NI 43-101
TECHNICAL REPORT

PUNITAQUI COPPER MINING COMPLEX

COQUIMBO, CHILE

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PREPARED FOR

BATTERY MINERAL RESOURCES CORP.
Suite 400, 744 West Hastings St.,
Vancouver, BC V6C 1A5

PREPARED BY

JDS ENERGY & MINING INC.
Suite 900, 999 West Hastings St.,
Vancouver, BC V6C 2W2

DATE AND SIGNATURE PAGE

This report entitled NI 43-101 Technical Report for the Punitaqui Copper Mining Complex Project, effective as of 16 August 2022 was prepared and signed by the following authors:

Original document signed and sealed by:

[Garth Kirkham]
Garth Kirkham, P.Geo Date Signed

Original document signed and sealed by:

[Richard Goodwin]
Richard Goodwin, P. Eng. Date Signed

Original document signed and sealed by:

[Shane Tad Crowie]
Shane Tad Crowie, P. Eng. Date Signed

NOTICE

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1 EXECUTIVE SUMMARY

1.1 Introduction

JDS Energy & Mining Inc. (JDS) was commissioned by Battery Mineral Resources Corp. (BMR) to complete a Resource Estimation and technical report of the Punitaqui mining complex (Punitaqui), a resource development copper project owned by BMR located in the is central part of Coquimbo region, Chile. BMR's Punitaqui project is a past producing copper mining complex consisting of a centralized process plant that to be fed by four satellite copper deposits, San Andres, Cinabrio, Cinabrio Norte, and Dalmacia.

1.2 Project Description

The Punitaqui project is a formerly operating mining complex with an operational ~3,000 tonnes per day (t/d) processing plant that processed approximately 8.4 million tonnes (Mt) of ore for sale as copper concentrate. Feed to the mill came primarily from the underground Cinabrio mine, complemented with feed from the Los Mantos and Nova Galacia mines, which were leased at that time. The lease is no longer valid.

Tailings from processing operations was disposed of in the form of a dense slurry in four separate containments: Tranque I, Tranque III, Tranque IV Phase 1 and Tranque IV Phase 2. Stability concerns have been noted for both phases of Tranque IV, with vertical cracking showing on the crest of the dams. Both have ongoing monitoring plans and the company is actively working with SERNAGEOMIN to resolve the issues. A conceptual design for buttressing of Tranque IV has been submitted for approval and the work has been tendered.

Other site facilities include the following:

- Security gates at the access to the mining and milling sites;
- Technical and administration offices;
- Warehouse facility;
- Underground access to the Dalmacia and San Andres deposits via portals for exploration;
- Core logging and storage facilities;
- Mine equipment maintenance facilities; and
- Assay lab for support of mining operations and metallurgical lab for support of the processing plant.

The Punitaqui mining complex contains 8,693 hectares (ha) of concessions. Of these 3,700 ha are exploration concessions, and 4,993 ha are exploitation concessions. The property holdings consist of 3 main blocks over a 30 kilometers (km) north-south corridor. The Cinabrio block hosts the Cinabrio deposit and the Cinabrio Norte & San Andres zones. A further 25 km south is the Los Mantos Processing plant block, and the third block is centered over the Dalmacia zone, located about 6 km south the plant.

BMR's Punitaqui mining complex is in the central part of Coquimbo region about 120 km south of the port city of La Serena, Chile. Regular, daily flight service connects La Serena with the capital Santiago about 500 km to the south. Ocean going shipping is available via La Serena and the nearby port town of Coquimbo. The region is well services by grid electrical power and telecommunication services. The property holding consist of 3 main blocks over a 30 km north-south corridor. The plant complex is centrally located in Punitaqui region. A well-established road network connects the processing plant, the Cinabrio, mine, San Andres zone, Cinabrio Norte zone and the Dalmacia resource. Employees either drive or take a bus to site and accommodation is provided by the nearby towns of Punitaqui and the city of Ovalle.

Sealed road access south from the city of Ovalle is by route D-605, which links the Ovalle with the town of Punitaqui. The UTM coordinates of the operating area, is 6,599,735N and 288,540E, (South American Datum 1956, transversal Universal Mercator projection). The Cinabrio mine is located approximately 25 km by road, north of the processing plant.

The Dalmacia zone is about 12 km by road to the south of the processing plant. Surface haulage from the outlying properties is accomplished using 20 to 25 tonne (t) highway trucks.

The Punitaqui mining complex was previously owned by Tamaya Resources Limited, an Australian based company. From 2007 – 2010, Tamaya through its Chilean subsidiary Compañía Minera Punitaqui "CMP", acquired the Cinabrio and Dalmacia properties. CMP completed reverse circulation "RC" drilling at Cinabrio, Cinabrio Norte, San Andres and Dalmacia as well as undertaking a preliminary Feasibility Study. Tamaya constructed a plant and commenced mining at Cinabrio. In 2010, CMP the Chilean subsidiary declared bankruptcy.

In 2010, Glencore International Plc acquired the project upgraded plant & underground development of Cinabrio. Glencore through its local company Minera Altos de Punitaqui Limitada (MAP) successfully operated the Cinabrio underground mine with most of the exploration and drilling focused at Cinabrio and the Dalmacia zone.

On May 22nd, 2018, Canadian listed, Xiana Mining Inc. acquired the mine, continued production at Cinabrio and completed limited diamond core drilling on the Cinabrio mine, San Andres and Cinabrio Norte zones. The operation was placed on "care and maintenance" in April 2020 when Xiana Mining's Chilean subsidiary declared bankruptcy due to the rapid fall in copper prices.

In March 2021, BMR announced the acquisition of the Punitaqui project. On May 28th, 2021, the Company's wholly-owned Chilean subsidiary Minera BMR SpA entered into a number of agreements with Minera Altos de Punitaqui Limited (MAP), their parent company Xiana Mining Inc. (Xiana) and their creditors, Bluequest Resources AG (Bluequest), to acquire the rights to certain properties, plant and equipment related to the Punitaqui mining complex. The arrangement included a 99-year lease agreement, which exceeds the life of the assets, to access and utilize MAP's mining concessions, mineral properties, equipment, and water rights. This structure allows the Company to complete the required technical analysis and apply for the proper permits with the Chilean mining authorities, without assuming any potential unknown liabilities within MAP.

On November 13th, 2018, Xiana Mining Inc. entered into net smelter royalty agreement with Glencore Group Funding Limited, the royalty holder. Under the terms of the arrangement, the Punitaqui operation must have processed 9,000,000 t of plant feed to trigger the commencement of 1.5% "Net Smelter Return" royalty payments. The royalty is payable for ore production sourced from concessions defined as the Punitaqui mining complex held as of November 13th, 2022. A balance of 8,424,588.64 t remains to be produced prior to reaching the royalty trigger hurdle.

As of the date of this report, BMR has not initiated any environmental disturbances or disturbed any pre-existing hazards on any of the properties.

Within the Punitaqui mining complex, BMR is engaged with all of the local communities are in the neighboring areas:

- Cinabrio / San Andres / Cinabrio Norte: Comunidad de Potrerillos and local organizations; and
- Processing Plant / Dalmacia: Comunidad de Punitaqui and Punitaqui Town.

As of the date of this report, BMR implemented a community engagement plan that includes:

- Regular and ongoing community engagement through meetings and correspondence to ensure stakeholders concerns are identified and addressed;
- Recently completed social landholder/ stakeholders mapping project to ensure all stakeholders are identified and addressed; and
- Open exchange of ideas & ongoing dialogue with respect to ongoing exploration & development activities.

BMR has in place surface mining rights agreements with both communities that secure restart of mining and processing activities.

1.3 Geology History, Exploration and Drilling

Northern Chile is one of the world's most well-endowed mineral districts. Chile is the world's leading copper producer accounting for about 28 percent of global copper production. The metallogenic endowment of northern Chile is strongly influenced by the fact the country has been situated along an active tectonic plate margin since the early Jurassic. Subduction of the Pacific plate under the South American plate has resulted in the creation of a series of north-south striking volcanic arcs. Major north-south trending strike -slip and crosscutting northwest - southeast to east-west striking transform faults act as fluid conduits and are critical controls for the formation of mineral deposits.

The geology of northern and central Chile is characterized by north-south striking belts of volcanic and sedimentary rocks that go from west to east and that range from the Paleozoic to the Miocene in age. These rocks are intruded by Jurassic, Cretaceous, and Tertiary batholiths and are aligned with large north-south striking fault systems. This geological setting hosts copper, gold, and iron deposits including Iron Oxide Copper-Gold (IOCG), strata-bound, copper-molybdenum porphyry, epithermal gold, mesothermal veins, and skarn style orebodies.

The regional bedrock geology of the Punitaqui-Ovalle region consists of a Jurassic to lower Cretaceous age sequence of volcanic rocks (lavas, conglomerates and andesitic breccias) with interbedded marine sediments (shales, fossiliferous limestones, and thin layers of sandstones). This sequence has been locally intruded by dioritic to granodioritic rocks of Upper Cretaceous age. Andesitic to dacitic dykes ranging in age from Cretaceous to Tertiary are common in the region. The lower elevations in the region are commonly covered by Quaternary alluvial deposits which locally extensively obscure the underlying Mesozoic bedrock.

The Punitaqui region hosts IOCG type mineralization, manto style copper mineralization, and mesothermal vein hosted copper and lode style, narrow vein gold mineralization. In northern Chile, manto style mineralization is the most economically significant. The Cinabrio mine, San Andres resource, Dalmacia resource and the Cinabrio Norte resource target are manto style copper occurrences. Manto style copper mineralization at Punitaqui is hosted by a regionally extensive marine sedimentary rock unit within an andesitic volcanic sequence. The sedimentary rock unit is comprised of dark-coloured shales, volcanoclastic sandstones, volcanoclastic sedimentary breccia and conglomerates and fossiliferous limestones.

The structural framework of the district is the result of stress and compression forces which is reflected in a north-south, northwest, and east-west orientation tectonics. The regional structural fabric is a critical control on copper mineralization. The sedimentary unit is deformed and rotated by extensional faulting resulting in multiple structural repetitions of the mineralized sedimentary stratigraphy. The stratigraphy has been consistently rotated to the east resulting in a north-south striking east dipping sequence.

Mineralization is variable and believed to be controlled by mineralizing fluids focused along structures within the footwall rocks. Typical mineral assemblage includes chalcopyrite, bornite and the gangue includes pyrite, calcite, and quartz. In the oxide and transition zones (nominally 40 meters (m) to 60 m but quite variable) malachite, azurite, chrysocolla and native copper are common.

Locally within this sequence, the following key lithological units have been identified:

- Volcanic breccia;
- Silicified breccia;
- Sedimentary rocks; shales, limestones and sandstones;
- Porphyritic andesite (ocoite); and
- Sequence is intruded by andesitic, dioritic and granodioritic dykes.

BMR's Punitaqui project is a past producing copper mining complex consisting of a centralized process plant that to be fed by four satellite copper deposits, San Andres, Cinabrio, Cinabrio Norte, and Dalmacia.

In addition to the BMR assets, there are several small to medium scale third-party mining operations and processing plants in the district. The more important of these are the Tambo de Oro gold mine and 30,000 t per month processing plant owned by HMC. La Mina Juana underground copper mine operated by Minera Cruz Ltda. located 4.8 km north of Cinabrio and the underground Cullana & Zupilocos copper mines located about 5 – 7 km south of Cinabrio. Except for HMC gold, all these operators transport and sell ore to the La Empressa Nacional de Mineria “Enami” processing facility located about 27 km north of Ovalle. Since 2014, HMC Gold has operated the Tambo de Oro underground gold mine and processing plant located just north of the BMR’s processing plant.

Copper and gold were first discovered in the region in 1780 and was intermittently exploited by indigenous groups and the Spanish with long periods of inactivity. Historical records of private, local miners Pirquineros” activities and total production are poor. Local mining workings comprising of trenches, shallow prospect pits and small adits can be found throughout the district.

The Los Mantos mine near discovered in 1780 near the town of Punitaqui was the largest domestic gold and mercury producer prior to 1981.

From 2007 - 2010, Tamaya Resources Limited acquired both the Cinabrio and Dalmacia properties. Tamaya completed additional reverse circulation (RC) drilling (256 holes / 42,315 m) at Cinabrio, Cinabrio Norte, San Andres and Dalmacia as well as undertaking a preliminary Feasibility Study. Tamaya constructed a plant and commenced mining at Cinabrio. In 2010, CMP the Chilean subsidiary of Tamaya declared bankruptcy.

In 2010, Glencore International Plc acquired the project upgraded plant & underground development of Cinabrio. Glencore optioned and mined the Los Mantos & Milagros gold deposits near the processing plant. Cinabrio was Glencore’s first copper operation in Chile. Glencore successfully operated the Cinabrio underground mine with most of the exploration and drilling focused at Cinabrio and the Dalmacia zone. From 2011 – 2018, Glencore completed follow-up diamond core drilling (371 holes / 71,162 m) at Cinabrio, Cinabrio Norte, San Andres and Dalmacia. Following the Glencore-Xstrata Mining merger the Cinabrio property was put up for sale.

In 2018, Xiana Mining Inc. acquired the project, continued production at Cinabrio and completed limited diamond core drilling (45 holes / 5,635 m) on the Cinabrio mine, San Andres and Cinabrio Norte zones. Xiana’s drilling focus was the San Andres zone (17 holes / 3,644 m) which was follows by development of portal access and limited underground development. Two small “trial” open pits were developed on the southwest part of the Dalmacia zone.

The operation was placed on “care and maintenance” in April 2020 when Xiana Mining’s Chilean subsidiary declared bankruptcy due to the rapid fall in copper prices.

On May 28, 2021, BMR’s wholly owned Chilean subsidiary Minera BMR SpA entered into a number of agreements, to acquire the rights to certain properties, plant and equipment related to the Punitaqui mining complex.

The primary focus of BMR’s 2021-2022 exploration program was the completion of the 32,526 m Phase 1 resource delineation and exploration drilling at: Cinabrio mine, San Andres zone, Dalmacia zone and Cinabrio Norte zone.

This drill program commenced in August 2021 and was completed in June 2022.

The drilling was conducted by two domestic contractors: South Pacific Drilling SPA (SPD) and Minera Olcar Drilling (DV) with up to 4 diamond core drill rigs utilized to complete the program. SPD drilling supplied two Longyear LF-70 drills while Minera Olcar supplied a Longyear LF-230 drill and a Golden Bear-1400 rig. Downhole surveys were completed in holes drilled by SPD Drilling using a Gyro 3411 instrument supplied an independent third-party contractor Axis Mining Technology. For holes drilled by DV Drilling, the downhole surveys were conducted by an independent third-party contractor Minsure B&B SPA using a north seeking Reflex Series 600 gyroscopic unit with measurement taken every 5 m down the hole. Final drill hole collar locations were surveyed completed by BMR's mine survey team using a Leica Total Station TCRP Model 1205 instrument and a Topcon QS 3A Total Station unit.

Diamond drill core was inspected at the drill site then core boxes were secured and transported by truck to one of BMR's two core processing facilities located at the Cinabrio mine site (for Cinabrio, Cinabrio Norte & San Andres drill core) or at the Los Mantos plant site (for Dalmacia drill core). Detailed core logging and collection of selected geotechnical data is completed followed by selection of assay intervals which are marked out on the core and tabulated on a sample cutting spreadsheet. A Swiner electric diamond saw is used to cut the core lengthwise, with samples were cut by saw along a cut line and the half-core is then sampled placed into bags with an assigned sample number, then closed and sealed. Holes were sampled selectively within mineralized zones, and periodically in altered rock types known to host mineralization. Samples were marked on the core with a "Red China" marker. Generally, samples were cut to one meter core intervals. The average sample length is 1.31 m. QAQC samples including standards and blanks along with duplicate samples were inserted in the sample stream according to documented procedures. All samples are delivered by BMR staff to ALS Global - Geochemistry Analytical Lab in La Serena for sample preparation and sample analyses by ALS in Lima, Peru. ALS analytical facilities are commercial laboratories and are independent from BMR.

Samples are dried then crushed to 70% <-2 millimeters (mm) and a riffle split of 250 grams (g) is then pulverized to 85% of the material achieving a size of <75 microns (µm). These prepared samples are then shipped to the ALS Laboratory in Lima Peru for analyses by the following methods:

- ME-ICP61: A multi-acid digest analyzed by inductively coupled plasma (ICP) mass spectrometry that produces results for 48 elements;
- ME-ICP61a: Similar to the ME-ICP61 method but with higher detection and overlimit range;
- ME-OG62: Aqua-Regia Digest: Analyzed by ICP-AES (Atomic Emission Spectrometry) or referred to as optical emission spectrometry (ICP-OES) for elevated levels of Co, Cu, Ni and Ag;
- MS-42 Hg: Trace Mercury analysis by aqua regia digest and ICPMS finish; and
- Au-AA23 Gold: Cupelled into a precious metal doré bead – HCL digest analyzed by atomic absorption spectroscopy.

Drill core, sample pulps and sample rejects are returned to BMR and stored on site. A sample location and storage index record system are maintained.

1.3.1 Cinabrio Mine

The Cinabrio copper deposit is hosted within sequence of early Cretaceous volcanic rocks with sedimentary interbeds. The volcano-sedimentary sequence has been designated the El Reloj formation (Source: Thomas, 1967) and, more recently, the sequence has been included in the Arqueros formation (Source: Emparan and Pineda 2020).

Copper mineralization at Cinabrio is mainly hosted by a tabular sedimentary horizon, referred to as the Targeted Stratigraphic Unit (TSU), within a volcanic sequence. This sedimentary horizon is variably mineralized and has a width ranging from 5 m to 30 m. It consists of an interlayered volcano-sedimentary sequence composed of dark colored laminated and unlaminated shales, volcanoclastic sandstone, conglomerates, sedimentary breccias and tuff breccias

At Cinabrio, mineralogy is made up of gangue minerals with quartz, calcite, pyrite and ore minerals being bornite, chalcopyrite (sulphides) and malachite, atacamite, azurite and chrysocolla (oxides).

During the 2021-2022 drilling program, a total of 6,704 samples were assayed representing 8,766 m of drill core.

At Cinabrio, a limited diamond core drilling program (8 holes / 855.22 m) was completed. This drilling targeted the immediate southern extensions of the Cinabrio orebody just beyond the workings on the 440 m level in an earlier where a series of historic reverse circulation holes had confirmed the presence of the favourable sedimentary host rocks and copper mineralization. In addition, several holes were drilled farther south to test for the presence of favorable stratigraphy and mineralization below an interpreted low angle fault. The drilling resulted in a total of 66 drill core samples representing 66.6 m of drill core submitted for assay. Significant assays included:

- CNV-21-02: 10 m at 1.17% Cu and 0.5 g/t Ag; and
- CNV-21-07: 6 m at 1.73% Cu and 0.5 g/t Ag.

Note: All intervals are downhole core lengths.

1.3.2 San Andres Zone

San Andres is a zone of copper mineralization located 500 m southwest of the high-grade Cinabrio deposit. The host rocks and copper mineralization at San Andres is very similar to Cinabrio. The stratigraphic setting at San Andres is the same as the Cinabrio deposit.

The San Andres zone is interpreted to be a structural offset of the Cinabrio stratigraphy along an extensional fault known as the San Andres fault. The San Andres zone is the structurally offset, up dip part of the Cinabrio deposit. The San Andres fault strikes north-northwest and dips -30º to -40º to the west. The apparent offset along the fault is around 900 m.

The San Andres copper mineralization is hosted in an east dipping tabular, TSU sedimentary horizon within the volcanic sequence. This sedimentary horizon is variably mineralized and ranges in width from 5 m to 30 m. The horizon dips -40º to -50º east and is cut-off at depth by the moderately west dipping San Andres fault.

Like at Cinabrio to the east, the TSU sedimentary horizon consists of an interlayered volcano-sedimentary sequence composed of dark colored laminated and unlaminated shales, volcanoclastic sandstone, conglomerates and breccias and tuff breccias. There is a variable component of syngenetic pyrite.

The host horizon is also cut and offset by other faults with a wide range of orientations. The fundamental orientations identified to date include:

- Moderately west dipping splays of the San Andres fault, generally with downward and westward movement; and
- Steep dipping northeast to northwest trending faults with both sinistral and dextral offsets.

The mineralization is predominantly chalcopyrite and bornite. It consists of veinlets and irregular disseminations in both the fine and coarse-grained clastic rocks and locally within the volcanic rocks above and below the host unit.

The intersection of the host sedimentary unit and the San Andres fault plunges toward the south. Because of this, the potential volume of ore within the host sedimentary horizon increases towards the south.

The host sedimentary unit at San Andres is exposed along a north-northwest trending ridge. The surface trace of the mineralized unit crosses from the east side of the ridge in the northern part of San Andres to the western side of the ridge in the southern part.

Follow-up drilling at San Andres resulted in the completion of an additional 38 diamond core holes totaling 8,211.61 m with a total of 939 samples submitted for assay representing 2,210 m of core. The San Andres program yielded the following significant results:

- SAS-21-03: 11.0 m at 1.39% Cu including 8.0 m at 1.63% Cu;
- SAS-21-04: 16.7 m at 1.37% Cu and 9.0 m at 1.75% Cu;
- SAS-21-05: 9.0 m at 2.06% Cu;
- SAS-21-12: 7.0 m at 1.81% Cu and 2 m at 1.04% Cu;
- SAS-21-14: 10.1 m at 1.44% Cu and 9.4 m at 1.24% Cu;
- SAS-21-21: 25.0 m at 0.88% Cu;
- SAS-21-27: 11 m at 2.16% Cu;
- SAS-21-29: 16 m at 1.49% Cu;
- SAS-21-36: 37.6 m at 1.36% Cu including 27.4 m at 1.55% Cu;
- SAS-21-35: 25.1 m at 0.54% Cu including 6.9 m at 1.10% Cu; and

- SAS-21-34: 9.2 m at 1.57% Cu.

Note: All intervals are downhole core lengths.

1.3.3 Dalmacia Zone

The geologic setting at Dalmacia comprises andesitic volcanics with minor sedimentary intercalations, intruded by various phases of sub-volcanic stocks and dykes of various ages. The main lithologies are: ocoitic andesites, andesites, andesitic porphyries and dioritic-andesitic-siliceous dykes. All these rocks constitute a roof pendant in a granitic batholith (granodiorites and diorites) that surrounds the Dalmacia zone to the south, west and east.

BMR's current interpretation is the Dalmacia host rocks strongly resemble the andesitic lithologies footwall to the Cinabrio and San Andres manto style deposits. The volcano-sedimentary rocks and subvolcanic ocoites at Dalmacia are likely lower Cretaceous in age and equivalent to the Reloj/Arqueros formation.

The volcanics are andesitic with minor sedimentary interbeds. The emplacement of the intrusive rocks range in age and include pre-, syn- and post-mineral dykes and small stocks of andesitic/dioritic composition.

The Dalmacia resource area is west of the Romeral regional fault zone which is considered to be an offshoot of the Atacama fault zone (Source: Skarmeta, 2020) and extends for thousands of kilometers in northern Chile and is spatially associated with numerous ore deposits. Mineralization at Dalmacia is most closely associated with ocoitic intrusive bodies. The key controls of mineralization identified include lithology, lithologic contacts, and structures.

The Dalmacia follow-up drilling resulted in the completion of an additional 51 diamond drill holes totaling 9,727.66 m. The drill program resulted in a total of 3,938 drill core samples submitted for assay representing 5,596 m of sampled drill core.

Significant results include:

- DS-21-01: 23 m at 1.16% Cu;
- DS-21-02: 11 m at 1.08% Cu;
- DS-21-03: 15 m at 1.01% Cu;
- DS-21-06: 16 m at 1.15% Cu and 29 m at 1.45% Cu;
- DS-21-07: 33 m at 1.77% Cu;
- DS-21-08: 102 m at 1.41% Cu including 78 m at 1.67% Cu and 16 m at 3.52% Cu;
- DS-21-11: 24 m at 1.04% Cu;
- DS-21-13: 18 m at 1.61% Cu and 12 m at 2.13% Cu;

- DS-21-14: 15 m at 1.16% Cu including 4 m at 1.50% Cu;
- DS-21-16: 8 m at 5.29% Cu and 8 m at 3.53% Cu;
- DS-21-17: 12 m at 3.15% Cu and 47 m at 1.34% Cu;
- DS-22-02: 21 m at 1.16% Cu, 11 m at 1.28% Cu and 33 m at 1.54% Cu;
- DS-22-06: 17 m at 2.21% Cu;
- DS-22-08 15 m at 1% Cu and 9 m at 1.24% Cu;
- DS-22-09: 18 m at 1.51% Cu and 6 m at 1.18% Cu;
- DS-22-10: 23 m at 1.55% Cu;
- DS-22-11: 11 m at 1.96% Cu, 6 m at 2.40% Cu and 11 m at 1.50% Cu;
- DS-22-15: 29 m at 1.05% Cu; and
- DS-22-19: 17 m at 0.69% Cu.

Note: All intervals are downhole core lengths.

1.3.4 Cinabrio Norte Zone

The Cinabrio Norte target is the northern extension of the main Cinabrio deposit. The Cinabrio Norte target is only 110 m north of the Cinabrio underground workings on the 220 m level. The host to mineralization at Cinabrio Norte is the same TSU package of sedimentary rocks that occurs at Cinabrio to the south. The sedimentary package includes calcareous sandstones and conglomerates with intercalated calcareous black shales and carbon bearing fine grained sandstones.

The stratigraphy and mineralization are similar to Cinabrio, however, in the northern part of Cinabrio Norte there is a volcanic unit within the sedimentary sequence which is not present in Cinabrio or San Andres. The volcanic unit is interpreted to be an auto-brecciated, locally pillowed, andesite lava flow. It separates the sedimentary stratigraphy into a lower and upper unit. Locally the andesite lava flow is weakly mineralized. The TSU has been mapped along a north-south strike from the mine for 400 m. This package averages around 15 m thickness. Copper mineralization including chalcopyrite and bornite was emplaced by feeder structures into the host sedimentary horizon.

The Cinabrio Norte drilling was designed to follow-up on a limited number of historic drill holes that targeted the northern extension of the Cinabrio orebody. The drilling was completed as sequenced series of step-out holes to test the TSU 400 m along strike (north-south) to a depth below surface (down-dip) of 350 m. This program confirmed the strike extent, down-dip extent and thickness of the TSU and also verified that it hosts significant copper sulphide mineralization.

The BMR drilling has outlined a significant zone of high-grade mineralization in the northern portion of the target area which remains open at depth. The principal resources delineated at Cinabrio Norte are within an east-west trending zone 550 m to 650 m north of the Cinabrio deposit. This new resource includes intersections of copper mineralization in 14 drill holes that vary in width in downhole intercepts ranging from 40 m to 100 m and extend for over 350 m down dip. Additional drilling is required to determine the down dip extent of the mineralization.

At Cinabrio Norte, the 2021-2022 drilling resulted in the completion of an additional 54 diamond core holes totaling 13,731.74 m. This program resulted in a total of 1,761 drill core samples submitted for assay representing 2,143.8 m of drill core sampled.

North zone results include:

- CNN-21-06: 20.8 m at 1.14% Cu;
- CNN-21-11: 7 m at 1.21% Cu;
- CNN-22-01: 26 m at 1.28% Cu;
- CNN-22-06: 15 m at 1.24% Cu;
- CNN-22-07: 41.5 m at 1.36% Cu;
- CNN-22-08: 33.4 m at 1.08% Cu;
- CNN-22-09: 25 m at 0.65% Cu;
- CNN-22-19A: 16.6 m at 0.85% Cu;
- CNN-22-30: 48.0 m at 1.31% Cu;
- CNN-22-40: 14 m at 1.62% Cu; and
- CNN-22-41: 9 m at 1.15% Cu.

South and Central zone results include:

- CNN-21-02: 13 m at 1.36% Cu including 7.6 m at 2.08% Cu;
- CNN-21-07: 9.7 m at 0.70% Cu;
- CNN-22-26: 4 m at 1.18% Cu;
- CNN-22-29: 5 m at 1.01% Cu;
- CNN-22-32: 9 m at 0.43% Cu;
- CNN-22-33: 14.9 m at 1.79% Cu;

- CNN-22-38: 4.3 m at 1.09% Cu;
- CNN-22-10: 3.3 m at 0.82% Cu;
- CNN-22-16: 22.5 m at 1.15% Cu; and
- CNN-22-21: 34.1 m at 1.35% Cu.

Note: All intervals are downhole core lengths.

1.3.5 Cinabrio Concession Block Exploration

The exploration field work program has been focused on the Cinabrio Block which hosts the Cinabrio mine, San Andres resource and Cinabrio Norte resource. Exploration targeting has identified a select number of zones with outcropping favorable sedimentary rocks similar to the host rocks at the Cinabrio deposit and/or surface copper oxide mineralization exposed in historic prospect pits or workings. The field exploration program is still in its early stages with activities including reconnaissance and detailed geological mapping, prospecting, rock grab sampling, channel sampling of historic pits and workings, stream sediment sampling and ground magnetics. The current program will focus on the following targets: SAC Gap, Santa Elvira, La Higuera, Campo Velado and Cinabrio Sur targets.

1.4 Sampling and Quality Control QAQC

It is the opinion of the QP, Garth Kirkham, P.Geo. (Kirkham), that the sampling preparation, security, analytical procedures and quality control protocols used are consistent with generally accepted industry best practices and therefore reliable for the purpose of resource estimation.

1.5 Data Validation

Kirkham is confident that the data and results are valid based on the site visits and inspection of all aspects of the project, including the methods and procedures used. It is the opinion of Kirkham that all work, procedures, and results have adhered to best practices and industry standards as required by NI 43-101. No duplicate samples were taken to verify assay results as inspection of core and comparisons against assay certification showed consistent, reasonable results. In addition, independent verification against the original assay certificates shows good results. Kirkham reviewed validation and verification studies along with procedures performed by external consultants and BMR to ensure the validity of the mineral resource estimates.

The Author is also of the opinion that the historic work, which was led by Glencore, was being performed by a well-respected, large, multi-national company that employs competent professionals that adheres to industry best practices and standards.

The QP visited the two principal sample preparation facilities and assay laboratories in La Serena, Chile on January 15th, 2022. The facilities are accredited and are operated to standards that one might expect in North America.

Since November 2021, Kirkham has provided guidance on the planning and development of advanced drilling and sampling, as well as domain modelling. Weekly reports have been supplied regarding drill progress, results, issues and risks. This practice is expected to continue.

Kirkham also implemented independent review of laboratory certificates comparing laboratory certificates against the sample database assay. Results show that with the approximately 10% of all certificates checked and verified, there is a less than 1% error rate, with the exception of the Cinabrio mine. There are a significant number of assay certificates that have not been supplied but results so far indicate that there are no issues or risks. It is imperative that this effort be continued to ensure the integrity of the data and the resultant resource estimations in the future.

The datasets employed for use in the mineral resource estimates are a mix of historic data and recent data. There is always a concern regarding the validity of historic data. Extensive validation and verification must always be performed to ensure that the data may be relied upon. Continued data validation and verification processes have not identified any material issues with the sample and assay databases.

The QP is satisfied that the assay data is of suitable quality to be used as the basis for this resource estimate.

1.6 Mineral Resource Estimate

The Punitaqui resource is separated into four underground resource zones: Cinabrio, San Andres, Dalmacia and Cinabrio Norte:

- Total sulphide indicated resources are 6.2 Mt grading 1.14% Cu and 2.47 g/t Ag;
- Total sulphide inferred resources are 3.1 Mt grading 0.93% Cu and 2.64 g/t Ag; and
- At the Cinabrio mine, the remanent pillars contain sulphide indicated resources of 1.0 Mt at 1.51% Cu which could be mined in conjunction with the use of mine backfill.

Estimates are reported at a base case above a 0.7% Cu cut- off, as tabulated in Table 1-1.

Table 1-1: Mineral Resource Statement - Underground

Zone	Tonnes	Cu%	Ag g/t
Indicated Sulphides			
San Andres Underground	1,736,000	1.06	4.83
Cinabrio Underground	378,000	1.55	0.11
Cinabrio Pillars	1,027,000	1.51	0.04
Cinabrio Norte Underground	833,000	1.01	4.57
Dalmacia Underground	2,198,000	1.00	1.38
Total	6,172,000	1.14	2.48
Inferred Sulphides			
San Andres Underground	303,000	0.82	4.03
Cinabrio	90,000	0.98	0.06
Cinabrio Pillars			
Cinabrio Norte Underground	1,077,000	0.98	4.91
Dalmacia Underground	1,599,000	0.93	1.00
Total	3,070,000	0.93	2.64

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

Table 1-2: Mineral Resource Statement – Open Pit

Class	Tonnes	CuS%	CuT%	Ag g/t
Oxides				
Indicated	873,000	0.62	0.74	1.15
Inferred	1,326,000	0.50	0.50	1.11

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

1.7 Metallurgical Testing and Mineral Processing

A comprehensive metallurgical test program was conducted in 2021/2022 on five mineralized samples from the Punitaqui project as follows:

- Cinabrio M1 (existing mine);
- Cinabrio M2 (existing mine);
- Cinabrio Norte;
- San Andres; and
- Dalmacia.

For each of the samples, the metallurgical test program consisted of:

- Chemical characterization;
- Mineralogical characterization;
- Hardness (Bond Work Index BWI); and
- Flotation response (Rougher kinetic tests, open circuit cleaner tests, locked cycle tests).

Solid/Liquid separation tests were performed on selected samples (flotation tails and/or flotation concentrates).

The program was designed and supervised by HydroProc Consultants. Most of the program (chemical, mineralogical, metallurgical) was carried out in the SGS laboratory in Lakefield, Ontario, Canada. Some of the filtration testwork was carried out by Metso-Outotec (M-O), and by CECMS in their Vancouver laboratory.

The modal abundance for each of the 5 samples was measured using a QEMSCAN automated mineralogy scanning electron microscope and can be seen in Table 1-3. The mineral analysis identified that the primary copper minerals were chalcopyrite, bornite and sometimes chalcocite and covellite. For all 5 samples, chalcopyrite was the dominant copper mineral. The dominant non-copper sulphide mineral was found to be pyrite.

Table 1-3: Modal Composition of the Five Types of Mineralization

%	Cinabrio M1	Cinabrio M2	Cinabrio Norte	San Andres	Dalmacia Sulphide
Chalcopyrite	2.86	3.31	3.37	2.70	1.42
Bornite	0.01	0.02	0.78	0.40	0.67
Chalcocite+Covellite	<0.01	<0.01	0.07	0.04	<0.01
Pyrite	1.08	0.83	0.19	0.93	0.04
Quartz	11.52	13.79	6.35	23.64	2.25
Sericite/Muscovite	16.56	15.86	11.76	20.52	3.21
Plagioclases	9.95	12.13	9.09	6.66	54.02
K-feldspar	7.73	5.71	6.39	12.59	0.16
Amphibole	4.75	3.88	5.11	2.76	4.09
Chlorite	6.43	11.66	3.18	4.35	3.22
Clays	3.44	4.37	3.98	4.40	4.44
Epidote	3.26	0.85	0.47	0.18	0.77
Calcite	10.29	15.76	43.52	14.54	0.37
Fe Oxides	16.69	6.13	0.34	0.42	6.48
Apatite	2.46	2.98	3.80	3.81	0.83

Source: SGS (2022)

The flotation performance was characterized for each of the samples by following a uniform flotation testing process. Each of the samples underwent rougher flotation, cleaner flotation, and finally a locked cycle test which the results for the circuit are based on. The results for the flotation test program as well as the ore hardness testing can be found it Table 1-4.

Table 1-4: Estimated Metallurgical Recoveries, Concentrate Grades and Mineral Processing Factors

Headings	Units	Cinabrio M1	Cinabrio M2	Cinabrio Norte	San Andres	Dalmacia
Cu recovery	%	94.3	95.7	75.4	81.0	96.5
Au recovery	%	86.5	52.0	7.8	46.9	44.8
Ag recovery	%	72.5	36.0	68.5	64.0	53.1
Cu Concentrate Grade Cu	%Cu	31.5	27.5	25.6	27.0	27.8
Au*	g/t Au	4.82	0.63	0.04	0.57	0.48
Ag*	g/t Ag	78.4	32.0	91.0	110.0	17.0
bWi	**kWh/t**	**17.0**	**19.3**	**14.3**	**23.3**	**12.3**

*Variable with Cu concentrate pull factor.
Source: SGS (2022)

1.8 Conclusions

BMR has successfully established multiple resources worthy of further investigation and possible future exploitation. The testwork indicates that the existing infrastructure, primarily the flotation processing plant, are suited to the eventual resumption of mining operations. BMR should continue to advance the project with the work necessary to achieve this result, as detailed in this report. It is the conclusion of the Qualified Persons (QPs) that the resource estimates contained in this report demonstrate an opportunity for exploitation that is worthy of further study.

1.9 Recommendations

1.9.1 General

The geological setting and character of the copper mineralization delineated to date on the Punitaqui mining complex concessions warrant additional exploration expenditures to further delineate existing resources and targets as well as explore for new targets.

JDS recommends a two-phase work program that includes a continued focus on drilling to upgrade, expand and further delineate resources at Cinabrio mine, San Andres, Cinabrio Norte and Dalmacia.

The Punitaqui region is home to a significant number of privately operated small copper mines. It is recommended any further work program should include an assessment of the overall regional potential including investigating the potential to acquire third party sourced ore for the BMR plant by way of toll treating, ore purchase agreements and potential joint ventures or acquisitions.

The recommended work program includes follow-up core drilling of high priority targets identified to date and systematic exploration of the current BMR concessions that should include prospecting, rock grab sampling, channel sampling, reconnaissance and detailed geological mapping coupled with the completion of the ground magnetics program with additional strategic induced polarization surveys over selected targets.

The metallurgical testwork has shown that the mineralized materials behave consistent with the previous plant operations. Some improvement to the concentrate grades has been achieved with the addition of a rougher concentrate regrind before cleaning. Copper recoveries vary from low 80's to high 90's depending on the material. The lower recovery materials tend to have very fine-grained mineralization. Testwork will continue to concentrate filtration with the preliminary results showing a need for a longer filtration period. Testwork will be focused on several fronts for both tails and concentrate filtration.

JDS is unaware of any other significant factors and risks that may affect access, title, or the right, or ability to perform the recommended exploration programs.

1.9.2 Phase 1 Program

The proposed first phase work program includes:

- Cinabrio mine: 1,500 m Phase 1: Resource infill drilling (UG diamond core drilling);
- Follow-up diamond core and /or reverse circulation drilling to infill and test extensions of San Andres, Cinabrio Norte and Dalmacia resources which would include:
  - San Andres: 1,500 m: Resource infill drilling;
  - Dalmacia North: 2,000 m: Resource infill drilling; and
  - Cinabrio Norte: 3,000 m: Resource infill drilling.
- Undertake detailed analysis of geological, geochemical, and geophysical surveys data from all known targets to identify further copper targets for follow-up testing:
  - SAC Gap target;
  - St Elvira target;
  - Campo Velado target;
  - La Higuera target;
  - Salguera target; and
  - Cinabrio Sur sandstone hosted Cu target.
- Complete Ground magnetics program over Cinabrio concessions;
- Continue selective soluble copper and QEMSCAN sampling to aid geometallurgy; and

- Continue Phase 1 metallurgical testwork program: The outstanding portions of Phase 1 include ore sorting on Cinabrio Norte, smelter analysis of all concentrates, continued investigations on the use of charges of smelter slag as an in-fill plant feed source, and filtration of concentrates.

Table 1-5 details estimated costs for the Phase 1 program.

Table 1-5: Estimated Cost for Phase 1 Program

Description	Quantity	Unit Cost (US$)	Total (US$)
Drilling Phase 1			
UG Diamond Core	1,500 m	$150/m	$225,000
Surface Diamond Core	3,000 m	$140/m	$420,000
Reverse Circulation Drilling	3,500 m	$120/m	$420,000
Field and Drilling Support		$50,000/month	$600,000
Assaying	2,500	$25/sample	$62,500
Geological Staffing Costs Salaries Travel		$40,000/month	$480,000
Geophysics: Complete Ground Magnetics		$70/line-km	$40,000
Claim Management		$2,700/ month	$32,400
Metallurgical Testwork Program:			$150,000
Geometallurgical studies QEMSCAN	50 samples	$481/sample	$24,050
Subtotal			**$2, 453, 950**
Contingency (10%)			$245, 395
Total			**$2,699.345**

Note:
The total costs above are rounded.

1.9.3 Phase 2 Program:

The proposed second phase work program includes the following:

- Cinabrio mine: 3,500 m: Phase 2: Resource extension & exploration UG drilling;
- Dalmacia: 10,000 m: 1 km target strike extent south of resource: RC Drilling:
  - Dalmacia Central: 6,000 m: RC drill test central 600 m strike length of Dalmacia adjacent to resource; and
  - Dalmacia South: 4,000 m: RC drill test southern 600 m strike length of Dalmacia target.

- Cinabrio Norte: 4,000 m Down-dip extension of resource: combination surface and UG drilling;

- Undertake where warranted additional ground grid-based surveys to assist in tracing identified target zones or delineating exploration targets – Induced polarization survey;

- Proposed Exploration Drilling: 5 targets: 3,300 m:

  - SAC Gap target: Limited RC drill test: 300 m;
  - St Elvira target: Initial limited RC drill test: 500 m;
  - Campo Velado target: Initial limited DC drill test: 1,000 m;
  - Cinabrio South target: Initial limited RC drill test: 500 m; and
  - La Higuera target: Initial limited RC drill test: 1,000 m.

- Continue selective soluble copper and QEMSCAN sampling to aid geometallurgy; and

- Continue metallurgical testwork program with a focus on variability testing and finalizing of flowsheet (primary grind size, regrind, filtration methods).

Table 1-6 details the estimated cost for the BMR Phase 2 program.

Table 1-6: Estimated Cost for Phase 2 Program

Description	Quantity	Unit Cost (US$)	Total (US$)
Drilling Phase 2			
UG Diamond Core	5,000 m	$150/m	$750,000
Surface Diamond Core	3,500 m	$140/m	$490,000
Reverse Circulation Drilling	12,300 m	$120/m	$1,476,000
Field and Drilling Support		$50,000/month	$600,000
Assaying	6,000	$25/sample	$150,000
Geological Staffing Costs Salaries Travel		$40,000/month	$480,000
Geophysics: Complete IP Survey			$70,000
Claim Management		$2,700/ month	$32,400
Metallurgical Testwork Program:			$150,000
Geometallurgical studies QEMSCAN	50 samples	$481/sample	$24,050
Subtotal			**$4,222,450**

Description	Quantity	Unit Cost (US$)	Total (US$)
Contingency (10%)			$422,245
Total			**$4,644,695**

Note:
The total costs above are rounded.

1.9.4 Post Phase 2 - Economic Evaluation

Upon the completion of both phases of exploration, an opportunity for exploitation is worthy of further study. At this point, that is best accomplished by:

- Appropriate and economic mining methods for each of the four deposits;
- Effective blending of the mine yield to the processing plant;
- Sufficient refurbishment and/or alteration of existing infrastructure for resuming operations, including the processing plant and tailings storage facilities;
- Renewal of existing permits and providing bonding for reclamation, closure and monitoring; and
- Best practices for environmental management and socio-economic considerations.

1.9.5 Tailings Storage Facility Stability

The tailings storage facilities Tranque IV Phases 1 and 2 pose a unique risk to the project. Though the stabilization work is designed, and approval has been sought to complete it, there is the potential that a massive and catastrophic rain event occurs prior to the completion of the stabilization work causing failure of one or more embankments. The buttressing work for the stabilization of the dams must proceed as a priority regardless of other activities on site.

2 INTRODUCTION

2.1 Terms of Reference

This technical report (TR) has been prepared for Battery Mineral Resources Corp. (TSXV: BMR) (BMR, Battery or the Company) with its address at Suite 400, 744 West Hastings St., Vancouver, BC for the purpose of disclosing resources for the Punitaqui copper mining Complex (the "project" or "Punitaqui") in Coquimbo region, Chile. This technical report was prepared by JDS Energy & Mining at the request of Mr. Martin Kostuik, CEO of BMR Corp.

In March 2021, BMR acquired the Punitaqui project which consists of a centralized process plant and four satellite copper zones -- San Andres, Cinabrio, Cinabrio Norte and Dalmacia. The Punitaqui mining complex contains 8,693 ha of concessions. Of these 3,700 ha are exploration concessions and 4,993 ha are exploitation concessions.

This is the first TR issued by the Company for the project since its acquisition of the project.

The Mineral Resource Estimate reported herein is based on up-to-date drilling results, including the results from 32,526 m of new core drilling in 151 holes completed in 2021 and 2022, and appropriate metal pricing, and is conformable to the "Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves – Definitions and Guidelines" (2019), as referred to in National Instrument (NI) 43-101 and Form 43-101F, Standards of Disclosure for Mineral Projects (2014).

The project is a "brownfields" site with a functional processing plant and supporting infrastructure including four tailings disposal sites, and underground access to three deposits:

- The Cinabrio mine, form which approximately 7.1 Mt was extracted from 2010 to 2019;
- The San Andres project; and
- The Dalmacia project.

There has been no material change to the Punitaqui project between the effective date and signature date of this technical report. JDS understands that this technical report will support the public disclosure requirements of BMR and will be filed on SEDAR as required under NI 43-101 disclosure regulations.

2.2 Qualified Persons

The results of this resource report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between BMR and the QPs. The QPs are being paid a fee for their work in accordance with normal professional consulting practice.

Table 2-1: QP Responsibilities

QP	Company	QP Responsibility / Role	Report Section(s)
Garth Kirkham P.Geo.	Kirkham Geosystems	Geology and Resource Estimation	1.3 to 1.6, 6 to 11, 12.1, 14, 15
Richard Goodwin, P.Eng.	JDS Energy & Mining Inc.	Project Manager	1.1,1.2, 1.8, 1.9, 2 to 5, 16 to 20
Shane Tad Crowie, P.Eng.	JDS Energy & Mining Inc.	Metallurgist	1.7, 12.2, 13

2.3 Site Visit

In accordance with National Instrument 43-101 guidelines, the QPs for this report, Richard Goodwin, Garth Kirkham, and Tad Crowie visited the Punitaqui project from the 12th to the 14th of January 2022. They were accompanied by the following personnel provided by BMR:

- Luis Lazo, Site Manager;
- George MacIsaac, Technical Lead;
- Michael Schuler, Project Geologist / Manager of the exploration drill program;
- Jorge Skarmeta, Consultant Exploration Geologist;
- Rodrigo Morel, Consultant Exploration Geologist;
- Freddy Salvatierra, Mining Engineer; and
- Cleber Castillo, Geotechnical Engineer.

During this site visit, the QPs toured the following relevant facilities:

- Underground tours of the three mines:
  - Cinabrio mine (Blocks IV and 0);
  - San Andres zone; and
  - Dalmacia zone.
- All tailings storage facilities (Tranque I through IV);
- The processing plant;
- The core logging facilities; and

- All administration and technical offices.

During this time, the QPs inspected underground development conditions, saw in-situ mineralization in the walls of all three mines (despite the shotcrete in Dalmacia), observed some open stopes from prior mining in Cinabrio, inspected numerous core boxes showing representative samples of mineralized and host rock, observed the condition of the processing plant, observed the condition of the berms of Tranque III and IV and the survey programs in place for monitoring crack propagation.

Richard Goodwin had previously been to site in February 2018 while it was operating under the ownership of Glencore. This visit was on behalf of Xiana Mining Inc., which subsequently acquired the property.

2.4 Sources of Information

This report is based on information collected by JDS during a site visit performed between 12 and 14 January 2022 and on additional information provided by BMR throughout the course of JDS's investigations. Other information was obtained from the public domain. JDS has no reason to doubt the reliability of the information provided by BMR. This technical report is based on the following sources of information:

- Discussions with BMR personnel;
- Inspection of the Punitaqui Project area, including underground workings and drill core;
- Review of exploration data collected by BMR; and
- Additional information from public domain sources.

2.5 List of Previous Relevant Technical Reports

The most recent technical report for the property was "NI 43-101 Technical Report for the Punitaqui Project located near Ovalle, Chile" prepared JDS Energy & Mining for Xiana Mining Inc. and filed on 20 November 2018.

Prior to this report, the resources and reserves for the property were published by Glencore in its annual report.

2.6 Units, Currency and Rounding

The units of measure used in this report are as per the International System of Units (SI) or "metric" except for Imperial units that are commonly used in industry (e.g., ounces (oz.) and pounds (lb.) for the mass of precious and base metals).

All dollar figures quoted in this report refer to Canadian dollars (C$ or $) unless otherwise noted.

Frequently used abbreviations and acronyms can be found in Section 20. This report includes technical information that required subsequent calculations to derive subtotals, totals, and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the QPs do not consider them to be material.

3 RELIANCE ON OTHER EXPERTS

In preparing this technical report, the authors have relied upon certain work, opinions and statements of lawyers and other experts. The authors consider the reliance on other experts, as described in this section, as being reasonable based on their knowledge, experience, and qualifications. The independent QPs that authored this Technical Report disclaim responsibility for the expert content used in the following sections:

- Rinaldo Flores, Jefe de Propiedad Minera, LANDMAN SERVICES SA, for a legal opinion pertaining to the permitting, ownership, and title of mining concessions in Section 4.3;
- Baker McKenzie and BMR, for permitting, including Section 4.2.2;
- Baker McKenzie and BMR for specialized contract knowledge summarized in Section 4.4; and
- BMR Spa Environmental staff for environmental and regulatory considerations listed in Section 4.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location and Access

BMR's Punitaqui mining complex is in the central part of Coquimbo region about 120 km south of the port city of La Serena, Chile. Regular, daily flight service connects La Serena with the capital Santiago about 500 km to the south. Ocean going shipping is available via La Serena and the nearby port town of Coquimbo. The region is well services by grid electrical power and telecommunication services. Figure 4-1 details local road infrastructure and project location.

The property holding consist of 3 main blocks over a 30 km north-south corridor. The Cinabrio block located about 12 km south of Ovalle City hosts the Cinabrio deposit and the Cinabrio Norte & San Andres zones. A further 25 km south, by road, is the Los Mantos processing plant block and the third block is centered over the Dalmacia zone a located about 6 km south the plant.

The plant complex is centrally located in Punitaqui region. A well-established road network connects the processing plant, the Cinabrio, mine, San Andres zone, Cinabrio Norte zone and the Dalmacia resource. Employees either drive or take a bus to site and accommodation is provided by the towns

Sealed road access south from the city of Ovalle is by route D-605, which links the Ovalle with the town of Punitaqui about 37 km to the south. The UTM coordinates of the operating area, is 6,599,735 N and 288,540 E, (South American Datum 1956, transversal Universal Mercator projection). The Cinabrio mine is located approximately 25 km north of the processing plant.

The Dalmacia zone is about 12 km by road to the south of the processing plant. Surface haulage from the outlying properties is accomplished using 20 t to 25 t highway trucks.

Figure 4-1: Location of Punitaqui Mining Complex

Source: Kirkham (2022)

4.2 Mineral Tenure

4.2.1 Ownership History

The Punitaqui mining complex was previously owned by Tamaya Resources Limited, an Australian based company. From 2007 – 2010, Tamaya Resources through its Chilean subsidiary Compañía Minera Punitaqui “CMP”, acquired the Cinabrio and Dalmacia properties. CMP completed additional reverse circulation “RC” drilling at Cinabrio, Cinabrio Norte, San Andres and Dalmacia as well as undertaking a preliminary Feasibility Study. Tamaya constructed a plant and commenced mining at Cinabrio. In 2010, CMP the Chilean subsidiary of Tamaya declared bankruptcy.

In 2010, Glencore International Plc acquired the project upgraded plant & underground development of Cinabrio. Glencore through its local company Minera Altos de Punitaqui Limitada

(MAP) optioned and mined the Los Mantos & Milagros gold deposits near the processing plant. Glencore successfully operated the Cinabrio underground mine with most of the exploration and drilling focused at Cinabrio and the Dalmacia zone. From 2011 – 2018, Glencore completed follow-up diamond core drilling at Cinabrio, Cinabrio Norte, San Andres and Dalmacia. Following the Glencore-Xstrata Mining merger the Cinabrio property was put up for sale.

On 22 May 2018, Canadian listed, Xiana Mining Inc. acquired the mine from Glencore, continued production at Cinabrio and completed limited diamond core drilling (45 holes / 5,635 m) on the Cinabrio mine, San Andres and Cinabrio Norte zones. Xiana's drilling focus was the San Andres zone (17 holes / 3,644 m) which was follows by development of portal access and limited underground development. Two small "trial" open pits were developed on the southwest part of the Dalmacia zone.

The operation was shut down in April 2020 when Xiana Mining's Chilean subsidiary declared bankruptcy due to the rapid fall in copper prices.

In March 2021, BMR acquired the Punitaqui copper-gold project which consists of a centralized process plant fed by four satellite copper zones -- San Andres, Cinabrio, Cinabrio Norte and Dalmacia. The Milagros and Los Mantos underground gold mines option was terminated in mid-2021 and the assets returned to HMC Gold.

4.2.2 Mining Concessions in Chile

Mining concessions are granted by a judicial award issued by a court of justice in the context of a non-litigious proceeding. Mining rights are protected by the Chilean Constitution as well as many different legal bodies, of which the Mining Code is the most important legislation. The territorial extension of a mining concession takes on the shape of a solid, the surface of which is a horizontal parallelogram of right angles, and the depth of which is indefinite within the vertical planes that establish its boundaries.

In general, the Political Constitution of the Republic and the provisions of Chilean law make no distinction among Chileans and non-Chileans regarding the enjoyment of basic rights, the acquisition of property, and the development of economic activities. According to Article 2 of the Constitutional Law on Mining Concessions (Law 18,097), a mining concession is: "an in-rem property right, different and independent from ownership of the surface land, even if it belongs to one and the same owner; enforceable against the State and any other person; transferable and transmissible; subject to mortgage and other in rem rights and, in general, to any act or contract".

Under Chilean law, there are two types of mining concessions:

- Exploration concessions entitle the holder to assess the mining potential of the concession area. As long as the annual tax payments are made to the Chilean Treasury, exploration concessions are valid for a period of two years during which the holder has a preferential right to convert exploration claims to exploitation concessions; and

- Exploitation concessions are for the exploitation of minerals and have no expiry date, annual rent payments are required.

Procedures to acquire a mining concession is defined below:

1) Written Presentation in the Court of Duty:

   a) Individualization of the Concessionaire;

   b) The UTM Coordinates of the Midpoint. (With an error in the indication of the PM, the request will be deemed not submitted);

   c) Name of the Concession; and

   d) Surface in Hectares.

2) Subsequently, the Judge will examine the “Pedimento” and if it complies with the provisions of the Mining Code, will order its Registration and Publication, for which there will be a period of 30 days counted from the date of this Resolution;

3) Registration: The Registration consists of the complete transcription in the Registry of Discoveries of the respective Mining Registrar, of the authorized copy of the “pedimento” delivered by the Court, which includes the presentation document and the resolution ordering registration and publication;

4) Publication: The Publication will be made only once and includes a full copy of the Registration. It must be published in the Official Mining Gazette that corresponds to the place of presentation; and

5) Payment Rate: A tax benefit rate will be paid only once, for each request, (expressed in cents of UTM (Monthly Tax Unit).

4.3 Mining Rights Punitaqui Mining Complex Concessions

4.3.1 Introduction

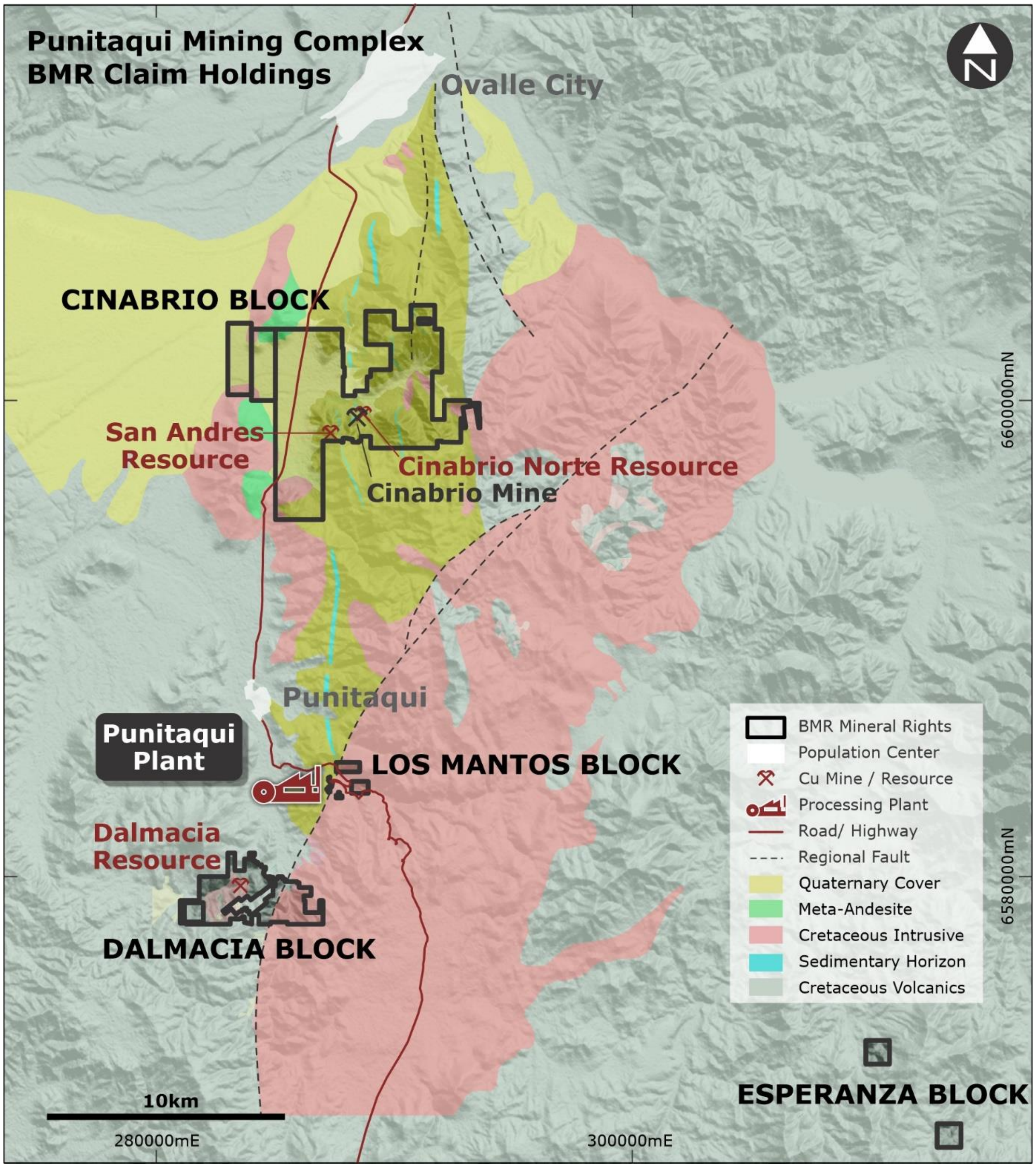
The Punitaqui mining complex contains 8,693 ha of concessions. Of these 3,700 ha are exploration concessions and 4,993 ha are exploitation concessions. Table 4-1 and Figure 4-2 is an overview of the BMR held concessions.

Table 4-1: Punitaqui Mining Complex Summary of Concessions

Project	Type	Number of Concessions Held	Area (ha)
Cinabrio	Exploration	8	1,900
Cinabrio	Exploitation	42	3,894
Los Mantos	Exploration	7	1,000
Los Mantos	Exploitation	1	35
Dalmacia	Exploration	4	800
Dalmacia	Exploitation	17	864
Esperanza	Exploitation	2	200
Totals		81	8, 693ha

Source: Landman Services S. A (2022)

Figure 4-2: Concession Location Map for the Punitaqui Mining Project



Source: Landman Services S. A (2022)

4.3.2 Cinabrio Block

The Cinabrio copper deposit is located in the Cerro La Campana area, about 12 km south of the city of Ovalle, Province of El Marí, Coquimbo region.

The Cinabrio block holdings are comprised of 1,900 ha of exploration licenses and 3,894 ha of exploitation licenses, as shown on Figure 4-3. Exploration concessions are shown on Figure 4-4 and listed in Table 4-2. The Exploitation concessions are displayed on Figure 4-5 and listed in Table 4-3.

Table 4-2: List of Exploration Concessions at Cinabrio

Project	Type	Concession	Area (ha)
Cinabrio	Exploration	ALTOS-40	300
Cinabrio	Exploration	ALTOS-41	300
Cinabrio	Exploration	ALTISIMO III	200
Cinabrio	Exploration	ALTISIMO III 19	300
Cinabrio	Exploration	ALTISIMO III 24	100
Cinabrio	Exploration	ALTISIMO III 17	300
Cinabrio	Exploration	ALTISIMO III 25	200
Cinabrio	Exploration	ALTISIMO I 27	200
Totals		8 Concessions	1,900ha

Source: Landman Services S. A (2022)

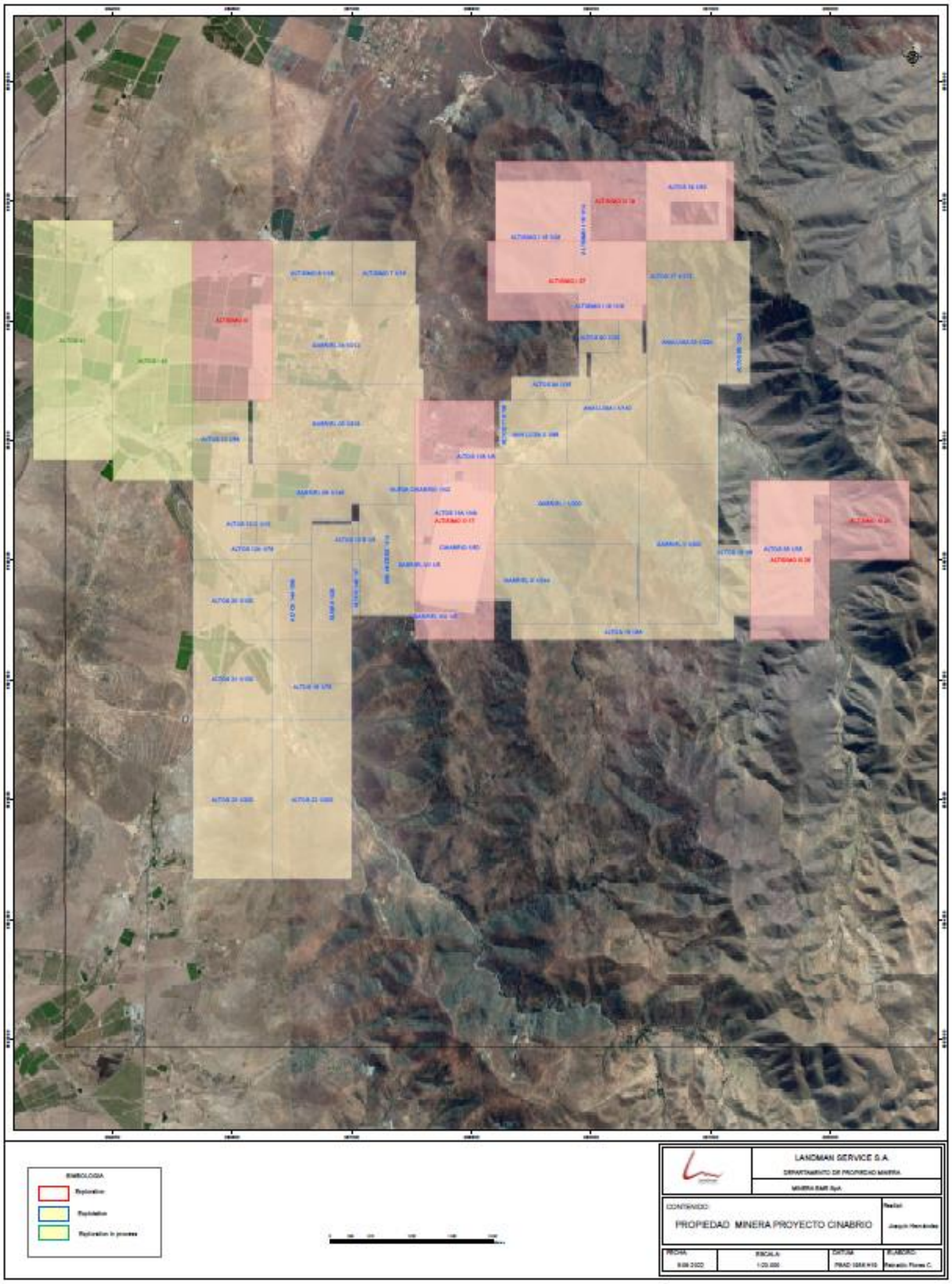
Table 4-3: List of Exploitation Concessions at Cinabrio

Project	Type	Concession	Area (ha)
Cinabrio	Exploitation	ALTISIMO 6 1/16	80
Cinabrio	Exploitation	ALTISIMO 7 1/16	64
Cinabrio	Exploitation	ALTISIMO I 15 1/28	140
Cinabrio	Exploitation	ALTISIMO I 16 1/14	28
Cinabrio	Exploitation	ALTISIMO I 18 1/18	16
Cinabrio	Exploitation	ALTOS 10 1/68	68
Cinabrio	Exploitation	ALTOS 11 B 1/8	8
Cinabrio	Exploitation	ALTOS 11A, 1/6	6
Cinabrio	Exploitation	ALTOS 12 C 1/10	10
Cinabrio	Exploitation	ALTOS 12A 1/78	78

Project	Type	Concession	Area (ha)
Cinabrio	Exploitation	ALTOS 12B 1/5	5
Cinabrio	Exploitation	ALTOS 13A 1/48	48
Cinabrio	Exploitation	ALTOS 14 A 1/50	50
Cinabrio	Exploitation	ALTOS 14B 1/7	7
Cinabrio	Exploitation	ALTOS 15 1/86	86
Cinabrio	Exploitation	ALTOS 16 1/75	75
Cinabrio	Exploitation	ALTOS 17 1/172	172
Cinabrio	Exploitation	ALTOS 18 1/8	8
Cinabrio	Exploitation	ALTOS 19 1/62	62
Cinabrio	Exploitation	ALTOS 20 1/100	100
Cinabrio	Exploitation	ALTOS 21 1/100	100
Cinabrio	Exploitation	ALTOS 22 1/200	200
Cinabrio	Exploitation	ALTOS 23 1/200	200
Cinabrio	Exploitation	ALTOS 35 1/35	134
Cinabrio	Exploitation	ALTOS 9 C 1/20	20
Cinabrio	Exploitation	ALTOS 9A 1/35	35
Cinabrio	Exploitation	ALTOS 9B 1/24	24
Cinabrio	Exploitation	ANA LUISA I 1/140	140
Cinabrio	Exploitation	ANA LUISA II 1/68	68
Cinabrio	Exploitation	ANALUISA 03 1/290	290
Cinabrio	Exploitation	CINABRIO 1/50 (28/50)	109
Cinabrio	Exploitation	ELVIRA 1/20	100
Cinabrio	Exploitation	GABRIEL 04 1/212	212
Cinabrio	Exploitation	GABRIEL 05 1/212	212
Cinabrio	Exploitation	GABRIEL 06 1/145	145
Cinabrio	Exploitation	GABRIEL I 1/200	200
Cinabrio	Exploitation	GABRIEL II 1/200	200
Cinabrio	Exploitation	GABRIEL III 1/244	244
Cinabrio	Exploitation	GABRIEL VII 1/5	5
Cinabrio	Exploitation	GABRIEL VIII 1/5	5
Cinabrio	Exploitation	NUEVA CINABRIO 1/42	42
Cinabrio	Exploitation	SAN ANDRES 1/14	98
Totals		42 Concessions	3,894

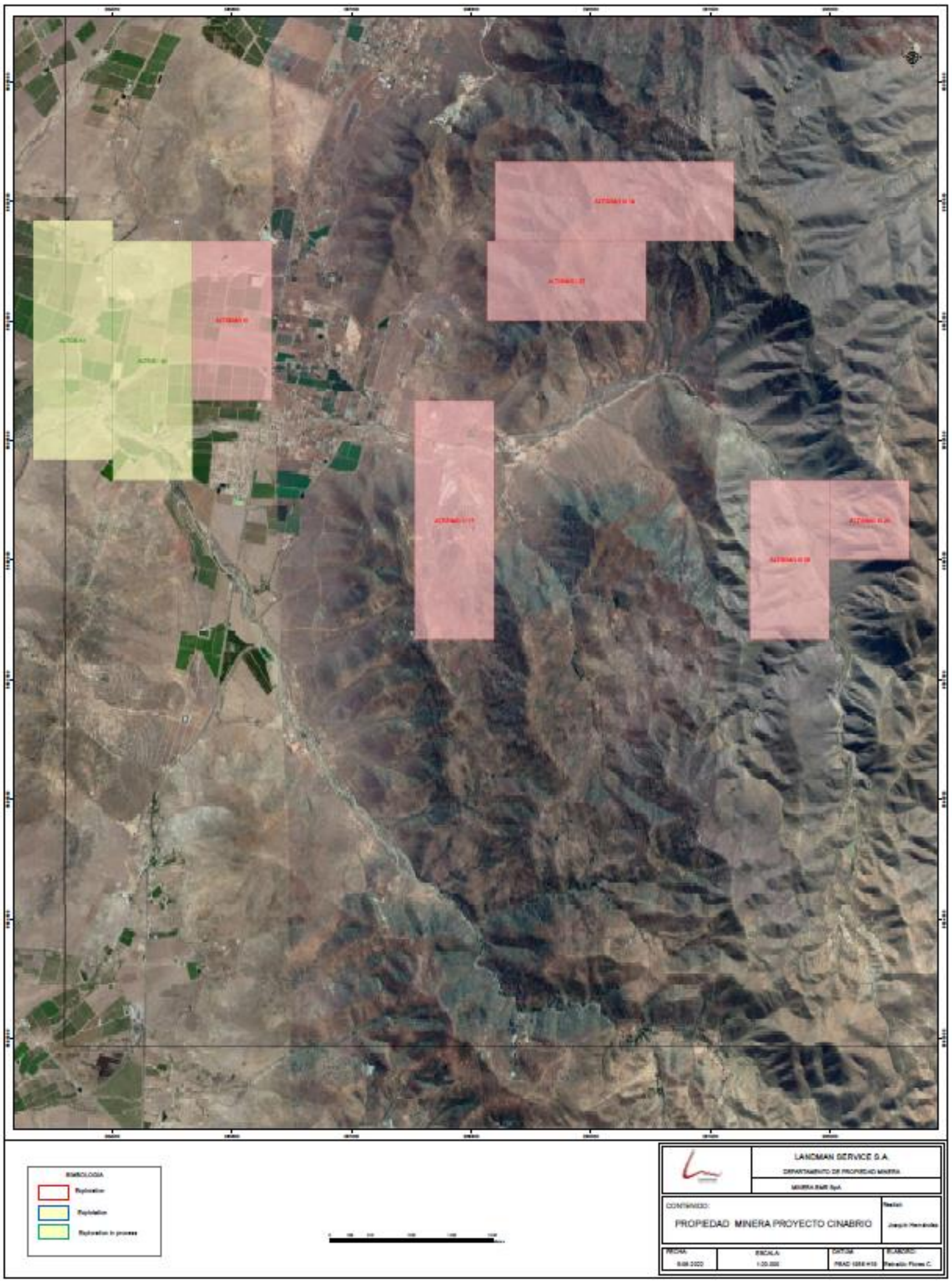
Source: Landman Services S. A (2022)

Figure 4-3: Cinabrio Block Exploration and Exploitation Concessions



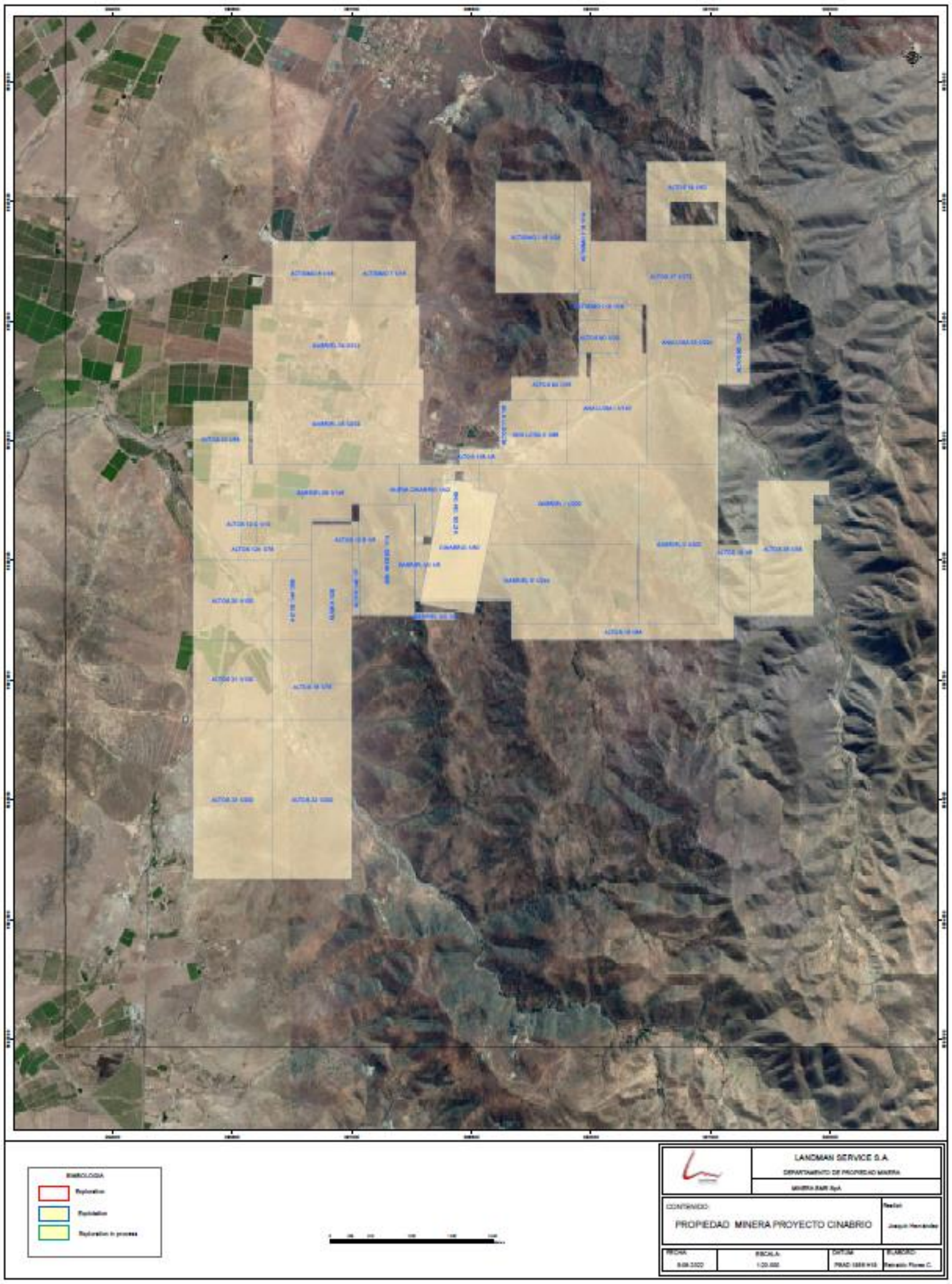
Source: Landman Services S. A (2022)

Figure 4-4: Cinabrio Block Exploration Concessions



Source: Landman Services S. A (2022)

Figure 4-5: Cinabrio Block Exploration Concessions



Source: Landman Services S. A (2022)

4.3.3 Los Mantos Plant Site Block

The Los Mantos block of holdings encompass an area total 1,035 ha of which 1,000 ha are Exploration licenses and 35 ha of Exploitation licenses. The exploration concessions are shown in Figure 4-6 and listed in Table 4-4. The exploitation concessions are shown in Figure 4-7 and listed in Table 4-5.

Table 4-4: Los Mantos Exploration Concessions

Project	Type	Concession	Area (ha)
Los Mantos	Exploration	ALTOS III 40	200
Los Mantos	Exploration	ALTOS I 41	200
Los Mantos	Exploration	ALTOS I 42	100
Los Mantos	Exploration	ALTOS I 43	100
Los Mantos	Exploration	ALTOS III 37	100
Los Mantos	Exploration	ALTOS IV 38	200
Los Mantos	Exploration	ALTOS III 39	100
Totals		7 Concessions	1,000

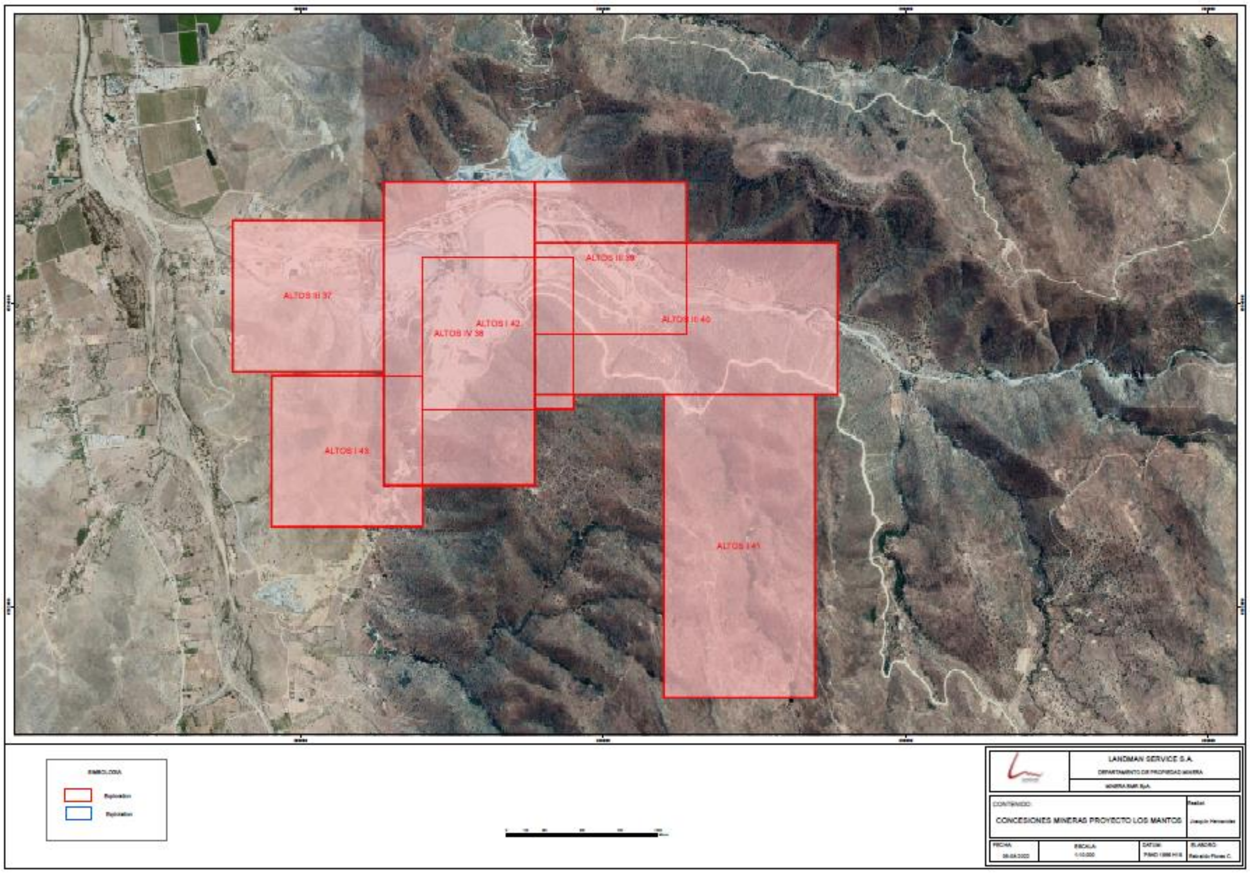
Source: Landman Services S. A (2022)

Table 4-5: Los Mantos Exploitation Concessions

Project	Type	Concession	Area (ha)
Los Mantos	Exploitation	ALTOS 1/7	35
Totals		1 Concession	35

Source: Landman Services S. A (2022)

Figure 4-6: The Los Mantos Block Exploration Concessions



Source: Landman Services S. A (2022)

Figure 4-7: Los Mantos Block Exploitation Concessions

Source: Landman Services S. A (2022)

4.3.4 Dalmacia Block

The Dalmacia block holdings comprise a total area of 1,664 ha of which 800 ha are held as Exploration licenses and 884 ha are Exploitation licenses. The Exploration concessions are shown on Figure 4-8 and listed in Table 4-6. The Exploitation concessions are displayed on Figure 4-9 and listed in Table 4-7.

Table 4-6: Dalmacia Exploration Concessions

Project	Type	Concession	Area (ha)
Dalmacia	Exploration	ALTOS III 29	300
Dalmacia	Exploration	ALTOS II 29A	100
Dalmacia	Exploration	DALMACIA III 2	300
Dalmacia	Exploration	DALMACIA III 4	100
Totals		4 Concessions	800

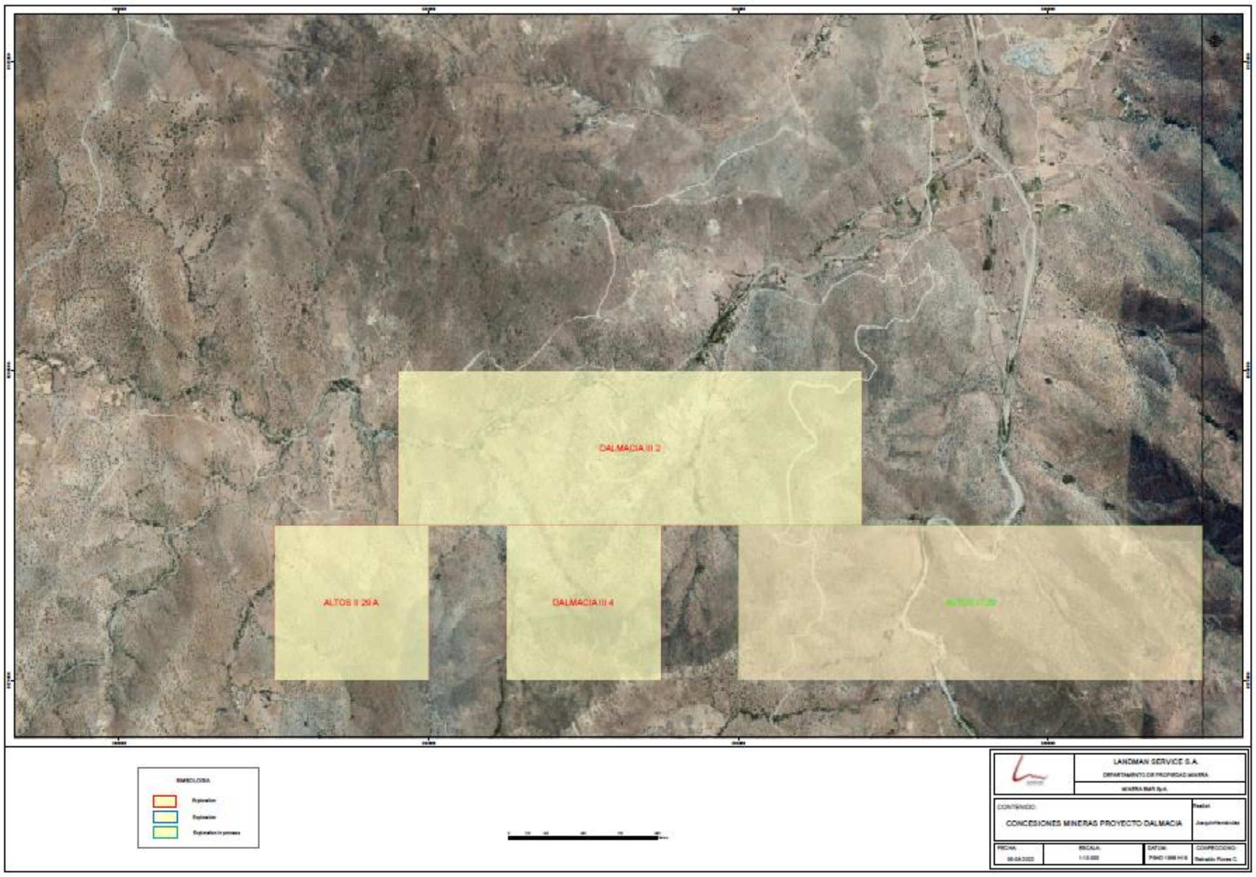
Source: Landman Services S. A (2022)

Table 4-7: Dalmacia Exploitation Concessions

Project	Type	Concession	Area (ha)
Dalmacia	Exploitation	DALMACIA 1/20	100
Dalmacia	Exploitation	ARCO IRIS 1/20	100
Dalmacia	Exploitation	DALMACIA II 1/62	62
Dalmacia	Exploitation	DALMACIA III A 1/20	20
Dalmacia	Exploitation	DALMACIA III B 1/69	69
Dalmacia	Exploitation	DALMACIA III C 1/26	26
Dalmacia	Exploitation	ALTOS 2A 1/89	89
Dalmacia	Exploitation	ALTOS 1A 1/4	4
Dalmacia	Exploitation	ALTOS 1B 1/14	14
Dalmacia	Exploitation	ALTOS 3 1/116	116
Dalmacia	Exploitation	ALTOS 4 1/8	8
Dalmacia	Exploitation	ALTISIMO 1 1/19	19
Dalmacia	Exploitation	ALTISIMO 2 1/89	89
Dalmacia	Exploitation	ALTISIMO 3 1/19	19
Dalmacia	Exploitation	ALTISIMO 4A 1/9	9
Dalmacia	Exploitation	ALTOS 28 1/28	28
Dalmacia	Exploitation	ALTOS I 29, 1/20	92
		17 Concessions	864

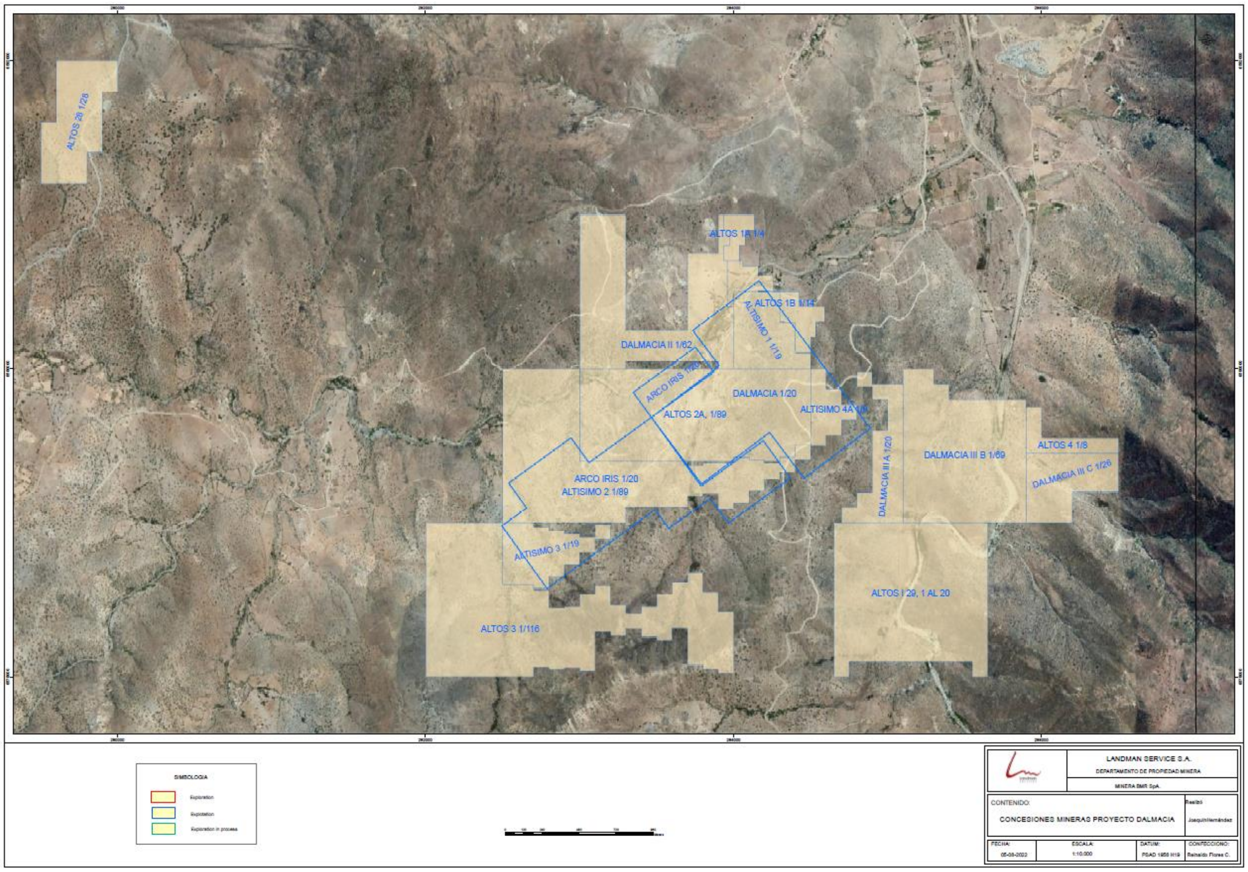
Source: Landman Services S. A (2022)

Figure 4-8: Dalmacia Block Exploration Concessions



Source: Landman Services S. A (2022)

Figure 4-9: Dalmacia Block Exploitation Concessions



Source: Landman Services S. A (2022)

4.3.5 Esperanza Blocks

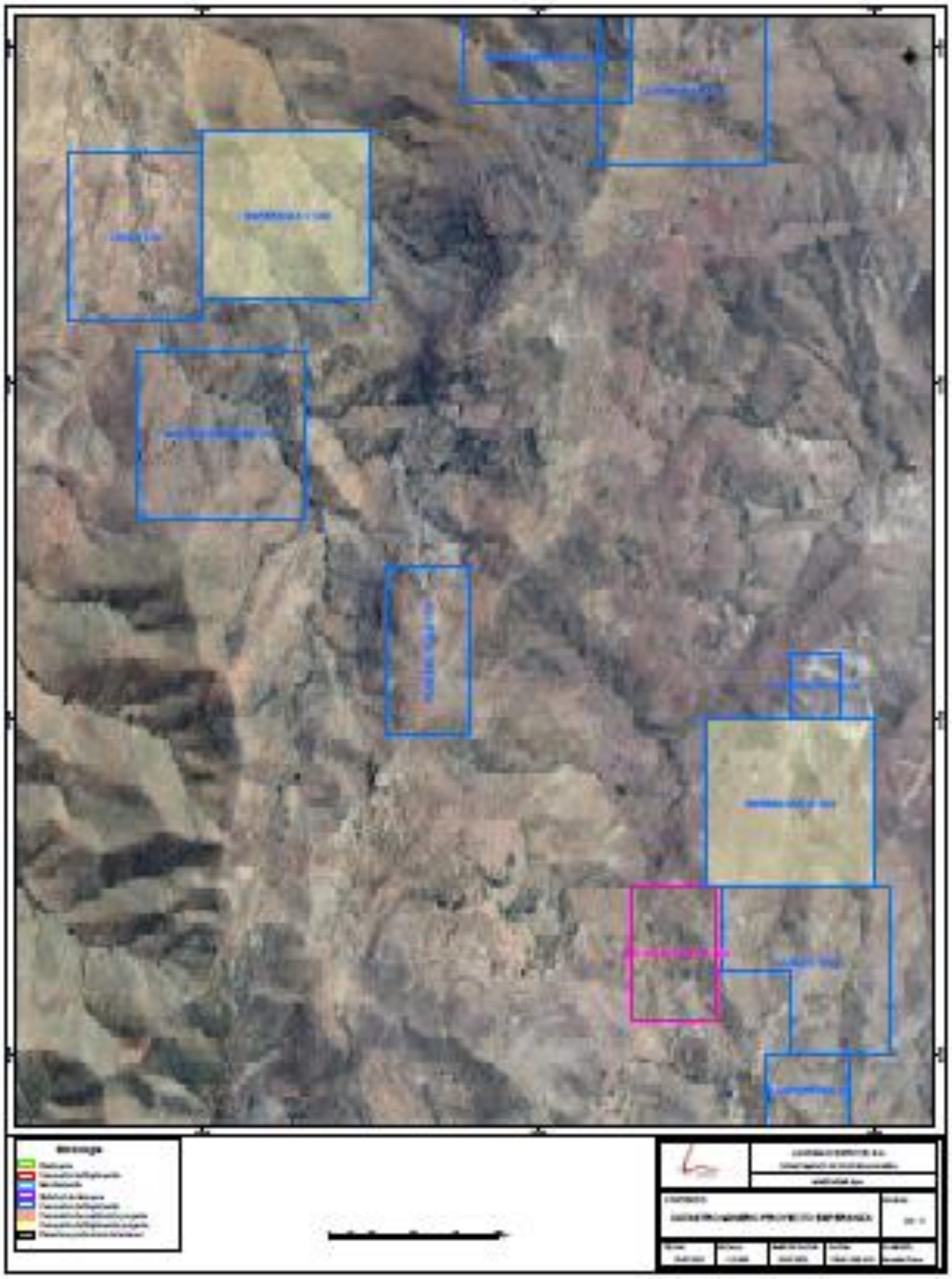
The Esperanza blocks encompass a 200 ha area of exploitation concessions. The area is located about 30 km southeast of Los Mantos and is not currently being subject to any formal mining activity. The concessions are shown on Figure 4-10 and listed in Table 4-8.

Table 4-8: Esperanza Exploitation Concessions

Project	Type	Concession	Area (ha)
Esperanza	Exploitation	ESPERANZA 1 1 AL 20	100
Esperanza	Exploitation	ESPERANZA 15 1 AL 20	100
Totals		2 Concessions	200

Source: Landman Services S. A (2022)

Figure 4-10: Esperanza Block Exploitation Concessions



Source: Landman Services S. A (2022)

4.4 Property Agreements

4.4.1 Introduction

On May 28, 2021, the Company's wholly owned Chilean subsidiary Minera BMR SpA entered into a number of agreements with Minera Altos de Punitaqui Limited (MAP), their parent company Xiana Mining Inc. (Xiana) and their creditors, Bluequest Resources AG (Bluequest), to acquire the rights to certain properties, plant and equipment related to the Punitaqui mining complex in Chile. Consideration included:

- The issuance of 10,000,000 common shares to Bluequest equal to C$6,200,000 (US$5,000,000);
- Contingent consideration of up to US$5,000,000 of additional payments subject to achieving certain production milestones at the Punitaqui mining complex, with each milestone payment to be satisfied, at the election of Bluequest, by the payment of cash, the issuance of common shares at prevailing market prices (subject to a minimum issue price of C$0.41), or a combination of both – the company has estimated the probability of achieving this milestone as at December 31, 2021 to be nil;
- Cash consideration of C$180,000 to Bluequest;
- An upfront payment to MAP to satisfy certain creditors debts amounting to C$4,510,000;
- Future payments to MAP to satisfy certain creditors debts amounting to C$8,080,000 over 23 quarterly installments beginning on June 30, 2021;
- C$5,343,000 related to an option agreement to obtain ownership over all land and equipment; and
- The issuance of 1,069,138 shares to Weston Energy in exchange for the debtor in possession (DIP) secured loan on MAP. These were exchanged at the market rate of the trading shares in a non-arm's length transaction.

There were transaction costs of C$559,000 which were capitalized to the assets. The assets acquired did not have processes capable of generating outputs, therefore did not meet the definition of a business in accordance with IFRS 3 Business Combinations and were accounted for an asset acquisition. The value of consideration paid after allocation to the other net assets acquired, was allocated to the property, plant and equipment based on their relative fair values on May 28, 2021.

The arrangement included a 99-year lease agreement, which exceeds the life of the assets, to access and utilize MAP's mining concessions, mineral properties, equipment, and water rights. This structure allows the Company to complete the required technical work and apply for the proper permits with the Chilean mining authorities, without assuming any potential unknown liabilities within MAP. MAP has granted a four-year call option to sell the entirety of the mining equipment properties to Battery, and Battery entered into a promissory purchase agreement for the equity of MAP for US$100 on the 10-year anniversary of this transaction.

On November 13, 2018, Xiana Mining Inc. the previous operator, along with Minera Altos de Punitaqui Limitada (together with Xiana Mining Inc., the "Payors") entered into net smelter royalty agreement with Glencore Group Funding Limited, the royalty holder. Under the terms of the arrangement, the Punitaqui operation must have processed 9,000,000 t of plant feed to trigger the commencement of 1.5% "Net Smelter Return" royalty payments.

The royalty is payable for ore production sourced from Cinabrio mine, San Andres zone, Cinabrio Norte zone and Dalmacia zone as well as any other plant feed sourced on concessions defined as the Punitaqui mining complex held as of November 13, 2022. The net smelter return means in respect of a quarter, revenue for such quarter less allowable deductions for such quarter.

Prior to the suspension of operations by Xiana Mining the company had delivered 575,411.36 t of feed to the plant leaving a balance of 8,424, 588.64 t to be produced prior to reaching the royalty trigger hurdle of 9,000,000 t. Any third-party ore acquired and processed is excluded from the hurdle calculation.

4.5 Environmental Considerations

There are numerous old mines and exploration prospects on all the project areas described in this report.

BMR is not liable for environmental issues existing on its unpatented mining claims prior to their staking date. However, it does become liable for a pre-existing hazard if a site is subsequently disturbed. As of the date of this report, BMR has not initiated any environmental disturbances or disturbed any pre-existing hazards on any of the properties.

4.6 Social Considerations – Community Engagement

Within the Punitaqui mining complex, BMR is engaged with all of the local communities are in the neighboring areas:

- Cinabrio / San Andres / Cinabrio Norte: Comunidad de Potrerillos and local organizations; and
- Processing Plant / Dalmacia: Comunidad de Punitaqui and Punitaqui Town.

As of the date of this report, BMR implemented a community engagement plan that includes:

- Regular and ongoing community engagement through meetings and correspondence to ensure stakeholders concerns are identified and addressed;
- Recently completed social landholder/ stakeholders mapping project to ensure all stakeholders are identified and addressed; and
- Open exchange of ideas & ongoing dialogue with respect to ongoing exploration & development activities.

BMR has in place surface mining rights agreements with both communities that secure restart of mining and processing activities.

4.7 Permitting

As of the date of this report, BMR has filed the following list of permits to be transferred from MAP.

Table 4-9: List of Permits to be Transferred from MAP

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
Environmental Qualification Resolution (hereinafter "RCA" for its name in Spanish) No. 38, which qualifies environmentally favorable the project called "Tamaya Tailings Dam Reinforcement and Superelevation" on March 13, 2006.	Environmental Evaluation Service Coquimbo	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred Set 2021
RCA No. 34, which qualifies environmentally favorable the project called "Explotación Mina Cinabrio" (Cinnabar Mine Exploitation) dated February 16, 2007	Environmental Evaluation Service Coquimbo	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred Set 2021
RCA NO. 159, which qualifies environmentally favorable the project "Expansion of Los Mantos Plant three thousand t/d" dated September 13, 2007.	Environmental Evaluation Service Coquimbo	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred Set 2021
RCA NO. 214, which qualifies environmentally favorable the project called " Construcción Tranque de Relaves Tranque III" (Construction of Tailings Dam Tranque III) dated November 30, 2007.	Environmental Evaluation Service Coquimbo	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred Set 2021
RCA NO. 30, which qualifies environmentally favorable the project called "Regularización Mina Cinabrio", dated March 6, 2012.	Environmental Evaluation Service Coquimbo	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred Set 2021

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
RCA NO. 40, which qualifies environmentally favorable the project called "Peraltamiento Tranque III", dated March 10, 2014.	Environmental Evaluation Service Coquimbo	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred Set 2021
RCA NO. 152 that qualifies environmentally favorable the project called "Depósitos Espesados" (Thickened Deposits) dated December 10, 2014.	Environmental Evaluation Service Coquimbo	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred Set 2021
Re. Ex. NO. 1243-2015 that "Approves Project 'Depósito Espesado Por Etapa Minera Altos De Punitaqui" of Minera Altos de Punitaqui, located in the Commune of Punitaqui, Province of Limarí, Coquimbo Region", dated May 10, 2015.	National Service of Geology and Mining	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred August 2021
Re. Ex. NO. 2209-2019 that "Approves the Thickened Tailings Disposal Project at Tranque III of Minera Altos de Punitaqui Ltda. located in the Commune of Punitaqui, Province of Limarí, Coquimbo Region", dated August 23, 2019.	National Service of Geology and Mining	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Transferred August 2021
Re. Ex. NO. 19 that "Pronounces on the "Modification of the Thickened Tailings Disposal Project", dated April 3, 2019.	Environmental Evaluation Service Coquimbo	By means of Public Deed "Assignment of Permits and Authorizations" from Minera Altos de Punitaqui Limitada to Minera BMR SpA, executed in the Notary Office of María Pilar Gutiérrez Rivera, dated March 8, 2021, file No. 4,626/2021.	Requested by letter dated June 9, 2021, sent to the SEA office via web on June 11, 2021.	Pending

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
Exempt Resolution number 1674, which "Approves the 'Nova Galicia' Mine Exploitation Project of the company Minera Altos Punitaqui Ltda.", granted by the National Geology and Mining Service, Coquimbo Region, on November 4, 2016.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 1007 that "Approves the total and definitive Simplified Closure Plan Project of the Mining Site 'Mina Nova Galicia 1' of Empresa Minera Altos de Punitaqui Ltda." granted by the National Geology and Mining Service Coquimbo Region, dated July 26, 2018.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 78 that "Approves the 'Nova Galicia 1' Open Pit Mine Exploitation Project of the Nova Galicia Mining Site" granted by the National Geology and Mining Service, Coquimbo Region, dated January 16, 2018.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution No. 994 that "Approves the Project to Modify the Altos de Punitaqui Mining Thickener Deposit of the Mantos de Punitaqui Mine" granted by the National Geology and Mining Service, Coquimbo Region, dated April 10, 2018.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
Exempt Resolution number 1294 that " Notes the initiation of activities and approves the extension of the useful life of the exploration 'Galena de Exploración San Andrés' explored by Empresa Minera Altos de Punitaqui Ltda." granted by the National Geology and Mining Service, Coquimbo Region, dated September 26, 2018."	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 70 that "Approves the Project 'Cinabrio mine Mining Plan' of the Mining Company Altos de Punitaqui Ltda." granted by the National Geology and Mining Service, Coquimbo Region, on January 23, 2013.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 3679 that "Approves the Underground Exploitation Project Sub Level Stoping Method Mina Cinabrio two thousand tonnes per day (two thousand t/d) of the Mining Faena 'Mina Cinabrio' presented by Compañía Minera Altos de Punitaqui Ltda." granted by the National Geology and Mining Service, Coquimbo Region, dated December 31, 2018.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
Exempt Resolution number 299 that "Approves Early Termination of Resolution Number 78-2018 that approved the Exploitation Project of 'Mina Nova Galicia of Empresa Minera Altos de Punitaqui Ltda." granted by the National Geology and Mining Service Coquimbo Region, dated March 18, 2019.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 1243 that "Approves Project 'Deposito Espesado por Etapa Minera Altos de Punitaqui' of Minera Altos de Punitaqui" granted by the National Geology and Mining Service, Coquimbo Region, dated May 10, 2015 and its rectification conferred by Exempt Resolution 1262 granted by the National Geology and Mining Service, Coquimbo Region, dated May 13, 2019.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 404 that "Approves the Underground Mining Project 'Mina Dalmacia II' of the Mining Site 'Mina Dalmacia' presented by Empresa Minera Altos de Punitaqui Ltda." granted by the National Geology and Mining Service, Coquimbo Region, dated June 15, 2020.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 98 that "Approves the Project 'Los Mantos Concentrator Plant' of Empresa Minera Altos de Punitaqui Ltda." granted by the National Geology and Mining Service, Coquimbo Region, on February 5, 2013.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
Exempt Resolution number 1367 that "Approves the Exploitation Project 'Underground Mine Dalmacia 1' presented by Empresa Minera Altos de Punitaqui Ltda." granted by the National Geology and Mining Service, Coquimbo Region, dated September 13, 2016.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 1457 that "Approves the Project Closure Plan of the Mining Site 'Mina Dalmacia 1' of Minera Altos de Punitaqui Ltda." granted by the National Geology and Mining Service Coquimbo Region, dated October 3, 2016.	National Service of Geology and Mining	By means of Public Deed "Complementación Cesión de Permisos y Autorizaciones", executed at the Notary Office of María Pilar Gutiérrez Rivera, dated 07/02/2021, Repertory No. 17,206.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 110 that "Takes cognizance of the Dalmacia I Mining Project", granted by the National Geology and Mining Service, Coquimbo Region, dated January 22, 2015.	National Service of Geology and Mining	By means of Public Deed " Complementación Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 12/28/2021, Repertory No. 32,957.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 2236 that "Takes cognizance of the Mining Project Update and extension Dalmacia I", granted by the National Geology and Mining Service Coquimbo Region, dated June 30, 2015.	National Service of Geology and Mining	By means of Public Deed " Complementación Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 12/28/2021, Repertory No. 32,957.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution number 1723 that "Approves the Closure Plan Project for the Nova Galicia Mining Site", granted by the National Geology and Mining Service, Coquimbo Region, on November 14, 2016.	National Service of Geology and Mining	By means of Public Deed " Complementación Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 12/28/2021, Repertory No. 32,957.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
Exempt Resolution number 992 that "Has present notice of commencement of exploration activities in accordance with the provisions of Article 21 of the Mining Safety Regulations, of the San Andres Exploration Galena Project", granted by the National Geology and Mining Service Coquimbo Region, dated July thirteenth, 2017.	National Service of Geology and Mining	By means of Public Deed " Complementación Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 12/28/2021, Repertory No. 32,957.	Requested by means of letter sent via web to the Superintendence of Geology and Mining (Sernageomin), dated 12/30/2021.	In Process
Exempt Resolution No. 735, which "Leaves without effect Re. Ex. No. 1007 dated July 26, 2018, of the Regional Directorate of Coquimbo, which Approves the Closure Plan Project of the Mining Site 'Nova Galicia I Mine', of Minera Altos de Punitaqui LTDA; and approves the Project 'Update of the Closure Plan of the Nova Galicia I Mining Site', presented by the Mining Company Altos de Punitaqui LTDA. located in the Commune of Punitaqui, Province of Limaría, Region of Coquimbo" on 11/19/2021.	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process
Re. Ex. No. 408, which "leaves without effect Re. Ex. No. 10457 of 2016, dated 03/10/2016, of the Regional Directorate of Coquimbo, which approves the Project Closure Plan of the Mining Site "Dalmacia I Mine; and Approves the Project Closure Plan of the 'Dalmacia Mine' (Dalmacia I Mine (2016) and Dalmacia II Mine (2020)), of the Mining Company Altos de Punitaqui Limitada, located in the	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
Commune of Punitaqui Province of Limarí, Region of Coquimbo", dated 16/06/2020.				
Re. Ex. No. 639, which "Approves Tamaya Tailings Deposit Construction Project (Tranque III) belonging to the CIA: Minera Punitaqui SCM located in the commune of Punitaqui, Province of Limarí, Coquimbo Region", dated 25/07/2008.	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process
Re. Ex. No. 613 which "Approves the Tamaya Tailings Dam Project Haltening (Dam III) of the Mantos de Punitaqui Mining Site, Minera Altos de Punitaqui LTDA, located in the Commune of Punitaqui, Province of Limarí, Region IV of Coquimbo", dated 10/03/2015.	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process
Re. Ex. No. 2243, which "Approves the Thickened Deposit Project, Minera Altos de Punitaqui, of the Mantos de Punitaqui Mine, located in the Commune of Punitaqui, Province of Limarí, Region IV of Coquimbo", dated 04/09/2015	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process
Re. Ex. No. 647 which "Approves the Tamaya Tailings Dam Reinforcement and Camber Project belonging to Cia. Minera Tamaya SCM, located in the Commune of Punitaqui, Province of Limarí, Coquimbo Region" granted on 25/05/2006.	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process

Permit	Authority	Public Deed by Means of which was Transferred	Informed	Status
Re. Ex. No. 1352 which "Approves the Project of Gravel Deposits No. 3 of the Los Mantos de Punitaqui Plant", dated 07/10/1993.	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process
Re. Ex. No. 1040, associated with the Tailings Dam Project, corresponding to the year 1987.	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process
Re. Ex. No. 310, dated 05/03/1993.	National Service of Geology and Mining	By means of Public Deed " Complementación de Cesión de Permisos y Autorizaciones", executed in the Notary Office of María Pilar Gutiérrez Rivera, dated 07/15/2022, Repertorio No. 10,708.	By means of a letter sent via the web to the Sernageomin's office, dated 07/20/2022	In Process
Res No 20220410163 Relevance Consultation Project "Utilization of useful life and slope rectification Tranque III, Planta Los Mantos".	Environmental Evaluation Service Coquimbo	Approved May 17, 2022	Until tailings deposit capacity is completed	Resolutions: RCA N°214/2007, RCA N°040/2014 and RCA N°152/2014 Y CP RE. EX N°019/2019
DIA Mine Cinabrio – San Andrés	Environmental Evaluation Service Coquimbo	Approved August 18, 2022	7 years	Awaiting delivery of the RCA by the Environmental Evaluation Service.
Total Closure Plan for Los Mantos Mine and Cinabrio mine	National Service of Geology and Mining	In Review	N/A	Document under SNGM review.
Exploitation Permit Mine Cinabrio- San Andres	National Service of Geology and Mining	In Review	7 years	Document under SNGM review.

Source: Lawyers Baker-McKenzie and Minera BMR Spa Environmental Staff (2022)

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Introduction

Chile is divided into fifteen regions and Coquimbo region where the project is located has a surface area of 40,565 km^2 and it surface area corresponds to 5.4% of total country area.

BMR's Punitaqui mining complex is in the central part of Coquimbo region in north central Chile. The nearest city is Ovalle - Capital of the Province of Limarí, which is situated in one of the broad north-south valleys of the Coquimbo region. Known as "The Pearl of the Limarí", Ovalle lies 421 km north of Chile's Capital city Santiago.

Coquimbo in its turn is divided into three provinces and fifteen boroughs The regional population is about 600,000 inhabitants, mainly located in Elqui (about 60%) and Ovalle -Limarí (about 25%). About 80% of the population lives in urban areas. There is an even distribution among males and females and a relatively young population, with 11% under the age of 14 years and 55% in the range of 15-34 years.

The region has an arid "Mediterranean" climate with winter rains, and a dry summer season with moderate temperatures. The climate is semi-arid to temperate with winter rains making it very favorable for the cultivation of grapes with many vineyards located in the regions. Grapes from the region are grown for both pisco and Chilean wine. The area is characterized by significant temperature fluctuations between daytime highs and night-time lows. In the summer, temperatures range between 15ºC and 30ºC, whereas winters are colder.

There are excellent highways and roads to access the region. Regular, daily flight service connects La Serena with the capital Santiago about 421 km by road to the south. Ocean-going shipping is available via La Serena and the nearby port town of Coquimbo. The region is well services by grid electrical power and telecommunication services.

The area is part of Chile's Coast Range characterized by relatively moderate rolling hills cut by broad valleys. Vegetation is minimal outside of inhabited valleys where irrigation is used to support vegetation that is capable of withstanding the desert environment.

5.2 Access

BMR's Punitaqui mining complex is located in an area that is readily road accessible by both sealed highways that connect to a network of gravel access roads and access tracks in areas of more rugged topography.

To reach this region of Chile, visitors may use Routes D43, D45, D55 and D595, all of which are sealed highways in very good condition and well sign posted. The main routes are Route 5, a longitudinal road running all along Chile in direction north-south, and the secondary routes that link that main road to the coast and other cities. Travelling by main Route 5, with two lanes in each direction, Santiago can be reached in about 4-5 hours. The main regional roads are Route

41 linking La Serena, Vicuña and Pisco Elqui, Route 43 linking La Serena and Ovalle and Route 45 joining Ovalle and Socos.

From La Serena, one can travel east along the Gabriela Mistral Route that traverses the Andes mountains and cross into Argentinian border near Agua Negra then continue on to the city of San Juan.

Figure 5-1 details local road infrastructure and project location.

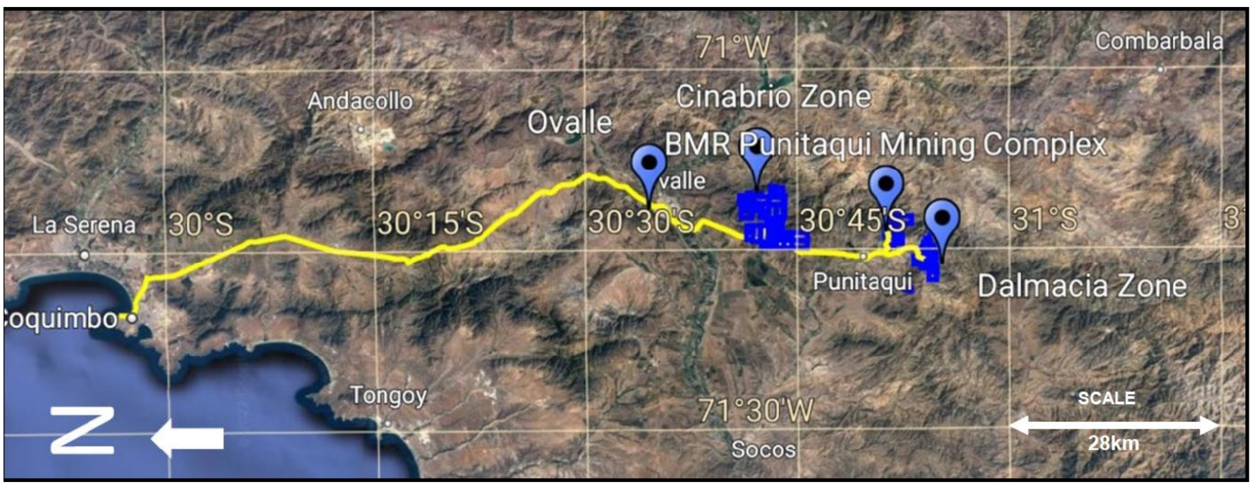
Figure 5-1: Coquimbo Region Road Network Map

Source: Kirkham (2022)

The property holdings consist of 3 main blocks over about a 30 km north-south corridor. The Cinabrio block located about 12 km south of Ovalle City hosts the Cinabrio deposit and the Cinabrio Norte & San Andres zones. A further 25 km south, by road, is the Los Mantos processing plant block and the third block is centered over the Dalmacia zone a located about 12 km by road, south the plant. The plant complex is centrally located in Punitaqui region. A well-established road network connects the processing plant, the Cinabrio, mine, San Andres zone, Cinabrio Norte zone and the Dalmacia resource. Figure 5-2 is a location map that shows the BMR sites relative to road access and nearby population centers.

Sealed road access south from the city of Ovalle is via route D-605, which links the Ovalle with the town of Punitaqui about 37 km by road to the south. The UTM coordinates of the operating area, is 6,599,735 N and 288,540 E, (South American Datum 1956, transversal Universal Mercator projection).

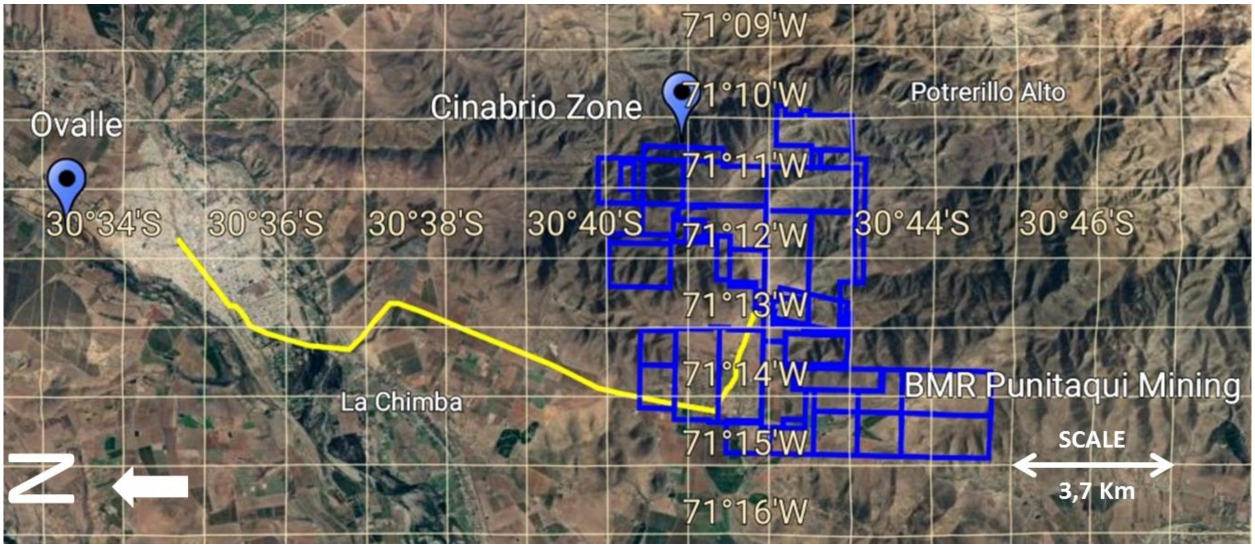
Figure 5-2: Punitaqui Mining Complex Site Locations and Access Routes



Source: Kirkham (2022)

The Cinabrio mine is located approximately 25 km by road north of the processing plant. The Dalmacia zone is about 12 km by road, to the south of the processing plant. Surface haulage from the outlying properties is accomplished using 20 t to 25 t highway trucks. To access the Cinabrio site, one must travel 16 km along the D-605 road that connects the city of Ovalle with the city of Punitaqui. The mine site is connected to the highway by an east-west running gravel road. Figure 5-3 shows the access route to Cinabrio site from Ovalle.

Figure 5-3: Access Route from Ovalle to Cinabrio Mine



Source: Kirkham (2022)

The Los Mantos plant, located just south of the town of Punitaqui can be accessed directly via highway D-605 by travelling south from the city of Ovalle. The access route to the processing plant is displayed on Figure 5-4.

Figure 5-4: Access Route from Ovalle to BMR Processing Plant near Punitaqui Town

Source: Kirkham (2022)

The southernmost resource area – Dalmacia about 12 km by road south of the processing plant. To access the Dalmacia site you must travel 31 km from the city of Ovalle on the D-605 road to the town of Punitaqui, then a further 8 km on a sealed road to the village of La Higuera then complete the final 4 km on a dirt road. Figure 5-5 displays the road access to the Dalmacia resource.

Figure 5-5: Access Route from Ovalle to Dalmacia Resource Area

Source: Kirkham (2022)

5.3 Local Resources and Infrastructure

The nearest port and major airport are situated about 120 km to the north at La Serena. Regular, daily flight service connects La Serena with the capital Santiago about 500 km to the south.

La Serena's La Florida airport located 6 km from the city is serviced daily by at least three Boeing 737 jet services (Lan and Sky Airlines) and by several smaller planes. In addition, there are regular scheduled flights from La Serena to Antofagasta, Arica, Copiapo and other destinations. There are three other public and fourteen private aerodromes in Coquimbo region.

Ocean going shipping is available via La Serena via the port town of Coquimbo. The port is a medium sized, public, multi-purpose port is located in a site of 55 ha with 54,200 m^2 of storage surface area and 6.250 m^2 being roofed. Its main activity occurs in summer, mainly devoted in exporting fruit. The port is a sheltered harbor that is able to receive vessels over 150 m in length. Coquimbo port is a natural coastal-type harbor that is open year-round.

Supplies and services are readily available in Ovalle and /or La Serena. Ovalle is the site of the recently completed hospital and medical center. The region is well services by grid electrical power and telecommunication services.

Coquimbo is an active mining region (mining is the economic activity that contributes most to the GDP of the region), surpassing by a wide margin other service industries and agriculture. Coquimbo's contribution to nation-wide minerals production is about 10% of Chile's total mine production. In terms of copper production, the two biggest copper producers in Coquimbo region are the Los Pelambres mine and the Carmen de Andacollo operation.

The supply of mining services is extensive. There are a number of drilling companies, several assay laboratories. topographic survey services as well as a number of equipment and parts suppliers. Figure 5-6 displays Port of Coquimbo access route and facilities.

Figure 5-6: Port of Coquimbo Access Route and Facilities

Source: Kirkham (2022)

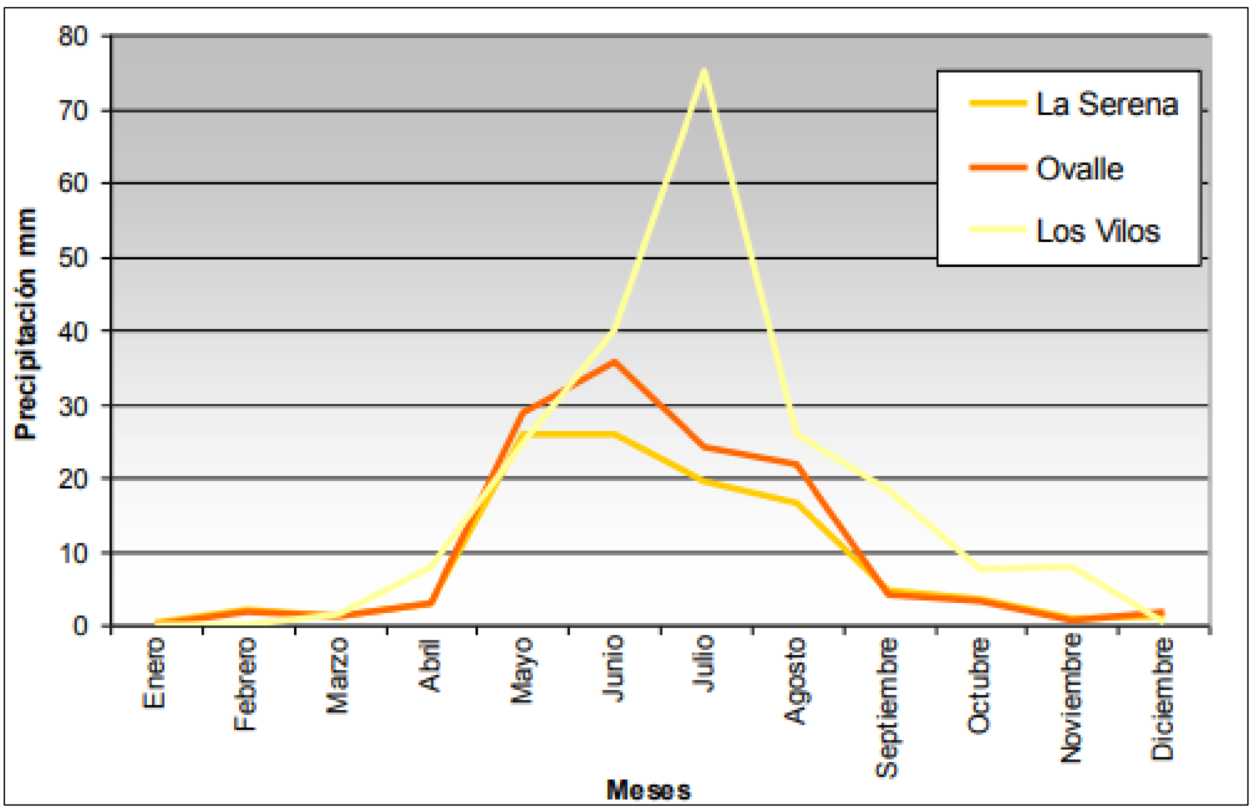
5.4 Climate

The climate of this area is semi-arid to temperate with winter rains. The temperature can range from 11ºC for the coldest months and exceed 30ºC for the warmest months. The average annual temperature is 17°C. The warmest month of the year is January, with an average temperature of 21.5°C. July is the coldest month, with temperatures averaging 11.8°C.

The area has a semi-arid climate with very little rainfall. The month with the highest number of rainy days is July (3.17 days). The month with the lowest number of rainy days is January (0.13 days). Most of the precipitation falls in June, averaging 46 mm. Average annual rainfall plotted as Figure 5-7.

It is dry for 340 days a year with an average humidity of 51% and an UV-index of 5. The month with the highest relative humidity is July (64.74%). The month with the lowest relative humidity is December (52.92%).

Figure 5-7: Ovalle Region Annual Precipitation (in millimeters per year)



Source: Kirkham (2022)

5.5 Physiography

BMR's Punitaqui mining complex is located in the Cordillera de la Costa. Elevations in the area vary from between 700 m – 800 m above sea level.

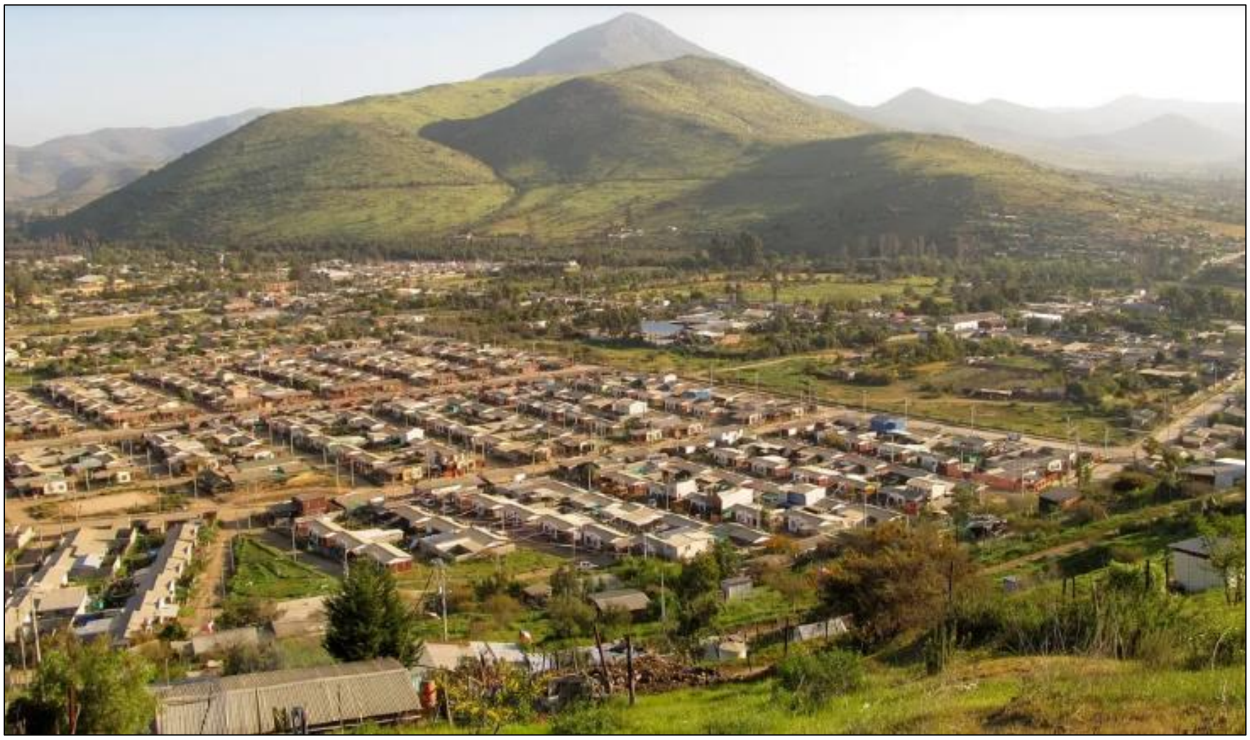
The relief of the region is relatively moderate rolling hills cut by broad valleys. With the landscape cut by numerous structurally controlled ravines (such as the Quebrada Inferrillo and the Quebrada Los Mantos). The highest elevation in the area is Cerro Grande de Punitaqui (1,215 masl) located 5 km west of the Punitaqui Plant. Figure 5-8 is a typical landscape scene within the Punitaqui mining complex.

Vegetation consists of stunted brush cover with larger trees in water courses. Surficial cover is limited to the coastal steppe scrub, interior steppe scrub and forested steppe scrub. The most abundant plant species include Ademia Micorphyla, Cassia Coquimbensis, Heliotopum Stenophyllum, Fuchsia lycioides, Myrcianthes Coquimbensis, Porlieria Chilensis and Carica Chilensis.

Figure 5-8: Typical Landscape in the Cinabrio and Dalmacia Blocks

Source: Kirkham (2022)

Figure 5-9: View of Punitaqui Townsite in Foreground and Cerro Grande in the Background



Source: Kirkham (2022)

5.6 Infrastructure

5.6.1 Punitaqui Mining Complex Processing Infrastructure

The property contains a mill that is permitted to operate at 3000 mt/d, with an allowance to exceed the permitted capacity by an additional 20%, suggesting a maximum allowable milling rate of approximately 3,600 mt/d. Although the production is theoretically regulated on a daily basis, it seems that in practice, this maximum rate is averaged over an operating month. Figure 5-10 through Figure 5-15 are images of the BMR processing plant.

Figure 5-10: Los Mantos Process Plant Overview

Source: Xiana Mining (2020)

Figure 5-11: Process Plant Overview – Flotation Circuit in Foreground

Source: Xiana Mining (2020)

5.6.1.1 Crushing

Run-of-mine (ROM) ore is delivered to the coarse ore stockpile as separate mined ore for evaluation and assaying prior to being blended through the plant. ROM ore is control discharged from the 50 t ROM bin by a grizzly feeder ahead of a 142 cm x 122 mm Nordberg C140 Jaw crusher. ROM fines at nominally minus 150 mm by-pass the jaw crusher and are conveyed with jaw product at nominal 200 mm to the secondary crusher.

The primary crushed product is screened on a 1.5 m by 5.2 m double deck rubber mesh screen with 75 mm gaps on the top deck and 32 mm gaps on the bottom deck. Undersize by-passes the Trio 66 standard cone crusher while the oversize passes to the Standard cone crusher with a closed-side setting (CSS) of nominal 25 mm.

The standard crusher discharge combines with the by-pass fines and is conveyed to the tertiary crushing circuit storage bin of nominal 300 t capacity for control discharge to the tertiary circuit.

Vibratory feeders control the feed to three 1.5 m x 5.2 m ft tertiary double deck screens with 20 mm top deck aperture and 14 mm bottom deck aperture for control of the final product to nominal 9 mm. Oversize from the tertiary screens feeds directly to three Trio 51 shorthead cone crushers prior to recycling in closed circuit back to the 300-t surge bin.

Fines from the tertiary screens at nominal 8 mm to 9 mm are conveyed to a 14,000 t fine ore stockpile.

Figure 5-12: Process Plant – Crushing Circuit

Source: Xiana Mining (2020)

5.6.1.2 Milling

The grinding circuit consists of two modules each consisting of a single stage 4.3 m x 6.1 m ball mill. Each mill is in closed circuit with a D26 cyclone system maintaining a closed circuit with the mill. Mill circuit product is sized at a P_{80} of 110 µm. Ore is delivered by a mechanical gate discharge to the ball mill over a weightometer to monitor the weight to the mill for metallurgical accounting.

The discharge from each of the 4.3 m by 6.1 m ball mills is pumped by an 8/6 unit to a two-cyclone battery with 66 cm cyclones for classification of the mill product. Overflow gravitates to flotation, while the underflow as coarse oversize recycles back to the ball mill for further grinding.

Mill circuit number 1 contains steel liners in the grinding mill, while Mill No. 2 is equipped with polymet liners.

Three “old” (not used) ball mills also exist which are assumed to be the original plant. The mills are: 3.2 m by 4 m ball mill with discharge pumps and 30 cm cyclone classification. A 3 m x 3 m ball mill with discharge pumps and 30 cm cyclone classifier.

There is also a 2.4 m x 3.7 m Denver rod mill with discharge pumps. A mill support for a fourth mill (removed) exists between the two ball mills.

Figure 5-13: Process Plant - Grinding Circuit

Source: Xiana Mining (2020)

5.6.1.3 Flotation

The flotation circuit consists of a rougher-scavenger circuit, with a three stage cleaner circuit to upgrade the copper to nominally 23% copper in the final concentrate. The gold content of the copper concentrate is totally dependent upon the ore mix utilized on the ROM pad.

5.6.1.4 Rougher Scavenger Flotation

The grinding circuit product is conditioned in two stages utilizing a 3 m x 3 m primary and a 3.4 m x 3.4 m secondary unit for reagent conditioning. The lead rougher-scavenger cells consist of nine rougher cells with each cell being a Dorr Oliver 28.3 m^3 capacity. All nine cells contribute to produce a rougher concentrate which passes to the primary cleaner while the scavenger circuit consists of a three cell Wemco 28.3 m^3 cell bank followed by a five cell Dorr Oliver 28.3 m^3 cell bank arranged as a two to three cell unit. Scavenger concentrate is pumped back to the head of the rougher circuit. Scavenger tailing is pumped to the high-density dewatering facility.

5.6.1.5 Cleaner Flotation

The primary cleaner consists of a rougher and a scavenger stage with the rougher consisting of a four-cell bank of Wemco 8.5 m^3 cells. The scavenger bank consists of a four-cell unit with each cell being a Dorr Oliver 14.2 m^3 capacity.

The rougher concentrate is pumped to a secondary cleaner circuit consisting of two separate Wemco 300 ft^3 units and one Wemco 14.2 m^3 unit. The scavenger concentrate is pumped to a 1.8 m by 10 m column cell as a secondary cleaner unit. The conventional cell secondary cleaner concentrate is final concentrate while the tailing recycles to the primary scavenger feed.

The column concentrate combines with the final concentrate while the column tailing recycles back to the feed of the primary cleaner scavenger circuit. The final copper concentrate is sampled by an automatic Tecpromin cutter and pumped to the thickener.

Figure 5-14: Process Plant – Flotation Circuit

Source: Xiana Mining (2020)

5.6.1.6 Thickening

A 13.7 m diameter conventional thickener is used to dewater the copper concentrate.

The tailing thickener sizing is a 22 m diameter high density paste thickener. Water from the tailing thickener, and the concentrate thickener, is recycled back to the circuit process water system.

The concentrate thickener underflow passes to holding tanks as a feed supply to the filter units.

5.6.1.7 Filtering

The concentrate is presently filtered in two PF1.6 Larox horizontal eight plate filters to a typical 8 % to 10 % moisture by weight and discharges by gravity to the 7,000 t capacity holding shed where it is allowed to dry, if necessary, prior to trucking to the port or the smelter.

5.6.1.8 Tailing Disposal

The tailing is pumped to the tailing facility where it is discharged into a retained facility. The retention facility provides for sedimentation and evaporation, with no facility for recycling any water back to the process water recirculation system. This high density paste disposal facility maximizes the recirculation of process water within the operating plant.

Figure 5-15: Process Plant – Tailing Containment Area

Source: Xiana Mining (2020)

5.6.2 Tailings Storage Facilities

The Project site has four existing tailings storage facilities containing processed tailings from prior operations: Tranque I, Tranque III, Tranque IV Phase 1 and Tranque IV Phase 2. Stability concerns have been noted for both phases of Tranque IV, with vertical cracking showing on the crest of the dams. Both have ongoing monitoring plans, and the company is actively working with SERNAGEOMIN to resolve the issues. A conceptual design for buttressing of Tranque IV has been submitted for approval and the work has been tendered.

In September 2021 the site was visited by Enrique Garces and Adolfo Lopez of Knight Piésold Consulting for the purpose of assessing current remediation plans and the plans for expansion and eventual recommissioning being prepared by RVIA, a local engineering firm. This section reports the findings of the September 2021 site inspection and the subsequent engineering work by RVIA and others.

5.6.2.1 General Observations:

Punitaqui mining and processing operations were halted in April 2020 and the underground and processing infrastructure was put on care and maintenance. Limited personnel are present at the processing and TSF facilities. Monitoring of geotechnical instrumentation had not been carried out for quite some time as there was no knowledge of the operating status of the existing instrumentation. Observed instruments comprise only standpipe piezometers and only a few of these were visually observed; however, the piezometers did not have protective casing to avoid damage and the operating status was not verified. The embankments at Tranque IV Phase 1 and Tranque IV Phase 2 were raised beyond the original design by RVIA; however, engineering design and analyses, construction quality controls and as-built drawings are not available. The most recent raise of the TSF named Tranque IV Phase 2 was completed Q2 2019. Since taking over the project, piezometers have been repaired and replaced by BMR where necessary allowing observations and measurements to commence.

5.6.2.2 Tranque I

Tranque I is completely filled. Waste rock materials have been pile dumped on the tailing beach, presumably as part of the closure work. Cover material has been placed over the ultimate tailing beach, but grading was not completed in most of the impoundment area and water routing has not been implemented; thus, water will pond on the tailings impoundment. The freeboard is low (less than 1 m in places), and no spillway is provided. There was no visible sign of acid rock drainage. Perimeter channels require maintenance. No seepage was observed. The slope of the downstream face appears to be steep, but there are no signs of instability, and its stability has been confirmed by RVIA.

A closure plan was prepared by BMR and submitted for approval in July 2022, which includes water management. First comments are due in mid-October 2022.

5.6.2.3 Tranque III

The cross-section of the ephemeral creek (Estero Los Mantos) appears to have been narrowed on account of the construction of a road (within the mine limits) and will require hydraulic verification and possible river erosion protection of the downstream toe of the embankment. A closure plan submitted by BMR includes considerations for fluvial erosion protection.

The Perimeter channel requires maintenance and repair or re-lining missing sections of geomembrane. Available freeboard ranges from 1 m in the vicinity of the abutments to 3 m close to the central area. No spillway is in place. No seepage was observed and there were no signs of instability.

In September 2021 two CPT-U tests were conducted in Tranque III to a 15 m depth and no water was found. In February 2022, six piezometers were installed in Tranque III. Since then, monitoring through the piezometers has been verified by authorities in their site visits received during 2022.

BMR has reported to SERNAGEOMIN on May 3, 2022; in response to the Exempt Resolution N 1867 of October 5, 2021; those issues raised by them in their site visit related to Tranque III, slope observations and lack of piezometers, have been solved.

SEA has approved on May 17, 2022, by Resolution N 20220410163, an additional 280,000 t of storage capacity in Tranque III, achieved by installing geo-pipes. This increases the active capacity to 1 Mt of tailings for the eventual resumption of operations.

5.6.2.4 Tranque IV Phase 1

The current crest elevation of Tranque IV is higher than the designed and approved project. An assessment of the last raise was completed by RVIA identified stability concerns in that the embankment materials were loose due to poor construction procedures, with cracking observed longitudinal to the dam axis. Settlement of the crest was also observed in the area close to the cracks. Freeboard (tailing to crest) is lower than 1 m in select sections which is the minimum regulatory requirement. Seepage was not observed on the downstream face or toe of the embankment. In September 2021 two CPT-U tests were conducted in Tranque IV Phase I to a 15 m depth and no water was found.

RVIA has designed a wall rock support for TSF IV Phase 1 with coarse buttressing materials that has been submitted to SERNAGEOMIN on May 3, 2022 for approval. BMR is currently waiting for SERNAGEOMIN's approval to start the work, building a wall rock to stabilize Tranque IV Phase 1. During construction of the wall rock and once the wall rock reaches the altitude of the crest, this material will be removed, and a spillway will be added.

5.6.2.5 TSF IV Phase 2

The stability of Tranque IV is a major concern. Longitudinal open cracks were observed, at least 6" wide and at least 50 cm deep at the center and downstream shoulder of the crest. Corrective action is required and may require buttressing and/or removing or repulping (or mechanically excavating) tailings out of the impoundment to allow removal of inadequate or loose embankment materials. Seepage was not observed on the downstream face or toe of the embankment. The geomembrane on the shoulder of the upstream face, near the anchor trench, was observed to be torn due to traction at a seam; requires limited repair work. The available freeboard is approximately 1.5 m. No spillway has been provided.

A remediation plan has been submitted by BMR to SERNAGEOMIN for approval which includes adding coarse buttressing materials and removing a portion of the TSF material where there is cracking, repairing the geomembrane, and adding an engineered spillway.

5.6.2.6 Observations to the Remediation Plans

To date, the design criteria has been defined in compliance with local standing regulations (note: tailings regulation is currently being changed and final text has passed public comments, but final version not released) but may likely need to be revised to comply with GISTM or MAC/CDA guidelines. Given the close distance to population and size of the facilities, all these facilities should be designed to manage the Probable Maximum Flood (PMF), which has been included in the recent submission, currently being reviewed by SERNAGEOMIN.

5.6.2.7 Ongoing Regulatory Work

BMR has tendered the buttressing work for stabilizing Tranque IV Phase I and Phase II. BMR expects final approval from SERNAGEOMIN to start the construction process.

RVIA has conducted static and dynamic stability tests in each of the deposits to include in the scope of the plan all the activities for the remediation and closure of the tailings deposits at the end of the mine life, which have been included in the submissions to SERNAGEOMIN.

In October 2022, BMR will submit an environmental permit (DIA) to build a filter tailings facility which will result in an additional 8 Mt of tailings storage capacity downstream of Tranque IV Phase 1 and 2, buttressing the existing embankments. The change to filtered tailings is encouraged by the regulators as it will greatly reduce the consumption of water for operations and will ensure long term tailings capacity for its operations without increasing the existing footprint.

5.6.3 Other Facilities

Other site facilities include the following:

- Security gates at the access to the mining and milling sites;
- Technical and administration offices;
- Warehouse facility;
- Underground access to the Dalmacia and San Andres deposits via portals for exploration;
- Core logging and storage facilities;
- Mine equipment maintenance facilities; and
- Assay lab for support of mining operations and metallurgical lab for support of the processing plant.

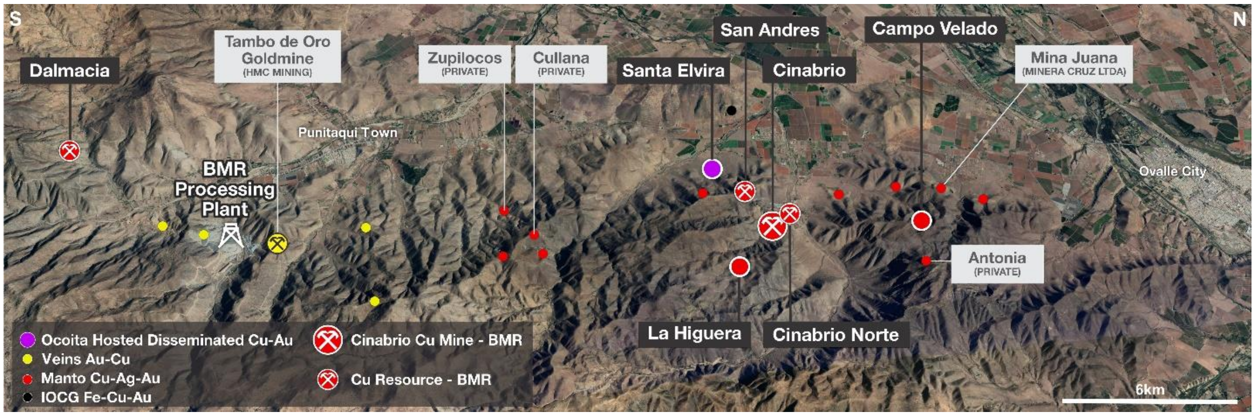
6 HISTORY

6.1 Overview

The Punitaqui project is a past producing copper-gold mining complex located about 50 km south of the Andacollo Copper mine owned by Teck Resources Coquimbo region 4 of Chile, near the towns of Punitaqui and Ovalle. The asset consists of a centralized process plant that to be fed by four satellite copper deposits - San Andres, Cinabrio, Cinabrio Norte, and Dalmacia.

In addition to the BMR assets, there are several small to medium scale third-party mining operations and processing plants in the district (see Figure 6-1). The more important of these are the Tambo de Oro gold mine and 30,000 t per month processing plant owned by HMC La Mina Juana underground copper mine operated by Minera Cruz Ltda. located 4.8 km north of Cinabrio and the underground Cullana & Zupilocos copper mines located about 5 - 7 km south of Cinabrio. Except for HMC gold, all these operators transport and sell ore to the La Empressa Nacional de Mineria “Enami” processing facility located about 27 km north of Ovalle. Since 2014, HMC Gold has operated the Tambo de Oro underground gold mine and processing plant located just north of the BMR’s processing plant.

Figure 6-1: Punitaqui Mines and Significant Mineral Occurrences



Source: Kirkham (2022)

The Punitaqui mining district is located south of Ovalle historically has been a significant copper, gold and mercury producing area in Chile. The Los Mantos mine near the town of the towns of Punitaqui and Ovalle was the largest domestic gold and mercury producer prior to the start-up of the El Indio mine in1981.

Punitaqui was discovered in 1780 and was intermittently exploited by indigenous groups and the Spanish with long periods of inactivity. Historical records of private, local miners Pirquineros” activities and total production are poor. Local mining workings comprising of trenches, shallow prospect pits and small adits can be found throughout the district.

In general, historical mining was concentrated at the Los Mantos deposit, the largest ore deposit in the district. Los Mantos mine was discovered in 1780 and was operated in order to exploit mercury ore, then gold, and finally copper until it was closed in 1956. The most significant production occurred between 1935 - 1945 due to the demand for mercury during World War II. After a restart, mining halted again in 1965 when major floods caused caving of the underground workings.

Between 1937 and 1970, Los Mantos produced 350,000 oz Au (470,000 oz Au_Eq). In the surrounding area other veins and mines including Los Mantos, Delirio and Milagros mine (until 1998) reportedly produced 650,000 oz Au_Eq*.

***Cautionary Statement: The indicated and inferred resources are historical estimates and use the categories set out in NI43-101. These resources are effective as of July 2018 as stated in NI 43-101 Technical Report for Punitaqui Project Xiana Mining Inc. Given the source of the estimates, BMR considers them reliable and relevant for the further development of the Project; however, a qualified person has not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves, and the Company is not treating the historical estimates as current mineral resources or mineral reserves.**

In the late sixties, CORFO (Chilean Corporacion de Fomento dela Produccion) started open pit mining at Los Mantos. In 1982, it was sold to Cerro Centinela Holding Company that focused on the construction of a cyanidation plant, mainly for the recovery of gold in the tailings.

In 1985, the decision was made to reopen on a small scale the Los Mantos mine. About 600 t per month grading 7 g/t Au to 8 g/t Au were mined by “Pirquineros” (Chilean term to describe persons who work on a leased mine without restrictions) and processed in the Enami plant north of Ovalle*.

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The Delirio copper zone, located at the southwest end of Los Mantos was mined during the first half of the 20th century.

Although artisanal mining at the Milagros gold deposit dates back to the early 1800s, it was not until 1993 when modern mining operations commenced. The operation continued its temporary closure in 1998, as a result of falling gold prices.

From 1987 to 1998, a total of 178,290 equivalent ounces of gold were produced which included 45,950 oz Au-Eq produced by tailings retreatment and 132,340 oz Au-Eq were produced by flotation*.

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From 2007 – 2010, Australian based, Tamaya Resources Limited through its Chilean subsidiary Compañía Minera Punitaqui "CMP", acquired the Cinabrio and Dalmacia properties. CMP completed additional reverse circulation "RC" drilling (256 holes/ 42,315 m) at Cinabrio, Cinabrio Norte, San Andres and Dalmacia as well as undertaking a preliminary Feasibility Study. Tamaya constructed a plant and commenced mining at Cinabrio. In 2010, CMP the Chilean subsidiary of Tamaya declared bankruptcy.

In 2010, Glencore International Plc acquired the project upgraded plant & underground development of Cinabrio. Glencore optioned and mined the Los Mantos & Milagros gold deposits near the processing plant.

Cinabrio was Glencore's first copper operation in Chile. Glencore successfully operated the Cinabrio underground mine with most of the exploration and drilling focused at Cinabrio and the Dalmacia zone. From 2011 – 2018, Glencore completed follow-up diamond core drilling (371 holes/ 71,162 m) at Cinabrio, Cinabrio Norte, San Andres and Dalmacia. Following the Glencore-Xstrata Mining merger the Cinabrio property was put up for sale.

In 2018, Canadian listed, Xiana Mining Inc. acquired the mine from Glencore, continued production at Cinabrio and completed limited diamond core drilling (45 holes / 5,635 m) on the Cinabrio mine, San Andres and Cinabrio Norte zones. Xiana's drilling focus was the San Andres zone (17 holes / 3,644 m) which was follows by development of portal access and limited underground development. Two small "trial" open pits were developed on the southwest part of the Dalmacia zone.

The operation was shut down in April 2020 when Xiana Mining's Chilean subsidiary declared bankruptcy due to the rapid fall in copper prices that were impacted by the COVID-19 pandemic.

Historical drilling for the Punitaqui mining complex is summarized in Table 6-1.

In March 2021, BMR acquired the Punitaqui copper mining project which consists of a centralized process plant fed by four satellite copper zones -- San Andres, Cinabrio, Cinabrio Norte and Dalmacia. The Milagros and Los Mantos underground gold mines option was terminated in mid-2021 and the assets returned to HMC Gold.

Table 6-1: Punitaqui Mining Complex Historic Exploration Drilling Summary 1993 – 2020

Target	Company	Years	Drilling Type	Holes Drilled	Meters
Cinabrio	Tamaya	2004-2008	RC	168	27,129
	Glencore	2011-2018	DC	224	35,887
	Xiana	2019-2020	DC	24	1,184
	Subtotal			416	64,200
San Andres	Tamaya	2007	RC	29	3,057
	Glencore	2011-2017	DC/RC	18	2,726
	Xiana	2019-2020	DC	17	3,644
	Subtotal			64	9,427
Dalmacia	CPA	1993-1994	RC	49	10,017
	Tamaya	2007-2008	RC	49	11,473
	Glencore	2011-2018	DC	127	31,235
	Subtotal			225	52,725
Cinabrio Norte	Tamaya	2004-2008	RC	10	2,112
	Glencore	2011-2015	DC	7	1,433
	Xiana	2020	DC	4	807
	Subtotal			21	4,352
Punitaqui Historic Drilling Totals				**726**	**130,704**

Source: Kirkham (2022)

6.2 Cinabrio Mine

In 1965, exploration was initiated at Cinabrio beginning with the United Nations project called "Ovalle South Mining Survey" (1965). A geophysical study of induced polarization was conducted and subsequently 141 m of diamond drilling completed.

The site has been intermittently worked since 1968 by local miners focused on the exploitation of copper oxides. Local mining workings comprising of trenches, shallow prospect pits and small adits can be found throughout the Cinabrio mine area. Historical records for these private, local miner Pirquineros” activities and total production are poor.

In 1972; a diamond core drilling program was conducted (9 holes / 630 m). This was followed by development of a portal and underground access at Cinabrio (4.5 m x 4.0 m access to level 410): In total, 130 m of workings completed.

In 2000, the Chilean national company La Empressa Nacional de Mineria (Enami) completed a limited underground exploration program targeting copper sulphides.

The property was acquired by private Chilean corporation “CMC” in July 2004, which completed an engineering study which defined a mining program of sublevel stoping. In 2007 CMC sold the asset to Australian based, SMC Gold Limited later re-named Tamaya Resources Limited.

Tamaya then through an option agreement acquired the San Andres zone adjacent to the Cinabrio mine.

From 2007 – 2010, the Company completed resource definition and infill RC drilling 168 holes / 27,129 m at Cinabrio.

Significant intercepts reported for Tamaya’s Cinabrio drilling included:

- CRD-01: 12 m at 2.32% Cu and 15.7 m at 1.84% Cu;
- CRD-02: 8.2 m at 1.58% Cu and 32.5 m at 1.75% Cu;
- CRD-03: 27.0 m at 1.52% Cu and 37.25 m at 1.77 % Cu;
- CN-2: 36 m at 1.96% Cu;
- CN-6: 38 m at 1.28% Cu;
- CN-11: 7 m at 3.69% Cu and 4 m at 2.40% Cu;
- CN- 12: 3 m at 2.59% Cu and 5 m at 3.66% Cu;
- CN12A: 28 m at 1.48% Cu and 19 m at 4.37% Cu; and
- CN-12B: 32.4 m at 2.70 % Cu and 10 m at 3.05% Cu.

Note: All intervals are downhole lengths.
(Source: Tamaya Resources Jan 22, 2008)

Following the drilling, Tamaya completed a preliminary Feasibility Study. Tamaya constructed a plant and commenced mining at Cinabrio

The Chilean subsidiary of Tamaya declared bankruptcy in 2010.

