NI 43-101 Technical Report
Mineral Resource Estimate for the Santana Project
Sonora State, Mexico

Report Prepared for:

Minera Alamos Inc.

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Effective Date: May 31, 2023

Report Date: October 16, 2023

TABLE OF CONTENTS

List of Tables

List of Figures

1 SUMMARY

1.1 Purpose of this Technical Report

This report titled *NI 43-101 Technical Report Mineral Resource Estimate for the Santana Project* (the Technical Report or Report) was completed to establish the first NI 43-101 estimate of Mineral Resources for the Santana Project. This Technical Report is specific to the standards established by National Instrument 43-101 (NI-43-101), companion policy NI 43-101CP and Form 43-101F1—Standards of Disclosure for Mineral Projects and to the Canadian Institute of Mining, Metallurgy and Petroleum's (CIM) *CIM Definitions and Standards for Mineral Resources and Mineral Reserves* (CIM Definition Standards) (CIM, 2014). The Santana Project under these standards does not meet the definition of an advanced property. However, as the mine is a producing asset, brief historical operations data have been provided for references purposes. All dollar amounts in this Technical Report are stated in United States dollars (US$) unless otherwise noted.

This Technical Report was prepared by Qualified Persons (QP) Mr. Scott Zelligan, P.Geo., Mr. Lawrence Segerstrom, CPG, and Ms. Peimeng Ling, P.Eng. The effective date of this Report is May 31, 2023. The QPs understand that this Report will be used to establish the first NI 43-101 estimate of Mineral Resources for the Santana Project.

1.2 Project Overview

The Santana Gold Project (the Santana Project or the Project) is in Sonora State, Mexico, 190 km southeast of the state capital of Hermosillo and 164 kilometres (km) east of the City of Obregon. Minera Alamos Inc. (Minera Alamos or the Company) acquired a 100% interest in the Project on April 13, 2018, by way of a business combination with Corex Gold Inc., the parent company of Corex Global S. de R.L. de C.V (Corex) by plan of arrangement under the British Columbia *Business Corporations Act*. As part of the transaction Corex became a wholly owned subsidiary of Mineral Alamos.

Following the acquisition of the Project, from 2018 to 2021 Minera Alamos completed additional drill programs that have been used as part of the Project Mineral Resource estimate contained in this Report. The Company also completed pilot-test heap leach activities initiated by Corex that comprised approximately 50,000 tonnes of mineralization mined from the Nicho Norte Zone. These pilot plant activities in addition to metallurgical test work conducted on surface and core samples provide the basis for the recovery and consumption quantities used in this Report.

Santana is a conventional truck-and-shovel open pit heap leach mine. Development activities began in 2021, including construction of a carbon plant and the first phase of the heap leach pad. Open pit operations began in the Nicho Norte pit in 2021 with pre-stripping activities commencing in the Nicho pit in 2022.

1.3 Property Location, Description, and Climate

The Santana Project is in the Municipality of Yecora, Sonora State, Mexico (Figure 4-1), approximately 27 km west of the town of Yecora and 190 km southeast of the City of Hermosillo, the state capital of

Sonora. The Project coordinates are latitude 28.37° N, longitude 109.21° W, or in Universal Transverse Mercator (UTM) Zone 12, 675000 E, 3139000 N, (WGS 84).

The Project is accessible by road from Hermosillo, which has a large regional airport with regularly scheduled commercial flights to Mexico City, and direct flights to the U.S.

The driving distance from Hermosillo is approximately 266 km, or about a 4.5-hour (h) drive. From Hermosillo, the route follows paved Federal Highway 16 for 233 km, where there is a turnoff to Sonora State Highway 117. The route follows State Highway 117 South for 19 km, until the turnoff to the town of Guadalupe de Tayopa. After taking the turnoff, the Project is located 14 km along the gravel road and before the town.

The Project site is also accessible via Sonora State Highway 117 from the City of Obregon travelling north, a distance of approximately 164 km or about a 3 h drive. The turnoff to Guadalupe de Tayopa is around 141 km from Obregon, with the site another 14 km from the turnoff via the gravel road towards Guadalupe de Tayopa.

This region of Sonora State around the municipality of Yecora is classified as a subtropical highland climate, characterized by warm-to-hot summers and mild, dry winters. According to government information available for the area, the mean temperature in the summer is 22°C, with typical temperatures ranging between 12°C and 31°C. During the summer months, temperatures can rise above 40°C. The mean temperature in the winter months is 7°C, with temperatures ranging from −2°C to 20°C. On occasion the temperatures can drop below 0°C, with occasional snowfall. Given the elevation of the Project (800 metres above sea level), temperatures are usually lower compared to the rest of the state of Sonora. A local weather station installed at the Project site recorded the following data from 2020 through 2023 which is within the ranges reported above for the area with a mean temperature of 21°C with a mean summer temperature of 28°C and a mean winter temperature of 13°C.

The average annual rainfall reported for the area is approximately 870 millimetres (mm). The heaviest rainfall occurs during the rainy season (June to September), with maximal rain events affected by tropical storms or hurricanes. Based on information collected from the site weather station, 531 to 631 mm fell annually in the Project area from 2020 through 2022. It should be noted that 2020 was the start of a multi-year period of less than typical precipitation.

Exploration, development, and operations can be conducted year-round, although the rainy season can create some short-term difficulties with respect to accessibility due to heavy rain.

1.4 Geology and Mineralization

The Santana Project lies in the physiographic province of the Sierra Madre Occidental (SMO) within the geologic sub-province of the Basin and Range. The Project is in southeastern Sonora, within the prolific Upper Cretaceous Paleocene “Laramide” magmatic-hydrothermal metallo-tectonic event. This region of Sonora probably represents part of the back arc of the Laramide magmatic arc. The largest known deposits of the Laramide event are porphyry copper systems and their associated breccias, skarns, and vein deposits; however, the mineralization at Santana represents a style that has not been reported to date for this region of northwestern Mexico. Four mineral zones of significance have been identified in the Project area. These include: Nicho Norte and Divisadero, Nicho and Benjamin.

The rock formations covering most of the Project area are late Cretaceous and early Tertiary-aged Tarahumara rocks, as well as San Nicolas quartz monzonite and Eocene–Oligocene (Tertiary)-aged silicic volcanic rocks. The Project area is underlain by the Tarahumara Formation, which has been intruded by the San Nicolas quartz monzonite and is overlain by the silicic volcanic rocks. Sub-vertical pipe-like breccia bodies intersect the volcanic units and are visible as topographic highs.

Most of the mineralized zones in the Project area lie over the southwest margins of the San Nicolas batholith and Tarahumara Formation. The central area of the Project is dominated by the Tarahumara andesitic and dacitic volcanic rocks, while the southwest is covered by Oligocene to Miocene basalts, felsic tuffs, and conglomerates. A north-northwest to south-southeast striking regional fault marks the boundary between the Tarahumara volcanics and the younger rock units. The areas that host most of the known gold mineralization are in the central area and comprise primarily the Tarahumara andesitic volcanic rocks that abuts the batholith to the north. The eastern areas of the Project are dominated by Laramide-age rocks such as the andesitic and felsic volcanic units that overlie the San Nicolas batholith and have been intruded by sub-vertical pipe-like breccia bodies.

Mineralization at the Project occurs within breccias that have a jigsaw-type texture. These breccias typically comprise angular elongated fragments that have a preferential sub-vertical orientation. Review of core and outcrop indicates that these fragments did not undergo large displacements or rotations, which left open spaces between them that were subsequently infilled by gold-bearing hydrothermal minerals. The breccias are principally clast-supported and monomictic and are found in pipe-like bodies. The presence of gold mineralization is directly related to the areas dominated by the breccia intervals.

Mineralization at the Project is of the intrusive-related gold (Au-Cu-Ag-W) type and is associated with calc–alkaline-oxidized large intrusive centres, but the mineralization is not reduced as in the Alaskan type, being likely formed in the back-arc environment. Gold is hosted by hydrothermal breccias and their causative inter-mineral dykes and stocks. The sericite-stable nature of the alteration and the type of quartz observed in the area indicate mesothermal levels of emplacement (~300°C) below possible eroded, epizonal levels, and around high-temperature sheeted-vein-controlled intrusive mineralization. The size of the known intrusive related deposits associated with inter-mineral dykes, stockwork, replacements, and breccias can vary from ten tonnes to tens of millions of tonnes, grading up to around 1 gram per tonne of gold (g/t Au), representing 300,000 to over 1 million troy ounce (oz) gold deposits, and can form important mining districts with clusters of deposits.

1.5 Exploration Programs

Gold mineralization at the Santana Project was expanded through exploration programs that Corex initiated in 2007, and which continued to the end of 2011. Prior to the work by Corex, there is no record of modern exploration for gold in the property area.

In 2013, Vale obtained an option agreement from Corex to assess the potential for the property to host a large copper–gold–porphyry system at depth. Exploration activities that included ten diamond drillholes (DDH or core hole) continued for a year, following which Vale terminated the agreement.

Limited exploration activities followed Vale's exit from the project in 2014 and Minera Alamo's acquisition of Corex in 2018. Table 1-1 shows a summary of annual exploration drilling at the Project.

Table 1-1: Summary of Annual Drilling

Year	Company	No. Holes	Method[1]	Metres Drilled[2]	Metres Assayed[2]
2008	Corex	16	RC	1,538	1,521
2009	Corex	25	RC	3,527	3,516
2010	Corex	24	RC	5,075	5,075
2010	Corex	32	DDH	8,564	8,160
2011	Corex	16	DDH	5,433	5,053
2013	Vale	10	DDH	5,005	4,775
2018	Minera Alamos	11	DDH	1,502	1,469
2019	Minera Alamos	9	DDH	1,728	1,732
2020	Minera Alamos	24	DDH	5,135	5,130
2021	Minera Alamos	12	DDH	2,684	2,680
Total				**40,191**	**39,111**

Notes: [1] RC denotes reverse circulation drilling; DDH denotes diamond drilling with core recovery.
[2] Metres drilled and metres assayed have been rounded to the nearest whole number

1.6 Mineral Resource Estimates

1.6.1 Data

Extensive quality assurance and quality control (QA/QC) and data validation were performed to thoroughly verify the data from both the Corex and Minera Alamos drill programs. Sample certificates from these programs were reviewed in their entirety, and data comparisons were conducted to verify the results. The Corex and Minera Alamos drilling campaigns used modern techniques and QA/QC procedures. The author finds that the data are reliable for the purposes of this Report.

1.6.2 Mineral Resource Estimate

This Report represents the first Mineral Resource estimate for the Santana property. The estimate has been prepared with the assistance of Scott Zelligan, P.Geo., an independent QP as defined in NI 43-101. Mr. Zelligan is the QP for the Mineral Resource estimate contained in this Report, which has an effective date of May 31, 2023.

The Mineral Resource was classified according to the CIM Definition Standards. The classification considered the drill and sample spacing, QA/QC, deposit type, density measurements, and the need to develop a lithological model. The estimate used an indicator model and the ordinary kriging (OK) method to interpolate gold grades.

The estimate of Mineral Resources for the Santana Project is shown in

Table 1-2.

Table 1-2: Estimate of Mineral Resources

Zone	Category	Tonnes (t)	Gold Grade (g/t)	Contained Ounces
Nicho	Measured	6,390,000	0.65	133,000
	Indicated	2,810,000	0.64	57,000
	Total M&I	**9,200,000**	**0.65**	**190,000**
	Inferred	1,530,000	0.66	33,000
Nicho Norte & Divisadero	Measured	150,000	0.66	3,000
	Indicated	260,000	0.62	5,000
	Total M&I	**410,000**	**0.63**	**8,000**
	Inferred	2,470,000	0.55	44,000
Benjamin	Inferred	1,510,100	0.54	26,000
Total	Measured	6,540,000	0.65	136,000
	Indicated	3,070,000	0.64	62,000
	Total M&I	**9,610,000**	**0.65**	**198,000**
	Inferred	5,510,000	0.58	103,000

Notes:

- The independent QP for the Mineral Resource estimate, as defined by NI 43-101, is Scott Zelligan, P.Geo. The effective date of the 2023 mineral resource estimate is May 31, 2023.
  A gold price of $1,700/oz was used in the calculation of the Mineral Resources.
- The Mineral Resource estimate is reported for a potential open pit and heap leach scenario.
- The limits of the Mineral Resource-constraining pit shell assumed a mining cut-off based on a total operating cost (mining, processing, and general and administrative (G&A) of $12.00/t stacked, a metallurgical recovery of 75%, and a constant open pit slope angle of 40°. This constraining pit shell contained a total volume of 49 Mt (mineralized + unmineralized) implying a strip ratio of 2.25.
- The gold cut-off grade applied to oxide mineralized material is 0.15 grams per tonne (g/t) Au.
- These Mineral Resources are not Mineral Reserves, as they do not have demonstrated economic viability.
- The Mineral Resource estimate follows CIM Definition Standards.
- Results are presented in situ. Ounce (troy) = metric tonnes x grade / 31.1035. Calculations used – metric units (metres, tonnes, g/t). Rounding followed the recommendations as per NI 43-101.
- The number of tonnes has been rounded to the nearest ten thousand.
- The QPs of this Report are not aware of any known environmental, permitting, legal, title-related, taxation, sociopolitical, marketing, or other relevant issues that could materially affect the Mineral Resource estimate. Extensive modelling and statistical work were performed to analyze the effect of the oxide zone on gold grade and rock specific gravity. Due to the fractured nature of the host rock, the oxide-sulphide transition zones of the deposits are irregular and difficult to model using conventional wireframing techniques. It was decided for the current Resource Estimate to model without a transition boundary and allow the measured variations in density to populate the blocks accordingly. Metallurgical testwork is ongoing and results from limited sulphide samples tested to date indicate the potential for heap leaching of this material although final required parameters like crush sizes are not yet fully understood. It has been recommended that the Company continue to evaluate the overall database of exploration information with a goal of incorporating geo-metallurgical information into future resource estimates.

1.6.3 Historical Metallurgical Testwork

Most metallurgical data obtained for the Santana Project was the result of studies completed between 2017 and 2020 that focused primarily on the Nicho and Nicho Norte zones. Metallurgical studies included several laboratory test programs, as well as a test mine and leach pad operated from 2017 to 2019 that sampled and leached approximately 50,000 tonnes of mineralization from Nicho Norte.

1.6.4 Metallurgical Testwork Programs

The metallurgical testwork was completed in five phases. A brief description of each phase is listed below.

- **2008–2009**—cyanide shake tests from reverse-circulation (RC) chip samples (~<2 mm). This program compared the fire assays of the chips (total gold) and the cyanide shake gold contents (leachable gold) to provide preliminary information regarding the leachability of the mineralization at the Project. Chip samples were collected predominately from the Nicho and Nicho Norte zones (33 of 47 samples), with laboratory results providing evidence of gold leachability for the oxide, transition, and sulphide zones. The leach times were limited; therefore, the results were not indicative of achievable recoveries using cyanidation in a commercial operation.

- **2017**—Minera Alamos Project due diligence assessment completed as part of the Corex acquisition. Core samples were selected and sent to a laboratory for evaluation using coarse-mineral leach procedures to confirm suitability for heap leaching. The samples selected were targeted to represent a "worse case" sulphide-zone mineralization with respect to leachability from the Nicho Zone. Seven samples in all were taken, with two samples consisting of fine disseminated sulphides crushed to ½". The remaining samples were selected to contain more massive sulphides (including chalcopyrite) and were crushed to two size fractions, <1/4" and <1/2". Coarse-mineral bottle roll techniques (50% solids, 1,000 parts per million (ppm) NaCN) were used with one minute rolling per hour for 28 days (d) of leaching used as a minimum. The results of this program showed that gold contained in areas of sulphide mineralization appeared to be recoverable via heap leaching methods, with most gold recoveries from the samples between 60% and 70% at a crush size of ½". Reagent consumptions were typical of those expected on the "low" end of the range for heap leach operations for both lime (~2 kilograms per tonne (kg/t) or less) and cyanide which was driven primarily by soluble copper in the tests.

- **2017–2019**—Nicho Norte test leach pad activities commenced under the authorization of a temporary environment permit licence. Mineralization for the test leach pad was obtained from surface outcrop at the Nicho Norte Zone. This mining zone consisted of a mix of upper breccia style and quartz–feldspar–porphyry dykes and sills (QFP) intrusive material that is typical of the rock deeper in this zone. The extracted material was transferred to the test leach pad area for processing. No attempts were made to separate any possible low-grade waste material that was mined prior to leaching. In total, approximately 50,000 tonnes of mineralized material were stacked and leached in three sequential phases to evaluate different operating parameters. Phases 1 (23,000 tonnes crushed to <2"–3" with no agglomeration) and phase 2 (crushed to <5/8" and agglomerated) were leached as single lifts until recovery was minimal. Phase 3 (mixed run-of-mine [ROM] and crushed to <2"–3") was loaded on top of Phases 1 and 2 and leached last. Results of this testwork confirmed that the mineralization was leachable and showed that the bulk of mineral recovery was completed in

60 to 90 days for Phase 1 and 30 to 45 days for Phase 2.

Following completion of leaching activities at the test pad, four bulk samples were taken and analyzed for residual gold content. The samples were obtained by trenching into the leach pad 1.5 m from the surface. Each sample was subject to size analysis, with individual size fractions analyzed for residual gold content. The −80% fraction size (d_{80}) for sizes ranged from 1" to 1.5" down to 5/8". Based on this work, the average gold grades of the final residue samples were consistent at approximately 0.10 g/t Au, with gold content by particle size also relatively consistent for all sizes less than 1". An increase in residual gold was observed for rock sizes greater than 1".

The Santana test leach pad operations demonstrated that the Nicho Norte mineralization was very consistent in terms of both gold content and metallurgical performance.

- **2020**—coarse bottle roll tests were completed to compare samples of oxide mineralization taken from the Nicho Zone to material from the Nicho Norte Zone (test leach pad area). Testwork was completed on two samples from Nicho and a single sample from Nicho Norte. Each sample was divided into three size fractions: –1"/+3/4", –3/4" +1/2", –1/2" +1/4", with each fraction processed according to standard coarse bottle roll techniques, namely 1,000 ppm NaCN 50% solids, 1 minute (min) rolling/h for 28 d of total leach time. The samples were assayed and found to have low head grades (0.121 g/t Au to 0.188 g/t Au) on seven of the nine total samples. Despite these low head grades, the ultimate leach recoveries for all of the size fractions approached 90% or greater, including the two Nicho Zone samples (size fractions –1/2" +1/4". The high amenability to gold recovery from the samples was illustrated by the extremely low residual gold grades (across all size fractions) contained in the solids following the completion of the tests. The coarse bottle testwork completed during this program demonstrated that the gold contained in the oxide material from the Nicho Zone is highly amenable to recovery via heap leaching and similar in metallurgical characteristics to that observed for the Nicho Norte mineralization.

- **2021—**Nicho Norte bottle roll test program. This was initiated to confirm that expected reagent consumptions for the Nicho Norte mineralization that had been stacked on the new Santana pad (commissioned in the second half of 2021) were in general agreement with the preceding metallurgical studies. Samples were taken from the 895-bench in the Nicho Norte open pit and from material that was in the process of being stacked. Results from this program indicated that gold extractions ranged from 88% to 96%, and copper recoveries were lower than that seen for gold recoveries (80%–90% less), showing that the residual copper content in the mineralization can be managed effectively through reductions in free cyanide concentration without impacts to gold recovery, and lime and cyanide consumptions were predicted to be low.

The main findings of the metallurgical studies discussed above can be summarized as follows:

- Gold mineralization appears to be generally well disseminated throughout the host rock, with little correlation to rock particle-size distributions. There was some evidence that, in the breccia zone, material that exists above the deeper QFP intrusive, some small-scale enrichment may occur in the fractures between the breccia matrix fragments.

- Leaching results indicate that the extraction of any copper that might be present in the mineralization should be manageable using free cyanide level-control in the leach solutions, with little impact on overall gold recoveries.
- Gold mineralization in the oxide zones responds positively to gold cyanidation. Residual gold levels following heap leaching are expected to be approximately 0.1 g/t Au or less. At mined head grades of 0.6 g/t Au to 0.7 g/t Au this would equate to gold recoveries more than 80%.
- Although more data are available for material from the Nicho Norte satellite deposit, comparative studies looking at samples from the Nicho main deposit appear to exhibit similar results.
- Leach kinetics are rapid for particle sizes up to approximately 1" (30–45 days or less). Although kinetics slowed somewhat at sizes greater than 1", ultimate gold recoveries at the end of the extended leach period were simar to those experienced with the finer-sized material.
- Leach tests on samples of "worst case" sulphide material from the Nicho Zone exhibited acceptable gold recoveries approaching 70% at crush sizes of <1/2" (coarsest size used for screening tests). Further testwork is warranted for this part of the deposit to better optimize actual required crush sizes and to examine the impact of larger particle sizes on overall gold recoveries.
- Major reagent consumptions are expected to be low (<2 kg/t lime and 0.3 kg/t–0.5 kg/t CN).

1.7 Environmental and Permitting

There are no known existing environmental liabilities associated with the Santana Project beyond current leaching and mining activities. The test leach pad constructed in 2017–2019 has been closed, and the small plant associated with gold extraction activities has been removed.

The Company holds ongoing discussions with local landowners, the municipality, the town of Guadalupe de Toyopa, the local Ejido, and other stakeholders. A surface rights agreement with these stakeholders is in place.

The Project has all the permits required to undertake mining and leaching activities. The Santana environmental impact statement, formally known as the Manifestación de Impacto Ambiental (MIA), and the technical justification study, Estudio Técnico Justificativo (ETJ), which also includes the change of land use, Cambio de Uso de Suelo (CUS) have been submitted and approved by Secretaria del Medio Ambiente y Recursos Naturales (SEMARNAT).

The MIA was completed and submitted on September 18, 2018, and approved by SEMARNAT on July 25, 2019. The ETJ (including the CUS) was completed and submitted on July 13, 2018, and approved on July 28, 2019. The MIA and ETJ provided the Company with all the necessary rights to initiate construction of a commercial-scale gold operation, which began on January 16, 2020. Construction activities have been largely completed, and the Project is in operation.

The MIA and ETJ documentation approval was the critical prerequisite for the Company to initiate applications for other permits required to start mining and processing activities at the site. Such additional permits include the explosives use and storage permit (received on January 25, 2022).

1.8 Development and Operations

The Santana Project hosts several mineral prospects and small historical mines. However, no records of production history outside of the pilot heap leach test program initiated by Corex and completed by Minera Alamos between 2017 and 2019 are available. The total amount of material historically extracted does not appear to exceed a few thousand tonnes.

As part of the Corex test mine and pad activities, approximately 50,000 tonnes of mineralized material grading 0.80 g/t Au (1,326 contained ounces) were placed on the test pad. Over the leaching period (2017–2019) 1,100 oz of gold were recovered for an overall recovery of 83.8%. Minera Alamos finished leaching activities, and residual recovery and rinsing of the pad, in 2019. Active leaching began at a new leach pad location in 2021, with a total of 1,108,535 mineralized tonnes placed at a grade of 0.69 g/t Au (24,598 gold ounces) up to the effective date of this report May 31,2023.

1.9 Interpretation and Conclusions

The QPs reviewed the Santana data provided by Minera Alamos (including the drill–hole database); historical sampling and analytical procedures; and security. Two of the QPs have visited the site. The QPs believe the data presented by Minera Alamos to be an accurate and reasonable representation of the Santana Project mineralization.

Mr. Scott Zelligan, P.Geo. completed the Mineral Resource estimate for the Project. The Mineral Resource is based on the results of both the Corex and Minera Alamos RC and DDHs completed up to March 31, 2022.

The authors of this Report make the following conclusions:

1.10 Geology

- Minera Alamos has validated all the exploration data obtained during Corex's tenure on the Project.
- Exploration drilling campaigns undertaken at Santana from 2008 to March 31, 2022 (resource database cut-off date) include 40,191 m of RC and 39,100 m of assay sampling.
- The QP concludes the data, data density, and Santana exploration database are acceptable to form the basis for a Mineral Resource estimate.
- The QP completed a site visit and reviewed the property deposit geology; exploration and drilling methods and results; sampling method and approach; and sample data handling, including chain of custody. A qualified geologist evaluated the compilation of QA/QC data and believes that the Corex and Minera Alamos sample preparation, security, and analytical procedures followed industry-standard procedures, and that the analytical data are acceptable for use in a Mineral Resource estimate.
- There are no off-the-shelf deposit-type models that can be used to describe the mineral system at Santana. However, it can be reviewed in the larger framework of intrusive-related systems first suggested by Sillitoe (2000), which was subsequently extended to reduced intrusive rocks mostly using Alaskan examples (plutonic systems) (Lang et al., 2000).

- The Project is in southeastern Sonora within the prolific Upper Cretaceous–Paleocene Laramide magmatic–hydrothermal metallo–tectonic event. Gold is hosted by breccias and intra-mineral dykes and stocks.
- Porphyry-style mineralization has been ruled out because of the absence of typical A/B veins and potassic alteration of porphyry systems, and by the presence of iron–manganese carbonate and specular hematite that is typically missing in porphyry systems.
- The bulk of the mineralization at Santana is present in elliptical, irregular breccia bodies.

1.11 Mineral Resource

- Mineral Resources have been defined for three zones at the Santana Project denoted Nicho Norte and Divisidero, Nicho and Benjamin.
- The grade interpolations for gold were carried out using conventional methods commonly used in the industry and applied with reasonable geological inference and controls.
- The existing sample data have been collected using protocols that are consistent with industry best practices. The sampling that has been completed on the Project to date has been appropriate for the mineralization type, and the samples are representative of the deposit.
- All samples collected were transported in a secure manner, and a chain of custody was followed.
- Assays were carried out in well–managed facilities using conventional methods commonly used in the industry. During each drilling campaign, suitable levels of independent QA/QC samples were submitted to the laboratory to ensure reasonable results were returned.
- The QP is of the opinion that the analytical work performed by the various laboratories was suitable for use in the Mineral Resource estimate.
- The assumptions, parameters, and methodology are appropriate for the Mineral Resource estimate, are consistent with the style of mineralization, and are applicable for an open pit and heap leach operation.

1.12 Metallurgical Recovery

- Metallurgical testwork completed to date meets industry standards.
- Gold mineralization appears to be generally well disseminated throughout the host rock, with little correlation to rock particle–size distributions. There was some evidence that, in the breccia-zone material that exists above the deeper QFP intrusive, some small–scale enrichment may occur in the fractures between the breccia matrix fragments.
- Overall copper content in the oxide mineralization was low and leaching results indicate that the extraction of this copper should be manageable using free cyanide level control (low concentrations) in the leach solutions with little impact on overall gold recovery.
- Gold mineralization in the oxide zones responds positively to gold cyanidation. Residual gold levels following heap leaching are expected to be approximately 0.1 g/t Au or less. At mined head grades of 0.6 g/t Au—0.7 g/t Au this would equate to gold recoveries more than 80%.
- Although more data are available for material from the Nicho Norte satellite deposit, comparative studies looking at samples from the Nicho main deposit appear to exhibit similar results.

- Leach kinetics are rapid for particle sizes up to approximately 1" (30 d–45 d or less). Although kinetics slowed somewhat at sizes greater than 1", ultimate gold recoveries at the end of the extended leach period were similar to those experienced with the finer material.
- Leach tests on samples of "worst-case" sulphide material from the Nicho zone exhibited acceptable gold recoveries approaching 70% at crush sizes of <0.5" (coarsest size used for screening tests). Further testwork is warranted for this part of the deposit to better optimize actual required crush sizes and examine the impact of larger particle sizes on overall gold recoveries.
- Major reagent consumption is expected to be low (< 2 kg/t lime and 0.3 kg/t–0.5 kg/t cyanide).

1.13 Environmental and Permitting

- The company is currently in possession of the necessary permits for the start-up phase of mining operations at the Santana project. An amendment has been filed (pending) with SEMARNAT to expand the total area for mining activities to 170Ha which would be sufficient to include the full extent of the currently estimated resources at the Nicho and Nicho Norte deposits.
- A permit application (pending) has been filed related to a new water well which was located and drilled by the Company and found to contain sufficient volume to support commercial-scale heap leach operations during periods of reduced precipitation like those experienced from 2020 through 2023.

1.14 Project Risks

The following risks have been identified for the Santana Project:

- The Mineral Resource model has been used as the basis for ongoing mining activities at site. There is no guarantee that the model will accurately predict gold production. As production continues to increase, the model will be reconciled to production and adjusted as needed.
- Geotechnical risks related to open pit wall, pad, and waste dump stability exist at the Project site. If conditions change from those currently assumed, design changes could be required that would have an adverse impact on the Project economics.
- The mine plan uses a contract mining company to achieve planned production rates and cost targets. It has also been assumed that the contractor will be able to deliver the desired head grades to the leach pad and will use proper blasting and mining techniques to achieve geotechnical designs for the open pits. If the mining contractor cannot meet target production rates due to equipment or labour shortages the operation may not meet planning requirements, resulting in a negative impact on the Project.
- Changes to current regulations related to matters involving environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant issues have the potential to materially affect access, title, or the right or ability to perform the work recommend in this Report. At the present time the QPs are unaware of any such potential issues affecting the Project.

1.15 Project Opportunities

Opportunities that could enhance the Project include:

- Exploration potential to identify additional zones that have not been sampled (beyond the Nicho and Nicho Norte zones) that are amenable to small-scale open pit mining and heap leaching activities.
- There are four excellent prospective areas within the Project area that have been identified by surface sampling that have the potential to increase the resource base at the Project. These zones are denoted the Goldridge, Zata, Bufita and East project targets.

1.16 RECOMMENDATIONS

The QPs of this Report have reviewed the Project data provided by Minera Alamos, including the drill–hole database, sampling, analytical procedures, and security. Mr. Lawrence Segerstrom, CPG, visited the Project site from April 27 to 29, 2021. The QPs believe the data presented by Minera Alamos to be an accurate and reasonable representation of the Project mineralization. In the QP's opinions, the Project has the potential to continue to expand as an open pit heap leach operation and warrants continued advancement of the Project. To continue to advance the potential of the Santana Project, the QPs responsible for this Technical Report make the following recommendations:

1.16.1 Exploration and Geology

- Complete additional drillholes on approximately 25m centres at the Benjamin zone to further understand the distribution of gold mineralization within the zone and to look at opportunities to expand the size of the currently defined mineralized area.
- Further review of the additional mineralized breccia targets which have been identified by the Company in the areas surrounding the Nicho complex (Goldridge, Zata, Bufita and East Zones) to prioritize the next phases of follow-up resource drilling.
- Continue effective surface sampling activities with a focus on new areas that show similar mineralization characteristics as the Nicho and Nicho Norte zones.
- Geophysical studies targeting blind targets that have similar signatures as those observed over the known Nicho and Nicho Norte gold-bearing breccia zones.

1.16.2 Geotechnical

- Initiate a mapping program to identify and assess the potential impacts of structures exposed in open pit walls on highwall stability.
- Continue to analyze and expand existing geotechnical data contained in the exploration DDH logs.

1.16.3 Mineral Resources

- Compile new exploration drilling results from Benjamin into the database to increase the confidence level in the current inferred resource and potential extensions of the known mineralization along strike and at depth.

- When sufficient drill data is available, complete preliminary resource estimates for other identified mineralization targets within the overall Santana project area.

1.16.4 Metallurgical

- Complete additional metallurgical studies (particularly crushing optimization studies) aimed at improving the overall understanding of variations in parameters such as leachability, recoveries, and reagent consumptions for newly delineated zones of mineralization.
- Expand available metallurgical data for different types of mineralization (oxide/mixed/sulphide) contained within the Nicho deposit and other adjacent delineated deposits (i.e. Benjamin).

1.16.5 Environmental and Permitting

- Continue to work proactively with government agencies to receive final approvals for permit amendment applications currently under review for the expanded Santana Project area.

Table 26-1 provides a preliminary budget for the recommended work activities.

Table 1-3: Preliminary Budget for Recommend Work Activities

Work Activity	Budget ($)
Resource Drilling at Benjamin (~15 holes)	300,000
Metallurgical Optimization Work	100,000
Exploration Drilling at Regional Targets	150,000

2 INTRODUCTION

2.1 Issuer

The Qualified Persons (QP) of this report titled *NI 43-101 Technical Report Mineral Resource Estimate for the Santana Project* (the Technical Report or Report) were retained to prepare a Mineral Resource estimate for the Santana Gold Project (Santana or the Project) and a supporting Report. The issuer, Minera Alamos Inc. (Minera Alamos or the Company), is a publicly traded company listed on the TSX Venture exchange under the symbol MAI. The Company is focused on acquiring, exploring, and developing base and precious metals projects in Mexico. Minera Alamos acquired the Santana property under the terms of the business combination with Corex Gold, S. de R.L. de C.V (Corex) that closed on April 13, 2018.

Minera Alamos's current and principal place of business is 55 York Street, Suite 402, Toronto, Ontario, M5J 1R7.

2.2 Terms of Reference

This Technical Report has an effective date of May 31, 2023, and was prepared by the QPs listed in Section 2.4 to support the disclosure of the Project's Mineral Resource estimate. This Report provides a full description of the study work that has been completed in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) *CIM Definition Standards for Mineral Resources & Mineral Reserves* (CIM Definition Standards), referred to in *NI 43-101 Standards of Disclosure for Mineral Projects*. This Report has been prepared in accordance with the requirements of Form 43-101F1 and Companion Policy 43-101CP. By 43-101 Standards the Project does not meet the definition of an advanced property. However, as the mine is a producing asset, brief historical operations data have been provided for reference purposes.

This Report has been prepared to establish a Mineral Resource estimate on the Santana Project; It is the first Technical Report and Mineral Resource estimate for the Project. The Company will use the Mineral Resource estimate in this Report to further evaluate the scope and potential of the Project.

Minera Alamos's technical staff have reviewed draft copies of this Report for factual errors. Any changes made because of these reviews did not include alterations to the interpretations and conclusions made by the authors. The statements and opinions expressed in this document are made in good faith and in the belief that such statements and opinions are not false or misleading as of the date of this Report.

2.3 Sources of Information

This Report has been prepared by the Independent QPs through discussions with Minera Alamos employees and by reviewing the existing drillhole database; geologic reports; available maps and cross sections; metallurgical test data including past bulk sampling and the resulting heap leach results; government reports; miscellaneous documentation (reports and scientific papers); and other public and private information.

Table 2-1 shows the Minera Alamos employees who provided reliable information to the Independent QPs responsible for this Report. The QPs have taken reasonable steps to verify the information provided where possible. The QPs have reviewed the land tenure but have not independently verified the mineral title status or compliance of the underlying inter-company agreements and title transfers with Mexican laws and regulations (see Section 3, Reliance on Other Experts).

Table 2-1: Minera Alamos Employee Contribution to the Technical Report

Minera Alamos	Information Provided for Report Section
Chris Sharpe, P.Eng. (Non-Independent QP)	4,5,6,16, 18, 19, 21, 23 and parts of 25 and 26
Miguel Cardona (Non-Independent)	7, 8, 9, 10, 11, 12, and parts of 25 and 26
Darren Koningen, P.Eng. (Non-Independent QP)	13, 17, 20, 21 and parts of 25 and 26

The authors consider that they have seen the most relevant reports and data. A list of the documents reviewed, and other sources of information, can be found in Section 27 of this Report.

2.4 Qualified Persons and Property Inspections

This Technical Report has been prepared under the supervision of Independent QPs as defined by the Canadian Securities Administrator's National Instrument (NI) 43-101. Table 2-2 provides details regarding each QP and their respective sections of responsibility.

Table 2-2: List of Qualified Persons and Section Responsibility

Qualified Person	Report Section Responsibility
Scott Zelligan, P.Geo	1, 2, 3, 14, and parts of 12, 25 and 26
Lawrence Segerstrom, M.Sc. (Geology), CPG	4 -11, 12,16, 18 - 24, and parts of 25 and 26
Peimeng Ling, P.Eng.	13, 17 and parts of 25 and 26

Mr. Lawrence Segerstrom, CPG (Certified Professional Geologist #11557 American Institute of Professional Geologists), who is independent of the Company and a QP of this Report, visited the Santana Project site from April 27 to 29, 2021. Mr. Segerstrom was accompanied during his site visit by Minera Alamos's Vice President Exploration, Miguel Cardona. The Report authors consider the site visit to be current under Section 6.2 of NI 43-101.

2.5 Currency, Abbreviations, and Units of Measurement

A list of the abbreviations used in this Technical Report is provided in Table 2-3 and Table 2-4. All currency units are stated in US dollars ($), unless otherwise specified. Quantities are generally expressed in the International System of units (SI) (metric system), including tonne (t), kilogram (kg), and gram (g) for weight; kilometre (km), metre (m), centimetre (cm), and millimetre (mm) for length; hectare (ha) for area; and grams per tonne (g/t) for gold grades. Metal grades may also be reported in parts per million (ppm), and gold grades in parts per billion (ppb). Quantities of gold may be expressed in troy ounces (oz).

Table 2-3: Mexican Acronyms and Abbreviations

Abbreviation	Definition
CRM–SGM	Consejo de Recursos Minerales–Servicio Geologico Mexicano
CUS	Cambio de Uso de Suelo
ETJ	Estudio Técnico Justificativo (Technical Justification Study) includes the Change of Land Use (CUS)
IMMSA	Industrial Minera Mexico S.A. de C.V.
MIA	Manifiesto de Impacto Ambiental (Environmental Impact Statement)
SGM	Servicio Geológico Mexicano
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales (Ministry of the Environment and Natural Resources)
TNM	Tierra Nueva Minería S.A. de C.V.

Table 2-4: List of Abbreviations

Abbreviation	Description
%	percent
>,<	greater than, less than
±	plus or minus
°	degree
°C	degree Celsius
3-D	three-dimensional
A	annum (year)
AA	atomic absorption
A and B veins	magnetite and quartz veins
AAS	atomic absorption spectrophotometer
AES	atomic emission spectrometry
Ag	silver
ARD	aqua regia digestion
Au	gold
BKGD	background correction
CIM	Canadian Institute of Mine, Metallurgy and Petroleum
Cm	centimetre
Company	Minera Alamos Inc.
CPG	Certified Professional Geologist (American Institute of Professional Geologists)
Cu	copper
DDH	diamond drillhole
E	east
F_{80}	80% passing in the feed material
G	gram
G&A	general and administrative
g/t	grams per tonne
g/t Au	grams per tonne gold
Geo.	geologist

Abbreviation	Description
GPS	Global Positioning System
H	hour
Ha	hectare
ICP	inductively coupled plasma
ID^2	inverse distance squared
Kg	kilogram
Km	kilometre(s)
kV	kilovolt
K	thousands
LLD	lower limit of detection
M	metre
m^3	cubic metre
Ma	million years ago
MAI	Minera Alamos Inc. Common share trading symbol
Min	minute
Minera Alamos	Minera Alamos Inc.
Mm	millimetre
Moz	millions of troy ounces
Mt	million tonnes
N	north
NI 43-101	Canadian National Instrument 43-101
Oz	troy ounce
P.Eng.	Professional Engineer (Canada)
P.Geo.	Professional Geologist (Canada)
PEA	Preliminary Economic Assessment
Ppb	parts per billion
Ppm	parts per million
Project	Cerro de Oro Project
QA/QC	quality assurance/quality control
QP	Qualified Person
RC	reverse circulation
Report	Technical Report
S	second
S	south
SGS	Société Générale de Surveillance
T	tonne
t/m^3	tonnes per cubic metre
US$	United States dollar
UTM	Universal Transverse Mercator
W	west

3 RELIANCE ON OTHER EXPERTS

The authors of this Technical Report have not independently verified ownership or mineral title with respect to the Santana Project's concessions and/or mining claims. The property description presented in this Report (Section 4) is not intended to represent a legal, or any other, opinion as to title. For information concerning the Santana mining concessions, the QPs have relied on a May 2023 audit prepared by Mr. Carlos Galvan Pastoriza (Mexican attorney) on behalf of Minera Alamos.

Mr. Pastoriza obtained information on the title and concessions based on a search conducted at the General Bureau of Mines and the Public Registry of Mining, a division within the Mexican Ministry of Economy. The authors of this Report have reviewed the information provided by Mr. Pastoriza and believe it to be reasonable and reliable.

Except for the purposes legislated under provincial securities laws, any use of this Report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Project Location

The Santana Project is in the municipality of Yecora, Sonora State, Mexico (Figure 4-1), approximately 27 km west of the town of Yecora and 190 km southeast of the City of Hermosillo, the state capital of Sonora. The Project coordinates are latitude 28.37° N, longitude 109.21° W, or in Universal Transverse Mercator (UTM) Zone 12, 675000 E, 3139000 N (WGS 84).

Figure 4-1: Property Location

4.2 Mineral Tenure and Area of Property

The Santana Project consists of 14 mining concessions totalling 4,231 ha (Table 4-1).

After closing of the plan of arrangement between Minera Alamos and Corex, Minera acquired ten claims totalling 7,699 ha, which comprised the Santana Project. Following closing Minera cancelled one claim, denoted Santana 2 (238311), that totalled 4,615 ha, and reduced the Santana 1 claim (231614) from 2,331.12 ha to 1,690.21 ha (a reduction of 641 ha), for a total claim reduction of 5,256 ha. This reduced the pre-acquisition Corex claims from a total of 7,669 ha to 2,414 ha. As part of the project consolidation activities, Minera transferred three claims from its existing Los Verdes Project (Hilda Fracción 2, Hilda Fracción 4, and Hilda Fracción 5) totalling 722 ha and purchased two claims from local private owners (Hilda 37 and Hilda 38) totalling 1,095 ha. In total the transferred and purchased claims totalled 1,818 ha. These additional claims increased the total claim area (following the reduction of the Corex claims) from 2,414 ha to 4,231 ha.

Figure 4-2 shows the concessions that comprise the Santana Project.

Figure 4-2: Santana Concession Map

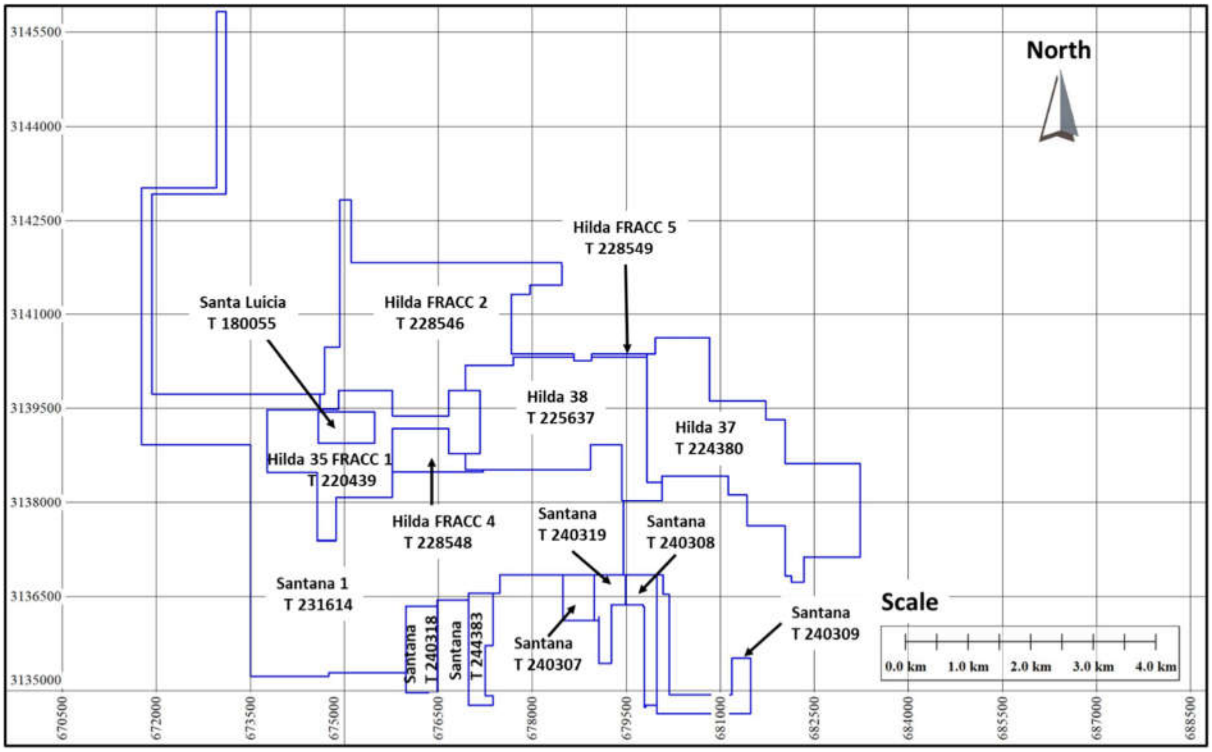


Table 4-1: Summary of Santana Project Mining Concessions in Yecora, Sonora

Title Name	Title Number	Surface (ha)	Date of Application	Validity		Current Holder[1]
				Start	End	
Santa Lucia	180055	45.00	Jun 10, 1987	Mar 23, 1987	May 16, 2037	Corex
Hilda 35 Fracción I	220439	317.80	Mar 27, 2003	Jul 25, 2003	May 16, 2053	Corex
Santana	240309	97.31	Nov 25, 2010	May 17, 2012	May 16, 2062	Corex
Santana	240307	36.16	Nov 25, 2010	May 17, 2012	May 16, 2062	Corex
Santana	240319	44.13	Nov 25, 2010	May 17, 2012	May 16, 2062	Corex
Santana	240308	55.53	Nov 25, 2010	May 17, 2012	May 16, 2062	Corex
Santana	240318	68.93	Nov 25, 2010	May 17, 2012	May 16, 2062	Corex
Santana	244383	58.59	Nov 25, 2010	May 17, 2012	May 16, 2062	Corex
Santana 1	231614	1,690.21	Nov 20, 2007	Mar 25, 2008	Mar 25, 2058	Corex
Hilda Fracción 2	228546	647.29	Jul 31, 2006	Dec 8, 2006	Dec 7, 2056	Corex
Hilda Fracción 4	228548	71.16	Jul 31, 2006	Dec 8, 2006	Dec 7, 2056	Corex
Hilda Fracción 5	228549	3.81	Jul 31, 2006	Dec 8, 2006	Dec 7, 2056	Corex
Hilda 37	224380	602.34	Mar 1, 2005	Apr 28, 2005	Apr 27, 2055	Corex
Hilda 38	225637	493.07	Apr 17, 2005	Sep 30, 2005	Sep 29, 2055	Corex
Total		**4,231.33**				

Notes: [1] Corex = Corex Global, S. de R.L. de C.V.

4.3 Tenure Agreements and Encumbrances

4.3.1 Agreements and Royalties

On April 13, 2018, Minera Alamos announced finalization of the business combination with Corex by plan of arrangement under the British Columbia (B.C.) Business Corporations Act. As part of the transaction, Corex became a wholly owned subsidiary of Mineral Alamos. For more details regarding the terms of the business combination, see Minera Alamos (2018).

The Company entered a net smelter return (NSR) royalty with Osisko Gold Royalties Ltd. Under the agreement, the Company received a one-time cash payment of C$5 million in exchange for a perpetual 3% NSR on the Santana Project.

4.3.2 Surface Rights

The estimated Mineral Resources lie primarily within community lands (Ejidos). Ejidos were established in 1915 as part of the Mexican government's post-revolutionary reform policies. The lands are communally owned and are available for individual use. These lands can also be leased to private parties or corporations but cannot be purchased by them.

Mine development on Ejido lands requires a special lease agreement that is defined by Mexico's federal Mining Law. Under this law, the mining arrangement is defined as a temporary occupation.

The Community of Guadalupe de Tayopa controls the surface rights in the Project area. The Company finalized a new surface use agreement with local community representatives for the Santana Project site that was ratified and notarized by the Community Assembly on June 14, 2021. This new surface rights agreement covers 170 ha and replaces the previous agreement that was signed in April 2015, which covered 80 ha. Additionally, the agreement covers easements for access to the Company's water well that is to the south of the immediate project area.

This agreement grants permission to the Company for surface access to 170 ha, to conduct exploration, construction, and operating activities that include, but are not limited to:

- Geological mapping, geochemical sampling, mechanized trenching, exploration drilling and geophysical studies.
- Rehabilitation of existing mine workings and access road construction.
- Mine operations that include mining, leaching, and processing.
- Easements to access Company water well located to the south of the project area.

The surface rights agreement covers a period of up to 25 years during which time the Company will be required to pay annual rent on the area while operations are ongoing.

4.3.3 Permits

Exploration and mining activities in Mexico are regulated by the Secretaria de Economía (Secretary of Economy) and the Secretaria del Medio Ambiente y Recursos Naturales (SEMARNAT) (Secretary of the Environment and Natural Resources).

Prior to commencing any construction or operating activities, an environmental impact statement, the Manifestación de Impacto Ambiental (MIA) and a technical justification study, the Estudio Técnico Justificativo (ETJ), which covers the change of land use, must be submitted to SEMARNAT for approval. Following a positive review of the MIA and ETJ, and prior to issue of the formal approval, SEMARNAT requires that all change-of-land-use payments be made.

The MIA was completed and submitted on September 18, 2018, and approved by SEMARNAT on July 25, 2019. The ETJ was completed and submitted on July 13, 2018, and approved on July 28, 2019. The MIA and ETJ permits provided the Company with all the necessary rights to initiate construction of a commercial-scale gold mining operation, which began on January 16, 2020. Construction activities have been completed (June 21, 2021) and operations are ramping up to commercial levels.

The Santana MIA and ETJ applications were initially structured to provide the Company with flexibility to further optimize the development approach for the Project, and the ability to expand the Project operations as additional mineralization is identified. The currently approved documents cover the following activities:

- Approximately 80 ha are approved for mining use in the MIA and ETJ, which includes the required areas for developing the Nicho open pit and full development of the Nicho Norte open pit, as well as the related gold extraction and recovery facilities.
- The MIA remains in good standing for a period of 33 years, which covers the potential construction, operations, and closure stages for the Project.

- The scope of the Operating Permit includes the two open pit mines, waste dump areas, crushing, heap leach pad (pad), leach solution ponds, gold recovery facilities, and all related infrastructure.
- The MIA remains conditional on a series of standard conditions from SEMARNAT that are included to protect and monitor the environment and must be implemented by the Company to satisfy permit requirements.

The MIA and ETJ documentation approval was the critical prerequisite for the Company to initiate applications for other permits required to start mining and processing activities at the site. These additional permits include the explosives use and storage permit received on January 25th, 2022. In 2022 the Company applied for an expansion of the operational areas in the current MIA and ETJ permits to cover the entire 170Ha surface rights area. This application would facilitate expansions in several areas including the waste dumps, the Nicho open pit (to include the full expanded mineralized zone as outlined in this Technical Report and Phase 2 of the leach pad construction. The final approval of these permits was pending as of the effective date of this report.

4.4 Environmental Liabilities

There are no known existing environmental liabilities associated with the Santana Project.

Project construction to date includes the development of the first phase of the leach pad, crusher and stockpile areas, site bypass roads, an explosives magazine, the process plant, and maintenance facilities for the mine production equipment that is operated by a mine contractor. This infrastructure is included in the MIA/ and ETJ that are current for the site.

A small portion (~50,000 tonnes) of the Nicho Norte open pit was mined as part of the bulk heap leach testwork that Corex initiated, and which was recently completed by Minera Alamos. After final gold recovery, the pad was rinsed and is suitable for closure or use as a future lay-down area. Since this area was constructed as a pilot facility, no environmental closure bonds were posted.

Following end of mine life, and in consideration of current land disturbances, Minera Alamos has a five-year obligation for reclamation and closure of all the mine and processing locations.

Figure 4-3: Bulk Heap Leach Pad and Test Plant

Source: Photo 1 (left)—Minera Alamos Inc., April 13 2018, Looking Southeast, photo taken at the Santana Project pilot leach pad.
Photo 2 (right)—Minera Alamos Inc., April 13 2018, Looking Northeast, photo taken at the Santana Project test plant.

4.5 Other

To the QP's knowledge there are no other significant factors or risks that may affect access, title, or the right or ability to advance the Project at this time.

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

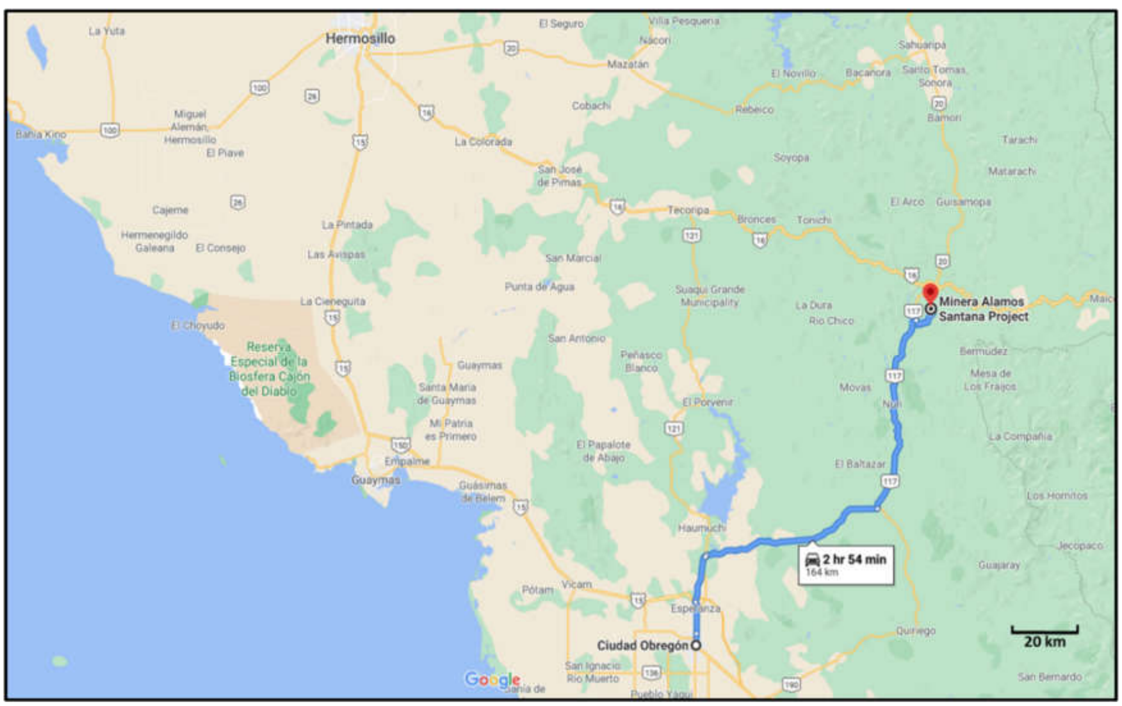
5.1 Accessibility

The Santana Project is accessible by road from Hermosillo, the capital of Sonora. It has a large regional airport with regularly scheduled commercial flights to Mexico City and direct flights to the U.S.

The driving distance from Hermosillo is approximately 266 km, or about a 4.5-hour (h) drive. From Hermosillo, the route follows paved Federal Highway 16 for 233 km, where there is a turnoff to Sonora State Highway 11. The route follows State Highway 117 south for 19 km, until the turnoff to the town of Guadalupe de Tayopa. After taking the turnoff, the Project is located 14 km along the gravel road and before the town.

The Project site is also accessible via Sonora State Highway 117 from the City of Obregon, a distance of approximately 164 km or about a 3 h drive. The turnoff to Guadalupe de Tayopa is around 141 km from Obregon, with the site another 14 km from the turnoff via the gravel road towards Guadalupe de Tayopa.

Figure 5-1: Project Location



Source: Google Maps

5.2 Climate

This region of Sonora State around the municipality of Yecora is classified as a subtropical highland climate, characterized by warm to hot summers and mild, dry winters. According to government information available for the area, the mean temperature in the summer is 22°C, with typical temperatures ranging between 12°C and 31°C. During the summer months, temperatures can rise above 40°C. The mean temperature in the winter months is 7°C, with temperatures ranging from −2°C to 20°C. On occasion the temperatures can drop below 0°C, with occasional snowfall. Given the elevation of the Project (800 m), temperatures are usually lower compared to the rest of Sonora.

A local weather station installed at the Santana Project site recorded the following data from 2020 through 2023 which is within the ranges reported above for the area -- mean temperature of 21°C, with a mean summer temperature of 26°C and a mean winter temperature of 13°C.

The average annual rainfall reported for the area is approximately 870 mm. The heaviest rainfall occurs during the rainy season (June to September), with maximal rain events affected by tropical storms or hurricanes. Based on information collected from the site weather station, 531-631 mm fell annually in the Project area from 2020 through 2022. It should be noted that 2020 was the start of a multi-year period of less than typical precipitation.

Exploration, development, and operations can be conducted year-round, although the rainy season can create some short-term difficulties with respect to accessibility due to heavy rain.

5.3 Local Resources and Infrastructure

The municipality of Yecora is in southeastern Sonora close to the border with the state of Chihuahua. The municipality has a population of 6,012 (2015). The town of Yecora serves as the local administrative centre for the municipality and has a small population (569 in 2010); however, basic services and provisions including lodging, meals, and gasoline can be obtained. Yecora is approximately 30 km east of the turnoff to Gaudalupe de Tayopa on Highway 117 (a driving time of 1.5 hours). Yecora and the communities that surround the Project, such as Guadalupe de Tayopa, have an available workforce and are well supported by nearby regional centres that include the cities of Hermosillo (population 880,355 in 2020) and Obregon (population 380,000 in 2020). These regional centres can provide skilled labour, fuel, and other supply requirements that are specific to the mining industry.

The Santana Project realized first gold production in late October 2021 as a conventional open pit and heap leach operation. A sufficient surface rights agreement is in place with the local communities to access the site to complete mining and processing activities. A description of the current site infrastructure is provided in Section 18.

5.4 Physiography

The Santana Project lies on the western flank of the Sierra Madre Occidental (SMO). Total relief within the Project area ranges from a minimum elevation of 700 m above sea level in the incised arroyos and surrounding valleys to a maximum of 950 m at Cerro El Nicho. The topography is characterized by a series of long high-relief ridges separated by small valleys.

Vegetation in the Project area comprises scrub—poplar, lechugilla (an agave-like plant), Tabachin de la sierra (Mexican bird of paradise), Chicura (canyon ragweed), and zamota; cacti, such as nopal, cibiri, and echo; trees, such as oak, palo colorado, and mesquite; and non-woody stemmed plants, such as thistles, tolache (moonflower), fern, and chicurilla (burro-weed).

Figure 5-2: Typical Project Area Physiography and Vegetation

Source: Minera Alamos Inc., February 26, 2021, Looking Northeast, photo taken at the Santana Project.

6 HISTORY

6.1 Introduction

The mines of the Tayopa region in southern Sonora were discovered in 1603. At this time the town of Guadalupe de Tayopa (near the Santana Project) supported approximately 17 mines that were reportedly very rich in silver. While it is not known who discovered the mining district, it is believed that the Jesuits were likely involved, because of a series of laws and royal decrees passed by the Spanish Government around this time. For example, a law passed in 1592 made it illegal for priests to own mines. This law was restated in 1621, and it is believed that at that time the Jesuits continued to mine, but in secret. The Spanish government followed up on the 1621 restatement by issuing a royal decree in 1703 to reprove those who were consistently breaking the law (the Spanish Government taxed 20% of any mineralization mined). For this reason, the Jesuit mines were believed to have operated in secret, and many remain that way according to local folklore. Despite these laws and decrees, mining activities continued in the district until the mid-1700s when the village of Guadalupe de Tayopa was evacuated for unknown reasons, believed to be related to either the Apache uprisings or the expulsion of the Jesuits from Mexico in 1767.

Today, the Tayopa region is commonly known as the Santa Rosa district and continues to be known for its many mineral occurrences. Most of these are related to gold, but there are also silver–gold, molybdenum–copper, and polymetallic prospects, as well as molybdenum–copper–wollastonite mines or workings like Minera Alamos's nearby Los Verdes Project. Historically important is the old underground vein-type molybdenum deposit named Tres Piedras, near the town of Santa Rosa.

The area surrounding the Santana Project has been sampled by exploration and mining companies conducting reconnaissance work in the region. Typically, these companies were more focused on the exploration potential for large-scale porphyry copper or copper–molybdenum deposits. Identified exploration targets in the region have been drill tested, but within the claim blocks controlled by Corex, outside of random outcrop sampling by local prospectors prior to Corex's arrival in 2007, the authors know of no evidence of significant modern exploration including drilling.

To date, a NI 43-101 Mineral Resource estimate has not been issued for the Property. While there are a few unpublished estimates regarding the size and potential of possible resources for the Property, these estimates have not been included in this Report because they do not follow NI 43-101 standards, and insufficient information is available to describe the differences between those unpublished estimates and the Mineral Resource estimate contained in this Report. As such, the current Report represents the first NI 43-101 Technical Report containing a Project Mineral Resource estimate.

The general history of the Project is not well documented. Based on information available, the Project history and ownership status can be summarized as follows:

- **1603**—Mines that become known as Tayopa were discovered; however, it is not clear who discovered the district.
- **1700s**—The village of Guadalupe Tayopa is evacuated, and mining activities stop for the most part.

- **2006**—Corex applies for the Hilda Fracción 1(220439) claim and receives approval in December 2006.
- **2007**—Corex acquires the Santa Lucia (180055) claim from a private owner, forming the Santana Project, and commences exploration activities.
- **2012**—Corex signs an option agreement with Vale Exploraciones Mexico S.A. de C.V. (Vale), a wholly owned subsidiary of Vale S.A., giving Vale the right to acquire up to a 65% interest in the Santana Project.
- **2013**—Vale completes exploration work, including 10 diamond drillholes (core holes) to investigate the potential of a large porphyry copper deposit on the property. Vale cancels the option agreement with Corex at year's end.
- **2014**—H. Morgan & Company agrees to provide financing and operational management services to Corex to advance the Project to commercial production.
- **2016**—Corex receives the temporary permit required to start the development of a small test mine and gold pilot plant.
- **2017**—Corex initiates bulk heap leach testing using mineralization mined from the Nicho Norte open pit.
- **2018**—Minera Alamos acquires Corex through a business combination.
- **2019**—Minera Alamos commences construction activities at the Project.
- **2021**—Minera Alamos completes construction on June 21, 2021, and begins mining operations.

The following subsections of this chapter provide details regarding the exploration activities that have been completed on the Project by Corex since 2007 and are prior to Minera Alamos's acquisition of the Project in 2018.

6.2 Corex Gold S.A. de C.V.

Corex commenced exploration activities at the Santana property in 2007 and continued these initiatives until late 2011. Exploration work during this time included geologic mapping, rock chip sampling, soil sampling, geophysical surveying, reverse circulation (RC) drilling, and diamond drillhole drilling (DDH).

Exploration activities to the end of 2011 included the following:

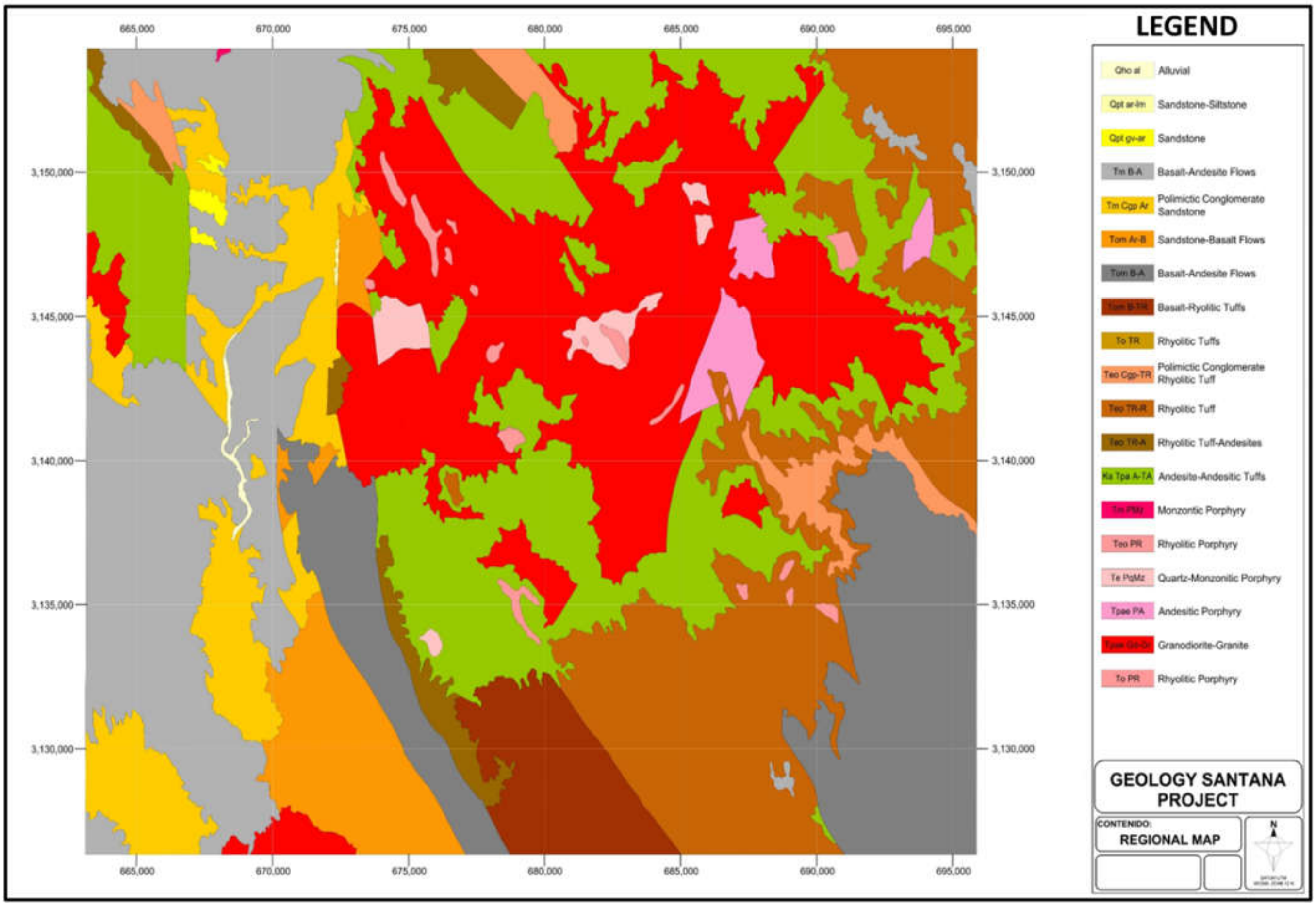
- Geological and alteration mapping over approximately 4 km^2
- 50 m by 50 m grid soil sampling over an area of around 3.7 km^2, including some small survey areas outside of the grid
- Collection of over 1,000 grab and rock chip samples
- Ground induced polarization (IP) surveys over approximately 7.5 km^2 area
- 113 drillholes, comprising 48 core holes and 65 RC holes totalling 24,136 m over an area of 6 km^2 (2 km by 3 km).

