San Agustin Gold/Silver Mine

Durango, Mexico

NI 43-101 Technical Report

Report Effective Date:
August 1, 2021

Report Authors
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ARGONAUT GOLD

CERTIFICATE OF QUALIFIED PERSON

Brian Arkell, RM SME
Vice President Exploration and Mine Technical Services
Argonaut Gold Inc.
9600 Prototype Ct.
Reno, NV 89521

I, Brian Arkell, RM SME, am employed as Vice President Exploration and Mine Technical Services with Argonaut Gold Inc., with an office address of 9600 Prototype Ct., Reno, NV 89521.

This certificate applies to the technical report titled "San Agustin Gold/Silver Mine, Durango, Mexico, NI 43-101 Technical Report" that has an effective date of August 1, 2021 (the "technical report").

I am a Registered Member of the Society for Mining, Metallurgy & Exploration (RM SME) with a membership number of 4035051, and a Fellow of AusIMM. I graduated from New Mexico Institute of Mining and Technology with a Master of Science in Economic Geology in 1984 and the University of Maryland with a Bachelor of Science degree in Geology in 1978.

I have practiced my profession for 35 years since graduation. I have been directly involved in gold mining, mine planning, mine operations, project development, reserve development, and exploration.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101) for those sections of the technical report that I am responsible for preparing.

I visited the San Agustin property on several occasions between 2018 and present. My latest visit was from 20—22 July 2021.

I am responsible for Sections 1.1 to 1.4, 1.6, 1.10 to 1.14, and 1.16 to 1.24; Section 2; Section 3; Section 4; Section 5; Section 6; Section 14; Section 15; Section 16; Section 18; Section 19; Section 20; Section 21; Section 22; Section 24; Sections 25.1 to 25.2, 25.6 to 25.8, 25.10 to 25.17; Section 26; and Section 27 of the technical report.

I have been involved with the San Agustin Mine since 2018 in capacities of exploration, mine geology, ore control, modeling, resource estimation, mine planning, reserve estimation, metallurgy, and operations.

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated: December 14, 2021

“Signed and stamped”

Brian Arkell, RM SME

ARGONAUT GOLD

CERTIFICATE OF QUALIFIED PERSON

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I, Josh Carron, RM SME, am employed as Senior Modeler with Argonaut Gold Inc., with an office address of 9600 Prototype Ct., Reno, NV, 89521.

This certificate applies to the technical report titled "San Agustin Gold/Silver Mine, Durango, Mexico, NI 43-101 Technical Report" that has an effective date of August 1, 2021 (the "technical report").

I am a Registered Member of the Society for Mining, Metallurgy & Exploration (RM SME) with a membership number of 4293154. I graduated from the University of Illinois with a Bachelor of Arts degree in Geology in 2006.

I have practiced my profession for 15 years since graduation. I have been directly involved in the exploration and mining of gold and silver projects and have managed operations and pilot studies.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101) for those sections of the technical report that I am responsible for preparing.

I visited the San Agustin Mine from 9 to 12 September 2019.

I am responsible for Sections 1.1, 1.2, 1.5, 1.7, 1.8, and 1.22 to 1.24; Section 2; Section 7; Section 8; Section 9; Section 10; Section 11; Section 12; Section 23; Sections 25.1, 25.3, 25.4, 25.16, and 25.17; Section 26; and Section 27 of the technical report.

I have been involved with the San Agustin Mine since May 2019 as the Senior Modeler.

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated: December 14, 2021

“Signed and stamped”

Josh Carron, RM SME

CERTIFICATE OF QUALIFIED PERSON

Carl E. Defilippi, RM SME
Project Manager
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I, Carl E. Defilippi, RM SME, am employed as a Project Manager at Kappes, Cassiday & Associates, with an office at 7950 Security Circle, Reno, NV, 89506.

This certificate applies to the technical report titled "San Agustin Gold/Silver Mine, Durango, Mexico, NI 43-101 Technical Report" that has an effective date of August 1, 2021 (the "technical report").

I am a Registered Member of the Society for Mining, Metallurgy & Exploration (RM SME) with a membership number of 775870. I graduated from the University of Nevada with a Bachelor of Science degree in Chemical Engineering in 1978 and a Master of Science degree in Metallurgical Engineering in 1981.

I have practiced my profession continuously for 40 years. I have been directly involved in the development of gold-silver leaching projects and have successfully managed studies at all levels on numerous cyanidation projects.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101) for those sections of the technical report that I am responsible for preparing.

I visited the San Agustin Mine on 15 July 2014.

I am responsible for Sections 1.1, 1.2, 1.9, 1.15, and 1.22 to 1.24; Section 2; Section 13; Section 17; Sections 25.1, 25.5, 25.9, 25.16, and 25.17; Section 26; and Section 27 of the technical report.

I am independent of Argonaut Gold as independence is described by Section 1.5 of NI 43–101.

I have been involved with San Agustin since 2014. I have previously co-authored technical reports on the San Agustin Project in 2014, 2015, and 2016.

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated: December 14, 2021

"Signed and stamped"

Carl E. Defilippi, RM SME

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1.0 SUMMARY

1.1 Introduction

Mr. Brian Arkell, Mr. Josh Carron, and Mr. Carl Defilippi prepared this technical report (the Report) on the San Agustin Gold/Silver Mine (the San Agustin mine, the Project), located in the State of Durango, Mexico. The San Agustin mine is owned and operated by Minera Real del Oro, S.A. de C.V. (MRO), which is a subsidiary of Argonaut Gold Inc. (Argonaut).

1.2 Terms of Reference

The Report provides information on Mineral Resource and Mineral Reserve estimates and mine and process operations and planning for the San Agustin mine.

Mineral Resources and Mineral Reserves are reported in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (May 2014; the 2014 CIM Definition Standards) and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2019; 2019 CIM Best Practice Guidelines). The metric system has been used throughout the Report. All currency is in United States dollars (US$) unless otherwise stated. The Report uses Canadian English.

1.3 Project Setting

The San Agustin mine is an operating open pit heap leach gold mine.

The Project is located in the State of Durango, Mexico. Driving distance to the mine is 100 km from the centre of the city of Durango. The first 90 km are paved, and the final 10 km consists of a well-maintained gravel road.

The Project is situated in a zone classified as semi-dry. Mining operations can be conducted year-round.

The local resources and infrastructure are adequate to support the current mining operation.

1.4 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

The Project consists of 5,884 ha of mining concessions and 425 ha of surface rights. Current mining operations and the Mineral Resources and Mineral Reserves presented in this Report are located within the San Agustin project mineral concessions. The Project was surveyed by a licensed surveyor, all applicable payments and reports were submitted to the relevant authorities, and the licenses were in good standing as at the Report effective date.

All mining concessions at the San Agustin mine are owned 100% by Argonaut through MRO. The San Agustin concessions are not subject to any royalties on the oxide Mineral Resources, but Silver Standard Resources Inc. (Silver Standard) holds a 2% net smelter return (NSR) royalty on any sulphide mineralization that may be developed in the future.

In 2013, the Mexican Federal government introduced a mining duty in the Federal Ley de Derechos. Effective January 1, 2014, the duty functions similar to an income tax collecting 7.5% of taxable earnings before interest and depreciation. In addition, precious metal mining companies must pay a 0.5% duty on revenues from gold, silver, and platinum.

Argonaut controls 425 ha of surface rights in the San Agustin area. The Project maintains a single underground water right totaling 1,000,000 m^3/year, and a water discharge permit in the amount of 1,100 m^3/year.

1.5 Geology and Mineralization

The Project is located in Northwest Mexico in the east flank of the Sierra Madre Occidental (SMO) bordering the great Mesa Central Mexicana. The oldest rocks in the region are mica schists and mylonites. These are overlain by an Upper Jurassic to Lower Cretaceous 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.

The volcanic complex of the SMO is present in the area. The Lower Volcanic Complex occurs as agglomerates, tuffs, and andesitic flows. The Upper Volcanic Complex consists of a sequence of rhyolite tuffs, crystal tuffs, and ash tuffs. Discordantly covering all previously mentioned lithological units is a package of welded rhyolite tuffs. The most recent igneous unit observed is composed of Pleistocene vesicular basalt flows that cover some of the valleys to the southeast of the Project.

There is a widespread occurrence of a poorly consolidated conglomerate that fills wide valleys associated with basin-and-range extensional normal faulting. A quartz monzonite stock, a biotite-rich volcanic rhyolite dome, and a package of ash and crystal tuffs also occur in the region.

Two main structural trends were identified in the San Agustin area. Mineralization at the Project appears to be related to or associated with the northeast trending structures. The most obvious structure recognized on the Project is the Main Fault, which trends northwesterly and dips steeply to the southwest.

The area of known mineralization at the Project is dominated by an igneous, quartz monzonite dome complex intruding a clastic sedimentary sequence composed of shale, mudstone, and less abundant sandstone. Both the intrusive complex and the sedimentary sequence occur on a dominant northwest trend with sub-vertical dips. Mineralization is emplaced through a strong and widespread system of sulphide rich veins, veinlets and fissure fillings that make the system similar to a disseminated deposit. Locally, mineralization can be observed following lithological controls in the sedimentary rocks, especially where they run parallel to sediment-intrusive contacts. The most dominant alteration type is phyllic, characterized as an assemblage of sericite-quartz-pyrite mineralization.

1.6 History

The central area of the San Agustin Project has a documented exploration history of about 30 years. A few small adits, shafts, and pits focusing on narrow veins are situated throughout the area, but actual mining was very limited. Consejo de Recursos Minerales (CRM), a division of the Mexican government, conducted exploration in the 1980s. Their work included drilling 4,339 m in 35 drill holes.

In late 1996, Monarch Mining Corporation (Monarch) acquired the Project. Their surface work defined a distinct gold anomalous zone over a 1.5 km^2 area. Monarch carried out drilling programs in 1997 and 1998 that included 64 reverse circulation (RC) drill holes totaling 9,354 m. Monarch relinquished the Project in 1999.

In 2003, Silver Standard undertook an extensive mapping and sampling program and a RC drilling program that consisted of 23 drill holes totaling 3,917 m. In 2006 Silver Standard optioned the Project to Geologix Explorations Inc. (Geologix) and from 2006 to 2009, Geologix undertook significant exploration activities including geological mapping, an induced polarization (IP) geophysical survey, surface and underground geochemical sampling, relogging of previous drill holes, 176 RC and core drill holes totaling 40,717 m, compilation of all data into a computer database, and a Mineral Resource estimate.

In December 2013, Argonaut purchased the Project from Silver Standard. During 2014 and 2015 Argonaut completed major programs of infill and metallurgical drilling. After obtaining all necessary permits, Project development work started in early 2017, culminating in the announcement of commercial operational status as of October 1, 2017. The mine has been operated by Argonaut since October 2017.

Since 2018, Argonaut has completed annual drilling campaigns of infill and exploration drilling.

Between 2017 and 2021, the San Agustin mine produced approximately 245,000 oz gold and 1,100,000 oz silver.

1.7 Drilling and Sampling

1.7.1 Drilling

Exploration drilling prior to Argonaut's involvement in the Project included multiple campaigns completed by Monarch, Silver Standard, and Geologix from 1997 to 2008, and totaled 54,592 m in 264 RC and core drill holes.

No information is available to Argonaut regarding the logging procedures and sample recovery for the Monarch, Silver Standard, and Geologix drill campaigns. There is no documentation for methods of drill site location and surveying for the Monarch or Silver Standard drill holes and no downhole surveys were collected. Geologix drill hole collars and downhole surveys were consistent with industry standard practices.

In 2014 and 2015, Argonaut completed a large two-phased infill drilling program focused largely on the main mineralized zone that included 306 RC drill holes totaling 34,222 m. From 2018 to

2021 Argonaut completed annual RC infill and exploration drill programs totaling 23,390 m in 248 drill holes. In 2014 and 2021, Argonaut completed 15 PQ-size core drill holes totaling 250 m for metallurgical testwork purposes. Argonaut's logging and surveying practices were consistent with industry standard practices. Core sample recoveries normally exceeded 95% and RC recoveries exceeded 90%.

1.7.2 Sampling

No information regarding the sampling methods is available to Argonaut from the Monarch, Silver Standard, and Geologix drill campaigns.

Argonaut trained local technicians to collect samples on the drill rig from its RC drilling programs. Those technicians were always under the supervision of a project geologist and RC cuttings were systematically collected every 1.52 m (5 ft), regardless of their geological characteristics.

RC material from the cyclone discharge port was passed through a riffle splitter to obtain two samples of equal weight and volume. One half was split again to obtain two sub-samples, each representing ¼ of the original sample. Those final two samples were bagged in poly bags, sealed with plastic ties, and marked with the sample number. A ¼ split was sent for assay and the other ¼ split saved as a backup sample.

All 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 Laboratories (ALS) preparation laboratory located in Zacatecas, Mexico. Sample dispatch forms covering 40 to 60 samples were prepared for each shipment. The samples were picked up about every three days by an ALS employee who drove them to Zacatecas.

Technicians under the supervision of an Argonaut geologist inserted one of three quality assurance and quality control (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.

The entire volume of the drill core was consumed for metallurgical testwork so the metallurgical drill holes were not assayed and were not used to estimate Mineral Resources.

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

1.7.3 Sample Preparation, Analyses, and Security

Monarch's drill samples were analyzed by Bondar Clegg Laboratories (Bondar Clegg) of Vancouver, Canada. Samples were weighed and dried before being crushed to 70% passing -10 mesh (2 mm). A 250 g sub-sample was then split off and pulverized in its entirety to 75% passing -200 mesh (75 µm). Gold was determined by fire assay on a 30 g charge with an atomic absorption (AA) finish. Silver and seven other elements were analyzed by aqua regia digestion and inductively coupled plasma (ICP) determination. Mercury was determined by aqua regia digestion and cold vapor AA.

Samples from Silver Standard and Geologix drilling programs were first sent to the ALS preparation laboratory in Guadalajara, Mexico where they were weighed and dried before being crushed to 70% passing -10 mesh (2 mm). A 250 g sub-sample was then split off and pulverized in its entirety to 85% passing -200 mesh (75 µm). The pulps were then shipped to the ALS facility in Vancouver, Canada for analysis of gold by fire assay on a 50 g charge with AA finish and an additional 35 elements by aqua regia digestion and ICP determination. Samples with initial fire assay results >10 g/t Au were reassayed on a separate pulp by fire assay with a gravimetric finish.

Argonaut samples were sent to ALS in Zacatecas, Mexico where they were logged into the tracking system and dried in ovens at a maximum temperature of 120°C. The samples were crushed to greater than 70% passing a 2 mm sieve. The crushed samples were riffle split until 250 g were obtained and the sample splits were pulverized to greater than 85% passing a 75 µm screen. The pulps were then shipped to be assayed at the ALS laboratory in Vancouver, Canada. ALS is independent of Argonaut and its assay procedures for gold are certified by international standard organizations.

The samples were assayed for gold using ALS method Au-AA23, which is a 30 g fire assay with an atomic absorption finish. The detection limit for the Au-AA23 method was 0.005 ppm with an upper detection limit of 10 ppm. Over limit assays were automatically re-analyzed using fire-assay/gravimetric methods.

Trace element geochemistry was analyzed for the 2014 RC samples using ALS method ME ICP41 which uses conventional ICP methods to generate values for 35 elements.

After the gold and geochemical results were certified by ALS, Argonaut personnel thoroughly reviewed the results from the QA/QC samples. Drill hole samples associated with QA/QC failures were re-analyzed by ALS.

1.7.4 Assay QA/QC

Assay QA/QC results from the initial Monarch and Silver Standard drilling programs were limited. Geologix located coarse rejects from the Monarch and Silver Standard drilling programs and sent approximately 5% of the samples to ALS in Vancouver for check assaying.

Geologix's QA/QC protocol consisted of submitting commercially prepared standards, blanks, and duplicates into the sample stream at a rate of one control for every 20 samples. They also sent about 5% of the ALS pulps to Acme Analytical Laboratories (Acme) in Vancouver for check assay analysis.

Based on the QA/QC results from the legacy drill programs, the QP finds that the legacy gold and silver assays are suitable to be used to estimate Mineral Resources.

Argonaut used blanks, standards, duplicates, and check assays to determine assay data quality. Control samples were inserted into the sample stream at a rate of 1 in 25 to 1 in 35 drill hole samples. Check assays were sent for entire drill holes that represent at least 10% of the total number of drill holes completed.

The QP reviewed the results of the Argonaut 2014–2021 QA/QC programs and it is the opinion of the QP that the Argonaut assay data are suitable to be used for estimating Mineral Resources.

It is the opinion of the QP that the San Agustin gold and silver data are reproducible and suitable to be used for estimating Mineral Resources and Mineral Reserves.

1.8 Data Verification

In 2018, Resource Modeling Inc. (RMI) completed a data verification program of a significant portion of the San Agustin drill hole database that contained assay, survey, and geologic information for Argonaut and legacy drill campaigns. Approximately 28,000 gold and silver records were compared for seven drill campaigns representing about 62% of the 2018 San Agustin Project drill hole assay database, and no errors were detected.

RMI also checked the database for overlapping assay intervals, abnormally high or unexplained negative assay values, and potentially mis-located drill holes by comparing collar locations against the provided topographic surface. All errors were corrected by Argonaut. RMI also reviewed RC and core logs and Argonaut's QA/QC protocols and results and found that the logs were consistent with standard industry practice and the assays were reproducible and suitable for estimating Mineral Resources.

In 2019, the QP inspected the onsite assay laboratory, reviewed RC chips and drill core logging procedures, and reviewed blast hole sampling and mapping procedures. 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 QP that the San Agustin Project drill hole data are suitable to support Mineral Resource estimation.

1.9 Metallurgical Testwork

San Agustin has been an operating mine since 2017. Metallurgical testwork was conducted from 2009 to the present. All the test results support the realized gold recovery of 59.9% as well as the assumed endpoint recovery of 65% of the gold stacked to date. Actual silver recovery is less than that predicted by the testwork. Actual silver recovery is lower than the testwork due to poor silver recovery in the carbon adsorption plant and lower levels of sodium cyanide in the leach solutions (both intentional to favor gold recovery). The recent addition of a Merrill-Crowe plant and continued leaching is expected lead to increased silver recovery ultimately in line with testwork expectations.

The processed ore is demonstrated to be very consistent in recovery as evidenced by the monthly composite column test data, prior tests, and overall heap performance.

Although not processed to date, testwork of sulphide material indicates gold recovery of 31% for the argillic sulphide material, 20% for silicic sulphide material, and 10% or less for the clay sulphide materials. Cyanide consumption is reasonable and lime consumption is high for the sulphide materials.

Blending of the argillic sulphide material with oxide material may be a viable treatment strategy, although a detailed economic evaluation of this concept and the practicality of selectively mining only this material type is required. Environmental testing of the sulphides should be conducted to evaluate the long-term effects of heap leaching this material.

Finer crushing studies are also recommended if treatment of the sulphide material by heap leach is to be advanced further. Other treatment schemes could also be considered if preliminary economic studies warrant.

There are no significant deleterious elements in San Agustin ores.

1.10 Mineral Resource Estimation

Argonaut's technical staff perform annual updates to the Mineral Resource model. Information from infill drilling, blast hole data, and pit mapping are routinely implemented into the annual updates. In each update, the interpolation parameters are adjusted to improve reconciliation to the short-range block model used for grade control. In August 2021, Argonaut updated the resource block model using the 2020 drilling database that includes 834 RC and core drill holes totaling 113,649 m and 67,868 samples to support interpolation of gold and silver grades.

A number of wireframe solids were constructed using Leapfrog software. These three-dimensional solids included shapes for the gold grade shell using a 0.1 g/t Au cut-off, key lithological units, oxidation units, and a critical fault plane. The lithological, grade shell, and oxidation solids were used to code drill holes and model blocks.

The block model was subdivided into seven domains based on the dominant direction of mineralization, veins systems observed in the pit walls, lithological controls, and trends of gold grades in production blast holes.

Argonaut assigned bulk density values of 2.27 g/m^3 to oxide and transition blocks and 2.76 g/m^3 to sulphide blocks. Oxide blocks coded as alluvium and conglomerate were assigned the oxide bulk density of 2.38 g/m^3.

High-grade gold assays were capped at 7.0 g/t. In addition to capping assays prior to compositing, Argonaut used outlier restriction to minimize smearing high-grade composite grades during grade estimation. The capped drill hole assay intervals were composited as 3 m long fixed-length composites.

Gold grades were estimated into blocks using the inverse distance squared (ID2) method. The 0.1 g/t Au gold grade shell and the seven structural domains were used as a hard boundaries for grade estimation purposes. The lithology and oxidation state contacts were used as soft boundaries for the grade estimation plan which allowed composites from the various rock types and oxidation states to contribute to the estimation of blocks across their boundaries. Estimation was carried out in five passes. The first four passes used outlier restriction to restrict the influence of high grades and the fifth pass used shorter search ellipse dimensions aligned with narrow vertical structures and breccia zones.

Silver grades were estimated by ID2 using four passes with outlier restriction varying by structural domain. Similar estimation parameters were used for silver as were used for gold. The domains, number of composites, ellipse dimensions, and ellipse orientation were the same, but the outlier restriction parameters were different and there was no separation of low-grade and high-grade domains.

Estimated block grades for the San Agustin deposit were classified as Indicated Mineral Resources using a wireframe solid that generally included oxide and transition material with a drill spacing of 50 m or less. Estimated blocks outside the wireframe were classified as Inferred Mineral Resources. All sulphide material was classified as Inferred Mineral Resources based on drill spacing and the need for further metallurgical testwork. No Measured Mineral Resources were classified.

Argonaut generated a conceptual Lerchs-Grossmann (LG) pit shell to assess reasonable prospects of eventual economic extraction. Table 1-1 summarizes the parameters that were used to generate the conceptual pit.

Table 1-1: Conceptual Pit Parameters

Parameter	Units	Value
Gold price	US$/oz	1,800.00
Silver price	US$/oz	24.00
Mining cost - rock	US$/t mined	1.66
Crushing & conveying	US$/t processed	1.04
Process & leaching	US$/t processed	2.33
G&A	US$/t processed	0.49
Selling cost	US$/t processed	0.30
Oxide gold recovery - crushed	percent	66
Oxide silver recovery - crushed	percent	16
Transition gold recovery - crushed	percent	38
Transition silver recovery - crushed	percent	16
Sulphide Argillic gold recovery - crushed	percent	29
Sulphide argillic silver recovery - crushed	percent	16
Sulphide silicified gold recovery - crushed	percent	17
Sulphide silicified silver recovery - crushed	percent	14
Pit slope angles	degrees	45

1.11 Mineral Resource Statement

San Agustin Mineral Resources are summarized in Table 1-2 by material type and gold cut-off grade for blocks contained inside of the conceptual pit below the August 1, 2021 mined surface. Mineral Resources are reported inclusive of Mineral Reserves, using the 2014 CIM Definition Standards. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate has an effective date of August 1, 2021. The Qualified Person for the estimate is Brian Arkell, RM SME, an employee of Argonaut.

The AuEq grades were calculated using ratios of metal prices and metal recoveries in the following equation:

AuEq = (Au + Ag/Equivalency Factor) where

Equivalency Factor = ((Au price in US$/g * Au recovery) / (Ag price in US$/g * Ag recovery))

Table 1-2: San Agustin Mineral Resources as of August 1, 2021

Resource Category	Material Type	Au Cut-off (g/t)	Tonnes (000's)	Au (g/t)	Ag (g/t)	Contained Ounces (000's)	
						Au (oz)	Ag (oz)
Indicated	Oxide	0.11	57,699	0.27	7.8	505	14,451
	Transition	0.19	3,239	0.35	16.7	37	1,740
Total Indicated			**60,938**	**0.28**	**8.3**	**541**	**16,191**
Inferred	Oxide	0.11	2,069	0.37	10.3	25	685
	Transition	0.19	13	0.24	21.9	#	9
	Sulphide Argillic	0.25	79,729	0.47	15.1	1,200	38,763
	Sulphide Silicified	0.42	5,098	0.74	9.3	120	1,518
Total Inferred			**86,909**	**0.48**	**14.7**	**1,345**	**40,975**

Notes to accompany Mineral Resources table:

- Mineral Resources are reported using the 2014 CIM Definition Standards. The Qualified Person for the estimate is Brian Arkell, SM RME.
- Mineral Resource estimates have an effective date of August 1, 2021 as defined by end of month July 2021 topography.
- Mineral Resources are constrained by a conceptual pit shell using the following assumptions: a gold price of US$1,800/oz Au; a silver price of US$24.00/oz Ag; mining cost of US$1.66/t mined; crushing and conveying cost of US$1.04/t processed; process and leaching cost of US$2.33/t processed; G&A cost of US$0.49/t processed; selling cost of US$0.30/t processed; variable gold metallurgical recoveries from 17-66%; silver metallurgical recoveries from 14-16%; and pit slope angles of 45º.
- Mineral Resources are reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- Mineral Resource estimates do not account for mineability, selectivity, mining loss or dilution.
- Totals may not add up due to rounding.
- The # symbol indicates that the value is below the rounded value of 1.

Areas of uncertainty that may materially impact the Mineral Resources estimate include:

- Changes to the long-term gold and silver prices and exchange rates;
- Changes in interpretation of mineralization geometry and continuity of mineralization zones;
- Changes to design parameter assumptions that pertain to the conceptual pit design that constrains the Mineral Resources;
- Modifications to geotechnical parameters and mining recovery assumptions;
- Changes to metallurgical recovery assumptions;
- Changes to environmental, permitting, and social license assumptions.

1.12 Mineral Reserve Estimation

Life-of-mine (LOM) plans and resulting Mineral Reserves are determined based on a gold price of US$1,500/oz and a silver price of US$20/oz for the open pit mine. Mineral Reserves have an effective date of August 1, 2021 which corresponds to the end of July 2021 topographical survey of the open pit.

Mineral Reserves were based on the economic balance between the value per tonne of rock and the cost to mine and process each tonne of rock. The value was based on estimated metal concentration, estimated metal value, and leach recovery. The costs included development, mining, processing, and operating overhead.

Blocks were converted from Indicated Mineral Resources to Probable Mineral Reserves based primarily on consideration of modifying factors, positive cash flow pit optimization results, pit design, and geological classification. Inferred Mineral Resources were set to waste.

The block model and associated selective mining units (SMUs) were based on 6 m x 6 m x 6 m blocks. Mine bench heights were designed at 6 m. Block grades in the resource model incorporate internal dilution due to compositing of drill hole assays and subsequent block grade interpolation.

Pit slopes are based on actual operating practices and are set to 45º for pit optimization.

1.13 Mineral Reserve Statement

LOM plans and resulting Mineral Reserves are determined based on a gold price of US$1,500/oz and a silver price of US$20/oz. Reserves stated in Table 1-3 have an effective date of August 1, 2021. The assumed MXN:USD exchange rate is MXN19:1.

The AuEq grades were calculated using ratios of metal prices and metal recoveries in the following equation:

AuEq = (Au + Ag/Equivalency Factor) where

Equivalency Factor = ((Au price in US$/g * Au recovery) / (Ag price in US$/g * Ag recovery))

Table 1-3: San Agustin Mineral Reserves as of August 1, 2021

Class	Material Type	Tonnes (000's)	Au (g/t)	Ag (g/t)	Contained Au oz (000's)	Contained Ag oz (000's)
Probable	Oxide	35,230	0.31	9.90	355	11,211
Probable Total	**Oxide**	**35,230**	**0.31**	**9.90**	**355**	**11,211**

Notes to accompany Mineral Reserves table:

- Mineral Reserves are reported using the 2014 CIM Definition Standards. The Qualified Person for the estimate is Brian Arkell, RM SME.
- Mineral Reserves have an effective date of August 1, 2021 as defined by end of month July 2021 topography.

- Mineral Reserves are reported inside an optimized pit shell using the following assumptions: a gold price of US$1,500/oz Au; a silver price of US$20/oz Ag; mining cost of US$1.66/t mined; crushing and conveying cost of US$1.04/t processed; process and leaching cost of US$2.33/t processed; G&A cost of US$0.49/t processed; selling cost of US$0.30/t processed; gold metallurgical recoveries from 17-66%; silver metallurgical recoveries from 14-16%; and pit slope angles of 45º.
- Mineral Reserves are reported using a cut-off grade of 0.16 g/t AuEq, except for material scheduled for mining in 2021 that is reported using a cut-off grade of 0.13 g/t AuEq.
- Mineral Reserves do not have additional dilution. Full mine recovery is assumed.
- The selective mining unit was sized at 6 m x 6 m x 6 m.
- Totals may not add up due to rounding.
- The # symbol indicates that the value is below the rounded value of 1.

Factors that may affect Mineral Reserves include:

- Changes in metal prices and exchange rate assumptions;
- Geotechnical conditions and mining recovery assumptions;
- Metallurgical recoveries;
- Changes to design parameter assumptions that pertain to the optimized pit design that constrains the Mineral Reserves;
- Ability to obtain or maintain land agreements;
- Operating cost estimates;
- Changes in the assumed permitting and regulatory environment;
- Changes in taxation conditions;
- Changes in cut-off grade.

1.14 Mining Methods

The San Agustin mine is a relatively low-grade gold deposit that benefits from a low strip ratio and disseminated mineralization that is amenable to bulk mining activities and good heap leach recoveries. San Agustin is a contract–operated mine and Owner–operated process facility using conventional equipment and conventional mining methods.

There are seven mine phases remaining in the LOM plan. Phase designs were largely driven by the effective mining widths and the influence of the designs on access to the mineralization. The same design parameters used in the final pit design were incorporated into the phase designs.

The final pit dimensions will be approximately 1.6 km long (east-west) by 1.1 km wide (north-south) and up to 140 m deep. The final pit contains approximately 36.6 Mt of ore and 28.7 Mt of waste for an overall strip ratio of 0.78 (waste:ore) including mining dilution and ore losses applied in the mine schedule. Production is expected to be limited to 11 Mt/year of ore over the course of the mine life. As a result, it is expected that 344 koz will be placed on the heap leach pad from August 2021 through the end of 2024 for a mine life of 3.5 years.

The mining method consists of traditional drill-and-blast operations followed by excavator loading of rigid-body haul trucks (100 t class) for ore transport to the crusher and waste transportation to designated waste rock storage facility (WRSF) locations.

Approximately 16.7 Mm^3 of waste storage space was defined outside the current and future mine phases which will accommodate approximately 30 Mt of waste.

SRK Consulting (U.S.) Inc. (SRK) conducted a conceptual-level geotechnical investigation and endorsed the mine designs proposed for San Agustin at a conceptual-level and stated their opinion that because the pit is shallow, future adjustments to the assumed 45º pit slope will result in minor changes in stripping requirements.

The mine production schedule was created by Argonaut staff. Only the annual ore and waste accumulations were reported, but consistent ore feeds to the heap leach pad were inherent in the production schedule so ore exposure is not a major risk to production. Argonaut conducted a grade cut-off analysis to eliminate marginal ore from the mine plan and the mine plan schedule was developed using a cut-off of 0.16 g/t AuEq.

Table 1-4 illustrates the projected LOM schedule that forms the basis of the Mineral Reserves estimate.

Table 1-4: Annual Production Schedule

Period	Proven and Probable Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Contained Au Ounces (000's)	Contained Ag Ounces (000's)	Waste Tonnes (000's)	Total Tonnes Mined (000's)	Strip Ratio (w:o)	Production Rate (000's t/d)
2021[1]	4,507	0.26	8.58	37	1,243	2,704	7,212	0.60	47
2022	10,968	0.30	6.82	105	2,406	6,413	17,381	0.58	48
2023	10,977	0.30	6.15	106	2,171	11,745	22,722	1.07	63
2024	10,113	0.30	15.38	96	5,000	7,822	17,935	0.77	55
Total	**36,565**	**0.29**	**9.20**	**344**	**10,821**	**28,685**	**65,250**	**0.78**	**54**

(1) August 1, 2021 through December 31, 2021

The mine fleet is contract-operated and includes Caterpillar 777 size haul trucks and Cat 992 class front-end loaders. A suitable heavy equipment lowboy facilitates the movement of equipment within the San Agustin Project.

1.15 Recovery Methods

San Agustin processes 30,000 t/d of crushed (P_{80} 22 mm) and belt agglomerated ore stacked onto a conventional single use leach pad. Solutions are treated with a single gravity cascade carbon column train of five columns with ten tonnes of carbon each. Loaded carbon is shipped to Argonaut's La Colorada mine for carbon stripping and carbon regeneration. The stripped carbon is returned to site for re-use.

The ore characteristics are very consistent in general, and over time.

Some agglomeration was proven to be needed at San Agustin and cement was used (with the exception of 2019) as required until April of 2021 when the cement was replaced with a synthetic polymer agglomeration aid. By all reports there were no percolation problems since using the polymer.

Realized gold recovery is 59.9% against the assumed endpoint recovery of 65% (from testwork) of the gold stacked to date. Realized silver recovery (7.8%) was lower than what would be otherwise possible (15.9% endpoint recovery) from the stacked silver to date due to poor silver recovery in the carbon adsorption plant and lower levels of sodium cyanide in the leach solutions (both intentional to favor gold recovery), and insufficient leach times. This led to a relatively high booked silver inventory. However, the recent addition of a Merrill-Crowe plant in November 2020 and continued leaching will lead to increased silver recovery ultimately in line with the expected endpoint recovery.

Overall, with respect to gold recovery, reagents usage, and stated gold inventory estimates, San Agustin performed consistently in line with expectations based upon metallurgical testwork and is well within industry norms and benchmarks for similar types of operations. In 2022, Argonaut plans to connect to the main power grid.

1.16 Project Infrastructure

The Project has well established infrastructure in place including an open pit mine, explosives storage, a crushing plant, a cyanide heap leach pad, a carbon gold recovery plant, reagent storage, waste rock storage facilities, a truck shop and warehouse, a sample preparation laboratory and atomic absorption gold analysis laboratory, offices for administration, operations, and technical services, change and dining facilities, water tanks, and various access roads.

A north access road primarily serves to connect San Agustin to the El Castillo mine. The distance between the two operations is approximately 11 km.

All power requirements for process, crushing, laboratory, security, and office facilities are provided by diesel-powered generators. Fuel supplies for mining, processing and other requirements are supplied by contractor from Durango. Diesel fuel is stored on site in a 250,000 L storage tank. A gasoline storage facility of 15,000 L capacity provides fuel for light vehicles.

Water supply is predominately for in-process use with minor volumes for dust control, construction, and potable uses. The make-up solution (fresh + recycled) required by the heap leach system is met from several potential sources including solution previously stored in the emergency event solution ponds and well water and/or water from pit dewatering. Raw water for the Project is pumped directly from water wells to raw water tanks with a volume of approximately 42,000 m^3.

1.17 Environmental, Permitting and Social Considerations

1.17.1 Environmental Considerations

Argonaut conducted baseline studies for water, biodiversity, climate, geohydrology, geology, geomorphology and soil characterization, mining waste geochemistry, and social-economic aspects. Baseline monitoring was conducted as part of the environmental impact assessment process. Baseline monitoring included physical and biological elements: water, climate, hydrology, soil and geomorphology, geology, and biodiversity.

Argonaut conducts geochemical characterization programs to evaluate the environmental stability of the Project waste rock and leached ore. The geochemical test program indicated that neither the waste nor the ore was expected to be acid generating or solubilize metals in amounts that exceed Mexican standards.

The Project design includes a zero-discharge process for ore treatment, therefore no process solutions are discharged or released to the environment. Sewage water is treated using septic systems. Emissions, smoke, dust, and noise emissions occur at the Project. Machinery and equipment operation during the different phases of the Project result in smoke and noise emissions. Ore and waste rock haulage, road operations and vegetation clearing are the main activities that generate dust emissions. Considering operations at San Agustin, the level of emissions is not significant, as they occur in an open and wide space. Hazardous and non-hazardous waste management infrastructure is included at the operation to collect, transfer, and store the different types of waste that will be generated by the operation.

1.17.2 Water Management

The San Agustin mine is a zero-discharge operation, using lined process water ponds and ditches to convey cyanide solutions to and from the heap leach pads. Sewage water is treated using septic tanks. Stormwater is managed through facility-specific diversion ditches, as necessary.

Process water is recirculated within the operations for ore leaching. Additional make-up water is obtained though authorizations from the Water National Commission (CONAGUA).

1.17.3 Closure and Reclamation Planning

An Asset Retirement Obligation (ARO) was prepared by Argonaut in December 2020 to define the closure liabilities associated with the San Agustin mine. The ARO includes descriptions of the closure and reclamation approaches, unit areas, and general unit rates. The total costs for closure and reclamation of the site (including a 10% contingency) were estimated at US$5,750,000.

1.17.4 Permitting Considerations

Argonaut holds all permits required to allow mining and processing operations. Argonaut has three environmental impact authorizations and two land use change authorizations for the Project.

Argonaut regularly extends permits and authorizations prior to their expiration dates that are required to sustain ongoing mining and processing operations.

1.17.5 Social Considerations

Surface access agreements were negotiated with the ejidos of San Agustin and San Lucas de Ocampo Agrarian Community, which hold surface rights in the Project area.

Argonaut is active in the region supporting the communities influenced by the San Agustin mine and relations with the communities are good. Argonaut implemented social programs including academic scholarships, water reservoirs, agricultural support program for local farmers, community roads maintenance, employment programs, food baskets, and support to cultural and sports activities.

1.18 Markets and Contracts

Gold markets are mature, global markets with reputable smelters and refiners located throughout the world. Demand is presently high with prices for gold showing an increase during the past year. Markets for doré are readily available. There is a reasonable basis to assume that for the LOM plan, the doré market will remain readily accessible.

Assumed prices for estimation of Mineral Reserves was based on the long-term outlook for gold and silver. Argonaut uses the three-year trailing average of gold prices along with consensus long-term forward-looking estimates from a consortium of banks and industry analysts. As of August 24, 2021, the three-year trailing average for gold was US$1,590/oz. Forward looking consensus estimates through 2024 were US$1,780/oz Au. A gold price of US$1,500/oz and a silver price of US$20.00/oz were used for estimation of Mineral Reserves.

Higher metal prices of US$1,800/oz Au and US$24.00/oz Ag were used for the Mineral Resource estimates to ensure the Mineral Reserves are a sub-set of, and not constrained by, the Mineral Resources, in accordance with industry-accepted practice.

San Agustin is a contract mining operation with an Owner-operated process facility. Contracts are entered into with third parties, where required, covering aspects such as mining, diesel, fuel, oils, lubricants, drilling, explosives and blasting, and catering.

1.19 Capital Cost Estimates

The San Agustin mine has been in operation since 2017 and all the primary plant equipment are in place. Future capital LOM items related to this Project were considered sustaining only for the current LOM. Argonaut estimated capital costs from 2022 through to the end of the LOM at US$9.7 M. These costs are primarily required for equipment maintenance at the process facilities, light vehicles, and land acquisition. Mining equipment is supplied by contractors and therefore not capital to Argonaut.

1.20 Operating Cost Estimates

Operating cost estimates are based on actual operating data refined where necessary to incorporate future operating forecasts (Table 1-5). Operating costs within each category include labour, consumables, power, fuel and lubricants, routine maintenance parts, and all other direct operating expenses. Operating costs do not include major component replacement and major maintenance costs that are capitalized.

Mining operations were estimated using existing contracts. The LOM average mining cost is estimated at US$1.66/t moved. Crushing and conveying and leaching costs are based on historic performance and the projected ore feed through the process.

Selling costs include plant costs as well as the cost associated with transporting the doré bars to market and fees incurred in the sales, including refining charges and metal deductions.

Table 1-5: LOM Operating Cost Summary

Description	**LOM (US$/t ore)**
Open Pit Mining	2.33
Crushing & Conveying	1.04
Processing & leaching	2.33
Selling	0.30
G&A	0.49
Total Operating	**6.49**

1.21 Economic Analysis

Argonaut is using the provision for producing issuers whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material production expansion is planned.

Mineral Reserve declaration is supported by a positive cashflow.

1.22 Risks and Opportunities

Opportunity may exist regarding the processing of sulphide material, although at current production crush sizes, metal recoveries are demonstrated to be quite low from all testwork to date. The argillically altered sulphide material had the highest gold recovery, in the range of 30%. Blending of this material with oxide material could be considered if economic evaluations prove favorable. Finer crushing may improve gold recovery and could also be investigated.

Environmental tests should also be conducted to evaluate the long-term effects of processing this material by heap leaching.

1.23 Interpretation and Conclusions

Under the assumptions used in this Report, the LOM plan for the San Agustin mine is supported by a positive cashflow, which supports the Mineral Reserve statement.

1.24 Recommendations

The QPs for the San Agustin Project recommend that Argonaut conduct an oxide mine development program and a sulphide Mineral Resources development program. The two programs are not dependent on results from the other and can be conducted concurrently.

The oxide mine development program should consist of deep infill drilling in the main oxide mineralized zone, step-out drilling along several mineralized areas at the perimeter of the pit, land acquisition to the southwest and west of the planned pit, a geotechnical study to support mine planning, and additional density determinations of oxide material types. The oxide mine development programs are estimated to cost approximately US$1,270,000.

The sulphide Mineral Resources development program should include further metallurgical testwork, humidity cell tests to determine the acid generation potential of the sulphide material, and density tests on sulphide samples. The sulphide Mineral Resources development programs are estimated to cost approximately US$560,000.

2.0 INTRODUCTION

2.1 Introduction

Mr. Brian Arkell, Mr. Josh Carron, and Mr. Carl Defilippi prepared this technical report (the Report) on the San Agustin Gold/Silver Mine (the San Agustin mine or the Project), located in the State of Durango, Mexico approximately 100 km north of the city of Durango. The San Agustin mine is owned and operated by Minera Real del Oro, S.A. de C.V. (MRO), which is a subsidiary of Argonaut Gold Inc. (Argonaut).

2.2 Terms of Reference

The Report provides information on Mineral Resource and Mineral Reserve estimates and mine and process operations and planning for the San Agustin mine.

The metric system has been used throughout the Report. All currency is in United States dollars (US$) unless otherwise stated. The Report uses Canadian English.

Mineral Resources and Mineral Reserves are reported in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (May 2014; the 2014 CIM Definition Standards) and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2019; 2019 CIM Best Practice Guidelines).

2.3 Qualified Persons

The following served as the Qualified Persons (QPs) as defined in National Instrument 43-101, Standards of Disclosure for Mineral Projects, and in compliance with Form 43-101F1:

- Mr. Brian Arkell, RM SME, Vice President Exploration and Mine Technical Services, Argonaut;
- Mr. Josh Carron, RM SME, Senior Resource Modeler, Argonaut;
- Mr. Carl Defilippi, RM SME, Project Manager at Kappes, Cassiday & Associates.

2.4 Site Visits and Scope of Personal Inspection

Mr. Brian Arkell is employed by Argonaut as the Vice President of Exploration and Mine Technical Services since 2018. He is currently based at Argonaut's corporate office in Reno, Nevada and regularly visits the mine site. His most recent site visit was from 20 to 22 July 2021. During his site visits, he inspected the mine, process facilities, and the general site infrastructure, and reviewed the safety and environmental compliance.

Mr. Josh Carron is employed by Argonaut as a Senior Resource Modeler since 2019. He is currently based at Argonaut's corporate office in Reno, Nevada and regularly visits the mine site. He most recently visited the Project from 9 to 12 September 2019. During the site visit he inspected the onsite assay laboratory, reviewed reverse circulation (RC) chips and drill core, toured the mine, and reviewed blast hole sampling and mapping procedures.

Mr. Carl Defilippi visited the Project on 15 July 2014. During his 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 Project.

2.5 Effective Dates

The following effective dates are noted:

- Mineral Resource estimate: August 1, 2021;
- Mineral Reserve estimate: August 1, 2021.

The overall Report effective date is the date of the Mineral Reserve estimate, which is August 1, 2021.

2.6 Information Sources and References

Reports and documents listed in Section 2.7 and Section 27 of this Report were used to support preparation of the Report.

Table 2-1 lists Argonaut employees at the El Castillo mine that contributed to various aspects of the Report under the supervision of the QPs.

Table 2-1: Mine Employee Information Sources

Name	Job Title	Years Experience with the Project
Everardo Morga	Chief Metallurgist	2
Arturo Navarro	Chief Geologist	7
Guadalupe Navarro	Senior Resource Modeler	1
Xochitl Valenzuela	Director Technical Services & Mine Planning	6
Nahum Zavala	General Manager	4

Information pertaining to surface rights, royalties, environmental, permitting, and social considerations, marketing, and taxation were sourced from Argonaut experts in those fields as required.

2.7 Previous Technical Reports

Argonaut filed the following technical reports on the Project:

- Lechner, M., Tinucci, J., Swanson, B., Olin, E., Osborn, J., and Willow, M.A., 2018, NI 43-101 Technical Report on Resources and Reserves, El Castillo Complex, Durango, Mexico: report prepared for Argonaut Gold Inc.
- Defilippi, C.E., Lechner, M.J., and Rhoades, R., 2016, Technical Report and Updated Preliminary Economic Assessment, San Agustin Heap Leach Project, Durango, Mexico: report prepared for Argonaut Gold Inc.
- Defilippi, C.E., and Lechner, M.J., 2015, Technical Report and Preliminary Economic Assessment, San Agustin Heap Leach Project, Durango, Mexico: report prepared for Argonaut Gold Inc.
- Lechner, M.J., Defilippi, C.E., 2014, Oxide Resource Estimate, San Agustin Project, Durango, Mexico: report prepared for Argonaut Gold Inc.

Prior to Argonaut's acquisition of the Project, there were four technical reports filed on the Project:

- Arseneau, G., Maunula, T., Wells, P., 2009, San Agustin Resource Estimate - May 2009: report prepared for Silver Standard Resources Inc.
- Arseneau, G., Maunula, T., Wells, P., 2008, San Agustin Resource Estimate - December 2008: report prepared for Geologix Explorations Inc.
- Arseneau, G., Maunula, T., Wells, P., 2008, San Agustin Resource Estimate - July 2008: report prepared for Geologix Explorations Inc.
- McCrea, J.A., 2006, Technical Report on the San Agustin Property: report prepared for Geologix Explorations Inc.

3.0 RELIANCE ON OTHER EXPERTS

This section is not relevant to this Report.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Property Location

The San Agustin property is located in the northern San Lucas de Ocampo District in the State of Durango, 4 km north of the village of San Agustin de Ocampo and approximately 100 km north of the city of Durango. The Project is located at the approximate latitude and longitude coordinates: 24° 47' 21'' North latitude and 104° 36' 8'' West longitude. Figure 4-1 shows the location of the San Agustin property and the location of Argonaut's other mines in Mexico: El Castillo and La Colorada. El Castillo and La Colorada are shown for illustrative purposes and are not included in this Report.

Figure 4-1: Property Location Map

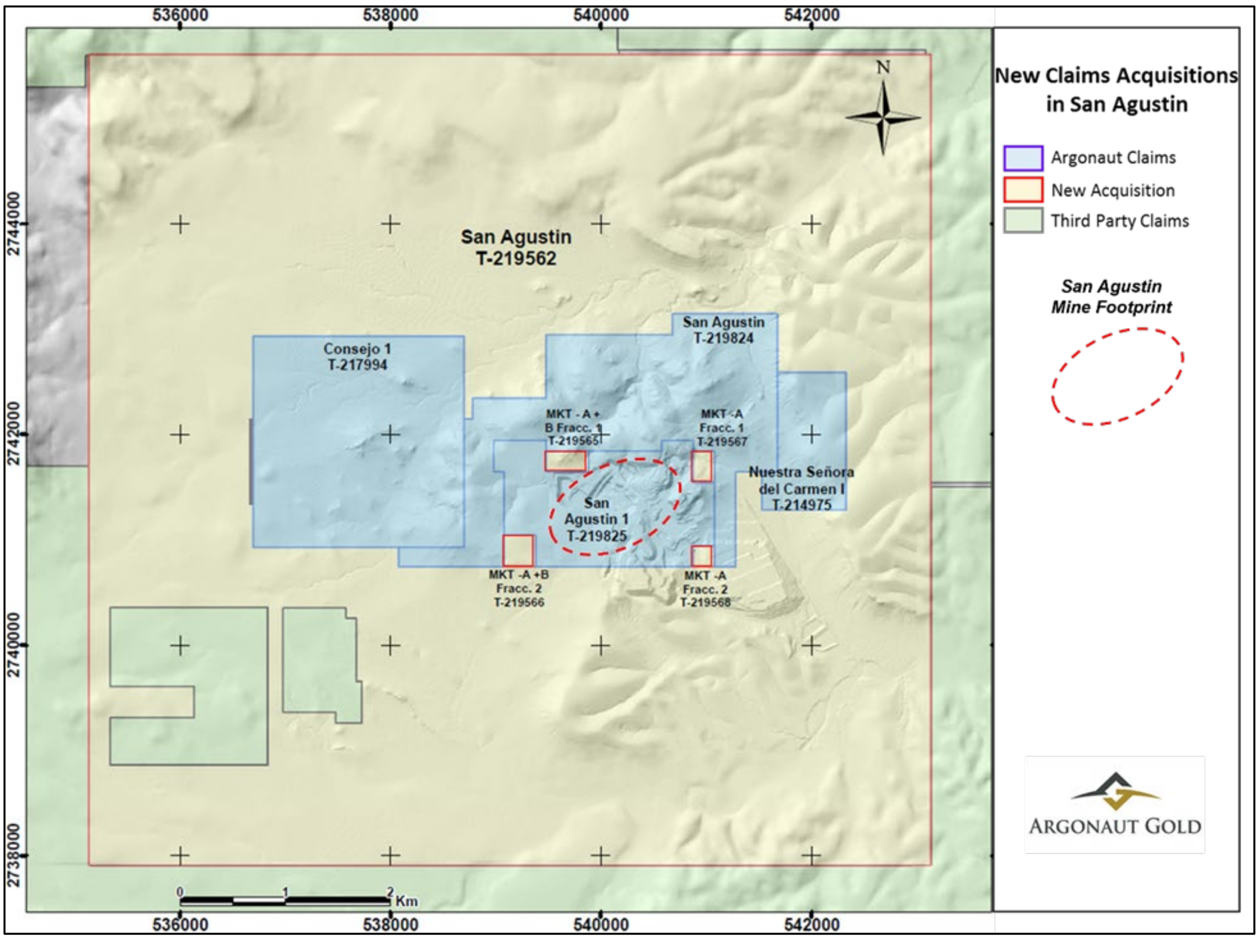
Note: Figure prepared by Argonaut, 2021

The San Agustin mine is owned and operated by Minera Real del Oro, S.A. de C.V., an Argonaut subsidiary.

4.3 Mineral Tenure

In Mexico, mineral rights can be held by private parties through mining concessions granted by the federal government via the Mines Directorate of the Ministry of Economy. The San Agustin Project consists of 5,884 ha in nine mineral concessions (Figure 4-2). Table 4-1 lists the claims and title numbers of the concessions for the Project.

Figure 4-2: Mineral Concession Map



Note: Figure prepared by Argonaut, 2021

Table 4-1: Project Mineral Concessions

Claim Name	Title Number	Expiry Date	Area (Ha)	Location
Nuestra Señora del Carmen I	214975	22/01/2052	90	Durango, Mexico
Consejo 1	217994	29/09/2052	400	Durango, Mexico
San Agustin	219824	21/04/2053	373	Durango, Mexico
San Agustin 1	219825	21/04/2053	203	Durango, Mexico
San Agustin	219562	13/03/2053	4,791	Durango, Mexico
MKT-A+B Fracc.1	219565	13/03/2053	8	Durango, Mexico
MKT-A+B Fracc.2	219566	13/03/2053	6	Durango, Mexico
MKT-A Fracc.1	219567	13/03/2053	9	Durango, Mexico
MKT-A Fracc.2	219568	13/03/2053	4	Durango, Mexico

Current mining operations and the Mineral Resources and Mineral Reserves presented in this Report are located within the Project mineral concessions.

As per Mexican requirements for grant of tenure, the concessions were surveyed on the ground by a licensed surveyor.

All applicable payments and reports were submitted to the relevant authorities, and the licenses were in good standing as at the Report effective date.

4.4 Royalties, Agreements and Encumbrances

All mining concessions at the San Agustin mine are owned 100% by MRO. The San Agustin concessions are not subject to any royalties on the oxide Mineral Resources, but Silver Standard Resources Inc. (Silver Standard) holds a 2% net smelter return (NSR) royalty on any sulphide mineralization that may be developed in the future. There are no other known royalties, back-in rights, payments, or agreements and encumbrances to which the concessions are subject.

