0.14	0.65	0.45	0.35	0.27	0.09	0.34	0.20	0.33	0.07	0.43	0.43	0.18	0.15	0.29	CN/AAS
Cyanidiable*	%	80	48	89	83	85	79	50	83	71	83	50	96	98	75	94	78	unweighted
Ag	ppm	7.9	5.7	18.6	22.1	3.3	3.5	9.9	15.4	17.1	101.5	26.4	36.5	30.8	23.1	27.9	23.3	ICPM
Ag(CN)	ppm	6.2	3.1	5.9	18.9	2.1	1.6	6.9	9.6	4.4	68.0	22.9	26.0	19.6	13.9	16.9	15.1	CN/AAS
Cyanidiable*	%	78	54	32	86	64	46	70	62	26	67	87	71	64	60	61	62	unweighted

Table 13.4.2: San Agustin PRA Laboratories Multi-Element Analysis

Elements	Units	Sample ID																Analytical Method
		SA-113 Oxide	SA-113 Transition	SA-129 Oxide	SA-140 Oxide	SA-144 Oxide	SA-144 Transition	SA-145 Oxide	SA-150 Transition	SA-154 Oxide	SA-164 Oxide	SA-192 Oxide	SA-221 Oxide	SA-227 Oxide-1	SA-227 Oxide-2	SA-239 Oxide	RE SA-113 Oxide	
Au	g/MT	0.41	0.29	0.73	0.54	0.41	0.34	0.18	0.41	0.28	0.40	0.14	0.45	0.44	0.24	0.16	0.41	FA/AAS
Au(CN)	g/MT	0.33	0.14	0.65	0.45	0.35	0.27	0.09	0.34	0.20	0.33	0.07	0.43	0.43	0.18	0.15	NS	CN/AAS
Ag(CN)	g/MT	6.2	3.1	5.9	18.9	2.1	1.6	6.9	9.6	4.4	68.0	22.9	26.0	19.6	13.9	16.9	NS	CN/AAS
Al	ppm	75687	73390	78561	75195	76626	66079	77512	66312	75597	71269	79999	85349	82431	82467	81870	77170	ICPM
Sb	ppm	82	49	400	289	72	71	41	152	98	109	307	169	136	163	104	82	ICPM
As	ppm	523	338	546	292	264	412	756	439	1959	521	577	698	224	214	352	538	ICPM
Ba	ppm	1721	929	924	635	897	778	957	801	1275	597	598	779	964	1137	867	1678	ICPM
Bi	ppm	4	<2	<2	<2	<2	31	<2	4	<2	<2	<2	<2	<2	<2	<2	4	ICPM
Cd	ppm	<0.2	<0.2	<0.2	109.7	5	11.3	11.5	<0.2	<0.2	<0.2	4.6	10.1	3.1	40.1	36.9	<0.2	ICPM
Ca	ppm	502	307	636	826	5714	2367	8436	257	609	487	2418	1760	2201	1612	1520	511	ICPM
Cr	ppm	26	32	42	46	101	80	127	36	53	34	76	53	39	34	51	29	ICPM
Co	ppm	3	4	28	13	19	24	13	3	5	3	14	9	9	9	4	3	ICPM
Cu	ppm	26	48	109	76	432	76	129	58	26	39	57	85	137	70	86	26	ICPM
Fe	ppm	56583	42800	59589	46604	52404	55264	58707	50046	45125	64490	46244	58789	47568	35042	35978	57177	ICPM
La	ppm	32	35	31	28	27	26	28	34	29	28	31	35	33	31	34	33	ICPM
Pb	ppm	458	113	4580	1275	103	56	205	1219	2128	1589	438	1424	941	674	1560	470	ICPM
Mg	ppm	4936	4976	4726	4574	8147	7746	5447	4041	3897	4339	7840	4847	6748	5631	5250	5115	ICPM
Mn	ppm	116	89	7085	9241	963	907	451	99	149	130	714	536	616	368	243	122	ICPM
Hg	ppm	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ICPM
Mo	ppm	4	5	4	3	4	4	4	4	5	5	4	5	5	4	5	5	ICPM
Ni	ppm	3	3	38	14	54	30	35	2	6	3	35	12	11	9	5	3	ICPM
P	ppm	880	574	666	581	765	582	783	738	781	696	837	894	661	640	897	900	ICPM
K	ppm	37622	42725	33992	34143	28478	32164	34760	37168	35323	36770	42099	47104	50812	60413	45282	38261	ICPM
Sc	ppm	9	9	10	8	13	13	15	10	11	8	11	12	9	8	12	9	ICPM
Ag	ppm	7.9	5.7	18.6	22.1	3.3	3.5	9.9	15.4	17.1	101.5	26.4	36.5	30.8	23.1	27.9	6.5	ICPM
Na	ppm	646	620	445	474	1074	2732	12930	509	558	773	588	770	1419	1145	577	666	ICPM
Sr	ppm	65	43	301	431	263	80	165	49	35	48	42	323	431	191	321	68	ICPM
Tl	ppm	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ICPM
Ti	ppm	1432	1700	1266	1198	3545	1654	4040	1279	2154	1503	1980	2740	2211	2199	1614	1653	ICPM
W	ppm	7	<5	212	65	100	11	<5	7	<5	<5	168	106	92	80	52	8	ICPM
V	ppm	77	77	70	52	176	110	139	88	119	96	112	117	78	75	124	81	ICPM
Zn	ppm	119	145	9504	6799	5887	2866	2408	101	353	73	1749	1177	1472	1184	850	123	ICPM
Zr	ppm	32	33	42	33	31	33	28	48	70	40	46	74	49	43	47	35	ICPM

The bottle roll leach tests were conducted on two different crush sizes of 100% passing 19 mm and 9.5 mm. These leach tests were run for a total of 10 days at 50% solids. Throughout the testing period the level of NaCN was maintained at about 2 g/L with a target pH of 10.5.

Interim results for the bottle roll leach tests indicate that overall the un-weighted average of the fifteen samples for the finer crush size (9.5 mm) gave similar silver recoveries of about 30% compared to the coarse crush size (19 mm). At the finer crush size a 9% increase in gold recovery was observed (65% Au fine crush versus 56% Au coarse crush). However due to the low head grade this translates into less than 0.05 g/t Au in the leached tails. For some tests the coarser size actually had less gold in the tail which may be due to sample homogeneity (small weights with large sized material) versus the mineralogy. There were no strong trends evident differentiating leach performances for the three transition zone samples versus the twelve oxide samples. It was also observed many of the samples were friable producing high fines that were difficult to settle and filter. The summarized results are presented in Table 13.4.3.

Table 13.4.3: San Agustin PRA Laboratories Bottle Roll Test Results

Sample ID	Measured Head		Calculated Head		Extraction		Residue		Consumption (kg/MT)	
	Au (g/MT)	Ag (g/MT)	Au (g/MT)	Ag (g/MT)	Au (%)	Ag (%)	Au (g/MT)	Ag (g/MT)	NaCN	Lime
9.5 mm crush size										
SA -113 TR	0.29	5.7	0.28	6.2	57.8	19.8	0.12	5.0	3.26	1.11
SA -113 OX	0.41	7.9	0.52	6.6	57.6	60.5	0.22	2.6	3.39	1.41
SA -129 OX	0.73	18.6	0.59	19.7	18.6	5.5	0.48	18.6	2.56	0.89
SA -140 OX	0.54	22.1	0.41	24.0	75.5	50.4	0.10	11.9	2.83	1.05
SA -144 TR	0.34	3.5	0.55	4.3	61.5	21.4	0.21	3.4	3.28	1.74
SA -144 OX	0.41	3.3	0.62	3.1	55.1	48.0	0.28	1.6	3.64	2.47
SA -145 OX	0.18	9.9	0.22	8.9	60.0	34.9	0.09	5.8	3.80	1.53
SA -150 TR	0.41	15.4	0.53	16.3	53.3	30.5	0.25	11.3	3.66	1.13
SA -154 OX	0.28	17.1	0.44	18.9	63.7	14.9	0.16	16.1	3.43	1.20
SA -164 OX	0.40	101.5	0.56	122.0	76.7	37.7	0.13	76.0	4.52	1.22
SA -192 OX	0.14	26.4	0.24	33.6	79.1	24.7	0.05	25.3	2.47	0.89
SA -221 OX	0.45	36.5	0.62	42.4	78.9	38.5	0.13	26.1	3.50	1.16
SA -227 OX-1	0.44	30.8	0.53	38.6	83.1	28.3	0.09	27.7	3.29	1.27
SA -227 OX-2	0.24	23.1	0.31	25.1	77.5	27.6	0.07	18.2	3.16	0.95
SA -239 OX	0.16	27.9	0.20	32.1	74.9	35.6	0.05	20.7	2.97	1.15
Average	0.36	23.3	0.44	26.8	64.9	31.9	0.16	18.0	3.32	1.28
19 mm crush size										
SA -113 TR	0.29	5.7	0.36	8.1	44.5	11.9	0.20	7.1	2.54	0.95
SA -113 OX	0.41	7.9	0.66	7.5	49.7	52.3	0.33	3.6	2.10	1.26
SA -129 OX	0.73	18.6	0.75	21.0	21.2	5.5	0.59	19.8	1.44	0.69
SA -140 OX	0.54	22.1	0.44	16.5	61.4	31.1	0.17	11.4	1.85	0.73
SA -144 TR	0.34	3.5	0.56	4.6	64.0	18.0	0.20	3.8	1.61	1.66
SA -144 OX	0.41	3.3	0.65	3.6	75.5	49.7	0.16	1.8	1.72	3.04
SA -145 OX	0.18	9.9	0.51	15.6	35.0	16.7	0.33	13.0	1.70	1.42
SA -150 TR	0.41	15.4	0.53	17.9	64.2	27.9	0.19	12.9	1.43	1.41
SA -154 OX	0.28	17.1	0.29	20.1	39.3	12.3	0.18	12.3	1.29	1.10
SA -164 OX	0.4	101.5	0.40	122.6	60.0	35.7	0.16	35.7	1.91	1.35
SA -192 OX	0.14	26.4	0.14	32.9	48.8	22.1	0.07	22.1	1.63	0.54
SA -221 OX	0.45	36.5	0.36	40.3	55.7	40.4	0.16	40.4	2.77	0.90
SA -227 OX-1	0.44	30.8	0.29	39.7	69.1	26.5	0.09	26.5	1.75	1.03
SA -227 OX-2	0.24	23.1	0.19	24.2	68.3	21.1	0.06	21.1	1.68	0.74
SA -239 OX	0.16	27.9	0.21	31.5	80.5	29.1	0.04	29.1	1.19	0.88
Average	0.36	23.3	0.42	27.1	55.8	26.7	0.20	17.4	1.77	1.18

The PRA column leach tests were run on two composite samples labeled ENC and HPAL on two separate crush sizes of 100% passing 19 mm and 9.5 mm. All four column leach tests were dosed with 1 kg/t of lime and agglomerated with 5 kg/t of cement.

Column leach test results presented are after seventy-five days of leach; the final test results were not available. Gold recoveries for the coarse crush material (19 mm) reached 62.7% and 62.8% for the ENC and HPAL composites, respectively. On the fine crushed material (9.5 mm) gold recovery was 69.7% for the ENC composite and 80% for the HPAL. Gold recoveries for all four composite columns seemed to stabilize and reach a plateau, whereas silver recovery was still rising. The column leach recovery curves are presented in Figure 13.4.1 and Figure 13.4.2.

Even though final results were not available, the PRA Laboratories results generally follow the results from MLI and KCA which show higher recoveries at finer crush sizes.

Figure 13.4.1: San Agustin PRA Laboratories Column Leach Tests (ENC Composite)

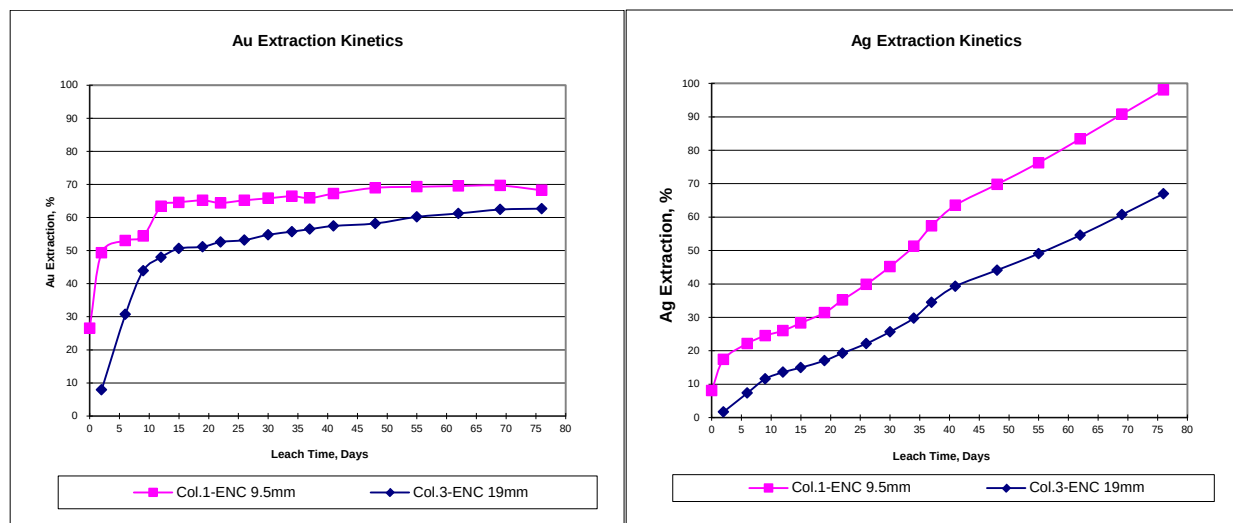
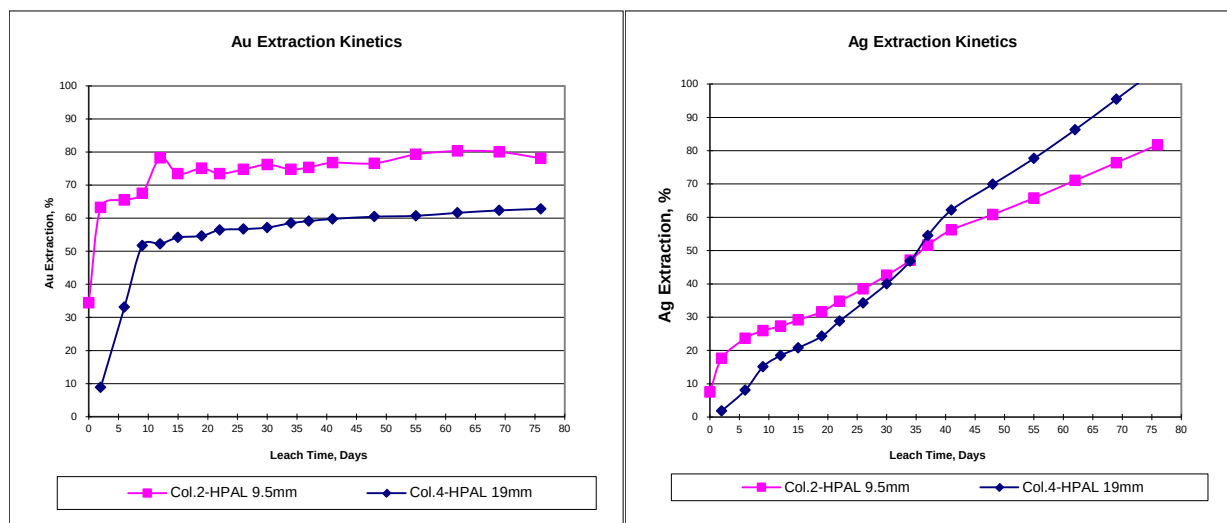


Figure 13.4.2: San Agustin PRA Laboratories Column Leach Tests (HPAL Composite)

13.5 MLI Metallurgical Testing 2009

McClelland Laboratories Inc. (MLI) conducted metallurgical test work consisting of head grade analyses, bottle roll tests, and column leach tests. A total of fifty-four drill core interval samples were received and combined, with instructions provided by Geologix, to create three oxide-zone drill core composites (Main Zone, Zone 2, and Zone 4).

Head assays were completed to establish gold and silver grades on the three composite samples. Gold head grades varied from 0.38 g/t to 0.76 g/t with the highest being the main oxide zone. The silver grades ranged from 14.0 g/t to 24.7 g/t with highest concentrations shown in Zone 2. Table 13.5.1 shows the gold and silver head assay results for the oxide composite samples. Overall, the gold head grades agreed very closely with an observed standard deviation from 0.03 g/t to 0.04 g/t. Silver head grade, on the other hand, agreed closely between the Main Zone and Zone 4 but not Zone 2; a standard deviation of about 3.6 g/t was observed in the silver head grades.

Table 13.5.1: San Agustin MLI Head Grade Test Results

Determination Method	Head Grade, g Au/MT ore		
	SAOX Main Zone	SAOX Zone 2	SAOX Zone 4
Predicted Grade *	0.70	0.44	0.46
Direct Assay, Init.	0.74	0.44	0.44
Direct Assay, Dup.	0.75	0.37	0.48
Direct Assay, Trip.	0.79	0.34	0.48
Calc'd., Bottle Roll, 1.7mm	0.84	0.44	0.46
Calc'd., Head Screen, 19mm	0.73	0.40	0.48
Calc'd., Column, 19mm	0.73	0.37	0.42
Average	0.76	0.39	0.46
Std. Deviation	0.04	0.04	0.03
Precision %	94.70	89.70	93.50
* Based on interval assay data provided by Geologix personnel. Not included in calculation of head grade average or standard deviation.			

Determination Method	Head Grade, g Ag/MT ore		
	SAOX Main Zone	SAOX Zone 2	SAOX Zone 4
Predicted Grade *	18.4	12.5	18.6
Direct Assay, Init.	13.0	29.0	19.0
Direct Assay, Dup.	14.0	25.0	19.0
Direct Assay, Trip.	15.0	20.0	20.0
Calc'd.; Bottle Roll, 1.7mm	14.3	23.1	17.9
Calc'd., Head Screen, 19mm	14.1	19.3	21.2
Calc'd., Column, 19mm	13.1	21.3	18.0
Average	13.9	23.0	19.2
Std. Deviation	0.8	3.6	1.3
Precision,%	94.2	84.3	93.2
* Based on interval assay data provided by Geologix personnel. Not included in calculation of head grade average or standard deviation.			

Bottle roll leach tests were conducted on the three oxide composite samples at a crush size of 80% passing 1.7 mm. The sample material was mixed with water to achieve 40 weight percent solids, with pH controlled with the addition of lime to maintain a pH between 10.5 and 11.0 and NaCN concentration maintained at 1 g/L. Leaching was conducted for a total of 96 hours for each composite sample.

The results of the 96 hour bottle roll leach tests on the three composite samples indicate positive amenability to leaching with gold extractions ranging from 67.4% to 70.5% and silver extractions from 16.5% to 32.2%. High leach rates were noticed with these tests where majority of the gold and silver were extracted in the first 24 hours. Consumption rates for NaCN ranged from 0.10 kg/t to 0.23 kg/t, and lime requirements were in the

range of 3.0 kg/t to 4.7 kg/t. The complete results of the bottle roll leach tests are presented in Table 13.5.2.

Table 13.5.2: San Agustin MLI Bottle Roll Test Results

	Composite					
Metallurgical Results	SAOX Main Zone		SAOX Zone 2		SAOX Zone 4	
Extraction, pct of total	Au	Ag	Au	Ag	Au	Ag
in 2 hours	48.2	23.5	44.3	9.6	55.4	19.3
in 6 hours	60.5	25.9	52.6	11.5	60.5	20.5
in 24 hours	66.0	29.4	64.5	14.0	62.3	22.1
in 48 hours	66.3	30.5	66.5	15.3	64.2	22.8
in 72 hours	68.3	31.3	68.5	15.9	66.1	23.2
in 96 hours	69.0	32.2	70.5	16.5	67.4	23.5
Extracted, g/MT ore	0.58	4.60	0.31	3.80	0.31	4.20
Tail Assay, g/MT ¹	0.26	9.70	0.13	19.30	0.15	13.70
Calculated Head, g/MT ore	0.84	14.30	0.44	23.10	0.46	17.90
Average Head, g/MT ore ²	0.76	13.90	0.39	22.90	0.46	19.20
NaCN Consumed, kg/MT ore	0.10		0.23		0.22	
Lime Added, kg/MT ore	3.6		3.0		4.7	
Final Solution pH	11.0		11.0		10.8	
Natural pH (40% solids)	5.4		7.4		4.6	
1) Average of triplicate tail assays.						
2) Average of all head grade determinations.						

Column leach tests were conducted on each of the three oxide composite samples at a crush size of 80% passing 19 mm. The 100 mm diameter columns included about 30 kg of sample material mixed with 3.0 to 4.7 kg/t of lime. Each sample was leached for a total of 100 days with an additional 18 days of rinse. The results of the column leach tests ranged from 73.8% to 81.1% and averaged 78.1% for gold. Silver recoveries ranged from 8.5% to 36.6% with a final average of 21.7%. NaCN consumptions ranged from 2.01 kg/t to 2.29 kg/t and additional lime throughout the tests was not required.

MLI acknowledged that NaCN consumptions were relatively high for the column leach tests and after review suggested a 4:1 discount for a reasonable estimate of commercial consumptions, for the following reasons:

- Column test NaCN consumptions (60 days) are usually three to four times commercial consumptions, for relatively clean oxide ores. In these tests, consumptions through 60 days of solution application averaged 2.07 kg NaCN/MT ore (1.93 – 2.19 kg NaCN/MT ore range);
- The column tests were run for a relatively long leach cycle (99 days);
- Column test NaCN concentrations were relatively high (1.0 g NaCN/L);

- The lime added to the column charges before leaching was lower than optimum. Column effluent pH's generally were in the low 10's. A higher initial lime addition would have resulted in better pH control, and lower cyanide consumption; and,
- Bottle roll test cyanide consumptions (1.7 mm feed size) were low (0.10 to 0.23 kgNaCN/mt ore).

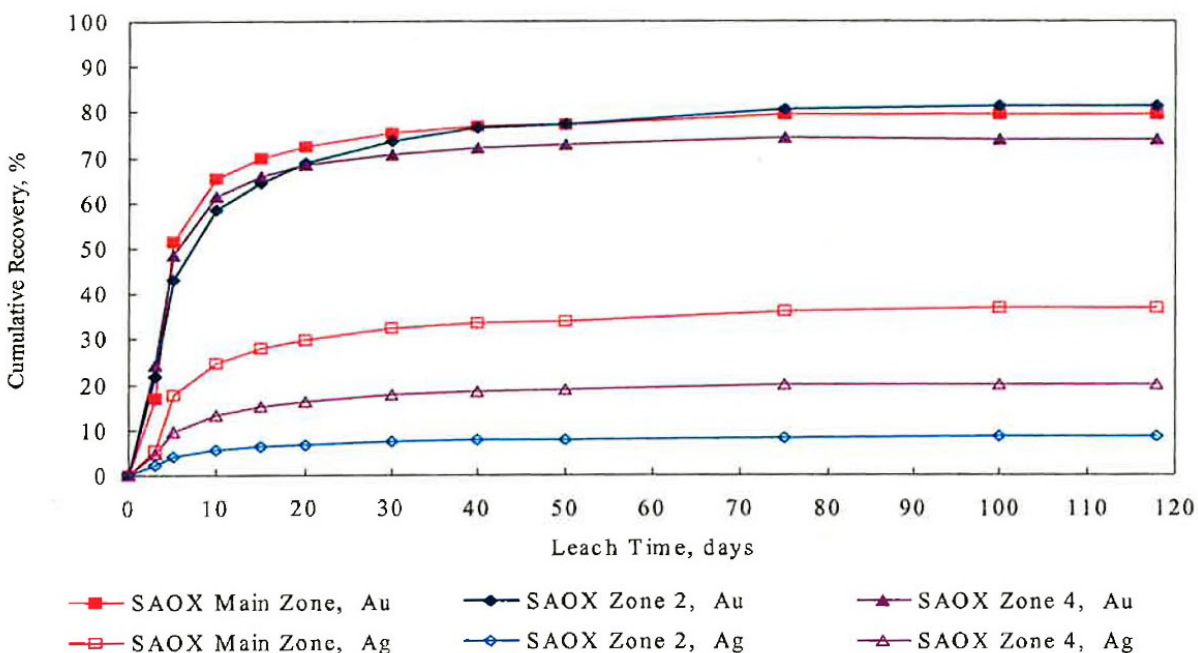
The leach performance was observed to be fairly rapid where the gold and silver extractions were substantially complete in the first 20 days. Precious metal extraction continued after the 20 days but at a much slower rate. From this observation, longer leaching periods beyond the 118 days would not significantly improve gold and silver recoveries for these three composite samples. The column leach test results are presented in Table 13.5.3 and illustrated in Figure 13.5.1.

Table 13.5.3: San Agustin MLI Column Leach Results

Metallurgical Results	Composite					
	SAOX Main Zone		SAOX Zone 2		SAOX Zone 4	
Extraction, pct of total	Au	Ag	Au	Ag	Au	Ag
1 st Effluent	17.0	5.4	21.7	2.2	24.4	4.8
in 5 days	51.5	17.5	43.1	4.0	48.6	9.5
in 10 days	65.3	24.8	58.4	5.4	61.4	13.3
in 15 days	69.7	27.9	64.4	6.2	66.0	15.1
in 20 days	72.4	29.9	68.6	6.6	68.3	16.2
in 30 days	75.3	32.2	73.4	7.2	70.7	17.6
in 40 days	77.0	33.6	76.4	7.5	72.0	18.4
in 50 days	77.3	34.0	77.2	7.7	72.7	18.7
in 75 days	79.3	35.9	80.5	8.1	73.8	19.7
in 100 days	79.5	36.6	81.1	8.3	73.8	20.0
End of Leach/Rinse	79.5	36.6	81.1	8.5	73.8	20.0
Extracted, g/MT ore	0.58	4.8	0.30	1.8	0.31	3.6
Tail Screen, g/MT	0.15	8.3	0.07	19.5	0.11	14.4
Calculated Head, g/MT ore	0.73	13.1	0.37	21.3	0.42	18.0
Average Head, g/MT ore*	0.76	13.9	0.39	22.9	0.46	19.2
NaCN Consumed, kg/MT ore	2.01		2.19		2.29	
Lime Added, kg/MT ore	2.0		1.7		2.6	
Final Solution pH	10.5		10.2		10.4	
pH After Rinse	9.9		9.9		9.7	
Leach/Rinse Cycle, days	118		118		118	

* Average of all head grade determinations.

Figure 13.5.1: San Agustin MLI Column Leach Results



13.6 EC Laboratory Metallurgical Testing 2014

Metallurgical testing, consisting of head analyses, bottle roll and column test work, was conducted at Argonaut's El Castillo Mine on-site laboratory (EC) with guidance by KCA. A total of four trench composites were selected from five locations where previous surface sampling existed. The samples were chosen to have good spatial and lithological distribution, as well as an average grade similar to that reported in the previous Silver Standard resource estimate for oxides. Since intrusive is the more volumetrically dominant lithology in drilling, three composites were intrusive and one was sediments. Details of the composite samples are shown in Table 13.6.1.

Head analyses consisted of head fire assays for gold and silver and head screen analysis with assays by size fraction; a summary table for the head analyses is presented in Table 13.6.2. Complementary test work on these trench composites was conducted by KCA's laboratory and included head analyses, agglomeration testing, bottle roll and column leach test work.

Table 13.6.1: San Agustin EC Laboratory Composite Samples Descriptions

	Composite	Meters	Rock	Block	Zone	Au_ppm	Ag_ppm	
Fault	Intrusive 1	100	Dacia	SW	Represo	0.4	24.5	Fault
	Intrusive 2	120			39800E	0.65	4.4	
	Intrusive 3	90	Dacia		40250E	0.37	4.8	
	Sediments	40	Sedimentos	NE	40350E	0.97	11.6	
		60			Camino	0.51	1.8	

Table 13.6.2: San Agustin EC Laboratory Head Analyses

Composite	Crush Size	Average Head Assay, gms Au/MT	Average Head Assay, gms Ag/MT	Weighted Average Head Assay, gms Au/MT	Weighted Average Head Assay, gms Au/MT
SA 1	ROM	0.45	18.61	0.43	16.94
	-51mm	0.48	18.06	0.41	16.75
	-13mm	0.45	21.29	0.45	20.97
SA 2	ROM	0.29	8.93	0.24	8.85
	-51mm	0.30	9.89	0.27	11.14
	-13mm	0.38	8.45	0.43	9.66
SA 3	ROM	0.40	7.84	0.40	8.32
	-51mm	0.41	8.29	0.40	11.47
	-13mm	0.43	8.60	0.45	11.39
SA 4	ROM	0.58	4.48	0.55	4.97
	-51mm	0.59	4.07	0.57	4.13
	-13mm	0.66	4.07	0.72	4.14

The samples were taken from existing trenches and road cuts which were cleaned with a D9 dozer and then collected with an excavator. Samples were then transported to the facilities of the nearby El Castillo Mine for processing and testing. Figure 13.6.1 shows the location of the different trenches from which the composite samples originated and Figure 13.6.2 shows an image of the trench.

Cyanide bottle roll leach tests were run for a period of ninety-six (96) hours for two separate crush sizes of 100% passing 13 and 51 mm. The results of the cyanide bottle roll leach test work are summarized in Table 13.6.3.

Figure 13.6.1: San Agustin EC Laboratory Composite Sample Locations

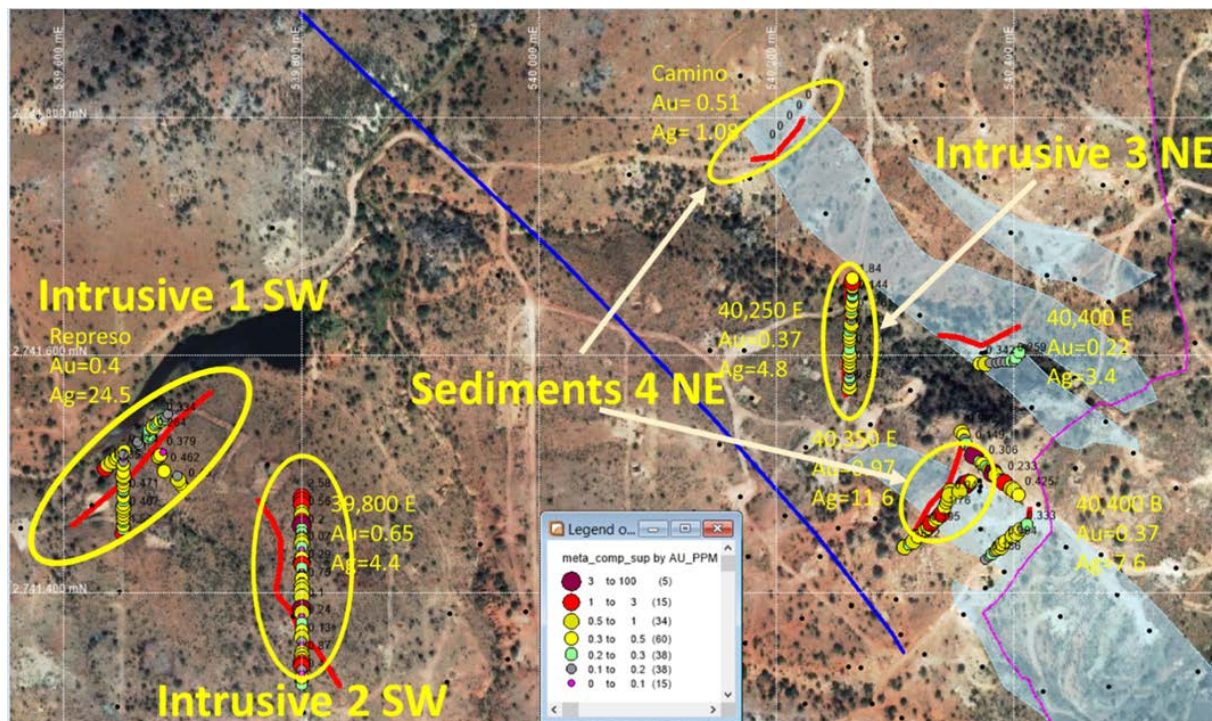


Figure 13.6.2: San Agustin EC Laboratory Trench



Table 13.6.3: San Agustin EC Laboratory Bottle Roll Leach Tests Summary

Description		p80 Crush Size, mm	Calculated Head, gms Au/MT	Extracted, gms Au/MT	Avg. Tails, gms Au/MT	Au Extracted, %	Leach Time, days	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
SA 1	-51mm	34	0.55	0.36	0.19	65%	4	0.41	1.27
	-13mm	6.2	0.43	0.34	0.10	79%	4	0.57	1.28
SA 2	-51mm	26	0.37	0.19	0.18	51%	4	0.44	1.20
	-13mm	6.0	0.31	0.19	0.11	61%	4	0.50	1.33
SA 3	-51mm	37	0.45	0.23	0.23	51%	4	0.43	1.20
	-13mm	2.9	0.69	0.38	0.31	55%	4	0.89	1.45
SA 4	-51mm	38	0.58	0.30	0.29	52%	4	0.48	1.33
	-13mm	6.0	0.63	0.41	0.22	65%	4	0.53	1.75

Description		p80 Crush Size, mm	Calculated Head, gms Ag/MT	Extracted, gms Ag/MT	Avg. Tails, gms Ag/MT	Ag Extracted, %	Leach Time, days	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
SA 1	-51mm	34	23.47	2.08	21.38	9%	4	0.41	1.27
	-13mm	6.2	23.64	4.24	19.40	18%	4	0.57	1.28
SA 2	-51mm	26	10.86	0.27	10.58	2%	4	0.44	1.20
	-13mm	6.0	10.04	0.34	9.70	3%	4	0.50	1.33
SA 3	-51mm	37	13.75	1.07	12.68	8%	4	0.43	1.20
	-13mm	2.9	9.88	1.28	8.60	13%	4	0.89	1.45
SA 4	-51mm	38	3.78	0.69	3.09	18%	4	0.48	1.33
	-13mm	6.0	4.70	2.16	2.54	46%	4	0.53	1.75

The column leach tests were conducted on the three Intrusive composites and the Sediments composite sample. A total of twelve column leach tests were performed on the four composite samples which included three different crush sizes (ROM, p100 51 mm, p100 13 mm). ROM tests utilized 915 mm diameter columns loaded with approximately 5,700 kg of sample material, p100 51 mm material used 305 mm diameter columns loaded with approximately 160 kg, and the p100 13 mm material employed 203 mm diameter columns loaded with about 60 kg of sample material. The column tests were run between 78 and 113 days.

Loaded carbon samples from the column leach tests were sent to KCA's laboratory for gold and silver analysis via fire assay. The results from the column leach test work along with the carbon assay results from KCA are included in Table 13.6.4.

Table 13.6.4: San Agustin EC Laboratory Column Leach Results

Description	Calculated Head, gms Au/MT	Solution Extracted, gms Au/MT	Carbon Extracted, gms Au/MT	Average Tails, gms Au/MT	Extracted, % Au	Calculated Tail p80 Size, mm	Days of Leach	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
SA (1) ROM	0.454	0.328	0.310	0.144	68%	86.5	105	0.66	3.2
SA (1) 100 % -51mm	0.402	0.405	0.339	0.063	84%	38.3	105	1.54	3.8
SA (1) 100 % -13mm	0.425	0.418	0.350	0.075	82%	6.3	113	1.49	4.0
SA (2) ROM	0.242	0.139	0.111	0.131	46%	96.7	98	0.56	3.1
SA (2) 100 % -51mm	0.290	0.152	0.185	0.105	64%	32.6	98	0.87	3.6
SA (2) 100 % -13mm	0.249	0.201	0.152	0.097	61%	9.4	106	1.05	3.9
SA (3) ROM	0.456	0.276	0.267	0.189	58%	208.9	98	0.58	3.2
SA (3) 100 % -51mm	0.410	0.290	0.186	0.224	45%	36.0	90	1.23	3.7
SA (3) 100 % -13mm	0.690	0.313	0.522	0.168	76%	7.5	98	1.32	4.0
SA (4) ROM	0.630	0.334	0.352	0.278	56%	133.1	78	0.56	3.0
SA (4) 100 % -51mm	0.652	0.350	0.474	0.178	73%	44.5	72	1.19	3.1
SA (4) 100 % -13mm	0.650	0.588	0.464	0.186	71%	8.3	80	1.27	3.3
Avg. ROM	0.446	0.269	0.260	0.186	57%	131.3	95	0.59	3.1
Avg. 100% -51mm	0.438	0.299	0.296	0.142	67%	37.8	91	1.21	3.6
Avg. 100% -13mm	0.504	0.380	0.372	0.132	73%	7.9	99	1.28	3.8

Description	Calculated Head, gms Ag/MT	Solution Extracted, gms Ag/MT	Carbon Extracted, gms Ag/MT	Average Tails, gms Ag/MT	Extracted, % Ag	Calculated Tail p80 Size, mm	Days of Leach	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
SA (1) ROM	20.30	3.20	2.65	17.65	13%	86.5	105	0.66	3.2
SA (1) 100 % -51mm	22.21	5.67	4.38	17.83	20%	38.3	105	1.54	3.8
SA (1) 100 % -13mm	25.14	7.69	6.96	18.18	28%	6.3	113	1.49	4.0
SA (2) ROM	10.00	0.28	0.15	9.85	1%	96.7	98	0.56	3.1
SA (2) 100 % -51mm	8.84	0.33	0.41	8.43	5%	32.6	98	0.87	3.6
SA (2) 100 % -13mm	10.01	0.53	0.81	9.20	8%	9.4	106	1.05	3.9
SA (3) ROM	9.40	1.51	1.36	8.04	14%	208.9	98	0.58	3.2
SA (3) 100 % -51mm	9.04	1.75	1.16	7.88	13%	36.0	90	1.23	3.7
SA (3) 100 % -13mm	11.26	2.23	3.14	8.12	28%	7.5	98	1.32	4.0
SA (4) ROM	3.87	0.59	0.51	3.36	13%	133.1	78	0.56	3.0
SA (4) 100 % -51mm	4.38	0.92	1.20	3.18	27%	44.5	72	1.19	3.1
SA (4) 100 % -13mm	3.92	1.85	1.41	2.51	36%	8.3	80	1.27	3.3
Avg. ROM	10.89	1.39	1.17	9.73	11%	131.3	95	0.59	3.13
Avg. 100% -51mm	11.12	2.17	1.79	9.33	16%	37.8	91	1.21	3.55
Avg. 100% -13mm	12.58	3.08	3.08	9.50	25%	7.9	99	1.28	3.80

13.7 KCA Laboratory Metallurgical Testing 2014 (Trench Composites)

In addition to the El Castillo's laboratory test work, KCA's laboratory conducted complementary test work on the intrusive sample material (SA1 and SA3) at a crush size of 100% passing 13 mm. The additional metallurgical test work included head analyses, agglomeration testing, bottle roll and column leach test work.

The head analyses test work included head fire assays for gold and silver, head screen analysis with assays by size fraction, assays by quantitative methods for carbon, sulfur and mercury and semi-quantitative assays by means of an ICAP-OES for an additional series of elements and for whole rock constituents. Results of the head analyses are presented in Table 13.7.1 through Table 13.7.4.

Table 13.7.1: San Agustin KCA Laboratory Gold and Silver Head Assays

Description	Average Assay, gms Au/MT	Average Assay, gms Ag/MT	Weighted Avg. Head Assay, gms Au/MT	Weighted Avg. Head Assay, gms Ag/MT
SA 1 minus 13mm	0.445	21.55	0.440	19.75
SA 3 minus 13mm	0.423	7.71	0.434	7.79

Table 13.7.2: San Agustin KCA Laboratory Mercury and Copper

Description	Total Mercury, mg/kg	Total Copper, mg/kg	Cyanide Soluble Copper ¹ , mg/kg	Cyanide Soluble Copper, %
SA 1 minus 13mm	8.21	285	45.00	16%
SA 3 minus 13mm	2.12	161	12.39	8%

Note (1): Average of two (2) CN shake tests.

Table 13.7.3: San Agustin KCA Laboratory Multi-Element Analysis

Constituent	Unit	SA 1 minus 13mm KCA Sample	SA 3 minus 13mm KCA Sample
Al	%	7.77	7.42
As	mg/kg	169	393
Ba	mg/kg	930	1530
Bi	mg/kg	6	12
C _(total)	%	0.10	0.56
C _(organic)	%	0.09	0.18
C _(inorganic)	%	0.01	0.38
Ca	%	0.24	1.58
Cd	mg/kg	12	25
Co	mg/kg	6	4
Cr	mg/kg	55	54
Cu _(total)	mg/kg	285	161
Cu _(cyanide soluble) ¹	mg/kg	45.00	12.39
Fe	%	4.64	6.67
Hg	mg/kg	8.21	2.12
K	%	3.96	3.32
Mg	%	0.48	0.46
Mn	mg/kg	327	1144
Mo	mg/kg	1	2
Na	%	0.17	0.14
Ni	mg/kg	22	17
Pb	mg/kg	181	230
S _(total)	%	0.57	0.35
S _(sulfide)	%	0.17	0.01
S _(sulfate)	%	0.41	0.34
Sb	mg/kg	248	124
Se	mg/kg	<5	<5
Sr	mg/kg	319	363
Te	mg/kg	8	10
Ti	%	0.16	0.17
V	mg/kg	72	87
W	mg/kg	139	35
Zn	mg/kg	683	1056

Note (1): Average of two (2) CN shake tests

Table 13.7.4: San Agustin KCA Laboratory Whole Rock Analyses

Constituent	Unit	SA 1 minus 13mm KCA Sample		SA 3 minus 13mm KCA Sample	
SiO ₂	%	63.93		59.72	
Si	%		29.89		27.92
Al ₂ O ₃	%	15.89		15.04	
Al	%		8.41		7.96
Fe ₂ O ₃	%	6.89		9.63	
Fe	%		4.82		6.73
CaO	%	0.34		1.95	
Ca	%		0.24		1.39
MgO	%	0.98		0.82	
Mg	%		0.59		0.49
Na ₂ O	%	0.23		0.15	
Na	%		0.17		0.11
K ₂ O	%	5.20		4.16	
K	%		4.32		3.45
TiO ₂	%	0.52		0.50	
Ti	%		0.31		0.30
MnO	%	0.05		0.14	
Mn	%		0.04		0.11
SrO	%	0.04		0.04	
Sr	%		0.03		0.03
BaO	%	0.10		0.16	
Ba	%		0.09		0.14
Cr ₂ O ₃	%	0.01		0.01	
Cr	%		0.01		0.01
P ₂ O ₅	%	0.17		0.18	
P	%		0.07		0.08
LOI _{1090°C}	%	5.32		6.75	
SUM	%	99.67		99.25	

Note: The SUM is the total of the oxide constituents and the loss on ignition.

The head analyses indicate that a retort will be required to remove mercury and that there are no deleterious elements that could adversely affect recovery or reagent requirements.

Cyanide bottle roll leach tests were run for a period of ninety-six (96) hours with solution sampling performed at 2, 4, 8, 24, 48, 72 and 96 hours. Each test utilized 1,000 grams of pulverized material (target 100% passing 0.150 millimeters) slurried with 1,500 milliliters of water (40% solids). NaCN was added and maintained at 1.0 grams per liter of solution. The pH of the solution was maintained at 10.5 to 11.0 with the addition of hydrated lime. Results of the cyanide bottle roll leach test work are summarized in Table 13.7.5.

Table 13.7.5: San Agustin KCA Laboratory Bottle Roll Leach Tests

Description	Calculated Head, gms Au/MT	Au Extracted, %	Leach Time, hours	Consumption on NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
SA 1 minus 13mm	0.414	89%	96	0.22	2.00
SA 3 minus 13mm	0.399	74%	96	0.19	2.25

Description	Calculated Head, gms Ag/MT	Ag Extracted, %	Leach Time, hours	Consumption on NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
SA 1 minus 13mm	22.94	58%	96	0.22	2.00
SA 3 minus 13mm	8.39	51%	96	0.19	2.25

Agglomeration testing included separate tests performed on each sample at the as-received crush size (p100 of 13 mm). The sample was tested using 0 (no cement addition or solution added), 3, 6 and 9 kg of Portland Type II cement per tonne of material. Percolation tests were conducted in small (75 millimeter inside diameter) columns at a range of cement levels with no compressive load applied. The purpose of the percolation tests was to examine the permeability of the material under various cement agglomeration levels.

All agglomeration tests passed the KCA standard criteria. The material with no cement addition exhibited low pH values, which can be corrected with the addition of lime.

