

REPORT**S-K 1300 TRS Technical Report Summary***Southern Copper Corporation: La Caridad*

Submitted to:

Southern Copper Corporation

Submitted by:

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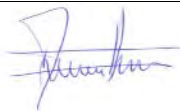
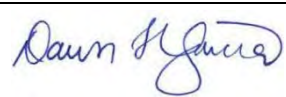
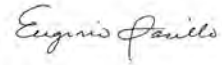
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DATE AND SIGNATURE PAGE

The effective date of the Mineral Resources and Mineral Reserves estimates was December 31, 2021.

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The qualifications and relevant experience of each QP are shown below.

- Ronald Turner:
 - Education:
 - Geologist, Universidad de Concepción, Chile, 1993
 - Postgraduate Studies in Geostatistical Estimation, Universidad de Chile, Santiago, Chile, 2007
 - Years of Experience:
 - Has 29 years of experience in the mining industry with 13 years in geological and mineral resource and reserves reporting, 8 years in project development and mining and 8 years in exploration of base and precious metals.
 - Relevant Experience:
 - Has been a Mineral Resource Group Leader with Golder Associates S.A. working on validation and construction of databases and QA/QC programs, interpretation and construction of 3D geological models, and resource estimation.

- Has led and participated in Mineral Resources and Reserves audits and Due Diligence in mines and projects for a variety of commodities under different international codes.
- Was a Mineral Resource Superintendent at Minera Escondida Ltda. responsible for the Resources, Geological and Geometallurgic models for Minera Escondida, including Escondida and Escondida Norte Deposits

■ Professional Registration:

- Is in good standing as a Member of the Australian Institute of Mining and Metallurgy (MAusIMM, CP, Geo)

■ Danny Tolmer:

■ Education:

- Is a Mining Engineer with a B.A.Sc. in Mining Engineering from the University of British Columbia, Vancouver, 2004.

■ Years of Experience:

- Has 18 years of experience in the mining industry having worked in large coal and copper open pit mining operations.
- Is a Principal Mining Engineer at Golder (a member of WSP). Provides consulting services for mining projects from preliminary economic assessments to feasibility and permitting. Has assisted mines around the globe with short-range, long-range, drill and blast, and other operational issues.

■ Relevant Experience:

- Is a Principal Mining Engineer responsible for the mine planning and economic evaluations group in Vancouver, British Columbia.
- Has completed numerous reserve estimates and audits, operational assistance, short-term mine plans, long-term mine plans, permit applications, and cashflow models.
- As a mining engineer with Snowden has worked on economic pit shell analyses, training, and site assistance for numerous open pits as well as commissioned an open pit gold mine in Newfoundland, Canada.

■ Professional Registration:

- Registered Professional Engineer – British Columbia, EGBC Certificate
- Registered Professional Engineer – Alberta, APEGA Certificate
- Registered Professional Engineer – Ontario, PEO Certificate
- Registered Professional Engineer – Yukon, APEY Certificate
- Registered Professional Engineer

■ Dawn Garcia

■ Education:

- Is graduate of Bradley University with a bachelor's degree in Geological Sciences in 1982 and a graduate of California State University, Long Beach, with a master's degree in Geology in 1995

■ Years of Experience:

- Practiced as an environmental geologist and hydrogeologist for over 35 years.
- Over 20 years of experience in the mining industry.

■ Relevant Experience:

- Acted as the Qualified Person for the Environmental, Permitting and Social section for 10 NI 43-101 technical reports and more than 20 detailed environmental and permitting reviews.
- Conducted environmental, socio-economic, or water-related tasks for over 50 mineral development, mineral processing, and mining operations.

■ Professional Registration:

- Licensed Professional Geologist (Arizona, License No. 26034)
- Professional Geologist (CPG) with the American Institute of Professional Geologists (Membership Number 08313)
- Registered member of the Society for Mining, Metallurgy & Exploration (Membership No. 4135993)

■ Jorge Castillo:

■ Education:

- Is a Senior Consultant with a Master of Science (M.Sc.) in Geotechnical Engineering from the Catholic University of Río de Janeiro (Brazil) and a Bachelor of Science (B.S.) in Civil Engineering from the National University of Engineering Peru.
- Completed a Graduate Course in Erosion Control from the Japan International Cooperation Agency (JICA) and has a Graduate Certificate in Project Management from the Queensland University of Technology in Brisbane, Australia.

■ Years of Experience:

- He has 25 years of experience in geotechnical services and project management in the mining industry.

■ Relevant Experience:

- His experience in tailings and mine waste projects in North America, South America and Central America include, site geotechnical investigation, tailings dams design and construction, waste dumps

design, foundations design, geotechnical analyses and seismic hazards studies and preparation of construction drawings and specifications.

- Professional Registration:

- Registered Professional Engineer - Colorado, U.S. (Colorado Registration No. 0054466)
- Registered Civil Engineer in Peru (Peruvian Registration No. CIP 46756)

- Eugenio Iasillo:

- Education:

- Has a Bachelor of Science (B.S.) in Chemical Engineering from the University of Michoacán (Mexico). Completed Continuing Education certificate in Computer Science and Extractive Metallurgy from the University of Arizona.

- Years of Experience:

- Has 45 years of experience in the mining industry with 21 years in engineering and metallurgical research geared toward project development.
- Has a strong background in operation and control of large mineral beneficiation plants and has been involved in engineering and start-up of pilot and industrial scale plants.

- Relevant Experience:

- As Principal of Process Engineering LLC. provides consulting services for mining project development and mineral processing plants design. Development of metallurgical data, data analysis and development of plant design criteria.
- Has been Technical Director/ Sr. Process Engineer with Metcon Research / K D Engineering, (Tucson, Arizona) responsible for technical, commercial and operational aspects of a metallurgical research facility with analytical capability.
- Was a mill manager at Franklin Consolidated Mines, Inc. (Idaho Springs, Colorado); a mill superintendent at Au Magnetics Management Inc. (La Jolla, California); a Concentrator Metallurgist at Sonora Mining Corp. (Sonora, California) and at Phelps Dodge Corp. (Morenci, Arizona); and a Process Engineer at Mexicana de Cobre, S.A. (Sonora, Mexico).

- Professional Registration:

- Registered Professional Engineer - Arizona, U.S. (Arizona Certificate/Registration No. 28209)
- Chemical Engineering, Mexico (Professional Registration, CEDULA No. 486768)

■ Michael Pegnam:

■ Education:

- Graduate of University of Arizona with a bachelor's degree in Geological Engineering
- Graduate of University of California Berkeley with a master's degree in Geotechnical Engineering

■ Years of Experience:

- He has 28 years of experience in geotechnical engineering in the mining and civil engineering fields

■ Relevant Experience:

- His relevant experience in slope engineering includes completing slope designs for open pit mines in North America, Mexico, and South America and highway cuts in rock in North America. He also has specialty expertise in rock and soil slope stability evaluation, installation of rock bolts, dowels, and pinned/draped mesh for rockfall mitigation

■ Professional Registration:

- Registered Professional Engineer - Arizona, U.S. (Registration No. 33800)
- Registered Professional Engineer – New Mexico, U.S. (Registration No. 16267)
- Registered Professional Engineer – California, U.S. (Registration No. C56831)
- Registered member of the American Society of Civil Engineers since 1995 (Membership I.D. #321277)

1.0 EXECUTIVE SUMMARY

1.1 Property Description and Ownership

The La Caridad operation is located in northeastern Sonora, Mexico, about 266 kilometers (km) northeast of the city of Hermosillo and 125 km south of the city of Agua Prieta Sonora, Mexico, which is on the international US - Mexico border. La Caridad mining unit is accessed from kilometer 19 of the Nacozari-Agua Prieta highway. The mining unit is within the municipality of Nacozari de García, Sonora, next to the municipality of Villa Hidalgo. It is bordered to the north by the municipalities of Bacoachi, Fronteras and Agua Prieta, to the east by Bavispe, Bacerac and Huachinera; to the south by Bacadéhuachi, Huásabas and Cumpas; and to the west by Arizpe. The closest town is Nacozari, which is about 23 km northwest of the mining unit.

All the estimated Mineral Resources and Reserves lie within privately owned or possessed land under the name of Buenavista del Cobre SA de CV, or Proyecciones Urbanísticas S de RL de CV. Ownership is not required to explore or mine a concession; however, Southern Copper Corporation generally owns the land related to the LC operations. Additionally, Southern Copper Corporation stated that all the processing facilities of the LC operations and land on which they are built are owned by Southern Copper Corporation. The La Caridad unit includes an open-pit copper mine, one copper concentrator, one Solvent Extraction and Electrowinning (SX-EW) plants, and a smelter.

1.2 Geology and Mineralization

La Caridad is a porphyry copper deposit, that is currently the largest copper producer in Mexico and the youngest dated porphyry system in the American Southwest region. The La Caridad district lies within the eastern section of the Sonora Basin and Range Province of northern Mexico. Sustained magmatic activity along the North American Cordillera during the late Mesozoic through Paleogene resulted in the development of numerous porphyry copper deposits. The basement rocks of area consist of strongly deformed greenschist- grade volcanic and sedimentary rocks that are intruded by granites emplaced at 1.4 and 1.1 billion years ago. Above the sequence Late Proterozoic and Paleozoic rocks are overlain by volcanic and plutonic rocks of Mesozoic and Cenozoic age. Middle Jurassic rocks characterized by volcanic and volcano-sedimentary sequences, with occasional granite intrusions, outcrop in the northern and northeastern portion of Sonora. In the La Caridad district, these rocks outcrop in the Sierra Cobriza area, west of the town of Nacozari.

The main mineralization at La Caridad occurs in the Quartz-monzonite porphyry and hydrothermal breccias. The host rocks at La Caridad are andesites, with the oldest rocks corresponding to the Laramide volcanic rocks, which are regionally correlated with the Tarahumara Formation. Locally, this andesitic volcanic sequence was intruded by a granodiorite which is well exposed to the east-southeast.

At the La Caridad mine, which are in turn intruded by diorite dikes that range from fine to coarse grain. Discordantly overlying this igneous complex is a sequence of rhyolitic flows.

1.3 Status of Exploration

The La Caridad mining district has been subject to several historical and recent exploration campaigns targeting copper mineralization at the Project site. These exploration campaigns primarily included exploration drilling, and geotechnical drilling. Exploration drilling has been undertaken almost yearly at La Caridad since 1968. To date, a total of 3,529 exploration drill holes, totaling 694,455 m, have been drilled on the La Caridad property.

The main objective of the exploration programs implemented at La Caridad have been to explore for new ore bodies as well as the increase of Proven and Probable Mineral Reserves. The achievement of these objectives has served as a basis to support planning and growth strategies as well as investment programs for the modernization of the mining unit.

1.4 Development and Operations

Mining operations at La Caridad can be traced to the early 1900s with the concurrent development of similar copper mining operations in the Nacozari region.

La Caridad is an established operation that currently mines at a rate of about 98 million tonnes per year (Mtpy) of total material. The operation currently runs 6 electric shovels, 1 hydraulic shovel, 6 loaders, and 36 trucks of varying size and models. Since this is an established operation, the deposit, mining, metallurgy and processing, and environmental aspects of the project are very well understood. The geological knowledge for La Caridad is based on the collective experience of personnel from La Caridad's site operations geology, mining, metallurgy, and other technical disciplines gained during the history of the operations. This knowledge is supported by years of production data at La Caridad.

The ore at La Caridad is recovered using open-pit conventional truck and shovel mining methods due to the proximity of the ore to the surface and the physical characteristics of the deposit. The current operation is expanding into an area called Bella Union which is south of the existing pit. The ore from the main pit and the expansion area is hauled to the primary crusher located near the maintenance facility or to the Guadalupe leach pads. Waste is hauled to valley overburden storage facilities (OSFs) located to the west of the pit.

The mine plan targets a mill feed rate of about 34.6 Million tonnes per annum (Mtpa) with the LOM schedule averaging an annual production of 43.7 Mt total material. This production rate for the mill feed results in approximately 94,000 t per day through the concentrator. The mine plan targets have been significantly reduced compared to current levels due to a significant reduction in the tailings storage facility's estimated capacity.

1.5 Mineral Resource Estimate

This sub-section contains forward-looking information related to Mineral Resource estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geological and grade interpretations and controls and assumptions and forecasts associated with establishing the prospects for economic extraction.

The Mineral Resource were estimated based on the long-standing exploration drilling and sampling completed at La Caridad since 1968. The drilling database used for the modeling was reviewed with the QP's internal software (DataCheck®), which allows the detection of inconsistencies such as: overlapping intervals, excessive path deviation between measurement intervals, duplication of collars, sample depth greater than the depth of the collar, among others. The La Caridad Mineral Resource estimate contains both the main La Caridad zone and the Bella-Union zone. This is the first public disclosure that includes the Bella-Union zone.

This Mineral Resource estimate was determined using a block model methodology based on original kriging and Inverse Distance cubed interpolation methods. Drill hole sample data was capped to control outlier values and composited for equal sample weighting. EDA and geostatistical analysis were completed on the raw and composite data sets to help define interpolation parameters and Mineral Resource classifications. The Mineral

Resources were restricted based on an optimized pit limit that took into account cut-off grade (COG), price, mining costs, infrastructure limitations, and mineral licenses.

Mineral Resource estimates exclusive of Mineral Reserves are summarized in Table 1.1 and Table 1.2 on a 100% ownership basis. Mineral Resources presented in the table are in accordance with the definitions presented in S-K 1300. The effective date of the Mineral Resource estimate is December 31, 2021.

Table 1.1: Mineral Resource Estimates Exclusive of Mineral Reserves for the Leach Process – 100% Ownership Basis

Process	Classification	Tonnes (Mt) ⁽⁴⁾	Grade		Contained Metal
			Total Cu (%) ⁽²⁾	Mo (%) ⁽²⁾	Cu (Mt) ⁽⁵⁾
Leach ⁽¹⁾⁽³⁾	Measured	-	-	-	-
	Indicated	817	0.06	-	0.5
	Total Measured + Indicated	817	0.06	-	0.5
	Inferred	927	0.06	-	0.6

Notes:

1. Mineral Resources are reported on a 100% basis and are exclusive of Mineral Reserves.
2. Mineral Resources are reported on a break-even plant and leach profit basis.
3. The estimate was constrained to within the Resource pit based on a Cu price of \$US3.795/lb, Mo price of US\$11.50/lb.
4. Tonnes are reported on a dry basis.
5. Contained Metal (CM) is calculated as follows:
CM = Tonnage (Mt) * Grade (%).
6. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not add exactly.
7. The estimate was completed using a SG of 2.6.
8. The estimate was constrained to within the Resource pit.
9. The Mineral Resource estimates were prepared by Ronald Turner, CP. (who is the independent Qualified Person for these Mineral Resource estimates), reported using the S-K 1300 Definition Standards adopted December 26, 2018.

Table 1.2: Mineral Resource Estimates Exclusive of Mineral Reserves for the Mill Process – 100% Ownership Basis

Process	Classification	Tonnes (Mt) ⁽⁴⁾	Grade		Contained Metal
			Total Cu (%) ⁽²⁾	Mo (%) ⁽²⁾	Cu (Mt) ⁽⁵⁾
Mill ⁽¹⁾⁽³⁾	Measured	-	-	-	-
	Indicated	6,455	0.17	0.026	10.8
	Total Measured + Indicated	6,455	0.17	0.026	10.8
	Inferred	4,039	0.13	0.025	5.1

Notes:

1. Mineral Resources are reported on a 100% basis and are exclusive of Mineral Reserves.
2. Mineral Resources are reported on a break-even plant and leach profit basis.
3. The estimate was constrained to within the Resource pit based on a Cu price of \$US3.795/lb, Mo price of US\$11.50/lb.
4. Tonnes are reported on a dry basis.
5. Contained Metal (CM) is calculated as follows:
CM = Tonnage (Mt) * Grade (%).
6. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not add exactly.
7. The estimate was completed using a SG of 2.6.
8. The estimate was constrained to within the Resource pit.
9. The Mineral Resource estimates were prepared by Ronald Turner, CP. (who is the independent Qualified Person for these Mineral Resource estimates), reported using the S-K 1300 Definition Standards adopted December 26, 2018.

SCC has a 98.14% ownership in LC through their main subsidiaries with the remainder being held through intermediate holding companies.

1.6 Mineral Reserve Estimate

This sub-section contains forward-looking information related to Mineral Reserve estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including Mineral Resource model tonnes and grade, modifying factors including mining and recovery factors, production rate and schedule, mining equipment productivity, commodity market and prices and projected operating and capital costs.

Based on the TSF capacity and modifying factors discussed in Section 12.2 the recovery factors discussed in Section 12.2.4 and the Economic Assessment discussed in 12.2.5, the LC mine contains the economically mineable Mineral Reserves listed in Table 1.3 on a 100% ownership basis. The effective date of the Mineral Resource estimate is December 31, 2021.

The Mineral Reserves include approximately 372 Mt of mill feed with a Cu grade of 0.24% total Cu for 1,955 Million pounds (Mlbs) of contained Cu with the point of reference being the mill. An additional 43 Mt of Mineral Reserves is estimated as Leachable ROM Ore with a Cu grade of 0.09% total Cu for 81 Mlbs of contained Cu with the point of reference being delivery to the leach pads. Total material in the restricted pit is 452 Mt, resulting in a waste to ore (mill ore + leach material) ratio of 0.09.

For this Mineral Reserve estimate, Indicated Mineral Resources inside the ultimate pit were converted to Probable Mineral Reserve. The Mineral Reserves are estimated at a copper price of US\$3.30/lb.

Table 1.3: Estimated Mineral Reserves – 100% Ownership Basis

Classification	Destination	Tonnes (Mt)	Grade		Contained Metal	
			Total Cu (%)	Mo (%)	Cu (Mlbs)	Mo (Mlbs)
Probable	Leach	43	0.09	-	81	-
	Mill	372	0.24	0.02	1,955	185
	Waste	38				
	Total Material	452				
	Strip Ratio (Waste/Ore)	0.09				

Notes:

1. Mineral Reserves are reported effective December 31, 2021. The Qualified Person for the estimate is Mr. Danny Tolmer, P.Eng.
2. Mineral Reserves are mined tonnes and grade; the reference point is the leach pad or concentrator and includes considerations for operational modifying factors such as loss (2%) and dilution (1%).
3. Mineral reserves are reported for ore with an economic value greater than or equal to 0 US\$/t. Full discussion of cut off is discussed in Section 12.2.4.
4. Numbers have been rounded to reflect appropriate accuracy.
5. Grades are not reported if the economic value is less than 0 US\$/t.
6. The Mineral Resource model only contained Indicated Mineral Resources and, therefore, there are no Proven Mineral Reserves reported in the estimate.
7. The October 9, 2021 topographic surface was used for the calculation of the Mineral Reserves and the actual production data provided by LC for October to December 31, 2021 was used to adjust this estimate.

It should be noted that SCC has a 98.14% ownership in LC through their main subsidiaries with the remainder being held through intermediate holding companies.

1.7 Capital and Operating Costs

This section contains forward-looking information related to capital and operating cost estimates for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this section including prevailing economic conditions continue such that projected capital costs, labor and equipment productivity levels and that contingency is sufficient to account for changes in material factors or assumptions.

The annual production estimates were used to determine annual estimates of capital and operating costs. All cost estimates were in Q4 2021 US\$. Total capital costs are estimated to be about US\$737 million including new mine equipment, major maintenance and components and special projects. Annual operating costs were based on historical operating costs, material movements and estimated unit costs. They included costs for mining, crushing and conveying, milling, leaching, SX-EW, molybdenum plant, freight and marketing costs and estimates of accretion. Annual total operating costs varied from US\$5.55 per tonne to US\$9.45 per tonne of total material moved, with an average total cost of US\$7.94 per tonne of total material moved.

1.8 Economic Analysis

This section contains forward-looking information related to economic analysis for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including estimated capital and operating costs, project schedule and approvals timing, availability of funding, projected commodities markets and prices.

All costs were assumed to be at Q4 2021 US\$.

For the economic analysis, a Discounted Cashflow (DCF) model was developed. SCC requested that the following commodity prices be considered for the economic analysis: Copper at US\$3.30/lb, Molybdenum at US\$10.00/lb and Zinc at US\$1.15/lb. The QP is of the opinion that these prices reasonable reflect current market prices and are reasonable to use as forecast future prices for the purpose of the economic analysis for this Study.

The discounted cashflow establishes that the Mineral Reserves estimate provided in this report are economically viable. The base case NPV₁₀ is estimated to be US\$927 M. The Net Present Value for this study is most sensitive to copper price.

The QP considers the accuracy and contingency of cost estimates to be well within a Prefeasibility Study (PFS) standard and sufficient for the economic analysis supporting the Mineral Reserve estimate for LC.

1.9 Permitting Requirements

This sub-section contains forward-looking information related to permitting requirements for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including regulatory framework is unchanged for Study period and no unforeseen environmental, social or community events disrupt timely approvals.

Mexico has established environmental laws and regulations that apply to the development, construction, operation and closure of mining projects. The majority of the current La Caridad mining operations were initiated prior to the

issuance of environmental laws in Mexico. In 2018 the mining operation obtained environmental impact authorizations to incorporate projects under a regional permit.

The operations generate mining wastes in the form of tailings, waste rock and spent ore, which have all been characterized as potentially acid generating (PAG). None of the metals results exceeded the Mexican mining wastes permissible limits for classification as hazardous waste.

Due to the age of the historic operations, no environmental studies were completed prior to the start of operations; however subsequent environmental baseline studies have been prepared to characterize the environmental conditions of the area, including climate, fauna, flora, and hydrology and presented to the Mexican environmental agency (Secretaria de Medio Ambiente y Recursos Naturales or SEMARNAT) as part of the environmental permitting process for more recent changes in operations. The area is not considered to have a high grade of biodiversity.

Historical surface water sampling has indicated concentrations of metals that exceeded permissible limits for surface water in samples collected from Arroyo La Francisca, Arroyo Bavispe and Arroyo Guadalupe, and surface water at the Santo Domingo waste rock facility. No exceedances of surface water permissible limits were detected recently at the two monitoring locations (upstream of the Francisca Heap Leach Facility and downstream of tailings storage facility (TSF) No. 7 that were sampled and reported to the environmental agency.

La Caridad operations are located within three municipalities: Nacozari de Garcia, Cumpas and Villa Hidalgo. The community perceives that there are environmental, social, economic, health and safety issues in the community. The most recent risk assessment identified the highest risks as demonstrations against the company or mining industry; actions against the company or mining industry related to environmental issues; complaints regarding impacts due to infrastructure projects; and social dependence on the company. Grupo Mexico has established a "Casa Grande" in Nacozari for administration of social programs that supported financially by Grupo Mexico. Taxes paid by Grupo Mexico support the "Fondo Minero," which also provides funds to the local communities for improvement projects.

Although Mexico has no specific closure regulation, closure activities are considered as part of the regional permit. Per the requirement of the regional permit, La Caridad submitted a closure plan to the Mexican environmental agency, which subsequently authorized the closure plan. The closure cost was estimated at about US\$103 million which does not include post-closure care and maintenance. This closure cost is based on the asset retirement obligation and does not consider the LOM closure cost obligations associated with the current mine plan.

1.10 Qualified Person's Conclusions and Recommendations

As the La Caridad Mine is an active mine with more than 50 years of operational experience and data, it is the QP's opinion that the relevant technical and economic factors necessary to support economic extraction of the Mineral Resource have been appropriately accounted for at the Mine. The QP recommends, however, that a detailed validation of the database should be carried out, especially on data from historical campaigns that are still in unmined areas of the mine, so that confidence in the data can be clearly established.

The 2021 Mineral Resource Estimate may be materially impacted by any future changes in the breakeven COG, potentially resulting from changes in mining costs, processing recoveries, or metal prices or from changes in geological knowledge as a result of new exploration data.

In the QP's opinion, the operational and mine planning data, process recovery testing and modeling, LOM Plan, and estimation are carried out in a manner that both represents the data and operational experience and methodology well and mitigates the likelihood of material impacts to the estimates of Mineral Reserves.

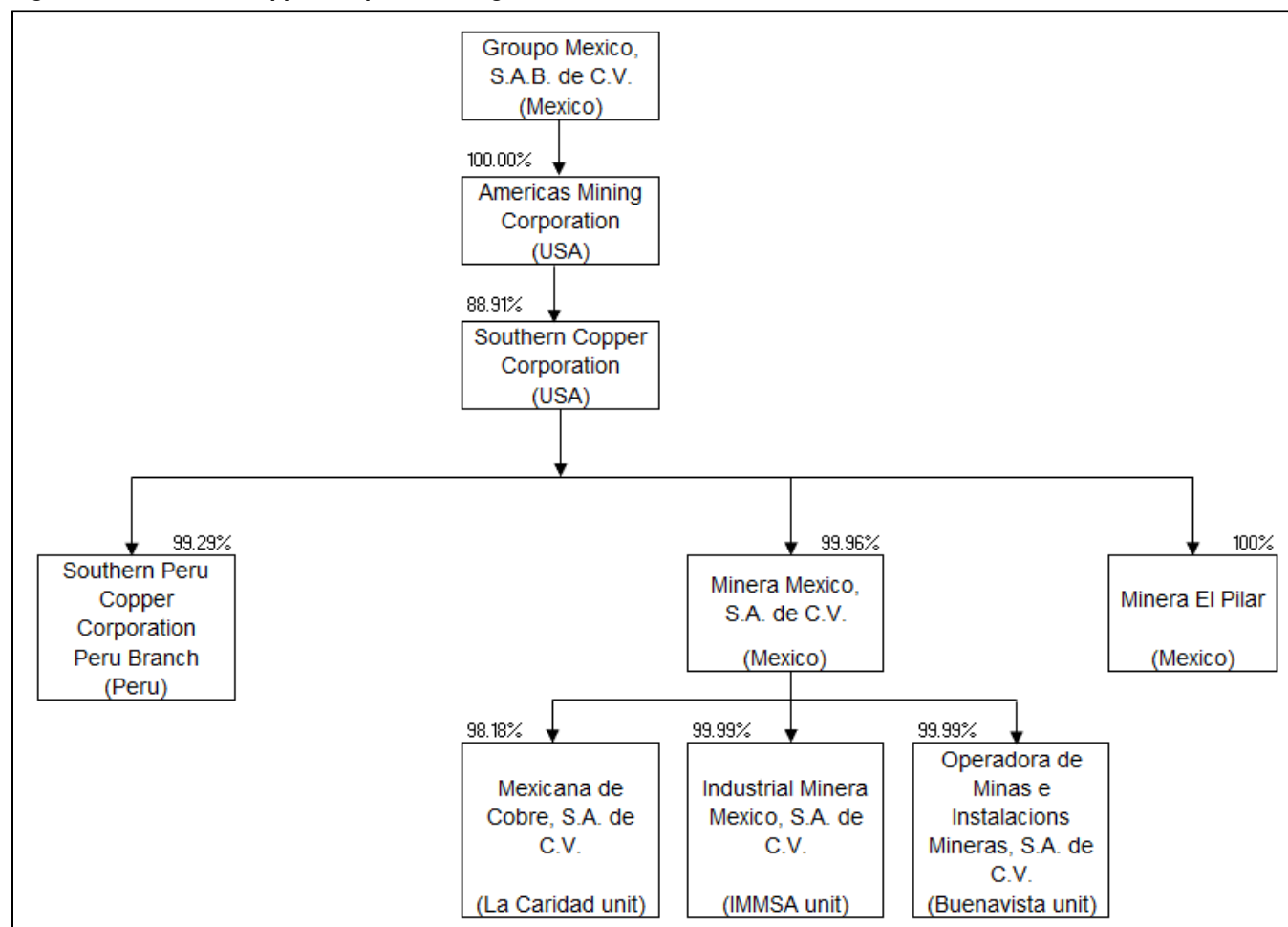
2.0 INTRODUCTION

Southern Copper Corporation (SCC) is an indirect subsidiary of Grupo Mexico S.A.B. de C.V. (Grupo Mexico) which, as of December 31, 2021, owns 88.9% of SCC through its wholly-owned subsidiary Americas Mining Corporation (AMC). SCC's operations in Mexico are conducted through its subsidiary, Minera Mexico, S.A. de C.V. (Minera Mexico), which SCC acquired in 2005 from Americas Mining Corporation. SCC owns 99.6% of Minera Mexico.

Minera Mexico is a holding company and operates through three main subsidiary units namely, Operadora de Minas e Instalaciones Mineras, S.A. de C.V. (the Buenavista unit), Mexicana de Cobre, S.A. de C.V. (the La Caridad unit) and Industrial Minera Mexico, S.A. de C.V. (the IMMSA unit). The corporate organization structure is shown in Figure 2.1. The chart describes the organizational structure and identifies SCC's main subsidiaries and does not include their intermediate holding companies.

The La Caridad unit includes an open-pit copper mine, one copper concentrator, one Solvent Extraction and Electrowinning (SX-EW) plants and a smelter.

Figure 2.1: Southern Copper Corporation Organization Structure



Source: SCC

2.1 Registrant Information

This Technical Report Summary (TRS) for the La Caridad (LC) property located in the north-central part of the State of Sonora, Mexico, was prepared by Golder Associates USA Inc. (Golder), a member of WSP, for SCC. As noted on the Date and Signature Page, several Qualified Persons (QPs) were involved in the technical work summarized in this TRS.

2.2 Terms of Reference and Purpose

The effective date of this TRS report was February 24, 2022, while the effective date of the Mineral Resource and Mineral Reserves estimates was December 31, 2021. It is the Qualified Person's opinion that there are no known material changes impacting the Mineral Resource and Mineral Reserve estimates between December 31, 2021 and February 24, 2022.

This TRS uses US English spelling and a combination of Metric and Imperial units of measure. Ore grades are presented in weight percent (wt.%), while metals quantities are stated in pounds. All other values are presented in Metric units of measure. Costs are presented in Q4 2021 US Dollars.

Except where noted, coordinates in this TRS are presented in metric units using the World Geodetic System (WGS) 1984 Universal Transverse Mercator (UTM) ZONE 12 North (12N).

The purpose of this TRS is to report Mineral Resources and Mineral Reserves for SCC's La Caridad operation.

Key Acronyms and definitions for this Report include those items listed in Table 2.1.

2.3 Sources of Information

All information and data used in the development of this TRS was provided by LC and SCC as well as sourced from publicly available information.

Most of the technical documents related to the tailings storage facilities were received when Golder personnel visited Grupo Mexico's office in Mexico City on October 14, 2021, and October 15, 2021.

A detailed list of cited reports is noted in Section 24.0 of this TRS.

Table 2.1: Key Acronyms and Definitions

Abbreviation/Acronym	Definition
%	percent
°	degrees
12N	Zone 12 North
3D	three-dimensional
A	ampere
A/m ²	amperes per square meter
AA	Atomic Absorption
Actlabs	Activation Laboratory
Ag	silver
AMC	Americas Mining Corporation
amsl	above mean sea level
As	arsenic
Au	gold
Bi	Bismuth
Bm ³	Billion cubic meters
Bt	Billion tonnes
Buena vista unit	Operadora de Minas e Instalaciones Mineras, S.A. de C.V.
BVC	Buenavista Copper
Ca	calcium
CAN	Comision Nacional del Agua or National Water Commission
Cd	cadmium
CD	Contingency Dam or Presa de Contingencia
CDA	Canadian Dam Association
CFE	Comision Federal de Electricidad (federal electricity commission)
cm	centimeter
CNI	Call & Nicholas, Inc.
Co	cobalt
COG	cut-off grade
CONAGUA	Mexican Water Commission
Cr	chromium
CRM	certified reference material
Cu	copper
Cu-Mo	copper-molybdenum
CuO	copper oxide
CuSol	soluble copper
DBA	dam break analysis
DC	Design Criteria
DD	diamond core
DDH	diamond drill hole
DGM	Direccion General de Mina
DSR	Dam Safety Review
EDA	Exploratory Data Analysis
EOR	engineer of record
ETJ	Estudio Técnico Justificativo, or environmental permit application
EW	Electrowinning
Fe	iron
FEL	front-end loader
FOS	Factor of Safety
FS	Feasibility Study
ft	feet

Abbreviation/Acronym	Definition
ft ³	cubic feet
g	gram
Ga	billion years ago
gCu/l	grams of copper per liter
GERD	Servicios y Soluciones de Ingenieria y Logistica
GIL	geological information limit
Golder	Golder Associates USA Inc.
GPM	gallons per minute
GPS	global positioning system
Grupo Mexico	Grupo Mexico S.A.B. de C.V
ha	hectare
HDPE	High-density polyethylene
Hg	mercury
HP	horsepower
ICP-OES	Inductively Coupled Inductively Coupled Plasma-Optical Emission Spectrometry
ID ³	Inverse Distance cubed
IMMSA Unit	Industrial Minera Mexico, S.A. de C.V.
INAH	National Institute of Anthropology and History
INE	National Institute of Ecology
ITRB	Independent Tailings Review Board
K	potassium
kg	kilogram
km	kilometer
km ²	square kilometers
ktpd	thousand tonnes per day
kV	kilovolt
kWh/t	kilowatt hour per metric tonne
L/m	liters per minute
L/m/ha	liters per minute per hectare
L/m/m ²	liters per minute per square meter
La Caridad unit	Mexicana de Cobre, S.A de C.V.
LAU	Licencia Ambiental Única , or environmental license
LC	La Caridad
LME	London Metal Exchange
LOM	life-of-mine
L-SX-EW	Leaching, Solvent Extraction, and Electrowinning
m	meter
m ³	cubic meter
m ³ /day	cubic meters per day
m ³ /h	cubic meters per hour
m ³ /s	cubic meters per second
Ma	million years ago
MCE	maximum credible earthquake
MCSA	Mexicana de Cobre S. A
MD	diamond hammer
Mg	magnesium
MGE	Mexico Generadora de Energia S. de R. L. - a subsidiary of Grupo Mexico
mm	millimeter
Mm ³	Million cubic meters
Mn	manganese
Mo	molybdenum

Abbreviation/Acronym	Definition
Mo or moly	molybdenum
MS	Microsoft
MT	hammer
mtpd	metric tonnes per day
MVA	megavolt-ampere
MW	megawatt
Na	sodium
Na-Cn	sodium cyanide
NE	northeast
Ni	nickel
NN	nearest neighbor
NW	northwest
NW	northwest
OK	Ordinary Kriging
OREAS	ORE Research & Exploration Pty Ltd
OSF	overburden storage facilities
Pb	lead
PEMEX	Petroleos Mexicanos
PFM	potential failure mode
PGA	Peak Ground Acceleration
PLS	pregnant leach solution
ppb	parts per billion
PROFEPA	Prosecutor for the Protection of the Environment
Pt	platinum
QA/QC	quality assurance and quality control
QCg	Polymictic Conglomerate
QP	Qualified Person
RC	reverse circulation
ROM	run-of-mine
RQD	rock quality designation
RTFE	responsible tailings facility engineer
Sb	antimony
SCC	Southern Copper Corporation
SD	standard deviations
Se	selenium
SE	southeast
SG	Specific Gravity
S-K 1300	United States Security and Exchange Commission's regulation Subpart S K 1300
S-N	South-North
SS	stainless steel
SX-EW	Solvent Extraction and Electrowinning
t/m ³	tonnes per cubic meter
TARPS	triggering action response plan(s)
Tcu	Total Cu
TF	Tank farm
tpd	tonnes per day
tpy	tonnes per year
TRS	Technical Report Summary
TSF	tailings storage facility
UCS	Uniaxial Compressive Strength
UTM	Universal Transverse Mercator

Abbreviation/Acronym	Definition
WGS	World Geodetic System
Wi	Bond Work Index
yd3	cubic yard
Zn	zinc

2.4 Personal Inspection Summary

A site visit and inspection of the La Caridad mining operation was completed on August 26 and August 27, 2021, by Golder's QPs responsible for the preparation of this TRS. The Golder QPs present at the site visit included Mr. Ronald Turner, Mr. Danny Tolmer, P.Eng., Ms. Dawn Garcia, CPG, Mr. Jorge Castillo, P.E. and Mr. Eugenio lasillo, P.E.