In 2013, the Mexican Federal government introduced a mining duty in the Federal Ley de Derechos. Effective January 1, 2014, the duty functions similar to an income tax collecting 7.5% of taxable earnings before interest and depreciation. In addition, precious metal mining companies must pay a 0.5% duty on revenues from gold, silver, and platinum.

4.5 Surface Rights

Surface rights in Mexico are separate from mineral rights. Under the mining law, mining rights holders have the right to use and access areas that are planned for exploration or exploitation.

Argonaut owns 207 ha of surface rights at San Agustin held by MRO. An additional 218 ha are held under agreements with two local ejidos and an individual landowner (Table 4-2). Argonaut will need to purchase or lease surface rights in the southwest portion of the mine in order to complete the final layback in Phase 4.

Table 4-2: Surface Rights

Land Owner	Area (ha)	Signing Date	Term (years)	Expiration Date
Argonaut (MRO)	207	July 15, 2016	N/A	N/A
San Agustin de Ocampo	90	May 19, 2015	18	May 18, 2033
San Lucas de Ocampo	120	May 09, 2015	18	May 08, 2033
Rene Graciano	8	December 12, 2018	15	December 11, 2033

4.6 Water Rights

The Project maintains a single underground water right totaling 1,000,000 m^3/year, and a water discharge permit in the amount of 1,100 m^3/year. Additional information on water usage is provided in Section 20.7.

4.7 Permitting Considerations

The legal framework for Project permitting, and the status of authorizations for the San Agustin mine are detailed in Section 20. The mine holds the necessary permits and authorizations to conduct operations.

4.8 Environmental Considerations

Current environmental liabilities associated with the San Agustin mine consist principally of the on-the-ground reclamation obligations for the current disturbance within the operational footprint.

Additional information on the environmental considerations for the Project are included in Section 20.

4.9 QP Comments on "Item 4; Property Description and Location"

To the extent known to the QP, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the Project that are not discussed in this Report. Argonaut will need to purchase or obtain an access agreement to mine a small portion the final Phase 4 pit; this is in progress with reasonable expectation of obtaining it before mining this area.

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

5.1 Topography, Elevation and Vegetation

The San Agustin mine area 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 1,875 m above mean sea level (mamsl) in stream gullies to near 2,000 mamsl in areas of highest relief. The elevation of the area containing the bulk of the known mineralization ranges from 1,550 to 1,950 mamsl. Numerous intermittent streams bisect the landscape and drainage is fan-like away from the higher hills on the San Agustin Project. Locally, drainages are 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.

5.2 Accessibility

Initial access to the Project can be gained via paved Highway 45 for 90 km north from the city of Durango to San Lucas de Ocampo. The 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 Argonaut's concession areas.

5.3 Climate

The Project is situated in a zone classified as semi-dry and receives an average annual rainfall of 550.5 mm. The climate is temperate with an average annual temperature of 18°C; maximum temperatures reach 35°C and minimum temperatures reach 2°C. The region averages 17 frost events per year beginning in October and extending to April. The dominant wind direction is from northwest to southeast. The rainy season is from June to August, while minimal rainfall occurs from September to May.

Mining operations are conducted year-round.

5.4 Local Resources and Infrastructure

The village of San Agustin de Ocampo is located about 6 km from the mine and has a small supply of unskilled labour (±150 inhabitants). The town of San Juan del Rio is located approximately 15 km from the mine and has a slightly larger supply of unskilled labour (±2,500 inhabitants), as well as a limited supply of housing. Some basic supplies are available in San Juan del Rio while most supplies and some contractors for construction and mining are available in Durango. Durango is a major regional population centre with approximately 600,000 inhabitants.

Project infrastructure is discussed in more detail in Section 18. The local resources and infrastructure are adequate to support the current mining operation.

5.5 QP Comments on "Item 5; Accessibility, Climate, Local Resources, Infrastructure, And Physiography"

In the opinion of the QP, the existing local infrastructure, availability of staff, and methods whereby goods could be transported to the Project area are well-established and well understood by Argonaut and can support the declaration of Mineral Resources and Mineral Reserves.

6.0 HISTORY

6.1 Pre-1996 History

The central area of the San Agustin Project (San Agustin 1 concession) has a documented exploration history of about 30 years. A few small adits, shafts, and pits focusing on narrow veins are situated throughout the area, but actual mining was very limited.

Consejo de Recursos Minerales (CRM), a division of the Mexican government, conducted exploration in the south and west parts of the Consejo 1 concession in the 1980's. This work focused entirely on the evaluation of narrow high-grade veins. Their work included drilling 4,339 m in 35 drill holes. Only paper copies and maps are available from this work and none of these data were used in Mineral Resource or Mineral Reserve estimation.

6.2 Monarch (1996 - 1999)

In late 1996, Monarch Mining Corporation (Monarch) acquired the Project. La Cuesta International Inc. (La Cuesta), working on behalf of Monarch, conducted exploration in 1996. Their surface work defined a distinct gold anomalous zone over a 1.5 km^2 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 core 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 drill holes totaling 5,651 m were completed. Monarch relinquished the Project in 1999.

6.3 Silver Standard (2002 - 2013)

In December 2002, Silver Standard located the 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 by a RC drilling program that consisted of 23 drill holes totaling 3,917 m. Most of this work was focused on better defining higher grade areas originally identified by Monarch.

In August 2006, Silver Standard optioned the Project to Geologix Explorations Inc. (Geologix) who completed significant work (see Section 6.4). In February of 2009, Geologix returned the Project to Silver Standard. After Geologix terminated their lease option, Silver Standard took control of the Project but they did not carry out any additional field exploration on the Project.

6.4 Geologix (2006 - 2009)

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

- Completed 19.25 line km of induced polarization (IP) survey;
- Collected 135 soil samples;
- Collected 262 rock samples (grab and chip samples);
- Continuous chip sampling of 5,416.5 m in 25 trenches;
- Continuous chip sampling along 898.5 m of road cuts;
- Drilled 176 drill holes totaling 40,717 m;
- Systematically sampled 95 m of underground workings;
- Completed detailed geological and alteration mapping over 3 km^2;
- Re-logged earlier RC drill hole chip samples and drill core;
- Compiled all data into a unified computer database.

Geologix completed a Mineral Resource estimate in 2008.

6.5 Argonaut (2014 - 2021)

In December 2013, Argonaut purchased the Project from Silver Standard. During 2014 and 2015 Argonaut completed major programs of infill and metallurgical drilling.

After obtaining all necessary permits, Project development work started in early 2017, culminating in the announcement of commercial operational status as of October 1, 2017. The mine has been operated by Argonaut since October 2017.

Since 2018, Argonaut has completed annual drilling campaigns of infill and exploration drilling.

6.6 Production

Between 2017 and 2021, the San Agustin mine produced approximately 245,000 oz gold and 1,100,000 oz silver (Table 6-1).

Table 6-1: Production by Year

Year	Au (ozs)	Ag (ozs)
2017	10,302	45,100
2018	65,323	244,470
2019	61,842	219,463
2020	59,695	333,713
2021[1]	47,993	262,527
Total	**245,155**	**1,105,273**

(1) Production from January 2021 through September 2021

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The San Agustin Project is located in Northwest Mexico in the east flank of the Sierra Madre Occidental (SMO) 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 dated at 251 Ma ± 20 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 SMO is present in the area. The Lower Volcanic Complex (LVC) can be seen in the San Lucas de Ocampo area as agglomerates, tuffs, and andesitic flows. The Upper Volcanic Complex (UVC) consists of a sequence of rhyolite tuffs, crystal tuffs, and ash tuffs. Discordantly covering all previously mentioned lithological 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 SMO.

The most recent igneous unit observed is composed of Pleistocene vesicular basalt flows that cover some of the valleys southeast of the 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.

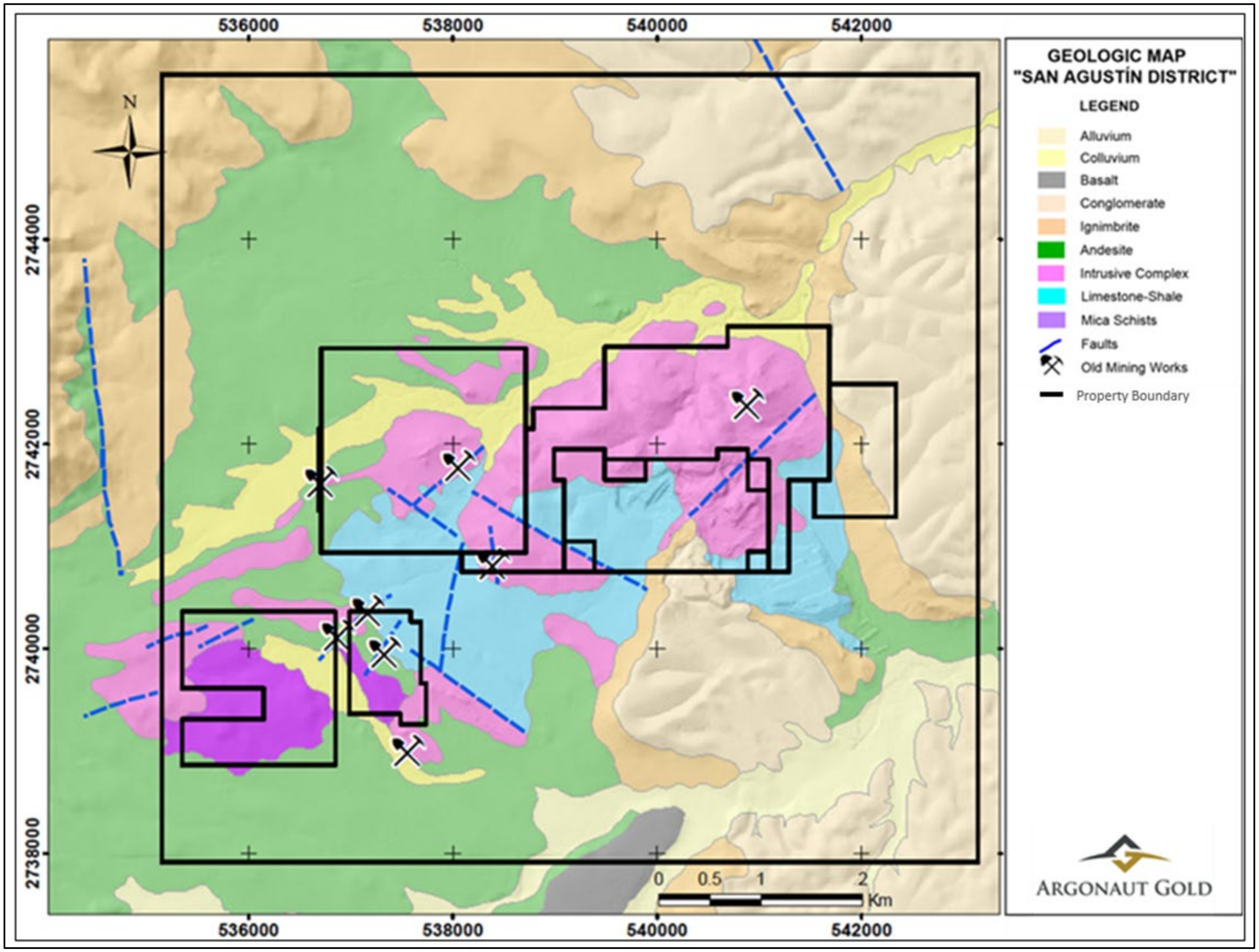
There is a widespread occurrence of a poorly consolidated conglomerate that fills wide valleys associated with basin-and-range extensional normal faulting. At the nearby El Castillo mine, drilling shows that the conglomerate is up to 200 m thick.

At both the El Castillo mine and San Agustin mine a quartz monzonite stock was dated at 48.5 Ma ± 0.5 Ma by U-Pb methods (Paz-Moreno, 2013). It has a phaneritic and glomeroporphyritic texture rich in plagioclase and feldspars.

In the area east of the El Castillo mine, a biotite-rich volcanic rhyolite dome was identified and dated at 41.3 Ma ± 0.5 Ma (Paz-Moreno, 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 Ma ± 0.5 Ma (Paz-Moreno, 2013). These tuffs are post mineral and correspond to the UVC of the SMO.

Figure 7-1 is a geologic map that shows the generalized geology surrounding the San Agustin mine.

Figure 7-1: Regional Geology of the San Agustin Area



Note: Figure prepared by Argonaut, 2021

7.2 Structure

Two main structural trends were 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 UVC rocks against the dacite dome and sedimentary rocks of the LVC. Definitive offsets have not been identified or recognized. Mineralization at the Project appears to be related to or associated with the northeast trending structures. The most obvious structure recognized on the Project 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 hanging-wall portion of the mineralization downward relative to the easterly footwall side of the fault. The relationship of this fault as it affects mineralization is discussed later in this Report.

All lithological units on the Project are fractured. A report documenting oriented core and outcrop data by Barclay (2007) confirmed the primary northeast-southwest and northwest-southeast trends as well as identifying additional fracture sets in north-south, east-west, and horizontal orientations. The trends identified are not all related to mineralization and fracture density cannot reliably be used to identify or weight gold-silver or base metal potential.

7.3 Project Geology

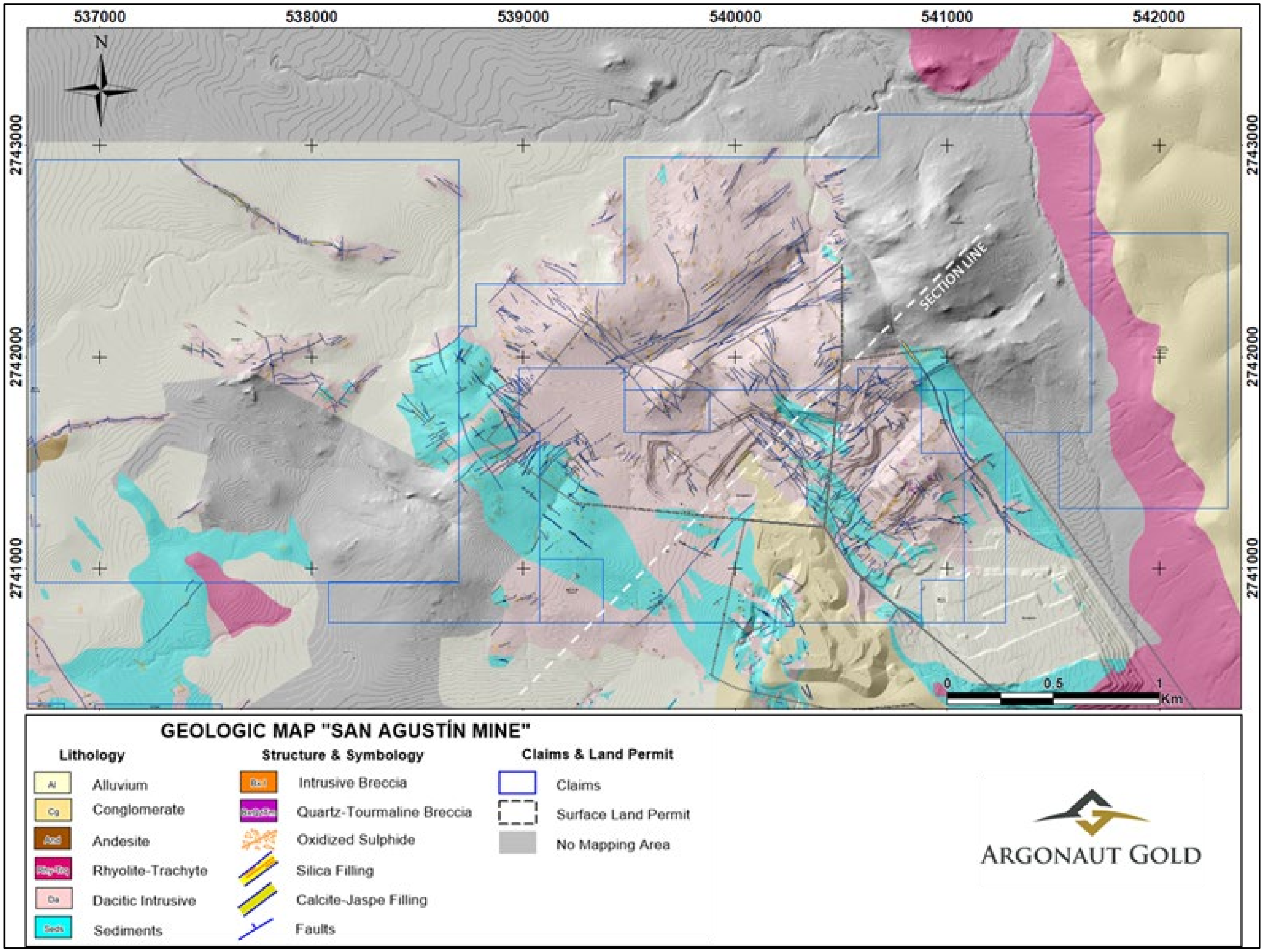
The area of known mineralization at the Project is dominated by an igneous, quartz monzonite dome complex intruding a clastic sedimentary sequence composed of shale, mudstone, and less abundant sandstone. Occasionally some calcareous layers are observed in the sedimentary sequence. Both the intrusive complex and the sedimentary sequence occur on a dominant northwest trend with sub-vertical dips. These two main units are unconformably covered by post mineral rhyolites of the SMO and younger conglomerates. Figure 7-2 is a geologic map of the San Agustin mine area showing three of the mineralized units (sedimentary rocks, dacite, and breccia). Younger surficial deposits (alluvium and conglomerate) are also shown. Significant northwesterly and northeasterly trending structures are shown in blue. The northeast-southwest trending section line shown in Figure 7-2 is the line of section for Figure 7-3, a representative cross section through the San Agustin mine.

7.3.1 Rock Types

7.3.1.1 Sedimentary Sequence

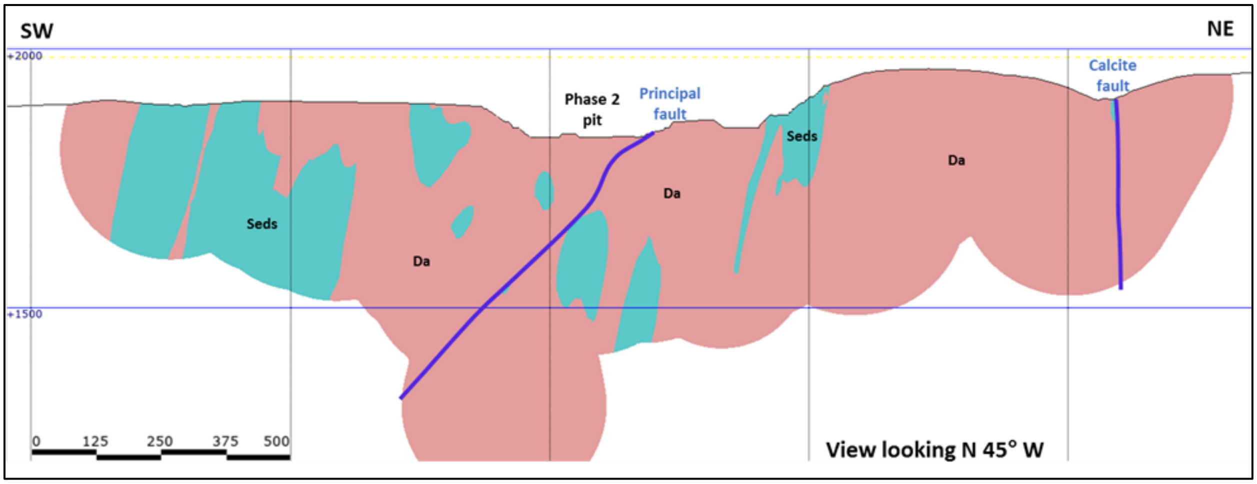
The flysch-type sedimentary sequence is composed of alternating shales, mudstones, and fine-grained sandstones with rare occurrence of calcareous horizons. These layers are thinly stratified and follow a northwest strike with sub-vertical dips. Folds can be observed in outcrop scale, with some folds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

Figure 7-2: Generalized Geologic Map of the San Agustin Mine



Note: Figure prepared by Argonaut, 2021

Figure 7-3: Generalized Geologic Cross Section of the San Agustin Mine



Note: Figure prepared by Argonaut, 2021

7.3.1.2 Quartz Monzonite

The quartz monzonite porphyry 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 the mine area. In more distal zones of the mineral system, alteration decreases but moderate propylitic alteration with chloritized biotite and hornblende is still present.

7.3.1.3 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 seriticized and has disseminated pyrite following flow bands. A petrographic study classified it as a subvolcanic flow of dacitic composition (Pérez- Segura, 2014).

7.3.1.4 Dacite Pebble Dikes

The dacite pebble dikes 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 metres 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 dikes are locally cut by mineralized structures.

7.3.1.5 Dacite Breccia

The dacite breccia represents some carapace-type breccias typically formed by flow fragments that were 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 sedimentary rocks 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.

7.3.1.6 Rhyolite

Although the rhyolite does not crop out within the main San Agustin Project area, it can be found northeast of the Nuestra Señora del Carmen I concession. This unit forms sub-horizontal bodies less than 1 m in thickness composed of welded rhyolite tuffs associated with hyper alkaline magmatism. These rhyolites are post SMO.

7.3.1.7 Conglomerate

The conglomerates are continental, 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 200 m thick and were deposited as fill material in the areas as basin-and-range associated valleys.

7.3.2 Mineralization

The host rocks for mineralization at San Agustin are quartz monzonite-dacite bodies and the sedimentary sequence they intrude. Mineralization is emplaced through a strong and widespread system of sulphide rich veins, veinlets, and fissure fillings that make the system similar to a disseminated deposit. Fracture systems follow two main project-scale trends that run northeast and northwest. Locally mineralization can be observed following lithological controls in the sedimentary rocks, especially where they run parallel to sediment-intrusive rock contacts. Mineralization is also observed in the flow facies of the intrusion 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 sulphide fracture filling. Epithermal boiling textures were 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 sulphide zones. Two late phases of mineralization were 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 mineralized 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 has higher silver and lead grades than the footwall block.

The sulphide boundary is located within a range of 30 m to 170 m below the surface with an average depth of about 65 m. The boundary is reached when the rock colour turns grey and disseminated pyrite becomes visible. The transition zone is commonly less than 1 m wide. The boundary's surface is undulating and erratic across the deposit, due to the many faults and fractures controlling ground water in the area.

7.3.3 Alteration

The predominant alteration type is phyllic alteration 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 and thought to be products associated with acid leaching of pyrite as opposed to hydrothermal alteration.

A phase of early potassic alteration was 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 mineralization.

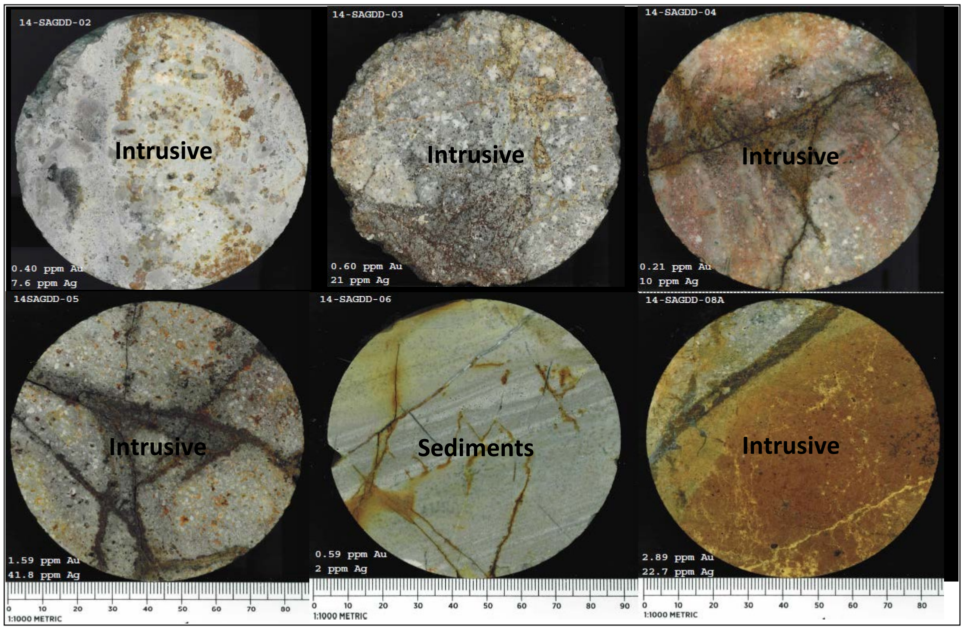
In the areas more distal to mineralization, the intrusion is typically phaneritic with a coarse porphyritic texture with only propylitic alteration shown by moderate chlorite replacement of ferromagnesian minerals.

Figure 7-4 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.

7.4 Deposit Descriptions

The San Agustin deposit is roughly 1,500 m long by 800 m wide. The average depth of oxide material is 65-100 m below surface. Gold mineralization is found along faults and fractures within the host igneous and sedimentary rocks and as disseminations in halos across the deposit. Sulphide mineralization extends, where drilled, down to an average depth of about 200 m with the deepest tested areas extending to 400 m below surface.

Figure 7-4: San Agustin Photographs of Mineralized Drill Core



Note: Figure prepared by Argonaut, 2017

8.0 DEPOSIT TYPES

8.1 Mineral Deposit Type

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 centre. This is supported by broad zones of potassic alteration that are overlapped by pervasive phyllic alteration; however, locally on the surface and in some drill holes, boiling textures, suggestive of an epithermal system do occur. Mineralization is mainly associated with pyrite that fills fractures, is disseminated, and occurs in the matrix of hydrothermal breccias. These form an extensive system of sulphide stockworks and disseminated mineralization dominated by pyrite.

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

San Agustin is interpreted to be a porphyry-style gold system related to Eocene aged intrusions emplaced into Cretaceous clastic and carbonate sedimentary rocks in an extensional tectonic setting. Gold mineralization occurs throughout the magmatic-hydrothermal system in space and time and is spatially related to early potassic development and an overprint of phyllic alteration. Supergene alteration, formed as a product of acid leaching, resulted in argillic-quartz alteration assemblages within the oxide zone of the deposit. The main gold event is associated with magmatic hydrothermal fluids corresponding to phyllic alteration. The gold system was overprinted by a younger structurally controlled epithermal system dominated by silver and zinc. The difference in style of mineralization from the nearby El Castillo deposit is possibly due to San Agustin having undergone less erosion than El Castillo thus preserving a larger volume of this late epithermal overprint. In support of this, late-stage high-level tourmaline breccias are prevalent at San Agustin but are not exposed at El Castillo.

In the near vicinity of the Project, the most similar mineral system is the El Castillo gold deposit, located only 11 km to the northeast. At the El Castillo mine the host rocks and style of mineralization are locally 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.

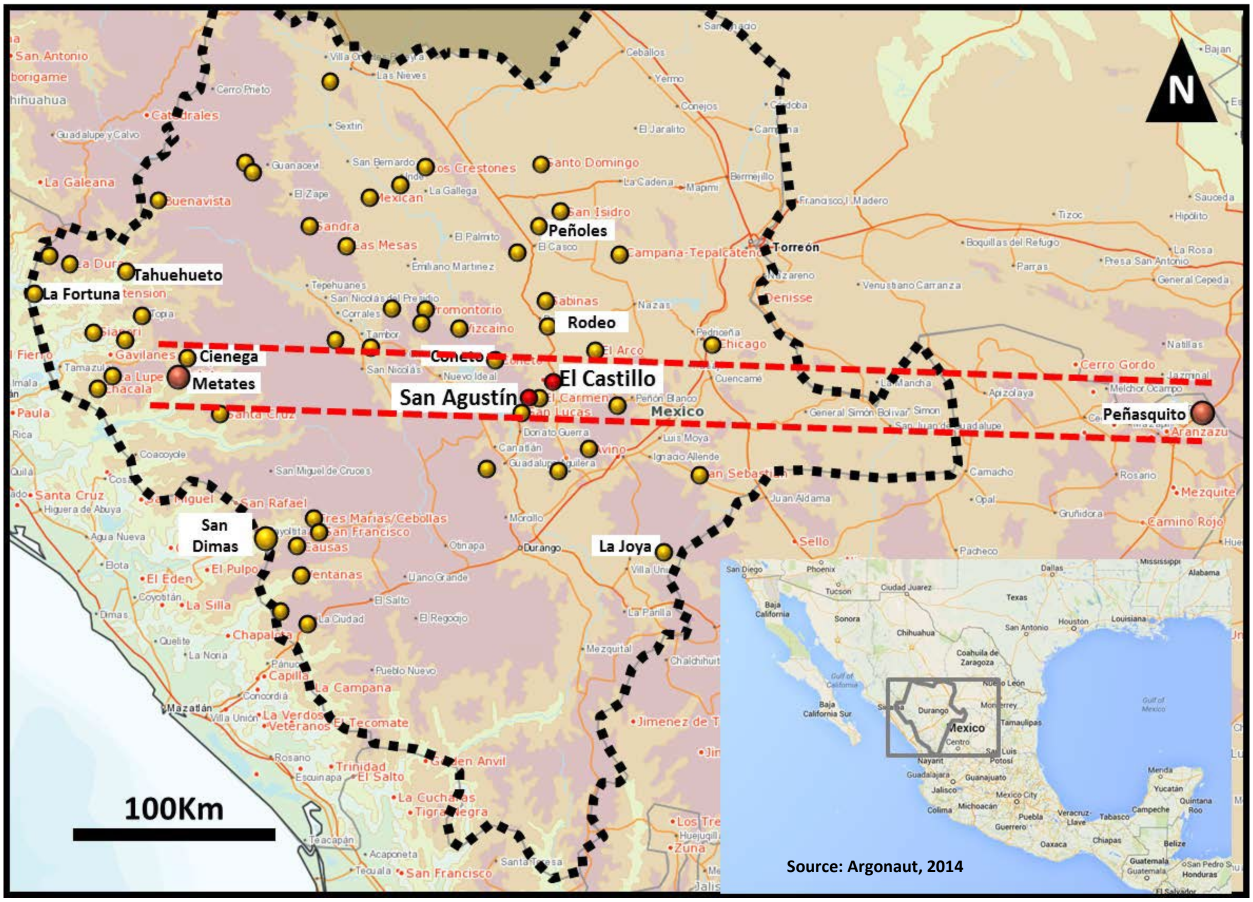
The Metates project has a number of similarities with San Agustin. Metates is located 180 km to the west near the town of San Juan de Camarones, also in the State of Durango. At Metates there is also a sequence of flysch type sedimentary rocks that could be correlated with the same sedimentary sequence 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, 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 8-1 is a regional map that shows a number of precious and precious/base metal deposits along the regionally extensive mineral trend that includes the San Agustin and El Castillo Projects. The dashed red lines define an east-west alignment of similar deposits.

Figure 8-1: Regional Mineral Deposits



Note: Figure prepared by Argonaut, 2014

8.2 QP Comments on "Item 8: Deposit Types"

The QP considers the use of a gold porphyry model for exploration programs is a reasonable basis for exploration targeting for gold mineralization in the Project area.

9.0 EXPLORATION

9.1 Legacy Exploration Work

Work conducted prior to Argonaut's Project interest is referred to as legacy programs.

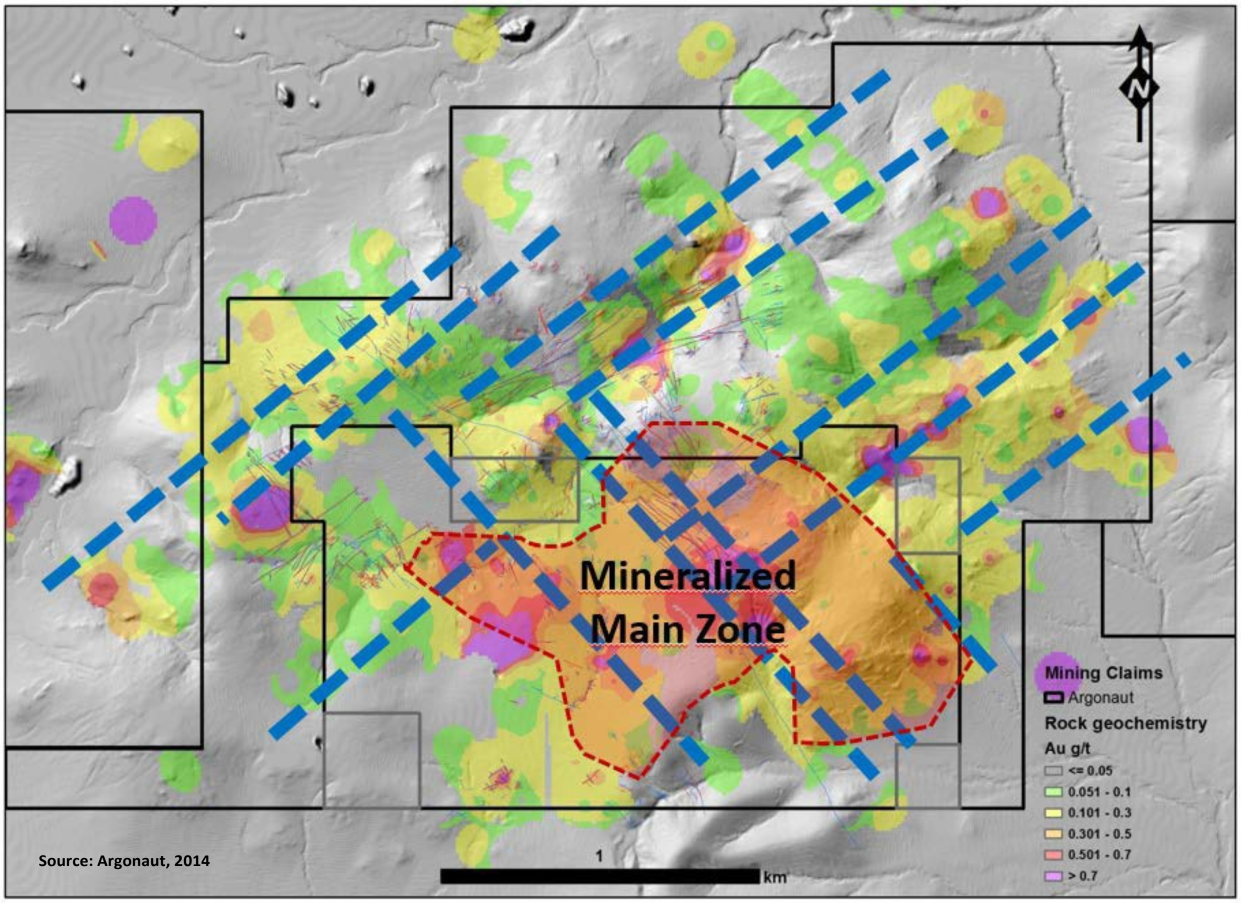
Legacy exploration work at San Agustin included extensive mapping, surface and underground geochemical sampling, trenching, and geophysical surveys. Table 9-1 summarizes the documented legacy exploration work conducted on the Project. The legacy exploration work was used to design exploration drill programs that led to the identification of significant zones of mineralization on the Project.

Table 9-1: Legacy Geochemical Sampling

Date	Description of Work
1980s	CRM completed 1:10,000 scale geological mapping, 283 m of trenching, the collection of 872 surface and underground channel samples, and 151 m of underground exploration including a 93 m deep shaft, 27 m of drift, 22 m of cross-cut, and 9 m of raise.
1996	La Cuesta collected 229 rock chip samples and 37 stream sediment samples while completing regional traverses of the area. Three well developed multi-element anomalies and two others were determined as areas of interest.
1997	Monarch surveyed and staked a total of 204 km of line. The grid was used for geological mapping and the collection of 3,214 soil samples and 209 rock chip samples. Samples were analyzed for Au, Ag, Cu, Pb, Zn, As, Sb, Hg, Bi and Mo by Bondar Clegg.
2003	Silver Standard completed a preliminary exploration program including rock chip sampling (1,257 samples) and detailed geological mapping.
2004	Silver Standard completed a follow up surface sampling and mapping program.
2006 - 2008	Geologix carried out an exploration program that included 19.25 km of IP survey, 135 soil samples, 262 rock samples, continuous chip sampling of 5,416.5 m in 25 trenches, continuous chip sampling of 898.5 m of road cuts, systematic sampling of 95 m of underground workings, and detailed geological and alteration mapping over 3 km^2.

Prior to 2014, Silver Standard and Geologix collected over 2,700 soil samples at the Project. Those samples were analyzed for gold and other elements. The data show the strongest gold-in-soil anomaly (>0.3 ppm Au) occurs in the main mineralized zone, but there is a lower strength anomaly (0.1 ppm Au) as a halo around the main zone that covers most of the San Agustin and San Agustin 1 concessions. On a Project scale, the anomalies appear to follow northwest and northeast structural trends that were identified by Argonaut through its geological mapping efforts. Figure 9-1 shows gold grade contours based on the soil sample assays collected by Silver Standard and Geologix. Significant northwest and northeast trending structures are shown by dashed blue lines.

Figure 9-1: Gold in Soil Geochemical Map



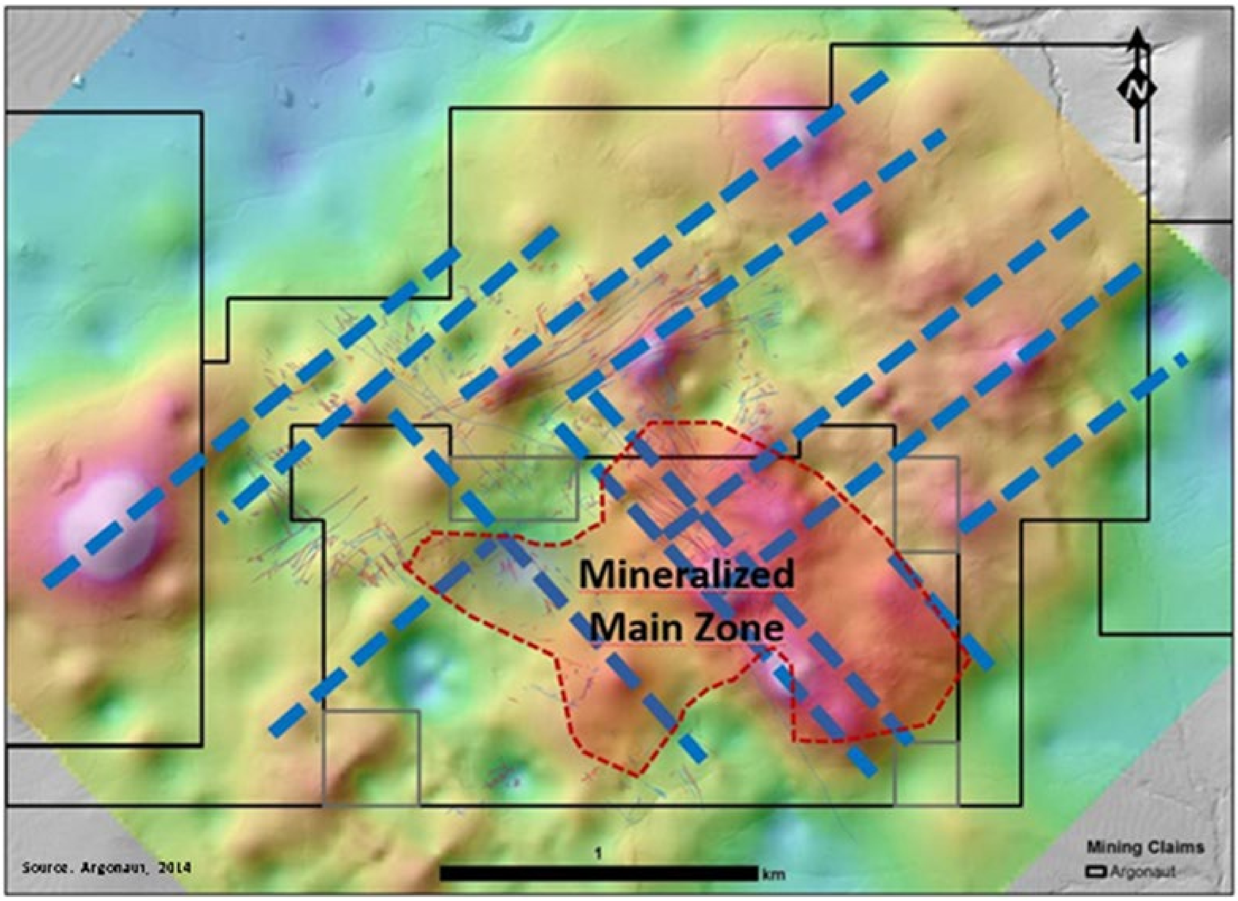
Note: Figure prepared by Argonaut, 2014.

Zonge International Inc. (Zonge) was contracted by Silver Standard in 2010 to conduct geophysical work. Several chargeability anomalies were observed and used as part of the information for targeting drill holes at the San Agustin Project. Figure 9-2 shows IP chargeability contours based on the Zonge survey. Warmer colours (red and orange) indicate higher chargeability that is thought to reflect sulphide conductors at depth. Significant northwest and northeast trending structures are shown by dashed blue lines.

9.2 Grids and Surveys

Since the acquisition of San Agustin, Argonaut has used the UTM Zone 13 coordinate system within the 1927 North American Datum for Mexico (NAD27 Mx). This coordinate system is used for all mapping and drill hole surveying.

Figure 9-2: Induced Polarization Chargeability Map



Note: Figure prepared by Argonaut, 2014.

9.3 Geological Mapping

Argonaut's surface work included detailed geological mapping over an area of approximately 330 ha. Mapping focused on structure, fracture density, alteration, and rock type. In the Project 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 mineralization system. Argonaut visited most of these small workings and mapped their locations and orientations.

9.4 Geochemical Sampling

Argonaut collected 939 rock chip samples from surface exposures. The samples represent continuous rock chips over an area averaging 1.5 m wide. When possible, sampling was done along 50 m to 100 m spaced sample lines that were oriented perpendicular to the main recognized structural trends. These samples were combined in the database with the existing surface rock samples that were collected by previous operators.

Handheld global positioning system (GPS) units were used to locate the surface rock samples. Outcrop exposure was variable along the sample lines and sample spacing varied because of this. Where there were good rock exposures, samples were taken approximately 3 m apart.

Argonaut's samples were tagged in the field with aluminum tags and sent to ALS Chemex Laboratories (ALS) for fire assay of gold and inductively coupled plasma (ICP) multi elemental assay (ALS method code Au AA-23 and ME-ICP 41). The samples were picked up by ALS directly on site and prepared in their laboratory in Zacatecas, Mexico. The samples were then sent for assay at ALS' Vancouver laboratory.

The results of the rock chip sampling program showed mineralization occurs in most of the San Agustin and San Agustin 1 concessions and is strongest in the Main Zone area (Figure 9-3). Gold was the most widespread anomalous element, followed by zinc. Silver and lead were more restricted to certain structural trends.

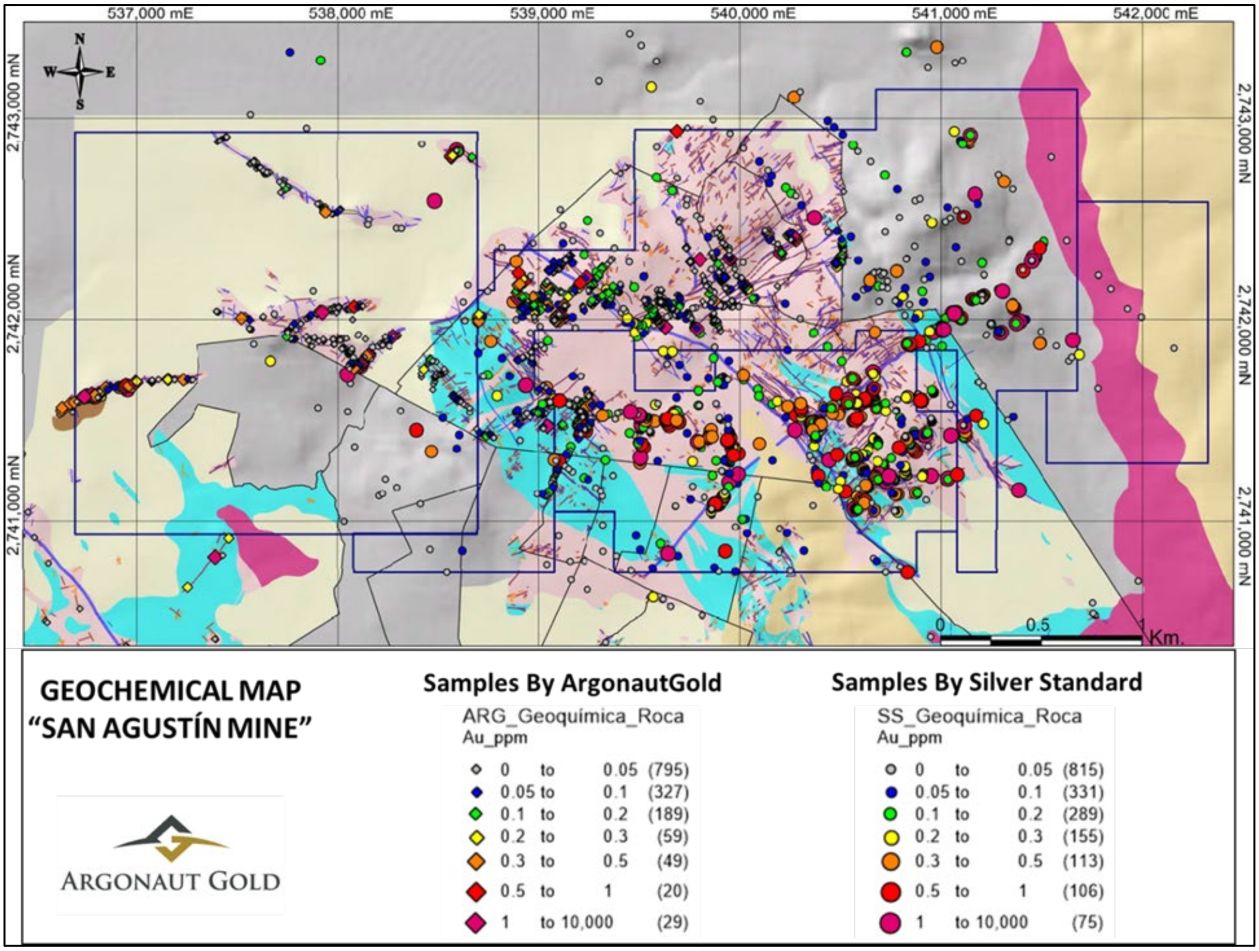
9.5 Exploration Potential

There are several exploration targets within the San Agustin Project. Near-mine targets include the northeast extension where mineralization is known to continue beyond the current ultimate pit plan. Similarly, the newly acquired MKT concessions to the northwest and the east (Figure 4-2) are known to contain gold and silver mineralization. Argonaut is currently drilling these areas, and results are expected in 2022. West and southwest of the current pit, mineralization appears to extend, and there are several anomalies including isolated drill holes with mineralization.

The large San Agustin concession (Figure 4-2) has not been explored in detail yet and there are areas of alteration and veins which appear to be mineralized.

The most important and highest potential target at San Agustin is the continuation of mineralization at depth below the planned ultimate pit. San Agustin is a large, deep-rooted porphyry system and sulphide mineralization is known to extend beyond current drilling. Argonaut is currently working on this target as an extension to the current pit, and there are deeper targets including areas of higher grade that warrant further exploration.

Figure 9-3: Rock-chip Geochemical Map



Note: Figure prepared by Argonaut, 2021

10.0 DRILLING

10.1 Drill Campaigns

Legacy drilling included multiple campaigns completed by Monarch, Silver Standard, and Geologix from 1997 to 2008, and totaled 54,592 m in 264 drill holes. Of this total, 162 drill holes were drilled using core tools for a total of 37,825 m, and 102 drill holes were drilled by RC methods for a total of 16,767 m. A summary of the legacy drilling completed at San Agustin is presented in Table 10-1.

Table 10-1: Legacy Drilling Programs

Year	Company	Drill Type	Number of Drill Holes	Number of Metres	Average Hole Length (m)	Drilling Contractor
1997	Monarch Phase I	RC	33	3,503	106.2	Boytec Sondajes
1997	Monarch Phase	Core	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	Core	8	2,700	337.5	Intercore Ltd.
2007	Geologix Phase II	Core	67	13,437	200.6	Intercore Ltd.
2008	Geologix Phase III	Core	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
Total	n/a	n/a	**264**	**54,592**	**n/a**	n/a

In 2014, Argonaut completed a total of 240 RC drill holes as part of a Phase 1 program totaling 24,765 m (Table 10-2). Argonaut also completed a metallurgical testwork drilling program in 2014 that included 13 core drill holes totaling 999 m. A Phase 2 drilling program completed in 2014 and 2015, totaling 66 drill holes and 9,456 metres, was positioned in areas of exploration potential located along a recognized northwest mineral trend outside the main mineralized zone.

In 2018, Argonaut completed a RC drilling campaign of 145 drill holes totaling 14,755 m. The goal of the program was to explore the northwest-trending mineralized bodies identified during 2014 and 2015. A 100 m by 200 m grid, oriented to evaluate a potential northeast-southwest trending mineralized corridor to the north of the main mineralized zone, was also drilled.

In 2019, Argonaut completed 25 RC drill holes with a total of 1,731 m, designed to infill areas of known mineralization. In 2020, Argonaut completed two additional stages of infill drilling. A total of 76 RC drill holes were completed totaling 3,795 m in the first stage and 2,481 m in the second stage.

In 2021, Argonaut completed two PQ-size core drill holes (3.35 inches or 8.5 cm in diameter) totaling 250 metres. The objective of this campaign was to obtain material for metallurgical testwork.

Table 10-2: Argonaut Drilling Programs

Date	Company	Type	Number of Drill Holes	Number of Metres	Average Hole Length (m)	Drilling Contractor
2014	Argonaut	RC	271	30,043	110.8	Layne de Mexico
2014	Argonaut	Core	13	999	76.8	Falcon Drilling
2015	Argonaut	RC	35	4,179	119.4	Layne de Mexico
2018	Argonaut	RC	147	15,036	102.3	Layne de Mexico
2019	Argonaut	RC	25	1,731	69.3	Layne de Mexico
2020	Argonaut	RC	76	6,623	87.1	Layne de Mexico
2021	Argonaut	Core	2	250	125.0	Layne de Mexico
Total	n/a	n/a	**569**	**58,861**	**n/a**	n/a

Figure 10-1 is a drill hole location map with drill holes colour coded by company. Argonaut's metallurgical core drill holes are shown with larger red symbols.

10.2 Drill Methods

10.2.1 Legacy Drilling

The RC drilling programs in 1997 and 1998 by Monarch used Ingersol-Rand TH-100 and TH-75 drills. The core drilling in 1997 was completed with a skid mounted CS-1000 rig drilling HQ (63.5 mm) size core.

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

All the Geologix drilling was carried out by Intercore Limited using a skid mounted drill producing HQ sized core. Where difficult drilling conditions were encountered, core size was reduced to NQ diameter (47.6 mm) to advance the drill hole to its target depth and continue collecting core.

