REPORT

SEC S-K 1300 Technical Report Summary

Southern Copper Corporation: La Caridad and Pilares

Submitted to:

Southern Copper Corporation

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DATE AND SIGNATURE PAGE

The effective date of the Mineral Resources and Mineral Reserves estimates was December 31, 2022.

Author	Section(s)	Signature
Ronald Turner (WSP)	1.2, 1.3, 1.5, 1.10, 2.4.1, 5.2, 6.0, 7.1.1, 7.1.2, 7.2.1, 7.2.2, 8.0, 9.1, 11.0, 20.0, 21, 22.1, 23.1	
Mathew Oommen (WSP)	1.4, 1.6, 1.7, 1.8, 1.10, 2.1, 2.2, 2.3, 2.4.2, 2.5, 5.1, 5.3, 9.2, 12.0, 13.1, 13.3, 13.4, 13.5, 13.6, 18.0, 19.0, 21.0, 22.4, 23.6, 25.0	
Dawn Garcia (Stantec)	1.1, 1.9, 2.4.3, 3.0, 4.0, 7.1.3, 7.2.3, 17.0, 22.2, 23.2, 24.0	Dawn H Garcia
Ibrahim Karajeh	2.4.4, 15.1 15.2 15.3 15.4, 15.5	
Jorge Castillo (WSP)	2.4.6, 15.6, 23.5, 240.0	
Michael Pegnam (WSP)	7.1.4, 7.2.4, 9.2.1, 13.2, 23.3	Michael Pegnam
Eugenio Iasillo (Process Engineering LLC)	2.4.5, 10.0, 14.0, 22.3, 23.4, 24.0	Eugenio Iasillo
Southern Copper Corporation	16.0	Southern Copper Corporation

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 31 years of experience in the mining industry with 17 years in geological and mineral resource and reserves reporting, 8 years in project development and mining and 6 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).

- **Mathew Oommen:**
  - **Education:**
    - Is a Mining Engineer with a Ph. D. in Mining Engineering from The Pennsylvania State University, 1994.
  - **Years of Experience:**
    - Has over 30 years of experience working as a consultant in the mining field for a variety of commodities including coal, potash, phosphate and copper.
    - Provides a variety of consulting services including the preparation of various studies at the preliminary economic assessment level to feasibility studies. Has assisted in due diligence reviews of mines supporting potential acquisitions.
  - **Relevant Experience:**
    - Director of the Mining Engineering and Geology Group for WSP USA.
    - Worked with teams for the completion of numerous studies and reports including those for public domain reporting.
    - Worked on multiple mining projects and commodities involving pit optimization, short-term and long-term mine planning, and discounted cashflow analyses.
  - **Professional Registration:**
    - Society of Mining, Metallurgy and Exploration Registered Member.
    - Member of the Australian Institute of Mining and Metallurgy (MAusIMM).

- **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).
- **Ibrahim Karajeh:**
  - **Education:**
    - Bachelor of Science in Mechanical Engineering, University of Jordan, 1991.
    - Master of Business Administration, Heriot-Watt University, 2015.
    - Master of Liberal Arts in Finance, Harvard University, 2022.
  - **Years of Experience:**
    - Has 34 years of experience in industrial scale project development including mining and mineral extraction.
  - **Relevant Experience:**
    - Engineering, construction, project management, audits and reviews of mining projects including areas related to infrastructure, utilities and general site services.
  - **Professional Registration:**
    - Is in good standing as a registered professional engineer (P.Eng.) with the association of professional engineers of Ontario.

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.

Southern Copper Corporation (SCC) is an indirect subsidiary of Grupo Mexico S.A.B de C.V. (Grupo Mexico). SCC's operations in Mexico are conducted through its subsidiary, Minera Mexico, S.A. de C.V. (Minera Mexico). The La Caridad mining unit is operated by Mexicana de Cobre SA de CV.

All the estimated Mineral Resources and Reserves lie within privately owned or possessed land under the name of Mexicana de Cobre SA 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. Mexicana de Cobre SA de CV (together with its subsidiaries, the "La Caridad" unit) operates the Pilares and La Caridad open pits, one copper concentrator, one Solvent Extraction and Electrowinning (SX-EW) plant, and a smelter. The historic underground workings at Pilares are within the surface mining operations footprint that were recently initiated in 2024.

1.2 Geology and Mineralization

La Caridad is a porphyry copper deposit 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 the 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 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.

The local geology of the Pilares area consists of two main lithological packages, a volcanic sequence and a set of hypabyssal bodies that intrude the volcanic sequence. The volcanic sequence is comprised from the base to the top by the following units: andesitic flows with intercalations of Crystal Tuff, Tobaceous Sandstone, tuff-breccia (ignimbrite), basalt-andesite flows and Lapilli Tuffs. The Lapilli Tuff is composed of lapilli-sized volcanic fragments outcropping in the topographic highs and distributed in the central, southeastern and northeastern portion of the Pilares area. The Lapilli Tuff hosts the mineralized structure of the Pilares Breccia.

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 3,945 exploration drill holes, totaling 814,091 meters (m), have been drilled on the La Caridad property. At Pilares, historical drilling occurred between 2009 and 2011, with recent drilling campaigns occurring annually since 2022. A total of 123 exploration drill holes, totaling 53,825 m have been drilled at Pilares.

The main objective of the exploration programs implemented at La Caridad and Pilares have been to explore for new mineralized bodies as well as the increase confidence on Mineral Resources and Mineral Reserves. The primary targets of the exploration programs for 2022 to 2024 were the Pilares and Bella Union satellite mine areas. Pilares is a historical underground mine that was in operation in the first half of the last century and is located about 8 km west of La Caridad. Bella Union is located southeast on the perimeter of the La Caridad open pit.

The exploration programs have 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 95 million tonnes (Mt) per year of total material. The operation uses 8 electric shovels and has a fleet of 56 haul trucks of varying models. The scheduling exercise assumed the use of 36 trucks (their “Mix Fleet” and CAT 793Ds) at the start of the schedule with additional trucks added as required later in the schedule. Trucks added to the fleet were assumed to be CAT 793Ds. 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.

Extensive exploration drilling was completed in the Pilares area which significantly enhanced the confidence in geological data and provided a more detailed understanding of the deposit. As a result, material from Pilares can now be classified as indicated resources. This classification reflects the higher degree of certainty in the quantity and quality of the material which is critical for future planning and development. In this report, Pilares was included and scheduled alongside La Caridad as the Pilares ore will be transported to La Caridad for processing.

The ore at La Caridad and Pilares 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 ROM mill feed rate of about 34.5 million tonnes per annum (Mtpa) with the LOM schedule averaging an annual production of 95 Mt total material. This production rate for the mill feed results in approximately 94,500 t per day to the concentrator. The La Caridad mine life is 58-year mill feed to stay within the tailings storage facility (TSF) capacity currently being studied and reasonable economics. During this period, the mine has an average Run-of-Mine (ROM) mill ore production rate of 34.5 Mtpa (dry) resulting in an average annual copper production of 76 kilotonnes (Kt) per year and an annual average molybdenum production of about 12 Kt per year.

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 performed using database validation tools within Datamine Studio RM (Datamine), Seequent Leapfrog™ (Leapfrog) and Maptek Vulcan™ (Vulcan), 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. The Pilares Mineral Resource estimate includes only the Pilares Breccia.

This Mineral Resource estimates were 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. Exploratory data analysis (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 an economic break-even cut-off grade (COG), price, mining costs, infrastructure limitations, and mineral licenses.

Mineral Resources at Pilares were previously reported in its own TRS (2022, 2024). Mineral Resources at Pilares are now being reported together with La Caridad since mining has been initiated at Pilares and the mining operations are treated as one with all ore being sent to the mill and leach facilities at La Caridad.

Mineral Resource estimates exclusive of Mineral Reserves are summarized in Table 1.1 for both the Leach and Mill Processes on a 100% ownership basis. SCC has a 98.14% ownership in La Caridad and Pilares through their main subsidiaries with the remainder being held through intermediate holding companies. 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, 2024.

Table 1.1: Mineral Resource Estimates Exclusive of Mineral Reserves for La Caridad – 100% Ownership Basis

Area	Process	Classification	Tonnes (Mt) [4]	Grade		Contained Metal	
				Total Cu (%) [2]	Total Mo (%) [2]	Cu (Kt) [5]	Mo (Kt) [5]
La Caridad	Leach [1][3]	Measured	5	0.07	-	3	-
		Indicated	113	0.07	-	73	-
		Total Measured + Indicated	**117**	**0.07**	-	**76**	-
		Inferred	342	0.08	-	278	-
	Mill [1][3]	Measured	89	0.15	0.025	134	23
		Indicated	2,136	0.14	0.022	3,028	466
		Total Measured + Indicated	**2,224**	**0.14**	**0.022**	**3,161**	**488**
		Inferred	5,315	0.13	0.024	6,692	1,273
Pilares	Leach [1][3][8]	Measured	-	-	-		-
		Indicated	0	0.16	-	0	-
		Total Measured + Indicated	**0**	**0.16**	**-**	**0**	**-**
		Inferred	0	0.09	-	0	-
	Mill [1][3]	Measured	-	-	-		-
		Indicated	30	0.55	0.014	165	4
		Total Measured + Indicated	**30**	**0.55**	**0.014**	**165**	**4**
		Inferred	3	0.46	0.014	16	0
Total	Leach [1][3]	Measured	5	0.07	-	3	-
		Indicated	113	0.07	-	73	-
		Total Measured + Indicated	**118**	**0.07**	**-**	**76**	**-**
		Inferred	342	0.08	-	278	-
	Mill [1][3]	Measured	89	0.15	0.025	134	23
		Indicated	2,166	0.15	0.022	3,193	470
		Total Measured + Indicated	**2,255**	**0.15**	**0.022**	**3,327**	**493**
		Inferred	5,318	0.13	0.024	6,708	1,273

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 US$3.795/lb, Mo price of US$11.50/lb.
4. Mineral recovery was based on historical 3-year averages. The recoveries used were 81% for copper, 87% for Molybdenum, 44% for copper in leach.
5. Tonnes are reported on a dry basis.
6. Contained Metal (CM) is calculated as follows: CM = Tonnage (Mt) * Grade (%).
7. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not add exactly.
8. Leach tonnages for Pilares are quite minimal and the totals are not shown due to rounding.
9. The projected December 31, 2024, topographic surface was used for the calculation of the Mineral Resources
10. 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.

The December 31, 2024, Mineral Resource estimate for La Caridad has changed noticeably from the December 31, 2023, estimate. The reasons for this are threefold. Firstly, since the 2021 S-K 1300 TRS (the last time the Mineral Resource estimate block model was updated), the site has added 119,738 m of samples in 416 drill holes, with widespread coverage across both La Caridad and Bella Union zones (see Section 11.1.1.2). Secondly, the economics have been updated with new recovery calculations, updated costs and updated logic for the mill/leach categorization (see Section 11.3). Thirdly, Measured Resources are declared for the first time for this deposit (see

Section 11.4.1). The net impact of these changes is the movement of Measured and Indicated material to Mineral Reserve and an increase in the amount Inferred mill material.

The December 31, 2024, Mineral Resource estimate for Pilares has changed significantly from the December 31, 2023, estimate. In the previous Mineral Resource declarations for Pilares, only Inferred Mineral Resources were defined, due to drill hole data quality concerns. These points have been addressed with a pulp re-assay program for a selection of drill holes from 2009-2011, as well as the completion of lithological interpretation and update to the mineral zone interpretation. Indicated Resources have been declared for the first time for the deposit (see Section 11.4.2), which has also permitted Mineral Reserves to be declared for the first time for Pilares (see Section 12.4). This has resulted in a net decrease in the overall Mineral Resource estimate, as these Mineral Resources are now Mineral Reserves and excluded from the estimate. Additionally, there has been movement of Mineral Resources from Inferred to Indicated.

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 12.2.5 and the Economic Assessment discussed in 12.2.6, the La Caridad and Pilares mines contain the economically mineable Mineral Reserves listed in Table 1.2 on a 100% ownership basis. The effective date of the Mineral Reserve estimate is December 31, 2024.

The Mineral Reserves for La Caridad and Pilares include approximately 1.96 billion tonnes (Bt) of mill feed with a Cu grade of 0.22% total Cu for 4,411 Kt of contained Cu with the point of reference being the mill. An additional 384 Mt of Mineral Reserves is estimated as Leachable ROM Ore with a Cu grade of 0.17% total Cu for 663 Kt of contained Cu with the point of reference being delivery to the leach pads. Additionally, 721 Kt of Mo is generated over the life of mine. Total material in the designed pit is 5.1 Bt, resulting in a waste to ore (mill ore + leach material) ratio of 1.18 (tonnes/tonnes).

For this Mineral Reserve estimate, Measured and Indicated Mineral Resources inside the ultimate pit were converted to Proven and Probable Mineral Reserves, respectively. The Mineral Reserves are estimated at a copper price of US$3.30/lb and a molybdenum price of US$10.00/lb.

Table 1.2: Estimated Mineral Reserves – 100% Ownership Basis

Area	Classification	Destination (2)	Tonnes (Mt) (4)(5)	Grade		Contained Metal	
				Total Cu (%)	Mo (%)	Cu (5) (Kt)	Mo (5) (Kt)
La Caridad	Proven	Mill	272	0.28	0.042	770	114
		Leach	66	0.23	-	155	-
	Probable	Mill	1,671	0.21	0.036	3,460	606
		Leach	315	0.16	-	500	-
	Waste		2,661				
	Total Material		4,985				
	Strip Ratio ((W+L)/M) (3)		1.57				
	Strip Ratio ((W)/(L+M)) (3)		1.14				
Pilares	Proven	Mill	-	-	-	-	-
		Leach	-	-	-	-	-
	Probable	Mill	22.6	0.80	0.006	181	1
		Leach	2.2	0.35		8	
	Waste		119				
	Total Material		144				
	Strip Ratio ((W+L)/M) (3)		5.36				
	Strip Ratio ((W)/(L+M)) (3)		4.80				
Total	Proven	Mill	272	0.28	0.042	770	114
		Leach	66	0.23	-	155	-
	Probable	Mill	1,693	0.22	0.036	3,641	607
		Leach	318	0.16	-	508	-
	Waste		2,780				
	Total Material		5,128				
	Strip Ratio ((W+L)/M) (3)		1.61				
	Strip Ratio ((W)/(L+M)) (3)		1.18				

Notes:

1. Mineral Reserves are reported effective December 31, 2024. The Qualified Person for the estimate is Mr. Mathew Oommen, Ph.D.
2. Mineral Reserves are the economic portion of the Mineral Resources; the reference point is the leach pad or concentrator and includes considerations for operational modifying factors such as loss (2%) and dilution (1%), described in Section 13.3.1.
3. Strip ratio calculated with W = Waste, L = Leach, M = Mill Feed (units are t/t)
4. Mineral recovery was based on historical 3-year averages. The recoveries used were 83% for copper, 88% for Molybdenum, 46% for copper in leach.
5. Mineral Reserves are reported for ore with an economic value greater than the marginal cost, inclusive of processing costs and transport streams (see Section 12.2.5 and Section 13.5).
6. Mineral Reserves are based on targeted feed grades of copper and molybdenum to the copper concentrator (see Section 13.5)
7. Tonnages and contained copper and molybdenum are reported in metric units. Contained Metal (CM) is calculated as: CM = Tonnage (Mt) * Grade (%).
8. Numbers have been rounded to reflect appropriate accuracy and may result in apparent summation differences between tonnes, grade, and contained metal content.
9. Grades and contained metal are not reported if there is no value from the respective processing and transport streams
10. The projected December 31, 2024, topographic surface was used for the calculation of the Mineral Reserves.
11. The Mineral Reserve estimate was limited to limited to stay within the TSF capacity.

As compared to the December 31, 2022, Mineral Reserve Estimate, there are differences worth noting. The waste tonnage in the study completed in 2022 was 297 Mt as compared to this study at 2.78 Bt. The primary reason for this significant increase is that the schedule used in the 2022 Mineral Reserve estimate used a breakeven cutoff grade. This allowed all material with a value greater than 0 US$/t to be sent to the mill, as long as the value of treating the material as mill was greater than the value of treating the material as leach. In the schedule developed for this 2024 Mineral Reserve Estimate, the mill cutoff grade was raised to target a head grade of 0.3% total copper. Therefore, portions of the lower value material that had previously been classified as mill in the 2022 Mineral Reserve estimate are now considered as waste or leach material. Increasing the cutoff grade of material being processed through the mill allowed for a more selective schedule and more efficient use of the limited capacity remaining in the tailings storage facility.

The model generated for this study also introduced the classification of the material types, oxides and sulfides which were not previously classified in the 2022 Mineral Reserve Estimate. Differentiating the oxide and sulfide material in the model allowed for only material classified as oxide material to be routed as leach, resulting in the increase in leach material relative to the 2022 Mineral Reserve estimate (198 Mt in 2022 to 384 Mt in 2024).

1.7 Capital and Operating Costs

This section contains forward-looking information related to capital and operating cost estimates for the Project. Material factors that could cause actual results to differ significantly from the conclusions, estimates, designs, forecasts, or projections include variations in economic conditions, capital costs, labor and equipment productivity levels, and the adequacy of contingencies to address changes in material factors or assumptions.

The LOM plan annual production estimates were used to determine annual estimates of capital and operating costs. All cost estimates were in Q4 2024 US$. Total capital costs are estimated to be about US$4.5 B, including new mine equipment, major maintenance, components and projects for LC operation. These costs were derived from a combination of SCC-provided data, historical operating costs and parameters, and WSP’s internal equipment database.

Operating costs were based on escalated historical operational data for the years 2021-2023 provided by SCC. These costs include costs for mining, processing (crushing and conveying, milling, leaching, and SX-EW for copper and molybdenum minerals), concentrate transport and marketing costs, general administrative expenses and estimates of accretion and closure. Average annual unit operating costs ranged from US$4.39 to US$9.01 per tonne of total material mined, with a LOM average total cost of US$4.84 per tonne of total material mined. Haulage costs were calculated using detailed haulage plans, equipment productivity assumptions, and historical utilization rates.

1.8 Economic Analysis

This section contains forward-looking information related to economic analysis for the Project. Material factors that could cause actual results to differ significantly from the conclusions, estimates, designs, forecasts, or projections include variations in estimated capital and operating costs, project schedule and approvals timing, availability of funding, and projected commodities markets and prices. All costs were assumed to be at Q4 2024 US$.

For the economic analysis, a Discounted Cash Flow (DCF) model was developed using commodity price assumptions provided by SCC: Copper at US$3.30/lb, Molybdenum at US$10.00/lb and Zinc at US$1.15/lb. The QP considers these prices to be reasonable, consistent with market studies, and suitable for use as forecasted prices for the purpose of the economic analysis for this Study.

The DCF establishes that the Mineral Reserves estimate provided in this report are economically viable. The base case NPV_{10} is estimated to be US$2.0 B. Total revenue is projected at US$41.0 B, with total operating costs of US$24.8 B and total capital expenditures of US$4.5 B.

Sensitivity analysis highlights that the project's NPV is most sensitive to changes in copper prices and operating costs, emphasizing copper's dominant influence on project economics. Capital expenditures, while less sensitive than operating costs and copper prices, also have a measurable impact on the project's NPV. Variations in molybdenum prices have a limited impact on NPV due to their smaller contribution to overall revenue.

The QP considers the accuracy and contingency of cost estimates to be 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 that is valid for 60 years. A land use permit was authorized in 2022 for the Pilares Project, which includes restricted cultural conservation areas within the Eljido Pilares. No additional permits are planned or needed at the time of this report.

The operations generate mining wastes in the form of tailings, waste rock and spent ore, plus electrowinning lead anode sludge. All of the mining wastes have been characterized as potentially acid generating (PAG). However, 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. The operations sample two surface water locations annually for reporting to the Mexican environmental authority. In 2024, surface water permissible limits were exceeded at the upstream monitoring location (upstream of the Francisca Heap Leach Facility). Groundwater quality is monitored twice annually at two wells for compliance reporting to the Mexican environmental agency. The groundwater quality did not exceed Mexican surface water discharge permissible limits. The QP notes that Mexican regulations have not established permissible limits for groundwater.

La Caridad operations are located within three municipalities: Nacozari de Garcia, Cumpas and Villa Hidalgo. The community perceives that there are environmental (in particular water supply), social, economic, health and safety issues in the community. The most recent risk assessment in 2016 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 are supported financially by Grupo Mexico. The Company has identified health, environment, unrealistic expectations of the community, and anti-mining groups as the largest challenges in their social programs. In 2024, the Company has indicated that stakeholder relationships have improved with most stakeholders having no opposition to the mining operations.

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$178 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 2024 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.

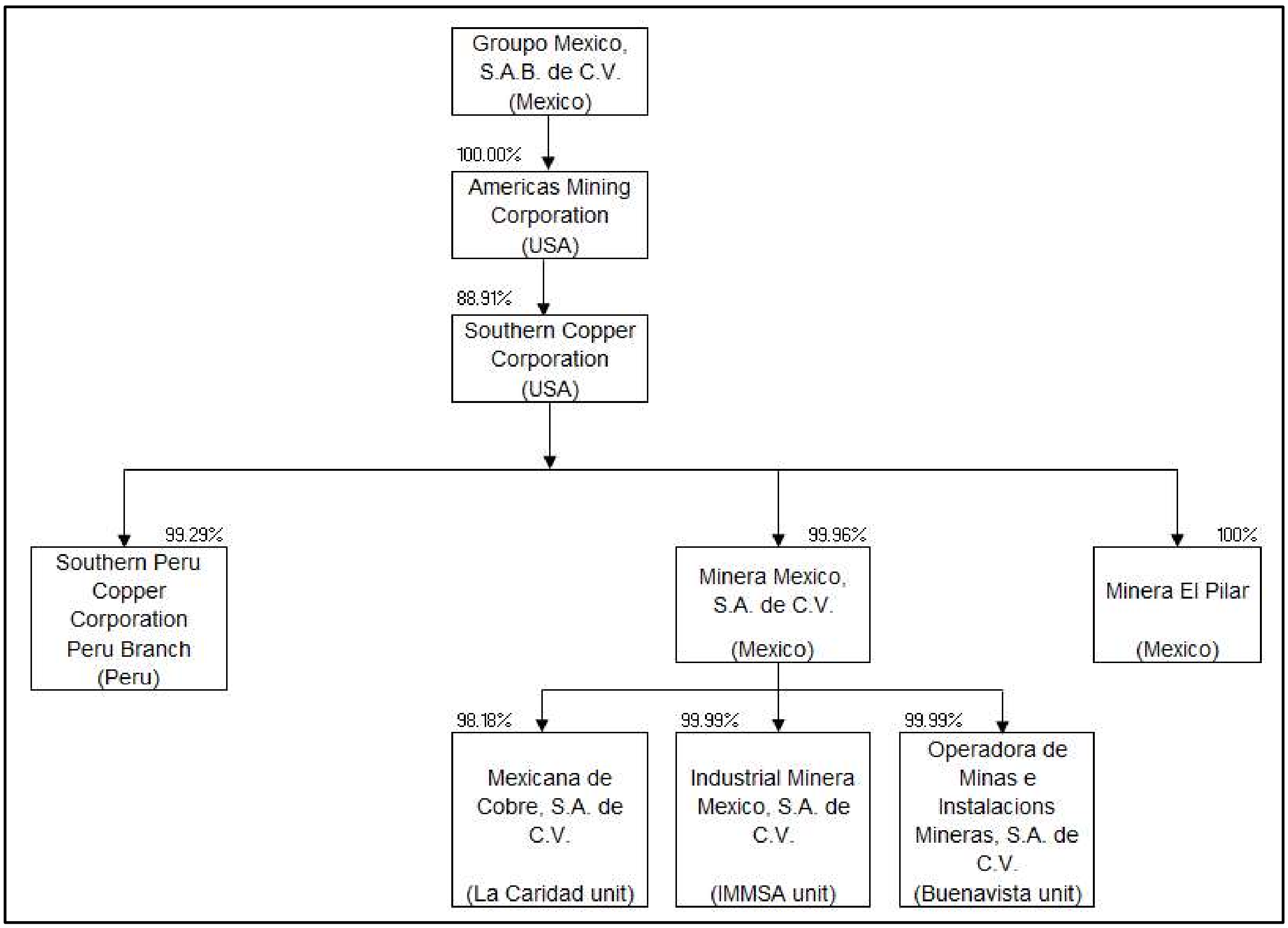
In the QP’s opinion, the operational and mine planning data, process recovery testing and modeling, LOM Plan, and estimation are carried out in a manner that both represents the data and operational experience and methodology well and mitigates the likelihood of material impacts to the estimates of Mineral 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 June 2024, 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. The Pilares Project (Pilares) is in production and has been historically mined in the past with underground workings. Pilares is considered part of the La Caridad unit and ore from Pilares will be routed to the leach pads and processing facilities at the La Caridad operations.



Source: SCC

Figure 2.1: Southern Copper Corporation Organization Structure

2.1 Registrant Information

This Technical Report Summary (TRS) for the La Caridad and the Pilares property located in the north-eastern part of the State of Sonora, Mexico, was prepared by WSP USA Inc. (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 11, 2025, while the effective date of the Mineral Resource and Mineral Reserves estimates was December 31, 2024. 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, 2024 and February 11, 2025.

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 2024 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 and Pilares operations.

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 La Caridad, Pilares, and SCC as well as sourced from publicly available information.

Most of the technical documents related to the tailings storage facilities were received when WSP personnel visited Grupo Mexico's office in Mexico City on October 14, 2021, and October 15, 2021. Information about the conceptual design for the expansion of the tailings facility and tailings dry density were provided on December 2, 2024.

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/m2	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

Abbreviation/Acronym	Definition
Bi	Bismuth
Bm^3	Billion cubic meters
Bt	Billion tonnes
Buenavista unit	Operadora de Minas e Instalaciones Mineras, S.A. de C.V.
BVC	Buenavista Copper
Ca	calcium
CNA	Comisión Nacional del Agua or National Water Commission
Cd	cadmium
CD	Contingency Dam or Presa de Contingencia
CDA	Canadian Dam Association
CFE	Comisión 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
CuCN	cyanide soluble copper
DBA	dam break analysis
DC	Design Criteria
DD	diamond core
DDH	diamond drill hole
DGM	Dirección 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
FEOX	iron oxide zone
FEL	front-end loader
FOS	Factor of Safety
FRED	Federal Reserve Economic Data
FS	Feasibility Study
ft	feet
ft^3	cubic feet
g	gram
Ga	billion years ago
gCu/l	grams of copper per liter
GERD	Servicios y Soluciones de Ingeniería y Logística
GIL	geological information limit
Golder	Golder Associates USA Inc.
GPM	gallons per minute
GPS	global positioning system
Grupo Mexico	Grupo México S.A.B. de C.V
ha	hectare
HDPE	High-density polyethylene

Abbreviation/Acronym	Definition
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
Mo or moly	molybdenum
MS	Microsoft
MT	hammer
mtpd	metric tonnes per day
MVA	megavolt-ampere
MW	megawatt
MX$	Mexican peso
Na	sodium
Na-Cn	sodium cyanide
NE	northeast
Ni	nickel
NN	nearest neighbor

Abbreviation/Acronym	Definition
NW	northwest
NW	northwest
OK	Ordinary Kriging
OREAS	ORE Research & Exploration Pty Ltd
OSF	overburden storage facilities
OX	oxide zone
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
SP	primary sulfide zone
SS	secondary sulfide zone
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
WGS	World Geodetic System
Wi	Bond Work Index
yd^3	cubic yard
Zn	zinc

2.4 Personal Inspection Summary

A site visit and inspection of the La Caridad and Pilares mining operations was completed on June 20-21, 2024 by WSP's QPs responsible for the preparation of this TRS.

The QPs present at the site visit included Mr. Ronald Turner, Mr. Mathew Oommen, Ph.D., Ms. Dawn Garcia, CPG, Mr. Jorge Castillo, P.E., Mr. Ibrahim Karajeh, P.Eng., and Mr. Eugenio Iasillo, P.E.

The WSP 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. WSP QPs visited key areas of the open pit, including active mining areas, crusher locations, waste storage facilities, run-of-mine (ROM) and leach pads, process facilities, core shack, dispatch, security gate, administration, historic smelter and other infrastructure. The site visits 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 La Caridad on June 20-21, 2024. During the site visit, Mr. Turner visited and inspected the Pilares site, data capture facilities and the current conditions for sample storage. Mr. Turner also conducted discussions with site personnel regarding the geology and mineralization and reviewed geological interpretations with staff.

2.4.2 Mathew Oommen

The independent QP, as defined in S-K 1300, responsible for the preparation of the Mineral Reserves provided in this TRS is Mr. Mathew Oommen, Ph.D., (Senior Vice President, Mining Engineering). Mr. Oommen visited La Caridad and Pilares on June 20-21, 2024. During the site visit, Mr. Oommen visited and observed the open pit operations, Guadalupe leach pad, and overburden storage facilities. Mr. Oommen visited various areas of the open pit including Bella Union mining area which was being mined as well as the Pilares operations, approximately 7 km from La Caridad, which had initiated mining in 2024. Mr. Oommen also conducted discussions with site personnel responsible for the geology, geotech, equipment workshop and management of the site.

2.4.3 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 Stantec. Ms. Garcia visited La Caridad on June 20 and June 21, 2024.

During the site visit, Ms. Garcia met with site personnel and toured the Pilares open pit, and the leaching operation. She also visited the local school and the town of Nacozari de Garcia. Ms. Garcia held discussions with the environmental and community relations staff to understand the management of mining wastes, environmental monitoring program, and social programs.

2.4.4 Ibrahim Karajeh

The independent QP, as defined in S-K 1300, responsible for the preparation of the infrastructure sections provided in this TRS is Mr. Ibrahim Karajeh, P.Eng. Mr. Karajeh visited La Caridad on June 20-21, 2024.

During the site visit, Mr. Karajeh visited and observed the following infrastructure areas: the mining and heap leach operations, the accommodation complex at El Globo, the truck shop, the freshwater intake and pumping station at La Angostura, the copper smelter (including the concentrate receiving and bulk handling railyard), and the power generation station.

2.4.5 Eugenio Iasillo

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 Iasillo PE, Principal, Process Engineering LLC. Mr. Iasillo visited La Caridad on August 26-27, 2021, and again on June 20-21, 2024.

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

2.4.6 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 June 20-21, 2024. 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.

2.5 Previously Filed Technical Report Summary Reports

This is the third TRS being filed for the La Caridad mine. Previous TRSs were referenced with the Form 10-K Annual Reports for the calendar years ending 2021 and 2022.

This is the second TRS being filed for the Pilares project. The first TRS was referenced with the Form 10-K Annual Report filing for the calendar year ending 2021.

This is the first combined TRS being filed for La Caridad and Pilares since mining was initiated in Pilares in 2024 and all ore mined from Pilares is sent to the mill and leach facilities at La Caridad.

3.0 PROPERTY DESCRIPTION

3.1 La Caridad

3.1.1 Property Location

The La Caridad mining 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. The La Caridad mining unit is accessed from kilometer (km) 19 of the Nacozari-Agua Prieta highway. The property location is shown in Figure 3.1. 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 1,500 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

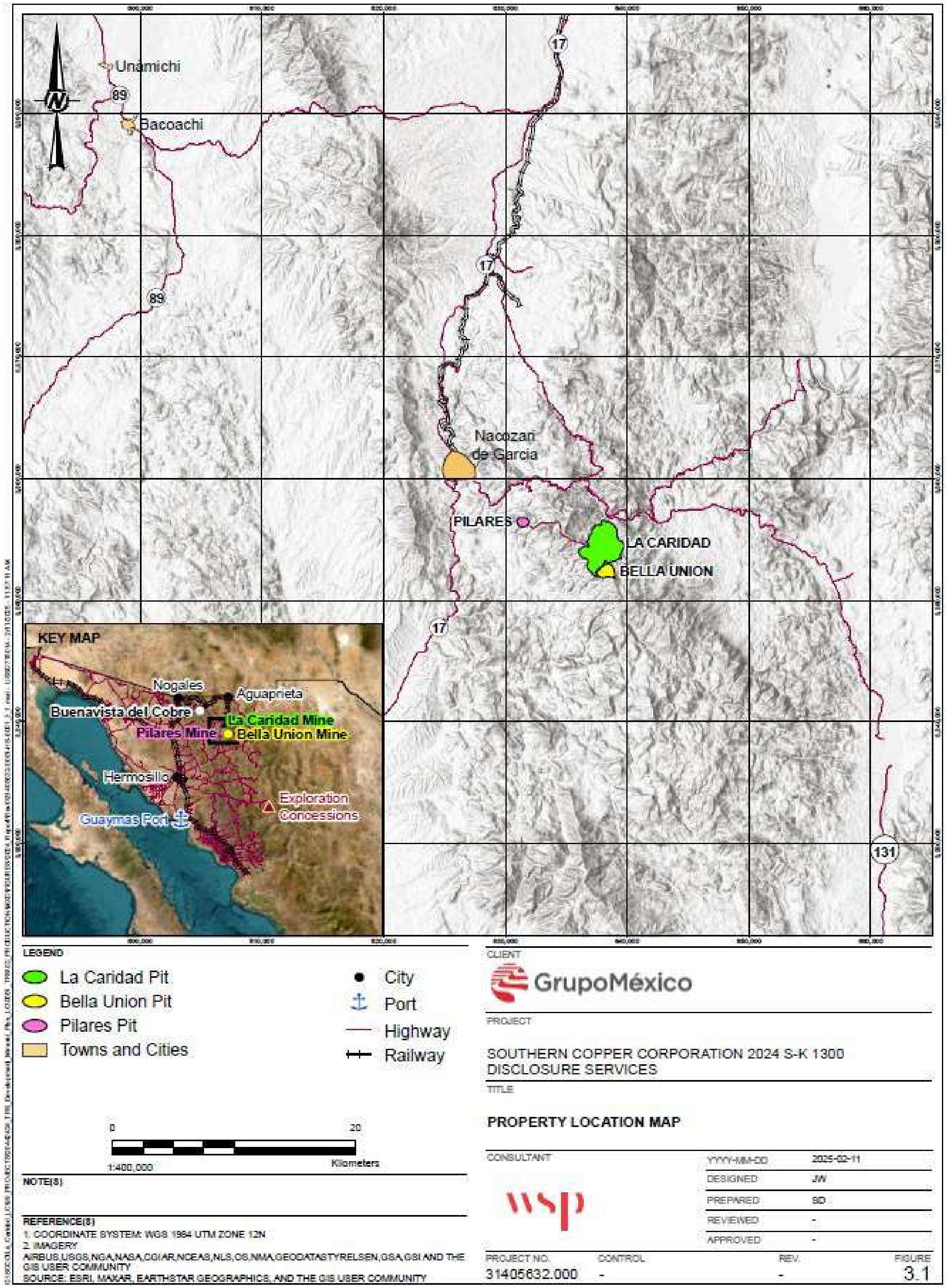


Figure 3.1: Property Location Map

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 from the electrolytic refinery anode sludge. 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 deposit located immediately south of the La Caridad mining unit which is under development. Pilares is a deposit situated to the west of the La Caridad mining unit and is currently mining.

3.1.2 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. The mining concessions are administered by the Dirección General de Mina (DGM), a sub-secretariat of the cabinet-level Secretary of Economy. 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 2005 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 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.

On May 8, 2023, the Mexican Government enacted a decree amending several provisions of the Mining Law. This decree, which became effective May 9, 2023, changes the duration of mining concession titles to a 30-year term with the option for an additional 25-year extension. Under the decree, all mining concessions granted prior to the entry into force of the law retain their existing durations as reflected in their title documentation. This applies to all concessions currently held by SCC. Additional implementing regulations associated with the mining law reforms were expected to be issued within 180 days (that is, early November 2023); however, none have been issued. The Mining Reform has had legal challenges, and the long-term impact and potential adjustments are not known.

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 – La Caridad

Concession Number	Concession Name	Municipality	Province	Date Granted	Expiry Date	Area (ha)
158954	El Hueco	Nacozari De Garcia	Sonora	14-08-2023	13-08-2073	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	Nacozari De Garcia	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	Nacozari De Garcia	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	Nacozari De Garcia	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	Nacozari De Garcia	Sonora	15-05-1990	14-05-2040	9
196689	La Caridad No. 6	Nacozari De Garcia	Sonora	06-08-1993	05-08-2043	391
198168	La Caridad No. 1	Nacozari De Garcia	Sonora	05-11-1993	04-11-2043	455
198169	La Caridad No. 3	Nacozari De Garcia	Sonora	05-11-1993	04-11-2043	499
198175	Laura	Nacozari De Garcia	Sonora	05-11-1993	18-12-2041	62
198177	La Caridad No. 4	Nacozari De Garcia	Sonora	05-11-1993	04-11-2043	470
198178	La Caridad No. 5	Nacozari De Garcia	Sonora	05-11-1993	04-11-2043	500
198179	La Caridad No. 2	Nacozari De Garcia	Sonora	05-11-1993	04-11-2043	500
198200	Pilares Oeste	Nacozari De Garcia	Sonora	05-11-1993	04-11-2043	436
201542	Santa Rosa	Nacozari De Garcia	Sonora	10-10-1995	09-10-2045	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	Sonora	08-08-1997	07-08-2047	13,353
211525	Bella Esperanza	Nacozari De Garcia Y Cumpas	Sonora	31-05-2000	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	30-03-2001	29-03-2051	120
213356	El Bellotal	Nacozari De Garcia	Sonora	27-04-2001	26-04-2051	455
213683	Diana	Villa Hidalgo	Sonora	08-06-2001	07-06-2051	513
213685	Purica Fracc. 1	Nacozari De Garcia	Sonora	08-06-2001	07-06-2051	7,504
213686	Purica Fracc. 2	Nacozari De Garcia	Sonora	08-06-2001	07-06-2051	30
213687	Purica Fracc. 3	Nacozari De Garcia	Sonora	08-06-2001	07-06-2051	1
214728	Poche	Villa Hidalgo	Sonora	22-11-2001	21-11-2051	2,503
214729	La Villa 3 Fracc. I	Villa Hidalgo	Sonora	22-11-2001	21-11-2051	9,856
214730	La Villa 3 Fracc. Ii	Villa Hidalgo	Sonora	22-11-2001	21-11-2051	63
215123	Diana 2	Nacozari De Garcia	Sonora	08-02-2002	07-02-2052	200
215938	Delia	Villa Hidalgo	Sonora	02-04-2002	01-04-2052	604
216616	La Villa 4	Villa Hidalgo	Sonora	17-05-2002	16-05-2052	832
218406	Petra	Nacozari De Garcia	Sonora	05-11-2002	04-11-2052	7
219090	San Francisco	Villa Hidalgo	Sonora	04-02-2003	03-02-2053	18
221095	Los Amoles	Villa Hidalgo	Sonora	19-11-2003	18-11-2053	830

Table 3.2: Mineral Concessions – La Caridad (cont.)

Concession Number	Concession Name	Municipality	Province	Date Granted	Expiry Date	Area (ha)
222006	La Presa 7	Villa Hidalgo	Sonora	27-04-2004	26-04-2054	1,537
222007	Los Jucaros	Nacozari De Garcia	Sonora	27-04-2004	26-04-2054	1,368
225592	La Villa Fraccion I	Villa Hidalgo	Sonora	23-09-2005	22-09-2055	10,890
225593	La Villa Fracc. Ii	Villa Hidalgo	Sonora	23-09-2005	22-09-2055	608
225594	El Nogal	Nacozari De Garcia Y Villa Hidalgo	Sonora	23-09-2005	22-09-2055	4,674
225808	Purica Fracc. 1	Nacozari De Garcia	Sonora	26-10-2005	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	13-04-2012	12-04-2062	7,970
240049	La Caridad-8 Fraccion 2	Nacozari De Garcia Y Villa Hidalgo	Sonora	13-04-2012	12-04-2062	12
246250	Villa Esperanza F1	Villa Hidalgo	Sonora	06-04-2018	05-04-2068	108
246341	Calerita 4 Fraccion 3	Nacozari De Garcia	Sonora	18-05-2018	17-05-2068	9
246486	La Presa 3	Villa Hidalgo	Sonora	03-08-2018	02-08-2068	457
246720	Villa Esperanza F2	Villa Hidalgo Y Nacozari De Garcia	Sonora	31-10-2018	30-10-2068	325
246721	Villa Esperanza F3	Villa Hidalgo Y Cumpas	Sonora	31-10-2018	30-10-2068	60
246722	Villa Esperanza F4	Villa Hidalgo Y Cumpas	Sonora	31-10-2018	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	02-04-2002	01-04-2052	2,499
216557	Palma	Sahuaripa	Sonora	17-05-2002	16-05-2052	120
234696	La Manteca Reduccion Ii	Caborca	Sonora	29-07-2009	28-07-2059	2,100
4					***Subtotal Exploration Concessions***	***4,731***
67					**Grand Total**	**103,821**

Note: Exploration concessions are not shown on Figure 3.2.

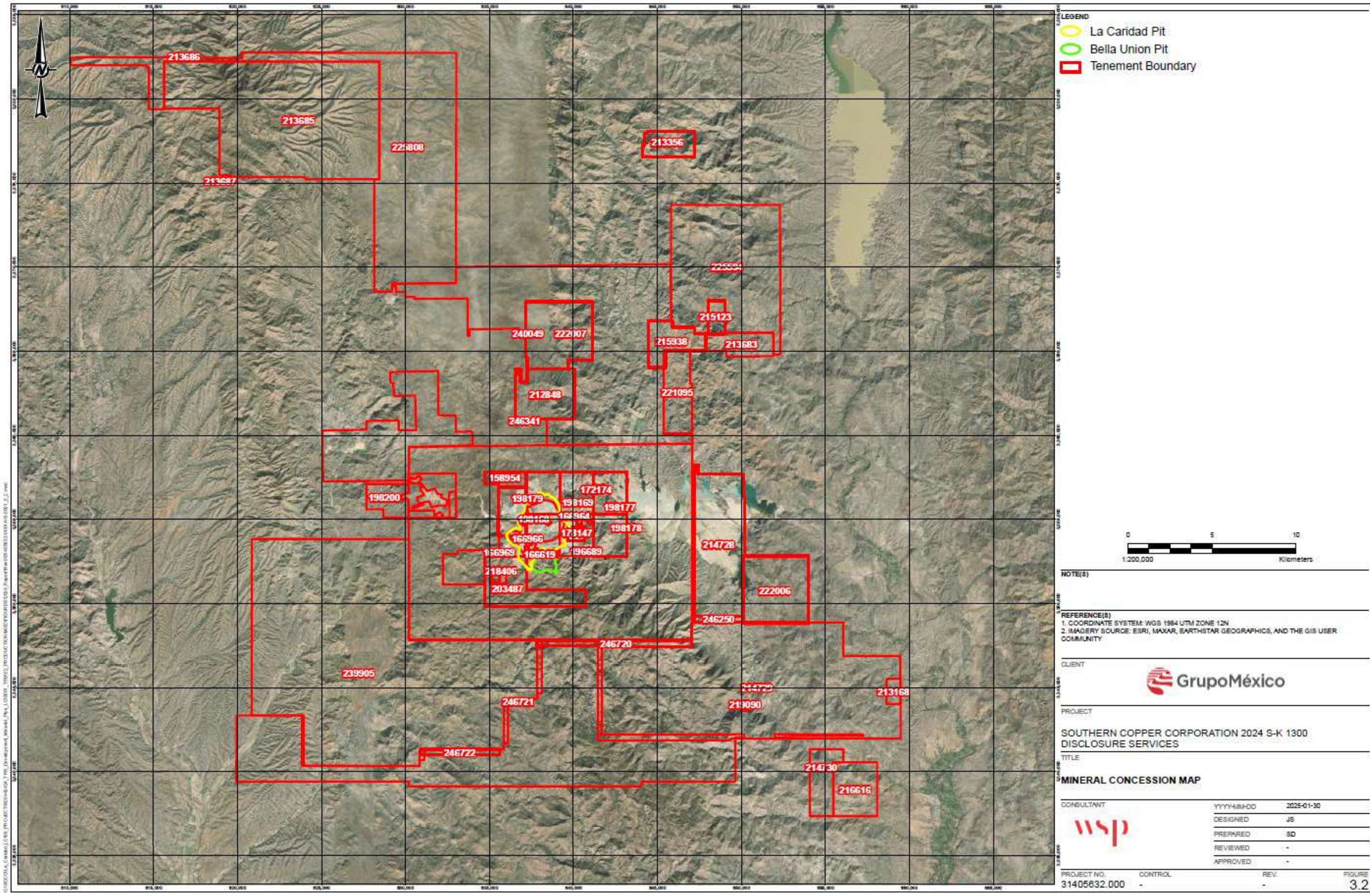


Figure 3.2: Mineral Concessions – La Caridad

3.1.3 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.

Table 3.3: Property Ownership – La Caridad

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.	**1,134, 1,589**	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.	**2,318**	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.	**2,414**	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.	**2,318**	921
24	Fraccion "K"	Mexicana de Cobre S.A. de C.V.	**941**	56
25	El Cachuly (El Nogalito)	Mexicana de Cobre S.A. de C.V.	**4,112, 8,161**	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.	**2,494**	293
36	Poligono 4 Subd. Cruz De Cañada	Mexicana de Cobre S.A. de C.V.	**2,735**	293
37	Poligono "Los Alisos"	Mexicana de Cobre S.A. de C.V.	**3,477**	3,540
			Total	**19,026**

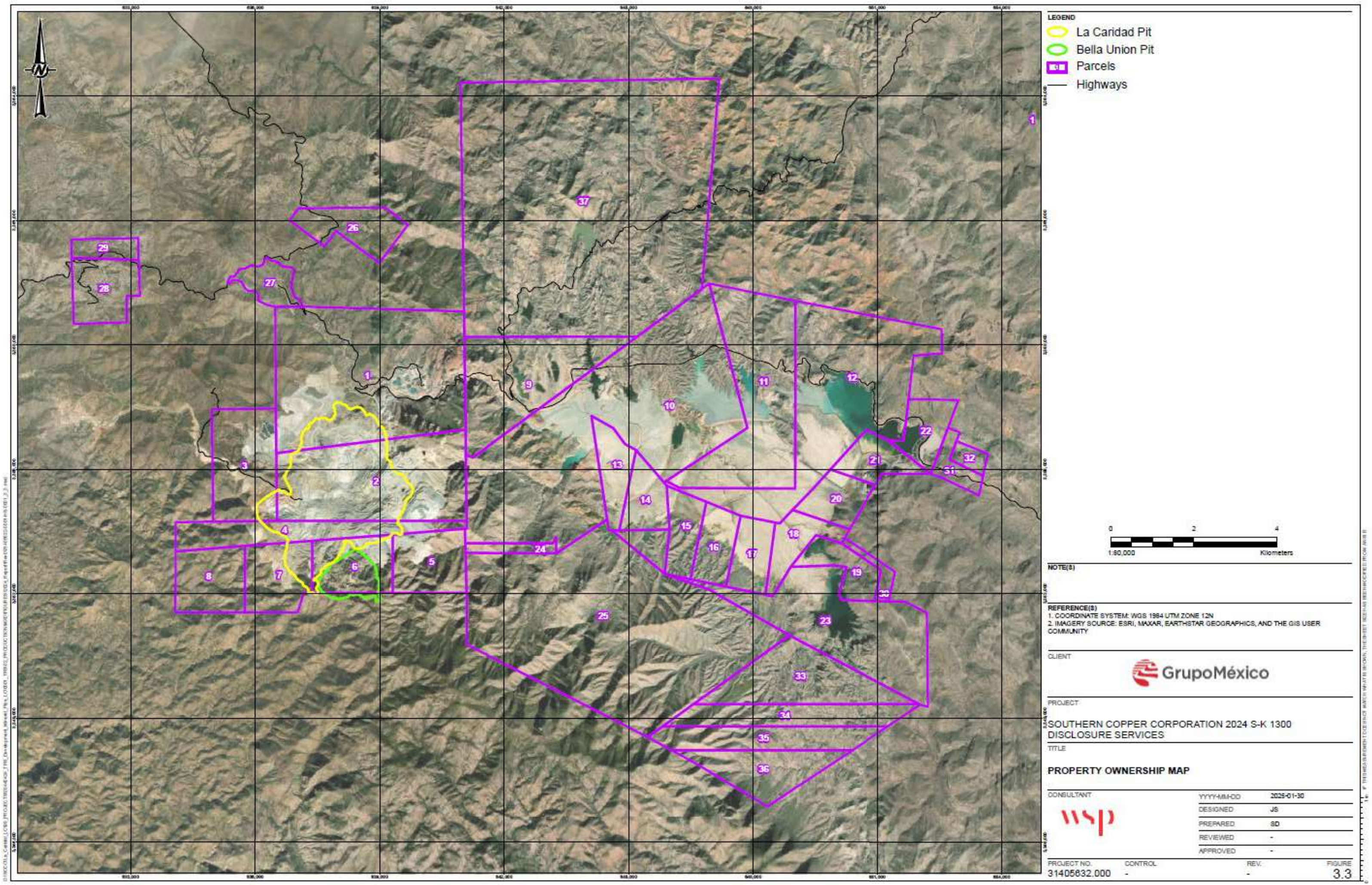


Figure 3.3: La Caridad Mining Unit Property Parcels

3.1.3.1 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.

3.1.4 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.

3.1.5 Potential Encumbrances to the Property

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

3.1.6 Other Significant Factors and Risks Affecting Access

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

3.2 Pilares

3.2.1 Property Location

The Pilares mining unit is considered part of the La Caridad mining unit, which 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 (see Figure 3.1). Access to the Pilares mining units is similar to that of La Caridad. 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 Pilares project is located between 30°19 and 30°20' N, and between 109°38’ and 109°37’47” W, at elevations ranging between 1,400 to 1,460 m above mean sea level (amsl). It is about 6 km from the La Caridad mining unit and 22 km from Nacozari. The town of Pilares is adjacent to the historical mineral processing area and open pit. The plaza in the town of Pilares is about 500 m from the historical underground mine shaft.

3.2.2 Mineral Rights

The mining claims held by Pilares project cover an area of about 143.3 hectares (ha) for exploration and exploitation activities. The claim name and identification number are listed in Table 3.4 and the claim location is shown on Figure 3.4. The claim is dated October 11, 2011, and will expire August 04, 2032.

Table 3.4: Mineral Concessions - Pilares

Concession Number	Concession Name	Municipality	Province	Date Granted	Expiry Date	Area (ha)
238658	Unificacion Pilares	Nacozari de Garcia	Sonora	10/11/2011	08/04/2032	143

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.

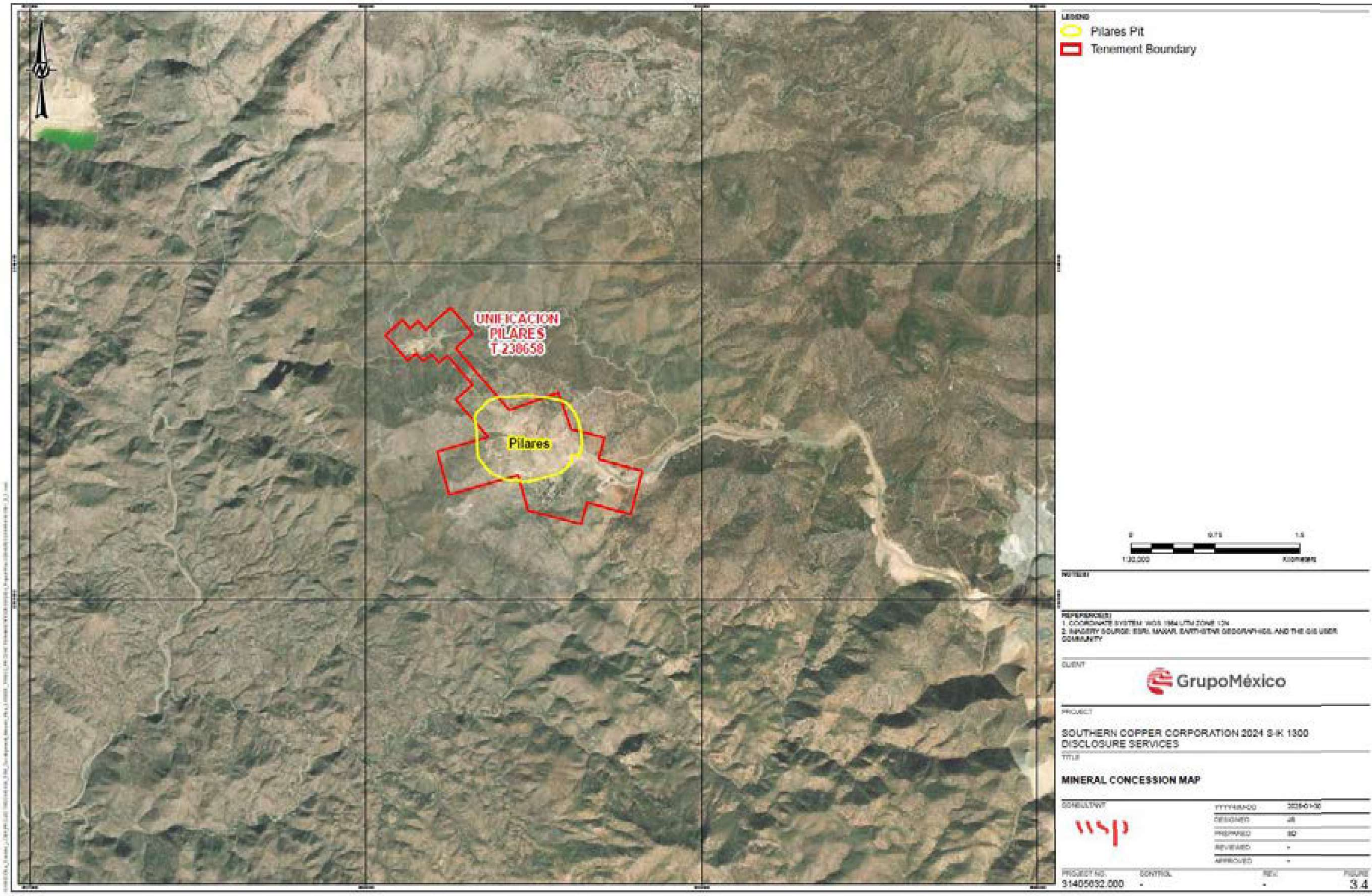


Figure 3.4: Mineral Concessions Map - Pilares

3.2.3 Description of Property Rights

Surface rights are held by a combination of private ownership and agreements with the local ejido “Pilares”, which consists of about 40 members. Ejidos are agrarian land grants held by a group of people. The agreements allow for exploration and mining activities, plus conservation of the historical town of Pilares. The property lots are identified by name and document in Table 3.5. The majority of the property is under ownership of the mining unit. The locations of the lots are shown in Figure 3.5. There are three lots that are under lease agreements with the Ejido Pilares (Lots 99, 100, and 101, as listed in Table 3.5). Lots 99 and 100 are each leased for mineral exploitation. Lot 101 is leased for conservation and protection of the historical town. Lot 99 was leased starting September 2015 for 30 years; Lots 100 and 101 were leased starting July 2016 for 30 years. According to information provided in the social baseline study, Grupo Mexico leases 2,600 ha from Ejido Pilares for MX$1,700,000 annually, and has leased the historical town for MX$2,700,000 for a 30-year period. At this time, the designation of any buildings as cultural resources per the Mexican cultural institute (Instituto Nacional de Antropología e Historia) is under review.

Table 3.5: Property Ownership - Pilares

Polygon Number	Lot Name	Owner	Surface Area (Ha)
1	Lote Urbano 01, Manzana 02	Mexicana de Cobre S.A. de C.V.	2.64
2	Lote Urbano 02, Manzana 02	Mexicana de Cobre S.A. de C.V.	2.64
3	Lote Urbano 03, Manzana 02	Mexicana de Cobre S.A. de C.V.	2.64
4	Lote Urbano 04, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32
5	Lote Urbano 05, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.67
6	Lote Urbano 06, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.65
7	Lote Urbano 07, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32
8	Lote Urbano 08, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.66
9	Lote Urbano 09, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.67
10	Lote Urbano 10, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.57
11	Lote Urbano 11, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.75
12	Lote Urbano 12, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32
13	Lote Urbano 13, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32
14	Lote Urbano 14, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32
15	Lote Urbano 15, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32
16	Lote Urbano 16, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32
17	Lote Urbano 17, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.63
18	Lote Urbano 18, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.69
19	Lote Urbano 19, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.66
20	Lote Urbano 20, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.66
21	Lote Urbano 21, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.87
22	Lote Urbano 22, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.45
23	Lote Urbano 23, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.46
24	Lote Urbano 24, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.86
25	Lote Urbano 25, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.84
26	Lote Urbano 26, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.52
27	Lote Urbano 27, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.45
28	Lote Urbano 28, Manzana 02	Mexicana de Cobre S.A. de C.V.	0.52
29	Lote Urbano 29, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32
30	Lote Urbano 30, Manzana 02	Mexicana de Cobre S.A. de C.V.	1.32

Polygon Number	Lot Name	Owner	Surface Area (Ha)
31	Lote Urbano 31, Manzana 02	Mexicana de Cobre S.A. de C.V.	2.64
32	Lote Urbano 32, Manzana 02	Mexicana de Cobre S.A. de C.V.	2.64
33	Lote Urbano 33, Manzana 02	Mexicana de Cobre S.A. de C.V.	2.64
35	Lote Urbano 02, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.65
36	Lote Urbano 03, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.66
37	Lote Urbano 04, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.66
38	Lote Urbano 05, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.90
39	Lote Urbano 06, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.82
40	Lote Urbano 07, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.75
41	Lote Urbano 08, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.60
43	Lote Urbano 10, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.57
44	Lote Urbano 11, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.50
45	Lote Urbano 12, Manzana 03	Mexicana de Cobre S.A. de C.V.	0.42
48	Pueblo (Arrendamiento)	Mexicana de Cobre S.A. de C.V.	7.24
48-1	Temporary Mining Usage 2019	Mexicana de Cobre S.A. de C.V.	1.32
49	Parcela 01 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	5.98
50	Parcela 02 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	27.42
51	Parcela 03 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	11.09
52	Parcela 04 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
53	Parcela 05 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
54	Parcela 06 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
55	Parcela 07 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	22.31
56	Parcela 08 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	4.24
57	Parcela 09 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
58	Parcela 10 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	12.39
59	Parcela 11 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	5.61
60	Parcela 12 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
61	Parcela 13 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	15.40
62	Parcela 14 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	9.86
63	Parcela 15 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	5.27
64	Parcela 16 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	18.96
65	Parcela 17 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	28.13
66	Parcela 18 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	4.58
67	Parcela 19 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	5.33
68	Parcela 20 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
69	Parcela 21 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	28.08
70	Parcela 22 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
71	Parcela 23 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	15.45
72	Parcela 24 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	11.99
73	Parcela 25 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
74	Parcela 26 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
75	Parcela 27 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41

Polygon Number	Lot Name	Owner	Surface Area (Ha)
76	Parcela 28 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	5.96
77	Parcela 29 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
78	Parcela 30 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
79	Parcela 31 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
80	Parcela 32 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
81	Parcela 33 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
82	Parcela 34 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
83	Parcela 35 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
84	Parcela 36 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
85	Parcela 37 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
86	Parcela 38 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
87	Parcela 39 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
88	Parcela 40 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
89	Parcela 41 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
90	Parcela 42 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
91	Parcela 43 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
92	Parcela 44 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
93	Parcela 45 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
94	Parcela 46 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
95	Parcela 47 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	29.16
96	Parcela 48 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
97	Parcela 49 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
98	Parcela 50 Z-1 P-1	Mexicana de Cobre S.A. de C.V.	33.41
99	Temporary mining usage 2015	Mexicana de Cobre S.A. de C.V.	2,572.00
100	Temporary mining usage 2016	Mexicana de Cobre S.A. de C.V.	16.73
101	Temporary Agrarian Usage	Mexicana de Cobre S.A. de C.V.	664.78
102	Fraccion "b" located inside of lot no. 12 or "santo domingo"	Mexicana de Cobre S.A. de C.V.	1,317.52
			5,928.37

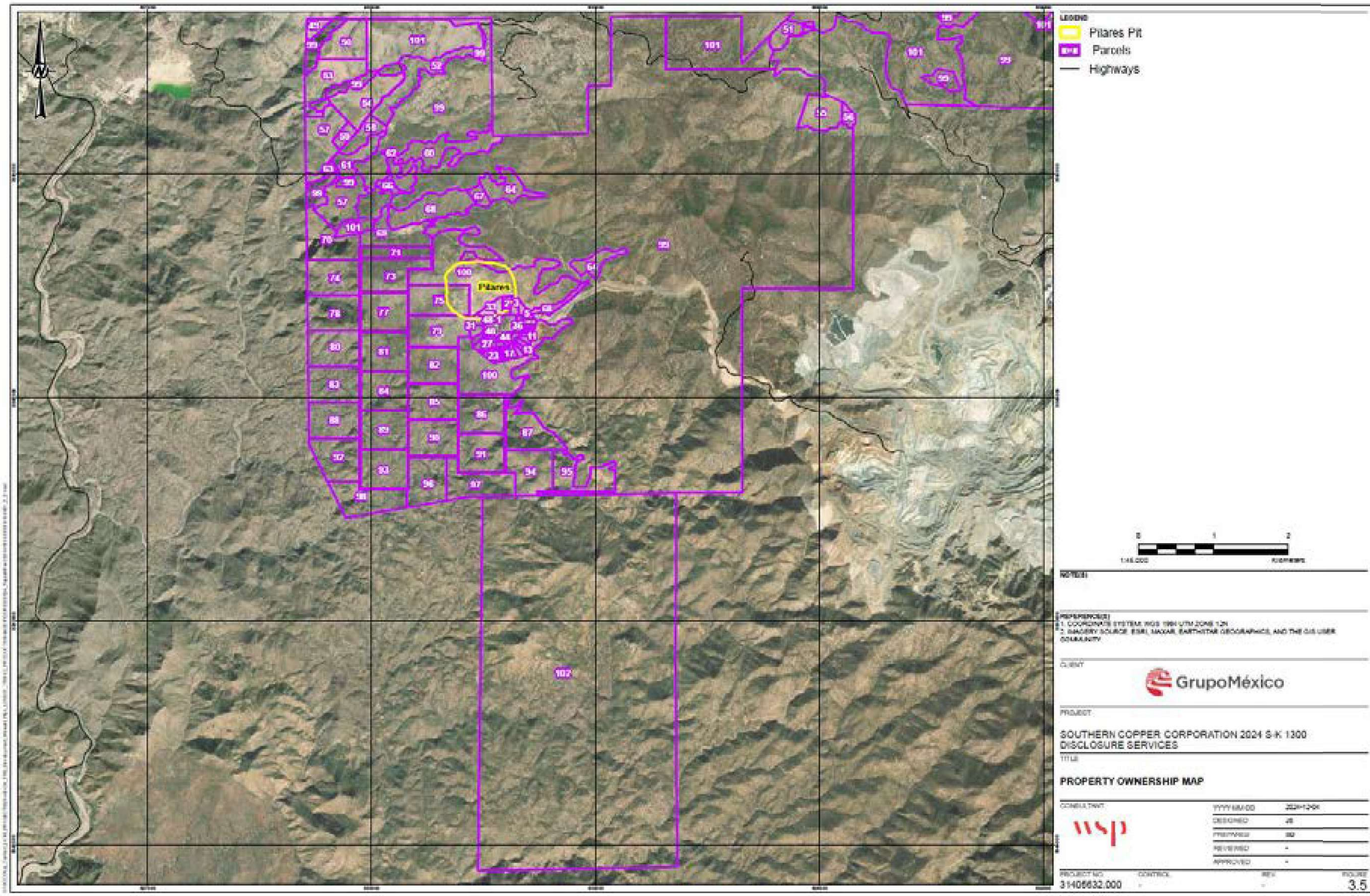


Figure 3.5: Pilares Mineral Development Area Property Parcels

3.2.4 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.

There are no known requirements to pay royalties associated with Pilares.

3.2.5 Potential Encumbrances to the Property

There is one lease with the Ejido Pilares that is a restricted area for conservation purposes. It is unknown if any buildings or areas within the town of Pilares will be designated as historical by the Mexican government. Typically, historical buildings are constructed prior to the 19th century, and none of the buildings in Pilares date to that time. Safety and social license concerns include the movements of people using and living in Pilares. Ejido meetings are reported to be held monthly in the town, and the cemetery and the church are used by ejido members.

The social baseline study indicated that the highest social risks are the restriction of cattle grazing if the mine is operating and an increased probability of an environmental accident. The historical underground mine dewatering and proximity of the surface water drainages are a concern to the stakeholders. The environmental responsibility for the underground mine water drainage was acquired by Grupo Mexico with the purchase of Moctezuma Copper Company. The mine water draining from the underground mine contains metals and is treated with lime prior to discharging to the arroyos that lead to Nacozari.

3.2.6 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 northern portion of the Sierra Madre Occidental Physiographic Province and the Sierras y Valles del Norte subprovince. The subprovince is characterized by high mountain ranges between which wide valleys are located, parallel with preferential north-south orientation. This is an extension of the Basin and Range province of the western United States.

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, including Pilares have steep topography and significant elevation changes.

4.2 Access to the Property

Nacozari is connected by paved highway with Hermosillo, Nogales, and Agua Prieta and by rail with the international port of Guaymas, and the Mexican and United States rail systems through Nogales. 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 (Federal Highway 17) and by railroad.

The Pilares area can be accessed via an unpaved road that connects to the paved road at km 19 of the Nacozari-Agua Prieta highway and a second mining road that connects the Pilares open pit to the La Caridad operations and facilities.

The property layout and access for both La Caridad and Pilares is shown in Figure 4.1.