In 2010, Glencore International Plc acquired the project upgraded plant & underground development of Cinabrio. Glencore optioned and mined the Los Mantos & Milagros gold deposits. Cinabrio was Glencore’s first copper operation in Chile. Glencore successfully operated the Cinabrio underground mine with most of the exploration and drilling focused at Cinabrio. From 2011 – 2018, Glencore completed follow-up diamond core drilling (376 holes/ 71,281 m) at Cinabrio (224 holes / 35,887 m), Cinabrio Norte (7 holes / 1,433 m), San Andres (18 holes / 2,726 m) and Dalmacia (127 holes / 31,235 m) In 2015, Glencore also completed a 5 RC hole program at San Andres totaling 119 m.

Significant results of the Glencore drilling included:

- CM-II-11-27: 106 m at 1.34% Cu;
- CS-II-11-06: 53.6 m at 2.32%Cu;
- CM-0-12-30: 51.9 m at 2.85% Cu;
- CM-0-18-02: 49 m at 1.74% Cu;
- CM-0-18-02: 49 m at 1.74% Cu;
- CM-0-18-02: 47 m at 1.81% Cu;
- CS-II-11-07: 43.3 m at 2.78% Cu;
- CM-0-12-31: 26.6 m at 2.87% Cu; and
- CM-0-14-42: 24 m at 1.28% Cu.

Note: All intervals are downhole lengths.
(Source: Glencore Internal Reports)

Following the Glencore-Xstrata Mining merger the Cinabrio property was put up for sale.

In 2018, Canadian listed, Xiana Mining Inc. acquired the mine from Glencore, continued production at Cinabrio and completed limited drilling (45 holes / 5.635 m) focused on the Cinabrio mine, San Andres and Cinabrio Norte zones. Xiana's Cinabrio drilling totaled 1,184 m in 24 holes.

Significant results of the Xiana drilling included:

- CM-0-19-07: 10 m at 6.60% Cu;
- CM-0-19-05: 10 m at 3.48% Cu;
- CM-0-19-15: 6 m at 1.71% Cu;
- CM-0-19-19: 7 m at 1.46% Cu; and
- CM-0-19-22: 8.5 m at 1.26% Cu.

Note: All intervals are downhole lengths.
(Source Xiana Mining inc. Internal Reports)

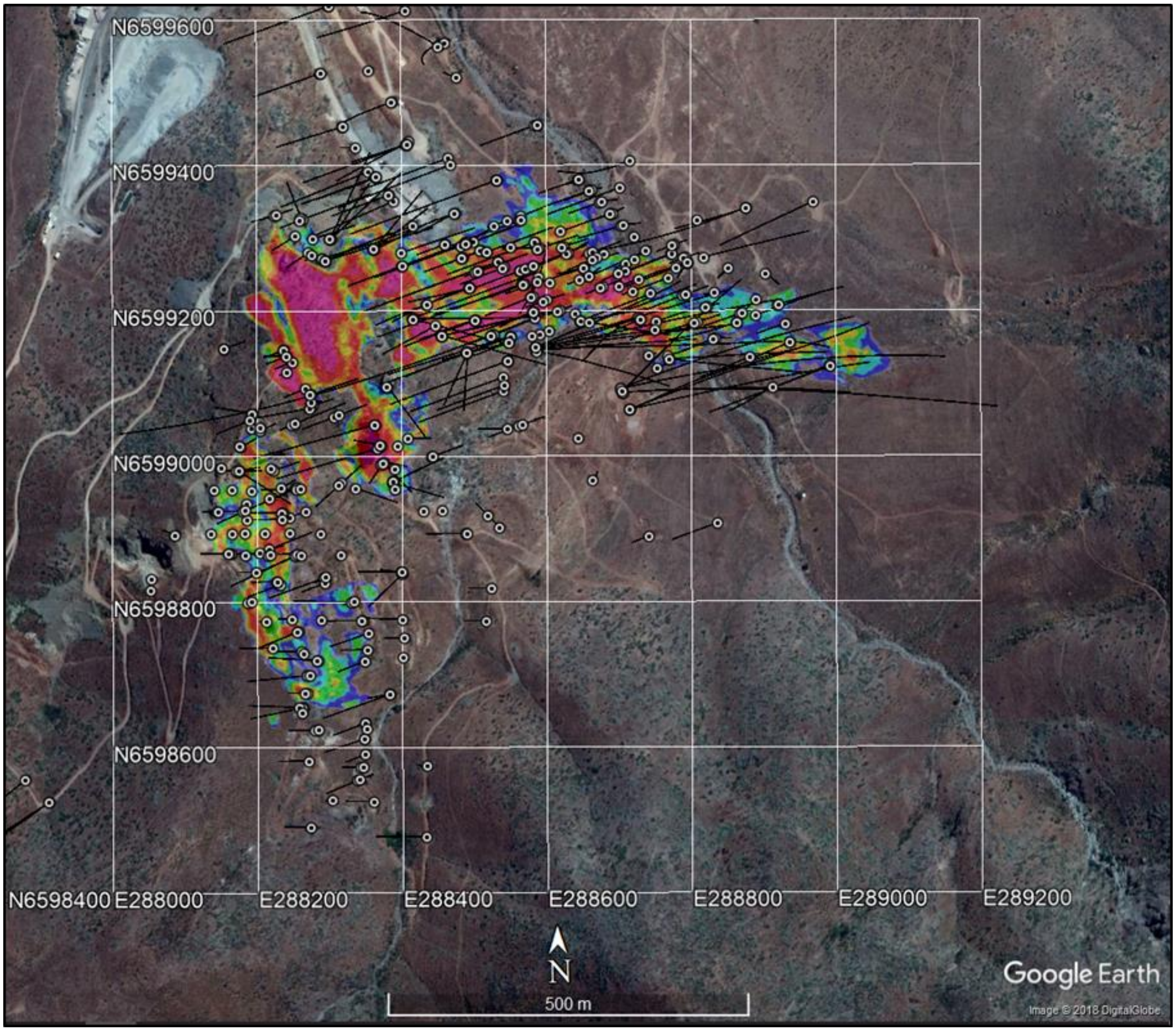
Historic drilling at the Cinabrio mine is summarized in Table 6-2 and Figure 6-2.

Table 6-2: Historic Drilling Cinabrio Mine 2004 - 2020

Company	Drilling Type	Year	Holes Drilled	Metres
Tamaya	RC	2004	3	194
		2005	29	4,615
		2006	60	11,177
		2007	10	686
		2008	66	10,457
	Total RC		168	27,129
Glencore	DDH	2011	56	9,783
		2012	47	4,616
		2013	42	9,396
		2014	56	6,800
		2015	6	1,638
		2016	3	964
		2017	8	1,796
		2018	6	894
	Total DDH		224	35,887
	RC	2011	11	1,223
	Total RC		11	1,223
Xiana	DDH	2019	22	1,062
		2020	2	122
	Total DDH		24	1,184
Totals			**427**	**65,423**

Source: Kirkham (2022)

Figure 6-2: Historic Drill Collar Location Map Cinabrio – San Andres 2004-2020



Source: Xiana Mining Inc. NI 43-101 Technical Report (2018)

The operation was placed on "care and maintenance" in April 2019 when Xiana Mining's Chilean subsidiary declared bankruptcy due to the rapid fall in copper prices.

In March 2021, BMR acquired the Punitaqui copper project which consists of a centralized process plant fed by four satellite copper zones -- San Andres, Cinabrio, Cinabrio Norte and Dalmacia. The Milagros and Los Mantos underground gold mines option was terminated in mid-2021 and the assets returned to HMC Gold. The last published Cinabrio operations reserve for the property was published by Glencore Plc on 31 December 2017, is shown on Table 6-3.

Table 6-3: Historic Reserve Statement by Glencore Plc. (31 December 2017))

Name of Operation	Attributable Interest	Mining Method	Commodity	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves	
Punitaqui	100%	UG/OC	Ore (Mt)	1.12	0.32	0.89	0.08	2.01	0.40
			Copper (%)	1.19	1.63	0.97	1.69	1.10	1.64
			Silver (g/t)	3.42	4.40	3.01	4.71	3.24	4.46

Source: Glencore Resources & Reserves Report (2017)

Cautionary Statement: The indicated and inferred resources are historical estimates and use the categories set out in NI43-101. These resources are effective as of December 31, 2017, as stated in July 2018 NI 43-101 Technical Report for Punitaqui Project Xiana Mining Inc. Given the source of the estimates, BMR considers them reliable and relevant for the further development of the Project; however, a qualified person has not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves, and the Company is not treating the historical estimates as current mineral resources or mineral reserves.

The Punitaqui mine has operated continuously from October 2010. The majority of the ore mined was from Cinabrio supplemented by "third party" ore purchases from local private operators. The production over this period is shown in Table 6-4 and Figure 6-3.

Table 6-4: Punitaqui Glencore Production 2010-2018

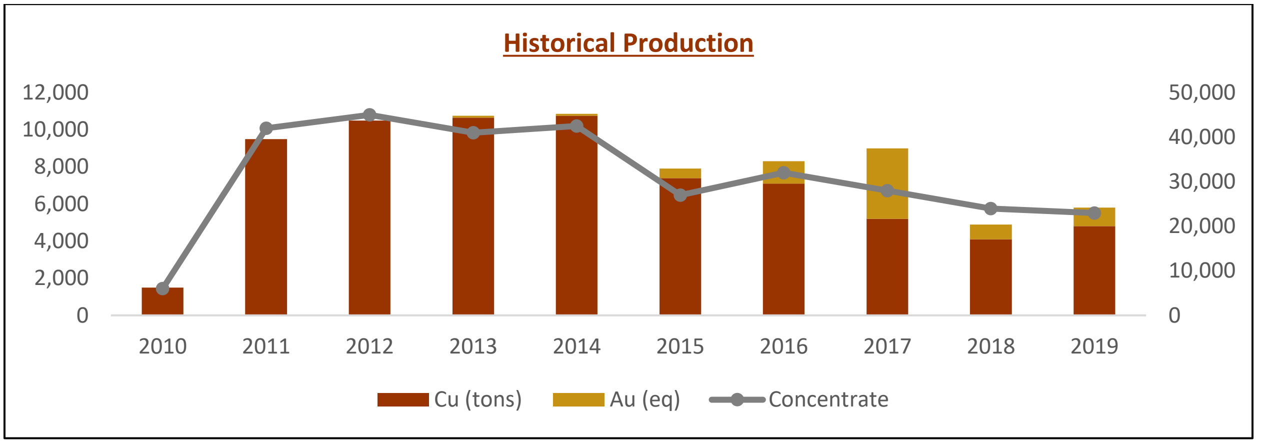
Year	Tonnes	%CuT	Ag ppm	Au ppm
2010	175,548	1.25		
2011	960,497	1.34	10.44	
2012	1,075,922	1.43	8.61	
2013	1,076,932	1.36	5.07	
2014	1,119,529	1.30	3.73	
2015	785,528	1.27	5.98	0.00
2016	1,028,709	0.95	3.50	0.45
2017	1,054,880	0.71	2.48	0.75
2018 (Q1)	65,327	0.91	3.63	0.26
Total	**7,342,872**	**1.19**	**5.46**	**0.17**

Source: Xiana Mining Inc. NI 43-101 Technical Report (2018)

Cautionary Statement: The indicated and inferred resources are historical estimates and use the categories set out in NI43-101. These resources are effective as stated in July 2018

NI 43-101 Technical Report for Punitaqui Project Xiana Mining Inc. Given the source of the estimates, BMR considers them reliable and relevant for the further development of the Project; however, a qualified person has not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves, and the Company is not treating the historical estimates as current mineral resources or mineral reserves.

Figure 6-3: Punitaqui Production: Glencore & Xiana Mining 2010-2019



Source: Kirkham (2022)

6.3 San Andres

The San Andres Copper zone is located 500 m southwest of the Cinabrio mine and the represents the fault offset upper portion of the Cinabrio deposit.

The presence of local mining workings comprising of trenches and shallow prospect pits confirm the area was worked by Pirquineros in the past targeting copper oxides.

In 2000, the National Mining Company (Enami) completed a limited exploration program targeting the copper sulphide potential at San Andres. Enami subsequently dropped the option.

In 2005, Tamaya Resources acquired the San Andres zone and added it to the Punitaqui mine complex.

In 2007, a ground geophysical induced polarization (IP) survey was completed on 250 m – 500 m spaced lines across the San Andres-Cinabrio area. The results of the IP survey line across the southern end of the San Andres zone identified a strong chargeability anomaly interpreted to represent potential extensions of the copper sulphide mineralization at depth and along strike. This geophysical work was followed by a 29 hole / 3,057 m initial RC drill test of the San Andres zone.

Significant results from the Tamaya drilling include:

- SA-07-38: 18 m at 0.68% Cu;
- SA-07-41: 34 m at 0.81% Cu;
- SA-07-42: 19 m at 1.29% Cu;
- SA-07-50: 9 m at 2.54% Cu; and
- SA-07-52: 5 m at 1.8% Cu & 5 m at 1.82% Cu.

Note: All intervals are downhole lengths.
(Tamaya Resources Internal Report March 2007 Unpublished)

Between 2011 – 2018 Glencore completed a limited follow-up reverse circulation (5 holes / 119 m) and diamond core drill program (13 holes / 2,607 m) prior to the Punitaqui sale.

Significant results of the Glencore drilling included:

- RC- P4: 10.5 m at 1.60% Cu;
- RC- P5: 6 m at 1.22% Cu;
- RC- P6: 9 m at 1.62% Cu;
- SAS-15-02: 6 m at 0.97% Cu and 8 m at 1.73% Cu;
- SAS-17-03: 5 m at 1.06% Cu and 3.4 m at 1.03% Cu;
- SAS-17-04A: 4 m at 2.12% Cu;
- SAS-17-05: 6 m at 1.74% Cu; and
- SAS-17-06: 8.50 m at 1.98% Cu and 8 m at 1.65% Cu.

Note: All intervals are downhole lengths.
(Source: Glencore Internal Reports)

In 2019-2020, Xiana's drilling focus was the San Andres zone (17 holes / 3,644 m). The Company developed portal access and completed one level of underground development.

Significant intercepts reported included:

- SAS-20-07: 15.9 m at 2.52% Cu;
- SAS-20-01: 10.1 m at 2.16% Cu; and

- SAS-20-08: 15.2 m at 1.74% Cu.

Note: All intervals are downhole lengths.
(Source: Xiana Internal Reports)

From 2007 – 2020 historic, wide-spaced RC & diamond core exploration drilling completed by the previous operators totaled 64 holes for 9,427 m.

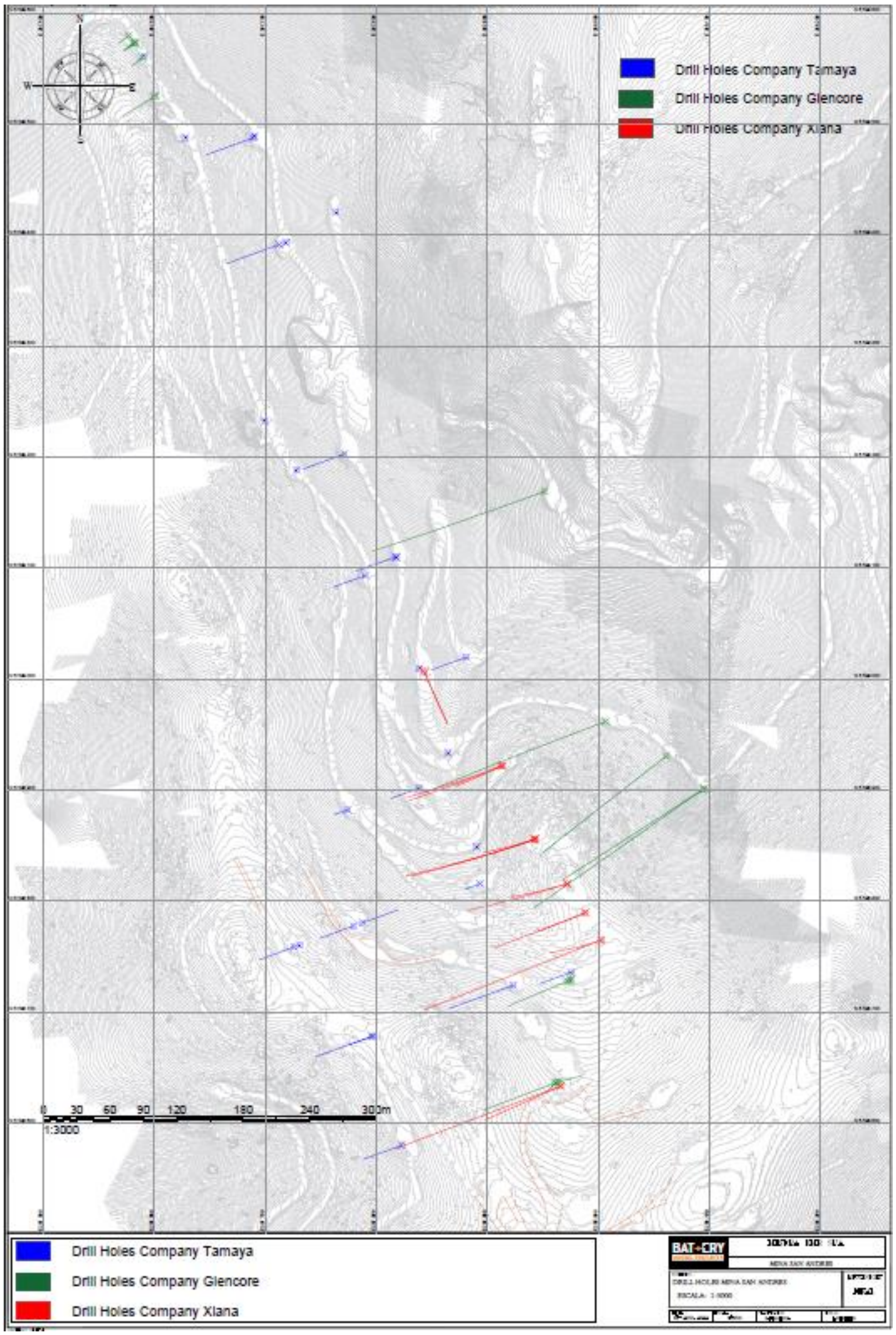
Historic drilling at the San Andres zone is summarized in Table 6-5 and Figure 6-4.

Table 6-5: San Andres Historical Drilling 2007-2020

Company	Drilling Type	Year	Holes Drilled	Meters
Tamaya	RC	2007	29	3,057
	Total RC		29	3,057
Glencore	DDH	2011	3	857
		2015	2	85
		2017	8	1,664
	Total DDH		13	2,607
	RC	2015	5	119
	Total RC		5	119
Xiana	DDH	2019	9	1,928
		2020	8	1,716
	Total DDH		17	3,644
Totals			**64**	**9,427**

Source: Kirkham (2022)

Figure 6-4: San Andres Historic Drill Collar Plan 2007 - 2020



Source: Kirkham (2022)

6.4 Dalmacia

The early history of the Dalmacia project is not well documented. The presence of local mining workings comprised of trenches and shallow prospect pits confirm the area was worked by Pirquineros in the past targeting copper oxides.

In 1981, geologist E. Fellemberg compiled a technical report entitled "Preliminary report of the mining properties of the Sabioncello and Lekaros Commercial Society." Unpublished. The report refers exclusively to exploration carried out and potential of the current Dalmacia Project.

Source: March 1996 Project Dalmacia Geological Report – SMP -Sociedad Minera Pudahuel Ltda.

In 1990, geologists M. Maturana and M. Vergara visited Dalmacia and documented their findings in a report entitled "Dalmacia mine field visit report for Comihuel Ltda. (Unpublished). The report highlighted copper potential at Dalmacia and recommended additional exploration work and drilling.

In 1992, consulting geologist R. H. Sillitoe conducted a limited field visit and property evaluation that was documented in an internal memorandum entitled: "Inspection of Carmela 11. Dalmacia. Estacas and Marisol Copper/Gold Prospects. Regions III and IV. Chile". SMP Ltda. y Cía. C.P.A. (Unpublished). Sillitoe noted the relationship between the copper mineralization with biotite-actinolite alteration of the andesites, a product of hydrothermal alteration. He estimates the presence of a mineralized body with "several million tonnes" of potential.

Also in 1992, geologist M. Perez conducted a field sampling program at Dalmacia that confirmed the presence of significant higher-grade copper (>1% Cu) in the walls of surface workings that he recorded in "Sampling of the pit boxes of the Dalmacia mine" for SMP Ltda. y Cía. C.P.A. (Unpublished). The work allowed establishing grades higher than 1% Cu in the walls of the pits and inferring higher grades for the bodies.

In 1993-1994, a 49-hole reverse circulation "RC" holes (10,017 m) program was completed under the supervision of Geologists M. Vergara. M. Perez. and J. Fuenzalida and results compiled in a report entitled "Dalmacia Project. Drilling Campaign Results" for SMP Ltda. y Cía. C.P.A. (Unpublished). The report identifies potential for an "Inferred" geological resource and recommended follow-up drilling.

Geophysical contractor Geodatos completed an 11 line – 22 line km ground magnetic survey at Dalmacia in 1994 that was detailed in a summary report entitled "Ground Magnetic Survey. Dalmatia Project" (Unpublished). The magnetic survey detected the presence of high-intensity anomalies in andesitic rocks with a higher magnetic susceptibility than intrusive rocks. However, no correlation was observed between the anomalies and the mineralized zones.

In 2007, Tamaya Resources through its local subsidiary Compañia Minera Punitaqui contracted Wellfield Services Ltda to conduct ground magnetics and induced polarization surveys. CMP then completed a follow-up RC drilling program (49 holes/10,017 m).

Significant intercepts resulting from the Tamaya RC program included:

- DAL-07-04: 9 m at 1.9% Cu and 8 m at 1.1% Cu;
- DAL-07-07: 8 m at 2% Cu, 5 m at 1.67% Cu and 12 m at 1.16% Cu;
- DAL-07-09: 29 m at 1.3% Cu;
- DAL-07-10: 19 m at 1.5% Cu and 6 m at 1.93% Cu;
- DAL-07-11: 13 m at 1.12% Cu;
- DAL-07-12: 16 m at 1.52% Cu;
- DAL-07-18: 21 m at 2.56% Cu;
- DAL-07-19: 14 m at 1.20% Cu;
- DAL-07-20: 11 m at 1.32% Cu;
- DAL-07-28: 25 m at 1.45% Cu;
- DAL-07-32: 18 m at 2.08% Cu; and
- DAL-07-38: 16 m at 1.24% Cu.

Note: All intervals are downhole lengths.
(Source: Tamaya Resources Press Release January 22, 2008)

Between 2011 – 2018, Glencore developed a portal underground access and completed limited level development. At total of 127 diamond core holes were drilled totaling 31,235 m.

Significant results from the Glencore drilling include:

- DS-11-02: 17.9 m at 1.34% Cu and 28.5 m at 1.60% Cu;
- DS-12-08: 9.7 m at 1.39% Cu;
- DS-12-12: 10.3 m at 1.48% Cu;
- DS-12-15: 25.8 m at 1.79% Cu and 17.3 m at 1.30% Cu;
- DS-12-20: 7.5 m at 1.76% Cu and 21 m at 1.09% Cu;
- DS-13-05: 9.0 m at 1.62% Cu and 13.5 m at 1.77% Cu;
- DS-14-12: 20 m at 1.52% Cu;
- DS-14-13: 26 m at 1.23% Cu;

- DS-14-14: 15 m at 1.14% Cu; and
- DS-14-16: 24 m at 1.10% Cu and 18 m at 1.02% Cu.

Note: All intervals are downhole lengths.
(Source: Glencore Internal Unpublished reports)

The Dalmacia exploration drilling has been completed at a grid spacing of 25 m x 25 m in the north and 15 m x 15 m in the south. In total, 225 drill holes (98 RC holes and 127 DC holes) have been drilled for a total of 52,725 m.

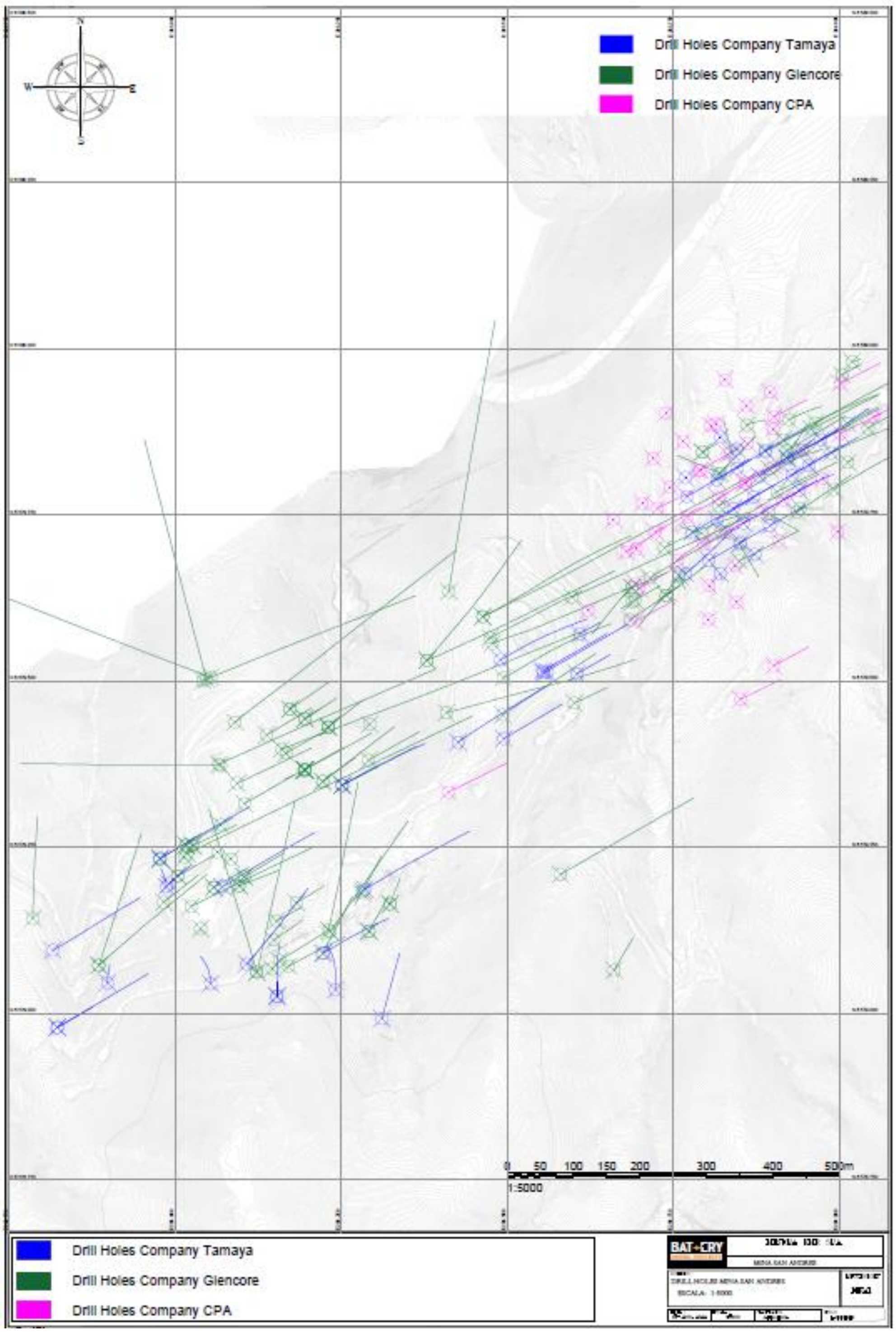
Historic drilling at the Dalmacia zone is summarized in Table 6-6 and Figure 6-5.

Table 6-6: Dalmacia Historical Drilling 1993 - 2018

Company	Drilling Type	Year	Holes Drilled	Meters
CPA	RC	1993	25	4,848
		1995	24	5,169
	Total RC		49	10,017
Tamaya	RC	2007	24	5,035
		2008	25	6,438
	Total RC		49	11,473
Glencore	DC	2011	15	4,397
		2012	25	10,751
		2013	14	5,625
		2014	20	3,957
		2016	5	553
		2017	41	5,042
		2018	7	910
	Total DC		127	31,235
Totals			**225**	**52,725**

Source: Kirkham (2022)

Figure 6-5: Dalmacia Historic Drill Collar Plan 1993 - 2018



Source: Kirkham (2022)

6.5 Cinabrio Norte

The Cinabrio Norte target represents the northern extension of the main Cinabrio orebody. Cinabrio Norte is located 110 m north of the existing Cinabrio Underground workings.

Like Cinabrio mine area to the south the Cinabrio Norte zone hosts local mining surface workings comprising of trenches and shallow prospect pits that confirm the area was worked by Pirquineros in the past targeting copper oxides.

Between 2007- 2010, Tamaya Resources completed a limited 10 RC hole drill program (2,112 m) targeting Cinabrio Norte zone.

Significant results reported include:

- CNN-R-08-09: 5 m at 1.39% Cu;
- CNO-08-03: 5 m at 0.33% Cu;
- CNO-08-09: 2 m at 1.05% Cu;
- CNO-08-10: 2 m at 0.43% Cu; and
- CNO-08-12: 6 m at 1.14% Cu.

Note: All intervals are downhole lengths.
(Source: Tamaya Resources Internal Reports)

The next phase of exploration drilling was a follow-up program by Glencore during which 7 diamond core holes were drilled totaling 1,433 m.

Significant results from the Glencore drilling include:

- CS-0-15-01: 2 m at 1.31% Cu;
- CS-0-15-02: 1 m at 0.85% Cu and 3.00 m at 1.21% Cu; and
- CS-0-15-06: 1 m at 2.74% Cu and, 4.2 m at 0.61% Cu.

Note: All intervals are downhole lengths.
(Source: Glencore Internal Reports)

In 2020, Xiana Mining drilled a 4 diamond core holes totaling 807 m. The first Hole CNS-20-01 was drilled to the north completely within the targeted stratigraphic unit “TSU” that is the principal ore host at the Cinabrio mine. The hole intersected in multiple mineralized intervals and, most importantly, confirmed the presence of TSU for over 200 m of strike length with anomalous copper sulphide mineralization at Cinabrio Norte.

Significant Drill Intercepts reported include:

- CNS-20-01: 5 m at 1.11% Cu and 13 m at 0.75% Cu;
- CNS-20-02: 3 m at 0.91% Cu; and
- CNS-20-04: 8 m at 0.98% Cu.

Note: All intervals are downhole lengths.
(Source: Xiana Mining Internal Reports)

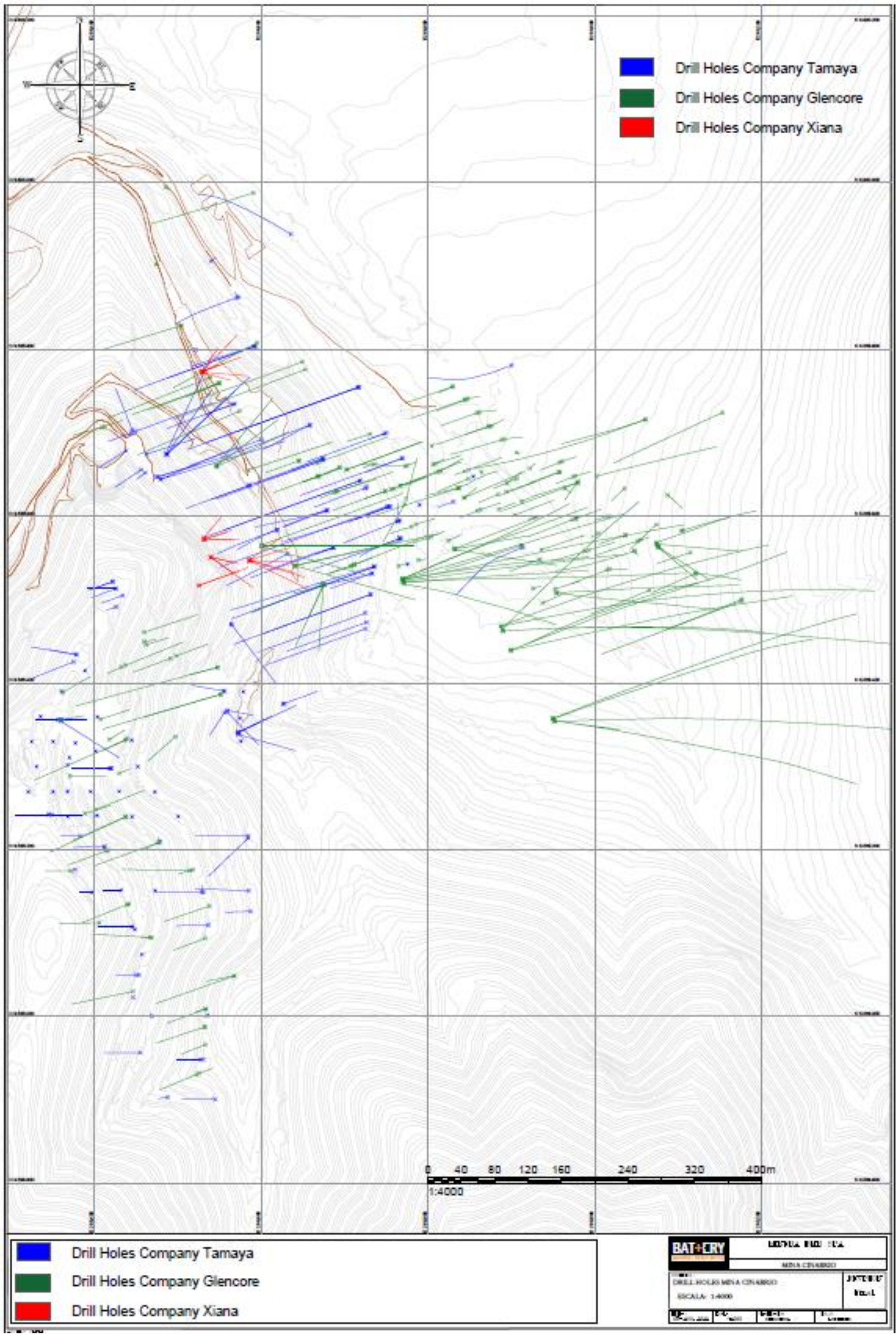
Historic drilling at the Cinabrio Norte zone is summarized in Table 6-7 and Figure 6-6.

Table 6-7: Cinabrio Norte Historical Drilling 2004-2020

Company	Drilling Type	Year	Holes Drilled	Meters
Tamaya	RC	2004	1	76
		2005	2	295
		2008	7	1,741
	Total RC		10	2,112
Glencore	DDH	2011	1	242
		2015	6	1,191
	Total DDH		7	1,433
Xiana	DDH	2020	4	807
	Total DDH		4	807
Totals			**21**	**4,352**

Source: Kirkham (2022)

Figure 6-6: Cinabrio Mine – Cinabrio Norte Historic Drill Collar Plan 2004 - 2020



Source: Kirkham (2022)

6.6 Historic Quality Assurance and Quality Control Program

6.6.1 Historic QAQC Program Overview

A detailed QA/QC study was undertaken by Glencore in December 2015 to evaluate the quality control procedures carried out at the Cinabrio mine using channel and drill hole data assay results from 2011 to 2015. The details of the report are summarized in the following section. The study also compared the results from the primary laboratory (MAP laboratory) and the external laboratory (ALS Chemex).

The study only looked at samples generated by Glencore since they acquired the project in 2011 which amounted to 17,124 samples out of a total of 30,594; only 13,470 samples were generated by the Punitaqui Mining Company prior to 2011. A breakdown of the samples evaluated in the study is shown in Table 6-8.

Table 6-8: Summary of Sampling by Glencore MAP – Punitaqui Mining Complex

Type of Samples		Glencore	ALS Chemex	Total	%	Total Samples
Drilling	Originals	6,697	2,503	9,200		11,766
	Coarse Duplicates	683	247	930	10%	
	Blanks	352	170	522	6%	
	Pulp Duplicates	1,114		1,114	12%	
Channels	Originals	4,154	253	4,407		5,358
	Coarse Duplicates	360	18	378	9%	
	Pulp Duplicates	284	-	284	6%	
	Blanks	275	14	289	7%	
Standards		24	7	31	1%	
Total Samples						17,124

Source: NI 43-101 Tech Report – Xiana Mining (2018)

The QA/QC undertaken at the Punitaqui on-site mine laboratory consisted of using both pulp and coarse reject duplicates, blanks and standard samples as summarized in Table 6-9.

Table 6-9: Historic MAP Laboratory Samples Summary

Type of Samples		MAP	Percent (%)	Total Samples
Drilling	Originals	6,697	-	8,846
	Coarse Duplicates	683	10	
	Blanks	352	5	
73 Channels	Originals	4,154		5,073
	Coarse Duplicates	360	9	
	Pulp Duplicates	284	7	
	Blanks	275	7	
Standard Samples		24	1	24
Total Samples		13,943		13,943

Source: NI 43-101 Tech Report – Xiana Mining (2018)

6.6.2 Historic QAQC Channel Samples

A total of 919 QA/QC channel samples were analyzed, of which 360 were coarse reject duplicates, 284 were pulp duplicates and 275 were blanks.

6.6.2.1 Historic MAP Channel Sampling Coarse Reject Duplicates

Duplicates help to assess the natural local grade variance as well as detecting any laboratory error. The coarse reject duplicates typically have a lower precision than the pulp duplicates, as the pulps have the finest grain size and are the most homogenized. A summary of the statistics for the coarse reject duplicates is shown in Table 6-10.

Table 6-10: Summary of Coarse Reject Duplicate Data for Channel Samples

Statistics	Original		Duplicate		Difference	
	Copper CuT	Silver Ag	Copper CuT	Silver Ag	Copper CuT	Silver Ag
Number of Samples	360	360	360	360	360	360
Minimum	0.00	0.50	0.00	0.50	-2.53	-18.73
Maximum	12.52	85.63	5.21	90.25	11.46	58.98
Average	1.02	6.51	0.96	6.02	0.06	0.49
Standard Deviation	1.27	11.50	1.08	10.22	0.82	5.31
Student T Test	-	-	-	-	1.30	1.74
Average Difference (%)	5.54%	7.48%	-	-	-	-

Source: NI 43-101 Tech Report – Xiana Mining (2018)

The percentage difference between the average of the original samples and duplicate samples is less than 6% for the copper and less than 8% for the silver which is acceptable.

6.6.2.2 Historic MAP Channel Sampling Pulp Duplicates

A total of 284 channel sample pulp duplicates were analyzed and a summary of the comparison results are shown in Table 6-11.

Table 6-11: Summary of Fine Duplicate Data for Channel Samples

Statistics	Original		Duplicate		Difference	
	Copper CuT	Silver Ag	Copper CuT	Silver Ag	Copper CuT	Silver Ag
Number of Samples	284	284	284	284	284	284
Minimum	0.00	0.50	0.00	0.50	-0.16	-19.60
Maximum	5.47	59.70	5.28	61.60	0.54	5.50
Average	0.60	4.11	0.59	4.09	0.00	0.02
Standard Deviation	1.11	9.25	1.10	10.02	0.05	1.78
Student T Test	-	-	-	-	1.57	0.22
Average Difference (%)	0.81%	0.57%	-	-	-	-

Source: NI 43-101 Tech Report – Xiana Mining (2018)

The average percentage for both copper and silver is less than 1% which is acceptable.

6.6.2.3 Historic MAP Channel Sampling - Blanks

The regular submission of blanks is used to assess potential contamination during sample preparation. Blanks have been used since Glencore acquired the project. The material used as blanks was sourced from rocks in the region which correspond to known low-grade material. The acceptable tolerance has been set as the standard deviation plus twice the average of the entire population. Table 6-12 summarizes the results of the blank samples.

Table 6-12: Summary of Blank Samples Inserted with Channel Samples

Summary		Copper CuT	Silver Ag
2011	Number of Samples	34	34
	Number Contaminated	2	0
	Percent Contamination	6	0

Summary		Copper CuT	Silver Ag
2012	Number of Samples	80	80
	Number Contaminated	5	4
	Percent Contamination	6	5
2013	Number of Samples	69	69
	Number Contaminated	4	0
	Percent Contamination	6	0
2014	Number of Samples	76	76
	Number Contaminated	4	0
	Percent Contamination	5	0
2015	Number of Samples	16	16
	Number Contaminated	2	0
	Percent Contamination	13	0
Total	Number of Samples	275	275
	Number Contaminated	17	4
	Percent Contamination	6	1

Source: NI 43-101 Tech Report – Xiana Mining (2018)

In general, the contamination was below 10% which is considered acceptable.

6.6.3 Historic MAP Drill core QAQC

6.6.3.1 Historic MAP Drill core Blanks

The regular submission of blanks is used to assess potential contamination during sample preparation. The material used as blanks were sourced from rocks in the region which correspond to known low-grade material. The acceptable tolerance has been set as the standard deviation plus twice the average of the entire population.

Table 6-13 summarizes the results of the blank samples inserted with drill hole samples.

Table 6-13: Summary of Blank Sample Results Inserted with Drill Hole Samples

Summary		Copper CuT	Silver Ag
2011	Number of Samples	117	117
	Number Contaminated	6	1
	Percent Contamination	5	1

Summary		Copper CuT	Silver Ag
2012	Number of Samples	86	86
	Number Contaminated	9	16
	Percent Contamination	10	19
2013	Number of Samples	107	107
	Number Contaminated	0	0
	Percent Contamination	0	0
2014	Number of Samples	22	22
	Number Contaminated	1	0
	Percent Contamination	5	0
2015	Number of Samples	20	20
	Number Contaminated	4	0
	Percent Contamination	20	0
Total	Number of Samples	352	352
	Number Contaminated	20	17
	Percent Contamination	6	5

Source: NI 43-101 Tech Report – Xiana Mining (2018)

In general, the contamination was below 10%.

6.6.3.2 Historic MAP Certified Reference Material Analysis – Standard Samples

Three types of standard samples were used consisting of low, medium, and high-grade samples which are summarized in Table 6-14.

Table 6-14: List of Standard Samples Analyzed by the MAP Laboratory

Standard	Certified Grade						
	Copper CuT (%)	Silver Ag (ppm)	Arsenic As (ppm)	Nickel Ni (ppm)	Zinc Zn (ppm)	Lead Pb (ppm)	Cobalt Co (ppm)
GBM311-10	1.7334	3.8	40	31	841	505	65
GBM910-6	0.5335	7.1	80	117	1249	592	86
GBM910-7	1.0084	3.6	117	44	907	173	131

Source: NI 43-101 Tech Report – Xiana Mining (2018)

To check the accuracy of the MAP laboratory, control charts were generated showing the confidence limits of 95% and 99% where:

- Upper Limit 99% = average grade + 3 standard deviations;
- Upper Limit 95% = average grade + 1.96 standard deviations;
- Lower Limit 95% = average grade - 1.96 standard deviations; and
- Lower Limit 99% = average grade - 3 standard deviations.

The standard sample analyses in the MAP laboratory were all were within the 95% confidence interval.

6.6.4 Historic MAP Third-Party Check Sampling - ALS Chemex Laboratory

The same QA/QC procedures applied in the MAP laboratory were replicated for the samples sent to the external independent laboratory, ALS Chemex. A combination of coarse reject duplicates, blanks and standards were used and are summarized in Table 6-15.

Table 6-15: Summary of Samples Sent to ALS Chemex Laboratory

Type of Samples		ALS Chemex	Percent (%)	Total Samples
Drilling	Originals	2,503		2,920
	Coarse Duplicates	247	10	
	Blanks	170	7	
Channels	Originals	253		285
	Coarse Duplicates	18	7	
	Blanks	14	6	
Standard Samples		7	1	7
Total Number of Samples		3,212		3,212

Source: NI 43-101 Tech Report – Xiana Mining (2018)

As the majority of channel samples are analyzed at the MAP laboratory, only the results for the drill hole samples were included in the study.

6.6.5 Historic MAP Drilling QAQC

A total of 417 drill hole samples were evaluated, of which 247 were coarse duplicates and 170 were blanks. Table 6-16 summarizes the results of the drill hole coarse duplicates analyzed by ALS Chemex

6.6.5.1 Historic MAP Drilling - Coarse Duplicates

Table 6-16: Summary of Drill Hole Coarse Duplicates Sent to ALS Chemex

Statistics	Original		Duplicate		Difference	
	Copper CuT	Silver Ag	Copper CuT	Silver Ag	Copper CuT	Silver Ag
Number of Samples	247	247	247	247	247	247
Minimum	0.00	0.50	0.00	0.50	-2.53	-74.90
Maximum	7.89	34.70	8.23	100.00	2.31	11.40
Average	0.85	3.38	0.84	3.67	0.01	-0.29
Standard Deviation	1.22	6.00	1.20	8.37	0.29	4.94
Student T Test	-	-	-	-	0.45	-0.92
Average Difference (%)	0.97	-8.56	-	-	-	-

Source: NI 43-101 Tech Report – Xiana Mining (2018)

The percentage difference between the average of the original samples and duplicate samples is less than 1% for the copper and less than 9% for the silver which is acceptable.

6.6.5.2 Historic MAP Drilling – Blanks

Table 6-17 summarizes the results of the blank samples sent to ALS Chemex.

Table 6-17: Summary of Blank Sample Results Sent to ALS Chemex

Summary		Copper CuT	Silver Ag
2011	Number of Samples	46	46
	Number Contaminated	3	2
	Percent Contamination	7	4

Summary		Copper CuT	Silver Ag
2012	Number of Samples	8	8
	Number Contaminated	0	2
	Percent Contamination	0	25
2013	Number of Samples	10	10
	Number Contamination	0	1
	Percent Contaminated	0	10
2014	Number of Samples	106	106
	Number Contaminated	6	6
	Percent Contamination	6	6
Total	Number of Samples	170	170
	Number Contaminated	9	11
	Percent Contamination	5	6

Source: NI 43-101 Tech Report – Xiana Mining (2018)

In general, the contamination was below 10%.

6.6.5.3 Historic MAP Drilling Standard Samples

Only one standard sample was sent to the ALS Chemex laboratory as summarized in Table 6-18.

Table 6-18: Standard Sample Analysis (GBM910-6)

Standard	Certified Grade						
	Copper CuT (%)	Silver Ag (ppm)	Arsenic As (ppm)	Nickel Ni (ppm)	Zinc Zn (ppm)	Lead Pb (ppm)	Cobalt Co (ppm)
GBM910-6	0.5335	7.1	80	117	1249	592	86

Source: NI 43-101 Tech Report – Xiana Mining (2018)

To check the accuracy of the MAP laboratory, control charts were generated showing the confidence limits of 95% and 99% where:

- Upper Limit 99% = average grade + 3 standard deviations;
- Upper Limit 95% = average grade + 1.96 standard deviations;
- Lower Limit 95% = average grade - 1.96 standard deviations; and

- Lower Limit 99% = average grade - 3 standard deviations.

The standard samples analyzed in the ALS Chemex laboratory were all within the 95% confidence interval.

6.6.6 Historic MAP - ALS Chemex Laboratory Comparison

To check the control between the two laboratories, 1,114 sample pulps prepared and analyzed in the MAP laboratory were sent to ALS Chemex with the comparison results shown in Table 6-19.

Table 6-19: Summary of Laboratory Analysis by MAP & ALS Chemex of Drill Sample Pulps

Statistics	MAP Laboratory	ALS Chemex	Difference
	Copper CuT	Copper CuT	Copper CuT
Number of Samples	1114	1114	1114
Minimum	0.00	0.00	-1.57
Maximum	12.25	12.00	1.92
Average	0.92	0.92	0.00
Standard Deviation	1.12	1.10	0.14
Student's T-Test	-	-	-0.06
Average Differences (%)	0.03	-	-

Source: NI 43-101 Tech Report – Xiana Mining (2018)

The percentage difference between the average of the original samples and duplicate samples is less than 1% for both copper and silver. Overall conclusions from the QA/QC study are as follows:

- Analyses of duplicates show good precision, indicating that protocols used for sample preparation and assaying were adequate;
- Analyses of standards used during exploration show good accuracy;
- Analyses of blanks show no serious contamination problems between samples; and
- Analyses of samples sent to the external laboratory showed good correlation and confirmed that the MAP laboratory copper and silver assays were reliable with no significant biases evident.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Introduction

7.1.1 Northern Chile Regional Geological Setting

Globally, northern Chile is one of the world's most well-endowed mineral districts. Chile is the world's leading copper producer accounting for about 28 percent of global copper production. In 2020, the Chiles's copper mines produced 5.73 Mt of copper valued at about USD$44 billion (Government of Chile - Chilean Copper Commission (www.cochilco.cl).

Chile's gold mines are an important contributor to global gold production with of about 34 Mt of gold in 2020 (Government of Chile - Chilean Copper Commission www.cochilco.cl). Most gold production in Chile is a by-product of the copper industry however, there are several important primary gold producers including the El Peñon, El Guanaco and La Florida mines. Recent developments and exploration successes such as Gold Fields Salares Norte project, Tesoro Resources El Zorro Project, Fenix Gold Rio 2 Project (Government of Chile (www.mineriachilena.cl).

The metallogenic endowment of northern Chile is strongly influenced by the fact the country has been situated along an active tectonic plate margin since the early Jurassic. Subduction of the Pacific plate under the South American plate has resulted in the creation of a series of north-south striking volcanic arcs. Major north-south trending strike-slip and crosscutting northwest-southeast to east-west striking transform faults act as fluid conduits and are critical controls for the formation of mineral deposits. The locations of the principal mining projects and operations in Central and Northern Chile are presented in Figure 7-1.

The geology of northern and central Chile is characterized by north-south striking belts of volcanic and sedimentary rocks that go from west to east and that range from the Paleozoic to the Miocene in age. These rocks are intruded by Jurassic, Cretaceous, and Tertiary batholiths and are aligned with large north-south striking fault systems, among which the Atacama fault system located in the Cordillera de la Costa and the West fault system located in the pre-mountain range are most prominent. This geological setting hosts copper, gold, and iron deposits including Iron Oxide Copper-Gold (IOCG), strata-bound, copper-molybdenum porphyry, epithermal gold, mesothermal veins, and skarn style orebodies.

Figure 7-1: Principal Mining Projects and Operations in Central and Northern Chile

Source: After Sernageomin-PNG Chile PDAC (2018)

7.1.2 Regional Geology

The regional bedrock geology of the Punitaqui-Ovalle region consists of a Jurassic to lower Cretaceous age sequence of volcanic rocks (lavas, conglomerates and andesitic breccias) with interbedded marine sediments (shales, fossiliferous limestones, and thin layers of sandstones). This sequence is assigned the name “Estratos El Reloj” formation of lower Cretaceous age and has been locally intruded by dioritic to granodioritic rocks of Upper Cretaceous age. Andesitic to dacitic dykes ranging in age from Cretaceous to Tertiary are common in the region. The lower elevations in the region are commonly covered by Quaternary alluvial deposits which locally extensively obscure the underlying Mesozoic bedrock.

Manto style copper mineralization at Punitaqui is hosted by a regionally extensive marine sedimentary rock unit within an andesitic volcanic sequence. The sedimentary rock unit is comprised of dark-coloured shales, volcanoclastic sandstones, volcanoclastic sedimentary breccia and conglomerates and fossiliferous limestones.

The structural framework of the district is the result of stress and compression forces which is reflected in a north-south, northwest, and east-west orientation tectonics. The regional structural fabric is a critical control on copper mineralization. The sedimentary unit is deformed and rotated by extensional faulting resulting in multiple structural repetitions of the mineralized sedimentary stratigraphy. The stratigraphy has been consistently rotated to the east resulting in a north-south striking east dipping sequence.

The Punitaqui region hosts IOCG type mineralization, manto style copper mineralization, and mesothermal vein hosted copper and lode style, narrow vein gold mineralization. In northern Chile manto style mineralization is the most economically significant. The Cinabrio mine and San Andres resource, Dalmacia resource and the Cinabrio Norte resource target are manto style copper occurrences.

Mineralization occurs as impregnations and/or disseminations in all strata affected by pre-existing fractures and minor faults within which economic mineralization is structurally controlled occurring as vertical feeders. Mineralization is variable and believed to be controlled by mineralizing fluids focused along structures within the footwall rocks. Typical mineral assemblage includes chalcopyrite, bornite and the gangue includes pyrite, calcite, and quartz. In the oxide and transition zones (nominally 40 m to 60 m but quite variable) malachite, azurite, chrysocolla and native copper are common.

Primary sulphide mineralization consists of pyrite, chalcopyrite and bornite with higher grade zones comprised dominantly of chalcopyrite-bornite. Syngenetic pyrite is a common constituent of the sedimentary unit.

Three types of wallrock alteration associated with these manto -style mineralization include:

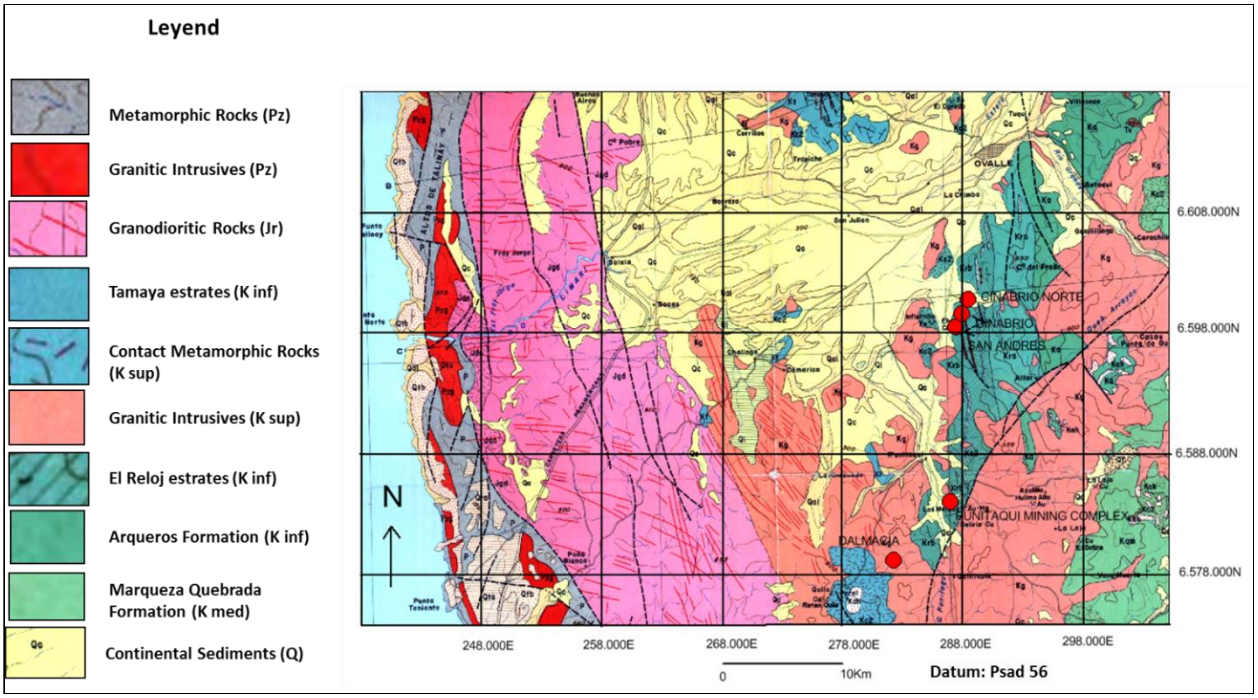
- Silicification and sericite alteration;
- Silicification with potassic alteration including epidote and specularite; and
- Silicification and sericite alteration with strong tourmaline alteration.

Alteration intensity can be quite variable but is commonly pervasive in the sedimentary sequence.

In the feeder/ stringer zones of the basal andesitic sequence, copper mineralization comprising mostly bornite is associated with potassic alteration, silicification and occasional epidote. These feeder structures appear to be a structural network that also caused the initial depressions that were filled with the chemically favourable host sequence. They were later reactivated during compression that was a catalyst for the copper deposition from metal bearing fluids into the sequence along these structures.

The Coastal Cordillera of Chile hosts several IOCG type Cu-Au deposits including Candelaria, Mantos Blancos, Manto Verde, and El Soldado. The "Iron Belt" of Chile also hosts a number of smaller sized IOCG deposits of Lower Cretaceous age including the Panulcillo and Teresa de Colmo mines. The regional geology is shown in Figure 7-2.

Figure 7-2: Regional Geologic Map around Ovalle Region



Source: Geological Investigation Institute – Chile, Hebert Tomas (1967)

7.1.3 Stratigraphy

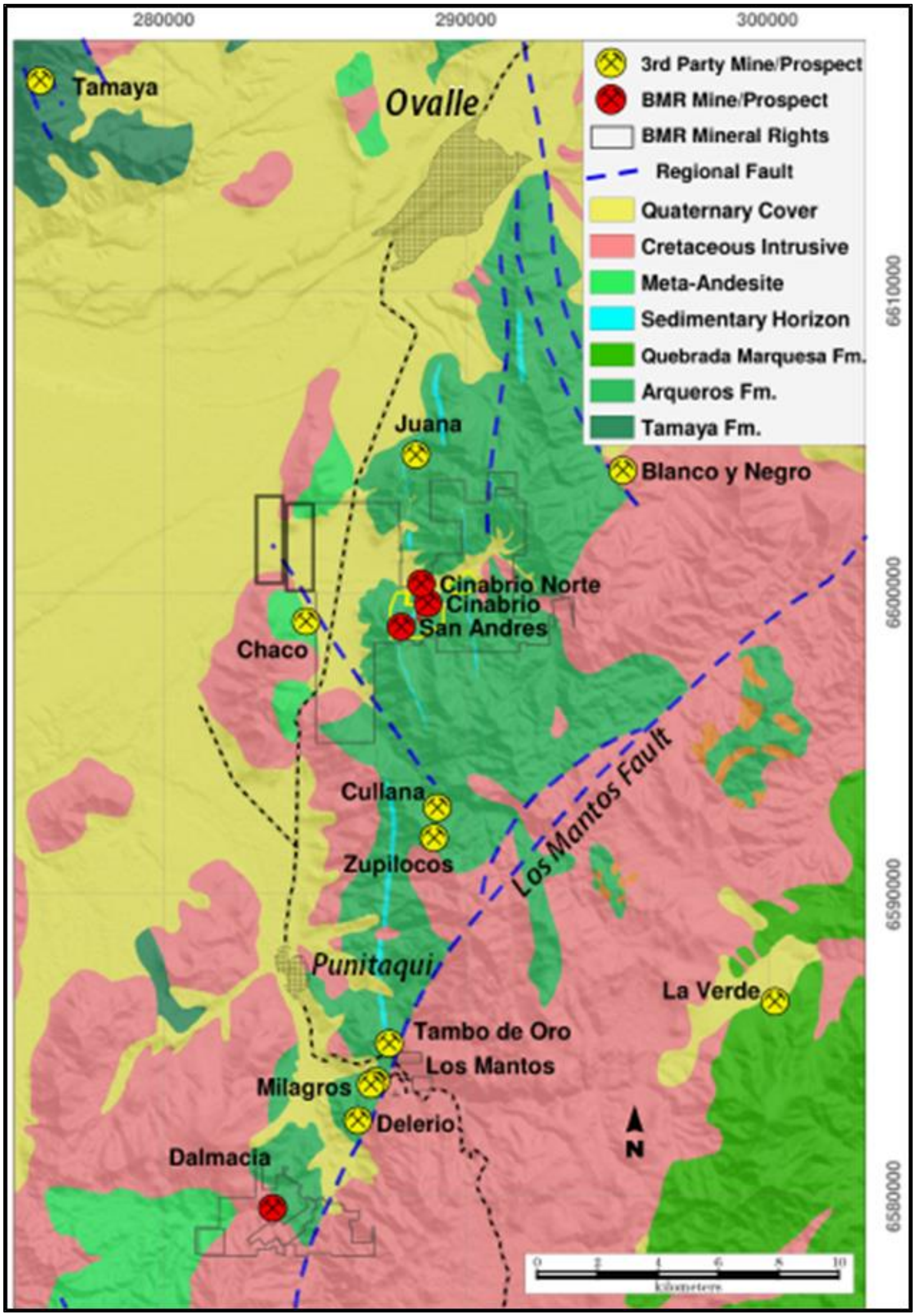
This region is underlain by rocks that form part of a Mesozoic synclinorium, developed from meridian 71º 25' to the eastern limit of the Ovalle mapsheet, which span in age from Upper Mesozoic to Lower Tertiary. In and around the Punitaqui mining complex area, the outcropping sequence of volcanic and sedimentary rocks are of Lower Cretaceous age (Thomas, 1967), which are intruded by post-Neocomian granitic rocks from the Central Batholith. The regional stratigraphy comprises the following:

- Tamaya Strata (Early Cretaceous - Neocomian): Volcanic rocks (trachytes, rhyolites and ocoite andesites) and to a lesser extent by sedimentary rocks (red sandstones);
- Estratos del Reloj Strata (Neocomian): Breccias, andesites, ocoite andesites and limestone and red sandstones;
- Arqueras Formation (Neocomian): Porphyritic andesites and limestones, with minor intercalations of andesites, breccias, and tuffs;
- Quebrada Marquesa Formation (Upper Neocomian): Sequence of continental clastic sedimentary rocks, with minor andesites, breccias, and calcareous sandstones;
- Quaternary Deposits: Aeolian, talus (slope-rubble), fluvio-alluvial deposits; as well as gravel and sand deposits; and
- Diorite - Granite intrusives (Cretaceous): The formations described above are intruded by dioritic to granitic rocks (mostly granodiorities or diorites, and some tonalites).

7.1.4 Punitaqui Mining Complex Local Geology

Bedrock geology in the Punitaqui mining complex (Figure 7-3) consists of a sequence of volcanic and sedimentary rocks belonging to the Estratos del Reloj formation. This formation forms the host rock sequence for the Cinabrio deposit, the Cinabrio Norte resource, and the San Andres resource as well as the nearby privately owned project areas in which are located the La Cullana, Zupilocos and La Juana operations.

Figure 7-3: Local Geology Map Punitaqui Mining Complex



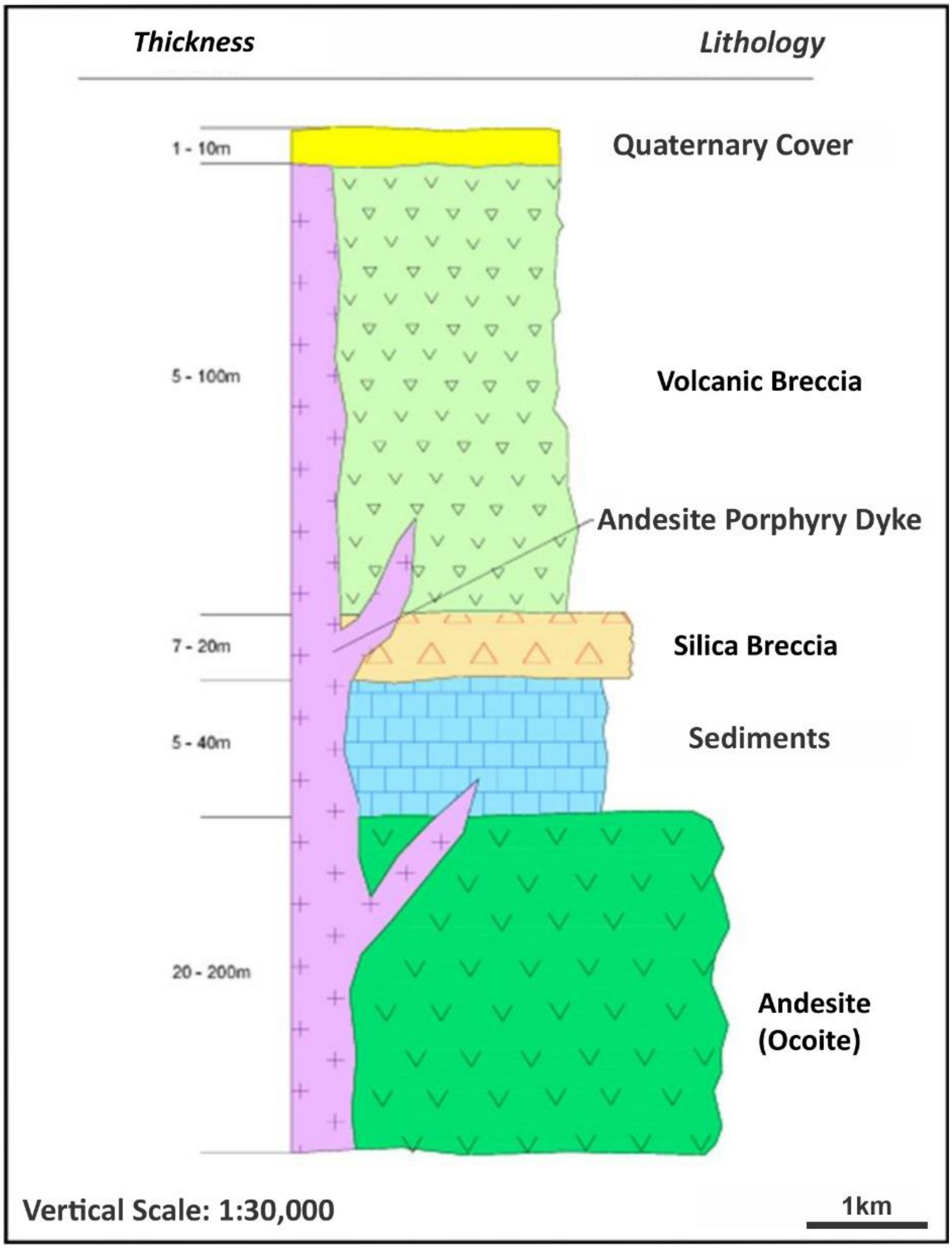
Source: Kirkham (2022)

Locally within this sequence, the following key lithological units have been identified:

- Volcanic breccia;
- Silicified breccia;
- Sedimentary rocks shales, limestones, and sandstones;
- Porphyritic andesite (ocoite); and
- Sequence is intruded by andesitic, dioritic and granodioritic dykes.

The key lithologies are displayed in Figure 7-4 and described below.

Figure 7-4: Stratigraphic Column Punitaqui Mining Complex



Source: Internal MAP - Glencore Report (2015)

7.1.4.1 Volcanic Breccia

Outcrops throughout the Punitaqui mining complex, with thickness varying between 5 m and 100 m. The volcanic breccia underlies the sedimentary sequence separated by an angular unconformity. It is an explosive volcanic sequence of breccias and andesitic volcanic conglomerates that grade to breccia flows.

The breccias are greenish-gray in colour due to moderate replacement of hornblende crystals by chlorite. They consist of subangular clasts of andesite up to 4 cm in diameter, in a medium to fine matrix of silica-andesitic composition. The volcanic conglomerates are dark green in colour due to weak propylitization comprising subangular to rounded clasts of diorite, granodiorite and andesite up to 15 cm in diameter, within a matrix of andesitic composition (see Figure 7-5).

Figure 7-5: Volcanic Breccia

Source: Kirkham (2022)

7.1.4.2 Sediments

Outcrop throughout the Punitaqui mining complex as dark gray to reddish coloured shale, limestone and sandstone exposures with well-developed laminar textures, fine and irregular to conchoidal fractures, and moderate silicification with calcite veining (see Figure 7-6). Thickness ranges from 10 m to 60 m.

Figure 7-6: Sedimentary TSU – Targeted Stratigraphic Unit

Source: Kirkham (2022)

7.1.4.3 Andesites and Coarse Porphyritic Andesite (Ocoíta)

Series of lava flows that grade from a microcrystalline texture to crowded porphyritic (ocoites) that underlie the sedimentary unit.

7.1.4.4 Andesites

Gray – brown coloured, fine porphyry texture, with 40% of plagioclase phenocrysts of varying sizes (0.3 mm – 2 mm) of andesine composition with 10% relict pyroxene crystals which have been totally replaced by amphibole (uralite). The groundmass is composed of an aggregate of quartz, biotite and hornblende (see Figure 7-7).

Figure 7-7: Andesite

Source: Kirkham (2022)

7.1.4.5 Coarse Porphyritic Andesites (Ocoita)

Andesites exhibit a crowded porphyritic texture with 50% of well-developed tabular phenocrysts in a groundmass of plagioclase. Plagioclase phenocrysts are larger than 0.5 cm with oligoclase-andesine composition and pyroxenes of augite composition are strongly amphibolitized (see Figure 7-8). Scapolite and actinolite are totally altered to sericite-quartz biotite. The groundmass is chlorite, quartz and biotite.

Figure 7-8: Coarse Porphyritic Andesites (Ocoita)

Source: Kirkham (2022)

7.1.5 Structural Setting: Structural Geology

The key structural features within the Punitaqui mining complex results from a series of extensional and compressive stresses that have produced a tectonic framework dominantly consisting of north-south, northwest-southeast and east-west structures. The regional and district structural controls are critical in the formation of the copper mineralization and often results in block faulting of the stratigraphy.

Larger vertical displacements and block rotations have been detected; also, reactivation of earlier normal dykes displacing lower members of stratigraphic formations in this region; the most important displacements caused by north-south trending regional scale faulting.

It is presumed that the mineralization is partly related to this faulting which caused fractures and minor faults that served as feeder channels through which the mineralized fluids circulated and migrated into permeable strata for mineral deposition. Figure 7-9 summarizes the tectonic evolution of the Punitaqui region which is divided into the following key stages:

1. Initial deposition of Arqueros formation volcanics, volcano-clastics and sediments in a volcano-clastic basin;

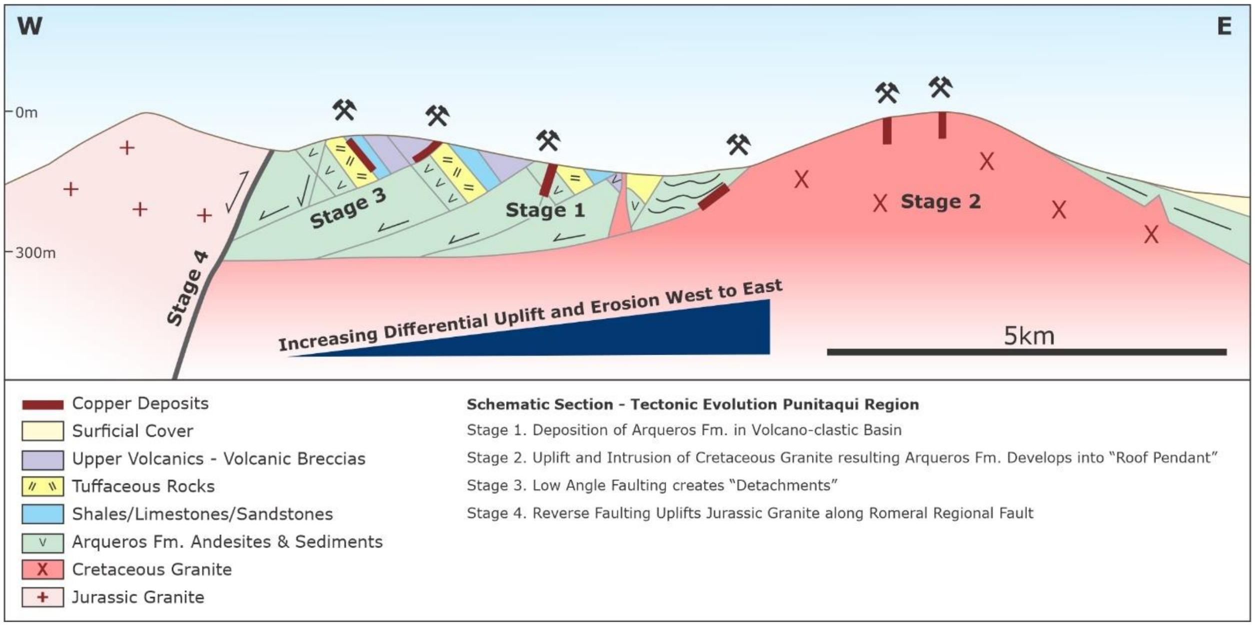
2. Uplift and intrusion of Cretaceous granite;

3. Low angle faulting of Arqueros formation; and

4. Reverse faulting uplifts Jurassic granite along Romeral regional fault.

The Cinabrio, San Andrés, Juana, Cullana, and Zupilocos copper mines are related to the same structural framework.

Figure 7-9: Structural Evolution Schematic Section - Punitaqui Mining Complex

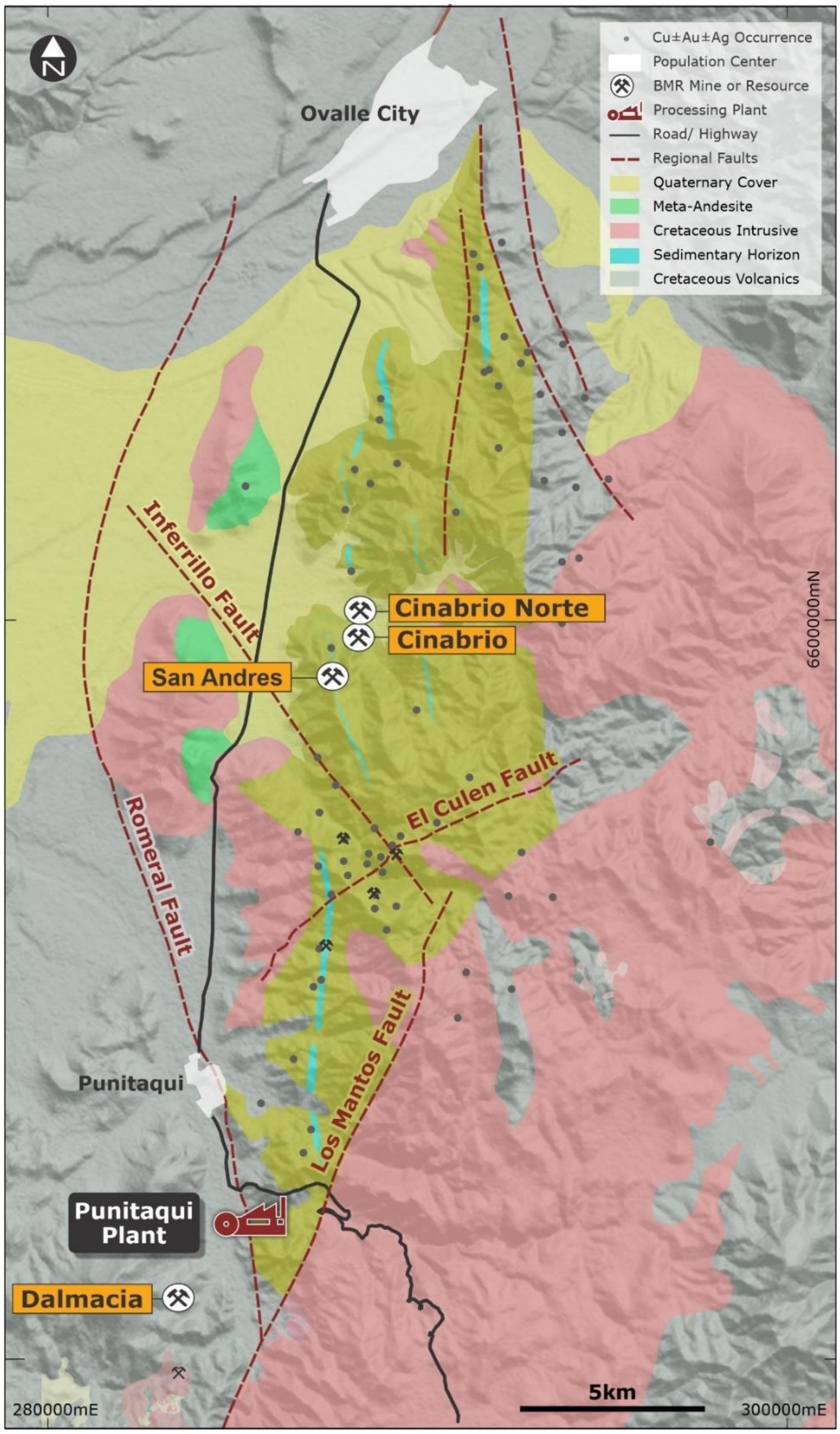


Source: Internal Report Xiana Mining Skarmeta (2019)

East-west and northwest-southeast striking faults are transverse structures associated with subduction normal to the arc that Corbett and Leach (1998) called thrust faults. In the Punitaqui region there are regional and local scale, normal and reverse faults with an east-west strike and variable dip from -20° to -85° to the south, resulting in deformation and displacement of the stratigraphic sequence.

A series of normal and reverse faults are responsible for large displacements of the stratigraphic sequence, these fault systems have a northwest-southeast direction, with a dip of -30° to the southwest (Geology & Key Structural Elements Ovalle – Dalmacia: Emparan, 1998, Geología del Area Ovalle – Peñablanca). Figure 7-10 details the Punitaqui mining complex geology and key structures.

Figure 7-10: Geology & Key Structural Elements Ovalle – Dalmacia Region



Source: Kirkham (2022)

7.1.6 Mineralization – Economic Geology

In Chile, the origin of stratabound manto style copper mineralization has been interpreted and debated variously in the past. The stratiform deposits were first considered to be non-genetic and of exhalative volcanic origin (Ruiz et al., 1965, 1967; Stoll, 1965), but currently their epigenetic origin is widely accepted, due to the subsequent discovery of discordant orebodies and the spatial relationship with stock, dykes and sills of the Upper Jurassic within the Cordillera de La Costa. Manto-type copper deposits occur in a number of geological settings;

1. Stratabound disseminated bodies;

2. Steep dipping hydrothermal breccias around barren;

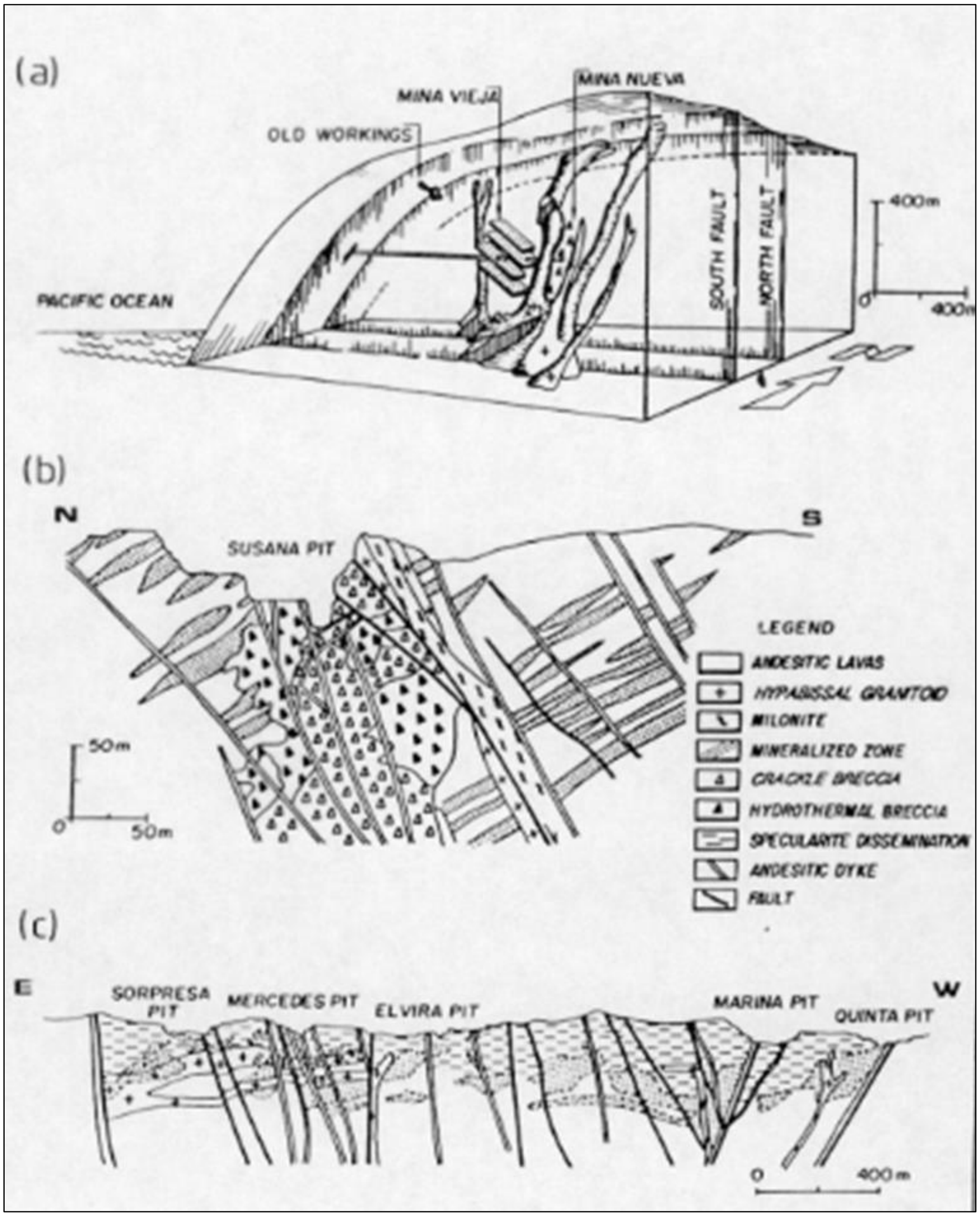
3. Finger-like gabbro to diorite intrusives; and

4. Vein systems within basaltic to andesitic arc volcanic sequences.

The manto-type deposits comprise a distinctive class of copper mineralization in the Coastal Cordillera of northern and central Chile (Sillitoe, 1992). The largest deposit in this class, Mantos Blancos, is unusual in that it is partly hosted by felsic volcanic rocks and intrusives. Broadly similar copper-silver deposits, including El Soldado, are widespread in the early Cretaceous volcanic and sedimentary rocks of the central Chile intra-arc basin.

Hydrothermal alteration associated with manto style deposits consist of assemblages of albite, chlorite, quartz, sericite, calcite, sphene, scapolite and anatase. Copper mineralization is generally disseminated style chalcopyrite and bornite within volcanic and sedimentary rocks (Palacios and Definis, 1981; Dreyer and Soto, 1985, Roquera, 1987, Espinoza et al., 1996). Figure 7-11 illustrates geological sections of three manto style copper deposits: a) Buena Esperanza; b) Carolina de Michilla; c) Manto Blanco

Figure 7-11: Schematic Geological Sections of Three Manto Style Copper Deposits



Notes:
a) Buena Esperanza;
b) Carolina de Michilla; and
c) Mantos Blancos.
Source: Espinoza (1996)

Within the Punitaqui mining complex, the copper mineralization occurs as stratiform manto style deposits hosted in sedimentary rocks such as shale and limestone. The mineralized zones are of thicknesses ranging from 2 m to 40 m and dominantly consist of fine-grained disseminated copper oxides near surface and copper sulphides at depth. Figure 7-12 displays typical sulphide copper mineralization from Cinabrio mine and near-by Cullana operation.

Figure 7-12: Typical Sulphide Copper Mineralization from Cinabrio Mine and Near-by Cullana Operation

Source: Kirkham (2022)

At the Cinabrio mine, historic surface workings consist of a series of pits and excavations targeting shale hosted copper oxides. In general, the mineralization exposed on the surface (upper pit) is oxidized and occurs in the fault-controlled strata. At depth, on the 480 m level, the mineralization is dominantly sulphides including chalcopyrite, bornite and pyrite. Mineralized fluid flow is along structurally controlled, narrow channels (feeders).

Mineral zonation in manto style deposits can be identified by types of metals and differences in concentration of the various metals. At the Cinabrio mine, the following zonation has been defined:

- Oxide Zone: On the surface an oxidation zone composed of limonite and hematite as well as copper oxides, such as chrysocolla, brocanthite and malachite up to 10 m deep;
- Mixed Zone: On average from depths of 10 m to 20 m composed of malachite, chrysocolla, chalcopyrite and pyrite; and
- Sulphide Zone: composed of pyrite, bornite and chalcopyrite and traces of sphalerite.

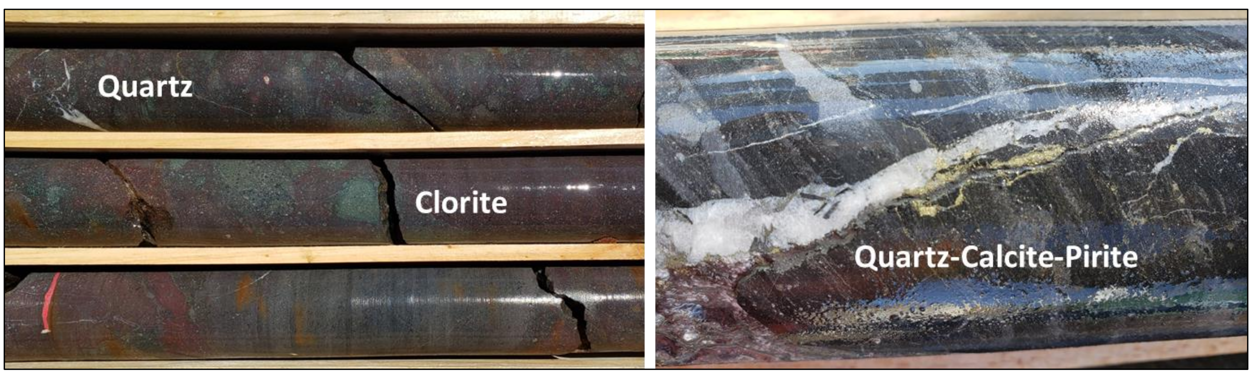
7.1.7 Alteration

Hydrothermal alteration associated with the circulation of mineralizing fluids through pre-existing fracturing is quite varied and is exhibited differently in each rock type. From highest to lowest temperature the alteration assemblages are:

- Quartz – Chlorite: assemblage commonly associated with sedimentary rocks and the contact with the volcanic breccia and grades to a weak propylitization within the volcanic breccia;
- Quartz - Calcite – Pyrite: assemblage often developed in sedimentary units; and
- Chlorite: alteration of mafic minerals within volcano-clastic sandstone.

In bedrock outcrop exposures, the oxidation and leaching of copper minerals and iron sulphides result in the formation of limonites and copper oxides. Figure 7-13 includes typical examples of quartz-chlorite and quartz-calcite-pyrite alteration.

Figure 7-13: Typical Examples of Quartz- Chlorite and Quartz-Calcite-Pyrite Alteration



Source: Kirkham (2022)

7.2 Geology and Mineralization - Cinabrio

7.2.1 Overview

The Cinabrio copper deposit is hosted within sequence of early Cretaceous volcanic rocks with sedimentary interbeds. The volcano-sedimentary sequence has been designated the El Reloj formation (Thomas, 1967) and, more recently, the sequence has been included in the Arqueros formation (Emparan and Pineda, 2020).

Regional and district structures control the location of copper mineralization. There are three main systems, north-south, northwest-southeast, and east-west trending, which displace the stratigraphy of the Cinabrio mine into blocks. Five main blocks are recognized: Block IV (upper part of the mine) and Block III, II, I and Block 0 (deepest).

Copper mineralization at Cinabrio is mainly hosted by a tabular sedimentary horizon within a volcanic sequence. This sedimentary horizon is variably mineralized and has a width ranging from 5 m to 30 m. It consists of an interlayered volcano-sedimentary sequence composed of dark colored laminated and unlaminated shales, volcanoclastic sandstone, conglomerates, sedimentary breccias and tuff breccias

At Cinabrio, mineralogy is made up of gangue minerals with quartz, calcite, pyrite and ore minerals being bornite, chalcopyrite (sulphides) and malachite, atacamite, azurite and chrysocolla (oxides).

7.2.2 Lithologies

7.2.2.1 Footwall Andesite Sequence

Below the "TSU" Targeted Sedimentary Unit which hosts most of mineralization, is a sequence of andesite flows which are locally intruded by ocoites. The andesites are greenish gray to brown with fine andesine plagioclase and pyroxene phenocrysts in a groundmass composed of quartz, biotite, and hornblende (de la Cruz, 2015).

Ocoites (plagioclase phyric porphyritic andesites) occur as small discontinuous dykes and sills within the andesites. They are composed of 50% well-developed phenocrysts in a very fine-grained groundmass, with microliths of plagioclase. The plagioclase phenocrysts are greater than 0.5 cm and are oligoclase-andesine composition. Augite-type pyroxenes with strong amphibolitization are common. Large scapolite and actinolite crystal are common but are totally altered to sericite-quartz biotite. The groundmass is chloritized, silicified and slightly biotitized (de la Cruz, 2015).

7.2.2.2 "TSU" Targeted Sedimentary Unit

The sedimentary stratigraphy which hosts the bulk of the copper mineralization at Cinabrio is composed of interbedded fine to coarse grained sedimentary rocks with a variable tuffaceous component that occur as tuffs and tuff breccias. The rapid variation of bed thickness and composition suggest that the sediments were deposited in tectonically active sub-basins. Periods of quiescence when fine laminated calcareous pyritic shales were deposited were interrupted by periods of rapid deposition of conglomerates, sandstones, and tuffaceous rocks. The tuffaceous rocks include reworked bedded fine to coarse volcanoclastics and unwelded to welded tuffs. Glass shards and fiamme are common in some tuffs. Typical sedimentary unit rock types are displayed as Figure 7-14 and Figure 7-15 below.

Figure 7-14: TSU – Targeted Stratigraphic Unit Laminated Shales

Source: Kirkham (2022)

Figure 7-15: TSU - Fossiliferous Sandstone

Source: Kirkham (2022)

7.2.2.3 Volcanic Breccia

At Cinabrio deposit the TSU sedimentary unit is overlain by a volcanic sequence composed of andesitic polylithic volcanic breccias and lesser volcanic conglomerates and minor volcanoclastic sandstone. The contact with the TSU sedimentary sequence is an angular unconformity (de la Cruz, 2015). The volcanic breccias range in color from gray green to red brown. They are massive and only rarely show evidence of stratification.

7.2.2.4 Dykes

At Cinabrio, dykes are a minor component of the overall geology. A set of sub-vertical east-northeast trending dacite porphyry dykes cuts through the sequence in the southern part of the Cinabrio area. The dykes range from 2 m to 15 m in width and extend for hundreds of meters. They are not offset by mapped faults.

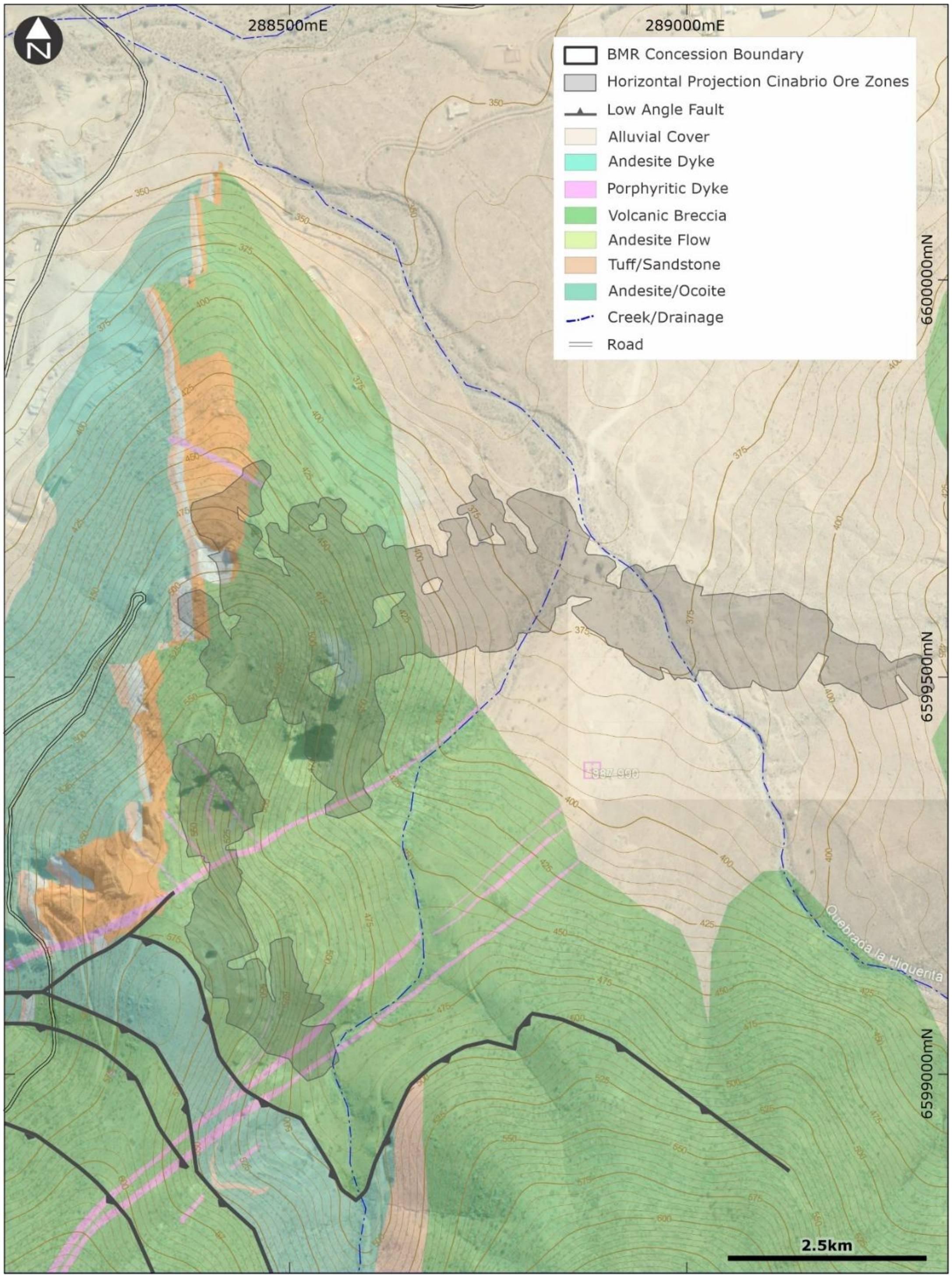
Several northwest trending steep dipping fine grained andesite dykes have been mapped in the central part of the Cinabrio area. They range in thickness from 1 m to 5 m and have limited strike lengths.

7.2.3 Structure

The most prominent faults at Cinabrio are north-northwest trending normal faults dipping to the southwest with dips of -30º to -50º. These faults are related to the large scale listric extensional faulting which rotated the stratigraphic sequence to dip eastward. At Cinabrio, subsidiary faults to the main extensional faults resulted in minor offsets of 5 m to 30 m.

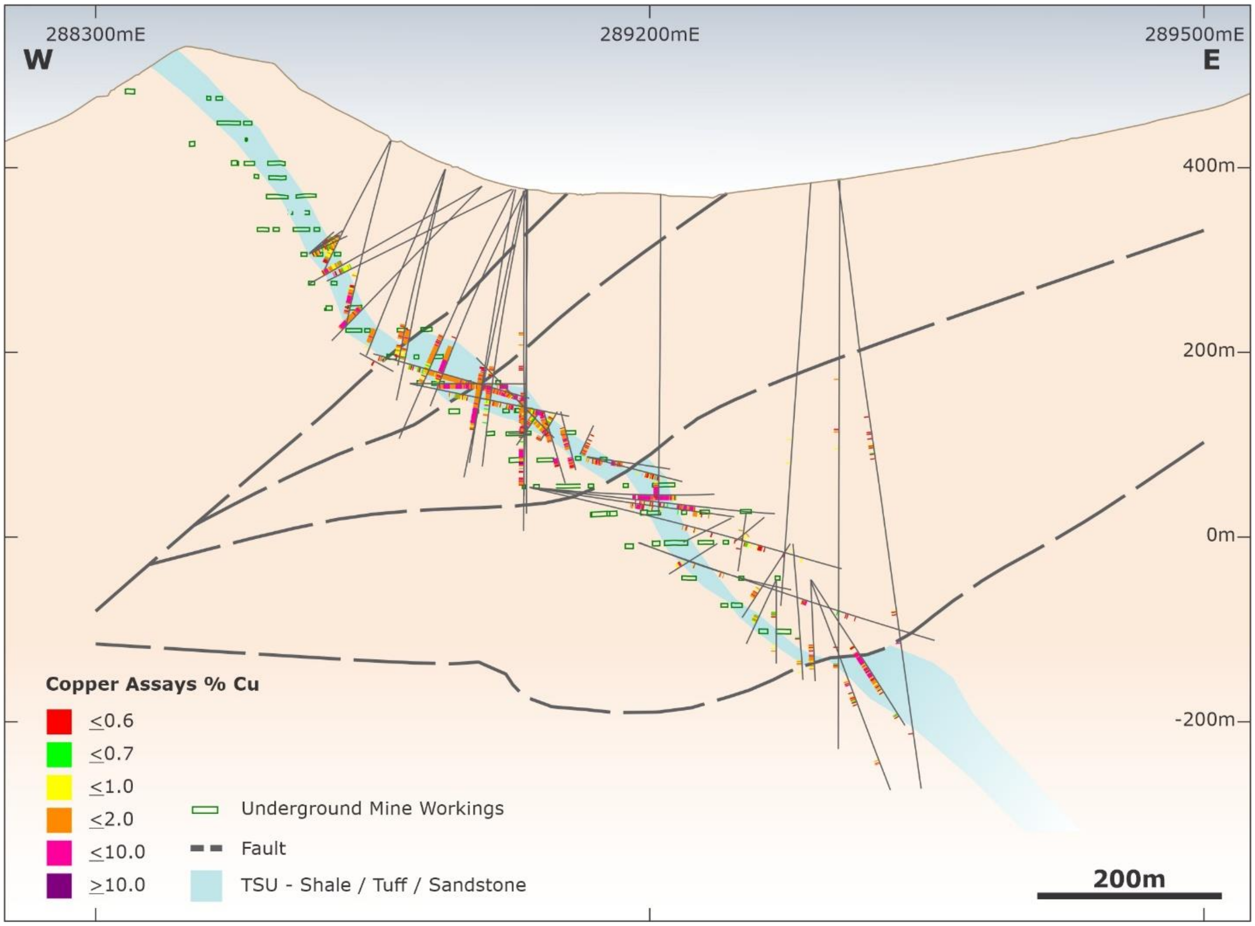
The geology and key structural controls at Cinabrio are displayed in Figure 7-16 geology plan and Figure 7-17 a composite cross-section through the Cinabrio mine.

Figure 7-16: Cinabrio Geology Map



Source: Kirkham (2022)

Figure 7-17: Composite Drill Hole Cross-Section Showing the Central Part of the Cinabrio Mine



Source: Kirkham (2022)

7.2.4 Mineralization

Copper mineralization at Cinabrio is largely hosted by the sedimentary sequence. Only small bodies of mineralization have been identified in the adjacent volcanics. The sedimentary sequence at Cinabrio extends for over 700 m along strike and drilling has shown that it extends for at least 1200 m downdip. Mineralization is concentrated in an elongate zone which is 100 m to 300 m wide along strike and extends down dip for at least 1,200 m and is open at depth. Near surface the zone of mineralization widens and extend along strike for over 700 m.

The mineralization consists of chalcopyrite, bornite and pyrite as fine disseminations and in veinlets and breccia infill. The sulphides in veinlets and breccia infill are commonly accompanied by calcite and lesser amounts of quartz.

Locally sphalerite occurs with the copper sulphides. The sphalerite is commonly distributed around the margins of the zones of copper mineralization.

The main mineralized host rocks are dark colored laminated and unlaminated shales. The shales host the bulk of the fine-grained disseminated mineralization. Locally, higher grade disseminated mineralization correlates with the presence of bornite as the dominant sulphide.

Mineralization in the tuffaceous rocks occurs as disseminated sulphides and veinlets and breccia infill with the sulphide minerals generally coarser grained.

A progressive zonation of sulphide mineralization is evident in some drill sections. From the center of mineralized zones to the margins this zonation is:

1. Bornite to bornite-chalcopyrite;

2. Chalcopyrite to chalcopyrite-pyrite ± sphalerite; and

3. Pyrite.

The mineralization at Cinabrio is related to the interaction of migrating copper-rich, sulphur poor fluids with pyrite-rich sedimentary rocks. Structural preparation such as fracturing and brecciation providing pathways for the fluids is a fundamental control of the mineralizing system. The linear distribution of the copper orebodies suggest that structurally controlled feeders are important controls for mineralization. However, no extensive feeder structures have been documented at Cinabrio to date. Figure 7-18 is an example of fracture infill sulphide mineralization in the TSU shale. Figure 7-19 is chalcopyrite-bornite mineralization on level 135 m of the Cinabrio mine.

Figure 7-18: Cinabrio Fracture Controlled Chalcopyrite- Pyrite Mineralization in TSU Shale Unit

Source: Kirkham (2022)

Figure 7-19: Cinabrio Mine 135 Level Bornite-Chalcopyrite Mineralization in TSU Unit

Source: Kirkham (2022)

7.3 Geology and Mineralization – San Andres

7.3.1 Overview

San Andres is a zone of copper mineralization located 500 m southwest of the high-grade Cinabrio deposit. The host rocks and copper mineralization at San Andres is very similar to Cinabrio. The stratigraphic setting at San Andres is the same as the Cinabrio deposit.

The San Andres zone is interpreted to be a structural offset of the Cinabrio stratigraphy along an extensional fault known as the San Andres fault. The San Andres zone is the structurally offset, up dip part of the Cinabrio deposit. The San Andres fault strikes north-northwest and dips -30o to -40o to the west. The apparent offset along the fault is around 900 m.

The San Andres copper mineralization is hosted within an east dipping tabular sedimentary horizon within the volcanic sequence. This sedimentary horizon is variably mineralized and ranges in width from 5 m to 30 m. The horizon dips -40º to -50º east and is cut-off at depth by the moderately west dipping San Andres fault.

Like at Cinabrio to the east, the TSU sedimentary horizon consists of an interlayered volcano-sedimentary sequence composed of dark colored laminated and unlaminated shales, volcanoclastic sandstone, conglomerates and breccias and tuff breccias. There is a variable component of syngenetic pyrite.

The host horizon is also cut and offset by other faults with a wide range of orientations. The fundamental orientations identified to date include:

- Moderately west dipping splays of the San Andres fault, generally with downward and westward movement; and
- Steep dipping northeast to northwest trending faults with both sinistral and dextral offsets.

The mineralization is predominantly chalcopyrite and bornite. It consists of veinlets and irregular disseminations in both the fine and coarse-grained clastic rocks and locally within the volcanic rocks above and below the host unit.

The intersection of the host sedimentary unit and the San Andres fault plunges toward the south. Because of this, the potential volume of ore within the host sedimentary horizon increases towards the south.

The host sedimentary unit at San Andres is exposed along a north-northwest trending ridge. The surface trace of the mineralized unit crosses from the east side of the ridge in the northern part of San Andres to the western side of the ridge in the southern part.

7.3.2 Lithologies

7.3.2.1 Andesite Sequence

Like at the Cinabrio mine to the east, the footwall rocks are a sequence of andesite flows which are locally intruded by ocoites. The andesites are greenish gray to brown with fine andesine plagioclase and pyroxene phenocrysts in a ground mass composed of quartz, biotite, and hornblende (de la Cruz, 2015).

Within the andesite package locally small discontinuous ocoites (plagioclase phyric porphyritic andesites) occur as dykes and sills. These ocoites are composed of 50% well-developed phenocrysts in a fine-grained to very fine-grained groundmass, with microliths of plagioclase. The plagioclase phenocrysts are greater than 0.5 cm and are oligoclase-andesine composition. Augite-type pyroxenes with strong amphibolitization are common. Large crystals of scapolite and actinolite develop, which are altered to sericite-quartz and biotite. The groundmass is silicified with chlorite and biotite (de la Cruz, 2015).

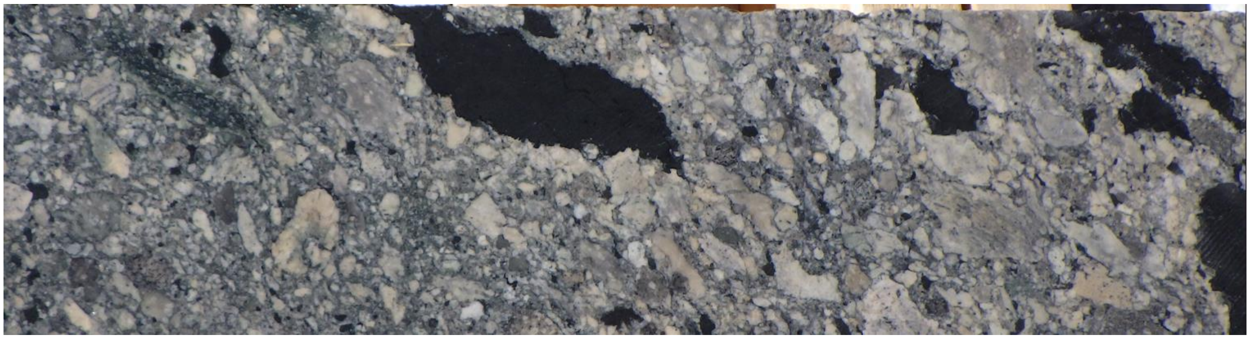
7.3.2.2 Sedimentary Horizon “TSU” Targeted Sedimentary Unit

As at the Cinabrio deposit, most of the copper mineralization at San Andres is hosted in the TSU sedimentary stratigraphy composed of interbedded fine to coarse grained sedimentary rocks with a variable tuffaceous component occurring as tuffs and tuff breccias. The rapid variation of bed thickness and composition suggest that the sediments were deposited in tectonically active sub-basins. Periods of quiescence are marked by the deposition of fine laminated calcareous pyritic shales that were interrupted by periods of rapid deposition of conglomerates, sandstones, and tuffaceous rocks. The tuffaceous rocks include reworked bedded fine to coarse volcanoclastics and unwelded to welded tuffs. Glass shards and fiamme are common in some tuffs. Figure 7-20, Figure 7-21, and Figure 7-22 are examples of the tuffaceous units within the TSU package from San Andres drill holes SAS-21-21 and SAS-21-08.

Figure 7-20: Reworked Tuffs and Tuff Breccia: Drill Hole SAS-21-21: 89 m

Source: Kirkham (2022)

Figure 7-21: Coarse Reworked Tuff Breccia with Shale Rip-up Clasts: Drill Hole: SAS-21-21: 89 m



Source: Kirkham (2022)

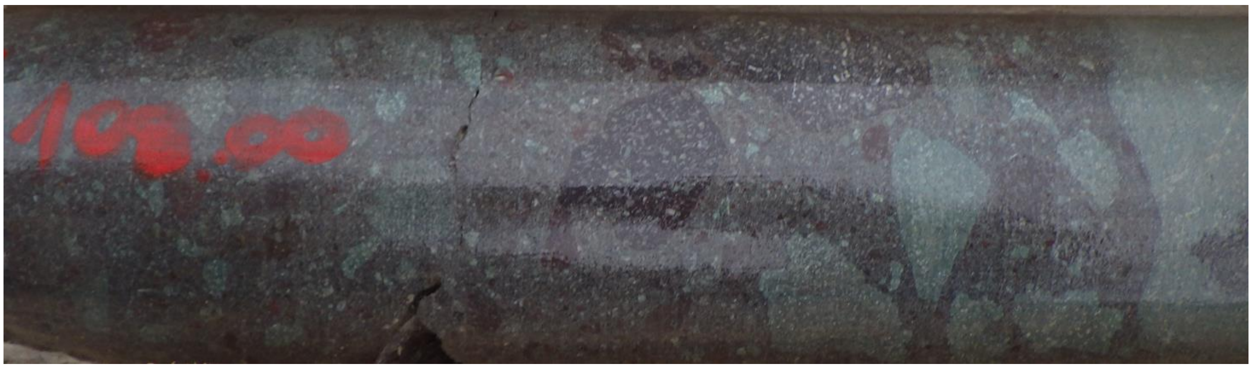
Figure 7-22: Ignimbrite Tuff: Drill Hole: SAS-21-08: 232 m

Source: Kirkham (2022)

7.3.2.3 Volcanic Breccia

The hangingwall to the TSU sedimentary unit is a volcanic sequence composed of andesitic polylithic volcanic breccias and lesser volcanic conglomerates and minor volcanoclastic sandstone. The contact with the underlying sedimentary sequence is possibly an angular unconformity (de la Cruz, 2015). The volcanic breccias range in color from gray green to red brown. They are generally massive and rarely show evidence of stratification. Figure 7-23 is an example of the hangingwall volcanic breccia from San Andres drill hole SAS-21-06 at a downhole depth of 108 m.

Figure 7-23: Volcanic Breccia: Drill Hole: SAS-21-06: 108 m



Source: Kirkham (2022)

7.3.2.4 Dykes

Like at Cinabrio, two sets of dykes are a minor component of the San Andres geology. A set of sub-vertical east-northeast trending dacite porphyry dykes cuts through the sequence in the central and southern part of the zone. The dykes range from 2 m to 15 m in width and extend for hundreds of meters. They are not offset by mapped faults.

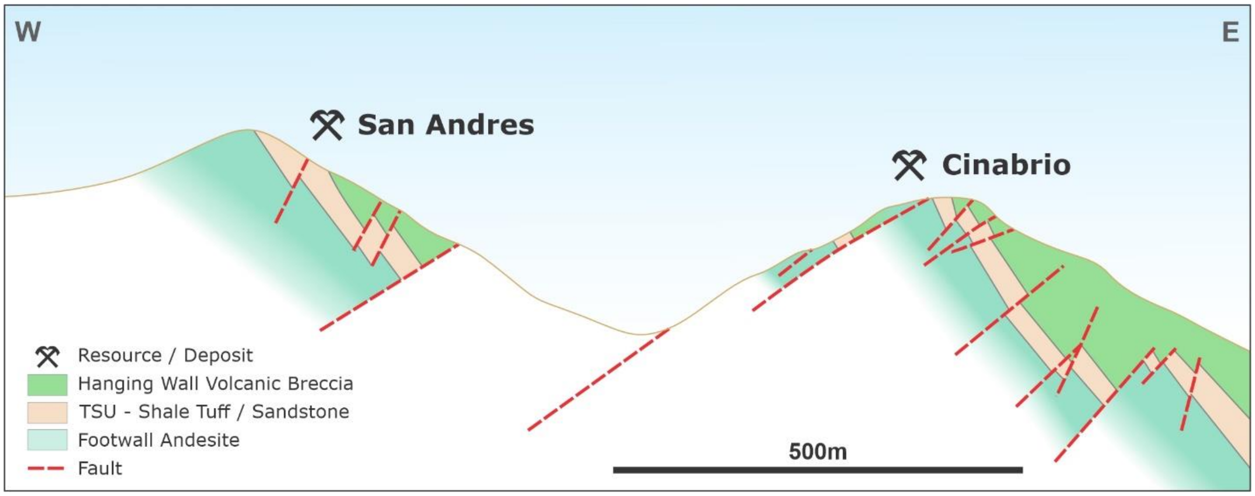
Several northwest trending steep dipping fine grained andesite dykes have been mapped. They range in thickness from 1 m to 5 m and have limited strike lengths.

7.3.3 Structure

The San Andres zone is interpreted to be a structural offset of the Cinabrio stratigraphy along an extensional fault known as the San Andres fault. The San Andres zone is the up-dip part of the Cinabrio deposit. The San Andres fault strikes north-northwest and dips -30o to -40o to the west. The apparent offset along the fault is around 900 m.

The most prominent faults at San Andres and Cinabrio are north-northwest trending normal faults dipping to the southwest with dips of -30o to -50o. These faults are considered to be related to the large scale listric extensional faulting which rotated the stratigraphic sequence to dip eastward. Like at Cinabrio, subsidiary faults to the main extensional faults at San Andres have resulted in minor offsets of 5 m to 30 m. Figure 7-24 below shows the interpretive geology San Andres to Cinabrio. Figure 7-23 illustrates the structural relationship between the Cinabrio deposit and the San Andres zone.

Figure 7-24: Schematic Cross-section – San Andres to Cinabrio, Looking North



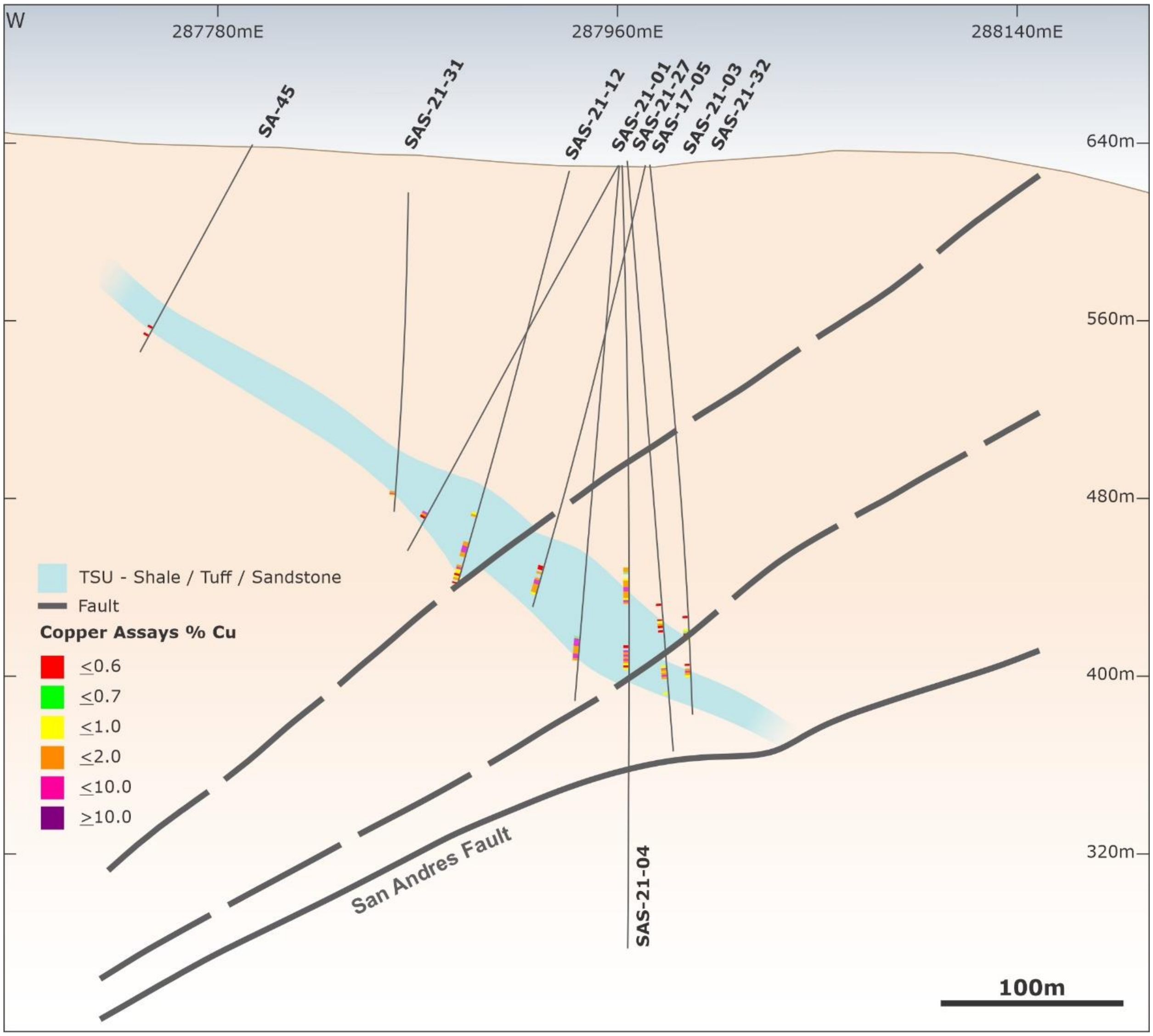
Source: Skarmeta (2020)

The sedimentary rocks hosting the mineralization at San Andres are cut-off at depth by the San Andres fault – limiting the potential depth extent of mineralization. The fault -sedimentary horizon intersection rises in elevation to the north and outcrops to the north end of the zone. San Andres is along a ridge at the north end the sedimentary horizon outcrops on the east side of the ridge and is essentially a dip slope and all the mineralization is in the oxide zone. To the south the outcrop of the sedimentary stratigraphy crosses to the west side of the ridge and only the upper 30 m to 40 m is oxidized.

Drilling indicates that the intersection of the host sedimentary stratigraphy and the San Andres fault deepens to the south. However, in the most recent southernmost drill holes the sedimentary stratigraphy appears to be narrowing. One possible explanation is that the sedimentary stratigraphy in the south and down-dip is narrowing because it is outside the sedimentary basin or has been faulted out.

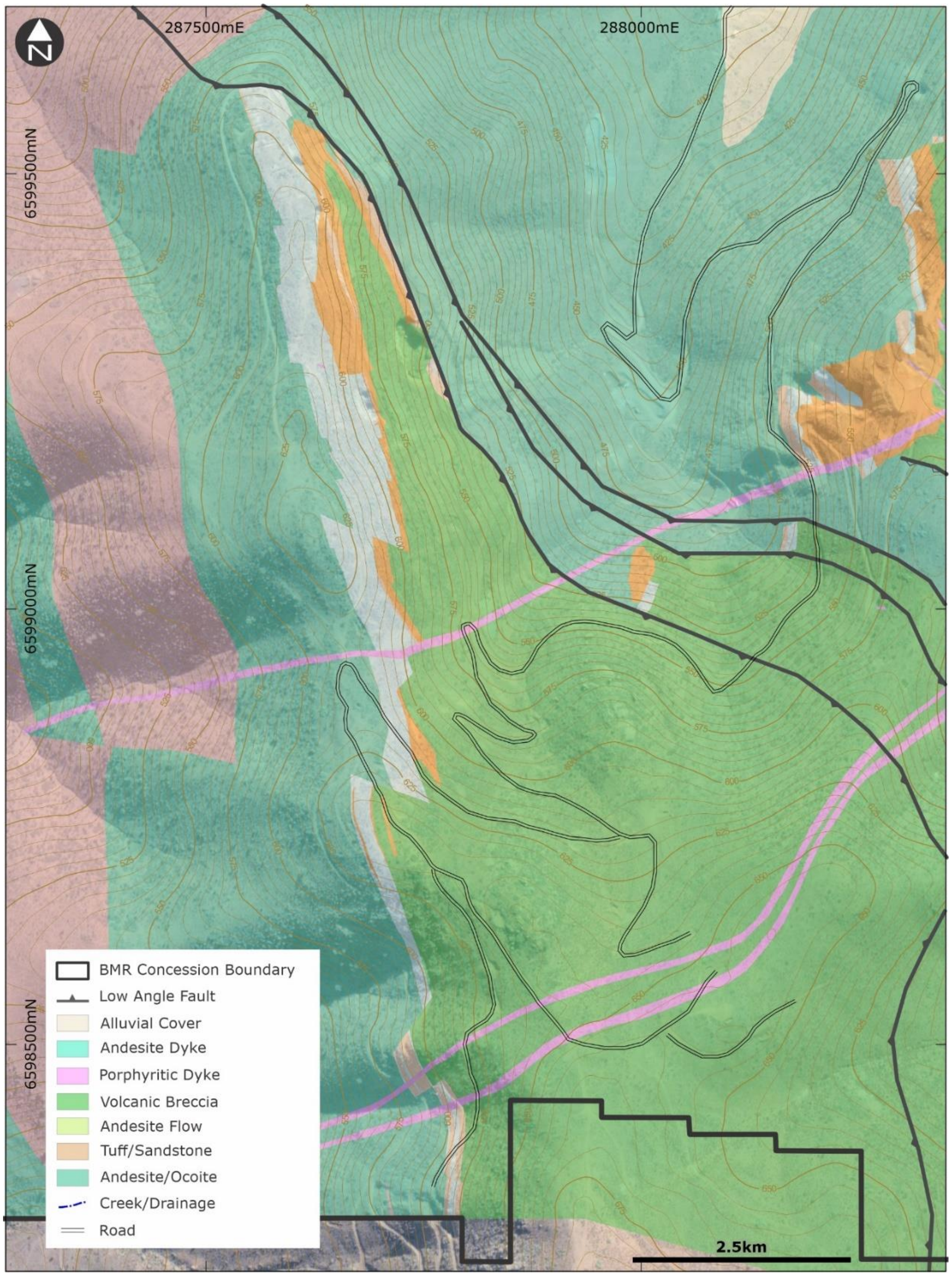
Figure 7-25 is a drill hole cross-sectional view through the San Andres zone. Figure 7-26 illustrates the surface geology of the San Andres zone.

Figure 7-25: San Andres Drill Hole Cross-Section



Source: Kirkham (2022)

Figure 7-26: San Andres Geology Map



Source: Kirkham (2022)

7.3.4 Mineralization

Copper mineralization at San Andres like Cinabrio is largely hosted by the sedimentary sequence. Only small bodies of mineralization have been identified in the adjacent volcanics. The TSU sedimentary sequence at San Andres Cinabrio extends for over 800 m along strike.

The mineralization consists of chalcopyrite, bornite and pyrite as fine disseminations and in veinlets and breccia infill. The sulphides in veinlets and breccia infill are commonly accompanied by calcite and lesser amounts of quartz.

Locally sphalerite occurs with the copper sulphides. The sphalerite is commonly distributed around the margins of the zones of copper mineralization.

The main mineralized host rocks are dark colored laminated and unlaminated shales. The shales host the bulk of the fine-grained disseminated mineralization. Locally, higher grade disseminated mineralization correlates with the presence of bornite as the dominant sulphide.

Mineralization in the tuffaceous rocks occurs as disseminated sulphides and veinlets and breccia infill with the sulphide minerals generally coarser grained. Figure 7-27 is an example of disseminated and aggregates around clast margins of chalcopyrite mineralization in a tuff breccia from San Andres drill hole SAS-21-08 from a downhole depth of 226 m.

Figure 7-27: Disseminated Chalcopyrite and Aggregates Around Clasts in Tuff Breccia in Drill Hole SAS-21-08: 226 m

Source: Kirkham (2022)

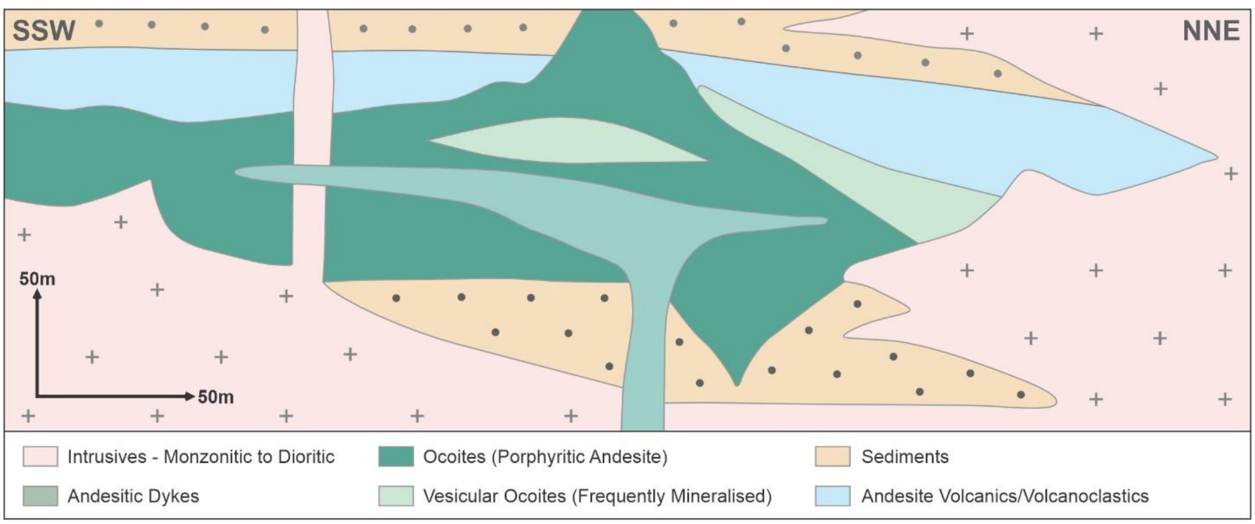
7.4 Geology and Mineralization - Dalmacia

7.4.1 Overview

The geologic setting at Dalmacia comprises andesitic volcanics with minor sedimentary intercalations, intruded by various phases of sub-volcanic stocks and dykes of various ages. The main lithologies are: ocoitic andesites, andesites, andesitic porphyries and dioritic-andesitic-siliceous dykes. All these rocks constitute a roof pendant in a granitic batholith (granodiorites and diorites) that surrounds the Dalmacia zone to the south, west and east.

The schematic section below Figure 7-28 is a simplified representation of the principal stratigraphic and intrusive elements at Dalmacia.

Figure 7-28: Schematic Representation of Geology of the Dalmacia Zone



Source: Skarmeta (2022)

There are two government sponsored published maps covering the Dalmacia area. These are the Ovalle 1:250,000 map sheet (Thomas, 1967) and the Ovalle - Peña Blanca 1:100,000 sheet, (Emparan and Pineda 2020), both published by Sernageomin. On both maps the Dalmacia copper resource area is mapped as Jurassic-Cretaceous intrusive rocks. The volcanic rocks, on these maps, nearby Dalmacia are metasomatized Cretaceous volcanics on the Ovalle (1:250,000 scale) mapsheet and as Jurassic Aguas Salados volcano-sedimentary formation on the (1:100,000 scale) Ovalle-Peña Blanca mapsheet.

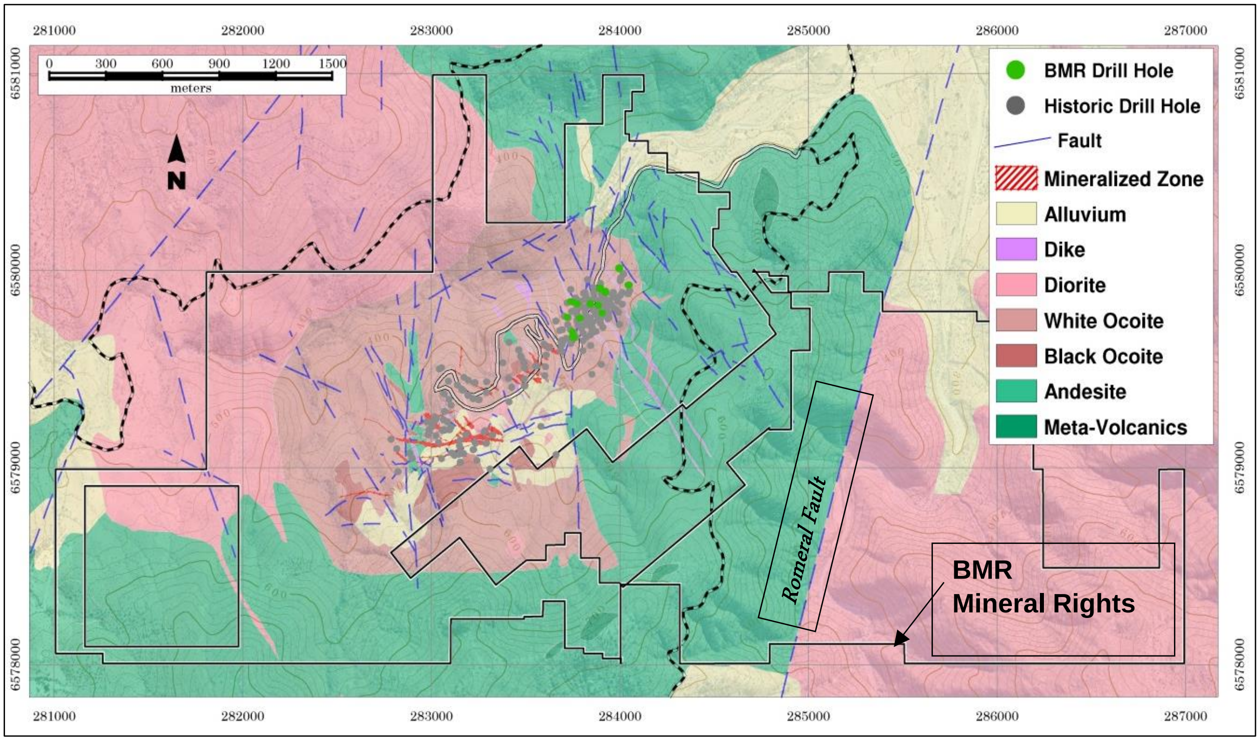
BMR's current interpretation is the Dalmacia host rocks strongly resemble the andesitic lithologies footwall to the Cinabrio and San Andres manto style deposits. The volcano-sedimentary rocks and subvolcanic ocoites at Dalmacia are likely lower Cretaceous in age and equivalent to the Estratos del Reloj /Arqueros formation.

The volcanic rocks are the Estratos del Reloj formation consists of andesitic volcanic rocks with minor sedimentary interbeds. The emplacement of the intrusive rocks range in age and include pre-, syn- and post-mineral dykes and small stocks of andesitic/dioritic composition.

The Dalmacia resource area is west of the Romeral regional fault zone which is considered to be an offshoot of the Atacama fault zone (Skarmeta, 2020) and extends for thousands of kilometers in northern Chile and is spatially associated with numerous deposits. The Romeral fault crosses through the eastern part of the Dalmacia concessions, east of the Dalmacia resources. Figure 7-29 illustrates the bedrock geology and key structural elements at Dalmacia.

Mineralization at Dalmacia is most closely associated with ocoitic intrusive bodies. The key controls of mineralization identified include lithology, lithologic contacts, and structures.

Figure 7-29: Geology of the Dalmacia Concession Block

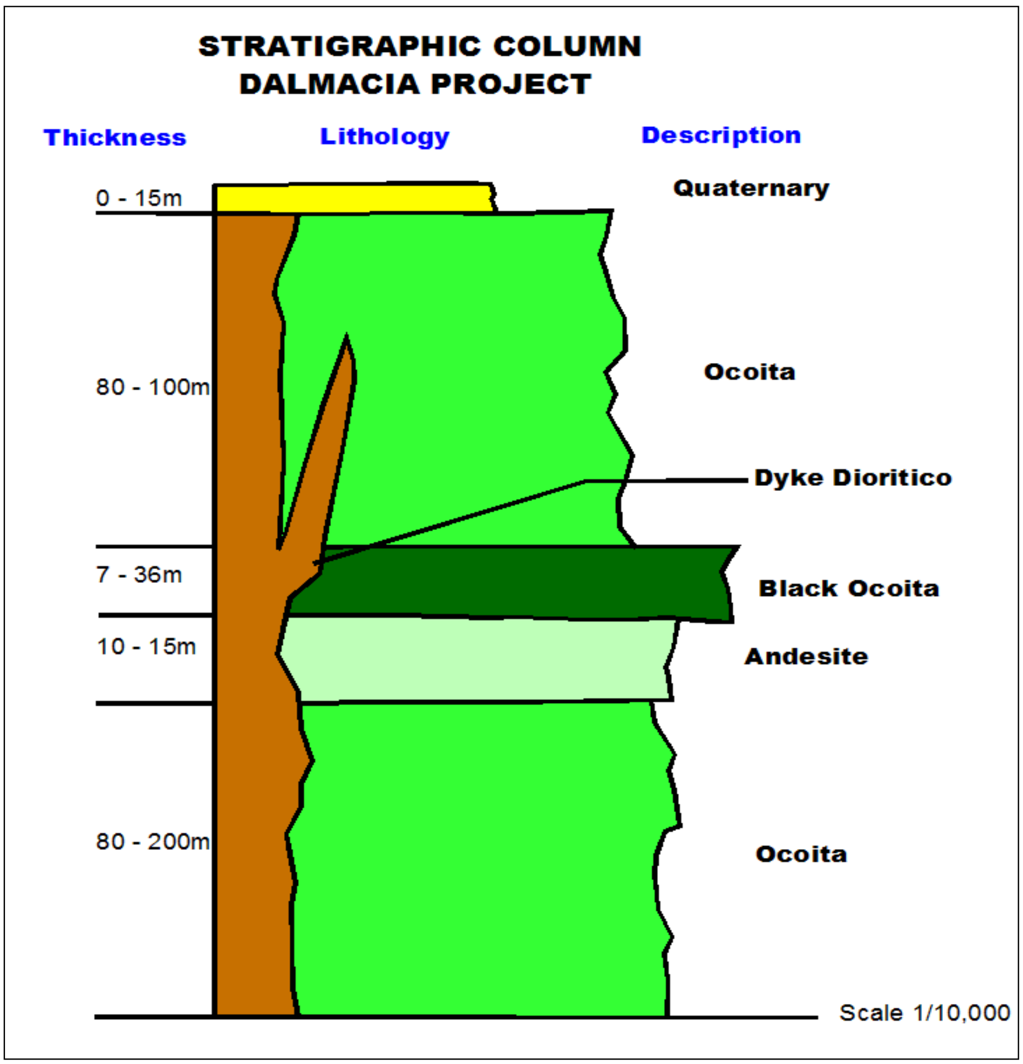


Source: Kirkham (2022)

7.4.2 Lithologies

At Dalmacia, the sequence of volcanics was originally assigned to the Estratos del Reloj formation of lower Cretaceous Neocomian age (Thomas,1999). More recent mapping has resulted in the Reloj formation being part of the Arqueros formation, also of lower Cretaceous age. The volcanic rocks present a pseudo-stratification and intercalation of flows, sills, and small intrusive bodies of different composition. The principal lithologies, ocoitic andesites, andesites, andesitic porphyries and dioritic-andesitic-siliceous dykes. The stratigraphy of the Dalmacia zone is summarized in Figure 7-30.

Figure 7-30: Dalmacia Stratigraphic Column



Source: De La Cruz, P., Moreira and J., Salinas L., MAP - Minera Altos de Punitaqui (2014)

7.4.2.1 Ocoitic Andesites

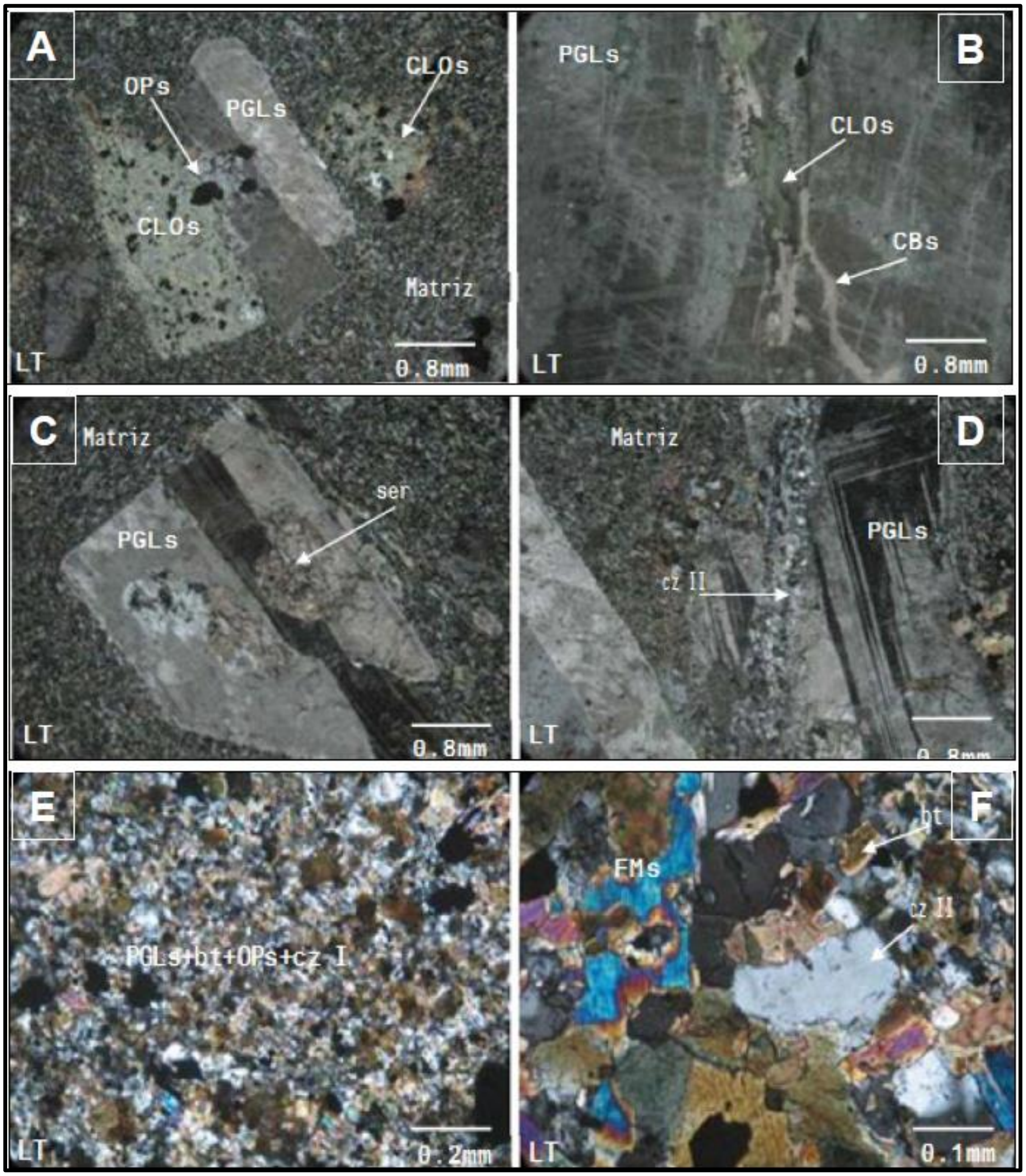
Known locally as ocoitas, these rocks are a pseudo-concordant volcanic sequence with packages of intercalated andesitic rocks. The “Ocoitas Blancos” and “Ocoitas Negras” have been recognized according to the color of the phenocrysts (plagioclases and amphiboles).

Their main characteristic is the porphyritic texture, composed of tabular plagioclase phenocrysts up to 1.5 cm long, quartz and ferromagnesian minerals, a microcrystalline matrix composed of microcrystalline quartz associated with secondary biotite, opaque minerals, chlorites, and amphiboles. Alteration minerals include biotite, carbonates, chlorites and incipient sericite, The plagioclase phenocrysts are often moderately altered to sericite and albite.

Locally secondary amphiboles occur as tabular crystals, fibrous and acicular aggregates with sizes up to 3 cm and are termed amphibole megacrysts. They are often associated with quartz and opaque minerals.

Examples of the petrographic characteristics of the ocoitic andesites are detailed in Figure 7-31 and. Figure 7-32 is an example of an ocoite with chalcopyrite in amygdules.

Figure 7-31: Ocoite Petrography



Notes:

A) Chlorite (CLOs) Replacing Plagioclases (PGLs) and Filling Cavities in the Matrix. Opaque Minerals (Ops) are Scattered Throughout the Sample;

B) Chlorite and Carbonate (CBs) infilling Microfractures in Plagioclase;

C) Sericite (ser) Partially Replacing Plagioclase

D) Quartz Infill of Microfractures in Plagioclase;

E) Microcrystalline Matrix formed of Plagioclase Crystals, Secondary Biotite (bt), Opaque Minerals and Granular Quartz; and

F) Quartz Filled Cavities with Ferromagnesian Minerals (FMs).

Source: De La Cruz, P., Moreira and J., Salinas L., MAP - Minera Altos de Punitaqui (2014)

Figure 7-32: Ocoite with Chalcopyrite in Amygdules

Source: De La Cruz, P., Moreira and J., Salinas L., MAP - Minera Altos de Punitaqui (2014)

7.4.2.2 Andesites

There are a number of andesite bodies intercalated with the ocoites. Most of the andesites have a fine porphyritic texture, are gray and brown in color, and contain up to 40% plagioclase phenocrysts of different sizes (0.3 mm - 2.0 mm) of andesine composition. Weak carbonate-epidote-biotite alteration as well as sericitization are common.

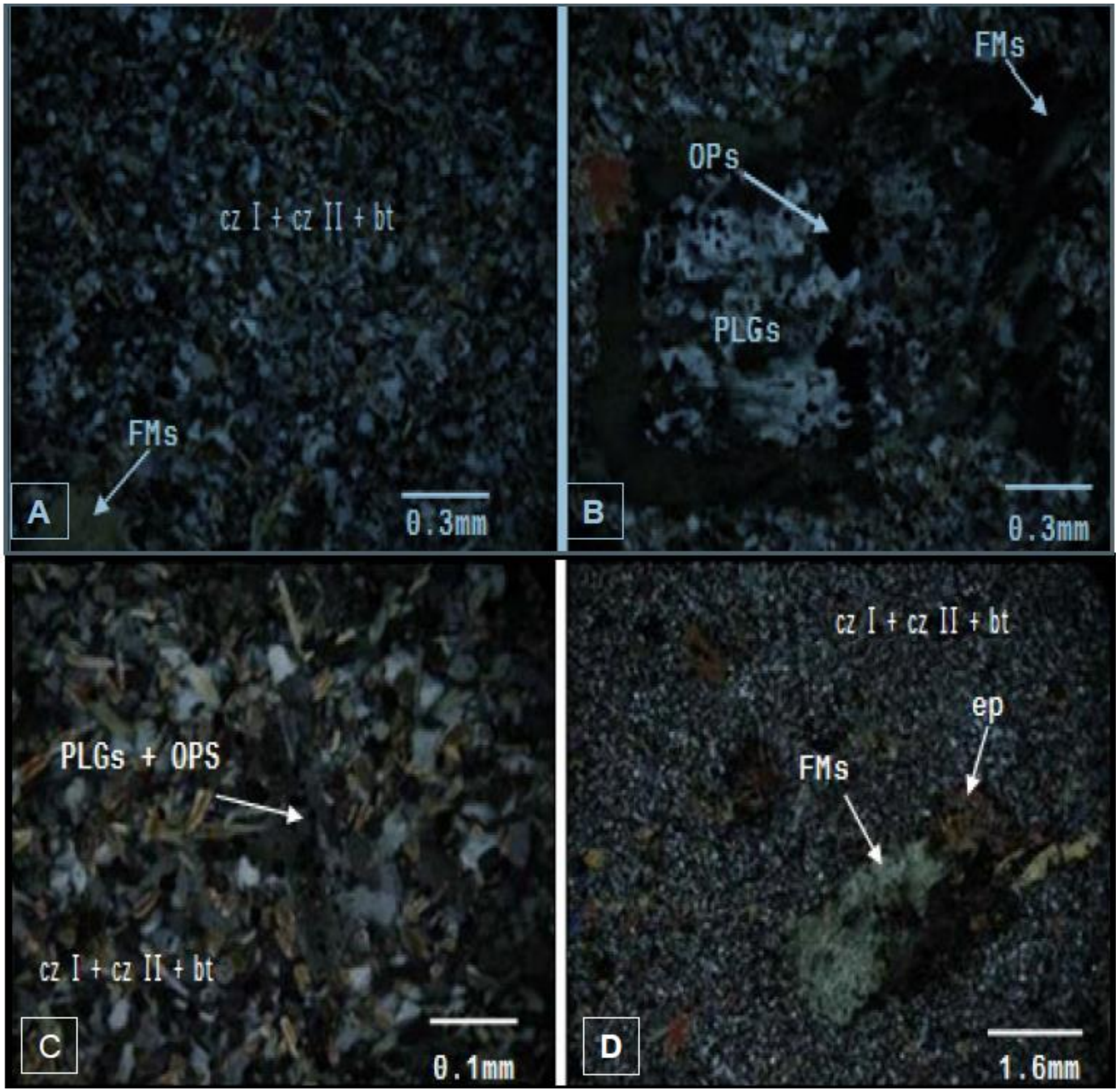
Plagioclase feldspar occurs as anhedral crystals with relict and irregular tabular shapes, generally less than 2 mm in length. The plagioclase phenocrysts are weakly altered by clays, micas and corroded by recrystallized microgranular quartz. Moderately deformed granular aggregates of relict primary quartz forms part of the matrix. Cavities are filled by secondary quartz with granular shapes and sizes less than 0.2 mm.

Secondary biotite occurs as anhedral crystals with tabular shapes, fibrous and flaky aggregates of sizes less than 0.03 mm. It appears dispersed throughout the matrix forming a weak orientation. Also present is amphibole as tabular crystals and fibrous and acicular aggregates with sizes less than 4 mm. They are locally replaced by epidote and carbonates.

Epidote occurs as granular and fibrous aggregates seen filling cavities and fractures. Sericite and clay minerals occur as micaceous aggregates which weakly replace the feldspars. Carbonates often fill microfractures and replace actinolite.

Opaque minerals with anhedral to euhedral forms less than 0.1 mm in diameter appear finely scattered on the matrix and on the edges of feldspar crystals. Figure 7-33 illustrates the texture and mineralogy of the Andesites. Figure 7-34 is an example of an ocoite with secondary biotite.

Figure 7-33: Andesite Petrography



Notes:

A) Matrix of Quartz and Micas with Moderate Recrystallization (czI + czII + bt);

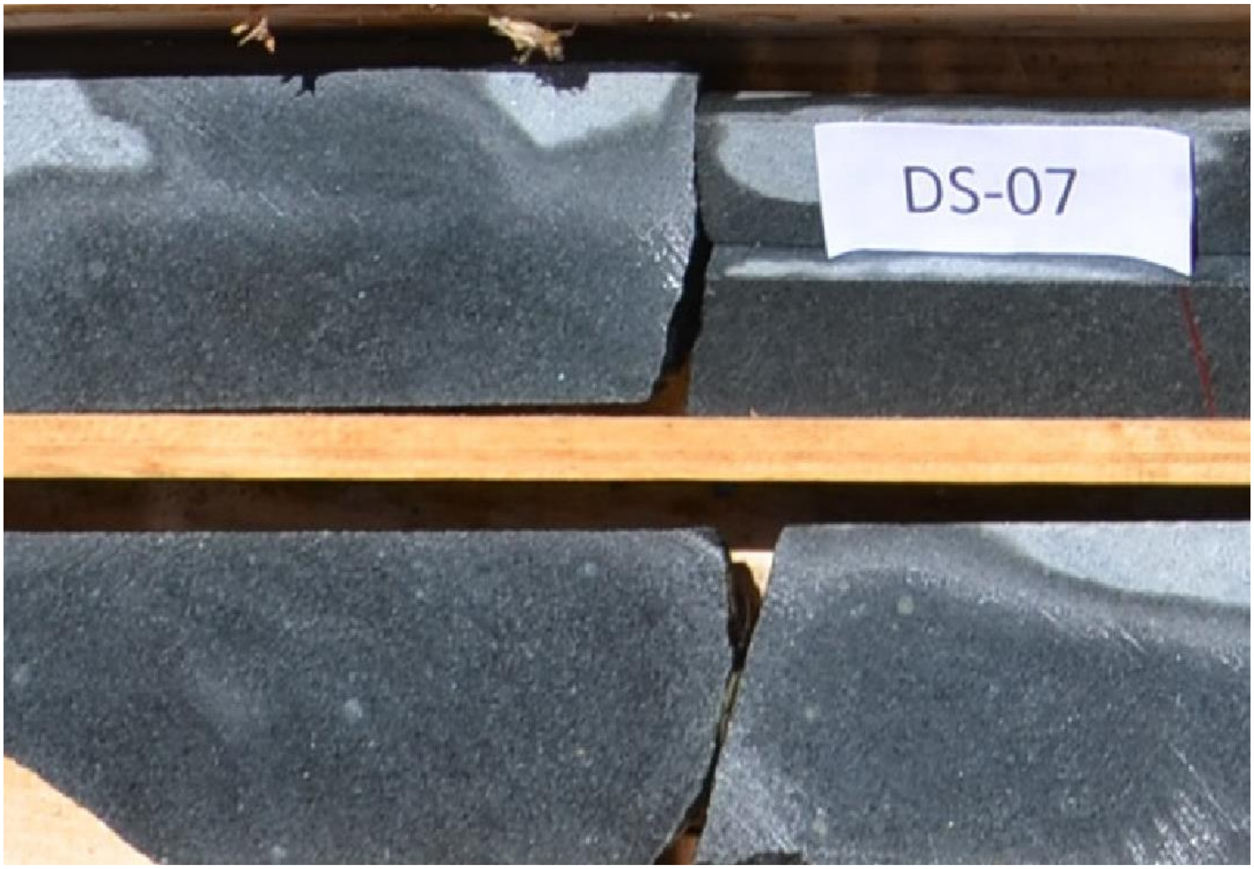
B) Phenocryst of Plagioclase (PLGs) with Disseminated Opaque Minerals (OPs) and Ferromagnesian-Amphibole (FMs);

C) Finely Disseminated Opaques (OPs) in Plagioclase with a Matrix of Recrystallized Quartz and Fine-Grained Secondary Quartz and Fine Secondary Biotite; and

D) Phenocrysts of Ferromagnesian-Amphibole Phenocrysts with Epidote and Opaques in a Matrix Formed by Recrystallized Quartz and Fine Biotite.

Source: De La Cruz, P., Moreira and J., Salinas L., MAP - Minera Altos de Punitaqui (2014)

Figure 7-34: Ocoite with Secondary Biotite



Source: Kirkham (2022)

7.4.2.3 Sedimentary Rocks

Layered sandstones have been intersected in a few drill holes intercalated with ocoites. Where observed the sandstone layering is conformable to the contacts with ocoites. Generally, the sandstone intersections are less than 2 m in true width and limited in extent and defined by drilling. Figure 7-35 illustrates a sandstone – ocoite contact.

Figure 7-35: Sandstone-Ocoite Contact

Source: Kirkham (2022)

7.4.2.4 Andesitic Porphyries

Irregular tabular bodies of andesitic porphyries crosscut the ocoite-andesite pseudo-stratigraphy. The andesitic porphyries have a porphyritic texture, and mosaic-type recrystallization, with the presence of cavities filled by amphiboles, sulphide mineralization and secondary quartz. They have biotite, sericite, and chlorite alteration. Figure 7-36 is an example of an andesite porphyry intrusive cutting an ocoite.

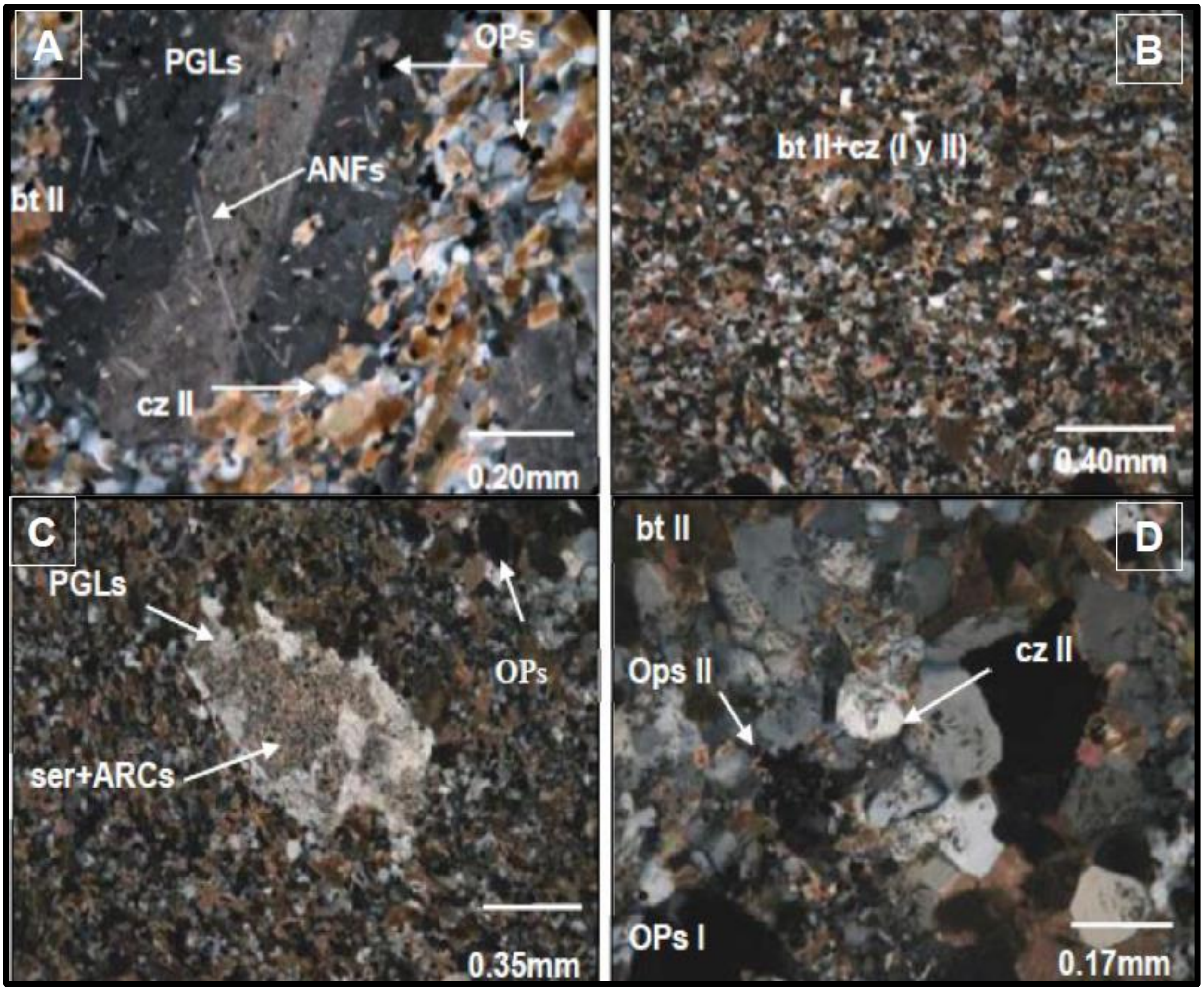
Figure 7-36: Andesite Porphyry Cutting Ocoite

Source: Kirkham (2022)

The andesitic porphyries have two generations of plagioclase. In the matrix, plagioclase occurs as subhedral and anhedral crystals, with equigranular size of approximately 0.22 mm. Secondary biotite common throughout the matrix in the andesitic porphyries. Quartz, less than 0.1 mm in diameter, is present as recrystallized crystals forming part of the matrix or as cavity fillings.