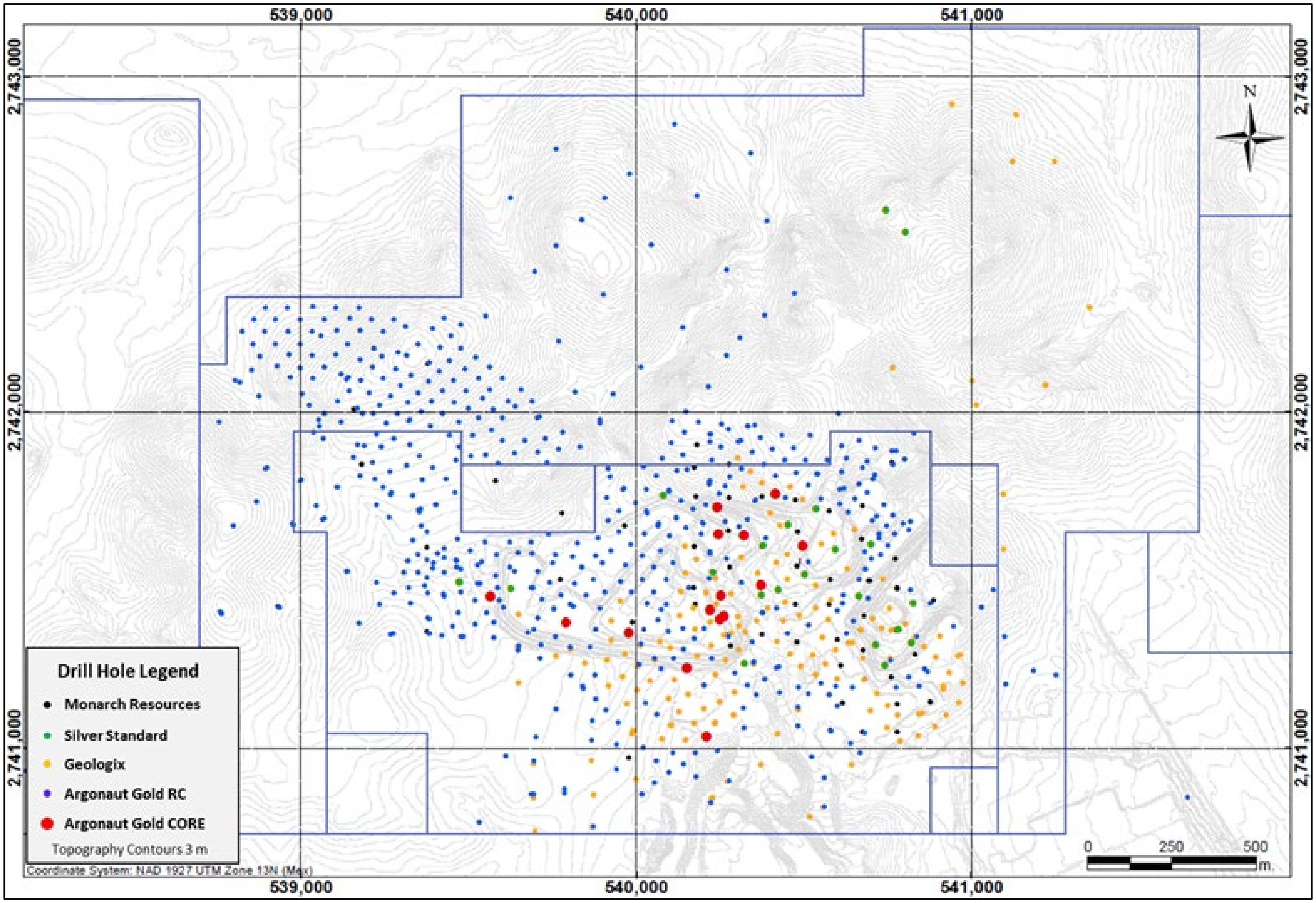
10.2.2 Argonaut

The 2014 Argonaut core drilling program was carried out by Falcon Drilling Ltd. (Falcon) using a model F3000 drill rig. Core hole numbering was systematic and included a prefix indicating year, Project, and type of drilling (e.g. 14SAGDDH001). The entire volume of the drill core was consumed for metallurgical testwork, so these drill holes were not used to estimate Mineral Resources.

Argonaut RC drill diameters ranged from 5 1/8 to 5 3/4 inches. The year, Project abbreviation and drill type were used as prefixes to number the RC drill holes (e.g. 20SAGRC001).

The 2021 core drilling program was carried out by Layne de México SA de CV. (Layne) using a truck-mounted Model 1500 drill rig. The numbering of the core drill holes was systematic and included a prefix indicating the year, Project initials, and the drilling target (e.g. 21SAGMET01). The entire volume of the drill core was consumed for metallurgical testwork, so these drill holes were not used for Mineral Resource estimation.

Figure 10-1: Drill Hole Location Map



Note: Figure prepared by Argonaut, 2021

10.3 Logging Procedures

10.3.1 Legacy

No information is available to Argonaut regarding the logging procedures for the Monarch, Silver Standard, and Geologix drill campaigns.

10.3.2 Argonaut

Core material was collected by drilling personnel in plastic core boxes that were previously marked with the drill hole and box numbers. The core boxes were then transported by Argonaut personnel by field vehicle to a core warehouse located in 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, and 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.

All RC samples were logged by Argonaut 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 drill hole number, the interval depth, and sample number. These 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 sulphide material) for RC samples. The information was later entered into a Microsoft Excel data form and then imported into the master Microsoft Access database.

10.4 Recovery

10.4.1 Legacy

No information is available to Argonaut regarding sample recovery for the Monarch, Silver Standard, and Geologix drill campaigns.

10.4.2 Argonaut

Sample recoveries were strictly monitored in both core and RC drill programs and controls were established in the logging formats. Core recoveries normally exceeded 95% and RC recoveries exceeded 90%.

10.5 Collar Surveys

10.5.1 Legacy

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

Layout of drill hole locations by Geologix was by hand-held GPS units with an accuracy of 2 to 4 m. The collar was marked by plastic polyvinyl chloride (PVC) pipe left in the drill hole and the drill hole location was surveyed by hand-held GPS after drilling was completed. Geologix surveyed several control points around the Project area and resurveyed most Monarch and Silver Standard drill hole collars using a total station surveying instrument.

10.5.2 Argonaut

The initial position of drill pads for the RC and core drill holes was established by Argonaut geologists using a handheld GPS device. After the drill holes were completed, the sites were marked with a section of PVC pipe, which was encased in a cement monument that was labelled with the corresponding drill hole number.

After the drill hole monuments were in place all the drill holes were surveyed by Argonaut personnel using a high-precision Trimble GPS survey instrument (model R8-M3GNSS). The surveyed coordinates of the drill holes were sent to Argonaut database personnel and then updated in the master Microsoft Access database.

10.6 Downhole Surveys

10.6.1 Legacy

No downhole surveys were collected during the Monarch and Silver Standard drilling programs. Because a majority of these drill 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, downhole deviation was probably minimal.

Geologix collected downhole survey information at approximately every 50 m using a digital Reflex downhole survey instrument.

10.6.2 Argonaut

Eight of the metallurgical core drill holes were oriented with azimuths of either 135° or 315° with inclinations ranging between -55° and -60°. Five of the metallurgical core holes were oriented at varying azimuths. The planned orientation of the drill hole was indicated on the drill pad using a Brunton compass and rope so the drill rig could be aligned parallel to the oriented rope.

Approximately 30% of RC drill holes were oriented with azimuth of 315°; approximately 30% were oriented with azimuth of 045°; and approximately 15% were drilled vertical. Approximately 65% of the RC drill holes were inclined at either -45° or -60°, and the remaining drill holes varied between -65° and -85°.

Downhole surveys were conducted by trained drilling personnel using a Reflex camera and directed and supervised by Argonaut geologists. Readings were transferred to Argonaut geologists on prepared forms and signed by the drilling contractors.

On the longer drill holes, downhole readings were made every 50 m. Downhole surveys were recorded at the middle and bottom of shallow drill 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.

10.7 Sample Length/True Thickness

Drilling was designed to intersect mineralization as close as possible to the true thickness. Most of the early drilling was completed on northwest-southeast oriented section lines with drill holes collared at 50 m intervals. Most of the drill holes were oriented with an azimuth of 315º or 135º with inclinations from -55º to -65º. Some drill holes were drilled vertical. The inclined drill intercepts range from 60% to 75% of true width and the vertical drill intercepts represent about 50% of true width. Later Argonaut drilling was oriented based on a better understanding of the controls of mineralization controls and the drill orientation was redirected according to the localized fractures and faulting. These drill intercepts represent an average of 70% of the true width.

Representative cross sections showing the Mineral Resource model, drill traces, and mineralization are provided in Section 14.

10.8 Metallurgical Drilling

During 2014 and 2021, two core drilling campaigns were carried out to obtain samples for metallurgical tests. A total of 15 PQ core drill holes were drilled to obtain material from each modeled material type. Whole core from the mineralized zones was sent to the metallurgical laboratory for testwork.

10.9 QP Comments on “Item 10: Drilling”

In the opinion of the QP, the quantity and quality of the logged geological data, collar, and downhole survey data collected in the Argonaut exploration and infill drill programs are sufficient to support Mineral Resource and Mineral Reserve estimation and mine planning.

The QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Sampling Methods

11.1.1 Geochemical Sampling

The sampling methods of legacy geochemical programs are not known.

Argonaut collected rock chip samples from surface exposures. The samples represented continuous rock chips over an area averaging 1.5 m wide. When possible, sampling was done along 50 m to 100 m spaced sample lines that were oriented perpendicular to the main recognized structural trends.

Handheld GPS units were used 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 3 m apart. Argonaut's samples were tagged in the field with aluminum tags.

No Argonaut or legacy geochemical samples were included in the database used for Mineral Resource estimation.

11.1.2 Legacy Drilling

No information regarding the sampling methods is available to Argonaut from the Monarch, Silver Standard, and Geologix drill campaigns.

11.1.3 Argonaut RC Drilling

Argonaut trained local technicians to collect samples at the drill rig. Those technicians were always under the supervision of a project geologist. RC cuttings were systematically collected every 1.52 m (5 ft), 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 ¼ 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 ¼ split was sent for assay and the other ¼ 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 ¼ split samples were created. One of the ¼ splits was assayed as an original and the other ¼ split assayed as a duplicate sample.

All 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 sample 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 an ALS 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.

11.1.4 Argonaut Core Drilling

The entire volume of the drill core was consumed for metallurgical testwork so these drill holes were not assayed and were not used to estimate Mineral Resources.

11.2 Density Determinations

In 2018, 166 bulk density determinations were completed for the San Agustin Project. The majority of these data were obtained from Silver Standard and little is known as to what methods were used to determine bulk density values except the drill hole intervals that were tested. Argonaut sent 29 representative oxide samples collected from their 2014 metallurgical core hole drilling program to Oestec de México (Oestec) in Hermosillo for bulk density determination.

11.3 Analytical and Test Laboratories

The laboratories used for sample preparation and analysis are summarized in Table 11-1.

11.4 Sample Preparation and Analysis

11.4.1 Geochemical Sampling

Monarch rock samples were analyzed for Au, Ag, Cu, Pb, Zn, As, Sb, Hg, Bi and Mo by Bondar Clegg Laboratories (Bondar Clegg). Gold was determined by fire assay on a 30 g charge with an atomic absorption (AA) finish. Mercury was determined by aqua regia digestion and cold vapor AA. Silver and seven other elements were analyzed by aqua regia digestion and ICP determination.

Table 11-1: Laboratories

Laboratory	Period	Certification	Independent	Comments
Bondar Clegg	1997	Unknown	Yes	Legacy drilling and geochemical samples
Rocky Mountain	Unknown	Unknown	Yes	Legacy geochemical samples
BSI	Unknown	Unknown	Yes	Legacy drilling and geochemical samples
Acme	Unknown	Unknown	Yes	Legacy drilling
Oestec	Unknown	Unknown	Yes	Bulk density determinations
SGS	Unknown	Unknown	Yes	Check assay laboratory
Inspectorate	2014,2015,2018	ISO/IEC 17025:2005	Yes	Check assay laboratory
ALS Chemex	2014-2020	ISO/IEC 17025:2017	Yes	Argonaut drilling and geochemical samples

Surface rock samples collected by Silver Standard were forwarded to BSI Inspectorate de Mexico, S.A. de C.V. in Durango (BSI) for preparation. Samples were crushed to -10 mesh (2 mm) and a 300 g split was retrieved using a riffle splitter for preparation of a pulp. The pulps were shipped to Rocky Mountain Geochemical (Rocky Mountain) in Nevada, USA where they were analyzed for Au, Ag, Hg and seven additional elements.

Geologix trench samples were sent to ALS in Guadalajara, Mexico where they were weighed and dried before being crushed to 70% passing 10 mesh (2 mm). A 250 g sub-sample was then split off and pulverized in its entirety to 85% passing 200 mesh (75 µm). The pulps were sent to the ALS facility in Vancouver, Canada for analysis of gold by fire assay and an additional 35 elements by aqua regia digestion and ICP determination.

Argonaut's rock samples were sent to ALS for fire assay of gold and ICP multielement assay (ALS method codes Au AA-23 and ME-ICP 41). The samples were picked up by ALS directly on site and prepared in their Zacatecas, Mexico laboratory. The samples were then sent for assay at ALS' Vancouver, Canada laboratory.

11.4.2 Legacy Drilling

Drill hole samples that were collected by Monarch, Silver Standard, and Geologix were assayed by large, well recognized, commercial laboratories. The samples were prepared and analyzed using industry standard practices.

Monarch drill samples were analyzed by Bondar Clegg of Vancouver, Canada. Silver Standard sent RC samples to ALS in Vancouver, Canada. All samples from the Geologix drilling programs were sent to ALS of Vancouver, Canada.

Monarch's RC drilling samples were weighed and dried before being crushed to 70% passing -10 mesh (2 mm). A 250 g sub-sample was then split off and pulverized in its entirety to 75% passing 200 mesh (75 µm). Gold was determined by fire assay on a 30 g charge with an AA finish. Silver and seven other elements were analyzed by aqua regia digestion and ICP determination. Mercury was determined by aqua regia digestion and cold vapor AA.

Samples from Silver Standard and Geologix drilling programs were first sent to the ALS preparation laboratory in Guadalajara, Mexico where they were weighed and dried before being crushed to 70% passing -10 mesh (2 mm). A 250 g sub-sample was then split off and pulverized in its entirety to 85% passing 200 mesh (75 µm). The pulps were then shipped to the ALS facility in Vancouver, Canada for analysis of gold by fire assay on a 50 g charge with AA finish and an additional 35 elements by aqua regia digestion and ICP determination. Samples with initial fire assay results >10 g/t Au were re-assayed on a separate pulp by fire assay with a gravimetric finish. Overlimit assays for Ag (> 100 g/t), Zn (>10,000 ppm), and Pb (>10,000 ppm) were completed by ore grade aqua regia digestion with either ICP or AA finish.

11.4.3 Argonaut Drilling

When the samples arrived at the ALS laboratory in Zacatecas, they were logged into a tracking system that assigned a unique laboratory 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 temperature of 120°C. The samples were then crushed so that greater than 70% of the sample passed a 2 mm sieve. The crushed samples were then split using a riffle splitter until around 250 g was obtained. The sample splits were pulverized to greater than 85% of the sample passing 75 µm. The resulting pulps were then shipped to be assayed at the ALS laboratory located in Vancouver, Canada.

The samples were assayed for gold using ALS method Au-AA23, which is a 30 g fire assay with atomic absorption finish. The detection limit for the Au-AA23 method was 0.005 ppm with an upper detection limit of 10 ppm. Over limit assays were automatically re-analyzed using fire assay/gravimetric methods (ALS method Au-GRA21).

Trace element geochemistry was analyzed for the 2014 RC samples using ALS method ME ICP41 which uses conventional ICP methods to generate values for 35 elements.

After the gold and geochemical results were certified by ALS, 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 ALS.

11.5 Quality Assurance and Quality Control

11.5.1 Legacy Procedures

Assay QA/QC results from the initial Monarch and Silver Standard drilling programs were limited (Arseneau, 2009). Geologix located coarse rejects from the Monarch and Silver Standard drilling programs and sent approximately 5% (182 samples) of those samples to ALS in Vancouver, Canada for checking assaying along with standards at a rate of one standard for every 20 samples.

Geologix used commercially prepared standards from CDN Labs, Rocklabs, and Ore Research & Exploration for their drilling programs at San Agustin at a rate of one standard 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 pulps to Analytical Laboratories (Acme) in Vancouver for check assay analysis.

11.5.2 Argonaut Procedures

Argonaut used blanks, standards, duplicates, and check assays to determine assay data quality.

Blanks reporting gold grades above 0.015 ppm Au were considered a failure. Standard values reporting more than three standard deviations from the best value were considered a failure. Duplicate samples were evaluated using the Spearman Rank correlation coefficient, Pearson's coefficient, the coefficient of determination (R2), scatter diagrams, and quantile-quantile (QQ) diagrams. Argonaut requested repeat analyses where the duplicate was ± 50% different than the original sample and the original sample grade was greater than 0.1 g/t Au.

Argonaut also sent pulp and bulk reject samples to an accredited secondary laboratory for check assay purposes. Approximately 10% of the samples from each drill campaign were sent for check assay based on the geographic distribution and gold grade variability. The acceptance threshold for coarse rejects was set at 90% of the pairs within ± 30% of each other. The tolerance for pulp rejects was tighter where 90% of the samples must be within ± 10% of each other.

11.5.3 QA/QC Results

The QP reviewed the results of the Argonaut 2014–2020 QA/QC programs. For the 2014, 2015, and 2018 drill programs most of the control sample results were consistently within acceptable limits. Where the QA/QC samples failed, they were re-assayed and the re-assayed values replaced the original values in the database. No significant bias was observed from the check assay results. For the 2019 and 2020 drill programs, there were several cases where one of the QA/QC samples failed. Given the low number of failures for these programs, Argonaut did not re-assay the failures. It is the opinion of the QP that the Argonaut assay data are suitable to be used for estimating Mineral Resources.

Based on the QA/QC results from the legacy drill programs, the QP finds the gold duplicate sample results to be reasonable with no pronounced biases. There was a slight high bias in the ALS gold and silver assays based on the Acme check assay results. The QP compared gold grades between selected Monarch, Silver Standard, and Geologix drill hole assays and 2014 Argonaut RC samples. Based on the review of the Monarch and Silver Standard QA/QC results and comparisons with Argonaut's assay results, the QP’s opinion is that the legacy gold and silver assays are suitable to be used to estimate Mineral Resources.

11.6 Databases

Argonaut manages all exploration drilling information in an Access database. Data are organized by project and organized to ensure quality and security. Argonaut has a dedicated person to manage the data and ensure its quality.

New drilling information is collected and stored in the Access database using Microsoft Excel forms, whether they are from an external laboratory or an internal department. The Excel forms are uploaded to the Access database for long-term storage and data management. Collar, survey, assay, and geologic information are merged with the existing datasets and then sent out to various departments through database updates.

A QA/QC process is performed on all new data before they are uploaded into the Access database. Once the results are analyzed and deemed to pass QA/QC standards, they are incorporated into the dataset. If any standards do not pass Argonaut’s data quality criteria, the data are evaluated and remediated, whether this entails a batch of rock samples being reanalyzed at the assay laboratory or a downhole survey is checked for faulty readings.

11.7 Sample Security

There is no information as to security measures taken with regards to legacy drill hole samples.

The Argonaut samples were always in the custody of employees, drill contractors, and commercial trucking firms. The sample bags were secured with plastic zip ties and placed into larger zip tie secured rice bags for transport to the sample preparation facility.

11.8 QP Comments on “Item 11: Sample Preparation, Analyses, and Security”

Based on a review of Argonaut's drill hole assay data, it is the opinion of the QP that sample preparation, security, analytical methods, and QA/QC protocols demonstrate that the San Agustin gold and silver data are reproducible and suitable to be used for estimating Mineral Resources and Mineral Reserves.

12.0 DATA VERIFICATION

12.1 Argonaut Data Verification

The QP inspected the onsite assay laboratory, reviewed RC chips and drill core logging procedures, and reviewed blast hole sampling and mapping procedures.

12.2 External Data Verification

In 2018, Resource Modeling Inc. (RMI; Lechner, 2018) completed a data verification program of a significant portion of the San Agustin drill hole database. RMI reviewed and examined Argonaut's drill hole database that contained assay, survey, and geologic information for Argonaut and legacy drill campaigns. Because RMI reviewed Argonaut's on-site data acquisition and importation procedures, RMI checked a larger percentage of the legacy data.

Table 12-1 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. Approximately 28,000 gold and silver records were compared for seven drill campaigns representing about 62% of the 2018 San Agustin Project drill hole assay database. Using sample numbers as a unique relational lookup value, records from the raw laboratory files were extracted and compared against Argonaut's Access database.

Table 12-1: Summary of 2018 RMI Data Verification Program

Program	No. Drill Holes	No. Intervals	No. Metres	Percent 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 RMI 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 RMI's opinion, this is the correct way to treat those values and is essentially an industry best practice standard operating policy. All 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.

RMI checked for potentially mis-located drill holes by comparing collar locations against the provided topographic surface. Approximately 15 drill holes were found with collar elevations more than 3 m above surface topography. Nearly all those locations were outside the area of Mineral Resources at San Agustin and represent older legacy drill holes. Some of the errors were known by Argonaut but the correct elevations had not yet been entered into the database. The remaining high drill hole collars were re-surveyed by Argonaut and the correct elevations were entered into the database.

RMI compared a small population of drill hole logs for metallurgical core drill holes and infill RC drill holes to drill core and RC cuttings and found that the Argonaut drill hole logs were constructed in a professional manner and were consistent with standard industry practice.

RMI reviewed Argonaut's QA/QC protocols and results. 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 Mineral Resources.

12.3 QP Comments on “Item 12: Data Verification”

Based on the results of the various data verification procedures that were undertaken and a review of available QA/QC results, including the QP’s own checks, it is the opinion of the QP that the San Agustin Project drill hole data are suitable to support Mineral Resource estimation.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

The San Agustin Project is an open pit mine with a heap leach operation using a multiple-lift, single-use leach pad. Historical metallurgical testwork was conducted on San Agustin material at independent laboratories as follows: in 2009 by PRA Laboratories (PRA); in 2009 by McClelland Laboratories Inc. (MLI); in 2014 by Kappes, Cassiday & Associates (KCA); and on-site at Argonaut's non-independent El Castillo mine metallurgical laboratory in 2014. Since start-up of the mine in 2017, routine column testing of monthly production composites was conducted at the El Castillo laboratory. The results of these metallurgical studies are presented in the following Report subsections.

13.2 Metallurgical Testwork

13.2.1 PRA Laboratories

During 2009 PRA Laboratories (PRA) conducted metallurgical testing on a total of 15 drill hole samples consisting of oxides and transition oxides-sulphides. 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. Table 13-1 shows the head analyses for each of the 15 test samples.

Table 13-1: Head Analyses for the PRA Test Samples

Element (Method)	Units	Sample ID															Avg.
		SA-113 Ox	SA-113 Tr	SA-129 Ox	SA-140 Ox	SA-144 Ox	SA-144 Tr	SA-145 Ox	SA-150 Tr	SA-154 Ox	SA-164 Ox	SA-192 Ox	SA-221 Ox	SA-227 Ox1	SA-227 Ox2	SA-239 Ox	
Au (FA/AAS)	g/t	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
AuCN (CN/AAS)	g/t	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
Au Cyanidable (unweighted)	%	80	48	89	83	85	79	50	83	71	83	50	96	98	75	94	78
Ag (ICPMS)	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
AgCN (CN/AAS)	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
Ag Cyanidable (unweighted)	%	78	54	32	86	64	46	70	62	26	67	87	71	64	60	61	62

Note: FA/AAS=fire assay atomic absorption; CN/AAS=cyanide leach atomic absorption; ICPMS=inductively coupled plasma mass spectrometry

Bottle roll leach tests were conducted at 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. The results of these tests are summarized in Table 13-2.

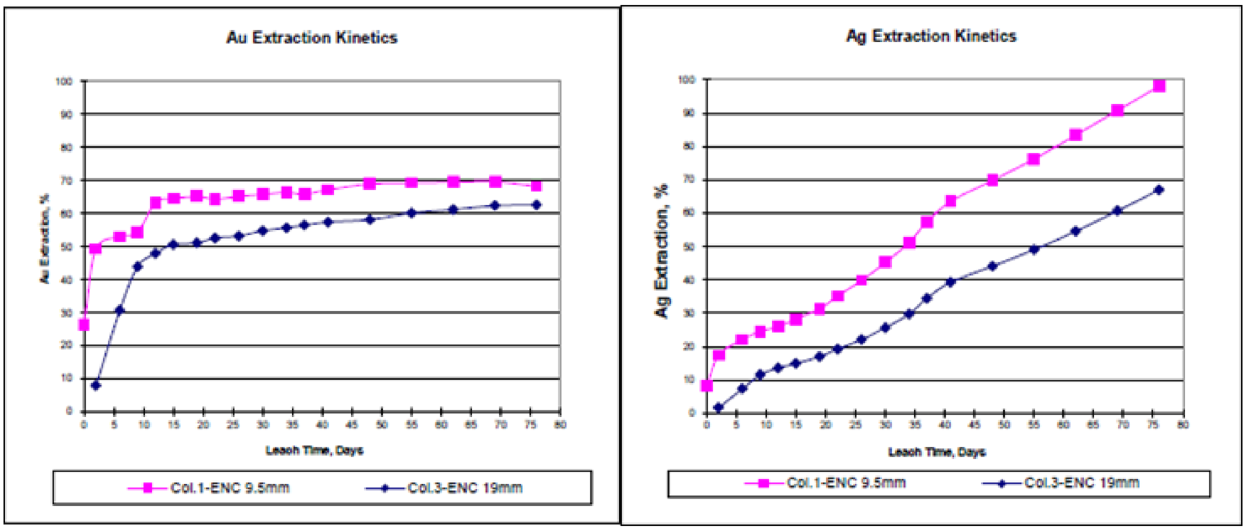
Table 13-2: Bottle Roll Tests for the PRA Test Samples

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

At a 9.5 mm crush size gold extraction ranged from 18.6% to 83.1% and averaged 64.9%. At the coarser crush size of 19 mm gold extraction ranged from 21.2% to 80.5% and averaged 55.8%. Gold extraction did not correlate with head grade.

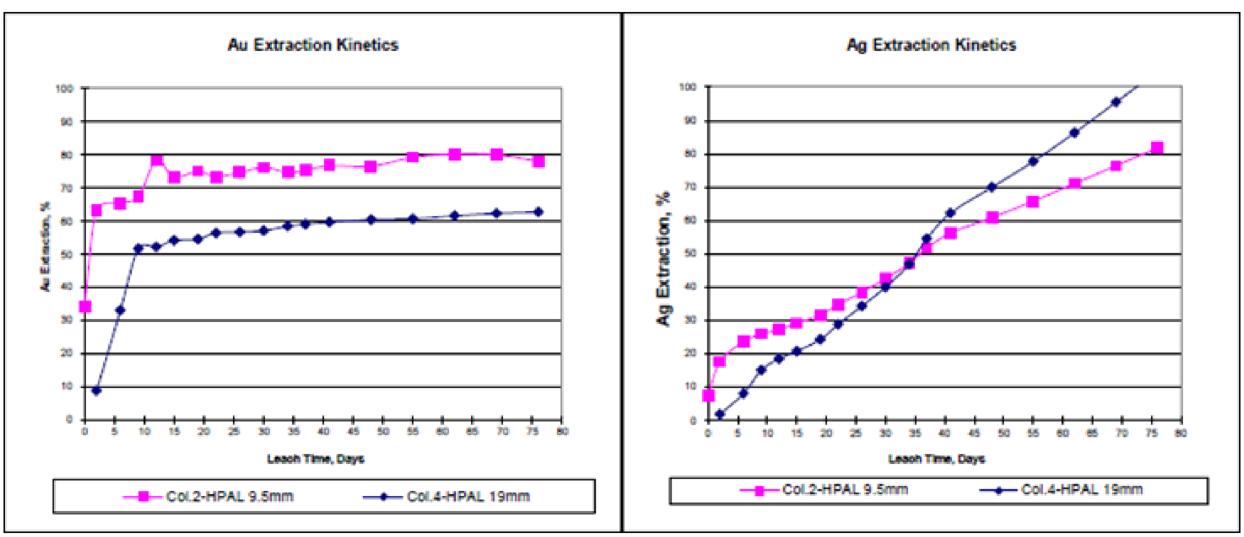
Column leach tests were run on two composite samples labelled ENC and HPAL at crush sizes of 100% passing 19 mm and 9.5 mm. All four column leach tests were dosed with 1 kg/t of lime to provide protective alkalinity and agglomerated with 5 kg/t of cement. After 75 days of leaching, gold recoveries for the coarse crush size (19 mm) were reported at 62.7% for the ENC composite and 62.8% for HPAL composite. At the fine crush size (9.5 mm) gold recovery was 69.7% for the ENC composite and 80% for the HPAL composite. Gold recoveries for all four composite columns stabilized and reached a plateau, whereas silver recovery was still rising after 75 days. The results of these tests are shown graphically in Figure 13-1 and Figure 13-2.

Figure 13-1: Column Leach Test Results on ENC Composite



Note: Figure prepared by PRA, 2009

Figure 13-2: Column Leach Test Results on HPAL Composite



Note: Figure prepared by PRA, 2009

13.2.2 McClelland Laboratories

During 2009 McClelland Laboratories (MLI) conducted metallurgical testwork on three test composites identified as Main Zone, Zone 2, and Zone 4, which were formulated from 54 drill core intervals per instructions provided by Geologix (MLI, 2009). The Main Zone composite was made from 29.75 m of core from drill holes SA-111, SA-115, SA-117 and SA-153. The Zone 2 composite included 28.65 m of core from drill holes SA-123, SA-126, SA-130, and SA-132. The Zone 4 composite was made from 29.75 m of core from drill holes SA-119, SA-159, and SA-163. The metallurgical program included head grade analyses, bottle roll tests, and column leach tests.

Head assays for the three composites are presented in Table 13-3 and Table 13-4. Gold head grades ranged from 0.39 g/t to 0.76 g/t and silver head grades ranged from 13.9 g/t to 23.0 g/t.

Table 13-3: Gold Head Analyses on MLI Test Composites

	Head Grade, Au g/t		
Determination Method	**Main Zone**	**Zone 2**	**Zone 4**
Predicted grade	0.70	0.44	0.46
Direct assay, initial	0.74	0.44	0.44
Direct assay, duplicate	0.75	0.37	0.48
Direct assay, triplicate	0.79	0.34	0.48
Calculated, bottle roll, 1.7 mm	0.84	0.44	0.46
Calculated, head screen, 19 mm	0.73	0.40	0.48
Calculated, column, 19 mm	0.73	0.37	0.42
Average	**0.76**	**0.39**	**0.46**

Table 13-4: Silver Head Analyses on MLI Test Composites

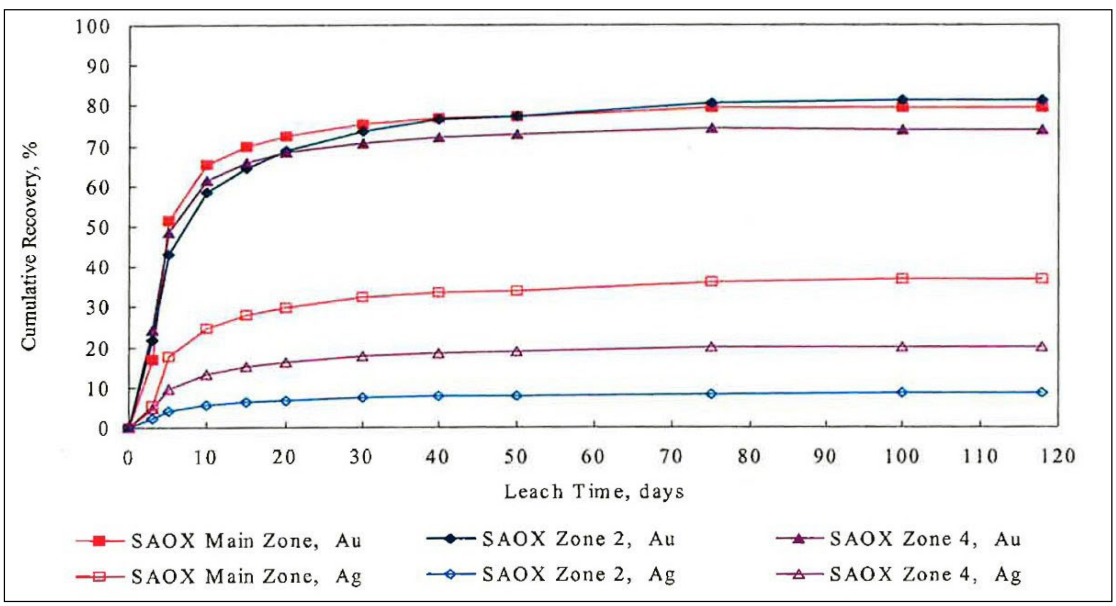
	Head Grade, Ag g/t		
Determination Method	**Main Zone**	**Zone 2**	**Zone 4**
Predicted grade	18.4	12.5	18.6
Direct assay, initial	13.0	29.0	19.0
Direct assay, duplicate	14.0	25.0	19.0
Direct assay, triplicate	15.0	20.0	20.0
Calculated, bottle roll, 1.7 mm	14.3	23.1	17.9
Calculated, head screen, 19 mm	14.1	19.3	21.2
Calculated, column, 19 mm	13.1	21.3	18.0
Average	**13.9**	**23.0**	**19.2**

Column leach tests were conducted in 4 inch diameter columns on each of the three oxide composite samples at a crush size of P_{80} 19 mm and cyanide solution concentration of 1.0 g/L NaCN with lime additions of 3 kg/t to 5 kg/t to provide protective alkalinity. The results of these tests are presented in Table 13-5 and Figure 13-3.

Table 13-5: Column Leach Tests on MLI Test Composites

Metallurgical Results	Main Zone		Zone 2		Zone 4	
Extraction %	**Au**	**Ag**	**Au**	**Ag**	**Au**	**Ag**
1st effluent	17.0	5.4	21.7	2.2	24.4	4.8
5 days	51.5	17.5	43.1	4.0	48.6	9.5
10 days	65.3	24.8	58.4	5.4	61.4	13.3
15 days	69.7	27.9	64.4	6.2	66.0	15.1
20 days	72.4	29.9	68.6	6.6	68.3	16.2
30 days	75.3	32.2	73.4	7.2	70.7	17.6
40 days	77.0	33.6	76.4	7.5	72.0	18.4
50 days	77.3	34.0	77.2	7.7	72.7	18.7
75 days	79.3	35.9	80.5	8.1	73.8	19.7
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
Head Grade (g/t ore)	**Au**	**Ag**	**Au**	**Ag**	**Au**	**Ag**
Calculated Head	0.73	13.1	0.37	21.3	0.42	18.0
Average Head	0.76	13.9	0.39	22.9	0.46	19.2
Consumables & Rinse	**Main Zone**		**Zone 2**		**Zone 4**	
NaCN Consumed, kg/t ore	2.01		2.19		2.29	
Lime Added, kg/t 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	

Figure 13-3: Gold and Silver Extraction versus Days of Leaching



Note: Figure prepared by MLI, 2009

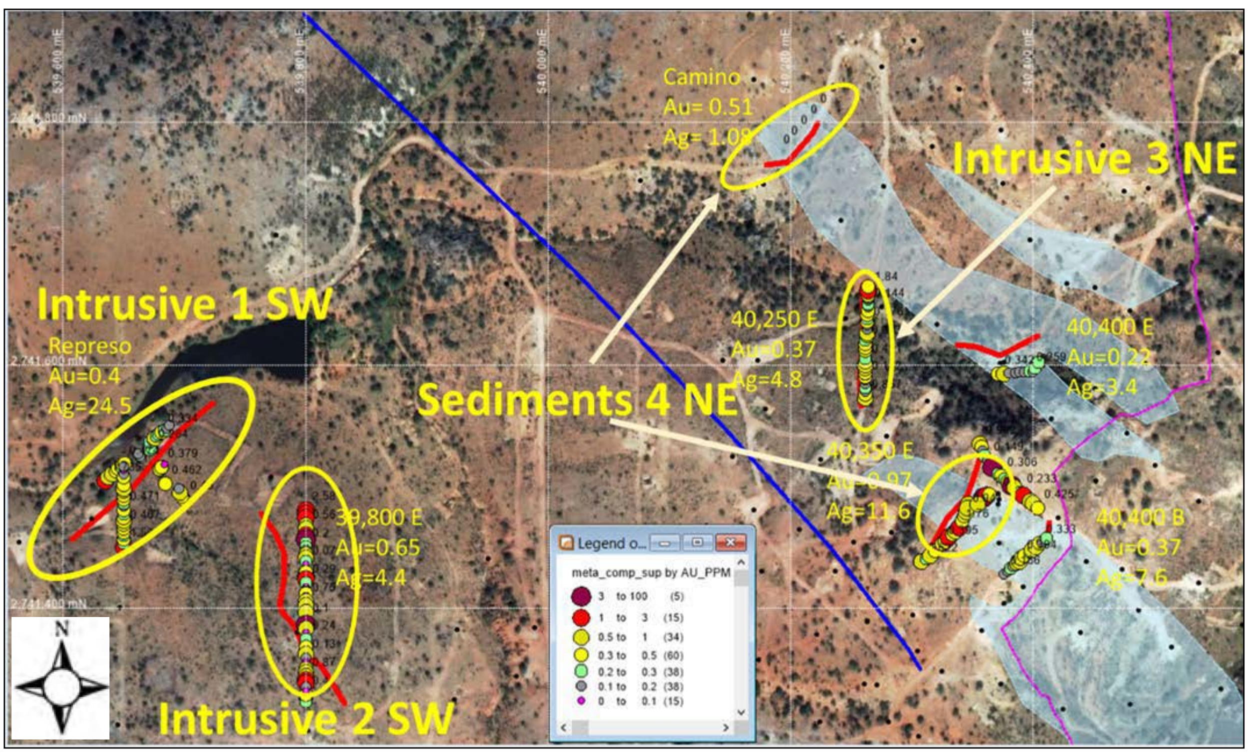
Each sample was leached for a total of 100 days with an additional 18 days of rinse. The results of the column leach tests ranged from 73.8% to 81.1% and averaged 78.1% for gold. Silver recoveries ranged from 8.5% to 36.6% with a final average of 21.7%. NaCN consumptions ranged from 2.01 kg/t to 2.29 kg/t and additional lime throughout the tests was not required. Cyanide consumption was relatively high and likely due to the high concentration of cyanide in the leach solution (1.0 g/L NaCN).

13.2.3 Argonaut El Castillo Metallurgical Laboratory

Argonaut's El Castillo mine site metallurgical laboratory conducted metallurgical investigations for San Augustin as well as routine metallurgical tests for production monitoring.

During 2014 Argonaut conducted metallurgical studies on four trench composites (MRO, 2014). The composites were chosen to have good spatial and lithological distribution and to be representative of the average grade of the deposit. Because intrusive rocks are the main lithology encountered in drilling, three composites were made from intrusive intervals (SA-1 to SA–3) and one was made from sedimentary intervals (SA-4). The locations of the trenches sampled are shown in Figure 13-4 and head analyses for each test composite is shown in Table 13-6.

Figure 13-4: Trench Composites Locations



Note: Figure prepared by KCA, 2016; grid squares are 200 m by 200 m

Table 13-6: Trench Composites Head Analyses

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

Column leach tests were conducted on the three intrusive composites and the sedimentary composite sample at three different sizes (run-of-mine (ROM), P_{100} 51 mm, and P_{100} 13 mm). ROM column tests were conducted in 36 inch diameter (81.28 cm) columns loaded with approximately 5,700 kg of sample material. The P_{100} 51 mm material was leached in 12 inch diameter (300 mm) columns loaded with approximately 160 kg of material, and the P_{100} 13 mm material was leached in 8 inch diameter (200 mm) columns loaded with about 60 kg of sample material. The column tests were run between 78 and 113 days.

The results of these column tests are shown in Table 13-7. Gold recovery from the ROM samples ranged from 56% to 68% and averaged 57%. Gold recovery at the P_{100} 51 mm crush size ranged from 45% to 84% and average 67%, and gold recovery at the P_{100} 13 mm crush size ranged from 61% to 82% and averaged 73%. Except for one sample (SA-3), gold extraction at the P_{100} 51 mm crush size was about 2% to 3% less than the gold extraction obtained at the P_{100} 13 mm crush size. Silver extraction was sensitive to crush size and averaged 11% for the ROM test columns, 16% for the P_{100} 51 mm columns, and 25% for the P_{100} 13 mm columns.

13.2.4 Kappes, Cassiday & Associates

During 2014 KCA conducted metallurgical testwork on six drill core composites from the San Agustin deposit. Table 13-8 provides a description of the rock types and drill holes used to formulate each composite and Figure 13-5 shows the drill hole locations. Head analyses for each composite are shown in Table 13-9 and the crushing index and other physical characteristics of the test composites are shown in Table 13-10.

Table 13-7: Trench Composites Column Leach Tests

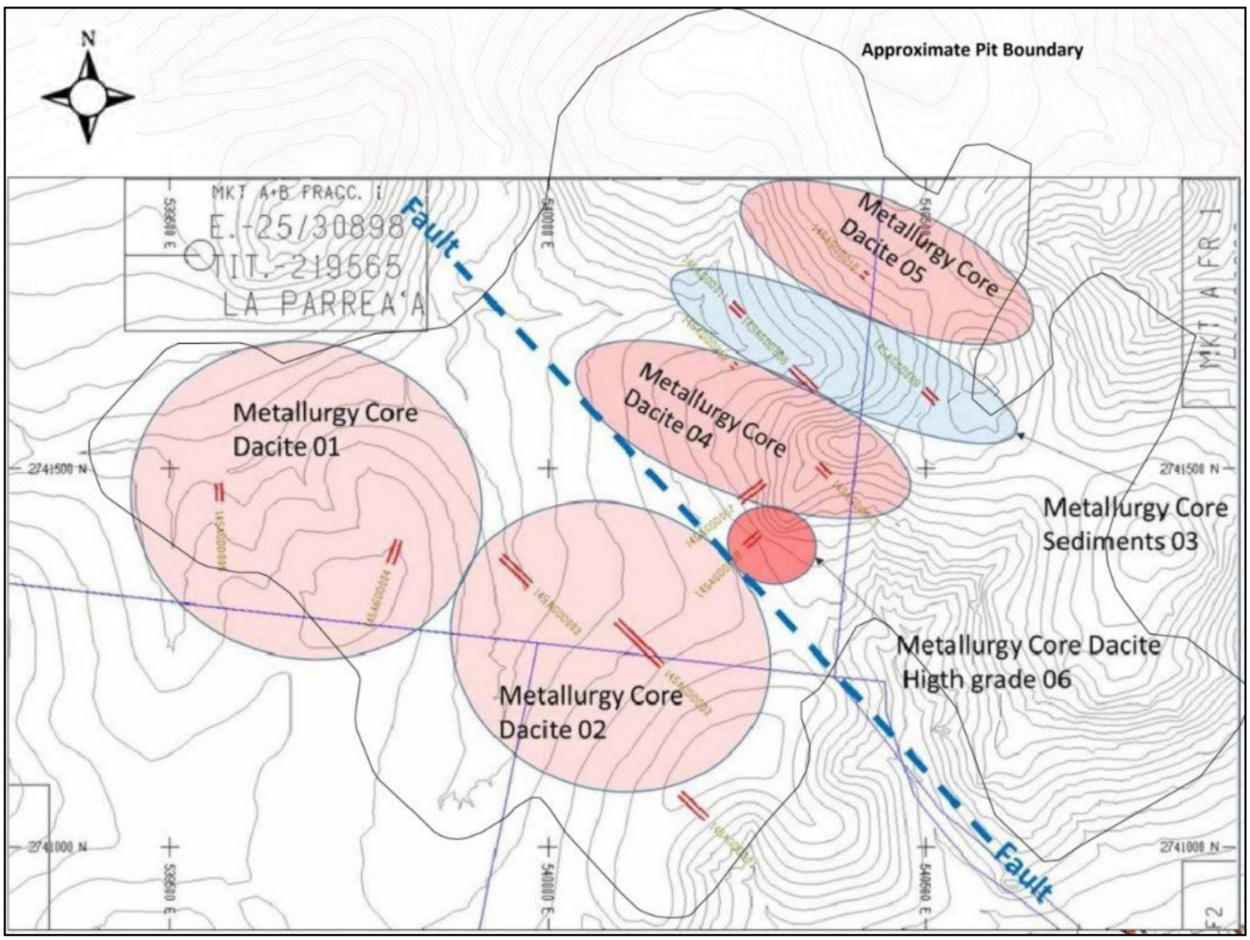
Description	Calculated Head Au (g/t)	Average Tails Au (g/t)	Extracted (% Au)	Calculated Tail P_{80} Size (mm)	Days Of Leach	Consumption NaCN (kg/t)	Addition Ca(OH)2 (kg/t)
SA (1) ROM	0.454	0.144	68	86	105	0.66	3.2
SA (1) 100 % -51 mm	0.402	0.063	84	38	105	1.54	3.8
SA (1) 100 % -13 mm	0.425	0.075	82	6	113	1.49	4.0
SA (2) ROM	0.242	0.131	46	97	98	0.56	3.1
SA (2) 100 % -51 mm	0.290	0.105	64	33	98	0.87	3.6
SA (2) 100 % -13 mm	0.249	0.097	61	9	106	1.05	3.9
SA (3) ROM	0.456	0.189	58	209	98	0.58	3.2
SA (3) 100 % -51 mm	0.410	0.224	45	36	90	1.23	3.7
SA (3) 100 % -13 mm	0.690	0.168	76	7	98	1.32	4.0
SA (4) ROM	0.630	0.278	56	133	78	0.56	3.0
SA (4) 100 % -51 mm	0.652	0.178	73	44	72	1.19	3.1
SA (4) 100 % -13 mm	0.650	0.186	71	8	80	1.27	3.3
Avg. ROM	0.446	0.186	57	131	95	0.59	3.1
Avg. 100% -51 mm	0.438	0.142	67	38	91	1.21	3.6
Avg. 100% -13 mm	0.504	0.132	73	7	99	1.28	3.8
Description	**Calculated Head Ag (g/t)**	**Average Tails Ag (g/t)**	**Extracted (% Ag)**	**Calculated Tail P_{80} Size (mm)**	**Days Of Leach**	**Consumption NaCN (kg/t)**	**Addition Ca(OH)2 (kg/t)**
SA (1) ROM	20.30	17.65	13	86	105	0.66	3.2
SA (1) 100 % -51 mm	22.21	17.83	20	38	105	1.54	3.8
SA (1) 100 % -13 mm	25.14	18.18	28	6	113	1.49	4.0
SA (2) ROM	10.00	9.85	1	97	98	0.56	3.1
SA (2) 100 % -51 mm	8.84	8.43	5	33	98	0.87	3.6
SA (2) 100 % -13 mm	10.01	9.20	8	9	106	1.05	3.9
SA (3) ROM	9.40	8.04	14	209	98	0.58	3.2
SA (3) 100 % -51 mm	9.04	7.88	13	36	90	1.23	3.7
SA (3) 100 % -13 mm	11.26	8.12	28	7	98	1.32	4.0
SA (4) ROM	3.87	3.36	13	133	78	0.56	3.0
SA (4) 100 % -51 mm	4.38	3.18	27	44	72	1.19	3.1
SA (4) 100 % -13 mm	3.92	2.51	36	8	80	1.27	3.3
Avg. ROM	10.89	9.73	11	131	95	0.59	3.13
Avg. 100% -51 mm	11.12	9.33	16	38	91	1.21	3.55
Avg. 100% -13 mm	12.58	9.50	25	8	99	1.28	3.80

Table 13-8: San Agustin Core Composites Information

Description	Rock Type	Drill Hole Name	Estimated Au Grade (g/t)	Estimated Ag Grade (g/t)	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	Sedimentary	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

Note: Drill hole names have 14SAGDD prefix

Figure 13-5: San Agustin Core Composites Location



Note: Figure prepared by KCA, 2014

Table 13-9: San Agustin Core Composites Head Analyses

Description	Rock Type	Average Assay Au (g/t)	Average Assay Ag (g/t)	Weighted Average Head Assay Au (g/t)	Weighted Average Head Assay Ag (g/t)
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	Sedimentary Rocks	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

Table 13-10: San Agustin Core Composites Physical Characteristics

Bulk Sample	Specific Gravity	Crush Work Indices, (kWh/t)	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**

Column leach tests were conducted on each composite at crush sizes of 100% passing 51 mm and 13 mm. Each test column was operated for 73 days with a sodium cyanide solution. The results of these column tests are summarized in Table 13-11. For column test material crushed to P_{100} 51 mm (P_{80} 39-44 mm), gold extractions ranged from 46% to 81% and NaCN consumption ranged from 0.17 kg/t to 0.70 kg/t. For column test material crushed to P_{100} 13 mm (P_{80} 9.8 mm) gold extractions ranged from 50% to 84% and NaCN consumption ranged from 0.34 kg/t to 0.80 kg/t. Both crush sizes required over 4 kg/t of hydrated lime to maintain protective alkalinity.

The carbon samples from the column tests were dried and assayed for soluble mercury and copper content. Results indicated mercury extracted onto the carbon ranged from 0.38 mg/kg to 2.94 mg/kg and copper ranged from 4.3 mg/kg to 12.8 mg/kg. The mercury and copper concentrations are shown in Table 13-12. Mercury levels were 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.

Compacted permeability tests were performed on tailings material from each column using material previously crushed to 100% passing 13 mm. The purpose of the compacted permeability testwork was to examine the permeability of the crushed material under compaction loading equivalent to heap heights of 40, 60, and 80 m. The flow rate, slump, pellet breakdown and solution colour and clarity were monitored to assess permeability at higher loadings. All compaction tests on tailings material passed the criteria that KCA uses.

Table 13-11: San Agustin Core Composites Column Tests

Description	Calculated Head Au (g/t)	Extracted (% Au)	Calculated Tail P_{80} Size (mm)	Days of Leach	Consumption NaCN (kg/t)	Hydrated Lime (kg/t)
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 Ag (g/t)**	**Extracted (%Ag)**	**Calculated Tail P_{80} Size (mm)**	**Days of Leach**	**Consumption NaCN (kg/t)**	**Hydrated Lime (kg/t)**
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

Table 13-12: Mercury and Copper Concentrations on Loaded Carbon

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

13.2.5 Sulphide Metallurgical Testing

In 2019 Argonaut embarked on a detailed in-house sulphide testing campaign which included investigations centred on trench samples of the existing sulphide stockpile, which actually contains a mix of transition and sulphide material. The stockpile testwork consisted of preliminary bottle rolls and column tests followed by a detailed program that consisted of hot cyanide shake tests, bottle roll tests, column tests, and pilot leach pads. A detailed column test program based on samples obtained from metallurgical drill holes was also conducted that included bottle roll tests and column tests. Summary results of these programs are presented and discussed in the subsections that follow.

13.2.5.1 Preliminary Sulphide Work

Summary metallurgical results of preliminary tests from samples taken at the sulphide stockpile are presented in Table 13-13. The tests evaluated a range of sizes from ROM size to 17 mm of both transition and sulphide materials. Both gold and silver recoveries are generally quite low, even for crushed material.

Table 13-13: Preliminary Sulphide Testwork Results

Sulphides Metallurgical Tests									
Year	Test Name	P_{80} (mm)	Calculated Au Head (g/t)	% Rec. of Au	% Rec. of Ag	Ratio L/S	Reagent Consumtion (kg/Ton)		Test days
							CaO	NaCN	
2019	Col Transition ROM	125	0.67	23.77	7.66	4.79	7.00	2.08	39
	Col Transition -150 mm	114.1	0.78	31.47	11.77	4.99	7.00	2.31	39
	Col Transition 17 mm	17	0.69	40.38	17.06	6.07	7.00	2.52	39
	Col Sulphide -150 mm	97,2	0.52	20.21	8.07	4.87	8.00	2.19	39
	Col Sulphide 17 mm	16.8	0.50	31.45	12.09	6.02	8.00	2.53	39
	Bottle Roll Sulphide (avg. of 6 each)	P_{100} 25 mm	0.52	27.77	ND	1.50	3.33	0.74	5
2020	Col ROM Sulphide Argillic	101.52	0.34	29.32	10.19	3.74	9.00	0.85	57
	Col ROM Sulphide Silicic	164.19	0.89	17.24	10.33	3.97	9.00	0.94	57
	Col Argillic 100 % -37mm	25.85	0.42	33.44	12.20	3.32	9.00	0.94	69
	Col Silicic 100 % -37 mm	30.15	0.93	19.63	11.27	3.35	9.00	0.88	69

Note: Ratio L/S is the ratio of liquid to solids or tonnes of solution per tonne of ore; ND=not determined; Col=column

13.2.5.2 Pilot Leach Pad Program

The pilot leach pad program was a substantial program conducted in 2020 and early 2021. The program consisted of samples obtained from nine trenches of the sulphide stockpile, with hot cyanide shake tests and bottle roll tests from each trench, and column tests from some of the trenches (some were also blended with oxide material for column tests); and two pilot scale leach pads with a column test composited from each pilot heap.

At the time of the trench sampling (April 2020), the existing sulphide stockpile contained 656,677 t, with a gold grade of 0.57 g/t and a silver grade of 16.61 g/t. The stockpile consisted of sulphide material encountered during mining of oxide material since 2018. Although the material was described as sulphide, it is likely that the stockpile also contained some transition material.

Sulphide Stockpile Trench Samples

The results of the hot cyanide shake tests (pulverized) for each trench sample are shown in Table 13-14.

Table 13-14: Hot Cyanide Shake Test Results

Trench Sample	Au g/t	Ag g/t	S %	Au Recovery (%)	Ag Recovery (%)
SS 1	1.445	23.0	3.84	40	50
SS 2	13.399	10.6	4.02	27	76
SS 3	0.691	12.3	4.24	41	76
SS 4	0.965	17.5	6.05	40	62
SS 5	0.390	5.1	5.33	24	76
SS 6	0.788	12.5	3.72	26	36
SS 7	0.600	11.9	3.82	29	84
SS 8	0.497	10.4	3.73	47	94
SS 9	0.740	9.7	4.91	38	81

Bottle roll tests were conducted on P_{100} 38 mm material from each trench sample, and run for 96 hours with 3 kg of sample. Note that some samples blended with oxide material were also evaluated. The results of these tests are presented in Table 13-15.