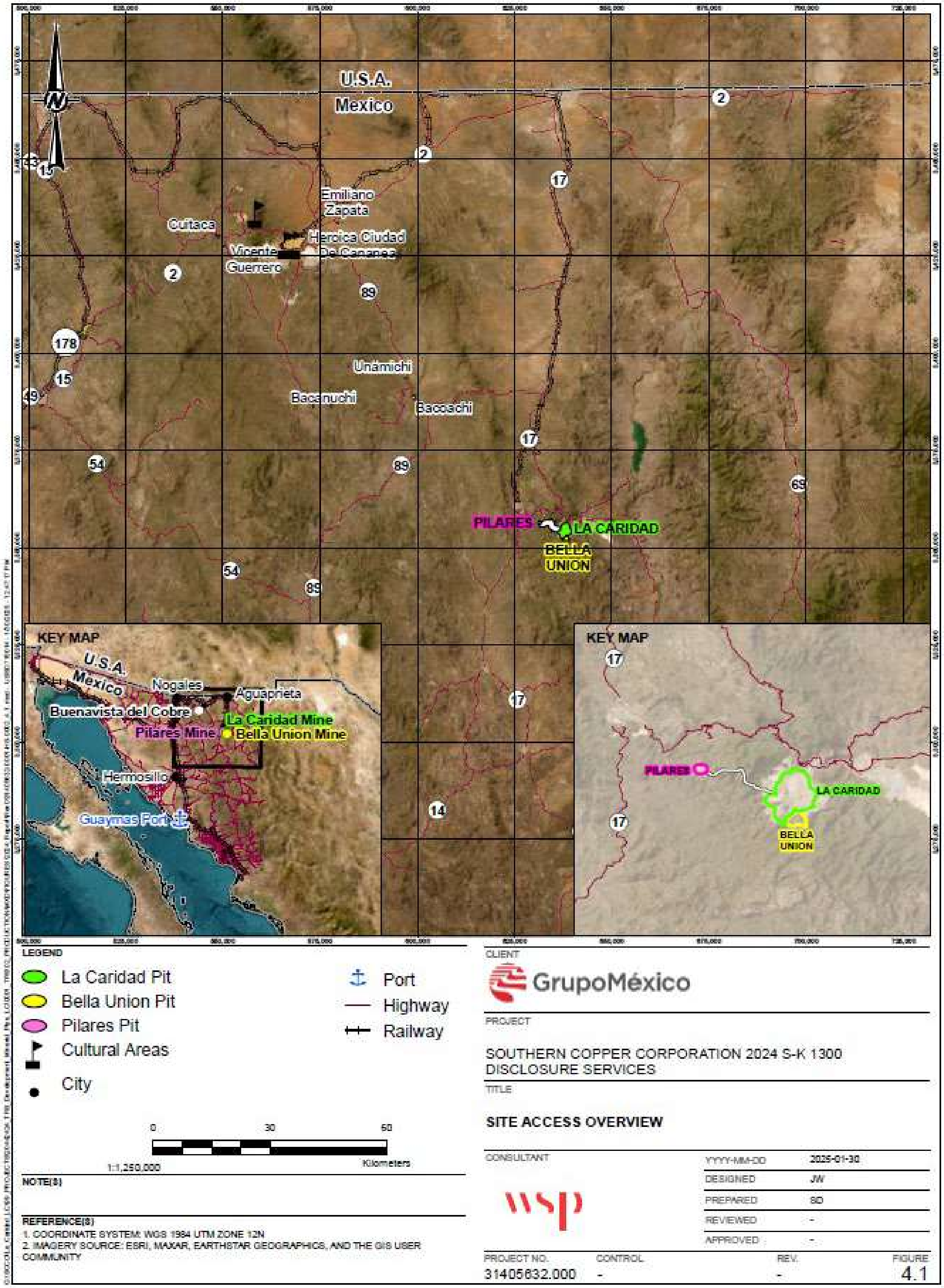


Figure 4.1: La Caridad and Pilares Site Access

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	48.4%
Semi-arid, Temperate	BS1k(x')	14,362.27	37.5%
Arid, Semi-warm	Bsoh(x')	5,397.89	14.1%
Total		38,279.64	100.0%

The coldest months are from December to February, with mean temperatures between 18° to 21° Celsius (C) (record low -3° C, record high 33° C) and the warmest months of June to September surpass 30° C (record low 16° C, record high 46° C). The mean annual rainfall within the region varies between 203 millimeters (mm) and 655 mm. The estimated annual rainfall is 476 mm based on the period from January 2017 to January 2022 (https://nomadseason.com). The annual distribution of precipitation presents a very well-defined summer rainy season from July to September with daily rain events over 40 mm. The dry season occurs from December to June, with rain events of less than 20 mm. Figure 4.2 illustrates the mean temperature and precipitation by month.

Table 4.2: Average Climate Data for Nacozari de García

Month	Average High (°C)	Average Low (°C)	Average Precipitation (mm)
January	16.3	5.7	19
February	18.1	6.6	15
March	22.1	9.3	11
April	25.3	10.9	7
May	28.9	13.4	7
June	34.3	19.5	7
July	31.8	22.1	84
August	31.8	21.2	84
September	29.0	18.0	84
October	24.0	14.0	20
November	22.0	10.0	22
December	16.3	5.7	19

Source: Copilot AI summarized data from the Copernicus Climate Change Service information, specifically for the period from January 2017 to June 2022.

The mining activities at La Caridad and Pilares are carried out 365 days a year, including holidays or non-working days.

4.4 Vegetation and Land Use

The area has multiple vegetation zones due to the elevation changes. Vegetation types include desert scrub, induced grassland, natural pastureland, live oak forest, and live oak-pine forest.

In addition to the mining operations, land uses in the region include ranching, residential and urban areas, and natural reserves.

4.5 Availability of Required Infrastructure

4.5.1 La Caridad

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 two 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.

4.5.2 Pilares

Pilares is located near the demarcation of two municipalities: the municipality of Nacozari de García (population 14,369) and the municipality of Villa Hidalgo (population 1,429). Other than these two municipalities, the area is rural with very few inhabitants. The town of Pilares de Nacozari contains only a few houses that are unoccupied. Buildings have not been maintained.

The infrastructure at the La Caridad mining unit is used to support mining at Pilares.

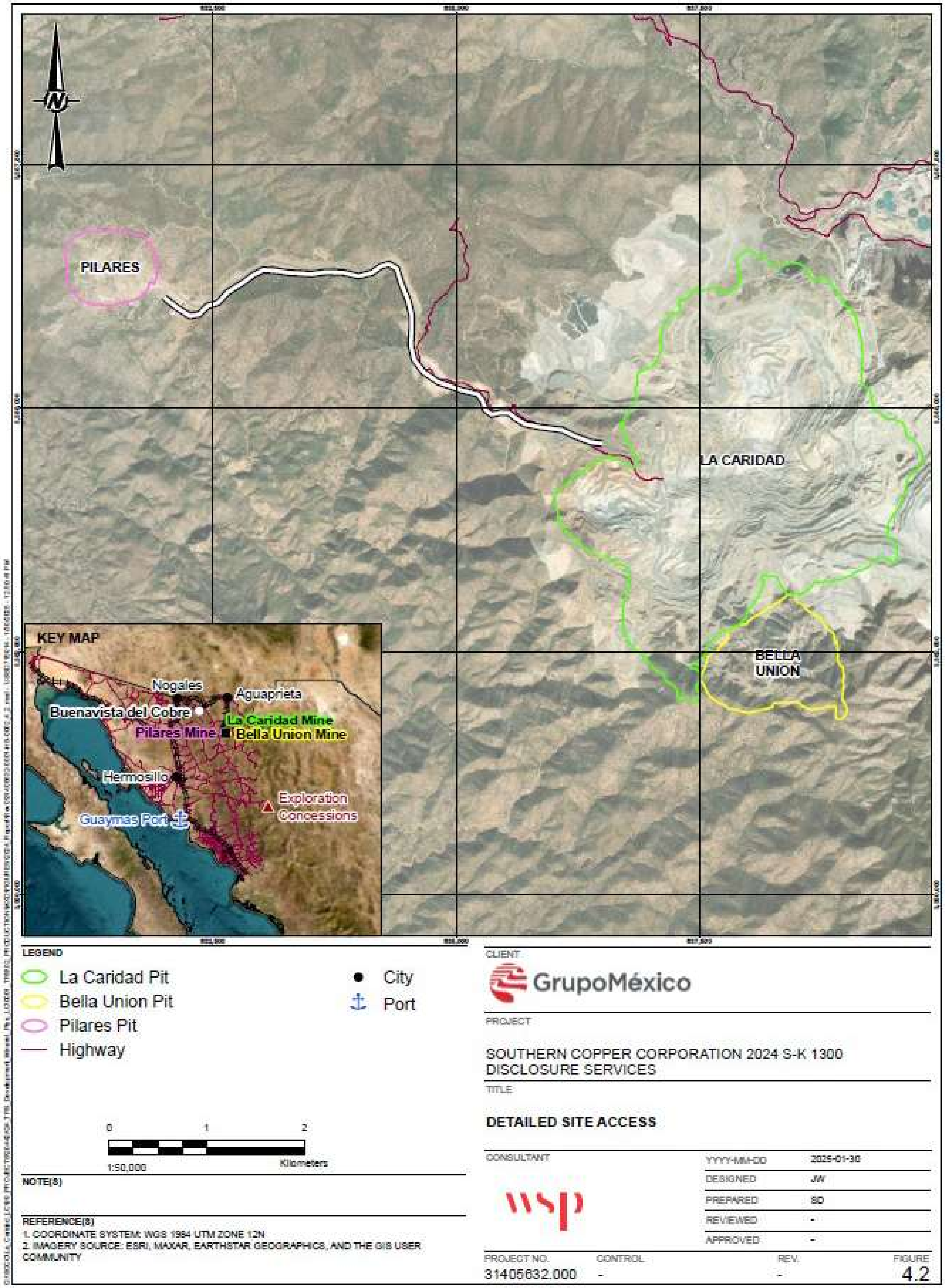


Figure 4.2: Detailed Site Access

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 Pilares. The town of Pilares de Nacozari was founded in 1896. The Moctezuma Copper Company started mining operations in 1900, and two smelters were built starting in 1901 at Douglas to serve several mines owned by Phelps Dodge including its operations at Nacozari.

5.1.1 La Caridad

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.

5.1.2 Pilares

In 1910, the Pilares mine was considered to be the second largest deposit in the world, according to an article in the Los Angeles Herald. The town had up to 8,000 inhabitants, and included a gymnasium, library, bull-fighting ring, theater, three cemeteries and a church. After intermittent disruptions in the 1920s and 1930s, Phelps Dodge reportedly shut down operations in 1949. By 2012 only three inhabitants remained in Pilares, and there are currently only two inhabitants living fulltime in the town. One of the cemeteries is still being used and about 500 head of cattle are grazed in the area. TSF 1, located in Nacozari, is associated with the Moctezuma Copper Company and there is a historical waste rock storage facility (Tepetatera Poniente) at Pilares. A separate reclamation project is ongoing for TSF 1, which is not part of the current La Caridad operations. Stabilization of the slopes and revegetation was to be carried out in 2020 and 2021.

Figure 5.1, Figure 5.2, and Figure 5.3 show general views of the historical Pilares Mine as it looks presently.

Source: WSP 2024

Figure 5.1: Historical Headframe at Pilares

Source: WSP 2024

Figure 5.2: Historical Town Adjacent to Mine Location

Source: WSP 2024

Figure 5.3: Current Operations at Pilares Mine

5.2 Drilling Exploration History

5.2.1 La Caridad

Exploration drilling has been undertaken almost yearly at La Caridad since 1968. A total of 3,945 exploration drill holes, totaling 814,091 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 – La Caridad

Drill Type	No. of Drill Holes	Total Meterage
DD	1,583	473,559
RC	2,034	317,817
MD	201	15,796
MT	127	6,919
Total	**3,945**	**814,091**

5.2.2 Pilares

A total of 123 exploration drill holes, totaling 53,825 m, have been drilled on the Pilares property in seven different programs since 2009. All drilling at Pilares was completed using diamond drilling techniques. Table 5.2 summarizes the various drilling programs conducted at Pilares. The 2022 drilling program was an exploration program focused on a potential expansion area surrounding the Pilares Breccia, known as El Saucito.

Table 5.2: Summary of Exploration Drilling – Pilares

Year	Drill Hole Type	No. of Drill Holes	Total Meterage	Objective
2009	DDH	18	5,114	Definition of Mineral Resources
2009 - 2010	DDH	18	4,395	Definition of Mineral Resources
2010 - 2011	DDH	24	7,036	Definition of Mineral Resources
2011	DDH (Directional)	5	1,662	Geotechnical
2022	DDH	27	22,618	Exploration - El Saucito
2023	DDH	24	10,420	Infill
2024	DDH	7	2,580	Infill
Total		**123**	**53,825**	

5.3 Historical Production

5.3.1 La Caridad

The last six years of production at La Caridad as published by SCC in its Annual Reports is shown in Table 5.3.

Table 5.3: Production Statistics for La Caridad (2018 through 2023)

Item	Unit	Year					
		2023	2022	2021	2020	2019	2018
Mine annual operating days		365	365	365	366	365	365
Mine							
Total ore mined	(kt)	34,886	34,099	34,876	34,949	34,401	34,675
Copper grade	(%)	0.296	0.303	0.340	0.361	0.356	0.353
Leach material mined	(kt)	15,099	30,113	35,230	29,561	28,457	30,764
Leach material grade	(%)	0.250	0.201	0.212	0.220	0.224	0.221
Stripping ratio	(kt/kt)	1.48	0.65	0.43	0.45	0.50	0.48
Total material mined	(kt)	124,090	106,251	100,412	93,373	94,578	96,541
Concentrator							
Total material milled	(kt)	35,128	34,114	34,929	34,858	34,648	34,548
Copper recovery	(%)	84.45	85.71	86.44	87.14	86.80	87.09
Copper concentrate	(kt)	387	385	457	473	446	446
Copper in concentrate	(kt)	88	89	103	110	107	106
Copper concentrate average grade	(%)	22.68	22.97	22.48	23.18	24.01	23.78
SX-EW Plant							
Estimated leach recovery	(%)	34.97	34.46	38.11	38.04	38.06	37.99
SX EW cathode production	(kt)	22.99	23.34	25.38	25.85	25.93	26.41
Molybdenum							
Molybdenum grade	(%)	0.039	0.034	0.035	0.036	0.036	0.034
Molybdenum recovery	(%)	82.71	81.67	82.44	82.82	82.17	83.28
Molybdenum concentrate	(kt)	21.00	17.80	18.90	19.30	18.80	18.00
Molybdenum concentrate average grade	(%)	54.15	53.58	53.92	54.48	54.26	54.61
Molybdenum in concentrate	(kt)	11.40	9.60	10.20	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.

5.3.2 Pilares

Pilares was a mineral development project, and no mining had taken place since operations ceased in 1949. Mining operations have recently restarted in 2024.

6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

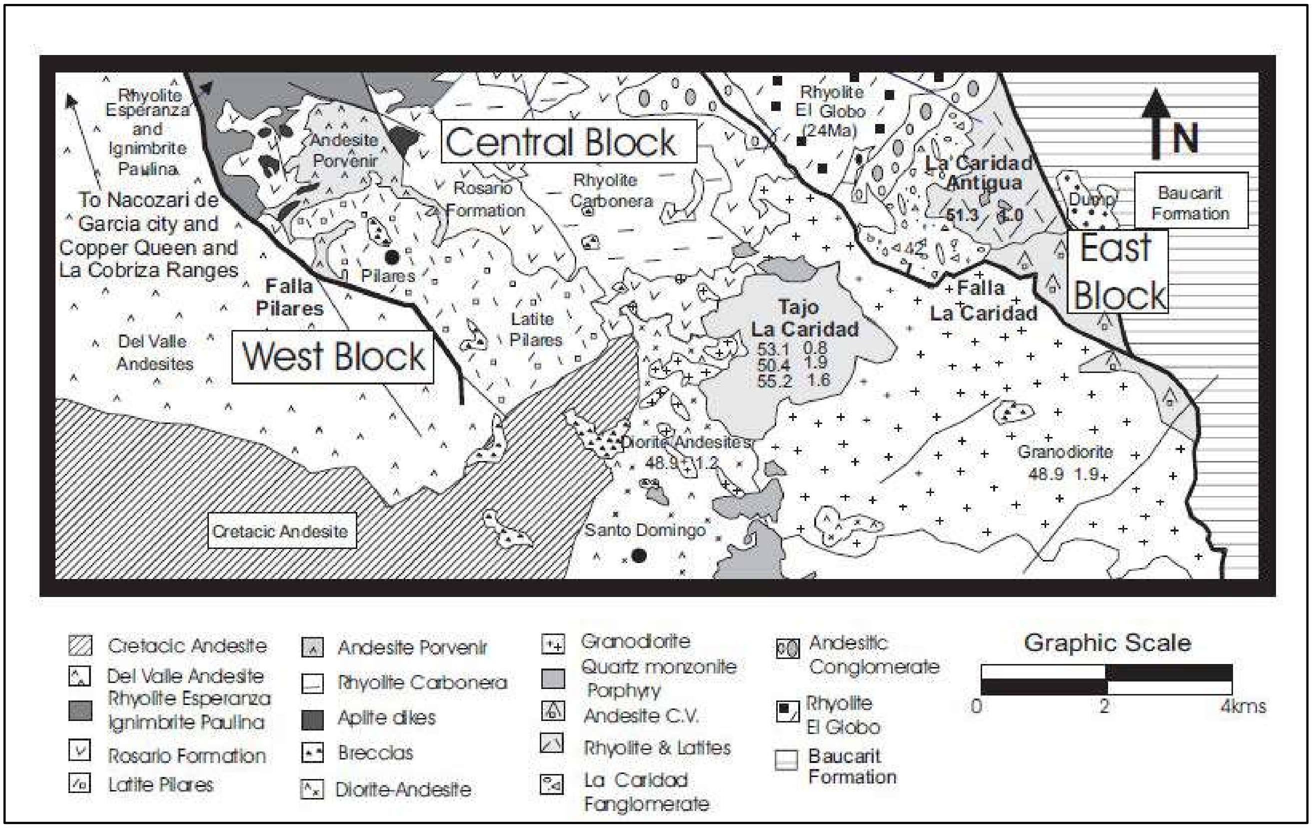
6.1 Regional Geology

Mexico has been subject to a continuous succession of tectono-magmatic events, particularly from the middle part of the Mesozoic until recent times. These events have left marked traces of their activity, and in some cases, have been associated with the generation of numerous mineralized centers, among which the Laramide Copper (Cu) Porphyry belt stands out (e.g., Staude and Barton, 2001). This belt extends in a NW-SE direction and is notably wider in the northern part, due to a greater effect of extensional tectonics associated with the Basin and Range system (Damon et al., 1983a). The regions of western Arizona, western New Mexico and northern Sonora contain the most attractive Cu deposits.

La Caridad is a porphyry Cu deposit, 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).



Source: VValencia, et al, 2003

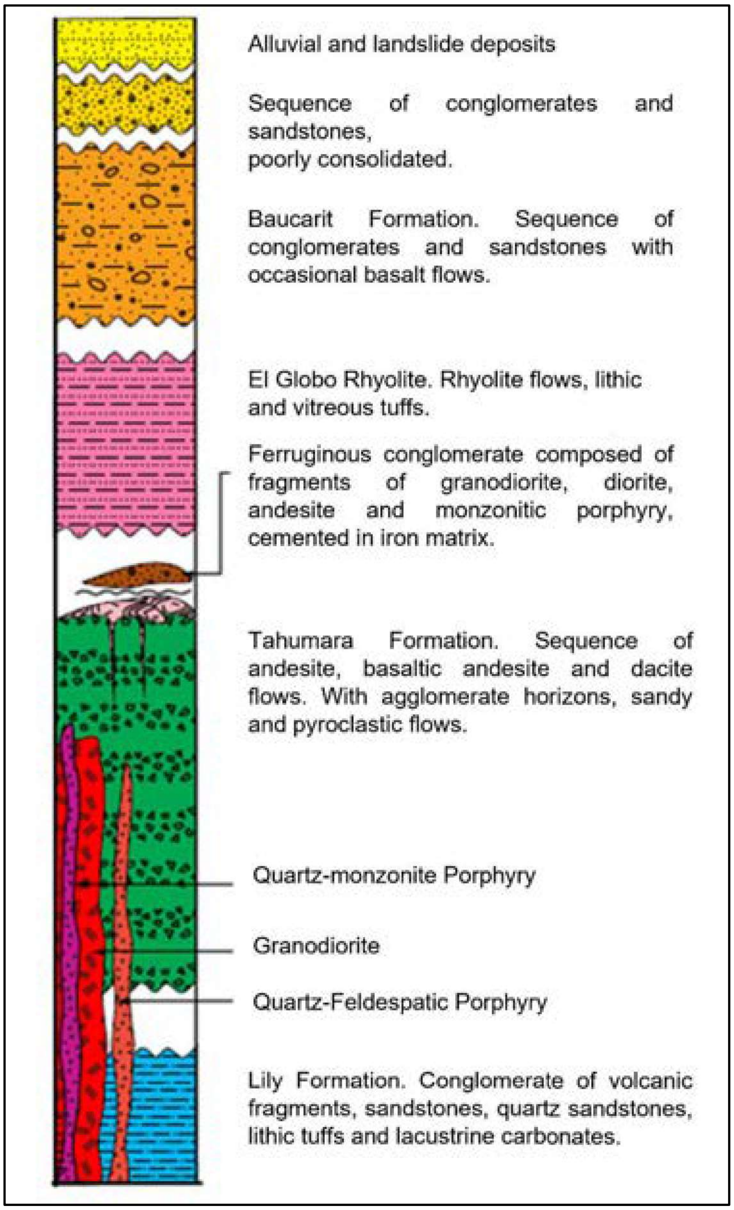
Figure 6.1: Simplified Regional Geologic Map of the Nacozari Mining District

The West block in 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

6.2.1 La Caridad

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).



Source: Rascón et al, 2012

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

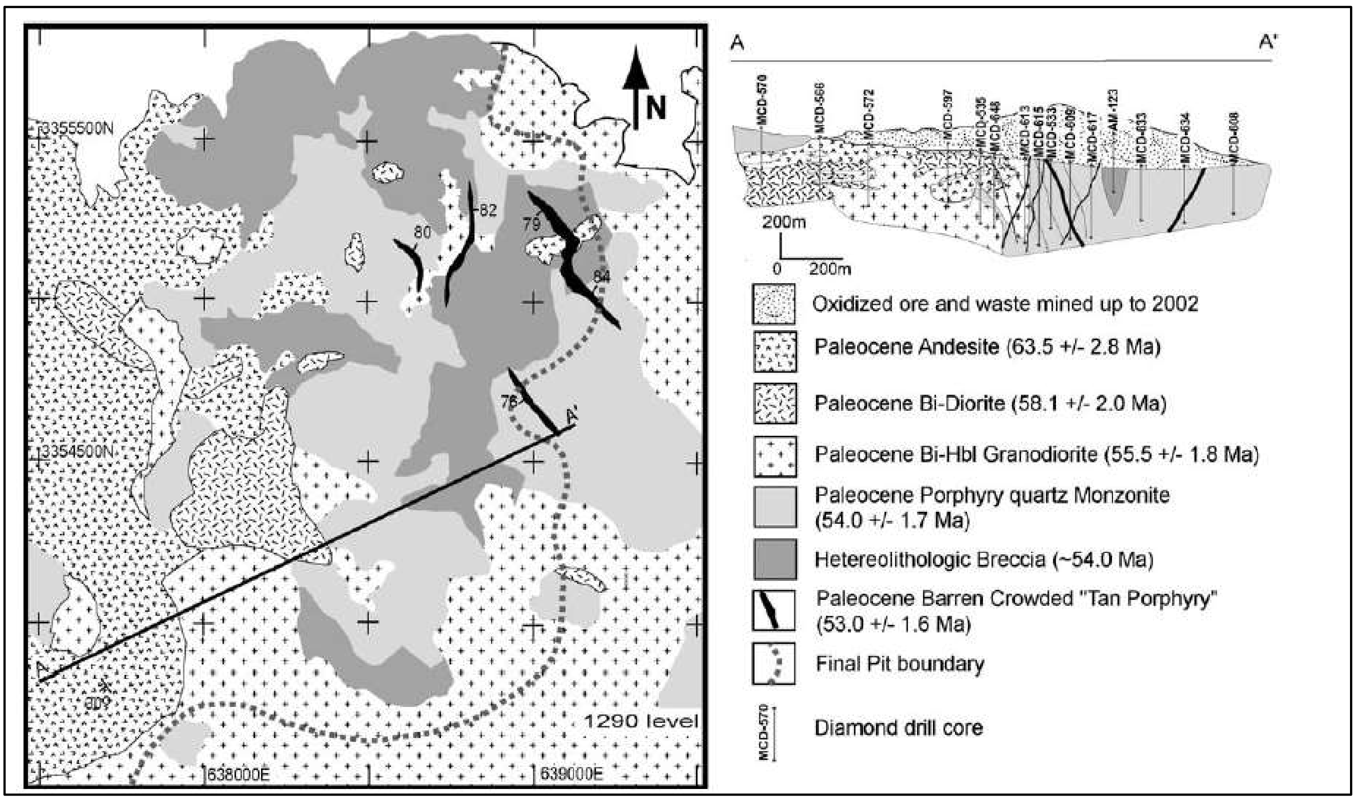
Other rocks present at La Caridad include diorite porphyry, which has a hypidiomorphic-granular texture and is composed of 40% to 60% of euhedral plagioclase phenocrysts (anortite 40% -45), clots of biotite (20% to 30%), quartz (15% to 20%) and K-feldspar (2% to 3%). Locally, close to the contact between 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).



Source: Valencia, 2005

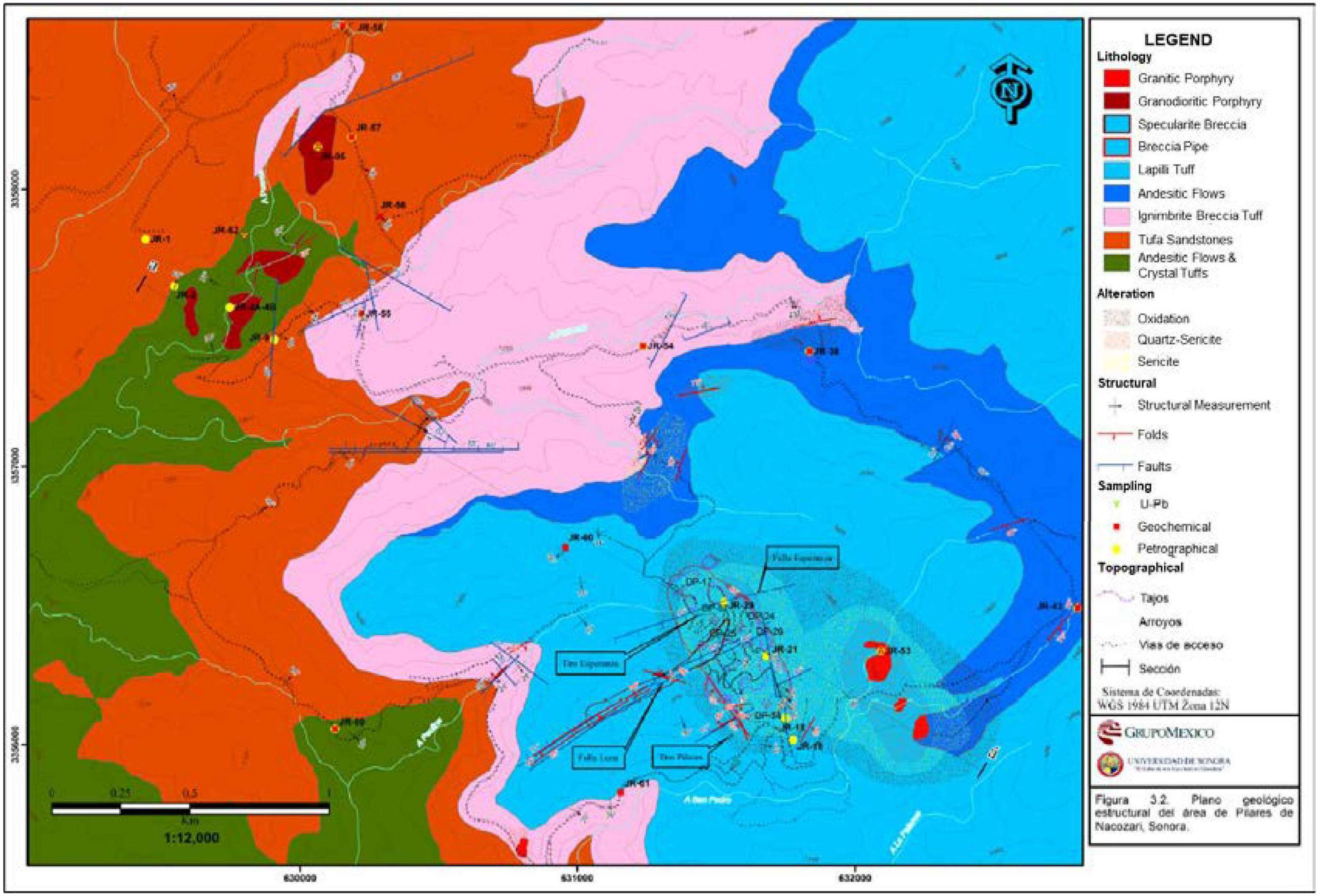
Figure 6.3: Geological Map of La Caridad Mine Area (Plan View at 1290 Level) and SW-NE Cross-Section A-A’ looking NW

6.2.2 Pilares

The local geology of the Pilares area consists of two main lithological packages, a volcanic sequence denominated as the Pilares Volcanic Sequence (PVS) (Gomez, 2014) and a set of hypabyssal bodies that intrude the PVS. The PVS is comprised from the base to the top by the following clearly recognizable units (Figure 6.4 and Figure 6.5):

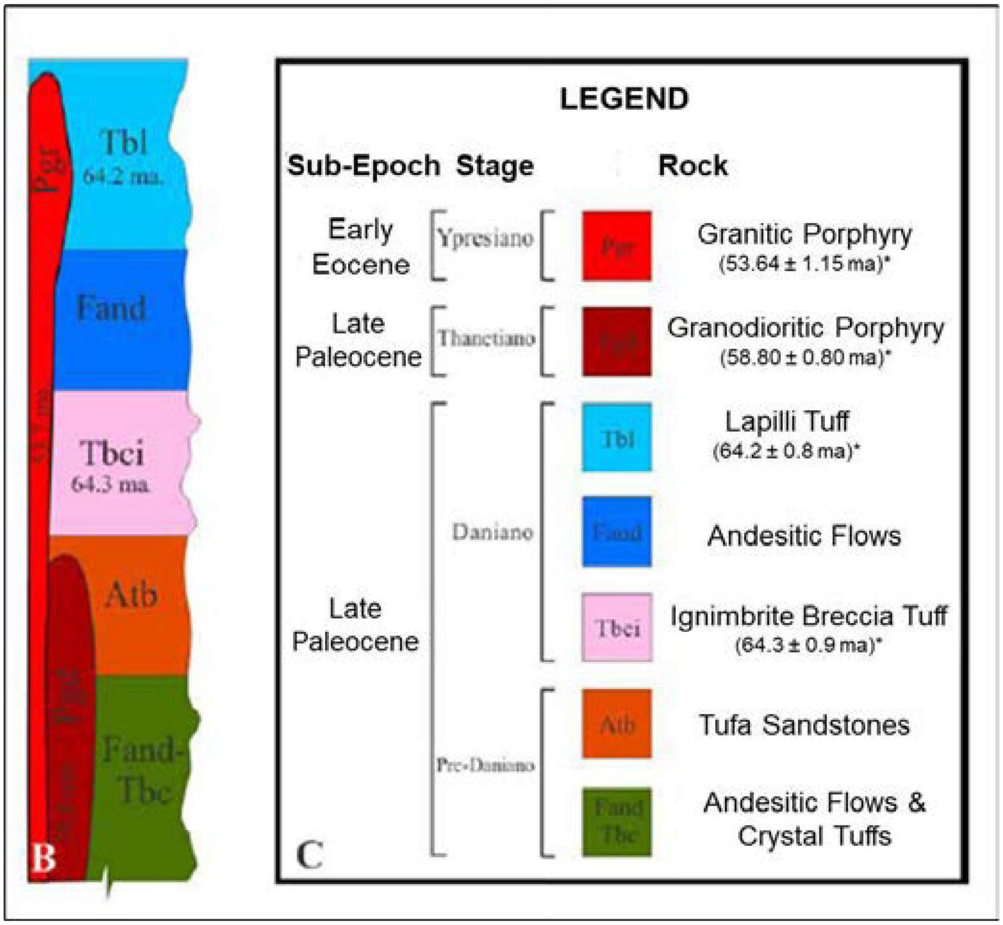
- Andesitic flows with intercalations of Crystal Tuff (Fand-Tbc); composed of flows and tuffs that outcrop in the topographic lows towards the eastern and southeastern part of the Pilares de Nacozari area. In the northwestern part of the study area, this unit is intruded by hypabyssal bodies (granodioritic porphyry). This unit is composed mostly of andesitic flows and tuffs (crystals).
- Tuffaceous Sandstone (Atb): Pseudostratiform tuff outcropping in the middle-lower part topographically speaking, outcropping towards the central-west, northeast and southeast. This unit was observed overlying concordantly to the Crystal Tuffs and in discordance with the Granodioritic Porphyry. The measured thickness of the unit is ~150 m.
- Tuff-breccia ignimbrite (Tbci): Composed of volcanic breccias that outcrop in the middle part of the deposit and is widely distributed in the central, southern and northern part of the deposit. The unit is concordantly overlying the Tobaceous Sandstone and discordantly with the Granitic Porphyry in the southern portion of the area. This unit consists exclusively of volcanic breccias with a chaotic brecciated structure composed of subangular volcanic blocks of varied size, immersed in a very fine material (ash). The estimated thickness for this unit is ~220 m
- Basalt-andesite flows (Fand): Composed of basaltic andesites, which outcrop in the topographically mid-high parts, in the central, eastern and northern portion of the study area. The unit is concordantly overlying the tuff-breccia and discordantly with the granitic porphyry This unit is characterized by massive flows of strongly fractured basalt-andesite, its approximate thickness of ~90 m.
- Lapilli Tuffs (Tbl): Composed of lapilli-sized volcanic fragments outcropping in the topographic highs and distributed in the central, southeastern and northeastern portion of the Pillars area. It is observed overlying concordantly with the Andesitic Flows and discordantly with the Granitic Porphyry. It is very important to mention that the Lapilli Tuff hosts the mineralized structure of the Pillars Breccia, this relationship is very well observed on surface and in the gully cores. Its measured thickness is 220 m.
- Hypabyssal bodies: Eight isolated outcrops of hypabyssal bodies of porphyritic texture are recognized. According to their mineralogical composition, they are divided into two types, one of granodioritic composition and the other of granitic composition. Field observations indicate that these hypabyssal bodies are intruding the PVS.

A geological cross-section is illustrated in Figure 6.6.



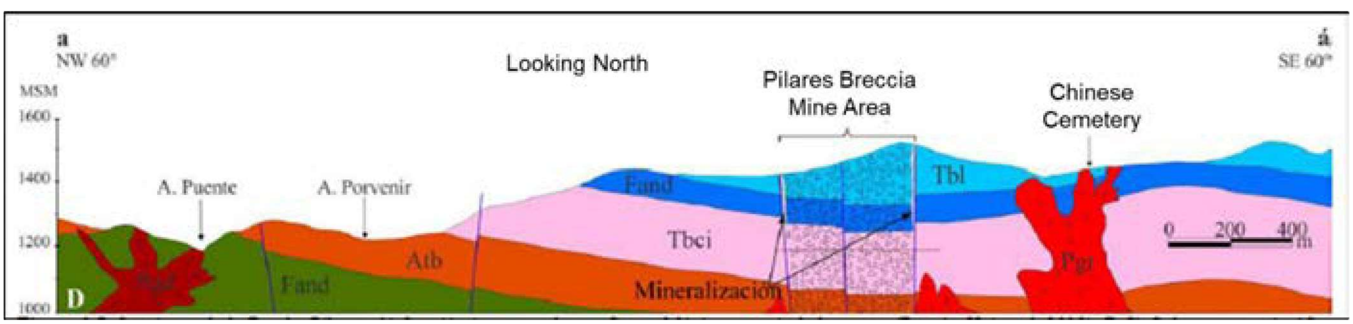
Source: La Caridad

Figure 6.4: Geological Map of the Pilares Area



Source: La Caridad

Figure 6.5: Local Stratigraphic Column



Source: La Caridad

Figure 6.6: Geological Structural Cross-Section of the PVS and the Pilares Breccia

6.3 Alteration and Mineralization

6.3.1 La Caridad

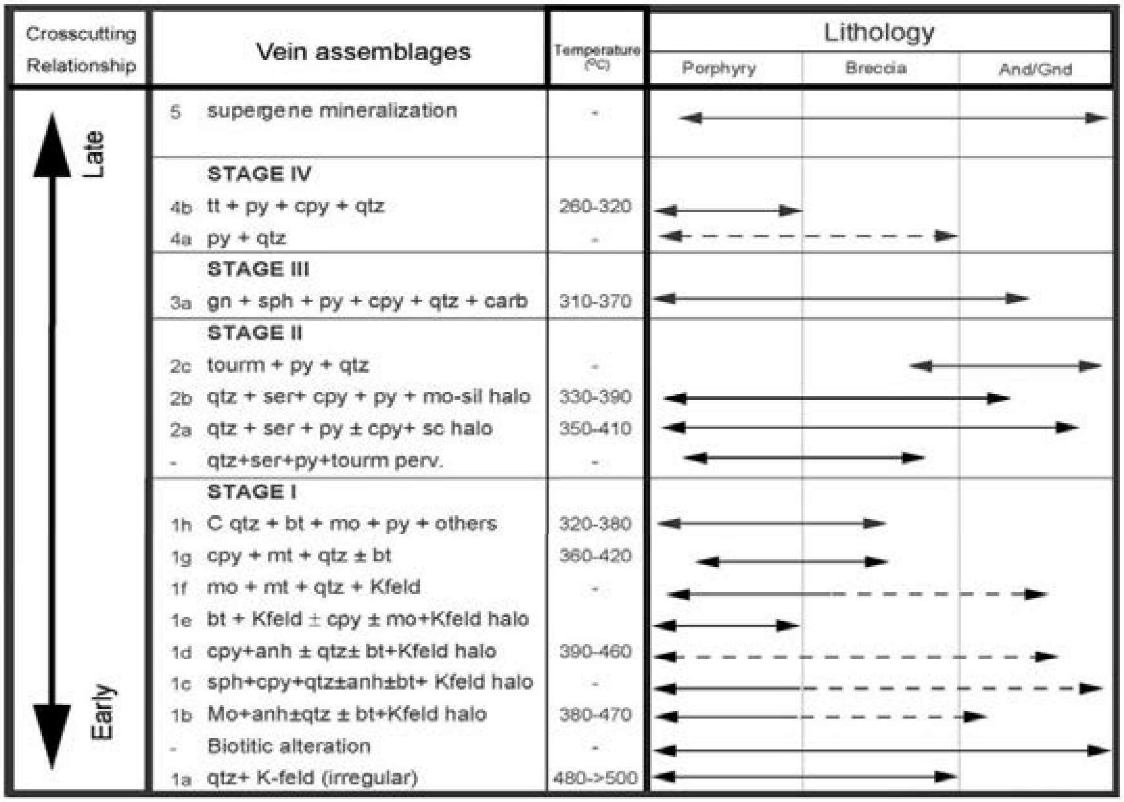
6.3.1.1 Alteration

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 6.7). 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.

Tourmalinization 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.



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.

Figure 6.7: Paragenetic Sequence of the La Caridad Vein Assemblage, According to Cross-Cutting Relationships

6.3.1.2 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 6.8) 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.

Source: La Caridad

Figure 6.8: Oxidation Zone (Red) and Supergene Zone (White) in the Western Part of the La Caridad Pit

6.3.2 Pilares

6.3.2.1 Alteration

The Pilares breccia has been subjected to structurally controlled hydrothermal alteration, which controls not only the extent of the breccia, but the mineralization as well. Three alteration zones have been identified by Gómez (2014, p. 43-44), including a sericite zone, a silicified zone and an outer selective sericitization zone.

The sericite zone is defined by hydrothermal alteration that is primarily focused on the breccia and in some surrounding areas where the hypabyssal granitic bodies outcrop. This alteration is further distinguished by two zones, one with a strong presence of quartz and little sericite (Qtz>Ser) and another with more sericite and less quartz (Ser>Qtz).

The silicified zone, (QTZQtz>Ser) is located right at the structural limits of the Pilares breccia and on the peripheries of the hypabyssal granitic body. This alteration is characterized by presenting an intense and pervasive silicification. The enclosing rock has lost its mineralogy and partially its original texture and is identified by sporadic relics.

The selective sericitization zone (Ser>Qtz) surrounds the silicified zone in a concentric manner, although it is much wider. This alteration is characterized by presenting a mostly selective and sometimes pervasive sericitization. This surface alteration presents a strong oxidation that overlaps and masks the sericitic alteration.

6.3.2.2 Mineralization

The Pilares Breccia is the most important mineralized structure in the area, outcropping in the south-central portion of the area. It corresponds to a Cu mineralized structure that developed in the Andesitic Flow unit and in the Lapilli Tuff unit belonging to the upper units of the PVS, and at depth to the other underlying units. The structure has an ellipsoidal shape in plan with the major axis in NW30°SE direction and a cylindrical shape in section, the latter interpreted from drilling and direct works. The structure has a major axis measuring 550 m, the minor axis measures 250 m. The breccia is approximately 600 m deep (Figure 6.9).

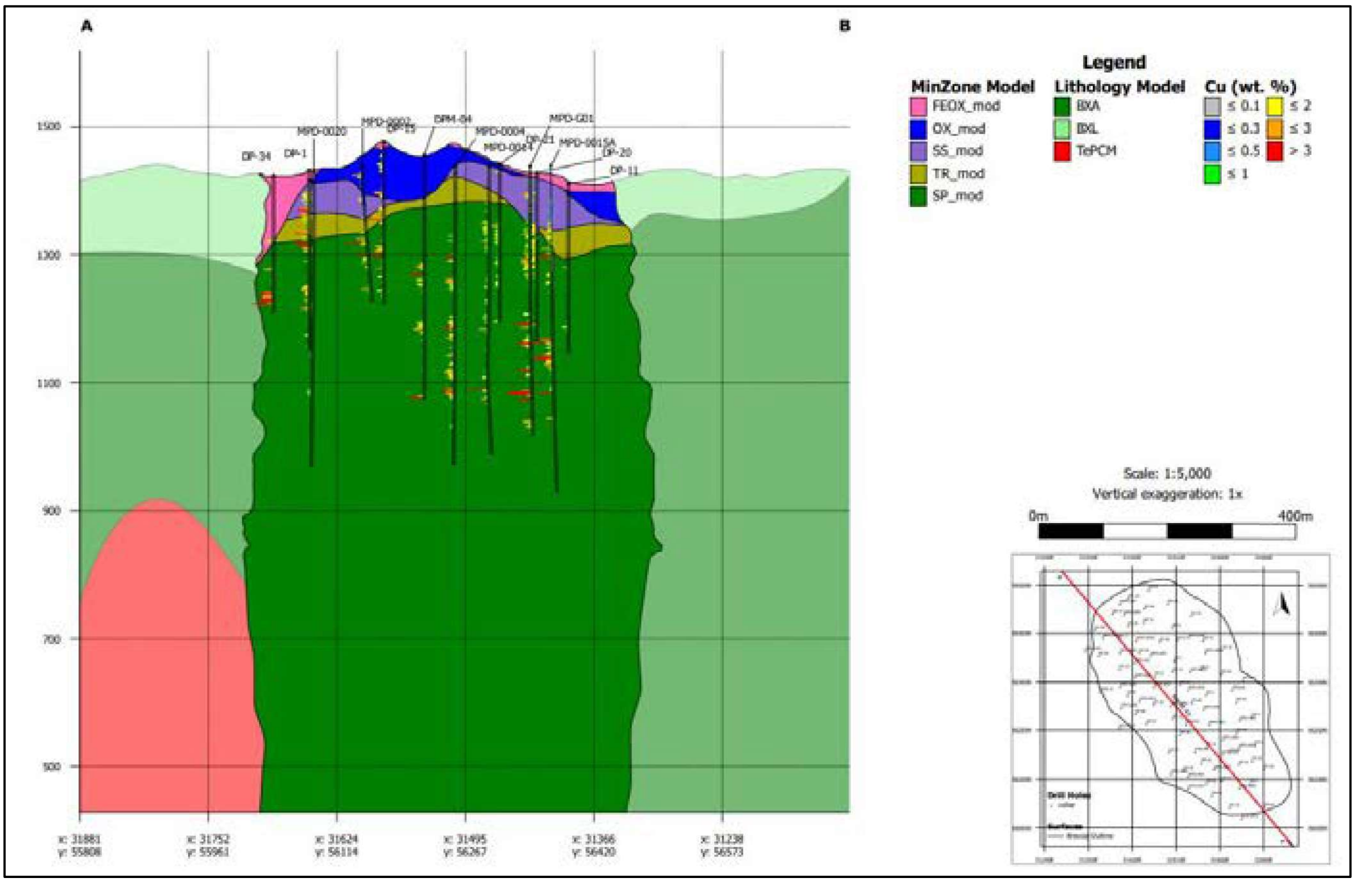
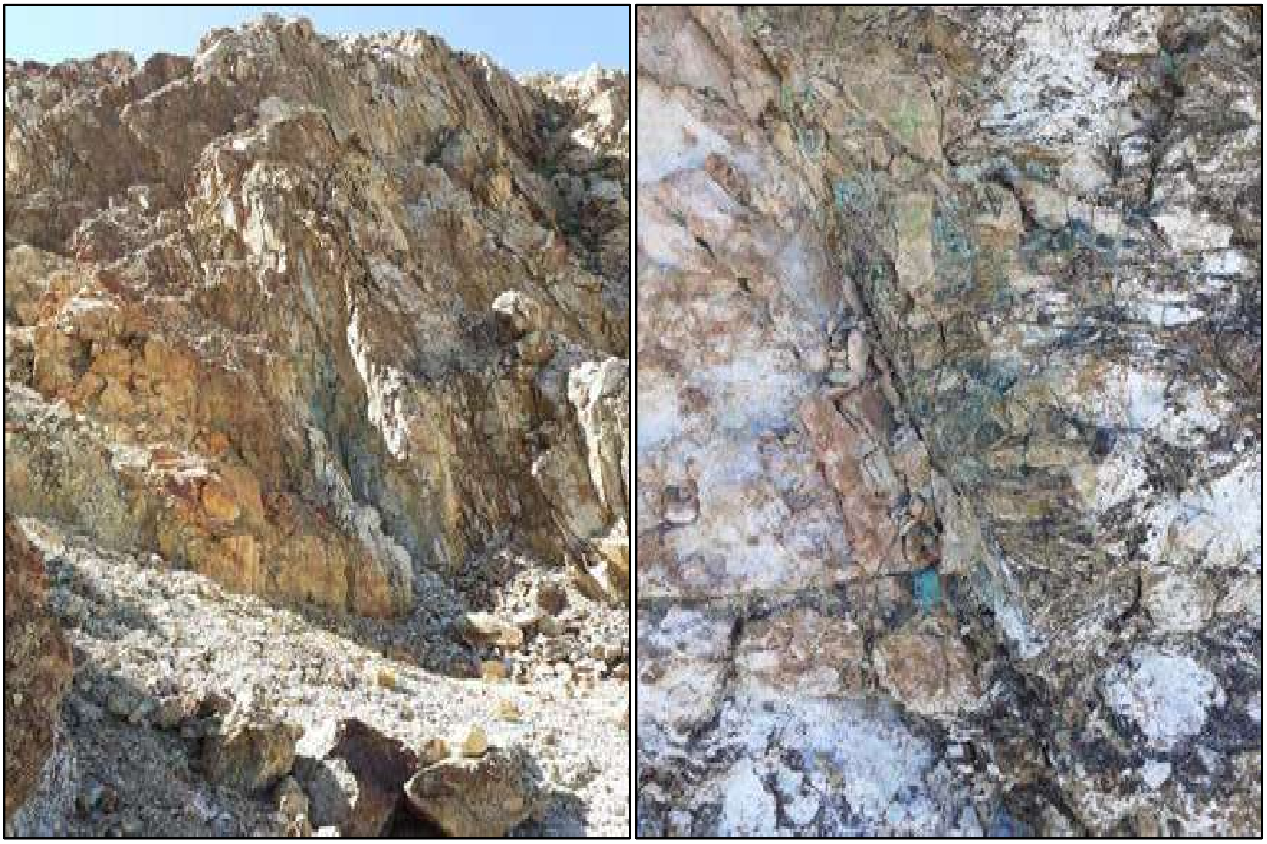


Figure 6.9: Pilares Breccia Cross-Section interpreted at Pilares from Drill Holes

Three mineralization events are recognized in the deposit, including:

- Mineralization event hosted in the ellipsoidal monolithic breccia with a hypogene origin. The best sulfide concentrations are hosted in veins, veinlets and disseminated with an annular-elliptical distribution in plan and a NW30°SE orientation. The breccia geometry and veinlet distribution define a typical chimney structure. The veinlets are mainly composed of quartz + pyrite + chalcopyrite + chalcopyrite + bornite ± galena ±magnetite. (Figure 6.10).



Source: WSP 2021

Figure 6.10: Photograph of the Pilares Breccia

- Mineralization event hosted in a tabular shaped breccia that overlies the ellipsoidal shaped breccia, this event has a hypogene origin: The tabular breccia has a NE60°SW orientation and is bounded by conjugate normal faults of the same orientation and is characterized by veins of specularite + quartz + chalcopyrite + chalcopyrite + pyrite + calcite. (Figure 6.11).
- Mineralization event hosted in fractures and of supergene origin. Fracturing hosts secondary mineralization defined by bornite + covellite + chalcocite.

Source: WSP 2021

Figure 6.11: Photographs of the Specularite Breccia

6.4 Deposit Types

6.4.1 La Caridad

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 6.12).

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.

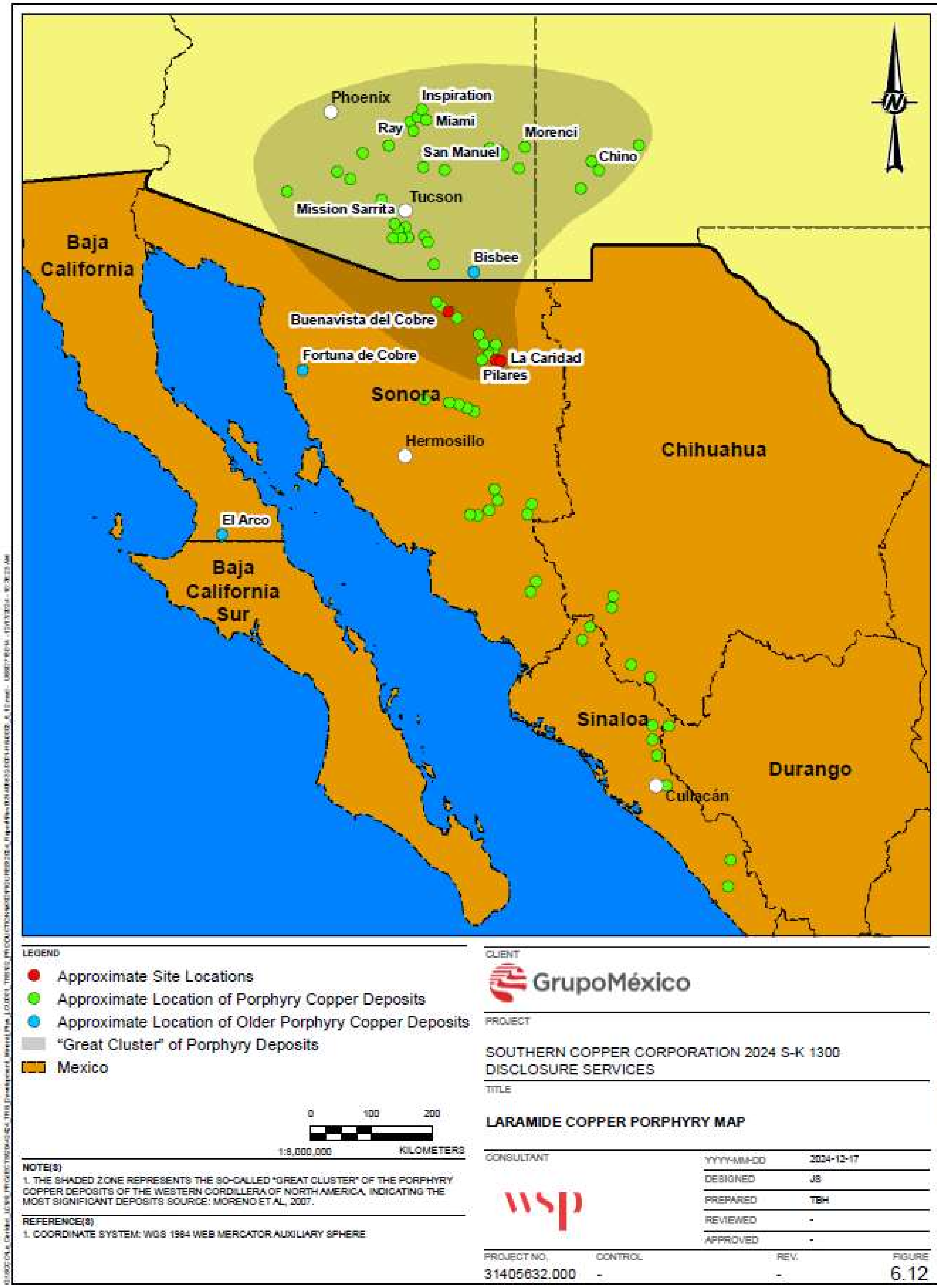


Figure 6.12: Laramide Cu Porphyry Belt

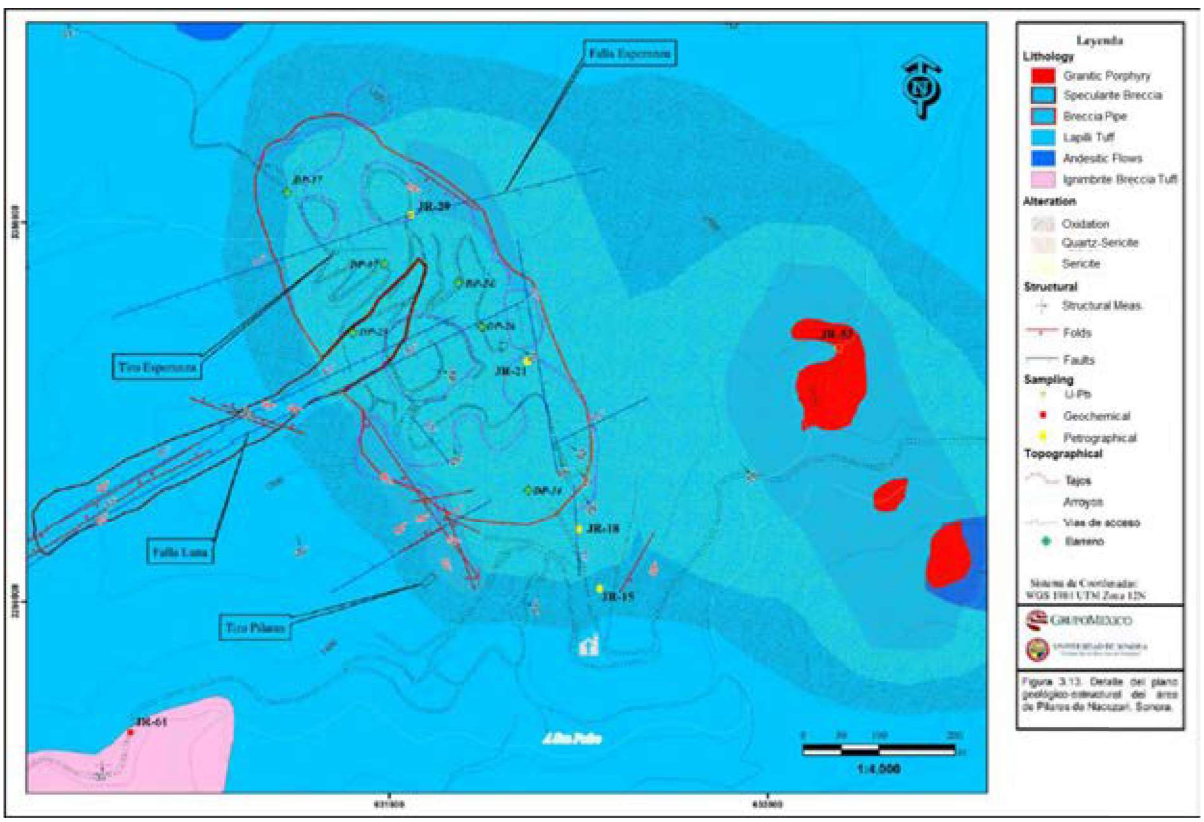
6.4.2 Pilares

The Pilares deposit consists of a volcanic breccia of lattitic composition, whose fragments are cemented by specularite and the main Cu mineralization is concentrated in the ellipsoidal-cylindrical brecciated structure found in the F and Tbl units (Figure 6.13). The shape of the blocks is variable, ranging from equidimensional to tabular; however, the finest fragments present laminar forms and develop a flow structure bordering the blocks (fragments of the blocks (larger fragments). The fragments that make up the Pilares breccia are cemented by quartz, chalcopyrite, pyrite and locally by specularite.

Based on its characteristics, Sillitoe (1985) classified the Pilares breccia as a classic magmatic-hydrothermal breccia.

A characteristic of the breccia is the orderly spatial distribution of the blocks; this arrangement resembles a jigsaw puzzle or mosaic, which ensures that the stratigraphic coherence of the lithological units is not lost. Fragment size is variable within the Pilares breccia. In general, the largest fragments are found in the center of the elliptical structure, which are mostly blocks whose diameters vary from 1 to 4 m. Toward the periphery, the size of the fragments gradually decreases, becoming much smaller at the edge of the structure (0.5 cm to 1 m).

The shape of the blocks is variable, ranging from equidimensional to tabular; however, the finest fragments present laminar forms and develop a flow structure bordering the blocks (fragments of the blocks (larger fragments). The fragments that make up the Pilares breccia are cemented by quartz, chalcopyrite, pyrite, and locally, by specularite.



Source: La Caridad

Figure 6.13: Structural Geology Map of Pilares de Nacozari Area

7.0 EXPLORATION

7.1 La Caridad

7.1.1 Exploration Work

7.1.1.1 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.

7.1.1.2 Topographic Survey

SCC commissioned a site wide topographic survey which was conducted by PhotoSat on October 9, 2021. The satellite survey covered 100 square kilometers (km^2) in La Caridad, Sonora. The project projection was in World Geodetic System (WGS) 84 Universal Transverse Mercator (UTM) Zone 12N, elevations in Earth Gravitational Model (EGM) 96. The La Caridad 1 m stereo satellite survey and 50 cm precision orthophoto (Figure 7.1) were produced from a 50-cm pixel resolution WorldView-2 satellite photos (PhotoSat, 2021).

Source: PhotoSat, 2021

Figure 7.1: October 9, 2021, WorldView-2 Orthophoto of La Caridad and Pilares, Sonora

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 (5 mm 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 La Caridad 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.

7.1.2 Geological Exploration Drilling

7.1.2.1 Exploration Drilling Methods and Results

Exploration drilling has been undertaken almost yearly at La Caridad since 1968. A total of 3,945 exploration drill holes, totaling 814,091 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 7.2 illustrates the drill hole locations. Figure 7.3 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	1,583	473,559
RC	2,034	317,817
MD	201	15,796
MT	127	6,919
Total	**3,945**	**814,091**

Figure 7.2 specifically identifies the 2020-2024 drilling completed at La Caridad. All drilling since 2020 was included in the geological database and verified drilling was included in the geological model. The geological model for the 2021 TRS did not include any drilling from 2020 onwards.

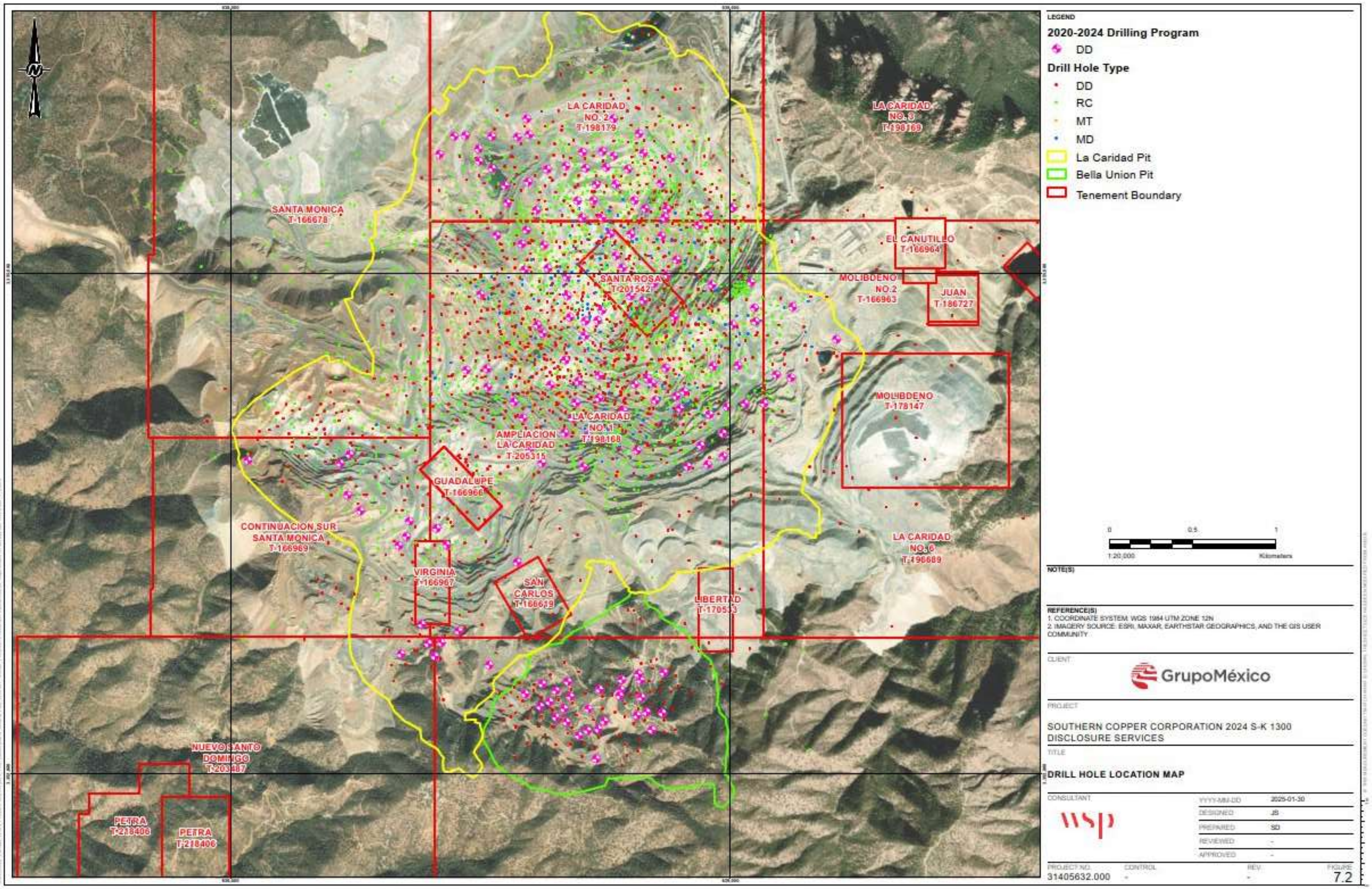


Figure 7.2: Exploration Drill Hole Map

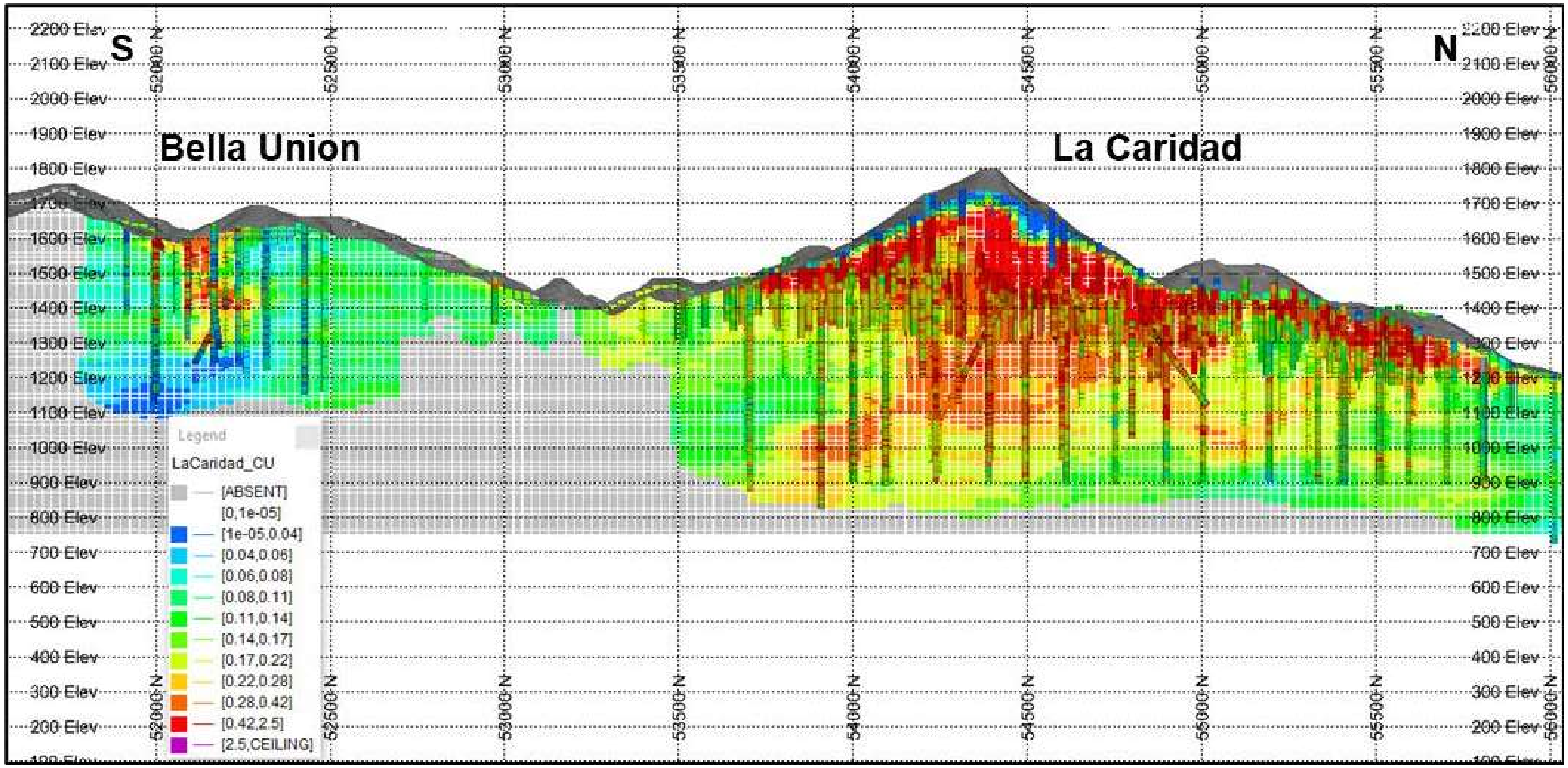


Figure 7.3: Example S-N Cross-Section (38,000 E) through the Block Model and Drill Holes

7.1.2.2 Exploration Drill Hole Logging

Drill hole logging was conducted by core logging geologists at the La Caridad core logging and storage facility (Figure 7.4 and Figure 7.5) and supervised by senior La Caridad 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.