The Golder team that conducted the site visit was provided with a site safety orientation, introduced to key mine personnel who conducted the guided tours of specific site areas. Golder QPs visited key areas of the open pit, including active mining areas, crusher locations, waste storage facilities, run-of-mine (ROM) and crushed leach pads, process facilities, core shack, dispatch, security gate, administration, historic smelter and other infrastructure. The site visit also included a tour of the No. 7 TSF.

2.4.1 Ronald Turner

The independent QP, as defined in S-K 1300, responsible for the preparation of the Mineral Resources provided in this TRS is Mr. Ronald Turner (MAusIMM), (Senior Resource Geologist). Mr. Turner visited LC on August 27, 2021. During the site visit, Mr. Turner visited and inspected the Pilares site, data capture facilities and the current conditions for sample storage. He inspected representative core of the deposit, sample cutting and logging areas. Mr. Turner also conducted discussions with site personnel regarding the geology and mineralization and reviewed geological interpretations with staff.

2.4.2 Danny Tolmer

The independent QP, as defined in S-K 1300, responsible for the preparation of the Mineral Reserves provided in this TRS is Mr. Danny Tolmer (P.Eng.), (Principal Mining Engineer). Mr. Tolmer visited LC on August 27, 2021. During the site visit, Mr. Tolmer visited and observed the open pit operation, Guadalupe leach pad, and overburden storage facilities. Mr. Tolmer visited various areas of the open pit including Bella Union mining area which was starting to be mined at the time of the visit. Mr. Tolmer also conducted discussions with site personnel responsible for the dispatch, geology, security, and management of the site. Mr. Tolmer also visited the Pilares Project area located approximately 12 Km away from the LC site.

2.4.3 Jorge Castillo

The independent QP, as defined in S-K 1300, responsible for the preparation of the Tailings Section provided in this TRS is Mr. Jorge Castillo P.E., MSc. in geotechnical engineering. Mr. Castillo visited the TSF No. 7 at La Caridad mine on August 27, 2021. During the site visit, Mr. Castillo visited and observed the embankment along the crest and toe, and the north side of the impoundment. Mr. Castillo also conducted discussions with site personnel during the site visit and discussion with the Grupo Mexico tailings manager during the visit of Grupo Mexico's office in Mexico City on October 14, 2021, and October 15, 2021.

2.4.4 Dawn Garcia

The independent QP, as defined in S-K 1300, responsible for the preparation of the summary of the hydrogeologic, environmental, permitting and social aspects provided in this TRS is Ms. Dawn Garcia, CPG, Senior Consultant at Golder. Ms. Garcia visited LC on August 26 and August 27, 2021.

During the site visit, Ms. Garcia met with site personnel and toured the operating mine, including various water management facilities, the TSF No. 7, leaching operations and the leaching operations. Ms. Garcia also held

discussions with the environmental staff to understand the management of mining wastes and environmental monitoring program.

2.4.5 Eugenio lasillo

The independent QP, as defined in S-K 1300, responsible for the preparation of the mineral processing sections provided in this TRS is Mr. Eugenio lasillo PE, Principal, Process Engineering LLC. Mr. lasillo visited La Caridad on August 26 and August 27, 2021.

During the site visit, Mr. lasillo visited and observed the following processing areas: Crushing, Grinding, Flotation, Thickening, and Hydrometallurgy (Leaching and SX-EW).

2.5 Previously Filed Technical Report Summary Reports

This is the first TRS filed for the La Caridad mine site.

3.0 PROPERTY DESCRIPTION

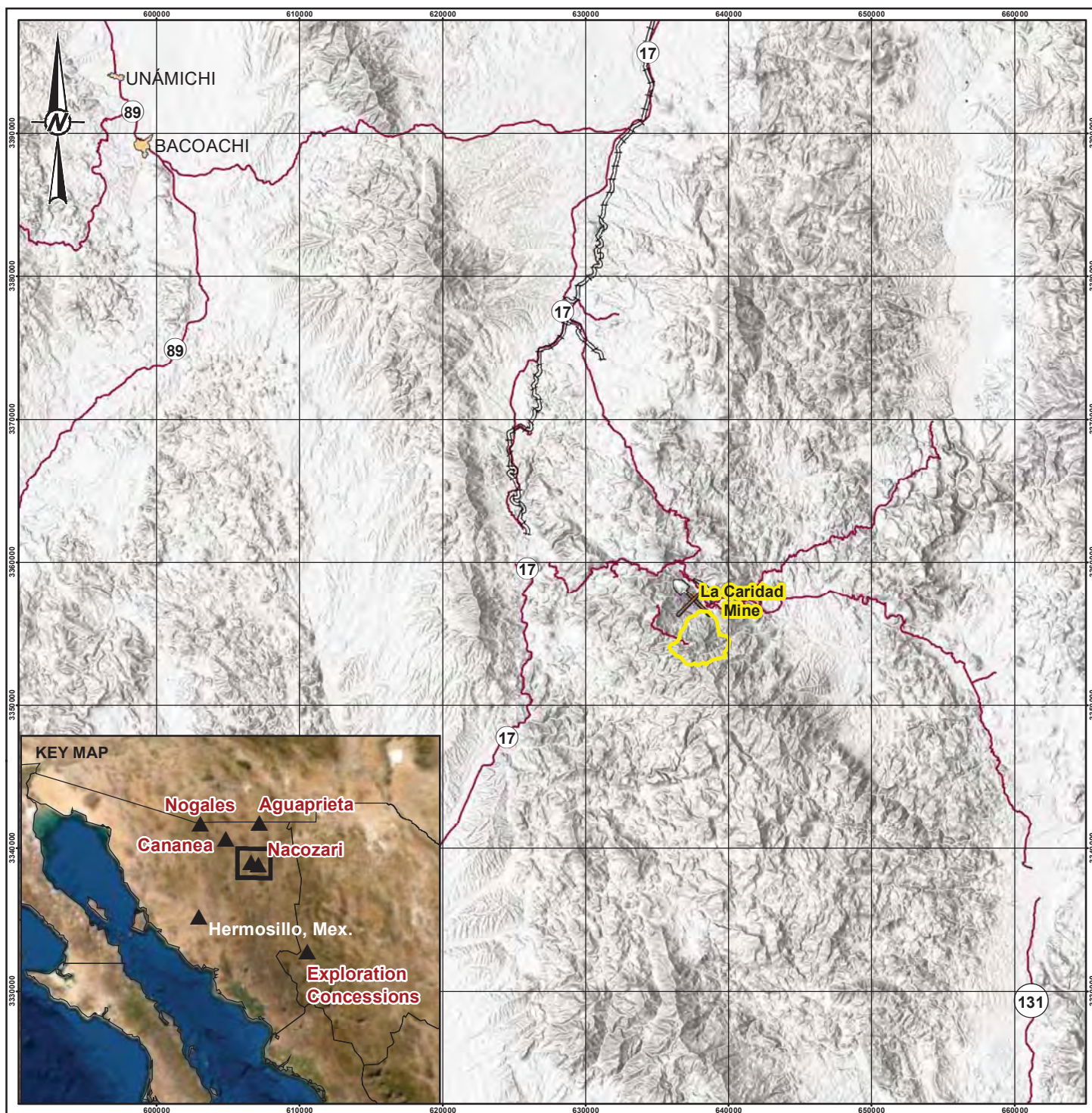
3.1 Property Location

The La Caridad unit is located in northeastern Sonora, Mexico, about 266 km northeast of the city of Hermosillo and 125 km south of the city of Agua Prieta Sonora, Mexico, which is on the international US - Mexico border. La Caridad mining unit is accessed from kilometer (km) 19 of the Nacozari-Agua Prieta highway. The mining unit is within the municipality of Nacozari de García, Sonora, next to the municipality of Villa Hidalgo. It is bordered to the north by the municipalities of Bacoachi, Fronteras and Agua Prieta, to the east by Bavispe, Bacerac and Huachinera; to the south by Bacadéhuachi, Huásabas and Cumpas; and to the west by Arizpe (source: SOJGA and SEGA, 2017). The closest town is Nacozari, which is about 23 km northwest of the mining unit.

The municipality of Nacozari de García is located between 30°17' and 30°20' of north latitude and 109°32' and 109°35' of west longitude with respect to the Greenwich meridian. The average elevation is 1500 m above mean sea level (amsl). The limits of the mining unit using UTM coordinates are listed in Table 3.1.

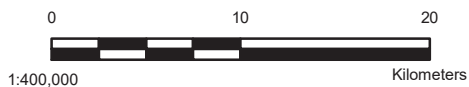
Table 3.1: Project Coordinates

Vertex	UTM Zone 12 WGS 84	
	Easting	Northing
1	629,600.00	3,361,303.35
2	655,325.58	3,361,303.35
3	655,325.58	3,350,065.74
4	629,600.00	3,350,065.74



LEGEND

- La Caridad Mine
- Towns and Cities
- Site Location
- Highway
- Railway



NOTE(S)

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 UTM ZONE 12N
2. IMAGERY SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY
- AIRBUS, USGS, NASA, CGIAR, NCEAS, NLS, OS, NMA, GEODATASTYRELSEN, GSA, GSI AND THE GIS USER COMMUNITY

CLIENT



PROJECT

LA CARIDAD MINE

TITLE

PROPERTY LOCATION MAP

CONSULTANT



YYYY-MM-DD 2022-02-22

DESIGNED JW

PREPARED JAM

REVIEWED SP

APPROVED MO

PROJECT NO.
20442424

CONTROL
-

REV.
-

FIGURE
3.1

The La Caridad mining unit includes an open-pit copper mine, a copper ore concentrator, a SX-EW plant, a smelter, refinery, lime plant, two sulfuric acid plants and a rod plant, as shown in Figure 3.2. The La Caridad refinery has a precious metals plant that produces refined silver, gold, and other materials. The smelting, refining plants and support facilities service both the La Caridad and Buenavista mining units, which are both located in northern Sonora, Mexico.

Bella Union is a prospect area that is part of the La Caridad mining unit and Pilares is a mineral development area within the La Caridad mining unit.

3.2 Mineral Rights

Mining and exploration rights in Mexico are controlled by the federal government. Prior to 2006, exploration and mining rights were assigned to third parties by the granting of “exploration” and “exploitation” concessions, each with differing validity periods and tax and assessment obligations. Mining law reform in December 2005 simplified the concession regime, and all new concessions are “mining concessions,” which are valid for a 50-year period and are renewable. Upon enactment of the mining law reform, all previously issued “exploration” and “exploitation” concessions automatically converted to “mining concessions” with the effect date of title the same as that of the previously titled “exploration” or “exploitation” concession. The mining concessions are administered by the Direccion General de Mina (DGM), a sub-secretariat of the cabinet-level Secretary of Economy.

The concession holder is required, among other things, to explore or exploit the relevant concession, to pay any relevant fees, to comply with all environmental and safety standards, to provide information to the Ministry of Economy and to allow inspections by the Ministry of Economy.

To maintain concessions in good legal standing, concession holders are obligated to pay semi-annual tax payments and to annually file documentation of exploration or development work at the concession.

The mining claims held by the La Caridad unit cover an area of about 103,821 ha for exploration and exploitation activities. The claim names, identification numbers are listed in Table 3.2 and the claim locations are shown on Figure 3.2.

All of the concessions are in full force and in effect under applicable Mexican laws and the company is in compliance with all material terms and requirements applicable to these concessions. The concessions are valid for a term of 50 years from the date the concessions were granted. The concession can be renewed for an additional 50 years.

Table 3.2: Mineral Concessions

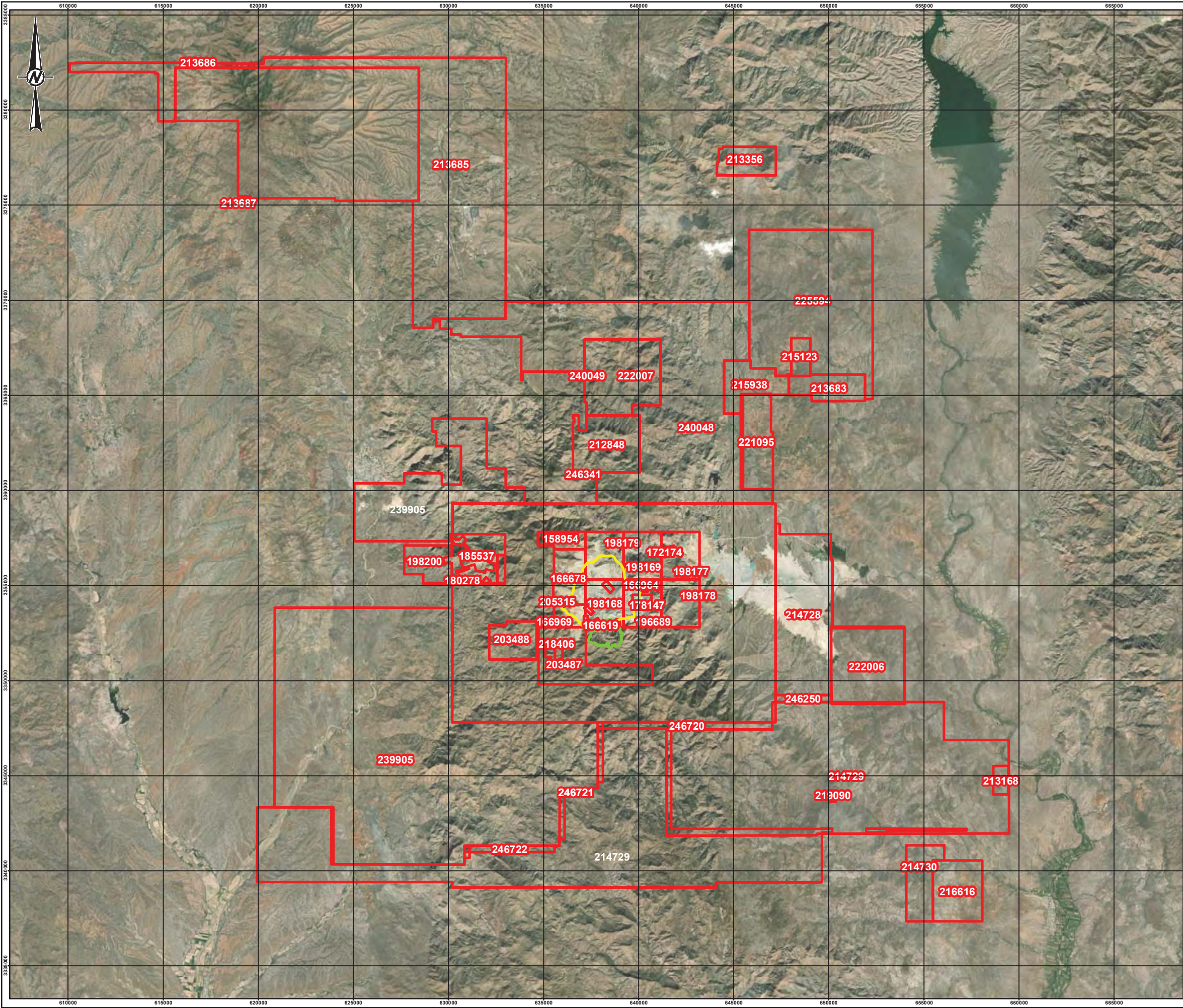
Concession Number	Concession Name	Municipality	Province	Date Granted	Expiry Date	Area (ha)
158954	El Hueco	Nacozari De Garcia	Sonora	14-08-1973	13-08-2023	208
165538	El Sarape	Nacozari De Garcia	Sonora	30-10-1979	30-10-2029	9
166619	San Carlos	Nacozari De Garcia Y Villa Hidalgo	Sonora	27-06-1980	26-06-2030	12
166678	Santa Monica	Nacozari De Garcia	Sonora	11-07-1980	10-07-2030	445
166963	Molibdeno No. 2	Villa Hidalgo	Sonora	02-08-1980	01-08-2030	2
166964	El Canutillo	Nacozari De Garcia	Sonora	02-08-1980	01-08-2030	9
166965	San Idelfonso	Villa Hidalgo	Sonora	02-08-1980	01-08-2030	10
166966	Guadalupe	Nacozari De Garcia	Sonora	02-08-1980	01-08-2030	10
166967	Virginia	Nacozari De Garcia	Sonora	02-08-1980	01-08-2030	10
166969	Continuacion Sur De Santa Monica	Nacozari De Garcia	Sonora	02-08-1980	01-08-2030	195
169378	La Caridad	Villa Hidalgo	Sonora	12-11-1981	11-11-2031	20
170533	Libertad	Nacozari De Garcia	Sonora	13-05-1982	12-05-2032	10
172174	El Alacran	Villa Hidalgo	Sonora	26-09-1983	25-09-2033	10
178147	Molibdeno	Villa Hidalgo	Sonora	11-07-1986	10-07-2036	80
180278	El Patriarca No. 1	Nacozari De Garcia	Sonora	24-03-1987	23-03-2037	60
180279	El Patriarca No. 2	Nacozari De Garcia	Sonora	24-03-1987	23-03-2037	60
185537	Unificacion El Patriarca	Nacozari De Garcia	Sonora	14-12-1989	13-12-2039	460
186727	Juan	Villa Hidalgo	Sonora	15-05-1990	14-05-2040	9
196689	La Caridad No. 6	Nacozari De Garcia	Sonora	02-08-1993	07-01-2029	391
198168	La Caridad No. 1	Nacozari De Garcia Y Villa Hidalgo	Sonora	05-11-1993	07-01-2029	455
198169	La Caridad No. 3	Nacozari De Garcia Y Villa Hidalgo	Sonora	05-11-1993	07-01-2029	499
198175	Laura	Nacozari De Garcia	Sonora	05-11-1993	18-12-2041	62
198177	La Caridad No. 4	Villa Hidalgo	Sonora	05-11-1993	07-01-2029	470
198178	La Caridad No. 5	Villa Hidalgo	Sonora	05-11-1993	07-01-2029	500
198179	La Caridad No. 2	Nacozari De Garcia	Sonora	05-11-1993	07-01-2029	500
198200	Pilares Oeste	Nacozari De Garcia	Sonora	05-11-1993	18-12-2041	436
201542	Santa Rosa	Nacozari De Garcia Y Villa Hidalgo	Sonora	10-10-1995	01-08-2030	18
203486	Santo Domingo	Nacozari De Garcia	Sonora	08-08-1996	08-08-2046	34
203487	Nuevo Santo Domingo	Nacozari De Garcia	Sonora	08-08-1996	08-08-2046	1,004
203488	Nuevo Saucito	Nacozari De Garcia	Sonora	08-08-1996	08-08-2046	482
205315	Ampliacion La Caridad	Nacozari De Garcia, villa Hidalgo Y Cumpas	Sonora	07-08-1997	07-08-2047	13,353
211525	Bella Esperanza	Nacozari De Garcia Y Cumpas	Sonora	30-05-2000	30-05-2050	16,145
212848	Los Jucaros 2	Nacozari De Garcia	Sonora	30-01-2001	30-01-2051	1,017
213168	La Villa 2	Saric	Sonora	29-03-2001	29-03-2051	120
213356	El Bellotal	Nacozari De Garcia	Sonora	26-04-2001	26-04-2051	455
213683	Diana	Villa Hidalgo	Sonora	07-06-2001	07-06-2051	513
213685	Purica Fracc. 1	Nacozari De Garcia	Sonora	07-06-2001	07-06-2051	7,504
213686	Purica Fracc. 2	Nacozari De Garcia	Sonora	07-06-2001	07-06-2051	30
213687	Purica Fracc. 3	Nacozari De Garcia	Sonora	07-06-2001	07-09-2051	1
214728	Poche	Villa Hidalgo	Sonora	21-11-2001	21-11-2051	2,503
214729	La Villa 3 Fracc. I	Villa Hidalgo	Sonora	21-11-2001	21-11-2051	9,856
214730	La Villa 3 Fracc. II	Villa Hidalgo	Sonora	21-11-2001	21-11-2051	63
215123	Diana 2	Nacozari De Garcia	Sonora	07-02-2002	07-02-2052	200
215938	Delia	Villa Hidalgo	Sonora	01-04-2002	01-04-2052	604
216616	La Villa 4	Villa Hidalgo	Sonora	16-05-2002	16-05-2052	832
218406	Petra	Nacozari De Garcia	Sonora	04-11-2002	04-11-2052	7
219090	San Francisco	Villa Hidalgo	Sonora	03-02-2003	03-02-2053	18
221095	Los Amoles	Villa Hidalgo	Sonora	18-11-2003	18-11-2053	830

Table 3.2: Mineral Concessions (cont.)

Concession Number	Concession Name	Municipality	Province	Date Granted	Expiry Date	Area (ha)
222006	La Presa 7	Villa Hidalgo	Sonora	26-04-2004	26-04-2054	1,537
222007	Los Jucaros	Nacozari De Garcia	Sonora	02-04-2004	26-04-2054	1,368
225592	La Villa Fraccion I	Villa Hidalgo	Sonora	22-09-2005	22-09-2055	10,890
225593	La Villa Fracc. li	Villa Hidalgo	Sonora	22-09-2005	22-09-2055	608
225594	El Nogal	Nacozari De Garcia Y Villa Hidalgo	Sonora	22-09-2005	22-09-2055	4,674
225808	Purica Fracc. 1	Nacozari De Garcia	Sonora	25-10-2005	25-10-2055	7,601
239905	El Represo	Nacozari De Garcia	Sonora	15-03-2012	14-03-2062	2,786
240048	La Caridad-8 Fraccion 1	Nacozari De Garcia Y Villa Hidalgo	Sonora	12-04-2012	12-04-2062	7,970
240049	La Caridad-8 Fraccion 2	Nacozari De Garcia Y Villa Hidalgo	Sonora	12-04-2012	12-04-2062	12
246250	Villa Esperanza F1	Villa Hidalgo	Sonora	05-04-2018	05-04-2068	108
246341	Calerita 4 Fraccion 3	Nacozari De Garcia	Sonora	17-05-2018	17-05-2068	9
246486	La Presa 3	Villa Hidalgo	Sonora	02-08-2018	02-08-2068	457
246720	Villa Esperanza F2	Villa Hidalgo Y Nacozari De Garcia	Sonora	30-10-2018	30-10-2068	325
246721	Villa Esperanza F3	Villa Hidalgo Y Cumpas	Sonora	30-10-2018	30-10-2068	60
246722	Villa Esperanza F4	Villa Hidalgo Y Cumpas	Sonora	30-10-2018	30-10-2068	163
63	Subtotal Mine Concessions					99,089
170558	Promontorio	Divisaderos	Sonora	13-05-1982	12-05-2032	12
216048	La Mina	Sahuaripa	Sonora	01-04-2002	01-04-2052	2,499
216557	Palma	Sahuaripa	Sonora	16-05-2002	16-05-2052	120
234696	La Manteca Reduccion li	Caborca	Sonora	28-07-2009	28-09-2050	2,100
4	Subtotal Exploration Concessions					4,731
67	Grand Total					103,821

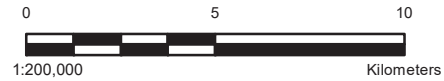
Note: Exploration concessions are not shown on Figure 3.2.

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LEGEND

- La Caridad Mine Bella
- Union Boundary
- Concession Boundary



NOTE(S)

REFERENCE(S)

- COORDINATE SYSTEM: WGS 1984 UTM ZONE 12N
- IMAGERY SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRI, IGN, AND THE GIS USER COMMUNITY

CLIENT



PROJECT

LA CARIDAD MINE

TITLE

MINERAL CONCESSION MAP

CONSULTANT



YYYY-MM-DD	2022-02-22
DESIGNED	JS
PREPARED	JAM
REVIEWED	JS
APPROVED	MO

PROJECT NO.
20442424

CONTROL
-

REV.
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FIGURE
3.2

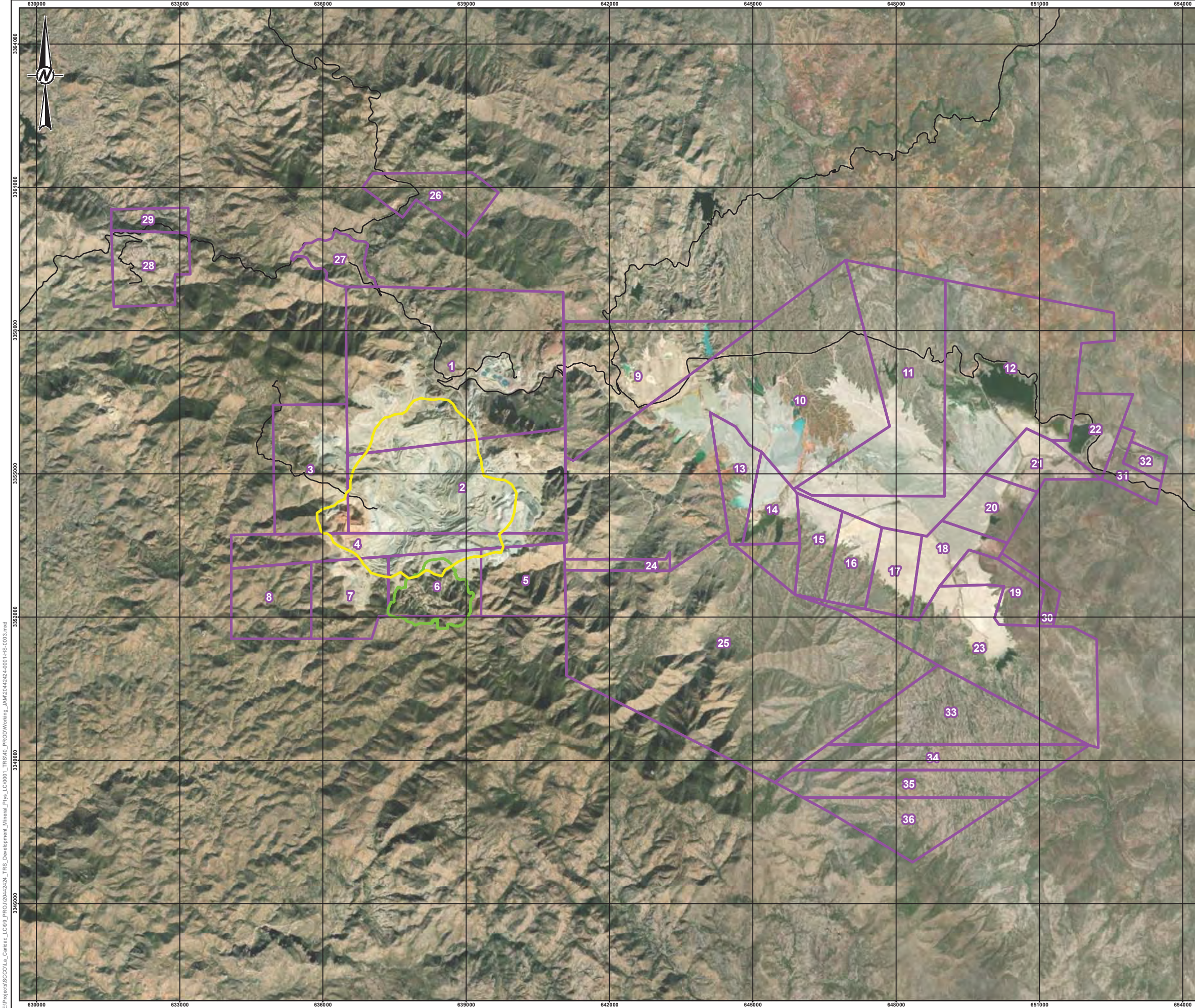
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3.3 Description of Property Rights

Surface rights are held by a combination of private ownership and agreements with local ejidos. Ejidos are agrarian land grants held by a group of people. The agreements allow for exploration and mining activities. The property lots are identified by name and document in Table 3.3. The majority of the property is under ownership of the mining unit. The locations of the lots are shown in Figure 3.3. There are three lots that have private ownership. The mining unit has had an agreement for access and use of the three lots. The agreements can be extended for 30 years beyond the original agreement. The original agreements were dated January 5, 2017, and should have been renewed by January 5, 2020; however due to the COVID pandemic, the extensions have been delayed. The formal renewals are pending, and in the meanwhile the mining unit still has access to the properties.

Table 3.3: Property Ownership

Polygon Number	Lot Name	Owner	Document Number	Surface Area (Ha)
1	Fraccion "B" Mina Concentradora	Mexicana de Cobre S.A. de C.V.	27,602	1,372
2	Fraccion "A" Mina Y Planta Esde	Mexicana de Cobre S.A. de C.V.	428	789
3	Pilares Mina	Mexicana de Cobre S.A. de C.V.	27,602	417
4	Fraccion J	Mexicana de Cobre S.A. de C.V.	19,283	120
5	Parcela N° 1, Santo Domingo	Mexicana de Cobre S.A. de C.V.	147	259
6	Parcela N° 2, Santo Domingo	Mexicana de Cobre S.A. de C.V.	145	257
7	Parcela N° 3, Santo Domingo	Mexicana de Cobre S.A. de C.V.	148	257
8	Parcela N° 4, Santo Domingo	Mexicana de Cobre S.A. de C.V.	146	257
9	Fraccion "A" Los Alisos	Mexicana de Cobre S.A. de C.V.	19,280	626
10	Fraccion "F" San Rafael Juriquipa	Mexicana de Cobre S.A. de C.V.	1134, 1589	1,967
11	Fraccion "L" San Rafael Juriquipa	Mexicana de Cobre S.A. de C.V.	19,290	830
12	Fraccion "M" San Rafael Juriquipa	Mexicana de Cobre S.A. de C.V.	2318	1,390
13	Presa De Jales Cruz De Cañada Parcela 2 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,337	159
14	Presa De Jales Cruz De Cañada Parcela 4 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,415	153
15	Presa De Jales Cruz De Cañada Parcela 6 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,334	153
16	Presa De Jales Cruz De Cañada Parcela 7 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,335	160
17	Presa De Jales Cruz De Cañada Parcela 9 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,332	159
18	Presa De Jales Cruz De Cañada Parcela 8 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,333	159
19	Presa De Jales Cruz De Cañada Parcela 10 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2414	157
20	Presa De Jales Cruz De Cañada Parcela 5 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,336	158
21	Presa De Jales Cruz De Cañada Parcela 3 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,413	154
22	Presa De Jales Cruz De Cañada Parcela 1 Z 1 P 1	Mexicana de Cobre S.A. de C.V.	2,609	158
23	Fraccion "N" San Rafael Juriquipa	Mexicana de Cobre S.A. de C.V.	2318	921
24	Fraccion "K"	Mexicana de Cobre S.A. de C.V.	941	52
25	El Cachuly (El Nogalito)	Mexicana de Cobre S.A. de C.V.	4112, 8161	2,296
26	Colonia El Globo	Mexicana de Cobre S.A. de C.V.	27,602	216
27	Colonia El Abanico	Mexicana de Cobre S.A. de C.V.	27,602	109
28	Colonia Satelite	Mexicana de Cobre S.A. de C.V.	27,602	208
29	Fraccion "G" Colonia La Caridad	Mexicana de Cobre S.A. de C.V.	19,281	67
30	Parcela 13, Cruz De Cañada (1)	Mexicana de Cobre S.A. de C.V.	Temporary Occupation Agreement	45
31	Parcela 11, Cruz De Cañada (2)	Mexicana de Cobre S.A. de C.V.	Temporary Occupation Agreement	80
32	Parcela 12, Cruz De Cañada (3)	Mexicana de Cobre S.A. de C.V.	Temporary Occupation Agreement	43
33	Poligono 1 Subd. Cruz De Cañada	Mexicana de Cobre S.A. de C.V.	1,990	451
34	Poligono 2 Subd. Cruz De Cañada	Mexicana de Cobre S.A. de C.V.	2,348	293
35	Poligono 3 Subd. Cruz De Cañada	Mexicana de Cobre S.A. de C.V.	2494	293
36	Poligono 4 Subd. Cruz De Cañada	Mexicana de Cobre S.A. de C.V.	2735	293
			Total	15,482



LEGEND

- La Caridad Mine
- Bella Union Boundary
- Parcels
- Highways

NOTE(S)

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 UTM ZONE 12N
2. IMAGERY SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY

CLIENT

PROJECT

LA CARIDAD MINE

TITLE

PROPERTY OWNERSHIP MAP

 MEMBER OF WSP	CONSULTANT	YYYY-MM-DD	2022-02-22
	DESIGNED	JS	
	PREPARED	JAM	
	REVIEWED	JS	
	APPROVED	MO	

PROJECT NO.	CONTROL	REV.	FIGURE
20442424	-	-	3.3

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3.3.1 Royalty Payments to Property Owners

There are no royalties associated with the three parcels that are leased. All other parcels are owned by Southern Copper Corporation

3.4 Royalty Payments

In December 2013, the Mexican government enacted a law that, among other things, established a mining royalty charge of 7.5% on earnings before taxes as defined by Mexican tax regulations and an additional royalty charge of 0.5% over gross income from sales of gold, silver, and platinum. These charges were effective January 2014 and are deductible for income tax purposes.

3.5 Significant Encumbrances to the Property

No significant encumbrances to the property have been noted as per information from SCC.

3.6 Other Significant Factors and Risks Affecting Access

No additional significant factors or risks affecting site access have been identified.

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Topography and Land Description

The Regional Environmental System is located within the Sierra Madre Occidental Physiographic Province in its northern portion and within this, it is within the Sierras y Valles del Norte subprovince, which is mainly formed by high mountain ranges between which wide valleys are located. parallel with preferential north-south orientation.

The geologic subprovince was originally a large plateau, but millions of years of erosion created a landscape of peaks, plateaus, large canyons, and ravines. It extends to near the western coast of Mexico in a northwest-southwest direction, beginning 50 km south of the international border with the United States of America and ending at the Santiago River in Nayarit and the Neovolcanic Axis. In its northern portion it is more separated from the coast (30 km). In its southern extent it reduces its width and is closer to the sea. The average elevation is 2,250 m. To the east it forms a barrier to the Mesa del Centro.

The La Caridad mining unit has steep topography and significant elevation changes.

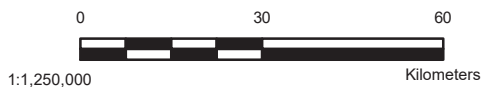
4.2 Access to the Property

Nacozari is connected by paved highway with Hermosillo and Agua Prieta and by rail with the international port of Guaymas, and the Mexican and United States rail systems. An airstrip with a reported runway length of 2,500 m is located 36 km north of Nacozari, less than 1 km from the La Caridad copper smelter and refinery. The smelter and the sulfuric acid plants, as well as the refineries and rod plant, are located approximately 24 km from the mine. Access is by paved highway and by railroad. The property layout and access are shown in Figure 4.1.