The results of this work are discussed in the following subsections.

6.2.1 Geologic Mapping

Geologic mapping of approximately 150 ha was initially completed to a reconnaissance scale of 1:2000. As exploration continued, geologic mapping was expanded and updated across the Project area. Figure 6-1 shows the results of mapping activities that were completed to the end of October 2011 on a scale of 1:5000.

Figure 6-1: Corex Geologic Map



6.2.2 Surface Sampling—Rock

Concurrent with geological mapping activities, rock chip samples from outcropping zones of altered mineralized rock were collected for geochemical analyses from 2007 to 2011. Sample collection targeted representative grab samples, chip samples across mineralized structures, and true channel samples collected across road-cut or outcrop faces.

The objective of the annual sampling programs was to characterize the mineral deposit type and define zones of higher-grade gold within the identified alteration zones. Surface sample locations were selected to be representative of the geologic feature being investigated. Representative spot samples and continuous channel samples were also collected.

Channel samples were obtained by chipping and collecting rock along a line perpendicular to the orientation of the structure or feature being sampled. Channel samples were typically collected on 1 m to 2 m long intervals. All samples were collected by hand, using hardened-steel chisels, picks, and geological hammers. Samples were placed in 10" by 14" cloth drawstring or 6 mm plastic sample bags. Sample weights varied from 4.5 kg to 7.5 kg. Sample spacing was variable—dependent on exposure of mineralized or altered rock. Samples were numbered in ascending order, using laboratory-provided sample numbers and sample tags. Sample locations were marked in the field with fluorescent plastic flagging and aluminum tags. Sample descriptions, location data, and multi-element assay data are available in digital format. Collected samples were sent to either Inspectorate or Acme laboratories (both now owned by Bureau Veritas) for multi-element inductively coupled plasma (ICP) testing with gold grades established using the fire assay method.

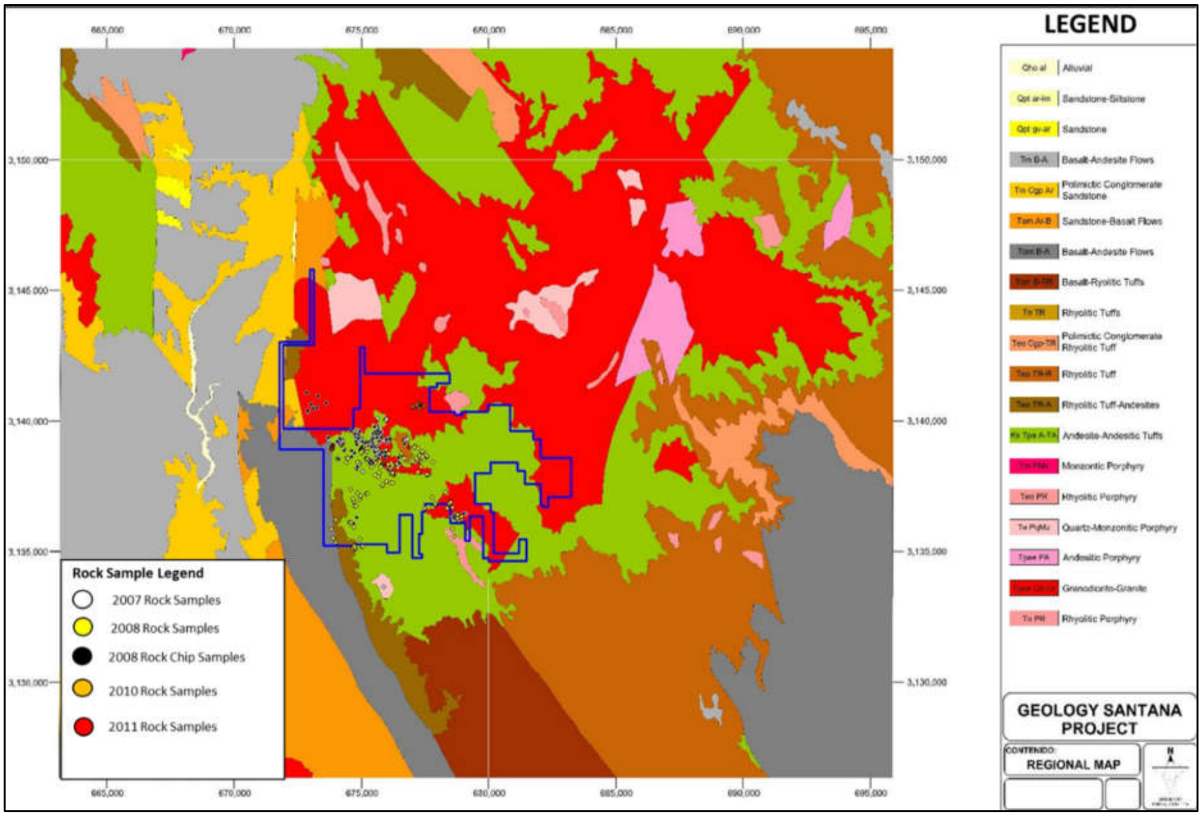
During this period Corex staff managed the rock chip sample program, with fieldwork completed by consulting geologists from Resource Geosciences de Mexico SA de CV. In all, 838 samples were collected, of which 560 samples with assay data have been recorded.

Table 6-1 provides a high-level summary of the results and Figure 6-2 shows the locations of the samples collected by year.

Table 6-1: Summary of Rock Sampling by Year

Year	Number of Samples	Minimum Gold Grade	Maximum Gold Grade	Average Gold Grade
2007	41	0.00	12.75	0.62
2008	221	0.00	10.56	0.19
2008—Chips	201	0.00	6.45	0.18
2010	16	0.01	0.11	0.05
2011	81	0.01	1.48	0.18

Figure 6-2: Corex Gold Rock Sample Locations



6.2.3 Surface Sampling—Soil

Corex completed multi-element geochemical soil surveying in 2009, 2010, and 2011 across the Project area. The soil sampling programs for each year can be summarized as follows:

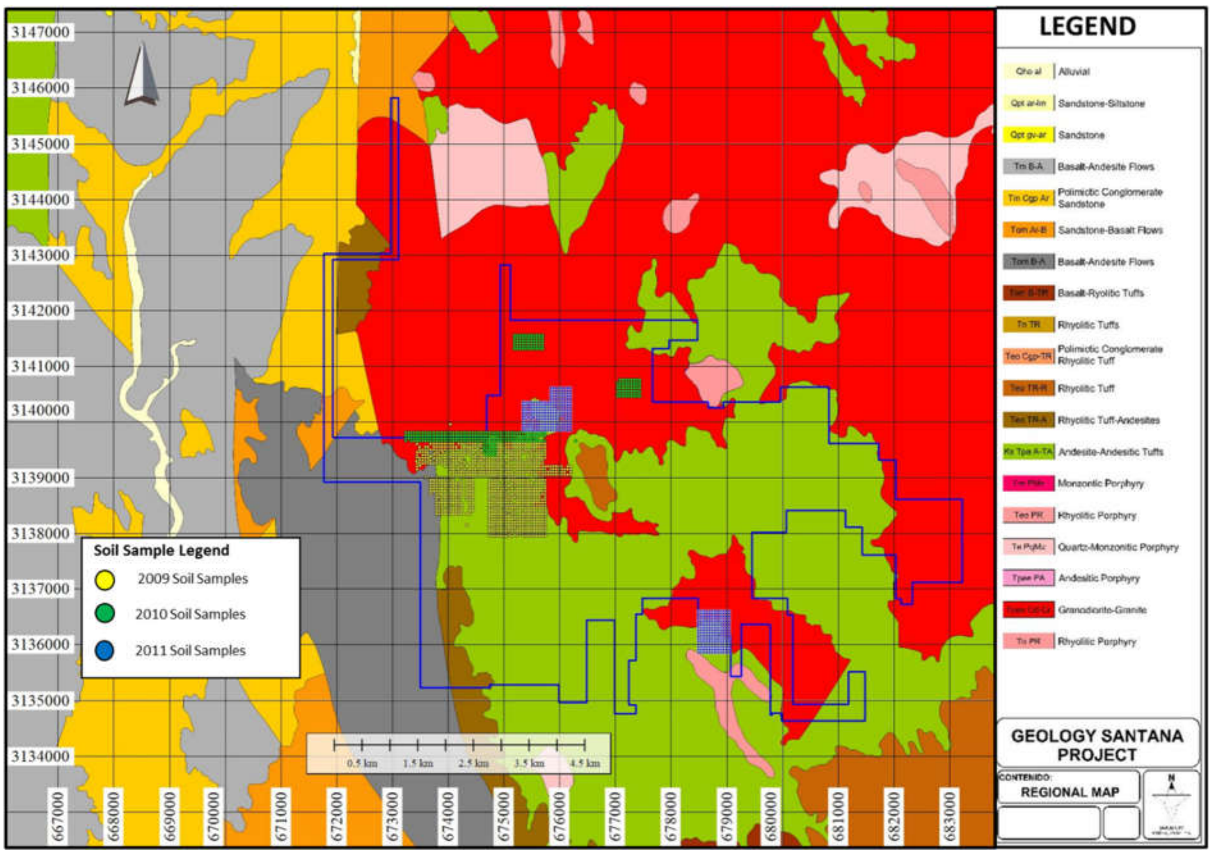
- **2009**—soil sampling over an area over 284 ha with sampling focused on the Nicho, Nicho Norte, Benjamin, Ubaldo, and Divisadero areas. In total, 1,198 samples were collected on a 50 m by 50 m grid, then assayed. This survey successfully identified significant gold-in-soil anomalies at each location and was subsequently used as the basis for additional soil surveying completed in 2010 immediately north of this grid.
- **2010**—two areas to the north and northeast of Nicho were surveyed in follow-up to the 2009 program. In all, 66.5 ha were sampled on a 50 m by 50 m grid, with 380 soil samples collected and assayed.
- **2011**—Sampling activities focused on the Cartucho and Zata areas, with a total of 431 samples (238 from Cartucho and 193 from Zata) collected over an area of 94 ha. Sampling at both locations was completed on a 50 m by 50 m grid, for a total area of 51 ha at Cartucho and 43 ha at Zata.

All the collected samples during this period were sent to either the Inspectorate or Acme laboratories and underwent multi-element ICP testing for gold (fire assay [FA} with an atomic absorption [AA] finish), silver, copper, lead, and zinc. Table 6-2 shows a high-level summary of the results, and Figure 6-3 shows the locations of the samples collected by year.

Table 6-2: Summary of Soil Sampling by Year

Year	Number of Samples	Minimum Gold Grade	Maximum Gold Grade	Average Gold Grade
2009	1,198	0.00	10.15	0.140
2010	380	0.00	6.14	0.089
2011	432	0.00	1.85	0.059

Figure 6-3: Corex Gold Soil Sample Locations



6.2.4 Geophysical Surveys

Corex commenced ground geophysical studies on the Santana Project in November 2009. This initial program comprised IP and magnetic surveys that were contracted to MPX Geophysics. The survey area included 19 east–west lines spaced at 100 m intervals, flagged with 25 m stations, for a total of 50 line-km. The field survey work was finished in February 2010.

SJ Geophysics Ltd. of Delta, B.C., was subsequently contracted to review the data associated with these surveys and provide interpretations and recommendations to Corex management. Based on the results of this interpretative work, new drill targets were identified at the Nicho, Benjamin, Marmero, and Tres Hermanos zones for follow-up drilling during 2010, leading to the discovery of the Ubaldo Zone.

The 2010 survey program was configured to detail near-surface features (<200 m deep) and wider zones of structurally brecciated bodies in contact with high-level intrusive plugs. Program results indicated known mineralization to be associated with moderate-to-high chargeability and low resistivity readings in the Nicho, Benjamin, and Ubaldo Zones. Many of the geophysical anomalies identified were open at depth at the time of the interpretation. Geophysical targets were also identified along strike from the known zones of mineralization, which indicated a series of structurally controlled resistivity and chargeability anomalies that were broadly coincident with the surface exposure of the mineralized structures. Interpreted three-dimensional (3-D) IP results revealed low resistivity trends to be continuous along strike for up to 2,000 m, with individual robust chargeability anomalies extending along strike more than 400 m. The magnitude of the geophysical anomalies at the time of this work suggested potential for improved width and strike continuity of the mineralization at depth.

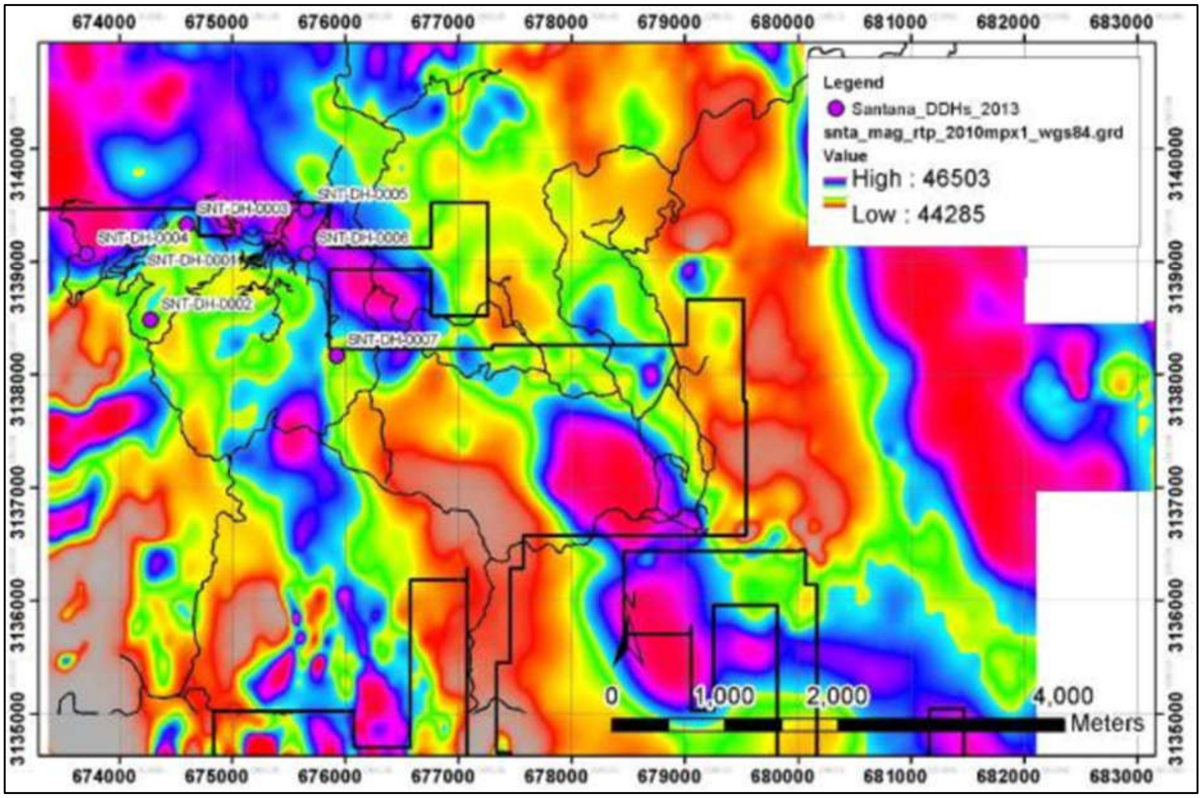
MPX Geophysics completed follow-up, helicopter-borne, high-resolution magnetic and radiometric surveys over the Project in April 2010. SJ Geophysics Ltd. again reviewed and reinterpreted the results. In total, 758 line-km of data were acquired over the Project area, covering approximately 63.5 km^2. Table 6-3 presents the details of the surveys.

Table 6-3: Airborne Survey Details

Flight Lines			Tie Lines			Total
Direction	Spacing (m)	Line-km	Direction (°)	Spacing (m)	Line-km	Total Line-km
090°	100	630	000	1,000	128.8	758.8

SJ Geophysics Ltd. used the magnetic susceptibility data to define fault structures and associated zones of alteration. The magnetic highs in Figure 6-4 were noted as typically batholith igneous units that are partially covered. The strong magnetic lows in the figure were interpreted as felsic volcanic units that are low in magnetite relative to the batholithic units. In addition to mapping the dominant northwest and northeast structures, the survey detected several anomalies reflecting near-surface, localized targets. Figure 6-4 shows a map of the reduced-to-pole (RTP) magnetic data.

Figure 6-4: Airborne Reduced to Pole (RTP) Magnetic Data



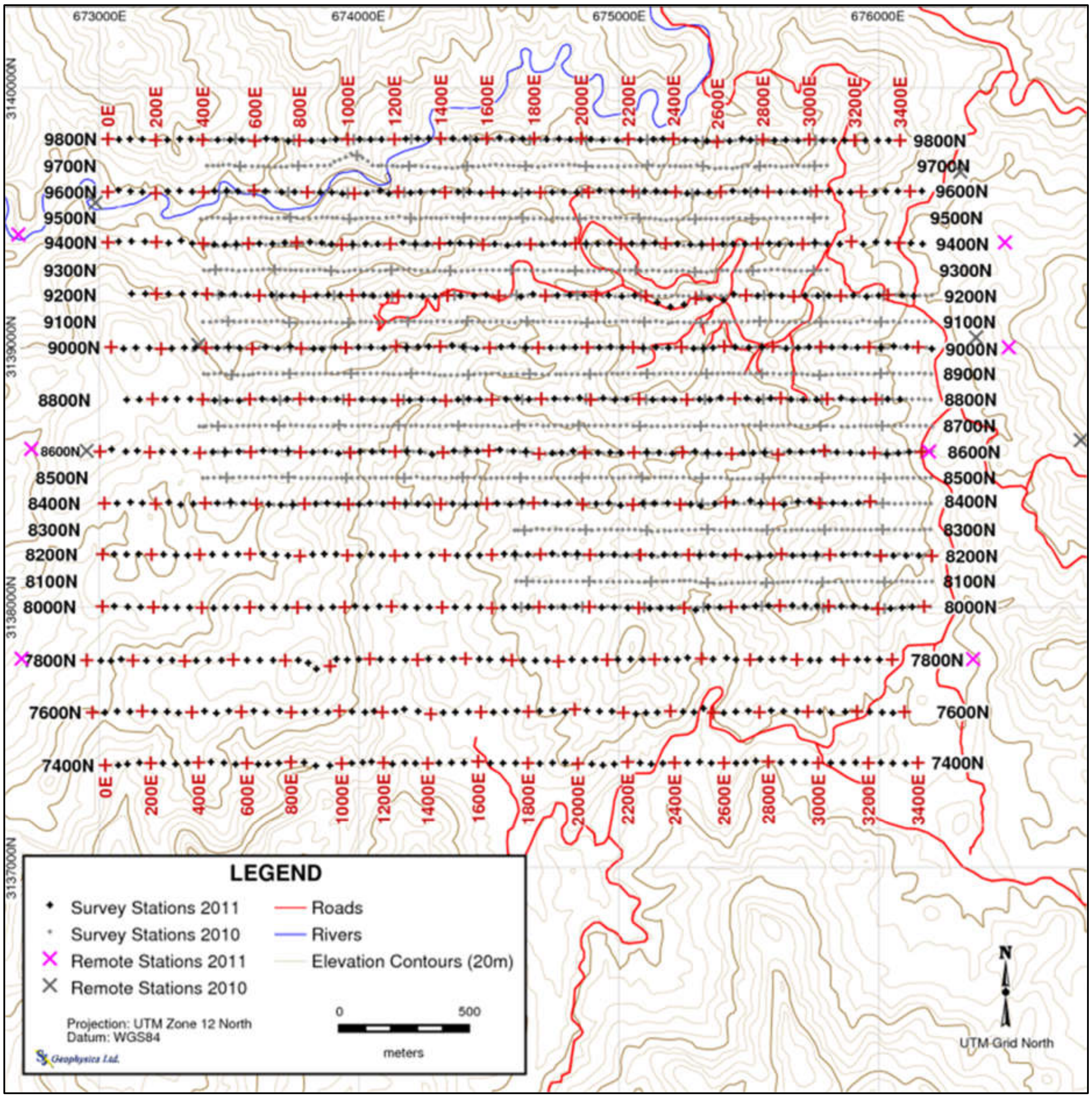
Corex used radiometric survey data to outline zones of potassic alteration associated with epithermal and porphyry systems. The survey detected high-potassium and low-thorium–potassium ratio signatures at Nicho, Benjamin, and Ubaldo. These signatures have been noted to be typically associated with hydrothermal alteration, and the results of this work supported the epithermal deposit model that was proposed at the time the work was completed.

Conclusions regarding the airborne survey included the following:

- The survey area was approximately ten times larger than the area covered by the 2010 ground survey.
- The airborne magnetic data correlated well with the ground survey but showed significantly less detail.
- The survey showed clear evidence of the dominant northwest-trending fault orientation across the Project area, and the data interpretation provided useful structural and lithological information at the regional level.
- Given the differences in resolution between the airborne and ground-based surveys, an additional ground survey was recommended, to properly delineate areas of interest that were identified from the airborne survey.

Based on the findings of the airborne survey work-program, a follow-up 3-D IP ground survey was undertaken in February 2011. The primary purpose of this work was to identify signatures at depth (up to 500 m) to further delineate drill targets and compliment the geophysical targets outlined in the January 2010 drill program (included a few deeper holes that targeted anomalies identified at depth in previous surveys). The 2011 ground survey comprised 13 east–west lines and was configured with wider line spacing and dipole lengths (spacing of 200 m with line lengths of 3,200 m) to increase the depth of investigation to reach the target of 400 m to 500 m. Along the lines, stations were put in by chain every 50 m from west to east. Figure 6-5 shows the location of the grids used for both the 2010 and 2011 surveys.

Figure 6-5: 2010 and 2011 Survey Grid



Initially, the 2010 and 2011 data were processed as stand-alone surveys to determine if the results from each survey would show any correlation to the same mapped surface features. The results were found to correlate well between surveys and to earlier data mapping from less-detailed versions. Following the positive correlation, the data from both surveys were then merged and re-analysed using inversion analysis. The result was a combination of the near-surface features mapped by the 2010 survey with the depth information from the 2011 survey. Figure 6-6 and Figure 6-7 show interpreted chargeability and resistivity on a combined basis.

Figure 6-6: 2010 and 2011 Interpreted Chargeability

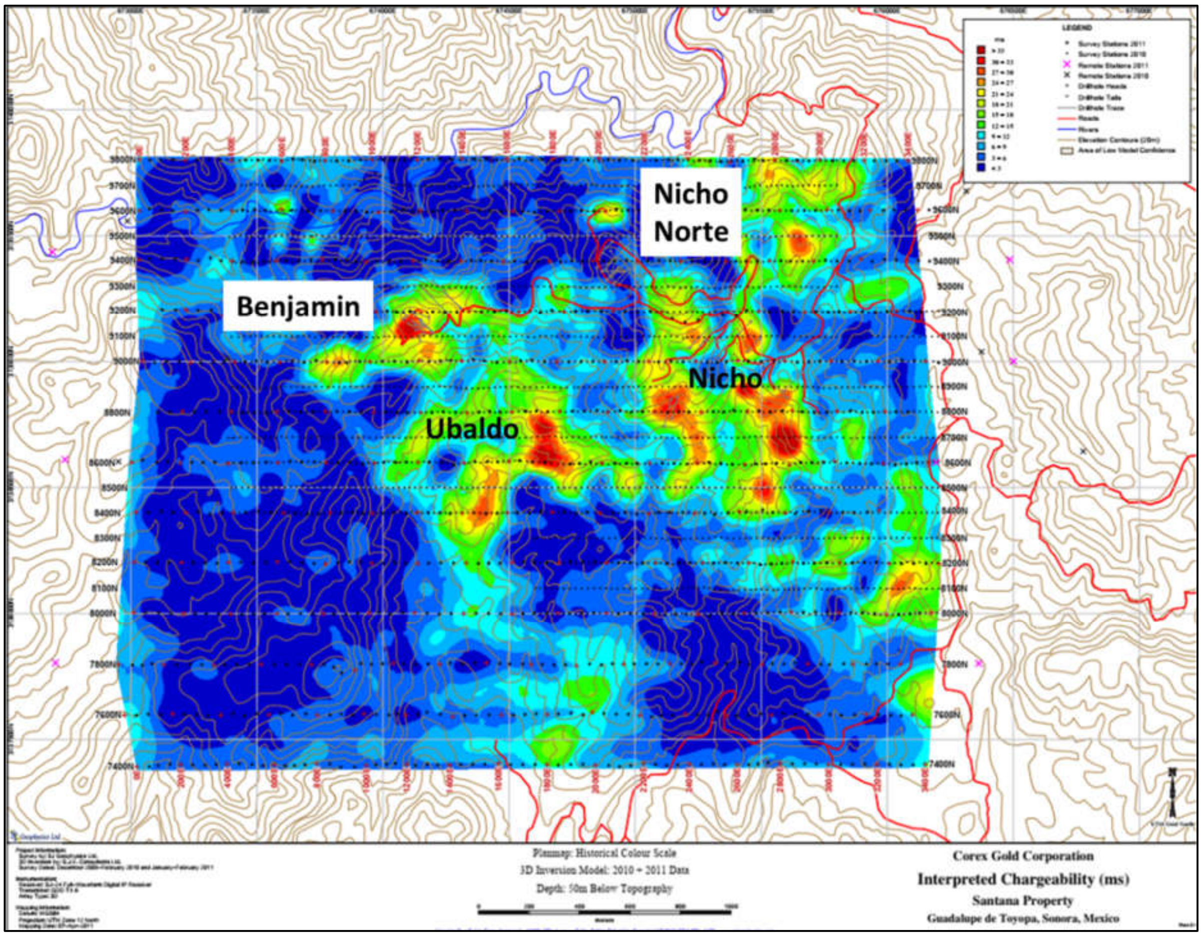
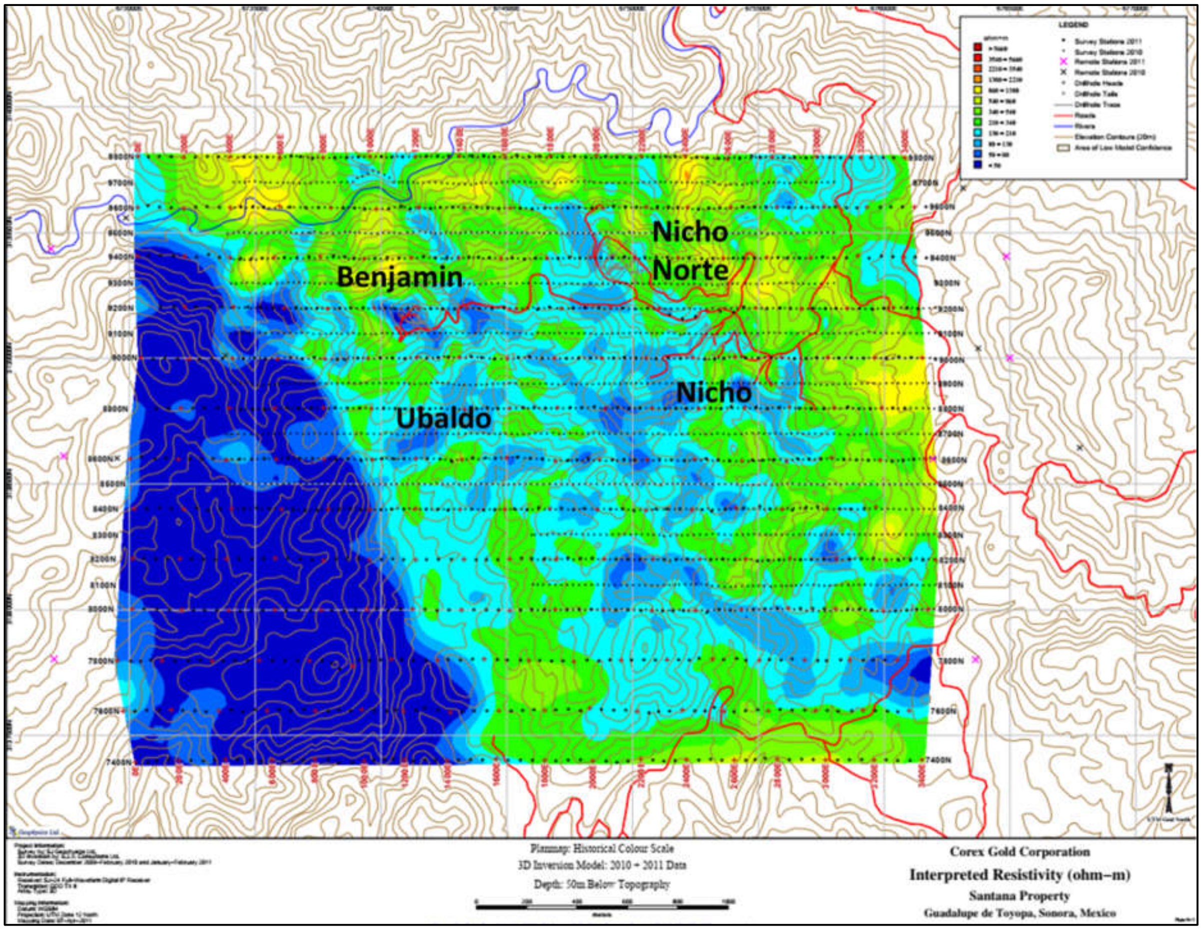


Figure 6-7: 2010 and 2011 Interpreted Resistivity



The results of the 2011 survey and interpretation work:

- Identified new exploration targets at Benjamin to the north, northeast, and southwest.
- Identified a new exploration target at Nicho to the southeast.
- Confirmed and expanded several known mineralized trends and displayed continuity at depth between previously drilled zones.
- Confirmed the patterns of the northeast and northwest trending structures (faults) revealed by the 2010 survey, and showed the dominance of several northeast-striking structures at depths between 300 m and 500 m.
- Confirmed the presence of a large, deeply buried body along the eastern and northeastern edges of the study area, outlined by elevated chargeability and magnetic susceptibility values.
- Showed deeper interpreted fault zones that appeared to connect with the Ubaldo zone to the southwest and to the Nicho and Marmero zones to the northeast.

At the time of the 2011 interpretation, Corex believed that the results suggested the presence of a large, buried intrusion on the property, indicating that the Santana Project could be part of a large, emerging porphyry district. Geophysical surveying and drilling at the time identified intrusive bodies associated with volcanic domes that defined a 7 km corridor to the northeast and a 4 km corridor to the northwest. The results of this work also suggested the potential for the Project to be part of a larger porphyry belt, but Vale's exploration work in 2013 could not confirm this after a ten-hole drill program that tested this possibility (Refer to Figure 6-4 for Vale's hole locations on the geophysical map and Section 6.2.7 for more information on Vale's exploration work programs).

The rock sampling, soil geochemistry, and geophysical survey results helped Corex identify four different gold (and copper) targets. Most of the 2008 to 2011 drilling concentrated in these target areas, which correspond to more hilly areas, and in some cases notably leached hilltops, as in the case of Nicho and Benjamin. Other areas identified by this work were Ubaldo (500 m southeast of Benjamin) and Maromero (400 m northeast of Nicho).

6.2.5 2008 and 2009 Reverse Circulation Drilling Campaign

Drilling information collected during this campaign has been utilized as part of the Resource Estimate. Details from this campaign have been included in Section 10.

6.2.6 2010 and 2011 Drilling Campaign

Drilling information collected during this campaign has been utilized as part of the Resource Estimate. Details from this campaign have been included in Section 10.

6.2.7 2013 Vale Exploration Program

Corex reached terms to option the Santana property to Vale on July 25, 2012, and received shareholder approval on February 5, 2013. Under the terms of the agreement, Vale could acquire up to a 65% interest in the Santana Project by completing work expenditures totalling $16 million.

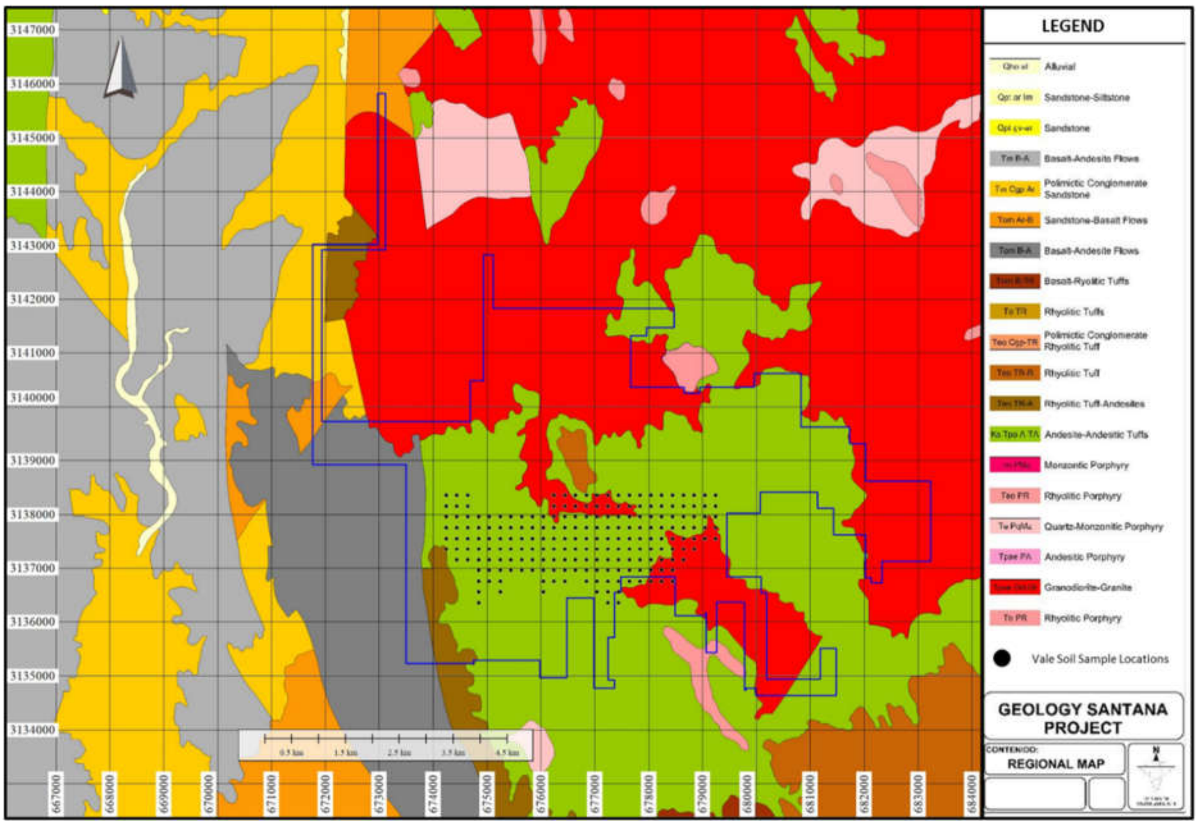
Terms of the agreement included an option to acquire up to a 51% interest in the Project by making aggregate minimal exploration expenditures of $8 million over a 3–year term. The payment schedule consisted of $2 million in year one, $2.5 million in year two, and $3.5 million in year three. An additional 9% interest could be acquired under the agreement by making additional expenditures of $4 million over 18 months following year three (i.e., year four and the first six months of year five), and the final 5% could be acquired by making an additional $6 million in expenditures over the succeeding 18-month period (last six months of year five and first six months of year six).

Immediately after the option agreement came into effect, Vale completed a rapid geologic mapping and sampling program that focused on the southern portion of the Project area (~9 km^2). The purpose of this work was to obtain some geological and geochemical data on the area to help identify potential drill targets, because it had not been investigated as part of previous exploration activities.

Geological mapping helped to define the post-Laramide boundaries to the south and west, marking the limits of possible areas with exploration potential. It also identified four different Laramide intrusive units that had not been previously identified: namely, fine–grained quartz–monzonite, greyish coarse–grained monzodiorite, feldspar porphyry and quartz-feldspar porphyry.

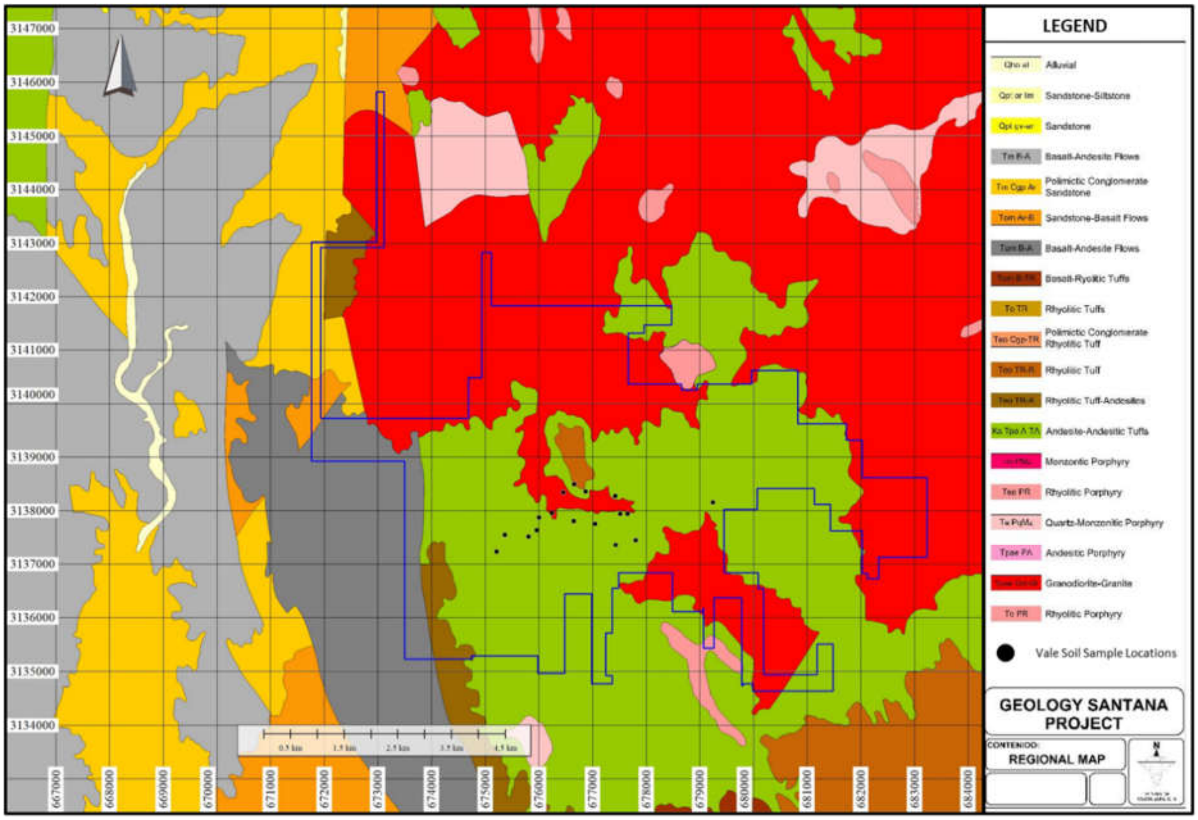
Soil sampling was completed on a grid of 200 m by 200 m. In total, 217 samples were collected, with assay results available on 205 of those. Gold assays did not show any meaningful target areas, with assay results varying from <0.001 g/t Au to 0.347 g/t Au on one sample. The highest gold values were identified to be coincident with anomalous copper in the areas where quartz–tourmaline breccia was noted. Both the gold and copper assays (primarily <40 ppm) were notably lower than the values of the soil samples that Corex collected in the northern portion of the Project area. Figure 6-8 shows the locations of the soil samples collected by Vale on the southern portion of the claim area.

Figure 6-8: Vale Soil Sample Locations



Rock samples were also collected as part of the program, with focus on the Laramide-aged rocks. Representative samples of altered and occasionally fresh rock units provided indications on the nature of the igneous rock. Of note, most units have been variably altered, and often show elevated silica content with relatively constant alkali. A single rock sample returned a meaningful value of 0.54 g/t Au. This sample was collected from an 8 m-wide altered fracture zone that was hosted in chlorite-altered andesite. A few other samples show anomalous silver and base-metal values that at the time Vale believed to be in part related to carbonate–bearing polymetallic veins found in the andesite. Vale noted in their 2013 exploration report written by Fernando Moya titled "Exploration Report Santana Project" and dated October 30, 2013, that areas with clearly identified post-Laramide rocks were not sampled, and these boundaries were used as the limits for the soil-sampling grid to the west and south. Figure 6-9 shows the locations of the rock samples that Vale collected.

Figure 6-9: Vale Rock Sample Locations



Drilling information collected by Vale during this campaign has been utilized as part of the Resource Estimate. Details from this campaign have been included in Section 10.

6.2.8 2015 H. Morgan & Company

Corex entered into an agreement with H. Morgan & Company (Morgan) in June 2014 to provide financing, and operational and management services. The intent of this agreement was to advance the Santana Project into production, with the proceeds used for exploration and development activities.

The agreement provided Morgan would manage all feasibility work on the property with the objective of advancing the Project into commercial production. As such Morgan's corporate partner, Minas de Guachinango S.A. de C.V., was appointed the manager over activities conducted on the property. This management agreement was to be terminated upon the earlier of the Manager's resignation and termination of the Management Agreement or following the commencement of profitable commercial production.

Morgan agreed to provide financing of up to $1.65 million in two tranches. The first tranche of $400,000 was advanced upon the completion of due diligence and final form written agreements. The second tranche of $1,250,000 was to be advanced following the satisfactory completion of the initial work program and at the sole discretion of Morgan. The tranches were structured as a private placement, with the first tranche consisting of 4,000,000 units of Corex, issued at a price of $0.10 per unit (each unit consisted of one share and one warrant exercisable for a period of two years at a price per share of $0.15). The second tranche, intended to bring the Project to commercial production, was not made, because the Company was sold to Minera Alamos as part of the business combination in 2018.

On September 8, 2016, Corex received the final permit to begin development of an open pit heap leach test operation and pilot plant. Waste stripping was completed on December 5, 2016, on the first two mining benches at Nicho Norte. The bulk tonnage from the test pit was jaw crushed and heap leached, while a second cell was constructed on the leach pad to place a more finely crushed material than the initial cell, to test the sensitivity of metal recovery to crush size on a bulk-leaching scale. The results were used to evaluate the metallurgical viability of heap leaching and optimize the most efficient operating methods and equipment.

Crushing and loading started in late November 2016. In total, 11,210 tonnes of material were crushed in November and December and loaded onto the first pad. An additional 11,989 tonnes were loaded in January 2017, for a cumulative total of 23,199 tonnes in the first cell. Pad loading was completed on January 26, 2017. The heap was contoured, and the surface broken up in preparation for leaching. A second cell was added, to allow a separate batch of finer material to be tested to determine the leach and cost characterization of much-finer crushing. The second leach pad area was about 4,500 m^2 and the total area of both pads was approximately 9,000 m^2.

Gold-loaded carbon produced from the pilot plant during test operations was processed to produce doré at Metals Research Corporation in Kimberly, Idaho. Thereafter, the doré was delivered for refining to Cascade Refining Inc., Salt Lake City, Utah. The results from the gold sales were used as a final check on the overall metal balance for the test leaching operations.

6.2.9 Exploration Activities 2016 to 2018

Exploration activities from 2014 to 2018 were limited to a pilot bulk heap leach test program. No additional exploration activities were undertaken.

6.3 Historical Metallurgical Studies

The metallurgical testing that has been completed to date is presented in Section 13.

6.4 Minera Alamos Inc.

Minera Alamos acquired the Santana property on April 13, 2018, through a business combination with Corex. Since the time of the acquisition, Minera Alamos has completed additional exploration and development activities on the property. This work is discussed in Sections 9 and 10.

6.5 Production History

The Project hosts several prospects and small mines, but no records of production history outside of the bulk test program undertaken by Corex are available. Excluding the bulk test program, the total amount of material extracted does not appear to have exceeded a few thousand tonnes.

Approximately 51,539 tonnes of mineralized material grading 0.80 g/t Au (1,326 contained ounces) were placed on the bulk testing pad. Over the leaching period, a total of 1,100 ounces of gold were recovered for an overall recovery of 83.8%. Corex completed leaching activities; Minera Alamos finished residual recovery and rinsing of the pad.

Since the start of leaching activities in 2021 a total of 1,108,539 tonnes grading 0.69 g/t Au (24,598 gold ounces) have been placed on the new leach pad to the effective date of this report (May 31, 2023).

7 GEOLOGICAL SETTING AND MINERALIZATION

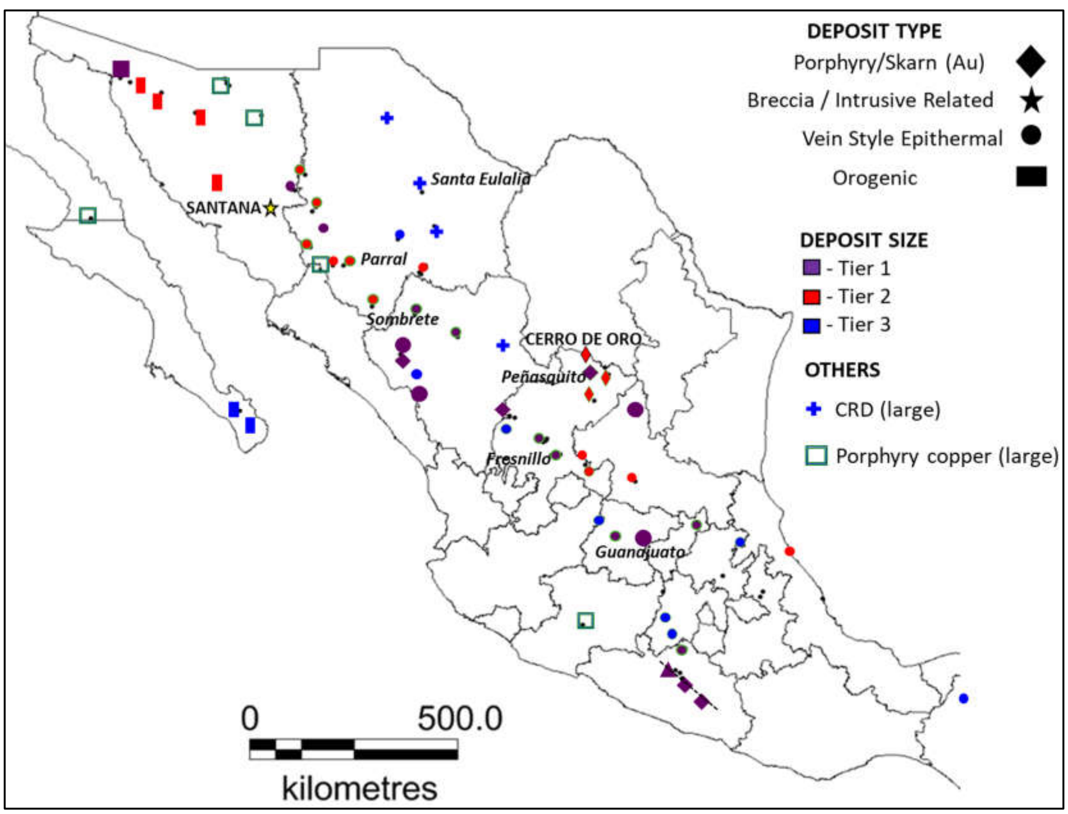
7.1 Geologic Setting

The Santana Project is in southeastern Sonora State near the border of the neighbouring State of Chihuahua. The Project lies in the physiographic province of the SMO, within the geologic sub-province of the Basin of Range. The Basin and Range is the result of an extensional tectonic environment that began in the early Miocene. The extensional normal faulting created an alternating sequence of horsts and grabens, which are characterised by a series of narrow and parallel mountain ranges that trend north–south to northwest–southeast. These mountain ranges are separated by small to large scale valleys.

Historically, mining in the immediate area has focused on high-grade gold mineralization, but the area is also known for other mineral occurrences such as copper–gold and molybdenum–copper. Polymetallic prospects such as molybdenum–copper–tungsten exist in the upper portions stratigraphically of Minera Alamos's nearby Los Verdes project and are also common to the area.

Figure 7-1 shows the location of the Santana Project in relation to some of the known deposits of Mexico.

Figure 7-1: Location of the Project and Other Deposits of Mexico



7.2 Regional Geology

The regional geology comprises an extensive Eocene to Miocene volcanic field that extends southeast from the U.S.–Mexico border into Central Mexico. This area is commonly called the Basin and Range sub-province and is characterized by Miocene-aged extensional faulting that has created an alternating sequence of horsts and grabens trending north–south and northwest–southeast.

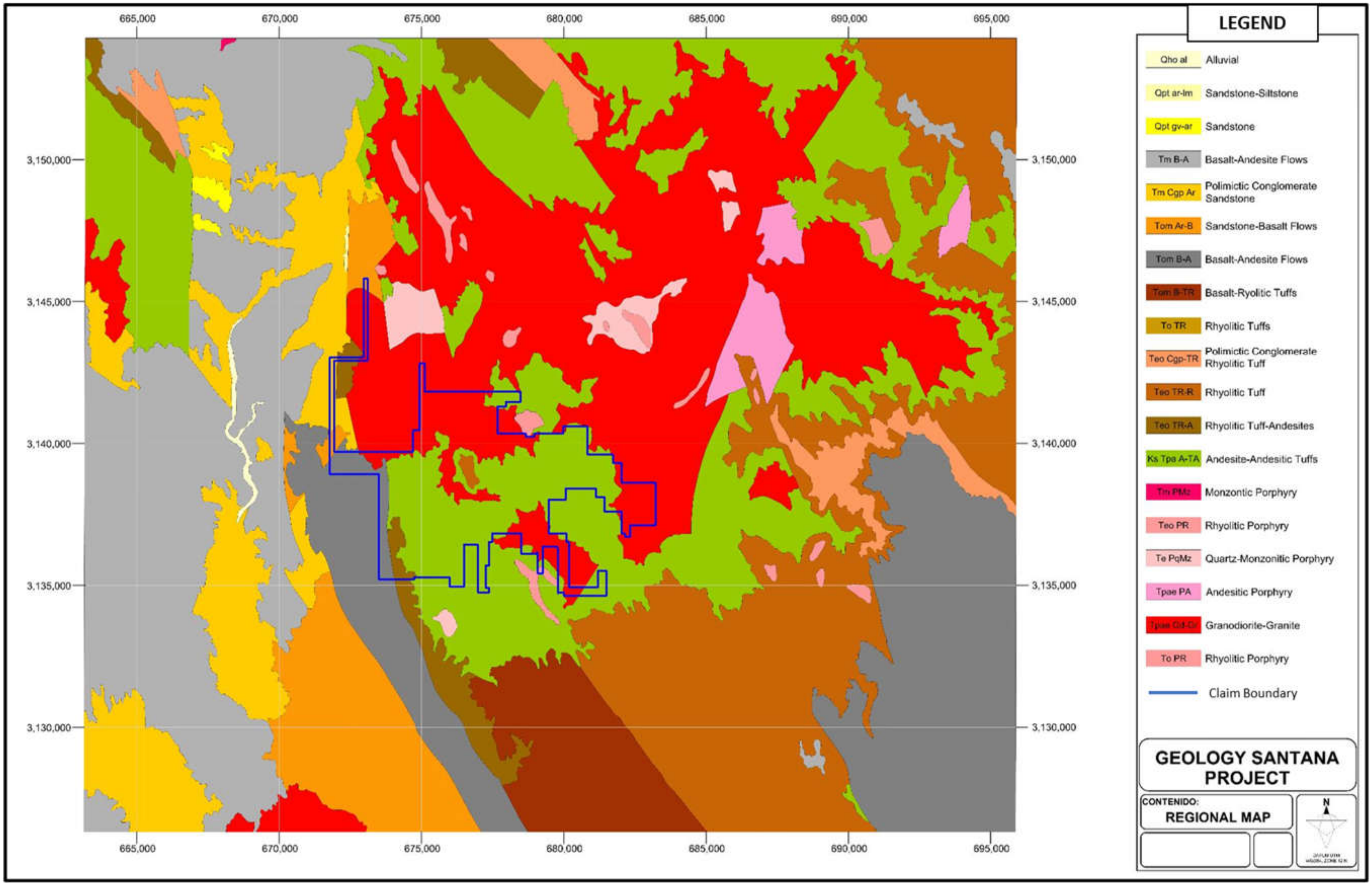
The Santana Project area lies in the Santa Rosa district that, on a regional scale, is represented by the Laramide San Nicolas Batholith that intrudes contemporaneous volcanic rocks of the Tarahumara Formation. The Tarahumara Formation is a volcano-sedimentary sequence dominated by porphyritic andesite, andesite tuff, and tuffaceous arenite. The Tarahumara Formation has been dated at 60 million years ago (Ma) within the Project area, and the San Nicolas quartz monzonite has radiometric ages ranging from 49.3 Ma to 56.7 Ma. According to Servicio Geológico Mexicano (SGM) (2005) there is also some evidence that these formations are cogenetic in terms of geologic time.

The northeast–southwest orientation of the known hydrothermal breccias found throughout the San Nicolas batholith indicates a structural control on mineralization derived from Laramide tectonics. The largest mapped structures in the region strike predominately north-northwest, with a less prominent set striking northeast. Both sets are typically normal faults that dip at high angles. The current observed geological and morphological features in the Santa Rosa district are interpreted to be transitional from Miocene basin and range-dominated tectonics and the oldest Cretaceous–Paleocene Laramide orogeny (Cocheme & Demant, 1991). This Miocene event caused dismemberment and tilting toward the northeast that resulted in a cumulative extension of approximately 90% in a northeast–southwest direction (Gans, 1997). Several late north–northwest to north–northeast normal faults overprinted the earlier titled blocks, creating the horst and graben structures that are now recognizable.

Most rocks of the Santa Rosa district bear strong to moderate evidence of hydrothermal alteration. This is observed in the volcanic andesite and volcaniclastic rocks of the Tarahumara formation. Based on observations from road cuts, the Tarahumara-formation volcanic rocks typically have a strong sericitic alteration that is pervasively altered to supergene argillic deep reddish and white surface colour. These supergene features were developed during acid conditions derived from the oxidation of finely disseminated pyrite associated with altered rock and controlled by stockworks of quartz–pyrite veinlets. The majority of the historical mine workings and prospects throughout the Santa Rosa district are found in these altered volcanic host rocks. The San Nicolas granodiorite is normally unaltered, but in some areas is affected by weak argillic alteration, and pervasive propylitic and sericite alteration which are usually proximal to more strongly altered volcanic rocks of the Tarahumara Formation and in close association with mineralized and unmineralized quartz–tourmaline breccias. The barren quartz monzonite is normally topographically discrete and lower when compared to adjacent Tarahumara andesitic units that are found in hilly areas and are partly silicified (Vale, 2013).

Over 90 occurrences of quartz–tourmaline bearing breccias have been reported in the region. They are most often circular to oval features at the surface with sizes varying from tens of metres to 800 m long (Sillitoe, 1976; Bolivar and Wynne, 1977). In the Santa Rosa district, the known breccias are vertical, ranging in plan view from 100 m to 150 m long oriented northeast–southwest. Most of these breccias are found along an approximately 10 km-wide corridor striking northeast–southwest, interpreted as a large–scale structural control with high fluid flow responsible of the formation of the hydrothermal breccias. The host of the mineralization along this large structural corridor varies from typical breccia pipes to vein–like and are either quartz–dominated or tourmaline–dominated. Many of the breccias observed in the field contain clasts of granodiorite with a strong K–feldspar alteration and some degree of silicification giving the rock a pinkish colour. Subsequent introduction of tourmaline, pyrite, quartz, and chlorite have cemented the breccias and produced a moderate-to-strong sericitic overprint. Small quartz–tourmaline veins normally have centimetric K–feldspar halos. Figure 7-2 shows a generalized regional geology map that has been prepared to the district scale.

Figure 7-2: Generalized Regional Geological Map (District Scale)



7.3 Local Geology

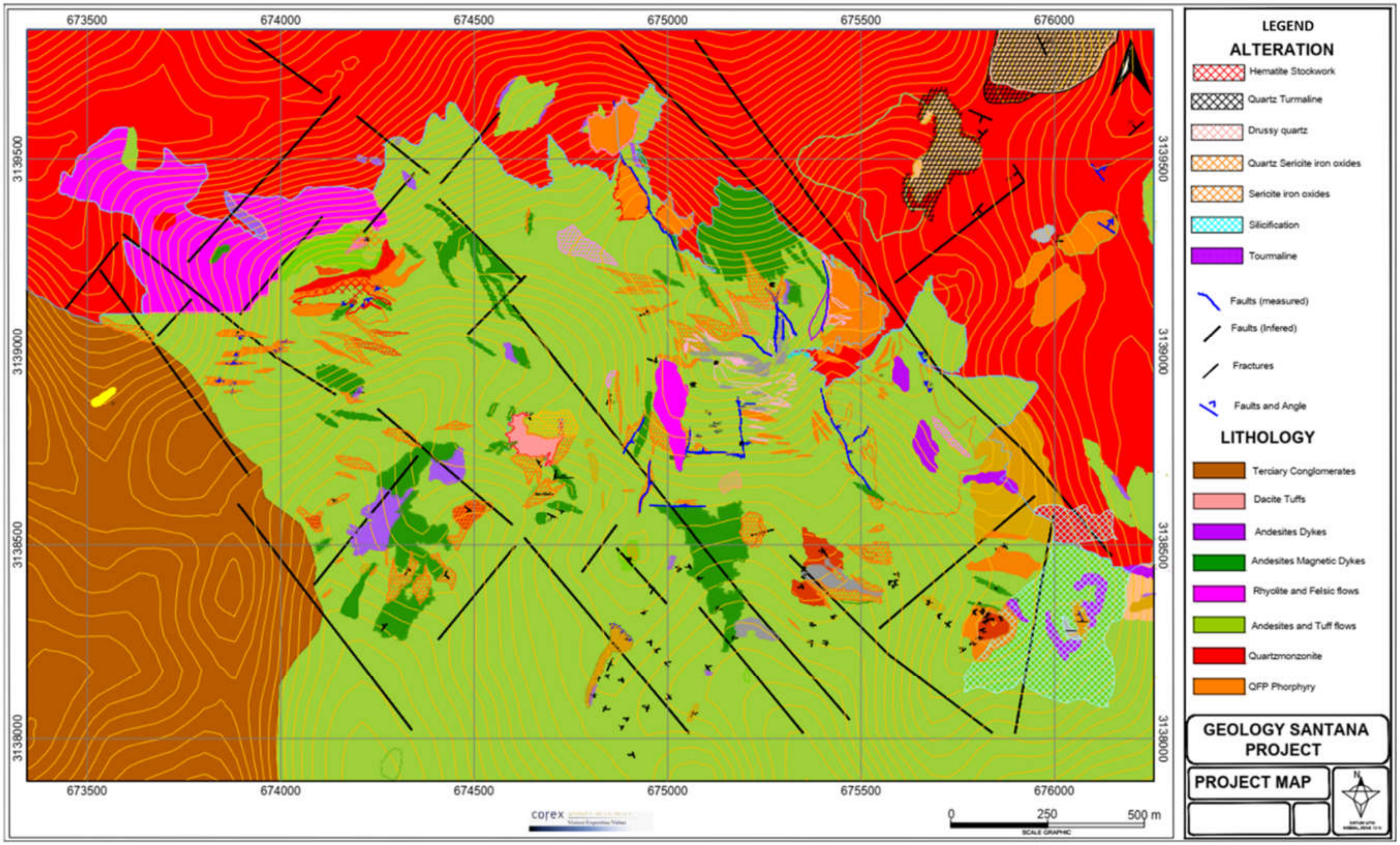
The rock formations covering much of the Santana Project area are late Cretaceous and early Tertiary-aged Tarahumara rocks as well as San Nicolas quartz monzonite and Eocene–Oligocene (Tertiary)-aged silicic volcanic rocks. The Project area is underlain by the Tarahumara Formation, which has been intruded by the San Nicolas quartz monzonite and is overlain by silicic volcanic rocks. Sub-vertical pipe–like breccia bodies intersect the volcanic units and are generally visible as topographic highs.

Most of the mineralized zones in the Project area lie over the southwest margins of the San Nicolas batholith and Tarahumara Formation. The central area of the Project is dominated by the Tarahumara andesitic and dacitic volcanic rocks, while in the southwest the Project is covered by Oligocene to Miocene basalts, felsic tuffs, and conglomerates. A north-northwest to south-southeast striking regional fault marks the boundary between the Tarahumara volcanics and the younger rock units. The areas that host most of the known gold mineralization are in the central area and comprise primarily the Tarahumara andesitic volcanic rocks that are bounded by the batholith to the north. The eastern areas of the Project are dominated by Laramide–age rocks such as the andesitic and felsic volcanic units that overlie the San Nicolas batholith and have been intruded by sub–vertical pipe–like breccia bodies.

To date, four mineral zones of significance have been identified in the Project area. These zones include Nicho Norte and Divisadero (Corex test pit area), Nicho and Benjamin. Exploration activities that have been completed around the Project area are discussed in Sections 6 and 9.

The largest mapped structures in the area strike predominately north-northwest, with a less-prominent set striking to the northeast. Both sets of structures are generally normal faults that dip at high angles, with at least one of the mapped northeast-striking faults identified as a left-lateral strike-slip fault. Figure 7-3 shows a local geology map with the fault trends as black lines.

Figure 7-3: Geology of the Santana Project Area



7.4 Project Geology

Mineralization at the Project scale occurs within breccias that have a jigsaw-type texture. These breccias typically comprise angular, elongated fragments that have a preferential sub-vertical orientation. Reviews of core and outcrop indicate that these fragments did not undergo large displacements or rotations which left open spaces between them that were subsequently infilled by gold bearing hydrothermal minerals. The breccias are principally clast-supported and monomictic and are found in pipe–like bodies. The presence of gold mineralization is directly related to the areas that are dominated by the breccia intervals. Rocks within the breccia are sericitized, with fragments cemented by muscovite, magnetite pseudomorphic after hypogene specular hematite, as well as variable amounts of pyrite, chalcopyrite, quartz, and calcite.

Surface mapping and subsurface information obtained from both RC and diamond drilling defined the geologic environment of the Project as summarized in Figure 7-3. The mapped rock unit that is predominant in outcrop comprises andesitic volcanic rocks, including plagioclase porphyritic andesites and andesitic tuffs, with a minor lithic component locally. These andesites are interpreted to correspond to the Tarahumara Formation (SGM, 2005). The andesites are in places overlain by quartz-bearing rhyodacitic/rhyolitic tuffs (flows). RC drill cuttings suggest that andesite/rhyolitic dykes may be present in the Nicho area. The andesitic volcanic strata are in intrusive contact with a batholithic quartz monzonite that is present throughout the region (San Nicolas Batholith). Northwest-striking diorite dykes and small stocks of quartz feldspar porphyry cut the andesites.

The batholith in the Project area consists of several intrusive units in the form of stocks and dykes of quartz–monzonitic or monzonitic composition, and a more mafic–rich coarser–grained unit that could be a hornblende and biotite monzodiorite or monzonite (Figure 7-4). This latter rock is magnetic, with propylitic overprint marked by pervasive chlorite and epidote (Figure 7-5). Quartz monzonite occurs as stocks in the northeastern area of the Project and as dykes varying from 1 m to 10 m thick in the volcanic units. It can be distinguished by its content of quartz fragments, reddish colour when fresh, and a fine–grained matrix (Figure 7-6).

Figure 7-4: Fresh Monzonite (S10–063D). Plagioclase Phenocrysts Are of Dark–Grey Colour with a Reddish Matrix. Hornblende is Partially Altered to Chlorite.