Prior to 2021, 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. Since 2021 the core logging data is entered digitally into GV Mapper software and then uploaded into acQuire. La Caridad is in the processing of configuring acQuire Arena which will allow for direct entry into the acQuire database and it is expected to be available to the site teams in 2025. La Caridad has a dedicated database manager that is responsible for uploading the logging data into acQuire. There are external validation requirements which limit access to the database as well as internal validation controls to ensure the drill hole data is entered correctly.

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.

Source: WSP 2021

Figure 7.4: La Caridad Core Storage Facility

Source: WSP 2021

Figure 7.5: La Caridad Core Logging Facility

7.1.2.3 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 mineralized 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.

Table 7.2: Summary of Core Recovery

Year	Drill Hole Count	Mean Core Recovery (%)
2020	44	91.3
2021	60	90.3
2022	134	89.5
2023	142	90.9
2024	36	88.6
Total	**416**	**90.2**

7.1.2.4 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.

Source: WSP 2021

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 and 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.

7.1.2.5 Exploration Drill Hole Data Spacing and Distribution

The approximate drill hole spacing in the center (where the existing pit is) of La Caridad main is 50 m. Outside the center 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.

7.1.2.6 Qualified Person's Statement on Exploration Drilling

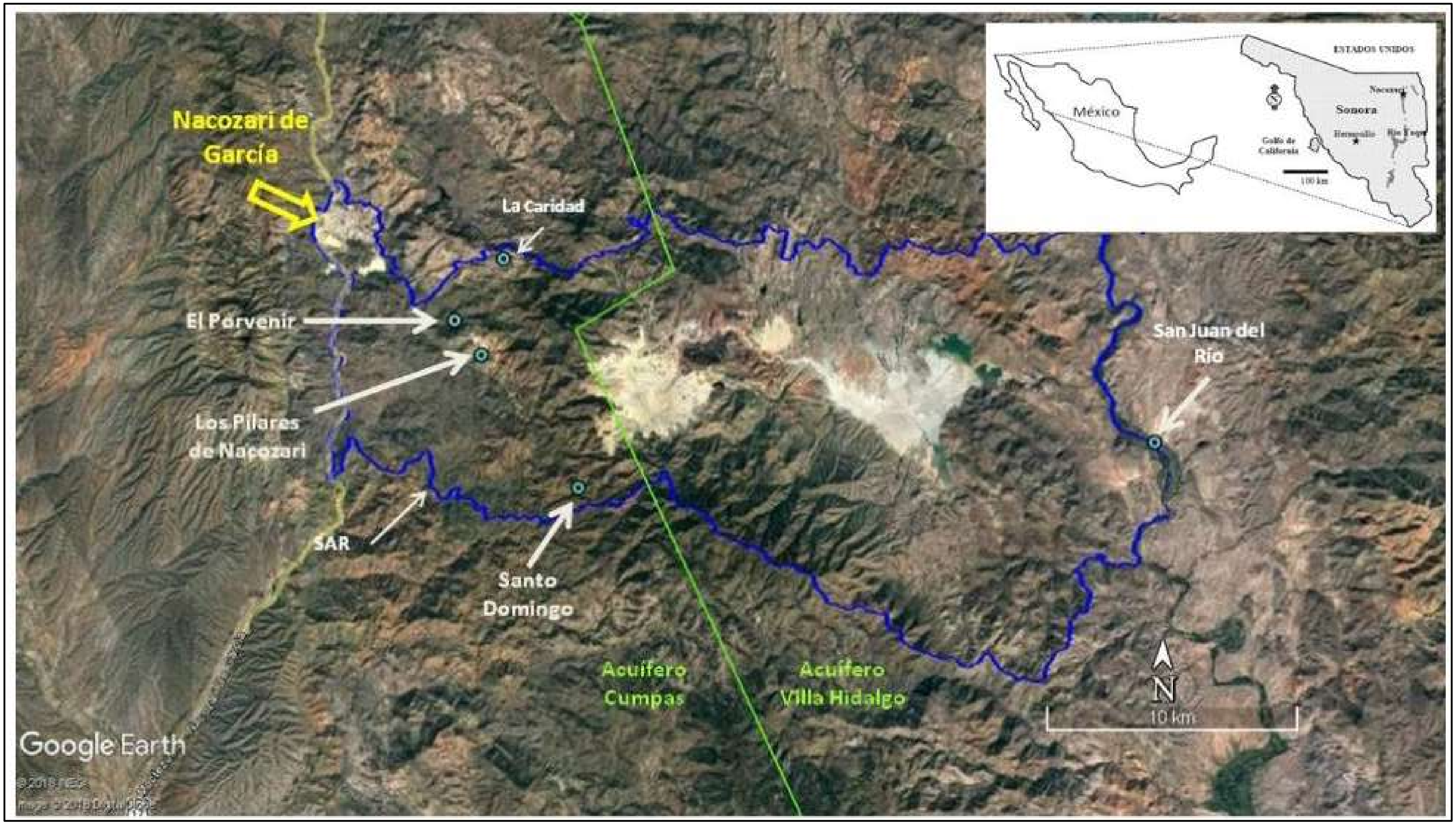
The QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the recent exploration drilling. However, as core recovery measurements only began in 2020, there is a degree of uncertainty with the historical drilling data. 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.

7.1.3 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.

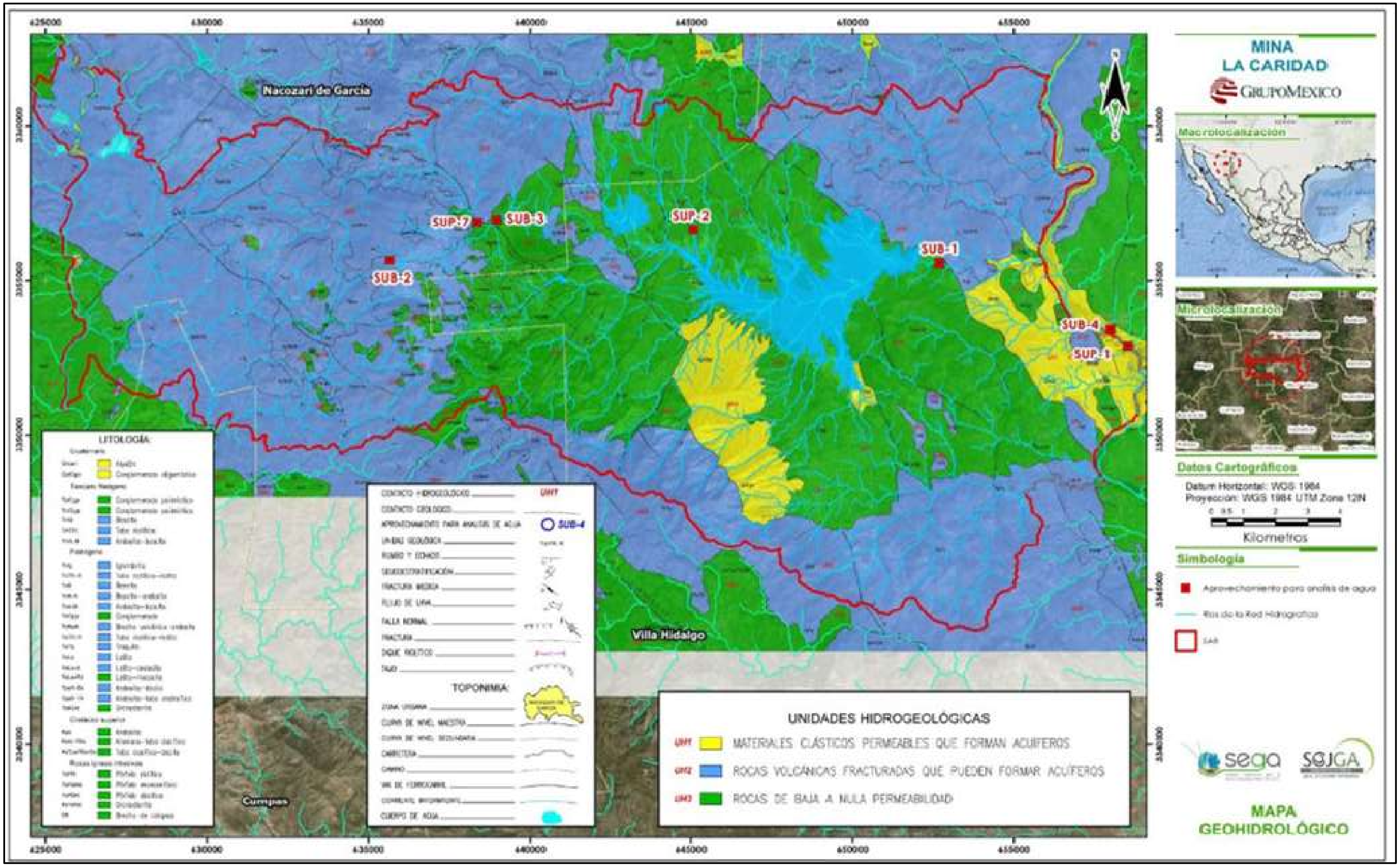
An aquifer vulnerability study per the requirements of NOM-141-SEMARNAT-2003 was carried out in 2018 by TAAF for the area of the mining complex (TAAF 2018). This study relied on government publications, reports, and peer reviewed articles regarding water availability to prepare a description of the hydrogeologic 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.



Source: TAAF, 2018. Note: La Caridad shown on the figure refers to “Colonia Caridad”, which is a housing area for the mine workers and their families.

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



Source: SOJGA and SEGA, 2017

Figure 7.8: Hydrogeological Units

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 (1x10-3 to $1x10^{-4}$ centimeters per second [cm/s] in the upper 9 m to 12 m) and fresh bedrock had generally low permeability ($1x10^{-5}$ to $5x10^{-5}$ 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 Geologos Asociados, 2005) that reviewed the Cruz de Cañada arroyo, which contains the TSF No. 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 No. 7. The study indicated that the hydrogeologic conditions at the La Francisca PLS pond would be permeable units of alluvium (mean permeability of 10^{-3} meters per second [m/s]) and the fractured rock (granodiorite) had a permeability of about $2x10^{-6}$ 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.

7.1.3.1 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.

7.1.3.2 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 at La Caridad and Pilares, the groundwater inflows to the pits are not problematic. Bella Union development will include surface water diversion channels. It is unknown whether future development at Bella Union open pit will need a 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).

7.1.4 Geotechnical Drilling

Geotechnical drilling and sampling were 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 7.1.4.1 through 7.1.4.4.

7.1.4.1 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 the 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)

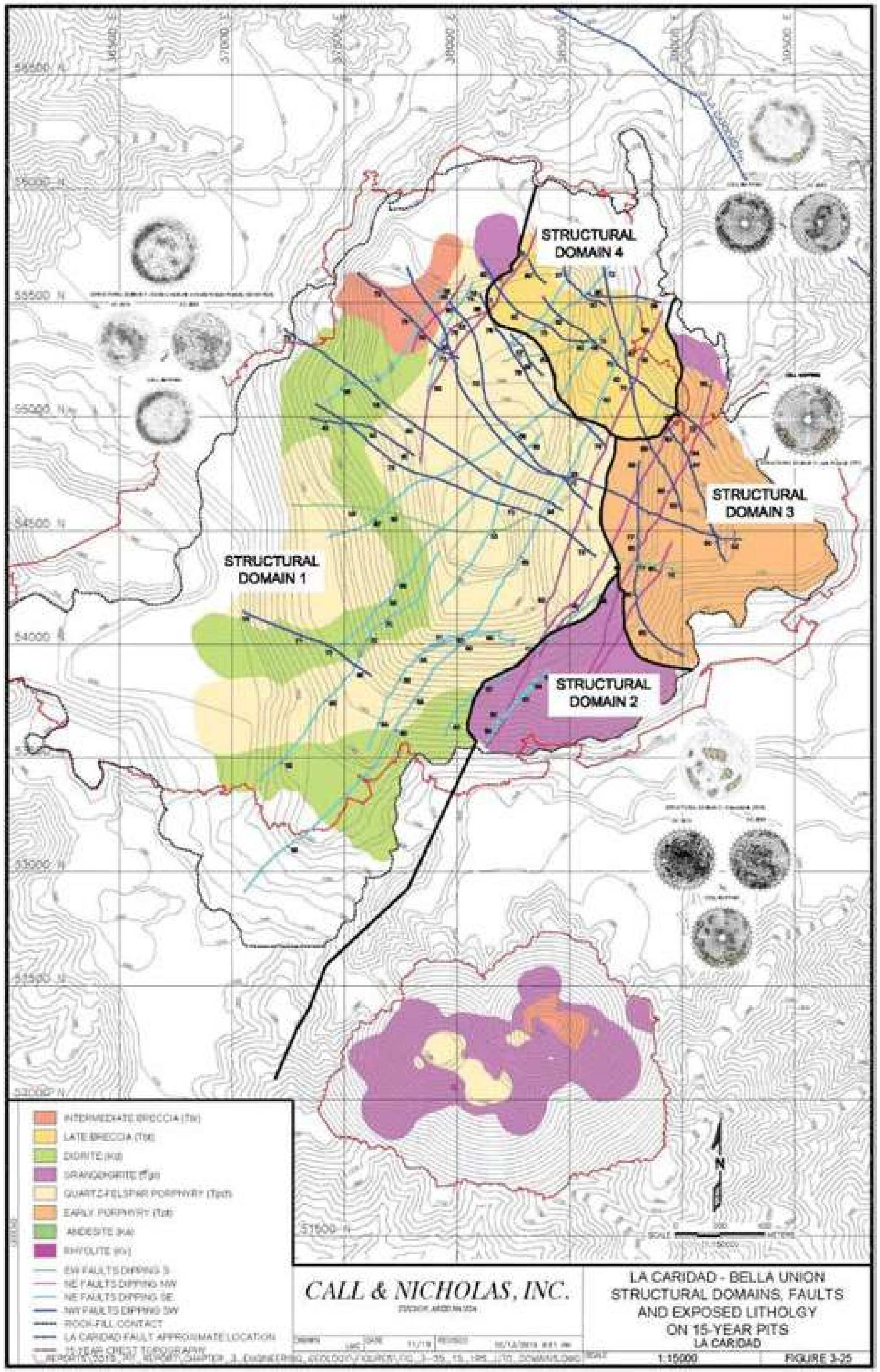
From the structure geology maps, CNI identified three major structural trends that are present in the La Caridad Pit: (

- 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.

CNI further developed the following structural domains as shown in Figure 7.9:

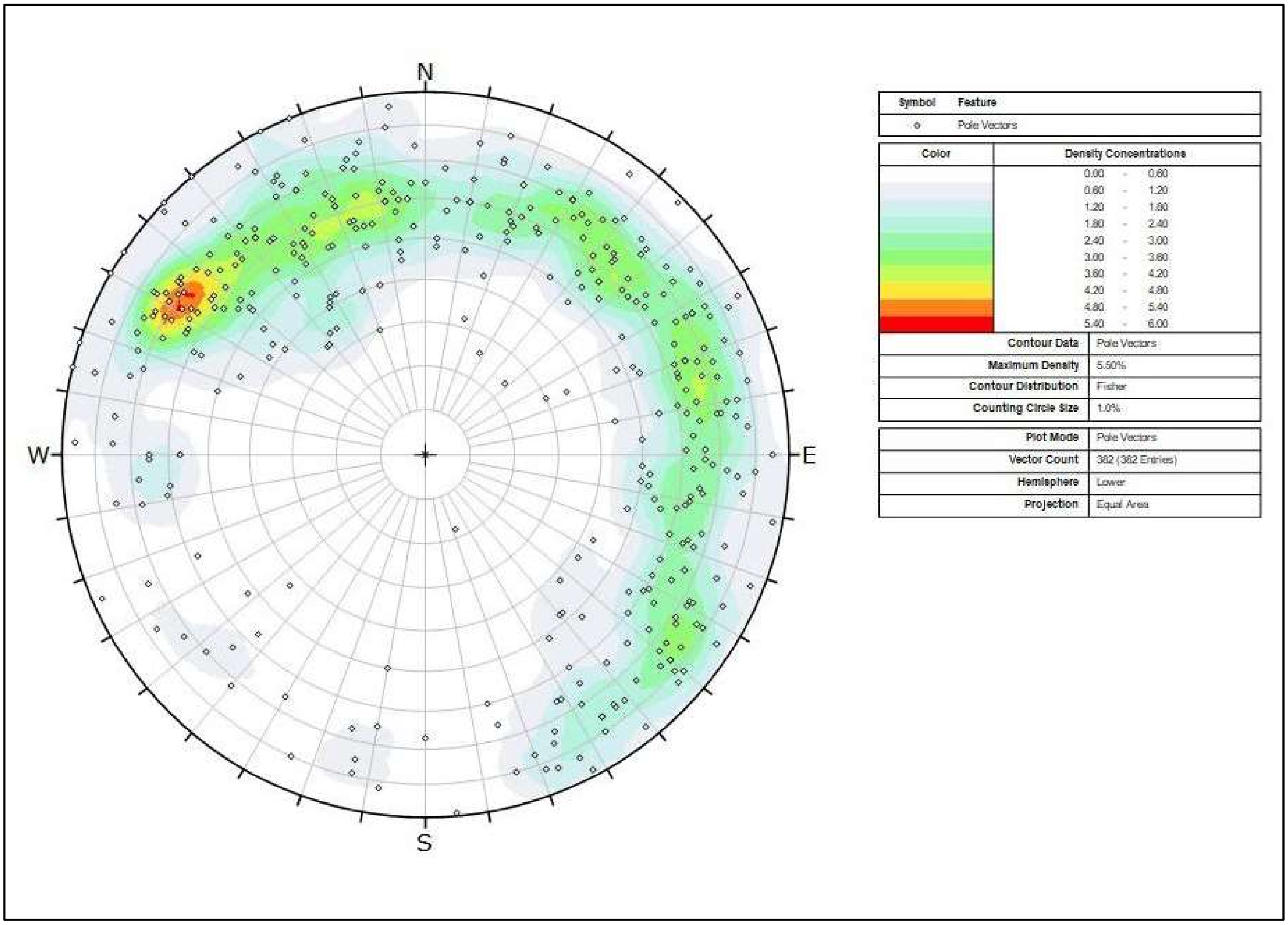
- Structural Domain 1 – La Caridad West Wall (Quartz-Feldspar Porphyry + Diorite + Intermediate Brecchia + Volcanics)
- Structural Domain 2 – La Caridad Southeast Wall and Bella Union pit (Granodiorite)
- Structural Domain 3 – La Caridad East Wall (Late Porphyry)
- Structural Domain 4 - La Caridad Northeast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

The La Caridad and Pilares 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.



Source: CNI 2019

Figure 7.9 : CNI Structural Domain Map



Source: CNI 2019

Figure 7.10: Stereographic Project of Major Faults

7.1.4.2 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	
BDO3	638,109	3,354,449	220.0	-55.0	1,455.5	490.0	
BDO4	638,287	3,354,397	499.0	-55.0	1,429.3	130.0	
BDO5	637,400	3,354,915	210.0	-55.0	1,453.1	349.6	
BDO6	638,217	3,354,390	180.0	-55.0	1,443.0	472.7	
BDO7	638,104	3,354,659	285.0	-55.0	1,410.3	450.2	
BDO8	637,659	3,354,583	230.0	-60.0	1,422.5	320.0	
BDO9	637,396	3,353,709	315.0	-60.0	1,581.2	200.3	
BDO10	637,284	3,353,352	225.0	-55.0	1,552.7	360.3	
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	
BDO-13	638,181	3,353,884	188.7	-75.4	1,381.9	300.0	
BDO-14	637,888	3,352,410	351.3	-74.8	1,596.6	300.0	
BDO-15	637,745	3,352,002	229.5	-75.0	1,643.3	300.0	
BDO-16	638,526	3,352,494	18.0	-74.2	1,660.4	300.0	
BDO-17	638,652	3,352,333	85.4	-74.9	1,652.1	290.0	
BDO-18	638,570	3,352,053	154.0	-75.7	1,769.3	300.0	
BDO-19	638,312	3,351,856	160.2	-76.1	1,693.8	285.9	

Source: CNI 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.

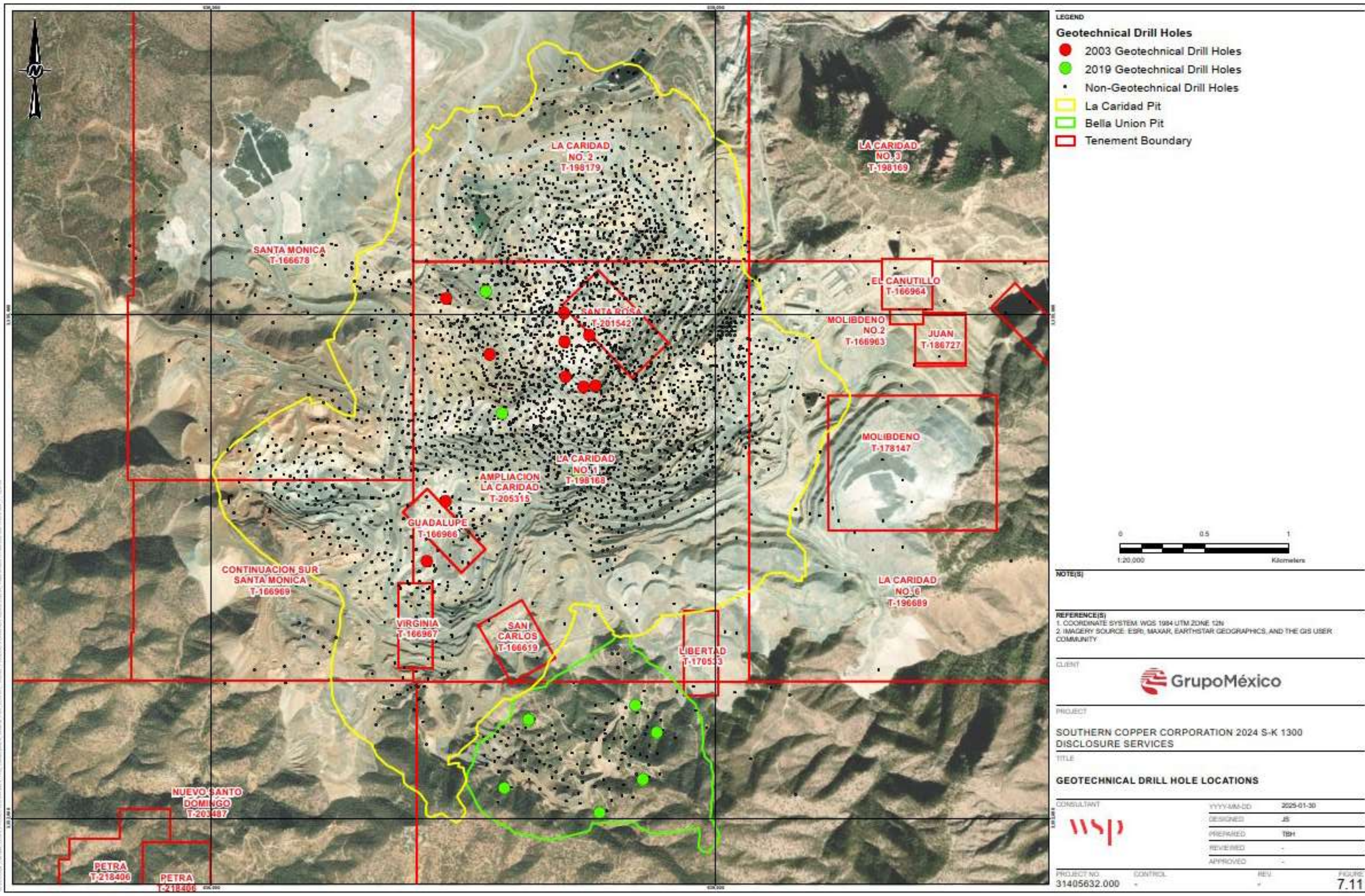


Figure 7.11: Geotechnical Drill Hole Locations by Year Drilled

7.1.4.3 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.

7.1.4.3.1 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. WSP'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 WSP 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

Source: CNI 2019

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.

7.1.4.4 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

Source: CNI 2019

7.1.4.5 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.

7.2 Pilares

7.2.1 Exploration Work

7.2.1.1 Surface Exploration

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

7.2.1.2 Topographic Survey

SCC provided an updated pre-mining topographic surface in December 2023, replacing the pre-mining topographic surface that was used for the Mineral Resource model in 2021. Supporting documentation for the methodology and accuracy of the 2023 survey was not available. Spacing of the contours used to create the surface was 1 m. 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 (5 mm 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 La Caridad personnel from the Topography department of the Engineering and Mine Planning department at La Caridad.

7.2.2 Geological Exploration Drilling

7.2.2.1 Exploration Drilling Methods and Results

There have been several historical drilling campaigns completed at Pilares between 2009 and 2011. The drilling campaigns were designed with the objective of determining Mineral Resources for the deposit. The first drilling program in 2009 completed 18 drill holes totaling 5,133 m. With the information obtained, a Mineral Resource estimate was completed, and the results did not meet the expected confidence, so Pilares decided to conduct a second 18 drill hole campaign totaling 4,395 m in late 2009 to 2010, which reduced the mean drill spacing from 90 m to 60 m. Another Mineral Resource estimate was completed increasing the confidence level; however, it was determined that additional drilling was required to further increase the confidence in the deposit. A third drilling program was undertaken in late 2010 to 2011, completing 24 drill holes totaling 7,036 m and reducing the mean drill hole spacing to 50 m. A fourth and final 5 drill hole geotechnical drilling program was completed in 2011 totaling 1,662 m.

Since the 2022, there have been three additional drilling campaigns at Pilares, one in 2022 which completed 27 drill holes totaling 22,618 m, one in 2023 which completed 24 drill holes totaling 10,420 m, and finally one in early 2024 that completed 7 drill holes totaling 2,580 m. It should be noted that the 2022 exploration program focused on the potential expansion area surrounding the Pilares breccia, known as El Saucito.

The 2009-2011 programs, and recent 2022 to 2024 drilling programs were completed using diamond drilling (DDH) techniques to estimate the Mineral Resource of the brecciated structure. The 2011 drilling campaign was completed by directional diamond drilling, using triple pipe for geotechnical data acquisition. Drill cores were PQ sized (85.0 mm core diameter), HQ sized (63.5-mm core diameter), and NQ sized (47.6 mm) depending on depth. Up to two drill rigs operated simultaneously in the first three exploration stages, and one rig in the fourth geotechnical stage. Table 7.6 summarizes the different phases of drilling in the deposit.

Table 7.6: Summary of Exploration Drilling by Year

Year	Drill Hole Type	No. of Drill Holes	Total Meterage	Objective
2009	DDH	18	5,114	Definition of Mineral Resources
2009 - 2010	DDH	18	4,395	Definition of Mineral Resources
2010 - 2011	DDH	24	7,036	Definition of Mineral Resources
2011	DDH (Directional)	5	1,662	Geotechnical
2022	DDH	27	22,618	Exploration - El Saucito
2023	DDH	24	10,420	Infill
2024	DDH	7	2,580	Infill
Total		**123**	**53,825**	

Figure 7.12 shows the distribution of drill collar locations by year. Figure 7.13 illustrates a cross-section through the drill holes with the mineralogy and geological domains.

No downhole surveys were conducted on any of the drill holes drilled at Pilares from 2009 to 2011. All drill holes drilled since 2022 were surveyed.

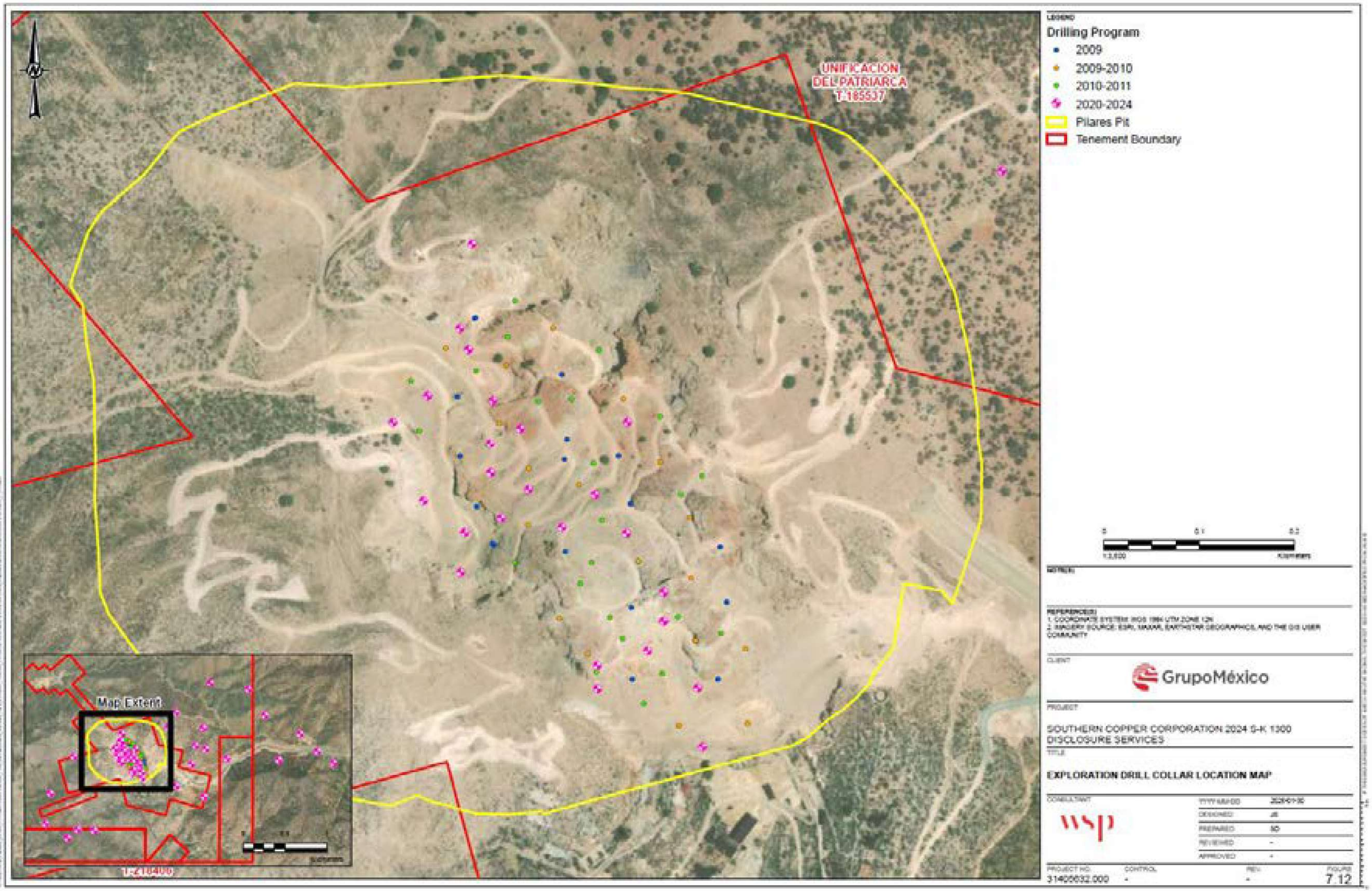


Figure 7.12: Exploration Drill Collar Location Map

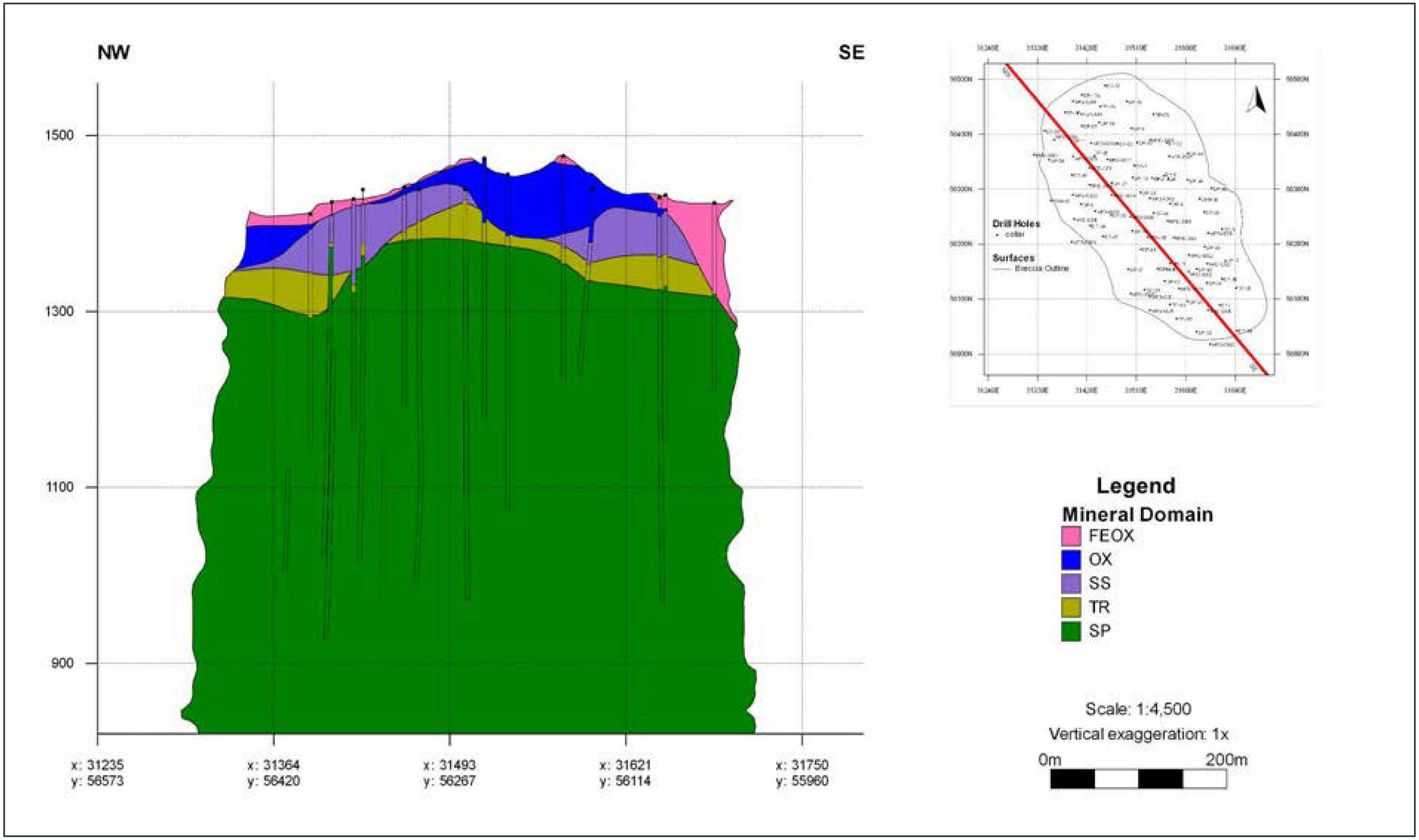
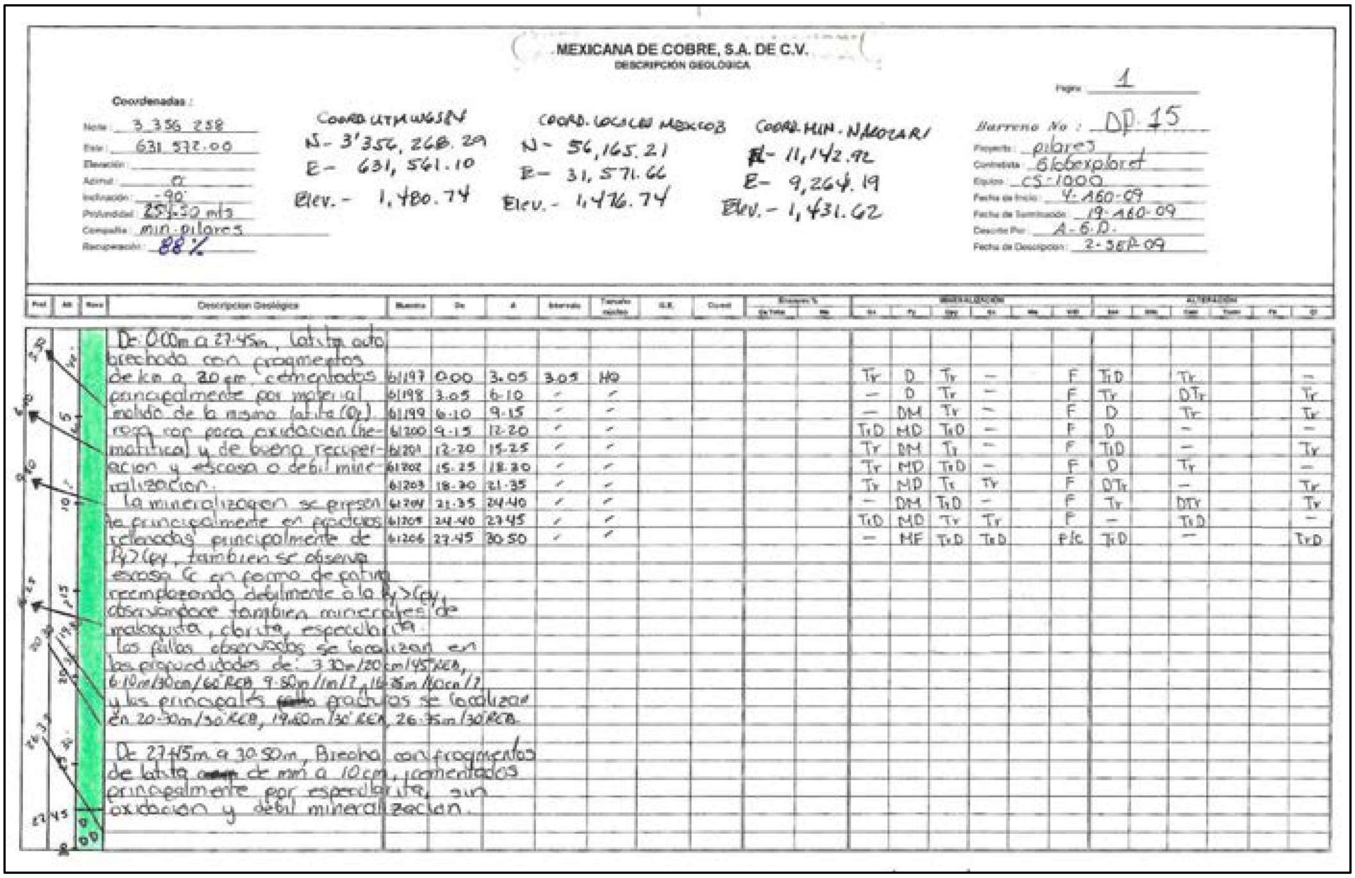


Figure 7.13: NW-SE Cross-Section Through of Oxidation Domains and Drill Holes Mineralogy

7.2.2.2 Exploration Drill Hole Logging

Drill hole logging between 2009 and 2011was conducted by core logging geologists at the La Caridad core logging and storage facility and supervised by senior La Caridad geologists. The geological description of the drill core was completed manually using paper logging sheets established by La Caridad. These logging sheets documented data including drill hole coordinates, elevation, azimuth, inclination, depth, company, recovery, drill hole number, contractor, drilling equipment used, start and end dates of the drill hole, geologist in charge of the description and date of description. The log sheet contained the general geological description of the rock, as well as relevant information describing mineralization and alteration as outlined in Figure 7.14. The five geotechnical holes were not drilled for Mineral Resource estimation purposes and therefore were not sent for geochemical analysis.



Source: La Caridad 2021

Figure 7.14: Pilares Logging Sheet

The geological description was validated by the construction of maps and cross-sections in which geochemical, lithological and mineralization information were plotted, and a comparison of the information was made to determine that the information was reasonably correct. Subsequently this information was reviewed with the exploration director before being finalized. The validated paper logging sheets were then input into a Microsoft (MS) Excel database and reviewed for any input errors. In addition, the interpretation of the maps and cross-sections were stored in digital and paper format at the Unidad Minera la Caridad core logging warehouse

7.2.2.3 Exploration Drill Sample Recovery

The drill hole sample recovery factor was determined according to 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

In addition, to determining the core recoveries, all samples were weighed and compared against the theoretical recovery weight of 100%. The core recovery data from the 2009 to 2011 and 2022 to 2024 exploration drilling campaigns is summarized in Table 7.7.

Table 7.7: Core Recovery Summary

Year	No. of Drill Holes	Mean Core Recovery (%)
2009-2011	60	86.3
2022	15	91.02
2023	35	92.76
2024	8	91.26
Total	**118**	**90.3**

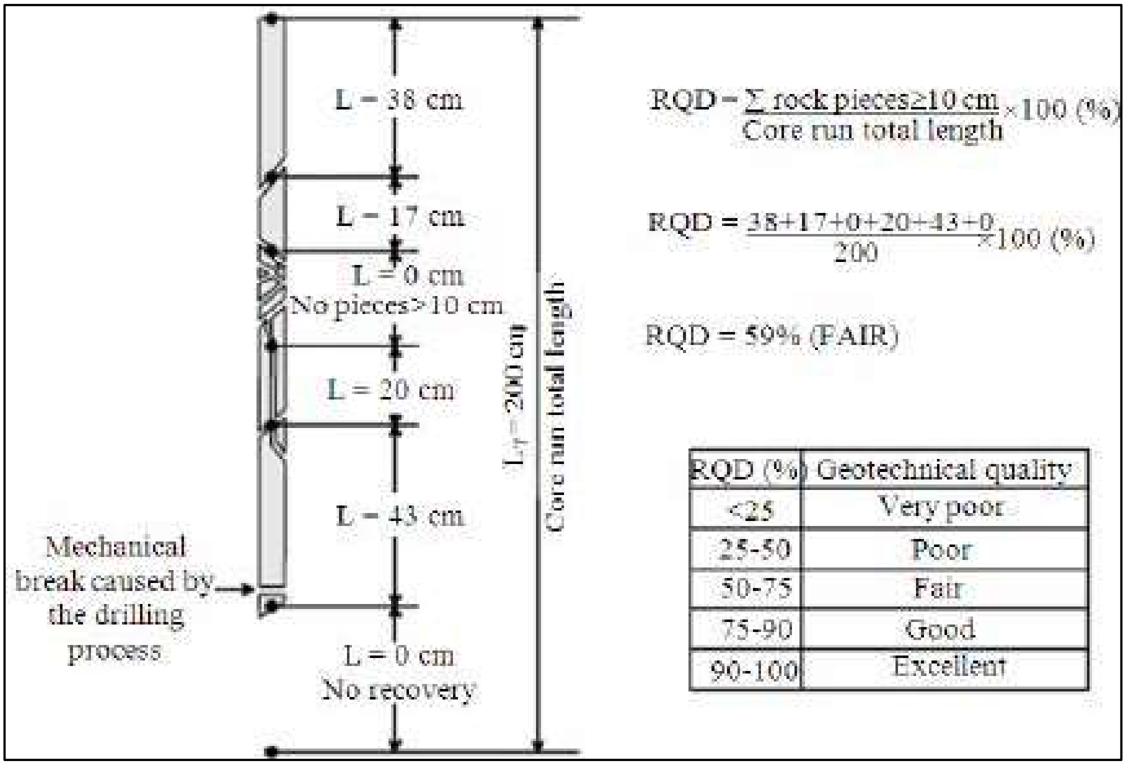
Determination of Specific Gravity (SG) was part of the geological description of the core. The logging geologist measured the SG using a densimetric balance based on the Archimedes method, whereby a core sample was measured dry and submerged in water. The core sample selected for the density determination had a length of approximately 10 cm, ensuring that it was representative of the entire sampled interval.

The information obtained was recorded in the core recovery folder for each drill hole, which included information on sample mass, SG, core recovery percentage, and daily drilling report.

In addition to the core recovery information, Rock Quality Designation (RQD) data was also recorded using a format derived from Call & Nicholas, Inc. The RQD logging included information on the drill hole, azimuth and dip, collar coordinates and elevation, core diameter, geologist who performed the RQD survey and the date of the survey, as well as the RQD data. The RQD data for each drill hole included the following:

- Interval start, end and length
- Number of complete core pieces over 10 cm and total length of longer core pieces
- Complete core pieces at different length specifications
- Length of broken core zones
- Hardness definitions

An example of RQD determination is illustrated in Figure 7.15.



Source: Deere and Deere, 1988

Figure 7.15: RQD Determination from Core

7.2.2.4 Exploration Drill Hole Location of Data Points

Drill hole collar locations were determined by the senior Pilares geologists. At the completion of drilling, the drill casing was removed, and the drill collars were marked with a permanent concrete monument with the drill hole name recorded on a metal tag on the monument. A length of pipe was cemented into the monument. All drill holes were surveyed by the Pilares personnel, in mine grid coordinates, using a using a Trimble Model R8 GPS.

7.2.2.5 Exploration Drill Hole Data Spacing and Distribution

Drilling at Pilares was intended to be on a regularized grid, however, due to the presence of historical mining sites, drill hole locations were altered to avoid the historical workings. Drill hole spacing was approximately 30 m by 30 m.

7.2.2.6 Qualified Persons 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 historical or recent exploration drilling. However, the data collection procedures are poorly documented and not well understood by the Pilares personnel. The QP assumes that the information was collected using industry standard practice at the time; however, this cannot be verified. The 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.

7.2.3 Hydrological Characterization

No hydrogeologic study has been carried out at the Pilares, and hydrogeologic characterization within the La Caridad mine complex has been very limited. No hydrogeologic model has been prepared and no site-specific water availability study was carried out for the Pilares project. Section 7.1.3 for information related the La Caridad and Pilares area.

In the QP’s opinion, the hydrogeologic setting at the current and planned operations has not been adequately characterized. It is unknown whether the Pilares development will need a dewatering system, and there could also be a risk associated with water supply should a groundwater concession be needed for a fresh water supply.

7.2.4 Geotechnical Drilling and Sampling

Geotechnical drilling was completed as part of a field data collection program completed by SRK in 2011. This program included geotechnical core logging, rock strength testing, and cell mapping. The results of this exploration program are summarized in Sections 7.2.4.1 through 7.2.4.6.

7.2.4.1 Geotechnical Drilling

Geotechnical logging, field point load testing and discontinuity orientation measurements were obtained from the core recovered from five geotechnical drill holes. The five drill hole locations and orientations were selected to provide the best coverage possible of rock likely to form final pit walls based on the understanding of the deposit and mine plan at the time the investigation was completed. Drill hole inclinations of approximately 60 to 65 degrees below horizontal were selected since they were judged more likely to intersect geologic structures such as joints and fracture systems, which will influence slope stability where they are present. Table 7.8 provides a summary of the geotechnical drill hole locations and orientations, and Figure 7.16 illustrates their location relative to the exploration drill holes. Drillhole C-1 was terminated early/shallow because it encountered historical underground workings. Drillhole C-1B was completed as its replacement. In addition to the four geotechnical drill holes, observations were also obtained from three resource drill holes (DP-38, DP-41, and DP-49) to provide general characteristics regarding the breccia material.

Table 7.8: Summary of Geotechnical Drill Holes

Hole ID	Collar Coordinates			Azimuth (deg)	Inclination (deg)	Length (m)
	Northing	Easting	Elevation			
C-1	3,356,013	631,664	1,426	168	-60	110
C-1B*	3,356,020	631,671	1,429	200	-65	385
C-2	3,356,471	631,314	1,423	328	-65	401
C-3	3,356,317	631,687	1,520	050	-65	444
C-4	3,356,323	631,319	1,423	270	-65	322

Source: SRK 2011; Note: *Drilled as replacement to drillhole C-1 which terminated early due intersection with underground workings.

The geotechnical core logging program was designed to provide information pertinent to pit slope stability evaluation. The specific parameters that were logged included:

- General lithology and structures
- Total core recovery
- RQD

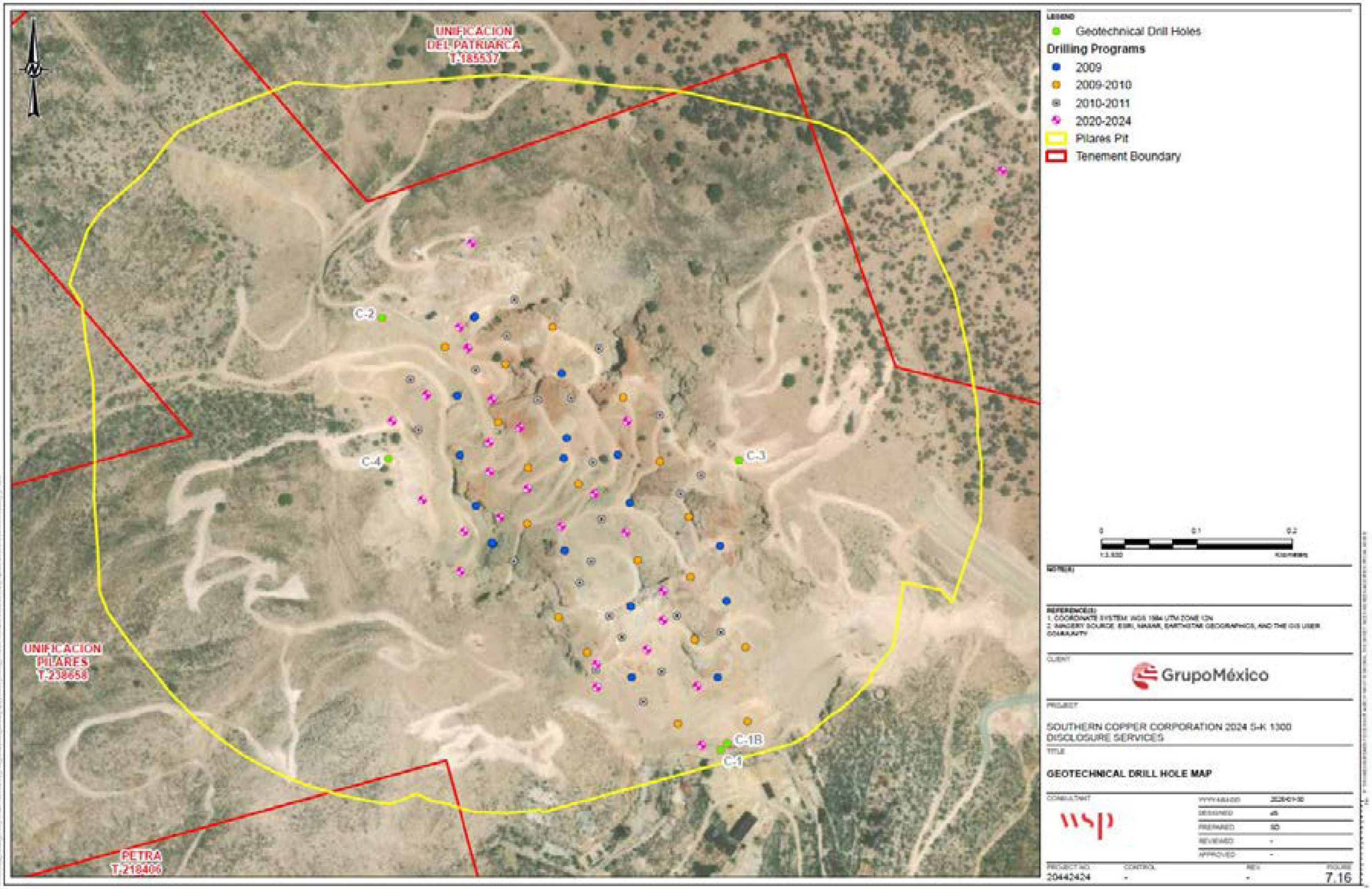


Figure 7.16: Geotechnical Drill Hole Map

- Rock weathering and intact strength indices
- Frequency of discontinuities
- Discontinuity characteristics (structure type, roughness, infilling type, and wall conditions)
- Discontinuity orientation, where measurable

During core logging, appropriate samples of the core were selected to provide specimens for laboratory strength testing. Samples were collected at approximately 30-m intervals, or when significant rock type or strength changes were apparent. Each sample was sealed and safely stored at the time of collection. Upon completion of the drilling, samples were shipped to SRK's office in Denver, Colorado, for test sample selection. Select samples were then repackaged and shipped to the University of Arizona Rock Mechanics Laboratory in Tucson, Arizona, for testing.

7.2.4.2 Oriented Core Data

Orientation of discontinuities in each run was accomplished using an A.C.T. core orientation system manufactured by Reflex Instruments. The depth, alpha angle and beta angle were measured for each discontinuity on all core runs that were successfully oriented. The beta angle, i.e., the angle from the lowest part of the ellipse formed by the intersection of each discontinuity with the core, was measured from the bottom of the core in a clockwise direction when looking down hole. The alpha angle was measured as the maximum angle made by the discontinuity with respect to the core axis.

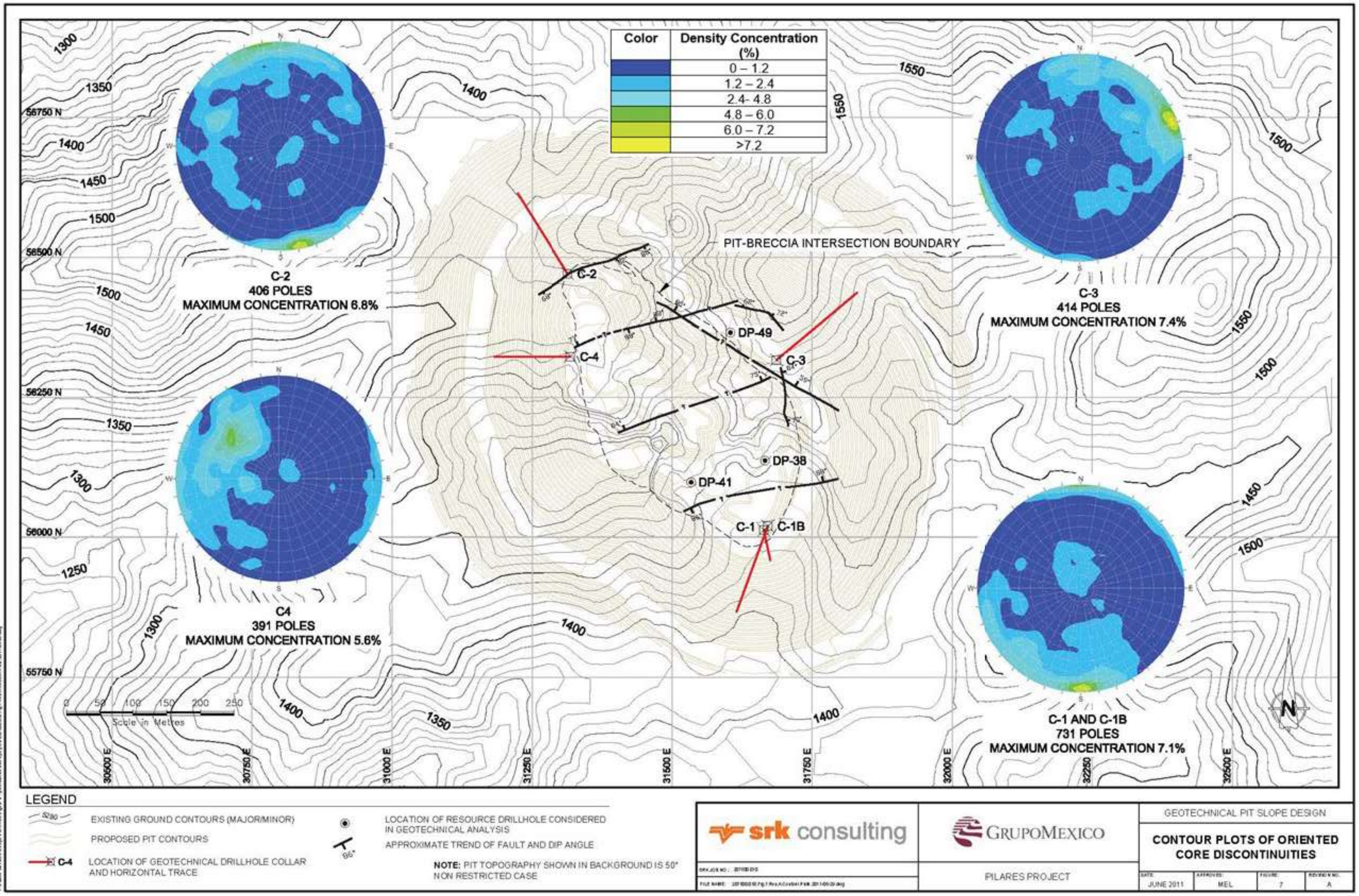
It was possible to orient a total of 1,942 discontinuities out of the total 3,166 discontinuities logged (61%) in the five geotechnical drill holes drilled during the field program. A summary of oriented core information by hole is presented in Table 7.9.

Table 7.9: Summary of Oriented Core Data

Hole ID	Drill Hole Length (m)	Total Discontinuities Logged	Total Discontinuities Oriented	Percentage of Discontinuities Oriented
C-1	110	222	32	14
C-1B	385	763	699	92
C-2	401	611	406	66
C-3	444	625	414	66
C-4	322	945	391	41

Source: SRK 2011

The oriented core data plotted on lower hemisphere equal area stereonets is shown on Figure 7.17. These stereonets indicate the presence of two steep orthogonal sets of discontinuities. The first set dips approximately vertical to the northwest-southeast, and the second dips approximately vertical in an east-west direction. The first set is parallel to the small number of mapped faults in the project area. A third set dips approximately 40 degrees to the southeast. These sets were also detected in the cell mapping described in Section7.2.4.3.



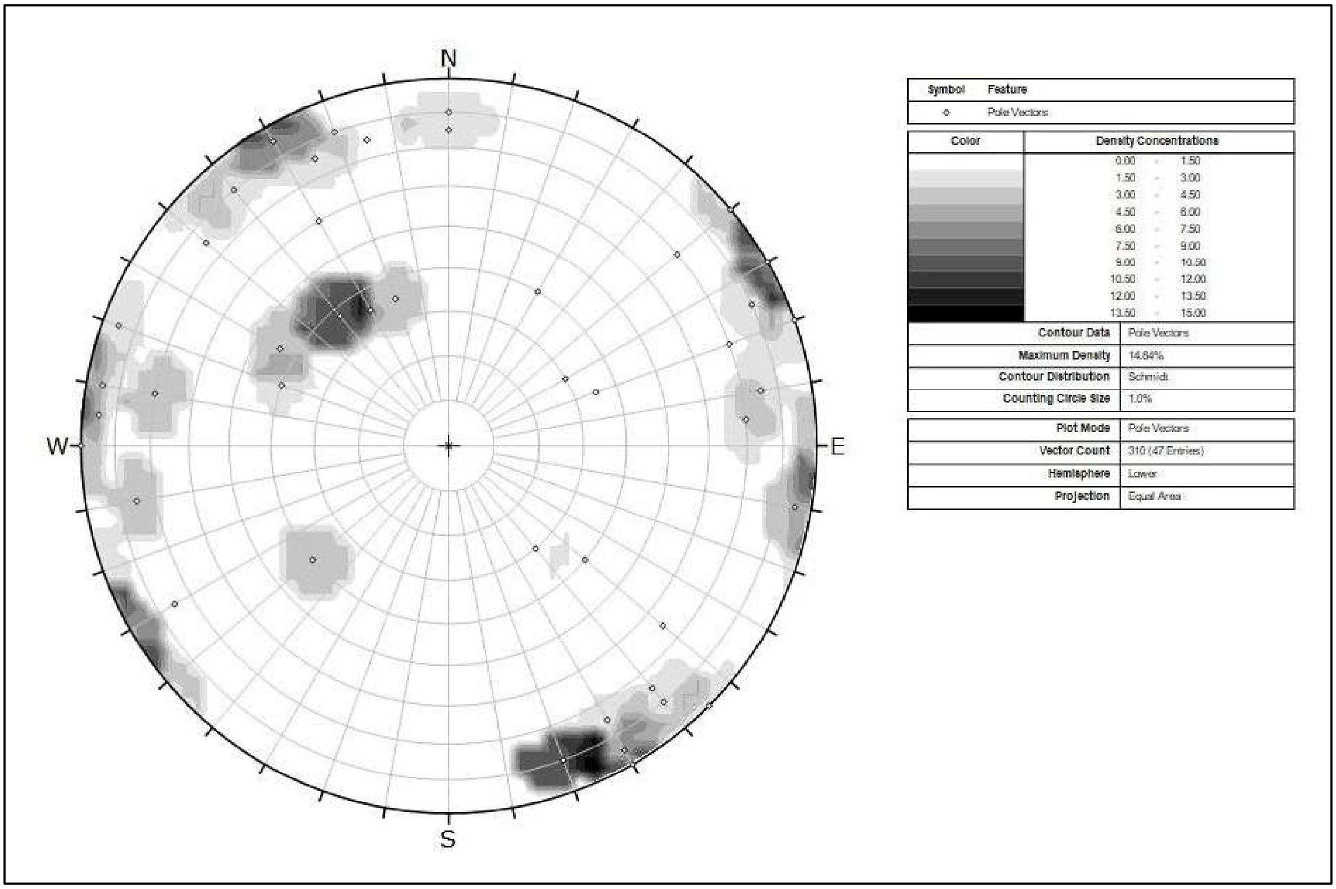
Source: SRK 2011

Figure 7.17: Oriented Core Data from Geotechnical Drill Holes

7.2.4.3 Cell Mapping

Exposed and accessible outcrops were mapped using the cell mapping technique. Cell mapping included mapping geologic structures including discontinuities and their properties. The term discontinuity is a general description of rock fractures that encompasses various types, including joints, bedding planes, faults, and foliations. Discontinuity sets denote groups of discontinuities that are expected to have similar impact upon the proposed design.

Discontinuity properties that were recorded during cell mapping included orientation, length, spacing, roughness, infillings, termination and other properties. A total of 16 cells were mapped at various exposures within the proposed open pit area. The joint set information was incorporated into the analysis of the rock structure. Cell mapping data is summarized in the equal area stereonet shown in Figure 7.18.



Source: SRK 2011

Figure 7.18: Lower Hemisphere Equal Area Stereonet of Cell Mapping Data

7.2.4.4 Point Load Testing

Point Load Tests (PLT) were performed during core logging at a frequency of approximately one test per every 2 m to 3 m using a Roctest Pil-7 test machine to provide detailed and nearly continuous profiles of relative rock strength. PLTs were conducted according to International Society for Rock Mechanics (ISRM, 1985) procedures.

A combined total of 850 diametrical (perpendicular to the long axis of the core), point load tests were conducted on core from the five (5) geotechnical drill holes; of those, 712 (84%) met test criteria for passing test results. Point load indices (Is(50)) were calculated from the field PLT data using the ISRM (1985) suggested method. Calculated point load index strengths (Is(50)) ranged between 1.0 and 15.8 MPa, with an average of 8.0 MPa for andesite; and between 0.3 and 12.7 MPa, with an average of 5.3 MPa for latite.

In addition to the tests routinely conducted at 2 m to -3 m intervals, at least one PLT was also performed adjacent to each uniaxial compressive strength (UCS) sample obtained for laboratory testing. The reason for the paired PLT and UCS samples was to permit estimation of a correlation factor for conversion of the field PLT tests to laboratory UCS values. The correlation factors (UCS:Is(50)) for the andesite and latite were determined to be 18.1 and 10.2, respectively. The andesite generally exhibited significantly higher correlated UCS values compared to the other rock types, with a mean of approximately 150 MPa. The latite and breccia each exhibit mean correlated UCS values of approximately 30 MPa. A summary of the PLT tests correlated to UCS is provided in Table 7.10.

Table 7.10: Summary Correlated UCS Data

Rock Type	Sample Count	Mean (MPa)	Std. Dev. (MPa)	Min. (MPa)	Max. (MPa)
Latite	155	54	30	3	129
Andesite	529	144	49	18	286
Breccia	13	59	41	27	151

Source: SRK 2011

7.2.4.5 Laboratory Testing

A total of 53 laboratory tests were conducted on samples selected to represent the range of the rock conditions observed in the five geotechnical borings and three resource holes. The overall laboratory program consisted of UCS tests, triaxial compressive strength (TCS) tests, direct shear strength tests of rock fractures, and saw cut joints, as well as measurements of unit weight and elastic properties.