LEGEND

- La Caridad Boundary
- La Caridad Mine
- Towns and Cities
- ▴ Cultural Areas
- Highway
- = Railway



NOTE(S)

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 UTM ZONE 12N
2. IMAGERY SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AERGRID, IGN, AND THE GIS USER COMMUNITY

CLIENT



PROJECT

LA CARIDAD MINE

TITLE

SITE ACCESS MAP

CONSULTANT



YYYY-MM-DD 2022-02-22

DESIGNED JW

PREPARED JAM

REVIEWED JS

APPROVED MO

PROJECT NO.

20442424

CONTROL

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REV.

-

FIGURE

4.1

4.3 Climate Description

Climate data was obtained from the National Meteorological Service, which is administered by the National Water Commission (CNA) (SEGA, 2017). The climate in the region varies between three types of climates, namely, BS1k (x'), BS1h (x') and BSoh (x'), as described in Table 4.1.

Table 4.1: Project Area Climate Types

Climate Type	Code	Surface Area (ha)	Total Area (%)
Semi-arid, Semi-warm	BS1h(x')	18,519.48	48.38
Semi-arid, Temperate	BS1k(x')	14,362.27	37.52
Arid, Semi-warm	BSoh(x')	5,397.89	14.1
Total		38,279.64	100

The mining complex activities are carried out 365 days a year, including holidays or non-working days.

4.4 Availability of Required Infrastructure

The principal raw materials used in the operations are fuel, gas, electricity, and water. Natural gas is used to power boilers as well as generators and for metallurgical processes. Diesel fuel is used to power mining equipment.

The La Caridad complex imports natural gas from the United States through its pipeline (between Douglas, Arizona and Nacozari, Sonora). Several contracts are in place with Petroleos Mexicanos ("PEMEX"), the state producer, and the United States and provides options for natural gas purchases.

The electrical power is supplied to site from the utility grid via 230 kV overhead transmission lines. The bulk of the demand is supplied by Mexico Generadora de Energia S. de R. L. (MGE), a subsidiary of Grupo Mexico. MGE owns and operates three gas-fired combined-cycle generation plants with a total combined capacity of about 500 megawatts (MW), primarily supplying power to Southern Copper's La Caridad and Buenavista operations.

The primary fresh water source is the La Angostura Dam located approximately 29 km to the northeast of the La Caridad Mine.

The primary smelter and the sulfuric acid plants, as well as the refineries and rod plant, are located approximately 24 km from the mine. Access is by paved highway and by railroad.

5.0 HISTORY

5.1 Mining History of the Area

Mining operations at La Caridad can be traced to the early 1900s with the concurrent development of similar copper mining operations in the region. In 1895 the Moctezuma Copper Co. built a beneficiation plant and smelter to process ore from Pilaes. The area around Nacozari reportedly became a major center of Sonoran mining operations for Phelps Dodge with operations reportedly reaching full capacity in 1905. Two smelters were built at starting in 1901 at Douglas to serve several mines owned by Phelps Dodge including its operations at Nacozari. After intermittent disruptions in the 1920s and 1930s, Phelps Dodge reportedly shut down operations in 1949.

In 1962, a preliminary exploration program sponsored in part by the United Nations discovered the La Caridad copper-molybdenum porphyry deposit. An extensive study was conducted in 1968 by the Board of Non-renewable Natural Resources, an agency of the Mexican government and Mexicana de Cobres, S.A., a company formed by ASARCO Mexicana to develop the project.

The current concentrator at La Caridad began operations in 1979; the molybdenum plant was added in 1982 and the smelter in 1986; the first sulfuric acid plant was added in 1988 and the SX-EW plant in 1995; the second sulfuric acid plant was added in 1997 and the copper refinery in 1997; the rod plant was added in 1998 and the precious metals refinery in 1999.

5.2 Drilling Exploration History

Exploration drilling has been undertaken almost yearly at La Caridad since 1968. A total of 3,529 exploration drill holes, totaling 694,455 m, have been drilled on the La Caridad property. Several different drilling techniques have been implemented at La Caridad, including diamond core (DD), reverse circulation (RC), hammer (MT) and diamond hammer (MD) drilling. Table 5.1 summarizes the various types of drilling conducted at La Caridad.

Table 5.1: Summary of Exploration Drilling

Drill Type	No. of Drill Holes	Total Meterage
DD	1,167	353,924
RC	2,034	317,817
MD	201	15,796
MT	127	6,919
Total	3,529	694,455

5.3 Historical Production

The last three years of production and the 2020 ore reserves as published by SCC in its 2020 Annual Report is shown in Table 5.2.

Table 5.2: Production Statistics for La Caridad (2018 through 2020)

Item	Unit	Year		
		2020	2019	2018
Mine annual operating days		366	365	365
<u>Mine</u>				
Total ore mined	(kt)	34,949	34,401	34,675
Copper grade	(%)	0.361	0.356	0.353
Leach material mined	(kt)	29,561	28,457	30,764
Leach material grade	(%)	0.220	0.224	0.221
Stripping ratio	(kt/kt)	0.45	0.50	0.48
Total material mined	(kt)	93,373	94,578	96,541
<u>Concentrator</u>				
Total material milled	(kt)	34,858	34,648	34,548
Copper recovery	(%)	87.14	86.80	87.09
Copper concentrate	(kt)	473	446	446
Copper in concentrate	(kt)	110	107	106
Copper concentrate average grade	(%)	23.18	24.01	23.78
<u>SX-EW Plant</u>				
Estimated leach recovery	(%)	38.04	38.06	37.99
SX EW cathode production	(kt)	25.85	25.93	26.41
<u>Molybdenum</u>				
Molybdenum grade	(%)	0.036	0.036	0.034
Molybdenum recovery	(%)	82.82	82.17	83.28
Molybdenum concentrate	(kt)	19.30	18.80	18.00
Molybdenum concentrate average grade	(%)	54.48	54.26	54.61
Molybdenum in concentrate	(kt)	10.50	10.20	9.80

Notes:

Key: kt = thousand tonnes.

kt/kt = Stripping ratio obtained dividing waste by leachable material plus ore mined.

The copper and molybdenum grade are total grade.

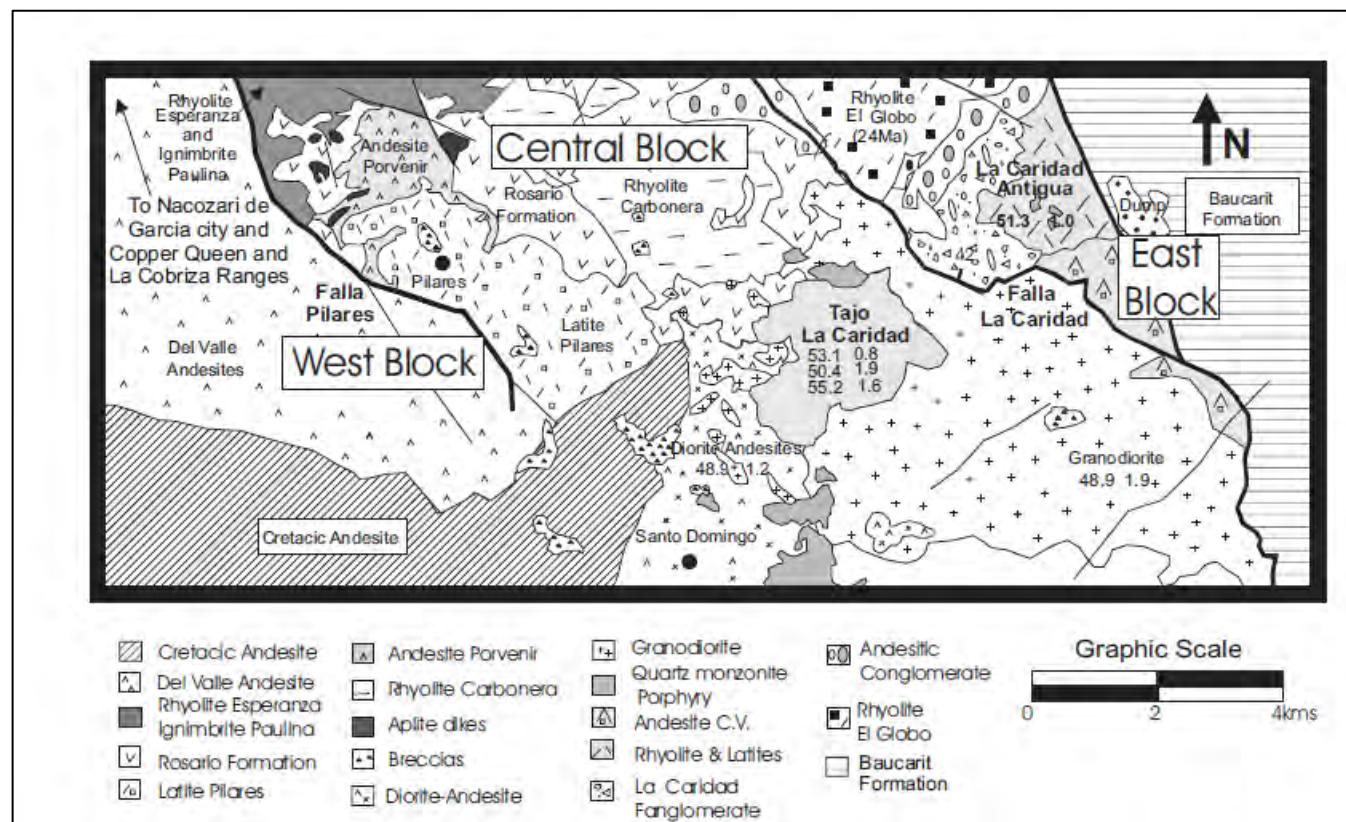
6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

La Caridad is a porphyry Cu deposit, that is currently the largest Cu producer in Mexico and the youngest dated porphyry system in the American Southwest region. Located within the North America Terrane (Campa and Coney, 1983) which is dominated by north trending mountain ranges consisting of strongly deformed greenschist-grade volcanic and sedimentary rocks that are intruded by granites emplaced at 1.4 and 1.1 billion years ago (Ga) (Anderson and Schmidt, 1983). Above the sequence Late Proterozoic and Paleozoic rocks are overlain by volcanic and plutonic rocks of Mesozoic and Cenozoic age. Middle Jurassic rocks characterized by volcanic and volcano-sedimentary sequences, with occasional granite intrusions, outcrop in the northern and northeastern portion of Sonora (Anderson and Silver, 1978; Pérez-Segura and Echávarri, 1981; Stewart, 1988; Nourse, 2001). In the La Caridad district, these rocks outcrop in the Sierra Cobriza area, west of the town of Nacozari.

After a period of magmatic quiescence during the Middle and Late Eocene (González-León et al., 2000), igneous activity reemerged at the beginning of the Oligocene with the great ignimbritic explosion of the Sierra Madre Occidental (McDowell and Clabaugh, 1979), the outcrops of which form one of the largest silicic volcanic provinces on Earth (Ferrari et al., 2005). Subsequently, in the Miocene, the progressive approach of the Pacific ridge to the trench, shifted the convergence margin of the trench, changing it to a transforming boundary (Atwater, 1970; Ferrari et al., 2005) and giving rise to an extensional regime (Rehrig, 1986; Nourse et al., 1994; Parsons, 1995). In the north-central region of Sonora, the extension reached extreme conditions, causing rocks of the middle crust to be rapidly exhumed, forming metamorphic core complexes. These complexes are well exposed in a belt located to the west of the mineralized zone of La Caridad, and whose orientation is generally similar to the porphyry Cu belt (e.g., Davies, 1979; Nourse et al., 1994). Extensive deformation continued through much of the Cenozoic, with development of the block faulting system along the southern portion of the Basin and Range province.

The Nacozari mining district lies in the northwestern portion of the Sierra Madre Occidental physiographic province and is cut by two regional structures that divided the district in three blocks. La Caridad and Pilares mines are located in the central block (Figure 6.1).

Figure 6.1: Simplified Regional Geologic Map of the Nacozari Mining District

Source: Valencia, et al, 2003

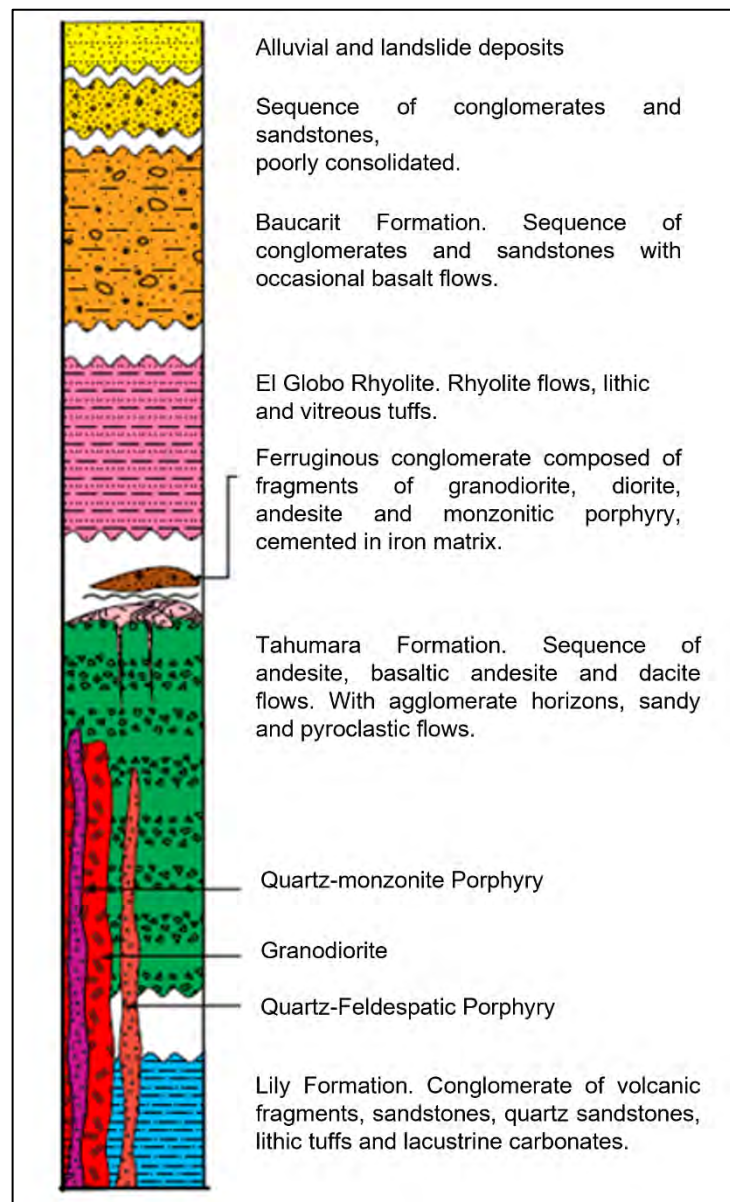
The West block is dominated by a sequence of dacitic to andesitic flows, volcanic breccias and basaltic dykes. The Central Block is dominated by pseudo-stratigraphic ignimbrites, andesitic, rhyolitic and latitic flows. Reyna and Mayboca (1986) proposed a stratigraphic column of the following informal units, from older to younger include; 1), Esperanza rhyolitic ignimbrite; 2), Lithic ignimbrite Paulina; 3), Rosario andesite; and 4), Pilares latite. These rocks are intruded by diorite, granodiorite and quartz monzonite porphyry in the La Caridad mine area. The East Block is characterized by pre-mineral and post-mineral rocks separated by an erosional unconformity. The pre-mineral rocks are andesites and rhyolitic ignimbrites which are intruded by a quartz monzonite porphyry (mineral phase). These rocks are overlain by a ferruginous fanglomerate that represents the first phase of post-mineral rocks. In the northern area the fanglomerate is covered by El Globo rhyolite (24 million years ago [Ma], Livingston, 1973).

6.2 Local and Property Geology

The main mineralization at La Caridad occurs in the Quartz-monzonite porphyry and hydrothermal breccias. The host rocks at La Caridad are andesites, with the oldest rocks corresponding to the Laramide volcanic rocks, which are regionally correlated with the Tarahumara Formation (Figure 6.2). These consist of lavas and tuffs of intermediate composition with aphanitic to porphyritic texture, including agglomeratic horizons and brecciated pyroclastic flows and fine-grained tuff. Locally, this andesitic volcanic sequence was intruded by a granodiorite which is well exposed to the east-southeast of the La Caridad mine, which are in turn intruded by diorite dikes that range from fine to coarse grain. Discordantly overlying this igneous complex is a sequence of rhyolitic flows, dated

by K-Ar at 51.3 ± 1.0 Ma (Livingston, 1973). This unit is well exposed to the east of the La Caridad mine, in the La Caridad Vieja area, where these rocks show structures in the form of domes and volcanic necks (Figure 6.3).

Figure 6.2: Stratigraphic Column Showing the Lithologic Units that Outcrop in the La Caridad District



Source: Rascón et al, 2012

Other rocks present at La Caridad include ae diorite porphyry, which has a hypidiomorphic-granular texture and is composed of 40% to 60% of euhedral plagioclase phenocrysts (anortite 40% -45), clots of biotite (20% to 30%), quartz (15% to 20%) and K-feldspar (2% to 3%). Locally, close to the contact between andesites and biotite bearing diorite, irregular bodies of magmatic breccias composed of diorite matrix and subangular fragments of andesite (up to tens of centimeters [cm]) are observed. These are located in the southwest and west zone of the La Caridad deposit. A granodiorite body is emplaced in the east part of the deposit and is bounded to the east by the La Caridad

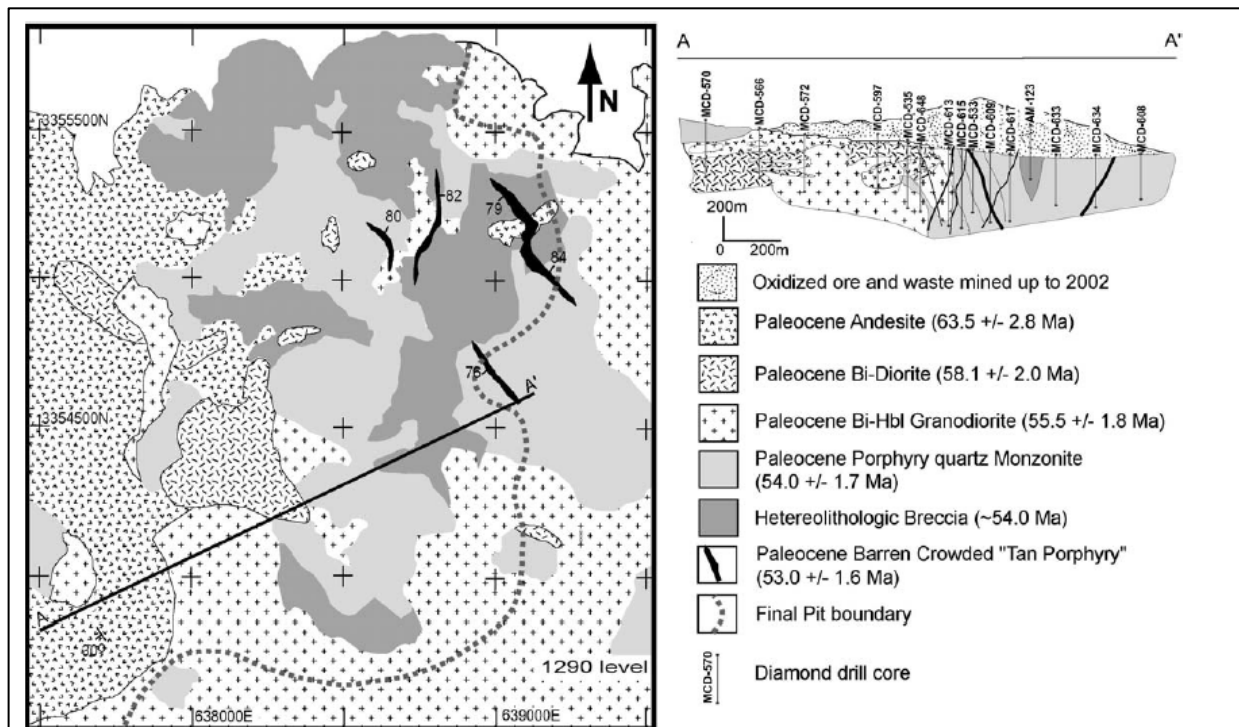
Fault. Irregular bodies of Quartz-monzonite porphyry appear at the contact between the granodiorite stock and the andesite flows

Large bodies of quartz-cemented hydrothermal breccia are located around and within the Quartz-monzonite porphyry, which usually consist of large blocks, tightly fitted against one another, so that the main evidence for brecciation is the occurrence of small 2-cm to 10-cm angular cavities. Its distribution indicates two dominant structural directions, a north-west trend associated with the central mass of the quartz-monzonite porphyry, and a subordinate north-east trend through the center of the ore deposit.

Irregular bodies of interlocking biotite with massive quartz, minor K-feldspar and molybdenite occur at the center and edges of the deposit. These bodies have been termed “pegmatites” in the past; however, their location mainly within the breccia unit suggest that they are most likely hydrothermal open-space fillings. Barren porphyry dykes, known as “Tan porphyry” (~53.0 Ma; Valencia et al. in review), crop out within the pit and intrude all the previously mentioned rock units (Figure 6.3).

An erosional episode around 24 Ma to the north of the deposit is recorded as the deposition of the La Caridad Fanglomerate (Valencia, 2005).

Figure 6.3: Geological Map of La Caridad Mine Area (Plan View at 1290 Level) and SW-NE Cross-Section A-A' looking NW



Source: Valencia, 2005

6.3 Alteration and Mineralization

6.3.1 Alteration

Extensive hydrothermal alteration with superimposed events has been recognized at La Caridad. Documented cross-cutting relationships between different vein types and mineral assemblages, permitted a detailed sequence of hydrothermal events to be established. An early stage characterized by potassium (K)-silicate veins in the intrusive complex and pervasive biotitization of andesites and diorites is associated with weak mineralization of magnetite, chalcopyrite, molybdenite, sphalerite and pyrite (Figure 6.4). Propylitic alteration appears to be contemporaneous with potassic alteration.

A later second event is recognized as the main mineralization stage. Intermediate stage phyllic alteration replaces and is superimposed on the potassic and propylitic assemblages, with mineralization of chalcopyrite, pyrite and lesser molybdenite. The ore grade is evenly distributed within the porphyry quartz-monzonite, but higher grades are developed in the breccia

The third event correspond to a high sulfidation stage, that affects the central part of the deposit, with presence of polymetallic base-metal veins (lead[Pb]-zinc[Zn]-silver[Ag])-Cu and sphalerite-galena-chalcopyrite-pyrite-quartz-carbonate veins emplaced mainly at the periphery of La Caridad pit, and locally in the northwestern part of the pit. After these event, quartz-tennantite-chalcopyrite-pyrite-sericite veinlets cut pyrite-quartz vein, both represent the latest alteration stages and the collapse of the hydrothermal system. This stage is mainly observed in the central part of the pit.

Tourmalinisation is a minor but significant alteration process at La Caridad. It occurs as aggregates of very fine acicular, black, light green, or colorless, tourmaline crystals in breccias, in veinlets and as tiny rosettes distributed throughout the rock.

Figure 6.4: Paragenetic Sequence of the La Caridad Vein Assemblage, According to Cross-Cutting Relationships

Crosscutting Relationship	Vein assemblages	Temperature (°C)	Lithology		
			Porphyry	Breccia	And/Gnd
	5 supergene mineralization	-	←		→
	STAGE IV				
	4b tt + py + cpy + qtz	260-320	←		
	4a py + qtz	-	←	→	
	STAGE III				
	3a gn + sph + py + cpy + qtz + carb	310-370	←		→
	STAGE II				
	2c tourm + py + qtz	-		←	→
	2b qtz + ser+ cpy + py + mo-sil halo	330-390	←		→
	2a qtz + ser + py ± cpy+ sc halo	350-410	←		→
	- qtz+ser+py+tourm perv.	-	←	→	
	STAGE I				
	1h C qtz + bt + mo + py + others	320-380	←	→	
	1g cpy + mt + qtz ± bt	360-420	←	→	
	1f mo + mt + qtz + Kfeld	-	←		→
	1e bt + Kfeld ± cpy ± mo+Kfeld halo	-	←	→	
	1d cpy+anh ± qtz± bt+Kfeld halo	390-460	←		→
	1c sph+cpy+qtz±anh±bt+ Kfeld halo	-	←		→
	1b Mo+anh±qtz ± bt+Kfeld halo	380-470	←		→
	- Biotitic alteration	-	←		→
	1a qtz+ K-feld (irregular)	480->500	←	→	

Note: Temperatures were determined from fluid inclusions. Horizontal arrows are related to the relative distribution of veins in different lithologies, qtz = quartz, Kfeld = potassium feldspar, mo = molybdenite, anh = anhydrite, bt = biotite, sph = sphalerite, mt = magnetite, ser = sericite, py = pyrite, tourm = tourmaline, cpy = chalcopyrite, gn = galena, tt = tetrahedrite / tennantite.

6.3.2 Mineralization

Intense fracturing, with multiple fracture directions are observed at La Caridad. More than 560 local faults and fractures were measured in the La Caridad open pit at benches 1380 and 1305. This data exhibits two dominant trends to include the northeast (NE) and northwest (NW). Fracture density increases northward from the upper to the lower benches, consistent with the location of the mineralized center at the northern end of the open pit. Fractures appear to have provided important controls to the hypogene mineralization, particularly toward the margins of the deposit. Both pre-mineral and post-mineral fractures influenced the supergene mineralization

The hypogene mineralization comprises pyrite, chalcopyrite and molybdenite in order of decreasing abundance, together with minor amounts of sphalerite, galena and bornite. Pyrite is by far the most abundant hypogene mineral.

Primary mineralization occurs in the deposit in disseminated form, in fractures and in-filling breccia cavities. In the central part of the deposit, the presence of pyrite and chalcopyrite occurs mainly in disseminated form. There is a direct relationship between the amounts of pyrite and chalcopyrite mineralization and the quartz-sericite hydrothermal alteration. The primary disseminated mineralization occupies approximately 70% of abundance in the central part of the deposit, which as it moves away from the center toward the outside, decreases as dissemination and increases in the fractures and cavities of the breccias.

Chalcopyrite is most abundant in the central part of the deposit, where it has Cu grades in the order of 0.75% to 1.0%. Chalcopyrite contents gradually decrease towards the exterior of the deposit. The chalcopyrite-pyrite ratio in the primary zone is 2:1 and gradually increases towards the exterior with a ratio of 1:10.

Molybdenite occurs gradually in fine aggregate crystals accompanied by variable amounts of quartz, filling thin fractures in the quartz monzonite porphyry. Generally, pyrite, chalcopyrite and molybdenite occur as a mixture filling fractures.

Significant amounts of molybdenite occur in the mid-central part of the deposit and grades of around 0.04% molybdenum (Mo) are found towards the east; towards the mid-western part of the deposit Mo grades are around 0.01%. Currently, the highest concentration of molybdenite in the deposit occurs within the pegmatitic zone with Mo grades in the order of 0.07 to 0.10%, associated with biotite, quartz, apatite, pseudomorphized to turquoise and sporadically, sphalerite, galena, and tetrahedrite.

The supergene sulfide zone (Figure 6.5) or chalcocite zone is located at the base of the iron cap and represents the reducing environment below the paleo-water table. In this environment, Cu loses its solubility and is deposited on the hypogene sulfides, enriching them by processes of replacement of the Fe contained in them. Contrary to Cu, Fe is soluble under these conditions of low oxidation/reduction potential (Eh) and low to neutral potential of hydrogen (pH). The main constituents in this zone are chalcocite, covellite, native Cu, as well as Cu carbonates.

In porphyry Cu deposits, there is typically an increase in the quality and quantity of sulfide and oxide precipitation in zones of acidic groundwater infiltration. Typical supergene processes are solution, hydration, oxidation, precipitation, and reactions of ions in solution with ions from minerals.

The Cu has been completely leached from the oxide zone of the deposit, commonly also referred to as leached exhaust. The oxide zone is thickest in the central part of the deposit and gradually decreases in thickness as it approaches the marginal areas of the deposit. The thickness of the leached zone varies from 10 m to 230 m with an overall mean of 50 m. This zone is mainly represented by Cu oxides and carbonates such as cuprite, tenorite, azurite, plus native Cu. The limits are approximately between elevations 1755 and 1665.

The process of leaching and oxidation of the sulfides has produced a series of siltstones (Loke, 1926) comprising oxide minerals including hematite, goethite and jarosite. The interpretation of the siltstones has led to the identification of the type and distribution of the pre-existing sulfides. It has been assumed that hematite is a derivative of leaching of sulfides with low pyrite/chalcocite ratios; while goethite and jarosite are derivatives of leaching of sulfides with a moderate pyrite/chalcocite ratio (Tunell, 1930). In addition, alunite is also present in this area.

Figure 6.5: Oxidation Zone (Red) and Supergene Zone (White) in the Western Part of the La Caridad Pit



Source: SCC

6.4 Deposit Types

La Caridad is emplaced in a metallogenic province that is notable for Cu, Mo, gold (Au), silver (Ag), and platinum (Pt) Resources (Titley, 1995). It contains more than 50 deposits, some of which are considered giant ore deposits. Porphyries are Upper Paleocene to Lower Eocene in age and often exhibit supergene enrichment, which forms during exhumation of the hydrothermalized rocks towards the surface.

The largest mineralized districts in northwest Mexico occur in two main intervals, one at 59–63 Ma (Cananea), and the other at 53–55 Ma (La Caridad District), where associated magmatism overlaps in space and time. La Caridad porphyry intruded the thick-skinned Laramide orogen and is the southernmost giant porphyry Cu deposit belonging to the cluster of Arizona-Sonora Cu porphyries (Figure 6.6).



LEGEND

- Approximate Site Location
- Approximate Location of Porphyry Copper Deposits
- City
- International Border
- "Great Cluster" of Porphyry Deposits
- Mexico
- United States of America

0 100 200
1:8,000,000 KILOMETERS

NOTE(S)

1. THE SHADED ZONE REPRESENTS THE SO-CALLED "GREAT CLUSTER" OF THE PORPHYRY COPPER DEPOSITS OF THE WESTERN CORDILLERA OF NORTH AMERICA, INDICATING THE MOST SIGNIFICANT DEPOSITS SOURCE: MORENO ET AL, 2007.

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 WEB MERCATOR AUXILIARY SPHERE

CLIENT



PROJECT

LA CARIDAD MINE

TITLE

LARAMIDE CU PORPHYRY BELT

CONSULTANT



YYYY-MM-DD 2022-02-22

DESIGNED JS

PREPARED TBH

REVIEWED JS

APPROVED MO

PROJECT NO.

20442424

CONTROL

-

REV.

-

FIGURE

6.6

The deposit occurs exclusively in felsic to intermediate intrusive igneous rocks and associated breccias. The host rocks include diorite and granodiorite intruded by a quartz-monzonite porphyry stock and by numerous breccia masses that contain fragments of all the older rock types.

7.0 EXPLORATION

7.1 Exploration Work

7.1.1 Surface Exploration

There is no evidence of surface exploration work, including channel, or bulk sampling, that may have been completed on the La Caridad Project to date. Mineral Resource estimation was conducted utilizing only the drill hole database that was provided for this Study.

7.1.2 Topographic Survey

The La Caridad advance control, mine design and other operational tasks are carried out in a local coordinate system. A series of topographical control points are used for any topographical triangulation. For all recent work, a Leica TS06, TS11 (2 mm and 1 mm accuracy with prism), Maptek XR3 Scanner (5mm accuracy) and Trimble R10 and R12 GPS (8-mm H/15-mm V accuracy) are used for all surveying activities. All topographic surveys are undertaken by LC personnel from the Topography department of the Engineering and Mine Planning department at La Caridad. The historical surveying was completed by prism surveying. The QP was unable to verify whether the historical drill hole points were resurveyed with modern equipment, and whether these locations were reviewed prior to input into the database.

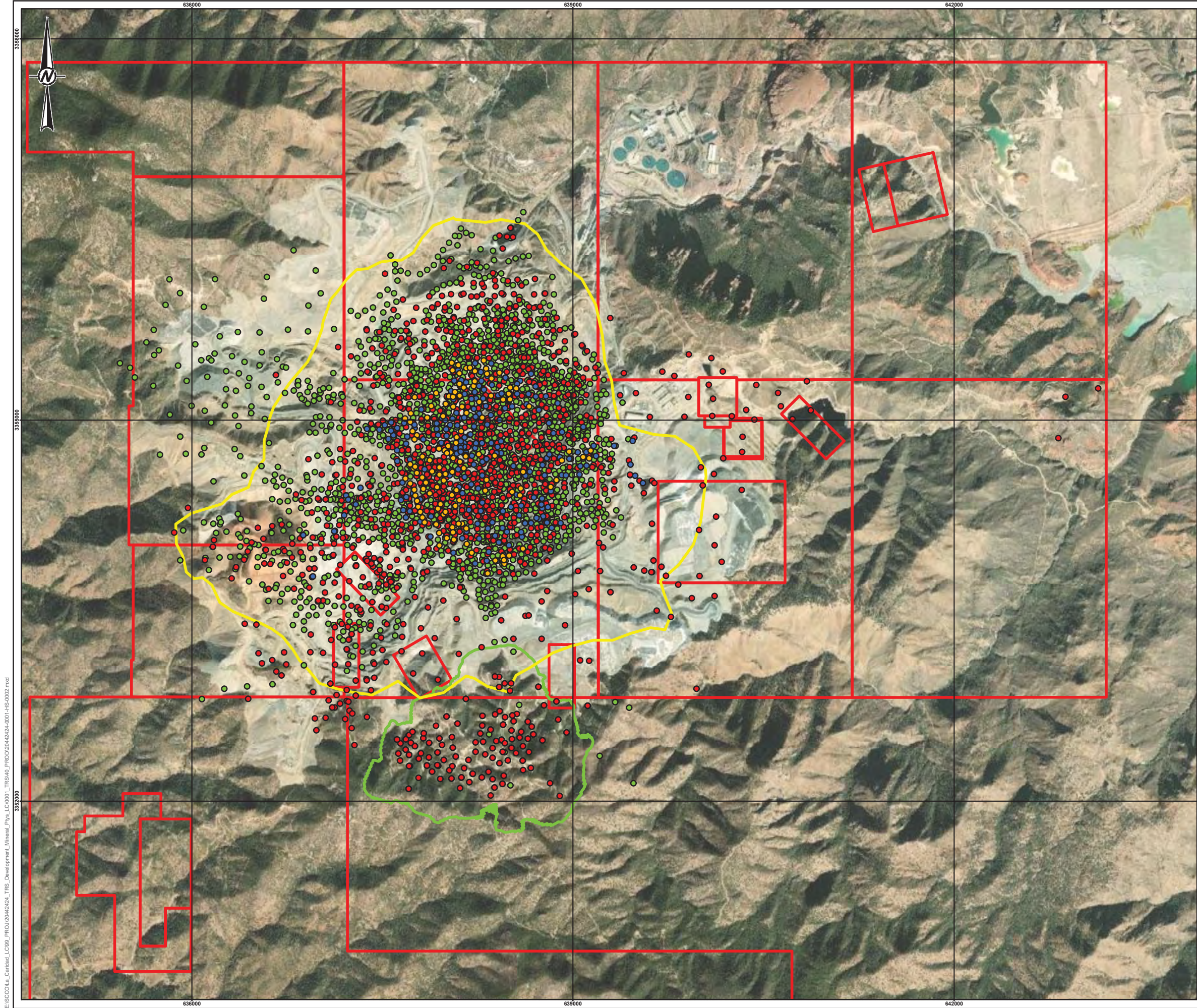
7.2 Geological Exploration Drilling

7.2.1 Exploration Drilling Methods and Results

Exploration drilling has been undertaken almost yearly at La Caridad since 1968. A total of 3,529 exploration drill holes, totaling 694,455 m, have been drilled on the La Caridad property. Several different drilling techniques have been implemented at La Caridad, including diamond core (DD), reverse circulation (RC), hammer (MT) and diamond hammer (MD) drilling. Table 7.1 summarizes the various types of drilling at La Caridad and Figure 7.1 illustrates the drill hole locations. Figure 7.2 is an example South-North (S-N) cross-section through the block model and drill holes.