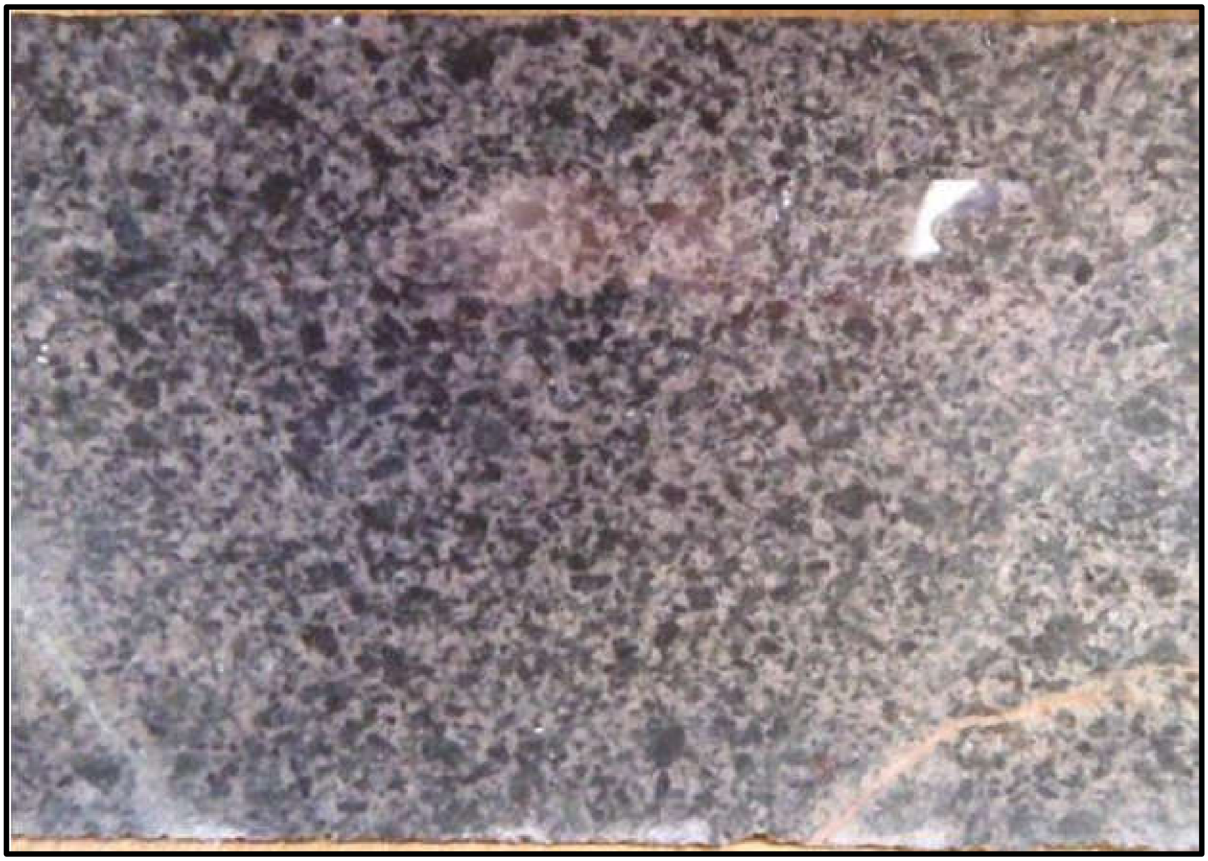


Figure 7-5: Pervasively Chloritized Monzodiorite (S10–43D at 262 m) Original Grey Phenocrysts are Partially Altered to Illite

Figure 7-6: Dyke of Quartz–Monzonite (with xenoliths) from Hole S10–43D at 228 m

The Tarahumara volcanic rocks in the Project area consist of an andesitic unit and an underlying felsic-flow unit. Andesites vary from fine-grained to porphyritic (Figure 7-7, Figure 7-8, Figure 7-9). Several units show elevated amounts of lithic and rounded to semi–rounded polymictic fragments, tuffaceous material, and auto brecciated flows (Figure 7-8). The andesitic unit can vary from 100 to several hundreds of metres thick. The underlying felsic unit can be distinguished by its flow texture, lighter colour, quartz crystals, and hardness. Despite being heavily silicified in large part (associated to tourmaline), its groundmass is more silica–rich and appears to be dacitic or rhyolitic in composition, as seen in small sections of fresh rock. Identifying this is often more difficult when it is more intensely altered because it changes from a dark grey porphyritic rock (with white feldspar phenocrysts of 2 mm–3 mm) to a whitish rock with strong flow-banding that is highlighted by a sericitic alteration (Figure 7-10, Figure 7-11, Figure 7-12 Vale 12, 13, 14).

Figure 7-7: Andesite with a Strong Chloritic Overprint

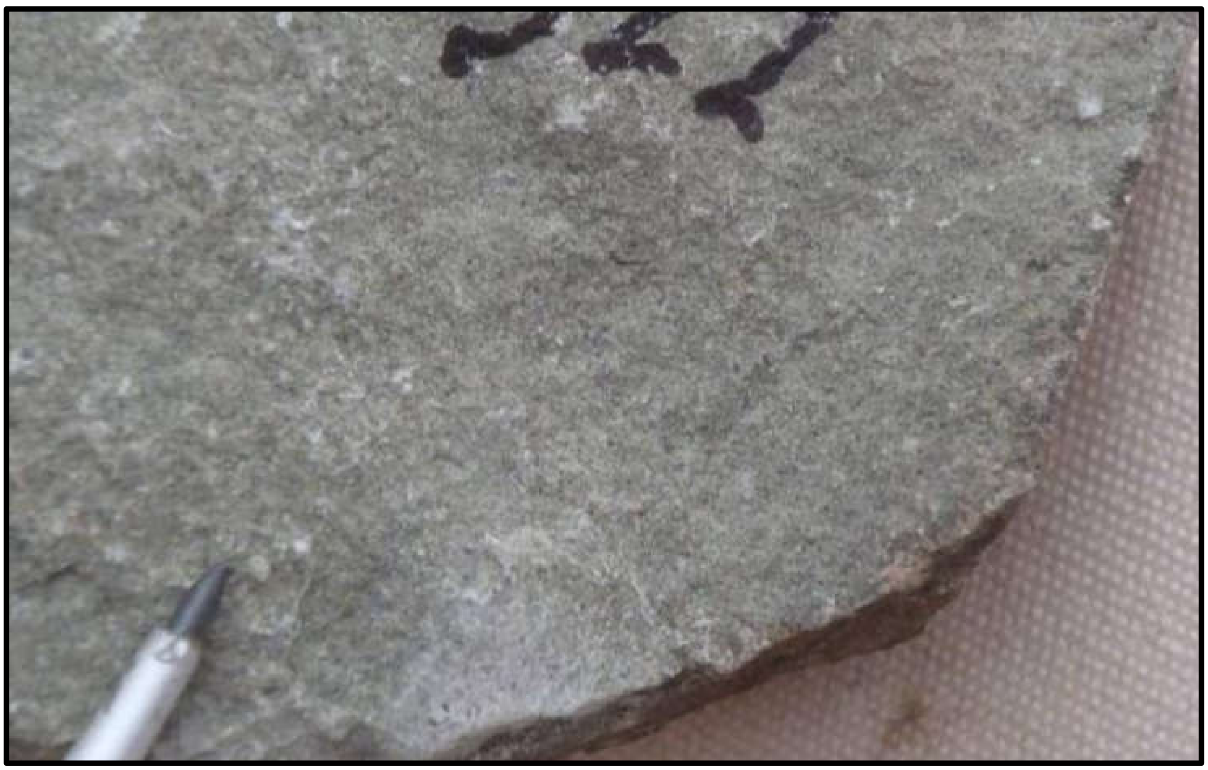


Figure 7-8: Chloritized Andesite with Small Clasts of Volcanic Composition and Lithic Components. Pyrite is Introduced with Chlorite Affecting the Darker-Coloured Clasts.

Figure 7-9: Nicho Area Chloritized Andesite with Hydrothermal Brecciation. Breccia Cemented with Dark Specular Hematite, Whitish Euhedral Pyrite, and Yellow Chalcopyrite.

Figure 7-10: V12 Porphyritic Dacite Flow (Flow Texture is Not Apparent in this Rock Unit, S10–43D at 201 m)

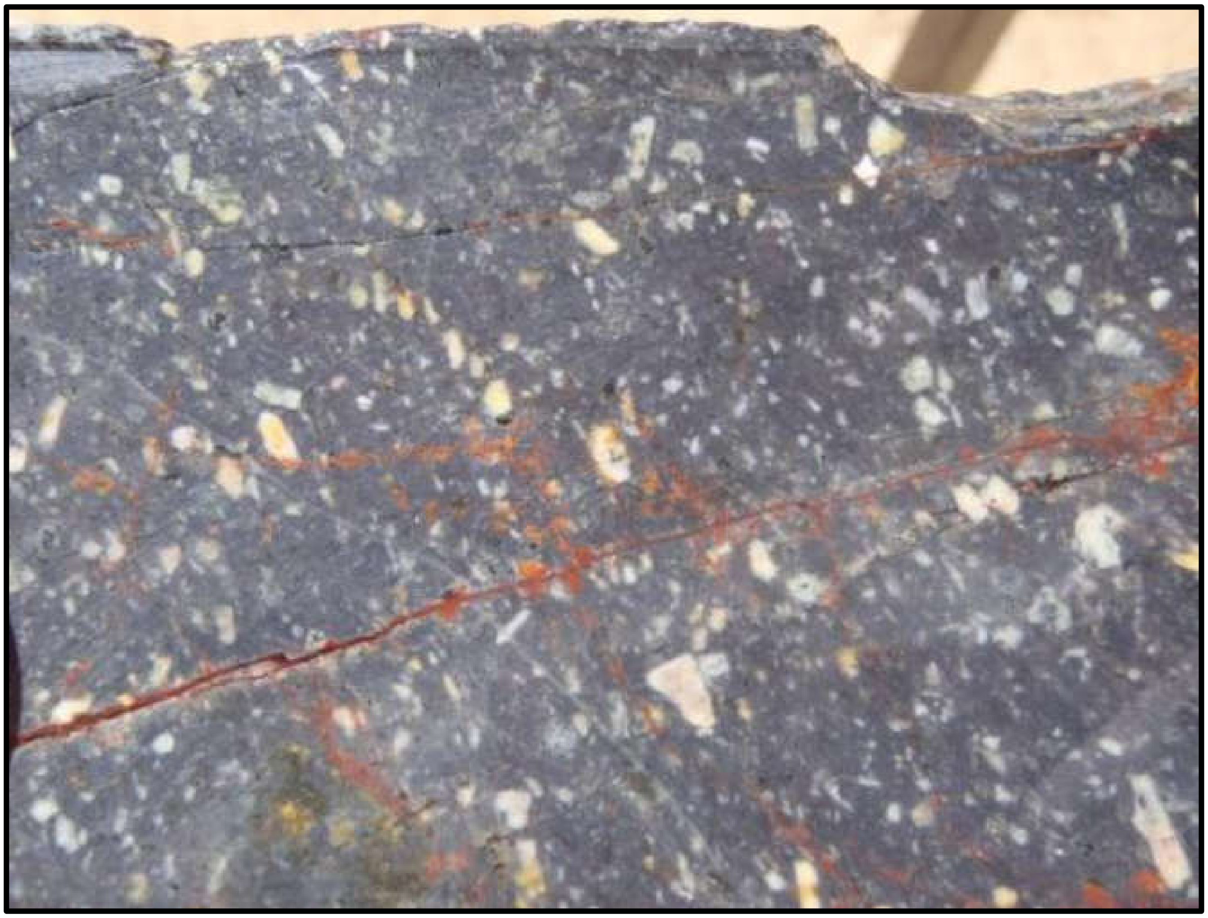


Figure 7-11: V13 Dacite Flow with Incipient Sericitic Alteration of Feldspars and Silicification Along the More Apparent Flow of Banding of the Felsic Unit. Porphyritic Texture is Decreasing. Note the Clasts of Volcanic Composition Within the Flow.

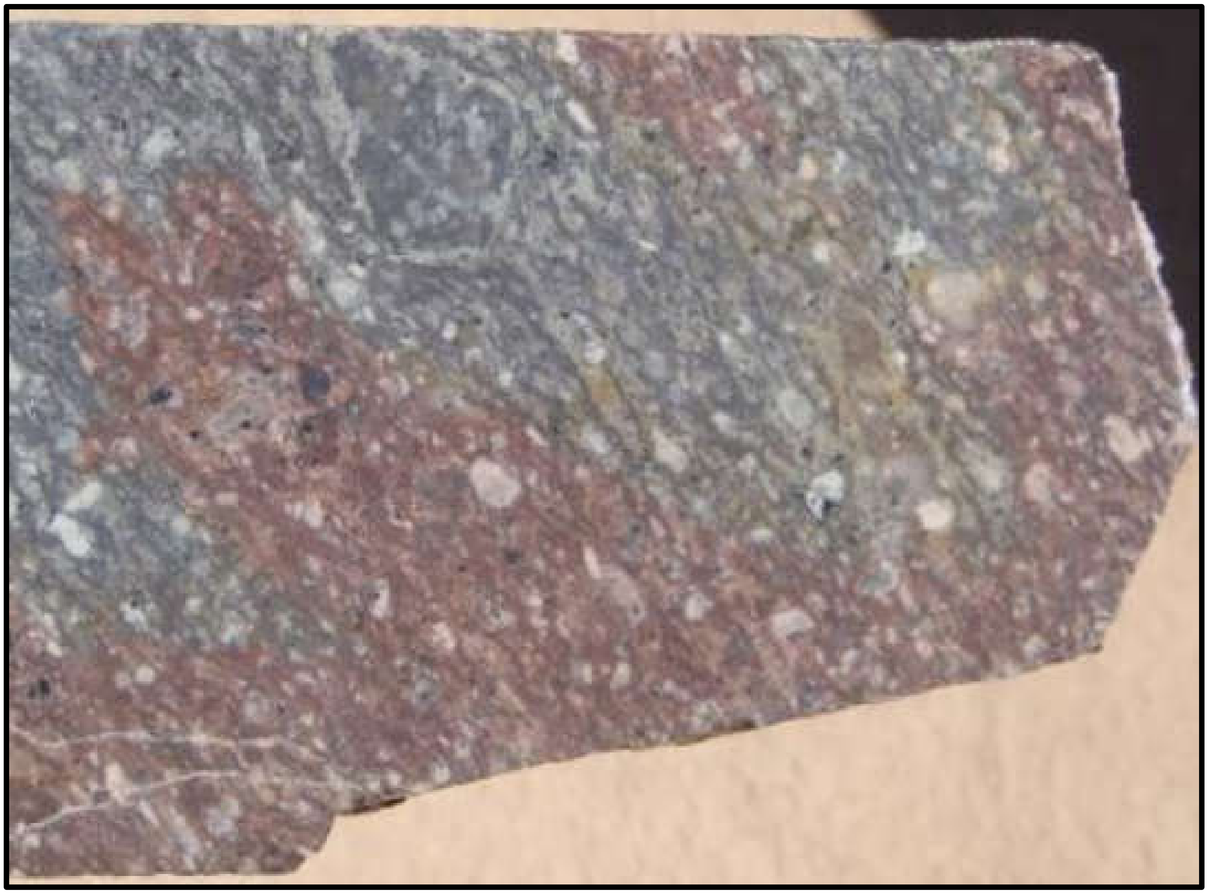


Figure 7-12: V14 Dacite Flow with Strong Sericitization of Feldspars and Silicification Along Flow Banding. Abundant Pyrite Disseminated and in Veinlets (S10–43D at 161 m).

In the central and eastern areas of the Project, mapping has identified several different intrusive Laramide units that have been historically mapped as a single unit. Recent in–house mapping has separated this single unit into four: a fine-grained quartz monzonite, a greyish and coarse-grained monzodiorite, feldspar porphyry, and quartz-feldspar porphyry. The post–Laramide boundary was defined in the south and to the west of the Project area.

7.4.1 Mineralization

The volcanic units of the Tarahumara formation are characterized by a pervasive chloritic alteration giving the rock a light- to dark-green colour. Less intense chloritic alteration also affects most of the intrusive units and is restricted to partial or full alteration of the mafic minerals, such as biotite or hornblende. More intense alteration associated with mineralization is linked to the emplacement of hydrothermal breccias, which are, in general, sub-vertical pipe-like structures a few hundreds of metres in diameter. They can be readily identified as topographic highs and have leached hilltops, such as those seen at Benjamin, Nicho, and Nicho Norte. The breccias have small alteration halos of sericitic alteration, silicification, occasionally tourmaline, and abundant pyrite. The breccia itself is usually of the jigsaw type, with a matrix composed of quartz, pyrite, and calcite in about equal proportions (Figure 7-13). The breccia clasts are strongly silicified and sometimes have sericitic alteration. The volcanic rock is weakly magnetic where chloritic alteration prevails. Locally, where sericite is more abundant, no magnetite is present, but it could have been removed (Vale, 2013).

Figure 7-13: Quartz–Tourmaline–Pyrite Breccia with Clasts of Sericitized Monzodiorite Cemented by Sulphides and Minor Tourmaline (S11–122D at 275 m)

Core logging revealed that the hydrothermal activity took place during two separate phases or events. The first phase produced the hydrothermal breccias with a matrix of quartz, pyrite, and tourmaline. A second phase invaded the breccia, reopened veinlets, and precipitated chalcopyrite and calcite (Figure 7-13). Locally, it is observed that pyrite in the breccia cement is replaced by chalcopyrite, and in other cases veinlets of pyrite–calcite–chalcopyrite cut the first phase of breccia mineralization.

Mapped surfaces with broad distribution of hydrothermal alteration and mineralization define the north-northwest and northeast-striking main orientations.

Matrix–supported, angular–clast hydrothermal breccias were developed by hydrofracturing associated with more extensive zones of intense stockwork fracturing, some of which formed “crackle breccias” without significant rotation of clasts. These intensely brecciated and fractured areas are a common loci of the most intense hydrothermal alteration and/or metal concentrations.

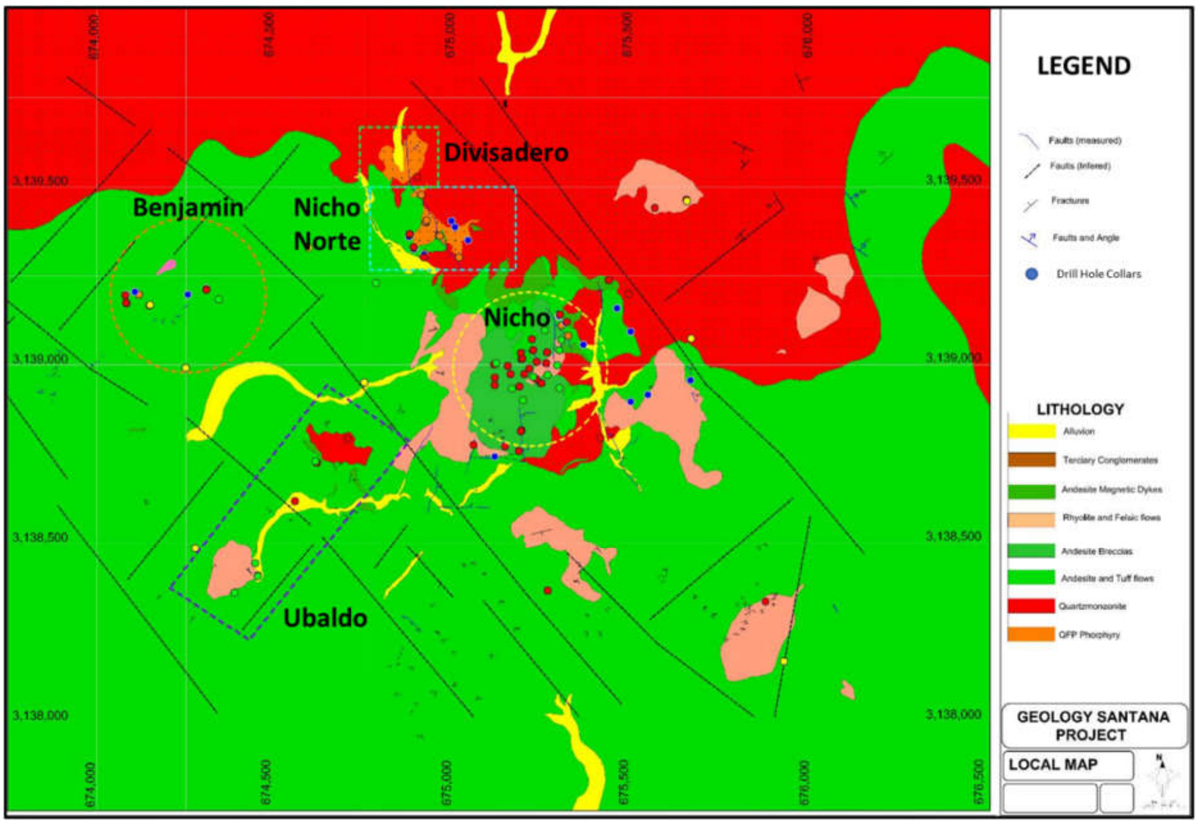
Hydrothermal alteration is manifested by sericitization accompanied by varying intensities of quartz veining, pervasive silification, pyritization, and specularite veining. In many areas, intense pervasive sericite–quartz alteration has destroyed original rock textures and compositions, making determination of the protolith uncertain.

Oxidation of pyrite in the near-surface weathering environment has created bleached and iron–oxide–stained zones of outcrop and soil forming prominent colour anomalies in altered and mineralized areas.

The Santana Project hosts several small prospects and numerous coloured anomalies defined by iron-oxide staining and pervasive sericite alteration. Historical production from the Project area was limited to structurally controlled zones of gold mineralization, in places accompanied by copper mineralization.

The mineralized areas discussed in this Report are those for which only some exploration data has been generated. The four principal areas include Nicho, Nicho Norte, Divisadero, and Benjamin. The Nicho Norte and Divisadero zones are geologically similar and occur within a 600 m by 600 m area. The Nicho and Benjamin zones are more associated with mineralization that is related to the Tarahumara Formation. A summary of each zone follows below. Figure 7-14 shows a Project-scale geological map with the zones of mineralization.

Figure 7-14: Project Geology and Zones of Mineralization



Nicho Zone

The Nicho Zone contains historical mine workings (the Santa Lucia mine) that were developed along a northwest high-angle structurally controlled zone of hydrothermal alteration and mineralization developed in andesitic volcanic rocks (Figure 7-15).

At the old Santa Lucia mine workings, historical production came from a zone of intensely iron-oxide stained, specularite-veined, sericitized andesite (Figure 7.15). Stope widths are as much as 10 m (Figure 7.18) within a broader zone of pervasive hydrothermal alteration.

Figure 7-15: View Looking NW Down Strike of Structural Zone at Santa Lucia Area, Santa Lucia Mine Workings in Lower Midground

The author's sampling of this section across a 1.5 m width reported 2.11 g/t Au in a road cut. Corex's rock chip and soil sampling defined a gold anomalous zone (defined by >0.1 ppm Au) of approximately 3.5 ha. Corex (2008 and 2009) and Minera Alamos drilling at orientations perpendicular to the mapped structural control returned numerous mineralized intercepts, the most significant of which include:

- 29 m at1.78 g/t Au in drillhole SR08–15
- 61 m at 1.04 g/t Au in drillhole SR09–39
- 61 m at 1.04 g/t Au in drillhole SR09–39
- 29 m at 0.75 g/t Au in drillhole SR09–22
- 160 m at 1.04 g/t Au in drillhole SR11–101D
- 157 m at 0.71 g/t Au in drillhole SR11–102D
- 94 m at 0.65 g/t Au in drillhole SR18–116D
- 80 m at 1.05 g/t Au in drillhole S18–117D
- 127 m at 0.81 g/t Au in drillhole S18–123D
- 248 m at 0.61 g/t Au in drillhole S20–134D
- 153 m at 0.78 g/t Au in drillhole S20–149D

- 242 m at 0.50 g/t Au in drillhole S21–160D

All the mineralized intercepts given above are based on a minimum total intercept grade of 0.10 g/t Au and are independent of other metal values. The calculation allowed the inclusion of intervals up to 4.56 m long (three consecutive sample intervals) of internal dilution below the 0.10 g/t Au cut-off provided that the overall intercept grade remained greater than the 0.10 g/t Au cut-off. Silver contents in the Nicho Zone are generally less than 5 g/t, and copper grades typically do not exceed 0.05%.

The host rock andesites have been intruded by medium-grained quartz-feldspar porphyry dykes that have been exposed in both outcrop and drill cuttings. Northwest-oriented, post-mineral diorite dykes outcrop on the western flank of the Nicho Zone. Figure 7-16 to Figure 7-20 show different outcrops and workings that have been identified in the Nicho Zone.

Figure 7-16: View of Nicho Looking Northwest, Minera Alamos, May 27, 2020

Figure 7-17: View Looking Northwest Down Strike of Structural Zone at Nicho

Note: Historical mine workings in lower midground of photo.

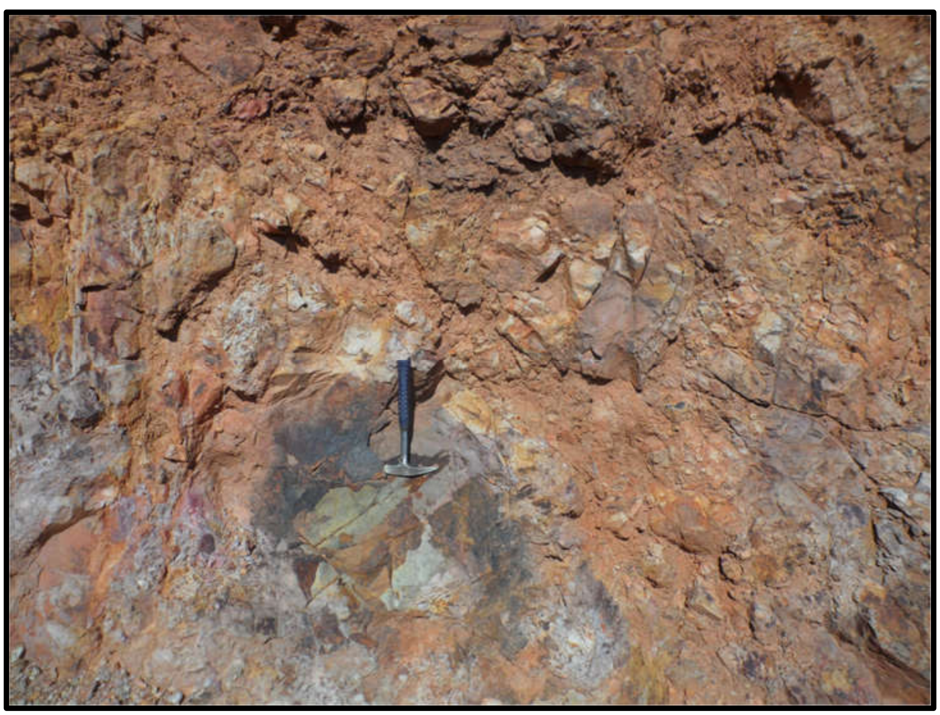
Figure 7-18: View Looking Northwest Down Strike of Structural Zone along the Santa Lucia Mine Workings

Note: Host rock is iron oxide stained and sericitized andesite with irregular stockwork speculative veins.

Figure 7-19: Nicho Zone—Clotty Irregular Specularite Veined, Chloritized Andesite

Note: Specularite veined rock is not pervasively sericitized. Sample 3 had a gold grade of 0.39 g/t.

Figure 7-20: Nicho Zone Breccia with Subangular Andesite Fragments



Note: Minera Alamos February 15, 2019.

Figure 7-21: Andesite Breccia with high grade gold. Sample MC–513 2.96 g/t Au

Note: Minera Alamos, Sample MC–513

Nicho Norte

The Nicho Norte area hosts a distinctive monolithic breccia comprising angular fragments of aplitic feldspar porphyry intrusive rock cemented by white open-space-filling drusy quartz. Weathering and oxidation of abundant pyrite in the breccias has resulted in pronounced iron-oxide staining of the breccias and soils. Historically, small adits at Nicho Norte were developed along northeast-striking fault zones, but northwest and north-trending structures are also present and may control metal distributions. Intense and texturally destructive pervasive sericite alteration, accompanied by hairline quartz veinlets and pyritization, characterizes the mineralized zones exposed in the old adits. The well–developed angular breccia exposed on the ridgetop (Figure 7-23) was not a focus of historical mining or prospecting. The breccia lies at the center of a coincident rock-and-soil gold anomaly of >0.3 g/t Au that is approximately 2.5 ha in extent and is part of a larger >0.1 g/t Au anomaly. The breccia was developed along or near the contact of the andesites with equigranular granodiorite intrusion, and outcrops along a north-northwest-trending gentle ridge and its northwest flank. Interpretation of RC drill cuttings suggests that the breccias may have a high-angle tabular form, a northwest orientation, and be as much as 70 m in true thickness. Three phases of silicification and/or quartz veining are evidenced within the breccias, corresponding to 1) pervasive silicification of the angular clasts, 2) deposition of the drusy quartz breccia matrix, and 3) late hairline silica veining that cuts both clasts and matrix.

Sampling by this section's author across a 1.5 m-wide sample (MC2309) yielded 1.62 g/t Au in the test pit area. Corex drilling during 2008 to 2011 tested the breccias over a strike length of 200 m and yielded numerous mineralized intercepts, the most significant of which include:

- 91.1 m at 1.04 g/t Au in drillhole SR08–05
- 76.2 m at 0.99 g/t Au in drillhole SR08–06
- 61.0 m at 0.75 g/t Au in drillhole SR08–08
- 73.2 m at 0.56 g/t Au in drillhole SR08–01
- 51.8 m at 0.69 g/t Au in drillhole SR08–02
- 47.2 m at 0.50 g/t Au in drillhole SR09–28;69m at 0.79 g/t Au in drillhole SR10–081R
- 75 m at 0.78 g/t Au in drillhole SR10–082R
- 33 m at 0.33 g/t Au in drillhole SR11–113D.

Figure 7-22 shows a view of the Nicho Norte Zone and Figure 7-23 to Figure 7-25 show rock types seen in the zone from outcrop.

Figure 7-22: Nicho Norte Zone (View Looking North–Northwest)

Note: Minera Alamos, Nicho Norte was mined by Corex as part of its test mining program.

Figure 7-23: Nicho Norte Test Pit Showing Sub-Vertical Contact Between Andesite Tarahumara Formation (left) and Aplitic Porphyry QFP (right)

Figure 7-24: Nicho Norte Breccia Showing Fragments of Aplitic Feldspar Porphyry (QFP) Cemented by Quartz Calcite Veins

Figure 7-25: Nicho Norte—Sample MC–2092 (0.64 g/t Au) Taken From a Road Cut

Divisadero Zone

The Divisadero zone is very similar to Nicho Norte. It is characterized by an extensive area of pervasively sericitized rock that is related to the aplitic feldspar porphyry that is bleached, specularite-veined, and presents secondary iron-oxide staining. A soil geochemical survey defined a 6-ha gold anomalous zone at Divisadero that is partly coincident with the outcropping exposures of altered rock. High-density fracturing of the rock has been observed in addition to structurally controlled zones of brecciation along NW 288, 87SW fault planes. Sampling by this section's author across a 1.5 m-wide sample (MC2310) yielded 6.80 g/t Au in a road cut. In 2009 Corex tested the soil geochemical anomaly with two drillholes, returning intercepts of:

- 80.8 m at 0.74 g/t Au in drillhole SR09–27
- 30.5 m at 1.20 g/t Au in drillhole SR09–27
- 13.7 m at 0.47 g/t Au in drillhole SR09–30
- 27.4 m at 0.19 g/t Au in drillhole SR09–30.

Follow-up drilling of these initial two holes has returned the following intercepts of significance:

- 96 m at 0.42 g/t Au in drillhole S18–125D
- 134 m at 0.56 g/t Au in drillhole S18–126D
- 106 m at 0.31 g/t Au in drillhole S20–135D.

The orientation of the mineralized zone at Divisadero has not been determined and true widths of the mineralized zone are unknown.

Figure 7-26 shows the Divisadero zone and Figure 7-27 to Figure 7-29 show typical rock types of this zone.

Figure 7-26: Divisadero Looking East–Southeast

Note: Minera Alamos, Divisadero alteration zone manifested by bleached and iron–oxide–stained rock outcrops and red–brown soils.

Figure 7-27: Divisadero Road Cut Exposure of Sericitic, Silicified, Iron–Oxide Stained, and Specularite Veined, Quartz Feldspar Porphyry in Drillhole SR09–27, Which Intersected 80.8 m at 0.74 g/t Au and 1.2 g/t Au

Figure 7-28: Divisadero. Cavities Filled by Quartz and Sulphides in an Aplitic Porphyry Rock (QFP)

Figure 7-29: Quartz Monzonite (St. Nicolas Batholith). Host Rock to the Divisadero QFP (Aplitic Porphyry)

Benjamin Zone

The Benjamin zone differs from the other known mineral occurrences because gold mineralization is also accompanied by significant copper and silver concentrations. At Benjamin, an intensely fractured, locally brecciated zone of pervasively sericitized and pyritic andesite outcrops (Figure 7-31), and in contrast to other mineralized zones at the Santana Project, specularite veinlets were not observed. Small prospects in the Benjamin area were developed on northeast-striking fault and fracture zones, with the highest–grade portions of the soil-gold anomaly defining a crude northeast-trending zone. These fault zones with old workings are part of a larger gold-bearing breccia zone with hypogene pyrite, chalcopyrite, and tetrahedrite hypogene mineralization that was affected by supergene alteration, forming an upper leach cap, a transitional supergene copper-enrichment zone, and a lower, unoxidized-sulphide zone. A quartz crystal-bearing rhyodacitic/rhyolitic tuff locally overlies oxidation of pyrite that is, or was, present in the altered zone, both as disseminations and in veinlets. A coincident soil and rock chip gold anomaly of >0.3 g/t of approximately 9 ha is centered around the Benjamin hill and is part of a larger >0.10 g/t Au soil anomaly. Currently available data is not yet sufficient to define the final 3-D geometry of the mineralization or the distribution of gold, copper, and silver. There has not been any recent drilling within the extents of the Benjamin zone at the effective date of this report.

Drilling by Corex in 2008 and 2009 tested a 200 m length of this zone and yielded numerous mineralized intercepts, the most significant of which include:

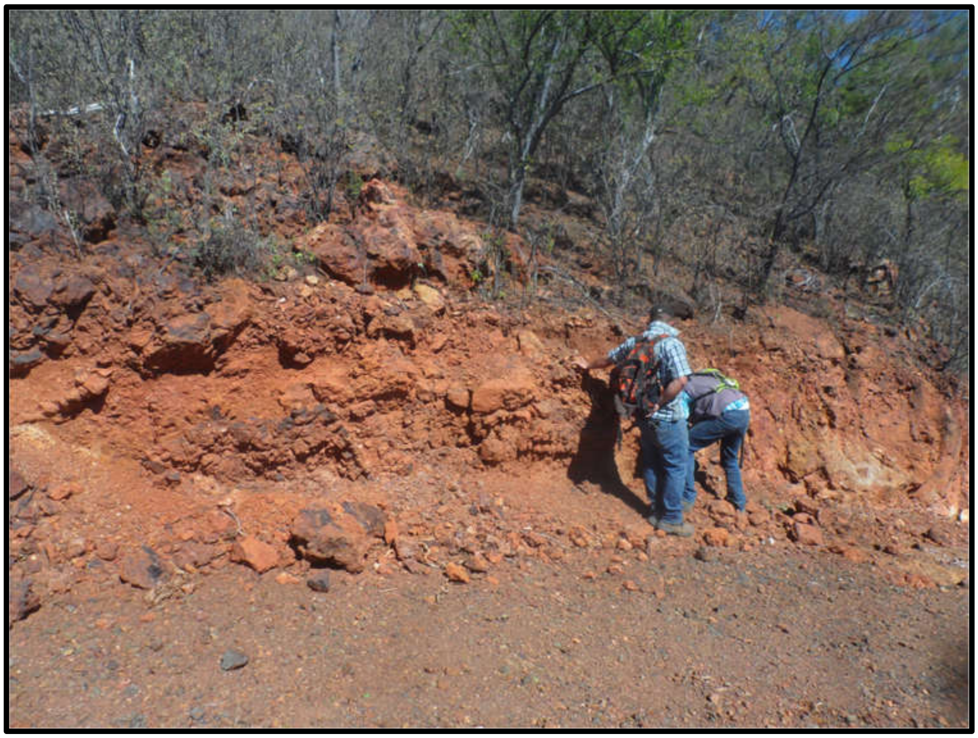
- 61 m at 1.25 g/t Au, 9.1 grams per tonne of silver (g/t Ag) and 1.2% copper in drillhole SR08–13
- 68.6 m at 0.62 g/t Au, 3.9 g/t Ag and 0.39% copper in drillhole SR09–37
- 59.4 m at 0.76 g/t Au, 11.8 g/t Ag and 0.05% copper in drillhole SR08–14
- 10.7 m at 2.02 g/t Au, 124 g/t Ag and 4.2% copper in drillhole SR08–14
- 36.6 m at 0.37 g/t Au, 12.8 g/t Ag and 1.57% copper in drillhole SR08–09.

The copper mineralization present at Benjamin has been tentatively identified as secondary chalcocite, present as very-fine-grained disseminations and replacements of pyrite at the oxide/sulphide transition zone. As interpreted on cross-sections, copper and gold distributions are independent of each other. The gold distribution has been interpreted to follow high-angle structural controls, whereas copper grade based on analysis of drillhole assays from the Benjamin area indicated a weak positive correlation between gold and silver, but no significant correlation between copper and gold.

Figure 7-30: Benjamin Looking Southeast

Figure 7-31: Benjamin, View of an Outcrop Looking Southwest. Sample MC2011 Grading 0.537 g/t Au from Andesite Breccia

Figure 7-32: Benjamin Zone Looking North. Road Cut Shows Andesite of the Tarahumara Formation Affected by Brittle Brecciation



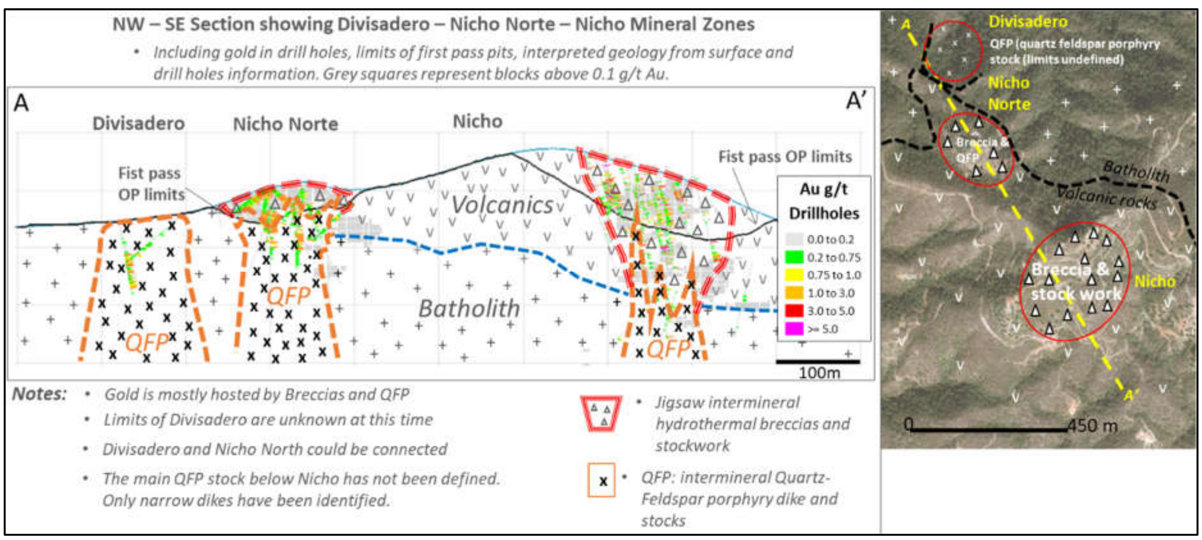
8 DEPOSIT TYPES

The Santana Project is in southeastern Sonora within the prolific Upper Cretaceous–Paleocene Laramide magmatic–hydrothermal metallo–tectonic event. The largest known deposits of the Laramide event are porphyry copper systems and their associated breccias, skarns, and vein deposits; however, the mineralization at Santana represents a style that has not been reported to date for this region of northwestern Mexico. Porphyry-style mineralization at Santana has been ruled out because of the absence of typical A/B veins and potassic alteration of porphyry systems, and by the presence of iron-manganese carbonate and specular hematite that is typically not present in porphyry systems.

At Santana, gold is hosted by breccias and intra-mineral dykes and stocks. The sericite-stable nature of the alteration and the type of quartz observed in the area indicate mesothermal temperatures close to 300°C, and emplacement levels of at least 500 m below the paleosurface.

The mineralization at the Project represents classic magmatic-hydrothermal breccias, the product of overpressured fluids exsolved from an underlaying magma chamber. The mineralization and the hosting breccias have a clear intrusive-related genetic affinity, associated to calc-alkaline-oxidized dioritic and quartz-dioritic intrusions.

Figure 8-1: Geological Section Showing Nicho, Nicho Norte, and the Divisadero Deposits



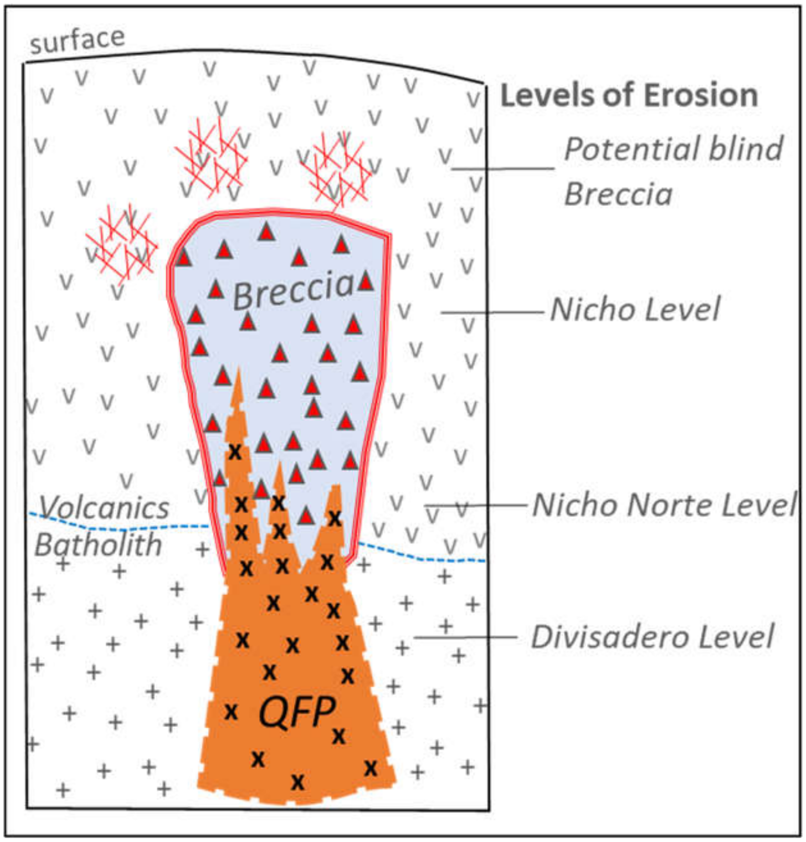
Under this genetic model, felsic porphyritic dykes and hydrothermal fluids were emplaced within the upper carapace of cogenetic larger intrusive bodies and in the contemporaneous Tarahumara volcanic rocks. The magmatic-hydrothermal breccias were formed because of cooling, degassing, and emplacement of late-felsic dykes and stocks. Once the porphyritic dykes and stocks cooled down to about 300°C the sericite-chlorite-iron oxides, carbonate stable fluids formed pervasive and veinlet-controlled alteration and mineralization within the intra-mineral dikes and in the matrix of the breccias and formed some replacement and disseminated mineralization along permeable volcanic units. A second pulse of hydrothermal fluids introduce most of the sulphides and probably the gold observed in the deposit, sulfides are mostly represented by pyrite with minor amounts of pyrrhotite, marcasite, sphalerite, galena, and chalcopyrite.

The mineralization style and genetic model have significant implications for exploration activities. Since these deposits are not considered typical porphyry systems, no geometries and zoning typical of porphyries should be expected, including deep potassic or the zoning from sericitic to potassic mineralization zones. The bulk of the known mineralization at Santana is present in elliptical – sub vertical breccia bodies.

Figure 8-2 shows a schematic section of a magmatic-hydrothermal breccia related to inter-mineral quartz feldspar porphyry dikes and stocks (QFP). At Santana the host rocks of the breccias are cogenetic, pre-mineral quartz diorites larger intrusions and volcanic rocks of the Tarahumara Formation. It is very likely that the breccia (hidden from surface) can be very weak, and include stockwork, veins, geochemical anomalies, and narrow breccia dykes. Erosion has exposed some of the mineralized breccia and QFP units, but there are likely more blind breccias on and surrounding the Santana property area. Gold occurs mainly within the breccia and in the intra-mineral QFP. Some mineralization can be found on the margins of the breccia in fault-veins, stockwork veinlets, and on the contacts of different volcanic units.

The sizes of known intrusive-related magmatic hydrothermal breccias in various mining districts in the cordilleras of the Americas vary from 10 to 10s of millions of tonnes grading up to 1 g/t Au, representing 300,000 to over 1-million-ounce gold deposits that can form important mining districts with clusters of deposits.

Figure 8-2: Schematic Section of a Magmatic-Hydrothermal Breccia from the Santana Project



9 EXPLORATION

Corex expanded gold mineralization at the Project largely through exploration activities initiated in 2007 that continued to the end of 2011. Prior to Corex's initial work, there is no record of modern exploration for gold conducted in the Project area. Vale, through its option agreement with Corex in 2013, employed surface sampling (rock and soil) to assess the potential for the property to host a larger copper–gold–porphyry system at depth. Limited exploration activities occurred following Vale's exit from the option agreement in 2014 and Minera Alamos's acquisition of Corex in 2018. The activities above have been discussed in detail in Section 6. Table 9-1 presents a summary of the exploration activities undertaken at the Project.

Table 9-1: Summary of Santana Exploration Activities

Year	Company	Activities
2007	Corex Gold S.A. de C.V.	• Acquired the Santa Lucia claim. • Geologic mapping at a reconnaissance scale of 1:2,000 on 150 ha • Rock chip sampling (41 samples).
2008	Corex Gold S.A. de C.V.	• Rock chip sampling (422 samples). Soil sampling on 50 m x 50 m grid spacing.
2009	Corex Gold S.A. de C.V.	• Soil sampling on a 50 m x 50 m grid spacing (284 ha). A total of 1,198 samples collected from Nicho, Nicho Norte, Benjamin, Ubaldo, and Divisadero.
2010	Corex Gold S.A. de C.V.	• Rock chip sampling (16 samples). • Soil sampling on 50 m x 50 m grid spacing (380 samples). • Ground IP and magnetic geophysical surveys comprising 50 line-km. • Airborne magnetic and radiometric geophysical surveys comprising 758 line-km.
2011	Corex Gold S.A. de C.V.	• Geological mapping compilation 1:5,000. • Rock chip sampling (81 samples). • Soil sampling on 50 m x 50 m grid spacing focused on the Cartucho and Zata prospects (432 samples). • 3-D IP ground geophysical survey comprising 41.600 line-km.
2012	Corex Gold S.A. de C.V.	• No significant exploration activities.
2013	Vale (Option Agreement)	• Geologic mapping in the southern half of the claim area (~9 km^2). • Soil sampling on a 200 m x 200 m grid (217 samples). • Rock sampling (17 samples).
2014	Corex Gold S.A. de C.V.	• H. Morgan & Company helped Corex evaluate opportunities to bring the Project to commercial production. • No significant exploration activities.
2015	Corex Gold S.A. de C.V.	• Permit preparation and submission for gold pilot plant operation.
2016	Corex Gold S.A. de C.V.	• Received permit to develop a gold heap leach operation and pilot plant.
2017	Corex Gold S.A. de C.V.	• Focused on small open pit at Nicho Norte and operation of heap leach and pilot plant. • Pad loading completed and second cell added.
2018	Minera Alamos	• Surface mapping and reconnaissance.

Year	Company	Activities
		• Rock sampling, 2,297 rock chips from outcrop and road cuts covering an area of 3,000 ha. • Added three drill-ready targets at Zata, Bufita, and Gold Ridge.

Minera Alamos geologists completed a surface mapping and reconnaissance sampling program in the middle of 2018. The program covered an area of over 3,000 ha and collected a total of 2,297 rock chip samples from either outcrops or road cuts. The samples were taken from areas that represented mineralized zones, and had an average width of approximately 2 m. The highest gold grade was identified in sample MC–1942 (20.88 g/t Au), near the Benjamin area.

All sample locations were recorded using hand-held GPS units. As part of the field-sampling procedure, all the samples were tagged in the field with aluminum tags and sent either to ALS Chemex or SGS labs for gold FA and ICP multi-element analyses. Following assaying, all the collected surface samples were incorporated into the Company's surface-rock sample database, which includes rock samples collected by previous operators.

Overall, the surface-sampling program confirmed three targets previously identified by Corex, elevating their priority to "drill ready" for the Company's future exploration campaigns. These zones include Zata, Bufita, and Gold Ridge. Figure 9-1 shows the location of each of these zones with respect to Nicho, Nicho Norte, and Benjamin, and groups sample gold assay grades by bin. A description of each zone is provided below.

9.1 Zata

Zata is along the southern claim boundary. The Company has conducted geologic mapping and rock chip sampling in the area. In all, 77 surface samples have been taken, with the highest gold value identified in sample MC–0457 (2.0 g/t Au).

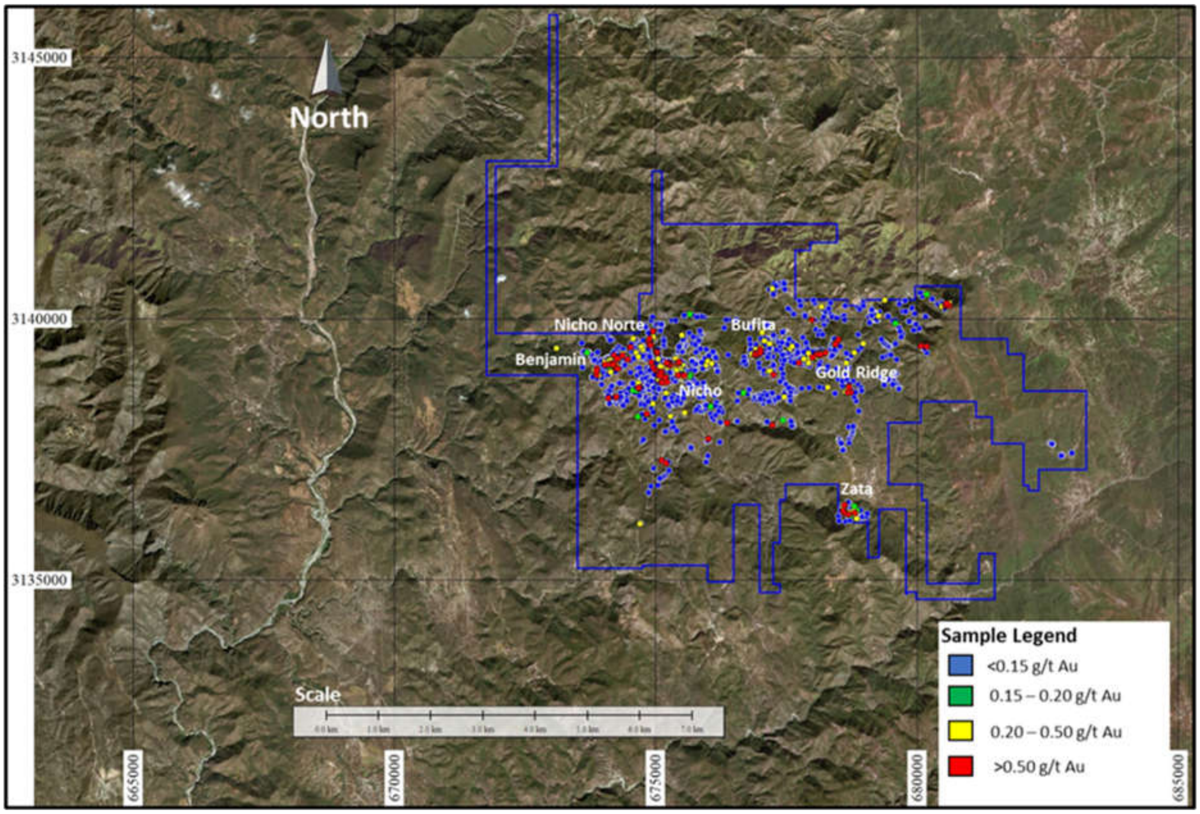
9.2 Bufita

Bufita is in the north-central area of the Company's existing claims between the Nicho and Gold Ridge zones. Geological mapping and surface sampling have been completed, with a total of 54 samples collected and assayed. The highest gold value was identified in sample MC–1723 (12.72 g/t Au).

9.3 Gold Ridge

Gold Ridge is in the east-central area of the claim package immediately east of the Bufita zone. Geological mapping and sampling have been conducted in this area, with a total of 87 samples. The highest gold value was identified in sample MC–1438 (3.63 g/t Au).

Figure 9-1: Location Map Showing Zata, Bufita, and Gold Ridge Prospects



In the QP's opinion, the sampling methods used, and sample quality are representative of the mineralization and have no significant bias (see Sections 11 and 12).

10 DRILLING

The Santana Project database contains 179 drillholes totaling 40,189 m of drilling. Of this total, 65 are RC holes and the remaining 114 are DDH. All 179 drillholes have been used as part of the Mineral Resource estimate presented in Section 15.

Four drilling campaigns have been finished at the Project to date. The first occurred from 2008 to 2009, with a second, follow-up campaign from 2010 to 2011; Corex completed both. Vale completed a third campaign in 2013 that comprised 10 DDHs to investigate the potential of the property area to host a large-scale copper porphyry-type deposit. The fourth and most-recent campaign was undertaken by Minera Alamos after its business combination with Corex on April 13, 2018.

Drilling on the property has focused primarily on the Nicho, Nicho Norte, and Benjamin zones, although a small number of holes have also targeted addition prospects within the claim area. Table 10-1 summaries the annual resource drilling completed on the Project and is current to March 31, 2022.

Table 10-1: Summary of Annual Drilling at the Santana Project

Year	Company	No. Holes	Method[1]	Metres Drilled[2]	Metres Assayed[2]
2008	Corex	16	RC	1,538	1,521
2009	Corex	25	RC	3,527	3,516
2010	Corex	24	RC	5,075	5,075
2010	Corex	32	DDH	8,564	8,160
2011	Corex	16	DDH	5,433	5,053
2013	Vale	10	DDH	5,005	4,775
2018	Minera Alamos	11	DDH	1,502	1,469
2019	Minera Alamos	9	DDH	1,728	1,722
2020	Minera Alamos	24	DDH	5,135	5,127
2021	Minera Alamos	12	DDH	2,684	2,682
Total				**40,191**	**39,100**

Notes: [1] RC denotes reverse circulation drilling and DDH denotes diamond drilling with core recovery.
[2] Metres drilled and Metres assayed have been rounded to the nearest whole number.

10.1 2008 and 2009 Reverse Circulation Drilling Campaign

Corex completed the first drilling campaign on the Santana property in 2008, targeting the Nicho, Nicho Norte, and Benjamin target areas. In 2009 drilling continued in these same target areas, in addition to one hole at the Micha zone. The campaign included 41 RC drillholes for a total of 5,064 m.

The drillhole locations and orientations were selected based on mapped alteration zones and surface rock-chip geochemical assays. Drill orientations varied, with the intent to intersect mineralized zones perpendicular to their mapped and interpreted structural controls.

Layne de Mexico carried out drilling during both years of the campaign using a W-750 buggy-mounted all-terrain RC drill capable of delivering 900 cubic feet per minute (cfm) of free air at a pressure of 380 pounds per square inch (psi). The system was capable of drilling with dual tubes and pipe diameters ranging from 4 ¾ inches to a maximum of 5 1/8 inches. Drill steel lengths were in imperial units and were used to define sample length parameters. All RC drill cutting samples were collected in 5-foot (1.524 m) intervals, beginning at the hole collar, and continuing to final depth.

RC drilling uses hardened steel or tungsten drill bits to bore a hole into unconsolidated ground or rock. The rods used for drilling are hollow and contain an inner tube inside the hollow outer rod barrel. The hole is advanced using a pneumatic reciprocating piston known as a hammer. Drilling typically produces dry rock chips, as a large air compressor dries the rock ahead of the advancing drill bit. RC is achieved by blowing air down the rods, with the differential pressure lifting the cuttings up the inner tube. The cuttings that reach the bell at the top of the hole then move through a sample hose which is attached to the top of the cyclone. The cuttings then travel around the inside of the cyclone until they fall through an opening at its bottom. The cuttings are then collected in a sample bag or pail.

During 2008 and 2009 drilling was conducted dry, except for a few cases where a high portion of moist clay blocked circulation. When such conditions occurred, water was injected only to clear and drill through the clay-rich zones by forcing the cuttings up through the drill string. A rotary splitter was employed, and samples were collected from initiation to termination of the drillhole, at intervals of 1.524 m (5 feet). Drill recoveries were reported to be excellent with average recoveries better than 95%; however, the physical data to confirm these recoveries was not available to the QP of this section.

Drillhole collar locations were established by field GPS unit and marked prior to drilling with wooden stakes. A line of the hole was marked by two stakes showing the fore sight and back sight, both of which were used to establish the hole's bearing. A field geologist was at the drill rig during alignment and doubled-checked the hole's bearing and dip prior to the start of drilling. Once a hole was finished, the collar location was marked with a concrete monument. The hole number was inscribed into the cement and a piece of polyvinyl chloride (PVC) pipe was added to show the dip and bearing of the hole (see Figure 10-5).

At the Project exploration camp in Guadalupe de Tayopa, staff geologists of Resource Geosciences de Mexico SA de CV conducted logging and sampling of the drill cuttings. Samples were split by cyclone, at the drill rig, with one-quarter of the split sample sent to Acme Analytical Laboratories (Inspectorate Labs was used in 2009) for gold FA and ICP multi-element analysis, with the remainder discarded. Procedures for logging and sampling are described in detail in Sections 9 and 12. More information on the quality assurance and quality control (QA/QC) protocols can be found in Section 11.

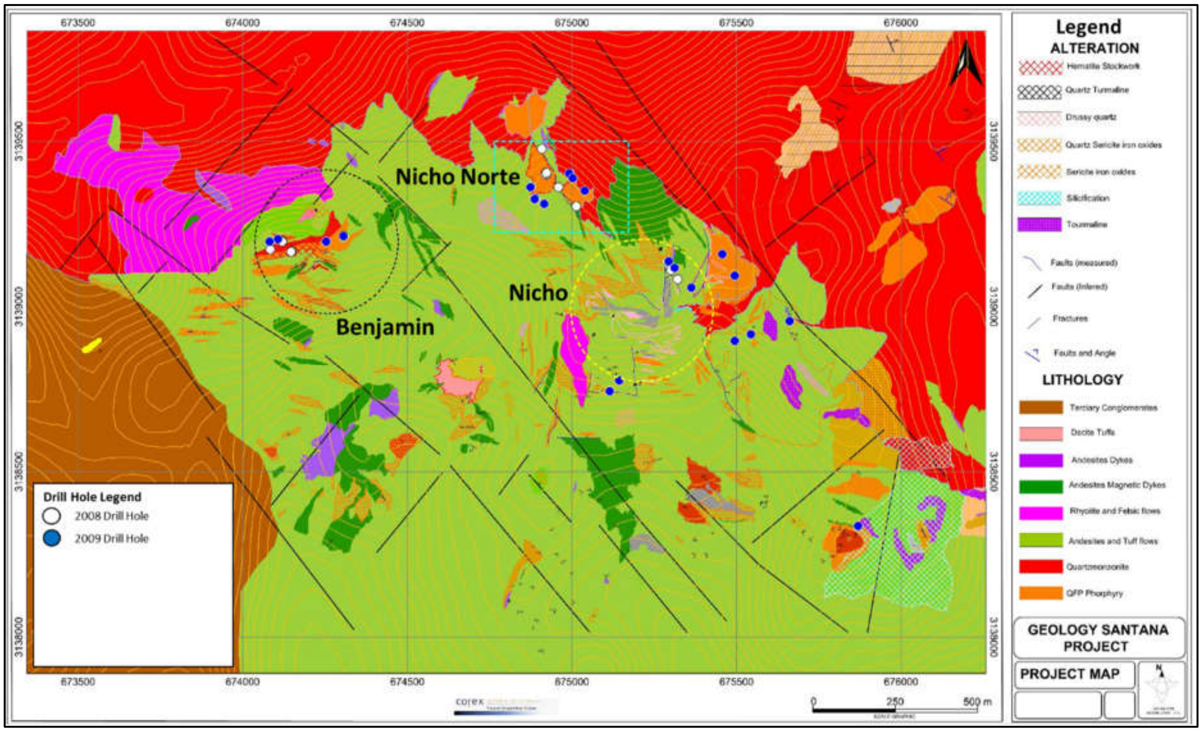
Table 10-2 summarizes the results of the 2008 and 2009 RC drilling campaign, and Figure 10-1 shows the drillhole locations.

Table 10-2: 2008 and 2009 Reverse Circulation Drilling Program

Hole ID	Zone	UTM Coordinates WGS84			Azimuth (°)	Dip (°)	Total Depth (m)	Mineralized Interval			
		East	North	Elev.				From (m)	To (m)	Interval (m)	Au Grade (g/t)
SR08–01	Nicho Norte	674922	3139404	904.7	292	–45	80.8	1.52	73.15	71.63	0.57
SR08–02	Nicho Norte	674959	3139361	914.5	266	–42	105.2	13.72	105.16	91.44	0.53
SR08–03	Nicho Norte	674909	3139477	868.7	224	–45	50.3	36.58	38.10	1.52	0.12
SR08–04	Nicho Norte	674923	3139399	905	198	–40	88.4	0.00	80.77	80.77	0.80

Hole ID	Zone	UTM Coordinates WGS84			Azimuth (°)	Dip (°)	Total Depth (m)	Mineralized Interval			
		East	North	Elev.				From (m)	To (m)	Interval (m)	Au Grade (g/t)
SR08–05	Nicho Norte	674921	3139401	904.7	246	–44	111.3	1.52	92.96	91.44	1.04
SR08–06	Nicho Norte	674960	3139361	914.6	266	–58	80.8	0.00	79.25	79.25	0.96
SR08–07	Nicho Norte	675014	3139303	897.5	004	–45	117.4	24.38	71.63	47.25	0.43
								89.92	117.35	27.43	0.40
SR08–08	Nicho Norte	674925	3139405	904.7	326	–42	62.5	1.52	62.48	60.96	0.75
SR08–09	Benjamin	674307	3139214	838.4	312	–44	221.0	3.05	111.25	108.20	0.35
								150.88	172.21	21.33	0.27
SR08–10	Benjamin	674149	3139167	888.3	134	–45	105.2	9.14	42.67	33.53	0.35
SR08–11	Benjamin	674147	3139165	888.3	179	–43	117.4	22.86	51.82	28.96	0.40
SR08–12	Benjamin	674120	3139197	886.1	108	–43	93.0	25.91	92.96	67.05	0.19
SR08–13	Benjamin	674120	3139196	886.4	141	–44	99.1	13.72	89.92	76.20	0.47
SR08–14	Benjamin	674085	3139172	878.7	135	–44	93.0	0.00	74.68	74.68	0.92
SR08–15	Nicho	675302	3139109	951.4	223	–42	62.5	9.14	62.48	53.34	1.23
SR08–16	Nicho	675321	3139081	928.0	269	–45	50.3	9.14	21.34	12.20	0.38
SR09–17	Nicho Norte	674993	3139403	873.7	224	–45	131.1	6.10	7.62	1.52	0.58
SR09–18	Nicho Norte	675003	3139387	875.6	219	–45	201.2	0.00	82.30	82.30	0.36
SR09–19	Nicho Norte	675039	3139350	869.6	259	–45	61	No Significant Mineralization			
SR09–20	Nicho	675313	3139117	951.4	224	–50	109.4	18.29	33.53	15.24	1.25
								54.86	82.30	27.44	0.36
SR09–21	Nicho	675458	3139158	951.0	224	–45	103.4	0.00	6.10	6.10	0.43
SR09–22	Nicho	675293	3139135	964.6	224	–45	158.5	15.24	108.20	92.96	0.49
SR09–23	Nicho	675496	3139093	938.0	226	–45	103.6	4.57	30.48	25.91	0.24
SR09–24	Nicho	675363	3139056	899.7	224	–45	88.2	3.05	6.10	3.05	0.25
SR09–25	Nicho	675662	3138956	902.3	225	–43	149.4	48.77	51.82	3.05	0.23
SR09–26	Nicho Norte	674917	3139309	890.2	44	–45	121.9	33.53	51.82	18.29	0.59
SR09–27	Nicho	675144	3138775	860.6	16	–44	121.6	0.00	121.92	121.92	0.78
SR09–28	Nicho Norte	674890	3139327	883.9	43	–45	97.5	18.29	65.53	47.24	0.50
SR09–29	Nicho Norte	674887	3139324	883.8	42	–65	97.5	45.72	71.63	25.91	0.69
SR09–30	Nicho	675115	3138743	840.9	12	–45	158.5	62.48	158.50	96.02	0.19
SR09–31	Benjamin	674083	3139196	875.2	137	–50	179.8	3.05	117.35	114.30	0.73
SR09–32	Benjamin	674108	3139204	880.2	130	–55	204.2	71.63	134.11	62.48	0.21
SR09–33	Benjamin	674255	3139196	852.8	319	–45	195.1	10.67	38.10	27.43	1.69
								140.21	187.45	47.24	0.17
SR09–34	Nicho	675544	3138915	911.9	132	–45	118.9	0.00	12.19	12.19	0.28
SR09–35	Nicho Norte	674876	3139362	881.4	44	–45	210.3	19.81	76.20	56.39	0.45
SR09–36	Nicho Norte	674875	3139360	881.6	38	–64	112.8	24.38	88.39	64.01	0.46
SR09–37	Benjamin	674308	3139213	838.5	314	–65	201.2	7.62	60.96	53.34	0.17
								102.11	201.17	99.06	0.47
SR09–38	Benjamin	674082	3139196	875.2	135	–70	207.3	86.87	173.74	86.87	0.16
SR09–39	Nicho	675295	3139137	964.7	224	–65	170.7	103.63	169.16	65.53	0.97
SR09–40	Nicho	675496	3138896	883.0	236	–65	118.9	42.67	44.20	1.53	0.28
SR09–41	Micha	675870	3138334	885.2	218	–44	103.6	21.34	36.58	15.24	0.31
						Total	**5,064**				

Figure 10-1: Location of 2008 and 2009 Reverse Circulation Drillholes



The 2008 and 2009 RC drillhole campaign:

- Drilled 16 RC holes in 2008 for a total of 1,538 m. All the holes except for two (SR08–03 and SR08–16) had near-surface mineralized intersections of greater than 20 m.
- Drilled 25 RC holes in 2009 for a total of 3,526 m. Twenty–four of the 25 holes yielded significant intersections.
- The single hole drilled at Micha as part of the 2009 program had no mineralized intersections of significance—defined as a minimum of 3 m long containing greater than 0.1 g/t Au. The calculation allowed for up to four consecutive sample intervals (6.1 m long) of internal dilution below 0.10 g/t Au within a reported intercept, provided that the overall intercept grade remained above 0.10 g/t Au.
- Identified an 800 m by 2.3 km mineralized corridor that included near-surface gold-bearing material with the potential for several low strip-ratio open pits, as gold mineralization was found to occur at topographic highs.
- Provided the basis for a follow-up drilling campaign that occurred over the period 2010 to 2011.