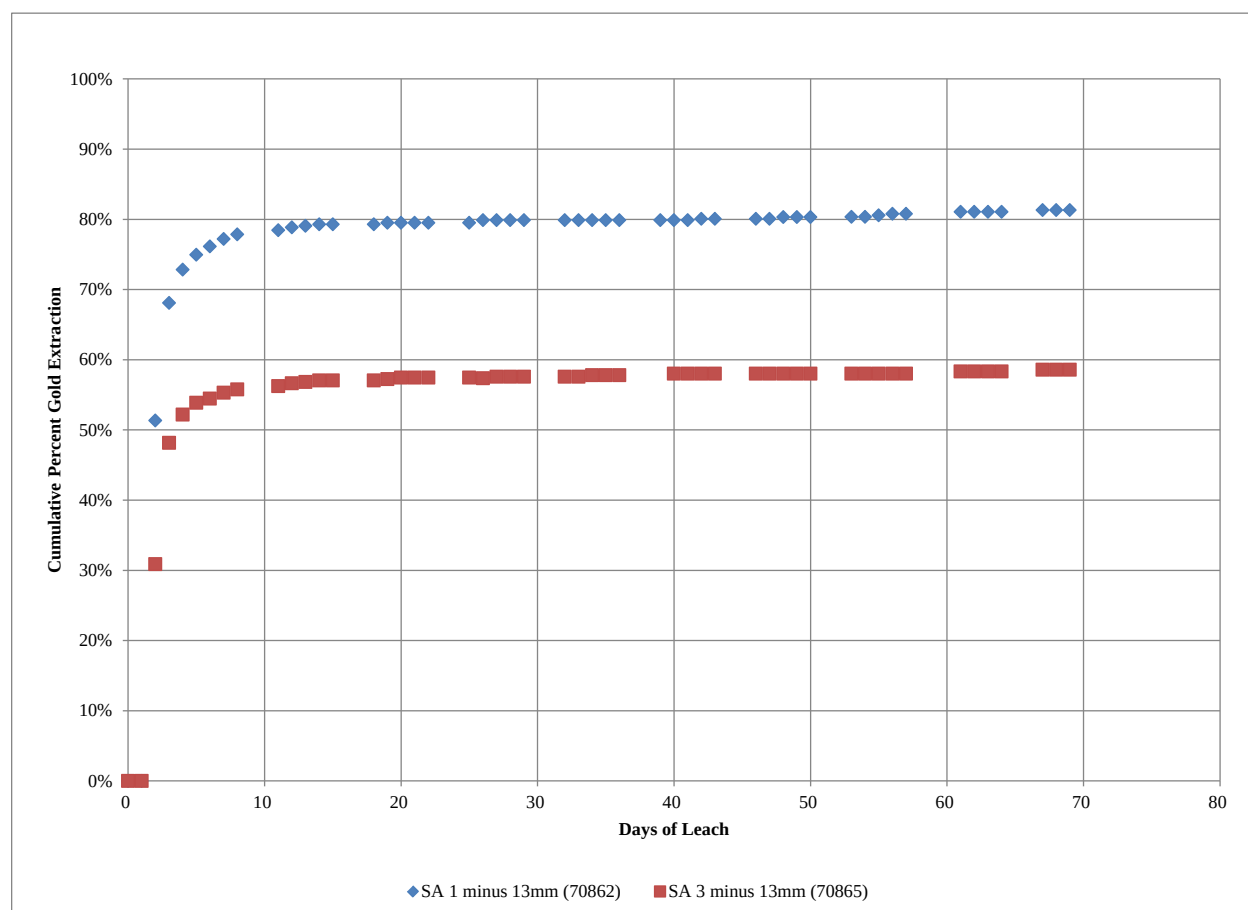
Column leach tests were conducted utilizing as-received material from each sample and leached for 69 days with a sodium cyanide solution. The results are presented in Table 13.7.6 and Figure 13.7.1.

Table 13.7.6: San Agustin KCA Laboratory Column Leach Test Summary

Description	Calculated Head, gms Au/MT	Extracted, gms Au/MT	Weighted Avg. Tails, gms Au/MT	Extracted, % Au	Calculated Tail p80 Size, mm	Days of Leach	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
SA 1 minus 13mm	0.433	0.352	0.081	81%	9.5	69	0.70	3.02
SA 3 minus 13mm	0.444	0.260	0.184	59%	9.1	69	1.02	3.12

Description	Calculated Head, gms Ag/MT	Extracted, gms Ag/MT	Weighted Avg. Tails, gms Ag/MT	Extracted, % Ag	Calculated Tail p80 Size, mm	Days of Leach	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
SA 1 minus 13mm	18.32	6.41	11.91	30%	9.5	69	0.70	3.02
SA 3 minus 13mm	5.73	1.89	3.84	33%	9.1	69	1.02	3.12

Figure 13.7.1: San Agustin KCA Laboratory Column Leach Tests Curves



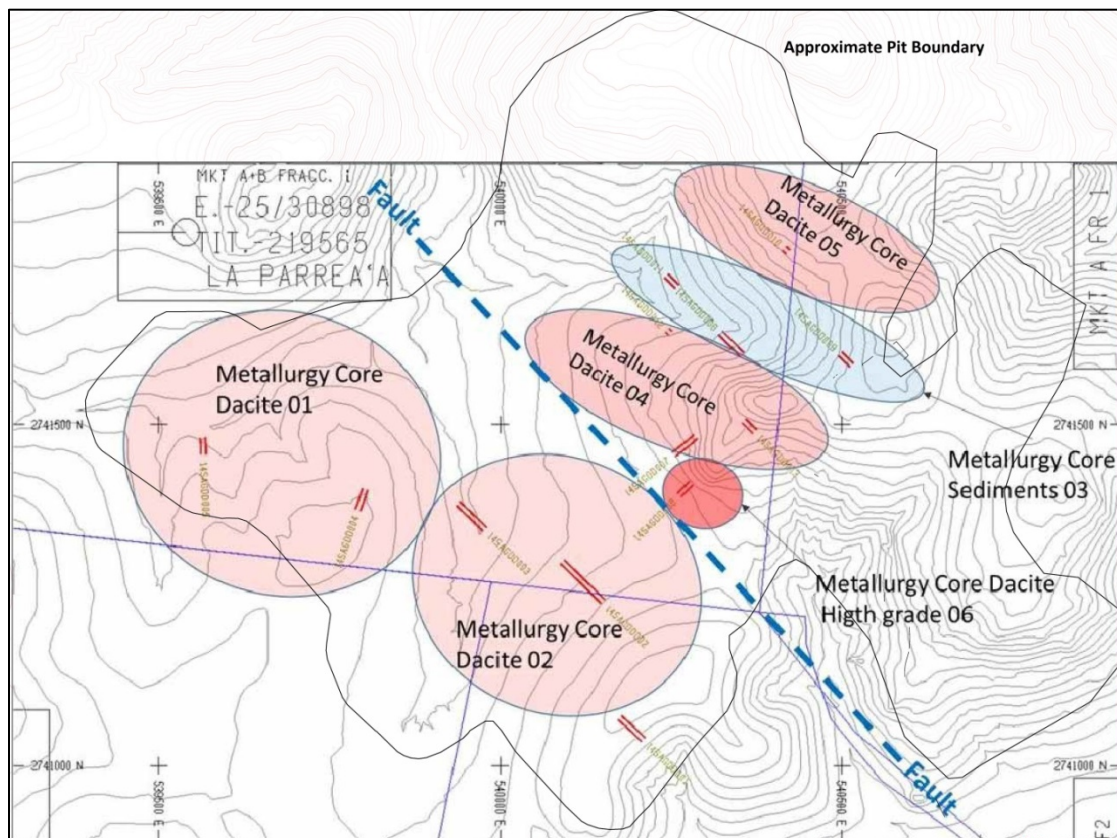
13.8 KCA Laboratory Metallurgical Testing 2014 (Drill Cores)

KCA's laboratory conducted metallurgical testing on core material consisting of head analyses, agglomeration tests, bottle roll and column leach test work. A total of six composite samples were prepared and utilized for the test work. The summary of the core material composites is presented in Table 13.8.1 along with a location map in Figure 13.8.1.

Table 13.8.1: San Agustin KCA Laboratory Core Composites Information

Description	Rock Type	Drill Hole, 14SAGDD #	Estimated Grade, gms Au/MT	Estimated Grade, gms Ag/MT	Weight Received, kg
Met Core SA 01	Dacite	4, 5	0.29	13.5	291.59
Met Core SA 02	Dacite	2, 3	0.90	46.7	284.51
Met Core SA 03	Sediments	6, 9, 11	0.63	13.8	307.81
Met Core SA 04	Dacite	7, 12, 13	0.56	7.9	300.78
Met Core SA 05	Dacite	10	0.42	7.2	289.96
Met Core SA 06	Dacite, High Grade	8	3.13	43.8	310.26

Figure 13.8.1: San Agustin KCA Laboratory Core Composites Location



Head analyses were completed on each sample which included head grades by fire assay, head screen analysis, and physical test work by ALS Minerals Kamloops. The results of the head analyses for gold and silver are summarized in Table 13.8.2 and the results of the physical test work in Table 13.8.3.

Table 13.8.2: San Agustin KCA Laboratory Head Grade Analyses

Description	Rock Type	Average Assay, gms Au/MT	Average Assay, gms Ag/MT	Weighted Average Head Assay ¹ , gms Au/MT	Weighted Average Head Assay ¹ , gms Ag/MT
Met_Core_SA_1	Dacite	0.285	16.45	0.323	16.44
Met_Core_SA_2	Dacite	0.571	27.00	0.506	26.04
Met_Core_SA_3	Sediments	0.710	10.41	0.676	9.95
Met_Core_SA_4	Dacite	0.662	7.10	0.518	6.70
Met_Core_SA_5	Dacite	0.453	7.30	0.417	6.72
Met_Core_SA_6	Dacite High Grade	5.276	47.40	4.614	45.28

Note (1): Average of head screen analyses completed on sample material at the crush sizes utilized for the column leach tests outlined in this report

Table 13.8.3: San Agustin ALS Minerals Kamloops Physical Test Work

Bulk Sample	Specific Gravity	Crush Work Indices, kw-hr/MT	Abrasion Indices	Unconfined Compressive Strength, Mpa
1	2.35	4.8	0.051	—
2	2.23	6.4	0.027	76.3
3	2.38	6.9	0.034	—
Average	2.32	6.0	0.037	76.3

Cyanide bottle roll leach tests were completed on pulverized portions of each composite sample. Each leach test was run for a period of ninety-six (96) hours. The tests utilized 1,000 grams of pulverized material (target 80% passing 0.075 millimeters) slurried with 1,500 milliliters of water. Sodium cyanide was added and maintained at 1.0 grams per liter of solution. The pH of the solution was maintained at 10.5 to 11.0 with the addition of hydrated lime, $\text{Ca}(\text{OH})_2$.

For bottle roll leach tests, gold extractions ranged from 77% to 87% based on calculated heads which ranged from 0.254 to 4.671 g/t. The sodium cyanide consumptions ranged from <0.01 to 0.08 kg/t and 2.00 to 3.50 kg/t of hydrated lime was used. Results of the cyanide bottle roll leach test work are summarized in Table 13.8.4.

Table 13.8.4: San Agustin KCA Laboratory Bottle Roll Tests

Description	Calculated Head, gms Au/MT	Au Extracted, %	Leach Time, hours	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
Met_Core_SA_1	0.254	84%	96	0.04	2.00
Met_Core_SA_2	0.507	87%	96	0.04	2.50
Met_Core_SA_3	0.560	79%	96	0.07	3.50
Met_Core_SA_4	0.573	77%	96	0.08	3.00
Met_Core_SA_5	0.386	77%	96	<0.01	2.50
Met_Core_SA_6	4.671	83%	96	0.08	3.00

Description	Calculated Head, gms Ag/MT	Ag Extracted, %	Leach Time, hours	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT
Met_Core_SA_1	14.99	48%	96	0.04	2.00
Met_Core_SA_2	20.59	38%	96	0.04	2.50
Met_Core_SA_3	8.30	41%	96	0.07	3.50
Met_Core_SA_4	5.47	40%	96	0.08	3.00
Met_Core_SA_5	5.00	36%	96	<0.01	2.50
Met_Core_SA_6	40.63	32%	96	0.08	3.00

Agglomeration tests were conducted utilizing 2 kg portions of each sample crushed to 100% passing 13 millimeters. Four (4) separate agglomeration tests were performed on each sample at each crush size for a total of twenty-four (24) tests. The sample was tested using 0 (no cement addition or solution added), 3, 6 and 9 kg of Portland Type II cement per tonne of material. Percolation tests were conducted in small (75 millimeter inside diameter) columns at a range of cement levels with no compressive load applied. The purpose of the percolation tests was to examine the permeability of the material under various cement agglomeration levels.

All of the agglomeration tests passed with respect to standards developed by KCA which look at flow rate, slump, agglomerate quality and effluent color and clarity. The material with no cement addition exhibited low pH values, but can be corrected with the addition of lime.

Column leach tests were conducted utilizing portions of material crushed to 100% passing 51 and 13 millimeters from each composite sample. The material was leached for 73 days with a sodium cyanide solution. Once leaching was completed, compacted permeability test work was completed on tailings material from the columns utilizing material crushed to 100% passing 13 millimeters.

For column test material crushed to 100% passing 51 mm, gold extractions ranged from 46 to 81% based on calculated heads which ranged from 0.301 to 4.179 g/t and NaCN consumptions ranging from 0.17 to 0.70 kg/t. The material crushed to 100% passing 13 mm showed gold extractions ranging from 50 to 84%, based on calculated heads from 0.344 to 4.609 g/t, and NaCN consumptions ranging from 0.34 to 0.80 kg/t.

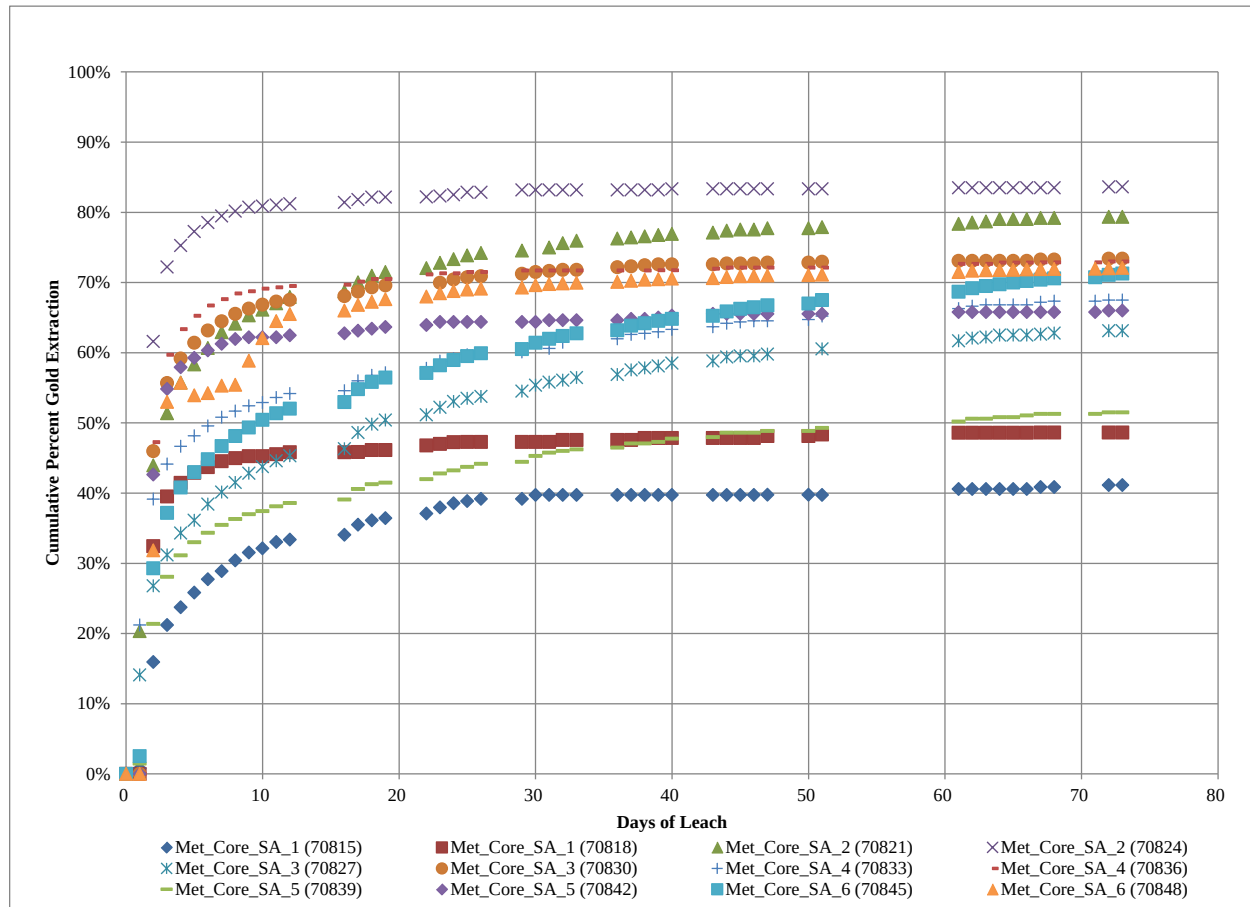
Both crush sizes required over 4 kg/t of hydrated lime to maintain a leachable pH level. The results of the column leach test work are presented in Table 13.8.6 and Figure 13.8.2.

Table 13.8.5: San Agustin KCA Laboratory Column Leach Tests

Description	Calculated Head, gms Au/MT	Extracted, % Au	Calculated Tail p80 Size, mm	Days of Leach	Consumption NaCN, kg/MT	Addition Hydrated Lime, kg/MT
Met_Core_SA_1	0.301	46%	39	73	0.17	4.14
Met_Core_SA_1	0.344	50%	9.7	73	0.34	4.11
Met_Core_SA_2	0.508	81%	36	73	0.31	4.10
Met_Core_SA_2	0.516	84%	9.8	73	0.43	4.11
Met_Core_SA_3	0.612	66%	40	73	0.70	4.22
Met_Core_SA_3	0.632	74%	9.5	73	0.75	4.19
Met_Core_SA_4	0.492	70%	39	73	0.54	4.17
Met_Core_SA_4	0.512	75%	9.7	73	0.64	4.14
Met_Core_SA_5	0.385	56%	44	73	0.68	4.10
Met_Core_SA_5	0.363	68%	9.8	73	0.80	4.07
Met_Core_SA_6	4.179	72%	44	73	0.65	4.25
Met_Core_SA_6	4.609	71%	9.8	73	0.80	4.22

Description	Calculated Head, gms Ag/MT	Extracted, % Ag	Calculated Tail p80 Size, mm	Days of Leach	Consumption NaCN, kg/MT	Addition Hydrated Lime, kg/MT
Met_Core_SA_1	13.26	12%	39	73	0.17	4.14
Met_Core_SA_1	11.59	24%	9.7	73	0.34	4.11
Met_Core_SA_2	19.67	12%	36	73	0.31	4.10
Met_Core_SA_2	16.84	18%	9.8	73	0.43	4.11
Met_Core_SA_3	8.68	19%	40	73	0.70	4.22
Met_Core_SA_3	8.57	28%	9.5	73	0.75	4.19
Met_Core_SA_4	5.95	18%	39	73	0.54	4.17
Met_Core_SA_4	5.39	25%	9.7	73	0.64	4.14
Met_Core_SA_5	5.71	17%	44	73	0.68	4.10
Met_Core_SA_5	4.75	24%	9.8	73	0.80	4.07
Met_Core_SA_6	39.85	17%	44	73	0.65	4.25
Met_Core_SA_6	45.50	22%	9.8	73	0.80	4.22

Figure 13.8.2: San Agustin KCA Laboratory Column Leach Tests



The carbon samples from the column tests were dried and assayed for soluble mercury and copper content. Results indicate mercury extracted onto the carbon ranged of 0.38 to 2.94 mg/kg with copper 4.3 to 12.8 mg/kg. The mercury and copper concentrations are presented in Table 13.8.7. Mercury levels are relatively high and will require the use of a mercury retort to extract the mercury prior to smelting. The copper content and soluble copper levels were relatively low.

Table 13.8.6: San Agustin KCA Laboratory Mercury and Copper

Description	Cyanide Soluble Mercury, mg/kg	Total Copper, mg/kg	Cyanide Soluble Copper, mg/kg	Cyanide Soluble Copper, %
Met_Core_SA_1	2.94	141	9.4	7%
Met_Core_SA_2	2.14	151	12.8	8%
Met_Core_SA_3	1.50	152	12.1	8%
Met_Core_SA_4	0.48	84	4.7	6%
Met_Core_SA_5	0.38	41	8.1	20%
Met_Core_SA_6	0.53	14	4.3	31%

Compacted permeability test work was performed on tailings material from each column utilizing material previously crushed to 100% passing 13 millimeters. The purpose of the compacted permeability test work was to examine the permeability of the crushed material under compaction loading equivalent to heap heights of 40, 60 and 80 meters of overall heap height.

The flow rate, slump, pellet breakdown and solution color and clarity are all monitored to provide meaningful indications and to help judge what represents a “Pass” or “Fail”. All compaction tests on tailings material passed the criteria that KCA utilizes. The results are summarized in Table 13.8.8.

Table 13.8.7: San Agustin KCA Laboratory Compacted Permeability Test Results

Description	Stage	Test Phase	Effective Height, meters	Out Flow Type	Flow Rate, LpHr/m ²	Cum. Slump, %	Color and Clarity	Flow Pass/Fail
Met_Core_SA_01	1	Initial	40	Pumped	97	4%	Lt. Brwn & Cldy	Pass
	2	Staged Load	60	Pumped	126	6%	Lt. Brwn & Cldy	Pass
	3	Staged Load	80	Pumped	127	7%	Lt. Brwn & Cldy	Pass
	4	Staged Load	80	Gravity	2,217	7%	Brwn & Cldy	Pass
Met_Core_SA_02	1	Initial	40	Pumped	111	3%	Lt. Brwn & Cldy	Pass
	2	Staged Load	60	Pumped	94	6%	Lt. Brwn & Cldy	Pass
	3	Staged Load	80	Pumped	92	8%	Lt. Brwn & Cldy	Pass
	4	Staged Load	80	Gravity	3,534	8%	Brwn & Cldy	Pass
Met_Core_SA_03	1	Initial	40	Pumped	94	3%	Lt. Brwn & Cldy	Pass
	2	Staged Load	60	Pumped	97	6%	Lt. Brwn & Cldy	Pass
	3	Staged Load	80	Pumped	102	7%	Lt. Brwn & Cldy	Pass
	4	Staged Load	80	Gravity	3,508	7%	Brwn & Cldy	Pass
Met_Core_SA_04	1	Initial	40	Pumped	96	2%	Lt. Brwn & Cldy	Pass
	2	Staged Load	60	Pumped	97	4%	Lt. Brwn & Cldy	Pass
	3	Staged Load	80	Pumped	97	6%	Lt. Brwn & Cldy	Pass
	4	Staged Load	80	Gravity	3,149	6%	Brwn & Cldy	Pass
Met_Core_SA_05	1	Initial	40	Pumped	91	3%	Lt. Brwn & Cldy	Pass
	2	Staged Load	60	Pumped	93	4%	Lt. Brwn & Cldy	Pass
	3	Staged Load	80	Pumped	93	5%	Lt. Brwn & Cldy	Pass
	4	Staged Load	80	Gravity	5,354	5%	Lt. Brwn & Cldy	Pass
Met_Core_SA_06	1	Initial	40	Pumped	98	1%	Lt. Brwn & Cldy	Pass
	2	Staged Load	60	Pumped	100	2%	Lt. Brwn & Cldy	Pass
	3	Staged Load	80	Pumped	101	3%	Lt. Brwn & Cldy	Pass
	4	Staged Load	80	Gravity	1,880	3%	Lt. Brwn & Cldy	Pass

Note: First three (3) stages utilized a flowrate around 100 LpHr/m² to avoid fines migration, and the last stage was completed at full flow conditions.

13.9 Metal Recovery and Reagent Consumption Projections

Column leach test work from MLI, EC, and KCA laboratories was analyzed to determine field gold and silver heap leach recoveries. The results from PRA Laboratories were not included because final results were not available.

The resulting data from the three laboratories was compiled and sorted by sample type and crush size. Standard deviations for the gold and silver recoveries separately averaged 9% for the 80% passing 9 mm, 39 mm, and 131 mm crush sizes. Utilizing the resulting gold and silver recovery data, additional crush sizes were estimated using averages between power, log and linear regression trendline equations. Reagent consumptions for the additional crush sizes were estimated in a similar manner, with the exception of the El Castillo sodium cyanide consumption, where a discount was applied to adjust for their solution accounting method, and MLI sodium cyanide consumptions, where MLI's recommended scale-up factor was utilized.

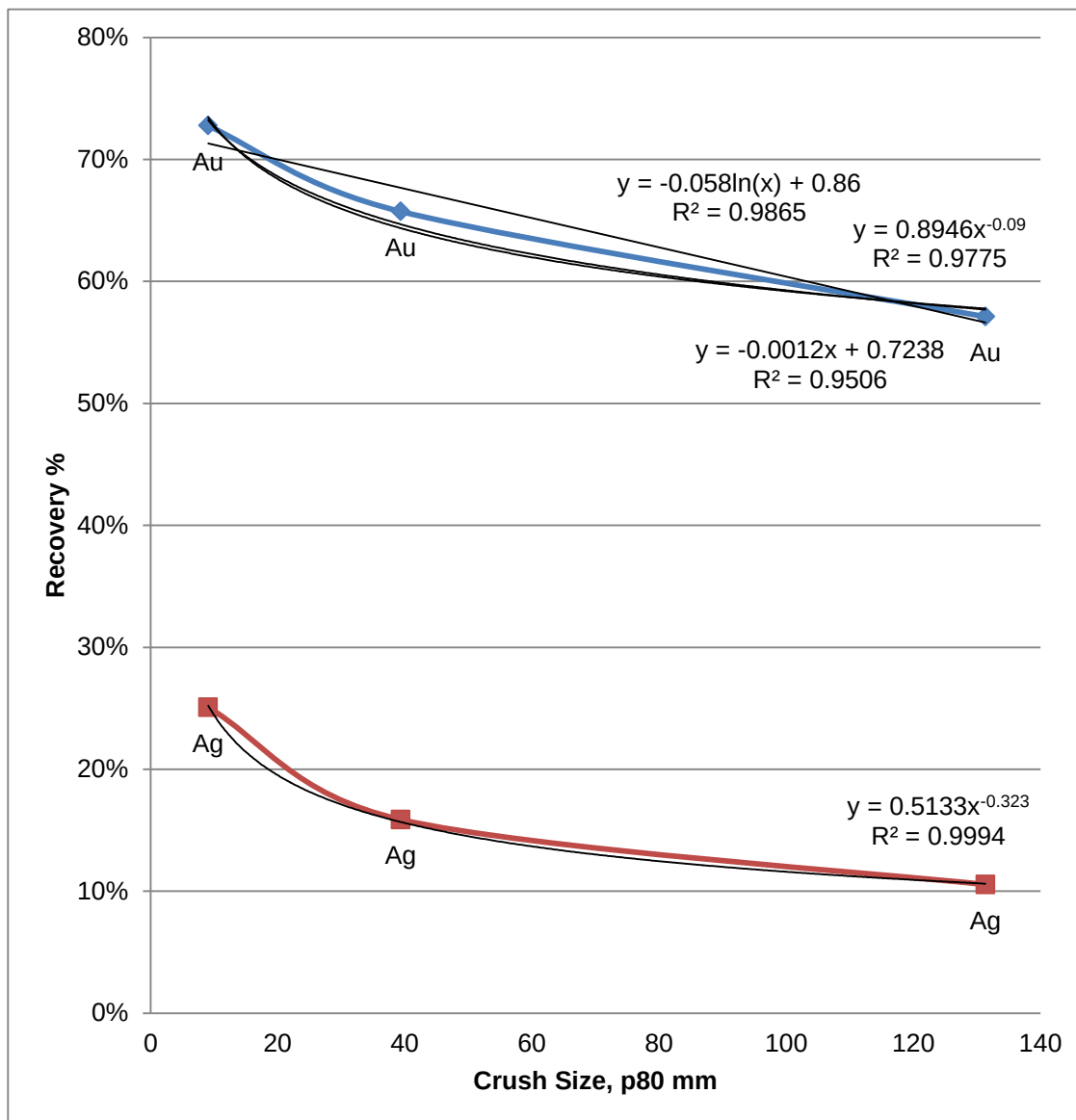
Heap leach field projections for gold and silver recovery were estimated based on a three percentage point deduction for gold and silver. A summary table showing the overall average results for each size fraction is presented in Table 13.9.1, and Figure 13.9.1 illustrates the regression trendline equations utilized in projecting the additional crush size fractions.

For the San Agustin Project final crush sizes of 80% passing 22 mm and 100 mm were selected for the Fine Crushing and Coarse Crushing circuits, respectively. The final crush sizes were selected by Argonaut after conducting a brief crushing cost versus recovery analysis.

Table 13.9.1: San Agustin Column Leach Test Work Overall Averages & Projections

Crush Size	Lab Recoveries		Lab Recovery Projections from Curve Eq'ns		Field Projections			
					Au	Ag	NaCN kg/MT	Ca(OH) ₂ kg/MT
p80, mm	Au	Ag	Au	Ag	Au	Ag	NaCN kg/MT	Ca(OH) ₂ kg/MT
9	73%	25%	73%	25%	70%	22%	0.26	4.00
22¹	–	–	69%	19%	66%	16%	0.23	4.00
39	66%	16%	66%	16%	63%	13%	0.22	4.00
75	–	–	61%	13%	58%	10%	0.19	4.00
85	–	–	60%	12%	57%	9%	0.18	4.00
100²	–	–	60%	12%	57%	9%	0.18	3.50
131	57%	11%	57%	11%	54%	8%	0.17	3.50
200	–	–	53%	9%	50%	6%	0.15	3.50

Notes: 1) Crush size selected for Fine Crushed material.
2) Crush size selected for Coarse Crushed material.

Figure 13.9.1: San Agustin Regression Trendline Equations for Recovery Projections

For field extractions, KCA normally discounts laboratory gold extractions by two to three percentage points and silver extractions by three to five percentage points. This assumes a well-managed heap leach operation, and if agglomeration is required, it is assumed that this process is completed correctly. Based upon KCA's experience with mostly clean non-reactive ores, cyanide consumption in production heaps would be 30 percent of the laboratory column test consumptions. For ores containing high amounts of leachable copper, higher factors should be utilized.

Overall, the column leach test work from MLI, EC, and KCA laboratories demonstrated good correlation in the respective crush sizes with standard deviations in gold recovery ranging from 4 to 14%. Surface trench and core sample exhibited excellent correlation with standard deviations less than 2% in gold recovery and 3% in silver recovery. The duplicated surface trench samples tested by KCA and EC laboratories also demonstrated acceptable variations in the column test work. The results of all the column tests are summarized in Table 13.9.2.

Table 13.9.2: San Agustin Column Test Results for MLI, EC, and KCA Laboratories

Description	Lab	Calc. Head, gms Au/MT	Extracted, % Au	Calc. Head, gms Ag/MT	Extracted, % Ag	Crush Size p80, mm	Days of Leach	Consumption NaCN, kg/MT	Addition Ca(OH) ₂ , kg/MT	Statistics
SA (1) 100 % -13mm	EC	0.425	82%	25.14	28%	6.3	113	0.28	4.0	Surface Avg, Au: 72% Ag: 28%
SA (2) 100 % -13mm	EC	0.249	61%	10.01	8%	9.4	106	0.20	3.9	
SA (3) 100 % -13mm	EC	0.690	76%	11.26	28%	7.5	98	0.25	4.0	Core Avg, Au: 70% Ag: 24%
SA (4) 100 % -13mm	EC	0.650	71%	3.92	36%	8.3	80	0.24	3.3	
Met_Core_SA_1	KCA	0.344	50%	11.59	25%	9.7	73	0.10	4.1	
Met_Core_SA_2	KCA	0.516	84%	16.84	18%	9.8	73	0.13	4.1	
Met_Core_SA_3	KCA	0.632	74%	8.57	28%	9.5	73	0.23	4.2	
Met_Core_SA_4	KCA	0.521	75%	5.39	25%	9.7	73	0.19	4.1	
Met_Core_SA_5	KCA	0.363	68%	4.75	24%	9.8	73	0.24	4.1	
Met_Core_SA_6*	KCA	4.609	71%	45.50	22%	9.8	73	0.24	4.2	
SA 1 minus ½ inch	KCA	0.477	83%	18.46	35%	9.5	69	0.21	3.0	Average Standard Deviation
SA 3 minus ½ inch * High Grade	KCA	0.473	61%	5.80	34%	9.1	69	0.31	3.1	
		0.829 0.137	71% 11%	13.94 6.67	26% 8%	9.0	81	0.22	3.8	
SAOX Main Zone	MLI	0.730	79%	13.10	37%	19	118	0.50	2.0	Average Standard Deviation
SAOX Zone 2	MLI	0.370	81%	21.30	8%	19	118	0.55	1.7	
SAOX Zone 4	MLI	0.420	74%	18.00	20%	19	118	0.57	2.6	
		0.507 0.195	78% 4%	17.47 4.13	22% 14%	19	118	0.54	2.1	
SA (1) 100 % -51mm	EC	0.402	84%	22.21	20%	38	105	0.29	3.8	Surface Avg, Au: 67% Ag: 16%
SA (2) 100 % -51mm	EC	0.290	64%	8.84	5%	33	98	0.16	3.6	
SA (3) 100 % -51mm	EC	0.410	45%	9.04	13%	36	90	0.23	3.7	Core Avg, Au: 65% Ag: 16%
SA (4) 100 % -51mm	EC	0.652	73%	4.38	27%	45	72	0.22	3.1	
Met_Core_SA_1	KCA	0.301	46%	13.26	12%	39	73	0.05	4.1	
Met_Core_SA_2	KCA	0.508	81%	19.67	12%	36	73	0.09	4.1	
Met_Core_SA_3	KCA	0.612	66%	8.68	19%	40	73	0.21	4.2	
Met_Core_SA_4	KCA	0.492	70%	5.95	18%	39	73	0.16	4.2	
Met_Core_SA_5	KCA	0.385	56%	5.71	17%	44	73	0.20	4.1	
Met_Core_SA_6*	KCA	4.179	72%	39.85	17%	44	73	0.20	4.3	
* High Grade		0.823 0.126	66% 14%	13.76 6.29	16% 6%	39	80	0.18	3.9	Average Standard Deviation
SA (1) ROM	EC	0.454	68%	20.30	13%	87	105	0.21	3.2	Average Standard Deviation
SA (2) ROM	EC	0.242	46%	10.00	1%	97	98	0.17	3.1	
SA (3) ROM	EC	0.456	58%	9.40	14%	209	98	0.18	3.2	
SA (4) ROM	EC	0.630	56%	3.87	13%	133	78	0.17	3.0	
		0.446 0.159	57% 9%	10.89 6.85	11% 6%	131	95	0.18	3.1	
Summary										
Calculated Heads (With High Grade)		0.651 0.204		14.01 2.69						Average Standard Deviation
Calculated Heads (Without High Grade)		0.470 0.136		11.7 6.4						Average Standard Deviation

14 Mineral Resource Estimate

The following sections were taken directly from the October 2014 Resource Technical Report.

14.1 San Agustin Block Model

The San Agustin deposit was modeled by RMI using MineSight®, a widely recognized mine engineering software package (version 8.50 - build 60766-67). Various digital data were provided to RMI by Argonaut's geologic staff. These data were imported into MineSight® where various statistical analyses were completed. A three-dimensional block model was setup for the purpose of estimating gold and silver resources. Table 14.1.1 summarizes key parameters for the non-rotated block model based on NAD27 Mexico Zone 13 UTM coordinates.

Table 14.1.1: San Agustin Block Model Dimensions

Parameter	NAD27 Coordinates		Block Size (m)	Number of Blocks	Areal Extent (m)
	Minimum	Maximum			
Easting	538,750	541,324	6	429	2,574
Northing	2,740,700	2,742,344	6	274	1,644
Elevation	1,500	1,986	6	81	486

14.2 Data Provided to RMI

Drill hole data for the San Agustin Project were provided to RMI as ASCII text files. The drill hole data included collar locations, down-hole surveys, assay grades, lithology, oxidation state, and structural data. RMI also requested that Argonaut provide signed assay certificates for validating the assay database (see Section 12).

Argonaut also provided RMI with various digital surfaces and three dimensional solids including shapes for rock type, oxidation, and the Main Fault surface. A digital topographic surface was also provided (see Section 14.14).

Bulk density determinations from representative samples were provided to RMI in a Microsoft Excel spreadsheet. These data were analyzed by RMI in order to assign bulk density values in the block model (see Section 14.15).

14.3 Gold Assay Grade Distribution

Block model gold grades were estimated with drill hole assay intervals that were composited into six-meter-long composites after high-grade outliers were capped. Section 14.5 discusses grade capping.

Table 14.3.1 summarizes gold grade statistics at four cutoff grades by the company that drilled the holes. The number of meters and incremental percentage of assayed data for each cutoff grade are shown in columns 3 and 4, respectively. The mean gold grade, grade-thickness product (Grd-Thk), and incremental contained metal for each cutoff grade are shown in columns 5, 6, and 7, respectively. The standard deviation (Std. Dev.) and coefficient of variation (CV) are shown in columns 8 and 9, respectively.

Table 14.3.1: San Agustin Gold Assay Statistics by Company

Company	Uncapped Au Statistics Above Cutoff							
	Au Cutoff (g/t)	Total Meters	Inc. Percent	Mean Au (g/t)	Grd-Thk (g/t-m)	Inc. Percent	Std. Dev.	Coeff. Of Variation
All Data	0.00	78,756	71%	0.29	22,542	25.0%	6.12	21.36
	0.25	22,898	18%	0.74	16,904	22.1%	11.33	15.34
	0.50	8,624	8%	1.38	11,932	18.2%	18.44	13.33
	1.00	2,544	3%	3.07	7,822	34.7%	33.89	11.02
Monarch	0.00	10,349	65%	0.33	3,401	24.1%	0.79	2.40
	0.25	3,585	21%	0.72	2,583	21.9%	1.24	1.73
	0.50	1,443	10%	1.27	1,839	19.8%	1.82	1.43
	1.00	439	4%	2.65	1,165	34.2%	2.85	1.08
Silver Standard	0.00	3,896	62%	0.34	1,339	21.2%	1.16	3.38
	0.25	1,464	22%	0.72	1,055	22.4%	1.83	2.54
	0.50	609	10%	1.24	756	20.6%	2.75	2.22
	1.00	204	5%	2.35	480	35.8%	4.56	1.94
Geologix	0.00	39,812	68%	0.27	10,813	24.3%	0.59	2.17
	0.25	12,817	20%	0.64	8,188	25.4%	0.93	1.46
	0.50	5,005	9%	1.09	5,439	22.2%	1.38	1.27
	1.00	1,481	4%	2.05	3,040	28.1%	2.24	1.09
Argonaut	0.00	24,699	80%	0.28	6,990	27.4%	10.87	38.42
	0.25	5,032	14%	1.01	5,078	16.9%	24.07	23.86
	0.50	1,567	5%	2.49	3,898	10.9%	43.11	17.33
	1.00	420	2%	7.46	3,138	44.9%	83.01	11.12

The data in Table 14.3.1 show that the majority of the gold assay data were collected by two companies, Geologix (51%) and Argonaut (31%). The high coefficient of variation for the Argonaut data is due to the presence of high-grade outlier values that are commingled with low-grade values that were collected from the margins of the deposit.

Gold assay statistics are tabulated in Table 14.3.2 for logged lithologic units. Currently, there are three principal mineralized geologic units recognized at the San Agustin deposit; dacite porphyry, sediments, and dacite breccia. Twenty-six other logged lithologies were combined together in Table 14.3.2 in the "All Other Lithologies" category. These 26 unique units collectively represent about 7% of the total gold assay data.

Table 14.3.2: San Agustin Gold Assay Statistics by Logged Lithology

Lithology	Uncapped Au Statistics Above Cutoff							
	Au Cutoff (g/t)	Total Meters	Inc. Percent	Mean Au (g/t)	Grd-Thk (g/t-m)	Inc. Percent	Std. Dev.	Coeff. Of Variation
All Data	0.00	78,756	71%	0.29	22,542	25.0%	6.12	21.36
	0.25	22,898	18%	0.74	16,904	22.1%	11.33	15.34
	0.50	8,624	8%	1.38	11,932	18.2%	18.44	13.33
	1.00	2,544	3%	3.07	7,822	34.7%	33.89	11.02
Dacite	0.00	50,015	73%	0.29	14,280	27.5%	7.66	26.84
	0.25	13,299	18%	0.78	10,346	21.3%	14.85	19.08
	0.50	4,453	6%	1.64	7,307	15.0%	25.64	15.62
	1.00	1,247	2%	4.14	5,160	36.1%	48.35	11.69
Sediments	0.00	18,872	69%	0.27	5,065	22.5%	0.50	1.85
	0.25	5,905	18%	0.66	3,923	23.7%	0.74	1.11
	0.50	2,526	9%	1.08	2,724	23.2%	0.99	0.91
	1.00	790	4%	1.96	1,548	30.6%	1.39	0.71
Dacite Breccia	0.00	4,262	42%	0.46	1,954	11.5%	0.65	1.42
	0.25	2,492	32%	0.69	1,730	24.8%	0.77	1.10
	0.50	1,146	19%	1.09	1,245	28.4%	0.99	0.91
	1.00	342	8%	2.02	691	35.4%	1.41	0.70
All Other Lithologies	0.00	5,607	79%	0.22	1,244	27.3%	0.66	2.96
	0.25	1,203	13%	0.75	904	20.0%	1.28	1.70
	0.50	499	6%	1.31	655	18.6%	1.85	1.41
	1.00	165	3%	2.57	423	34.0%	2.82	1.10

Table 14.3.3 tabulates similar gold statistics by logged oxidation state. The data in Table 14.3.3 show that the mean grade of oxide samples is approximately 32% lower than sulfide samples. Logged transition samples (a zone located between the upper oxidized and lower sulfide portions of the deposit) only represent about 2% of the assayed data and reflect an abrupt change between highly oxidized and sulfidic material. The CV of the gold oxide data is slightly less than three while the sulfide CV is around 24, reflecting the presence of numerous high-grade outlier values in the sulfide portion of the deposit.

Table 14.3.4 tabulates uncapped gold assay statistics by oxidation state versus location relative to the Main Fault, an important northwesterly trending structure described in

Section 7. There is a clear difference in the distribution of gold grades relative to the Main Fault with 39% and 50% higher mean grades located east of the fault. Oxide CV's are similar on either side of the structure while there is a much higher CV for sulfide samples located east of the Main Fault.