Column tests were run using material from trenches SS-04 and SS-06 as they reported grades close to the average grade of the deposit. SS-04 was crushed to P_{80} 39 mm and SS-06 was crushed to P_{80} 68 mm. Additional columns were run using the same material blended with 10% and 20% mineralized oxide material, mainly for evaluation of reagent consumption against sulphide material. The blended columns were crushed to P_{80} 25 mm. Results of these column tests are shown in Table 13-16.

Table 13-15: Bottle Roll Test Results (P_{100} 38 mm)

Test Sample	Calc. Head Au (g/t)	Tail Au (g/t)	Au Rec. (%)	Ag Rec. (%)	CaO Cons. (kg/t)	NaCN Cons. (kg/t)	pH Final	NaCN Initial (ppm)	Hrs
SS-01	1.459	0.628	57	22.7	2.0	0.41	10.7	300	96
SS-02	1.580	0.842	46.7	29.5	4.2	0.41	10.5	300	96
SS-03	0.865	0.365	57.8	29.9	0.9	0.39	10.5	300	96
SS-04	0.554	0.272	50.9	32.6	2.3	0.40	11.4	300	96
SS-05	0.477	0.268	43.8	29.6	5.6	0.40	10.5	300	96
SS-06	0.517	0.299	42.1	29.6	6.3	0.42	11.0	300	96
SS-07	0.745	0.353	52.6	33	6.5	0.4	10.6	300	96
SS-08	0.631	0.280	55.6	32.8	4.3	0.39	10.7	300	96
SS-09	1.027	0.548	46.6	22.5	3.2	0.41	10.9	300	96
SS-04 90% Sulph-10% Ox Blend	0.841	0.284	66.2	44.6	2.8	0.41	10.5	300	96
SS-04 80% Sulph-20% Ox Blend	0.531	0.214	59.7	36	2.5	0.41	10.5	300	96
SS-06 90% Sulph-10% Ox Blend	0.765	0.202	73.6	36.5	3.5	0.41	10.5	300	96
SS-06 80% Sulph-20% Ox Blend	0.558	0.253	54.6	32.4	6.3	0.41	10.5	300	96
Average SS-01 through SS-09	**0.873**	**0.428**	**50.3**	**29.1**	**3.9**	**0.40**			

Table 13-16: Trench Sample Column Test Results

Column Test	P_{80} (mm)	Calc. Head (Au g/t)	Au Rec. (%)	Ag Rec. (%)	CaO Cons. (kg/t)	NaCN Cons. (kg/t)	pH Preg. Soln (avg)	NaCN Preg Soln (avg ppm)	Days Leaching
SS-04	39.2	0.966	30.8	13.6	9.0	0.76	11.0	132	57
SS-06	68.1	0.556	35.0	9.9	30.0	1.02	11.5	68	59
SS-04 (90% sulph.-10% oxide blend)	22.2	0.372	58.2	30.2	7.0	0.65	12.0	127	46
SS-04 (80% sulph.-20% oxide blend)	24.1	0.438	62.5	27.2	7.0	0.65	11.9	124	46
SS-06 (90% sulph.-10% oxide blend)	25.1	0.331	54.5	24.2	7.0	0.61	12.0	116	58
SS-06 (80% sulph.-20% oxide blend)	29.9	0.356	56.4	19.7	7.0	0.61	11.8	114	59

A small percolation test program was also run on the trench samples. The tests were a simple pass/fail test based on solution flow through a column, with and without 3.6 kg/t cement addition (the usual amount added in recent production in the plant). The tests passed at 3.6 kg/t cement, and the tests with no cement addition failed.

Test Sulphide Heap Leach Pads

A total of 42,408 t of material from the sulphide stockpile were crushed nominally to P_{80} 22 mm and agglomerated at 3.6 kg/t cement through the production crushing plant and stacked onto two separate lined leach pads. Samples (120 total) were taken at the stacker to serve as head samples and splits for column tests. Every tenth sample was assayed for sulphide content, and the overall average sulphide content was 2.91%. The sulphide material was stacked in 6 m lifts onto 35 m x 80 m high density poly ethylene (HDPE) lined pads and irrigated for 158 days using driptube under standard production operating conditions. A set of select photos of the test pads are shown in Figure 13-6.

The final tabulations of tonnes and grades for each test pad were:

Test Pad 1: 18,920 t at 0.683 g/t Au and 13.9 g/t Ag

Test Pad 2: 23,488 t at 0.630 g/t Au and 18.0 g/t Ag

Figure 13-6: Test Heap Leach Pad Photos

Note: Figure prepared by Argonaut, 2021. Heap leach lift height is 8 m as a scale approximator.

The general parameters of the test heap leach pads are presented in Table 13-17.

Table 13-17: Test Heap Leach Pad General Parameters

Test Pad	P_{80} (mm)	Sample Head (Au g/t)	CaO Cons. (kg/t)	NaCN (ppm)	pH Preg. Soln (avg)	NaCN Preg Soln (avg ppm)	Days Leaching
Sulphide Pad 1	18.6	0.683	6.9	292	10.6	49	158
Sulphide Pad 2	17.2	0.630	12.2	292	11.1	50	158

Detailed solution flowrate measurement and assaying were conducted throughout the test, draindown solutions were measured and assayed, and heap trenching was done to capture six tails samples for each test heap for assay and moisture analysis. From these data, a calculated head assay was generated for each test heap. Barren and pregnant solutions were also assayed by multi-element ICP and nothing unusual was noted.

Gold and silver recoveries for the test heap leach pads are shown in Table 13-18 and Table 13-19.

Table 13-18: Test Heap Leach Pad Gold Recovery Results

Test Pad	Sampled Head (Au g/t)	Calc. Head (Au g/t)	Tail Au (g/t)	Recovery by Head-Tail (Au %)	Recovery by Solutions and Sampled Head (Au %)	Recovery by Calc. Head (Au %)	Average (%)
Sulphide Pad 1	0.683	0.557	0.356	47.9	29.5	36.1	42.0
Sulphide Pad 2	0.630	0.570	0.313	50.3	40.8	45.1	47.7

Table 13-19: Test Heap Leach Pad Silver Recovery Results

Test Pad	Head (Ag g/t)	Calc. Head (Ag g/t)	Tail (Ag g/t)	Recovery by Head-Tail (Ag %)	Recovery by Solutions and Sampled Head (Ag %)	Recovery by Calc. Head (Ag %)	Average (%)
Sulphide Pad 1	13.9	11.3	10.8	22.3	NA	4.4	13.4
Sulphide Pad 2	18.0	14.2	12.6	30.0	NA	11.3	20.6

A sample split was taken from each heap leach pad as they were stacked for column testing. Although the material had been belt agglomerated with 3.6 kg/t cement, the column test for Pad 2 had percolation problems and eventually was abandoned. The recovery results from the column test representing Pad 1 are in close agreement with the test pad results. The column test results are presented in Table 13-20.

Table 13-20: Test Heap Leach Pad Sample Column Test Results

Column Test	P_{80} mm	Calc. Head (Au g/t)	Au Rec. (%)	Ag Rec. (%)	CaO Cons. (kg/t)	NaCN Cons. (kg/t)	pH Preg. Soln (avg)	NaCN Preg Soln (avg ppm)	Days Leaching
Sulphide Pad 1	21.2	0.499	40.3	14.2	7.0	1.03	10.8	62	107
Sulphide Pad 2[1]	23.9	0.57	14.2	0.4	7.0	0.39	10.9	31	36

(1) Percolation problems - abandoned

13.2.5.3 SAGMET Drill Hole Campaign

During 2021 two metallurgical drill holes (PQ core) were drilled (SAGMET-01 and SAGMET-02) to intersect sulphide mineralization at San Agustin (SAGMET drill hole campaign). The core samples were used to make seven composites for column testing, grouped by lithology and alteration type (argillic and silicic). The material for the column tests was crushed to P_{80} 25 mm and agglomerated with 10 kg/t lime and leached for 56 days. Additionally, after these initial columns, three more column tests were run, two of which were a differentiation between high clay and low clay within one composite (Composite 3), and one repeat of the lowest recovery composite (Composite 6). This work was completed during October 2021.

The drill core intervals, lithology type, and alteration type for each composite are shown in Table 13-21.

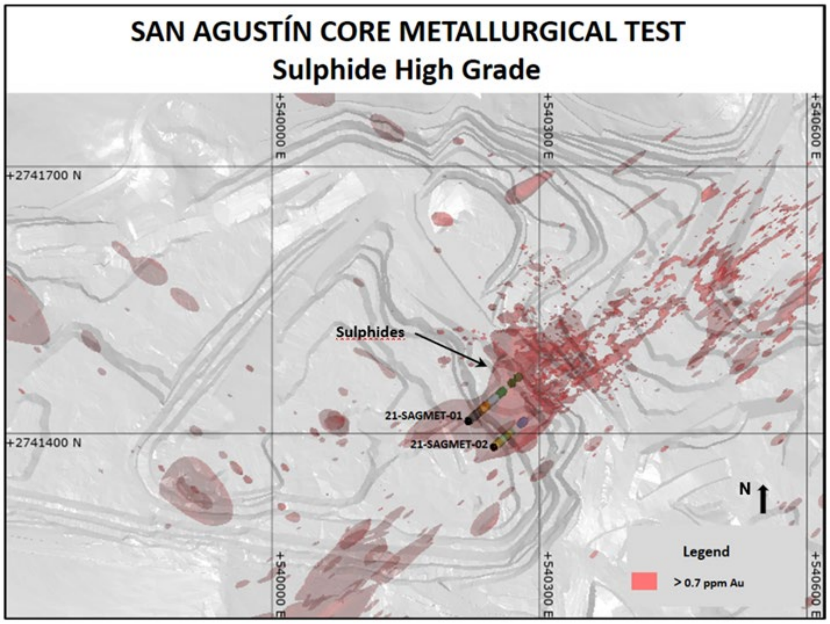
Table 13-21: SAGMET Core Composites

Composite	Drill Hole	Total Interval (m)	Lithology	Alteration
1	21-SAGMET-01	25.25	DATP / SEDS	Argillic
2	21-SAGMET-01	22.05	DBBXA/SEDBXA	Silicic
3	21-SAGMET-01	22.05	DATP/DABXA/SEDBXA	Argillic
4	21-SAGMET-01	25.80	DATP/DABXA/SEDBXA	Silicic
5	21-SAGMET-02	28.40	DATP	Argillic
6	21-SAGMET-02	17.35	SEDS	Argillic
7	21-SAGMET-02	25.20	DATP/BXA/SED	Silicic

A location map showing the locations of the SAGMET drill holes is presented in Figure 13-7.

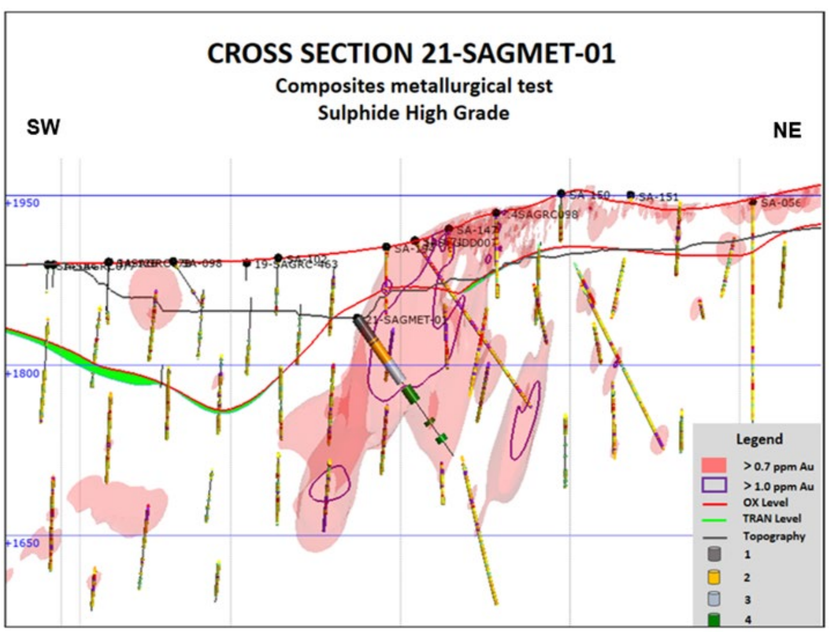
A general cross section of each drill hole, SAGMET-01 and SAGMET-02, is shown in Figure 13-8 and Figure 13-9, respectively.

Figure 13-7: SAGMET Drill Hole Location Map



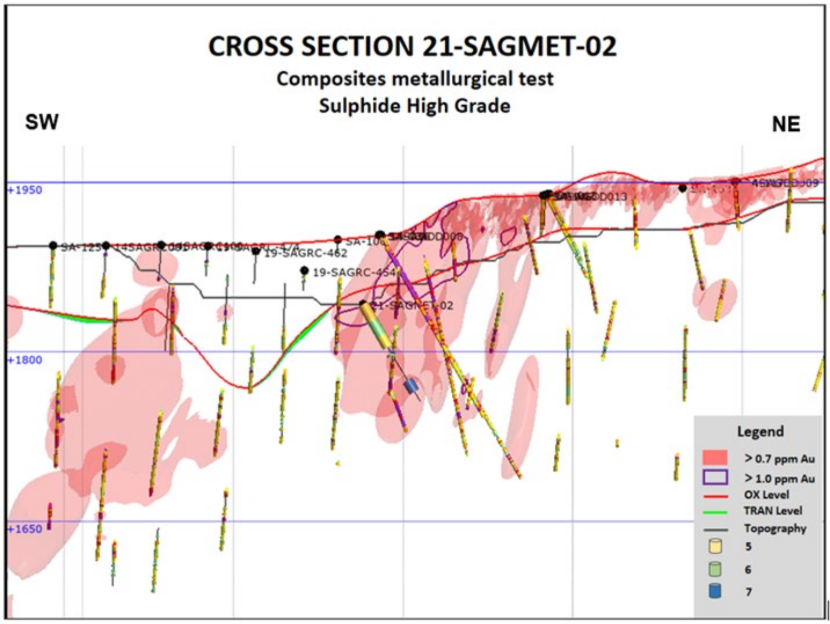
Note: Figure prepared by Argonaut, 2021

Figure 13-8: Drill Hole SAGMET-01 Cross Section



Note: Figure prepared by Argonaut, 2021. Looking northwest. Horizontal scale same as vertical.

Figure 13-9: Drill Hole SAGMET-02 Cross Section



Note: Figure prepared by Argonaut, 2021. Looking northwest. Horizontal scale same as vertical.

Two samples for pulverized bottle roll tests were split from each of the seven column test composites. The results for the pulverized bottle roll tests are presented in Table 13-22. Results for the column tests are presented in Table 13-23.

The recovery curves for the seven column test composites are presented in Figure 13-10. Some composites show a small amount of ongoing leaching at the end of the tests (40 days).

Table 13-22: SAGMET Bottle Roll Test Results

BRT Conditions: 3kg of material at -200 mesh (0.074 mm) in 4.5 Liters of Solution at 1000 ppm NaCN, 96 hr leach time

Drillhole	Type	Composite CLT's	Composite BRT's	Head Assay, g/t			Tails Assay, g/t			Calculated Head, g/t			Consumption, kg/t		Recovery, %		
				Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu	CaO	NaCN	Au	Ag	Cu
21SAGMET01	Argillic	Column 1	PB-Sulphides 1	0.705	4.81	370	0.476	3.57	216	0.916	5.35	402	3.33	4.74	48%	33%	46%
			PB-Sulphides 2	0.275	2.01	250	0.178	1.15	100	0.328	1.87	193	4.00	3.95	46%	38%	48%
	Silicic	Column 2	PB-Sulphides 3	1.651	6.19	128	0.841	3.52	73	1.651	5.42	123	4.00	2.93	49%	35%	41%
			PB-Sulphides 4	1.507	5.05	119	0.734	4.30	68	1.240	7.06	141	3.33	3.44	41%	39%	52%
	Argillic	Column 3	PB-Sulphides 5	1.116	5.50	94	0.765	4.42	73	1.041	6.42	115	3.33	3.13	27%	31%	37%
			PB-Sulphides 6	0.987	4.95	108	0.752	3.82	79	1.022	5.49	118	3.33	3.64	26%	30%	33%
	Silicic	Column 4	PB-Sulphides 7	1.448	11.22	229	1.101	8.38	145	1.553	13.37	281	3.33	3.44	29%	37%	48%
			PB-Sulphides 8	1.146	8.25	143	0.772	4.95	81	1.371	10.39	137	3.33	2.75	44%	52%	41%
21 SAGMET02	Argillic	Column 5	PB-Sulphides 9	0.576	4.00	74	0.468	2.61	54	0.704	3.88	78	3.33	1.81	33%	33%	31%
			PB-Sulphides 10	0.627	5.66	62	0.458	3.27	62	0.787	4.64	86	4.00	2.39	42%	30%	29%
	Argillic	Column 6	PB-Sulphides 11	0.686	4.76	128	0.551	2.97	69	0.904	4.65	111	5.00	2.36	39%	36%	37%
			PB-Sulphides 12	0.585	2.81	150	0.432	1.82	123	0.770	3.01	173	3.33	2.12	44%	40%	29%
	Silicic	Column 7	PB-Sulphides 13	0.777	5.83	131	0.364	4.31	75	0.714	8.70	110	3.33	1.78	49%	50%	32%
			PB-Sulphides 14	0.859	7.11	110	0.633	3.61	47	1.052	8.10	125	3.33	2.38	40%	55%	63%
Average Argillic (1, 5 & 6)				**0.576**	**4.01**	**172**	**0.427**	**2.57**	**104**	**0.735**	**3.90**	**174**	**3.83**	**2.90**	**42%**	**35%**	**37%**
Argillized with White Clays (3)				**1.052**	**5.23**	**101**	**0.759**	**4.12**	**76**	**1.032**	**5.96**	**117**	**3.33**	**3.39**	**27%**	**31%**	**35%**
Average Silicic (2, 4 & 7)				**1.231**	**7.28**	**143**	**0.741**	**4.85**	**82**	**1.264**	**8.84**	**153**	**3.44**	**2.79**	**42%**	**45%**	**46%**

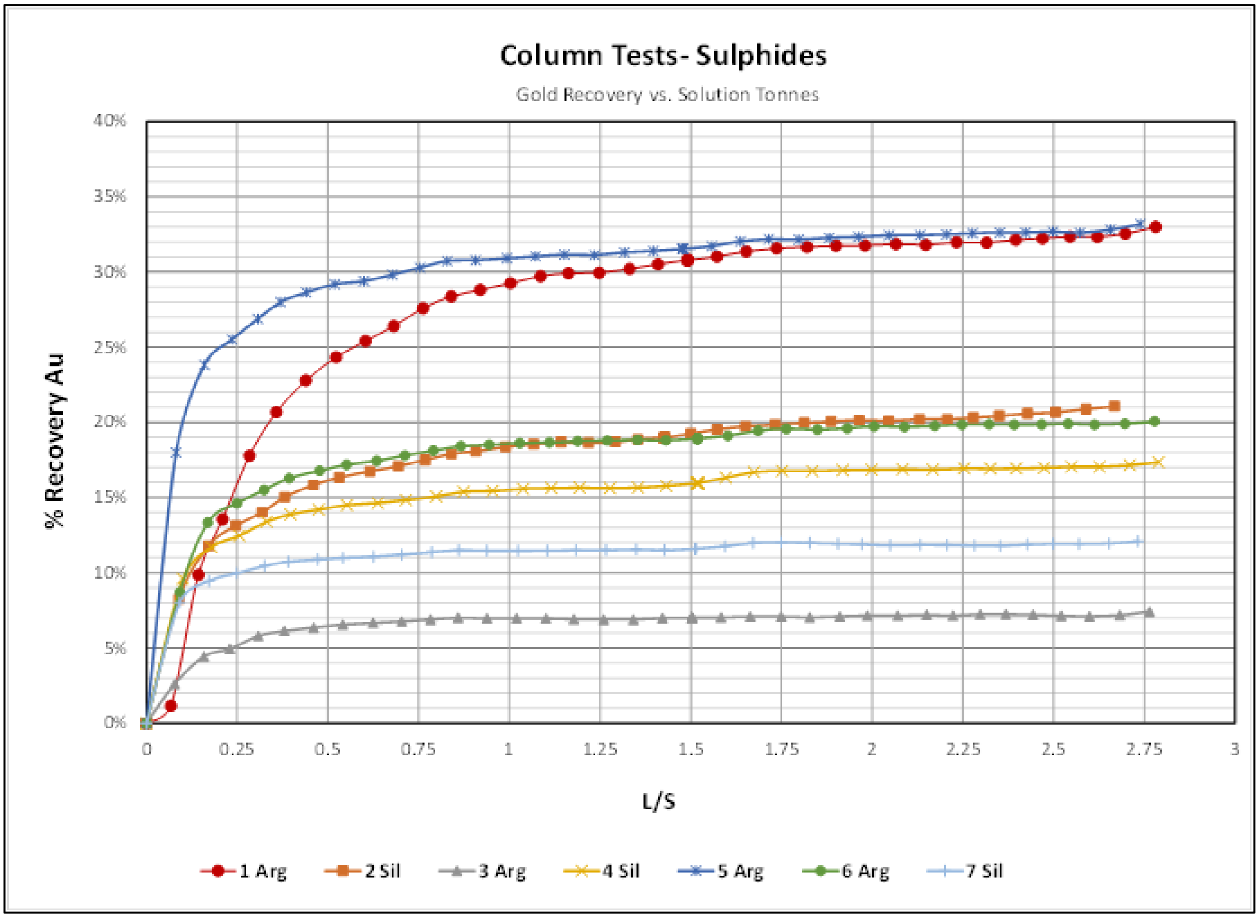
Table 13-23: SAGMET Column Test Results

Column Test Results - Drillhole Sulphide Composites SA 2021

Column Test	Type	P80 (mm)	Calculated Head g/Ton		Tail g/Ton		Recovery %		L/S Ratio	Reagent Consumption kg/Ton		pH Pregnant Solution	NaCN PLS ppm	Leach Days
			Au	Ag	Au	Ag	Au	Ag		CaO	NaCN			
CLT Comp. Sulf. S.A.-1	Argillic	25.4	0.628	5.04	0.424	4.22	32.5%	16.3%	3.69	10.00	0.42	11.4	204	56
CLT Comp. Sulf. S.A.-2	Silicic	25.4	1.496	5.71	1.173	4.83	21.6%	15.4%	3.58	10.00	0.46	11.9	249	56
CLT Comp. Sulf. S.A.-3	Argillic	25.4	0.714	5.16	0.645	4.29	9.7%	16.8%	3.68	10.00	0.42	11.4	240	56
CLT Comp. Sulf. S.A.-4	Silicic	25.4	1.021	8.77	0.794	7.22	22.2%	17.7%	3.71	10.00	0.41	12.1	307	56
CLT Comp. Sulf. S.A.-5	Argillic	25.4	0.813	5.49	0.557	4.38	31.4%	20.2%	3.66	10.00	0.44	11.7	274	56
CLT Comp. Sulf. S.A.-6	Argillic	25.4	0.733	4.45	0.572	3.33	21.9%	25.2%	3.70	10.00	0.42	11.8	260	56
CLT Comp. Sulf. S.A.-7	Silicic	25.4	0.908	12.43	0.771	10.37	15.1%	16.6%	3.65	10.00	0.44	12.1	305	56
CLT Comp. Sulf. S.A.-3 (High Clay)	Argillic	23.4	0.428	5.51	0.417	3.16	2.5%	8.8%	3.06	10.00	0.76	11.0	291	40
CLT Comp. Sulf. S.A.-3 (Low Clay)	Argillic	23.4	1.039	10.12	0.944	8.69	9.2%	14.1%	3.08	10.00	0.75	11.4	329	40
CLT Comp. Sulf. S.A.-6 (Repeat)	Argillic	23.4	0.843	6.52	0.526	4.76	37.6%	27.0%	3.55	10.00	0.32	12.0	307	40
Average Argillic (1, 5 and 6)		**24.9**	**0.754**	**5.38**	**0.520**	**4.18**	**30.9%**	**22.2%**	**3.65**	**10.00**	**0.40**	**11.7**	**261**	**56/40**
Average Argillic - White Clay (3)		**24.1**	**0.727**	**6.93**	**0.669**	**5.38**	**7.1%**	**13.3%**	**3.27**	**10.00**	**0.65**	**11.3**	**286**	**56/40**
Average Silicified (2, 4 y 7)		**25.4**	**1.142**	**8.97**	**0.913**	**7.47**	**19.6%**	**16.6%**	**3.65**	**10.00**	**0.44**	**12.0**	**287**	**56/40**

Note: Ratio L/S is the ratio of liquid to solids or tonnes of solution per tonne of ore; CLT=column leach test; Sulf=sulphide

Figure 13-10: SAGMET Column Test Recovery Curves



Note: Figure prepared by Argonaut, 2021

13.2.5.4 Interim Conclusions of Sulphide Testwork

The testwork indicated that the sulphide stockpile, which contains some transition material, at existing plant production crush size, had higher gold recovery (~40%) than the true sulphide material in the deposit, which column tests show the best gold recovery is 31% for the argillic material. The silicic sulphide material reports even lower gold recovery, at 20%, and the clay materials report 10% or less.

Cyanide consumption is reasonable at 0.14 kg/t for the sulphide material column tests, and an estimated 0.35 kg/t for the sulphide stockpile. Lime consumption is high. The sulphide stockpile material required 9.8 kg/t lime in addition to 3.6 kg/t cement for agglomeration. The sulphide material from the drill holes required 10 kg/t lime addition.

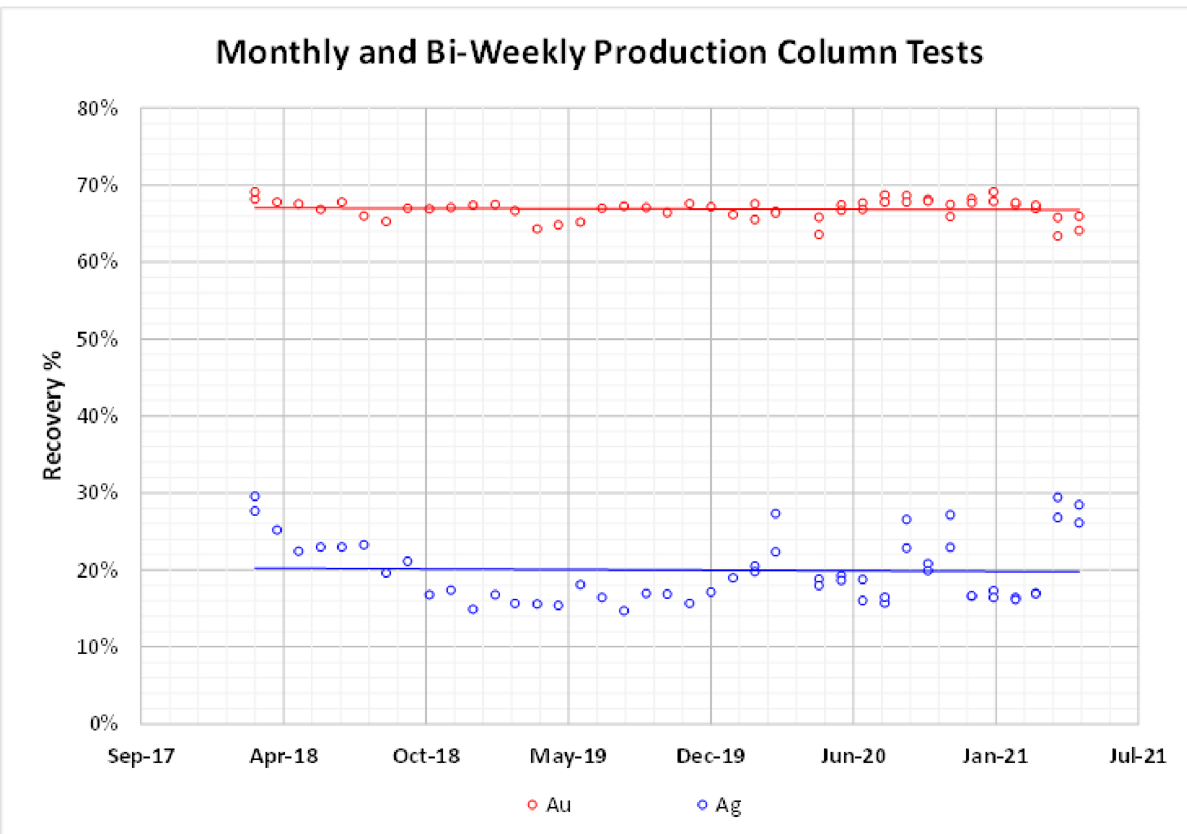
Blending of the argillic sulphide material with oxide material may be a viable treatment strategy, although a detailed economic evaluation of this concept and the practicality of selectively mining only this material type should be done. Further, environmental testing of the sulphides should be conducted to evaluate the long-term effects of heap leaching this material.

Finer crushing studies are also recommended if treatment of the sulphide material by heap leach is to be advanced further. Other treatment schemes could also be considered if preliminary economic studies warrant.

13.2.6 Argonaut Site Production Composite Column Tests

Since the beginning of production, monthly or bi-weekly ore production composites were subjected to column testing for gold and silver recovery at the production crush size of P_{80} 22 mm. The column tests are conducted at the El Castllo metallurgical laboratory. The average project-to-date (PTD) column test recoveries are 66.9% gold recovery and 20% silver recovery. A graph of the column test results is shown in Figure 13-11.

Figure 13-11: Production Column Test Results



Note: Figure prepared by KCA, 2021

By deducting 2% of gold recovery and 5% silver recovery to reflect laboratory to field inefficiencies, a 64.9% field gold recovery and 15% silver recovery would be expected.

13.3 Reagents

From the testwork, reagents requirements are estimated in Table 13-24.

Table 13-24: Reagent Requirements Estimates

Reagent	Requirement Estimate
Cyanide	0.23 kg/t
Lime	4.0 kg/t
Carbon	3% carbon fines loss
Antiscalant	5 to 10 ppm Barren and Pregnant

13.4 Metallurgical Variability

The processed ore was demonstrated to be very consistent in recovery as evidenced by the monthly composite column test data shown in Figure 13-11 and overall heap performance. Additionally, all prior metallurgical tests also show low metallurgical variability.

13.5 Deleterious Elements

The ore at San Agustin contains minor amounts of copper with low solubility. From tests to date, soluble copper ranges from 3 ppm to 12 ppm, not enough to raise any processing concerns.

No preg-rob effects were observed at San Agustin.

Mercury in the ore typically ranges from 0.3 ppm to 3.0 ppm, and retorting for health, safety, environmental and regulatory reasons is conducted prior to smelting.

There are no significant deleterious elements in San Agustin ores.

13.6 Recovery Estimates

At San Agustin, recovery estimates used are forecast endpoint metals recoveries for production forecasting models as shown in Table 13-25.

Table 13-25: Forecast Metals Recoveries

Material Type	% Recovery Au	% Recovery Ag
Crushed Oxide P_{80} 22 mm	66.0	16.0
Crushed Transition P_{80} 22 mm	38.0	16.0
Crushed Sulphide (Stockpile) P_{80} 22 mm	28.2	9.0
ROM Oxide	47.0	6.0

Based upon stacked ore to date, the weighted averages of assumed metal endpoint recoveries are 65% gold recovery and 15.9% silver recovery. These are in very close agreement with the monthly production composite results presented in Section 13.2.6.

13.7 QP Comments on “Item 13: Mineral Processing and Metallurgical Testwork”

Overall, gold recovery and reagents usage projections from the testwork are in close agreement with production results as discussed in Section 17. Actual silver recovery is lower than testwork results and silver inventory is relatively high due to poor silver recovery in the carbon adsorption plant and lower levels of sodium cyanide in the leach solutions (both intentional to favor gold recovery), and insufficient leach times. However, the recent addition of the Merrill-Crowe plant and continued leaching will lead to increased silver recovery ultimately in line with expectations. This is discussed in detail in Section 17.3.

With respect to actual gold recovery and reagents usage, San Agustin performed consistently in line with expectations and is well within industry norms and benchmarks for similar types of operations.

14.0 MINERAL RESOURCE ESTIMATES

14.1 Introduction

Argonaut's technical staff have performed annual updates to the Mineral Resource model and information from infill drilling, blast hole data, and pit mapping were incorporated into the annual updates. In each update, the interpolation parameters were adjusted to improve reconciliation to the short-range block model used for grade control. In August 2021, Argonaut updated the resource block model using the drilling database that includes 834 drill holes totaling 113,649 m and 67,868 samples to support interpolation of gold and silver grades.

14.2 Topographic Data

Argonaut generates topographic contours for the mine area from daily topographic surveys conducted by mine personnel using a Trimble GPS RTK instrument, a Trimble TSC3 data collector, and a R10 GNSS receiver. The topographic contours are referenced to the NAD27 Mexico Zone 13 datum.

The 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).

14.3 Block Model

A three-dimensional block model was setup for the purpose of estimating Mineral Resources for gold and silver. Table 14-1 summarizes key parameters for the non-rotated block model based on NAD27 Mexico Zone 13 UTM coordinates.

Table 14-1: Block Model Dimensions

Parameter	NAD27 Coordinates		Block Size (m)	Number of Blocks	Areal Extent (m)
	Minimum (m)	Maximum (m)			
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

14.4 Gold Assay Grade Distribution

Table 14-2 summarizes gold grade statistics by company at four cut-off grades. The number of metres and incremental percentage of assayed data for each cut-off grade are shown in columns 3 and 4, respectively. The mean gold grade, grade-thickness product, and incremental contained metal for each cut-off 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 14-2: Gold Assay Statistics by Company

Company	Uncapped Gold Statistics Above Cut-off							
	Au Cut-off (g/t)	Total Metres (m)	Inc. Percent (%)	Mean Au (g/t)	Grade Thickness (g/t-m)	Inc. Percent (%)	Std. Dev.	Coeff. Of Variation
All Data	0.00	111,272	45	0.246	27,400	8	5.35	21.74
	0.10	60,742	36	0.413	25,107	25	7.27	17.59
	0.30	20,938	16	0.870	18,212	34	12.41	14.26
	1.00	2,927	3	3.064	8,967	33	32.35	10.56
Monarch	0.00	10,093	27	0.357	3,604	5	0.90	2.52
	0.10	7,414	45	0.460	3,411	24	1.02	2.23
	0.30	2,874	24	0.891	2,561	38	1.54	1.72
	1.00	436	4	2.756	1,200	33	3.06	1.11
Silver Standard	0.00	3,897	28	0.347	1,351	4	1.18	3.40
	0.10	2,807	41	0.463	1,300	22	1.38	2.97
	0.30	1,207	26	0.829	1,001	39	2.04	2.45
	1.00	204	5	2.345	478	35	4.56	1.94
Geologix	0.00	39,812	38	0.284	11,323	7	0.67	2.36
	0.10	24,652	36	0.426	10,502	24	0.82	1.91
	0.30	10,506	23	0.742	7,795	41	1.16	1.57
	1.00	1,481	4	2.131	3,156	28	2.59	1.21
Argonaut	0.00	57,470	55	0.201	11,555	14	7.09	35.28
	0.10	25,868	34	0.385	9,959	29	10.56	27.44
	0.30	6,352	10	1.047	6,651	23	21.27	20.32
	1.00	806	1	4.965	4,003	35	59.64	12.01

Table 14-2 shows that the majority of the gold assay data were collected by two companies: Geologix (36%) and Argonaut (52%). The high coefficient of variation for the Argonaut gold data is due to the presence of high-grade outlier values that were collected from the sulphide material drilled.

Gold assay statistics are tabulated in Table 14-3 grouped by lithological units. There are three principal mineralized geological units recognized at the San Agustin deposit: dacite porphyry, sedimentary rocks, and dacite breccia. Twenty-six other lithologies were combined together in Table 14-3 in the “All Other Lithologies” category. These 26 unique units collectively represent about 3% of the total gold assay data.

Table 14-3: Gold Assay Statistics by Lithology

Lithology	Uncapped Gold Statistics Above Cut-off							
	Au Cut-off (g/t)	Total Metres (m)	Inc. Percent (%)	Mean Au (g/t)	Grade Thickness (g/t-m)	Inc. Percent (%)	Std. Dev.	Coeff. Of Variation
All Data	0.00	111,272	45	0.246	27,400	8	5.35	21.74
	0.10	60,742	36	0.413	25,107	25	7.27	17.59
	0.30	20,938	16	0.870	18,212	34	12.41	14.26
	1.00	2,927	3	3.064	8,967	33	32.35	10.56
Dacite	0.00	81,557	46	0.230	18,774	9	6.18	26.85
	0.10	43,664	38	0.389	17,006	28	8.49	21.80
	0.30	12,890	14	0.910	11,731	30	15.65	17.20
	1.00	1,601	2	3.779	6,052	32	43.38	11.48
Sedimentary Rocks	0.00	21,956	46	0.269	5,909	8	0.66	2.46
	0.10	11,896	30	0.456	5,420	21	0.85	1.87
	0.30	5,342	20	0.784	4,188	40	1.18	1.50
	1.00	897	4	2.061	1,848	31	2.40	1.17
Dacite Breccia	0.00	4,363	16	0.450	1,964	1	0.64	1.42
	0.10	3,668	34	0.531	1,946	15	0.67	1.26
	0.30	2,197	42	0.755	1,659	49	0.79	1.04
	1.00	344	8	2.011	691	35	1.39	0.69
All Other Lithologies	0.00	3,396	55	0.227	770	22	0.41	2.30
	0.10	1,514	30	0.397	601	27	0.56	1.22
	0.30	509	12	0.773	393	25	1.22	1.21
	1.00	85	3	2.335	199	26	2.99	0.89

Table 14-4 tabulates gold statistics by oxidation state. The data in Table 14-4 show that the mean gold grade of oxide samples is approximately 38% lower than sulphide samples. Transition samples (a zone located between the upper oxidized and lower sulphide portions of the deposit) only represent about 2% of the assayed data and reflect an abrupt change between highly oxidized and sulphidic material. The CV of the gold oxide data is slightly higher than three while the sulphide CV is around 26, reflecting the presence of numerous high-grade outlier values in the sulphide portion of the deposit.

Table 14-4: Gold Assay Statistics by Oxidation

Oxidation	Uncapped Gold Statistics Above Cut-off							
	Au Cut-off (g/t)	Total Metres (m)	Inc. Percent (%)	Mean Au (g/t)	Grd-Thk (g/t-m)	Inc. Percent (%)	Std. Dev.	Coeff. Of Variation
All Data	0.00	111,272	45	0.246	27,400	8	5.35	21.74
	0.10	60,742	36	0.413	25,107	25	7.27	17.59
	0.30	20,938	16	0.870	18,212	34	12.41	14.26
	1.00	2,927	3	3.064	8,967	33	32.35	10.56
Oxide	0.00	57,750	52	0.194	11,203	13	0.61	3.15
	0.10	27,569	34	0.354	9,759	30	0.85	2.42
	0.30	8,071	12	0.794	6,408	30	1.49	1.88
	1.00	1,202	2	2.496	2,999	27	3.32	1.33
Transition	0.00	2,516	50	0.156	393	17	0.18	1.15
	0.10	1,255	38	0.260	326	42	0.21	0.80
	0.30	294	11	0.546	161	35	0.26	0.47
	1.00	20	1	1.248	25	6	0.32	0.26
Sulphide	0.00	50,913	37	0.315	16,038	6	8.04	25.52
	0.10	31,862	38	0.475	15,135	22	10.19	21.45
	0.30	12,555	21	0.928	11,651	36	16.20	17.45
	1.00	1,704	3	3.495	5,955	37	42.66	12.21
Undefined	0.00	92	39	0.206	19	9	0.23	1.13
	0.10	56	41	0.309	17	29	0.26	0.85
	0.30	18	18	0.654	12	54	0.25	0.38
	1.00	2	2	1.020	2	8	n/a	n/a

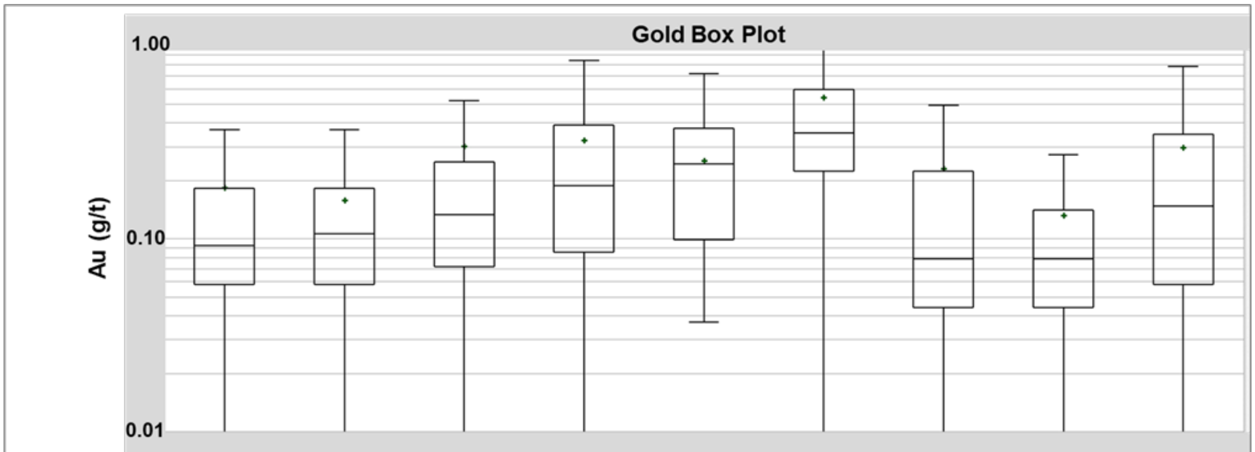
Table 14-5 tabulates uncapped gold assay statistics by oxidation state versus location relative to the Main Fault, an important northwesterly trending structure described in Section 7. The distribution of gold grades is similar in both structural domains. The mean gold grade using a 0.1 g/t cut-off is only 1% higher east of the fault, while the mean gold grade using a 0.3 g/t cut-off is 11% higher west of the fault. Oxide CVs are similar on either side of the structure while there is a much higher CV for sulphide samples located east of the Main Fault.

Table 14-5: Gold Assay Statistics by Oxidation Relative to the Main Fault

Oxidation by Location	Uncapped Gold Statistics Above Cut-off							
	Au Cut-off (g/t)	Total Metres (m)	Inc. Percent (%)	Mean Au (g/t)	Grd-Thk (g/t-m)	Inc. Percent (%)	Std. Dev.	Coeff. Of Variation
All Data	0.00	111,272	45	0.246	27,400	8	5.35	21.74
	0.10	60,742	36	0.413	25,107	25	7.27	17.59
	0.30	20,938	16	0.870	18,212	34	12.41	14.26
	1.00	2,927	3	3.064	8,967	33	32.35	10.56
Oxide West of Fault	0.00	33,752	57	0.178	6,008	15	0.67	3.77
	0.10	14,494	31	0.353	5,117	30	0.99	2.81
	0.30	3,970	10	0.841	3,340	27	1.81	2.15
	1.00	616	2	2.778	1,713	29	4.07	1.47
Transition West of Fault	0.00	1,093	36	0.198	216	11	0.19	0.97
	0.10	702	46	0.276	194	40	0.20	0.73
	0.30	204	18	0.521	106	44	0.21	0.41
	1.00	9	1	1.183	11	5	0.27	0.23
Sulphide West of Fault	0.00	16,501	38	0.237	3,911	8	0.72	3.04
	0.10	10,291	38	0.351	3,610	28	0.90	2.57
	0.30	3,952	22	0.636	2,513	45	1.42	2.24
	1.00	357	2	2.087	745	19	4.39	2.10
Oxide East of Fault	0.00	23,849	46	0.217	5,175	11	0.52	2.40
	0.10	12,996	37	0.356	4,629	30	0.67	1.90
	0.30	4,087	15	0.751	3,069	34	1.10	1.46
	1.00	584	2	2.227	1,300	25	2.31	1.04
Transition East of Fault	0.00	1,423	61	0.124	176	25	0.16	1.30
	0.10	553	33	0.241	133	45	0.21	0.89
	0.30	90	6	0.604	54	23	0.33	0.55
	1.00	11	1	1.304	14	8	0.37	0.29
Sulphide East of Fault	0.00	34,409	37	0.355	12,215	5	9.86	27.78
	0.10	21,571	38	0.537	11,583	20	12.45	23.19
	0.30	8,603	21	1.063	9,148	32	19.56	18.40
	1.00	1,347	4	3.857	5,194	43	47.77	12.39
Undefined	0.00	245	45	0.210	52	14	0.25	1.21
	0.10	135	42	0.329	44	45	0.29	0.89
	0.30	33	12	0.655	21	34	0.28	0.44
	1.00	3	1	1.193	4	7	0.38	0.28

The distribution of gold grades is graphically illustrated by the box plot diagrams in Figure 14-1, which compare gold grades based on lithological and oxidation codes.

Figure 14-1: Gold Box Plot – Lithology and Oxidation



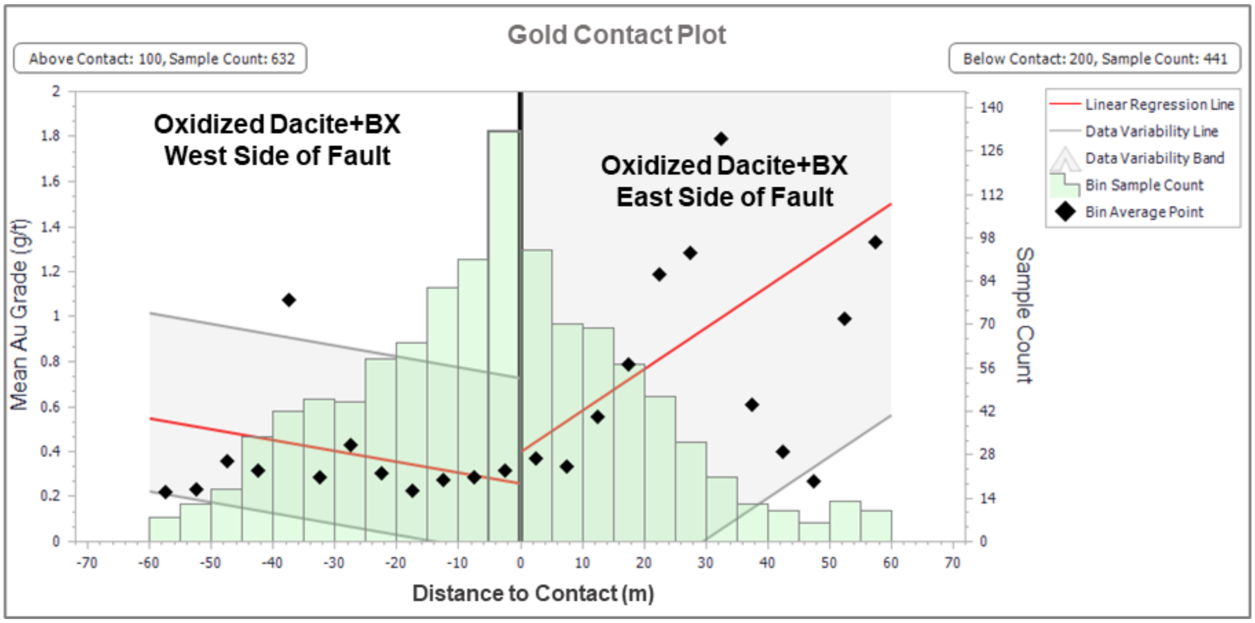
Statistics	Ox - Dacite	Trn - Dacite	Sul - Dacite	Ox - BX	Trn - BX	Sul - BX	Ox - Seds	Trn - Seds	Sul - Seds
Valid Data	28705	1477	20145	1011	22	1473	5030	118	7393
Total Data	28765	1478	20247	1013	22	1518	5065	119	7418
Minimum	0.003	0.007	0.003	0.003	0.037	0.003	0.003	0.009	0.003
Maximum	34.8	2.11	1380	7.84	0.717	11.2	46.9	1.325	12.4
Mean	0.184	0.159	0.302	0.325	0.254	0.539	0.232	0.132	0.297
Variance	0.328	0.032	94.935	0.231	0.03	0.512	0.686	0.034	0.272
Standard Deviation	0.573	0.179	9.743	0.481	0.174	0.716	0.828	0.186	0.522
Coefficient Of Variatio	3.119	1.126	32.298	1.481	0.687	1.328	3.574	1.401	1.759
First Quartile (Q1)	0.047	0.056	0.065	0.077	0.091	0.214	0.033	0.037	0.057
Median (Q2)	0.094	0.104	0.131	0.183	0.239	0.361	0.085	0.077	0.15
Third Quartile (Q3)	0.185	0.189	0.253	0.393	0.377	0.596	0.227	0.146	0.349
Upper Outlier Limit	0.392	0.389	0.535	0.866	0.717	1.165	0.517	0.305	0.786
Lower Outlier Limit	0.003	0.007	0.003	0.003	0.037	0.003	0.003	0.009	0.003

Note: Figure prepared by Argonaut, 2021. Ox=oxide, Trn=transition, Sul=sulphide, BX=dacite breccia, Seds=sedimentary rocks.

The data in Figure 14-1 show a consistent trend of increasing gold grades from oxide to transition to sulphide material. This is very apparent for the dacite and sedimentary rocks.

Gold grade contact plots were generated to better understand the relationship of grade by lithology and the Main Fault. Figure 14-2 shows how the mean gold grade of oxidized dacite and dacite breccia compare on the west and east sides of the Main Fault. There is no significant difference in the gold grades immediately adjacent to the fault plane, however, the gold grades from 15 m to 40 m on the east side of the Main Fault are higher because of the high-grade mineralization hosted in the breccias.

Figure 14-2: Gold Contact Plot – Oxidized Dacite and Dacite Breccia, Main Fault West vs Main Fault East

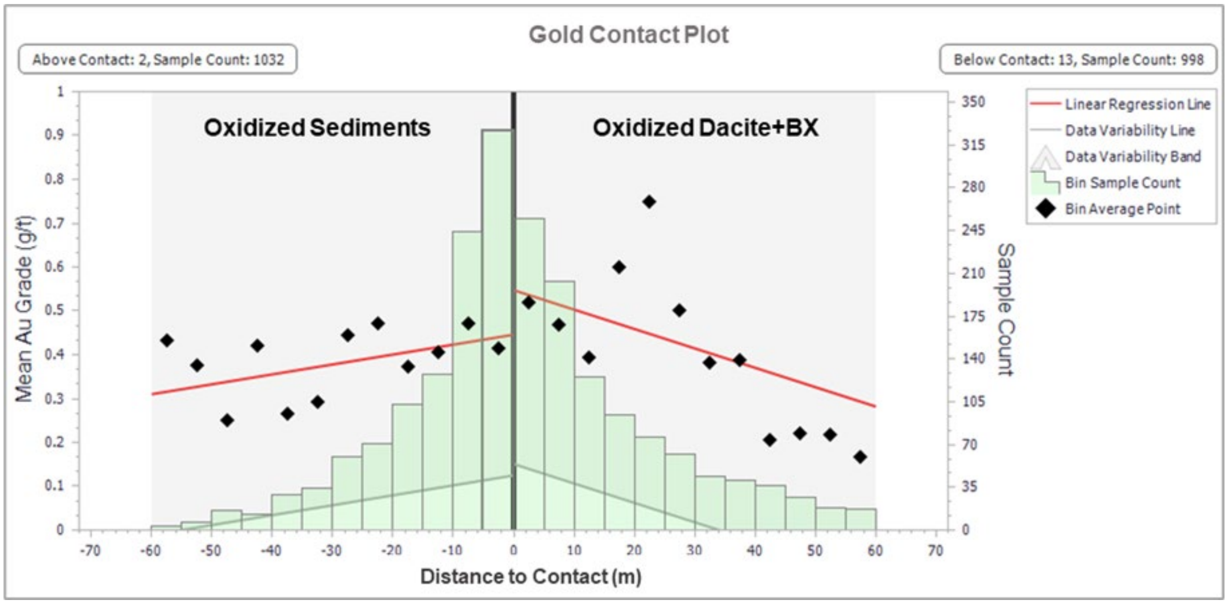


Note: Figure prepared by Argonaut, 2021. BX=dacite breccia.

Figure 14-3 shows that there is a similar transitional nature to gold mineralization when grades hosted in oxidized dacite and dacite breccia are compared to oxidized sedimentary rocks.