10.2 2010 and 2011 Drilling Campaign

Following on the success of the 2008–2009 drilling campaign, Corex commenced a second drilling program that was completed in 2010 and 2011. The purpose of this second drill campaign was to expand new prospective areas such as Ubaldo, Micha, Maromero, Tres Hermanas, and Cobriza. The program comprised both RC and diamond drilling for a total of 19,072 m. Twenty–four RC holes and 35 DDHs were drilled in 2010 that were followed-up by an additional 16 DDHs in 2011 for a total of 5,075 m of RC and 13,997 m of diamond drilling.

For the purposes of this subsection, the reverse circulation and DDHs have been separated and summarized in separate sections. Due to this separation, the hole numbering in the following tables is not shown chronologically.

Reverse Circulation Drilling

RC drilling occurred in 2010 comprising 24 holes for a total of 5,075 m. The program included step-out and down-dip holes at Nicho and Nicho Norte, and targeted other zones of interest such as Ubaldo, Maromero, Tres Hermanas, Mina de Oro, Divisadero, and Cobriza.

RC drilling was again contracted to Layne de Mexico SA de CV, and used a similar drill (model type) to that used in the 2008 and 2009 program. Staff geologists used a cyclone to split the RC cuttings or chip samples at the drill rig, with one-quarter of the sample sent to ACME (Hermosillo) for gold FA; the remainder of the sample was discarded. The cuttings collected at the drill were transported to the exploration camp for additional logging and sampling activities.

The RC drillhole collar locations were established using a field GPS unit and marked prior to drilling with wooden stakes. Both fore sights and back sights were marked with wooden stakes to establish the planned bearing for each hole. A field geologist was at the rig until the drillers had aligned the drill to the planned bearing and dip of the hole. Once each hole was completed, a cement marker was placed at the collar, including the hole number inscribed into the cement and a piece of PVC cemented into the marker showing the dip and bearing of the hole.

A summary of the RC drilling program is shown in Table 10-3 and the drillhole locations are shown in Figure 10-2.

Table 10-3: 2010 Reverse Circulation Drilling

			UTM Coordinates WGS84						Mineralized Interval			
Hole ID		Zone	East	North	Elev.	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Interval (m)	Au Grade (g/t)
S10–054R		Ubaldo	674703	3138792	826.8	224	–59	271.3	163.07	166.12	3.05	0.82
S10–056R		Ubaldo	674617	3138725	783.6	136	–54	265.2	126.49	263.65	137.16	0.22
S10–059R		Maromero	675563	3139439	900.3	048	–45	249.9	No Significant Mineralization			
S10–061R		Maromero	675433	3139237	930.4	150	–89.9	199.6	No Significant Mineralization			
S10–064R		Maromero	675650	3139463	881.5	315	–46	249.9	No Significant Mineralization			
S10–065R		Nicho	675113	3139000	958.8	226	–45	301.8	25.91	161.54	135.63	0.49
									217.93	281.94	64.01	0.58
S10–066R		Nicho	675191	3139016	960.7	235	–57	300.2	59.44	259.08	199.64	0.34
S10–067R		Nicho	675230	3138960	941.3	228	–44	283.5	38.10	274.32	236.22	0.34
S10–069R		Nicho	675182	3138757	843.7	043	–57	245.4	0.00	59.44	59.44	0.35
S10–071R		Nicho	675187	3138814	865.3	229	–45	153.9	44.20	85.34	41.14	0.54

			UTM Coordinates WGS84						Mineralized Interval			
Hole ID		Zone	East	North	Elev.	Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Interval (m)	Au Grade (g/t)
S10–072R		Nicho	675411	3138795	832.4	045	–45	242.3	60.96	65.53	4.57	0.17
S10–073R		Nicho	675489	3139198	931.8	225	–45	266.7	56.39	67.06	10.67	0.30
S10–075R		Tres Hermanas	675262	3138366	761.3	225	–45	192.0	No Significant Mineralization			
S10–078R		Ubaldo	674452	3138408	683.3	315	–45	256.0	193.55	256.03	62.48	0.78
S10–080R		Ubaldo	674555	3138617	712.9	259	–88	185.9	86.87	88.39	1.52	2.08
S10–081R		Nicho Norte	674889	3139331	884.3	259	–43	152.4	57.91	126.49	68.58	0.79
S10–082R		Nicho Norte	674876	3139367	882.3	227	–44	143.3	27.43	102.11	74.68	0.78
S10–084R		Nicho Norte	674917	3139302	889.9	176	–89	249.9	No Significant Mineralization			
S10–085R		Divisadero	674897	3139527	854.1	354	–44	164.6	25.91	131.06	105.15	0.30
S10–088R		Mina de Oro	676906	3140542	784.3	339	–44	64.0	No Significant Mineralization			
S10–089R		Mina de Oro	677236	3140697	812.1	144	–46	131.1	No Significant Mineralization			
S10–090R		Mina de Oro	677197	3140611	850.4	133	–44	201.2	No Significant Mineralization			
S10–091R		Cobriza	675456	3141483	908.9	191	–45	152.4	44.20	86.87	42.67	0.16
S10–093R		Cobriza	675439	3141515	905.6	225	–45	152.4	54.86	79.25	24.39	0.18
							Total	**5,074.9**				

The 2010 RC drilling program:

- Continued to build on the positive drilling results of the 2008–2009 campaign at Nicho and Nicho Norte.
- Helped to define the extent of the mineralization at Nicho Norte to the north, by drilling hole number S10–084R.
- Did not return any significant zones of mineralization at the Maromero, Tres Hermanas, Mina de Oro, or Cobriza zones.
- Helped to better define the mineralization at the Ubaldo zone, showing some high-grade intercepts.

Diamond Drilling

Diamond drilling was completed in both 2010 and 2011. Drilling in 2010 totalled 32 holes for 8,564 m. Drilling focused on the Nicho Zone and to a lesser extent the Nicho Norte and Benjamin zones. Two holes were also allocated to test the Micha and Torreon zones. Drilling in 2011 included 16 holes for a total of 5,433 m and focused primarily on the Nicho and Ubaldo zones. Two holes of the program were allocated to the Benjamin and Nicho Norte zones.

Layne de Mexico was also contracted to undertake diamond drill activities at the Project. Two drill rigs were used, one CS–1000 track-mounted and one CS–1000 skid-mounted drill.

The drillhole collar locations were established in the field using a GPS unit and marked with wooden stakes prior to drilling. Like the procedure used to align the RC holes, both a fore sight and back sight were marked to ensure the bearing of the hole was to plan. A field geologist was at the drill to confirm that the drillers aligned the rig to the planned bearing and dip of the drillhole. Upon completion of each drillhole, the collar location was marked with a cement monument that had a piece of PVC pipe embedded into the cement to show the hole's dip and bearing. The hole's number was engraved into the base of the concrete monument for future identification purposes.

Diamond drilling uses an annular diamond–impregnated drill bit attached to the end of hollow drill rods to cut a cylindrical core of solid rock. Small holes within the bit allow water to be delivered to the cutting face to reduce heat and bit wear. Solid rock cores are retrieved via the use of a lifter tube—a hollow tube inside the drill string call a core barrel. The core barrel can be retrieved from surface by wireline. The size of the drill core can be variable and depends largely on the bit and rod diameters. At the Project the HQ size (96 mm hole diameter; 63.5 mm core diameter) was used for all DDHs.

The recovered core from each drill run was placed in plastic core boxes by the driller. Corex's geology staff labelled the core boxes with the hole and box numbers. Depth or core intervals were marked by the driller, using small plastic squares. At the end of each shift Corex personnel transported the boxes to the core shed and warehouse at the exploration camp. In the town of Guadalupe de Toyopa. Corex's geologists logged all the core in detail at the exploration camp using hand lenses and paper logs to record lithology, structure, alteration, mineralization, and redox boundaries (oxide/sulphide contacts). The information on the logs was later entered into Microsoft Excel and subsequently imported into the Microsoft Access drillhole database. After the core was logged, it was split in half using a rock saw, with one-half of the core sent to ACME labs (acquired by Bureau Veritas in 2010) for gold FA and multi–element analysis.

The drilling program followed international standards and QA/QC protocols that were applicable at the time of drilling (see Section 11). In general, core recovery for the diamond drilling program was better than 95%, with no core loss due to poor drilling methods or procedures.

A summary of the diamond drilling program is shown in Table 10-4. The drillhole locations are shown in Figure 10-2, except for two holes drilled at Cobriza (S10–91R and S10–93R) that were located further north.

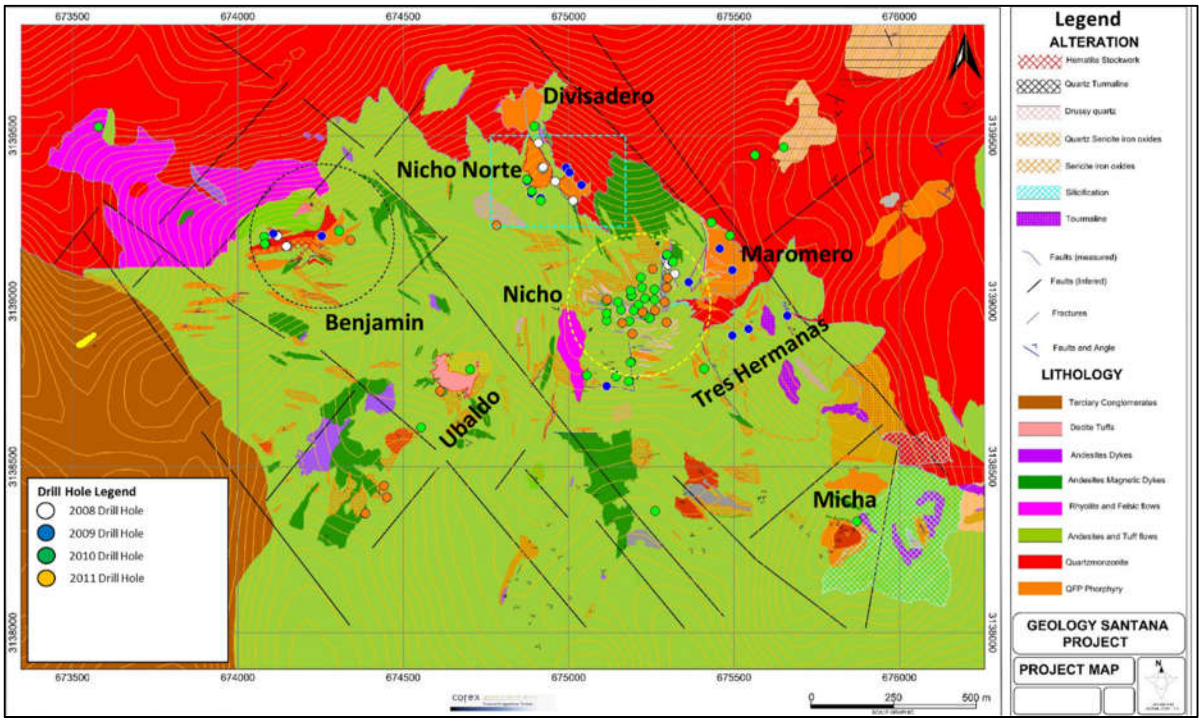
Table 10-4: 2010 and 2011 Diamond Drillholes

Hole ID	Zone	UTM Coordinates WGS84			Azimuth (°)	Dip (°)	Total Depth (m)	Mineralized Interval			
		East	North	Elev.				From (m)	To (m)	Interval (m)	Au Grade (g/t)
S10–042D	Benjamin	674308	3139211	838.5	314	–45	252.8	7.60	200.90	193.30	0.20
S10–043D	Benjamin	674307	3139210	838.5	315	–60	300.1	4.60	62.00	57.40	0.40
								123.55	169.85	46.30	0.35
S10–044D	Nicho	675144	3138771	858.6	005	–45	300.0	1.30	98.90	97.60	0.40
								156.85	205.45	48.60	0.18
S10–045D	Nicho	675190	3138815	865.4	315	–45	300.2	22.65	149.25	126.60	0.30
S10–046D	Nicho	675189	3138816	865.2	316	–60	300.7	21.52	99.40	77.88	0.32
S10–047D	Nicho	675298	3139140	964.5	230	–61	201.3	110.30	188.75	78.45	0.73
S10–048D	Nicho	675298	3139140	964.4	226	–45	155.4	68.00	112.07	44.07	0.83
S10–049D	Nicho Norte	674876	3139365	882.1	046	–61	92.7	18.40	76.45	58.05	0.57
S10–050D	Nicho Norte	674877	3139366	882.1	045	–44	90.0	12.60	71.90	59.30	0.78
S10–051D	Nicho Norte	674889	3139329	884.2	044	–44	80.0	17.45	66.25	48.80	0.42
S10–052D	Benjamin	674081	3139195	875.1	131	–50	213.7	2.22	42.00	39.78	0.30

Hole ID	Zone	UTM Coordinates WGS84			Azimuth (°)	Dip (°)	Total Depth (m)	Mineralized Interval			
		East	North	Elev.				From (m)	To (m)	Interval (m)	Au Grade (g/t)
								184.40	209.20	24.80	0.30
S10–053D	Benjamin	674082	3139173	876.5	133	–45	233.5	2.25	97.65	95.40	0.40
S10–055D	Nicho	675317	3139119	951.5	225	–45	154.5	24.30	45.50	21.20	0.37
S10–057D	Micha	675872	3138336	885.0	227	–46	80.3	11.25	55.55	44.30	0.19
S10–058D	Nicho	675190	3139016	960.5	229	–46	303.4	55.15	135.40	80.25	0.91
								170.70	231.52	60.82	0.61
S10–060D	Nicho	675244	3138948	939.7	40	–59	306.9	35.45	299.45	264.00	0.50
S10–062D	Nicho	675245	3139949	939.7	137	–46	297.3	145.10	169.10	24.00	0.75
S10–063D	Torreon	673580	3139525	615.6	224	–46	301.1	180.30	181.75	1.45	0.25
S10–068D	Nicho	675056	3138775	869.9	046	–44	369.5	44.90	303.00	258.10	0.18
S10–070D	Nicho	675222	3139041	970.8	225	–45	368.0	103.40	266.65	163.25	0.47
S10–074D	Nicho	675212	3138989	948.1	225	–45	241.8	44.90	237.90	193.00	0.41
S10–076D	Nicho	675159	3138974	945.6	225	–45	305.5	9.00	191.70	182.70	0.49
S10–077D	Nicho	675115	3138942	950.0	224	–42	285.9	136.40	161.15	24.75	1.11
S10–079D	Nicho	675188	3139032	968.6	227	–46	340.0	73.85	158.30	84.45	1.28
								193.00	257.10	64.10	0.46
S10–083D	Nicho	675260	3139004	943.1	000	–90	363.0	87.70	116.40	28.70	0.54
								138.90	242.35	103.45	1.02
								273.25	355.10	81.85	0.13
S10–086D	Nicho	675185	3138939	929.2	226	–45	298.2	36.32	211.20	174.88	0.66
S10–087D	Nicho	675151	3138997	956.0	229	–44	350.0	19.30	120.60	101.30	0.79
								209.25	236.00	26.75	0.36
S10–092D	Nicho	675219	3139071	983.9	201	–45	336.5	36.00	64.50	28.50	0.17
								109.40	192.60	83.20	0.25
								250.50	282.40	31.90	0.65
S10–094D	Nicho	675116	3138963	957.4	227	–43	310.5	13.50	109.55	96.05	0.44
S10–095D	Nicho	675197	3138973	943.9	229	–45	279.1	23.67	207.75	184.08	0.41
S10–096D	Nicho	675231	3139008	957.3	227	–44	352.0	72.00	258.20	186.20	0.32
S10–097D	Nicho	675261	3139035	950.8	228	–44	400.0	113.30	156.40	43.10	0.20
								178.10	214.35	36.25	0.41
								231.65	270.50	38.85	0.60
S11–098D	Nicho	675118	3139005	959.4	231	–45	328.5	56.11	239.70	183.59	0.27
S11–099D	Nicho	675223	3138965	942.2	231	–44	348.5	42.00	254.90	212.90	0.49
S11–100D	Nicho	675296	3139040	934.7	232	–49	360.0	122.50	261.30	138.80	0.14
S11–101D	Nicho	675262	3138972	936.2	230	–44	352.0	63.50	224.00	160.50	1.04
S11–102D	Nicho	675163	3138934	928.6	228	–44	259.5	34.40	191.65	157.25	0.71
S11–103D	Nicho	675296	3138935	922.1	225	–45	365.0	159.25	299.00	139.75	0.54
S11–104D	Nicho	675193	3138901	911.9	225	–45	312.7	0.00	215.70	215.70	0.28
S11–105D	Nicho	675255	3139097	972.6	225	–45	343.0	46.80	76.30	29.50	0.16
S11–106D	Nicho	675290	3138998	926.1	225	–45	365.0	160.25	198.44	38.19	0.40
								228.55	344.70	116.15	0.18
S11–107D	Nicho	675300	3139069	937.3	225	–45	413.6	309.75	332.60	22.85	0.20
S11–108D	Ubaldo	674452	3138407	683.2	315	–45	323.5	191.20	269.00	77.80	0.38
S11–109D	Ubaldo	674444	3138442	683.4	315	–70	381.0	209.75	262.15	52.40	0.23
S11–110D	Ubaldo	674387	3138359	692.6	315	–60	363.0	185.00	187.45	2.45	0.24

Hole ID	Zone	UTM Coordinates WGS84			Azimuth (°)	Dip (°)	Total Depth (m)	Mineralized Interval			
		East	North	Elev.				From (m)	To (m)	Interval (m)	Au Grade (g/t)
S11–111D	Ubaldo	674613	3138728	783.6	135	–60	268.0	126.18	266.25	140.07	0.22
S11–112D	Benjamin	674342	3139183	398.8	309	–60	398.8	3.50	87.27	83.77	0.40
S11–113D	Nicho Norte	674782	3139228	896.0	043	–45	251.1	140.65	173.65	33.00	0.33
						Total	13,997.1				

Figure 10-2: Location of 2010 and 2011 Reverse Circulation and Diamond Drillholes



The 2010 and 2011 diamond drilling program:

- Infilled and expanded on the known mineralization at the Nicho and Nicho Norte zones.
- Continued to define and test the extent of mineralization at Benjamin.
- Tested the Torreon zone (one hole), not finding any mineralized intercepts of importance.
- Continued to define the mineralization at the Ubaldo zone by drilling of four additional holes that identified the occurrence of low-grade mineralization (less than 0.25 g/t Au).

10.3 Vale Diamond Drill Campaign 2013

Following the rapid mapping and sampling program, Vale began drilling in July 2013, with the initial program comprising seven to nine holes (4,000 m) with an average depth of 550 m. The program was designed to test a copper–gold porphyry target that was previously identified by Corex through both geophysics and drilling. Specifically, the purpose of this phase of diamond drilling was to start building continuity between the previously identified zones of Benjamin, Nicho, and Ubaldo where a total of 23,000 m had been drilled. Targets had been selected on the Benjamin, Benjamin North, and Ubaldo zones, and a new zone that lies between Ubaldo and Benjamin. These target holes were along strike and down dip, and if successful would build continuity in between the previously drilled Corex holes, allowing Vale to investigate the porphyry potential at depth. As such, the holes were selected to both test the potential porphyry model and to increase the size of the known resource. Two additional holes in this program were classified as “pure exploration” holes that were selected based on mapping, sampling, and geophysics completed by Corex.

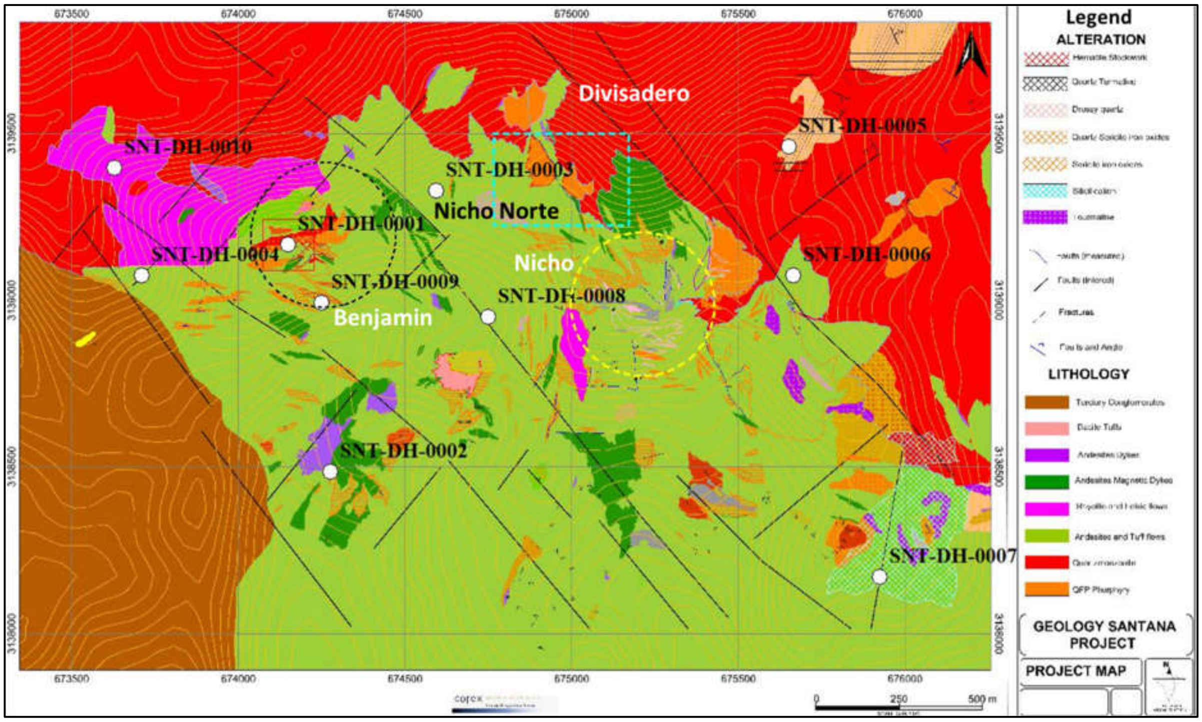
Vale hired Globexplore to complete the diamond drilling program using HQ-size core. The rig and crew mobilized in early July 2013 with the first hole (SNT–DH–001) collared at Benjamin. In all, 10 holes were drilled for 5,004 m over the remainder of 2013. All the data gathered in this period used industry standard practices and QA/QC protocols. Table 1-1 and Figure 10-3 show the locations of Vale DDHs.

Following the conclusion of the 2013 drill program, on January 22, 2014, Vale provided notice to terminate the option agreement. This decision was made because Vale concluded that the possibility of finding a large economic copper–gold deposit on the property was low, given the density of the drillholes did not allow for a porphyry copper deposit of considerable size or tonnage that would be of interest to Vale. All the data gathered during their exploration activities, including a final exploration report written by Fernando Moya titled “Exploration Report Santana Project” and dated January 28, 2014, were provided to Corex. At the termination date, Vale had not earned an interest in the Project, and Corex continued to hold a 100% interest.

Table 10-4: Vale Diamond Drill Program

Hole ID	Zone	UTM Coordinates WGS84			Azimuth (°)	Dip (°)	Total Depth (m)	From (m)	To (m)	Interval (m)	Au Grade (g/t)
		East	North	Elev.							
SNT–DH–0001	Benjamin	674149	3139167	891.5	315	−80	600.3	31.6	146.8	115.2	0.264
								167.2	226.7	59.5	0.324
SNT–DH–0002	Ubaldo	674277	3138484	720.0	060	−70	529.6	166	238	70	0.229
								452	529.65	77.65	0.184
SNT–DH–0003	Benjamin	674594	3139328	865.0	225	−60	399.3	183.24	257.7	74.46	0.106
SNT–DH–0004	Benjamin	673712	3139073	680.20	045	−60	591.5	No Significant Mineralization			
SNT–DH–0005	Maromero	675653	3139459	886.7	180	−80	553.0	No Significant Mineralization			
SNT–DH–0006	Nicho East	675665	3139073	906.3	325	−80	542.4	No Significant Mineralization			
SNT–DH–0007	La Micah	675924	3138168	831.6	045	−70	468.9	313	331	18	0.194
SNT–DH–0008	Ubaldo NE	674750	3138950	813.6	000	−60	560.1	387	459	72	0.373
SNT–DH–0009	Benjamin	674250	3138991	794.8	315	−70	582.6	No Significant Mineralization			
SNT–DH–0010	Benjamin	673630	3139395	693.1	095	−60	176.9	No Significant Mineralization			
						Total	**5,004.6**				

Figure 10-3: Vale Diamond Drill Program Hole Locations



10.4 Minera Alamos Diamond Drill Campaign 2018–2021

Following the business combination in 2018 between Corex and Mineral Alamos, drilling activities recommenced at the Project. Since the time of acquisition and until March 31, 2022, Minera Alamos has drilled an additional 56 DDHs for a total of 11,049 m. The drilling programs implemented by the Company were designed to explore the bearing and dip extensions of the Nicho, Nicho Norte, and Divisadero mineralized zones, and to infill the Nicho Zone, bringing drilling densities in this zone to a nominal 25 m grid spacing.

A summary of diamond drilling completed by the Company is shown in Table 10-5. The locations of these drillholes are shown in Figure 10-4; they have been colour-coded by the year drilled. For completeness, and to illustrate drilling densities, the number of drillholes from each of the prior campaigns have been shown by year in Figure 10-4.

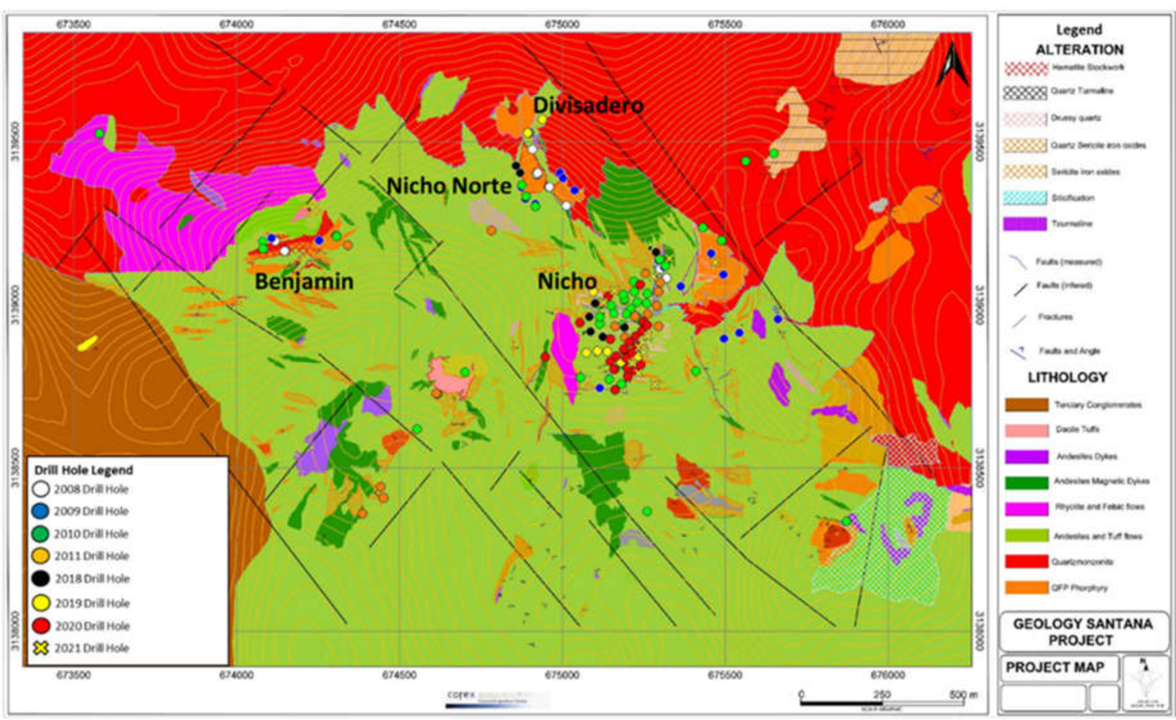
Table 10-5: 2018 to 2021 Minera Alamos Diamond Drillholes

Hole ID	Zone	UTM Coordinates WGS 84			Azimuth (°)	Dip (°)	Total Depth (m)	Mineralized Interval			
		East	North	Elev.				From (m)	To (m)	Interval (m)	Au Grade (g/t)
S18–114D	Nicho	675288	3139162	951	224	62	200.00	66.20	81.10	14.90	1.40
								107.20	117.00	9.80	0.65
								145.50	172.00	26.50	0.21
S18–115D	Nicho	675288	3139161	951	226	47	150.00	8.20	26.00	17.80	0.73

Hole ID	Zone	UTM Coordinates WGS 84			Azimuth (°)	Dip (°)	Total Depth (m)	Mineralized Interval			
		East	North	Elev.				From (m)	To (m)	Interval (m)	Au Grade (g/t)
								61.00	73.80	12.80	0.17
S18–116D	Nicho	675083	3138963	946	216	49	141.00	2.00	95.50	93.50	0.65
S18–117D	Nicho	675100	3139005	955	223	61	150.00	19.30	99.70	80.40	1.05
S18–118D	Nicho	675100	3139005	955	223	47	121.50	2.50	10.50	8.00	0.81
								48.50	73.00	24.50	0.99
								90.00	103.6	13.60	0.29
S18–119D	Nicho	675086	3138919	946	233	45	112.00	1.30	10.70	9.40	0.14
								20.50	34.90	14.40	0.33
								77.90	82.50	4.60	0.25
S18–120D	Nicho Norte	674870	3139403	879	83	70	42.10				
S18–121D	Divisadero	674847	3139596	799	82	69	152.30	32.00	127.70	95.70	0.85
S18–122D	Nicho Norte	674858	3139425	865	80	62	122.50				
S18–123D	Nicho	675191	3138931	926	231	45	150.50	23.20	150.50	127.30	0.81
S18–124D	Nicho	675125	3138902	930	228	43	160.00	8.50	38.50	30.00	0.23
								85.50	160.00	74.50	0.32
S18–125D	Divisadero	674894	3139526	853	0	60	200.00	95.50	191.90	96.40	0.42
S18–126D	Divisadero	674939	3139568	822	290	60	188.65	34.10	167.70	133.60	0.56
S19–127D	Nicho	675096	3139040	945	225	50	212.25	91.00	108.70	17.70	0.58
S19–128D	Nicho	675074	3138853	913	228	45	187.75	2.00	55.20	53.20	0.75
S19–129D	Nicho	675107	3138859	910	227	46	171.85	17.30	86.00	68.70	0.50
S19–130D	Nicho	675139	3138857	902	228	46	181.15	6.50	107.50	101.00	0.37
S19–131D	Nicho	675189	3138862	892	229	45	167.50	5.30	79.00	73.70	0.36
S19–132D	Nicho	675179	3138822	867	224	82	221.70	35.50	179.20	143.70	0.50
S19–133D	Nicho	675233	3138841	897	229	59	197.50	20.70	30.40	9.70	0.29
								141.60	166.90	25.30	0.32
S19–134D	Nicho	675248	3138948	939	222	75	314.65	66.80	314.65	247.85	0.61
S20–135D	Divisadero	674849	3139596	799	71	46	164.80	20.00	125.60	105.60	0.31
S20–136D	Nicho	675055	3138944	930	223	45	122.00	15.30	66.20	50.90	0.34
S20–137D	Nicho	675141	3139025	969	225	81	167.70	70.00	161.50	91.50	0.39
S20–138D	Nicho	675240	3139062	971	228	52	344.20	0	43.30	43.30	0.61
								295.50	314.90	19.40	0.54
S20–139D	Nicho	674948	3138841	884	46	61	185.60	78.80	121.30	42.50	0.36
S20–140D	Nicho	675166	3138842	886	227	46	148.80	22.00	84.50	62.50	0.31
S20–141D	Nicho	675189	3138863	892	227	89	203.60	0.00	202.70	202.70	0.51
S20–142D	Nicho	675196	3138837	878	225	70	227.60	34.40	222.60	188.20	0.28
S20–143D	Nicho	675202	3138780	853	46	46	167.60	6.20	163.40	157.20	0.26
S20–144D	Nicho	675163	3138739	841	46	75	170.30	42.20	45.00	2.80	0.63
S20–145D	Nicho	675223	3138797	872	42	44	187.45	13.00	187.45	174.45	0.63
S20–146D	Nicho	675147	3138826	882	231	47	122.50	0.00	60.80	60.80	0.16
S20–147D	Nicho	675224	3138903	925	296	89	284.80	0.00	284.80	284.80	0.69
S20–148D	Nicho	675205	3138886	909	187	89	284.80	7.60	284.80	277.20	0.43
S20–149D	Nicho	675148	3138894	922	229	46	173.80	0.00	152.70	152.70	0.78
S20–150D	Nicho	675244	3138920	934	65	89	311.80	166.50	283.00	116.50	0.40
S20–151D	Nicho	675231	3138872	909	359	70	335.60	140.20	200.20	60.00	0.21

Hole ID	Zone	UTM Coordinates WGS 84			Azimuth (°)	Dip (°)	Total Depth (m)	Mineralized Interval			
		East	North	Elev.				From (m)	To (m)	Interval (m)	Au Grade (g/t)
S20–152D	Nicho	675159	3138801	865	226	70	149.60	0.00	60.30	60.30	0.26
S20–153D	Nicho	675158	3138800	864	227	45	112.80	10.00	72.60	62.60	0.95
S20–154D	Nicho	675201	3138804	865	249	89	242.60	21.40	50.00	28.60	0.24
								89.50	181.40	91.90	0.26
S20–155D	Nicho	675261	3138937	941	307	89	293.70	179.80	272.50	92.70	0.24
S20–156D	Nicho	675242	3138816	888	46	45	175.50	3.50	117.50	114.00	0.30
S20–157D	Nicho	675214	3138854	895	222	81	242.70	92.10	231.50	139.40	0.40
S21–158D	Nicho	675329	3139143	959	226	60	164.70	111.00	164.70	53.70	0.91
S21–159D	Nicho	675280	3139088	955	226	51	110.35	0.00	65.90	65.90	0.28
S21–160D	Nicho	675126	3139008	960	225	77	308.55	43.20	284.60	241.40	0.51
S21–161D	Nicho	675160	3139043	976	224	81	200.70	12.30	47.00	34.70	0.51
S21–162D	Nicho	675470	313913	948	225.53	–50.46	203.5	10.7	17.6	6.9	0.17
S21–163D	Nicho	675234	3138790	873	44.58	–44.58	203.4	19	99.1	80.1	0.38
S21–164D	Nicho	675236	3138870	909	163.99	–89.82	300	136.8	214.1	77.7	0.15
								244.5	261	16.5	0.22
S21–165D	Nicho	675284	3138755	856	44.66	–44.98	229.6	117.2	132	14.8	0.20
S21–166D	Nicho	675215	3138822	879	45.06	–44.97	221.5	6	73.7	67.7	0.35
S21–167D	Nicho	675246	3138887	923	311.88	–88.68	275.8	145.9	228.5	82.6	0.23
S21–168D	Nicho	675263	3138905	930	224.29	–89.62	218.4	64.8	115.3	50.5	0.22
S21–169D	Nicho	675250	3138856	911	198.24	–89.72	247.5	60.2	81.5	21.3	0.36
						Total	**11,048.75**				

Figure 10-4: Minera Alamos Diamond Drillhole Locations (2008-2021)



The 2018 to 2021 diamond drill program undertaken by Minera Alamos:

- Completed in-fill drilling in the Nicho Zone to bring drillhole spacing to 25 m
- Tested and evaluated the extent of mineralization at Nicho
- Evaluated the dip of the mineralization at Nicho Norte
- Explored the size and extensions of the Divisadero mineralization.

Diamond drilling was contracted to SR Drilling de Mexico. A single Atlas Copco CS-1000-P4 drill rig was used to obtain HQ-sized core (63.5 mm diameter). In general, core recoveries during this campaign ranged from 94% to 99% and averaged 98.3%, with only three holes below this range (S18-120D had a recovery of 63%). Core recovery was routinely recorded as part of logging activities and is shown in Table 10-6.

There was no core loss due to poor drilling methods or procedures. The programs during this period all followed international standard QA/QC protocols (see Section 11) with collected samples sent to either Chemex or Bureau Veritas in Hermosillo for gold fire assay and ICP multi-element analysis.

Table 10-6: Core Recovery by Hole Number

Drillhole No.	Depth	Core Length	Recovery %
S18-114D	200.00	195.30	97.65
S18-115D	150.00	145.35	96.90
S18-116D	141.00	136.80	97.02
S18-117D	150.00	144.65	96.43
S18-118D	121.50	117.95	97.08
S18-119D	112.00	108.10	96.52
S18-120D	42.10	26.65	63.30
S18-121D	152.30	147.40	96.78
S18-122D	122.50	110.20	89.96
S18-123D	150.50	145.25	96.51
S18-124D	160.00	154.95	96.84
S19-125D	200.00	193.55	96.78
S19-126D	188.65	185.70	98.44
S19-127D	212.25	208.00	98.00
S19-128D	187.75	184.40	98.22
S19-129D	171.85	169.75	98.78
S19-130D	181.15	176.85	97.63
S19-131D	167.50	159.05	94.96
S19-132D	221.70	218.50	98.56
S19-133D	197.50	195.35	98.91
S20-134D	314.65	311.70	99.06
S20-135D	164.80	160.75	97.54
S20-136D	122.00	119.00	97.54
S20-137D	167.70	165.60	98.75

Drillhole No.	Depth	Core Length	Recovery %
S20-138D	344.20	340.20	98.84
S20-139D	185.60	183.35	98.79
S20-140D	148.80	145.50	97.78
S20-141D	203.60	200.30	98.38
S20-142D	227.60	224.10	98.46
S20-143D	167.60	166.10	99.11
S20-144D	170.30	169.20	99.35
S20-145D	187.45	184.65	98.51
S20-146D	122.50	119.20	97.31
S20-147D	284.80	283.00	99.37
S20-148D	284.80	283.40	99.51
S20-149D	173.80	172.80	99.42
S20-150D	311.80	309.05	99.12
S20-151D	335.60	333.10	99.26
S20-152D	149.60	147.80	98.80
S20-153D	112.80	111.10	98.49
S20-154D	242.60	239.80	98.85
S20-155D	293.70	290.30	98.84
S20-156D	175.50	172.30	98.18
S20-157D	242.70	239.70	98.76
S21-158D	164.70	159.70	96.96
S21-159D	110.35	109.30	99.05
S21-160D	308.55	306.20	99.24
S21-161D	200.70	199.00	99.15
S21-162D	203.50	202.10	99.31
S21-163D	203.40	203.10	99.85
S21-164D	300.00	297.50	99.17
S21-165D	221.50	221.00	99.77
S21-166D	229.00	225.00	98.25
S21-167D	275.80	273.30	99.09
S21-168D	218.40	217.00	99.36
S21-169D	248.80	247.70	99.56
Total	**11,049.45**	**10,856.65**	**98.26**

Drillhole collar locations were established in the field using GPS units and marked with wooden stakes. Drillhole alignments were achieved using both fore sight and back sight markers to ensure the drillhole was on the planned bearing. A field geologist was at the rig to help the drillers align the rig to the planned bearing and dip before commencing drilling. After the drillhole was completed, the collar location was marked with a cement monument that enclosed a piece of PVC pipe that shows the bearing and dip of the hole. The hole number was engraved into the cement for future reference (Figure 10-5: Typical Collar Completion at the Project).

Figure 10-5: Typical Collar Completion at the Project

GEO Digital Imaging de Mexico, in Hermosillo, surveyed the 2018 drill campaign. Surveyors used a double-frequency GPS Topcon GR5 to verify collar locations. As part of a QC initiative, GEO surveyed one hole from each of the 2008 and 2009 campaigns to compare the accuracy between the surveys. The results of this comparison are shown in Table 10-7.

Table 10-7: Comparison GEO Survey Check Results

Hole ID	UTM Easting	UTM Northing	Elevation (m)	Notes
SR09-27	675144.374	3138775.217	860.583	Original Survey
SR09-27	675144.420	3138775.523	858.957	GEO Digital Survey
Variance	0.046	0.306	–1.626	

Figure 10-6 shows the GEO surveyors completing a survey.

Figure 10-6: GEO Surveying the Location of Drillhole S18

GEO Digital also located and surveyed four base control-points for use as survey tie-in points for construction and mine production purposes. These control points are located at the top of two hills (one by the Nicho Zone and the second by the Nicho Norte Zone) and are in pairs, as show in Figure 10-7. The coordinates of these control points are given in Table 10-8.

Table 10-8: Summary of Survey Control Points

Control ID	UTM Easting	UTM Northing	Elevation	System
PC-A	674648.417	3139374.370	872.553	UTM Z12 WGS84
PC-B	674648.902	3139369.145	872.271	UTM Z12 WGS84
PC-C	675597.569	3138947.869	941.895	UTM Z12 WGS84
PC-D	675595.523	3138943.073	942.554	UTM Z12 WGS84

Figure 10-7: Surveying Site Control Points

Following 2018, TRIGUSA staff surveyed all the drill collars using Trimble 5700 GPS total stations (Trimble 5700-mobile and 4700 rover-base).

The downhole surveys for each exploration program measured hole dip and azimuth using REFLEX survey equipment supplied by the drilling contractors, but which was operated under the supervision of Minera Alamo's field geologists. The first reading was typically taken after the first 15 m to check the bearing and dip of the hole. Following this initial survey, surveys were then taken on each 50 m interval until the completion of the drillhole. All the down-hole survey data collected were then transferred to Minera Alamos's geologists on prepared forms signed by the drilling contractor. Overall, negligible amounts of hole deviation were observed during the drilling programs.

The drilling contractor collected recovered drill core and placed in plastic core boxes, previously marked with the hole and box numbers. After each drill-run the driller placed the recovered core in the core box and marked the depth using a plastic chip. At the end of each shift, Minera Alamos personnel transported the boxes by vehicle to the core warehouse at the Company's exploration camp in Guadalupe de Toyopa.

Minera Alamos's geologists logged all core at the exploration camp using hand lenses and sometimes a binocular microscope when required. Paper logs were used to record lithology, structure, alteration, mineralization, and redox boundaries (i.e., oxide/sulphide contacts). A small number of holes were logged geotechnically, which included parameters such as rock quality designation (RQD), core recovery, strength, weathering, and joint condition. All logged information was entered into Microsoft Excel and imported into a Microsoft Access database. This collected data has been used to develop a geologic model for the different mineralized zones identified at the Project, and for Mineral Resource the estimate (see Section 15).

The mineralized zones at the Project are irregular in shape and are in an orientation that results in variable true thicknesses. The shape of the mineralization is predominately related to the number of fractures and the depth below surface. Geological modelling and Mineral Resource estimation procedures take account of the intercept angles of drilling versus the interpreted geometry of mineralization.

Minera Alamos geologists completed density measurements on all drillholes completed after 2018. The density of each sample was measured using the caliper method, which determines the density by measuring the mass and volume of each sample on full core samples that have a length of 5 cm and are free of fractures and excessive pores. Figure 10-8 shows a typical sample used for density measurement purposes, after preparation.

Figure 10-8: Photograph Showing a Density-Tested Sample

Density measurements completed between 2010 and 2018 (i.e., prior to Minera Alamos's acquisition of the Project) total 170 measurements in oxide and 790 measurements in sulphide. Prior to Minera Alamos, Corex used the wax method to determine the density of each sample. Table 10-9 shows the average density calculated by oxidization state during this period.

Table 10-9: Santana Project Average Density by Oxidation State

Zone	Number of Tests	Average Density
Oxide	170	2.43
Sulphide	790	2.70

Table 10-10 shows the average density for the oxide and sulphide zones for all measurements complete after Minera Alamo's acquisition of the Project in 2018.

Table 10-10: Project Average Densities (Post 2018)

Zone	Number of Tests	Average Density
Oxide	136	2.52
Sulphide	776	2.68

Table 10-11 shows the average density for each oxidization state based on all density measurements combined as of the effective date of this Report. The results are the combination of the data included in Table 10-9 and Table 10-10.

Table 10-11: Project Average Densities (All Data)

Zone	Number of Tests	Average Density
Oxide	307	2.47
Sulphide	1,567	2.69

Based on the results, the density measurements between the different techniques used at the Project to date show similar results.

The density measurements broken out for the Nicho Norte area (post 2018) are shown in Table 10-12. These density measurements have been grouped by rock type and oxidization state. Again, the densities for the oxide and sulphide zones are in the same range, albeit the oxide density appears higher at Nicho Norte in comparison to the global average. This is believed to be related to a smaller sample size in comparison to the overall estimate presented in Table 10-11, and the influence of the feldspar porphyry.

Table 10-12: Nicho Norte Average Density by Oxidation State and Rock Type

Zone	Rock Type	Number of Tests	Average Density
Oxide	Andesite	11	2.53
	Feldspar porphyry	10	2.50
	Quartz monzonite	11	2.60
Average Oxide	All	32	2.55
Sulphide	Andesite	22	2.68
	Dand	3	2.60
	Feldspar porphyry	40	2.73
	Quartz monzonite	13	2.61
Average Sulphide	All	78	2.69

Drilling activities at the Project fall under the existing environmental permit and will remain valid for the duration of the claim-holding period. As such, no further notice is required to be given to any division of the Mexican government to commence additional drilling activities within the current claim areas.

The QP of this section completed validation work of the database provided by Corex by comparing gold values from the assay database against gold values recorded in the assay laboratory certificates. This exercise determined that no significant data-entry problems existed within the database.

Minera Alamos completes internal validation of its databases on an ongoing basis. Drill collars are professionally surveyed, and laboratory results are reviewed by a qualified geologist prior to entry into the electronic database. Scott Zelligan, P.Geo. completed an external audit as part of the preparation of the estimate of Mineral Resources contained in this Report.

In the opinion of the Qualified Person of this section, there are no drilling, surveying, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

There have been four exploration campaigns finished on the property to the end of March 31, 2022. These campaigns are summarized as follows:

1. Corex—RC drilling campaign (2008–2009)
2. Corex—RC and core drilling campaign (2010–2011)
3. Vale—core drilling campaign (2013)
4. Minera Alamos—core drilling campaign (2018–2021).

Table 11-1 shows the amount of sampling and type of analyses organized by Corex, Vale, and Minera Alamos during each campaign.

Table 11-1: Summary of Sampling Activities

Company & Laboratory	Number of Samples				
	Gold FA	**Silver ICP**	**Copper ICP**	**Lead ICP**	**Zinc ICP**
Corex (2008/2009) Inspectorate, Acme	3,305	3,305	3,305	3,305	3,305
Corex (2010/2011) Acme labs	12,876	12,876	12,876	12,876	12,876
Vale (2013) ALS Chemex	2,515	2,515	2,515	2,515	2,515
Minera Alamos (2018/2021) ALS Chemex/Veritas	7,595	7,595	7,595	7,595	7,595
Total	**26,291**	**26,291**	**26,291**	**26,291**	**26,291**

Notes: FA denotes fire assay; ICP denotes inductively coupled plasma.

11.1 Corex RC Drill Program 2008–2009

11.1.1 Method

Corex conducted an RC drill program in 2008 that was primarily focused on exploration in the Nicho Norte Zone, but which included a few additional exploration holes at the Benjamin and Nicho zones. The overall program totaled 16 reverse circulation holes for a total of 1,537 m drilled. The average hole depth was 96 m, with one hole drilled at the Benjamin zone that extend to 221 m in measured depth.

Following the success of the 2008 drill program, Corex extended the drill campaign into 2009. Additional RC drillholes were completed to continue exploration in the Nicho Norte, Benjamin, and Nicho zones. The 2009 program included 25 drillholes for a total of 3,526 m. The purpose of this program was to investigate the continuity of mineralization at depth. As such, the drillholes had an average depth of 141 m in 2009 versus 96 m in 2008. Only one hole, denoted SR09-41, was drilled outside of these zones to investigate known mineralization at the La Micha Zone.

Corex hired Resources Geosciences de Mexico (RGM) as geological contractor to conduct the program. The RGM geologists collected samples from RC drilling at the drill site. Rock chips from the drill interval were collected by a riffle splitter, if dry, and by a rotary humid splitter if wet. Two bags were collected for every 1.52 m, one for the lab and the second as a witness sample. When drilling dry, the secondary splitter was air cleaned between every sample run. During wet drilling (a few holes hit water), the sample technicians cleaned the secondary splitter with water. To avoid any potential contamination, the drillers were instructed to diligently perform a thorough air/water wash of the rods and the rotary splitter at the end of each run.

Plastic samples bags had the sample numbers written on the bag and were prepared ahead of drilling to avoid numbering errors. Duplicate samples, when required, were collected at the drill site. When drilling dry, the collected samples were immediately sealed using a plastic tie wrap to avoid losses and to prevent tampering during transport.

The witness samples used for logging were collected every 1.52 m of drill run, with a small part of the sample stored in specially made RC chip trays labelled with the interval (i.e., From–To) and the corresponding sample numbers for each run. The drillhole and chip tray numbers were written on the top of each box. Each chip tray box was collected and brought to the exploration office daily for geological logging.

A qualified geologist supervised sampling, although the drilling crew and RGM technicians were jointly responsible for ensuring proper QA/QC procedures were followed at the drill site. Standard and blank samples were inserted in the sampling stream before shipping. No recovery measurements were calculated for the RC samples but were calculated using the sample weights recorded during preparation at the laboratory (Inspectorate or Acme Labs Hermosillo).

11.1.2 Sample Security

Established sample security procedures began at the drill and can be summarized as follows:

- Two plastic bags were labelled with the same sample number; one was used to send a sample to the lab, and the other was used to store the witness sample (stored at the camp).
- The two bags were filled directly from the RC cyclone, which split the sample in half—50% for each bag. The bags were filled under a geologist's supervision.
- The chip tray was filled with one small sample from the witness bag at the drill and was subsequently logged at the exploration camp.
- When a hole was finished, the entire sample set was sent from the drill site to the exploration camp.
- A chain-of-custody document was filled out at the drill and signed by a geologist. The samples were then tracked back to the exploration camp.
- At the exploration camp, the chips trays were logged geologically and photographed.
- A geologist inserted blanks and standards as part of the sample-checking process.
- The geologists followed an established protocol to decide on the duplicate sample to be split for shipment to the laboratory. To split the sample the geologist used a riffle splitter to make a representative sample.
- Larger bags were used to bundle groups of samples and were labelled appropriately.
- Shipment log sheets were generated to track each larger bag.
- The geologist signed the chain-of-custody document with a respected courier.

- When the courier arrived at the laboratory, either Inspectorate or Acme in Hermosillo, a laboratory representative signed the chain-of-custody document.

11.1.3 Sample Preparation and Analysis

The 2008–2009 drill program was typically sampled at intervals of 1.52 m. All samples were sent to Inspectorate (2008) or Acme (2009) laboratories for preparation by crushing (70% <2 mm), splitting (by riffle splitter), and pulverization (85% <75 mesh). A 30 g sample of each was then shipped to Inspectorate in Sparks Nevada or Acme Lab in Vancouver, B.C., for analysis. Gold was analyzed using 30 g FA with AA measurement. Further analyses were also completed using acid rock drainage (ARD), followed by 35-element ICP analysis to determine the quantities of secondary metals, including silver and copper. Test results were provided in digital format for data merging, while the original certified assay certificates were forwarded with each invoice.

The Inspectorate/Acme Laboratory assaying package used by Corex can be summarized as follows:

- Gold—3B-FA-AAS with gravimetric finish for 30 g
- Silver—1D-ARD-AAS aqua regia digestion, AA spectrometry, for results >100 g/t, second assay performed using gravimetric finish
- All other elements—aqua regia digestion ICP–atomic emission spectrometry (AES).

11.1.4 Quality Assurance and Quality Control

Three control samples that included blanks, standards, and duplicates were inserted into the sampling stream of each drillhole. The methodology used for each control sample is summarized below.

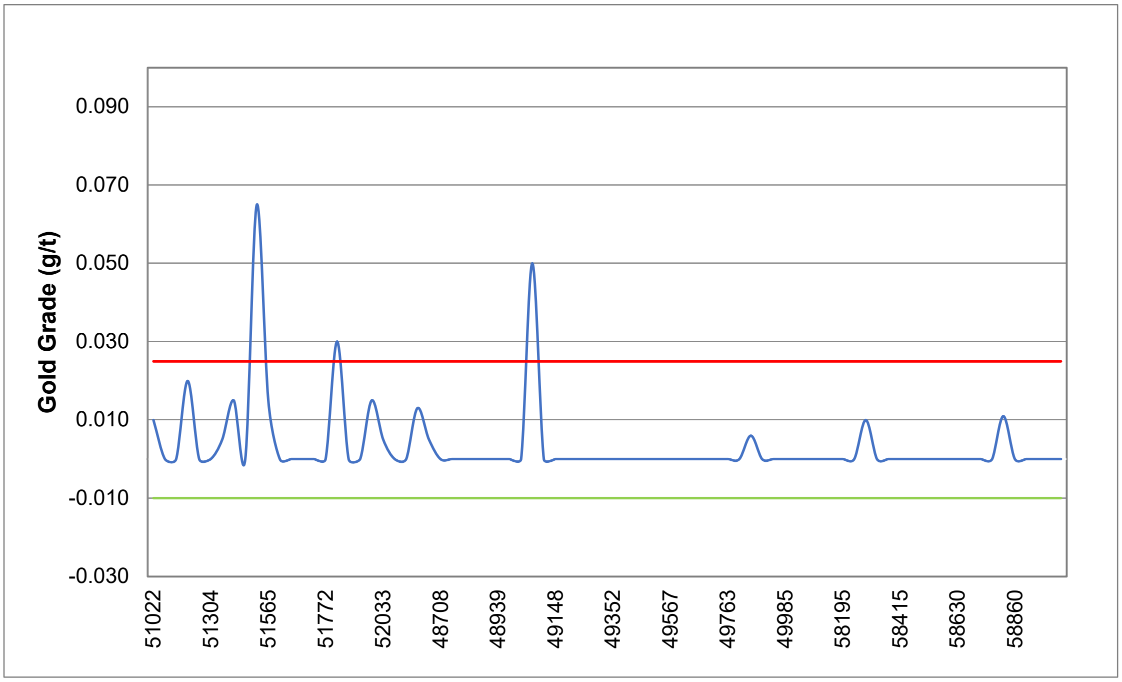
Blanks

Blanks were inserted in the sample stream of each drillhole. This was accomplished by adding an initial blank around the 24th sample with subsequent blanks add thereafter about every ±42nd sample until the end of the hole.

Acceptable values for blank samples are those returning results of less than five times the lower detection-limit (LDL). The LDL for gold is 0.005 ppm; therefore, values equal to or less than 0.025 ppm are within acceptable analytical limits. A total of 80 blanks were submitted, and 96% returned values of less than 0.025 ppm (5 times LDL) for gold, with only three coming back higher than five times the LDL.

Figure 11-1 shows the blank assay results for the 2008–2009 drillhole campaign.

Figure 11-1: Blank Assays 2008–2009 Drill Program



Standards

Geologists inserted a certified reference material (CRM) (or standard) every 50 samples, 79 standard samples were inserted over the course of the drill program. Of the 79 CRMs inserted into the sample stream, only six were out of range (i.e., greater than three times the standard deviation).

Four different standards were used over the course of the program and are summarized in Table 11-2.

Table 11-2: Summary of CRM used by Corex

Standard	Au ppm	Std. Dev.	95%	Source
OxH52	1.291	0.025	0.011	Rocklabs
OxD57	0.413	0.012	0.005	Rocklabs
OxC58	0.201	0.007	0.003	Rocklabs
OxG70	1.007	0.035	0.013	Rocklabs

Figure 11-2 to Figure 11-5 show the standard assay grades received from the laboratories versus the known standard grade.

Figure 11-2: Standard OxH52 1.291 ppm Gold

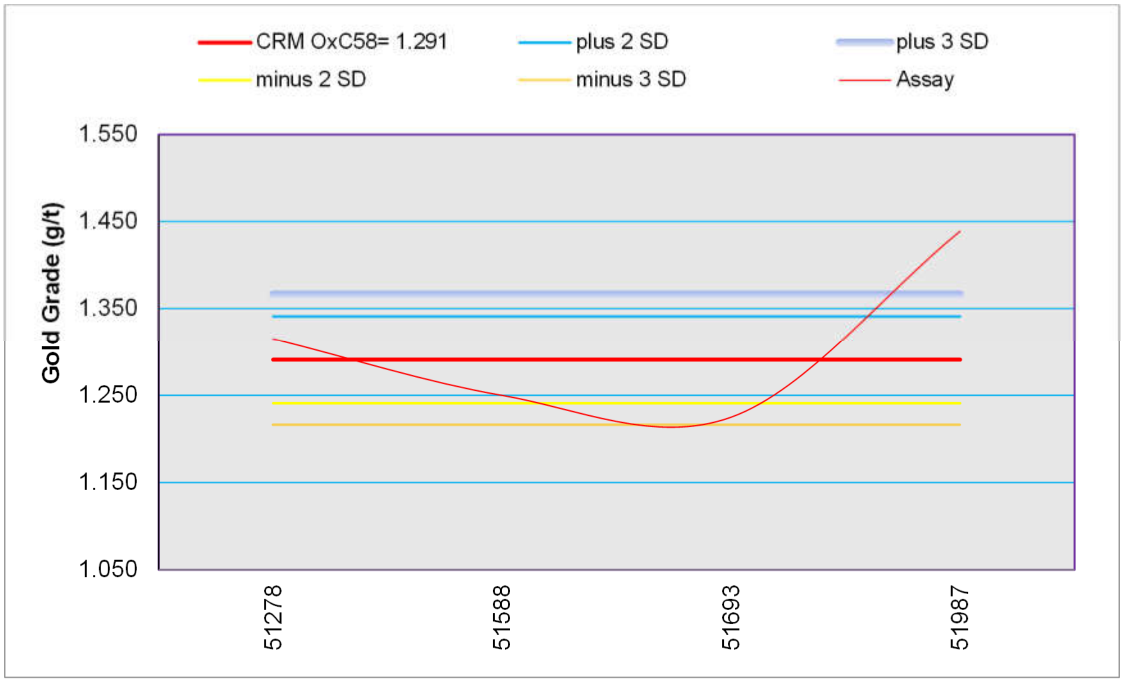


Figure 11-3: Standard OxD57 0.413 ppm Gold

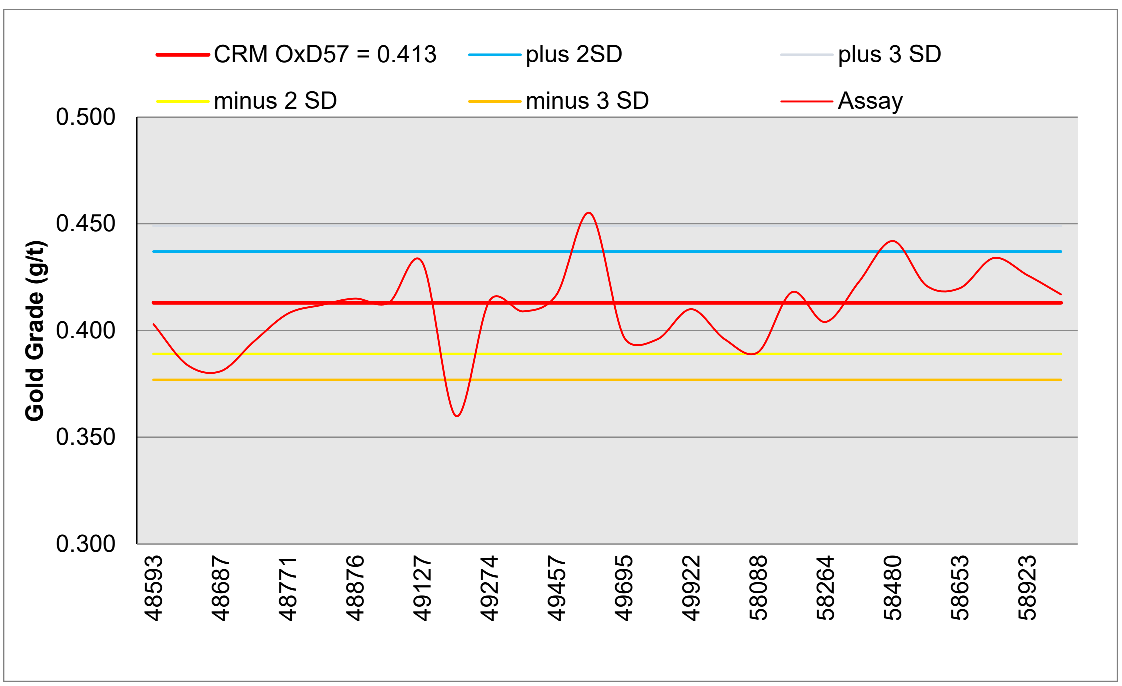


Figure 11-4: Standard OxC58 0.201 ppm Gold

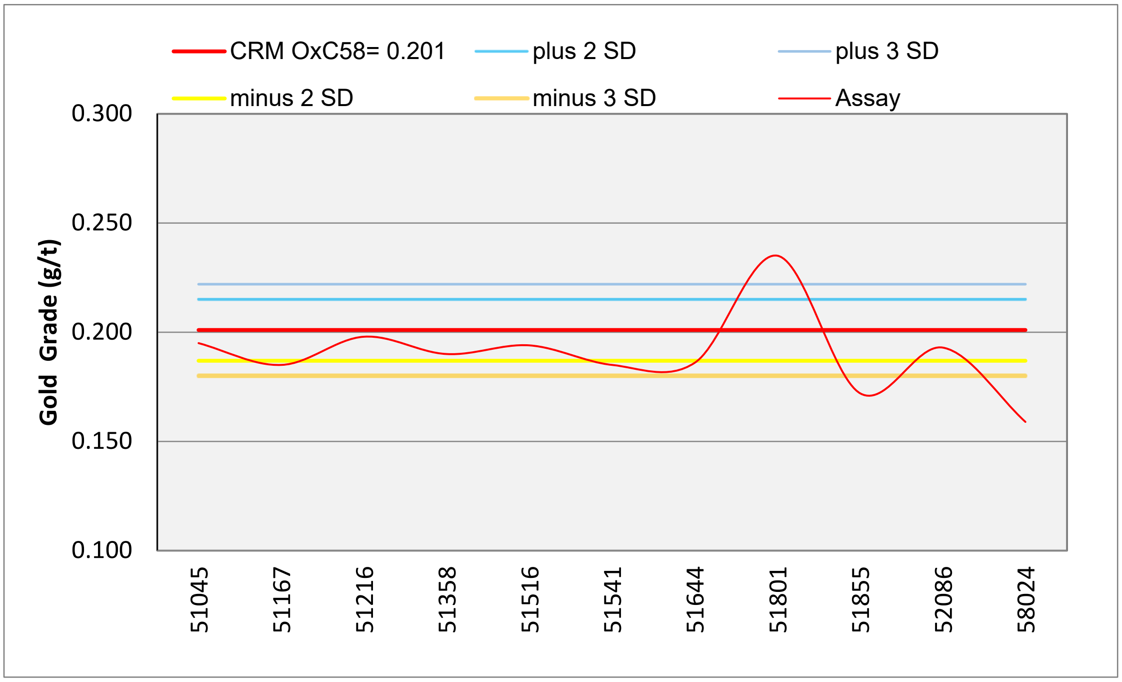
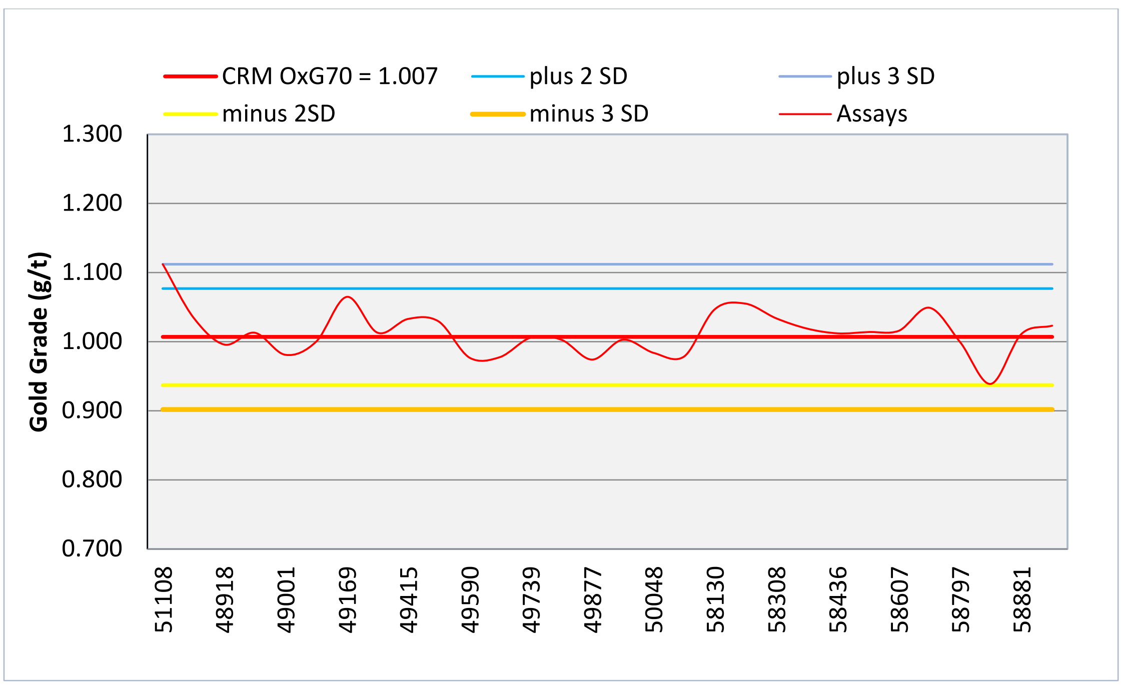


Figure 11-5: Standard OxG70 1.007 ppm Gold

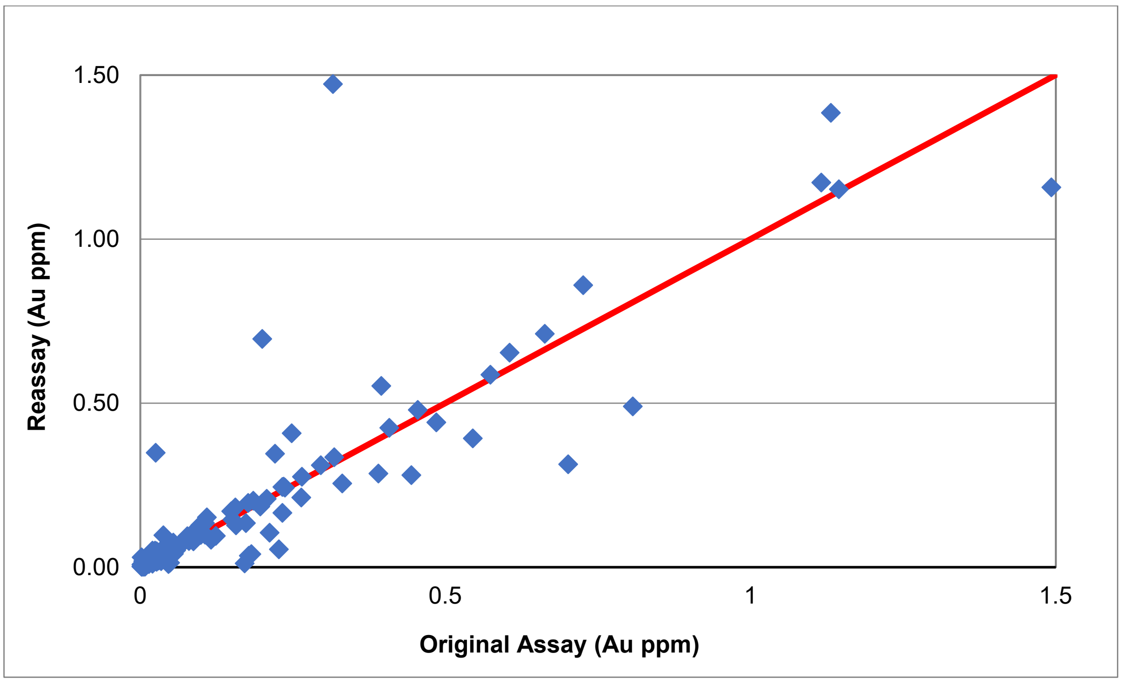


Duplicates

Duplicate samples were added to the sample stream on a regular basis. A duplicate sample was taken initially from the 10th sample in each batch. The duplicate was prepared by taking 50% of the 10th sample and then naming it as the following 5th sample. For example, the duplicate taken as the 10th sample was re-named the 15th sample. Following on, duplicates were taken from every 24th sample with 50% of the sample taken and named as the following 5th sample number (next sample number being 39). In all, 159 duplicate samples were added and analyzed during the drill program.