Table 14.3.3: San Agustin Gold Assays by Logged Oxidation

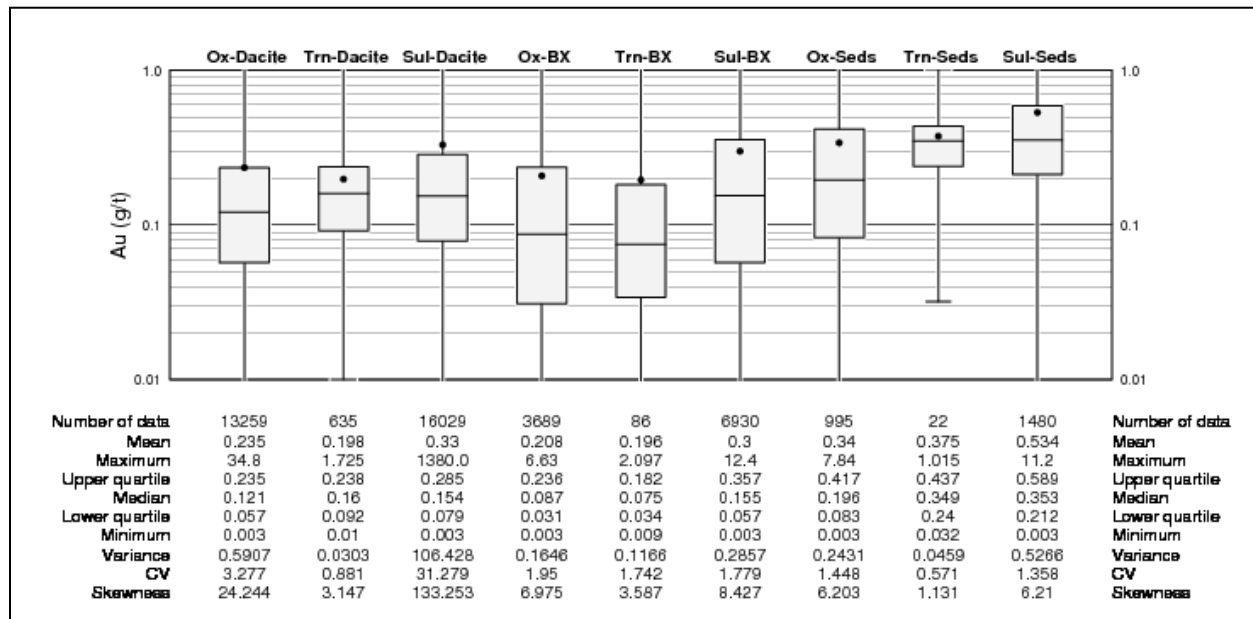
Redox	Uncapped Au Statistics Above Cutoff							
	Au Cutoff (g/t)	Total Meters	Inc. Percent	Mean Au (g/t)	Grd-Thk (g/t-m)	Inc. Percent	Std. Dev.	Coeff. Of Variation
All Data	0.00	78,756	71%	0.29	22,542	25.0%	6.12	21.36
	0.25	22,898	18%	0.74	16,904	22.1%	11.33	15.34
	0.50	8,624	8%	1.38	11,932	18.2%	18.44	13.33
	1.00	2,544	3%	3.07	7,822	34.7%	33.89	11.02
Oxide	0.00	31,888	76%	0.23	7,283	30.9%	0.68	2.97
	0.25	7,572	15%	0.66	5,034	23.3%	1.29	1.94
	0.50	2,651	6%	1.26	3,338	16.9%	2.05	1.63
	1.00	835	3%	2.52	2,108	28.9%	3.32	1.31
Transition	0.00	1,254	79%	0.20	254	45.3%	0.29	1.43
	0.25	262	14%	0.53	139	22.5%	0.50	0.94
	0.50	88	6%	0.93	82	17.5%	0.70	0.75
	1.00	18	1%	2.04	37	14.7%	0.87	0.42
Sulfide	0.00	44,139	66%	0.34	14,820	21.4%	8.15	24.26
	0.25	14,951	21%	0.78	11,648	21.6%	13.99	17.95
	0.50	5,837	9%	1.45	8,450	19.0%	22.37	15.45
	1.00	1,678	4%	3.36	5,641	38.1%	41.66	12.39
Undefined	0.00	1,475	92%	0.13	186	54.9%	0.34	2.71
	0.25	113	4%	0.74	84	11.8%	1.03	1.40
	0.50	48	2%	1.29	62	13.9%	1.41	1.10
	1.00	13	1%	2.84	36	19.3%	2.06	0.73

Table 14.3.4: San Agustin Gold Assay Statistics by Oxidation Relative to the Main Fault

Oxidation by Location	Uncapped Au Statistics Above Cutoff							
	Au Cutoff (g/t)	Total Meters	Inc. Percent	Mean Au (g/t)	Grd-Thk (g/t-m)	Inc. Percent	Std. Dev.	Coeff. Of Variation
All Data	0.00	78,756	71%	0.29	22,542	25.0%	6.12	21.36
	0.25	22,898	18%	0.74	16,904	22.1%	11.33	15.34
	0.50	8,624	8%	1.38	11,932	18.2%	18.44	13.33
	1.00	2,544	3%	3.07	7,822	34.7%	33.89	11.02
Oxide West of Fault	0.00	20,431	81%	0.20	4,125	33.3%	0.70	3.48
	0.25	3,860	12%	0.71	2,753	20.6%	1.51	2.11
	0.50	1,390	4%	1.37	1,904	15.0%	2.37	1.73
	1.00	478	2%	2.69	1,286	31.2%	3.70	1.37
Transition West of Fault	0.00	768	79%	0.19	145	52.0%	0.17	0.89
	0.25	164	17%	0.42	70	29.4%	0.22	0.51
	0.50	37	4%	0.73	27	13.4%	0.28	0.38
	1.00	6	1%	1.25	8	5.3%	0.28	0.22
Sulfide West of Fault	0.00	15,161	65%	0.27	4,068	28.3%	0.62	2.33
	0.25	5,335	23%	0.55	2,918	30.6%	0.99	1.81
	0.50	1,795	9%	0.93	1,674	23.3%	1.64	1.76
	1.00	373	2%	1.95	726	17.8%	3.40	1.75
Oxide East of Fault	0.00	11,302	67%	0.28	3,179	27.7%	0.63	2.25
	0.25	3,690	21%	0.62	2,298	26.2%	1.02	1.65
	0.50	1,283	8%	1.14	1,464	19.4%	1.61	1.41
	1.00	374	3%	2.27	848	26.7%	2.66	1.17
Transition East of Fault	0.00	346	70%	0.25	85	36.9%	0.26	1.08
	0.25	103	19%	0.52	54	24.9%	0.34	0.66
	0.50	39	9%	0.84	32	23.3%	0.38	0.45
	1.00	9	3%	1.40	13	14.9%	0.38	0.27
Sulfide East of Fault	0.00	26,458	64%	0.40	10,637	18.3%	10.51	26.15
	0.25	9,580	21%	0.91	8,690	18.3%	17.46	19.25
	0.50	4,027	10%	1.67	6,746	17.5%	26.91	16.06
	1.00	1,287	5%	3.79	4,882	45.9%	47.53	12.53
Undefined	0.00	4,290	96%	0.07	303	59.4%	0.29	4.04
	0.25	166	3%	0.74	123	12.8%	1.26	1.69
	0.50	54	1%	1.56	84	8.1%	1.96	1.26
	1.00	18	0%	3.25	60	19.8%	2.63	0.81

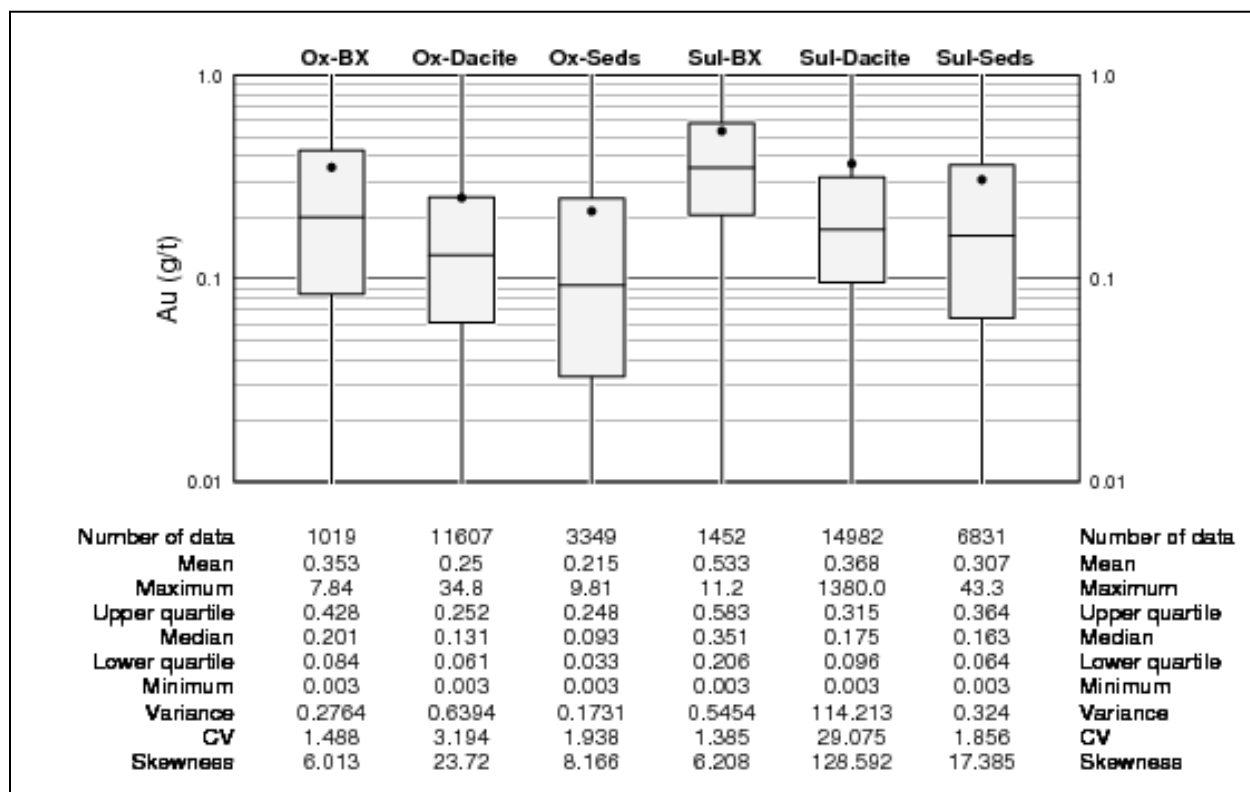
The distribution of gold grades is graphically illustrated by several box plot diagrams. Figure 14.3.1 compares gold grades based on logged lithologic and oxidation data. Figure 14.3.2 is a similar box plot that compares gold assays by modeled lithology and oxidation. The distinction between logged and modeled data is that in the process of creating three dimensional wireframes that represent various lithologic and oxidation states a certain degree of smoothing occurs. No transition data are shown in Figure 14.3.2 due to the small number of samples in the modeled transition shapes.

Figure 14.3.1: San Agustin Au Box Plot - Logged Lithology and Oxidation



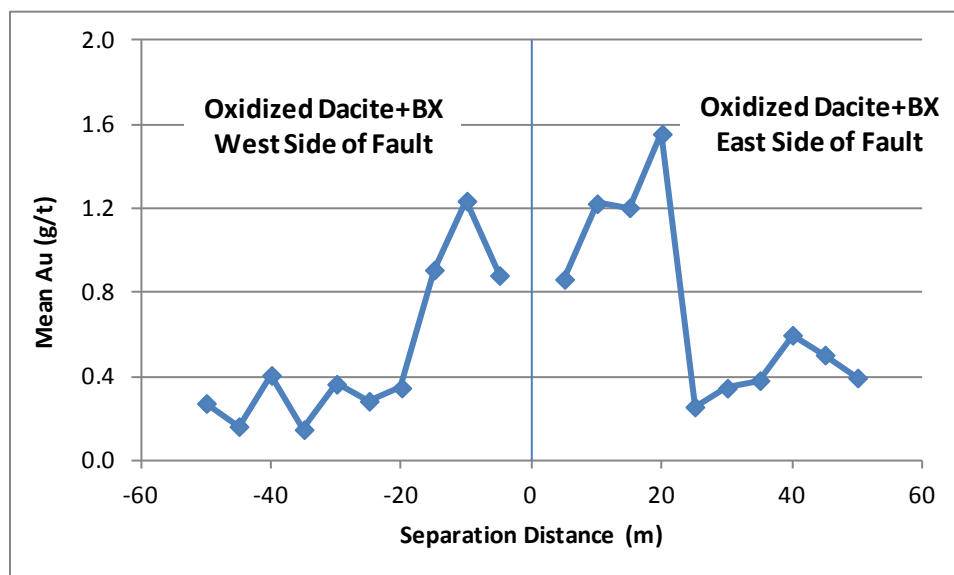
Note that the abbreviations in Figure 14.3.1 "Ox", "Trn", and "Sul" stand for oxide, transition, and sulfide respectively. Similarly, the abbreviations "BX" and "Seds" stand for dacite breccia and sediments, respectively.

Figure 14.3.2: San Agustin Au Box Plot - Modeled Lithology and Oxidation

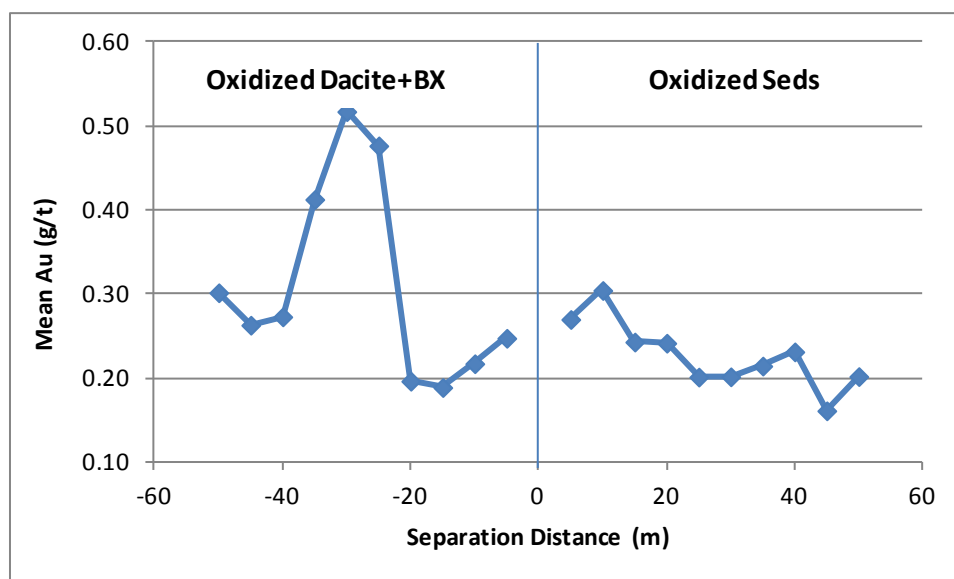


The data shown in Figure 14.3.1 show a consistent trend of increasing gold grades from oxide to transition to sulfide material. This is very apparent for dacite and sediments. The modeled data (samples based on block model wireframes) shown in Figure 14.3.2 likewise show a consistent trend of increasing gold grades for sediments (Seds), dacite and dacite breccia (BX). This relationship holds for both oxide and sulfide samples.

Gold grade contact plots were generated to better understand the relationship of grade by lithology and the Main Fault. Figure 14.3.3 shows how the mean gold grade of dacite and dacite breccia compare to the west and east of the Main Fault.

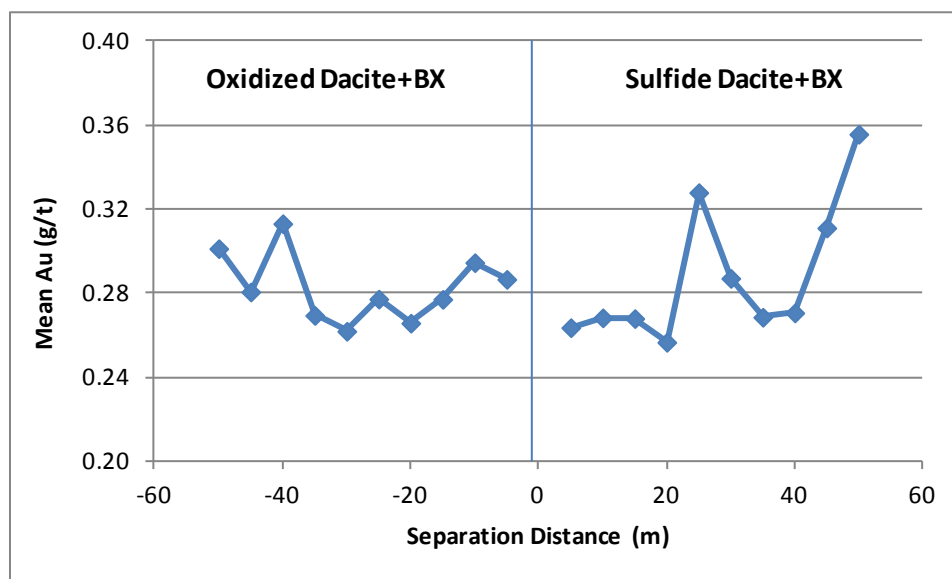
Figure 14.3.3: San Agustin Au Contact Plot - Oxidized Dacite Relative to the Main Fault

The data in Figure 14.3.3 show that gold grades hosted in dacite and dacite breccia increase with proximity to the Main Fault. Gold grades are considered by RMI to be transitional across the structure as there is no significant difference in grade immediately adjacent to the fault plane. Figure 14.3.4 is a gold contact plot that compares oxidized dacite and dacite breccia grades versus oxidized sediments.

Figure 14.3.4: San Agustin Au Contact Plot - Oxidized Dacite versus Oxidized Sediments

There is a similar transitional nature to gold mineralization when grades hosted in oxidized dacite plus oxidized breccias are compared to oxidized sediments. Figure 14.3.5 is a gold contact plot that compares oxidized dacite and dacite breccia to sulfide dacite and dacite breccia.

Figure 14.3.5: San Agustin Au Contact Plot - Oxidized Dacite versus Sulfide Dacite



The data in Figure 14.3.5 show that the gold grades in oxidized dacite are slightly higher than sulfide dacite at the oxide/sulfide boundary (0.29 g/t versus 0.26 g/t). Gold grades steadily increase in sulfide material with increasing distance from the oxide/sulfide contact.

The results from basic gold grade statistics and gold contact plots helped to define the gold grade estimation plan (see Section 14.9). The transitional nature of gold mineralization relative to host rock and oxidation state suggested that those boundaries should be treated as "soft" contacts in the grade estimation plan.

14.4 Silver Grade Distribution

Uncapped silver grade assay statistics for logged lithologic units are summarized in Table 14.4.1 at four different cutoff grades. All but the three main mineralized lithologies were combined into a single population named "All Other Lithologies".

Table 14.4.1: San Agustin Silver Assay Statistics by Logged Lithology

Lithology	Uncapped Ag Statistics Above Cutoff							
	Ag Cutoff (g/t)	Total Meters	Inc. Percent	Mean Ag (g/t)	Grd-Thk (g/t-m)	Inc. Percent	Std. Dev.	Coeff. Of Variation
All Data	0	78,273	64%	8	631,589	15.3%	26	3.22
	5	28,320	17%	19	534,911	15.1%	41	2.17
	10	14,719	11%	30	439,673	18.5%	55	1.83
	20	6,340	8%	51	322,744	51.1%	78	1.54
Dacite	0	49,835	68%	7	336,614	18.8%	20	2.99
	5	15,759	16%	17	273,178	16.9%	34	1.93
	10	7,590	9%	28	216,201	18.5%	46	1.61
	20	3,074	6%	50	153,876	45.7%	66	1.32
Sediments	0	18,872	56%	9	177,469	13.8%	21	2.20
	5	8,271	20%	19	153,063	14.9%	29	1.56
	10	4,522	13%	28	126,563	20.2%	36	1.30
	20	1,977	10%	46	90,685	51.1%	49	1.08
Dacite Breccia	0	4,262	35%	18	77,292	4.8%	51	2.79
	5	2,786	22%	26	73,553	8.7%	61	2.31
	10	1,836	20%	36	66,828	15.4%	73	2.01
	20	1,000	23%	55	54,929	71.1%	95	1.73
All Other Lithologies	0	5,304	72%	8	40,214	12.7%	50	6.53
	5	1,504	14%	23	35,118	12.5%	91	3.90
	10	771	9%	39	30,081	17.0%	125	3.21
	20	289	5%	80	23,254	57.8%	198	2.46

The mean silver grade at a zero cutoff is about 8 g/t for all but dacite porphyry, which is more than twice that grade suggesting that the distribution of silver may be more structurally controlled than gold mineralization. About 19% of all the silver assays are above a 10 g/t cutoff grade whereas 43% of the dacite breccia silver samples are above that cutoff. Table 14.4.2 summarizes silver assay statistics by logged oxidation state. There is little difference in the mean silver grade relative to oxidation state.

Silver assay statistics are summarized in Table 14.4.3 based on oxidation state and location relative to the Main Fault. Oxidized silver grades are similar on either side of the Main Fault but sulfide silver grades are significantly higher on the west side of the Main Fault. This relationship is the opposite the relationship seen in gold.

Table 14.4.2: San Agustin Silver Assay Statistics by Logged Oxidation

Redox	Uncapped Au Statistics Above Cutoff							
	Ag Cutoff (g/t)	Total Meters	Inc. Percent	Mean Ag (g/t)	Grd-Thk (g/t-m)	Inc. Percent	Std. Dev.	Coeff. Of Variation
All Data	0	78,273	64%	8	631,589	15.3%	26	3.22
	5	28,320	17%	19	534,911	15.1%	41	2.17
	10	14,719	11%	30	439,673	18.5%	55	1.83
	20	6,340	8%	51	322,744	51.1%	78	1.54
Oxide	0	31,787	65%	8	247,441	15.3%	25	3.15
	5	11,053	18%	19	209,653	15.8%	39	2.07
	10	5,454	10%	31	170,559	17.4%	53	1.69
	20	2,344	7%	54	127,491	51.5%	75	1.37
Transition	0	1,254	62%	9	11,886	11.9%	21	2.18
	5	479	18%	22	10,475	13.0%	29	1.34
	10	254	9%	35	8,929	13.9%	35	1.01
	20	140	11%	52	7,273	61.2%	41	0.78
Sulfide	0	44,060	62%	8	369,590	15.3%	27	3.27
	5	16,667	18%	19	313,142	14.6%	43	2.27
	10	8,954	12%	29	259,008	19.4%	56	1.94
	20	3,838	9%	49	187,320	50.7%	82	1.67
Undefined	0	1,171	90%	2	2,671	38.6%	6	2.71
	5	121	5%	14	1,641	17.4%	15	1.09
	10	57	3%	21	1,177	19.3%	19	0.92
	20	18	2%	36	661	24.8%	28	0.77

Table 14.4.3: San Agustin Silver Assay Statistics by Oxidation Relative to the Main Fault

Oxidation by Location	Uncapped Ag Statistics Above Cutoff							
	Ag Cutoff (g/t)	Total Meters	Inc. Percent	Mean Ag (g/t)	Grd-Thk (g/t-m)	Inc. Percent	Std. Dev.	Coeff. Of Variation
All Data	0	78,273	64%	8	631,589	15.3%	26	3.22
	5	28,320	17%	19	534,911	15.1%	41	2.17
	10	14,719	11%	30	439,673	18.5%	55	1.83
	20	6,340	8%	51	322,744	51.1%	78	1.54
Oxide West of Fault	0	20,169	66%	8	163,099	14.4%	22	2.72
	5	6,943	17%	20	139,670	14.3%	34	1.71
	10	3,585	9%	32	116,313	16.2%	44	1.37
	20	1,687	8%	53	89,915	55.1%	58	1.09
Transition West of Fault	0	768	58%	12	8,834	9.7%	22	1.91
	5	325	16%	25	7,980	9.7%	29	1.18
	10	199	12%	36	7,127	15.2%	32	0.90
	20	108	14%	54	5,789	65.5%	35	0.65
Sulfide West of Fault	0	15,055	47%	13	191,974	8.1%	36	2.79
	5	8,001	19%	22	176,499	10.8%	47	2.12
	10	5,101	18%	31	155,732	19.7%	57	1.87
	20	2,449	16%	48	117,895	61.4%	78	1.63
Oxide East of Fault	0	11,302	64%	7	83,174	16.6%	29	3.90
	5	4,051	19%	17	69,368	18.5%	46	2.71
	10	1,858	10%	29	53,965	19.6%	66	2.29
	20	672	6%	56	37,628	45.2%	105	1.88
Transition East of Fault	0	346	72%	7	2,591	16.9%	23	3.02
	5	98	14%	22	2,153	14.1%	39	1.76
	10	49	8%	37	1,788	14.8%	51	1.39
	20	22	6%	63	1,405	54.2%	66	1.04
Sulfide East of Fault	0	26,458	68%	6	170,388	22.6%	22	3.41
	5	8,468	18%	16	131,838	19.3%	37	2.39
	10	3,734	9%	27	99,021	19.3%	54	2.03
	20	1,333	5%	50	66,055	38.8%	86	1.73
Undefined	0	4,175	90%	3	11,528	35.8%	15	5.56
	5	435	6%	17	7,404	14.5%	45	2.65
	10	193	3%	30	5,727	14.5%	65	2.20
	20	69	2%	59	4,058	35.2%	103	1.75

14.5 High-Grade Outlier Treatment

The distribution of gold in most deposits is skewed with a small number of samples or outliers containing a disproportionate amount of the contained gold metal. In many cases these samples are representative of the material that was analyzed and are reproducible. However, the area of influence of these outlier samples is often limited and without some type of treatment these samples can easily influence the estimate of

resources by "smearing" grade beyond a reasonable distance. The most common way that the outliers are handled is by cutting or capping the values to minimize the potential for over estimation. Table 14.5.1 shows the distribution of all gold assays above a 0.05 g/t cutoff grade. The data in Table 14.5.1 show that about 44% of the contained gold metal is contained in 10% of the data and 1% of the samples (123 samples) contain 17% of the contained metal.

Table 14.5.1: San Agustin Gold Distribution by Deciles and Percentiles

Decile	Sample Count	Min Grade	Mean Grade	Max Grade	G-T Product	% G-T of Total
0 to 10	1,229	0.050	0.059	0.069	118.52	1.87
10 to 20	1,230	0.069	0.079	0.090	155.99	2.47
20 to 30	1,230	0.090	0.102	0.114	204.26	3.23
30 to 40	1,230	0.114	0.129	0.143	257.61	4.07
40 to 50	1,230	0.144	0.161	0.178	323.14	5.11
50 to 60	1,229	0.178	0.198	0.220	399.42	6.32
60 to 70	1,230	0.220	0.248	0.280	493.03	7.80
70 to 80	1,230	0.280	0.322	0.373	650.39	10.29
80 to 90	1,230	0.373	0.459	0.579	910.64	14.40
90 to 100	1,230	0.579	1.447	34.800	2808.97	44.43
<i>Total</i>	<i>12,298</i>	<i>0.050</i>	<i>0.317</i>	<i>34.800</i>	<i>6321.98</i>	<i>100.00</i>

Percentile	Sample Count	Min Grade	Mean Grade	Max Grade	G-T Product	% G-T of Total
90 to 91	123	0.579	0.599	0.617	117.55	1.86
91 to 92	123	0.617	0.641	0.664	127.97	2.02
92 to 93	123	0.664	0.692	0.723	135.44	2.14
93 to 94	123	0.724	0.762	0.798	152.49	2.41
94 to 95	123	0.799	0.847	0.893	159.15	2.52
95 to 96	123	0.893	0.949	1.010	183.66	2.91
96 to 97	123	1.010	1.103	1.210	211.33	3.34
97 to 98	123	1.210	1.354	1.560	260.23	4.12
98 to 99	123	1.560	1.885	2.330	353.86	5.60
99 to 100	123	2.340	5.640	34.800	1107.28	17.51
<i>Sub-total</i>	<i>1,230</i>	<i>0.579</i>	<i>1.447</i>	<i>34.800</i>	<i>2808.97</i>	<i>44.43</i>

RMI used cumulative probability plots to identify high-grade outliers and to establish a capping limit. Figure 14.5.1 is a cumulative probability plot for dacite based on samples located inside of the modeled dacite wireframe. The raw gold grades were transformed using the cumulative normal distribution function in order to get a better resolution of the high-grade end of the distribution. Figure 14.5.2 and Figure 14.5.3 are cumulative probability plots for logged gold assays in dacite breccia and gold assays within the modeled sediments wire frame, respectively.

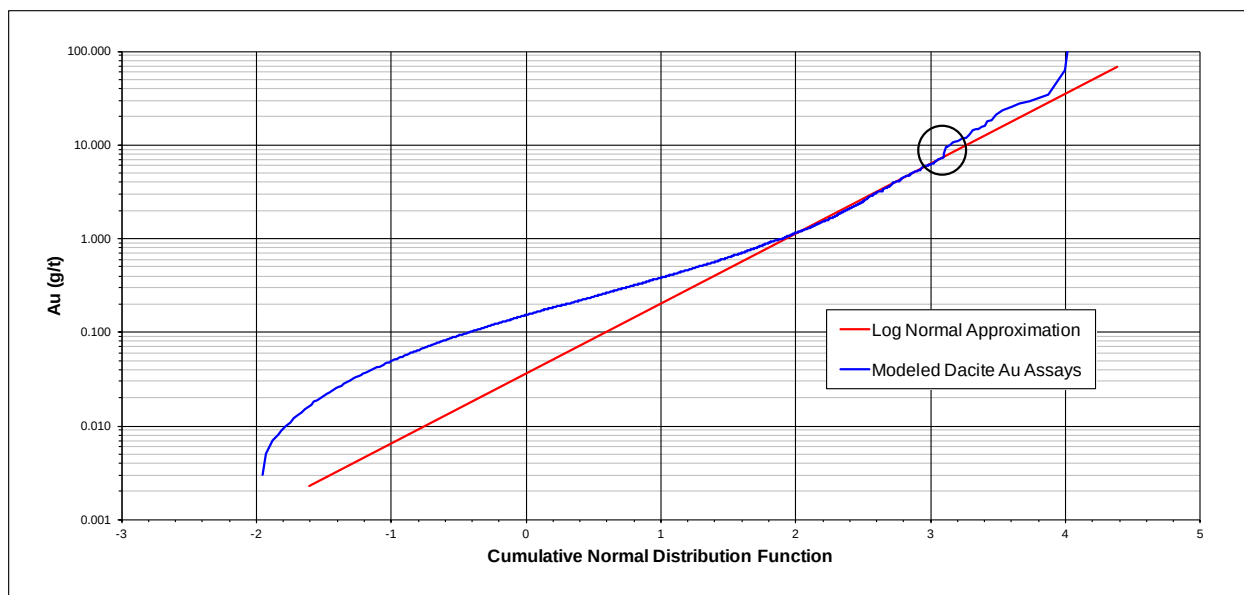
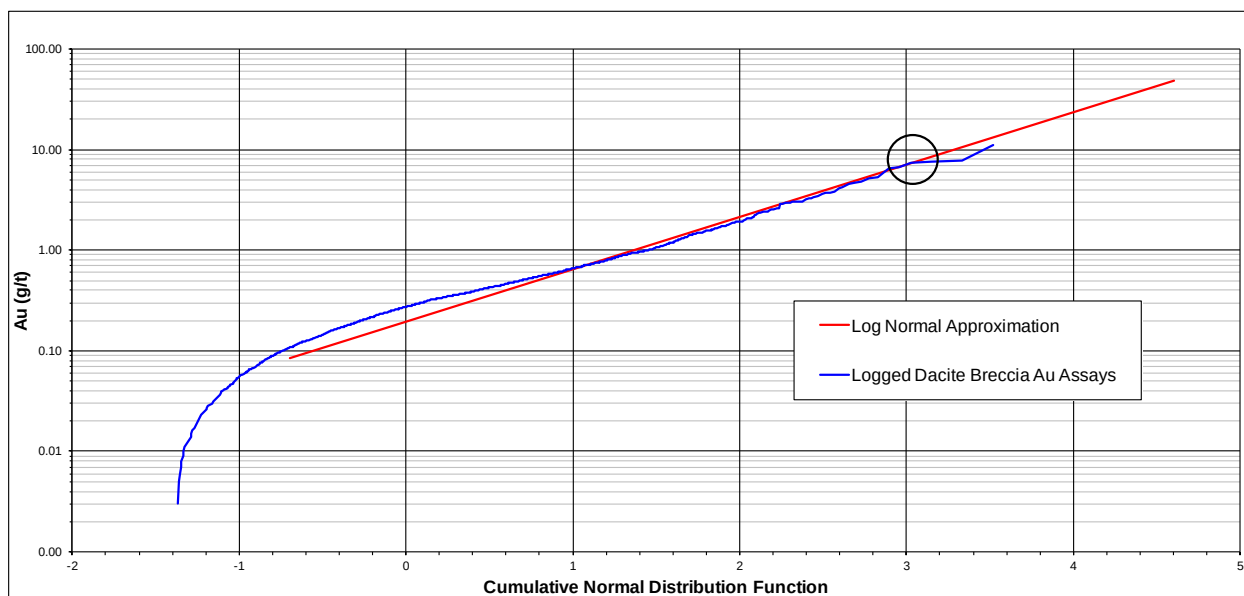
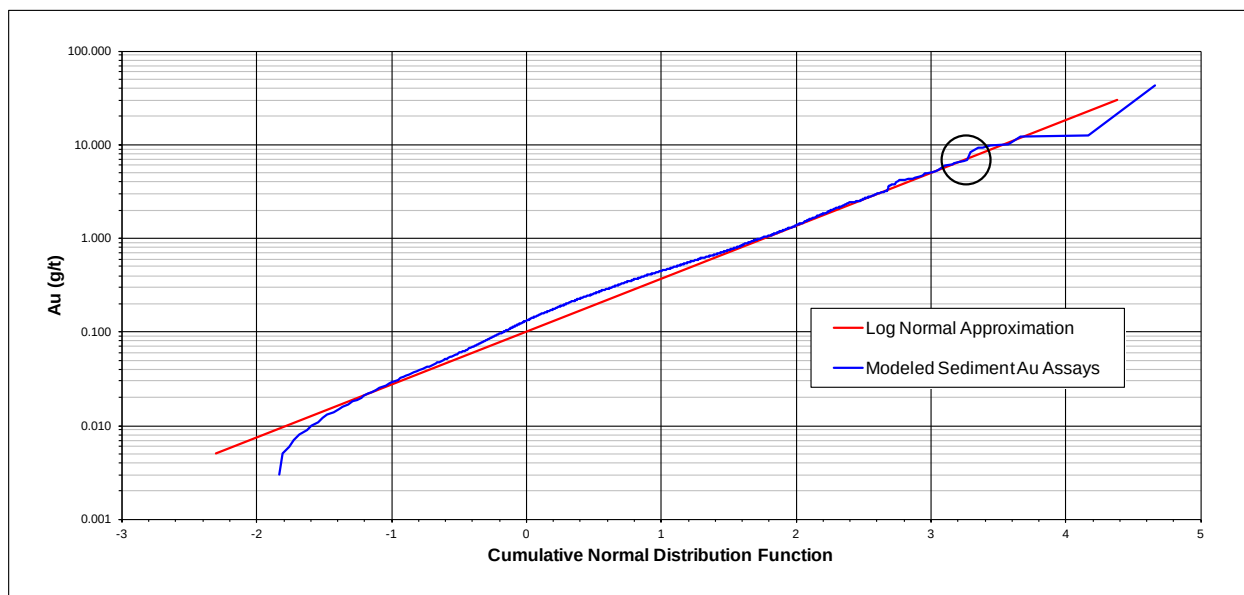
Figure 14.5.1: San Agustin Gold Assay Cumulative Probability Plot - Modeled Dacite**Figure 14.5.2: San Agustin Gold Assay Cumulative Probability Plot - Logged Dacite Breccia**

Figure 14.5.3: San Agustin Gold Assay Cumulative Probability Plot - Modeled Sediments

Based on the break in the cumulative probability plots, RMI elected to cap raw gold assays at 7.5 g/t for the three principal host rocks. Table 14.5.2 tabulates some basic statistics associated with capping gold grades at different limits. The table shows the number of samples that would be capped at each potential capping threshold along with the mean grade, standard deviation, CV, and the percentage of metal that would be lost by capping based on decreased grade times thickness products.

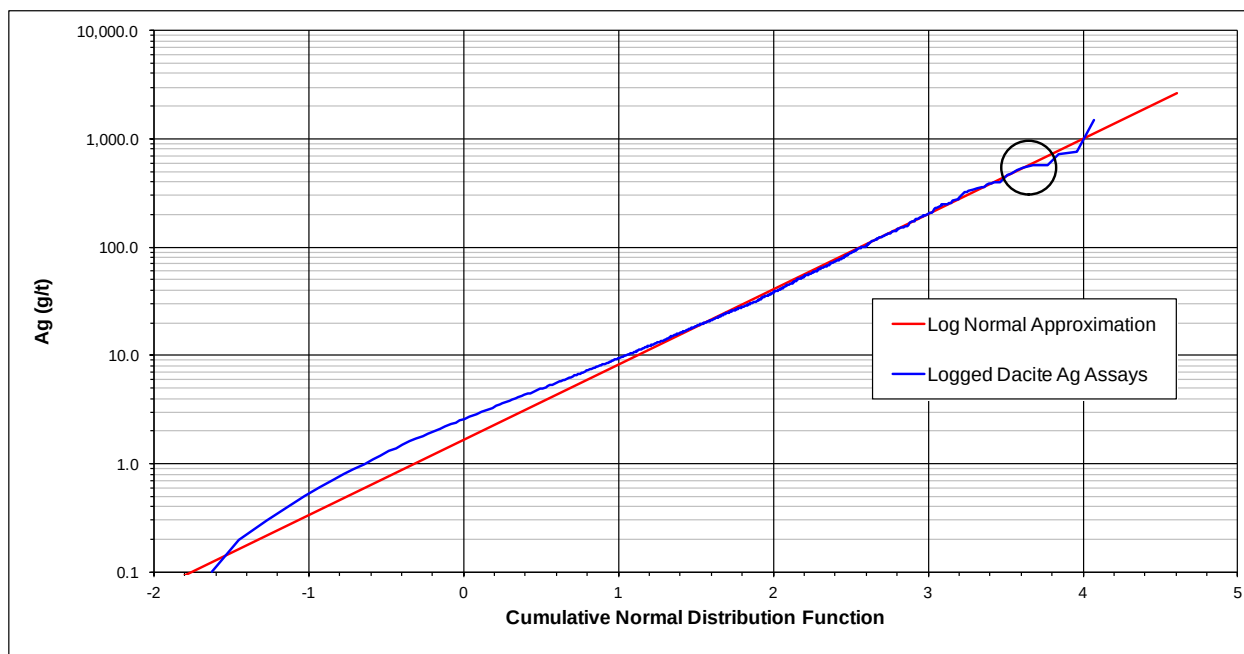
Table 14.5.2: San Agustin Gold Capping Sensitivity

Cap Grade	No. Capped	Mean Grade	Std Dev	CV	% Metal Loss	% Metal Above Cap
None	0	0.317	0.808	2.55	0.0%	100.0%
10.0	16	0.307	0.572	1.86	3.0%	7.0%
9.5	18	0.307	0.561	1.83	3.2%	7.3%
9.0	19	0.306	0.549	1.79	3.4%	7.4%
8.5	19	0.305	0.538	1.76	3.6%	7.4%
8.0	19	0.305	0.528	1.73	3.8%	7.4%
7.5	21	0.304	0.517	1.70	4.1%	7.7%
7.0	22	0.303	0.507	1.67	4.3%	7.9%
6.5	25	0.302	0.496	1.64	4.6%	8.4%
6.0	27	0.301	0.484	1.61	4.9%	8.8%
5.5	31	0.300	0.471	1.57	5.3%	9.4%
5.0	36	0.299	0.457	1.53	5.7%	10.0%

The capping limit of 7.5 g/t caps 21 samples, resulting in about a 7.7% loss of contained gold metal.

Figure 14.5.4 shows a cumulative probability plot for logged silver assays. Based on the break in the distribution, RMI elected to cap raw silver dacite assays at 500 g/t. This capping level resulted in seven samples being cut to 500 g/t.

Figure 14.5.4: San Agustin Silver Assay Cumulative Probability Plot - Logged Dacite



Similar cumulative probability plots were generated from silver assays for dacite breccia and sediments. A capping threshold of 100 g/t was established for those two units based on RMI's interpretation of the probability plots.

14.6 Drill Hole Compositing

Most of the original assay data were in the range of 1.52 to 2.00 meters-long. Figure 14.6.1 graphically illustrates the distribution of gold assay sample lengths. Table 14.6.1 breaks down the gold assay data by various sample length ranges.

Based on the scale of the San Agustin deposit, the raw sample lengths and discussions with Argonaut's technical staff about possible mining scenarios, a drill hole composite length of six meters was selected to estimate resources.

Various geologic data that were initially logged with the sample intervals were assigned to the six-meter-long composites using the majority rule method. Other data were assigned to the drill hole composites by using wireframe solids and backtagging from the block model.

Figure 14.6.1: San Agustin Gold Assay Sample Lengths

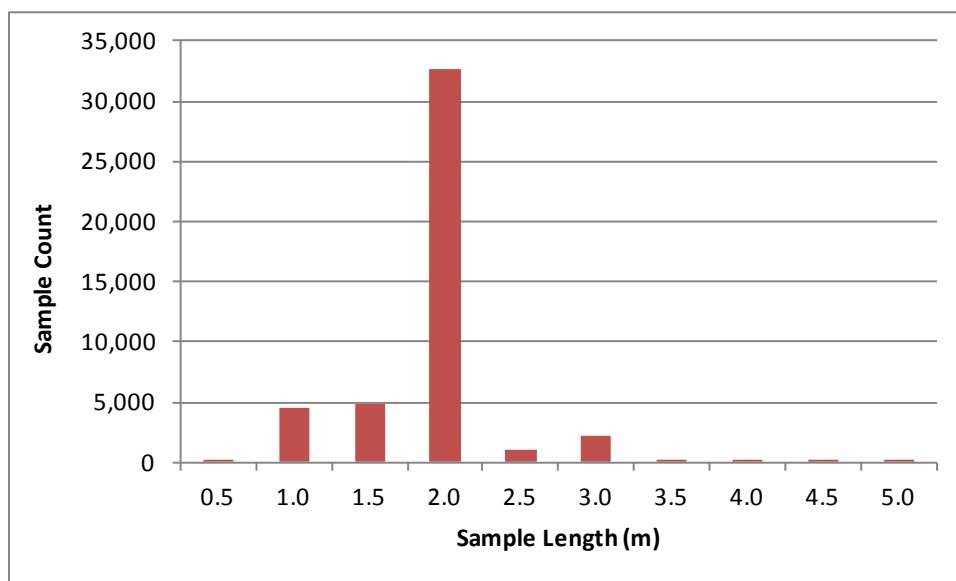


Table 14.6.1: San Agustin Gold Assay Sample Lengths

Length (m)	Number	Meters	% of Total
0 to 1	4,529	4,414	5.6%
1 to 2	37,541	64,205	81.5%
2 to 3	3,187	8,714	11.1%
3 to 4	203	697	0.9%
4 to 5	86	387	0.5%
5 to 6	23	128	0.2%
> 6	29	212	0.3%
Total	45,598	78,756	100%

14.7 Geologic Constraints

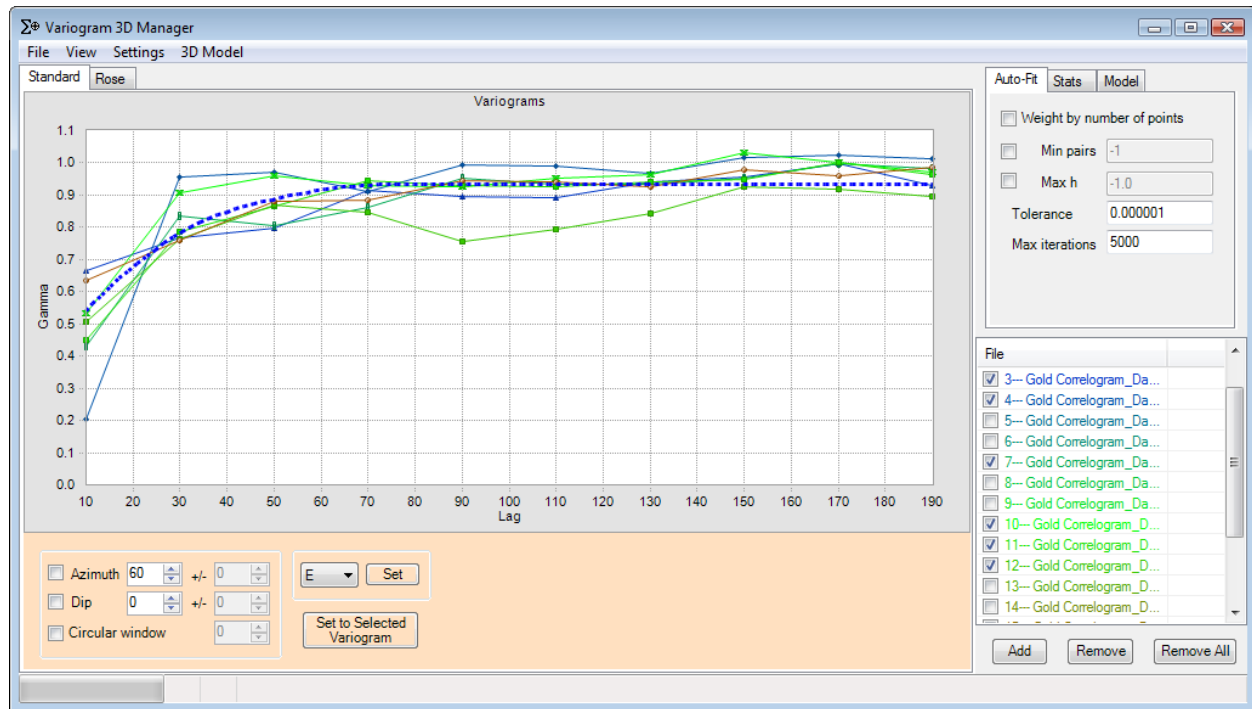
Argonaut's geologic staff and geologic consultants constructed a number of wireframe solids using Leapfrog software. These three dimensional solids included shapes for key lithologic units, oxidation units, and a critical fault plane.

The provided lithologic solids included shapes for alluvium, conglomerate, dacite, breccias, and sediments. Oxidation shapes included sulfide, transition, and oxide wireframes. The lithologic and oxidation shapes were imported into MineSight® by RMI and compared against logged drill hole data. In RMI's opinion, the lithologic shapes honor the logged data and are suitable for coding model blocks. The oxidation shapes were primarily based on visually logged attributes but were also validated by comparing iron and sulfur ratios. In general, the oxide material at the San Agustin deposit is very distinct due to the intensity of oxidation and presence of iron oxides. There does not appear to be much in the way of a transition zone with oxide material in close contact with relatively fresh pyritic material. The northwest trending Main Fault plane that was constructed by Argonaut's staff was used by RMI to generate two solids in MineSight®, one west of the structure and another east of the structure.

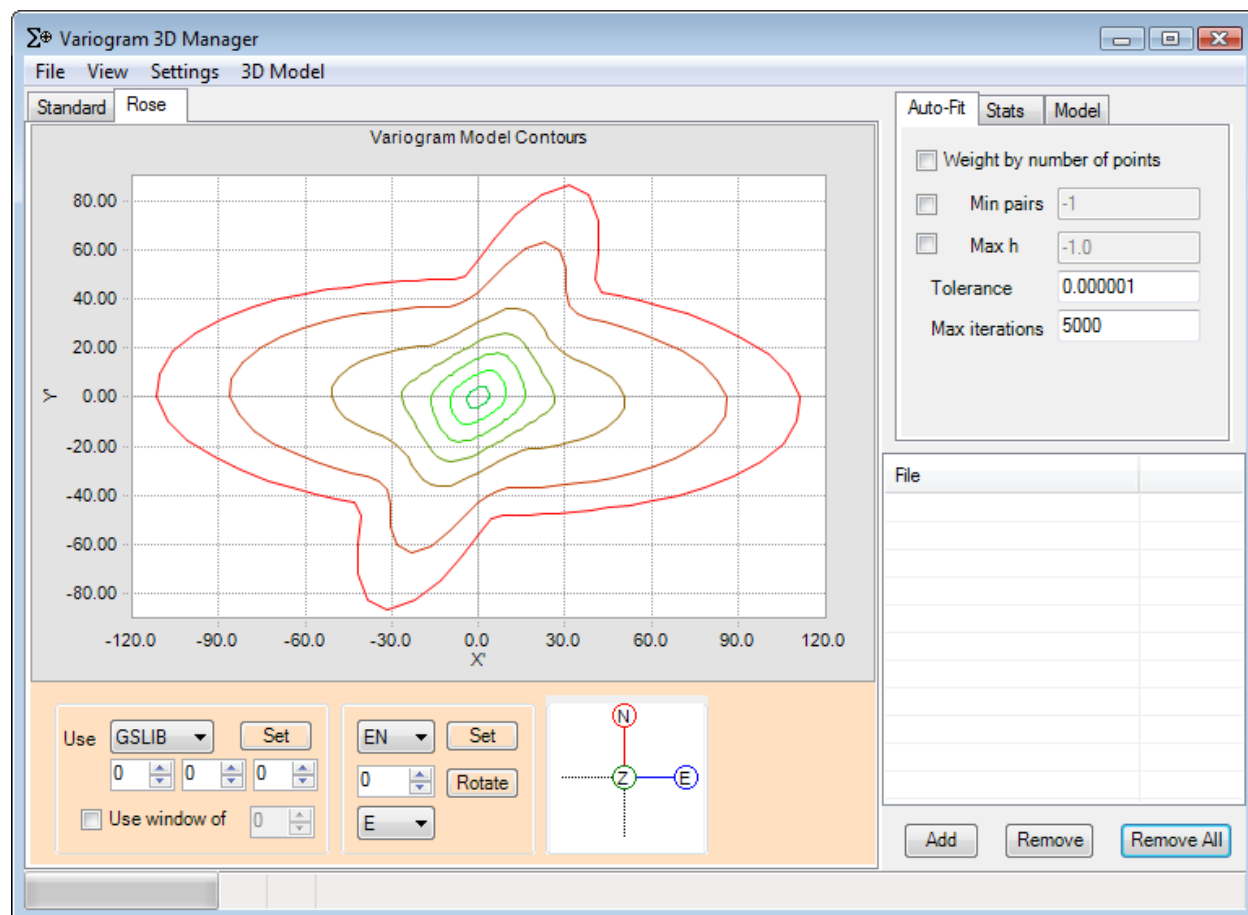
The lithologic, oxidation, and structural solids were used to code drill holes and model blocks. After the data were coded with these solids various statistical analyses were completed. The interpretation of those statistical examinations was used to develop the grade estimation plan discussed in Sections 14.9 and 14.10.