Opaque minerals occur as two generations. One occurs as anhedral and subhedral crystals, less than 0.92 mm in diameter, scattered throughout the matrix. The other generation consists of subhedral crystals with cubic and rhombic habits. Figure 7-37 displays the mineralogy and textures of the andesite porphyries. Figure 7-38 is a typical medium grained andesite porphyry.

Figure 7-37: Petrography of Andesitic Porphyries



Notes:

Photomicrographs:

A) Plagioclases (PLGs) and Recrystallized Quartz Plagioclase has Inclusions of Amphiboles and Biotite;

B) Matrix Formed by recrystallized Quartz, Biotite and Plagioclase;

C) Plagioclases altered to Sericite and Clay Minerals; and

D) Recrystallized Quartz with Two Generations of Opaque Minerals.

Source: De La Cruz, P., Moreira and J., Salinas L., MAP - Minera Altos de Punitaqui (2014)

Figure 7-38: Medium Grained Andesite Porphyry

Source: De La Cruz, P., Moreira and J., Salinas L., MAP - Minera Altos de Punitaqui (2014)

7.4.2.5 Andesite, Diorite and Siliceous Dykes

The sequence of ocoite andesites, andesites and andesitic porphyries is cut by several andesitic, dioritic and siliceous dykes generally subvertical and striking N330°E. The dykes are post-mineral but often follow mineralized structures. The three main types of dykes observed are described as follows;

- Andesitic dykes: These dykes have a fine porphyritic texture, gray and brown in color, with plagioclase phenocrysts of different sizes (0.3 mm - 2.0 mm) of andesine composition. These dykes display very weak carbonate, sericite, epidote, and biotite alteration;

- Dioritic dykes are north-northwest trending and dip -75º SW. The dioritic dykes have an equigranular texture and are weakly to moderately silicified, moderately chloritized, and weakly sericitized. Sulphides in the diorite dykes consists of disseminated and fracture fillings of magnetite and pyrite; and

- Siliceous dykes also strike north-northwest and dip subvertically. These dykes are up to 1.20 m wide. The groundmass of this rock is aphanitic with small clasts such as epidotized amphibole (actinolite) and feldspars (muscovite).

7.4.3 Structure

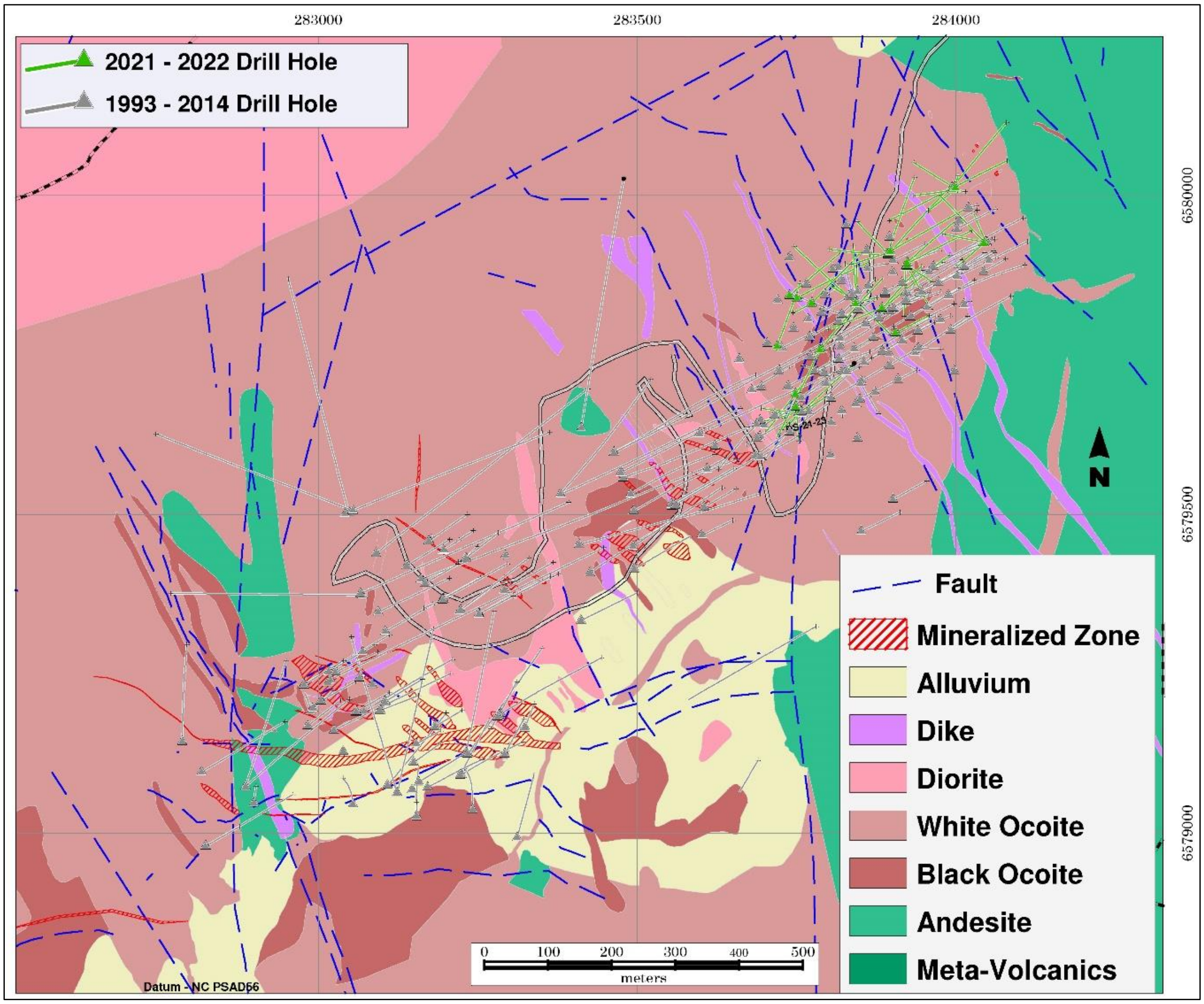
The Dalmacia resource is located west of the Romeral fault zone that tracks north up the Punitaqui valley and continues north along the valleys between Ovalle and La Serena. This fault zone where exposed fault is a mylonitic zone. The Romeral fault spatially and temporally associated with of copper-gold mineralization along its length (Skarmeta, 2020).

The Los Mantos fault is subsidiary fault east of the Romeral fault and is the primary control of mineralization for gold-copper mineralization at the Delerio, Milagros, Los Mantos and Tambo de Oro mines.

The Dalmacia mineralization is concentrated in a northeast trending corridor subparallel to the Los Mantos fault and mineralization at Dalmacia may also be associated with a northeast trending fault interpreted to be a subsidiary of the Romeral fault system.

The bedrock geology and drilling are detailed in Figure 7-39 below.

Figure 7-39: Geology and Structure - Dalmacia



Source: Kirkham (2022)

In Dalmacia, the most prominent a set of faults and fractures have a northwest-southeast trend and a variable dip from -30º to -80º southwest which are consistent with the location of the dioritic and andesite dykes that they probably control. There are also east west faults which have been mapped in the area. Mineralization mapped at surface is also along northwest to east-west trending zones.

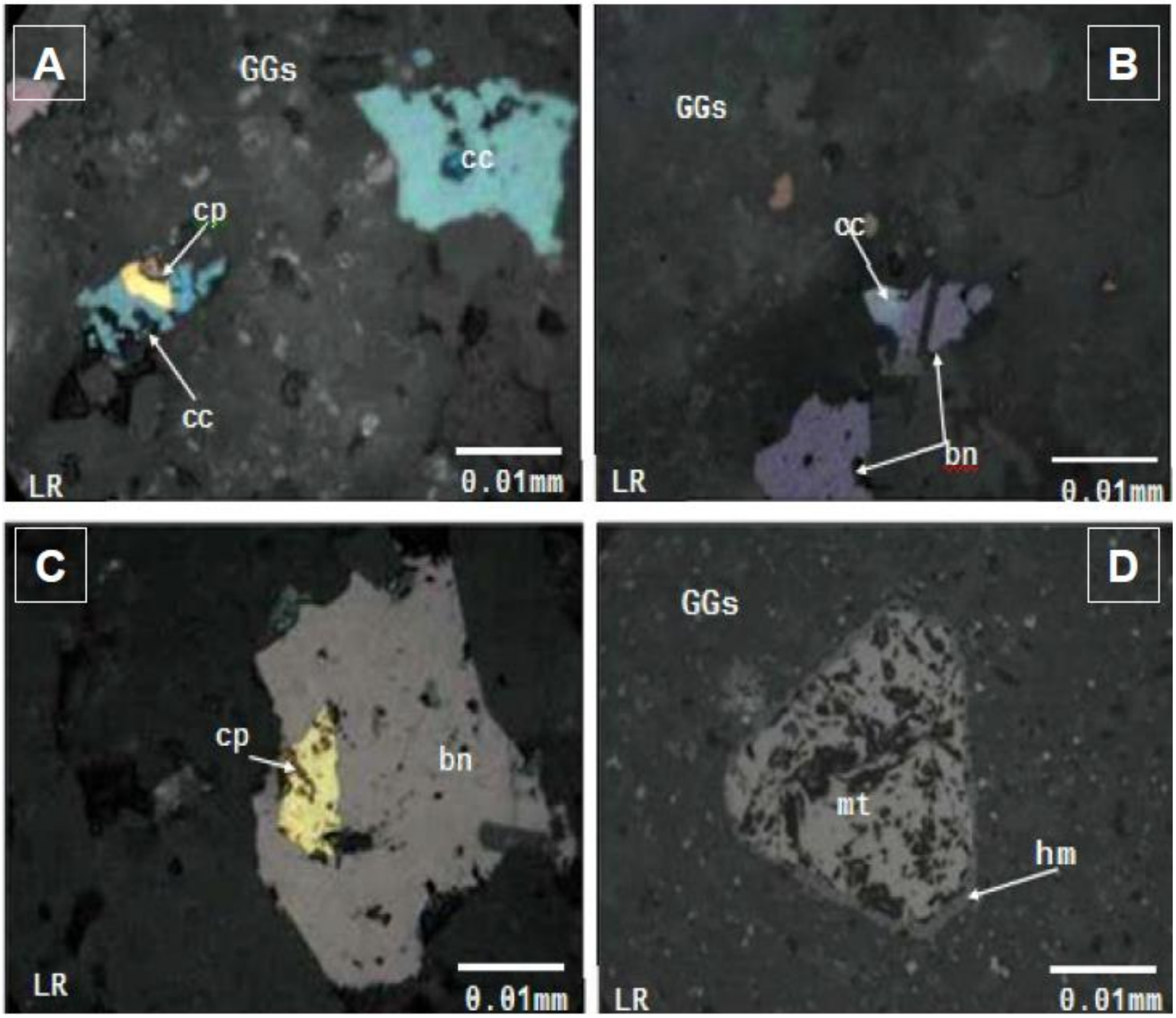
7.4.4 Mineralization

Copper mineralization at Dalmacia over a 1.6 km strike with the bulk of the current resource delineated a Dalmacia North within an area of approximately 200 m x 400 m. The geometries of the bodies are tabular and irregular with an approximate strike of N330°E and dips of -30° to -70° southwest. Controls of mineralization include lithology, lithologic contacts, and structures.

Mineralization occurs in ocoites, andesites, andesite porphyries and sandstone. The most common host rock is white ocoites with vesicular white ocoites often having the highest grades. Copper minerals include chalcopyrite and bornite and rare covellite, chalcocite, digenite and pyrite.

The sulphides occur as disseminations, veinlets, and infill. The textural relationships indicate the initial formation of magnetite, which was partially replaced by chalcopyrite and bornite. Late veinlets of chlorite ± sericite ± pyrite ± chalcopyrite suggest at least two copper mineralizing events. Figure 7-40 is a composite view of 4 microphotographs detailing the mineralization styles.

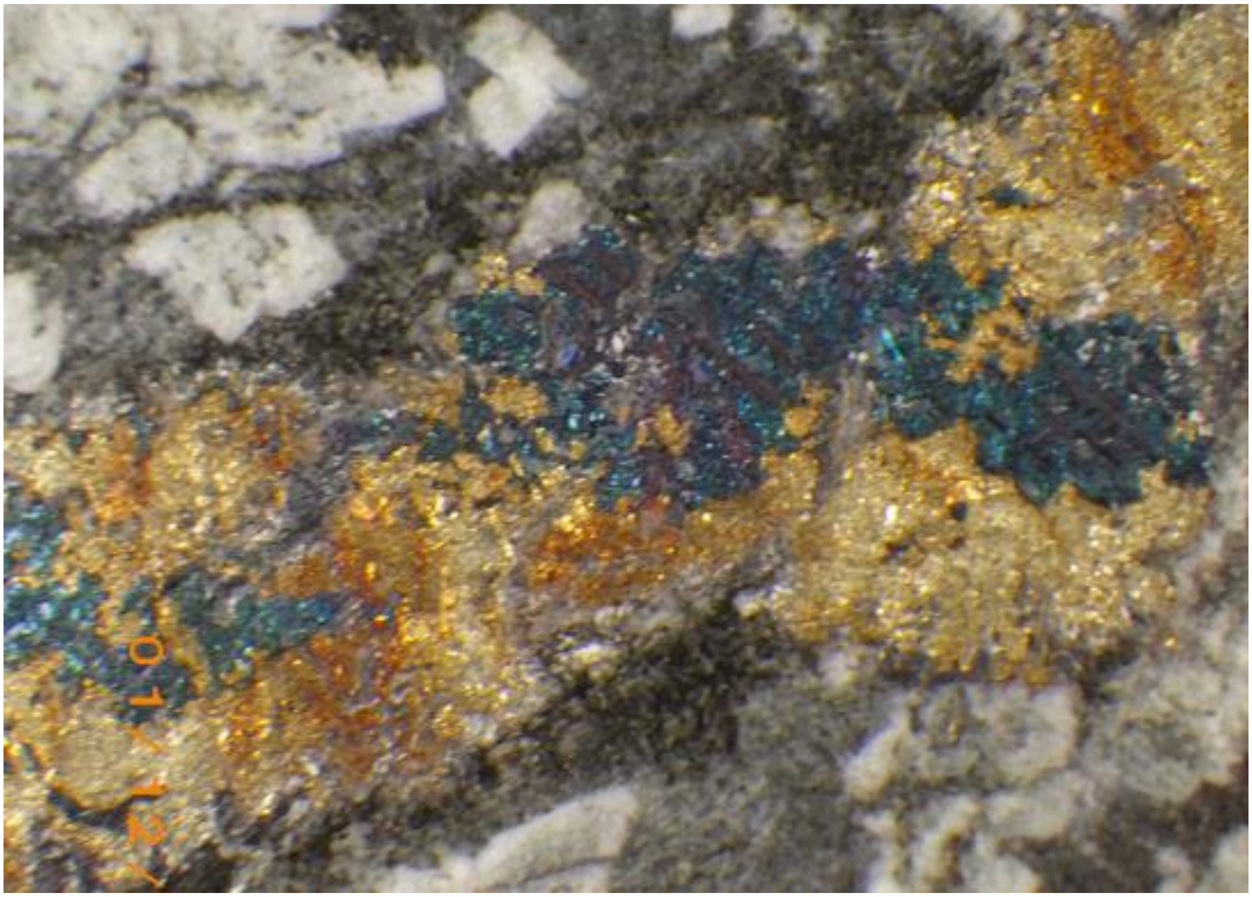
Figure 7-40: Mineralization Styles



Notes:
A) Chalcocite (cc) Replacing Chalcopyrite (cp) and Infilling Cavities in the Gangue (GGs);
B) Bornite (bn) Infilling Cavities in Gangue and Replaced by Chalcocite;
C) Bornite replacing Chalcopyrite; and
D) Magnetite (mt) Infilling Cavities in Gangue, with Edge Replacement by Hematite (hm).
Source: De La Cruz, P., Moreira and J., Salinas L., MAP - Minera Altos de Punitaqui (2014)

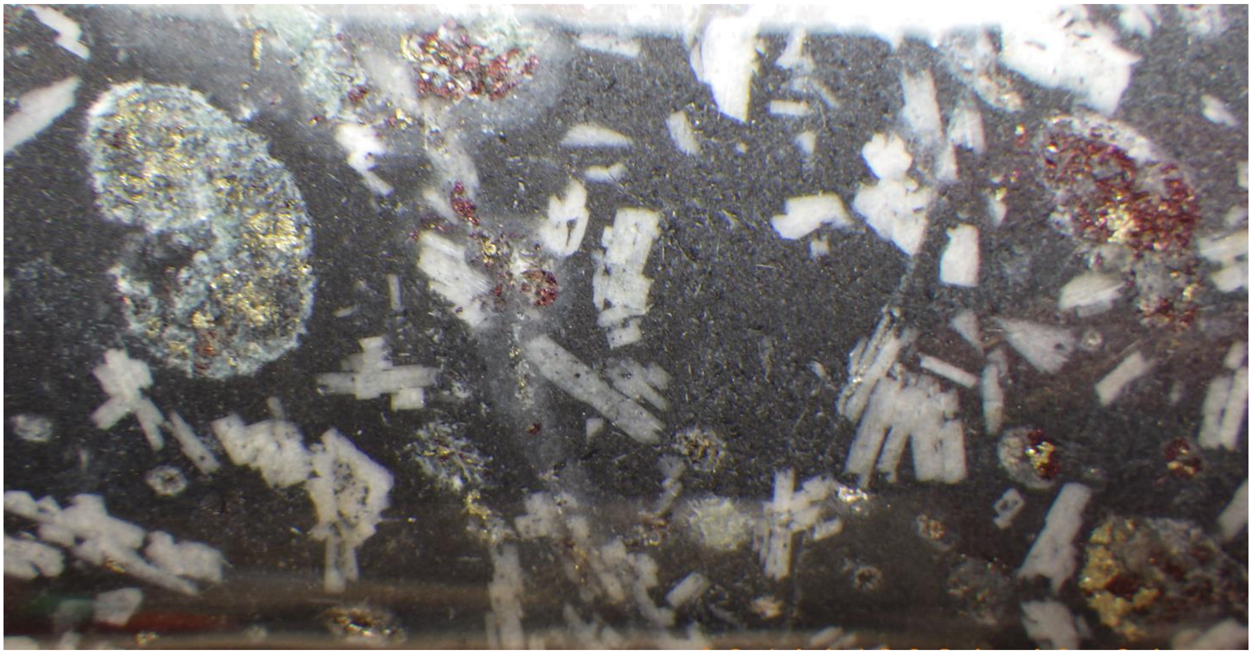
Figure 7-41, Figure 7-42, and Figure 7-43 are examples of copper mineralization at Dalmacia.

Figure 7-41: Bornite and Chalcopyrite Vein in Ocoite



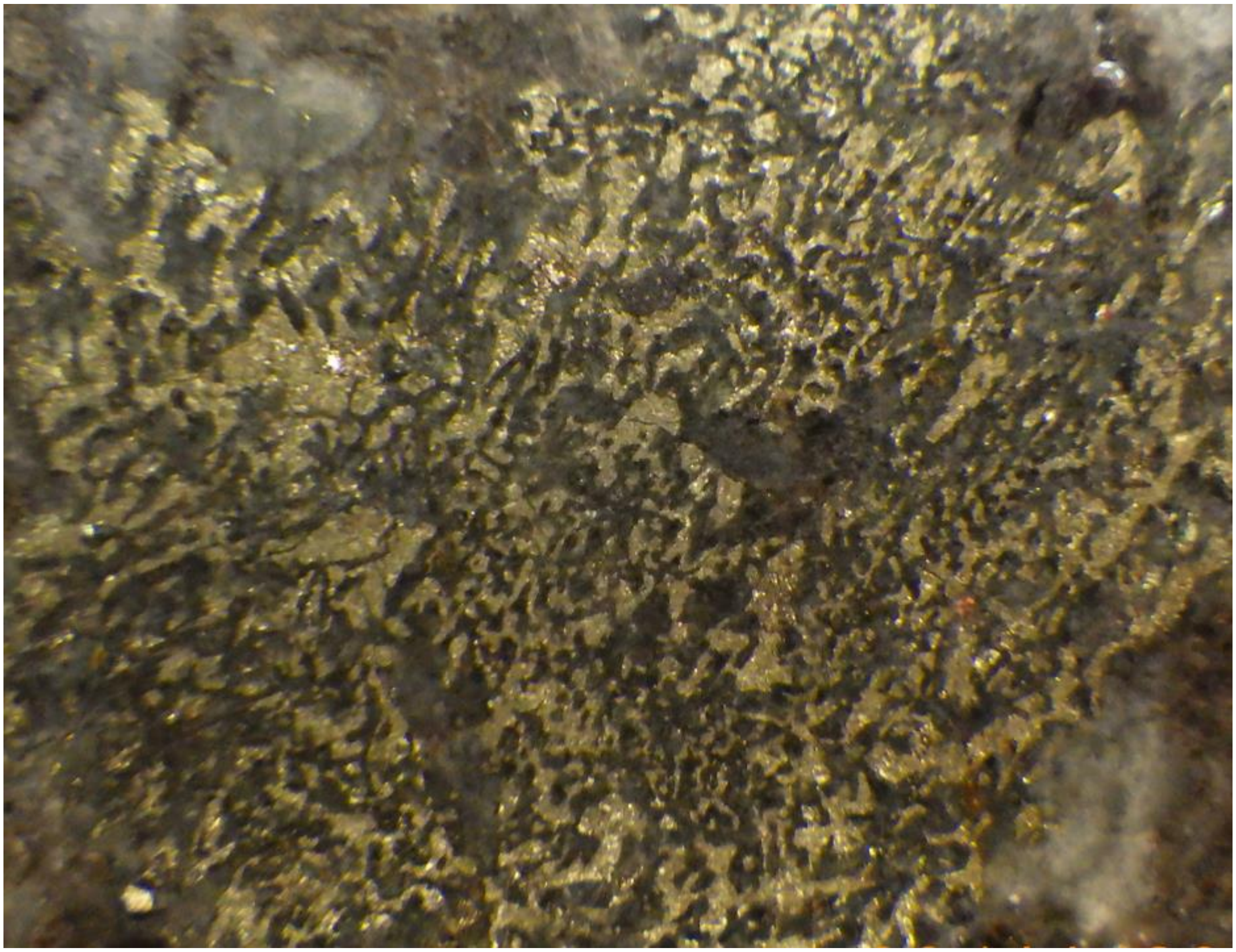
Source: Kirkham (2022)

Figure 7-42: Bornite - Chalcopyrite Infill and Veinlets with Quartz, Chlorite and Sericite in Vesicular Ocoite



Source: Kirkham (2022)

Figure 7-43: Chalcopyrite Replacing Potassium Feldspar



Source: Kirkham (2022)

Between surface and 50 m depth oxide copper minerals occur generally with partially oxidized sulphides. Below 50 m oxide copper minerals are rare.

The paragenetic relationship magnetite – bornite - chalcopyrite within the potassic alteration patches would indicate that the hydrothermal system originated at temperatures between 500°C and 350°C and intermediate sulphidation stages (Einaudi M., et al., 2003) as the first mineralization event. The second event would be related to the presence of veinlets of epidote + chlorite ± chalcopyrite ± pyrite ± sericite, associated with a phase of retrograde alteration related to metasomatism.

The different lithological types are generally moderately altered with more intense alteration in the mineralized zones. In the early stages biotite-magnetite and moderate to intense amphibolite alteration occurs in both the andesites and ocoites. Later quartz-chlorite-epidote-sericite-clay-albite alteration occurs. The main stage of mineralization is accompanied by intense silicification and sericitization. Intense biotite – magnetite, quartz - albite and chlorite-epidote-sericite alteration in Dalmacia drill core is displayed in Figure 7-44.

Figure 7-44: Biotite – Magnetite, Quartz - Albite and Chlorite-Epidote-Sericite Alteration in Dalmacia Drill core

Source: Kirkham (2022)

7.5 Geology and Mineralization – Cinabrio Norte

7.5.1 Overview

The Cinabrio Norte target is the northern extension of the main Cinabrio deposit. The Cinabrio Norte target is only 110 m north of the Cinabrio underground workings on the 220 m level.

The host to mineralization at Cinabrio Norte is the same TSU package of sedimentary rocks that occurs at Cinabrio to the south. The sedimentary package includes calcareous sandstones and conglomerates with intercalated calcareous black shales and carbon bearing fine grained sandstones. The stratigraphy and mineralization are similar to Cinabrio, however, in the northern part of Cinabrio Norte there is a volcanic unit within the sedimentary sequence which is not present in Cinabrio or San Andres. The volcanic unit is interpreted to be an auto-brecciated, locally pillowed, andesite lava flow. It separates the sedimentary stratigraphy into a lower and upper unit. Locally the andesite lava flow is weakly mineralized.

The TSU has been mapped along a north-south strike from the mine for 400 m. This package averages around 15 m thickness. Copper mineralization including chalcopyrite and bornite was emplaced by feeder structures into the host sedimentary horizon.

Previous drilling was focused on testing for mineralized extensions within the area immediately adjacent to the Cinabrio underground workings. Tamaya Resources targeted Cinabrio Norte with a very limited shallow drilling effort in 2008. The next phase of historic drilling was a follow-up program by Xiana Mining in 2020. Hole CNS-20-01 was drilled completely within the TSU resulting in multiple mineralized intercepts and, most importantly, confirmed the presence of TSU for over 200 m of strike length with anomalous copper sulphide mineralization.

The recent BMR drilling in this area just to the north of the Cinabrio workings confirmed the sedimentary stratigraphy tends to be narrow and in places weakly mineralized. There are isolated intersections with 1% copper, however, the drilling indicates that continuity of the mineralization is limited to small zones. Within this part of the Cinabrio Norte target, BMR drill hole CNN-22-33 collared about 300 m north of the Cinabrio workings intersected 14.9 m at 1.79% Cu and 6.5 g/t Ag. This intersection is at the base of the sedimentary stratigraphy and included mineralization in the underlying andesite. The mineralization intersected in CNN-22-33 remains open at depth.

The principal resources delineated at Cinabrio Norte are within an east-west trending zone 550 m to 650 m north of the Cinabrio deposit. This new resource includes intersections of copper mineralization in 14 drill holes that vary in width in downhole intercepts ranging from 40 m to 100 m and extend for over 350 m down dip. Additional drilling is required to determine the down dip extent of the mineralization.

7.5.2 Lithologies

7.5.2.1 Andesite Sequence

Below the sedimentary unit, hosting most of mineralization, is a sequence of andesite flows which are locally intruded by ocoites. The andesites are greenish gray to brown with fine andesine plagioclase and pyroxene phenocrysts in a ground mass composed of quartz, biotite, and hornblende (de la Cruz, 2015).

Ocoites (plagioclase phyric porphyritic andesites) occur as small discontinuous dykes and sills within the andesites. They are composed of 50% well-developed phenocrysts in a fine-grained groundmass, with microliths of plagioclase. The plagioclase phenocrysts are greater than 0.5 cm and have an oligoclase-andesine composition. augite-type pyroxenes with strong amphibolitization. In sectors, large crystals of scapolites and actinolite develop, which are totally altered to sericite-quartz biotite. Fundamental mass chloritized, silicified and slightly biotitized (de la Cruz, 2015).

7.6 Sedimentary Horizon Targeted Sedimentary Unit

As at the Cinabrio deposit, most of the copper mineralization at Cinabrio Norte is hosted in the Targeted Sedimentary Unit (TSU) sedimentary stratigraphy composed of interbedded fine to coarse grained sedimentary rocks with a variable tuffaceous component occurring as tuffs and tuff breccias. The rapid variation of bed thickness and composition suggest that the sediments were deposited in tectonically active sub-basins. Periods of quiescence are marked by the deposition of fine laminated calcareous pyritic shales that were interrupted by periods of rapid deposition of conglomerates, sandstones, and tuffaceous rocks. The tuffaceous rocks include reworked bedded fine to coarse volcanoclastics and unwelded to welded tuffs. Glass shards and fiamme are common in some tuffs. Figure 7-45 is a typical TSU shale unit from Cinabrio Norte zone drill hole CNN-22-41 from downhole depths of 393 m to 400 m and Figure 7-46 is an example of andesitic volcanoclastic sandstone in drill hole CNN-22-30 from a downhole depth of 356 m.

Figure 7-45: Laminated Shales Sequence in Drill Hole CNN-22-41: 393 m – 400 m

Source: Kirkham (2022)

Figure 7-46: Andesitic Volcanoclastic Sandstone in Drill Hole CNN-22-30: 356 m

Source: Kirkham (2022)

In the northern part of Cinabrio Norte target, there is a volcanic unit within the sedimentary sequence which is not present in Cinabrio or San Andres. The volcanic unit is interpreted to be an auto-brecciated, locally pillowed, andesite lava flow. It separates the sedimentary stratigraphy into a lower and upper unit. Locally the andesite lava flow is weakly mineralized. Figure 7-47 is an example of the auto-brecciated andesite in drill hole CNN-22-40 at a downhole depth of 308 m. Figure 7-48 is an example of the auto-brecciated andesite in drill hole CNN-22-39 at a downhole depth of 269 m.

Figure 7-47: Auto-Brecciated Andesite Lava Flow in Drill Hole CNN-22-40 308 m

Source: Kirkham (2022)

Figure 7-48: Auto-Brecciated Andesite Lava Flow in Drill Hole CNN-22-39: 269 m

Source: Kirkham (2022)

7.6.1.1 Volcanic Breccia

A volcanic sequence composed of andesitic polylithic volcanic breccias and lesser volcanic conglomerates and minor volcanoclastic sandstone overly the TSU sedimentary unit. The contact of the volcanic breccia with the underlying sedimentary sequence is an angular unconformity (de la Cruz, 2015). The volcanic breccias range in color from gray green to red brown. The volcanic breccia is massive and displays little evidence of stratification.

7.6.1.2 Dykes

A set of sub-vertical east-northeast trending dacitic porphyry dykes cuts through the sequence at Cinabrio Norte. The dykes range from 2 m to 15 m in width. These late dykes are not offset by mapped faults.

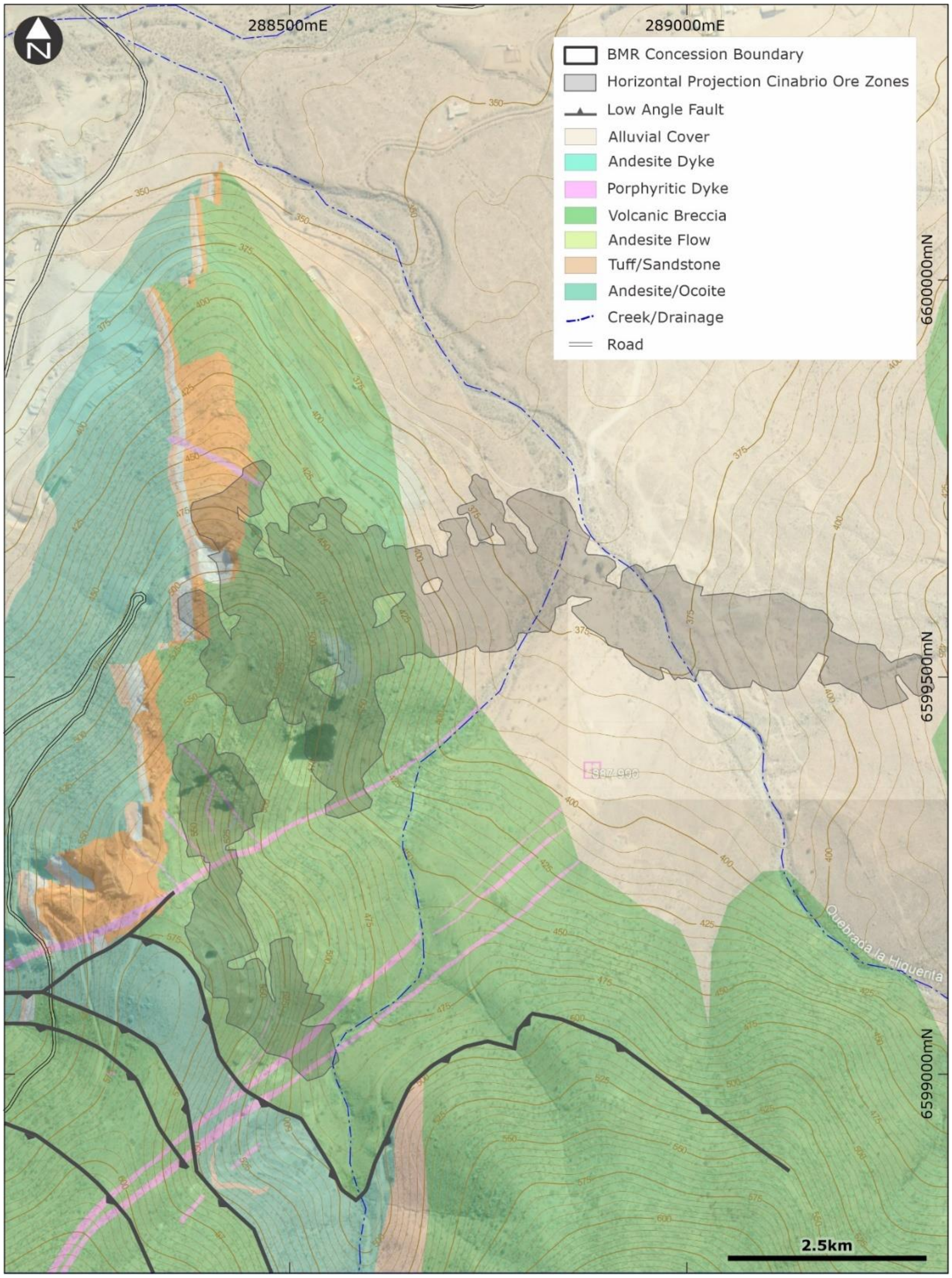
7.6.2 Structure

The most prominent faults at Cinabrio Norte are north-northwest trending normal faults dipping to the southwest with dips of -30º to -50º. These faults are related to the large scale listric extensional faulting which rotated the stratigraphic sequence to dip eastward. Like at Cinabrio, subsidiary faults to the main extensional faults resulted in minor offsets of 5 m to 30 m.

Several drill holes (CNN-21-06, CNN-21-08 and CNN-22-03) intersected wide cataclastic fault zone on the northeast corner of the Cinabrio Norte. The drilling indicates that the fault trends east-northeast and dips 65º to 75º to the north. The sedimentary horizon is cut-off by this fault. This fault may displace the sedimentary unit 100 m to 200 m westward north of the fault which matches with the trend of the sedimentary rocks at the Satan mine, to the northwest of Cinabrio Norte

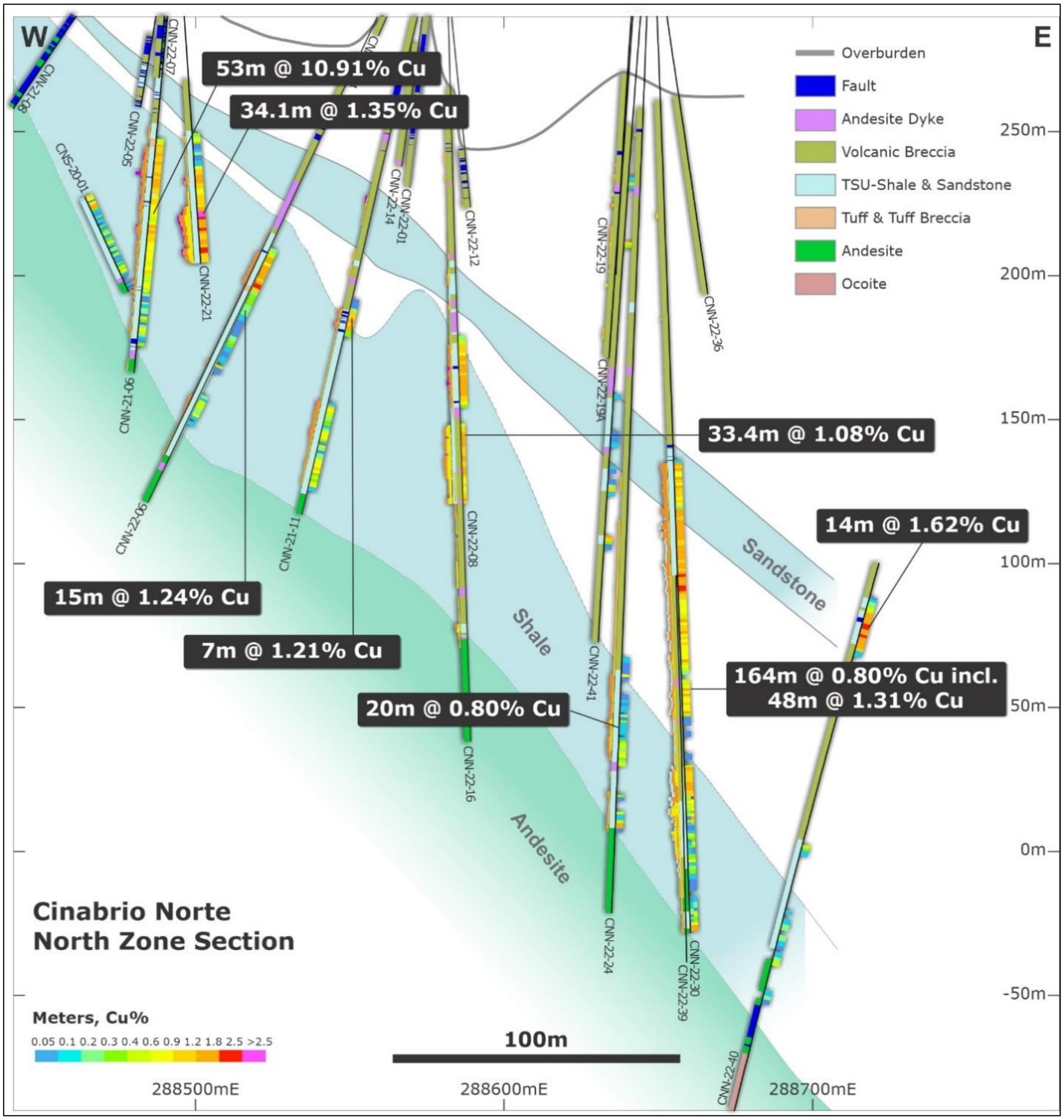
The geology and key structural controls at Cinabrio Norte are displayed in Figure 7-49 geology plan and Figure 7-50 a typical drill hole cross-section through the Cinabrio Norte zone.

Figure 7-49: Cinabrio Norte Geology



Source: Kirkham (2022)

Figure 7-50: Cinabrio Norte Drill Hole Cross-section



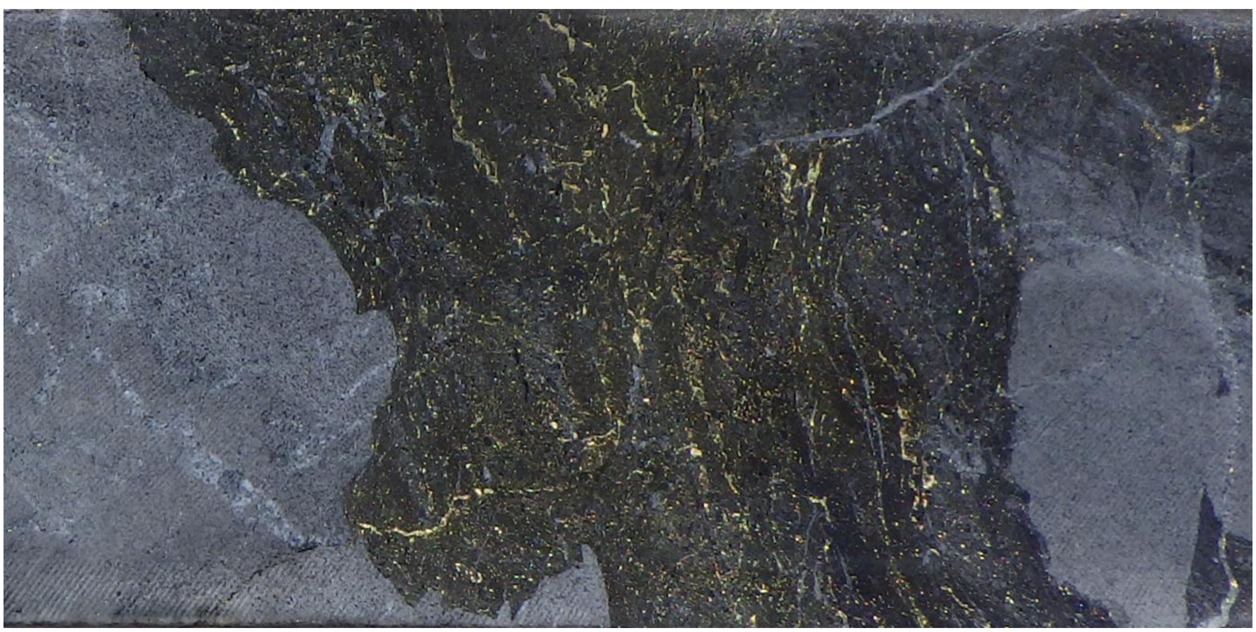
Source: Kirkham (2022)

7.6.3 Mineralization

Mineralization has a strike length of about 400 m and ranges between 10 m and 30 m thick. It is continuous to a depth of around 350 m. The Copper mineralization dips steeply to the east and is occasionally locally faulted with small offsets. The mineralization is predominantly chalcopyrite and minor bornite and pyrite.

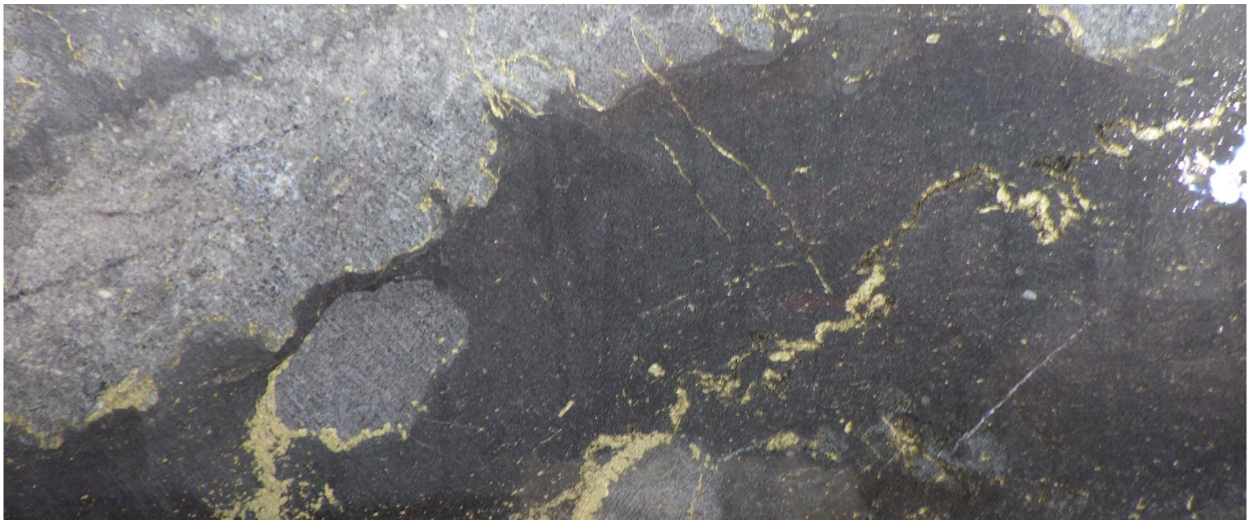
The mineralization is variable and believed to be controlled by mineralizing fluids focused along structures within the footwall rocks. Syngenetic pyrite is a common constituent of the sedimentary unit. Figure 7-51 is an example of finely disseminated and veinlets of chalcopyrite in shale Interbedded with silty sandstone in drill hole CNN-21-02 at a downhole depth of 228 m. Figure 7-52 is an example of disseminated chalcopyrite, in fractures and along contacts in drill hole CNN-21-30 at a downhole depth of 234 m. Figure 7-53 is another example of the mineralization consisting of chalcopyrite with quartz and calcite as breccia infill from drill hole CNN-21-30 at a downhole depth of 232 m. Figure 7-54 is an example of chalcopyrite and sphalerite veinlets and breccia infill from drill hole CNN-21-30 at a downhole depth of 268 m.

Figure 7-51: Finely Disseminated and Veinlets of Chalcopyrite in Shale Interbedded with Silty Sandstone in Drill Hole CNN-21-02: 228 m



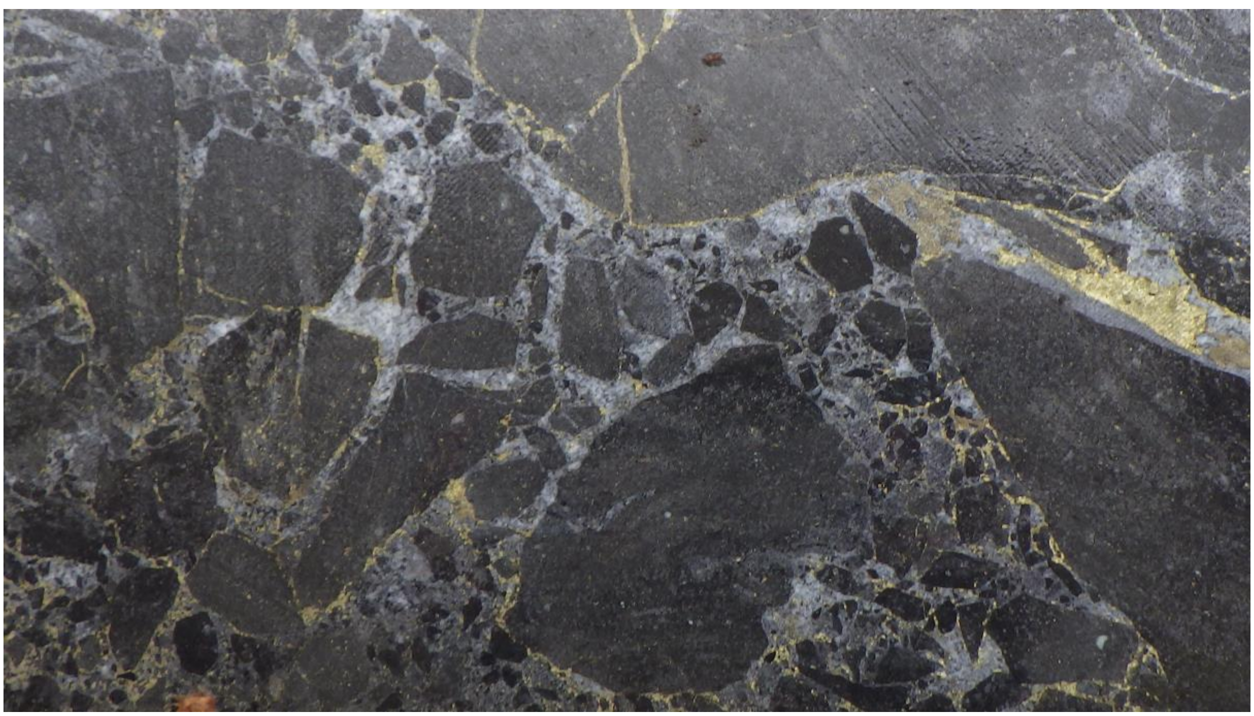
Source: Kirkham (2022)

Figure 7-52: Disseminated Chalcopyrite, in Fractures and Along Contacts in Drill Hole CNN-21-30: 234 m



Source: Kirkham (2022)

Figure 7-53: Chalcopyrite with Quartz and Calcite as Breccia Infill from Drill Hole CNN-21-30: 232 m



Source: Kirkham (2022)

Figure 7-54: Chalcopyrite and Sphalerite Veinlets and Breccia Infill from Drill Hole CNN-21-30: 268 m

Source: Kirkham (2022)

8 DEPOSIT TYPES

8.1 Introduction

In the Punitaqui-Ovalle district mineral deposits are related to hydrothermal activity and are considered broadly as epigenetic Cu± Au-Ag-Hg deposits. There are a number of actively producing copper and/or gold mines as well as numerous and widespread prospects and small workings. These mineral occurrences and mines include manto style copper mineralization, generally hosted in calcareous pyritic sedimentary units, structurally controlled copper (gold) deposits, quartz sulphide gold veins, with or without, copper mineralization and structurally controlled massive magnetite deposits with some copper mineralization.

This mineralization is structurally controlled "feeder" structures within dilational zones and shears. Principle mineral types include pyrite, chalcopyrite and bornite. In many deposits, copper and gold mineralization occur with magnetite and hematite which (Sillitoe, 2003) links these deposits to the iron oxide copper-gold (IOCG) family of deposits.

8.2 Manto-Type Deposits

Manto-type copper deposits occur in a number of geological settings; (1) as strata-bound disseminated bodies, (2) as steep hydrothermal breccias around barren, (3) finger-like gabbro to diorite plugs and (4) as vein systems within basaltic to andesitic arc volcanic sequences. The manto-type deposits comprise a distinctive class of copper mineralization in the Coastal Cordillera of northern and central Chile (Sillitoe, 1992). The largest deposit in this class, Mantos Blancos, is unusual in being partly hosted by felsic volcanic rocks and plugs. Broadly similar copper-silver deposits, including El Soldado, are widespread in the early Cretaceous volcanic and sedimentary rocks of the central Chile intra-arc basin.

In Coastal Cordillera of northern Chile (north of Santiago, <34°S), these volcanic-hosted stratiform deposits occur in Mesozoic age andesitic to basaltic dominated monoclinal volcano-sedimentary successions that are regarded to have formed in intracontinental rift zones near the plate margin with continental-arc volcanism. The net result being that the majority of these deposits are hosted in thick volcanic piles formed under an extensional regime with a steeply dipping Mariana-type subduction.

Chilean manto-type copper deposits can be further subdivided based on both temporal and spatial distribution. Jurassic age manto deposits are developed laterally along the coastal range in the north, Arica - Iquique – Tocopilla - Taltal areas while early Cretaceous deposits tend to be located further south in the intracontinental back-arc basins found in the Copiapó - La Serena - Santiago areas. The latter group includes the Punitaqui mining complex and adjacent deposits. On Figure 8-1 the distribution of Manto style deposits of northern Chile is displayed.

The host rocks of all these areas underwent low-grade regional (or burial) metamorphism and are intruded by calc-alkaline granitic rocks of the magnetite series (Ishihara, 1998; Kojima et al., 2003).

However, in several areas such an intrusion is not observed near deposits. Primary copper zones are generally developed in propylitic altered host rocks with albite, chlorite, epidote, and calcite.

Manto-type deposits have been subdivided into three main types on the basis of modes of occurrence:

- Tabular orebodies hosted within a particular stratigraphic horizon (i.e., Cinabrio, Cinabrio Norte, San Andres, Juana, Cullana and Zupilocos as well as Talcuna and Cerro Negro);
- Stacked tabular orebodies in hosted in lithologically permeable sections of the volcanic pile (i.e., Buena Esperanza and Michilla); and
- Structurally controlled irregular orebodies (i.e., Dalmacia, Mantos Blancos and El Soladado).

In manto-type deposits the typical sulphide copper minerals are chalcocite-digenite, bornite, and chalcopyrite, which are partially altered to secondary sulphides (secondary chalcocite-digenite, covellite) and oxides (atacamite and chrysocolla). The highest-grade parts of these deposits are typically controlled by the permeability provided by faults, hydrothermal breccias, dyke contacts, vesicular flow tops and flow breccias. The chalcocite-bornite cores of the large deposits commonly form at redox boundaries in the host stratigraphic packages and are overlain or flanked by sulphide-deficient zones containing hypogene hematite. Albite, quartz and chlorite are the main alteration minerals in these deposits.

Researchers have proposed both magmatic-hydrothermal and meta-morphogenic fluid origins for the manto-type deposits, although the latter alternative is favored by the obvious similarities to stratiform, sediment-hosted copper deposits. Nevertheless, emplacement of plutonic complexes may have been instrumental in causing the fluid circulation that resulted in manto-type copper formation. Genetic models of the manto-type deposits can be generally classified (Kojima et al., 2009) into the following:

- Syngenetic: Volcanic-derived;
- Epigenetic: Pluton-derived; and
- Epigenetic: Host rock-derived.

In the case of the host rock derived epigenetic model, metamorphic water generated during low-grade regional (burial) metamorphism and surface-derived fluids such as meteoric water and seawater including deeper basinal brine are assumed as the origin of mineralized fluids. Figure 8-2 is a simplified genetic model for manto style deposits in northern Chile.

At Punitaqui, BMR's Cinabrio mine cluster of deposits (Cinabrio, Cinabrio Norte and San Andres) are all considered to be manto style copper deposits.

Although many manto-type copper deposits contain albite alteration, calcite, and minor hematite, and some are spatially related to gabbro-diorite intrusive bodies which are features that are characteristic of some central Andean IOCG deposits. The manto-type appears to be distinguished by its asymmetrical sulphide-oxide zonation with a marked deficiency in gold. Williams (1999) and Pollard (2000) suggested a select number of the large manto-type deposits (e.g., Mantos Blancos) could be classified as members of the IOCG type of deposits. Vivallo and

Henrı´quez,1998 and Orrego et al. 2000 have proposed that manto-type deposits could be shallow manifestations of the IOCG class of deposits. Research to date has yet to confirm a direct genetic relationship or transitional link to IOCG deposits (Sillitoe, 2003).

Figure 8-1: Manto-Type Copper Deposit Distribution Northern Chile

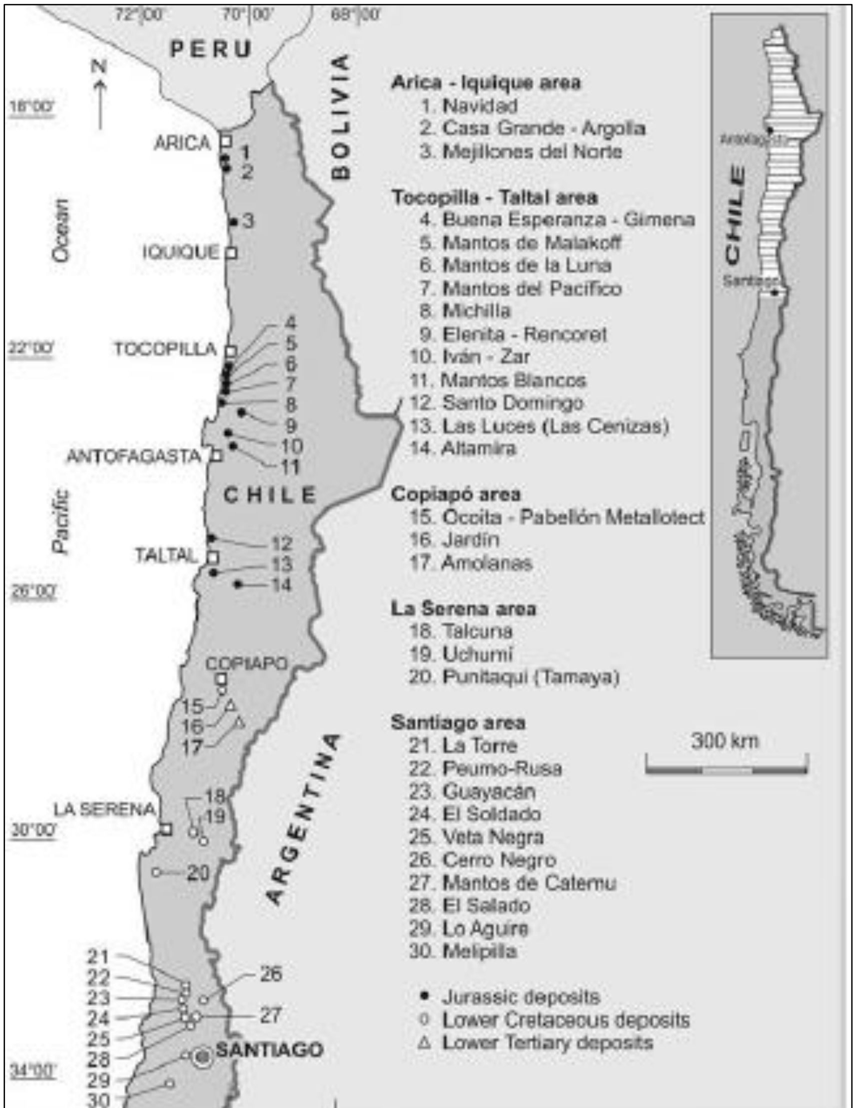
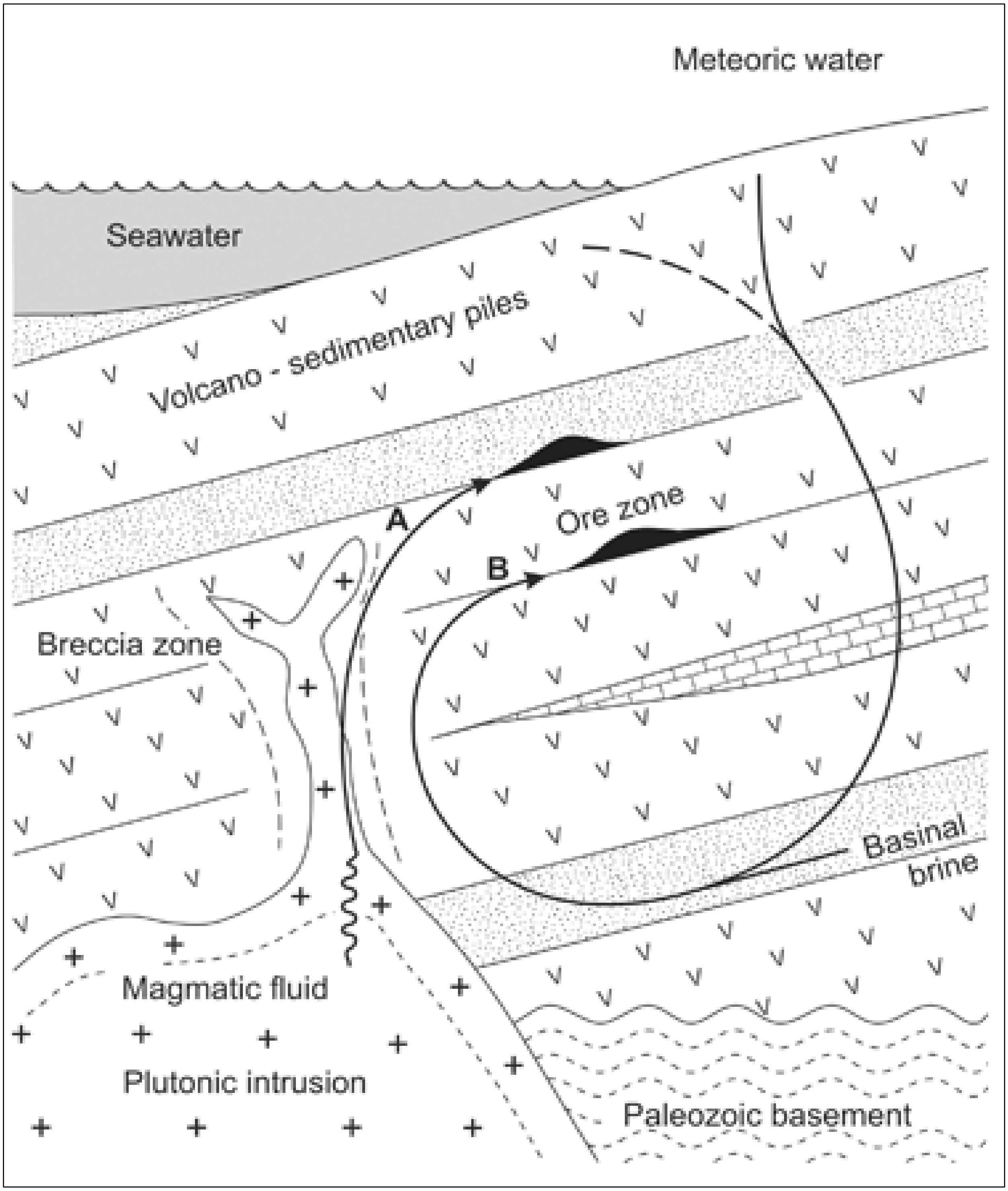


Fig. 1 Spatial distribution of principal manto-type copper deposits in northern Chile (compiled from Sato, 1984; Camus, 1990; Maksaev *et al.*, 2007).

Source: Kojima et al. Resource Geology (2009)

Figure 8-2: Genetic Aspects of Manto style Copper Deposits of Northern Chile



Source: Kojima et al. Resource Geology (2009)

8.3 Iron Oxide Copper-Gold Deposits "IOCG"

Iron oxide-copper-gold (IOCG) deposits comprise a broad range of mineralization styles which, as the name implies, are grouped together primarily because these deposits contain abundant hydrothermal magnetite and/or specular hematite as well as chalcopyrite and bornite. In addition to the copper and by-product gold, IOCG deposits often contain significant concentrations of Co, U, REE, Mo, Zn, Ag and other elements.

Chile is home to a number of significant iron oxide copper-gold (IOCG) deposits. From north to south, the noteworthy Chilean IOCG deposits include Cerro Negro, Manto Verde, Candelaria, Los Colorados, Dominga and El Soldado. All these deposits host more than 200 Mt of copper with iron and gold.

The Chilean IOCG type deposits are distributed along the Jurassic coastal range to early Cretaceous intra-basin areas of northern to central Chile. This 700 km north-south trending zone is locally known as the Central Iron Belt or "Iron Belt". Within the coast range mountain range, Kiruna and IOCG type deposits are associated with the Atacama Fault System and hosted in Lower Cretaceous intrusive and volcanic rocks.

IOCG deposits are closely associated with to plutonic complexes and regional coeval fault systems. The host rocks are often intruded by subvolcanic stocks and dykes. IOCG deposits normally share fault and fracture systems with earlier mafic dykes, many of which are dioritic in composition, emphasizing the close connection with mafic magmatism. These deposits display sodic, calcic and potassic alteration, either alone or in some combination. Mineralization often displays both upward and outward zonation from magnetite-actinolite-apatite to specular hematite chlorite-sericite and with a Cu-Au-Co-Ni-As-Mo-U- (LREE) signature.

The iron belt consists of numerous Kiruna-type magnetite ± apatite deposits hosted in lower Cretaceous metavolcanics such as the Cerro Imán, Los Colorados, El Algarrobo, El Tofo, El Romeral and El Dorado deposits.

Geologic characteristics of the IOCG deposits of Chile have resulted in a broad classified as follows:

- Skarn-type (Farola, San Antonio and Panulcillo deposits);
- Vein-type (Gatico, Montecristo, Julia and El Soldado deposits);
- Breccias-type (Carvizalillo de las Bombas, Teresa de Colm deposits); and
- Composite- type (Candelaria, Punta del Cobre, Mantoverde deposits).

Figure 8-3 displays the locations of the main IOCG occurrences in Northern Chile.

A number of possible origins have been proposed for the Chilean IOCG deposits that include the following genetic models (Williams et al., 2005):

- Epigenetic: Subvolcanic magma-derived;

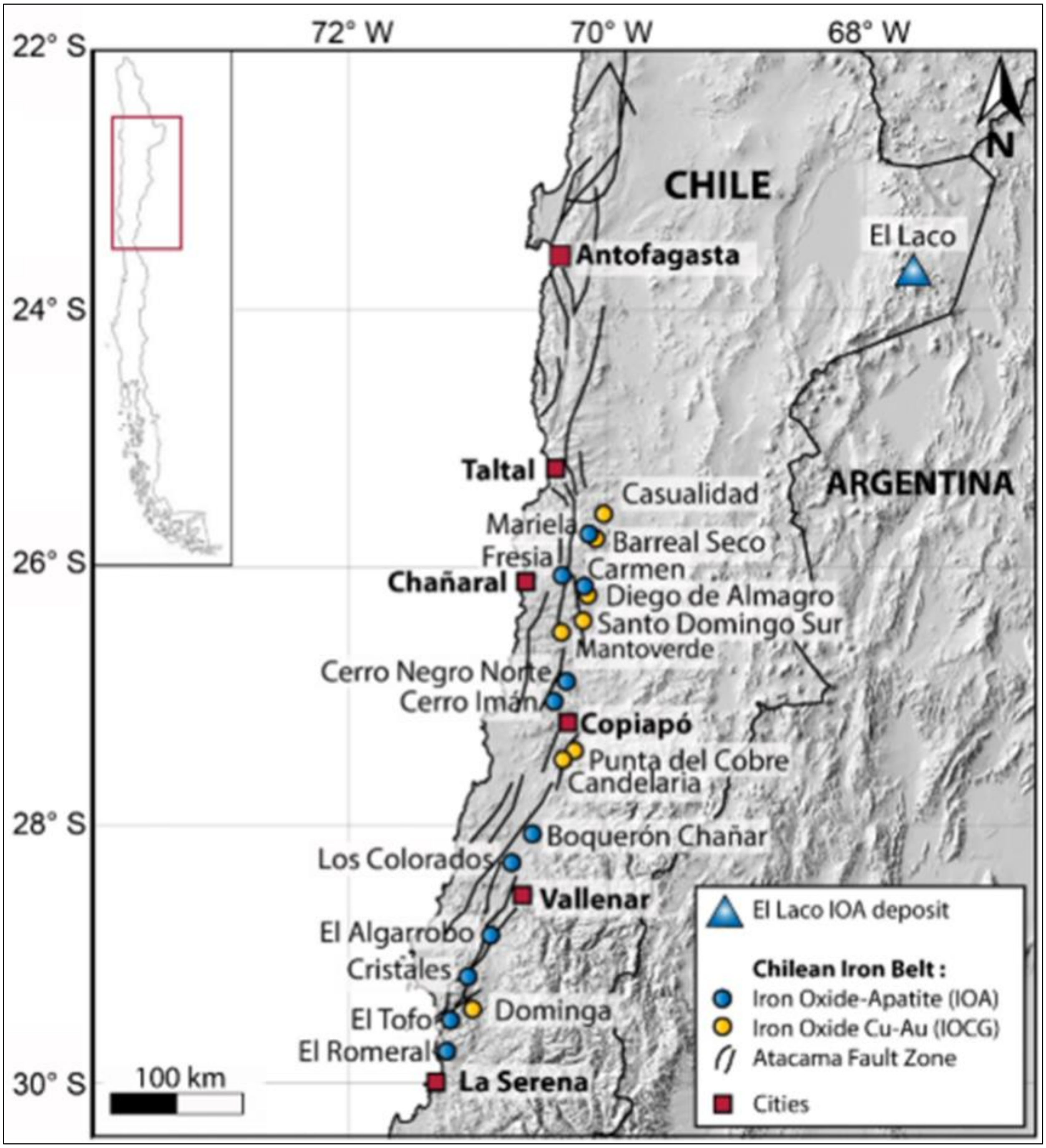
- Epigenetic: Burial metamorphic-derived; and
- Iron oxide-copper-gold.

Figure 8-4 is a simplified schematic of the lithospheric geological setting for the IOCG deposits in northern Chile.

The best known of the Chilean IOCG deposits is Candelaria-Punta del Cobre mining complex near Copiapó which some researchers have compared to South Australia's Olympic Dam IOCG deposit. The orebodies are hosted by Lower Cretaceous andesitic to dacitic volcano-sedimentary rocks. The Atacama Kozan deposit, located east of the Candelaria deposit, characteristically is a layered stratiform orebody. The host rocks have undergone multiple widespread pervasive and locally fracture-controlled hydrothermal events, which have resulted in extensive sodic-calcic alteration assemblages (sodic plagioclase-scapolite-tourmaline-actinolite-epidote and calcite) and potassic alteration (orthoclase-biotite).

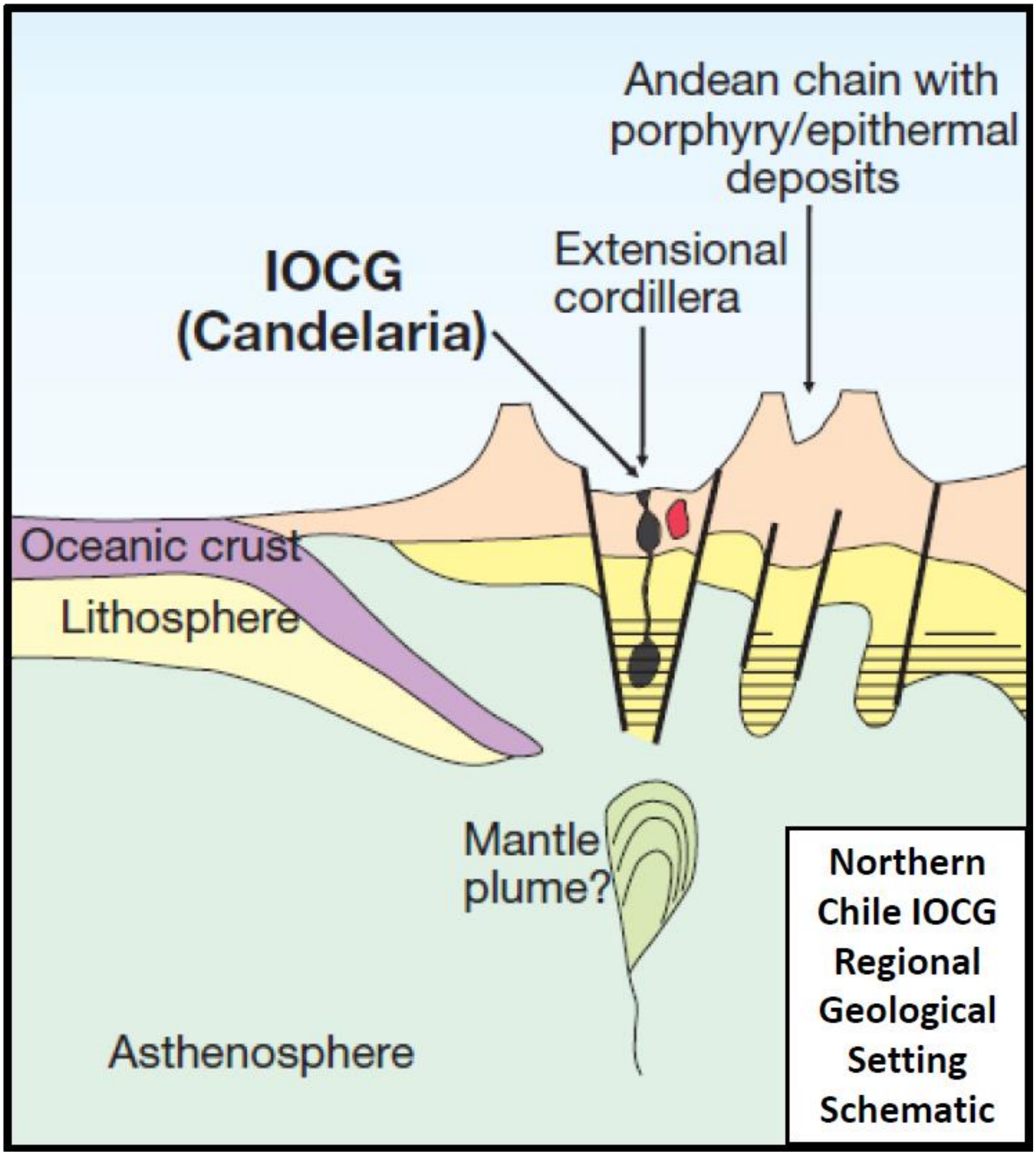
Figure 8-5 is a simplified geological section of the Candeleria open pit with photos of typical mineral assemblage of magnetite-pyrite-chalcopyrite hosed in altered tuffs and andesites.

Figure 8-3: Chilean Iron Belt with IOCG and IOA Type Deposits. Modified from Barra et al 2017



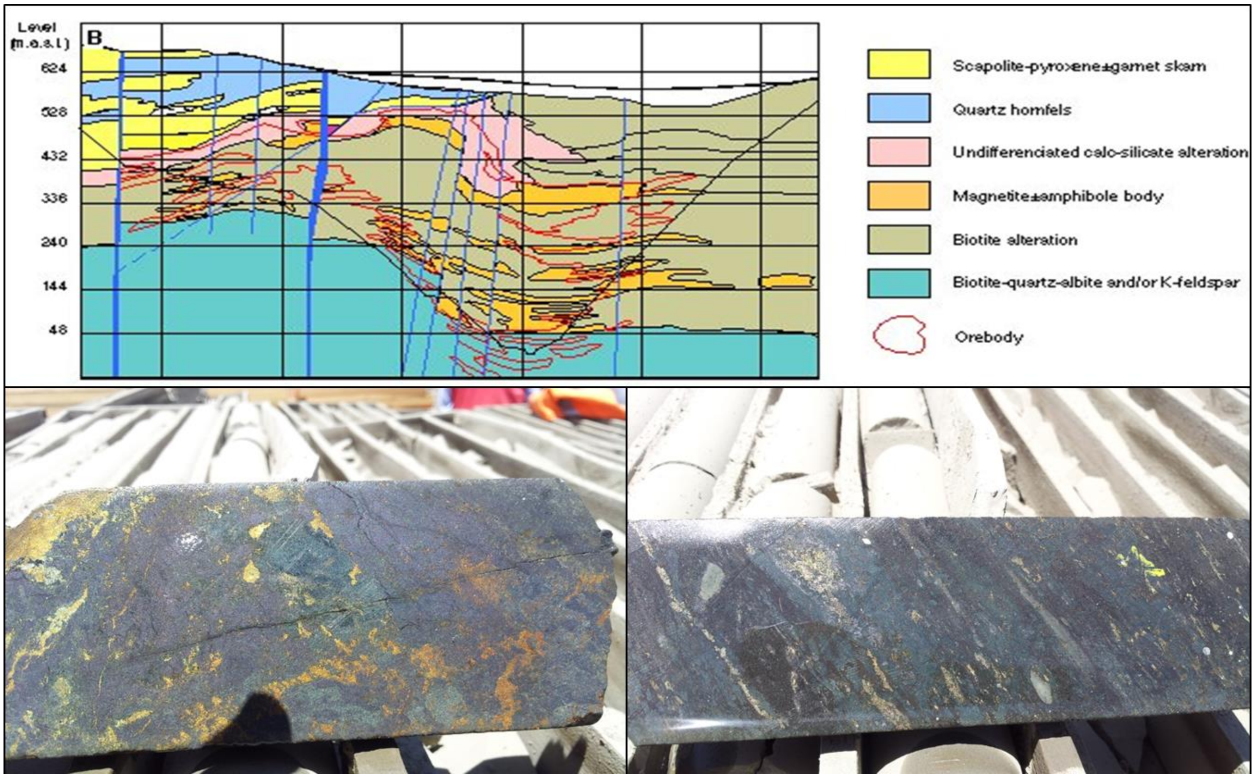
Source: Barra et al (2017)

Figure 8-4: Schematic Lithospheric Setting of Chilean IOGC Deposits. Modified from D. Groves et al 2010



Source: Groves et al; Society of Economic Geologists (2010)

Figure 8-5: Simplified Geological Section of the Candeleria Open Pit with Photos of Typical Mineral Assemblage



Source: Barra et al (2017)

9 EXPLORATION

9.1 Overview

This section describes the 2021–2022 exploration work completed by BMR at the Punitaqui mining complex. The primary exploration focus has been the completion of the Phase 1 resource delineation and exploration drilling at:

- Cinabrio mine;
- San Andres zone;
- Dalmacia zone; and
- Cinabrio Norte zone.

Details of these drill programs are detailed in Section 10 of this report.

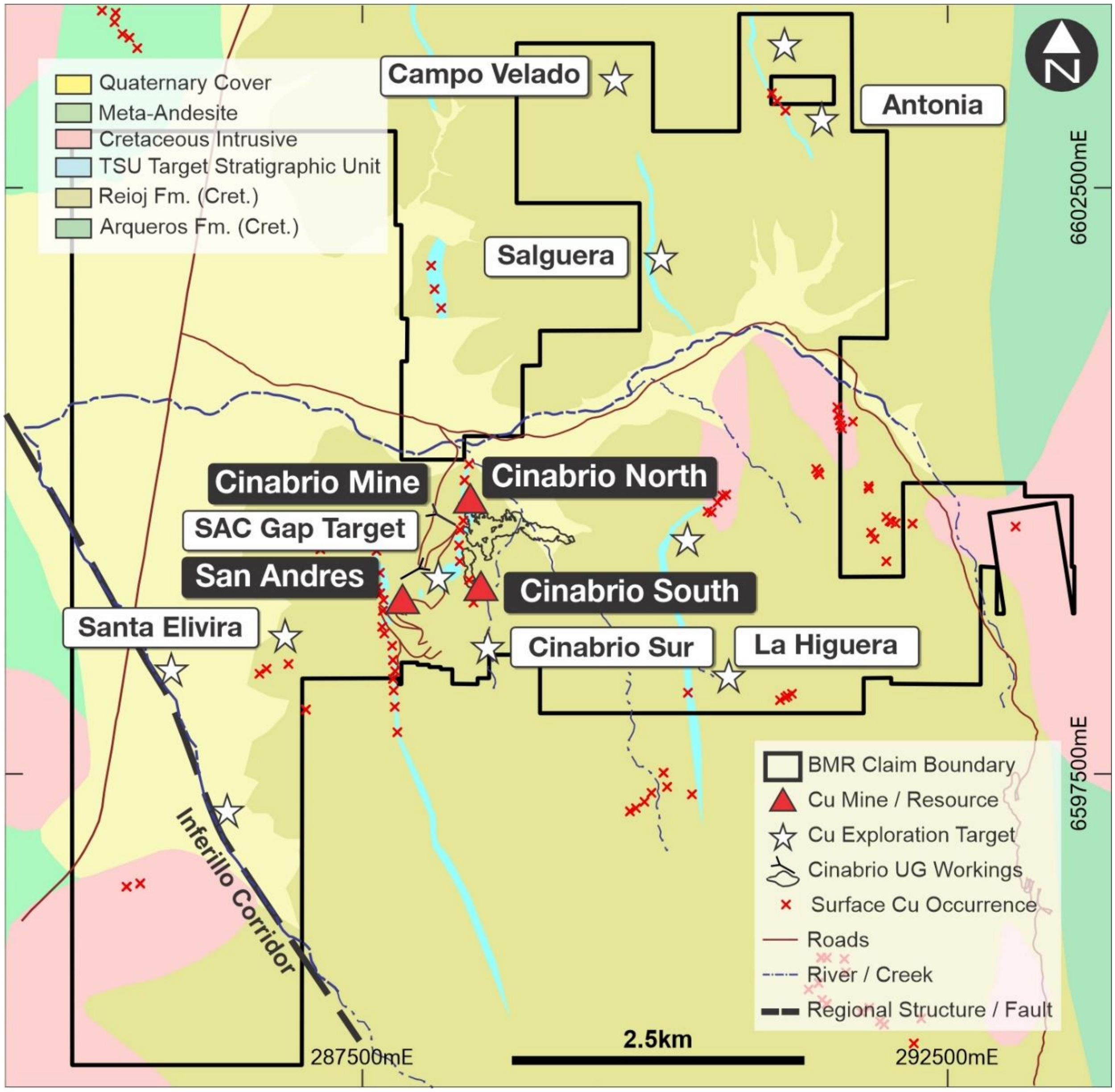
The exploration field work program has been focused on the Cinabrio Block which hosts the Cinabrio mine, San Andres resource and Cinabrio Norte resource. Exploration targeting has identified a select number of zones with outcropping favorable sedimentary rocks similar to the host rocks at the Cinabrio deposit and/or surface copper oxide mineralization exposed in historic prospect pits and/or workings.

At this point in time, the field exploration program is still in its early stages with activities including reconnaissance and detailed geological mapping, prospecting, rock grab sampling, channel sampling of historic pits and workings, stream sediment sampling and ground geophysics magnetic survey.

The majority of the work completed to date focused on two targets La Higuera and Santa Elvira. The current program will focus on the targets highlighted on Figure 9-1:

1. SAC Gap target: Surface oxide copper mineralization hosted in faulted block of TSU sedimentary unit associated with IP Chargeability along strike at depth;
2. Santa Elvira target: Structurally controlled surface oxide copper mineralization hosted in andesite;
3. La Higuera target: Surface oxide copper mineralization hosted in TSU sedimentary unit shales and sandstones;
4. Campo Velado target: Surface copper mineralization hosted in sediments;
5. Salguera target: Surface copper mineralization hosted in TSU sedimentary unit shales and sandstones; and
6. Cinabrio Sur target: sandstone hosted outcropping copper target.

Figure 9-1: Cinabrio Block Geology and Exploration Target Map



Source: Kirkham (2022)

9.2 Cinabrio

BMR compiled the geological framework from previous surface mapping and re-examined of historic drilling.

A limited diamond core drilling program (8 holes / 855.22 m) was completed in 2021. This drilling targeted the immediate southern extensions of the Cinabrio orebody just beyond the workings on the 440 m level in an earlier where a series of historic reverse circulation holes had confirmed the presence of the favourable sedimentary host rocks and copper mineralization.

In addition, several holes were drilled farther south to test for the presence of favorable stratigraphy and mineralization below an interpreted low angle fault. The drilling resulted in a total of 66 drill core samples representing 66.6 m of drill core submitted for assay.

An underground resource delineation and exploration drill program is being planned.

9.3 San Andres

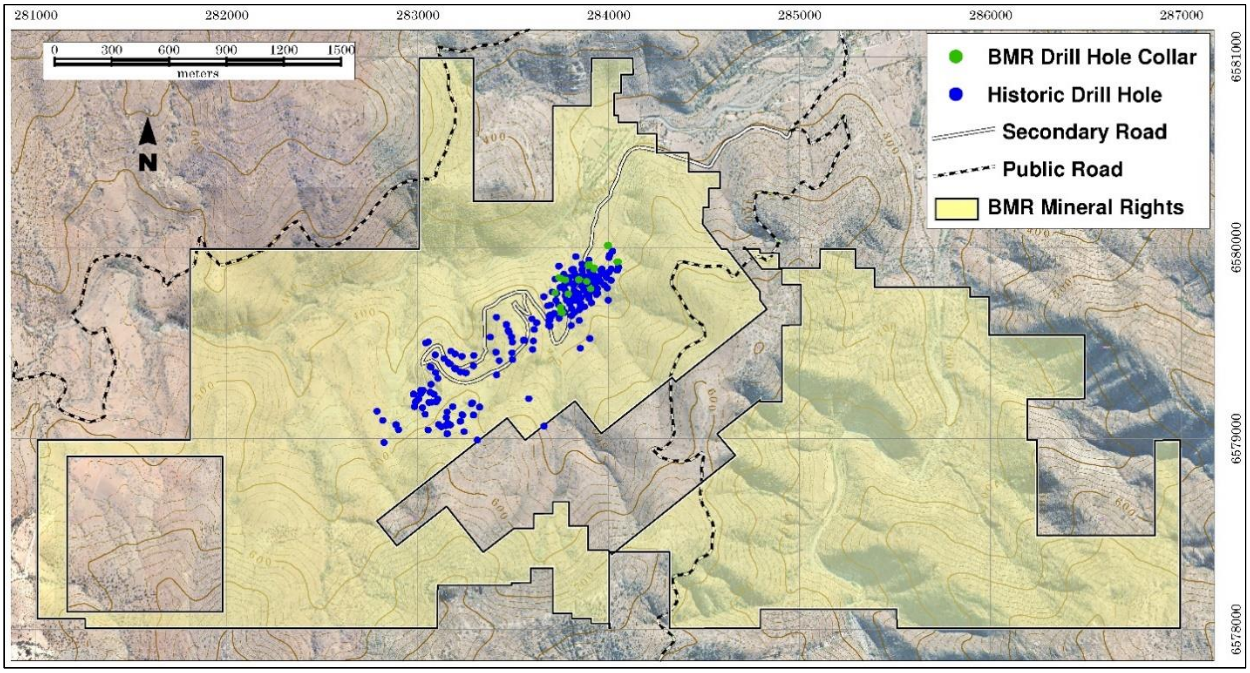
BMR compiled the geology from previous surface mapping and re-examined the historic drilling prior to the commencement of drilling. In 2021-2022, BMR completed a follow-up diamond core infill drill program (38 holes / 8,211.61 m).

9.4 Dalmacia

The Dalmacia mineral rights cover an area of 8.88 km^2. Historical and BMR exploration work has centered on the western central part of the concession area. In the area explored, historic exploration work consisted of limited geologic mapping, 52,725 m of drilling in 225 drill holes and small “trial” open pit excavations.

All historical geology and drilling data was reviewed and compiled. In 2021-2022, BMR completed a follow-up diamond core infill - exploration drill program (51 holes / 9,727.66 m). The distribution of drilling within the concession boundaries are displayed on Figure 9-2. There is little to no exploration information available outside of the area drilled.

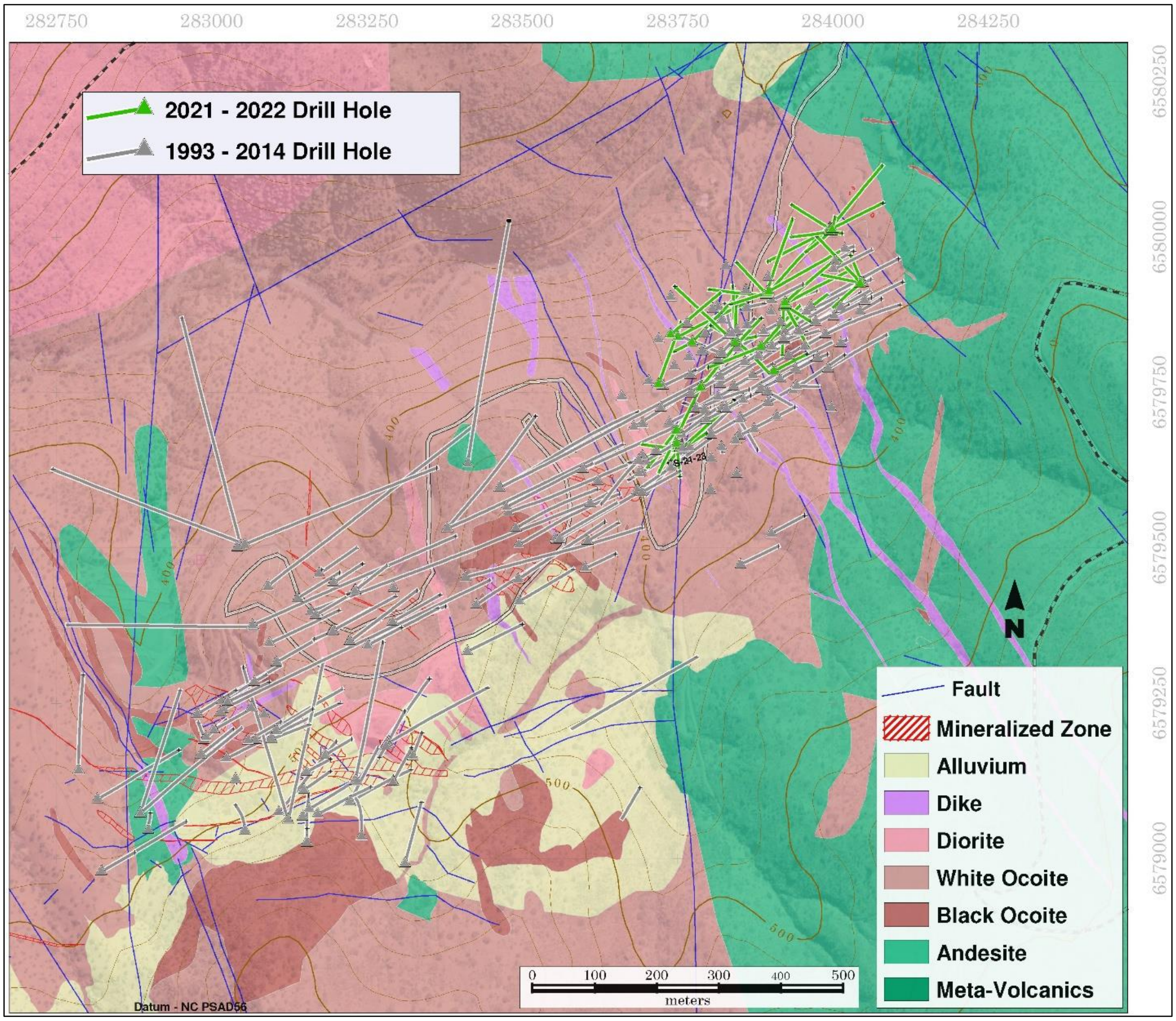
Figure 9-2: Dalmacia Concession Block with Historic & BMR Drilling



Source: Kirkham (2022)

The BMR drilling was focused on a 600 m strike length at the northern end of the 1.6 km long Dalmacia trend. The northern Dalmacia resource remains open at depth and warrants additional exploration diamond core drilling that could be staged from surface or later from the underground workings. Additional step-out reverse circulation drilling is planned to test the remaining 1 km of strike length at Dalmacia. Figure 9-3 details Dalmacia Geology as well as Historic and BMR 2021-2022 exploration drilling.

Figure 9-3: Dalmacia Geology with Historic & BMR Exploration Drilling



Source: Kirkham (2022)

9.5 Cinabrio Norte

The Cinabrio Norte zone is northward extension of the north-south striking moderate east dipping sedimentary stratigraphy which hosts the Cinabrio ore bodies. This target zone extends for 630 m along strike from the north edge of the Cinabrio orebodies, in the south, to the north edge of the BMR controlled mineral rights, in the north.

Historical exploration work at Cinabrio Norte included geologic mapping, a limited Induced Polarization geophysical survey and limited drilling. Several programs of surface geologic mapping were completed at Cinabrio Norte by Tamaya Resources, Glencore, and Xiana Mining. Prior to BMR acquisition of the Punitaqui project, all three of the previous operators had completed at total of 18,083 m of drilling in 75 drill holes.

The Tamaya Resources (CMP) and Glencore (MAP) drilling, conducted from 2004 to 2015 identified and delineated the southern part of the Cinabrio Norte target near the Cinabrio mine workings. The drilling confirmed that the host sedimentary stratigraphy and mineralization continued to the north, however, in general the copper mineralization encountered was sporadic and weakly anomalous.

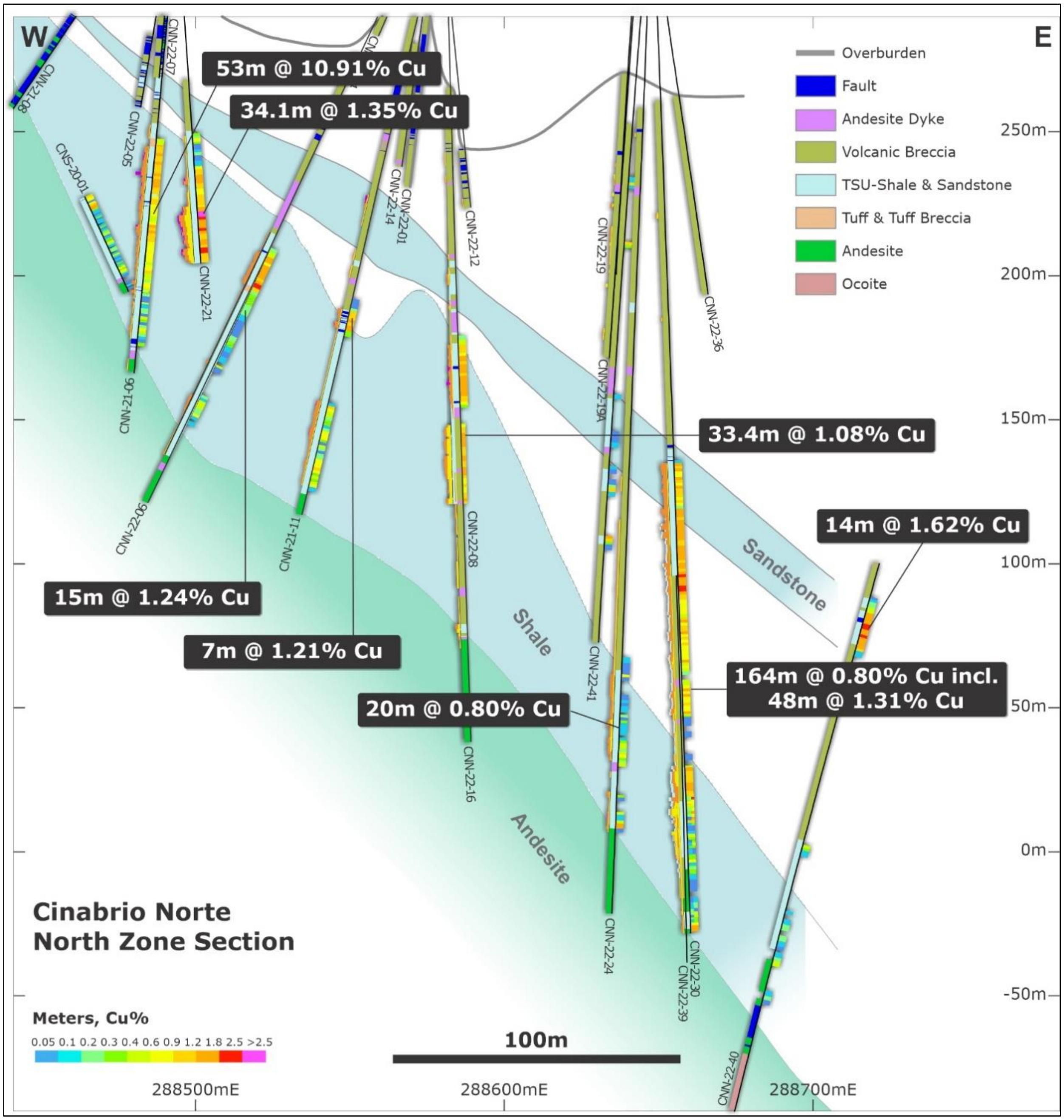
The Xiana Mining drilling tested the host sequence farther north of the earlier drilling. In order to test the target zone as far north as possible, Xiana drilled a hole at a -30º degree inclination towards the north, subparallel to the target stratigraphy. This hole crossed the stratigraphy at a low angle and confirmed that the mineralized sedimentary stratigraphy extended at least another 200 m north of previous drilling.

BMR complied the geology from previous surface mapping and re-examination of historic drilling. An exploration drill program was designed to infill and extend the previous drilling to determine the potential of the Cinabrio Norte target. To minimize the number of drill pads required it was necessary to fan holes in various directions from a few drill pads including holes with a direction similar to the strike direction. This resulted in some drill holes intersecting the target stratigraphy at angles as low as -30º.

The 2021 - 2022, follow-up drilling by BMR resulted in the completion of 54 diamond core holes totaling 13,731.74 m. The 2021 - 2022 program resulted in a total of 1,761 drill core samples submitted for assay representing 2,143.8 m of drill core sampled.

Results of the BMR drilling are summarized in Section 10 Drilling of this report. The Cinabrio Norte zone remains open at depth. A follow-up resource delineation and exploration drill program are planned. Figure 9-4 is a composite cross-sectional view of the Cinabrio Norte zone with drilling and significant copper mineralized intercepts.

Figure 9-4: Cinabrio Norte Composite Cross-section with Drilling and Significant Copper Intercepts



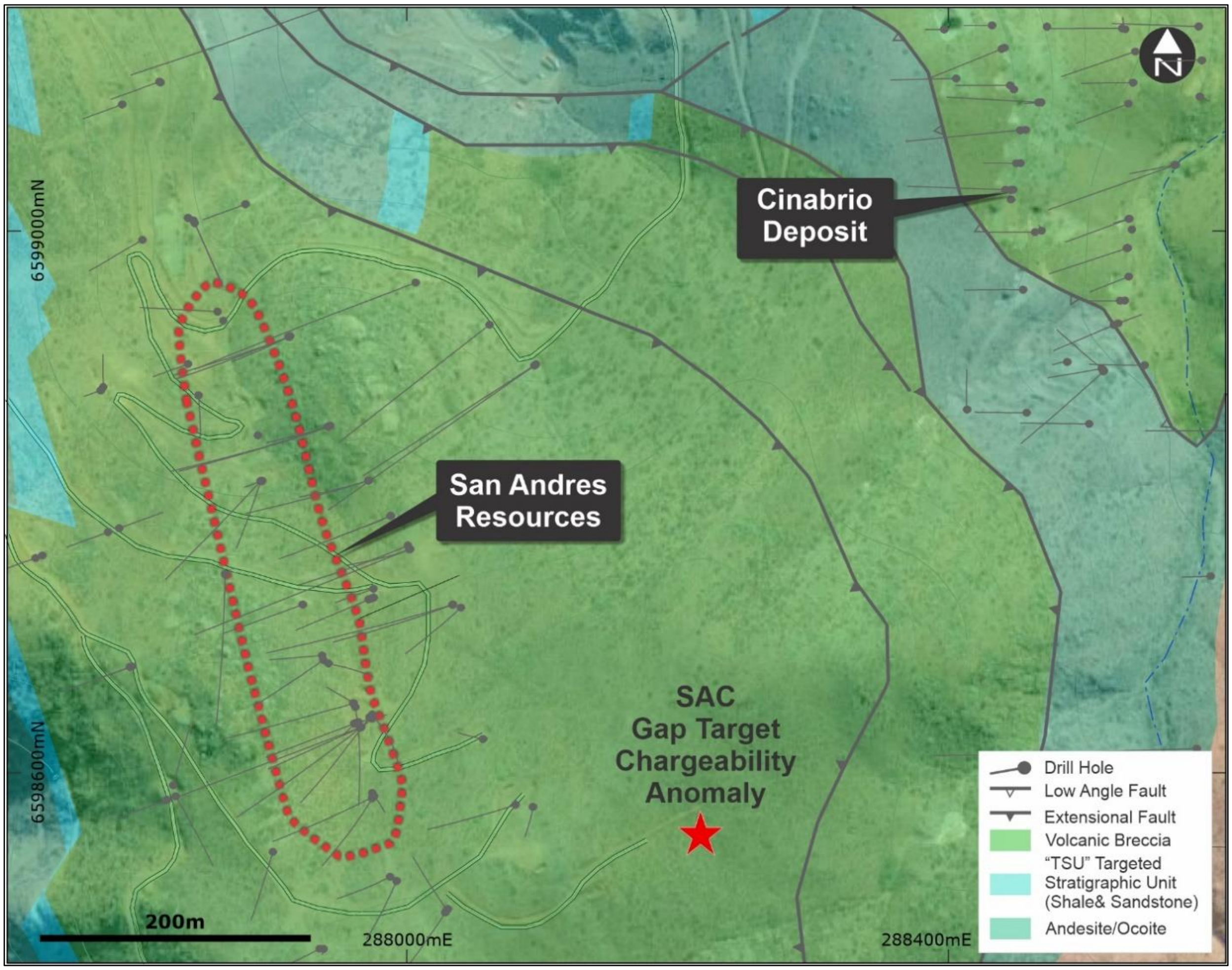
Source: Kirkham (2022)

9.6 SAC Gap

The SAC Gap target is an outcropping zone of sedimentary unit that hosts the mineralization at Cinabrio, and San Andres situated between the Cinabrio mine and the San Andres resource. The target is interpreted as a faulted controlled block.

The SAC Gap target is defined by a small outcrop of the sedimentary rocks located between San Andres and Cinabrio and a strong chargeability anomaly on an IP line located 500 m south of the outcrop. The outcropping sedimentary rocks are interpreted as a fragment of the sedimentary unit between 2 strands of the San Andres Fault. The down stratigraphic dip distance from the upper bounding fault to the lower bounding fault is approximately 25 m at the outcrop. It is possible that the upper and lower bounding faults diverge to the south and the fault fragment of sedimentary rocks is larger to the south. If this is the case, then the chargeability anomaly could be caused by a sizeable body of mineralized sedimentary rocks. Figure 9-5 details the SAC Gap target geology.

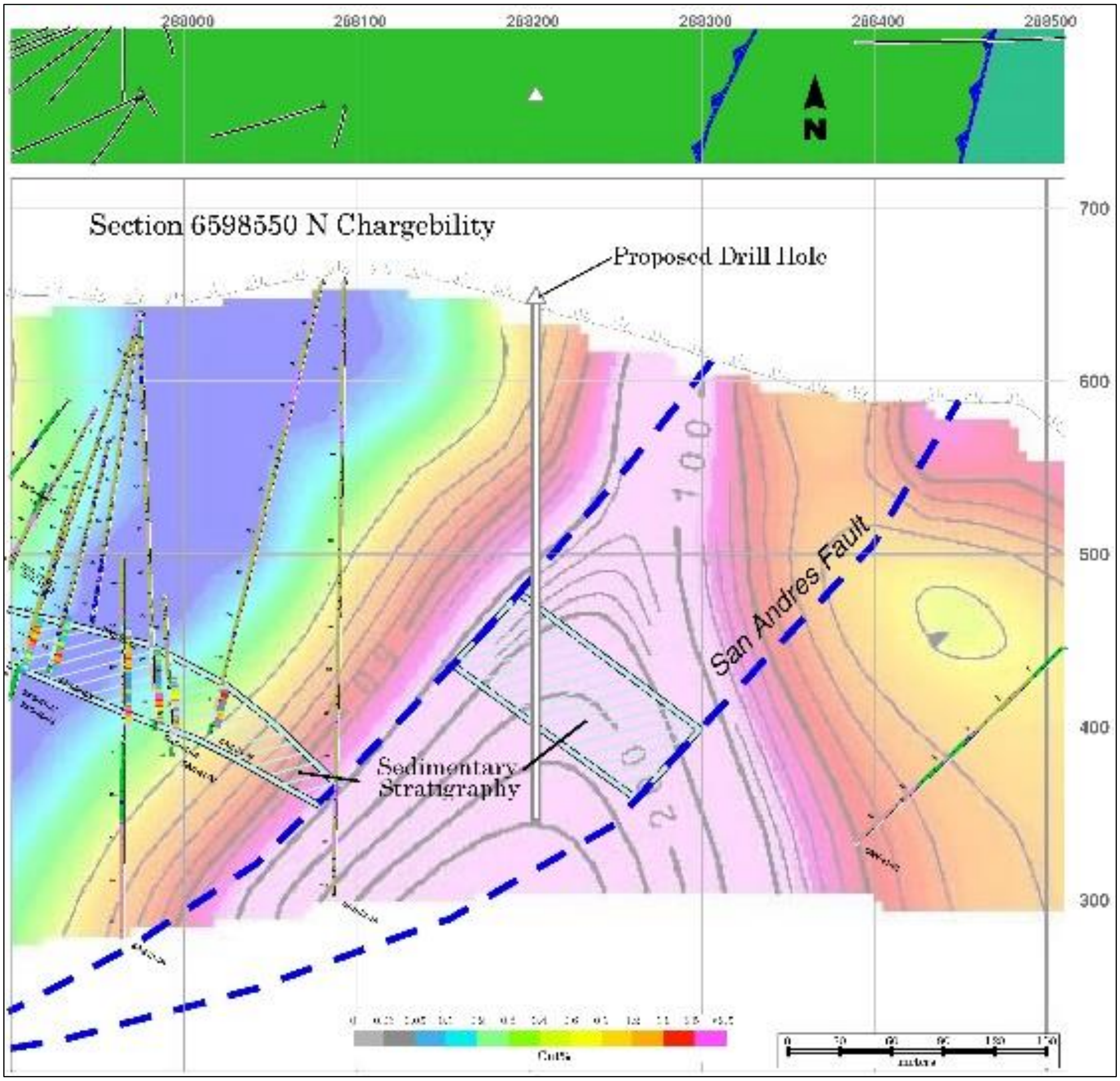
Figure 9-5: SAC Gap Target Geology Map



Source: Kirkham (2022)

Figure 9-6 is an interpretive cross-sectional view of the target with the IP chargeability pseudo-section.

Figure 9-6: SAC Gap Target IP Chargeability Interpretive Section



Source: Kirkham (2022)

9.7 La Higuera

The La Higuera Prospect is located 1.5 km east of the surface expression of the Cinabrio orebody in an area with limited road access. There are numerous small, scattered prospect pits at La Higuera, however, there is no known historical mineral exploration work.

Exploration work completed by BMR at La Higuera consisted of limited geologic mapping, rock grab sampling, rock chip sampling and stream sediment sampling.

The principal geologic feature at La Higuera is a sedimentary horizon (same as the sedimentary package that hosts the mineralization at the Cinabrio mine to the west) consisting of calcareous shales and sandstones. This horizon is 5 m to 20 m thick and strikes north-south with a -30º to -40º dip to the east. The footwall of this sedimentary unit is andesites and ocoites and the hanging wall is largely andesitic volcanic breccia.

The geological setting is similar to the geology at Cinabrio mine and San Andres resource. The sedimentary unit at La Higuera is interpreted to be the same sedimentary unit which hosts the Cinabrio orebody offset along a north-south striking, west dipping, extensional fault.

The sedimentary unit is locally mineralized with disseminated and veinlets of copper oxide, chalcopyrite and bornite. The quartz sulphide veins and veinlets cutting the sedimentary rocks locally returned elevated gold values.

Rock grab sampling and selected limited channel sampling resulted in the collection of 22 samples for geochemical analysis. Copper values ranged from 0.02% Cu and up to 3.57% Cu while gold results ranged from 0.01 g/t Au and up to 5.82 g/t Au. Anomalous zinc values ranged from 180 ppm up to 2300 ppm Zn. Figure 9-7 is a view looking south along the La Higuera zone. Figure 9-8 is a bedrock geology plan with sample locations and results displayed.

A rock grab sample of a 5 cm wide veinlet, in a prospect pit, returned 3.57% Cu and 5.82 g/t gold. Another grab sample of selected quartz sulphide vein material from a prospect pit dump returned 0.93% Cu and 2.88 g/t Au.

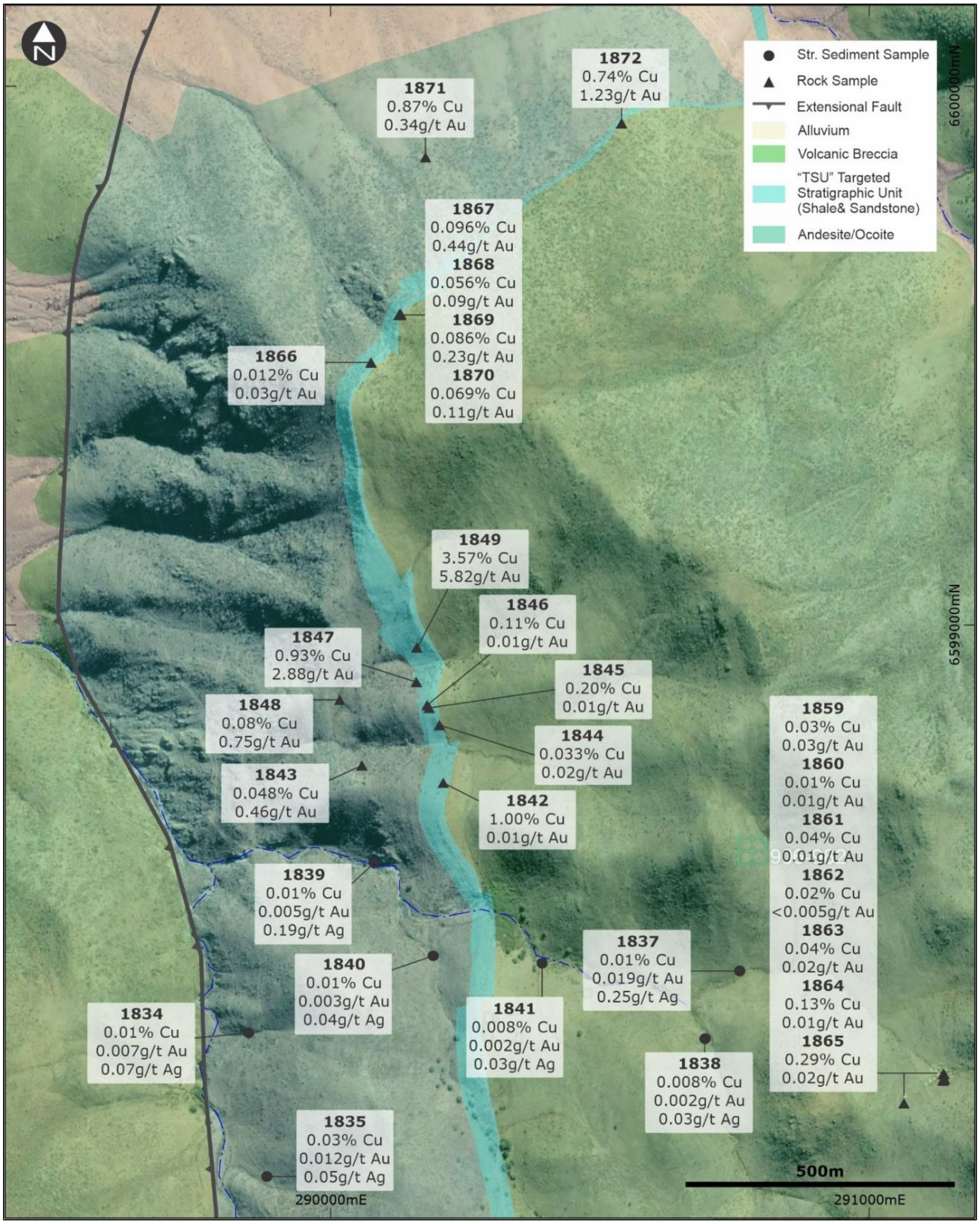
The footwall andesites host a few prospects pits focused on thin quartz sulphide veinlets and discontinuous quartz pods which have variable gold-copper mineralization. A zone of sheared argillized volcanic breccia in the southeast part of La Higuera retuned weakly anomalous copper and gold sample values.

Follow-up detailed mapping and additional rock sampling is planned. The target area will be included in the Cinabrio East block ground magnetics survey. Results of this work along with a limited induced polarization survey will be used to target drilling.

Figure 9-7: La Higuera View Looking South Along the Strike of the Zone

Source: Kirkham (2022)

Figure 9-8: La Higuera Geology with Rock and Stream Sediment Sampling Results



Source: Kirkham (2022)

9.8 Santa Elvira

The Santa Elvira target is a 1.5 km long, north-south zone of outcropping, structurally controlled copper oxide mineralization hosted in andesites and exposed in a series of historic prospect pits and workings.

The zone is located on a west facing slope and runs parallel to the San Andres zone that outcrops along the ridge top. The bedrock geology at the Santa Elvira target consists of volcanic rocks (fine andesites, ocoite andesites and tuffs) cut by andesitic dykes and intruded by granodiorite. Silicification is common along dyke margins and argillic (clay) alteration of the host volcanics occurs with copper mineralization as exposed in workings. Mineralized zones display a limited, propylitic alteration halo characterized by the presence of chlorite, epidote and / or calcite.

Examination of the pit exposures indicate that the type of rock finer grained andesite or ocoite does not a control mineralization. The presence of these copper oxides is controlled by faults and fracturing. These controlling structures (faults, fractures, and shear zones) display two prominent orientations.

- Strikes ranging from N35°, N40° and N50° W, with average dip of 40º - 60° NE; and
- Striking N15°, N25° and N45° E, with average dips of 30° - 60° NW – SE.

Figure 9-9 is a structurally controlled zone of copper oxide mineralization exposed in the wall of the historic working.

Copper mineralization consists of copper oxides, iron oxides and manganese oxides. The mineralization observed includes oxidized copper (malachite, chrysocolla and atacamite, azurite) iron oxides (magnetite, hematite, and manganese oxides), pyrite, bornite, chalcopyrite and tourmaline, usually in fractures, disseminated and replacing plagioclase.

Figure 9-9: Structurally Controlled Copper Oxide Mineralization - Wall of Historic Working

Source: Santa Elvira Project Presentation MAP Glencore (2015)

Figure 9-10: Santa Elvira Close-up View Copper Oxide Mineralization

Source: Santa Elvira Project Presentation MAP Glencore (2015)

At least five historic local miners “Pirquineros” artisanal prospect pits and workings are exposed on the west facing slope at Santa Elvira. No record of production from these limited workings exists although concrete footings and pads from a 1980’s vintage copper oxide leach processing plant are present in the southwest corner of the prospect areas displayed Figure 9-11.

Figure 9-11: Santa Elvira 1980's Vintage Copper Oxide Leach Processing Plant Concrete Footings and Pads

Source: Kirkham (2022)

The only record modern exploration took place in 2014 - 2015 when Glencore conducted a program of geological mapping, ground geophysics in the form of a gravity survey that was followed with a limited 2 diamond core hole drilling program. The two holes were a shallow test of the mineralization exposed in the largest of the artisanal prospect pits. Both holes intercepted narrow zones of anomalous copper mineralization:

- SES-14-02: 3 m at 0.79% Cu and 0.7 g/t Ag; and
- SES-15-04: 3 m at 1.07% Cu and 1.8 g/t Ag.

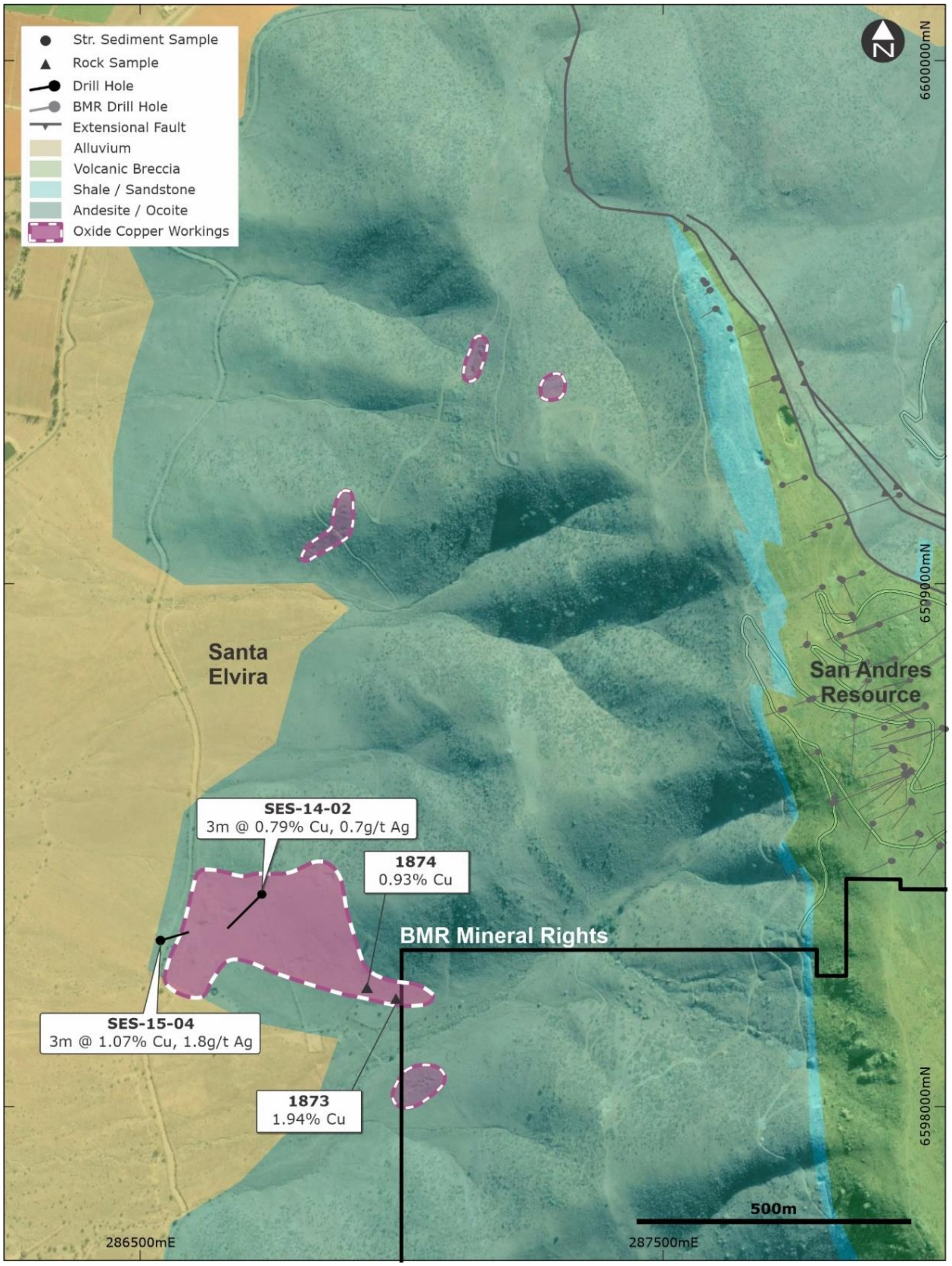
Source: Santa Elvira Project Presentation MAP Glencore (2015)

The Glencore exploration program also included a limited grid-based gravimetry survey. The survey results indicated a strong correlation between anomalous gravimetric values and outcropping zones of copper mineralization exposed in the historic workings. Glencore reported "the first zone the anomalous high values coincide with the evidence of copper mineral in the pits and outcrops. In the second zone, to the east of it, high anomalous geophysical values are observed in the probable contact of the ocoite andesites with the granodiorites." (Source: Feb 2015 Santa Elvira Project Presentation MAP Glencore).

In 2022, BMR completed a limited prospecting, geological mapping, and rock grab sampling reconnaissance program and the area was part of the recent Cinabrio block ground magnetics survey.

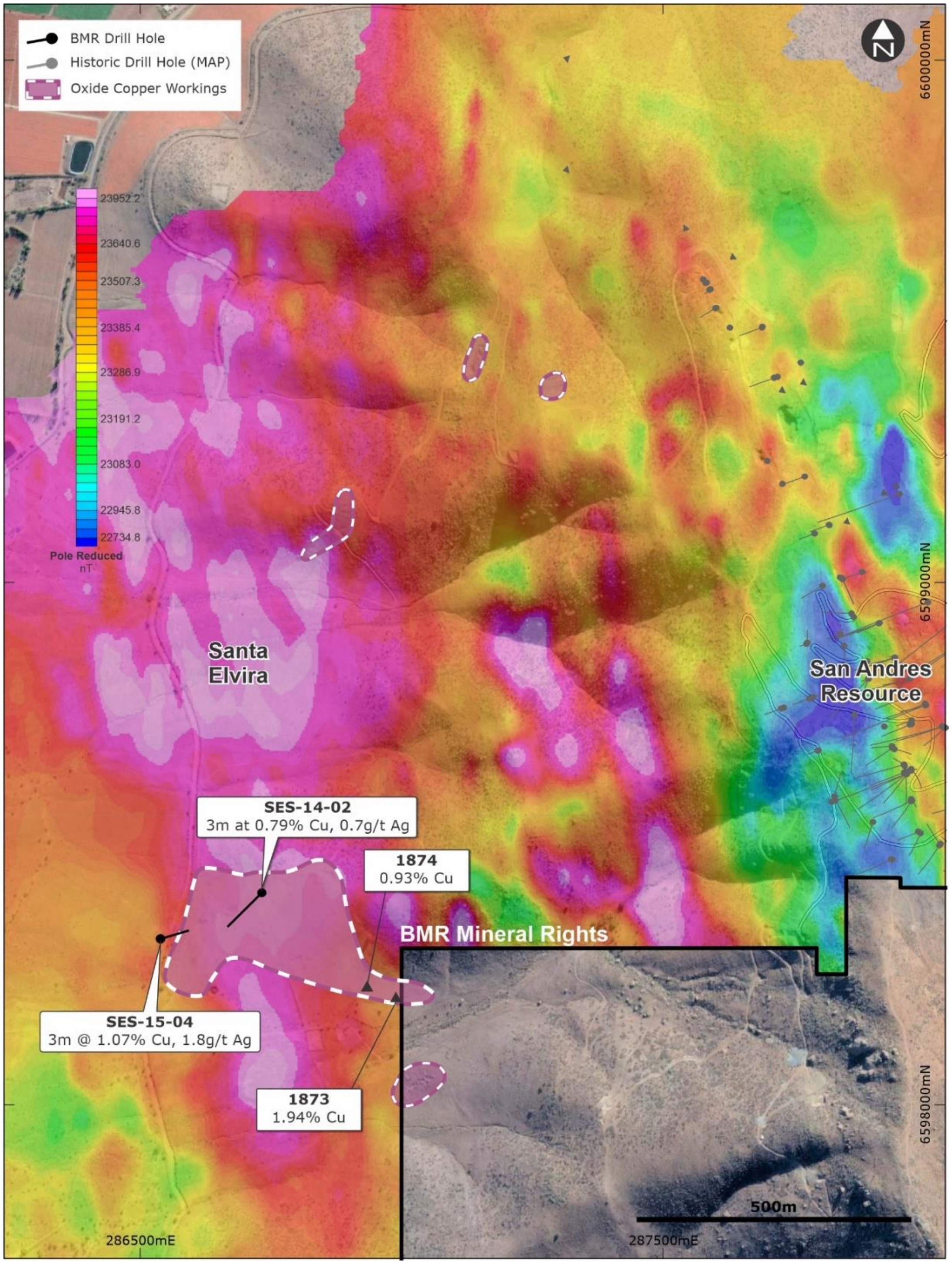
During the course of this work, five historic, artisanal prospect pits and workings were examined, and two rock grab samples were collected. Figure 9-12 details the Santa Elvira geology and exploration results and Figure 9-13 is a reduced to the pole magnetics image from the 2022 ground magnetics survey.

Figure 9-12: Santa Elvira Geology and Sampling Map



Source: Kirkham (2022)

Figure 9-13: Santa Elvira 2022 Ground Magnetics Reduced to Pole Magnetics Plot



Source: Kirkham (2022)

9.9 Campo Velado

The Campo Velado prospect is located in a remote canyon in the northern part of BMR's Cinabrio block of concessions. Several limited traverses have been completed to date during which an old mining camp centered in an area with zones of stockwork veining and breccias infilled with quartz, calcite and sulphides were noted.

No historical records have been located regarding this old mining camp. The abandoned workings include shallow surface pits, shafts, and adits. There are several sizable mine dumps indicating that some of the workings had significant lateral or vertical extent.

The mineralization consists of stockwork veining and breccia zones developed along structures. The controlling structures are northwest to north-south trending and dip steeply to the west. Sulphide minerals observed include chalcocite, bornite and chalcopyrite. The sulphide observed are late infill minerals associated with cockscomb quartz and calcite. Host rocks consist of andesitic volcanic breccias. Hydrothermal alteration of the host rocks associated with the mineralization is weak. Figure 9-14 Mineralized Breccia outcrop with copper oxides and Figure 9-15 breccia with copper oxides.

The distribution and widths of the stockwork veining and mineralized breccias is irregular. Locally widths of brecciation with quartz calcite sulphide infill exceed 20 m. BMR has collected only 2 grab samples from Campo Velado. Analytical results for these samples are displayed on Figure 9-17.

Figure 9-14: Camp Velado Mineralized Breccia Outcrop with Copper Oxides

Source: Kirkham (2022)

Exploration of this prospect is at a very early stage. Drone photography will be completed to provide a detailed prospect mapping base map. Figure 9-16 is an overhead drone view of the Campo Velado site that includes remnants of historic adobe building foundations, workings, and rock dumps. The second phase of the Cinabrio ground magnetics survey will include the Campo Delgado area. Follow-up prospecting, detailed mapping and rock sampling of the workings is planned. Upon completion of this follow-up program the data generated will be used to plan an initial drill program. Figure 9-17 is an image with the areas of brecciation and mineralization delineated.

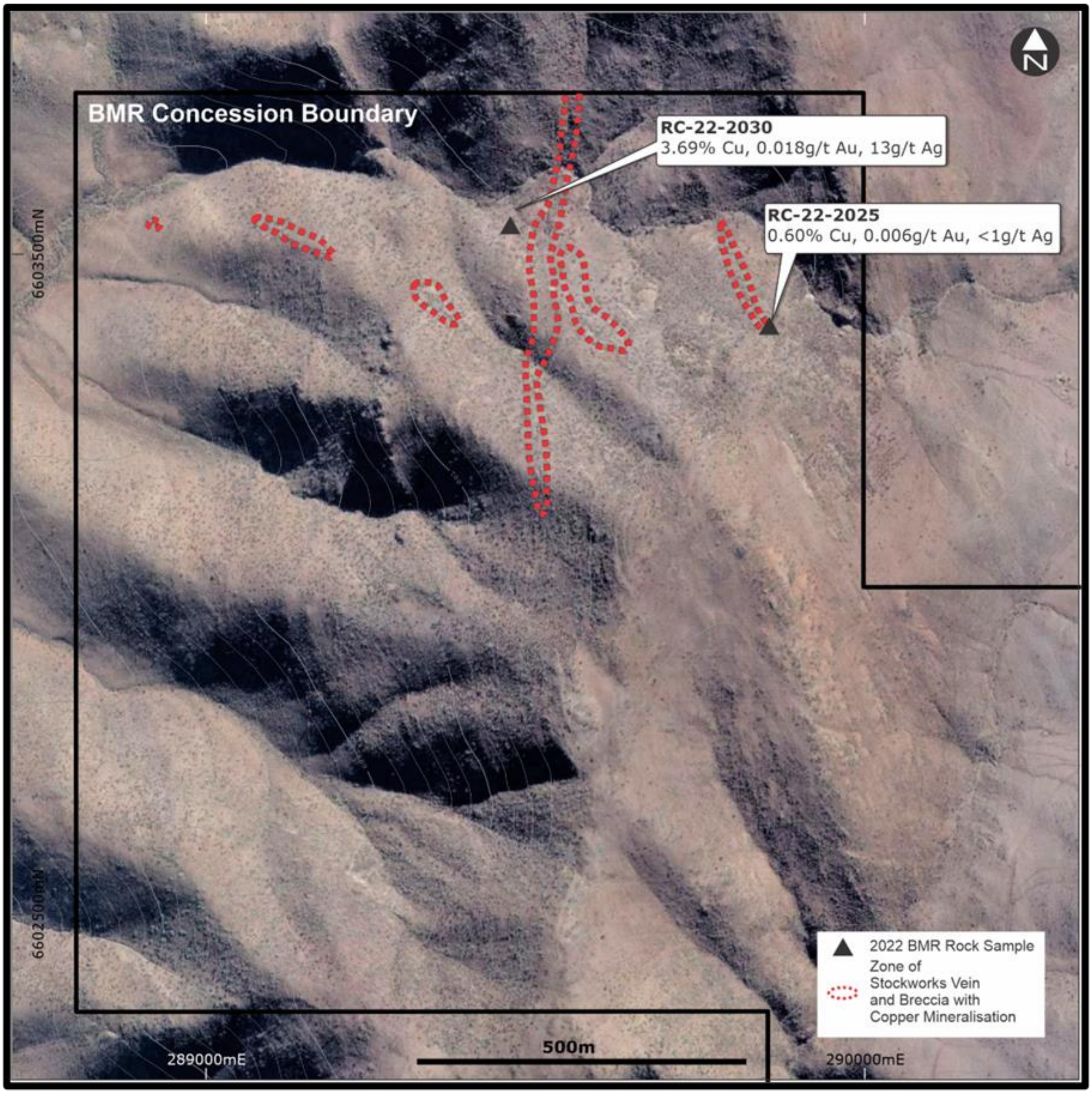
Figure 9-15: Mineralized Breccia with Calcite Infill and with Copper Oxides

Source: Kirkham (2022)

Figure 9-16: Campo Velado Close-up Overhead View Old Mining Camp Area

Source: Kirkham (2022)

Figure 9-17: Campo Velado Historic Workings and Mineralization



Source: Kirkham (2022)

9.10 Salguera

The Salguera prospect is located directly north of the La Higuera target across the Porterillos valley. The principal feature of interest at Salguera is a zone of outcropping stratigraphic unit consisting of shales and sandstones.

This stratigraphy is interpreted to be the northern continuation of the La Higuera mineralized sedimentary horizon. To date, exploration work has been limited to reconnaissance prospecting and mapping of shales outcropping in a roadcut with minor copper oxides noted. Prospect geology is displayed on Figure 9-18. The mineralized sedimentary horizon outcrop is displayed in Figure 9-19.

Exploration to date by BMR has been limited to a number of brief site visits. No rock sampling or detailed geological mapping has been undertaken. Figure 9-20 is a compilation of the bedrock geology of the Salguera target. A program of follow-up work consisting of ground magnetics followed by reconnaissance prospecting, geological mapping and rock sampling is planned. This work will also include detailed mapping and sampling of the outcropping mineralized zone in addition to a prospect scale structural mapping of the area.

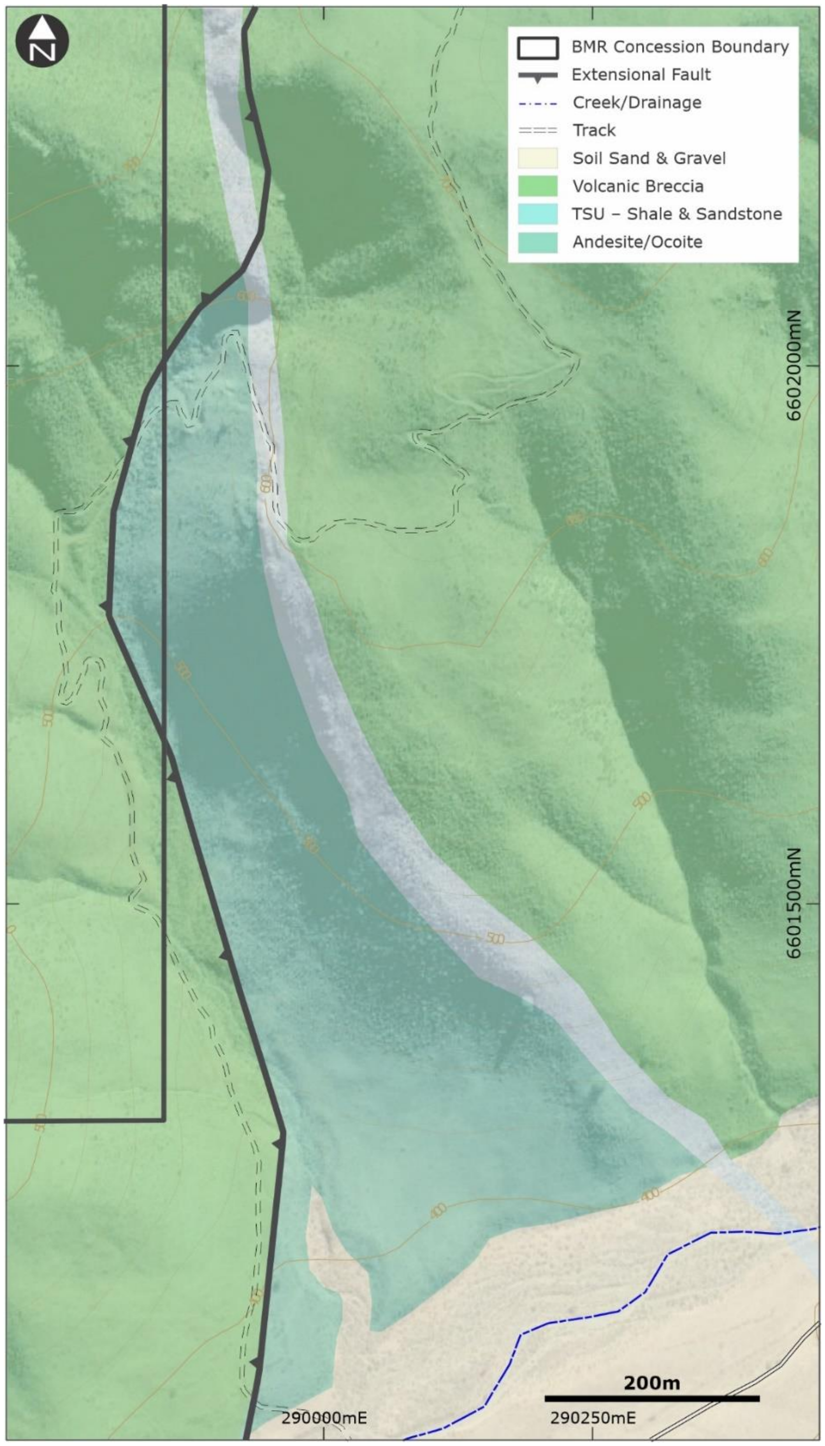
Figure 9-18: View Looking South Along Salguera Outcropping Sedimentary Unit

Source: Kirkham (2022)

Figure 9-19: Close-Up View Salguera Outcropping Sedimentary Unit

Source: Kirkham (2022)

Figure 9-20: Salguera Prospect Geology



Source: Kirkham (2022)

9.11 Cinabrio Sur Target

The Cinabrio Sur target is defined as the area south of the Cinabrio orebody. It includes the potential direct extensions of the Cinabrio orebody and other geologic targets.

In 2021, five drill holes were drilled to test the direct extension of the Block IV Cinabrio orebody. Four of the drill holes intersected the targeted TSU sedimentary horizon.

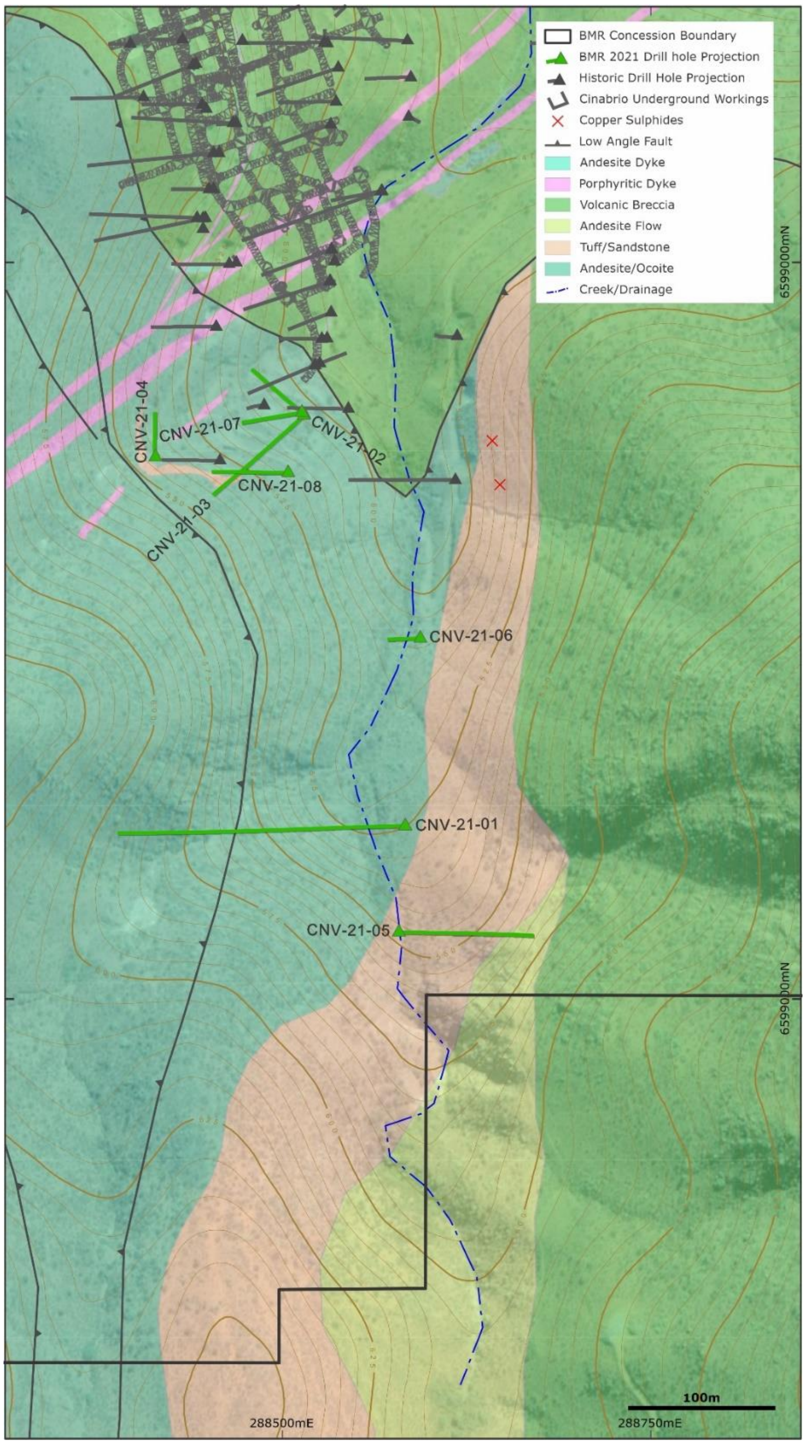
Preliminary reconnaissance in the southern part of the target area located outcrops of a sedimentary unit, 10 m to 20 m thick, which contains scattered minor copper mineralization. The copper mineralization is hosted within a coarse grained often, cross bedded sandstone which tends to be fossiliferous near the base. Minor copper oxides were observed in several locations in this sandstone sequence. Locally disseminated chalcopyrite and bornite occur.

This preliminary field assessment indicates that the sandstone unit is stratigraphically above the andesitic rocks and below a thick sequence of volcanic breccias. It is possible that the sandstone unit is stratigraphically equivalent to the Cinabrio host TSU sediments. Alternatively, this unit may be a stratigraphically higher unit. The Sandstone unit is offset about 400 m to the east from the outcrop of the Cinabrio TSU sedimentary stratigraphy. A low angle south dipping fault has been mapped which cuts off the Cinabrio stratigraphy to the south.

Three drill holes tested the southern part of the Cinabrio Sur target. Two holes were drilled toward the west to test for possible extensions of the Cinabrio stratigraphy with negative results. One hole, CNV-05, was drilled to attempt to test the sandstone unit. It collared in the base of the unit and drilled through the lower contact at a depth of 9 m.

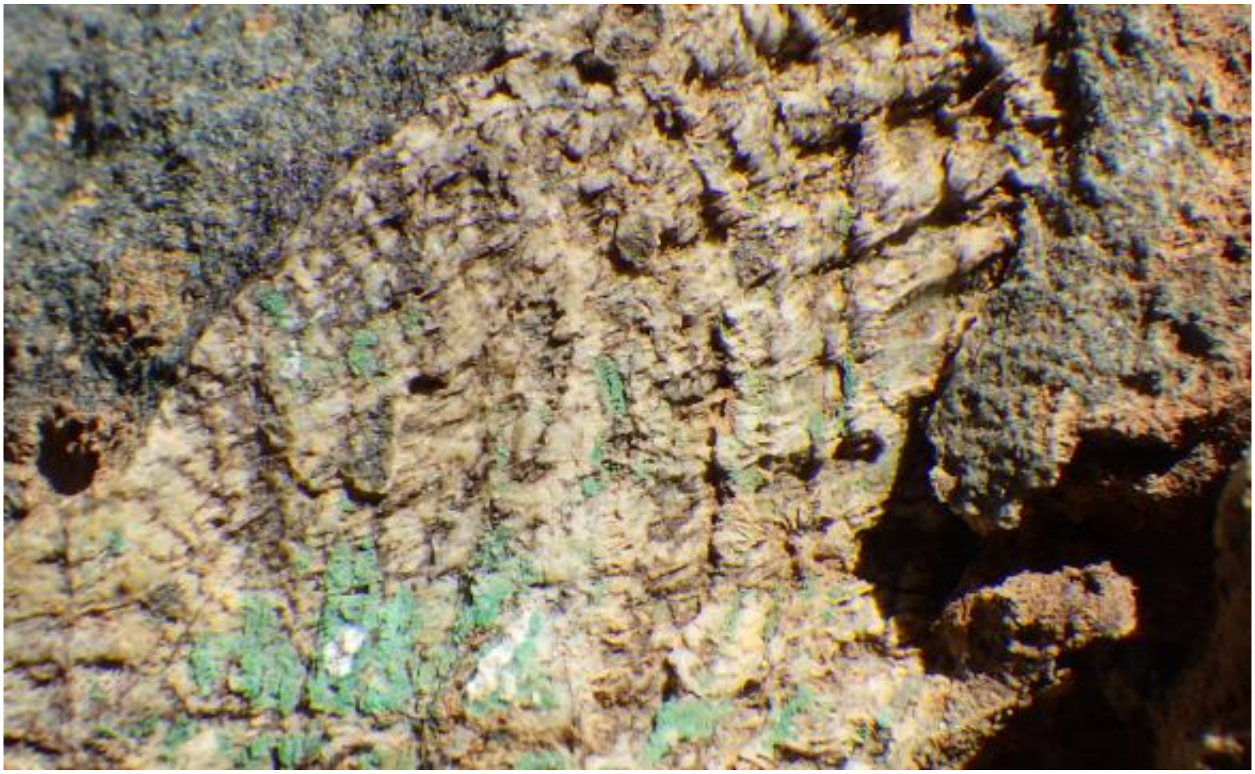
Detailed geological mapping and selective rock sampling is planned at Cinabrio Sur target to better define the structural controls, stratigraphic relationships and assess potential for the sandstone unit to host copper mineralization.

Figure 9-21: Cinabrio Sur Geology and Drilling Plan



Source: Kirkham (2022)

Figure 9-22: Cinabrio Sur Sandstone Outcrop with Copper Oxide Mineralization



Source: Kirkham (2022)

9.12 Cinabrio Block Exploration - Ground Magnetics Survey

A ground magnetic survey over the Cinabrio block of BMR concessions was commissioned with Argali Geophysics and initiated in July 2022. The initial survey completed covered approximately 50% of the planned survey area. The balance the planned survey has been delayed pending a definitive agreement with the local community for surface access.

The completed survey consists of 240-line km of survey lines covering an area of 12 km^2. The survey was conducted using a base station established in the central part of the survey area and 2 roving backpack mounted magnetometers. The magnetometers used were GEMS GSM-19 Overhuser magnetometers with built in GPS. These magnetometers were used as both the base station and roving units. Figure 9-23 is the GEMS GSM-19 Overhuser Magnetometer.

Survey Grid lines were oriented east - west and spaced at 50 m apart. Figure 9-24 is a grid layout of the planned Cinabrio block ground magnetics survey.

All data were corrected for diurnal variation using the base station data.

Figure 9-23: GEMS GSM-19 Overhuser Magnetometer

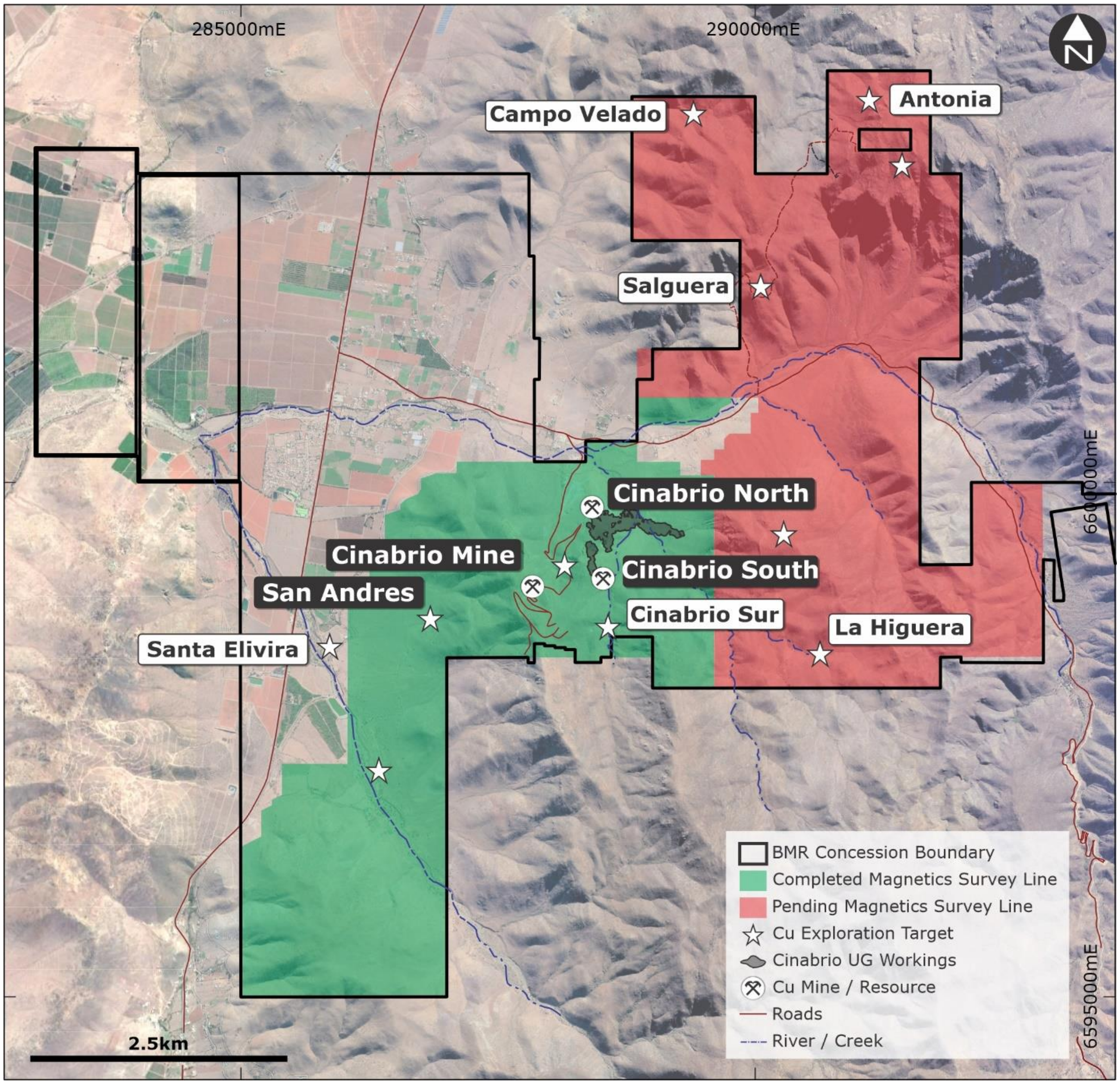
Source: Argali Geophysics (2022)

As at the effective date, only preliminary processing of the magnetics data has been completed. Once the eastern portion of the survey is completed a final processing and 3D modelling of the entire data set will be completed.

Initial preliminary images generated to date include:

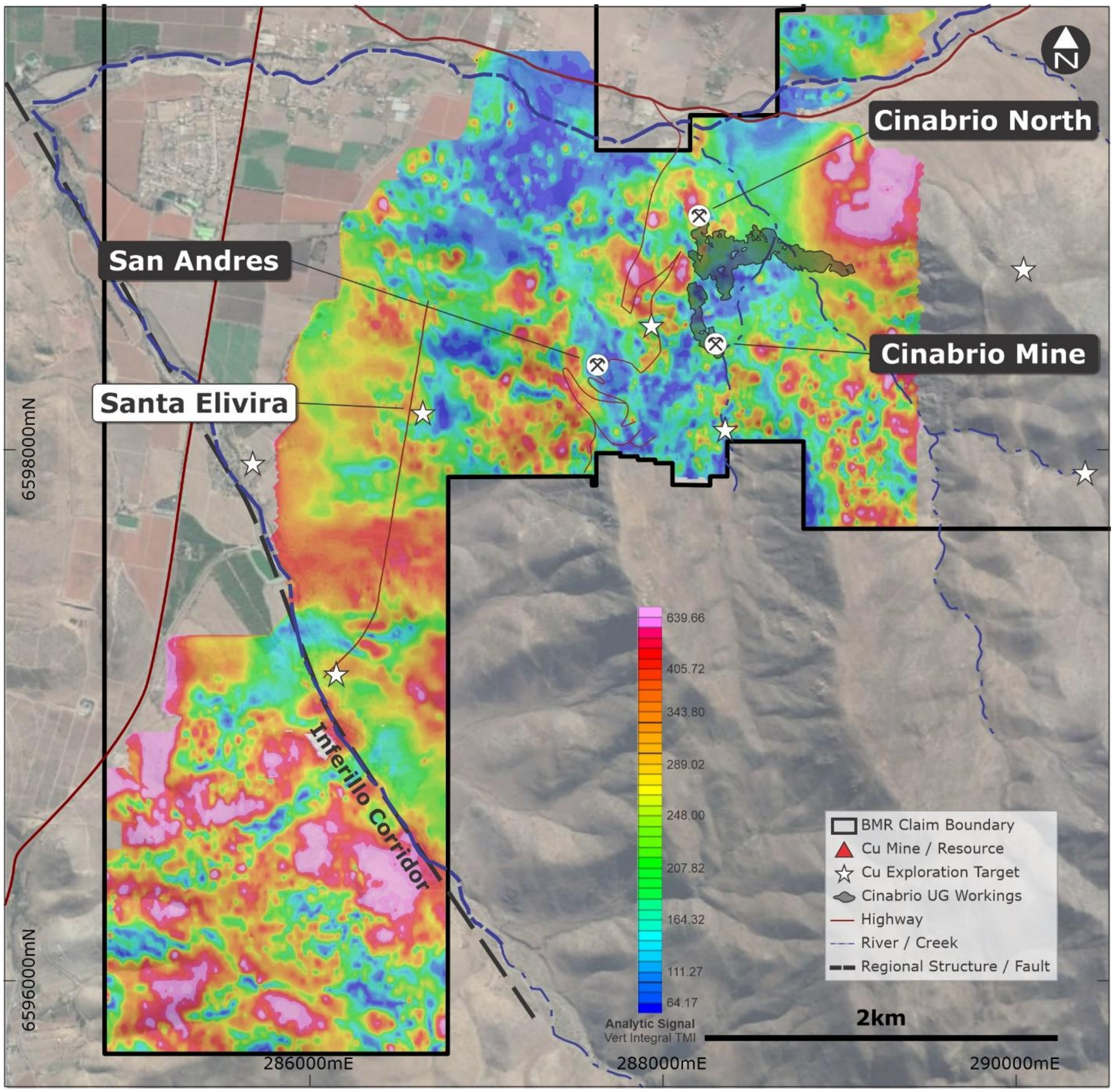
- Total Field also known as Total Magnetic Intensity (TMI);
- Analytic Signal of TMI;
- Analytic Signal of Vertical Integral of the TMI (Figure 9-25); and
- Reduced to The Pole (RTP) (Figure 9-26).