Figure 11-6 shows a QQ plot of the duplicate versus the original assays. Based on the QQ plot, the duplicate sample program had a Pearson correlation coefficient of 0.870, which is considered acceptable.

Figure 11-6: Original Assays vs. Duplicate Assay QQ Plot



- A report was prepared by Geospark Consulting Vallat, Caroline (2010, March) *Quality Assurance and Quality Control Report on the Project 2008 and 2009 Analytical Results*. The conclusions and recommendation of this report are as follows: Review of the ACME repeat analysis finds that the gold and silver results are reproducible for the same sample material re-analyzed by the same analytical procedures.
- Review of the standard and blank material instances of analysis finds that primary sample gold and silver analytical results are accurate.
- Comparison of check lab sample results (sent to another laboratory) to the 2009 primary sample analytical results has revealed that the level and nature of bias in the primary sample results obtained from ACME are not significant.

- Geospark concluded that, overall, the 2008–2009 primary sample analytical results from both Inspectorate and ACME Labs are of sufficient quality for representation of the Project.

It is author's opinion that the 2008–2009 sampling programs were conducted to industry standards at the time the work was conducted.

11.2 Corex Drill Program 2010–2011

11.2.1 Method

Corex began their second drillhole campaign in 2010 that continued into 2011. The program was an RC and DDH drilling program that continued to expand on previous exploration activities in the Benjamin, Nicho, and Nicho Norte zones, and early exploration work in new areas identified on the property to contain mineralization such as the Ubaldo, Micha, Maromero, Torreon, Cobriza, Mina de Oro, Divisadero, and Tres Hermanas zones. The program included 24 Reverse Circulation drillholes for a total of 13,097 m, and 48 core holes for a total of 5,075 m for a combined program total of 19,072 m of drilling. The average depth of the holes in this campaign was 265 m, with one hole in the Nicho Zone having a maximum depth of 414 m.

During the RC portion of the drill program, qualified geologists from Corex collected samples at the drill site. Rock chips from the drill interval were collected by a riffle splitter, if dry, and a rotary humid splitter if wet. Two bags were collected for every 1.52 m, one for the lab and the other as a witness sample. When drilling dry, the secondary splitter was air cleaned between every sample run. During wet drilling (a few holes hit water) the sample technicians cleaned the secondary splitter with water. To avoid any potential contamination problem, the drillers were instructed to diligently perform a thorough air/water wash of the rods and the rotary splitter at the end of each run.

Plastic samples bags with sample numbers written on the bag were prepared ahead of drilling to avoid numbering errors. Duplicate samples, when required, were collected at the drill site. When drilling dry, the collected samples were immediately sealed using a plastic tie wrap to avoid losses and prevent tampering during transport.

The witness samples that were used for logging were collected every 1.52 m of drill run, and a small sample was stored in specially made RC chip trays labelled with the interval (From–To) and the corresponding sample numbers for each run. The drillhole and chip tray numbers were written on the top of each box. Each chip tray box was collected and brought to the exploration office each day for geological logging.

A Corex geologist supervised and was responsible for the sampling, although the drilling crew and Corex technicians were jointly helping to ensure proper QA/QC procedures were followed at the drill site.

Standard and blank samples were inserted in the sampling stream before shipping. No recovery measurements were calculated for the RC samples but were calculated by the sample weights recorded at the Inspectorate and Acme Labs during sample preparation in Hermosillo.

Layne (drilling contractor) carried out the core drilling component of the 2010–2011 Corex drilling campaign. Layne personnel collected the core after each drill run, and placed the core in plastic core boxes that were previously marked with the hole and box numbers. The driller marked the hole depth after each run on a plastic marker, then placed it in the core box. Corex personnel transported the core boxes by field vehicle to a core shed/warehouse in the town of Guadalupe de Toyopa at the end of each shift. At the camp, Corex's geological staff logged the core in detail. Core logging was completed using a series of Corex-customized paper logs that included descriptions of lithology, structures, redox boundaries, alteration, mineralization, sample intervals, applicable geotechnical data.

Once a hole had been logged, it was sent for sample splitting (half core) using a diamond saw. After splitting, half of the core was returned to the core box while the other half was placed in a plastic sample bag. Samples bags were prepared with the sample numbers written on the bag.

Corex's geological staff was responsible for sampling, although Corex technicians also helped to ensuring proper QA/QC procedures were followed at the warehouse/exploration camp.

Standard and blank samples were inserted in the sampling stream before shipping. Recovery measurements were calculated, but no data were found from the previous operator. Due to missing core samples the recovery could not be estimated by relogging. Table 10-6 shows the recoveries for the 2018 to 2021 drill program. It was believed that the 2010–2011 core recoveries would be like these results.

Corex used Acme Labs in Hermosillo to prepare the samples for assay. The prepared samples were shipped from Acme labs Hermosillo to their Vancouver facility for assay.

11.2.2 Sample Security

Established sample security procedures for the RC drill program began at the drill, and can be summarized as follows:

- Two plastic bags were labelled with the same sample number. One was used to send a sample to the lab, the other was used to store the witness sample (stored at the camp).
- The two bags were filled directly from the RC cyclone, which split the sample in half (50%) for each bag. The bags were filled under a geologist's supervision.
- The chip tray was filled with one small sample from the witness bag at the drill and was logged at the camp.
- When the hole was finished, the entire sample set was sent from the drill site to the camp.
- A chain-of-custody document was filled out and signed by the geologist, and the samples were tracked back to the camp.
- All samples were delivered to the storage facility at the Guadalupe de Toyopa exploration camp. A chain-of-custody document was used for shipping purposes and reviewed and signed upon delivery.
- The chips trays were logged geologically and photographed.
- A geologist inserted blanks and standards as part of the sample-checking process.

- The geologists followed an established protocol to decide on the duplicate sample to be split for shipment to the laboratory. To split the sample the geologist used a riffle splitter to make a representative sample.
- Larger bags were used to bundle together groups of samples and were labelled appropriately.
- Shipment log sheets were generated to track each larger bag.
- The geologist signed the chain-of-custody document with a respected courier.

Established sample security procedures for the core drill program began at the drill site and can be summarized as follows:

- Plastic core boxes were marked with the hole and box numbers.
- The driller ensured that the wood depth markers were inserted into the core box at the end of each run and were the same depth as the drillhole.
- Core boxes were closed with plastic tape and tightened with rope.
- Corex personnel picked up the core boxes at the end of every shift and transported them to the warehouse at the Guadalupe de Toyopa exploration camp.
- When the core boxes arrived at the exploration camp, Corex's geologists and technicians checked that the wood depth markers were correct and commenced logging activities.
- After the entire hole was logged, the core was sent for splitting into half core using a diamond saw.
- Half of the core was bagged and tied shut with wrap ties. The sample bags were then moved to a locked storage area in the core logging and storage facility controlled by Corex's geologists.
- Prior to shipping, several sample bags were placed into large, woven, nylon bags, their contents were marked on each bag, and each bag was securely sealed.
- Corex personnel delivered the sample bags directly to the Acme laboratory in Hermosillo.

11.2.3 Sample Preparation and Analysis

The 2010–2011 drill programs were typically sampled at intervals of 1.52 m for RC samples, and an average of 1.41 m for the DDH samples. All samples were sent to Acme Lab in Hermosillo for preparation by crushing (70% <2 mm), splitting (by riffle splitter), and pulverization (85% <75 mesh). Then, 30 g samples were shipped to Acme Lab in Vancouver for analysis. Gold was analyzed using 30 g FA with AA measurement. Further analysis was also completed using ARD, followed by 35-element ICP analysis, to determine the quantities of the secondary metals, including silver and copper.

Test results were provided in digital format for entry into the database with the original certified assay certificates sent with invoices.

The Acme Lab assaying package used by Corex can be summarized as follows:

- Gold—3B-FA-AAS with gravimetric finish.

- Silver—1D-ARD-AAS aqua regia digestion, AA spectrometry, for results >100 g/t, second assay performed using gravimetric finish.
- All other elements—1D-ARD-ICP-AES.

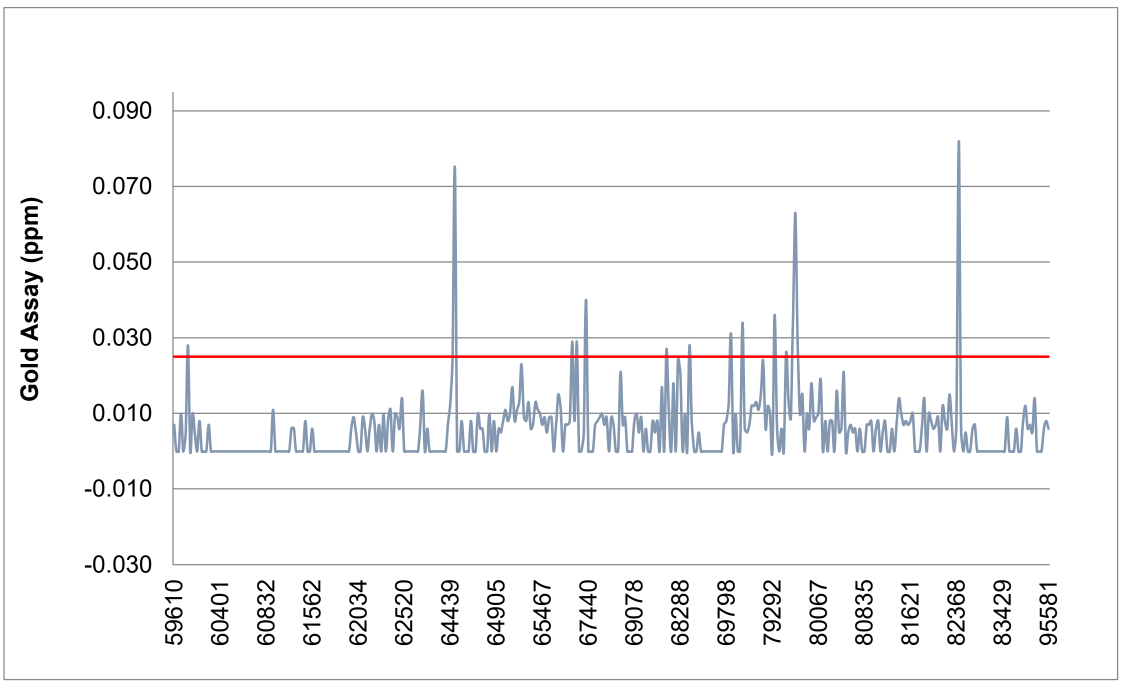
11.2.4 Quality Assurance and Quality Control

Control samples were inserted in the sampling stream for each drillhole as described below.

Blanks

Blank samples were inserted after the 10th sample, and from there every 40 samples. Acceptable values for blank sample assays less than five times the LDL. Of the 381 blanks submitted, 96% returned values of less than 0.025 ppm for gold. Four percent of the assays had assay results that were five times the LDL.

Figure 11-7: Blank Assays 2010–2011 Drillhole Program



Standards

CRMs or standards were submitted with each sample shipment during the drill program. Six different standards were used during the program and are summarized in Table 11-3.

Table 11-3: CRMs Used by Corex Drill Program 2010–2011

CRM	Au ppm	Std. Dev.	95%	Source
CDN-ME-7	0.219	0.005	0.024	CDN Resource Lab Ltd.

CRM	Au ppm	Std. Dev.	95%	Source
CDN-ME-2	2.100	0.011	0.028	CDN Resource Lab Ltd.
OxG 70	1.007	0.035	0.013	Rocklabs
OxD 57	0.413	0.012	0.005	Rocklabs
OxC 72	0.205	0.008	0.003	Rocklabs
OxF 65	0.805	0.022	0.014	Rocklabs

Standards were inserted after the 5th sample of each hole, then every 20 samples until the end of the drillhole. In total, 742 samples were inserted in the sample stream of the 2010–2011 drill campaign. Figure 11-8 to Figure 11-13 show the standard assays returned by CRM.

Figure 11-8: Standard CDN-ME-2 2.100 ppm Gold

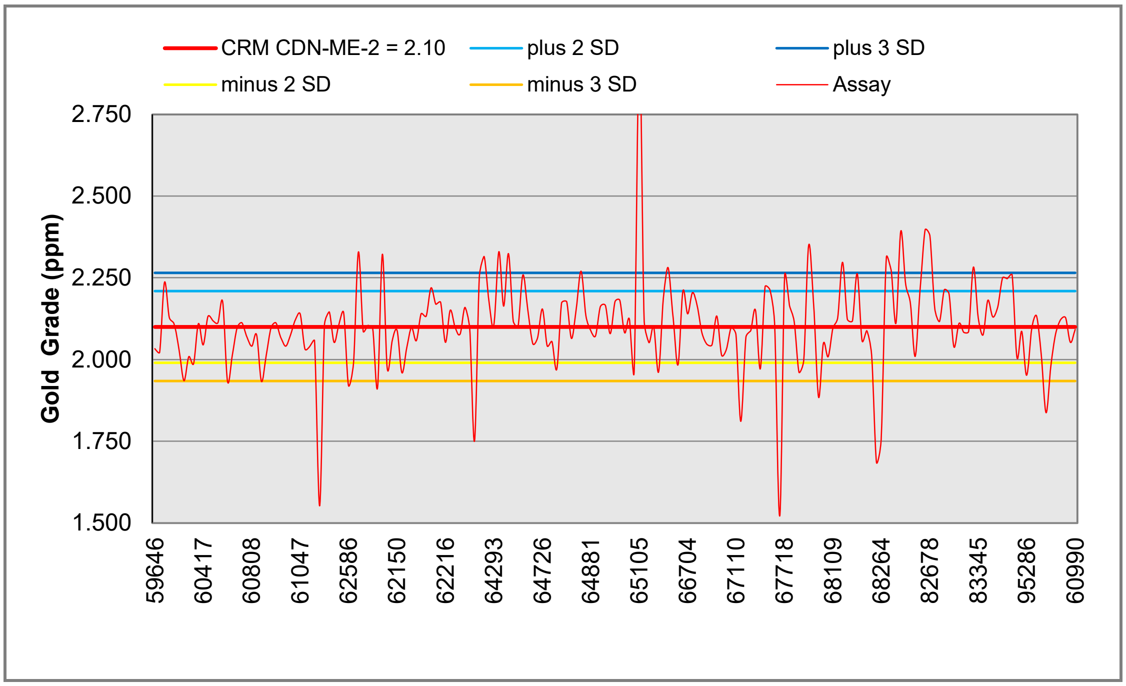


Figure 11-9: Standard CDN-ME-7 0.219 ppm Gold

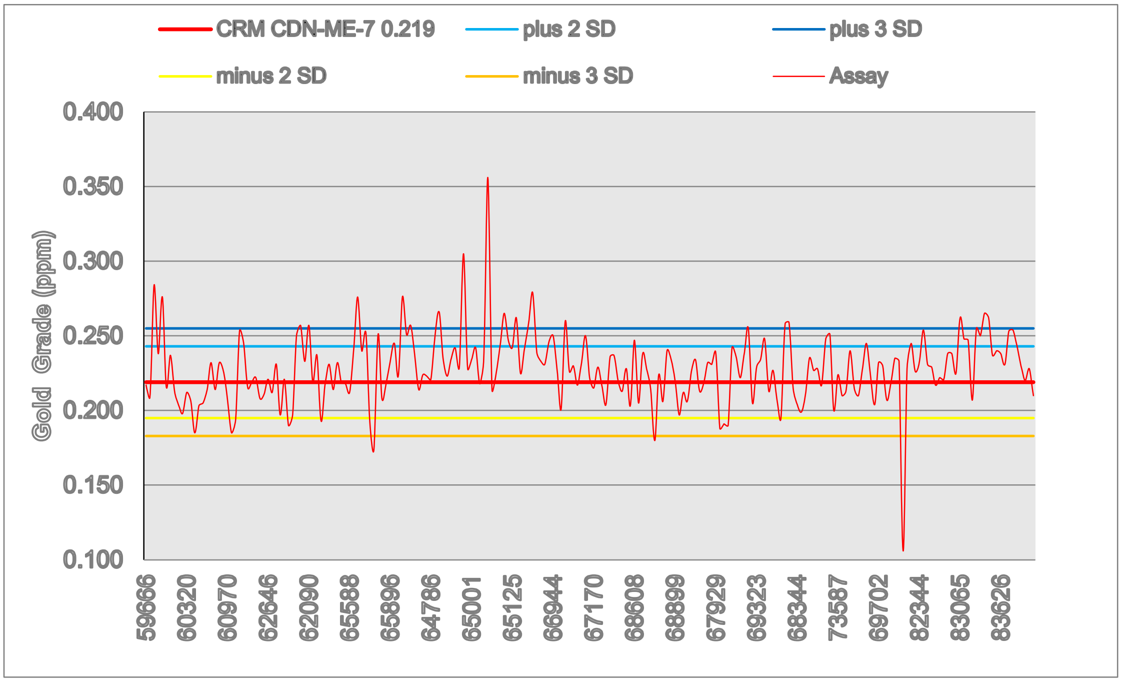


Figure 11-10: Standard OxD57 0.413 ppm Gold

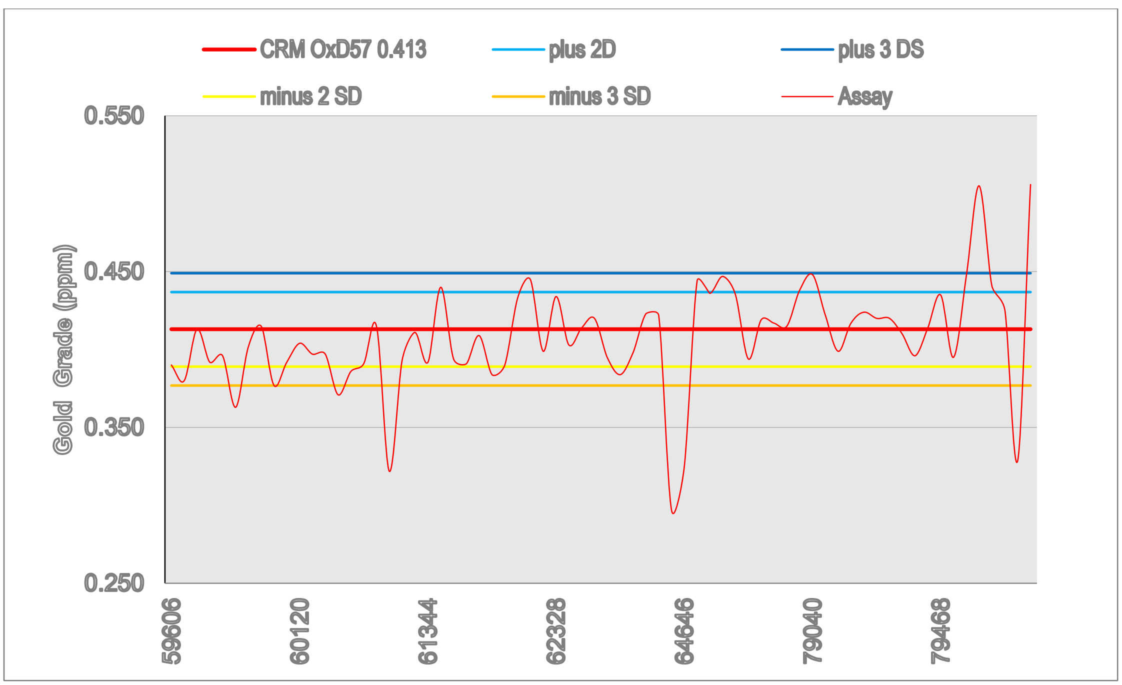


Figure 11-11: Standard OxG70 1.007 ppm Gold

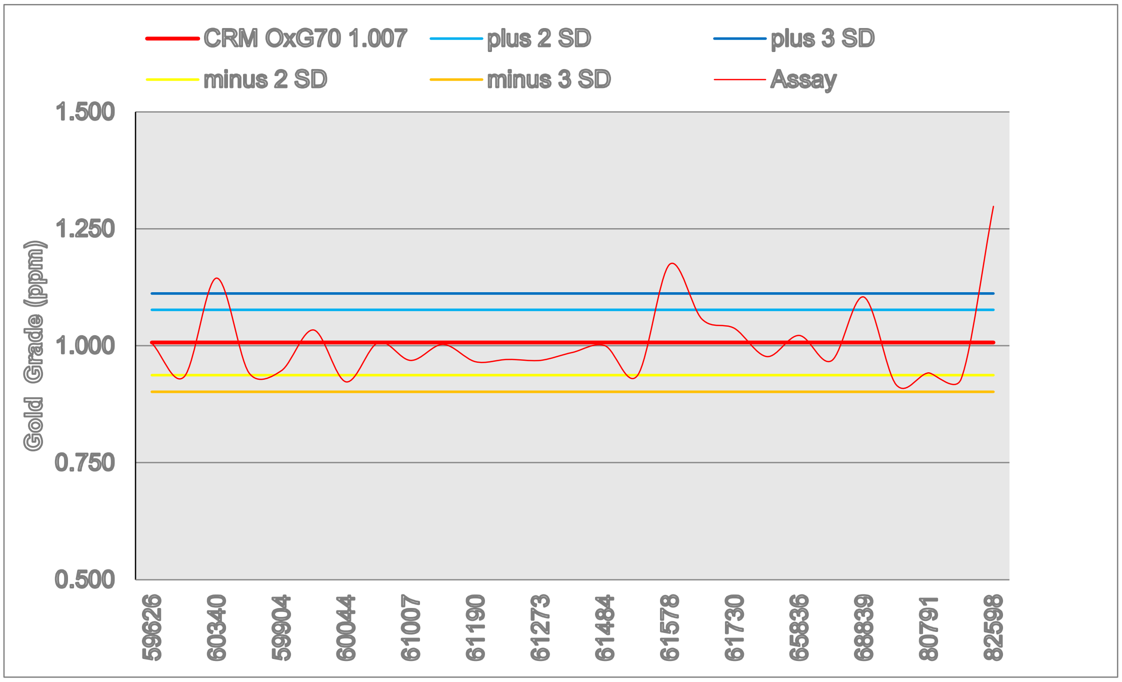


Figure 11-12: Standard OxC72 0.205 ppm Gold

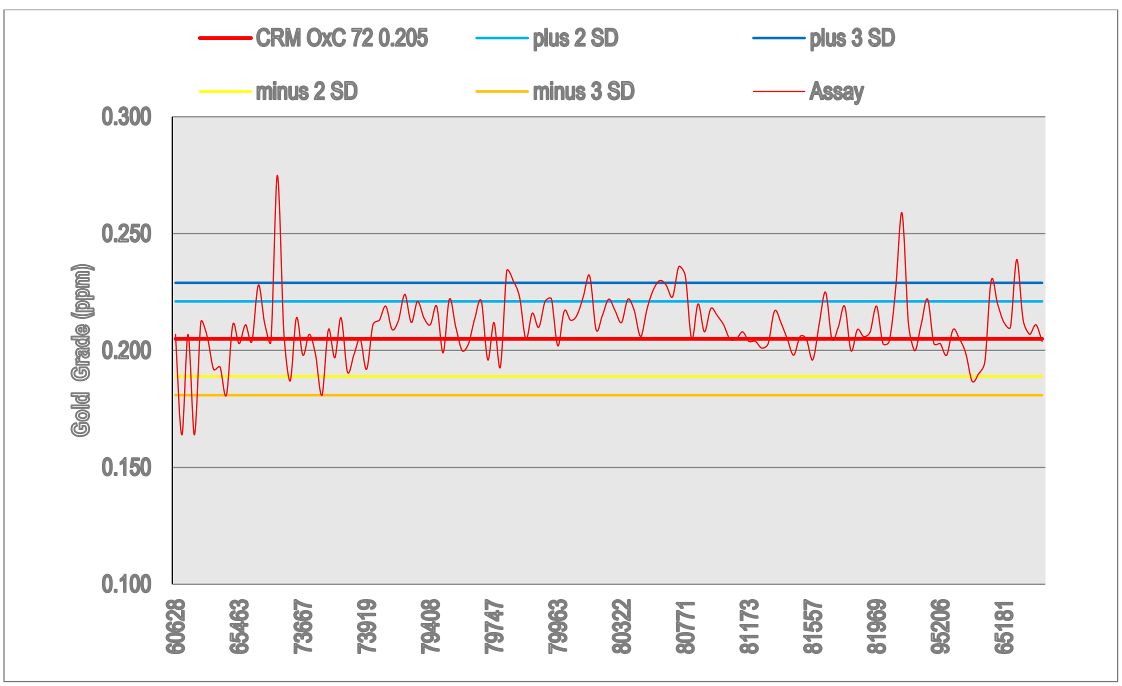
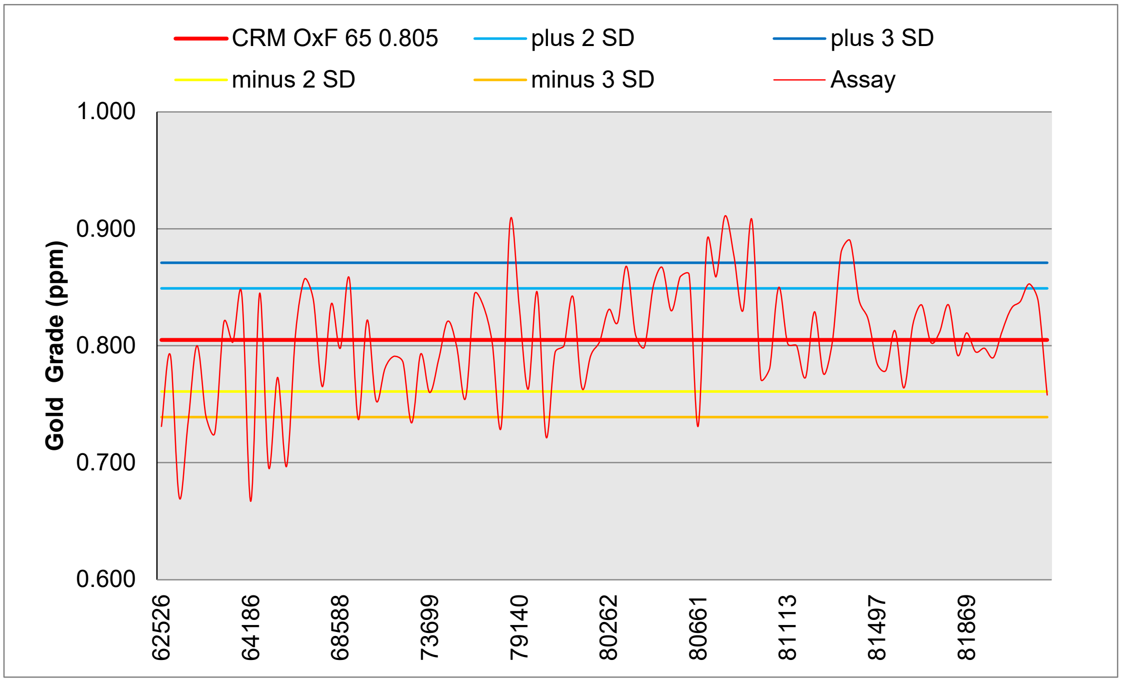


Figure 11-13: Standard OxF 65 0.805 ppm Gold

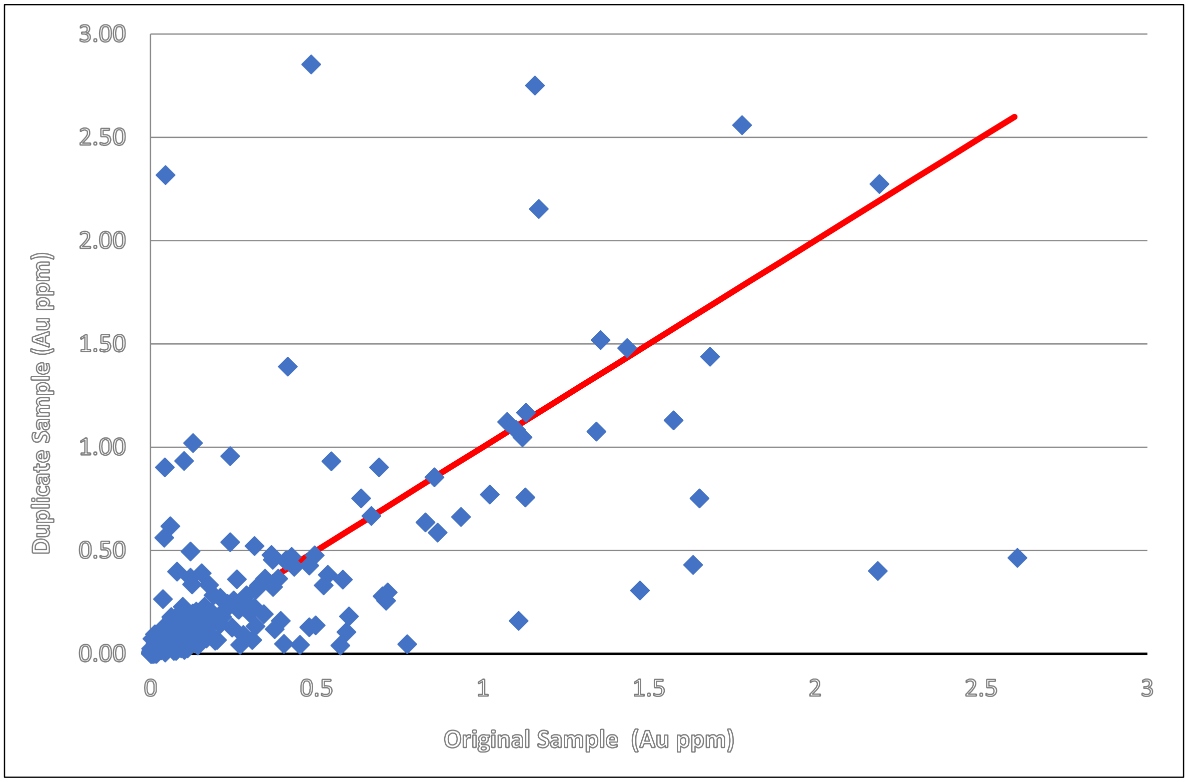


The CRM assay results show inferred accuracies that range from poor to moderate in the original assay sheets. GeoSpark Consulting reviewed this dataset in 2010 and provided two reports to Corex (Vallat, Caroline February and March 2010) titled Quality Assurance and Quality Control Report on the Project 2008 and 2009 Analytical Results. The conclusions from these reports are summarized at the end of this subsection.

Duplicates—Core Samples

Duplicate samples were taken from the 13th sample of each hole and named as the following sample. This process was then continued on every 20th sample. As part of the 2010–2011 core drilling campaign, a total of 537 duplicate samples were submitted for assay. The Pearson correlation coefficient was 0.766, which indicates a moderate correlation. The correlation is believed to be attributable to coarse-grained gold. Figure 11-14 shows a QQ plot of the duplicate versus original assays.

Figure 11-14: Core Drillholes Duplicate vs. Original Assays QQ Plot

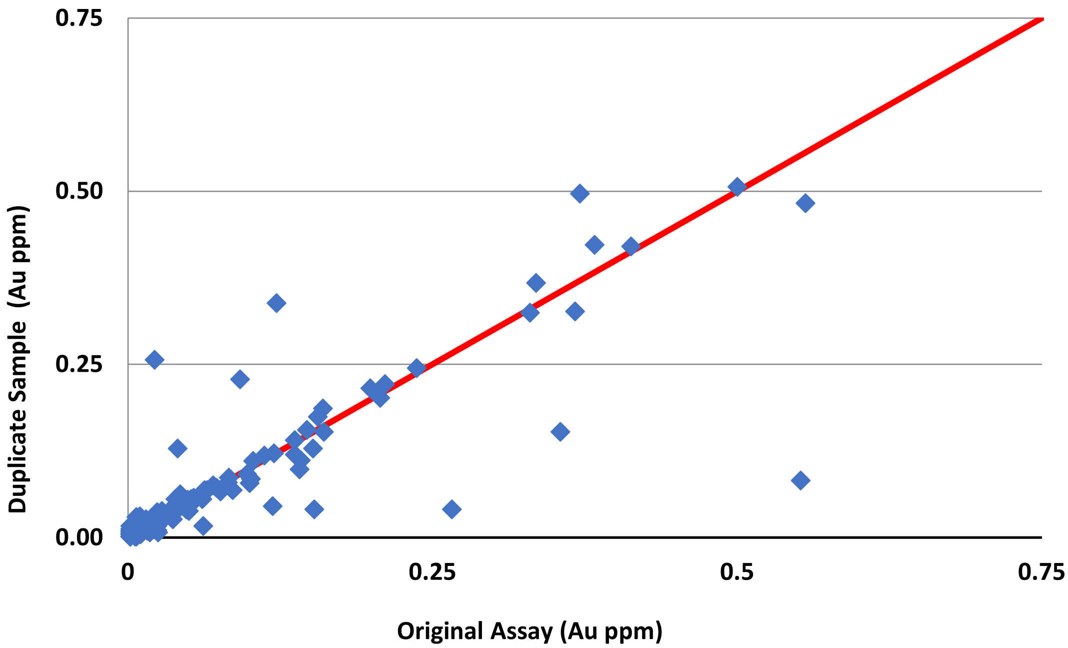


Duplicates—RC Samples

Duplicate samples were added to the RC sample stream using the same methodology as that of the core samples described above. A total of 183 duplicate samples were added to the RC drilling sample stream. Based on a comparison of the duplicate to original assays, the data set was found to have a Pearson correlation coefficient of 0.968, which is excellent.

Figure 11-15 shows the duplicate versus original assays from the RC drillholes.

Figure 11-15: RC Drillholes Duplicate vs. Original Assays QQ Plot



GeoSpark Consulting Vallat, Caroline (2011, July) Quality Assurance and Quality Control Report on the Project 2010 and 2011 Analytical Results. completed a quality assurance and quality control report for the Project following the 2010–2011 drill campaign. The report paid particular attention to the standards that had returned assays that were near failure, or in excess of three times the standard deviation. GeoSpark collected 414 check samples and sent them to ALS Chemex in Vancouver for re–assay. The samples were re–run for gold using the FA analytical method. Based on the results of their work program, GeoSpark concluded:

- Detailed review of the 2010 Project duplicate pairs revealed an acceptable level of precision for primary sample gold, silver, and copper results reported by ACME. This result considered the nature of the mineralization at the Santana Gold Project. It is GeoSpark's opinion that the gold, silver, and copper concentrations of the 2010 Santana Project are locally inhomogeneous due to the nature of the mineralization.
- The accuracy of the primary sample gold, silver, and copper results are sufficient to represent the 2010–2011 Santana Gold Project. Ongoing monitoring of the QA/QC of analytical results as they were received was imperative to maintaining the quality of the results.
- The review for inferred bias within the gold, silver, and copper concentrations reported by ACME for the 2010 and 2011 Santana Gold Project has shown a minimal level of bias.
- Through this QAQC review it has been inferred that the 2010–2011 Santana Project primary sample gold, silver, and copper concentrations reported by ACME are of sufficient quality to represent the Santana Gold Project.

It is the QP's opinion that the 2010–2011 sampling programs were conducted to industry standards at the time the work was conducted.

11.3 Vale Drill Program 2013

11.3.1 Method

In early 2013 Vale signed an option agreement after a long period of evaluation, due diligence, and negotiation with Corex, which had explored the Santana area over the previous five years for near-surface oxidized gold mineralization. Vale recognized the good copper values in the Corex drill core and the underlying copper porphyry potential.

Vale commenced an exploration program in March 2013 that included geological mapping, soil sampling, and drilling, with a program aimed at determining if a significant porphyry deposit was concealed at depth, below, or adjacent to the gold-copper mineralization outlined by Corex Gold. These work activities are discussed in detail in Section 6.

Drilling services were contract to Globexplore Drilling. A single drill rig capable of drilling HQ-sized core (model Zinex A5) was used throughout the program. The rig and crew were mobilized to site in early July 2013.

11.3.2 Sample Security

During the drilling program, plastic core boxes were marked with the hole and box number. The driller marked the core interval depths using wood markers as each hole was advanced. Once each core box was full, it was closed with plastic tape and secured with rope. Vale personnel picked up the boxes at the end of every shift to transport them to the exploration camp located in Guadalupe de Toyopa.

When the core boxes arrived at the exploration camp, geologists or technicians checked that the wood depth markers were correct. A qualified geologist logged each hole geologically and geotechnically before it was sent for core cutting to split the core in half. One-half of the split core was bagged and tied shut with non-slip plastic ties. The sample bags were then moved to a locked storage area in the core logging and storage facility controlled by Vale's geologists. Prior to shipping, several sample bags were placed into large woven nylon bags, their contents were marked on each bag, and each bag was securely sealed.

A geologist supervised sampling, although Vale's technicians were jointly responsible for ensuring proper QA/QC procedures were followed at the warehouse in the Guadalupe de Toyopa exploration camp.

Standards, duplicates, and blank samples were inserted in the sampling stream before shipping. Recovery measurements were calculated, but no data are available from this program.

Vale used ALS Chemex Labs in Hermosillo for sample preparation. Once the samples were prepped, they were sent to ALS Chemex's facility in Vancouver for assay.

11.3.3 Sample Preparation and Analysis

The Vale Core samples had an average length of 1.89 m. All samples were sent to ALS Chemex in Hermosillo for preparation by crushing (70% <2 mm), splitting (by riffle splitter), and pulverization (85% <75 mesh). Samples were reduced to 30 g and subsequently shipped to ALS Chemex in Vancouver for analysis. Gold was analyzed using 30 g FA with AA measurement. Further analysis was also completed using ARD, followed by 35-element ICP analysis, to determine the quantities of the secondary metals, including silver and copper.

Test results were provided in digital format for data merging, while the original certified assay certificates were forwarded with invoices.

The ALS Chemex Lab assaying package used by Vale can be summarized as follows:

- Gold—Au-ICP21 gold fire assay 30 g with gravimetric finish
- Silver-copper—ME-MS61 four acid digestions, AA spectrometry
- All other elements—ME-MS61 48 elements four-acid ICP-MS.

11.3.4 Quality Assurance and Quality Control

For each drillhole, three control samples (standards, blanks, and duplicates) were inserted into the sampling stream as follows:

- CRMs were inserted into the batches at an average rate of approximately 6% of the routine samples.
- Quartz was used as a blank material and inserted in the analytical batches at an average rate of approximately 6% of the routine samples.
- Duplicates were generated either from crushed material or from pulps and inserted into the batches at a rate of approximately 6% of the regular samples.

Henrique Izumo of Vale did an internal QA/QC review and issued a preliminary report dated December 06, 2013 titled "QA/QC Preliminary Report – Santana Drilling Program, 2013 Drillholes SNT-SNTN-DH00001 to SNT-SNTN-DH00009" (Izumo, 2013). This report notes that:

- All samples were first registered in acQuire software by importing field-sampling spreadsheets.
- QA/QC verification of the batches was performed using the total data available in acQuire immediately after each laboratory digital file was imported.
- As a result of the analyses, two batches were rejected due to CRM failures. Samples surrounding the failed CRMs were selected from each batch and re-analyzed. In general, re-assay values were very similar to the original results. It should be noted that the failed OREAS-501 standard returned gold re-assays within its expected certified range. Similarly, the failed CAM-3 standard returned re-assays for copper within expected certified ranges.
- Assay results of the quartz blanks inserted in the batches indicated that there was some carry-over from mineralized samples in one of the batches.

- Duplicates returned values compatible with the assays of the original samples for most elements.

11.4 Minera Alamos Drill Program 2018–2021

11.4.1 Method

Following the 2018 business combination between Corex Gold and Minera Alamos, drilling activities recommenced at the Project. At the end of the first quarter of 2022 (March 31), Minera Alamos has drilled an additional 56 core drillholes for a total of 11,049 m. The Minera Alamos campaign was designed to explore the bearing and dip extensions of the Nicho, Nicho Norte, and the Divisadero mineralized zones, and to infill the Nicho Zone by bringing drilling densities to a 25 m grid spacing.

Start Resources Drilling (SR) provided drilling services using one drill rig (Atlas Copco 1000). The rig and crew mobilized to site in early August 2018 and completed all core drilling to the HQ size.

SR drilling personnel collected recovered core and placed it in plastic core boxes that were previously marked with the hole and box numbers. Using a plastic marker, the driller marked the depth of the hole at the end of each drill run. Minera Alamos personnel then transported the core boxes by field vehicle to a core shed/warehouse located in Guadalupe de Toyopa, where Minera Alamos's geologists subsequently logged the core in detail. Core logging was completed on paper logs that were customized by Minera Alamos to include descriptions of lithology, structures, redox boundaries, alteration, mineralization, and geotechnical data.

Plastic samples bags with sample numbers written on the bag were prepared ahead of drilling to avoid numbering errors and used to store half core split via diamond sawing. The remaining half of the core was returned to the core box, which was then placed into storage.

A geologist supervised all sampling, although Company technicians were jointly responsible for ensuring proper QA/QC procedures were followed.

Standard and blank samples were inserted in the sampling stream before shipping. Company technicians calculated core recovery measurements; the drill program in aggregate, had an average recovery of 98.04%.

The Company used ALS Chemex and Bureau Veritas laboratories in Hermosillo for sample preparation. Each laboratory prepared 30 g samples that were then sent to their respective laboratories in Vancouver for assay.

11.4.2 Sample Security

In advance of drilling at the drill site, the plastic core boxes were marked with the hole and box number. The driller ensured that the depth markers placed at the end of each run were the same as the depth of the drillhole. The core box was then closed with plastic tape and secured with rope. Minera Alamos personnel picked up the boxes at the end of every shift and transported them to the warehouse at the exploration camp in Guadalupe de Toyopa.

When the core boxes arrived, geologists and technicians checked that the depth markers were correct. Following this step, the geologists began logging activities, following which the core was sent for half-core splitting using a diamond saw. One core half was then bagged and tied shut with non-slip plastic ties. The sample bags were then moved to a locked storage area in the core logging and storage facility controlled by Minera's geologists. The other core half was returned to the core box, which was placed in storage. Prior to shipping, several sample bags were placed in large, woven, nylon bags, their contents were marked on each bag, and each bag was securely sealed.

A geologist supervised sampling, although Minera's technicians were jointly responsible for ensuring proper QA/QC procedures were followed.

Standard and blank samples were inserted in the sampling stream before shipping to the lab preparation facilities in Hermosillo.

11.4.3 Sample Preparation and Analysis

The Minera Alamos core samples have an average length of 1.43 m. All samples were sent to ALS Chemex and Bureau Veritas in Hermosillo for preparation by crushing (70% <2 mm), splitting (by riffle splitter), and pulverization (85% <75 mesh). Then 30 g samples were shipped to AL Chemex in Vancouver, for analysis. Gold was analyzed using 30 g FA with AA measurement. Further analysis was completed using ARD, followed by 35-element ICP analysis, to determine the quantities of the secondary metals, including silver and copper.

Test results were provided in digital format for data merging, while the original certified assay certificates were forwarded with invoices.

The ALS Chemex Lab assaying package used by Minera Alamos can be summarized as follows:

- Gold—Au-AA23 gold fire assay 30 g with gravimetric finish
- Silver—ME-ICP41 aqua regia digestion, AA spectrometry
- All other elements—ME-ICP41 35 elements aqua regia ICP-MS.

The Bureau Veritas Lab assaying package used by Minera Alamos can be summarized as follows:

- Gold—Au-FA430 gold fire assay 30 g with gravimetric finish
- Silver—AQ300 aqua regia digestion, AA spectrometry
- All other elements—ME-ICP41 35 elements aqua regia ICP-MS.

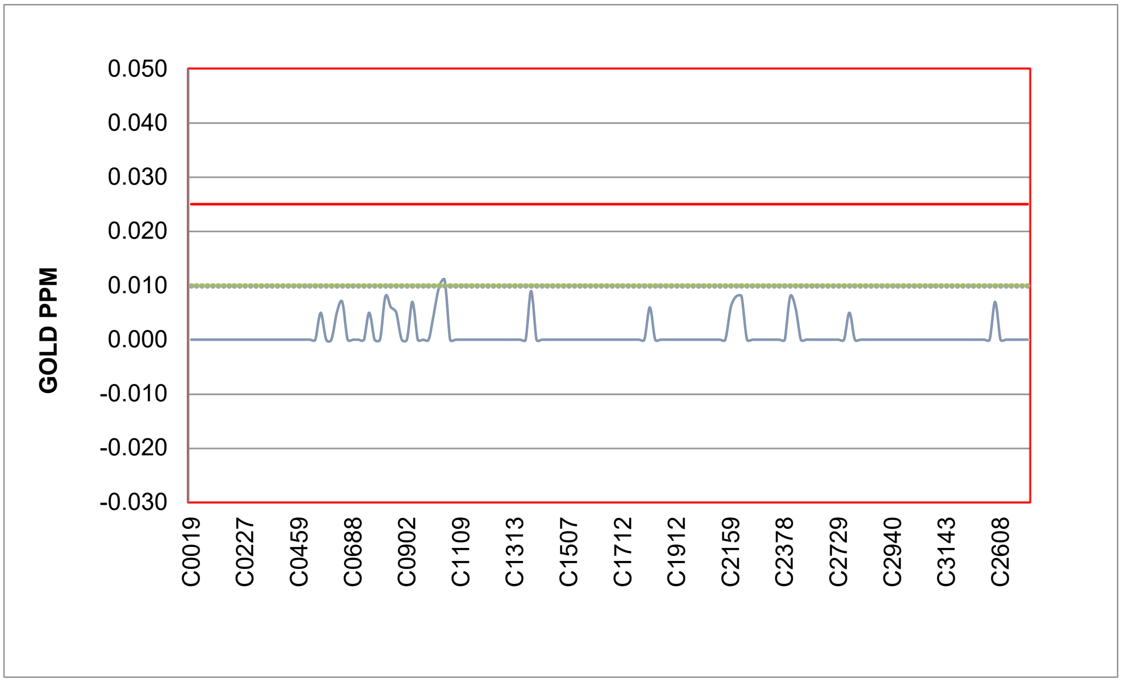
11.4.4 Quality Assurance and Quality Control

Two control samples (standards and blanks) were inserted in the sampling stream of each drillhole as follows:

- A Standard sample was inserted every 15th sample; and
- A Blank sample was inserted after each standard.

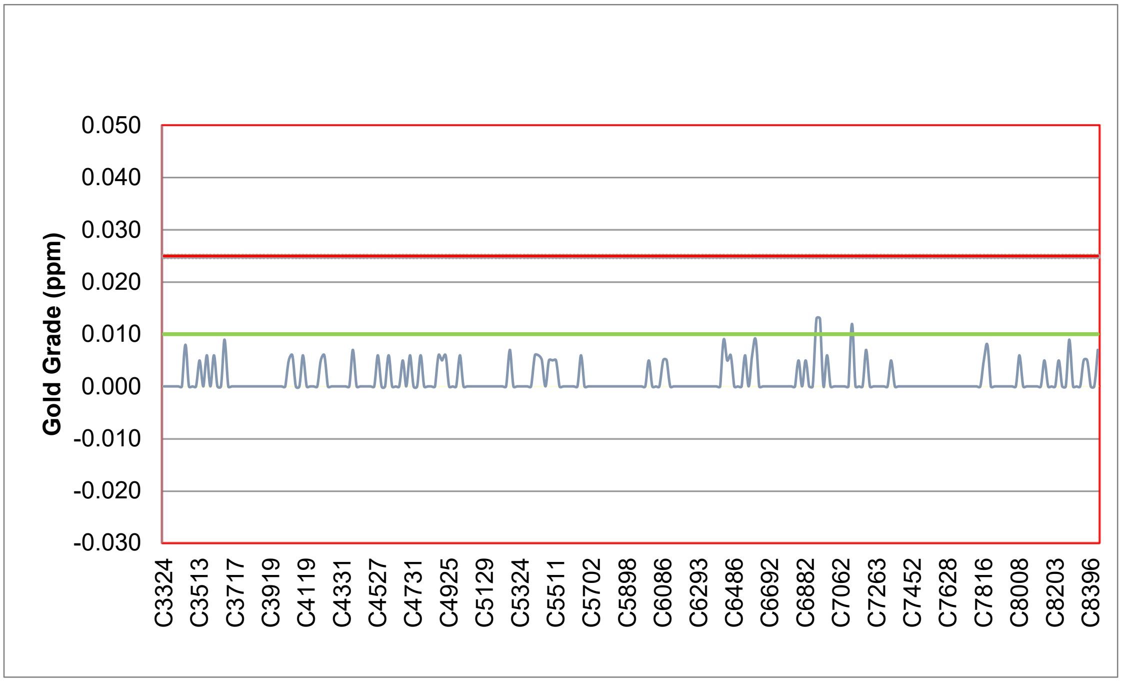
Acceptable values for blank samples from Chemex Lab are assay values that are less than five times the LDL. The LDL for Au is 0.005 ppm, and therefore values equal to or less than 0.025 ppm are within acceptable analytical limits. Of the 156 blanks submitted, 100% were within an acceptable range, returning values of less than 0.025 ppm for gold.

Figure 11-16: Blank Assays—Chemex Laboratory (2020–2022 Drill Program)



Values for blank samples from Bureau Veritas Lab consistently returned assays with values that were less than five times the LDL. The LDL for gold is 0.005 ppm; therefore, values equal to or less than 0.025 ppm are within acceptable analytical limits. Of the 263 blanks submitted to Bureau Veritas, 100% were within an acceptable range, returning assay values less than 0.025 ppm for gold.

Figure 11-17: Blank Assays Bureau Veritas Laboratory (2020–2022 Drill Program)



CRMs were submitted with each sample shipment to ALS Chemex during the drill program. Three different standards were used; they are summarized in the Table 11-4.

Table 11-4: Summary of CRMs (2018–2022 Drill Program)

CRM	Au (ppm)	Std. Dev.	95%	Source
Oreas 503	0.687	0.024	0.697	Oreas
Oreas 523	1.040	0.038	1.050	Oreas
CDN-GS-IV	1.020	0.049	1.040	CDN Resource Lab Ltd

Standards were inserted every 15 samples from the beginning to the end of the hole. In all, 264 CRM samples were inserted in the stream.

Figure 11-18 to Figure 11-20 show the standard assays received from ALS Chemex versus the known standard grade.

Figure 11-18: Chemex Standard OREAS 503 0.687 ppm Gold

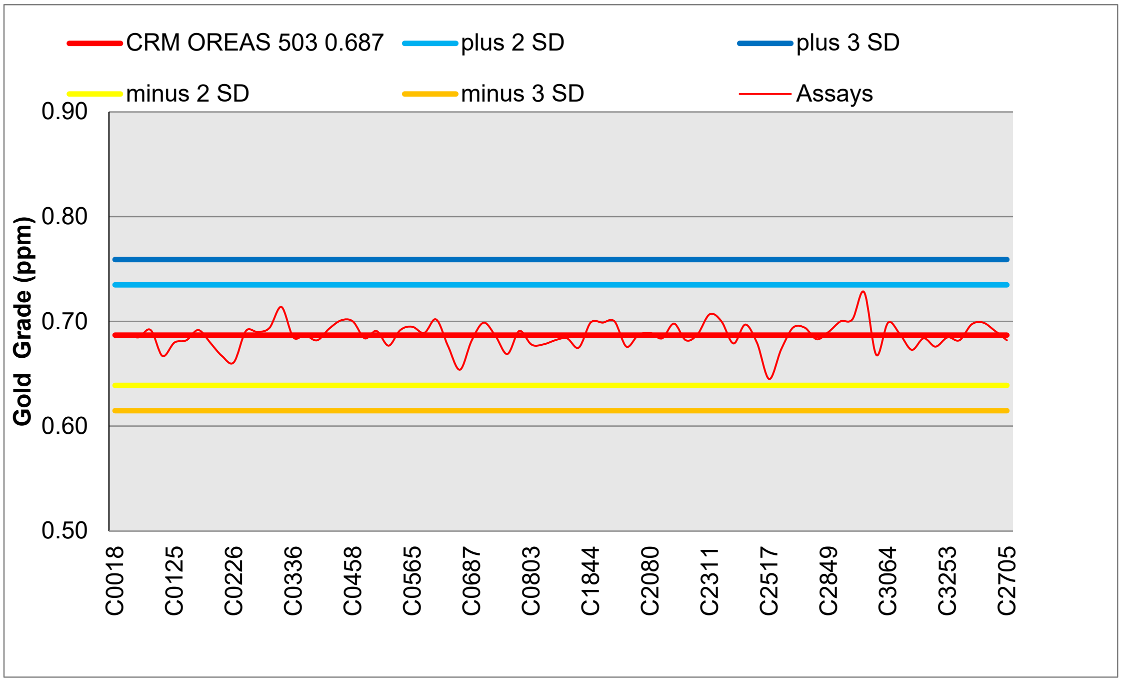


Figure 11-19: Chemex Standard OREAS 523 1.040 ppm Gold

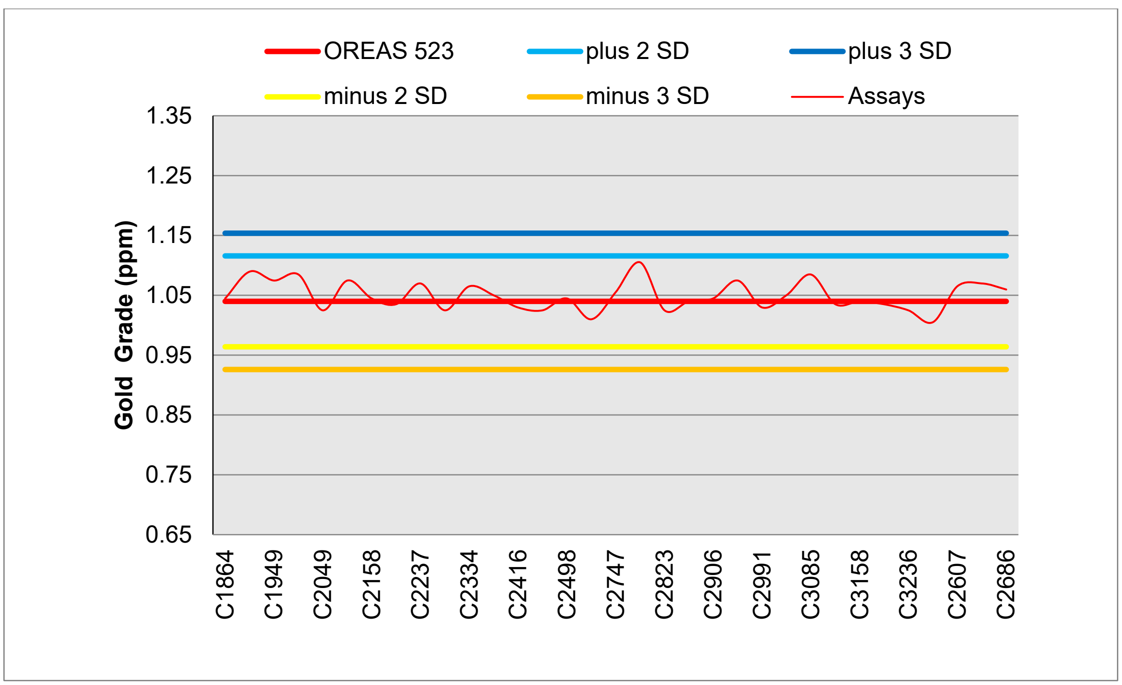
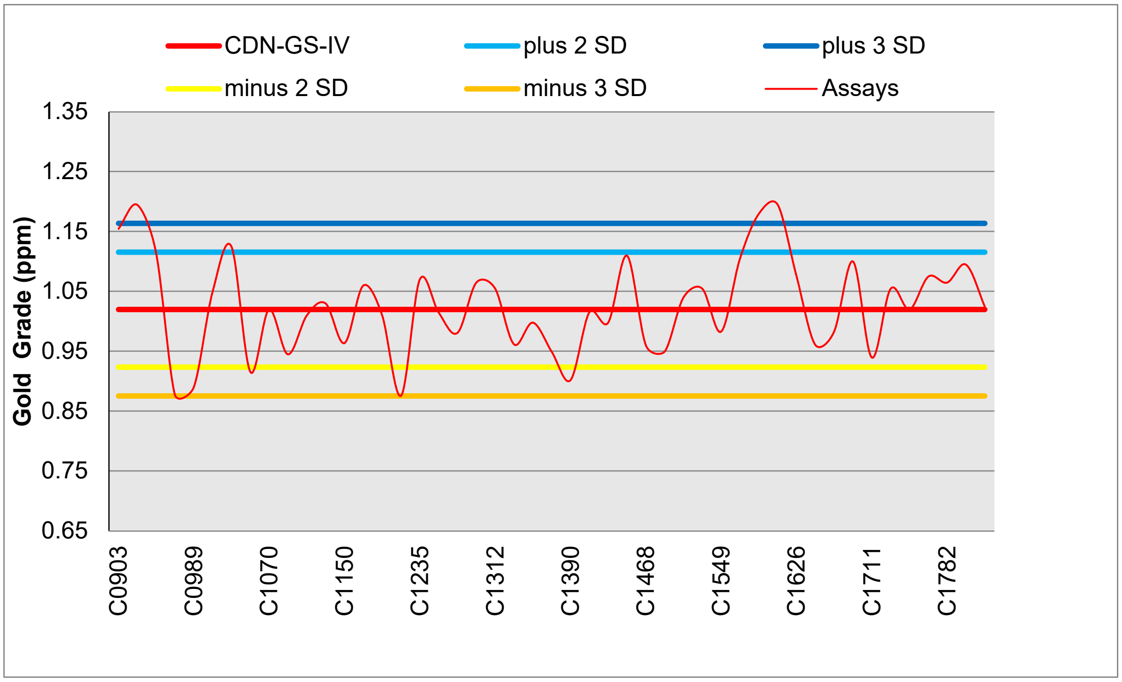


Figure 11-20: Chemex Standard CDN-GS-IV 1.020 ppm Gold



CRM or standards were submitted with each sample shipment to Bureau Veritas during the drill program. Five different standards were used; they are summarized in the Table 11-5.

Table 11-5: Summary of CRMs used by Corex Drill Program 2018–2022 (Bureau Veritas)

CRM	Au (ppm)	Std. Dev.	95%	Source
Oreas 503	0.687	0.0240	0.697	Oreas
Oreas 522	0.574	0.0180	0.580	Oreas
Oreas 523	1.040	0.0380	1.050	Oreas
GS-1Z	1.155	0.0475	1.212	CDN Lab Ltd
GS-P4J	0.479	0.0490	0.514	CDN Lab Ltd

Figures 11-21 to 11-25 show the standard assays received from Bureau Veritas versus the known standard grade.