14.8 Variography

RMI generated a number of gold variograms (correlograms) using MineSight's MSDA package. Down-hole correlograms were produced using original drill hole assay data and six-meter-long drill hole composites to establish the nugget effect. Directional correlograms were generated at 30° azimuth and 30° dip increments using a $\pm 15^\circ$ selection window. Figure 14.8.1 is a snapshot from MSDA showing six directional gold correlograms generated from dacite plus breccia composites. A best fit model that was created using an auto-fit function in MSDA is shown as a dashed blue line.

Figure 14.8.1: San Agustin Dacite+Breccia Gold Correlograms

Variances from horizontal correlograms shown in Figure 14.8.1 were contoured in plan view as illustrated by Figure 14.8.2.

Figure 14.8.2: San Agustin Dacite+Breccia Gold Variance Contours

The correlogram contours shown in Figure 14.8.2 tend to corroborate the northeasterly and northwesterly mineralized trends that have been observed at the San Agustin Project. The interference between those two trends result in an apparent elongated east-west trend but geologic field mapping clearly distinguishes the two aforementioned trends.

14.9 Gold Estimation Parameters

A number of gold grade models were constructed using ordinary kriging and inverse distance estimators. After visual inspections of block grades and global bias comparisons were made, RMI selected one of the inverse distance models for resource declaration. After comparing the results from models estimated using inverse distance powers of two and three, the model based on an inverse distance power of two was selected.

Because gold grades appear to be more transitional across the primary lithologies and oxidation states as described in Section 14.3, RMI elected to use those contacts as "soft" boundaries for the grade estimation plan which allowed composites from the various rock types to contribute to the estimate of blocks across the lithologic boundary. Only gold composite grades from dacite, breccia, and sediments were allowed to be used (no alluvium or conglomerate samples were allowed). The estimation plan did recognize two structural blocks defined by the northwest trending Main Fault (west and east blocks). Two estimation passes were made for each structural domain with the first pass requiring at least two drill holes for a block to be estimated. The second pass featured a reduced search ellipse with no restriction on how many holes were required but limited the projection distance of the drill hole data to 25 meters if only one hole could be found. Oxide and transition material were estimated together in two passes while sulfide material was estimated separately. However, based on gold grade contact plots, oxide/transition and sulfide composites were allowed to communicate across the oxidation boundaries. The projection of high-grade outlier gold values in sulfide material was restricted because a number of drill holes terminated in higher grade material which tended to "smear" outward from the drill hole in an unrealistic manner. No outlier restriction was implemented for the oxide and transition estimation passes.

Separate block gold grades were estimated using raw uncapped and capped data to quantify metal loss/risk due to high-grade outliers. The number of composites and drill holes used to estimate each block and the estimation pass number were stored in each estimated block. Anisotropic weighting was used in the estimate taking advantage of observed structural controls associated with mineralization. The distance to the closest drill hole and average distance of all composites used to estimate each block were stored at the time of the estimate. These distances reflect anisotropic adjusted distances and not Cartesian distances. True distances (Cartesian) from drilling data were stored from an unconditioned spherical search nearest neighbor estimate. Table 14.9.1 summarizes the key parameters used in the gold estimation plan.

Table 14.9.1: San Agustin Gold Grade Estimation Parameters

Structural Domain	Geologic Material	Pass	Number of Comps			Ellipse Orientation (degrees)			Ellipse Dimensions (m)			Outlier Restriction	
			Min	Max	Max per hole	Major	Minor	Vert.	Major	Minor	Vert.	Au (g/t)	Max Dist (m)
West Flt. Blk.	Oxide + Transition	1	3	8	2	315	0	-80	90	50	27.5	n/a	n/a
West Flt. Blk.	Oxide + Transition	2	1	8	2	315	0	-80	45	25	12.5	n/a	n/a
West Flt. Blk.	Sulfide	1	3	8	2	315	0	-80	90	50	27.5	1.5	15
West Flt. Blk.	Sulfide	2	1	8	2	315	0	-80	45	25	12.5	1.5	15
East Flt. Blk.	Oxide + Transition	1	3	8	2	45	0	0	90	75	30	n/a	n/a
East Flt. Blk.	Oxide + Transition	2	1	8	2	45	0	0	45	37.5	15	n/a	n/a
East Flt. Blk.	Sulfide	1	3	8	2	45	0	0	90	75	30	1.5	15
East Flt. Blk.	Sulfide	2	1	8	2	45	0	0	45	37.5	15	1.5	15

14.10 Silver Estimation Parameters

The silver grade estimate closely followed the gold estimation plan using a two-pass inverse distance squared estimator with nearly identical parameters as those used for gold. High-grade outlier restrictions were used for sulfide and oxide plus transition material after observing unrealistic smearing of high-grade silver composites in both oxide and sulfide material. Higher grade silver values appear to be structurally controlled but at the current drill hole spacing it was not possible to construct domains to constrain the estimate of silver grades. Table 14.10.1 summarizes the key parameters that were used to estimate silver block grades.

Table 14.10.1: San Agustin Silver Estimation Parameters

Structural Domain	Geologic Material	Pass	Number of Comps			Ellipse Orientation (degrees)			Ellipse Dimensions (m)			Outlier Restriction	
			Min	Max	Max per hole	Major	Minor	Vert.	Major	Minor	Vert.	Ag (g/t)	Max Dist (m)
West Flt. Blk.	Oxide + Transition	1	3	8	2	315	0	-80	90	50	27.5	120	15
West Flt. Blk.	Oxide + Transition	2	1	8	2	315	0	-80	45	25	12.5	120	15
West Flt. Blk.	Sulfide	1	3	8	2	315	0	-80	90	50	27.5	30	15
West Flt. Blk.	Sulfide	2	1	8	2	315	0	-80	45	25	12.5	30	15
East Flt. Blk.	Oxide + Transition	1	3	8	2	45	0	0	90	75	30	30	15
East Flt. Blk.	Oxide + Transition	2	1	8	2	45	0	0	45	37.5	15	30	15
East Flt. Blk.	Sulfide	1	3	8	2	45	0	0	90	75	30	30	15
East Flt. Blk.	Sulfide	2	1	8	2	45	0	0	45	37.5	15	30	15

14.11 Base Metal Estimation Parameters

A simple spherical two-pass inverse distance squared model was constructed for copper, lead, zinc, arsenic, antimony, sulfur, calcium, manganese, and mercury. These elements were estimated for potential exploration targeting and metallurgical/waste characterization purposes. No economic value was attributed to these elements. A 100 m spherical search was used for sample selection.

14.12 Grade Model Verification

Estimated block grades were verified by visual and statistical methods. The Qualified Person responsible for this section visually compared estimated block gold and silver grades with drill hole composite grades. Figure 14.12.1 is a plan map that shows three lines of section (Section 1, 2, and 3) through the San Agustin block model. The plan map also shows the outline of the conceptual pit which constrains the mineral resource that is the subject of this Technical Report.

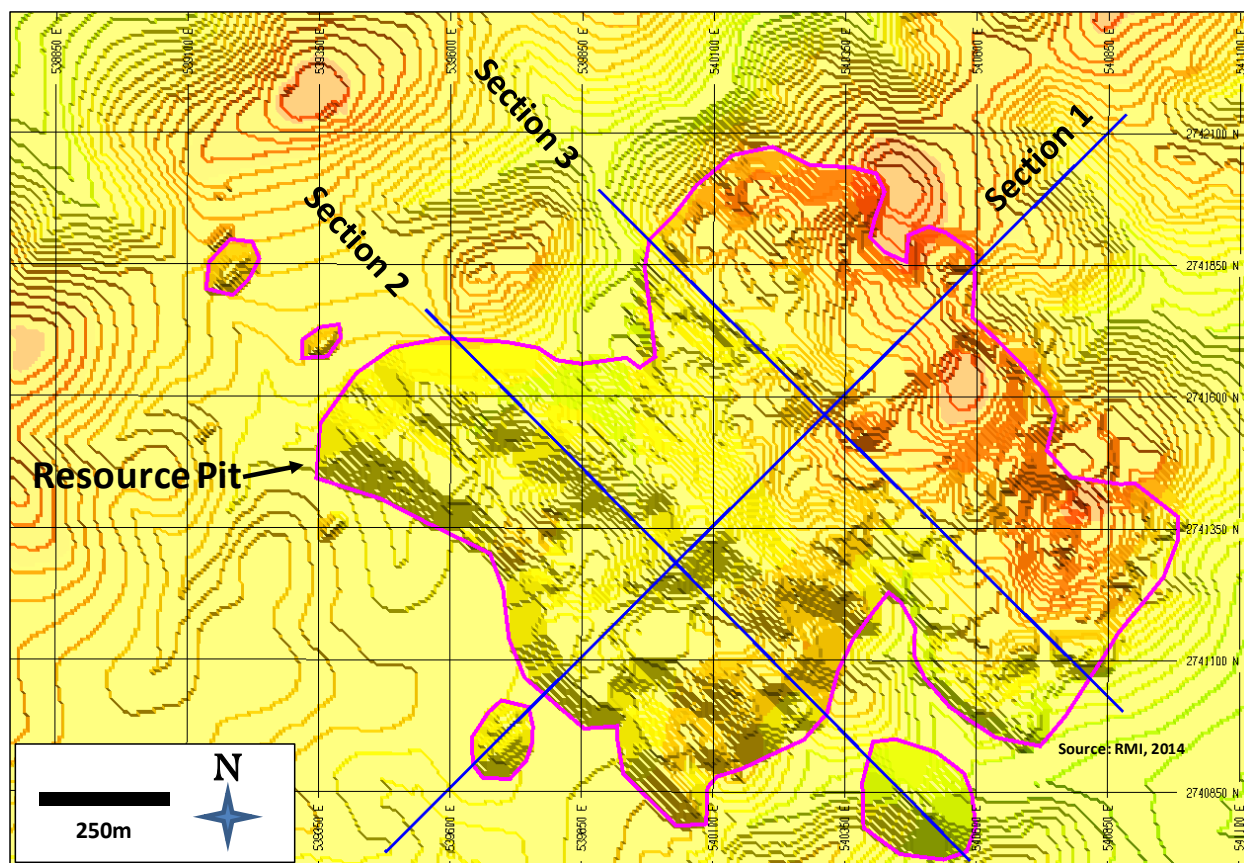
Figure 14.12.1: San Agustin Block Model Cross Section Reference Lines

Figure 14.12.2 through Figure 14.12.4 are vertical block model cross sections showing estimated block gold grades and six-meter-long drill hole composites gold grades for the three cross sections referenced in Figure 14.12.1. In addition to gold grades, the cross sections show the oxidation boundary and profile of the constraining resource pit.

Figure 14.12.5 through Figure 14.12.7 are vertical block model cross sections showing estimated silver grades and six-meter-long drill hole composite silver grades. The same oxidation surface and conceptual resource pit outline are also shown.

Figure 14.12.2: San Agustin Block Model Cross Section 1 - Gold

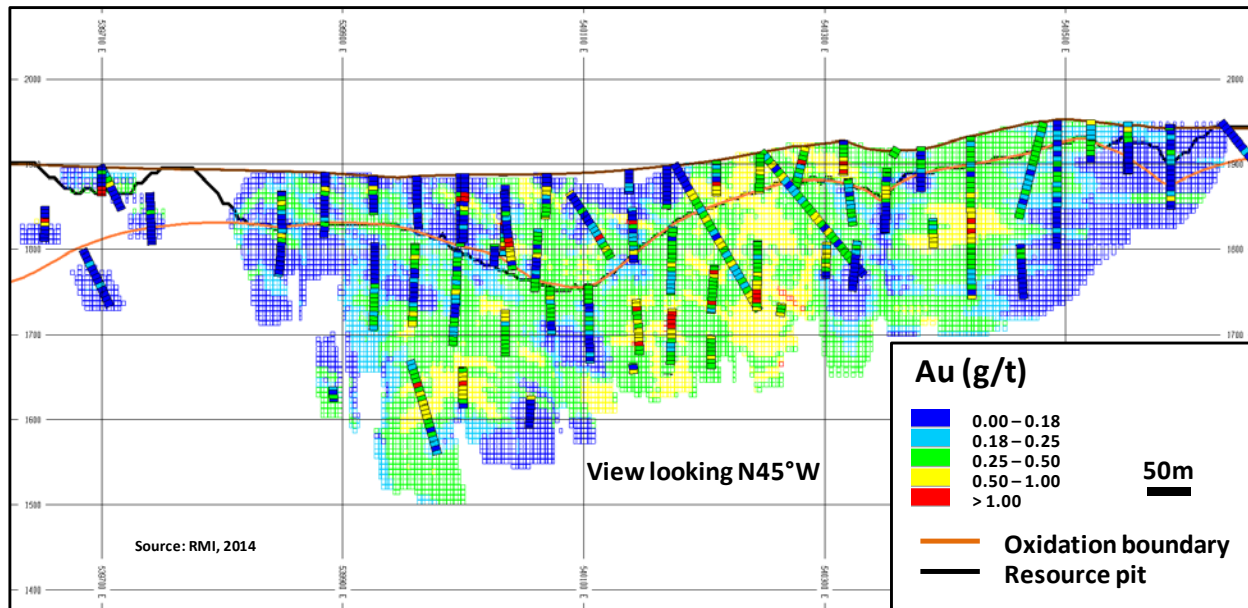


Figure 14.12.3: San Agustin Block Model Cross Section 2 - Gold

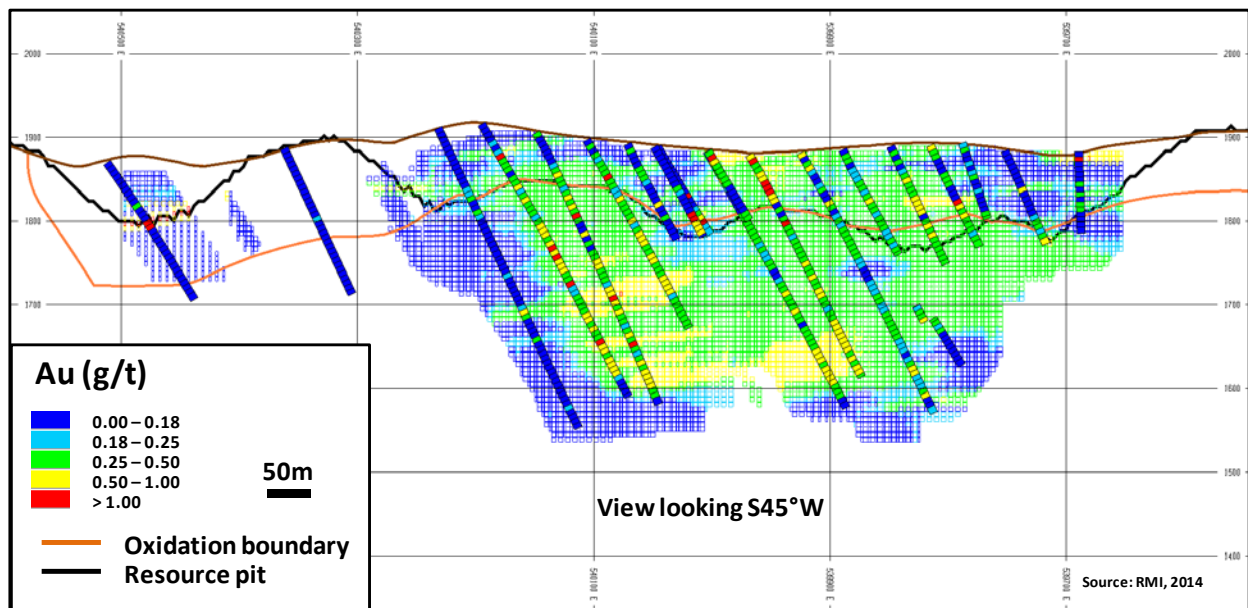


Figure 14.12.4: San Agustin Block Model Cross Section 3 - Gold

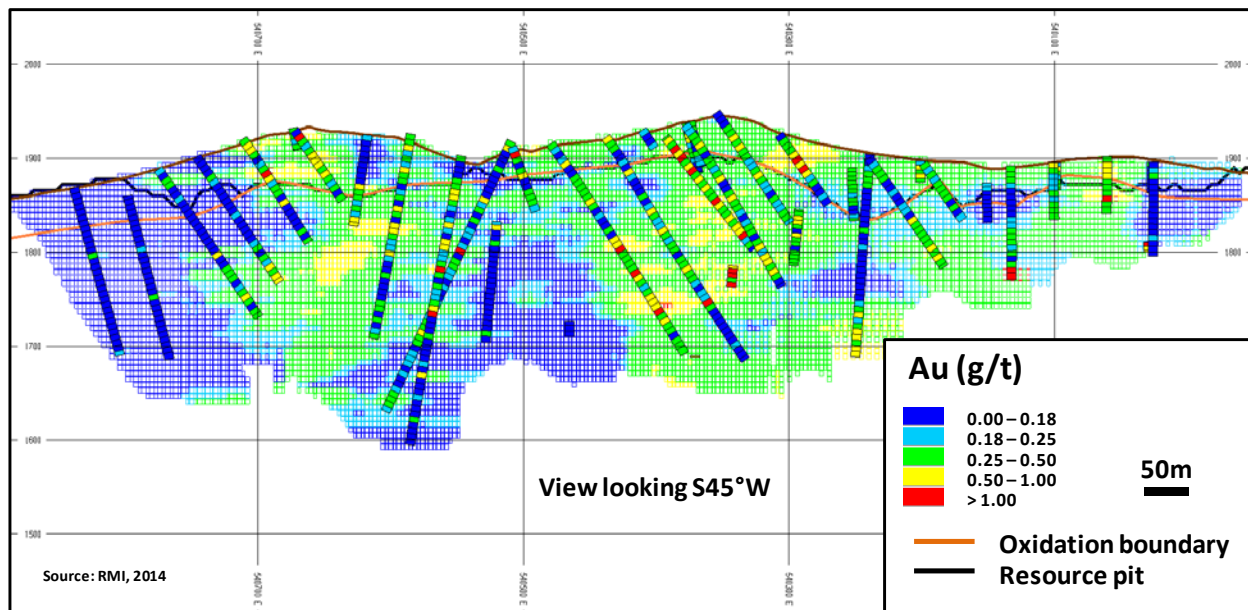


Figure 14.12.5: San Agustin Block Model Cross Section 1- Silver

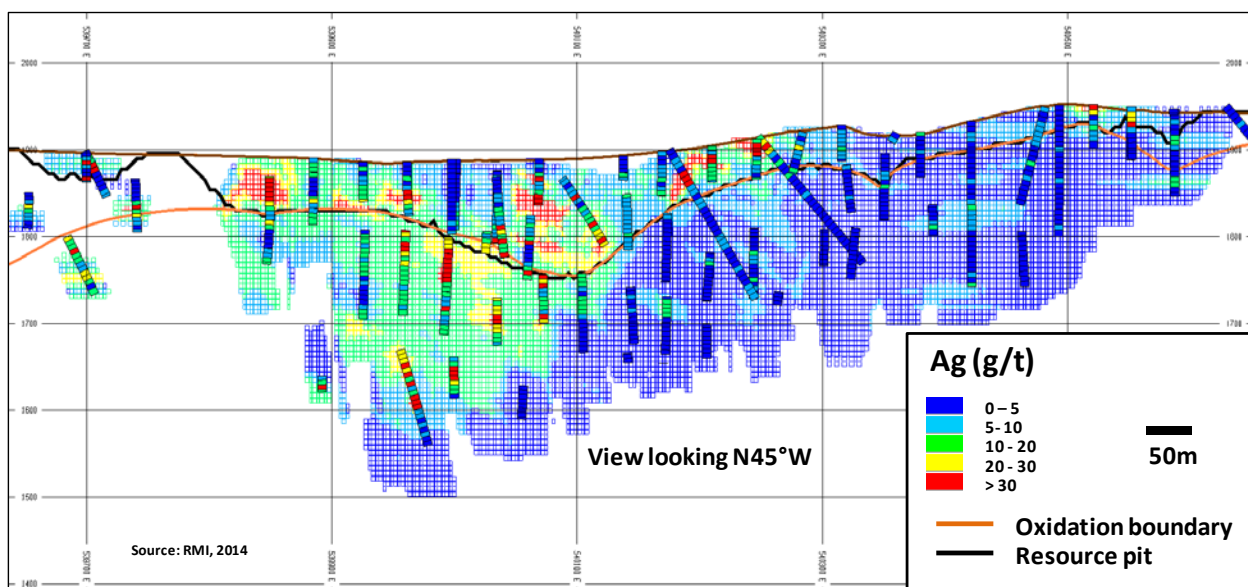


Figure 14.12.6: San Agustin Block Model Cross Section 2 – Silver

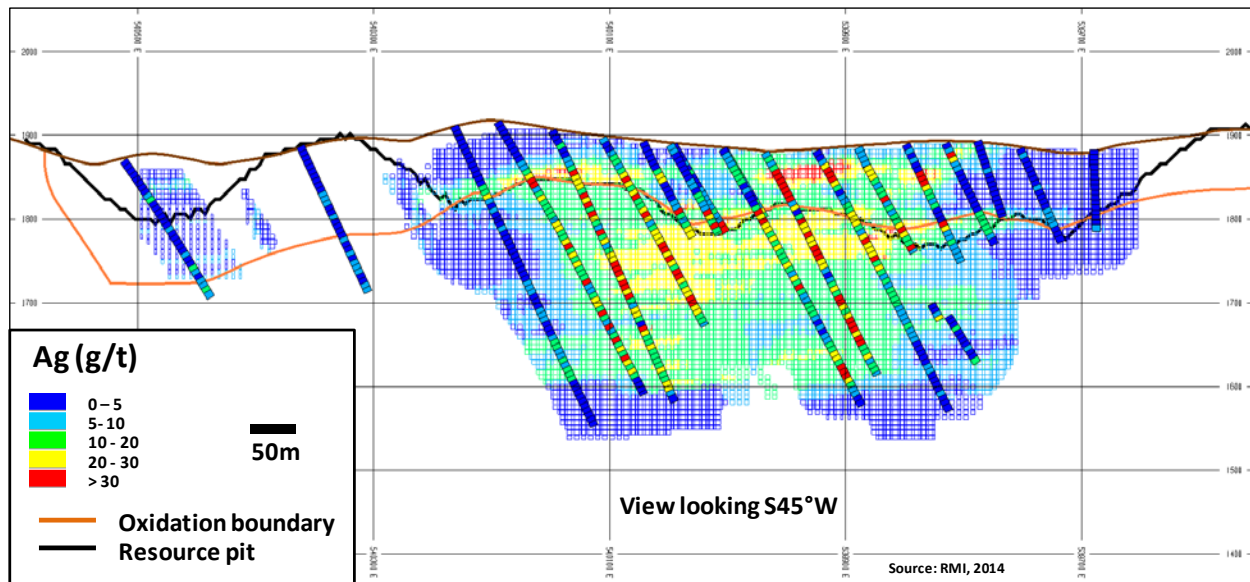
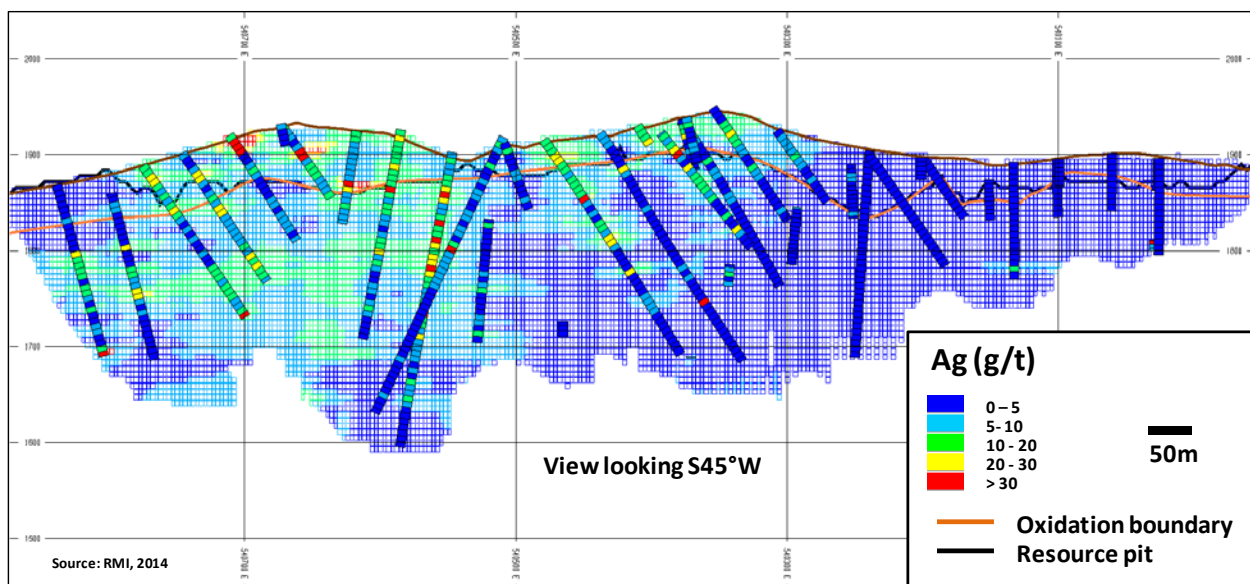


Figure 14.12.7: San Agustin Block Model Cross Section 3 – Silver



The six block model cross sections shown in Figure 14.12.2 through Figure 14.12.7 illustrate the relatively shallow nature of the oxidized portion of the San Agustin deposit and the continuation of grade downward into the sulfide portion of the mineralized system. No economic value was allowed for sulfide material in the generation of the conceptual pit as discussed in Section 14.16.

It is the opinion of the Qualified Person for this section that there is a reasonable comparison between estimated block gold and silver grades with the drill hole composite grades.

Several nearest neighbor grade models were constructed for gold and silver. One set of nearest neighbor models was generated simultaneously with the inverse distance grade models. The grade assignment for this set of nearest neighbor models was conditioned by the same criteria that were imposed on the inverse distance model (e.g. structural domain restriction and ellipse size/orientation). Another set of gold and silver nearest neighbor models was constructed using a 100 m spherical search neighborhood with no geologic constraints. Nearest neighbor models are typically used to check for possible biases in estimated block grades by comparing the two estimates at a zero cutoff grade. It is generally accepted that in order for a model to be globally unbiased, there should be no more than a $\pm 5\%$ difference between the official grade model and a nearest neighbor model.

Comparisons between the inverse distance squared gold and silver models against the unconditional and conditional nearest neighbor models are summarized in Table 14.12.1 and Table 14.12.2, respectively. The volumes that were considered for the comparisons shown in Table 14.12.1 and Table 14.12.2 were restricted to Indicated oxide and transitional material.

Table 14.12.1: San Agustin Unconditional Nearest Neighbor Models vs. Inverse Distance Models

Estimation Method	Au (g/t)	Ag (g/t)
Inverse Distance Squared Estimate	0.2618	8.8938
Unconditional Nearest Neighbor	0.2621	9.3819
%Diff	-0.11%	-5.20%

Table 14.12.2: San Agustin Conditional Nearest Neighbor Models vs. Inverse Distance Models

Estimation Method	Au (g/t)	Ag (g/t)
Inverse Distance Squared Estimate	0.2618	8.8938
Conditional Nearest Neighbor	0.2608	9.0521
%Diff	0.38%	-1.75%

The data in Table 14.12.1 and Table 14.12.2 show a very close comparison for gold regardless of which nearest neighbor modeling method was used. The inverse distance silver block grades are 5 to 9% lower than the nearest neighbor method reflecting a degree of conservatism that was introduced into the inverse distance model by implementing high-grade outlier restriction. Potential local biases in the inverse distance grade models were examined by preparing a series of "swath" plots through the block model that compare the unconditioned nearest neighbor grades against the inverse distance squared grades. The swath plots represent slices through block model columns (eastings), rows (northings) and levels (elevation). Figure 14.12.8 through Figure 14.12.10 represent easting, northing, and elevation swaths through the model comparing inverse distance gold and nearest neighbor gold grades for Indicated oxide and transition material, respectively. Similar swath plots are presented as Figure 14.12.11 through Figure 14.12.13 for silver. In the six swath plots shown (Figure 14.12.8 through Figure 14.12.13) the nearest neighbor (NN) grades are shown in blue lines and the inverse distance (IDW) grades are shown as red lines. The number of blocks in each slice is shown by the thick black line which corresponds to the right Y-axis of the graphs.

Figure 14.12.8: San Agustin Gold Swath Plot – Eastings

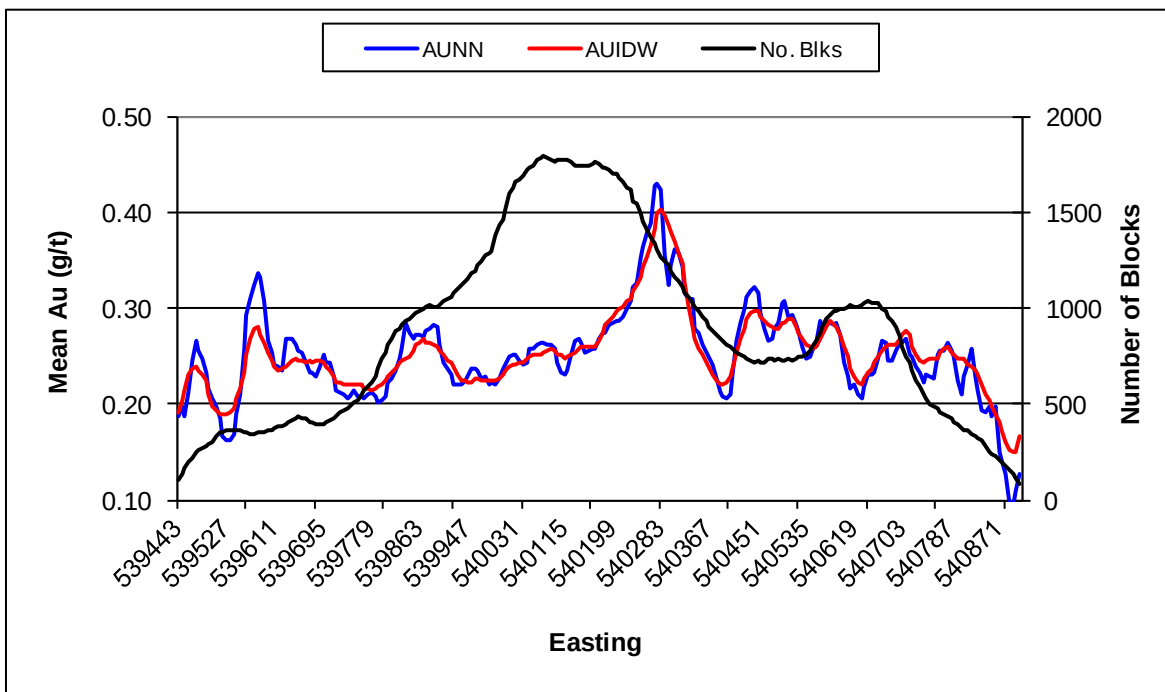


Figure 14.12.9: San Agustin Gold Swath Plot – Northings

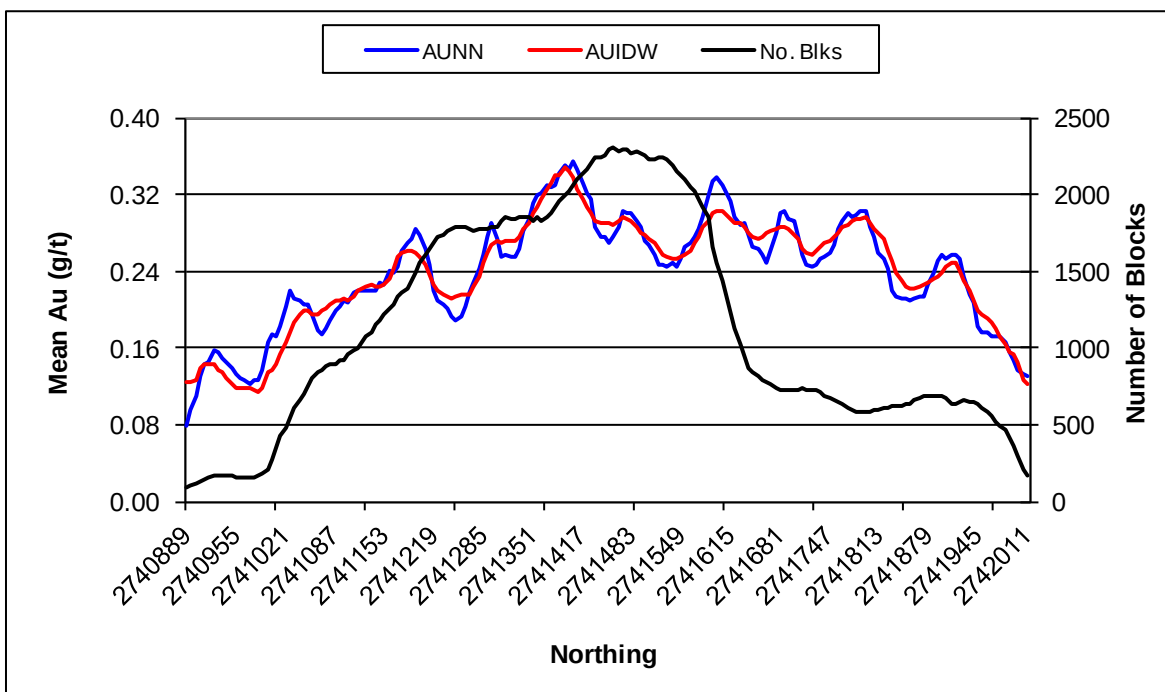


Figure 14.12.10: San Agustin Gold Swath Plot – Elevations

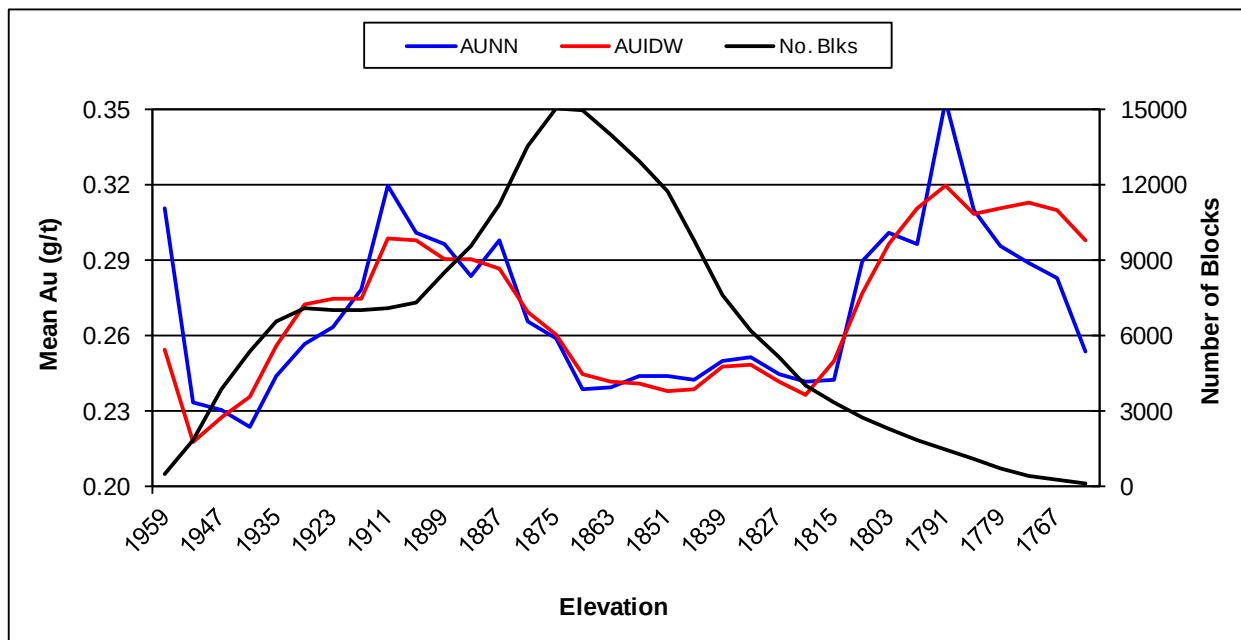


Figure 14.12.11: San Agustin Silver Swath Plot - Eastings

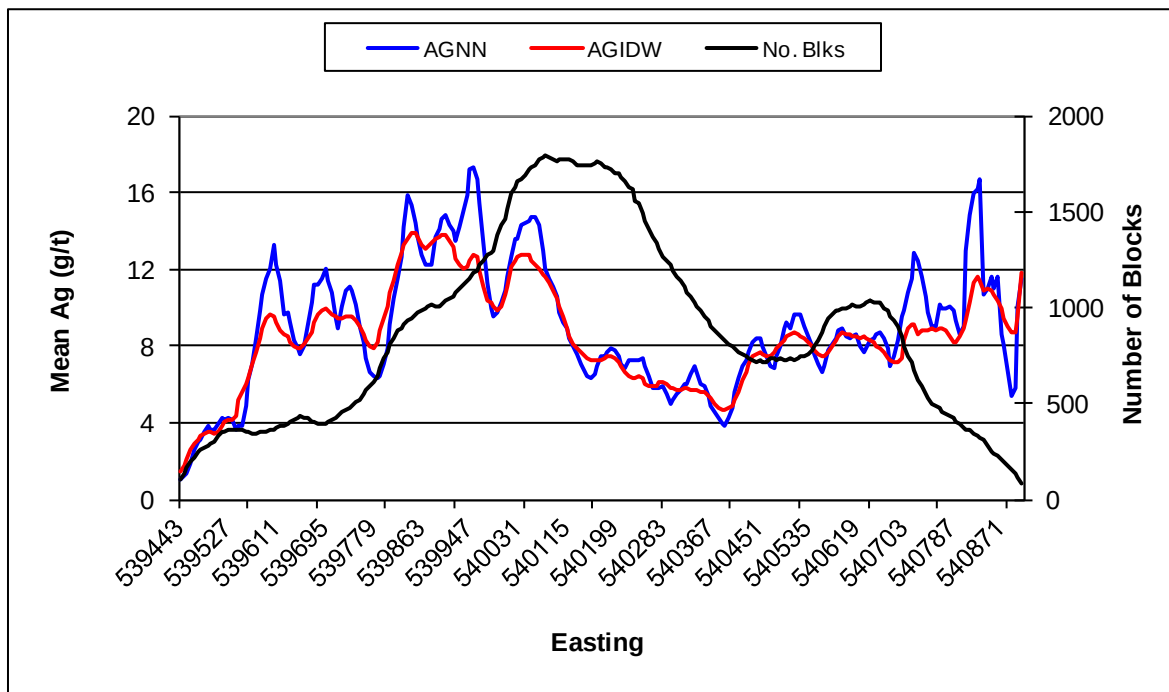


Figure 14.12.12: San Agustin Silver Swath Plot – Northings

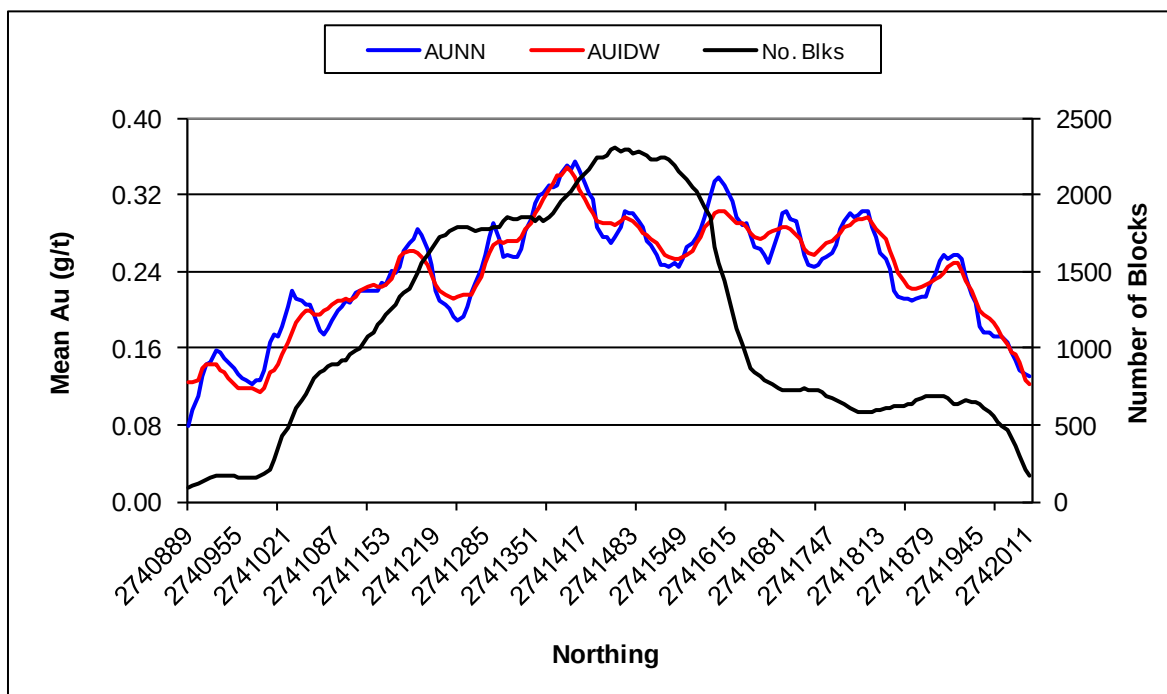
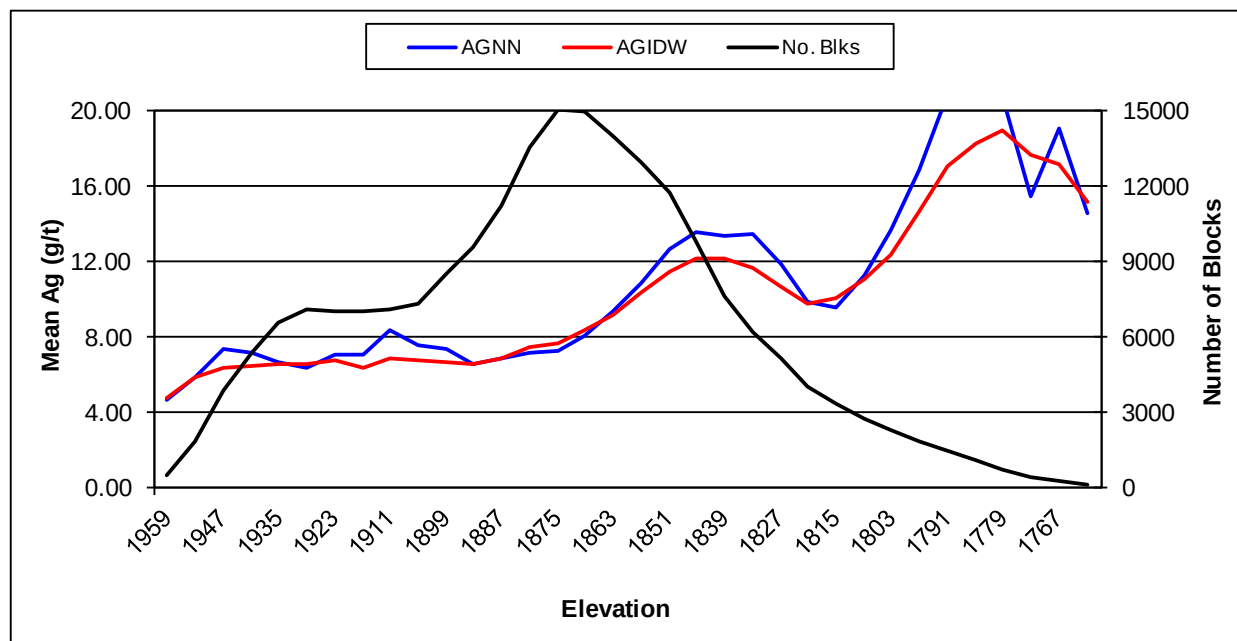


Figure 14.12.13: San Agustin Silver Swath Plot – Elevations



In the opinion of the Qualified Person responsible for this section, the swath plots show a reasonable comparison between the inverse distance and nearest neighbor estimates. Local deviations are usually associated with limited data at the periphery of the deposit. Based on visual and statistical checks, it is the opinion of the Qualified Person responsible for this section that the San Agustin model is globally unbiased and represents a reasonable estimate of insitu block grades.

14.13 Resource Classification

Estimated block grades for the San Agustin deposit were classified as Indicated and Inferred Resources by RMI. One of the key components of the CIM definition of an Indicated Resource is that the nature, quality, and distribution of data are such as to allow for a confident interpretation of the geologic framework of the deposit and to reasonably assume the continuity of mineralization. To that extent, RMI constructed a three dimensional solid that represents mineralized continuity based on a visual inspection of the spacing and grades of drill holes. This wireframe solid was used to code model blocks as being Indicated Resources. Other estimated block grades were classified as Inferred Resources provided that they were located within 60 m of an existing drill hole. All sulfide blocks were classified as Inferred although no economic value was assigned to them for the purposes of showing reasonable prospects for economic extraction.

14.14 Topographic Data

Argonaut provided RMI with digital one-meter topographic contours for the San Agustin area. The contours were obtained from PhotoSat®, a Canadian based consultancy that generates digital data from satellite imagery. The provided topographic contours are referenced to NAD27 Mexico Zone 13 datum.

The one meter contours were used to produce a three dimensional wireframe surface that was used to assign block topography (percentage of each block below the topographic surface).

14.15 Specific Gravity Data

To date, 166 bulk density determinations have been completed for the San Agustin Project. The majority of these data were obtained from a prior company (Silver Standard Resources) and little is known about what methods were used to determine bulk density values except which drill hole intervals were tested. Argonaut sent 29

representative oxide samples collected from their 2014 metallurgical core hole drilling program to Oestec de México in Hermosillo for bulk density determination. RMI combined the Silver Standard and Argonaut data, assigned the current lithologic and oxidation codes to the samples and tabulated average bulk density values for various combinations. Table 14.15.1 tabulates the results of those calculations.