7.2.4.5.1 Unconfined Compressive Strength

UCS testing was conducted on 29 samples, according to ASTM D7012 Method C. Elastic properties (Young's Modulus and Poisson's Ratio) were measured for three of the 29 UCS samples in accordance with ASTM D7012 Method D. Results of the UCS and elastic properties testing program are summarized in Table 7.11.

Table 7.11: Summary of UCS Test Results

Drill Hole	Depth (m)	Rock Type	UCS (MPa)	Young's Modulus (GPa)	Poisson's Ratio	Unit Wt. kN/m^3
C1	58.15	Latite	76.94*			24.9
C1B	57.25	Latite	56.70	40.5	0.209	25.2
C1B	149.77	Latite	101.71			25.8
C1B	241.72	Andesite	201.48			26.2
C1B	308.45	Andesite	105.84			27.5
C2	61.45	Latite	97.25			25.7
C2	148.80	Andesite	57.83			25.7
C2	303.20	Andesite	126.81			27.7
C3	23.25	Latite	19.84*			23.3
C3	236.40	Andesite	77.75**			26.2
C3	342.65	Andesite	198.23			27.4
C3	420.80	Andesite	187.30			26.8
C4	34.21	Latite	57.52			24.9
C4	155.30	Andesite	139.15	39.7	0.316	25.7
C4	234.50	Andesite	55.99			26.6
C4	275.80	Andesite	19.76**			26.5
DP38	77.40	Latite Breccia	35.92			25.2
DP38	97.85	Latite Breccia	30.14*			25.3
DP38	132.70	Latite Breccia	53.07			24.2
DP38	211.55	Latite Breccia	134.99			25.3
DP38	314.60	Andesite Breccia	41.80			25.6
DP41	27.50	Latite Breccia	26.94			23.1
DP41	50.50	Latite Breccia	79.08			24.4
DP41	125.00	Latite Breccia	66.29			25.9
DP41	203.70	Latite Breccia	32.28	15.4	0.220	23.6
DP41	234.70	Andesite Breccia	55.06			24.2
DP41	271.50	Andesite Breccia	16.14			23.7
DP49	125.30	Latite Breccia	150.99			25.0
DP49	189.20	Andesite Breccia	41.60			25.9

Source: SRK 2011

Notes:

*Correction factor applied to account sample L/D ratio of less than 2.0.
**UCS test results considered invalid and excluded from further analysis.

7.2.4.5.2 Triaxial Compressive Strength

TCS tests were conducted on 17 samples in accordance with the procedures of ASTM D7012 Method A. The samples were tested at confining pressures selected to range from zero to approximately one-half of the UCS values. The results of the TCS testing are summarized in Table 7.12.

Table 7.12: Summary of TCS Test Results

Drill Hole	Sample Depth	Rock Type	s1 (MPa)	s3 (MPa)	Unit Wt. (kN/m^3)
C1	91.92	Latite	80.60	3.45	26.1
C1B	110.25	Latite	131.80	10.34	25.8
C1B	189.90	Latite	262.70	20.69	26.4
C1B	261.04	Andesite	231.90	10.34	26.1
C2	31.40	Latite	216.40	13.79	24.4
C2	41.40	Latite	157.30	17.24	25.2
C2	101.40	Andesite	147.10	3.45	27.2
C2	248.85	Andesite	142.10	6.90	27.6
C4	20.20	Latite	98.90	6.90	24.6
C4	129.27	Andesite	297.30	13.79	26.8
C4	296.15	Andesite	377.30	17.24	27.7
DP38	154.75	Latite Breccia	92.20	3.45	24.7
DP38	239.55	Andesite Breccia	129.60	20.69	25.4
DP41	85.20	Latite Breccia	60.70	6.90	24.0
DP41	97.40	Latite Breccia	143.20	17.24	27.1
DP41	259.50	Andesite Breccia	100.20	13.79	24.3
DP49	136.80	Latite Breccia	219.30	20.69	24.6

Source: SRK 2011

7.2.4.5.3 Direct Shear Testing

Direct shear testing is commonly used for estimating the expected shear strength along natural rock discontinuities such as joints, fractures and faults. Since displacements that affect bench-scale failures frequently occurs along pre-existing geologic discontinuities under low stress conditions, estimation of discontinuity shear strength within this stress range may be used to evaluate kinematic failure modes at the bench scale.

Seven core samples were selected for three-point, small scale direct shear (SSDS) tests (completed in accordance with the procedures of ASTM Method D5607) to obtain discontinuity shear strength data. Natural core discontinuities preserved in the field were used for two of the direct shear tests. Direct shear tests on saw-cut discontinuities were also performed to facilitate the estimation of a lower bound residual shear strength for smooth discontinuities.

The range of normal stresses applied during testing was selected to span estimated ranges of in-situ stresses that are expected to develop within the slopes and to reasonably define the characteristics of the shear strength envelopes. The selected normal loads ranged from approximately 368 kPa to 1,944 kPa.

Linear and curvilinear regression analysis was conducted to fit a shear strength envelope to the laboratory data points. For the linear fit, the envelope is presented according to the Mohr-Coulomb shear strength criterion, i.e., in the form of a friction angle (Φ), which corresponds to the inverse tangent of the slope of the least-squares regression line, and apparent cohesion (c), which corresponds to the shear strength intercept at zero normal stress. The curvilinear strength envelope is presented in terms of a power curve with k and m values as described by Jeager (1971). The results of the direct shear tests are summarized in Table 7.13.

Table 7.13: Summary of Direct Shear Test Results

Drill Hole	Depth (m)	Linear Regression		Power Regression		Discontinuity Type
		f (°)	C (kPa)	k	m	
C1	38.72	29.4	0.0	0.34	1.095	Latite – saw cut
C1B	355.90	32.1	43.7	1.01	0.913	Andesite – natural joint
C2	55.50	31.3	52.3	1.12	0.897	Latite – natural joint
C3	77.47	27.6	0.0	0.55	0.990	Latite – saw cut
C3	179.00	27.5	0.0	0.30	1.103	Andesite – saw cut
DP41	66.70	29.7	0.0	0.52	1.018	Latite Breccia – saw cut
DP41	319.25	30.6	0.7	0.60	0.998	Andesite Breccia – saw cut

Source: SRK 2011

7.2.4.6 Rock Mass Classification

Rock mass characterization is a largely empirical process of classification based on information obtained primarily from field data and enhanced with further data analysis and laboratory testing. The basic geotechnical parameters recorded for each core run are commonly combined to form a Rock Mass Rating (RMR) system, thereby creating a profile of RMR with depth for each of the geotechnical holes drilled. Bieniawski's (1989) RMR system consists of a rating scale accounting for intact rock strength (IRS), fracture frequency per meter (FF/m), joint conditions, and groundwater. A summary of RMR values per lithology is presented in Table 7.14 based on ratings recorded for each geotechnical drill hole.

Table 7.14: Summary of RMR Values by Lithology

Rock Type	No. of Values	Mean RMR	Std. Dev.	Min.	Max.
Latite	327	55	11	30	82
Andesite	737	72	49	11	67
Breccia	110	42	9	27	63

Source: SRK 2011

7.2.4.7 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, with respect to definition of geological units, and laboratory characterization of rock strength. This data is documented via original digital and hard copy records and were collected using industry standard practices in place at the time, and these data haves been organized into a current and secure spatial relational database. In the opinion of the QP, the geotechnical model is not adequately characterized. Additional geotechnical programs will be necessary to further define the 3D geological model and map the location of major structure as well as the mined-out voids and backfill areas. Oriented core data was not available for review. New geotechnical drill holes should be used to collect oriented core data to complete structural characterization, define structural domains, and to improve the geomechanical database with additional laboratory testing. Additional assessment of the interaction between the open pit and underground workings should be completed following updates to the geotechnical model.

8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Site Sample Preparation Methods and Security

Geologists from La Caridad, Pilares, or previous operators conducted all sampling. 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 at La Caridad since 1968. At Pilares, only core drilling techniques have been utilized. The nature and quality of the sampling from the various sampling programs is summarized in the following sections.

8.1.1 La Caridad

8.1.1.1 Sampling Techniques and Preparation

During the geological logging process, the intervals for the different sampling were selected (geochemical, petrographic, polished sections, etc.). La Caridad sampling protocols require samples to be between 60 cm and 3.05 m. A new sample was taken when changes in mineralization, lithology, or rock quality changes were observed even if located within the mineralized zone.

Core recovery was considered for geochemical sampling to ensure representativeness. If a zone had 60-70% recovery between zones of 100%, the lower recovery zone was sampled independently. Fine levels of mineralization between massive or stockwork zones were also sampled independently.

8.1.1.1.1 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). In cases where the sample was wet, the Jones Splitter was substituted with 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.

Source: WSP 2021

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

8.1.1.1.2 Core Drilling

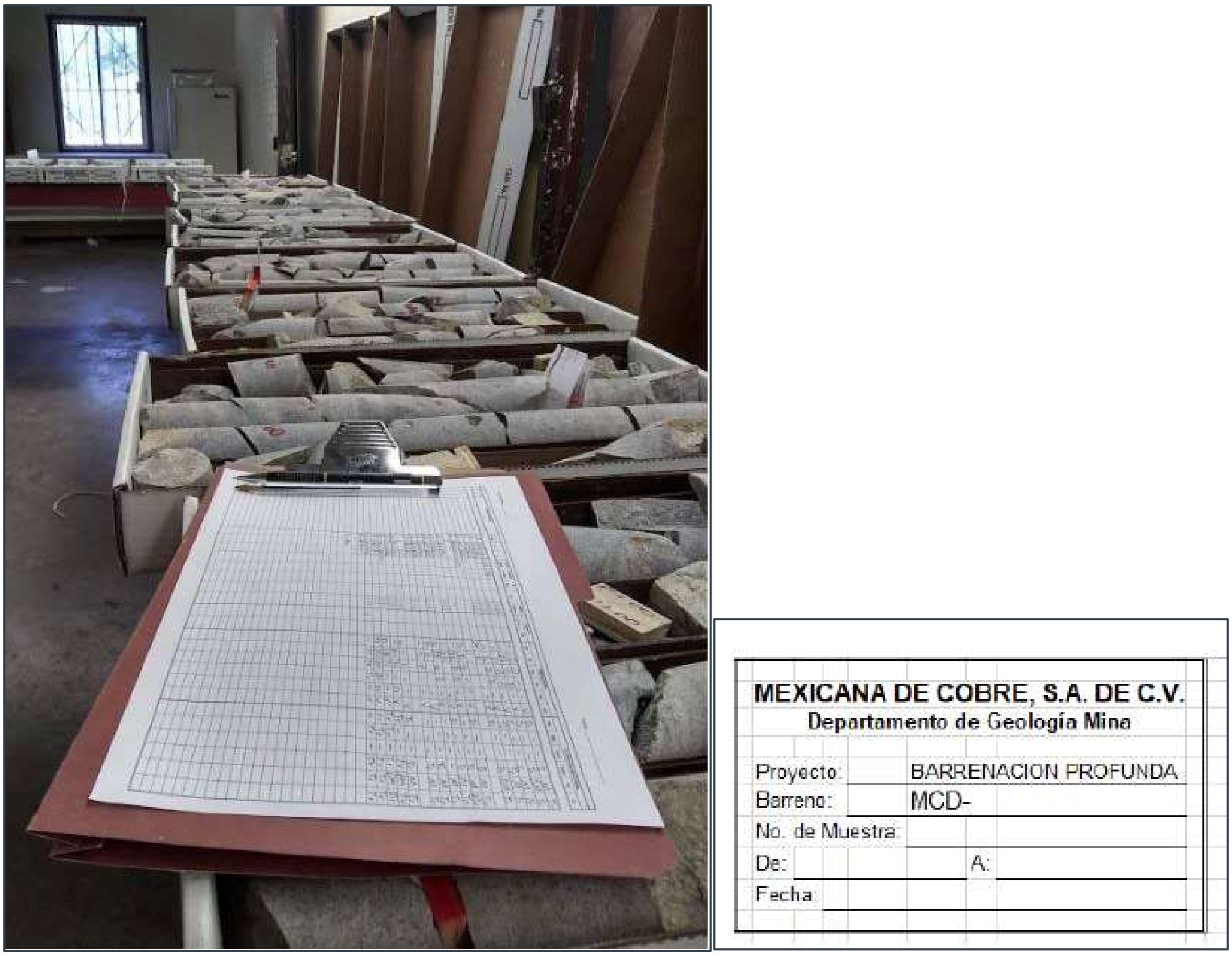
Drill cores were handled carefully from extraction and placed in boxes as directed by the logging geologist. Core was placed in the core box from top to bottom and left to right following the order in which it comes out of the core barrel. The drilling depth was marked on a wooden block and placed at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

Boxes with samples 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 above to capture its entirety. Each core box had a placard indicating the drill hole number, the corresponding box number and the start and end of the core interval within the box. The core was photographed wet to enhance lithological and mineralization details. Before taking the photograph, the geologist verified that the intervals labelled 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, along with an arrow depicting the direction of drilling and progress.

The drill hole was cut by dividing the core into two equal halves, with guiding lines drawn in green and red to denote the right and left halves respectively. When the orientation of the drill hole was known, the core was positioned to ensure continuity in the half core to be analyzed. One half of the core was retained in a core box, while 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.

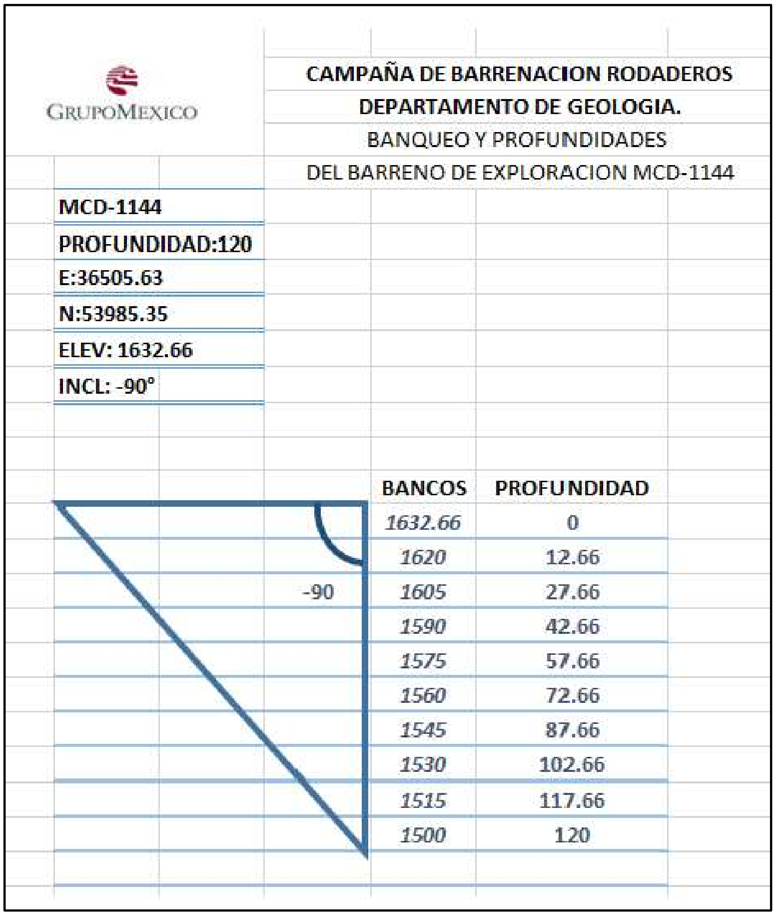
For sampling of exploration drill holes, the elevation was crucial as the height of the bench is 15 m. To identify bench samples, a red label was placed at the bottom of the sample, with the elevation of the bench and sample number identified (Figure 8.2).



Source: WSP 2021

Figure 8.2: Example of a Logged and Sampled Drill Hole

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.



Source: La Caridad 2021

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

8.1.1.1.3 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, each 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:

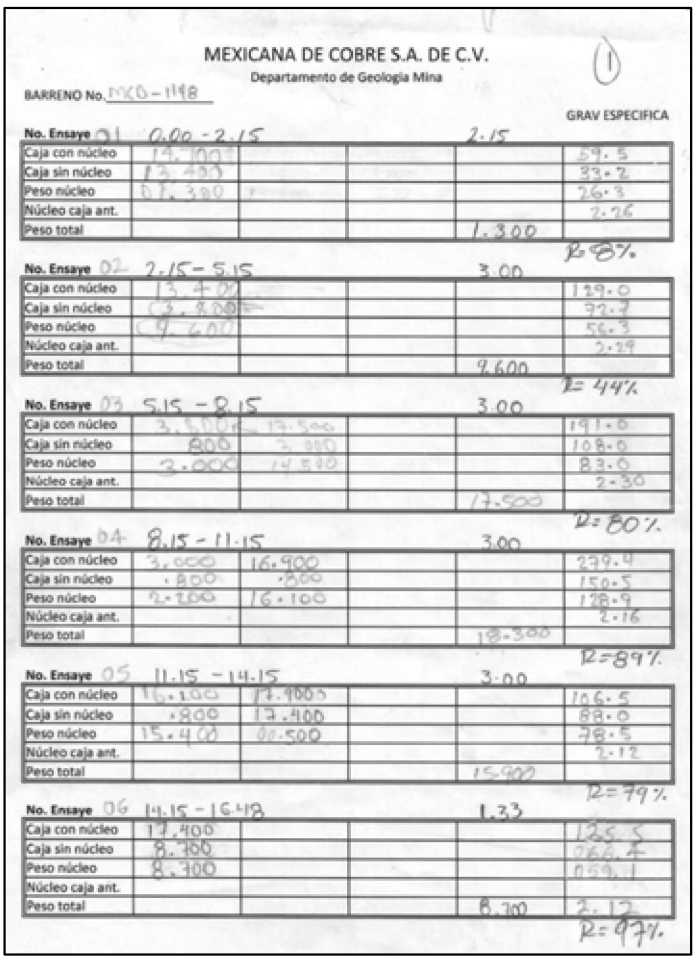
- Samples were received at the laboratory and catalogued
- Samples were weighed
- Samples were crushed to ½ inch, and placed in a labelled bucket (drill hole, bench, sample number)

- The sample was reduced by a Cone Crusher Nº6 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.



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

BARRENO No. MXD-1148

GRAV ESPECIFICA

No. Ensaye 01 0.00 - 2.15 2.15

Caja con núcleo	14.700				59.5
Caja sin núcleo	13.400				33.2
Peso núcleo	01.300				26.3
Núcleo caja ant.					2.26
Peso total				1.300	

R=8%

No. Ensaye 02 2.15 - 5.15 3.00

Caja con núcleo	13.400				129.0
Caja sin núcleo	3.800				72.7
Peso núcleo	9.600				56.3
Núcleo caja ant.					2.29
Peso total				9.600	

R= 44%

No. Ensaye 03 5.15 - 8.15 3.00

Caja con núcleo	3.800	17.500			191.0
Caja sin núcleo	800	3.000			108.0
Peso núcleo	3.000	14.500			83.0
Núcleo caja ant.					2.30
Peso total				17.500	

R= 80%

No. Ensaye 04 8.15 - 11.15 3.00

Caja con núcleo	3.000	16.900			279.4
Caja sin núcleo	.800	.800			150.5
Peso núcleo	2.200	16.100			128.9
Núcleo caja ant.					2.16
Peso total				18.300	

R=89%

No. Ensaye 05 11.15 - 14.15 3.00

Caja con núcleo	16.200	17.900			106.5
Caja sin núcleo	.800	17.400			88.0
Peso núcleo	15.400	00.500			78.5
Núcleo caja ant.					2.12
Peso total				15.900	

R=79%

No. Ensaye 06 14.15 - 16.48 1.33

Caja con núcleo	17.400				125.5
Caja sin núcleo	8.700				066.4
Peso núcleo	8.700				059.1
Núcleo caja ant.					
Peso total				8.700	2.12

R=97%

Source: La Caridad 2021

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

8.1.1.2 Sample Results

To date there has been a total of 138,586 samples collected on the La Caridad, including 113,008 core samples and 25,578 samples that are either RC, MD, or MT totaling 812,110 m. Since 2019 a total of 30,722 samples (116,763 m) have been collected at la Caridad and Bella Union. A summary of the sampling by drilling type is presented in Table 8.1, including all available assay data, even those excluded from modeling, 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	113,008	3.65	0.222	0.027
RC	23,393	13.59	0.261	0.022
MD	1,551	10.18	0.415	0.023
MT	634	10.91	0.468	0.024
Total	**138,586**	**5.25**	**0.243**	**0.025**

8.1.1.3 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 two were also included on the board, as well as on the box (Figure 8.5).

Source: WSP 2021

Figure 8.5: Drill Hole BDO0019 with Sample Tags and Depth

Once the cores were logged in GV Mapper, the information was imported to acQuire. The drill hole location and logging data was verified by senior La Caridad 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 logged and sampled core boxes were subsequently sent for cutting. Each selected sample interval was divided into two halves using a manual core cutter. The assistant geologist oversaw the core cutting to ensure that a representative sample was obtained for analysis. This process was essential because the mineralization within the core was often heterogeneous, exhibiting variable veining or thin banding.

The cut samples were placed in a marked plastic bag with the drill hole name and sample number. A tag with the same information was attached, and the bag was sealed to prevent contamination. Figure 8.6 shows core samples ready for sealing (left) and sealed on a transport vehicle (right).

Source: WSP 2021

Figure 8.6: Example Core Samples

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

GrupoMexico

EXPLORACIONES

RELACION DE MUESTRAS
BARRENO : MCD-1144

FECHA
Octubre-25-2019

BANCO	MUESTRAS	% 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.

Source: La Caridad 2021

Figure 8.7: Example Sample Requisition Report – MCD-1144

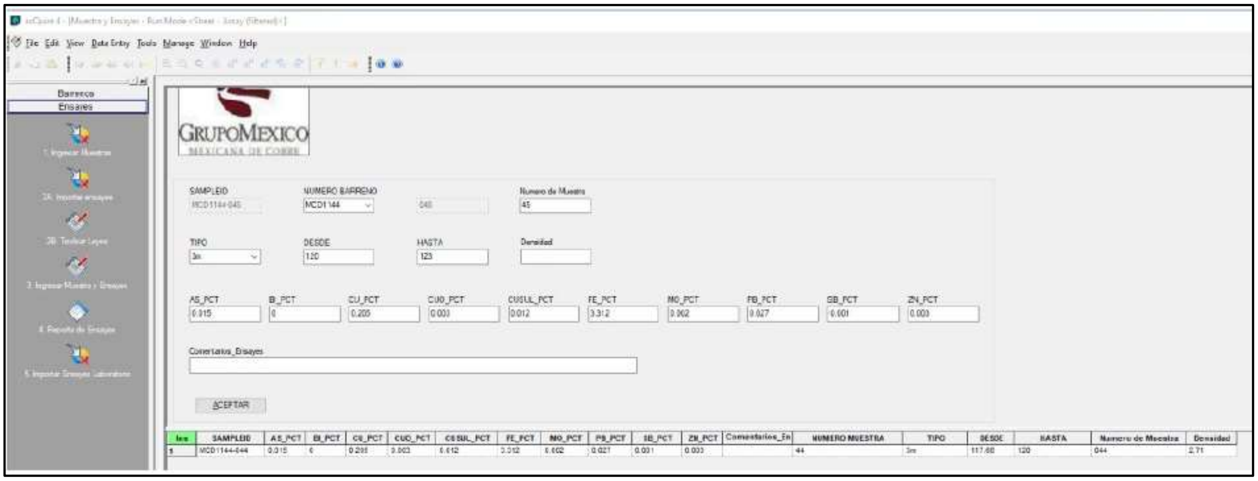
At the laboratory, the chain of custody of the sample preparation was well established. Both, the reception of the sample coming from the drill rig and the transfer of the prepared sample to the chemical laboratory are also appropriately documented.

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).

Source: WSP 2021

Figure 8.8: Example of Stored Sample Pulps

The results were electronically sent to the La Caridad project geologist and uploaded into acQuire. The laboratory analyzed for Specific Gravity (SG), arsenic (As), bismuth (Bi), copper (Cu), copper oxide (CuO), soluble copper (CuCN), iron (Fe), molybdenum (Mo), lead (Pb), and antimony (Sb). During 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.



Source: La Caridad 2021

Figure 8.9: Assay Import into acQuire – MCD-1144

8.1.2 Pilares

8.1.2.1 Sampling Techniques and Preparation

8.1.2.1.1 Core Sampling

Drill cores were carefully handled from the time they were obtained from the drill site. Cores were retrieved from the core barrel, washed, and then packed sequentially in plastic core boxes. For each core run a wooden block was placed where the driller noted the depth of the hole which indicated the interval drilled. The standard core run was 3.05 m in competent rock and variable in zones of fracturing or poor recovery. The geologist or their assistant measured the actual length of the core recovered in the run to calculate the core recovery. The core boxes were then transferred to the logging facility in a vehicle under Pilares supervision, where the geological and geotechnical logging was completed.

Core photography was completed for all of the 2022 to 2024 Pilares drilling, an example of which is shown in Figure 8.10 for drill hole MPD-0022. There was no core photography completed for the 2009 to 2011 drilling.

Source: La Caridad 2024

Figure 8.10: Example Core Photograph for MPD-0022.

The drill hole was cut by dividing the core into two equal halves with a manual core splitter, following two lines (green and red, which indicate the right and left halves respectively). 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 purposes and the remaining quarter was used in the preparation of samples for geochemical analysis.

All drill hole information in Pilares's sampling database was generated from diamond core drilling using HQ size drill core.

8.1.2.1.2 Sample Preparation

As La Caridad and Pilares share technical teams, the assay samples collected at Pilares were processed at the internal SCC Laboratorio de Unidad La Caridad in Nacozari, Sonora. 8.1.1.1.3 summarize the sample preparation processes used at La Caridad has also been followed for Pilares.

8.1.2.2 Sample Results

To date, there has been a total of 18,284 core samples collected from 118 drill holes on the Pilares Project, totaling 50,949 m. The 2011 drilling campaign was completed for geotechnical purposes only, and no samples were submitted for analytical testing. A summary of the sampling is presented in Table 8.2. These tables include all available assay data, including drill holes and samples that were excluded in the modeling process, as discussed in Section 11.2.1.2.

Table 8.2: Summary of Assay Samples by Year Drilled

Year	Sample Count	Mean Thickness (m)	Mean Cu (wt.%)	Mean CuO (wt.%)
2009-2011	5,617	2.55	0.547	0.060
2022	7,418	3.04	0.076	0.000
2023	4,121	2.29	0.562	0.023
2024	1,036	2.34	0.572	0.029
Total	**18,192**	**2.68**	**0.333**	**0.023**

8.1.2.3 Sample Security

For the Pilares drilling, the core was collected at the drilling rig by La Caridad and Pilares exploration team and transported to the core logging facility at La Caridad Mine, a locked and fenced facility. The core was carefully placed in boxes labelled on the lid with the drill hole number, run number and start and end depths. This information was also captured on the drillers report, then was cross-referenced for verification.

Once the core was logged, using the standardized paper logging sheets, this information was input electronically to MS Excel and securely stored at the at the La Caridad mine core logging warehouse, along with the original paper copy. Since 2022, all sampling information was entered directly into GV Mapper software and uploaded to the acQuire database. The core to be sampled was then sent to be cut.

Each selected sample interval was cut in half using a manual core splitter. The cut samples were placed in a clear plastic bag, and the bag was marked on both sides with the name of the drill hole and the sample number. A sample tag was attached to the bag with corresponding drill hole and sample information. The bag was then sealed to prevent contamination and delivered to the preparation laboratory, Laboratorio de Unidad La Caridad, by SCC personnel. All remaining core was stored at the Colonia El Ranchito, Sonora core storage warehouses.

At the laboratory, the chain of custody of the sample preparation was well established, although records pertaining to the 2009 to 2011 Pilares drilling have been misplaced. 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 warehouses located in Colonia El Ranchito.

Once the samples were analyzed, the results were sent electronically to the Pilares Project geologist in charge as well the senior Pilares geologist in charge. The results were verified as complete and included all requested geochemical elements.

All of the exploration data was originally recorded manually on paper logging sheets and was input digitally using MS Excel for the 2009 to 2011 programs. Since 2022, all logging data was input directly into GV Mapper software then uploaded into the acQuire database. SCC employ a dedicated acQuire database manager and only select registered SCC employees have access to the database.

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 for both La Caridad and Pilares, 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 Geoquimico, in, San Luis Potosi. 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 and Pilares drilling until 2021 was performed at an internal SCC laboratory (Laboratorio de Unidad La Caridad) located in Nacozari, Sonora. From 2021 to 2024, samples were analyzed at either Activation Laboratories (Actlabs) in Guadalupe, Mexico or Ancaster, Ontario, Canada, SGS in Durango, Mexico, and Bureau Veritas in Vancouver, BC.

Table 8.3 summarizes the accreditation of the preparation and analysis laboratories. Table 8.4 summarizes the analysis procedures at each laboratory.

Table 8.3: Summary of Sample Preparation and Analytical Laboratories

Laboratory Name	Location	Duration Used	Purpose	Accreditations	Independent
Laboratorio de Unidad La Caridad	Nacozari de García, Sonora	Ongoing (preparation) pre-2021 (analysis)	Primary sample preparation and analysis	ISO 9001:2015	No
Estación Santiago Laboratorio Geoquimico	San Luis Potosi	Ongoing (preparation)	Primary sample preparation	No	No
Activation Labratories (Actlabs)	Guadalupe, Mexico Ancaster, ON, Canada	2021-2022	Primary analysis	ISO/IEC 17025:2017 ISO 9001:2015	Yes
SGS Mexico	Durango, Mexico	2022-2024	Primary analysis; pulp re-assay for historical assays	ISO/IEC 17025:2017	Yes
Bureau Veritas	Vancouver, BC, Canada	2022	Primary analysis	ISO/IEC 17025:2017	Yes

Table 8.4: Summary of Analytical Methods by Laboratory

Laboratory Name	Deposit	Duration Used	Sample Size	Analyte	Method
SCC Internal	La Caridad	pre-2021	0.5 g	As, Bi, Ca, Cd, Co, Cr, Cu, Fe, Hg, Mg, Mn, Mo, Ni, Na, Pb, Sb, Se, and Zn	3-acid digestion with hydrochloric (HCl) (50%), nitric (HNO_3) and perchloric ($HClO_4$) acids, followed by analysis by ICP and Atomic Absorption (AA)
			75 g	Au	2-acid digestion with methyl isobutyl acetone and HCl acid. Final analysis was by AA fire assay for values below 500 ppb.
			0.2 g	Soluble Cu, CuCN, and Residual Cu	Sequential Copper analysis using sulfuric acid (H_2SO_4) for soluble Cu, sodium cyanide solution (NaCN) and residual Cu using ICP-AA
	Pilares		0.5 g	SG, Ag, Au, Bi, Cu, CuO, Fe, Mo, Pb, Sb, W, and Zn	3-acid digestion with HCl (50%), HNO_3, and $HClO_4$ acids, followed by analysis by ICP-AA
Actlabs	La Caridad & Pilares	2021 - 2022		Soluble Cu & CuCN	Sequential Copper Leach (8-Cu sequential leach): The sample is leached with 5% H_2SO_4 for 1 hour with agitation then centrifuged and washed with deionized (DI) water. The washed sample is then leached by 10% NaCN with agitation for 30 minutes and centrifuged and washed again.
				Residual Cu	4-acid ICP-OES (8-4 Acid – ICP): This digestion used HNO_3, $HClO_4$, HF, and HCl acids with temperatures to 260°C. The samples are then analyzed ICP Optical Emission Spectroscopy (OES).
			0.25 g	Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, Mg, Li, Mn, Mo, Na, Ni, P, Pb, Sb, S, Sc, Sr, Te, Ti, Tl, U, V, W, Y, Zn, Zr	4-acid 'Near Total' Digestion – ICP (IF2): This digestion used HNO_3, $HClO_4$, HF, and HCl acids followed by ICP-OES.
	Pilares	2022	30 g	Au	Fire assay fusion with AA finish (1A2)
SGS	La Caridad & Pilares	2022 - 2024		Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, La, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sn, Sr, Ti, V, W, Y, Zn, Zr	4-acid digestion – ICP (GE_ICP40Q12): Multi-acid digestion uses a combination of HNO_3, $HClO_4$, HF, and HCl acids. The samples are then analyzed by ICP-OES
				Soluble Cu, CuCN, and Residual Cu	Sequential Copper (GC_ASQ01D50, GC_ASQ02D100, GC_ASQ03D50): The samples is leached with H_2SO_4 to determine the soluble Cu, then leached with NaCN to determine the Cyanide soluble Cu, followed by 4-acid digestion to determine the residual Cu. Samples are then analyzed using Atomic Absorption Spectrophotometer (AAS).
				Cu	Ore grade Na_2O_2 Fusion (GO_ICP90Q100): Samples that were over the upper limit of the 4-acid digestions were then submitted for Ore grade Na_2O_2 Fusion, followed by HNO_3, and ICP-AES.
Bureau Vertias	Pilares	2022	30 g	Au	Fire Assay Fusion – AAS Finish (FA430): Total Au content is determined by digesting an Ag dore bead and then analysing by AAS.
			0.5 g	Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, Al, Na, K, W, S, Hg, Tl, Ga, Sc	Aqua Regia digestion with ICP-ES (AQ300 and AQ370 - Ore grade): Samples are subjected to aqua regia digestion with a (1:1:1 HNO_3:HCl:H_2O) ratio followed by an ICP Emission Spectroscopy (ES)

During WSP’s review of the assay database, it was found that the sequential copper assay method was not used for the 2022 Pilares drilling program as the campaign was an exploration program and not intended for the Mineral Resource estimate. A small number of samples were not tested above the detection limit for Cu, Zn, and Fe. WSP recommends that SCC complete secondary analysis with higher detection limits for all elements relevant to the estimation of the Mineral Resource, as well as for recovery purposes. The review also indicated that 4 drill holes from the 2024 Pilares drilling campaign did not test for residual Cu using the sequential copper assay method, it is further recommended that consistent assay methods be used for all future drill programs.

8.3 Quality Control and Quality Assurance Programs

Quality Control and Quality Assurance (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 2021 drilling campaign, no QA/QC programs had been implemented at La Caridad or Pilares. As of 2021 at La Caridad and 2022 at Pilares both have begun a systematic QA/QC program, which includes the insertion of certified reference materials (CRMs) standards, blanks, and duplicates into the sampling stream at regular intervals. Table 8.5 summarizes the type and purpose of the QA/QC samples, as well at the expected percent of each per drill hole. WSP did not include the 2022 El Saucito drilling as part of the QA/QC review, as the drilling was entirely outside the Pilares Resource area and no drill holes were included in the Resource database.

Table 8.5: QA/QC Control Samples

QA/QC Sample	Type of Control	Description	Percent of Samples	Type of Assessment
Standards	Low Grade	Oreas 151A	6%	Evaluate laboratory analytical accuracy against a certified value
		Oreas 151B		
		Oreas 501D		
		CDN-CM-32		
	Mid Grade	Oreas 153B		
		Oreas 503D		
		Oreas 505		
		Oreas 506		
		CDN-CM-27		
	High Grade	Oreas 502C		
		Oreas 502D		
		Oreas 504C		
		Oreas 504D		
		CDN-CM-18		
	Mo Specific	CDN-MoS-1		
Blanks	Fine (pulp)	Oreas 20a	3%	Evaluate contamination at the sample analytical stage
	Coarse	Barren Rhyolite		Evaluate contamination at the sample preparation stage
Duplicates	Fine	Pulp	4%	Evaluate the accuracy at the laboratory analytical stage
	Coarse	Preparation		Evaluate the accuracy in the subsampling and quartering stage during preparation
	Twin	Field		Evaluate the accuracy of sampling activity at core splitting

A summary of the number and type of QA/QC samples by drill campaign is presented in Table 8.6.

Table 8.6: Summary of QA/QC Samples by Drilling Campaign

QA/QC Control Samples		Drilling Campaign					
		2021-2022 (La Caridad - 30,000m)	2022-2023 (La Caridad - 10,735 m)	2023-2024 (La Caridad - 50,000m)	2023-2024 (Bella Union - 20,000 m)	2023 (Pilares - 10,000 m)	2024 (Pilares - 3,000 m)
Total Samples per Campaign		**13,703**	**4,694**	**20,791**	**6,566**	**4,703**	**1,387**
QA/QC Sample Type							
CRMs	Oreas 151A	104	6				
	Oreas 151B	79	3				
	Oreas 501D		54	120		65	19
	CDN-CM-32	1		290	92		
	Oreas 153B			165			
	Oreas 503D	175	21				
	Oreas 505		41				
	Oreas 506			183			
	CDN-CM-27				33		
	Oreas 502C		41				
	Oreas 502D	3		109	60	64	17
	Oreas 504C	178	19				
	Oreas 504D					63	19
	CDN-CM-18	1			85	66	20
	CDN-MoS-1	1		283	92		
Blanks	Oreas 20a (Pulp)	256	80	287	89	66	19
	Coarse	294	108	292	92	68	21
Duplicates	Fine	186	62	288	86	63	18
	Coarse	190	65	291	87	59	20
	Field	176	62	283	89	68	18
Total QA/QC Samples		**1,644**	**562**	**2,591**	**805**	**582**	**171**
Percent QA/QC Samples		12.0%	12.0%	12.5%	12.3%	12.4%	12.3%

Prior to 2021, the samples were sent to two laboratories owned by SCC: Labratorio Geoquimico San Luis Potosi and Laboratorio de Unidad La Caridad. Samples collected from both La Caridad and Pilares during the drilling campaigns from 2022 to 2024 were sent to external laboratories for analysis. Actlabs in Mexico and Canada were used for the 2021-2022, and SGS Mexico for the 2022 through 2024 programs.

The review of the QA/QC results was carried out by the La Caridad and Pilares geologists 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 CRM

Several types of commercially prepared copper-gold-molybdenum porphyry CRMs were obtained directly from OREAS and CDN Resource Laboratories Ltd. and were inserted in alternating order. CRMs are used to evaluate the analytical laboratories accuracy against a certified value. Assay results for a CRM should be within +-3 standard deviation (SD) tolerance range of the certified value, otherwise they are considered to have failed. Table 8.7 summarizes the CRMs used at La Caridad and Pilares, including the type and certified value.

Table 8.7: Summary of CRMs

Type of Control	Description	Type	Certified Values		
			Cu (wt.%)	Au (ppm)	Mo (ppm)
Low Grade	Oreas 151A	Cu-Au-Mo-S Porphyry	0.166	0.043	40
	Oreas 151B	Cu-Au Porphyry	0.182	0.065	55
	Oreas 501D	Cu-Au-Mo Porphyry	0.272	0.232	95
	CDN-CM-32	Cu-Au-Mo Porphyry	0.234	-	230
Mid Grade	Oreas 153B	Cu-Au Porphyry	0.678	0.313	163
	Oreas 503D	Cu-Au-Mo Porphyry	0.524	0.666	348
	Oreas 505	Cu-Au Porphyry	0.321	0.555	66
	Oreas 506	Cu-Au-Mo Porphyry	0.444	0.364	87
	CDN-CM-27	Cu-Au-Mo Porphyry	0.592	0.636	510
High Grade	Oreas 502C	Cu-Au-Mo Porphyry	0.783	0.488	226
	Oreas 502D	Cu-Au-Mo Porphyry	0.776	0.499	249
	Oreas 504C	Cu-Au-Mo Porphyry	1.110	1.480	512
	Oreas 504D	Cu-Au-Mo Porphyry	1.100	1.460	507
	CDN-CM-18	Cu-Au-Mo Porphyry	2.420	5.280	2,470
Mo Specific	CDN-MoS-1	Mo Concentrate	-	-	650

Table 8.8 summarizes the failure rates for each CRM for both Cu and Mo for La Caridad and Table 8.9 for Pilares. In 2021-2022, approximately 95% of the assay samples were sent to Actlabs in Mexico and Canada with 5% sent to SGS in Durango. All following programs were sent to SGS. The CRM performance at Actlabs was not as consistent as at SGS, indicating that there may be a need for improvements internally at the labs. The CRMs chosen for the 2022 to 2024 programs performed very well, with minor failures for each CRM for both Cu and Mo.

A selection of control charts for each of the CRMs used during the drilling campaigns for Cu and Mo are presented in Figure 8.11 to Figure 8.18.

Table 8.8: CRM Failure Rates - La Caridad and Bella Union

Drilling Campaign	2021-2022 (La Caridad - 30,000m)*			2022-2023 (La Caridad - 10,735 m)			2023-2024 (La Caridad - 50,000m)			2023-2024 (Bella Union - 20,000 m)		
CRM	Total Samples	Failure % Cu	Failure % Mo	Total Samples	Failure % Cu	Failure % Mo	Total Samples	Failure % Cu	Failure % Mo	Total Samples	Failure % Cu	Failure % Mo
Oreas 151A	104	5%	5%	6	0%	0%						
Oreas 151B	79	10%	25%	3	0%	0%						
Oreas 501D				54	0%	0%	120	0%	0%			
CDN-CM-32	1	n/a	n/a				290	0%	0%	92	1%	0%
Oreas 153B							165	1%	0%			
Oreas 503D	175	15%	28%	21	5%	0%						
Oreas 505				41	0%	7%						
Oreas 506							183	1%	2%			
CDN-CM-27										33	0%	0%
Oreas 502C				41	0%	0%						
Oreas 502D	3	n/a	n/a				109	0%	0%	60	0%	0%
Oreas 504C	178	12%	32%	19	0%	5%						
Oreas 504D												
CDN-CM-18	1	n/a	n/a							85	0%	0%
CDN-MoS-1	1	n/a	n/a				283	n/a	0%	92	n/a	0%

Note: *For the 2021-2022 program, Actlabs Canada, Actlabs Mexico and SGS Mexico results are combined.

Table 8.9: CRM Failure Rates - Pilares

Drilling Campaign	2023 (Pilares - 10,000 m)			2024 (Pilares - 3,000 m)		
CRM	Total Samples	Failure % Cu	Failure % Mo	Total Samples	Failure % Cu	Failure % Mo
Oreas 151A						
Oreas 151B						
Oreas 501D	65	0%	0%	19	0%	0%
CDN-CM-32						
Oreas 153B						
Oreas 503D						
Oreas 505						
Oreas 506						
CDN-CM-27						
Oreas 502C						
Oreas 502D	64	0%	0%	17	0%	0%
Oreas 504C						
Oreas 504D	63	0%	0%	19	0%	0%
CDN-CM-18	66	0%	0%	20	0%	0%
CDN-MoS-1						

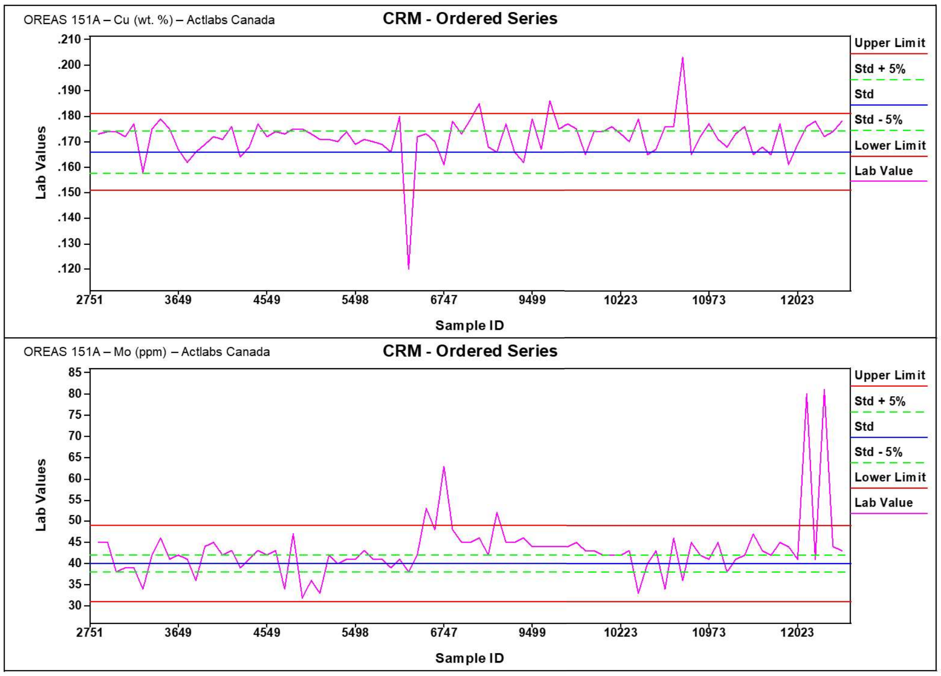


Figure 8.11: OREAS 151A, Cu (top) and Mo (bottom) from Actlabs Canada – La Caridad 2021-2022 Program

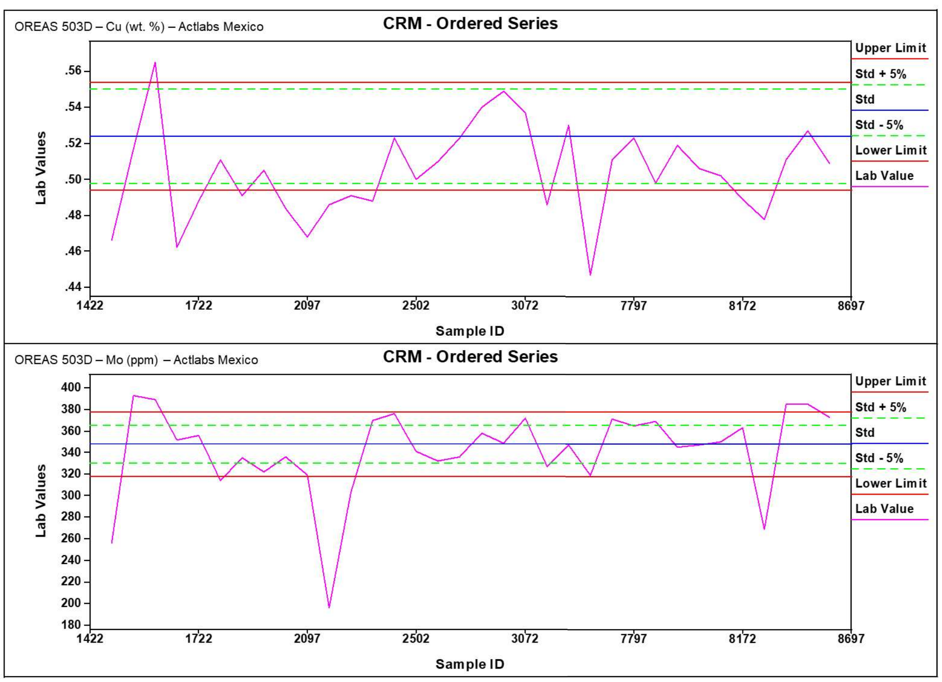


Figure 8.12: OREAS 503D, Cu (top) and Mo (bottom) from Actlabs Mexico – La Caridad 2021-2022 Program

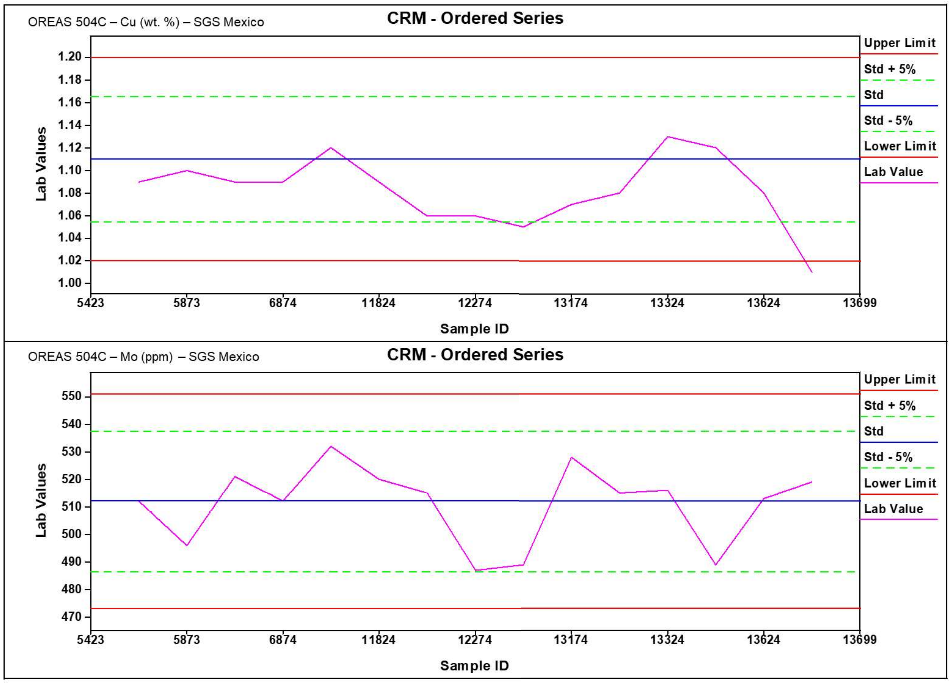


Figure 8.13: OREAS 504C, Cu (top) and Mo (bottom) from SGS – La Caridad 2021-2022 Program

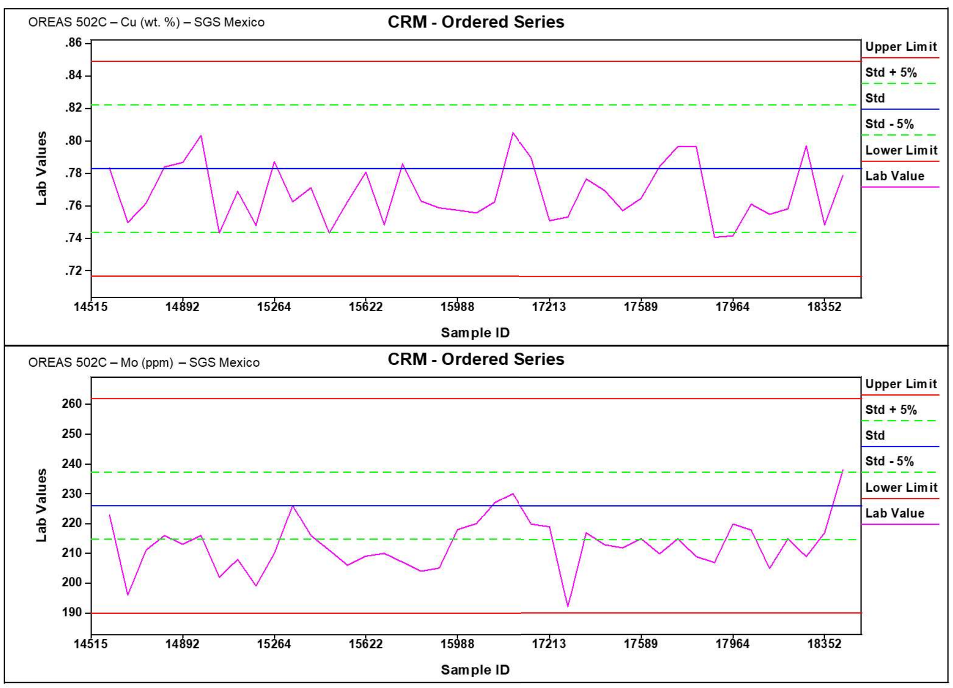


Figure 8.14: OREAS 502C, Cu (top) and Mo (bottom) – La Caridad 2022-2023 Program

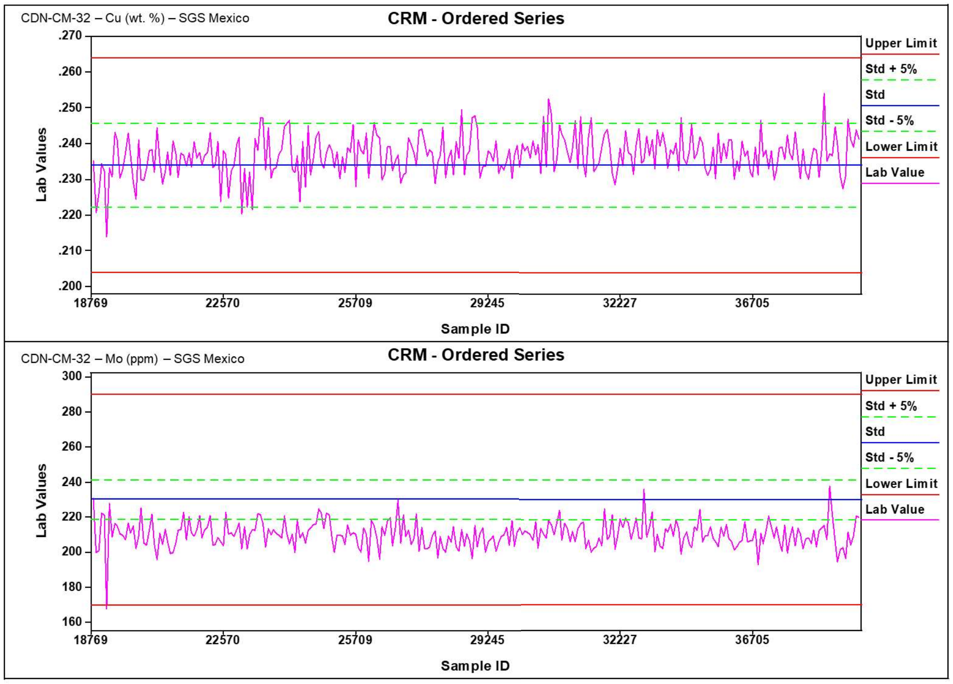


Figure 8.15: CDN-CM-32, Cu (top) and Mo (bottom) – La Caridad 2023-2024 Program

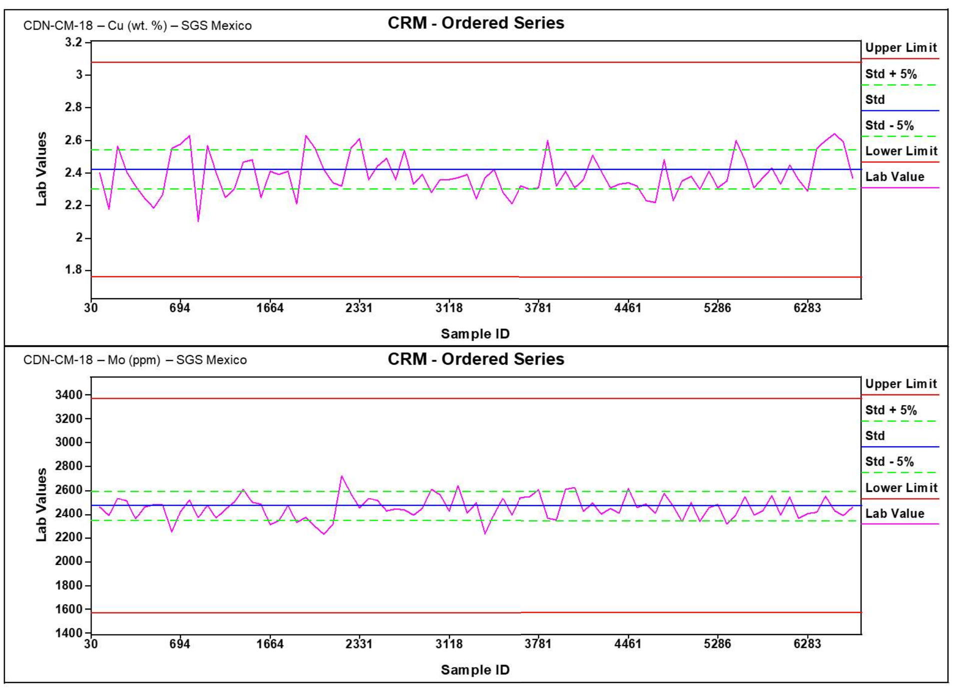


Figure 8.16: CDN-CM-18, Cu (top) and Mo (bottom) – Bella Union 2023-2024 Program

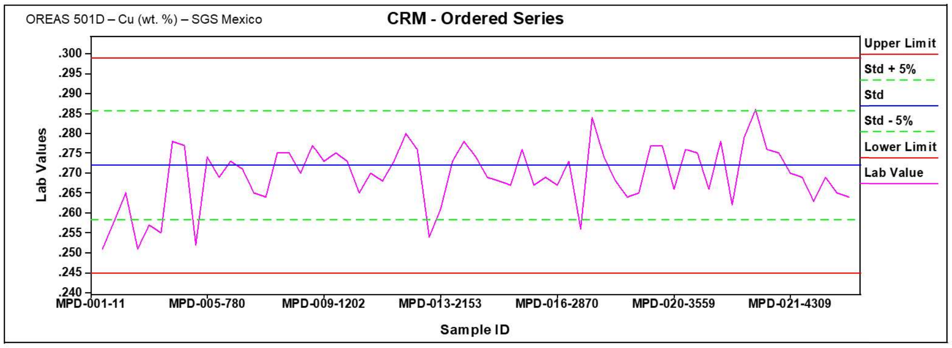


Figure 8.17: OREAS 501D, Cu – Pilares 2023 Program

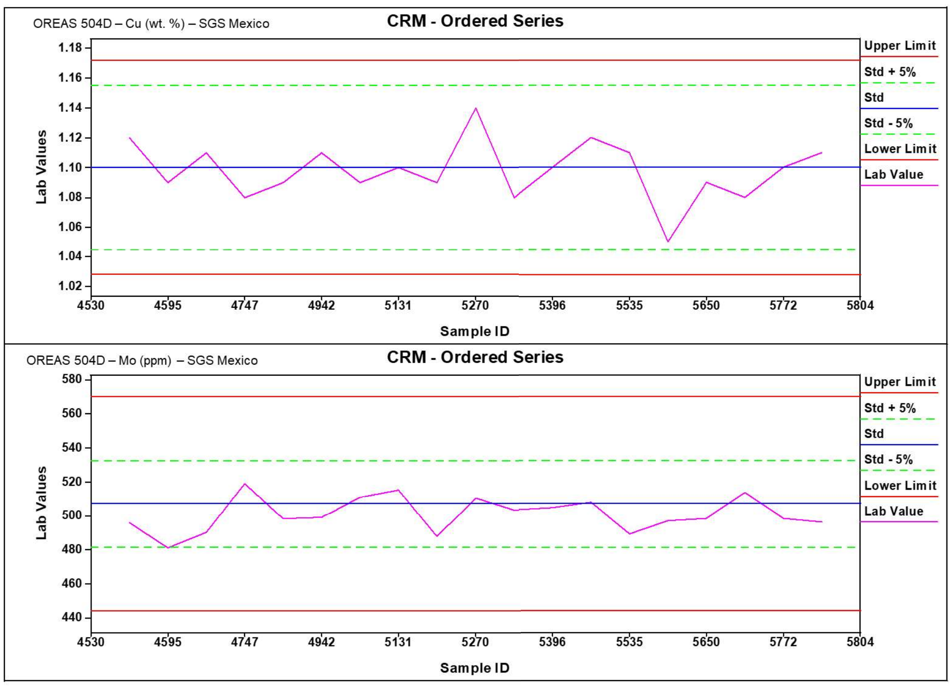


Figure 8.18: OREAS 504D, Cu (top) and Mo (bottom) – Pilares 2024 Program

8.3.2 Blanks

Blank samples are used to assess contamination at both the preparation (coarse blank) and analytical (pulp blank stage) stage. La Caridad and Pilares used samples of barren rhyolite for the coarse blanks and a commercially prepares CRM (OREAS 20a) for the pulp blanks. Samples are considered to be reliable if they are within +-3 SD of the certified value or mean value for each element, however, only samples that exceed the upper +3 SD are considered to be a failure. Table 8.10 summarizes the failure rates for each type of blank by drilling campaign. Overall, both the pulp and coarse blanks performed very well, with only minor failures for all programs, except the 2021-2022 samples sent to Actlabs. This indicates that there is minimal contamination at the both the preparation and analysis stage. Figure 8.19 through Figure 8.24 illustrates the pulp and coarse blanks results for Cu for each of the La Caridad and Pilares drilling campaigns since 2021.