Figure 11-21: Bureau Veritas Standard OREAS 503 (0.687 g/t Au)

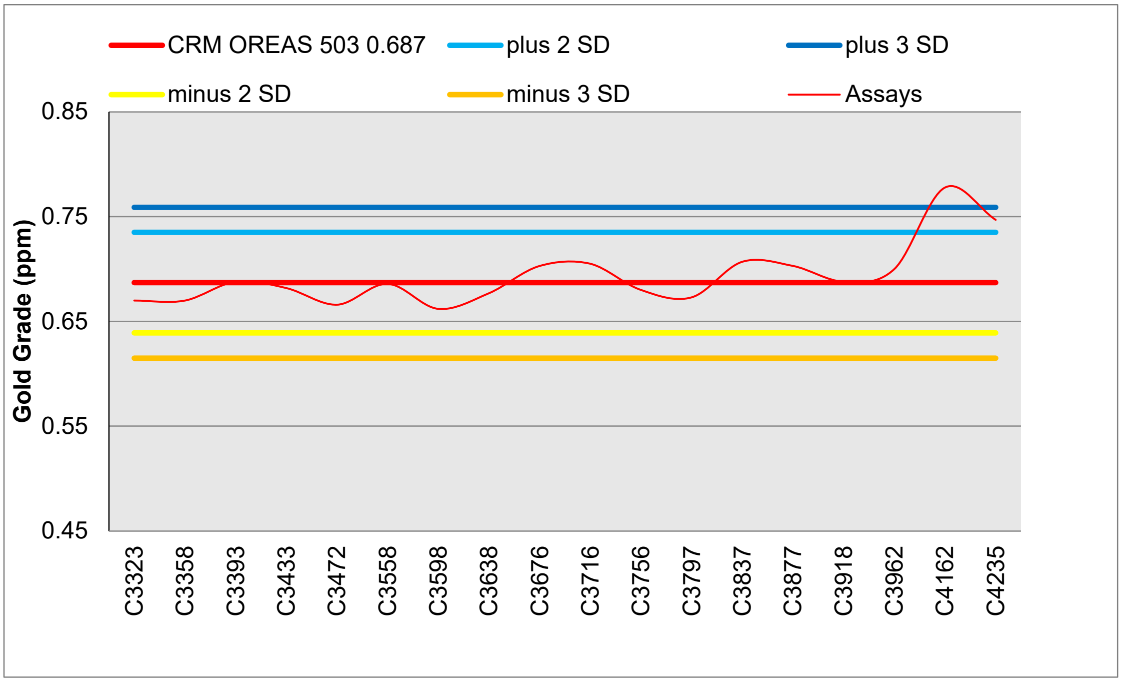


Figure 11-22: Bureau Veritas Standard OREAS 522 (0.574 g/t Au)

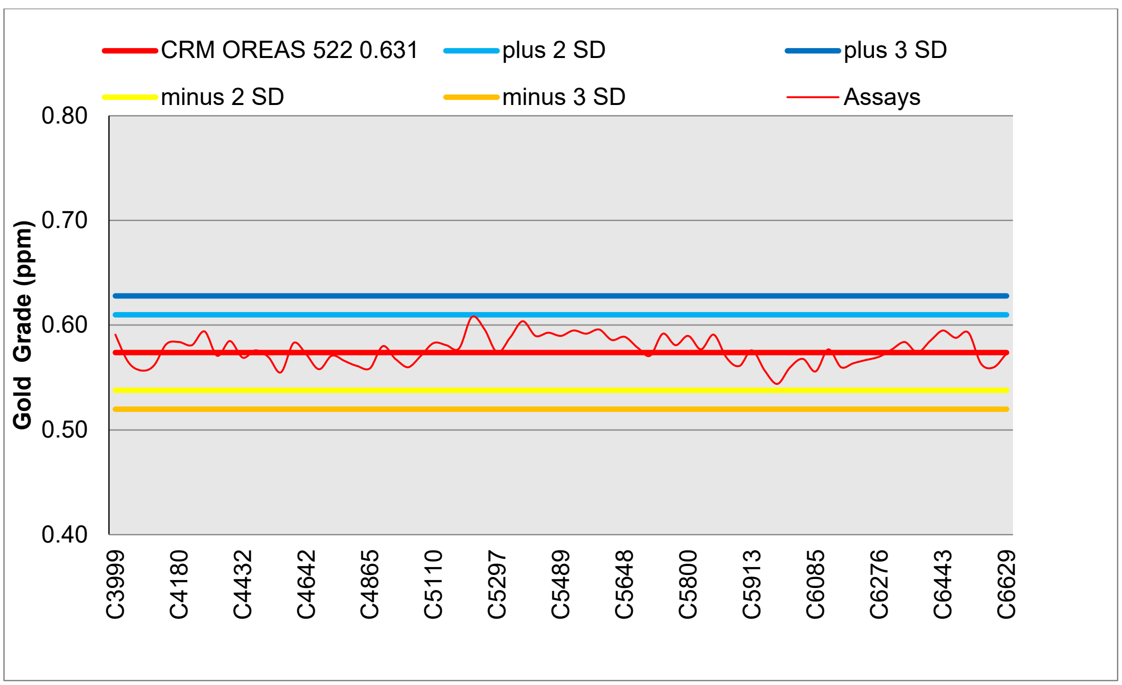


Figure 11-23: Bureau Veritas Standard OREAS 523 (1.040 g/t Au)

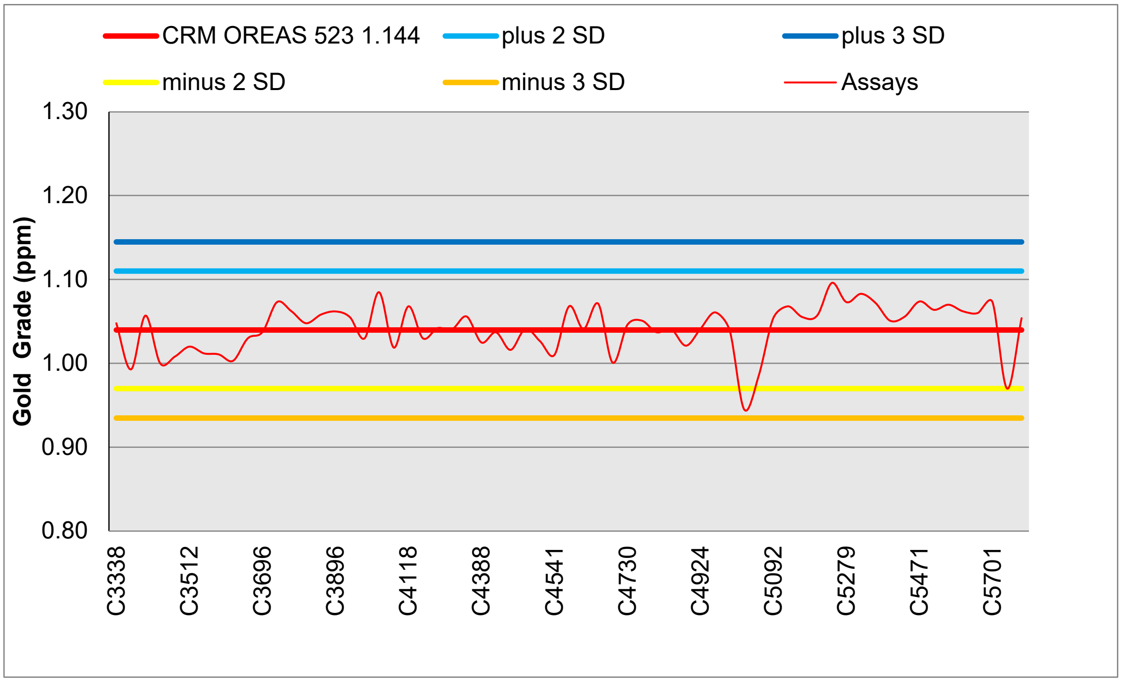


Figure 11-24: Bureau Veritas Standard GS-1Z (1.155 g/t Au)

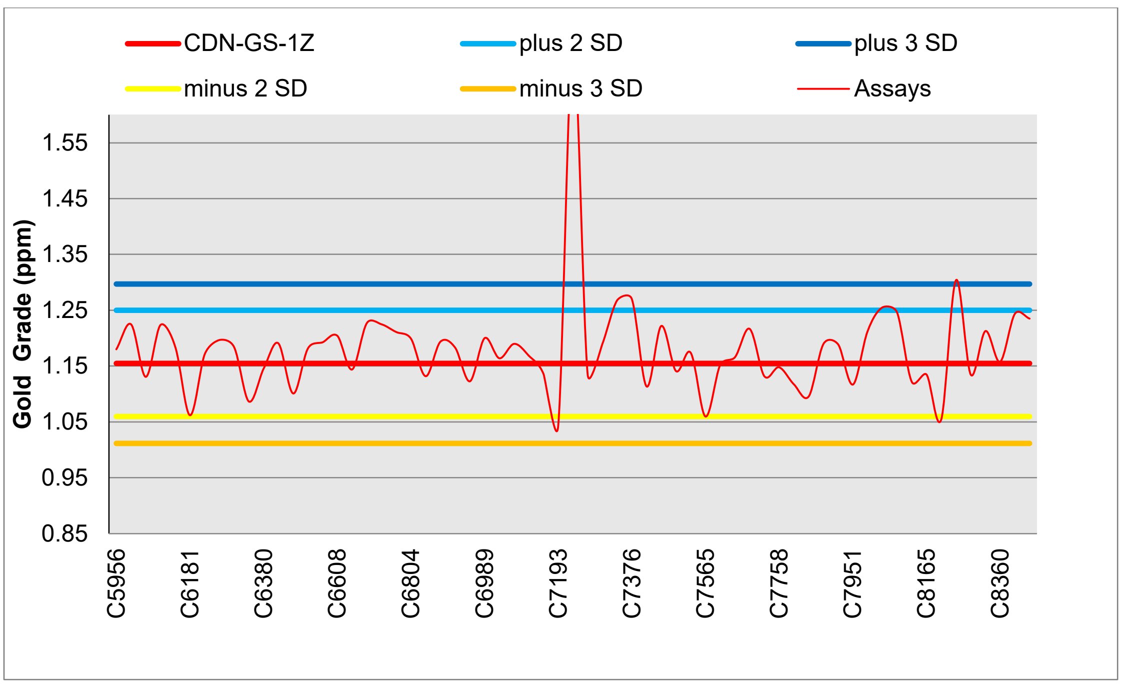
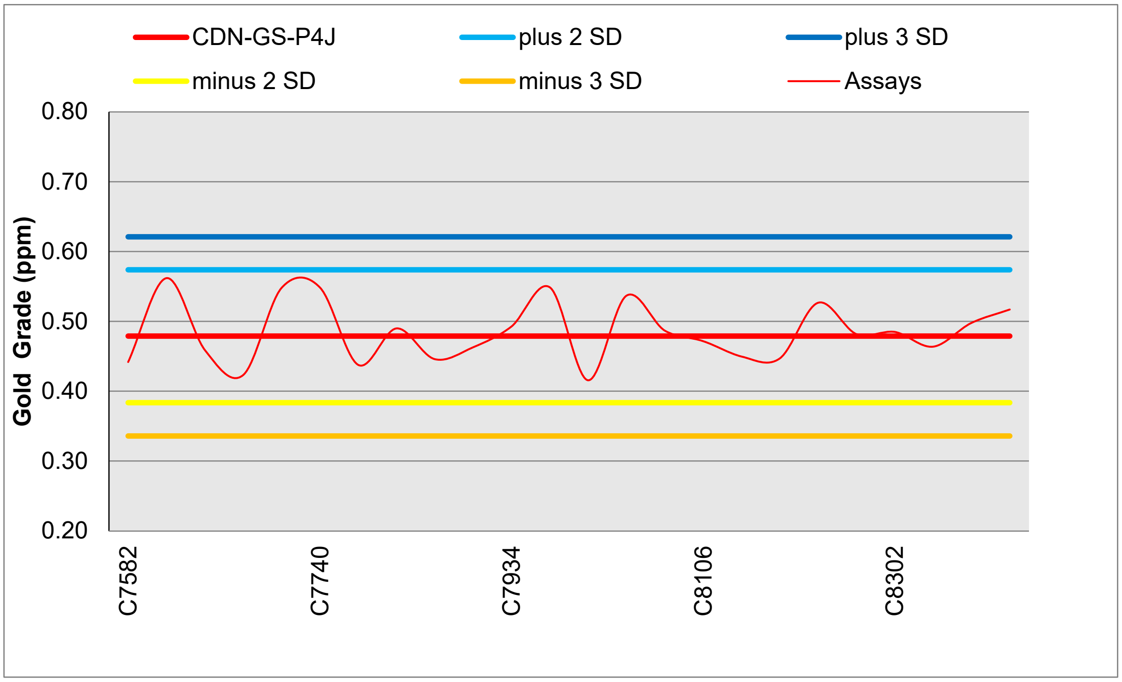


Figure 11-25: Bureau Veritas Standard CDN-GS-P4J (0.479 g/t Au)



Of the 264 standard samples added to the assay stream, four were failed as they were greater than three times the standard deviation. These results can be attributable to coarse gold and the nature of the mineralization and are similar to results recorded during the 2010–2011 Corex sampling programs. It is the author's opinion that the 2018–2021 sampling programs were conducted to industry standards.

It is the opinion of the author that the Corex QA/QC program was appropriate for a resource development drill program, and the QA/QC program met or exceeded industry standards. Results of analysis of blank, standard, and duplicate samples verify that the analytical results of the drilling programs are reliable and of sufficient quality for Mineral Resource estimation.

12 DATA VERIFICATION

12.1 Collar Locations

The drillhole collar locations recorded in the database have all been surveyed using high–precision GPS. Data verification of the existing database began by checking the collar coordinates of some drillholes that the QP of this section randomly selected in the field using a hand-held Garmin GPS device. The drillhole collars were easy to find and were well marked by PVC pipe that was inserted and cemented into the drillhole casing. The hole number was engraved in the cement contained in the PVC pipe. Figure 12-1 shows a typical drillhole monument at the Project.

The QP found the results of these surveys to be reliable when compared against the coordinates in the database, as they are within 2 m to 4 m. Table 12-1 shows a comparison of the QP's measurements and the coordinates recorded in the database.

Figure 12-1: Select Drillhole Collars

Table 12-1: QP Drillhole Survey vs. the Drillhole Database

QP Drillhole Survey (Garmin Handheld Device)				Drillhole Database (High-Precision GPS)			Variance		
Hole ID	Easting (UTM)	Northing (UTM)	Elevation (m asl)	Easting (UTM)	Northing (UTM)	Elevation (m asl)	Easting (UTM)	Northing (UTM)	Elevation (m asl)
SR08-09	674306.00	3139212.00	835.00	674306.99	3139213.76	838.40	–0.99	–1.75	–3.40
S10-043D	674308.00	3139208.00	835.00	674307.35	3139210.06	838.48	0.65	–2.06	–3.48
S10-062D	675243.00	3138946.00	940.00	675245.15	3138948.70	939.68	–2.15	–2.70	0.32
S11-103D	675299.00	3138936.00	919.00	675296.22	3138935.07	922.14	2.78	0.93	–3.14
S11-105D	675253.00	3139099.00	974.00	675255.07	3139096.78	972.57	–2.07	2.22	1.43
S11-107D	675298.00	3139068.00	932.00	675300.28	3139069.27	937.25	–2.28	–1.27	–5.25
S11-112D	674348.00	3139185.00	829.00	674342.00	3139183.00	824.00	6.00	2.00	5.00
S19-117D	675099.00	3139004.00	957.00	675100.94	3139005.07	955.41	–1.94	–1.07	1.59
S19-121D	674843.00	3139585.00	795.00	674847.78	3139596.16	799.11	–4.78	–11.16	–4.11
S19-126D	674947.00	3139561.00	815.00	674939.90	3139568.27	822.92	7.10	–7.27	–7.92
S20-137D	675138.00	3139028.00	972.00	675141.05	3139025.70	969.59	–3.05	2.30	2.41
S20-138D	675240.00	3139067.00	972.00	675240.43	3139062.46	970.79	–0.43	4.54	1.21
S20-153D	675157.00	3138802.00	868.00	675158.79	3138800.90	864.91	–1.79	1.10	3.09
SNT-DH-0004	673719.00	3139082.00	681.00	673712.00	3139073.00	680.21	7.00	9.00	0.79
						Average	**0.29**	**–0.37**	**–0.82**

The QP of this section, as an additional check, proposed that some additional drillhole collars be surveyed by Minera Alamo's mining contractor, Trigusa. The purpose of that survey was to check those collar locations using a high-precision GPS unit routinely used by the contractor. The results of these additional surveys versus the drillhole database are shown in Table 12-2.

Table 12-2: High-Precision GPS Check Survey vs. the Drillhole Database

Drillhole Coordinates (From Database)				Mine Contractor's Survey (High-Precision GPS)			Variance		
Hole ID	Easting (UTM)	Northing (UTM)	Elevation (m asl)	Easting (UTM)	Northing (UTM)	Elevation (m asl)	Easting (UTM)	Northing (UTM)	Elevation (m asl)
SR08-09	674306.991	3139213.755	838.402	674307.690	3139210.330	837.76	–0.699	3.425	0.642
SR08-11	674147.146	3139165.085	888.275	674146.820	3139165.190	887.56	0.326	–0.105	0.715
SR08-12	674119.996	3139197.058	886.097	674119.440	3139196.980	885.43	0.556	0.078	0.667
SR08-13	674119.980	3139195.852	886.378	674119.550	3139195.860	885.54	0.430	–0.008	0.838
SR09-21	675457.819	3139157.959	951.032	675457.510	3139157.860	950.1	0.309	0.099	0.932
SR09-22	675293.277	3139135.193	964.588	675292.920	3139134.950	963.71	0.357	0.243	0.878
SR09-23	675495.935	3139092.814	938.022	675495.870	3139092.650	937.27	0.065	0.164	0.752
SR09-37	674307.755	3139212.908	838.450	674307.030	3139213.260	837.67	0.725	–0.352	0.780
S10-042D	674307.820	3139210.710	838.460	674307.680	3139212.640	837.64	0.140	–1.930	0.820
S10-043D	674307.350	3139210.060	838.480	674307.150	3139209.630	837.64	0.200	0.430	0.840
S10-048D	675298.170	3139140.190	964.430	675297.970	3139140.110	963.85	0.200	0.080	0.580
S10-053D	674082.040	3139172.730	876.540	674081.570	3139172.650	875.69	0.470	0.080	0.850
S10-060D	675244.460	3138948.000	939.680	675244.960	3138948.250	938.82	–0.500	–0.250	0.860
S10-063D	673579.980	3139525.210	615.580	673579.530	3139525.110	614.5	0.450	0.100	1.080

Drillhole Coordinates (From Database)				Mine Contractor's Survey (High-Precision GPS)			Variance		
S10-076D	675158.760	3138973.640	945.550	675158.110	3138973.180	944.66	0.650	0.460	0.890
S10-092D	675219.030	3139071.270	983.930	675218.930	3139071.100	983.14	0.100	0.170	0.790
S10-094D	675115.530	3138962.690	957.350	675115.340	3138962.510	956.52	0.190	0.180	0.830
S10-095D	675196.520	3138972.570	943.870	675196.370	3138972.340	943.09	0.150	0.230	0.780
S11-099D	675223.280	3138965.490	942.170	675223.040	3138965.280	941.34	0.240	0.210	0.830
S11-100D	675295.610	3139039.870	934.730	675297.610	3139044.220	933.26	–2.000	–4.350	1.470
S11-102D	675162.910	3138933.640	928.550	675162.590	3138933.280	927.54	0.320	0.360	1.010
S11-103D	675296.220	3138935.070	922.140	675296.450	3138934.890	921.51	–0.230	0.180	0.630
S11-105D	675255.070	3139096.780	972.570	675254.850	3139096.690	971.75	0.220	0.090	0.820
S11-107D	675300.280	3139069.270	937.250	675300.100	3139069.170	936.42	0.180	0.100	0.830
S11-112D	674342.000	3139183.000	824.000	674343.810	3139183.220	829.82	–1.810	–0.220	–5.820
S18-114D	675288.452	3139161.554	951.294	675288.452	3139161.554	951.294	0.000	0.000	0.000
S18-115D	675287.968	3139161.110	951.275	675287.968	3139161.110	951.275	0.000	0.000	0.000
S18-116D	675083.813	3138963.288	946.528	675083.484	3138963.048	946.399	0.329	0.240	0.129
S18-117D	675101.156	3139005.577	955.542	675100.940	3139005.067	955.414	0.216	0.510	0.128
S18-118D	675100.671	3139005.034	955.540	675100.475	3139004.587	955.442	0.196	0.447	0.098
S18-119D	675086.152	3138918.488	943.283	675086.116	3138918.546	943.065	0.036	–0.058	0.218
S18-120D	674870.747	3139403.574	879.268	674870.747	3139403.574	879.268	0.000	0.000	0.000
S18-121D	674847.243	3139596.155	799.092	674847.776	3139596.159	799.106	–0.533	–0.004	–0.014
S18-122D	674858.325	3139425.219	865.457	674858.325	3139425.219	865.457	0.000	0.000	0.000
S18-123D	675191.601	3138931.449	926.282	675191.532	3138931.628	926.419	0.069	–0.179	–0.137
S18-124D	675125.353	3138901.988	929.548	675125.177	3138902.250	929.615	0.176	–0.262	–0.067
						Average	**0.042**	**0.004**	**0.407**

12.2 Electronic Database Verification

The analytical data (collars, surveys, and assays) were evaluated for anomalies and atypical results (visually and geostatistically) to check if they appeared erroneous against the original laboratory certificates. Table 12-3 provides a summary of the assay verification for all the exploration campaigns completed at the Santana Project.

Table 12-3: Santana Project Assay Verification

Drill Program	No. of Drillholes	No. of Intervals	Metres	% of Program
Corex (2008–2009)	41	3,305	5,065	100
Corex (2010–2011)	72	12,876	19,072	100
Vale (2013)	10	2,515	5,005	100
Minera Alamos (2018–2021)	56	7,595	11,049	100
Total	**171**	**26,291**	**40,191**	**100**

The full database with all assayed elements was created from the first hole to the last hole directly from the lab assays certificates, including blanks, duplicates, and standard materials. The database was then checked for overlapping assay intervals and abnormally high or unexplained negative values. No errors were found as part of this review.

12.3 Quality Assurance/Quality Control

As part of the QP's QA/QC activities, pulp samples originally assayed by ALS Chemex were sent to Bureau Veritas for re-assay, vice versa, pulps originally assayed by Bureau Veritas were sent to ALS Chemex for re-assay.

The results of the ALS Chemex original assays versus the Bureau Veritas re-assays are shown in Table 12-4and plotted in Figure 12-2. The results of the Bureau Veritas original assays versus the ALS Chemex re–assays are shown in Table 12-5 and plotted in Figure 12-3.

The assay results provided by ALS Chemex and the re–assay results from Bureau Veritas have a Pearson correlation coefficient of 0.83, which indicates a strong correlation between the assay results. The assay results provided by Bureau Veritas and the re–assay results from ALS Chemex have a Pearson correlation coefficient of 0.79, which indicates a moderate correlation between the assay results.

Table 12-4: ALS Chemex Assays vs. Bureau Veritas Re-Assay

QP Sample ID	Drillhole Database Sample ID	Chemex (Original) Au (ppm)	Bureau Veritas (Duplicate) Au (ppm)
RA1	C0054	0.005	0.008
RA2	C0095	0.010	0.008
RA3	C0183	0.030	0.023
RA4	C0223	0.116	0.119
RA5	C0308	0.194	0.236
RA6	C0475	0.745	0.371
RA7	C0561	0.133	0.093
RA8	C0593	0.105	0.082
RA9	C0738	0.002	0.002
RA10	C1105	0.461	0.531
RA11	C1190	0.120	0.094
RA12	C1355	0.307	0.241
RA13	C1430	1.090	1.043
RA14	C1466	0.289	0.257
RA15	C1618	0.111	0.112
RA16	C1871	5.500	1.936
RA17	C2775	0.104	0.127
RA18	C2809	0.108	0.117
RA19	C2910	0.002	0.002
RA20	C2943	0.005	0.002
RA21	C2982	0.268	0.126
RA22	C3040	0.156	0.183
RA23	C3059	0.298	1.292

QP Sample ID	Drillhole Database Sample ID	Chemex (Original) Au (ppm)	Bureau Veritas (Duplicate) Au (ppm)
RA24	C3216	0.107	0.138
RA25	C3302	0.283	0.281

Figure 12-2: QQ Plot Pulp Assay Check, ALS Chemex Original Assays vs. Bureau Veritas Re-Assays

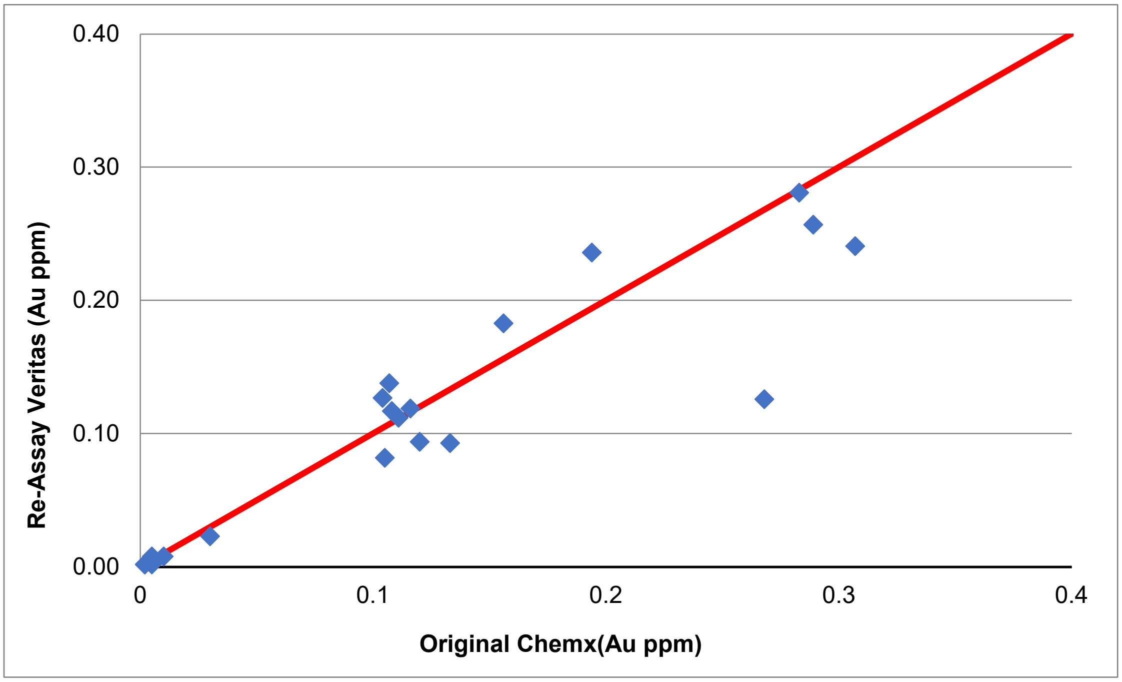
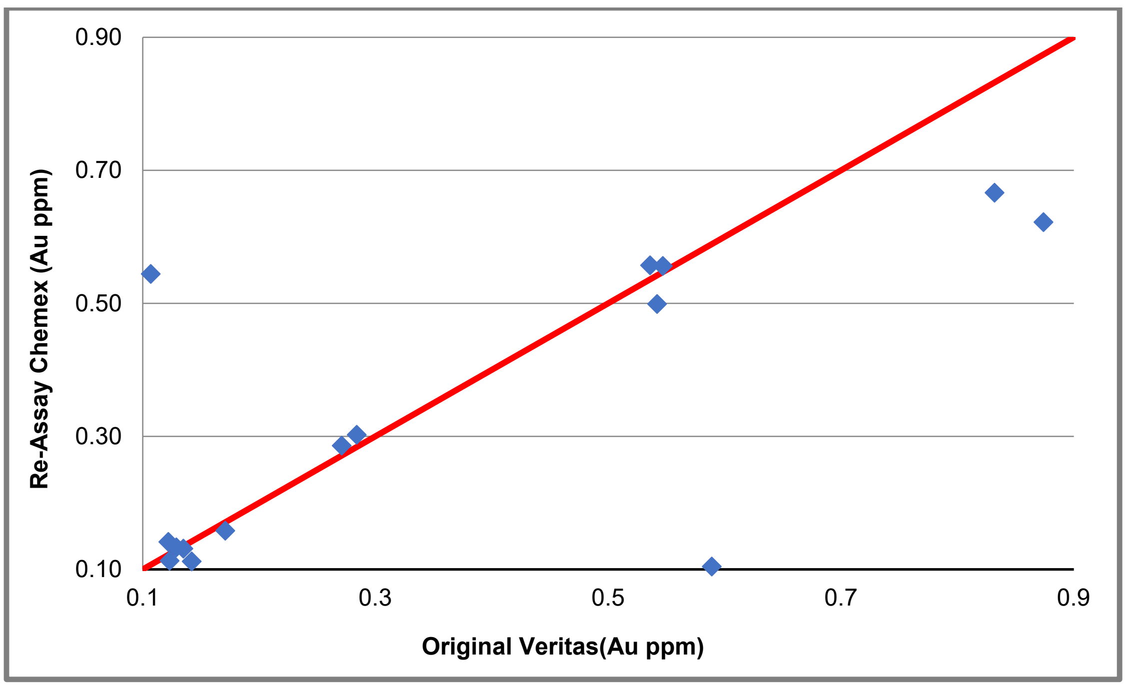


Table 12-5: Original Bureau Veritas Pulp Samples vs. ALS Chemex Re-Assay Results

QP Sample ID	Drillhole Database Sample ID	Bureau Veritas (Original) Au (ppm)	ALS Chemex (Duplicate) Au (ppm)
RA26	C3357	4.970	6.400
RA27	C3398	0.123	0.113
RA28	C4016	0.536	0.557
RA29	C4173	0.171	0.158
RA30	C4264	0.284	0.302
RA31	C4512	1.973	7.020
RA32	C4659	0.271	0.286
RA33	C4722	0.542	0.499
RA34	C4759	0.122	0.141
RA35	C4824	5.207	3.390

QP Sample ID	Drillhole Database Sample ID	Bureau Veritas (Original) Au (ppm)	ALS Chemex (Duplicate) Au (ppm)
RA36	C4860	1.748	1.915
RA37	C4942	0.157	0.060
RA38	C5029	0.462	1.285
RA39	C5089	2.180	2.330
RA40	C5201	0.122	0.050
RA41	C5648	0.589	0.104
RA42	C5751	0.107	0.544
RA43	C5852	0.547	0.556
RA44	C5883	0.647	0.010
RA45	C6256	0.129	0.133
RA46	C6409	0.135	0.131
RA47	C6570	0.832	0.666
RA48	C6577	0.874	0.622
RA49	C6827	0.142	0.112

Figure 12-3: QQ Plot Pulp Assay Check, Bureau Veritas Original Assays vs. ALS Chemex Re-Assays



12.4 Site Visit

Mr. Lawrence Segerstrom, M.Sc. Geology, CPG, the QP for this section of the Report, visited the Project site on April 27 and 29 of 2021. Mr. Segerstrom was accompanied during his site visit by Minera Alamos employees Miguel Cardona (Vice President Exploration) and Robelsis Antonio (Exploration Geologist) and, regarding data verification, was provided the opportunity to review the drillhole database, selected drillholes (core and RC chips), property details, and other miscellaneous items in relation to the Santana Project. There was no limitation on the ability of the Qualified Person to conduct data verification procedures.

The QP for this section of the Report collected three samples from outcrop during a site visit. The samples were submitted to a local laboratory for gold assay. Table 12-6 shows the coordinates of each sample along with the area from which it was taken, and the gold assay returned by the laboratory (Bureau Veritas).

Table 12-6: QP Sample Collection and Gold Assay Results

	East	North	Elevation	Au g/t	Area
MC2309	674938	3139382	904.2	1.62	Nicho North (test pit)
MC2310	647873	3139611	801.3	6.8	Divisadero
MC2311	675087	3138960	949.6	2.11	Nicho

Mr. Scott Zelligan, P.Geo, visited the Project site on April 4 and 5, 2018. Mr. Zelligan was accompanied by Miguel Cardona (Vice President Exploration). During the visit Mr. Zelligan had a full day to review core at the core library in Guadalupe de Toyopa and check it against the drillhole database. Another full day was dedicated to checking outcrops, the current bulk sample bench, and drill collar locations.

Mr. Zelligan was also given access to the full database of assay certificates. A review of randomly selected samples from the drillhole database found no variance from the original certificates.

12.5 Conclusion

In the QP's opinion, the various steps taken by Corex and Minera Alamos to ensure the integrity of analytical data are consistent with standard industry practice. The sampling procedures are appropriate for the style of mineralization and structural controls for the Santana Project and are adequate for the Mineral Resource estimate.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Most metallurgical data obtained for the Santana project was the result of studies completed between 2017 and 2021. This work included several laboratory test programs as well as a test leach pad operated at site from 2017 to 2019. Commercial-scale operations were subsequently initiated at the project in 2021.

The results of all the available metallurgical testwork and operational programs have been reviewed and are discussed in more detail in this section.

13.2 Historical Testwork (2008—2009)

During the 2008–2009 period samples of RC chips (typically <2 mm) were taken from exploration holes at various mineralized targets and sent to an external lab for evaluation via cyanide shake tests. The objective of the program was to obtain comparisons between the fire assay (total) gold contents in the samples and the cyanide shake (leachable) gold contents to provide some preliminary data as to the leachability of the gold contained in the newly defined mineralized areas. Randomly selected gold-bearing samples were taken from two areas being drilled—Turena (now Nicho and Nicho Norte) and Benjamin. Based on limited visual observations, samples were taken from zones defined as oxide, transition, and sulphide. It appears that the data were intended for a very preliminary review, without any detailed efforts to select samples based on, for example, lithologies.

Data are available from 47 RC chip samples sent for analysis. Of those, the majority (33) were from the areas now referred to as Nicho and Nicho Norte, and the results are summarized below. The recoveries, as listed, were calculated based on the cyanide shake test gold content divided by that obtained from fire assay. Cyanide shake tests were completed using 15 g of pulverized sample leached for 1 hour in a hot solution of 5,000 ppm NaCN and 5,000 ppm NaOH. There is no information to indicate whether other test conditions were evaluated to determine if the ones used were optimal for the Project samples. Recovery results from the Nicho and Nicho Norte samples are given in Table 13-1.

Table 13-1: Nicho and Nicho Norte Test Samples

Oxidation State	Zone	Number of Samples	Average Gold Recovery (%)
Oxide	Nicho Norte/Nicho	17	77
Transition	Nicho Norte/Nicho	7	59
Sulphide (Nicho Norte)	Nicho Norte	5	17
Sulphide (Nicho)	Nicho	4	37
Total		**33**	**-**

Overall, results from the cyanide shake tests provide evidence of gold leachability (including transition and sulphide material). However, extremely limited test leach-times means that calculated recoveries are not indicative of ultimate recoveries via cyanidation in a commercial operation. This is especially evident for the sulphide samples where gold-leaching kinetics would be expected to be significantly slower than that observed for oxide material.

13.3 Leach Amenability Testwork (2017)

As part of the Project diligence completed prior to the acquisition of the Project by Minera Alamos (acquisition of Corex), several core check samples were obtained and evaluated via coarse mineral leach procedures to confirm their suitability for heap leaching. As a test leach pad was planned (see Section 13.4) at the Santana Project to provide detailed metallurgical data on the oxide gold mineralization, the core samples were visually selected to represent what could qualitatively be considered worst case (with respect to leachability) sulphide zone mineralization in the main Nicho Zone.

The focus of this phase of testwork was not to provide optimal heap leaching parameters, but rather to determine if the sulphide mineralization in the deposit could be eliminated (or not) as a source for gold recovery along with the upper oxide material. The samples were tested at crush sizes (1/4" and 1/2") approaching the minimum practical size that could be produced in a commercial heap leach operation. Should the mineralization be leachable at this size range it could be assumed that the sulphide areas of the deposit were viable, and additional testwork programs would be warranted to examine larger crush sizes to determine the optimal parameters for a commercial operation.

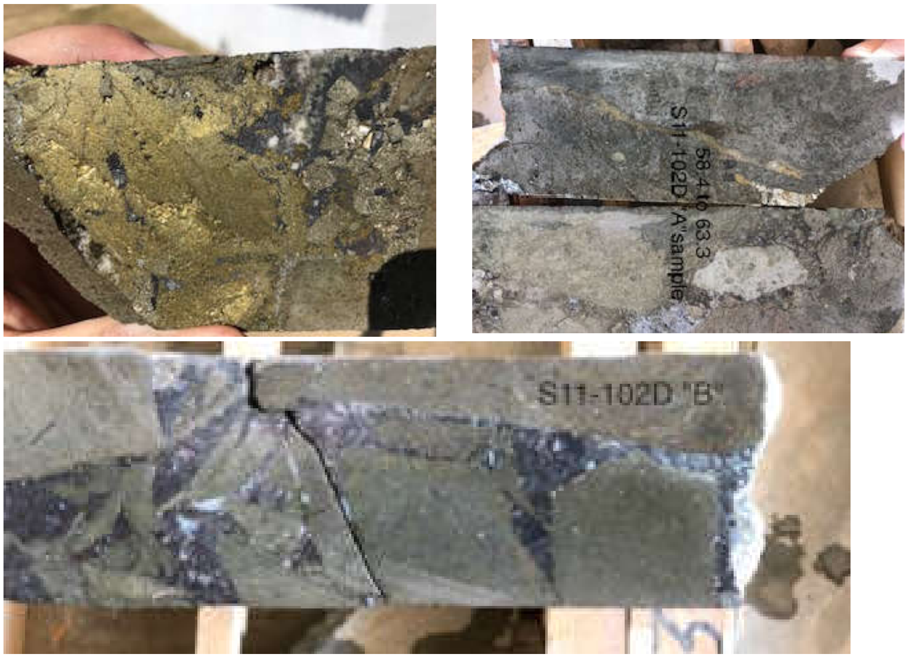
Samples selected for evaluation are summarized in Table 13-2. The first two core samples (Batch 1) consisted of fine disseminated sulphides and were crushed to <1/2”. The remainder (Batch 2) were selected to contain more massive sulphides (including chalcopyrite) and were crushed into two size fraction subsamples <1/4" and <1/2". All were subjected to typical coarse bottle roll techniques (50% solids, 1,000 ppm NaCN, one minute rolling/h, 28 d leaching minimum). Due to the selection methods employed (i.e., worst-case sulphide) the copper contents in the sample were significantly elevated from what would be typical for the overall deposit. Results from the coarse mineral bottle leach programs are summarized in Table 13-3. Photographs of the Batch 2 core samples are shown in Figure 13-1.

Table 13-2: Sulphide Screening Testwork

Sample ID	Head Grades		Crush Size	Notes
	Gold (ppm)	Copper (ppm)		
CN35	0.30	1,900	<1/2"	Disseminated fine sulphides
CN36	1.06	400	<1/2"	Disseminated fine sulphides
058D-A	2.20	1,600	1/2"/ 1/4"	Breccia containing massive Py/Cpy in fillings
058D-B	1.20	3,500	1/2"/ 1/4"	Breccia containing massive Py/Cpy in fillings
058D-C	0.66	1,200	1/2"/ 1/4"	Breccia containing massive Py/Cpy in fillings
102D-A	3.50	4,600	1/2"/ 1/4"	Breccia containing massive Py/Cpy in fillings
102D-B	1.60	150	1/2"/ 1/4"	Breccia containing massive Py in fillings

Note: Where two subsamples (1/4" and 1/2") were created the stated assay grades are the average of the two samples.

Figure 13-1: Photos from Batch 2 Cores Samples



Note: Photos from Batch 2 Cores Samples (left to right and down)—058D-B / 102D—A / 102D—B

Table 13-3: Coarse Mineral Bottle Leach Programs

Sample ID	Gold Recovery (%)	Leach Time (d)
CN35	+60	42
CN36	62	42
058D-A	59/70	28
058D-B	78/65	28
058D-C	77/67	28
102D-A	35/65	28
102D-B	67/85	28

Notes: Where samples were tested at two sizes the recoveries listed are for ½" and ¼".

Results from the Nicho Zone sulphide screening testwork program are as follows:

- Gold contained in areas of sulphide mineralization appears to be recoverable via heap leaching methods.
- In almost all cases, gold recovery was gradual (versus rapid kinetics with oxide samples) and was still increasing materially as the tests were concluded, indicating that overall recoveries would be expected to increase as leach times are extended (i.e., heap leach conditions). Further optimization studies can examine the trade-offs between recovery, leach time, and crush size (including sizes >½”) to determine the most economic leaching conditions.
- For most samples, gold recoveries of 60%–70% (or greater) were achievable at a crush size of ½" despite the limited leach times used for the bottle roll tests.

- In all cases gold recovery kinetics were significantly faster than those for copper. Copper levels increased very gradually in accordance with leach times. These results are typical for mineralization where the gold is free and available for leaching and not encapsulated in the sulphide minerals and opens the opportunity to minimize copper extraction during commercial operations by controlling free cyanide at minimal levels, with limited impact on overall gold recoveries.
- Reagent consumptions were typical of those expected on the low end of the range for heap leach operations for both lime (~ 2 kg/t or less) and cyanide. Variations in cyanide consumptions were driven primarily by levels of soluble copper and can be minimized during commercial operations (see bullet above).

13.4 Nicho Norte Test Leach Pad Summary (2017–2019)

A test leach pad was constructed at the Santana Project site in 2017 under the authorization of a temporary environmental permit license. The leach pad area was constructed with an internal berm so that different phases of material could be leached under commercial type conditions. Adjacent to the pad were two small ponds (pregnant and barren) and a pilot-scale carbon adsorption system to remove leached gold from the circulating solutions. As appropriate, loaded carbon from the system was shipped for offsite processing and doré production.

Mineralized material for the test leach pad was obtained from surface outcrop at the Nicho Norte zone. This mining zone consisted of a mix of upper breccia-style mineralization (as is common in the main Nicho deposit) and QFP intrusive material typical of the rock deeper in each zone. The extracted mineralization was transferred to the test leach pad area for final processing. No attempts were made to separate any possible low-grade waste from the mined material prior to leaching. Approximately 50,000 tonnes of material were loaded and leached in three sequential phases to investigate different operating parameters. Phases 1 and 2 were leached as single lifts until additional gold recovery was minimal. Phase 3 was loaded on top of Phases 1 and 2 and leached last. The different phases are summarized in the Table 13-4. The gold recoveries from each of the different phases of leaching are summarized in Table 13-5.

Table 13-4: Material Quantity and Crush Size by Test Leach Pad Phase

Leach Pad Phase	Quantity (t)	Parameters
Phase 1	23,000	Crushed to <2"–3", no agglomeration
Phase 2	9,000	Crushed <5/8", agglomerated
Phase 3	19,000	Mixed ROM and crushed <2"–3"
Total	**51,000**	

Table 13-5: Test Leach Pad Gold Recovered by Leach Pad Phase

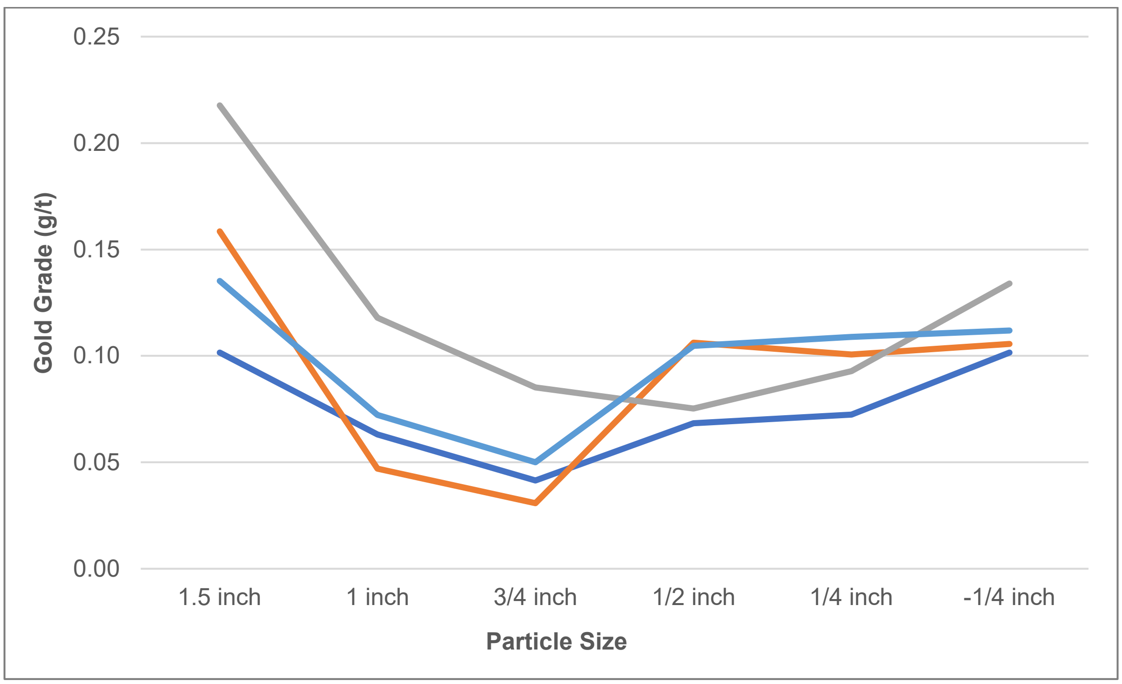
Leach Pad Phase	Gold Recovered[1] (g)	Head Gold Grade (g/t)	Notes[2]
Phase 1	14,940	0.65	Bulk of recovery completed in 60–90 d

Leach Pad Phase	Gold Recovered[1] (g)	Head Gold Grade (g/t)	Notes[2]
Phase 2	5,860	0.65	Bulk of recovery completed in 30–45 d
Phase 3	13,300	0.70	
Total	**34,100**	**0.67**	

Notes: [1] Gold recovered is calculated as gold adsorbed onto carbon in the test plant recovery system. Figures were in reasonable agreement with gold contained in final doré after carbon stripping.
[2] Solution-pumping system at test leach pad was limited and unable to supply commercial application rates over the entire leach surface (solution was cycled from area to area). Therefore, leach recovery times are longer than would have been achieved with consistent application rates over the entire surface.

Following the completion of Phase 3 the entire pad was leached for an additional time then four bulk samples were taken to be analyzed for residual gold content. The samples were taken by trenching down approximately 1.5 m from surface. All samples were subject to size analysis, with individual size fractions analyzed for residual gold content. The d_{80} (80% passing) sizes for the samples ranged from approximately 1"–1.5" down to 5/8". The results for the analyses on the samples are illustrated in Figure 13-2. The average grades of the final residue samples were consistent, at approximately 0.10 g/t Au (±0.05 g/t). The gold content by particle size was also relatively consistent for all sizes less than 1". A visible increase in residual gold was observed for rock sizes greater than 1".

Figure 13-2: Bulk Sample Results— Particle Size vs. Residual Leaching



In general, it can be stated that the Santana Project test leach pad operations demonstrated that the Nicho Norte mineralization was very consistent in terms of both gold content and metallurgical performance. Highlights from the program are as follows:

- Residual gold assays in the leach pad were approximately 0.10 g/t or less for all samples tested, and at rock sizes of 1" or less.
- Calculated head grades for the different phases of mineralized material mined from the Nicho Norte deposit were approximately 0.75 g/t Au to 0.77 g/t Au.
- Ultimate gold recoveries from all phases of leaching were approximately the same, and in the range of 85%.
- Gold extraction kinetics were faster for finer crushed material (30 d–45 d) but with similar ultimate recoveries.
- Ultimate reagent consumptions for all combined phases of leaching were low, at approximately 0.20 kg/t (for both cyanide and lime).

13.5 Coarse Bottle Roll Test Program (2020)

A coarse bottle roll testwork program was performed in 2020 at the Laboratorio Tecnologico de Metalurgia in Hermosillo. The purpose of the program was to compare samples of oxide mineralization taken from the Nicho Zone to material from the Nicho Norte Zone (which was the source of mineralization for the heap leach test operations completed at the Santana Project). Testwork was completed on two samples from the Nicho Zone and a single sample taken from inside the Nicho Norte Zone from within the open pit. All samples were divided into three size fractions (−1"/+3/4", −3/4"+1/2", −1/2"+1/4") and each size fraction was processed according to standard coarse bottle roll techniques (1,000 ppm NaCN, 50% solids, 1 minute rolling/h, 28 d total leach time).

The head analyses (by size fraction) of the samples sent for leaching are summarized in the Table 13-6. Overall, the average grades of the samples were considerably lower than the resource grades for each zone, except for the finer size fraction material from the two Nicho Zone samples. It is possible that the variation in grades by size fraction for the two Nicho Zone samples is illustrative of the breccia style of the material that was selected for the testwork, where the gold is concentrated more in the fractures within the breccia matrix. Copper content was low and relatively consistent through all oxide samples. Figure 13-3 to Figure 13-5 illustrate the gold extraction leach results for the samples.

Table 13-6: Leach Sample Head Grade Assays

Sample ID	Crush Size	Gold Grade (g/t)	Copper Grade (ppm)
Nicho #1	–1"+3/4"	0.161	26.89
Nicho #1	–3/4"+1/2"	0.170	47.86
Nicho #1	–1/2"+1/4"	0.692	69.47
Nicho #2	–1"+3/4"	0.117	31.45
Nicho #2	–3/4"+1/2"	0.121	22.99
Nicho #2	–1/2"+1/4"	0.882	48.83
Nicho Norte #3	–1"+3/4"	0.187	50.00
Nicho Norte #3	–3/4"+1/2"	0.185	54.45
Nicho Norte #3	–1/2"+1/4"	0.188	67.97

Figure 13-3: Gold Recovery Nicho Sample #1

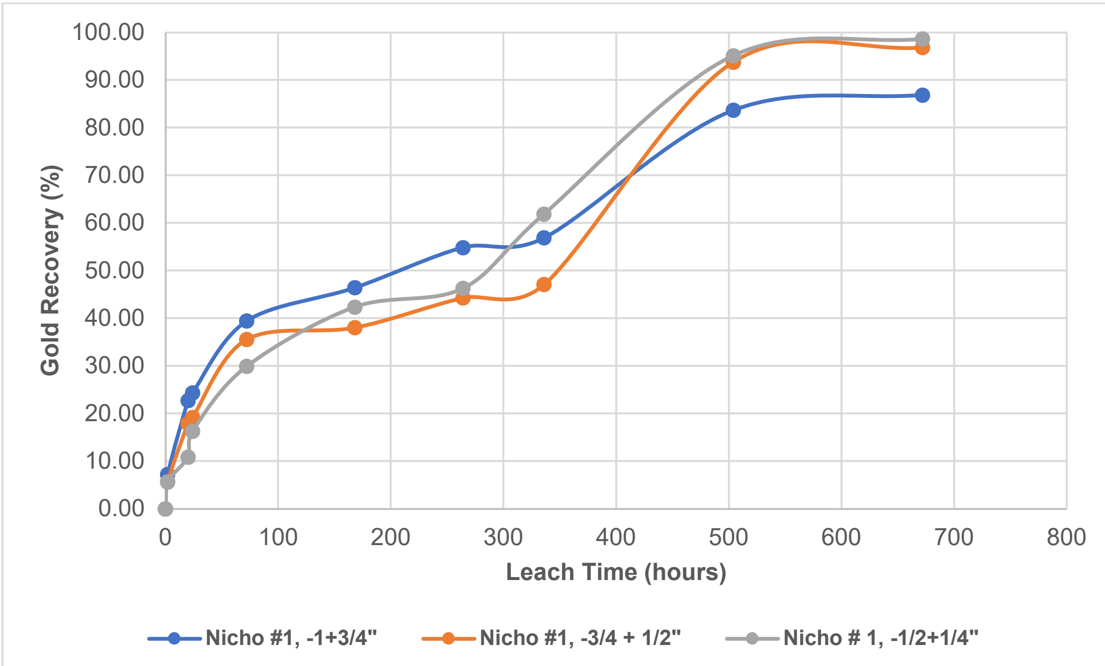


Figure 13-4: Gold Recovery Nicho Sample #2

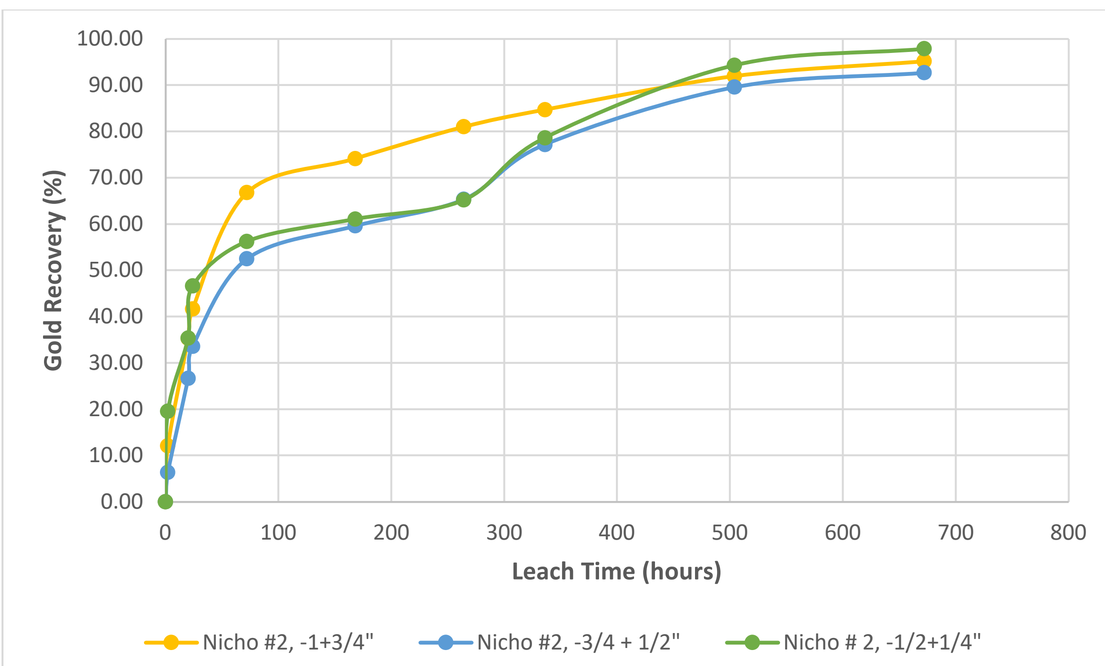
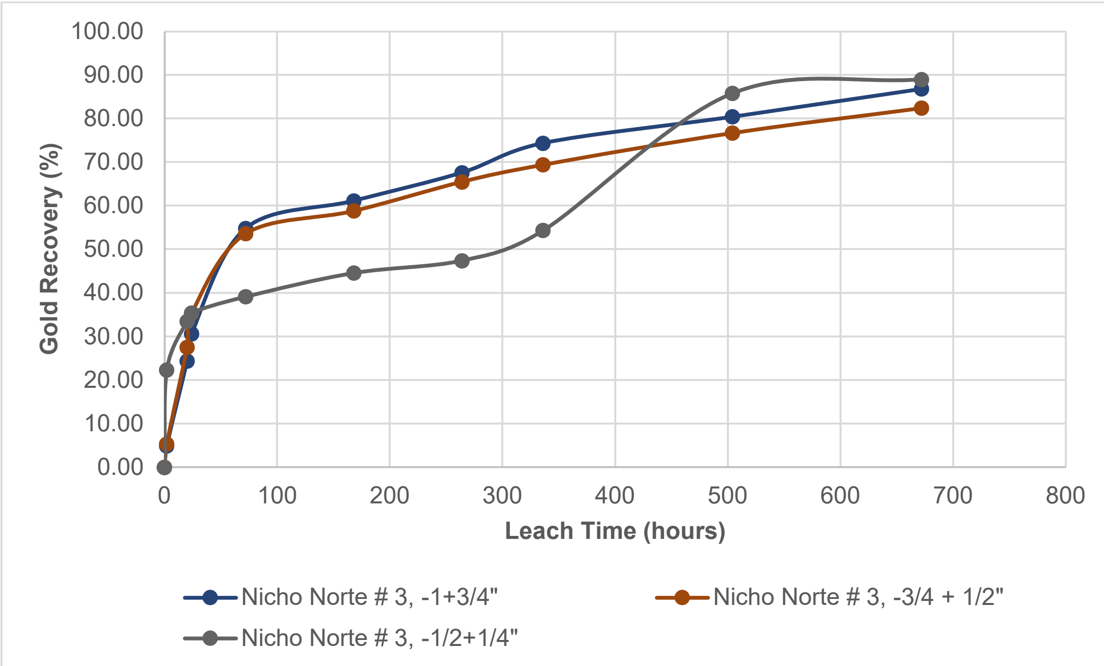


Figure 13-5: Gold Recovery Nicho Norte Sample #3



Despite the low head grade of many of the samples, the ultimate leach recoveries for all size ranges across the samples approached 90% or greater, including the two Nicho Zone samples with the fine size fractions (–1/2"+1/4"). The high amenability to gold recovery from the samples is illustrated by the extremely low residual gold grades (across all size fractions) contained in the solids following the completion of the tests. Table 13-7 provides a summary of the residual gold grades for each sample.

Table 13-7: Residual Gold Grades by Leach Sample

Sample ID	Crush Size	Residue Analysis Gold Grade (g/t)
Nicho #1	–1"+3/4"	0.081
Nicho #1	–3/4"+1/2"	0.025
Nicho #1	–1/2"+1/4"	0.014
Nicho #2	–1"+3/4"	0.010
Nicho #2	–3/4"+1/2"	0.016
Nicho #2	–1/2"+1/4"	0.010
Nicho Norte #3	–1"+3/4"	0.027
Nicho Norte #3	–3/4"+1/2"	0.036
Nicho Norte #3	–1/2"+1/4"	0.043

The coarse bottle testwork completed during this program demonstrated that the gold contained in the oxide material form the Nicho Zone is highly amenable to recovery via heap leaching and similar in metallurgical characteristics to that observed for the Nicho Norte mineralization. Highlights from the program are as follows:

- Residual gold assays in all sample size fractions were extremely low (as observed for <1" material reported previously for Nicho Norte). The residual values were lower than those observed in the test pad operations (approximately 0.10 g/t Au). Although this would be expected due to the low-grade nature of the majority of the original head grade assays, it was also observed for the two more typical resource-grade samples from Nicho that had size fractions of –1/2"+1/4" (See samples—Nicho #1 and Nicho #2).
- Ultimate gold recoveries from all samples tested approached or exceeded 90%.
- Gold extraction kinetics were similar for all three samples.
- Copper recoveries for most of the samples tested were considerably lower (50%–80% less) than that seen for the gold recoveries, despite the much greater starting concentration. This is indicative of the fact that the two components are not interlocked mineralogically and the ultimate extractions of the residual copper content in the mineralization can be managed effectively through reductions in free cyanide concentration without impacting the gold recoveries.
- Lime consumption for the Nicho #2 and Nicho Norte samples was in the 1 kg/t–1.5 kg/t range, which is consistent with previous work on Nicho Norte material. The Nicho #1 sample had an increased lime consumption of 3 kg/t–4 kg/t, which might warrant some follow-up investigation to determine the cause.
- Cyanide consumptions were in the 4 kg/t to 5 kg/t range which is typical for these types of 28-day tests at a free cyanide concentration level of 1,000 ppm and should equate to lower levels during heap leach operations.

13.6 Nicho Norte Bottle Roll Test Program (2021)

A bottle roll testwork program was undertaken in 2021 at the Laboratorio Tecnologico de Metalurgia in Hermosillo. The purpose of the program was to confirm that expected reagent consumption of the Nicho Norte mineralization placed on the new Santana Project heap leach pad (commissioned in H2-2021) were in-line with previous metallurgical studies. Samples were taken from the material being stacked, as well as from the 895-bench in the Nicho Norte open pit. Samples were subjected to both static leaching (40% solids, ROM size, 1,000 ppm NaCN, 6 d) for reagent consumption data as well as standard bottle roll methods (40% solids, 100% <10 mesh, 1,000 ppm NaCN, 3 d) for metal extraction and reagent consumptions.

The head analyses (by size fraction) of the samples sent for leaching are summarized in Table 13-8. Overall, the average grades of the samples were in reasonable agreement with the expected resource grades for the zone. Copper content was low and relatively consistent with previous metallurgical programs.

Table 13-8: 2021 Leach Samples (Head Grades by Size Fraction)

Sample ID	Total Gold[1] (g/t)	Total Silver[2] (g/t)	Total Copper[2] (g/t)
PATIO M1	0.770	2.69	38.38

Sample ID	Total Gold[1] (g/t)	Total Silver[2] (g/t)	Total Copper[2] (g/t)
PATIO M2	0.321	3.39	28.91
PATIO M3	0.554	2.05	40.50
NN895 M1	0.549	4.44	26.43
NN895 M2	2.036	5.11	73.50
NN895 M3	0.447	5.52	28.88

Notes: [1] Total gold from fire assay and atomic absorption.
[2] Total silver and copper from acid digestion (mixture of four acids) and atomic absorption.

Highlights from the program are as follows:

- Gold extractions ranged from 88%–96% across the samples tested.
- Copper recoveries were considerably lower (80%–90% less) than those seen for the gold recoveries, despite a much greater initial concentration. This is indicative of the fact that the residual copper content in the mineralization can be managed effectively through reductions in free cyanide concentration without impacting the gold recoveries.
- Lime consumption for the standard bottle roll tests was approximately 1 kg/t. Consumption for the static tests was lower and ranged from 0.1 kg/t–0.3 kg/t. All values provide further confirmation of the fact that lime consumption for the Nicho Norte mineralization is expected to be low.
- Cyanide consumptions were less than 1 kg/t, which is typical for this type of 3-d to 6-d test that has a 1,000-ppm free cyanide concentration and should equate to low levels during heap leach operations.

13.7 Metallurgical Results Summary and Conclusions

An extensive database of metallurgical test data is available for the Nicho and Nicho Norte mineralized zones. This includes commercial operation-type results from a 50,000 tonne test heap leach pad constructed and operated at the site. The key observations from these programs include:

- Gold mineralization appears to be generally well disseminated throughout the host rock, with little correlation to rock particle-size distributions. There was some evidence that, in the breccia zone material that exists above the deeper QFP intrusive, some small-scale enrichment may occur in the fractures between the breccia matrix fragments.
- Overall copper content in the oxide mineralization was low and leaching results indicate that the extraction of this copper should be manageable using free cyanide-level control (low concentrations) in the leach solutions, with little impact on overall gold recoveries.
- Gold mineralization in the oxide zones of the deposit responds positively to gold cyanidation. Residual gold levels following heap leaching are expected to be approximately 0.1 g/t Au or less. At mined head grades of 0.6 g/t Au–0.7 g/t Au this would equate to gold recoveries of more than 80%.
- Although more data is available for material from the Nicho Norte satellite deposit, comparative studies looking at samples from the Nicho main deposit appear to exhibit similar results.

- Leach kinetics are rapid for particle sizes up to approximately 1" (30 d – 45 d or less). Although kinetics were seen to slow somewhat at sizes greater than 1", ultimate gold recoveries at the end of the extended leach period were simar to those experienced with the finer-sized material.
- Leach tests on samples of worst-case sulphide material from the Nicho zone exhibited acceptable gold recoveries approaching 70% at crush sizes of <0.5" (coarsest size used for screening tests). Further testwork is warranted for this part of the deposit to better optimize actual required crush sizes and to examine the impact of larger particle sizes on overall gold recoveries.
- Major reagent consumptions are expected to be low (<2 kg/t lime and 0.3 kg/t–0.5 kg/t cyanide).

14 MINERAL RESOURCE ESTIMATES

This Technical Report represents the first Mineral Resource estimate for the Santana Property (2023 MRE). The estimate has been prepared by Scott Zelligan, P.Geo., an independent QP as defined in NI 43-101, using all available information to the effective date of this report (May 31, 2023).

The Resource was classified according to the CIM Definition Standards. The classification considered the drill and sample spacing, QA/QC, and deposit type. The estimate used an indicator model and the ordinary kriging (OK) method to interpolate gold (Au) grades. The density was also estimated from core measurements within the same mineralized envelope established for the grade modelling and using the inverse-distance-squared (ID2) method to interpolate specific gravity (SG) values.

Mr. Zelligan was provided with the original or raw data set that included all collar, survey, lithology, and assay files, as well as topographic data and geological interpretations. Mr. Zelligan was given extensive access to Company geologists to discuss geologic interpretations and visited the site in 2018 to confirm the geology.

14.1 Methodology

The 2023 MRE covers the deposits of the Santana Project, including Nicho, Nicho Norte, Benjamin, and Divisadero. Ubaldo was also estimated but did not meet the criteria at this time for reasonable economic extraction. The deposits are contained within a volume of approximately 1,400m (Easting) x 1,100m (Northing) x 350m (Elevation).

The model for the Santana deposits was prepared using Leapfrog GEO+EDGE (version 2022.1.1) and Datamine Studio 3 (version 3.21.7164.0). Leapfrog was used for the mineralized solid modelling via modified gold-grade indicator interpolation, and for the grade estimation using the EDGE extension and the OK method for gold grade and ID2 method for SG. Datamine was used for evaluations against economic pit outputs and final grade-tonnage tabulation. Statistical studies and calculations were completed using Leapfrog, Datamine, and Excel (Microsoft 365). Capping and validations were carried out in Leapfrog and Excel.

The main steps in the methodology were as follows:

- Compile and validate the drillhole databases used for Mineral Resource estimation.
- Validate the geological model and interpretation of the mineralized zones, guided primarily by geology and constrained by gold grade indicator modelling.
- Validate the drillhole intercepts database, compositing database, and gold capping values for the purpose of geostatistical analysis.
- Perform and validate the block model and gold grade interpolation.
- Validate the classification of the block model.
- Assess the resources with "reasonable prospects for economic extraction" via economic open pit shells.
- Generate a Mineral Resource statement.

14.2 Database

The author was provided with the complete drillhole database in comma-separated values (CSV) files and Excel spreadsheet format (XLSX) that contained the collar, assay, lithology, specific gravity, and downhole survey data current to March 31,2022. Topography was provided by Minera Alamos as a wireframe in AutoCAD Drawing Exchange Format (DXF). The topography surface was produced by the Company's contract surveyor.

The drilling database that was used for resource estimation comprises diamond drillholes (DDH) that were drilled from 2008 to 2021 (Figure 14-1). There are 212 DDHs containing 29,368 Au samples and 1,869 SG measurements. Table 14-1 shows the summary statistics of the assay database by type.