Figure 9-24: Cinabrio Block 2022 Ground Magnetics Survey Grid Layout



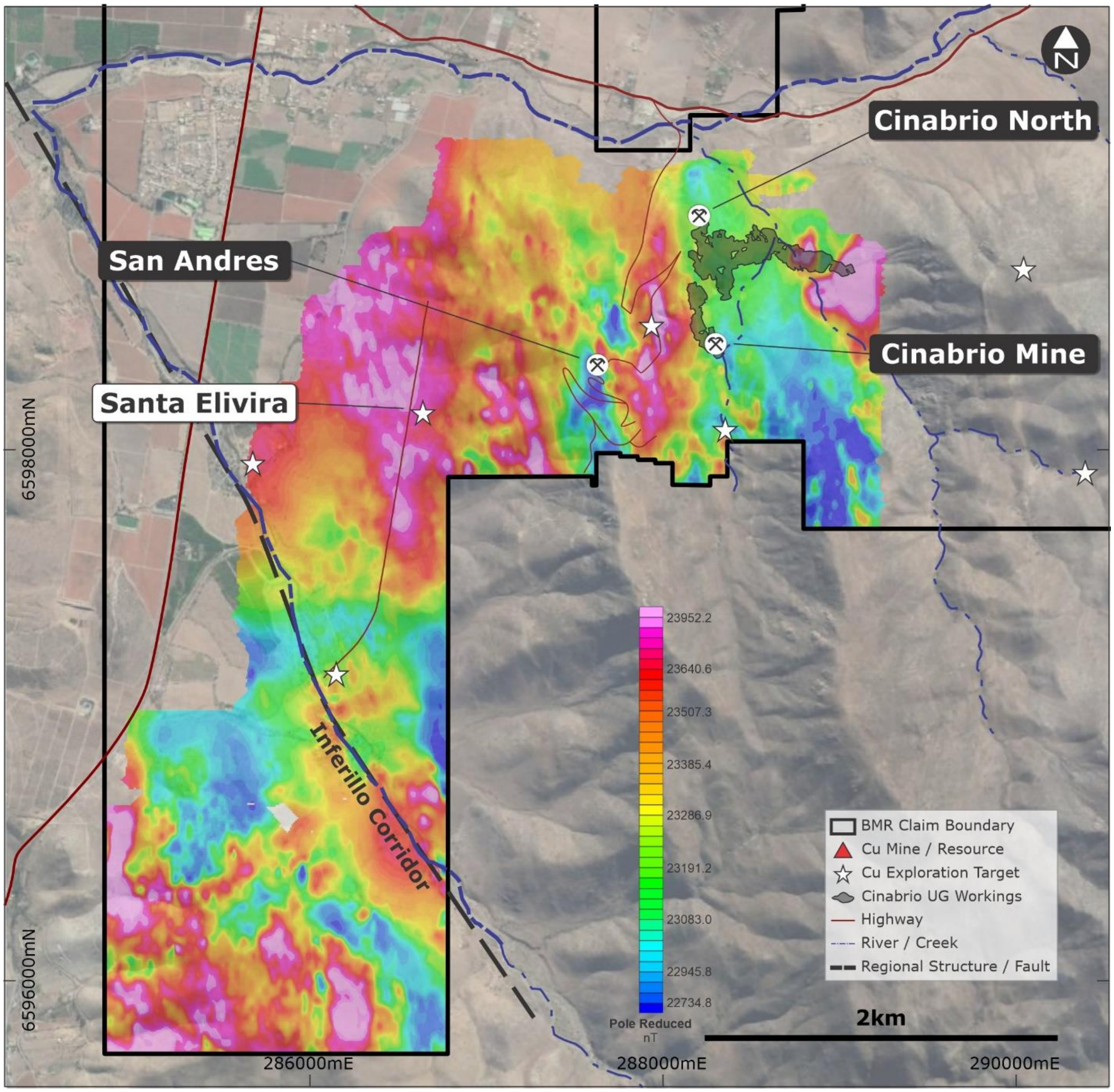
Source: Argali Geophysics (2022)

Figure 9-25: Cinabrio Block West – Preliminary Analytic Signal of Vertical Integral of the TMI



Source: Argali Geophysics (2022)

Figure 9-26: Cinabrio Block West – Preliminary Reduced to the Pole Plot



Source: Argali Geophysics (2022)

10 DRILLING

10.1 Introduction

Drilling completed by BMR at the Punitaqui Mining Complex consisted of 32,526 m of diamond core drilling extensions to the Cinabrio mine as well as the San Andres and Dalmacia zones. This drill program commenced in August 2021 and was completed in June 2022. The 4 targets drilled were San Andres, Cinabrio mine South, Cinabrio Norte and Dalmacia. All 4 zones had been targeted by previous operators in drilling completed between 1993 and 2020. This section details the 2021 – 2022 BMR drilling at the Punitaqui Mining Complex.

Drilling undertaken prior to BMR's tenure was documented in the History Section and tabulated below in Table 10-1.

Table 10-1: Punitaqui Project Historic Exploration Drilling Summary 1993 – 2020

Target	Company	Years	Drilling Type	Holes Drilled	Meters
Cinabrio	Tamaya	2004-2008	RC	168	27,129
	Glencore	2011-2018	DC	224	35,887
	Xiana	2019-2020	DC	24	1,184
	Subtotal			416	64,200
San Andres	Tamaya	2007	RC	29	3,057
	Glencore	2011-2017	DC/RC	18	2,726
	Xiana	2019-2020	DC	17	3,644
	Subtotal			64	9,427
Dalmacia	CPA	1993-1994	RC	49	10,017
	Tamaya	2007-2008	RC	49	11,473
	Glencore	2011-2018	DC	127	31,235
	Subtotal			225	52,725
Cinabrio Norte	Tamaya	2004-2008	RC	10	2,112
	Glencore	2011-2015	DC	7	1,433
	Xiana	2020	DC	4	807
	Subtotal			21	4,352
Punitaqui Historic Drilling Totals				**726**	**130,704**

Source: Kirkham (2022)

From August 2021 through June 2022, BMR completed diamond core drill programs on the Cinabrio, Cinabrio Norte, San Andres and Dalmacia zones which are part of the Punitaqui Mining Complex. This drill program consisted of 151 diamond core totaling 32,526.23 m. Number holes drilled for each target and meterage for each zone is tabulated in Table 10-2.

Table 10-2: Summary of 2020–2021 BMR Drilling

Project	Year	Number of DC Drill Holes	Total Meters
Cinabrio Mine Sur Zone	2021	8	855.22
San Andres	2021- 2022	38	8,211.61
Dalmacia	2021-2022	51	9,727.66
Cinabrio Norte	2021-2022	54	13,731.74
Totals		**151**	**32,526.23**

Source: Kirkham (2022)

10.2 BMR Drilling and Sampling Protocols

BMR's drilling and sampling protocols are described here, being common to all of 2021-2022 drilling.

10.2.1 Drilling

The 2021-2022 drilling was conducted by two domestic contractors: South Pacific Drilling SPA (SPD) with offices in Santiago and La Serena and Minera Olcar Drilling (DV) based in La Serena in Region 4 Chile. Up to 4 diamond core drill rigs were mobilized to the Punitaqui during the program. SPD drilling supplied two Longyear LF-70 drills while Minera Olcar supplied a Longyear LF-230 drill and a Golden Bear -1400 rig. Drill pad access, drill pad and sump construction were managed by BMR and contracted to a local earthworks contractor with equipment (D6 bulldozer and excavator) supplied on a day rate basis.

Diamond drill hole (DDH) planning is carried out by the BMR geologists using Techbase, Minesight, Datamine and/or LeapFrog, which are the main mining software package used on site.

Downhole surveys were completed in holes drilled by SPD Drilling using a Gyro 3411 instrument supplied an independent third-party contractor Axis Mining Technology. For holes drilled by DV Drilling, the downhole surveys were conducted by an independent third-party contractor Minsure B&B SPA using a north seeking Reflex Series 600 gyroscopic unit with measurement taken every 5 m down the hole. A detailed report (Figure 10-1) is generated by the contractor and the actual survey data is supplied in a digital format that can be imported directly into the spreadsheet database.

Figure 10-1: Downhole Survey Report

AXIS Mining Technology

MINERA: ALTO PUNITAQUI
POZO: SAS2101
PROYECTO : SAN ANDRES

LOCACION: PUNITAQUI
Latitude: -30.7
Grid Correction is Zero.
VS-Azi: 0.0 Degrees

SPD SOUTH PACIFIC DRILLING

PERFORISTA : SOUTH PACIFIC DRILLING

SURVEY CALCULATIONS
Filename: cs_sas2101.ut, SN 13519
Minimum Curvature Method
Report Date/Time: 7/16/2021 / 17:55

Measured Depth m	Incl Angle Deg	Drift Direction Deg	TVD m	Northing m	Easting m	Vertical Section m	Closure Distance m	Closure Direction Deg	Dogleg Severity Deg/30
0.00	-59.42	253.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	-60.41	253.98	-8.65	-1.41	-4.81	-1.41	5.01	253.71	3.08
20.00	-60.37	254.11	-17.35	-2.76	-9.56	-2.76	9.95	253.88	0.23
30.00	-60.13	254.39	-26.03	-4.11	-14.34	-4.11	14.92	254.00	0.83
40.00	-60.01	254.55	-34.70	-5.45	-19.15	-5.45	19.90	254.12	0.43
50.00	-60.06	254.56	-43.36	-6.78	-23.96	-6.78	24.90	254.21	0.15
60.00	-60.27	254.60	-52.03	-8.10	-28.76	-8.10	29.87	254.27	0.63
70.00	-60.49	254.41	-60.73	-9.42	-33.52	-9.42	34.82	254.30	0.72
80.00	-60.61	254.59	-69.43	-10.73	-38.26	-10.73	39.73	254.33	0.45
90.00	-60.44	254.62	-78.14	-12.04	-43.00	-12.04	44.65	254.36	0.51
100.00	-60.56	254.47	-86.84	-13.35	-47.75	-13.35	49.58	254.38	0.42
110.00	-60.61	254.59	-95.55	-14.66	-52.48	-14.66	54.49	254.39	0.23
120.00	-60.73	254.61	-104.27	-15.96	-57.20	-15.96	59.39	254.41	0.36
130.00	-60.85	254.54	-113.00	-17.26	-61.91	-17.26	64.27	254.42	0.37
140.00	-60.58	254.75	-121.72	-18.56	-66.62	-18.56	69.16	254.44	0.87
150.00	-60.50	254.97	-130.43	-19.84	-71.37	-19.84	74.08	254.46	0.40
160.00	-60.49	254.95	-139.13	-21.12	-76.13	-21.12	79.00	254.49	0.04
170.00	-60.45	255.14	-147.83	-22.39	-80.89	-22.39	83.93	254.53	0.31
180.00	-60.46	255.56	-156.53	-23.64	-85.66	-23.64	88.86	254.57	0.62
190.00	-60.26	256.02	-165.23	-24.85	-90.45	-24.85	93.81	254.64	0.91
190.00	-60.26	256.02	-165.23	-24.85	-90.45	-24.85	93.81	254.64	0.00
180.00	-60.41	255.50	-156.54	-23.63	-85.66	-23.63	88.86	254.57	0.89

Source: Kirkham (2022)

Final drill hole collar locations were surveyed completed by BMR's mine survey team using a Leica Total Station TCRP Model 1205 instrument and a Topcon QS 3A Total Station unit. Once a drill hole has been completed, the collar co-ordinates are picked up by the MAP surveyor in PSAD56 Zone 19S projection, and the collar location is updated in the master spreadsheet database. The surveyor provides a certificate (Figure 10-2) which includes the collar co-ordinates and the azimuth of the collar. Typical drill hole collar monuments and collar survey detailed in Figure 10-3, Figure 10-4, and Figure 10-5. Once the collar and downhole surveys have been loaded, the actual drill hole trace is compared with the planned hole trace in Datamine.

Figure 10-2: Drill Hole Collar Survey Certificate

MINERA ALTO PUNITAQUI

DEPARTAMENTO DE TOPOGRAFÍA

INFORME DE GEOREFERENCIACIÓN E INCLINACION DE SONDAJES

Minera Alto Punitaqui
Superintendencia de Mina
Departamento de Topografía
Datum PSAD 56

Interior Mina Cinabrio Block 0 (29/07/14)

PUNTO	NORTE	ESTE	COTA	CM-0-14-29	29-07-2014	
COLLAR	6599535.783	289014.969	-7.088		AZIMUT(°SEX)	INCLIN(°SEX)
CULATA	6599535.976	289015.471	-6.326		248.970	-54.785

Observación: Se adjuntan coordenadas de sondajes, Interior Mina Cinabrio Block 0.

Ricardo Aguirre Contreras
Jefe Dep. Topografía

Marcelo Rivera Vega
Supv. Geología

Source: Kirkham (2022)

Figure 10-3: Collar Survey Crew - Dalmacia

Source: Kirkham (2022)

Figure 10-4: Typical Drill Collar Marker – Cinabrio Norte

Source: Kirkham (2022)

Figure 10-5: Close-up View of Typical Drill Collar Marker – Cinabrio Norte

Source: Kirkham (2022)

10.2.2 Core Handling

Diamond drill core was inspected at the drill site then core boxes were secured and transported by truck to one of BMR's two core processing facilities located at the Cinabrio mine site (for Cinabrio, Cinabrio Norte & San Andres drill core) or at the Los Mantos plant site (for Dalmacia drill core). Detailed core logging and collection of selected geotechnical data is completed followed by selection of assay intervals which are marked out on the core and tabulated on a sample cutting spreadsheet that details each hole with all intervals identified for sampling. Figure 10-6 and Figure 10-7 photographs of the BMR core storage facilities.

Figure 10-6: Core Logging and Storage Los Mantos Plant Site

Source: Kirkham (2022)

Figure 10-7: Core Storage Cinabrio Mine

Source: Kirkham (2022)

10.2.3 Logging

A comprehensive core logging protocol was followed. Core logging procedures and the type of data collected are listed in Table 10-3. All drill hole information and logs were entered in dedicated and customized Excel logging forms and integrated in BMR's data management system on the BMR server. Figure 10-8 shows a geologist and technician logging core at Cinabrio.

Table 10-3: BMR Drill Logging Protocols

Data Type	Data Recorded			
Technical	Check for block errors, document drilled intervals	Reassemble the core, mark core at every meter	Mark core with orientation line	Recovery and RQD
Geotechnical	Number of fractures	Number of veins	Number of deformation sets	
Photographs	Dry	Wet		
Geological logging	Detailed lithology in text and database format	Structures	Alteration	Mineralization
Assay samples	Mark cut line in yellow on core	Mark assay intervals in red (0.3 to 1 m length)	Insert sample tags	insert QAQC samples

Source: Kirkham (2022)

Figure 10-8: Core Logging Cinabrio Core Logging Facility

Source: Kirkham (2022)

10.2.4 Sampling

Holes drilled by BMR in 2021-2022 were sampled selectively within mineralized zones, and periodically in altered rock types known to host mineralization. Samples were marked on the core with a "Red China" marker. Generally, samples were cut to one meter core intervals. In cases where mineralization was strongly controlled by geological features, sample intervals were picked on geologic features, The minimum sample size was 40 cm, and the maximum sample size was 3.27 m. Average sample length is 1.31 m.

A Swiner electric diamond saw is used to cut the core lengthwise, which is then automatically placed correctly back into the tray. Figure 10-9 shows the Los Mantos core saw and Figure 10-10 illustrates typical sawn core sample in core box. Samples were cut by saw along a cut line and then the core half that wasn't marked with meter marks was put in a sample bag with corresponding sample tag. The half-core is then sampled by geological assistants, ensuring that the same side is consistently sampled, and placed into bags with an assigned sample number, then closed and sealed with staples.

The remaining core was returned to the core box without reversing the direction of the sample and the pieces were fitted back together. QAQC samples were inserted in the sample stream according to documented procedures. QAQC samples include standards and blanks along with duplicate samples and are submitted regularly as part of the QAQC program.

Sample preparation is performed by ALS Global - Geochemistry Analytical Lab in La Serena, Chile and sample analyses by ALS in Lima, Peru. ALS analytical facilities are commercial laboratories and are independent from BMR. All BMR samples are collected and packaged by BMR staff and delivered upon receipt at the ALS Laboratory. Samples are logged in a laboratory information management system (LIMS) for sample tracking, scheduling, quality control, and electronic reporting. Samples are dried then crushed to 70% < -2 mm and a riffle split of 250 g is then pulverized to 85% of the material achieving a size of <75 µm. These prepared samples are then shipped to the ALS Laboratory in Lima Peru for analyses by the following methods:

- ME-ICP61: A high precision, multi-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids. Analyzed by inductively coupled plasma (ICP) mass spectrometry that produces results for 48 elements;
- ME-ICP61a: Similar to the ME-ICP61 method but with higher detection and overlimit range;
- ME-OG62: Aqua-Regia digest: Analyzed by ICP-AES (Atomic Emission Spectrometry) or referred to as optical emission spectrometry (ICP-OES) for elevated levels of Co, Cu, Ni and Ag; and
- MS-42 Hg Trace Mercury analysis by aqua regia digest and ICPMS finish.

Certified standards are inserted into sample batches by ALS. Blanks and duplicates are inserted within each analytical run. The blank is inserted at the beginning, certified standards are inserted at random intervals, and duplicates are analyzed at the end of the batch.

Figure 10-9: Core Saw Los Manto Plant Site

Source: Kirkham (2022)

Figure 10-10: Typical Sawn Core Sample

Source: Kirkham (2022)

Drill core intervals that are not assayed remain in storage at the mine site. BMR maintains two sample storage facilities within the Punitaqui Mining Complex. These include at the Cinabrio mine site (for Cinabrio, Cinabrio Norte & San Andres drill core) and at the Los Mantos plant site (for Dalmacia drill core).

Drill core, sample pulps and sample rejects are stored sequentially in metal racks with the storage building. A sample location and storage index record system are maintained for each facility.

The bags were packed and sealed as per the chain-of-custody protocol at either BMR's two core processing facilities located at the Cinabrio mine site (for Cinabrio, Cinabrio Norte & San Andres drill core) or at the Los Mantos plant site (for Dalmacia drill core). The drill core is then transported by truck to the ALS Global - Geochemistry Analytical Lab in La Serena, Region 4 of Chile, by BMR staff. Each dispatched sample batch was documented prior to shipment; receipt of the samples by ALS is then confirmed by work order documents circulated by email. From the rig site to ALS labs in La Serena and every stage of the process drill core "chain of security" was maintained with core handled by BMR staff or contractors engaged by the company.

All sample intervals were reported as measured downhole lengths; the relationship between the length of the sample interval and the true width of the mineralization is not always known. During the 2021-2022 drilling program, a total of 6,704 samples were assayed representing 8,766 m of drill core.

10.2.5 Underground Channel Sampling BMR 2022

As part of the 2022 exploration program, two limited underground channel sampling programs were conducted at the Cinabrio mine and the San Andres zone.

At Cinabrio, four channel samples from the walls on the 135 Level to confirm earlier sampling completed in 2020 by Xiana Mining. The four BMR Cinabrio channel samples (24.5 m) included:

- Channel: CICH-22-01: (Sample Number: CICH001357) collected over a 3 m interval;
- Channel: CICH-22-02: (Sample Number: CICH001354) collected over a 3 m interval;
- Channel: CICH-22-03: (Sample Number: CICH001347) collected over a 6.5 m interval; and
- Channel: CICH-22-04: (Sample Number: CICH001340) collected over a 6 m interval.

At San Andres, seven channel samples from the walls on the 445 Level to confirm earlier sampling completed in 2020 by Xiana Mining. The seven BMR San Andres channel samples included:

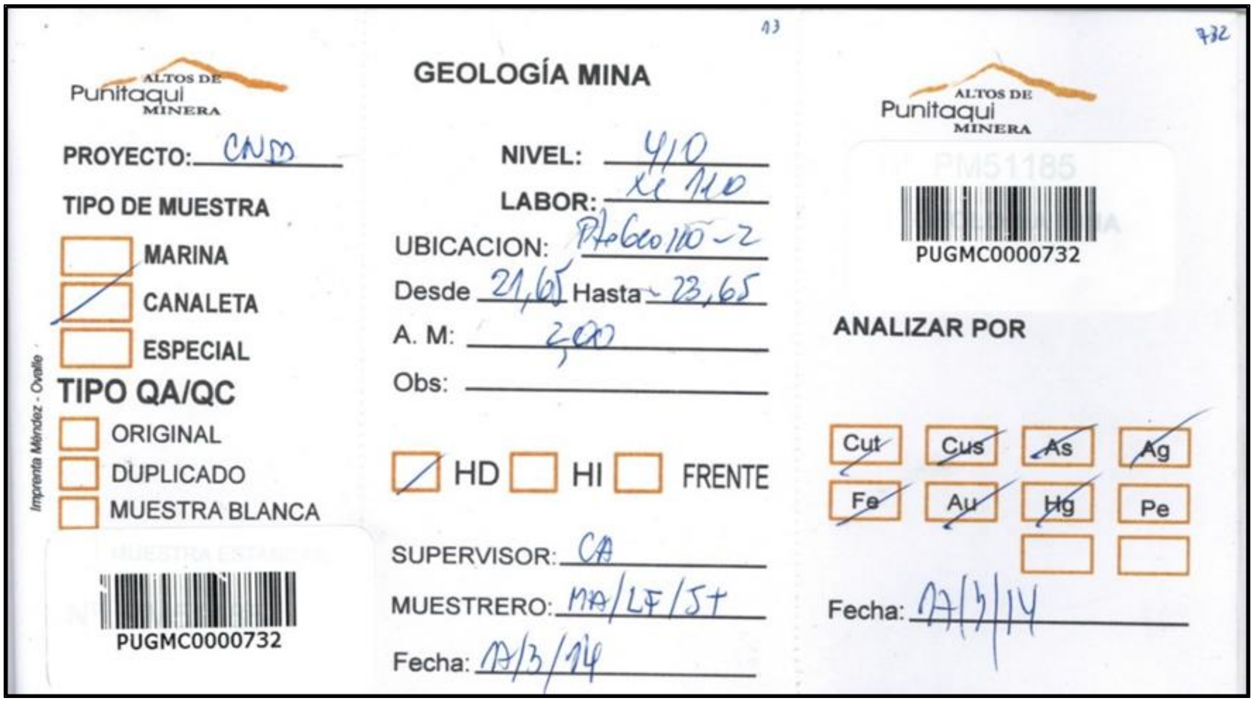
- Channel: SACH-22-01: (Sample Number: SACH000360-363) collected over a 6 m interval;
- Channel: SACH-22-02: (Sample Number: SACH000377-382) collected over a 9 m interval;
- Channel: SACH-22-03: (Sample Number: SACH000374-376) collected over a 4.5 m interval;
- Channel: SACH-22-04: (Sample Number: SACH000355-359) collected over a 7.5 m interval;
- Channel: SACH-22-05: (Sample Number: SACH000350-354) collected over a 6 m interval;
- Channel: SACH-22-06: (Sample Number: SACH000365-368) collected over a 7.1 m interval; and
- Channel: SACH-22-07: (Sample Number: SACH000369-372) collected over an 8 m interval.

The underground channel samples are collected perpendicular to the mineralization. A sample reference point is marked on the wall to determine the location of each sample which will be picked up by the surveyor after the channel sample has been taken. The maximum length of each channel sample interval does not exceed 2 m, and the start and end of each sample is usually defined by change in style or intensity of the mineralization, a structure or at a lithological contact.

The approximate weight of each sample will be 3 kg to 5 kg. Each sample that is taken is given a ticket with a barcode indicating the items to be analyzed. The bags are closed with a plastic seal to ensure that there is no loss of the sample during transport.

The sample data is recorded in a checkbook as: level, labor, reference point, channel length and width, elements to be analyzed, sample code, and a geological description of the mineralization as shown in Figure 10-11.

Figure 10-11: Channel Sample Check-book Record


ALTOS DE Punitaqui MINERA

PROYECTO: CNM

TIPO DE MUESTRA

MARINA

CANALETA

ESPECIAL

TIPO QA/QC

ORIGINAL

DUPLICADO

MUESTRA BLANCA

PUGMC0000732

Imprenta Méndez - Ovalle

GEOLOGÍA MINA

NIVEL: 410

LABOR:

UBICACION:

Desde 21,65 Hasta 23,65

A. M: 2,00

Obs:

HD HI FRENTE

SUPERVISOR: CA

MUESTRERO: MA/LF/JT

Fecha:

ALTOS DE Punitaqui MINERA

PUGMC0000732

ANALIZAR POR

Cut	Cus	As	Ag
Fe	Au	Hg	Pe

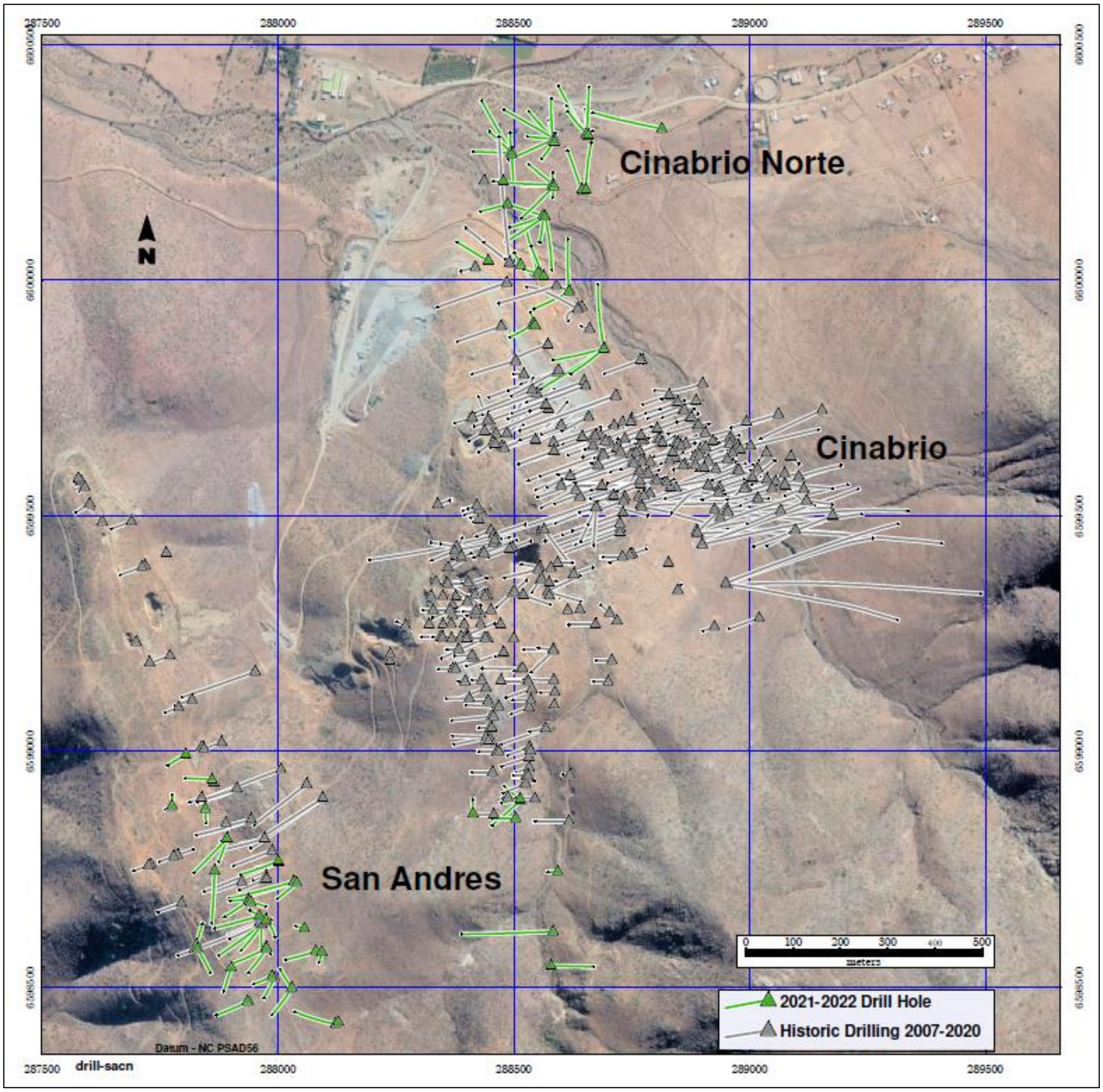
Fecha:

Source: Kirkham (2022)

10.3 Cinabrio 2021 BMR Diamond Core Drilling

The 2021-2022 BMR drilling in the Cinabrio area was mainly focused on The San Andres zone to the west and the Cinabrio Norte zone to the north. Figure 10-12 is a compilation of all drilling at the Cinabrio Mine, the San Andres zone and the Norte zone. Drilling at the Cinabrio mine itself was limited to a short program to test the southern extent of known mineralization on the 440 m level.

Figure 10-12: Cinabrio Area Targets and Drilling Map



Source: Kirkham (2022)

A limited diamond core drilling program (8 holes / 855.22 m) was completed by BMR in 2021. The drilling resulted in a total of 66 drill core samples representing 66.6 m of drill core submitted for assay.

The 2021 drilling is detailed in Table 10-4 and Figure 10-13. This drilling targeted the immediate southern extensions of the Cinabrio orebody just beyond the workings on the 440 m level in an earlier where a series of historic reverse circulation holes had confirmed the presence of the favourable sedimentary host rocks and copper mineralization. In addition, several holes were drilled farther south to test for the presence of favorable stratigraphy and mineralization below an interpreted low angle fault.

Three of the eight holes intercepted significant copper mineralization including:

- CNV-21-02: 14.3 m at 0.98% Cu and 0.5 g/t Ag including 10 m at 1.17% Cu and 0.5 g/t Ag;
- CNV-21-03: 2 m at 0.65% Cu and 0.8 g/t Ag; and
- CNV-21-07: 6 m at 1.73% Cu and 0.5 g/t Ag.

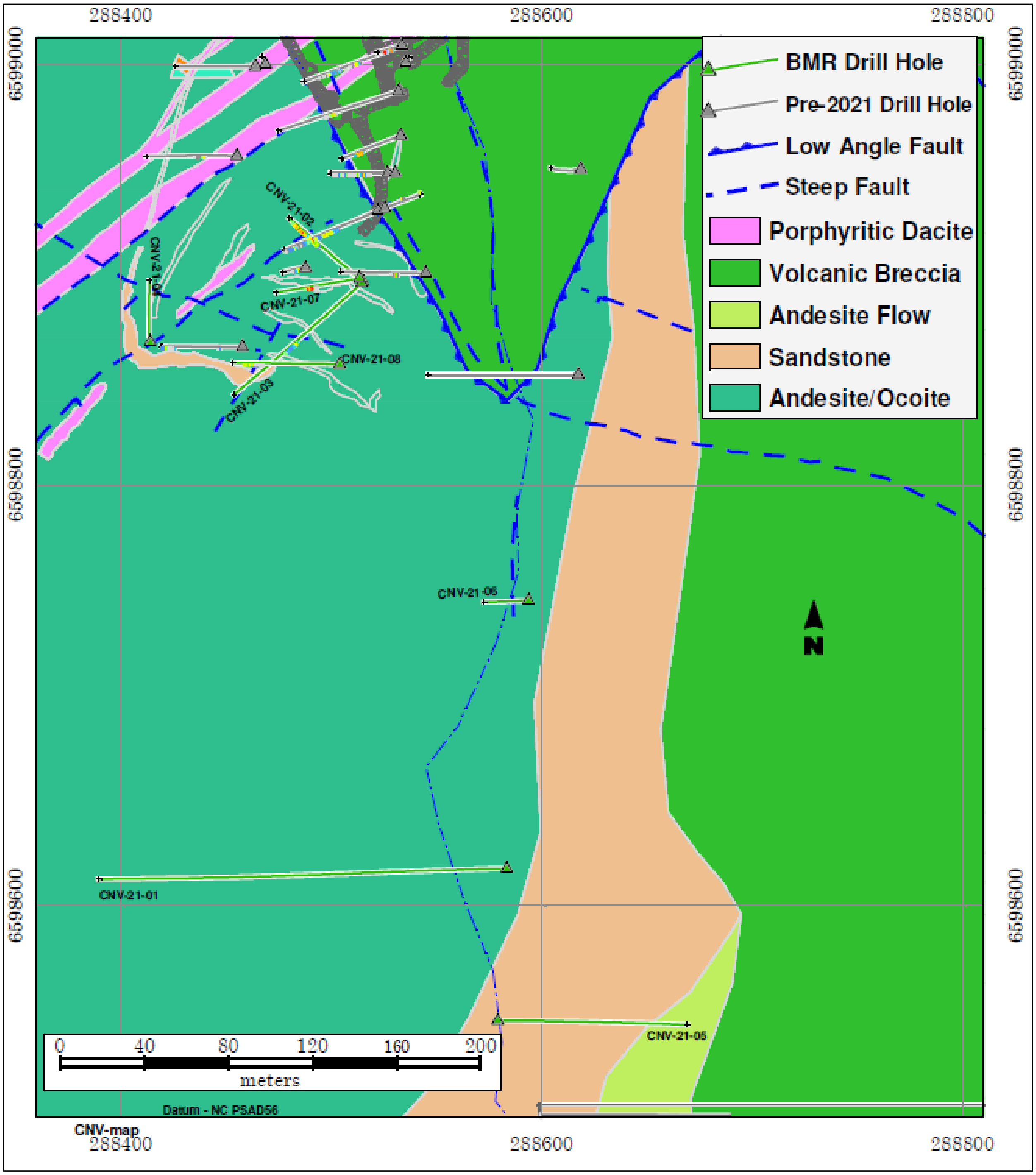
Note: All intervals are downhole core lengths
Source: Kirkham, 2022

Table 10-4: Cinabrio 2021 BMR Diamond Core Drilling Summary

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
CNV-21-01	288583.44	6598617.61	516.26	267.60
CNV-21-02	288514.97	6598896.75	498.71	72.60
CNV-21-03	288514.44	6598896.33	498.83	115.05
CNV-21-04	288413.88	6598868.24	526.44	59.02
CNV-21-05	288579.05	6598545.29	522.92	128.10
CNV-21-06	288593.68	6598745.08	493.76	70.75
CNV-21-07	288513.38	6598898.55	498.77	59
CNV-21-08	288503.97	6598857.51	517.17	83.10
Totals	8 Holes			855.22

Source: Kirkham (2022)

Figure 10-13: Cinabrio 2021 Drill Plan



Source: Kirkham (2022)

10.3.1 Cinabrio Channel Sampling

As part of the 2022 exploration program, a limited underground channel sampling program was completed at the Cinabrio mine. Four channel samples from the walls on the 135 Level to confirm earlier sampling completed in 2020 by Xiana Mining. The four BMR Cinabrio channel samples (24.5 m) included:

- Channel: CICH-22-01: (Sample Number: CICH001357) collected over a 3 m interval;
- Channel: CICH-22-02: (Sample Number: CICH001354) collected over a 3 m interval;
- Channel: CICH-22-03: (Sample Number: CICH001347) collected over a 6.5 m interval; and
- Channel: CICH-22-04: (Sample Number: CICH001340) collected over a 6 m interval.

The 2022 BMR channel sampling is detailed in Table 10-5 and Figure 10-14.

Table 10-5: 2022 BMR San Andres Cinabrio Mine Channel Sampling 135 Level

Channel Number	Channel Sample Number	From Meters (m)	To Meters (m)	Copper Percent (Cu%)	Silver Ag (g/t)
CICH-22-01	CICH001357	0	1	1.14	5
CICH-22-01	CICH001357	1	2	3.14	5
CICH-22-01	CICH001357	2	3	0.69	1
CICH-22-02	CICH001354	0	1	1.17	3
CICH-22-02	CICH001354	1	2	0.67	8
CICH-22-02	CICH001354	2	3	3.84	62
CICH-22-03	CICH001347	0	1	9.56	40
CICH-22-03	CICH001347	1	2	5.75	31
CICH-22-03	CICH001347	2	3.20	3.44	15
CICH-22-03	CICH001347	3.20	4.40	1.44	1
CICH-22-03	CICH001347	4.40	5.46	0.57	1
CICH-22-03	CICH001347	5.46	6.52	0.49	1
CICH-22-04	CICH001340	0	0.94	6.11	23
CICH-22-04	CICH001340	0.94	1.88	11.89	48
CICH-22-04	CICH001340	1.88	2.88	1.49	2
CICH-22-04	CICH001340	2.88	3.89	1.62	1
CICH-22-04	CICH001340	3.89	4.94	0.98	1
CICH-22-04	CICH001340	4.94	5.99	0.78	1

Source: Kirkham (2022)

The BMR Cinabrio mine channel sampling was in part a check sampling of earlier Xiana Mining sampling. The 2022 BMR sampling yielded the following intervals:

- CICH-22-001: 3 m at 2.3% Cu and 3.67 g/t Ag;
- CICH-22-002: 3 m at 1.89% Cu and 24.33 g/t Ag;
- CICH-22-003: 6.5 m at 3.43% Cu and 14.2 g/t Ag; and
- CICH-22-004: 6 m at 2.65% Cu and 11.97 g/t Ag.

Source: Kirkham, 2022

Two of the 2002 channel samples were re-sampled as checks on 2020 Xiana Sampling. The results of the checked sample intervals are detailed below:

- BMR-CICH-22-003: 6.5 m at 3.43% Cu and SACH-20-072: 6.5 m at 2.8% Cu; and
- BMR-CICH-22-004: 6 m at 3.65% Cu and SACH-20-073: 6 m at 3.4% Cu.

Source: Kirkham, 2022

A comparison of the earlier 2020 historic sampling and the BMR channel results show a relatively good correlation over the channel lengths of 2.32% versus 2.66% and 3.51% versus 3.81% or a 13% and 7% difference, respectively as shown in Table 10-6 and Figure 10-14. Partial samples comparisons showed a wider differential of 101% and 38% although it is difficult to correlate these check samples directly. Overall, the comparison is very good with copper grades being 2.73% versus 2.96% for a difference of 8%.

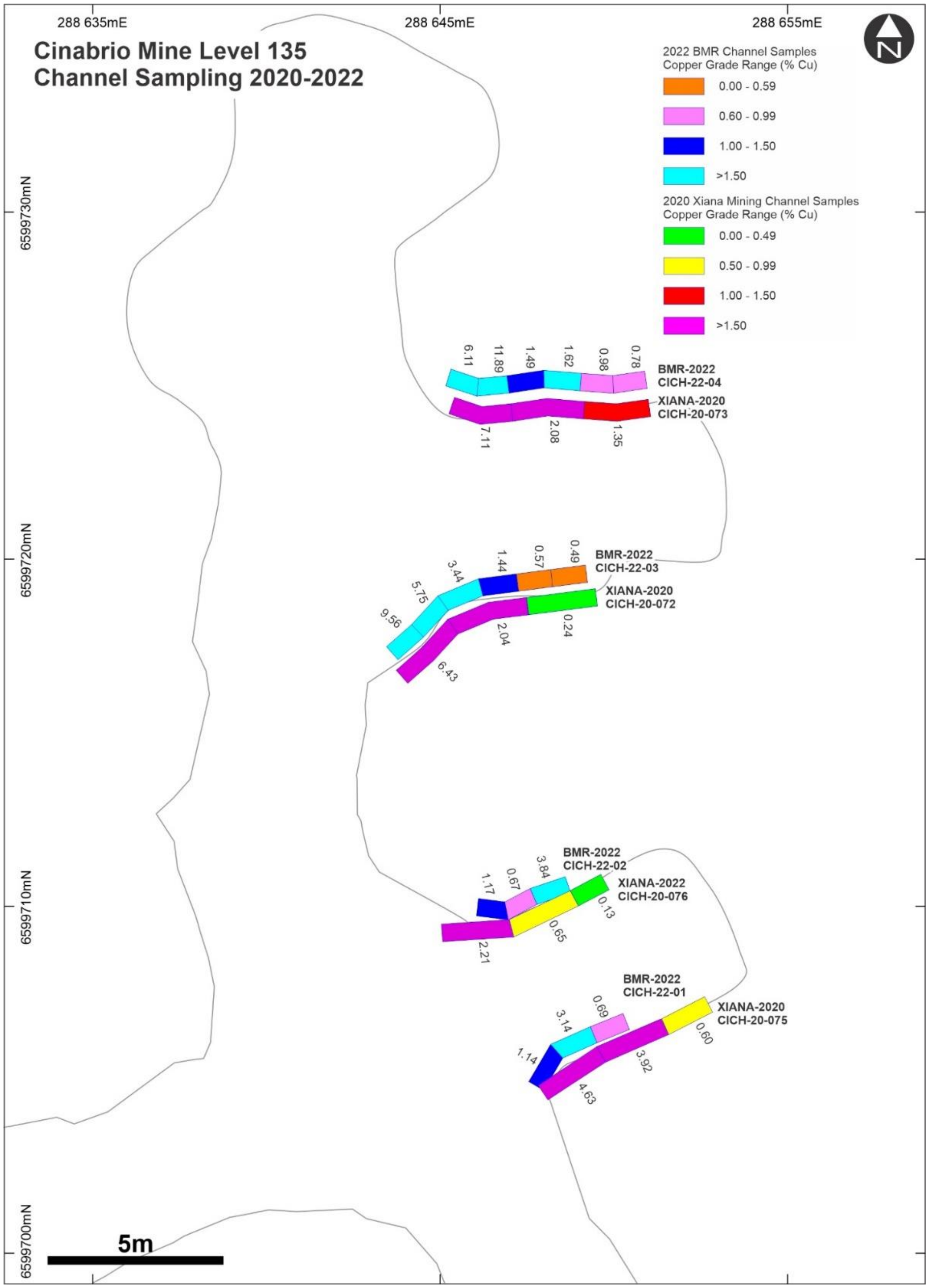
Table 10-6: Cinabrio Mine Level 135 Channel Sampling Comparison 2020 Xiana Mining and 2022 BMR Channel Sampling

XIANA MINING Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	BMR Channel Number	Channel Sample Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Silver Ag (g/t)
CICH-20-075	0	2	4.63	CICH-22-01	CICH001357	0	1	1.14	5
CICH-20-075	2	4	3.92	CICH-22-01	CICH001357	1	2	3.14	5
CICH-20-075	4	5.4	0.60	CICH-22-01	CICH001357	2	3	0.69	1
CICH-20-076	0	2	2.21	CICH-22-02	CICH001354	0	1	1.17	3
CICH-20-076	2	4	0.65	CICH-22-02	CICH001354	1	2	0.67	8
CICH-20-076	4	5	0.13	CICH-22-02	CICH001354	2	3	3.84	62
CICH-20-072	0	2	6.43	CICH-22-03	CICH001347	0	1	9.56	40
CICH-20-072	2	4.4	2.04	CICH-22-03	CICH001347	1	2	5.75	31
CICH-20-072	4.40	6.52	0.24	CICH-22-03	CICH001347	2	3.2	3.44	15

XIANA MINING Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	BMR Channel Number	Channel Sample Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Silver Ag (g/t)
				CICH-22-03	CICH001347	3.2	4.4	1.44	1
				CICH-22-03	CICH001347	4.40	5.46	0.57	1
				CICH-22-03	CICH001347	5.46	6.52	0.49	1
CICH-20-073	0	1.88	7.11	CICH-22-04	CICH001340	0	0.94	6.11	23
CICH-20-073	1.88	3.89	2.08	CICH-22-04	CICH001340	0.94	1.88	11.89	48
CICH-20-073	3.89	5.99	1.35	CICH-22-04	CICH001340	1.88	2.88	1.49	2
				CICH-22-04	CICH001340	2.88	3.89	1.62	1
				CICH-22-04	CICH001340	3.89	4.94	0.98	1
				CICH-22-04	CICH001340	4.94	5.99	0.78	1

Source: Kirkham (2022)

Figure 10-14: Channel Sampling Comparison 2020 Xiana Mining and 2022 BMR Channel Sampling



Source: Kirkham (2022)

10.4 San Andres 2021-2022 BMR Diamond Core Drilling

At San Andres, historic, wide-spaced drilling completed by the previous operators between 2007-2020 totaled 64 holes for 9,427 m. This earlier drilling consists of 30 diamond core holes and 34 reverse circulation holes resulting in the analysis of 2,287 assay samples representing 959.1 m of drilling sampled.

Follow-up drilling by BMR in 2021-2022, resulted in the completion of an additional 38 diamond core holes totaling 8,211.61 m. The BMR drilling is detailed in Table 10-7, Figure 10-15, Figure 10-16, and Figure 10-17. The BMR program resulted in a total of 939 samples submitted for assay representing 2,210 m of core.

San Andres is a tabular sedimentary horizon within a volcanic sequence. This sedimentary horizon is variably mineralized and has a variable width ranging from 5 m – 30 m. It consists of an interlayered volcano-sedimentary sequence composed of dark colored laminated and unlaminated shales, volcanoclastic sandstone, conglomerates and breccias and tuff breccias. There is a variable component of syngenetic pyrite. The horizon dips -40º to -50º to the east and is cut-off at depth by the moderately west dipping San Andres fault.

Mineralization consists of veinlets and irregular disseminations in both the fine and coarse-grained clastic rocks and locally within the volcanic rocks above and below the host unit. The host horizon is also cut and offset by other faults with a wide range of orientations. The principal orientations identified to date include:

- Moderately west dipping splays of the San Andres fault generally with down to the west movement;
- Steep dipping northeast to northwest trending faults with both sinistral and dextral offsets; and
- Faults parallel and sub-parallel to stratigraphy.

The intersection of the San Andres fault and the host sedimentary unit plunges toward the south. The host sedimentary unit at San Andres is exposed along a north-northwest trending ridge. The surface trace of the mineralized unit crosses from the east side of the ridge in the northern part of San Andres to the western side of the ridge in the southern part. The east dipping host unit is dipping at a shallow angle into the topography in the north and at a very steep angle into the topography in the south. For this reason, the depth of oxidation of the mineralization decreases significantly in the south.

Table 10-7: San Andres 2021-2022 BMR Diamond Core Drilling Summary

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
SAS-21-01	287960.47	6598651.12	630.02	199.60
SAS-21-02	287974.37	6598639.74	630.21	213
SAS-21-03	287972.58	6598640.94	630.14	214.80
SAS-21-04	287962.06	6598648.36	630.70	360
SAS-21-05	288034.29	6598724.15	620.13	240
SAS-21-06	288033.60	6598724.02	620.24	220.50
SAS-21-07	288080.36	6598576.36	657.04	270
SAS-21-08	288028.43	6598496.67	656.23	270
SAS-21-09	287938.56	6598469.84	657.15	239.55
SAS-21-10	287937.58	6598686.53	627.50	61.30
SAS-21-11	287804.85	6598993.41	554.29	73
SAS-21-12	287938.32	6598683.15	627.55	196.70
SAS-21-13	287935.70	6598469.99	657.08	221.60
SAS-21-14	287974.43	6598581.14	639.08	242.40
SAS-21-15	287827.54	6598590.60	634.27	144.30
SAS-21-16	287829.34	6598582.63	633.83	170.65
SAS-21-17	288039.97	6598721.82	620.28	251.20
SAS-21-18	288093.19	6598574.76	657.42	356.60
SAS-21-19	287860.24	6598940.39	545.50	88.70
SAS-21-20	288056.37	6598624.85	642.36	281.70
SAS-21-21	287892.15	6598815.45	589.74	141.60
SAS-21-22	287891.96	6598815.27	589.77	139.50
SAS-21-23	287901.14	6598541.52	650.27	200.20
SAS-21-24	287992.47	6598520.06	648.66	245.50
SAS-21-25	288122.31	6598421.55	642.075	259.80
SAS-21-26	288128.21	6598426.08	641.832	365.25
SAS-21-27	287960.82	6598651.28	629.964	242.26
SAS-21-28	288030.40	6598499.42	656.23	241.90
SAS-21-29	287974.62	6598585	639	242.10
SAS-21-30	287775.89	6598884.78	589.07	71.10
SAS-21-31	287865.77	6598746.56	617.79	181.55
SAS-21-32	287974.58	6598642.87	630.29	251.10
SAS-21-33	287846.19	6598878.59	568.69	110.10
SAS-21-34	288029.59	6598498.63	656.42	269.15
SAS-21-35	287942.22	6598680.72	627.85	239.30

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
SAS-21-36	288000.88	6598767.79	612.73	217.90
SAS-21-37	287975.81	6598582.59	639.10	230.20
SAS-21-38	287987.69	6598523.09	648.66	247.50
Totals		38 Holes		8,211.61

Source: Kirkham (2022)

The 2021-2022 program yielded the following significant results:

- SAS-21-01: 3.0 m at 1.52% Cu;
- SAS-21-03: 11.0 m at 1.39% Cu including 8.0 m at 1.63% Cu;
- SAS-21-04: 16.7 m at 1.37% Cu and 9.0 m at 1.75% Cu;
- SAS-21-05: 9.0 m at 2.06% Cu;
- SAS-21-07: 3.4 m at 2.10% Cu and 4.0 m at 1.56% Cu;
- SAS-21-08: 5.3 m at 1.39% Cu and 3.8 m at 1.85% Cu;
- SAS-21-11: 2.0 m at 0.91% Cu;
- SAS-21-12: 7.0 m at 1.81% Cu and 2 m at 1.04% Cu;
- SAS-21-13: 3.0 m at 1.96% Cu, 3.0 m at 0.87% Cu and 1.8 m at 0.83% Cu;
- SAS-21-14: 28.1 m at 0.98% Cu including 10.1 m at 1.44% Cu & 9.4 m at 1.24% Cu;
- SAS-21-15: 3.0 m at 0.5% Cu, and 3.0 m at 0.48% Cu;
- SAS-21-17: 3.6 m at 1.04% Cu;
- SAS-21-19: 5.0 m at 1.08% Cu including 4.0 m at 1.24% Cu;
- SAS-21-20: 2.4 m at 0.70% Cu;
- SAS-21-21: 25.0 m at 0.88% Cu including 4.0 m at 1.19% Cu & 2.0 m at 1.12% Cu;
- SAS-21-23: 2.8 m at 1% Cu;
- SAS-21-24: 3.0 m at 0.82% Cu;
- SAS-21-27: 11 m at 2.16% Cu;

- SAS-21-29: 16 m at 1.49% Cu;
- SAS-21-30: 5 m at 1.39% Cu;
- SAS-21-36: 37.6 m at 1.36% Cu including 27.4 m at 1.55% Cu and including 14.7 m at 2.12% Cu;
- SAS-21-35: 25.1 m at 0.54% Cu including 6.9 m at 1.10% Cu;
- SAS-21-34: 9.2 m at 1.57% Cu;
- SAS-21-31: 2.8 m at 1.74% Cu;
- SAS-21-25: 4.6 m at 0.82% Cu;
- SAS-21-32: 4 m at 1.44% Cu;
- SAS-21-38: 2.2 m at 1.10% Cu;
- SAS-21-33: 2 m at 0.73% Cu; and
- SAS-21-37: 2.1 m at 0.66% Cu.

Source: BMR Press Release February 22, 2022

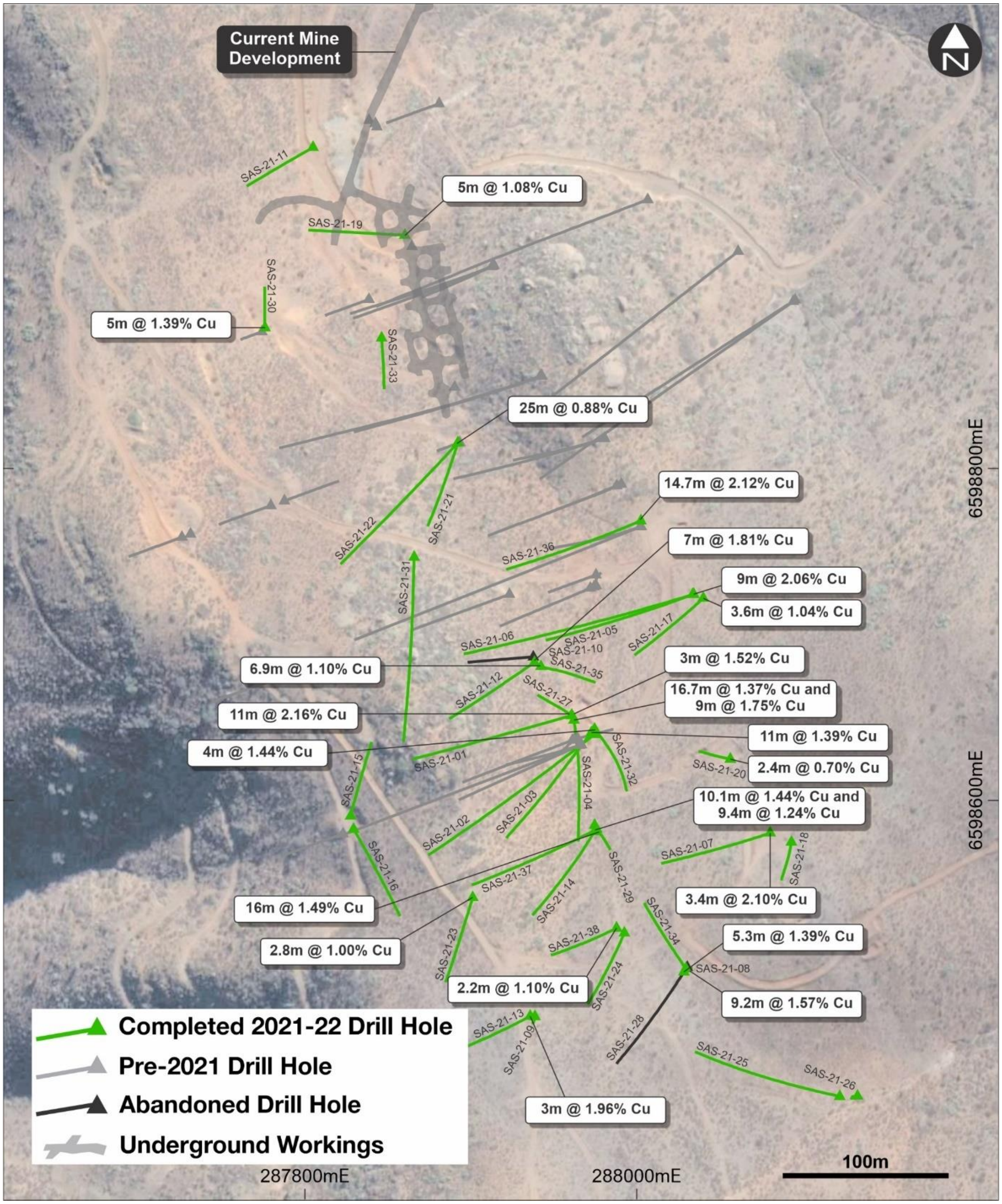
Figure 10-15: San Andres Drilling 2021 – Close-up View Diamond Drill Rig in Operation

Source: Kirkham (2022)

Figure 10-16: San Andres Drilling 2021 – View Looking to Northwest

Source: BMR Corporate Presentation (2022)

Figure 10-17: 2021-2022 BMR San Andres Diamond Core Drilling Collar Plan with Significant Intercepts



Source: BMR Press Release (February 22,2022)

10.4.1 San Andres Channel Sampling

As part of the 2022 exploration program, a limited underground channel sampling program was completed at the San Andres zone. Seven channel samples from the walls on the 445 Level to confirm earlier sampling completed in 2020 by Xiana Mining. The seven BMR San Andres channel samples included:

- Channel: SACH-22-01: (Sample Number: SACH000360-363) collected over a 6 m interval;
- Channel: SACH-22-02: (Sample Number: SACH000377-382) collected over a 9 m interval;
- Channel: SACH-22-03: (Sample Number: SACH000374-376) collected over a 4.5 m interval;
- Channel: SACH-22-04: (Sample Number: SACH000355-359) collected over a 7.5 m interval;
- Channel: SACH-22-05: (Sample Number: SACH000350-354) collected over a 6 m interval;
- Channel: SACH-22-06: (Sample Number: SACH000365-368) collected over a 7.1 m interval; and
- Channel: SACH-22-07: (Sample Number: SACH000369-372) collected over an 8 m interval.

The 2022 BMR channel sampling is detailed in Table 10-8 and Figure 10-18.

Table 10-8: 2022 BMR San Andres Channel Sampling 445 Level

Channel Number	From Meters (m)	To Meters (m)	Sample Interval (m)	Copper Precent (Cu%)	Silver Ag (g/t)
SACH-22-005	0	1.5	1.5	2.97	26
SACH-22-005	1.5	3	1.5	1.91	18
SACH-22-005	3	4.5	1.5	2.25	10
SACH-22-005	4.5	6	1.5	2.41	18
SACH-22-004	0	1.5	1.5	2.43	21
SACH-22-004	1.5	3	1.5	1.85	12
SACH-22-004	3	4.5	1.5	2.09	19
SACH-22-004	4.5	6	1.5	1.99	18
SACH-22-004	6	7.5	1.5	2.25	15
SACH-22-001	0	1.5	1.5	1.90	12
SACH-22-001	1.5	3	1.5	2.16	16
SACH-22-001	3	4.5	1.5	3.36	31
SACH-22-001	4.5	6	1.5	1.77	6

Channel Number	From Meters (m)	To Meters (m)	Sample Interval (m)	Copper Precent (Cu%)	Silver Ag (g/t)
SACH-22-006	0	2	2	1.77	13
SACH-22-006	2	4	2	2.19	23
SACH-22-006	4	6	2	2.30	16
SACH-22-006	6	7.1	1.1	2.26	21
SACH-22-007	0	2	2	2.19	7
SACH-22-007	2	4	2	2.23	15
SACH-22-007	4	6	2	3.01	31
SACH-22-007	6	8	2	2.23	10
SACH-22-003	0	1.5	1.5	1.89	20
SACH-22-003	1.5	3	1.5	2.02	23
SACH-22-003	3	4.5	1.5	5.24	69
SACH-22-002	0	1.5	1.5	2.96	46
SACH-22-002	1.5	3	1.5	2.36	27
SACH-22-002	3	4.5	1.5	1.97	18
SACH-22-002	4.5	6	1.5	2.41	13
SACH-22-002	6	7.5	1.5	2.04	
SACH-22-002	7.5	9	1.5	2.54	

Source: Kirkham (2022)

Table 10-9: Channel Sampling Comparison 2020 Xiana Mining and 2022 BMR Channel Sampling

Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Silver Ag (g/t)
SACH-20-033	0	1.5	2.42	SACH-22-005	0	1.5	2.97	26
SACH-20-033	1.5	3	2.88	SACH-22-005	1.5	3	1.91	18
SACH-20-033	3	4.5	2.64	SACH-22-005	3	4.5	2.25	10
SACH-20-033	4.5	6	2.29	SACH-22-005	4.5	6	2.41	18
SACH-20-034	0	1.5	2.45	SACH-22-004	0	1.5	2.43	21
SACH-20-034	1.5	3	3.06	SACH-22-004	1.5	3	1.85	12
SACH-20-034	3	4.5	2.58	SACH-22-004	3	4.5	2.09	19
SACH-20-034	4.5	6	3.29	SACH-22-004	4.5	6	1.99	18
SACH-20-034	6	7.5	2.64	SACH-22-004	6	7.5	2.25	15
-	-	-	-	SACH-22-001	0	1.5	1.90	12
-	-	-	-	SACH-22-001	1.5	3	2.16	16

Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Silver Ag (g/t)
-	-	-	-	SACH-22-001	3	4.5	3.36	31
-	-	-	-	SACH-22-001	4.5	6	1.77	6
SACH-20-022	0	2	2.32	SACH-22-006	0	2	1.77	13
SACH-20-022	2	4	2.48	SACH-22-006	2	4	2.19	23
SACH-20-022	4	6	3.06	SACH-22-006	4	6	2.30	16
SACH-20-022	6	7.1	2.41	SACH-22-006	6	7.1	2.26	21
SACH-20-023	0	2	2.01	SACH-22-007	0	2	2.19	7
SACH-20-023	2	4	2.38	SACH-22-007	2	4	2.23	15
SACH-20-023	4	6	2.08	SACH-22-007	4	6	3.01	31
SACH-20-023	6	8	0.42	SACH-22-007	6	8	2.23	10
-	-	-	-	SACH-22-003	0	1.5	1.89	20
-	-	-	-	SACH-22-003	1.5	3	2.02	23
-	-	-	-	SACH-22-003	3	4.5	5.24	69
-	-	-	-	SACH-22-002	0	1.5	2.96	46
-	-	-	-	SACH-22-002	1.5	3	2.36	27
-	-	-	-	SACH-22-002	3	4.5	1.97	18
-	-	-	-	SACH-22-002	4.5	6	2.41	13
-	-	-	-	SACH-22-002	6	7.5	2.04	18
-	-	-	-	SACH-22-002	7.5	9	2.54	28

Source: Kirkham (2022)

The BMR San Andres channel sampling was in part a check sampling of earlier Xiana Mining sampling. The 2022 BMR sampling yielded the following intervals:

- SACH-22-001: 6 m at 2.3% Cu;
- SACH-22-002: 9 m at 2.38% Cu;
- SACH-22-003: 4.5 m at 3.07% Cu;
- SACH-22-004: 7.5 m at 2.12% Cu;
- SACH-22-005: 6 m at 2.38% Cu;
- SACH-22-006: 7.1 m at 2.11% Cu; and
- SACH-22-007: 8.0 m at 2.42% Cu.

Source Kirkham, 2022

Four of the 2002 channel samples were re-sampled as checks on 2020 Xiana Sampling. The results of the checked sample intervals are detailed below:

- BMR-SACH-22-004: 7.5 m at 2.12% Cu and SACH-20-034: 7.5 m at 2.8% Cu;
- BMR- SACH-22-005: 6 m at 2.38% Cu and SACH-20-033: 6 m at 2.6% Cu;
- BMR-SACH-22-006: 7.1 m at 2.11% Cu and SACH-20-022: 7.1 m at 2.59% Cu; and
- BMR-SACH-22-007: 8.0 m at 2.42% Cu and SACH-20-023: 8 m at 1.72% Cu.

Source Kirkham, 2022

A comparison of the earlier 2020 historic sampling and the BMR channel results show a correlation over the channel lengths of 2.56% versus 2.39%, 2.80% versus 2.12%, 2.59% versus 2.11%, and 1.72% versus 2.42% or a 7%, 32%, 22% and 29% difference, respectively as shown in Table 10-9 and Figure 10-18. The 32% and 29% difference is relatively high but not extreme however, overall, the comparison is very good with copper grades being 2.40% versus 2.26% for a difference of 6%.

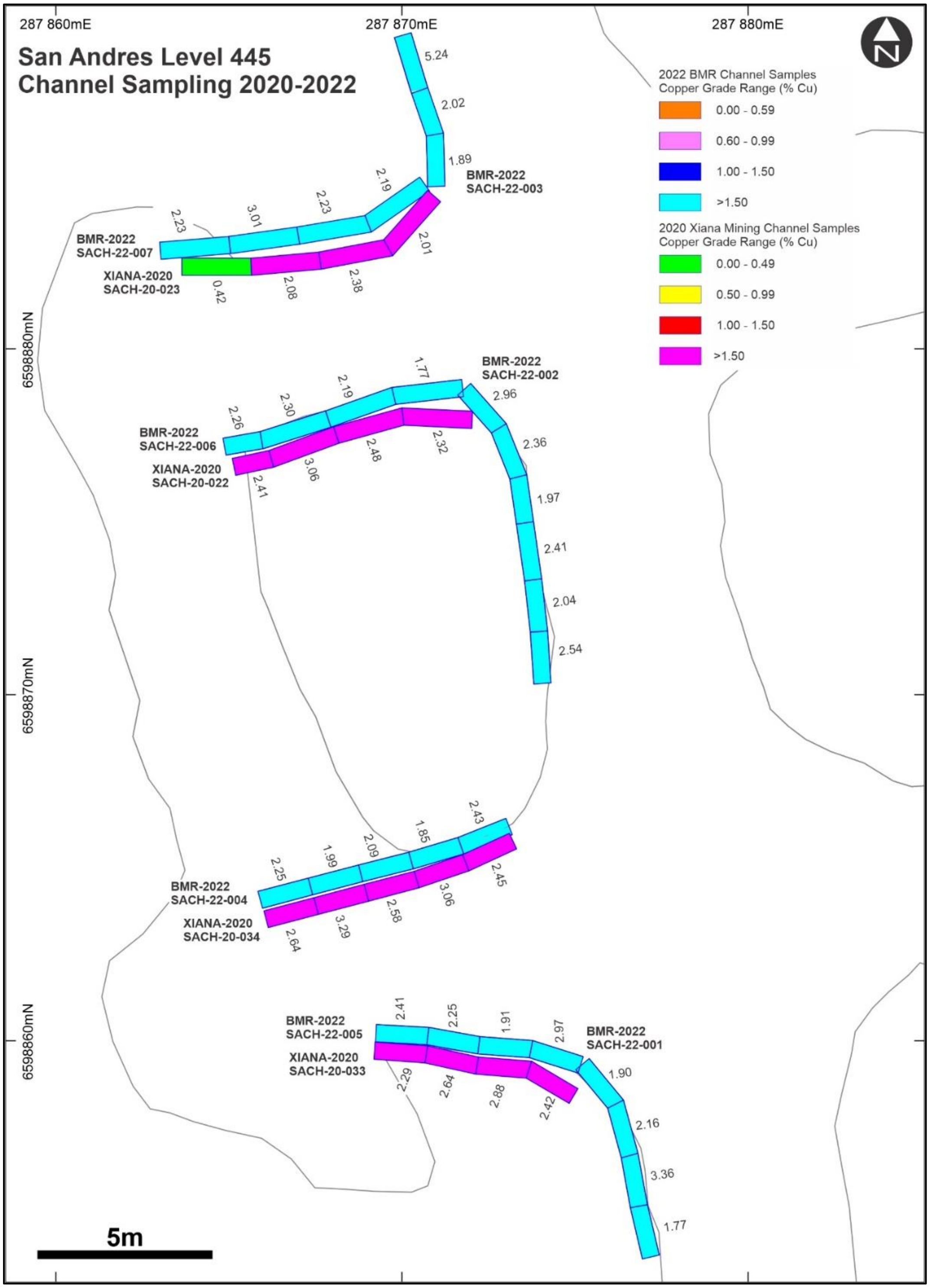
Table 10-10: Channel Sampling Comparison 2020 Xiana Mining and 2022 BMR Channel Sampling

Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Silver Ag (g/t)
SACH-20-033	0	1.5	2.42	SACH-22-005	0	1.5	2.97	
SACH-20-033	1.5	3	2.88	SACH-22-005	1.5	3	1.91	
SACH-20-033	3	4.5	2.64	SACH-22-005	3	4.5	2.25	
SACH-20-033	4.5	6	2.29	SACH-22-005	4.5	6	2.41	
SACH-20-034	0	1.5	2.45	SACH-22-004	0	1.5	2.43	
SACH-20-034	1.5	3	3.06	SACH-22-004	1.5	3	1.85	
SACH-20-034	3	4.5	2.58	SACH-22-004	3	4.5	2.09	
SACH-20-034	4.5	6	3.29	SACH-22-004	4.5	6	1.99	
SACH-20-034	6	7.5	2.64	SACH-22-004	6	7.5	2.25	
-	-	-	-	SACH-22-001	0	1.5	1.90	
-	-	-	-	SACH-22-001	1.5	3	2.16	
-	-	-	-	SACH-22-001	3	4.5	3.36	
-	-	-	-	SACH-22-001	4.5	6	1.77	
SACH-20-022	0	2	2.32	SACH-22-006	0	2	1.77	
SACH-20-022	2	4	2.48	SACH-22-006	2	4	2.19	
SACH-20-022	4	6	3.06	SACH-22-006	4	6	2.30	
SACH-20-022	6	7.1	2.41	SACH-22-006	6	7.1	2.26	

Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Channel Number	From Meters (m)	To Meters (m)	Copper Precent (Cu%)	Silver Ag (g/t)
SACH-20-023	0	2	2.01	SACH-22-007	0	2	2.19	
SACH-20-023	2	4	2.38	SACH-22-007	2	4	2.23	
SACH-20-023	4	6	2.08	SACH-22-007	4	6	3.01	
SACH-20-023	6	8	0.42	SACH-22-007	6	8	2.23	
-	-	-	-	SACH-22-003	0	1.5	1.89	
-	-	-	-	SACH-22-003	1.5	3	2.02	
-	-	-	-	SACH-22-003	3	4.5	5.24	
-	-	-	-	SACH-22-002	0	1.5	2.96	
-	-	-	-	SACH-22-002	1.5	3	2.36	
-	-	-	-	SACH-22-002	3	4.5	1.97	
-	-	-	-	SACH-22-002	4.5	6	2.41	
-	-	-	-	SACH-22-002	6	7.5	2.04	
-	-	-	-	SACH-22-002	7.5	9	2.54	

Source: Kirkham (2022)

Figure 10-18: Channel Sampling Comparison 2020 Xiana Mining and 2022 BMR Channel Sampling



Source: Kirkham (2022)

10.5 Dalmacia 2021-2022 BMR Diamond Core Drilling

The Dalmacia target is located in the southern portion of the Punitaqui area about 6 km south of the Punitaqui processing plant. The Dalmacia target has been the focus of multiple reverse circulation and diamond core drill programs by previous owners dating back to 1993. Historic drilling from 1993 – 2017 has resulted in 225 holes totaling 52,725 m. This historic drilling been conducted on 25 m spaced drill sections through the main Dalmacia North area, and 15 m sections in the southern area. This earlier drilling consisted of 127 diamond core holes and 98 reverse circulation holes resulting in the analysis of 31,168 assay samples representing 32,030 m of the drilling intervals sampled.

In 2021-2022, BMR follow-up drilling resulted in the completion of an additional 51 diamond drill holes totaling 9,727.66 m. The 2021-2022 drilling is detailed in Table 10-11, Figure 10-19, Figure 10-20, and Figure 10-21. The BMR drill program resulted in a total of 3,938 drill core samples submitted for assay representing 5,596 m of sampled drill core.

The geological setting of the Dalmacia target is different from both the Cinabrio orebody and San Andres target which are located 20 km to the north. Dalmacia is situated within a roof-pendant of volcanic rocks, with minor calcareous intercalations of Middle to Upper Jurassic age. This volcano-sedimentary complex is intruded by younger aged granites located in a reverse fault. Locally, the copper mineralization at Dalmacia is hosted within a stratigraphic package that includes sedimentary rocks, andesites, and tuffs, intruded by ocoites and late intrusive diorite (dykes and stocks), which have generated hornfels. The alteration related with the mineralization varies from potassium feldspar, actinolite, secondary biotite, chlorite, green sericite to sericite-quartz/sericite

The copper mineralization occurs immediately after the ocoites undergo a late phase of chalcosodic alteration (quartz-albite-actinolite-epidote, “white” ocoites) with the destruction of magnetite and superimposed onto an earlier event of black albite, magnetite, and silicates (black ocoites). Copper mineralization is related to regional structures and deformation zones, developed mainly in the contacts between granite and volcano-sedimentary rocks. The copper mineralization occurs as veins, infill of fracture and disseminated oxides and sulphides. The known strike length of the mineralized zone is currently approximately 1,500 m and up to 300 m wide with depths greater than 500 m. Oxide mineralization includes chrysocolla, atacamite, neotocite and cuprite. Primary mineralization consists of chalcopyrite and bornite with pyrite. Secondary mineralization includes chalcocite and bornite.

Table 10-11: Dalmacia 2021-2022 BMR Diamond Core Drilling Summary

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
DS-21-01	283844.41	6579834.49	336.61	224.90
DS-21-02	283756.90	6579660.60	360.66	196.10
DS-21-03	283905.33	6579784.56	345.81	209.50
DS-21-04	283844.03	6579831.62	336.76	221.15
DS-21-05	283774.02	6579831.70	349.28	215.90

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
DS-21-06	283750.61	6579839.14	349.37	275.10
DS-21-07	283747.80	6579688.54	360.16	335.50
DS-21-08	283885.41	6579822.74	338.34	233.30
DS-21-09	283885.12	6579822.72	338.64	242.20
DS-21-10	283995.47	6580013.62	335.86	209
DS-21-11	283755.38	6579658.84	360.64	134.65
DS-21-12	283755.74	6579659.12	360.73	173.75
DS-21-13	283924.44	6579893.39	347.20	194.50
DS-21-14	283773.34	6579830.98	349.34	225.60
DS-21-15	283788.98	6579759.39	347.29	260.20
DS-21-16	283748.22	6579688.99	360.21	119.85
DS-21-17	283844.62	6579833.66	347.29	161.25
DS-21-18	283921.12	6579887.91	347.29	119.10
DS-21-19	283923.61	6579888.47	347.23	161.40
DS-21-20	283843	6579832.20	336.86	194.16
DS-21-21	283755.37	6579661.17	360.58	131.35
DS-21-22	283842.39	6579830.81	336.82	202.15
DS-21-23A	283753.63	6579660.54	360.48	118.30
DS-21-24	283753.50	6579659.93	360.59	133.80
DS-21-25	283842.94	6579830.16	336.94	236
DS-21-26	283786.33	6579757.54	347.51	233.10
DS-21-27	283754.04	6579659.53	360.55	178.50
DS-21-28	283892.43	6579906.33	335.69	176.60
DS-21-29	283994.24	6580012.13	335.77	197.05
DS-21-30	283884.07	6579823.66	338.47	178.15
DS-21-31	283995.04	6580012.13	335.67	151
DS-22-01	283997.60	6580012.10	335.84	152.10
DS-22-02	283893.63	6579907.01	335.78	227.60
DS-22-03	283993.40	6580011.19	335.73	107.70
DS-22-04	283719.47	6579763.19	359.82	165.45
DS-22-05	283893.10	6579908.55	335.82	134.80
DS-22-06	283893.32	6579909.53	335.78	191.70
DS-22-07	283739.03	6579843.28	350.05	164.90
DS-22-08	283894.218	6579911.23	335.81	232.35
DS-22-09	283923.19	6579890.50	347.17	188
DS-22-10	283897.06	6579912.77	335.90	209.40

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
DS-22-11	284048.71	6579926.49	366.41	262.70
DS-22-12	283995.86	6580008.62	335.76	197.75
DS-22-13	284047.55	6579926.79	366.48	209.20
DS-22-14	283998.24	6580009.29	336.27	166.90
DS-22-15	284045.64	6579926.26	366.41	245
DS-22-16	283995.27	6580009.17	335.82	209.10
DS-22-17	284043.81	6579925.51	366.68	90.70
DS-22-18	283923.39	6579894.44	347.32	209.50
DS-22-19	283749.01	6579667.97	360.26	155.20
DS-22-20	288690.79	6580012.83	336.34	164.50
Total		51 Holes		9,727.66

Source: Kirkham (2022)

The 2021-2022 BMR drill program yielded the following significant results:

- DS-21-01: 23 m at 1.16% Cu, including 13 m at 1.56% Cu;
- DS-21-02: 11 m at 1.08% Cu, including 4 m at 2.32% Cu;
- DS-21-03: 15 m at 1.01% Cu, including 4 m at 2.47% Cu;
- DS-21-04: 13 m at 0.64% Cu including 2 m at 1.24% Cu;
- DS-21-05: 6 m at 1.16% Cu;
- DS-21-06: 32 m grading 0.73% Cu including 16 m at 1.15% Cu and 95 m at 0.78% Cu including 29 m at 1.45% Cu, including a higher-grade interval of 14 m at 2.44% Cu;
- DS-21-07: 33 m at 1.77% Cu, including intervals of 9.0 m at 3.44% Cu, and 7 m at 2.54% Cu, and 10 m at 0.84% Cu, and 6 m at 2.19% Cu;
- DS-21-08: 102 m at 1.41% Cu including 78 m at 1.67% Cu and 16 m at 3.52% Cu;
- DS-21-10: 2 m at 2.40% Cu;
- DS-21-11: 24 m at 1.04% Cu including 4 m at 1.60% Cu and 6 m at 1.95% Cu;
- DS-21-12: 11 m at 0.82% Cu;
- DS-21-13: 18 m at 1.61% Cu, 12 m at 2.13% Cu including 8 m at 2.95% Cu and an interval of 5 m at 3.26% Cu as well as an intercept of 7 m at 1.87% Cu;

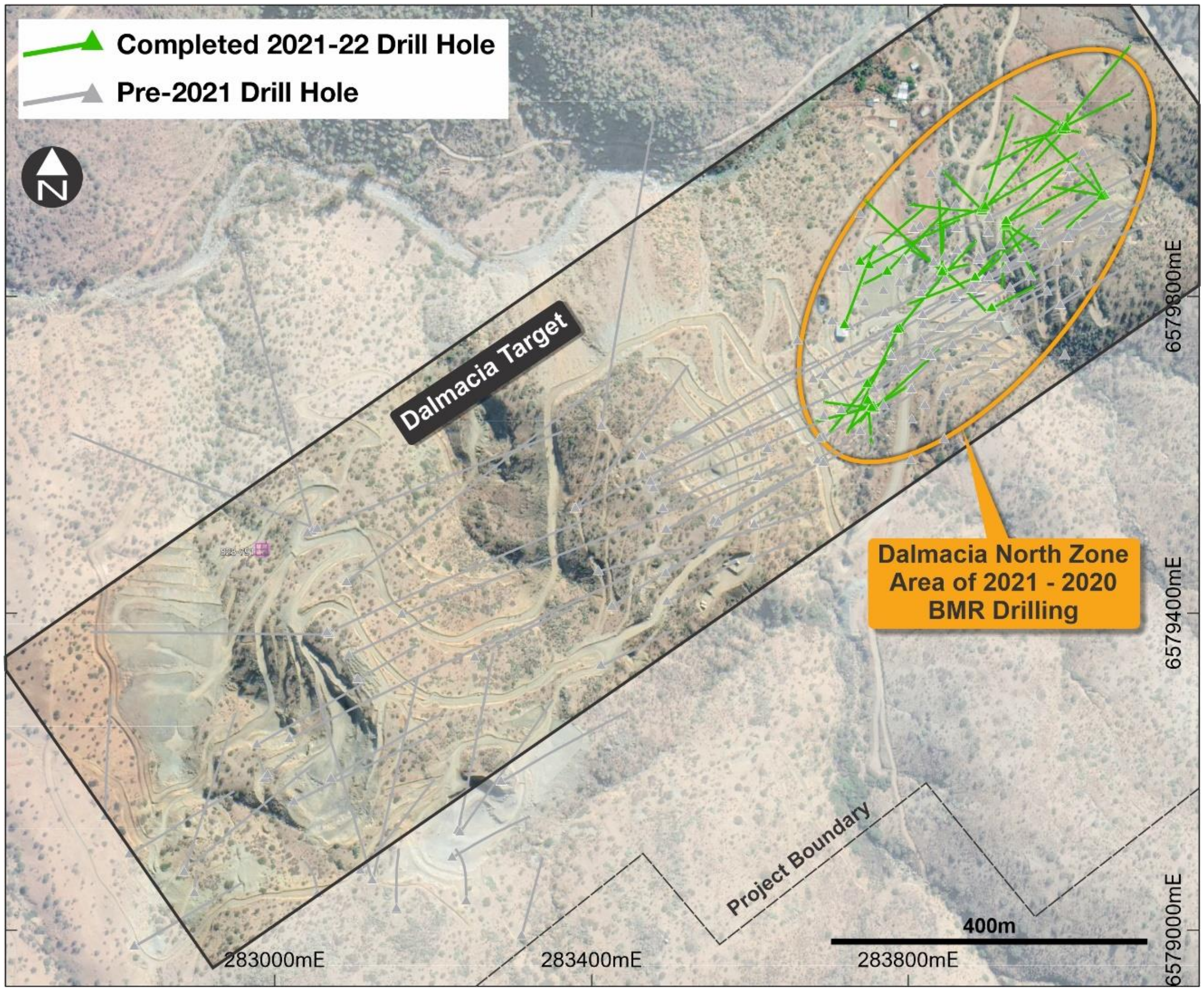
- DS-21-14: 9 m at 0.74% Cu including 4 m at 1.03% Cu, 15 m at 1.16% Cu including 7 m at 1.44% Cu and an interval of 9 m at 1.53% Cu and 4 m at 1.50% Cu;
- DS-21-16: 8 m at 5.29% Cu and 8 m at 3.53% Cu;
- DS-21-17: 12 m at 3.15% Cu, 47 m at 1.34% Cu including 28 m at 1.39% Cu;
- DS-21-30: 7 m at 1.31% Cu and 3 m at 1.31% Cu;
- DS-21-31: 12 m at 097% Cu, 3 m at 1.55% Cu and 3 m at 2.81% Cu;
- DS-22-01: 3 m at 1.26% Cu;
- DS-22-02: 21 m at 1.16% Cu, 11 m at 1.28% Cu and 33 m at 1.54% Cu including 11 m at 3.25% Cu;
- DS-22-03: 5 m at 0.97% Cu;
- DS-22-05: 2 m at 3.23% Cu;
- DS-22-06: 17 m at 2.21% Cu;
- DS-22-07: 3 m at 0.98 Cu;
- DS-22-08: 24 m at 0.81% Cu including 15 m at 1% Cu and 9 m at 1.24% Cu;
- DS-22-09: 1 8 m at 1.51% Cu including 8 m at 2.39% Cu as well as 6 m at 1.01% Cu, 3 m at 1.19% Cu and 6 m at 1.18% Cu;
- DS-22-10: 23 m at 1.55% Cu including 12 m at 2.50% Cu as well as 4 m at 1.81% Cu and 7 m at 1.12% Cu;
- DS-22-11: 11 m at 1.96% Cu, 6 m at 2.40% Cu and 11 m at 1.50% Cu including 6 m at 2.28% Cu;
- DS-22-12: 5 m at 1.08% Cu, 4 m at 1.22% Cu and 11 m at 0.90% Cu;
- DS-22-13: 5 m at 1% Cu;
- DS-22-15: 29 m at 1.05% Cu including 7 m at 1.94% Cu as well as 15 m at 0.81% Cu including 3 m at 1.81% Cu and 3 m at 1.34% Cu;
- DS-22-16: 4 m at 1.17% Cu and 3 m at 1.18% Cu;
- DS-22-17: 6 m at 1.15% Cu;
- DS-22-18: 6 m at 0.96% Cu;
- DS-22-19: 17 m at 0.69% Cu including 2 m at 1.93% Cu; and

- DS-22-20: 4 m at 1.02% Cu.

Note: All intervals are downhole core lengths.

Source: BMR Press Release June 9, 2022

Figure 10-19: 2021-2022 BMR Dalmacia Zone Drill Collar Plan - Area of 2021-2022 BMR Drilling Highlighted

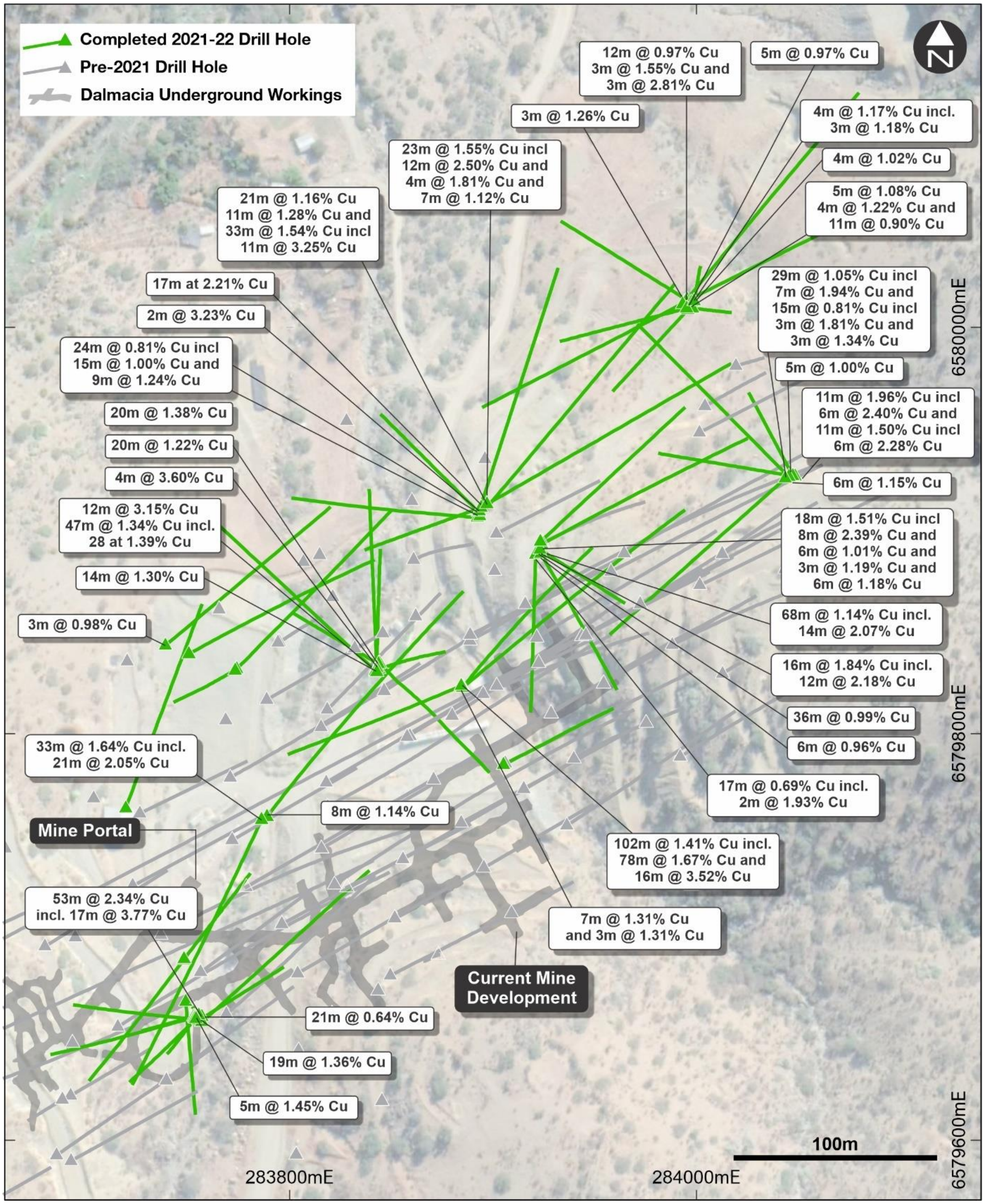


Source: BMR Press Release (April 13, 2022)

Figure 10-20: Overview Dalmacia Target Foreground was the Area of 2021-2022 BMR Drilling

Source: Kirkham (2022)

Figure 10-21: 2021-2022 BMR Dalmacia Diamond Core Drilling Collar Plan with Significant Intercepts



Source: BMR Press Release (June 9, 2022)

10.6 Cinabrio Norte 2021-2022 BMR Diamond Core Drilling

At Cinabrio Norte, limited historic wide-spaced drilling completed by the previous operators between 2004- 2020 totaled 21 holes for 4,352 m. This earlier drilling consists of 11 diamond core holes and 10 reverse circulation holes resulting in the analysis of over 715 assay samples which represented 948 m of intervals sampled.

Follow-up drilling by BMR in 2021-2022 resulted in the completion of an additional 54 diamond core holes totaling 13,731.74 m. The BMR drilling is detailed in Table 10-12 and Figure 10-22 and Figure 10-23. The BMR program resulted in a total of 1,761 drill core samples submitted for assay representing 2,143.8 m of drill core sampled.

The most recent Cinabrio Norte drilling was designed to follow-up on a limited number of historic drill holes that targeted the northern extension of the Cinabrio orebody. The historic exploration drilling confirmed that the favorable targeted stratigraphic unit (TSU) that hosts the copper mineralization within the Cinabrio orebody extends to the north. The TSU has been mapped along a north-south strike from the mine. It should be noted that the Cinabrio Norte target is only 110 m north of the Cinabrio underground workings on level 200 m. Historic hole CNS-20-01, drilled in 2020 by the prior operators, was drilled completely within the TSU resulting in multiple mineralized intercepts and, most importantly, confirmed the presence of TSU for over 200 m of strike length with significant copper sulphide mineralization (CNS-20-01: 48 m at 0.64% Cu, 3 m at 0.47% Cu and 6 m at 0.45% Cu).

The drilling was completed as sequenced series of step-out holes to test the TSU 400 m along strike (north-south) to a depth below surface (down-dip) of 330 m. This program confirmed the strike extent, down-dip extent and thickness of the TSU and also verified that it hosts significant copper sulphide mineralization.

Table 10-12: Cinabrio Norte 2021-2022 BMR Diamond Core Drilling Summary

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
CNN-21-01	288556.50	6600012.80	354.20	191
CNN-21-02	288551.90	6600015.10	353.90	236
CNN-21-03	288446.20	6600040.50	370.10	115.45
CNN-21-04	288514.40	6600032.80	358.40	145.90
CNN-21-05	288583.10	6600199.80	347.80	245.75
CNN-21-06	288497.10	6600268.20	339.20	173.60
CNN-21-07	288485.90	6600161.20	341.60	110.10
CNN-21-08	288499	6600269.90	338.90	134
CNN-21-09	288488.70	6600161.60	341.70	91.40
CNN-21-10	288566.10	6600136.50	348.70	266.40
CNN-21-11	288586.10	6600299.90	339.80	230.10
CNN-21-12	288566.30	6600135.90	348.60	296.30

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
CNN-22-01	288582	6600303	342	260.10
CNN-22-02	288566.80	6600135.90	348.80	185.30
CNN-22-03	288494.40	6600270.71	339	192.40
CNN-22-04	288586.20	6600300.31	342	209.10
CNN-22-05	288496.80	6600269.91	339	182.30
CNN-22-06	288584.30	6600298.70	339.80	242
CNN-22-07	2884950	6600268.90	339.10	218.30
CNN-22-08	288586.90	6600295.30	340.50	280.25
CNN-22-09	288478	6600209.80	341	101.30
CNN-22-10	288583.90	6600202.10	347.60	257.30
CNN-22-11	288581.90	6600197.90	348	299.30
CNN-22-12	288582.80	6600294.60	339.70	296.10
CNN-22-13	288582.40	6600201.40	347.90	299.40
CNN-22-14	288584.90	6600294.30	339.90	268.54
CNN-22-15	288565.50	6600136.70	348.80	185.30
CNN-22-16	288585.60	6600292.80	339.80	302.10
CNN-22-17	288583.30	6600202.40	347.80	203
CNN-22-18	288562.60	6600137.60	348.60	275.30
CNN-22-19A	288654.20	6600308.30	341.70	263.80
CNN-22-20	288648.20	6600189.60	348.50	404.10
CNN-22-21	288495.70	6600266.70	338.90	200.30
CNN-22-22	288644.50	6600191.50	348.50	326.10
CNN-22-23	288692.80	6599855.80	357.60	254.10
CNN-22-24	288658.20	6600306.30	341.70	365.30
CNN-22-25	288690.80	6599855.50	352	389.10
CNN-22-26	288584.80	6600198.80	347.80	251
CNN-22-27	288563.40	6600008	354.10	250.10
CNN-22-28	288565.70	6600134.70	348.70	167
CNN-22-19	288653.50	6600309.20	341.80	371.10
CNN-22-29	288618.60	6599975.60	351.80	230
CNN-22-30	288657.10	6600308.20	341.70	395.30
CNN-22-31	288690.30	6599853.20	357.40	265.70
CNN-22-32	288619	6599977.80	351.80	274.90
CNN-22-33	288617.60	6599975.90	351.80	359
CNN-22-34	288691	6599853.90	357.70	268.95
CNN-22-35	288653.20	6600191.40	348.90	404.20

Hole Number	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Final Depth (m)
CNN-22-36	288655.60	6600306	341.70	299.20
CNN-22-37	288543.20	6599906.80	374.90	134.10
CNN-22-38	288545.30	6599903.30	374.90	173.10
CNN-22-39	288656.70	6600306	341.70	380.30
CNN-22-40	288814.20	6600321.20	346.70	470.30
CNN-22-41	288658	6600307.40	342	341.30
Totals		54 Holes		13,731.74

Source: Kirkham (2022)

The BMR drilling has outlined a significant zone of high-grade mineralization in the northern portion of the target area which remains open at depth.

North Zone Results Include:

- CNN-21-06: 53 m at 0.91% Cu including 20.8 m at 1.14% Cu;
- CNN-21-11: 7 m at 1.21% Cu;
- CNN-22-01: 26 m at 1.28% Cu;
- CNN-22-06: 15 m at 1.24% Cu;
- CNN-22-07: 41.5 m at 1.36% Cu;
- CNN-22-08: 33.4 m at 1.08% Cu including 18.9 m at 1.23% Cu;
- CNN-22-09: 25 m at 0.65% Cu;
- CNN-22-19: 4.1 m at 1.38% Cu;
- CNN-22-19A: 16.6 m at 0.85% Cu including 5.4 m at 1.16% Cu;
- CNN-22-30: 164 m at 0.80% Cu including 48.0 m at 1.31% Cu, 12.5 m at 0.91% Cu and 19.4 m at 1.15% Cu;
- CNN-22-40: 14 m at 1.62% Cu; and
- CNN-22-41: 9 m at 1.15% Cu.

<u>South and Central Zone Results Include:</u>

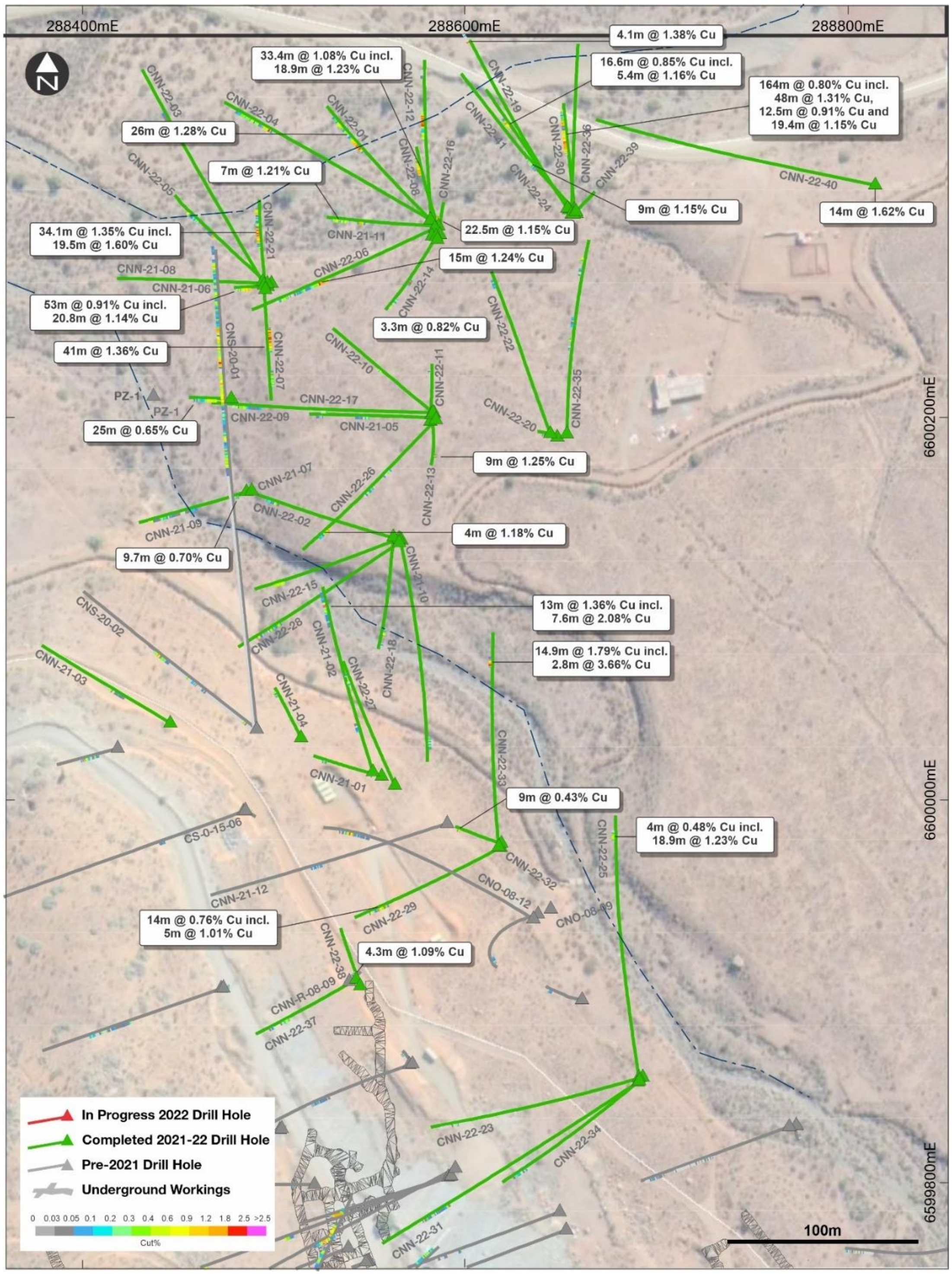
- CNN-21-02: 13 m at 1.36% Cu including 7.6 m at 2.08% Cu;
- CNN-21-07: 9.7 m at 0.70% Cu;
- CNN-22-25: 4 m at 0.48% Cu including 18.9 m at 1.23% Cu;
- CNN-22-26: 4 m at 1.18% Cu;
- CNN-22-29: 14 m at 0.76% Cu including 5 m at 1.01% Cu;
- CNN-22-32: 9 m at 0.43% Cu;
- CNN-22-33: 14.9 m at 1.79% Cu including 2.8 m at 3.66% Cu;
- CNN-22-38: 4.3 m at 1.09% Cu;
- CNN-22-10: 3.3 m at 0.82% Cu;
- CNN-22-13: 4.9 m at 1.25% Cu;
- CNN-22-16: 22.5 m at 1.15% Cu; and
- CNN-22-21: 34.1 m at 1.35% Cu including 19.5 m at 1.60% Cu.

Note: All intervals are downhole core lengths
Source: BMR Press Release June 27, 2022

Figure 10-22: Cinabrio Norte Drilling May 2022 – CNN-22-030 Site

Source: Kirkham (2022)

Figure 10-23: 2021-2022 BMR Cinabrio Norte Diamond Core Drilling Collar Plan with Significant Intercepts



Source: BMR Press Release (June 27, 2022)

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Introduction

From September August 2021 to June 2022, BMR completed 32,526 m of diamond drilling on extensions to the Cinabrio mine as well as the San Andres, Dalmacia and Cinabrio Norte zones. BMR applied standard sample preparation, analyses, and security protocols on sampling for all these projects which are described in this section.

All drill holes completed during the 2021 to 2022 programs at San Andres, Dalmacia and Cinabrio Norte were diamond core drill holes. Drilling is predominantly HQ sized core with the exception of a few holes that, as a result of technical difficulties before completion of the holes, were reduced to NQ sized core to completion.

11.2 Sample Preparation and Analyses

For the 2021-2022 exploration program, sample preparation was performed by ALS Global in La Serena, Chile and sample analyses by ALS in Lima, Peru. ALS analytical facilities are commercial laboratories and are independent from BMR.

All BMR samples are collected and packaged by BMR staff. The bags are packed and sealed, as per the chain-of-custody protocol, at either BMR's two core processing facilities located at the Cinabrio mine site (for Cinabrio, Cinabrio Norte & San Andres drill core) or at the Los Mantos plant site (for Dalmacia drill core). The drill core is then transported by truck to the ALS Global - Geochemistry Analytical Lab in La Serena by BMR staff.

Each dispatched sample batch is documented prior to shipment and receipt of the samples at ALS is then confirmed by work order documents circulated by email. From the rig site to ALS labs in La Serena and every stage of the process, drill core "chain of security" is maintained with core handled by BMR staff or contractors engaged by the company.

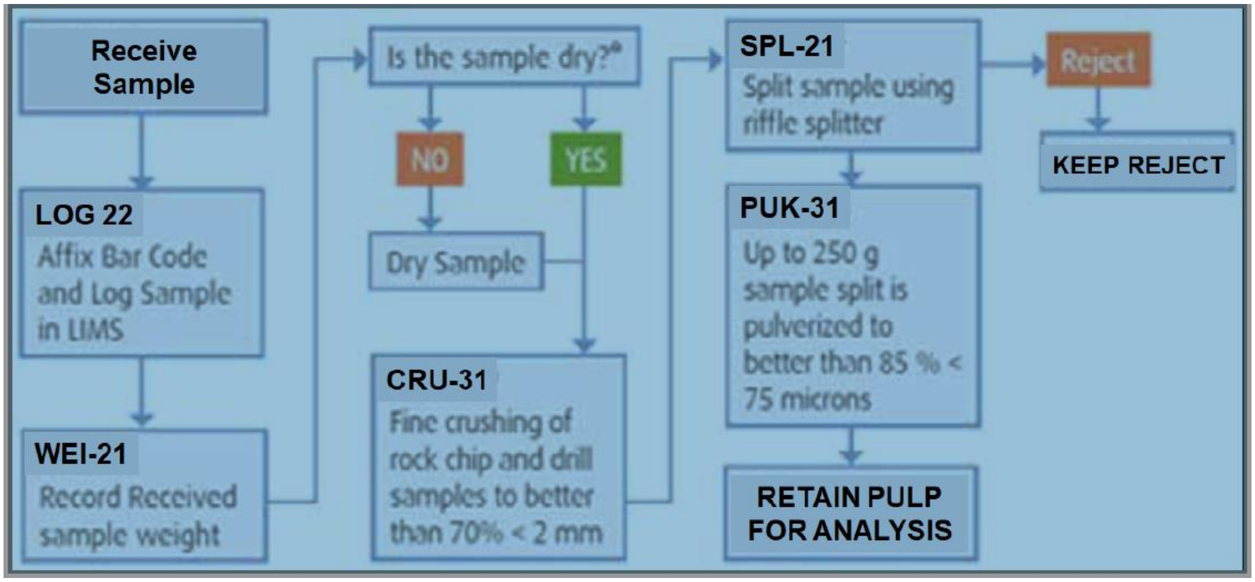
Upon arrival at the ALS Laboratory, samples are logged in a laboratory information management system (LIMS) for sample tracking, scheduling, quality control, and electronic reporting.

11.2.1 Sample Preparation

The samples are crushed to 70% < -2 mm and a riffle split of 250 grams is then pulverized to 85% of the material achieving a size of <75 µm using a low chrome steel, ring-puck pulverizing vessels. Quality control testing of pulverizing efficiency is routinely conducted by ALS. Figure 11-1 details the ALS sample preparation process.

Certified standards are inserted into sample batches by ALS. Blanks and duplicates are inserted within each analytical run with the blank being inserted at the beginning, certified standards being inserted at random intervals, and duplicates being analyzed at the end of the batch.

Figure 11-1: ALS Sample Preparation Process Chart



Source: www.alsglobal.com

11.2.2 Sample Analyses

The prepared samples are then shipped to the ALS Laboratory in Lima Peru for analyses.

- ME-ICP61: A high precision, multi-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids. Analyzed by inductively coupled plasma (ICP) mass spectrometry that produces results for 48 elements;
- ME-ICP61a: Similar to the ME-ICP61 method but with higher detection and overlimit range;
- ME-OG62: Aqua-Regia digest: Analyzed by ICP-AES (Atomic Emission Spectrometry) or referred to as optical emission spectrometry (ICP-OES) for elevated levels of Co, Cu, Ni and Ag;
- MS-42 Hg: Trace Mercury analysis by aqua regia digest and ICPMS finish; and
- Au-AA23 Gold: Cupelled into a precious metal doré bead – HCL digest analyzed by atomic absorption spectroscopy.

The ALS information sheet for ME-MS61 analyses has the following description of the analytical procedure:

"A prepared sample (0.25 g) is digested with perchloric, nitric, hydrofluoric and hydrochloric acids. The residue is topped up with dilute hydrochloric acid and analyzed by inductively coupled plasma- atomic emission spectrometry. Following this analysis, the results are reviewed for high concentrations of bismuth, mercury, molybdenum, silver and tungsten and diluted accordingly. Samples meeting this criterion are then analyzed by inductively coupled plasma-mass spectrometry. Results are corrected for spectral interelement interferences." (www.alsglobal.com).

The ALS information sheet for ME-OG62 analyses has the following description of the analytical procedure:

"A prepared sample is digested with nitric, perchloric, hydrofluoric, and hydrochloric acids, and then evaporated to incipient dryness. Hydrochloric acid and de-ionized water are added for further digestion, and the sample is heated for an additional allotted time. The sample is cooled to room temperature and transferred to a volumetric flask (100 mL). The resulting solution is diluted to volume with de-ionized water, homogenized and the solution is analyzed by inductively coupled plasma - atomic emission spectroscopy or by atomic absorption spectrometry. Results are corrected for spectral interelement interferences" (www.alsglobal.com).

The ALS information sheet for Hg-MS42 analyses has the following description of the analytical procedure:

"A prepared sample is digested with aqua regia in a graphite heating block. After cooling, the resulting solution is diluted to 12.5 mL with deionized water, mixed and analyzed by inductively coupled plasma – mass spectrometer. The analytical results are corrected for inter element spectral interferences" (www.alsglobal.com).

The ALS information sheet for Au-AA23 gold analytical technique analyses has the following description of the analytical procedure:

"A prepared sample (30 g or 50 g) is fused with a mixture of lead oxide, sodium carbonate, borax, silica, and other reagents as required, inquarted with 6 mg of gold-free silver and then cupelled to yield a precious metal doré bead. Dilute nitric acid (0.5 mL) is added to the doré bead to remove Ag, then 0.5 mL hydrochloric acid is utilized to decompose the Au, with each step including heating via microwave oven. The digested solution is cooled, diluted to a final volume of 4 mL with de-mineralized water, and analyzed by atomic absorption spectroscopy against matrix-matched standards." (www.alsglobal.com).

11.2.3 Quality Assurance and Quality Control Programs

Quality assurance and quality control programs are typically set in place to ensure the accuracy, precision and repeatability of analyses thereby providing reliability and trustworthiness of the exploration data. They include written field procedures and independent verifications of aspects such as drilling, surveying, sampling and assaying, data management, and database integrity. Appropriate documentation of quality control measures and regular analysis of quality control data is required to ensure consistent application.

Analytical control measures typically involve internal and external laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation, and assaying. They are also important to prevent sample mix-up and monitor the voluntary or inadvertent contamination of samples. Assaying protocols typically involve regular duplicate assays and insertion of quality control samples. Check assaying is typically performed as an additional reliability test of assaying results. This may also involve re-assaying a set number of rejects and pulps at a second umpire laboratory.

11.2.4 Analytical Quality Control Programs by BMR

BMR has implemented a formal analytical quality control program since acquiring the project. Table 11-2 summarizes the certified values for the standards used for the 2021 - 2022 exploration programs.

A summary of the 2021-2022 BMR QAQC program is shown in Table 11-1 which consisted of three key components included:

- Insertion of certified standard reference material, certified blanks and coarse blanks into the drilling assay sample dispatches;
- Duplicate analysis of selected rejects and pulps submitted to a second laboratory; and
- Analysis of duplicate samples utilizing both splits from coarse rejects along with quartered core.

Table 11-1: QAQC Sampling Program Summary

QAQC Sampling Program	Samples	Standard Certified Reference Material	Blank Certified Reference Material	Coarse Blanks
Cinabrio Drilling	66	4	1	1
Dalmacia Drilling	4,382	234	85	85
San Andres Drilling	1,047	55	17	19
Cinabrio Norte Drilling	1,899	107	38	36
Regional Rock Sampling	64	6	2	2
Totals	7,458	406	143	143

Source: Kirkham (2022)

11.2.5 Certified Standard Reference Materials

BMR utilizes several multielement mineralized “standards” (certified reference material or CRM) supplied by Ore Research & Exploration Pty. Ltd. (OREAS-502b and OREAS-503b) and by Instituto Nacional de Tecnologia Estandarizacion y Metrologia (INTEM) (INM410-181 and IN-M416-185). The standards used by BMR for QAQC are packaged as 60 g and 100 g pulp bags.

The metal contents of the standards are shown in Table 11-2. Certified standard reference materials were inserted into the sample stream every 20 samples per dispatch batch.

Table 11-2: Certified Standard Reference Materials Values

Certified Reference Material	Copper CuT%	Soluble Copper CuS%	Silver Ag (g/t)	Gold (g/t)	Zinc (ppm)
OREAS-502b	0.773		2.1	0.495	134
OREAS-503b	0.531		1.5	0.695	92
IN-M410-181	1.648	0.433	21		753
1N-M416-185	0.155	0.0.46	<0.5		

Source: Kirkham (2022)

11.2.6 Certified Blanks and Coarse Blanks

Two certified blanks supplied by Ore Research & Exploration Pty Ltd. were used during the 2021-2022 drilling programs. One certified blank is inserted into every sample stream dispatch at a frequency of 1 in every 50 samples. The certified metal values for the blanks are shown in Table 11-3.

Table 11-3: Certified Blank Assay Values

Blank ID	Expected Copper (ppm)	Expected Silver Ag(g/t)	Expected Gold (ppb)	Expected Zinc (ppm)
OREAS-24b	38	0.1	<3	134
OREAS-24c	48.6	<0.2	<1	108

Source: Kirkham (2022)

In addition to the certified blanks, coarse blank samples were inserted every 50 samples. The coarse blanks were collected from an outcrop near Cinabrio. The outcrop, at the collection point, consists of a dioritic dyke with a porphyritic texture which is chloritized and has weak limonite staining. In total 142 of these coarse blanks were analyzed.

One of the coarse blank samples returned highly anomalous ICP copper and sulphur values of 1120 ppm copper and 0.22% sulphur. Other elements were similar to the rest of the coarse blank analyses. A separate pulp from this sample was analyses for copper by atomic absorption and returned a non-anomalous value of 20 ppm copper. The discrepancy in the reported copper values is likely related to any potential contamination in the ALS laboratory sample preparation.

Table 11-4 shows the statistics of the analytical results for selected elements in the coarse blank samples not including the outlier analysis which returned an ICP copper value of 1120 ppm copper.

Table 11-4: Coarse Blank Statistics

Parameter	Copper Cu (ppm)	Silver Ag (g/t)	Gold Au (g/t)	Zinc Zn (ppm)	Mercury Hg (ppm)
Number	141	141	32	141	30
Mean	28	0.4	0.002	71	0.083
Median	20	0.4	0.001	76	0.065
Maximum	205	1	0.006	200	0.5
Minimum	2	0.1	0.001	1	0.002

Source: Kirkham (2022)

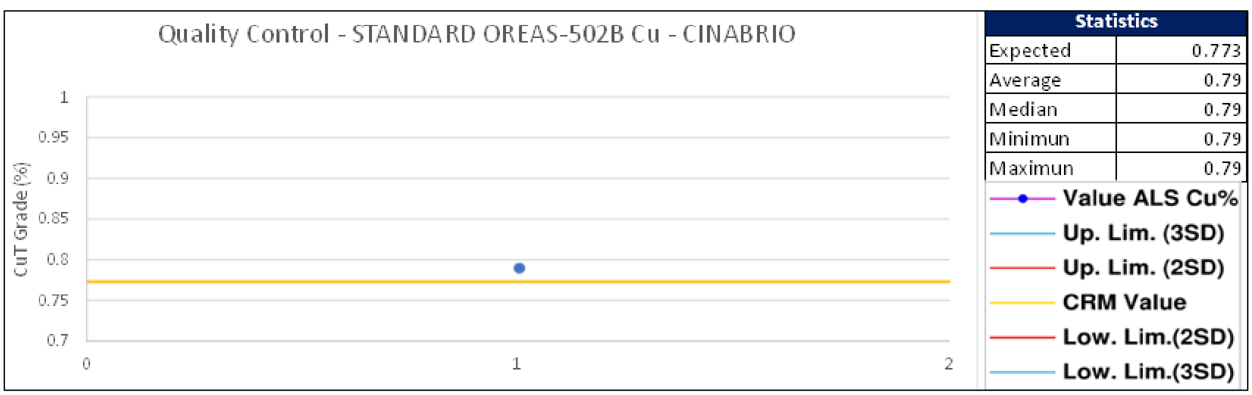
11.3 Cinabrio QAQC Results

11.3.1 Cinabrio Mineralized Standards

There were 4 mineralized CRMs inserted in the 66 samples from drilling completed by BMR at Cinabrio at an insertion rate of 6.1% of samples. Three distinct mineralized certified standard reference materials were used in the program.

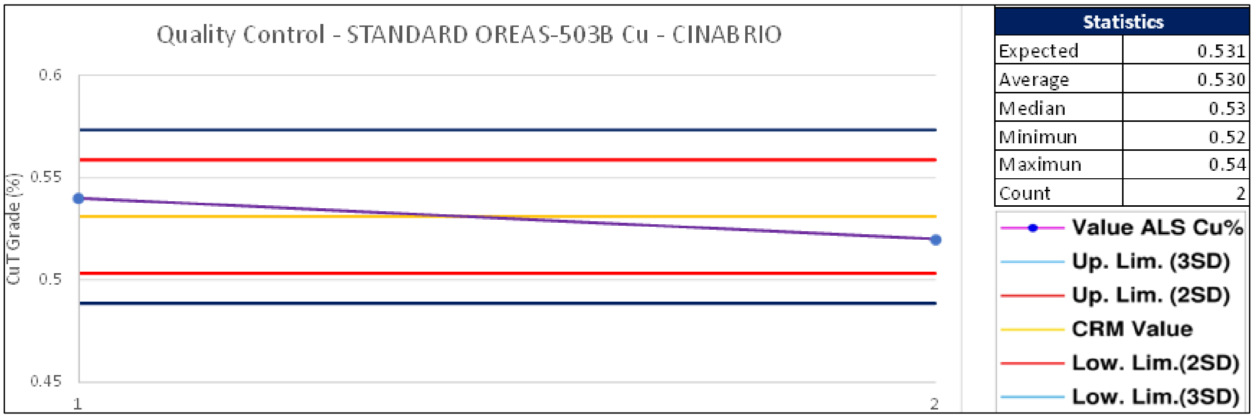
Figure 11-2 shows the analysis for Cinabrio results for copper for the CRM-OREAS-502b standard. Figure 11-3 shows the analysis for Cinabrio results for copper for the CRM-OREAS-503b standard. Figure 11-4 shows the analysis for Cinabrio results for copper for the CRM-IN-M410-181 standard.

Figure 11-2: Cinabrio Results for Copper Certified Reference Material CRM-OREAS-502b



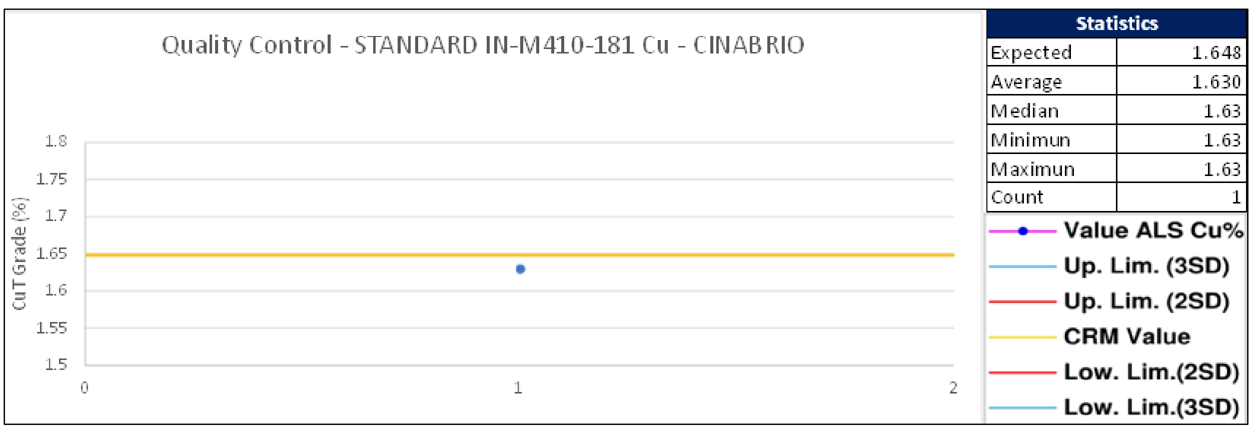
Source: Kirkham (2022)

Figure 11-3: Cinabrio Sample Results for Cu Certified Reference Material CRM-OREAS-503b



Source: Kirkham (2022)

Figure 11-4: Cinabrio Sample Results for Copper Certified Standard Reference Material CRM-IN-M410-181

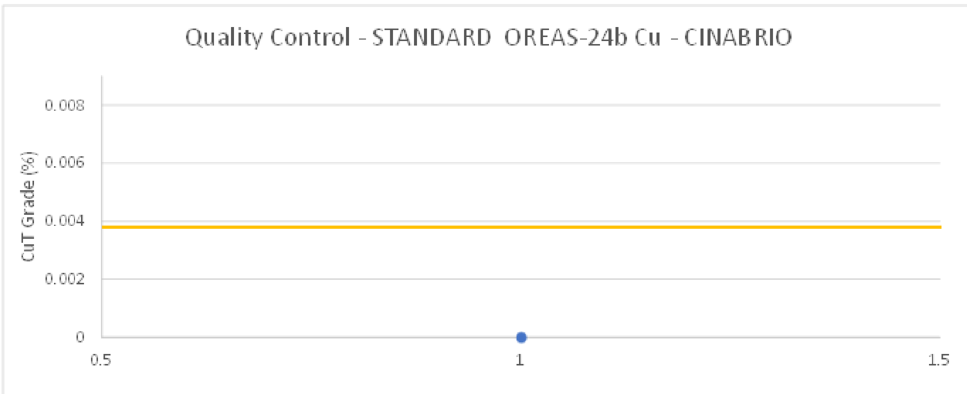


Source: Kirkham (2022)

11.3.2 Cinabrio Blanks

There was one certified blank inserted in the 66 samples from drilling completed by BMR at Cinabrio which is an insertion rate of 1.5% of samples. One certified reference standard was used in the program. Figure 11-5 shows analysis for Cinabrio results for the CRM-OREAS-25b standard.

Figure 11-5: Cinabrio Results for Certified Reference Material CRM-OREAS-25b



Statistics	
Expected	0.0038
Average	0.000
Median	0
Minimum	0
Maximum	0

Source: Kirkham (2022)

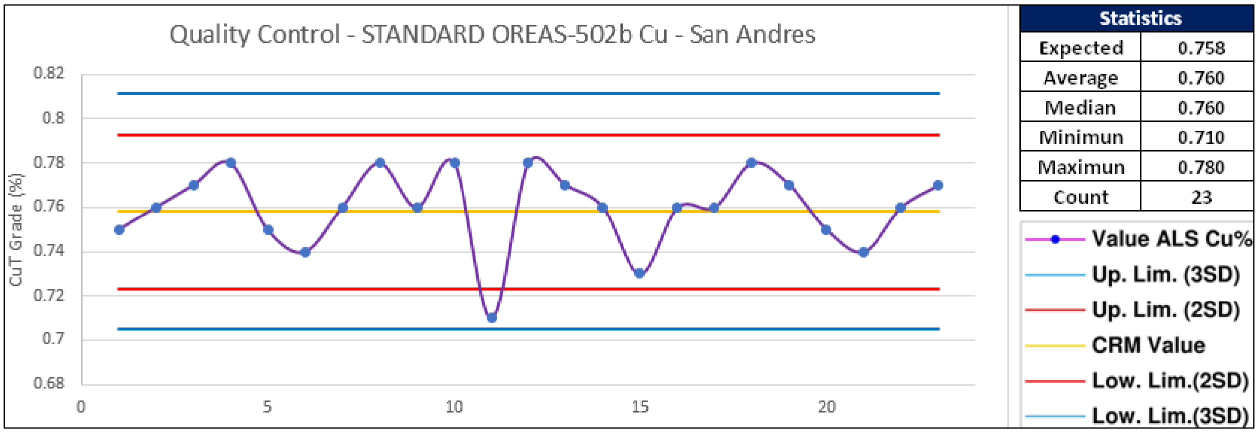
One coarse blank was inserted into the 66 samples from BMR drilling completed at Cinabrio at an insertion rate of 1.6% of samples. The ALS results for this sample are 10 ppm Cu, <1 g/t Ag and <20 ppm Zn.

11.4 San Andres QAQC Results

11.4.1 San Andres Mineralized Standards

There were 55 mineralized certified reference materials / standards inserted in the 1047 samples from San Andres drilling completed by BMR which is an insertion rate of 5.3% of samples. Four distinct mineralized standards were used in the program. Figure 11-6 shows the analysis for San Andres results for copper for the CRM-OREAS-502b standard.

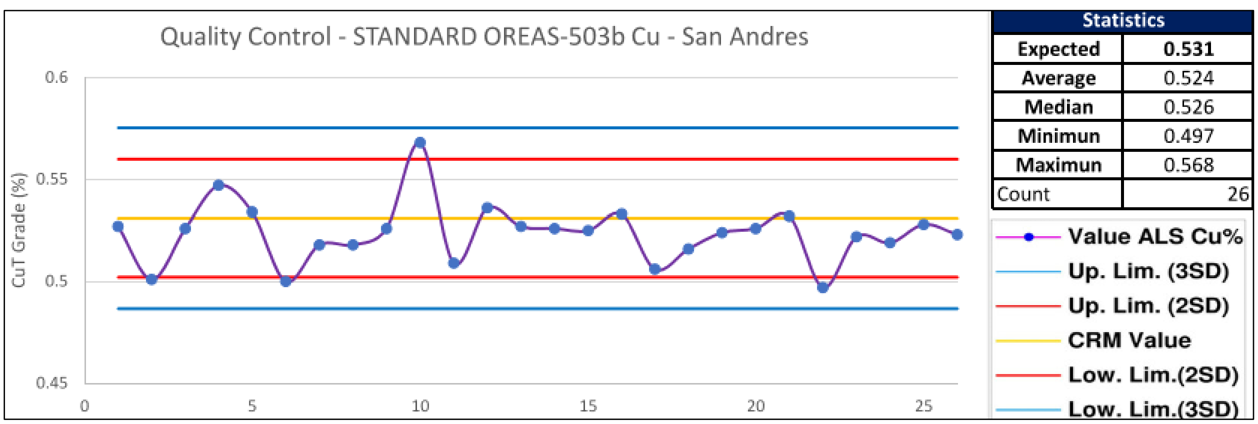
Figure 11-6: San Andres Results for Copper Certified Reference Material CRM-OREAS-502b



Source: Kirkham (2022)

Figure 11-7 shows the analysis for San Andres results for the CRM-OREAS-503b standard.

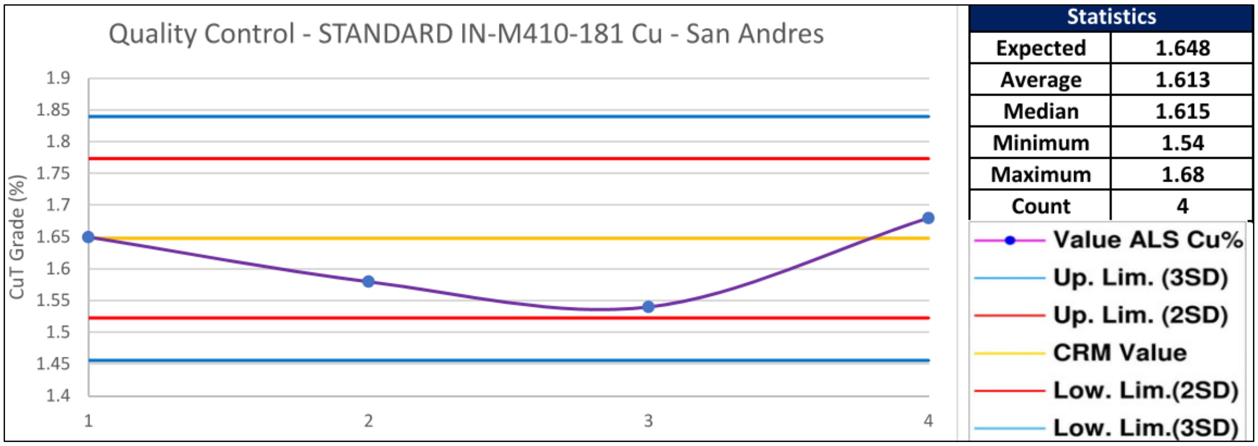
Figure 11-7: San Andres Results for Copper Certified Reference Material CRM-OREAS-503b



Source: Kirkham (2022)

Figure 11-8 shows the analysis for San Andres results for the copper CRM-IN-M410-181 standard.

Figure 11-8: San Andres Results for Copper Certified Reference Material CRM-IN-M410-181

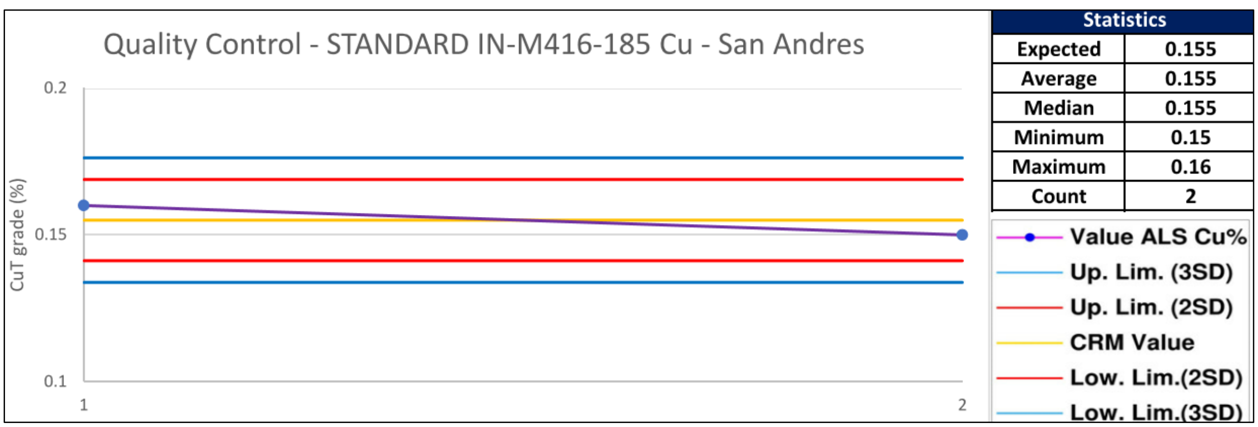


Statistics	
Expected	1.648
Average	1.613
Median	1.615
Minimum	1.54
Maximum	1.68
Count	4

Source: Kirkham (2022)

Figure 11-9 shows the analysis for San Andres results for the CRM-IN-M416-185 standard.

Figure 11-9: San Andres Results for Copper Certified Reference Material CRM-IN-M416-185



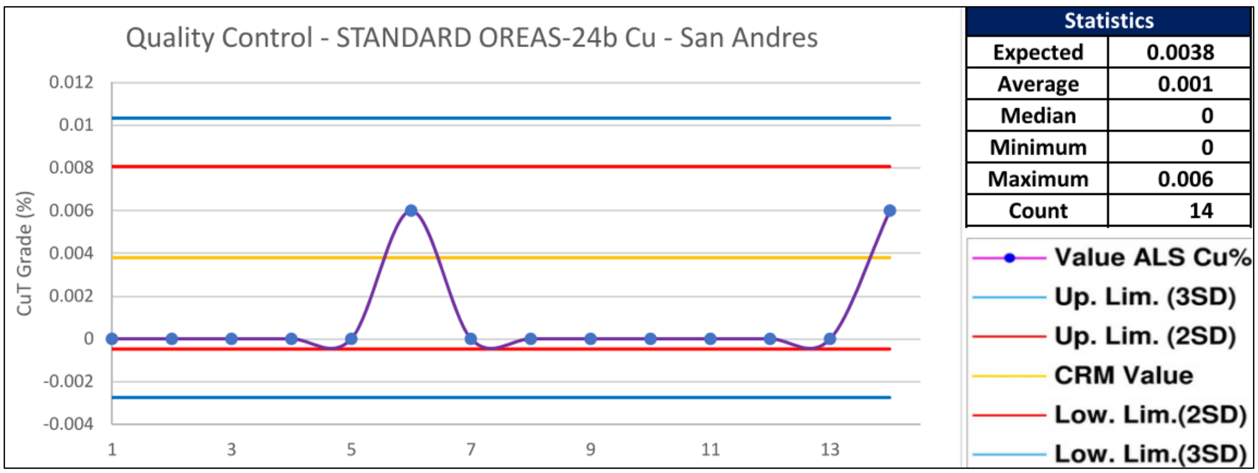
Statistics	
Expected	0.155
Average	0.155
Median	0.155
Minimum	0.15
Maximum	0.16
Count	2

Source: Kirkham (2022)

11.4.2 San Andres Blanks

There were 17 certified blanks inserted in the 1,087 samples from the San Andres drilling completed which is an insertion rate of 1.6%. Two certified standards were used in the program. Figure 11-10 shows the analysis for San Andres copper results for CRM-OREAS-24b blank.

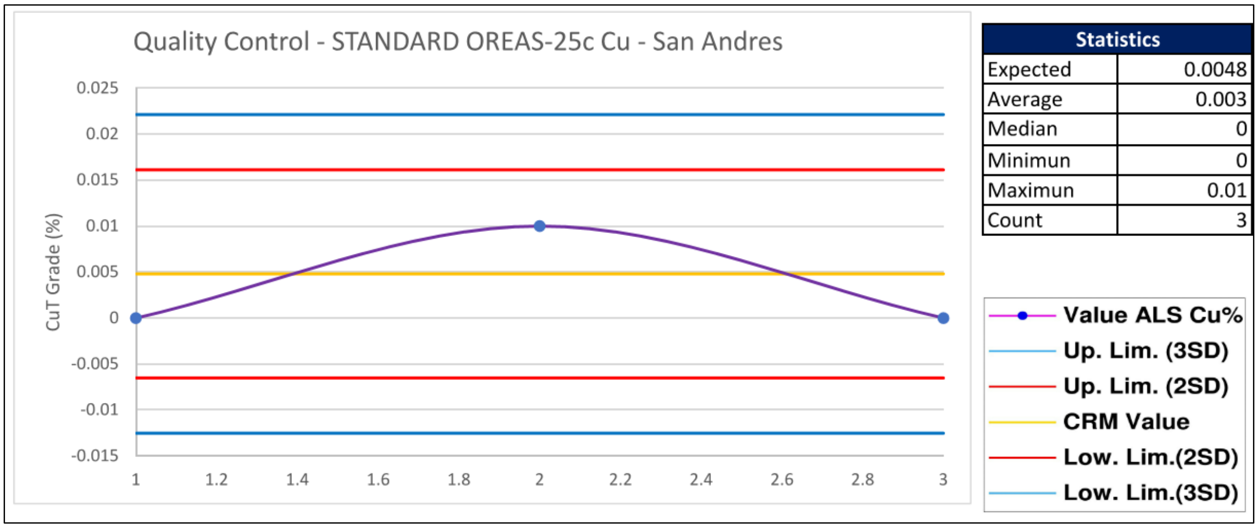
Figure 11-10: San Andres Copper Results for Blank Certified Reference Material CRM-OREAS-24



Source: Kirkham (2022)

Figure 11-11 shows the analysis for San Andres copper results for the CRM-OREAS-24c standard.

Figure 11-11: San Andres Copper Results for Certified Reference Material CRM-OREAS-24c



Source: Kirkham (2022)

There were 19 coarse blank samples inserted within the 1,047 samples from the San Andres drilling during 2021 and 2022 drilling. This is an insertion rate of 2.2%. Table 11-5 is the summary statistics of the analytical results.

Table 11-5: Summary Statistics for Coarse Blank Samples – San Andres

Parameter	Copper Cu (ppm)	Silver Ag (g/t)
Number	19	19
Mean	77	0.24
Median	10	0.10
Minimum	2	0.10
Maximum	170	1

Source: Kirkham (2022)

11.4.3 San Andres Duplicate Samples

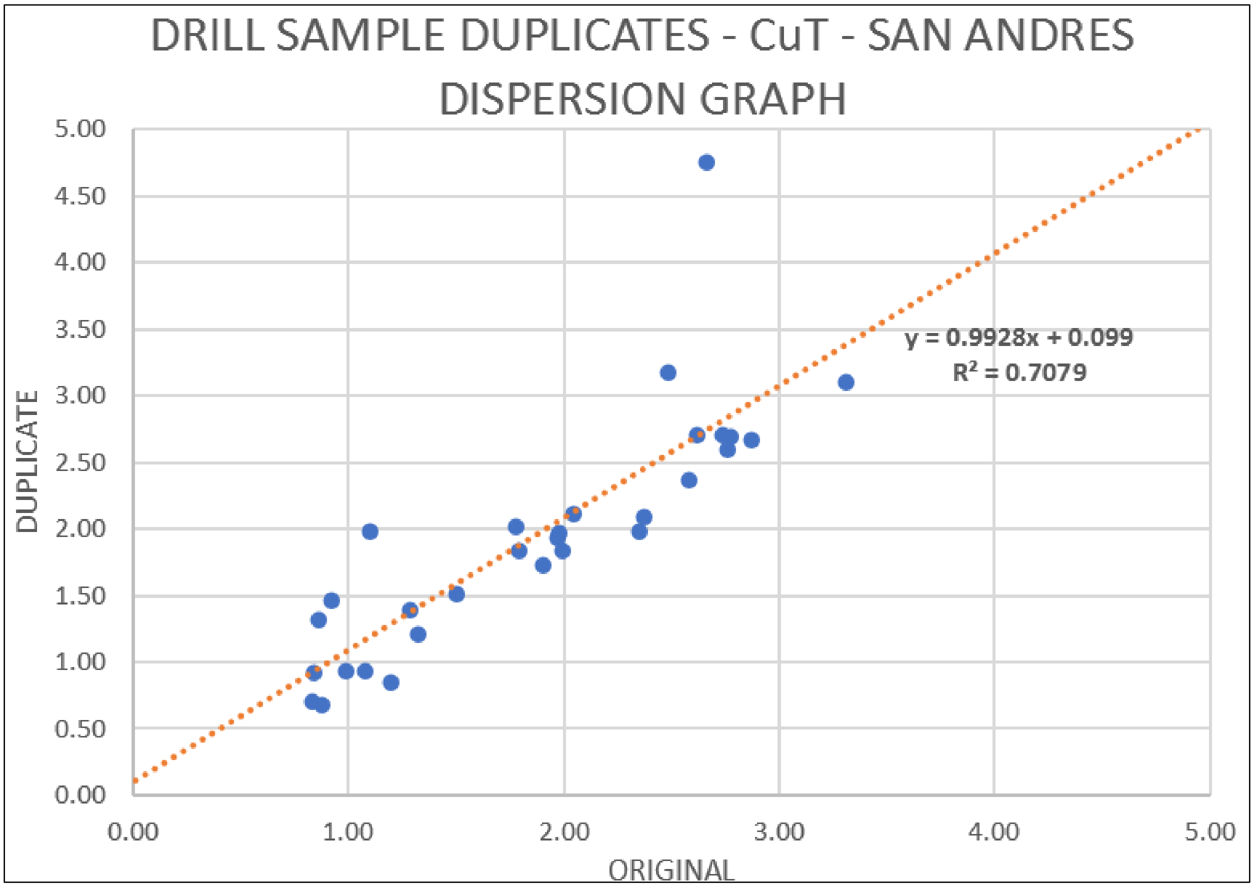
Quarter core duplicates were collected for 29 original samples of San Andres 2021 drill core. Both sets of samples were analyzed by ALS. Table 11-6 is a summary of San Andres quarter core duplicate sample results. Figure 11-12 is a graphical dispersion display of copper results for duplicate quarter core samples.

Table 11-6: Summary of San Andres Quarter Core Duplicate Sample Results

Statistical Parameters	Original		Duplicate		Difference	
	Copper CuT%	Silver Ag (g/t)	Copper CuT%	Silver Ag (g/t)	Copper CuT%	Silver Ag (g/t)
Number of Samples	29	29	29	29	29	29
Minimum	0.68	0.8	0.83	1	-0.15	-0.2
Maximum	4.75	32.9	3.31	34	1.44	-1.1
Average	1.94	11.96	1.86	12.23	0.09	-0.28
Standard Deviation	0.89	9.56	0.75	9.83	0.14	-0.27

Source: Kirkham (2022)

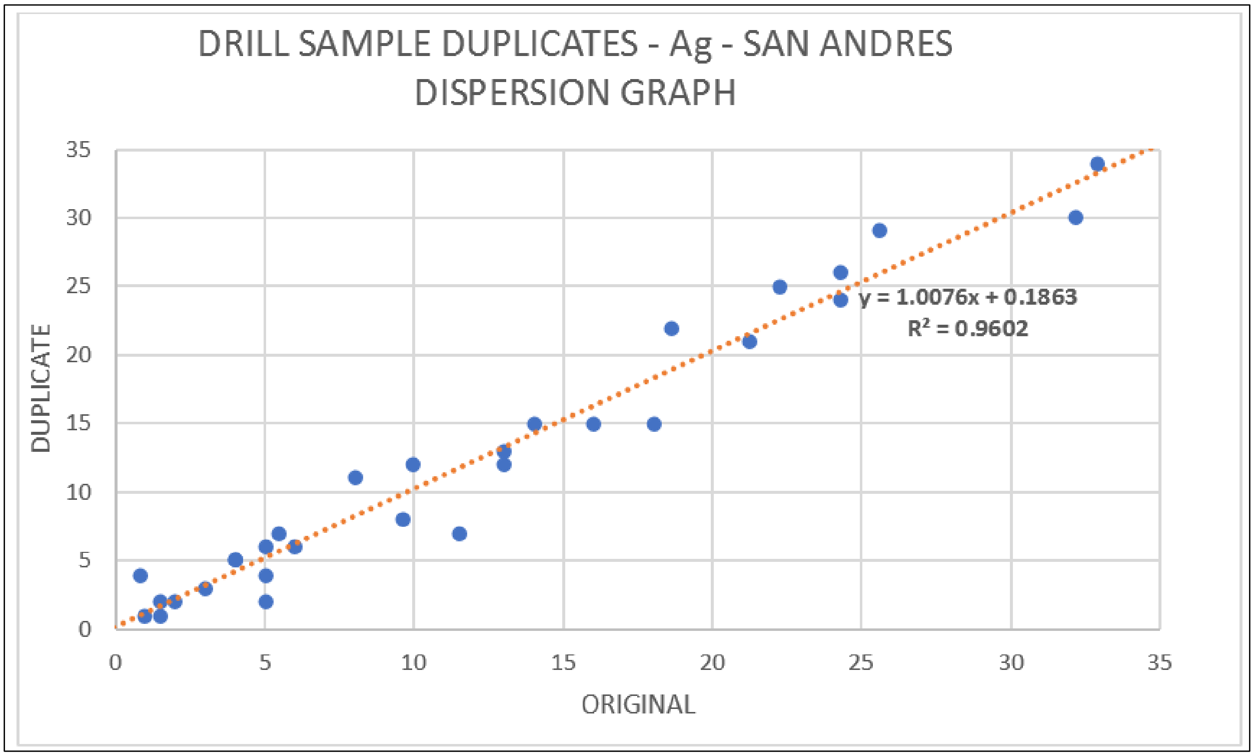
Figure 11-12: Dispersion Graph of Copper Results for Duplicate Quarter Core Samples



Source: Kirkham (2022)

In addition, Figure 11-13 is a graphical dispersion display of silver results for the duplicate quarter core samples. Both the copper and silver show good agreement with the exception of one of the copper duplicates.

Figure 11-13: Dispersion Graph of Silver Results for Duplicate Quarter Core Samples



Source: Kirkham (2022)

11.4.4 San Andres Check Analyses from Second Umpire Laboratory

Pulps and coarse rejects from selected drill core samples analyzed by ALS were send to Activation Geological Services (AGS) as checks of the ALS analyses. Results from the pulp check analysis program illustrate good agreement and are summarized in Table 11-7 and detailed in Figure 11-14 and Figure 11-15.

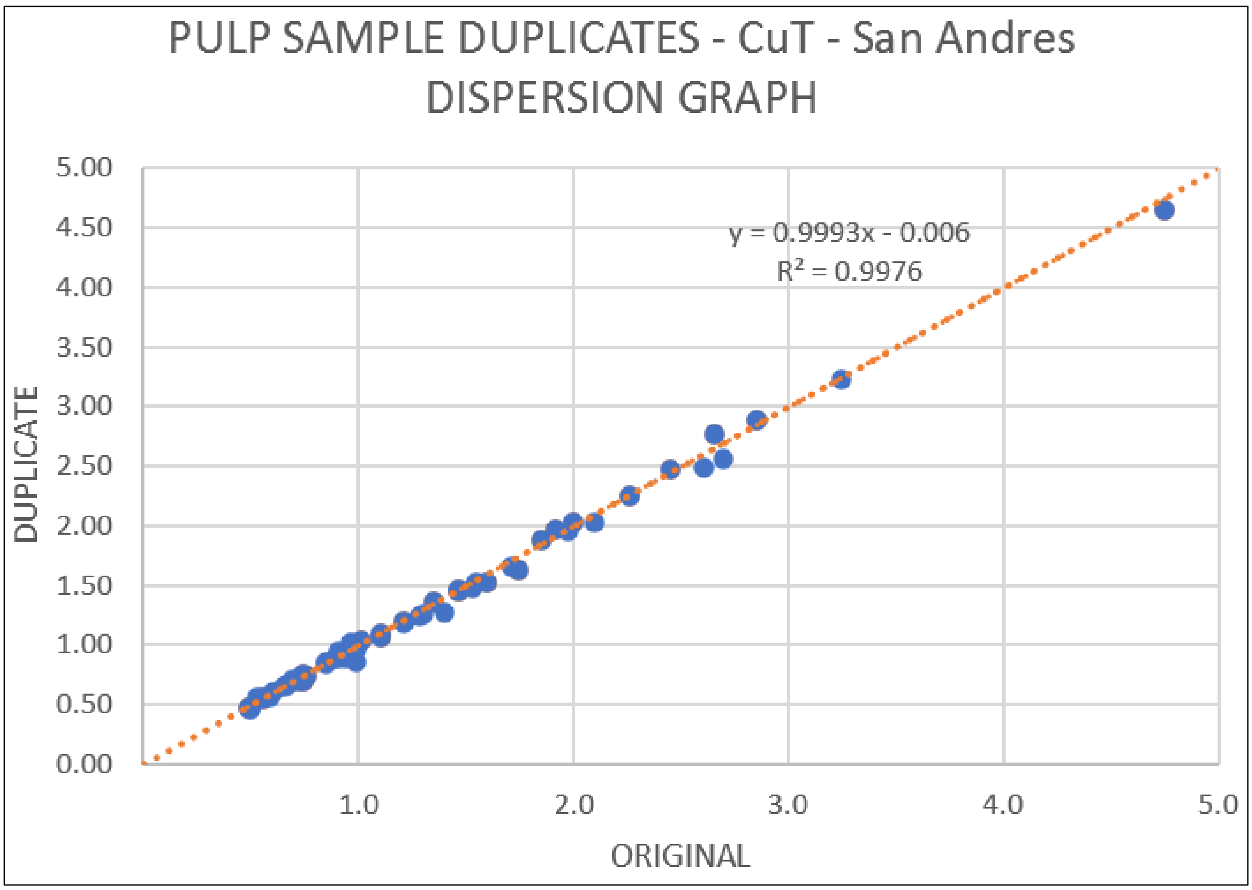
Table 11-7: Check Analysis of Pulps from Drill Core Samples ALS (Original) vs. AGS (Duplicate)

Statistical Parameters	Original			Duplicate		
	Copper CuT%	Silver Ag (g/t)	Mercury (Hg ppm)	Copper CuT%	Silver Ag (g/t)	Mercury (Hg ppm)
Number of Samples	59	6	55	59	6	55
Minimum	0.49	0.89	0.04	0.47	0.89	0.05

Statistical Parameters	Original			Duplicate		
	Copper CuT%	Silver Ag (g/t)	Mercury (Hg ppm)	Copper CuT%	Silver Ag (g/t)	Mercury (Hg ppm)
Maximum	4.75	2.85	5.58	4.65	2.89	6.5
Average	1.33	1.93	0.97	1.31	1.95	1.11
Standard Deviation	0.81	0.83	1.25	0.80	0.87	1.45

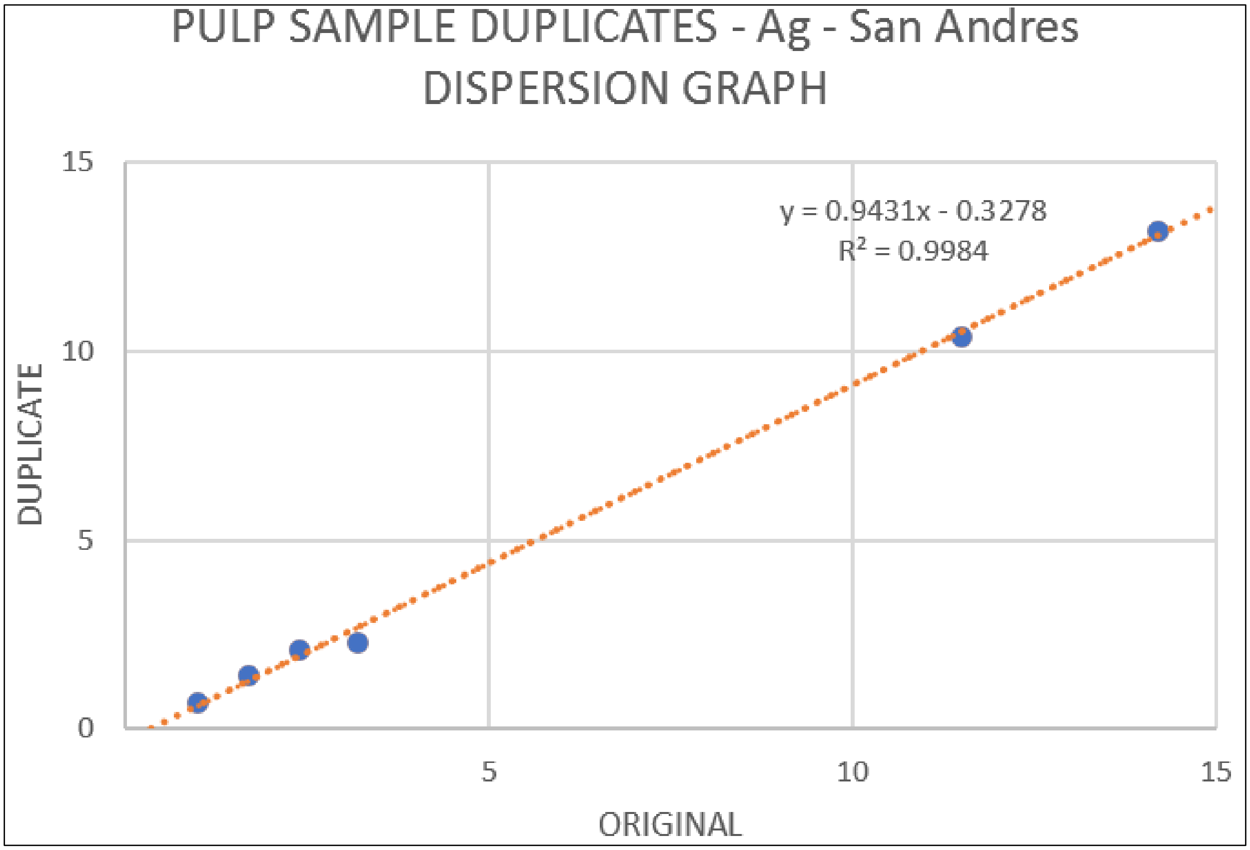
Source: Kirkham (2022)

Figure 11-14: ALS (Original) vs. AGS (Duplicate) for Copper (%) for Pulp Samples Reanalyzed



Source: Kirkham (2022)

Figure 11-15: ALS (Original) vs. AGS (Duplicate) for Silver (Ag g/t) for Pulp Samples Reanalyzed



Source: Kirkham (2022)

Results from the reject check analysis program also show good agreement and are summarized in Table 11-8 and detailed in Figure 11-16 and Figure 11-17.

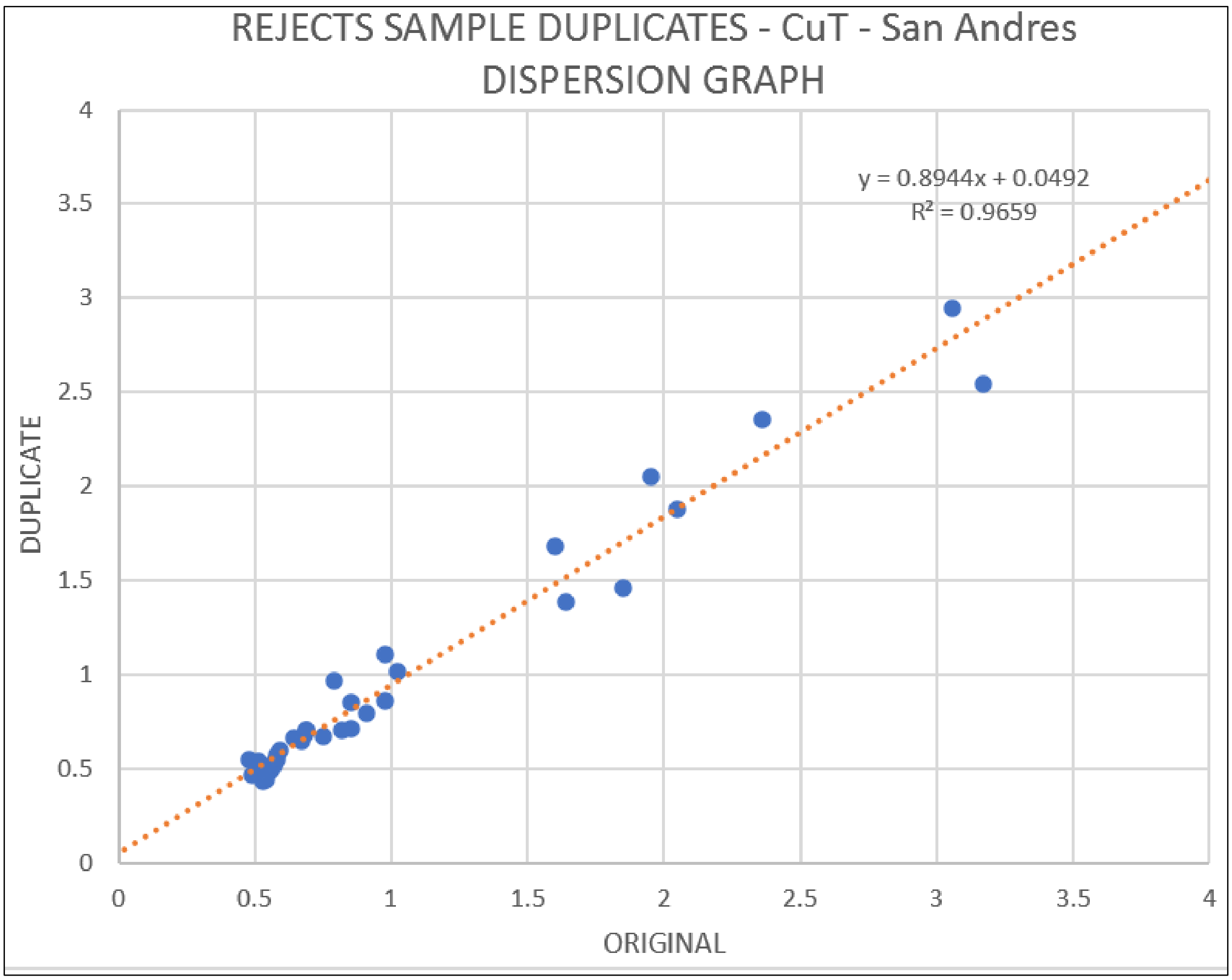
Table 11-8: Check Analysis of Rejects of Drill Core Samples, ALS (Original) vs. AGS (Duplicate)

Statistical Parameters	Original			Duplicate		
	Copper CuT%	Silver Ag (g/t)	Mercury (Hg ppm)	Copper CuT%	Silver Ag (g/t)	Mercury (Hg ppm)
Number of Samples	36	4	34	36	4	34
Minimum	0.48	2	0.01	0.43	1.2	0.1
Maximum	3.17	6.7	16	2.94	5.2	15.9

Statistical Parameters	Original			Duplicate		
	Copper CuT%	Silver Ag (g/t)	Mercury (Hg ppm)	Copper CuT%	Silver Ag (g/t)	Mercury (Hg ppm)
Average	1.02	3.55	1.78	0.96	2.6	1.87
Standard Deviation	0.72	2.14	2.97	0.65	1.77	3.12

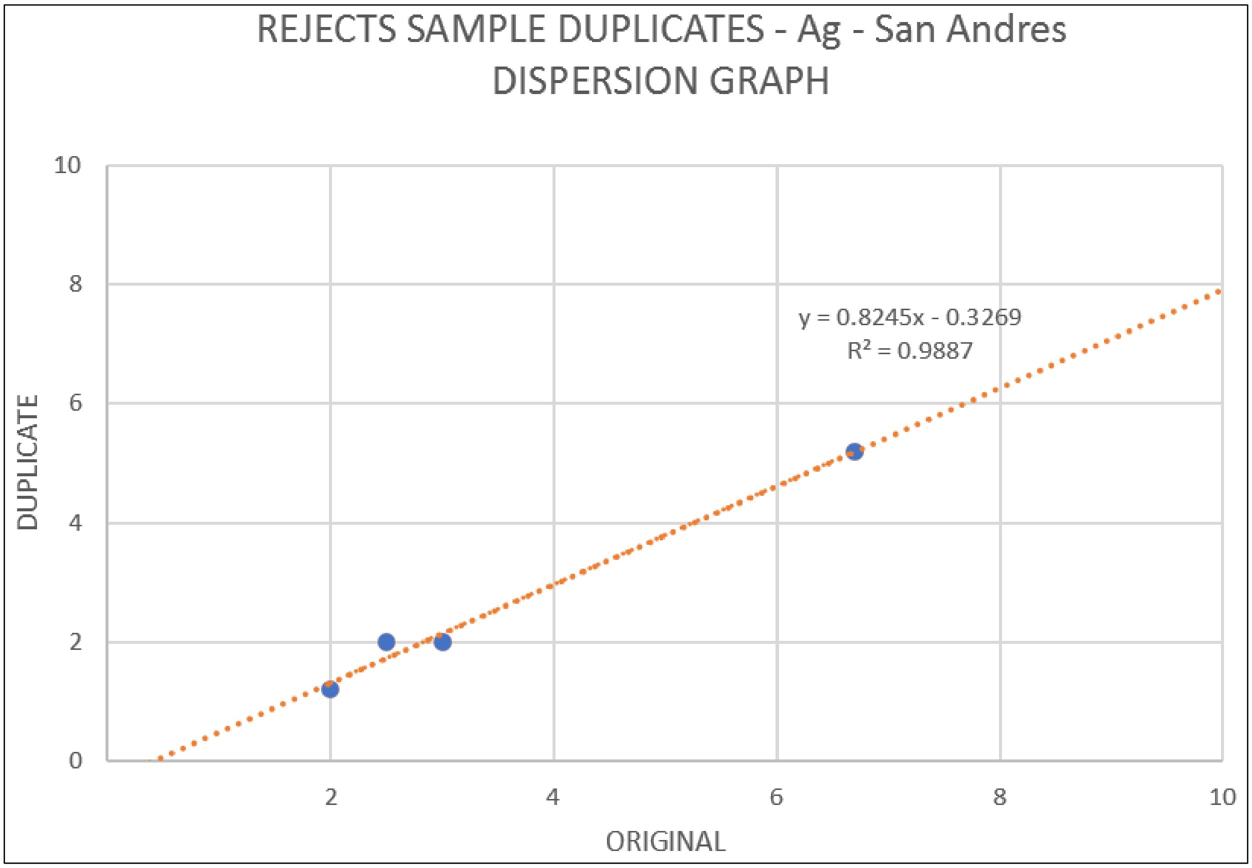
Source: Kirkham (2022)

Figure 11-16: ALS (Original) vs. AGS (Duplicate) for Copper (Cu%) for Sample Rejects Reanalyzed



Source: Kirkham (2022)

Figure 11-17: ALS (Original) vs. AGS (Duplicate) for Silver (Ag g/t) for Sample Rejects Reanalyzed



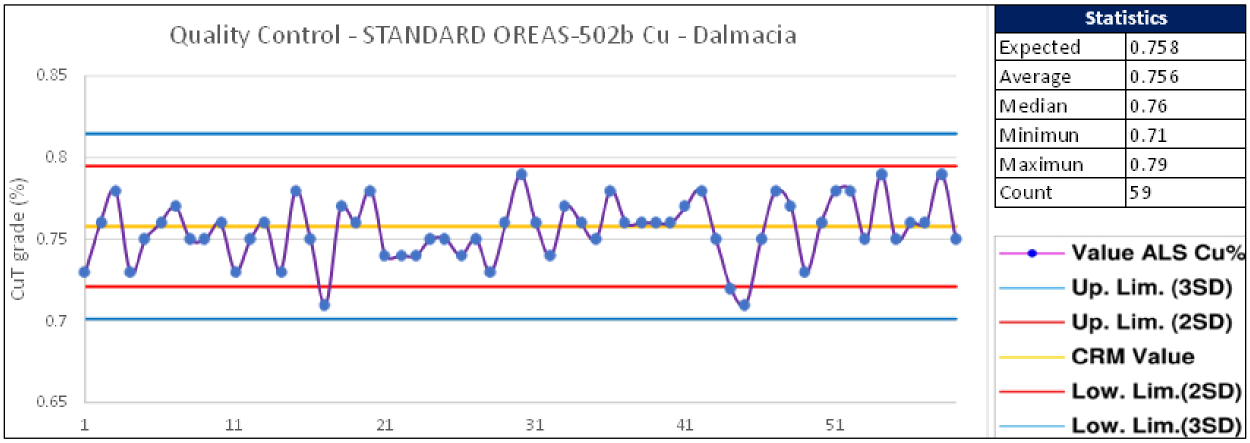
Source: Kirkham (2022)

11.5 Dalmacia QAQC Results

11.5.1 Dalmacia Mineralized Standards

There were 234 mineralized certified standards inserted in the 4,382 samples from Dalmacia drilling at an insertion rate of 5.3%. Four separate mineralized standards were used in the program. Figure 11-18 shows the analysis for Dalmacia copper certified reference material CRM-OREAS-502b. Two warnings are noted but in general the results are very good.