Table 14.15.1: San Agustin Bulk Density Values

Rock Type	Count	Ave. SG
Dacite	88	2.58
Breccia	38	2.59
Sediments	40	2.67
Grand Total	166	2.60

Oxidation State	Count	Ave. SG
Oxide	65	2.38
Transition	2	2.25
Sulfide	99	2.76
Grand Total	166	2.60

Dacite		
Oxidation	Count	Ave. SG
Oxide	37	2.39
Transition	50	2.72
Sulfide	1	2.40
Grand Total	88	2.58

Breccia		
Oxidation	Count	Ave. SG
Oxide	18	2.37
Transition	19	2.84
Sulfide	1	2.10
Grand Total	38	2.59

Sediments		
Oxidation	Count	Ave. SG
OX	10	2.36
SUL	30	2.77
Grand Total	40	2.67

Oxidation State - Rock Type	Count	Ave. SG
Oxidized Dacite	37	2.39
Oxidized Breccia	18	2.37
Oxidized Sediments	10	2.36
Grand Total	65	2.38

Oxidation State - Rock Type	Count	Ave. SG
Sulfide Dacite	19	2.84
Sulfide Breccia	50	2.72
Sulfide Sediments	30	2.77
Grand Total	99	2.76

Based on a review of the various averages, RMI elected to assign bulk density values of 2.38 and 2.76 for oxide and sulfide blocks, respectively. RMI recommends that Argonaut collect additional representative samples from key rock types for bulk density determination. The current resource model uses the oxide bulk density of 2.38 for alluvium and conglomerate. This value may be appropriate for those surficial deposits but some additional work should be undertaken for more accurate mining cost estimates.

14.16 Mineral Resources

An inventory of tonnes, grades, and contained metal was tabulated using various gold equivalent (AuEq) cutoff grades. The equivalent gold grades were calculated using ratios of metal prices and metal recoveries in the following equation:

$$\text{AuEq} = (\text{Au} + \text{Ag}/\text{Equivalency Factor}) \text{ where}$$

$$\text{Equivalency Factor} = ((\text{Au price in } \$/\text{g} * \text{Au recovery}) / (\text{Ag price in } \$/\text{g} * \text{Ag recovery}))$$

Recoveries were used in the equivalency calculation because at this stage of the metallurgical test work, silver tends to have a relatively low recovery and simple metal price ratios may lead to unrealistic values. Table 14.16.1 tabulates an inventory of tonnes, grades, and contained metal at various gold equivalent grades based on blocks that were classified as Indicated and Inferred Resources. Note that the gold equivalent cutoff grade of 0.18 g/t (highlighted in yellow) is the cutoff that was used to tabulate San Agustin Mineral Resources (see Table 14.16.3).

Table 14.16.1: San Agustin Block Model Inventory

AuEqV Cutoff (g/t)	Block Model Oxide+Transition Inventory - "Indicated" Resources					
	Tonnes (000)	AuEqV (g/t)	Au (g/t)	Ag (g/t)	Contained Ozs (000)	
					Au Ozs	Ag Ozs
0.16	89,373	0.35	0.30	10.2	861	29,227
0.17	86,197	0.36	0.31	10.4	857	28,744
0.18	82,919	0.37	0.32	10.6	851	28,204
0.19	79,589	0.37	0.32	10.8	817	27,593
0.20	76,280	0.38	0.33	11.0	807	26,946
0.21	72,842	0.39	0.34	11.3	794	26,445
0.22	69,390	0.40	0.34	11.5	757	25,655

AuEqV Cutoff (g/t)	Block Model Oxide+Transition Inventory - "Inferred" Resources					
	Tonnes (000)	AuEqV (g/t)	Au (g/t)	Ag (g/t)	Contained Ozs (000)	
					Au Ozs	Ag Ozs
0.16	14,835	0.28	0.24	9.0	113	4,301
0.17	13,292	0.29	0.25	9.4	106	4,031
0.18	11,782	0.31	0.26	9.8	97	3,730
0.19	10,565	0.32	0.27	10.3	90	3,484
0.20	9,465	0.34	0.29	10.7	87	3,251
0.21	8,410	0.35	0.30	11.0	80	2,977
0.22	7,507	0.37	0.31	11.4	76	2,740

In order to demonstrate that or least some portion of the San Agustin deposit has a reasonable prospect for economic extraction, RMI generated a conceptual pit using

price, cost, and recovery data that are believed to be valid for an open pit heap leach precious metal operation in this part of Mexico. Mining, processing, and G&A costs parallel costs at Argonaut's nearby El Castillo heap leach operation, except the crushing costs which are based on Argonaut's La Colorada operation located in northern Sonora. Gold and silver recoveries are based on completed and ongoing metallurgical testwork that has been undertaken by KCA and Argonaut's technical staff at their El Castillo operation (see Section 13). The gold and silver metal prices that were used for this study are lower than the three year trailing average but are in line with current metal prices. RMI generated a series of conceptual pits using MineSight's MSEP Lerchs-Grossman algorithm. Economic value was only allowed from Indicated and Inferred oxide and transition material. No recoverable value was allowed from sulfide material due to limited metallurgical testwork. Table 14.16.2 tabulates the parameters that were used to generate a conceptual pit that was used to summarize Mineral Resources.

Table 14.16.2: San Agustin Conceptual Resource Pit Parameters

Parameter	Value
Gold Price (US \$/ounce)	\$1,300.00
Silver Price (US \$/ounce)	\$20.00
Gold Recovery (%) - Crusher	68%
Silver Recovery (%) - Crusher	21%
Mining Cost (US \$/tonne mined)	\$1.00
Pad Cost (US \$/tonne leached)	\$0.50
Crush/stack Cost (US \$/tonne leached)	\$1.40
Process/leaching Cost (US \$/tonne leached)	\$1.82
G&A Cost (US \$/tonne leached)	\$0.50
Pit Slope Angle (degrees)	45

Table 14.16.3 summarizes the in-pit oxide and transition Mineral Resources based on the parameters shown in Table 14.16.2.

Table 14.16.3: San Agustin Mineral Resources

Material Type	Indicated Resources					
	Tonnes (000)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Contained Ozs (000)	
					Au Ozs	Ag Ozs
Oxide	79,373	0.37	0.32	10.6	817	27,050
Transition	2,837	0.37	0.31	13.3	28	1,213
Total Indicated	82,210	0.37	0.32	10.7	845	28,263

Material Type	Inferred Resources					
	Tonnes (000)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Contained Ozs (000)	
					Au Ozs	Ag Ozs
Oxide	6,800	0.34	0.29	10.6	63	2,317
Transition	164	0.35	0.23	26.9	1	142
Total Inferred	6,964	0.34	0.29	11.0	65	2,459

Note:

Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. Inferred Mineral Resources have a high degree of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of an Inferred Resource will ever be upgraded to a higher category.

Tonnes, grade values, and contained metal quantities may differ due to rounding.

As previously mentioned, RMI generated several conceptual pits to gauge the sensitivity of potential resource quantities based on different gold and silver prices. Table 14.16.4 summarizes Indicated and Inferred material inside a series of conceptual pits. The same cost and recovery data summarized in Table 14.16.2 were used for all of the pits shown in Table 14.16.4, only metal prices were changed. The recognized San Agustin resource quantities are highlighted in yellow.

Table 14.16.4: San Agustin Resource Sensitivity Due to Metal Prices

Au and Ag Prices for Conceptual Pits ¹	AuEQV Cutoff (g/t) ²	Total Indicated Resources (Oxide+Transition)					
		Tonnes (000)	AuEQV (g/t)	Au (g/t)	Ag (g/t)	Contained Ozs (000)	
						Au Ozs	Ag Ozs
\$1500 Au \$23.00 Ag	0.16	89,734	0.35	0.31	10.2	892	29,382
\$1400 Au \$21.50 Ag	0.17	86,156	0.36	0.31	10.4	858	28,780
\$1300 Au \$20.00 Ag	0.18	82,210	0.37	0.32	10.7	845	28,263
\$1200 Au \$18.50 Ag	0.20	75,118	0.39	0.33	11.1	796	26,827
\$1100 Au \$17.00 Ag	0.22	67,078	0.40	0.35	11.6	753	25,061

Au and Ag Prices for Conceptual Pits ¹	AuEQV Cutoff (g/t) ²	Total Inferred Resources (Oxide+Transition)					
		Tonnes (000)	AuEQV (g/t)	Au (g/t)	Ag (g/t)	Contained Ozs (000)	
						Au Ozs	Ag Ozs
\$1500 Au \$23.00 Ag	0.16	10,261	0.30	0.25	9.9	82	3,259
\$1400 Au \$21.50 Ag	0.17	8,633	0.32	0.27	10.5	75	2,922
\$1300 Au \$20.00 Ag	0.18	6,964	0.34	0.29	11.0	65	2,459
\$1200 Au \$18.50 Ag	0.20	5,261	0.36	0.31	12.3	52	2,080
\$1100 Au \$17.00 Ag	0.22	3,740	0.40	0.34	13.9	41	1,672

Notes:

¹ Same costs and recoveries used for all conceptual pits only metal prices were changed

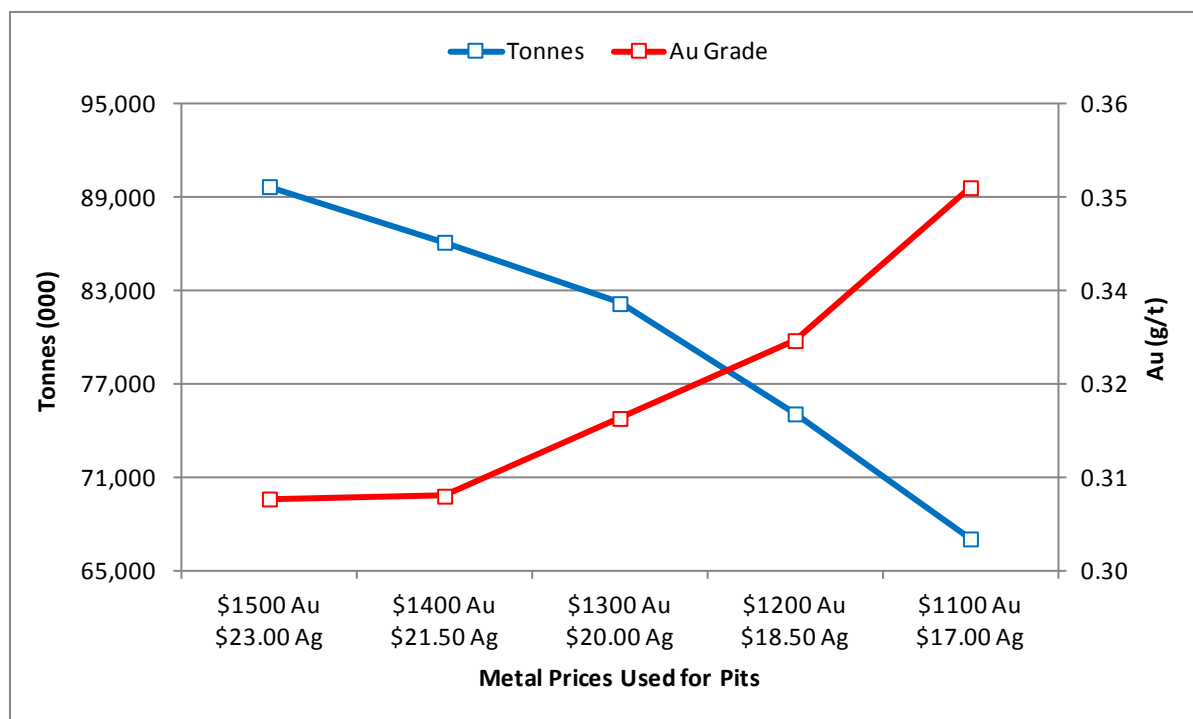
² Calculated break-even Au equivalent cutoff grade based on costs, prices, and recoveries

Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. Inferred Mineral Resources have a high degree of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of an Inferred Resource will ever be upgraded to a higher category.

Tonnes, grade values, and contained metal quantities may differ due to rounding.

Figure 14.16.1 is a grade-tonnage graph that graphically shows the relationship of Indicated Resource tonnes and gold grades for the five conceptual pits summarized in Table 14.16.4.

Figure 14.16.1: San Agustin Conceptual Pit Grade-Tonnage Curves



14.17 General Discussion

The Qualified Person responsible for this section is not aware of any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant factors that could materially affect the Mineral Resource estimates that are the subject of this Technical Report.

Based on the relationships shown in Figure 14.16.1, the resource could be materially affected by increased or decreased metal prices.

15 Mineral Reserve Estimate

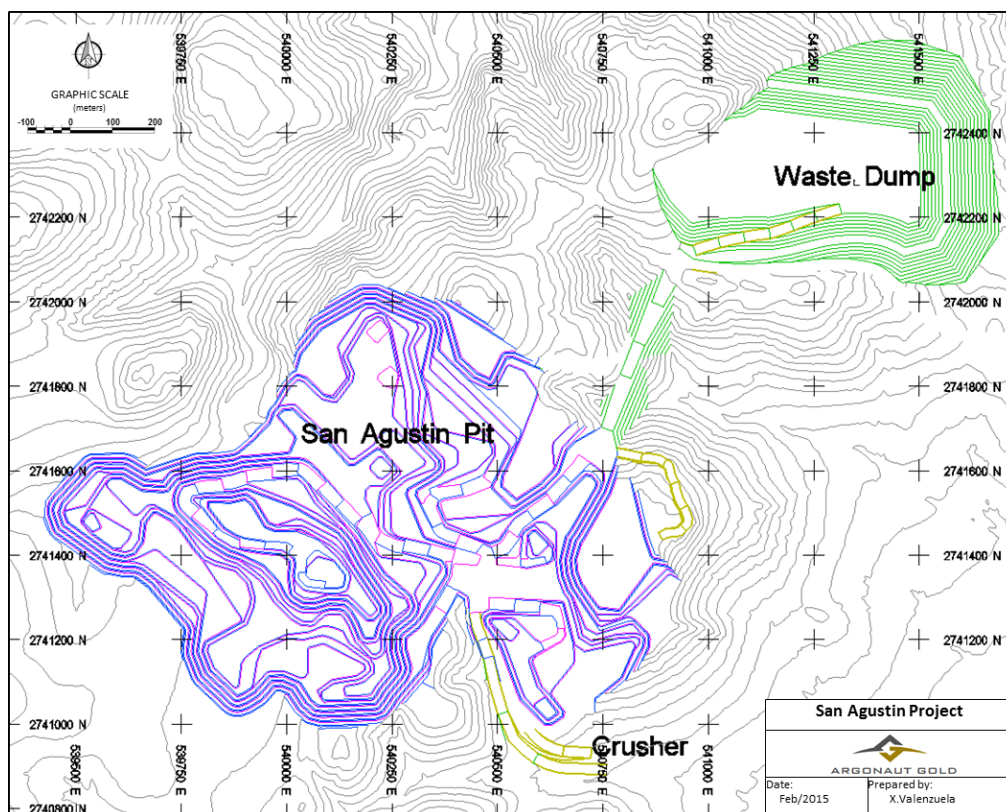
This section is excluded from this report.

16 Mining Methods

For this PEA, an ultimate pit was generated by Argonaut's mining engineer, Xochitl Valenzuela, and reviewed by Argonaut's qualified person, Michael Lechner, P. Geo. The pit, referred to as the "San Agustin Pit", was designed with five mining phases and contains 72.4M t of Indicated mineral resources at an average grade of 0.32 g/t Au and 10.6 g/t Ag. The life-of-mine strip ratio is 0.39:1. Pit resources were broken into two different material types designated for heap leach processing: high-grade and low-grade. At a 6M tpy production rate of high-grade material, it is expected that the potential mine life will be 10.5 years. The production schedule targeted a consistent total mine tonnage of approximately 10M tpy, consisting of high-grade, low-grade, and waste material.

The dimensions of the San Agustin Pit are 1,500 m in the east-west and 1,100 m in the north-south directions. One primary waste dump was designed and located 500 m northeast of the San Agustin Pit. An overview of the San Agustin Pit and waste dump is illustrated in Figure 16.0.1.

Figure 16.0.1: San Agustin Pit and Waste Dump Overview



16.1 Pit optimization

Pit optimization was completed using MineSight® software and the Lerchs-Grossman (LG) algorithm. Thirty-three pit optimization cases were generated using gold prices ranging between US\$700 to US\$1,500 per ounce and silver prices ranging between US\$9.70 to US\$20.90 per ounce. Only Indicated mineral resources were considered for the pit optimization study.

16.1.1 Pit Optimization Assumptions

Key block model parameters used for San Agustin pit optimization are detailed in Table 16.1.1.

Table 16.1.1: San Agustin Block Model Parameters

Pit Optimization Assumptions	Value
Block Model Constraints	
Resource Classification	Indicated
Mineral Type	Oxides
Economic Metals	Unit
Au	grams
Ag	grams
Block Dimensions	Meters
X	6
Y	6
Z	6
Block Model Dimensions	Number of Blocks
X	429
Y	274
Z	81

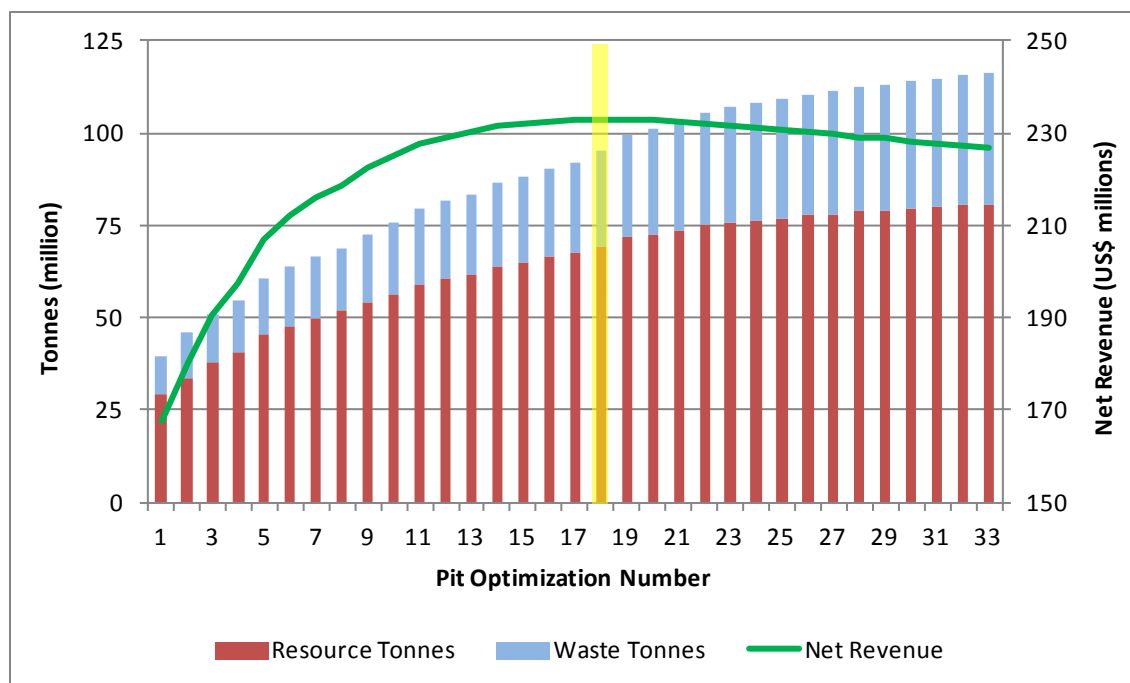
The pit optimization parameters that were ultimately selected as the basis for mine design are summarized in Table 16.1.2.

Table 16.1.2: San Agustin Pit Optimization Parameters

Pit Optimization Economic Assumptions		
Operating Costs		
Mining Cost	\$/tonne	1.09
Processing 2 Stage Crushing (>0.225 gpt Au)	\$/ore tonne	3.57
Processing 1 Stage Crushing (<0.225 g/t Au)	\$/ore tonne	3.12
G&A	\$/ore tonne	0.5
Au Process Recoveries		Cursh Size
Oxide	22mm (p80)	66%
Oxide	100mm (p80)	57%
Ag Process Recoveries		
Oxide	22mm (p80)	16%
Oxide	100mm (p80)	9%
Revenue and Selling Cost		Unit
Au Price	US\$/oz	1,125
Ag Price	US\$/oz	15.7
Slope Angle		Unit
Overall	Degree	44

16.1.2 Pit Optimization Results and Analysis

Resource tonnes, waste tonnes, net revenue, and strip ratio were calculated for each pit optimization and formed the basis for selecting one of the optimizations as the shell to use for subsequent mine design. Figure 16.1.1 compares net revenue (green line) versus resource/waste tonnage (left Y-axis).

Figure 16.1.1: San Agustin Pit Optimization Results

16.2 Open Pit Design

Argonaut selected LG pit shell 18 (US\$1,125 and US\$15.70 for gold and silver prices, respectively) for the basis of The San Agustin Pit design. This LG pit was chosen because it generated the maximum net revenue and provided a balanced life-of-mine strip ratio. Site access, mining width requirements and assumed geotechnical parameters were integrated into the design resulting in a life-of-mine pit that could be mined in a reasonable manner.

16.2.1 Pit Design Parameters and Construction

A pit ramp width of 25 m was selected providing a truck factor of 3.5, which can safely support Cat 777 or equivalent sized mining trucks. One way access of 15 m was applied for the six bottom pit benches after stripping requirements were met. Table 16.2.1 shows the San Agustin Pit design parameters with Figure 16.2.1 and Figure 16.2.2 showing the selected LG shell and ultimate pit designs, respectively.

Table 16.2.1: San Agustin Pit Design Parameters

Parameter	Unit	Value
Inter-ramp Slope Angle	Degees	45
Batter Angle	Degees	67
Bench Height	Meter	12
Berm Width	Meter	7
Ramp Width - 2 Way	Meter	25
Ramp Width -1 Way	Meter	15
Ramp Gradient	%	10

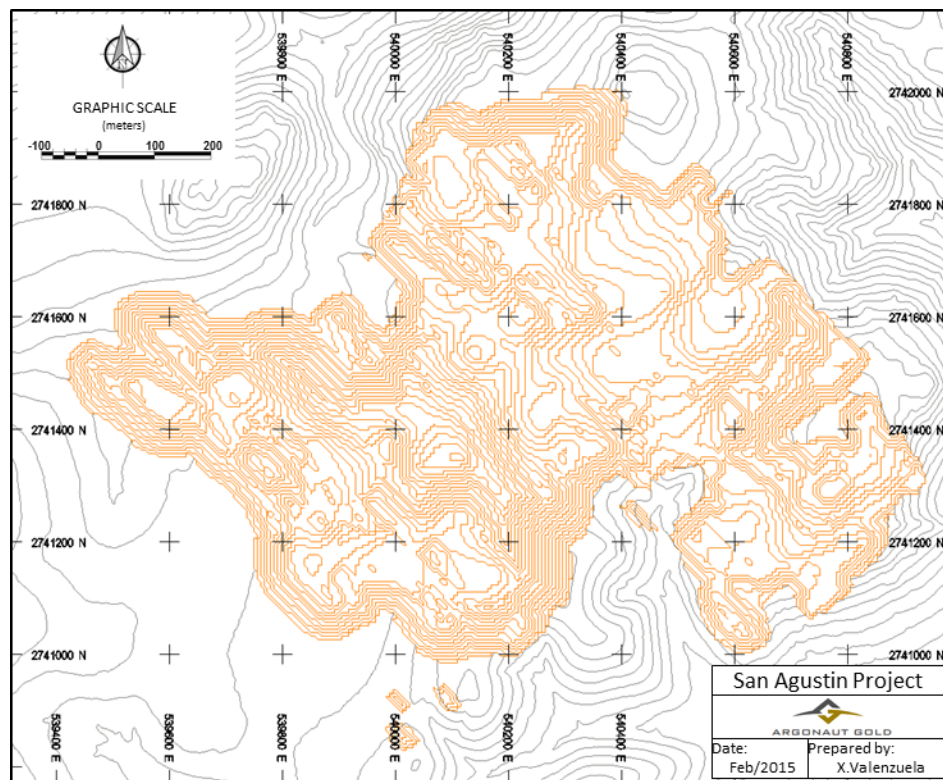
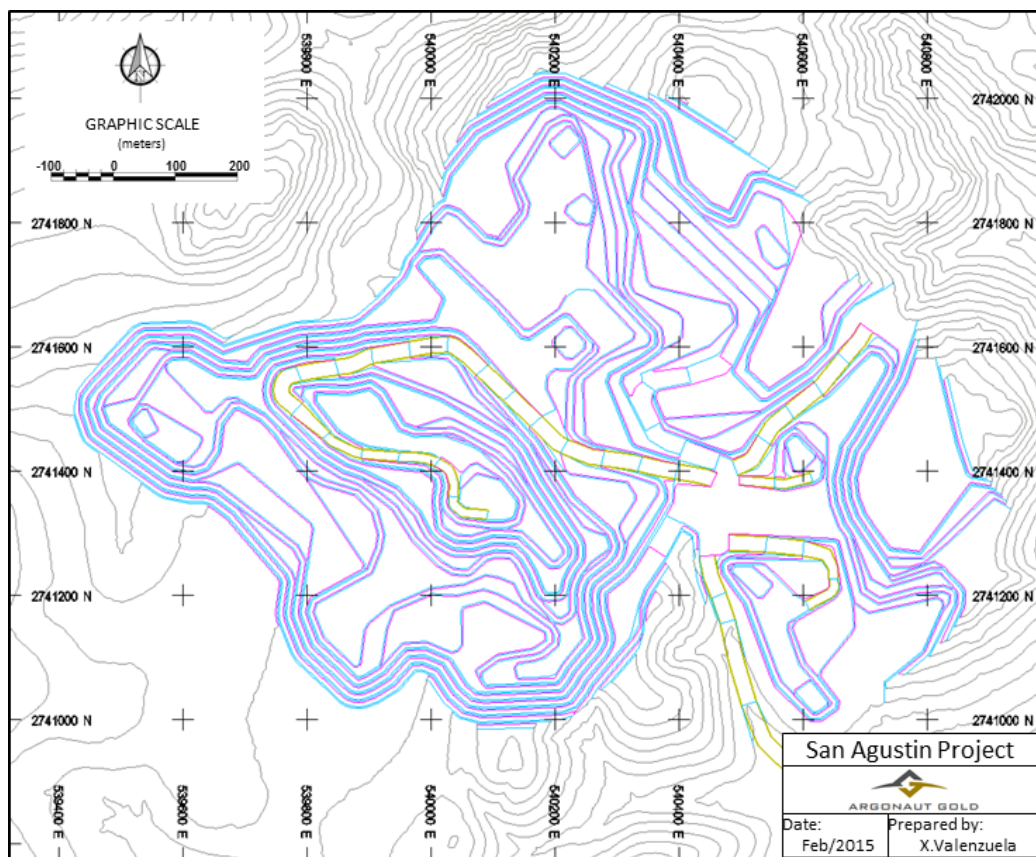
Figure 16.2.1: San Agustin Lerchs-Grossman Pit Shell

Figure 16.2.2: San Agustin Ultimate Pit Design

16.3 Phase Design

The phase designs were mainly driven by requiring effective mining widths and access to the resource. The same ultimate pit design parameters outlined in Table 16.2.1 were used for all phase designs.

Phase 1 was focused on mining a high-grade area of the deposit which also includes a low stripping ratio. This phase is located in the center of the pit starting from an elevation of 1962 to 1842 masl, defining an area of approximately 700 by 500 m in the east-west and north-south dimensions, respectively.

Phase 2 extends west of Phase 1, driving the main ramp to an elevation of 1776 masl. Both Phase 1 and Phase 2 were designed to adhere closely to the limits of the pit shell generated using a gold price of US\$700 per ounce.

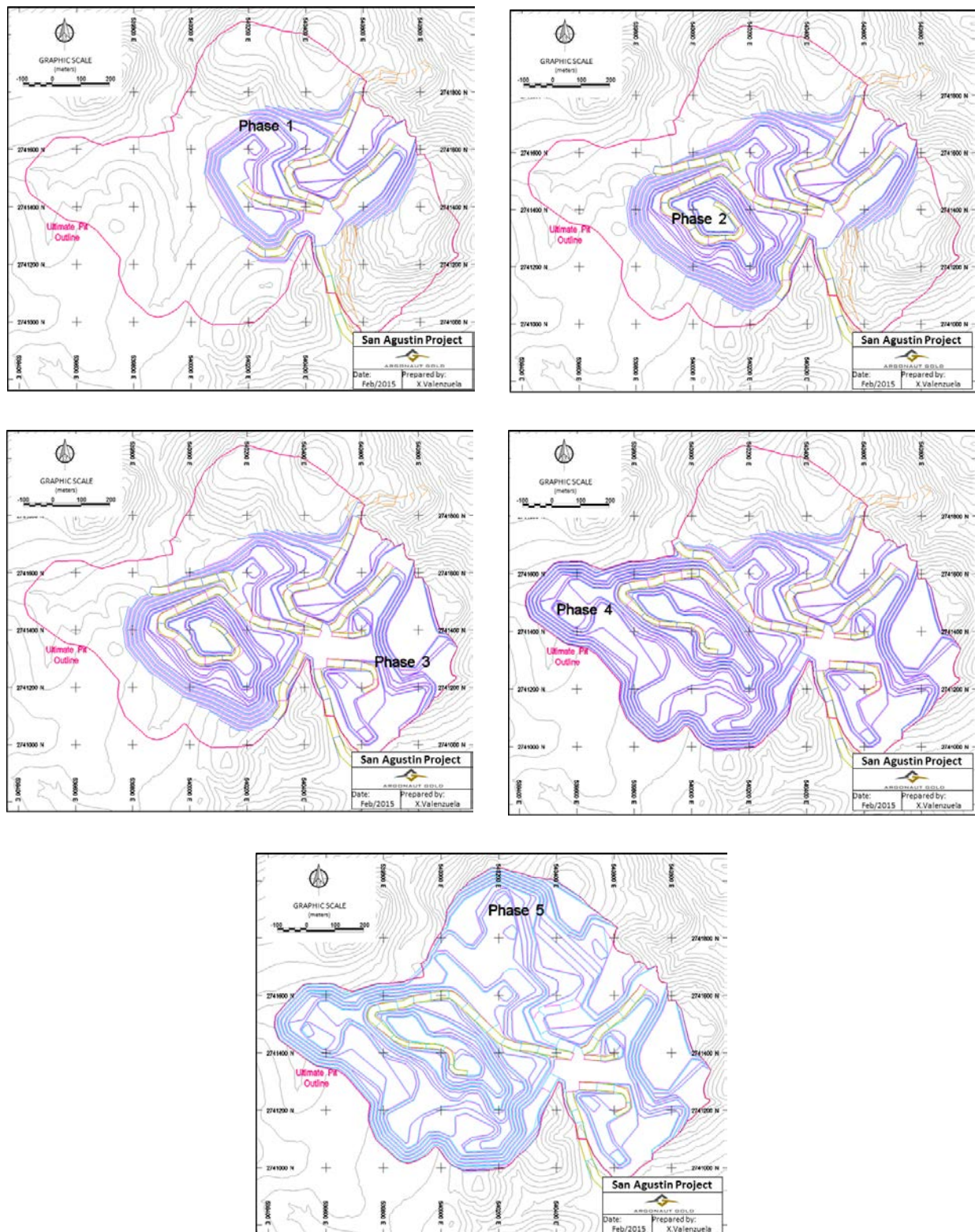
Phase 3 is located at the eastern side of the pit and reaches a depth of 1848 masl, and due to its location, maintains short haul distances to both the crushing area and the waste rock dump.

Phase 4 is the most extensive phase and is located west of Phase 2, expanding the pit from 100 to 300 m in some areas. This phase expansion reaches the final pit boundaries in the southern and western sides of the pit. The deepest portion of the entire San Agustin Pit (1764 masl of elevation) is reached in Phase 4.

Phase 5, the last phase for the San Agustin Pit, expands the operation to the north of phase 1 and includes an area measuring approximately 200 by 300 m.

Figure 16.3.1 shows the chronological development of the five mining phases planned for the San Agustin Pit.

Figure 16.3.1: San Agustin Mining Phases



16.4 Schedule Inventory

Table 16.4.1 shows the scheduled resources by the five mining phases.

Table 16.4.1: San Agustin Resource Schedule Inventory

Variable	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Grand Total
Total tonnes	23,522,000	23,951,000	11,900,000	28,162,000	13,485,000	101,019,000
Minable Resource Tonnes	18,664,000	14,997,000	8,814,000	19,467,000	10,482,000	72,423,000
Waste Tonnes	4,858,000	8,955,000	3,086,000	8,695,000	3,003,000	28,596,000
Stripping Ratio (W:O)	0.26	0.6	0.35	0.45	0.29	0.39
Gold Contained Ounces	233,021	169,360	79,598	165,826	98,320	746,133
Silver Contained Ounces	5,178,827	7,668,532	3,299,702	7,325,173	1,098,990	24,569,085
Gold Grade (>0.158 AuEQ)	0.388	0.351	0.281	0.265	0.292	0.320
Silver Grade (>0.158 AuEQ)	8.6	15.9	11.6	11.7	3.3	10.6

AuEQ = (Au + Ag/Equivalency Factor) where Equivalency Factor = ((Au price in \$/g * Au recovery) / (Ag price in \$/g * Ag recovery))

16.5 Production Schedule

The production schedule was used as the basis for developing the economic model based on contained tonnage (resource and waste) and precious metal grades. Gold and silver metal prices of US\$1,200 and US\$17 per ounce respectively, were used in the development of the economic analysis described in Section 22. Argonaut developed a mine production schedule that assumes the production of two heap leach material sources. The primary heap leach feed consists of a higher grade resource to be crushed to 22 mm size (p80) with two stage crushing at a rate of approximately 6M tpy. The schedule also assumes the processing of additional low-grade resources to be crushed at 100 mm (p80) with a single stage of crushing. The low-grade material ranges between 10 to 18 percent of the total mined resource per year. The schedule is primarily driven by the 6M tpy high-grade feed requirements.

The two heap leach feed materials are defined by a gold equivalent (AuEq) cutoff grade. Resources >0.158 and <0.200 g/t AuEq are planned to be processed using single stage crushing and resources >0.20 g/t AuEq to be processed using two stage crushing. Table 16.5.1 summarizes annual mine plan quantities. Table 16.5.2 shows the material fed to the crushers (1-stage and 2-stage).

Table 16.5.1: San Agustin Annual Mine Production Schedule

	Pre-Prod	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Total Tonnes	184,000	7,280,000	10,164,000	10,164,000	10,164,000	10,192,000	9,801,000
Minable Resource Tonnes	70,000	5,487,000	6,750,000	6,750,000	6,800,000	6,867,000	6,850,000
Waste Tonnes	114,000	1,793,000	3,414,000	3,414,000	3,364,000	3,325,000	2,951,000
Stripping Ratio (W:O)	1.63	0.33	0.51	0.51	0.49	0.48	0.43
Gold Contained Ounces	864	69,374	76,019	87,236	79,942	74,411	64,620
Silver Contained Ounces	15,879	1,706,551	1,501,880	1,886,266	3,016,233	3,720,196	3,072,593
Gold Grade (>0.158 AuEQ)	0.385	0.393	0.350	0.402	0.366	0.337	0.293
Silver Grade (>0.158 AuEQ)	7.09	9.67	6.92	8.69	13.80	16.85	13.95
Tonnes per Day Mined	3,060	20,000	28,000	28,000	28,000	28,000	27,000

	Year 7	Year 8	Year 9	Year 10	Year 11	Total
Total Tonnes	9,801,000	9,801,000	9,828,000	9,194,000	4,447,000	101,019,000
Minable Resource Tonnes	7,250,000	7,300,000	7,267,000	7,200,000	3,833,000	72,423,000
Waste Tonnes	2,551,000	2,501,000	2,561,000	1,994,000	613,000	28,596,000
Stripping Ratio (W:O)	0.35	0.34	0.35	0.28	0.16	0.39
Gold Contained Ounces	65,647	60,133	59,870	70,551	37,446	746,114
Silver Contained Ounces	2,565,532	2,815,057	2,409,441	1,514,891	341,376	24,565,894
Gold Grade (>0.158 AuEQ)	0.282	0.256	0.256	0.305	0.304	0.320
Silver Grade (>0.158 AuEQ)	11.0	12.0	10.3	6.5	2.8	10.6
Tonnes per Day Mined	27,000	27,000	27,000	25,328	21,481	0

Table 16.5.2: San Agustin Annual Crusher Production Schedule

	Pre-Prod	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Total Crushed p80 22mm	63,000	5,277,000	6,000,000	6,000,000	6,000,000	6,017,000	6,000,000
Gold Grade (>0.20 AuEQ)	0.408	0.402	0.374	0.432	0.394	0.363	0.313
Silver Grade (>0.20 AuEQ)	7.1	9.8	7.2	9.1	14.6	18.1	14.9
Tonnes Crushed p80 100mm	6,000	210,000	750,000	750,000	800,000	850,000	850,000
Gold Grade (0.158 to 0.20 AuEQ)	0.166	0.163	0.163	0.162	0.152	0.153	0.154
Silver Grade (0.158 to 0.20 AuEQ)	6.8	5.5	4.8	5.2	7.5	7.8	7.6

	Year 7	Year 8	Year 9	Year 10	Year 11	Total
Total Crushed p80 22mm	6,000,000	6,000,000	6,017,000	6,000,000	3,416,000	62,789,000
Gold Grade (>0.20 AuEQ)	0.308	0.277	0.276	0.332	0.32	0.345
Silver Grade (>0.20 AuEQ)	11.7	13.3	11.4	7.2	2.9	11.3
Tonnes Crushed p80 100mm	1,250,000	1,300,000	1,250,000	1,200,000	417,000	9,634,000
Gold Grade (0.158 to 0.20 AuEQ)	0.153	0.158	0.162	0.168	0.175	0.159
Silver Grade (0.158 to 0.20 AuEQ)	7.6	6.1	5	3.3	1.6	5.8

16.5.1 Dilution, SMU and Bench Configuration

The resource model that was used to develop the mine plan is based on 6 m x 6 m x 6 m blocks and represents the smallest selective mining unit (SMU) that could possibly be mined. Mine bench heights were designed at 6 m. Block grades in the resource model incorporate internal dilution due to compositing drill hole assays and subsequent block grade interpolation. For this study it is assumed that dilution is built into the grade model. Dilution studies will be reviewed during future mine plan updates and incorporated as deemed necessary.

16.6 Development Requirements

The PEA calls for mining to commence when appropriate permits and surface use agreements are in place. Before that time, Argonaut will be advancing various testwork and engineering studies to prepare for construction once all permits are received. The main development program includes:

- Surface use agreements;
- Permitting;
- Engineering and planning for infrastructure;
- Detailed plant engineering;
- Detailed mine planning and engineering;
- Construction of leach pads and ponds;
- Construction of carbon plant;
- Construction of buildings and infrastructure, and
- Mine development.

16.6.1 Waste Dumps

The waste dump was located to store waste from the five mining phases. This dump is constructed in two lifts and fills the side of a valley with the top of the first lift to an elevation of 1926 masl and the second lift to an elevation of 1962 masl leaving a 15 m wide berm.

The waste dump is located 500 m north of the pit limit with dimensions of approximately 800 m in the east-west and 500 m in the north-south directions. The maximum dump height is 130 m in the north end and the width varies along the valley. The average haul distance to the waste dump over the life of mine is 1,700 m. The capacity of the

waste dump is 35M t with potential for expansion up to 60M t, with the density of waste rock assumed to be 1.8 t/m³ based on swell factors.

Testwork completed as part of the environmental baseline studies indicated that the waste material is not acid generating. As required under Mexican environmental requirements, the waste will be tested throughout the mine life to monitor if any unexpected acid generating materials are encountered.

16.7 Mining Fleet and Requirements

Argonaut expects to perform the mining at San Agustin using similar types and sizes of equipment as currently being used at Argonaut's nearby El Castillo Mine. An estimate of loading, hauling and drilling equipment requirements was made based upon the mine production schedule and using operational performance parameters from El Castillo.

16.7.1 Expected Mine Fleet

The mine fleet will be based on Cat 777 size haul trucks and Cat 992 class front-end loaders. The estimated mining fleet requirement is summarized in Table 16.7.1. Argonaut examined the long term mine plan for the El Castillo Mine and identified several items of equipment that will be surplus and could be used at San Agustin. The remainder of the equipment was assumed to be purchased used. Argonaut has purchased used equipment for the majority of the current fleet at the El Castillo Mine with success and has estimated the capital cost of the San Agustin used equipment based on this recent purchasing experience. It is intended that the equipment purchased for San Agustin will be the same make/model as equipment used at El Castillo as much as possible. In addition, only a single unit of some of the support equipment is planned to be purchased for both San Agustin and El Castillo, as the close proximity of the projects allows for sharing of spares. A suitable heavy equipment lowboy will be purchased to facilitate the movement of equipment within the San Agustin Project as well as to and from the nearby El Castillo Mine.

Table 16.7.1: San Agustin Mine Equipment

Quantity	Item
1	DM45/30 blasthole drill
2	ECM 590 blasthole drills
2	Front end loaders – CAT 992 class
7	Haul trucks – CAT 777 class (91 tonne capacity)
2	Dozers – D8 class
1	Road grader – 16H class
1	Water truck – CAT 769 size
1	Water truck – 10 – 15 m ³ size
1	Anfo truck
1	Fuel truck
1	Lube truck
2	Mechanics service trucks
1	Boom truck

16.7.2 Expected Operating Cost

The mining operating cost was estimated using actual mining costs from the nearby El Castillo Mine for the period January through July of 2014. The haulage costs were adjusted for the reduced haul distances at San Agustin as compared with El Castillo. This resulted in an estimated cost of US\$1.09 per tonne of material mined, including operations and maintenance labor. Technical support services such as mine planning, surveying, and grade control were budgeted separately and carried as part of the general and administrative costs.

17 Recovery Methods

17.1 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 ore will be crushed, stockpiled, reclaimed, and stacked on the leach pad with a conveyor stacking system. Two separate crushing circuits are included for higher and lower grade material, where the product of these are combined prior to heap leach stacking. The stacked ore will be leached with a low-grade cyanide solution and the resulting pregnant solution will be processed in a carbon adsorption circuit to extract gold and silver. The loaded carbon will be processed off-site at a client owned facility (La Colorada Mine).

The general site layout of the facilities is presented in Figure 17.1.1 with detailed areas for mine/crushing and process shown in Figure 17.1.2 and Figure 17.1.3, respectively. A simplified overall project flowsheet is presented in Figure 17.1.4.