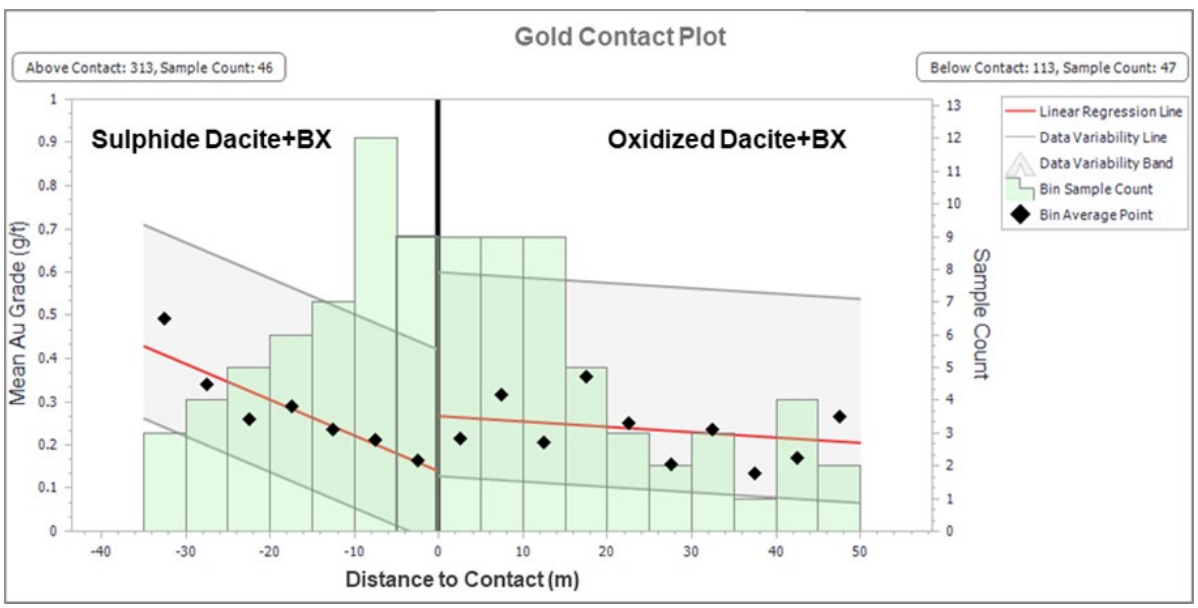
Figure 14-4 is a gold contact plot that compares oxidized dacite and dacite breccia to sulphide dacite and dacite breccia. The data in Figure 14-4 show that the gold grades in oxidized dacite are slightly higher than sulphide dacite at the oxide/sulphide boundary (0.251 g/t versus 0.246 g/t). Gold grades steadily increase in sulphide material with increasing distance from the oxide/sulphide contact.

Figure 14-3: Gold Contact Plot – Oxidized Dacite and Dacite Breccia vs Oxidized Sedimentary Rocks



Note: Figure prepared by Argonaut, 2021. BX=dacite breccia.

Figure 14-4: Gold Contact Plot – Oxidized Dacite and Dacite Breccia vs Sulphide Dacite and Dacite Breccia



Note: Figure prepared by Argonaut, 2021. BX=dacite breccia.

The results from basic gold grade statistics and gold contact plots helped to define the gold grade estimation plan. 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.

14.5 Silver Assay Grade Distribution

Uncapped silver grade assay statistics by lithological unit are summarized in Table 14-6 at four different cut-off grades. All but the three, main, mineralized lithologies were combined into a single population named “All Other Lithologies”.

Table 14-6: Silver Assay Statistics by Lithology

Lithology	Uncapped Silver Statistics Above Cut-off							
	Ag Cut-off (g/t)	Total Metres (m)	Inc. Percent (%)	Mean Ag (g/t)	Grd-Thk (g/t-m)	Inc. Percent (%)	Std. Dev.	Coeff. Of Variation
All Data	0	111,092	71	6	720,750	15	25	3.80
	5	31,673	14	19	609,680	15	44	2.28
	10	16,331	8	31	501,541	18	59	1.92
	20	7,015	6	53	369,557	51	85	1.60
Dacite	0	81,377	77	5	415,731	20	18	3.44
	5	18,851	12	18	332,905	17	34	1.91
	10	9,072	7	29	263,327	18	46	1.57
	20	3,665	5	51	187,673	45	65	1.28
Sedimentary Rocks	0	21,956	59	9	197,278	14	21	2.35
	5	9,023	19	19	169,058	15	30	1.61
	10	4,889	13	29	139,593	20	38	1.34
	20	2,125	10	47	100,714	51	52	1.10
Dacite Breccia	0	4,363	35	18	78,698	4	48	2.69
	5	2,833	22	27	75,219	9	59	2.21
	10	1,861	20	37	68,075	17	70	1.91
	20	1,010	23	54	54,820	70	90	1.66
All Other Lithologies	0	3,396	72	10	34,366	4	19	2.38
	5	965	13	34	32,931	8	51	1.76
	10	508	9	60	30,275	19	95	1.68
	20	214	6	111	23,859	69	164	1.40

The mean silver grade at a zero cut-off is 5.0 g/t to 10.0 g/t for all but dacite breccia, which is more than twice that grade suggesting that the distribution of silver grades may be more structurally controlled than the gold mineralization. About 15% of all the silver assays are above a 10 g/t cut-off grade whereas 43% of the dacite breccia silver samples are above that cut-off. Table 14-7 summarizes silver assay statistics by oxidation state. There is little difference in the mean silver grade relative to oxidation state.

Silver assay statistics are summarized in Table 14-8 based on oxidation state and location relative to the Main Fault. Oxidized silver grades are similar on either side of the Main Fault, but sulphide silver grades are significantly higher on the west side of the Main Fault. This relationship is the opposite the relationship seen in gold.

Table 14-7: Silver Assay Statistics by Oxidation

Oxidation	Uncapped Silver Statistics Above Cut-off							
	Ag Cut-off (g/t)	Total Metres (m)	Inc. Percent (%)	Mean Ag (g/t)	Grd-Thk (g/t-m)	Inc. Percent (%)	Std. Dev.	Coeff. Of Variation
All Data	0	111,092	71	6	720,750	15	25	3.80
	5	31,673	14	19	609,680	15	44	2.28
	10	16,331	8	31	501,541	18	59	1.92
	20	7,015	6	53	369,557	51	85	1.60
Oxide	0	57,649	76	5	310,436	18	20	3.67
	5	13,627	12	19	255,823	16	38	2.52
	10	6,618	7	31	206,781	17	51	1.65
	20	2,838	5	55	154,766	50	72	1.32
Transition	0	2,516	73	8	19,488	11	21	2.73
	5	684	11	25	17,257	10	35	1.39
	10	405	7	38	15,340	13	41	1.08
	20	230	9	56	12,785	66	47	0.85
Sulphide	0	50,834	66	8	395,486	15	30	3.82
	5	17,345	16	19	336,366	15	49	2.52
	10	9,301	11	30	278,677	20	65	2.16
	20	3,944	8	51	201,556	51	95	1.85
Undefined	0	92	82	4	399	42	6	1.46
	5	17	10	14	230	17	9	0.64
	10	8	5	21	161	19	6	0.26
	20	3	3	28	84	21	5	0.19

Table 14-8: Silver Assay Statistics by Oxidation Relative to the Main Fault

Oxidation by Location	Uncapped Silver Statistics Above Cut-off							
	Ag Cut-off (g/t)	Total Metres (m)	Inc. Percent (%)	Mean Ag (g/t)	Grd-Thk (g/t-m)	Inc. Percent (%)	Std. Dev.	Coeff. Of Variation
All Data	0	111,092	71	6	720,750	15	25	3.80
	5	31,673	14	19	609,680	15	44	2.28
	10	16,331	8	31	501,541	18	59	1.92
	20	7,015	6	53	369,557	51	85	1.60
Oxide West of Fault	0	33,651	76	6	191,430	17	19	3.36
	5	8,012	12	20	159,003	14	36	1.81
	10	4,003	6	33	131,522	15	47	1.44
	20	1,863	6	55	102,338	53	63	1.14
Transition West of Fault	0	1,093	59	12	13,154	8	26	2.16
	5	448	14	27	12,113	8	36	1.32
	10	297	11	37	11,054	14	40	1.07
	20	174	16	53	9,196	70	46	0.87
Sulphide West of Fault	0	16,422	52	11	181,561	4	31	2.85
	5	7,900	17	22	174,793	11	44	1.99
	10	5,125	16	30	154,721	21	53	1.75
	20	2,468	15	47	115,729	64	72	1.53
Oxide East of Fault	0	23,849	77	5	118,936	18	21	4.18
	5	5,589	13	17	97,289	18	41	2.35
	10	2,607	7	29	75,523	19	57	1.98
	20	973	4	54	52,585	44	87	1.62
Transition East of Fault	0	1,423	83	4	6,386	19	16	3.51
	5	236	9	22	5,157	14	34	1.54
	10	108	4	40	4,285	11	44	1.11
	20	56	4	64	3,589	56	50	0.78
Sulphide East of Fault	0	34,409	73	6	210,898	23	29	4.67
	5	9,444	15	17	161,894	18	52	3.06
	10	4,176	8	30	123,988	18	77	2.58
	20	1,475	4	58	85,477	41	122	2.11
Undefined	0	245	82	4	1,032	46	7	1.61
	5	44	12	13	559	23	9	0.65
	10	15	4	21	319	17	8	0.39
	20	5	2	29	147	14	13	0.36

14.6 High-Grade Outlier Treatment

Table 14-9 shows the distribution of all gold assays above a 0.05 g/t cut-off grade. The data in Table 14-9 show that about 49% of the contained gold is in 10% of the samples and the top 1% of the samples (515 samples) contain 48% of the contained metal. If the top decile (90-100%) has more than twice the metal content of the 80-90% decile, capping is warranted.

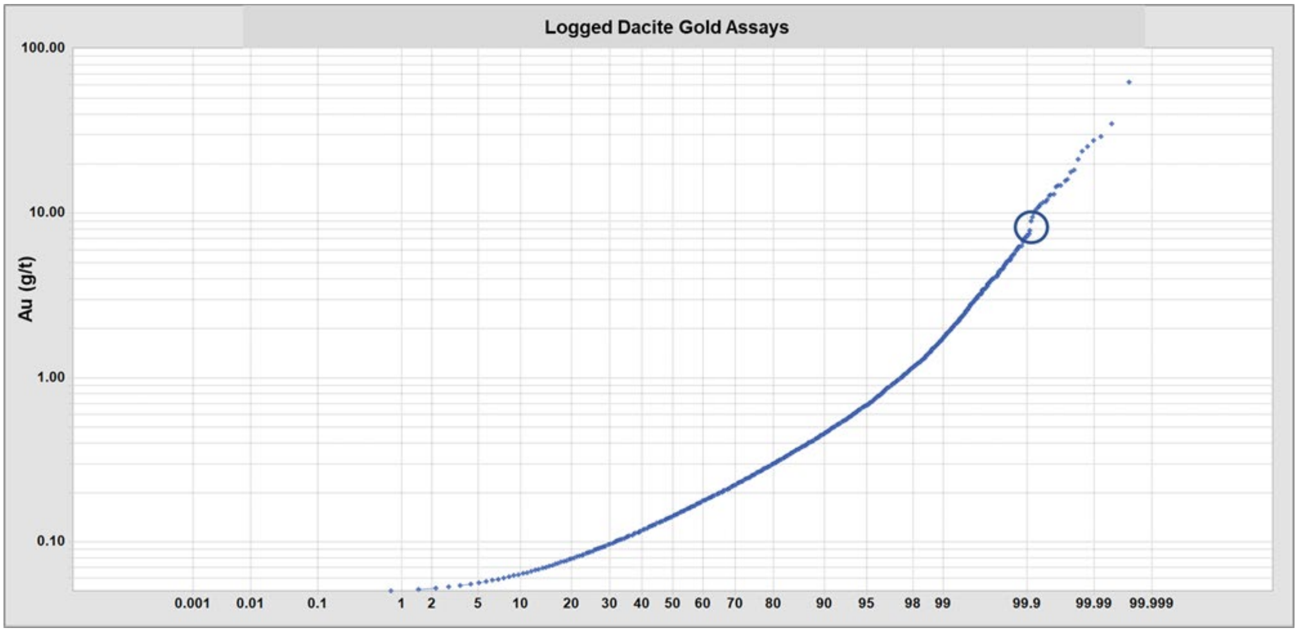
Table 14-9: Gold Distribution by Deciles and Percentiles

Decile	Sample Count	Min Grade (Au g/t)	Mean Grade (Au g/t)	Max Grade (Au g/t)	G-T Product (Au g/t)	G-T of Total (%)
0 to 10	5,170	0.050	0.057	0.065	294	1.81
10 to 20	5,171	0.065	0.073	0.082	377	2.32
20 to 30	5,171	0.082	0.092	0.102	474	2.92
30 to 40	5,171	0.102	0.114	0.126	587	3.62
40 to 50	5,171	0.126	0.141	0.156	727	4.48
50 to 60	5,171	0.156	0.176	0.196	908	5.59
60 to 70	5,171	0.196	0.223	0.253	1,153	7.10
70 to 80	5,171	0.253	0.296	0.348	1,531	9.43
80 to 90	5,171	0.348	0.429	0.543	2,216	13.65
90 to 100	5,167	0.543	1.546	1,380.0	7,986	49.19
Total	*51,705*	*0.050*	*0.314*	*1,380.0*	*16,235*	*100.00*
Percentile	**Sample Count**	**Min Grade (Au g/t)**	**Mean Grade (Au g/t)**	**Max Grade (Au g/t)**	**G-T Product (Au g/t)**	**G-T of Total (%)**
90 to 91	516	0.543	0.560	0.578	289	3.62
91 to 92	517	0.578	0.599	0.621	310	3.88
92 to 93	517	0.621	0.645	0.671	334	4.18
93 to 94	517	0.671	0.698	0.732	361	4.52
94 to 95	517	0.732	0.774	0.819	400	5.01
95 to 96	517	0.819	0.880	0.939	455	5.70
96 to 97	517	0.939	1.013	1.100	524	6.56
97 to 98	517	1.100	1.230	1.400	636	7.97
98 to 99	517	1.400	1.702	2.150	880	11.02
99 to 100	515	2.150	7.376	1,380.0	3,799	47.59
Sub-total	*5,167*	*0.543*	*1.545*	*1,380.0*	*7,983*	*100.00*

Note: G-T Product = Sample Count * Mean Grade

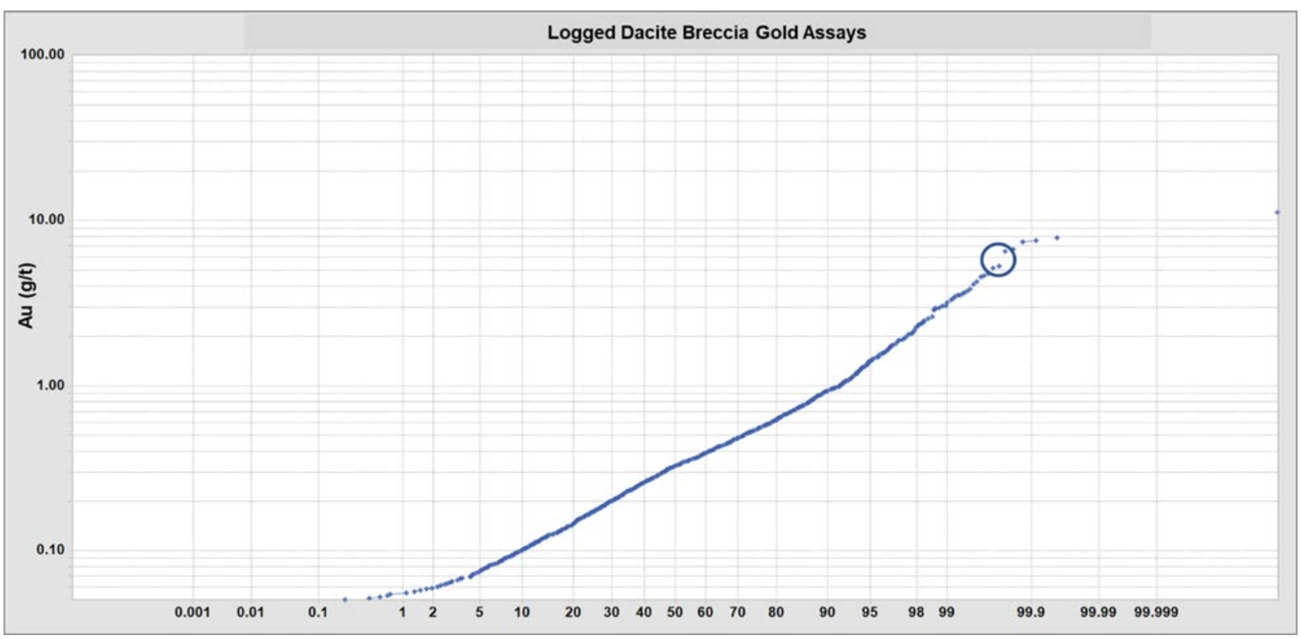
Cumulative probability plots were created to identify high-grade outliers and to establish a capping limit. Figure 14-5 is a cumulative probability plot of gold assays in dacite. Figure 14-6 and Figure 14-7 are cumulative probability plots for gold assays in dacite breccia and gold assays for sedimentary rocks, respectively.

Figure 14-5: Gold Assay Cumulative Probability Plot – Dacite



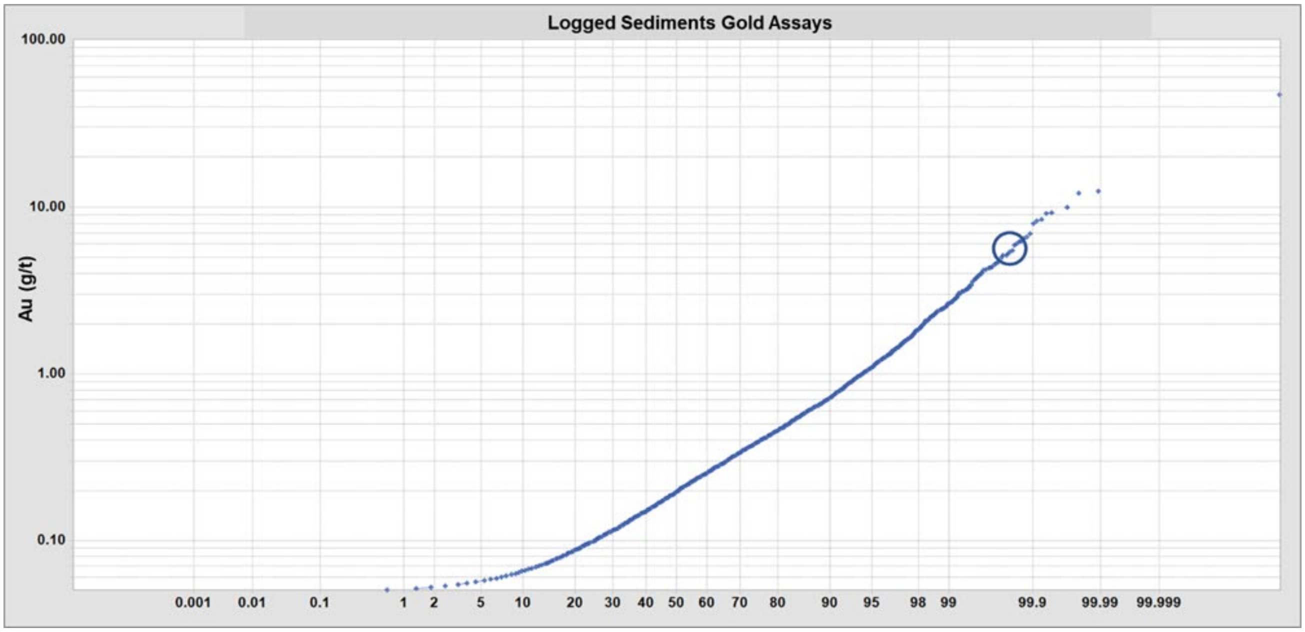
Note: Figure prepared by Argonaut, 2021

Figure 14-6: Gold Assay Cumulative Probability Plot – Dacite Breccia



Note: Figure prepared by Argonaut, 2021

Figure 14-7: Gold Assay Cumulative Probability Plot – Sedimentary Rocks



Note: Figure prepared by Argonaut, 2021

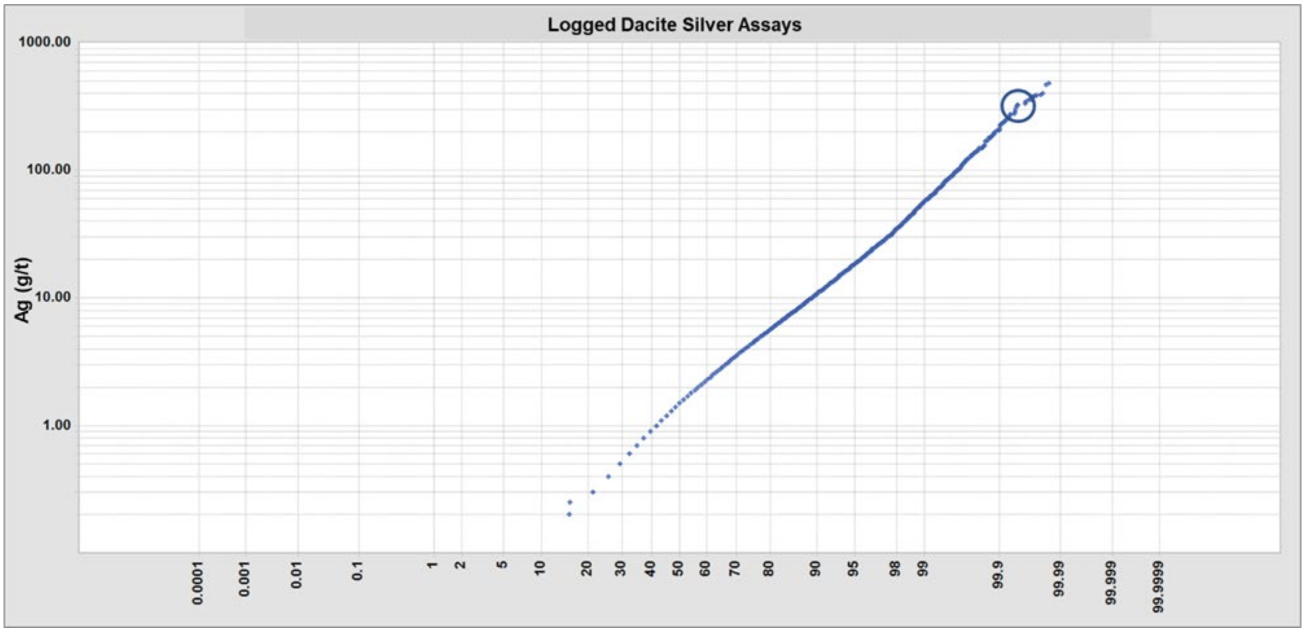
Based on the break in the cumulative probability plots, Argonaut elected to cap raw gold assays at 7.0 g/t for the three principal host rocks. Table 14-10 tabulates some basic statistics associated with capping gold grades at different limits, including the number of samples that would be capped at each potential capping threshold along with the mean grade, standard deviation, and CV. The capping limit of 7.0 g/t Au affects 65 samples.

Table 14-10: Gold Capping Sensitivity

Cap Grade (Au g/t)	No. Capped	Mean Grade (Au g/t)	Std Dev (Au g/t)	CV
None	0	0.246	5.350	21.74
10.0	36	0.221	0.463	2.094
9.5	42	0.221	0.457	2.069
9.0	48	0.221	0.450	2.041
8.5	49	0.220	0.443	2.013
8.0	52	0.220	0.437	1.985
7.5	59	0.219	0.43	1.957
7.0	**65**	**0.219**	**0.422**	**1.927**
6.5	71	0.219	0.414	1.896
6.0	85	0.218	0.406	1.862
5.5	94	0.217	0.397	1.826
5.0	116	0.217	0.387	1.787

Figure 14-8 shows a cumulative probability plot for silver assays in dacite. Based on the break in the distribution, silver assays were capped at 300 g/t. This capping level resulted in 59 samples being cut to 300 g/t Ag.

Figure 14-8: Silver Assay Cumulative Probability Plot – Dacite



Note: Figure prepared by Argonaut, 2021

Similar cumulative probability plots were generated from silver assays in dacite breccia and sedimentary rocks. A capping threshold of 300 g/t Ag was established for those two units based on interpretation of the probability plots.

14.7 Bulk Density Data

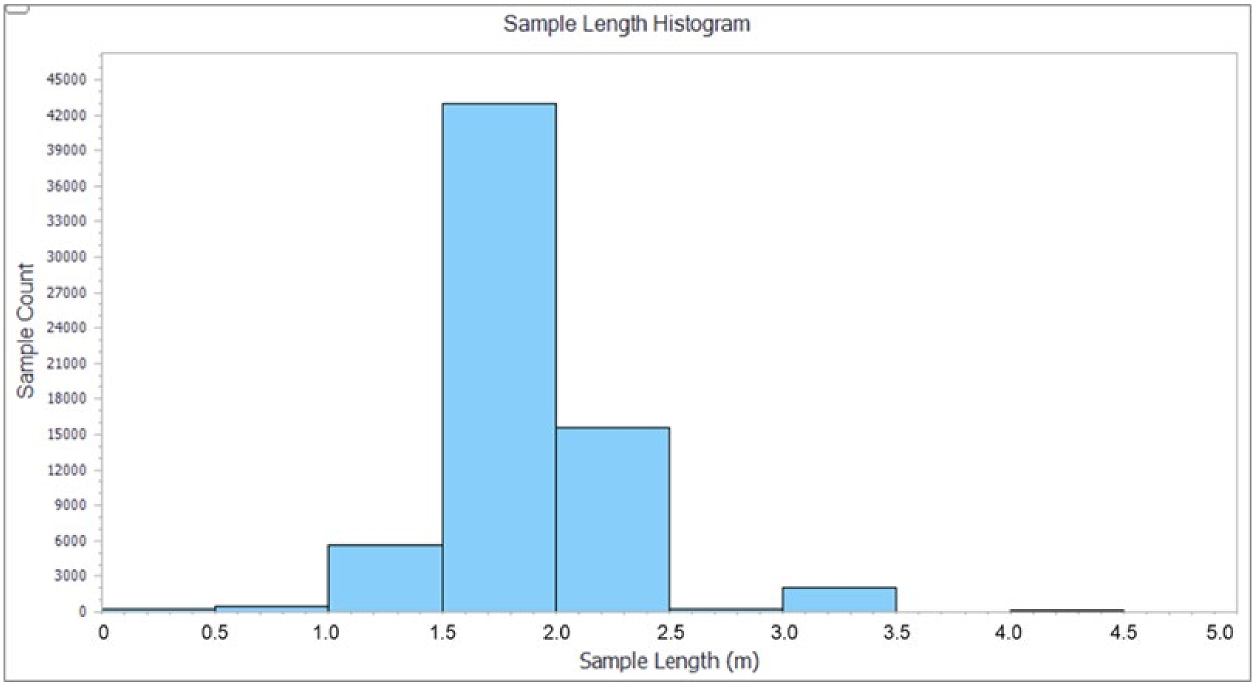
Based on a review of the available density data, Argonaut assigned bulk density values of 2.27 g/cm^3 to oxide and transition blocks and 2.76 g/cm^3 to sulphide blocks. Oxide blocks coded as alluvium and conglomerate were assigned the oxide bulk density of 2.27 g/cm^3. This density value may be appropriate for these surficial deposits, but some additional work should be undertaken to support more accurate estimates to support mine planning.

14.8 Drill Hole Compositing

Most of the original assay data intervals were in the range of 1.52 m to 2.00 m long. Figure 14-9 graphically illustrates the distribution of gold assay sample lengths. Table 14-11 breaks down the gold assay data by various sample length ranges.

Drill hole assays were composited to 3 m fixed lengths.

Figure 14-9: Assay Sample Length



Note: Figure prepared by Argonaut, 2021

Table 14-11: Gold Assay Sample Lengths

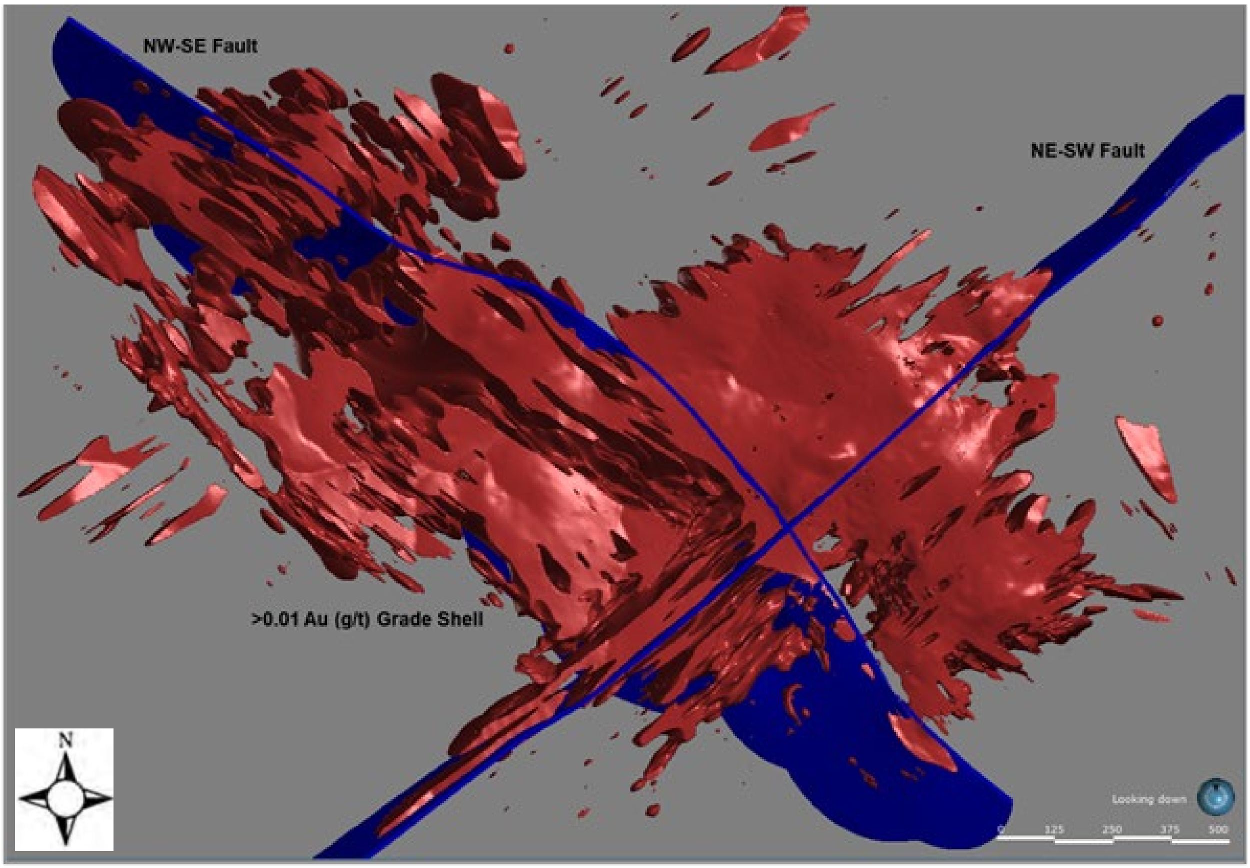
Length (m)	Number	Total Length (m)	Percent of Total (%)
0 to 1	706	408	0.4
1 to 2	48,641	71,669	64.4
2 to 3	15,806	32,007	28.86
3 to 4	2,100	6,355	5.7
4 to 5	110	475	0.4
5 to 6	29	144	0.1
> 6	28	215	0.2
Total	**67,420**	**111,272**	**100.0**

Note: Totals may not add up due to rounding

14.9 Geological Constraints

Argonaut's geological staff and geological consultants constructed a number of wireframe solids using Leapfrog software. These three-dimensional solids included shapes for the gold grade shell using a 0.1 g/t Au cut-off, key lithological units, oxidation units, and a critical fault plane. Figure 14-10 shows the gold grade shell.

Figure 14-10: Gold Grade Shell



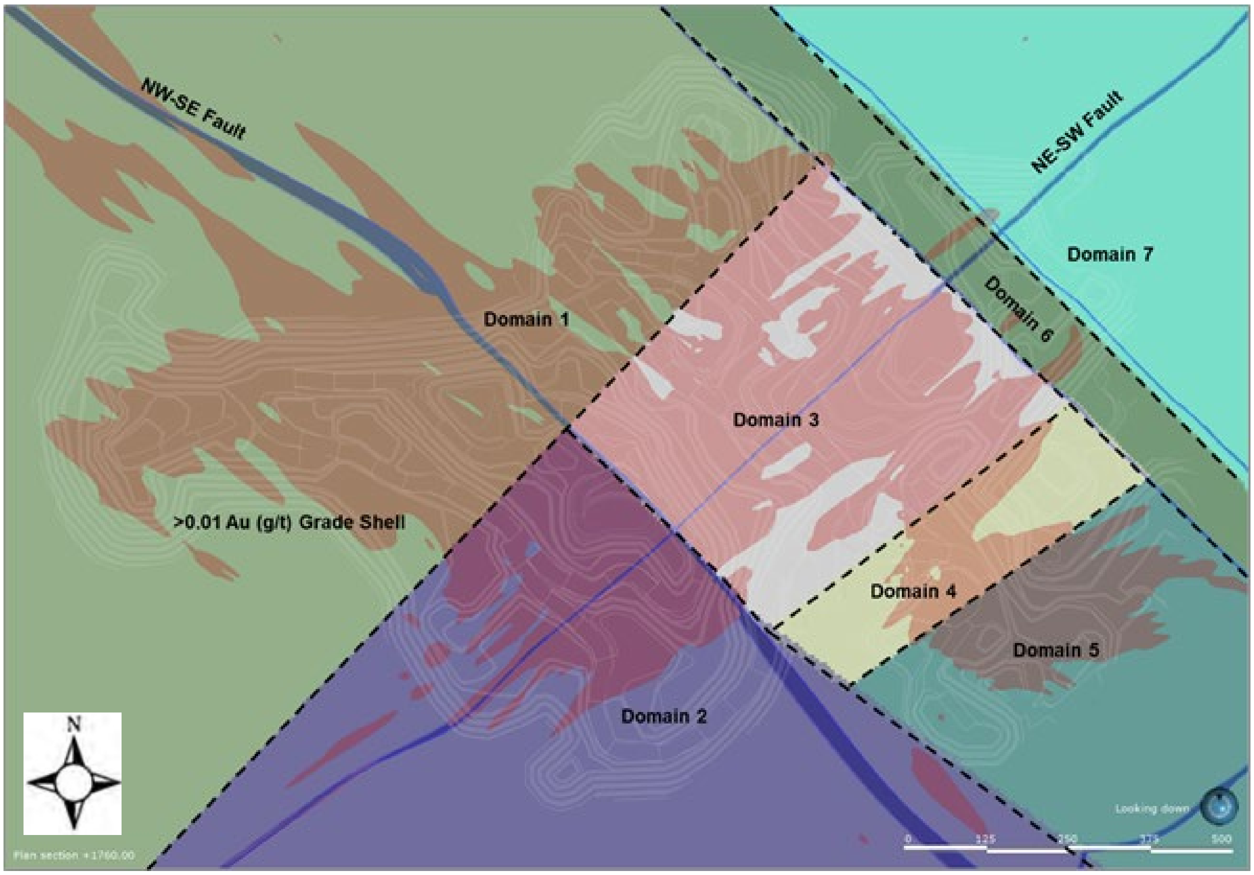
Note: Figure prepared by Argonaut, 2021

The lithological solids included shapes for alluvium, conglomerate, dacite, breccias, and sedimentary rocks. Oxidation shapes included sulphide, transition, and oxide wireframes. The lithological shapes honour the logged data and are suitable for coding model blocks. The lithological, grade shell, and oxidation solids were used to code drill holes and model blocks.

The oxide material at San Agustin is distinctive due to the intensity of oxidation and the 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 block model was subdivided into seven domains based on the dominant direction of mineralization, vein systems observed in the pit walls, lithological controls, and trends of gold grades in production blast holes (Figure 14-11). The orientation in each domain changes slightly compared to the orientation of the main trends (azimuth 320° and 045°). However, there are some areas where mineralization is more erratic, such as the case of Domain 6 and the southeast area.

Figure 14-11: Structural Domains

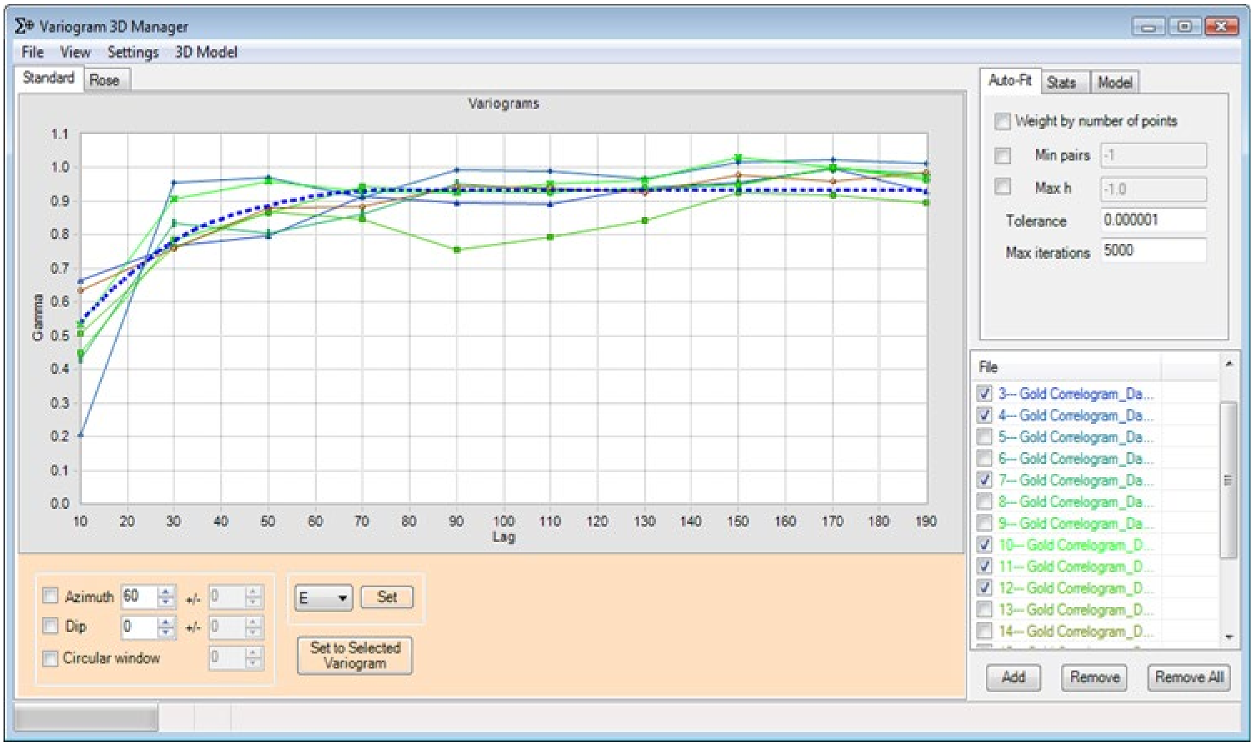


Note: Figure prepared by Argonaut, 2021

14.10 Variography

In 2014, RMI generated a number of gold variograms (correlograms) using the MineSight MSDA package. Downhole correlograms were produced using original drill hole assay data and 6 m long drill hole composites to establish the nugget effect. Directional correlograms were generated at 30° azimuth and 30° dip increments using a ±15° selection window. Figure 14-12 is a snapshot from MineSight MSDA showing the six directional gold correlograms generated from dacite plus breccia composites. A best fit model that was created using an auto-fit function in MineSight MSDA is shown as a dashed blue line.

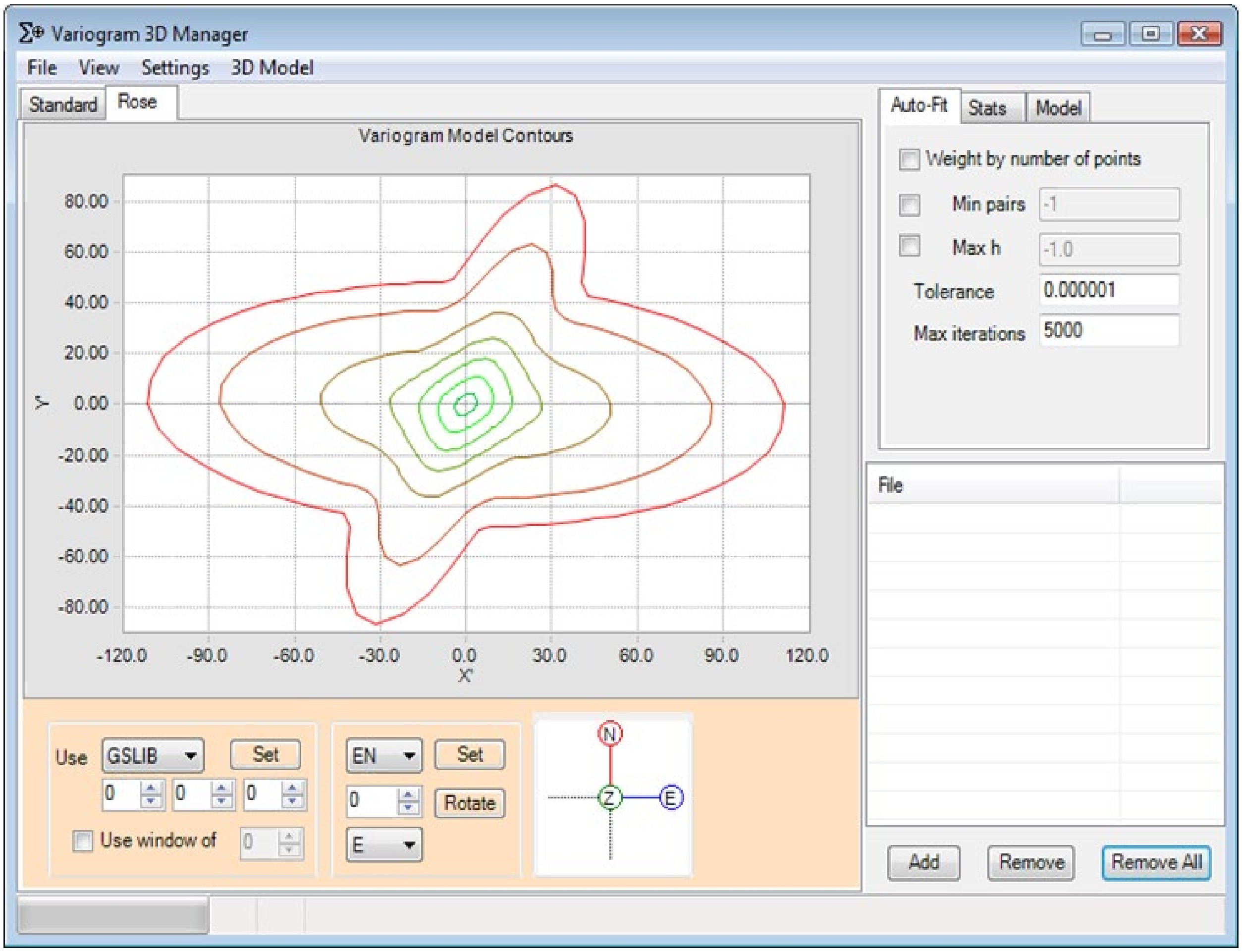
Figure 14-12: Gold Correlograms



Note: Figure prepared by RMI, 2014

Variances from horizontal correlograms shown in Figure 14-12 were contoured in plan view as illustrated by Figure 14-13. The correlogram contours tend to corroborate the northeasterly and northwesterly mineralized trends observed at the San Agustin Project. The interference between those two trends results in an apparent elongated east-west trend but geological field mapping clearly distinguishes between the two trends. In the QP’s opinion the variograms are still applicable.

Figure 14-13: Dacite+Breccia Gold Variance Contours



Note: Figure prepared by RMI, 2014

14.11 Gold Estimation Parameters

Argonaut constructed multiple gold grade models using ordinary kriging and inverse distance estimators. After visual inspections of block grades and global bias comparisons were made and the block grades were visually compared to the short-term block model grades, the inverse distance squared (ID2) model was selected to report Mineral Resources.

In the San Agustin deposit, gold grades appear to be transitional across the primary lithological and oxidation state contacts as described in Section 14.4. These contacts were used as soft boundaries for the grade estimation plan which allowed composites from the various rock types and oxidation states to contribute to the estimation of blocks across their boundaries.

The gold grade shell of 0.1 g/t Au was used as a hard boundary for grade estimation purposes. The wireframe was modeled considering the main structural trends observed in the deposit, defined by the northwest-southeast- and the northeast-southwest-trending Main Faults.

Grade estimation was carried out in five passes for each of the seven structural domains. The low-grade passes (passes 1-4) were estimated first using capped composites inside the 0.1 g/t Au gold grade shell (Table 14-12). The low-grade passes used the outlier restriction method to restrict the influence of grades greater than the average grade inside the gold grade shell (0.35 g/t Au) to 10 m. The high-grade pass (pass 5) overwrote blocks with grades ≥0.35 g/t Au and did not employ outlier restriction (Table 14-13). The high-grade pass used shorter search ellipse dimensions, mostly on the minor axis that is aligned with higher gold grade zones along narrow vertical structures and breccia zones. This was done to restrict the influence of high-grade composites in the resource model.

The number of composites and drill holes used to estimate each block and the estimation pass number were stored in each block. Interpolation used anisotropic weighting, taking advantage of observed structural controls associated with mineralization. The distance to the closest drill hole and average distance of all composites were also stored in the blocks.

Table 14-12: Gold Grade Estimation Parameters – Low-grade Passes

Domain	Pass	Number of Comps			Ellipse Dimensions (m)			Ellipse Orientation (degrees)			Outlier Restriction	
		Min.	Max.	Max. per Hole	Major	Minor	Vertical	Major	Minor	Vertical	Au (g/t)	Max. Distance (m)
Dom 1-7	1	1	4	2	6	6	6	-	-	-	-	-
Dom 1	2	3	10	2	50	37.5	12.5	315	0	0	0.35	10
	3	3	10	2	75	55	20	315	0	0	0.35	10
Dom 2	2	3	10	2	50	37.5	12.5	67.5	0	0	0.35	10
	3	3	10	2	75	55	20	67.5	0	0	0.35	10
Dom 3	2	3	10	2	50	37.5	12.5	45	0	0	0.35	10
	3	3	10	2	75	55	20	45	0	0	0.35	10
Dom 4	2	3	10	2	50	37.5	12.5	325	0	0	0.35	10
	3	3	10	2	75	55	20	325	0	0	0.35	10
Dom 5	2	3	10	2	50	37.5	12.5	40	0	0	0.35	10
	3	3	10	2	75	55	20	40	0	0	0.35	10
Dom 6	2	3	4	2	75	30	15	318	0	0	0.35	10
Dom 7	2	3	10	2	40	35	15	45	0	0	0.35	10
	3	3	10	2	75	55	20	45	0	0	0.35	10
Dom 1-7	4	2	8	2	35	35	20	45	0	0	0.35	10

Table 14-13: Gold Grade Estimation Parameters – High-grade Pass

Domain	Pass	Number of Comps			Ellipse Dimensions (m)			Ellipse Orientation (degrees)		
		Min.	Max.	Max. per Hole	Major	Minor	Vertical	Major	Minor	Vertical
Dom 1	5	3	6	2	50	10	75	315	0	-20
Dom 2	5	3	6	2	50	10	75	67.5	0	-20
Dom 3	5	3	6	2	50	10	65	75	0	-5
Dom 4	5	3	6	2	50	10	45	325	0	-20
Dom 5	5	3	6	2	80	10	65	50	0	-5
Dom 6	5	3	4	2	75	10	15	318	0	-5
Dom 7	5	3	4	2	40	10	35	45	0	-5

14.12 Silver Estimation Parameters

Silver grades were estimated by ID2 using four passes with outlier restriction varying by structural domain. Similar estimation parameters were used for silver as were used for gold. The domains, number of composites, ellipse dimensions, and ellipse orientation were the same, but the outlier restriction parameters were different and there was no separation of low-grade and high-grade domains. Table 14-14 summarizes the key parameters that were used to estimate silver block grades.

Table 14-14: Silver Grade Estimation Parameters

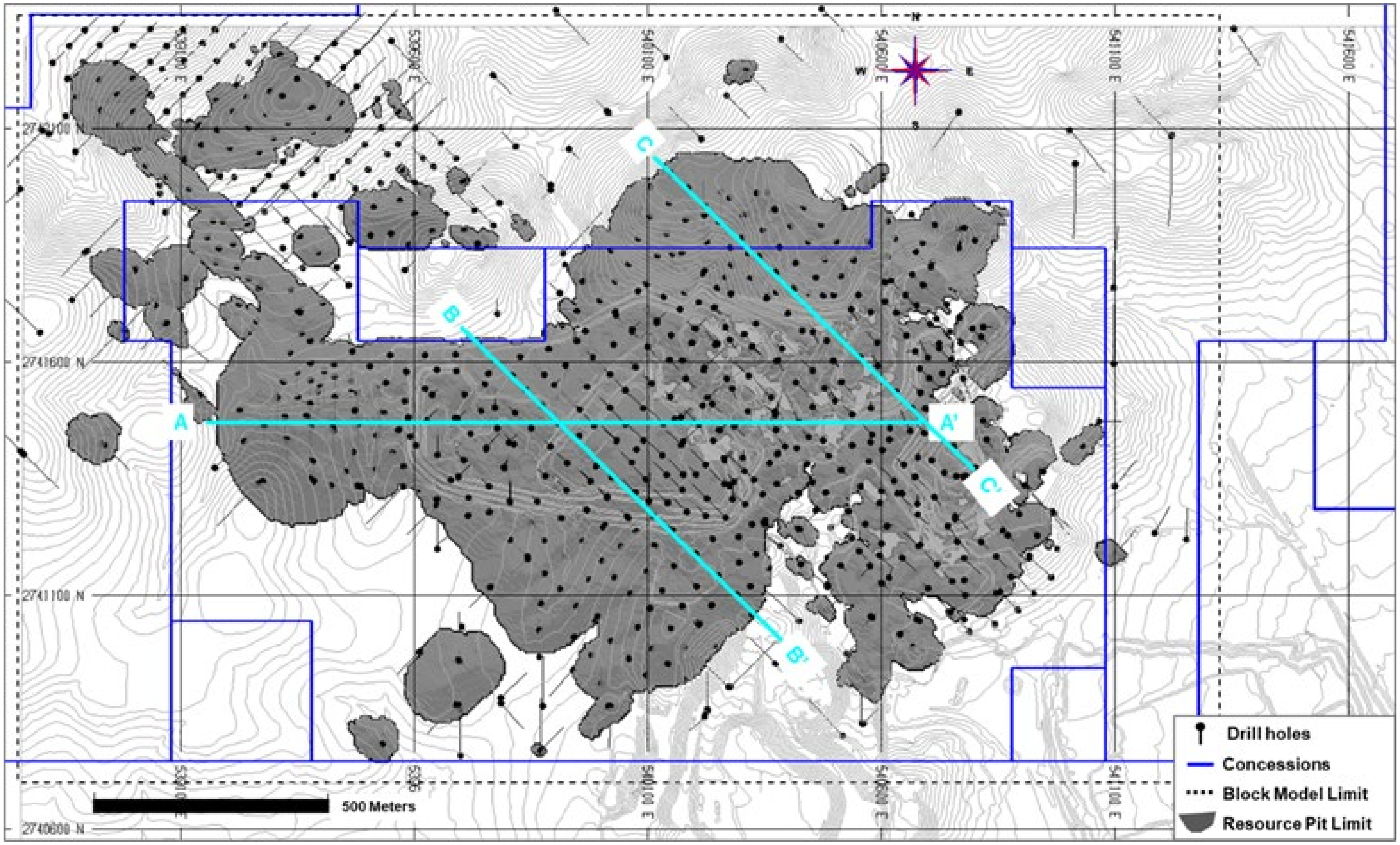
Domain	Pass	Number of Comps			Ellipse Dimensions (m)			Ellipse Orientation (degrees)			Outlier Restriction	
		Min	Max	Max per Hole	Major	Minor	Vert	Major	Minor	Vert	Ag (g/t)	Max Dist (m)
Dom 1 - 7	1	1	4	2	6	6	6	-	-	-	-	-
Dom 1	2	3	10	2	50	37.5	12.5	315	0	0	150	15
	3	3	10	2	75	55	20	315	0	0	100	10
Dom 2	2	3	10	2	50	37.5	12.5	67.5	0	0	150	15
	3	3	10	2	75	55	20	67.5	0	0	100	10
Dom 3	2	3	10	2	50	37.5	12.5	45	0	0	150	15
	3	3	10	2	75	55	20	45	0	0	100	10
Dom 4	2	3	10	2	50	37.5	12.5	325	0	0	100	10
	3	3	10	2	75	55	20	325	0	0	100	10
Dom 5	2	3	10	2	50	37.5	12.5	40	0	0	100	15
	3	3	10	2	75	55	20	40	0	0	100	10
Dom 6	2	3	4	2	75	30	15	318	0	0	100	10
Dom 7	2	3	10	2	40	35	15	45	0	0	100	10
	3	3	10	2	75	55	20	45	0	0	100	10
Dom 1 - 7	4	2	8	2	35	35	20	45	0	0	100	10

14.13 Grade Model Verification

Estimated block grades were verified by visual and statistical methods. The QP visually compared estimated gold and silver block grades with drill hole composite grades. Figure 14-14 is a plan map that shows three section lines (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 Resources that are the subject of this Report.