Table 7.1: Summary of Exploration Drilling

Drill Type	No. of Drill Holes	Total Meterage
DD	1,167	353,924
RC	2,034	317,817
MD	201	15,796
MT	127	6,919
Total	3,529	694,455

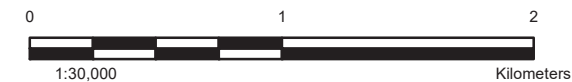


LEGEND

Drill Hole Type

- DD
- RC
- MT
- MD

- La Caridad Boundary
- Bella Union Boundary
- Concession Boundary



NOTE(S)

REFERENCE(S)

- COORDINATE SYSTEM: WGS 1984 UTM ZONE 12N
- IMAGERY SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY

CLIENT



PROJECT

LA CARIDAD

TITLE

DRILL HOLE LOCATION MAP

CONSULTANT



YYYY-MM-DD 2022-02-22

DESIGNED JS

PREPARED TBH

REVIEWED JS

APPROVED MO

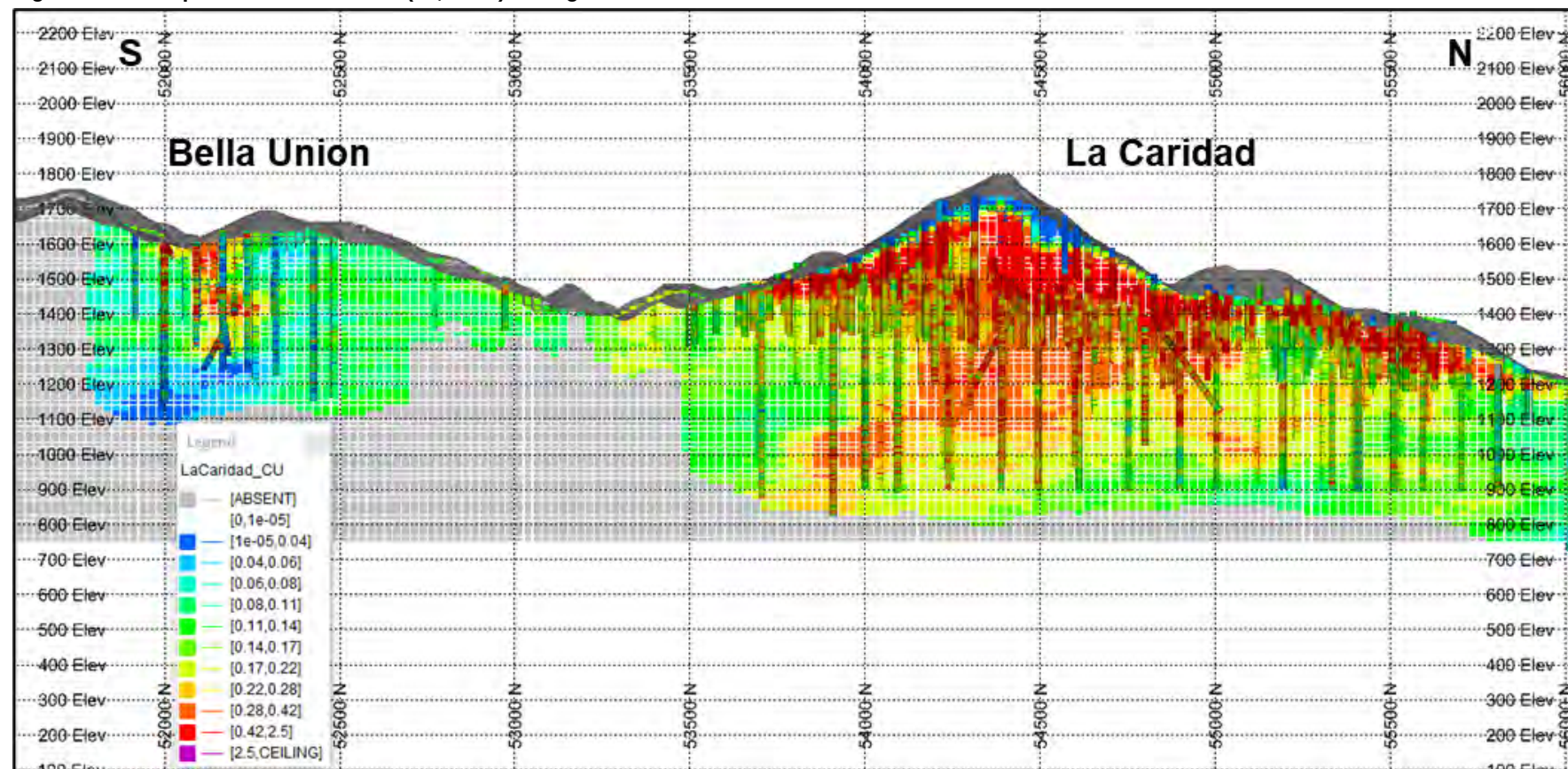
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FIGURE
7.1

Figure 7.2: Example S-N Cross-Section(38,000 E) through the Block Model and Drill Holes



7.2.2 Exploration Drill Hole Logging

Drill hole logging was conducted by core logging geologists at the La Caridad core logging and storage facility (Figure 7.3 and Figure 7.4) and supervised by senior LC geologists. The logging process included the detailed description of the lithology of the different rock units found in the deposit, as well as, the identification of alteration, mineral zones and a visual grade estimation. Based on the geological description, codes were assigned to each geological unit.

The logging process was carried out manually on paper log sheets, which were then entered into a Microsoft (MS) Excel spreadsheet. Once the transcription was completed, the geologists responsible for the Project reviewed the Excel files for consistency before it was uploaded into an acQuire™ Database. An example of a paper logging sheet is shown in Figure 7.5.

The senior supervisory geologist was responsible for defining and selecting the sampling intervals that were to be cut. The sampling intervals to be cut for analysis were recorded in the core recovery database as well as in the core box and were identified by unique sample numbers.

Figure 7.3: La Caridad Core Storage Facility



Figure 7.4: La Caridad Core Logging Facility

MEXICANA DE COBRE, S.A. DE C.V.
DESCRIPCIÓN GEOLOGICA

Coordenadas:
Norte: 52752.67
Este: 37060.76
Elevación: 1584.90
Asimil: 0
Inclinación: 90°
Profundidad: 541.60 mts
Compañía: Mex-Cob
Recuperación:

Folio: 1

Herramienta No.: NCA-974
Proyecto: B. Prop.
Contratista: Cia. Goodwill
Equipo: L-4-109
Fecha de inicio: 14-Julio-2010
Fecha de terminación: 09-Agosto-2010
Descripción Por: A.G.D.
Fecha de Descripción: 10-Jul-10

Source: LC logging protocol document "Logueo Geológico de Barrenación a Diamante.pdf"

7.2.3 Exploration Drill Sample Recovery

The core recovery was measured by the core logging geologist or their assistant. The geologist first verified that the lengths of the run matched those reported by the driller. Then, the core was carefully reorientated in the box and the corresponding run was measured.

In the ore zones, a core recovery of 85% was considered the minimum acceptable, with the exception of fractured zones or zones with tectonic features. The instances of lower recovery within fractures zones were detailed in the geological log to explain the lower recovery.

Core recovery was calculated using the following formula:

$$\text{Recovery} = \frac{\text{Sample Mass (kg)}}{(\text{Interval Length (m)}) * (\text{SG}) * (\text{Core Diameter Constant})}$$

Diameter constant = HQ= 31.1669

La Caridad have recorded core recovery data since August 2020. There are no records of core recovery from any previous drilling campaigns. Table 7.2 summarizes the core recovery for the drilling conducted since August 2020 by month.

Table 7.2: Summary of Core Recovery

Year	Month	Drill Hole Count	Mean Core Recovery (%)
2020	Aug	3	94.7
	Sep	8	94.9
	Oct	12	93.1
	Nov	18	89.5
	Dec	7	90.7
2021	Jan	12	91.8
	Feb	10	92.2
	Mar	14	88.6
Total		84	91.8

7.2.4 Exploration Drill Hole Location of Data Points

Prior to setting up the drill rig on a new drill hole, the La Caridad Project senior geologist is responsible for locating the planned drill hole location with a handheld global positioning system (GPS) according to the planned X, Y, Z coordinates. The location measurements are taken before drilling starts and at the completion of drilling. In order to check the accuracy of the handheld GPS, known reference points were used to tie in the measurements.

In cases where the drill hole was inclined and not vertical, the drill rig was orientated in the specified direction and inclination. Once the drill rig was positioned, the geologist responsible for the drilling campaign confirmed the drill rig orientation with a compass and the dip with an inclinometer.

The decision to terminate the drilling of the hole was made by the responsible La Caridad's geologist, before or after the scheduled depth. The core boxes were transported daily to the assigned warehouse by the drilling company. Once the drill hole was completed, the drilling company made a concrete cairn around the casing and a piece of pipe of PQ (85.0- mm core diameter), or HQ (63.5-mm core diameter) size was embedded with the

name of the drill hole engraved in the concrete. The pipe was sealed and padlocked for security. An example of a completed drill site is shown in Figure 7.6.

Figure 7.6: Example of a Completed Drill Hole Site



Once the drilling was completed, a precision topographic location survey was carried out using a Trimble R10 y R12 GPS. The surveyed coordinates were incorporated into the drill hole database

The La Caridad geologist responsible for the Project maintained a daily control of the drill holes, which included monitoring of drilling, changes in drill size diameters or casing, control of areas with water inflows, mud or string seizure losses, pipe breaks or any other incident. In general, water levels were measured at shift changes as well as during any period where the rig was shut down. All drilling information was captured in the driller's daily report, which was signed by the geologist on a daily basis and a copy was stored for record.

7.2.5 Exploration Drill Hole Data Spacing and Distribution

The approximate drill hole spacing in the core (where the existing pit is) of La Caridad main is 50 m. Outside the core and in Bella Union, the approximate drill hole spacing varies from 100 m to 200 m.

The QP considers the drill hole spacing sufficient to establish geological and grade continuity appropriate for Mineral Resource Estimates.

7.2.6 Qualified Person's Statement on Exploration Drilling

The QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the recent exploration drilling. However, as core recovery measurements only began in

2020, there is a degree of uncertainty with the historical drilling data. The data are well documented via original digital and hard copy records and were collected using industry standard practices in place at the time. All data has been organized into a current and secure spatial relational database. The data has undergone thorough internal data verification reviews, as described in Section 9.0 of this TRS.

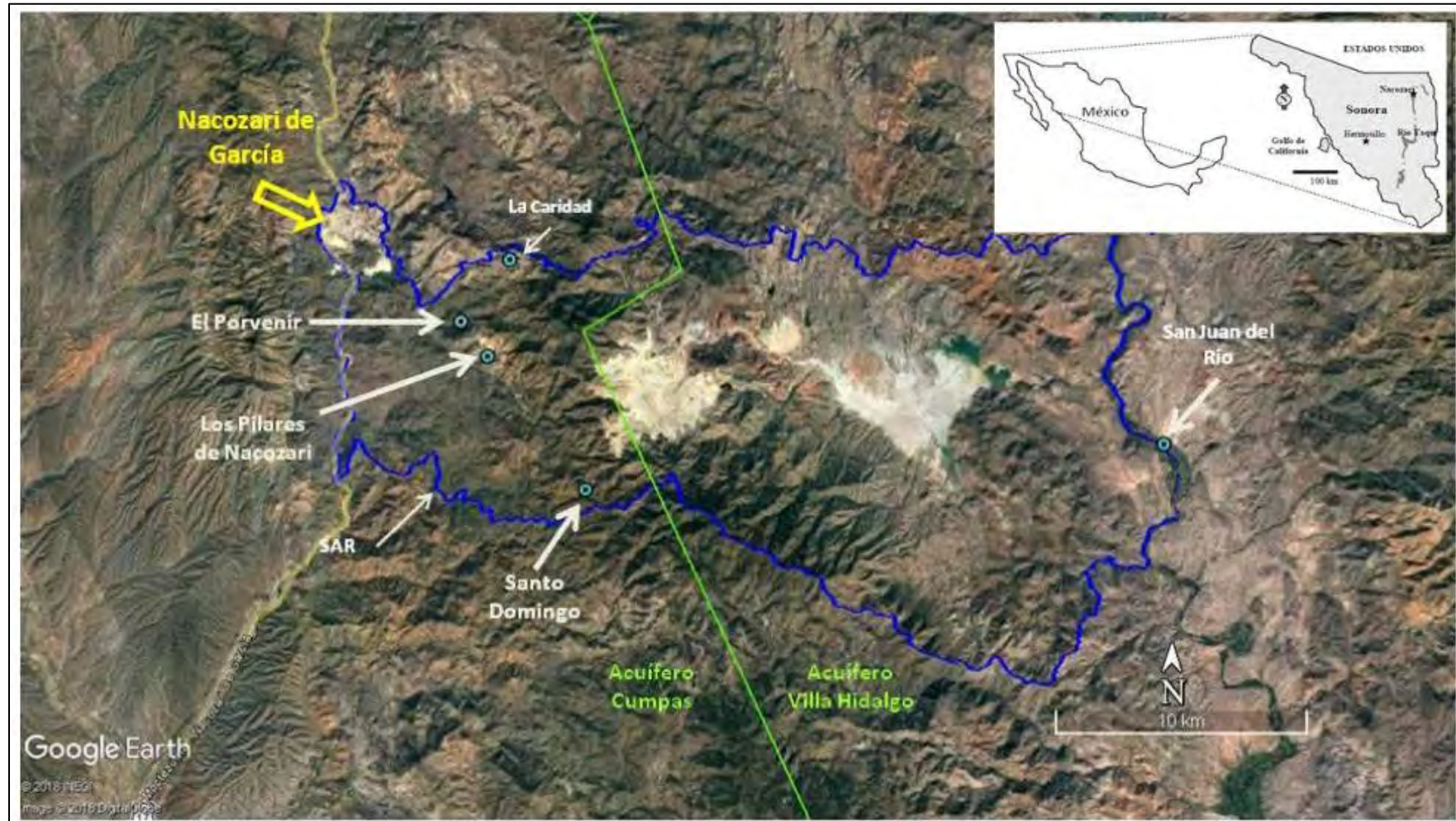
7.3 Hydrological Characterization

No hydrological or hydrogeological specific drilling has been completed at La Caridad or Bella Union to date. The following sections present a review of the hydrological characterization studies completed.

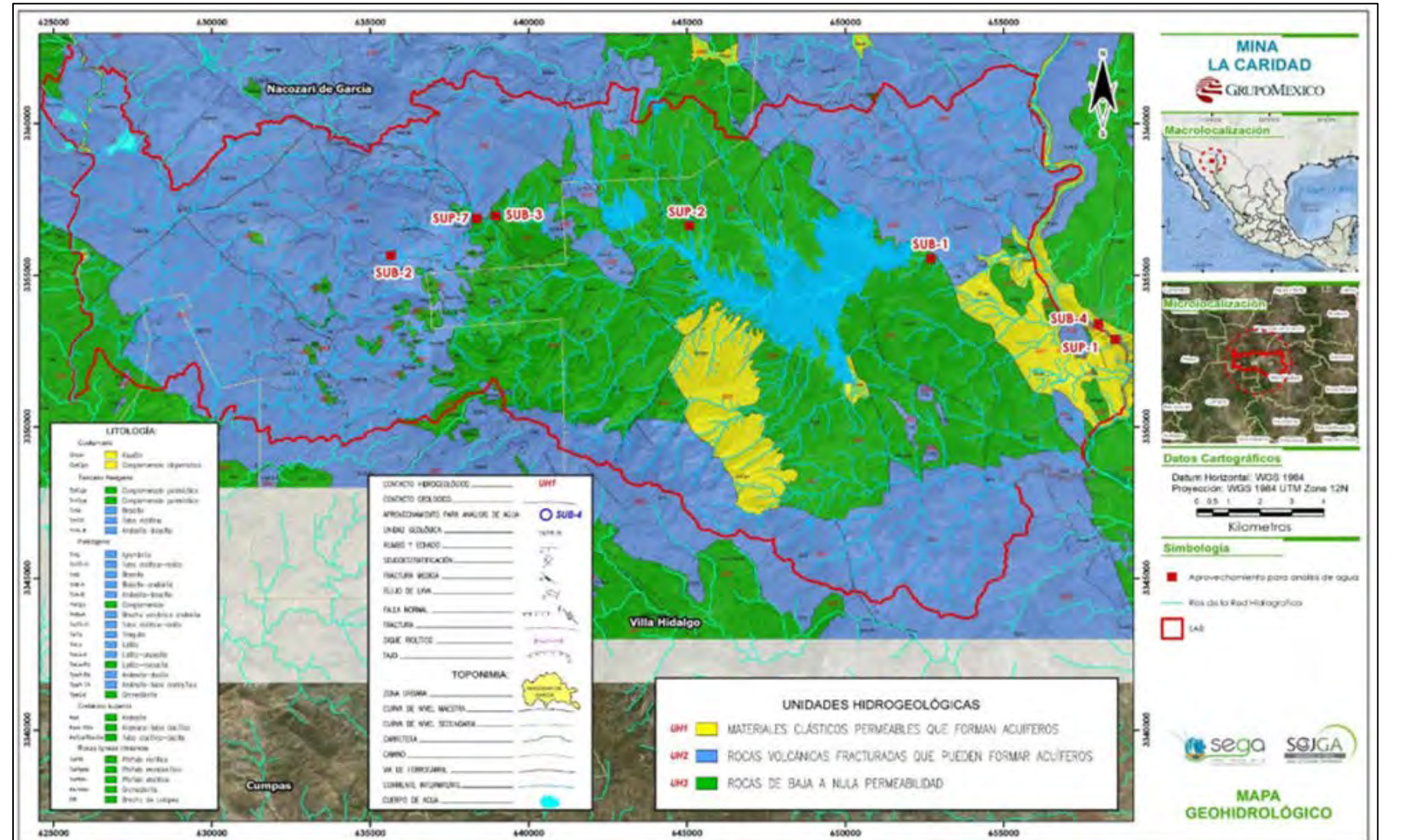
An aquifer vulnerability study per the requirements of NOM-141-SEMARNAT-2003 was carried out in 2018 by TAAF for the area of the mining complex (TAAF 2018). This study relied on government publications, reports, and peer reviewed articles regarding water availability to prepare a description of the hydrogeologic setting. Information from available sources was verified through a field visit to verify the lithological units and corroborate information regarding the rock formation properties and geologic structures (that is, faults and fractures).

The Mexican government has designated two aquifers within the La Caridad mining complex that include the Cumpas and Villa Hidalgo aquifers, as shown on Figure 7.7. These designations are administrative areas with a calculated water availability volume and have been identified by CONAGUA based on administrative boundaries, surface hydrologic basins, geologic setting and limited aquifer testing data. Both aquifers are described as unconfined with an upper zone of unconsolidated materials (clastic deposits) and poorly consolidated conglomerates and a lower zone of volcanic and sedimentary rocks that exhibits secondary porosity related to fracturing. In some areas there is a third, deeper bedrock formation of low to very low permeability. These hydrogeologic units outcrop in different areas of the mining operations, as shown in Figure 7.8. The upper zone is considered to have high hydraulic conductivity and the lower zone has relatively low hydraulic conductivity.

Figure 7.7: Hydrogeologic Study Area and Environmental Area of Influence (within blue line)



Source: TAAF, 2018



Hydrogeologic characterization within the mine complex has been very limited. The TAAF report (2018) relied on the water availability reports published by CONAGUA for any hydraulic parameter data. CONAGUA water balance models commonly used indirect methods to determine vertical recharge of aquifers and empirical equations to determine evapotranspiration rather than measured data. Groundwater pumping data was based on authorized concession volumes and do not take into account all extractions from the aquifer. Some hydraulic parameters from the CONAGUA reports were obtained from previous studies and by correlating information available from adjacent aquifers, however the method used to determine the hydraulic parameters is unknown.

A geotechnical report (Golder, 2014) for the construction of the Guadalupe heap leach facility (HLF) indicated that groundwater appeared to be at or close to the ground surface in the bottom of Guadalupe Arroyo. Permeability testing indicated that the upper zone exhibited high permeability (1×10^{-3} to 1×10^{-4} centimeters per second [cm/s] in the upper 9 m to 12 m) and fresh bedrock had generally low permeability (1×10^{-5} to 5×10^{-5} cm/s in the underlying bedrock) based on packer testing in vertical drill holes. The geotechnical report concluded that the amount of infiltration from the pregnant leach solution (PLS) pond to groundwater would not impact geotechnical stability of the dam, but could be an environmental concern. Upper, fractured bedrock and fault zones had representative porosity of 1% to 20%, whereas the fresh, unfractured bedrock had representative porosity of 0.05% to 1%.

A hydrogeologic study (Ingenieros Civiles y Geólogos Asociados, 2005) that reviewed the Cruz de Canada arroyo, which contains the TSF 7, indicated that the surficial materials are alluvium with a thickness of about 50 m, underlain by fractured rock of about 30 m thick. The hydraulic gradient was between 0.1% and 1%. It was assumed that the hydrogeologic conditions were similar downstream from the TSF 7. The study indicated that the hydrogeologic conditions at the La Francisca PLS pond would be permeable units of alluvium (mean of 10^{-3} meters per second [m/s]) and the fractured rock (granodiorite) had a permeability of about 2×10^{-6} m/s.

Seepage in the open pit has been observed, but it was reported to be minimal, and the benches do not become saturated. The seepage could be primarily from infiltration of rainwater (perched zone) and not from the regional aquifer; however, there was no demonstration that verifies the hydrogeologic setting.

The occurrence of groundwater and the characteristics of the aquifer at La Caridad are described based on few site-specific studies and primarily on regional information. Little hydraulic testing has been carried out at the site, and no hydrogeologic model has been prepared. Little is known about the influence of faults on the groundwater regime. Groundwater elevation monitoring and the development of groundwater contour maps are not carried out. The site has not determined groundwater flow directions and gradient.

The groundwater conditions at Pilares and Bella Union have not been characterized.

7.3.1 Groundwater Balance Results

Results from CONAGUA's groundwater balance reports for the Villa Hidalgo and the Cumpas aquifers from 2014 state that there is groundwater extraction availability for both aquifers. There is no site-specific groundwater model.

La Caridad does not use groundwater for its freshwater supply.

7.3.2 Qualified Person's Statement on Hydrogeological Characterization

In the QP's opinion, the hydrogeologic setting at the current and planned operations has not been adequately characterized. The lack of groundwater characterization will not impact water availability because the water concession is based entirely on a surface water reservoir. For the current pit operations, the groundwater inflows to the pit are not problematic. It is unknown whether the Pilaes or Bella Union future developments will need a more rigorous dewatering system.

The larger risk to the operations is associated with the potential environmental impacts from the mining operations from contaminant migration to the aquifer and the lack of understanding regarding infiltration impacts and the direction of groundwater flow (see Section 17.0 for more discussion on the environmental impacts to groundwater).

7.4 Geotechnical Drilling

Geotechnical drilling and sampling was completed by Call & Nicholas, Inc. (CNI) from February through April 2019. Additional geomechanical and structural data were obtained from a 2003 drilling campaign that consisted of ten cored drill holes. Logs of the 2003 drill holes were not included in CNI (2019) report. Structural data was collected by CNI from orientated core data from the two drilling programs and by cell mapping conducted by La Caridad and CNI personnel. Discrete orientation data for major faults was obtained by CNI from structure geology maps available for the La Caridad and Bella Union areas. Additional description of these data sources is provided in Sections 7.4.1 through 7.4.3.

7.4.1 Geotechnical Surface Mapping

Rock fabric are geological structures, mainly fractures and joints, which break the intact rock into more or less discrete blocks. They are too numerous or too short to be mapped individually, and therefore are treated statistically in a slope-design analysis. The fabric data utilized to conduct the assessment of jointing characteristics throughout the area of the La Caridad pit plans were collected by bench cell-mapping and oriented core drilling. The rock fabric databases included the following:

- Cell-mapping data from mapping programs conducted in 2001, 2003, 2018, and 2019.
- Fracture orientation data from the nineteen geotechnical oriented core holes: ten drilled in 2003, and nine for this study in 2019.

From these data, CNI developed the following structural domains:

- Structural Domain 1 – La Caridad West Wall (Quartz-Feldspar Porphyry + Diorite + Intermediate Breccia + Volcanics)
- Structural Domain 2 – La Caridad Southeast Wall and Bella Union pit (Granodiorite)
- Structural Domain 3 – La Caridad East Wall (Late Porphyry)
- Structural Domain 4 – La Caridad Northeast (Late Breccia)

From the structure geology maps, CNI identified three major structural trends that are present in the La Caridad Pit:

- A northwest-southeast set that is dipping west with dips ranging between 55 and 85 degrees and regionally has the longest lengths.
- A northeast-southwest set that was interpreted as extensional fractures formed during the Laramide Orogeny as a response to regional sinistral movement. In the pit area, this set is represented by two families of conjugate dip-directions. The first is dipping northwest, with dips ranging between 60 and 80 degrees, and the second is dipping southeast, with dips ranging between 40 and 90 degrees.
- An east-west set that exhibits relatively short persistence and limited occurrence. The set was interpreted as extensional fractures formed by the interaction between the NW and SE structures.

The La Caridad and Pílares faults form an additional family, interpreted as post-mineral structures, and formed during Basin and Range extension. A lower hemisphere stereonet project of the major structure data collected by CNI is shown in Figure 7.10.

Figure 7.9 : CNI Structural Domain Map

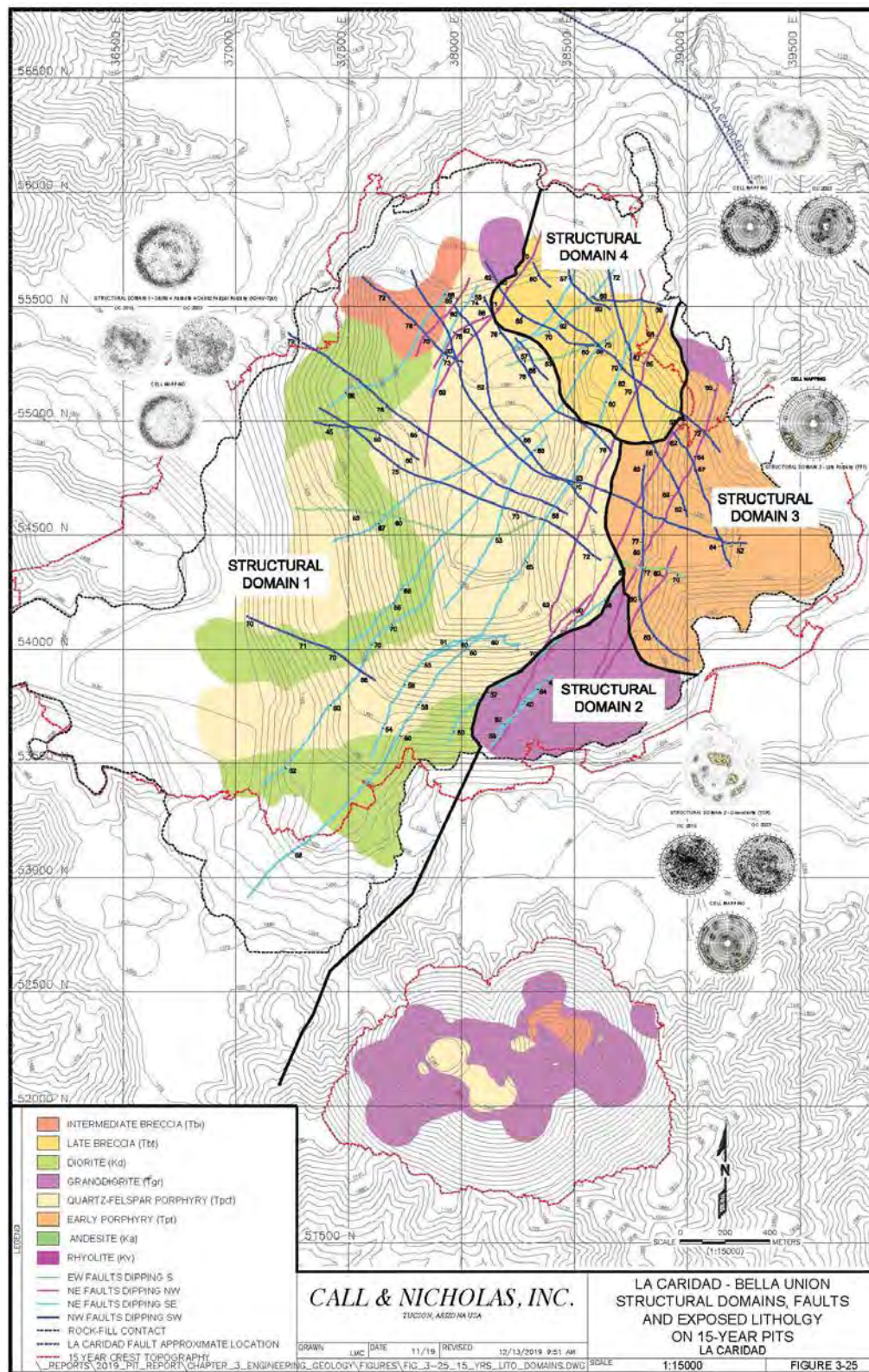
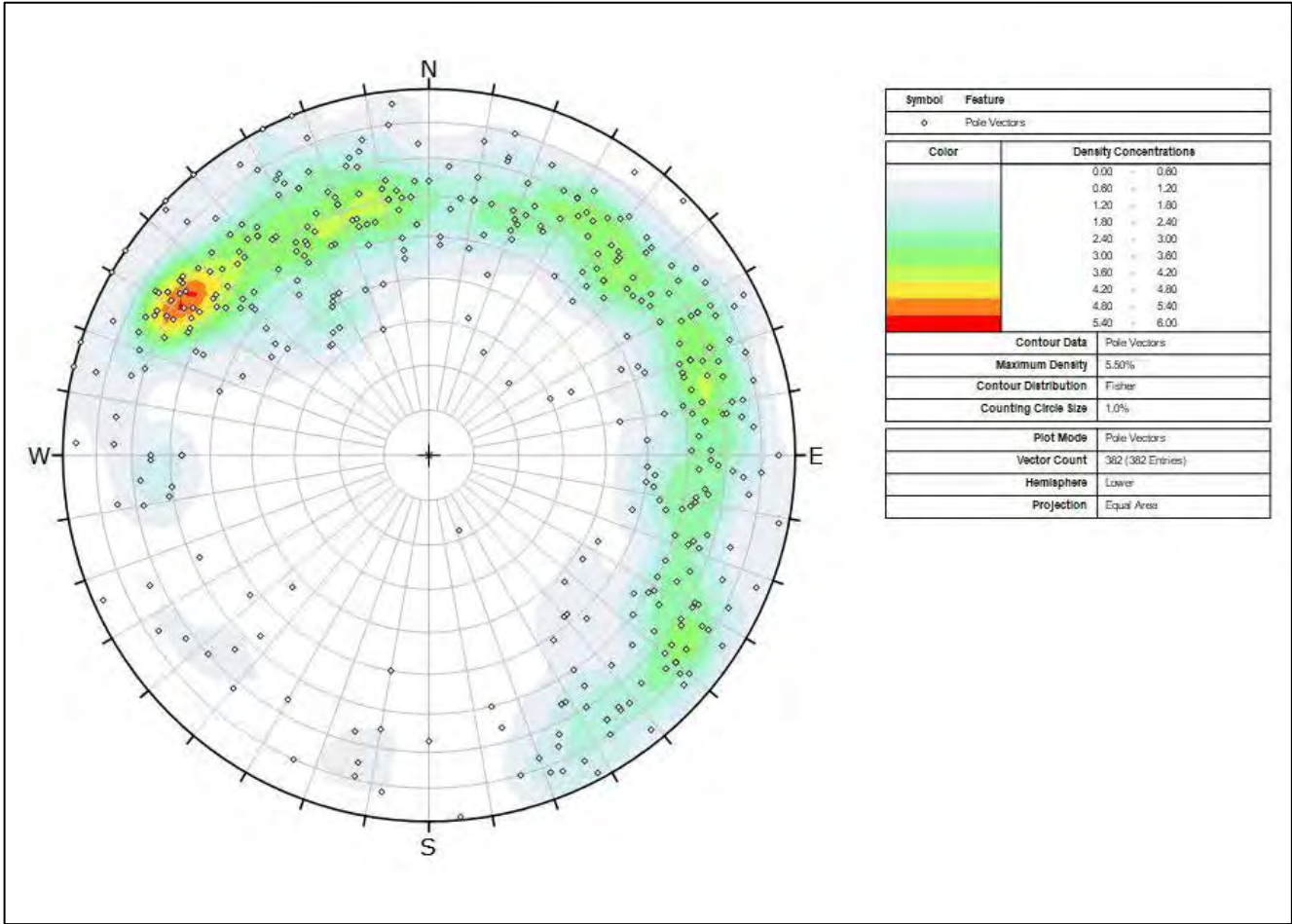


Figure 7.10: Stereographic Project of Major Faults



7.4.2 Geotechnical Core Drilling Program

Geomechanical properties, including rock quality designation (RQD) index, fracture frequency and number of joint sets were collected during drilling of the nine (9) oriented geotechnical drill holes, supervised by CNI personnel, that were drilled from February 2019 through April 2019. The drilling method was not specified; however, the core samples tested in the laboratory have a diameter that indicated HQ3 (61.1 mm core diameter) triple tube coring was used to obtain the core. In addition to the 2019 drill holes, designated BD-O11 through BD- O19, CNI obtained drill hole data from the following sources:

- 10 oriented core holes drilled for the 2003 study (BDO1 – BDO10)
- 61 vertical drill holes with geotechnical information (B605 – B677, and V010)

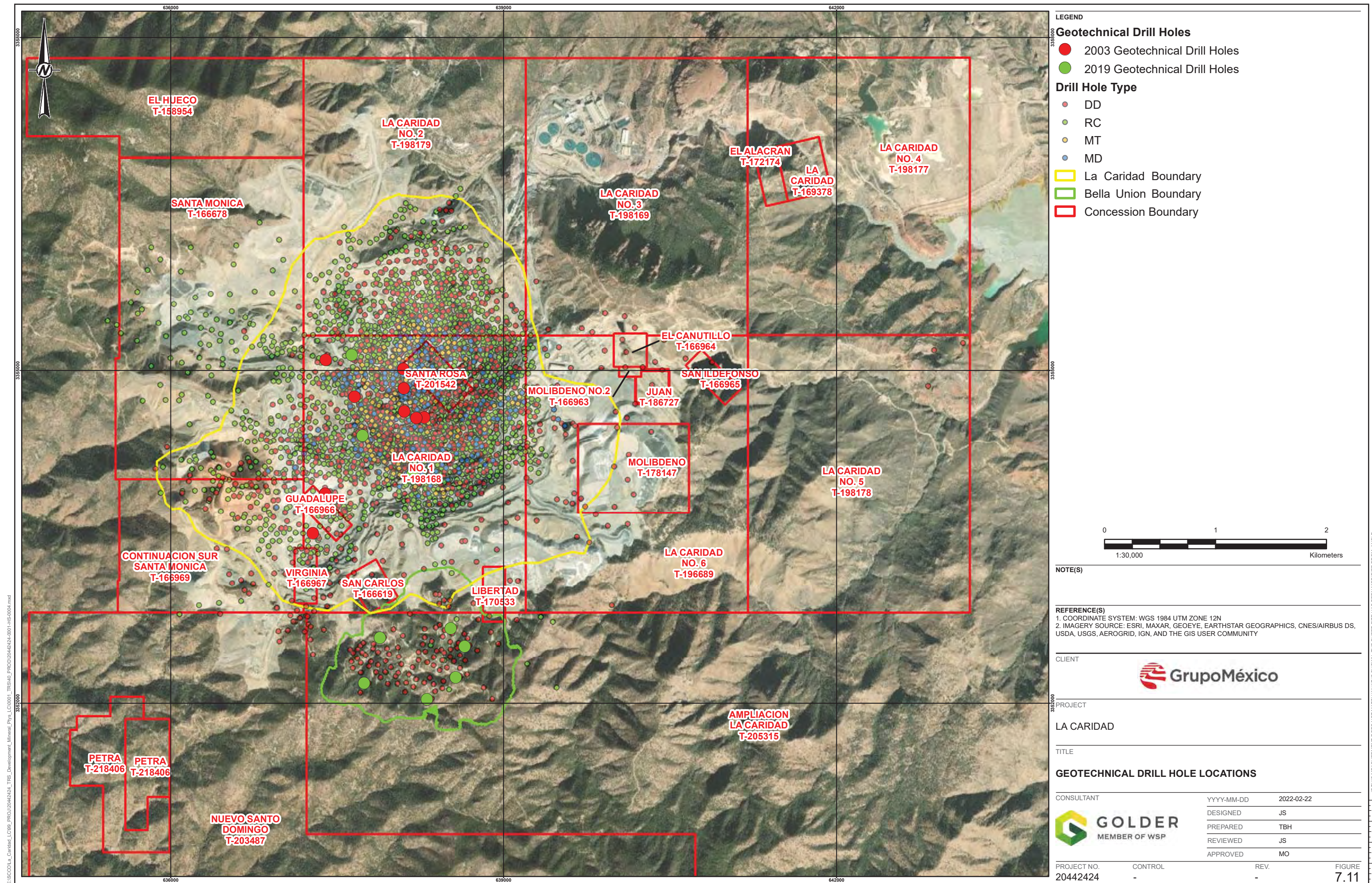
Table 7.3 provides a summary of the locations and orientations of the 2003 and 2019 oriented drill holes. Figure 7.11 illustrates the drill hole locations relative to the exploration drilling and the La Caridad and Bella Union boundaries.