Table 14-1: Summary Statistics of the Assay Database by Drillhole Type

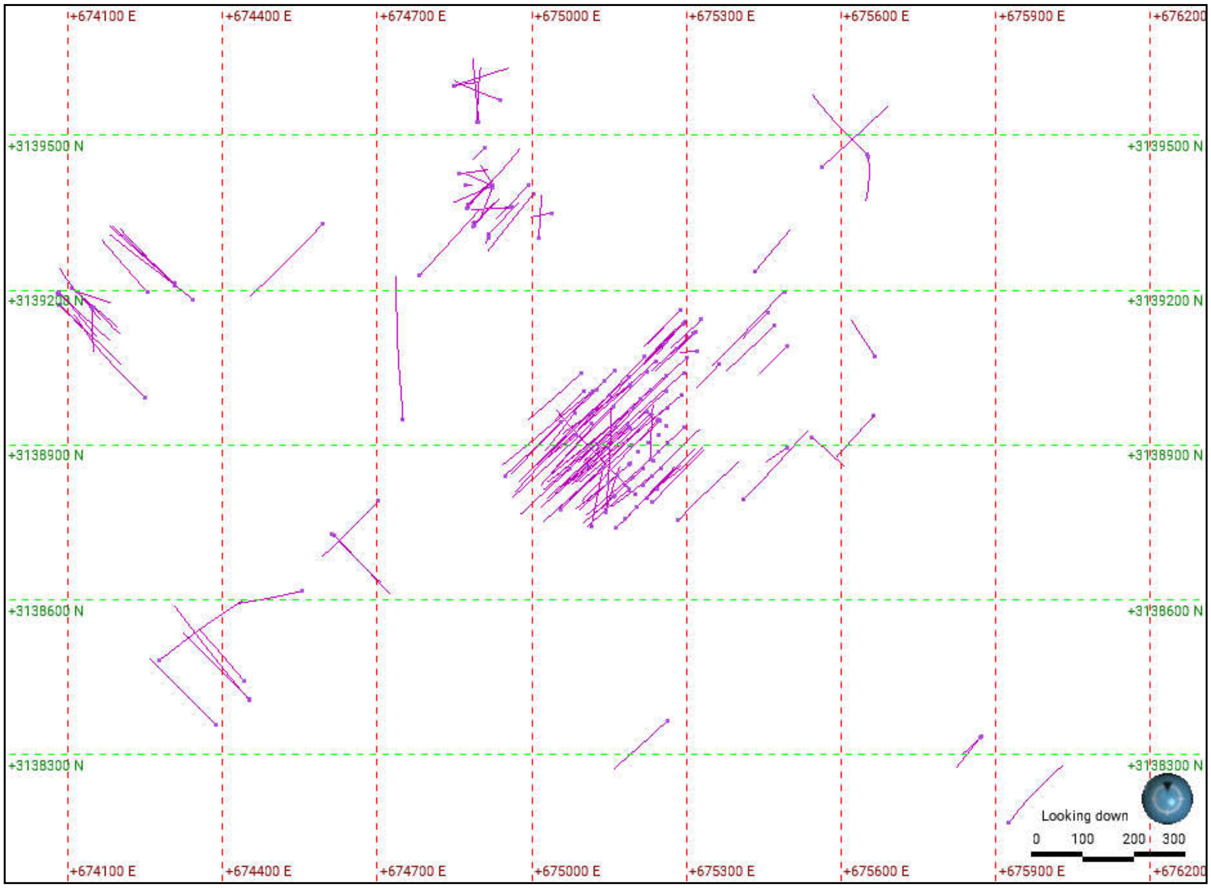
Drillhole Type	Number of Samples	Max (g/t Au)	Mean (g/t Au)	Standard Deviation (g/t Au)	COV
DDH - Au	29,368	100	0.21	1.03	4.91
DDH - SG	1,869	3.51	2.66	0.17	0.06

Note: Not all sampled intervals were used in the estimate of the mineral resource.

The drilling database includes gold assays for the Santana deposits. The database covers the length of the resource area at variable drillhole spacing, ranging from 10 m to 25 m for the mineralized areas (and wider spaced beyond).

Extensive modelling and statistical work were performed to analyze the effect of the oxide zone on gold grade and specific gravity. Due to the fractured nature of the rock, the oxide-sulphide transition zone of each of the deposits is irregular and difficult to model using wireframing techniques. Given this, and due to the high number of datapoints for both Au and SG, and the regular and tightly spaced drillholes, it was decided to model without a boundary and allow the measured variations to populate the blocks accordingly. Metallurgical testwork (see Section 13) is ongoing and results from limited sulphide samples tested to date indicate the potential for heap leaching of this material although final required parameters like crush sizes are not yet fully understood. It has been recommended that the Company continue to evaluate the overall database of exploration information with a goal of incorporating geo-metallurgical information into future resource estimates.

Figure 14-1: Drillholes Used for 2023 Mineral Resource Estimation



14.2.1 Comments on Drillhole Database

The drillhole data for Santana is extensive and modern. All data validates well and the spacing is very regular in the mineralized areas that make up the bulk of the MRE. This allows for a high confidence when it comes to resource categorization.

14.3 Geological Model

The main mineralized zones of the Santana project exhibit strong, low-sulfidation alteration characterized by pervasive and structurally controlled sericite-quartz-calcite alteration with associated disseminated iron oxides, quartz vein stockworks and clay alteration. Numerous historical pits and small underground workings are evident in the area. Gold and silver mineralization is controlled by both lithologic and structural features and presents itself at the Nicho and Nicho Norte zones as mineralized elliptical sub-vertical hydrothermal breccias that are 300-500 m in diameter and hosted in stocks and batholithic intrusions. The author was able to view these mineralized zones in both drill core and at surface during a visit to the Property.

The domains used for this estimation were primarily driven by the logged mineralized zones and gold grade distribution to constrain the edges of the estimate. As discussed above, oxide-sulphide boundaries are harder to model due to the variable depths associated with fracturing, however the drill spacing allowed for these differences to be modelled using the estimation techniques.

Composites were created to support the estimation of gold indicators in Leapfrog and the length of 2.5 m was selected using the maximum length of sampling.

The geometric definition of the mineralized volume was carried out via traditional wireframing techniques and modified using gold indicator interpolation with the cut-off of 0.25 g/t Au in Leapfrog, using 2.5 m long composites. Mineralized zone constraints were defined with probability equal to or greater than 50% to be above 0.25 g/t. The anisotropy directions considered a steeply-dipping, bulk mineralized volume guided by a hydrothermal breccia, with a search of up to 100 m vertically and along strike and 80 m laterally to avoid spreading mineralization beyond the well-defined and well-drilled deposit areas. Contact profiles were analyzed to determine the effectiveness of the wireframing (Figure 14-2, Figure 14-3, Figure 14-4). Nicho displays a sharp grade boundary, Nicho Norte & Divisadero have a sharp drop in grade followed by a slight halo of low grade, while Benjamin & Ubaldo display a less clear boundary. This is to be expected as these areas have lower overall grades and have less data, which influenced classification discussed later in this section.

Figure 14-2: Contact Profile for Nicho Mineralized Wireframe

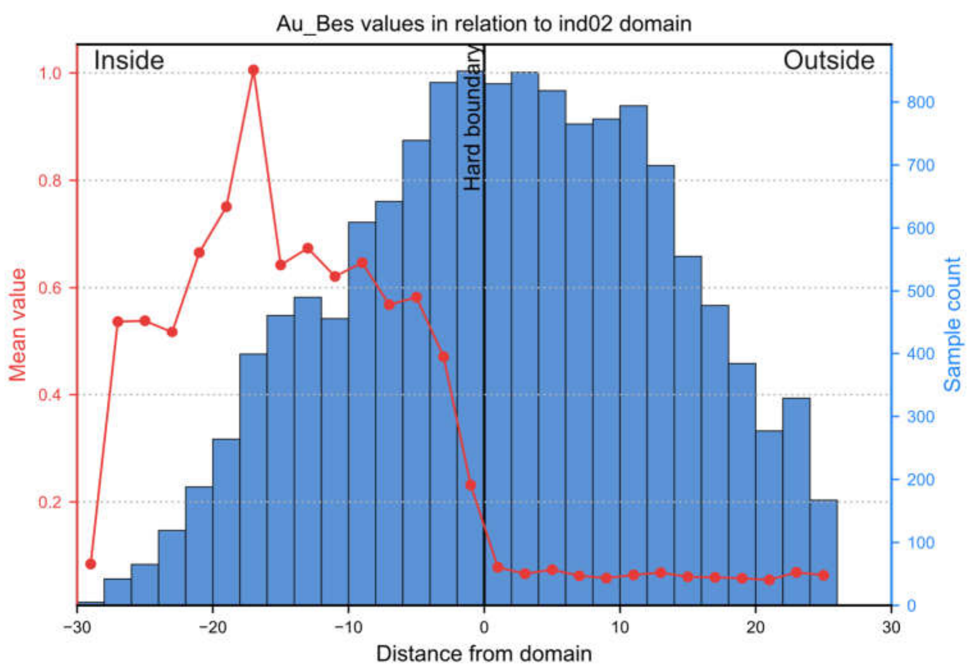


Figure 14-3: Contact Profile for Nicho Norte & Divisadero Mineralized Wireframe

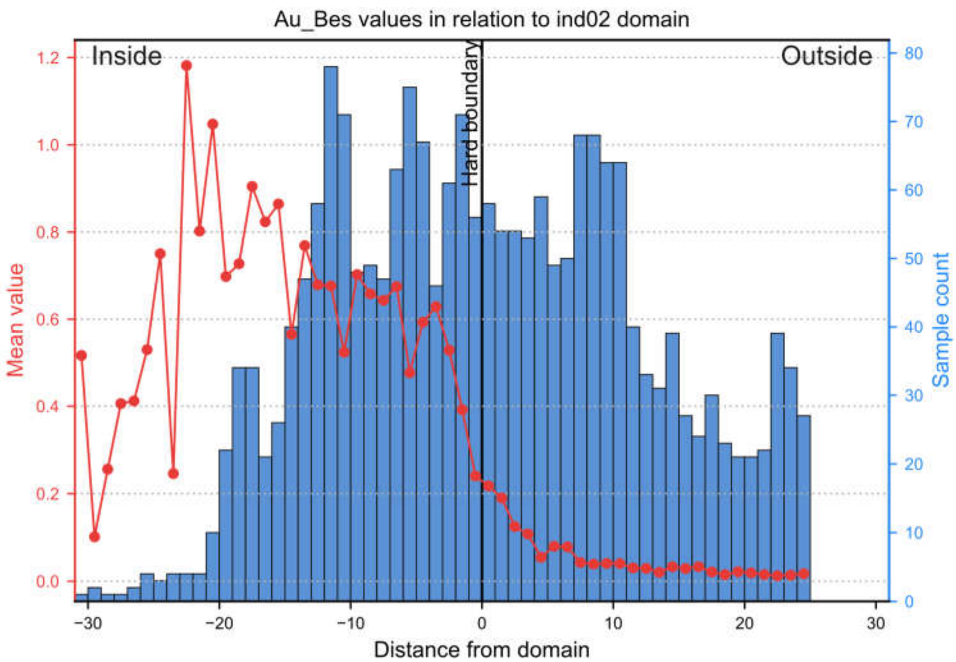


Figure 14-4: Contact Profile for Benjamin & Ubaldo Mineralized Wireframe

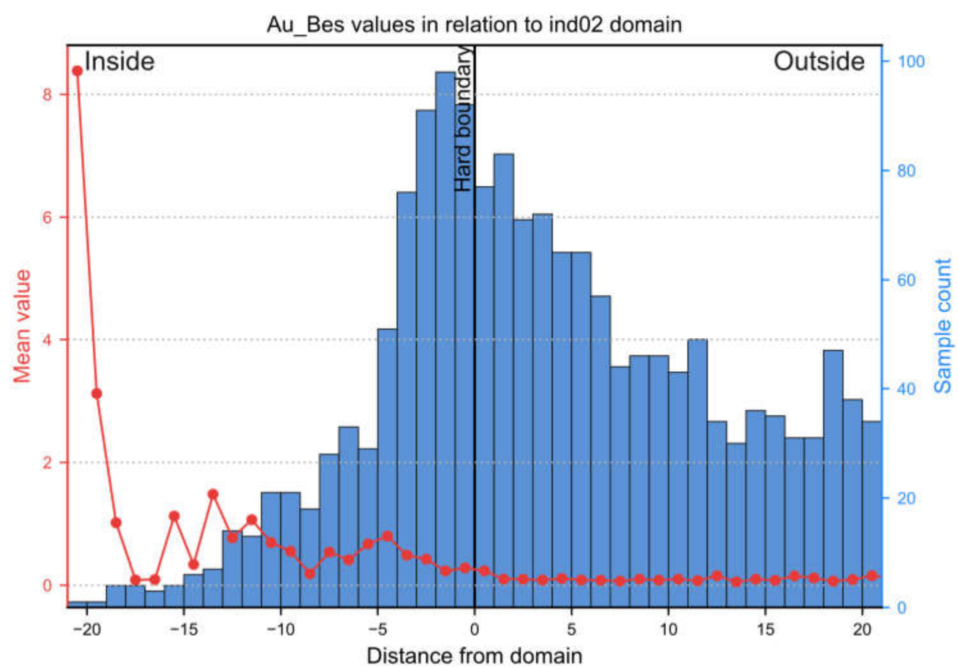


Figure 14-5 shows the mineralized volumes in plan view. Figure 14-6 shows the mineralized volumes at Nicho in cross section, and Figure 14-7 shows the mineralized volumes at Nicho Norte and Divisadero in cross section.

Figure 14-5: Mineralized Volumes Santana Deposit

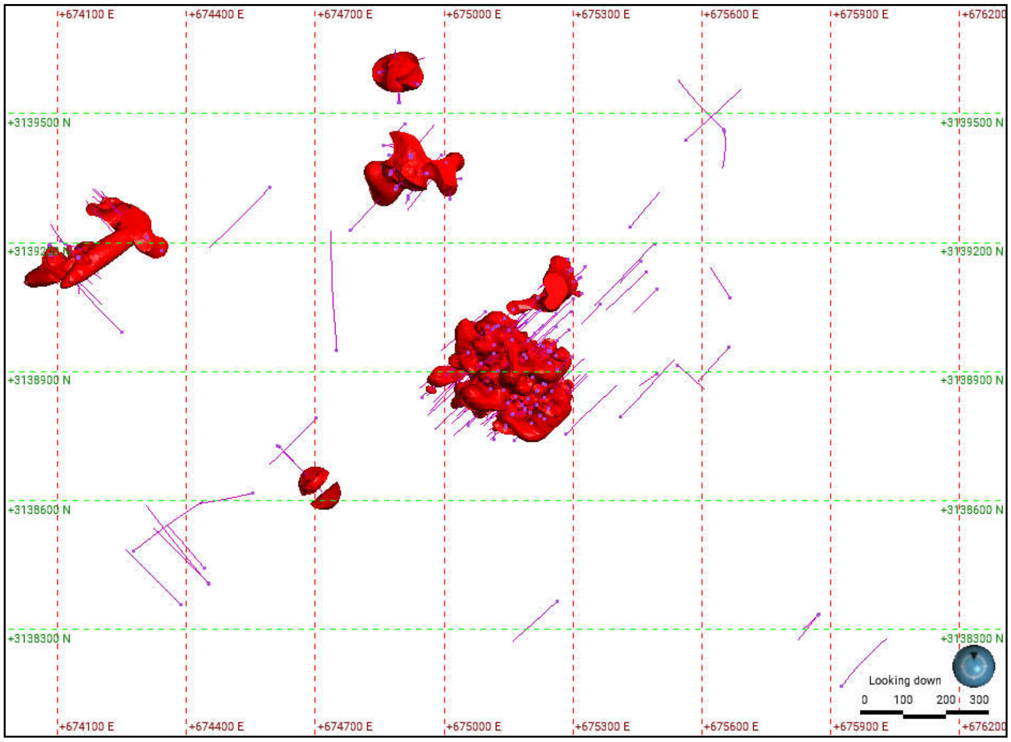


Figure 14-6: Mineralized Volumes Nicho Cross Section

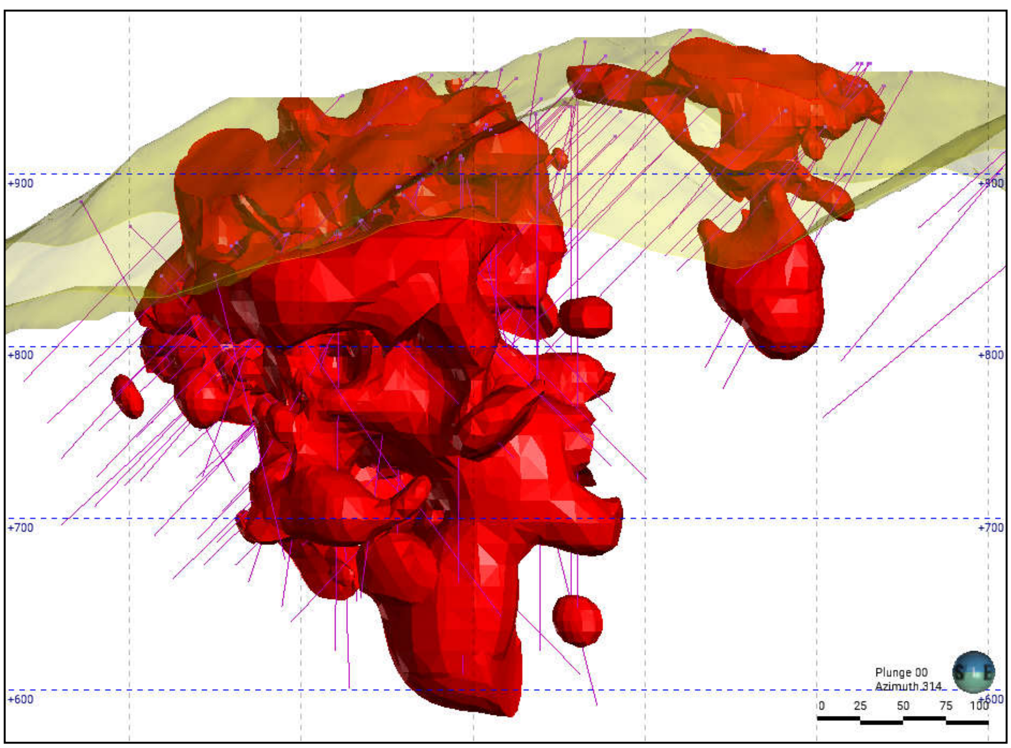
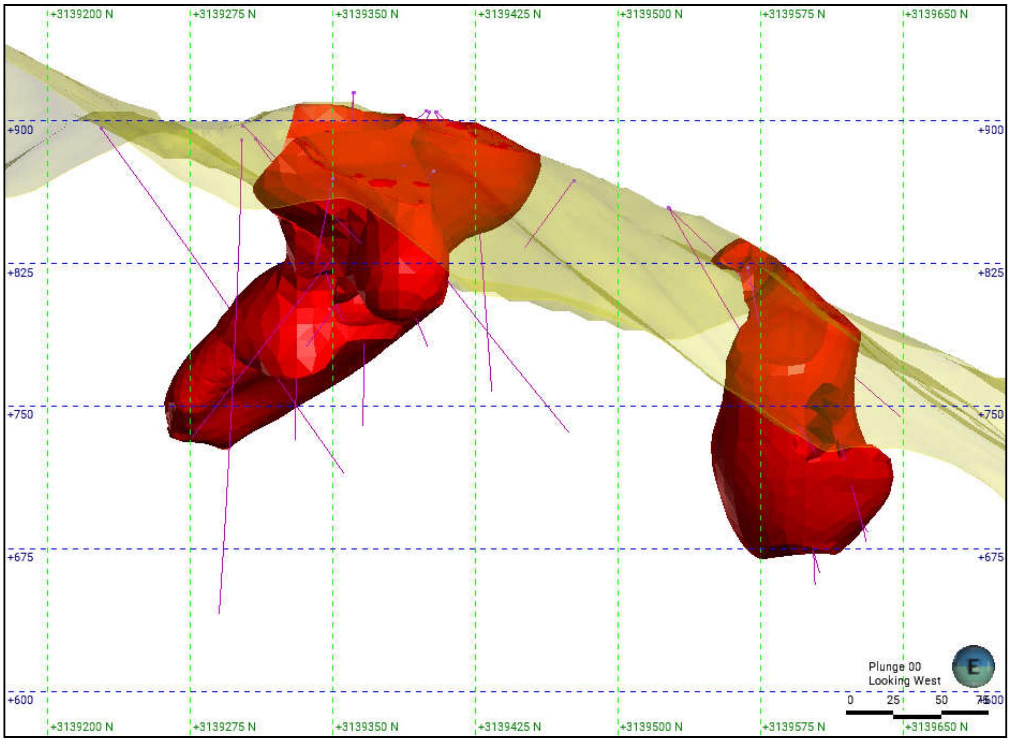


Figure 14-7: Mineralized Volumes Nicho Norte and Divisadero Cross Section



14.4 Composites for Resource Estimation

The 1.5 m composites selected to estimate the mineralized blocks are those contained within the mineralized zone, defined in Leapfrog from the wireframe modelling and augmented by the indicator interpolation. These composites were then capped to limit the impact of local extreme grades. Missing sample intervals were replaced with zero grade for gold. Figure 14-8 shows the histogram of interval length showing that the 1.5m sample length was the dominant one used at the deposits.

Codes were automatically attributed from the drillhole assay intervals that were composited in 1.5 m lengths and intersect the mineralized volume as defined. These composites were then capped to limit the impact of local extreme grades.

Table 14-2 shows the Santana deposit summary statistics for gold prior to compositing, and Table 14-3 shows the same after using 1.5 m length composites before capping. Note that the coefficient of variance value for gold is below 2.3 for uncapped composites; this is relatively low and speaks for the well-behaved statistical grade distribution. Compositing has reduced the higher coefficient of variance (CoV) (2.85) seen in the raw data, which may have been partially due to high-grade sampling bias.

Figure 14-8: Histogram of Sample Lengths at Santana

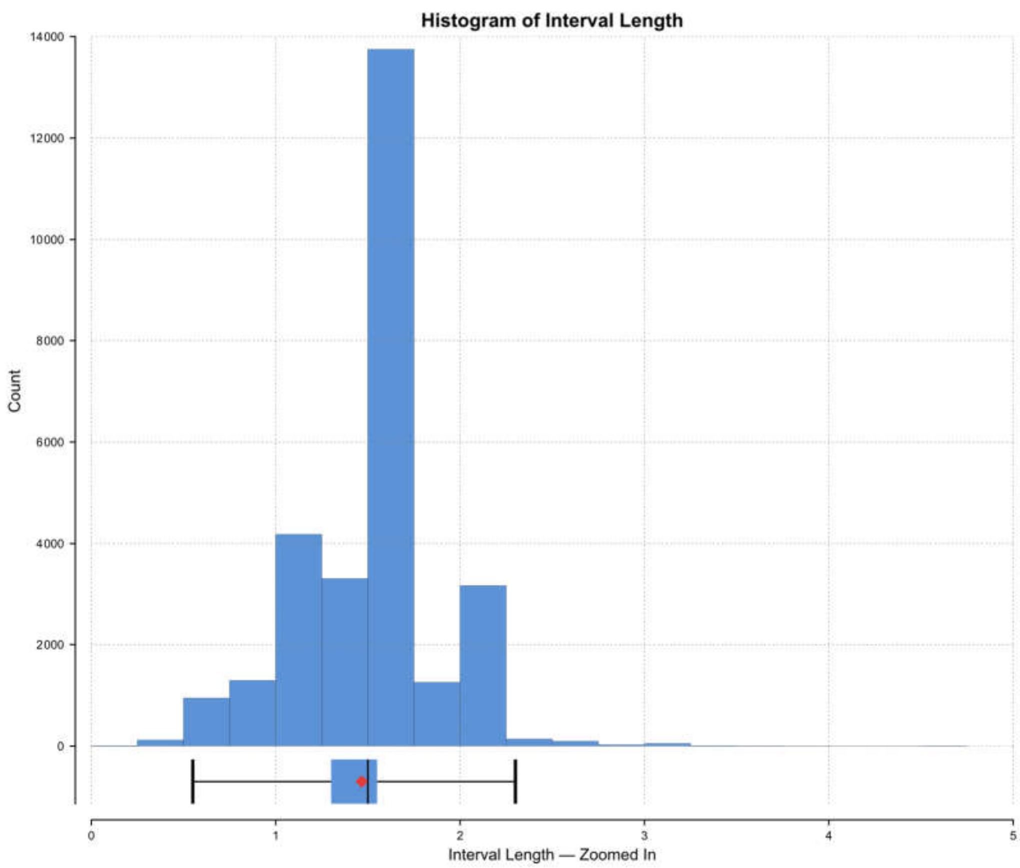


Table 14-2: Summary Statistics for Gold Prior to Compositing or Capping

Deposit	Number of Samples	Maximum (Au g/t)	Mean (Au g/t)	Standard Deviation (Au g/t)	Coefficient of Variation
Nicho	6,159	100	0.56	1.61	2.85
Nicho Norte & Divisadero	1,050	5.99	0.61	0.61	1.00
Benjamin & Ubaldo	615	9.50	0.49	1.05	2.16

Table 14-3: Summary Statistics for Gold Prior to Capping

Deposit	Number of Composites	Maximum (Au g/t)	Mean (Au g/t)	Standard Deviation (Au g/t)	Coefficient of Variation
Nicho	5,592	42.8	0.56	1.26	2.24
Nicho Norte & Divisadero	1,038	5.34	0.61	0.54	0.90
Benjamin & Ubaldo	602	8.06	0.48	0.90	1.86

14.5 High-Grade Capping

After compositing, grade capping was investigated for gold, by estimation zones. Table 14-4 shows the capping choices and the effect of that value on the summary statistics. Figure 14-9 through Figure 14-14 show the histograms and log probability plots for each area which were utilized to decide the capping values. Over 99% of the values were conserved in all areas while also improving the coefficient of variation (CoV) results.

Table 14-4: Capping Breakdown by Estimation Area

Deposit	Cap Value (Au g/t)	Number of Composites	Maximum (Au g/t)	Mean (Au g/t)	Standard Deviation (Au g/t)	Coefficient of Variation
Nicho	12.0	5,592	12.0	0.55	1.05	1.91
Nicho Norte & Divisadero	3.20	1,038	3.20	0.60	0.53	0.87
Benjamin & Ubaldo	4.40	602	4.40	0.46	0.74	1.62

Figure 14-9: Gold Histogram Comparison Pre/Post-Composite Nicho

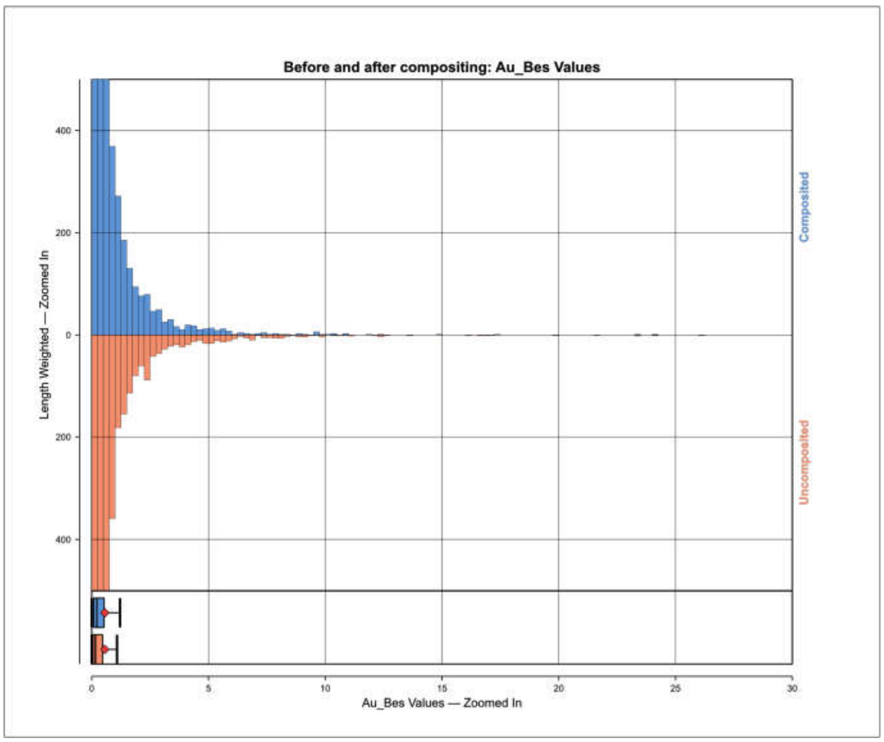


Figure 14-10: Gold Probability Plot Nicho

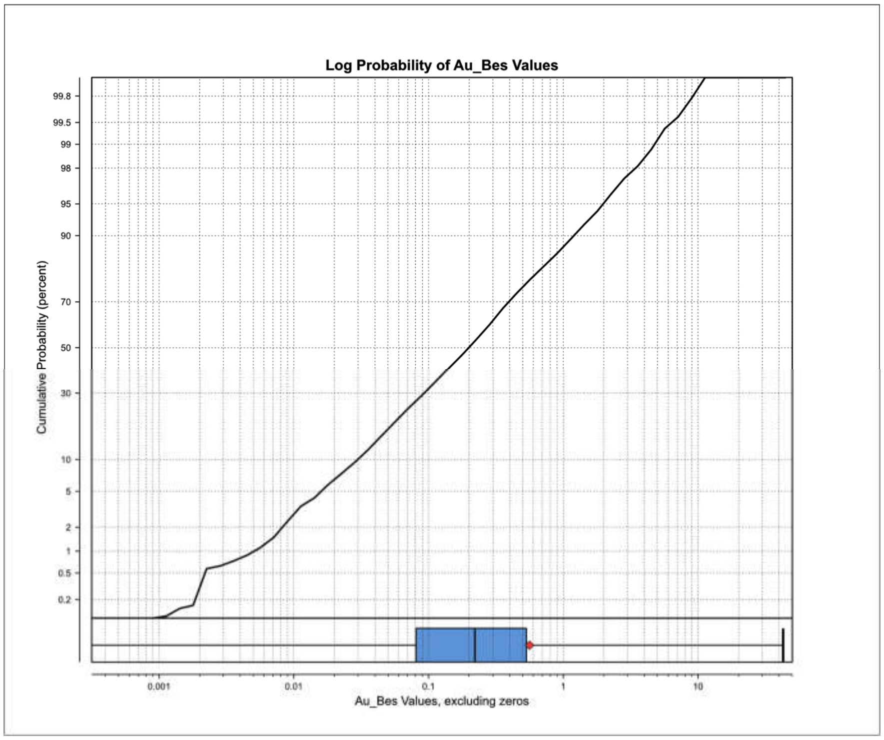


Figure 14-11: Gold Histogram Comparison Pre/Post-Composite Nicho Norte & Divisadero

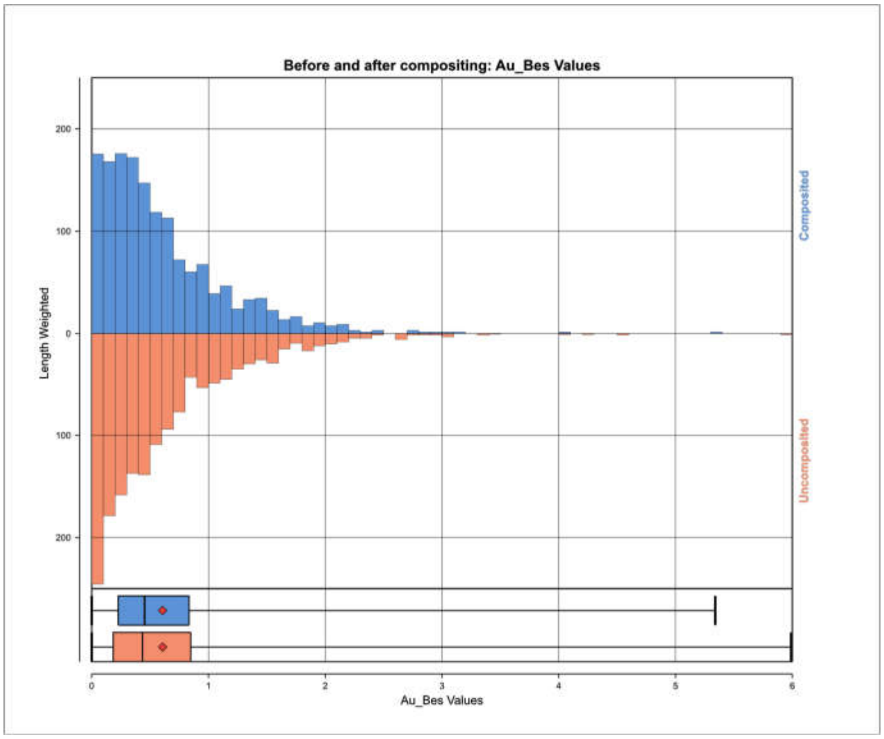


Figure 14-12: Gold Probability Plot Nicho Norte & Divisadero

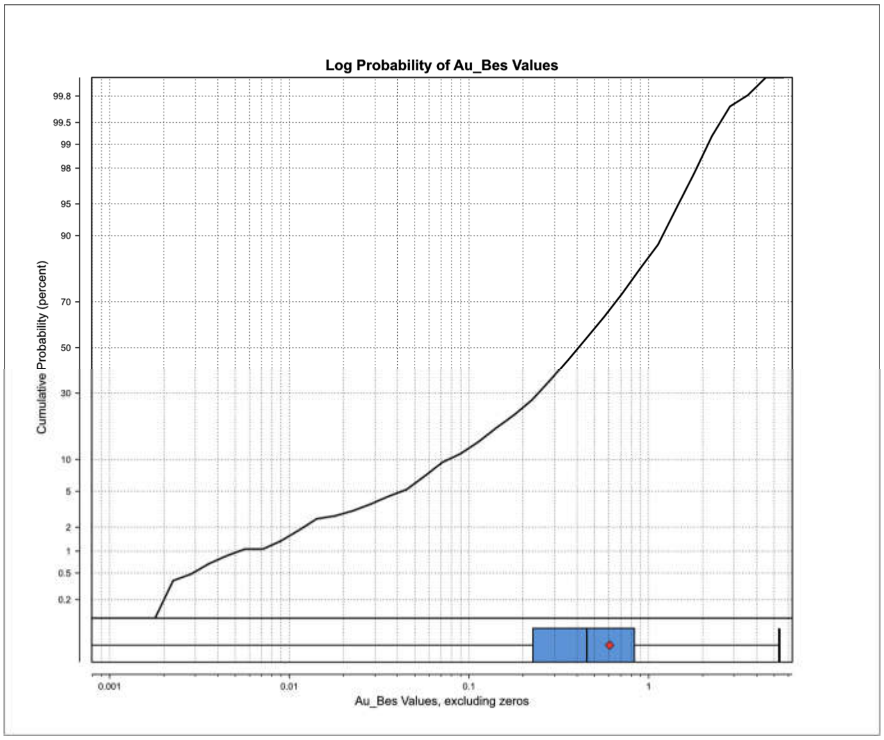


Figure 14-13: Gold Histogram Comparison Pre/Post-Composite Benjamin & Ubaldo

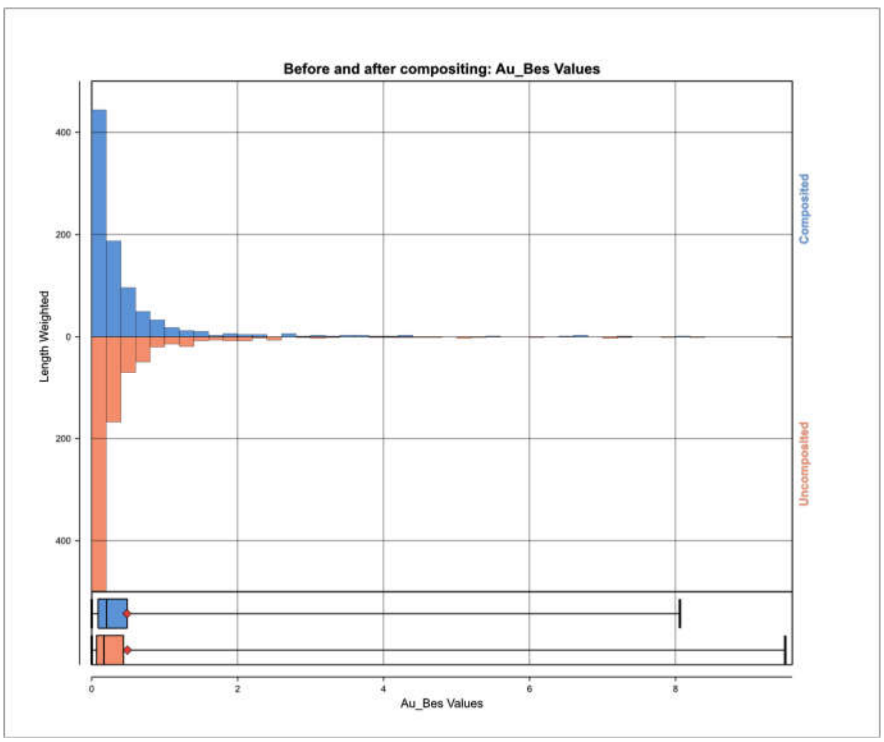
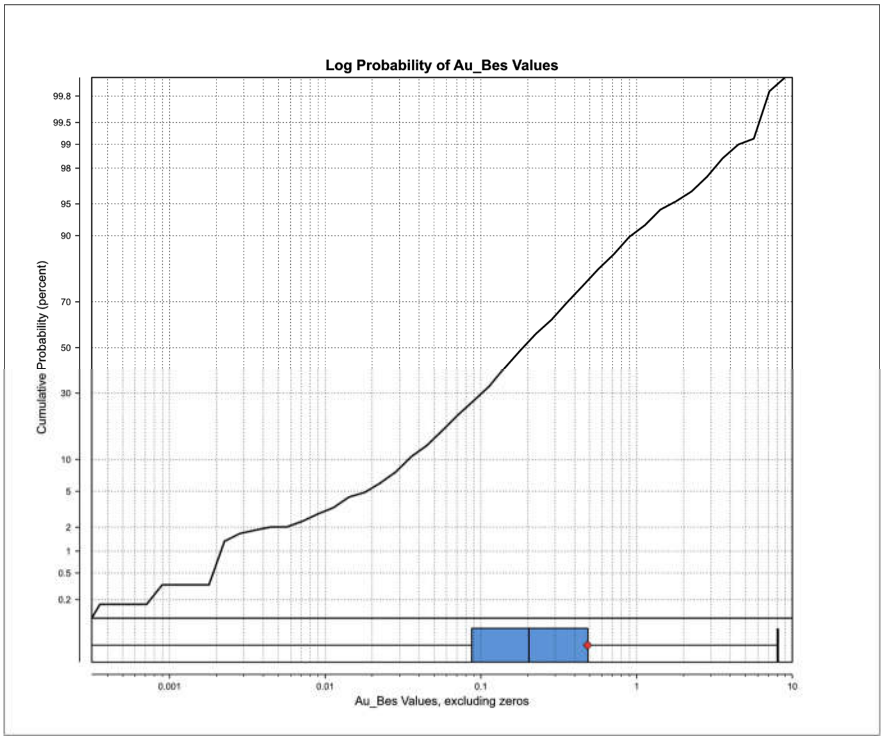


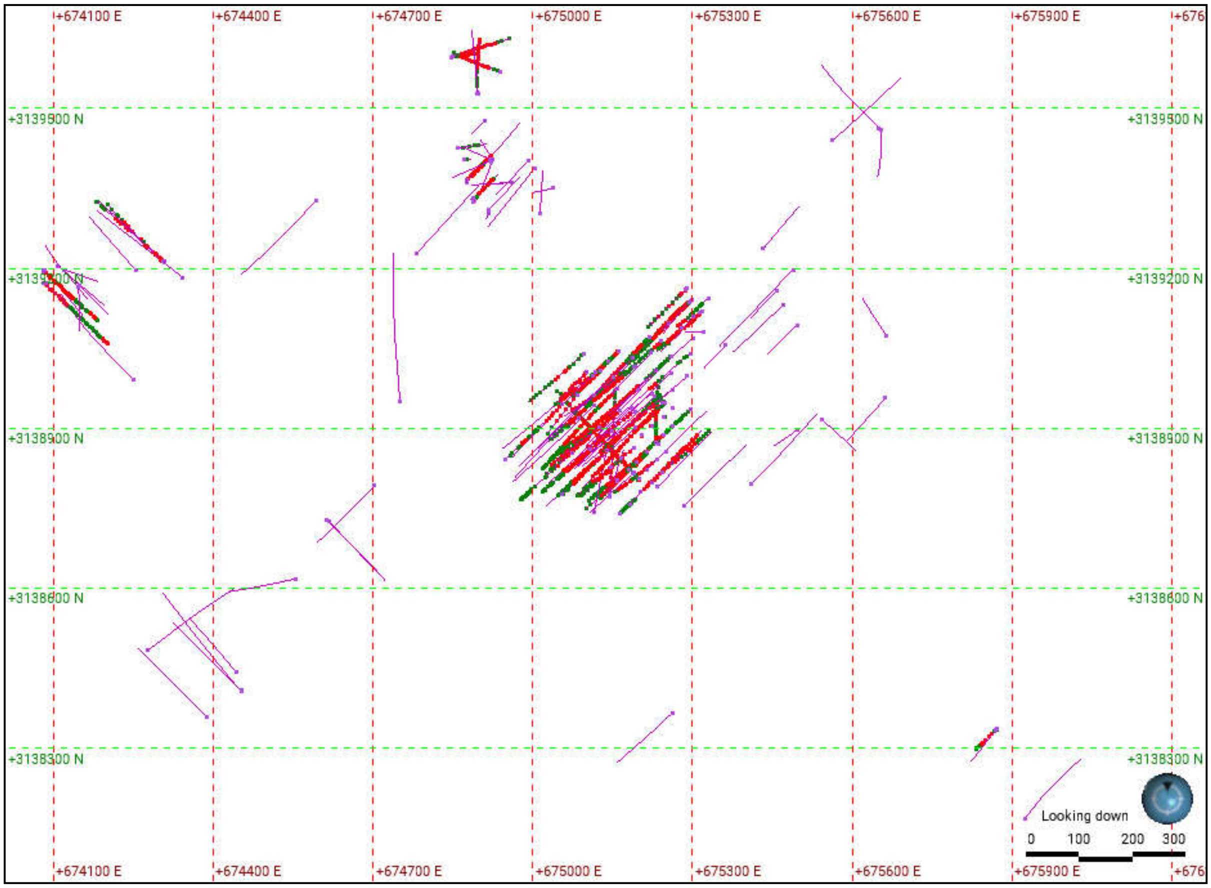
Figure 14-14: Gold Probability Plot Benjamin & Ubaldo



14.6 Density

As discussed above, 1,869 SG measurements have been included in the dataset provided by the Company. Figure 14-15 shows the distribution across the deposits of the SG values. SG was estimated using these values within the mineralized zones, via the ID2 method. An isotropic search ellipse was utilized, and ranges were set at 300m in all directions to populate as many blocks as possible with an SG value. A minimum of 2 and maximum of 16 samples were used in the estimation while being sector restricted using the octant method (maximum of 2 samples per sector and maximum of 7 empty sectors) and an outlier restriction was applied to restrict the spread of high values (threshold of 3.0 which were restricted to 100 m distance). Outlier values were not extreme and thus no lower or upper limit caps were applied. In some cases, blocks were still not populated and a value of 2.6 g/cm3 was applied.

Figure 14-15: Distribution of Density Values (Red – mineralized, Green – waste)



14.7 Block Model

A non-rotated block model was created for the Santana deposits. No sub-blocks were used.

The origin of the block model is the lower-left corner. Block dimensions reflect the sizes of mineralized zones and plausible mining method (open pit). Table 14-5 shows the block model origin and block size.

Table 14-5: Santana Block Model Origin and Block Size

Direction (m)	Origin	Block Size (m)	Number of Blocks
Easting	673,900	5	429
Northing	3,138,137.50	5	348
Elevation	190	5	162

Note: UTM Zone 12 (114°W – 108°W – Northern Hemisphere, WGS 84).

14.8 Grade Interpolation

For the Santana deposits, the mineralized blocks were estimated in three separate areas as lithological trends and statistical examination dictated. Inverse-distance-squared (ID2) and inverse-distance-cubed (ID3) were investigated as methodologies but ultimately Ordinary Kriging (OK) was chosen as the best methodology to represent the natural grade distribution and variation across the deposits. To facilitate OK estimation, variography was evaluated using the variogram modelling utility in Leapfrog Edge. The directions of anisotropic searches for the gold grade interpolation in each area was dictated by the variography. Additionally, differences in sampling density in the different areas necessitated different estimation parameters. The variography is displayed below in Figure 14-16, Figure 14-17, and Figure 14-18. The grade estimation parameters are summarized in Table 14-6.

Figure 14-16: Variograms for Nicho

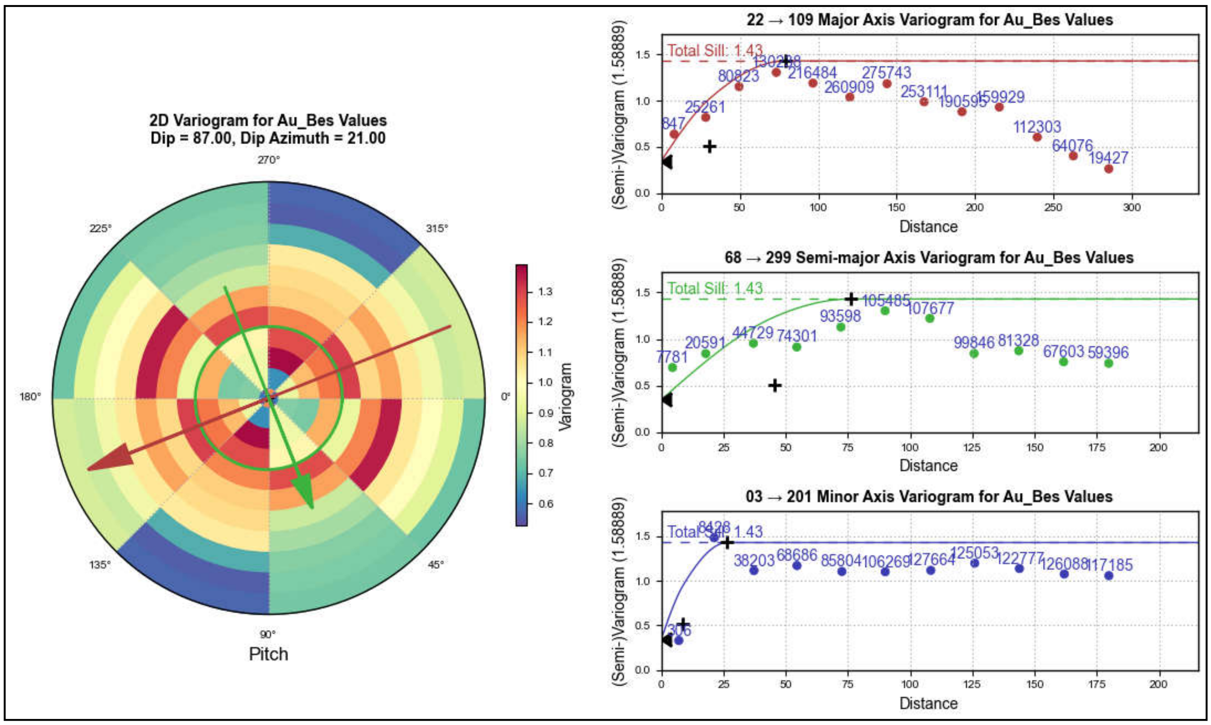


Figure 14-17: Variograms for Nicho Norte & Divisadero

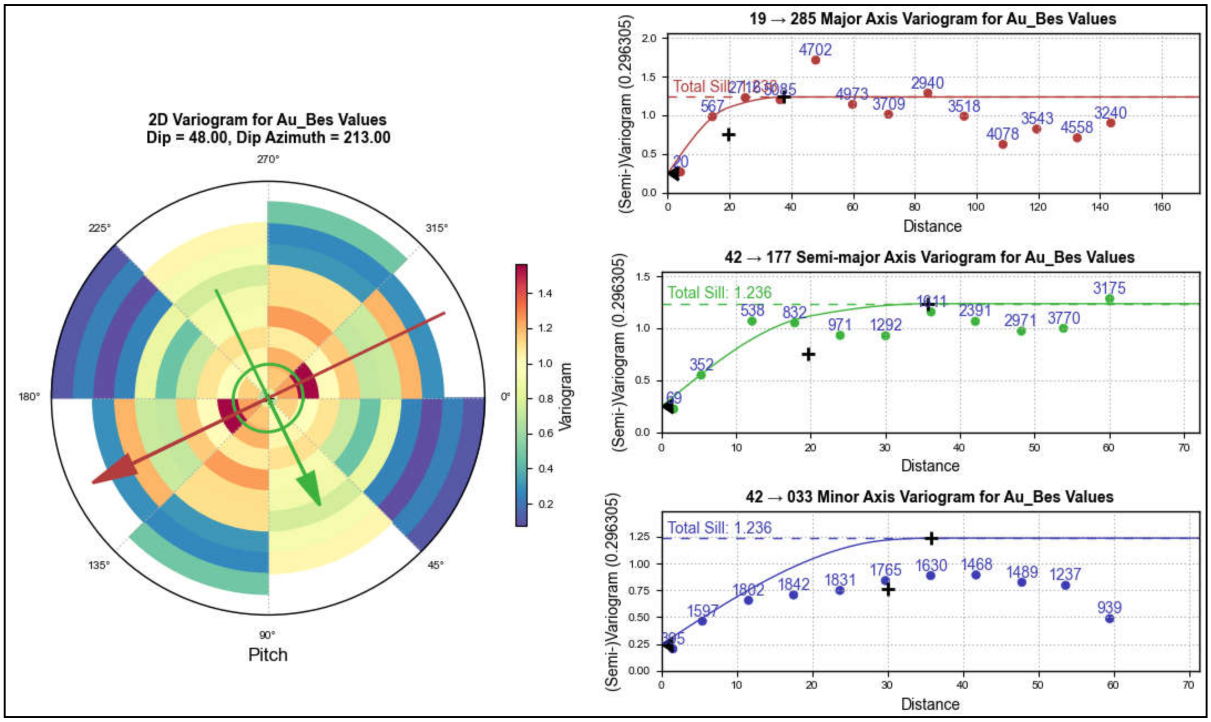


Figure 14-18: Variograms for Benjamin & Ubaldo

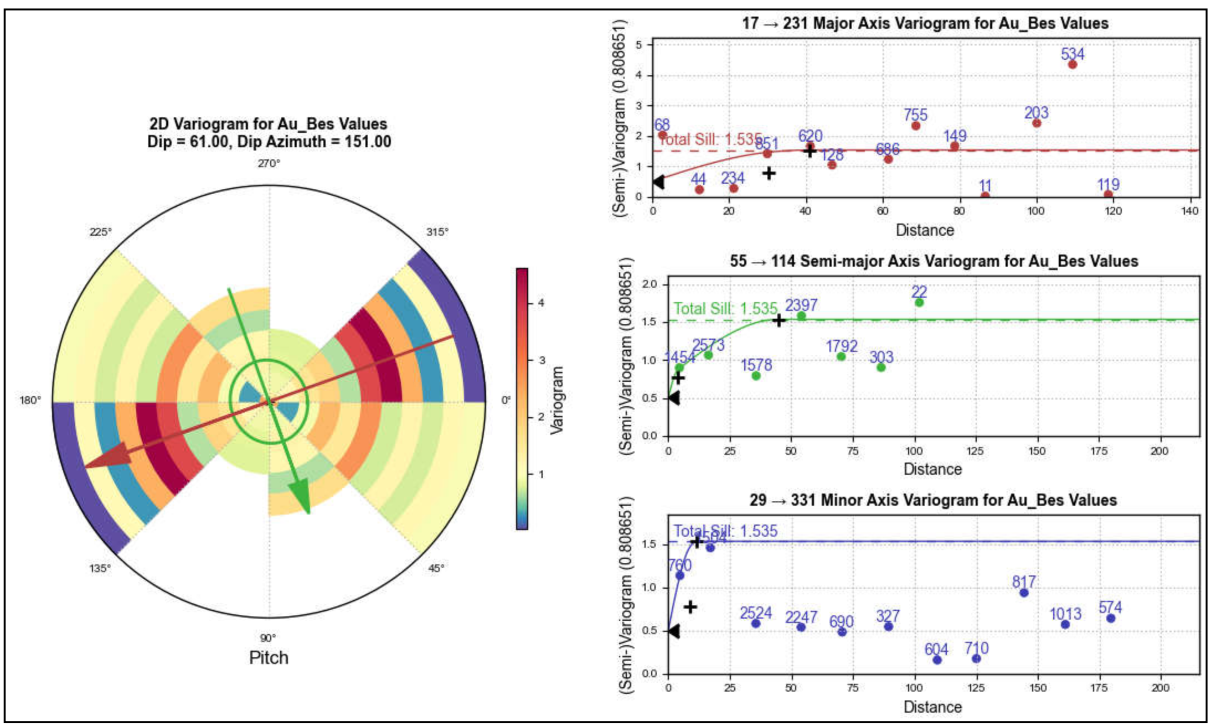


Table 14-6: Gold Grade Estimation Parameters

Estimation Area	Pass	Min Comps	Max Comps	Max per DH	Orientation			Ranges		
					Dip	Dip Azimuth	Pitch	Max (m)	Inter. (m)	Min (m)
Nicho	1	4	12	3	86.52	20.66	158.39	25	25	10
	2	4	12	3	86.52	20.66	158.39	40	40	13
	3	4	12	3	86.52	20.66	158.39	240	240	80
Nicho Norte & Divisadero	1	4	12	3	47.90	213.25	154.23	19	17	17
	2	4	12	3	47.90	213.25	154.23	37.58	35.70	35.74
	3	4	12	3	47.90	213.25	154.23	240	230	230
Benjamin & Ubaldo	1	4	12	3	61.02	150.85	160.34	20	22	11.67
	2	4	12	3	61.02	150.85	160.34	40.90	44.95	11.67
	3	4	12	3	61.02	150.85	160.34	240	240	60

14.9 Model Validation

The block model was validated visually and statistically. Statistical validation includes block model statistics (Table 14-7), swath plot analysis (Figure 14-19), and grade-tonnage curve plot (Figure 14-22). Visual validation analyzes the model in 3D and 2D plots.

Block model statistics compare very favourably against the raw data and composites. There are no longer any outlier values, the mean has been reduced as expected during estimation but only slightly, and the SD and CoV values are similarly reduced but not smoothed too much by the estimation method.

Swath plots show that the distribution of grade has been maintained by the estimation methods in all directions. There are a few effects in the data caused by the angles of the drillholes and the angles of the mineralization, but on visual validation these areas look normal.

The grade-tonnage curve shows a normal relationship between grade and tonnage as the cut-off is increased.

Visual validation confirmed that the block model honours the drillhole composite data. Figure 14-23 shows a validation cross section from Nicho, and Figure 14-24 shows one from Nicho Norte & Divisadero. Figure 14-25 shows a plan cross section of Nicho.

Table 14-7: Block Model Statistics by Estimation Area

Deposit	Number of Blocks	Maximum (Au g/t)	Mean (Au g/t)	Standard Deviation (Au g/t)	Coefficient of Variation
Nicho	50,841	6.88	0.52	0.54	1.04
Nicho Norte & Divisadero	15,597	2.46	0.57	0.28	0.50
Benjamin	11,040	2.85	0.42	0.35	0.83

Figure 14-19: Swath Plot (X direction)

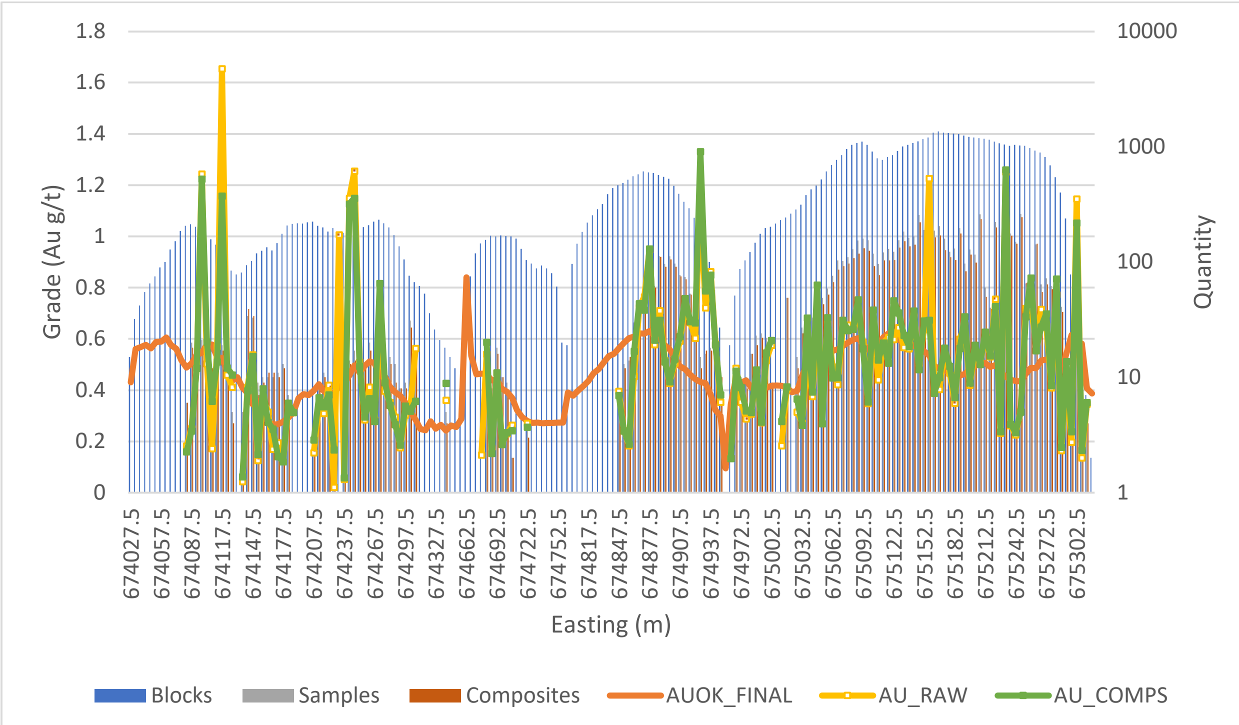


Figure 14-20: Swath Plot (Y direction)

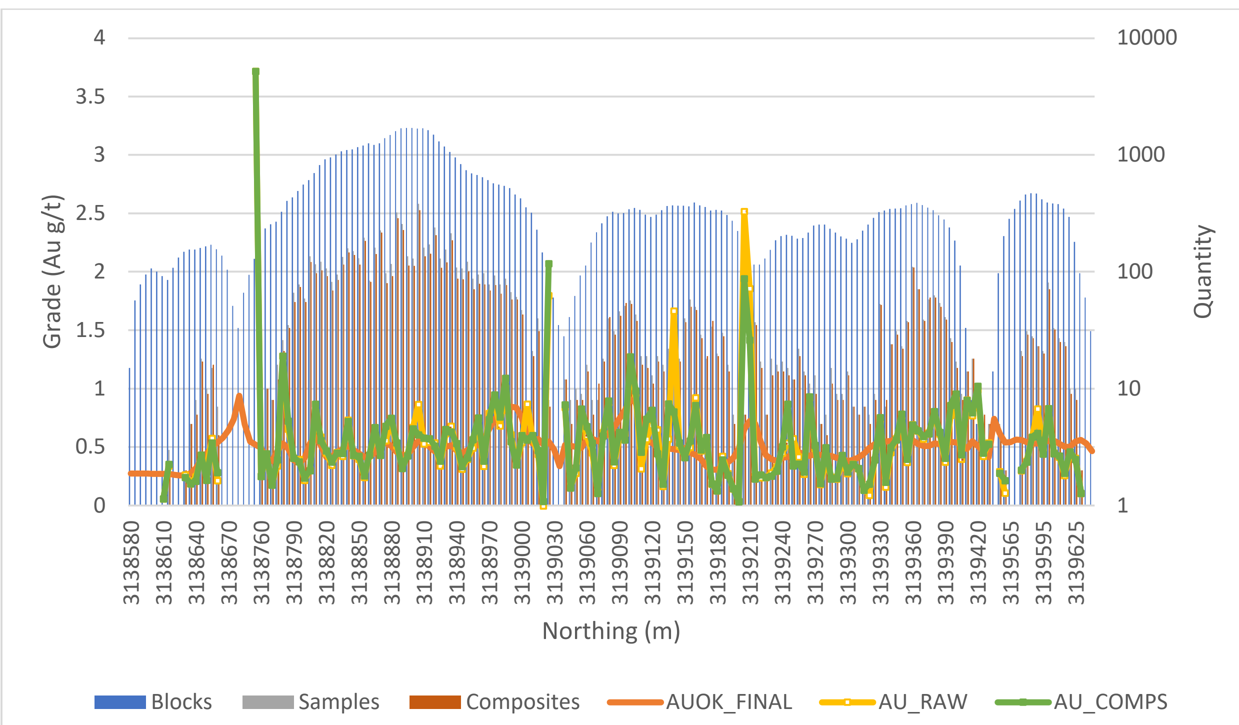


Figure 14-21: Swath Plot (Z direction)

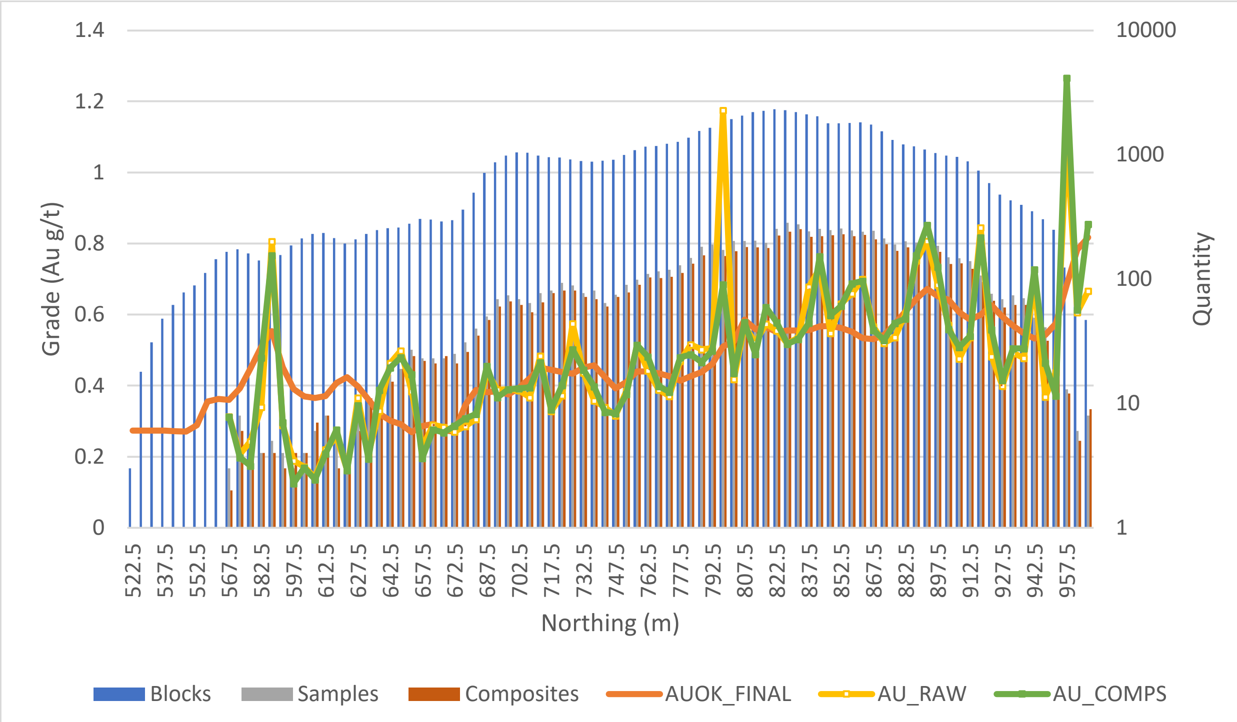


Figure 14-22: Grade-Tonnage Curve

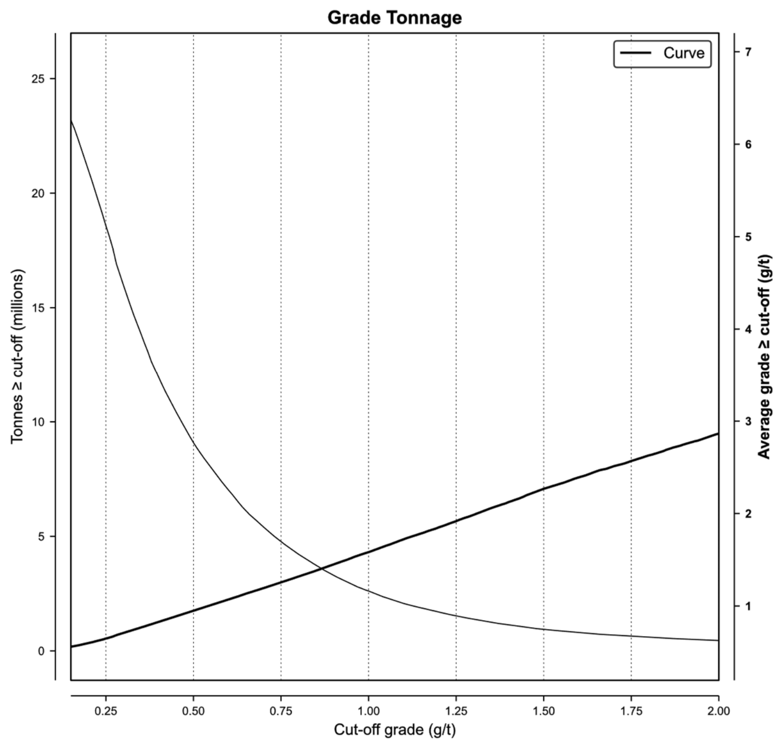


Figure 14-23: Visual Validation Angled Cross Section Nicho (25m burden)

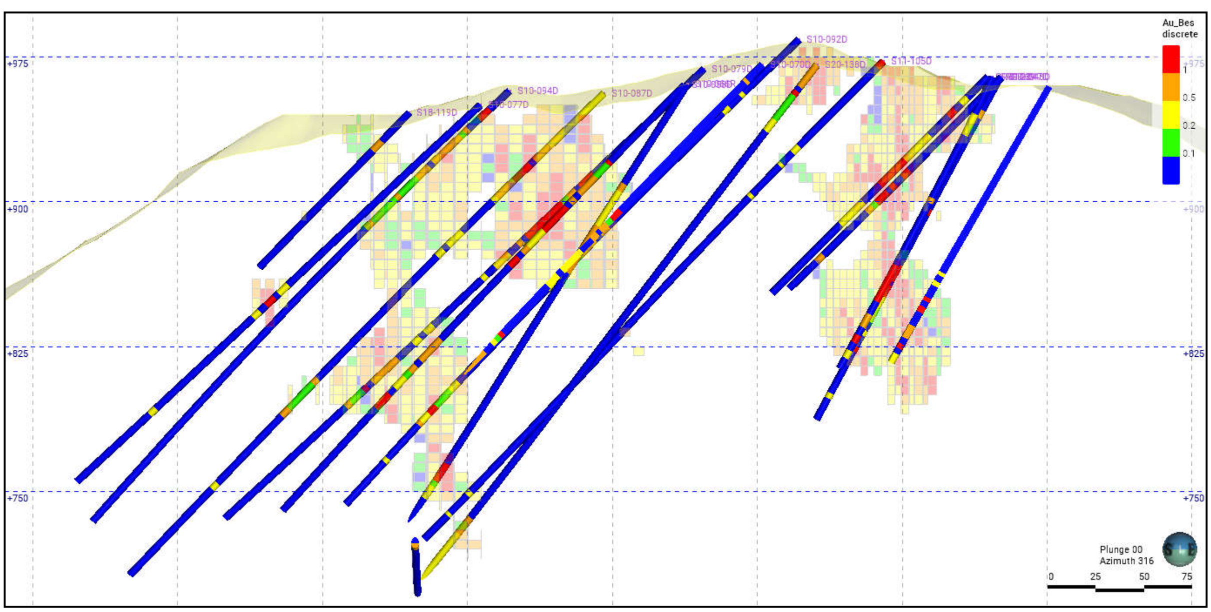


Figure 14-24: Visual Validation Angled Cross Section Nicho Norte & Divisadero (25m burden)

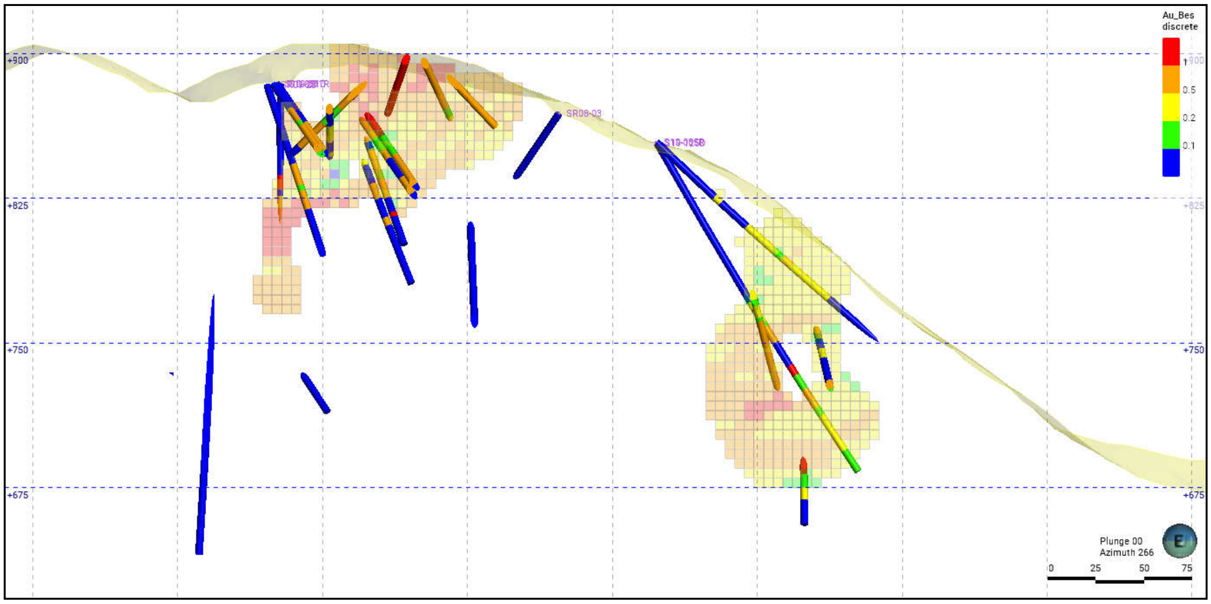
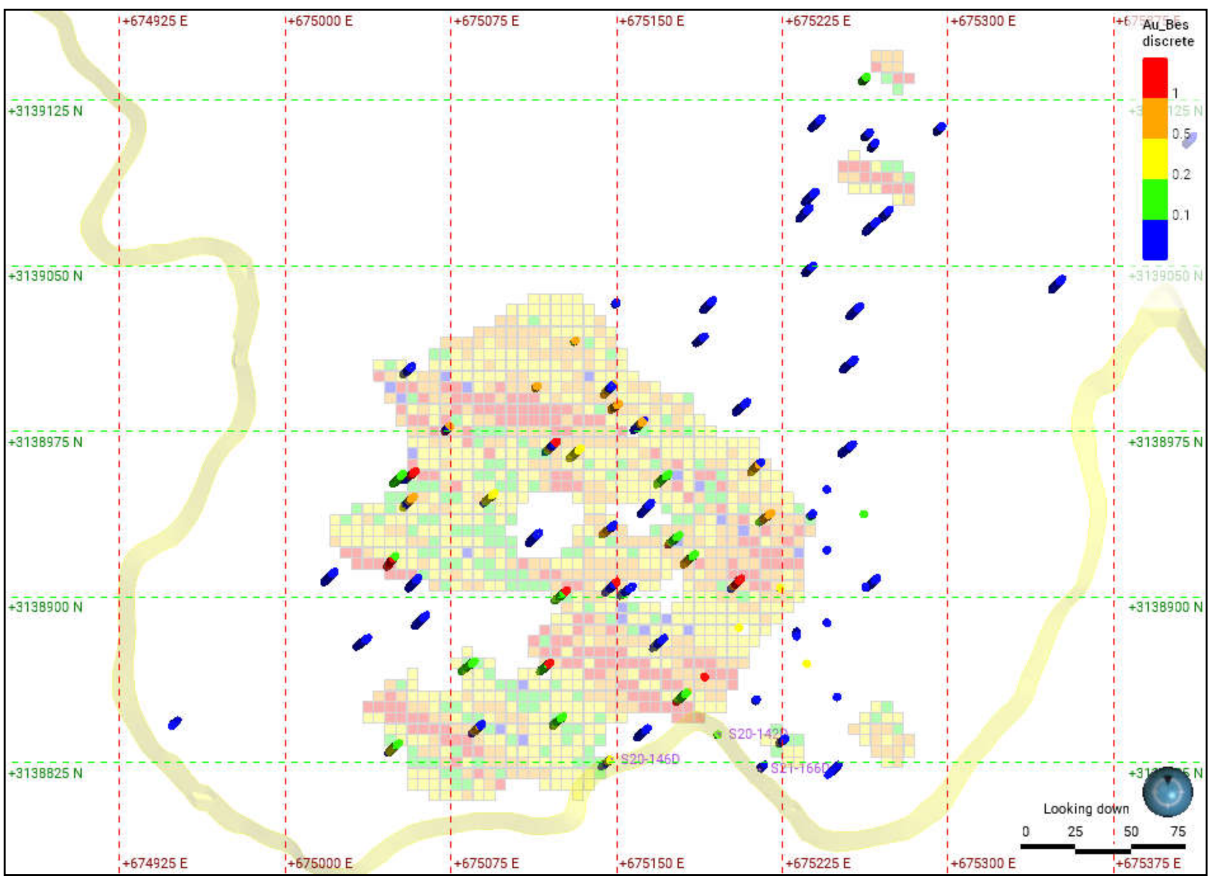


Figure 14-25: Visual Validation Plan View Section Nicho (5m burden)



14.10 Mineral Resource Classification

Mineral resource classification is the application of Measured, Indicated, and Inferred categories, in order of decreasing geological confidence to the resource block model. These are CIM Definition Standards, which are incorporated, by reference, in NI 43-101.