Table 8.10: Blank Failure Rates – La Caridad and Bella Union

Drilling Campaign	Blank	Pulp (Oreas 20a)	Coarse
2021-2022 (La Caridad - 30,000m)*	Total Samples	256	294
	Failure % Cu	14%	8%
	Failure % Mo	11%	32%
2022-2023 (La Caridad - 10,735 m)	Total Samples	80	108
	Failure % Cu	3%	3%
	Failure % Mo	1%	9%
2023-2024 (La Caridad - 50,000m)	Total Samples	287	292
	Failure % Cu	0%	0%
	Failure % Mo	0%	3%
2023-2024 (Bella Union - 20,000 m)	Total Samples	89	92
	Failure % Cu	0%	0%
	Failure % Mo	0%	4%

Table 8.11: Blank Failure Rates – Pilares

Drilling Campaign	Blank	Pulp (Oreas 20a)	Coarse
2023 (Pilares - 10,000 m)	Total Samples	66	68
	Failure % Cu	5%	0%
	Failure % Mo	0%	1%
2024 (Pilares - 3,000 m)	Total Samples	19	21
	Failure % Cu	0%	5%
	Failure % Mo	0%	5%

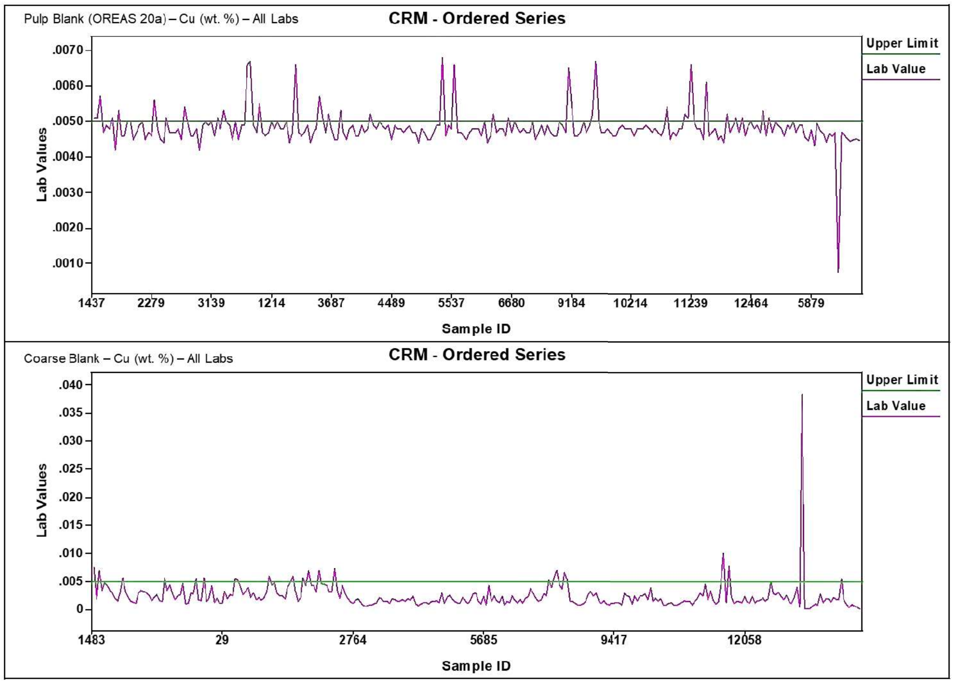


Figure 8.19: Pulp Blank OREAS 20a (top) and Coarse Blank (bottom) for Cu – All Labs Combined – La Caridad 2021-2022 Program

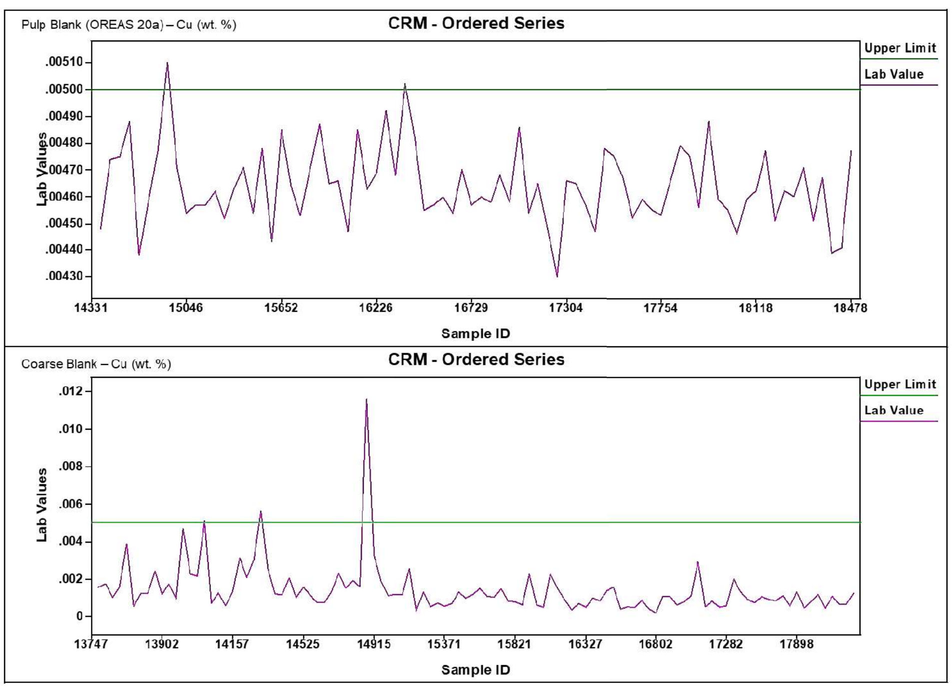


Figure 8.20: Pulp Blank OREAS 20a (top) and Coarse Blank (bottom) for Cu – La Caridad 2022-2023 Program

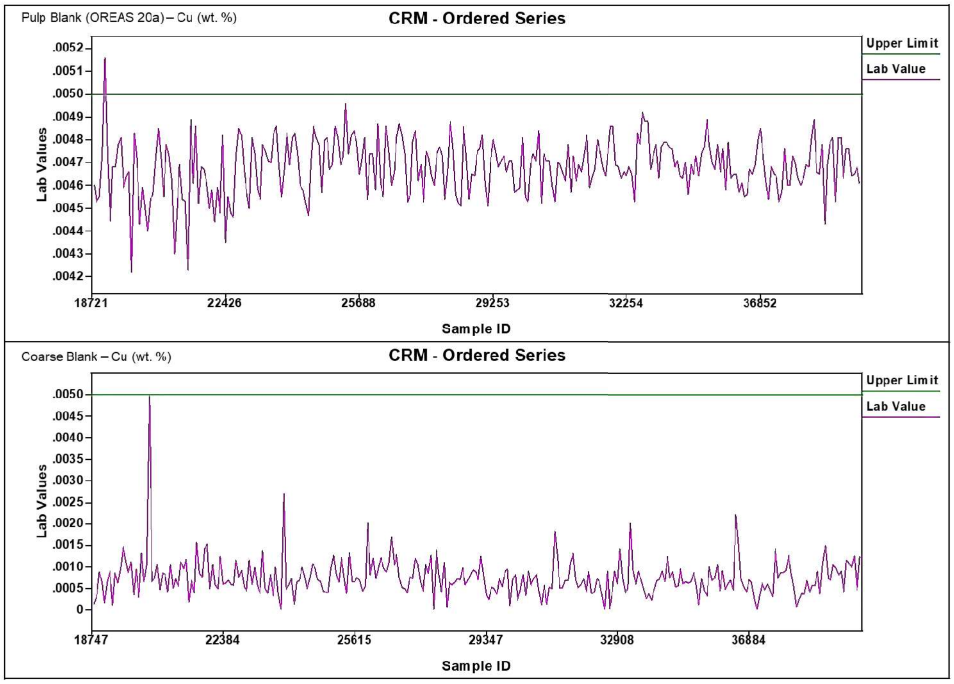


Figure 8.21: Pulp Blank OREAS 20a (top) and Coarse Blank (bottom) for Cu – La Caridad 2023-2024 Program

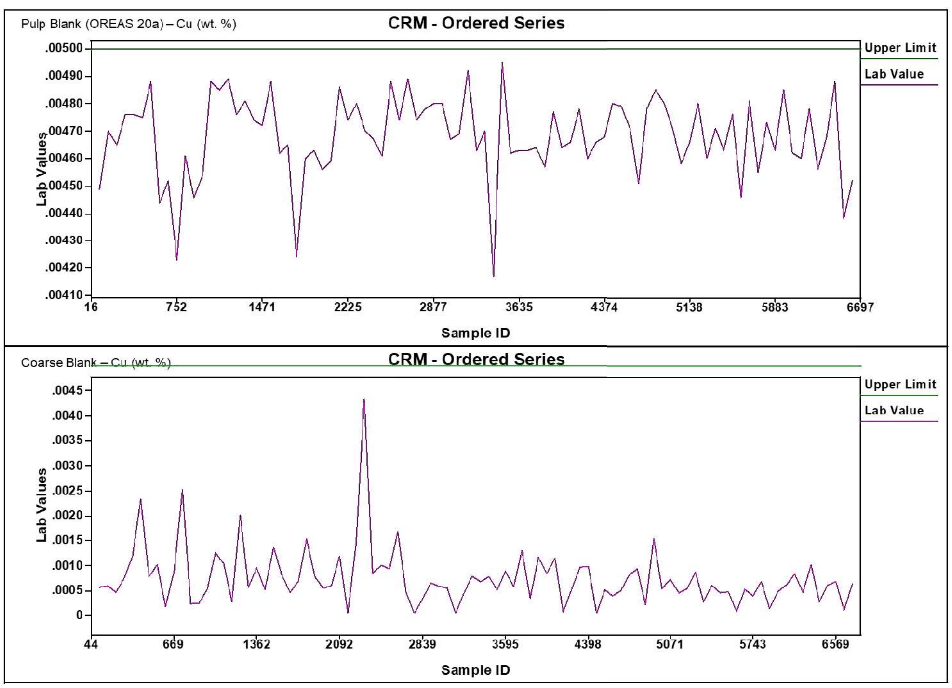


Figure 8.22: Pulp Blank OREAS 20a (top) and Coarse Blank (bottom) for Cu – Bella Union 2023-2024 Program

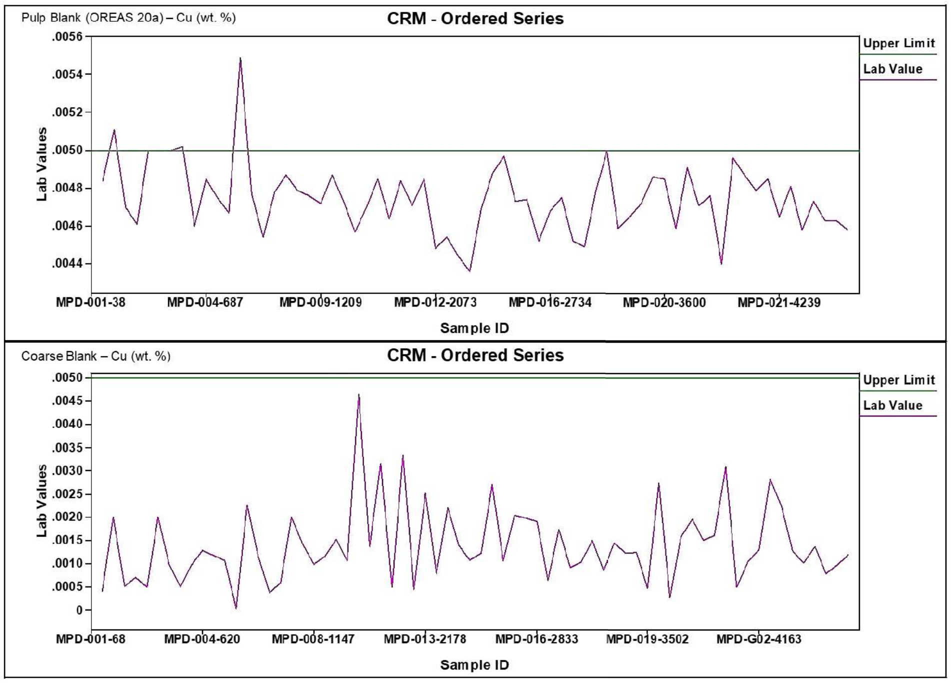


Figure 8.23: Pulp Blank OREAS 20a (top) and Coarse Blank (bottom) for Cu – Pilares 2023 Program

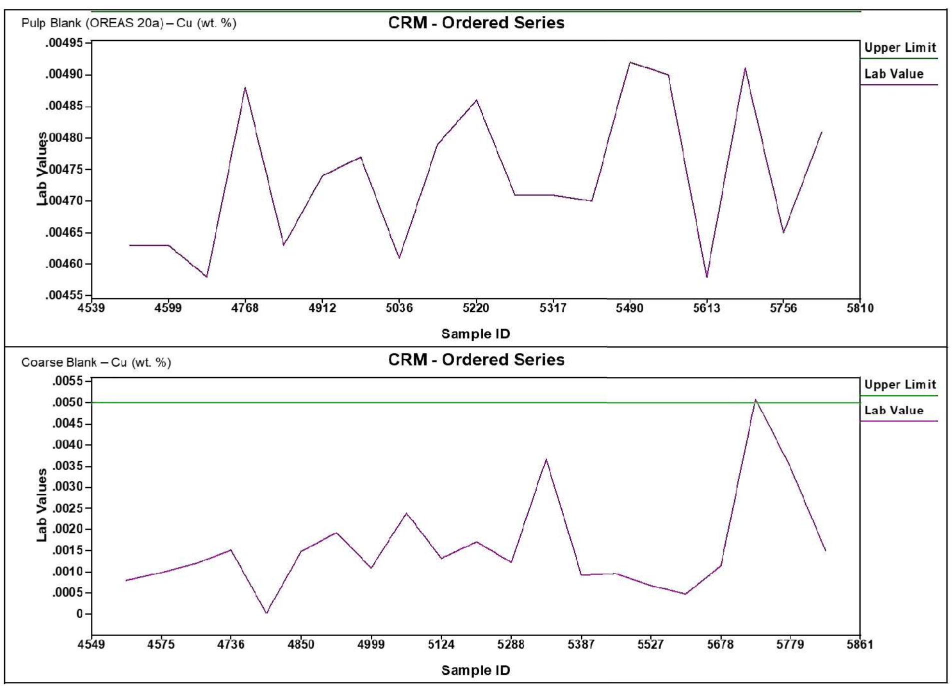


Figure 8.24: Pulp Blank OREAS 20a (top) and Coarse Blank (bottom) for Cu – Pilares 2024 Program

8.3.3 Duplicates

Duplicates assess the accuracy of the sampling at different stages in the process. Fine (pulp) duplicates assess accuracy and the laboratory analytical stage, coarse at the sample crushing and preparation stage, and field (twin) at the sample cutting stage (half or quarter core). SCC assesses the accuracy through cross-plots of the duplicate sample pairs and using the Half Absolute Relative Difference (HARD) method. HARD is determined by the following formula and expressed as a percentage:

$$HARD = \frac{(x1 - x2)}{(x1 + x2)} \times 100$$

Where: x1 = original value, x2 = duplicate value.

The HARD value indicates the percentage of the difference between the value of the original sample and that of the duplicate. If the HARD value is below 10% it is considered acceptable. The failure range is different for each type of duplicate, as follows:

- Pulp duplicates should have 90% of the samples having less than 10% difference
- Coarse duplicates should have 80% of the samples having less than 10% difference
- Field duplicates should have 70% of the samples having less than 10% difference

Table 8.12 and Table 8.13 summarizes the failure rates for each type of Duplicate for Cu for La Caridad and Pilares. Samples are considered to have failed if they are outside the <10% difference.

Table 8.12: Duplicates Failure Rates – La Caridad and Bella Union

Drilling Campaign	Duplicate	Fine	Coarse	Field
2021-2022 (La Caridad - 30,000m)*	Total Samples	186	190	176
	Failure % Cu	0%	0%	0%
	Failure % Mo	0%	0%	0%
2022-2023 (La Caridad - 10,735 m)	Total Samples	62	65	62
	Failure % Cu	0%	0%	0%
	Failure % Mo	0%	0%	0%
2023-2024 (La Caridad - 50,000m)	Total Samples	288	291	283
	Failure % Cu	0%	0%	0%
	Failure % Mo	0%	0%	0%
2023-2024 (Bella Union - 20,000 m)	Total Samples	86	87	89
	Failure % Cu	0%	0%	0%
	Failure % Mo	0%	0%	0%

Table 8.13: Duplicates Failure Rates – Pilares

Drilling Campaign	Duplicate	Fine	Coarse	Field
2023 (Pilares - 10,000 m)	Total Samples	63	59	68
	Failure % Cu	0%	0%	0%
	Failure % Mo	0%	0%	0%
2024 (Pilares - 3,000 m)	Total Samples	18	20	18
	Failure % Cu	0%	0%	0%
	Failure % Mo	0%	0%	0%

Figure 8.25 to Figure 8.30 illustrate the performance of the pulp, coarse, and field duplicates for each drilling campaign relative to the tolerance window for each. All duplicates performed very well, with no samples exceeding the HARD tolerances for each duplicate type.

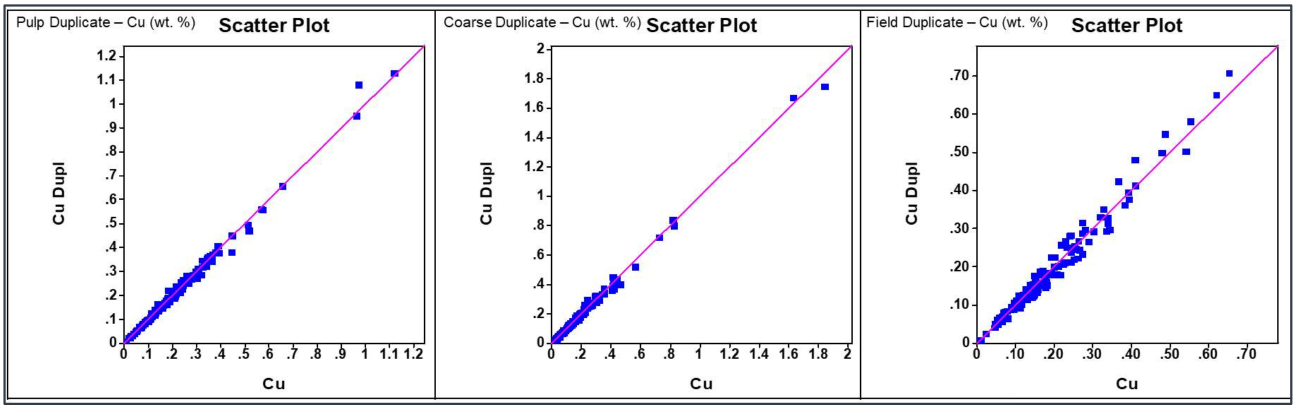


Figure 8.25: Pulp (left), Coarse (middle) and Field (right) Duplicates for Cu – All Labs Combined – La Caridad 2021-2022

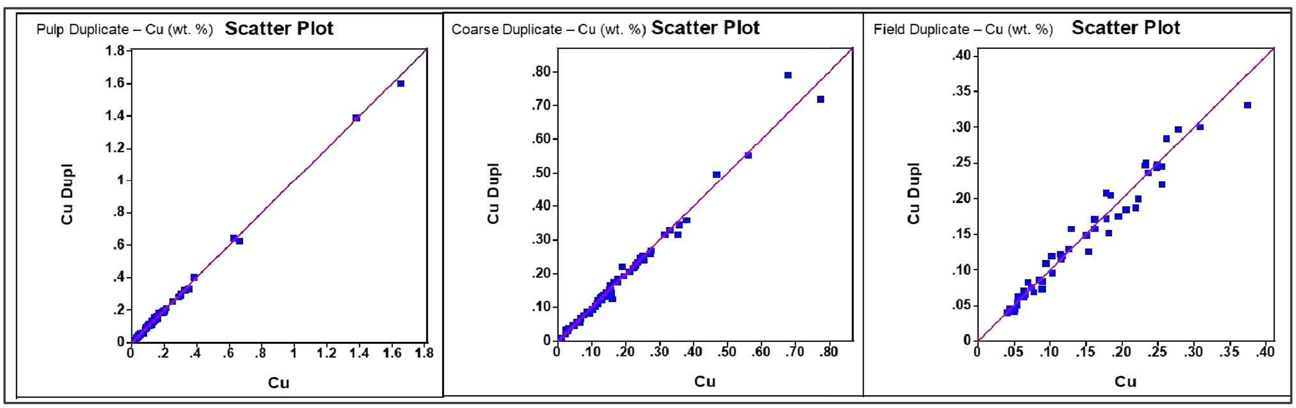


Figure 8.26: Pulp (left), Coarse (middle) and Field (right) Duplicates for Cu – La Caridad 2022-2023

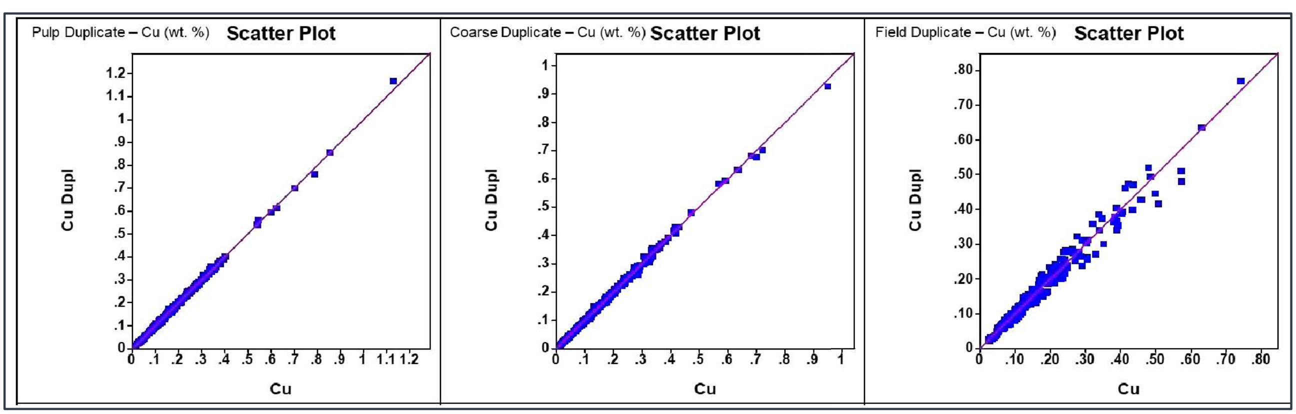


Figure 8.27: Pulp (left), Coarse (middle) and Field (right) Duplicates for Cu – La Caridad 2023-2024

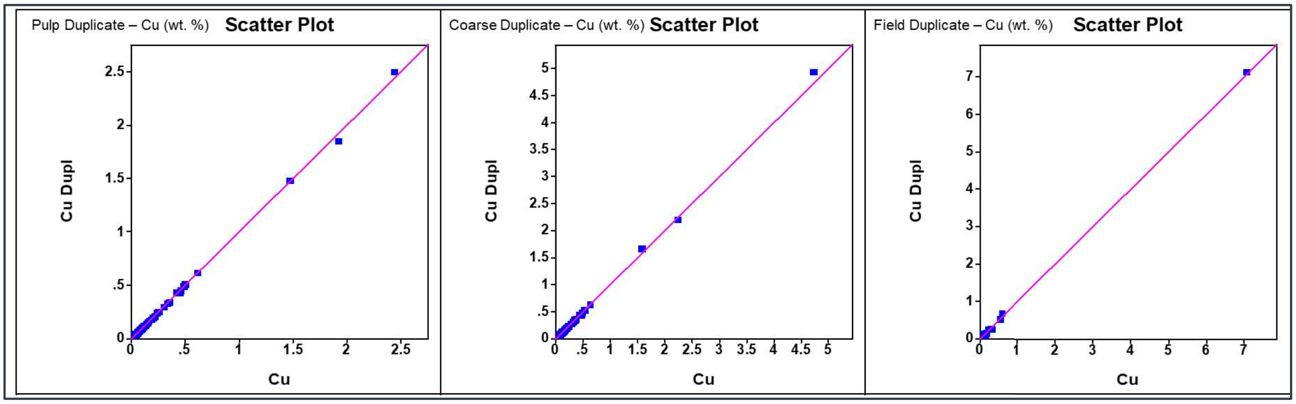


Figure 8.28: Pulp (left), Coarse (middle) and Field (right) Duplicates for Cu – Bella Union 2023-2024

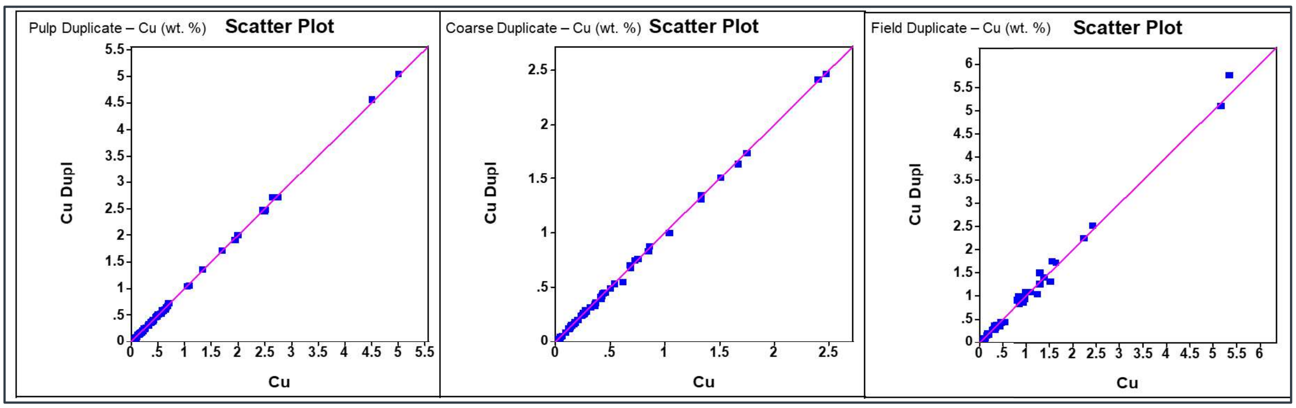


Figure 8.29: Pulp (left), Coarse (middle) and Field (right) Duplicates for Cu – Pilares 2023

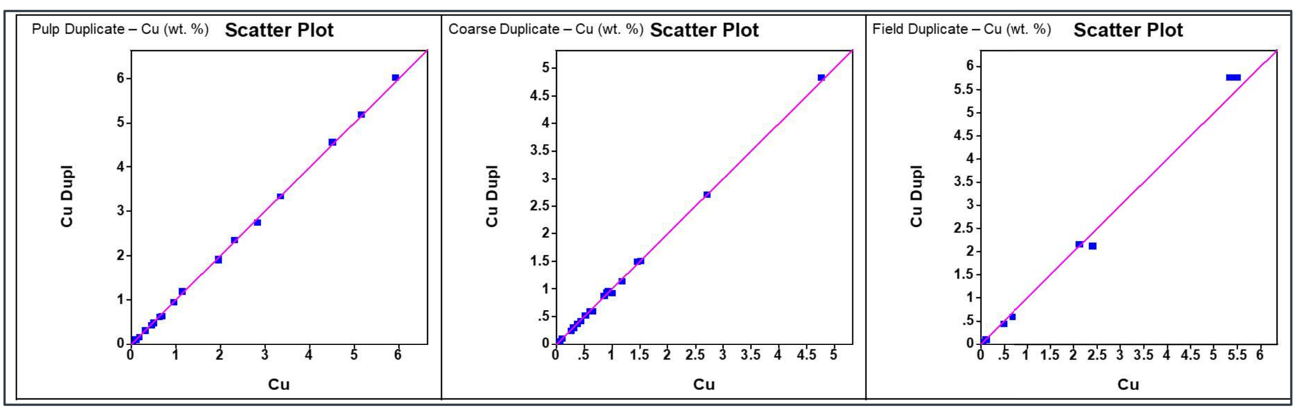


Figure 8.30: Pulp (left), Coarse (middle) and Field (right) Duplicates for Cu – Pilares 2024

No information exists about the analytical QA/QC procedures at La Caridad between 1968 and 2020. Results of the 2020 QA/QC program for the internal SCC laboratory was summarized in the 2021 TRS.

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 La Caridad and Pilares 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. However, a pulp re-assay campaign at both La Caridad and Pilares helped to verify the historical assay data. Since 2021, SCC have implemented a systematic QA/QC program for all drilling programs. In general, the results for each of the control samples by program are quite good, providing improved confidence in the assays for the deposit.

The QP completed a site visit during June 20 to 21, 2024. The QP found that the on-site 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 La Caridad

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 used for La Caridad comprised 3,945 exploration drill holes as of 2024, totaling 814,091 m and containing 138,586 analytical samples amounting to 812,110 m. Included within this total are 329 drill holes, totaling 101,379 m and containing 30,722 samples amounting 116,736 m obtained since 2020. Signed PDF assay certificates and unsecured laboratory generated excel spreadsheets for all 2020 to 2024 samples were provided to WSP for review.

Compiled supporting documentation for the La Caridad drilling data provided to WSP included descriptive logs, with collar survey, core photos, and assay information.

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 be included in the digital acQuire database.

The review of the database used for the modeling was performed using database validation tools within Datamine Studio RM (Datamine), 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

The QP reviewed the available drill hole data during the June 20-21, 2024, site visit. The purpose of the site visit was to review the project site, geology, current exploration methods and results and identify any concerns and provide recommendations for consideration by La Caridad. 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.

9.1.1.1 Assay Verification

The assay database was provided in excel format by SCC for the Project. The excel database assay values were correlated against the provided laboratory certificates for the 2020 to 2024 drilling. A total of 16,191 samples were compiled in the database and 18,152 samples were found from the assay certificates. The samples or drill holes identified as having failures were flagged in the database and were not included in the Mineral Resource estimate. The following is summary of the inconsistences identified during the review:

- 15 drill holes with a total of 1,561 assay samples from the 2021-2022 drilling program had samples in the database that did not correlate to the assay certificates.
- 214 samples from 2021-2022 were missing from the database; Drill hole MCD-1233A had partial samples included on the certificate, and the certificate for MCD-1237 was not provided.

- In drill holes MCD-1256, MCD-1321, MCD-1318 and MCD-1309, with exception of the CuO analyte values, other analytes do not correlate between the database and laboratory certificates for approximately 42% of the samples.

9.1.1.2 Historical Pulp Re-Assay Program

SCC conducted a pulp re-assay program on the historical La Caridad assay samples which had been assayed at the internal SCC laboratory. A selection of sample pulps from 25 drill holes from historical drilling programs between 1997 and 2018 were sent for re-assay to an external laboratory. A total of 1,624 historical sample pulps were submitted to SGS laboratory in Durango, and were analyzed for sequential Cu, and Cu and Mo by 4-acid digestion with ICP-OES (as per Table 8.4)

WSP compared the results of the re-assay for 4-acid digestion with ICP (Cu_ICP) against the original assays and found that there was a strong correlation between the historical pulp samples and the re-assays, as shown in Figure 9.1 for Cu, particularly for samples greater than 0.050 wt. %.

For Mo there was significant variation seen between the duplicates. SCC noted that the variability in the very low-grade Mo (< 0.020 wt. %) was due to the challenges associated with analysis of very low-grade Mo samples. The difference appears quite significant; however, it has minimal impact on the overall estimate.

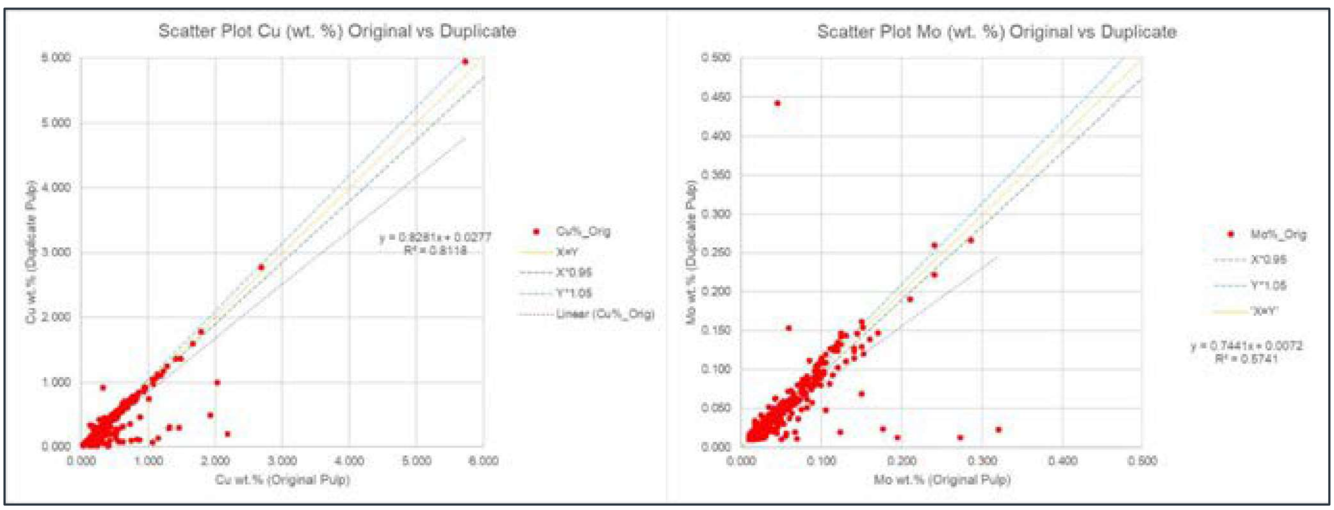


Figure 9.1: Results of Historical Pulp Re-Assay Program for Cu (left) and Mo (right)

9.1.2 Pilares

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

The provided drill hole data for Pilares comprised 118 exploration drill holes as of March 2024, totaling 48,745 m and containing 18,284 analytical samples amounting to 50,949 m. Included within this total are 58 drill holes, totaling 35,618 m and containing 12,577 samples amounting 34,403 m obtained since 2022. Signed PDF assay certificates and unsecured laboratory generated excel spreadsheets for all 2022 to 2024 samples were provided to WSP for review.

Compiled supporting documentation for the Pilares drilling data provided to WSP included descriptive logs, with collar survey, and assay information.

It is important to note that the 2022 drilling program was conducted almost entirely outside the Pilares Breccia, and none of the drill holes or samples were included in the resource model. This amounts to 27 drill holes totaling 22,618 m containing 7,420 analytical samples. All drill hole logs from 2009 to 2011 were recorded by logging geologists on formatted paper sheets, then transcribed into MS Excel for eventual upload into the acQuire project database. Since 2022, the drill hole logs are entered directly in GV Mapper and then uploaded to the acQuire database. Data and observations recorded into the digital logging files were reviewed for transcription or keying errors or omissions by senior Pilares geologists. The new data since 2022 provided by Pilares was evaluated for errors, or omissions, as part of the data validation procedures.

The review of the database used for the modeling was performed using database validation tools within both Seequent Leapfrog™ (Leapfrog) and Maptek Vulcan™ (Vulcan), 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.

WSP compared the collar coordinates of the updated database to the database used for the 2021 model update and found that 42 out of 60 holes from the 2009-2011 drilling program had differing collar coordinates and/or total depths. SCC could not account for these discrepancies and does not have the original as-built collar information for these holes. The decision was made to use the coordinates and total depths from the 2021 drilling database.

No other major inconsistencies were detected in the databases submitted; however, the following data error was noted:

- 1 drill hole with 1 overlapping interval in the geology table (DP-6, 0.0 to 6.1 m; changed to 0.0 to 5.6 m)

The QP also reviewed the drill hole data during the June 20-21, 2024, 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 Pilares. The QP reviewed the logging and sampling process as well as the storage conditions of the core. The site visit was completed in fulfilment of the requirement that the Mineral Resource QP perform a current site visit to the project in support of preparation of any S-K 1300 Mineral Resource statements, or TRS.

9.1.2.1 Assay Verification

The assay database was provided in excel format by SCC for the Project, along with the signed PDF certificates and unsecured Excel spreadsheets from Actlabs and SGS. The excel database assay values were correlated against the provided laboratory certificates for the 2022 to 2024 drilling. A total of 12,577 samples were verified against the provided assay certificates, of which 40 Cu samples were identified as being inconsistent with the database values where 4-acid digestion with ICP analysis method was used. Where Cu was analyzed using sequential Cu with AAS, no inconsistencies between the assay certificates and the database were found. The samples or drill holes identified as having failures were flagged in the database and were not included in the Mineral Resource estimate.

9.1.2.2 Historical Pulp Re-Assay Program

SCC periodically performs verification assaying at third-party laboratories. Approximately 512 assay sample pulps from the 2009 to 2011 assay pulps were reanalyzed at SGS laboratory in Durango, Mexico. WSP compared the results of the re-assay for both the sequential Cu with AAS (CuSEQ_Sum) and 4-acid digestion with ICP (Cu_ICP) assay methods against the original assays and found that there was a very strong correlation between the samples for both Cu methods as shown in Figure 9.2 and Figure 9.3. For CuO, the correlation wasn't as strong (Figure 9.4) and is likely due to a difference in analysis method (the original assay method is unknown) and length of time the pulps were in storage (over 10 years).

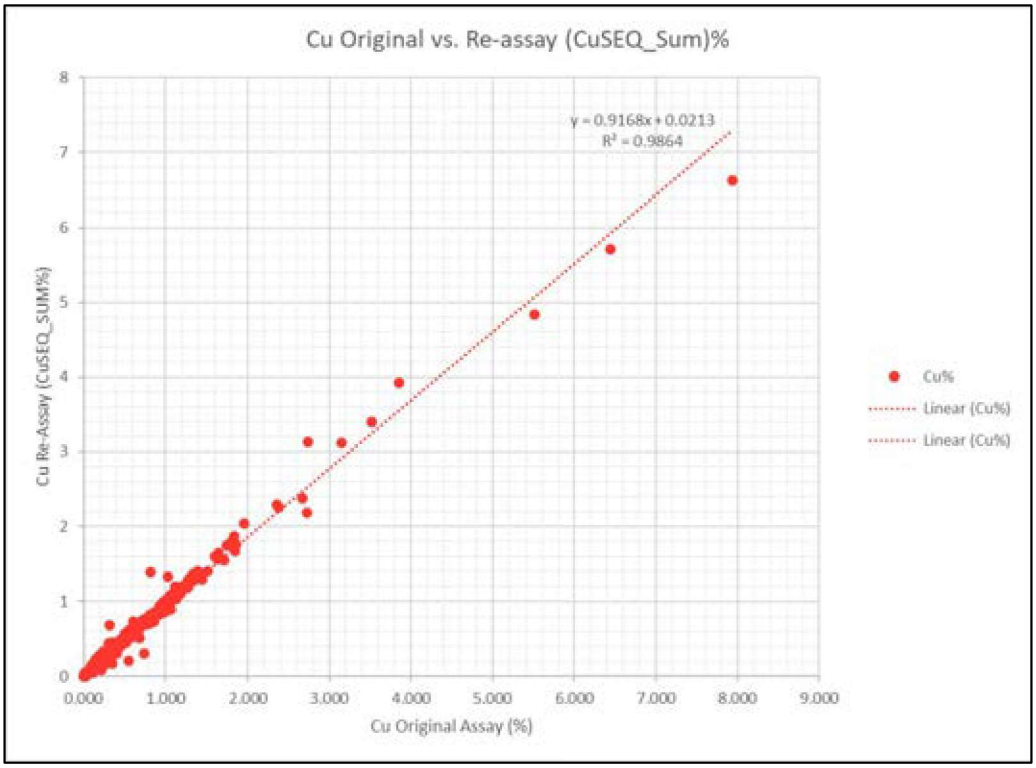


Figure 9.2: 2009 to 2011 Pulp Re-Assay Comparison for Cu using Sequential Cu Analysis

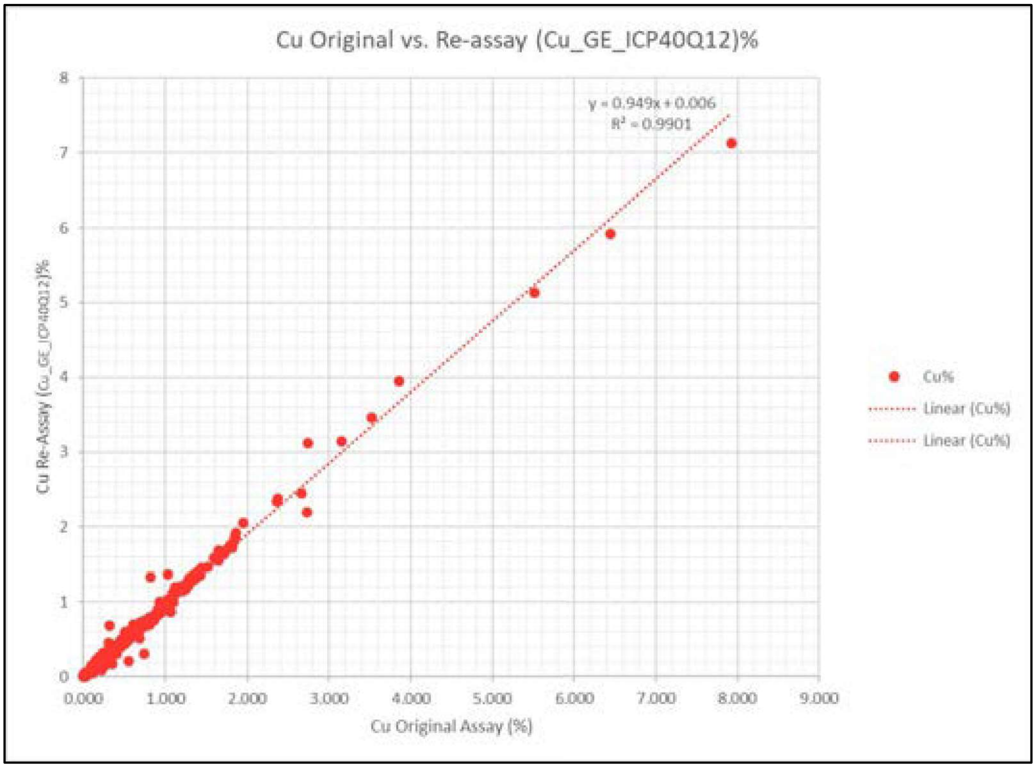


Figure 9.3: 2009 to 2011 Pulp Re-Assay Comparison for Cu using 4 Acid Digest with ICP

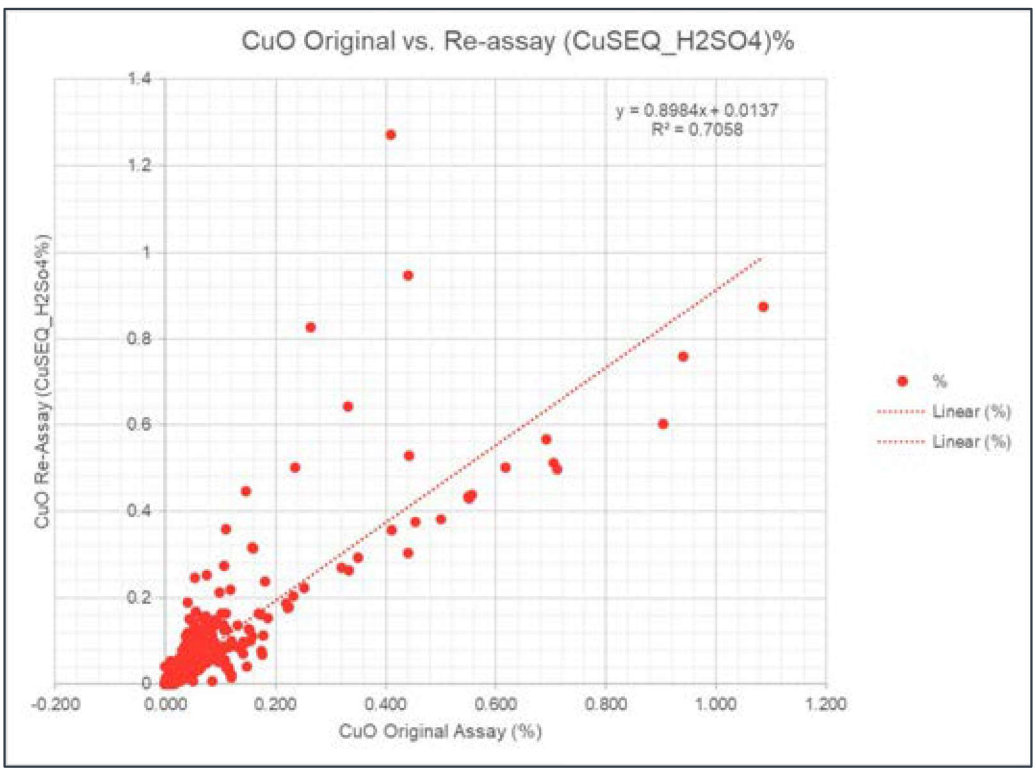


Figure 9.4: 2009 to 2011 Pulp Re-Assay Comparison for CuO

9.1.2.3 Other Data Verification

The QP validated the collar locations for 84 exploration holes from the 2009-2011 and 2022 drilling campaigns against the 2023 topography surface (see Section 7.2.1.2) in Vulcan. Drill holes from the 2023 and 2024 drilling campaigns were drilled in active mining areas where the pre-mining surface topography was no longer applicable, therefore were excluded from the validation. Due to the new topography surface being used, the changes that were made to the collar elevations in 2021 were restored to their original elevations before validation. The Z coordinate of the collars was compared to the Z coordinate of the surface at the same X-Y coordinates. The drill hole collars were both above and below the surface with a minimum difference of -3.2 m, a maximum difference of 45.7 m, and a mean difference of 1.8 m. One (1) collar had a difference between 5 m and 10 m, and 4 collars had a difference greater than 10 m, as illustrated in Table 9.1.

Table 9.1: Summary of Differences between Drill Hole Collar and Topography Elevation

Year Drilled	Absolute Elevation Difference (m)	Drill Hole Count
2022	0-1	6
	1-5	18
2009-2011	0-1	34
	1-5	21
	5-10	1
	10+	4

The drill hole collars that were adjusted for the 2021 model were adjusted to match the updated topography surface (Table 9.2). One drill hole with a difference greater than 10 m was excluded from the model (DP-6). All other drill holes retained their original collar elevation.

Table 9.2: Collar Elevation Relative to Topography Surface for Adjusted Drill Holes

Drill Hole ID	Collar Z (m)	Surface Z (m)	Difference (m)	Modification Comments
DP-2	1463.50	1464.00	0.50	Collar elevation adjusted to align with 2023 pre-mining topo
DP-6A	1432.29	1442.61	10.32	Collar elevation adjusted to align with 2023 pre-mining topo
DP-9	1414.77	1460.42	45.66	Collar elevation adjusted to align with 2023 pre-mining topo
DP-10	1414.77	1425.69	10.92	Collar elevation adjusted to align with 2023 pre-mining topo
DP-38	1451.96	1453.00	1.04	Collar elevation adjusted to align with 2023 pre-mining topo
DP-44	1473.60	1479.31	5.71	Collar elevation adjusted to align with 2023 pre-mining topo
DPM-04	1455.59	1456.06	0.47	Collar elevation adjusted to align with 2023 pre-mining topo
DPM-06	1474.49	1475.61	1.12	Collar elevation adjusted to align with 2023 pre-mining topo

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

9.1.4 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. Due to the lack of documentation from the 2009 to 2011 Pilares exploration drilling programs, the QP was unable to verify that paper logs were accurately transcribed into 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 Mining and Mineral Reserves

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 assumptions and inputs used in the preparation of the mine plan, cost model, and subsequently to support 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

La Caridad and Bella Union

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.

Pilares

SRK evaluated stability at the inter-ramp and overall scale using the 2D limit equilibrium method that was completed with the software package SLOPE2 Modeler maintained and distributed by Rocscience, Inc. Probabilistic sampling of rock mass shear strength parameters was incorporated to account for natural variability in the shear strength. Each cross section was evaluated separately using the finite element shear strength reduction method with the software package RS2, which is also maintained by Rocscience, Inc. Overall slope stability was checked for two cross sections: Cross Section C-1, where the overall slope is established in latite and Cross Section C-3, where the slope includes inter-ramp slopes in both latite and andesite. Both cross sections were evaluated with a water table established at a moderate level internally with drawdown to a point at the toe of the slope. A restricted slope case was also evaluated where the lower inter-bench slope is established within the breccia. The computed factors of safety ranged from 1.3 to 2.3 for inter-ramp angles ranging from 47° to 55°. The corresponding probability of failure ranged from 1% for factors of safety of 2.2 to 2.3 to 17% for a factor of safety of 1.3. These values are within the range of typically acceptable values (Read and Stacey 2009).

Bench scale stability was based on the evaluated of planar failure modes based on the statistical distribution of discontinuities determined from the oriented core data. The statistical parameters for the planar mode included dip, dip direction, spacing, and persistence. A limitation of this method is that the oriented core data is directionally biased so that that pole concentrations shown on the stereonet plots tend to over-represent structure that is perpendicular to the corehole axis. Accordingly, other failure modes, such as structures forming wedges in kinematically viable failure modes are not included in the analysis. However, the computed theoretical bench face angles have been adjusted to account for inter-action with the inter-ramp angle and this should also account for reduction in bench-face angles that occurs due to blast disturbance.

9.2.2 Mining Methods

During the site visit the QP verified the Project utilizes a conventional bulk mining method. Both hydraulic and electric truck and shovel units are 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, with some trucks being of larger payload (360t). Most of the larger payload trucks would be replaced in the next 8 years which would lead to uniform payload of 220t used throughout the mine.

9.2.3 Cut-off Grade and Modifying Factors

Cut-off grade is the grade that distinguishes ore from waste. For material to be treated as ore for the La Caridad operations Mineral Reserve estimate, it must be classified as Measured or Indicated Mineral Resource and meet both technical and economic criteria. A separate value cut-off was used for mill and leach material. The value considers the recovery, payability, selling cost, processing cost, additional transport costs, G&A costs, and selling price. If material is not classified as Measured or Indicated Mineral Resource, or does not meet the minimum economic value, it was considered waste.

The recovered material is inclusive of mining dilution and loss. Without being provided historical reconciliation data it was the opinion of the QPs that a 1% dilution and 2% mining loss are reasonable for this type of deposit and based on the current practices at La Caridad as discussed with operational and technical staff. WSP recommends preparing a reconciliation process comparing the updated block model with actual mined data.

9.2.4 Pit Optimization

The WSP QP reviewed the pit optimization inputs and assumptions provided by SCC for La Caridad and Pilares. WSP then generated a pit optimization on the separate geological models for La Caridad and Pilares created by WSP using the costs and revenue drivers provided by La Caridad, topography projection to December 31, 2024, and constraining it to infrastructure such as the mill and processing area at La Caridad, and historical cultural limits at Pilares. The pit optimizations for La Caridad and Pilares were completed using Hexagon MinePlan, which assigns a value to each block considering the mining, processing, and selling costs, recoveries, selling price, and geotechnical slope parameters. The base case RF 1.0 shell is the pit shell generated with the pit optimization input parameters (i.e., US$3.30/lb selling price assumption), whereas each of the other RF shells are based on varying the selling price (i.e., RF 0.5 is the pit shell generated with a copper selling price of US$1.65/lb). The pit optimizations for both La Caridad and Pilares were also verified using Whittle 4X software.

9.2.5 Mine Design

The ultimate pit was selected based on geotechnical considerations, reasonable economics and a TSF capacity of 2.26 Bt. The phases provided by SCCO were revised by WSP, as necessary, to ensure appropriate mining widths were maintained as well to develop the ultimate pit.

WSP’s ultimate pit design for La Caridad contained 13 phases compared to the 11 phases originally provided by the site operations staff. The first two phases provided by the site operations were not altered since they are currently being mined and to allow site the opportunity to adjust their current mining to the final schedule prepared by WSP.

Bella Union has two phases that were provided by site that were reviewed by WSP and used without any changes.

Pilares has two phases that were designed by WSP. These designs were reviewed by the WSP QP as well as La Caridad technical staff.

9.2.6 Production Schedule

Monthly and yearly production statistics were provided for 2019 through end of 2023. Both production tonnages to the destinations as well as the truck counts were reconciled. This reconciliation gives the operation an indication of how close the scheduled and actual tonnes correlate. Based on these reconciliations, the QP believes that there is sufficient loading capacity for the higher total material movement targets used in this Study (approximately 100 Mt) as compared to the previous Study in 2022 which had a maximum total material movement of 72 Mt.

9.2.7 Manpower and Equipment

The mine uses a combination of CAT, Komatsu, P&H, and Bucyrus equipment for material extraction and transportation. Currently, the largest haul truck on site is the CAT 797F with a capacity of 360 t. Additional trucks include the Komatsu 960E (327 t) and CAT 793D (220 t). The shovels used at the site are mainly electric rope shovels, ranging from the P&H 2800 XPA with a 30 m³ capacity up to the P&H 2800 XPB with a 33 m³ capacity, Bucyrus 395B III with a 33 m³ capacity, a CAT 6060 with a 34 m³ capacity, and a Komatsu PC7000 with a 34 m³ capacity. The loading units are expected to remain largely the same for the proposed life of the mine. However, after the first eight years of the schedule, the hauling fleet will consist only CAT 793Ds. Additional details on equipment may be found in Section 13.6.1.

La Caridad and Pilares currently employs 1,400 people. Of that, 1,308 are union labor.

9.2.8 Limitations on Data Verification

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

9.2.9 Qualified Person's Statement on Adequacy of Data

The WSP 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.

Reportedly, the process plants have not been modified significantly since the last TRS was issued such that the expected plant production and metals recovery have not been affected. Therefore, this section of the TRS only updates metal production data related to process plant performance

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 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. 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. As of the effective date of this TRS the concentrator has been in operation for approximately 45 years

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 45 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 project started, 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. With changes in ore mineralization over the years, the flotation circuit was improved to maintain an economic copper recovery 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, as shown in Table 14.4, in the last 10 years of operation, the concentrator has processed 346.6 Mt of ore at an average 0.34% Cu, 0.036% Mo, with a copper recovery of 86.0% Cu and molybdenum recovery of 82.3%.

10.1.5 Laboratory Certification

The plant laboratory is certified by ISO-9001 and ISO-450010. 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 cut-off grade (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. In 1993, 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. In 1980, the precipitation process was discarded 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 Int. (San Ramon, California). The engineering company, and later international financing institutions, 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 in 1993, 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 25,896 tpy, or 70.95 tpd over 365 days per year.

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 stages 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.

Based on a review of records provided by Mexicana de Cobre., shown in Table 14.4 and Table 14.8, from 2014 to 2023, the Concentrator achieved a copper recovery of 86.0%, slightly better than the 85.0% copper recovery in the design criteria. The Leach-SX-EW Plant achieved 91.6% recovery of soluble copper and 36.9% recovery of total copper. The design criteria were based on 57.0% total copper recovery.

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

11.1.1 La Caridad

This sub-section contains forward-looking information related to density and grade for the Project. The 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.

11.1.1.1 Introduction

The La Caridad Mineral Resource estimate contains both the main La Caridad zone and the Bella Union zone.

This Mineral Resource estimate was determined using a block model methodology based on Ordinary Kriging (OK) interpolation. 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. Mineral Resource estimates were constrained by an open pit shell based on economic criteria outlined in Section 11.3.

11.1.1.2 Available Data

The drill hole database provided by SCC consisted of 3,945 drill holes, including 154,744 sample intervals of which 154,615 had a total Cu assay, 154,569 had an oxide soluble Cu (CuO) assay, 117,622 had a cyanide soluble Cu (CuCN) assay, 154,477 had a Mo assay, and 113,977 had a SG measurement. The total length of sample intervals is 814,091 m. Since the 2021 S-K 1300 TRS, the site has added 119,738 m of samples in 416 drill holes (see Figure 11.1). The drilling is explained in more detail in Section 7.1.2 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. These holes had data that was questionable (e.g., elevation not matching topography) and did not have original scanned logs that could be used for verification (see Section 9.1).

Table 11.1: List of Excluded Holes – La Caridad

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 9.1.1, the QP checked for sample overlaps, duplications, survey anomalies and assay anomalies, which were discussed with La Caridad and addressed.

Based on the validation conducted in Section 9.1.1, the final drill hole database submitted for Exploratory Data Analysis (EDA) consisted of 3,926 drill holes, including 153,818 sample intervals of which 153,591 had a total Cu assay, 136,561 had a CuO assay, 104,901 had a CuCN assay, 151,736 had a Mo assay, and 113,680 had a SG measurement. The total length of sample intervals is 803,059 m.

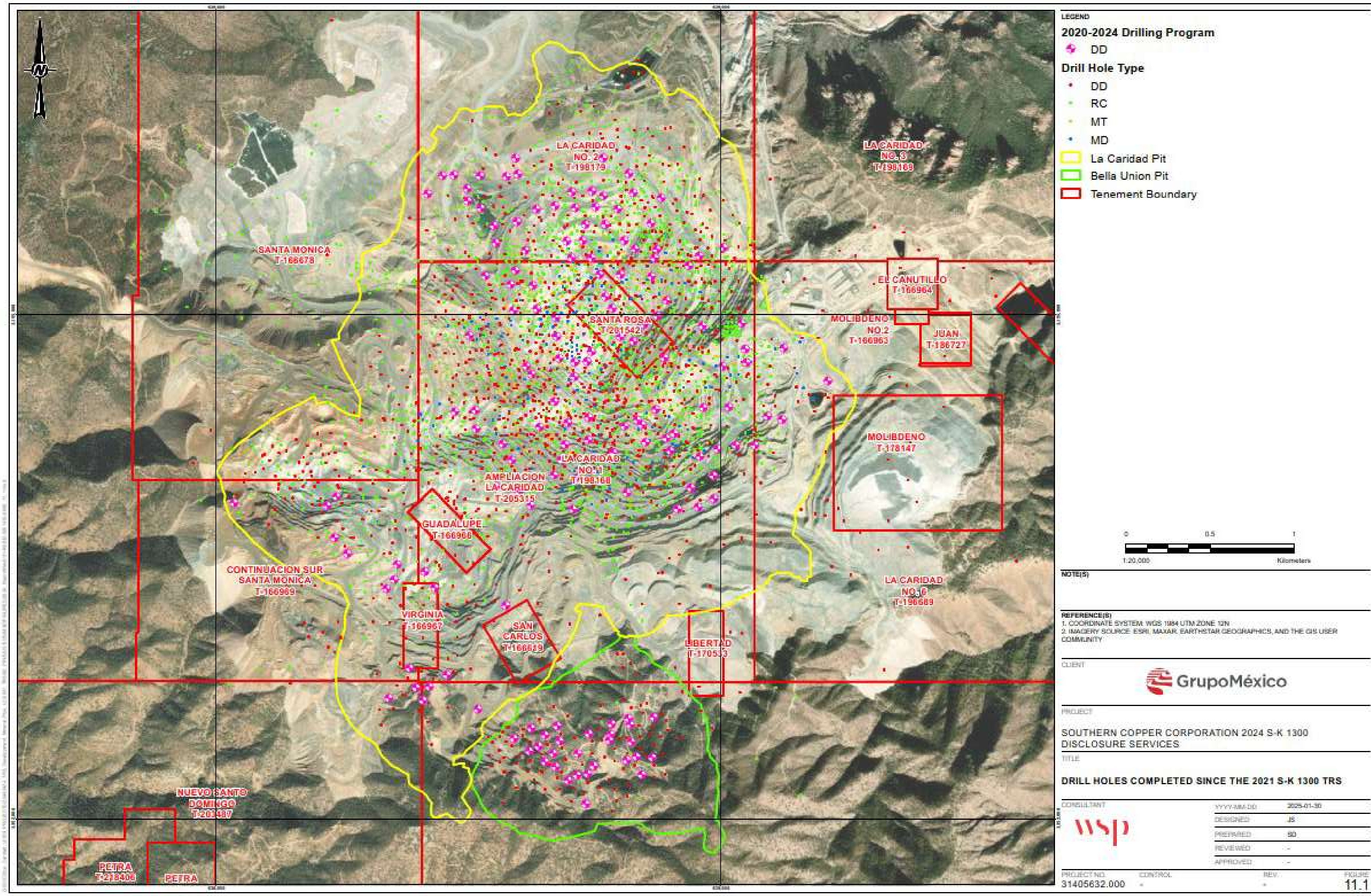


Figure 11.1: Plan View Showing the Location of Holes Drilled Since the 2021 S-K 1300 TRS

Of particular note in the validation process, the presence of zero (0) grade for elements was considered unlikely to be a true measurement and more likely an artifact introduced for what should be a null measurement (i.e., no measurement was taken or recorded). All zero values were replaced with null values.

11.1.1.3 Geological Model

Lithological and mineralization domain interpretations were provided by the La Caridad site team in a Seequent™ Leapfrog Geo (Leapfrog) project. These models were reviewed with the site team and WSP made modifications in collaboration with the site team to generate interpretations more consistent with geological understanding of the deposit. The resulting interpretations were imported into Datamine Studio RM™ (Datamine) software and validated.

It should be noted that in the 2021 S-K 1300 TRS, the lack of any type of domain control was cited a risk to the Mineral Resource Estimate, in particular because the deposit is known to have oxide, primary sulfide, and secondary sulfide mineralization components. The site team invested considerable effort to create lithological and mineralization domains, including:

- Review of historical paper logs to update holes that had no electronic lithological and/or mineralization recorded,
- Re-interpretation of recorded lithology and mineralization to provide more consistent lithological and mineralization designations (given the many different drilling campaigns), and
- Ensuring consistency of re-interpreted holes with the more recent drill holes that have a fuller record of information.

Figure 11.2 and Figure 11.3 show the lithological and mineralization interpretations respectively.

11.1.1.4 Exploratory Data Analysis

The sample data were reviewed for Cu, CuO, CuCN, Mo, Fe, and SG 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.

The review looked at the total sample population, and the population categorized by zone (La Caridad/Bella Union), lithology and mineralization (also referred to as MinZone). Only a selection of the results is presented below, for those items most relevant to the estimation domain control. Table 11.2 summarizes the descriptive statistics of the total sample population.

Table 11.2: Summary of Sample Statistics for the Total Sample Population

Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
Cu (%)	153,591	0.000	32.630	0.245	0.122	0.349	1.424
CuO (%)	136,561	0.000	3.486	0.021	0.002	0.042	2.036
CuCN (%)	104,901	0.000	10.510	0.022	0.008	0.092	4.107
Mo (%)	151,736	0.000	8.023	0.025	0.003	0.059	2.300
Fe (%)	145,311	0.005	53.000	2.995	2.278	1.509	0.504
SG	113,680	1.020	4.690	2.619	0.008	0.091	0.035

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.000, the minimum value is less than 0.0005 but greater than zero.

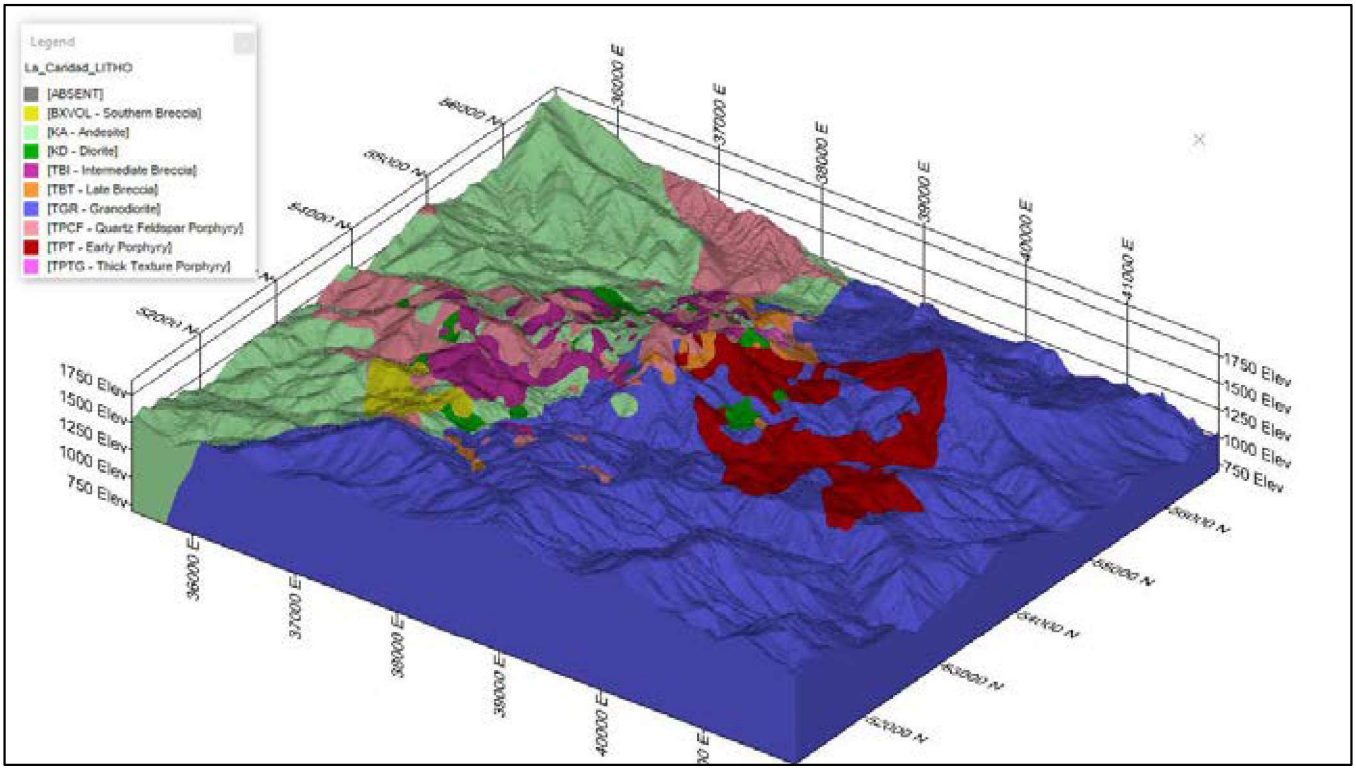


Figure 11.2: Isometric View Looking Northwest Showing the Lithological Interpretations

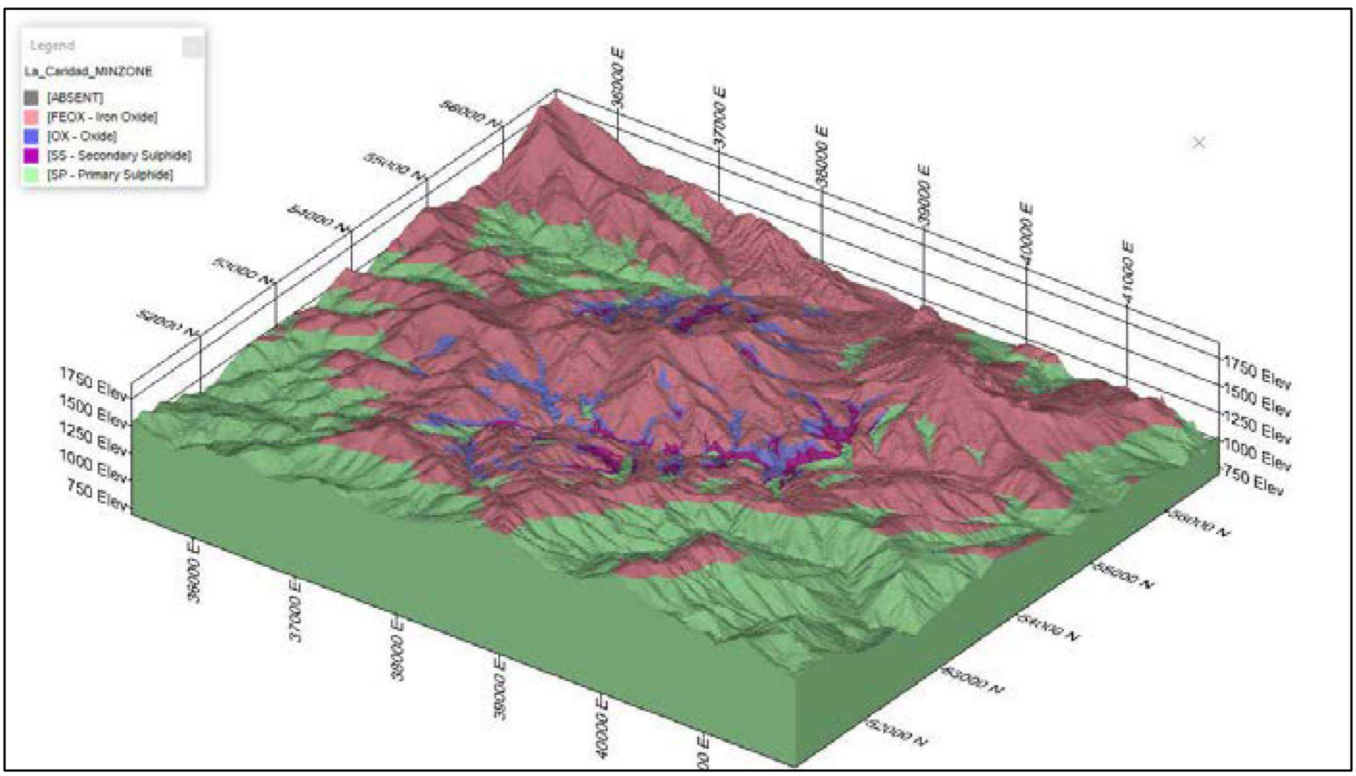


Figure 11.3: Isometric View Looking Northwest Showing the Mineralization Interpretations

Table 11.3 summarizes the descriptive statistics of the La Caridad zone sample population categorized by mineralization domain. Table 11.4 summarizes the descriptive statistics of the Bella Union zone sample population categorized by mineralization domain.

Note that there are some holes outside the volume covered by the mineralization interpretations; therefore, the sum of the sample counts from Table 11.3 and Table 11.4 may not equal the sample counts in Table 11.2. These holes are not material to the project.

Table 11.3: Summary of Mineralization Domain Sample Statistics for La Caridad Zone

MinZone		Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
FEOX	(Fe Oxide)	Cu (%)	4,123	0.001	3.044	0.077	0.021	0.147	1.914
		CuO (%)	2,849	0.001	1.445	0.026	0.002	0.042	1.595
		CuCN (%)	938	0.001	0.250	0.008	0.000	0.014	1.750
		Mo (%)	3,602	0.000	0.290	0.015	0.000	0.017	1.171
		Fe (%)	2,985	0.021	14.290	3.176	2.217	1.489	0.469
		SG	1,358	1.740	3.460	2.448	0.022	0.147	0.060
OX	(Oxide)	Cu (%)	3,582	0.001	4.797	0.284	0.087	0.295	1.041
		CuO (%)	3,075	0.001	2.684	0.064	0.008	0.088	1.379
		CuCN (%)	1,221	0.001	2.876	0.068	0.017	0.131	1.927
		Mo (%)	3,396	0.000	0.470	0.020	0.001	0.025	1.280
		Fe (%)	2,991	0.297	17.660	3.323	2.313	1.521	0.458
		SG	1,255	2.030	3.500	2.523	0.019	0.137	0.054
SS	(Secondary Sulfide)	Cu (%)	16,128	0.001	5.725	0.450	0.111	0.334	0.741
		CuO (%)	12,796	0.000	0.810	0.042	0.002	0.045	1.081
		CuCN (%)	3,640	0.001	2.678	0.145	0.030	0.174	1.194
		Mo (%)	15,769	0.000	1.400	0.025	0.001	0.029	1.159
		Fe (%)	12,774	0.050	18.620	3.094	1.725	1.313	0.425
		SG	3,503	1.780	3.700	2.578	0.013	0.115	0.045
SP	(Primary Sulfide)	Cu (%)	108,681	0.000	29.990	0.191	0.054	0.233	1.222
		CuO (%)	97,442	0.000	0.670	0.010	0.000	0.015	1.493
		CuCN (%)	79,257	0.000	1.620	0.015	0.001	0.028	1.817
		Mo (%)	108,175	0.000	4.055	0.027	0.002	0.040	1.493
		Fe (%)	105,943	0.005	43.370	3.047	2.442	1.563	0.513
		SG	87,470	1.430	4.690	2.625	0.006	0.080	0.031

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.000, the minimum value is less than 0.0005 but greater than zero.