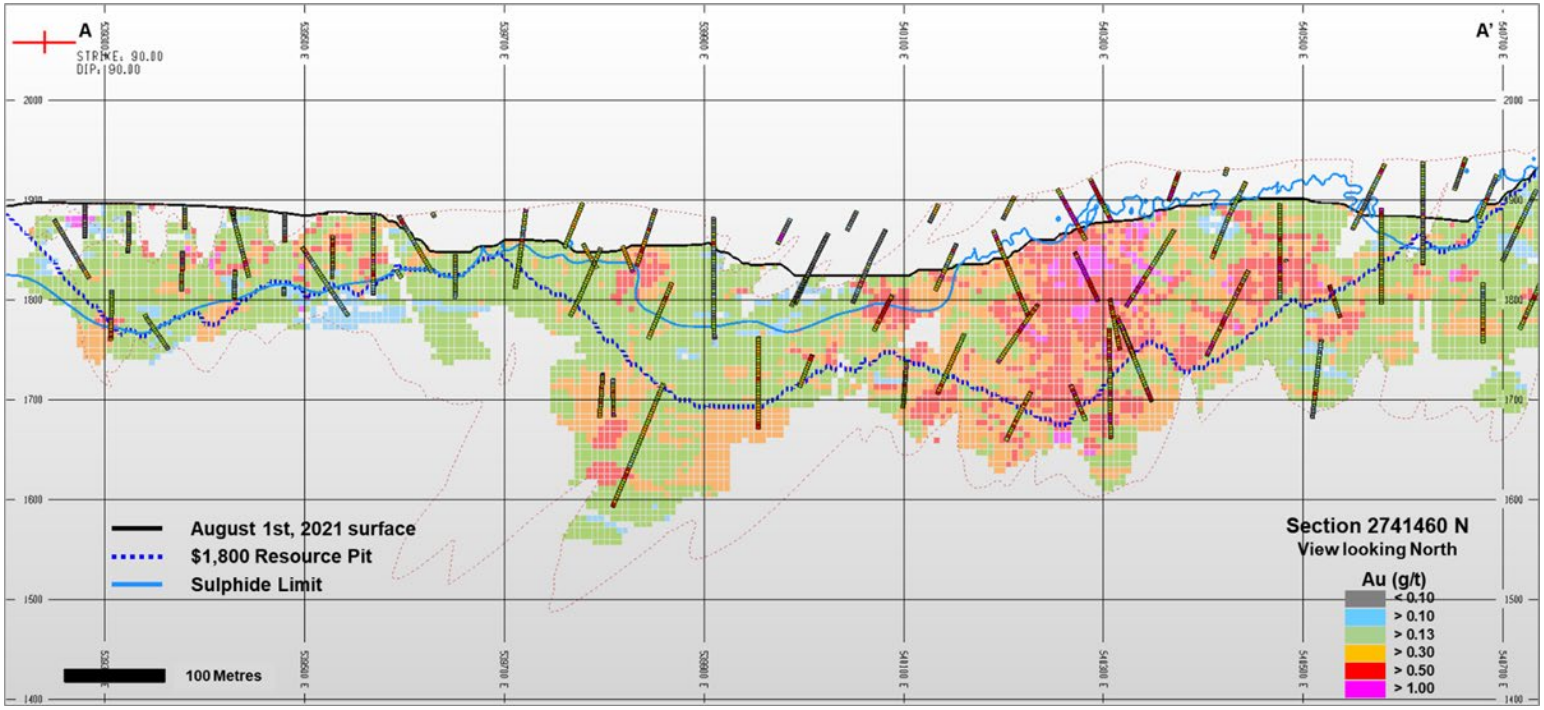
Figure 14-15, Figure 14-16, and Figure 14-17 are vertical block model cross sections showing estimated gold grades and 3 m drill hole composite gold grades for the three cross sections shown in Figure 14-14. Figure 14-18, Figure 14-19, and Figure 14-20 are vertical block model cross sections showing estimated silver grades and 3 m drill hole composite silver grades. The oxidation boundary and profile of the constraining conceptual pit are shown on each of the cross sections.

Figure 14-14: Block Model Cross Section Reference Lines



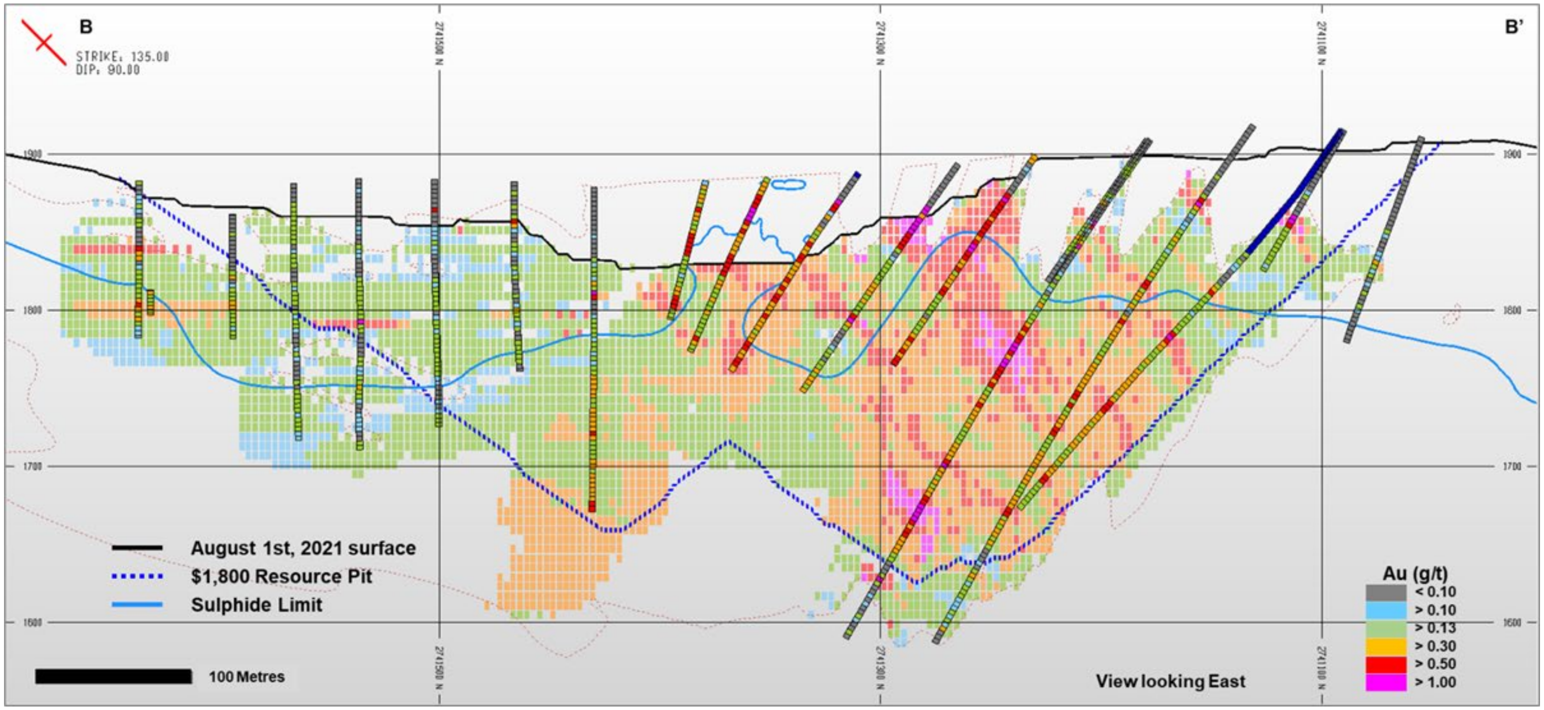
Note: Figure prepared by Argonaut, 2021

Figure 14-15: Gold Block Model Cross Section A-A' Looking North



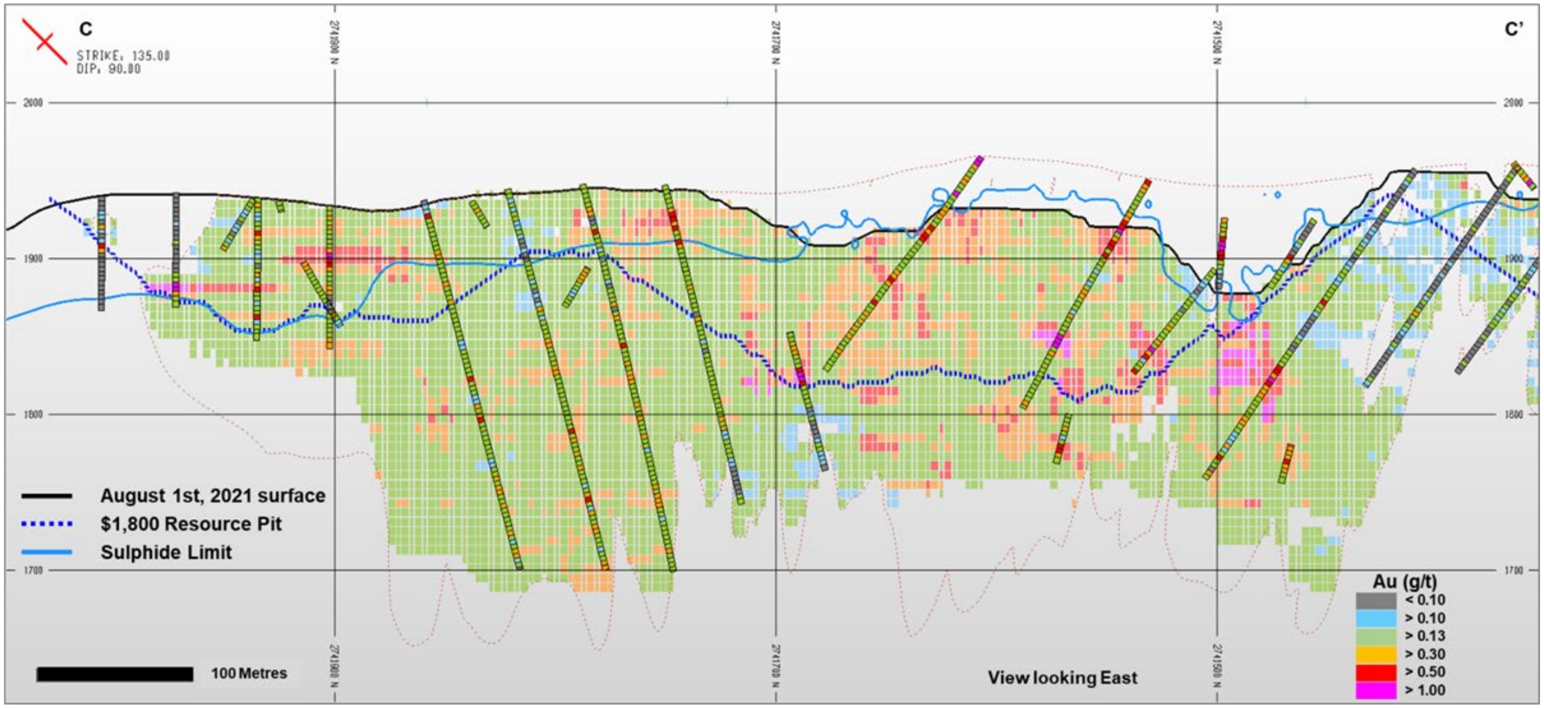
Note: Figure prepared by Argonaut, 2021

Figure 14-16: Gold Block Model Cross Section B-B' Looking Northeast



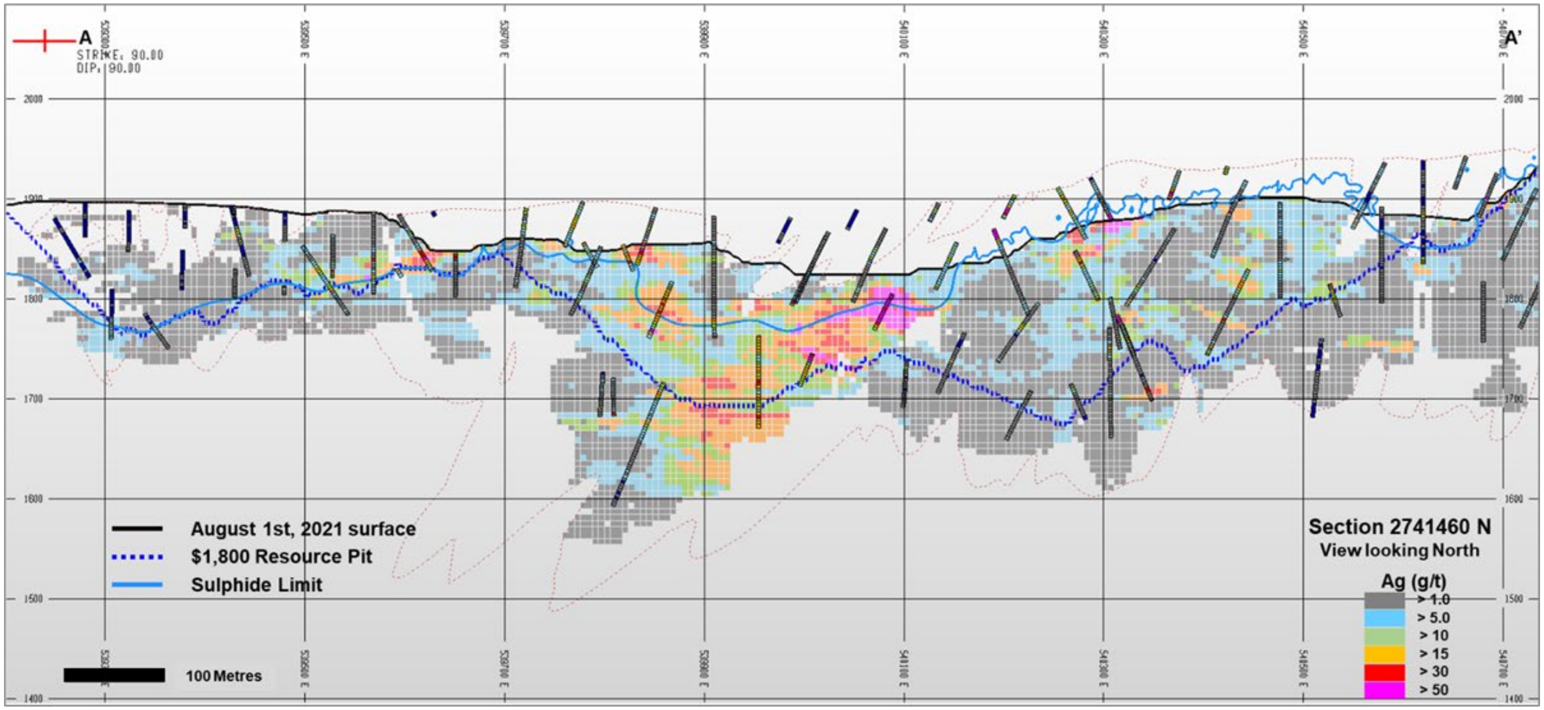
Note: Figure prepared by Argonaut, 2021

Figure 14-17: Gold Block Model Cross Section C-C' Looking Northeast



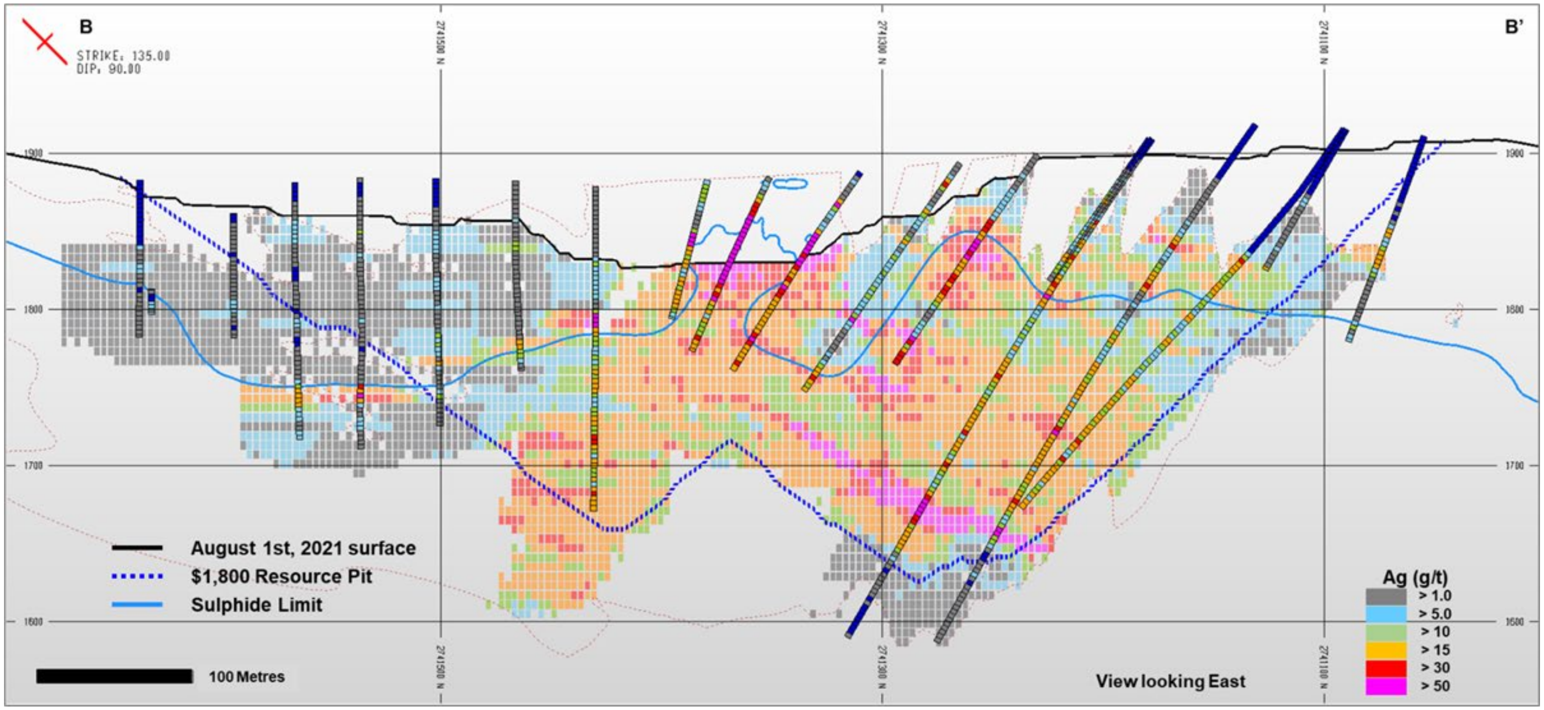
Note: Figure prepared by Argonaut, 2021

Figure 14-18: Silver Block Model Cross Section A-A' Looking North



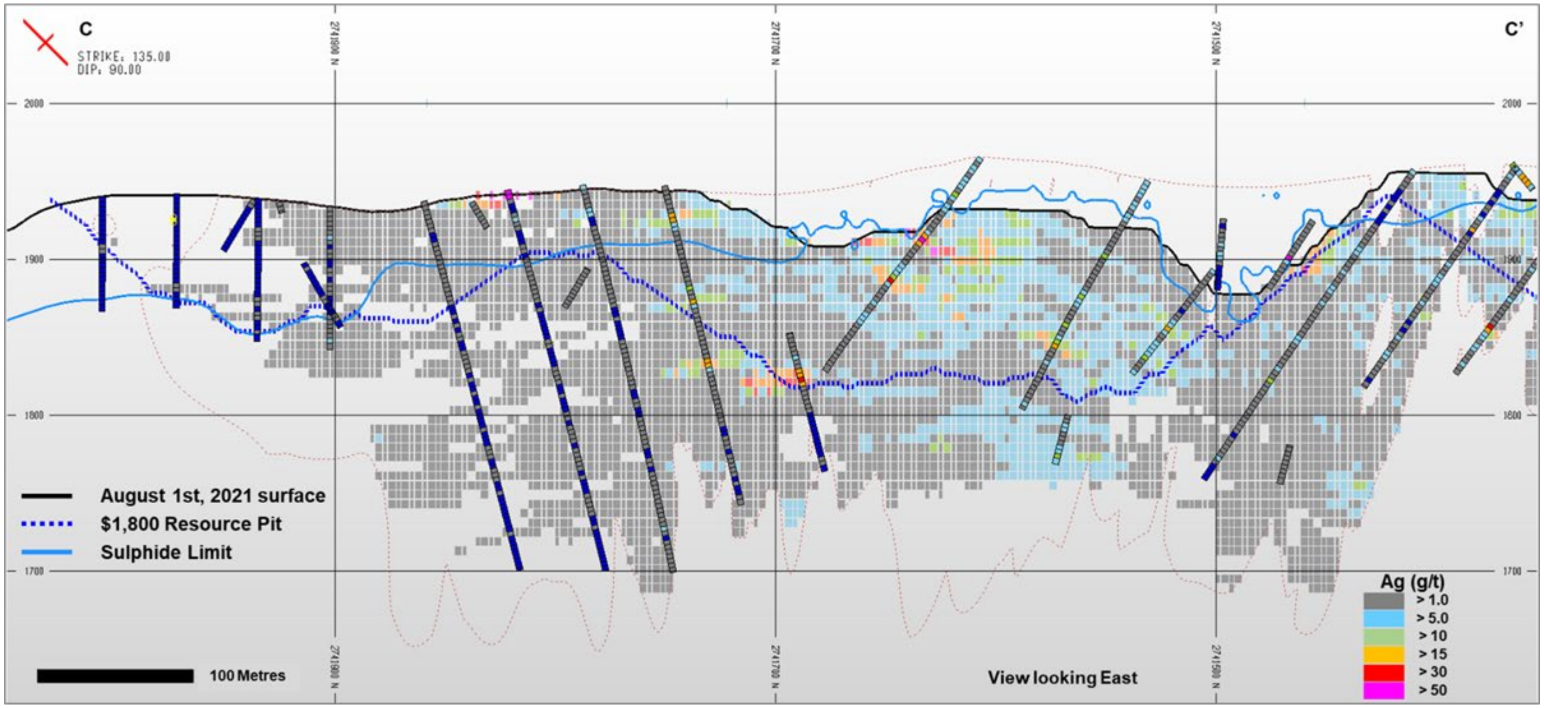
Note: Figure prepared by Argonaut, 2021

Figure 14-19: Silver Block Model Cross Section B-B' Looking Northeast



Note: Figure prepared by Argonaut, 2021

Figure 14-20: Silver Block Model Cross Section C-C’ Looking Northeast



Note: Figure prepared by Argonaut, 2021

The six block model cross sections shown in Figure 14-15 through Figure 14-20 illustrate the relatively shallow nature of the oxidized portion of the San Agustin deposit and the continuation of mineralization downward into the sulphide portion of the mineralized system.

It is the opinion of the QP that there is a reasonable comparison between estimated block gold and silver grades with the drill hole composite grades.

Several nearest neighbour (NN) grade models were constructed for gold and silver. One set of NN models was generated simultaneously with the ID2 grade models. The grade assignment for this set of NN models was conditioned by the same criteria that were imposed on the ID2 model (e.g. structural domain restriction and ellipse size and orientation) and were referred to as the conditional NN models. Another set of gold and silver NN models was constructed using a 100 m spherical search neighbourhood with no geologic constraints and were referred to as the unconditional NN models. NN models are typically used to check for possible biases in estimated block grades by comparing the two estimates at a zero cut-off grade. It is generally accepted that in order for a model to be globally unbiased, there should be no more than a ±5% difference between the average grade of the resource block model and a NN model.

Comparisons between the ID2 gold and silver models against the unconditional and conditional NN models are summarized in Table 14-15 and Table 14-16, respectively. The volumes that were considered for the comparisons shown in Table 14-15 and Table 14-16 were restricted to Indicated Mineral Resources from oxide and transitional material.

Table 14-15: Unconditional Nearest Neighbour Model Comparisons

Estimation Method	**Au(g/t)**	**Ag (g/t)**
Inverse Distance Squared Estimate	0.259	7.36
Unconditional Nearest Neighbour	0.249	7.39
%Diff	3.97%	-0.43%

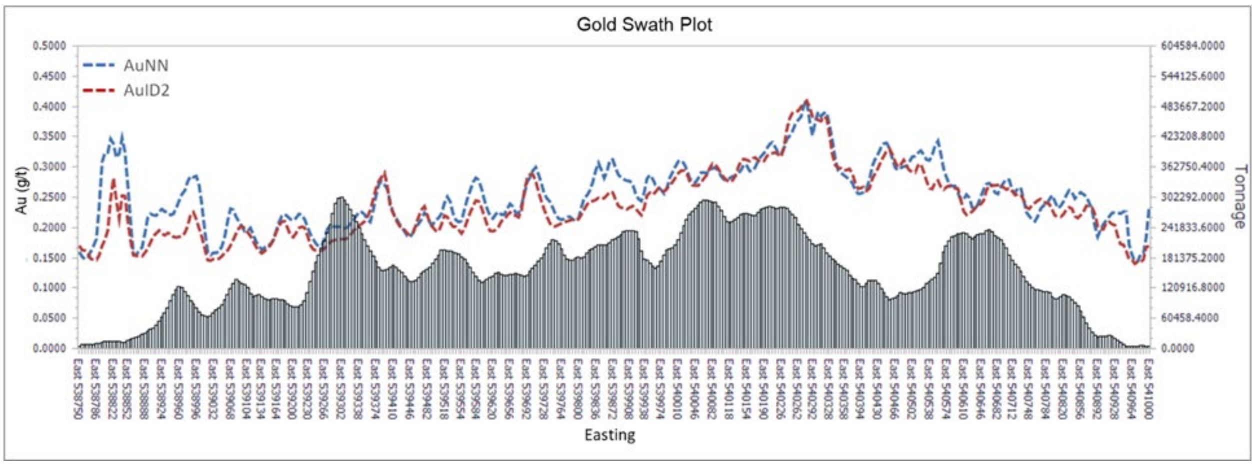
Table 14-16: Conditional Nearest Neighbour Model Comparisons

Estimation Method	**Au (g/t)**	**Ag (g/t)**
Inverse Distance Squared Estimate	0.259	7.36
Conditional Nearest Neighbour	0.264	7.81
%Diff	-1.90%	-5.76%

The data in Table 14-15 and Table 14-16 show a very close comparison for gold regardless of which NN modelling method was used. The ID2 silver block grades are about 0.4% to 5.8% lower than the NN method reflecting a degree of conservatism that was introduced into the ID2 distance model by implementing high-grade outlier restriction.

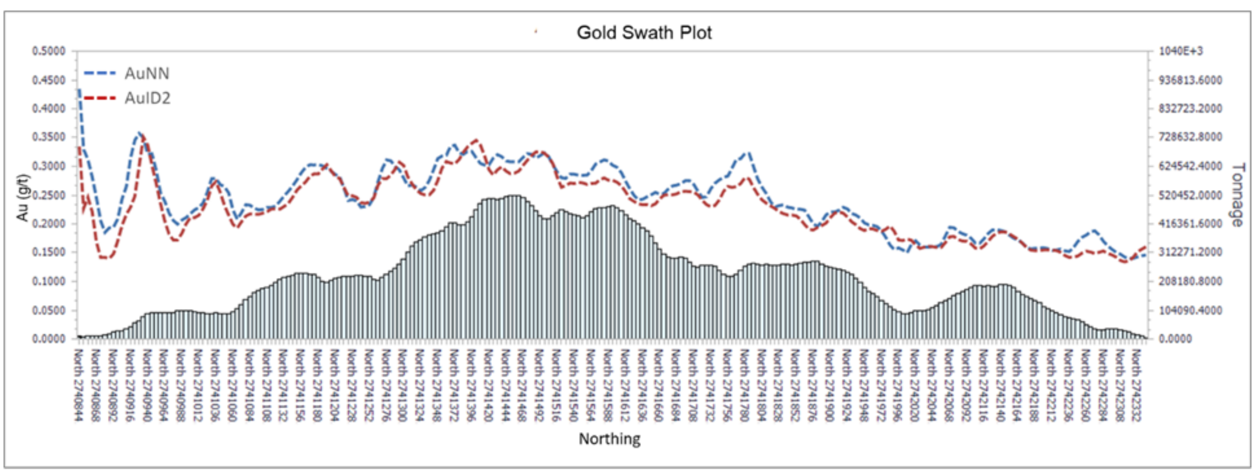
Potential local biases in the ID2 grade models were examined by preparing a series of swath plots through the block model that compare the unconditional NN grades against the ID2 grades. The swath plots represent slices through block model columns (eastings), rows (northings) and levels (elevation). Figure 14-21, Figure 14-22, and Figure 14-23 represent easting, northing, and elevation swaths through the model comparing ID2 gold and NN gold grades for Indicated Mineral Resources from oxide and transition material, respectively. Easting, northing, and elevation swath plots for silver are presented in Figure 14-24, Figure 14-25, and Figure 14-26. In the six swath plots the grades are shown in blue lines and the ID2 grades are shown as red lines. The tonnage in each plot is shown by thick black vertical lines which correspond to the right Y-axis scale on the graphs.

Figure 14-21: Gold Swath Plot – Easting



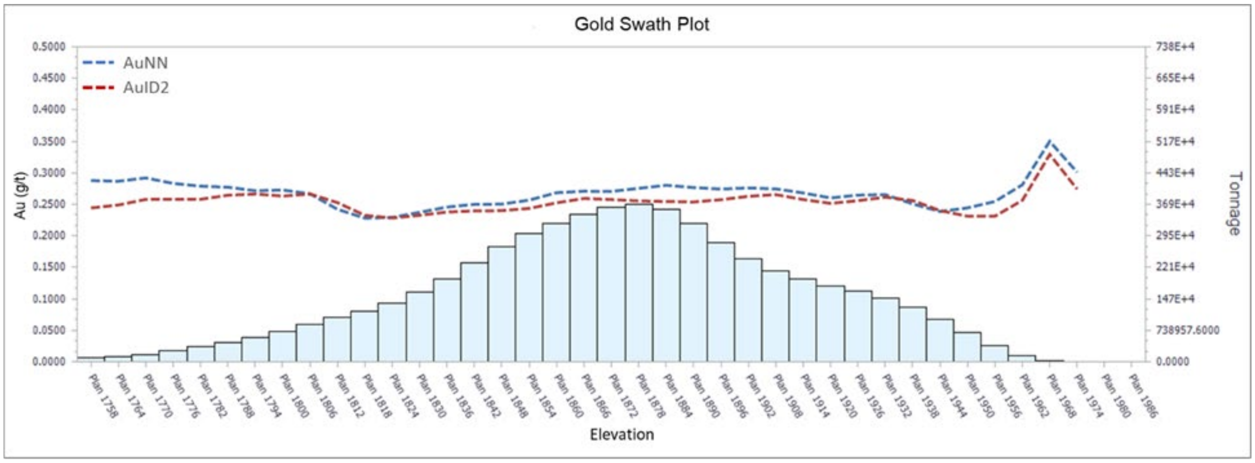
Note: Figure prepared by Argonaut, 2021

Figure 14-22: Gold Swath Plot – Northing



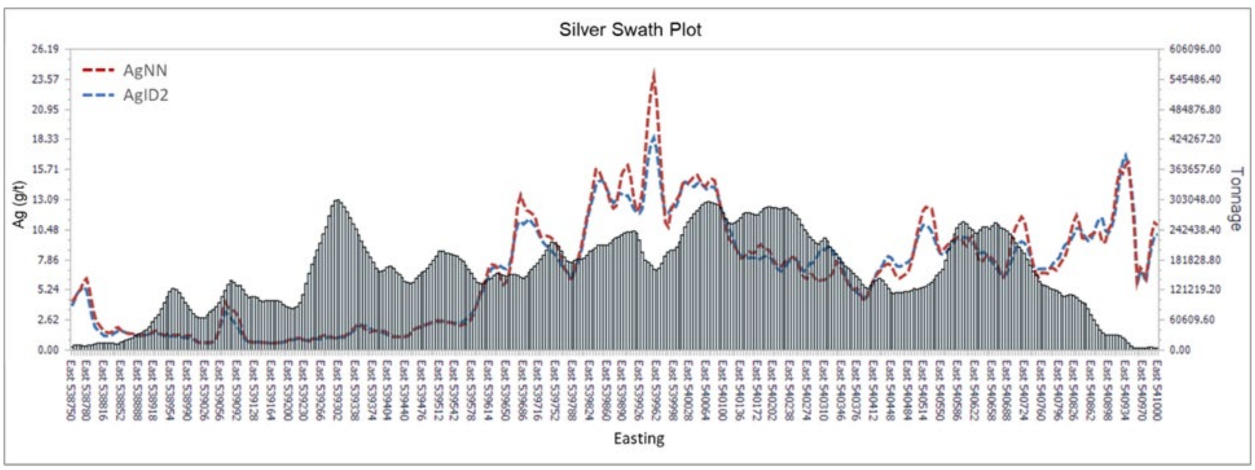
Note: Figure prepared by Argonaut, 2021

Figure 14-23: Gold Swath Plot – Elevation



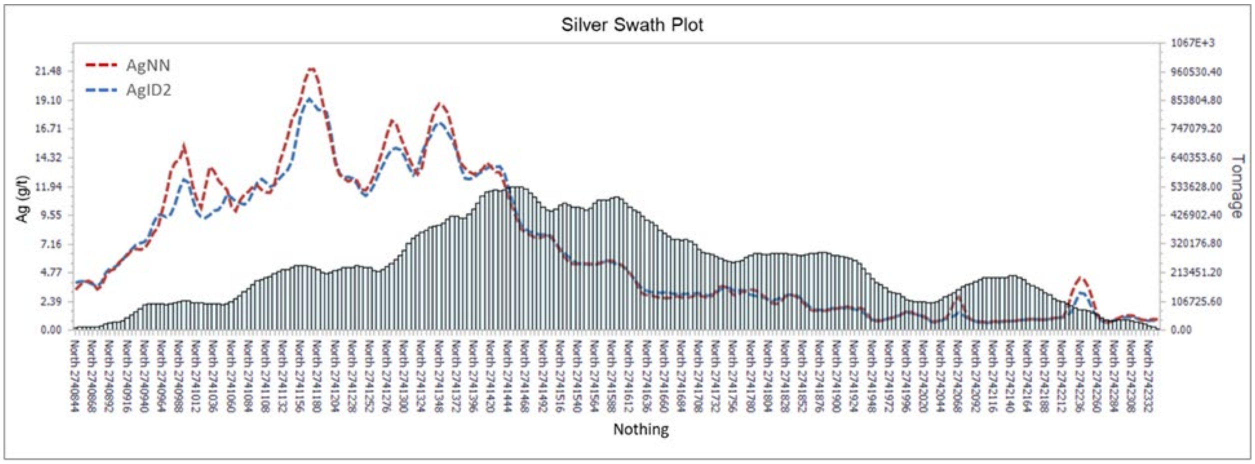
Note: Figure prepared by Argonaut, 2021

Figure 14-24: Silver Swath Plot – Easting



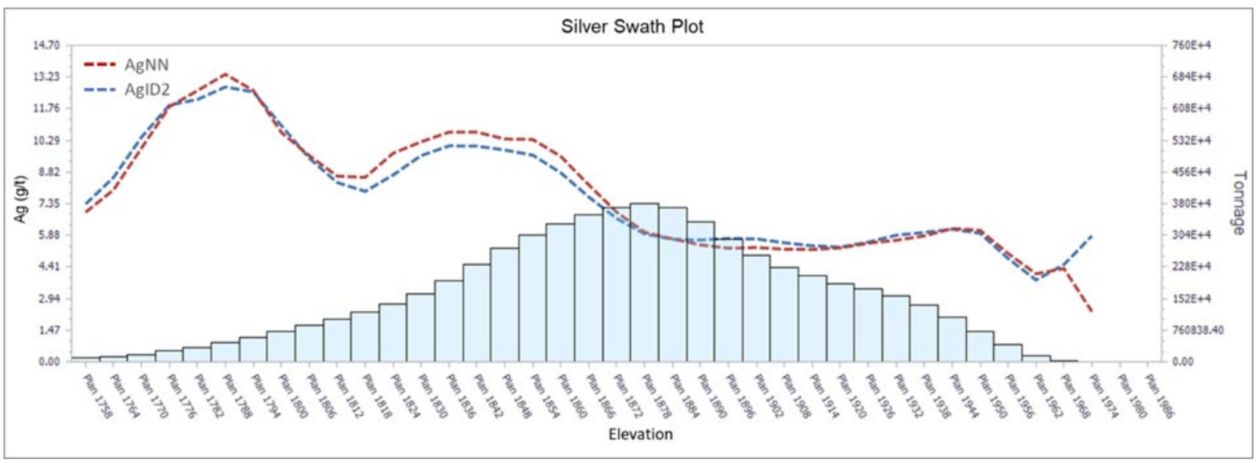
Note: Figure prepared by Argonaut, 2021

Figure 14-25: Silver Swath Plot – Northing



Note: Figure prepared by Argonaut, 2021

Figure 14-26: Silver Swath Plot – Elevation



Note: Figure prepared by Argonaut, 2021

In the opinion of the QP, the swath plots show a reasonable comparison between the ID2 and NN 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 QP that the San Agustin model is globally unbiased and represents a reasonable estimate of in situ block grades.

14.14 Resource Classification

Estimated block grades for the San Agustin deposit were classified as Indicated and Inferred Mineral Resources. One of the key components of the CIM definition of an Indicated Resource is that the nature, quality, and distribution of data allow for a confident interpretation of the geologic framework of the deposit and to reasonably assume the continuity of mineralization. Argonaut 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 generally included oxide and transition material with a drill spacing of 50 m or less and was used to code model blocks as Indicated Mineral Resources. Estimated blocks outside the wireframe were classified as Inferred Mineral Resources. All sulphide material was classified as Inferred Mineral Resources based on drill spacing and the need for further metallurgical testwork.

14.15 Reasonable Prospects of Eventual Economic Extraction

Argonaut generated a conceptual Lerchs–Grossmann (LG) pit to demonstrate reasonable prospects of eventual economic extraction. Table 14-17 summarizes the parameters that were used to generate the conceptual pit.

Table 14-17: Conceptual Pit Parameters

Parameter	Units	Value
Gold price	US$/oz	1,800.00
Silver price	US$/oz	24.00
Mining cost - rock	US$/t mined	1.66
Crushing & conveying	US$/t processed	1.04
Process & leaching	US$/t processed	2.33
G&A	US$/t processed	0.49
Selling cost	US$/t processed	0.30
Oxide Gold recovery - crushed	%	66
Oxide Silver recovery - crushed	%	16
Transition Gold recovery - crushed	%	38
Transition Silver recovery - crushed	%	16
Sulphide Argillic Gold recovery - crushed	%	29
Sulphide Argillic Silver recovery - crushed	%	16
Sulphide Silicified Gold recovery - crushed	%	17
Sulphide Silicified Silver recovery - crushed	%	14
Pit slope angles	°	45

14.16 Mineral Resource Statement

Mineral Resources were tabulated inside of the conceptual pit that was generated using the parameters listed in Table 14-17. Internal AuEq cut-off grades were used to summarize Mineral Resources by material type as follows: 0.11 g/t for oxides, 0.19 g/t for transition, 0.25 g/t for sulphide argillic, and 0.42 g/t for sulphide silicified. The AuEq grades were calculated using ratios of metal prices and metal recoveries in the following equation:

AuEq = (Au + Ag/Equivalency Factor) where

Equivalency Factor = ((Au price in US$/g * Au recovery) / (Ag price in US$/g * Ag recovery))

Given the low silver recovery, the equivalency factor used was 309. Mineral Resources are summarized for the San Agustin Project in Table 14-18.

Table 14-18: San Agustin Mineral Resources as of August 1, 2021

Resource Category	Material Type	Au Cut-off (g/t)	Tonnes (000's)	Au (g/t)	Ag (g/t)	Contained Ounces (000's)	
						Au (oz)	Ag (oz)
Indicated	Oxide	0.11	57,699	0.27	7.8	505	14,451
	Transition	0.19	3,239	0.35	16.7	37	1,740
Total Indicated			**60,938**	**0.28**	**8.3**	**541**	**16,191**
Inferred	Oxide	0.11	2,069	0.37	10.3	25	685
	Transition	0.19	13	0.24	21.9	#	9
	Sulphide Argillic	0.25	79,729	0.47	15.1	1,200	38,763
	Sulphide Silicified	0.42	5,098	0.74	9.3	120	1,518
Total Inferred			**86,909**	**0.48**	**14.7**	**1,345**	**40,975**

Notes to accompany Mineral Resources table:

- Mineral Resources are reported using the 2014 CIM Definition Standards. The Qualified Person for the estimate is Brian Arkell, SM RME.
- Mineral Resource estimates have an effective date of August 1, 2021 as defined by end of month July 2021 topography.
- Mineral Resources are constrained by a conceptual pit shell using the following assumptions: a gold price of US$1,800/oz Au; a silver price of US$24.00/oz Ag; mining cost of US$1.66/t mined; crushing and conveying cost of US$1.04/t processed; process and leaching cost of US$2.33/t processed; G&A cost of US$0.49/t processed; selling cost of US$0.30/t processed; gold metallurgical recoveries from 17-66%; silver metallurgical recoveries from 14-16%; and pit slope angles of 45º.
- Mineral Resources are reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- Mineral Resource estimates do not account for mineability, selectivity, mining loss or dilution.
- Totals may not add up due to rounding.
- The # symbol indicates that the value is below the rounded value of 1.

14.17 Factors That May Affect the Mineral Resource Estimate

Areas of uncertainty that may materially impact the Mineral Resource estimate include:

- Changes to the long-term gold and silver prices and exchange rates;
- Changes in interpretation of mineralization geometry and continuity of mineralization zones;
- Changes to design parameter assumptions that pertain to the conceptual pit design that constrains the Mineral Resources;
- Modifications to geotechnical parameters and mining recovery assumptions;
- Changes to metallurgical recovery assumptions;
- Changes to environmental, permitting, and social license assumptions;

- Ability to obtain or maintain land agreements.

15.0 MINERAL RESERVE ESTIMATES

15.1 Introduction

Life-of-mine (LOM) plans and resulting Mineral Reserves are determined based on a gold price of US$1,500/oz and a silver price of US$20/oz for the open pit mine. Mineral Reserves have an effective date of August 1, 2021, which corresponds to the end of July 2021 topographical survey of the pit.

Mineral Reserves were based on the economic balance between the value per tonne of rock and the cost to mine and process each tonne of rock. The value was based on estimated metal concentration, estimated metal value, and leach recovery. The costs included development, mining, processing, and operating overhead.

Blocks were converted from Indicated Mineral Resources to Probable Mineral Reserves based on positive cash flow pit optimization results, pit designs, and geological classification of Measured and Indicated Mineral Resources. Inferred Mineral Resources were set to waste.

15.2 Mineral Reserves Statement

Mineral Reserves stated in Table 15-1 have an effective date of August 1, 2021. The assumed MXN:USD exchange rate is MXN19:1. The AuEq grades were calculated using ratios of metal prices and metal recoveries in the following equation:

AuEq = (Au + Ag/Equivalency Factor) where

Equivalency Factor = ((Au price in US$/g * Au recovery) / (Ag price in US$/g * Ag recovery))

Table 15-1: San Agustin Mineral Reserves as of August 1, 2021

Class	Material Type	Tonnes (000's)	Au (g/t)	Ag (g/t)	Contained Au oz (000's)	Contained Ag oz (000's)
Probable	Oxide	35,230	0.31	9.90	355	11,211
Probable Total	**Oxide**	**35,230**	**0.31**	**9.90**	**355**	**11,211**

Notes to accompany Mineral Reserves table:

- Mineral Reserves are reported using the 2014 CIM Definition Standards. The Qualified Person for the estimate is Brian Arkell, RM SME.
- Mineral Reserves have an effective date of August 1, 2021 as defined by end of month July 2021 topography.
- Mineral Reserves are reported inside an optimized pit shell using the following assumptions: a gold price of US$1,500/oz Au; a silver price of US$20/oz Ag; mining cost of US$1.66/t mined; crushing and conveying cost of US$1.04/t processed; process and leaching cost of US$2.33/t processed; G&A cost of US$0.49/t processed; selling cost of US$0.30/t processed; gold metallurgical recoveries from 17-66%; silver metallurgical recoveries from 14-16%; and pit slope angles of 45º.
- Mineral Reserves are reported using a cut-off grade of 0.16 g/t AuEq, except for material scheduled for mining in 2021 that is reported using a cut-off grade of 0.13 g/t AuEq.

- Mineral Reserves do not have additional dilution. Full mine recovery is assumed.
- The selective mining unit was sized at 6 m x 6 m x 6 m.
- Totals may not add up due to rounding.
- The # symbol indicates that the value is below the rounded value of 1.

15.3 Factors that May Affect the Mineral Reserves

Factors that may affect Mineral Reserves include:

- Changes in metal prices and exchange rate assumptions;
- Geotechnical conditions and mining recovery assumptions;
- Metallurgical recoveries;
- Changes to design parameter assumptions that pertain to the optimized pit design that constrains the Mineral Reserves;
- Ability to obtain or maintain land agreements;
- Operating cost estimates;
- Changes in the assumed permitting and regulatory environment;
- Changes in taxation conditions;
- Changes in cut-off grade.

15.4 Open Pit Estimates

15.4.1 Pit Optimization

Pit optimization was carried out on the San Agustin deposit using the Lerchs–Grossmann algorithm in MineSight Economic Planner v4.0 pit optimization software in conjunction with HxGN MinePlan 3D (v15.7) mine planning software. The optimization compared potential pit shells to the maximum cash-flow pit using a US$1,500/oz gold price and a US$20/oz silver price. Measured and Indicated Mineral Resources were used for different material types with appropriate recoveries. Material types with an Inferred classification did not contribute to pit optimization, and had the gold grade set to zero, and thus those blocks were treated as waste.

15.4.1.1 Key Assumptions/Basis of Estimate

Table 15-2 indicates the parameters used for pit optimization, which are based on the Argonaut resource block model and topography as of August 1, 2021. The block model density was modified to include topographical influence on regular block sizes. Cost estimates were valid at the time of optimization.

Table 15-2: Pit Optimization Parameters

MS Economic Planner Parameter	Type	Units	Value
Block Model Restriction			
Area	San Agustin Concessions	n/a	n/a
Base Units			
Measured and Indicated	Au	g/t	n/a
	Ag	g/t	n/a
Block Model Parameters			
Dimensions	X	m	6
	Y	m	6
	Z	m	6
Number of blocks	No. X	count	429
	No. Y	count	274
	No. Z	count	81
Slope			
Zone	All	º	44

The financial assumptions made at the time of optimization for San Agustin are detailed in Table 15-3. No initial capital was considered as the Project is operational.

Table 15-3: Pit Optimization Financial Assumptions

MS Economic Planner Parameter	Type	Units	Value
Mining Cost			
	Reference Mining Cost	US$/t mined	1.66
Processing Parameters			
	Process Name	n/a	Heap Leach
	Rock Type	n/a	Oxide
Process Cost	Selection Method	n/a	Cash Flow
	Process and Leaching	US$/t ore	2.33
	Crushing	US$/t ore	1.04
	G&A	US$/t ore	0.49
	Selling Cost	US$/t ore	0.30
Recoveries	Au	%	66
	Ag	%	16
Revenue and Selling Cost			
	Au and Ag units	troy oz	n/a
	Au price	US$/troy oz	1,500
	Ag price	US$/troy oz	20
Optimization			
	Revenue Range	US$	1,000-2,000
Operational Scenario – Time Costs			
	Initial Capital, Discount Rate	US$, %	0, 0

15.4.1.2 Ore Loss and Dilution

The block model and associated selective mining units (SMUs) are based on 6 m x 6 m x 6 m blocks. Mine bench heights were designed at 6 m. Block grades in the resource model incorporate internal dilution due to compositing of drill hole assays and subsequent block grade interpolation.

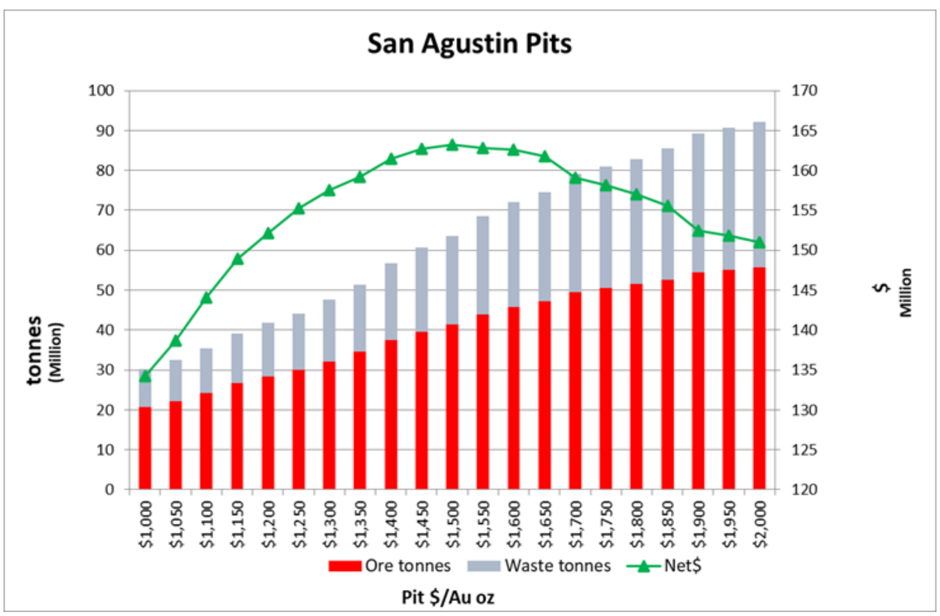
15.4.1.3 Pit Slopes

Pit slopes are based on actual operating practices and are set to 45º for pit optimization. The pit is shallow and future adjustments to this angle will result in minor changes in stripping requirements.

15.4.2 Pit and Phase Selection

As a result of the pit optimization, the relationship of potential pit shells was based on stripping ratio variability and subject to revenue at US$1,500/oz Au. By looking at the relationship of potentially mineable material to waste and the US$1,500/oz Au case (green line) cash flows (Figure 15-1) generated at each incremental pit, the risk profile and revenue generating potential of the deposit was estimated. Argonaut compared the sensitivity results with the ore tonnes and total tonnes to show the effect of mining decisions on the Mineral Reserves quantum and where the Mineral Reserves are positioned within the sensitivity results.