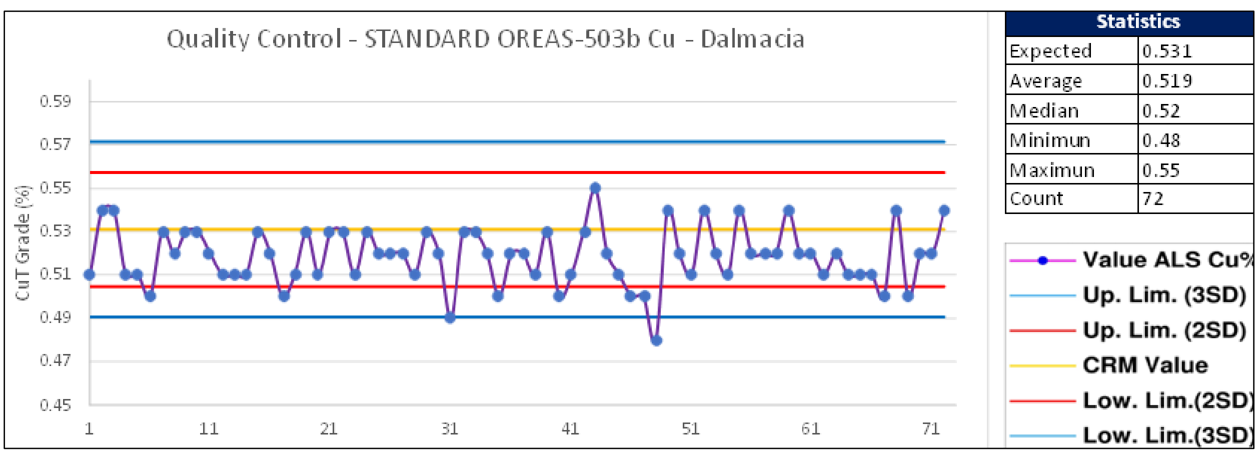
Figure 11-18: Dalmacia Results for Copper Certified Reference Material CRM-OREAS-502b



Source: Kirkham (2022)

Figure 11-19 shows the analysis for Dalmacia copper CRM-OREAS-503b standard. One failure is noted and rerun.

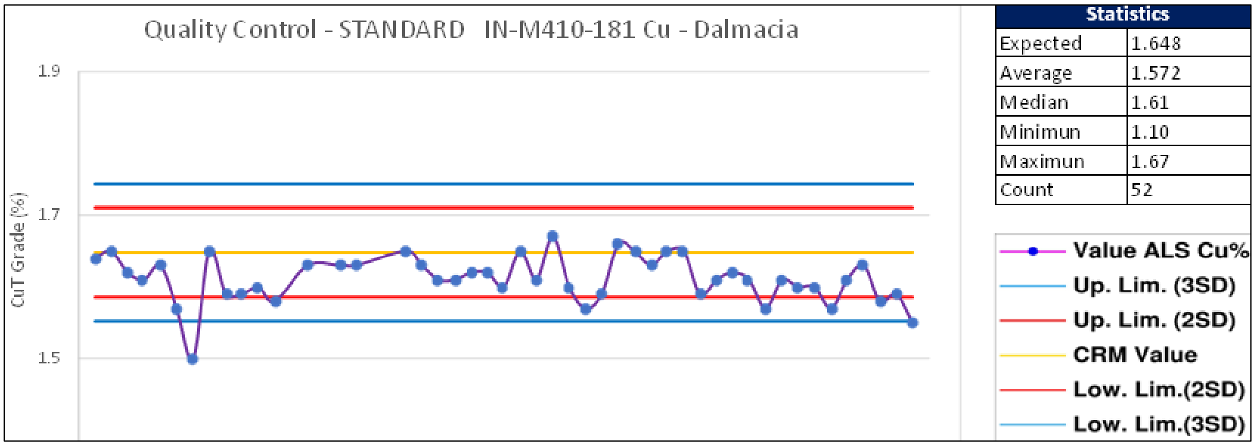
Figure 11-19: Dalmacia Results for Copper Certified Reference Material CRM-OREAS-503b



Source: Kirkham (2022)

Figure 11-20 shows the analysis for Dalmacia copper CRM-IN-M410-181 standard. One failure is noted and rerun.

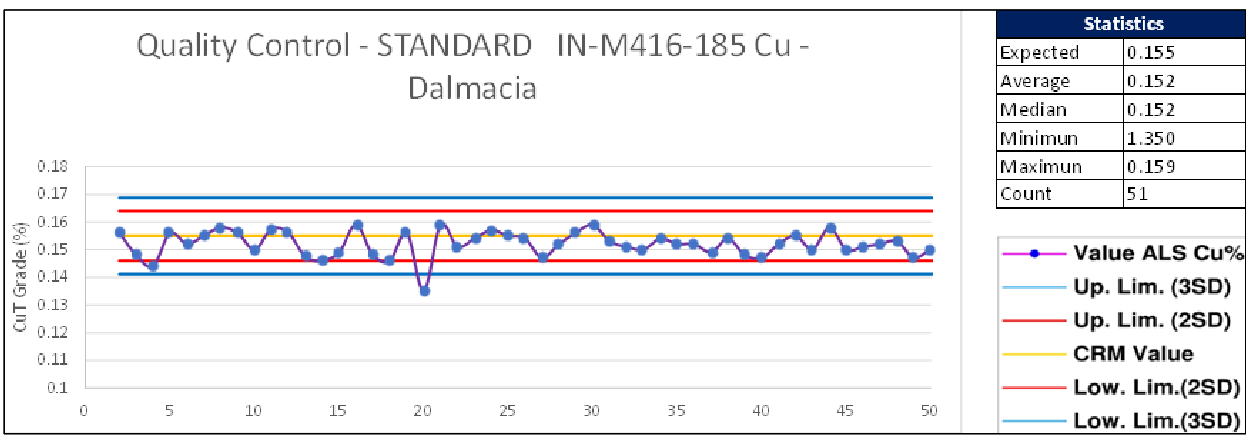
Figure 11-20: Dalmacia Results for Copper Certified Reference Material CRM-IN-M410-181



Source: Kirkham (2022)

Figure 11-21 shows the analysis for Dalmacia copper CRM-IN-M416-185 standard. One failure is noted and rerun.

Figure 11-21: Dalmacia Results for Copper Certified Reference Material CRM-IN-M416-185

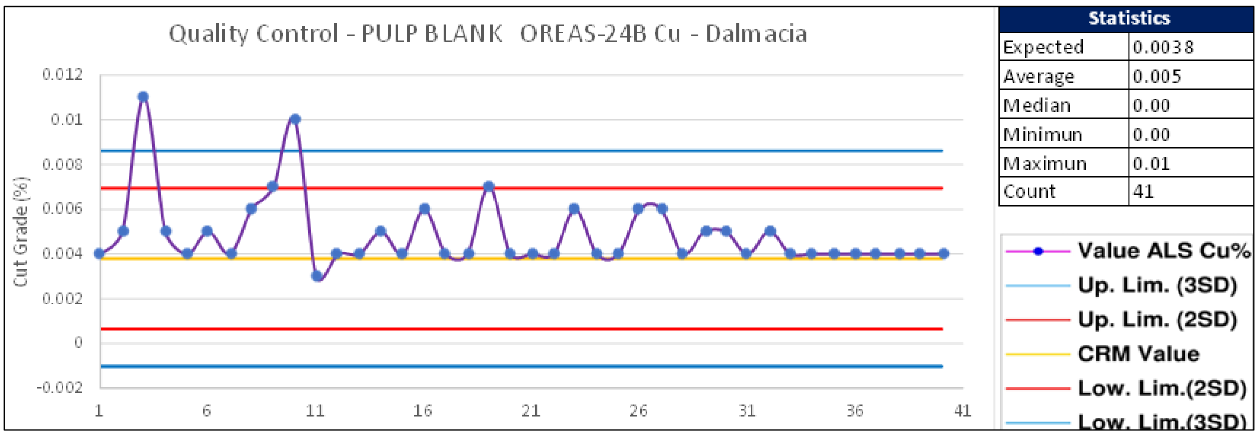


Source: Kirkham (2022)

11.5.2 Blanks

A total of 85 certified blanks were inserted in the 4,382 samples from the Dalmacia drill core sampling resulting in an insertion rate of 1.9%. Two standards were used in the program. Figure 11-22 shows the analysis for Dalmacia copper CRM-OREAS-24b blank. Two failures are noted and rerun.

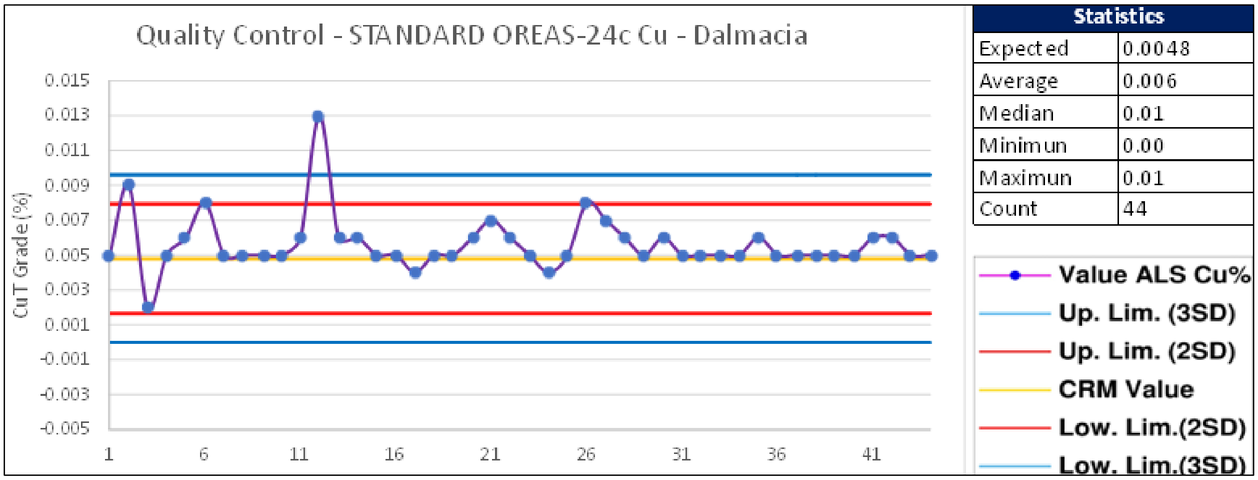
Figure 11-22: Dalmacia Results for Blank Certified Reference Material CRM-OREAS-24b



Source: Kirkham (2022)

Figure 11-23 shows the analysis for Dalmacia copper CRM-OREAS-24c blank. One failure is noted and rerun.

Figure 11-23: Dalmacia Results for Blank Certified Reference Material CRM-OREAS-24c



Source: Kirkham (2022)

There were 85 coarse blank samples inserted in the 4,382 samples from the Dalmacia drilling at an insertion rate of 1.9%. Two standards were used in the program. Table 11-9 is the statistical summary for the coarse blank results.

Table 11-9: Summary Statistics for Coarse Blank Samples – Dalmacia

Parameter	Copper Cu (ppm)	Silver Ag (g/t)
Number	85	85
Mean	27	0.34
Median	20	0.40
Minimum	5	0.10
Maximum	205	1

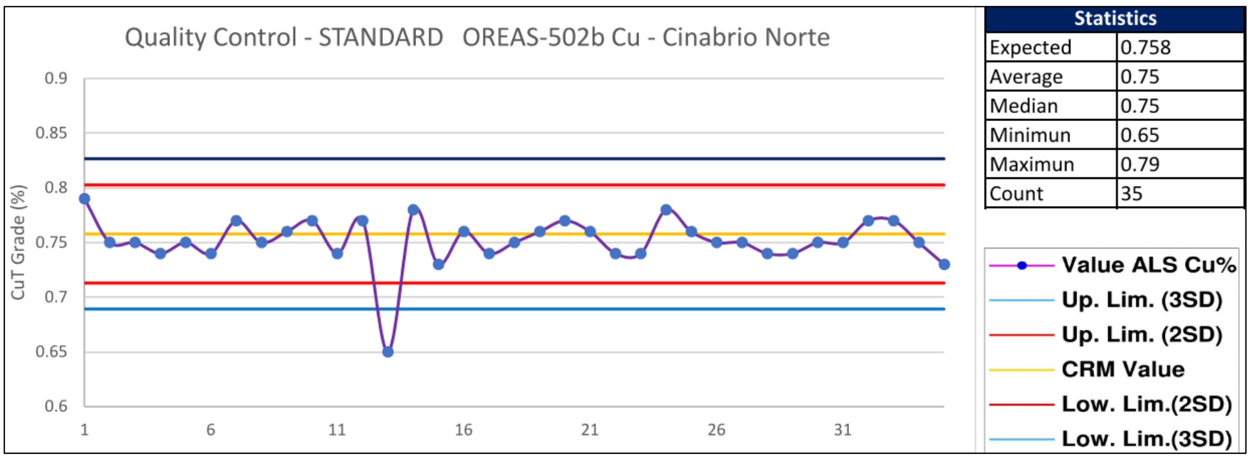
Source: Kirkham (2022)

11.6 Cinabrio Norte QAQC Results

11.6.1 Cinabrio Norte Mineralized Standards

There were 107 mineralized certified reference materials certified reference materials inserted in the 1,899 samples as part of the QAQC program for the Cinabrio Norte Drilling. This corresponds to an insertion rate of 5.6%. Four separate mineralized certified reference materials were used in the program. Figure 11-24 shows the analysis for the Cinabrio Norte copper results for the CRM-OREAS-502b standard. One failure is noted and rerun.

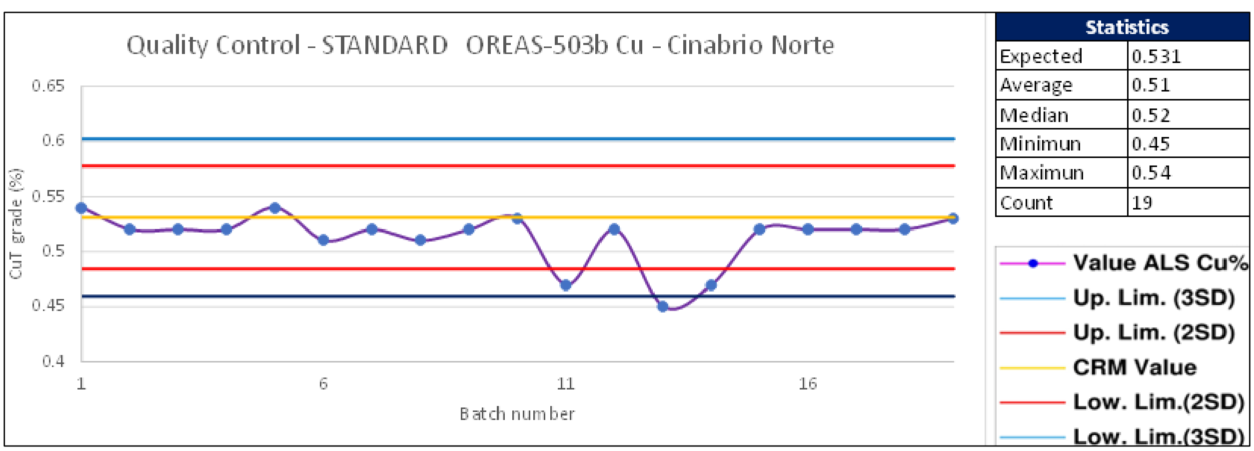
Figure 11-24: Cinabrio Norte Results for Copper Certified Reference Material CRM-OREAS-502b



Source: Kirkham (2022)

Figure 11-25 shows the analysis of Cinabrio Norte copper results for the CRM-OREAS-503b standard. One failure is noted and rerun.

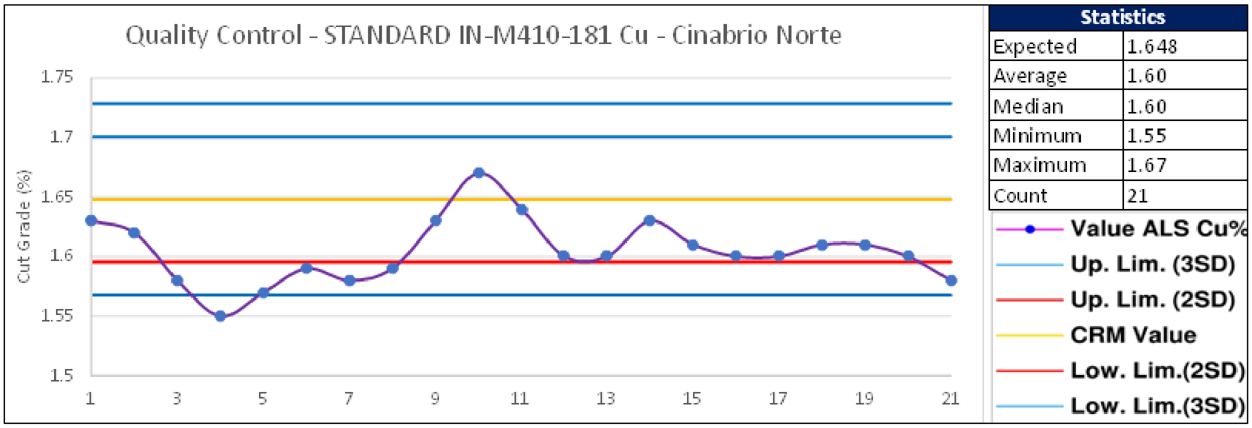
Figure 11-25: Cinabrio Norte Results for Copper Certified Reference Material CRM OREAS-503b



Source: Kirkham (2022)

Figure 11-26 is a graphical analysis of Cinabrio Norte copper results for the CRM-IN-M410-181 standard. One failure is noted and rerun.

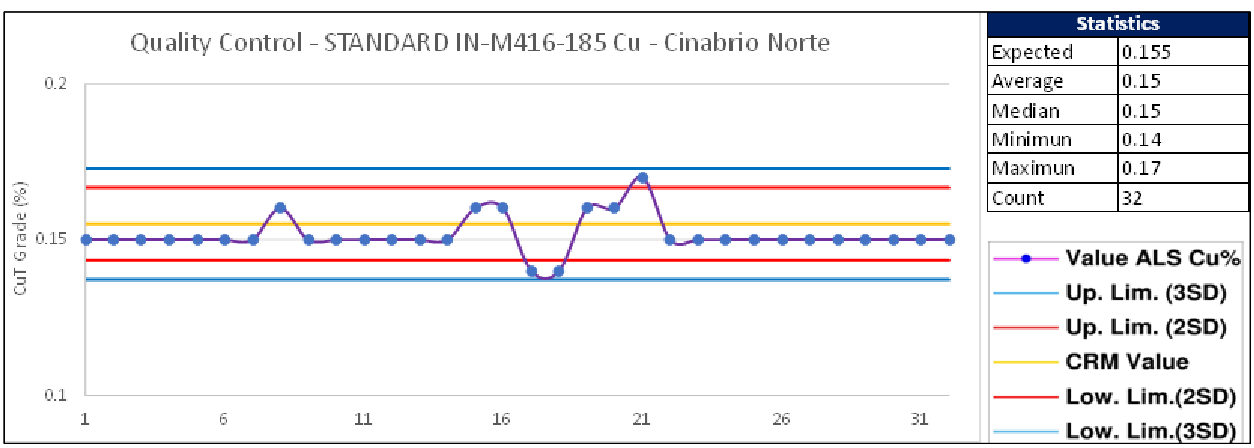
Figure 11-26: Cinabrio Norte Results for Copper Certified Reference Material CRM-IN-M410-181



Source: Kirkham (2022)

Figure 11-27 shows the analysis of Cinabrio Norte copper results for the CRM-IN-M416-185 standard.

Figure 11-27: Cinabrio Norte Results for Copper Certified Reference Material CRM-IN-M416-185

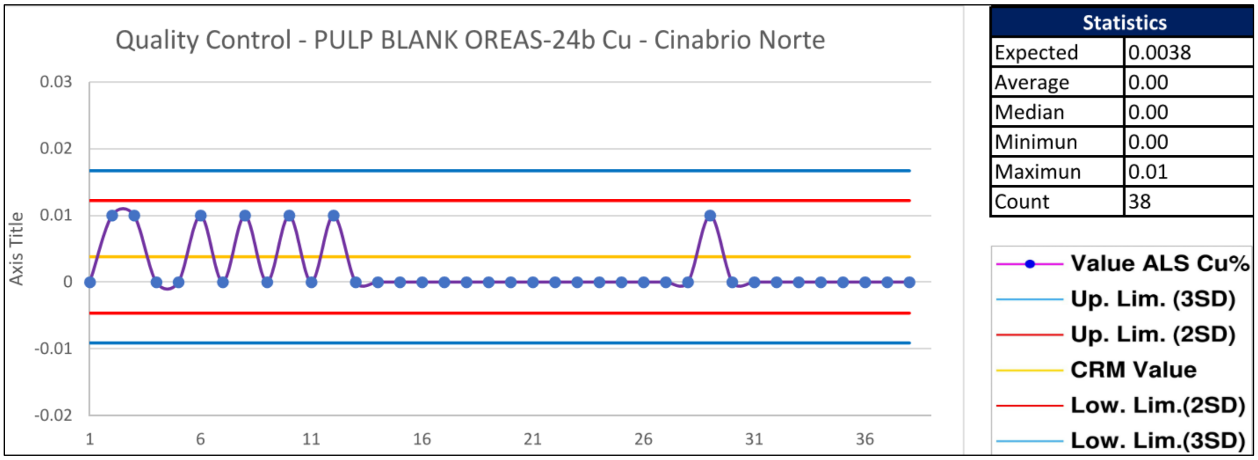


Source: Kirkham (2022)

11.6.2 Cinabrio Norte Blanks

There were 38 blanks inserted in the 1,899 samples from the drill core sampling at Cinabrio Norte that is an insertion rate of 2.0%. One blank was used in this sampling program. Figure 11-28 is a plot of Cinabrio Norte CRM-OREAS-24b blank.

Figure 11-28: Cinabrio Norte Results for Blank Certified Reference Material CRM-OREAS-24b



Source: Kirkham (2022)

There were 36 coarse blank samples collected from outcrop inserted in the 1,899 samples from drilling completed by BMR at Cinabrio Norte during 2021 and 2022 drilling. This is an insertion rate of 1.9%. Table 11-10 is the summary statistics of the analytical results.

Table 11-10: Summary Statistics for Coarse Blank Samples – Cinabrio Norte

Parameter	Copper Cu (ppm)	Silver Ag (g/t)
Number	36	36
Mean	34	0.42
Median	20	0.4
Minimum	5	0.1
Maximum	75	1

Source: Kirkham (2022)

11.6.3 Cinabrio Norte Duplicates

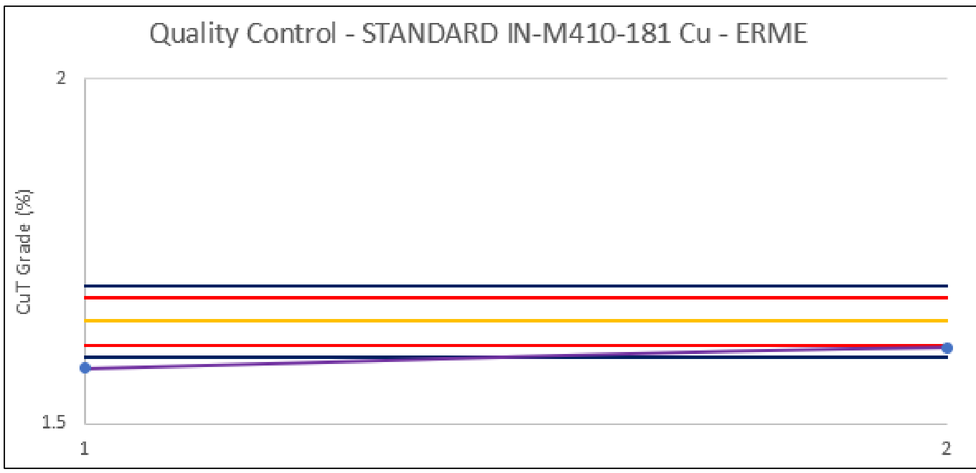
No duplicate samples were analyzed during the Cinabrio Norte drill core sampling program.

11.7 Punitaqui Regional Rock Sampling QAQC Results

11.7.1 Punitaqui Regional Rock Sampling Mineralized Standards

There were 6 mineralized certified reference materials inserted in the 64 samples by BMR for the Punitaqui regional rock sampling program at an insertion rate of 9.1%. Four separate mineralized certified reference materials were used in the program. Figure 11-29 is a plot of Punitaqui regional rock sampling results for copper CRM-IN-M410-181 standard.

Figure 11-29: Regional Rock Sample Results for Copper Certified Reference Material CRM-IN-M410-181

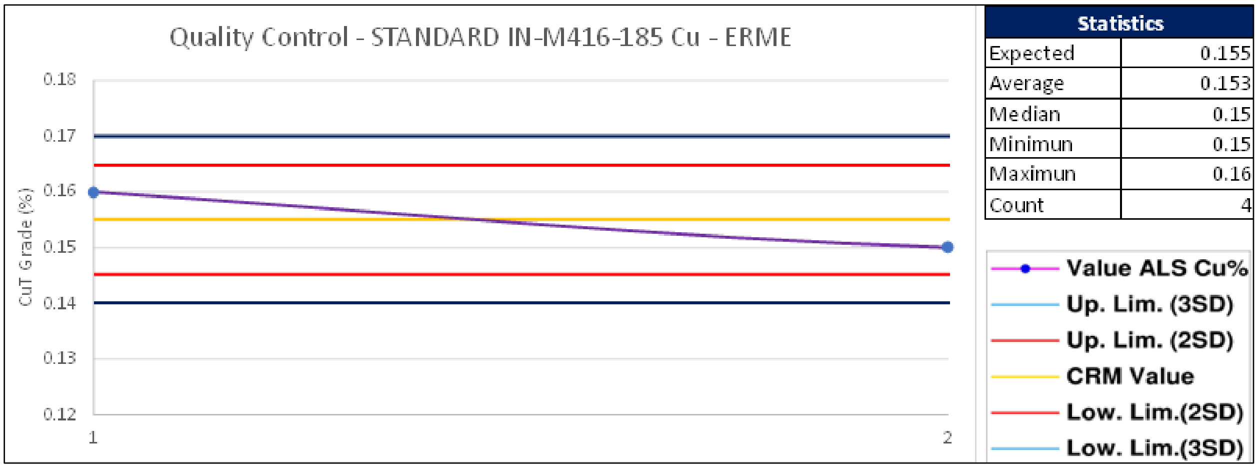


Statistics	
Expected	1.648
Average	1.600
Median	1.61
Minimun	1.58
Maximun	1.61
Count	2

Source: Kirkham (2022)

Figure 11-30 is a plot of Punitaqui regional rock sampling results for the copper CRM-IN-M416-185 standard.

Figure 11-30: Regional Rock Sample Results for Copper Certified Reference Material CRM-IN-M416-185

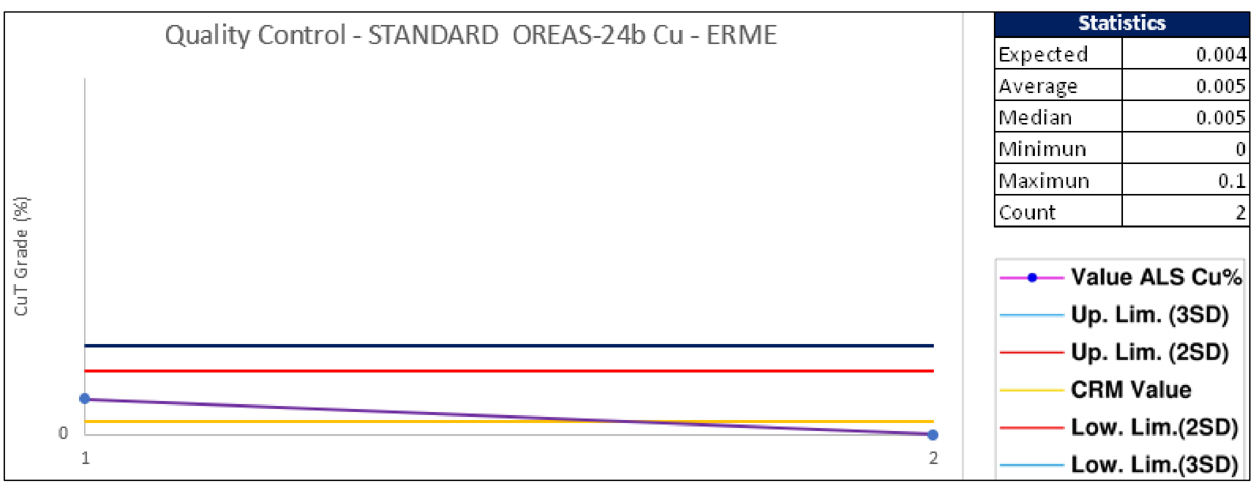


Source: Kirkham (2022)

11.7.2 Punitaqui Regional Rock Sampling Blanks

Two blanks were inserted in the 64 regional rock samples an insertion rate of 3.1% of samples. Figure 11-31 is a plot of Punitaqui regional rock sampling results for the CRM-OREAS-24b blank.

Figure 11-31: Regional Rock Sampling Results for Blank Certified Reference Material CRM-OREAS-24b



Source: Kirkham (2022)

There were two coarse blank samples collected from outcrop inserted in the 64 samples from regional exploration work. This is an insertion rate of 3.1%. Table 11-11 below is the summary statistics of the analytical results.

Table 11-11: Summary Statistics for Coarse Blank Samples – Regional Rock Samples

Parameter	Copper Cu (ppm)	Silver Ag (g/t)
Number	2	2
Mean	30	<1
Minimum	20	<1
Maximum	40	<1

Source: Kirkham (2022)

11.7.3 Punitaqui Regional Rock Sampling Duplicates

No duplicate rock samples were analyzed during the regional rock sampling program.

11.8 Conclusions and Adequacy Statement

It is the opinion of the QP, Garth Kirkham, P.Geo., that the sampling preparation, security, analytical procedures and quality control protocols used are consistent with generally accepted industry best practices and therefore reliable for the purpose of resource estimation.

12 DATA VERIFICATION

Site visits were conducted by several of the QPs, as detailed in Section 2.2. The purpose of the site visits was to fulfil the requirements specified under NI43 101 guidelines, become familiar with the property and verify key data and information to be used as source inputs for this technical report and resulting resource estimates. These site visits consisted of surface and underground tours of mineralized and non-mineralized headings, as well as an inspection of the surface core logging facilities, sampling, storage areas, and existing infrastructure including offices, processing and tailings facilities. In addition, tours of the two primary sample preparation and assay analysis laboratories, were undertaken.

12.1 General Project

The project was visited by Richard Goodwin, P.Eng., in February 2018 and again on the 12th to the 14th of January 2022. The site visits included an inspection of the property, offices, underground workings, core storage facilities, processing plant, and tailings facilities; a tour of major centers and surrounding villages most likely to be affected by any potential mining operation.

Project data was verified during multiple site visits and review of previous studies completed for the site. Information and documentation from government and third-party sources was reviewed and viewed to be authentic and truthful. It is opinion that the available project data is adequate and reliable for this technical report.

12.2 Drilling & Assaying, Geology and Resources

A site visit to the Punitaqui properties was completed by Garth Kirkham, P.Geo. on 12th to the 14th of January 2022. The purpose of these visits was to fulfill the requirements specified under NI 43-101 and to familiarize with the property. The site visit consisted of an underground tour as well as an inspection of the surface core logging, sampling and storage areas. The site visit also included an inspection of the property, offices, underground exposures, mill, and tour of major centers that are affected by the current mining operation and any future expansion.

The Author selected 8 drill holes from the database, and they were laid out at the core storage area. Site staff supplied the logs and assay sheets for verification against the core and the logged intervals. The data correlated with the physical core and no issues were identified. In addition, the Author toured the complete core storage facilities, selecting and reviewing core throughout. No issues were identified.

The Author is confident that the data and results are valid based on the site visit and inspection of all aspects of the project, including methods and procedures used. It is the opinion of the independent Author that all work, procedures, and results have adhered to best practices and industry standards required by NI 43-101. No duplicate samples were taken during the site visit to verify assay results as the project is an operating mine and ongoing QAQC is performed continually and consistently. There were no limitations on the QP with respect to verification. In addition, there were no limitations with respect to validating the physical data or computer-based data.

The Author is also of the opinion that the historic work, which was led by Glencore, was being performed by a well-respected, large, multi-national company that employs competent professionals that adheres to industry best practices and standards.

In addition, the QP visited the two principal sample preparation facilities and assay laboratories in La Serena, Chile on January 15th, 2022. The facilities are accredited and are operated to standards that one might expect in North America. One of the laboratory preparation facilities is located adjacent to an autobody shop which may be considered a source of contamination from organic compounds and possibly iron, nickel and chromium. No elevated levels of these compounds have been found present within the assay laboratory sample streams.

Since November 2021, Mr. Kirkham has provided guidance on the planning and development of advanced drilling and sampling, as well as domain modelling. Weekly reports have been supplied regarding drill progress, results, issues and risks. This practice is expected to continue.

Mr. Kirkham also implemented independent review of laboratory certificates comparing laboratory certificates against the sample database assay. Results show that with the approximately 10% of all certificates checked and verified, there is a less than 1% error rate, with the exception of the Cinabrio mine. There are a significant number of assay certificates that have not been supplied but results so far indicate that there are no issues or risks. It is imperative that this effort be continued to ensure the integrity of the data and the resultant resource estimations in the future.

Continued data validation and verification processes have not identified any material issues with the sample and assay databases. The QP is satisfied that the assay data is of suitable quality to be used as the basis for this resource estimate.

12.3 Metallurgy

The metallurgical testwork data was verified by reviewing mass balances of the testwork to ensure that they were consistent with the sample composites. At the start of the program, each composite sample was split for head assays. Each recovery test included the original head assay in the data presented as a comparison with the calculated test feed material. In the case that the head assay was a poor sample, the recovery can be compared between tests to ensure consistency.

Crowie is satisfied that the metallurgical testwork data is valid and reliable for use to support the findings of this report.

12.4 Adequacy Statement

Kirkham is confident that the data and results are valid based on the site visits and inspection of all aspects of the project, including the methods and procedures used. It is the opinion of Kirkham that all work, procedures, and results have adhered to best practices and industry standards as required by NI 43-101. No duplicate samples were taken to verify assay results as the property transfer had not been completed at the time of site visit, but Kirkham is of the opinion that the work is being performed by a well-respected company that employs competent professionals that adhere to best practices and standards. Kirkham also notes that authors of prior technical reports (SMS 2011) collected duplicate samples and had no issues.

The datasets employed for use in the mineral resource estimates are a mix of historic data and recent data. There is always a concern regarding the validity of historic data. Extensive validation and verification must always be performed to ensure that the data may be relied upon.

Kirkham reviewed extensive validation and verification studies along with procedures performed by external consultants and Lake Shore to ensure the validity of the mineral resource estimates.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

A comprehensive metallurgical test program was conducted in 2021/2022 on five mineralized samples from the Punitaqui project as follows:

- Cinabrio M1 (existing mine);
- Cinabrio M2 (existing mine);
- Cinabrio Norte;
- San Andres; and
- Dalmacia.

For each of the samples, the metallurgical test program consisted of:

- Chemical characterization;
- Mineralogical characterization;
- Hardness (Bond Work Index BWI); and
- Flotation response (Rougher kinetic tests, open circuit cleaner tests, locked cycle tests).

Solid/Liquid separation tests were performed on selected samples (flotation tails and/or flotation concentrates).

The program was designed and supervised by HydroProc Consultants. Most of the program (chemical, mineralogical, metallurgical) was carried out in the SGS laboratory in Lakefield, Ontario, Canada. Some of the filtration testwork was carried out by Metso-Outotec (M-O), and by CECMS in their Vancouver laboratory.

13.1 Origin of the Various Samples Tested

13.1.1 Cinabrio M1

The Cinabrio M1 head sample was collected by a BMR geologist from the stope C-48S in the existing Cinabrio mine.

13.1.2 Cinabrio M2

The Cinabrio M2 head samples (High grade, Low grade) were collected by a BMR geologist from the stopes C-34A and C-50R in the existing Cinabrio mine.

13.1.3 Dalmacia Sulphide

The Dalmacia sulphide head sample was prepared using core sample rejects from the 2021 drilling campaign, comprised of 17 m of quartered core from DS-21-01, 1 m from DS-21-02 and 37 m from DS-21-06.

13.1.4 Cinabrio Norte (CNN)

The Cinabrio Norte head sample was composited from three drill holes. BMR geologists combined the assay rejects from CNN-21-06 (from 96 m to 116 m, the whole intersection with the mineralized zone), from CNN-22-06 (from 145 to 160 m, the whole intersection with the mineralized zone), and from CNN-22-08 (from 196 m to 210 m, the upper part of the intersection with the mineralized zone).

13.2 Chemical Characterization of the Samples tested

Representative samples of the various mineralization types to be tested were submitted for full chemical characterization; results are presented in Table 13-1.

All samples contain approximately 1% Cut except Cinabrio Norte, which contains ~1.4% Cut. Based on sequential copper assays, the two Cinabrio mine samples (M1 and M2) contain mostly “residual” copper, i.e., chalcopyrite and bornite, while the three other samples also contain substantial proportions of “cyanide soluble” copper, i.e., chalcocite and covellite, in addition to “residual” copper minerals (chalcopyrite, bornite).

Of the 5 samples tested, only Cinabrio M1 contains appreciable gold (0.22 g/t). Arsenic is low (<100 g/t) except for the Dalmacia mineralized sample (147 g/t). Lead and zinc are low (<0.06%). Sb, Bi, Se, Cd are all below detection limits. Mercury is ≤0.3 g/t except for Cinabrio M2 (1.4 g/t) and San Andres (1.1 g/t).

Table 13-1: Chemical Analyses of Various Mineralized Samples

	Unit	Cinabrio M1	Cinabrio M2	Cinabrio Norte	San Andres	Dalmacia Sulphide
Cu_T	%	0.92	0.96	1.39	1.02	0.98
Cu_{AcSol}	%	0.013	0.01	0.05	0.06	0.05
Cu_{CNSol}	%	0.049	0.08	0.61	0.35	0.34
Cu_{Res}	%	0.80	0.83	0.61	0.57	0.50

	Unit	Cinabrio M1	Cinabrio M2	Cinabrio Norte	San Andres	Dalmacia Sulphide
Au	g/t	0.22	<0.02	<0.02	0.03	0.02
Ag	g/t	2.8	1.7	5.5	5.1	0.50
S	%	1.42	1.22	1.06	1.15	0.74
Fe	%	1.31	7.52	2.58	2.76	6.11
MgO	%	2.67	3.00	2.04	1.49	4.23
Al_2O_3	%	10.20	10.66	8.39	8.88	16.57
As	g/t	45	69	<30	81	147
Sb	g/t	<30	<30	<10	<30	<30
Bi	g/t	<20	<20	<20	<20	<20
Se	g/t	<30	<30	<30	<30	<30
Te	g/t	<4	8	<4	<4	<4
Pb	g/t	101	<80	<200	54	<80
Zn	g/t	593	383	317	354	96
Cd	g/t	<4	<2	<2	<4	<2
Hg	g/t	0.3	1.4	<0.3	1.1	<0.3

Source: SGS (2022)

13.3 Mineralogical Characterization of the Samples tested

QEMSCAN analysis was conducted on each of the five mineralized samples. Details are included in SGS report. Each sample was ground to a P_{80} of ~100 µm, and screened in four size fractions (-20 µm, -63 + 20 µm, - 103 + 63 µm and + 106 µm).

QEMSCAN analysis was then performed on each sample to measure its modal composition and the liberation of copper sulphide minerals.

The results of the modal composition are presented in Table 13-2.

Table 13-2: Modal Composition of the five Types of Mineralization

%	Cinabrio M1	Cinabrio M2	Cinabrio Norte	San Andres	Dalmacia Sulphide
Chalcopyrite	2.86	3.31	3.37	2.70	1.42
Bornite	0.01	0.02	0.78	0.40	0.67
Chalcocite + Covellite	<0.01	<0.01	0.07	0.04	<0.01
Pyrite	1.08	0.83	0.19	0.93	0.04
Quartz	11.52	13.79	6.35	23.64	2.25

%	Cinabrio M1	Cinabrio M2	Cinabrio Norte	San Andres	Dalmacia Sulphide
Sericite/Muscovite	16.56	15.86	11.76	20.52	3.21
Plagioclases	9.95	12.13	9.09	6.66	54.02
K-feldspar	7.73	5.71	6.39	12.59	0.16
Amphibole	4.75	3.88	5.11	2.76	4.09
Chlorite	6.43	11.66	3.18	4.35	3.22
Clays	3.44	4.37	3.98	4.40	4.44
Epidote	3.26	0.85	0.47	0.18	0.77
Calcite	10.29	15.76	43.52	14.54	0.37
Fe Oxides	16.69	6.13	0.34	0.42	6.48
Apatite	2.46	2.98	3.80	3.81	0.83

Source: SGS (2022)

Modal composition results confirmed that for the Cinabrio mine samples (M1, M2), chalcopyrite was the only copper sulphide mineral present in measurable quantities. It also confirmed that the other three mineralization types, Cinabrio Norte, San Andres, and Dalmacia Sulphide contain, substantial amounts of bornite as well as chalcopyrite, while Cinabrio Norte and San Andres also contain minor secondary copper minerals (chalcocite + covellite).

Pyrite was a minor constituent (~1%) in three of the mineralization types (Cinabrio M1, Cinabrio M2, and San Andres) but very minor in Cinabrio Norte and Dalmacia. Regarding gangue composition, Cinabrio mine (M1, M2) and San Andres contain variable mixtures of quartz, sericite/muscovite, plagioclases, K-feldspar, and calcite. Cinabrio M1 also contains iron oxides (~16.7 %). The highest gangue mineral content is calcite for Cinabrio Norte (43.5%) and plagioclases/andesite for Dalmacia (54%).

Results of the copper sulphide liberation study are summarized in Table 13-3. It should be noted that the definitions for the various degrees of liberation are:

- Locked Cu sulphide - < 20% of the mineral surface exposed;
- Sub middlings. Cu sulphide - <50% and > 20% of the mineral surface exposed;
- Middlings. Cu sulphide - <80% and > 50% of the mineral surface exposed;
- Liberated Cu sulphide - <95% and > 80% of the mineral surface exposed;
- Free Cu sulphide - <100% and > 95% of the mineral surface exposed; and
- Pure Cu sulphide- 100% of the mineral surface exposed.

Table 13-3: Liberation Results for the five Types of Mineralization

	Cinabrio M1	Cinabrio M2	Cinabrio Norte	San Andres	Dalmacia Sulphide
Locked Cu sulphide	5.89	8.62	30.40	28.08	3.44
Sub middlings, Cu sulphide	3.79	6.47	15.70	10.31	3.45
Middlings. Cu sulphide	3.40	4.95	9.40	7.09	5.05
Liberated Cu sulphide	6.34	8.75	9.59	6.42	13.19
Free Cu sulphide	12.55	6.62	4.25	4.77	19.75
Pure Cu sulphide	66.03	64.59	30.66	43.33	55.11

Source: SGS (2022)

If we define as “floatable” the fractions “Pure Cu Sulphides, Free Cu sulphides, and Liberated Cu sulphides”, it is clearly shown that the mineralization types Cinabrio M1 (84.9%), Cinabrio M2 (80%) and Dalmacia (88.1%) are readily floatable, while Cinabrio Norte (44.5%) and San Andres (54.5%) are very poorly floatable.

Clearly, this information will have a significant impact on flotation results. Details of the QEMSCAN results are in SGS report.

13.4 Physical Characterization of the Five Types of Mineralization - Bond Work Index

The five mineralization types were submitted to a standard hardness test, i.e., the ball mill Bond Work Index (BWI). All samples were crushed to 100% minus 6 mesh and submitted to the standard BWI procedure. Results are presented in Table 13-4 and SGS report.

Table 13-4: Bond Work Indices for the five Types of Mineralization

Mineralization Type	Cinabrio M1	Cinabrio M2	Cinabrio Norte	San Andres	Dalmacia Sulphide
kWh/t	17.0	19.3	14.3	23.3	12.3

Source: SGS (2022)

The Cinabrio mine samples (M1, M2) produced high to very high work indices, relatively close to historical values exhibited in the plant. The modal composition of the gangue in these two mineralization types is similar, which explains the similar hardness measured. Cinabrio Norte contains significant calcite (43.5%) and Dalmacia contains significant plagioclases (andesite, 54%) making these samples medium (Cinabrio Norte) to soft (Dalmacia Sulphide) hardness.

13.5 Flotation Response of the Five Types of Mineralization

The five mineralized samples were submitted to a comprehensive flotation program. Due to time limitation, the programs were not fully optimized. For each mineralized sample, the following protocol was followed:

- Blending (as needed);
- Crushing to minus 10 mesh;
- Grinding calibration curve;
- Kinetic rougher flotation tests;
- Open circuit cleaner flotation tests;
- Locked cycle flotation tests;
- Full concentrate chemical analysis;
- Thickening tests on tails and concentrate (except Dalmacia and CNN);
- Vacuum filtration tests on tails and concentrates (except Dalmacia and CNN);
- Ceramic disc filtration tests on tails (except Dalmacia and CNN); and
- Ceramic disc filtration tests on concentrates (when sufficient sample available).

The ceramic disc filtration tests were conducted by Metso-Outotec (M-O) and RMS on representative samples from the flotation program conducted at SGS, Lakefield.

Flotation test results are shown in SGS report.

The main parameters tested during the flotation program were primary grind, regrind requirements, and depressants for the non-sulphide gangue. The flowsheet and reagent types were kept fairly constant.

13.5.1 Cinabrio M1 Flotation Response

13.5.1.1 Rougher Kinetics Tests

Three rougher kinetics flotation tests were completed on the M1 Blend samples, with the objective of assessing the impact of primary grind size. Results are summarized in Table 13-5. Results with respect to copper metallurgy were very encouraging and demonstrated a relative insensitivity to primary grind size in the range studied (P_{80} of 96 µm to 146 µm), with similar final

Table 13-5: M1 Blend Rougher Kinetics Test Results Summary

Sample	Test #	Notes	P_{80} (µm)	Reagent Dosage, g/t				Product	Cum Time (min)	Wt %	Grade (%, g/t)					Distribution (%)				
				$Ca(OH)_2$	SIPX	208	MIBC				Cu	Fe	Au	Ag	S	Cu	Fe	Au	Ag	S
M1 Blend	F1	Baseline	105	380	23	30	25	Rougher Conc 1	1	1.9	17.4	25.5	6.52	64.0	25.5	35.1	3.5	77.2	39.2	34.2
								Rougher Conc 1-2	3	3.9	16.4	23.4	3.45	45.6	22.0	67.7	6.5	83.6	57.2	60.4
								Rougher Conc 1-3	6	6.0	13.5	21.1	2.35	35.1	17.8	85.2	9.0	87.0	67.1	74.7
								Rougher Conc 1-4	10	7.6	11.7	19.8	1.88	29.6	15.3	93.6	10.7	88.2	71.6	81.0
								Rougher Conc 1-5	16	9.3	9.80	18.3	1.55	25.0	12.9	95.7	12.1	88.8	74.0	83.6
								Rougher Tails		90.7	0.045	13.6	0.02	0.90	0.26	4.3	87.9	11.2	26.0	16.4
								Head (calc.)		100.0	0.95	14.0	0.16	3.14	1.43	100.0	100.0	100.0	100.0	100.0
								Head (dir.)			0.92	13.1	0.22	2.80	1.42					
M1 Blend	F2	Same as F1 but finer grind	96	285	23	30	10	Rougher Conc 1	1	2.9	20.4	25.4	4.66	48.3	25.5	64.5	5.3	79.5	47.8	54.5
								Rougher Conc 1-2	3	4.6	16.2	22.5	3.10	39.0	20.9	82.2	7.6	84.9	61.9	71.6
								Rougher Conc 1-3	6	6.3	13.3	20.6	2.35	31.9	17.2	91.7	9.4	87.2	68.7	80.2
								Rougher Conc 1-4	10	7.7	11.1	18.9	1.94	27.3	14.6	94.2	10.6	88.5	72.2	83.2
								Rougher Conc 1-5	16	9.9	8.87	17.1	1.54	22.4	11.7	95.4	12.1	89.4	75.4	85.4
								Rougher Tails		90.1	0.047	13.5	0.02	0.80	0.22	4.6	87.9	10.6	24.6	14.6
								Head (calc.)		100.0	0.92	13.9	0.17	2.93	1.36	100.0	100.0	100.0	100.0	100.0
								Head (dir.)			0.92	13.1	0.22	2.80	1.42					
M1 Blend	F3	Same as F1 but coarser grind	146	300	23	30	30	Rougher Conc 1	1	2.3	18.6	25.2	4.10	52.0	24.8	45.8	4.2	58.3	30.9	40.4
								Rougher Conc 1-2	3	4.0	15.9	22.8	2.82	40.7	20.9	68.4	6.6	70.2	42.4	59.7
								Rougher Conc 1-3	6	5.9	13.1	20.6	2.03	32.3	17.0	82.8	8.8	74.0	49.4	71.3
								Rougher Conc 1-4	10	6.8	12.2	19.8	1.79	29.5	15.8	89.2	9.7	75.3	51.9	76.1
								Rougher Conc 1-5	16	8.2	10.6	18.6	1.52	25.8	13.8	93.7	11.0	77.2	54.7	80.4
								Rougher Tails		91.8	0.064	13.4	0.04	1.90	0.30	6.3	89.0	22.8	45.3	19.6
								Head (calc.)		100.0	0.93	13.8	0.16	3.85	1.41	100.0	100.0	100.0	100.0	100.0
								Head (dir.)			0.92	13.1	0.22	2.80	1.42					

Source: SGS (2022)

13.5.1.2 Open Circuit Cleaner Tests

Three batch cleaner tests were completed on the M1 Blend sample. The flowsheet consisted of rougher flotation, with the rougher concentrate upgraded in three successive cleaner stages including a 1st cleaner scavenger stage. Regrinding was studied as a test variable. The results are summarized in Table 13-6 and Figure 13-1.

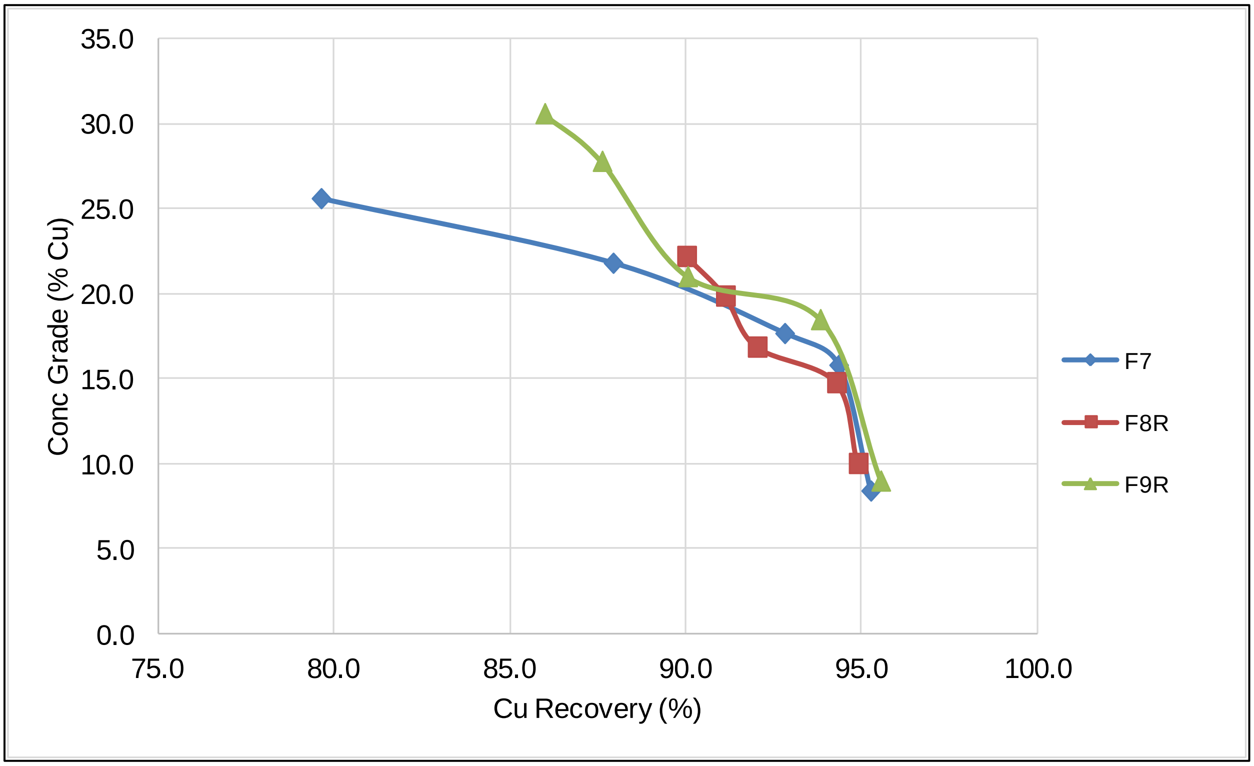
Test F7 was a baseline test. Test F8R used increased flotation time and collector dosage in the cleaners, with no regrind. Test F9R was the same as test F8R but with regrinding. Both F8R and F9R demonstrated an improvement over F7. While both tests, F7 and F8R, fell on the same copper grade/recovery profile (i.e., 90% global recovery at a concentrate grade of 21~22% Cu), test F9R, with regrinding, attained significantly higher concentrate grade with relatively little additional cleaner copper losses. A very clean 3rd cleaner concentrate grading almost 31% Cu was attained at a global copper recovery of 86% (Batch).

Table 13-6: M1 Blend Batch Cleaner Test Summary

Sample	Test #	Notes	Ro Tails	Clnr Tails	Reagent Dosage, g/t				Product	Wt %	Grade (%)			Distribution (%)		
			P_{80} (µm)	P_{80} (µm)	$Ca(OH)_2$	SIPX	208	MIBC			Cu	Fe	S	Cu	Fe	S
M1 Blend	F7	Baseline	121	No regrind	1195	23	33	20	3rd Cl Conc	2.9	25.6	30.6	28.3	79.6	6.4	61.5
									2nd Cl Conc	3.7	21.8	29.2	25.6	87.9	8.0	72.3
									1st Cl Conc	4.8	17.7	26.3	21.6	92.8	9.4	79.3
									1st Cl + Scav Conc	5.5	15.8	24.8	19.6	94.3	10.0	81.8
									Rougher Conc	10.5	8.40	17.1	10.6	95.2	13.2	84.4
									Rougher Tails	89.5	0.049	13.2	0.23	4.8	86.8	15.6
									Head (calc.)	100.0	0.92	13.6	1.32	100.0	100.0	100.0
									Head (dir.)		0.92	13.1	1.42			
M1 Blend	F8R	Same as F7 but 2nd Clnr stage with collector addition and increased retention time.	125	75	845	23	35	50	3rd Cl Conc	3.7	22.2	29.2	27.5	90.0	7.8	74.3
									2nd Cl Conc	4.2	19.9	27.3	25.2	91.1	8.3	76.9
									1st Cl Conc	5.0	16.9	24.4	21.7	92.0	8.8	78.8
									1st Cl + Scav Conc	5.8	14.8	22.6	19.3	94.3	9.5	82.1
									Rougher Conc	8.6	10.0	18.0	13.3	94.9	11.3	84.0
									Rougher Tails	91.4	0.051	13.4	0.24	5.1	88.7	16.0
									Head (calc.)	100.0	0.91	13.8	1.37	100.0	100.0	100.0
									Head (dir.)		0.92	13.1	1.42			
M1 Blend	F9R	Same as F8 but with regrind.	116	26	885	23	35	50	3rd Cl Conc	2.5	30.6	28.6	31.8	86.0	5.5	59.2
									2nd Cl Conc	2.8	27.8	27.0	29.3	87.6	5.8	61.3
									1st Cl Conc	3.8	21.0	23.3	23.2	90.0	6.8	65.9
									1st Cl + Scav Conc	4.5	18.5	22.0	21.0	93.8	7.6	70.6
									Rougher Conc	9.5	8.99	17.1	12.0	95.5	12.3	84.5
									Rougher Tails	90.5	0.044	12.7	0.23	4.5	87.7	15.5
									Head (calc.)	100.0	0.89	13.1	1.34	100.0	100.0	100.0
									Head (dir.)		0.92	13.1	1.42			

Source: SGS (2022)

Figure 13-1: Copper Grade vs. Recovery – M1 Blend Batch Cleaner Tests



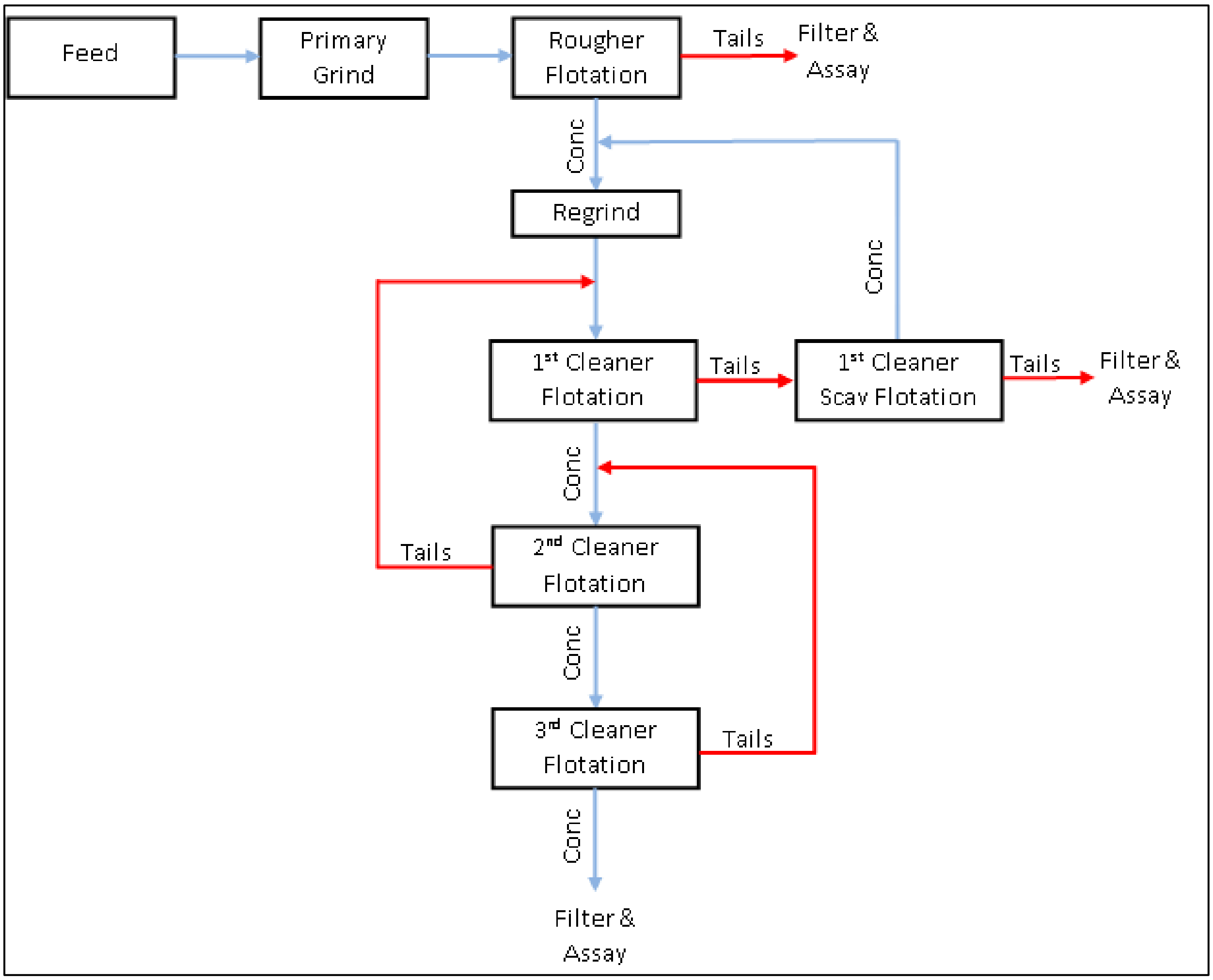
Source: SGS (2022)

13.5.1.3 Locked Cycle Test

Based on the positive result of test F9R, a locked cycle test (LCT-1) consisting of six cycles was completed, with the objective of assessing metallurgical performance in the presence of circulating middlings streams. The locked cycle test flowsheet is presented in Figure 13-2 and the metallurgical projections are presented in Table 13-7.

A concentrate grading 31.5% Cu was attained at a projected copper recovery of 94%.

Figure 13-2: LCT-1 Flowsheet



Source: SGS (2022)

Table 13-7: M1 Blend LCT-1 Metallurgical Projections

Product	Weight		Assays					Distribution %				
	Dry	%	Cu %	Fe %	Au g/t	Ag g/t	S %	Cu	Fe	Au	Ag	S
3rd Cleaner Conc	336.6	2.8	31.3	29.9	4.93	78.8	32.4	94.2	6.0	87.1	72.8	66.6
1st Cl Scav Tails	855.8	7.1	0.26	12.4	0.03	3.1	3.66	2.0	6.3	1.6	7.4	19.1
Ro Tails	10847.4	90.1	0.039	13.6	<0.02	0.7	0.22	3.8	87.7	11.4	19.8	14.3
Head (calc.)	12039.8	100.0	0.93	14.0	0.16	3.0	1.36	100.0	100.0	100.0	100.0	100.0

Source: SGS (2022)

13.5.2 Cinabrio M2 Flotation Response

A total of three rougher kinetics and four open circuit cleaner tests were conducted to investigate the metallurgical performance of the Cinabrio M2 mineralization type.

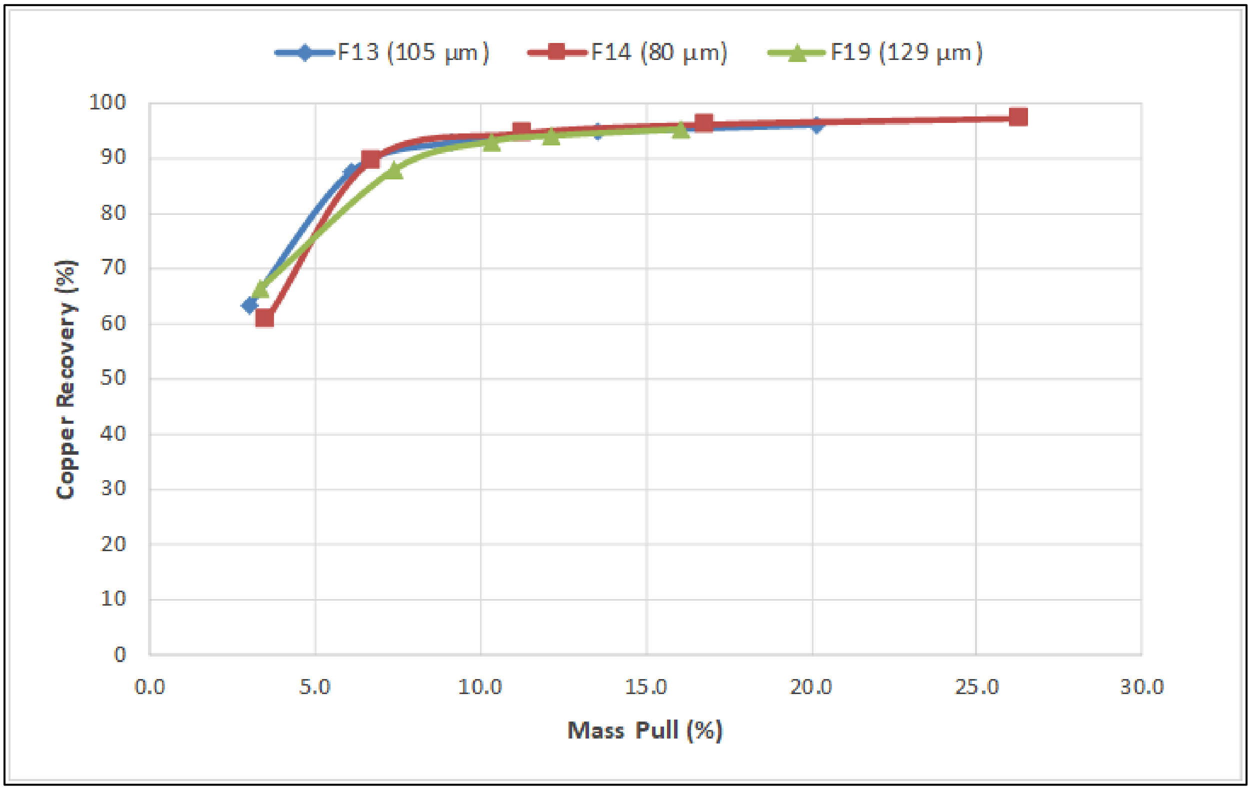
13.5.2.1 Rougher Kinetics Testwork

Three rougher kinetics flotation tests were completed on the M2 Blend samples with the objective of assessing the impact of primary grind size. Collectors included a xanthate (SIPX) at a dosage of 68 g/t and a dithiophosphate (AERO 208) at a dosage of 90 g/t added over five rougher increments over a total flotation time of 23 minutes. Aggressive rougher collector dosages were employed but remained constant for the three tests. Lime was used to adjust the pH to 9.0 throughout the rougher flotation. Methyl isobutyl carbinol (MIBC) was used as frother.

The baseline flotation performance with this material was assessed in test F13. The next two tests (F14 and F19) investigated the effect of primary grind size. The test objectives, conditions and results are summarized in Table 13-8 and the copper recovery is compared against the mass pull retention time and copper grade in Figure 13-3 through Figure 13-5.

Results with respect to copper metallurgy were very encouraging and demonstrated a relative insensitivity to primary grind size in the range studied (P_{80} range of 80 µm to 129 µm) with similar rougher copper recovery (~95 to 97%) at a mass pull of 16 to 26%.

Figure 13-3: Rougher Copper Recovery vs. Mass Pull – M2 Blend



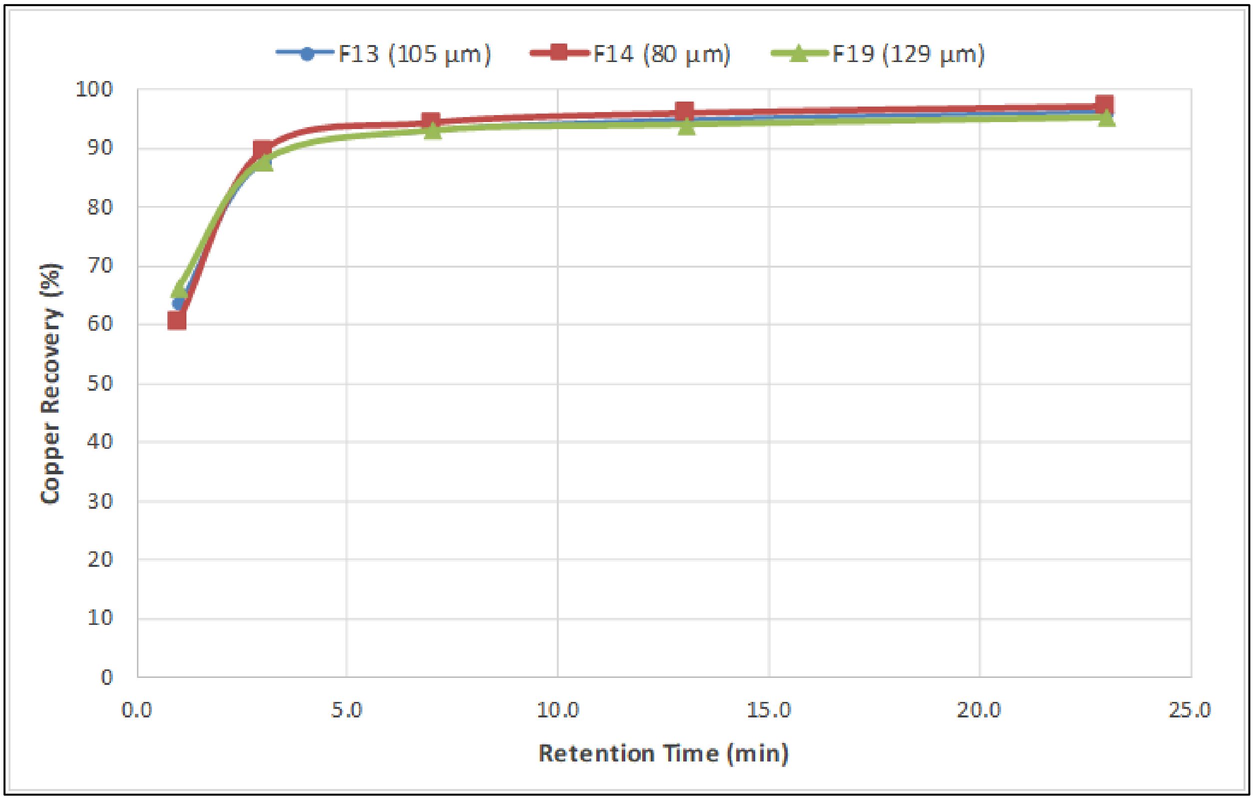
Source: SGS (2022)

Table 13-8: Rougher Flotation Test Summary – M2 Blend

Sample	Test #	Notes	P_{80} (µm)	Reagent Dosage, g/t				Product	Cum Time (min)	Wt %	Grade (%)			Distribution (%)		
				$Ca(OH)_2$	SIPX	208	MIBC				Cu	Fe	S	Cu	Fe	S
M2 Blend	F13	Baseline	105	370	68	90	60	Rougher Conc 1	1	3.0	21.2	23.4	24.4	63.5	8.6	55.3
								Rougher Conc 1-2	3	6.1	14.4	18.4	17.1	87.7	13.7	78.8
								Rougher Conc 1-3	7	9.1	10.1	14.9	12.3	93.0	16.7	85.1
								Rougher Conc 1-4	13	13.6	6.95	12.2	8.5	94.9	20.4	88.0
								Rougher Conc 1-5	23	20.2	4.74	10.4	5.9	96.2	25.9	90.3
								Rougher Tails		79.8	0.047	7.53	0.16	3.8	74.1	9.7
								Head (calc.)		100.0	0.99	8.11	1.31	100.0	100.0	100.0
								Head (dir.)			0.96	7.52	1.22			
M2 Blend	F14	Same as F13 but finer grind	80	415	68	90	75	Rougher Conc 1	1	3.5	17.1	20.4	19.2	60.6	8.8	53.2
								Rougher Conc 1-2	3	6.7	13.3	17.6	15.3	89.6	14.3	80.5
								Rougher Conc 1-3	7	11.3	8.37	13.5	9.9	94.4	18.5	87.5
								Rougher Conc 1-4	13	16.8	5.71	11.3	6.9	96.0	23.1	90.1
								Rougher Conc 1-5	23	26.3	3.69	9.71	4.5	97.1	30.9	92.5
								Rougher Tails		73.7	0.039	7.75	0.13	2.9	69.1	7.5
								Head (calc.)		100.0	1.00	8.27	1.28	100.0	100.0	100.0
								Head (dir.)			0.96	7.52	1.22			
M2 Blend	F19	Same as F13 but coarser grind	129	435	68	90	60	Rougher Conc 1	1	3.3	19.3	21.9	21.7	66.4	9.2	56.8
								Rougher Conc 1-2	3	7.4	11.5	15.9	13.5	87.9	14.7	78.0
								Rougher Conc 1-3	7	10.3	8.73	13.5	10.4	93.0	17.5	84.5
								Rougher Conc 1-4	13	12.1	7.52	12.5	9.06	94.0	19.0	86.1
								Rougher Conc 1-5	23	16.1	5.74	11.0	7.00	95.2	22.3	88.1
								Rougher Tails		83.9	0.055	7.37	0.18	4.8	77.7	11.9
								Head (calc.)		100.0	0.97	7.96	1.27	100.0	100.0	100.0
								Head (dir.)			0.96	7.52	1.22			

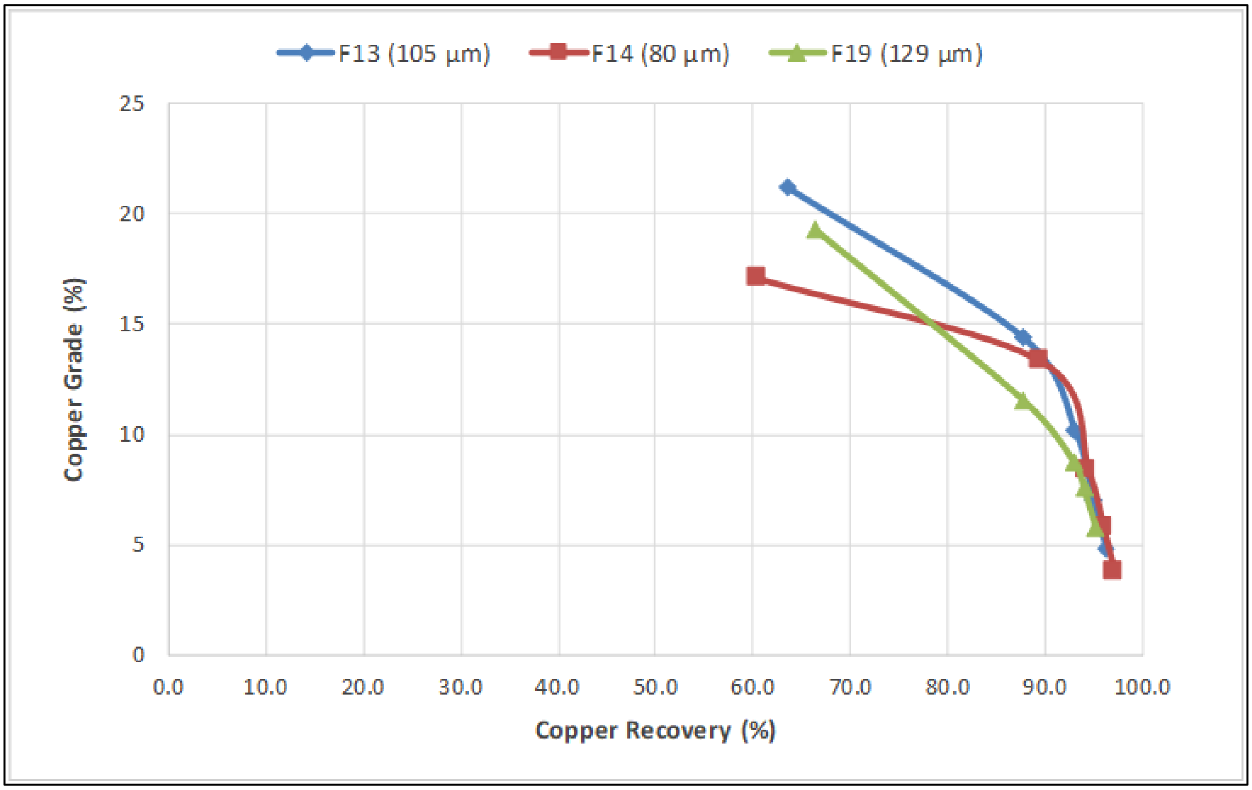
Source: SGS (2022)

Figure 13-4: Rougher Copper Recovery vs. Retention Time – M2 Blend



Source: SGS (2022)

Figure 13-5: Rougher Concentrate Copper Grade vs. Copper Recovery – M2 Blend



Source: SGS (2022)

13.5.2.2 Rougher Kinetics Testwork

Four batch cleaner tests were conducted on the M2 Blend sample. Rougher flotation conditions from test F13 (P_{80} of ~100 µm) were repeated for each test. The flowsheet consisted of rougher flotation with the rougher concentrate upgraded in three successive cleaner stages including a 1st cleaner scavenger stage. Regrinding was studied as a test variable. The first test (F21) was completed without any regrind while a regrind stage was included for the other three cleaner tests (F22, F29 and F31). Reduced retention time was investigated in test F29 while sodium silicate was added in the cleaner stages in test F31 as dispersant.

The test objectives conditions and results are summarized in Table 13-9 and the copper grade in the concentrate is compared against copper recovery in Figure 13-11.

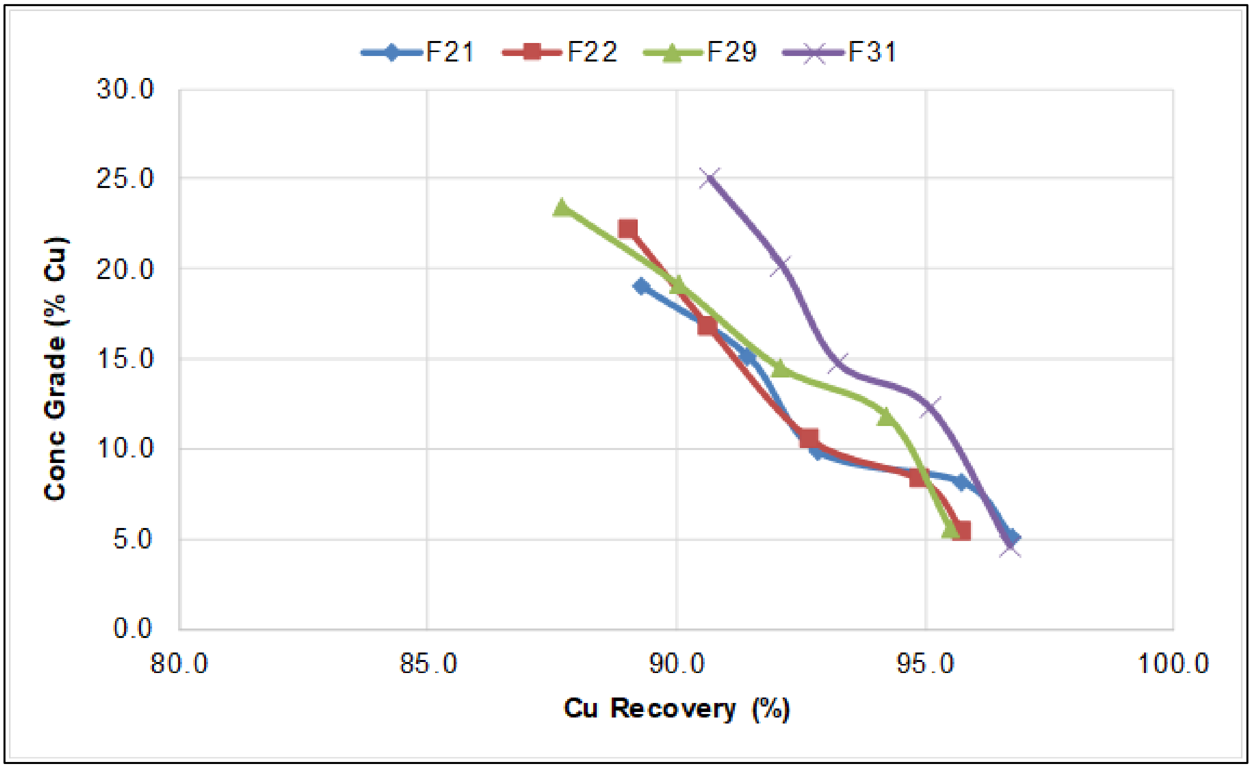
The results from the baseline test (F17) without regrinding showed final concentrate grading 19.0% Cu with a copper recovery of 89.3%. Copper grade in the final concentrate slightly increased with the addition of the regrind stage, but the addition of sodium silicate was required (test F31) to achieve a concentrate grading more than 25% Cu. A final concentrate grading 25% Cu was achieved at a copper recovery of 91% in test F31.

Table 13-9: Cleaner Flotation Test Summary – M2 Blend

Sample	Test #	Notes	Ro Tails P_{80} (µm)	Clnr Tails P_{80} (µm)	Reagent Dosage, g/t					Product	Wt %	Grade (%)			Distribution (%)		
					$Ca(OH)_2$	Sodium Silicate	SIPX	208	MIBC			Cu	Fe	S	Cu	Fe	S
M2 Blend	F21	Baseline	95	32	785	0	68	95	75	3rd Cl Conc	4.5	19.0	22.0	21.9	89.3	12.4	79.5
										2nd Cl Conc	5.8	15.2	18.8	17.7	91.4	13.6	82.5
										1st Cl Conc	9.0	9.86	14.5	11.7	92.8	16.3	84.9
										1st Cl + Scav Conc	11.2	8.18	13.1	9.82	95.7	18.3	88.8
										Rougher Conc	18.0	5.12	10.5	6.22	96.7	23.8	90.7
										Rougher Tails	82.0	0.038	7.41	0.14	3.3	76.2	9.3
										Head (calc.)	100.0	0.96	7.97	1.24	100.0	100.0	100.0
										Head (dir.)		0.96	7.52	1.22			
M2 Blend	F22	Same as F21 but with regrind	102	20	815	0	68	95	75	3rd Cl Conc	3.9	22.1	23.7	24.1	89.1	11.1	75.1
										2nd Cl Conc	5.3	16.8	19.7	18.7	90.6	12.4	78.2
										1st Cl Conc	8.6	10.5	14.9	12.1	92.7	15.3	82.4
										1st Cl + Scav Conc	11.2	8.26	13.2	9.74	94.9	17.6	86.5
										Rougher Conc	17.4	5.36	10.9	6.43	95.8	22.7	88.9
										Rougher Tails	82.6	0.050	7.87	0.17	4.2	77.3	11.1
										Head (calc.)	100.0	0.97	8.40	1.26	100.0	100.0	100.0
										Head (dir.)		0.96	7.52	1.22			
M2 Blend	F29	Same as F22 but shorter cleaner flotation times	94	21	1480	0	68	93	135	3rd Cl Conc	3.6	23.5	24.3	25.7	87.7	10.9	72.5
										2nd Cl Conc	4.6	19.2	21.4	21.6	90.0	12.1	76.6
										1st Cl Conc	6.1	14.5	18.0	16.9	92.1	13.7	80.9
										1st Cl + Scav Conc	7.7	11.9	16.0	14.1	94.2	15.2	84.4
										Rougher Conc	16.6	5.58	11.1	6.87	95.5	22.8	88.9
										Rougher Tails	83.4	0.052	7.46	0.17	4.5	77.2	11.1
										Head (calc.)	100.0	0.97	8.06	1.28	100.0	100.0	100.0
										Head (dir.)		0.96	7.52	1.22			
M2 Blend	F31	Same as F22 but with sodium silicate dispersant in cleaners	~100	18	1335	75	53	78	75	3rd Cl Conc	3.6	25.0	25.5	27.5	90.7	11.2	76.2
										2nd Cl Conc	4.5	20.2	22.2	22.8	92.1	12.2	79.6
										1st Cl Conc	6.2	14.7	18.1	17.0	93.2	13.9	82.4
										1st Cl + Scav Conc	7.6	12.3	16.3	14.4	95.1	15.2	85.5
										Rougher Conc	20.8	4.57	10.3	5.61	96.7	26.3	90.8
										Rougher Tails	79.2	0.041	7.58	0.15	3.3	73.7	9.2
										Head (calc.)	100.0	0.98	8.14	1.29	100.0	100.0	100.0
										Head (dir.)		0.96	7.52	1.22			

Source: SGS (2022)

Figure 13-6: Cleaner Concentrate Copper Grade vs. Copper Recovery – M2 Blend



Source: SGS (2022)

13.5.2.3 Locked Cycle Flotation Testwork

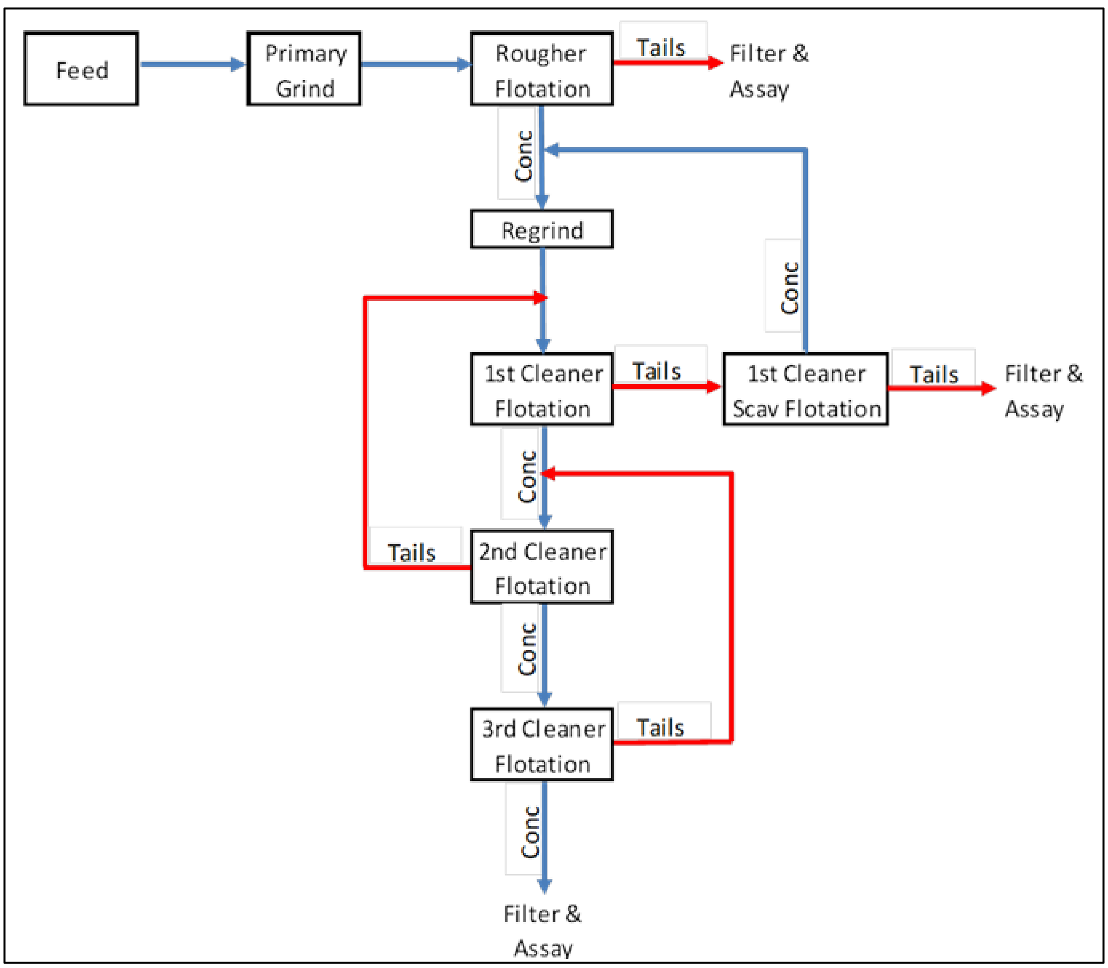
One locked cycle test was performed on the M2 Blend sample (LCT-5). The test followed the optimized conditions as determined from batch cleaner flotation test F31. The flotation flowsheet used for the LCT is illustrated in Figure 13-9. Metallurgical projections are summarized in Table 13-10.

Table 13-10: Locked Cycle Test Results – M2 Blend

Product	Weight		Assays					Distribution, %				
	Dry	%	Cu %	Fe %	Au g/t	Ag g/t	S %	Cu	Fe	Au	Ag	S
3rd Cleaner Conc	392.6	3.3	27.8	18.8	0.48	16.7	21.3	96.5	9.4	44.8	53.1	95.9
1st Cl Scav Tails	1142.7	9.5	0.14	5.38	0.02	0.5	0.20	1.4	7.9	5.4	4.6	2.6
Ro Tails	10441.8	87.2	0.023	6.20	<0.02	0.5	0.01	2.1	82.7	49.7	42.2	1.5
Head (calc.)	11977.1	100.0	0.94	6.53	0.04	1.0	0.73	100.0	100.0	100.0	100.0	100.0

Source: SGS (2022)

Figure 13-7: Locked Cycle Test Flowsheet – M2 Blend



Source: SGS (2022)

13.5.3 Cinabrio Norte Flotation Response

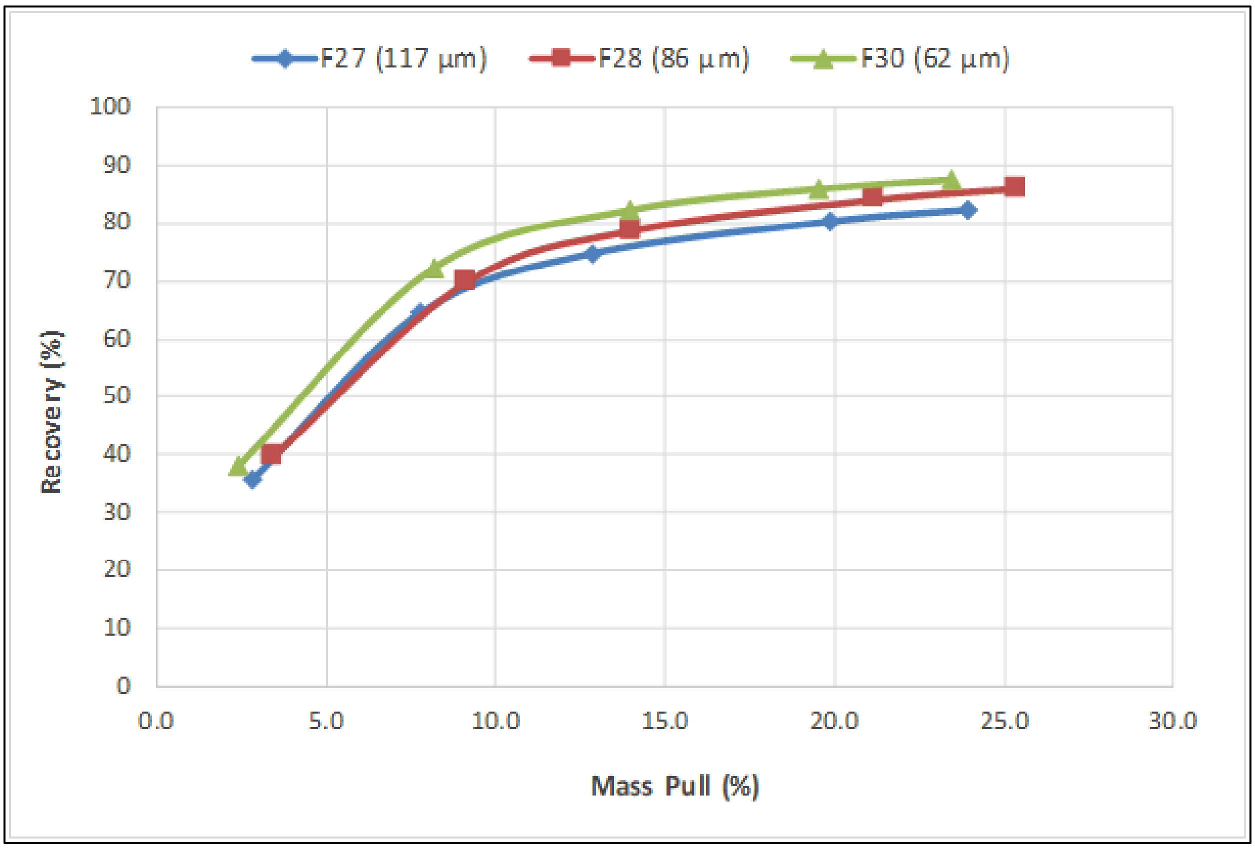
13.5.3.1 Rougher Kinetics Testwork

Three rougher kinetics flotation tests were completed on the CNN sample with the objective of assessing the impact of primary grind size. The test objectives, conditions and results are summarized in Table 13-11 and the copper recovery is compared against mass pull, retention time and copper grade in Figure 13-8 through Figure 13-10.

Collectors included SIPX and AERO 208, added over five rougher increments over a total flotation time of 23 minutes. The collector dosage was not varied from test to test. Lime was used to adjust the pH to 9.0 throughout the rougher flotation. MIBC was used as frother.

The CNN sample was sensitive to grind size. Copper recovery was only ~82% at a mass pull of 24% for the baseline test (F27) which was performed at a P_{80} of 117 µm. F28 was performed with a finer P_{80} of 86 µm and achieved a slightly better copper recovery (~86%) at a slightly higher mass pull (~25%). Test F30 was done at an even finer grind size (P_{80} of 62 µm) and resulted in a copper recovery of ~87% for a mass pull of ~23%.

Figure 13-8: Rougher Copper Recovery vs. Mass Pull



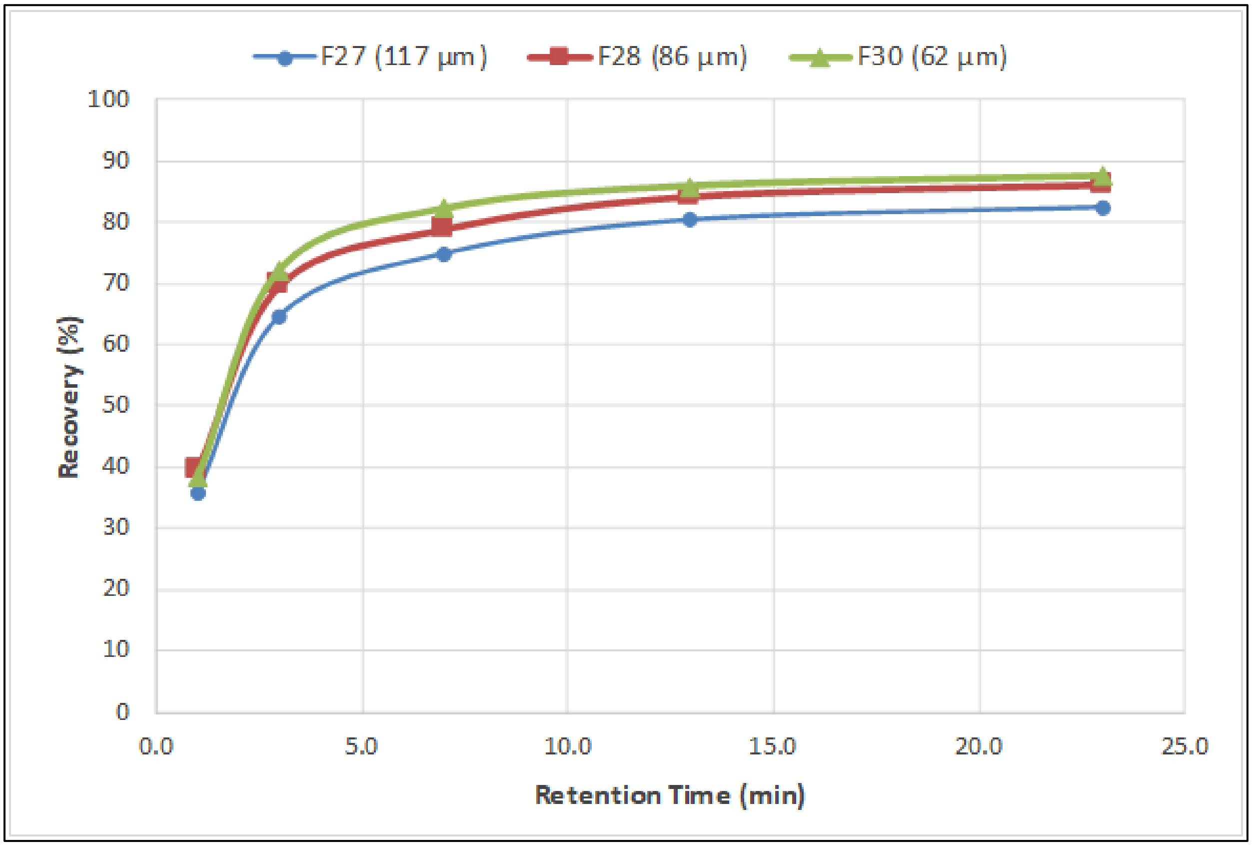
Source: SGS (2022)

Table 13-11: Rougher Flotation Test Summary

Sample	Test #	Notes	P_{80} (µm)	Reagent Dosage, g/t				Product	Cum Time (min)	Wt %	Grade (%)			Distribution (%)		
				$Ca(OH)_2$	SIPX	208	MIBC				Cu	Fe	S	Cu	Fe	S
CNN Comp	F27	Baseline	117	355	68	90	90	Rougher Conc 1	1	2.8	17.9	10.0	12.2	35.7	11.2	31.2
								Rougher Conc 1-2	3	7.8	11.8	7.97	8.9	64.6	24.6	62.9
								Rougher Conc 1-3	7	12.9	8.26	6.22	6.5	74.8	31.6	75.3
								Rougher Conc 1-4	13	19.9	5.75	4.89	4.5	80.3	38.4	81.2
								Rougher Conc 1-5	23	24.0	4.88	4.39	3.9	82.3	41.5	83.5
								Rougher Tails		76.0	0.33	1.95	0.24	17.7	58.5	16.5
								Head (calc.)		100.0	1.42	2.53	1.11	100.0	100.0	100.0
								Head (dir.)			1.39	2.58	1.06			
CNN Comp	F28	Same as F27 but finer grind	86	275	68	90	90	Rougher Conc 1	1	3.5	16.0	9.01	9.8	39.7	12.0	32.1
								Rougher Conc 1-2	3	9.1	10.7	7.44	7.8	69.7	26.1	67.1
								Rougher Conc 1-3	7	14.0	7.86	6.01	5.9	78.9	32.5	78.6
								Rougher Conc 1-4	13	21.2	5.55	4.80	4.2	84.2	39.2	84.6
								Rougher Conc 1-5	23	25.4	4.74	4.38	3.6	86.1	42.8	86.6
								Rougher Tails		74.6	0.26	1.99	0.19	13.9	57.2	13.4
								Head (calc.)		100.0	1.40	2.60	1.06	100.0	100.0	100.0
								Head (dir.)			1.39	2.58	1.06			
CNN Comp	F30	Same as F28 but finer grind	62	200	68	90	90	Rougher Conc 1	1	2.4	22.1	12.0	15.2	38.3	11.3	33.8
								Rougher Conc 1-2	3	8.2	12.4	8.46	9.47	72.3	26.8	70.7
								Rougher Conc 1-3	7	13.9	8.30	6.32	6.46	82.2	34.1	82.2
								Rougher Conc 1-4	13	19.5	6.20	5.20	4.83	85.9	39.2	85.9
								Rougher Conc 1-5	23	23.4	5.26	4.71	4.10	87.5	42.6	87.4
								Rougher Tails		76.6	0.23	1.94	0.18	12.5	57.4	12.6
								Head (calc.)		100.0	1.41	2.59	1.10	100.0	100.0	100.0
								Head (dir.)			1.39	2.58	1.06			

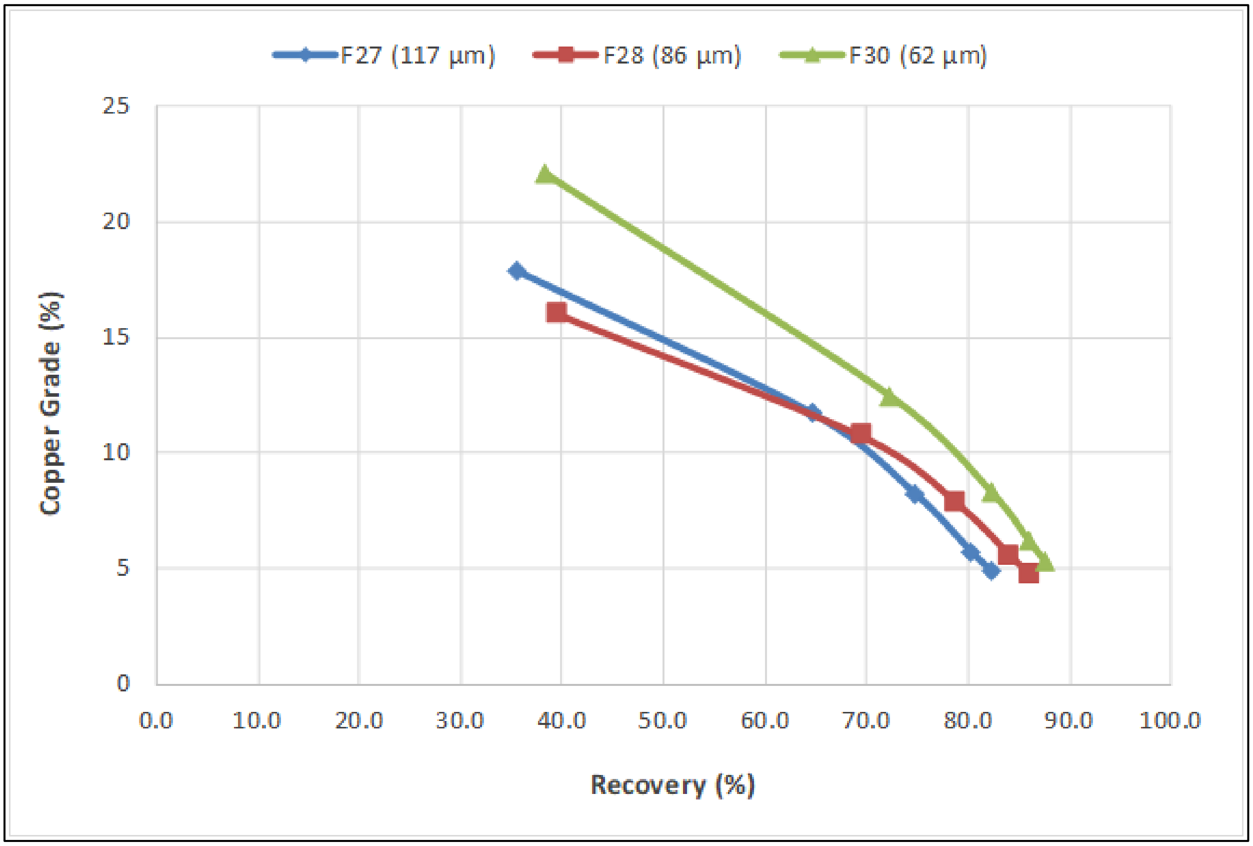
Source: SGS (2022)

Figure 13-9: Rougher Copper Recovery vs. Retention Time



Source: SGS (2022)

Figure 13-10: Rougher Copper Recovery vs. Retention Time



Source: SGS (2022)

13.5.3.2 Open Circuit Cleaner Tests

Three batch cleaner tests were conducted on the CNN Comp sample. Rougher flotation conditions from test F28 were repeated for each test. The flowsheet consisted of rougher flotation with the rougher concentrate upgraded in three successive cleaner stages including a 1st cleaner scavenger stage. The first test (F32) was completed without any regrind while a regrind stage was included for the last two cleaner tests (F33 and F34). Sodium silicate was added as a dispersant to the cleaners in the final test F34.

The test objectives, conditions and results are summarized in Table 13-12 and the copper grade in the concentrate is compared against copper recovery in Figure 13-11.

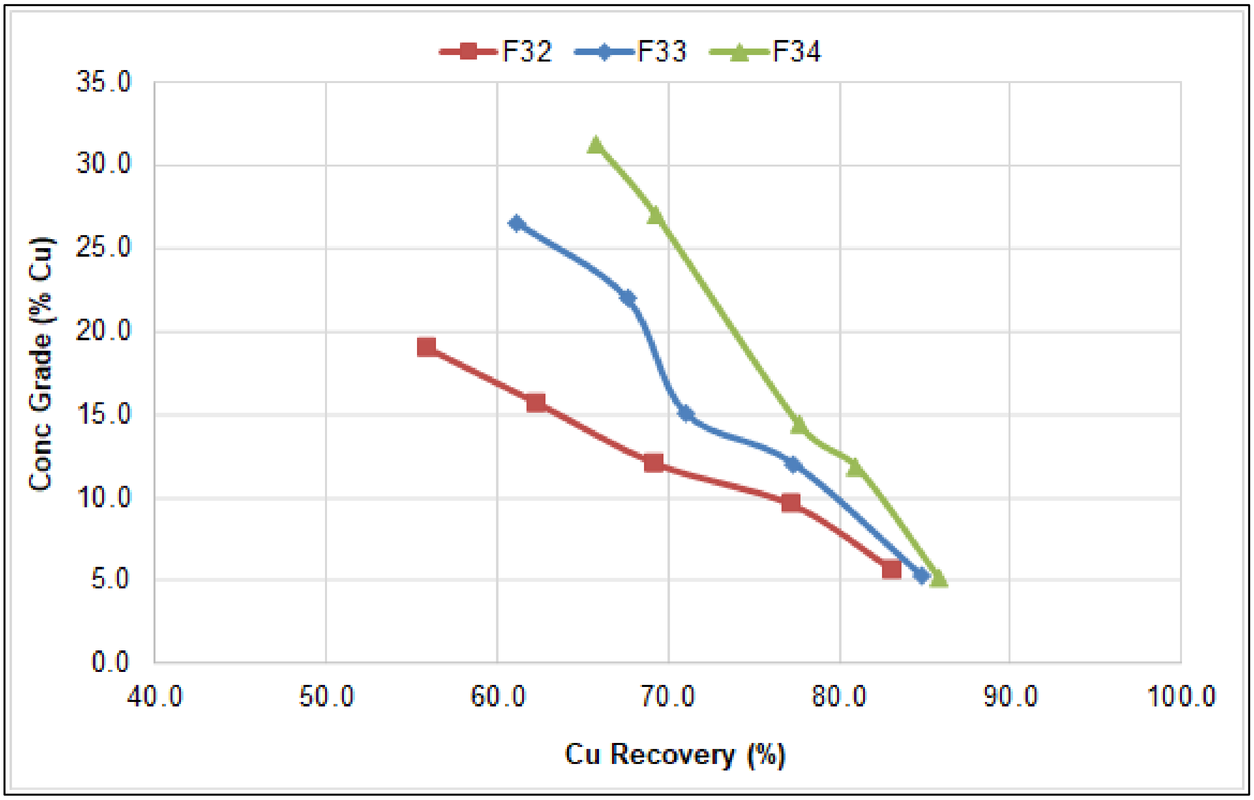
The baseline test (F32) without regrinding resulted in a low concentrate grade of 18.9% Cu with a low copper recovery of 56%. Copper grade in the final concentrate increased considerably with the addition of the regrind stage (26.5% Cu in test F33), but the copper recovery was still low at 61.2%. Sodium silicate was added in the last cleaner test (F34), and better selectivity was achieved. The concentrate grade was very high (33.5% Cu), but the final recovery was still low (60.2%).

Table 13-12: Cleaner Flotation Test Summary

Sample	Test #	Notes	Ro Tails P_{80} (µm)	Clnr Tails P_{80} (µm)	Reagent Dosage, g/t					Product	Wt %	Grade (%)			Distribution (%)		
					$Ca(OH)_2$	Sodium Silicate	SIPX	208	MIBC			Cu	Fe	S	Cu	Fe	S
CNN	F32	Baseline	85	34	1470	0	68	95	170	3rd Cl Conc	4.2	18.9	11.9	14.3	56.0	19.0	57.0
										2nd Cl Conc	5.6	15.6	10.2	11.8	62.4	21.9	63.8
										1st Cl Conc	8.2	12.0	8.23	9.2	69.3	25.7	71.2
										1st Cl + Scav Conc	11.4	9.54	6.91	7.34	77.3	30.2	79.9
										Rougher Conc	21.0	5.58	4.88	4.31	83.2	39.2	86.4
										Rougher Tails	79.0	0.30	2.01	0.18	16.8	60.8	13.6
										Head (calc.)	100.0	1.41	2.61	1.05	100.0	100.0	100.0
										Head (dir.)		1.39	2.58	1.06			
CNN	F33	Same as F32 but with regrind	90	25	1285	0	68	95	100	3rd Cl Conc	3.3	26.5	15.8	19.5	61.2	19.9	60.5
										2nd Cl Conc	4.4	22.0	13.5	16.3	67.6	22.6	67.4
										1st Cl Conc	6.7	15.1	9.88	11.2	71.0	25.4	71.3
										1st Cl + Scav Conc	9.1	12.0	8.31	9.10	77.3	29.1	78.4
										Rougher Conc	22.9	5.28	4.69	4.02	84.8	41.1	86.9
										Rougher Tails	77.1	0.28	1.99	0.18	15.2	58.9	13.1
										Head (calc.)	100.0	1.42	2.61	1.06	100.0	100.0	100.0
										Head (dir.)		1.39	2.58	1.06			
CNN	F34	Same as F33 but with Sodium Silicate in the cleaners	86	21	760	50	68	103	73	3rd Cl Conc-1	2.5	33.5	20.4	26.1	60.2	20.0	61.2
										3rd Cl Conc-1 & 2	3.0	31.3	19.0	24.1	65.8	21.7	65.9
										2nd Cl Conc	3.6	27.0	16.6	20.7	69.3	23.2	69.4
										1st Cl Conc	7.6	14.4	9.70	11.2	77.7	28.6	79.0
										1st Cl + Scav Conc	9.6	11.9	8.31	9.31	81.0	30.9	82.7
										Rougher Conc	23.1	5.23	4.59	4.07	85.8	41.2	87.2
										Rougher Tails	76.9	0.26	1.97	0.18	14.2	58.8	12.8
										Head (calc.)	100.0	1.41	2.57	1.08	100.0	100.0	100.0
										Head (dir.)		1.39	2.58	1.06			

Source: SGS (2022)

Figure 13-11: Cleaner Concentrate Copper Grade vs. Copper Recovery



Source: SGS (2022)

13.5.3.3 Locked Cycle Test

One locked cycle test (LCT) was performed on the CNN Comp sample. The test followed the optimized conditions as determined from batch cleaner flotation test F34. The flotation flowsheet used for the LCT is illustrated in Figure 13-12. Metallurgical projections are summarized in Table 13-13.

Table 13-13: Locked Cycle Test Results

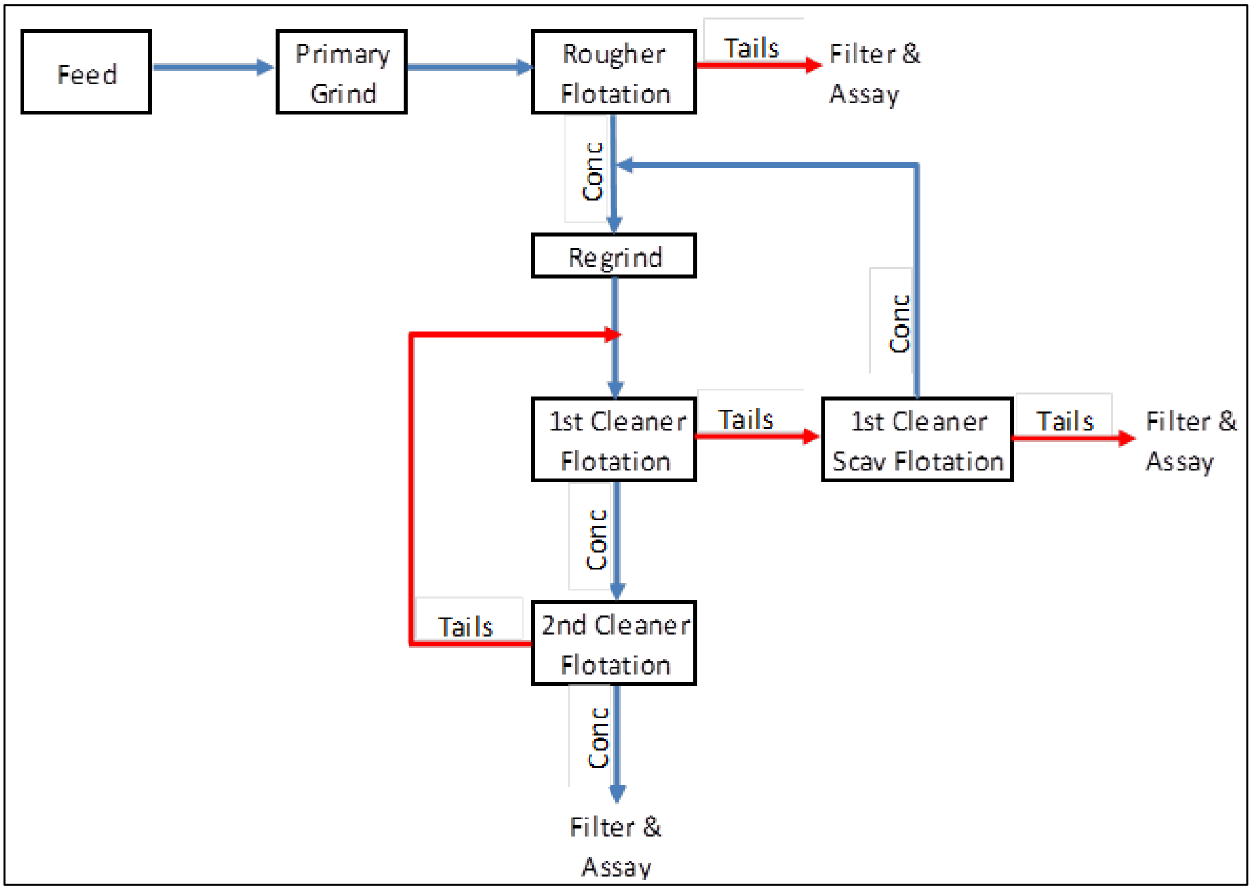
Product	Weight		Assays					Distribution, %				
	Dry	%	Cu %	Fe %	Au g/t	Ag g/t	S %	Cu	Fe	Au	Ag	S
3rd Cleaner Conc	482.8	4.0	25.6	15.1	0.04	91.0	19.4	75.4	23.8	7.8	68.5	75.3
1st Cl Scav Tails	1,873.6	15.6	0.78	2.30	0.02	3.6	0.69	8.9	14.1	15.0	10.4	10.3
Ro Tails	9,636.8	80.4	0.267	1.97	<0.02	1.4	0.19	15.7	62.1	77.2	21.0	14.4
Head (calc.)	11,993.2	100.0	1.36	2.55	0.02	5.3	1.04	100.0	100.0	100.0	100.0	100.0

Source: SGS (2022)

The LCT test results indicate the following:

- LCT attained relative stability by cycle D for mass, copper, iron, silver, and sulphur; and
- Metallurgical projections from cycle D-F indicate the final concentrate grade was 25.6% Cu, with a recovery of 75.4% copper, as well as 68.5% of the silver.

Figure 13-12: Locked Cycle Test Flowsheet



Source: SGS (2022)

13.5.4 San Andres Flotation Response

A total of six rougher kinetics and three cleaner flotation tests were conducted to investigate the metallurgical performance of the San Andres sample.

13.5.4.1 Rougher Kinetics Testwork

Collectors included SIPX and an AERO 208, added over five rougher increments over a total flotation time of 16 to 23 minutes. The collector dosage was varied from test to test. Lime was used to adjust the pH to 9.0 throughout the rougher flotation, with the exception of the last rougher test (F12), which was performed at a lower pH (6.8). MIBC was used as frother.

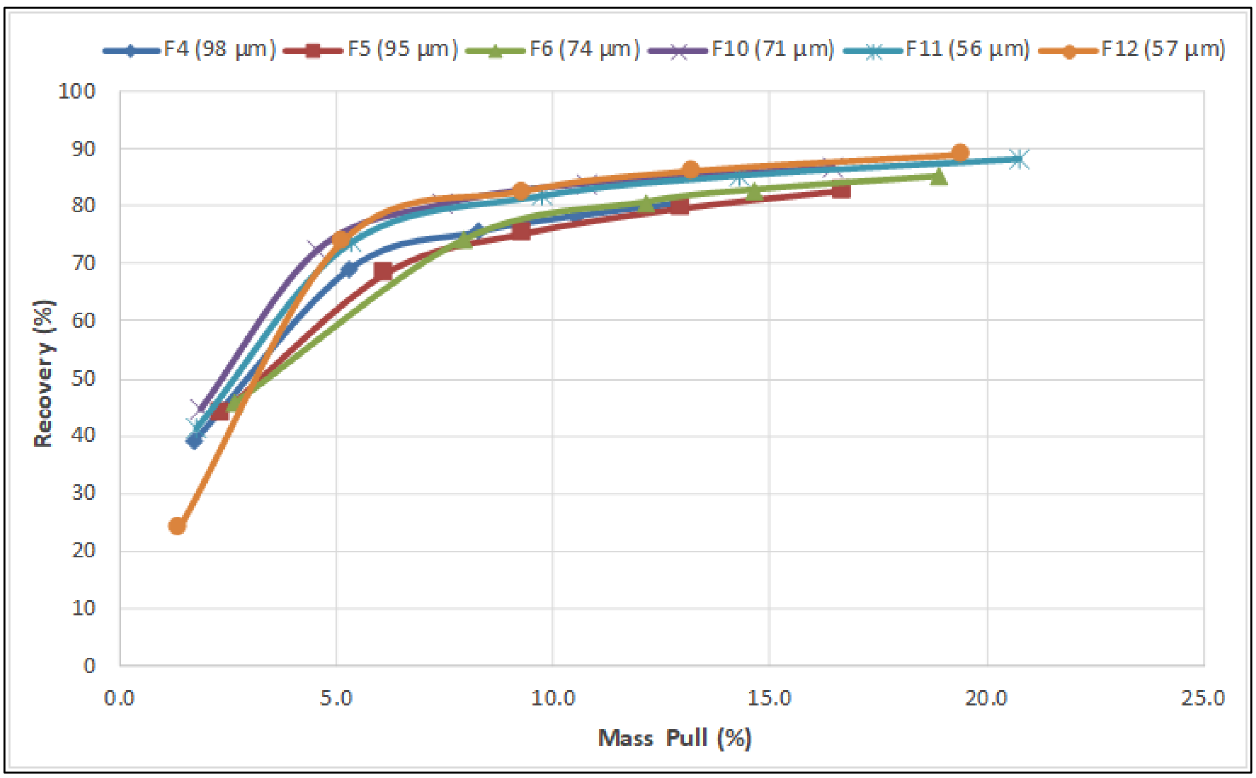
The baseline flotation performance with this material was assessed in test F4. The next two tests (F5 and F6) investigated the effect of primary grind size, collector dosage, and retention time.

The last three tests attempted to improve rougher copper recovery by increasing the collector dosage (F10), finer primary grind size (P_{80} of 56 µm in test F11), and stronger collector/lower pH (F12). The test objectives, conditions and results are summarized in Table 13-14 and the copper recovery is compared against the mass pull, retention time and copper grade in Figure 13-13 through Figure 13-20.

Copper recovery was only ~81% at a mass pull of 13% for the baseline test (F4). F5 used higher collector dosage and extended retention time, and F6 was the same as F5 but finer primary grind (K_{80} of 74 µm), There was no significant improvement in F5 compared to F4. The copper kinetics from F6 were faster, but the mass pull vs. copper recovery relationship was the same (although higher overall copper recovery at ~85%, at higher overall mass pull at 19%).

A sample of rougher tailings from the test F6 was submitted for mineralogy, to assess the degree of liberation and the associations of the copper sulphide minerals.

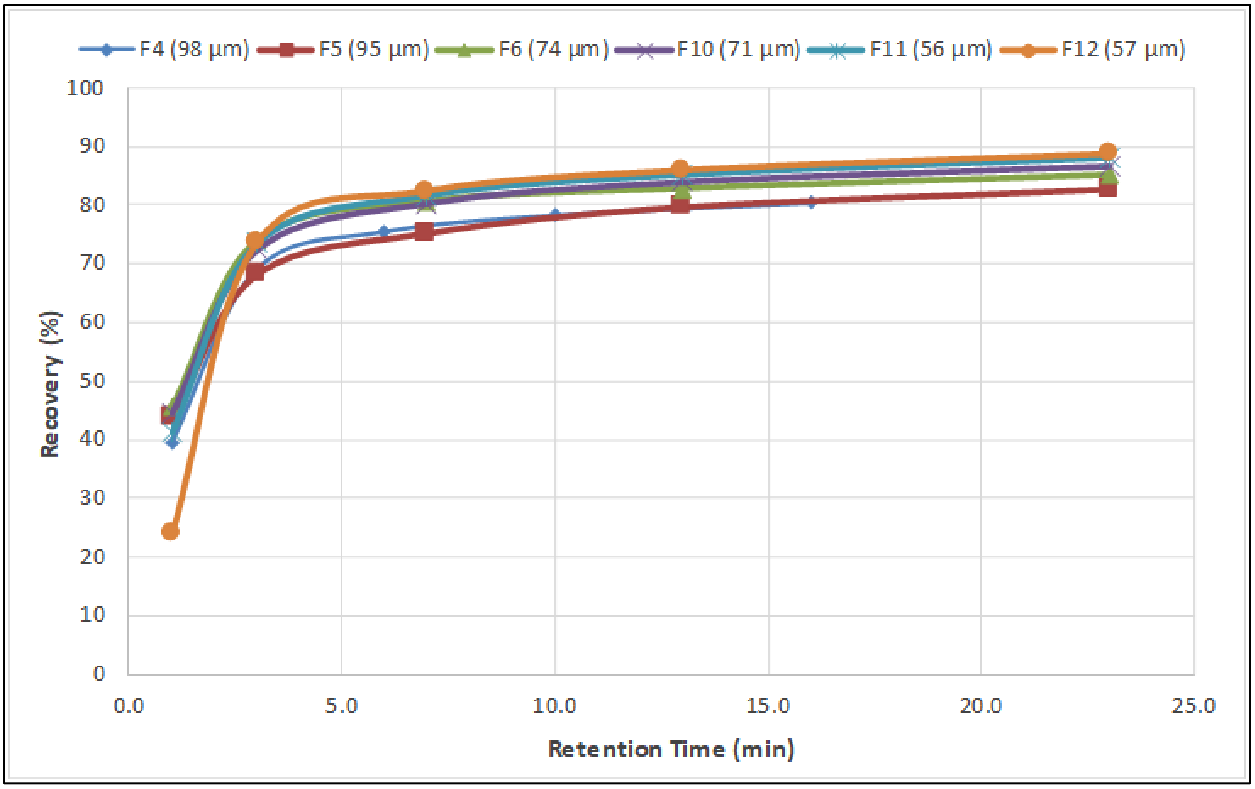
Figure 13-13: Rougher Copper Recovery vs. Mass Pull



Source: SGS (2022)

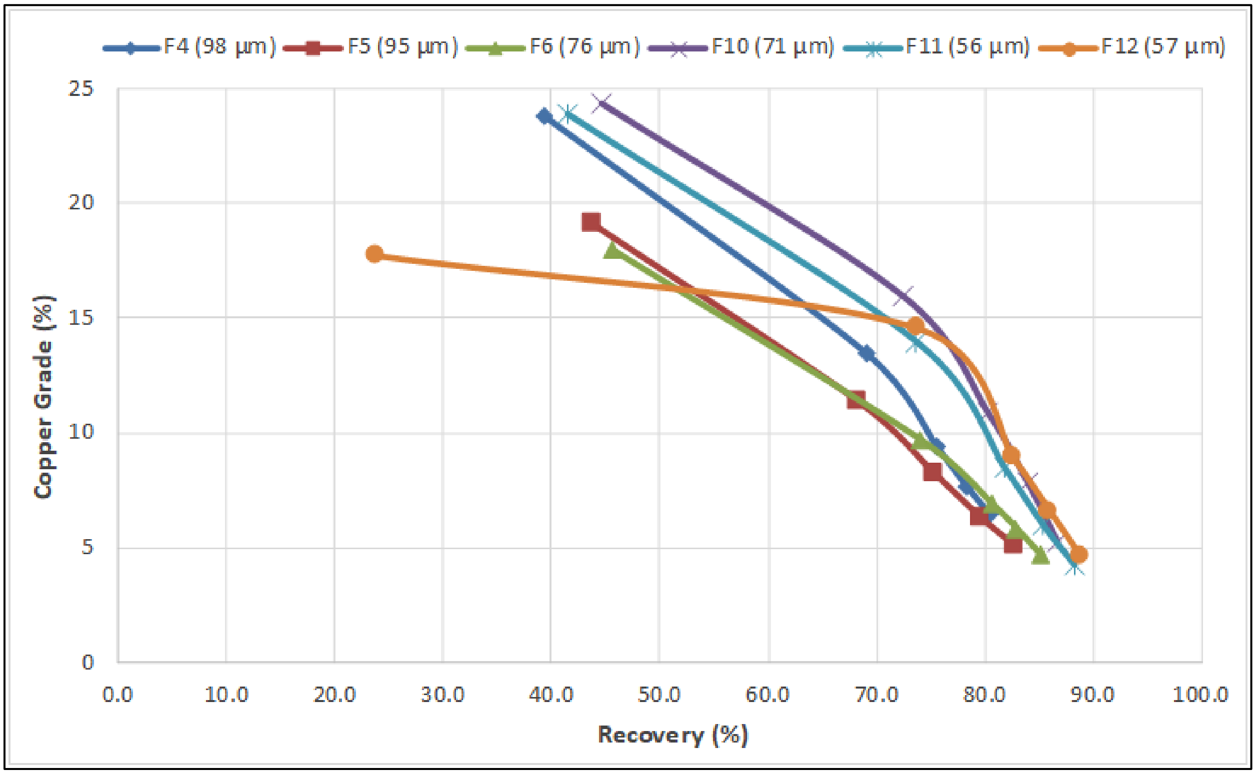
For the second series of three tests, the test F10 was the same as test F6, but with higher collector dosage. Test F11 used the same collector suite as F10, but at a finer primary grind P_{80} of 56 µm. Test F12 was also at the finer primary grind and used stronger collector and lower pH to target any residual (and liberated) sulphides in the rougher tails. Test F10 was better than F6 in terms of selectivity, with a marginally higher overall copper recovery than F6 and lower mass pull (especially in the earlier stages). The copper sulphides may have been under-collected in the early stages of F6 (and previous tests). There was no benefit to grade/recovery with finer regrind (F11) or PAX / H_2SO_4 (F12). Rougher tails sulphur grade remained unchanged, with moderately higher copper recovery at increased mass pull.

Figure 13-14: Rougher Copper Recovery vs. Retention Time



Source: SGS (2022)

Figure 13-15: Rougher Concentrate Copper Grade vs. Copper Recovery



Source: SGS (2022)

Table 13-14: Rougher Flotation Test Summary

Sample	Test #	Notes	P_{80} (µm)	Reagent Dosage, g/t				Product	Cum Time (min)	Wt %	Grade (%)			Distribution (%)		
				$Ca(OH)_2$	SIPX	208	MIBC				Cu	Fe	S	Cu	Fe	S
San Andres Sulphide	F4	Baseline	98	315	23	30	0	Rougher Conc 1	1	1.7	23.8	15.6	16.6	39.3	8.2	25.2
								Rougher Conc 1-2	3	5.3	13.4	12.3	12.7	69.1	20.2	60.0
								Rougher Conc 1-3	6	8.3	9.38	9.67	9.36	75.6	24.9	69.4
								Rougher Conc 1-4	10	10.5	7.64	8.43	7.75	78.4	27.7	73.2
								Rougher Conc 1-5	**16**	**12.8**	**6.44**	**7.55**	**6.59**	**80.5**	**30.2**	**75.8**
								Rougher Tails		87.2	0.23	2.57	0.31	19.5	69.8	24.2
								Head (calc.)		100.0	1.03	3.21	1.11	100.0	100.0	100.0
								Head (dir.)			1.02	2.76	1.15			
San Andres Sulphide	F5	Increased Collector dosage Increased Retention Time	95	275	45	60	35	Rougher Conc 1	1	2.3	19.1	15.8	18.4	43.8	11.6	38.3
								Rougher Conc 1-2	3	6.1	11.4	11.3	12.1	68.3	21.7	65.6
								Rougher Conc 1-3	7	9.3	8.2	8.8	8.80	75.3	25.8	72.9
								Rougher Conc 1-4	13	13.0	6.3	7.2	6.70	79.8	29.7	77.5
								Rougher Conc 1-5	**23**	**16.7**	**5.05**	**6.3**	**5.43**	**82.8**	**33.3**	**80.7**
								Rougher Tails		83.3	0.210	2.5	0.26	17.2	66.7	19.3
								Head (calc.)		100.0	1.02	3.2	1.12	100.0	100.0	100.0
								Head (dir.)			1.02	2.76	1.15			
San Andres Sulphide	F6	Increased Collector dosage Increased Retention Time Finer Grind size	74	300	45	60	40	Rougher Conc 1	1	2.6	18.0	13.3	14.9	45.7	10.7	34.3
								Rougher Conc 1-2	3	7.9	9.70	9.73	9.77	74.1	23.7	67.7
								Rougher Conc 1-3	7	12.1	6.89	7.71	7.16	80.7	28.8	76.2
								Rougher Conc 1-4	13	14.7	5.85	6.96	6.12	82.8	31.3	78.7
								Rougher Conc 1-5	**23**	**18.9**	**4.67**	**6.10**	**4.92**	**85.1**	**35.4**	**81.5**
								Rougher Tails		81.1	0.19	2.59	0.26	14.9	64.6	18.5
								Head (calc.)		100.0	1.04	3.25	1.14	100.0	100.0	100.0
								Head (dir.)			1.02	2.76	1.15			
San Andres Sulphide	F10	Further Increased Collector dosage	71	330	68	90	60	Rougher Conc 1	1	1.8	24.4	16.2	19.7	44.6	9.1	31.6
								Rougher Conc 1-2	3	4.5	16.0	14.3	16.2	72.5	19.9	64.2
								Rougher Conc 1-3	7	7.4	10.9	11.0	11.8	80.3	25.1	76.2
								Rougher Conc 1-4	13	10.8	7.82	8.73	8.57	84.0	28.9	80.7
								Rougher Conc 1-5	**23**	**16.4**	**5.30**	**6.77**	**5.85**	**86.7**	**34.1**	**84.0**
								Rougher Tails		83.6	0.16	2.57	0.22	13.3	65.9	16.0
								Head (calc.)		100.0	1.00	3.26	1.15	100.0	100.0	100.0
								Head (dir.)			1.02	2.76	1.15			

Sample	Test #	Notes	P_{80} (µm)	Reagent Dosage, g/t				Product	Cum Time (min)	Wt %	Grade (%)			Distribution (%)		
				$Ca(OH)_2$	SIPX	208	MIBC				Cu	Fe	S	Cu	Fe	S
San Andres Sulphide	F11	Collector dosage same as F10 Finer Grind size than F10	56	340	68	90	65	Rougher Conc 1	1	1.7	23.9	15.6	19.7	41.4	8.3	30.8
								Rougher Conc 1-2	3	5.3	14.0	12.7	14.0	73.7	20.6	66.5
								Rougher Conc 1-3	7	9.7	8.49	9.20	9.09	81.8	27.3	79.0
								Rougher Conc 1-4	13	14.3	6.02	7.35	6.54	85.3	32.1	83.5
								Rougher Conc 1-5	**23**	**20.7**	**4.29**	**6.09**	**4.67**	**88.2**	**38.5**	**86.5**
								Rougher Tails		79.3	0.15	2.54	0.19	11.8	61.5	13.5
								Head (calc.)		100.0	1.01	3.28	1.12	100.0	100.0	100.0
								Head (dir.)			1.02	2.76	1.15			
San Andres Sulphide	F12	Low pH Stronger Collector	57	1450 (H_2SO_4)	68 (PAX)	90	0	Rougher Conc 1	1	1.4	17.7	8.9	10.5	23.9	3.7	12.7
								Rougher Conc 1-2	3	5.1	14.5	12.0	12.8	73.8	18.7	58.6
								Rougher Conc 1-3	7	9.3	8.97	9.22	9.07	82.5	26.1	75.0
								Rougher Conc 1-4	13	13.2	6.58	7.64	6.89	86.0	30.7	81.0
								Rougher Conc 1-5	**23**	**19.4**	**4.62**	**6.22**	**4.92**	**88.8**	**36.8**	**84.9**
								Rougher Tails		80.6	0.14	2.58	0.21	11.2	63.2	15.1
								Head (calc.)		100.0	1.01	3.29	1.12	100.0	100.0	100.0
								Head (dir.)			1.02	2.76	1.15			

Source: SGS (2022)

A sub-sample of the rougher tailings from test F6 was screened into four size fractions, i.e., +106 µm, -106/+63 µm, -63/+20 µm and -20 µm. Each size fraction was assayed and then submitted for size-by-size QEMSCAN mineralogy. The modal abundance of the rougher tailings is summarized in Table 13-15, indicating that the majority of the chalcopyrite (~71%) was in the -106/+63 µm and -63/+20 µm fractions.

Table 13-15: Mineral Abundance by Size – F6 Rougher Tailings

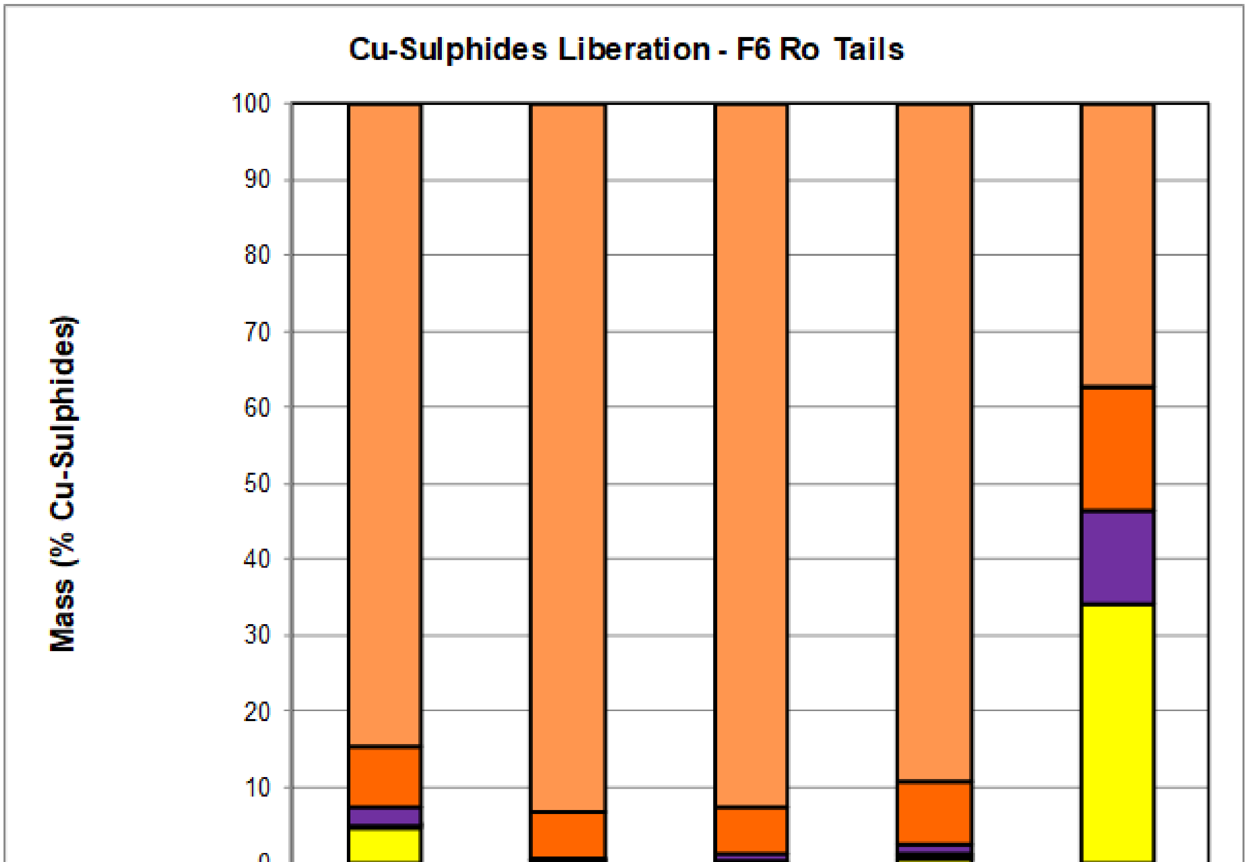
Survey		**18764-04 / MI5049-JAN22**								
Project		**Battery Mineral Resources**								
Sample		**F6 Ro Tails**								
Fraction		**Combined**	**+106um**		**-106/+63um**		**-63/+20um**		**-20um**	
Mass Size Distribution (%)			7.7		24.6		30.9		36.7	
Calculated ESD Particle Size		19	83		59		32		10	
		Sample	**Sample**	**Fraction**	**Sample**	**Fraction**	**Sample**	**Fraction**	**Sample**	**Fraction**
Mineral Mass (%)	Chalcopyrite	0.61	0.09	1.22	0.25	1.00	0.19	0.61	0.08	0.22
	Cubanite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bornite	0.03	0.01	0.07	0.01	0.06	0.01	0.03	0.00	0.01
	Pyrite	0.23	0.02	0.32	0.07	0.27	0.08	0.26	0.06	0.15
	Sphalerite	0.02	0.00	0.04	0.01	0.03	0.01	0.02	0.00	0.01
	Other Cu Minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Other Sulphides	0.01	0.00	0.04	0.00	0.01	0.00	0.01	0.01	0.02
	Quartz	24.61	2.37	30.82	7.16	29.05	8.14	26.32	6.94	18.90
	Plagioclase	7.03	0.53	6.93	1.78	7.22	2.24	7.23	2.48	6.76
	K-Feldspar	12.81	1.30	16.96	4.14	16.82	4.98	16.09	2.38	6.49
	Sericite/Muscovite	21.38	1.61	20.94	5.13	20.82	6.31	20.39	8.33	22.69
	Amphibole	3.03	0.17	2.24	0.54	2.20	0.67	2.16	1.65	4.48
	Chlorite	4.01	0.27	3.46	0.89	3.63	1.11	3.57	1.75	4.76

	Sample	Sample	Fraction	Sample	Fraction	Sample	Fraction	Sample	Fraction
Clays	4.71	0.39	5.04	1.22	4.94	1.44	4.65	1.67	4.54
Epidote	0.20	0.01	0.19	0.04	0.16	0.05	0.16	0.10	0.27
Titanite/sphene	0.69	0.05	0.61	0.16	0.66	0.20	0.63	0.28	0.77
Other Silicates	0.07	0.01	0.12	0.03	0.11	0.03	0.08	0.01	0.03
Calcite	14.95	0.47	6.13	1.93	7.85	3.75	12.11	8.79	23.95
Dolomite	0.13	0.01	0.07	0.03	0.11	0.04	0.13	0.06	0.16
Fe-Oxides	0.46	0.04	0.53	0.07	0.27	0.13	0.42	0.22	0.60
Ilmenite	0.23	0.02	0.24	0.07	0.28	0.10	0.33	0.04	0.12
Other Oxides	0.16	0.01	0.09	0.03	0.11	0.05	0.16	0.08	0.21
Apatite	4.02	0.26	3.34	0.93	3.78	1.28	4.14	1.55	4.23
Gypsum	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Other	0.59	0.05	0.59	0.16	0.64	0.16	0.51	0.23	0.63
Total	100.00	7.69	100.0	24.64	100.0	30.95	100.0	36.73	100.0

Source: SGS (2022)

The liberation of copper sulphides in the rougher tailings is presented in Table 13-16. It showed that no liberated or free chalcopyrite particles reported to the tailings in the +20 µm size fractions. Even in the -20 µm size range, the copper sulphide liberation was poor at only ~34%.

Figure 13-16: Cu-Sulphides Liberation – F6 Rougher Tailings



	Combined	+106um	-106/+63um	-63/+20um	-20um
Locked Cu-Sul	84.54	93.21	92.74	89.14	37.29
Sub Midds Cu-Sul	8.17	6.06	6.18	8.39	16.43
Midds Cu-Sul	2.32	0.43	0.77	1.26	12.03
Lib Cu-Sul	0.07	0.10	0.00	0.18	0.00
Free Cu-Sul	0.15	0.00	0.00	0.49	0.00
Pure Cu-Sul	4.75	0.19	0.32	0.54	34.25

Source: SGS (2022)

Table 13-16: Sequential Copper Assay Results – F6 Rougher Tailings

Assay Type	F6 Rougher Tails
Cu seq H_2SO_4 %	0.026
Cu seq. NaCN %	0.061
Cu seq. A/R %	0.090

Source: SGS (2022)

The percentage of copper that is soluble in a sulphuric acid solution, known as oxide copper, is only about 14.7, and therefore the possible presence of oxidized copper species cannot justify the high losses in the rougher tails confirming the QEMSCAN findings that the copper losses are mostly due to inclusions in other minerals.

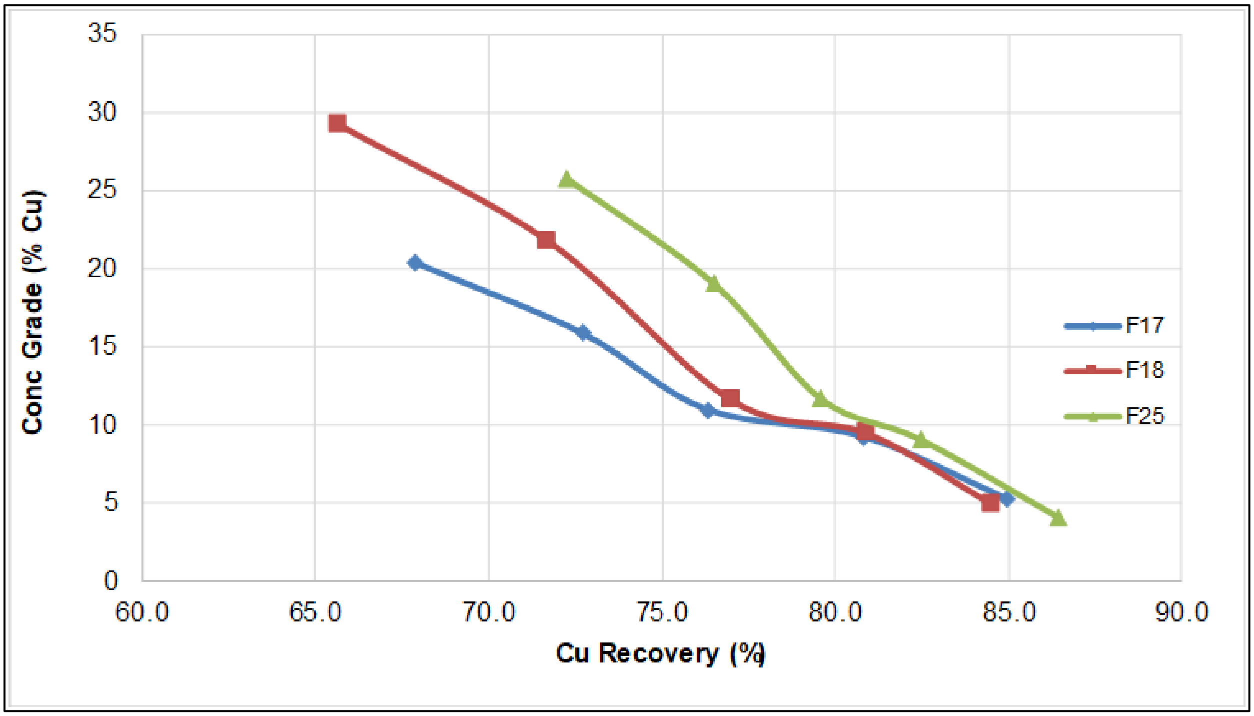
13.5.4.2 Cleaner Flotation Testwork

Three batch cleaner tests were conducted on the San Andres sample. Rougher flotation conditions from test F10 were repeated for each test. The first test (F17) was completed without any regrind, while a regrind stage was included for the last two cleaner tests (F18 and F25). More collector was added to the final test F25. Three stages of cleaner flotation were performed on rougher concentrates, using SIPX and AERO 208 as collectors. In all of the tests, frother was added as required.

The test objectives, conditions and results are summarized in Table 13-17 and the copper grade in the concentrate is compared against copper recovery in Figure 13-17.

The results from the baseline test (F17) without regrinding showed final concentrate grading 20.3% Cu with a copper recovery of 67.9%. Copper grade in the final concentrate increased considerably with the addition of the regrind stage, but higher collector was required (test F25) to achieve a better recovery, i.e., a final concentrate grading 25.8% Cu with a copper recovery of 72.2%.

Figure 13-17: Cleaner Concentrate Copper Grade vs. Copper Recovery



Source: SGS (2022)

Table 13-17: Cleaner Flotation Test Summary

Sample	Test #	Notes	Ro Tails P_{80} (µm)	Clnr Tails P_{80} (µm)	Reagent Dosage, g/t				Product	Wt %	Grade (%)			Distribution (%)		
					$Ca(OH)_2$	SIPX	208	MIBC			Cu	Fe	S	Cu	Fe	S
San Andres Sulphide	F17	Baseline	74	29	595	68	95	81	3rd Cl Conc	3.4	20.3	16.5	19.7	67.9	17.1	57.4
									2nd Cl Conc	4.6	15.8	13.9	16.0	72.7	19.8	64.0
									1st Cl Conc	7.0	10.9	10.6	11.4	76.3	23.0	69.3
									1st Cl + Scav Conc	8.8	9.20	9.42	9.78	80.8	25.7	74.9
									Rougher Conc	16.4	5.20	6.54	5.70	85.0	33.1	81.1
									Rougher Tails	83.6	0.18	2.58	0.26	15.0	66.9	18.9
									Head (calc.)	100.0	1.00	3.23	1.15	100.0	100.0	100.0
									Head (dir.)		1.02	2.76	1.15			
San Andres Sulphide	F18	Same as F17 but regrind	74	21	1055	68	95	75	3rd Cl Conc	2.3	29.1	20.5	24.3	65.7	14.5	48.4
									2nd Cl Conc	3.4	21.6	16.7	19.0	71.7	17.3	55.8
									1st Cl Conc	6.8	11.5	10.9	11.3	77.0	22.8	67.0
									1st Cl + Scav Conc	8.7	9.40	9.52	9.52	80.9	25.7	72.3
									Rougher Conc	17.7	4.85	6.33	5.24	84.5	34.6	80.6
									Rougher Tails	82.3	0.19	2.57	0.27	15.5	65.4	19.4
									Head (calc.)	100.0	1.01	3.23	1.15	100.0	100.0	100.0
									Head (dir.)		1.02	2.76	1.15			
San Andres Sulphide	F25	Same as F18 but higher collector in cleaner circuit.	69	21	2115	68	103	105	3rd Cl Conc	2.8	25.8	18.4	22.7	72.2	16.2	55.3
									2nd Cl Conc	4.0	19.0	15.0	17.9	76.5	18.9	62.5
									1st Cl Conc	6.7	11.7	10.7	11.7	79.6	22.9	69.4
									1st Cl + Scav Conc	9.0	9.07	9.03	9.32	82.4	25.7	73.7
									Rougher Conc	20.9	4.09	5.63	4.53	86.4	37.3	83.3
									Rougher Tails	79.1	0.17	2.50	0.24	13.6	62.7	16.7
									Head (calc.)	100.0	0.99	3.16	1.14	100.0	100.0	100.0
									Head (dir.)		1.02	2.76	1.15			

Source: SGS (2022)

13.5.4.3 Locked Cycle Flotation Testwork

One locked cycle test (LCT) was performed on the San Andres sample. The test followed the optimized conditions as determined from batch cleaner flotation test F25. The flotation flowsheet used for the LCT is illustrated in Figure 13-18. Metallurgical projections are summarized in Table 13-18. Complete flotation test conditions and metallurgical balance are provided in SGS report.