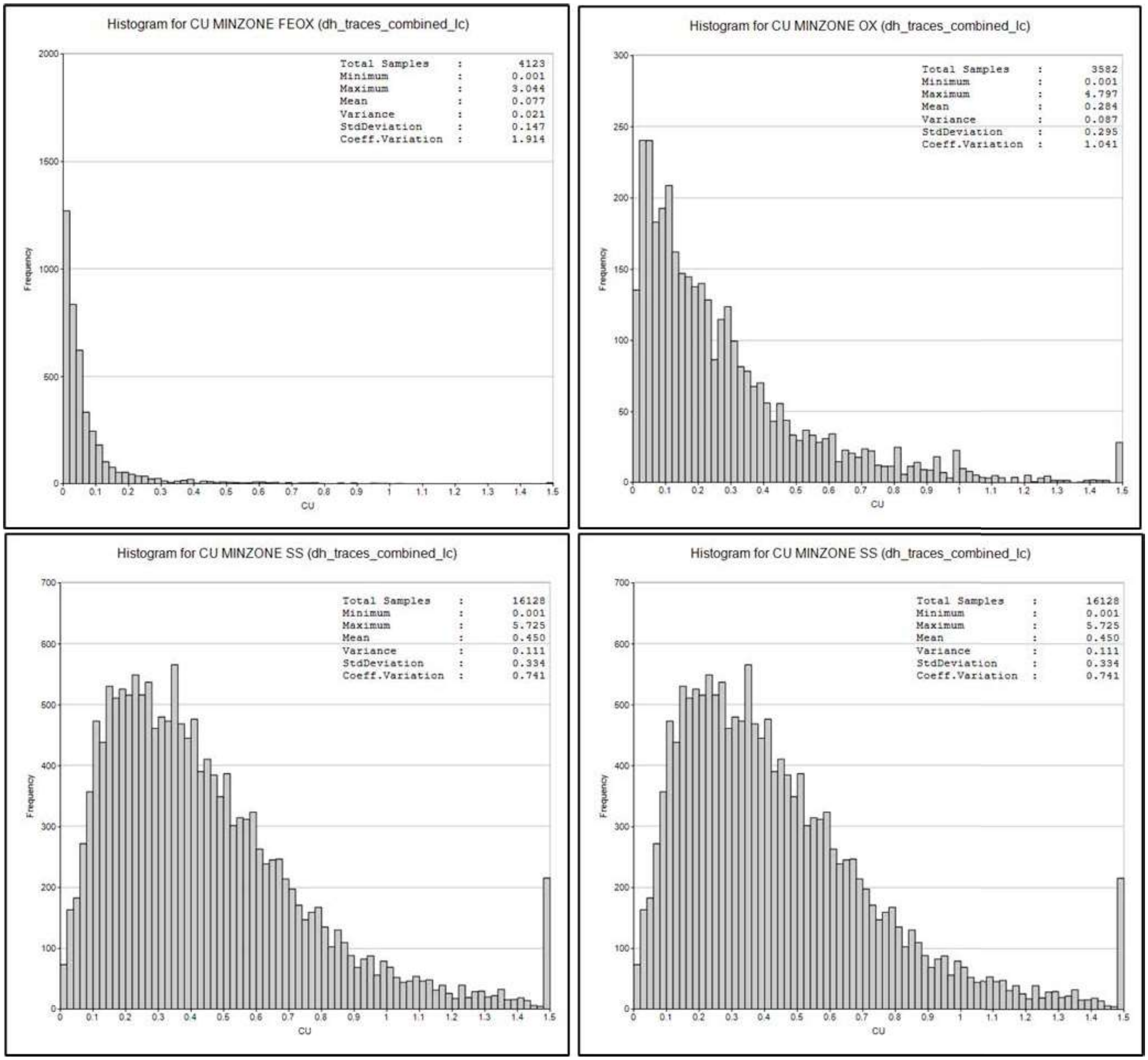
Table 11.4: Summary of Mineralization Domain Sample Statistics for Bella Union Zone

MinZone		Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
FEOX	(Fe Oxide)	Cu (%)	364	0.002	0.706	0.069	0.004	0.061	0.876
		CuO (%)	341	0.001	0.682	0.050	0.003	0.054	1.077
		CuCN (%)	334	0.001	0.035	0.005	0.000	0.004	0.855
		Mo (%)	360	0.000	0.080	0.007	0.000	0.008	1.064
		Fe (%)	355	0.450	7.194	1.740	0.569	0.755	0.434
		SG	341	1.700	3.100	2.549	0.016	0.128	0.050
OX	(Oxide)	Cu (%)	1,556	0.004	4.594	0.286	0.094	0.307	1.073
		CuO (%)	1,519	0.001	3.486	0.187	0.057	0.239	1.277
		CuCN (%)	1,514	0.001	1.710	0.048	0.011	0.103	2.134
		Mo (%)	1,547	0.000	0.761	0.010	0.001	0.029	2.992
		Fe (%)	1,530	0.290	53.000	1.945	2.634	1.623	0.835
		SG	1,490	1.500	3.490	2.542	0.014	0.117	0.046
SS	(Secondary Sulfide)	Cu (%)	363	0.003	3.952	0.378	0.120	0.347	0.919
		CuO (%)	357	0.001	0.710	0.098	0.009	0.094	0.968
		CuCN (%)	358	0.001	1.588	0.173	0.030	0.174	1.003
		Mo (%)	360	0.001	0.280	0.010	0.000	0.017	1.702
		Fe (%)	359	0.590	7.780	1.651	0.475	0.689	0.417
		SG	331	2.310	2.916	2.567	0.006	0.080	0.031
SP	(Primary Sulfide)	Cu (%)	18,068	0.000	32.630	0.181	0.731	0.855	4.725
		CuO (%)	17,556	0.001	0.985	0.009	0.000	0.018	2.057
		CuCN (%)	17,312	0.001	10.510	0.021	0.034	0.184	8.877
		Mo (%)	17,843	0.000	8.023	0.024	0.034	0.185	7.712
		Fe (%)	17,748	0.041	26.840	2.119	1.258	1.122	0.529
		SG	17,595	1.020	4.290	2.628	0.009	0.096	0.036

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.000, the minimum value is less than 0.0005 but greater than zero.

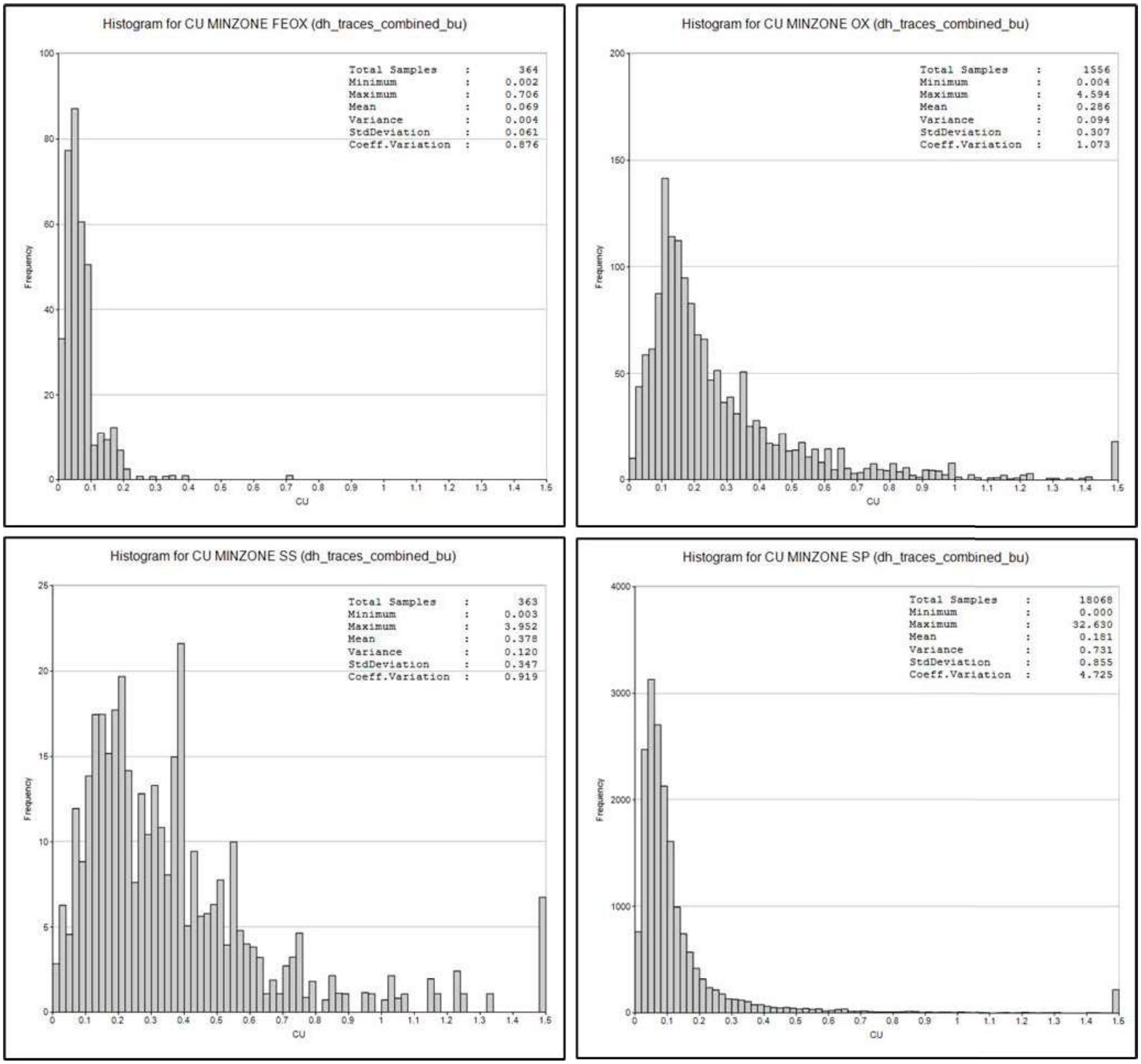
Figure 11.4 and Figure 11.5 show the histogram of Cu for the different mineralization domains in the La Caridad and Bella Union zones respectively. Figure 11.6 and Figure 11.7 show the histogram of Mo for the different mineralization domains in the La Caridad and Bella Union zones respectively.

Some of 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 why some populations show multiple spikes.



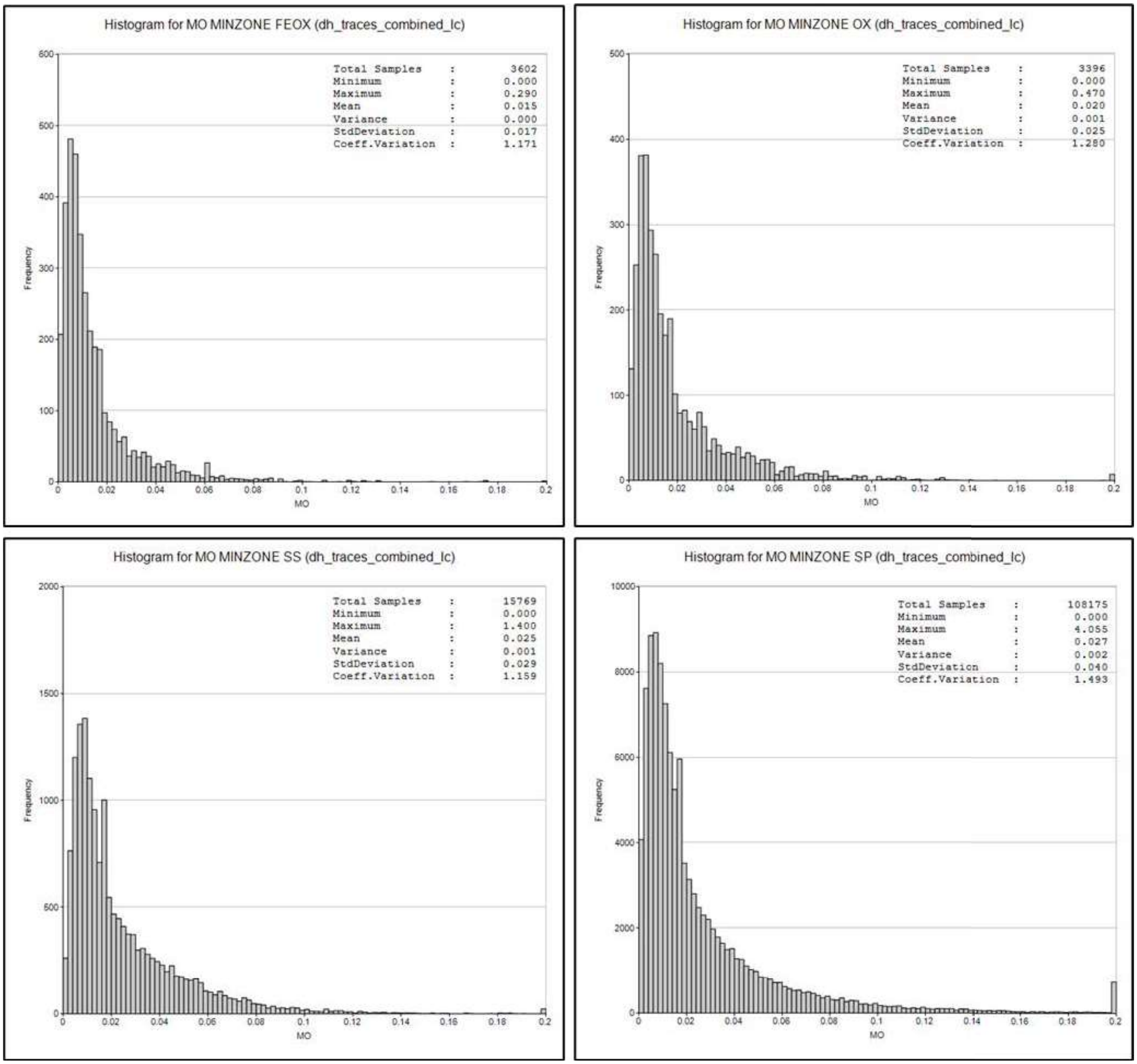
Notes: Fe Oxide (upper left), Oxide (upper right), Secondary Sulfide (lower left), Primary Sulfide (lower right). Samples are length weighted.

Figure 11.4: Histograms for Cu, Categorized by Mineralization Domain for La Caridad Zone



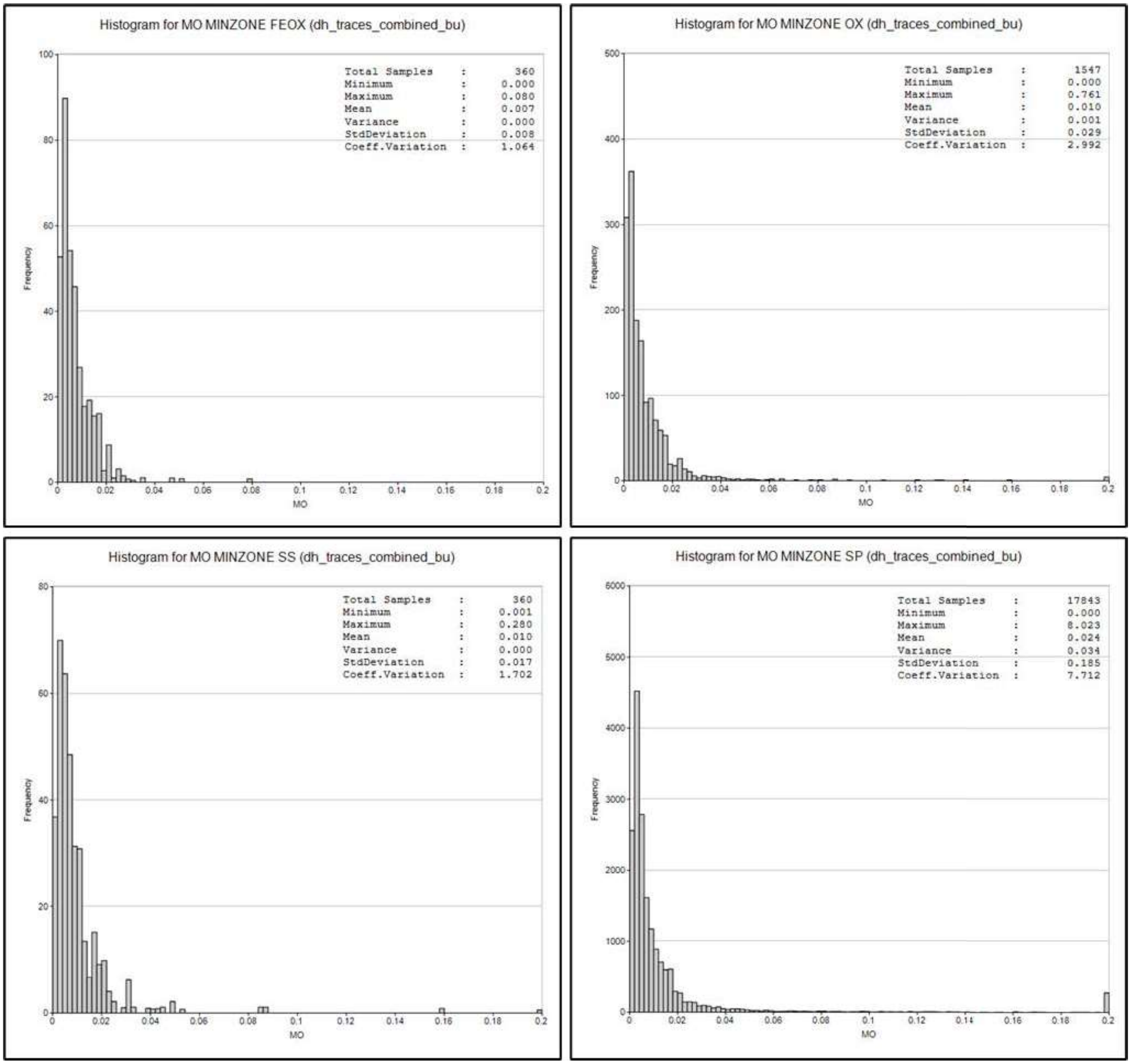
Notes: Fe Oxide (upper left), Oxide (upper right), Secondary Sulfide (lower left), Primary Sulfide (lower right). Samples are length weighted.

Figure 11.5: Histograms for Cu, Categorized by Mineralization Domain for Bella Union Zone



Notes: Fe Oxide (upper left), Oxide (upper right), Secondary Sulfide (lower left), Primary Sulfide (lower right). Samples are length weighted.

Figure 11.6: Histograms for Mo, Categorized by Mineralization Domain for La Caridad Zone



Notes: Fe Oxide (upper left), Oxide (upper right), Secondary Sulfide (lower left), Primary Sulfide (lower right). Samples are length weighted.

Figure 11.7: Histograms for Mo, Categorized by Mineralization Domain in the Bella Union Zone

The Cu histograms reveal increasing values through a Fe oxide, primary sulfide, oxide and secondary sulfide sequence in both the La Caridad and Bella Union zones. The Mo histograms are more uniform. Some distributions show spikes at the top value on the histogram, this is because all values above the top limit are shown in the last histogram bin. This is indicative of long tails at the higher values, although in some instances this is because of pockets of higher-grade values.

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 11.5. The percentile value represents the position of the cap value within the overall population distribution.

Table 11.5: Summary Comparison of Capped vs Uncapped Statistics by Zone

Zone	Variable	Cap Value	No. of Samples Capped	Percentile	Uncapped Mean	Capped Mean	Uncapped CV	Capped CV
La Caridad	Cu (%)	2.5	85	above 99.9	0.209	0.207	1.365	0.989
	CuO (%)	0.8	10	above 99.9	0.015	0.015	2.125	1.968
	CuCN (%)	1.0	97	above 99.9	0.048	0.048	2.178	2.114
	Mo (%)	1.0	14	above 99.9	2.937	2.933	0.531	0.518
	Fe (%)	12.0	170	above 99.9	0.028	0.028	1.614	1.518
Bella Union	Cu (%)	2.5	118	above 99.4	0.185	0.157	4.178	1.747
	CuO (%)	1.0	21	above 99.9	0.025	0.024	3.513	3.042
	CuCN (%)	1.0	52	above 99.7	0.024	0.020	7.233	3.916
	Mo (%)	1.0	64	above 99.7	2.102	2.092	0.550	0.486
	Fe (%)	10.0	44	above 99.8	0.021	0.017	6.734	4.404

Note: Samples are length weighted. CV=Coefficient of Variation

Please note that in the Bella Union zone, the Cu capped mean value is significantly lower than the uncapped mean value. This is because of the presence of a high-grade Cu pod. This was dealt with using distance restricted estimation using uncapped values, which is discussed in Section 11.1.1.7.

Table 11.6 shows the correlation between variables in the La Caridad zone sample population categorized by mineralization domain. Table 11.7 shows the correlation between variables in the Bella Union zone sample population categorized by mineralization domain.

In the La Caridad zone, there is a reasonable correlation between CuO and Cu in the FEOX, OX and SS mineralization domains but not in SP. There is a good correlation between CuCN and Cu in the OX and SS, reasonable in FEOX and weak in SP. In the Bella Union zone, there is a good correlation between CuO and Cu in the FEOX and OX, but not in SS and SP. Conversely, there is a good correlation between CuCN and Cu in the SS and SP, but not in FEOX and OX. None of the other variables show any significant correlations, including SG.

Table 11.6: Variable Correlation by Mineralization Domain for La Caridad Zone

MinZone		Variable	Cu (%)	CuO (%)	CuCN (%)	Mo (%)	Fe (%)	SG
FEOX	(Fe Oxide)	Cu (%)		0.694	0.637	0.111	0.068	0.121
		CuO (%)	0.694		0.340	0.088	0.039	0.078
		CuCN (%)	0.637	0.340		0.023	0.008	0.107
		Mo (%)	0.111	0.088	0.023		-0.077	-0.058
		Fe (%)	0.068	0.039	0.008	-0.077		-0.187
		SG	0.121	0.078	0.107	-0.058	-0.187	
OX	(Oxide)	Cu (%)		0.701	0.880	0.135	-0.004	0.024
		CuO (%)	0.701		0.543	0.032	0.045	0.021
		CuCN (%)	0.880	0.543		0.024	-0.010	0.015
		Mo (%)	0.135	0.032	0.024		-0.153	-0.013
		Fe (%)	-0.004	0.045	-0.010	-0.153		0.041
		SG	0.024	0.021	0.015	-0.013	0.041	
SS	(Secondary Sulfide)	Cu (%)		0.559	0.911	0.117	-0.064	-0.026
		CuO (%)	0.559		0.603	0.001	0.045	-0.058
		CuCN (%)	0.911	0.603		0.118	-0.010	-0.028
		Mo (%)	0.117	0.001	0.118		-0.219	-0.085
		Fe (%)	-0.064	0.045	-0.010	-0.219		0.284
		SG	-0.026	-0.058	-0.028	-0.085	0.284	
SP	(Primary Sulfide)	Cu (%)		0.295	0.455	0.054	0.166	0.095
		CuO (%)	0.295		0.454	-0.014	0.106	0.012
		CuCN (%)	0.455	0.454		0.008	0.171	0.056
		Mo (%)	0.054	-0.014	0.008		-0.209	-0.050
		Fe (%)	0.166	0.106	0.171	-0.209		0.279
		SG	0.095	0.012	0.056	-0.050	0.279	

Table 11.7: Variable Correlation by Mineralization Domain for Bella Union Zone

MinZone		Variable	Cu (%)	CuO (%)	CuCN (%)	Mo (%)	Fe (%)	SG
FEOX	(Fe Oxide)	Cu (%)		0.957	0.256	0.245	0.126	-0.065
		CuO (%)	0.957		0.141	0.228	0.045	-0.057
		CuCN (%)	0.256	0.141		0.051	0.136	0.026
		Mo (%)	0.245	0.228	0.051		0.154	-0.158
		Fe (%)	0.126	0.045	0.136	0.154		0.181
		SG	-0.065	-0.057	0.026	-0.158	0.181	
OX	(Oxide)	Cu (%)		0.835	0.547	0.028	0.138	0.015
		CuO (%)	0.835		0.194	0.011	0.067	-0.077
		CuCN (%)	0.547	0.194		0.009	0.084	0.049
		Mo (%)	0.028	0.011	0.009		0.076	-0.070
		Fe (%)	0.138	0.067	0.084	0.076		0.068
		SG	0.015	-0.077	0.049	-0.070	0.068	
SS	(Secondary Sulfide)	Cu (%)		0.392	0.890	0.107	0.196	-0.080
		CuO (%)	0.392		0.431	0.257	0.080	-0.190
		CuCN (%)	0.890	0.431		0.072	0.194	-0.091
		Mo (%)	0.107	0.257	0.072		0.020	0.122
		Fe (%)	0.196	0.080	0.194	0.020		0.129
		SG	-0.080	-0.190	-0.091	0.122	0.129	
SP	(Primary Sulfide)	Cu (%)		0.402	0.798	0.327	0.473	0.030
		CuO (%)	0.402		0.282	0.229	0.179	-0.065
		CuCN (%)	0.798	0.282		0.323	0.322	0.011
		Mo (%)	0.327	0.229	0.323		0.154	-0.002
		Fe (%)	0.473	0.179	0.322	0.154		0.188
		SG	0.030	-0.065	0.011	-0.002	0.188	

One notable feature in the data is the lack of CuCN data in the La Caridad zone. This is because CuCN was not assayed during the early drilling campaigns. Analysis (Table 11.6) showed good correlation between CuCN and Cu in the OX and SS mineralization domains, reasonable correlation in the FEOX and weak correlation in the SP. First order polynomial regressions were used to calculate CuCN for the FEOX, OX and SS mineralization domains where no CuCN was recorded and where there was a valid Cu value (Table 11.8). It should be noted that this largely affects areas that have already been mined and was done to produce a more complete model (i.e., to minimize the number of blocks with un-estimated CuCN values).

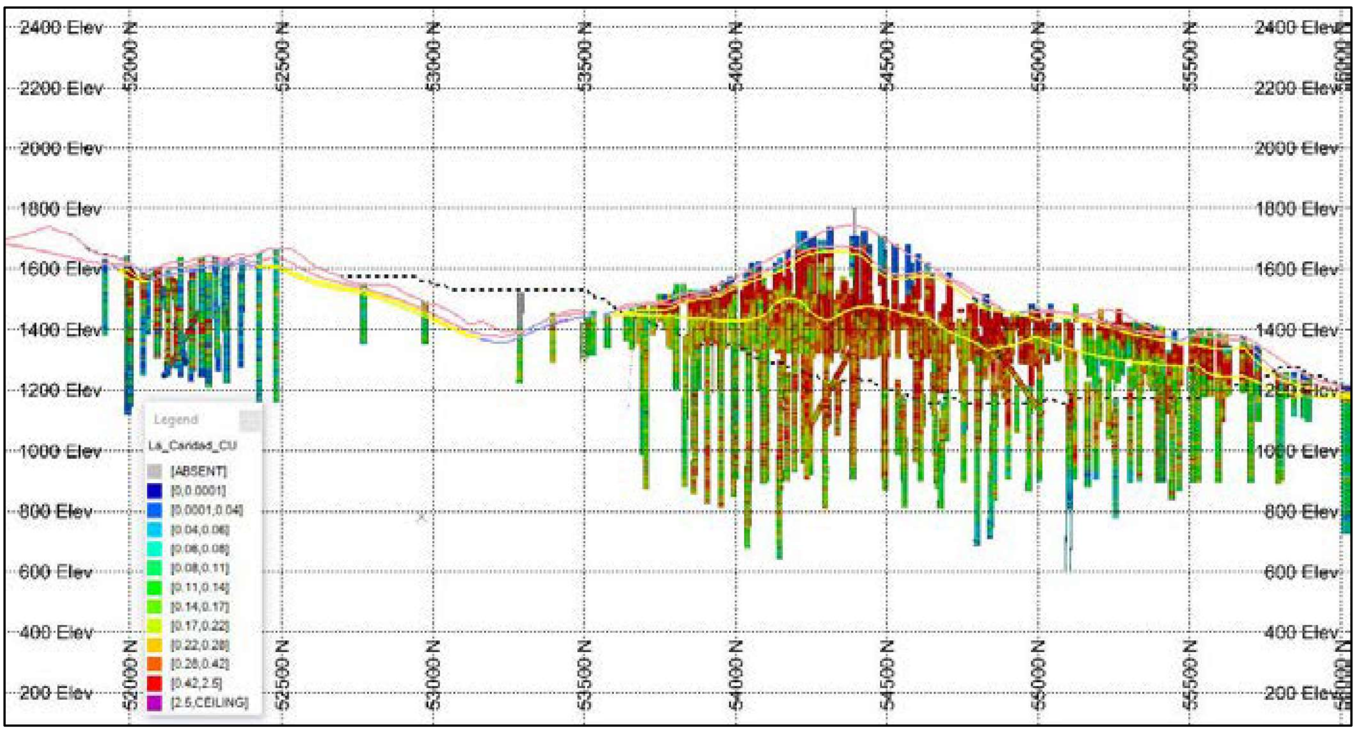
Table 11.8: CuCN Regressions Applied for La Caridad Zone

MinZone	Regression	Correlation
FEOX	CuCN = -0.00217 + (Cu*0.23064)	0.637
OX	CuCN = -0.00952 + (Cu*0.37765)	0.880
SS	CuCN = -0.01700 + (Cu*0.52397)	0.911

Visual examination of the drillhole data showed two particular features:

- Cu values exhibit trends consistent with mineralization domain trends, which themselves often echo the pre-mining topography (see example section in Figure 11.8). CuO and CuCN exhibit similar behavior.
- There is a distinct volume of higher Mo values to the north-east (see Figure 11.9).

Specific estimation controls were employed to preserve these features, as closely as possible, in the block model (see Section 11.1.1.7).



Notes: Fe Oxide (pink line), Oxide (blue line), Secondary Sulfide (yellow line). 2023 end of year topography (dashed black line).

Figure 11.8: South-North Section (38,000 E) of Drill Holes Showing Cu (wt. %)

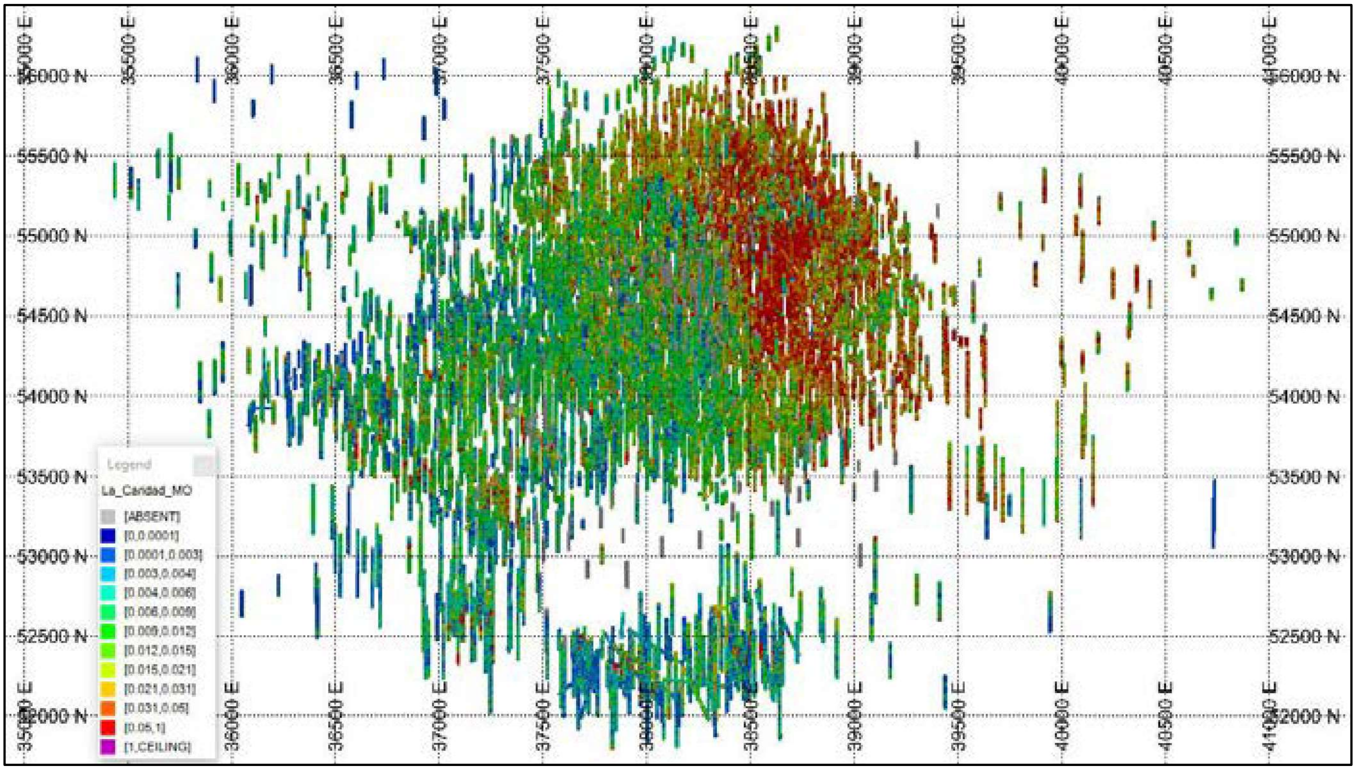


Figure 11.9: Perspective View (Looking North from Above) of Drill Holes Showing Mo (%)

Sample interval lengths were analyzed for the purpose of selecting a composite length for block model grade estimation (see Figure 11.10). The two most common sample lengths were 15 m (55% of total sample length) and 3 m (30%) (using a tolerance of plus/minus 0.05 m). 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. Compositing was controlled by the mineralization domains and composite length smoothing was used to ensure no samples lengths were discarded (because of minimum composite length rules).

Table 11.9 summarizes the descriptive statistics of the total composite population.

When comparing the composite mean grade to the sample mean grade, all variables show close correspondence, except for CuCN, which shows a significant elevated grade in the composites (0.090%) compared to the samples (0.022%). This is because of the regressions used to calculate CuCN for the FEOX, OX and SS mineralization domains in La Caridad where no CuCN was recorded (which account for a significant proportion of the total sample population). As previously stated, this largely affects areas that have already been mined and was done to produce a more complete model.

Table 11.10 summarizes the descriptive statistics of the La Caridad zone composites categorized by mineralization domain. Table 11.11 summarizes the descriptive statistics of the Bella Union zone composites categorized by mineralization domain.

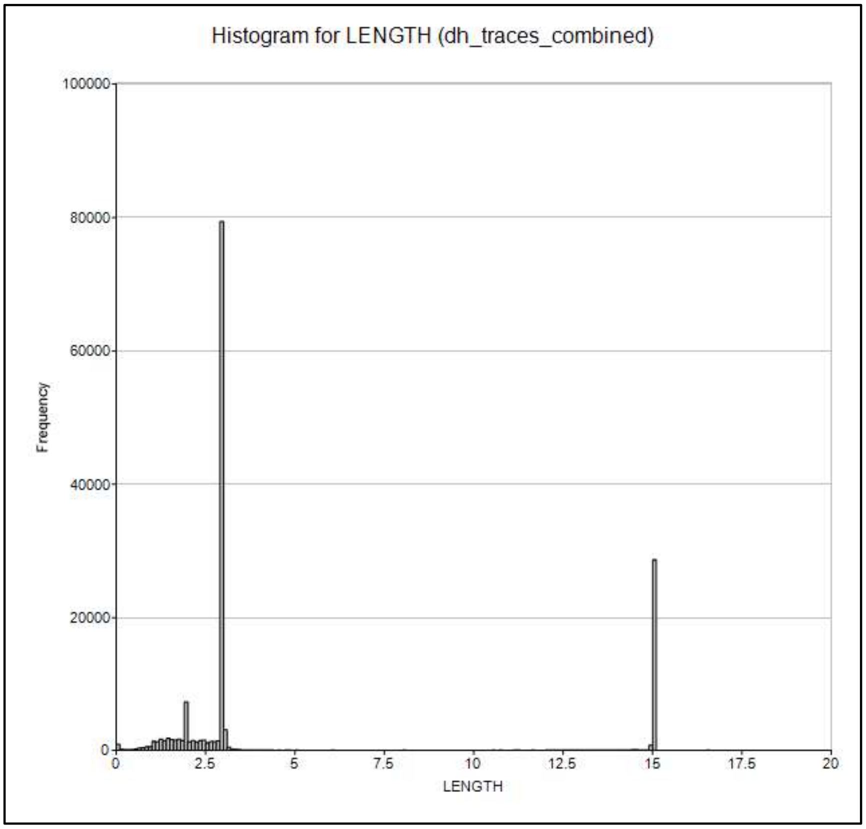


Figure 11.10: Histogram of Sample Lengths

Table 11.9: Summary of Composite Statistics for the Total Population

Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
Cu (%)	53,511	0.001	2.500	0.241	0.055	0.234	0.968
CuO (%)	45,460	0.000	0.851	0.020	0.001	0.037	1.802
CuCN (%)	34,165	0.000	1.000	0.090	0.019	0.139	1.545
Mo (%)	52,456	0.000	1.000	0.025	0.001	0.034	1.370
Fe (%)	46,384	0.021	12.000	2.991	1.938	1.392	0.466
SG	20,516	2.070	3.147	2.619	0.004	0.067	0.025

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.000, the minimum value is less than 0.0005 but greater than zero.

Table 11.10: Summary of Mineralization Domain Composite Statistics For La Caridad Zone

MinZone		Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
FEOX	(Fe Oxide)	Cu (%)	2,639	0.001	2.500	0.076	0.018	0.136	1.784
		CuO (%)	1,670	0.001	0.613	0.026	0.001	0.035	1.338
		CuCN (%)	2,209	0.000	0.700	0.019	0.001	0.035	1.858
		Mo (%)	2,167	0.000	0.290	0.015	0.000	0.017	1.140
		Fe (%)	1,631	0.021	9.406	3.178	2.031	1.425	0.448
		SG	263	2.070	2.840	2.448	0.011	0.104	0.043
OX	(Oxide)	Cu (%)	2,315	0.001	2.500	0.283	0.080	0.283	0.999
		CuO (%)	1,902	0.001	0.800	0.063	0.005	0.072	1.140
		CuCN (%)	2,202	0.000	1.000	0.103	0.012	0.108	1.050
		Mo (%)	2,220	0.000	0.470	0.020	0.001	0.024	1.240
		Fe (%)	1,793	0.297	12.000	3.324	2.126	1.458	0.439
		SG	240	2.179	2.782	2.522	0.011	0.103	0.041
SS	(Secondary Sulfide)	Cu (%)	11,563	0.001	2.500	0.449	0.102	0.319	0.710
		CuO (%)	8,756	0.001	0.674	0.042	0.002	0.044	1.048
		CuCN (%)	11,465	0.000	1.000	0.220	0.026	0.163	0.740
		Mo (%)	11,410	0.000	0.890	0.025	0.001	0.027	1.077
		Fe (%)	8,627	0.413	12.000	3.093	1.632	1.277	0.413
		SG	645	2.232	3.103	2.578	0.006	0.079	0.031
SP	(Primary Sulfide)	Cu (%)	32,848	0.001	2.328	0.189	0.017	0.132	0.699
		CuO (%)	29,222	0.000	0.575	0.010	0.000	0.014	1.411
		CuCN (%)	14,603	0.001	0.573	0.015	0.000	0.021	1.422
		Mo (%)	32,589	0.000	0.581	0.027	0.001	0.031	1.165
		Fe (%)	30,421	0.030	12.000	3.042	2.040	1.428	0.469
		SG	15,677	2.223	3.147	2.625	0.003	0.057	0.022

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.000, the minimum value is less than 0.0005 but greater than zero.

Table 11.11: Summary of Mineralization Domain Composite Statistics for Bella Union Zone

MinZone		Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
FEOX	(Fe Oxide)	Cu (%)	76	0.004	0.180	0.063	0.001	0.035	0.560
		CuO (%)	68	0.001	0.119	0.044	0.001	0.026	0.585
		CuCN (%)	66	0.001	0.012	0.005	0.000	0.002	0.485
		Mo (%)	74	0.001	0.024	0.007	0.000	0.005	0.805
		Fe (%)	70	0.661	4.356	1.719	0.412	0.642	0.373
		SG	67	2.330	2.861	2.552	0.009	0.094	0.037
OX	(Oxide)	Cu (%)	294	0.015	1.641	0.285	0.045	0.211	0.740
		CuO (%)	279	0.003	0.851	0.180	0.021	0.144	0.797
		CuCN (%)	277	0.002	0.509	0.048	0.005	0.071	1.494
		Mo (%)	294	0.000	0.269	0.010	0.000	0.022	2.220
		Fe (%)	280	0.613	4.483	1.922	0.476	0.690	0.359
		SG	270	2.140	2.910	2.543	0.008	0.089	0.035
SS	(Secondary Sulfide)	Cu (%)	75	0.030	1.062	0.383	0.052	0.228	0.596
		CuO (%)	70	0.010	0.425	0.100	0.006	0.079	0.790
		CuCN (%)	71	0.004	0.464	0.177	0.013	0.115	0.651
		Mo (%)	73	0.001	0.045	0.010	0.000	0.008	0.812
		Fe (%)	71	0.845	3.347	1.649	0.232	0.482	0.292
		SG	66	2.429	2.831	2.565	0.003	0.057	0.022
SP	(Primary Sulfide)	Cu (%)	3,362	0.005	2.500	0.144	0.057	0.238	1.647
		CuO (%)	3,233	0.001	0.289	0.009	0.000	0.014	1.595
		CuCN (%)	3,196	0.001	1.000	0.015	0.005	0.068	4.455
		Mo (%)	3,330	0.000	1.000	0.019	0.005	0.071	3.784
		Fe (%)	3,234	0.333	9.068	2.111	0.728	0.853	0.404
		SG	3,211	2.278	2.960	2.628	0.004	0.065	0.025

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.000, the minimum value is less than 0.0005 but greater than zero.

11.1.1.5 Spatial Continuity

The spatial continuity of the variables to be estimated was assessed using variogram analysis. This was conducted independently for the La Caridad and Bella Union zones. For each estimation variable, mineralization domains were assessed both separately and combined.

The number of samples within some of the mineralization domains was small (especially for Bella Union zone) and the experimental variograms shows little to no structure. For both La Caridad and Bella Union the predominant mineralization domain is the Primary Sulfide and the experimental variograms for Primary Sulfide and all mineralization domains combined was similar. For this reason, the variogram models based on the experimental variograms for all mineralization domains were used.

Two-structure spherical variograms were modeled based on the pairwise-relative experimental variogram data. As an example, Figure 11.11 and Figure 11.12 show the along-strike and down-dip experimental variograms and variogram models for Cu in the La Caridad zone (all mineralization domains combined).

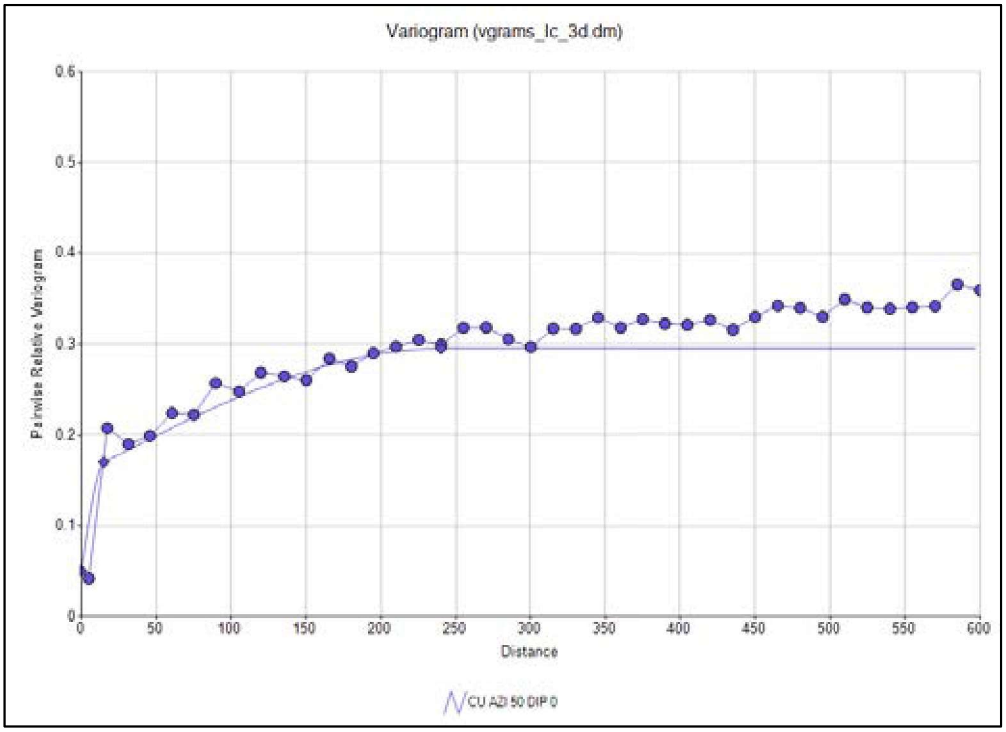


Figure 11.11: Along-Strike Variogram Model for Cu

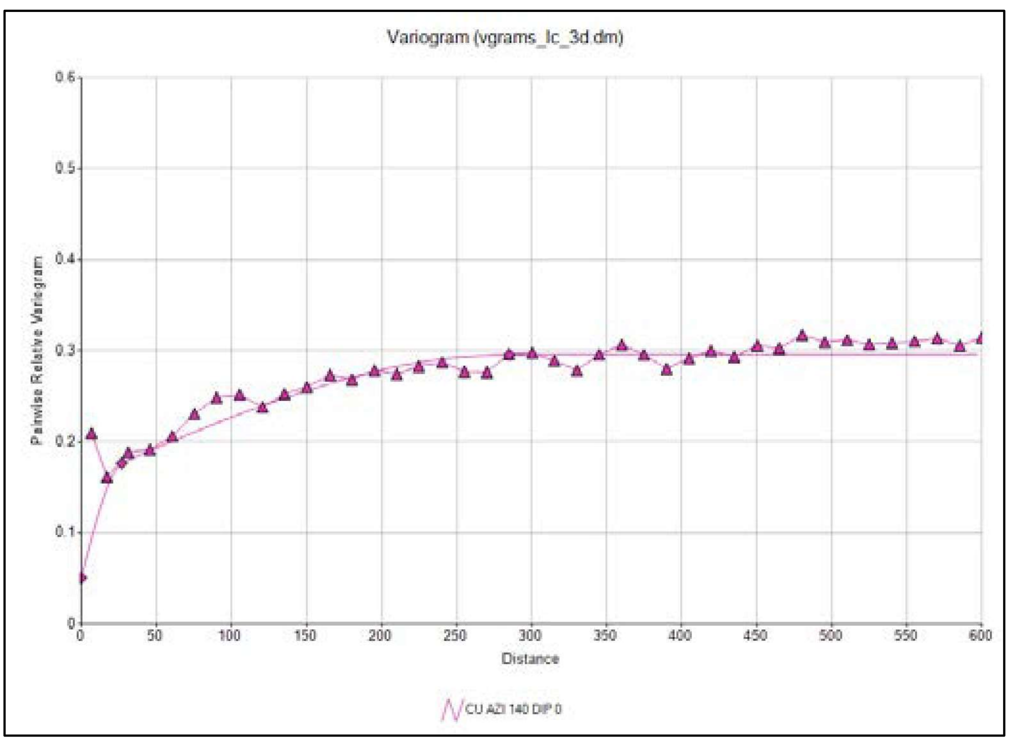


Figure 11.12: Down-Dip Variogram Model for Cu

The variogram models were used as a guide for the sample search ellipse dimensions, as further discussed in Section 11.1.1.7.

A summary of variogram model parameters is presented in Table 11.12.

Table 11.12: Summary of Variogram Model Parameters

						Structure 1				Structure 2			
Zone	Variable	Angle 1	Angle 2	Angle 3	Nugget	Range 1	Range 2	Range 3	Variance	Range 1	Range 2	Range 3	Variance
La Caridad	Cu (%)	50	0	0	0.05	28	15	53	0.107	284	240	124	0.138
	CuO (%)	40	15	0	0.039	20	6	88	0.314	221	280	120	0.145
	CuCN (%)	130	15	0	0.039	49	28	56	0.377	205	180	99	0.096
	Mo (%)	150	5	0	0.07	32	32	82	0.113	194	251	226	0.142
	Fe (%)	150	0	0	0.00001	17	11	69	0.054	199	176	150	0.045
	SG	150	0	0	0.00001	57	51	31	0.00015	107	167	211	0.0003
Bella Union	Cu (%)	130	15	0	0.058	25	28	65	0.169	177	181	130	0.18
	CuO (%)	60	10	0	0.058	17	6	77	0.316	140	150	120	0.228
	CuCN (%)	140	15	0	0.1	26	33	71	0.342	110	160	160	0.139
	Mo (%)	130	5	0	0.049	11	27	52	0.319	110	200	160	0.154
	Fe (%)	150	5	0	0.00001	17	11	69	0.054	113	98	137	0.045
	SG	150	0	0	0.00001	41	50	41	0.00032	151	186	235	0.00035

Note: Angle 1 is rotated around clockwise around the Z axis, Angle 2 is rotated clockwise around the Y axis and Angle 3 is rotated clockwise around the X axis.

11.1.1.6 Specific Gravity

This sub-section contains forward-looking information related to density for the Project. The 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 11.13) and histograms (Figure 11.13).

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 37 values of SG less than 2.0 and 44 values greater than 3.2 (+/- 0.6 of the mean). Although, some of these values could be a true part of the overall distribution, a conservative approach was taken, and a bottom “cap” of 2.0 and a top cap of 3.2 were applied.

There are minor differences in the mean SG values in the difference mineralization domains. This is more pronounced in La Caridad than in Bella Union.

As previously noted, correlation analysis indicated no significant correlation between density and any of the other variables to be estimated.

Table 11.13: Summary of SG Statistics by Zone and Mineralization Domain

Zone	MinZone	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
All	All	113,680	1.020	4.690	2.619	0.008	0.091	0.035
La Caridad	All	93,907	1.430	4.690	2.619	0.008	0.088	0.034
Bella Union	All	19,773	1.020	4.290	2.619	0.010	0.101	0.039
La Caridad	FEOX	1,358	1.740	3.460	2.448	0.022	0.147	0.060
	OX	1,255	2.030	3.500	2.523	0.019	0.137	0.054
	SS	3,503	1.780	3.700	2.578	0.013	0.115	0.045
	SP	87,470	1.430	4.690	2.625	0.006	0.080	0.031
Bella Union	FEOX	341	1.700	3.100	2.549	0.016	0.128	0.050
	OX	1,490	1.500	3.490	2.542	0.014	0.117	0.046
	SS	331	2.310	2.916	2.567	0.006	0.080	0.031
	SP	17,595	1.020	4.290	2.628	0.009	0.096	0.036

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. MinZone: FEOX=Fe Oxide, OX=Oxide, SS=Secondary Sulfide, SP=Primary Sulfide

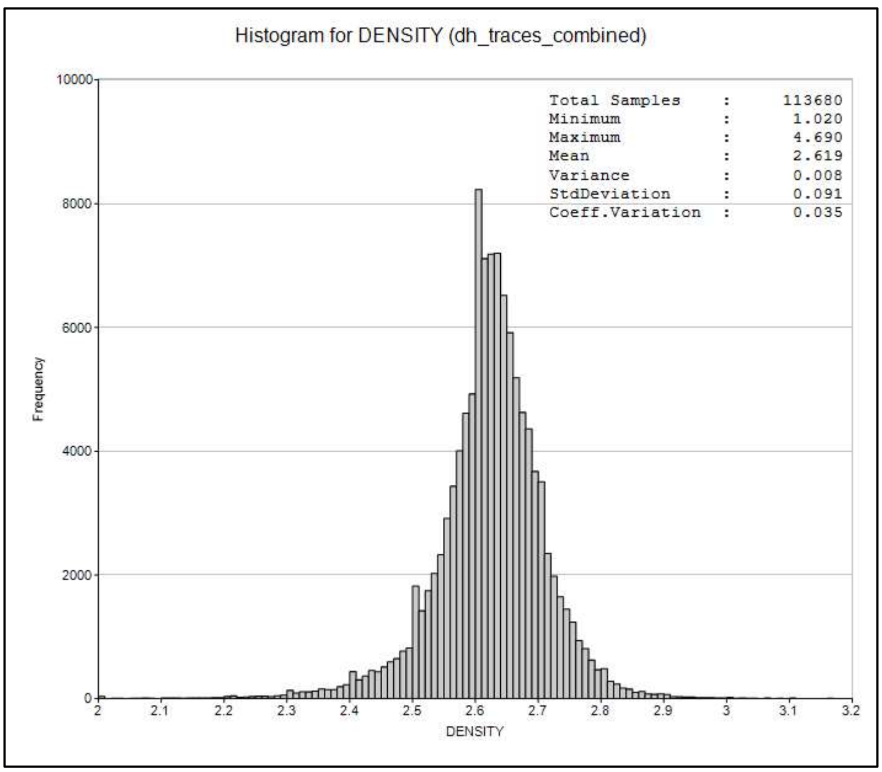


Figure 11.13: Histogram of Sample SG

11.1.1.7 Block Model Methodology

This sub-section contains forward-looking information related to grade for the Project. The 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. Block model parameters, including origin and block size, are summarized in Table 11.14 using the local coordinate system. Block splitting was used at the topographic surface.

Table 11.14: Summary of Block Model Details

Origin (m)		Extent (m)	Range (m)	Parent Block Size (m)	Number of Parent Blocks
Easting (X)	35,150	41,350	6,200	25	248
Northing (Y)	51,400	56,800	5,400	25	216
Elevation (Z)	750	1,950	1,200	15	80

All variables (Cu, CuO, CuCN, Mo, Fe, and SG) were estimated using Nearest Neighbour (NN), Inverse Distance Cubed (ID^3) and Ordinary Kriging (OK) methods. The OK method was used for reporting Mineral Resource estimates.

As noted in Section 11.1.1.4, Cu values showed trends consistent with the mineralization domains and the pre-mining topographic surface. To account for this, dynamic control of the orientation of the search ellipse was used for blocks within the FEOX, OX and SS mineralization domains. 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 mineralization domain and topographic surface following trends 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 the first two passes, estimates required a minimum of 8 composites and a maximum of 12 composites. The third pass required a minimum of 6 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 that composites from at least two holes were used for all estimates.

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 final search parameters are summarized in Table 11.15 and Table 11.16 for La Caridad zone and Bella Union zone respectively.

Table 11.15: Summary of First Pass Search Parameters for La Caridad Zone

Variable	Range 1	Range 2	Range 3	Angle 1	Angle 2	Angle 3	Min. No. of Comps	Max. No. of Comps	Min. No. of Comps per hole
Cu (%)	140	120	60	50	0	0	8	12	4
CuO (%)	110	140	60	40	15	0	8	12	4
CuCN (%)	105	90	50	130	15	0	8	12	4
Mo (%)	95	125	115	150	5	0	8	12	4
Fe (%)	100	90	75	150	0	0	8	12	4
SG	55	85	105	150	0	0	8	12	4

Note: See Section 11.1.1.5 for angle definitions.

Table 11.16: Summary of First Pass Search Parameters for Bella Union Zone

Variable	Range 1	Range 2	Range 3	Angle 1	Angle 2	Angle 3	Min. No. of Comps	Max. No. of Comps	Min. No. of Comps per hole
Cu (%)	90	90	65	130	15	0	8	12	4
CuO (%)	70	75	60	60	10	0	8	12	4
CuCN (%)	55	80	80	140	15	0	8	12	4
Mo (%)	55	100	80	130	5	0	8	12	4
Fe (%)	55	50	70	150	5	0	8	12	4
SG	75	95	120	150	0	0	8	12	4

Note: See Section 11.1.1.5 for angle definitions.

As noted in the capping analysis in Section 11.1.1.4, there is a higher-grade Cu pod in the Bella Union zone. There are also smaller Cu pods in the La Caridad zone and small higher-grade Mo pods in both zones. To account for these higher-grade pods, and without unduly penalizing them with the cap values used, high grade distance restriction was used. Specifically, blocks within a 25 x 15 x 15 m rectangular search volume (which is a full block size) of a capped value sample were flagged and estimation within these blocks used uncapped sample values. This strategy was conducted independently for the Cu, CuO, CuCN and Mo variables. The number of blocks impacted by this strategy is shown in Table 11.17.

Table 11.17: Summary of Blocks Impacted by Higher-Grade Restricted Search Strategy

Zone	MinZone	Number of Blocks				Percentage of Total Number of Blocks			
		Cu (%)	CuO (%)	CuCN (%)	Mo (%)	Cu (%)	CuO (%)	CuCN (%)	Mo (%)
La Caridad	FEOX	20	9	13	0	0.02%	0.01%	0.01%	0.00%
	OX	28	27	39	0	0.15%	0.14%	0.20%	0.00%
	SS	219	23	610	7	0.38%	0.04%	1.06%	0.01%
	SP	254	2	59	101	0.01%	0.00%	0.00%	0.00%
Bella Union	FEOX	0	2	0	0	0.00%	0.05%	0.00%	0.00%
	OX	45	88	16	0	1.86%	3.64%	0.66%	0.00%
	SS	10	1	14	0	1.17%	0.12%	1.64%	0.00%
	SP	265	6	106	188	0.21%	0.00%	0.08%	0.15%

Notes: MinZone: FEOX=Fe Oxide, OX=Oxide, SS=Secondary Sulfide, SP=Primary Sulfide

11.1.1.8 Model Validation

The model validation included a visual comparison of block model and drill hole composite grades in plan and section, along with a global comparison of mean grades and swath plots for local grade comparisons.

Acceptable agreement between block grades and drill hole composite data was observed for all variables. An example south-north section (38,000 E) is shown in Figure 11.14 (Cu), Figure 11.15 (CuO), Figure 11.16 (CuCN), and Figure 11.17 (Mo). Note that blocks with un-estimated values are assigned a zero (0) value and the drill hole composites are only shown “in front” of the block model. There are also drillhole composites “in the back” that are influencing the block estimates. The solid black line in the images is the projected end-of-year 2024 topographic surface.

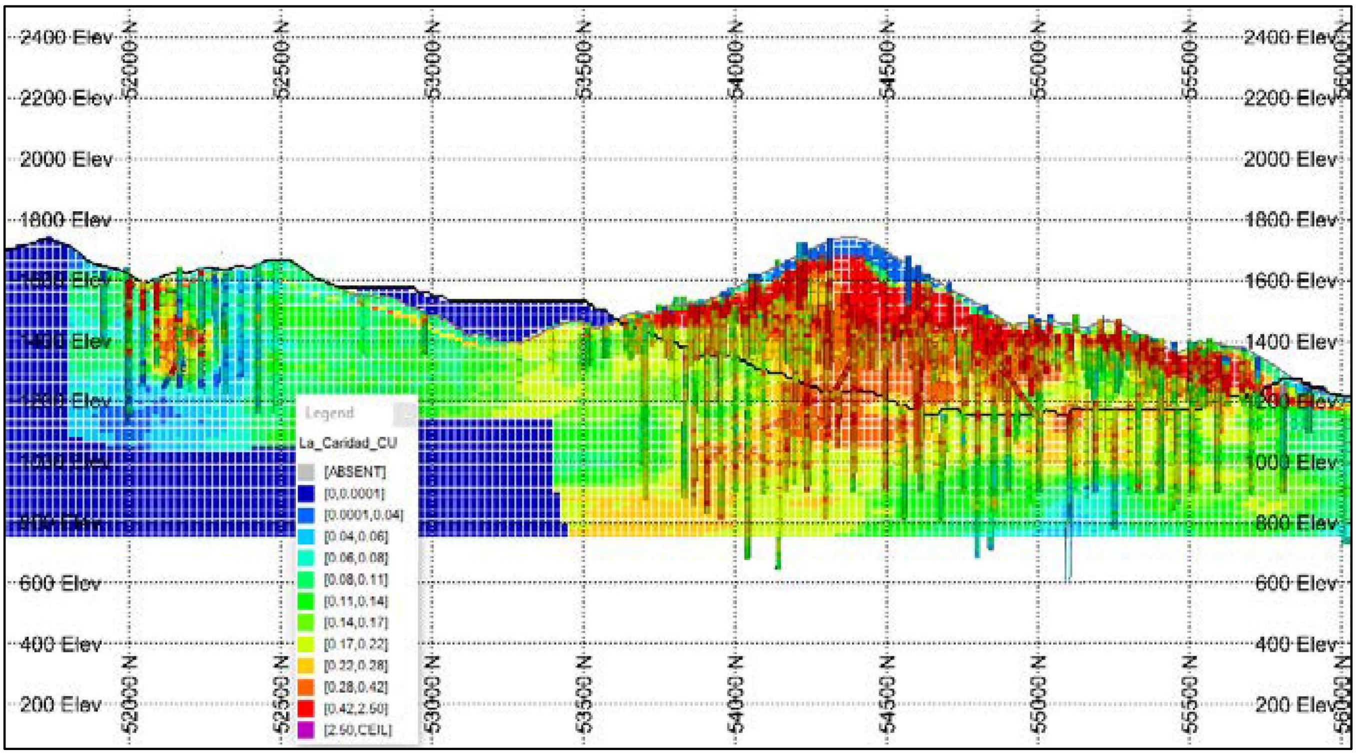


Figure 11.14: South-North Section (38,000 E) Comparison of Composites and Block Grades for Cu

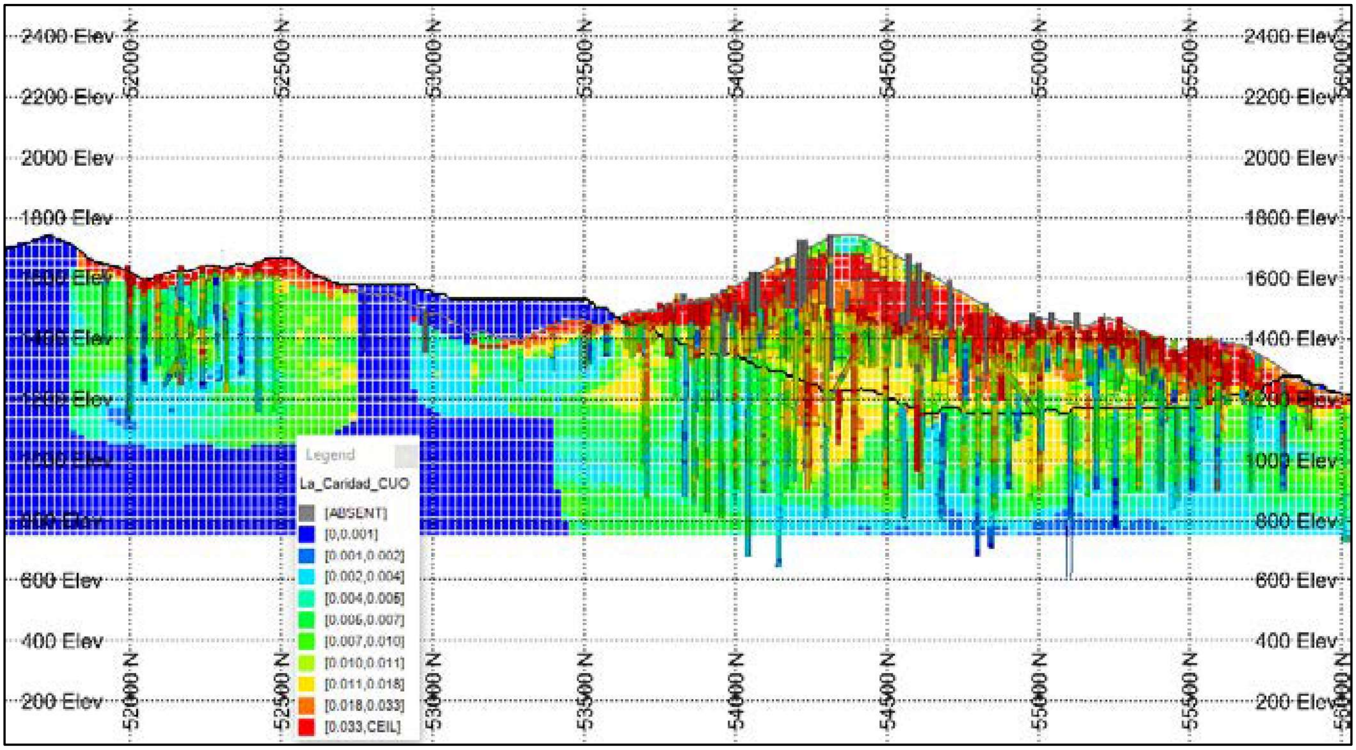


Figure 11.15: South-North Section (38,000 E) Comparison of Composites and Block Grades for CuO

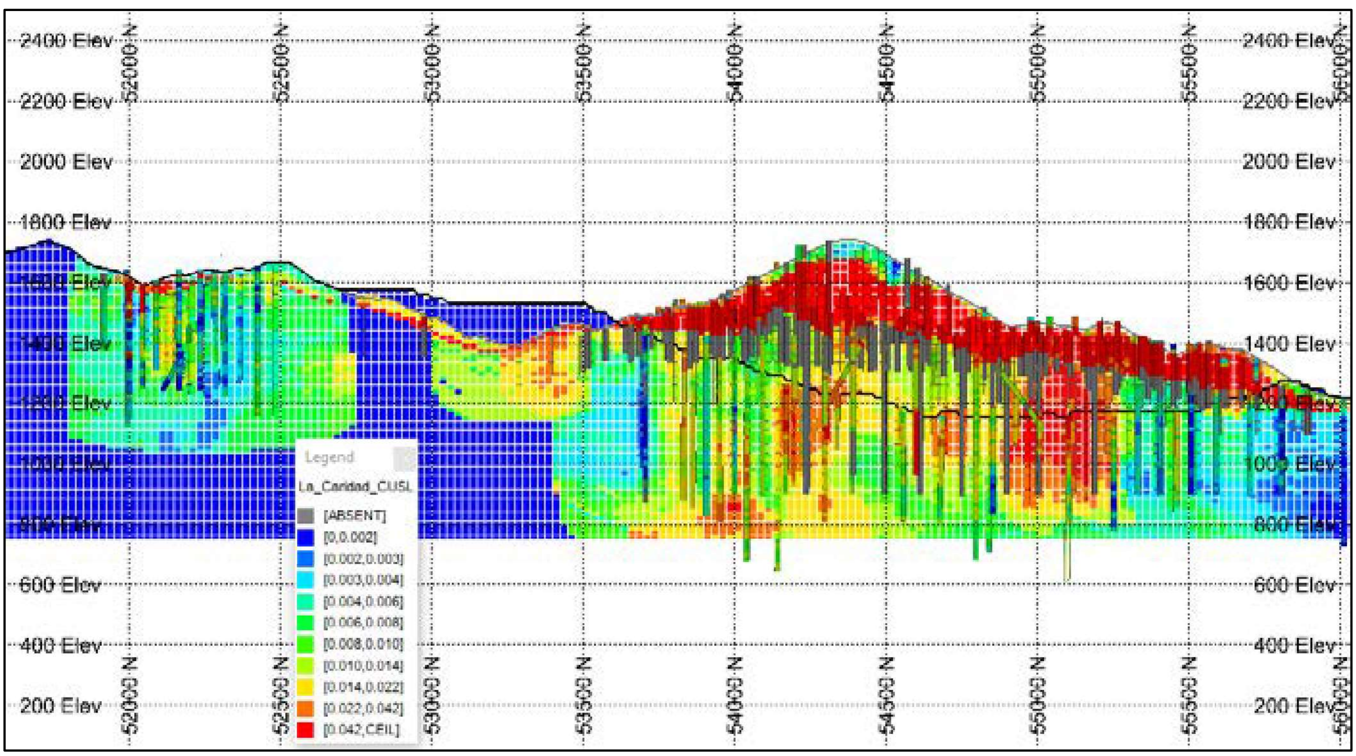


Figure 11.16: South-North Section (38,000 E) Comparison of Composites and Block Grades for CuCN

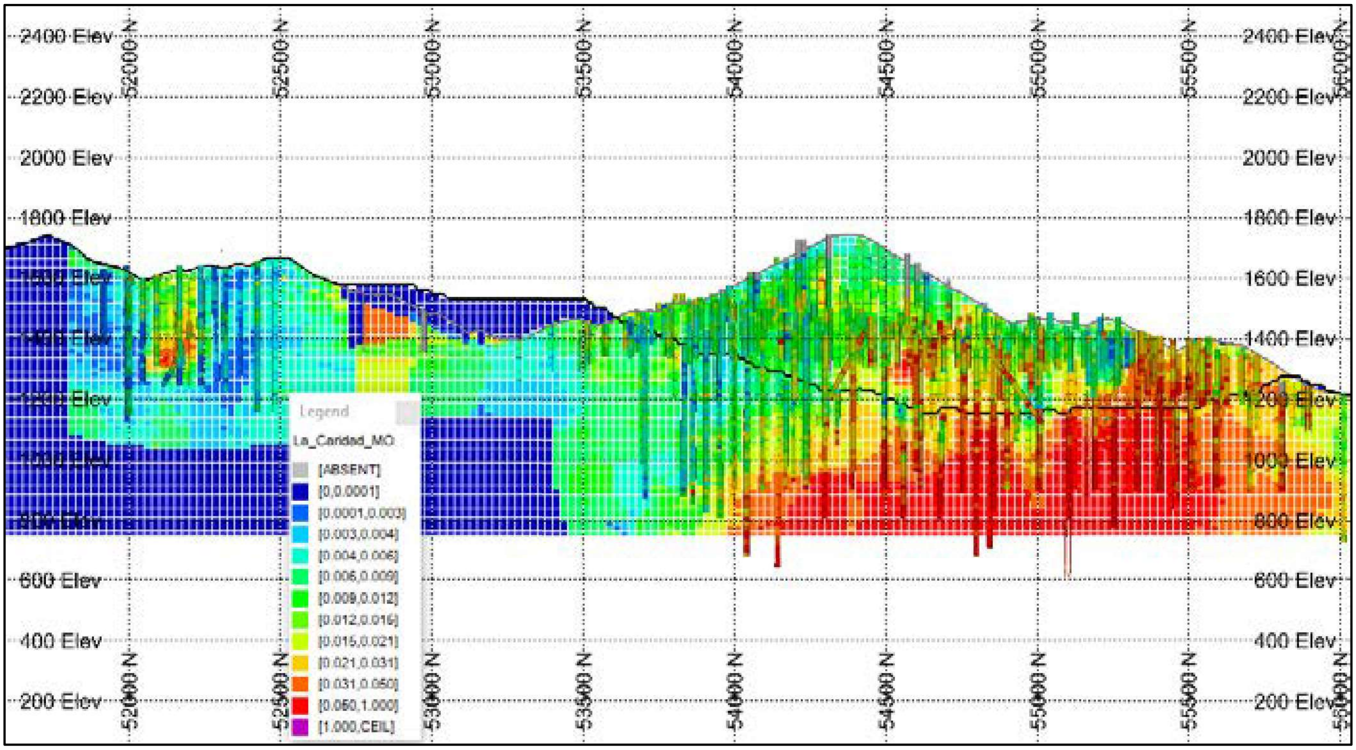


Figure 11.17: South-North Section (38,000 E) Comparison of Composites and Block Grades for Mo

Global mean grades for all estimated variables were compared between NN estimates (proxy for de-clustered composite grades), ID^3 estimates, and OK estimates to determine if there was any significant global bias (see Table 11.18). For the La Caridad zone, the global means differences are all less than 3%. For Bella Union, the global means differences are all less than 4%, except CuCN (5.1%). The results indicate no significant global bias in the grade estimates.