Table 7.3: Summary of Geotechnical Drilling

Drill Hole ID	Easting (m)	Northing (m)	Azimuth (°)	Inclination (°)	Elevation (m)	Total Depth (m)	Year
BDO1	638,100	3,354,831	355.0	-55.0	1,367.5	310.0	2003
BDO2	638,251	3,354,698	88.0	-55.0	1,395.2	369.9	2003
BDO3	638,109	3,354,449	220.0	-55.0	1,455.5	490.0	2003
BDO4	638,287	3,354,397	499.0	-55.0	1,429.3	130.0	2003
BDO5	637,400	3,354,915	210.0	-55.0	1,453.1	349.6	2003
BDO6	638,217	3,354,390	180.0	-55.0	1,443.0	472.7	2003
BDO7	638,104	3,354,659	285.0	-55.0	1,410.3	450.2	2003
BDO8	637,659	3,354,583	230.0	-60.0	1,422.5	320.0	2003
BDO9	637,396	3,353,709	315.0	-60.0	1,581.2	200.3	2003
BDO10	637,284	3,353,352	225.0	-55.0	1,552.7	360.3	2003
BDO-11	637,634	3,354,960	257.3	-75.5	1,265.5	300.0	2019
BDO-12	637,731	3,354,232	256.3	-74.8	1,336.7	214.1	2019
BDO-13	638,181	3,353,884	188.7	-75.4	1,381.9	300.0	2019
BDO-14	637,888	3,352,410	351.3	-74.8	1,596.6	300.0	2019
BDO-15	637,745	3,352,002	229.5	-75.0	1,643.3	300.0	2019
BDO-16	638,526	3,352,494	18.0	-74.2	1,660.4	300.0	2019
BDO-17	638,652	3,352,333	85.4	-74.9	1,652.1	290.0	2019
BDO-18	638,570	3,352,053	154.0	-75.7	1,769.3	300.0	2019
BDO-19	638,312	3,351,856	160.2	-76.1	1,693.8	285.9	2019

Note: Coordinates in NAD 1927 UTM Zone 12 N

The RQD data from these sources was used by CNI to generate an RQD block model to define areas of different rock quality. RQD can be used as a method of assessing rock quality as it relates to the degree of fracturing within the in-situ rock mass. The block model was estimated using Ordinary Kriging (OK), with a five-pass estimation technique and is used by CNI in the geotechnical analysis.



7.4.3 Laboratory Testing

The laboratory testing program included tests of intact rock strength and shear strength of discontinuities and fault gouge. A summary of these testing programs is listed in the following sections.

7.4.3.1 Intact Rock Strength

Laboratory testing of core samples for intact rock strength provided the following geotechnical data:

- 73 Uniaxial Compressive Strength (UCS) tests plus rock density
- 50 Brazilian Indirect Tensile Strength tests
- 37 Triaxial Compressive Strength tests

The laboratory testing methods used to determine the rock strength are the standard methods recommended in Read and Stacey, 2009. CNI performed all laboratory testing in their Geotechnical laboratory located in Tucson, Arizona. Golder's review of the laboratory testing data sheets found that the data reported, and derivation of the test results generally followed the ASTM standards for Uniaxial Compressive Strength Tests (ASTM D7012 Method C) and Brazilian Indirect Tensile Strength Tests (ASTM D3967).

CNI used a method of estimating rock mass strength that was bracketed by the intact rock strength and the fracture shear strength, which they developed (Call et al, 2000), (Read and Stacey 2009). The technique was developed from a rational basis and commonly produced comparable results to more conventional techniques for developing rock mass strength estimates when Golder has the data available to compare results. A summary of the derived intact rock strengths is provided in Table 7.4. Based on the data presented, the results of the method of rock mass strength analyses produce results that are reasonable for the geotechnical material characterizations presented.

Table 7.4: Summary of Intact Rock Strength Laboratory Testing

Rock Type	Mean Uniaxial Compression (psi)	Disk Tension (psi)	Estimated Intact Shear Strength	
			phi (°)	Cohesion (psi)
Cretaceous Diorite /Andesite (oxide)	7,171.0	1,248.0	38	1,465.86
Cretaceous Diorite /Andesite	20,275.8	1,857.5	47.87	3,007.11
Tertiary Quartz-Feldspar Porphyry (oxide)	8,807.7	1,235.0	41.6	1,616.07
Tertiary Quartz-Feldspar Porphyry	24,590.8	2,023.6	49.29	3,456.55
Tertiary Granodiorite (oxide)	7,104.0	1,184.0	38.75	1,421.10
Tertiary Granodiorite	27,135.4	1,865.6	51.52	3,486.42
Tertiary Early Porphyry	24,590.8	2,023.6	49.29	3,456.55
Tertiary Intermediate Breccia (oxide)	5,369.2	894.9	38.75	1,074.06
Tertiary Intermediate Breccia	15,033.6	1,724.7	44.69	2,495.05

CNI's description of the primary lithologic units included in Table 7.4 is provided below:

- Andesite (Ka) – Diorite (Kd): Both of similar composition, these are differentiated by their crystalline texture, with the andesite having an aphanitic texture. Both rocks are of Cretaceous age, andesite being the oldest rock in the area and forming the host rock for the deposit. Andesite is intruded by diorite dikes that range from fine to coarse grain texture. Locally, there are breccias consisting of diorite and andesite (Bda). In the current geology model, they are grouped as diorite and are in the southwest and west walls of the La Caridad pit.
- Granodiorite (Tgr): This Tertiary age intrusion has the greatest extent and occupies the east part of the deposit. It is present in the south wall of the La Caridad pit, and as two small outcrops in the north and northeast walls of the same pit. It will be the main rock type in the Bella Union area.
- Early Porphyry (Tpt): This Tertiary age unit has the same chemical composition as the Quartz – Feldspar Porphyry. It is located in the east part of the deposit and comprises a large portion of the east wall of the La Caridad pit.
- Quartz – Feldspar Porphyry (Tpcf): This unit of Tertiary age (Laramide) is the productive rock in the deposit and intrudes the contact between diorite/andesite rocks and the granodiorite. It is in the central part of the La Caridad pit and is also present in the south wall intruding the diorite. In Bella Union area, it is present as a small body intruding the granodiorite at the center of the pit.
- Large bodies of siliceous hydrothermal breccia are located around and, in the quartz-feldspar porphyry. The breccia is monolithic to polymictic, depending to the adjacent rocks, and is related to the intrusion of the porphyry complex. Three breccias are distinguished:
 - Intermediate Breccia (Tbi): This consists mainly of fragments of diorite and dacite. One body of this breccia is located on the north part of the pit and another smaller one in the pit bottom.
 - Late Breccia (Tbt): This is present in the northeast walls of the pit. It is composed of porphyry and granodiorite fragments.
 - Bella Union Breccia: Located in the center of the Bella Union area. No information was available about the characteristics of this unit, and for the purposes of this study, it was assumed to be geotechnically like the intermediate breccia.

7.4.4 Strength of Structural Defects

Shear strength of structural defects was measured from 47 direct-shear tests, which were distributed among the rock types as shown in Table 7.5. An additional two tests were performed on samples of fault gouge obtained as block samples from the 1365 bench and the 1410 bench. A summary of the estimated mean shear strength of the fractures and fault gouge is listed in Table 7.5.

Table 7.5: Summary of Fracture and Fault Gouge Shear Strengths

Rock Type	No. of Tests	Estimated Mean Shear Strength	
		phi (°)	Cohesion (psi)
Tertiary Late Breccia	3	29.63	4.81
Tertiary Intermediate Breccia	2	28.57	3.96
Tertiary Quartz Feldspathic Porphyry	15	28.36	4.42
Tertiary Early Porphyry	1	27.82	7.44
Tertiary Granodiorite	15	28.64	5.64
Tertiary Diorite-Andesite Breccia	4	26.33	0.82
Cretaceous Diorite	7	30.85	5.57
Fault Gouge	2	10.55	22.45

7.4.5 Qualified Person's Opinion

The QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the historical geotechnical drilling and sampling. The data are well documented via original digital and hard copy records and were collected using industry standard practices in place at the time. All data has been organized into a current and secure spatial relational database. The data has undergone thorough internal data verification reviews, as described in Section 9.0 of this TRS.

8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Site Sample Preparation Methods and Security

All sampling was completed by geologists employed by LC, or the previous operators, depending on the program. The QP was not directly involved during the exploration drilling programs or sample selection. Based on review of the procedures during the site visit and subsequent review of the data, it is the opinion of the QP that the measures taken to ensure sample representativeness were reasonable for the purpose of estimating Mineral Resources.

Several different sampling techniques have been used on the Project since 1968. The nature and quality of the sampling from the various sampling programs is summarized in the following sections.

8.1.1 Sampling Techniques and Preparation

During the geological logging process, the intervals and type of sampling were selected for the different analyses (geochemical, petrographic, polished sections, etc.). La Caridad sampling protocols stated that samples should be no more than 3.05 m and no less than 60 cm. A new sample was taken when changes in mineralization, lithology, or rock quality changes were observed even if located within the mineralized zone. When sampling for geochemical analyses, the core recovery was taken into consideration to ensure the representativeness of the sample. If there was a zone of, for example, 60-70% recovery between zones of 100%, the lower recovery zone must be taken independently in the sampling. Likewise, if there were fine levels of mineralization between zones of massive or stockwork, it was also taken as an independent sample.

8.1.1.1 RC Drilling

Samples from RC drill holes were recovered and quartered successively, from 40 kg of total sample. A 5-kg sub-sample was then obtained, which was passed through a Jones Splitter to continue quartering and homogenizing until between 1.5 kg and 2.0 kg of sample was obtained to send to the laboratory (Figure 8.1). If the sample was wet, the Jones Splitter was replaced by a mechanical splitter.

The recovered pulps at a #150 mesh (100 micron) size, were routinely prepared and preserved from each sample for future reference and assay verification. RC samples were composited according to pit bench elevations and heights.

Figure 8.1: Jones Splitter – RC Sample Splitter, Left, Mechanical Splitter, Right

8.1.1.2 Core Drilling

Drill cores were carefully handled from the time they were obtained at the drill collar and placed sequentially in boxes in the orientation indicated by the drill site logging geologist. Core was placed in the core box from top to bottom and left to right in the order in which it comes out of the core barrel. The drilling depth was marked on a wooden block and placed at the appropriate depth in the core boxes. The boxes were properly labeled with the drill hole name, box number and interval.

Boxes and bags of samples obtained from the drilling were transferred to storage in a vehicle by the drilling company personnel, where the geological and geotechnical logging was completed. Core size was either PQ or HQ.

Core photography with a digital camera was part of the standard procedure for core logging. Each full core box was photographed from the top to show the core box in its entirety. Each core box had a placard indicating the drill hole number, corresponding box number and the beginning and end of the core interval in the box. The core was photographed wet in order to highlight lithological and mineralization details. Before taking the photograph, the geologist verified that the intervals noted by the drillers are correct and legible, and made sure that the core was correctly positioned and clean. The orientation of the casing was indicated with a block showing the start and end of the casing, and an arrow showing the direction of drilling and progress.

The drill hole was cut by dividing the core into two equal halves; guiding lines were drawn on the core in green and red, which indicated the right and left halves respectively. If it was possible to know the orientation of the drill hole, the core was oriented in such a way that there was always continuity in the half core to be analyzed. One half of the core was retained in a core box and the other half was divided into two; one quarter was retained for reference sample purposes while the remaining quarter was used in the preparation of samples for geochemical analysis.

For the geological sampling of exploration drill holes, the elevation was very important because the height of the bench is 15 m. To identify bench samples, a red label was placed at the bottom of the sample, with the elevation of the bench and sample number identified (Figure 8.2).

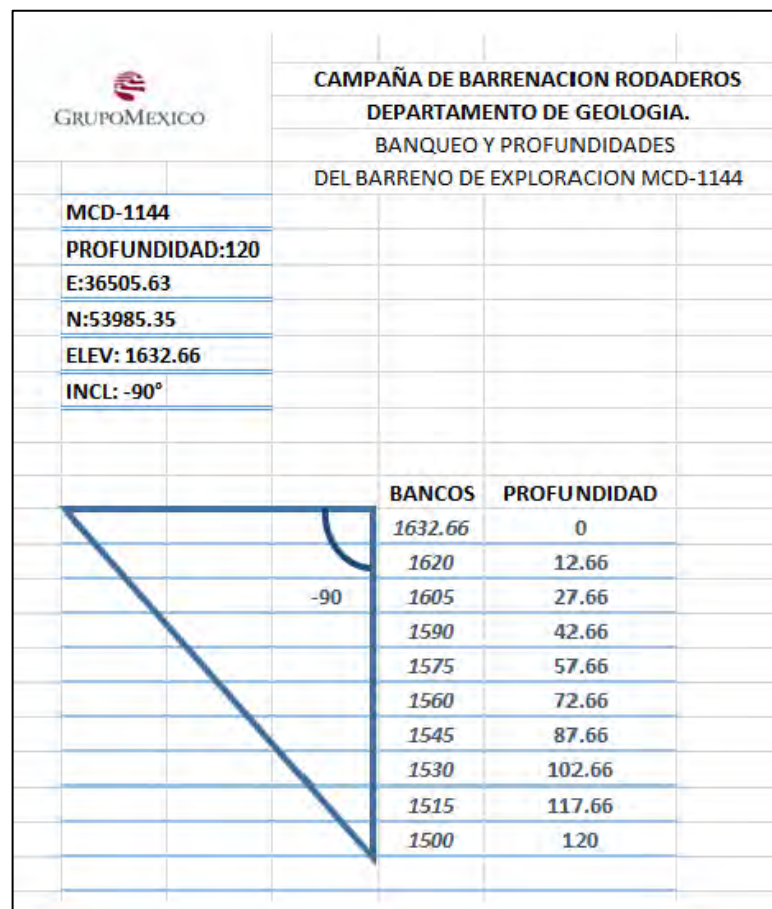
Figure 8.2: Example of a Logged and Sampled Drill Hole



MEXICANA DE COBRE, S.A. DE C.V.			
Departamento de Geología Mina			
Proyecto:	BARRENACION PROFUNDA		
Barreno:	MCD-		
No. de Muestra:			
De:		A:	
Fecha:			

Figure 8.3 illustrates a bench identification for drill hole MCD-1144, which starts at elevation 1632.66 m. As the closest bench was 1635 m, after 12.66 m a new bench was marked at an elevation 1620 m.

Figure 8.3: Example of Bench Identification in Drill Hole MCD-1144



8.1.1.3 Sample Preparation

The following sample preparation techniques were used for all samples processed at the internal SCC laboratory, Laboratorio de Unidad La Caridad in Nacozari, Sonora. The Laboratorio de Unidad la Caridad is ISO 9001:2015 certified. The mechanical sample preparation generated one set of three pulps per sample weighing approximately 100 g. Each pulp was identified with the drill hole number, bench and sample number. Once pulp samples were prepared the samples were processed as follows:

- 1 pulp sent to the Geochemical Laboratory.
- 2 pulps were stored for reference.

The procedure at the laboratory for both DDH and RC samples was as follows:

- Samples were received at the laboratory and catalogued
- Samples were weighed
- Samples were crushed to ½ inch, and placed in a labelled bucket (drill hole, bench, sample number)
- The sample was reduced by a Cone Crusher N°6 and homogenized 10 times with the Jones Medium cutter, reducing the sample to 100 g

- Samples were dried for 2 hours
- Sieved and pulverized to -100 mesh (0.147 mm)
- Samples were then homogenized, split and distributed into three labeled envelopes

The leftover samples were organized and stored for future reference or assay verification.

For the recent drilling, SG determinations were routinely completed on samples submitted to the laboratory. The measurement was based on obtaining the dry mass and wet mass of each interval sampled in a core drill hole.

An electronic scale was used for SG determinations on small core samples (samples from 0 m to 3 m). Core samples were dried and weighed in air as well as submerged in water. The mass measurements were entered into an MS Excel spreadsheet and the SG was then calculated. An example for drill hole MXD-1148 is illustrated in Figure 8.4.

Figure 8.4: Example of SG Report for Drill Hole MXD-1148

MEXICANA DE COBRE S.A. DE C.V.
Departamento de Geología Mina

BARRENO No. MXD-1148

(1)

GRAV ESPECIFICA

No. Ensayo	Intervalo	Peso total	Peso núcleo	Peso caja sin núcleo	Peso núcleo caja ant.	SG
01	0.00 - 2.15	1.300	0.300	1.000	0.263	2.76
02	2.15 - 5.15	9.600	3.000	6.600	2.29	2.87%
03	5.15 - 8.15	17.500	3.000	14.500	2.30	2.44%
04	8.15 - 11.15	18.300	3.000	15.300	2.16	2.80%
05	11.15 - 14.15	15.900	3.000	12.900	2.12	2.89%
06	14.15 - 16.48	8.700	1.33	7.37	2.12	2.79%

8.1.2 Sample Results

To date there has been a total of 107,239 samples collected on the La Caridad Project. The sampling comprises 81,567 core samples and 25,672 samples that are either RC, MD, or MT. A summary of the sampling by drilling type is presented in Table 8.1. These tables include all available assay data, including drill holes and samples that were excluded in the modeling process, as discussed in Section 11.1

Table 8.1: Summary of Assay Samples by Drill Hole Type

Drill Hole Type	No. of Samples	Mean Thickness (m)	Mean Cu (wt. %)	Mean Mo (wt. %)
DD	81,567	4.32	0.194	0.025
RC	23,394	13.59	0.263	0.022
MD	1,644	10.37	0.383	0.020
MT	634	10.91	0.464	0.025
Total	107,239	6.47	0.214	0.025

8.1.3 Verification of Sampling and Assaying

To verify the assay results from the internal SCC laboratory, approximately 10% of the total campaign samples were sent to an external third-party laboratory, Activation Laboratory (Actlabs), in Zacatecas, Mexico. Actlabs are internationally certified to ISO 9001:2015. No details on the sample verification process and results were provided.

8.1.4 Sample Security

Drill core was collected at the drill rig by drilling company personnel and transported to the core shed, a locked and fenced facility. The sampled interval was indicated on the core box with a wooden tag painted red. The respective sample number and the interval from and to were also included on the board, as well as on the box (Figure 8.5).

Figure 8.5: Drill Hole BDO0019 with Sample Tags and Depth

Once the cores were logged, the information was imported to acQuire. The drill hole location and logging data was verified by Senior LC geologists prior to importing into acQuire, and again after the importation was complete. The information appeared in the list of the drill holes uploaded to the database and the information entered was verified again. When entering the lithology data, the drill hole name was confirmed, as well as the interval from and to, lithology, alteration and mineralization. The codes for each variable were automatically generated by acQuire in the database.

The 8-70 g and sampled core boxes were then sent to be cut. Each selected sample interval was cut in half with a manual core cutter. The assistant geologist supervised the core cutting, as in order to ensure as representative a sample as possible was cut for analysis. This was necessary as the mineralization in the core was often not homogeneous, with variable veining or thin banding.

The cut samples were placed in a clear plastic bag, and the bag was marked on both sides with the drill hole name and the sample number. A sample tag was attached to the bag with the corresponding drill hole and sample information. The bag was then sealed to prevent contamination. Figure 8.6 illustrates examples of core samples, ready to be sealed (left) and sealed on transport vehicle (right).

Figure 8.6: Example Core Samples



The samples were then loaded onto the transport vehicle in order of drill hole and sample number and delivered to the laboratory by LC geology personnel. Once received at the laboratory, each of the samples was reviewed by the laboratory supervisor. The geology personnel delivered a sample shipment report of the total of the samples (Figure 8.7) per drill hole and the laboratory signed as received. All remaining core were stored in the Colonia El Ranchito, Sonora, core storage warehouses for future metallurgical, or leach column testing.

Figure 8.7: Example Sample Requisition Report – MCD-1144

GRUPO MEXICO EXPLORACIONES		RELACION DE MUESTRAS BARRENO : MCD-1144						FECHA Octubre-25-2019			
BANCO	MUESTRAS	E N S A Y E S									
		% Pb	% Cu	% CuO	% CuSol	% Fe	% Mo	% Sb	% Bi	% As	% Zn
1620	1-2-3-4-5	X	X	X	X	X	X	X	X	X	X
1605	6-7-8-9-10	X	X	X	X	X	X	X	X	X	X
1590	11-12-13-14-15-16	X	X	X	X	X	X	X	X	X	X
1575	17-18-19-20-21	X	X	X	X	X	X	X	X	X	X
1560	22-23-24-25-26	X	X	X	X	X	X	X	X	X	X
1545	27-28-29-30-31-32-33	X	X	X	X	X	X	X	X	X	X
1530	34-35-36-37-38	X	X	X	X	X	X	X	X	X	X
1515	39-40-41-42-43	X	X	X	X	X	X	X	X	X	X
1500	44	X	X	X	X	X	X	X	X	X	X
TOTAL = 44 MUESTRAS											
GEOLOGIA		PREP. DE MUESTRA			RECIBIO			LAB. DE ENSAYES			
Orlando Padilla R.											

At the laboratory, the chain of custody of the sample preparation was well established. Both, the reception of the sample coming from the drill rig and the transfer of the prepared sample to the chemical laboratory are also appropriately documented.

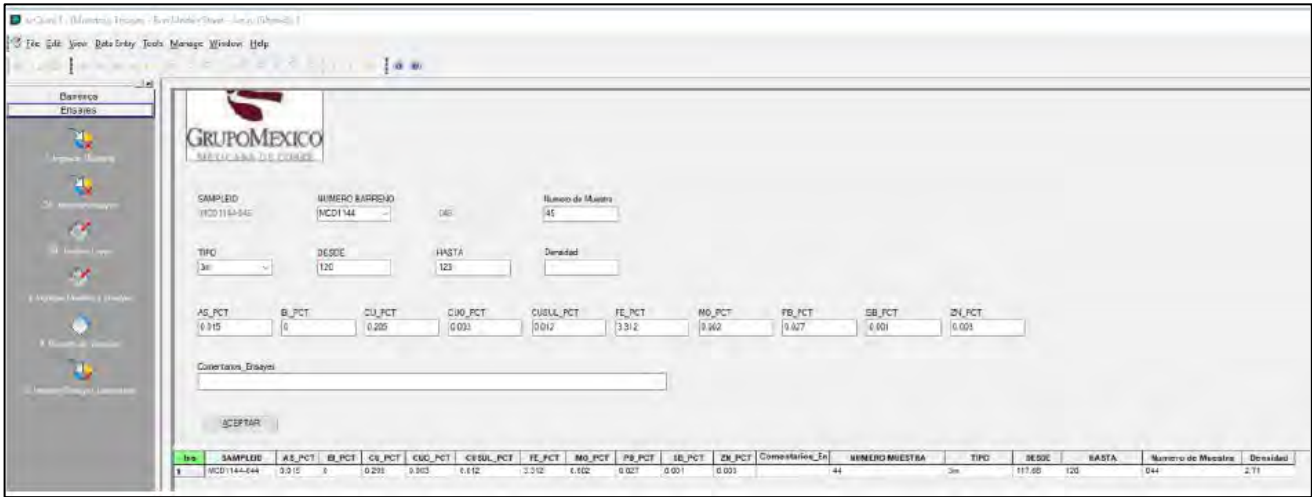
Once the laboratory finished the preparation, two (2) pulps of each sample were returned to the Geology Department as control samples (one remained as a control sample and the other was used for certification purposes). The pulp samples were stored in the geology warehouse located in Colonia El Ranchito (Figure 8.8).

Figure 8.8: Example of Stored Sample Pulps



Once the samples were analyzed, the results were sent electronically to the LC Project geologist, which were then uploaded into acQuire. The laboratory analyzed for Specific Gravity (SG), arsenic (As), bismuth (Bi), Cu, copper oxide (CuO), soluble copper (CuSol), iron (Fe), Mo, lead (Pb), and antimony (Sb). During the import, the assay information, including sampling intervals and assay values, were verified in acQuire. Figure 8.9 illustrates an example assay interval as it appears in the acQuire database.

Figure 8.9: Assay Import into acQuire – MCD-1144



8.2 Laboratory Sample Preparation Methods and Analytical Procedures

Due to internal company policies, the laboratories owned by SCC were used for the mechanical preparation and chemical analysis of the samples, including the following:

- Laboratorio de Unidad La Caridad, in Nacozari de García, Sonora, which was ISO 9001:2015 certified during the period when the samples were analyzed
- Estación Santiago Laboratorio Geoquímico, in, San Luis Potosí. The laboratory did not have any type of certification during the period that the work was carried out at La Caridad.

Analysis for all the La Caridad drilling was performed at an internal SCC laboratory (Laboratorio de Unidad La Caridad) located in Nacozari, Sonora.

The analysis for As, Bi, calcium (Ca), cadmium (Cd), cobalt (Co), chromium (Cr), Cu, Fe, mercury (Hg), magnesium (Mg), manganese (Mn), Mo, nickel (Ni), sodium (Na), Pb, Sb, selenium (Se), and Zn were done by a three-acid digestion with chlorhydric (50%), nitric and perchloric acids, followed by analysis by ICP and Atomic Absorption (AA) Spectroscopy.

The analysis for Au was done by a two-acid digestion of a 75 g geochemical solution sample with methyl isobutyl ketone and chlorhydric acid. Final analysis was by AA fire assay for values below 500 parts per billion (ppb). The same process was used for samples over 500 ppb although with more sample weights.

The analysis for sequential copper, was done by digestion of a 0.2-g pulverized sample with sulfuric acid which obtained the Cu content as an acid-soluble oxide. The remainder of the same sample was then subject to digestion with a sodium cyanide (Na-CN) solution, where the Cu contained in the secondary sulfides and bornite – primary sulfide – was then obtained. Finally, the previous analytical residue was assayed for Cu using AA, (known as residual Cu), which was mostly the Cu present in the primary sulfide chalcopyrite.

8.3 Quality Control and Quality Assurance Programs

QA/QC programs help to ensure the reliability of assay results from both internal and commercial laboratories and are considered to be essential industry standard practice. Prior to the 2020 drilling campaign, no QA/QC programs had been implemented at La Caridad. As of 2020, LC have begun a systematic QA/QC program, which includes the insertion of the certified reference materials (CRMs), pulp duplicate, field duplicates, field blanks, and coarse or preparation duplicates into the sampling stream at regular intervals, as shown below:

- Pulp Duplicates: Correspond to samples obtained after the milling process. Pulp duplicates were inserted at a rate of 1 every 25 samples, including half in the same shipment and the other half in another shipment or to the control laboratory.
- Coarse or Preparation Duplicates: Correspond to the samples obtained after crushing. Coarse duplicates were inserted at a rate of 1 every 25 samples), including half in the same shipment and the other half in another shipment or to the control laboratory.
- Field Duplicates: Consist of the second core quarter separated for analysis. Field duplicates were inserted at a rate of 1 every 25 samples.
- Field Blanks: Samples of barren rocks or prepared with local barren rocks. Field blanks were inserted at a rate of 1 every 25 samples.

- CRM: samples were purchased from the commercial laboratory, ORE Research & Exploration Pty Ltd (OREAS), and include a corresponding certificate. CRMs were inserted at a rate of 1 every 20 or 25 samples, with the CRM chosen randomly.

The samples were sent to two laboratories owned by SCC: Laboratorio Geoquimico San Luis Potosi and Laboratorio de Unidad La Caridad. For the 2020-2021 drilling campaign a total of 6,554 samples corresponding to 78 drill holes were distributed between the two laboratories.

The review of the QA/QC results was carried out by the LC geologist in charge of the Project. Once the results were received, the statistics of the control samples were analyzed in Excel, via a series of control charts. The QA/QC process was constantly monitored for CRM results so that there was no prolonged upward or downward drift or deviation, and the laboratory was alerted in case of deviations.

The laboratory was also alerted if there were outliers in the analysis of blanks and duplicates, and the situation was evaluated in order to modify the procedure, or reanalyze the shipments.

8.3.1 SCC CRM

Four types of OREAS Cu-porphyry CRM standards were inserted in alternating order, including:

- OREAS 151b: low-grade Cu-Au porphyry
- OREAS 505: mid-grade Cu-Au porphyry
- OREAS 502c: high-grade Cu-Au-Mo porphyry
- OREAS 501c: low-grade Cu-Au porphyry with minor Cu-Mo concentrate

The results for the CRMs analyzed at Laboratorio de Unidad La Caridad displayed good results for Cu. Mo results were within control limits for the high grade Cu-Au-Mo porphyry CRM, OREAS 502C, but outside control limits for the other CRM's where Mo is not a certified element. At the Laboratorio Geoquimico San Luis Potosi, the CRM's displayed good results for Cu. For the OREAS 502c, Mo showed results lower than the expected control limits. This may indicate that there is a systematic underrepresentation of the Mo results for all samples analyzed at San Luis Potosi. Further review and monitoring is recommended. Figure 8.10 illustrates the results for Cu and Mo for OREAS 502c as analyzed by Laboratorio de Unidad La Caridad. Figure 8.11 illustrates the results for Cu and Mo for OREAS 502c at Laboratorio Geoquimico San Luis Potosi.