As per CIM (2014):

Measured Resource

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

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

Indicated Resource

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

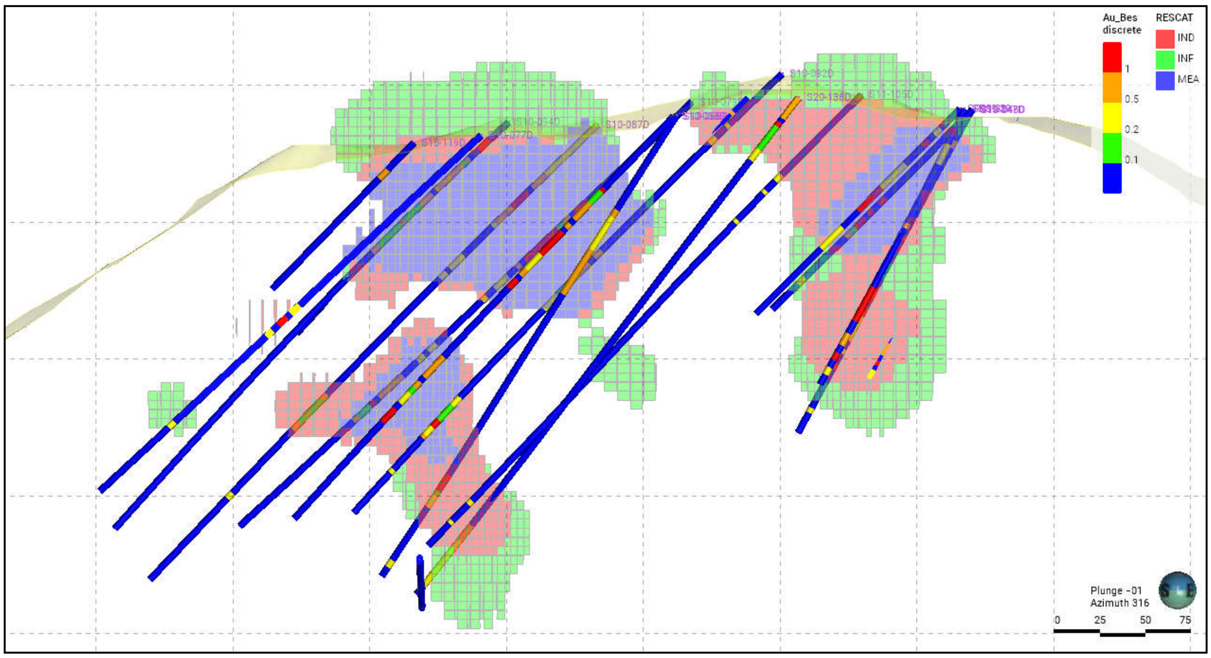
Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

Inferred Resource

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

The author of this section has classified the current Mineral Resource estimation into measured, indicated, and inferred categories based on perceived data accuracy, data density (drillhole spacing), availability of specific gravity data, and knowledge and confidence in the geological interpretation. Mining activity has already been undertaken at the deposit as well which gives a high confidence in the results of this estimate. Measured was classified using a polyline distance buffer in Leapfrog of 10m (ostensibly a 10m drillhole spacing), while indicated used a 15m spacing. Only Nicho and Nicho Norte were categorized higher than inferred, as the other zones (Divisadero, Benjamin, and Ubaldo) did not contain the required drillhole spacing.

Figure 14-26: Cross Section through Nicho showing Resource Categories



14.11 Mineral Resource Estimate

To determine the quantities of materials with “reasonable prospects for eventual economic extraction,” the author determined resource constraining pit limits using the Lerchs–Grossmann algorithm for the mineralized portion of the Santana deposits, considering heap leach processing and contract open pit mining. The result defines a resource constraining pit shell that has the highest possible total value, while honoring the required surface mine slope and economic parameters.

Economic parameters used in the analysis are listed in Table 14-8.

Table 14-8: Parameters for Economic Pit Generation

Parameter	Unit	Value
Gold Price	$/oz	1,700
Refining Cost	$/oz	15.00
Process Cost	$/t stacked	4.00

Parameter	Unit	Value
Metallurgical Recovery	%	75
General & Administrative	$/t stacked	0.50
Mining Cost	$/t mined	2.30
Gold Cut-Off Grade	g/t Au	0.15
Pit Slope Angle	degrees	40

Notes: Dilution and mining losses were not applied to the economic pits, and the economic pits are undiscounted.

The parameters listed in Table 14-8 define a realistic basis to estimate the Mineral Resources for the Project. The processing scenario assumes heap leaching of the mineralized material sourced from open pit mining. The Mineral Resource has been limited to mineralized material that occurs within the constraining pit shells. All other material within the defined pit shells was characterized as non-mineralized material.

Table 14-9 provides the Mineral Resource estimate for the Santana Project.

Table 14-9: Estimate of Mineral Resources, Santana Project

Zone	Category	Tonnes (t)	Gold Grade (g/t)	Contained Ounces
Nicho	Measured	6,390,000	0.65	133,000
	Indicated	2,810,000	0.64	57,000
	Total M&I	**9,200,000**	**0.65**	**190,000**
	Inferred	1,530,000	0.66	33,000
Nicho Norte & Divisadero	Measured	150,000	0.66	3,000
	Indicated	260,000	0.62	5,000
	Total M&I	**410,000**	**0.63**	**8,000**
	Inferred	2,470,000	0.55	44,000
Benjamin	Inferred	1,510,100	0.54	26,000
Total	Measured	6,540,000	0.65	136,000
	Indicated	3,070,000	0.64	62,000
	Total M&I	**9,610,000**	**0.65**	**198,000**
	Inferred	5,510,000	0.58	103,000

Notes:

- The independent QP for the Mineral Resource estimate, as defined by NI 43-101, is Scott Zelligan, P.Geo. The effective date of the 2023 mineral resource estimate is May 31, 2023.
  A gold price of $1,700/oz was used in the calculation of the Mineral Resources.
- The Mineral Resource estimate is reported for a potential open pit and heap leach scenario.
- The limits of the Mineral Resource-constraining pit shell assumed a mining cut-off based on a total operating cost (mining, processing, and general and administrative G&A) of $12.00/t stacked, a metallurgical recovery of 75%, and a constant open pit slope angle of 40°. This constraining pit shell contained a total volume of 49 Mt (mineralized + unmineralized) implying a strip ratio of 2.25.
- The gold cut-off grade applied to oxide mineralized material is 0.15 grams per tonne (g/t) Au.
- These Mineral Resources are not Mineral Reserves, as they do not have demonstrated economic viability.

- The Mineral Resource estimate follows CIM Definition Standards.
- Results are presented in situ. Ounce (troy) = metric tonnes x grade / 31.1035. Calculations used – metric units (metres, tonnes, g/t). Rounding followed the recommendations as per NI 43-101.
- The number of tonnes has been rounded to the nearest ten thousand.
- The QPs of this Report are not aware of any known environmental, permitting, legal, title-related, taxation, sociopolitical, marketing, or other relevant issues that could materially affect the Mineral Resource estimate. Extensive modelling and statistical work were performed to analyze the effect of the oxide zone on gold grade and rock specific gravity. Due to the fractured nature of the host rock, the oxide-sulphide transition zones of the deposits are irregular and difficult to model using conventional wireframing techniques. It was decided for the current Resource Estimate to model without a transition boundary and allow the measured variations in density to populate the blocks accordingly. Metallurgical test work is ongoing and results from limited sulphide samples tested to date indicate the potential for heap leaching of this material although final required parameters like crush sizes are not yet fully understood. It has been recommended that the Company continue to evaluate the overall database of exploration information with a goal of incorporating geo-metallurgical information into future resource estimates.

Table 14-10 shows the open pit constrained Mineral Resource sensitivity to the gold price. **The reader should be cautioned that the figures provided in Table 14-10 should not be interpreted as a Mineral Resource statement**. The reported quantities and grade estimates at different gold prices are presented for the sole purpose of demonstrating the sensitivity of the resource model to the selection of a reporting gold price. The gold price of $1,700/oz that was used to report the Mineral Resources (the base case) for Santana is highlighted in bold. **Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.**

Table 14-10: Sensitivity of the Mineral Resource to Gold Price

	Inferred			**Indicated**			**Measured**		
Gold Price ($/oz)	**Tonnes (Mt)**	**Gold Grade (g/t)**	**Contained Oz ('000s)**	**Tonnes (Mt)**	**Gold Grade (g/t)**	**Contained Oz ('000s)**	**Tonnes (Mt)**	**Gold Grade (g/t)**	**Contained Oz ('000s)**
1,500	5.19	0.58	96	2.73	0.62	55	6.40	0.65	134
1,600	5.45	0.58	102	3.03	0.64	62	6.52	0.65	136
1,700	**5.51**	**0.58**	**103**	**3.07**	**0.64**	**63**	**6.54**	**0.65**	**136**
1,800	5.65	0.58	105	3.17	0.63	64	6.61	0.65	137
1,900	5.72	0.58	106	3.20	0.63	65	6.62	0.65	137

Note: Mineral Resource is shown in bold. Due to rounding, values may not sum perfectly.

The author is not aware of any known environment, permitting, legal, title, taxation, socio-economic, marketing, political, or other factors that could materially affect the economics of this Mineral Resource, beyond those presented in this Report.

15 MINERAL RESERVE ESTIMATES

The Santana Project is not an advanced property based on the "advanced property" and "early-stage exploration property" types defined in NI 43-101. Advanced property means one that has (a) Mineral Reserves or (b) Mineral Resources the potential economic viability of which is supported by a preliminary economic assessment, a prefeasibility study, or a feasibility study.

The Project is not an advanced property. No Mineral Reserves have been determined for the Project.

16 MINING METHODS

The Santana Project is not an advanced property based on the "advanced property" and "early-stage exploration property" types defined in NI 43-101. Advanced property means one that has (a) Mineral Reserves or (b) Mineral Resources the potential economic viability of which is supported by a preliminary economic assessment, a prefeasibility study or a feasibility study. The reader is cautioned that the underlying section has been provided for references purposes using historic information only and the Company has not based its production decision at the Santana Mine on Mineral Reserves demonstrating economic and technical viability. As a result, there is increased uncertainty and technical and economic risks of failure associated with the production decision.

Santana is a conventional truck-and-Loader open pit mining operation that mines near-surface mineralization (within the upper 250 m of topography). Material is drilled and blasted before being loaded into articulated haul trucks by front-end loaders. The material is classified by grade control as either waste or mineralization. These materials report to one of three destinations based on cut-off grade: sent to a waste dump (waste), placed directly on the pad without crushing (ROM), or sent to the crusher prior to stacking. A stockpiling strategy is not used at Santana aside from a small surge pile near the crusher.

Santana currently has two active open pits, denoted Nicho Norte and Nicho. At the effective date of this Report, the Nicho Norte open pit is the source of gold mineralization production, while the activities at the Nicho open pit are primarily related to pre-stripping of waste material.

16.1 Mine Planning

Planning activities at the Project are based on mining the Mineral Resources contained within the Nicho Norte and Nicho open pits. The design of these open pits has been defined internally by the Company using the Mineral Resource estimate that is the subject of this Report. The reader is cautioned that this estimate includes Inferred Mineral Resources, which are considered too speculative geologically to have economic considerations applied to them. It cannot be assumed that all or any part of an Inferred Mineral Resource will ever be upgraded to a higher category.

The ultimate open pit design for Nicho Norte (Figure 16-1) considers bench heights of 5 m, bench face angles of 75°, and bench widths of approximately 4 m, for an inter-ramp angle of 45°. After the inclusion of haulage ramps, the overall slope angle is approximately 40° on the highwall. The maximum planned wall height of the open pit is 115 m. The open pit walls, to date, have been found to be dry (no water seepage) and have met the design criteria noted above.

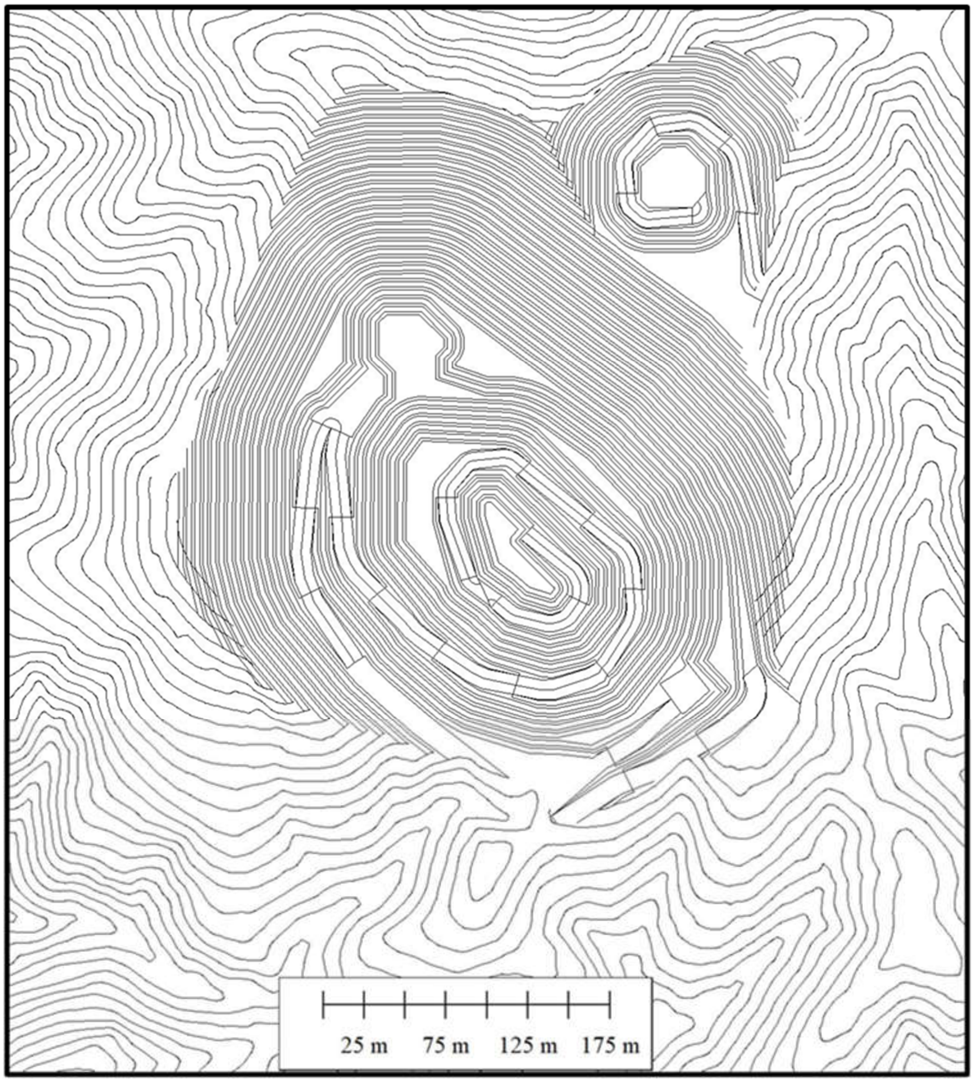
Figure 16-1: Nicho Norte Ultimate Pit Configuration

Open pit haul roads have been designed using ramp widths of 12 m and a slope gradient of 10%. The ramp width of 12 m permits two articulated haul trucks to safely pass each other while on the ramp. Near the bottom of the open pit the ramp width is reduced to a single lane 8 m wide.

The Nicho Norte ultimate pit design has been separated into three Phases. Mining activities within this pit began within Phase 1 in May of 2021 and are currently in the upper portions of Phase 2. The target strip ratio for the Nicho Norte open pit is 2:1 (waste:mineralization) using a cut-off grade of 0.15 g/t Au. Target production rates range between 10,000 tpd to 15,000 tpd.

The ultimate open pit design for the Nicho open pit (Figure 16-2) considers bench heights of 5 m, bench face angles of 70°, and bench widths of approximately 3 m, for an inter-ramp angle of 45°. After the inclusion of haulage ramps, the overall slope angle ranges between 31° and 39° on the highwall, depending on the sector. The maximum planned wall height of the open pit is 225 m.

Figure 16-2: Nicho Ultimate Pit Configuration



Open pit haul roads have been designed using ramp widths of 12 m and a slope gradient of 10%. The ramp width of 12 m permits two articulated haul trucks to safely pass each other while on the ramp. Near the bottom of the open pit the ramp width is reduced to a single lane 8 m wide.

The Nicho ultimate pit design has been separated into four pushbacks, denoted Phases 1 to 4. Initial mining activities within the Nicho Phase 1 area began in the second half of 2022 with road construction and clearing activities. As of the effective date of this report only pre-stripping activities are underway.

The stripping ratio within the Nicho ultimate open pit is estimated to be 2:1 (waste:mineralization) using a cut-off grade of 0.15 g/t Au. Production rates are targeted to range between 10,000 t/d to 15,000 t/d.

The Company uses a mining contractor who undertakes all open pit activities, excluding grade control and mine planning, which are the responsibility of the Company. Specifically, the contractor's responsibilities include drilling, blasting, loading, hauling, pad stacking, and dump and road maintenance. While Minera Alamos supervises these activities, the contractor is responsible for supervising their own personnel.

The contractor's mine production fleet includes four front-end loaders with 6.4 m^3 buckets and 40-tonne articulated haul trucks. Support equipment includes small backhoe excavators, bulldozers, graders, and light vehicles.

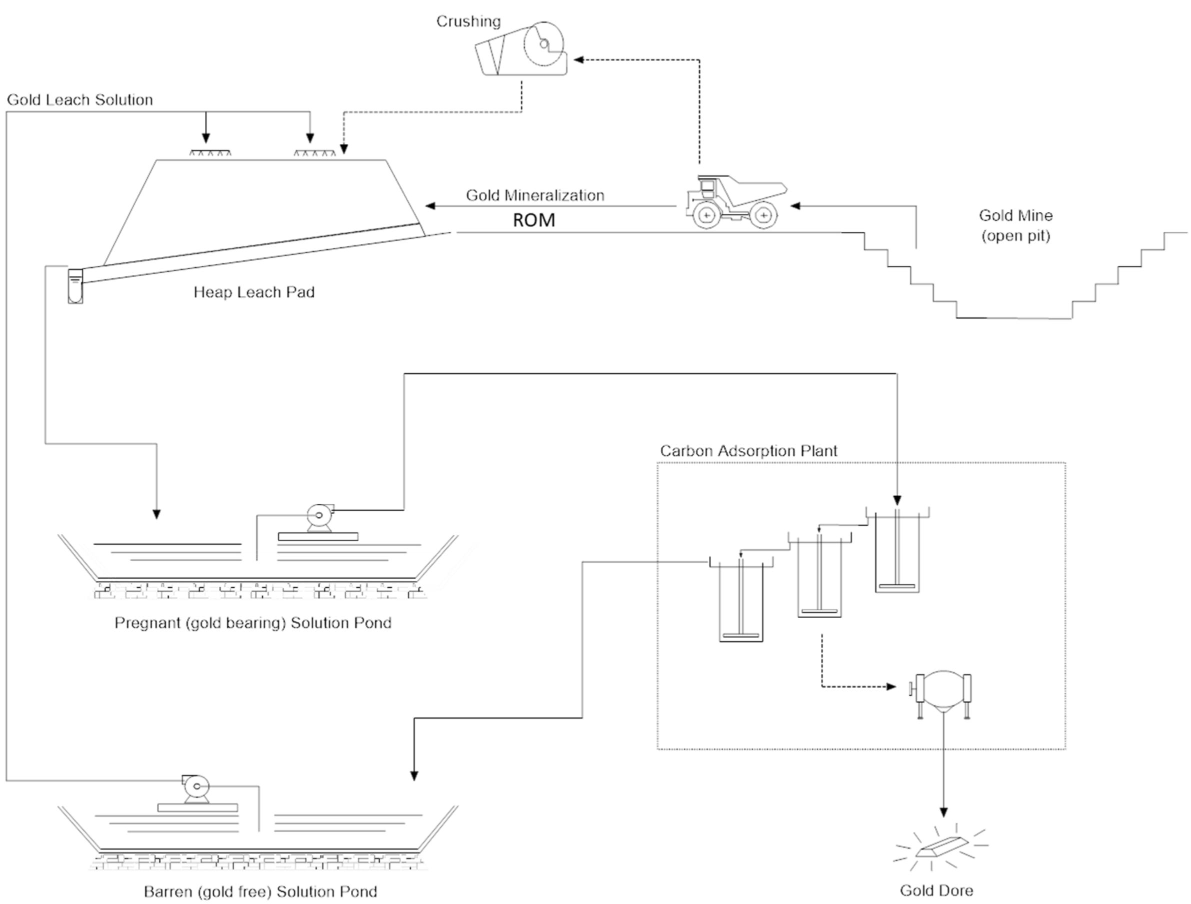
The contractor is responsible for in-pit drill and blasting activities. Minera Alamos supplies the explosives to the contractor and is responsible for on-site explosives storage. Currently, drillholes are 2.5" in diameter. Blast layouts in waste have a burden and spacing of 3.5 m, while in mineralization both parameters are reduced to 2.5 m. Pre-split blasting is done on all final walls to reduce blast damage.

17 RECOVERY METHODS

The Santana Project is not an advanced property based on the "advanced property" and "early-stage exploration property" types defined in NI 43-101. Advanced property means one that has (a) Mineral Reserves or (b) Mineral Resources the potential economic viability of which is supported by a preliminary economic assessment, a prefeasibility study or a feasibility study. The reader is cautioned that the underlying section has been provided for references purposes using historic information only and the Company has not based its production decision at the Santana Mine on Mineral Reserves demonstrating economic and technical viability. As a result, there is increased uncertainty and technical and economic risks of failure associated with the production decision.

The Project processing facilities consist of a mobile crushing system, heap leach pad, solution ponds, and carbon column recovery of gold from pregnant leach solution. Figure 17-1 shows a simplified representation of the overall process flowsheet. Details for each segment of the facility are described in this section.

Figure 17-1: Santana Process Flow Sheet



17.1 Crushing Circuit (portable)

The crushing system is a two-stage crushing circuit consisting of a portable jaw crusher followed by a portable cone crusher. Portable screening equipment is available and utilized as required depending on the selected crushing arrangement. During the day, mineralization is delivered to the crushing area by haul trucks and fed into the feed hopper of the portable jaw crusher. A Run of Mine (ROM) stockpile is located near the jaw crusher to receive mineralization prior to it being transferred to the crusher and when the crushing plant is not in operation in the evening or down for non-scheduled maintenance. Mineralization is reclaimed from the stockpile by a frond-end loader.

Discharge from the jaw crusher is transferred to the portable cone crusher where the material is further crushed to a size of minus 19 mm (3/4 inch). The crushed mineral discharged from the cone crusher is conveyed to the crushed-mineral stockpile via a transfer conveyor. A front-end loader reclaims the mineral from the stockpile and loads it into trucks that deliver the material to the heap leach pad area. Lime is added to the mineralization in the back of the truck as it passes toward the leach pad. A hydraulic breaker is used when larger rocks are encountered.

Currently lime is stored in bulk bags. Longer term, a lime silo will be constructed to store and provide dry lime near the crushing site. The silo will be pneumatically filled with material from the lime hopper trucks and mechanically discharged into the trucks stacking the heap leach.

17.2 Heap Leach

Crushed mineralization is delivered to the leach pad area by truck and dumped in lifts onto an impermeable plastic- and clay-lined leach pad where it is irrigated with a dilute alkaline cyanide solution. The solution then percolates through the heap and leaches the target (gold and silver) minerals. The solution containing the dissolved precious metals (pregnant solution) reaches the liner at the bottom of the heap where it drains into a storage (pregnant solution) pond.

Pregnant solution is pumped from the storage pond to a nearby processing plant where it is processed through a series of carbon columns to recover precious metals. Upon exiting the columns, the solution with the gold removed (barren solution) is discharged into a storage (barren solution) pond. Solution from the barren pond is re-circulated to the leach pad to recover additional precious metals. Additional cyanide make-up solution is injected into the barren solution stream prior to its return to the leach pad.

17.3 Solution Ponds

The solution ponds have been constructed using a single pond design that can hold both the pregnant and barren solutions at same time, while having the capability to contain an emergency event. The ponds have been designed and constructed with a weir that separates the pregnant solution pond from the barren solution pond. Additional volume is provided to the upper part of the pond, which acts as emergency storage. The details of each pond are as follows:

- Pregnant pond—used to contain pregnant solution drained from the leach pad. The solution is pumped to the carbon columns for gold recovery.

- Barren pond—used to contain solution discharged from the carbon columns after precious-metals extraction.
- Event pond—holds any excess liquid present in the leaching system during the rainy season, where the net accumulation of water (rainfall minus evaporation and absorption in leach pad) is positive.

The pond, including the upper area allocated for the event pond, has been designed and constructed with impermeable plastic membranes (double-lined) installed above a clay under-liner. Leak detection-monitoring sumps are installed between the two plastic membranes.

17.4 Carbon Column Gold Recovery

Pregnant leach solution containing the dissolved metals is pumped from the pregnant pond to the process plant to recover gold.

Three carbon-column trains that operate in parallel have been constructed and are currently operating. Each train has three columns installed in series. Solution from the pregnant solution pond is divided into three streams and fed to the first column of each train. Soluble gold cyanide complexes are adsorbed onto the activated carbon in the columns.

Solution overflows by gravity from the first column to the last, while carbon remains in each column. When carbon in a column reaches the loading capacity, solution feeding to that train is stopped. The column is then isolated. Once the carbon settles, most of solution in the column is drained via a drain nozzle. The loaded carbon column is then lifted and moved to a carbon drainage-frame to unload the carbon. A standby carbon column with barren carbon is placed on the train and the train is brought back into operation.

A woven polypropylene bulk bag is provided beneath the drainage frame to collect the loaded carbon. Solution drained from the bag is collected in a sump that drains back to the pregnant solution pond. Once the column is empty, barren carbon is added and the column is ready to be brought back to the operating line.

Loaded carbon bags are transported to a refinery for further metal recovery. A carbon safety screen is installed at the end of each train to catch carbon fines entrained in the overflow solution.

After the gold is removed, the dilute cyanide solution (now called barren solution) is discharged to the barren pond and reused in the heap leach process. Makeup cyanide (as 15% NaCN solution) is added to the barren solution before it is recirculated to the pad.

Anti-scalant is added to both pregnant and barren solutions to control calcite scale-buildup to operate the heap leach efficiently.

17.5 Reagents and Fuel

The following primary reagent and fuel systems are included:

- Cyanide storage and mixing

- Lime storage
- Anti-scalant addition and dosing
- Wet-laboratory analysis consumables sufficient for pH monitoring and free cyanide determination
- Diesel storage for mobile equipment and power generation.

18 INFRASTRUCTURE

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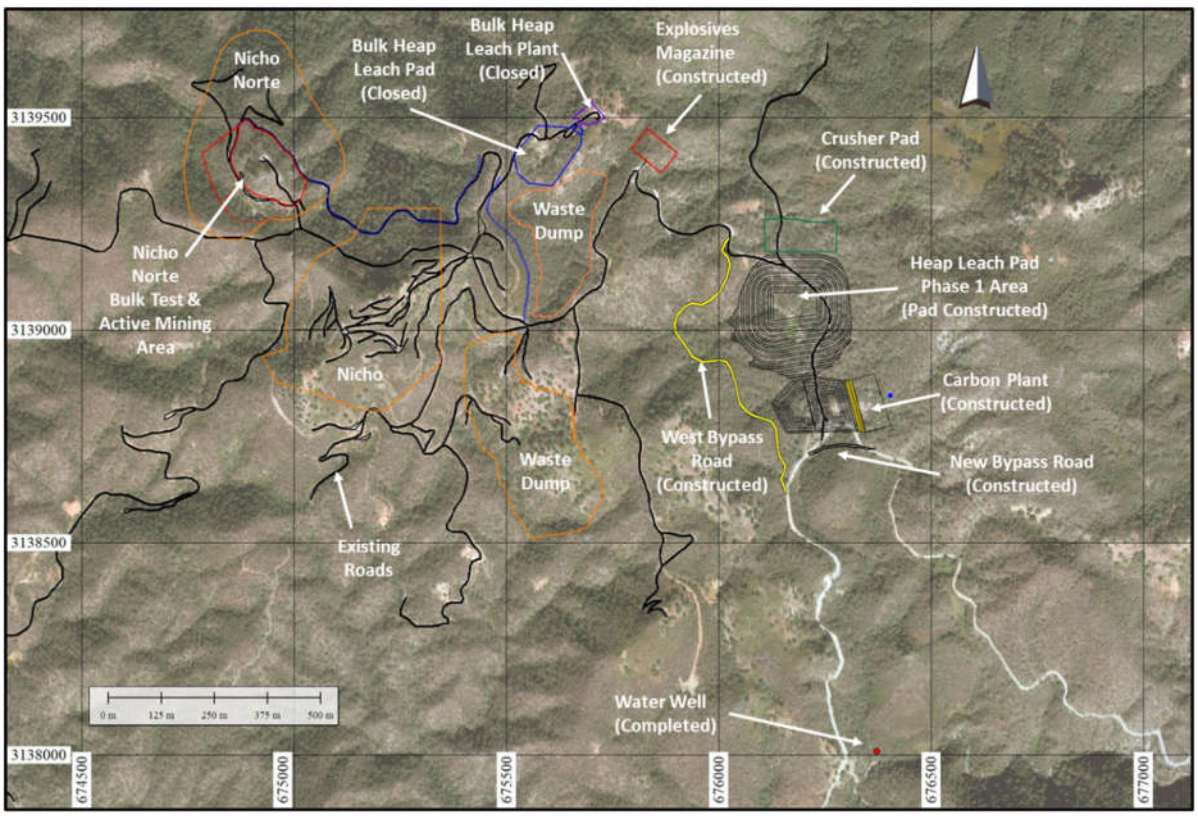
Earthworks and construction of site infrastructure was completed during the first quarter of 2021. Figure 18-1 shows a site map outlining all the available infrastructure at Santana.

Figure 18-1: Site Infrastructure



Current infrastructure in place to support initial operations at the project includes the following:

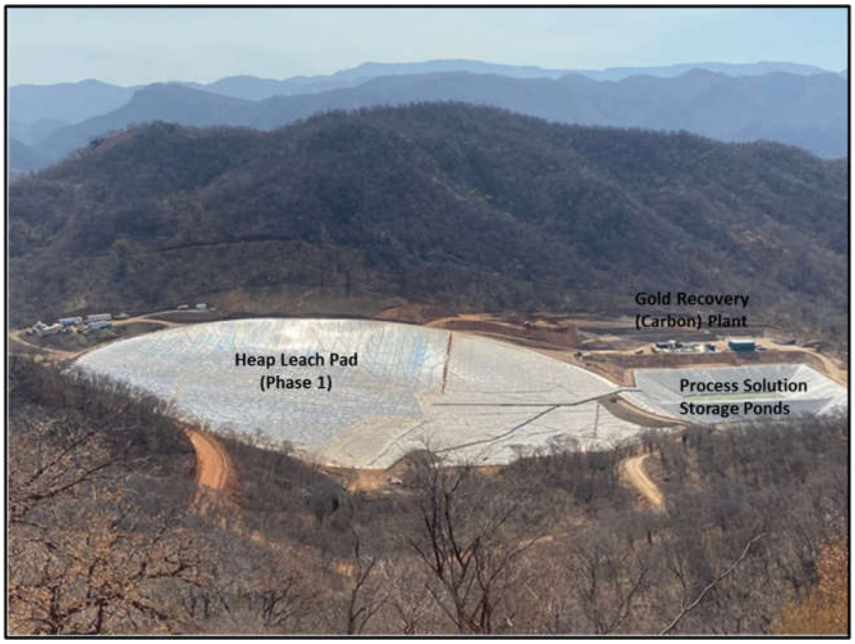
- Site access roads.
- Two waste dump areas have been cleared and are accepting waste rock in support of mining operations.

- An explosives magazine (Figure 18-2).
- All earthworks related to the heap leach pad and carbon plant. The heap leach pad and barren and pregnant leach solution ponds have been constructed and are operational (further information can be found in Section 17) (Figure 18-3).
- The carbon plant has been constructed; it includes containers for reagent storage; operation controls and process analysis; leach solution and preparation tanks; and carbon columns for gold recovery (see Section 17 for additional information) (Figure 18-4).
- A warehouse has been constructed in the plant area, capable of accommodating all required consumables to support the operation.
- Maintenance workshops for mine production equipment have been constructed close to the crusher area and on top of the old test heap leach facilities.
- Electrical power is not readily available at the site. Off-grid power is produced at the site (in the plant area) using a single ~500 kW diesel generator. A backup generator (~150 kW) is kept on site for use during maintenance of the main generator.

Figure 18-2: Explosives Magazine

Source: Minera Alamos Inc., July 15, 2021, looking north, photo taken at the Project.

Figure 18-3: Heap Leach Pad and Process Storage Ponds



Source: Minera Alamos Inc., June 14, 2021, looking east, photo taken at the Project.

Figure 18-4: Gold Recovery (Carbon) Plant

Source: Minera Alamos Inc., July 17, 2021, Looking Northeast, photo taken at the Project.

19 MARKET STUDIES AND CONTRACTS

The Santana Project is not an advanced property based on the “advanced property” and “early-stage exploration property” types defined in NI 43-101. Advanced property means one that has (a) Mineral Reserves or (b) Mineral Resources the potential economic viability of which is supported by a preliminary economic assessment, a prefeasibility study or a feasibility study. The reader is cautioned that the underlying section has been provided for references purposes using historic information only and the Company has not based its production decision at the Santana Mine on Mineral Reserves demonstrating economic and technical viability. As a result, there is increased uncertainty and technical and economic risks of failure associated with the production decision.

Minera Alamos produces gold loaded carbon at Santana. Loaded carbon is shipped to one of several different third-party facilities in Mexico and the United States that have agreements with the Company to process the carbon to remove the gold/silver and refine it to final saleable product.

The Company has not conducted a market study for the gold that is produced from the mine. Gold is widely traded at market prices that are well established and the Company sells final product at the market price available at the time of sales.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

The Santana Project is not an advanced property based on the "advanced property" and "early-stage exploration property" types defined in NI 43-101. Advanced property means one that has (a) Mineral Reserves or (b) Mineral Resources the potential economic viability of which is supported by a preliminary economic assessment, a prefeasibility study or a feasibility study. The reader is cautioned that the underlying section has been provided for references purposes using historic information only and the Company has not based its production decision at the Santana Mine on Mineral Reserves demonstrating economic and technical viability. As a result, there is increased uncertainty and technical and economic risks of failure associated with the production decision.

The Environmental Impact Assessment (EIA) for mining projects in Mexico includes the following primary permitting documents:

MIA—Manifestación de Impacto Ambiental (Environmental Impact Statement)

ETJ—Estudio Técnico Justificativo (Technical Justification Study) that includes the Estudio de Riesgo (Risk Study)

PPA—Programa de Prevención de Accidentes (Accident Prevention Program).

In addition to the primary permits listed above several other registrations and local/state permits are required. These include:

- Water Use—Comisión de Agua (National Water Commission or CONAGUA).
- Explosives Use—Covers projected explosives requirements and design of explosives storage facilities.
- Exploration Permits—As required when surface disturbances are created for site drilling purposes.
- Construction Permits—Obtained from the local municipality.

The Company currently holds all the required permits that are necessary to complete mining activities at Santana for the initial 80 Ha area which covered the start-up phase of mining operations. An application is pending with SEMARNAT to expand the overall area of mining operations to 170Ha which would encompass the full extents of the resources delineated for the Nicho and Nicho Norte deposits as outlined in this technical report.

21 CAPITAL AND OPERATING COSTS

The Santana Project is not an advanced property based on the “advanced property” and “early-stage exploration property” types defined in NI 43-101. Advanced property means one that has (a) Mineral Reserves or (b) Mineral Resources the potential economic viability of which is supported by a preliminary economic assessment, a prefeasibility study or a feasibility study. The reader is cautioned that the underlying section has been provided for references purposes using historic information only and the Company has not based its production decision at the Santana Mine on Mineral Reserves demonstrating economic and technical viability. As a result, there is increased uncertainty and technical and economic risks of failure associated with the production decision.

21.1 Expansion Capital

The Santana mine currently has all required infrastructure in place to carry out mining, heap leaching and processing activities. Expansion capital expenditures were completed in 2020 and 2021. Future sustaining capital expenditures are related to the expansion of the existing heap leach pad area.

21.2 Sustaining Capital

The Company is currently in the process of detailing requirements for “sustaining” capital related primarily to the Phase 2 expansion of the current leach pad area which was included in the recent permit amendment applications. An expansion of approximately 100,000m^2 is planned along with associated access roads and other minor infrastructure changes. The currently operating process plant and solution ponds are suitable for the proposed expanded leach pad area.

21.3 Operating Costs

The following subsection summarizes the mining, processing, and general administrative costs for the mine during 2022.

21.3.1 Mining Costs

All mine production activities are the responsibility of the Company’s contractor. The contractors rate includes drilling, blasting, loading, haulage and road and dump support. The costs associated with the Company’s mine department are included in the site G&A expenditures.

The contractor’s base mining cost is $2.00/t mined plus applicable adjustments for varying haul distances. The mining cost per tonne ranged between $2.20 to $2.40 per tonne in 2022. During this same operating year when the mine reached production rates of 12,000 – 13,000 tpd, the average monthly mining cost was $2.35/t mined.

21.3.2 Process

The mineralization at Santana is processed to produce a loaded carbon product. The loaded carbon is shipped off site to one of several facilities located in Mexico and the United States for refining (see section 17 for more detail). Processing costs during 2022 where in the range of $2.50/t stacked when stacked mineralization rates approached 100,000 tonnes per month.

Crushing optimization studies in 2022 were undertaken to further evaluate the optimal ratio of ROM to material sent to the crusher. During this period, 64% of the mineralization mined was crushed resulting in unit crushing costs that ranged between $2.30/t to $2.70/t of crushed mineralization.

Site power requirements are met through on-site diesel generators. The load for the site is primarily related to pumps for irrigation of the leach pad and for the operation of the plant. Minor amounts of power are supplied to power administration buildings. Power generation costs vary depending on the price of diesel and averaged $0.34/t in 2022.

21.3.3 General and Administrative Costs

The Santana Project sources local labour whenever possible, typically from the town of Guadalupe and the surrounding area. Management and more skilled personnel that are not locally available can be sourced from Obregon or Hermosillo, both of which are central areas for several mining operations. Minera Alamos provides basic transportation services (by road) for operations personnel.

During 2022 G&A costs averaged $0.77/t of mineralization stacked and ranged from $0.37/t to $1.12/t of mineralization stacked.

22 ECONOMIC ANALYSIS

The Santana Project is not an advanced property based on the “advanced property” and “early-stage exploration property” types defined in NI 43-101. Advanced property means one that has (a) Mineral Reserves or (b) Mineral Resources the potential economic viability of which is supported by a preliminary economic assessment, a prefeasibility study, or a feasibility study.

The Project is not an advanced property. No Economic Analysis has been completed for the Project.

23 ADJACENT PROPERTIES

The reader is cautioned that the information in this section is not necessarily indicative of the mineralization at the Santana Project, which is the subject of this Report.

The Santana Project is not adjacent to any projects that are similar in nature.

24 OTHER RELEVANT DATA AND INFORMATION

To the best of the QP's knowledge, information, and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

25 INTERPRETATION AND CONCLUSION

The QPs reviewed the Santana data provided by Minera Alamos (including the drillhole database); historical sampling and analytical procedures; and security. Two of the QPs have visited the site. The QPs believe the data presented by Minera Alamos to be an accurate and reasonable representation of the Santana Project mineralization.

Mr. Scott Zelligan, P.Geo. completed the Mineral Resource estimate for the Project. The Mineral Resource is based on the results of both the Corex and Minera Alamos RC and DDHs completed up to March 31, 2022.

The authors of this Report make the following conclusions:

25.1 Geology

- Minera Alamos has validated all the exploration data obtained during Corex's tenure on the Project.
- Exploration drilling campaigns undertaken at Santana from 2008 to March 31, 2022 (resource database cut-off date) include 40,191 m of RC and 39,100 m of assay sampling.
- The QP concludes the data, data density, and Santana exploration database are acceptable to form the basis for a Mineral Resource estimate.
- The QP completed a site visit and reviewed the property deposit geology; exploration and drilling methods and results; sampling method and approach; and sample data handling, including chain of custody. A qualified geologist evaluated the compilation of QA/QC data and believes that the Corex and Minera Alamos sample preparation, security, and analytical procedures followed industry-standard procedures, and that the analytical data are acceptable for use in a Mineral Resource estimate.
- There are no off-the-shelf deposit-type models that can be used to describe the mineral system at Santana. However, it can be reviewed in the larger framework of intrusive-related systems first suggested by Sillitoe and Thompson (2000), which was subsequently extended to reduce intrusive rocks mostly using Alaskan examples (plutonic systems) (Lang et al., 2000).
- The Project is in southeastern Sonora within the prolific Upper Cretaceous–Paleocene Laramide magmatic–hydrothermal metallo–tectonic event. Gold is hosted by breccias and intra-mineral dykes and stocks.
- Porphyry-style mineralization has been ruled out because of the absence of typical A/B veins and potassic alteration of porphyry systems, and by the presence of iron–manganese carbonate and specular hematite that is typically missing in porphyry systems.
- The bulk of the mineralization at Santana is present in elliptical, irregular breccia bodies.

25.2 Mineral Resource

Table 25-1 provides the Mineral Resource estimate for the Santana Project.

Table 25-1: Estimate of Mineral Resources, Santana Project

Zone	Category	Tonnes (t)	Gold Grade (g/t)	Contained Ounces
Nicho	Measured	6,390,000	0.65	133,000
	Indicated	2,810,000	0.64	57,000
	Total M&I	**9,200,000**	**0.65**	**190,000**
	Inferred	1,530,000	0.66	33,000
Nicho Norte & Divisadero	Measured	150,000	0.66	3,000
	Indicated	260,000	0.62	5,000
	Total M&I	**410,000**	**0.63**	**8,000**
	Inferred	2,470,000	0.55	44,000
Benjamin	Inferred	1,510,100	0.54	26,000
Total	Measured	6,540,000	0.65	136,000
	Indicated	3,070,000	0.64	62,000
	Total M&I	**9,610,000**	**0.65**	**198,000**
	Inferred	5,510,000	0.58	103,000

Notes:

- The independent QP for the Mineral Resource estimate, as defined by NI 43-101, is Scott Zelligan, P.Geo. The effective date of the 2023 mineral resource estimate is May 31, 2023.
  A gold price of $1,700/oz was used in the calculation of the Mineral Resources.
- The Mineral Resource estimate is reported for a potential open pit and heap leach scenario.
- The limits of the Mineral Resource-constraining pit shell assumed a mining cut-off based on a total operating cost (mining, processing, and general and administrative G&A) of $12.00/t stacked, a metallurgical recovery of 75%, and a constant open pit slope angle of 40°. This constraining pit shell contained a total volume of 49 Mt (mineralized + unmineralized) implying a strip ratio of 2.25.
- The gold cut-off grade applied to oxide mineralized material is 0.15 grams per tonne (g/t) Au.
- These Mineral Resources are not Mineral Reserves, as they do not have demonstrated economic viability.
- The Mineral Resource estimate follows CIM Definition Standards.
- Results are presented in situ. Ounce (troy) = metric tonnes x grade / 31.1035. Calculations used – metric units (metres, tonnes, g/t). Rounding followed the recommendations as per NI 43-101.
- The number of tonnes has been rounded to the nearest ten thousand.
- The QPs of this Report are not aware of any known environmental, permitting, legal, title-related, taxation, sociopolitical, marketing, or other relevant issues that could materially affect the Mineral Resource estimate. Extensive modelling and statistical work were performed to analyze the effect of the oxide zone on gold grade and rock specific gravity. Due to the fractured nature of the host rock, the oxide-sulphide transition zones of the deposits are irregular and difficult to model using conventional wireframing techniques. It was decided for the current Resource Estimate to model without a transition boundary and allow the measured variations in density to populate the blocks accordingly. Metallurgical test work is ongoing and results from limited sulphide samples tested to date indicate the potential for heap leaching of this material although final required parameters like crush sizes are not yet fully understood. It has been recommended that the Company continue to evaluate the overall database of exploration information with a goal of incorporating geo-metallurgical information into future resource estimates.

- The grade interpolations for gold were carried out using conventional methods commonly used in the industry and applied with reasonable geological inference and controls.

- The existing sample data have been collected using protocols that are consistent with industry best practices. The sampling that has been completed on the Project to date has been appropriate for the mineralization type, and the samples are representative of the deposit.
- All samples collected were transported in a secure manner, and a chain of custody was followed.
- Assays were carried out in well–managed facilities using conventional methods commonly used in the industry. During each drilling campaign, suitable levels of independent QA/QC samples were submitted to the laboratory to ensure reasonable results were returned.
- The QP is of the opinion that the analytical work performed by the various laboratories was suitable for use in the Mineral Resource estimate.
- The assumptions, parameters, and methodology are appropriate for the Mineral Resource estimate, are consistent with the style of mineralization, and are applicable for an open pit and heap leach operation.

25.3 Metallurgical Recovery

- Metallurgical testwork completed to date meets industry standards.
- Gold mineralization appears to be generally well disseminated throughout the host rock, with little correlation to rock particle–size distributions. There was some evidence that, in the breccia-zone material that exists above the deeper QFP intrusive, some small–scale enrichment may occur in the fractures between the breccia matrix fragments.
- Overall copper content in the oxide mineralization was low and leaching results indicate that the extraction of this copper should be manageable using free cyanide level control (low concentrations) in the leach solutions with little impact on overall gold recovery.
- Gold mineralization in the oxide zones responds positively to gold cyanidation. Residual gold levels following heap leaching are expected to be approximately 0.1 g/t Au or less. At mined head grades of 0.6 g/t Au—0.7 g/t Au this would equate to gold recoveries more than 80%.
- Although more data are available for material from the Nicho Norte satellite deposit, comparative studies looking at samples from the Nicho main deposit appear to exhibit similar results.
- Leach kinetics are rapid for particle sizes up to approximately 1" (30 d–45 d or less). Although kinetics slowed somewhat at sizes greater than 1", ultimate gold recoveries at the end of the extended leach period were similar to those experienced with the finer material.
- Leach tests on samples of "worst-case" sulphide material from the Nicho zone exhibited acceptable gold recoveries approaching 70% at crush sizes of <0.5" (coarsest size used for screening tests). Further testwork is warranted for this part of the deposit to better optimize actual required crush sizes and examine the impact of larger particle sizes on overall gold recoveries.
- Major reagent consumption is expected to be low (< 2 kg/t lime and 0.3 kg/t–0.5 kg/t cyanide).

25.4 Environmental and Permitting

- The company is currently in possession of the necessary permits for the start-up phase of mining operations at the Santana project. An amendment has been filed (pending) with SEMARNAT to expand the total area for mining activities to 170Ha which would be sufficient to include the full extent of the currently estimated resources at the Nicho and Nicho Norte deposits.
- A permit application (pending) has been filed related to a new water well which was located and drilled by the Company and found to contain sufficient volume to support commercial-scale heap leach operations during periods of reduced precipitation like those experienced from 2020 through 2023.

25.5 Project Risks

Minera Alamos has identified risks in the areas of Mineral Resource estimation, recovery, geotechnical, mine planning, and permitting. These risks are described as follows:

- The Mineral Resource model has been used as the basis for ongoing mining activities at site. There is no guarantee that the model will accurately predict gold production. As production continues to increase, the model will be reconciled to production and adjusted as needed.
- Geotechnical risks related to open pit wall, pad, and waste dump stability exist at the Project site. If conditions change from those currently assumed, design changes could be required that would have an adverse impact on the Project economics.
- The mine plan uses a contract mining company to achieve planned production rates and cost targets. It has also been assumed that the contractor will be able to deliver the desired head grades to the leach pad and will use proper blasting and mining techniques to achieve geotechnical designs for the open pits. If the mining contractor cannot meet target production rates due to equipment or labour shortages the operation may not meet planning requirements, resulting in a negative impact on the Project.
- Changes to current regulations related to matters involving environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant issues have the potential to materially affect access, title, or the right or ability to perform the work recommend in this Report. At the present time the QPs are unaware of any such potential issues affecting the Project.

25.6 Project Opportunities

Opportunities that could enhance the Project include:

- Exploration potential to identify additional zones that have not been sampled (beyond the Nicho and Nicho Norte zones) that are amenable to small-scale open pit mining and heap leaching activities.
- There are four excellent prospective areas within the Project area that have been identified by surface sampling that have the potential to increase the resource base at the Project. These zones are denoted the Goldridge, Zata, Bufita and East project targets.

26 RECOMMENDATIONS

The QPs of this Report have reviewed the Project data provided by Minera Alamos, including the drill–hole database, sampling, analytical procedures, and security. Mr. Lawrence Segerstrom, CPG, visited the Project site from April 21 to 22, 2021. The QPs believe the data presented by Minera Alamos to be an accurate and reasonable representation of the Project mineralization. In the QP's opinions, the Project has the potential to continue to expand as an open pit heap leach operation and warrants continued advancement of the Project. To continue to advance the potential of the Santana Project, the QPs responsible for this Technical Report make the following recommendations:

26.1 Exploration and Geology

- Complete additional drillholes on approximately 25m centres at the Benjamin zone to further understand the distribution of gold mineralization within the zone and to look at opportunities to expand the size of the currently defined mineralized area.
- Further review of the additional mineralized breccia targets which have been identified by the Company in the areas surrounding the Nicho complex (Goldridge, Zata, Bufita and East Zones) to prioritize the next phases of follow-up resource drilling.
- Continue effective surface sampling activities with a focus on new areas that show similar mineralization characteristics as the Nicho and Nicho Norte zones.
- Geophysical studies targeting blind targets that have similar signatures as those observed over the known Nicho and Nicho Norte gold-bearing breccia zones.

26.2 Geotechnical

- Initiate a mapping program to identify and assess the potential impacts of structures exposed in open pit walls on highwall stability.
- Continue to analyze and expand existing geotechnical data that is contained in the exploration DDH logs.

26.3 Mineral Resources

- Compile new exploration drilling results from Benjamin into the database to increase the confidence level in the current inferred resource and potential extensions of the known mineralization along strike and at depth.
- When sufficient drill data is available, complete preliminary resource estimates for other identified mineralization targets within the overall Santana project area.

26.4 Metallurgical

- Complete additional metallurgical studies (particularly crushing optimization studies) aimed at improving the overall understanding of variations in parameters such as leachability, recoveries, and reagent consumptions for newly delineated zones of mineralization.
- Expand available metallurgical data for different types of mineralization (oxide/mixed/sulphide) contained within the Nicho deposit and other adjacent delineated deposits (i.e. Benjamin).

26.5 Environmental and Permitting

- Continue to work proactively with government agencies to receive final approvals for permit amendment applications currently under review for the expanded Santana Project area.

Table 26-1 provides a preliminary budget for the recommended work activities.

Table 26-1: Preliminary Budget for Recommend Work Activities

Work Activity	Budget ($)
Resource Drilling at Benjamin (~15 holes)	300,000
Metallurgical Optimization Work	100,000
Exploration Drilling at Regional Targets	150,000

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28 CERTIFICATES OF AUTHORS

28.1 Scott Zelligan, P.Geo.

I Scott Zelligan, P.Geo., as an author of this report titled *National Instrument* (*NI) 43-101 Technical Report, Mineral Resource Estimate for the Project, Sonora State, Mexico* with an effective date of May 31, 2023 (the "Technical Report") prepared for Minera Alamos Inc. and dated October 16, 2023, do hereby certify that:

1. I am an independent Consulting Geologist residing at 117 Core Drive, Barrie, Ontario, L4N 0A8.
2. I graduated with a Bachelor of Science (Honours), Earth Sciences, from Carleton University (Ottawa, Ontario) in 2008.
3. I am a Professional Geoscientist (P.Geo.), registered with the Professional Geoscientists Ontario (#2078).
4. I have practiced my profession as a geologist for a total of over fifteen years since my graduation from university, as an employee of major and junior mining companies, as an employee of engineering consulting firms, and as an independent consultant, including: five months working underground in a producing gold mine; three years working in exploration for numerous commodities (including base, precious, and other minerals); and twelve years of resource estimation work including modelling, estimating, and evaluating mineral properties of all types (including base, precious, and other minerals) throughout North America, and occasionally globally. I have previously been a primary author on ten NI 43-101 technical reports as well as secondary author or contributor on several others. I have worked on numerous properties with similar or comparative mineralization styles to the Project.
5. I have read the definition of "qualified person" set out in NI 43-101 and certify that by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of this NI 43-101.
6. I have visited the Santana Project site on April 4 & 5, 2018.
7. I am responsible for Sections 1 through 3, 14, and parts of Sections 12, 25 and 26 of this Technical Report.
8. I have been engaged previously as a resource geologist with the Issuer; I have had prior experience with the Property that is the subject of this Report.
9. As of the Effective Date of this Technical Report (May 31, 2023), to the best of my knowledge, and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make this Technical Report not misleading.
10. I am independent of the Issuer and the Property, applying all the tests in Section 1.5 of NI 43-101.
11. I have read NI 43-101 and Form 43-101F1, and this Technical Report has been prepared in compliance with this instrument.
12. I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated this 31 day of October 2023 in Barrie, Ontario.

Original Signed and Sealed

Scott Zelligan, B.Sc., P. Geo.

28.2 Lawrence Segerstrom, CPG

I Lawrence Segerstrom, CPG, as an author of this report titled *National Instrument (NI) 43-101 Technical Report, Mineral Resource Estimate for the Santana Project, Sonora State, Mexico* with an effective date of May 31, 2023 (the "Technical Report") prepared for Minera Alamos Inc. and dated October 16, 2023, do hereby certify that:

1. I am currently owner–operator of Segerstrom Consulting LLC, 190 W. Continental Rd, Suite 216–409, Green Valley, Arizona 85622.
2. I graduated with a Bachelor of Science degree in Geology from Colorado State University in Fort Collins in 1978, earned a Master of Science degree in Geosciences from the University of Arizona in Tucson in 1986, and a Master of Business Administration in international management from the Thunderbird School of Global Management in Glendale, Arizona in 2005.
3. I am a Certified Professional Geologist (#11557) in good standing with the American Institute of Professional Geologists. I am also a fellow in the Society of Economic Geologists and a member of several other geologic and mining societies.
4. Since 1983 I have worked as a geologist in the mining industry, predominantly in exploration and development, but also in mine geology and operations. I have worked in diverse metallic mineral deposit types and geologic settings, with emphasis on porphyry gold–copper, copper–gold, and copper–molybdenum deposits and associated skarns, as well as on low-, medium-, and high–sulfidation epithermal deposits. My work locations have been mainly in South America, USA, Indonesia, and Serbia, as an employee or consultant for small, medium, and large companies, both public and private.
5. I have read the definition of "qualified person" set out in NI 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of this NI 43-101.
6. I visited the project site from April 27 to April 29, 2021.
7. I am responsible for Sections 4 through 11, 16, 18 through 24 and parts of Sections 12, 25 and 26 of this Report.
8. I have been previously engaged by the Issuer as a consulting geologist; I have not had prior experience with the Property that is the subject of this Report.
9. As of the Effective Date of this Technical Report May 31, 2023, to the best of my knowledge, and belief, the parts of this Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make this Technical Report not misleading.
10. I am independent of the Issuer, and the Property, applying all the tests in section 1.5 of NI 43-101.
11. I have read National Instrument 43-101 and Form 43-101F1, and this Report has been prepared in compliance with this instrument.
12. I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated this 31 day of October 2023 in Green Valley, Arizona.

Original Signed and Sealed

Lawrence Segerstrom, CPG

28.3 Peimeng Ling, P.Eng.

I, Peimeng Ling, P.Eng., as an author of this report titled *NI 43-101 Technical Report, Mineral Resource Estimate for the Santana Project, Sonora State, Mexico* with an effective date of May 31, 2023 (the “Technical Report) prepared for Minera Alamos Inc. and dated October 16, 2023, do hereby certify that:

13. I am the Principal of Peimeng Ling & Associates Limited (CofA #100183418), with an office at 39 Clovercrest Road, Toronto, Ontario, Canada, M2J 1Z5.
14. I am a graduate of Zhejiang University, PRC (B.Eng., Chem. Eng., 1982), University of Toronto, Canada (M.Sc. Chem. Eng.1994).
15. I am a registered Professional Engineer in good standing of Professional Engineers Ontario (Registration Number 90444985) and a member of The Canadian Institute of Mining, Metallurgy and Petroleum (CIM).
16. I have over 25 years of direct experience with precious and base metals mineral and hydrometallurgical processing in Canada, USA, Brazil, and Russia, including testwork, project feasibility study, process design, plant design, environmental compliance, and financial evaluation with a variety of deposit types including gold, silver, copper, zinc, nickel, cobalt, vanadium, platinum-group metals and industrial minerals.
17. I have read the definition of “qualified person” set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
18. I have not visited the Santana Project site.
19. I am responsible for Section 13, and parts of Sections 25 and 26 of this Technical Report.
20. I have been engaged previously as a mineral processing and metallurgical engineer with the Issuer; I have not had prior experience with the Property that is the subject of this report.
21. As of the Effective Date of this Technical Report May 31, 2023, to the best of my knowledge, and belief, the parts of this Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make this Technical Report not misleading.
22. I am independent of the Issuer, and the Property, applying all the tests in Section 1.5 of NI 43-101.
23. I have read NI 43-101 and Form 43-101F1, and this Technical Report has been prepared in compliance with this instrument.
24. I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their website accessible by the public.

Dated this 31 day of October 2023 in Toronto, Ontario.

Original Signed and Sealed

Peimeng Ling, P.Eng.