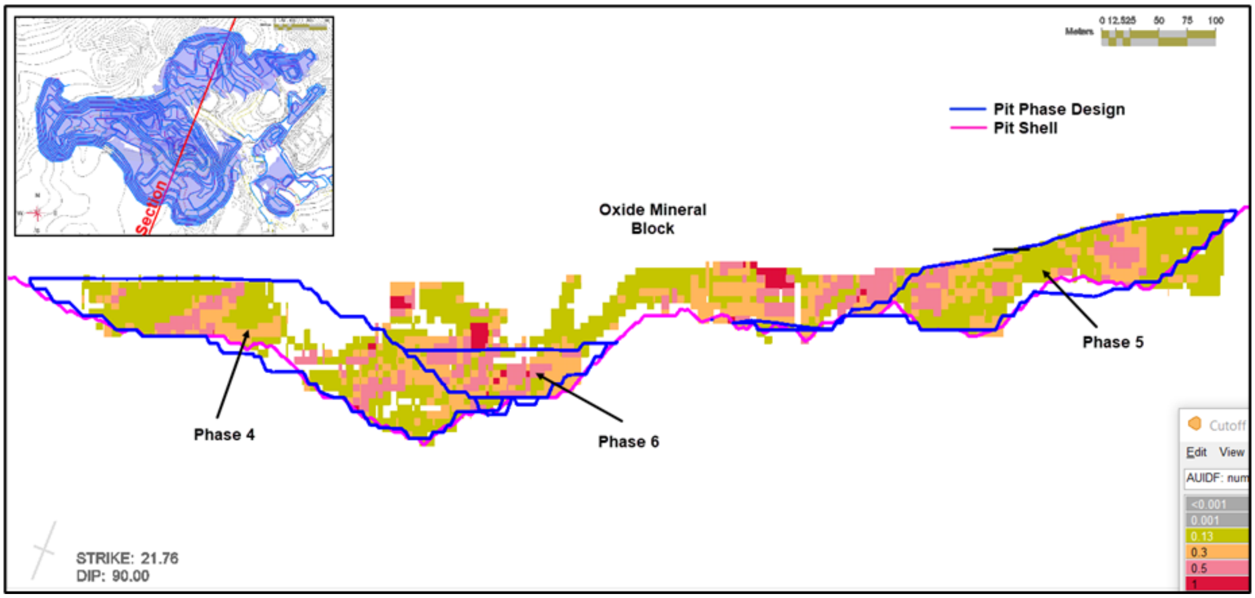
Figure 15-1: San Agustin Pit Graph



Note: Figure prepared by Argonaut, 2021

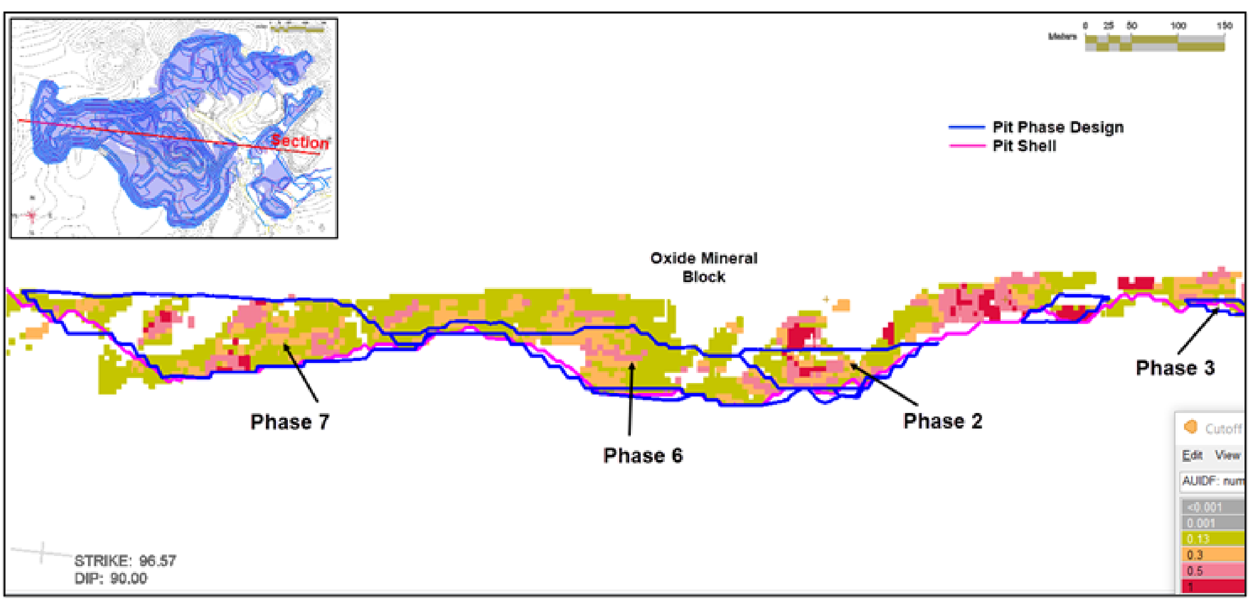
Figure 15-2 and Figure 15-3 show two cross sectional views through the deposit comparing the LG pit shell to the pit phase designs.

Figure 15-2: San Agustin Pit Shell Section View Looking West



Note: Figure prepared by Argonaut, 2021

Figure 15-3: San Agustin Pit Shell Section View Looking North



Note: Figure prepared by Argonaut, 2021

15.4.3 Pit Design

Long-term open pit designs were created by Argonaut staff in Hermosillo and transferred to the San Agustin mine staff for development of short-term plans and implementation.

15.4.3.1 Results of Design

Pit designs include a ramp width of 25 m (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 15-4 shows the San Agustin pit design parameters and Figure 15-4 shows the ultimate pit design.

Table 15-4: Pit Design Parameters

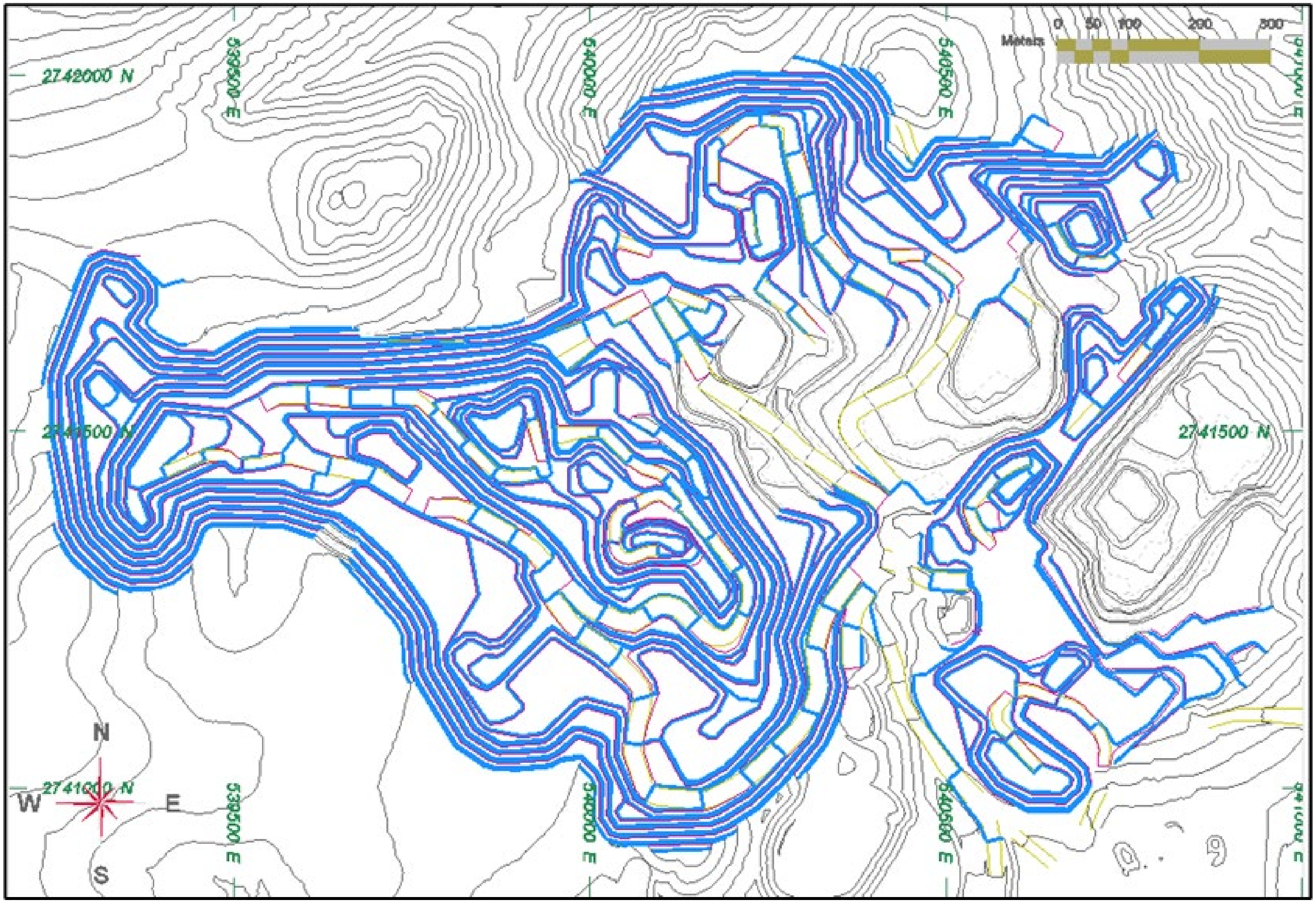
Parameter	Value
Interramp Slope	45°
Bench Face Slope	67°
Berm Width	7
Bench Mining Height	6
Bench Height	12
Ramp Width 2 Ways	25
Ramp Width 1 Way	15
Ramp Gradient	10%

15.4.3.2 Waste Rock Storage Facilities

Argonaut designed three main waste rock storage facilities (WRSFs). The South WRSF is located south of the pit limit with approximate dimensions of 700 m x 600 m; the North WRSF is located northeast of the pit and fills a portion of the mined pit with approximate dimensions of 500 m x 300 m; and the West WRSF is located northwest of the pit limit with approximate dimensions of 700 m x 350 m (Figure 15-5). The maximum lift height design was 100 m. The capacity of the WRSFs is 30 Mt which is sufficient to provide storage for all waste defined in the production schedule (Table 15-5).

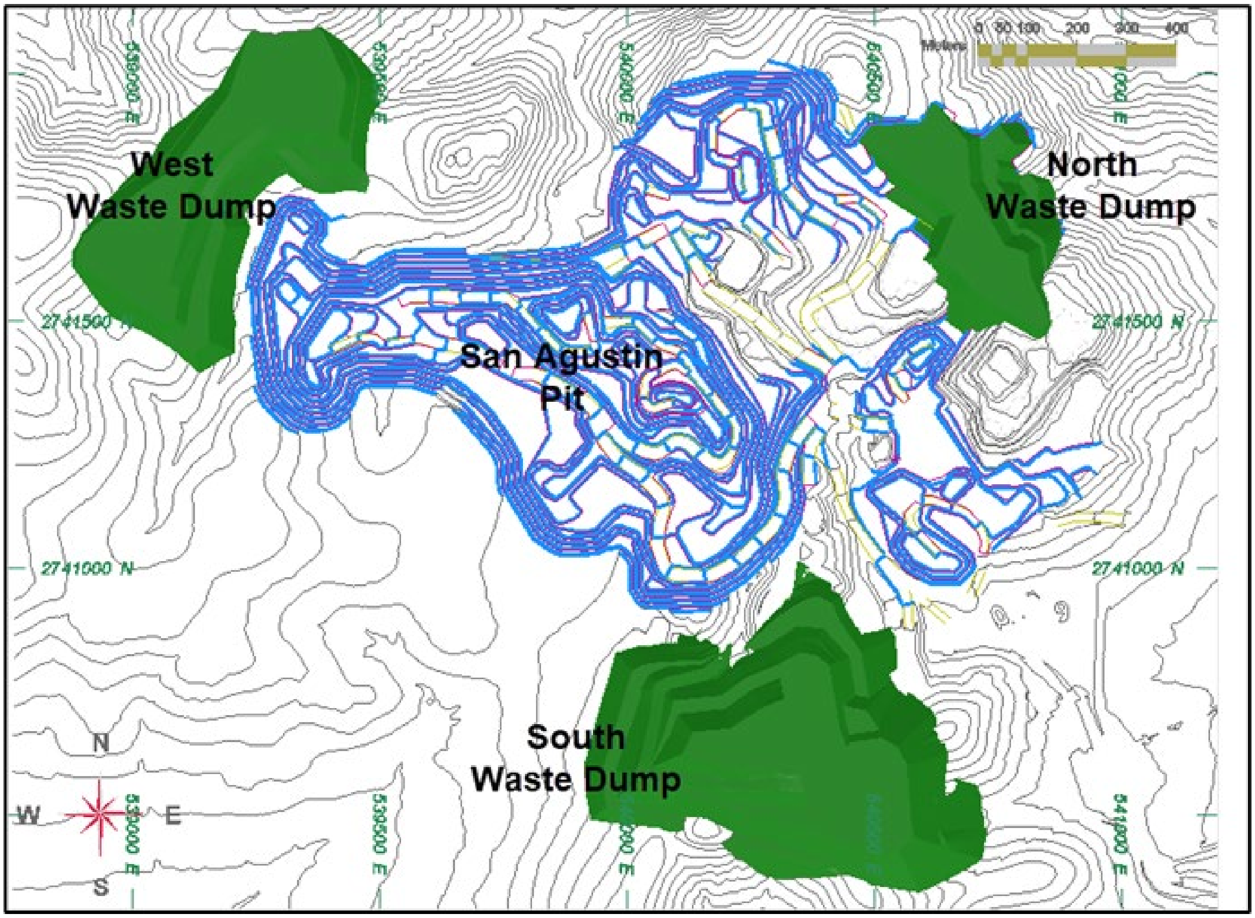
Testwork completed as part of the environmental baseline studies indicated that the waste material is not acid generating. As required under Mexican environmental requirements, the waste will be tested throughout the mine life to monitor if any unexpected acid generating materials are encountered.

Figure 15-4: Ultimate Pit Design



Note: Figure prepared by Argonaut, 2021

Figure 15-5: WRSF Layout



Note: Figure prepared by Argonaut, 2021

Table 15-5: WRSF Capacity

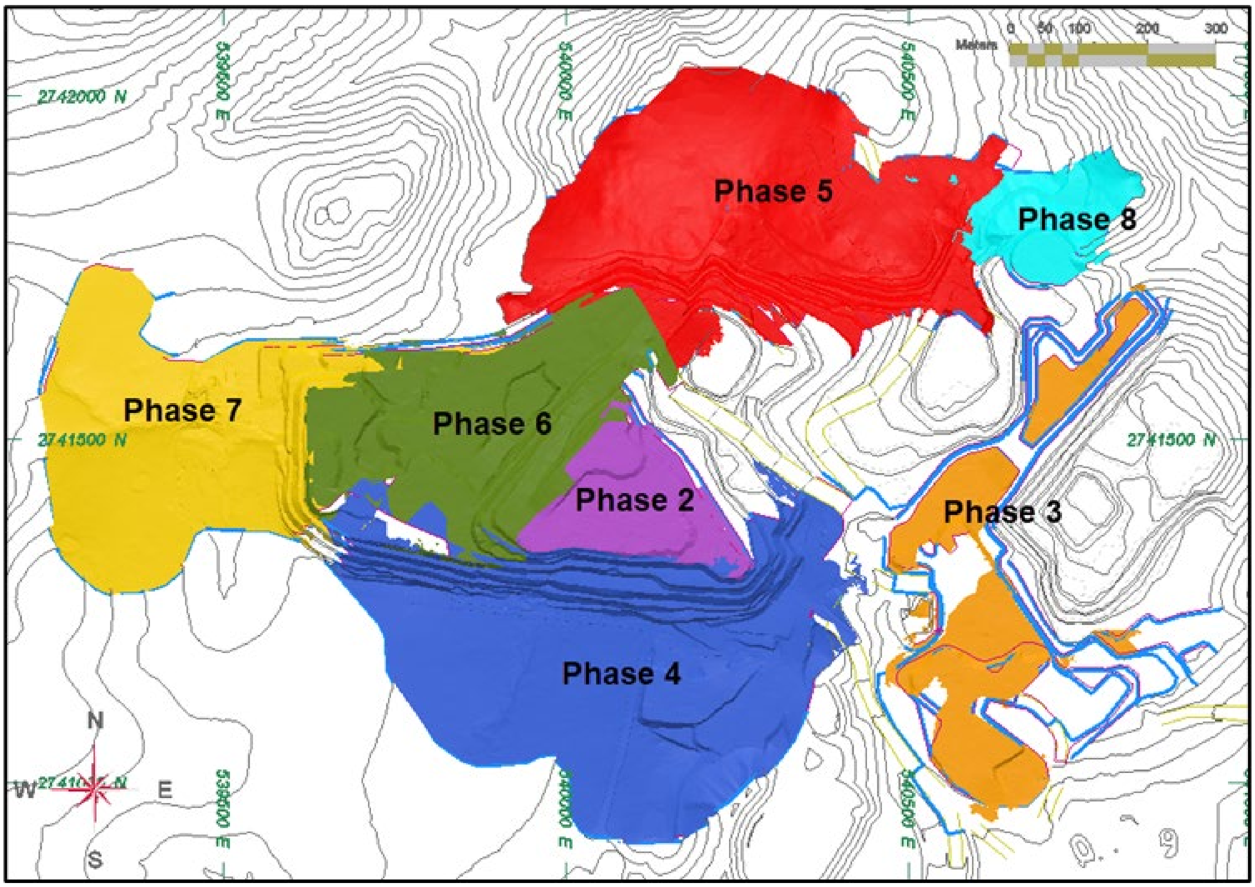
WRSF	Surface Area (thousand) (m^2)	Volume (million) (m^3)	Tonnage (million) @ SG = 1.8
South WRSF	350	8.44	15.2
West WRSF	150	4.33	7.8
North WRSF	245	3.88	7.0
Total	**745**	**16.65**	**30.0**

15.4.3.3 Phase Design

Phase designs were largely driven by the effective mining widths and the influence of the designs on access to the mineralization. The same design parameters used in the final pit design were incorporated into the phase designs.

Figure 15-6 shows the seven remaining mining phases (Phases 2 to 7).

Figure 15-6: Mining Phases



Note: Figure prepared by Argonaut, 2021

16.0 MINING METHODS

16.1 Overview

San Agustin is a contract-operated mine and Owner-operated process facility using conventional equipment and conventional mining methods. Details of the mine design and WRSF assumptions are provided in Section 15.

The San Agustin mine is a relatively low-grade gold deposit that benefits from a low strip ratio and disseminated mineralization that is amenable to bulk mining activities and good heap leach recoveries. Situated in a semi-arid environment surrounded by moderate topography, the oxide material that hosts the mineralization is relatively shallow with no major impediments to mining.

There are seven mine phases remaining in the LOM plan and the final pit dimensions are approximately 1.6 km long (east-west) by 1.1 km wide (north-south) and up to 140 m deep. The final pit contains approximately 36.6 Mt of ore and 28.7 Mt of waste for an overall strip ratio of 0.78 (waste:ore) including mining dilution and ore losses applied in the mine schedule. Production is expected to be limited to 11 Mt/year for ore over the course of the mine life. As a result, it is expected that 344 koz of gold will be placed on the heap leach pad from August 2021 through the end of 2024 for a remaining mine life of 3.5 years.

The mining method consists of traditional drill-and-blast operations followed by excavator loading of rigid-body haul trucks (100 t class) for ore transport to the crusher and waste transportation to designated WRSF locations.

Approximately 16.7 Mm^3 of waste storage space was defined outside the current and future mine phases which will accommodate approximately 30 Mt of waste.

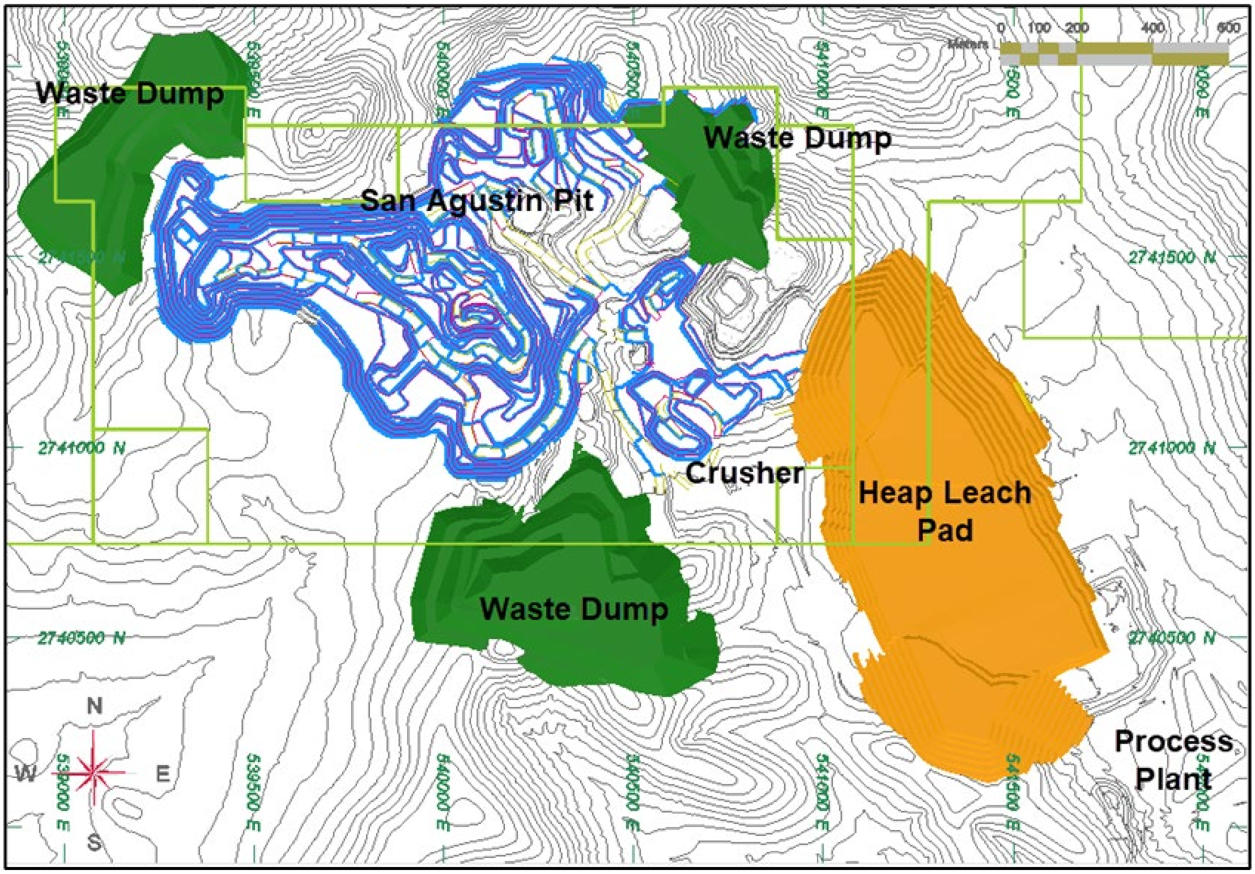
Figure 16-1 illustrates the San Agustin site layout at the end of the current LOM plan.

16.2 Geotechnical Considerations

The San Agustin mine has been in production since October 2017. At that time, no site specific geotechnical characterization data were available for the San Agustin deposit area. SRK Consulting (U.S.) Inc. (SRK) estimates of anticipated ground conditions were based on typical rock mass conditions in the Ocampo Mining District and based on their experience in similar ground conditions.

SRK estimated the factor of safety (FOS) of the slope walls proposed by Argonaut. SRK estimated the equivalent Mohr – Coulomb strength parameters based on the worst rock mass conditions observed during their site visit and the geotechnical core logging of two available drill holes. SRK assumed conservative geological strength index (GSI) values (GSI of 30 to 40) and a uniaxial compressive strength (UCS) range between 40 and 50 MPa as no laboratory test results and limited rock mass quality data at the San Agustin mine were available.

Figure 16-1: Site Layout



Note: Figure prepared by Argonaut, 2021

SRK assumed low confinement (shallow pit) and estimated the cohesion and internal friction angle using the lower boundaries of the GSI (50) and UCS (40 MPa). The equivalent Mohr-Coulomb properties were estimated to have a cohesive strength of approximately 400 kPa and an internal friction angle of 38°.

SRK applied the circular failure chart method to estimating the FOS of the highest walls for each phase. Table 16-1 shows the interramp design used by Argonaut for the San Agustin mine. Based on their empirical assessment, SRK endorsed the mine designs proposed for San Agustin at a conceptual-level and stated their opinion that because the pit is shallow, future adjustments to this angle will result in minor changes in stripping requirements.

Table 16-1: Geotechnical Pit Design

Design Sector	Geotechnical Unit	Pit Wall Slope Azimuth	Interramp Angle (°)
One area	All rock unit	All	45

During 2021, GCM Engineering S.A. (GCM) conducted a series of geotechnical studies in conjunction with Argonaut staff (GCM, 2021). The studies included mapping and structural measurements of pit workings, rock mechanics, and structural analyses. The work concluded the San Agustin pit has generally good competent rock and confirmed the 45º interramp angle.

The heap leach facility and WRSF for San Agustin were evaluated by Golder Associates Inc. (Golder, 2014). The QP examined Golder's work as it applies to the current design and confirmed that the analyses were conducted in accordance with industry standards.

The QP recommends Argonaut perform further geotechnical work to continually confirm the geotechnical parameters including pit mapping, geotechnical analysis of core samples, and pit wall stability monitoring.

16.3 Grade Cut-off Analysis

Because San Agustin is a disseminated low-grade deposit, Argonaut conducted a grade cut-off analysis to eliminate marginal ore from the mine plan. Contained mineralization in the ultimate pit was estimated at incremental gold cut-off grades and the cash flow and required capital costs were analyzed for each case. The internal cut-off, calculated using the gold price, operating costs, and metallurgical recoveries used to report Mineral Reserves, is 0.13 g/t AuEq.

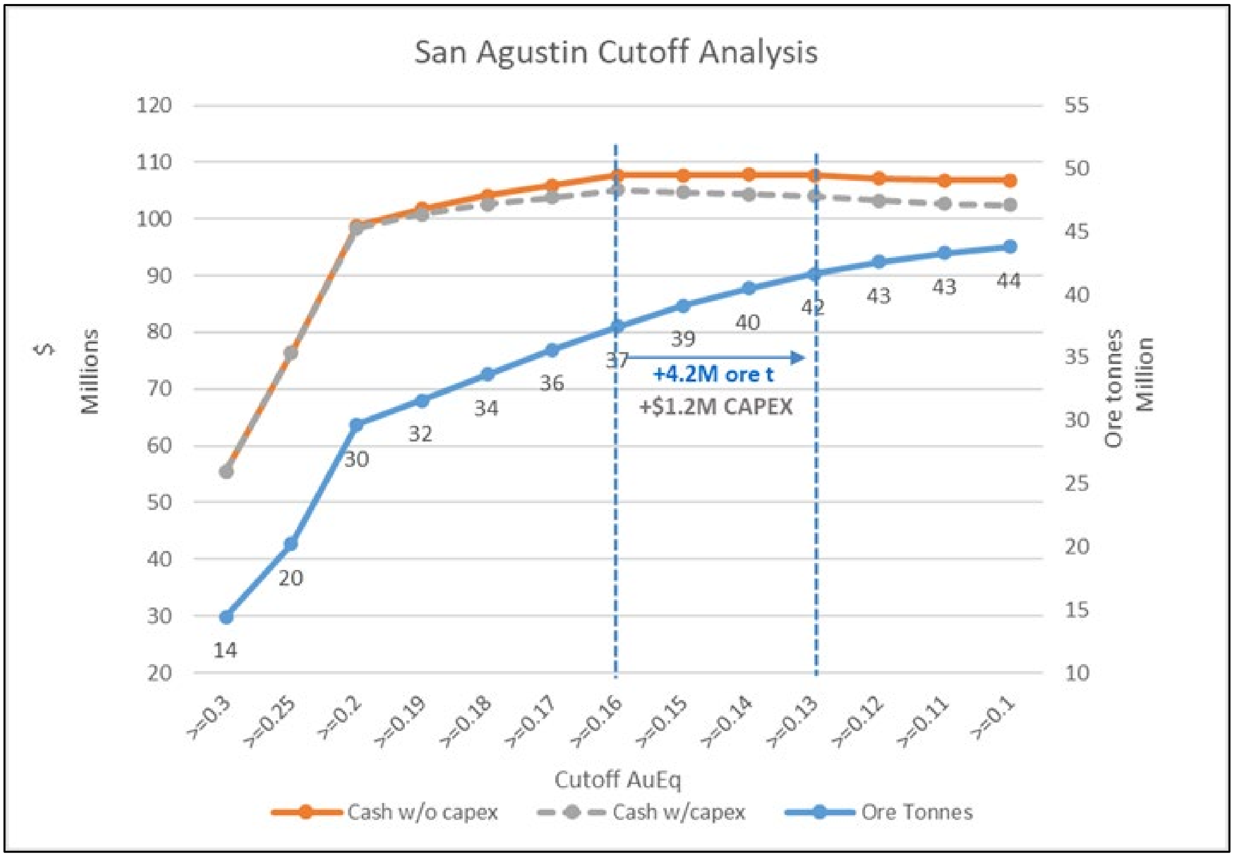
The analysis showed that there was 4.2 Mt of mineralization grading between 0.13 g/t AuEq and 0.16 g/t AuEq that provided a marginal increase in cash flow but incurred an additional US$1.2 M capital cost. The mine plan schedule was therefore developed using a cut-off of 0.16 g/t AuEq. Figure 16-2 shows the ore tonnes and cash flow (with and without the required capital costs) for each case.

16.4 Production Schedule

The mine production schedule was created by Argonaut staff using MineSight software. Production periods were generally monthly for the first year, quarterly for the following year, and annual through to the end of the mine life. Only the annual ore and waste accumulations were reported, but consistent ore feeds to the heap leach pad were inherent in the production schedule so ore exposure is not a major risk to production.

Table 16-2 summarizes annual mine plan quantities. The oxide ore is sent to a single crusher complex where it is crushed to 80% passing 22 mm. Table 16-3 details the forecast annual ore feed to the crusher complex and the associated gold and silver grade forecasts.

Figure 16-2: Cut-off Analysis



Note: Figure prepared by Argonaut, 2021

Table 16-2: Annual Production Schedule

Period	Proven and Probable Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Contained Au Ounces (000's)	Contained Ag Ounces (000's)	Waste Tonnes (000's)	Total Tonnes Mined (000's)	Strip Ratio (w:o)	Production Rate (000's t/d)
2021[1]	4,507	0.26	8.58	37	1,243	2,704	7,212	0.60	47
2022	10,968	0.30	6.82	105	2,406	6,413	17,381	0.58	48
2023	10,977	0.30	6.15	106	2,171	11,745	22,722	1.07	63
2024	10,113	0.30	15.38	96	5,000	7,822	17,935	0.77	55
Total	**36,565**	**0.29**	**9.20**	**344**	**10,821**	**28,685**	**65,250**	**0.78**	**54**

(2) August 1, 2021 through December 31, 2021

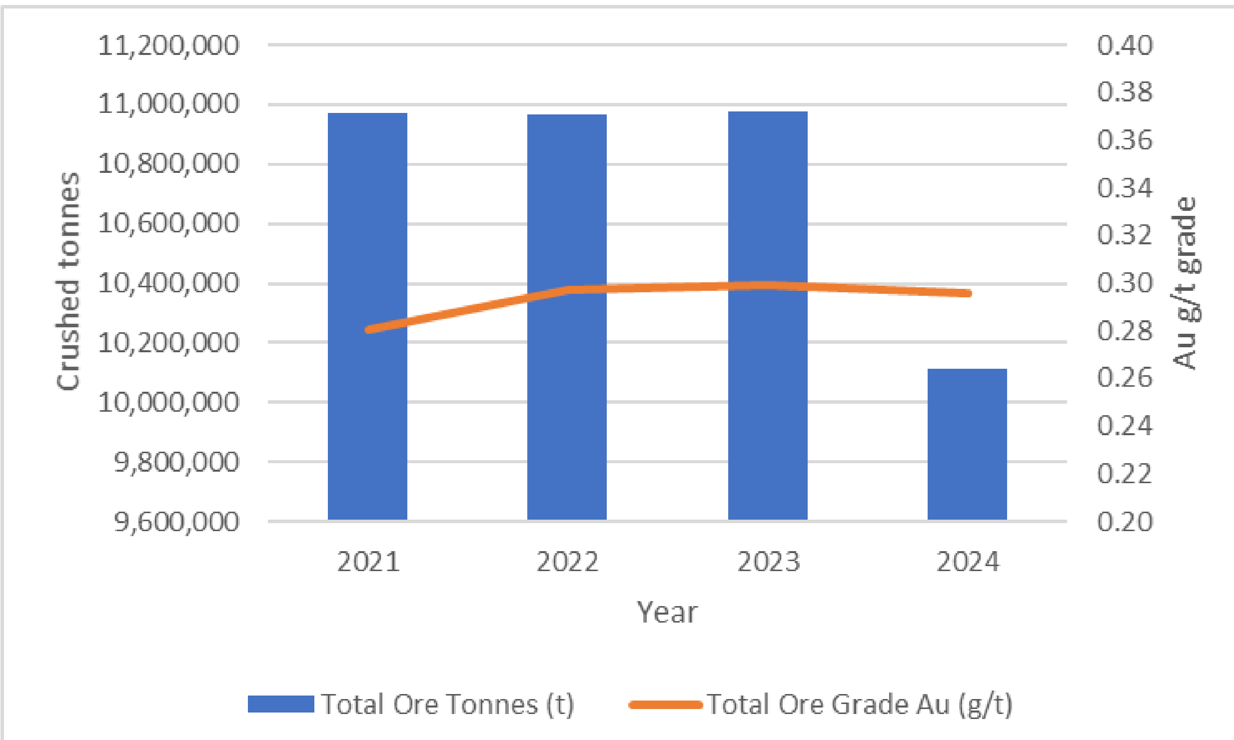
Table 16-3: LOM Schedule

Mine Schedule	2021[1]	2022	2023	2024	Total
Total Ore Tonnes (000's t)	4,507	10,968	10,977	10,113	36,565
Total Ore Grade Au (g/t)	0.26	0.30	0.30	0.30	0.29
Total Ore Grade Ag (g/t)	8.58	6.82	6.15	15.38	9.20
Total Contained Gold (000's oz)	37	105	106	96	344
Total Contained Silver (000's oz)	1,243	2,406	2,171	5,000	10,821

(1) August 1, 2021 through December 31, 2021

Figure 16-3 shows the expected crushed ore tonnage and gold grade on an annual basis for the remaining LOM.

Figure 16-3: LOM Schedule



Note: Figure prepared by Argonaut, 2021. Year 2021 is full year.

16.5 Mining Equipment

Mining equipment is supplied by the mine contractor. The mine fleet is contractor-operated and includes Caterpillar 777 size haul trucks, Cat 992 class front-end loaders, and support equipment. A suitable heavy equipment lowboy facilitates the movement of equipment within the San Agustin Project.

The haul profiles are calculated on a period basis and form the basis for the truck and loader fleet. Table 16-4 details the current mine equipment as of October 2021. The fleet is reasonably consistent through the LOM.

Table 16-4: Mine Equipment

Trucks	**Count**
Cat 777F	7
Cat 777G	2
Total	**9**
Front End Loaders	**Count**
Cat 992K	3
Total	**3**
Rotary Blasthole Drills	**Count**
Atlas Copco DM 45	4
Total	**4**
Other Equipment	**Count**
Cat D8T Dozer	2
Cat 140K Grader	1
Cat 349DL Excavator	1
Total	**4**

17.0 RECOVERY METHODS

17.1 Process Flow Sheet

The San Agustin Project is an open pit mine with a heap leach operation using a multiple-lift, single-use leach pad. There are two crushing plants at San Agustin: a 17,000 t/d plant and a 13,000 t/d plant. The ore is crushed (P_{80} 22 mm) at a total rate of approximately 30,000 t/d, stockpiled, reclaimed, agglomerated, and stacked on the leach pad with a mobile conveyor stacking system. The stacked ore is leached with a low-grade cyanide solution and the resulting pregnant solution is processed through a 1,200 m^3/hr gravity-cascade carbon adsorption circuit to extract gold and silver. A small 250 m^3/hr Merril Crowe plant was added in 2020 to treat pregnant solutions for some gold extraction and additional silver recovery from the overall circuit. The loaded carbon is trucked to Argonaut's La Colorada mine for carbon stripping and smelting. Precipitate from the Merrill-Crowe plant is also shipped to La Colorada for smelting. A simplified overall Project flowsheet is presented in Figure 17-1.

17.2 Process Description

17.2.1 Crushing and Conveying

The Plant 1 crushing circuit includes a primary jaw crusher followed by secondary crushing with two cone crushers operated in open circuit to produce a final crush size of P_{80} 22 mm. A hopper in front of the primary crusher is fed directly by haul trucks, or by a front-end loader from stockpile. From the dump hopper, ore is fed across a vibrating grizzly with oversize being directed to the jaw crusher and the undersize directed to the primary crushed ore stockpile.

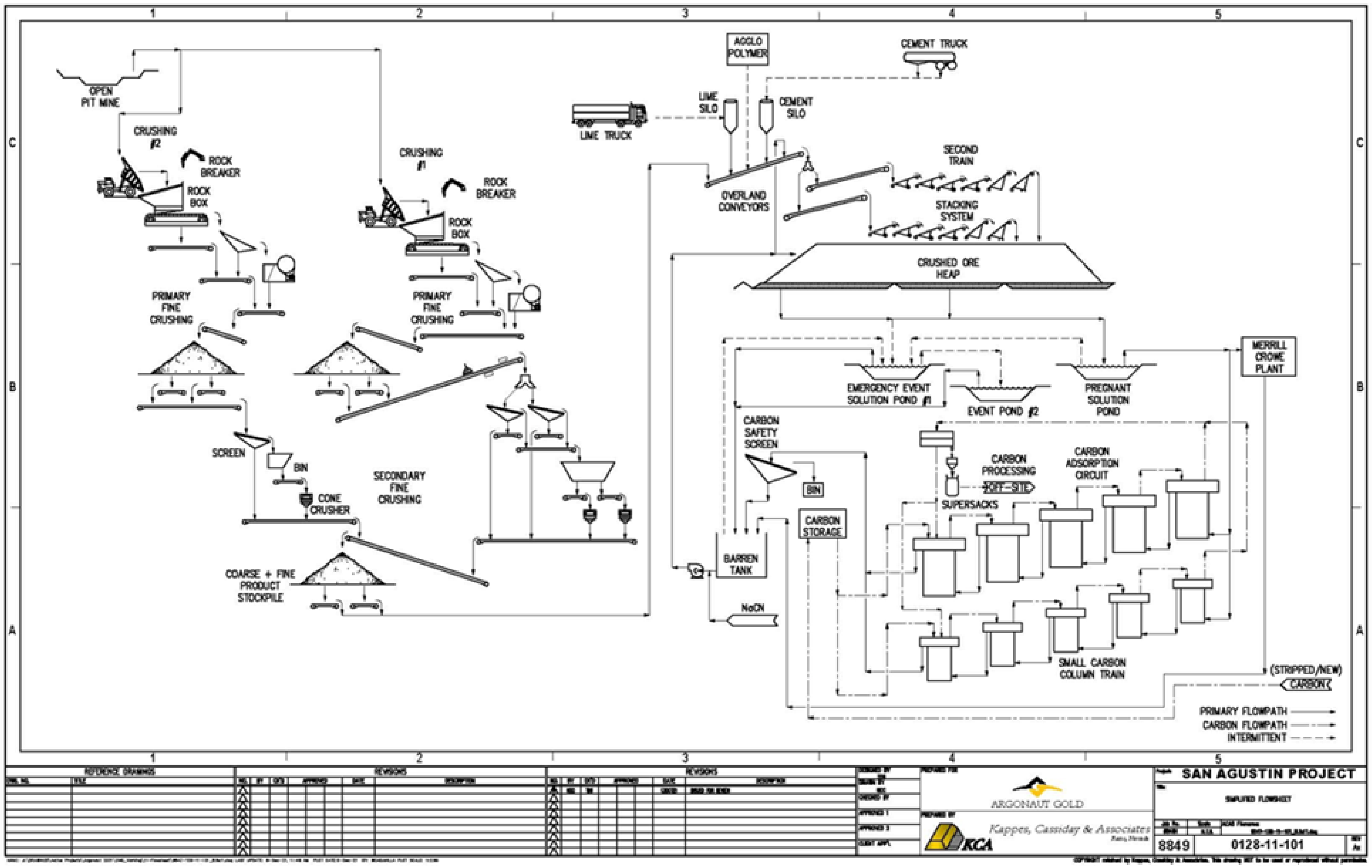
The primary crushed ore is reclaimed from the primary stockpile and conveyed to two double-deck vibratory screens. Screen oversize is combined and conveyed to a surge bin, which feeds two secondary cone crushers. The secondary crushing circuit operates in open circuit with the crushed product combined with the undersize material from the vibrating screens and directed to the crushed ore stockpile. Plant 1 produces approximately 17,000 t/d of P_{80} 22 mm crushed ore product.

The Plant 2 crushing circuit is nearly identical to the Plant 1 crushing circuit, except the equipment is slightly smaller and the secondary circuit uses one only one vibrating screen and cone crusher rather than two. Plant 2 produces 13,000 t/d of P_{80} 22 mm product.

The two streams of crushed product join at a common crushed product stockpile. Ore from the crushed product stockpile is conveyed 0.5 km to the heap leach pad on two overland conveyors and then onto the heap leach pad with a system of 24 grasshopper field conveyors and stacked at 30,000 t/d in 8 m high lifts with an index conveyor and mobile radial stacker.

The ore is belt-agglomerated with 2 kg/t to 3 kg/t cement (2019 excluded) and 5.6 kg/t lime as required for improved percolation. Since April 2021 an agglomeration polymer (DustTreat) has been used in place of cement at an addition rate of 0.05 kg/t.

Figure 17-1: Process Flowsheet



Note: Figure prepared by KCA and Argonaut, 2021

17.2.2 Heap Leaching

The existing heap leach pad is a multiple-lift, single-use type pad designed with an ultimate capacity for 58 Mt of ore. A total of 34 Mt was stacked through July 2021, leaving 24 Mt of capacity. Plans are to add two small leach pad extensions to the northwest and southeast in 2022 and 2023 respectively, adding an additional 16 Mt tons capacity. Beyond this, there is substantial area to the northeast for an additional leach pad extension if required.

Leach solution containing 350 ppm to 450 ppm NaCN is pumped from the barren tank and applied to the ore at an application rate of 8 L/hr/m^2 over a 75 day leach cycle. The cyanide leach solution percolates through the ore and is collected on the geomembrane liner at the base of the heap. A series of drainage pipes below the ore and above the liner collect gold and silver-bearing pregnant leach solution (PLS) which flows by gravity to the PLS pond.

The heap leach pad is constructed on a prepared surface including a compacted subgrade lined with 0.3 m of low permeability soil. The prepared surface is covered with a single layer of 1.5 mm linear low-density polyethylene (LLDPE) plastic liner, overlain with 0.6 m of drainage gravel embedded with perforated drainage pipes all graded to drain to the PLS pond.

The PLS pond and the event ponds are double lined with 1.5 mm HDPE plastic liners and incorporate a leak detection system. Lined spillways located between the ponds 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 PLS pond is designed to have sufficient capacity for a minimum operating volume for a 24 hour period, capacity for an 8 hour pump shutdown or leach pad solution draindown, and capacity to contain inflows generated by average rainfall events over the leach pad footprint, and capacity to maintain the design freeboard.

Adsorption Circuit

PLS is pumped from the PLS pond to the carbon-in-column (CIC) adsorption circuit with submersible pumps. The 1,200 m^3/hr CIC circuit consists of a single train of five cascade-style adsorption columns, each with a holding capacity for 10 t of activated carbon.

Carbon in the CIC is pumped counter-current to the solution flow. Carbon transfer between columns is accomplished with recessed impeller pumps. Loaded carbon from the lead adsorption column is pumped to a dewatering screen and fed into 500 kg super-sacks for transport to the carbon processing and gold recovery plant at Argonaut's La Colorada mine. Following adsorption of the gold and silver values onto carbon, the barren solution flows by gravity to the barren solution tank, where the cyanide concentration is adjusted and is then pumped back to the heap leach pad to continue the heap leaching process.

Merrill-Crowe

In an effort to increase silver recovery and to lower overall silver in the leaching circuit, a small stand-alone Merrill-Crowe plant was installed in November 2020 to treat a 250 m^3/hr stream of PLS by zinc precipitation. The precipitate is shipped to La Colorada for smelting.

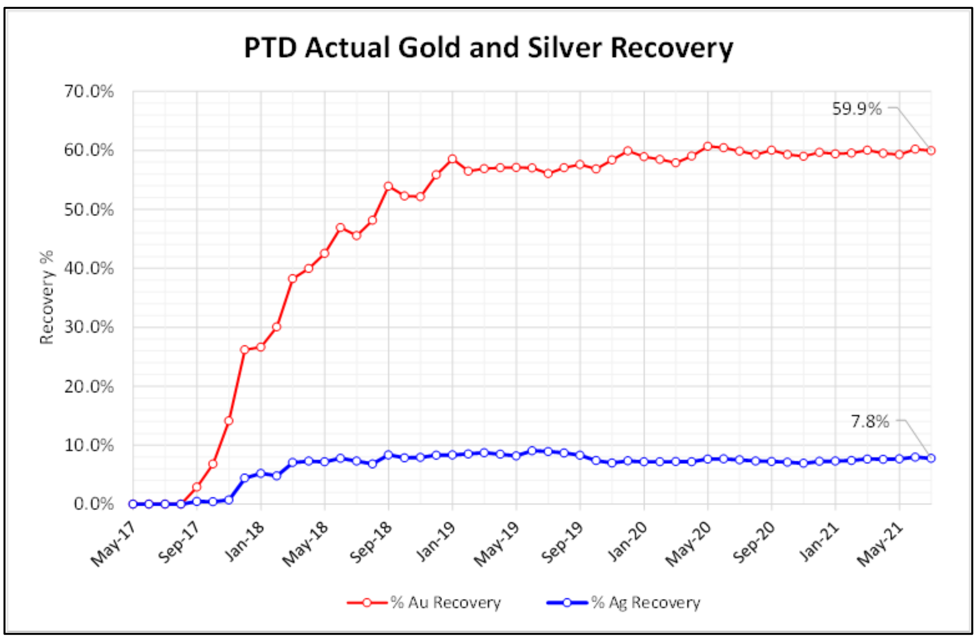
Carbon Treatment

The carbon treatment process, including desorption, acid washing and thermal regeneration, is performed at Argonaut's La Colorada mine. The metals are finally extracted by electro-winning from desorption, the sludge retorted for mercury removal, and smelting into doré bars. Stripped and regenerated carbon is shipped back to San Agustin for reuse in the process.

17.3 Operational Performance

Actual PTD realized gold and silver recoveries are 59.9% gold recovery and 7.8% silver recovery. The PTD recovery curves since Project inception are shown in Figure 17-2.

Figure 17-2: Gold and Silver Recovery, Actual PTD



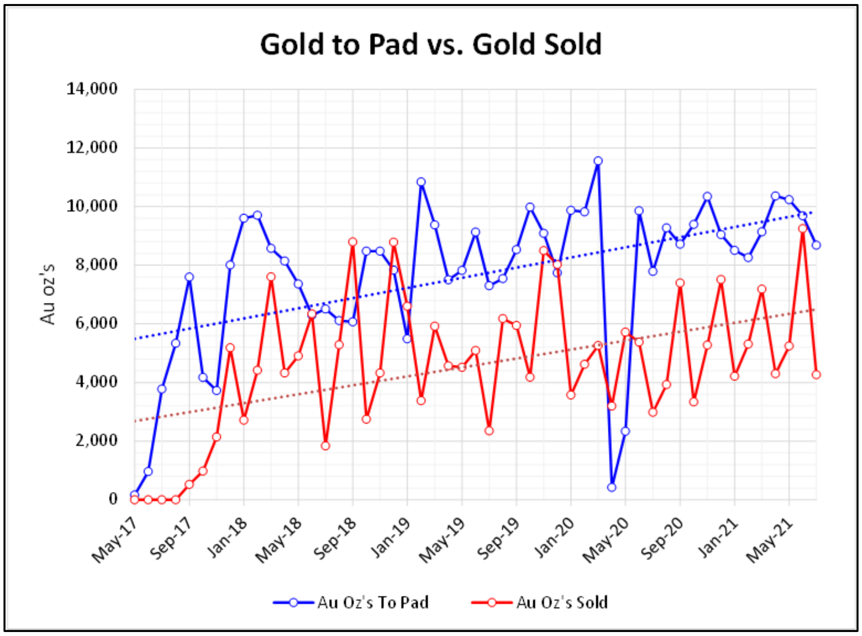
Note: Figure prepared by KCA, 2021

The difference between realized recovery to date and assumed endpoint recoveries is reflected in the booked metals inventories. Through end-of-month July 2021, the booked gold inventory was 19,665 oz Au, and the silver inventory was 1,076,489 oz Ag.

Metals delivered to the heap leach pad and recovered (sold) since inception are shown in Figure 17-3 and Figure 17-4 for gold and silver respectively.

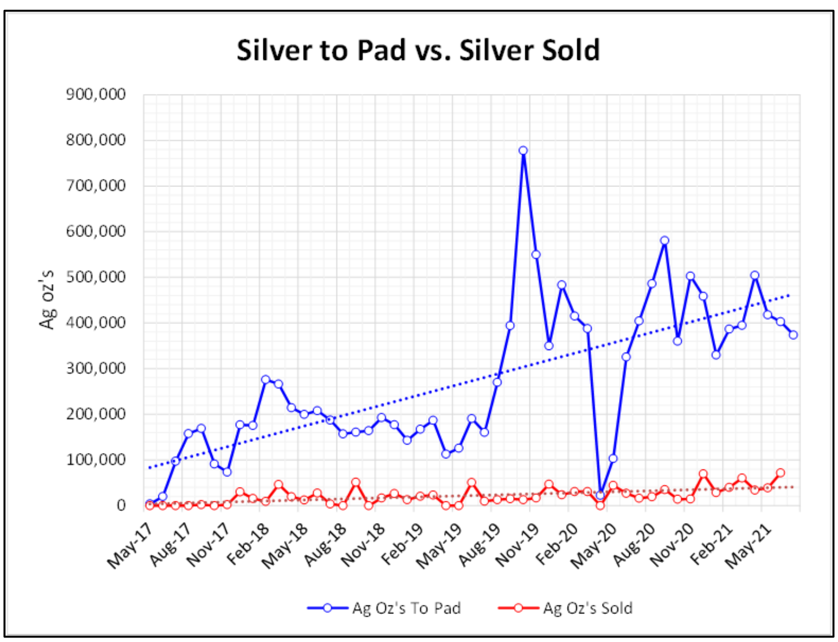
The booked metals inventories since inception are shown in Figure 17-5 and Figure 17-6 for gold and silver respectively.

Figure 17-3: Gold Stacked and Recovered



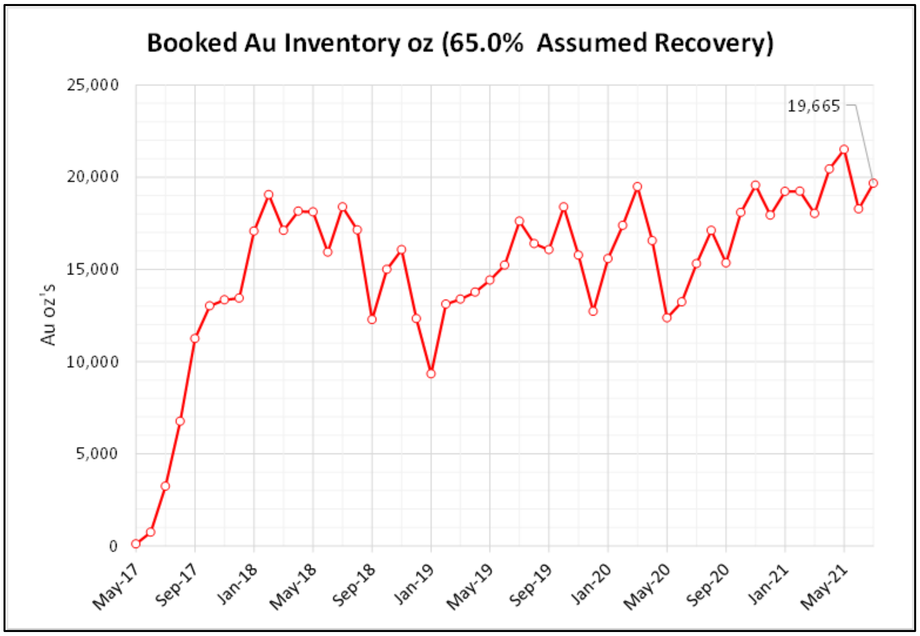
Note: Figure prepared by KCA, 2021

Figure 17-4: Silver Stacked and Recovered



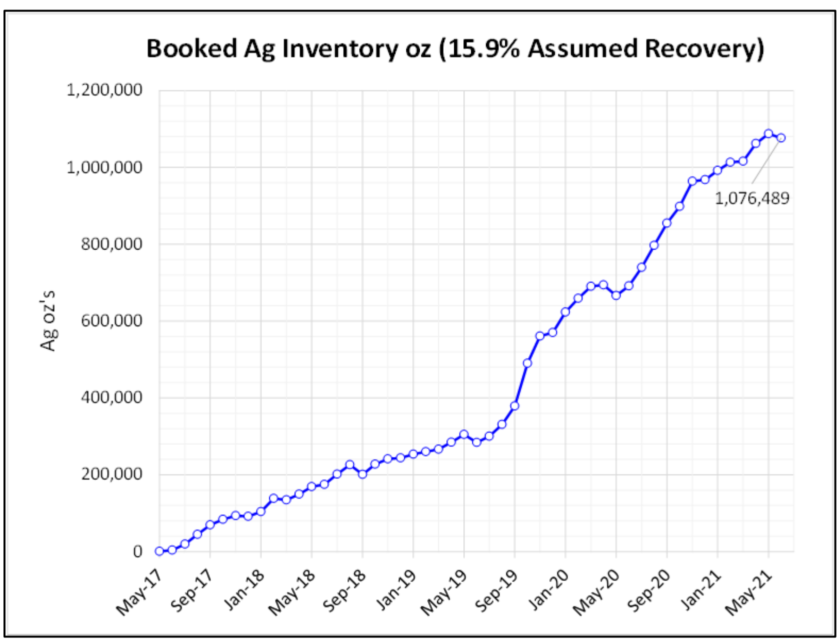
Note: Figure prepared by KCA, 2021

Figure 17-5: Booked Gold Inventory



Note: Figure prepared by KCA, 2021

Figure 17-6: Booked Silver Inventory



Note: Figure prepared by KCA, 2021

Inventories include metals in solutions, on carbon, and in-heap within partially-leached ore, unleached ore, and sideslopes. In the case of San Agustin where production rates and ore grades are generally constant, and assumed endpoint recoveries are correct, inventory would be expected to be within a relatively constant range, which appears to be true with respect to gold as can be seen in Figure 17-5. The booked inventory is also reasonable with respect to similar operations elsewhere.