Figure 17.1.1: San Agustin General Arrangement – Overall Site

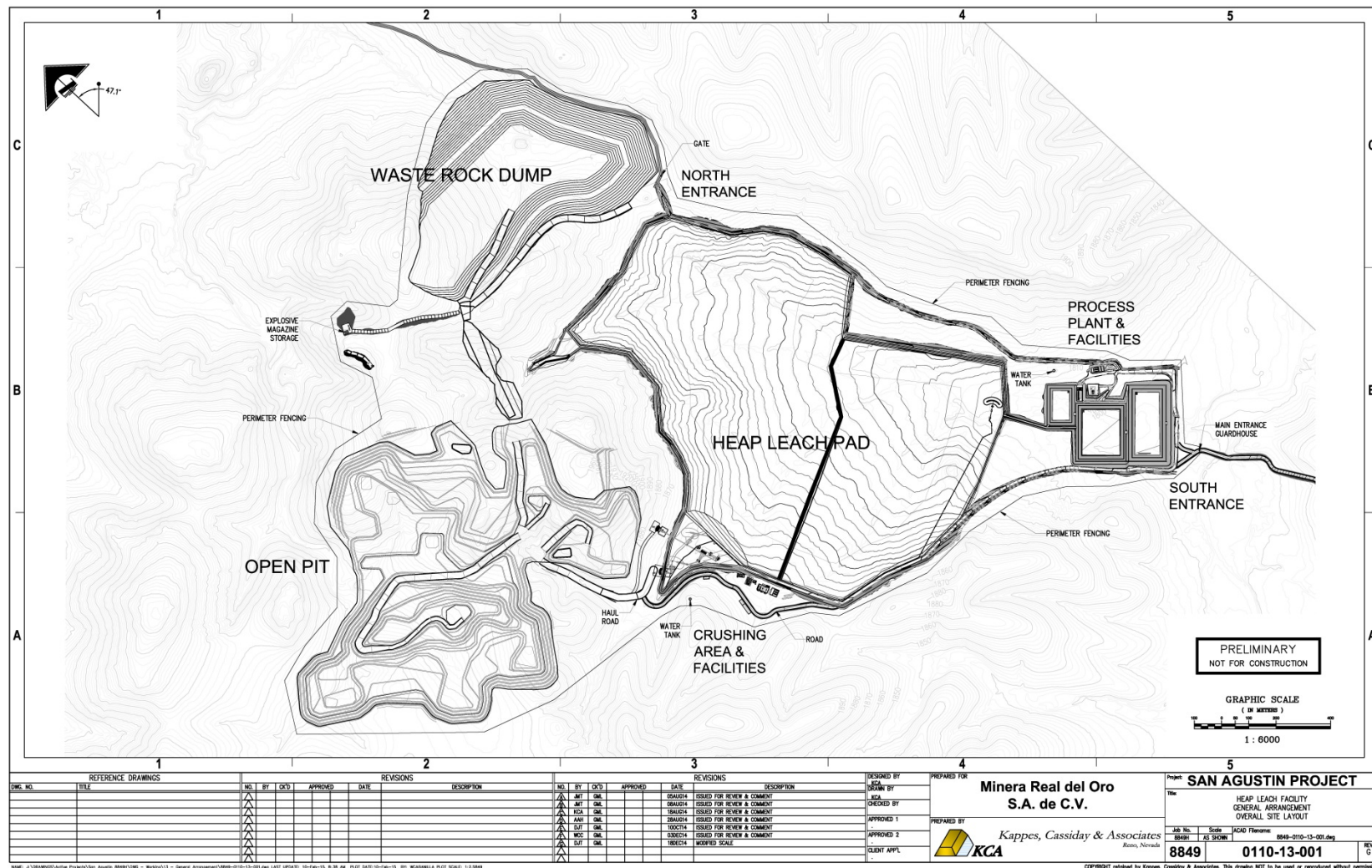


Figure 17.1.2: San Agustin General Arrangement – Crushing Area & Mine/Crushing Facilities

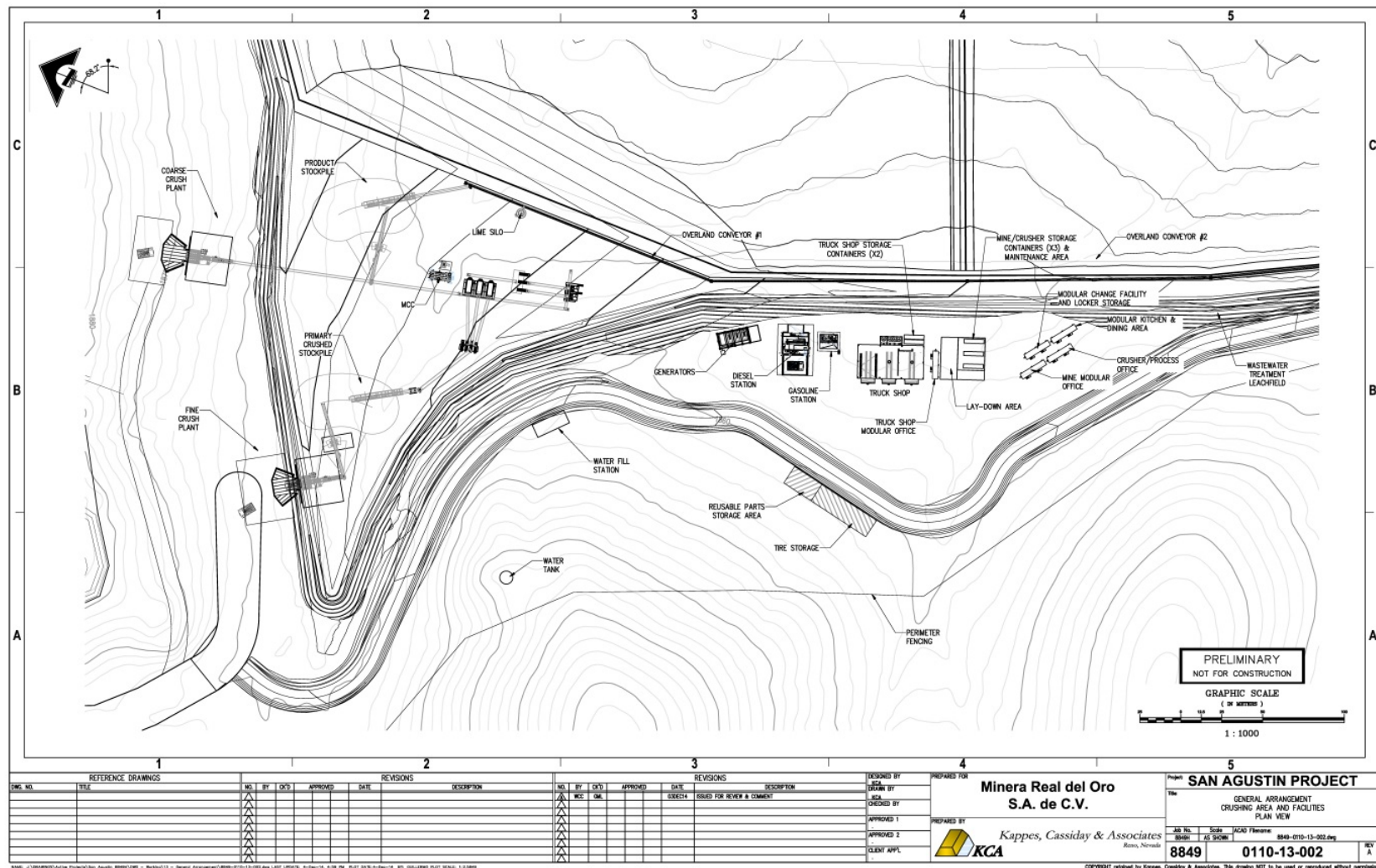


Figure 17.1.3: San Agustin General Arrangement – Process Plant & Facilities

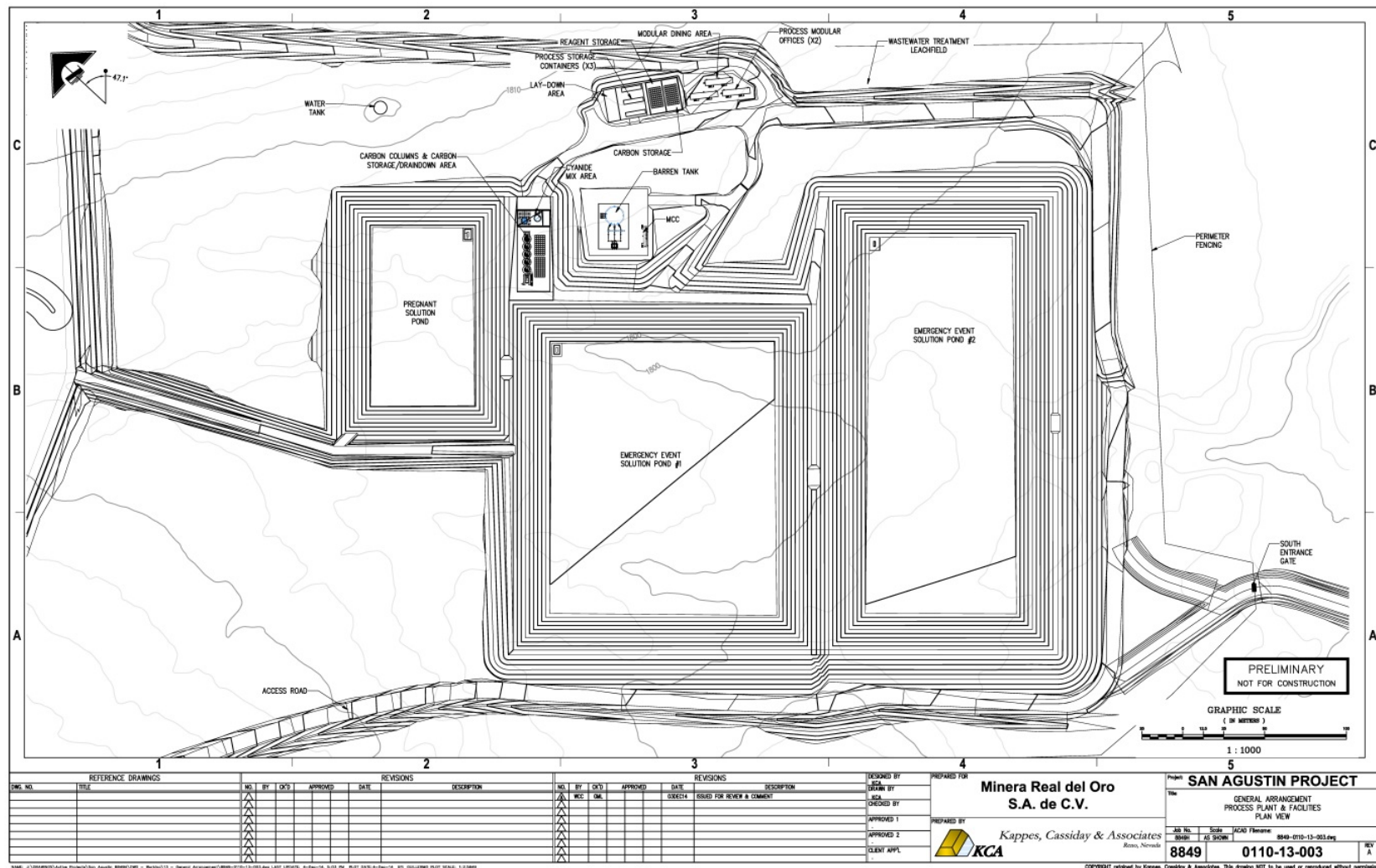
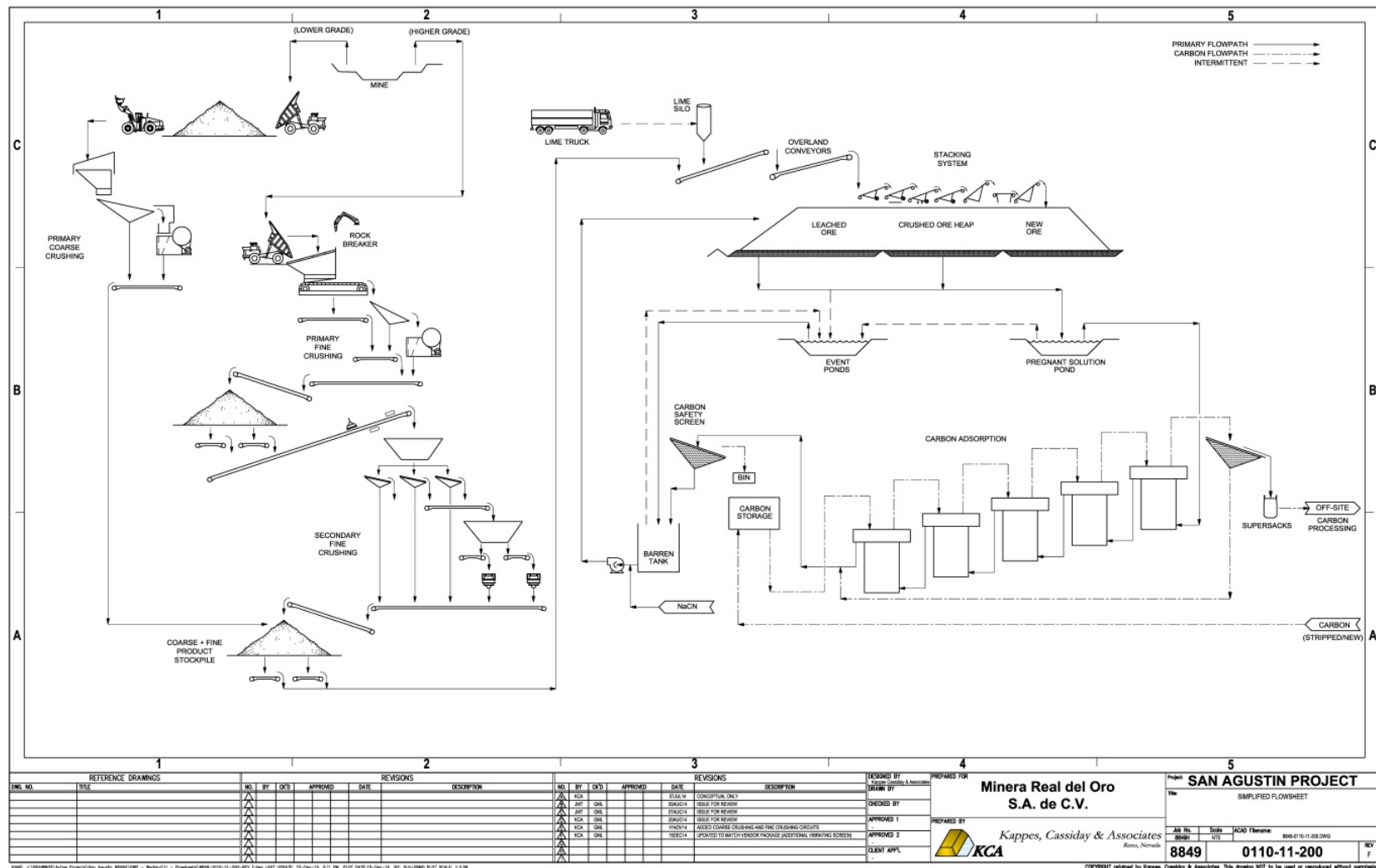


Figure 17.1.4: San Agustin Overall Simplified Process Flowsheet



17.2 Processing

17.2.1 Primary Crushing (Fine and Coarse Crush)

The crushing system is separated into two separate crushing circuits for the higher grade (fine crush) and lower grade (coarse crush) material. Crushed product from both circuits will be combined in the product stockpile prior to heap leach stacking. Dust control will be by pressurized water sprays.

17.2.1.1 Fine Crushing

The fine crushing will be by a single 4450 jaw crusher. A 200 t dump hopper will be directly fed by mine 100 t haul trucks, or reclaimed by a front-end loader, by dumping into the hopper. Situated below the dump hopper will be a variable speed 1219 mm by 711 mm apron feeder. From the dump hopper the material will pass to the apron feeder and fed across a 1.5 m by 4.9 m scalping vibratory screen with the oversize being directed to the jaw crusher and the undersize directed to the primary crushed ore stockpile. Oversize rocks will be reduced in size with an 8 m boom hydraulic hammer. A weightometer will be included on the discharge conveyor to measure material throughput.

The primary fine crushed ore from the primary stockpile will be directed to a 90 t surge bin and ultimately fed to three 2.4 m by 6.1 m double-deck vibratory screens. Screen oversize will be combined and conveyor fed to a 60 t surge bin. The surge bin will include two pan feeders and provide a constant feed to two secondary K500 cone crushers. The secondary crushing circuit operates in an open circuit where the crushed product is combined with the undersize material from the vibrating screens and directed to the product stockpile. Transfer points will be covered and dust containment will be controlled by water sprays.

17.2.1.2 Coarse Crushing

The coarse crushing will utilize a single 3054 jaw crusher arranged in a modular trailer including a dump bin, 1.3 m by 6.1 m vibrating grizzly feeder, and a 914 mm wide discharge conveyor. Material will be stockpiled by the mining 100 t haul trucks and fed to the crusher by a front-end loader. A weightometer will be included on the discharge conveyor to measure material throughput. The coarse crushed product will be combined with the product from the fine crushing circuit and directed to the crushed product stockpile.

17.2.2 Coarse Ore Stockpile and Reclaim (Fine Crush)

The primary fine crushed ore will be stockpiled with a 1219 mm wide radial stacker. Two variable speed pan feeders located in the 24 m tunnel and beneath the stockpile will withdraw material from the bottom of the stockpile onto a 1219 mm wide tunnel conveyor that will ultimately feed three 2.4 m by 6.1 m vibrating screens. The tunnel conveyor will include a cross-belt magnet for metal removal, and a metal detector.

17.2.3 Crushed Product Stockpile and Reclaim

The crushed product from the fine and coarse crushing circuits will be stockpiled with a 1219 mm wide radial stacker. Two variable speed pan feeders located in the 24 m tunnel and beneath the stockpile will withdraw material from the bottom of the stockpile onto a 1067 mm wide conveyor that will connect to the overland conveyors. Lime will be added directly to the crushed product reclaim conveyor by means of a 150 t lime silo and screw feeder system.

17.2.4 Heap Conveying and Stacking

The two 914 mm wide overland conveyors, measuring to total of 600 m, will transfer the crushed material to a series of 1067 mm wide grasshopper and ramp conveyors leading to a 1067 mm wide horizontal indexing conveyor and 1067 mm wide radial stacker. The heap pad will be stacked in a retreating manner moving east to west. 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.

17.2.5 Heap Leaching

The leach pads will be a multiple-lift, single-use type pad designed for 75 days of ore leaching. Leach solution will be composed of barren solution dosed with sodium cyanide and supplied to the heap material with sprinklers. Solution will be applied at a rate of 8 L/hr/m². The dilute cyanide leach solution will percolate through the ore and collect on the geomembrane liner at the base of the heaps. A series of drainage pipes below the ore and above the liner will collect solution and allow it to gravity drain to the pregnant solution pond.

17.2.6 Adsorption

Solution collected in the pregnant pond will be pumped to the adsorption circuit with submersible pumps. Two pumps will be installed and operate simultaneously. These

pumps will have a fully operational back-up plumbed and wired spare in case of a pump failure.

The absorption circuit is designed to process 940 m³/hr of pregnant solution nominally, with a design capacity of 1126 m³/hr. The adsorption plant will consist of a single train of five cascade style adsorption vessels with a holding capacity for 10 t of activated carbon per vessel.

In the adsorption circuit the system is designed so the carbon is pumped counter-current to the solution gravity flow to the next tank. Carbon transfer between vessels will be by recessed impeller type pumps. Loaded carbon from the last adsorption vessel will be pumped to a dewatering screen and fed into 500 kg super-sacks. The super-sacks will be placed in a containment area and allowed to continue dewatering prior to transport. Carbon desorption and further processing (regeneration and acid washing) will be conducted off-site.

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

17.2.7 Carbon Treatment

The carbon treatment process, including desorption, acid washing and thermal regeneration, will be performed off-site. Approximately 46 t of loaded carbon will be transported off-site for processing weekly.

Transport of the loaded carbon will be accomplished by first loading the carbon into super sacks, then the sacks will be allowed to drain. The drained loaded carbon sacks will then be loaded into enclosed trailers for transport to the strip circuit located at the La Colorada Mine. In anticipation for the additional carbon processing throughput at the La Colorada Mine provisions have been made to increase capacity of the strip plant by 10 tonnes, increase the capacity of the carbon regeneration kiln, and add a mercury retort. The existing smelting facilities are capable of handling the extra material and will not require expansion.

Stripped carbon will be shipped back to the San Agustin Project in a similar manner and placed back into the adsorption circuit.

17.2.8 Heap Leach Facilities

The leach pad is designed to contain approximately 72 million tonnes of ore material. A total of three (3) ponds are included in the design for pregnant and excess solution, but only one of two event ponds will be constructed in the first phase of the Project.

The heap leach pad will be constructed on a prepared surface including a compacted subgrade lined with 0.3 m of low permeability soil. The prepared surface will be covered with a single layer of 1.5 mm LLDPE plastic liner. The leach pad will be graded to drain to the pregnant pond.

The pregnant and the initial event pond (emergency event pond #1) will be double lined with 1.5 mm HDPE plastic liners and incorporate a leak detection system. The event pond constructed in the second phase of the Project (emergency event pond #2) will be lined with a single layer of 1.5 mm HDPE plastic liner. The pregnant solution pond is designed to receive solution flows directly from the heap leach pad. A lined channel will also be placed between the heap leach pad and event ponds, where the overflow from the leach pad not contained by the pregnant solution pond conveyance pipe will be diverted to the event ponds. Additional spillways will be located between the pregnant solution pond and event ponds which will allow for the capacity of adjacent ponds to be utilized in the event of upset conditions (for example, large storms or extended pump shutdowns in the pregnant solution pond).

The pregnant solution pond is designed to have sufficient capacity for minimum operating volume for a 24 hour period, capacity for an 8 hour pump shutdown or leach pad solution draindown, capacity to contain inflows generated by a typical rainfall event over the ultimate footprint, and capacity to maintain the design freeboard.

The two (2) event ponds are each designed to contain about 50% of the ultimate required precipitation storage capacity and a 16 hour leach pad solution drain down. During the first phase of the Project one event pond will be constructed; the second pond will be incorporated during the additional phases of the Project. Overall, the pond system (pregnant and event ponds) has a designed capacity sufficient to store a minimum operating volume for a 24 hour period, capacity for a 24 hour pump shutdown or leach pad solution draindown, and the run-on produced by average monthly precipitation and a design storm event (100 year, 24 hour maximum).

17.2.9 Reagents

The reagent consumptions are based on metallurgical testing and the design criteria for the Project. Reagents required for the Project and their calculated annual consumptions are presented in Table 17.2.1.

Table 17.2.1: San Agustin Reagent Consumptions

Reagent	Consumption/Unit	Annual Consumption
Cyanide	Coarse Crushed: 0.18 kg/t	1.6 million kg
	Fine Crushed: 0.23 kg/t	
Lime	Coarse Crushed: 3.5 kg/t	27 million kg
	Fine Crushed: 4.0 kg/t	
Carbon	3% carbon fines loss	72 t
Antiscalant	5 to 10 ppm at Barren + Pregnant Solution Pumps	150,000 L

The cyanide mix and metering circuit will include two cyanide addition pumps (one operating, one standby), a cyanide transfer pump, a cyanide mix tank, a cyanide mix tank dust containment 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 fenced, locked and lighted reagent storage facility.

Lime will be stored in a lime silo and dispensed directly onto a conveyor belt. The lime delivery system will add lime to the crushed ore stream by a variable-speed feeder receiving instructions from the weigh scale on the final product conveyor belt from the crushing circuit. Delivery to the Project will be by bulk trucks and directly blown into the lime silo. The lime silo will be located near the crushing area.

Carbon will be delivered to the Project in 500 kg super sacks and stored in the carbon storage facility. Carbon will be added to the adsorption vessels as needed to replace gold/silver loaded carbon and fines lost through carbon handling.

Antiscalant will be delivered to the Project in 1,000-liter totes. Antiscalant will be added to the barren and pregnant pump inlets via chemical addition pumps to mitigate pipe scale formation.

18 Project Infrastructure

18.1 Summary

The infrastructure and services were developed to support the San Agustin Project operations; this section defines the infrastructure and services required for the Project. Included are the following major areas:

- Access roads;
- Power supply;
- Water Supply;
 - o Process water,
 - o Raw water, and
 - o Potable water.
- Project buildings, including:
 - o Offices,
 - o Guard house,
 - o Change facility and locker storage,
 - o Dining facilities,
 - o Laboratory, and
 - o Reagent storage.
- Warehouse and maintenance areas;
- Process facility;
- Fuel storage and delivery systems;
- Storage area for reusable parts and tires;
- Explosives storage; and,
- Miscellaneous site services, such as:
 - o Security,
 - o First Aid,
 - o Communications,
 - o Transportation, and
 - o Waste disposal.

18.2 Access Roads

Access to the Project site will be available from the north by established dirt roads that will be improved and from the south by a new dirt road to be constructed from the paved Highway 45. Main entrance gates with guardhouses will be located on both the north and south entrance points of the Project.

The north access road primarily serves as an easy connection to Argonaut's existing El Castillo Mine. The distance between the two projects (San Agustin, El Castillo) is approximately 12 km.

A preliminary assessment has been completed for both the new and established dirt roads to determine repair and/or improvement requirements. The access roads within the Project site will be newly constructed.

18.3 Power Supply

Power will be supplied to the Project by means of diesel-fired generators. The generation plant will include three generators producing 480 VAC (3-phase, 60 hertz), and will be located near the crushing system due to the heavy power requirements in that area. Power will be distributed on-site by means of overhead electrical lines at 4,160 VAC (3-phase, 60 hertz) and further stepped-down to 480 volts and 120 volts accordingly. All motors at the Project will be less than 447 kW (600 hp) and therefore will utilize 480 VAC. Electrical outlets, control systems, and lighting will have the option of using 120 or 220 VAC.

18.3.1 Estimated Power Consumption

The estimated Project electrical power consumption is 5,331 kW on average, with a total attached power of 5,733 kW.

18.4 Water Supply

The Project will require a water supply for the following uses:

- Mining operations for dust control, drilling, etc.;
- Crushing for dust control;
- Makeup water for the heap leach pad;
- Process plant and laboratory; and,
- Modular offices and other site facilities.

Demand for make-up water during Phase 1 of the heap is estimated to be 286,000 m³ total in an average precipitation year, with a maximum demand in any month estimated to be 90 m³/hr. The make-up solution (fresh + recycled) required by the heap leach system will be met from several potential sources:

- Solution previously stored in the emergency event solution ponds; and,
- Well water and/or water from pit dewatering.

18.4.1 Process Water

Golder determined operational water requirements in conjunction with climatic conditions as discussed in Section 17. The process water balance considers the water consumed by the Project and the water collected from precipitation events on the Project components in addition to seasonal evaporation.

Solution from the heap leach pad will drain to the pregnant solution pond, where it will be pumped through the processing facility to recover precious metals and is then pumped back to the leach pad in a continuous cycle. The emergency event solution ponds are located adjacent to the pregnant solution pond to allow containment of excess process solution during precipitation events which add additional water to the contained system. The pregnant solution and emergency event ponds were designed with a combined capacity to contain normal process volumes and contingent storage capacity for a total of 528,029 m³.

Process water requirements are first met by pumping collected waters from the emergency event ponds; after that resource is exhausted, make-up requirements will be met by well water.

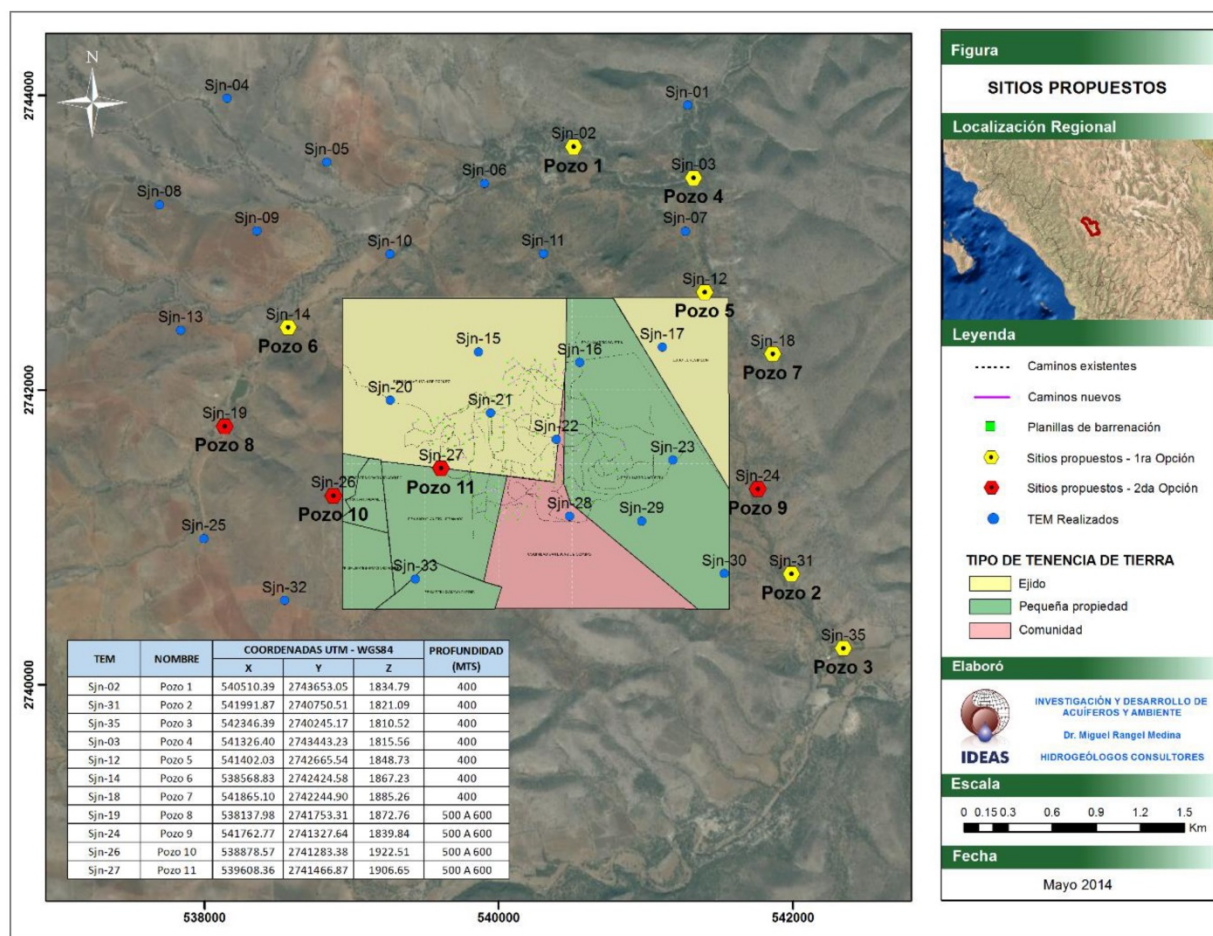
18.4.2 Raw Water

Raw water for the Project will be pumped directly from water wells to raw water tanks. There are two raw water tanks included in the Project; the primary raw water tank is located next to the process area with a tank volume of approximately 16,600 m³ and the secondary water tank is located near the crushing area with a volume of approximately 25,000 m³. A pumping system is included in the primary raw water tank to pump water directly into the secondary water tank so during normal operations the water wells will only need to pump into the primary water tank.

Water from the storage tanks will gravity flow and be utilized in process facilities and domestic uses. The dust control system will include a booster pump at the secondary raw water tank.

A total of two water wells with a depth of 400 m are included in the Project. According to the hydrology study conducted by Argonaut there are a total of eleven proposed locations for water wells. The proposed water wells locations are depicted in Figure 18.4.1 and are ranked based on preference.

Figure 18.4.1: San Agustin Proposed Water Wells Locations



18.4.3 Potable Water

Potable water will be bottled and delivered to the Project site.

18.4.4 Fire Water

No fire water system is included. Fire protection throughout the Project facilities will be accomplished with fire extinguishers and smoke alarms.

18.5 Project Buildings

The Project facilities will be supplied in the form of modular office trailers, shipping containers for warehouse storage, a simple building for reagent storage, and roofed structures for most other facilities.

18.5.1 Offices

The offices will consist of modular office trailers with a usable area of about 60 m². Each modular office will include air-conditioning and heating, two private offices, shared toilet and sink, and open area for additional desk space or office supplies. The Project will include a total of four offices to be shared between the process and mine personnel.

18.5.2 Guard House

The Project will include two main entrances, one on the north side and one additional on the south side. These two entrances will each include a modular guard house measuring approximately 12 m². Each guard house will be connected to the power grid and equipped with air-conditioning and heating systems.

18.5.3 Change Facility and Locker Storage

A change facility with locker storage is located near the mine and crusher offices. This facility is composed of a modular trailer with an area of about 60 m² and includes personnel lockers along the walls.

18.5.4 Dining Facilities

Dining facilities are included in each of the process and mine/crushing areas. The facilities include two modular trailers, measuring about 60 m², and each includes a refrigerator, microwave, tables and chairs. Meals for personnel will be delivered to site by others, as is currently being done at El Castillo.

18.5.5 Laboratory

The laboratory will be housed inside one of the modular process offices and includes equipment for pH measurements and solutions assays for precious metals using AA spectroscopy. This private office will measure about 13 m² and include proper laboratory safety equipment, such as a fume hood, exhaust fan, fire suppression equipment, and eyewash/safety-shower unit.

Laboratory chemical wastes will be stored temporarily on site and transported to the heap leach or ponds for disposal in the process systems.

Blast hole samples for pit grade control and solution samples for plant head grades will be assayed at the El Castillo laboratory. Any metallurgical tests, such as bottle roll or column leach tests, will also be completed at El Castillo.

18.5.6 Reagent Storage

The reagent storage warehouse will include a simple building with an area of approximately 195 m² and provide storage for sodium cyanide, antiscalant, and some carbon.

Adjacent to the reagent storage building will be a carbon storage area consisting of an uncovered concrete containment area measuring about 195 m² for the storage, loading and unloading of carbon.

Longer term storage of chemicals will be provided as part of the existing facilities at El Castillo.

18.6 Warehouse & Maintenance Areas

The process area will include a warehouse consisting of three freight containers, each measuring 2.5 m by 12 m, on a compacted gravel pad with an area of 335 m² and a fenced laydown area measuring about 150 m². No maintenance area will be included in the process area.

The mine and crusher warehouse will be located south of the crushing area and will include three freight containers, each measuring 2.5 m by 12 m, on a compacted gravel pad with an area of 431 m², a maintenance area of about 100 m² consisting of an uncovered gravel pad, and a fenced laydown area measuring approximately 265 m².

Next to the mine and crusher warehouse will be a truck shop for light maintenance. The truck shop includes a total of three bays with a roofed slab, open slab, and open wash bay. Major or extensive maintenance tasks will be completed at El Castillo's maintenance facilities.

Additional warehouse facilities as required will be provided at El Castillo.

18.7 Process Facility

The process facility includes a carbon adsorption system along with a carbon dewatering/storage area placed onto a concrete containment area measuring about 800 m². Carbon is transported by forklift from the carbon storage area, located adjacent to the reagent warehouse, to the adsorption circuit. Once the carbon has been processed it will be transferred to super-sack bags and allowed to dewater. The carbon storage area is designed to contain a total of 100 tonnes of carbon, which equates to a week supply of active carbon and loaded carbon for each type.

The carbon processing, including desorption, acid washing and thermal regeneration, will be performed off-site at the La Colorada Mine. Approximately 46 t of loaded carbon will be transported off-site for processing weekly.

In anticipation for the additional carbon processing throughput at the La Colorada Mine provisions have been made to increase capacity of the strip plant by 10 tonnes, increase the capacity of the carbon regeneration kiln, and add a mercury retort. The existing smelting facilities are capable of handling the extra material and will not require expansion.

18.8 Fuel Storage and Delivery Systems

Diesel fuel will be delivered to the mine site via vendor tanker trucks. The main diesel storage facility for heavy equipment and light vehicle fueling will be a vendor supplied storage tank (approximately 250,000 liters of total capacity) complete with fuel dispensing systems. The total area of the main fuel storage facility is about 135 m² and an additional area of 335 m² is reserved for heavy and light vehicle dispensing along with the pumping systems.

The main diesel storage area will also provide fuel to the power generators. Included in the generation area will be small day tanks and will require filling once a day.

Included is also a gasoline storage and light vehicle fueling area measuring 95 m² with a fuel tank capacity of about 15,000 liters. The gasoline station equipment, tank and dispensing system, will be vendor supplied.

All fuel storage tanks and vehicle fueling points will be placed in a concrete containment area to assure no fuel is leaked to the environment.

18.9 Storage Area for Reusable Parts and Tires

Located south of the crushing area and west of the mine/crushing facilities are the storage areas for reusable parts and heavy vehicle tires. The reusable parts include domestic recyclables (plastic, cardboard, glass) and industrial recyclables (metals, oil, scrap). Tire storage will be utilized by the mining fleet tire contractor for secure storage. Both storage areas will include a concrete slab and lockable perimeter fencing. The reusable parts and tire storage areas measure 240 m² and 480 m², respectively.

18.10 Explosives Storage

Facilities for the proper storage and safekeeping of explosives are included. These facilities will be designed and located in compliance with Mexican regulations.

18.11 Security

Access to the Project will be limited by perimeter fencing around the entire site. Guardhouses at each entry point to the Project are in place as security check points which will be manned 24 hours per day.

18.12 First Aid

A clinic is included in the Project infrastructure staffed by emergency medical staff. In addition, an ambulance will be available on site in case of an emergency transport.

18.13 Communications

The infrastructure for radios and telephone communications as well as satellite-internet systems are already in place and active at the El Castillo Mine. It is intended to connect the San Agustin Project to the El Castillo communications hub that already exists in the nearby town of San Juan del Rio.

18.14 Transportation

Transportation will be provided for personnel from and to the mine via local contractor bus service as required on scheduled shift changes.

18.15 Waste Disposal

18.15.1 Sewage

Wastewater and sewage will be handled by subsurface local septic tanks and centralized leach-fields. The Project will include two separate leachfields; one leachfield located on the west-side of the Project south of the crushing/mining facilities and the other on the east side of the Project near the process facilities.

18.15.2 Solid Waste

Solid waste will be disposed of in a manner complying with local regulations.

19 Market Studies and Contracts

Gold and silver production can be competitively sold to numerous reputable smelters and refiners throughout the world on a regular and predictable basis. Demand for gold and silver is presently high, with December 2014 gold and silver spot prices ranging from approximately \$1,175 to \$1,232 per ounce and \$15.68 to \$17.11 per ounce, respectively. The large number of available markets for doré allows gold and silver to be readily sold on the spot market. Argonaut expects that the production from San Agustin will be marketed through the contracts currently in place for Argonaut's other two producing mines.

The gold and silver prices used in the economic analyses are \$1,200 per Au oz and \$17 per Ag oz.

20 Environmental Studies, Permitting and Social Impact

Early in 2014, Argonaut in coordination with PHCA, IDEAS, Dinamica Social (DS) and Golder started the baseline studies for water, biodiversity, climate, geohydrology, geology, geomorphology and soil characterization, mining waste geochemistry (waste rock and leached ore), and social-economic aspects. Environmental baseline studies were conducted over 8,935 hectares to determine the actual conservation status. The social-economic study was done by DS in the nearby communities of San Agustín, San Lucas de Ocampo, El Resbalon and San Juan del Río.

In January 2014 MRO received authorization from the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) to construct 2.4 km of new roads, build drill pads, and drill 151 RC and core holes in order to continue exploration of the deposit. In January 2015, MRO submitted a new Informe Preventivo (Environmental Impact Prevention Report) to expand the drilling program with another 216 drill holes and drill pads and construct 18.3 km of new roads. This request is under evaluation.

MRO has entered negotiations with the ejidos of the San Agustin and El Resbalon, the San Lucas Agrarian Communities, and five private properties for a surface rights agreement for mine operations. The three social groups and private owners have expressed the acceptance of the Project and are currently negotiating the land occupation terms. There are currently no mining opposition groups in the region.

Permits and authorizations necessary for mineral extraction and beneficiation are in process of being prepared with submission expected in 2015.

20.1 Environmental Studies and Background Information

The Project is located in the San Juan del Rio municipality in the Mexican State of Durango, at a distance of 100 km from the State capital near the towns of San Lucas de Ocampo (10 km) and San Agustin (5 km), and 12 km SW of the El Castillo Mine also owned by Argonaut Gold. According to information from the National Commission of Natural Protected Areas (CONANP, 2014), there are no protected areas near the Project, within the 25 km radius that was analyzed. The closest protected area is the Michilia Biosphere Reserve, which is located 100 km in a straight line from the Project site.

Access to the site is generally from the city of Durango, driving along Federal Highway 45 (Durango-Parral highway) for 90 km to the north to reach the town of San Lucas de Ocampo. There is a road exit to the left to access the town which turns into a gravel road after passing through the town going to the Northwest. Five kilometers ahead is located the town of San Agustin and another 5 km over this gravel road, towards the settlement of Las Cruces, is the San Agustin Project.

20.1.1 Baseline Studies

With the objective of knowing the actual environmental conditions of the area, and to start preparing the information for permit requirements, early in 2014, the Project owner in coordination with PH Consultores Ambientales (PHCA), Investigación Y Desarrollo de Acuíferos Y Ambiente (IDEAS), Dinamica Social (DS), and Golder Associates (Golder) started the baseline studies for water, biodiversity, climate, geohydrology, geology, geomorphology and soil characterization, mining waste geochemistry (waste rock and leached ore), and social-economic aspects. Environmental baseline studies were conducted over 8,935 hectares (study area) determining the actual conservation status. The social-economic study was done by DS in the nearby communities of San Agustin, San Lucas de Ocampo, El Resbalon and San Juan del Rio.

Water sampling characterization was done for thirteen sites (eight underground and five surface), including two water wells that serve as potable water sources, one for San Agustin community and the other for the Las Cruces community, all inside the study area. Two samples of leached ore and thirteen samples of waste rock were analyzed to determine their potential for acid rock drainage and metal liberation. Based on the test results the waste rock can be classified as non-acid-generating with metals concentrations in leachate that are within the Mexican regulatory guidelines. Both water and rock sampling was conducted by a certified laboratory (ALS Indequim S.A. de C.V.) and tested according to the parameters of Mexican Regulations and International Standards.

Geotechnical studies and heap leach material studies were contracted to Golder. The hydrology study and design flood calculation was contracted to PHCA (including surface hydrology and storm events calculation), as well as the studies for biodiversity (30 sites) and soil characterization sampling (11 sites), all inside the study area. IDEAS conducted the geohydrology characterization studies for underground water in an area of 4 km² using the Mexican Geological Service's magnetometry maps plus a TEM survey covering 34 sites, locating 11 potential sites to drill production water wells. DS performed the socioeconomic studies.

20.1.2 Environmental Conditions of Note

Environmental planning in Mexico has its legal basis in the Ley General del Equilibrio Ecológico y la Protección al Ambiente (LGEEPA), which translates as the General Law of Ecological Equilibrium and the Protection of the Environment, and its Regulation in Matters of Ecological Planning (ROE), which established the objective to carry out an ecological zoning of the national territory through a General Program for Ecological Zoning of the Mexican Territory- Programa de Ordenamiento Ecológico General del Territorio (POEGT), identifying priority areas for attention and areas with sectorial competence. According to LGEEPA, ecological zoning is defined as an environmental policy instrument with the purpose of zoning the land use and contributing to control and mitigate the environmental issues, to reach the environmental protection and the preservation and sustainable use of natural resources, based on the analysis of deteriorating trends and the potential uses of each respective area. The POEGT agreement approved by decree was published in the Official Federal Journal September 7th, 2012.

The ecological zoning defined a set of synthetic territorial units, according to the principal environmental biophysical factors such as climate, landform, vegetation and soil. Under this principle, the Mexican territory has been differentiated into 145 units called Biophysical Environmental Units (UAB). For each of these UABs, specific ecological guidelines and strategies have been designated.

Considering the proposed ecological zoning in the POEGT, the San Agustin Project is located in the ecological region 9.24 inside the UAB number 14 that corresponds to the Sierras and Plains of Durango.

According to the POEGT, the UAB 14 considers the following:

- Development Guide: Livestock and Mining;
- Development Aids: Agricultural and Demographic;
- Development Associates: Forestry;
- Environmental Policy: Sustainable Use; and,
- Level for Priority Attention: Very Low.

The POEGT in its technical specifications details that in 2008 the environmental state for UAB 14 was considered as: moderately stable with no sectorial conflicts, very low surface of protected areas, moderate degradation of soils, high degradation of vegetation, moderate degradation for desertification, low anthropological degradation,

high presence of roads-highways, low percentage of urban zones, low percentage of surface water bodies, and low population density. The land use is classified as: other type of vegetation and agricultural, surface water is available, underground water deficit, functional zone high percentage of 60.5, low social marginalization, medium educational index, medium health index, low overcrowded housing, very low indicator of housing consolidation, low industrial capitalization, very high tax percentage of economic dependence on the municipality, medium percentage of jobs paid by municipality, agricultural activities with commercial purpose, high importance of the mining activity, and high importance of livestock activity.

Inside the scenario trend, the POEGT considers that for 2012 the environmental state for UAB 14 was maintained moderately stable with a projection for 2033 to pass to an unstable state. On account of the scenarios (context 2008, and 2012 and 2033 trends) and based on ecological guidelines, 44 ecological strategies were established for UAB 14. These sectorial strategies describe the actions to obtain the environmental sustainability of the territory and are divided into three groups:

- Group I: Aims to achieve the sustainability of the territory;
- Group II: Aims to improve the social system and urban infrastructure; and,
- Group III: Aims to strengthen management and institutional coordination.

Within these sectorial strategies, strategy number 15 is relevant to the Project because it mentions the following statement: “Consolidate the environmental regulations framework that applies to mining activities, to promote sustainable mining.” This is inside Group I that aims to achieve the sustainability of the territory. Therefore following the actual regulations for mining operations the Project is compatible with the sectorial strategies defined for UAB 14.

20.2 Waste Management

20.2.1 Mining Waste

The works and activities of the San Agustin Project consider the generation of mining waste, such as:

- Waste from mining operations: waste rock;
- Mineral processing waste: spent ore from heap leach system; and,
- Hydrometallurgical processing: spent activated carbon.

The official Mexican Standard NOM-157-SEMARNAT-2009 establishes the elements and procedures to implement a Mining Waste Management Plan. The necessary measures will be defined and applied to assure the integral management of mining waste, considering administrative, economic, technological, social and environmental aspects. The Mining Waste Management Plan will establish the generation baseline with the purpose of defining the objectives, actions and goals for prevention, reduction and use of mining waste.

During 2014, a comprehensive geochemical characterization program was conducted to evaluate the environmental stability of the Project waste rock and leached ore. The program focused on determining the potential for generation of acid rock drainage and metal leaching. The geochemical test program indicates that neither the waste nor the ore are expected to be acid generating or solubilize metals in amounts that exceed Mexican standards.

The program for waste rock analysis was conducted following Mexican regulation NOM-157-SEMARNAT-2009 which required analyzing each sample (dry base) for ten elements that include: antimony, arsenic, barium, beryllium, cadmium, chrome, mercury, silver, lead and selenium. If the total concentration of these elements is above the NOM-157 parameters, a mobility procedure test has to be applied to the sample; in this case the method used was the meteoric water mobility test. According to regulations if the waste is produced during the mining process it has to be analyzed for acid generation potential using the acid-base accounting (ABA) test under the terms of Official Mexican Standard NOM-141-SEMARNAT-2003.

Leached ore was analyzed according to Official Mexican Standard NOM-155-SEMARNAT-2007. The laboratory analysis consisted of applying the meteoric water mobility test according to NOM-155. The extract concentration results for both samples are considered nontoxic because they did not exceed the permissible parameters of NOM-052-SEMARNAT-2005 applicable to the resulting extract (also listed in NOM-155). Then, as this waste is produced during the mining process it has to be analyzed for acid generation potential using the ABA test under the terms of Official Mexican Standard NOM-141-SEMARNAT-2003.

During operations, Mexican regulations require the monitoring, on an annual basis, of a composite sample (two samples per month) of mining waste (waste rock and leached ore) until the end of the Project life.

20.2.2 Waste Water

The Project design includes a zero discharge process for ore treatment. Sewage water will be treated using septic tanks that meet the specification of the Official Mexican Standard NOM-006-CNA-1997. The effluent of the septic tanks will be analyzed according to the Official Mexican Standard NOM-001-ECOL-1996 which establishes the permissible discharge parameters limits. A wastewater discharge permit from the Water National Commission (CONAGUA) will be requested for the Project, after obtaining the underground water right concession (requirement to obtain a discharge permit).

20.2.3 Hazardous and Non-Hazardous Waste Management

Non-hazardous waste will be managed in agreement with the municipal service, similar to waste management at the El Castillo Mine. Trash containers will be strategically located on the Project premises, promoting the recycling of wood, cardboard, plastic and scrap metals. Current buyers of recycled materials at the El Castillo Mine will be contracted to recycle the materials at San Agustin, as well as industrial wastes such as conveyor belts, geomembrane scraps from leach pad liner and air filters. Current buyers are approved by the state government to recycle the different materials mentioned.

Hazardous waste management infrastructure is included for the Project, to collect, transfer and store the different types of waste that will be generated by the Project activities. Prior to this the company must register as a Hazardous Waste generator in SEMARNAT. Hazardous waste must be identified using specific labels and containers must be specific for each type of waste. A General Temporary Warehouse for hazardous waste must be constructed for the Project. Storage of any hazardous waste must not exceed three months in this warehouse. The company will use, for transport and final destination of hazardous waste, a SEMARNAT authorized company, such as Técnica en Materiales Eléctricos S.A. de C.V., the current service provider at the El Castillo Mine that will issue a manifest document for generation, transport and final destination movements. Control books will be put in place to control entrance and exits. The actions above meet the legal basis in the LGEEPA and its Regulation in Matter of Prevention and Integral Management of Waste.