Table 13-18: Locked Cycle Test Results

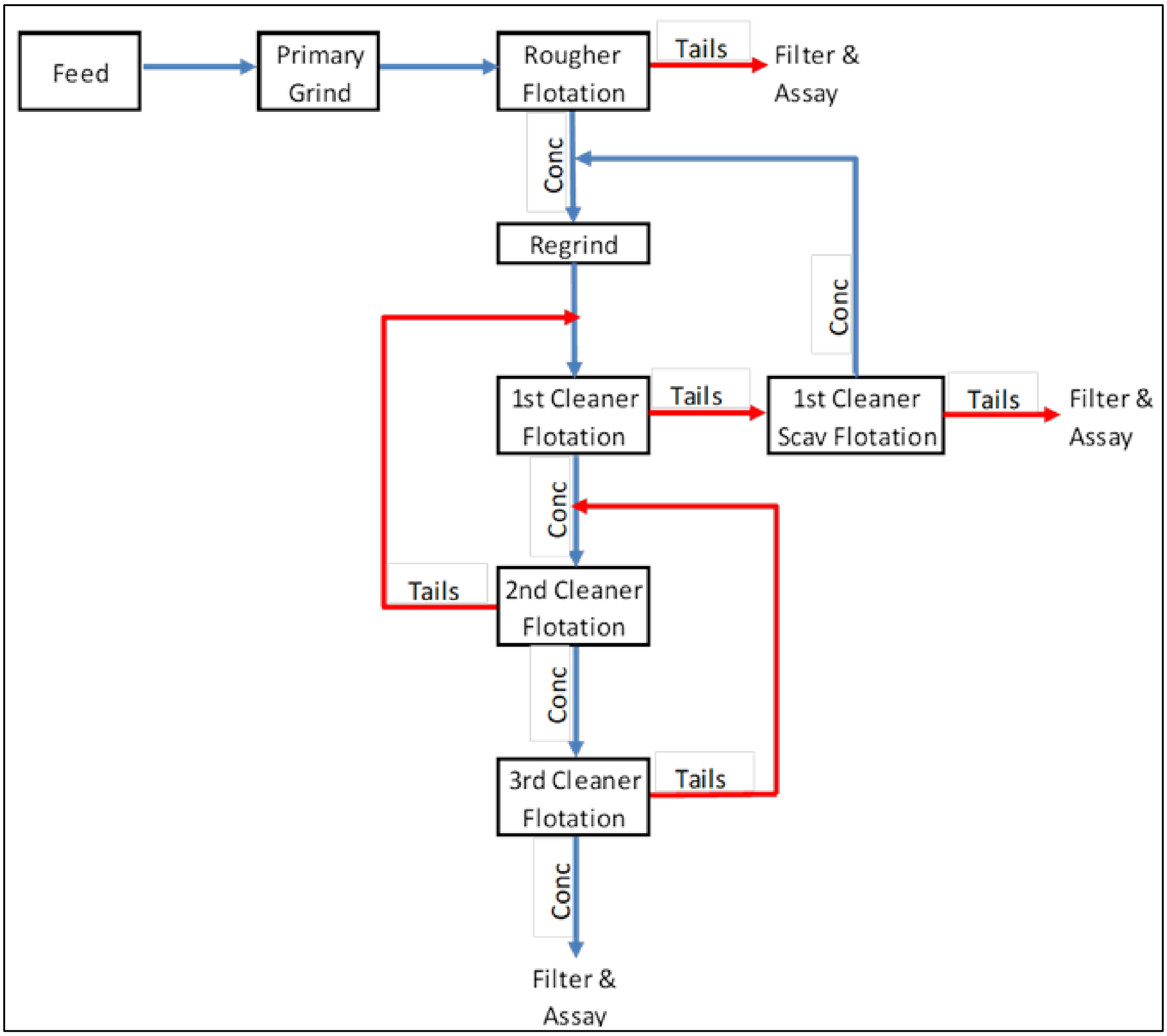
Product	Weight		Assays					Distribution, %				
	Dry	%	Cu %	Fe %	Au g/t	Ag g/t	S %	Cu	Fe	Au	Ag	S
3rd Cleaner Conc	363.0	3.0	27.0	19.7	0.57	109.7	23.2	81.0	18.9	46.9	64.0	63.7
1st Cl Scav Tails	2128.65	17.7	0.38	3.28	0.02	3.7	1.26	6.6	18.5	9.7	12.7	20.2
Ro Tails	9521.0	79.3	0.157	2.49	<0.02	1.5	0.22	12.4	62.7	43.4	23.3	16.0
Head (calc.)	12012.6	100.0	1.01	3.15	0.04	5.2	1.10	100.0	100.0	100.0	100.0	100.0

Source: SGS (2022)

The LCT test results indicate the following:

- LCT attained relative stability by cycle C for mass, copper, iron, silver, and sulphur; and
- Metallurgical projections from cycle C-F indicate the final concentrate grade was 27.0% Cu, with a recovery of 81% copper, as well as 47% gold and 64% silver.

Figure 13-18: Locked Cycle Test Flowsheet



Source: SGS (2022)

13.5.4.4 Bulk Flotation to Generate Concentrate and Tailings for S/L Work

The objective of the bulk flotation was to generate rougher tailings and final (3rd cleaner) concentrate for solid-liquid separation work. The metallurgical targets for bulk rougher tailings and final concentrate were from the baseline test F25, and are summarized below:

1. Bulk Rougher Tails: <=0.17% Cu at P_{80} = ~75 µm;

2. Bulk Final Concentrate: 22-25% Cu at regrind P_{80} = 20~30 µm; and

3. Ro concentrate mass pull: ~20%.

A total of 13 batch tests were conducted in a large flotation cell, using a test charge of 12 kg each time. The results of the bulk flotation tests are summarized in Table 13-19, which also includes the baseline test F25 for comparison.

The objective of the first batch test (BF-1) was to benchmark the results against the baseline test F25 and adjust the operating conditions accordingly. Although the target copper grade in the tailings was achieved (0.14% Cu), the mass pull to the rougher concentrate was low (15.1%), the primary and regrind sizes were coarser than the targets, at K_{80} of 84 and 50 µm, respectively, and the final concentrate copper grade (21.1% Cu) was lower than target.

To stay on schedule, it was decided to focus only on generating bulk tailings on target and submit them for solid-liquid separation work as soon as possible. Additional cleaning work would be completed on the final concentrate, once all the bulk float tests were completed.

In test BF-2, the required adjustments in grind times and collector dosage were made to produce the rougher tailings that was on target (0.13% Cu, with a mass pull of 19.7%, with a primary grind size of 75 µm). Tests BF-3 to BF-13 were then performed using the same rougher flotation conditions as test BF-2 to generate on-spec bulk rougher tailings. The regrind time was slightly increased in test BF-3 and further in test BF-4, to achieve a regrind size closer to target, and remained unchanged after that. The collector dosage was also slightly reduced in the cleaners from test BF-4, to improve the final concentrate grade. The products from the randomly selected test BF-6 were assayed for copper, to confirm performance. The results from test BF-6 were very similar to the results from test BF-2. Once all 13 bulk flotation tests had been completed, the bulk rougher tailings from tests BF-6 and BF-7 were blended and submitted for solid-liquid separation testwork. The remaining tailings material from the individual bulk tests were stored separately in pails.

The combined bulk cleaner concentrate from tests BF-1 to BF-13 assayed 20% Cu, which was significantly lower than target. It was then decided to clean the concentrate further to upgrade the final concentrate. About 5.3 kg of 3rd cleaner concentrate was then further cleaned three times in test BF-14. The final concentrate generated (the three concentrates combined) was a very clean concentrate grading 33.4% Cu, but with a low stage recovery of 82.9%, based on the re-cleaner feed. The copper content in the recleaner tailings was high, at 6.80% Cu. Therefore, the re-cleaner tailings from test BF-14 were further floated in test BF-14b, to produce a combined cleaner concentrate of about 23% Cu (99.7% copper recovery, based on the re-cleaner feed). This combined concentrate was also submitted for solid-liquid separation testwork work. The combined test results from the recleaner tests BF-14 and BF-14b are summarized in Table 13-20.

Table 13-19: Bulk Flotation Test Summary

Sample	Test #	Notes	Ro Tails P_{80} (µm)	Clnr Tails P_{80} (µm)	Reagent Dosage, g/t				Product	Wt %	Grade (%)			Distribution (%)		
					$Ca(OH)_2$	SIPX	208	MIBC			Cu	Fe	S	Cu	Fe	S
San Andres Sulphide	F25	Baseline	69	21	2115	68	103	105	3rd Cl Conc	2.8	25.8	18.4	22.7	72.2	16.2	55.3
									2nd Cl Conc	4.0	19.0	15.0	17.9	76.5	18.9	62.5
									1st Cl Conc	6.7	11.7	10.7	11.7	79.6	22.9	69.4
									1st Cl + Scav Conc	9.0	9.07	9.03	9.32	82.4	25.7	73.7
									Rougher Conc	20.9	4.09	5.63	4.53	86.4	37.3	83.3
									Rougher Tails	79.1	0.17	2.50	0.24	13.6	62.7	16.7
									Head (calc.)	100.0	0.99	3.16	1.14	100.0	100.0	100.0
									Head (dir.)		1.02	2.76	1.15			
San Andres Sulphide	BF-1	Bulk flotation on 12 kg charge with baseline conditions	84	50	3715	68	103	60	3rd Cl Conc	3.4	21.1	16.0	19.1	76.6	17.7	60.4
									2nd Cl Conc	4.2	17.4	14.4	16.7	78.4	19.8	65.5
									1st Cl Conc	5.7	13.2	11.9	13.3	80.2	22.1	70.2
									1st Cl + Scav Conc	6.9	11.2	10.6	11.5	82.9	23.9	74.1
									Rougher Conc	15.1	5.38	6.54	5.96	87.3	32.4	84.1
									Rougher Tails	84.9	0.14	2.43	0.20	12.7	67.6	15.9
									Head (calc.)	100.0	0.93	3.05	1.07	100.0	100.0	100.0
									Head (dir.)		1.02	2.76	1.15			
San Andres Sulphide	BF-2	Same as BF-1 but at finer primary and regrind sizes. Increased collector dosage in roughers to improve rougher conc mass pull	75	39	3190	78	113	70	3rd Cl Conc	4.6	17.3			80.7		
									2nd Cl Conc	6.1	13.3			82.4		
									1st Cl Conc	8.9	9.25			84.4		
									1st Cl + Scav Conc	10.2	8.26			86.1		
									Rougher Conc	19.7	4.46			89.4		
									Rougher Tails	80.3	0.13			10.6		
									Head (calc.)	100.0	0.98			100.0		
									Head (dir.)		1.02					
San Andres Sulphide	BF-6	Same as BF-2 but at finer regrind sizes. Reduced collector dosage in cleaners to improve Cu grade in final conc	79	30	3250	78	108	70	3rd Cl Conc	3.5	21.8			75.3		
									2nd Cl Conc	5.6	14.4			79.8		
									1st Cl Conc	8.6	9.73			82.3		
									1st Cl + Scav Conc	10.0	8.66			85.0		
									Rougher Conc	20.9	4.36			89.9		
									Rougher Tails	79.1	0.13			10.1		
									Head (calc.)	100.0	1.02			100.0		
									Head (dir.)		1.02					

Source: SGS (2022)

Table 13-20: Bulk Re-cleaner Flotation Tests Summary

Product	Weight %	Assays % Cu	% Distribution Cu
Global (BF-14 & BF-14b)			
BF14 Recleaner 1-3 Conc	49.7	33.4	83.4
BF14 Reclr 1-3 + BF14b Reclr 1 Conc	59.6	30.4	90.9
BF14 Reclr 1-3 + BF14b Reclr 1-2 Conc	65.5	28.9	94.8
BF14 Reclr 1-3 + BF14b Reclr 1-3 Conc	86.7	22.9	99.7
BF14b Recleaner Tails	13.3	0.41	0.3
Head (calc.)	100.0	19.9	100.0
BF-14 Stage			
BF-14 Recleaner 1 Conc	41.2	34.2	70.3
BF-14 Recleaner 1-2 Conc	49.5	33.4	82.7
BF-14 Recleaner 1-3 Conc	49.7	33.4	82.9
BF-14 Recleaner Tails	50.3	6.80	17.1
Head (calc.)	100.0	20.0	100.0
BF-14b Stage			
BF-14b Recleaner 1 Conc	19.7	15.1	45.3
BF-14b Recleaner 1-2 Conc	31.3	14.5	69.0
BF-14b Recleaner 1-3 Conc	73.5	8.81	98.3
BF-14b Recleaner Tails	26.5	0.41	1.7
Head (calc.)	100.0	6.58	100.0

Source: SGS (2022)

Additional exploratory testwork was conducted on the rougher tailings from the bulk flotation tests, with the objective of investigating the possibility of scavenging extra copper units through various beneficiation techniques, i.e., gravity and flotation.

13.5.4.5 Knelson Gravity Testing

The rougher tailings from test BF-11 were all processed in a Knelson gravity concentrator. The Knelson concentrate was then filtered, dried, weighed, and assayed. The Knelson tailings were reground in a 10 kg mill and submitted for an additional scavenging stage of Knelson concentration. The results are summarized in Table 13-21.

Table 13-21: Knelson Gravity Scavenger Tests Summary

Product	Weight g	%	Assays %, g/t			% Distribution		
			Cu	Fe	S	Cu	Fe	S
Knelson Conc	72.2	0.8	0.20	11.0	0.41	1.2	3.4	1.7
Knelson Scav Conc	71.5	0.8	0.21	5.31	0.30	1.3	1.6	1.2
Knelson Scav Tails	8992.3	98.4	0.13	2.47	0.19	97.5	95.0	97.1
Head (calc.)	9136.0	100.0	0.13	2.56	0.19	100.0	100.0	100.0

Source: SGS (2022)

The copper recovery in each concentrate was fairly low, at about 1.2% each. They both corresponded to an overall (global) additional copper recovery of 0.1% each. The gravity concentrate grades were also low, at only ~0.2% Cu.

13.5.4.6 Stage Grinding - Scavenger Flotation Testing

The rougher tailings from test BF-10 were reground on a 10-kg mill down to a final P_{80} of 62 µm, and then submitted to a scavenger flotation test (BF-15). About 34% of the copper was recovered in the three concentrates generated, at a very low grade of 0.49% Cu. The tailings from test BF-15 were further reground to a final P_{80} of 47 µm, and then submitted to a second scavenger flotation test (BF-16). About 27.5% of the copper was recovered in the three concentrates generated, at a very low grade of 0.30% Cu. The test results from these two tests are summarized in Table 13-22. Overall, 3.3% and 1.8% of additional global copper was recovered with these two scavenger tests, but the very low grade achieved in the scavenger concentrates

Table 13-22: Flotation Scavenger Tests Summary

Product	Weight g	%	Assays % Cu	% Distribution Cu
Est. BF-10 Ro Conc	2510.6	21.8	4.36	90.1
BF-15 Ro Conc 1-3	829.4	7.2	0.49	3.3
BF-16 Ro Conc 1-3	720.1	6.2	0.30	1.8
BF-16 Ro Tails	7466.3	64.8	0.077	4.7
Head (calc.)	11526.4	100.0	1.07	100.0
(BF-10 Ro Conc weight and Cu assay are estimated based on BF-6 test results)				
BF-10 Stage				
Est. BF-10 Ro Conc	2510.6	21.8	4.36	90.1
BF-10 Ro Tails	9015.8	78.2	0.13	9.9
Head (calc.)	11526.4	100.0	1.05	100.0

Product	Weight g	%	Assays % Cu	% Distribution Cu
BF-15 Stage				
BF-15 Ro Conc 1-3	829.4	9.2	0.49	33.9
BF-15 Ro Tails	8186.4	90.8	0.10	66.1
Head (calc.)	9015.8	100.0	0.13	100.0
BF-16 Stage				
BF-16 Ro Conc 1-3	720.1	8.8	0.30	27.5
BF-16 Ro Tails	7466.3	91.2	0.077	72.5
Head (calc.)	8186.4	100.0	0.10	100.0

Source: SGS (2022)

13.5.5 Dalmacia Flotation Response

A total of three rougher kinetics and three cleaner flotation tests were conducted to investigate the metallurgical performance of Dalmacia Sulphide Blend sample.

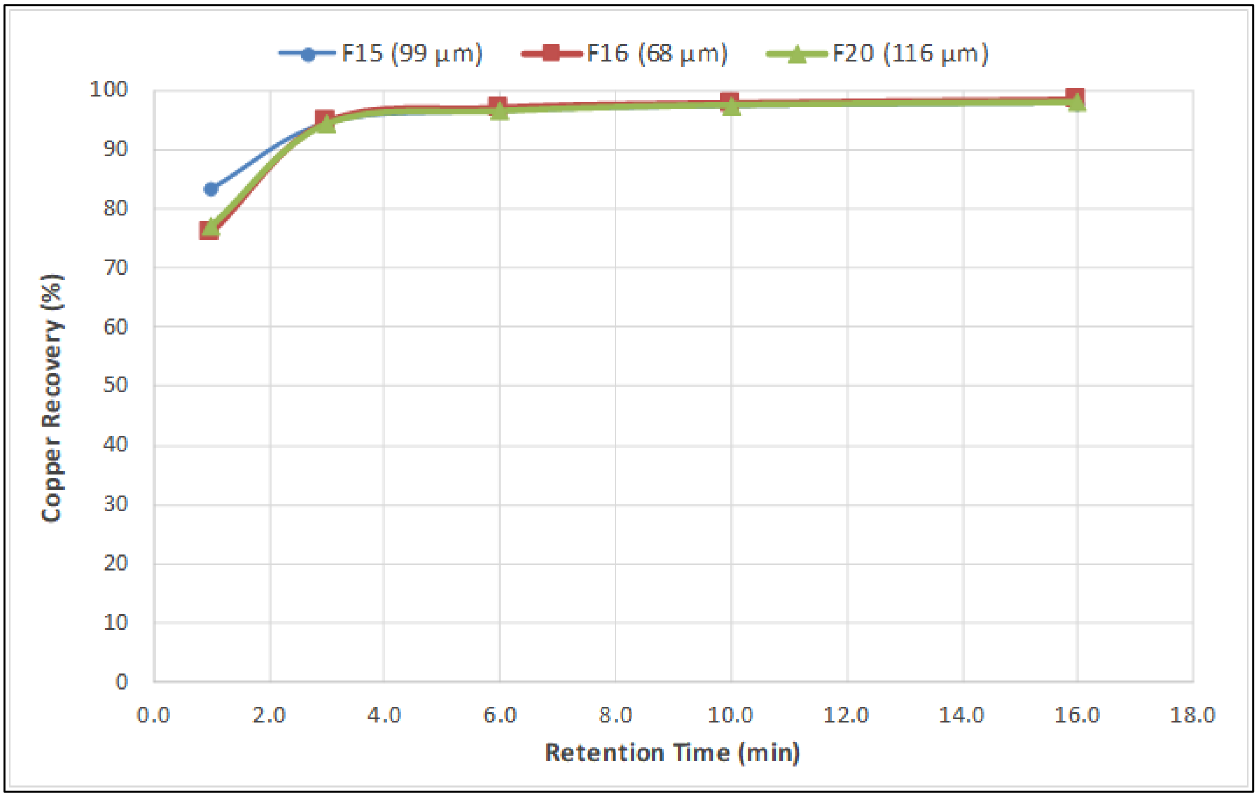
13.5.5.1 Rougher Kinetics Testwork

Collectors included a SIPX) and AERO 208, added over five rougher increments over a total flotation time of 16 minutes. The collector dosage remained the same for the three rougher tests. Lime was used to adjust the pH to 9.0 throughout the rougher flotation. MIBC was used as frother and was added as required.

The baseline flotation performance with the Dalmacia Sulphide Blend was assessed in test F15, with a final grind P_{80} of 99 µm. The next two tests (F16 and F20) investigated the effect of primary grind size with a finer grind tested in F15 (P_{80} of 68 µm) and a coarser grind tested in F20 (P_{80} of 116 µm). The test objectives, conditions and results are summarized in Table 13-23 and the copper recovery is compared against retention time and copper grade in Figure 13-19 and Figure 13-20.

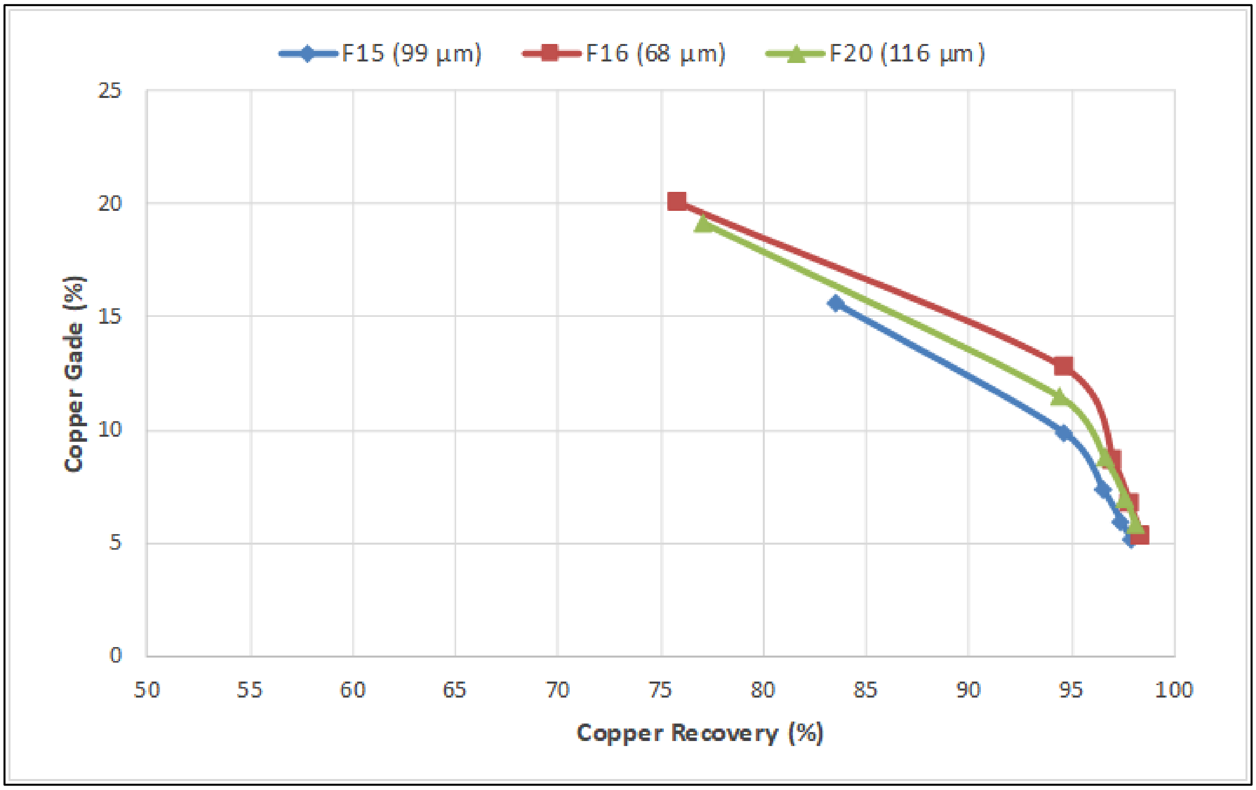
Copper recovery was higher than 98% for the three tests and the metallurgical performance was not affected by the grind size investigated. The three sets of test results were similar, and the copper kinetics were fast for each test. The mass pull varied from ~16% to ~18%.

Figure 13-19: Rougher Copper Recovery vs. Retention Time – Dalmacia Sulphide Blend



Source: SGS (2022)

Figure 13-20: Rougher Concentrate Copper Grade vs. Copper Recovery – Dalmacia Sulphide Blend



Source: SGS (2022)

Table 13-23: Rougher Flotation Test Summary - – Dalmacia Sulphide Blend

Sample	Test #	Notes	P_{80} (µm)	Reagent Dosage, g/t				Product	Cum Time (min)	Wt %	Grade (%)			Distribution (%)		
				$Ca(OH)_2$	SIPX	208	MIBC				Cu	Fe	S	Cu	Fe	S
Dalmacia Sulphide Blend	F15	Baseline	99	310	23	30	60	Rougher Conc 1	1	5.1	15.6	13.0	11.3	83.5	10.1	81.0
								Rougher Conc 1-2	3	9.1	9.89	10.4	7.36	94.6	14.3	94.2
								Rougher Conc 1-3	6	12.5	7.35	9.11	5.48	96.5	17.3	96.3
								Rougher Conc 1-4	10	15.6	5.93	8.39	4.42	97.4	19.9	97.2
								Rougher Conc 1-5	16	18.0	5.15	8.02	3.84	97.8	22.0	97.7
								Rougher Tails		82.0	0.025	6.26	0.02	2.2	78.0	2.3
								Head (calc.)		100.0	0.95	6.58	0.71	100.0	100.0	100.0
								Head (dir.)			0.98	6.11	0.74			
Dalmacia Sulphide Blend	F16	Same as F15 but finer grind	68	285	23	30	48	Rougher Conc 1	1	3.6	20.0	14.9	14.9	75.9	8.1	74.7
								Rougher Conc 1-2	3	7.1	12.7	11.7	9.69	94.7	12.5	95.0
								Rougher Conc 1-3	6	10.8	8.59	9.68	6.53	97.1	15.8	97.6
								Rougher Conc 1-4	10	14.0	6.65	8.72	5.06	97.9	18.5	98.4
								Rougher Conc 1-5	16	17.7	5.29	8.05	4.02	98.4	21.6	98.9
								Rougher Tails		82.3	0.018	6.30	0.01	1.6	78.4	1.1
								Head (calc.)		100.0	0.95	6.61	0.72	100.0	100.0	100.0
								Head (dir.)			0.98	6.11	0.74			
Dalmacia Sulphide Blend	F20	Coarser grind	116	290	23	30	60	Rougher Conc 1	1	3.8	19.2	14.7	13.7	77.1	8.8	73.2
								Rougher Conc 1-2	3	7.8	11.5	11.1	8.60	94.4	13.6	93.9
								Rougher Conc 1-3	6	10.5	8.77	9.77	6.57	96.6	16.0	96.3
								Rougher Conc 1-4	10	13.3	6.99	8.89	5.23	97.6	18.5	97.2
								Rougher Conc 1-5	16	16.1	5.81	8.31	4.35	98.1	20.9	97.7
								Rougher Tails		83.9	0.022	6.05	0.02	1.9	79.1	2.3
								Head (calc.)		100.0	0.95	6.41	0.72	100.0	100.0	100.0
								Head (dir.)			0.98	6.11	0.74			

Source: SGS (2022)

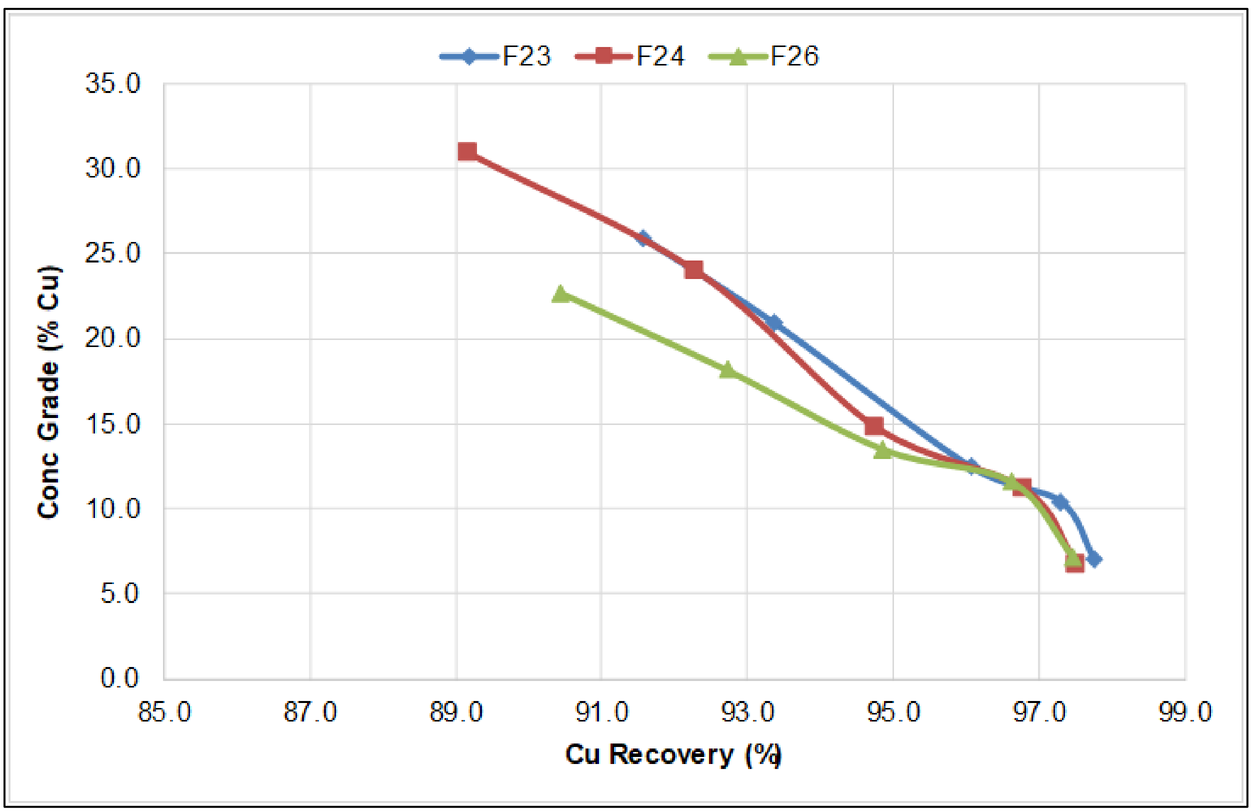
13.5.5.2 Cleaner Flotation Testwork

Three batch cleaner tests were conducted on the Dalmacia Sulphide Blend sample. The fifth rougher increment was not deemed necessary and thus the total retention time of the rougher was reduced from 16 minutes to10 minutes, and the collector dosage was reduced accordingly. The rougher conditions remained the same for all three tests. The first test (F23) was completed without any regrind, while a regrind stage was included for the last two cleaner tests (F24 and F26). The primary grind P_{80} was ~95-102 µm for the first two tests, while the primary grind size was increased for test F26 (P_{80} of 125 µm). Three stages of cleaner flotation were performed on rougher concentrates, using SIPX and AERO 208 as collectors. Frother was added as required.

The test objectives conditions and results are summarized in Table 13-24 and the copper grade in the concentrate is compared against copper recovery in Figure 13-21.

The copper grade-recovery curves from the tests at the same primary grind and without and with the regrind stage were very similar, although the 3rd cleaner concentrate achieved with the regrind had a much higher copper grade (31% vs. 26%). The test done at the coarser primary grind size (F26) resulted in lower concentrate grade and recovery at the cleaner stage, even if regrinding was done ahead of the cleaners.

Figure 13-21: Cleaner Concentrate Copper Grade vs. Copper Recovery – Dalmacia Sulphide Blend



Source: SGS (2022)

Table 13-24: Cleaner Flotation Test summary – Dalmacia Sulphide Blend

Sample	Test #	Notes	Ro Tails	Clnr Tails	Reagent Dosage, g/t				Product	Wt %	Grade (%)			Distribution (%)		
			P_{80} (µm)	P_{80} (µm)	$Ca(OH)_2$	SIPX	208	MIBC			Cu	Fe	S	Cu	Fe	S
Dalmacia Sulphide Blend	F23	Baseline	102	42	965	18	30	69	3rd Cl Conc	3.4	25.9	18.5	19.4	91.6	9.3	91.1
									2nd Cl Conc	4.3	20.9	15.9	15.7	93.4	10.1	93.4
									1st Cl Conc	7.5	12.5	11.7	9.37	96.1	12.8	96.0
									1st Cl + Scav Conc	9.0	10.4	10.6	7.84	97.3	14.1	97.2
									Rougher Conc	13.5	7.00	8.93	5.26	97.8	17.7	97.6
									Rougher Tails	86.5	0.025	6.47	0.02	2.2	82.3	2.4
									Head (calc.)	100.0	0.97	6.80	0.73	100.0	100.0	100.0
									Head (dir.)		0.98	6.11	0.74			
Dalmacia Sulphide Blend	F24	Same as F23 but regrind	95	22	670	18	30	75	3rd Cl Conc	2.8	30.9	20.7	24.4	89.2	8.8	89.9
									2nd Cl Conc	3.7	23.9	17.2	19.0	92.3	9.7	93.3
									1st Cl Conc	6.2	14.8	12.6	11.7	94.8	11.9	95.7
									1st Cl + Scav Conc	8.4	11.2	10.8	8.81	96.8	13.8	97.6
									Rougher Conc	14.2	6.64	8.69	5.28	97.5	18.8	98.9
									Rougher Tails	85.8	0.028	6.22	0.01	2.5	81.2	1.1
									Head (calc.)	100.0	0.97	6.57	0.76	100.0	100.0	100.0
									Head (dir.)		0.98	6.11	0.74			
Dalmacia Sulphide Blend	F26	Same as F24 but with coarser primary grind size.	125	26	1335	18	30	85	3rd Cl Conc	3.7	22.7	16.4	18.3	90.4	9.5	89.7
									2nd Cl Conc	4.7	18.2	14.1	14.7	92.7	10.4	92.1
									1st Cl Conc	6.5	13.5	11.8	10.9	94.9	12.0	94.4
									1st Cl + Scav Conc	7.7	11.6	10.8	9.38	96.6	13.1	96.2
									Rougher Conc	12.6	7.17	8.72	5.84	97.5	17.2	97.7
									Rougher Tails	87.4	0.027	6.09	0.02	2.5	82.8	2.3
									Head (calc.)	100.0	0.93	6.42	0.76	100.0	100.0	100.0
									Head (dir.)		0.98	6.11	0.74			

Source: SGS (2022)

13.5.5.3 Locked Cycle Test

One locked cycle test (LCT) was performed on the Dalmacia Sulphide Blend sample. The test followed the optimized conditions as determined from batch cleaner flotation test F24. The flotation flowsheet used for the LCT is illustrated in Figure 13-22. Metallurgical projections are summarized in Table 13-25.

Table 13-25: Locked Cycle Test Results – Dalmacia Sulphide Blend

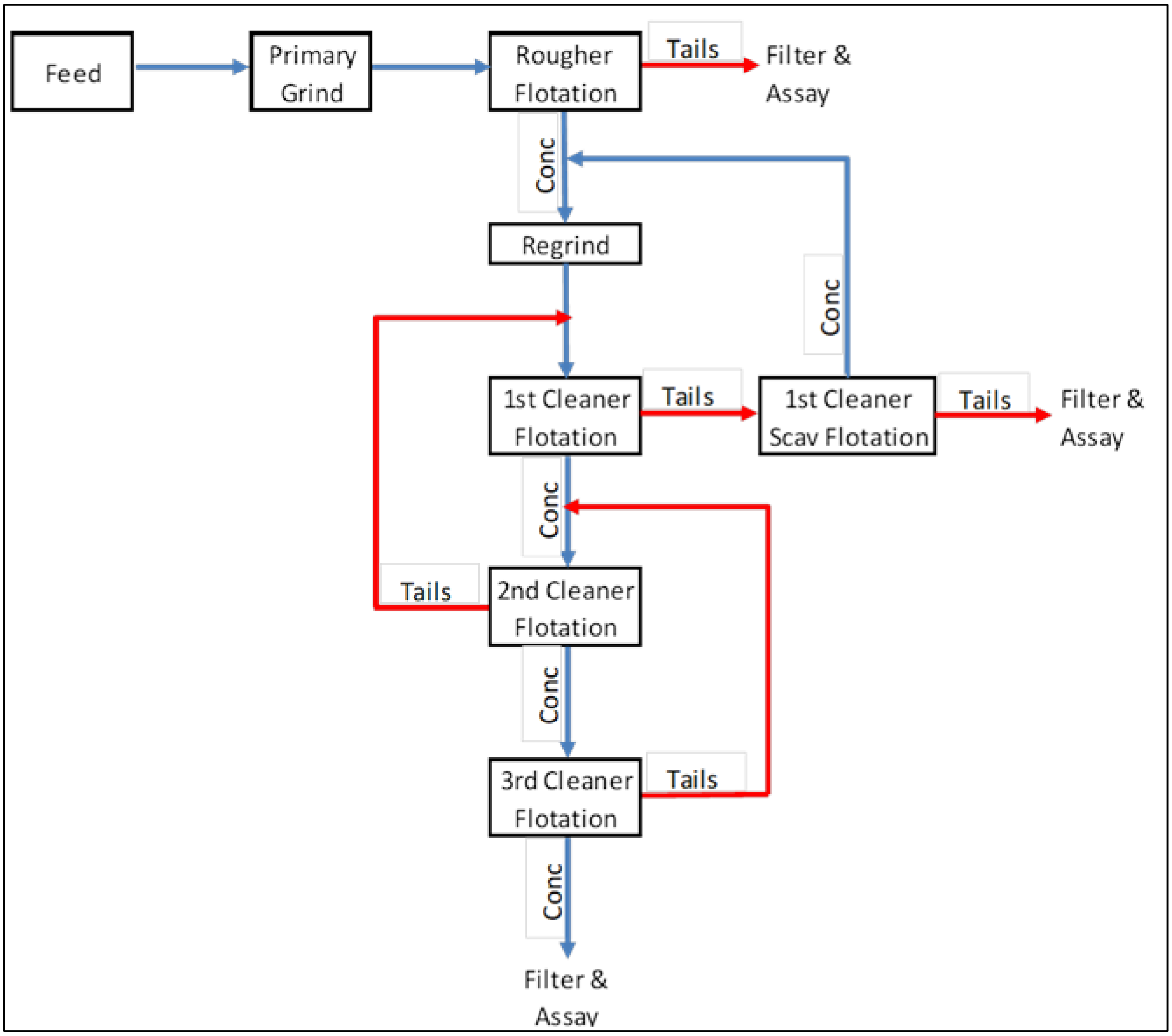
Product	Weight		Assays					Distribution, %				
	Dry	%	Cu %	Fe %	Au g/t	Ag g/t	S %	Cu	Fe	Au	Ag	S
3rd Cleaner Conc	392.6	3.3	27.8	18.8	0.48	16.7	21.3	96.5	9.4	44.8	53.1	95.9
1st Cl Scav Tails	1,142.7	9.5	0.14	5.38	0.02	0.5	0.20	1.4	7.9	5.4	4.6	2.6
Ro Tails	10,441.8	87.2	0.023	6.20	<0.02	0.5	0.01	2.1	82.7	49.7	42.2	1.5
Head (calc.)	11,977.1	100.0	0.94	6.53	0.04	1.0	0.73	100.0	100.0	100.0	100.0	100.0

Source: SGS (2022)

The LCT test results indicate the following:

- LCT attained relative stability by cycle C for mass, copper, iron, silver and sulphur; and
- Metallurgical projections from cycle C-F indicate the final concentrate grade was 27.8% Cu, with a recovery of 96.5% copper, as well as 44.8% gold and 53.1% silver.

Figure 13-22: Locked Cycle Test Flowsheet



Source: SGS (2022)

13.6 Thickening and Filtration Tests on Various Tailings and Concentrates Generated during the Flotation Program

A substantial solid-liquid separation test program (S/L) was conducted on various samples generated during the flotation program carried out on the Cinabrio M1, Cinabrio M2 and San Andres mineralization types.

All samples for this test program were received directly from the flotation program as process pulps. Process water was provided for each sample for additional pulp dilution when required for testing. All tests were conducted at room temperature (~20°C).

Table 13-26 and Table 13-27 below list the test programs conducted on the various samples.

Table 13-26: Test Programs Conducted on Flotation Concentrates

Tests Conducted	Concentrate Tested	
	Cinabrio M1	San Andres
Characterization	√	√
Flocculant selection	√	√
Static settling	√	√
Dynamic thickening	-	-
Vacuum filtration	√	√
Ceramic disc filtration*	√	√
Pressure filtration (Larox)*	-	√

Notes:
*Tests performed and reported by Metso-Outotec (M-O)
Source: SGS (2022)

Table 13-27: Test Programs Conducted on Flotation Tailings

Tests Conducted	Flotation Tailings Tested		
	Cinabrio M1	Cinabrio M2	San Andres
Characterization	√	√	√
Flocculant selection	√	√	√
Static settling	√	√	√
Dynamic thickening	√	√	√
Vacuum filtration	√	√	√
Ceramic disc filtration*	√	√	√

Notes:
*Tests performed and reported by M-O

13.6.1 Characterization of the Various Samples tested

Prior to S/L separation testing, the various samples were submitted to a suite of physical and chemical characterization tests.

Results of these tests are presented in Table 13-28 and Table 13-29. All details are appended.

Table 13-28: Characterization of Concentrate Samples Tested

Tests Conducted	Concentrate Tested	
	Cinabrio M1	San Andres
% Cu	31.5	27.0
% Weight (Wt) of flotation feed	2.8	3.0
d_{80} (µm)*	38	34
Specific gravity (SG)	3.88	3.48
pH	8.3	10.4

Notes:
*Measured using laser diffraction
Source: SGS (2022)

Table 13-29: Characterization of Tailings Samples Tested

Tests Conducted	Tailings^ Tested		
	Cinabrio M1	Cinabrio M2	San Andres
%Cu	0.053	0.041	0.19
%Wt of flotation feed	97.2	96.7	97.0
d_{80} (µm)*	121	118	90
Specific gravity (SG)	2.99	2.79	2.69
pH	7.1	8.3	7.8

Notes:
*Measured using laser diffraction
^Tailings composed of rougher tailings and 1st cleaner scavenger tailings
Source: SGS (2022)

13.6.2 Thickening tests

13.6.2.1 Concentrates

The samples of concentrates were submitted only to static settling, due to the limited sample availability. The results are summarized in Table 13-30.

Table 13-30: Static Settling Tests Summary

Concentrate	Flocculant Dosage (g/t)	Feed (%W/W)	UF (%W/W)	Unit Area (m^2/(t/day))	ISR* (m^3/m^2/day)	Supernatant Clarity	TSS+ (mg/L)
Cinabrio M1	Magnafloc 10 (12)	15	69	0.07	623	Clear	18
San Andres	Magnafl. 333 (20)	15	68	0.08	821	Clear	15

Notes:
*ISR: initial settling rate. + Total Suspended Solids
Source: SGS (2022)

13.6.2.2 Flotation Tailings

The three flotation tailings (Rougher tailings plus 1st cleaner scavenger tailings) were submitted to static settling and dynamic thickening tests. Details are shown in SGS report.

The dynamic (continuous) thickening tests were conducted using a customized 100 mm benchtop dynamic thickener. Results are summarized in Table 13-31.

Table 13-31: Results of the Dynamic Thickening Summary

Feed	Floc (g/t) (Magnafloc)	Unit Area (m^2/t/d)	Solids Loading (t/m^2 h)	Net rise rate (m^3/m^2 d)	UF %Solids (w/w)	Overf. TSS (mg/L)	Residence time (h)	UF Yield Stress (Pa)
San Andres	30	0.16-0.08	0.26-0.52	54.4-108.8	57.4-61.3	66-190	0.55-0.27	6-12
Cinabrio M2	25	0.10-0.05	0.42-0.83	87.5-175	58.8-66.4	58-385	0.46-0.22	5-26
Cinabrio M1	20	0.10-0.05	0.42-0.83	54.7-109.3	63.2-69.4	55-279	0.45-0.22	5-17

Source: SGS (2022)

13.6.3 Rheology of the Flotation Tailings Underflows

Rheology tests were conducted using a Haake RS75 Rheometer with a concentric cylinder spindle and cup configuration. Rheology test measurement data were deemed to be suitable for Bingham modelling and subsequent interpretation.

Test details are given I SGS report. Table 13-32 summarizes the test results.

Table 13-32: Rheology Summary Results

Feed	% Solids (w/w)	CSD* (% w/w)	Unsheared Sample		
			ɤ Range (1/s)	Yield Stress (Pa)	Plastic Viscosity (mPa.S)
Cinabrio M1	66.3-77.8	74	200-400	4.6-99	19-349
Cinabrio M2	59-72.1	69	200-400	4.1-91	12-40
San Andres	54.9-68.0	65	100-300	4.3-66	5.3-20

Notes:
*Critical Solids Density is the solid content at which a small increase of the solids content causes a significant decrease of the flow ability of the slurry, CSD is predictive of the maximum underflow solid content achievable in a commercial thickener.
Source: SGS (2022)

13.6.4 Filtration tests

13.6.4.1 Filtration of Flotation Concentrates

Vacuum Filtration Tests

Standard vacuum filtration tests (leaf tests) were conducted at 20 inches mercury (0.68 bar) vacuum level on thickened concentrates from the thickening tests. Cloth was selected based on cloth scoping tests.

All details are shown in SGS report. Results are summarized in Table 13-33.

Table 13-33: Summary Results of Vacuum Filtration Test on Flotation Concentrate Underflows

Feed	Operating conditions						Filtration Outputs			
	Filter Cloth	Vacuum (inch Hg)	Feed % w/w	Form Time (sec)	Dry Time (sec)	Form/Dry ratio	Cake Thickness (mm)	Throughput (kg/m^2 .hr)	Cake (% H2O)	Filtrate TSS (mg/L)
Cinabrio M1	Testori P6620 TC	20	70	128-350	990-32	0.33-11.0	20-35	206-702	16.5-17.7	45-73
San Andres	Testori P4408 TC	20	63	156-640	1230-64	0.2-10.0	16-32	114-303	19.1-20.7	22-55

Source: Metso-Outotec (2022)

Moisture of both filtered concentrates was high (16-20% H_2O), significantly higher than the target of 10% H_2O, likely due to either the fineness of the concentrates (~38 µm P_{80}), insufficient cycle times, or a combination of both.

Ceramic Disc Filtration Tests by Metso-Outotec (M-O)

M-O conducted filtration testwork on two flotation concentrates (Cinabrio M1 and San Andres). The filtration testing was performed using a Ceramic Leaf Tester Vacuum unit and the Larox 100 Bench Scale unit (Pressure filtration).

In a M-O CC filter, the filter cloth and supporting porous plates are replaced by sintered alumina membranes with a micropore diameter of about 1 µm.

The Larox 100 test filter unit has been designed to permit bench scale testing. M-O's report included the details. Test results are summarized in Table 13-34.

Table 13-34: Summary Results of Ceramic CC filtration Tests on Flotation Concentrates Underflows

Feed	Operating Conditions				Filtration results		
	Temp (ºC)	Vacuum (Bar)	Feed (%Sol)	Cycle Time (sec)	Cake Thickness (mm)	Cake Moisture (%H_2O)	Filtration (kg/m^2h)
Cinabrio M1	21	0.8	60	30-65	4.8-9.0	17.0-18.9	648-1491
San Andres	19	0.8	63	30-65	2.3-5.8	19.2-19.8	308-695

Source: Metso-Outotec (2022)

Results were deemed unsatisfactory, with sticky cakes and high moisture contents.

Pressure Filtration Tests by Metso-Outotec (M-O)

Results of the Larox pressure filtration tests are presented in Table 13-35.

Table 13-35: Summary Results of Larox Filtration Tests on San Andres Concentrate Underflow

Feed	Operating conditions							Filtration Results		
	T (ºC)	pH	% Solids	Pressure (Bar)			Cycle (Min)	Cake Thickness (mm)	Cake Moisture (% H_2O)	Filtration Rate (kg/hr.m^2)
				Pumping	Pressing	Air Drying				
San Andres	18	9	60	6	12	10	11-12	27.4-37.1	12.2-14.6	312-365

Source: Metso-Outotec (2022)

Pressure filtration results were better than the ceramic disc filtration results, with cake moistures down to 12.2% H_2O and better cake consistencies. However, cake moistures were still deemed too high.

Ceramic Disc Filtration tests by CECMS

Cinabrio M1 thickened concentrate (the same as tested by vacuum filtration and by M-O) was tested in the RMS laboratory in Vancouver. Tests details are shown in CECMS report. Summary results are presented in Table 13-36.

Table 13-36: Ceramic Disc Vacuum Filtration Test Results (CECMS)

Feed	Operating conditions							Results			Filtrate TSS (mg/L)
	Vacuum (inch Hg)	Temp (ºC)	Feed % w/w	Ceramic pores (µm)	Slurry Level (mm)	Form Time (sec)	Dry Time (sec)	Cake Thickness (mm)	Cake (% H_2O)	Throughput (kg(m²·hr))	
Cinabrio M1	27	21	60-70	1.5	200-600	4-21	16-40	2-6	14.2-15.7	0.20-0.88	66

Source: Metso-Outotec (2022)

Filtrate quality was good, but moisture and throughputs were below expectation.

13.6.4.2 Filtration of Flotation Tailings

Vacuum Filtration Tests

Standard vacuum filtration tests (leaf tests) were conducted at 20 inches mercury (0.68 bar) vacuum level on thickened flotation tailings from the thickening tests. Cloth was selected after cloth scoping tests.

All details are appended. Results are summarized in Table 13-37.

Table 13-37: Summary Results of Vacuum Filtration Tts on Flotation Tails Underflows (T~ 20ºC)

Feed Underflow	Operating conditions						Filtration Outputs			
	Filter Cloth	Vacuum (inch Hg)	Feed % w/w	Form Time (sec)	Dry Time (sec)	Form/Dry Ratio	Cake Thickness (mm)	Throughput (kg/m² hr))	Cake (% H_2O)	Filtrate TSS (mg/L)
Cinabrio M1	Testori P4408 TC	20	70	102-252	1008-25	0.25-9.93	26-42	221-1041	12.1-17.7	39-42
Cinabrio M2	Micronics 8963	20	68	108-320	630-32	0.50-10.06	20-36	187-645	17.1-19.1	238-457
San Andres	Testori P4408 TC	20	63	156-640	1230-64	0.50-10.0	16-32	114-341	19.1-20.7	22-55

Source: Metso-Outotec (2022)

The best results (highest throughputs, lowest moistures) were obtained for Cinabrio M1 (P_{80}=121 µm), the worst for San Andres (P_{80} of 90 µm).

<u>Ceramic Disc Filtration Tests by Metso-Outotec</u>

Ceramic disc filtration tests using the Ceramic CC Leaf Tester were also conducted on thickened flotation tailings.

All details are appended in Metso-Outotec final report and summarized in Table 13-38.

Table 13-38: Summary Results of Ceramic Disc Filtration Tests on Thickened Flotation Tails

Feed Underflow	Operating Conditions				Filtration results		
	Temp (ºC)	Vacuum (Bar)	Feed (%Sol)	Cycle Time (sec)	Cake Thickness (mm)	Cake Moisture (%H_2O)	Filtration (kg/m²h)
Cinabrio M1	19	0.8	70	30-65	4.9-12.7	10.9-13.2	690-1816
Cinabrio M2	21	0.8	68	30-65	4.4-8.3	14.3-16.0	457-1203
San Andres	20	0.8	64	30-65	4.1-6.7	14.2-17.1	335-844

Source: Metso-Outotec (2022)

The best results were obtained for the coarsest material (Cinabrio M1), which had the lowest cake moistures (11-13% H_2O) and highest filtration rates. Overall, cake moistures were considered satisfactory (< 18% moisture) for all three tailings tested.

13.7 Quality of Concentrates Produced

Representative samples of concentrates produced by flotation were submitted to full chemical analysis.

For mineralization types Cinabrio M1 and San Andres, the concentrates were collected from the locked cycle tests. For mineralization types Cinabrio M2, Cinabrio Norte (CNN) and Dalmacia, concentrates were collected from open circuit cleaner tests.

The certificates of analysis are included in SGS report. Results are summarized in Table 13-39.

Table 13-39: Chemical Assays of Cleaner Concentrates

Sample ID	Unit	M1 Blend LCT-1 Final Conc	M2 Blend	CNN Comp	Dalmacia Sulphide	San Andres Sulphide LCT-2 Final Conc
Au	g/t	3.66	0.39	0.07	0.41	0.56
Ag	g/t	79	27	87	15	113
Cu	%	30.8	23.9	27.0	26.3	26.8
Fe	%	29.3	24.6	16.3	18.2	19.4
As	%	0.014	0.12	0.059	0.12	0.26
S	%	31.3	26.1	19.8	20.5	23.8
SO4	%			0.2		
Al	g/t	4130	14500	21900	22500	13400
Ba	g/t	54	290	85	29	137
Bi	g/t	<50	122	24	26	<50
Ca	g/t	7200	24800	46000	7430	17100
Cd	g/t	<20	<20	<20	<20	<20
Co	g/t	48	<40	<200	6	490
Cr	g/t	<10	26	38	13	25
Mg	g/t	2090	5200	5550	26700	2120
Mn	g/t	275	746	924	307	396
Mo	g/t	36	154	51	10	281
Ni	g/t	31	<20	49	<20	70
Pb	g/t	441	456	709	36	302
Sb	g/t	<40	284	68	49	215
Se	g/t	<30	47	<30	31	<30
Sn	g/t	<20	<20	<20	<20	<20
Zn	g/t	4160	1520	3710	70	4620
Si	%	1.16	5.03	6.33	10.8	7.39
Te	g/t	5	79	<4	5	<4
F	%	0.010	0.038	0.1	0.012	0.056
Hg	g/t	4.4	23.3	1.6	1.0	24.7
Cl(HNO_3 soluble)	g/t	26	44	51	54	37

Source: SGS (2022)

The copper grades ranged from 23.9 to 30.8% CuT. Cinabrio M1 also had gold (3.66 g/t) and silver (79 g/t). Cinabrio concentrates (M1 and M2) showed higher values (25-29%) of iron compared to the other three mineralization types (16 to 19% Fe), due to the presence in the latter mineralization types of a significant proportion of bornite in addition to chalcopyrite.

Most concentrates had arsenic values below 0.2% with the exception of the San Andres concentrate at 0.26% As.

Mercury levels were well below 10 g/t Hg except for San Andres and Cinabrio M2, which had 24.7 and 23.3 g/t Hg, respectively. These results are well in line with the mercury levels of the various mineralization types.

13.8 Conclusions

Five mineralization types from the Punitaqui project were submitted to a comprehensive metallurgical test program. Chemical analyses of the samples indicated a Cu ranging from 0.92% to 1.39% Cu.

QEMSCAN modal analysis showed that the two Cinabrio mine samples (M1, M2) contain copper almost exclusively as chalcopyrite, while the other three samples contain a mixture of chalcopyrite and bornite.

Gangue composition was shown to be variable. The two Cinabrio mine samples (M, M2) and the San Andres sample indicated variable mixtures of quartz, sericite/muscovite, plagioclases, K-feldspar, and calcite. The largest gangue mineral was calcite for Cinabrio Norte (43.5%) and plagioclase/andesite for Dalmacia (54%).

Ore hardness (BWI) was showed to range from soft (Dalmacia, 12.3 kWh/t) to very hard (San Andres, 23.3 kWh/t).

QEMSCAN analysis also examined the degree of liberation of the copper sulphides within the five mineralization types. Three of the samples (Cinabrio M1, Cinabrio M2, Dalmacia) exhibited high degrees of liberation, while the other two samples (Cinabrio Norte and San Andres) showed poor liberation.

The flotation program was undertaken to examine the response of the five mineralization types to a conventional copper sulphide flotation circuit, the ultimate objective being to be able to process these mineralization types, individually or as a blend, within the existing concentrator in Chile.

During the test program, the main parameters tested were primary grind and the need for a regrind of the concentrate. The reagent regime was kept similar for all five mineralization samples, with the exception of lime and sodium silicate, which were added as needed to control the gangue.

Not surprisingly the three well liberated mineralized samples were the least sensitive to the fineness of primary grind and the regrind. For Cinabrio Norte and San Andres, however, even with fine primary grind and regrinding of the rougher concentrate to P_{80} of ~38 µm, copper recovery in the final concentrate was more than 10% lower than for the other three mineralization types.

All five samples were submitted to locked cycle tests using the same overall process: primary grind (P_{80} of ~100 µm for M1, M2, Dalmacia; P_{80} ~80 µm for San Andres, Cinabrio Norte), rougher flotation regrinding of rougher concentrate to a P_{80} of 38 µm, open circuit first cleaner, and three cleaning stages.

The results of the five locked cycle tests are presented in the Table 13-40 below.

Table 13-40: Locked Cycle Test Results

	Cinabrio			San Andres	Dalmacia
	M1	M2	Norte		
Feed (%CuT)	0.93	0.96	1.39	1.01	0.94
Cu Conc					
%CuT	31.5	27.5	25.5	27.0	27.8
%Cu recovery	94.3	95.7	75.4	81.0	96.5
Final tail					
%CuT	0.039	0.032	0.27	0.16	0.023
Expected*					
%CuT	-	-	21.6*	23.0*	-
%Cu recov.	-	-	81.0*	83.5*	-
QEMSCAN					
% Liberation	84.9	80.0	44.5	54.5	88.1

Notes:
*Based on the locked cycle test results and the relevant grade-recovery curve under the same overall test conditions.
Source: SGS (2022)

The LCT results indicated that good copper grade concentrates (>25% Cu) could be produced for all five mineralization types, albeit at the cost of the recovery for the two poorly liberated mineralization types. Producing lower grade concentrates for these two mineralization types, based on the grade-recovery curves of these two mineralized samples, would most likely result in an increase in recovery as indicated in the Table 13-40.

Representative samples of the reground concentrates were submitted to full analysis for smelter compliance. In general, all five samples were deemed clean except for Cinabrio M1 and San Andres having mercury levels above the threshold (at 23-25 g/t) and San Andres with an arsenic level higher than 0.2% (at 0.26%). All other impurities were below the permissible limits, and it is possible that the Hg and As levels mentioned above can be reduced to acceptable levels by proper blending of the concentrates. Cinabrio M1 also had some gold (3.7 g/t Au) and three of the concentrates (M1, CNN and San Andres) showed silver levels between 79 and 113 g/t.

The analyses allowed an estimation of gangue components within the five concentrates, as shown in in Table 13-41.

Table 13-41: Gangue Components within the Five Concentrates

Constituents (%)	Cinabrio			San Andres	Dalmacia
	M1	M2	Norte		
SiO2	2.48	10.76	13.54	15.81	23.10
MgO	0.35	0.86	0.92	0.35	4.43
CaO	1.01	3.47	6.44	2.39	1.04
Al2O3	0.77	2.74	5.48	2.53	4.25
Sum	4.61	17.83	26.38	21.08	32.82
+Cu, Fe, S	96.01	92.43	89.48	91.08	97.82

Source: SGS (2022)

These results indicated that the type and quantity of gangue constituents are quite variable amongst the five concentrates, ranging from as little as 4.6% in Cinabrio M1 to as high as 32.8% in Dalmacia.

The presence of substantial amounts of gangue in Cinabrio Norte and San Andres indicates the presence of middlings gangue-copper sulphide, while in Dalmacia it opens the possibility of producing even higher-grade copper concentrate due to the presence of a high proportion of bornite.

Thickening tests were conducted on flotation tails from the treatment of Cinabrio M1, Cinabrio M2 and San Andres samples. After characterization of each of the three tailings and flocculant selection, static and dynamic thickening tests were conducted on the three tails. Solids loading ranged from 0.42-0.8 t/hr m^2 for Cinabrio M1, M2 to 0.26-0.52 t/hr m^2 for San Andres, with % Solids in the underflows ranging from 57 to 69%. Thickening tests were also conducted on the concentrates from Cinabrio M1 and San Andres, leading to 68-69% Solids underflows.

Vacuum and ceramic disc filtration tests were conducted on Cinabrio M1, Cinabrio M2 and San Andres flotation tails. Better results were produced by ceramic disc filtration (throughput: 3.35-181.6 kg/hr m^2 and residual moisture: 10.9-17.1 %H_2O).

Vacuum and ceramic disc filtration tests were also conducted on Cinabrio M1 and San Andres concentrates. Again, ceramic disc displayed a better performance in the throughputs (308-1491 kg/hr.m^2), although residual moisture was high at 17-19.8% H_2O.

Ceramic disc filtration of the Cinabrio M1 concentrate using a different technology (CECMS) produced lower residual moistures (14.2-15.7% H_2O) but at lower throughputs (200-880 kg/hr m^2) than the Metso-Outotec ceramic discs.

Pressure filtration (Larox technology) was briefly tested on the San Andres concentrate. The best residual moisture (12.2% H_2O) was achieved with pressure filtration, albeit with a reduced capacity of 312-365 kg/hr m^2. The Larox manufacturer indicated that a further increase in pressure during the air-drying cycle might further decrease the residual, moisture (to approximately 11% H_2O), which needs to be confirmed with further testing.

14 MINERAL RESOURCE ESTIMATE

14.1 Introduction

This section describes the work undertaken by Kirkham Geosystems Ltd (KGL), including key assumptions and parameters used to prepare the mineral resource models for the Punitaqui deposit, together with appropriate commentary regarding the merits and possible limitations of such assumptions.

The Punitaqui project is a past producing copper-gold mining complex located about 50 km south of the Andacollo Copper mine owned by Teck Resources, near the towns of Punitaqui and Ovalle in Chile's Fourth Region. The asset consists of a centralized process plant that to be fed by four satellite copper deposits - San Andres, Cinabrio, Cinabrio Norte, and Dalmacia.

The mineral resource has a surface area of 2,000 m x 750 m between elevations of -270 m and 650 m above sea level. The updated estimate is a result of surface drilling along with underground drilling and sampling by BMR and previous operators (3,762 drill holes and channel samples). The mineral resource estimate is based on robust geological models, supported by underground infrastructure that allowed underground mapping, channel sampling, and underground drilling that was critical to BMR's current understanding and validation of the Punitaqui geological models.

The resource estimate is based on our Phase 1 drill program, initiated in August 2021 of 32,526.23 m of drilling completed by Battery Minerals, along with the drilling and mining data from the Cinabrio mine completed by prior operators Tamaya Resources, Glencore PLC and Xiana Mining Inc. The BMR Phase 1 drilling focused on three zones at Punitaqui: Dalmacia, San Andres, and Cinabrio Norte.

The Punitaqui resource is separated into four underground resource zones: Cinabrio, San Andres, Dalmacia and Cinabrio Norte:

- Total sulphide indicated resources are 6.2 Mt grading 1.14% Cu and 2.47 g/t Ag;
- Total sulphide inferred resources are 3.1 Mt grading 0.93% Cu and 2.64 g/t Ag; and
- At the Cinabrio Mine, the remanent pillars contain sulphide indicated resources of 1.0 Mt at 1.51% Cu which could be mined in conjunction with the use of mine backfill.

Estimates are reported at a base case above a 0.7% Cu cut- off, as tabulated in Table 14-1.

Table 14-1: Mineral Resource Statement - Underground

Zone	Tonnes	Cu%	Ag g/t
Indicated Sulphides			
San Andres Underground	1,736,000	1.06	4.83
Cinabrio Underground	378,000	1.55	0.11
Cinabrio Pillars	1,027,000	1.51	0.04
Cinabrio Norte Underground	833,000	1.01	4.57
Dalmacia Underground	2,198,000	1.00	1.38
Total	6,172,000	1.14	2.48
Inferred Sulphides			
San Andres Underground	303,000	0.82	4.03
Cinabrio	90,000	0.98	0.06
Cinabrio Pillars			
Cinabrio Norte Underground	1,077,000	0.98	4.91
Dalmacia Underground	1,599,000	0.93	1.00
Total	3,070,000	0.93	2.64

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

Table 14-2: Mineral Resource Statement – Open Pit

Class	Tonnes	CuS%	CuT%	Ag g/t
Oxides				
Indicated	873,000	0.62	0.74	1.15
Inferred	1,326,000	0.50	0.50	1.11

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

14.2 Resource Estimates

The individual resource estimates include Cinabrio, San Andres, Dalmacia and Cinabrio Norte, respectively.

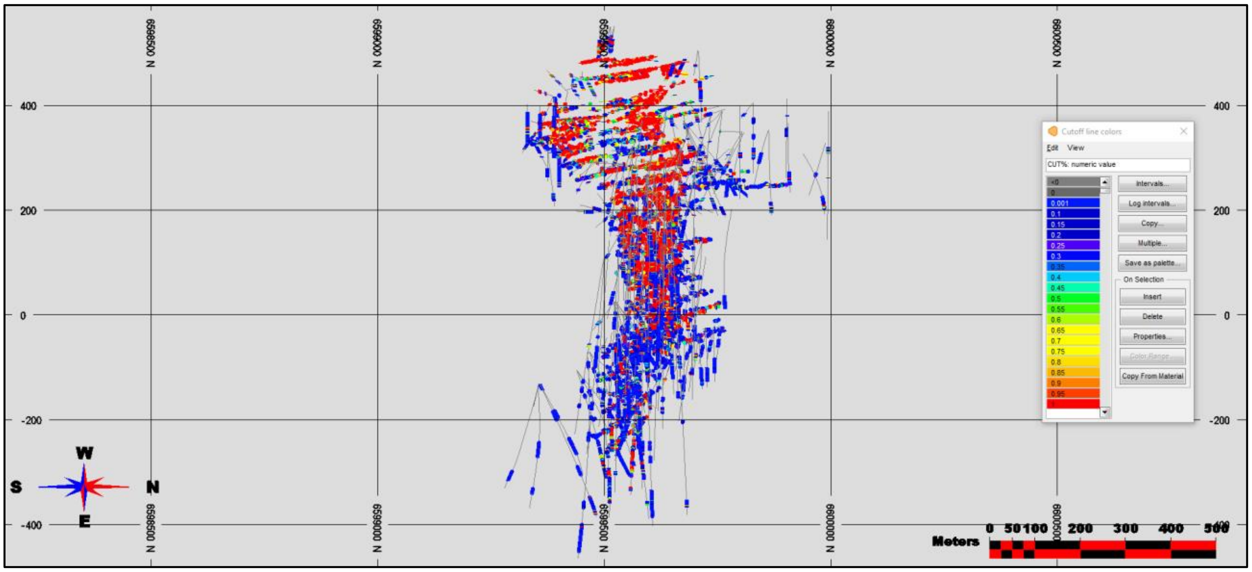
14.2.1 Cinabrio Mine

14.2.1.1 Data

The drill hole database was supplied in electronic format (i.e., Microsoft Excel) by BMR. This included collars, down hole surveys, lithology data and assay data (i.e., total copper and soluble copper in %), and down hole “from” and “to” intervals in metric units). Lithology group and description information was provided, along with abbreviated alpha-numeric and numeric codes. The database includes a combination of surface and underground drill hole data along with extensive underground channel sample data as Cinabrio is a mature operation.

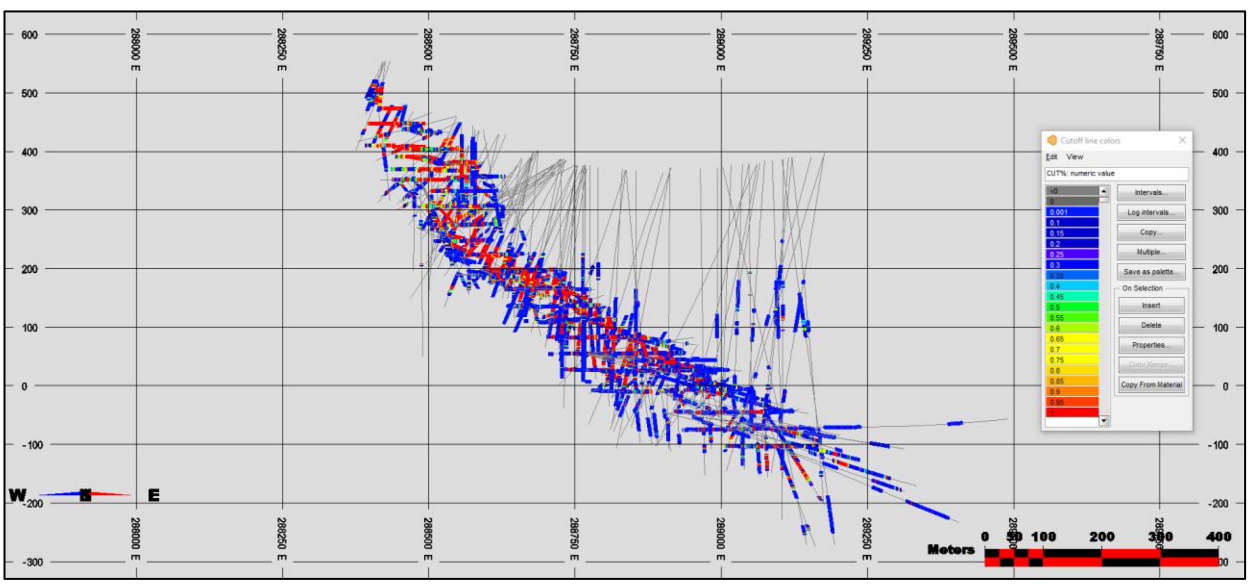
A total of 2,853 drill holes (surface and underground) and underground channel samples were imported. Figure 14-1 and Figure 14-2 show long section and section views of drill holes with collars and channel samples. A total of 27,353 assay values and 6,295 lithology values, primarily from the drill hole data, were supplied for the Cinabrio Project. Validation and verification checks were performed during import to confirm there were no overlapping intervals, typographic errors, or anomalous entries.

Figure 14-1: Long Section View of Drill Holes



Source: Kirkham (2022)

Figure 14-2: Section View of Drill Holes

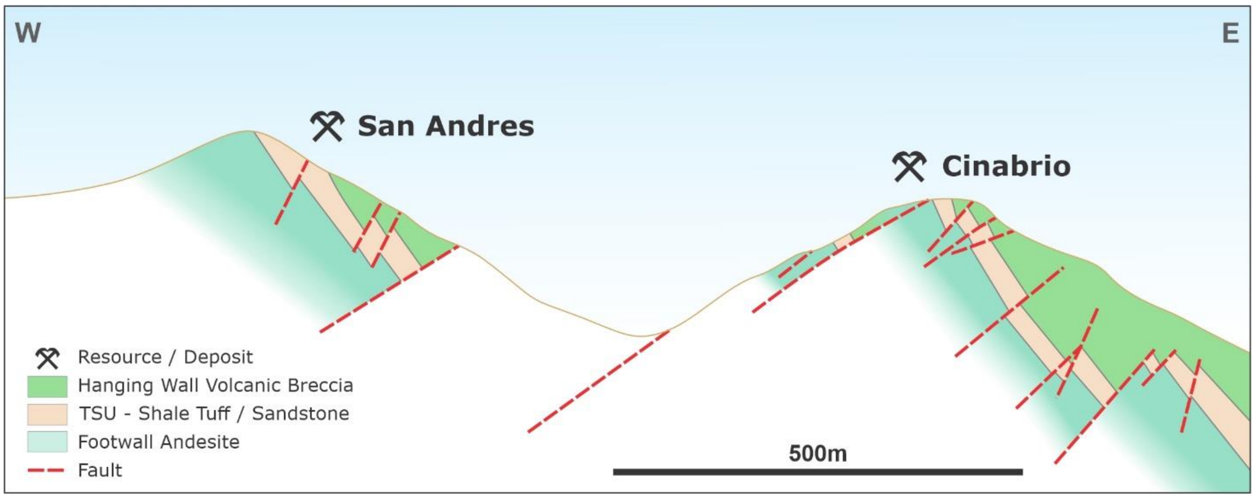


Source: Kirkham (2022)

14.2.1.2 Geology & Domain Model

Methodology for Cinabrio, San Andres and Cinabrio Norte involves modelling interpretations of the continuous, faulted shale-tuff sandstone (TSU) units as illustrated in the schematic cross-section in Figure 14-3.

Figure 14-3: Schematic Cross-section – San Andres to Cinabrio Looking North



Source: Skarmeta (2020)

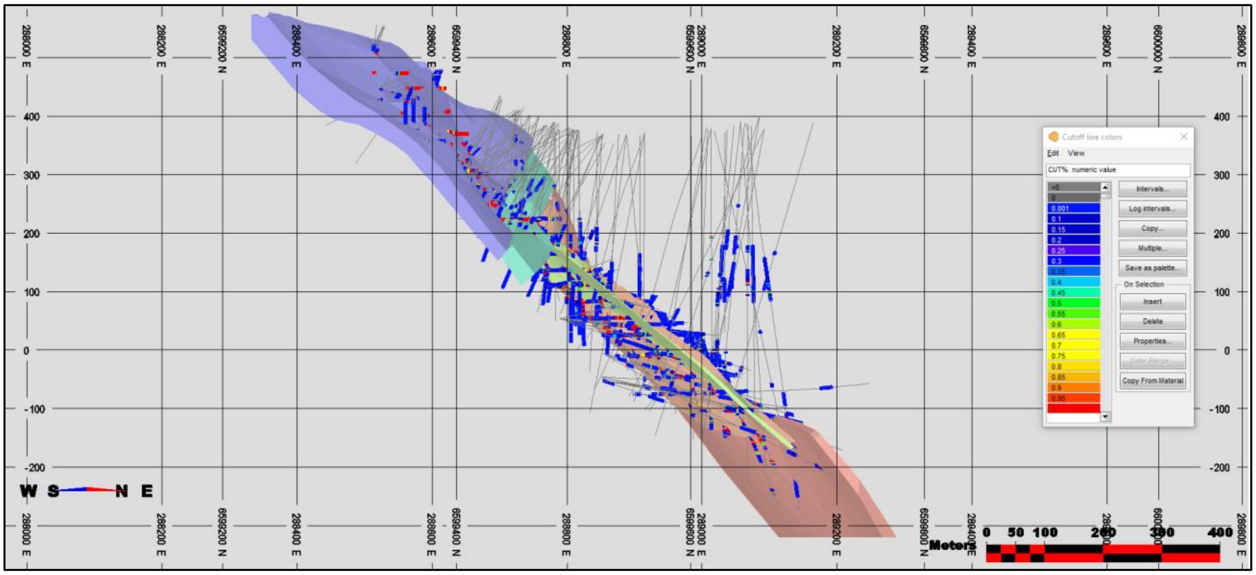
A two-phased modelling approach was taken to creating geology and estimation domains that included a lithostratigraphic model and domain modelling. The lithology models were completed using the lithology codes within the database.

The models were created from first principals using the lithostratigraphic models and the structural modelling as guides within LeapFrog™ and refined in MineSight™ under the supervision of the independent QP for statistical analysis and to be used for the estimation process. This was done utilizing the current and re-logged data, and from sectional interpretations that were subsequently wireframed based on a combination of lithology and copper grades.

Once completed, intersections were inspected, and all the solids were then manually adjusted to match the drill intercepts. Once the solid models were edited and complete, they were used to code the drill hole assays and composites for subsequent statistical and geostatistical analysis. The solid zones were utilized to constrain the block model, by matching assays to those within the zones.

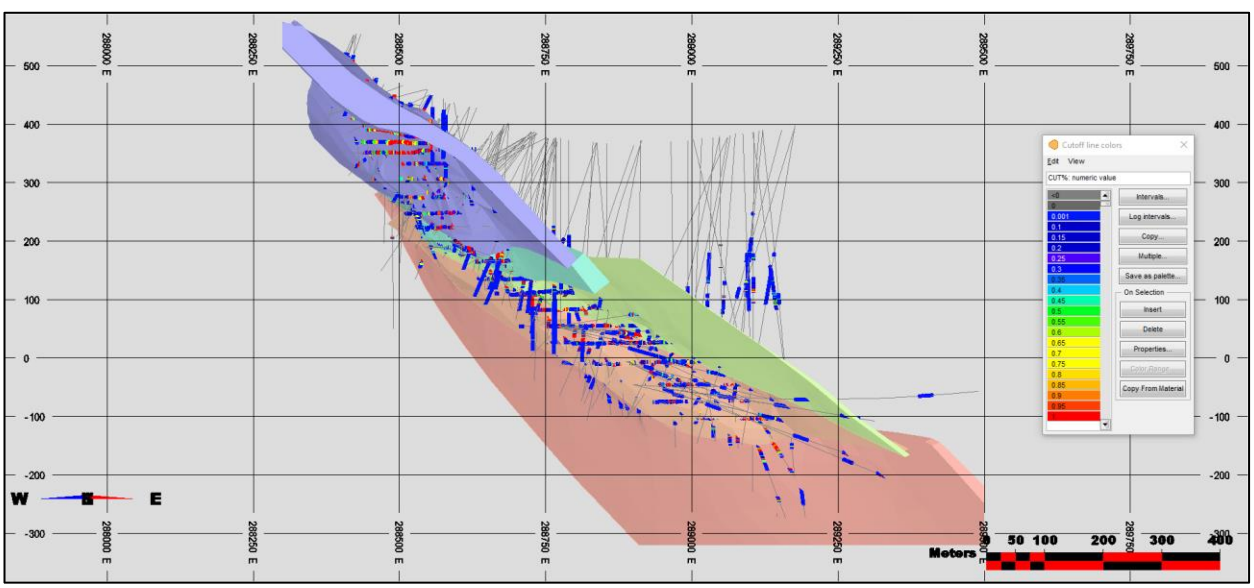
The orientation and ranges (distances) utilized for the search ellipsoids used in the estimation process were omni-directional and guided the strike and dip of the lithologic solids for domains shown in Figure 14-4, Figure 14-5 and Figure 14-6. The domain models were employed to estimate the structures on a sub-block basis to best characterize the deposit for subsequent estimation and boundary definition.

Figure 14-4: Section View of Drill Holes with Copper Grades and Mineralized Domains



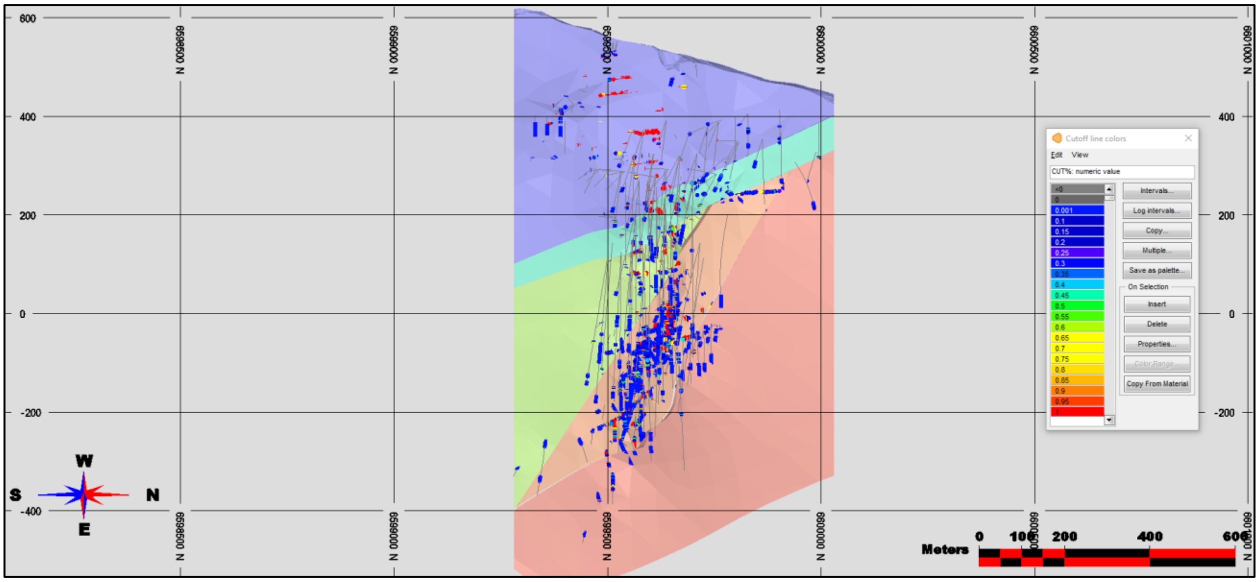
Source: Kirkham (2022)

Figure 14-5: Oblique Section View of Drill Holes with Copper Grades and Mineralized Domains



Source: Kirkham (2022)

Figure 14-6: Long Section View of Drill Holes with Copper Grades and Mineralized Domains



Source: Kirkham (2022)

14.2.1.3 Data Analysis

Table 14-3 shows statistics of total copper and soluble copper assays within and outside of the mineralized domain, along with totals. Included in the statistical analysis, there are 38,042 (35,066.4 m) total copper assays, averaging 0.86%, of which 22,401 (20,831.2 m) total copper assays are within the mineralized domains, which an average of 1.12%. The maximum copper grade is 10.55% within the mineralized domains, while the maximum copper grade outside is 17.93%. It is important to note is that 190 copper assays are greater than 5% and 13 copper assays are greater than 10%. However, there is zone within the mineralized units that exhibits significantly elevated grade in the vicinity of the underground workings and historic stopes in the upper elevations, which is to be expected.

Table 14-3: Statistics for Weighted Copper Grades within the Mineralized Domains, Outside and Totals

		#	Length (m)	Max (%)	Mean (%)	SD (%)	CV
Mineralized Domains	CUT%	22,401	20,831.2	10.55	1.12	1.10	1.0
	CUS%	22,178	20,555.3	3.93	0.05	0.22	4.2
Outside	CUT%	15,641	14,632.0	17.93	0.50	1.03	2.1
	CUS%	15,543	14,511.1	4.5	0.02	0.14	6.3
Total	CUT%	38,042	35,463.2	17.93	0.86	1.12	1.3
	CUS%	37,721	35,066.4	4.5	0.04	0.19	4.8
All	CUT%	38,042	35,463.2	17.93	0.86	1.12	1.3
	CUS%	37,721	35,066.4	4.5	0.04	0.19	4.8

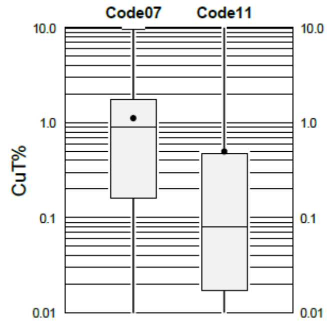
Source: Kirkham (2022)

Box plots for total copper shows that the populations are statistically dissimilar (Figure 14-7), and contact plots illustrate an abrupt change confirming the use of hard boundaries. Box plots for CuS%, as shown in Figure 14-8 demonstrate a similar relationship however it is clear the CuS% grades are not a significant contributor.

Figure 14-7: Box Plot for CuT% Assays (Code 7) Inside and Outside (Code 11) Mineralized Domains

Cinabrio ***Cinabrio Modeling***

Cinabrio : Code



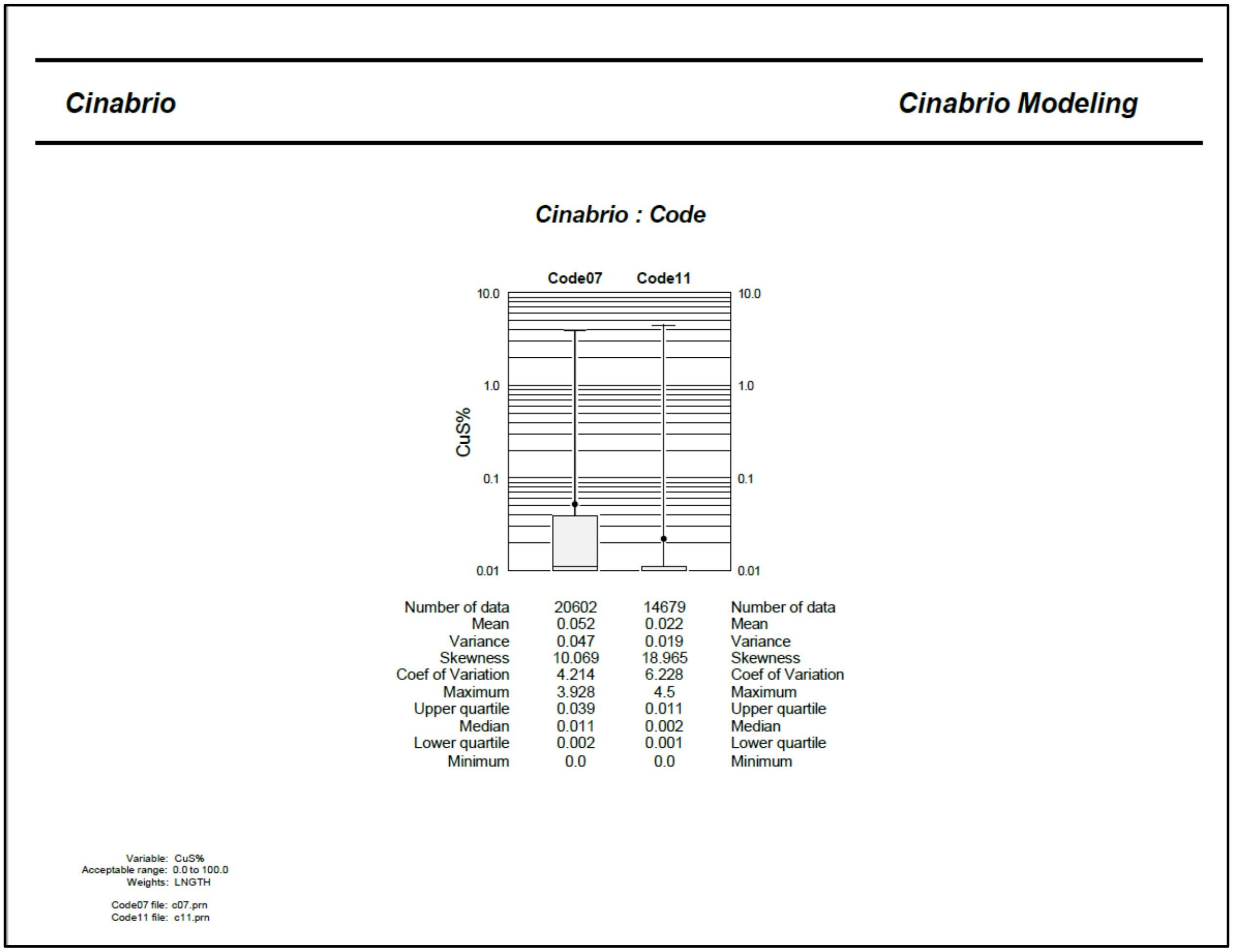
	Code07	Code11	
Number of data	20876	14799	Number of data
Mean	1.12	0.497	Mean
Variance	1.165	1.009	Variance
Skewness	1.265	4.594	Skewness
Coef of Variation	0.964	2.021	Coef of Variation
Maximum	9.691	17.925	Maximum
Upper quartile	1.762	0.478	Upper quartile
Median	0.91	0.08	Median
Lower quartile	0.16	0.017	Lower quartile
Minimum	0.0	0.0	Minimum

Variable: CuT%
Acceptable range: 0.0 to 100.0
Weights: LNGTH

Code07 file: c07.prn
Code11 file: c11.prn

Source: Kirkham (2022)

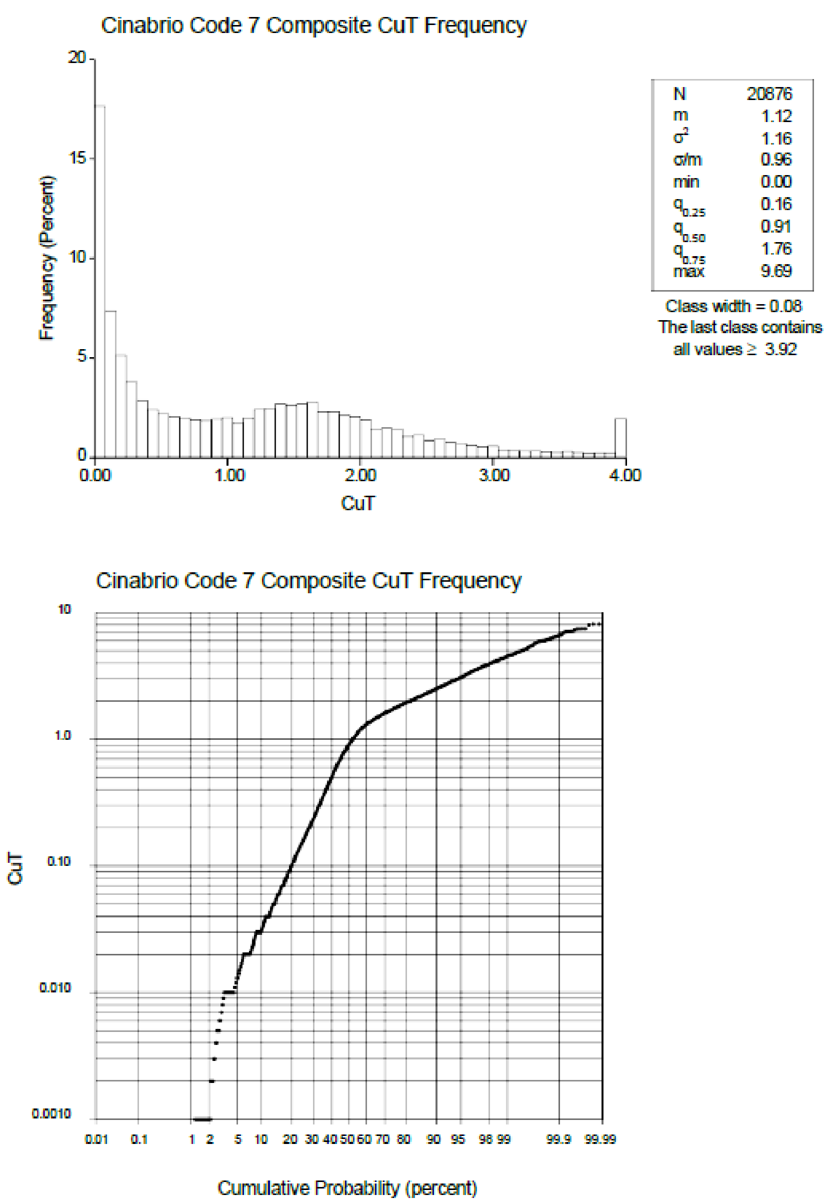
Figure 14-8: Box Plot for CuS% Assays (Code 7) Inside and Outside (Code 11) Mineralized Domains



Source: Kirkham (2022)

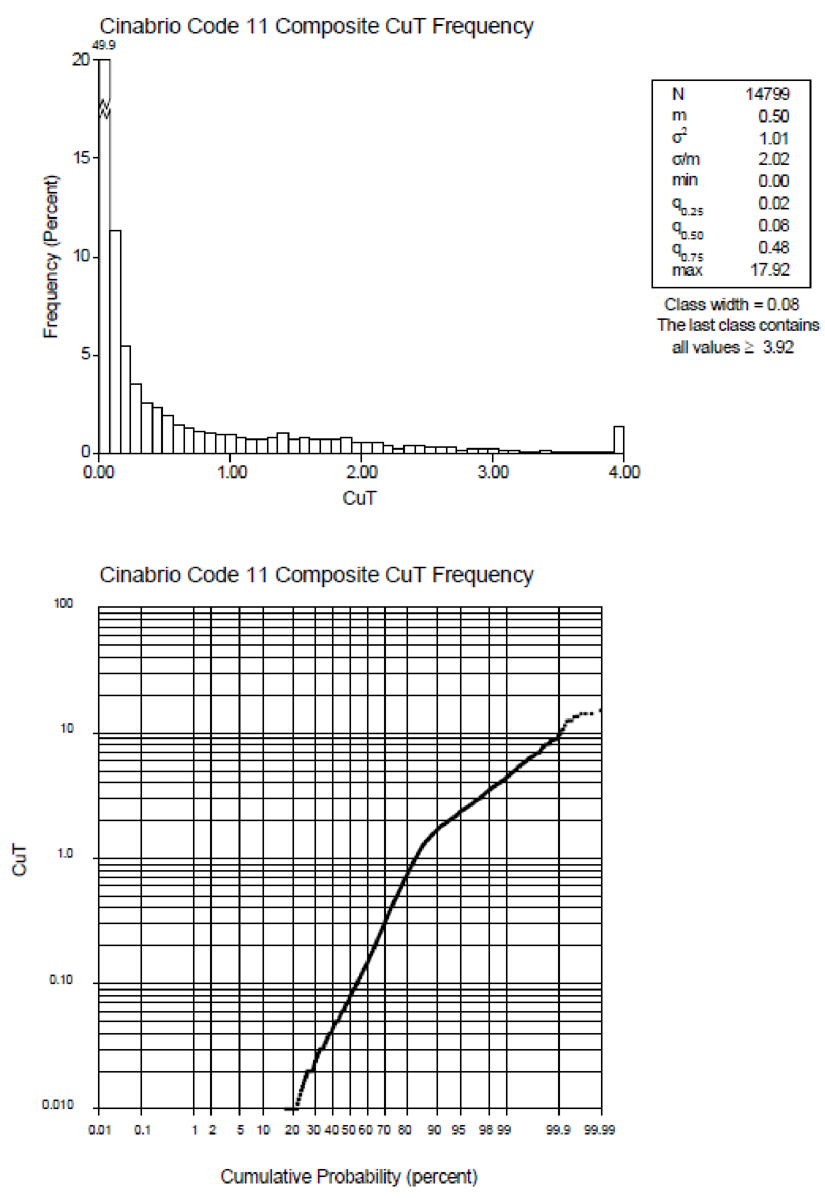
Histograms and cumulative frequency plots for the copper grades shows that there are two distinct populations as evidenced by the change in slope at approximately 1.5%. It is clear that the high-grade population is understandably overprinting the areas of mining and constitute the significant high-grade zone that is the Cinabrio mine proper.

Figure 14-9: Histogram and Cumulative Frequency Plot for CuT% (Code 7) Inside Domains



Source: Kirkham (2022)

Figure 14-10: Histogram and Cumulative Frequency Plot for CuT% Outside (Code 11) Domains



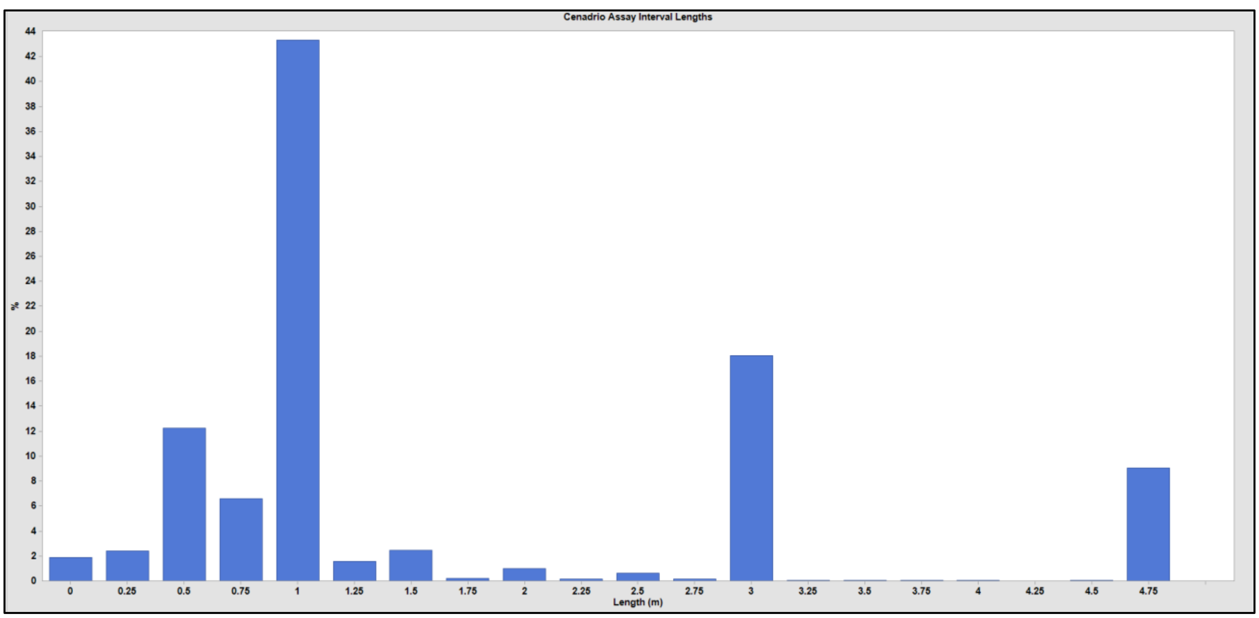
Source: Kirkham (2022)

14.2.1.4 Composites

It was determined that the 1.0 m composite lengths offered the best balance between supplying common support for samples and minimizing the smoothing of grades. Figure 14-11 shows a histogram illustrating the distribution of the assay interval lengths for the complete database, with approximately 80% of the data having interval lengths greater than or equal to 1.0 m. Figure 14-12 shows the histogram of the assay intervals limited to within the mineralized domains, where approximately 90% are less than or equal to 1.0 m and 15% are less than or equal to 0.5 m. To determine whether there may be selective sampling, an analysis of high-grade gold samples versus assay interval lengths was performed. The scatterplot in Figure 14-13 for samples within the domains shows that the assay intervals and corresponding copper grades have the same distribution and illustrate that there is not a high-grade bias within the small intervals and sample selectivity is not occurring.

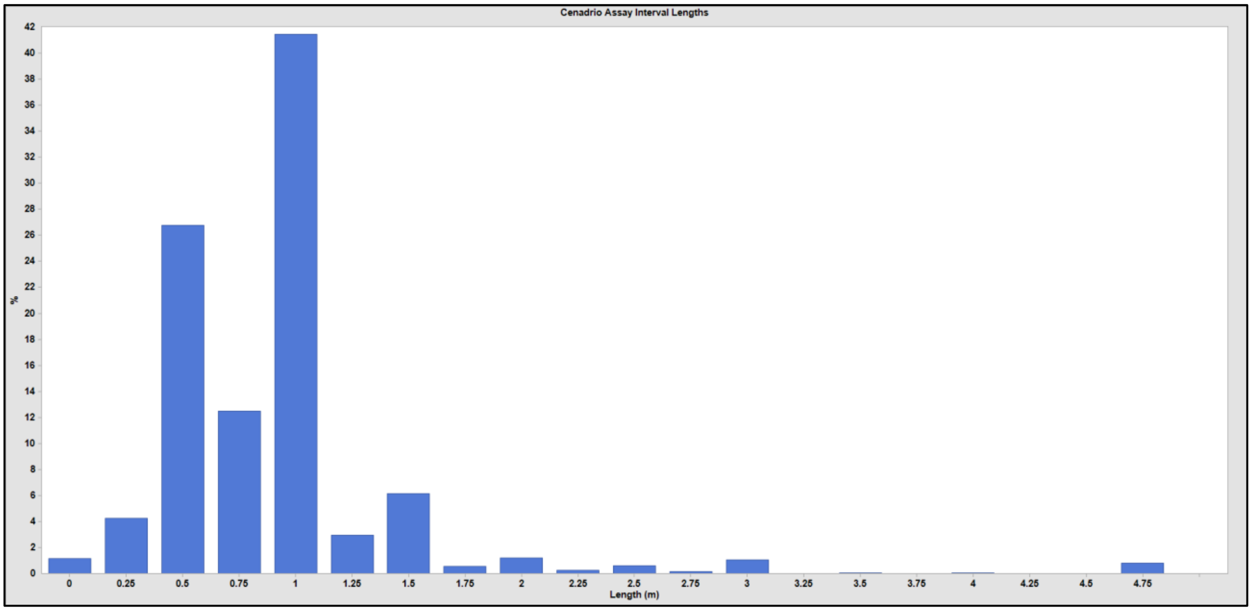
The 1.0 m sample length also was consistent with the distribution of sample lengths. It should be noted that although 1.0 m is the composite length, any residual composites of greater than 0.5 m in length and less than 1.0 m remained to represent a composite, while any composites residuals less than 0.5 m were combined with the composite above.

Figure 14-11: Histogram of Assay Interval Lengths in Meters



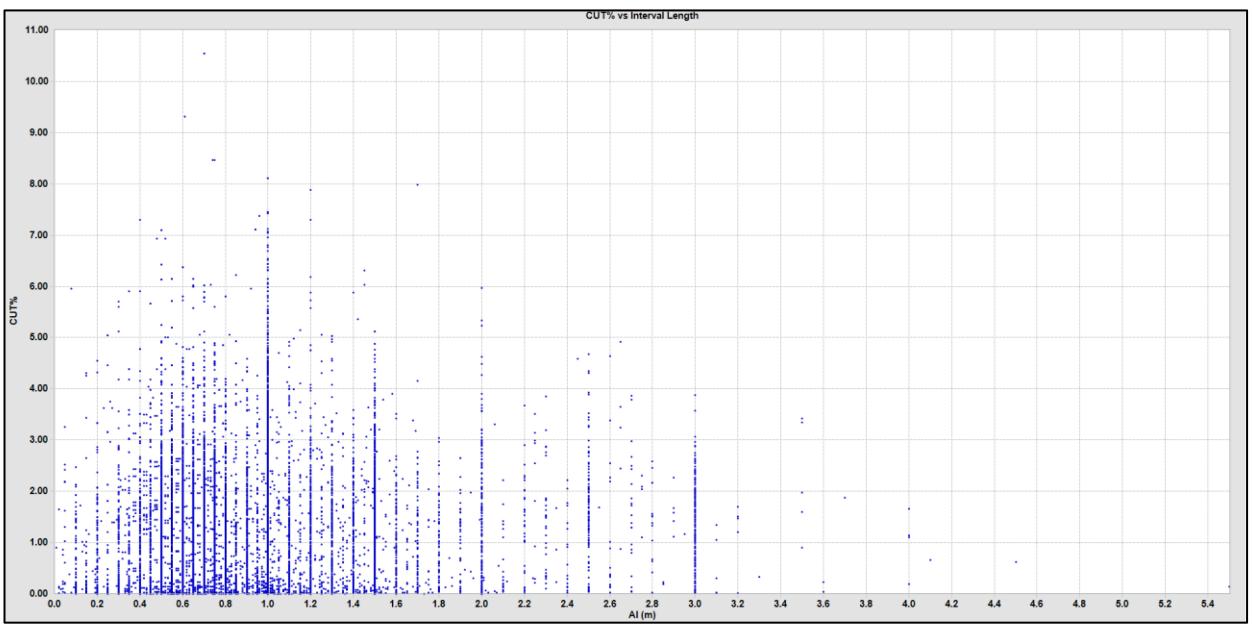
Source: Kirkham (2022)

Figure 14-12: Histogram of Assay Interval Lengths within Domains in Meters



Source: Kirkham (2022)

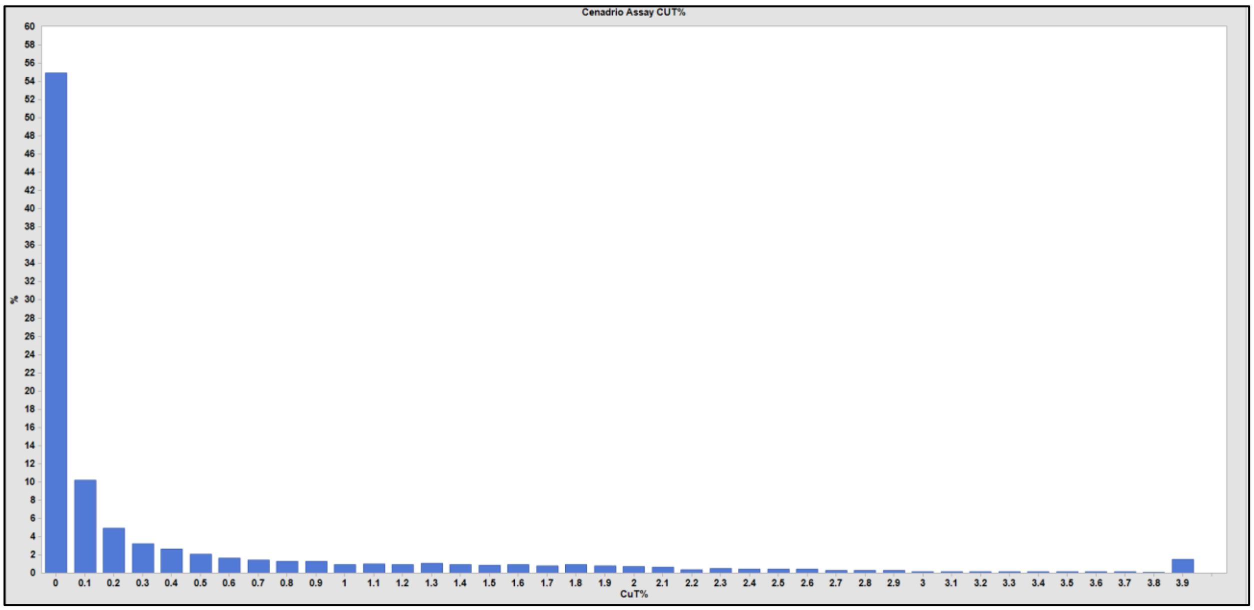
Figure 14-13: Scatterplot of Assay Interval Lengths within Veins in Meters vs. CuT% Grade



Source: Kirkham (2022)

Figure 14-14 shows a histogram of the total copper composite values for composites that are assigned to the mineralized domains illustrating a classic log-normal distribution which expected for this type of deposit.

Figure 14-14: Histogram of CuT% Composite Grades

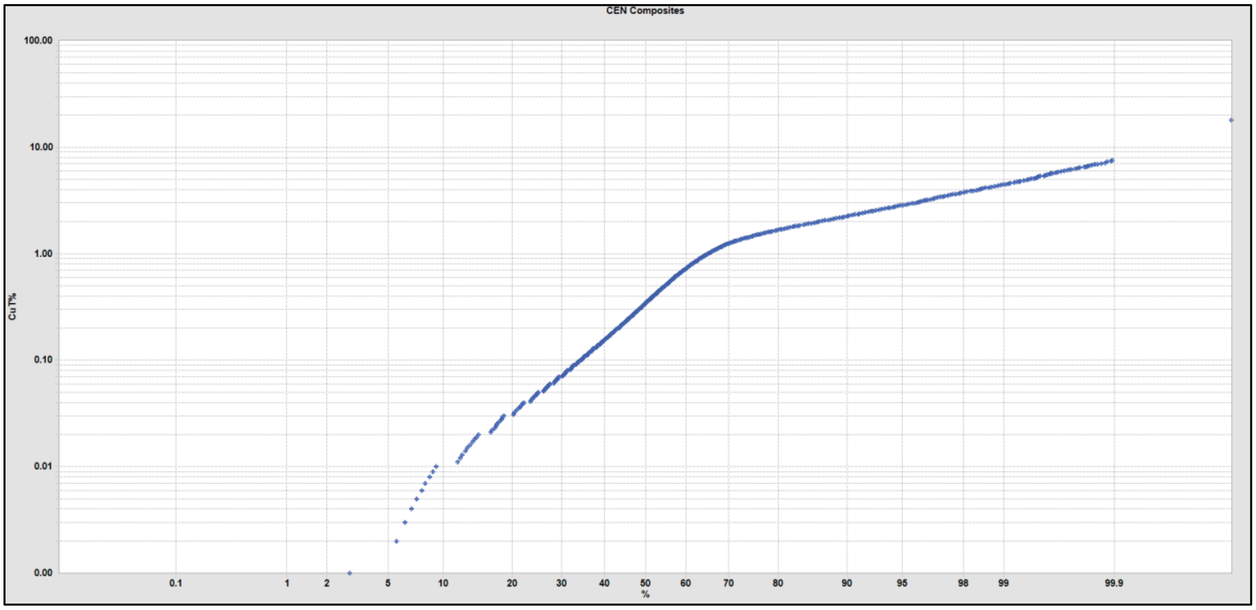


Source: Kirkham (2022)

14.2.1.5 Evaluation of Outlier Assay Values

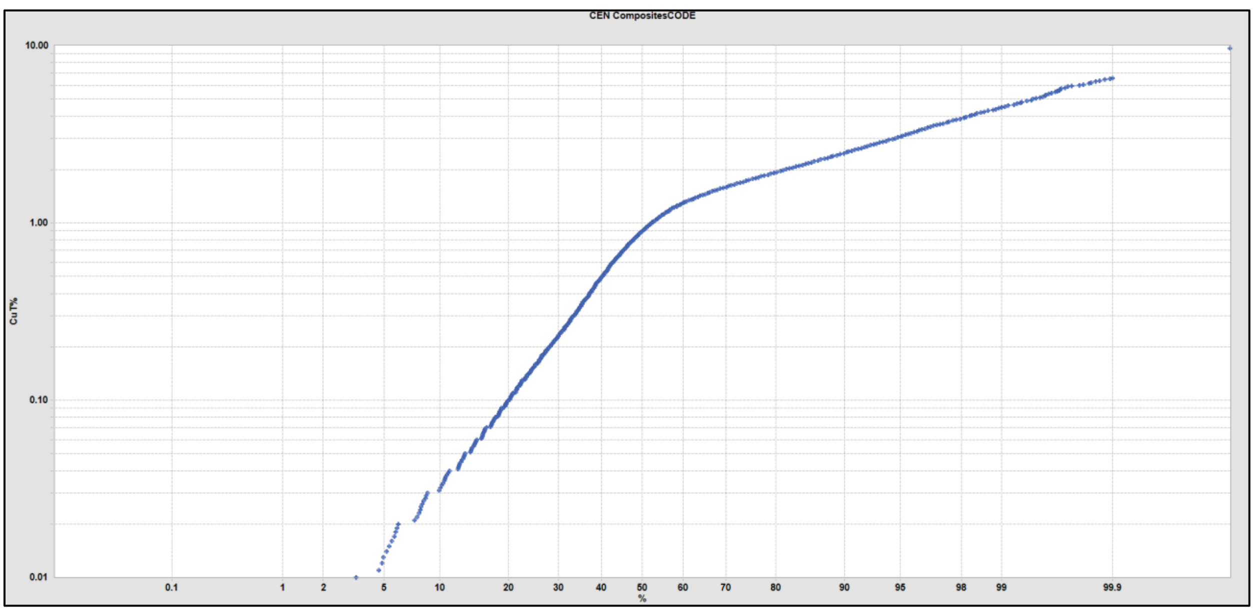
During the estimation process, the influence of outlier composites is controlled to limit their influence and to ensure against over-estimation of metal content. The high-grade outlier thresholds were chosen by domain and are based on an analysis of the breaks in the cumulative frequency plots within the mineralized domains. Figure 14-15 and Figure 14-16 show examples of the copper cumulative frequency plots for all composites and for the mineralized domains, respectively.

Figure 14-15: CuT% Cumulative Frequency Plot for All Composites



Source: Kirkham (2022)

Figure 14-16: CuT% Cumulative Frequency Plot for Composites within the Mineralized Domains



Source: Kirkham (2022)

In the case of the copper composites within the mineralized domains, values greater than 5% were cut. Table 14-4 shows the various cut thresholds for the mineralized domains.

Table 14-4: Cut vs. Uncut Comparisons for CuT% Composites – Mineralized Domains

		#	Length (m)	Max (%)	Mean (%)	SD (%)	CV
Mineralized Domains	CUT%	20,876	20,831.5	9.69	1.12	1.08	1.0
	CUS%	20,602	20,556.2	3.93	0.05	0.22	4.2
	CUCUT	20,876	20,831.5	5	1.11	1.05	0.9
Outside	CUT%	14,799	14,632.4	17.93	0.50	1.00	2.0
	CUS%	14,679	14,511.5	4.5	0.02	0.14	6.2
	CUCUT	14,799	14,632.4	5	0.48	0.88	1.8
Total	CUT%	35,675	35,463.9	17.93	0.86	1.09	1.3
	CUS%	35,281	35,067.7	4.5	0.04	0.19	4.8
	CUCUT	35,675	35,463.9	5	0.85	1.03	1.2
All	CUT%	35,675	35,463.9	17.93	0.86	1.09	1.3
	CUS%	35,281	35,067.7	4.5	0.04	0.19	4.8
	CUCUT	35,675	35,463.9	5	0.85	1.03	1.2

Source: Kirkham (2022)

14.2.1.6 Specific Gravity Estimation

Specific gravity (SG) assignment within the mineralized domains were assigned using standard water displacement methods. The SG assigned is determined to be 2.67.

14.2.1.7 Variography

Experimental variograms and variogram models in the form of correlograms were generated for total copper and soluble copper grades. The definition of nugget value was derived from the downhole variograms. The correlograms for total copper and soluble copper within domains are shown in Figure 14-17 and Figure 14-18 for CuS% and CuT%, respectively along with an example of the correlogram for total copper within the domains in Figure 14-19.

Figure 14-17: CuS% Correlogram Models

Cinabrio Code 7 CuS Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.100
C1 ==> 0.579
C2 ==> 0.321

First Structure -- Spherical

LH Rotation about the Z axis ==> -109
RH Rotation about the X' axis ==> 6
LH Rotation about the Y' axis ==> 2

Range along the Z' axis ==> 10.4	Azimuth ==> 88 Dip ==> 83
Range along the Y' axis ==> 17.4	Azimuth ==> 251 Dip ==> 6
Range along the X' axis ==> 145.7	Azimuth ==> 341 Dip ==> 2

Second Structure -- Spherical

LH Rotation about the Z axis ==> 3
RH Rotation about the X' axis ==> -14
LH Rotation about the Y' axis ==> -63

Range along the Z axis ==> 70.9	Azimuth ==> 87 Dip ==> 26
Range along the X' axis ==> 165.7	Azimuth ==> 119 Dip ==> -60
Range along the Y' axis ==> 652.6	Azimuth ==> 3 Dip ==> -14

Modeling Criteria

Minimum number pairs req'd ==> 350
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-18: CuT% Correlogram Models

Cinabrio Code 7 CuT Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.200
C1 ==> 0.569
C2 ==> 0.231

First Structure -- Spherical

LH Rotation about the Z axis ==> -44
RH Rotation about the X' axis ==> 12
LH Rotation about the Y' axis ==> 48

Range along the Z' axis	==> 29.9	Azimuth ==> 215	Dip ==> 41
Range along the Y' axis	==> 27.6	Azimuth ==> 316	Dip ==> 12
Range along the X' axis	==> 14.6	Azimuth ==> 59	Dip ==> 46

Second Structure -- Spherical

LH Rotation about the Z axis ==> 19
RH Rotation about the X' axis ==> -32
LH Rotation about the Y' axis ==> -33

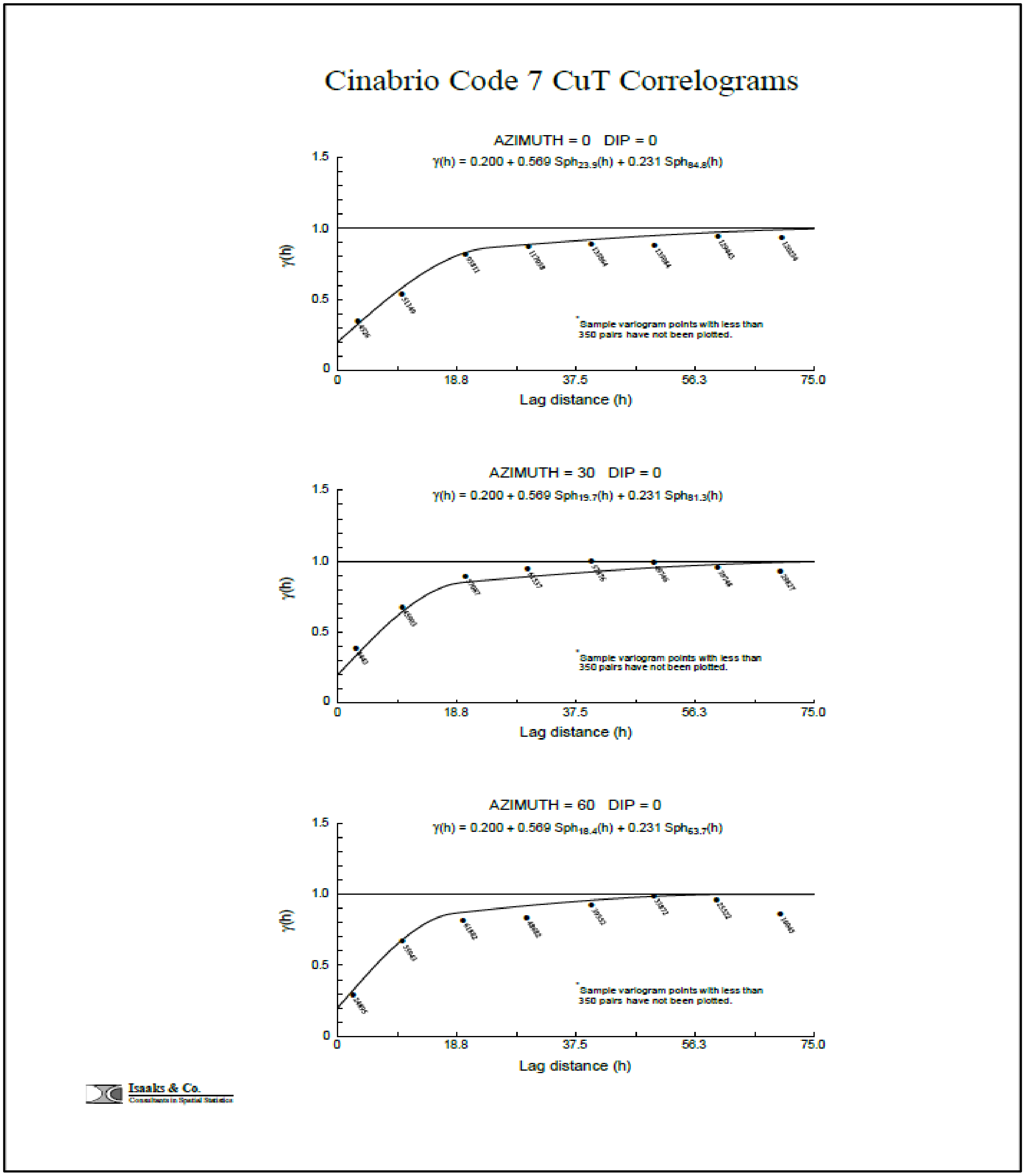
Range along the Z axis	==> 52.4	Azimuth ==> 70	Dip ==> 45
Range along the X' axis	==> 60.1	Azimuth ==> 128	Dip ==> -27
Range along the Y' axis	==> 160.9	Azimuth ==> 19	Dip ==> -32

Modeling Criteria

Minimum number pairs req'd ==> 350
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-19: Example CuT% Correlograms



Source: Kirkham (2022)

The correlograms models for total copper and soluble copper are shown in Table 14-5. These variogram models were used to estimate total copper and soluble copper grades using ordinary kriging as the interpolator.

Table 14-5: Geostatistical Model Parameters for CuT% and CuS% within the Mineralized Domains

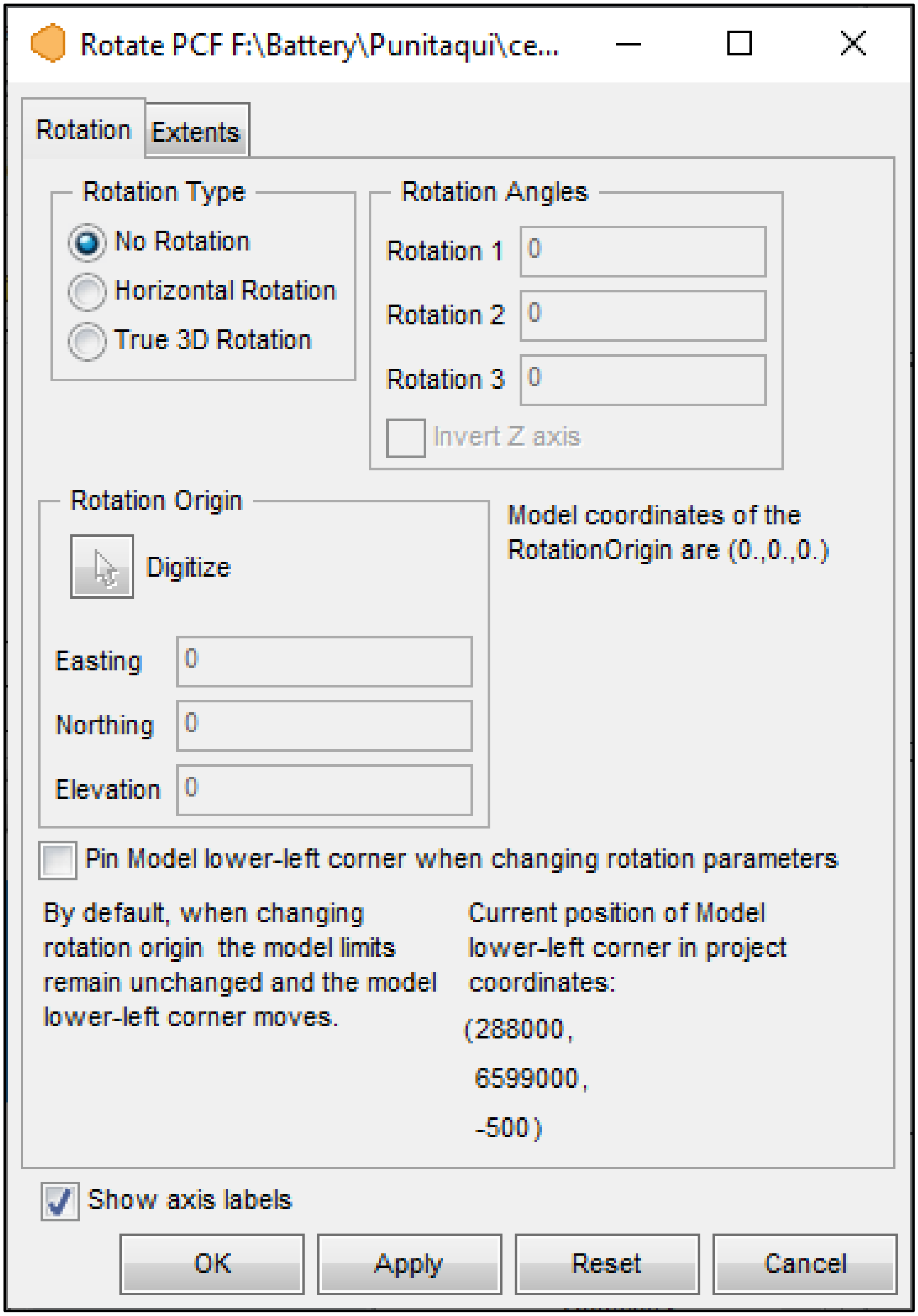
Parameter	CuT%	CuS%
Nugget (C0)	0.2	0.1
First Sill (C1)	0.569	0.579
Second Sill (C2)	0.231	0.321
1st Structure		
Range along the Z’	27.6	17.4
Range along the X'	14.6	145.7
Range along the Y'	29.6	10.4
R1 about the Z	-44	-109
R2 about the X'	12	6
R3 about the Y'	48	2
2nd Structure		
Range along the Z'	160.9	652.6
Range along the X'	60.1	165.7
Range along the Y'	52.4	70.9
R1 about the Z	19	3
R2 about the X'	-32	-14
R3 about the Y'	-33	-63

Source: Kirkham (2022)

14.2.1.8 Block Model Definition

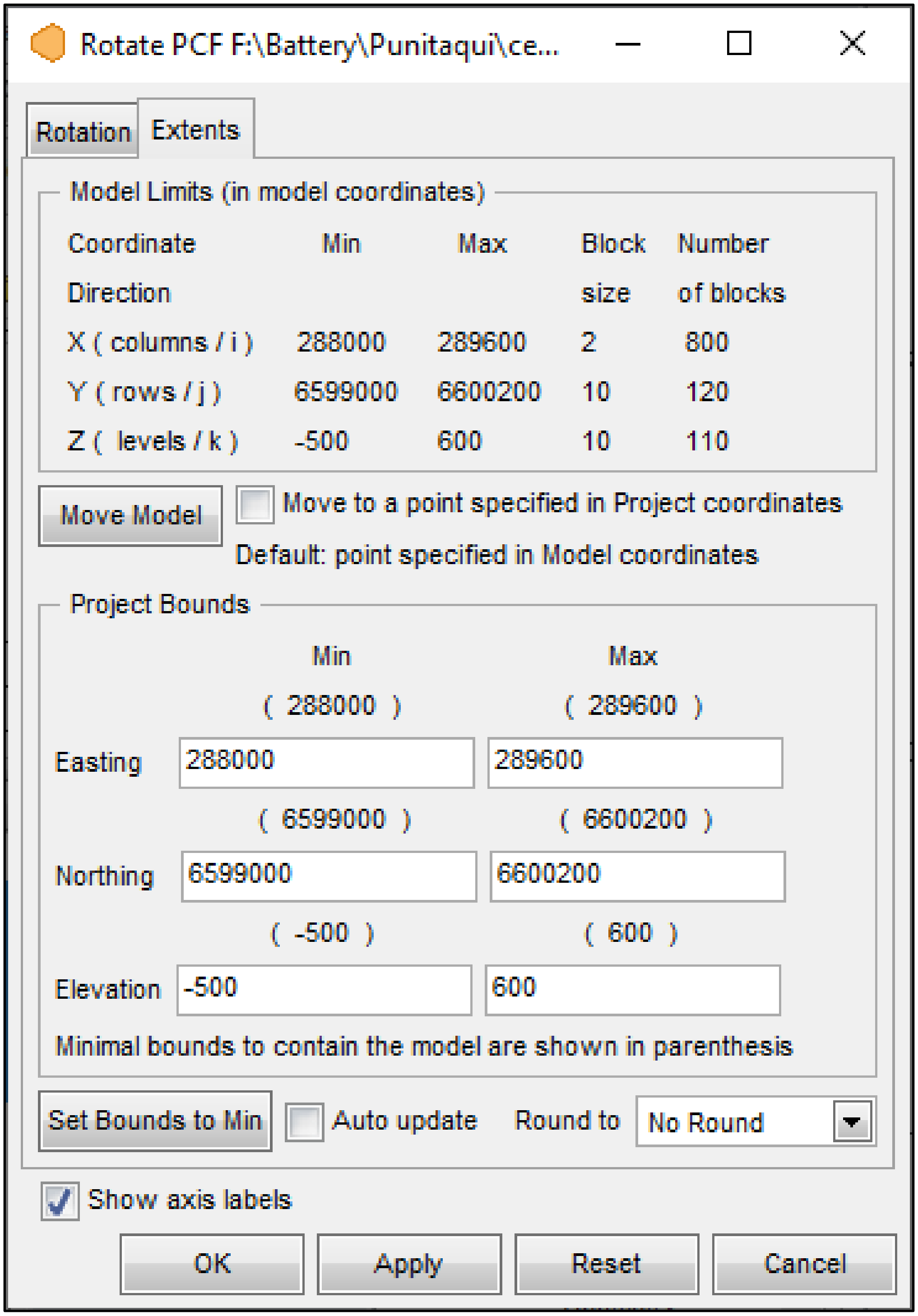
The block model used for estimating the resources was defined according to the origin and orientation shown in Figure 14-20 and the dimensions specified in Figure 14-21.

Figure 14-20: Block Model Origin & Orientation



Source: Kirkham (2022)

Figure 14-21: Block Model Extents & Dimensions



Source: Kirkham (2022)

The block model employs whole blocking for ease of mine planning and is orthogonal and non-rotated, roughly reflecting the orientation of the north and the south vein sets within the deposit. The block size chosen was 2 m x 10 m x 10 m which are subsequently sub-blocked to 0.5 m x 1 m x 1 m. Note that MineSight™ uses the centroid of the blocks as the origin.

14.2.1.9 Resource Estimation Methodology

The estimation strategy is summarized as follows:

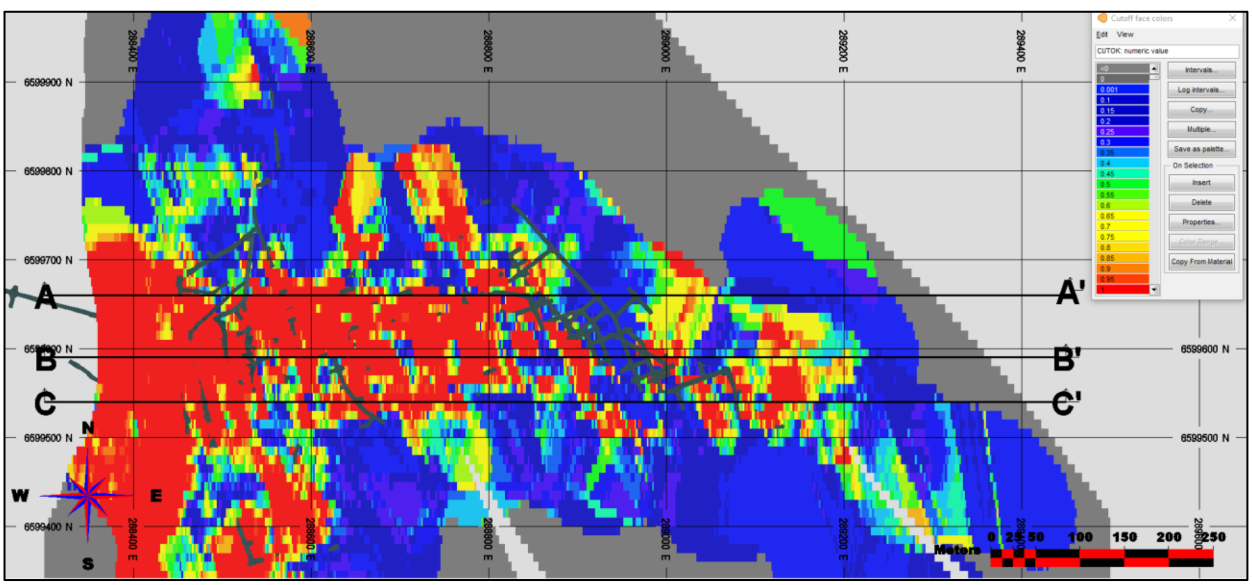
- Mineralized domain code of modelled mineralization stored in each block and sub-block;
- Specific gravity assignment for the mineralized domains;
- Total copper and soluble copper grade estimation by ordinary kriging; and
- One pass estimation for the mineralized domains using hard boundaries.

A minimum of three composites and maximum of sixteen composites, and a maximum of four composites per hole, were used to estimate block grades.

For the mineralized domains that make up the Cinabrio deposit, the search ellipsoids are omni-directional to a maximum of 100 m, and hard boundaries were used so that grade is not smeared between the units.

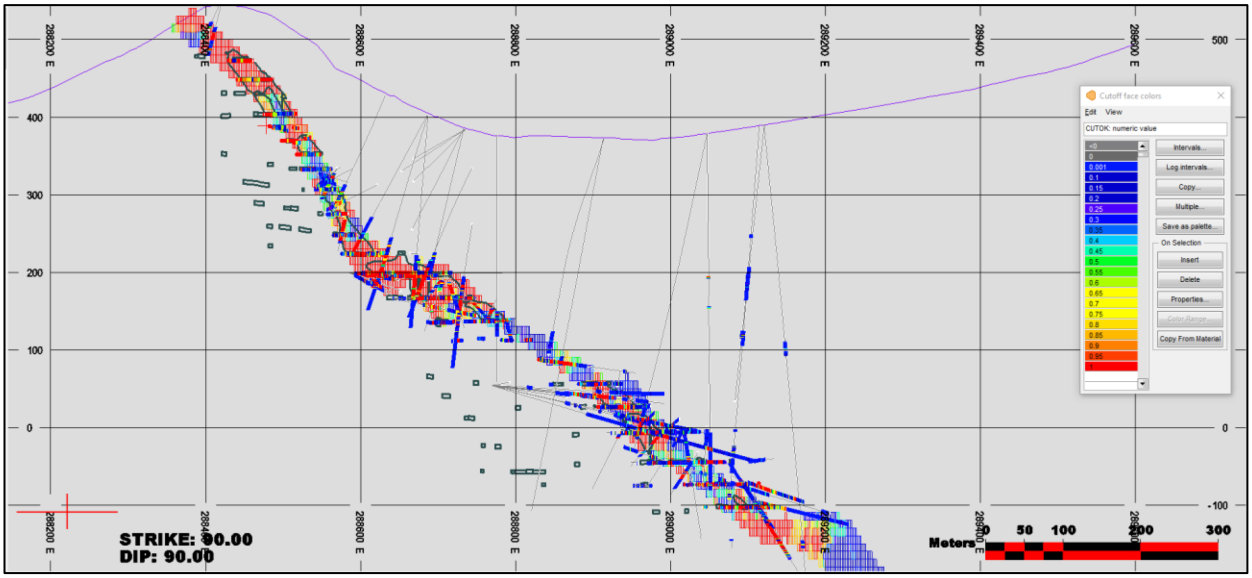
Figure 14-22 through Figure 14-25 show sectional views of the Cinabrio mine block model within which the reported resources are a sub-set which has not been depleted by mining activities to date.

Figure 14-22: Plan View of CuT% Block Model



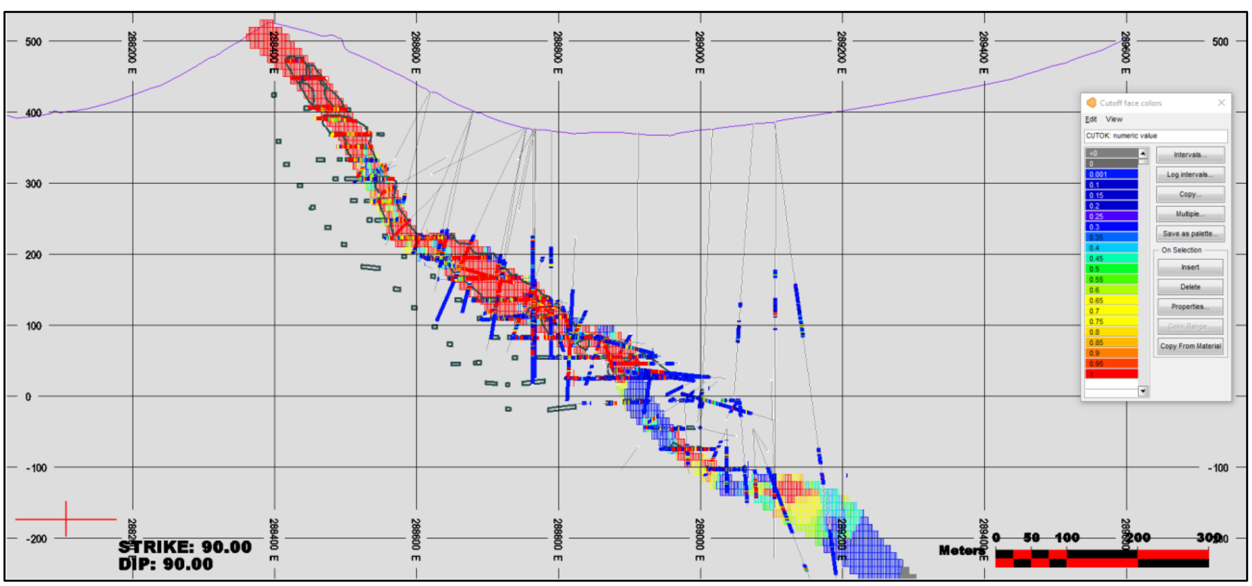
Source: Kirkham (2022)

Figure 14-23: A-A' Section View of CuT at 6599540 North



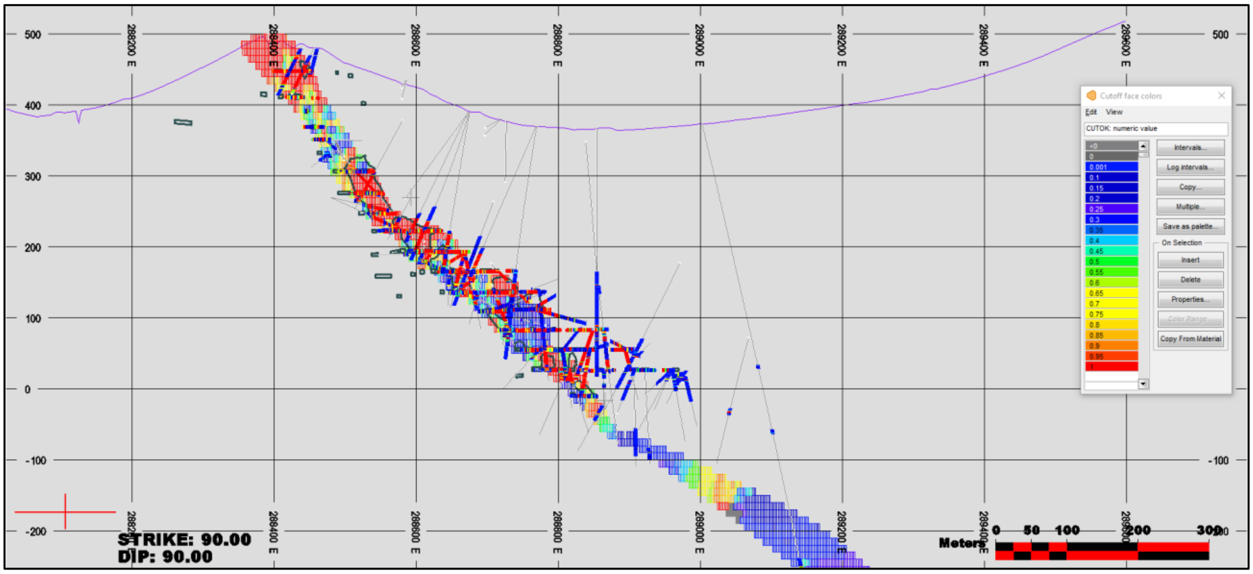
Source: Kirkham (2022)

Figure 14-24: B-B' Section View of CuT at 6599590 North



Source: Kirkham (2022)

Figure 14-25: C-C' Section View of CuT at 6599660 North



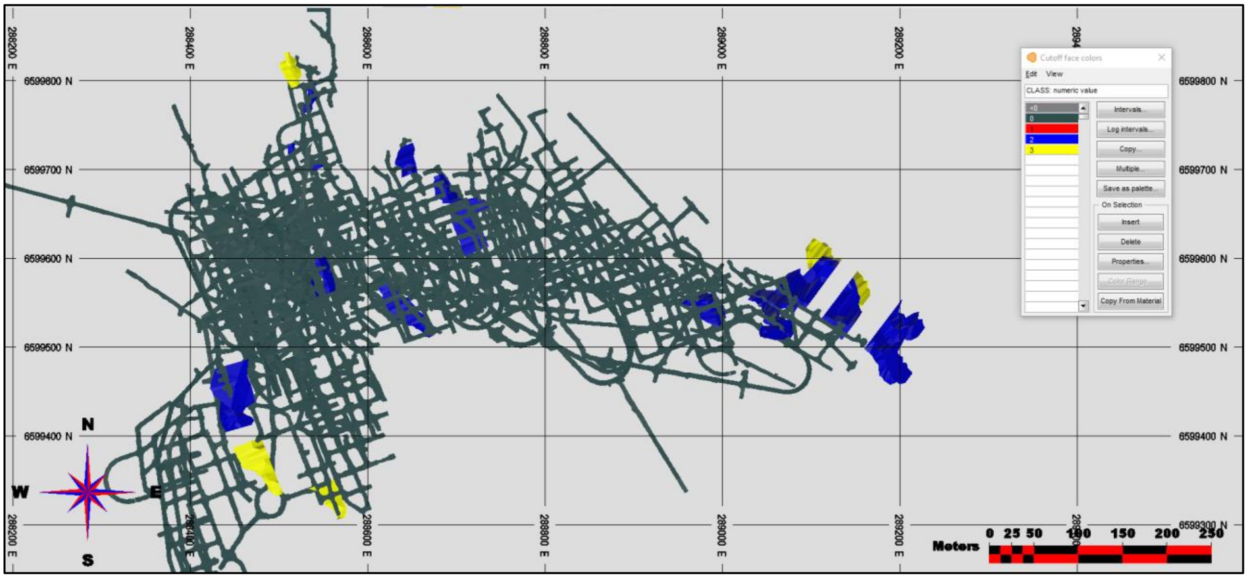
Source: Kirkham (2022)

14.2.1.10 Mineral Resource Classification

Mineral resources were estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserve Best Practices" Guidelines (2019). Mineral resources are not mineral reserves and do not have demonstrated economic viability. Mineral resources for the Cinabrio deposit were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (2014) by Garth Kirkham, P. Geo., of Kirkham Geosystems Ltd. (KGL), an Independent Qualified Person as defined by NI 43-101.

Resources were classified based on proximity to existing mine development with indicated resources having drift development in direct contact with the resource domains and inferred domains being directly adjacent to mine development. Figure 14-26 shows the indicated (blue) and inferred resource (yellow) domains in plan view.

Figure 14-26: Cinabrio Resources (Indicated – Blue; Inferred – Yellow) with Underground Development



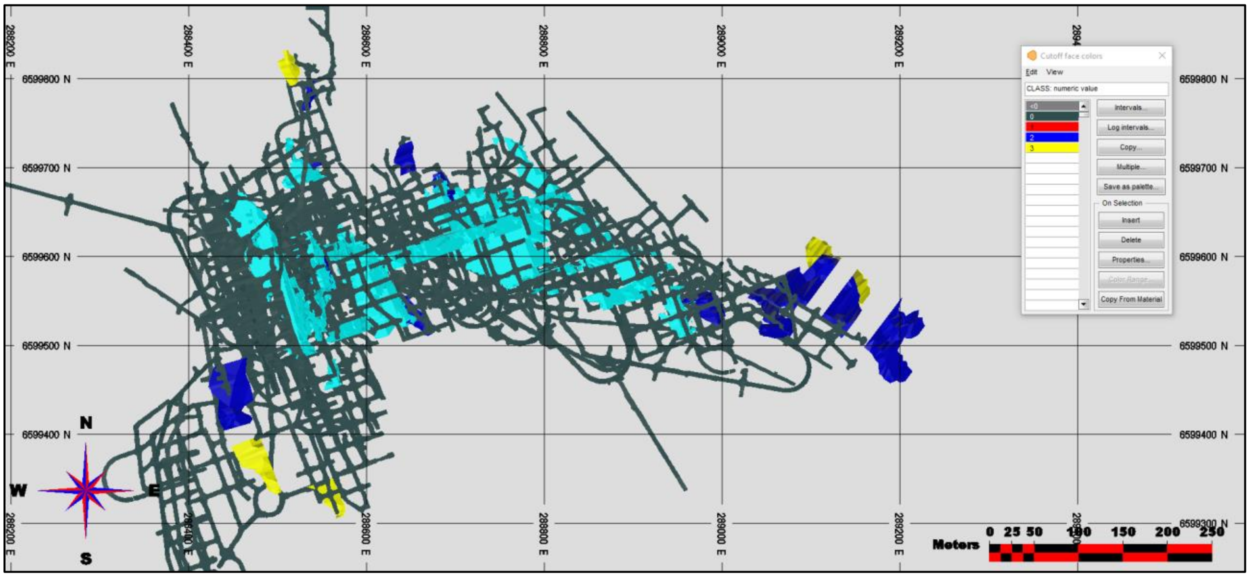
Source: Kirkham (2022)

The mineral resources may be impacted by further mining activities that may result in an increase or decrease in future resource evaluations. The mineral resources may also be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.

14.2.1.11 Pillars

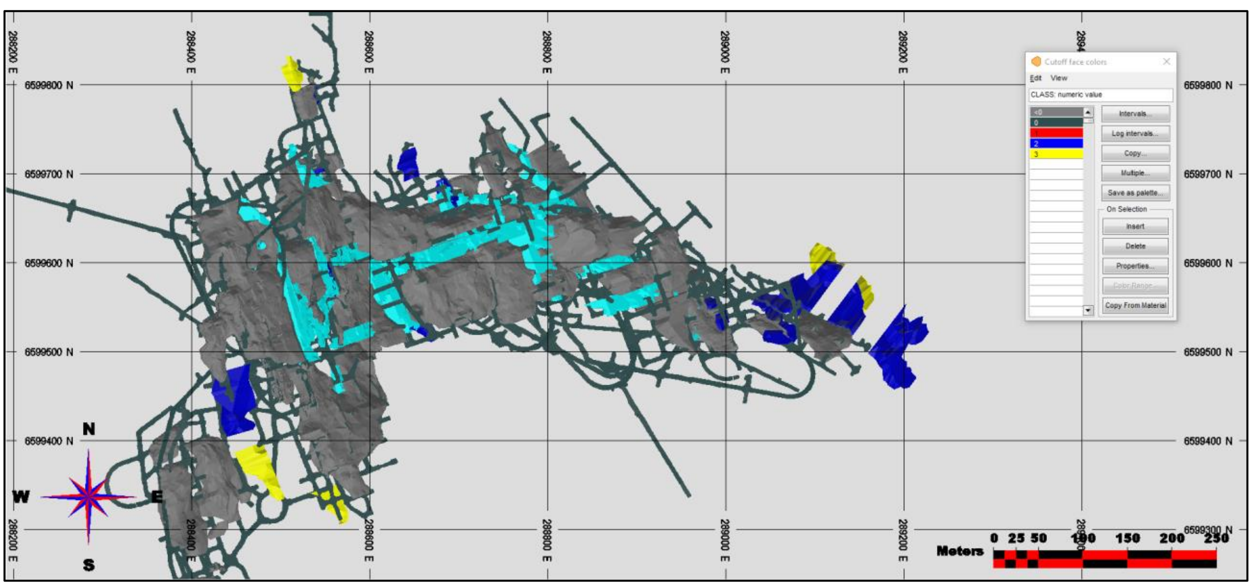
In addition, remnant pillars have been estimated within the block model as shown in Figure 14-27 and Figure 14-28. It is the opinion of the QP that the remaining pillars as identified possess a reasonable expectation of eventual economic extraction. The have been estimated on an undiluted and fully diluted basis.

Figure 14-27: Plan View of Resource Domains (Indicated – Blue; Inferred – Yellow) with Underground Development and Pillars (light blue)



Source: Kirkham (2022)

Figure 14-28: Plan View of Resource Domains (Indicated – Blue; Inferred – Yellow) with Underground Development, Historic Stopes and Pillars (light blue)



Source: Kirkham (2022)

14.2.1.12 Mineral Resource Estimate

This estimate is based upon the reasonable prospect of eventual economic extraction based on continuity and confidence, using reasonable, established mining solids along with reasonable estimates of operating costs and price assumptions. The “reasonable prospects for eventual economic extraction” were tested using reasonable stope designs employed at the mine operation and based on reasonable economic assumptions.

Table 14-6 shows tonnage and grade in the Cinabrio Deposit and includes all domains at a 0.7% CuT cut-off grade and Table 14-7 shows the undiluted and diluted resources within the Cinabrio pillars.

Table 14-6: Resource Estimate Using 0.7 g CuT% Cut-off

Class	Cut-off (Cut%)	Tonnes	CuT%
Indicated	>=0.7	378,000	1.55
Inferred	>=0.7	90,000	0.98

Source: Kirkham (2022)

Table 14-7: Indicated Resources for Cinabrio Potentially Recoverable Pillars

	Tonnes	CuT%
Undiluted	1,027,000	1.51
Diluted	1,312,000	1.27

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

14.2.1.13 Sensitivity of the Block Model to Selection Cut-off Grade

The mineral resources are sensitive to the selection of cut-off grade. Table 14-8 shows tonnage and grade in the Cinabrio deposit at different copper cut-off grades.

The reader is cautioned that these values should not be misconstrued as a mineral reserve. The reported quantities and grades are only presented as a sensitivity of the resource model to the selection of cut-off grade.

Table 14-8: Sensitivity Analyses of Tonnage along with CuT% Grades at Various Cut-offs

Cinabrio	Cut-off (Cut%)	Tonnes	CuT%
Indicated	>=0.9	317,000	1.69
	>=0.8	351,000	1.61
	>=0.7	**378,800**	**1.55**
	>=0.6	404,000	1.49
	>=0.5	435,000	1.42
Inferred	>=0.9	53,000	1.11
	>=0.8	72,000	1.04
	>=0.7	**90,000**	**0.98**
	>=0.6	112,000	0.92
	>=0.5	131,000	0.86

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

14.2.2 San Andres

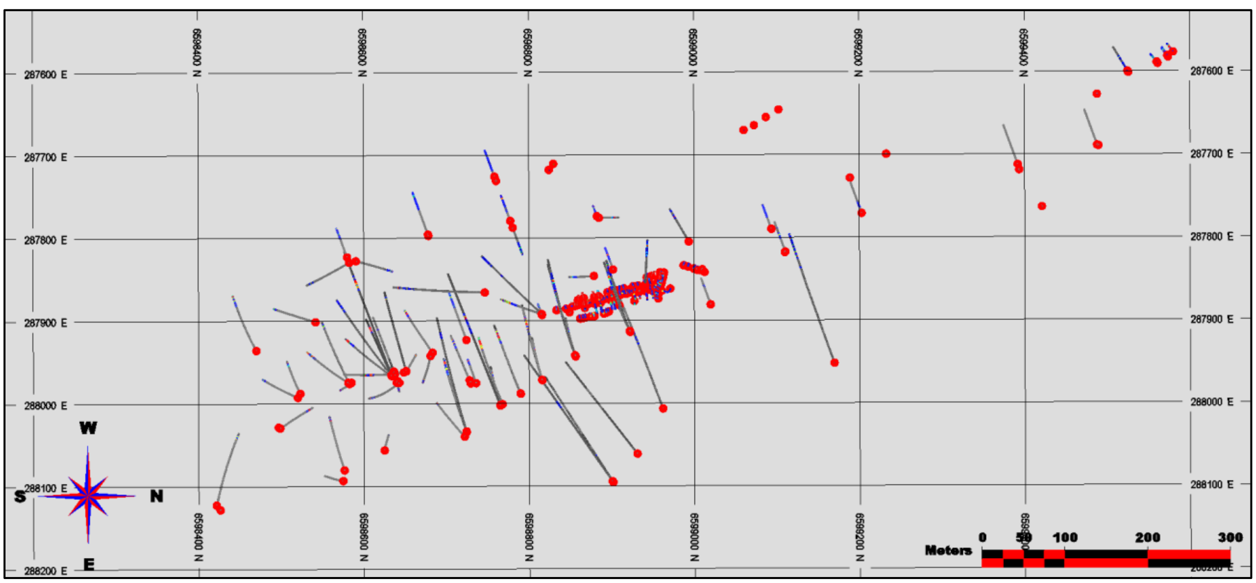
14.2.2.1 Data

The drill hole database was supplied in electronic format (i.e., Microsoft Excel) by BMR. This included collars, down hole surveys, lithology data and assay data (i.e., total copper and soluble copper in %, and silver in g/t), and down hole (“from” and “to” intervals in metric units). Lithology group and description information was provided, along with abbreviated alpha-numeric and numeric codes. The database includes a combination of surface and underground drill hole data along with extensive underground channel sample data as San Andres is a mature operation.

A total of 2,853 surface drill holes and underground channel samples were imported.

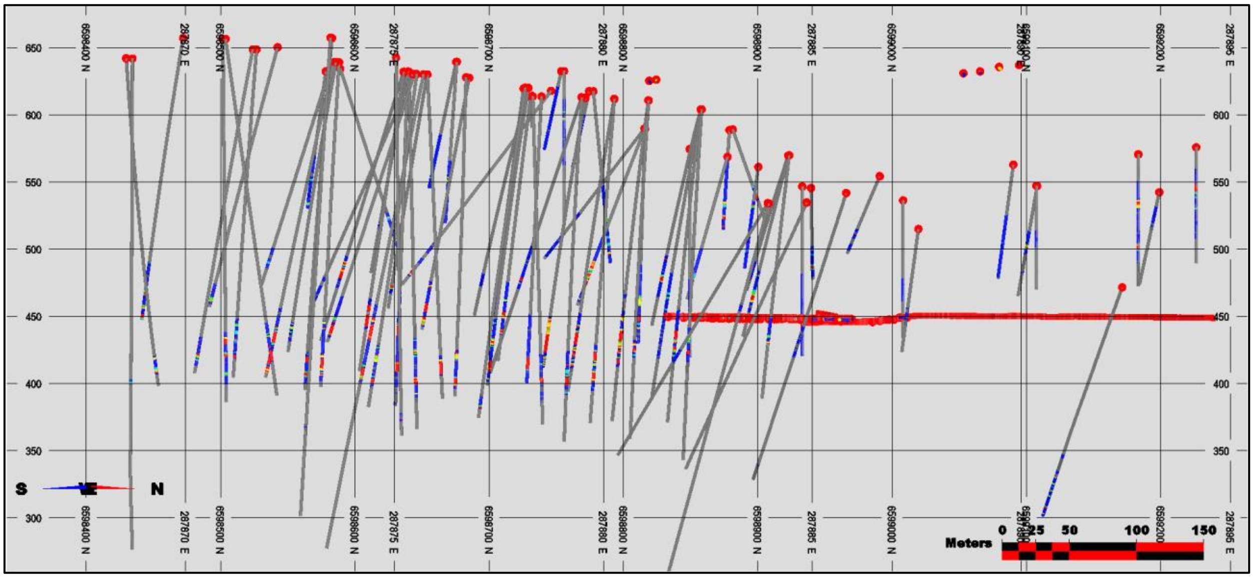
Figure 14-29 and Figure 14-30 show long section and section views of drill holes with collars and channel samples. A total of 27,353 assay values and 6,295 lithology values, primarily for the drill hole data, were supplied for the San Andres Project. Validation and verification checks were performed during import to confirm there were no overlapping intervals, typographic errors, or anomalous entries.

Figure 14-29: Plan View of Drill Holes



Source: Kirkham (2022)

Figure 14-30: Long Section View of Drill Holes with Underground Development

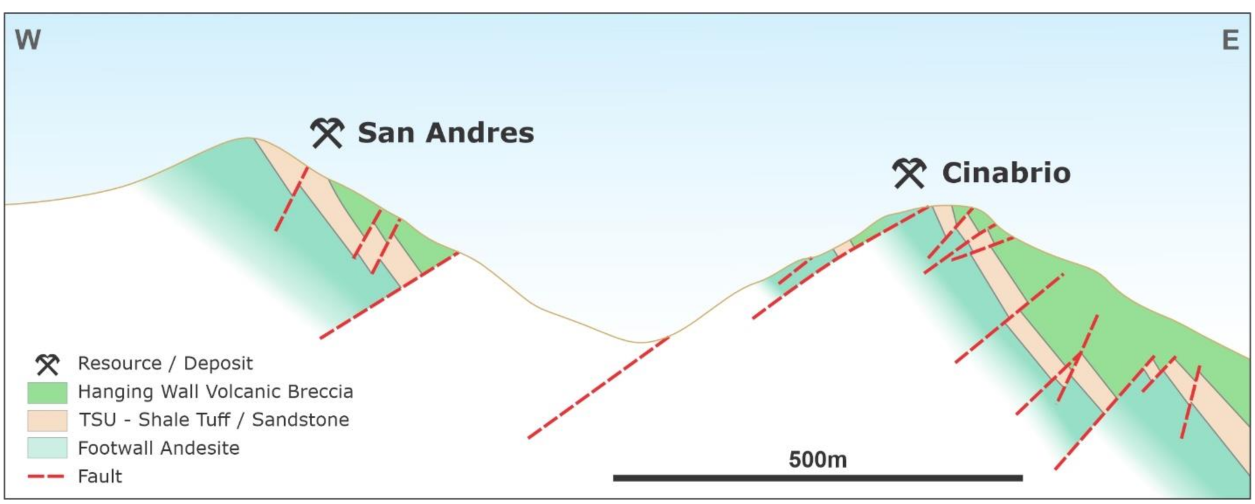


Source: Kirkham (2022)

14.2.2.2 Geology & Domain Model

A two-phased modelling approach was taken to creating geology and estimation domains that included a lithostratigraphic model and domain modelling. The lithology models were completed using the lithology codes within the database as shown in Figure 14-31.