Figure 8.10: Example CRM Control Chart for Cu and Mo (Oreas 502c) as Analyzed by Laboratorio de Unidad La Caridad

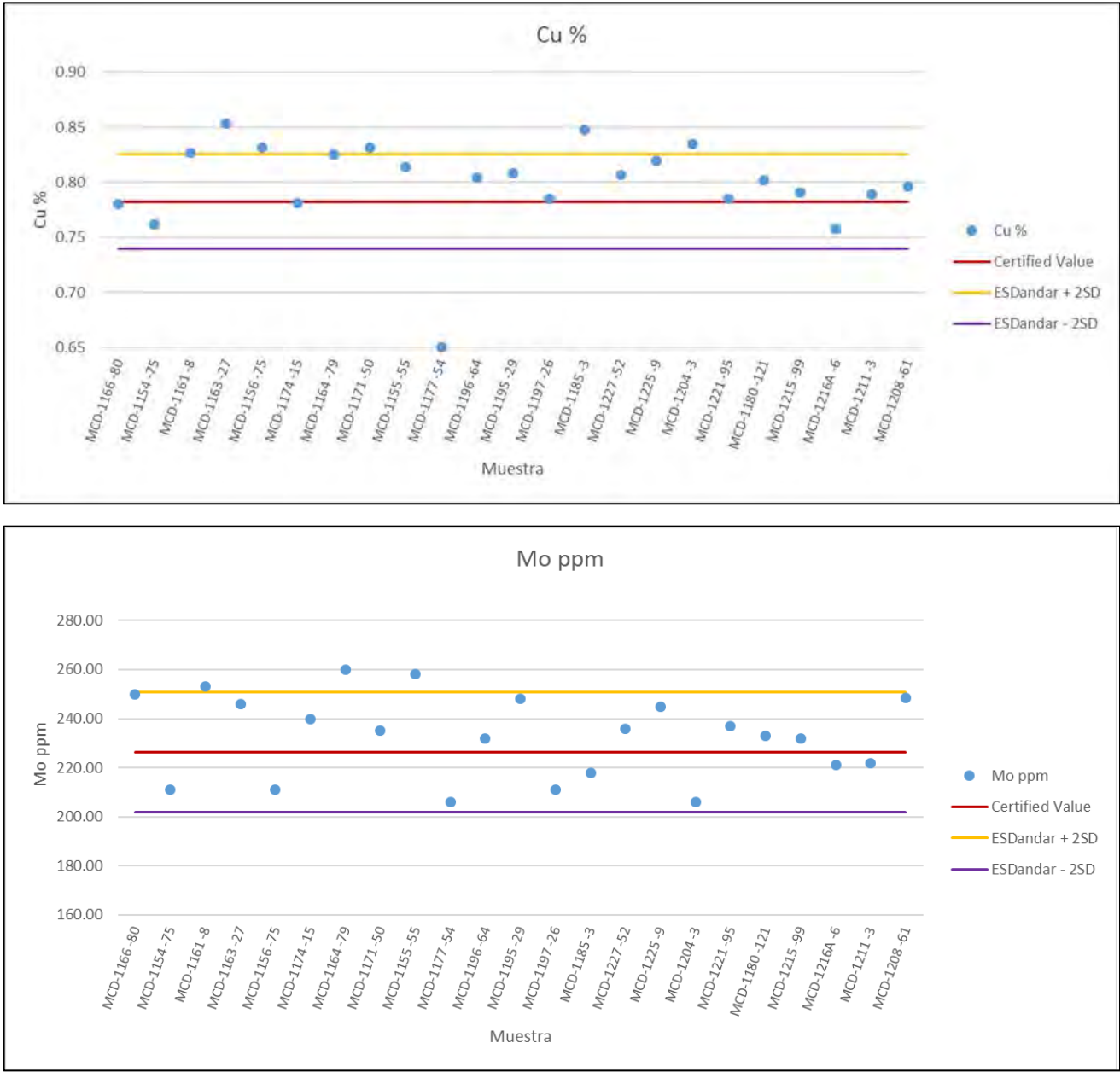
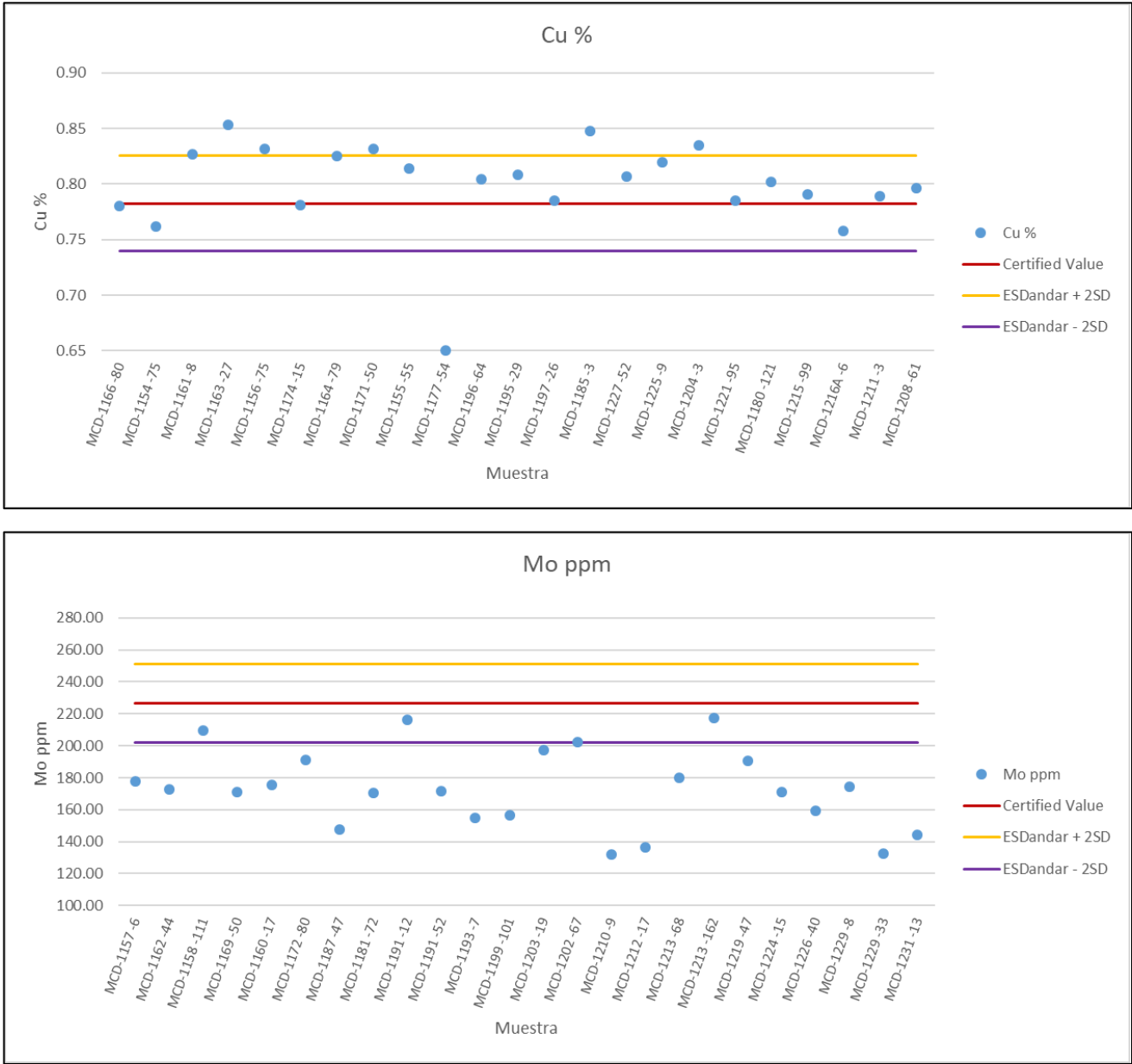


Figure 8.11: Example CRM Control Chart for Cu and Mo (Oreas 502c) as Analyzed by Laboratorio Geoquimico San Luis de Potosi

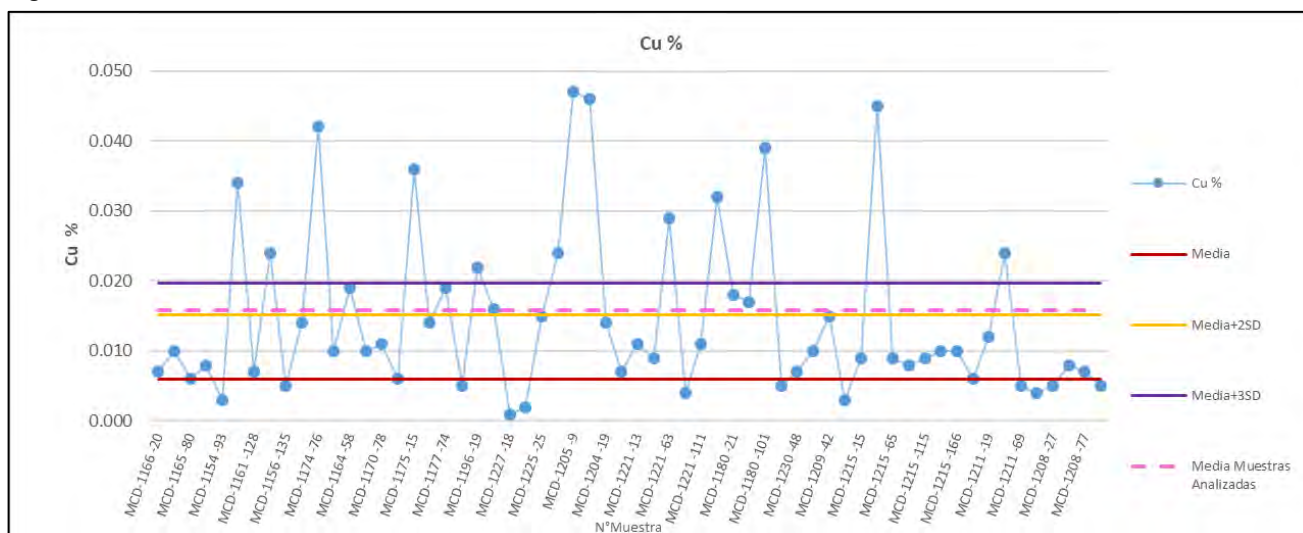


Source: LC 2021

8.3.2 Blanks

A total of 60 samples of coarse blanks were analyzed at Laboratorio de Unidad La Caridad. The results for Cu show that 13 samples (22%) exceeded the limit of +3 standard deviations (SD), with 78% of the samples within the control parameters. Figure 8.12 illustrates the performance of the coarse blanks at Laboratorio de Unidad La Caridad for Cu. For Mo, of the 60 coarse blanks samples analyzed, for all samples were within the control limits.

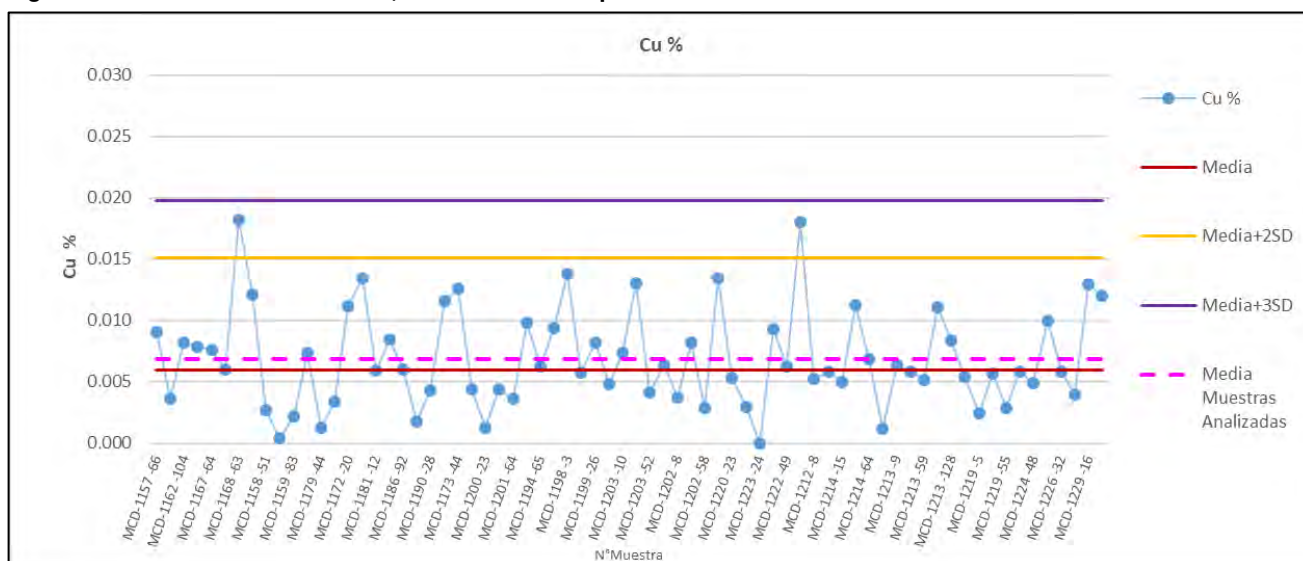
Figure 8.12: Coarse Blanks for Cu, Laboratorio de Unidad La Caridad



Source: LC 2021

At the San Luis Potosi geochemical laboratory, a total of 70 samples of coarse blanks were analyzed. All of the of the samples for Cu and Mo were within the control parameters (Figure 8.13).

Figure 8.13: Coarse Blanks for Cu, Laboratorio Geoquimico San Luis de Potosi

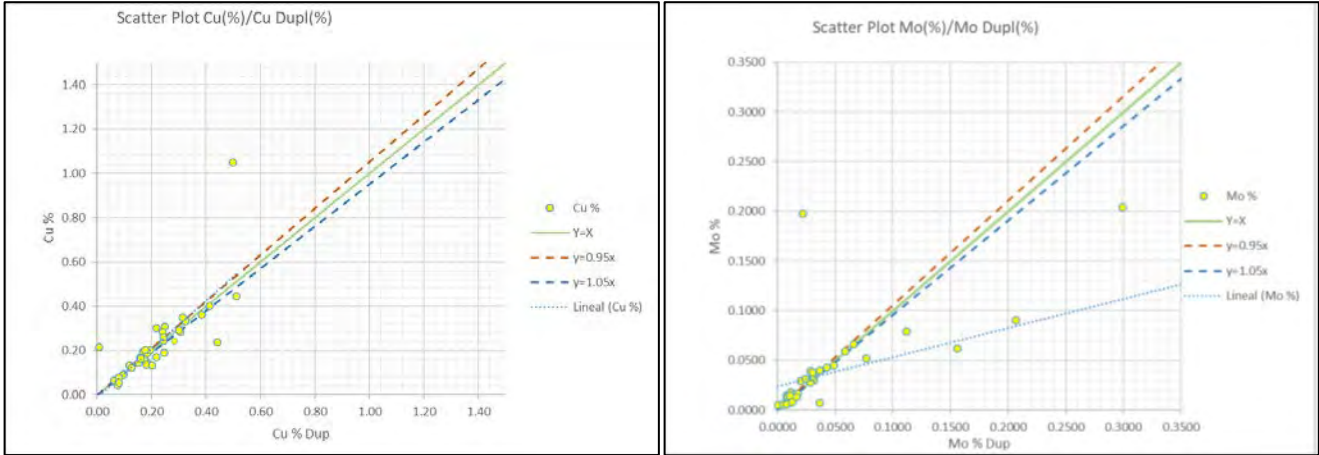


Source: LC 2021

8.3.3 Coarse Duplicates

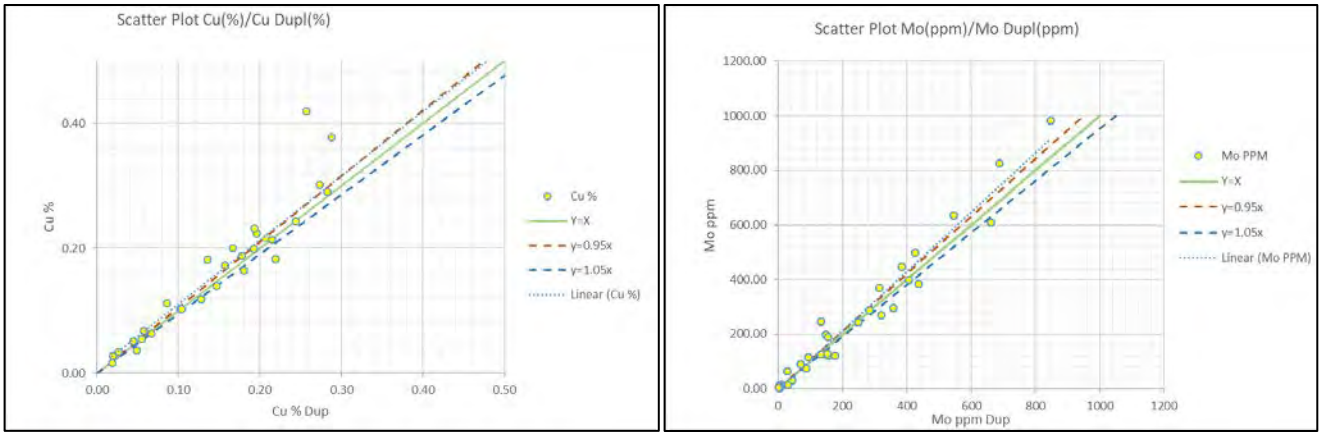
For the coarse duplicates analyzed in both laboratories, a good precision was observed for the Cu samples. Mo values show poor precision above the low-grade samples, with some values well outside the tolerance limits, for samples analyzed at Laboratorio de Unidad La Caridad. Figure 8.14 illustrates the coarse duplicates for both Cu and Mo which were analyzed at Laboratorio de Unidad La Caridad, and Figure 8.15 at Laboratorio Geoquimico San Luis de Potosi.

Figure 8.14: Coarse Duplicates for Cu and Mo, Laboratorio de Unidad La Caridad



Source: LC 2021

Figure 8.15: Coarse Duplicates for Cu and Mo, Laboratorio Geoquimico San Luis de Potosi

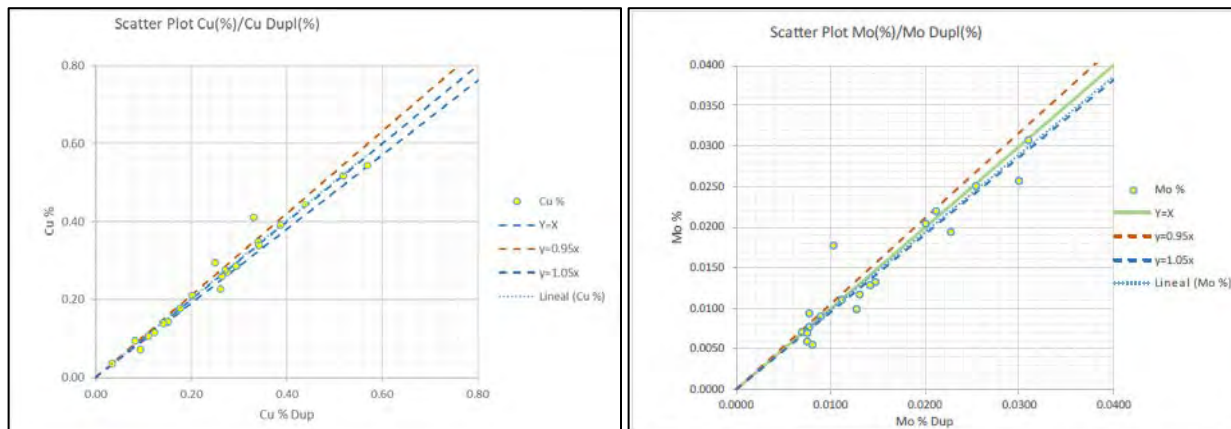


Source: LC 2021

8.3.4 Pulp Duplicates

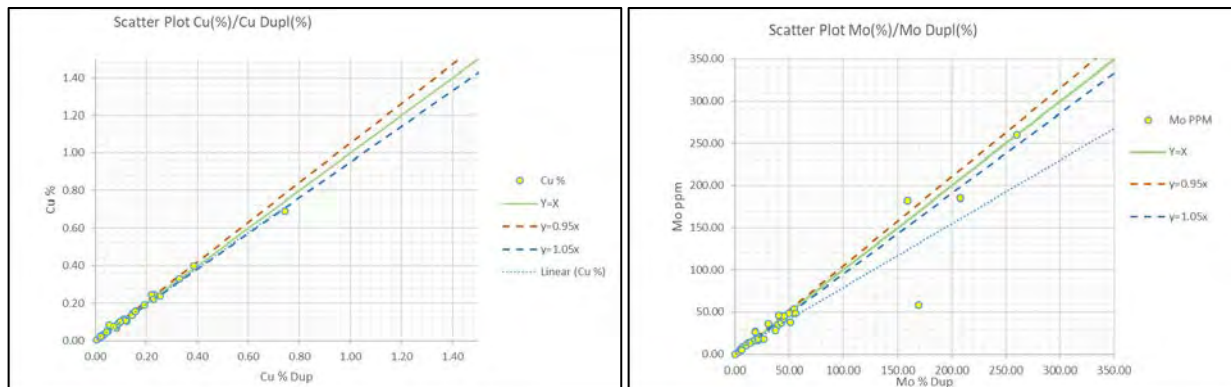
For the pulp duplicates analyzed in both laboratories, a good precision was observed for the samples analyzed for Cu. The samples analyzed for Mo display a poor precision for sample above the low-grades for both laboratories, with some values outside the tolerance limits. Figure 8.16 illustrates the pulp duplicates for both Cu and Mo which were analyzed at Laboratorio de Unidad La Caridad and Figure 8.17 at Laboratorio Geoquimico San Luis de Potosi.

Figure 8.16: Pulp Duplicates for Cu and Mo, Laboratorio de Unidad La Caridad



Source: LC 2021

Figure 8.17: Pulp Duplicates for Cu and Mo, Laboratorio Geoquimico San Luis de Potosi



Source: LC 2021

No information exists about the analytical QA/QC procedures at La Caridad between 1968 and 2020.

8.4 Qualified Person's Opinion Regarding Sample Preparation, Security and Analytical Procedures

It is the QP's opinion that the sample preparation, security, and analytical procedures applied by LC were generally appropriate and fit for the purpose of establishing an analytical database for use in grade modeling and preparation of Mineral Resource estimates, as summarized in this TRS. The QP notes that no QA/QC programs were implemented at the site until 2020, which does add a degree of uncertainty with the pre-2020 samples. Any future drilling and sampling programs should include a robust QA/QC program.

The QP reviewed the core and sampling techniques during a site visit in August 2021. The QP found that the sampling techniques were appropriate for collecting data for the purpose of preparing geological models and Mineral Resource estimates.

9.0 DATA VERIFICATION

9.1 Exploration and Mineral Resource Data Verification

9.1.1 Exploration Data Compilation

The QP was provided with the compiled La Caridad database, in Excel file format, which included survey information, downhole geological units, sample intervals, and analytical results.

Drill hole data for La Caridad comprised 3,529 exploration drill holes, totaling 694,455 m and containing 107,239 analytical samples amounting to 694,353 m. Compiled supporting documentation for the La Caridad drilling data included descriptive logs, with collar survey, core photos, and assay information.

9.1.2 Exploration Data Validation

All recent drill hole logs were recorded by logging geologists on formatted paper sheets, then transcribed into Excel for eventual upload into the acQuire project database. Data and observations recorded into the digital logging files were reviewed for transcription, or keying errors, or omissions, by senior La Caridad geologists. The data provided by La Caridad was evaluated for errors or omissions as part of the data validation procedures. Of note, much of the pre-2020 drilling did not have the detailed lithological, alteration or mineralization data found on the paper logging sheets fully recorded in the digital database. It is strongly recommended that all available information on the original paper logs with included in the digital acQuire database.

The review of the database used for the modeling was performed with Golder's internal software (DataCheck®), which allows the detection of inconsistencies such as: overlapping intervals, excessive path deviation between measurement intervals, duplication of collars, sample depth greater than the depth of the collar, among others.

No major inconsistencies were detected in the digital databases submitted; however, the following data errors were noted:

- 11 drill holes had intervals with no information at the beginning or ends of drill holes in assay table
- 21 drill holes had intervals with no information at the beginning or ends of drill holes in lithology table
- 5 drill holes without lithology information
- 1 drill holes with overlaps in the assay table
- 4 drill holes with gaps without information in the assay table
- 23 drill holes with gaps without information in the lithology table
- The downhole survey table contained 46 intervals which exceeded 50 m between survey points
- 1 drill hole displayed a dip variation in excess of 10°
- 3 drill holes showed an excessive azimuth variation of greater than 10°
- 3 drill holes displayed an excessive dip variation (greater than 10° in the case of an inclined drill hole or greater than 5° in a vertical drill hole)

The QP reviewed the available drill hole data during the August 26, to 27, 2021, site visit. The purpose of the site visit was to review the project site, geology, current, and previous exploration methods, and results and identify any

concerns and provide recommendations for consideration by LC. The site visit was completed in fulfilment of the requirement that the Mineral Resource or Mineral Reserves QP(s) perform a current site visit to the project in support of preparation of any S-K 1300 Mineral Resource and/or Mineral Reserve statements, or TRS.

9.1.3 Validated Drill Hole Information

In support of the geological modeling, the QP performed the following validation steps on the 3,529 available drill holes:

- Examination of the drillhole collars against the original and end-of-2020 topography surfaces.
- Evaluation of the different drilling methods.
- Check for sample overlaps, sample duplication, survey anomalies and assay anomalies.
- A detailed review of 70 scanned paper logs and comparison to the electronic data.

The results of the validation are detailed below.

An original topography surface and an end-of-2020 topography surface, covering the entire La Caridad area (including Bella-Union), were provided by LC. Both surfaces were based on contours at 15 m vertical intervals. The collar locations were assessed based on these two surfaces. Given the contour resolution level, any drillhole within 10 m of the surfaces was considered acceptable, which accounted for 43% to the total number of drill holes. Potential reasons for a difference greater than 10 m are as follows:

- The hole was drilled prior to the pit deepening.
- The hole was drilled on a waste dump that has subsequently been removed.
- The hole was drilled on an excavated surface that has subsequently been filled.
- A mis-recording of the collar coordinates from the paper copies.
- Bad topography data in the vicinity of the hole collar.

A total of 19 drill holes (Table 9.1) with collar versus topographic elevation discrepancies were discarded from the final estimation database following these criteria.

Table 9.1: List of Excluded holes

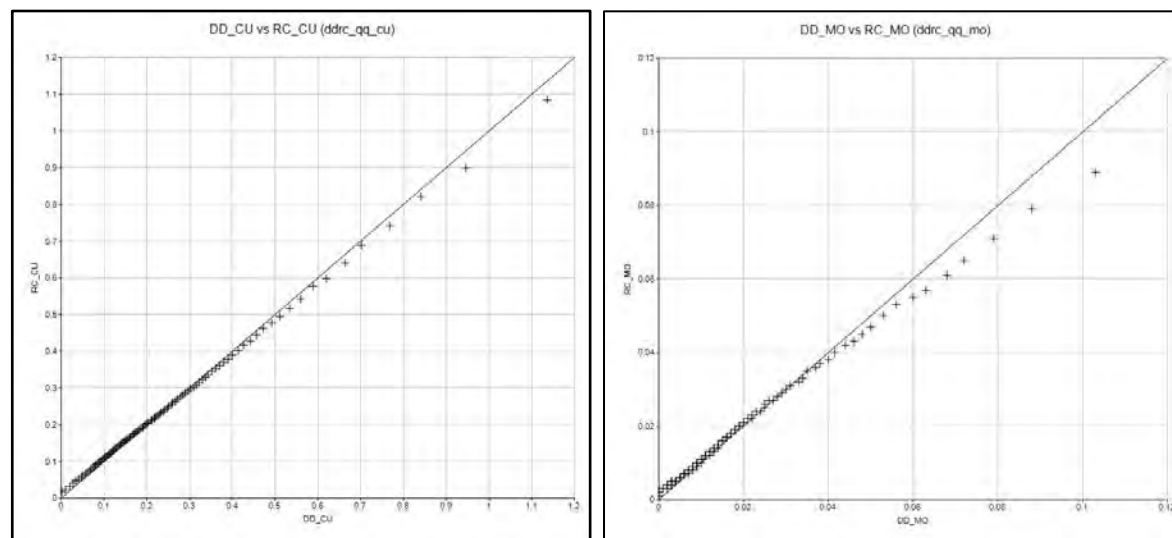
Drill Hole	Drill Hole	Drill Hole	Drill Hole	Drill Hole
AM00152	CFCA031	MCD0479	MCI0612	MCI1258
AM00165	CRO0032	MCD0480	MCI0624	MCM0271
AM00251	CRO0041	MCD0573	MCI0757	MCM0391
CFCA024	MCD0477	MCD0694	MCI1231	

Four different drilling methods were identified (see Table 9.2). Their spatial distribution is shown in Figure 9.2. The cluster of holes to the south is Bella-Union.

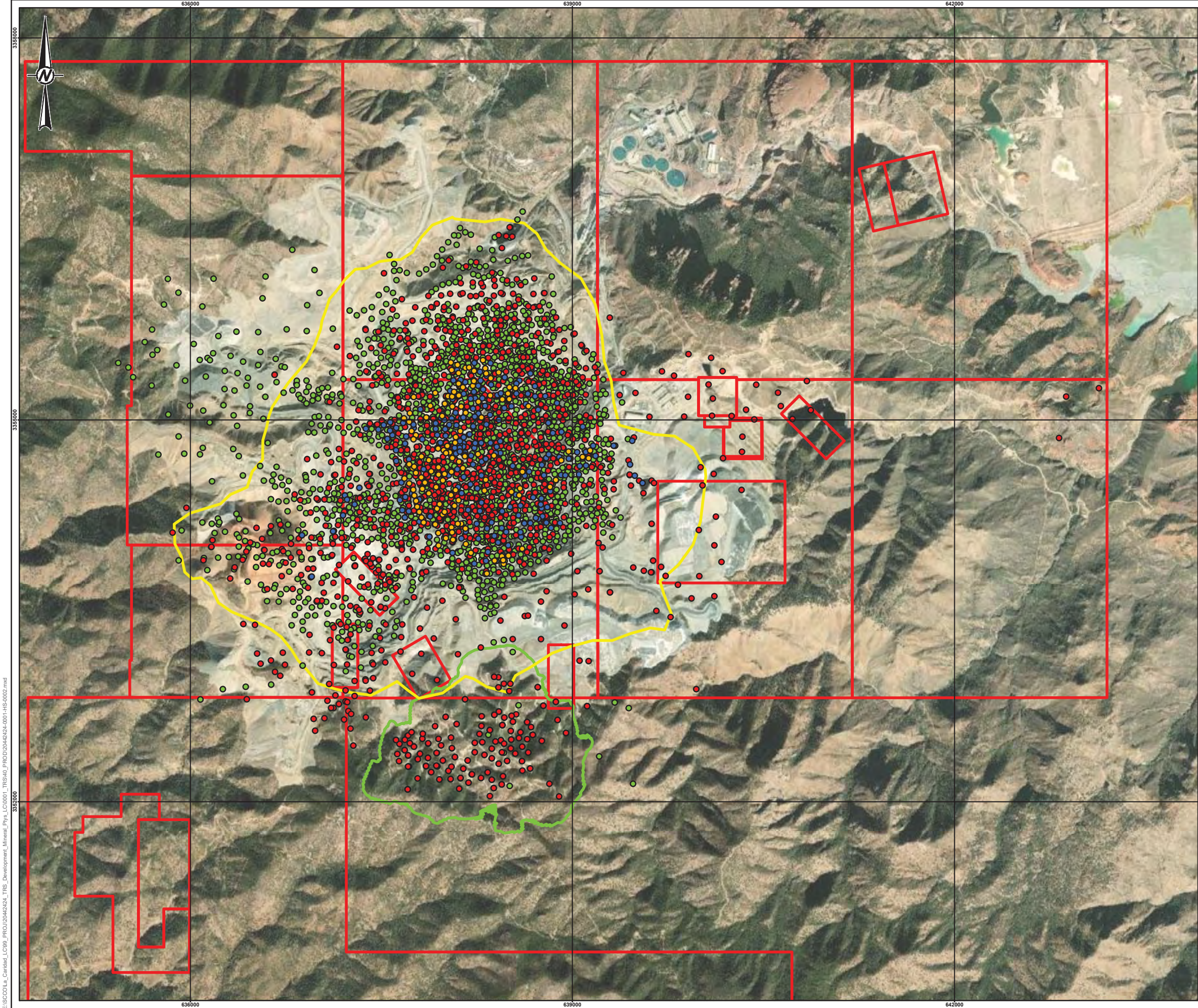
Table 9.2: List of Drilling Methods

Drill Method	Code	Count	Percent
Diamond Drilling	DD	1,167	33%
Diamond Hammer	MD	201	6%
Hammer	MT	127	4%
Reverse Circulation	RC	2,034	58%
Total		3,529	100%

An evaluation was conducted to determine if there was any potential bias with the two principal drilling methods, DD and RC. Drill hole samples from the two different types that were within 50 m of each other were isolated and quantile-quantile (QQ) plots generated (Figure 9.1). In the plots, the x-axis is the DD, and the y-axis is RC. The left plot is Cu. It follows the diagonal up to 0.5%, deviating slightly thereafter indicating a negative bias towards RC (i.e., RC values are lower than DD). The right plot is Mo. It follows the diagonal up to 0.04%, deviating significantly thereafter indicating a negative bias towards RC. It is acknowledged that other factors such as historical drilling campaigns could influence these results. It is also recognized that a large proportion of the RC drilling occurs in areas that have already been mined out. For these reasons, it was decided to retain all drill hole types for the Mineral Resource estimate.

Figure 9.1: Drilling Type QQ Plots

Note: Cu on the left, Mo on the right.



LEGEND

Drill Hole Type

- DD
- RC
- MT
- MD

La Caridad Boundary

Bella Union Boundary

Concession Boundary

0 1 2

1:30,000 Kilometers

NOTE(S)

REFERENCE(S)

1. COORDINATE SYSTEM: WGS 1984 UTM ZONE 12N

2. IMAGERY SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY

CLIENT

PROJECT

LA CARIDAD

TITLE

DRILL HOLES BY TYPE

CONSULTANT	YYYY-MM-DD	2022-02-22
GOLDER MEMBER OF WSP	DESIGNED	JS
	PREPARED	TBH
	REVIEWED	JS
	APPROVED	MO

PROJECT NO.	CONTROL	REV.	FIGURE
20442424	-	-	9.2

E:\SC001a_Caridad_LC09_PROD\20442424_TFS_Development_Mineal_Phy_LC0001_TRS40_PROD\20442424-001-HIS-0002.mxd

1m IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

The QP reviewed the data for sample overlaps, sample duplication, survey anomalies and assay anomalies revealed several issues which were corrected after consultation with LC and evaluation of paper logs. Several instances of zero (0) values in the assay database were treated as absent or missing values for the following reasons.

- Only 73 out of 107,110 Cu assays had a value of zero (0), whereas 16,909 out of 107,064 CuO assays had a value of zero, and 1,507 out of 106,976 Mo assays had a value of zero. Due to the uncertainty in whether zero was a true recorded assay value, all instances of an assay value of zero were treated as absent/missing data.
- Only 87 out of 66,498 SG measurements had a value of zero. These were treated as absent/missing data.
- There were 119 samples where the CuO values exceeded the Cu values. In most of these samples the CuO assay was much higher than the Cu value. For this reason, in all these cases CuO values were treated as absent/missing data.

Of the 3,529 drill holes, 3,490 (99%) have a single survey measurement at the collar and 3,448 (98%) are vertical. LC provided a separate small dataset of holes that had downhole survey recorded, typically at 50-m intervals. Dip variation from vertical, down to depths of 350 m, is never more than 2° and is typically much less than 1°. If it is assumed these results can be applied to the entire dataset, then the potential maximum horizontal discrepancy would be around 3.5 m per 100 m vertical depth and is more typically in the order of 1 m per 100-m vertical depth. The average depth of all holes is around 200 m (DD 300 m, RC 150 m). Almost half of DD holes are greater than 300 m in depth, meaning there is the potential for a horizontal discrepancy of more than 10 m. This potential discrepancy is a risk to the Mineral Resource Estimate and has impacted the Resource Classification (see Section 11.4).

A detailed review of 70 scanned paper logs in comparison to the electronic data revealed several issues which were corrected. The main finding from this review is that most of the historical data had been manually composited into 15 m intervals and it is this information that was recorded electronically. It is recommended that the original sample assay intervals from the paper logs be recorded electronically. While much of the data that is recorded at 15 m manually composited intervals is in areas that have already been mined, there are still areas where the Mineral Resource is largely supported by these drill holes. It is also noteworthy that the paper logs contain considerable geological information which does not appear to be recorded in any electronic form or, if it was, that information is no longer available. As previously stated, all pertinent lithological, alteration and mineralization information available in the paper copies should be recorded electronically.

9.1.4 Limitations on Data Verification

The QP was not directly involved in the exploration drilling and sampling programs that formed the basis for collecting the data used in the geological modeling and Mineral Resource estimates for the Project; however, the QP was able to observe the drilling, sampling, and sample preparation methods in progress during the 2021 drilling campaign site visit. The QP has had to rely upon a detailed review of the pre-2020 exploration program data, documentation and standard database validation checks to ensure the resultant geological database is representative and reliable for use in geological modeling and Mineral Resource and Reserve estimation.

The Golder QP is not aware of any other limitations on nor failure to conduct appropriate data verification.

9.1.5 Qualified Person's Statement on Adequacy of Data Verification

The QP has verified the data disclosed, including collar survey, downhole geological data and observations, sampling, analytical, and other test data underlying the information or opinions contained in the written disclosure presented in this TRS. The QP recommends that the lithological, alteration and mineralization information available in the paper copies of the drill hole logs be revisited and all pertinent geological data be recorded electronically. In addition, the original assay intervals should be captured in the digital database.