Table 11.18: Comparison of Global Mean Estimates

Zone	Variable	NN Mean	ID^3 Mean	OK Mean	ID^3 %Diff	OK %Diff
La Caridad	Cu (%)	0.138	0.139	0.139	1.185	1.328
	CuO (%)	0.011	0.011	0.011	1.837	2.922
	CuCN (%)	0.028	0.028	0.028	2.050	2.508
	Mo (%)	0.021	0.021	0.021	1.027	0.865
	Fe (%)	2.973	2.975	2.981	0.084	0.296
	SG	2.618	2.618	2.618	0.000	-0.014
Bella Union	Cu (%)	0.094	0.096	0.097	2.268	3.107
	CuO (%)	0.011	0.012	0.012	2.815	3.985
	CuCN (%)	0.009	0.009	0.009	3.533	5.142
	Mo (%)	0.009	0.009	0.009	0.402	2.554
	Fe (%)	2.012	2.016	2.016	0.198	0.200
	SG	2.645	2.642	2.643	-0.112	-0.069

Notes: %Diff = Percent Difference

Swath plots were generated for the variables estimated to evaluate local grade comparisons between NN, ID^3, and OK estimates. Example swath plots of Cu and Mo are presented in Figure 11.18 through Figure 11.23. A "window" of 100 m is used in the N-S and E-W directions (which is equivalent to 4 blocks) and 30 m is used for elevation (equivalent to 2 blocks). In general, there was acceptable correlation between all estimates. Some divergence was observed in areas of low drill hole data density, and this is not unexpected.

Based on the validations conducted, OK was chosen as the final estimated grades for all variables.

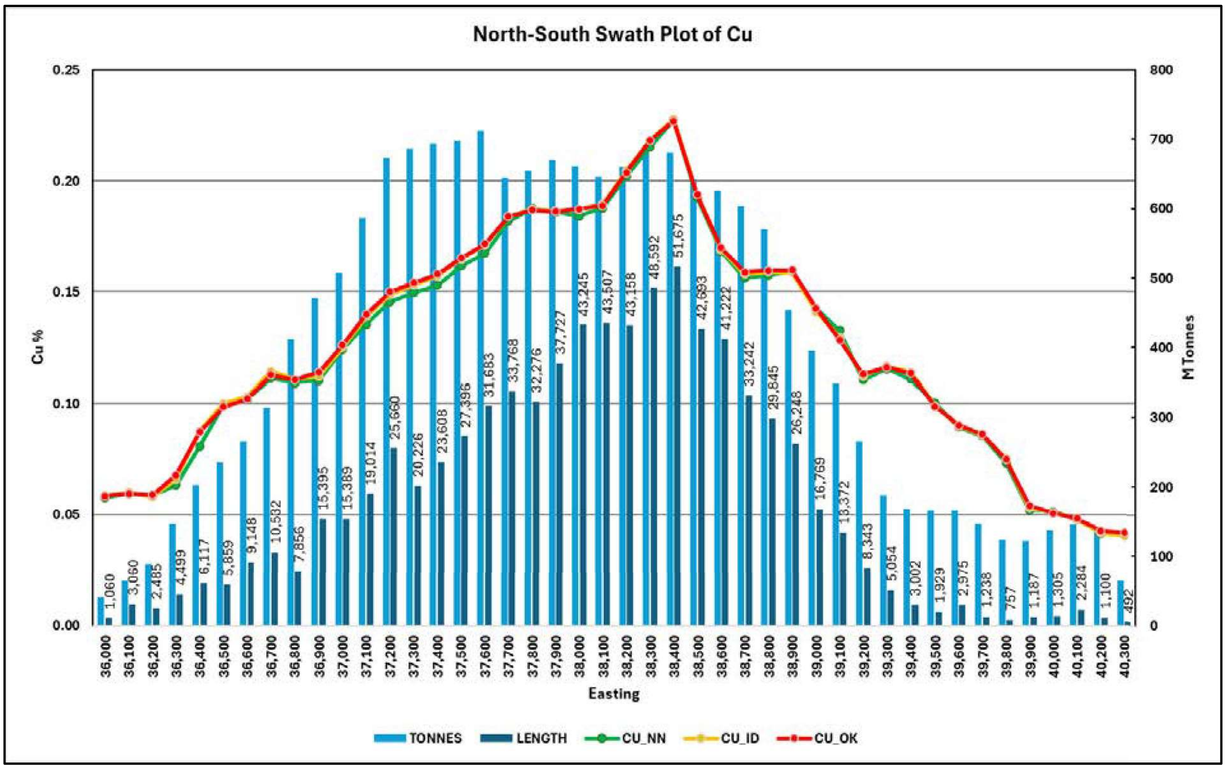


Figure 11.18: North-South Swath Plot of Cu %

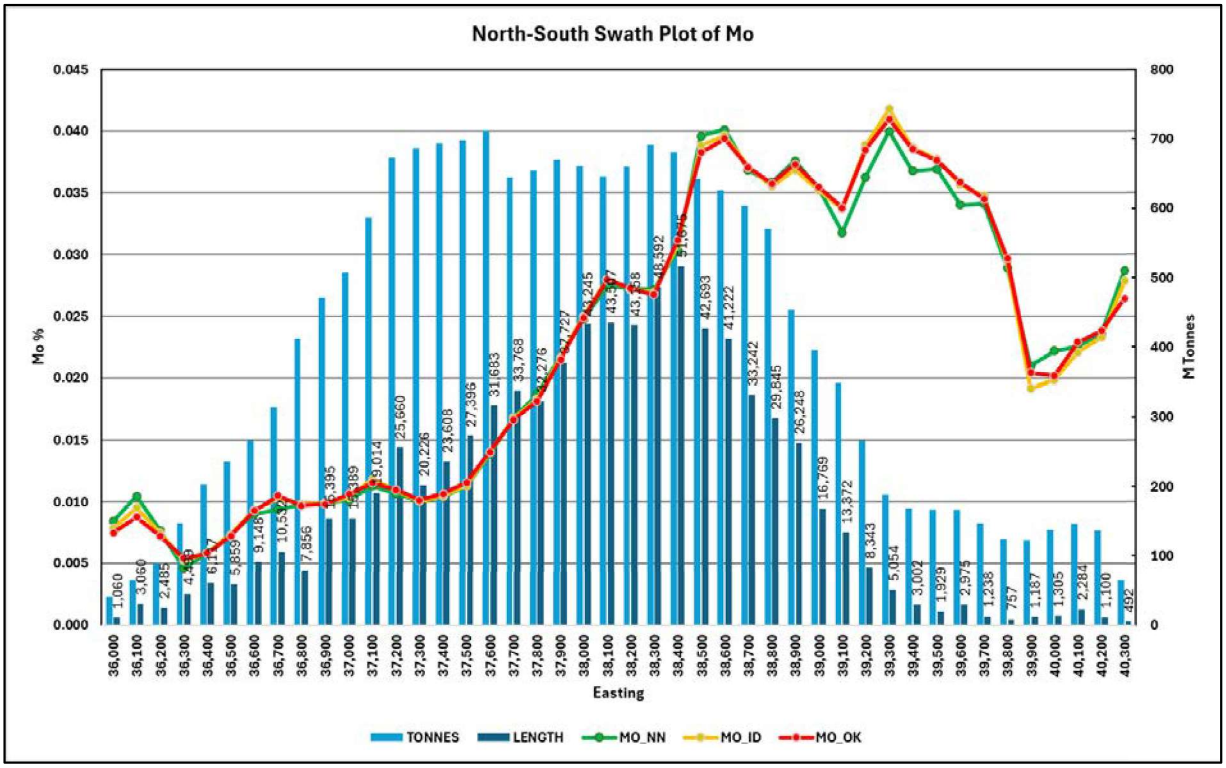


Figure 11.19: North-South Swath Plot of Mo %

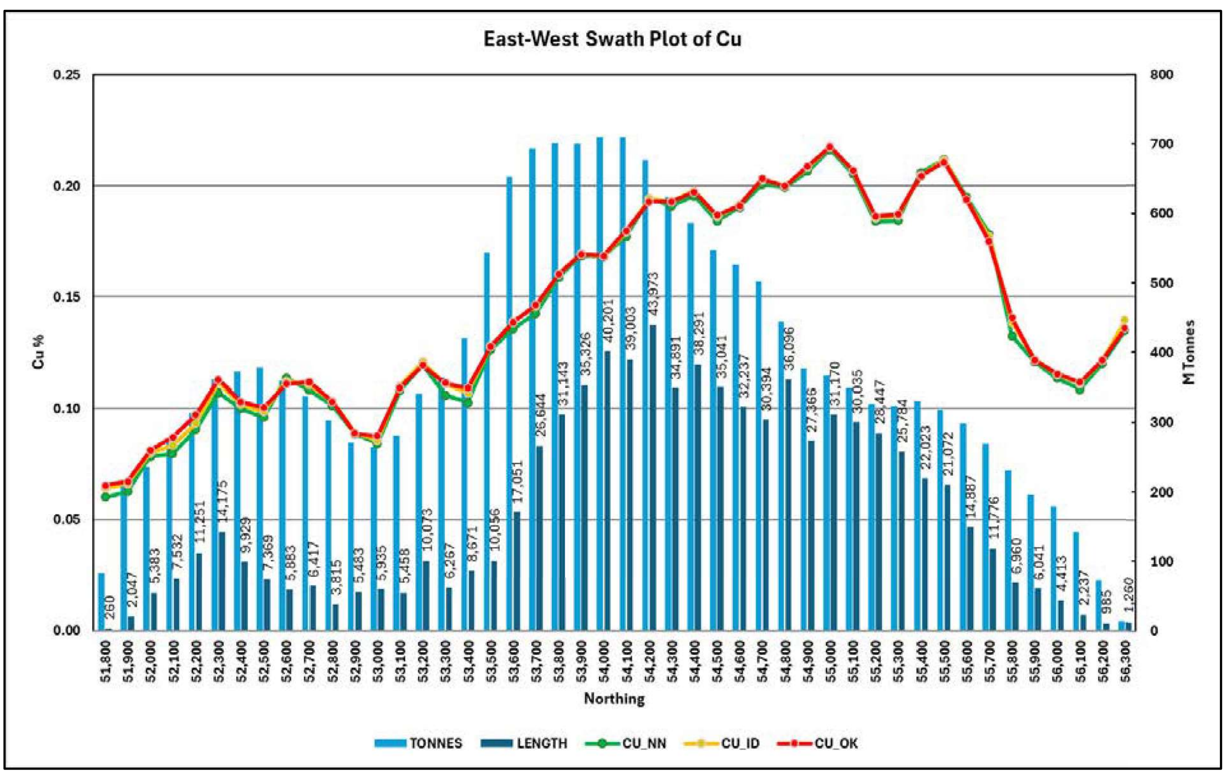


Figure 11.20: East-West Swath Plot of Cu %

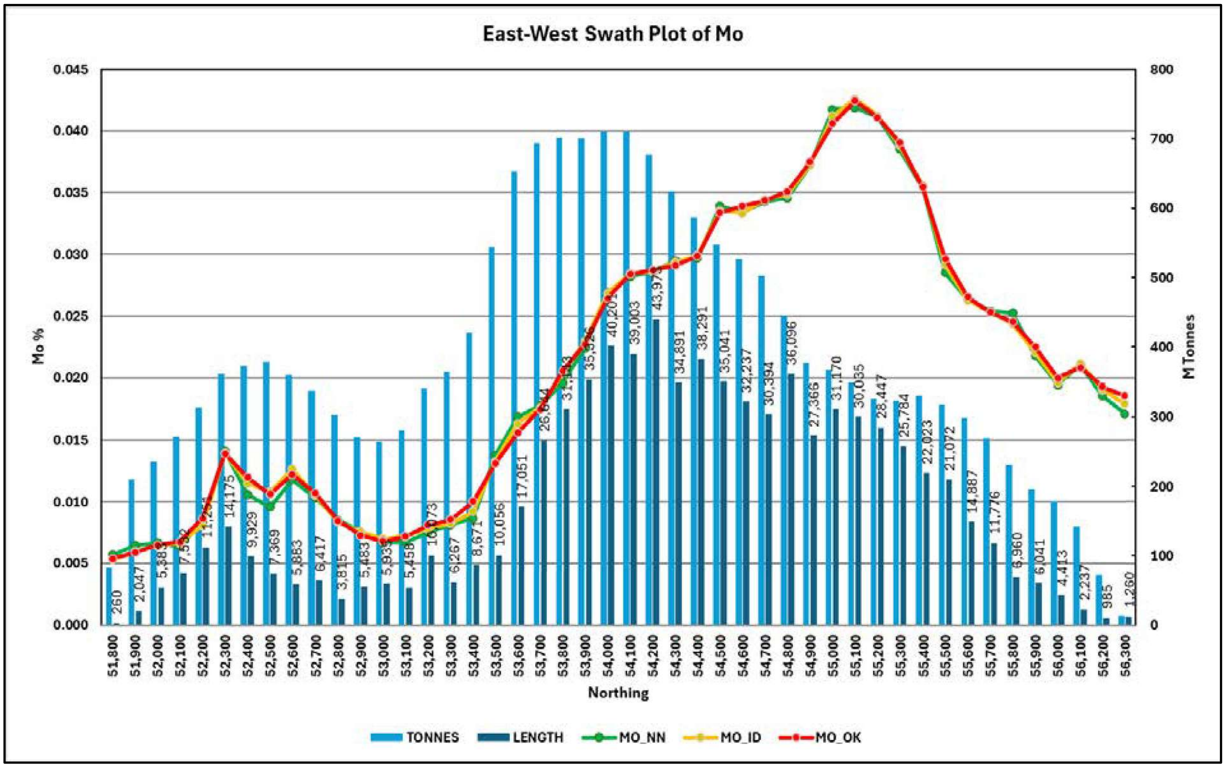


Figure 11.21: East-West Swath Plot of Mo %

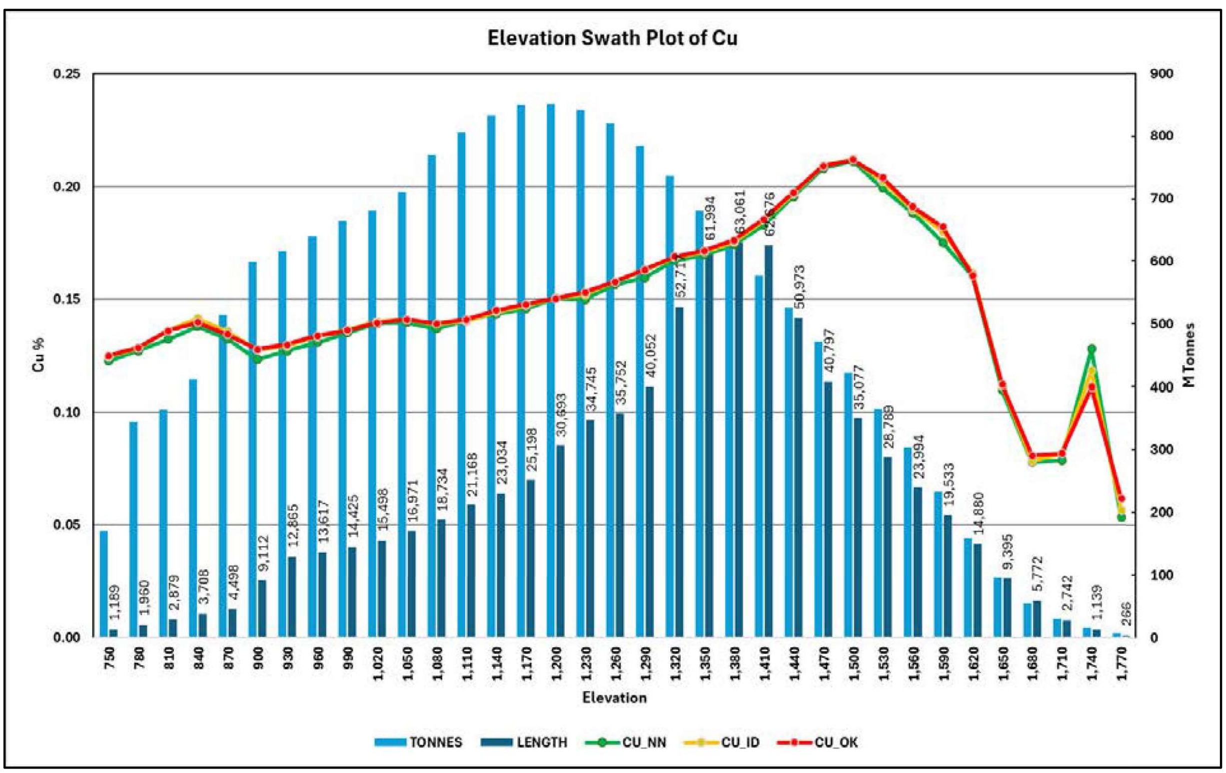


Figure 11.22: Elevation Swath Plot for Cu %

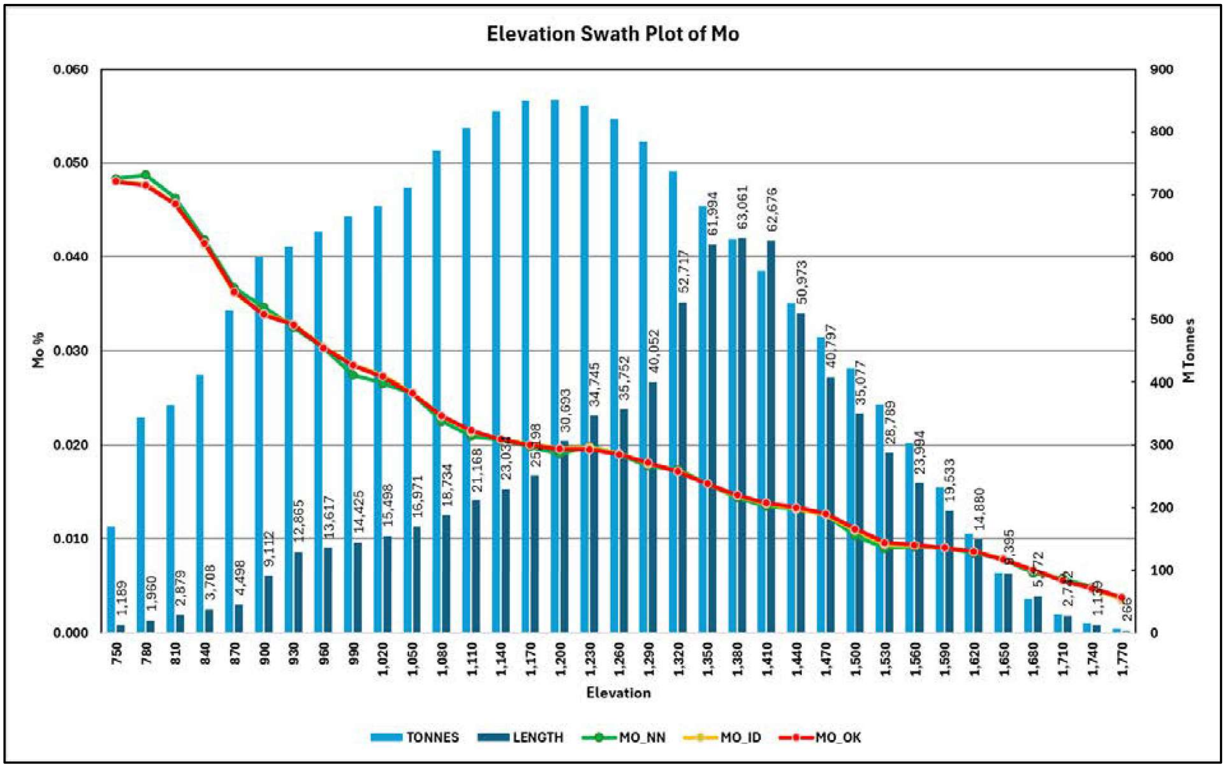


Figure 11.23: Elevation Swath Plot for Mo %

11.1.2 Pilares

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.

11.1.2.1 Introduction

The Pilares Mineral Resource estimate included the estimation of Cu (%), CuO (%), CuCN (%), Mo (ppm) and SG. Fe (%) was also estimated for recovery calculation and informational purposes. The estimate was determined using a block model methodology based on OK interpolation. Drill hole sample data was capped to control outlier values and composited for equal sample weighting. Mineral Resource categories were assigned to the block model based on drill hole spacing relative to the spatial continuity of the deposit. Mineral Resource estimates were constrained by an open pit shell based on economic criteria outlined in Section 11.3.

11.1.2.2 Available Data

The drill hole database provided by SCC consisted of 118 exploration drill holes, collected from 2009-2011 and 2022-2024, as described in Section 7.2.2 of this TRS. The resource drill hole database used to update the Mineral Resource consisted of 85 drill holes including 10,218 Cu, CuO, and Mo assay results, 5,157 CuCN assay results, and 9,266 SG measurements for a combined total of 24,758.94 m of analytical drill hole data. It should be noted that CuCN was not assayed prior to 2023. All drill holes from the 2022 drilling campaign were outside the resource model area and excluded from the resource database. In 2023 and 2024, the site added 11,866 m of samples from 31 drill holes (see Figure 11.24). As discussed in Section 8.2, samples from the 2023 and 2024 drilling campaigns were analyzed for Cu using both 4-acid digestion with ICP and sequential copper with AAS, with the exception of 4 drill holes where residual Cu was not analyzed. Where both assay methods were used, the sum of the sequential copper was used as the final Cu value in the database.

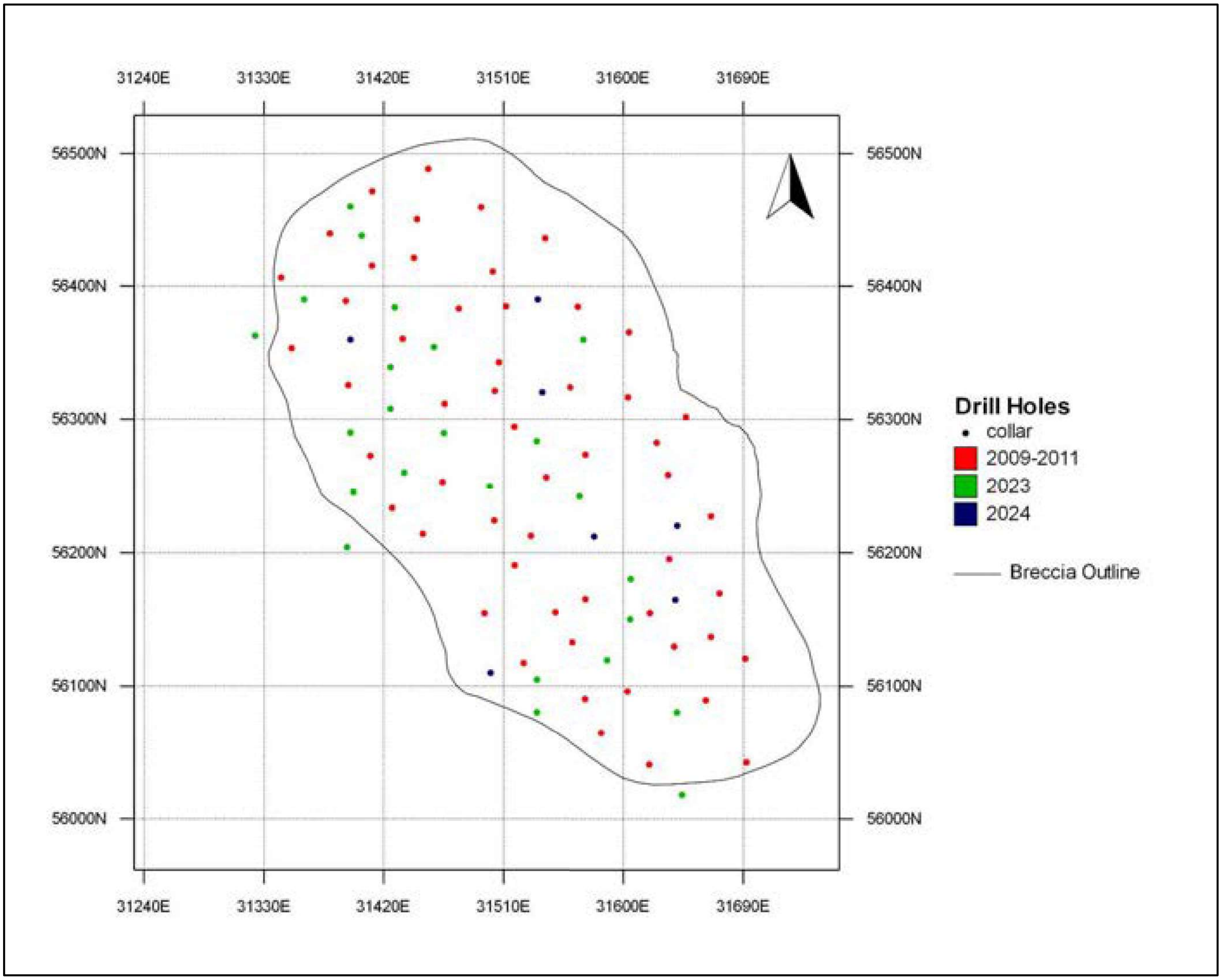


Figure 11.24: Plan View Showing the Location of Resource Drill Hole Collars

The data was reviewed for interval errors and out of range assays values prior to import into the modeling software. Additional data validation is discussed in Section 9.1. Issues were identified and corrected during this process. Six (6) holes (Table 11.19) from the 2009-2011 drilling campaign were excluded from the resource database due to their close proximity to newer and/or longer drill holes.

Table 11.19: List of Excluded Holes – Pilares

Drill Hole	Drill Hole
DP-6	DP-41
DP-12	DP-50
DP-28	DPM-12

The assay data was modified to account for zero grade values, below detection limit assays and unsampled intervals. All zero-grade Cu, CuO, and CuCN values were set to a minimum value of 0.0001%, zero-grade Mo values were set to 0.01 ppm. All assay intervals reported as below detection by the analytical lab were set to half the value of the detection limit. A small number of Fe samples were reported as above detection by the analytical lab and not re-assayed. Above detection limit Fe samples were set to 15.01%. All unsampled intervals were set to absent due to intersections with mining voids and were therefore not to set to a minimum value.

An October 2021 topographic surface was provided by La Caridad for the Pilares deposit area. Validation of the surface relative to the drill hole collars is described in Section 9.1.2 of this TRS.

Pilares personnel provided an underground mining void wireframe, along with accompanying historical mining maps and digitized linework for mine development and stopes.

11.1.2.3 Geological Model

A lithology model consisting of four units was provided by SCC for the Pilares deposit. The model also included a volume for a mineralized breccia pipe, which further subdivides the lithology units, as shown in Figure 11.25.

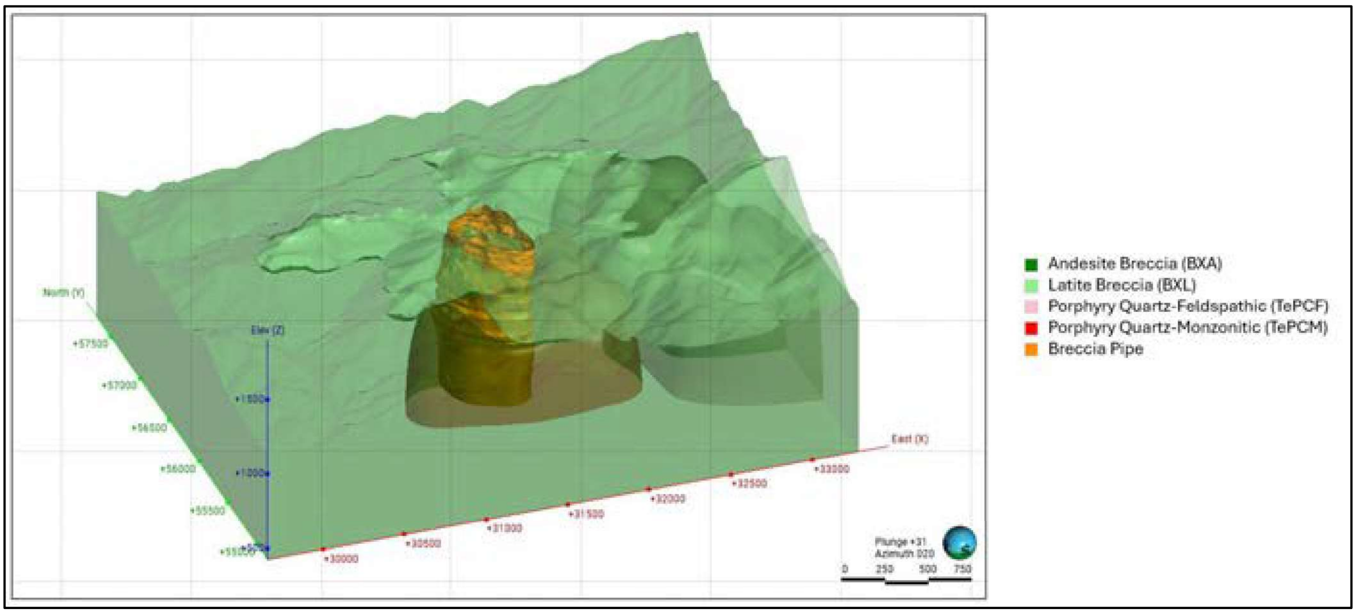


Figure 11.25: Pilares Lithology Model (Oblique View Looking NE)

11.1.2.3.1 Mineral Zone Model

A mineral zone model was created in Leapfrog Geo version 2023.2.3 to constrain the grade estimation based on oxidation levels within the mineralized breccia pipe. Zone units included in the model are summarized in Table 11.20 and shown in Figure 11.26.

Table 11.20: Pilares Mineral Domain Model Units

MinZone	Description	Cu Grade (%)	CuO:Cu Ratio	CuCN:Cu Ratio
FEOX	Overburden/Surface Waste Domain	> 0.04 and < 0.1	> 0.1	N/A
OX	Oxide	> 0.1	> 0.3	N/A
SS	Secondary Sulfide	> 0.1	< 0.3	> 0.3
TR	Transition	> 0.1	< 0.3	> 0.15 and < 0.3
SP	Primary Sulfide	> 0.1	< 0.3	< 0.15

The mineral zone model was developed using the CuO:Cu ratio and CuCN:Cu ratio of assayed intervals using the criteria outlined in Table 11.20, as well as the logged mineralogy (Table 11.21). The zones were constrained by the breccia pipe provided by SCC.

Table 11.21: Pilares Logged Mineralogy Types

Mineralogy	Description
QAL	Alluvium
NSR	Backfill
NSR(-2)	Mining Workings
OX	Oxides
SS	Secondary Sulfides
SSSP	Mixture of Secondary Sulfides with Primary Sulfides
SP	Primary Sulfides

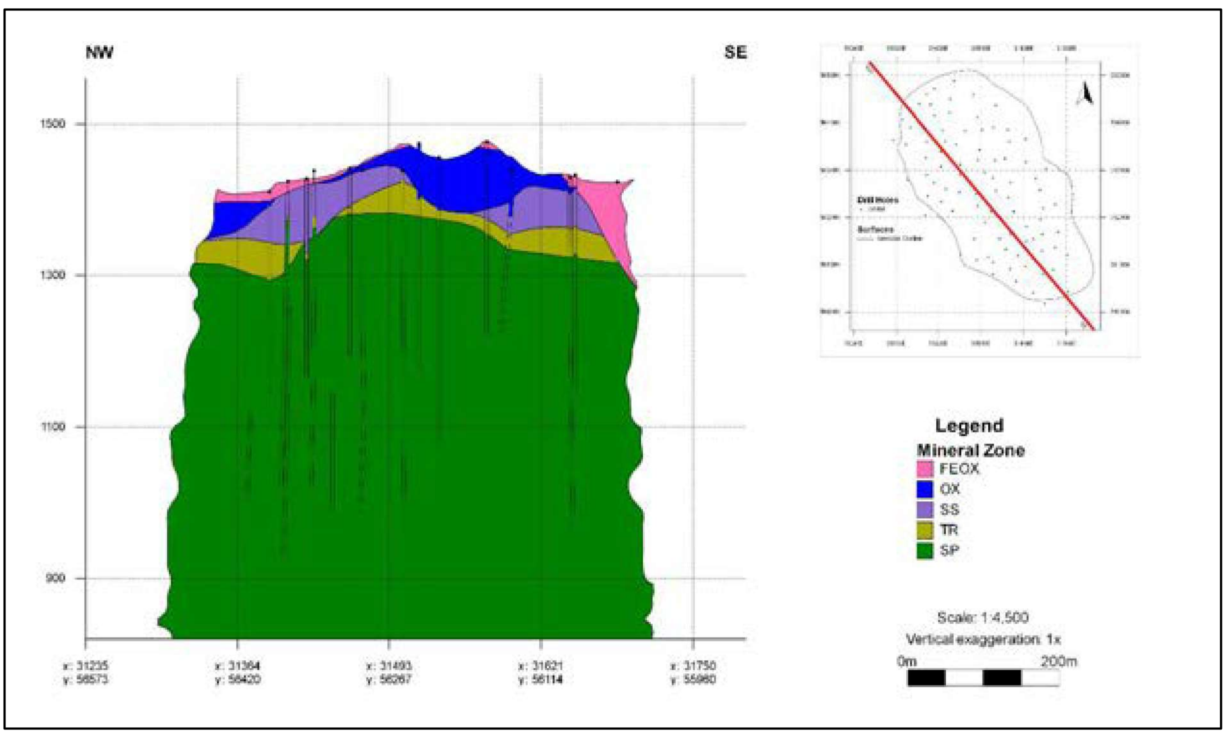


Figure 11.26: NW-SE Cross-Section of Pilares Mineral Zone Model Section ± 20 m

11.1.2.3.2 Underground Void Model

The underground void model representing historic mining activity was unchanged from the updated model produced in 2021. The void wireframe is shown in Figure 11.27.

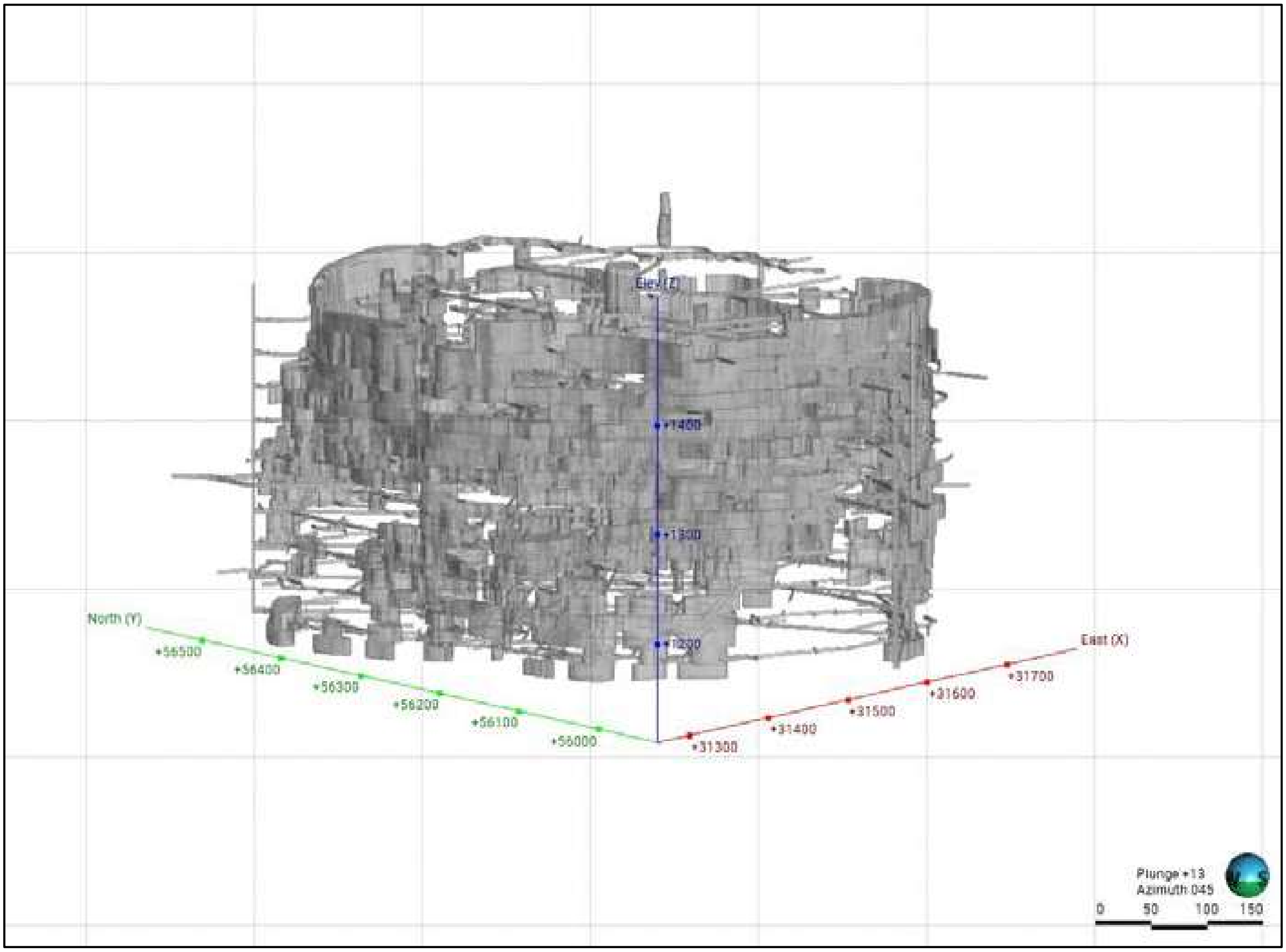


Figure 11.27: Updated Pilares Underground Void Wireframe (Oblique View Looking NE)

11.1.2.4 Exploratory Data Analysis

The sample data, selected within the limits of the mineral zone model, was analyzed for Cu, CuO, CuCN, Mo, Fe, and SG within each oxidation zone using descriptive statistics as well as a series of graphs including histograms, probability plots, and box plots for the purpose of describing the sample population and identifying outlier assay values.

Table 11.22 summarizes the descriptive statistics of the total sample population within the mineral zone model.

Table 11.22: Summary of Sample Statistics for the Total Sample Population

Variable	Count	Minimum	Maximum	Mean	Variance	St. Dev.	CV
Cu (%)	9,983	0.00	8.30	0.56	0.49	0.70	1.25
CuO (%)	9,983	0.00	3.50	0.04	0.01	0.10	2.40
CuCN (%)	4,970	0.00	4.21	0.07	0.02	0.14	1.98
Mo (ppm)	9,983	0.01	3,476.01	70.90	10,363.00	101.80	1.44
Fe (%)	9,983	0.14	22.43	5.33	9.88	3.14	0.59
SG	9,031	1.27	3.99	2.61	0.03	0.17	0.06

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.00, the minimum value is less than 0.01 but greater than zero.

Table 11.23 summarizes the descriptive statistics of the Pilares sample population categorized by mineral zone.

Table 11.23: Summary of Mineral Zone Sample Statistics for Pilares

MinZone		Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
FEOX	(Fe Oxide)	Cu (%)	144	0.00	1.93	0.05	0.04	0.19	3.56
		CuO (%)	144	0.00	0.12	0.01	0.00	0.02	1.51
		CuCN (%)	17	0.00	0.01	0.01	0.00	0.00	0.52
		Mo (ppm)	144	0.01	90.15	12.55	198.50	14.09	1.12
		Fe (%)	144	0.32	12.39	2.64	3.31	1.82	0.69
		SG	152	1.27	2.69	2.42	0.03	0.18	0.08
OX	(Oxide)	Cu (%)	558	0.00	7.60	0.56	0.47	0.69	1.23
		CuO (%)	558	0.00	3.50	0.23	0.09	0.30	1.30
		CuCN (%)	91	0.00	4.21	0.39	0.22	0.47	1.19
		Mo (ppm)	558	0.01	437.00	32.00	1,370.00	37.01	1.16
		Fe (%)	558	0.20	22.43	3.33	4.55	2.13	0.64
		SG	538	1.76	2.97	2.52	0.01	0.11	0.04
SS	(Secondary Sulfide)	Cu (%)	959	0.00	4.63	0.62	0.36	0.60	0.97
		CuO (%)	959	0.00	0.69	0.09	0.01	0.08	0.95
		CuCN (%)	350	0.00	1.85	0.29	0.08	0.28	0.96
		Mo (ppm)	959	0.01	717.00	44.14	2,611.00	51.10	1.16
		Fe (%)	959	0.14	18.63	3.96	4.92	2.22	0.56
		SG	918	1.74	3.04	2.55	0.02	0.13	0.05
TR	(Transition)	Cu (%)	516	0.00	5.52	0.48	0.49	0.70	1.45
		CuO (%)	516	0.00	0.71	0.04	0.01	0.07	1.72
		CuCN (%)	214	0.00	0.57	0.08	0.01	0.09	1.18
		Mo (ppm)	516	0.01	306.00	54.05	2,918.00	54.02	1.00
		Fe (%)	516	0.17	16.16	4.57	6.88	2.62	0.57
		SG	488	2.21	3.11	2.59	0.01	0.11	0.04
SP	(Primary Sulfide)	Cu (%)	7,806	0.00	8.30	0.57	0.51	0.72	1.26
		CuO (%)	7,806	0.00	1.43	0.02	0.00	0.05	1.94
		CuCN (%)	4,298	0.00	0.63	0.04	0.00	0.06	1.38
		Mo (ppm)	7,806	0.01	3,476.01	79.56	12,354.00	111.15	1.40
		Fe (%)	7,806	0.24	22.32	5.77	10.33	3.22	0.56
		SG	6,935	1.29	3.99	2.63	0.03	0.17	0.06

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.00, the minimum value is less than 0.01 but greater than zero.

Cu, CuO, CuCN, Mo, and Fe populations were found to have a positively skewed distribution with the presence of some outlier grade values. Histograms for Cu % and Mo ppm demonstrate that the majority of the mineralization is hosted within the primary sulfide zone, as shown in Figure 11.28 and Figure 11.29, respectively.

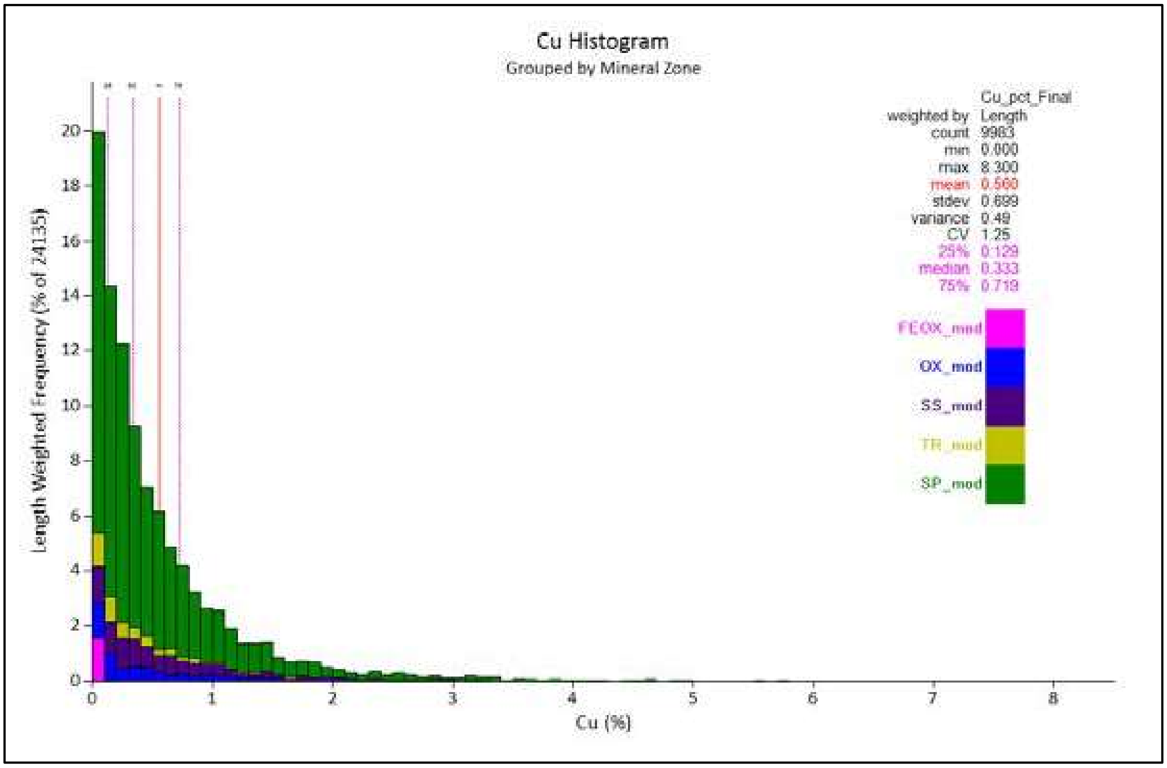


Figure 11.28: Histogram of Cu % by Mineral Zone

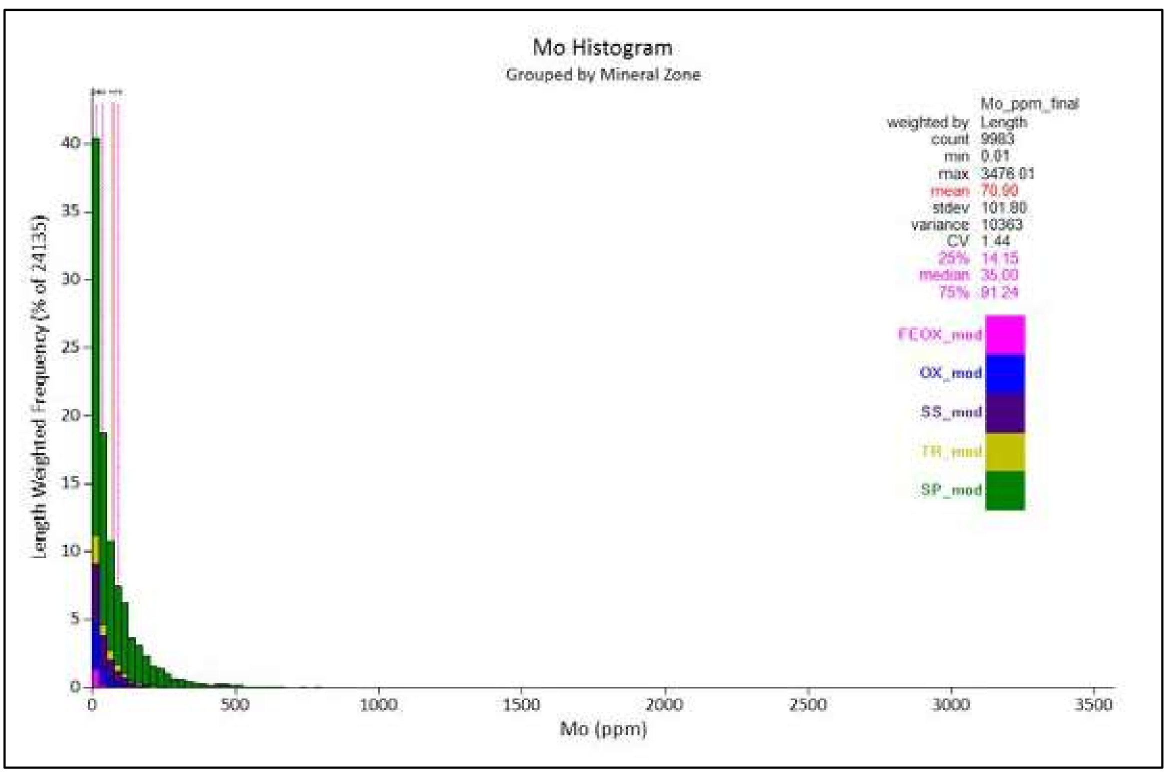


Figure 11.29: Histogram of Mo ppm by Mineral Zone

Table 11.24 shows the correlation between variables in the total sample population and within each mineral zone. Within the total sample population, there is no significant correlation between the variables. There is a good correlation between Cu and CuO in the OX zone, and there is good correlation between Cu and CuCN in the OX, SS, and TR zones. The FEOX and SP zones show no significant correlations between any of the variables.

Table 11.24: Variable Correlation by Mineral Zone for Pilares

MinZone		Variable	Cu (%)	CuO (%)	CuCN (%)	Mo (ppm)	Fe (%)	SG
All Zones		Cu (%)		0.32	0.46	0.11	0.20	0.06
		CuO (%)	0.32		0.52	-0.09	-0.08	-0.15
		CuCN (%)	0.46	0.52		-0.03	-0.08	-0.10
		Mo (ppm)	0.11	-0.09	-0.03		0.39	0.34
		Fe (%)	0.20	-0.08	-0.08	0.39		0.58
		SG	0.06	-0.15	-0.10	0.34	0.58	
FEOX	(Fe Oxide)	Cu (%)		0.45	0.28	0.21	0.19	-0.35
		CuO (%)	0.45		0.27	0.15	-0.13	-0.12
		CuCN (%)	0.28	0.27		0.06	-0.05	-0.07
		Mo (ppm)	0.21	0.15	0.06		0.42	-0.21
		Fe (%)	0.19	-0.13	-0.05	0.42		-0.15
		SG	-0.35	-0.12	-0.07	-0.21	-0.15	
OX	(Oxide)	Cu (%)		0.77	0.82	0.14	0.33	0.07
		CuO (%)	0.77		0.25	0.00	0.21	-0.01
		CuCN (%)	0.82	0.25		0.00	0.00	0.16
		Mo (ppm)	0.14	0.00	0.00		0.37	0.15
		Fe (%)	0.33	0.21	0.00	0.37		0.12
		SG	0.07	-0.01	0.16	0.15	0.12	
SS	(Secondary Sulfide)	Cu (%)		0.66	0.91	-0.02	0.07	-0.01
		CuO (%)	0.66		0.84	0.00	0.12	-0.02
		CuCN (%)	0.91	0.84		-0.03	0.00	-0.14
		Mo (ppm)	-0.02	0.00	-0.03		0.38	0.23
		Fe (%)	0.07	0.12	0.00	0.38		0.38
		SG	-0.01	-0.02	-0.14	0.23	0.38	
TR	(Transition)	Cu (%)		0.42	0.87	-0.09	0.20	-0.06
		CuO (%)	0.42		0.38	-0.15	0.04	-0.06
		CuCN (%)	0.87	0.38		-0.03	0.07	-0.01
		Mo (ppm)	-0.09	-0.15	-0.03		0.38	0.24
		Fe (%)	0.20	0.04	0.07	0.38		0.26
		SG	-0.06	-0.06	-0.01	0.24	0.26	
SP	(Primary Sulfide)	Cu (%)		0.34	0.74	0.12	0.20	0.06
		CuO (%)	0.34		0.30	-0.10	-0.05	-0.18
		CuCN (%)	0.74	0.30		0.03	0.02	-0.01
		Mo (ppm)	0.12	-0.10	0.03		0.37	0.34
		Fe (%)	0.20	-0.05	0.02	0.37		0.60
		SG	0.06	-0.18	-0.01	0.34	0.60	

Visual and statistical analysis of the data determined that not all variables needed to be estimated by each mineral zone separately. Table 11.25 summarizes the estimation domains for each variable and Figure 11.30 shows an example cross-section of the Cu sample grades compared to the mineral domain zones.

Table 11.25: Estimation Domains by Variable

Variable	Estimation Domain
Cu (%)	FEOX
	All Other Zones
CuO (%)	FEOX
	Ox
	SS
	TR
	SP
CuCN (%)	FEOX
	Ox
	SS
	TR
	SP
Mo (ppm)	FEOX
	All Other Zones
Fe (%)	All Zones
SG	All Zones

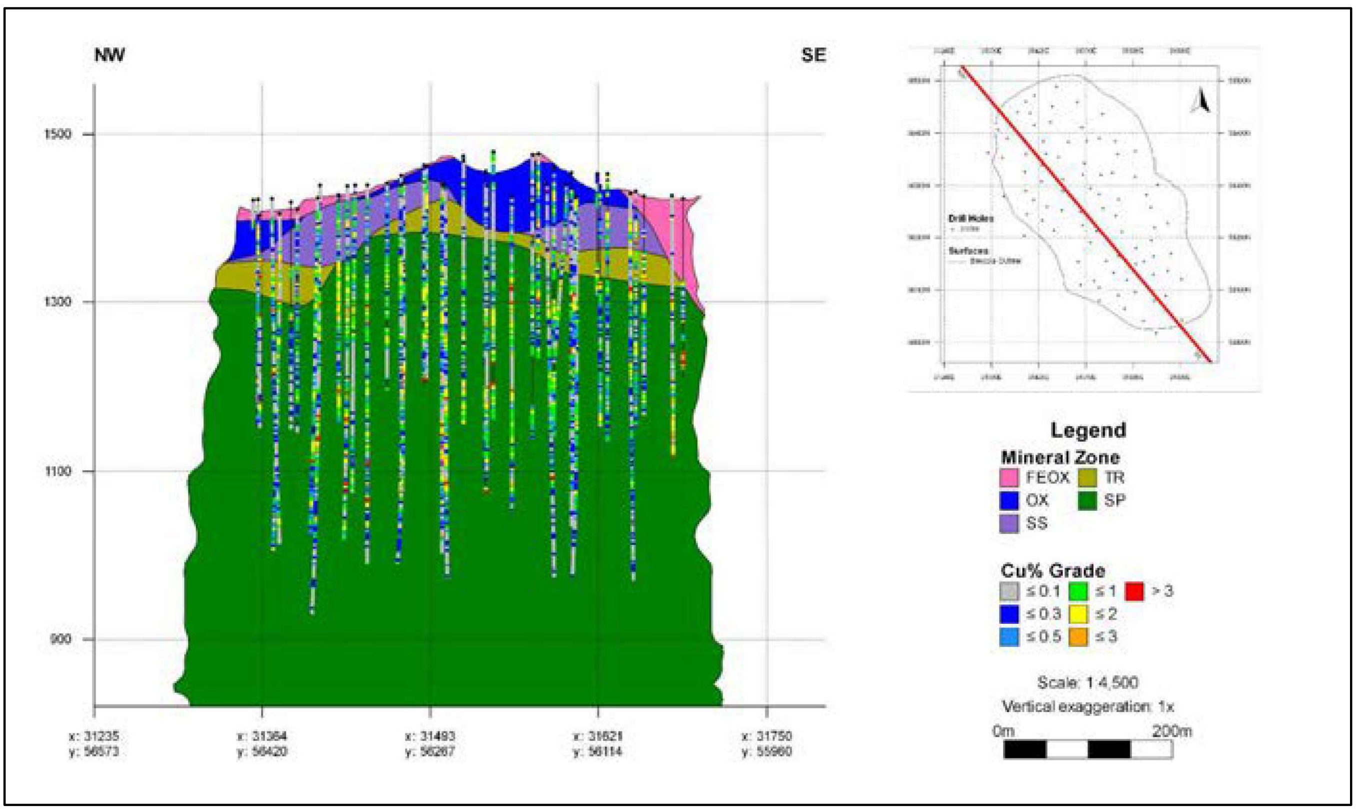


Figure 11.30: NW-SE Cross-Section of Pilares Cu% Drill Hole Grades vs. Mineral Zone Model ± 50 m

Assay grade data and SG values were evaluated for outlier values within each estimation domain using probability plots. Outlier values were identified and capped (top-cut) after compositing for the purposes of grade estimation. Table 11.26 summarizes the capping values for each variable, the number of values for each variable affected by the capping process, and the impact on the mean and coefficient of variation (CV). The percentile value represents the position of the cap value within the overall population distribution. Capped sample statistics indicate a minor reduction in mean grades and CV values for some zones, but overall reductions were found to be insignificant.

Table 11.26: Summary Comparison of Capped vs Uncapped Statistics by Estimation Domain

Variable	Estimation Domain	Cap Value	No. of Samples Capped	Percentile	Uncapped Mean	Capped Mean	Uncapped CV	Capped CV
Cu (%)	FEOX	0.2	3	98.4%	0.05	0.03	3.31	1.02
	All Other Zones	6	5	99.9%	0.57	0.57	1.11	1.10
CuO (%)	FEOX	N/A	-	-	-	-	-	-
	Ox	1.3	6	99.0%	0.23	0.23	1.22	1.16
	SS	N/A	-	-	-	-	-	-
	TR	0.3	4	99.0%	0.04	0.04	1.62	1.29
	SP	0.5	3	99.9%	0.02	0.02	1.77	1.64
CuCN (%)	FEOX	N/A	-	-	-	-	-	-
	Ox	1.2	2	97.1%	0.39	0.38	0.96	0.86
	SS	1.2	3	99.2%	0.29	0.29	0.89	0.85
	TR	N/A	-	-	-	-	-	-
	SP	0.5	2	100.0%	0.04	0.04	1.25	1.25
Mo (ppm)	FEOX	55	3	98.0%	12.57	12.43	1.06	1.03
	All Other Zones	955	4	99.9%	71.86	71.68	1.33	1.30
Fe (%)	All Zones	18.5	3	99.0%	5.31	5.30	0.56	0.56
SG	All Zones	3.6	1	99.0%	2.61	2.61	0.06	0.06

Note: Samples are length weighted. CV=Coefficient of Variation

Raw sample interval lengths were analyzed for the purpose of selecting a composite length for block model grade estimation. The modal sample length was found to be 3 m (see Figure 11.31), therefore 3 m was selected as the length used for compositing the sample data into relatively equal lengths. Compositing was controlled by the estimation domains and small composites less than 1 m were added to the previous composite interval. Figure 11.32 shows the length distribution after compositing.

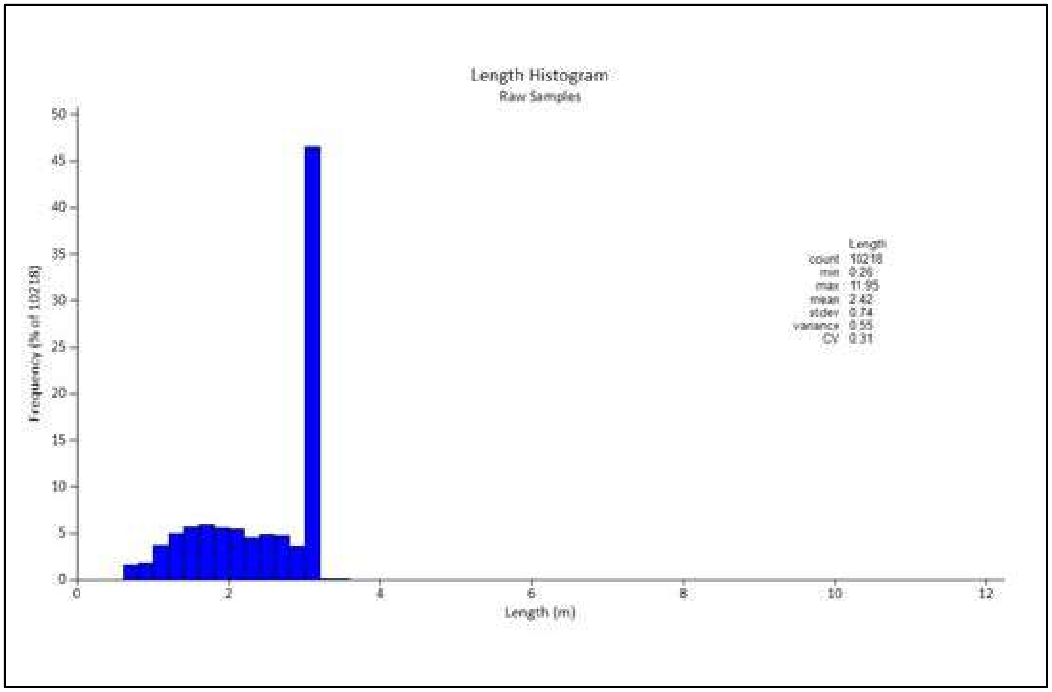


Figure 11.31: Length Histogram – Raw Samples

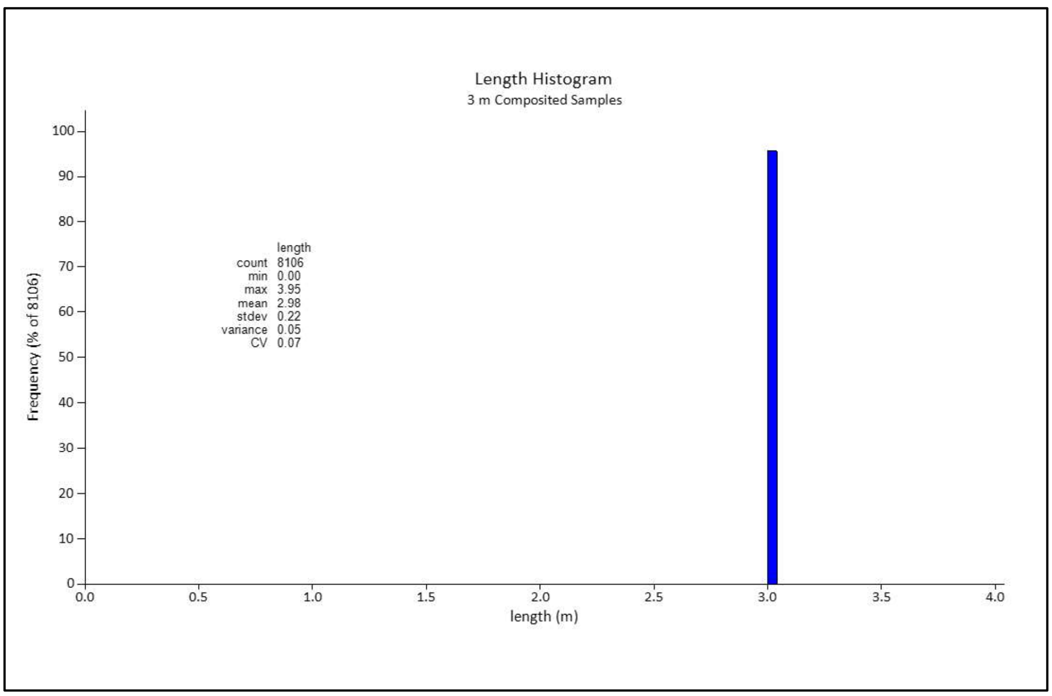


Figure 11.32: Length Histogram - Composited Samples

Table 11.27 summarizes the descriptive statistics of the total composite population and Table 11.28 summarizes the descriptive statistics of the composites categorized by mineral zone.