Figure 14-31: Section View Schematic of Lithology for the San Andres Deposit Looking North



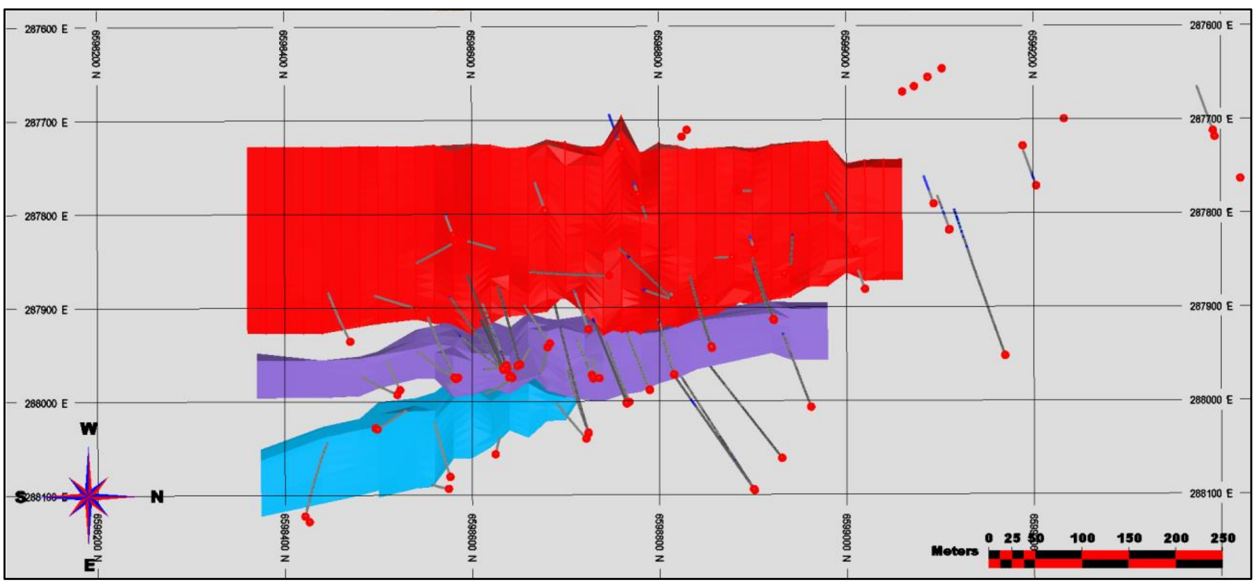
Source: Skarmeta (2020)

The models were created from first principals using the lithostratigraphic models and the structural modelling as guides within LeapFrog™ and refined in MineSight™ under the supervision of the independent QP for statistical analysis and to be used for the estimation process. This was done utilizing the current and re- logged data, and from sectional interpretations that were subsequently wireframed based on a combination of lithology and copper grades.

Once completed, intersections were inspected, and the solids were then manually adjusted to match the drill intercepts. Once the solid models were edited and complete, they were used to code the drill hole assays and composites for subsequent statistical and geostatistical analysis. The solid zones were utilized to constrain the block model, by matching assays to those within the zones.

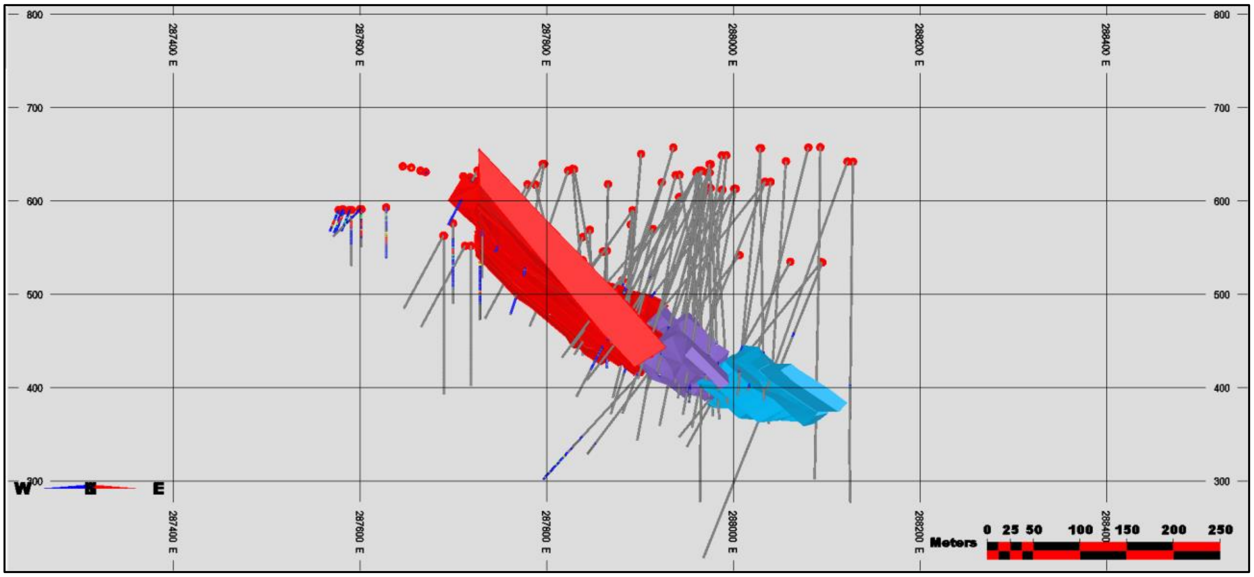
The orientation and ranges (distances) utilized for the search ellipsoids used in the estimation process were omni-directional and guided the strike and dip of the lithologic solids for domains shown in Figure 14-32 and Figure 14-33. The domain models were employed to estimate the structures on a sub-block basis to best characterize the deposit for subsequent estimation and boundary definition.

Figure 14-32: Plan View of Drill Holes with Mineralized Domains



Source: Kirkham (2022)

Figure 14-33: Section View of Drill Holes with Mineralized Domains



Source: Kirkham (2022)

14.2.2.3 Data Analysis

Table 14-9 shows statistics of total copper, soluble copper and silver assays within and outside the mineralized domain, along with totals. For the statistical analysis, there are 6,104 assays (3,638.2 m) in total, averaging 0.43%, including 4,127 assays (2,669.9 m) within the mineralized domains, averaging 0.50%. The maximum copper grade within the mineralized domains is 14.29%. It is important to note is that soluble copper values are extremely low which is favourable from a metallurgical perspective; this supports the focus on a sulphide mineral resource to be potentially mined using underground methods.

Silver grades appear to be economic with the average grade within the mineralized domains being 4.23 g/t and are therefore, anticipated to be included in the estimation. It is also important to note the CVs are relatively low for total copper and moderate for silver which is taken into consideration during compositing and treatment of outliers.

Table 14-9: Statistics for Weighted Total Copper, Soluble Copper and Silver Grades within the Mineralized Domains and Totals

		#	Length (m)	Max	Mean	SD	CV
CUT%	1	1,287	735.0	6.05	0.58	0.83	1.4
	2	314	214.0	4.75	0.56	0.83	1.5

		#	Length (m)	Max	Mean	SD	CV
	3	2,526	1,720.9	14.29	0.46	0.87	1.9
	Total	4,127	2,669.9	14.29	0.50	0.86	1.7
	All	6,104	3,638.2	14.29	0.43	0.79	1.8
CUS%	1	842	358.3	0.25	0.01	0.03	2.3
	2	98	29.7	0.06	0.01	0.01	2.0
	3	1,784	1,188.2	6	0.04	0.25	6.8
	Total	2,724	1,576.1	6	0.03	0.22	7.0
	All	4,180	2,250.0	6	0.09	0.35	3.9
AG	1	1,237	698.1	61.1	3.95	6.48	1.6
	2	314	214.0	18	1.93	2.83	1.5
	3	1,627	1,078.4	323.8	4.87	13.93	2.9
	Total	3,178	1,990.6	323.8	4.23	11.03	2.6
	All	4,549	2,615.5	323.8	3.57	9.76	2.7

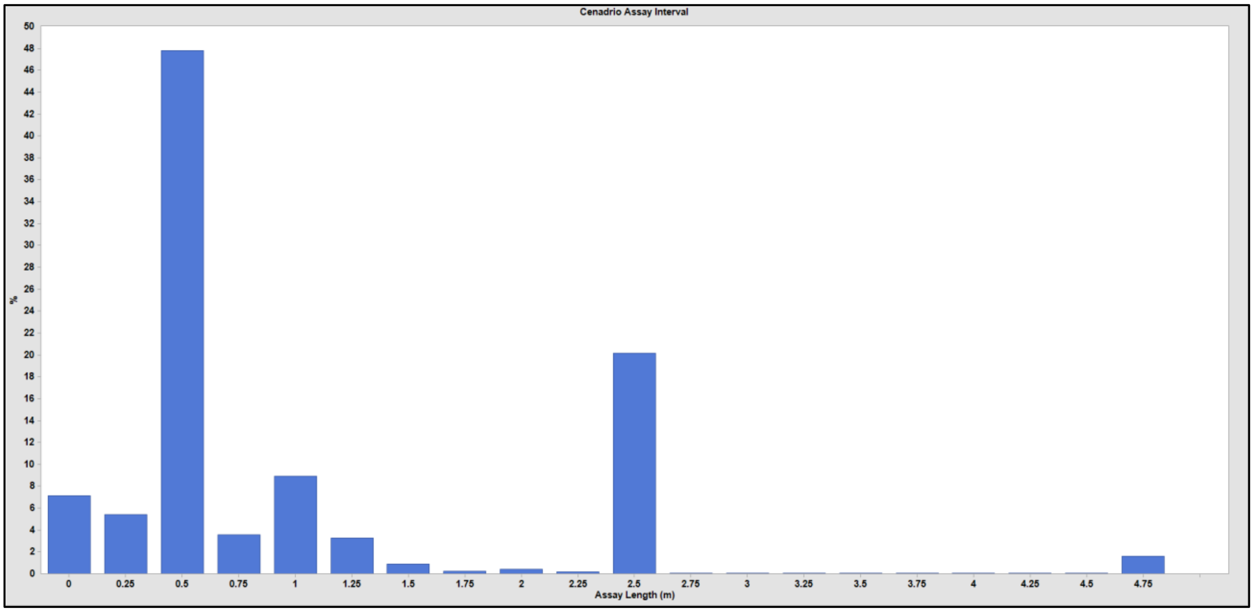
Source: Kirkham (2022)

14.2.2.4 Composites

It was determined that the 1.0 m composite lengths offered the best balance between supplying common support for samples and minimizing the smoothing of grades. Figure 14-34 shows a histogram illustrating the distribution of the assay interval lengths for the complete database with approximately 80% of the data having interval lengths greater than or equal to 1.0 m. Figure 14-35 shows the histogram of the assay intervals within the mineralized domains, where approximately 90% are less than or equal to 1.0 m and 10% are less than or equal to 0.5 m. To determine whether there may be selective sampling, an analysis of high-grade copper samples versus assay interval lengths was performed. The scatterplot of Figure 14-36 for samples within the domains shows that the assay intervals and corresponding total copper grade have the same distribution and illustrate that there is not a high-grade bias within the small intervals and sample selectivity is not occurring.

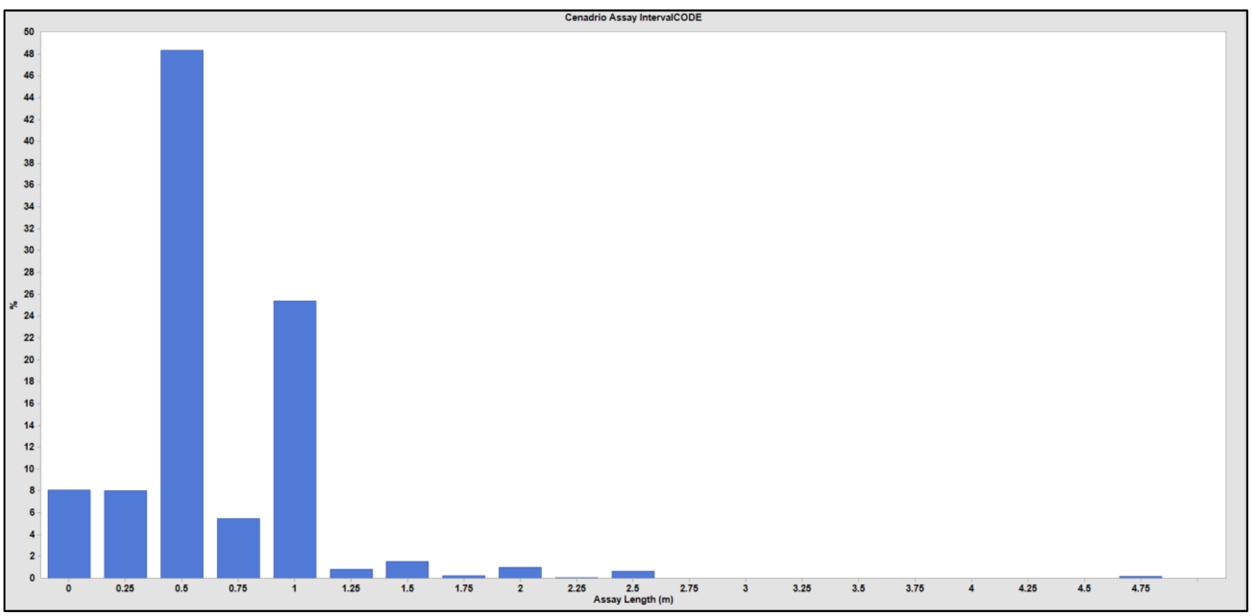
The 1.0 m sample length also was consistent with the distribution of sample lengths. It should be noted that although 1.0 m is the composite length, any residual composites of greater than 0.5 m in length and less than 1.0 m remained to represent a composite, while any composites residuals less than 0.5 m were combined with the composite above.

Figure 14-34: Histogram of Assay Interval Lengths in Meters



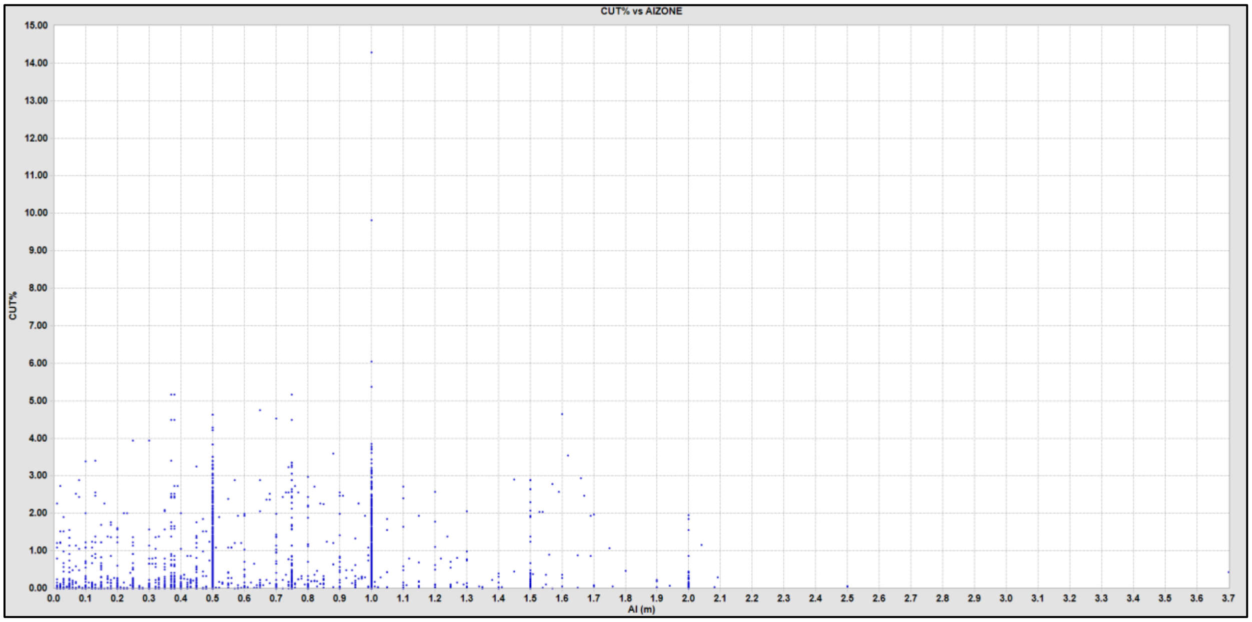
Source: Kirkham (2022)

Figure 14-35: Histogram of Assay Interval Lengths within Domains in Meters



Source: Kirkham (2022)

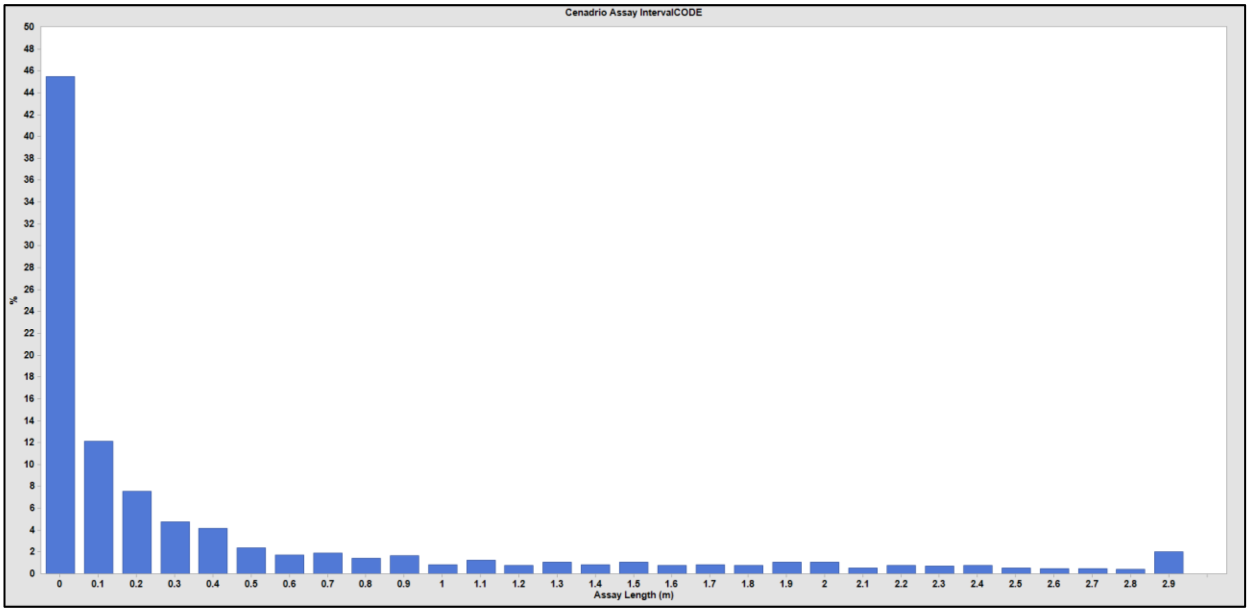
Figure 14-36: Scatterplot of Assay Interval Lengths within Veins in Meters vs. Gold Grade



Source: Kirkham (2022)

Figure 14-37 shows a histogram of the total copper composite values for composites that are assigned to the mineralized domains illustrating a classic log-normal distribution which expected for this type of deposit and was also the case of the Cinabrio mine deposit.

Figure 14-37: Histogram of CuT% Composite Grades

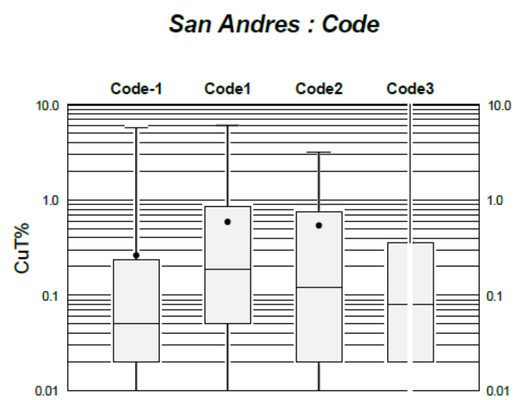


Source: Kirkham (2022)

Figure 14-38 and Figure 14-39 show that the CuT% and Ag g/t grade populations for the individual mineralized domains are statistically similar and those outside on the mineralized domains, are markedly dissimilar, while contact plots illustrate an abrupt change confirming the use of hard boundaries in addition to supporting the combination of the mineralized domains.

Figure 14-38: Box Plot for CuT% Assays (Code 1-3) Inside and Outside (Code -1) Mineralized Domains

San Andres



	Code-1	Code1	Code2	Code3	
Number of data	1088	659	184	1262	Number of data
Mean	0.263	0.59	0.541	0.359	Mean
Variance	0.291	0.69	0.596	0.601	Variance
Skewness	3.959	2.009	1.659	7.515	Skewness
Coef of Variation	2.054	1.408	1.427	2.158	Coef of Variation
Maximum	5.8	6.05	3.18	14.29	Maximum
Upper quartile	0.238	0.855	0.748	0.355	Upper quartile
Median	0.05	0.185	0.122	0.08	Median
Lower quartile	0.02	0.05	0.02	0.02	Lower quartile
Minimum	0.0	0.0	0.0	0.0	Minimum

Variable: CuT%
Acceptable range: 0.0 to 100.0
Weights: LNGTH

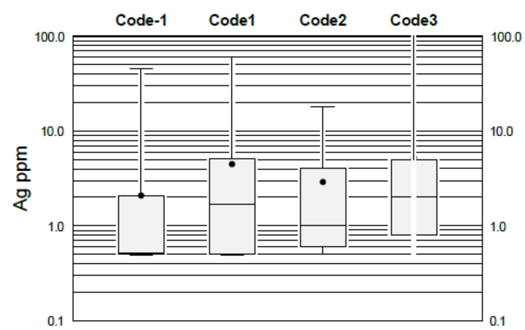
Code-1 file: code-1.prn
Code1 file: code1.prn
Code2 file: code2.prn
Code3 file: code3.prn

Source: Kirkham (2022)

Figure 14-39: Box Plot for Ag g/t Assays (Code 1-3) Inside and Outside (Code -1) Mineralized Domains

San Andres

San Andres : Code



	Code-1	Code1	Code2	Code3	
Number of data	685	524	96	991	Number of data
Mean	2.091	4.482	2.905	5.26	Mean
Variance	13.295	45.592	13.712	207.419	Variance
Skewness	5.064	3.083	2.288	15.108	Skewness
Coef of Variation	1.744	1.507	1.275	2.738	Coef of Variation
Maximum	46.0	61.1	18.0	323.8	Maximum
Upper quartile	2.1	5.055	4.089	5.0	Upper quartile
Median	0.515	1.7	1.0	2.0	Median
Lower quartile	0.5	0.5	0.6	0.8	Lower quartile
Minimum	0.5	0.5	0.5	0.5	Minimum

Variable: Ag ppm
Acceptable range: 0.0 to 1000.0
Weights: LNGTH

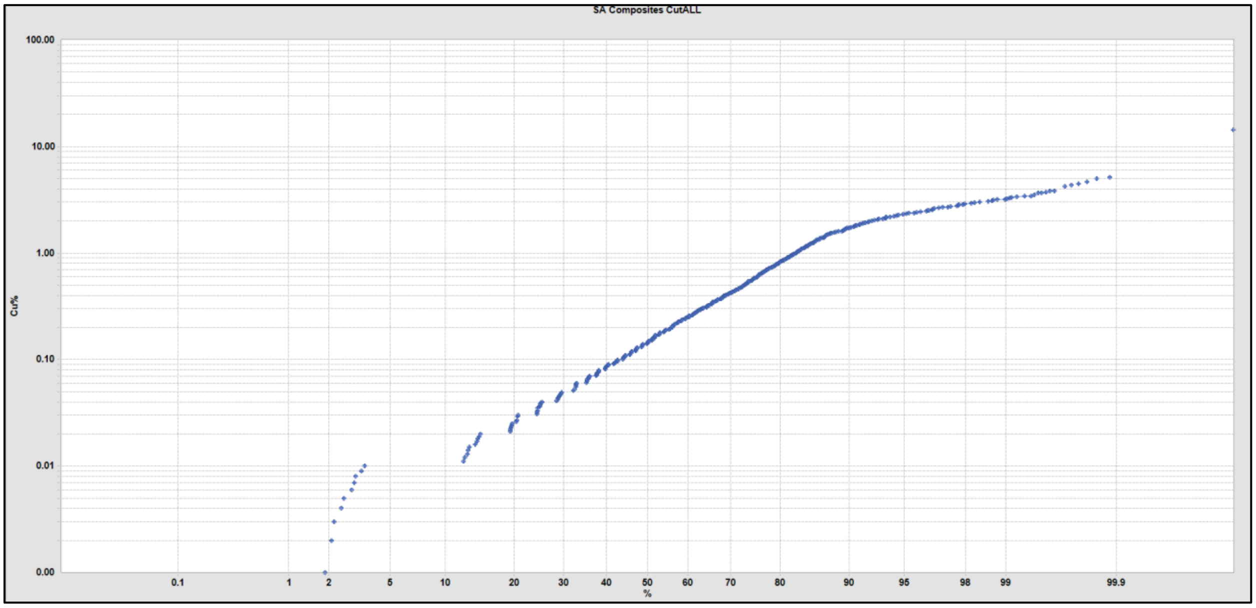
Code-1 file: code-1.prn
Code1 file: code1.prn
Code2 file: code2.prn
Code3 file: code3.prn

Source: Kirkham (2022)

14.2.2.5 Evaluation of Outlier Assay Values

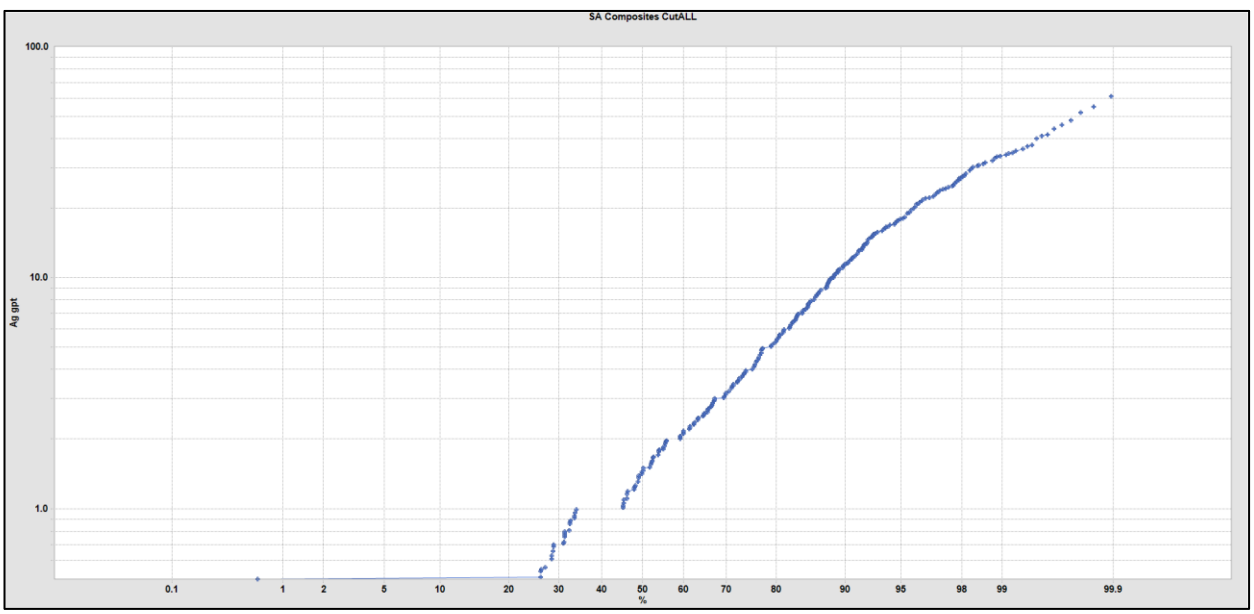
During the estimation process, the influence of outlier composites is controlled to limit their influence and to ensure against over-estimation of metal content. The high-grade outlier thresholds were chosen by domain and are based on an analysis of the breaks in the cumulative frequency plots within the mineralized domains. Figure 14-40 and Figure 14-41 show the total copper and silver cumulative frequency plots for composites within mineralized domains, respectively.

Figure 14-40: CuT% Cumulative Frequency Plot for Composites within the Mineralized Domains



Source: Kirkham (2022)

Figure 14-41: Ag g/t% Cumulative Frequency Plot for Composites within the Mineralized Domains



Source: Kirkham (2022)

In the case of the total copper composites the results illustrate that the threshold value appropriate for cutting grades are 4% for total copper and 20 g/t silver within the mineralized domains.

Table 14-10 shows the effects of cutting the outlier grades within the domain groupings and outside. The conclusion is that the cutting strategy is successful in addressing the outlier grade populations due to the reductions in variability as indicated by the low CV's.

Table 14-10: Cut vs. Uncut Comparisons for Total Copper and Silver Composites

		Maximum	Mean	CV	Cut Grade	Mean	CV
CUT%	1	14.29	0.52	1.6	4	0.51	1.5
	All	14.29	0.43	1.8	4	0.42	1.7
AG	1	323.8	4.37	2.5	20	3.73	1.4
	All	323.8	3.57	2.7	20	3.10	1.5

Source: Kirkham (2022)

14.2.2.6 Specific Gravity Estimation

Specific gravity (SG) is assigned by zone using standard water displacement methods. The SG assigned for the domains is determined at 2.65 from 50 measurements. It is recommended that future work programs should continue to include SG measurements to expand the density distributions, particularly within the main lithologic units.

14.2.2.7 Variography

Experimental variograms and variogram models in the form of correlograms were generated for total copper and silver grades. The definition of nugget value was derived from the downhole variograms. The correlograms for total copper and silver within domains are shown in Figure 14-42 and Figure 14-43, respectively along with an example of the correlogram for total copper within the domains in Figure 14-44.

Figure 14-42: CuT% Correlogram Models

San Andres Combined CuT Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.067
C1 ==> 0.780
C2 ==> 0.153

First Structure -- Spherical

LH Rotation about the Z axis ==> 26
RH Rotation about the X' axis ==> -9
LH Rotation about the Y' axis ==> -8

Range along the Z' axis ==> 5.7	Azimuth ==> 69	Dip ==> 78
Range along the Y' axis ==> 14.6	Azimuth ==> 26	Dip ==> -9
Range along the X' axis ==> 17.5	Azimuth ==> 117	Dip ==> -8

Second Structure -- Spherical

LH Rotation about the Z axis ==> -71
RH Rotation about the X' axis ==> 66
LH Rotation about the Y' axis ==> 73

Range along the Z axis ==> 346.0	Azimuth ==> 183	Dip ==> 7
Range along the X' axis ==> 22.6	Azimuth ==> 90	Dip ==> 23
Range along the Y' axis ==> 82.4	Azimuth ==> 289	Dip ==> 66

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-43: CuS% Correlogram Models

San Andres Combined Ag Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.147
C1 ==> 0.732
C2 ==> 0.121

First Structure -- Spherical

LH Rotation about the Z axis ==> 7
RH Rotation about the X' axis ==> 37
LH Rotation about the Y' axis ==> -3

Range along the Z' axis ==> 24.9	Azimuth ==> 182 Dip ==> 53
Range along the Y' axis ==> 4.1	Azimuth ==> 7 Dip ==> 37
Range along the X' axis ==> 90.4	Azimuth ==> 95 Dip ==> -2

Second Structure -- Spherical

LH Rotation about the Z axis ==> -105
RH Rotation about the X' axis ==> 54
LH Rotation about the Y' axis ==> 79

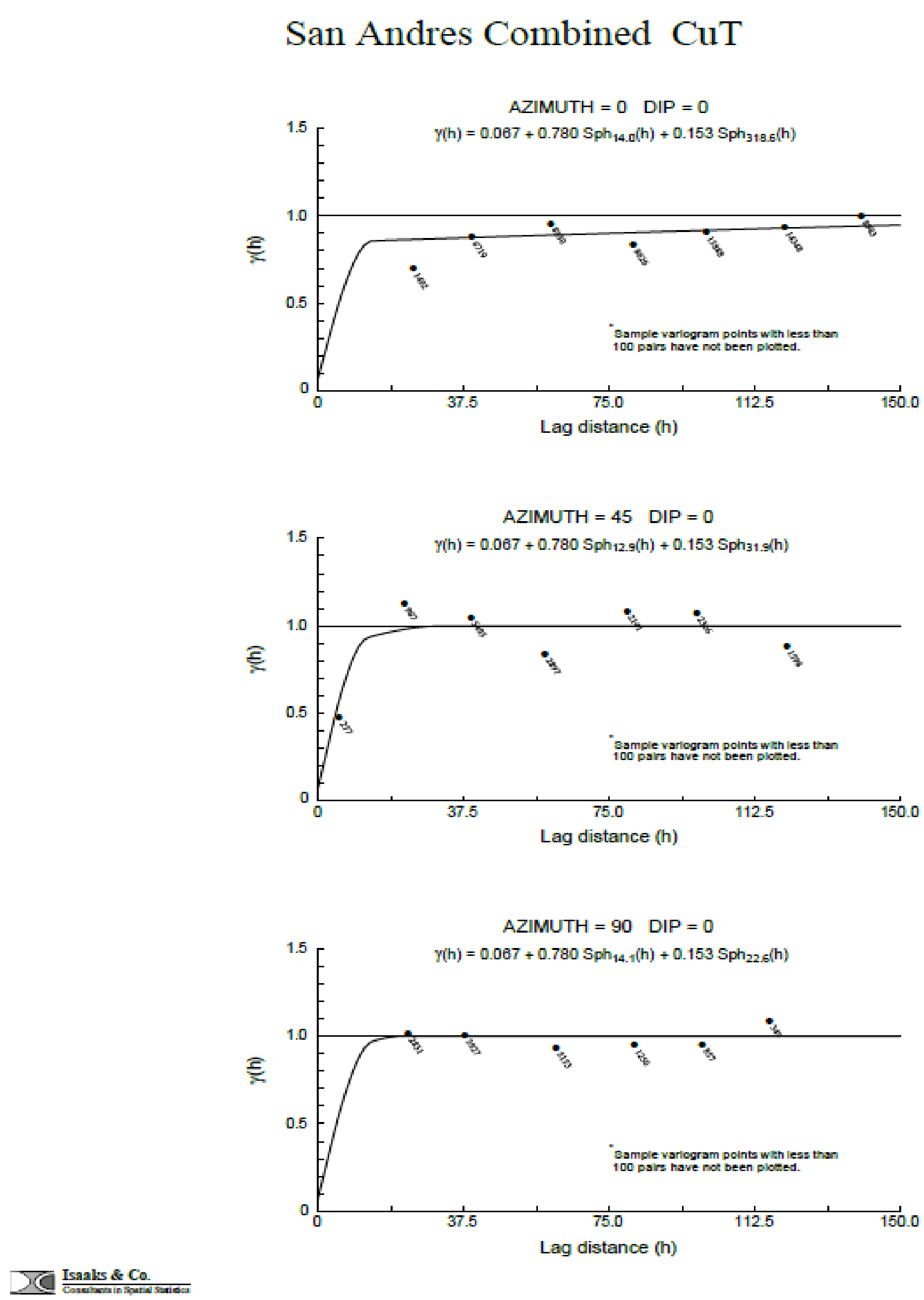
Range along the Z axis ==> 582.7	Azimuth ==> 156 Dip ==> 6
Range along the X' axis ==> 63.6	Azimuth ==> 61 Dip ==> 35
Range along the Y' axis ==> 134.4	Azimuth ==> 255 Dip ==> 54

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-44: Example CuT% Correlograms



Source: Kirkham (2022)

The correlograms models for total copper and silver are shown in Table 14-11 and they were used to estimate total copper and silver grades using ordinary kriging as the interpolator.

Table 14-11: Geostatistical Model Parameters for CuT% and Ag g/t within the Mineralized Domains

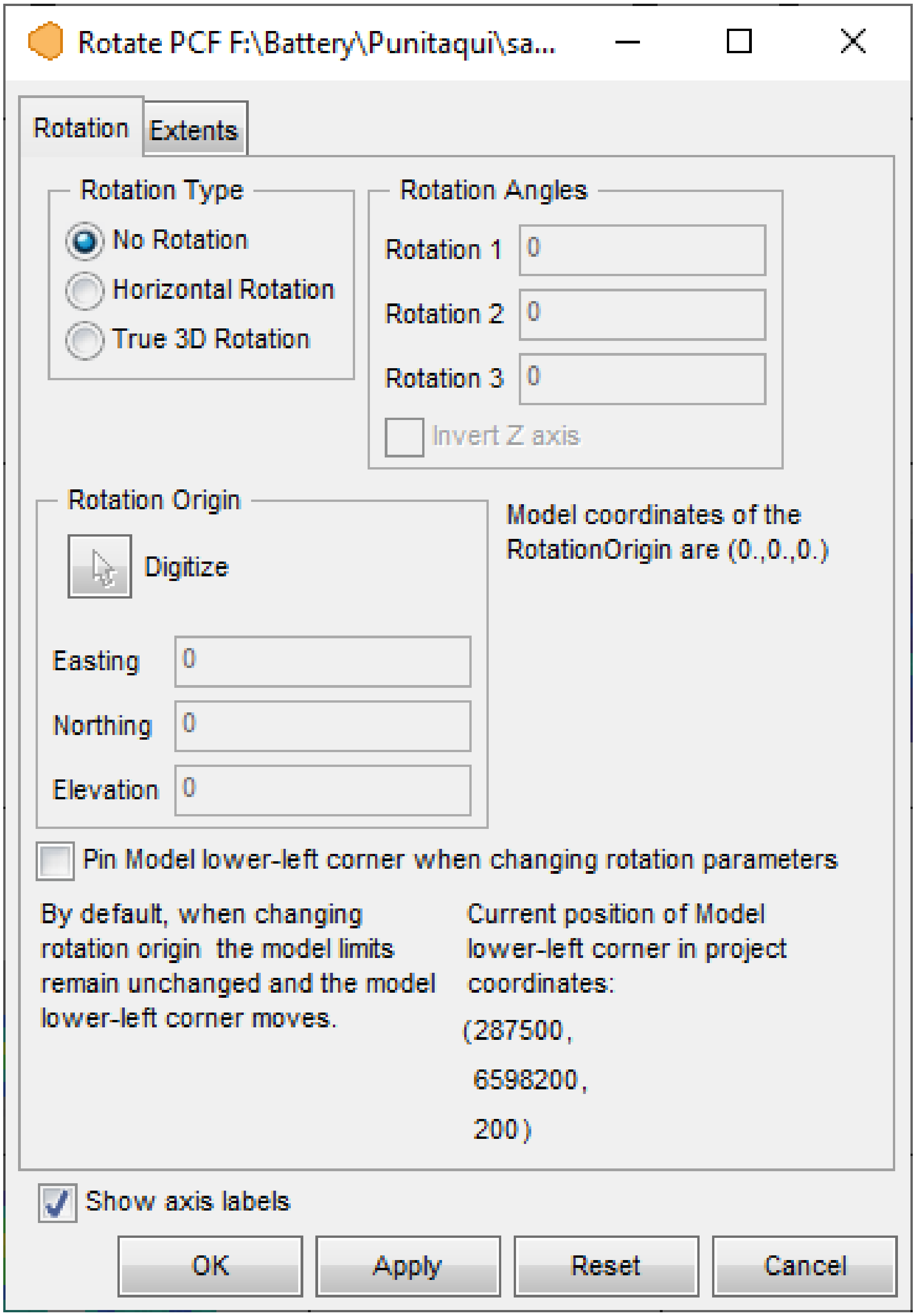
Parameter	CuT%	Ag g/t
Nugget (C0)	0.067	0.147
First Sill (C1)	0.78	0.732
Second Sill (C2)	0.153	0.121
1st Structure		
Range along the Z'	5.7	24.9
Range along the X'	14.6	4.1
Range along the Y'	17.5	90.4
R1 about the Z	26	7
R2 about the X'	-9	37
R3 about the Y'	-8	-3
2nd Structure		
Range along the Z'	346	582.7
Range along the X'	22.6	63.6
Range along the Y'	82.4	134.4
R1 about the Z	-71	-105
R2 about the X'	66	54
R3 about the Y'	73	79

Source: Kirkham (2022)

14.2.2.8 Block Model Definition

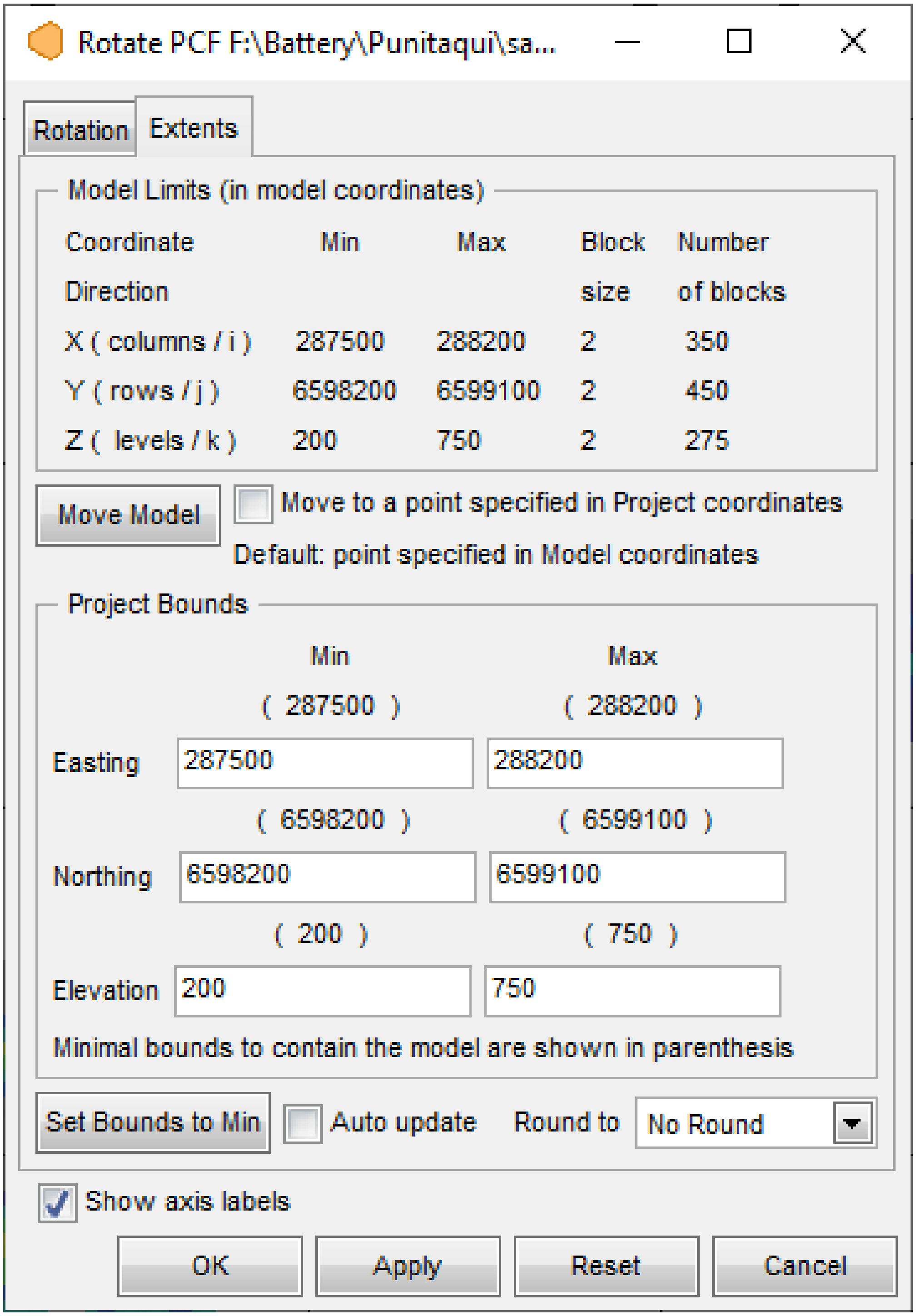
The block model used for estimating the resources was defined according to the origin and orientation shown in Figure 14-45 and the limits specified in Figure 14-46.

Figure 14-45: Block Model Origin & Orientation



Source: Kirkham (2022)

Figure 14-46: Block Model Extents & Dimensions



Source: Kirkham (2022)

The block model employs whole blocking for ease of mine planning and is orthogonal and non-rotated, roughly reflecting the orientation of the north and the south vein sets within the deposit. The block size chosen was 2 m x 10 m x 10 m which were subsequently sub-blocked to 0.5 m x 1 m x 1 m. Note that MineSight™ uses the centroid of the blocks as the origin.

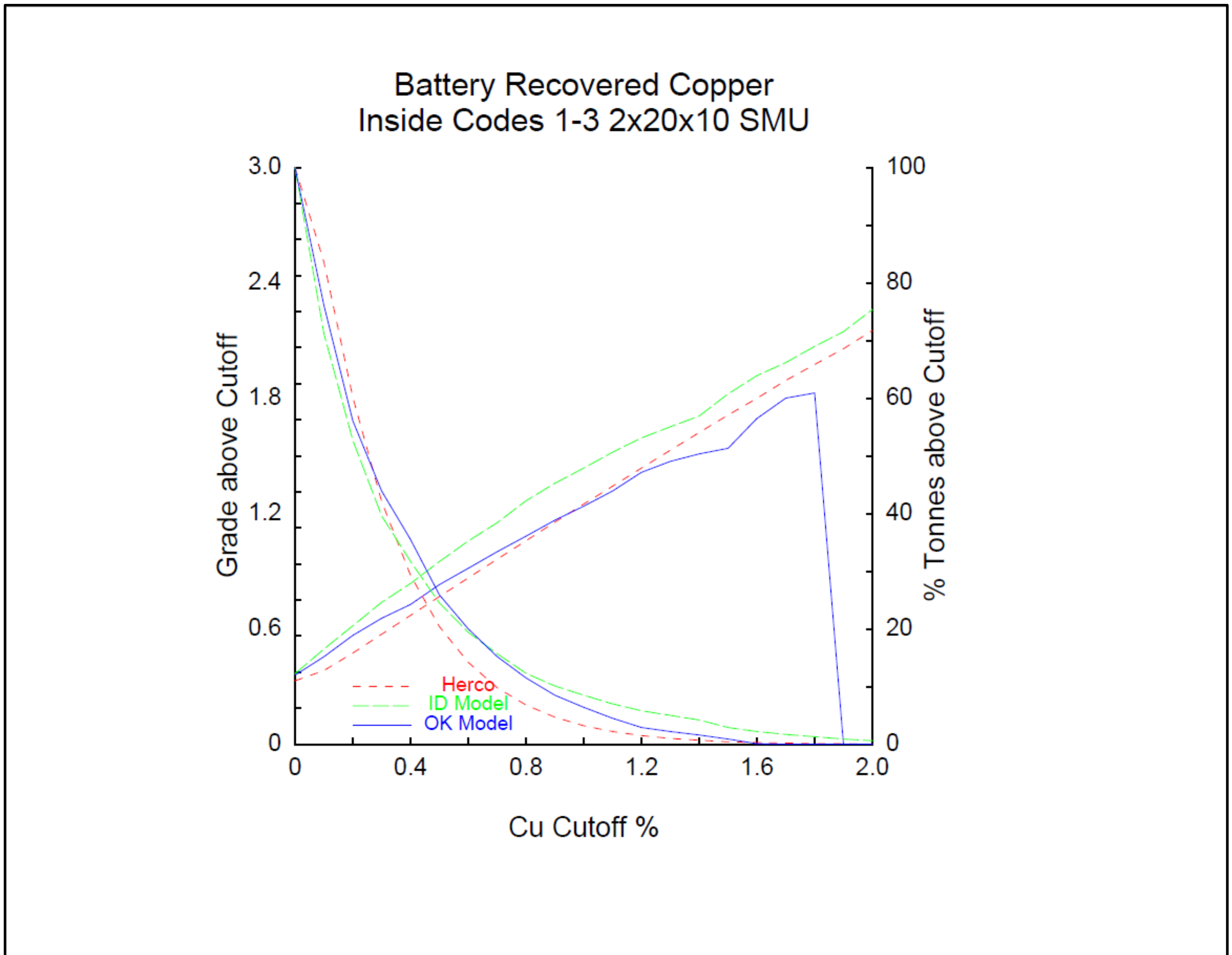
14.2.2.9 Resource Estimation Methodology

The estimation strategy for the San Andres resource model is summarized as follows:

- Domain code of modelled mineralization stored in each block and sub-block,
- Specific gravity assignment for the mineralized domains,
- Block total copper and silver grade estimation by ordinary kriging,
- One pass estimation for the mineralized domains using hard boundaries.

A minimum of five composites and maximum of twenty composites, and a maximum of five composites per hole, were used to estimate block grades. Following Herco analysis (Figure 14-47), it was determined there is an appropriate amount of smoothing.

Figure 14-47: Herco Plot for Copper Estimates



Source: Kirkham (2022)

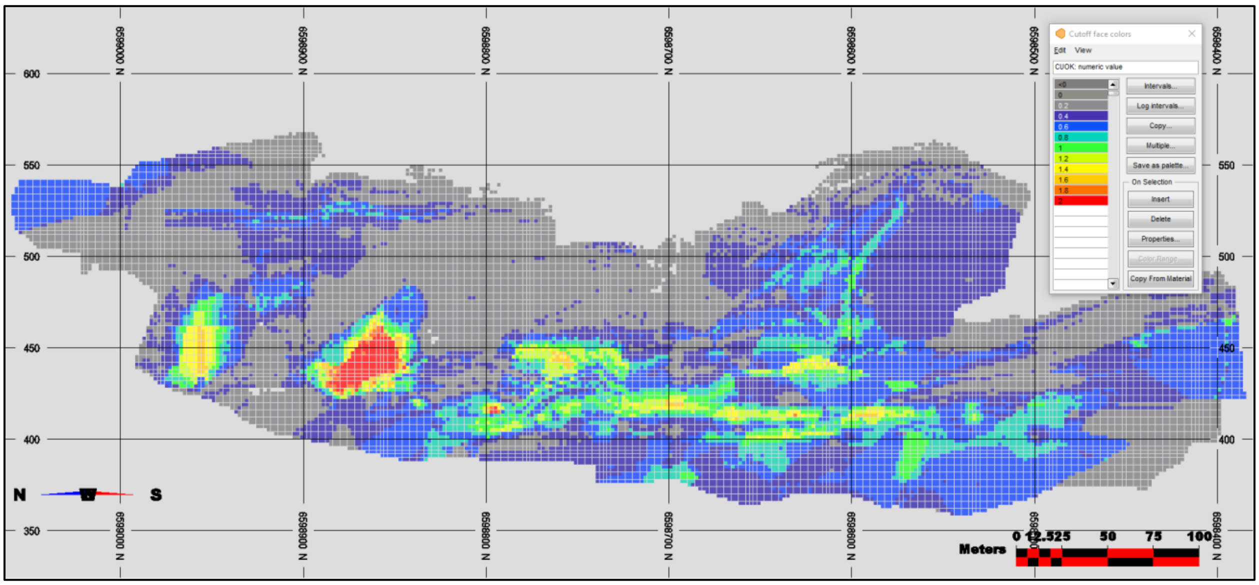
For the domains that make up the San Andres deposit, the search ellipsoids are directional with the major axis having a dimension of 100 m at an orientation of 78º rotated down dip to -40º, and the secondary axis being 150 m, with the tertiary axis being 25 m. Hard boundaries were used so that grade is not smeared between the units.

14.2.2.10 Mineral Resource Classification

Mineral resources were estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserve Best Practices" Guidelines (2019). Mineral resources are not mineral reserves and do not have demonstrated economic viability. Mineral resources for the San Andres deposit were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (2014) by Garth Kirkham, P. Geo., of Kirkham Geosystems

Ltd. (KGL), an Independent Qualified Person as defined by NI 43-101. A 3-dimentional view of the San Andres block model is shown in Figure 14-48.

Figure 14-48: San Andres Resource Model Looking East



Source: Kirkham (2022)

The mineral resources may be impacted by further infill and exploration drilling that may result in an increase or decrease in future resource evaluations. The mineral resources may also be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.

It should also be noted that the confidence limits only consider the variability of grade within the deposit. There are other aspects of deposit geology and geometry such as geological contacts or the presence of faults or offsetting structures that may impact the drill spacing.

The spacing distances are intended to define contiguous volumes and they should allow for some irregularities due to actual drill hole placement. The final classification volume results typically must be adjusted manually to come to a coherent classification scheme. The thresholds should be used as a guide and boundaries should be interpreted and defined to ensure continuity.

Drill hole spacing is sufficient for preliminary geostatistical analysis and for evaluating spatial grade variability. The classification of resources was based primarily upon distance to the nearest composite; however, the multiple quantitative measures, as listed below, were inspected and taken into consideration.

The estimated blocks were classified according to the following:

- Confidence in interpretation of the mineralized zones;
- Number of composites used to estimate a block;
- Number of composites allowed per drill hole;
- Distance to nearest composite used to estimate a block; and
- Average distance to the composites used to estimate a block.

Therefore, the following lists the spacing for each resource category to classify the resources assuming the current rate of metal production:

- Indicated: Resources in this category would be delineated from at least three drill holes spaced on a nominal 50 m pattern; and
- Inferred: Any material not falling in the categories above and within a maximum 100 m of two holes.

To ensure continuity, the boundary between the indicated and inferred categories was contoured and smoothed, eliminating outliers and orphan blocks. The spacing distances are intended to define contiguous volumes and they should allow for some irregularities due to actual drill hole placement. The final classification volume results typically must be adjusted manually to come to a coherent classification scheme.

Mineral resources are classified under the categories of “indicated” and “inferred” according to CIM guidelines. Mineral resource classification was based primarily on drill hole spacing and on continuity of mineralization. Indicated resources were defined as those within a distance to three drill holes of less than ~50 m. Inferred resources were defined as those with an average drill hole spacing of less than ~100 m and meeting additional requirements specifically number of composites and number of drill holes being informed. All resources are constrained in the following manner: primarily, by the continuous solids, secondarily, the low-grade envelope. Final resource classification shells were manually constructed on plan and sections.

Classification in future models may differ, but principal differences should be due to changes in the amount of drilling.

14.2.2.11 Mineral Resource Estimate

This estimate is based upon the reasonable prospect of eventual economic extraction based on continuity along with using estimates of reasonable operating costs and price assumptions along with solids derived from reasonable underground mining methods such as open stoping and cut-and-fill.

Table 14-12 shows tonnage and grade in the San Andres Deposit and includes all domains at a 0.7% CuT% cut-off grade.

Table 14-12: Resource Estimate Using 0.7% CuT% Cut-off

San Andres Underground			
	Tonnes	Cu%	Ag g/t
Indicated	1,736,000	1.06	4.83
Inferred	303,000	0.82	4.03

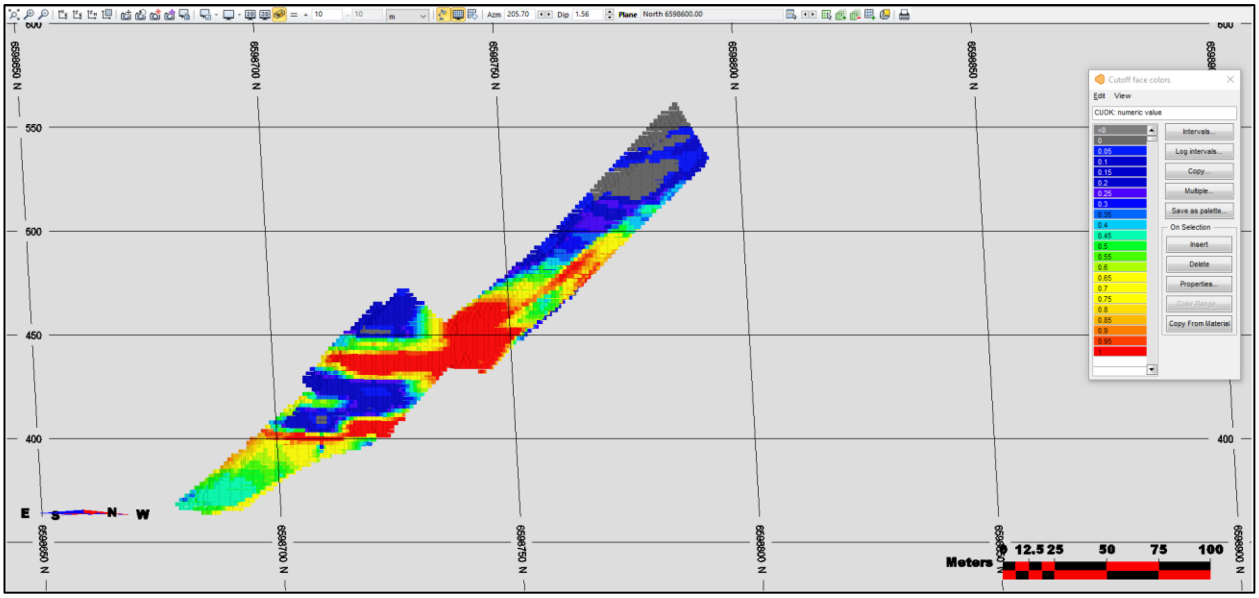
Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

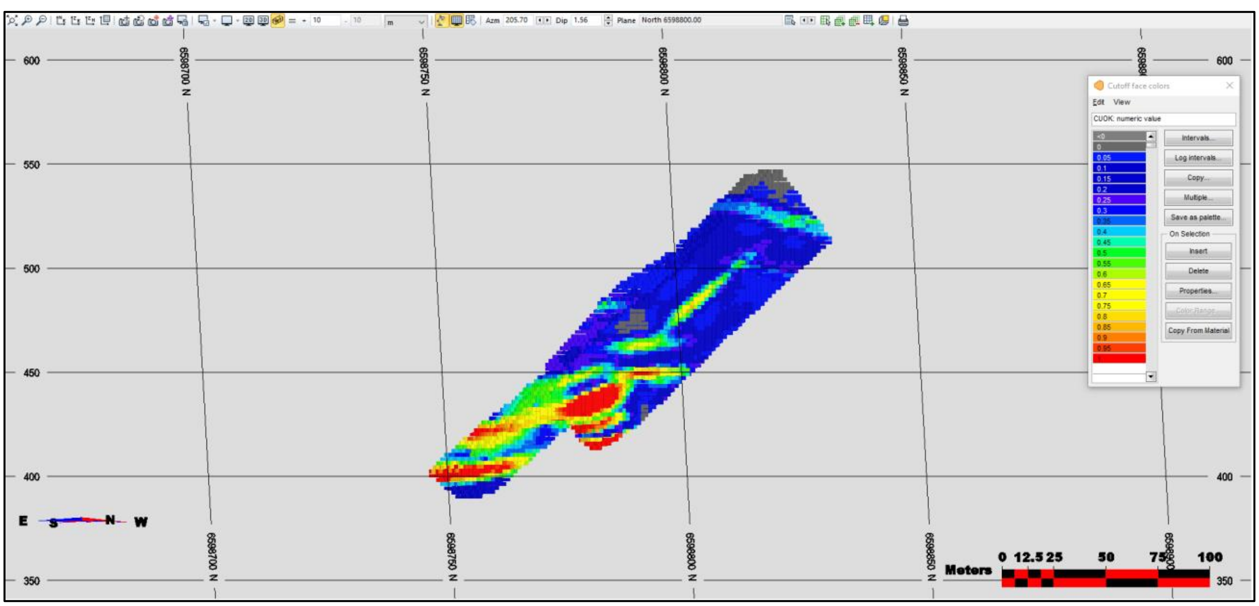
Figure 14-49 through Figure 14-51 show sectional and long section views of the CuT% block model.

Figure 14-49: Section View of CuT at 6598600 North



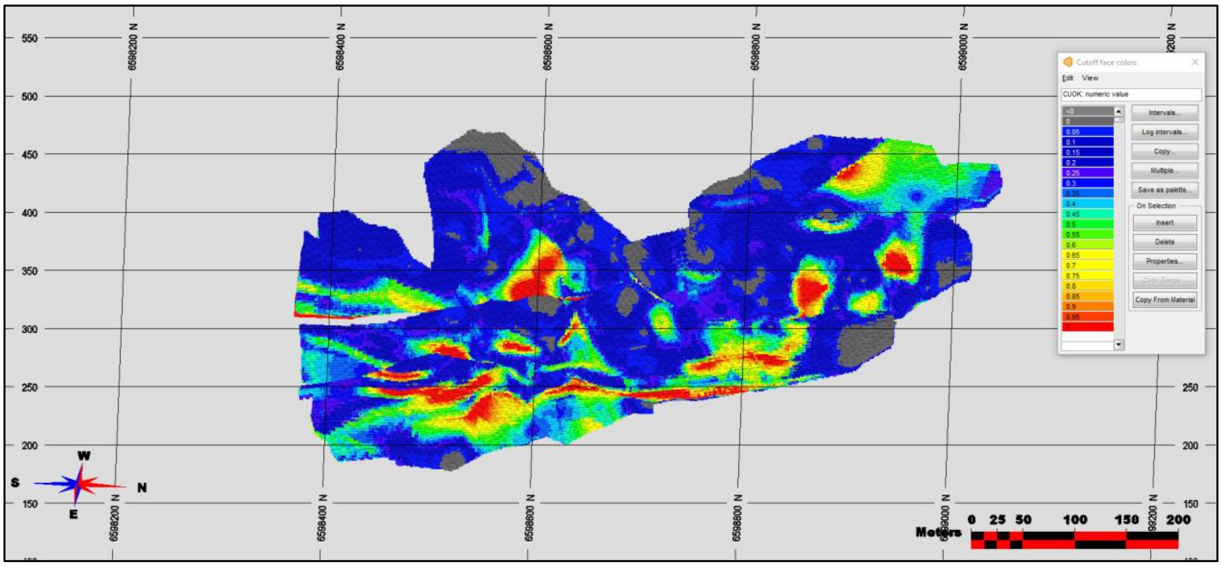
Source: Kirkham (2022)

Figure 14-50: Section View of CuT Block Model at 6598800 North



Source: Kirkham (2022)

Figure 14-51: Long Section View of CuT Block Model Looking West



Source: Kirkham (2022)

14.2.2.12 Sensitivity of the Block Model to Selection Cut-off Grade

The mineral resources are sensitive to the selection of cut-off grade. Table 14-13 shows tonnage and grade in the San Andres deposit at different copper cut-off grades.

The reader is cautioned that these values should not be misconstrued as a mineral reserve. The reported quantities and grades are only presented as a sensitivity of the resource model to the selection of cut-off grade.

Table 14-13: Sensitivity Analyses of Tonnage along with Cu & Ag Grades at Various Cu Cut-off Grades

Cut-off	Tonnes	Cu%	Ag g/t
Indicated			
>=0.9	1,032,000	1.25	5.49
>=0.8	1,342,000	1.16	5.17
>=0.75	1,543,000	1.11	4.99
>=0.7	**1,736,000**	**1.06**	**4.83**
>=0.6	2,137,000	0.99	4.57
>=0.5	2,599,000	0.91	4.38

Cut-off	Tonnes	Cu%	Ag g/t
Inferred			
>=0.9	64,000	1.06	4.97
>=0.8	97,000	0.99	4.74
>=0.75	168,000	0.90	5.04
>=0.7	**303,000**	**0.82**	**4.03**
>=0.6	539,000	0.75	4.11
>=0.5	762,000	0.69	3.90

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

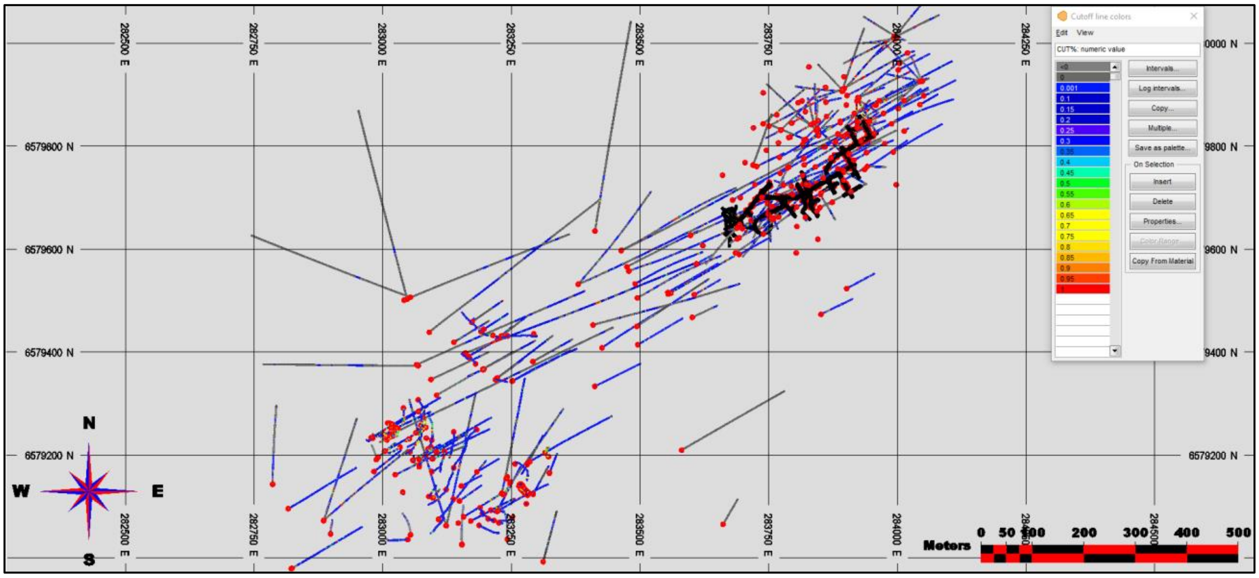
14.2.3 Dalmacia

14.2.3.1 Data

As with the Cinabrio and San Andres, the drill hole database was supplied in electronic format (i.e., Microsoft Excel) by BMR. This included collars, down hole surveys, lithology data and assay data (i.e., total copper, soluble copper in % and silver in grams per tonne), and down hole (“from” and “to” intervals in metric units). Lithology group and description information was provided, along with abbreviated alpha-numeric and numeric codes. The database includes a combination of surface and underground drill hole data along with underground channel sample data.

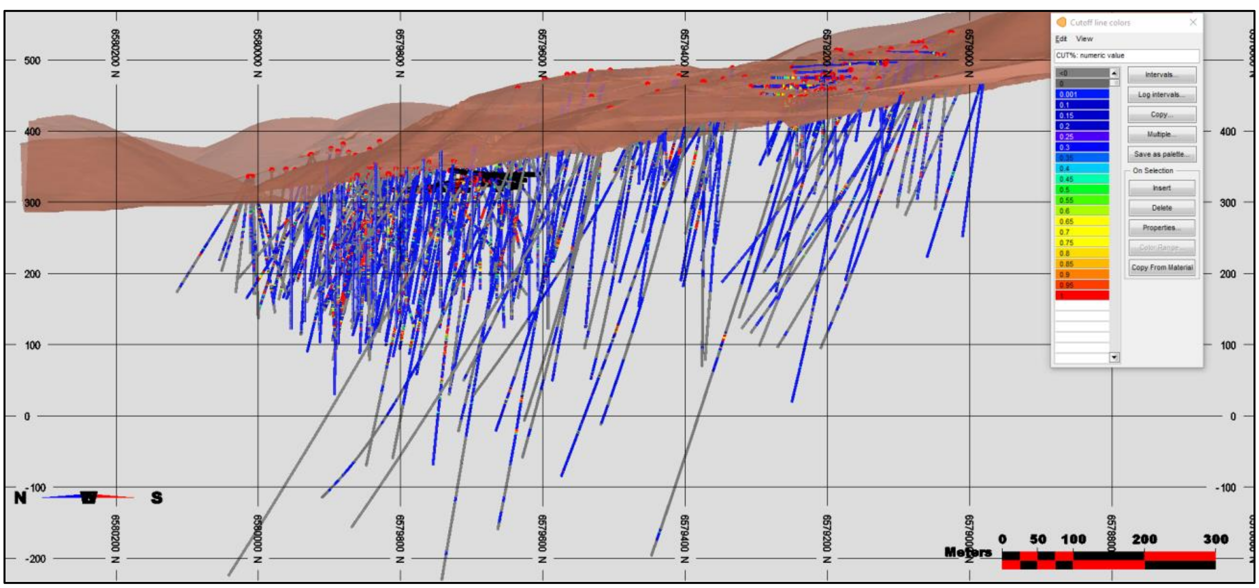
There is total of 509 drill hole and channel samples including 346 drill holes (surface and underground) and 163 surface and underground channel samples. Figure 14-52 and Figure 14-53 show long section and section views of drill holes with collars and channel samples. A total of 42,162 assay values and 18,938 lithology values, primarily for the drill hole data, were supplied for the Dalmacia Project. Validation and verification checks were performed during import to correct and confirm there were no duplicate entries, overlapping intervals, typographic errors, or anomalous entries.

Figure 14-52: Plan View of Drill Holes



Source: Kirkham (2022)

Figure 14-53: Long Section View of Drill Holes

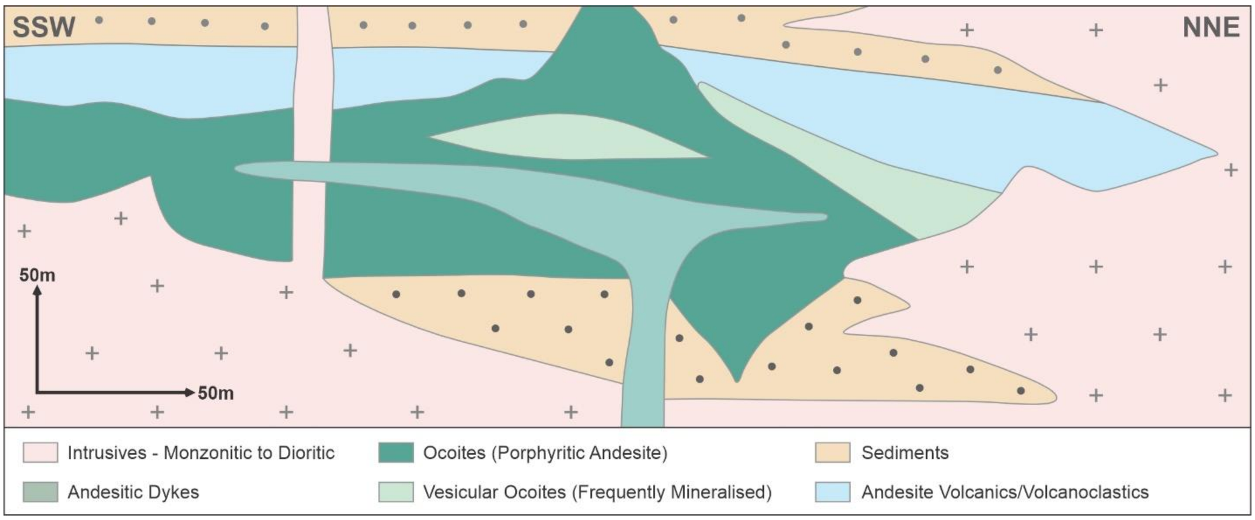


Source: Kirkham (2022)

14.2.3.2 Geology & Domain Model

Methodology for Dalmacia involves modelling interpretations of the continuous ocoites (porphyritic andesite) and andesitic units as illustrated in the schematic cross-section in Figure 14-54.

Figure 14-54: Schematic Representation of Geology of the Dalmacia Zone



Source: Skarmeta (2022)

A three-phased modelling approach was taken to creating geology and estimation domains that included a lithostratigraphic model, oxide/sulphide model that was based on using an approximate 80% soluble copper threshold, and combined domain modelling. The lithology models were completed using the lithology codes within the database as shown in Figure 14-55.

Figure 14-55: Drill Hole DAL21-21 Database Log

FROM	-TO-	-AI-	CUT%	CUS%	AG	AU	AS	FE%	S%	CODE	ZONE	XTRA1	XTRA2	PB	ZN	LITH	LITHC
58.00	60.00	2.00	0.070	0.000	0.50	-	5	6.680	0.06	12	2	1	12	5	22	OCOB	22
60.00	62.00	2.00	0.050	0.000	0.50	-	5	7.290	0.05	12	2	1	12	4	21	OCOB	22
62.00	62.50	0.50	0.040	0.000	0.50	-	5	7.370	0.04	12	2	1	12	2	18	OCOB	22
62.50	64.00	1.50	0.040	0.000	0.50	-	5	7.370	0.04	12	2	1	12	2	18	OCOB	22
64.00	66.00	2.00	0.090	0.000	0.50	-	5	7.350	0.10	12	2	1	12	2	35	PAN	50
66.00	67.50	1.50	0.110	0.000	0.50	-	5	6.970	0.11	12	2	1	12	2	22	OCOB	22
67.50	68.00	0.50	0.110	0.000	0.50	-	5	6.970	0.11	12	2	1	12	2	22	OCOB	22
68.00	70.00	2.00	0.940	0.000	0.50	-	5	6.430	0.93	12	2	2	12	2	23	ARE	3
70.00	71.00	1.00	1.420	0.000	0.50	0.010	5	6.180	1.46	12	2	2	12	2	29	ARE	3
71.00	72.00	1.00	3.280	0.000	0.60	0.030	5	6.300	2.79	12	2	2	12	2	23	ARE	3
72.00	72.50	0.50	0.540	0.000	0.50	0.008	5	7.600	0.49	12	2	2	12	2	28	ARE	3
72.50	73.00	0.50	0.540	0.000	0.50	0.008	5	7.600	0.49	12	2	2	12	2	28	ARE	3
73.00	74.00	1.00	0.740	0.000	0.60	0.029	5	4.430	0.59	12	2	2	12	2	32	OCOV	27
74.00	75.00	1.00	0.410	0.000	0.50	0.022	5	2.840	0.26	12	2	2	12	2	15	OCOV	27
75.00	76.00	1.00	0.070	0.000	0.50	0.005	5	2.350	0.05	12	2	2	12	2	17	OCOV	27
76.00	77.00	1.00	0.770	0.000	0.50	0.040	5	3.310	0.60	12	2	2	12	2	16	OCOV	27
77.00	77.50	0.50	0.440	0.000	0.50	0.024	5	4.660	0.39	12	2	2	12	2	12	OCOV	27
77.50	78.00	0.50	0.440	0.000	0.50	0.024	5	4.660	0.39	12	2	2	12	2	12	OCOV	27
78.00	79.00	1.00	0.800	0.000	0.50	0.036	5	5.110	0.68	12	2	2	12	2	13	OCOV	27
79.00	80.00	1.00	0.820	0.000	0.50	0.036	5	4.060	0.66	12	2	2	12	2	18	OCOV	27
80.00	81.00	1.00	1.930	0.000	1.00	0.011	5	5.130	1.37	12	2	2	12	2	19	OCOV	27
81.00	82.00	1.00	1.940	0.000	1.20	0.028	6	3.600	1.28	12	2	2	12	2	22	OCOV	27
82.00	82.50	0.50	0.840	0.000	0.50	0.005	5	2.000	0.63	12	2	2	12	2	15	OCOV	27
82.50	83.00	0.50	0.840	0.000	0.50	0.005	5	2.000	0.63	12	2	2	12	2	15	OCOV	27
83.00	84.00	1.00	1.500	0.000	1.00	0.008	23	3.260	1.07	12	2	2	12	2	19	PAN	50
84.00	85.00	1.00	1.340	0.000	0.60	0.005	7	3.190	0.93	12	2	2	12	2	17	FA	7
85.00	86.00	1.00	0.350	0.000	0.50	0.005	5	4.770	0.28	12	2	2	12	2	16	OCOV	27
86.00	87.00	1.00	2.500	0.000	1.80	0.012	5	4.460	1.59	12	2	2	12	2	25	OCOV	27
87.00	87.50	0.50	2.710	0.000	1.90	0.012	6	3.880	1.79	12	2	2	12	2	21	OCOV	27

Source: Kirkham (2022)

The models were created from first principals within LeapFrog™ and refined in MineSight™ for statistical analysis and to be used for the estimation process.

The models were also created from first principals using the lithostratigraphic models and the structural modelling as guides by BMR staff within LeapFrog™ under the supervision of the independent QP. This was done utilizing the current and re- logged data, and from sectional interpretations that were subsequently wireframed based on a combination of lithology and copper grades, particularly soluble copper in the case of the creation of the oxide domain. Additionally, an overburden domain was created from triangulation of drill hole intercepts and then clipped to topography

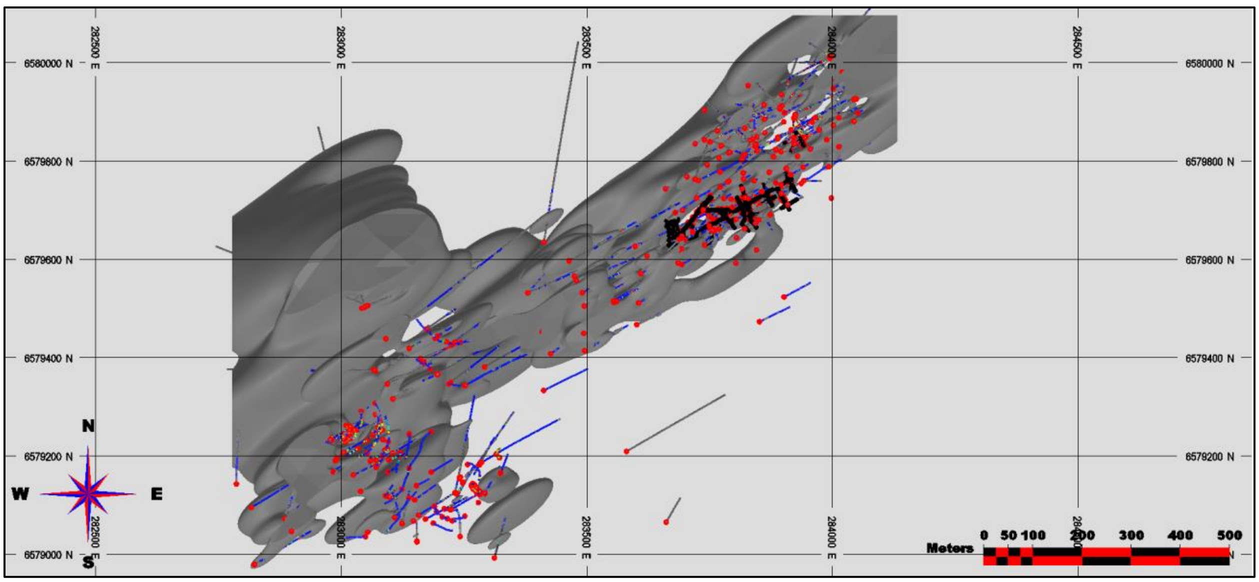
Once completed, intersections were inspected, and all of the solids were then manually adjusted to match the drill intercepts. Individual codes are given to the litho/oxide/sulphide grouping as follows:

- 11 – Andesite oxide;
- 12 – Andesite sulphide;
- 13 – Ocoite oxide; and
- 14 – Ocoite sulphide.

Once the solid models were edited and complete, they were used to code the drill hole assays and composites for subsequent statistical and geostatistical analysis. The solid zones were utilized to constrain the block model, by matching assays to those within the zones.

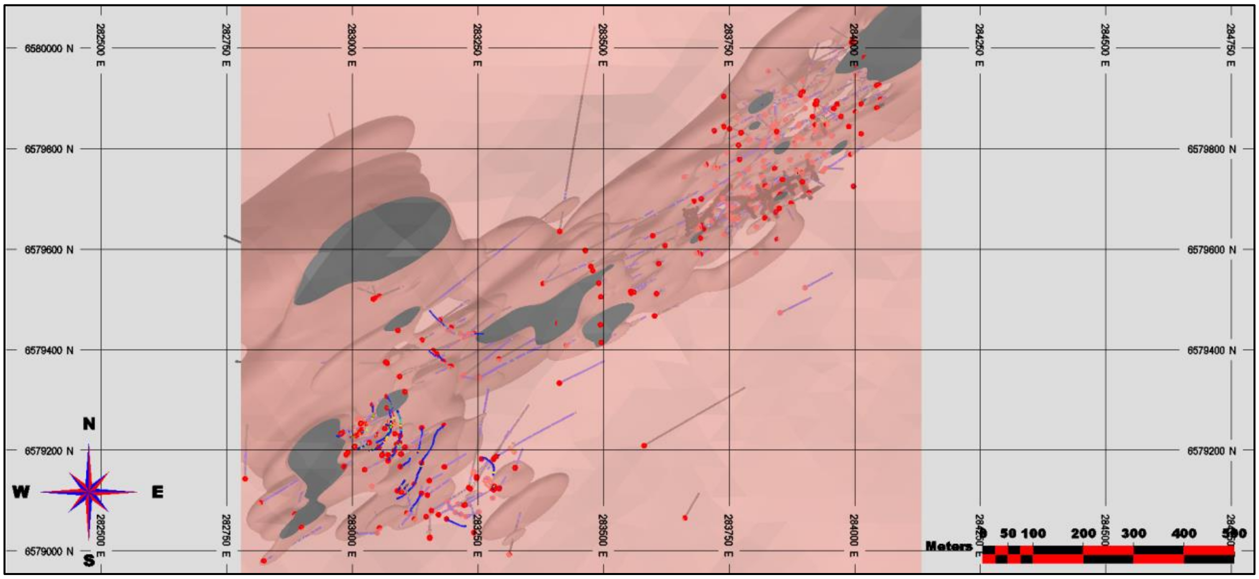
The orientation and ranges (distances) utilized for the search ellipsoids used in the estimation process were guided the strike and dip of the lithologic solids for domains shown in Figure 14-56 through Figure 14-58. The domain models were employed to estimate the structures on a sub-block basis to best characterize the deposit for subsequent estimation and boundary definition.

Figure 14-56: Plan View of Drill Holes with the Andesite Domain



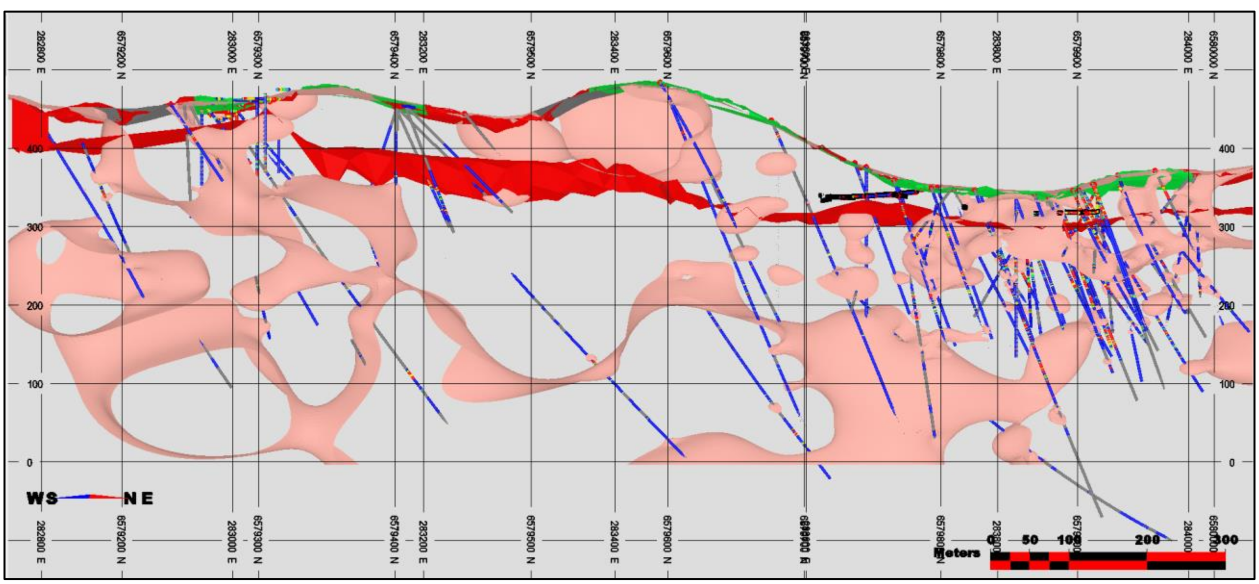
Source: Kirkham (2022)

Figure 14-57: Plan View of Drill Holes with the Andesite (grey) Domain Overprinted by the Ocoite (pink) Domain



Source: Kirkham (2022)

Figure 14-58: Long Section View of Drill Holes with the Andesite (grey) Domain Overprinted by the Ocoite (pink) Domain along with Overburden (green) and the Oxide Surface (red)



Source: Kirkham (2022)

14.2.3.3 Data Analysis

Table 14-14 shows statistics of total copper, soluble copper and silver assays within the mineralized lithologic domains and separated by the oxide/sulphide domain.

Within the oxide domain, there are 10,624 copper assays (10,214.4 m), averaging 0.31% total copper, and 5,106 silver assays (4,926.3 m), averaging 1.05 g/t silver. The maximum total copper grade is 7.86% within the lithological domains, while the maximum silver grade is 84.98 g/t. Note that the method utilized for the treatment of outliers is by cutting the composites as opposed to cutting assay values. For the sulphides, there are 36,018 copper assays (33,883.8 m) averaging 0.22% total copper, and 20,473 silver assays (18,978.0 m), averaging 1.15 g/t silver. The maximum total copper grade is 9.74% within the sulphide domain, while the maximum silver grade is 200 g/t.

Table 14-14: Statistics for Weighted Copper Grades within the Lithological Domains and within the Oxide/Sulphide Domains along with Totals

	Zone	#	Length (m)	Max	Mean	SD	CV
Oxide							
CuT%	Andesite	2,021	1,944.8	7.42	0.26	0.64	2.4
	Ocoite	8,603	8,269.6	7.86	0.33	0.68	2.1
	Total	10,624	10,214.4	7.86	0.31	0.67	2.1
	All	10,929	10,512.8	7.86	0.31	0.67	2.1
CuS%	Andesite	2,041	1,967.8	7.12	0.07	0.32	4.3
	Ocoite	8,784	8,454.6	6.27	0.12	0.40	3.3
	Total	10,825	10,422.4	7.12	0.11	0.38	3.4
	All	11,137	10,727.8	7.12	0.11	0.38	3.5
Ag	Andesite	763	708.7	68	1.34	2.75	2.1
	Ocoite	4,343	4,217.5	84.98	1.00	2.08	2.1
	Total	5,106	4,926.3	84.98	1.05	2.19	2.1
	All	5,166	4,986.1	84.98	1.05	2.19	2.1
Sulphide							
CuT%	Andesite	9,564	8,996.1	6.78	0.14	0.38	2.8
	Ocoite	26,454	24,887.7	9.74	0.25	0.61	2.5
	Total	36,018	33,883.8	9.74	0.22	0.56	2.6
	All	37,222	35,035.8	9.74	0.22	0.55	2.5
CuS%	Andesite	9,575	9,008.1	1.26	0.01	0.04	4.0
	Ocoite	26,567	24,999.7	2.45	0.01	0.05	3.9

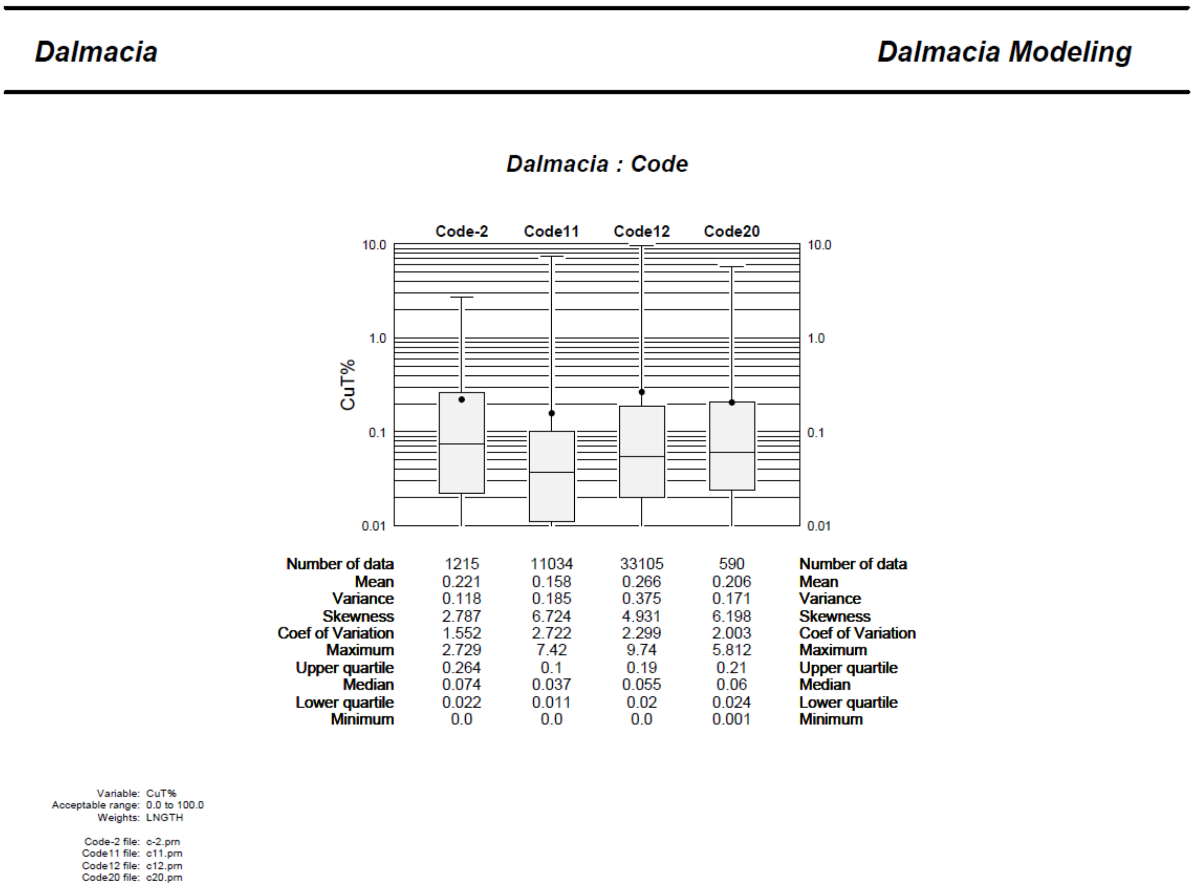
	Zone	#	Length (m)	Max	Mean	SD	CV
	Total	36,142	34,007.8	2.45	0.01	0.05	3.9
	All	37,346	35,159.8	2.45	0.01	0.04	4.0
Ag	Andesite	5,647	5,245.8	37.63	1.15	1.38	1.2
	Ocoite	14,826	13,741.2	200	1.15	3.58	3.1
	Total	20,473	18,987.0	200	1.15	3.13	2.7
	All	21,076	19,573.3	200	1.15	3.09	2.7
Total							
CuT%	Andesite	11,585	10,940.9	7.42	0.16	0.44	2.8
	Ocoite	35,057	33,157.3	9.74	0.27	0.63	2.4
	Total	46,642	44,098.2	9.74	0.24	0.59	2.5
	All	48,151	45,548.6	9.74	0.24	0.58	2.4
CuS%	Andesite	11,616	10,975.9	7.12	0.02	0.14	6.8
	Ocoite	35,351	33,454.3	6.27	0.04	0.21	5.2
	Total	46,967	44,430.2	7.12	0.04	0.19	5.5
	All	48,483	45,887.6	7.12	0.03	0.19	5.6
Ag	Andesite	6,410	5,954.6	68	1.17	1.61	1.4
	Ocoite	19,169	17,958.7	200	1.12	3.29	2.9
	Total	25,579	23,913.3	200	1.13	2.96	2.6
	All	26,242	24,559.4	200	1.13	2.93	2.6

Source: Kirkham (2022)

Box plots for the lithological units as shown in Figure 14-59 support the concept of domaining the ocoite separately from the lower grade andesite as well as the oxide/sulphide segregation as shown in Figure 14-60. The resultant box plots for the combined domains as shown in Figure 14-61 clearly illustrate the strategy for estimating each of these domains individually. The box plots for total copper show that the populations are statistically similar, and contact plots illustrate an abrupt change confirming the use of hard boundaries. Box plots for CuS%, as shown in Figure 14-62 demonstrate a similar relationship however it is clear the CuS% grades are not a significant contributor within the global model, however, Figure 14-63 illustrates that it is a significant contributor within the oxide zone which is to be expected and is therefore domained similarly for the estimation of grades as shown in Figure 14-64.

Further analysis and modelling for the purpose of grouping and domaining takes these observations and conclusion into account.

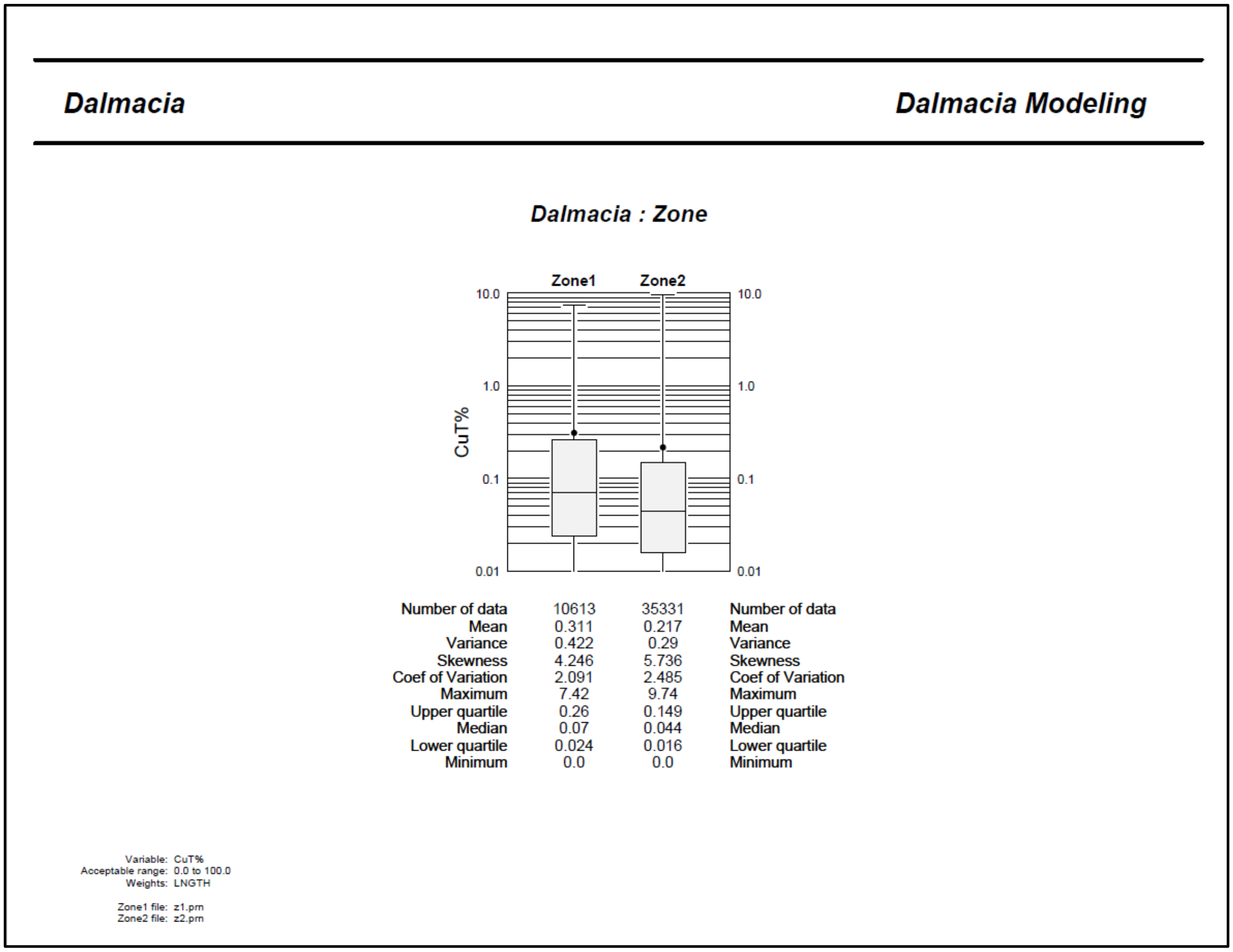
Figure 14-59: Box Plot for CuT% within Lithological Domains (11 = Andesite, 12 = Ocoite)



	Code-2	Code11	Code12	Code20
Number of data	1215	11034	33105	590
Mean	0.221	0.158	0.266	0.206
Variance	0.118	0.185	0.375	0.171
Skewness	2.787	6.724	4.931	6.198
Coef of Variation	1.552	2.722	2.299	2.003
Maximum	2.729	7.42	9.74	5.812
Upper quartile	0.264	0.1	0.19	0.21
Median	0.074	0.037	0.055	0.06
Lower quartile	0.022	0.011	0.02	0.024
Minimum	0.0	0.0	0.0	0.001

Source: Kirkham (2022)

Figure 14-60: Box Plot for CuT% within Mineralogical Domains (1 = Oxide, 2 = Sulphide)

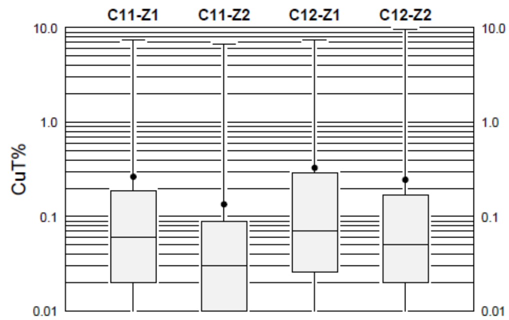


Source: Kirkham (2022)

Figure 14-61: Box Plot for CuT% within Combined Domains (C11-Z1 = Andesite Oxide, C11-Z2 = Andesite Sulphide, C12-Z1 = Ocoite Oxide, C12-Z2 = Ocoite Sulphide)

Dalmacia | *Dalmacia Modeling*

Dalmacia : Code&Zone



	C11-Z1	C11-Z2	C12-Z1	C12-Z2	
Number of data	1929	9105	8067	25038	Number of data
Mean	0.265	0.135	0.329	0.246	Mean
Variance	0.411	0.134	0.442	0.351	Variance
Skewness	5.524	6.526	3.894	5.383	Skewness
Coef of Variation	2.415	2.707	2.021	2.408	Coef of Variation
Maximum	7.42	6.784	7.375	9.74	Maximum
Upper quartile	0.187	0.09	0.292	0.17	Upper quartile
Median	0.06	0.03	0.07	0.05	Median
Lower quartile	0.02	0.01	0.026	0.02	Lower quartile
Minimum	0.0	0.0	0.0	0.0	Minimum

Variable: CuT%
Acceptable range: 0.0 to 100.0
Weights: LNGTH

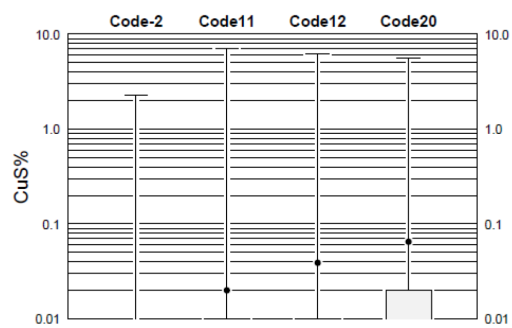
C11-Z1 file: c11z1.prn
C11-Z2 file: C11z2.prn
C12-Z1 file: c12z1.prn
C12-Z2 file: C12z2.prn

Source: Kirkham (2022)

Figure 14-62: Box Plot for CuS% within Lithological Domains (11 = Andesite, 12 = Ocoite)

Dalmacia ***Dalmacia Modeling***

Dalmacia : Code



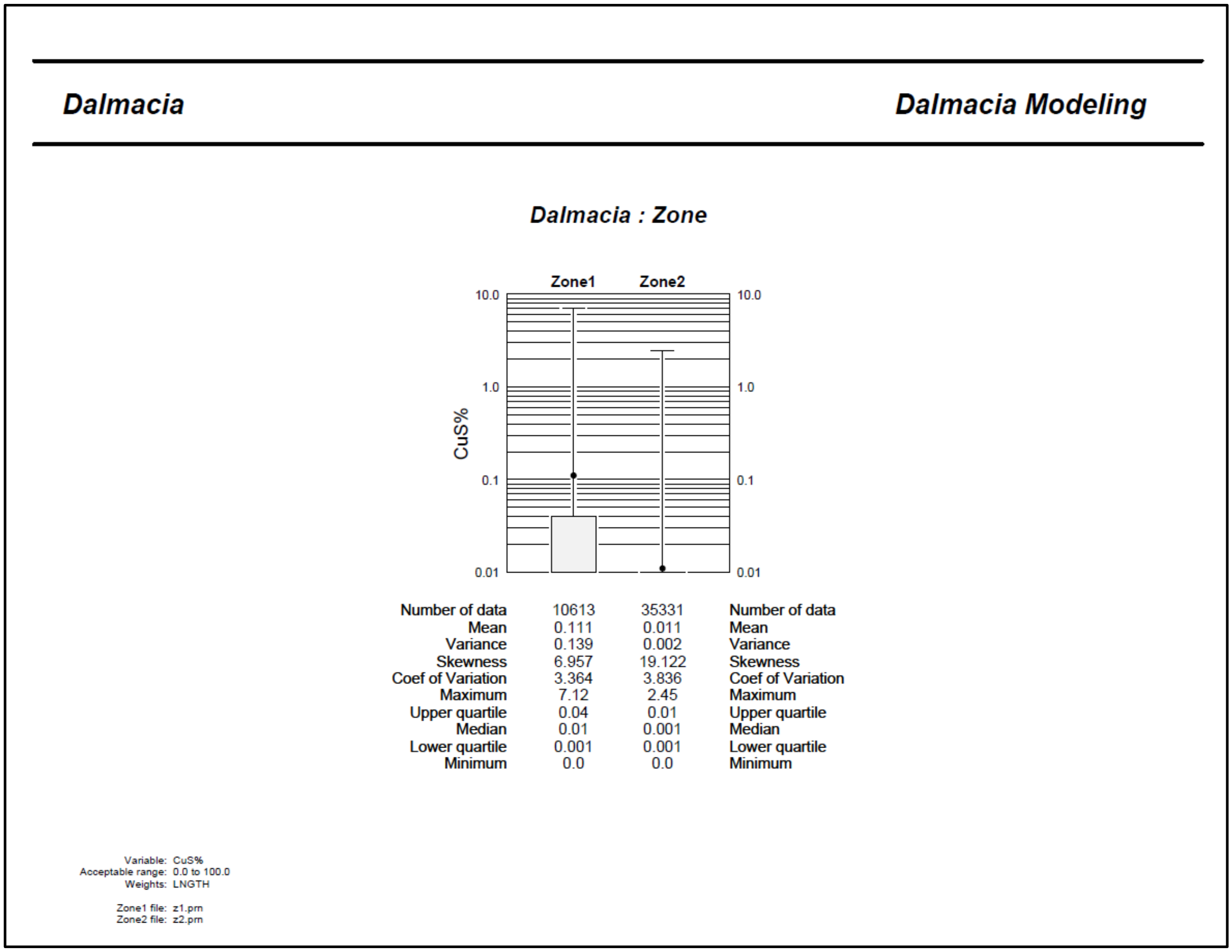
	Code-2	Code11	Code12	Code20	
Number of data	1215	11034	33105	590	**Number of data**
Mean	0.008	0.02	0.039	0.065	**Mean**
Variance	0.007	0.019	0.041	0.093	**Variance**
Skewness	21.497	29.153	11.576	11.949	**Skewness**
Coef of Variation	9.724	6.821	5.107	4.727	**Coef of Variation**
Maximum	2.263	7.12	6.27	5.544	**Maximum**
Upper quartile	0.001	0.01	0.01	0.02	**Upper quartile**
Median	0.0	0.001	0.001	0.0	**Median**
Lower quartile	0.0	0.001	0.001	0.0	**Lower quartile**
Minimum	0.0	0.0	0.0	0.0	**Minimum**

Variable: CuS%
Acceptable range: 0.0 to 100.0
Weights: LNGTH

Code-2 file: c-2.prn
Code11 file: c11.prn
Code12 file: c12.prn
Code20 file: c20.prn

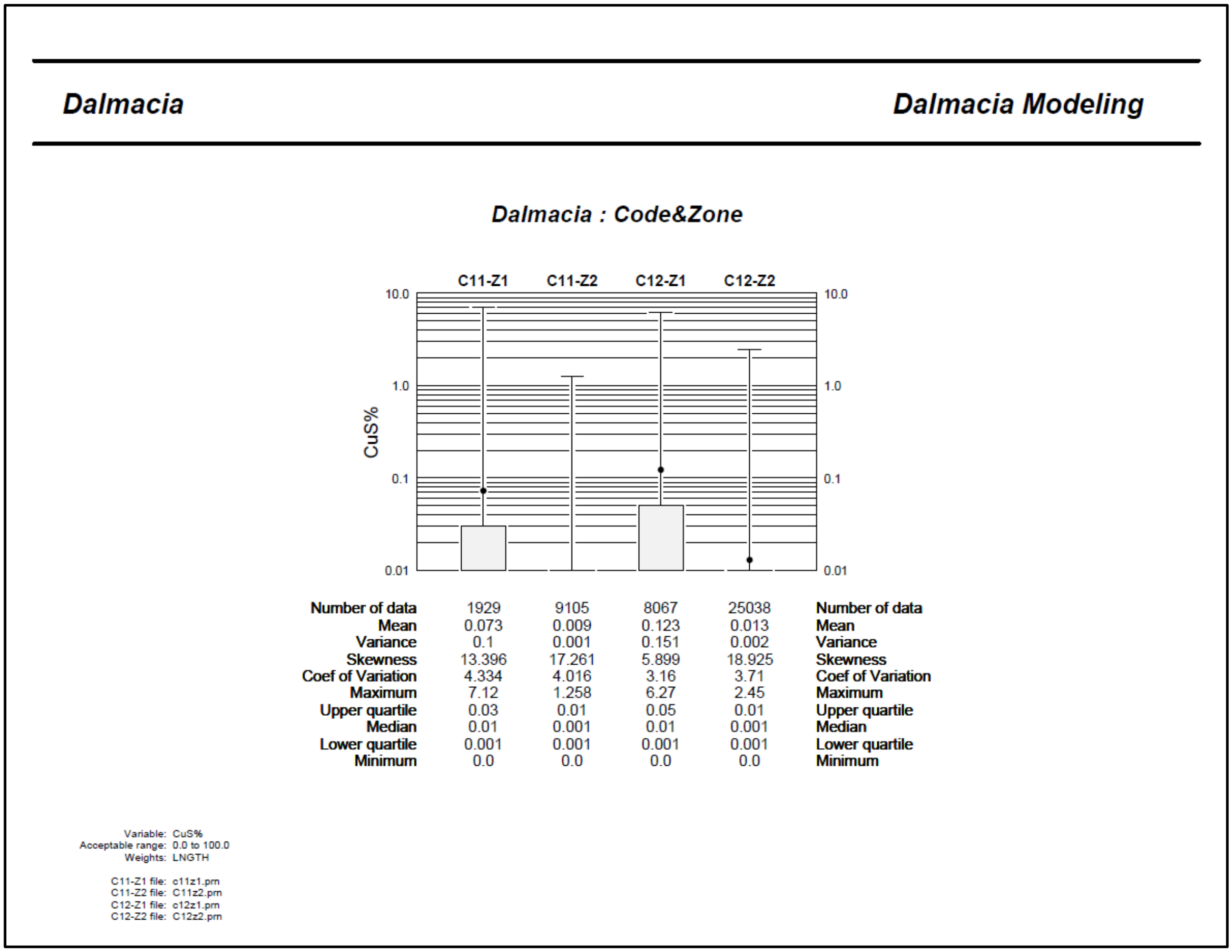
Source: Kirkham (2022)

Figure 14-63: Box Plot for CuS% within Mineralogical Domains (1 = Oxide, 2 = Sulphide)



Source: Kirkham (2022)

Figure 14-64: Box Plot for CuS% within Combined Domains (C11-Z1 = Andesite Oxide, C11-Z2 = Andesite Sulphide, C12-Z1 = Ocoite Oxide, C12-Z2 = Ocoite Sulphide)



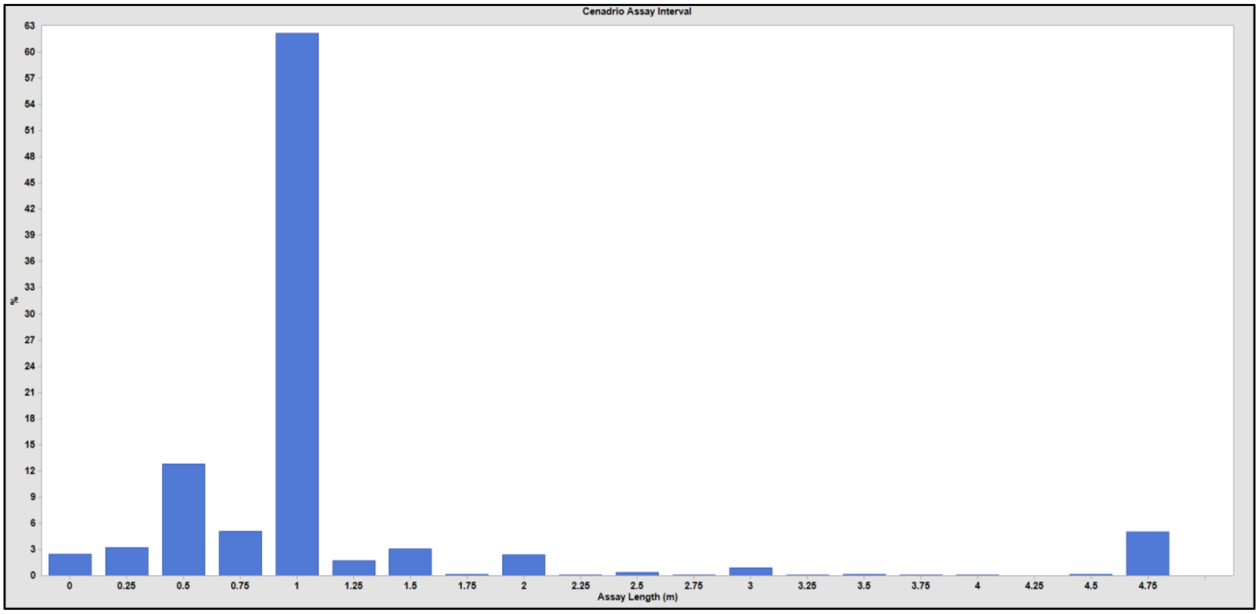
Source: Kirkham (2022)

14.2.3.4 Composites

It was determined that the 1.0 m composite length offered the best balance between supplying common support for samples and minimizing the smoothing of grades. Figure 14-65 shows the histogram of the assay intervals within the mineralized domains where approximately 90% are less than or equal to 1.0 m and 15% are less than or equal to 0.5 m. To determine whether there may be selective sampling, an analysis of high-grade copper samples versus assay interval lengths was performed. The scatterplot of samples within the domains, Figure 14-66, shows that the assay intervals and corresponding copper grade have the same distribution, illustrating that there is no high-grade bias within the small intervals and that sample selectivity is not occurring. It is interesting to note that there are elevated grades related to the longer, 1.5 m and 2 m sample lengths which indicates that mineralization is relatively homogeneous.

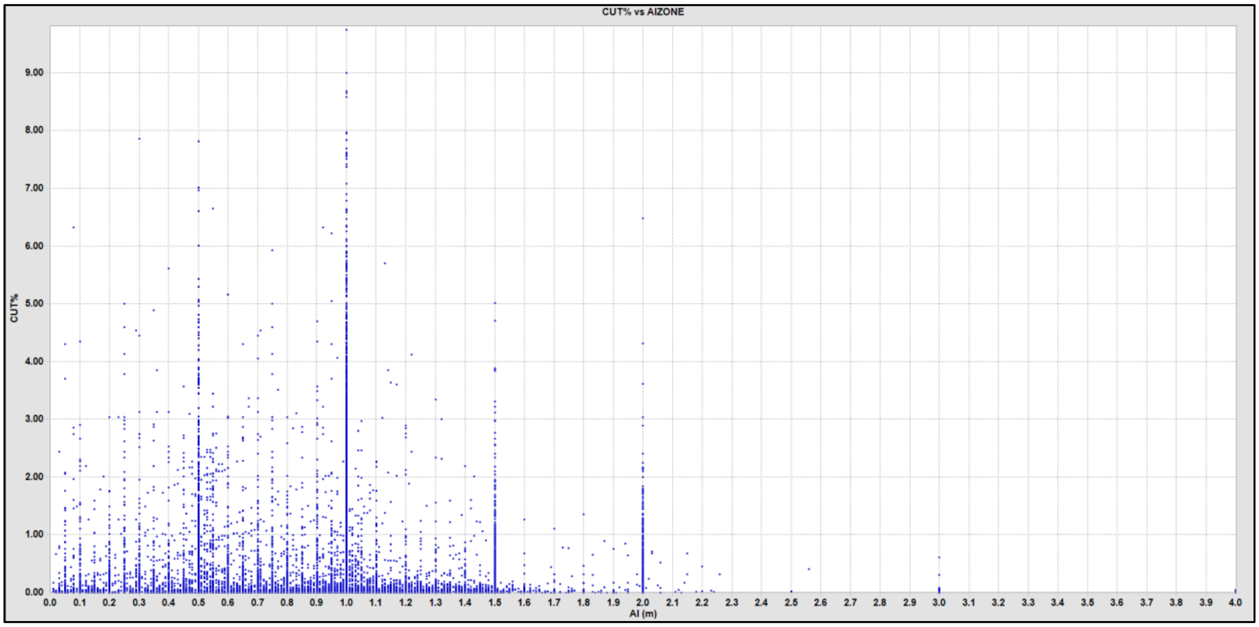
The 1.0 m sample length also was consistent with the distribution of sample lengths. It should be noted that although 1.0 m is the composite length, any residual composites of greater than 0.5 m in length and less than 1.0 m remained to represent a composite, while any composites residuals less than 0.5 m were combined with the composite above.

Figure 14-65: Histogram of Assay Interval Lengths in Meters



Source: Kirkham (2022)

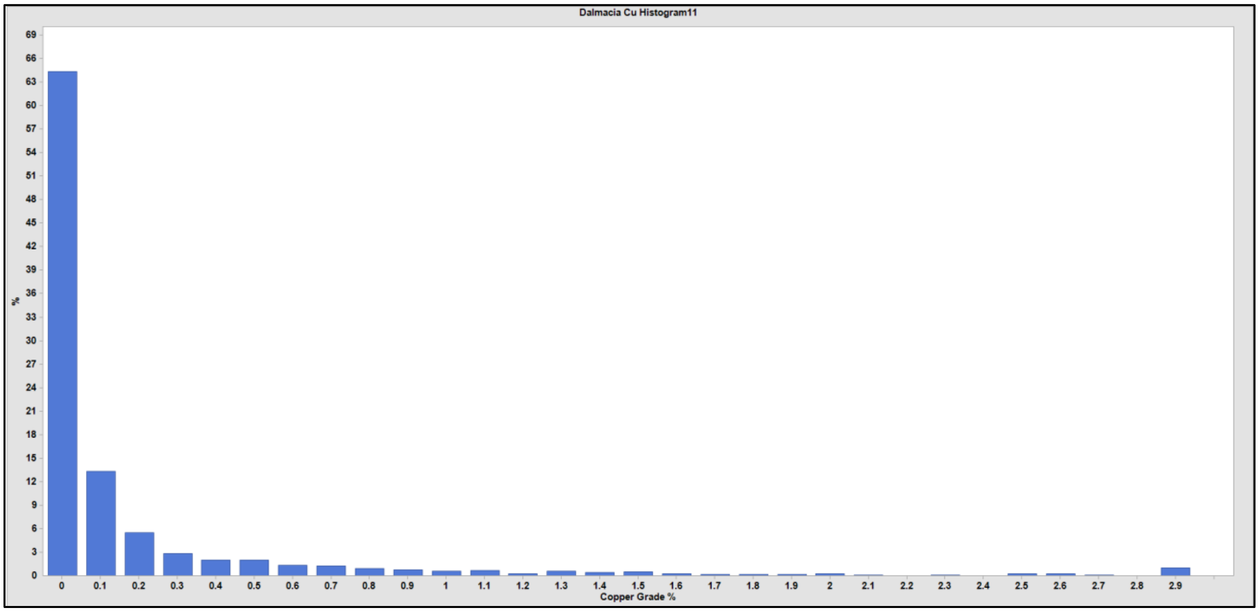
Figure 14-66: Scatterplot of Assay Interval Lengths within Veins in Meters vs. Gold Grade

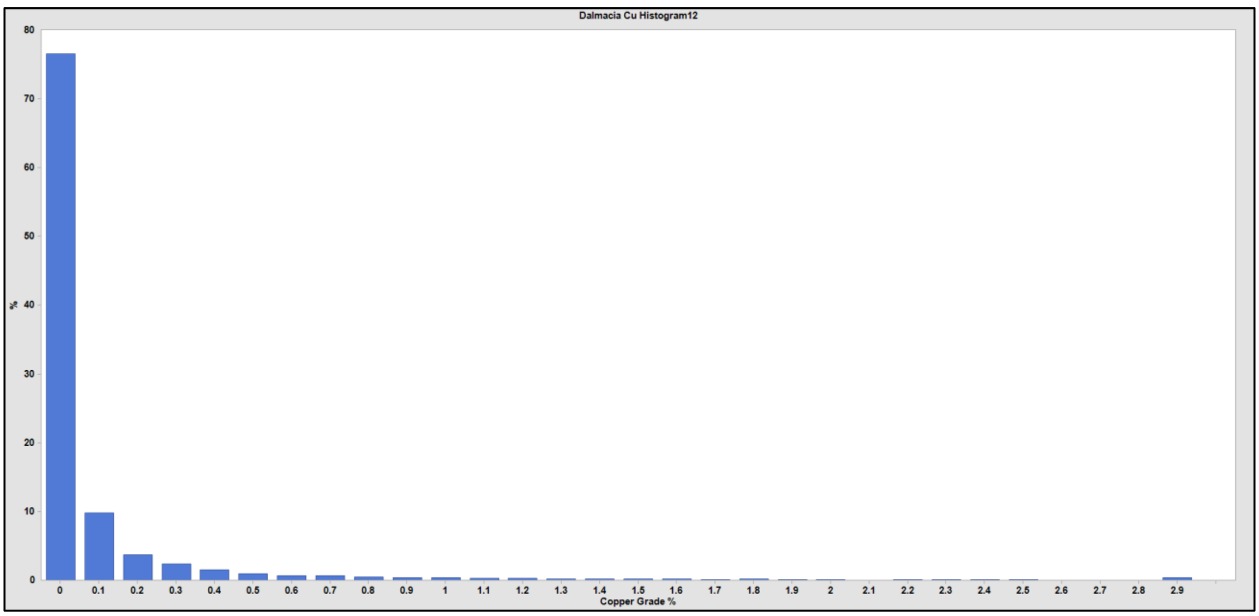


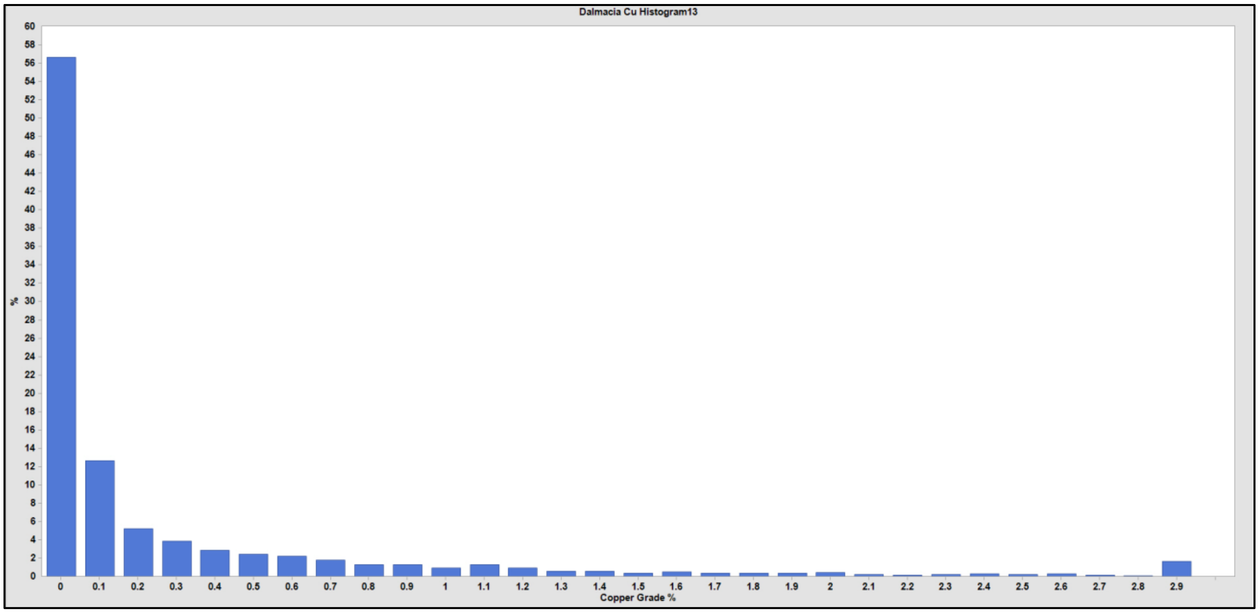
Source: Kirkham (2022)

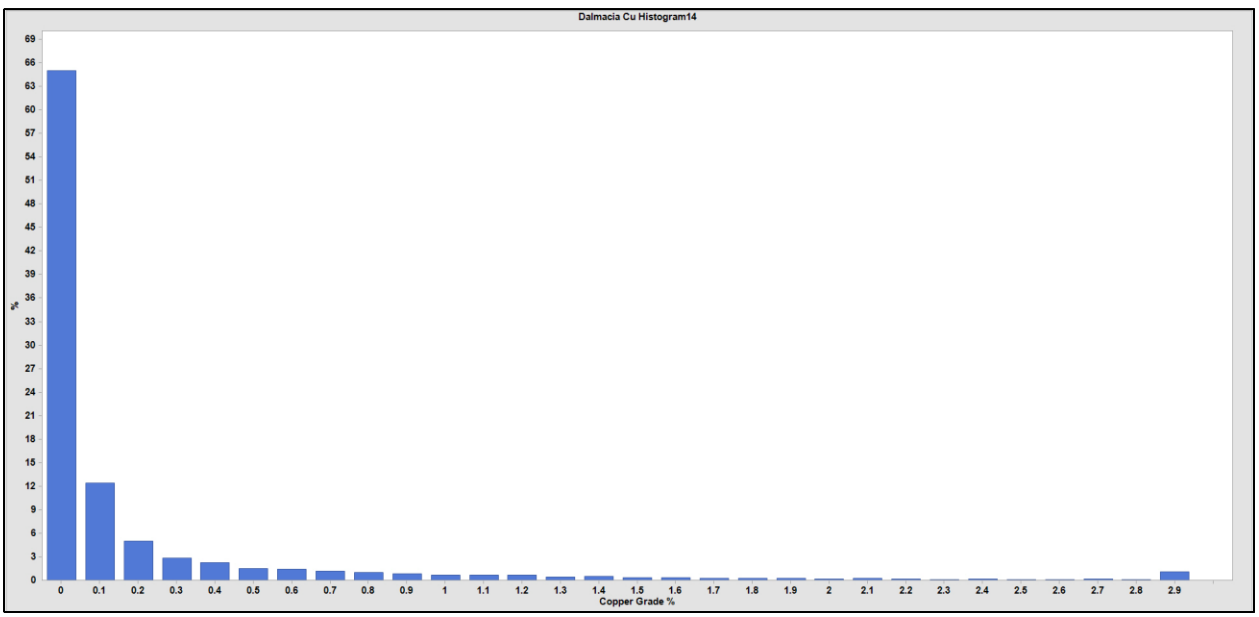
Figure 14-67 show histograms of the copper composite values for all composites assigned to the grouped domains; 11 = Andesite oxide, 12 = Andesite sulphide, 13 = Ocoite oxide, 14 = Ocoite sulphide. Each demonstrates a very log-normal distribution which is as expected for this type of deposit.

Figure 14-67: Histogram of CuT% Composite Grades within Grouped Domains (Zone 11, 12, 13 and 14)







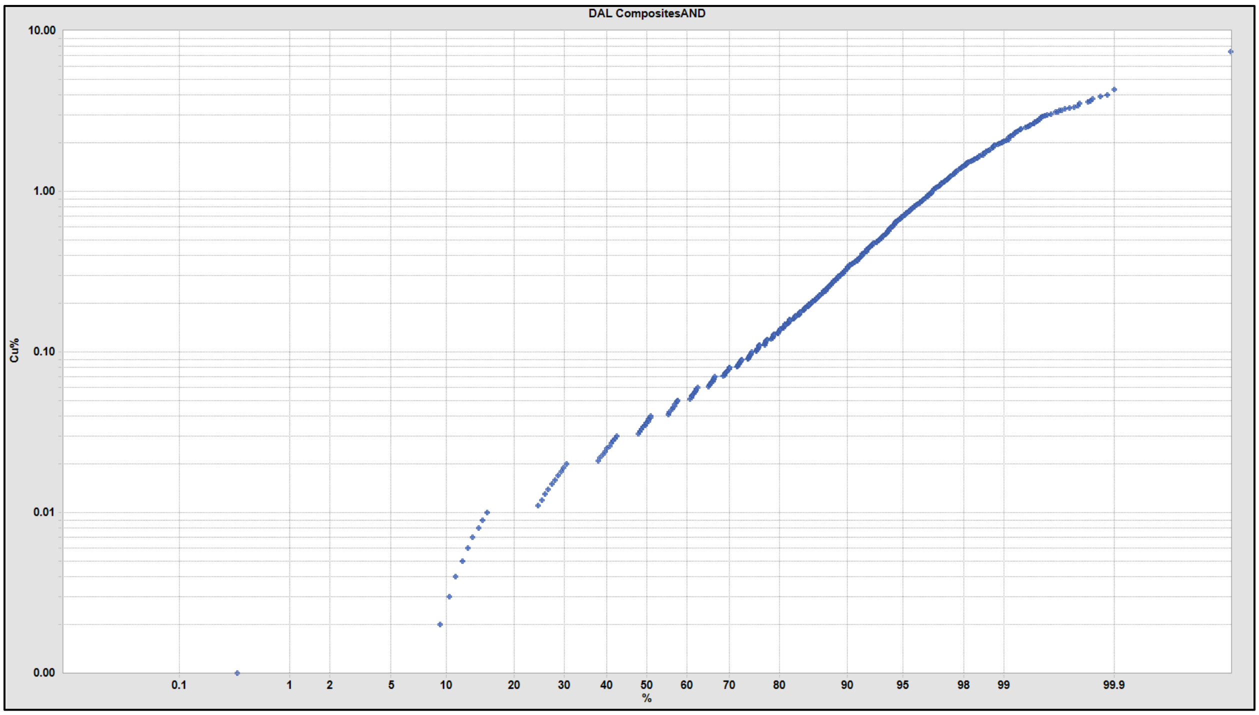


Source: Kirkham (2022)

14.2.3.5 Evaluation of Outlier Assay Values

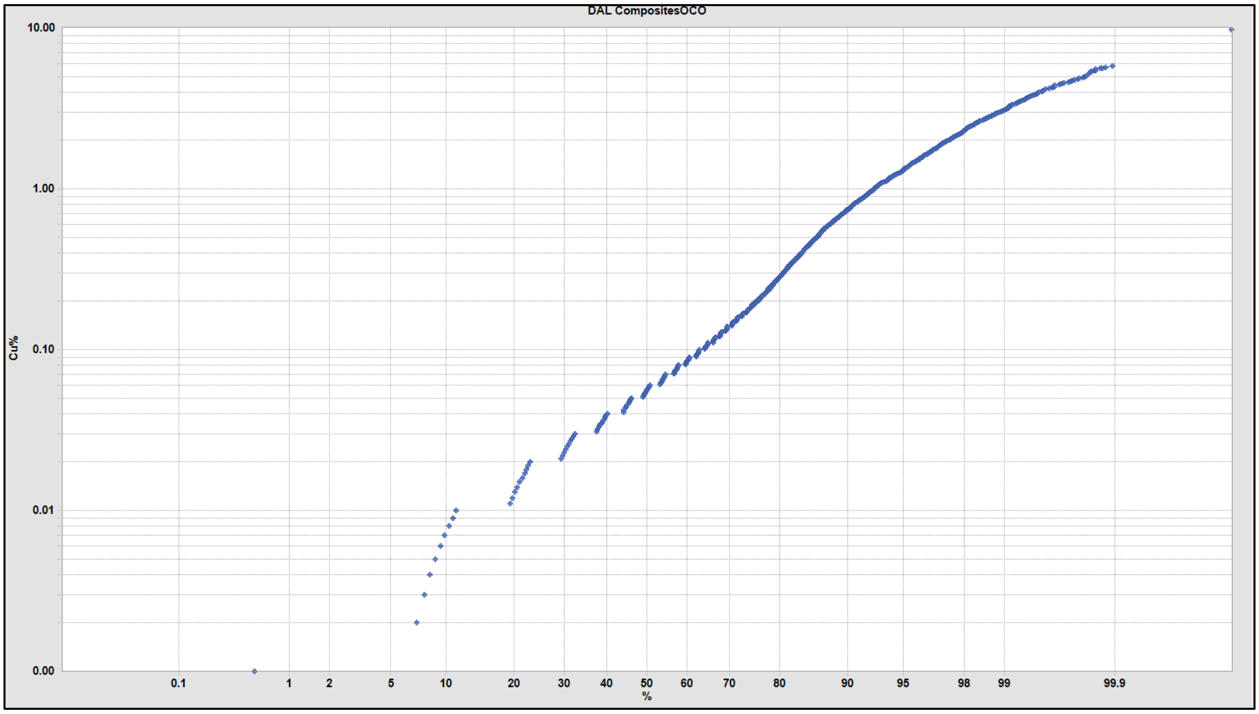
During the estimation process, the influence of outlier composites is limited to ensure against over-estimation of metal content. The high-grade outlier thresholds were chosen by domain and are based on an analysis of the breaks in the cumulative frequency plots within the mineralized domains. Figure 14-68 and Figure 14-69 show examples of the copper cumulative frequency plots for all composites and for the mineralized domains, respectively. As a result, total copper grades within the andesites are cut to 3% while total copper grades within the ocoites are cut to 5%.

Figure 14-68: CuT% Cumulative Frequency Plot for Composites within Andesites



Source: Kirkham (2022)

Figure 14-69: CuT% Cumulative Frequency for Composites within Ocoites



Source: Kirkham (2022)

Table 14-15 shows the effects of cutting the outlier grades within the domain groupings. Mean grades are not significantly affected and CV's are reduced by a small amount. The conclusion is that the deposit grades are not highly variable, and that the distribution is quite homogeneous and not nuggety. This said, the cutting strategy is successful in addressing the limited outlier grade population.

Table 14-15: Cut vs. Uncut Comparisons for CuT% Composites –Domain Groupings

	Zone	Litho	Ox/Sul	Max	Mean	CV	Cut Grade	Mean	CV
CuT% vs Cu% Cut	11	Andesite	Oxide	7.42	0.23	2.4	3	0.23	2.1
	12		Sulphide	6.78	0.13	2.7	3	0.14	2.5
	13	Ocoite	Oxide	7.38	0.34	2.0	5	0.32	2.1
	14		Sulphide	9.74	0.25	2.4	5	0.25	2.3
	Total			9.74	0.24	2.4	5	0.24	2.3
	All			9.74	0.24	2.4	5	0.24	2.3

Source: Kirkham (2022)

14.2.3.6 Specific Gravity Estimation

Specific gravity (SG) assignment by domain is done using standard water displacement methods. The SG assigned for the domains is determined at 2.77 from 50 measurements. It is recommended that future work programs should continue to include SG measurements to expand the density distributions, particularly within the mineralized units.

14.2.3.7 Variography

Experimental variograms and variogram models in the form of correlograms were generated for copper and silver grades. The definition of nugget value was derived from the downhole variograms. The correlograms for copper and silver within veins in the south and north zones are shown in Figure 14-70 through Figure 14-72 for total and soluble copper, respectively.

Figure 14-70: CuT% Correlogram Models

Dalmacia Code12-Zone1 CuT Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.462
C1 ==> 0.347
C2 ==> 0.191

First Structure -- Spherical

LH Rotation about the Z axis ==> -24
RH Rotation about the X' axis ==> 7
LH Rotation about the Y' axis ==> -73

Range along the Z' axis ==> 13.3	Azimuth ==> 68	Dip ==> 17
Range along the Y' axis ==> 14.8	Azimuth ==> 336	Dip ==> 7
Range along the X' axis ==> 78.9	Azimuth ==> 44	Dip ==> -72

Second Structure -- Spherical

LH Rotation about the Z axis ==> 49
RH Rotation about the X' axis ==> 41
LH Rotation about the Y' axis ==> 17

Range along the Z axis ==> 46.3	Azimuth ==> 255	Dip ==> 46
Range along the X' axis ==> 59.6	Azimuth ==> 151	Dip ==> 13
Range along the Y' axis ==> 335.1	Azimuth ==> 49	Dip ==> 41

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Dalmacia Code12-Zone2 CuT Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.332
C1 ==> 0.541
C2 ==> 0.127

First Structure -- Spherical

LH Rotation about the Z axis ==> -31
RH Rotation about the X' axis ==> 63
LH Rotation about the Y' axis ==> -90
Range along the Z' axis ==> 15.7 Azimuth ==> 59 Dip ==> -0
Range along the Y' axis ==> 25.4 Azimuth ==> 329 Dip ==> 63
Range along the X' axis ==> 10.8 Azimuth ==> 329 Dip ==> -27

Second Structure -- Spherical

LH Rotation about the Z axis ==> 43
RH Rotation about the X' axis ==> 115
LH Rotation about the Y' axis ==> -12
Range along the Z axis ==> 75.1 Azimuth ==> 210 Dip ==> -24
Range along the X' axis ==> 49.3 Azimuth ==> 122 Dip ==> 5
Range along the Y' axis ==> 319.7 Azimuth ==> 223 Dip ==> 65

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Dalmacia Code11-Zone2 CuT Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.300
C1 ==> 0.583
C2 ==> 0.117

First Structure -- Spherical

LH Rotation about the Z axis ==> -73
RH Rotation about the X' axis ==> 45
LH Rotation about the Y' axis ==> 40

Range along the Z' axis	==> 8.1	Azimuth ==> 156	Dip ==> 33
Range along the Y' axis	==> 15.2	Azimuth ==> 287	Dip ==> 45
Range along the X' axis	==> 12.5	Azimuth ==> 47	Dip ==> 27

Second Structure -- Spherical

LH Rotation about the Z axis ==> -11
RH Rotation about the X' axis ==> -9
LH Rotation about the Y' axis ==> -66

Range along the Z axis	==> 418.1	Azimuth ==> 75	Dip ==> 24
Range along the X' axis	==> 44.6	Azimuth ==> 98	Dip ==> -65
Range along the Y' axis	==> 127.1	Azimuth ==> 349	Dip ==> -9

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Dalmacia Code11-Zone1 CuT Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.307
C1 ==> 0.531
C2 ==> 0.162

First Structure -- Spherical

LH Rotation about the Z axis ==> 23
RH Rotation about the X' axis ==> 51
LH Rotation about the Y' axis ==> 15

Range along the Z' axis	==> 17.3	Azimuth ==> 223	Dip ==> 38
Range along the Y' axis	==> 41.9	Azimuth ==> 23	Dip ==> 51
Range along the X' axis	==> 136.9	Azimuth ==> 125	Dip ==> 9

Second Structure -- Spherical

LH Rotation about the Z axis ==> -0
RH Rotation about the X' axis ==> 28
LH Rotation about the Y' axis ==> -3

Range along the Z axis	==> 234.6	Azimuth ==> 173	Dip ==> 62
Range along the X' axis	==> 36.0	Azimuth ==> 88	Dip ==> -3
Range along the Y' axis	==> 466.8	Azimuth ==> 360	Dip ==> 28

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-71: CuS% Correlogram Models

Dalmacia Code12 Zone 1 CuS Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.328
C1 ==> 0.595
C2 ==> 0.077

First Structure -- Spherical

LH Rotation about the Z axis ==> 42
RH Rotation about the X' axis ==> 10
LH Rotation about the Y' axis ==> 7

Range along the Z' axis ==> 23.4	Azimuth ==> 257	Dip ==> 78
Range along the Y' axis ==> 8.6	Azimuth ==> 42	Dip ==> 10
Range along the X' axis ==> 11.1	Azimuth ==> 133	Dip ==> 7

Second Structure -- Spherical

LH Rotation about the Z axis ==> 49
RH Rotation about the X' axis ==> 143
LH Rotation about the Y' axis ==> 51

Range along the Z axis ==> 643.0	Azimuth ==> 293	Dip ==> -30
Range along the X' axis ==> 84.4	Azimuth ==> 175	Dip ==> -38
Range along the Y' axis ==> 363.6	Azimuth ==> 229	Dip ==> 37

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Dalmacia Code12 Zone 2 CuS Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.409
C1 ==> 0.512
C2 ==> 0.079

First Structure -- Spherical

LH Rotation about the Z axis ==> -8
RH Rotation about the X' axis ==> 79
LH Rotation about the Y' axis ==> 91

Range along the Z' axis ==> 16.7	Azimuth ==> 262	Dip ==> -0
Range along the Y' axis ==> 21.1	Azimuth ==> 352	Dip ==> 79
Range along the X' axis ==> 6.7	Azimuth ==> 173	Dip ==> 11

Second Structure -- Spherical

LH Rotation about the Z axis ==> 74
RH Rotation about the X' axis ==> -25
LH Rotation about the Y' axis ==> 50

Range along the Z axis ==> 558.8	Azimuth ==> 4	Dip ==> 36
Range along the X' axis ==> 97.2	Azimuth ==> 138	Dip ==> 44
Range along the Y' axis ==> 296.1	Azimuth ==> 74	Dip ==> -25

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Dalmacia Code11 Zone 1 CuS Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.154
C1 ==> 0.060
C2 ==> 0.785

First Structure -- Spherical

LH Rotation about the Z axis ==> 89	
RH Rotation about the X' axis ==> -2	
LH Rotation about the Y' axis ==> 4	
Range along the Z' axis ==> 18.1	Azimuth ==> 21 Dip ==> 86
Range along the Y' axis ==> 29.9	Azimuth ==> 89 Dip ==> -2
Range along the X' axis ==> 54.9	Azimuth ==> 179 Dip ==> 4

Second Structure -- Spherical

LH Rotation about the Z axis ==> -28	
RH Rotation about the X' axis ==> 50	
LH Rotation about the Y' axis ==> 34	
Range along the Z axis ==> 127.9	Azimuth ==> 193 Dip ==> 32
Range along the X' axis ==> 1.5	Azimuth ==> 89 Dip ==> 21
Range along the Y' axis ==> 74.8	Azimuth ==> 332 Dip ==> 50

Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Dalmacia Code11 Zone 2 CuS Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.450
C1 ==> 0.421
C2 ==> 0.129

First Structure -- Spherical

LH Rotation about the Z axis ==> -86
RH Rotation about the X' axis ==> 74
LH Rotation about the Y' axis ==> 126

Range along the Z' axis ==> 3.0	Azimuth ==> 219	Dip ==> -9
Range along the Y' axis ==> 29.0	Azimuth ==> 274	Dip ==> 74
Range along the X' axis ==> 11.6	Azimuth ==> 131	Dip ==> 13

Second Structure -- Spherical

LH Rotation about the Z axis ==> -57
RH Rotation about the X' axis ==> 50
LH Rotation about the Y' axis ==> 55

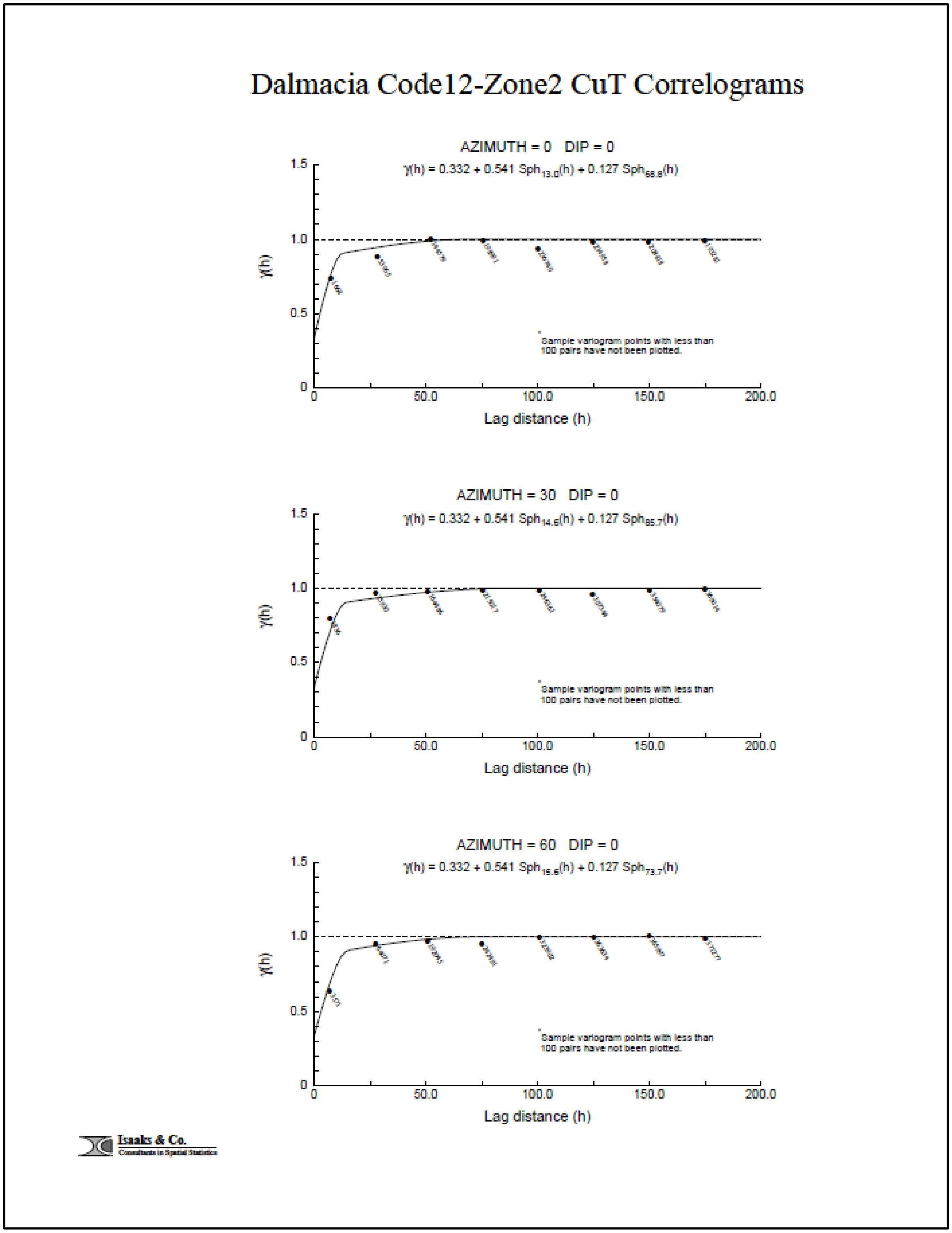
Range along the Z axis ==> 131.1	Azimuth ==> 185	Dip ==> 22
Range along the X' axis ==> 70.3	Azimuth ==> 80	Dip ==> 32
Range along the Y' axis ==> 344.2	Azimuth ==> 303	Dip ==> 50

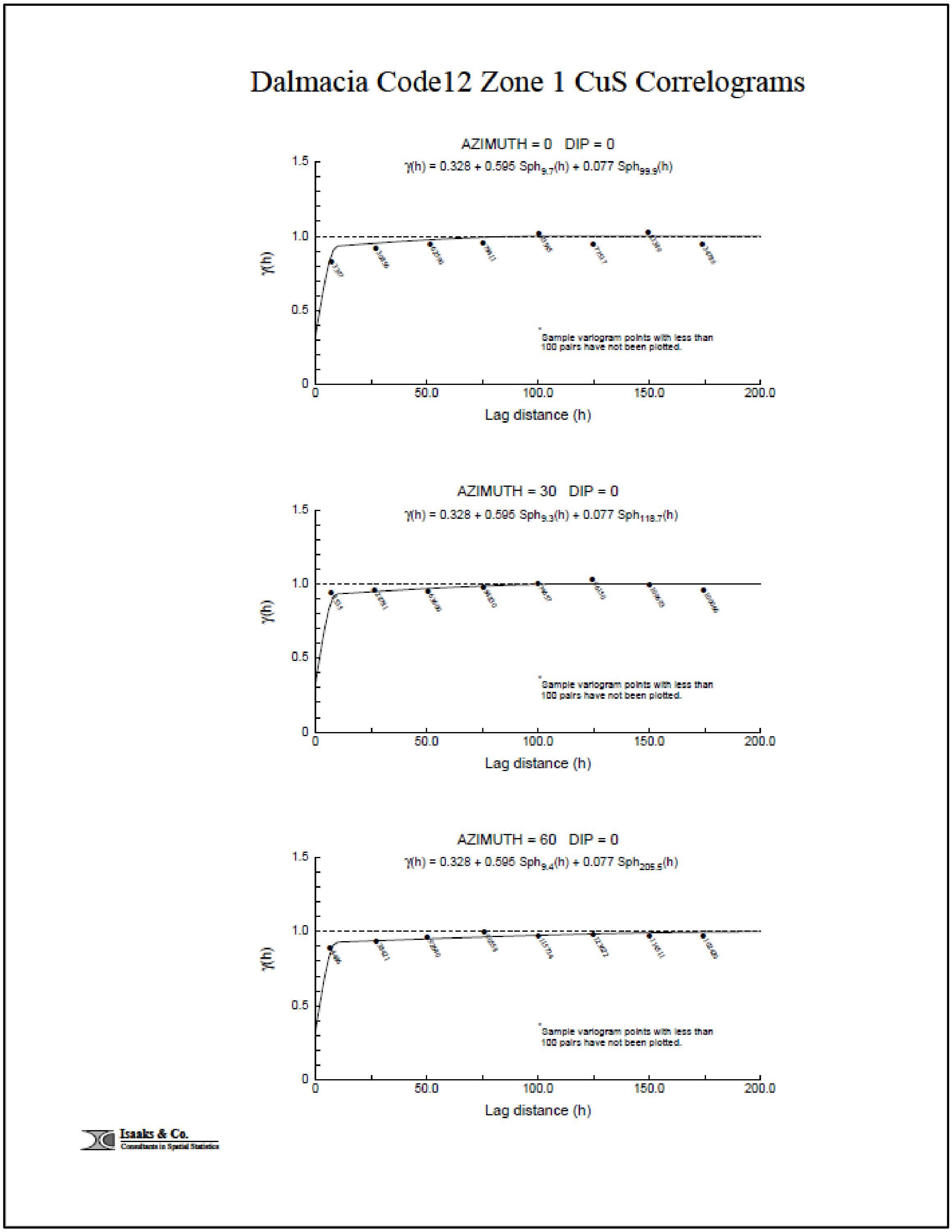
Modeling Criteria

Minimum number pairs req'd ==> 100
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-72: Example CuT% and CuS% Correlograms





Source: Kirkham (2022)

The correlograms models for total and soluble copper are shown in Table 14-16. These variogram models were used to estimate total copper and soluble copper grades using ordinary kriging as the interpolator.

Table 14-16: Geostatistical Model Parameters for CuT% and CuS% within the Mineralized Domains

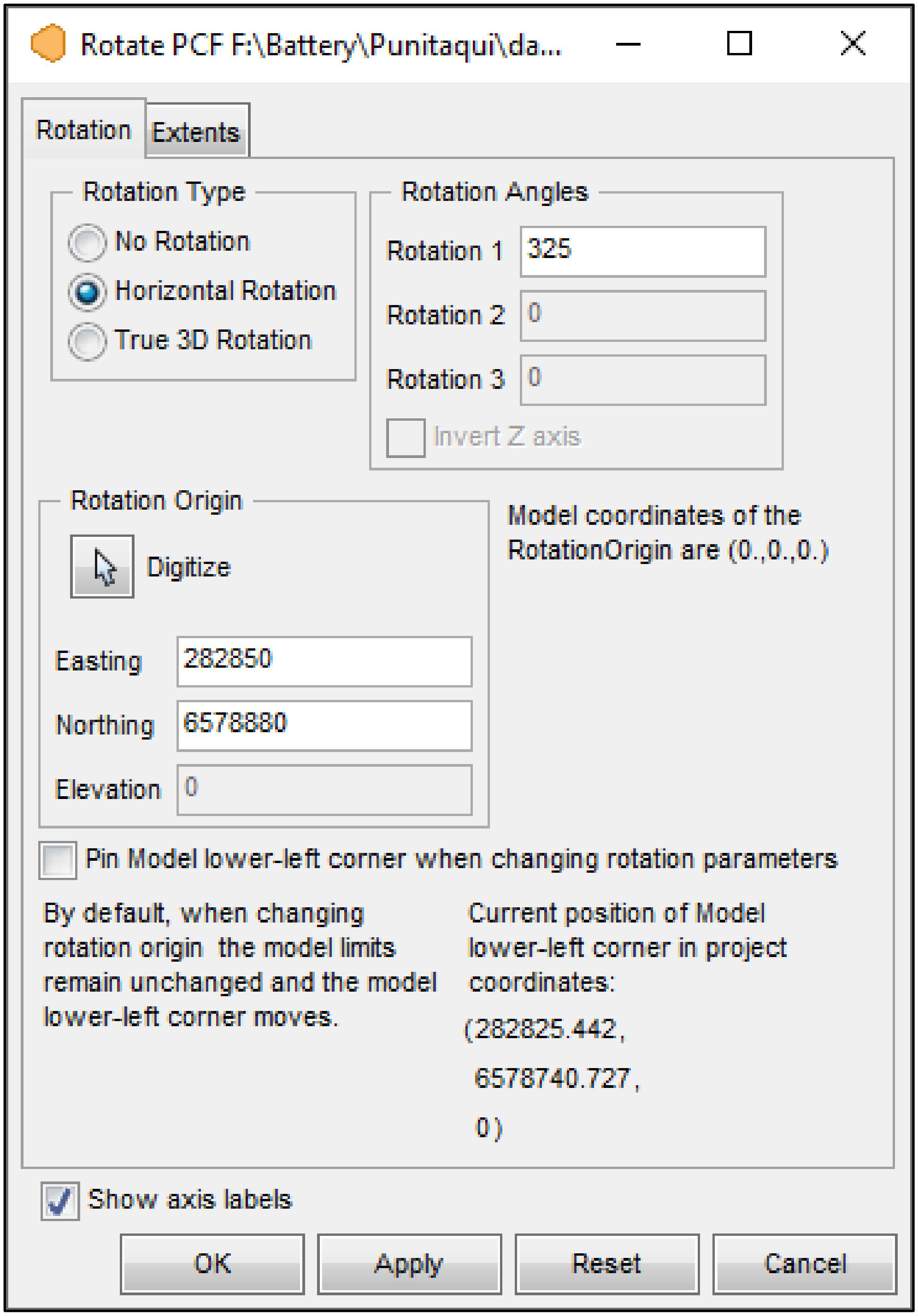
Litho Unit	Andesite		Andesite		Ocoite		Ocoite	
Mineralization	Oxide		Sulphide		Oxide		Sulphide	
Code	CuT%	CuS%	CuT%	CuS%	CuT%	CuS%	CuT%	CuS%
Nugget (C0)	0.307	0.154	0.3	0.45	0.462	0.328	0.332	0.409
First Sill (C1)	0.531	0.06	0.583	0.421	0.347	0.595	0.541	0.512
Second Sill (C2)	0.162	0.785	0.117	0.129	0.191	0.077	0.127	0.079
1st Structure								
Range along the Z'	17.3	18.1	8.1	3	13.3	23.4	15.7	16.7
Range along the X'	41.9	29.9	15.2	29	14.8	8.6	25.4	21.1
Range along the Y'	136.9	54.9	12.5	11.6	78.9	11.1	10.8	6.7
R1 about the Z	23	89	-73	-86	-24	42	-31	-8
R2 about the X'	51	-2	45	74	7	10	63	79
R3 about the Y'	15	4	40	126	-73	7	-90	91
2nd Structure								
Range along the Z'	234.6	127.9	418.1	131.1	46.3	643	75.1	558.8
Range along the X'	36	1.5	44.6	70.3	59.6	84.4	49.3	97.2
Range along the Y'	466.8	74.8	127.1	344.2	335.1	363.6	319.7	296.1
R1 about the Z	0	-28	-11	-57	49	49	43	74
R2 about the X'	28	50	-9	50	41	143	115	-25
R3 about the Y'	-3	34	-66	55	17	51	-12	50

Source: Kirkham (2022)

14.2.3.8 Block Model Definition

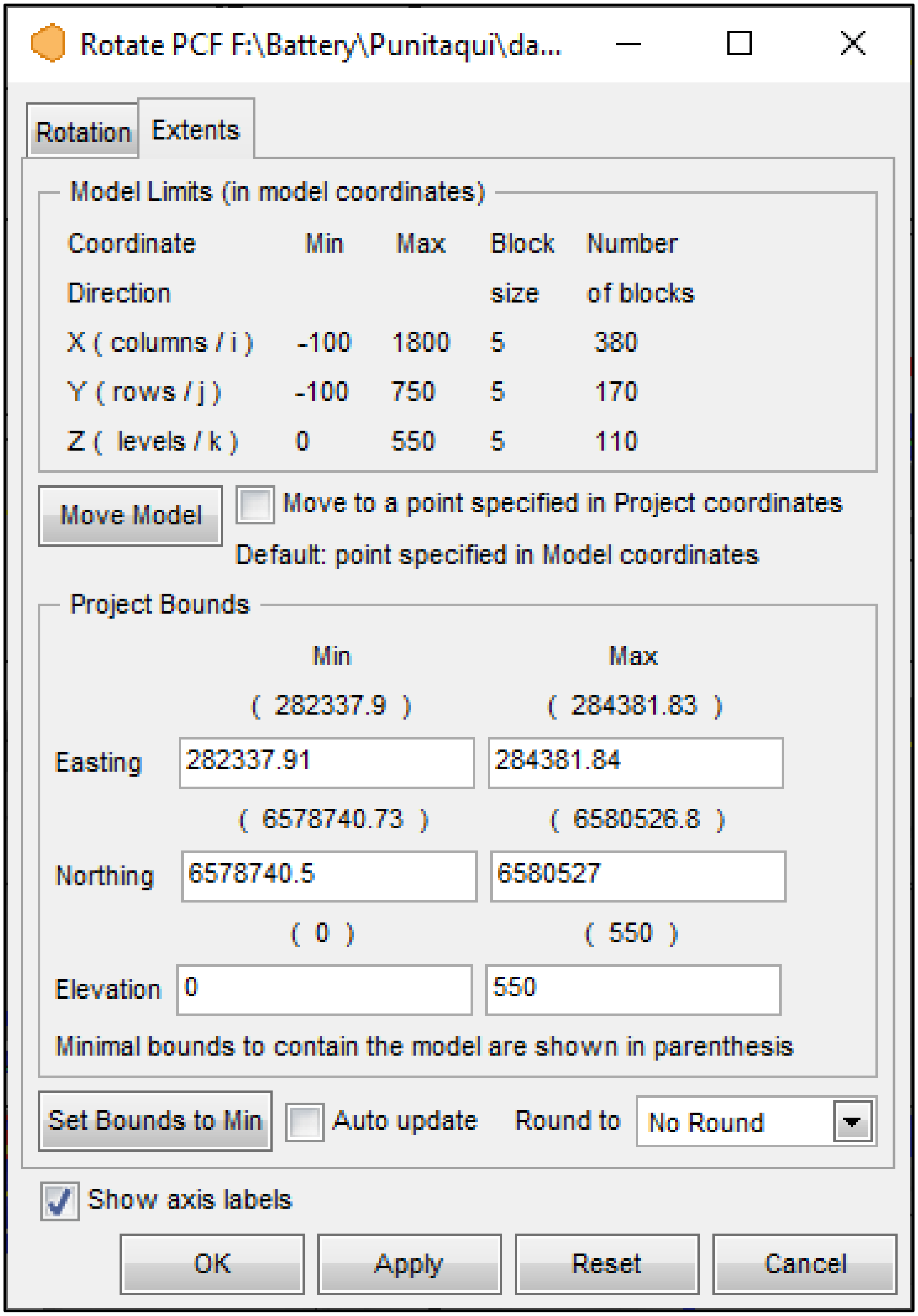
The block model used for estimating the resources was defined according to the origin and orientation shown in Figure 14-73 and the limits specified in Figure 14-74.