The QP, by way of the data verification process described in this Section of the TRS, has used only that data, which were deemed by the QP to have been generated with proper industry standard procedures, were accurately transcribed from the original source and were suitable to be used for the purpose of preparing geological models and Mineral Resource estimates.

9.2 Mine Plan, Cost Model, and Mineral Reserves Review

The QP reviewed the historical data provided by La Caridad mine personnel. Examples of the data provided and reviewed include costs associated to the extraction and processing of the ore, equipment availability and unit costs, and the current production schedule being followed by operations.

The QP verified the assumptions being used for the mine plan, cost model, and the Mineral Reserves were reasonable for use on the Project; however, reconciliation data was not provided by site. With an updated geological block model being prepared for the Project the QP assumed a nominal dilution and mining loss based on experience on similar projects. The dilution and mining loss assumptions should be verified in future studies once reconciliation data is available.

The assumptions and inputs used in the preparation of the mine plan, cost model, and subsequently to form the Mineral Reserve estimate are suitable for a Pre-feasibility level of accuracy.

The following sections provide details into the data verification of the key modifying factors used to prepare the Mineral Reserves.

9.2.1 Geotechnical

CNI evaluated the structural stability of benches by analyzing structural data on orientation, length, spacing, and shear strength of fractures using a proprietary software package. CNI then applying an empirical correction factor based on experience to account for operating practices to develop estimated bench face angles. While these proprietary methods can not be independently verified in detail, the results are reasonable based on the data presented and the QP's experience.

CNI developed design bench face angles and inter-ramp slope angles in 1° intervals based on application of their proprietary methods. While such small increments may not seem to be justified based on the samples of structural data available, the expected variability of geological conditions, and the assumptions inherent in their analytical and methods and correction factors, ultimately the recommendations are based on the complete data set available and are therefore supported by the available data.

CNI evaluated stability at the inter-ramp scale using an internal probabilistic procedure similar to that used for the structural stability analysis of benches, except that the major structure database is used rather than the structural fabric. Estimated failure tonnage was computed by this procedure for the inter-ramp slope angles estimated from the bench-scale analysis and for both dry and saturated conditions. The estimated percentage of sector walls exhibiting inter-ramp failures ranged from 0% to 0.5% and 0% to 4.0% for dry and saturated conditions in the La

Caridad pit and ranged from 0% to 1.0% and 0.1% to 2.3% in the Bella Union area. Failure volume in these ranges is generally considerable to be routine for pit operations, where material is removed as pit development progresses.

The Factors of Safety (FOS) estimated at seven critical cross sections (five located in La Caridad and two located in the Bella Union area) exceeded 1.3 in all cases. CNI concluded that overall slope rotational shear instability is unlikely to occur due to low rock mass strength conditions.

Use of CNI slope designs is recommended for the purposes used in the TRS. Their recommendations in terms of the additional geotechnical work that would be required during final design or during mine operations to further optimize slope designs. A summary of these recommendations for the additional work required follows:

- Targeted geotechnical drilling and sampling of pit walls to improve confidence in RQD measurements and rock mass rating assessments.
- Updates to the pit geology and RQD models.
- Hydrogeological investigation that includes targeted airlift and recovery testing and packer testing in primary lithological units in the geological model, and installation of piezometers in select areas the pit
- Maintain records of water seep locations along with any noted seasonal fluctuations in the existing pit slopes and the location of any blasthole water intercepts.
- Use of the Hoek-Brown shear strength criterion as a check on the CNI method for assessing the shear strength of materials for global stability analysis is recommended.
- Preparation of regular reports from radar monitoring of existing slopes.

9.2.2 Mining Methods

During the site visit the QP verified the Project utilizes a conventional bulk mining method. A truck and shovel with both electric and diesel hydraulic units is employed at La Caridad. Due to the age of some of the units being used on site there does appear to be some mismatch of trucks to shovels, however, the historical and forecasted material movements does take this into account. The Project site natural topography allows for end dumping waste into valleys.

9.2.3 Cut-off Grade and Modifying Factors

LC currently utilizes a fixed mill and leach COG constraint. Dilution and mining loss are not considered currently at site.

9.2.4 Pit Optimization

LC retains a third-party consultant to prepare unrestricted pit optimization analysis. Golder reviewed the pit optimization analysis and noted that there was a limited understanding the site's physical and operational constraints.

9.2.5 Mine Design

LC utilizes a third-party to assist with mine phase design. Golder's preliminary review of these designs indicated there was a lack of consideration for phase interaction. During the site visit, discussions with LC indicated there were ongoing mine planning revisions.

9.2.6 Production Schedule

Monthly and yearly production statistics were provided for 2016 through end of 2021. The data that was provided showed that there is sufficient loading capacity for the production targets set in the schedule. LC retains monthly actuals and compares that to the forecasted schedule.

9.2.7 Manpower and Equipment

LC reviews the manpower and equipment requirements annually and has considered maintenance and replacement for mine planning.

9.2.8 Limitations on Data Verification

There was limited data by LC to verify industry standard verification is being completed at LC.

9.2.9 Statement on Adequacy of Data

The Golder QP responsible for mine planning and Mineral Reserve estimates has verified the data used in the preparation of the mine design and resultant Mineral Reserve estimate, including geotechnical design criteria, cut-off value calculations, mine modifying factors, production schedule, labor and equipment estimates, and other test data underlying the information, or opinions, contained in the written disclosure presented in this TRS.

The QP has used only that data which was deemed by the QP to have been generated with proper industry standard procedures, was accurately transcribed from the original source and was suitable to be used for the purpose of preparing the mine design and Mineral Reserve estimates. Data that could not be verified to this standard was reviewed for information purposes only but was not used in the development of the mine design, or Mineral Reserve estimates, presented in this TRS.

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

This sub-section contains forward-looking information related to mass recovery for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including actual plant feed characteristics that are different from the historical operations or from samples tested to date, and, equipment and operational performance that yield different results from the historical operations and historical and current test work results.

The original metallurgical testing was conducted in conjunction with the Mexican government entity, Comision de Fomento Minero, to develop an economic study for the Project during late-1960 to early-1970. Representative samples of the original deposit were tested at the government metallurgical laboratory to develop the parameters needed for the economic study. It should be noted that the Mexican government owned a majority (51%) of the Project at the time of the evaluation.

The metallurgical test results from the original evaluation could not be obtained from Mexicana de Cobre. Based on the results from the metallurgical and geological studies the project was designed by Ralph M. Parsons in California. All the data needed for development of the Design Criteria (DC) for the Project was developed as a joint effort between Mexicana de Cobre and the Mexican government. The technology used was known conventional technology commonly used in the mining industry. The final plant design did not include any parameters to address any potential factors impacting the viability of the Project.

The project was approved and constructed as a joint venture between Mexicana de Cobre and the Mexican government. The Mexican government owned metallurgical laboratory was considered the most capable and reliable laboratory in Mexico in 1970.

10.1 Concentrator

The Mexicana de Cobre (La Caridad) process plant has been in operation since 1979. The Project was based on an extensive exploration program developed in 1968 that included preliminary metallurgical testing.

The original plant design capacity for crushing, grinding and flotation circuits was 72,000 tpd. The operation of the plant started in June 1979. At this design throughput, the life-of-mine (LOM) for the Project was originally estimated at 30 years, starting in 1972. Continuing exploration has periodically increased the Mineral Reserves and LOM.

The development of the La Caridad Project required comprehensive metallurgical studies that were conducted internally by Mexicana de Cobre S. A. (MCSA) and by international laboratories. In addition, a pilot plant with 100 tonnes per day capacity was designed and built in 1972 at La Caridad for evaluation of the process parameters developed for the Project. The pilot plant facility served as a training site for future supervisory staff in training at La Caridad. The flotation testing focused on evaluation of grind size versus copper recovery and the viability of the DC developed for the processing plant.

The reports of those original studies were not available for this TRS; however, in the 42 years that the plant has been in operation, the mine has almost reached the ore tonnage estimated in 1979 for the LOM.

The process design developed for La Caridad Project is consistent with the metallurgical data developed from samples tested by MCSA. The estimated levels of copper recovery developed for La Caridad have been achieved throughout the life of the Project.

10.1.1 Process Selection

A beneficiation process utilizing a conventional milling and flotation circuit was selected for recovery of copper from the mineralization present at La Caridad, mainly chalcocite, which was the best available technology at the time. Copper is recovered into a flotation concentrate that is shipped by truck to a subsidiary smelter, approximately 20 km north of the concentrator. Product copper anodes from the smelter are refined on site to London Metal Exchange (LME) grade copper.

10.1.2 Process Parameters

Metallurgical data from pilot plant operations were used in the development of process DC and processing plant unit operations design. The metallurgical data developed met mining industry accepted best practices at the time based on a review of documents provided. The process DC include the following:

- **Comminution:** A relatively coarse grind provided acceptable levels of copper recovery. The metallurgical data developed during the test program indicated that a flotation process provided the expected copper recovery of 85.0% at a 66% passing 200 mesh Tyler (75 micron) grind size.
- **Flotation:** A three-step flotation circuit was tested: Rougher, Cleaner, and re-cleaner flotation, with a re-grind step after rougher flotation.
- **Tailings:** The parameters for thickening and dewatering were investigated in the pilot plant, as a basis for the DC of the Project.

10.1.3 Representativeness of Samples

Although the laboratory tests and pilot plant operation were conducted with samples and ore that were available at the time, the actual results of operation have proven the original estimates and results were correct. The historical copper recovery has been very close to the 85.0% originally estimated. In the last ten years, the deposit transitioned from chalcocite to chalcopyrite mineralization, but the recoveries have remained consistent.

10.1.4 Current Practice and Operating Performance

The current copper circuit is the same as the original. Over the years, the flotation circuit was improved to maintain an economic copper recovery with changes in ore mineralization and to increase production, as dictated by the increases in crushing and milling capacities.

The production results for the last 10 years of operation provided by MCSA are discussed in Section 14.0. Historically, since mining commenced in 1974, the mine has processed about 1,227.3 Mt of concentrator ore at an average 0.514% Cu, 0.0348% Mo, with a copper recovery of 85.4% Cu and 969.7 Mt of below COG ore for leaching.

10.1.5 Laboratory Certification

The plant laboratory is certified by ISO-4000. Besides the samples and assays used for control of the operation, the laboratory takes and assays samples for overall metallurgical balance purposes and to report production results to the fiscal authorities. The laboratory is certified by external third-party consultants and regulatory authorities for such purposes. Normally, a witness sample of the products is sent to the regulatory authorities.

10.2 Leaching, Solvent Extraction, and Electrowinning

The development of the open pit mine started in 1974. In 1979, the concentration plant started. Before the start-up of the plant and over the years, run-of-mine (ROM) ore below the concentrator COG and above a final COG of 0.15% Total Cu (TCu) was stockpiled in dumps located south and southeast of the pit, expecting an opportunity to economically process that low-grade material. Those original dumps were built by trucks in an end-dump fashion like waste dumps without height control nor care for compaction, or other factors that could affect leaching.

10.2.1 Test Program

A test program to determine the suitability of leaching the old dumps started in 1989. Column leach tests were conducted internally and by METCON Research, Inc. (Tucson, Arizona) during 1991. A pilot plant, including a 4,000-tonne-test leach pad was operated for over a year from 1992 through 1993 to confirm the proposed process of L-SX-EW. The company started placing the low-grade ROM ore in 30-meter-high lifts in Guadalupe Canyon, downstream of where the original low-grade ore dumps were placed.

10.2.2 Process Selection

SX-EW technology was chosen because it was the best available process to recover copper from low concentration solutions resulting from leaching low-grade ore. An alternative process of producing cement copper by precipitation with scrap iron was given cursory attention, but this alternative process was discarded. La Caridad considered the experience of a sister company, Buenavista de Cobre (BVC), acquired by Grupo Mexico three years earlier, where in 1980, discarded the precipitation process in favor of SX-EW.

In 1993, Bateman Engineering (Tucson, Arizona) developed a Feasibility Study (FS) for La Caridad and the company decided to build the SX-EW facility. The Engineering, Procurement, and Construction Management (EPCM) contract was conducted by Davy (San Ramon, California). International financing institutions and later both engineering companies reviewed all the Project information and process selection and accepted it as suitable for Project development.

10.2.3 Process Parameters

The main process parameters, such as unit solution flow, solution mixing time, settling rate, and solution separation time were investigated in the pilot plant, to confirm that the leach solutions to be produced at La Caridad would behave as those produced at BVC and that standard factors were applicable. Those parameters became the preliminary basis for the DC within the FS and later for plant engineering designs, leading to equipment dimensions calculations.

10.2.4 Representativeness of Samples

After completion of the FS, the project was subject to an extensive review over a period of four months by representatives of a consortium of banks that had to approve the financing of the project. The review team included independent qualified geology and process experts that ultimately accepted the estimated mine reserves for leaching to support the project, and the quality and representativeness of the samples used for the test programs and the pilot leach pad.

10.2.5 Current Practice and Operating Performance

The SX-EW plant began operating in 1995. The leaching system started six months before plant start-up, to load the system with leach solutions and start building up the concentration of copper in the PLS to the 2.1 grams of copper per liter (gCu/L) stipulated in the DC.

The nominal capacity of the SX-EW plant is 64.26 tpd copper cathode, or 23,455 tpy (365 days per year). The “catch-up” capacity at 95% availability is 67.64 tpd (347 days per year). As discussed in Section 14.0, over the last ten years, the production of cathode copper has averaged 25,779 tpy.

The main drawback of the operation is that the copper in PLS cannot be consistently maintained at the 2.1 grams of copper per liter (gCu/L) stipulated in the DC. This is due to issues in the grade of soluble copper in the ore. To offset the negative effect of the lower PLS copper concentration, in 1997 the SX portion of the plant was modified from the original Series-Configuration with two stages of extraction and two stages of stripping to a Series-Parallel-Configuration with two stage of extraction in series, one stage of extraction in parallel and one stage of stripping, which practically allows the plant to double the solution flow and achieve the electrowinning (EW) design capacity at a lower PLS copper concentration.

10.2.6 Plant Laboratory Certification

The plant laboratory is certified to be ISO-4000. Besides the samples and assays used for control of the operation, the laboratory takes three samples of the product copper cathode. One sample is assayed for overall metallurgical balance purposes and to report production results to the fiscal authorities. A second sample is sent to the fiscal authorities and the third sample is kept as a reference. The laboratory is certified by external third-party consultants and regulatory authorities for such purposes.

10.3 Recovery Estimates

This sub-section contains forward-looking information related to metallurgical recovery for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including actual plant feed characteristics that are different from the historical operations or from samples tested to date, , equipment and operational performance that yield different results from the historical operations and historical and current test work results.

From 2011 to 2020, the Concentrator Plant achieved 85.45 % copper recovery based on a review of records provided by Mexicana de Cobre. This level of copper recovery was practically the same predicted in the plant design criteria.

10.4 Qualified Person’s Opinion

La Caridad uses actual production results as basic parameters for the estimation of Mineral Reserves. Each year, the actual results of operation are reconciled with the estimates in the mine model to adjust the estimates accordingly. This approach completes the circle of sample analysis estimation results and ensures that the actual data do not deviate significantly from the estimations. The metallurgical and analytical testing annual reconciliations are considered adequate for the estimation of mass and metallurgical recovery modifying factors to be used in the estimation of Mineral Reserves.

11.0 MINERAL RESOURCE ESTIMATES

11.1 Key Assumptions, Parameters, and Methods

This sub-section contains forward-looking information related to density and grade for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including actual in-situ characteristics that are different from the samples collected and tested to date, equipment and operational performance that yield different results from current test work results.

11.1.1 Introduction

The La Caridad Mineral Resource estimate contains both the main La Caridad zone and the Bella-Union zone. This is the first public disclosure that includes the Bella-Union zone.

This Mineral Resource estimate was determined using a block model methodology based on OK and Inverse Distance cubed (ID³) interpolation methods. Drill hole sample data was capped to control outlier values and composited for equal sample weighting. Mineral Resource categories were assigned to the model based on drill hole spacing relative to the spatial continuity of the deposit and the search pass that block grades were estimated in. Mineral Resource estimates were constrained by an open pit shell based on economic criteria outlined in Section 11.6.

11.1.2 Geological Model

Lithological, alteration and mineralization domain solid models were provided by LC for the La Caridad deposit. The models were imported into Datamine Studio RM software and compared against the drill hole data. On review, it was found that the drill hole data did not support the solid models provided. The reasons for this are summarized below.

- Much of the drill hole data did not have lithological, alteration and mineralization recorded. More recent drill holes had a fuller record of information, but this represents a small proportion of the overall data.
- Investigation of the available lithological, alteration and mineralization drill hole data relative to the lithological, alteration and mineralization solids showed only weak to moderate correlation.
- There were no lithological, alteration and mineralization domain solid models for the Bella Union zone.

The provenance of the solid models is not clear. It is unlikely the models were developed based on the electronic drill hole data provided. It is possible that additional electronic data was available at some point, and this has been lost.

It was concluded that the available electronic drill hole data was insufficient for new domain solid models to be constructed.

The deposit is known to have oxide, primary sulfide, and secondary sulfide mineralization components. Typically, for this type of deposit, domains of these components would be used as an estimation control, provided the statistical estimation variables (Cu, Mo, etc.) could be shown to have different statistical populations. The lack of data to implement domain control is a risk to the Mineral Resource Estimate, and this has impacted the Resource Classification (see Section 11.5).

11.1.3 Available Data

The drill hole database provided by LC consisted of 3,529 drill holes, including 107,239 sample intervals of which 107,110 had a total Cu assay, 107,064 had a CuO assay, 106,976 had a Mo assay, and 66,498 had a SG measurement. The total length of sample intervals is 694,353 m. Drill hole data has been collected over 16 separate drill campaigns, ranging from 1968 to 2019. The drilling is explained in more detail in Section 7.2 of this TRS.

Data validation included a review of the collars versus the topography, drilling methods, sampling and review of the original scanned logs against the database. A total of 19 drill holes were removed from the final modeling database, as shown in Table 11.1. Further details of the validation process are discussed in Section 9.1.

Table 11.1: List of Excluded holes

Drill Hole	Drill Hole	Drill Hole	Drill Hole	Drill Hole
AM00152	CFCA031	MCD0479	MCI0612	MCI1258
AM00165	CRO0032	MCD0480	MCI0624	MCM0271
AM00251	CRO0041	MCD0573	MCI0757	MCM0391
CFCA024	MCD0477	MCD0694	MCI1231	

As discussed in Section 9.1.3, the QP checked for sample overlaps, duplications, survey anomalies and assay anomalies, which were discussed with LC and addressed.

Based on the validation conducted in Section 9.1.3, the final drill hole database submitted for Exploratory Data Analysis (EDA) consisted of 3,510 drill holes, including 106,282 sample intervals of which 106,132 had a Cu assay, 89,234 had a CuO assay, 104,577 had a Mo assay, and 66,235 had a SG measurement. The total length of sample intervals is 683,807 m.

11.1.4 Exploratory Data Analysis

The sample data were reviewed for Cu, CuO, and Mo using descriptive statistics as well as a series of graphs including histograms, probability plots and X-Y scatterplots for the purpose of describing the sample population and identifying outlier values.

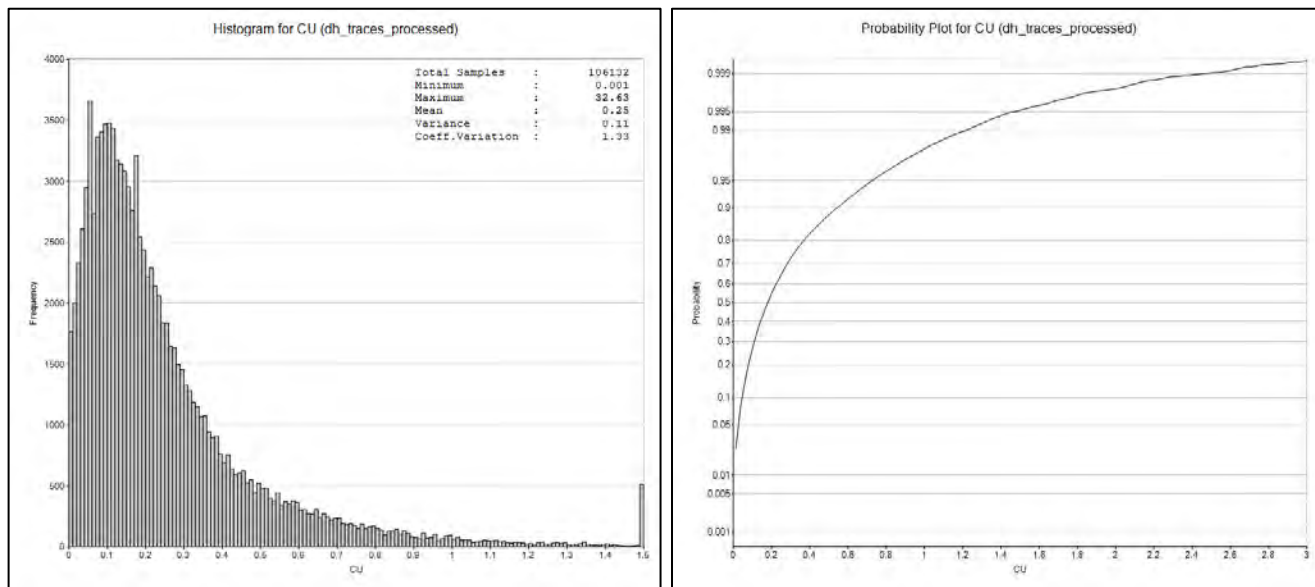
Table 11.2 summarizes the descriptive statistics of the total sample population.

Table 11.2: Summary of Sample Statistics

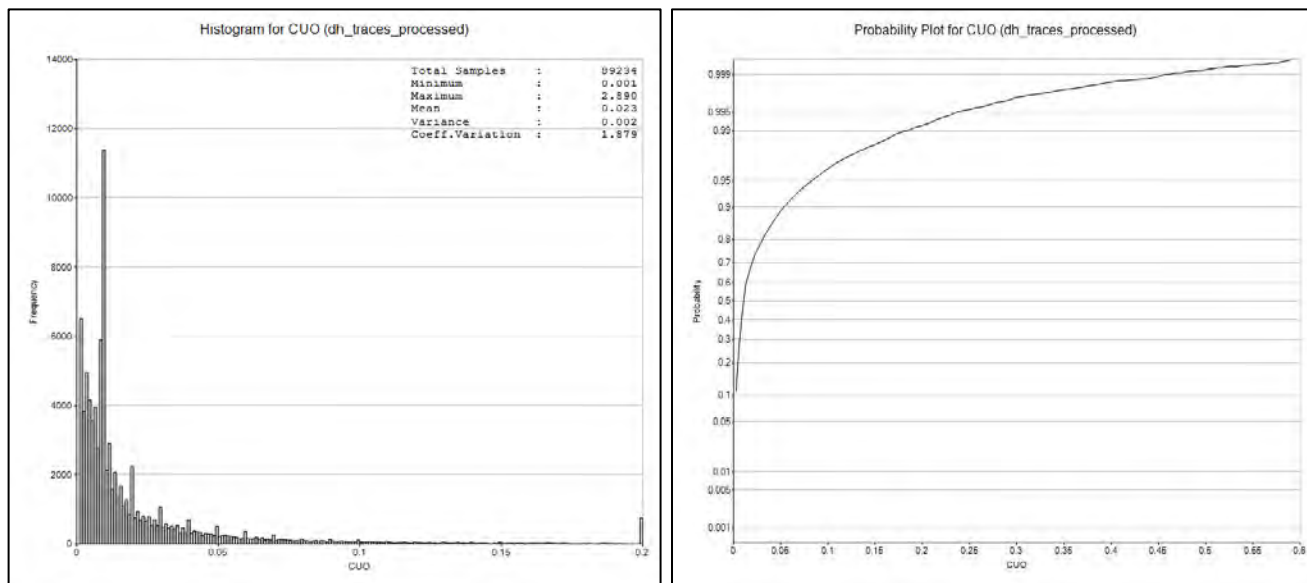
Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	Co. Var.
Cu	106,132	0.001	32.63	0.254	0.114	0.338	1.329
CuO	89,234	0.001	2.89	0.023	0.002	0.043	1.879
Mo	104,577	0.001	8.023	0.024	0.003	0.055	2.27

Note: Samples are length weighted. Std. Dev.=Standard Deviation. Co. Var.=Coefficient of Variation

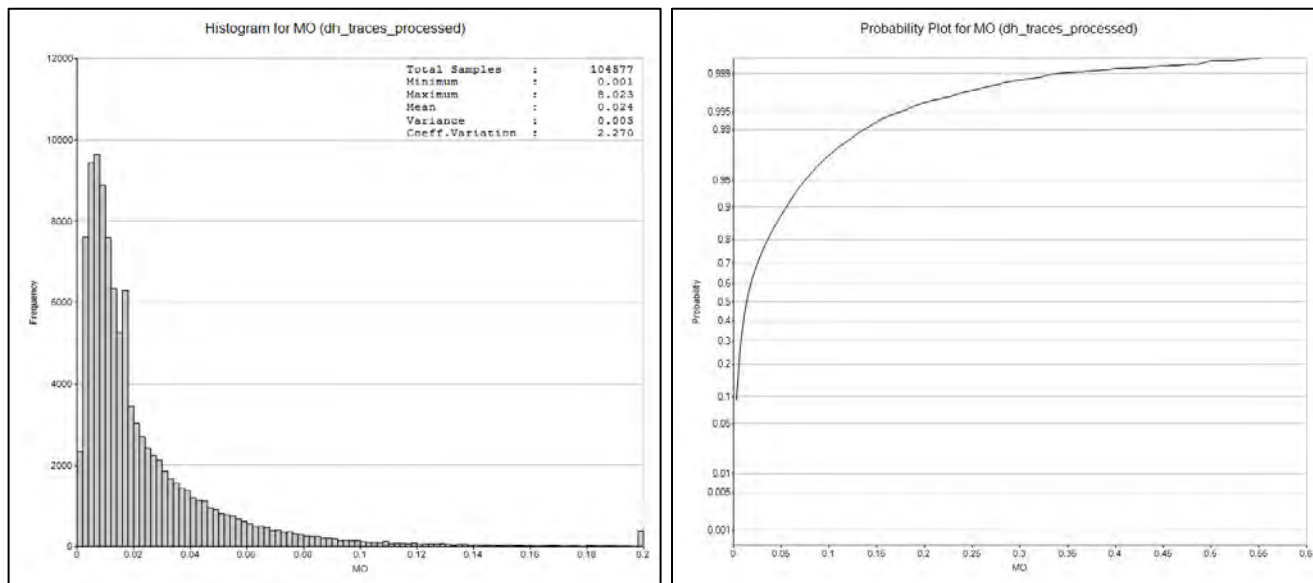
Figure 11.1, Figure 11.2, and Figure 11.3 show the histogram and cumulative probability plots for Cu, CuO, and Mo, respectively. The populations are all positively skewed and there is no clear evidence of multiple populations. All the histograms show spikes which are indicative of assay detection limits. Data has been collected since 1968 and assay methodologies have changed and improved over time, which may explain the reason some populations, CuO in particular, show multiple spikes.

Figure 11.1: Histogram and Probability Plot for Cu

Note: Samples are length weighted.

Figure 11.2: Histogram and Probability Plot for CuO

Note: Samples are length weighted.

Figure 11.3: Histogram and Probability Plot for Mo

Note: Samples are length weighted.

Assay data was evaluated for outlier values using probability plots, scatter plots and quantile analysis. Outlier values were identified and capped (top-cut) for the purposes of grade estimation. The capping values used, and the impact of using the caps is presented in Table 11.3. The percentile value represents the position of the cap value within the overall population distribution.

Table 11.3: Summary Comparison of Capped vs Uncapped Statistics

Variable	Cap Value	No. of Samples Capped	Percentile	Uncapped Mean	Uncapped Co. Var.	Capped Mean	Capped Co. Var.
Cu	2.5	139	above 99.9	0.254	1.329	0.252	0.999
CuO	1.0	22	above 99.9	0.023	1.879	0.023	1.762
Mo	1.0	43	above 99.9	0.024	2.270	0.024	1.441

Note: Samples are length weighted. Co. Var.=Coefficient of Variation

A correlation analysis indicated no significant correlation between any of the variables to be estimated.

Visual examination of the drillhole data showed several features:

- Higher Cu values exhibit pre-mining topographic following features in many areas as well as horizontal to sub-horizontal features (see example section in Figure 11.4).
- Higher CuO values exhibit the pre-mining topographic following features very strongly down to 150 to 200 m below the surface (see example section in Figure 11.5).
- There is a distinct volume of higher Mo values to the North-East (see Figure 11.6).

As previously noted in Section 11.1.2, there is insufficient electronic geological information available against which to correlate these features (and create estimation domains if appropriate). Therefore, specific estimation controls were employed to preserve these features, as closely as possible, in the block model (see Section 11.1).

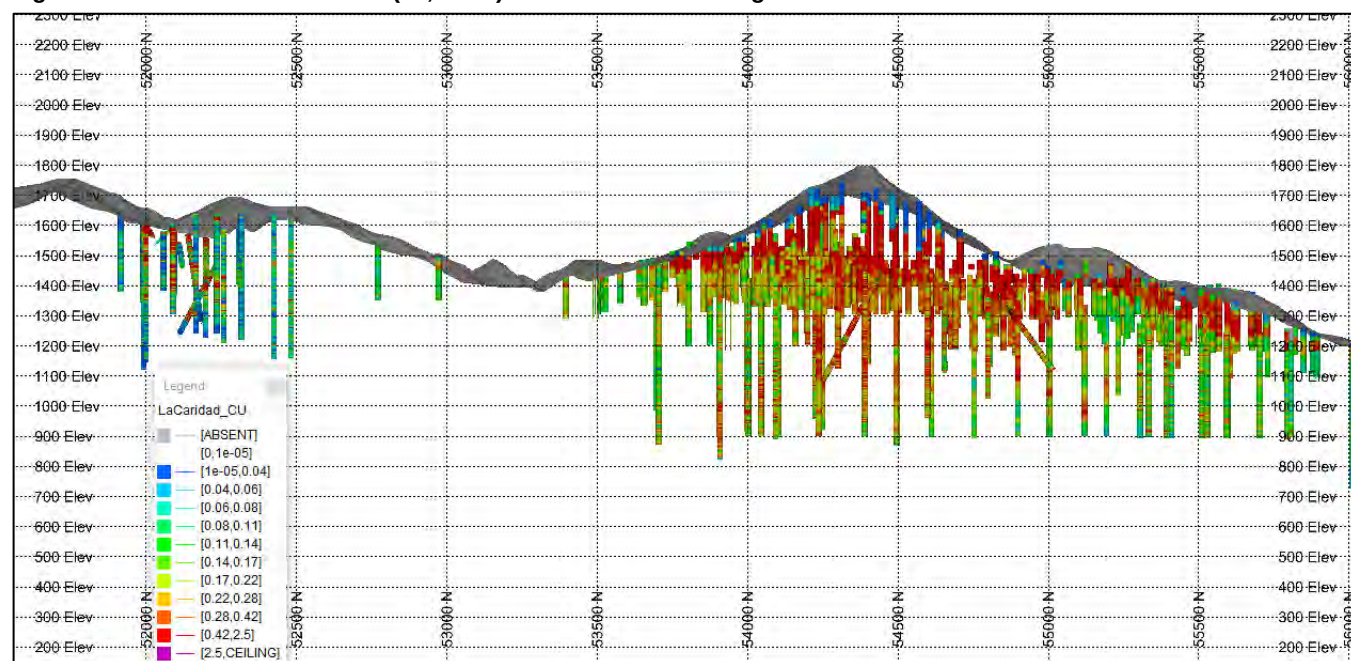
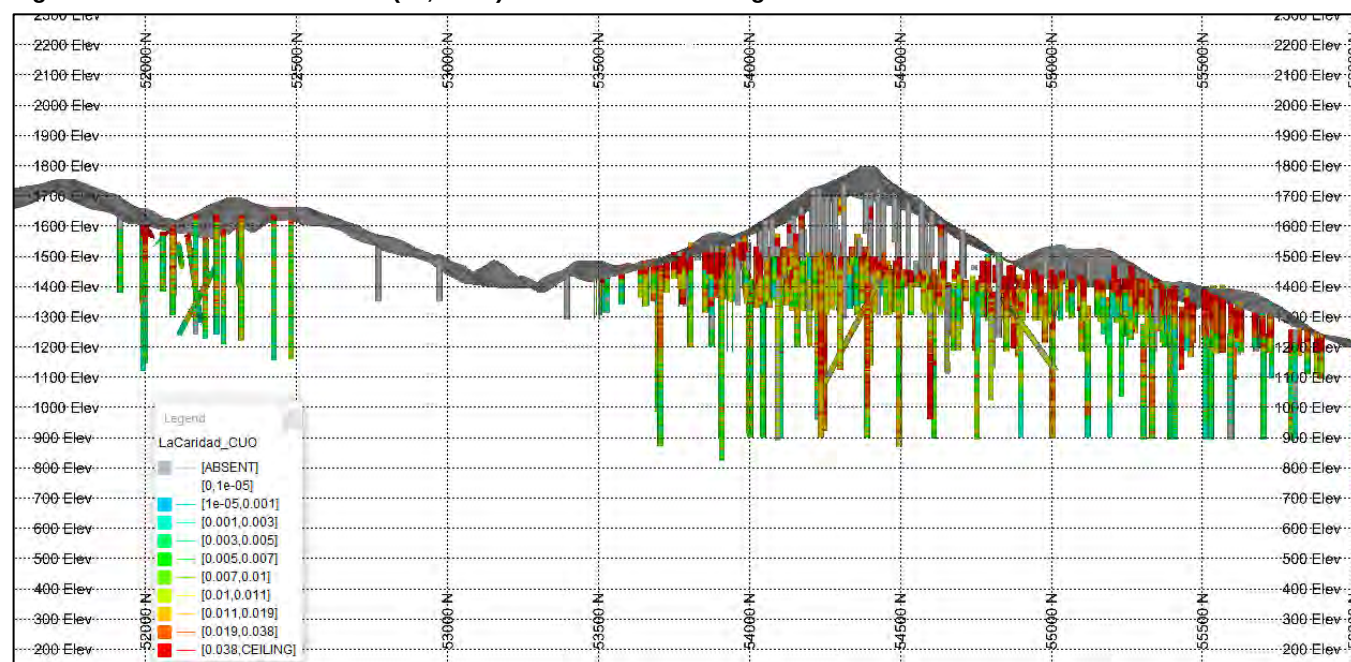
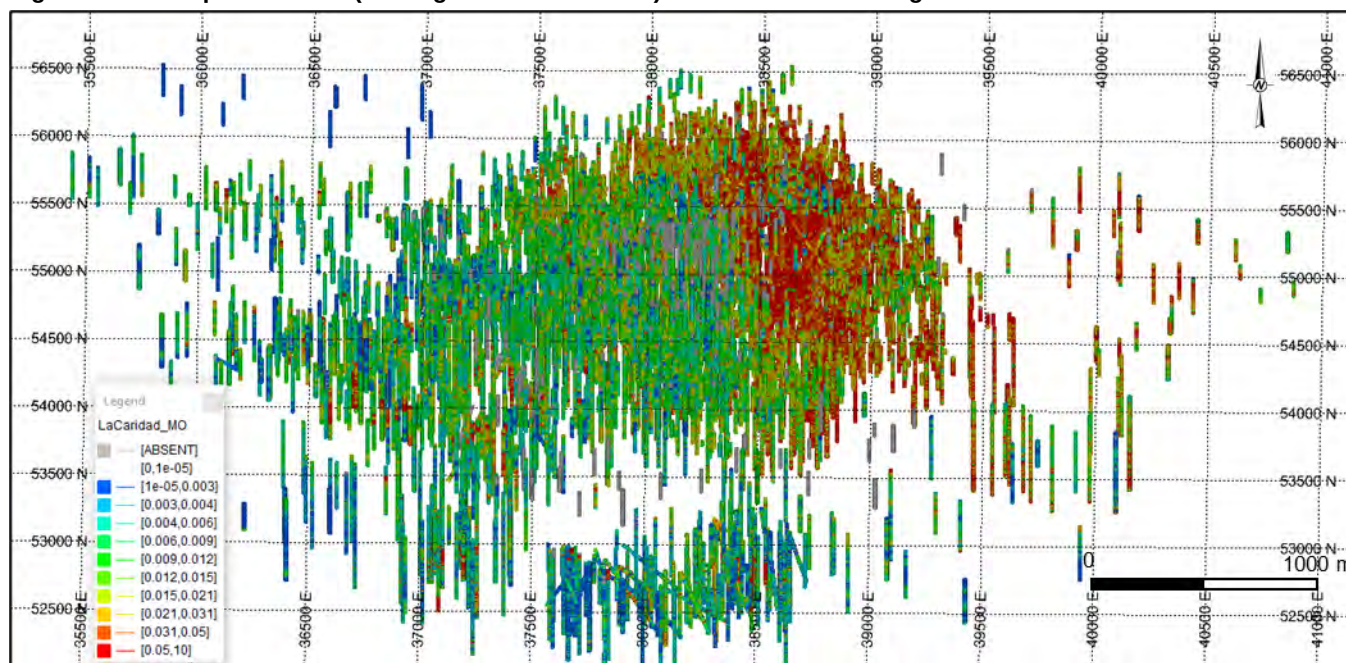
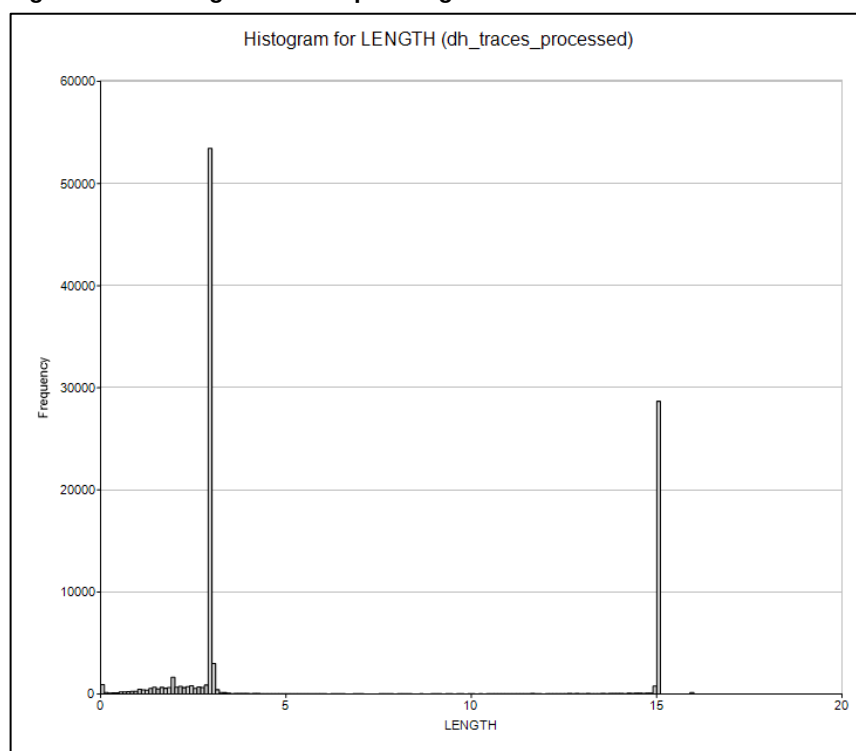
Figure 11.4: South-North Section (38,000 E) of Drill Holes Showing Cu**Figure 11.5: South-North Section (38,000 E) of Drill Holes Showing CuO**

Figure 11.6: Perspective View (looking North from above) of Drill Holes Showing Mo

Sample interval lengths were analyzed for the purpose of selecting a composite length for block model grade estimation (see Figure 11.7). The two most common sample lengths were 15 m (63% of total sample length) and 3 m (23%). As previously noted, historical data had been manually composited into 15-m intervals and it is this information that was recorded electronically; original samples were typically recorded at 3-m lengths. To maintain compatibility with older data, and compatibility with previous Mineral Resource Estimates methodology, a 15-m composite length was used. Table 11.4 summarizes the descriptive statistics of the composite population.