On the other hand, the silver inventory has been continually rising since Project inception. There appear to be valid reasons for this. Namely, the circuit was not operated to maximize silver recovery, and in fact, since start-up, the opposite was true. Because silver can displace gold loading on carbon in the adsorption circuit, the carbon is advanced quickly to avoid silver loading, leaving much of the silver in solution and forced to recirculate within the solution circuit. Further, the operation is not geared towards silver recovery in general, where much higher concentrations of cyanide would ordinarily be used in the leach solutions as well as much longer leach cycles to maximize silver recovery. Also, if maximum silver recovery was desired, a Merrill-Crowe process would ordinarily be used rather than carbon adsorption. The original decision to use carbon at San Agustin was made solely to use existing capacity at Argonaut's La Colorada carbon stripping facility, which is the current procedure. In an effort to lower silver in solution, a small Merrill-Crowe (250 m^3/hr) was installed during November 2020 to treat a portion of the pregnant solution (total adsorption capacity is 1,200 m^3/hr) for silver removal. Since that time, the pregnant solution silver grades have dropped from 4.0 ppm to 2.8 ppm, reducing the amount of silver in permanent recirculation. This is evidenced by the reduced slope of the inventory line shown in Figure 17-6 since that time. Reportedly, Argonaut plans to add additional Merrill-Crowe plant capacity to eventually treat 500 m^3/hr.

Silver heap leaches are well known to exhibit prolonged recovery times, and the assumed recovery of 15.9% is realistic given the metallurgical test data and results to date. It is likely that additional leaching time will be required to extract all the recoverable silver at the end of the Project, after ore stacking has been completed.

In summary, all metallurgical data and operational results support the assumed endpoint recoveries of 65% for gold and 15.9% silver for the ore stacked to date.

17.4 Energy, Water, and Process Materials Requirements

The power requirements for operations are discussed in Section 18.5. Water supply and usage are discussed in Section 18.7.

At San Agustin it was discovered early on that moderate percolation problems were experienced during leaching. It was soon decided to belt agglomerate using 2 kg/t cement. This continued through 2018 and was suspended for 2019 as the need for cement was uncertain, and the lime consumption increased from 5.6 kg/t to 8.6 kg/t. During 2020 cement addition was resumed at 3 kg/t, and during April 2021 the cement addition was replaced with a synthetic polymer (DustTreat DC9119E) at 0.05 kg/t. By all reports the polymer works well and no percolation problems have been observed.

Sodium cyanide consumption was relatively constant at 0.3 kg/t to 0.5 kg/t since start-up.

Actual reagent additions are shown in Figure 17-7.

The cyanide mix and metering circuit includes 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 is delivered to the mine in super sacks and stored in a fenced, locked, and lighted reagent storage facility.

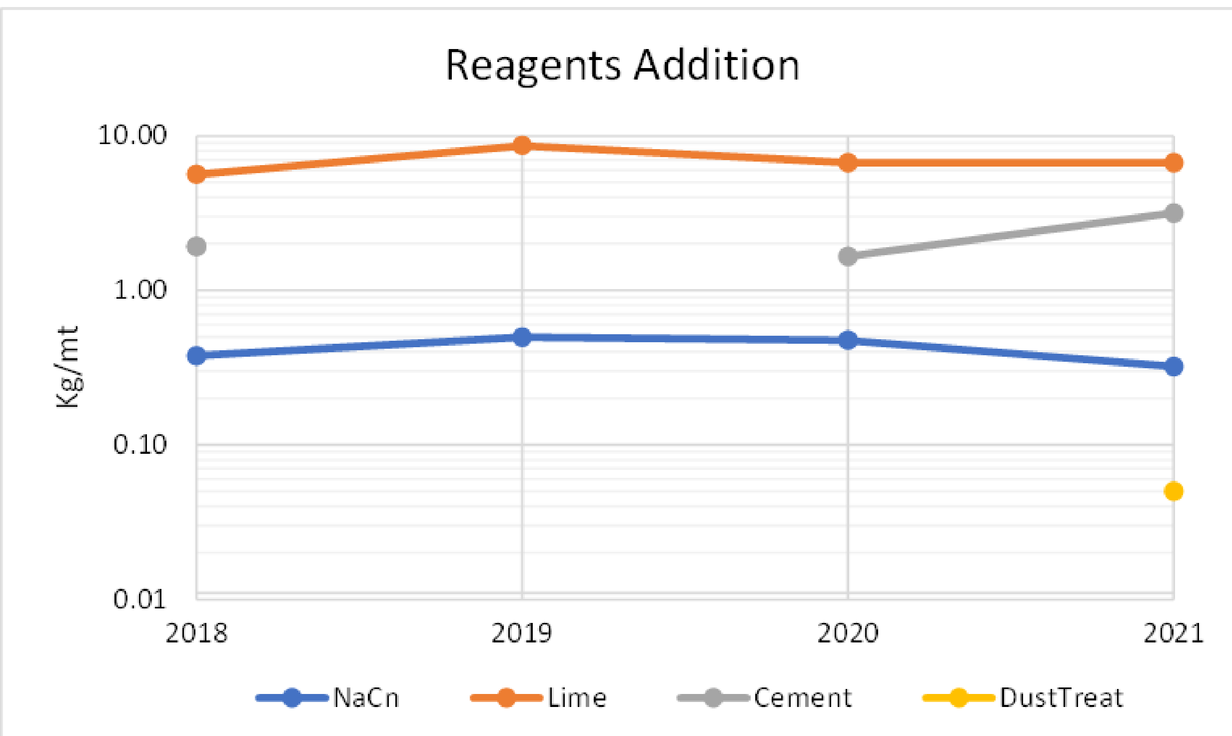
Lime is stored in a lime silo and dispensed directly onto the crushed ore stream on a conveyor belt by a variable-speed feeder receiving instructions from the weigh scale. Lime is delivered to the site by bulk trucks and blown directly into the lime silo, which is located near the crushing area. A very similar but separate arrangement is in place for cement addition.

The DustTreat agglomeration polymer is delivered in 1,000 L totes and metered directly onto the conveyor using a small metering pump.

Carbon is delivered to the site in 500 kg super sacks and stored in the carbon storage facility.

Antiscalant is delivered to the site in 1,000 L totes. Antiscalant is added to the barren and pregnant pump inlets by chemical addition pumps to mitigate scale formation in the piping.

Figure 17-7: Reagent Addition



Note: Figure prepared by KCA, 2021

17.5 QP Comments on "Item 17: Recovery Methods"

Overall, with respect to gold recovery, reagents usage, and stated gold inventory estimates, San Agustin performed consistently in line with expectations based upon metallurgical testwork and is well within industry norms and benchmarks for similar types of operations.

Silver inventory is relatively high due to poor silver recovery in the carbon adsorption plant and lower levels of sodium cyanide in the leach solutions (both intentional to favor gold recovery), and insufficient leach times. However, the recent addition of the Merrill-Crowe plant and continued leaching will lead to increased silver recovery ultimately in line with expectations.

18.0 PROJECT INFRASTRUCTURE

18.1 Introduction

The San Agustin Project has well established infrastructure in place including:

- An open pit mine;
- Explosive storage;
- Crushing plant;
- Cyanide heap leach pad;
- Carbon gold recovery plant;
- Reagent storage;
- Waste rock storage facilities;
- A truck shop and warehouse;
- A sample preparation laboratory and atomic absorption gold analysis laboratory;
- Offices for administration, operations, and technical services;
- Change and dining facilities;
- Water tanks;
- Various Project access roads.

Figure 18-1 shows the general layout of infrastructure at San Agustin including the open pit and facilities.

18.2 Road and Logistics

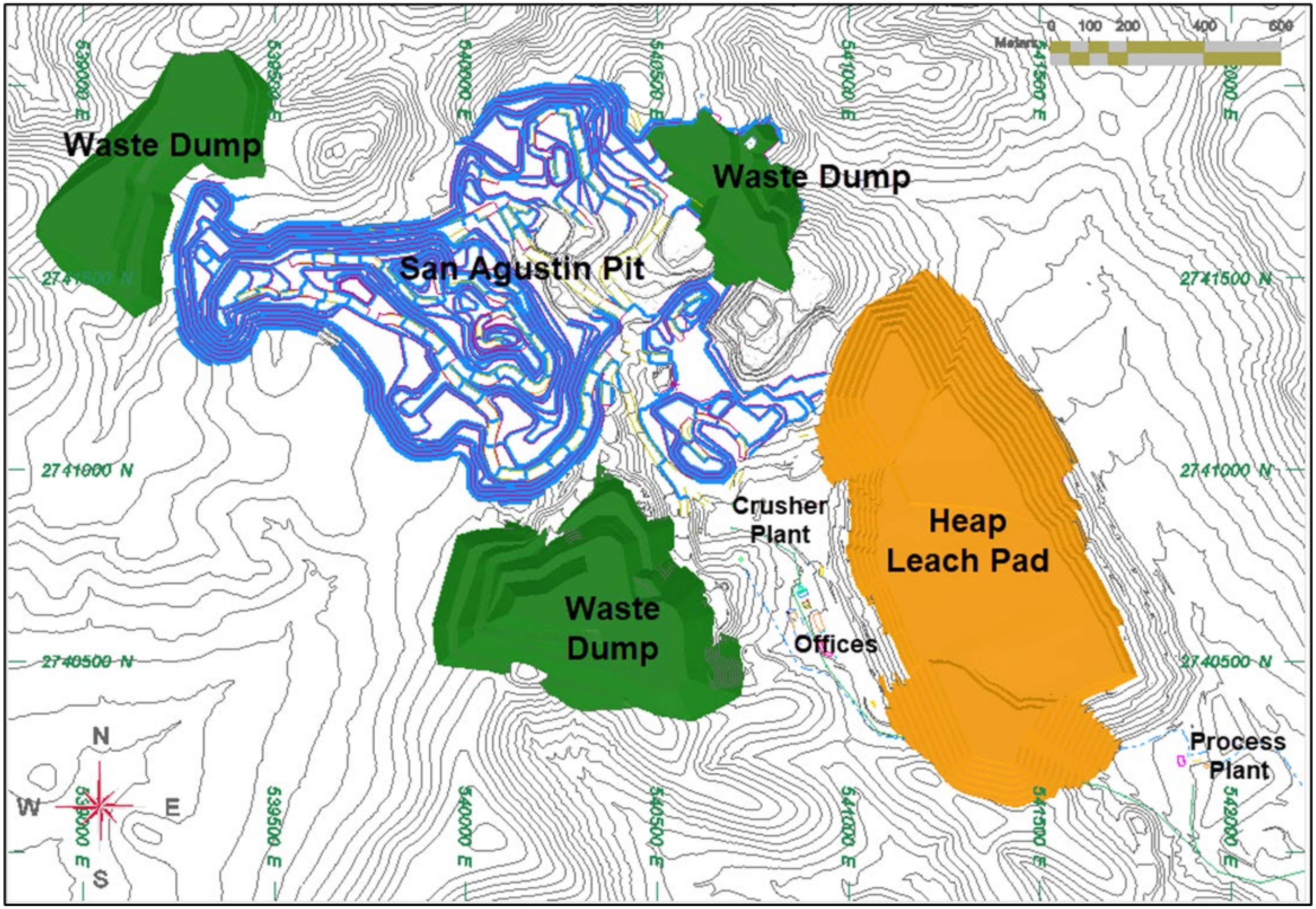
Project access is discussed in Section 5.2.

A north access road primarily serves to connect San Agustin to the El Castillo mine. The distance between the two mines is approximately 11 km.

Durango is the population centre for the region and the capital of the State of Durango. Vendors, supplies, and labour support are all found in Durango as well as a skilled mining workforce. A port facility in Mazatlan is located approximately 360 km south of the Project and railway access is available in Torreón and Durango. Torreón is located approximately 260 km to the northeast of the Project on two-lane paved Mexican Highway 40D.

There are daily flights to the city of Durango from Mexico City and Dallas, Texas.

Figure 18-1: General Arrangement



Note: Figure prepared by Argonaut, 2021

18.3 Camps and Accommodation

There is no camp site at the San Agustin mine; all employees and contractors live off-site in nearby towns.

18.4 Waste Storage Facilities

Wastewater and sewage are handled by subsurface local septic tanks and centralized leach-fields. The San Agustin Project includes two separate leach fields; one leach field 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.

Solid wastes are disposed of in a manner complying with local regulations.

18.5 Power and Electrical

Power is supplied at San Agustin by diesel-powered generators. The generation plant includes three 480 VAC (3-phase, 60 hertz) generators located near the crushing system. Power is distributed on-site by 4,160 VAC (3-phase, 60 hertz) electrical lines. Power is stepped-down to 480 volts and 120 volts accordingly where needed. All motors at the Project are less than 447 kW (600 hp) and therefore will use 480 VAC. Electrical outlets, control systems, and lighting have the option of using 120 or 220 VAC.

The average Project electrical power consumption is 5,331 kW, with a total attached power of 5,733 kW. Starting in 2022 Argonaut will convert to grid power off the main power line.

18.6 Fuel

Fuel supplies for mining, processing and other requirements are supplied by contractor from Durango, Mexico. Diesel fuel is stored on site in a 250,000 L storage tank. This provides diesel for power generators as well as other equipment. A gasoline storage facility of 15,000 L capacity provides fuel for light vehicles.

All fuel storage tanks and refuelling points have concrete containment areas.

18.7 Water Supply

Water supply is predominately for in-process use with minor volumes for drilling, dust control, construction, and potable uses.

The make-up solution (fresh + recycled) required by the heap leach system is met from several potential sources including solution previously stored in the emergency event solution ponds and well water and/or water from pit dewatering. Water for the Project is pumped directly from water wells to an event pond or alternatively to a water tank with a volume of approximately 42,000 m^3.

Water from the storage tank gravity flows and is utilized in process facilities and domestic uses. The dust control system includes a booster pump at the secondary raw water tank.

18.8 Heap Leach Pad

The heap leach facilities are discussed in Section 17. No tailings facilities are required.

19.0 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

Gold markets are mature, global markets with reputable smelters and refiners located throughout the world. Demand is presently high with prices for gold showing an increase during the past year. Markets for doré are readily available. There is a reasonable basis to assume that for the LOM plan, the doré market will remain readily accessible.

19.2 Commodity Price Projections

Forecast prices for estimation of Mineral Reserves was based on the long-term outlook for gold and silver. Argonaut uses the three-year trailing average of gold prices along with consensus long-term forward-looking estimates from a consortium of banks and industry analysts. As of August 24, 2021 the three-year trailing average for gold was US$1,590/oz. Forward looking consensus estimates for 2024 were US$1,780/oz Au. A gold price of US$1,500/oz and a silver price of US$20.00/oz were used for estimation of Mineral Reserves.

Higher metal prices of US$1,800/oz Au and US$24.00/oz Ag were used for the Mineral Resource estimates to ensure the Mineral Reserves are a sub-set of, and not constrained by, the Mineral Resources, in accordance with industry-accepted practice.

19.3 Contracts

San Agustin is a contract mining operation with an Owner-operated process facility. Contracts are entered into with third parties, where required. The principal contracts in place at the Report effective date included:

- Mining – Grupo Construcciones Planificadas S.A. de C.V.;
- Diesel and Fuel - DISTRIBUIDORA DE COMBUSTIBLES LAGUNA SA DE C.V.;
- Calcium Oxide - CALERAS DE LA LAGUNA SA DE C.V.;
- Catering - GRUPO GASTRONOMICO GOURMET DAVILA & CO. S. DE R.L. DE C.V.;
- Explosives and blasting - EXPLOSIVOS MEXICANOS SA DE C.V.;
- Core and RC Drilling - Layne de México, S.A. De C.V.;
- Oils and Lubricants - COMERCIALIZADORA CAMP SA DE CV.

Contracts are negotiated and renewed as needed. Contract terms are typical of similar contracts in Mexico that Argonaut is familiar with.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Introduction

The mine has all the necessary permits and authorizations to conduct LOM operations.

20.2 Baseline Studies

In 2014, MRO, in coordination with PH Consultores Ambientales (PHCA), Investigación Y Desarrollo de Acuiferos Y Ambiente (IDEAS), Dinamica Social (DS), and Golder initiated 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 ha (study area). 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 conducted for 13 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. Two samples of leached ore and 13 samples of waste rock were analyzed to determine their potential for acid rock drainage and metal leaching. Based on the test results, the waste rock was classified as non-acid-generating with metals concentrations in leachate that are within the Mexican regulatory guidelines. Both water and rock sampling were conducted by ALS and tested according to the parameters of Mexican Regulations and International Standards.

Geotechnical studies and heap leach material studies were conducted by Golder. The hydrology, biodiversity, and soil characterization studies and design flood calculation were conducted by PHCA. IDEAS conducted the geohydrology characterization studies for underground (IDEAS, 2014). DS performed the socioeconomic studies.

Baseline monitoring was conducted as part of the environmental impact assessment process. Baseline monitoring included physical and biological elements: water, climate, hydrology, soil and geomorphology, geology, and biodiversity.

20.3 Environmental Considerations/Monitoring Programs

Argonaut conducts geochemical characterization programs 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 (ARD) and metal leaching (ML). The program for waste rock analysis was conducted following Mexican regulation NOM-157-SEMARNAT-2009 which required analyzing each sample (dry base) for 10 elements that included: antimony, arsenic, barium, beryllium, cadmium, chrome, mercury, silver, lead and selenium. If the total concentration of these elements was above the NOM-157 parameters, a mobility procedure test must be applied to the sample; in this case, the method used was the meteoric water mobility test. The geochemical test program indicated that neither the waste nor the ore was expected to be acid generating or solubilize metals in amounts that exceed Mexican standards.

Air and noise emissions are discussed in Section 20.6.

Water management and monitoring is discussed in Section 20.7.

20.4 Mining Waste Management

The operations generate the following mining waste:

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

Because San Agustin is a heap leaching operation, no tailings are generated that require management and disposal. Official Mexican Standard NOM-157-SEMARNAT-2009 establishes the elements and procedures to implement a Mining Waste Management Plan. The necessary measures are defined and applied to ensure the integral management of mining waste, considering administrative, economic, technological, social, and environmental aspects. The Mining Waste Management Plan establishes the generation baseline and defines 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 San Agustin Project waste rock and leached ore. The program focused on determining the potential for the generation of acid rock drainage and metal leaching. The geochemical test program indicated that neither the waste rock nor spent ore are expected to be acid generating or solubilize metals in amounts that exceed Mexican standards.

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 mine life.

20.5 Hazardous and Non-Hazardous Waste Management

Non-hazardous waste from San Agustin is managed in agreement with the municipal service. Trash containers are strategically located on the mine premises, promoting the recycling of wood, cardboard, plastics, and scrap metals. Current buyers of recycled materials from the San Agustin mine also recycle 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 operation to collect, transfer, and store the different types of waste that will be generated by the operation. Argonaut is registered with Secretariat of the Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales, (SEMARNAT) as a Hazardous Waste generator. Hazardous waste must be identified using specific labels and containers must be specific for each type of waste. Storage of any hazardous waste must not exceed three months in this warehouse. Argonaut uses a SEMARNAT-authorized company for transport and disposal of hazardous waste, which issues a manifest document for transport and disposal movements. Control books are in place to control entrances and exits.

20.6 Air and Noise Emissions

Exhaust, dust and noise emissions are present at San Agustin mine. Machinery and equipment operation results in machine exhaust and noise emissions. Ore and waste rock haulage (trucks and belts), road operations, crushing, and vegetation clearing are the main activities that generate fugitive dust emissions. The magnitude of emissions is not considered significant, as they occur in a wide, open 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 generally occurs away from population localities, and monitoring is not required by environmental law. Noise levels are in the range of 70 to 80 type-A decibels at a distance less than 60 m from the equipment; this is monitored to meet health and safety standards regulated by NOM-011-STPS-2001.

20.7 Water Management

The San Agustin mine is a zero-discharge operation, using lined process water ponds and ditches to convey cyanide solutions to and from the heap leach pads.

Sewage water is treated using septic tanks that meet the specification of the Official Mexican Standard NOM-006- CNA-1997. The effluent of the septic tanks is analyzed according to the Official Mexican Standard NOM-001-ECOL-1996, which establishes the permissible discharge parameters limits.

A discharge permit from the Water National Commission (CONAGUA) was issued for treated wastewater.

Stormwater is managed through facility-specific diversion ditches, as necessary.

Process water is recirculated within the operations for ore leaching. Additional make-up water is obtained though authorizations from the CONAGUA. Currently, the San Agustin mine maintains one underground water right for 1,000,000 m^3/year, and a water discharge permit in the amount of 1,095 m^3/year. It also applied to CONAGUA for an additional 1,200,000 m^3/year underground water right.

20.8 Closure Plan

Current regulations in Mexico require that a conceptual closure program be presented after the MIA has been approved and updated yearly. The San Agustin closure plan was prepared by Argonaut.

The activities and costs associated with closure operations and construction activities in the current plans are generally similar, and 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 storage facility 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;
- Post-closure monitoring program.

An Asset Retirement Obligation (ARO) was prepared by Argonaut in December 2020 to define the closure liabilities associated with the San Agustin mine. The ARO includes descriptions of the closure and reclamation approaches, unit areas, and general unit rates. The total costs for closure and reclamation of the site (including a 10% contingency) were estimated at US$5,750,000.

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, bonding has thus far not been typically required for mining operations. SEMARNAT is requesting a bond to guarantee the cost of all terms and conditions included in the environmental impact authorization.

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. The Federal Attorney General for the Protection of the Environment (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, reforms introduced class actions to demand environmental responsibility from damage to natural resources.

Argonaut currently has a US$1 M liability insurance policy for damages caused to third-party property.

20.9 Permitting

20.9.1 Mining Law and Regulations

The Mining Law was approved on June 26, 1992 and amended by decree on December 24, 1996. Key articles include.

- 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;
- 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 Act Bylaws 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.

20.9.2 General Environmental Laws and Regulations

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

The Mexican federal authority over the environment is SEMARNAT. SEMARNAT is organized into several sub-secretariats and the following main divisions:

- INECC: Instituto Nacional de Ecologia y Cambio Climatico (National Institute of Ecology and Climate Change), an entity responsible for the coordination of technological and scientific research and development with a focus on environmental protection and conservation. This institute provides technical and scientific support to SEMARNAT for the implementation of the national environmental policy, promotion of criteria, methods and technologies for environmental conservation and sustainable use of natural resources. It also evaluates compliance of the goals and actions of the Climate Change National Strategy;
- PROFEPA: responsible for law enforcement, public participation and environmental education;
- CONAGUA: responsible for assessing fees related to water use and discharges;
- CONAFOR: Comision Nacional Forestal (National Forestry Commission), responsible of managing the policy for forestry sustainable development;
- CONANP: Comisión Nacional de Areas Naturales Protegidas (National Commission of Natural Protected Areas).

SEMARNAT regulates permitting or licensing 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 centres 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;
- 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.

20.9.3 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 Labour;
- NOM-120-ECOL-2011: specifies environmental protection measures for mining exploration activities in temperate and dry climate zones that would affect xerophytic brushwood, tropical forests, or conifer or oak forests. The regulation applies to 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;
- NOM-155-SEMARNAT-2007: establishes the environmental protection requirements for gold and silver leach pad systems.

20.9.4 Environmental Administration System

Argonaut has an Environmental Management System in place at the San Agustin mine.

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

20.9.5 Other Laws and Regulations

20.9.5.1 Water Resources

Water resources are regulated under the National Water Act of December 1, 1992 and its Bylaws of January 12, 1994 (amended on 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 were established for industrial sources, although limits specific to mining projects have not been developed. Official Mexican Standard NOM-001-ECOL-1996, published on January 6, 1997, establishes maximum permissible limits of contaminants in wastewater discharges to waters under the jurisdiction of the CONAGUA.

Daily and monthly effluent limits are listed for discharge 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.

20.9.5.2 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.

20.9.6 Expropriations and Land Negotiations

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): Oversees promoting land ownership legal compliance, especially in rural areas. This institution oversees public policies aimed at agrarian development;
- RAN (National Agrarian Registry): Controls land ownership of ejidos and communities (communal landowners). This agency oversees 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 ejidatarios deposit their succession lists;
- PA (Agrarian Prosecutor Agency): Social service institution that serves to protect the rights of agrarian individuals. Its services include legal counselling for possession's conciliation or legal representation.

20.9.7 USMCA

Canada, the United States and Mexico participate in the United States-Mexico-Canada Agreement (USMCA, formerly NAFTA). USMCA 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.

20.9.8 Permitting Process

Environmental permits are required from various federal and state agencies. Environmental permits are required in Mexico for exploration activities and road construction as well as mining activities and infrastructure development.

20.9.8.1 Environmental Impact Permit

The most important environmental permit is the Environmental Impact Permit. The LGEEPA environmental impact assessment regulation, revised on May 30, 2000, outlines the procedure for obtaining the permit. All mining projects and certain exploration projects must prepare an environmental impact assessment. The type of study required – a Risk Study, a Preventive Study or an Environmental Impact Statement (Manifestación de Impacto Ambiental) (MIA) –

depends on the characteristics of the project. Mining projects would most likely be required to prepare a MIA.

SEMARNAT will provide guidelines for the MIA. The time period for reviewing the MIA is 60 days, although this period may be extended for complex projects. Three resolutions are possible: 1) approval of the project; 2) conditional approval of the project, or 3) denial of the project. A bond will be established based on the type of project and the cost for rehabilitation.

20.9.8.2 Operating License (and Air Quality Permit)

The Operating License is not a permit but a registration which compiles information from the operator´s MIA authorizations, water use and discharges permits, and hazardous waste generation and disposal registration.

The San Agustin mine received its Operating License (Licencia Ambiental Unica, or LAU) on 03/08/2019 from SEMARNAT with registry LAU-10/055-2019.

The document is valid for the duration of the site environmental authorization, if the operator does not change the location, or the activity manifested the application. It must be updated in case of an operator´s name change, production increases, process changes, installation upgrades, and/ or hazardous waste generation changes (waste type or volume).

In terms of air quality, it reiterates the obligation to comply with limits imposed by the LGEEPA Bylaws on Atmospheric Pollution Control and Prevention, the LGEEPA Bylaws on Registration of Emissions and Pollutants Transference, and applicable Mexican Official Standards.

Based on the information manifested for the issuance of the LAU, the operator must submit monitoring information for the Annual Operating Report (Cédula de Operación Anual, or COA) on a yearly basis. The information includes results from air quality monitoring, surface and underground water analysis, mining waste characterization, and hazardous waste disposal manifest. GHE emissions must be quantified in accordance with guidelines provided by the LGEEPA Bylaws on Registration of Emissions and Pollutants Transference.

20.9.8.3 Land Use Permit

Along with the MIA authorization, a land use change authorization (cambio de uso del suelo, or CUS) is required prior to vegetation clearing and soil stripping. soil removal. Since this authorization is granted by exception, a justified technical study must be presented to SEMARNAT with a proposal of specific actions to compensate and mitigate the impacts caused by soil and vegetation removal. A compensation fee is paid to the Mexican Forestry Fund (Fondo Forestal Mexicano, or FFM) based on a pre-set value per affected hectare, and a compensation factor.

20.9.8.4 Preventive Report

Every process or activity which is regulated for construction, operation, closure and/or monitoring under an Official Mexican Standard (NOM) can be authorized through the presentation of a Preventive Report (Informe Preventivo, or IP).

20.9.9 San Agustin Mine Permitting Status

Argonaut has three environmental impact authorizations for San Agustin (Table 20-1).

Table 20-1: Environmental Impact Authorizations

Project name	Document type	Surface	Status	Expiration
Mining Exploitation and Ore Dressing San Agustin	MIA	538.70	Current	Aug. 2032
San Agustin North WRSF	MIA	47.28	Current	Sep. 2026
San Agustin Freshwater Pipeline	MIA	0.65	Current	Oct. 2029

Argonaut also has two land use change authorizations (CUS) for the Project (Table 20-2).

Table 20-2: Land Use Change Authorizations

Project name	Document type	Surface	Status	Expiration
Mining Exploitation and Ore Dressing San Agustin	CUS	319.81	Current	Oct. 2023[1]
San Agustin Mine Upgrade	CUS	66.55	Current	Nov. 2029

(1) Depending on the Conditions granted of each Environmental Impact Permit, an extension of the permit can be submitted to SEMARNAT, which is usually done in three months

20.10 Considerations of Social and Community Impacts

Surface access agreements were negotiated with the ejidos of San Agustin and San Lucas de Ocampo Agrarian Community, which hold surface rights in the Project area.

Five towns are located within the San Agustin Project area: 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 mine. The town population, density, and distance to the Project site are presented in Table 20-3.

Table 20-3: Towns Near the San Agustin 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

Argonaut implemented social programs in the local communities, such as:

- Academic scholarships;
- Water reservoirs;
- Agricultural support program for local farmers;
- Community roads maintenance;
- Employment program;
- Food baskets;
- Support to cultural and sports activities.

Argonaut is active in the region supporting the communities influenced by the San Agustin mine. Relations with these other communities are good which sets a good example for the communities affected by the San Agustin Project.

20.11 QP Comments on "Item 20: Environmental Studies, Permitting, and Social or Community Impacts"

Extensive environmental baseline data collection and monitoring of the area occurred as part of initial mine permitting. Baseline and supporting studies were completed for the current open pit mining operation.

There are currently no known environmental issues at the Project that could materially impact Argonaut's ability to extract the Mineral Resources or Mineral Reserves.

Argonaut has all required permits to support the LOM plan.

There are no known social issues that would impact the LOM plan as envisaged.

21.0 CAPITAL AND OPERATING COSTS

21.1 Introduction

Capital and operating cost estimates provided here were derived from the Argonaut 2021 LOM plan and the 2022 operating budget completed as of October 2021. All costs are in US dollars.

21.2 Capital Cost Estimates

21.2.1 Basis of Estimate

Cost estimates include domestic and international services, equipment, labour, supplies and other expenses. As and where applicable, the following cost elements were included:

- Value added tax;
- Freight;
- Duty.

21.2.2 Capital Cost Summary

The San Agustin Project has been in operation since 2017 and all the primary plant equipment is in place. Argonaut estimated capital costs from 2022 through LOM at US$9.7 M. These costs are primarily required for equipment maintenance at the process facilities, light vehicles, development drilling, leach pad expansion, and land acquisition. Mining equipment is supplied by contractors and therefore not capital to Argonaut.

In addition to the capital costs above, Argonaut estimates US$5.75 M for reclamation and closure costs.

21.3 Operating Cost Estimates

21.3.1 Basis of Estimate

Operating cost estimates are based on actual operating data refined where necessary to incorporate future operating forecasts. Operating costs within each category include labour, consumables, power, fuel and lubricants, routine maintenance parts, and all other direct operating expenses. Operating costs do not include major component replacement and major maintenance costs that are capitalized.

21.3.2 Labour Assumptions

The mine operation is based on the following:

- 24 hours per day;
- Two shifts per day;
- 12 hours per shift.

The mine operating schedule is forecast to run seven days per week for 360 days per year, which includes an annual allowance of five days downtime for delays.

21.3.3 Operating Cost Summary

Operating costs associated with the Project are subdivided into the following categories:

- Open pit mining;
- Crushing & conveying;
- Processing;
- Selling;
- G&A.

Mining operations were estimated using existing contracts. The LOM average mining cost is estimated at US$1.66/t moved. Crushing and conveying and leaching costs are based on historic performance and the projected ore feed through the process.

Selling costs include plant costs as well as the cost associated with transporting the doré bars to market and fees incurred in the sales, including refining charges and metal deductions.

Table 21-1 presents the estimate for LOM operating costs.

Table 21-1: LOM Operating Cost Summary

Description	LOM (US$/t ore)
Open Pit Mining	2.33
Crushing & Conveying	1.04
Processing & leaching	2.33
Selling	0.30
G&A	0.49
Total Operating	**6.49**

22.0 ECONOMIC ANALYSIS

Argonaut is using the provision for producing issuers whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material production expansion is planned.

Mineral Reserve declaration is supported by a positive cashflow.

23.0 ADJACENT PROPERTIES

This section is not relevant to this Report.

24.0 OTHER RELEVANT DATA AND INFORMATION

This section is not relevant to this Report.

25.0 INTERPRETATION AND CONCLUSIONS

25.1 Introduction

The following interpretations and conclusions are a summary of the QP's opinions based on the information presented in this Report.

25.2 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

Argonaut's mineral tenure held is valid and is sufficient to support declaration of Mineral Resources and Mineral Reserves.

Current mining operations and the Mineral Resources and Mineral Reserves presented in this Report are located within mineral concessions that are 100% Argonaut owned.

Argonaut has adequate mineral concessions and surface rights to support mining operations over the planned LOM presented in this Report. Argonaut will need to purchase or lease surface rights in the southwest portion of the pit in order to complete the final layback in Phase 4.

25.3 Geology and Mineralization

San Agustin is interpreted to be a porphyry-style gold system related to Eocene aged intrusions that were emplaced into Cretaceous clastic and carbonate sedimentary rocks in an extensional tectonic setting. Gold mineralization occurs throughout the magmatic-hydrothermal system in space and time and is spatially related to early potassic development and an overprint of phyllic alteration. Supergene alteration, formed as a product of acid leaching, resulted in argillic-quartz alteration assemblages within the oxide zone of the deposit. The main gold event is associated with magmatic hydrothermal fluids corresponding to phyllic alteration.

The geological setting, style of mineralization, and controls of mineralization are adequately known to support estimation of Mineral Resources and Mineral Reserves.

25.4 Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

The quantity and quality of the logged geological data, collar, and downhole survey data collected in the Argonaut exploration and infill drill programs are sufficient to support Mineral Resource and Mineral Reserve estimation and mine planning. The QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results.

Sample preparation, security, analytical methods, and QA/QC protocols demonstrate that the San Agustin data are reproducible and suitable to be used for estimating Mineral Resources and Mineral Reserves.

25.5 Metallurgical Testwork

San Agustin is an operating mine since 2017 and metallurgical testwork has been conducted over the years up to the present. All the test results support the realized gold recovery of 59.9% as well as the assumed endpoint recovery of 65% of the gold stacked to date. Realized silver recovery is lower than the testwork would suggest.

The ore characteristics are very consistent in general, and over time. There are no significant deleterious elements in San Agustin ores.

An extensive testwork program was conducted on sulphide composites, including bottle roll tests, column leach tests and a field pilot heap leach test. The results of this test program indicate gold recovery of 31% for the argillic sulphide material, 20% for silicic sulphide material, and 10% or less for the clay sulphide materials. Cyanide consumptions are reasonable and lime consumptions are high. Mineralized sulfide material has not been processed as of the effective date of this Report.

25.6 Mineral Resource Estimates

The Mineral Resource estimation for the Project incorporates industry-accepted practices and meets the requirements of the 2014 CIM Definition Standards.

Argonaut's technical staff perform annual updates to the mineral resource model including information from infill drilling. In each update, the interpolation parameters are adjusted to improve reconciliation to the short-range block model used for grade control. Interpreted wireframes for lithology, oxidation, and structural domains are used to code the block model.

Gold and silver grades are estimated using ID2 methods. Multiple passes are used to restrict the influence of high-grade gold assays.

Estimated block grades were classified into the Indicated category based on mineralized continuity and drill hole spacing. All other estimated blocks not classified as Indicated Mineral Resources were assigned as Inferred Mineral Resources. All sulphide material was classified as Inferred Mineral Resources.

Argonaut generated a conceptual Lerchs-Grossmann pit shell to demonstrate reasonable prospects of eventual economic extraction.

Areas of uncertainty that may materially impact the Mineral Resource estimates include:

- Changes to the long-term gold and silver prices and exchange rates;
- Changes in interpretation of mineralization geometry and continuity of mineralization zones;
- Changes to design parameter assumptions that pertain to the conceptual pit design that constrains the Mineral Resources;
- Modifications to geotechnical parameters and mining recovery assumptions;
- Changes to metallurgical recovery assumptions;

- Changes to environmental, permitting, and social license assumptions.

25.7 Mineral Reserve Estimates

The Mineral Reserve estimate for the Project incorporates industry-accepted practices and meets the requirements of the 2014 CIM Definition Standards.

Mineral Reserves were estimated assuming conventional open pit mining methods and conventional equipment. Indicated Mineral Resources were converted to Probable Mineral Reserves using a detailed mine plan, an engineering analysis, and consideration of appropriate modifying factors. Modifying factors include the consideration of dilution and ore losses, mining methods, geotechnical and hydrological considerations, metallurgical recoveries, permitting, and infrastructure requirements.

Mineral Resources were converted to Mineral Reserves based primarily on positive cash flow pit optimization results, pit design and geological classification of Indicated Mineral Resources.

Factors that may affect Mineral Reserves include:

- Changes in metal prices and exchange rate assumptions;
- Geotechnical conditions and mining recovery assumptions;
- Metallurgical recoveries;
- Changes to design parameter assumptions that pertain to the optimized pit design that constrains the Mineral Reserves;
- Ability to obtain or maintain land agreements;
- Operating cost estimates;
- Changes in the assumed permitting and regulatory environment;
- Changes in taxation conditions;
- Changes in cut-off grade;
- Acquisition of new concessions.

25.8 Mine Plan

The San Agustin mine is a relatively low-grade gold deposit that benefits from a low strip ratio and disseminated mineralization that is amenable to bulk mining activities and good heap leach recoveries. Situated in a semi-arid environment surrounded by moderate topography, the oxide cap that hosts the mineralization is relatively shallow with no major impediments to mining.

San Agustin is a contract-operated mine and Owner-operated process facility using conventional equipment and conventional mining methods. There are seven mine phases remaining in the LOM plan. The mine life will extend to 2024. The mining method employed at San Agustin consists of traditional drill-and-blast operations followed by excavator loading of rigid-body haul trucks (100 t class) for ore transport to the crusher and waste transportation to designated WRSF locations.

The mine production schedule is created by Argonaut staff. Only the annual ore and waste accumulations are reported, but consistent ore feeds to the heap leach are inherent in the production schedule so ore exposure is not a major risk to production

25.9 Recovery Plan

Realized gold recovery is 59.9% against the assumed endpoint recovery of 65% (from testwork) of the gold stacked to date. Realized silver recovery (7.8%) was lower than what would be otherwise possible (15.9% endpoint recovery) from the stacked silver to date due to poor silver recovery in the carbon adsorption plant and lower levels of sodium cyanide in the leach solutions (both intentional to favor gold recovery), and insufficient leach times. This led to a relatively high booked silver inventory. However, the recent addition of the Merrill-Crowe plant in November 2020 and continued leaching will lead to increased silver recovery ultimately in line with expected endpoint recovery

Overall, with respect to gold recovery, reagents usage, and stated gold inventory estimates, San Agustin performed consistently in line with expectations based upon metallurgical testwork and is well within industry norms and benchmarks for similar types of operations.

25.10 Infrastructure

The Project has well established infrastructure in place including an open pit mine, explosives storage, a crushing plant, a cyanide heap leach pad, a carbon gold recovery plant, reagent storage, waste rock storage facilities, a truck shop and warehouse, a sample preparation laboratory and atomic absorption gold analysis laboratory, offices for administration, operations, and technical services, change and dining facilities, water tanks, and various access roads. The mine has all required infrastructure in place to support operations for the LOM plan presented in this Report.

25.11 Environmental, Permitting and Social Considerations

Baseline and supporting studies were completed in support of current mine designs, operations, and permitting. Argonaut has continued to collect comprehensive environmental monitoring data to support effective environmental management.

Permits and licenses held by Argonaut for the San Agustin mine are sufficient to ensure that mining activities are conducted within the regulatory framework required by the Mexican government and that Mineral Resources and Mineral Reserves can be declared. Argonaut regularly extends permits and authorizations prior to their expiration dates that are required to sustain ongoing mining and processing operations.

Argonaut has defined the closure liabilities and costs associated with the San Agustin mine.

25.12 Markets and Contracts

Gold markets are mature, global markets with reputable smelters and refiners located throughout the world. Demand is presently high with prices for gold showing an increase during the past year. Markets for doré are readily available.

The long-term gold price of US$1,500/oz and silver price of US$20/oz used in Mineral Reserve estimation were based on the three-year trailing averages of gold and silver prices along with consensus long-term forward-looking estimates from a consortium of banks and industry analysts.

Contracts are entered into with third parties where required, covering aspects such as diesel, fuel, oils, lubricants, drilling, explosives and blasting, and catering.

25.13 Capital Cost Estimates

Estimated capital costs for equipment maintenance at the process facilities, light vehicles, development drilling, leach pad expansion, and land acquisition through the LOM are US$9.7 M. All the primary plant equipment is in place, mining equipment is supplied by contractors, and leach pads have capacity to handle the LOM Mineral Reserves and therefore no expansion capital is necessary.

25.14 Operating Cost Estimates

Operating cost estimates are based on actual operating data refined where necessary to incorporate future operating forecasts. Mining operations were costed according to existing contracts, past performance and the stripping associated with the mining plan. Selling costs include plant costs as well as the cost associated with transporting the doré bars to market and fees incurred in the sales, including refining charges and metal deductions.

Total operating costs were estimated at US$5.82/t ore.

25.15 Economic Analysis

Argonaut is using the provision for producing issuers whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production and where no material production expansion is planned.

Mineral Reserve declaration is supported by a positive cashflow.

25.16 Risks and Opportunities

Opportunity may exist regarding the processing of sulphide material, although at current production crush sizes, metal recoveries were demonstrated to be quite low from all testwork to date. The argillic-altered sulphide material had the highest gold recovery, in the range of 30%.

Blending of this material with oxide material could be considered if economic evaluations prove favorable. Finer crushing may improve gold recovery and could also be investigated. Environmental tests should also be conducted to evaluate the long-term effects of processing this material by heap leaching.

25.17 Conclusions

Under the assumptions used in this Report, the LOM plan for the El Castillo mine is supported by a positive cashflow, which supports the Mineral Reserve statement.

26.0 RECOMMENDATIONS

26.1 Introduction

Further technical work is recommended by the QPs for the San Agustin Project and divided into two programs: oxide mine development and sulphide Mineral Reserves development. The two programs are not dependent on results from the other and can be conducted concurrently.

26.2 Oxide Mine Development

26.2.1 Oxide Drilling and Modeling

San Agustin mine model to production reconciliation was very good in recent years; however, as the mine progresses drill hole spacing widens at depth. In addition, narrow higher-grade structures and barren intrusive rocks complicate resource modeling. The QPs recommend that Argonaut conducts infill drilling in areas of wide-spaced drilling to achieve a minimum drill spacing of 40 m within the deposit. Some areas, for example high-grade structures or barren dikes, may require closer spacing. Approximately 5,000 m of RC drilling are recommended over a two-year period.

Mineralization is open in a number of areas, in particular the northwest, north, and northeast perimeters of the planned pit. Approximately 4,500 m of RC drilling are recommended to adequately define these areas.

The total cost of this program using a US$80/m all-in cost will be US$760,000.

26.2.2 Land Acquisition

San Agustin mineralization may be open to the southwest and west of the planned pit. This is unconfirmed as the surface rights are controlled by third parties and there are no exploration data available to Argonaut. Argonaut should consider an exploration access agreement or land purchase in this area. In addition, Argonaut will need a small section of this land to effectively layback the Phase 4 ultimate pit.

26.2.3 Geotechnical Assessment

Geotechnical pit wall stability data are very limited at the Project. There is no site-specific geotechnical data on the Project aside from pit wall mapping and logging of two core drill holes. Geotechnical criteria have been based on conceptual level study and analogies to similar mines in the district.

The QPs recommend that Argonaut conduct a full geotechnical study including detailed pit mapping combined with core drilling and rock strength analyses. This program is estimated to cost approximately US$500,000.

26.2.4 Density Tests

The Project density database is small compared to industry standards. The QPs for this Report recommend increasing the number of density samples and widening the distribution of determinations throughout the deposit. Samples should be collected from exposures in the pit, or from existing core. The cost of this program will approximately US$10,000.

26.3 Sulphide Mineral Reserves Development

26.3.1 Metallurgical Testwork

Current metallurgical tests on the Project sulphide zone have been confined to the main mineralized area. The sulphide zone covers a much larger area. The QPs for this Report recommend conducting a larger study covering a wider distribution on the sulphide mineralization. The program should include five to 10 PQ core drill holes, totaling between 1,000 m and 1,200 m, followed by detailed gold and multi-element assaying and standard metallurgical tests including bottle rolls and column tests. The approximate cost of this program will be US$400,000.

26.3.2 Humidity Cell Tests

The QPs recommend that Argonaut complete humidity cell tests on the sulphide material to test the acid generation potential of the material. Detailed multi-element analyses should accompany this work to identify and quantify any deleterious elements. The cost of this program is estimated to be US$150,000.

26.3.3 Density Tests

As with the oxide zone mentioned in Section 26.2.4, further density testing is recommended for the sulphide mineralized material. The program should include samples from the PQ core drilling mentioned in Section 26.3.1 or samples from exposures in the pit. The cost of this will be approximately US$10,000.

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27.2 Abbreviations

The following abbreviations may be used in this report (Table 27-1, Table 27-2, and Table 27-3).

Table 27-1: Abbreviations

Abbreviation	Unit or Term
%	percent
°	degree (degrees)
"	inch
µm	micron or microns
ABA	Acid-base accounting
Ag	silver
ARO	Asset Retirement Obligation
Au	gold
BX	Dacite breccia
CIC	Carbon in Column
cm	centimetre
COG	cut-off grade
CRIP	Complex Resistivity IP
CSV	Common separated value
CV	Coefficient of variation
D	Disturbance factor
EAS	Environmental Administration System
EIS	Environmental Impact Statement
FOS	Factor of safety
ft	foot (feet)
g	gram
g/L	gram per litre
g/t	grams per tonne
GIS	Geographical information system
GPS	Global positioning system
ha	hectares
HLF	Heap leach facility
hp	horsepower
hr	hour

ICP	inductively coupled plasma
IDW	Inverse distance
In	inch
kg	kilograms
kg/t	Kilograms/tonne
km	kilometre
koz	thousand troy ounce
kPa	kilopascals
kt	thousand tonnes
kW	kilowatt
L	litre
LOM	Life-of-Mine
LVC	Lower Volcanic Complex
m	metre
mamsl	Metres above mean sea level
masl	metres above sea level
Mbgs	Metres below ground surface
MIA	*Manifestación de Impacto Ambiental* Environmental Impact Statement
mm	millimetre
MPa	milipascals
Mt	million tonnes
MTW	measured true width
NaCN	Sodium cyanide
NAFTA	North American Fair Trade Agreement
NI 43-101	Canadian National Instrument 43-101
NN	Nearest neighbor
NSR	Net Smelter Roylaty
OK	Ordinary kriged
oz	troy ounce
P_{80}	80^{th} percentile
P_{100}	100^{th} percentile
PLS	Pregnant Leach Solution
ppm	parts per million
PTU	Profit sharing benefit
PVC	Polyvinyl chloride
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
QQ	Quantile-quantile
RC	rotary circulation drilling
RMV	Recoverable metal value
ROM	Run-of-Mine
sec	second
Seds	Sediments
SG66	Sulphide standard
SMO	Sierra Madre Occidental
SMU	Selective mining unit
SRM	Standard reference materials
t	tonne (metric ton) (2,204.6 pounds)
t/d	tonnes per day
tpd	tonnes per day
TEM	Technical economic model
UCS	Uniaxial compressive strength
US$	United States Dollar
UVC	Upper Volcanic Complex
W	watt
WRSF	waste rock storage facility
y	year

Table 27-2: Company Abbreviations

Abbreviation	Company
Acme	Acme Analytical Laboratories
ALS	ALS Chemex Labs and ALS Minerals
Argonaut	Argonaut Gold Inc.
Bondar Clegg	Bondar Clegg Laboratories
BSI	BSI Group of Companies
CIM	Canadian Institute of Mining, Metallurgy, and Petroleum
CONAFOR	*Comision Nacional Forestal* National Forestry Commission
CONAGUA	*Comisión Nacional del Agua* Water National Commission
CONANP	*Comisión Nacional de Areas Naturales Protegidas* National Commission of Natural Protected Areas
Consejo	Mexican Geological Survey
DS	Dinamica Social
EC	El Castillo mine site metallurgical laboratory
Falcon	Falcon Drilling Ltd.
Fresnillo	Fresnillo plc
Geologix	Geologic Explorations Inc.
Golder	Golder Associates
IDEAS	Investigacion Y Desarrollo de Acuiferos Y Ambiente
INECC	*Instituto Nacional de Ecologia y Cambio Climatico* National Institute of Ecology and Climate Change
KCA	Kappes, Cassiday & Associates
LGEEPA	*General del Equilibrio Ecológico y la Protección al Ambiente* General Law of Ecological Equilibrium and the Protection of the Environment
MLI	McClelland Laboratories Inc.
Monarch	Monarch Resources Inc.
PA	Agrarian Prosecutor Agency
PHCA	PH Consultores Ambientales
PRA	PARA Laboratories
PROFEPA	*Procuraduría Federal de Protección al Ambiente* Federal Attorney General for the Protection of the Environment
RAN	National Agrarian Registry
SAGARPA	*Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación* Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food
SEDATU	Secretariat for Agrarian Development; Territorial and Urban
SEMARNAT	*Secretaría de Medio Ambiente y Recursos Naturales* Secretariat of the Environment and Natural Resources
SGM	Servicio Geologico Mexicano Mexican Government Website
Silver Standard	Silver Standard Resources Inc.
SRK	SRK Consulting (U.S.) Inc.
Wardrop	Wardrop Engineering
Zonge	Zonge International Inc.

27.3 Glossary of Terms

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

Table 27-3: Glossary of Terms

Term	Definition
Assay	The chemical analysis of mineral samples to determine the metal content.
Capital Expenditure	All other expenditures not classified as operating costs.

Composite	Combining more than one sample result to give an average result over a larger distance.
Concentrate	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral was separated from the waste material in the ore.
Crushing	Initial process of reducing ore particle size to render it more amenable for further processing.
Cut-off Grade (COG)	The grade of mineralized rock, which determines as to whether or not it is economic to recover its gold content by further concentration.
Dilution	Waste, which is unavoidably mined with ore.
Dip	Angle of inclination of a geological feature/rock from the horizontal.
Ejido	An ejido is an area of communal land used for agriculture in which community members have usufruct rights rather than ownership rights to land, which in Mexico is held by the Mexican state.
Fault	The surface of a fracture along which movement occurred.
Footwall	The underlying side of an orebody or stope.
Gangue	Non-valuable components of the ore.
Grade	The measure of concentration of gold within mineralized rock.
Kriging	An interpolation method of assigning values from samples to blocks that minimizes the estimation error.
Lithological	Geological description pertaining to different rock types.
LOM Plans	Life-of-Mine plans.
Material Properties	Mine properties.
Mineral/Mining Lease	A lease area for which mineral rights are held.
Mining Assets	The Material Properties and Significant Exploration Properties.
ROM Material	Run-of-mine material (no crushing)
Sustaining Capital	Capital estimates of a routine nature, which is necessary for sustaining operations.