20.2.4 Air and Noise Emissions

Smoke, dust and noise emissions will be present at the Project. Machinery and equipment operation during the different phases of the Project will result in smoke and noise emissions. Ore and waste rock haulage (trucks and belts), road operations and vegetation clearing are the main activities that will generate dust emissions.

Considering operations at El Castillo, the level of emissions will not be significant as they occur in an open and wide space, however total suspended particles will be monitored by a certified laboratory to assure the levels comply with the Official Mexican Standard NOM-035-SEMARNAT-1993.

Noise related to machinery and equipment operation will occur away from population localities and monitoring is not required by environmental law. Considering current operations, noise levels will be in the range of 70 to 80 type-A decibels at a distance less than 60 meters from the equipment and this will be monitored to meet health and safety standards regulated by NOM-011-STPS-2001.

20.2.5 Tailings Disposal

The Project process plant will not generate tailings.

20.3 Site Monitoring

Baseline monitoring has been conducted as part of the environmental impact assessment process. The study area considered to conduct the baseline studies occupies 8,935 hectares in the influence area of the Project. The study area was determined by PHCA and approved by the Project owner considering the Project location and the regions biophysical parameters. Baseline monitoring included physical and biological elements: water, climate, hydrology, soil and geomorphology, geology and biodiversity.

Eight groundwater and five surface water samples were collected for analysis and tested according to Mexican Regulations and IFC Standards for parameters and detection limits. Two of these samples were analyzed according to NOM-127-SSA1-1994 that indicates the quality permissible limits for potable and human use water (one from San Agustin and the other from Las Cruces community). The sampling and testing was conducted by ALS Indequim Laboratory in Monterrey, and supervised by PHCA.

Eleven soil samples were collected and sent for analysis. Thirty sites were sampled to identify local flora and set population patterns. Fauna studies were also undertaken using direct observation methods, trail cameras and Sherman traps.

This information will be presented in the current MIA document to be submitted to SEMARNAT in March 2015.

20.4 Water Management

A comprehensive climate characterization and hydrology study by PHCA in 2014 was conducted to establish weather variables (wind, rainfall, evaporation and temperature) and 24-hour storm events for different return periods (2 to 10,000 years). This information was used to design the hydraulic infrastructure needed to protect the open pit, waste rock dumps, leach pad and pond designs of the heap leach system.

Additionally, the Project owner requested the determination of the Maximum Probable Rainfall and the risk analysis according to the 24 hour storm events for the different return periods. This study is important due to the lack of hydrometric stations in the area. The information from this study was used to calculate the water balance in the Project and to determine the storm water runoff for design for different hydraulic structures and diversion channels. This was modeled considering daily and monthly surface water runoff calculations as well as potential flood water for different return periods. All the modeling and calculations consider the mine life and closure period for proper design of water management installations.

20.4.1 Water Use

The underground hydrologic system in the Project area was characterized and evaluated, with successful results to define potential sites to drill production water wells, by IDEAS in 2014. Using existing and obtained data, eleven sites have potential to construct and operate water wells with each well having a production capacity of one million cubic meters per year. Seven sites are classified as first option (consolidated aquifer at 400 m) and four as second option (consolidated aquifer at 500 m).

The hydrogeological study consisted in applying a methodology splicing two geophysics techniques: First, an aeromagnetic interpretation of the site was completed to define the region with the most potential followed by a transient electromagnetic (TEM) survey that was performed at 34 sites within a 4,000 m² area.

CONAGUA locates the Project in the San Juan del Rio Aquifer, which is administrated by the Hydrological Region Cuencas Centrales del Norte. According to the latest data that was published in December 2013 for 653 aquifers in Mexico, the net annual groundwater availability for the San Juan del Rio Aquifer is 15,015,064 cubic meters. The aquifer does not have any restrictions and has water available for concession.

20.5 Environmental Regulatory Framework

20.5.1 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, and includes:

- 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.

20.5.2 General Environmental Laws and Regulations

Mexico's environmental protection system is based on the General Environmental Law known as LGEEPA approved on January 28, 1988 and updated December 13, 1996.

The Mexican federal authority over the environment is SEMARNAT. On November 30, 2000, the Federal Public Administration Law was amended giving rise to SEMARNAT, in conjunction with the movement of the fisheries subsector to the Secretaria de Agricultura, Ganaderia, Desarrollo Rural, Pesca y Alimentación (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 authorizing new water rights, water related licenses and assessing fees related to water use and discharges;
- CONAFOR: Comisión Nacional Forestal (National Forestry Commission), responsible of managing the policy for forestry sustainable development; and,
- CONANP: Comisión Nacional de Áreas Naturales Protegidas (National Commission of Natural Protected Areas).

SEMARNAT regulates permitting or licenses under the regulations and standards derived from LGEEPA, divided in the following main topics:

- Hazardous materials and wastes: Registration of generators, management plans, authorization to manage hazardous waste, contaminated soil remediation, import/export permits, environmental risk assessments and approval of accident prevention programs;
- Forest management: Authorizations, notices, reports, inscriptions and records regarding timber and non-timber forest exploitation, commercial forest plantations, collection of forest biological resources, phytosanitary certificates, land use change in forest land, forest product transportation, storage and transformation centers of forest products, forestry technical services and national forest register;
- Wildlife: Cites certificates for import and export, management units for wildlife conservation, extractive and non-extractive usage, authorizations, licenses for hunting, animal specimen register, scientific collections and wildlife conservation;
- Air: Authorizations and procedures for operation and environmental compliance, as well as alternative methodologies for air care and quality improvement;
- Environmental impact and risk: Environmental impact evaluation is a management instrument that guarantees, when approved, the sustainable

development of investment projects, establishing the measures to protect the environment and for rational use of natural resources; and,

- Maritime and Terrestrial: Permit procedures for this zone are the instruments to give the rights to use and exploit beaches, federal zones and land gained to the sea, guaranteeing the organized and sustainable protection, conservation and exploitation for integral development of this zones.

20.5.3 Regulations Specific to Gold and Silver Mining Projects

The following Official Mexican Standards are specific for gold and silver mining projects:

- NOM-023-STPS-2012, regulates the aspects-conditions related to Mine Safety and Occupational Health in open pit and underground mines issued by the Secretary of Labor;
- NOM-120-ECOL-2011, 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;
- NOM-157-SEMARNAT-2009, establishes the elements and procedures to implement a Mining Waste Management Plan;
- NOM-141-SEMARNAT-2003, establishes the procedures to characterize tailings, and sets the criteria and specifications for site preparation and characterization, project construction, operation and post operation of tailings impoundments; and,
- NOM-155-SEMARNAT-2007, establishes the environmental protection requirements for gold and silver leach pad systems.

20.5.4 PROFEPA “Clean Industry”

PROFEPA administers a voluntary environmental audit program and certifies businesses 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 the different fields of environmental law (air, water hazardous waste and materials, biodiversity, soil, risk, emergency response and environmental administration systems). 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, an “Action Plan” has to be agreed to correct the irregularities found.

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.

Argonaut intends to seek Clean Industry certification for the San Agustin Project, which it has already received for its El Castillo Mine.

20.5.5 Environmental Administration System

MRO, an Argonaut subsidiary, is implementing an Environmental Administration System at the El Castillo Mine that will also include the San Agustin Project. As part of this system, in February 2014 the following environmental policy was approved:

In MRO, we are convinced that all relevant environmental aspects, inherent to exploration, exploitation and ore processing activities, must be managed in a rational manner, by means of careful planning, diligent execution and a well thought out performance evaluation and of continuous improvement, with the goal of continuously preventing and mitigating all possible negative effects on the environment.

Our success in creating value to investors involves social and environmental impacts, so we attain to the principle of Sustainable Mining, being responsible to limit all negative impacts and to increase our positive impacts. Under this tenure, we are committed to protect the environment and to the sustainable use of natural resources, contributing to the sustainable development of surrounding communities, without compromising the needs of future generations.

Therefore, to meet these commitments, MRO is committed to the following principles:

1. *Through planning specific actions and general programs institute an Environmental Administration System (EAS) that conceives the basic aspects that lead to creating an Environmental Responsibility Culture in our workers and community, by means of continuous improvement in our environmental performance and identification and compliance of, clearly defined, environmental goals and objectives.*
2. *Provide the necessary leadership, authority and resources to support the EAS, and its associated environmental practices and standards.*
3. *Identify, value and rank, all the environmental aspects and impacts associated to our operations and future projects, having under control the inherent risks of our activities to prevent and mitigate the adverse effects to the environment.*
4. *Fully comply with Mexican environmental legislation that applies to exploration, operation and mineral beneficiation activities, following practices required by international standards.*
5. *Prevent and reduce the release to the environment of pollutants and other environmental impacts, applying the proper management tools and implementing operating best practices.*
6. *Promote the use of environmentally reliable materials by means of operating procedures that optimize the use of raw materials and energy.*
7. *Establish programs focused on the management, protection, care and conservation of biodiversity.*
8. *Work with the three levels of government, communities, clients and suppliers for the proper management of raw materials, products and waste related to the processes of exploration, operation and mineral beneficiation.*
9. *Communicate our environmental policy to all our stakeholders; and keep them them informed of our environmental plans, practices and programs.*
10. *Work with government leaders, environmental organizations or groups, and stakeholders to develop a mutual understanding of environmental issues.*
11. *Carry out periodic reviews to evaluate our environmental performance; including the verification of our goals, commitments, indicators and corrective actions, to guarantee the correct application and continuous improvement of our EAS.*

To comply with this policy, all persons working for MRO are responsible of integrating its principles in all work tasks, plans and programs.

20.5.6 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 are 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 are 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. Specific measures and permissible parameters quality will be mentioned in the document where the discharge permit concession is given by CONAGUA.

For underground water, CONAGUA locates the Project in the San Juan del Rio Aquifer, which is administrated by the Hydrological Region Cuencas Centrales del Norte. According to the latest update in net annual groundwater availability published in December 2013 for 653 aquifers in Mexico, the net annual groundwater availability for the San Juan del Rio Aquifer is 15,015,064 cubic meters. The aquifer does not have any restrictions and has available water for concession. The Project owner has started discussions with the local CONAGUA office to obtain the exploration water well permit, to continue with acquiring the water rights for the Project.

The Project design includes a zero discharge ore treatment process. Sewage water will be treated using septic tanks that meet the specification of the Official Mexican Standard NOM-006-CNA-1997. The effluent of the septic tanks will be analyzed

according to the Official Mexican Standard NOM-001-ECOL-1996 which establishes the permissible discharge parameters limits. A wastewater discharge permit from CONAGUA will be requested for the Project, after obtaining the underground water right concession (condition to obtain a discharge permit).

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 the Forest Law, December 22, 1992, amended November 31, 2001, and the Forest Law Regulation, September 25, 1998.

20.5.7 Land Negotiation

Use and Exploitation of Goods and Land Expropriation of ejido and communal properties are subject to the provisions of agrarian laws. The following government agencies coordinate surface land management:

- SEDATU (Secretariat for Agrarian Development; Territorial and Urban): Is in charge of promoting land ownership legal compliance, especially in rural areas. This institution is in charge of making the public policies to access justice and agrarian development;
- RAN (National Agrarian Registry): Controls land ownership of ejidos and communities (communal land owners). This agency is in charge of all the legal procedures regarding land ownership legalization, issuing of land titles and certificates, regulation of land authorities (ejidos, communities), registration and validation of any process regarding land ownership and also ejidatarios deposit their succession lists; and,
- PA (Agrarian Prosecutor Agency): Social service institution that serves to protect the rights of agrarian individuals. Its services include legal counseling for possession's conciliation or legal representation.

20.5.8 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.

20.5.9 International Policy and Guidelines

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

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

20.5.10 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 20.5.1 and Figure 20.5.2.

Figure 20.5.1: San Agustin Permitting Process (1 of 2)

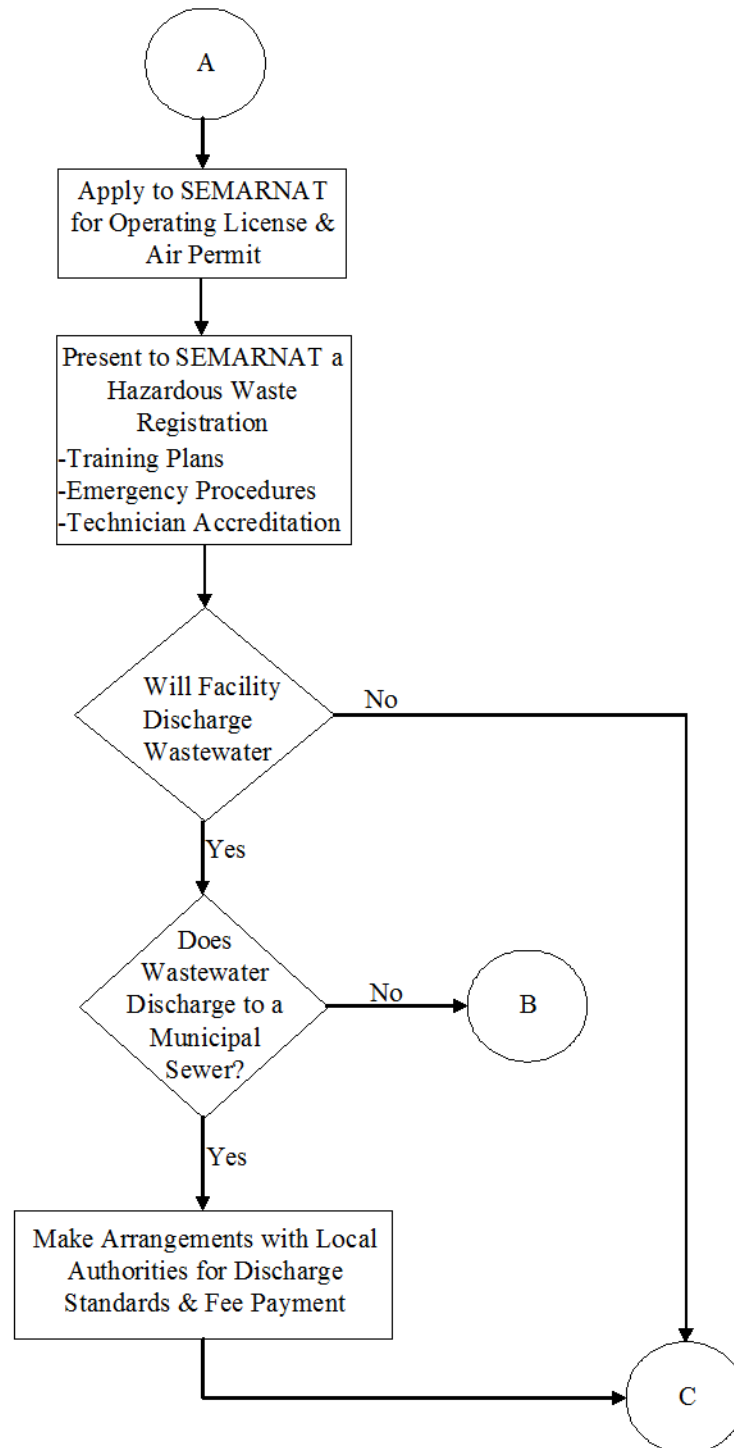
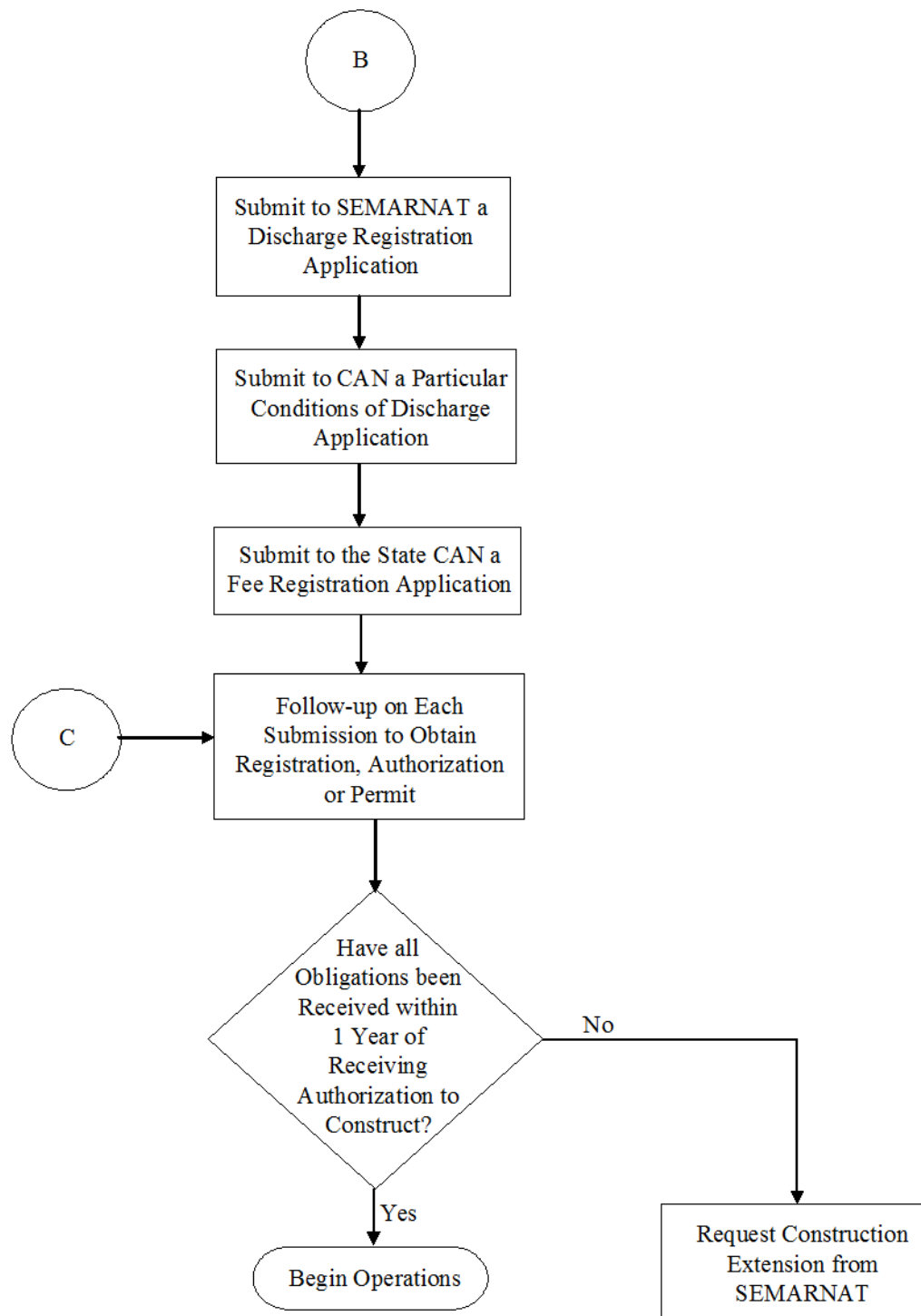


Figure 20.5.2: San Agustin Permitting Process (2 of 2)



20.5.11 Required Permits and Status

Exploration

In January 2014, MRO received authorization from SEMARNAT to execute 151 drill holes and drill pads and to construct 2.4 km of new roads to continue exploration in the area, under the terms of the regulation NOM-120-SEMARNAT-2011.

Currently, in January 2015, MRO submitted to evaluation a new IP (Environmental Impact Prevention Report) to enhance the drilling program, requesting authorization for executing another 216 drill holes and drill pads and construct 18.3 km of new roads. This request is under evaluation.

Mining

The permits and authorizations necessary for mineral extraction and beneficiation are in the process of being prepared with submission expected in 2015. Current documents being prepared include:

- Environmental Impact Assessment, Particular mode, does not include a high risk activity;
- Land Use Change Authorization for Forest Surface;
- Environmental Unique License;
- Hazardous Waste Producer Registration; and,
- Waste Management Plan Register.

The following information in Table 20.5.1 regarding the exploration and mining permits was provided by Argonaut.

Table 20.5.1: San Agustin 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	MRO 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 is being prepared and will be submitted in 2015.
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)	None at the moment.
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 in this case refers to activities associated with hazardous waste generation.	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.	The ETJ-CUS is planned to be submitted after obtaining the land contracts register in the RAN.
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.	MRO is in the process of applying for a permit to build the exploration wells, to subsequently apply for water concession.
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.	Sewage water discharge permit will be obtained, conditioned to having a water use concession.
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.

20.6 Social Management Plan and Community Relations

Surface access agreements have been negotiated with the ejido of San Agustin and San Lucas de Ocampo Agrarian Community, which hold surface rights in the areas of the current exploration programs. There are five towns that the Project will influence: San Agustin, Las Cruces, San Lucas de Ocampo, El Resbalon, and San Juan del Rio. San Agustin and Las Cruces are the nearest towns to the Project area. The town population, density, and distance to the San Agustin Project site are presented in Table 20.6.1.

Table 20.6.1: San Agustin Towns near the Project Site

Town	Population	Houses	Air Distance to San Agustin Project (km)
San Agustin	226	90	1.6
Las Cruces	26	10	3.3
San Lucas de Ocampo	1,500	639	7.0
El Resbalon	280	74	8.4
San Juan del Rio	2,912	1,061	12.4

MRO has entered into negotiations with the ejidos San Agustin and El Resbalon, San Lucas Agrarian Community and five private properties for a surface rights agreement for mine operations. The three social groups and private owners have expressed the acceptance of the Project and are currently negotiating the land occupation terms. There are currently no mining opposition groups in the region.

DS Dinamica Social, a consulting firm based in Hermosillo, Sonora was contracted in April 2014 to conduct field work and investigations relating to community relations and social impacts of the planned Project. Throughout the months of May and June, a team of interviewers went house-to-house conducting surveys in the villages mentioned above.

Approximately 5,000 people inhabit the five surrounding communities. For the most part, local community leaders and residents in the San Agustin, Las Cruces, San Lucas de Ocampo, El Resbalon and San Juan del Rio areas appear to be in favor of Project development. According to the Social-Economic Study 94.2% of the persons interviewed think that the San Agustin Project will bring economic development to their communities.

MRO has started to apply social programs in the local communities of the Project influence area, such as:

- Water reservoirs: activities consisted in repairing the embankment and dredging out sediments;
- Agricultural support program: seed grain crops support for local farmers;
- Road maintenance of gravel road San Lucas-San Agustin-Las Cruces;
- Employment program for exploration: this is coordinated with social authorities (agrarian community and ejidos);
- San Agustin septic tank maintenance;
- Elderly program support with food baskets;
- Medical assistance for unusual cases of health disorders; and,
- Support to cultural and sports activities.

MRO is already active in the region supporting the communities influenced by the El Castillo Mine. Relations with these other communities are good which is a good example for the communities that will be affected by the San Agustin Project.

20.7 Closure and Reclamation Plan

Current regulations in México require that a preliminary closure program be included in the MIA and a definitive program be developed and submitted to the authorities during the operation of the mine (generally accepted as three years into the operation). The San Agustin closure plan was prepared by MRO.

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;
- Open Pit closure including perimeter barrier construction;
- Waste rock dump closure including final grading, cover placement and vegetation;

- Heap leach pad closure including rinsing, grading, cover construction and vegetation;
- Closure of process and event ponds;
- Closure of crushing areas, facilities pads, and roads;
- Revegetation of crushing areas; and
- Monitoring Program.

The current (2014) estimate by MRO for closure of the Project is US\$ 5,000,000 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.

21 Capital and Operating Costs

21.1 Summary

Capital and operating costs for the San Agustin Project were estimated by KCA with input from Argonaut. A significant portion of the capital and operating costs were based on recent construction and current operations at the El Castillo Mine. The estimated capital and operating costs are considered to have an accuracy of $\pm 25\%$ and $\pm 20\%$, respectively, and are discussed in greater detail in Sections 21.2 and 21.3.

The total capital cost for the San Agustin Project is US\$90.5 million. Table 21.1.1 presents the capital requirements for the Project. All costs are presented in 4th quarter 2014 US dollars. For costs provided in Mexican pesos, an exchange rate of 13.4:1 US\$ was used.

Table 21.1.1: San Agustin Project Capital Cost Summary

Description	Cost (USD Millions)
Total Direct Field Cost	\$49.5
Indirects, EPCM, Owner's Cost, Initial Fills & Contingency	\$17.6
Total Pre-Production Capital ¹	\$67.1
Sustaining (Future) Capital	\$23.4
Total	\$90.5

1) Working Capital not included.

The total life-of-mine (LOM) operating cost for the San Agustin Project is US\$5.01 per tonne of ore. Table 21.1.2 presents the operating cost requirements for the Project.

Table 21.1.2: San Agustin Project Operating Cost Summary

Description	Cost (USD/t ore)
Mine	\$1.52
Process	\$3.14
Site G & A	\$0.35
Total	\$5.01

IVA is not included in the capital and operating costs. Costs have been rounded to the nearest US\$1,000.

21.2 Capital Costs

The required capital expenditures for the San Agustin Project are summarized in Table 21.1.1. The costs have been based on the design outlined in this study and are considered to have an accuracy of $\pm 25\%$. The scope of these costs includes the preparation of costs for all mining equipment, process facilities, and infrastructure for the Project.

The costs presented have been estimated by KCA with substantial input from existing Argonaut operations in Mexico at El Castillo and La Colorado. Unit rates for earthworks and civils were supplied by Argonaut from their existing nearby operation (El Castillo). All equipment and material requirements are based on the design information described in previous sections of this study. Pad and pond design quantities were provided by Golder, Inc., and unit rates were provided from the El Castillo property for leach pad and pond construction, and installation costs. KCA considered the pad and pond cost per square meter based on El Castillo inputs to be low. Therefore, a contingency of 35% was included for pad and pond construction.

Capital cost estimates have been made using budgetary supplier quotes for select major equipment items and packages. Where supplier quotes were not available, a reasonable cost estimate was made based on supplier quotes in KCA's files and from Argonaut's existing operations. The mobile equipment capital cost estimates are based on the purchase of select used equipment and/or transferred equipment from existing Argonaut operations and include estimated required refurbishing costs.

Table 21.2.1 and Table 21.2.2 present the pre-production capital requirements summary by area and the summary by category. Sustaining (future) capital for the Project is shown in Table 21.2.3.

Table 21.2.1: San Agustin Summary of Pre-production Capital Costs by Area

Facility Description	Capital Cost, US\$
DIRECT FIELD COSTS	
Mining	\$4,733,000
Site & Utilities General	\$3,570,000
Power Generation & Site Distribution	\$2,609,000
Water Distribution System	\$977,000
Mobile Equipment	\$551,000
Fine Crushing	\$10,393,000
Coarse Crushing	\$354,000
Stacking System	\$6,200,000
Heap Leach Pad & Ponds	\$10,802,000
Recovery Plant	\$4,347,000
Refining & Carbon Processing - La Colorada	\$3,254,000
Reagents	\$530,000
Spare Parts	\$1,149,000
TOTAL DIRECT FIELD COSTS	\$49,469,000
Indirect Field Costs	\$2,042,000
Direct Field Contingency	\$10,001,000
Indirect Field Contingency	\$408,000
EPCM	\$3,436,000
Working Capital (60 Days) (not included)	—
Initial Fills	\$318,000
IVA (not included)	—
Owner's Cost	\$1,376,000
TOTAL PRE-PRODUCTION CAPITAL COSTS, US\$	\$67,052,000
Total Sustaining Capital Costs, US\$	\$23,421,000

Table 21.2.2: San Agustin Summary of Pre-production Capital Costs by Category

Description	Supply (US\$)	Install (US\$)	Total (US\$)
Direct Field Costs			
Mining	\$4,733,000	—	\$4,733,000
Major Earthworks	—	\$11,286,000	\$11,286,000
Civils	\$780,000	\$32,000	\$812,000
Structural Steelwork	\$404,000	\$75,000	\$479,000
Platework (includes fabrication)	\$145,000	\$27,000	\$172,000
Mechanical Equipment	\$18,524,000	\$1,896,000	\$20,420,000
Piping & Valves	\$1,143,000	\$230,000	\$1,373,000
Electrical	\$2,321,000	\$649,000	\$2,970,000
Site Distribution	\$738,000	\$185,000	\$923,000
Instrumentation	\$403,000	\$94,000	\$497,000
Infrastructure	\$2,733,000	\$192,000	\$2,925,000
Lab Equipment	\$66,000	\$3,000	\$69,000
Miscellaneous	\$2,810,000	—	\$2,810,000
Indirect Field Costs	—	—	\$2,042,000
EPCM	—	—	\$2,749,000
Initial Fills	—	—	\$318,000
Owner's Cost	—	—	\$1,101,000
Contingencies	—	—	\$11,372,000
Total	\$34,800,000	\$14,669,000	\$67,051,000

Table 21.2.3: San Agustin Future Capital Costs by Year

Year	Mine Fleet (Trucks, Loaders, Drills)	Surface Mobile Equipment	Heap Leach Pad & Ponds ¹	Recovery Plant & Other	EPCM - (Earthworks/ Roads/ Pad & Ponds Only)	Totals
1	—	\$50,000	—	\$25,000	—	\$75,000
2	—	\$50,000	\$9,113,000	\$25,000	\$171,000	\$9,359,000
3	\$440,000	\$50,000	—	\$25,000	—	\$515,000
4	\$1,400,000	\$50,000	\$8,615,000	\$25,000	\$162,000	\$10,252,000
5	\$245,000	\$50,000	—	\$25,000	—	\$320,000
6	\$440,000	\$50,000	—	\$25,000	—	\$515,000
7	\$1,400,000	\$50,000	—	\$25,000	—	\$1,475,000
8	—	\$50,000	—	\$25,000	—	\$75,000
9	\$685,000	\$50,000	—	\$25,000	—	\$760,000
10	—	\$50,000	—	\$25,000	—	\$75,000
Total	\$4,610,000	\$500,000	\$17,728,000	\$250,000	\$333,000	\$23,421,000

1) Assumes Phase 3 constructed in Year 4 (ready for start of Year 5)

21.3 Basis for Capital Cost

21.3.1 Mining

Mine development (US\$0.5 million) and mine fleet costs (US\$4.2 million) were supplied by Argonaut. Argonaut intends to utilize refurbished used mine fleet equipment transferred from El Castillo and La Colorada, or equipment purchased on the used equipment market. Argonaut has extensive experience purchasing and operating used equipment for their existing operations.

21.3.2 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, civils (concrete), structural steel, mechanical equipment, piping and valves, electrical, instrumentation, and infrastructure.

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, spare parts, initial inventory, owner's costs and contingencies 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 varies from 4% to 8% of equipment cost depending on type.

Duties and Customs Fees

Customs fees for items imported to Mexico are taken at 2.5% of equipment costs. The fee percentage was supplied by Argonaut based on their present fee structure for importation.

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. This category includes the major earthworks and materials 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 were provided by Argonaut based on actual costs from the La Colorada and El Castillo operations and are presented in Table 21.3.1.

Table 21.3.1: San Agustin Earthworks/Liners/Materials Unit Costs

Item	Unit	US\$/Unit
Clear and Grub	m ²	0.32
Topsoil Stripping (20 cm)	m ³	1.78
Rough Grading (Local Soil Cut to Fill)	m ³	1.23
Rough Grading (Local Rock Cut to Fill)	m ³	5.17
Rough Grading (Import to Fill, Compacted)	m ³	2.08
Rough Grading (Import to Fill)	m ³	1.51
Subgrade Preparation	m ²	2.68
Soil Liner Volume	m ³	11.90
Perimeter Anchor Trench	m	12.75
Geomembrane Connection	m	6.47
Overliner Drain gravel (crushed ore; 60 cm)	m ³	2.38
Excavation of Sub-drain	m ³	12.65
Geomembrane 60 mm LLDPE Textured	m ²	4.39
Geomembrane 60 mm LLDPE Smooth	m ²	4.18
Geomembrane 60 mm HDPE	m ²	3.95
Geonet	m ²	2.57
J-Drain 990 Prefab Drain Composite (1.22 m width)	m	10.41
Pipe PCPE 100 mm Diameter	m	2.98
Pipe PCPE 200 mm Diameter	m	9.05
Pipe PCPE 250 mm Diameter	m	15.71
Pipe PCPE 300 mm Diameter	m	24.00
Pipe PCPE 375 mm Diameter	m	29.46
Pipe PCPE 450 mm Diameter	m	37.57
Pipe PCPE 600 mm Diameter	m	61.37
Pipe HDPE 600 mm Diameter SDR 32.5	m	94.90
Pipe HDPE 150 mm Diameter SDR 21	m	11.13

Civils

Civils include detailed earthworks and concrete. Concrete quantities were estimated based on similar installations. A concrete cost of US\$650 per cubic meter was supplied by Argonaut from recent construction experience at El Castillo as an average all inclusive cost that includes delivery, installation labor, forms, all rebar, concrete placement and all other tasks and necessary equipment.

Structural Steel

Structural steel requirements for the various major equipment items are included in the supplier equipment packages. Buildings were estimated by KCA based on file data for similar installations. At Argonaut's request, process area buildings are roofed-only structures at an estimated combined cost for structural steel and roofing of US\$470 per square meter which includes supply and installation.

Mechanical Equipment

Capital costs for major items of new equipment or equipment packages are based on budget quotes from vendors or from projects recently completed by KCA or Argonaut. Where supplier quotes were not available, a reasonable cost estimate was made based on supplier quotes in KCA's files and/or from Argonaut's existing operations. Minor equipment items are from KCA's in-house database or from Argonaut's operations. Installation estimates were based on equipment type and include installation labor and equipment usage. The installation costs vary by complexity and average approximately 10% 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 1% to 25% of the mechanical equipment cost was used to estimate piping purchase costs for each area, depending on the complexity of the particular system. Piping included as part of equipment packages is included in the mechanical equipment cost. The average of the piping installation cost is about 13% of the piping cost.

Electrical

Electrical costs are estimated based on a percentage of the mechanical equipment cost. A rate varying from 8% to 25% of the equipment cost was used to estimate electrical purchase costs for each area with the exception of power generation and site distribution where a cost was estimated based on similar projects recently completed in Mexico. Electrical component installation hours are estimated based on a factor of electrical equipment costs and average 33% of the component cost.

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.

21.3.3 Infrastructure Items**Access Roads**

An allowance of US\$1,000,000 has been made for site access and internal roads.

Buildings

A list of the buildings is provided in Table 21.3.2 below. Building costs have been based on a combination of steel building costs, modular trailers supplied by vendors and shipping containers. Allowances have been made for office furnishings (which include desks, chairs, etc.), dining area furnishings and appliances, lockers, and tools for truck shop and mechanic and electrical use. Septic systems and leach fields have been included. Costs are a combination of recent quotations, estimates based on recent KCA experience with similar projects and costs supplied by Argonaut.

Table 21.3.2: San Agustin Buildings

Buildings/Structures
Modular Guard House (2)
Explosives Storage
Modular Process Offices (3)
Modular Mine Office
Modular Dining Facilities (2)
Modular Change Facility & Locker Storage
Modular Clinic
Reagents Storage Warehouse
Warehouse Containers – Process (3)
Warehouse Containers – Mine/Crusher (3)
Warehouse Containers – Truck Shop (2)

Power Supply

Power for the Project will be generated on-site using diesel generator sets. A total of three generators will be installed with one unit acting as standby. Budget costs for the generator system were obtained from used equipment vendors.

Water Supply

It is expected that Argonaut will drill two water wells near the site. Argonaut has estimated that the cost to drill the wells (including testing and supervision) will be approximately US\$518,000. Capital costs are included elsewhere for raw water pumps, storage tanks and on-site distribution.

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. An allowance of US\$200,000 has been included for fencing. Fencing allowances exclude fenced yards for construction.

Data Management and Communications

An allowance of US\$100,000 has been included for data management and communications based information supplied by Argonaut. Phones will be installed in all buildings and facilities. 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.

21.3.4 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., and are based on KCA recent experience with similar projects.

21.3.5 Spare Parts

Spare parts are budgeted at 6% to 9% of the mechanical equipment costs, based on KCA experience, unless specific recommendations by vendor are received. The allocation for spare parts inventory for the crushing system is based on vendor recommendation and is approximately 6%.

21.3.6 Initial Fills Inventory

The initial fills inventory consists of a supply of consumable items stored on site at the outset of operations, excluding lime. The initial fill for lime is one silo. The lime silo will hold 150 tonnes which is sufficient for about two normal operating days based on metallurgical testing. The list of consumables includes cyanide, lime, and antiscalant. Activated carbon and diesel fuel (for power generation and vehicles) is not included in the initial fills as it will be supplied from existing El Castillo stock on-hand.

Hydrochloric acid, caustic and smelting fluxes are not included in the initial fill quantities. A cost allowance is included in the San Agustin operating costs for processing loaded carbon at the existing La Colorada operation.

21.3.7 Engineering and Construction

The estimated cost for EPCM for the development of the Project was calculated based on Argonaut managing EPCM services internally. Argonaut provided the EPCM estimate with a 25% contingency value. The EPCM is approximately 6% of the pre-production direct costs including contingency.

21.3.8 Contingency

Contingencies varying from 15% to 33% were used for all direct and indirect plant costs depending on the confidence level. The highest contingencies (30% and 33%) were applied to general site and utilities, and pad and pond construction, respectively. Where recent quotes were received for mechanical equipment or equipment packages, a contingency of 15% is allowed. Indirects contingency is 20%. The total average contingency is approximately 20% of combined direct pre-production and indirect costs.

Contingencies applied to EPCM and Owner's Costs are 25%.

21.3.9 Sustaining Capital Costs

Sustaining capital costs for the Project include costs to construct the second and third phases of the leach pad (in Years 2 and 4) and to construct a second event pond, replace mining fleet equipment, and to replace process area surface mobile equipment. Sustaining capital costs are approximately US\$23.4 million and includes related contingencies. EPCM for the pad/pond expansion is included.

21.3.10 Pre-Production Mining

Pre-production mining costs of US\$0.3 million supplied by Argonaut are not included in the capital cost estimate, but are included in the cash flow model.

21.3.11 Owners Costs

The owner's costs were provided by Argonaut and total approximately US\$1.4 million including a 25% contingency. 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.).

21.3.12 Working Capital

Working capital is not included in the capital cost estimate but is included in the cashflow.

21.3.13 Exclusions

The following have been excluded:

- Finance charges and interest during construction;
- IVA (value added tax);
- Escalation costs;
- Currency exchange fluctuations; and
- Penalties or incentives.

21.4 Operating Costs

The estimated average LOM operating cost is shown in Table 21.4.1 and totals US\$5.01 per tonne processed including mining, G&A, crushing, heap leaching and precious metal recovery along with loaded carbon transport to the La Colorada Project and carbon treatment costs. Mining costs were estimated by Argonaut and are US\$1.09 per total tonne of material excavated (ore and waste), or US\$1.52 per tonne processed. Labor cost has been estimated using staffing and wage scales provided by Argonaut from their existing operations in Mexico. Corporate overhead costs are not included.

Table 21.4.1: San Agustin Project Operating Cost Summary

Description	Average LOM Cost (USD / t ore)
Mine	\$1.52
Process	\$3.14
Site G & A	\$0.35
Total	\$5.01

These costs do not include IVA (Value Added Tax).

The operating costs presented are based upon ownership of all Project production equipment and site facilities, as well as the Owner employing and directing all operating, maintenance, and support personnel.

Operating costs for the Project have been estimated using staffing and wage requirements based on typical rates supplied by Argonaut from their operating properties in Mexico. 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 operating costs have been estimated and are presented without any added contingency allowances. The mine, processing, support and general and administrative operating costs are considered to have an accuracy range of $\pm 20\%$.

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

- Project metallurgical test work and process engineering;
- Argonaut existing operations;
- 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 provided by Argonaut were used where available.

21.4.1 Mine and Process Area General

Labor costs for mining supervision, process supervision, maintenance supervision, maintenance labor and laboratory personnel are included in the process area general category and are based upon prevailing areas wages from Argonaut 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 150 solid analyses and 100 solution assays per day. The unit costs of these are assumed to be US\$7.00 and US\$2.00 per determination based on Argonaut's current cost at El Castillo. Lab supplies are estimated at a cost of US\$0.03/t of material processed. This includes items such as standards, reagents, bottles and pulp envelopes.

21.4.2 Mining

Mining unit costs were supplied by Argonaut based on the January to July 2014 actual costs experienced at El Castillo. Unit costs include labor, maintenance and miscellaneous supplies, fuels and all associated costs.

21.4.3 Processing

The costs for the fine and coarse crushing areas assume that material to be processed will be delivered directly to the primary crusher dump pockets or stockpile areas by haul trucks. Costs for a loader feeding material to the dump hopper are included in the mobile equipment costs to feed the low grade crushing system and to allow for periods of material delivery interruption.

Heap leach piping and drip tubing costs are estimated to be US\$0.04/t of material processed. Heap leach maintenance supply costs are taken at US\$0.02/t of material processed.

21.4.4 Reagents

Reagent costs are based upon recent quotations by suppliers in Mexico and Argonaut records. NaCN and lime consumptions are based upon metallurgical test work. Cost of reagent consumption for carbon treatment at La Colorada is included in the US\$500 per tonne carbon treatment charge.

21.4.5 Fuel

Diesel fuel consumption is included in the unit cost rates for mining, power generation and mobile equipment. Diesel consumption for carbon treatment at La Colorada is included in the US\$500 per tonne carbon treatment charge.

21.4.6 Mobile Equipment

Mobile equipment used to support processing at San Agustin includes a D8 dozer (from mine), two wheel loaders, a maintenance truck, two forklifts, five pickup trucks and a mobile 30 t crane. Fuel costs are included in the unit rates for all mobile equipment.

21.4.7 Wear, Overhaul and Maintenance

Wear, overhaul and maintenance costs are estimates based on KCA experience and vendor recommendations. Fine crushing wear and overhaul/maintenance cost are estimated at US\$0.20 and US\$0.12 per tonne crushed, respectively. Coarse crushing wear and overhaul/maintenance cost are estimated at US\$0.03 and US\$0.04 per tonne crushed, respectively.

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

21.4.8 Power

Power for the Project will be generated on-site using diesel generator sets. Power cost is estimated to be US\$0.20 per kWh including all fuel, maintenance and supplies. Table 21.4.2 presents the power consumed by area per day and kWh/t processed. Any power costs that will be incurred at La Colorada are included in the US\$500 per tonne of carbon treatment charge.

Table 21.4.2: San Agustin Power Consumed by Area

Area	Attached kW	kWh/d	kWh/t Processed
Site & Utilities General	279.4	1,886	0.098
Power Generation & Site Distribution	15.5	103	0.005
Water Distribution System	374.9	2,610	0.136
Mobile Equipment	0.0	0	0.000
Fine Crushing	1,780.8	26,212	1.573
Coarse Crushing	166.2	1,732	0.691
Stacking System	1,931.3	25,988	1.356
Heap Leach Pad & Ponds	884.7	8,335	0.435
Recovery Plant	71.1	511	0.027
Reagents	34.6	413	0.022
TOTAL	5,538.4	67,791	4.343

21.4.9 Personnel and Staffing

Table 21.4.3 presents the staffing levels for the processing, laboratory personnel, mine support, and G&A site personnel. Mine operations labor costs are in the \$1.09/t material mining cost. The average annual salaries for Project personnel total US\$2,645,000 and are based upon typical wage and salary rates at existing Argonaut operations in Mexico. Argonaut intends to hire as many personnel as possible from the nearby towns, as is the current practice for the El Castillo Mine.

For continuous operations, there will be four crews working 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 Mine where the carbon from the Project will be stripped, acid washed and thermally regenerated before shipment back to San Agustin. Most maintenance activities will be done during day shift but a small night crew will be scheduled to handle any problems. Blasting activities are expected to be conducted five days per week on day shift only.

Provisions for overtime, benefits and taxes (burdens) for the process personnel are included in the salary total. The wages, overtime estimates and burdens were supplied by Argonaut and are calculated based on the annual base pay for the salaried employees and on the annual base pay plus overtime annual pay for hourly employees. Cells in the Table marked with an asterisk (*) indicate that the labor costs have already been included in mining cost per tonne unit rates supplied by Argonaut, as noted in Section 21.4.2.

Table 21.4.3: San Agustin Staffing Levels and Salary Schedules

Job Title	Qty	Job Title	Qty
Operations Manager	1	Plant Superintendent	1
Mine Superintendent	1	Clerk	1
Clerk	1	Metallurgist	1
Foreman - Operations*	2	Foreman - crush & stack	3
Foreman - Drill & Blast*	2	Foreman - leach & heap piping	2
Foreman - Combined/relief*	3	Foreman - relief	1
Equipment Operators*	58	Crusher operators	3
Helpers*	11	Crusher helpers	6
Mine Planning Engineer	1	Crusher loader operator	3
Geologists	2	Stacking operators	3
Geo helpers	4	Stacking helpers	6
Surveyors	2	Heap dozer operator	2
Survey helpers	3	Recovery plant operator	3
Maint General Foreman	1	Recovery plant helpers	8
Clerk	1	Lab tech - on site	2
Maint foreman - fleet*	2	Heap piping laborers	6
Maint foreman - plant	2	Health, Safety, Environmental	
Maint foreman - combined/relief	3	Safety supervisors	2
Maint Planner	2	Environmental	1
Fleet Mechanics*	12	Paramedics	3
Fleet Mechanics Helpers*	8	Total at San Agustin	226
Plant mechanics	9		
Plant mech helpers	8	El Castillo Additions	
Electricians	6	Lab - sample buckers	2
Security		Lab fire assayer	3
Security supervisor	1	Lab - met test tech	3
Security guards	18	Purchasing	1
Warehouse		Accounting	1
Warehouse manager	1	Total at El Castillo	10
Warehousemen	4		
TOTAL CHARGED TO PROJECT: 236			

*Note: Labor costs included in the mining cost per tonne unit rate.

21.4.10 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 the current cost for shipping the El Castillo carbon. The carbon will be in secured closed vans. The cost to package and transport the carbon is estimated to be US\$1,902 per one-way trip for an approximate 12 tonne load.