Figure 11.7: Histogram of Sample Lengths**Table 11.4: Summary of Composite Statistics**

Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	Co. Var.
Cu	45,428	0.001	2.500	0.252	0.058	0.240	0.953
CuO	37,420	0.001	0.954	0.023	0.001	0.037	1.637
Mo	44,415	0.001	0.954	0.024	0.001	0.030	1.269

Note: Samples are length weighted. Std. Dev.=Standard Deviation. Co. Var.=Coefficient of Variation

11.1.5 Spatial Continuity

The spatial continuity of Cu, CuO and Mo was assessed using variogram analysis.

Three-structure spherical variograms were modeled based on the pairwise-relative experimental variogram data. Figure 11.8 and Figure 11.9 show the along-strike and down-dip variograms and models for total Cu. The isotropic (non-directional) experimental variogram is shown for reference.

The models were used as a guide for the sample search ellipse dimensions and for the assignment of OK weights to the samples for the purpose of grade estimation using OK, as further discussed in Section 11.2.

Figure 11.8: Along-Strike Variogram Model for Cu

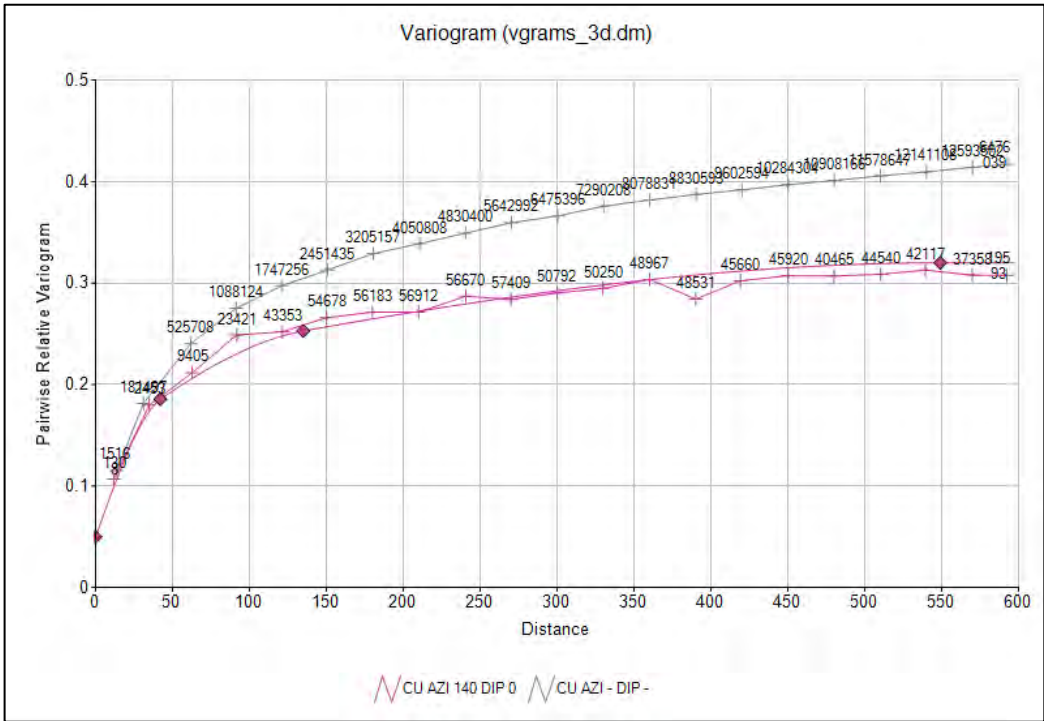
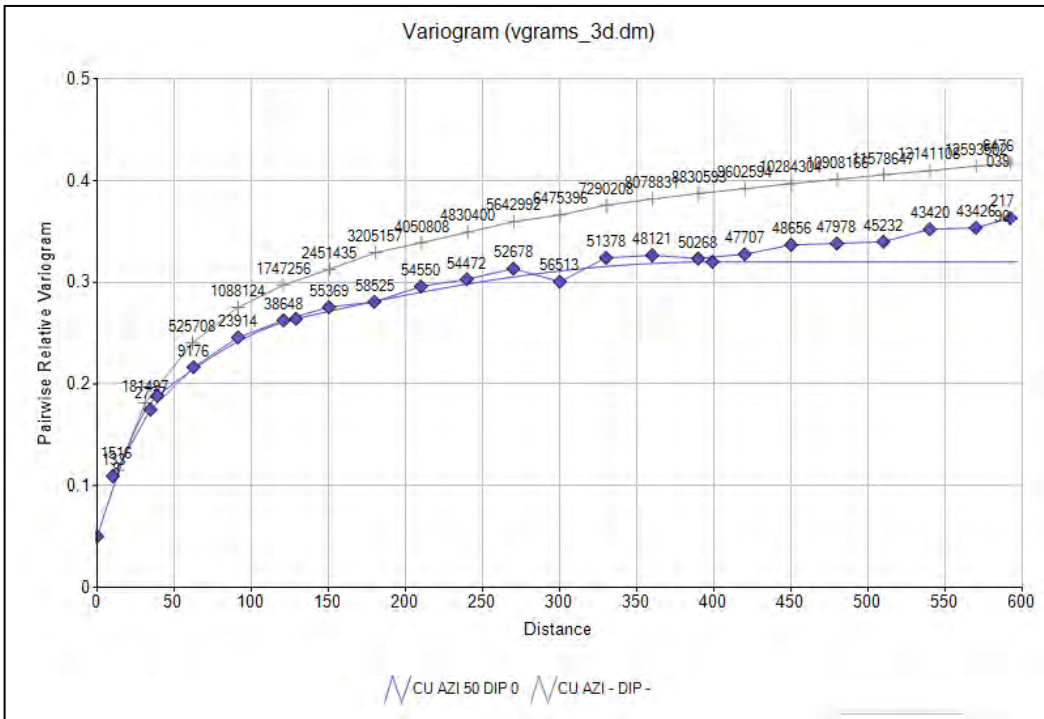


Figure 11.9: Down-Dip Variogram Model for Cu



A summary of variogram model parameters is presented in Table 11.5. CuO variography did not show significant structure, so the Cu variogram model was used as a proxy.

Table 11.5: Summary of Variogram Model Parameters

					Structure 1				Structure 2				Structure 3			
Variable	Angle 1	Angle 2	Angle 3	Nugget	Range 1	Range 2	Range 3	Sill	Range 1	Range 2	Range 3	Sill	Range 1	Range 2	Range 3	Sill
Cu	0	0	50	0.05	43	39	61	0.09	136	129	115	0.075	550	400	170	0.105
CuO	0	0	50	0.05	43	39	61	0.09	136	129	115	0.075	550	400	170	0.105
Mo	-110	15	175	0.065	41	30	20	0.135	188	234	166	0.085	900	644	600	0.085

11.1.6 Specific Gravity

This sub-section contains forward-looking information related to density for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including actual in situ characteristics that are different from the samples collected and tested to date, equipment and operational performance that yield different results from current test work results.

SG data was analyzed using descriptive statistics (see Table 11.6) and histograms (Figure 11.10).

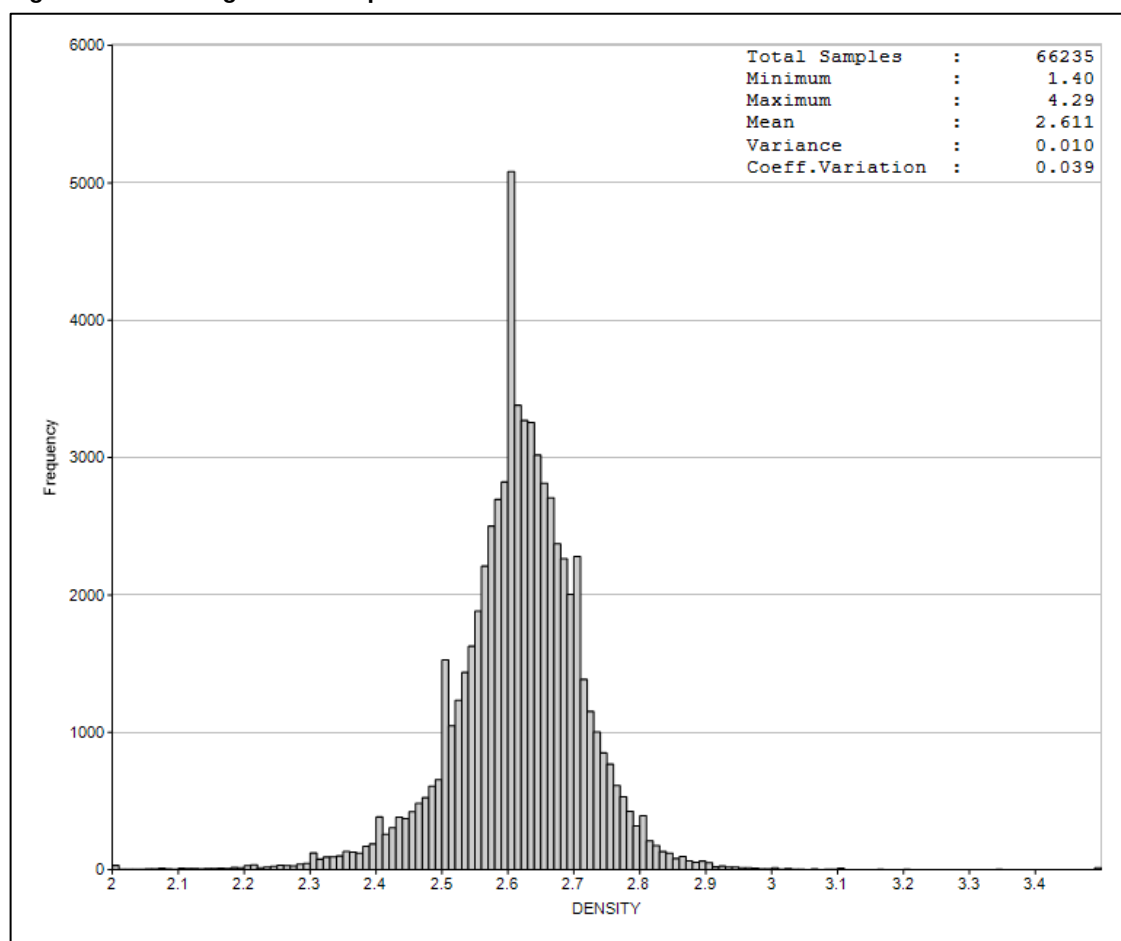
The population is normally distributed around the mean of 2.61. There are several spikes in the distribution indicating potential measurement resolution issues/constraints. Data has been collected since 1968 and SG measurement methodologies have changed and improved over time, which may explain the spikes. There are 33 values of SG less than 2.0 and 31 values greater than 3.2 (+/- 0.6 of the mean). Although, these values could be a true part of the overall distribution, a conservative approach was taken, and they were treated as absent/missing data.

SG was estimated using nearest neighbor (NN) and ID³ methods.

Table 11.6: Summary of SG Statistics

Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	Co. Var.
SG	66,235	1.400	4.290	2.611	0.010	0.101	0.039

Note: Samples are length weighted. Std. Dev.=Standard Deviation. Co. Var.=Coefficient of Variation

Figure 11.10: Histogram of Sample SG

A correlation analysis indicated no significant correlation between density and any of the other variables to be estimated.

11.1.7 Block Model Methodology

This sub-section contains forward-looking information related to grade for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including geological and grade interpretations and controls and assumptions and forecasts associated with establishing the prospects for economic extraction.

A three-dimensional (3D) block model was generated using Datamine Studio RM software. Block model parameters, including origin and block size, are summarized in Table 11.7. Block splitting was used at the topographic surface.

Table 11.7: Summary of Block Model Details

	Origin	Size	Number	Range	Extent
Easting	35,150	25	248	6,200	41,350
Northing	51,400	25	216	5,400	56,800
Elevation	750	15	80	1,200	1,950

Cu, CuO and Mo were estimated using NN, ID³OK methods.

As noted in Section 11.1.4, Cu and CuO values showed distinctive pre-mining topographic surface related trends. To account for this, dynamic control of the orientation of the search ellipse, based on the pre-mining topographic surface, was used for blocks within 200 m of the pre-mining topographic surface. All other blocks used the search orientations identified by the variography.

The search strategy consisted of a 3-pass elliptical search, as follows:

- The first pass search radius was equal to approximately half the second structure variogram range of the total copper, for the along-strike and down-dip directions. For the across-strike direction a tighter control was employed than indicated by the variography, in recognition of the topographic surface following and lateral features seen in the drill holes.
- The second pass search was two times the size of the first pass search.
- The third pass search was three times the size of the first pass search.
- In all passes, estimates required a minimum of 8 composites and a maximum of 12 composites.
- In all passes, estimates limited the maximum number of composites per drill hole to four. This, combined with the minimum number of composites, ensured the composites from at least two holes were used for all estimates.

The same sample search strategy was used for all variables, based on the following logic:

- The clearest variogram structures were seen in the Cu variogram.
- The lack of geological information to create domains (see 11.1.2) warranted a conservative approach to estimation, to mitigate smearing of grade between potential different statistical populations.
- To honor the topographic surface following and lateral features seen in the drill holes.

The search parameters were derived using an iterative approach, using visual comparison of block model and composite grades in plan and section, along with a global comparison of mean grades, evaluation of smoothing ratios and swath plots.

The search parameters are summarized in Table 11.8.

Table 11.8: Summary of Search Parameters

Pass	Range 1	Range 2	Range 3	Minimum No. of Composites	Maximum No. of Composites	Max. No. of Composites per hole
1	75	75	30	8	12	4
2	150	150	60	8	12	4
3	225	225	90	8	12	4

11.1.8 Model Validation

The model validation process included a visual comparison of block model and drill hole composite grades in plan and section, along with a global comparison of mean grades, evaluation of smoothing ratios and swath plots. Emphasis was placed on the visual comparison, given no estimation domains were used (see Section 11.1.2), to ensure no smearing, or over-smoothing of grade.

Good agreement between block grades and drill hole composite data was observed for Cu, CuO, and Mo, as demonstrated in Figure 11.11, Figure 11.12, and Figure 11.13.

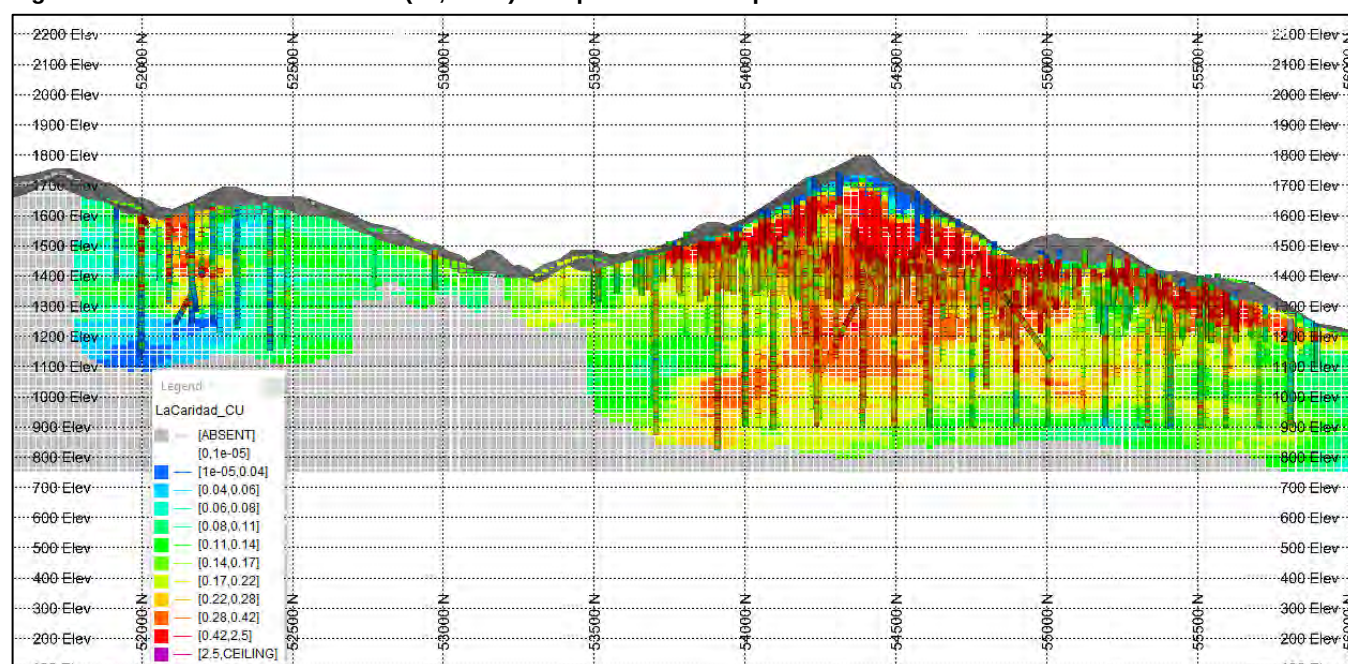
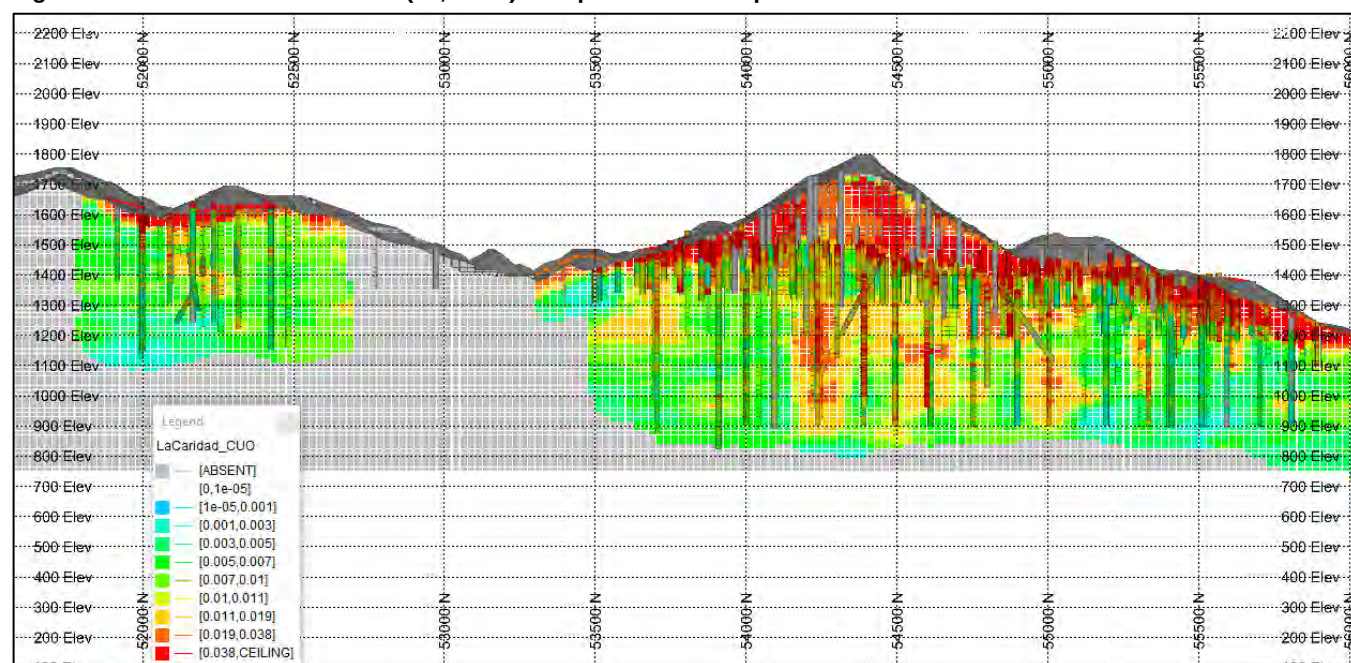
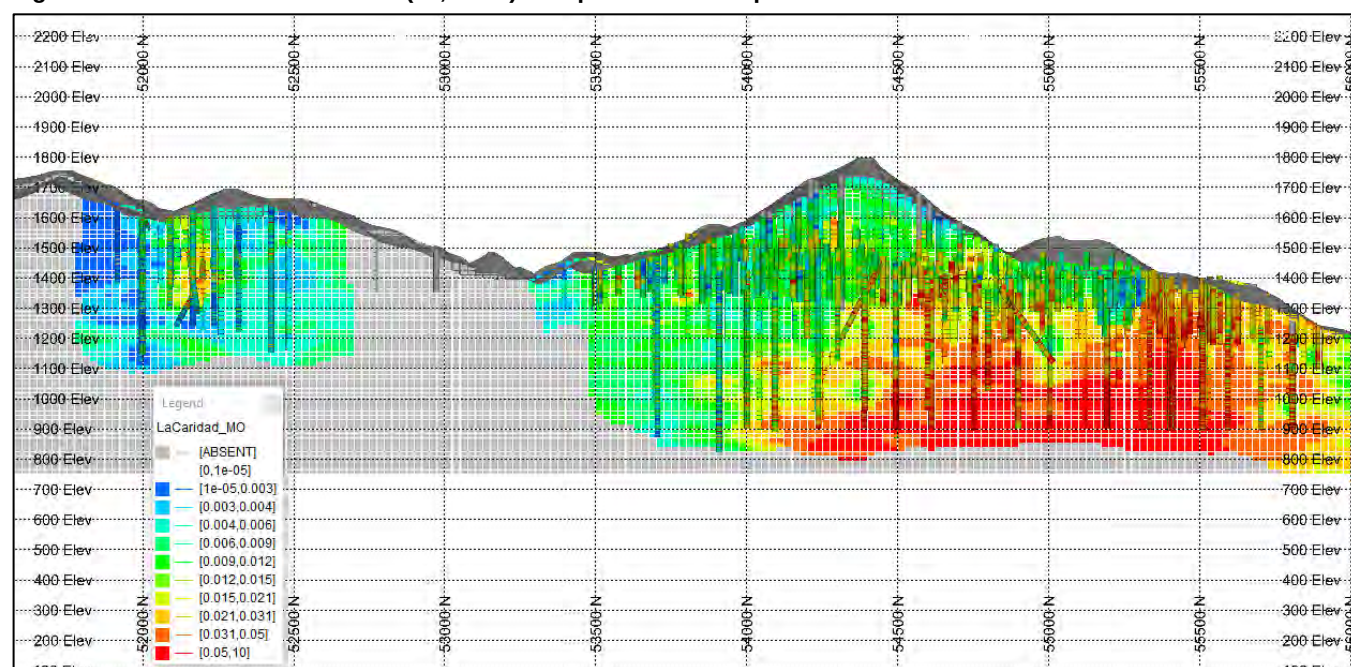
Figure 11.11: South-North Section (38,000 E) Comparison of Composites and Block Grades for Cu

Figure 11.12: South-North Section (38,000 E) Comparison of Composites and Block Grades for CuO**Figure 11.13: South-North Section (38,000 E) Comparison of Composites and Block Grades for Mo**

Global mean grades for Cu, CuO and Mo were compared between NN estimates (proxy for de-clustered composite grades), ID³ estimates, and OK estimates to determine if there was any significant global bias

(see Table 11.9). The global means differences are all less than 5% (see last two columns in the Table 11.9) indicating no significant global bias in the grade estimates.

Table 11.9: Comparison of Global Mean Estimates

Variable	NN Mean	ID ³ Mean	OK Mean	ID ³ % Diff	OK % Diff
Cu	0.157	0.159	0.159	0.96	0.98
CuO	0.014	0.014	0.014	2.77	3.27
Mo	0.022	0.022	0.022	0.13	0.11
SG	2.615	2.614		-0.02	

Grade estimates were evaluated for smoothing by calculating smoothing ratios which are based on the ratio between the theoretical model variance and actual model variance, where the theoretical variance is calculated based on the sum of the variance inside the block and variance between blocks using parameters, including the variogram model sill, block size, and F Function. A certain degree of smoothing is expected due to the change of support size from core sized samples to large mining blocks. It is common when using OK to see higher smoothing than expected, which can be an issue when reporting resources above a mining cut-off, as the overly smoothed distribution results in resource tonnages being overestimated and grades being underestimated. The smoothing ratios were reviewed and considered to be within generally accepted ranges (see Table 11.10).

Table 11.10: Estimate Smoothing Ratios

Variable	ID ³ Smoothing Ratio	OK Smoothing Ratio
Cu	0.980	1.070
CuO	1.070	1.220
Mo	0.900	1.000

Swath plots were generated for Cu, CuO and Mo to evaluate local grade comparisons between NN, ID³, and OK estimates. Example swath plots are presented in Figure 11.14, Figure 11.15, and Figure 11.16. In general, there was good correlation between all estimates. Some divergence was observed at the margins of the model, but this is not unexpected given the low data density in these areas.

Figure 11.14: North-South Cu Swath Plot

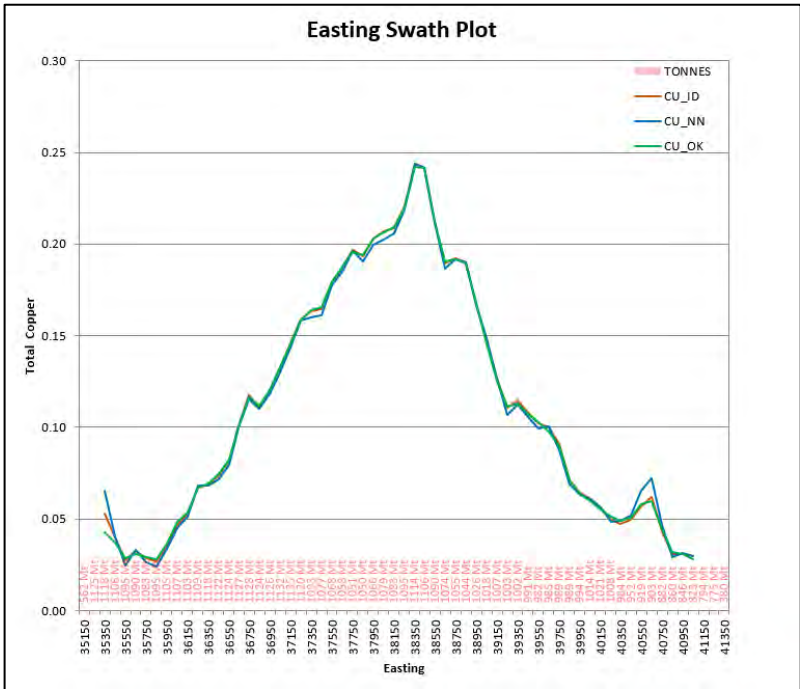


Figure 11.15: East-West Cu Swath Plot

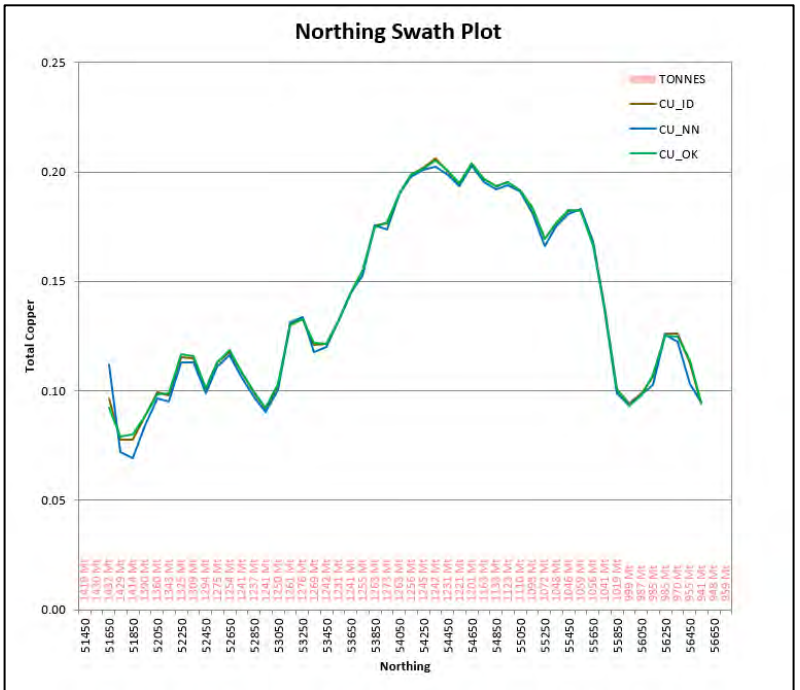
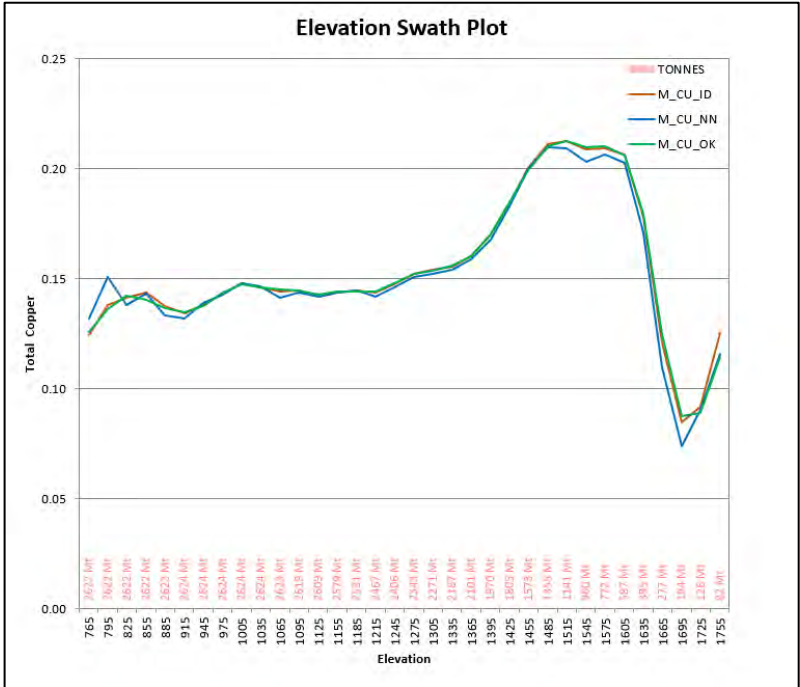


Figure 11.16: Plan Cu Swath Plot



Based on the validations conducted, OK was chosen as the final estimated grades for Cu and ID³ was used for CuO and Mo.