Figure 14-73: Block Model Origin & Orientation



Source: Kirkham (2022)

Figure 14-74: Block Model Extents & Dimensions



Source: Kirkham (2022)

The block model employs whole blocking for ease of mine planning and is orthogonal and non-rotated, roughly reflecting the orientation of the direction of lithology within the deposit. The block size chosen was 5 m x 5 m x 5 m which are subsequently sub-blocked to 0.5 m x 0.5 m x 0.5 m. Note that MineSight™ uses the centroid of the blocks as the origin.

14.2.3.9 Resource Estimation Methodology

The estimation plan for the Dalmacia deposit was as follows:

- Domain code of modelled mineralization stored in each block and sub-block;
- Specific gravity assignment for the mineralized domains;
- Block total copper and soluble copper grade along with silver grade for estimation by ordinary kriging; and
- One pass estimation for the mineralized domains using hard boundaries.

A minimum of five composites and maximum of twenty composites, and a maximum of four composites per hole, were used to estimate block grades. Following Herco analysis, it was determined there is an appropriate amount of smoothing.

For the domains that make up the Dalmacia deposit, the search ellipsoids are directional with the major axis having a dimension of 100 m at an orientation of 230º rotated down dip to -40º, and the secondary axis being 50 m, with the tertiary axis being 25 m. Hard boundaries were used so that grade is not smeared between the units.

14.2.3.10 Mineral Resource Classification

Mineral resources were estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserve Best Practices" Guidelines (2019). Mineral resources are not mineral reserves and do not have demonstrated economic viability. Mineral resources for the Dalmacia deposit were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (2014) by Garth Kirkham, P.Geo., of Kirkham Geosystems Ltd. (KGL), an Independent Qualified Person as defined by NI 43-101.

The mineral resources may be impacted by further infill and exploration drilling that may result in an increase or decrease in future resource evaluations. The mineral resources may also be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.

Mineral resource categories can be based on an estimate of uncertainty within a theoretical measure of confidence. It should also be noted that the confidence limits only consider the variability of grade within the deposit. There are other aspects of deposit geology and geometry such as geological contacts or the presence of faults or offsetting structures that may impact the drill spacing.

The spacing distances are intended to define contiguous volumes and they should allow for some irregularities due to actual drill hole placement. The final classification volume results typically must be adjusted manually to come to a coherent classification scheme. The thresholds should be used as a guide and boundaries interpreted and defined to ensure continuity.

Drill hole spacing is sufficient for preliminary geostatistical analysis and evaluating spatial grade variability. The classification of resources was based primarily upon distance to the nearest composite; however, the multiple quantitative measures, as listed below, were inspected and taken into consideration.

The estimated blocks were classified according to the following:

- Confidence in interpretation of the mineralized zones;
- Number of composites used to estimate a block;
- Number of composites allowed per drill hole;
- Distance to nearest composite used to estimate a block; and
- Average distance to the composites used to estimate a block.

Therefore, the following lists the spacing for each resource category to classify the resources:

- Indicated: Resources in this category would be delineated from at least three drill holes spaced on a nominal 50 m pattern; and
- Inferred: Any material not falling in the categories above and within a maximum 100 m of one hole.

To ensure continuity, the boundary between the indicated and inferred categories was contoured and smoothed, eliminating outliers and orphan blocks. The spacing distances are intended to define contiguous volumes and they should allow for some irregularities due to actual drill hole placement. The final classification volume results typically must be adjusted manually to come to a coherent classification scheme.

Mineral resources are classified under the categories of "indicated" and "inferred" according to CIM guidelines. Mineral resource classification for copper was based primarily on drill hole spacing and on continuity of mineralization. Indicated resources were defined as those within a distance to three drill holes of less than ~50 m. Inferred resources were defined as those with an average drill hole spacing of less than ~100 m and meeting additional requirements. All resources are constrained in the following manner: primarily, by the continuous vein solids, secondarily, the low-grade envelope, and thirdly, by the Salinas group tertiary member. Blocks outside the aforementioned were estimated in a last pass to determine waste grade and volumes. Final resource classification shells were manually constructed on plan and sections.

The suggested classification parameters are roughly consistent with the past classification scheme. Classification in future models may differ, but principal differences should be due to changes in the amount of drilling.

14.2.3.11 Mineral Resource Estimate

This estimate is based upon the reasonable prospect of eventual economic extraction based on continuity and using estimates of operating costs and price assumptions. The "reasonable prospects for eventual economic extraction" were tested using reasonable underground mining methods and shapes for underground resources and floating cone pit shells based on reasonable prospects of eventual economic assumptions for open pit resources. The pit optimization results are used solely for testing the "reasonable prospects for eventual economic extraction" and do not represent an attempt to estimate mineral reserves.

Table 14-17 lists the indicated and inferred resources for the Dalmacia deposit that are reasonably expected economical extracted via underground methods. The resources are reported using a cut-off grade of 0.7% total copper.

Table 14-17: Underground Resource Estimate Using 0.7% CuT% Cut-off

Dalmacia Underground			
	Tonnes	**CuT%**	**Ag g/t**
Indicated	2,198,000	1.00	1.38
Inferred	1,599,000	0.93	1.00

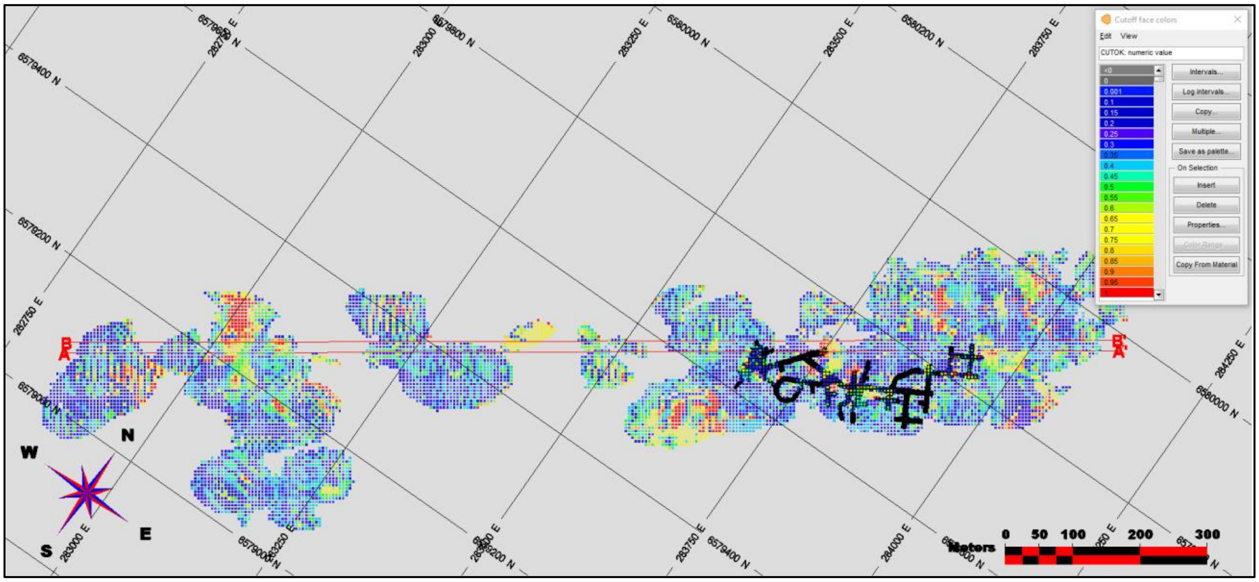
Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

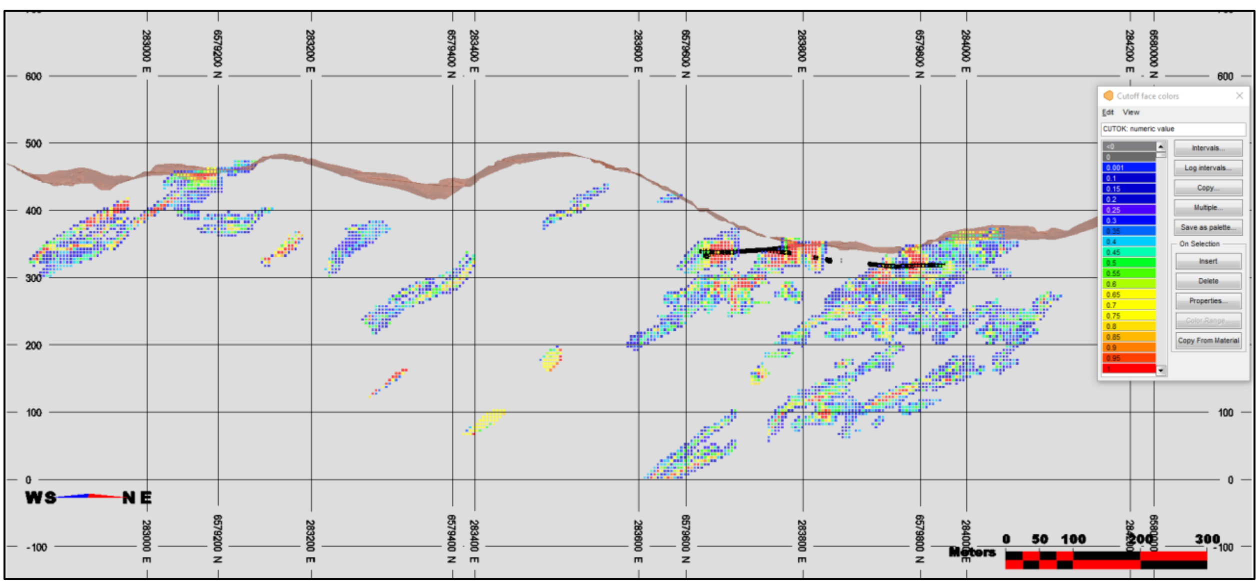
Figure 14-75 through Figure 14-77 show plan and sectional views of the total copper block model with underground development.

Figure 14-75: Plan View of CuT% Block Model with Underground Workings and Section Lines (A-A', B-B')



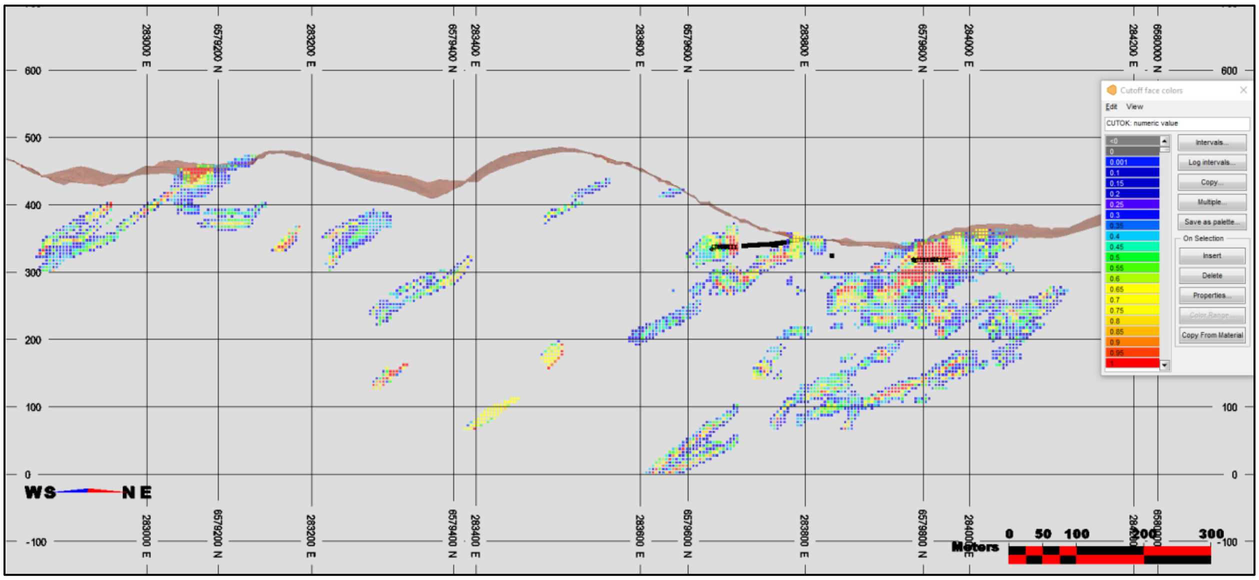
Source: Kirkham (2022)

Figure 14-76: A-A' Section View of CuT% Block Model with Underground Workings



Source: Kirkham (2022)

Figure 14-77: B-B' Section View CuT% Block Model with Underground Workings



Source: Kirkham (2022)

For the indicated and inferred resources that are reasonably extractable via potentially open pit methods, Table 14-18 shows tonnage and grade at a 0.3% soluble copper cut-off grade. Figure 14-78 shows the CuS% blocks with topography and the outline of the reasonable prospects pit

Table 14-18: Resource Estimate using 0.3% CuS% Cut-off

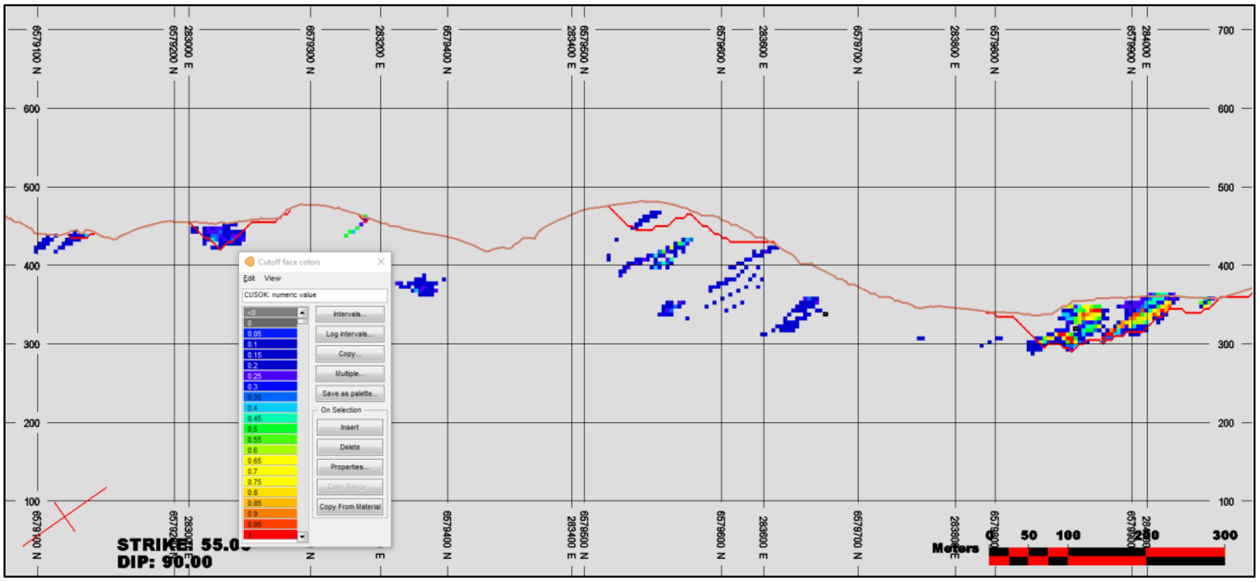
Class	Cut-off	Tonnes	CuS%	CuT%	Ag g/t
Indicated	0.3	873,000	0.62	0.74	1.15
Inferred	0.3	1,326,000	0.50	0.50	1.11

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

Figure 14-78: Plan View of CuS% Block Model with Reasonable Prospects Optimized Pit (red line) and Topography (brown line)



Source: Kirkham (2022)

14.2.3.12 Sensitivity of the Block Model to Selection Cut-off Grade

The mineral resources are sensitive to the selection of cut-off grade. Table 14-19 and Table 14-20 show tonnage and grade for the underground and open pit at varying cut-offs, respectively. The reader is cautioned that these values should not be misconstrued as a mineral reserve. The reported quantities and grades are only presented as a sensitivity of the resource model to the selection of cut-off grade.

Table 14-19: Sensitivity Analyses of Tonnage along with Total and Soluble Copper Grades along with Silver Grades at Various CuT% Cut-off Grades for Potentially Underground Mineable Resources

Dalmacia Underground					
		Tonnes	CUT%	CUS%	AG
	>=0.9	1,084,765	1.22	0.04	1.55
	>=0.8	1,528,553	1.11	0.04	1.48
Indicated	>=0.75	1,831,450	1.05	0.04	1.44
	>=0.7	**2,198,260**	**1.00**	**0.04**	**1.38**
	>=0.6	3,223,123	0.89	0.03	1.33

Dalmacia Underground					
		Tonnes	CUT%	CUS%	AG
	>=0.5	4,597,402	0.79	0.03	1.29
Inferred	>=0.9	663,691	1.12	0.05	1.08
	>=0.8	1,050,329	1.02	0.04	1.08
	>=0.75	1,280,650	0.98	0.04	1.05
	>=0.7	**1,599,280**	**0.93**	**0.04**	**1.00**
	>=0.6	2,394,806	0.83	0.04	0.98
	>=0.5	3,556,252	0.74	0.04	0.97

Source: Kirkham (2022)

Table 14-20: Sensitivity Analyses of Tonnage along with Total and Soluble Copper Grades along with Silver Grades at Various CuS% Cut-off Grades for Potentially Underground Mineable Resources

Class	Cut-off	Tonnes	CuS%	CuT%	Ag g/t
Indicated	0.5	455,000	0.83	0.83	1.18
	0.4	625,000	0.73	0.78	1.16
	0.3	**873,000**	**0.62**	**0.74**	**1.15**
	0.2	1,130,000	0.54	0.69	1.11
Inferred	0.5	442,000	0.75	0.63	1.12
	0.4	753,000	0.63	0.57	1.14
	0.3	**1,326,000**	**0.50**	**0.50**	**1.11**
	0.2	2,017,000	0.42	0.45	1.11

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

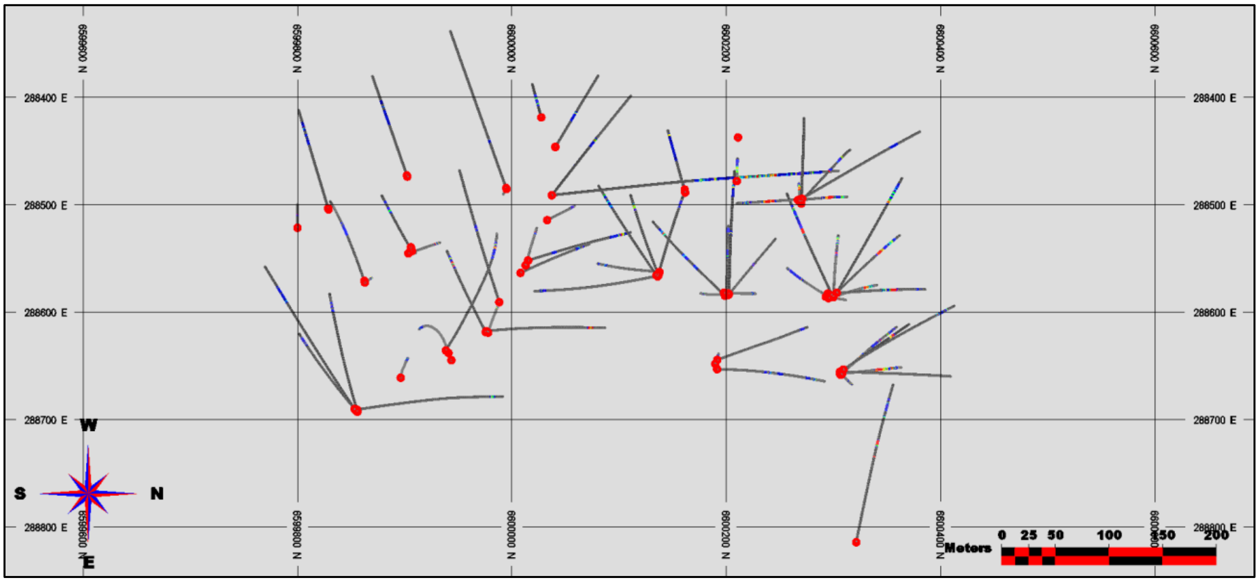
14.2.4 Cinabrio Norte

14.2.4.1 Data

The drill hole database was supplied in electronic format (i.e., Microsoft Excel) by BMR. This included collars, down hole surveys, lithology data and assay data (i.e., total copper and soluble copper in %), and down hole ("from" and "to" intervals in metric units). Lithology group and description information was provided, along with abbreviated alpha-numeric and numeric codes.

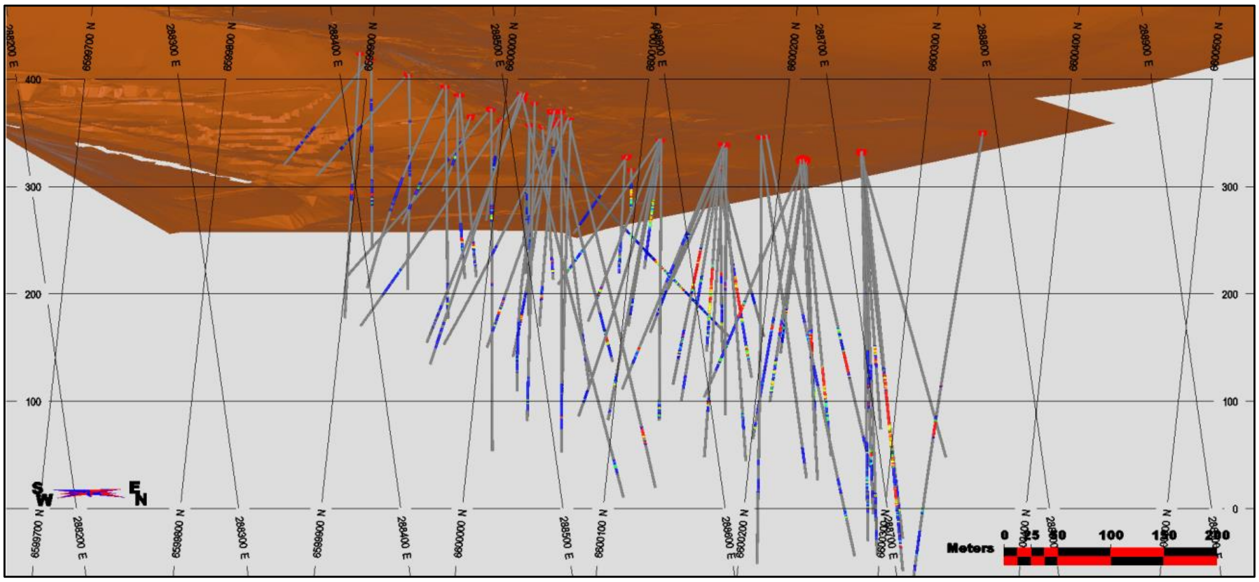
A total of 75 drill holes were imported. Figure 14-79 and Figure 14-80 show long section and section views of drill holes with collars and channel samples. A total of 2,435 assay values and 3,733 lithology values, were supplied for the Cinabrio Norte Project. Validation and verification checks were performed during import to confirm there were no overlapping intervals, typographic errors, or anomalous entries.

Figure 14-79: Plan View of Drill Holes



Source: Kirkham (2022)

Figure 14-80: Oblique Section View of Drill Holes with Topography

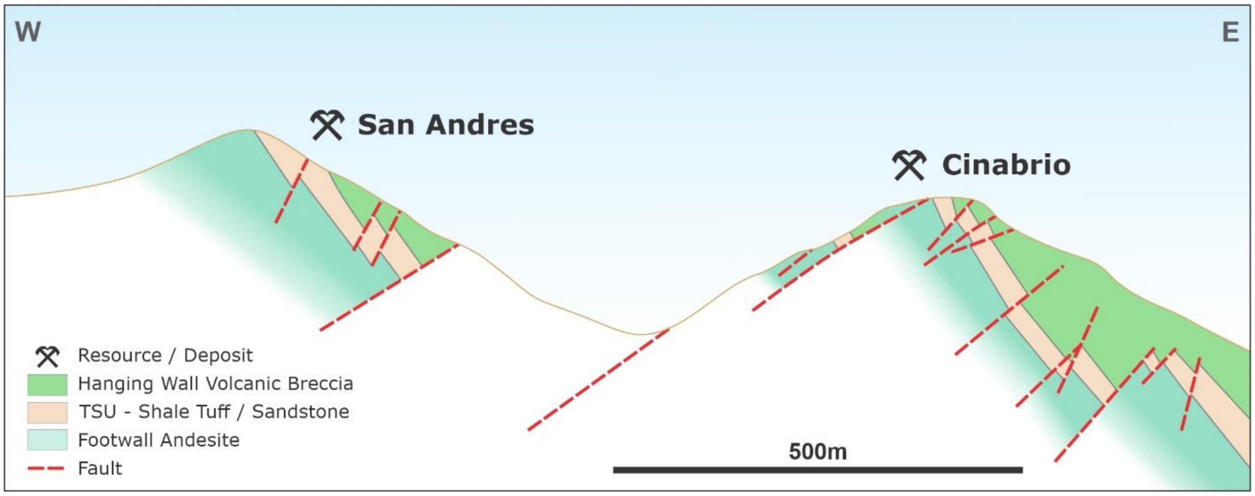


Source: Kirkham (2022)

14.2.4.2 Geology & Domain Model

Methodology for Cinabrio, San Andres and Cinabrio Norte involves modelling interpretations of the continuous, faulted shale-tuff sandstone (TSU) units as illustrated in the schematic cross-section in Figure 14-81.

Figure 14-81: Section View Schematic of Lithology for the Cinabrio/Cinabrio Norte Deposits



Source: Skarmeta (2020)

As with Cinabrio and San Andreas, a two-phased modelling approach was taken to creating geology and estimation domains that included a lithostratigraphic model and domain modelling. The lithology models were completed using the lithology codes within the database.

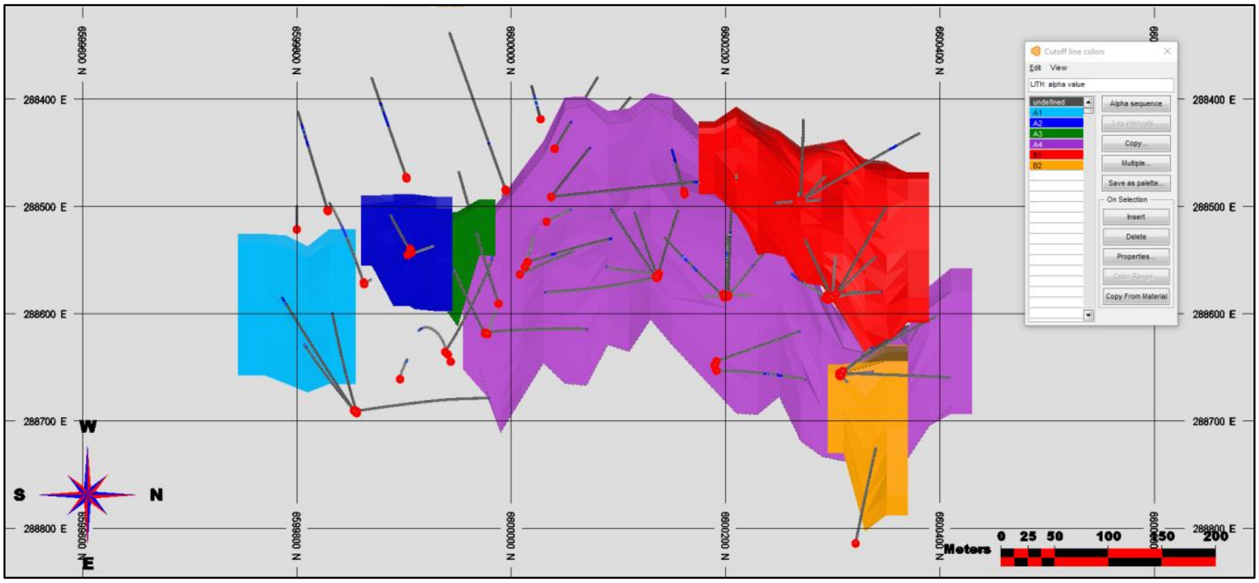
The models were created from first principles within LeapFrog™ and refined in MineSight™ for statistical analysis and to be used for the estimation process.

The models were created from first principals using the lithostratigraphic models and the structural modelling as guides within LeapFrog™ and refined in MineSight™ under the supervision of the independent QP for statistical analysis and to be used for the estimation process. This was done utilizing the current and re- logged data, and from sectional interpretations that were subsequently wireframed based on a combination of lithology and copper grades.

Once completed, intersections were inspected, and the solids were then manually adjusted to match the drill intercepts. Once the solid models were edited and complete, they were used to code the drill hole assays and composites for subsequent statistical and geostatistical analysis. The solid zones were utilized to constrain the block model, by matching assays to those within the zones.

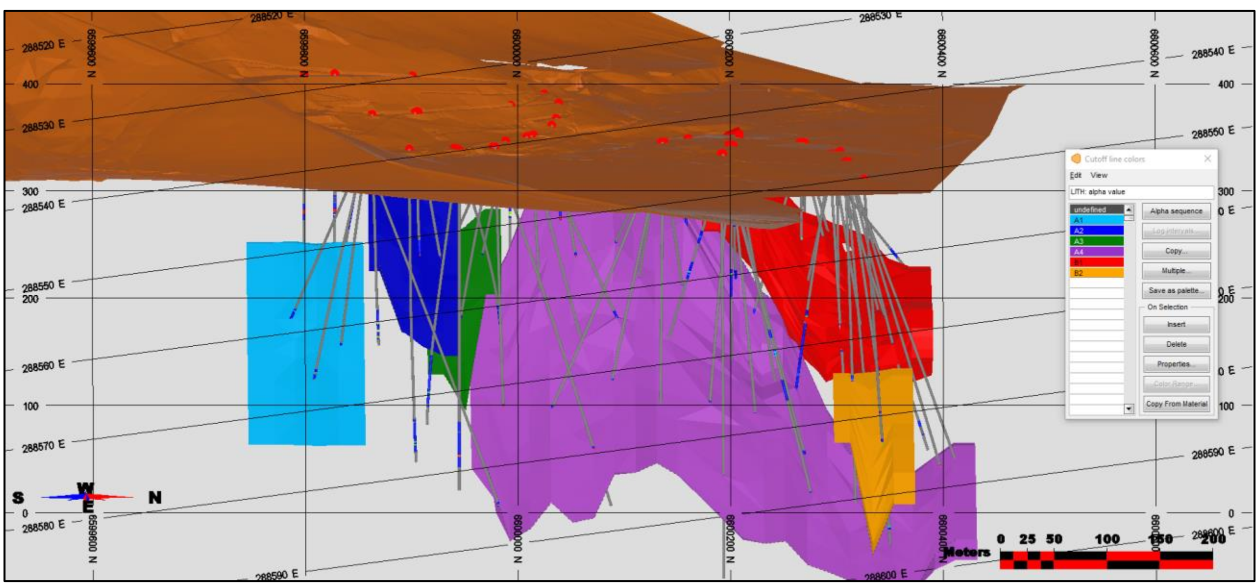
The orientation and ranges (distances) used for the search ellipsoids used in the estimation process were omni-directional and guided the strike and dip of the lithologic solids for domains shown in Figure 14-82, Figure 14-83 and Figure 14-84 which are labelled A1 (light blue), A2 (dark blue), A3 (green), A4 (purple), B1 (red) and B2 (orange), as per the legend. The domain models were employed to estimate the structures on a sub-block basis to best characterize the deposit for subsequent estimation and boundary definition.

Figure 14-82: Long Section View of Drill Holes with Mineralized Domains



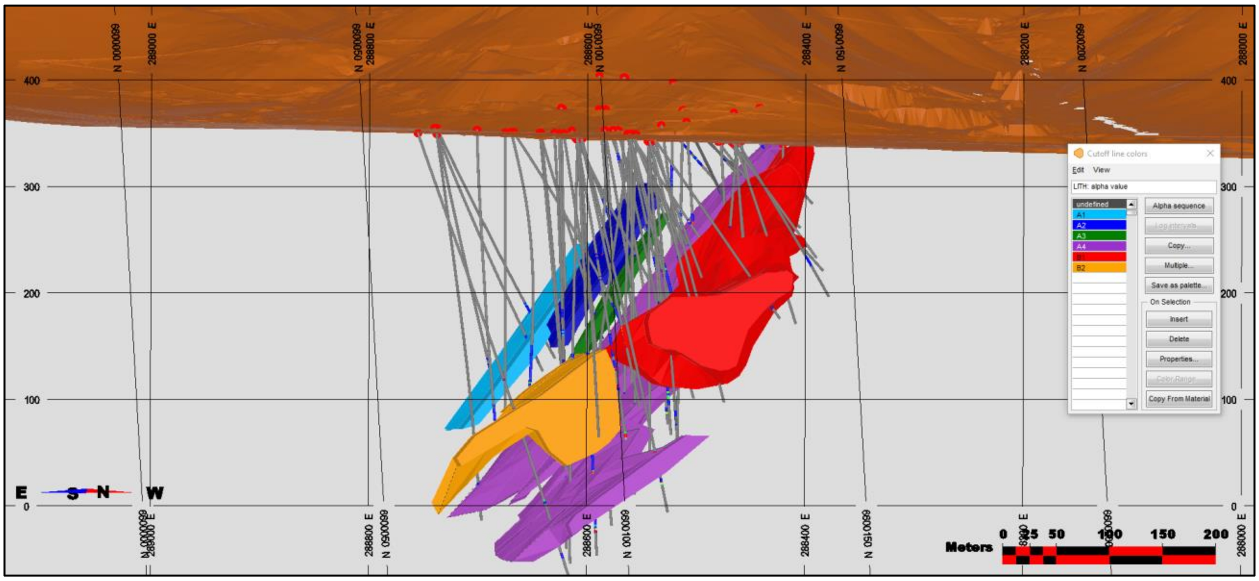
Source: Kirkham (2022)

Figure 14-83: Oblique Section View of Topography, Drill Holes and Mineralized Domains



Source: Kirkham (2022)

Figure 14-84: Long Section View of Topography, Drill Holes and Mineralized Domains



Source: Kirkham (2022)

14.2.4.3 Data Analysis

Table 14-21 shows statistics of total copper, soluble copper and silver assays within and outside the mineralized domains, along with total statistics. There is a total of 2,941 assays (3,033.9 m) included in the statistical analysis, with averages of 0.35% total copper and 3.69 g/t silver. 1,790 assays (1,646.8 m) are within the mineralized domains, averaging 0.58% total copper and 4.93 g/t silver. The maximum copper and silver grades within the mineralized domains are 5.87% and 200 g/t.

It is important to note that the CVs are, very low except for silver within the A4 (code 4) domain due to the one outlier silver value of 200 g/t.

Note that the method utilized for the treatment of outliers is by cutting the composites as opposed to cutting assay values.

Table 14-21: Statistics for Weighted Copper Grades within the Mineralized Domains, Outside and Totals

	Zone	#	Length (m)	Max	Mean	SD	CV
CUT%	A1	45	38	0.32	0.09	0.10	1.0
	A2	36	34	2.78	0.53	0.59	1.1
	A3	35	29	1.81	0.41	0.47	1.1
	A4	650	608	5.87	0.37	0.55	1.5
	B1	877	813	2.83	0.64	0.55	0.9
	B2	147	124	2.41	0.98	0.57	0.6
	Outside	1,151	1357	2.94	0.11	0.24	2.2
	Total	1,790	1647	5.87	0.54	0.58	1.1
	All	2,941	3004	5.87	0.35	0.51	1.4
CUS%	A1	0					
	A2	14	14	0.08	0.02	0.03	1.7
	A3	9	7	0.00	0.00	0.00	
	A4	45	39	0.26	0.01	0.04	3.2
	B1	72	62	1.53	0.39	0.32	0.8
	B2	17	14	0.03	0.02	0.01	0.3
	Outside	513	460	0.67	0.01	0.05	4.8
	Total	157	136	1.53	0.19	0.29	1.5
	All	670	596	1.53	0.05	0.16	3.2
AG	A1	45	38	11.00	2.91	2.09	0.7
	A2	23	21	11.00	2.45	2.82	1.2
	A3	35	29	12.45	3.45	3.27	0.9
	A4	587	551	200.00	5.67	11.95	2.1
	B1	723	666	79.40	4.40	6.05	1.4
	B2	147	124	24.00	5.92	4.74	0.8
	Outside	784	841	26.00	1.57	2.32	1.5
	Total	1,560	1430	200.00	4.93	8.67	1.8
	All	2,344	2271	200.00	3.69	7.21	2.0

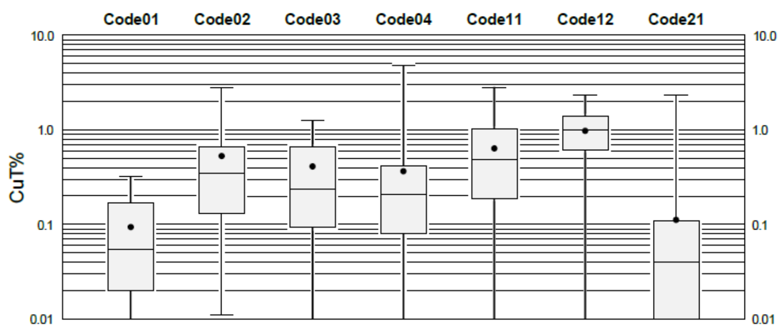
Source: Kirkham (2022)

Figure 14-85 shows that the A2 – A4 (Codes 2, 3 and 4) are statistically similar while A1 (code 1) is very low grade in comparison. In addition, B1 and B2 (codes 11 and 12) are of statistically similar, which supports using hard boundaries. Soluble copper grades are negligible with the exception of the B1 (code 11) domain as shown in Figure 14-86. Note that the silver grades exhibit much less variability from domain to domain as shown in Figure 14-87. Further analysis and modelling for the purpose of grouping and domaining takes these observations into account. Therefore, A1-A4 are grouped together for estimation purposes, and B11-B12 form a separate grouping.

Figure 14-85: Box Plot for CuT% within the Mineralized Domains (Code 1-12) and Outside (Code 21)

Cinabrio Norte ***Cinabrio Norte Modeling***

Cinabrio Norte : Code



	Code01	Code02	Code03	Code04	Code11	Code12	Code21	
Number of data	39	34	30	610	813	124	1411	Number of data
Mean	0.094	0.53	0.411	0.365	0.638	0.98	0.112	Mean
Variance	0.008	0.334	0.155	0.277	0.29	0.311	0.052	Variance
Skewness	0.866	2.093	0.867	3.753	0.952	0.012	4.785	Skewness
Coef of Variation	0.953	1.091	0.958	1.44	0.843	0.569	2.034	Coef of Variation
Maximum	0.32	2.78	1.27	4.824	2.83	2.315	2.317	Maximum
Upper quartile	0.17	0.66	0.664	0.414	1.03	1.397	0.11	Upper quartile
Median	0.055	0.35	0.239	0.21	0.48	0.989	0.04	Median
Lower quartile	0.02	0.13	0.093	0.08	0.19	0.62	0.01	Lower quartile
Minimum	0.0	0.011	0.0	0.0	0.0	0.0	0.0	Minimum

Variable: CuT%
Acceptable range: 0.0 to 100.0
Weights: LNGTH

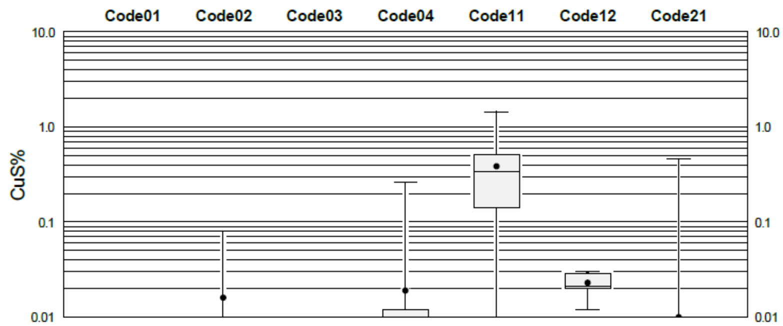
Code01 file: c01.prn
Code02 file: c02.prn
Code03 file: c03.prn
Code04 file: c04.prn
Code11 file: c11.prn
Code12 file: c12.prn
Code21 file: c21.prn

Source: Kirkham (2022)

Figure 14-86: Box Plot for CuS% within the Mineralized Domains (Code 1-12) and Outside (Code 21)

Cinabrio Norte ***Cinabrio Norte Modeling***

Cinabrio Norte : Code



	Code01	Code02	Code03	Code04	Code11	Code12	Code21	
Number of data	0	14	7	40	62	15	474	Number of data
Mean	0.0	0.016	0.0	0.019	0.386	0.023	0.01	Mean
Variance	0.0	0.001	0.0	0.003	0.096	0.0	0.002	Variance
Skewness	0.0	1.437	0.0	3.959	1.254	0.02	7.517	Skewness
Coef of Variation	0.0	1.73	0.0	2.911	0.804	0.224	4.397	Coef of Variation
Maximum	0.0	0.08	0.0	0.26	1.452	0.03	0.46	Maximum
Upper quartile	0.0	0.01	0.0	0.012	0.509	0.029	0.0	Upper quartile
Median	0.0	0.0	0.0	0.001	0.34	0.021	0.0	Median
Lower quartile	0.0	0.0	0.0	0.0	0.142	0.02	0.0	Lower quartile
Minimum	0.0	0.0	0.0	0.0	0.01	0.012	0.0	Minimum

Variable: CuS%
Acceptable range: 0.0 to 100.0
Weights: LNGTH

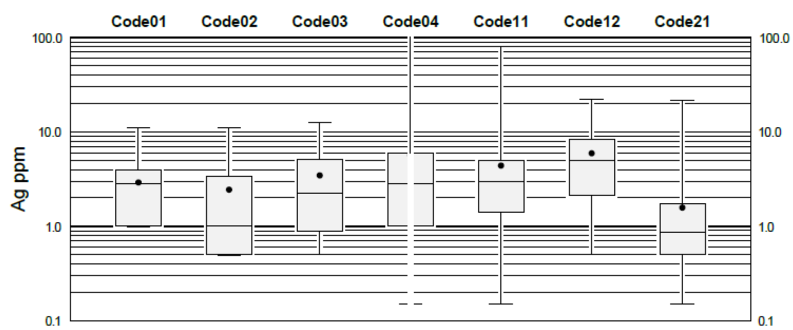
Code01 file: c01.prn
Code02 file: c02.prn
Code03 file: c03.prn
Code04 file: c04.prn
Code11 file: c11.prn
Code12 file: c12.prn
Code21 file: c21.prn

Source: Kirkham (2022)

Figure 14-87: Box Plot for Ag g/t within the Mineralized Domains (Code 1-12) and Outside (Code 21)

Cinabrio Norte ***Cinabrio Norte Modeling***

Cinabrio Norte : Code



	Code01	Code02	Code03	Code04	Code11	Code12	Code21	
Number of data	39	21	30	553	666	124	886	Number of data
Mean	2.911	2.443	3.462	5.674	4.395	5.917	1.577	Mean
Variance	4.091	7.209	10.309	131.054	35.625	20.909	4.83	Variance
Skewness	1.907	1.823	1.442	8.862	6.312	0.978	3.863	Skewness
Coef of Variation	0.695	1.099	0.927	2.018	1.358	0.773	1.394	Coef of Variation
Maximum	11.0	11.0	12.45	186.07	79.4	22.4	21.8	Maximum
Upper quartile	3.995	3.422	5.099	6.0	5.004	8.342	1.743	Upper quartile
Median	2.85	1.0	2.25	2.8	3.0	5.0	0.867	Median
Lower quartile	1.0	0.5	0.895	1.0	1.4	2.132	0.5	Lower quartile
Minimum	1.0	0.5	0.5	0.15	0.15	0.5	0.15	Minimum

Variable: Ag ppm
Acceptable range: 0.0 to 1000.0
Weights: LNGTH

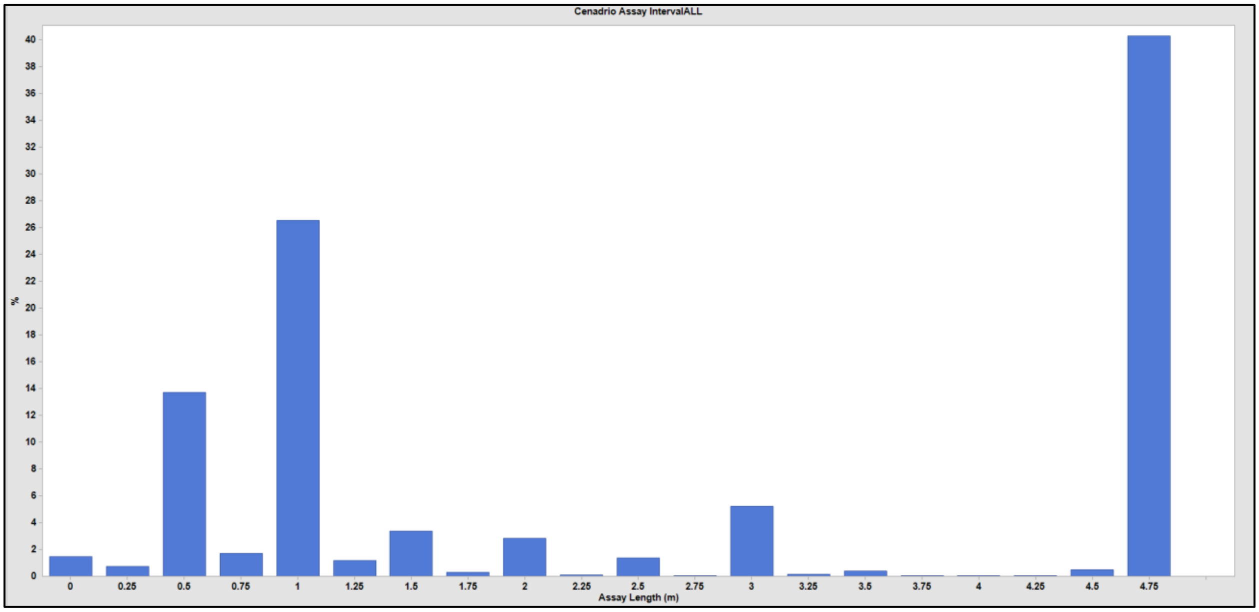
Code01 file: c01.prn
Code02 file: c02.prn
Code03 file: c03.prn
Code04 file: c04.prn
Code11 file: c11.prn
Code12 file: c12.prn
Code21 file: c21.prn

Source: Kirkham (2022)

14.2.4.4 Composites

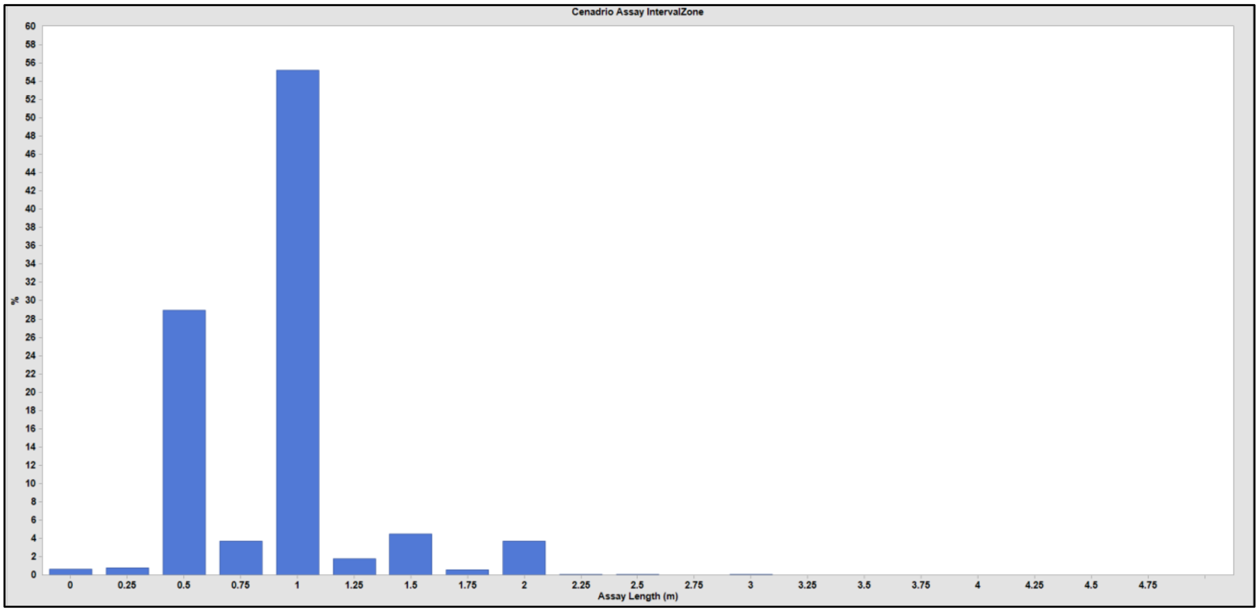
It was determined that the 1.0 m composite lengths offered the best balance between supplying common support for samples and minimizing the smoothing of grades. Figure 14-88 shows a histogram illustrating the distribution of the assay interval lengths for the complete database with approximately 80% of the data having interval lengths greater than or equal to 1.0 m. Figure 14-89 shows the histogram of for the assay intervals within the mineralized domains where approximately 90% are less than or equal to 1.0 m and 15% are less than or equal to 0.5 m. To determine whether there may be selective sampling, an analysis of high-grade gold samples versus assay interval lengths was performed. The scatterplot in Figure 14-90 shows that the high-grade assay intervals distribution is like that of the corresponding copper grades. This illustrates that there is not a high-grade bias within the small intervals and sample selectivity is not occurring. The 1.0 m sample length also was consistent with the distribution of sample lengths. It should be noted that although 1.0 m is the composite length, any residual composites of greater than 0.5 m in length and less than 1.0 m remained to represent a composite, while any composites residuals less than 0.5 m were combined with the composite above.

Figure 14-88: Histogram of Assay Interval Lengths in Meters



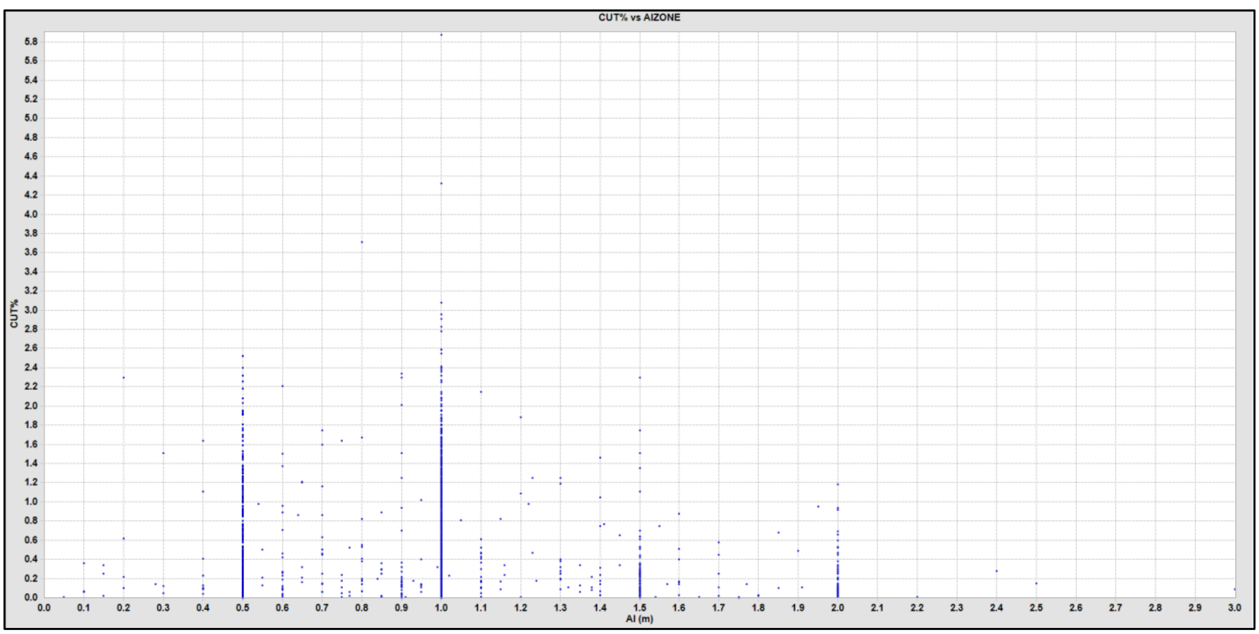
Source: Kirkham (2022)

Figure 14-89: Histogram of Assay Interval Lengths within Mineralized Domains in Meters



Source: Kirkham (2022)

Figure 14-90: Scatterplot of Assay Interval Lengths within Domains in Meters vs. Copper Grade



Source: Kirkham (2022)

Table 14-22 show total copper and silver composites by zone.

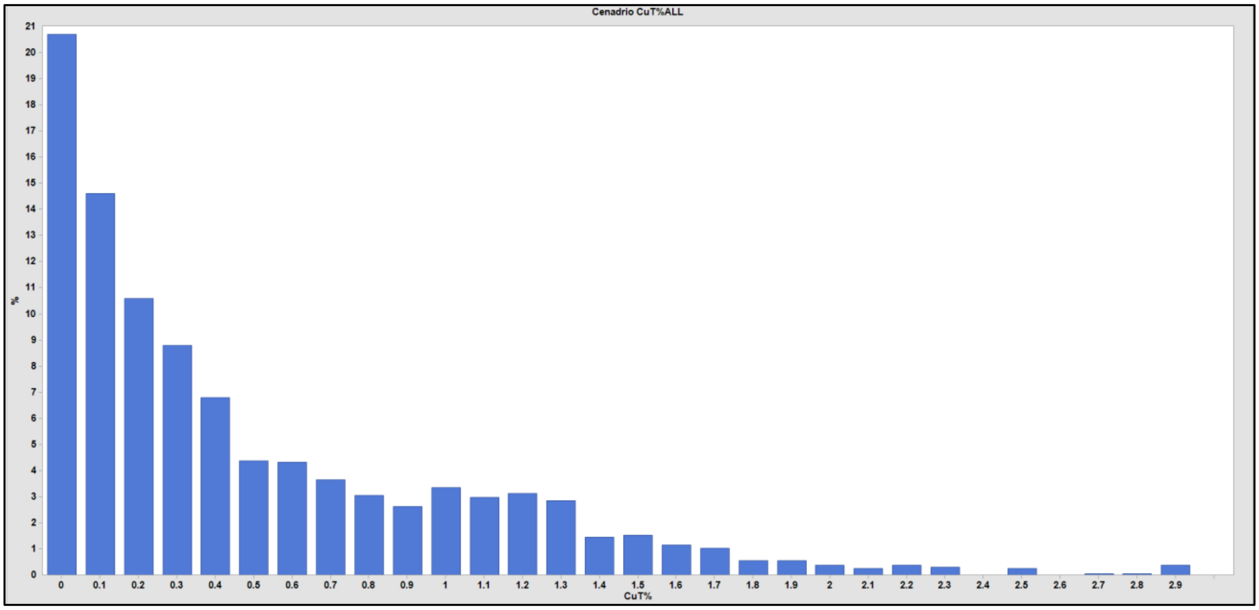
Table 14-22: Copper & Silver Composites within the Domains and Outside

	Zone	#	Count	Max	Mean	SD	CV
CUT%	A1	39	38.2	0.32	0.09	0.09	1.0
	A2	34	34	2.78	0.53	0.58	1.1
	A3	30	29.5	1.27	0.41	0.39	1.0
	A4	610	608.1	4.824	0.37	0.53	1.4
	B1	813	812.7	2.83	0.64	0.54	0.8
	B2	124	124.1	2.315	0.98	0.56	0.6
	Outside	1,411	1,357.20	2.317	0.11	0.23	2.0
	Total	1,650	1,646.60	4.824	0.54	0.56	1.030
	All	3,061	3,003.80	4.824	0.35	0.49	1.4
AG	A1	39	38.2	11	2.91	2.02	0.7
	A2	21	21	11	2.44	2.69	1.1
	A3	30	29.5	12.45	3.46	3.21	0.9
	A4	553	551.1	186.07	5.67	11.45	2.0
	B1	666	665.7	79.4	4.40	5.97	1.4
	B2	124	124.1	22.4	5.92	4.57	0.8
	Outside	892	833.3	21.8	1.58	2.20	1.4
	Total	1,433	1,429.60	186.07	4.93	8.37	1.7
	All	2,325	2,262.90	186.07	3.70	6.97	1.9

Source: Kirkham (2022)

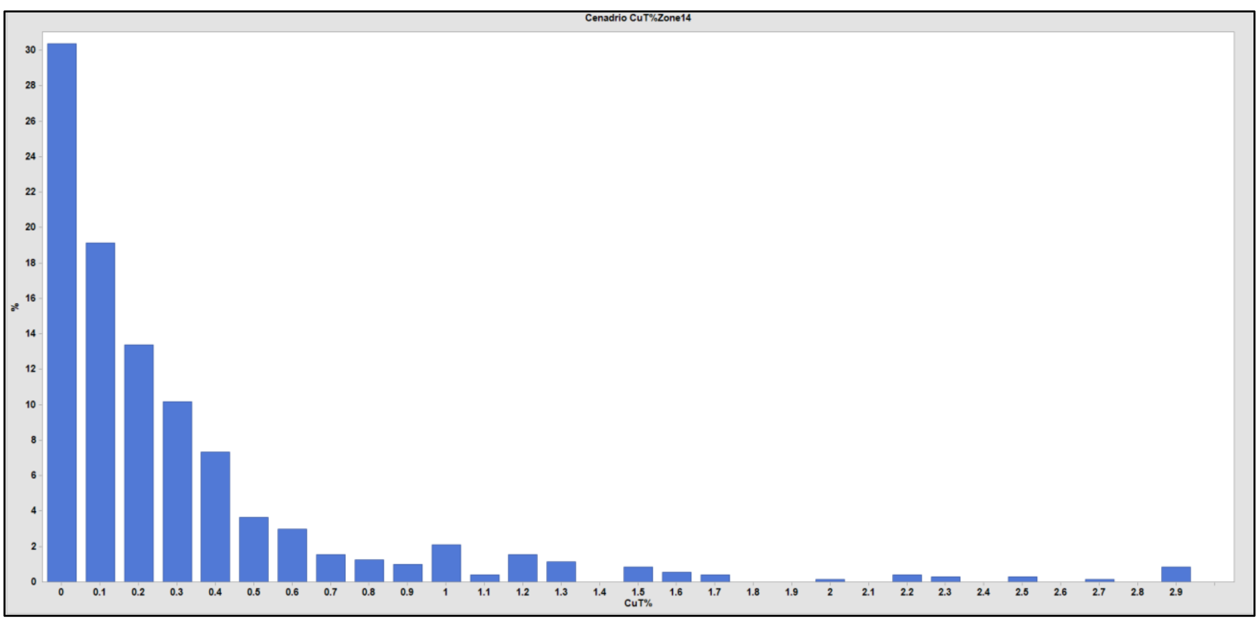
Figure 14-91 through Figure 14-93 show histograms of the copper composite values for all data along with those within the mineralized domains, respectively. The histograms illustrate a log-normal distribution with what appears to be a secondary population at approximately 1.1% total copper. It is noted that the same characteristic is evidenced at Cinabrio and at San Andreas.

Figure 14-91: Histogram of CuT% Composite Grades for All Mineralized Domains



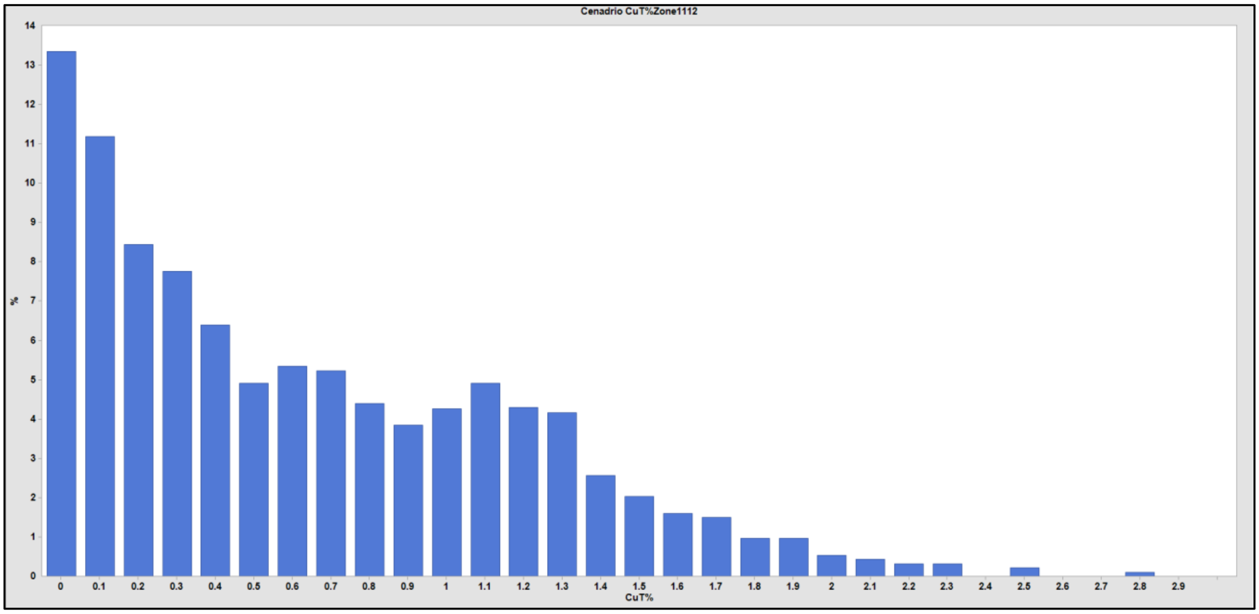
Source: Kirkham (2022)

Figure 14-92: Histogram of CuT% Composite Grades within A1-A4



Source: Kirkham (2022)

Figure 14-93: Histogram of CuT% Composite Grades with B11-B12

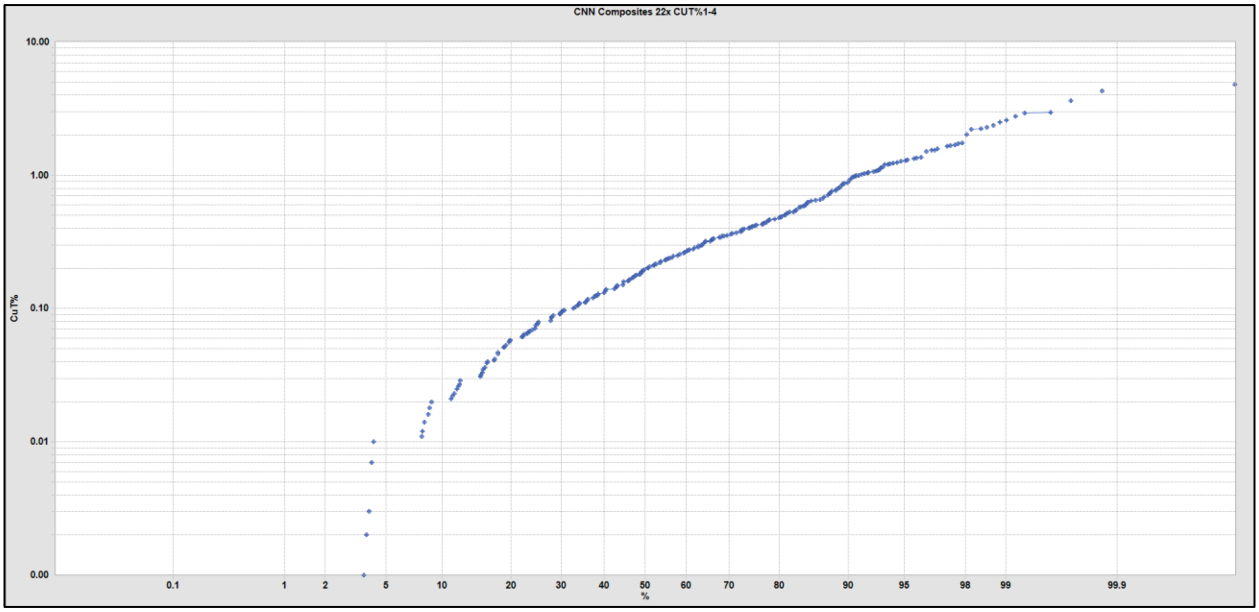


Source: Kirkham (2022)

14.2.4.5 Evaluation of Outlier Assay Values

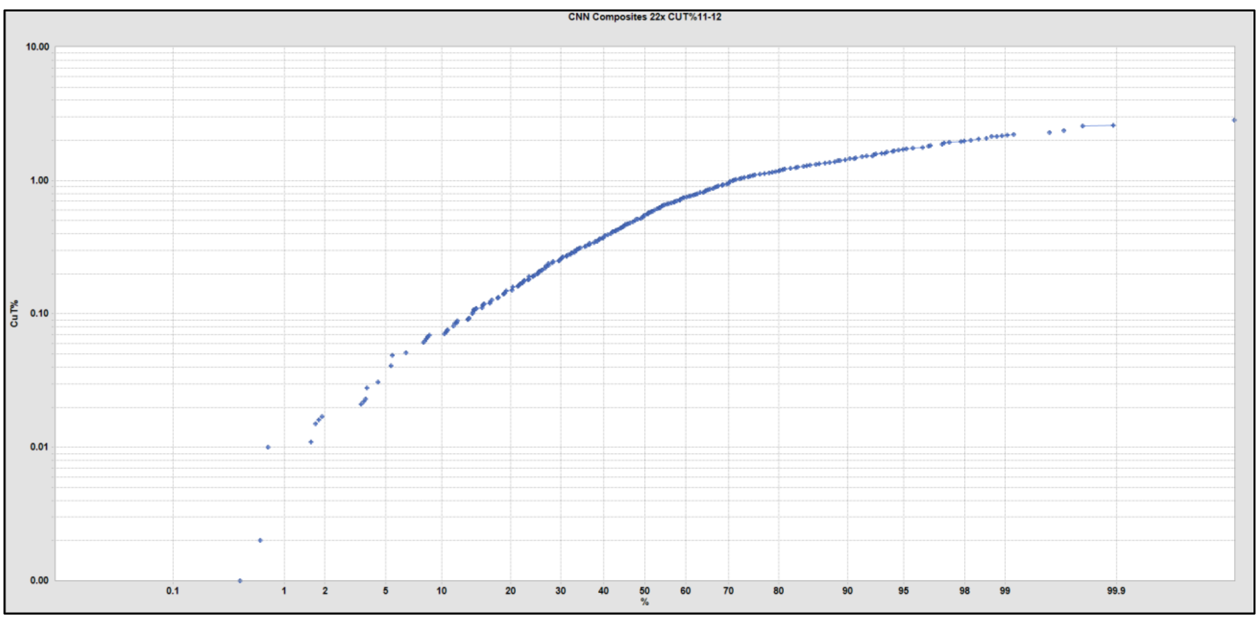
During the estimation process, the influence of outlier composites is limited to ensure against over-estimation of metal content. The high-grade outlier thresholds were chosen by domain and are based on an analysis of the breaks in the cumulative frequency plots within the mineralized domains. Figure 14-94 through Figure 14-97 show examples of the copper cumulative frequency plots for all composites and the grouped mineralized domains, respectively.

Figure 14-94: Cumulative Frequency Plot for CuT% within the Mineralized Domains (Code 1-4)



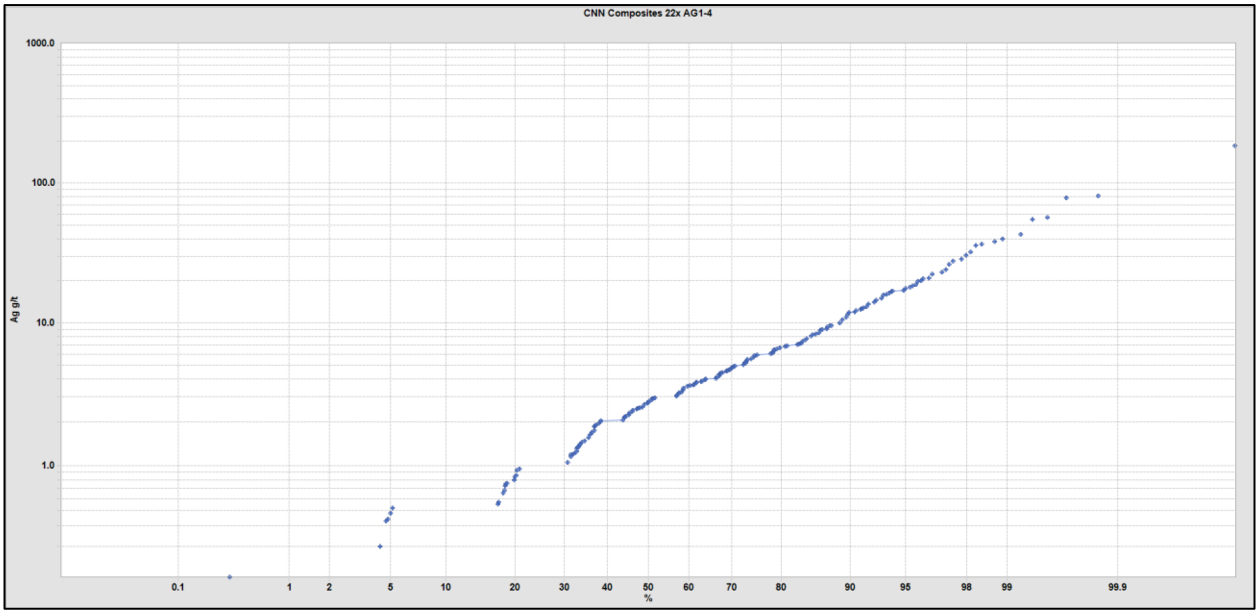
Source: Kirkham (2022)

Figure 14-95: Cumulative Frequency Plot for CuT% within the Mineralized Domains (Code 11-12)



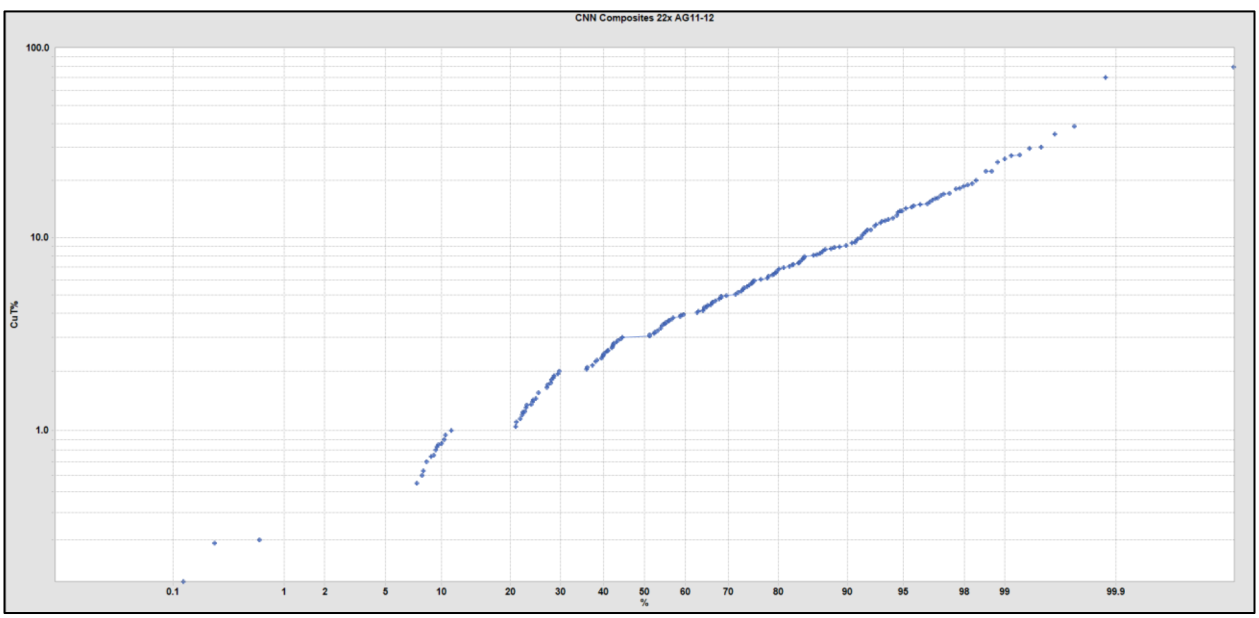
Source: Kirkham (2022)

Figure 14-96: Cumulative Frequency Plot for Ag g/t within the Mineralized Domains (Code 1-4)



Source: Kirkham (2022)

Figure 14-97: Cumulative Frequency Plot for Ag g/t within the Mineralized Domains (Code 11-12)



Source: Kirkham (2022)

Within the mineralized domains, copper and silver composite values were cut at 2.5% and 30 g/t, respectively. Table 14-23 shows the various cut thresholds for the mineralized domains. Note that there is no discernible effect on already very low CV's.

Table 14-23: Cut vs. Uncut Comparisons for Copper & Silver Composites within the Domains and Outside

	Zone	Max	Mean	CV		Max	Mean	CV
CUT%	A1	0.32	0.09	1.0	CUCUT	0.32	0.09	1.0
	A2	2.78	0.53	1.1		2.78	0.53	1.1
	A3	1.27	0.41	1.0		1.27	0.41	1.0
	A4	4.824	0.37	1.4		4.824	0.37	1.4
	B1	2.83	0.64	0.8		2.83	0.64	0.8
	B2	2.315	0.98	0.6		2.315	0.98	0.6
	Outside	2.317	0.11	2.0		2.317	0.11	2.0
	Total	4.824	0.54	1.030		4.824	0.54	1.0
	All	4.824	0.35	1.4		4.824	0.35	1.4
AG	A1	11	2.91	0.7	AGCUT	11	2.91	0.7
	A2	11	2.44	1.1		11	1.51	1.6
	A3	12.45	3.46	0.9		12.45	3.46	0.9
	A4	186.07	5.67	2.0		30	4.53	1.4
	B1	79.4	4.40	1.4		30	3.47	1.3
	B2	22.4	5.92	0.8		22.4	5.92	0.8
	Outside	21.8	1.58	1.4		21.8	0.97	1.9
	Total	186.07	4.93	1.7		30	3.99	1.3
	All	186.07	3.70	1.9		30	2.63	1.6

Source: Kirkham (2022)

14.2.4.6 Specific Gravity Estimation

Specific gravity (SG) assignment was determined using standard water displacement methods and measurements. The SG assigned for the domains is determined at 2.79 from 49 measurements. It is recommended that future work programs should continue to include SG measurements to expand the density distributions, particularly within the domains.

14.2.4.7 Variography

Experimental variograms and variogram models in the form of correlograms were generated for copper and silver grades. The definition of nugget value was derived from the downhole variograms. The correlograms for copper and silver within the grouped domains are shown in Figure 14-98 through Figure 14-101 for copper and silver, respectively. These variogram models were used to estimate copper and silver grades using ordinary kriging as the interpolator to estimate with the A1 – A4 domains and B1 – B2 domains, respectively. An example correlogram is shown in Figure 14-102.

Figure 14-98: CuT% Correlogram Models

Cinabrio Norte Code 1-4 CuT Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.502
C1 ==> 0.417
C2 ==> 0.081

First Structure -- Spherical

LH Rotation about the Z axis ==> 6
RH Rotation about the X' axis ==> -12
LH Rotation about the Y' axis ==> 98
Range along the Z' axis ==> 23.8 Azimuth ==> 275 Dip ==> -8
Range along the Y' axis ==> 7.1 Azimuth ==> 6 Dip ==> -12
Range along the X' axis ==> 86.5 Azimuth ==> 331 Dip ==> 75

Second Structure -- Spherical

LH Rotation about the Z axis ==> 77
RH Rotation about the X' axis ==> 41
LH Rotation about the Y' axis ==> -86
Range along the Z axis ==> 261.2 Azimuth ==> 170 Dip ==> 3
Range along the X' axis ==> 15.0 Azimuth ==> 83 Dip ==> -49
Range along the Y' axis ==> 86.7 Azimuth ==> 77 Dip ==> 41

Modeling Criteria

Minimum number pairs req'd ==> 50
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-99: Ag g/t Correlogram Models

Cinabrio Norte Code 1-4 Ag Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.275
C1 ==> 0.575
C2 ==> 0.150

First Structure -- Spherical

LH Rotation about the Z axis ==> -54
RH Rotation about the X' axis ==> -7
LH Rotation about the Y' axis ==> -69

Range along the Z' axis ==> 6.5	Azimuth ==> 33 Dip ==> 21
Range along the Y' axis ==> 29.0	Azimuth ==> 306 Dip ==> -7
Range along the X' axis ==> 25.2	Azimuth ==> 54 Dip ==> -67

Second Structure -- Spherical

LH Rotation about the Z axis ==> -34
RH Rotation about the X' axis ==> 41
LH Rotation about the Y' axis ==> 30

Range along the Z axis ==> 534.6	Azimuth ==> 187 Dip ==> 41
Range along the X' axis ==> 37.9	Azimuth ==> 76 Dip ==> 22
Range along the Y' axis ==> 520.4	Azimuth ==> 326 Dip ==> 41

Modeling Criteria

Minimum number pairs req'd ==> 50
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-100: CuT% Correlogram Models

Cinabrio Norte Code 11-12 CuT Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.500
C1 ==> 0.215
C2 ==> 0.285

First Structure -- Spherical

LH Rotation about the Z axis ==> -23
RH Rotation about the X' axis ==> 4
LH Rotation about the Y' axis ==> 24

Range along the Z' axis ==> 29.6	Azimuth ==> 239	Dip ==> 65
Range along the Y' axis ==> 259.7	Azimuth ==> 337	Dip ==> 4
Range along the X' axis ==> 50.7	Azimuth ==> 69	Dip ==> 24

Second Structure -- Spherical

LH Rotation about the Z axis ==> -68
RH Rotation about the X' axis ==> 38
LH Rotation about the Y' axis ==> 59

Range along the Z axis ==> 603.3	Azimuth ==> 181	Dip ==> 24
Range along the X' axis ==> 32.9	Azimuth ==> 67	Dip ==> 42
Range along the Y' axis ==> 236.3	Azimuth ==> 292	Dip ==> 38

Modeling Criteria

Minimum number pairs req'd ==> 50
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-101: Ag g/t Correlogram Models

Cinabrio Norte Code 11-12 Ag Correlograms

Medsystem and Vulcan Rotation Conventions

Nugget ==> 0.502
C1 ==> 0.323
C2 ==> 0.175

First Structure -- Spherical

LH Rotation about the Z axis ==> 63
RH Rotation about the X' axis ==> -10
LH Rotation about the Y' axis ==> 48

Range along the Z' axis ==> 10.1	Azimuth ==> 342 Dip ==> 42
Range along the Y' axis ==> 139.7	Azimuth ==> 63 Dip ==> -10
Range along the X' axis ==> 337.5	Azimuth ==> 142 Dip ==> 47

Second Structure -- Spherical

LH Rotation about the Z axis ==> -15
RH Rotation about the X' axis ==> 51
LH Rotation about the Y' axis ==> -34

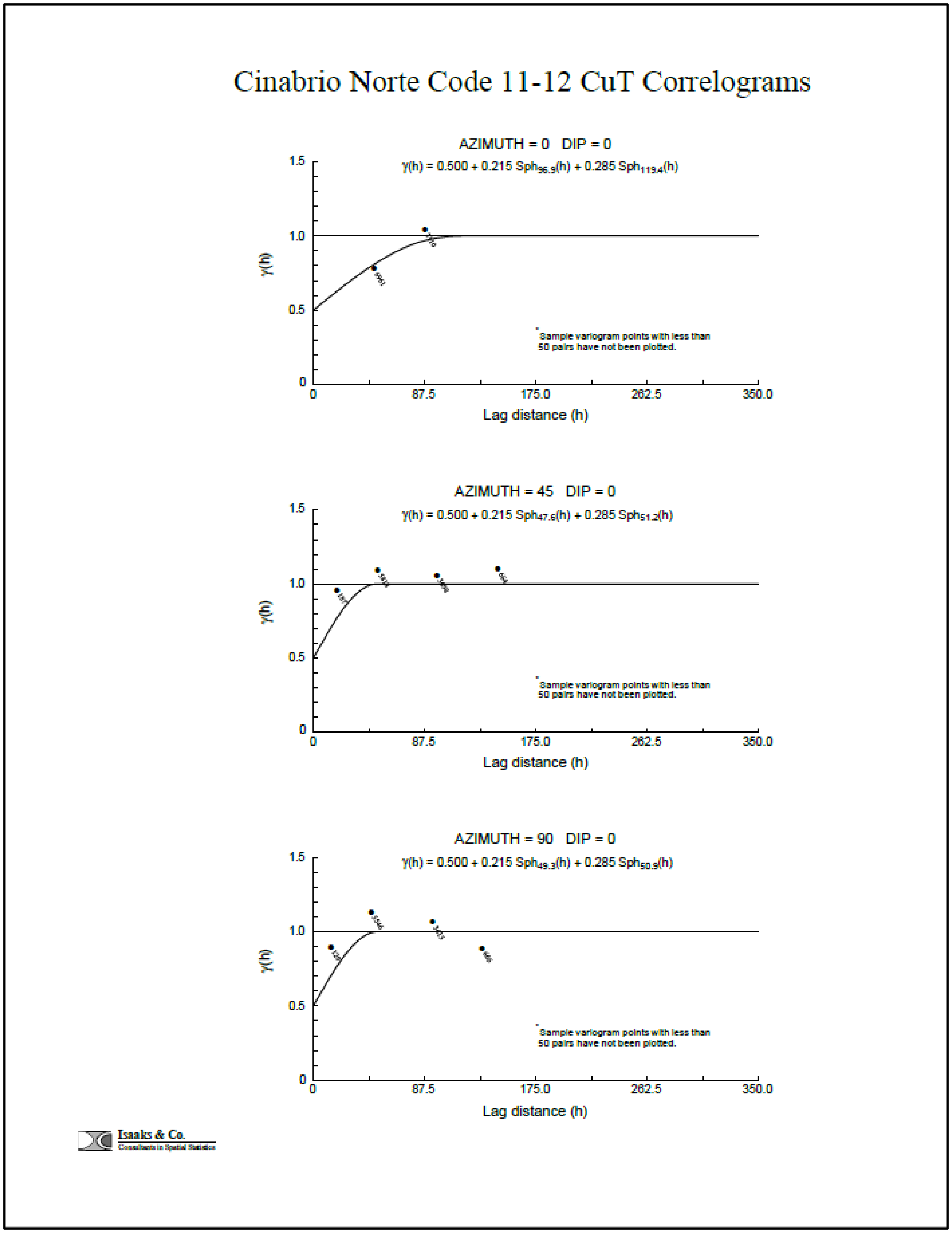
Range along the Z axis ==> 229.3	Azimuth ==> 125 Dip ==> 31
Range along the X' axis ==> 29.8	Azimuth ==> 48 Dip ==> -20
Range along the Y' axis ==> 135.2	Azimuth ==> 345 Dip ==> 51

Modeling Criteria

Minimum number pairs req'd ==> 50
Sample variogram points weighted by # pairs

Source: Kirkham (2022)

Figure 14-102: Example CuT% Correlograms



Source: Kirkham (2022)

In addition, experimental variograms and variogram models in the form of correlograms were also generated for total copper and soluble copper assays within the mineralized domains. As above, the definition of nugget value was derived from the downhole variograms. The correlograms models for copper and silver are shown in Table 14-24 and Table 14-25. These variogram models were used to estimate total copper and silver grades using ordinary kriging as the interpolator.

Table 14-24: Geostatistical Model Parameters for CuT% and Ag g/t within the A1, A2, A3 and A4 Mineralized Domains

Code	CuT%	Ag g/t
Nugget (C0)	0.502	0.275
First Sill (C1)	0.417	0.575
Second Sill (C2)	0.081	0.15
1st Structure		
Range along the Z	23.8	6.5
Range along the X'	7.1	29
Range along the Y'	86.5	25.2
R1 about the Z	6	-54
R2 about the X'	-12	-7
R3 about the Y'	98	-69
2nd Structure		
Range along the Z	261.2	534.6
Range along the X'	15	37.9
Range along the Y'	86.7	520.4
R1 about the Z	77	-34
R2 about the X'	41	41
R3 about the Y'	-86	30

Source: Kirkham (2022)

Table 14-25: Geostatistical Model Parameters for CuT% and Ag g/t within the B1 and B2 Mineralized Domains

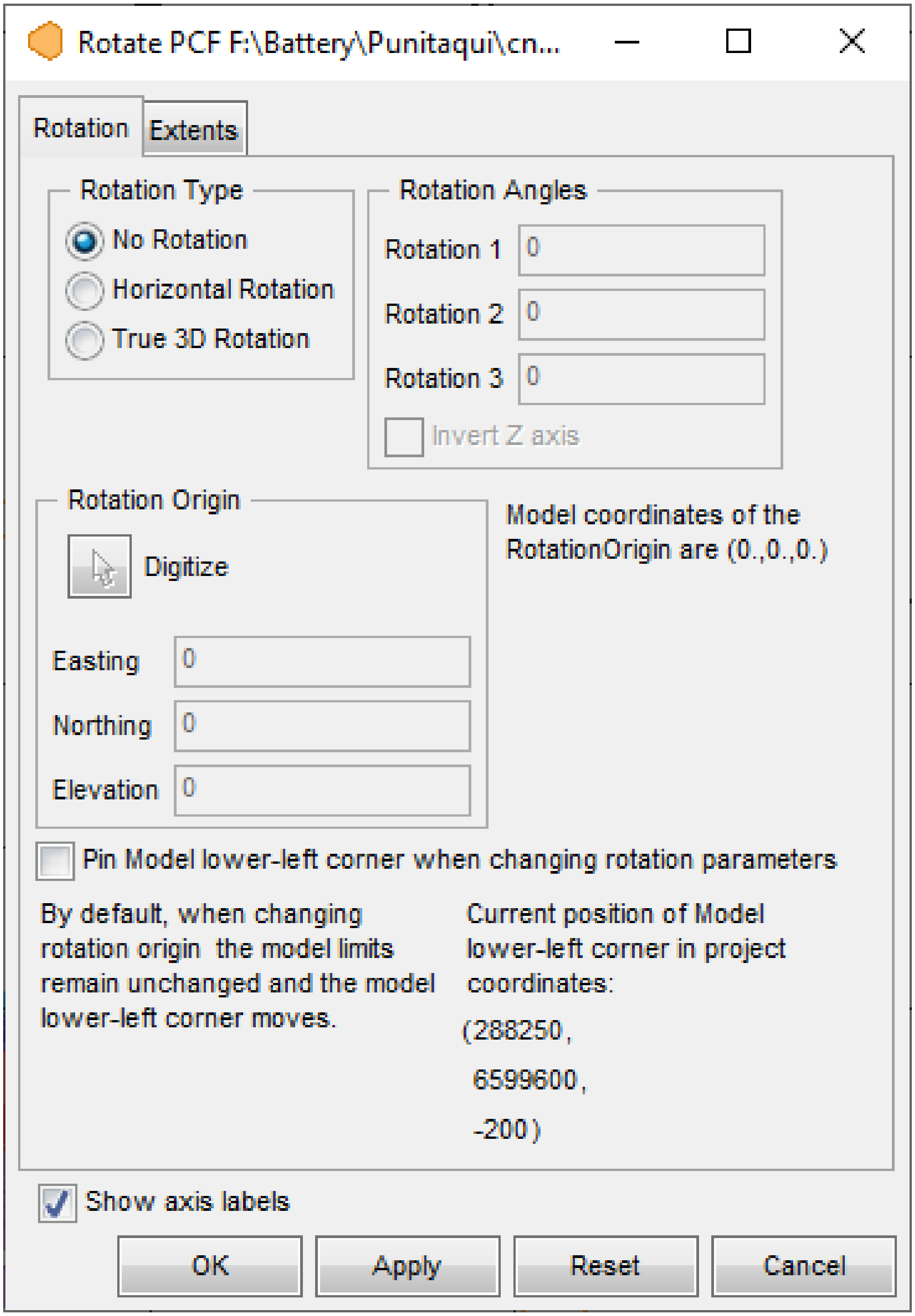
Code	CuT%	Ag g/t
Nugget (C0)	0.5	0.502
First Sill (C1)	0.215	0.323
Second Sill (C2)	0.285	0.175
1st Structure		
Range along the Z	29.7	10.1
Range along the X'	259.7	139.7
Range along the Y'	50.7	337.5
R1 about the Z	-23	63
R2 about the X'	4	-10
R3 about the Y'	24	48
2nd Structure		
Range along the Z	603.3	229.3
Range along the X'	32.9	29.8
Range along the Y'	236.3	135.2
R1 about the Z	-68	-15
R2 about the X'	38	51
R3 about the Y'	59	-34

Source: Kirkham (2022)

14.2.4.8 Block Model Definition

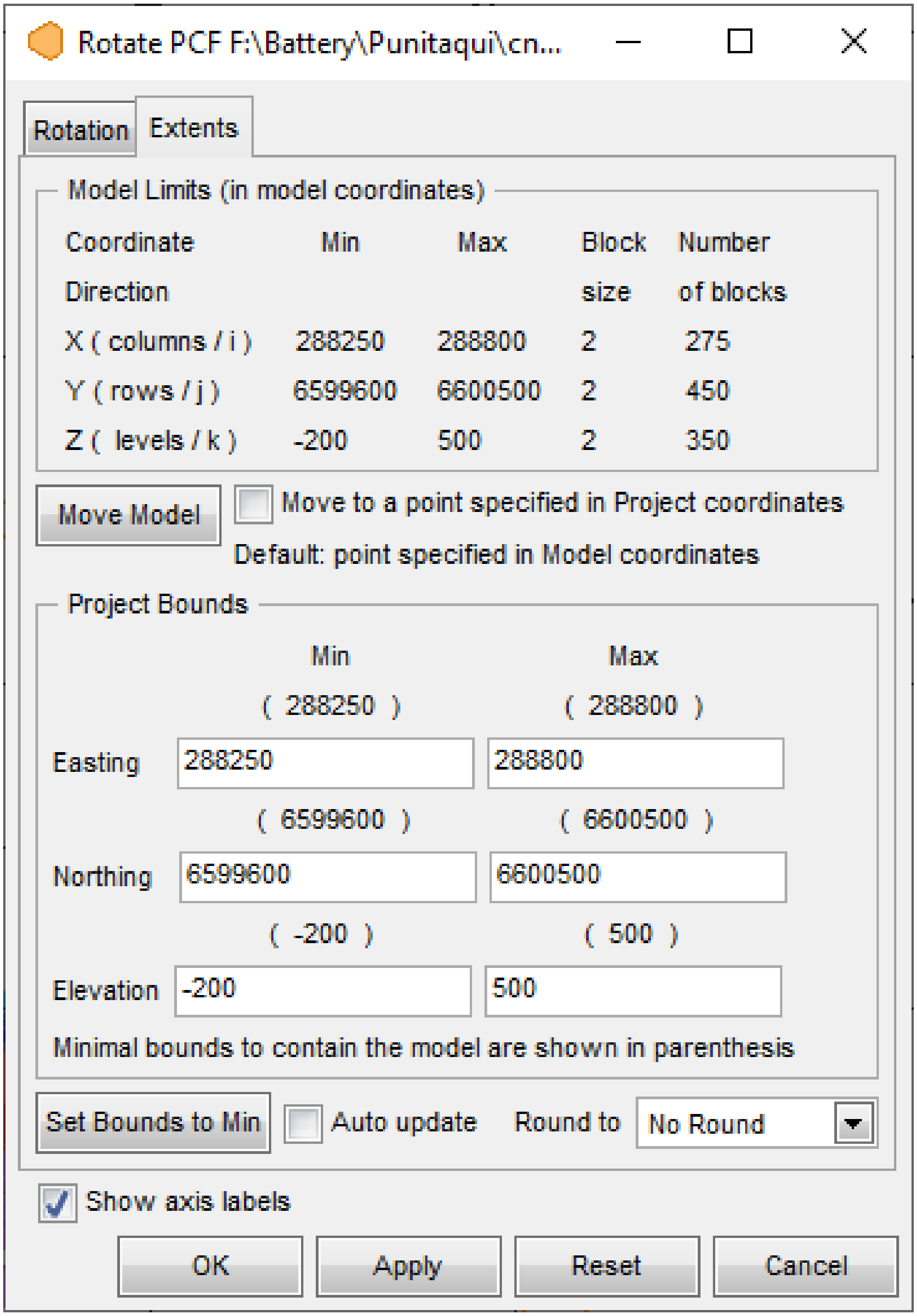
The block model used for estimating the resources was defined according to the origin and orientation shown in Figure 14-103 and the limits specified in Figure 14-104.

Figure 14-103: Block Model Origin & Orientation



Source: Kirkham (2022)

Figure 14-104: Block Model Extents & Dimensions



Source: Kirkham (2022)

The block model employs whole blocking for ease of mine planning and is orthogonal and non-rotated, roughly reflecting the orientation of the mineralized zones within the deposit. In order to discretize the block models sufficiently for mine planning purposes, the block size chosen was 2 m x 2 m x 2 m which are subsequently sub-blocked to 0.5 m x 0.5 m x 0.5 m. Note that MineSight™ uses the centroid of the blocks as the origin.

14.2.4.9 Resource Estimation Methodology

The estimation plan was as follows:

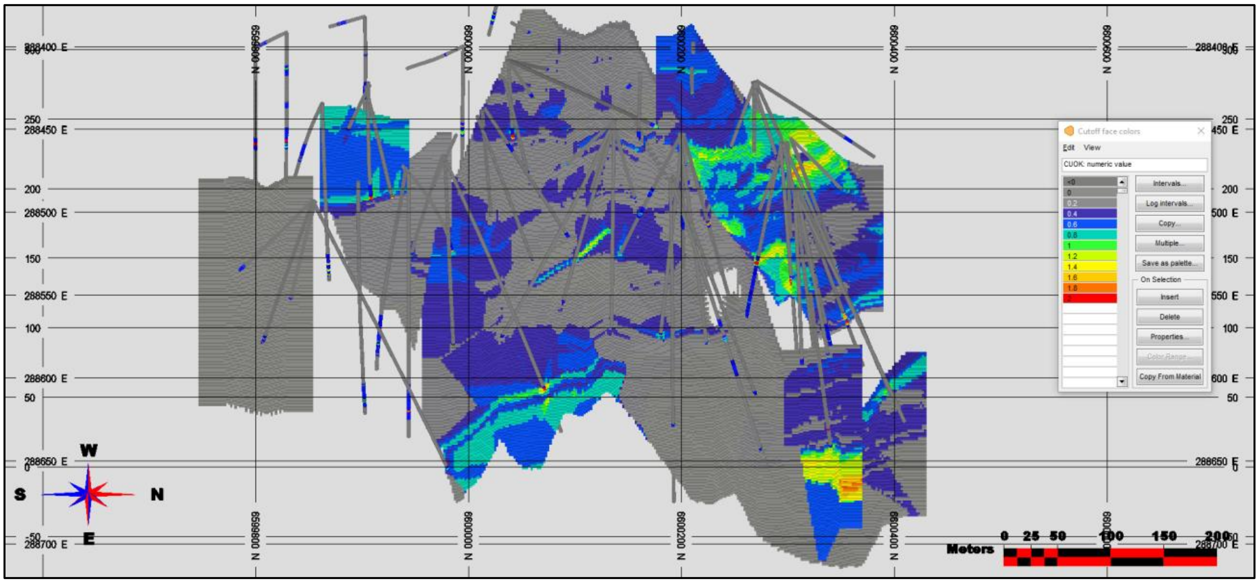
- Domain code of modelled mineralization stored in each block and sub-block;
- Specific gravity estimation for the mineralized domains;
- Block total copper and silver grade estimation by ordinary kriging; and
- One pass estimation for the mineralized domains using hard boundaries.

A minimum of one composite and maximum of twelve composites, and a maximum of four composites per hole, were used to estimate block grades.

For the mineralized domains that make up the Cinabrio Norte deposit, the search ellipsoids are omni- directional to a maximum of 100 m, and hard boundaries were used so that grade is not smeared between the units.

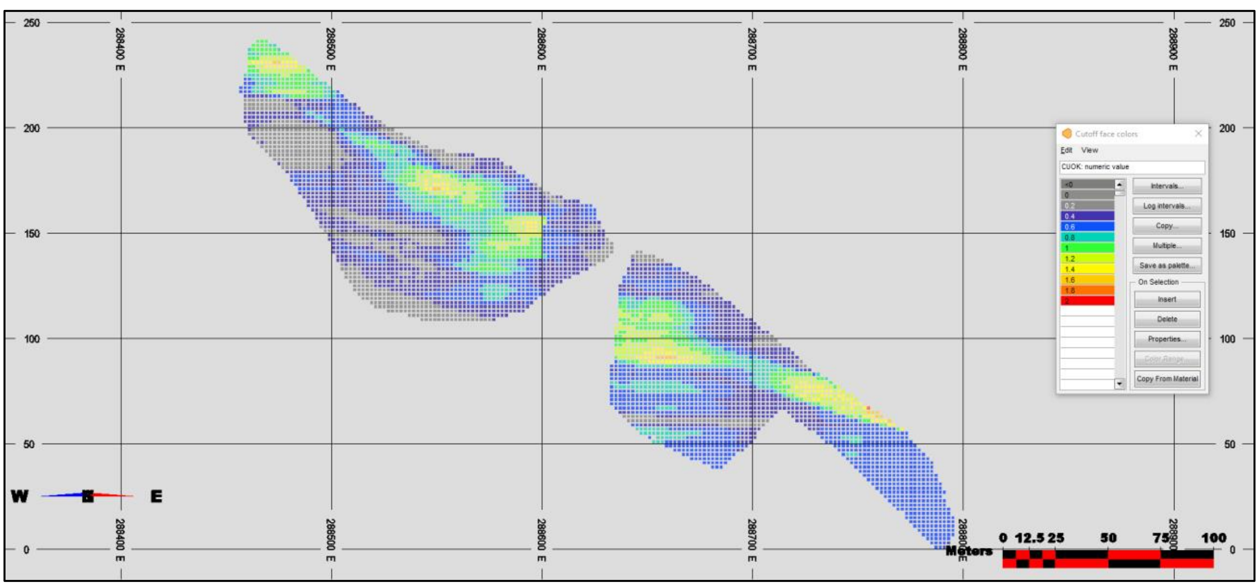
Figure 14-105 shows a 3-dimentional long-section views of the total copper along with drill hole data. Figure 14-106 and Figure 14-107 show sectional views of the total copper and silver block grades, respectively.

Figure 14-105: Long-Section Oblique View of Cinabrio Norte Block Model



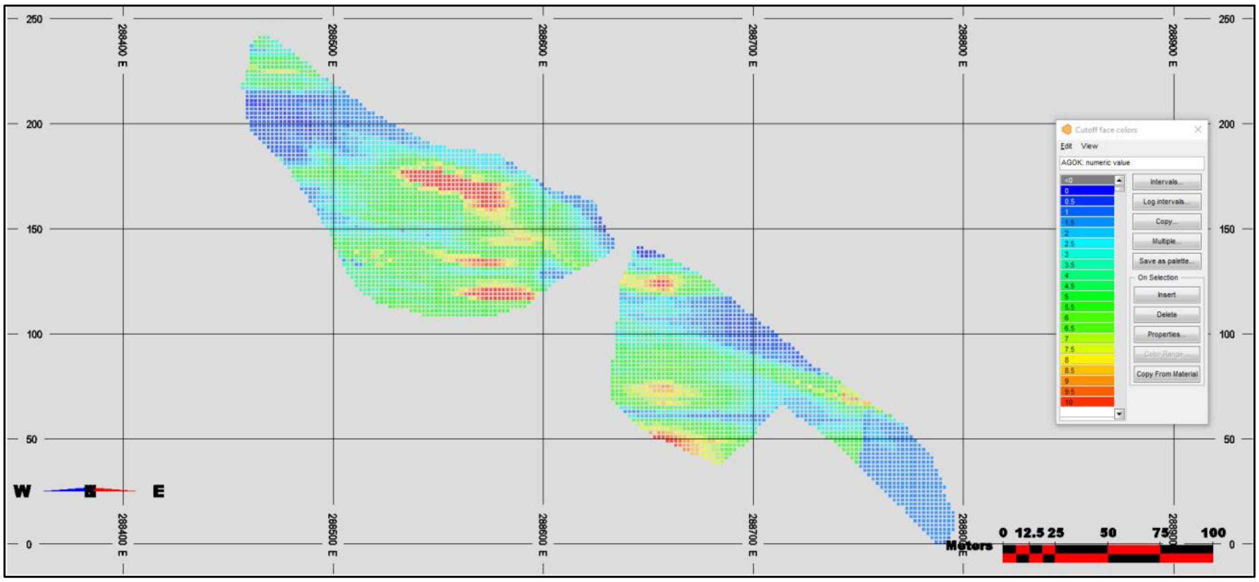
Source: Kirkham (2022)

Figure 14-106: Section View of Cu Block Model



Source: Kirkham (2022)

Figure 14-107: Section View of Ag Block Model



Source: Kirkham (2022)

14.2.4.10 Mineral Resource Classification

Mineral resources were estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserve Best Practices" Guidelines (2019). Mineral resources are not mineral reserves and do not have demonstrated economic viability. Mineral resources for the Cinabrio Norte deposit were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (2014) by Garth Kirkham, P. Geo., of Kirkham Geosystems Ltd. (KGL), an Independent Qualified Person as defined by NI 43-101.

The mineral resources may be impacted by further infill and exploration drilling that may result in an increase or decrease in future resource evaluations. The mineral resources may also be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.

It should also be noted that the confidence limits only consider the variability of grade within the deposit. There are other aspects of deposit geology and geometry such as geological contacts or the presence of faults or offsetting structures that may impact the drill spacing.

The spacing distances are intended to define contiguous volumes and they should allow for some irregularities due to actual drill hole placement. The final classification volume results typically must be adjusted manually to come to a coherent classification scheme. The thresholds should be used as a guide and boundaries interpreted and defined to ensure continuity.

Drill hole spacing is sufficient for preliminary geostatistical analysis and evaluating spatial grade variability. The classification of resources was based primarily upon distance to the nearest composite; however, the multiple quantitative measures, as listed below, were inspected and taken into consideration.

The estimated blocks were classified according to the following:

- Confidence in interpretation of the mineralized zones;
- Number of composites used to estimate a block;
- Number of composites allowed per drill hole;
- Distance to nearest composite used to estimate a block; and
- Average distance to the composites used to estimate a block.

Therefore, the following lists the spacing for each resource category to classify the resources assuming the current rate of metal production:

- Indicated: Resources in this category would be delineated from at least three drill holes spaced on a nominal 50 m pattern; and
- Inferred: Any material not falling in the categories above and within a maximum 100 m of one hole.

To ensure continuity, the boundary between the indicated and inferred categories was contoured and smoothed, eliminating outliers and orphan blocks. The spacing distances are intended to define contiguous volumes and they should allow for some irregularities due to actual drill hole placement. The final classification volume results typically must be adjusted manually to come to a coherent classification scheme.

Mineral resources are classified under the categories of “indicated” and “inferred” according to CIM guidelines. Mineral resource classification for gold was based primarily on drill hole spacing and on continuity of mineralization. Indicated resources were defined as those within a distance to three drill holes of less than ~50 m. Inferred resources were defined as those with an average drill hole spacing of less than ~100 m and meeting additional requirements.

Note that classification in subsequent models may differ, but principal differences should be due to changes in the amount of drilling.

14.2.4.11 Mineral Resource Estimate

This estimate is based upon the reasonable prospect of eventual economic extraction based on continuity and using estimates of operating costs and price assumptions. The “reasonable prospects for eventual economic extraction” were tested by creating solids based on reasonable underground stope interpretations potentially amenable to long-hole or cut-and-fill methods. The results are used solely for testing the “reasonable prospects for eventual economic extraction” and do not represent an attempt to estimate mineral reserves. Only resources within the B1 and B2 zones are considered to have a reasonable expectation of eventual economic extraction at this time.

Potential for open pit resources were evaluated however this option was not deemed viable at this time.

Table 14-26 shows tonnage and grade in the Cinabrio Norte Deposit and includes all domains at a 0.7% CuT% cut-off grade.

Table 14-26: Resource Estimate using 0.7 g CuT% Cut-off

Cinabrio Norte Underground			
	Tonnes	**Cu%**	**Ag g/t**
Indicated	833,000	1.01	4.57
Inferred	1,077,000	0.98	4.91

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

14.2.4.12 Sensitivity of the Block Model to Selection Cut-off Grade

The mineral resources are sensitive to the selection of cut-off grade. Table 14-27 shows tonnage and grade in the Cinabrio Norte deposit at different total copper cut-off grades.

The reader is cautioned that these values should not be misconstrued as a mineral reserve. The reported quantities and grades are only presented as a sensitivity of the resource model to the selection of cut-off grade.

Table 14-27: Sensitivity Analyses of Tonnage along with CuT% & Ag g/t Grades at Various CuT% Cut-off Grades

Cut-off	Tonnes	Cu%	Ag g/t
Indicated			
>=0.9	553,000	1.12	4.93
>=0.8	691,000	1.06	4.73
>=0.75	760,000	1.04	4.65
>=0.7	**833,000**	**1.01**	**4.57**
>=0.6	998,000	0.95	4.43
>=0.5	1,198,000	0.88	4.25
Inferred			
>=0.9	561,000	1.16	5.12
>=0.8	746,000	1.08	5.13
>=0.75	870,000	1.03	5.13
>=0.7	**1,077,000**	**0.98**	**4.91**
>=0.6	1,395,000	0.90	4.80
>=0.5	1,628,000	0.85	4.66

Notes:

1. Prepared by Garth Kirkham (Kirkham Geosystems Ltd.) an Independent Qualified Person in accordance with NI 43-101.
2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
3. Mineral Resources reported demonstrate reasonable prospect of eventual economic extraction, as required under NI 43-101. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

14.3 Resource Validation

A graphical validation was done on all of the block models for Cinabrio, San Andres, Dalmacia and Cinabrio Norte. The purpose of this graphical validation is to:

- Check the reasonableness of the estimated grades, based on the estimation plan and the nearby composites;

- Check the general drift and the local grade trends, compared to the drift and local grade trends of the composites;
- Ensure that all blocks in the core of the deposit have been estimated;
- Check that topography has been properly accounted for;
- Check against partial model to determine reasonableness;
- Check against manual approximate estimates of tonnage to determine reasonableness; and
- Inspect and explain potentially high-grade block estimates in the neighborhood of extremely high assays.

A full set of cross-sections, long sections and plans were used to check the block model on the computer screen, showing the block grades and the composites. No evidence of any block being wrongly estimated was found; it appears that every block grade could be explained as a function of the surrounding composites and the estimation plan applied.

These validation techniques included the following:

- Visual inspections on a section-by-section and plan-by-plan basis;
- The use of grade-tonnage curves;
- Swath plots comparing kriged estimated block grades with inverse distance and nearest neighbor estimates;
- An inspection of histograms of distance of the first composite to the nearest block, and the average distance to blocks for all composites used, which gives a quantitative measure of confidence that blocks are adequately informed in addition to assisting in the classification of resources; and
- Validation of the block models by estimating the resources within the vein domains using partial block where the vein solids were coded as a percentage within the blocks.

14.4 Discussion with Respect to Potential Material Risks to the Resources

As detailed in this technical report the resource estimates are based on geological theories, interpretations and domaining. There is a level of subjectivity where other geoscientists may have differing opinions and with new information and subsequent data, interpretation may be updated or revised. Although, these differences should not be materially significant, there will invariably be changes going forward and risks due to uncertainty.

A significant risk to the reasonable prospect of accessing and extracting resources are social and socio-economic in nature. There are no known risks currently other than negotiation related to access agreements with local landowners, however this may change and must be mitigated when and where possible.

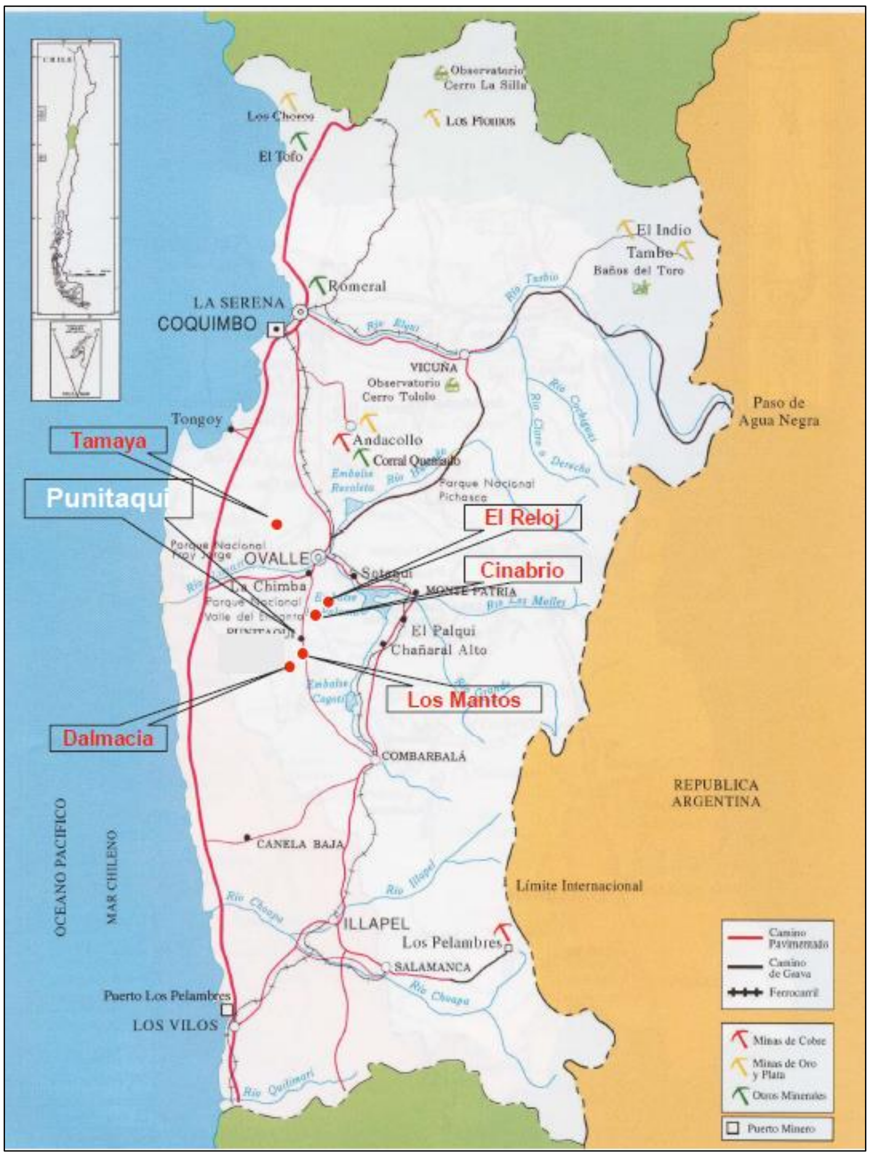
Governmental and political factors pose a risk in Chile based on current events within the country.

There are no known environmental, permitting, legal, taxation, title, socio-economic, political or other relevant factors that materially affect the mineral resources.

15 ADJACENT PROPERTIES

Chile's Region 4 has a long history of exploration and mining. The region hosts a significant number of copper, gold, and other mineral occurrences. Figure 15-1 highlights significant copper and gold mining areas.

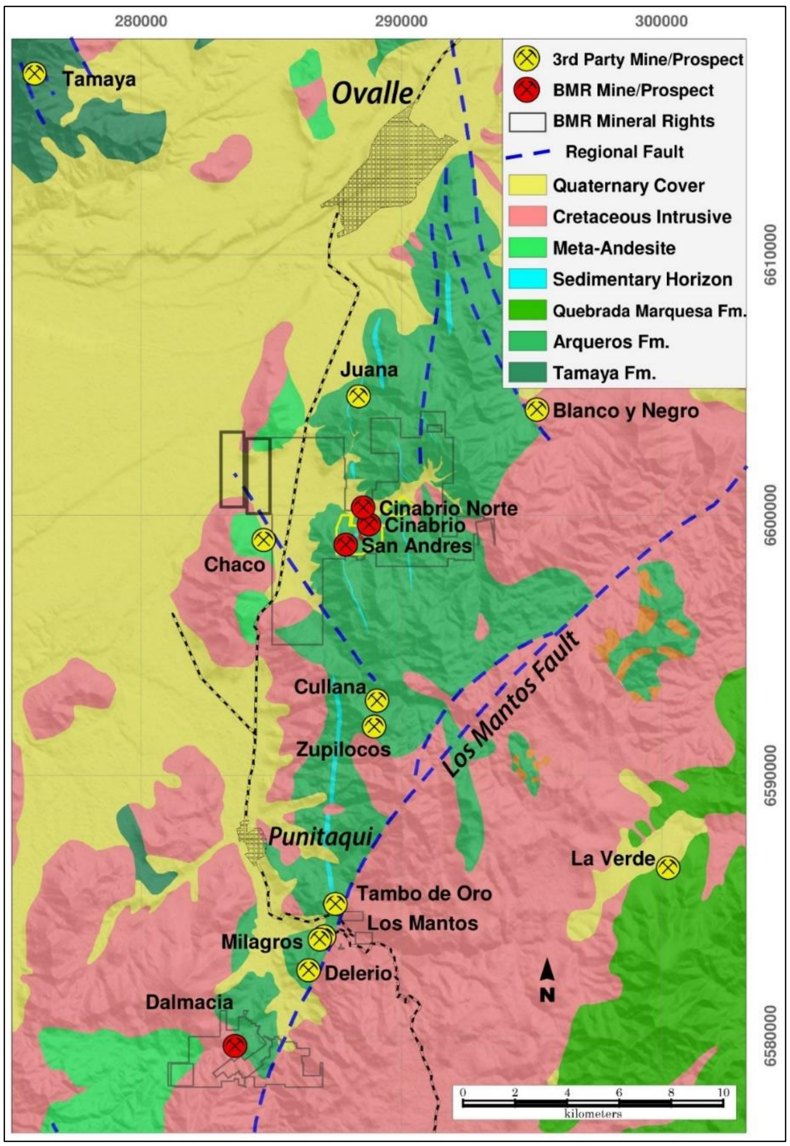
Figure 15-1: Chile Region 4 Significant Copper and Gold Mineral Occurrences



Source: SMC Mining - Tamaya Resources Corporate Presentation (2005)

BMR's Punitaqui mining complex is in the central part of Coquimbo region 4 just south of the city of Ovalle. In the Punitaqui region there are a number of actively producing copper and/or gold mines as well as numerous and widespread prospects and small workings. These mineral occurrences and mines include manto style copper mineralization, generally hosted in calcareous pyritic sedimentary units, structurally controlled copper (gold) deposits, quartz sulphide gold veins, with or without copper mineralization and structurally controlled massive magnetite deposits with some copper mineralization. Figure 15-2 highlights regional geology and significant adjacent mining projects in the Punitaqui mining complex area.

Figure 15-2: Adjacent Properties Location Map



Source: Kirkham (2022)

15.1 Manto Style and Feeder Mineralization

Current mining operations in the Punitaqui region which are exploiting manto copper deposits are the Juana, Cullana and Zupilocos operations. All three mines have sold copper bearing mineralized material to the Los Mantos plant in past years.

15.1.1 Juana

The Juana mine is located 4.8 km north-northwest of BMR Cinabrio mine portal. Production from the Juana mine is both from sedimentary rock hosted deposits and underlying structurally controlled deposits which interpreted as feeders for the manto deposits. The sedimentary horizon being exploited at the Juana mine is interpreted to be the northward continuation of the sedimentary rocks which host BMR's Cinabrio deposit. At the Juana mine the sedimentary unit is up to 60 m thick.

The Juana operation is privately owned by Compania Minera Cruz. Currently the Juana mining operation is exploiting oxide copper ore from the manto style mineralization and principally sulphide ore from the feeder deposits. Oxide ore from the Juana mine is processed by the Pilar oxide copper plant, also owned by Minera Cruz. The Pilar plant is located on the north side of Valle Limari some 50 km by road northeast of the Juana mine.

Currently, Minera Cruz is targeting copper sulphide mineralization grading between1.5% to 2.0% Cu, which is sold Emani's Panulcillo plant some 36 km drive northwest of the Juana mine*.

*Source: ENAMI Production & Sales Record

Cautionary Statement: The QP has been unable to verify the information and this information is not necessarily indicative of the mineralization on the Punitaqui property.

The copper sulphide mineralization is sourced from zones of mineralization along 3 sub-parallel steeply west dipping north-northwest striking structures in andesitic rocks in the stratigraphic footwall of the manto mineralization. Individual mineralized zones are up to 20 m wide and 100 m long and have at least 50 m in vertical extent. Mineralization consists principally of disseminated bornite with minor chalcopyrite.

15.1.2 Zupilocos and Cullana

The Zupilocos and Cullana mines are adjacent properties located 5 - 7 km south of Cinabrio. The two mines exploit copper-gold mineralization hosted within a volcano-sedimentary package interpreted to be the stratigraphic equivalent to the host sequence at Cinabrio. The stratigraphic package at the mines consists of a 5 m to 15 m thick calcareous shale interlayered with volcanoclastics and locally pillow lava. The volcano-sedimentary package is intruded and overlain by a sill-like ocoite body. The principal mineralized zone being exploited, at both mines, is a 3 m to 6 m wide zone of chalcopyrite-bornite-magnetite mineralization along the upper contact of the calcareous shale with overlying ocoite. Locally, lower grade mineralization occurs within the pyritic calcareous shale.

The Cullana mining operation targets copper sulphide mineralization grading 1.5% Cu*. The Zupilocos underground operation is focused on extracting mineralized sulphide material at a grade of 1.5% Cu and 0.3 g/t Au*.

*Source: ENAMI Production & Sales Record

Cautionary Statement: The QP has been unable to verify the information and this information is not necessarily indicative of the mineralization on the Punitaqui property.

15.2 Structurally Controlled Copper-Gold

Regionally, several of the current and past mines exploited structurally controlled copper deposits. Of note, is the high-grade Tamaya vein, 20 km northwest of Cinabrio, which was mined in the 1800s. In its heyday, the Tamaya vein operations employed up to 12,000 miners and support staff and prompted the construction of one of South Americas first railroads. The historic grade from the Tamaya vein was 17% Cu*.

*Source: Government of Chile

Cautionary Statement: The QP has been unable to verify the information and this information is not necessarily indicative of the mineralization on the Punitaqui property.

In recent decades up to the present, there has been continuous production of handpicked ore from the Tamaya mine dumps by small scale miners. The mineral rights over most of the Tamaya vein are controlled by HMC Gold.

There are numerous structurally controlled copper-gold and gold-copper prospects and mines to the east of BMR's Punitaqui mine complex holdings. Most of these are currently inactive or have limited intermittent production with no production records. Helix Resources (ASX), a mineral exploration company with projects in Australia and Chile, conducted a drilling program which partially defined a small oxide/sulphide resource at the Blanco Y Negro Mine 8 km northeast of Cinabrio.

The La Verde mine, located 15 km west of the Los Mantos plant, has been a consistent copper sulphide producer with mineralized material sourced from a series of northwest striking quartz-sulphide veins for over 10 years. The La Verde veins are hosted in dioritic intrusive rocks.

15.3 Quartz-Sulphide Gold ± Copper Veins

There are numerous small gold prospects, often with small pits dug into narrow discontinuous quartz sulphide veins, scattered throughout the district. The only know deposits of significant size are the along the north-northeast trending Los Mantos fault zone west of Punitaqui town. The Tambo de Oro, Los Mantos, Milagros and Delerio mines are situated along this fault and these 4 mines form a continuous zone of vein hosted gold, copper and/or mercury mineralization 4 km long.

The Los Mantos fault separates Cretaceous dioritic to granitic intrusive rocks to the east from the Cretaceous Arqueros Formation to the west. The mineralization is principally hosted by a series of north trending structures cutting Cretaceous volcano-sedimentary rocks west of the Los Mantos fault.

At the north end of this trend the Tambo de Oro mine operated by HMC Gold. The Tambo de Oro mine commenced production in 2014. In 2021 the Tambo de Oro mine extracted 152,971 t of ore with an average grade of 5.2 g/t gold. *

*Source: Los Mantos NI43-101 Technical Report (2018)

Cautionary Statement: The QP has been unable to verify the information and this information is not necessarily indicative of the mineralization on the Punitaqui property.

The principal veins being exploited at Tambo de Oro consist of quartz - pyrite and variable amounts of chalcopyrite. Skarn type mineralization is locally present in the host rocks. A vein to the west of the gold - copper veins have abundant mercury mineralization and low gold and copper values.

The Los Mantos and adjacent Milagros mines are located to the south of Tambo de Oro just across Quebrada Los Mantos. Los Mantos mine was discovered in 1780 and exploited mercury, gold, and copper. Between 1937 and 1970, Los Mantos produced 350,000 oz Au (470,000 oz AuEq). *

*Source: Los Mantos NI43-101 Technical Report (2018)

Cautionary Statement: The QP has been unable to verify the information and this information is not necessarily indicative of the mineralization on the Punitaqui property.

Glencore operated the Los Mantos and Milagros mine from 2010 to 2018 under a lease agreement with HMC Gold. Ore from the mines was blended ore with other mines at the Los Mantos processing plant. Following acquisition of MAP by Xiana Mining there was limited production from Los Mantos and Milagros until cessation of their operations in 2020. The lease agreement with HMC Gold has lapsed and the properties are currently fully controlled by HMC Gold.

The Delerio mine is located along the Los Mantos fault south of the Los Mantos and Milagros mine. Mineralization is principally hosted by a steep west dipping structure parallel to the Los Mantos fault. Little is known about the production history.

Currently the Delerio property is controlled by a joint venture managed by HMC Gold. HMC has been actively exploring the property.

15.4 Iron

There have been several mining operations which have exploited iron deposits in the Punitaqui-Ovalle region and farther north. There are no known active iron mines.

The Chaco prospect, 3.3 km west of BMR's San Andres deposit, consists of 4 open cuts along a 700 m long north-northwest trending zone.

16 OTHER RELEVANT DATA AND INFORMATION

The QPs are not aware of any additional information or further explanation not disclosed in this technical report that is necessary to make the technical report understandable and not misleading.

17 INTERPRETATIONS AND CONCLUSIONS

17.1 Interpretations

The Punitaqui project is a past producing copper-gold mining complex located about 50 km south of the Andacollo Copper mine owned by Teck Resources, near the towns of Punitaqui and Ovalle in Chile's Fourth Region. The asset consists of a centralized process plant that to be fed by four satellite copper deposits - San Andres, Cinabrio, Cinabrio Norte, and Dalmacia.

The Punitaqui project is a past producing copper-gold mining complex located about 50 km south of the Andacollo Copper mine owned by Teck Resources, near the towns of Punitaqui and Ovalle in Chile's Fourth Region. The asset consists of a centralized process plant that to be fed by four satellite copper deposits - San Andres, Cinabrio, Cinabrio Norte, and Dalmacia.

The mineral resource has a surface area of 2,000 m x 750 m between elevations of -270 m and 650 m above sea level. The updated estimate is a result of surface drilling along with underground drilling and sampling by BMR and previous operators (3,762 drill holes and channel samples). The mineral resource estimate is based on robust geological models, supported by underground infrastructure that allowed underground mapping, channel sampling, and underground drilling that was critical to BMR's current understanding and validation of the Punitaqui geological models.

The resource estimate is based on a Phase 1 drill program, initiated in August 2021 of 32,526.23 m of drilling completed by Battery Minerals, along with the drilling and mining data from the Cinabrio mine completed by prior operators Tamaya Resources, Glencore PLC and Xiana Mining Inc. The BMR Phase 1 drilling focused on three zones at Punitaqui: Dalmacia, San Andres, and Cinabrio Norte.

The Punitaqui resource is separated into four underground resource zones: Cinabrio, San Andres, Dalmacia and Cinabrio Norte.

- Total sulphide indicated resources are 6.2 Mt grading 1.14% Cu and 2.47 g/t Ag;
- Total sulphide inferred resources are 3.1 Mt grading 0.93% Cu and 2.64 g/t Ag; and
- At the Cinabrio Mine, the remanent pillars contain sulphide indicated resources of 1.0 Mt at 1.51% Cu which could be mined in conjunction with the use of mine backfill.

Estimates are reported at a base case above a 0.7% Cu cut- off, as tabulated in Table 17-1.

Table 17-1: Mineral Resource Statement - Underground

Zone	Tonnes	Cu%	Ag g/t
Indicated Sulphides			
San Andres Underground	1,736,000	1.06	4.83
Cinabrio Underground	378,000	1.55	0.11
Cinabrio Pillars	1,027,000	1.51	0.04
Cinabrio Norte Underground	833,000	1.01	4.57
Dalmacia Underground	2,198,000	1.00	1.38
Total	6,172,000	1.14	2.48
Inferred Sulphides			
San Andres Underground	303,000	0.82	4.03
Cinabrio	90,000	0.98	0.06
Cinabrio Pillars			
Cinabrio Norte Underground	1,077,000	0.98	4.91
Dalmacia Underground	1,599,000	0.93	1.00
Total	3,070,000	0.93	2.64

Notes:

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2. All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (CIM) definitions, as required under NI 43-101.
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4. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.
5. Numbers are rounded.
6. Cut-off grades are based on a price of US$3.50/lb copper, US$20/oz silver and several operating costs, metallurgical recoveries, and recovery assumptions, including a reasonable contingency factor.
7. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Source: Kirkham (2022)

Table 17-2: Mineral Resource Statement – Open Pit

Class	Tonnes	CuS%	CuT%	Ag g/t
Oxides				
Indicated	873,000	0.62	0.74	1.15
Inferred	1,326,000	0.50	0.50	1.11

Notes:

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Source: Kirkham (2022)

17.2 Risks

17.2.1 General Risks

Mineral resource estimates are inherently forward-looking statements and may be subject to change. Although JDS exercises due diligence in reviewing the supplied information, uncontrollable factors or unforeseen events can have significant positive or negative impacts on mineral resource statements. Uncontrollable factors or unforeseen events consist of risks related to the business such as:

- Cyclical nature of the mineral industry;
- Global economic, political and regulatory changes;
- Commodity price fluctuations based on varying levels of demand;
- Changes in the social acceptance of the project by local communities;
- Risks related to health epidemics, including the ongoing global pandemic;
- Climate change related weather events;
- Mineral exploration efforts are highly speculative in nature and may be unsuccessful;

- Risks related to delays or changes to exploration and/or development program plans and schedules; and

- Specifically related to Chile, the uncertainty related to the potential changes to the constitution and the taxation regime.

Any one or combination of factors could significantly influence mineral resource statements.

17.2.2 Project-Specific Risks

17.2.2.1 Geological Risk

As detailed in this technical report the resource estimates are based on geological theories, interpretations and domaining. There is a level of subjectivity where other geoscientists may have differing opinions and with new information and subsequent data, interpretation may be updated or revised. Although, these differences should not be materially significant, there will invariably be changes going forward and risks due to uncertainty.

A significant amount of historical data remains to be analyzed and digitized. The database should be continually reviewed and renewed to ensure data quality. Therefore, issues with existing data may be discovered which will cause uncertainty.

Exploration has continued to result in discovery and expansion of potential mineral resource. However, there is no guarantee that exploration and discovery will result in an economically viable operation.

The geology of the area is well known and documented, supported by extensive data, analysis, and study. However, further work may disprove previous models and therefore result in condemnation of targets and potential negative economic outcomes.

All projects benefit from increasing amounts of data and information in order to improve understanding and mitigate risks. However, there is a risk that unknown issues may arise with additional data. It is prudent to continue to improve the quantity and quality of information to decrease risk as much as necessary. Risk may be mitigated with definition drilling in order to further refine and delineate structures and identify any potential problem areas.

17.2.2.2 Country Risk

Chile has adopted environmental, health and safety regulations requiring industrial companies operating in Chile, including BMR, to undertake programs to reduce, control or eliminate various types of pollutants and to protect natural resources, including water and air, among other requirements. The regulations include those relating to, among other things, the removal and extraction of natural resources, the emission and discharge of materials into the environment, including plant and wildlife protection, remediation of soil and groundwater contamination, reclamation and closure of properties, including tailings and waste storage facilities, groundwater quality and availability, and the handling, storage, transport and disposal of wastes and hazardous materials. If the Ministerio del Medio Ambiente (the Ministry of the Environment) declares an area to be polluted or potentially polluted, a prevention or decontamination plan is required. Either type of plan may contain measures that may increase the costs of developing new facilities or expanding existing ones in the designated area.

BMR's exploration and mining activities are subject to laws and regulations which change from time to time. Matters subject to regulation include, among others, conditions to obtain and maintain mining concessions, the duration and scope of mining concessions, concession fees, transportation, production, reclamation, closure procedures and remediation, export, taxation, royalties and labor standards. The regulatory approval process for the updated mine closure plan for Punitaqui is currently underway and there is no certainty that it will be approved without any adjustment. In addition, there can be no assurance that more stringent enforcement of, or change in, existing laws and regulations, the adoption of additional laws and regulations, or the discovery of new facts resulting in increased liabilities or costs would not adversely affect BMR's business, results of operations or financial condition.

A referendum on Chile's proposed constitution occurred on September 4th, with 13 million of the 15 million eligible voters taking part. It included 388 articles that would have significantly extended social rights, increased environmental regulations, and given the government wider responsibility for social welfare programs. It also would have proposed significant tax and royalty increases on mining. The potential mining royalty included a sliding scale based on copper prices that at current levels would have made the effective royalty rate on copper miners among the highest in the world. As originally proposed, the law would impose a 3% royalty tax on copper sales. As amended on May 6, 2021, the legislative proposal would introduce a progressive tax rate based on copper prices that could reach as much as 75% if LME copper prices exceed US$4 per pound, subject to certain deductions and exemptions. Pursuant to the legislative proposal, the royalty tax would be payable annually and apply to mining operators that produce more than 12,000 t of copper per year. The funds obtained from such tax would be used to finance regional and communal development projects and to directly finance projects to mitigate, compensate or repair environmental impacts from mining activities in communities near mining projects.

The document was rejected in all of Chile's regions and the vote results were 61.9% against the draft constitution.

17.2.2.3 Water

The productivity of the project is heavily reliant on the availability of water and there is a risk that water shortages could negatively impact production. MAP has taken the necessary precautions to reduce this risk by first reducing water usage on site and maximizing its recovery, and second by having multiple sources of process water including a signed commercial water contract, a site water well and the ability to utilize water from underground workings. The use of dry stack tailings is being investigated in order to maximize water recycle and limit fresh water usage. The project location is mainly agricultural and is not drought prone like other mining areas in Chile. Currently, sufficient water is available to allow operations to proceed uninterrupted.

17.2.2.4 Tailings Storage Facility Stability

The tailings storage facilities Tranque IV Phases 1 and 2 pose a risk to the project in the form of potential instability. Monitoring systems were implemented, and no movement or acceleration has been observed since measurements began in September of 2020. Although the stabilization work is designed and approval has been sought to complete the stabilization plan, there remains the potential of instability from future precipitation events until stabilization work is completed. The facilities will remain inactive until such time that the approved stabilization is completed.

17.2.2.5 Climate Change

Although climate change is a generic risk that impacts the entire globe, it is listed as a project-specific risk because it exacerbates the potential risks of both Sections 17.2.2.3 and 17.2.2.4.

17.2.2.6 Metallurgy

There exists a risk that the material hardness could be different than that tested. The mineralized materials tested for the project are generally considered medium to hard and as such require significant grinding energy. The current plant grinding circuit has enough spare capacity that a throughput of up to 3,000 t will be achievable. In the case that the ore is harder than the recent testwork suggests, the grinding circuit has capacity that it will likely not negatively impact plant capacity. There is also a potential for some of the materials to be softer and allow for finer grinds and higher throughputs all within permitted quantities.

There is a risk that the metallurgical recoveries will be lower than projected. Variability testing of different mineralization types is underway, but it is possible that actual copper recoveries could be different than those projected. However, historic operating data validates the current metallurgical assumptions, and a conservative approach has been taken in the recovery modeling exercise. As part of the variability testing, a wider range of mineralized materials with higher oxide content are being examined. Lower recoveries may result from higher oxide content, and this is a calculated risk associated with increasing the potential resource to treat higher proportions of oxide materials.

17.3 Opportunities

This report demonstrates a sufficient understanding of the mineralized deposits on the part of BMR to effectively expand its mineral resources with ongoing drill programs. The resumption of economic operations may be possible with the existing facilities and resources or by expanding them through future drill programs. This will require further analysis.

The Cinabrio, Cinabrio Norte, and Dalmacia deposits are open at depth and laterally.

Furthermore, the south end of the Dalmacia deposit is sparsely drilled. Therefore, the opportunity exists to increase the resources through further drilling from surface and from underground.

The Punitaqui mining complex is situated within a copper district with numerous small privately owned mining operations – these mines represent potential to expand the resource base through ore purchase or acquisition deals.

Exploration on BMR 100% owned concessions has identified targets have that warrant further exploration to assess the potential to deliver additional satellite resources.

The Punitaqui mill has a capacity of up to 4,000 t/d. This represents a significant potential opportunity to increase planned throughput from the current 3,000 t/d by increasing the output of the mines. This can only come from changes in permits and significant investment in the mining infrastructure and is not contemplated in the near term but represents a potential opportunity in the future.

All of the deposits have a portion of predominantly oxidized (soluble) material on the upper portions of the deposits, a transition zone, and a predominantly sulphide (insoluble) zone beneath. The testwork done to date has focused on recovering sulphide copper. Although it is usually difficult to recover oxidized mineralization, there are using flotation, there are oxide specific reagents that can increase the recovery of oxide minerals.

Local deposits that have not been identified in this report, could present an opportunity to run the processing plant as a toll mill, which will maximize the material processed as well as providing some opportunities for cost recovery during periods where the mining rate does not keep up with the processing rate.

The use of equipment to produce filtered tailings, or equivalent, is highly encouraged by Chilean regulators. BMR is in the process of determining the economics of this tailings deposition method which current designs indicate that the active tailings capacity at Punitaqui could be increased by up to 8 Mt within the current permitted footprint. Additional benefits include greater recovery of water and therefore less use of fresh water.

It may be possible to recover copper mineralized slag from an existing smelter, transport it to the mine, and use it as supplement feed to the processing plant. This possibility would require additional metallurgical testwork and economic evaluation.

17.4 Conclusions

BMR has successfully established multiple resources worthy of further investigation and possible future exploitation. The testwork indicates that the existing infrastructure, primarily the flotation processing plant, are suited to the eventual resumption of mining operations. BMR should continue to advance the project with the work necessary to achieve this result, as detailed in this report.

18 RECOMMENDATIONS

18.1 General

The geological setting and character of the copper mineralization delineated to date on the Punitaqui mining complex concessions warrant additional exploration expenditures to further delineate existing resources and targets as well as explore for new targets.

JDS recommends a two-phase work program that includes a continued focus on drilling to upgrade, expand and further delineate resources at Cinabrio mine, San Andres, Cinabrio Norte and Dalmacia.

The Punitaqui region is home to a significant number of privately operated small copper mines. It is recommended any further work program should include an assessment of the overall regional potential including investigating the potential to acquire third party sourced ore for the BMR plant by way of toll treating, ore purchase agreements and potential joint ventures or acquisitions.

The recommended work program includes follow-up core drilling of high priority targets identified to date and systematic exploration of the current BMR concessions that should include prospecting, rock grab sampling, channel sampling, reconnaissance and detailed geological mapping coupled with the completion of the ground magnetics program with additional strategic induced polarization surveys over selected targets.

The metallurgical testwork has shown that the mineralized materials behave consistent with the previous plant operations. Some improvement to the concentrate grades has been achieved with the addition of a rougher concentrate regrind before cleaning. Copper recoveries vary from low 80's to high 90's depending on the material. The lower recovery materials tend to have very fine-grained mineralization. Testwork will continue to concentrate filtration with the preliminary results showing a need for a longer filtration period. Testwork will be focused on several fronts for both tails and concentrate filtration.

JDS is unaware of any other significant factors and risks that may affect access, title, or the right, or ability to perform the recommended exploration programs.

18.2 Phase 1 Program

The proposed first phase work program includes:

- Cinabrio mine: 1,500 m Phase 1: Resource infill drilling (UG diamond core drilling);
- Follow-up diamond core and /or reverse circulation drilling to infill and test extensions of San Andres, Cinabrio Norte and Dalmacia resources which would include:
  - San Andres: 1,500 m: Resource infill drilling;
  - Dalmacia North: 2,000 m: Resource infill drilling; and

- Cinabrio Norte: 3,000 m: Resource infill drilling.

- Undertake detailed analysis of geological, geochemical, and geophysical surveys data from all known targets to identify further copper targets for follow-up testing:
  - SAC Gap target;
  - St Elvira target;
  - Campo Velado target;
  - La Higuera target;
  - Salguera target; and
  - Cinabrio Sur sandstone hosted Cu target.
- Complete Ground magnetics program over Cinabrio concessions;
- Continue selective soluble copper and QEMSCAN sampling to aid geometallurgy; and
- Continue Phase 1 metallurgical testwork program: The outstanding portions of Phase 1 include ore sorting on Cinabrio Norte, smelter analysis of all concentrates, continued investigations on the use of charges of smelter slag as an in-fill plant feed source, and filtration of concentrates.

Table 18-1 details estimated costs for the Phase 1 program.

Table 18-1: Estimated Cost for Phase 1 Program

Description	Quantity	Unit Cost (US$)	Total (US$)
Drilling Phase 1			
UG Diamond Core	1,500 m	$150/m	$225,000
Surface Diamond Core	3,000 m	$140/m	$420,000
Reverse Circulation Drilling	3,500 m	$120/m	$420,000
Field and Drilling Support		$50,000/month	$600,000
Assaying	2,500	$25/sample	$62,500
Geological Staffing Costs Salaries Travel		$40,000/month	$480,000
Geophysics: Complete Ground Magnetics		$70/line-km	$40,000
Claim Management		$2,700/ month	$32,400
Metallurgical Testwork Program:			$150,000
Geometallurgical studies QEMSCAN	50 samples	$481/sample	$24,050
Subtotal			**$2, 453, 950**

Description	Quantity	Unit Cost (US$)	Total (US$)
Contingency (10%)			$245, 395
Total			**$2,699.345**

Note:
The total costs above are rounded.

18.3 Phase 2 Program:

The proposed second phase work program includes the following:

- Cinabrio mine: 3,500 m: Phase 2: Resource extension & exploration UG drilling;
- Dalmacia: 10,000 m: 1 km target strike extent south of resource: RC Drilling:
  - Dalmacia Central: 6,000 m: RC drill test central 600 m strike length of Dalmacia adjacent to resource; and
  - Dalmacia South: 4,000 m: RC drill test southern 600 m strike length of Dalmacia target.
- Cinabrio Norte: 4,000 m Down-dip extension of resource: combination surface and UG drilling;
- Undertake where warranted additional ground grid-based surveys to assist in tracing identified target zones or delineating exploration targets – Induced polarization survey;
- Proposed Exploration Drilling: 5 targets: 3,300 m:
  - SAC Gap target: Limited RC drill test: 300 m;
  - St Elvira target: Initial limited RC drill test: 500 m;
  - Campo Velado target: Initial limited DC drill test: 1,000 m;
  - Cinabrio South target: Initial limited RC drill test: 500 m; and
  - La Higuera target: Initial limited RC drill test: 1,000 m.
- Continue selective soluble copper and QEMSCAN sampling to aid geometallurgy; and
- Continue metallurgical testwork program with a focus on variability testing and finalizing of flowsheet (primary grind size, regrind, filtration methods).

Table 18-2 details the estimated cost for the BMR Phase 2 program.

Table 18-2: Estimated Cost for Phase 2 Program

Description	Quantity	Unit Cost (US$)	Total (US$)
Drilling Phase 2			
UG Diamond Core	5,000 m	$150/m	$750,000
Surface Diamond Core	3,500 m	$140/m	$490,000
Reverse Circulation Drilling	12,300 m	$120/m	$1,476,000
Field and Drilling Support		$50,000/month	$600,000
Assaying	6,000	$25/sample	$150,000
Geological Staffing Costs Salaries Travel		$40,000/month	$480,000
Geophysics: Complete IP Survey			$70,000
Claim Management		$2,700/ month	$32,400
Metallurgical Testwork Program:			$150,000
Geometallurgical studies QEMSCAN	50 samples	$481/sample	$24,050
Subtotal			**$4,222,450**
Contingency (10%)			$422,245
Total			**$4,644,695**

Note:
The total costs above are rounded.

18.4 Post Phase 2 - Economic Evaluation

Upon the completion of both phases of exploration, an opportunity for exploitation is worthy of further study. At this point, that is best accomplished by:

- Appropriate and economic mining methods for each of the four deposits;
- Effective blending of the mine yield to the processing plant;
- Sufficient refurbishment and/or alteration of existing infrastructure for resuming operations, including the processing plant and tailings storage facilities;
- Renewal of existing permits and providing bonding for reclamation, closure and monitoring; and
- Best practices for environmental management and socio-economic considerations.

18.5 Tailings Storage Facility Buttressing

The tailings storage facilities Tranque IV Phases 1 and 2 pose a unique risk to the project. Though the stabilization work is designed, and approval has been sought to complete it, there is the potential that a massive and catastrophic rain event occurs prior to the completion of the stabilization work causing failure of one or more embankments. The buttressing work for dam stabilization must proceed as a priority regardless of other activities on site.

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20 UNITS OF MEASURE, ABBREVIATIONS AND ACRONYMS

Symbol / Abbreviation	Description
'	Minute (Plane Angle)
"	Second (Plane Angle)
°	Degree
°C	Degrees Celsius
3D	Three-Dimensional
a	Annum (Year)
Aero 208	Dithiophosphate (Flotation Collector)
ALS	ALS Global Ltd. Geochemistry-Analytical Services
amsl	Above Mean Sea Level
AN	Ammonium Nitrate
Au	Gold
Ag	Silver
BD	Bulk Density
BMR	Battery Mineral Resources Corp.
Bluequest	Bluequest Resources AG
bn	Bornite
bt	Biotite
C$	Dollar (Canadian)
Ca	Calcium
Ca(OH)2	Hydrated lime (Pyrite depressant)
CBs	Chlorite and Carbonate
cc	Chalcocite
Cl, Cln, Clnr	Cleaner
CLOs	Chlorite
cm	Centimeter
cm^2	Square Centimeter
cm^3	Cubic Centimeter
CMP	Tamaya Chilean subsidiary Compañía Minera Punitaqui
CNN	Cinabrio Norte Drill hole Prefix
cp	Chalcopyrite
cu	Copper
d_{80}, P_{80}	Screen Size at Which 80% of the Material Passes Through
DDH	Diamond Drill Hole

Symbol / Abbreviation	Description
DIP	Debtor in Possession Secured Loan
DIA	Declaration of Environmental Impacts
DGPS	Differential Global Positioning System
DMS	Dense Media Separation
dmt	Dry Metric Tonne
DS	Dalmacia Drill hole Prefix
d/wk	Days per Week
EIA	Environmental Impact Statement
Floc.	Flocculant
FMs	Ferromagnesium Minerals
g	Gram
G&A	General and Administrative
g/cm^3	Grams per Cubic Meter
GGs	Gangue minerals
g/l	Grams per Litre
g/t	Grams per Tonne
gal	Gallon (USA)
Glencore	Glencore International Plc
GW	Gigawatt
h	Hour (Time)
H_2SO_4	Sulphuric Acid
h/a	Hours per Year
h/d	Hours per Day
h/wk	Hours per Week
ha	Hectare (10,000 m^2)
HG	High-grade
Hg	Mercury
HMC	Haldeman Mining Company S.A.
hp	Horsepower
HPGR	High-Pressure Grinding Rolls
HQ	Diamond Drill core Diameter of 63.5 mm
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
IOCG	Iron Oxide Copper-Gold Deposit
IRR	Internal Rate of Return
JDS	JDS Energy & Mining Inc.
k	Kilo (Thousand)
kg	Kilogram

Symbol / Abbreviation	Description
kg/h	Kilograms per Hour
kg/m^2	Kilograms per Square Meter
kg/m^3	Kilograms per Cubic Meter
km	Kilometer
km/h	kilometers per hour
km^2	Square Kilometer
kPa	Kilopascal
kt	Kilotonne
kV	Kilovolt
kVA	Kilovolt-Ampere
kW	Kilowatt
kWh	Kilowatt Hour
kWh/a	Kilowatt Hours per Year
kWh/t	Kilowatt Hours per Tonne
L	Litre
ENAMI	La Empressa Nacional de Mineria
L/min	Litres per Minute
L/s	Litres per Second
LG	Low Grade
LOM	Life of Mine
m	Meter
M	Million
m/min	Meters per Minute
m/s	Meters per Second
m^2	Square Meter
m^3	Cubic Meter
m^3/h	Cubic Meters per Hour
m^3/s	Cubic Meters per Second
Ma	Million Years
mamsl	Meters Above Mean Sea Level
MAP	Minera Altos de Punitaqui Limitada
masl	Meters Above mean sea level
MIBC	Methyl IsoButyl Carbinol (Flotation Frother)
Mb/s	Megabytes per Second
mbgs	Meters Below Ground Surface
mbs	Meters Below Surface
mbsl	Meters Below Sea Level

Symbol / Abbreviation	Description
ME-ICP61	Multi-Acid Digest Analyzed by Inductively Coupled Plasma Mass Spectrometry
ME-ICP61a	Similar to ME-ICP61 with Higher Detection and Overlimit Range
ME-OG62	Aqua-Regia Digest Analyzed by ICP-AES Atomic Emission Spectrometry
mg	Milligram
mg/L	Milligrams per Litre
min	Minute (Time)
mL	Millilitre
mm	Millimeter
Mm^3	Million Cubic Meters
mo	Month
MPa	Megapascal
MS-42 Hg	Trace Mercury Analysis by Aqua Regia Digest and ICPMS Finish
Mt	Million Metric Tonnes
mt	Magnetite
NG	Normal Grade
NI 43-101	National Instrument 43-101
NQ	Diamond Drill core Diameter of 47.6 mm
NSR	Net Smelter Return
OP	Open Pit
OPs	Opaque Minerals
oz	Troy Ounce
PAX	Potassium Amyl Xanthate (flotation collector)
P.Geo.	Professional Geoscientist (Canada)
PLGs	Plagioclase
ppb	Parts per Billion
ppm	Parts per Million
psi	Pounds per Square Inch
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
RC	Reverse Circulation Drilling
RCA	Environmental Qualification Resolution
Reclr.	Recleaner
RMR	Rock Mass Rating
Ro	Rougher
ROM	Run of Mine
rpm	Revolutions per Minute
RQD	Rock Quality Designation

Symbol / Abbreviation	Description
s	Second (time)
SAC	San Andres – Cinabrio Gap Target
SAS	Prefix – San Andres Drill hole
Scfm	Standard Cubic Feet per Minute
Scav. Conc.	Scavenger Concentrate
ser	Sericite
SERNAGEOMIN	Government of Chile – National Service of Geology and Mining (Mining Authority)
SFD	Size Frequency Distribution
S.G./ SG	Specific Gravity
SIPX	Sodium Isopropyl Xanthate (Flotation Collector)
Sol.	Solids
SMP	SMP – Gerencia De Exploraciones Y Proyectos
t	Metric Tonne (1,000 kg)
Tamaya	Tamaya Resources Limited
t/a	Tonnes per Year
t/d	Tonnes per Day
t/h	Tonnes per Hour
TCR	Total Core Recovery
TMF	Tailings Management Facility
tph	Tonnes per Hour
ts/hm^3	Tonnes Seconds per Hour Meter^3 (Cubed)
US$	United States Dollar
UTM	Universal Transverse Mercator
w/w	Weight/Weight
wk	Week
wmt	Wet Metric Tonne
WRSF	Waste Rock Storage Facility
µm	Microns
Xiana	Xiana Mining Inc.
Zn	Zinc

Rock Type	Description
and	Andesite
dr	Diorite
drd	Diorite Dyke
shca	Shale
bxvolc	Volcanic Breccia
porfa	Andesitic Porphyry
andd	Andesitic Dyke
diq	Porphyry Dyke
tf	Tuff
ocon	Black Ocoite
pdio	Porphyritc Diorite Fine-Grained
vqz	Quartz Vein
oco	Undifferentiated Ocoite
ocov	Vesicular Ocoite
pan	Andesitic Porphyry
ocob	White Ocoita
are	Sandstone
bxt	Tourmaline Breccia