21.4.11 General and Administrative

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

- Land Payments
- Communications
- IT outside services
- Computers, printers, software
- Personnel transport - daily to/from site
- Travel Costs
- Personnel housing & meals
- Access roads maintenance
- Community relations
- Outside environmental support & lab services
- Environmental supplies
- Legal
- Outside accounting support - auditors
- Office supplies
- Outside consultants
- Portable toilet service
- Safety & clinic supplies
- Insurance
- Miscellaneous

G&A labor and mine support labor costs are not included here, but have been included separately within the process area operating costs at the request of Argonaut.

22 Economic Analysis

22.1 Principal Assumptions

Based on 72.4 million tonnes of resource being placed on heap leach pad, the price assumptions to determine revenue are detailed in Table 22.1.1.

Table 22.1.1: San Agustin Market Inputs as of December 2014

Parameter	US\$/oz	Units
Avg. Life-of-Mine Gold Price	\$1,200	per oz
Avg. Life-of-Mine Silver Price	\$17.00	per oz
Gold Refining	\$1.10	per oz
Mining Royalty Tax (Mexican Law)	0.5%	
Precious Metals Tax ¹ (Mexican Law)	7.5%	

1) Taxable amount is limited to income minus direct operating costs.

22.2 Cashflow Forecasts and Annual Production Forecasts

The financial analysis results, shown in Table 22.2.1, indicate an NPV at a 5% discount rate of US\$101.3 million before taxes and US\$70.2 million after taxes. Payback will be in about 4.1 years of production.

The following provides the basis of the life of mine-plan and economics:

- Only Indicated resources were considered, no inferred resources were included in the mine or production plan;
- A mine operating life of 10.5 years;
- An overall average metallurgical recovery rate of 65% Au over the LOM;
- An overall cash cost of US\$611 calculated on a by-product basis;
- Capital costs of US\$90.5 million, comprising initial capital costs of US\$67.1 million, and sustaining capital over the LOM of US\$23.4 million;
- Mine closure cost, included in the above estimates is US\$5 million;
- The analysis does not include provision for salvage value; and
- Operating costs are 56% of revenue.

Table 22.2.1: San Agustin Economic Results After-Tax as of December 2014

Description	Value	Units
Production Summary		
Life of Mine	10.5	yr
Total Indicated Resource	72,423,087	t
Total Waste	28,596,072	t
Life of Mine Strip Ratio (Waste:Ore)	0.4	
Overall Average Gold Grade	0.32	g/t
Overall Average Silver Grade	10.6	g/t
Overall Average Recovery:		
Gold (2-Stage Fine Crushed Material)	66	%
Gold (1-Stage Coarse Crushed Material)	57	%
Silver (2-Stage Fine Crushed Material)	16	%
Silver (1-Stage Coarse Crushed Material)	9	%
Gold Ounces Recovered	487,983	oz
Silver Ounces Recovered	3,803,932	oz
Average Annual Production Au Equivalent (Years 1 to 10)	50,500	oz
Estimate of Cash Flow		
Gross Income	\$650,246	000's
Operating Costs	\$362,854	000's
Refining	\$4,721	000's
Reclamation	\$5,000	000's
Depreciation	\$90,473	000's
Mining Royalties and Additional Taxes	\$23,860	000's
Mexican Mining Tax (30%)	\$49,062	000's
Net Revenue	\$114,277	000's
Operating Costs		
Mining	\$1.52	\$/t
Processing	\$3.14	\$/t
G&A	\$0.35	\$/t
Total Operating	\$5.01	\$/t
Capital Costs		
Mine	\$4,733	000's
Process	\$37,029	000's
Infrastructure	\$7,707	000's
Total Capital	\$49,469	000's
Contingency, EPCM, Owner & Indirect Costs	\$17,581	000's
Total Initial Capital	\$67,052	000's
Sustaining Capital	\$23,421	000's
Total Life of Mine Capital	\$90,473	000's
NPV 5% (Before Tax)	\$101,311	000's
IRR (Before Tax)	28	%
NPV 5% (After Tax)	\$70,193	000's
IRR (After Tax)	22	%

22.3 Taxes, Royalties and Additional Fees

The economic analysis has an estimated tax rate of 30% as per Mexican standard. In 2013 the Mexican government implemented two new taxes – Precious Metals tax and Mining Royalty tax. The impact of these two new taxes is estimated at US\$23.9M over the life of the mine.

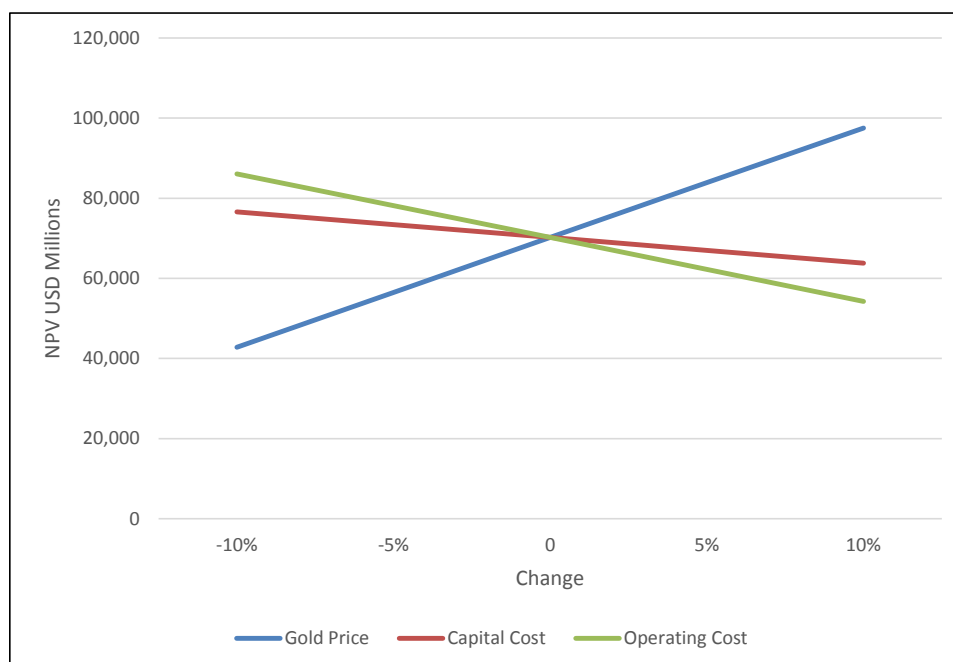
22.4 Sensitivity Analysis

Sensitivity analysis for key economic parameters is shown in Table 22.4.1 and Figure 22.4.1. The Project is nominally most sensitive to gold prices (revenues). Sensitivities to capital and operating costs are quite similar, with the Project being least sensitive to capital costs.

Table 22.4.1: San Agustin Project Sensitivities after Tax as of December 2014

Description	-10%	-5%	0	5%	10%
Gold Price	42,811	56,502	70,193	83,870	97,534
Capital Cost	76,579	73,386	70,193	67,000	63,807
Operating Cost	86,092	78,149	70,193	62,234	54,275
Values in USD 000's					

Figure 22.4.1: San Agustin Project Sensitivities after Tax as of December 2014



23 Adjacent Properties

This chapter was taken directly from the October 2014 Resource Technical Report and shown here in its entirety for completeness.

Approximately 12 km northeast of San Agustin Argonaut operates the El Castillo Mine (formerly known as El Cairo). This is an open pit heap leach operation that produces approximately 90,000 ounces of gold per year (Argonaut, 2013). El Castillo is geologically similar to San Agustin and lies on the same regional northeast striking mineral trend. Both are large sulfide systems with similar gold grades. San Agustin does appear to contain higher silver and base metals than El Castillo. Argonaut believes that both deposits are intrusive related systems with mineralization differentiated from underlying igneous bodies that are genetically and spatially associated with volatile rich intrusive pulses. Approximately half of the mineralization at El Castillo is hosted in parallel trending, tabular sedimentary layers separated by sill-like bodies of dacite that are also mineralized. Mineralization mainly occurs as pyrite filled fractures, local breccias and as fine disseminations. Argonaut is currently mining and processing the oxide cap of the El Castillo deposit.

Located approximately eight km to the south-southwest of the San Agustin Project is the historic San Lucas silver-base-metal district. That district is located partially within the village of San Lucas del Ocampo. Oremex Silver Inc. (Oremex) holds concessions covering much of the historic district including silver-lead-zinc mineralization along two prominent structures called the Main Shear Zone and the Rosita Structure. This is an ongoing exploration area with potential for both high grade silver and bulk minable zinc and lead. The district is dotted with large mine dumps and riddled with historic underground workings and likely had significant historic production. At this time Oremex does not report a potentially economic resource (Oremex, 2014).

There are an abundance of small adits, shafts and trenches peripheral to the San Agustin Project area. These workings generally focused on narrow steeply dipping polymetallic veins less than one meter wide. There does not appear to have been significant historic production nor is this vein system of current interest to Argonaut.

The Qualified Person responsible for the mineral resources that are the subject of this Technical Report has not been able to verify the information regarding the El Castillo and San Lucas Projects and that information is not necessarily indicative of the mineralization at the San Agustin property.

24 Other Relevant Data and Information

24.1 Geotechnical Issues

24.1.1 Pit Slope Stability Analysis

The slope stability of the heap leach facility (HLF) was evaluated by Golder. The objectives of this analysis were to evaluate the stability factor of safety of the proposed ore heap under static and seismic (via pseudo-static analysis) loading conditions. In accordance with Mexican standards, the minimum computed factors of safety must exceed 1.5 for static analyses and 1.05 for pseudo-static analyses.

The geometry and zoning for each section are shown on Figure 24.1.1 and Figure 24.1.2, respectively. The stability of the HLF was evaluated along two cross sections, labeled Section A and Section B. The alignment of each section is shown on Figure 24.1.3. These sections were aligned to profile areas of the facility with the steepest liner base grades and tallest ore slopes. The tallest section of the downstream toe slope of the facility is oblique to both the liner base grades and the grade along the top of the heap; therefore, Section A has been drawn as a piecewise-linear composite cross section to align with the true dip in each area.

Figure 24.1.1: San Agustin Pit Slope Section A

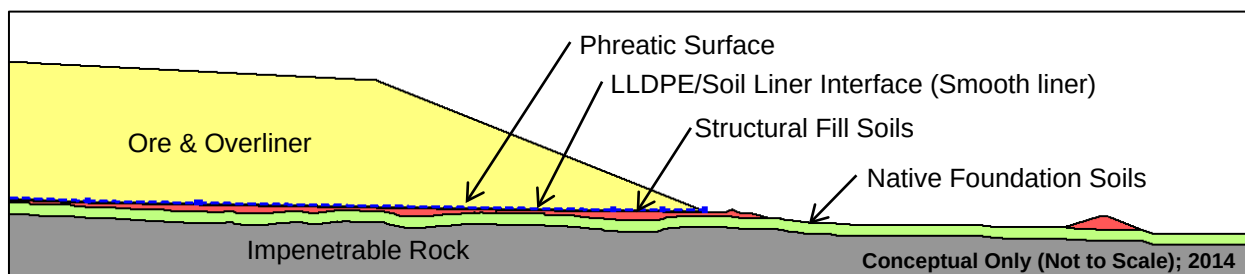
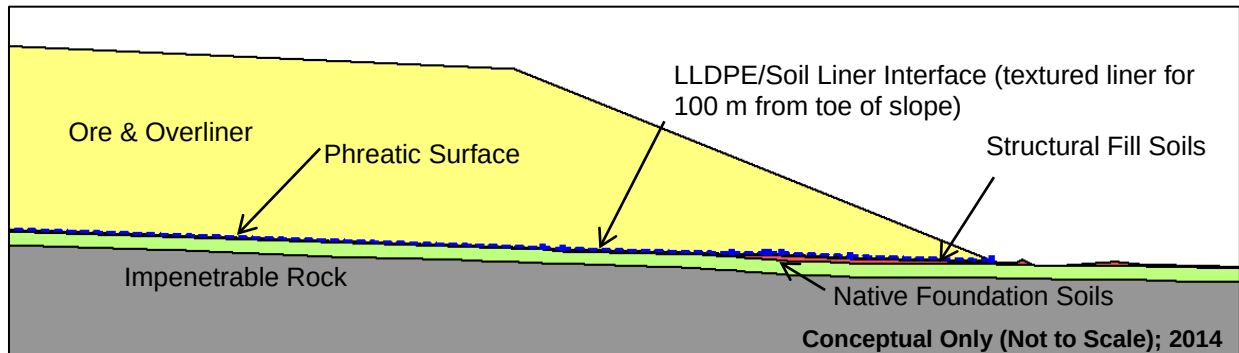
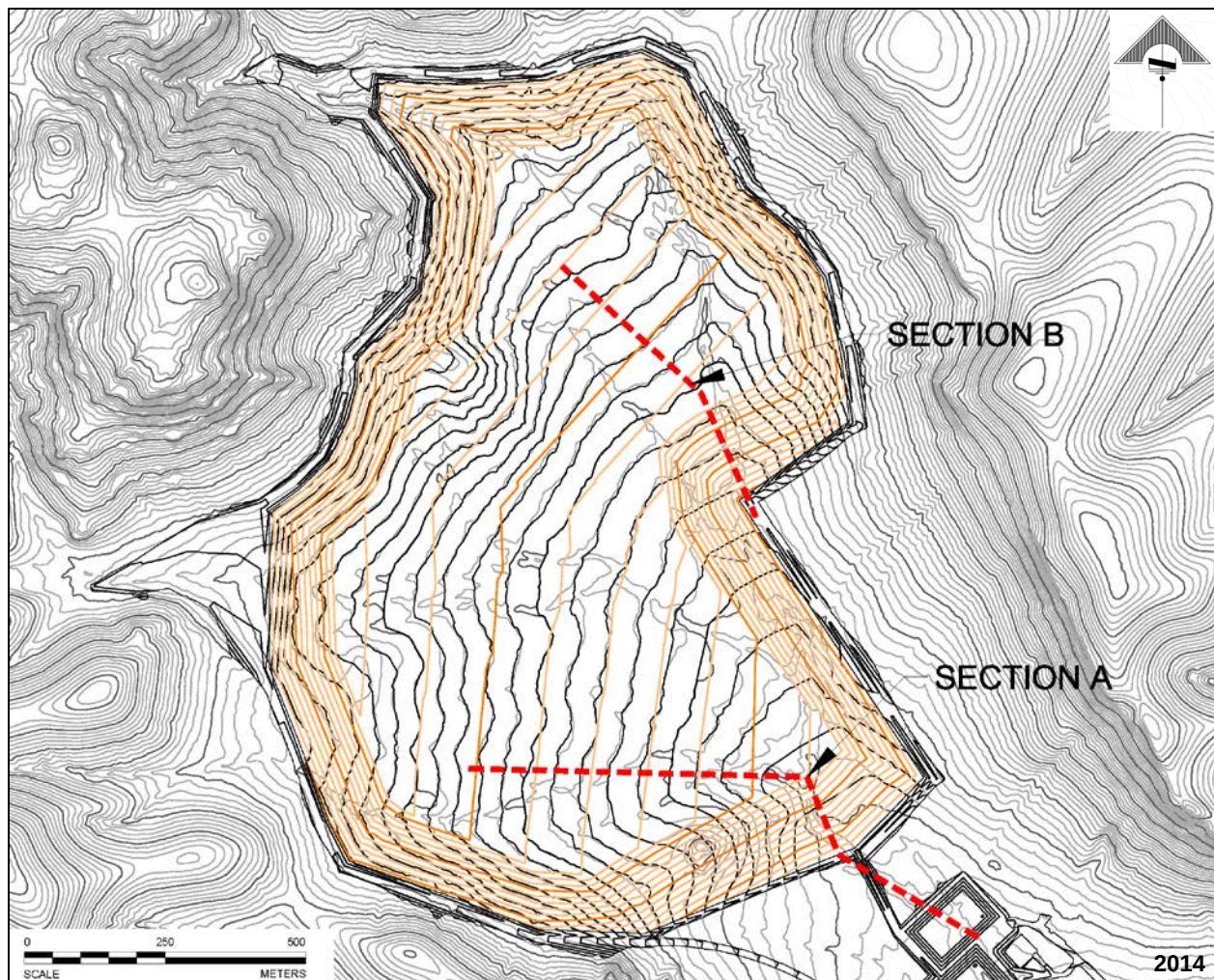


Figure 24.1.2: San Agustin Pit Slope Section B**Figure 24.1.3: San Agustin Pit Slope Analysis Sections**

The liner system for the leach pad will be a composite system consisting of the following (from bottom to top):

- A compacted subgrade
- A minimum of 300 mm of a compacted low permeability soil liner
- A 1.5-mm (60-mil) thick, LLDPE geomembrane liner
- A minimum 0.6-m-thick layer of overliner drainage material consisting of crushed ore or other suitable materials

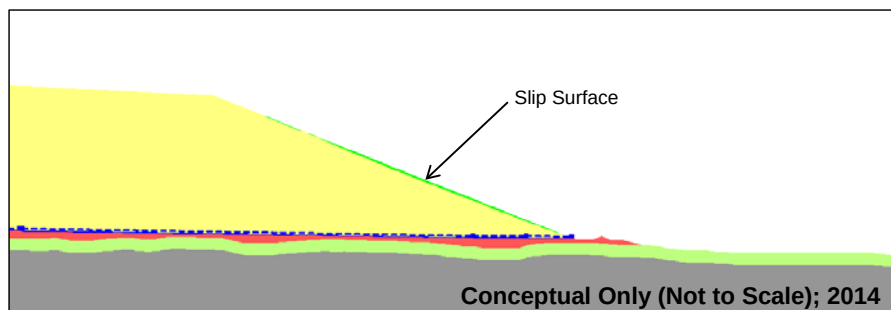
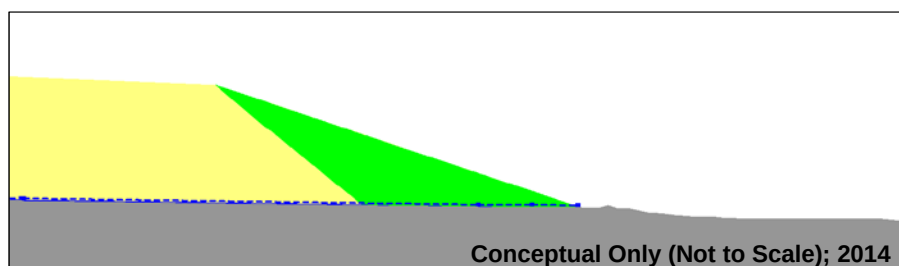
Golder has modeled the composite liner system to the surface of the geomembrane as a single material type and the overliner is assumed be structurally similar to the ore. In accordance with the Project design criteria, the maximum hydraulic head on the liner system is 0.6 m. A phreatic surface was drawn 0.6 m above the liner and resulting pore pressures were applied to the ore material only. Bedrock was assumed to occur at a depth of 5 m below existing grades based on the occurrence of excavator refusal at 3.0 to 4.1 m in the 32 of the 35 test pits excavated in the HLF foundation area for this study.

Results of the stability analysis are summarized in Table 24.1.1. The sliding surfaces for which the lowest factor of safety (FOS) was computed for each analysis are shown on Figure 24.1.4 through Figure 24.1.11.

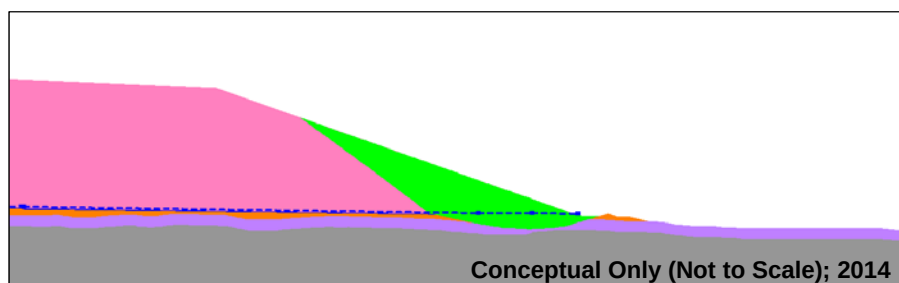
The minimum computed factors of safety all meet or exceed the Project design criteria.

Table 24.1.1: San Agustin Slope Stability Analysis Results

Analysis	Section A Factor of Safety	Section B Factor of Safety
Static – Global Stability	2.0	1.9
Static – Stability along Liner Interface	1.5	1.9
Pseudo-Static – Global Stability	1.2	1.2
Pseudo-Static – Stability along Liner Interface	1.2	1.5

Figure 24.1.4: San Agustin Section A Global Static Stability Slip Surface FOS = 2.0**Figure 24.1.5: San Agustin Section A Static Stability along Liner Interface FOS = 1.5**

Note: Bedrock material model applied to Native Foundation Soil and Structural Fill layers to force sliding surface through LLDPE/Soil Liner Interface layer.

Figure 24.1.6: San Agustin Section A Global Pseudo-Static Stability Slip Surface FOS= 1.2

Note: Coloring differs due to use of pseudo-static analysis material properties

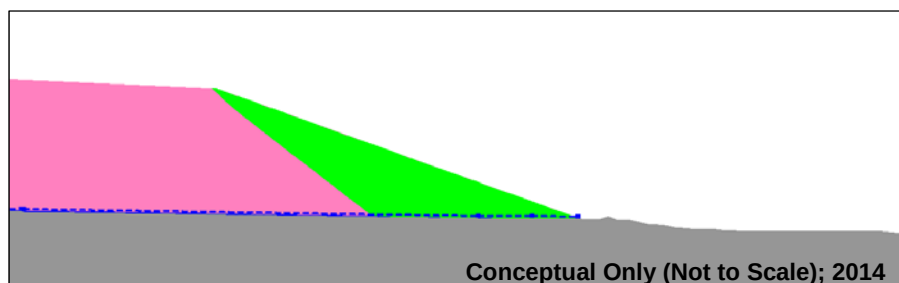
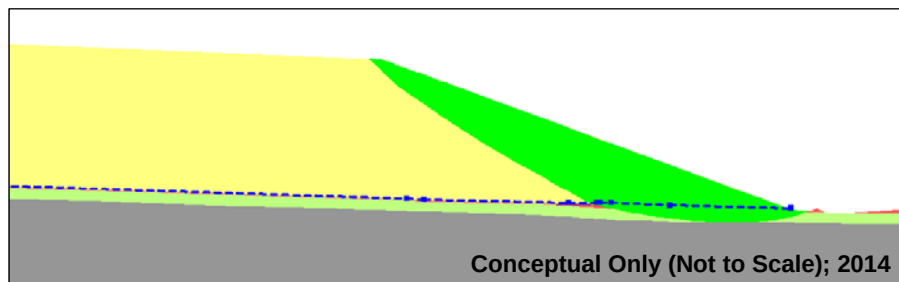
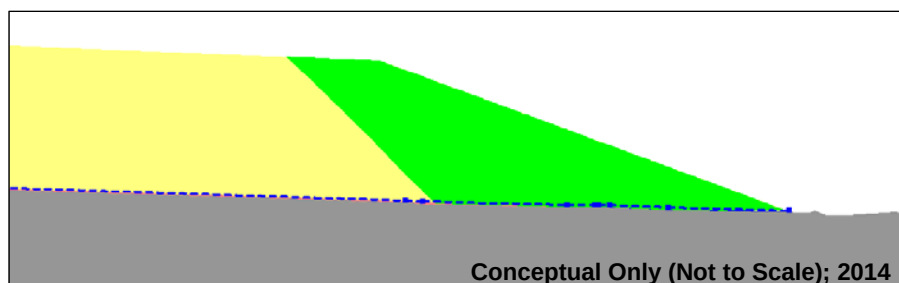
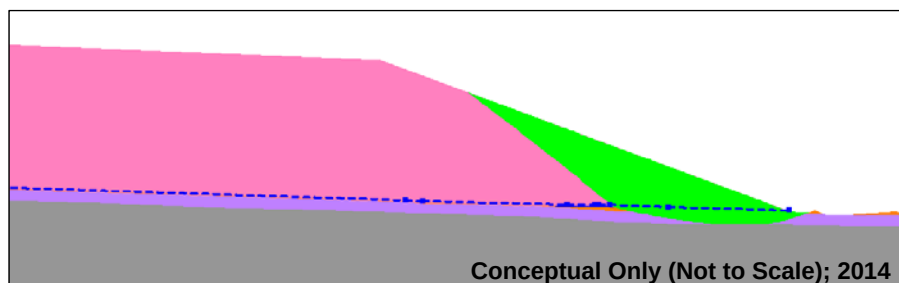
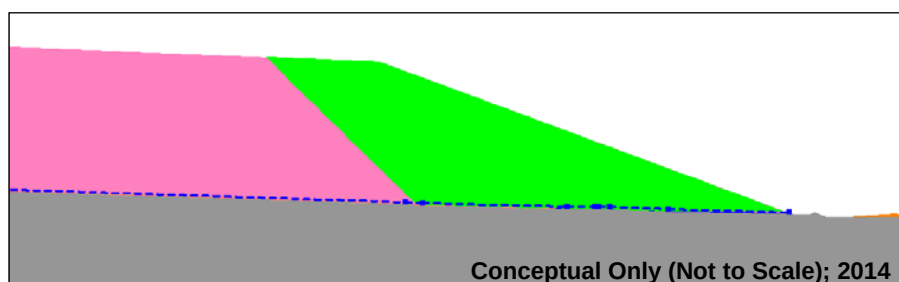
Figure 24.1.7: San Agustin Section A Pseudo-Static Stability along Liner Interface FOS = 1.2

Figure 24.1.8: San Agustin Section B Global Static Stability Slip Surface FOS = 1.9**Figure 24.1.9: San Agustin Section B Static Stability along Liner Interface FOS = 1.9****Figure 24.1.10: San Agustin Section B Global Pseudo-Static Stability Slip Surface FOS = 1.2****Figure 24.1.11: San Agustin Section B Pseudo-Static Stability along Liner Interface FOS = 1.5**

24.1.2 Heap Leach Facilities Geotechnical

The San Agustín heap leach facility (HLF) has been designed to meet the requirements presented by SEMARNAT (2010) for leaching of gold and silver. The design is intended to achieve zero discharge of process solutions.

The HLF will consist of the following:

- Composite (geomembrane/soil liner) lined heap leach pad and solution collection channel, providing a total lined pad area of approximately 1,341,000 m², designed to allow staged development for a minimum of three construction phases, with a total of two internal cells for each phase to facilitate solution management;
- Solution collection system consisting of a minimum 0.6 m granular overliner drain layer and a network of double walled, perforated, corrugated high-density polyethylene (HDPE) solution collection piping and HDPE solid conveyance piping, with associated valves and fittings, for solution management and control;
- Solution storage ponds consisting of a pregnant pond and two emergency ponds (Emergency Pond 1 and Emergency Pond 2). The pregnant solution pond has been designed to be centrally located down slope from the central outlet of the HLF to allow gravity flow of solutions from the heap. The pregnant pond will be constructed as part of Phase 1 development. The two emergency ponds will be constructed adjacent to the pregnant pond. Emergency Pond 1 will be constructed during the Phase 1 development and Emergency Pond 2 during Phase 2 development;
- Temporary and permanent surface water diversion channels to manage run-on surface water around the perimeter of the HLF; and,
- The HLF design will allow ore stacking to an approximate height of 72 m and will provide capacity for approximately 72 Mt of ore at a density of 1.6 t/m³.

The HLF site will be prepared for construction by first clearing, grubbing, and stripping of growth medium. Grading will involve local cuts and fills of native alluvial and colluvial materials and bedrock. The ultimate foundation grading and phasing plan was developed to minimize cuts and fills while maintaining foundation/pad slopes suitable for a stable heap and allowing gravity drainage of surface water around the perimeter of Phase 1, Phase 2, and the ultimate configuration of the HLF. The foundation will be graded to provide a shallower slope under the toe area of the heap to promote stability

during initial and long term operating conditions. Slopes in the upper portion of the pad generally range from 5 to 13 percent, with some localized areas having slopes up to 40 percent, or 2.5H:1V, which is the maximum slope that is constructible without employing modified design details and specifications for steeper slopes.

The liner system for the leach pad will be a composite system consisting of the following (from the foundation upward):

- A compacted subgrade;
- A minimum 300 mm thick soil liner, moisture conditioned and compacted to exhibit a hydraulic conductivity of 1×10^{-6} cm/s or less;
- A 1.5 mm smooth linear low-density polyethylene (LLDPE) geomembrane liner, except for the perimeter 100 m of the pad footprint where a 1.5 mm textured LLDPE geomembrane liner will be installed; and,
- A minimum of 0.6 m of liner cover/drain material (overliner) (Up to 1.0 m thick overliner material is specified in portions of the HLF over steep and undulating areas to facilitate placement).

The overliner material will have a maximum particle size of 37.5 mm and will contain less than 5 percent passing a No. 200 US standard sieve and exhibit a hydraulic conductivity of 0.1 cm/s or greater. The overliner material may consist of processed ore or material produced from other sources.

24.2 Hydrology and Hydrogeology

Investigacion y Desarrollo de Acuiferos y Ambiente (IDEAS) conducted a study to characterize and evaluate the underground hydrological system of the area surrounding the San Agustin site and find potential locations for the water wells.

With the existing hydrogeological information by others and the newly generated data, eleven sites were selected for potential water well locations. The final locations will be determined by the Project layout, land ownership, or community dealings. A list of the eleven potential water well locations are listed in Table 24.2.1 and ranked based on preference. The map showing the locations are illustrated in Figure 18.4.1 within Section 18.

Table 24.2.1: San Agustin Proposed Water Well Coordinates and Depths

	TEM	Well No.	X	Y	Z	Depth (m)
First Option	Sjn-02	Pozo 1	540510.39	2743653.05	1834.79	400
	Sjn-31	Pozo 2	541991.87	2740750.51	1821.09	400
	Sjn-35	Pozo 3	542346.39	2740245.17	1810.52	400
	Sjn-03	Pozo 4	541326.40	2743443.23	1815.56	400
	Sjn-12	Pozo 5	541402.03	2742665.54	1848.73	400
	Sjn-14	Pozo 6	538568.83	2742424.58	1867.23	400
	Sjn-18	Pozo 7	541865.10	2742244.90	1885.26	400
Second Option	Sjn-19	Pozo 8	538137.98	2741753.31	1872.76	500
	Sjn-24	Pozo 9	541762.77	2741327.64	1839.84	500
	Sjn-26	Pozo 10	538878.57	2741283.38	1922.51	600
	Sjn-27	Pozo 11	539608.36	2741466.87	1906.65	600

*Coordenadas UTM – Datum WGS84 Zona 13N

24.3 Project Implementation

The Project will be developed in a manner similar to most other heap leach projects. Initial design including basic design and long lead time items procurement will be done during the early stages. Detailed engineering and procurement will follow and finally the construction phase will be completed. The Project implementation will most likely start after approval of the EIA and permit authorizations, which is not known at this time. Argonaut has selected to manage development of this Project internally with assistance from external consultants.

Typically, the detailed design phase of the Project is separated into two parts: an initial basic and detailed engineering phase followed by final detailed engineering. The initial design phase of the Project will include finalization of:

- P&ID's;
- Flow sheets;
- General arrangement drawings;
- Heap leach pad and pond earthworks; and
- Control philosophy.

Specifications for long lead time equipment, a logistic study, finalization of site geotechnical work, detailed engineering for the leach pad and ponds, and detailed engineering for common infrastructure items will be completed early in this period. The heap leach facility and fresh water storage system earthworks will be designed to a level with sufficient detail to allow the work to finalize construction equipment requirements. Additionally, design of the power line will be completed in this period.

Final detailed engineering work will progress in areas and disciplines in a similar sequence to the initial design phase. Typically this will include: earthworks, plate work, structural, civil, mechanical, piping, electrical, and instrumentation. Earthworks represent a large portion of the work both during initial construction and during future construction. As such an emphasis will be placed on completion of the earthwork design to facilitate start of the earthworks.

Final drawings for the various disciplines will be required. Some areas such as the crusher, process plant, the power generator package, and the stacking gear, will be packaged type of contracts. In these types of contracts the vendor will supply detailed design and also will be responsible for a majority of the site work.

Assuming no delays due to permitting or social issues, a total of 9 to 12 months from start of engineering to first gold pour is anticipated.

24.4 Opportunities and Risks

There are opportunities and risks that have been identified in various areas of the Project. These opportunities and risks pertain to resource expansion, mine material performance, raw water acquirement, and land acquisition.

24.4.1 Mineral Resource Growth and Mineral Resource Conversion

Potential Opportunity. Potential Mineral Resource growth may be possible by conducting step-out drilling along strike from the current mineral body. There is also an opportunity to convert Inferred current mineral resources to higher resource categories by infill drilling.

Potential Risk. The mineral resource growth requires additional drilling and the Company's expectations may not coincide with actual results. Additionally, the purchase or lease of surface rights on some of the exploration targets is ongoing yet incomplete.

24.4.2 Metallurgy and Processing

Potential Opportunities. None.

Potential Risks. Laboratory samples for the column tests were assayed and found to have higher grades than those typically found in the process feed grade, as indicated by the mine plan. Lower grade ore samples for the coarse crushed material run the risk of having poor metallurgical performance (gold/silver recovery) and may affect the economics of the Project.

24.4.3 Water Management

Potential Opportunities. Water well flow potential has not been analyzed. If the water wells have excellent flow potential then only one will be required.

Potential Risks. The proposed water wells range from 400 to 600 m in depth and have not been tested for flow potential. If the shallow water well locations are not available or the flow potential of each is not adequate then additional expense will have to be encountered.

24.4.4 Land Acquisition

Additional purchase or lease of land surface rights will be required for the proposed mine infrastructure. A delay or failure in obtaining all surface rights could impede or delay the development of the Project.

25 Interpretations and Conclusions

Argonaut recognized that the San Agustin property is geologically similar to its nearby El Castillo gold and silver heap leach operation which is located about 12 km to the northeast. Argonaut acquired the San Agustin Project from Silver Standard in December of 2013 and commenced exploration work in early 2014. Argonaut's early focus was data compilation and geologic mapping in order to develop drilling targets. A two phase RC drilling program was started in late February of 2014 resulting in the completion of 240 holes totaling 24,765 meters. The objective of Argonaut's RC drilling programs was to reduce the drill hole spacing in the previously recognized resource area and to determine if the mineralized area could be expanded. The 2014 Argonaut RC samples were prepped and assayed by ALS Chemex at their Zacatecas and Vancouver lab facilities. Thirteen PQ diameter core holes were also drilled by Argonaut in 2014 for the purpose of providing metallurgical composites for testwork that was carried out by KCA at their laboratory facility.

The 2014 Argonaut RC drilling results were combined with drilling data that were generated by prior companies (Monarch, Silver Standard and Geologix). Argonaut's goal was to see if an oxide resource could be developed at San Agustin Project that could possibly be exploited as an open pit heap leach operation similar to their nearby El Castillo operation.

Argonaut's infill drilling programs demonstrated that mineralized continuity is sufficient to classify a significant portion of the oxide resource as an Indicated Resource. Surface mapping and sampling combined with wide spaced drilling has identified additional exploration areas within Argonaut's land position. Gold and silver mineralization appears to remain open to the north and west of the currently recognized oxide resource which outcrops over a 1.5 by 1.0 kilometer area.

Results of metallurgical testing completed by MLI, EC and KCA are positive and show gold recoveries in the range of 50 to 84% and silver recoveries 8 to 36% in the finer crush sizes.

The final crush sizes of 80% passing 22 mm and 100 mm were selected for the Fine Crushing and Coarse Crushing circuits, respectively, after conducting a brief crushing cost versus recovery analysis.

The projected field recoveries for the fine-crushed material of 80% passing 22 mm are 66% gold and 16% silver, and coarse-crushed material of 80% passing 100 mm of 57% gold and 9% silver. Reagent consumptions are expected to be 0.18 and 0.23 kg/t for sodium cyanide with 3.5 and 4.0 kg/t lime for coarse-crushed and fine-crushed, respectively. Based on the laboratory data a leach cycle of 75 days was selected for the heap leach.

The Project will utilize a single pit designated as the San Agustin Pit and has been designed with five mining phases. The resulting pit design defines 72.4 Mt of Indicated resources with an average grade of 0.32 g/t Au and 10.6 g/t Ag with an average strip ratio of 0.39:1. Pit resources are divided into two different materials for processing, high grade and low grade. At a 6M tpy ore production rate of high grade, it is expected that the potential mine life will be 10.5 years. The production schedule targeted a consistent total mine tonnage of approximately 10M tpy.

The San Agustin Project requires the sharing of supplies and infrastructure items from the nearby El Castillo Mine. With a distance between the two projects of approximately 12 km the El Castillo Mine will contain shared infrastructure items such as administration buildings, laboratory, long-term reagent storage, and a complete service truck shop.

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, 56% 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 Project economics.

26 Recommendations

Based on discussions with Argonaut's technical staff and the Qualified Persons responsible for this Technical Report, the following recommendations have been made to advance the San Agustin Project:

- Collect additional representative samples for density determination. This includes mineralized and un-mineralized rock types including surficial materials like alluvium and conglomerate. The cost for this is estimated to be \$5,000;
- Consider obtaining at least one additional certified oxide standard with a gold grade of around 0.20 to 0.25 g/t that could be used in a QA/QC program for future drilling programs. The cost for obtaining this material is estimated to be \$2,500;
- Complete a RC condemnation drilling program at San Agustin totaling 10,000 meters. The primary objective of this program is to condemn areas where the Company expects to place process facilities such as leach pads and waste dumps. The approximate cost for this program is estimated to be around \$1,000,000;
- Conduct additional laboratory test work on low grade ore to confirm the gold/silver recoveries on the coarse crushed material. The estimated cost for this activity is \$50,000;
- If the gold price falls below the Project's economic threshold and the variability in the capital and operating costs needs to be lessened, then a feasibility study would be suggested. The cost for this activity is estimated to be \$750,000;
- Obtain surface rights and environmental permitting that would allow Argonaut to potentially proceed with mine development. The cost for this is still being determined as negotiations are ongoing;
- Continue with various ongoing environmental studies including exploratory drilling to define the hydraulic characteristics of the selected areas for the water wells. The cost for this activity is estimated to be \$100,000; and;
- Work with local communities and governmental agencies to obtain the necessary permits and licenses to operate. The estimated cost for this activity is \$200,000.

27 References

Argonaut, 2013, Management Discussion and Analysis (MDA), available on SEDAR and <http://www.argonautgold.com>

Austin, D.C., Ibrado, A.S., Hester, M.G., Malhotra, D., Masters, I., Dunn, G., Zimmerman, R.K., Parkinson, G.A., 2013, NI 43-101 Technical Report Preliminary Feasibility Study Durango, Mexico Sinaloa, Mexico. M3 Engineering & Technology Corporation. 2051 West Sunset Road, Tucson, AZ 85704

Barclay, 2007, Investigation of Structural Fabric Orientation and Trends for the San Agustin Project, San Juan del Rio, Durango Mexico, Internal report to Geologix Exploration Inc., 16 p.

Belanger, M., Pareja, G. and Nahan, P., 2010, Peñasquito Polymetallic Operation Zacatecas State Mexico NI 43-101 Technical Report prepared for Silver Wheaton.

Golder Associates Inc., 2014, Design Report, San Agustin Mine Heap Leach Facility. Report prepared for Argonaut Gold Inc.

Investigacion y Desarrollo de Acuíferos y Ambiente (IDEAS), 2014, Estudio de Prospección Hidrogeología para Abastecimiento de Agua en el Proyecto Minero San Agustin, San Juan del Rio, Durango. Report prepared for Argonaut Gold Inc.

Kappes, Cassiday & Associates, 2014, Report of Metallurgical Test Work, Report I.D. KCA0140048_SGUS01_01. Report prepared for Argonaut Gold Inc.

Kappes, Cassiday & Associates, 2014, Report of Metallurgical Test Work, Report I.D. KCA0140099_SGUS02_01. Report prepared for Argonaut Gold Inc.

Kappes, Cassiday & Associates, Pending, Report of Metallurgical Test Work, Report I.D. KCA0140129_SGUSD_01. Report prepared for Argonaut Gold Inc.

Lechner, M.J., Defilippi, C.E., 2014, NI 43-101 Technical Report Oxide Resource Estimate, San Agustin Project, Durango, Mexico prepared for Argonaut Gold Inc.

McClelland Laboratories, Inc., 2009, Report on Heap Leach Cyanidation Testing – San Agustin Oxide Zone Drill Core Composites, MLI Job No. 3292. Report prepared for Geologix Exploration Inc.

McCrea, J. A., 2004, Technical Report on the San Agustin Property, Durango, Mexico, NI 43-101 Technical Report prepared for Silver Standard Resources Inc., 36 p.

Metalurgia Minera Real del Oro (MRO), 2014, San Agustin Project Intrusive and Sediments Composites Report of Metallurgical Test Work. Report prepared for Argonaut Gold Inc.

Oremex, 2014, Information regarding the San Lucas Project available at <http://www.oremexsilver.com/sanlucas/>

Paz-Moreno, F.A., Orozco-Garza, A.J., Valadéz-Espinoza, A., Iriundo, A. y Herrera-Urbina, S., 2013, Estudio Geoquímico y Temporal de los Eventos Magmáticos en la Mina El Castillo, Mpio. de San Juan del Rio, Durango, México: Una Evidencia del Paso de la Subducción a la Distensión durante el Terciario. Actas INAGEQ XXIII Congreso Nacional de Geoquímica. Cuernavaca, Morelos

Pérez-Segura, E., 2014, Estudios petrográficos y minerográficos de 12 muestras de roca procedentes de los yacimientos El Castillo y San Agustin, Durango. Report Prepared for Argonaut Gold Inc.

Raisz, E., 1964, Landforms of Mexico (chart). Geography Branch of the Naval Research. 2º ed. Cambridge, Mass. USA.

SRK Consulting (US), Inc., 2011, NI 43-101 Technical Report on Resources and Reserves El Castillo Mine prepared for Argonaut Gold Inc.

Wardrop, 2008, San Agustin Resource Estimate - December 2008, NI 43-101 Technical Report prepared for Geologix Explorations Inc., 68 p.

Wardrop, 2009, San Agustin Resource Estimate, NI 43-101 Technical Report prepared for Silver Standard Resources Inc., 70 p.

28 Statement of Qualification

**Kappes, Cassiday & Associates**

7950 Security Circle Reno, Nevada 89506

Telephone: (775) 972-7575 FAX: (775) 972-4567

Website: www.kcareno.com E-Mail: cdefilippi@kcareno.com**Carl E Defilippi**

I, Carl E. Defilippi, M.Sc., C.E.M., do hereby certify that I am currently employed as Senior Engineer for Kappes, Cassiday & Associates located at 7950 Security Circle, Reno, Nevada 89506 and:

1. I graduated with a Bachelor of Science degree in Chemical Engineering from the University of Nevada in 1978 and a Master of Science degree in Metallurgical Engineering from the University of Nevada in 1981;
2. I am a Registered Member of the Society for Mining, Metallurgy and Exploration (775870RM);
3. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. I am independent of the Issuer and related companies applying all of the tests in section 1.5 of National Instrument 43-101;
4. I am one of the authors of this "Technical Report and Preliminary Economic Assessment, San Agustin Project, Durango, Mexico" prepared for Argonaut Gold Inc., effective as of October 3, 2014 and a report date of February 19, 2015. I am responsible for Sections 1.1 through 1.3, 1.6, 1.9 through 1.12, relevant portions of 1.13 and 1.14, 2 through 5, 13, 16.7, 17 through 22, and relevant portions of 24 through 27 of the Technical Report;
5. I visited the San Agustin Project site on July 15, 2014;
6. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains the necessary scientific and technical information to make the Technical Report not misleading;
7. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that Instrument and Form;
8. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report; and,
9. For prior involvement, I was previously a co-author of the Technical Report entitled "Oxide Resource Estimate, San Agustin Project, Durango, Mexico", with an effective date of July 8, 2014 and a report date of October 3, 2014 and I reviewed prior unpublished work by KCA prepared in 2010 for a previous owner of the San Agustin property.

Dated February 19, 2015.

"Carl E. Defilippi"

Carl E. Defilippi



RESOURCE MODELING INC.

124 LAZY J DRIVE • STITES, ID • 83552
PHONE: (208) 926-4948 • FAX: (208) 926-4950
mlechner@theriver.com
BRITISH COLUMBIA P. GEO. #155344

Michael J. Lechner

I, Michael J. Lechner do hereby certify:

1. That I am an independent consultant and owner/president of Resource Modeling Incorporated, an Arizona Corporation;
2. That this certificate applies to the Technical Report entitled "Technical Report and Preliminary Economic Assessment, San Agustin Project, Durango, Mexico", with an effective date of October 3, 2014 and a report date of February 19, 2015 (the "Technical Report");
3. That I am a registered professional geologist in the State of Arizona (#37753), a Certified Professional Geologist with the AIPG (#10690), a P. Geo. in British Columbia (#155344) and a registered member of SME (#4124987). I am a graduate of the University of Montana (1979) with a Bachelor of Arts degree in Geology;
4. That I have practiced my profession continuously since 1977 and have worked as an exploration geologist, mine geologist, engineering superintendent, resource modeler, and consultant on a wide variety of base and precious metal deposits throughout the world;
5. As a result of my experience and qualification, I am a "qualified person" ("Qualified Person") as defined in National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101);
6. I visited the San Agustin Project (the Project) from March 10 to 14, 2014;
7. I am responsible for sections 1.4, 1.5, 1.7, 1.8, relevant portions of 1.13 and 1.14, 6 through 12, 14, 16, 23, and relevant portions of 24 through 27 of the Technical Report;
8. I am independent of Argonaut Gold Inc. as independence is described by Section 1.5 of NI 43-101;
9. I have acted as an independent Qualified Person for Argonaut Gold Inc.;
10. I have read NI 43-101 and Form 43-101F1 and fully believe that the Technical Report has been written in complete compliance with that Instrument and Form;
11. That as of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading; and,
12. I was previously a co-author of the Technical Report entitled "Oxide Resource Estimate, San Agustin Project, Durango, Mexico", with an effective date of July 8, 2014 and a report date of October 3, 2014.

"signed and sealed"

Michael J. Lechner

February 19, 2015