Table 11.27: Summary of Composite Statistics for the Total Population

Variable	Count	Minimum	Maximum	Mean	Variance	St. Dev.	CV
Cu (%)	8,139	0.00	6.00	0.56	0.38	0.62	1.11
CuO (%)	8,139	0.00	1.30	0.04	0.01	0.09	2.18
CuCN (%)	3,830	0.00	1.20	0.07	0.01	0.12	1.76
Mo (ppm)	8,139	0.01	955.00	70.62	8,493.00	92.16	1.31
Fe (%)	8,139	0.24	18.50	5.33	8.84	2.97	0.56
SG	7,466	2.00	3.60	2.61	0.02	0.15	0.06

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.00, the minimum value is less than 0.01 but greater than zero.

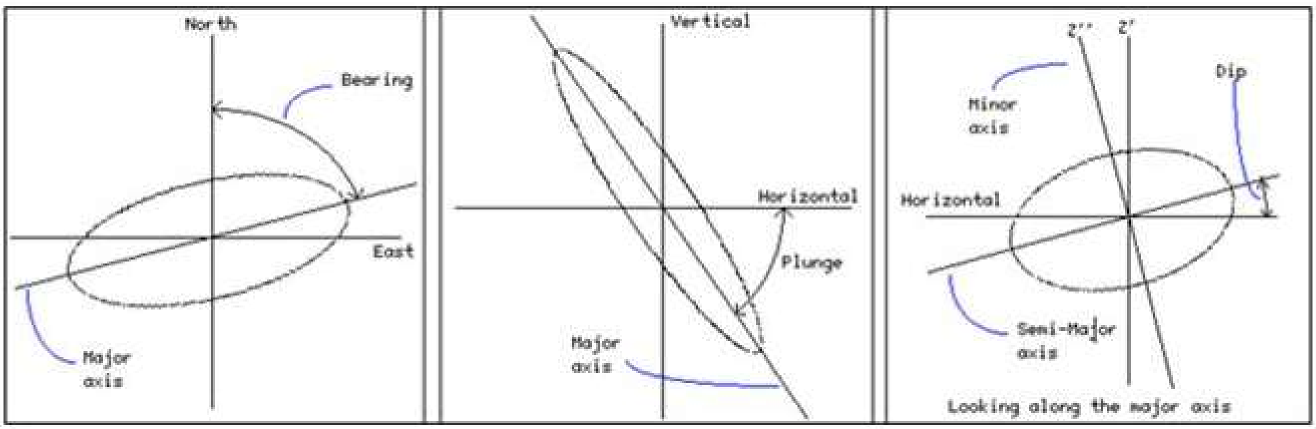
Table 11.28: Summary of Mineral Zone Model Composite Statistics

MinZone		Variable	Count	Minimum	Maximum	Mean	Variance	Std. Dev.	CV
FEOX	(Fe Oxide)	Cu (%)	135	0.00	0.20	0.03	0.00	0.03	1.02
		CuO (%)	135	0.00	0.08	0.01	0.00	0.02	1.41
		CuCN (%)	14	0.00	0.43	0.01	0.00	0.00	0.59
		Mo (ppm)	135	0.01	55.00	12.43	165.10	12.85	1.03
		Fe (%)	135	0.35	9.38	2.65	2.87	1.70	0.64
		SG	149	2.00	2.68	2.43	0.02	0.14	0.06
OX	(Oxide)	Cu (%)	492	0.00	3.00	0.55	0.32	0.57	1.03
		CuO (%)	492	0.00	1.30	0.23	0.07	0.26	1.16
		CuCN (%)	69	0.00	1.20	0.38	0.11	0.32	0.86
		Mo (ppm)	492	0.01	150.00	31.65	1,008.00	31.75	1.00
		Fe (%)	492	0.47	18.50	3.32	3.72	1.93	0.58
		SG	480	2.00	2.80	2.52	0.01	0.10	0.04
SS	(Secondary Sulfide)	Cu (%)	803	0.01	3.00	0.62	0.26	0.52	0.83
		CuO (%)	803	0.00	0.68	0.09	0.01	0.08	0.88
		CuCN (%)	278	0.00	1.20	0.29	0.06	0.25	0.85
		Mo (ppm)	803	0.01	260.00	43.44	1,734.00	41.64	0.96
		Fe (%)	803	0.24	14.18	3.97	3.92	1.98	0.50
		SG	772	2.00	2.90	2.55	0.01	0.11	0.04
TR	(Transition)	Cu (%)	423	0.00	3.00	0.47	0.30	0.55	1.19
		CuO (%)	423	0.00	0.30	0.04	0.00	0.05	1.29
		CuCN (%)	165	0.00	0.44	0.08	0.01	0.08	1.07
		Mo (ppm)	423	0.01	220.00	53.92	2,298.00	47.94	0.89
		Fe (%)	423	0.70	15.36	4.57	5.48	2.34	0.51
		SG	402	2.00	2.90	2.59	0.01	0.10	0.04
SP	(Primary Sulfide)	Cu (%)	6,286	0.00	6.00	0.57	0.40	0.64	1.12
		CuO (%)	6,286	0.00	0.50	0.02	0.00	0.04	1.64
		CuCN (%)	3,304	0.00	0.50	0.04	0.00	0.06	1.25
		Mo (ppm)	6,286	0.01	955.00	79.33	10,122.00	100.60	1.27
		Fe (%)	6,286	0.30	17.79	5.76	9.28	3.05	0.53
		SG	5,663	2.00	3.60	2.63	0.02	0.15	0.06

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. For values that show a minimum of 0.00, the minimum value is less than 0.01 but greater than zero.

11.1.2.5 Spatial Continuity

The spatial continuity of Cu, CuO, CuCN, Mo, Fe, and SG were evaluated within the mineral zone model through the use of variogram analysis within Vulcan Data Analyzer. Note that the terminology of this section and Section 11.1.2.6 as it pertains to angle and axis follow Vulcan definitions (Figure 11.33).



Bearing, plunge, and dip are the values ((ϴ1, ϴ2, ϴ3, respectively) and angles are measured in degrees. Initially, the X axis is heading north; the Y axis is heading east and the Z axis is heading up. Bearing is measured clockwise from the north towards the bearing line (rotation around the Z axis). Plunge is measured counter-clockwise around the Y' axis and dip is measured counter-clockwise around the X' axis. The major axis is the X' axis radius, the semi-major axis is the Y' axis and the minor axis is the Z' axis (X',Y' and Z' are the axes modified by rotation).

Figure 11.33: Angle and Axis Convention in Vulcan

Two-structure spherical variograms were modeled based on the experimental variogram data, as shown in the Cu example in Figure 11.34. These models were then used to define the sample search ellipsoid dimensions and to assign kriging weight values to the samples for the purposes of OK estimation, as further discussed in Section 11.1.2.6.

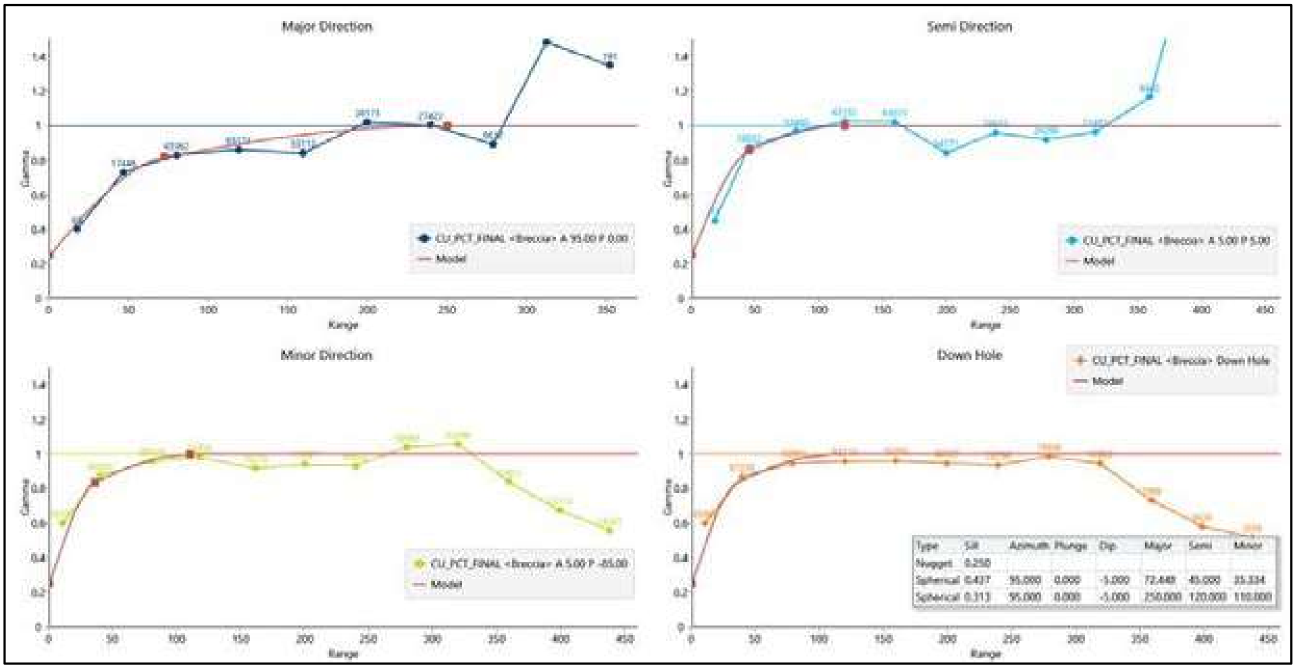


Figure 11.34: Variogram Model for Cu (All Directions)

A summary of the variogram model parameters for each variable is presented in Table 11.29.

Table 11.29: Summary of Variogram Parameters

Variable	Bearing	Plunge	Dip	Nugget	Sill 1	Range 1 (m)			Sill 2	Range 2 (m)		
						Major	Semi-Major	Minor		Major	Semi-Major	Minor
Cu (%)	95.00	0.00	-5.00	0.25	0.44	72	45	35	0.31	250	120	110
CuO (%)	4.96	0.87	4.92	0.10	0.38	75	40	80	0.52	450	350	170
CuCN (%)	95.00	0.00	-5.00	0.30	0.24	129	60	63	0.07	155	115	80
Mo (ppm)	50.00	0.00	0.00	0.15	0.30	160	50	40	0.55	500	650	165
Fe (%)	60.00	0.00	-30.00	0.05	0.08	67	46	39	0.07	120	90	60
SG	69.67	-4.21	-9.08	0.27	0.05	50	40	50	0.30	120	120	55

11.1.2.6 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 within each mineral zone unit using descriptive statistics (Table 11.30), a histogram by mineral zone Figure 11.35), box plot (Figure 11.36), and mineral zone cumulative probability plot (Figure 11.37). The SG data was found to have a relatively consistent mean in each zone; therefore, the SG estimation was not constrained by individual domains. The primary sulfide zone contains most of the data and therefore displays the widest range of values.

The SG was analyzed for both lower and upper outlier values. Based on the analysis of the data, all SG values below 2 were set to 2, and all SG values above 3.6 were capped at 3.6 g. Outlier values were capped after compositing for the purposes of grade estimation. The number of samples impacted by the capping process were shown in Table 11.30.

Table 11.30: Summary of SG Statistics by Mineral Domain Zone

Variable	MinZone	Count	Min	Max	Mean	Variance	Std. Dev.	CV
SG	All	9,031	1.27	3.99	2.61	0.03	0.17	0.06
SG	FEOX	152	1.27	2.69	2.42	0.03	0.18	0.08
SG	OX	538	1.76	2.97	2.52	0.01	0.11	0.04
SG	SS	918	1.74	3.04	2.55	0.02	0.13	0.05
SG	TR	488	2.21	3.11	2.59	0.01	0.11	0.04
SG	SP	6,935	1.29	3.99	2.63	0.03	0.17	0.06

Notes: Samples are length weighted. Std. Dev.=Standard Deviation. CV=Coefficient of Variation. MinZone: FEOX=Fe Oxide, OX=Oxide, SS=Secondary Sulfide, SP=Primary Sulfide

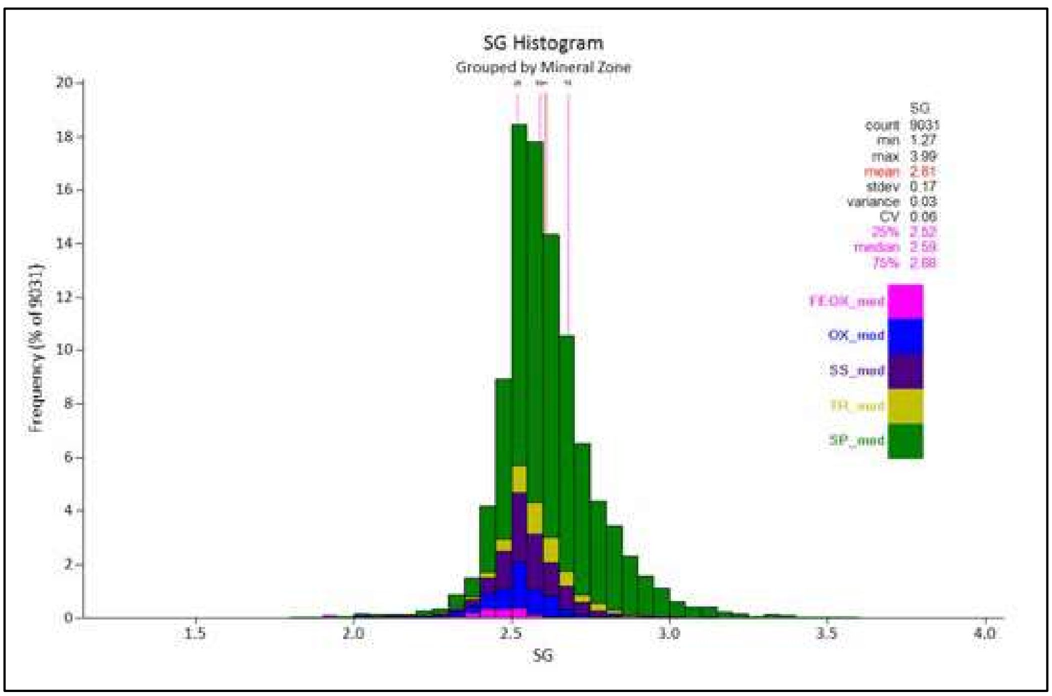


Figure 11.35: Histogram of SG by Mineral Zone

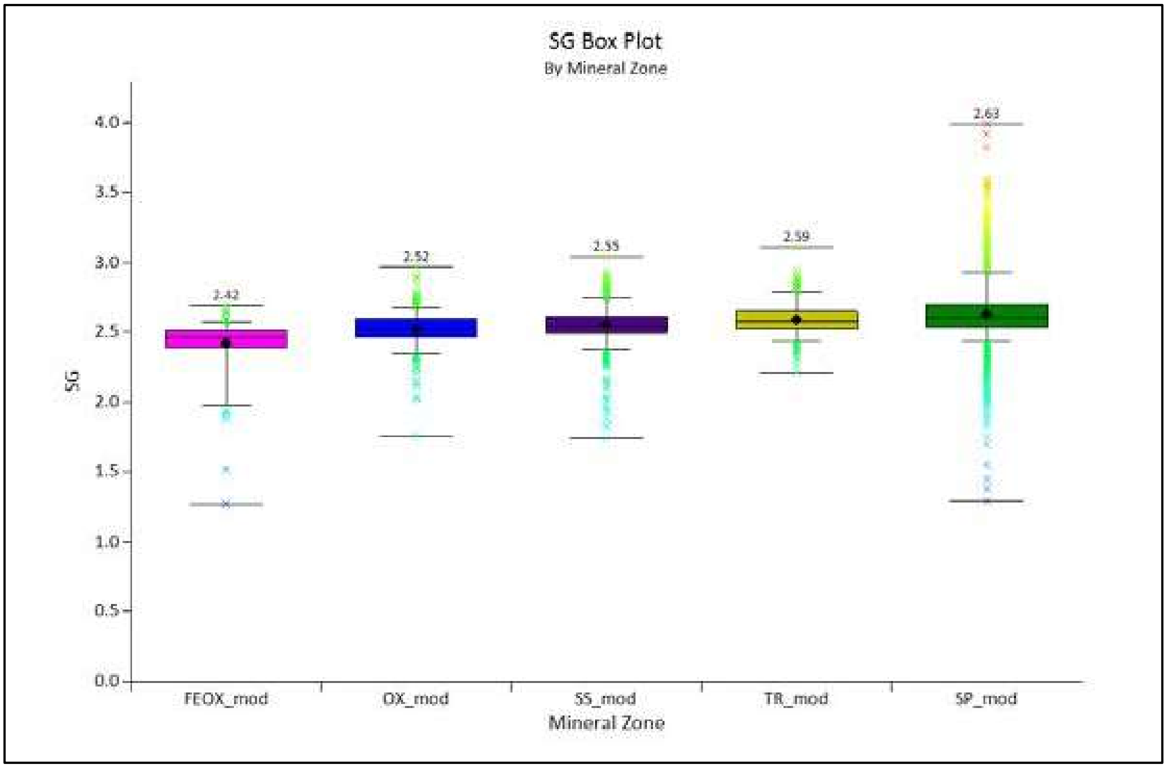


Figure 11.36: Box Plot of SG by Mineral Zone

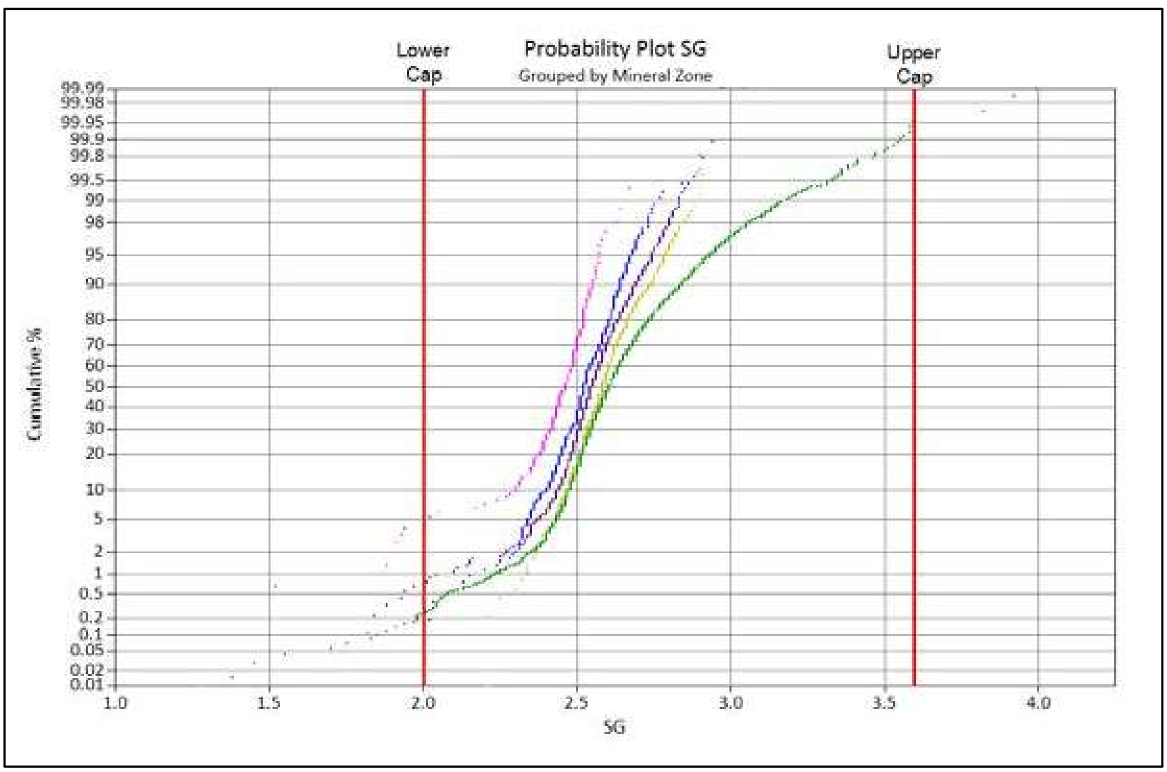


Figure 11.37: Probability Plot of SG by Mineral Zone

11.1.2.7 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 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.

A 3D grade block model was generated using Maptek™ Vulcan (Vulcan) software. Block model parameters, including origin and parent block size, are summarized in Table 11.31 using the local coordinate system. The block model was not rotated or dipping.

Table 11.31: Summary of Block Model Details

Origin (m)		Extent (m)	Range (m)	Parent Block Size (m)	Number of Parent Blocks
X Coordinate	30,795.0	32,407.5	1,612.5	7.5	215
Y Coordinate	55,492.5	57,000.0	1,507.5	7.5	201
Z Coordinate	915.0	1,635.0	720.0	7.5	96

All grade variables and SG were estimated using OK interpolation. For the purposes of comparison and validation, additional interpolation methods for all estimated variables included NN, inverse distance squared (ID^2), and ID^3.

The sample 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 for each variable.
- The second pass search was equal to the full variogram range.
- The third pass search distance was equal to two times the full variogram range.
- In all passes, estimates required a minimum of 8 samples and a maximum of 12 samples, with a maximum of 4 samples per drillhole. This ensured that samples from at least two holes were used for all estimates.
- 4 x 4 x 2 discretization

Hard contacts were used for all estimation domains (see Table 11.25) and outlier samples were controlled by grade capping, as discussed in Section 11.1.2.4. The final search parameters for each variable are summarized in Table 11.32.

Table 11.32: Summary of Search Strategy Parameters

Variable	Search Pass	Orientation			Search Distance (m)			Sample Counts		
		Bearing	Plunge	Dip	Major	Semi-Major	Minor	Min.	Max.	Max. per drill hole
Cu (%)	1	95	0	-5	125	60	55	8	12	4
	2				250	120	110			
	3				500	240	220			
CuO (%)	1	5	0	5	225	175	85	8	12	4
	2				450	350	170			
	3				900	700	340			
CuCN (%)	1	95	0	-5	77.5	57.5	40	8	12	4
	2				155	115	80			
	3				310	230	160			
Mo (ppm)	1	50	0	0	65	50	22.5	8	12	4
	2				130	100	45			
	3				260	200	90			
Fe (%)	1	60	0	-30	60	45	30	8	12	4
	2				120	90	60			
	3				240	180	120			
SG	1	70	-4	-9	60	60	28	8	12	4
	2				120	120	55			
	3				240	240	110			

Notes: Refer to Section 11.1.2.5 for definition of bearing, plunge, and dip.

As mentioned in Section 11.1.2.2, CuCN % was not assayed in any drill holes prior to 2023, and holes drilled since 2023 were collared in areas that have already been partially mined out, resulting in the upper portion of the mineral zone model lacking CuCN samples for estimation. To account for this, an upper surface limit was modeled in Leapfrog using the collars of all drill holes that had CuCN assay results. Estimation of CuCN grades were limited to blocks below this surface and all blocks above it had the CuCN grade set to a null value. Figure 11.38 shows an example cross-section of the CuCN upper surface limit relative to the pre-mining topography surface that was used for the mineral zone model, with drill holes that have CuCN assay results shown in blue.

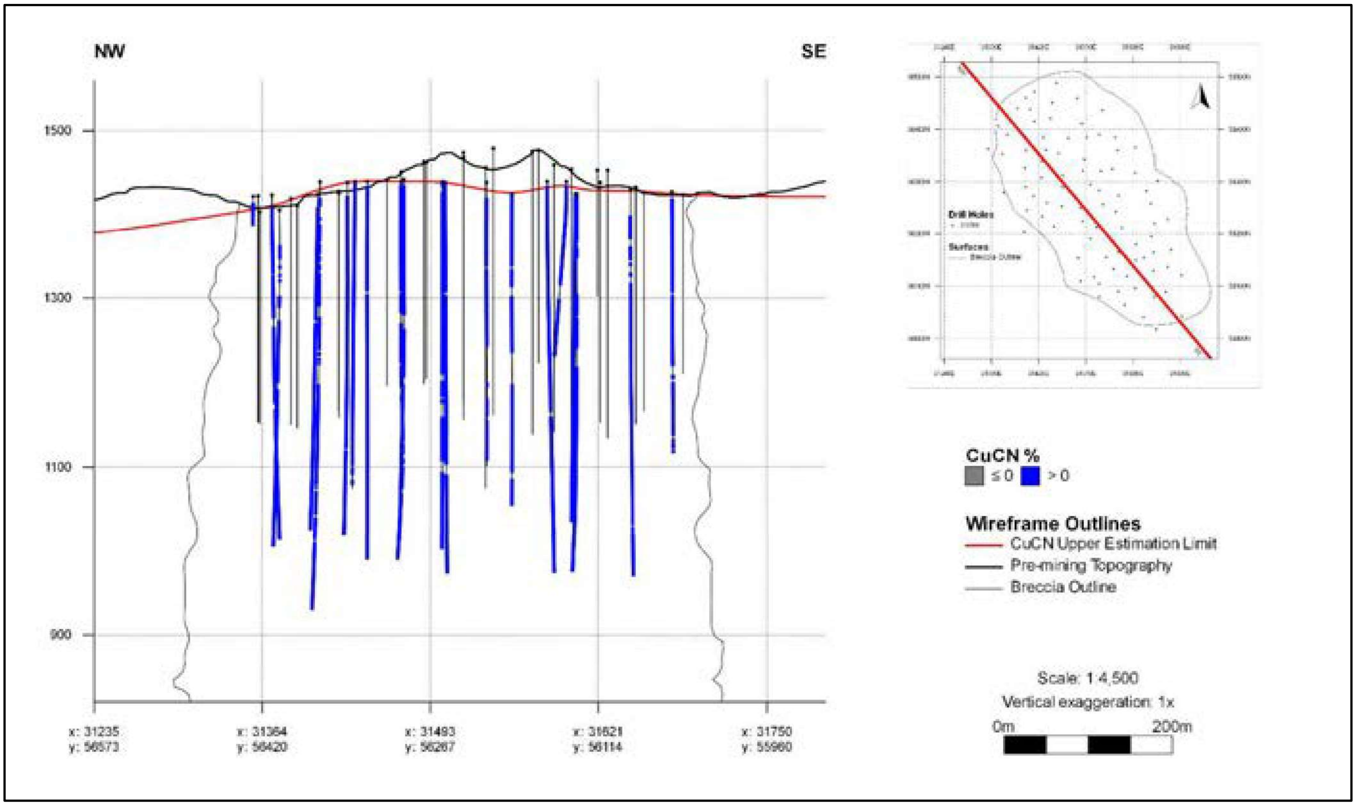


Figure 11.38: CuCN Estimation Upper Surface Limit

The oxide soluble ratio (Cu:CuO) and cyanide soluble ratio (Cu:CuCN) variables were calculated based on the model grades by dividing CuO/Cu and CuCN/Cu for each block. The variables were then combined to create a solubility index (SI) variable, where SI = (CuO+CuCN)/Cu. Mo grades were converted from ppm to percent through a script. All blocks that intersected the underground void wireframe were flagged with a percentage of mined out. Blocks that intersected the end of year projected 2024 mined out surface provided by SCC were also flagged with a percentage of mined out.

A small number of Mo and Fe blocks along the limits of the breccia unit did not meet the sample criteria for the OK interpolation, these blocks were given the value of the NN estimate to ensure all blocks within the breccia unit had a grade assigned to them. Un-estimated blocks that had a majority volume outside the limit of the breccia wireframe were assigned a grade of zero, with the exception of SG. SG values for blocks outside the breccia wireframe were given a static value based on the mean SG of the lithology unit, using the lithology model provided by SCC. Table 11.33 summarizes the mean SG per lithology unit and the number of samples available for each.

Table 11.33: Mean SG by Lithology Unit

Lithology Unit	Sample Count	Mean SG
BXL	6,167	2.55
BXA	7,240	2.71
TePCM	739	2.66
TePCF	1,060	2.68

11.1.2.8 Model Validation

The model validation process included a visual comparison of block model and composite grades in plan and section, global comparison of mean grades, and evaluation of swath plots for local grade comparisons.

Block grades were visually compared to the drill hole composite data in all domains to ensure agreement and no material grade bias issues were identified, as demonstrated by the example cross-section for Cu in Figure 11.39 and Figure 11.40.

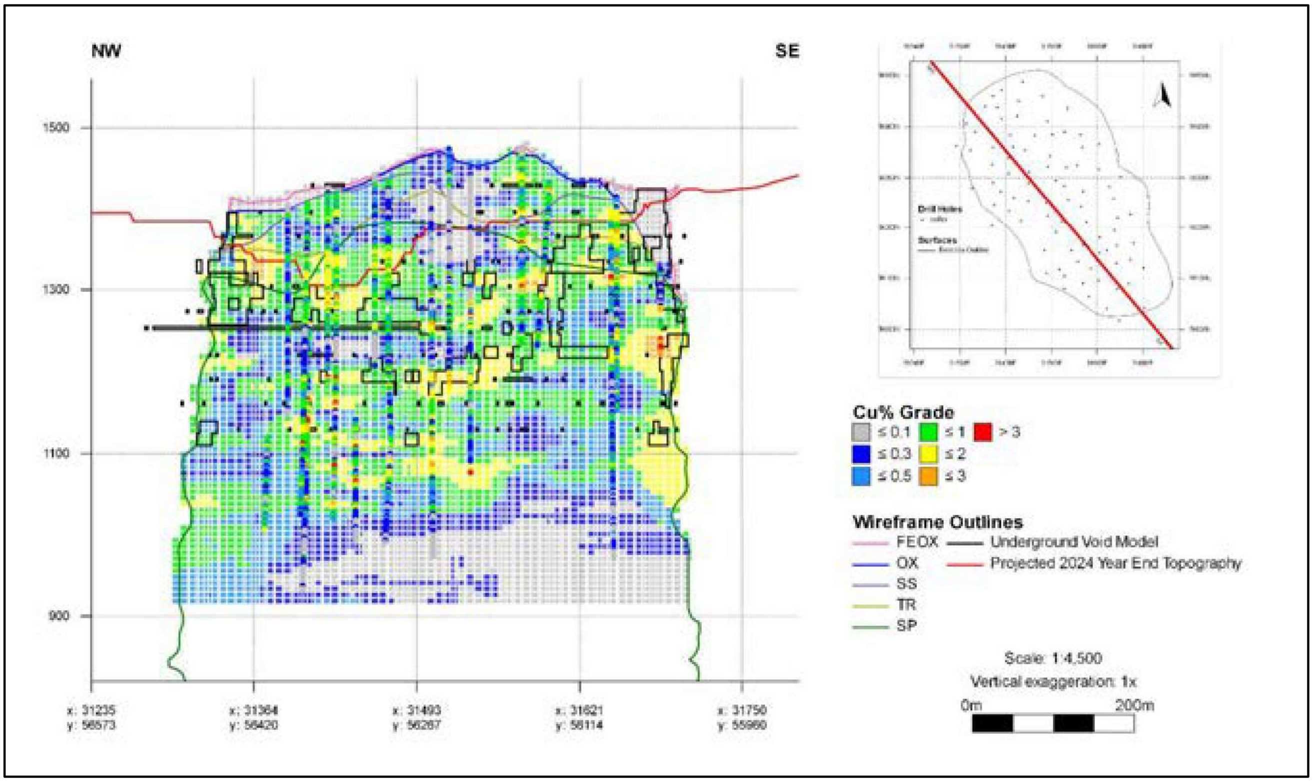


Figure 11.39: NW-SE Cross-section of Composite Samples and Block Grades ± 20 m

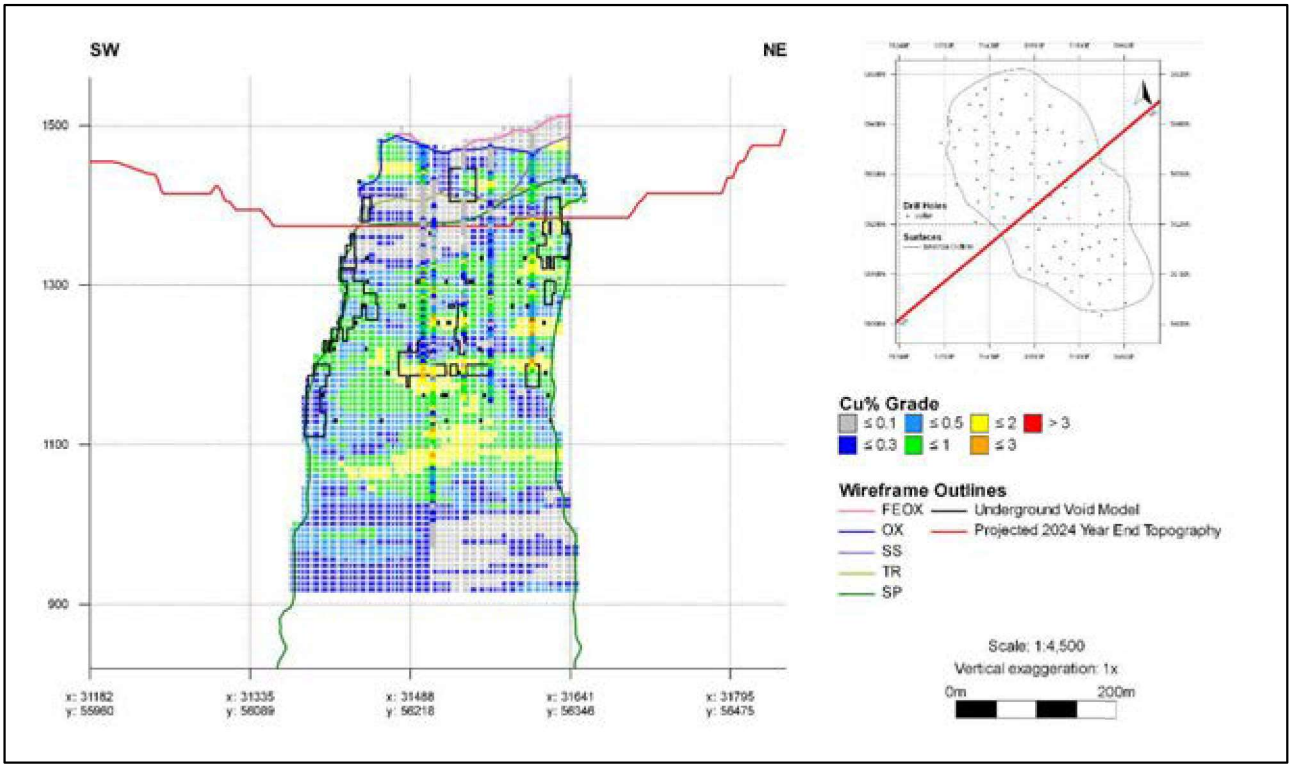


Figure 11.40: SW-NE Cross-section of Composite Samples and Block Grades ± 20 m

Global mean grades for all variables were compared between declustered composite grades from the NN estimates and the ID^2, ID^3, and OK estimates to determine if there was any significant global bias. The global mean differences for each variable were all within the normal tolerance of 5% of the NN estimate, as shown in Table 11.34, indicating no significant global bias in the grade estimates.

Table 11.34: Comparison of Global Mean Estimates

Variable	NN Mean	ID^2 Mean	ID^3 Mean	OK Mean	ID^2 %Diff	ID^3 %Diff	OK %Diff
Cu (%)	0.52	0.51	0.51	0.52	-2.13	-1.94	0.39
CuO (%)	0.03	0.03	0.03	0.03	3.23	3.23	3.23
CuCN (%)	0.07	0.06	0.07	0.06	-4.48	-2.99	-4.48
Mo (ppm)	109.26	106.51	107.05	104.38	-2.53	-2.03	-4.47
Fe (%)	6.15	6.15	6.17	6.13	0.10	0.31	-0.20
SG	2.66	2.66	2.66	2.66	0.00	0.04	-0.04

Notes: %Diff = Percent Difference

Swath plots were generated for all estimated variables to evaluate local grade comparisons between NN, ID^2, ID^3, and OK estimates. Swath plots for Cu and Mo are presented in Figure 11.41 and Figure 11.42. In general, there was acceptable correlation between all estimates. Some divergence between swath lines were observed around the margins of the model, due to a lower number of samples, but no material issues were identified.

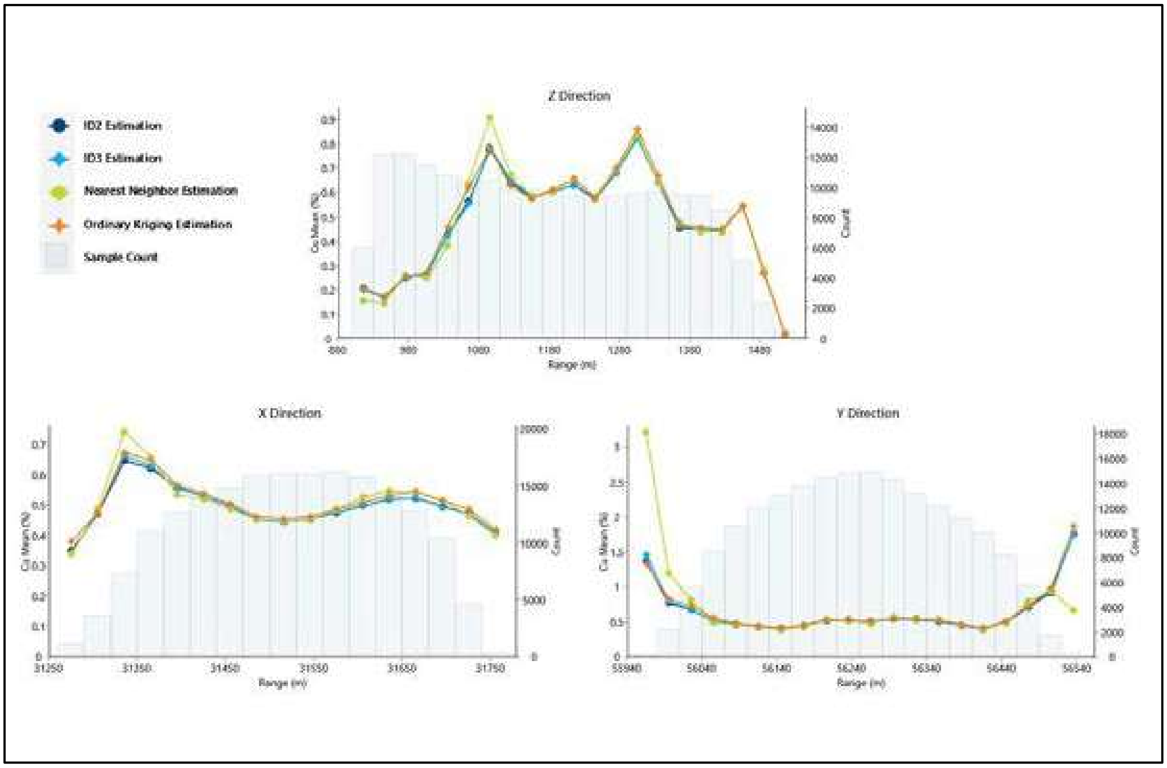


Figure 11.41: Cu Swath Plot for All Zones

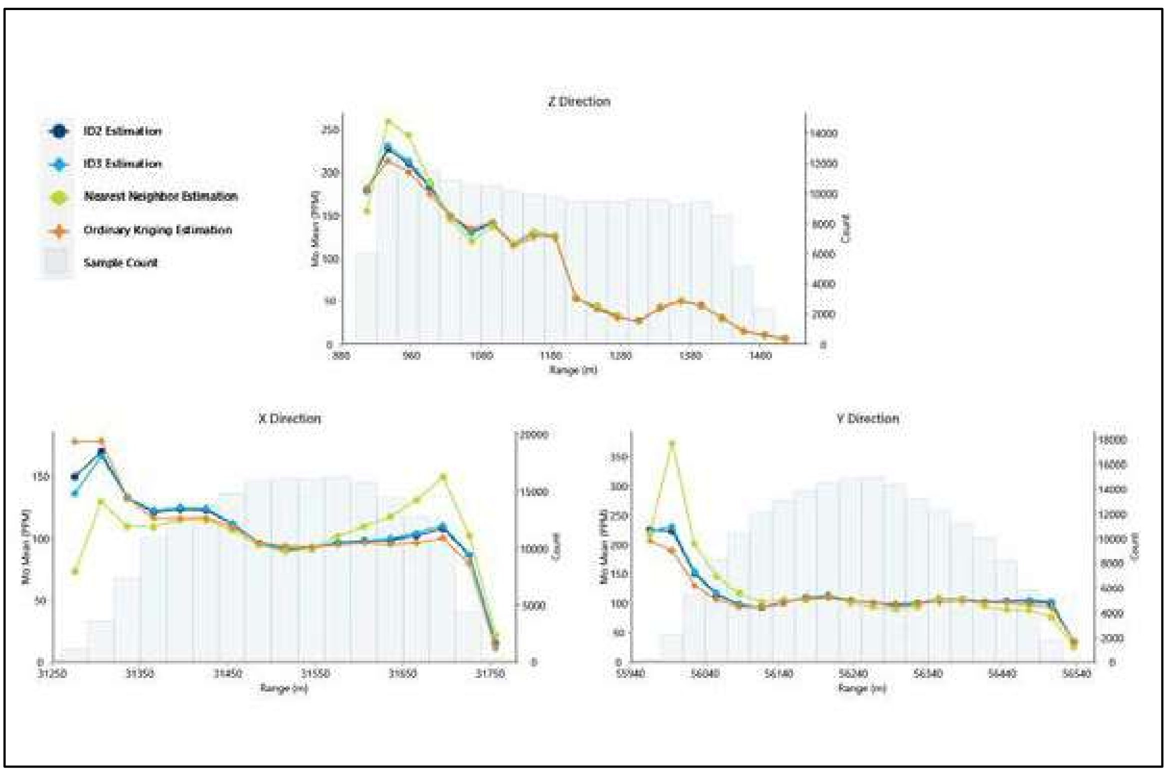


Figure 11.42: Mo Swath Plot for All Zones

11.2 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 estimate for the project is reported here in accordance with the SEC S-K 1300 regulations. For estimating the Mineral Resources of La Caridad, the following definition as set forth in the S-K 1300 Definition Standards adopted December 26, 2018 was applied.

Under S-K 1300, a Mineral Resource is defined as:

> "…is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled."

Note to readers: The Mineral Resources presented in this section are not Mineral Reserves and do not reflect demonstrated economic viability. The reported Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that all or any part of this Mineral Resource will be converted into Mineral Reserve. All figures are rounded to reflect the relative accuracy of the estimates and totals may not add correctly.

Mineral Resource estimates exclusive of Mineral Reserves are summarized in Table 11.35 for both the Leach and Mill Processes on a 100% ownership basis. Mineral Resources at Pilares were previously reported in its own TRS (2022, 2024). Mineral Resources at Pilares are now being reported together with La Caridad since the mining operations are treated as one with all ore being sent to the mill and leach facilities at La Caridad. Table 11.35 presents a combined Mineral Resource estimate for both La Caridad and Pilares for the first time.

It should be noted that SCC has a 98.14% ownership in La Caridad and Pilares through their main subsidiaries with the remainder being held through intermediate holding companies. 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, 2024.

The Mineral Resource estimate was reported from within a constrained pit shell developed using the criteria presented in Section 11.3 of this TRS to establish reasonable prospects for economic extraction. To prepare the block model for pit optimization the following actions were taken.

- The original surface topography and the projected December 2024 topography were used to define a material type, identifying previously mined material (pink), surface dumps (orange) and un-mined material (green) in Figure 11.43 for La Caridad and Figure 11.44 for Pilares.

- Previously mined material was removed from the model. For Pilares this included the underground workings, using a percentage based “mined out” variable
- All un-estimated blocks were assigned a zero grade. For Pilares this included all block outside of the breccia.
- For La Caridad, un-mined blocks without an estimated SG were assigned the average SG of 2.61. For Pilares, un-mined blocks without an estimated SG outside the breccia were assigned an average SG based on lithology type (see Section 11.1.2.6).
- Dump blocks for La Caridad were assigned an SG of 1.77.
- Blocks were regularized to 25 m Easting x 25 m Northing x 15 m Elevation for La Caridad and 15 m Easting x 15 m Northing x 15 m Elevation for Pilares, this being the anticipated minimum mining units for each deposit.

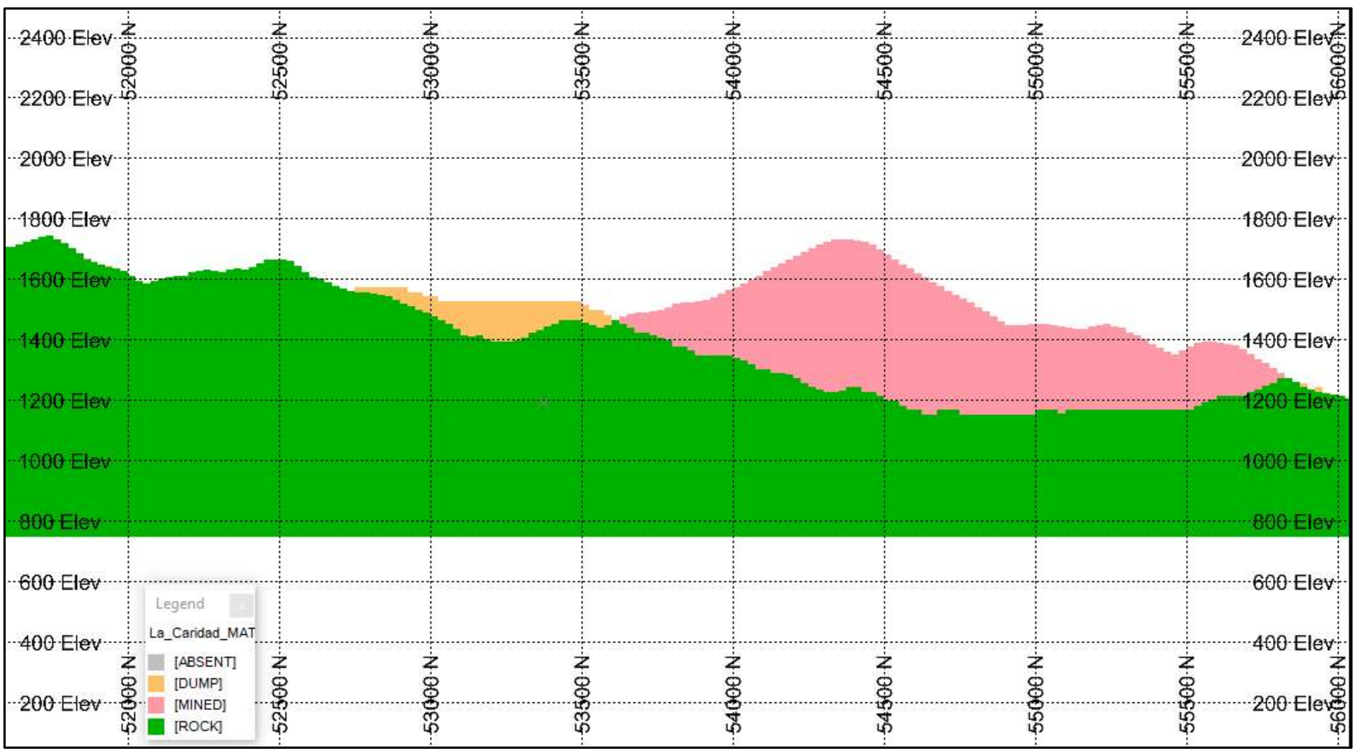


Figure 11.43: South-North Section (38,000 E) of Material Type Assigned to the Block Model

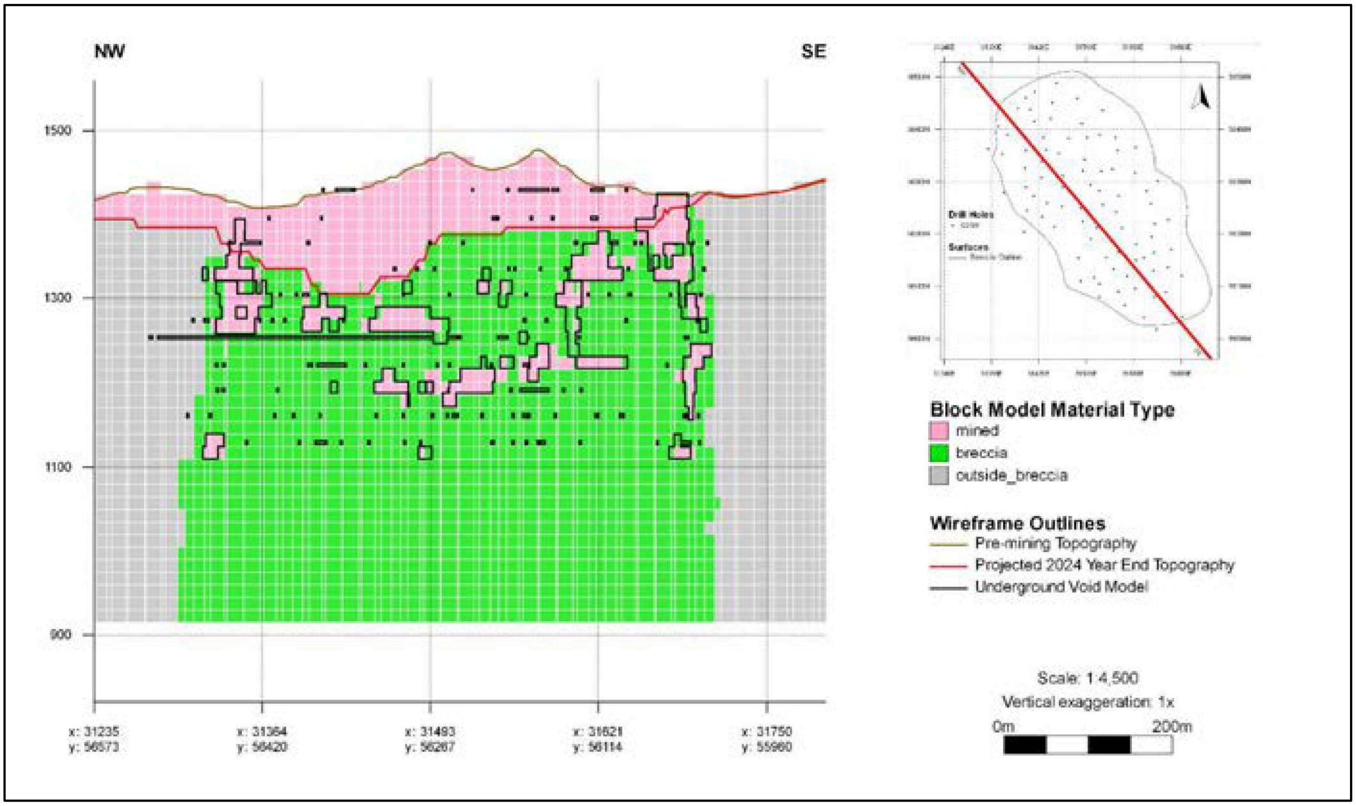


Figure 11.44: NW-SE Cross-Section Through Breccia Showing Material Type Assigned to the Block Model

Current operating practice at La Caridad and Pilares states that material with a Cu grade greater than 0.30% is sent to the mill and remaining material above 0.15% Cu grade is sent to the leach pad. For the purposes of estimating the Mineral Resources, and Mineral Reserve, an economic breakeven value was applied (rather than a defined Cu grade). The details of the economic value calculation are described in Section 11.3.

Table 11.35: Mineral Resource Estimates Exclusive of Mineral Reserves for both Leach and Mill Process – 100% Ownership Basis

Area	Process	Classification	Tonnes (Mt) [4]	Grade		Contained Metal	
				Total Cu (%) [2]	Total Mo (%) [2]	Cu (Kt) [5]	Mo (Kt) [5]
La Caridad	Leach [1][3]	Measured	5	0.07	-	3	-
		Indicated	113	0.07	-	73	-
		Total Measured + Indicated	**117**	**0.07**	-	**76**	-
		Inferred	342	0.08	-	278	-
	Mill [1][3]	Measured	89	0.15	0.025	134	23
		Indicated	2,136	0.14	0.022	3,028	466
		Total Measured + Indicated	**2,224**	**0.14**	**0.022**	**3,161**	**488**
		Inferred	5,315	0.13	0.024	6,692	1,273
Pilares	Leach [1][3][8]	Measured	-	-	-		-
		Indicated	0	0.16	-	0	-
		Total Measured + Indicated	**0**	**0.16**	**-**	**0**	**-**
		Inferred	0	0.09	-	0	-
	Mill [1][3]	Measured	-	-	-		-
		Indicated	30	0.55	0.014	165	4
		Total Measured + Indicated	**30**	**0.55**	**0.014**	**165**	**4**
		Inferred	3	0.46	0.014	16	0
Total	Leach [1][3]	Measured	5	0.07	-	3	-
		Indicated	113	0.07	-	73	-
		Total Measured + Indicated	**118**	**0.07**	**-**	**76**	**-**
		Inferred	342	0.08	-	278	-
	Mill [1][3]	Measured	89	0.15	0.025	134	23
		Indicated	2,166	0.15	0.022	3,193	470
		Total Measured + Indicated	**2,255**	**0.15**	**0.022**	**3,327**	**493**
		Inferred	5,318	0.13	0.024	6,708	1,273

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 US$3.795/lb, Mo price of US$11.50/lb.
4. Mineral recovery was based on historical 3-year averages. The recoveries used were 81% for copper, 87% for Molybdenum, 44% for copper in leach.
5. Tonnes are reported on a dry basis.
6. Contained Metal (CM) is calculated as follows: CM = Tonnage (Mt) * Grade (%).
7. Tonnage and contained metal have been rounded to reflect the accuracy of the estimate and numbers may not add exactly.
8. Leach tonnages for Pilares are quite minimal and the totals are not shown due to rounding.
9. The projected December 31, 2024, topographic surface was used for the calculation of the Mineral Resources
10. 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.

The December 31, 2024, Mineral Resource estimate for La Caridad has changed noticeably from the December 31, 2023, estimate. The reasons for this are threefold. Firstly, since the 2021 S-K 1300 TRS (the last time the Mineral Resource estimate block model was updated), the site has added 119,738 m of samples in 416 drill holes, with widespread coverage across both La Caridad and Bella Union zones (see Section 11.1.1.2). Secondly, the economics have been updated with new recovery calculations, updated costs and updated logic for the mill/leach categorization (see Section 11.3). Thirdly, Measured Resources are declared for the first time for this deposit (see

Section 11.4.1). The net impact of these changes is the movement of Measured and Indicated material to Mineral Reserve and an increase in the amount Inferred Mill material.

The December 31, 2024, Mineral Resource estimate for Pilares has changed noticeably from the December 31, 2023, estimate. In the previous Mineral Resource declarations for Pilares, only Inferred Mineral Resources were defined, due to drill hole data quality concerns. These points have been addressed with a pulp re-assay program for a selection of drill holes from 2009-2011, as well as the completion of lithological interpretation and update to the mineral zone interpretation. Indicated Resources have been declared for the first time for the deposit (see Section 11.4.2), which has also permitted Mineral Reserves to be declared for the first time for Pilares (see Section 12.4). This has resulted in a net decrease in the overall Mineral Resource estimate, as these Mineral Resources are now Mineral Reserves and excluded from the estimate. Additionally, there has been movement of Mineral Resources from Inferred to Indicate.

11.3 Basis for Establishing the Prospects of Economic Extraction for Mineral Resources

This sub-section contains forward-looking information related to establishing the prospects of economic extraction for Mineral Resources 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 COG assumptions, costing forecasts and product pricing forecasts.

Mill recoveries for La Caridad calculated using recovery equations provided by site.

$$Cu\ Mill\ Recovery\ \%\ (RCUF) = [\big(91.81 + (2.048\ x\ Cu)\big) + (26.277\ x\ Mo) + \left(-0.0123\ x\ \frac{Fe}{Cu}\right) + (-0.493\ x\ RELOX)$$

$$where\ RELOX = \frac{CuO}{Cu}$$

$$Mo\ Mill\ Recovery\ \%\ (RECMO) = 77.178 + (71.795\ x\ Mo) + (0.0999\ x\ RCUF) + (-0.186\ x\ RELOX)$$

$$where\ the\ Molybdenum\ recovery\ is\ capped\ at\ 88\%$$

Heap leach recoveries for La Caridad are calculated using a recovery equation provided by site.

$$Cu\ Leach\ Recovery\ \%\ (RCUL) = 89.73\left(\frac{CuO}{Cu}\right) + 57.88\left(\frac{CuCN}{Cu}\right) + 3.13\left(\frac{CuIN}{Cu}\right)$$

$$where\ insoluble\ Cu\ (CuIN) = Cu - CuO - CuCN$$

Additional description of the lab testing, and analyses can be found in Section 8.0, 10.0, 12.0, and 14.0.

As described in Section 12.0, both the Mineral Resources and the Mineral Reserves assumed material with a solubility index greater than 0.8 would not be sent to the concentrators and instead would be sent to the leach pad. While La Caridad currently assigns mill feed with material at a Cu grade greater than 0.30% and a leach COG greater than 0.15%, for estimating the Mineral Resources, and Mineral Reserve estimates, an economic breakeven COG was applied.

A copper price of US$3.30/lb was used for estimating Mineral Reserves while a 15% higher price of US$3.795/lb used when estimating Mineral Resources. Similarly, a molybdenum price of US$10.00/lb was used for estimating Mineral Reserves while a 15% higher price of US$11.50/lb used when estimating Mineral Resources. These price assumptions were provided by SCC.

The Mineral Resource estimate was reported from within a constrained pit shell developed using the information from Table 11.36, Table 11.37, Table 11.38, and Table 11.39 to establish reasonable prospects for economic extraction.

Table 11.36: La Caridad and Pilares Resource Pit Optimization Inputs – Mill

Variable	Units	Value	
Payable Metals		**Cu**	**Mo**
Selling Price	US$/lb Cu	3.795	11.50
Processing Cost if Mo ≥ 0.05	US$/t	5.755	
Processing Cost if Mo < 0.05	US$/t	5.722	
Payability	%	100	
Selling Cost	US$/lb Cu	0.372	1.764
Credits	US$/lb Cu	0.462	

Table 11.37: La Caridad and Pilares Resource Pit Optimization Inputs – Leach

Variable	Units	Value
Payable Metals		**Cu**
Selling Price	US$/lb Cu	3.795
Processing Cost	US$/t	0.587
Payability	%	100
Selling Cost	US$/lb Cu	0.344
Credits	US$/lb Cu	

Table 11.38: La Caridad Resource Pit Optimization Inputs – Mining Costs

Variable	Units	Value
Mill Mining Cost	US$/t	1.255
Leach Mining Cost	US$/t	1.312
Waste Mining Cost	US$/t	1.326
Fill Mining Cost	US$/t	1.088

Table 11.39: Pilares Resource Pit Optimization Inputs – Mining Costs

Variable	Units	Value
Mill Mining Cost	US$/t	2.899
Leach Mining Cost	US$/t	2.519
Waste Mining Cost	US$/t	1.253

Commodity price assumptions were provided by SCC, and it is the QP's opinion that the prices are reasonable and consistent with the market studies provided by SCC as discussed in Section 12.2.4. Mining and selling costs were based on historical operational data from La Caridad and were deemed to be reasonable based on general experience with other operations. The selling cost includes estimates for the solvent extraction and electro-winning (SX-EW), cathode transport, general administration, and royalty costs.

Additional details on the pit limits and pit optimization are provided in Section 12.0. La Caridad pit limits are constrained by existing surface infrastructure, as shown in Figure 12.1. For Pilares, the extents of the pit shell were further constrained by the presence of the historical Pilares townsite, which reduced the amount of sulfide material included within the pit shell in the southeast corner of the breccia unit, illustrated in Figure 11.45 and Figure 12.1.

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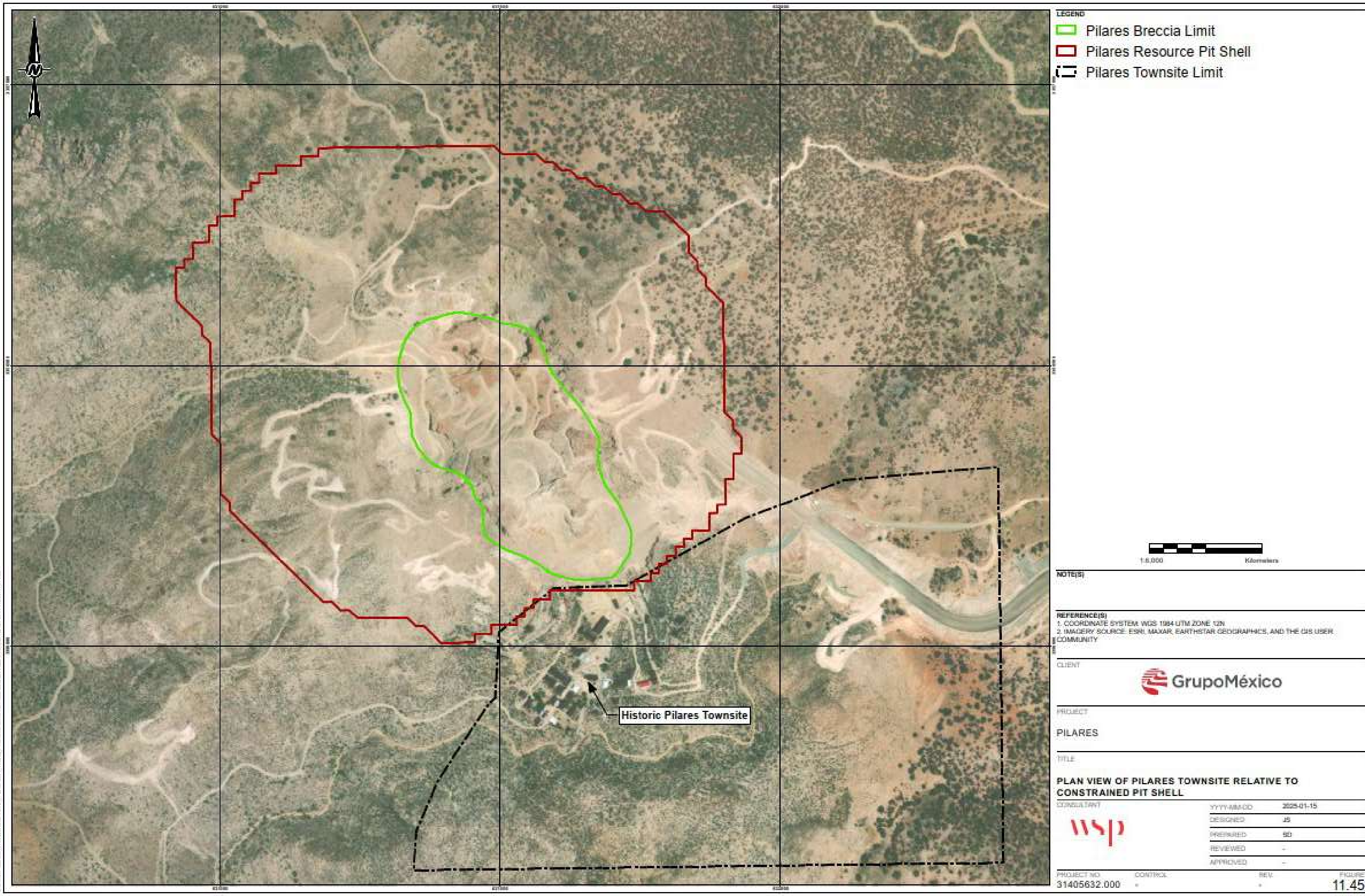


Figure 11.45: Plan View of Pilares Townsite Relative to Constrained Pit Shell

As of the end of 2024, most of the leach material has been mined out. Figure 11.46 shows an example cross-section of the block model showing leach vs. mill material, as well as fully mined out blocks.

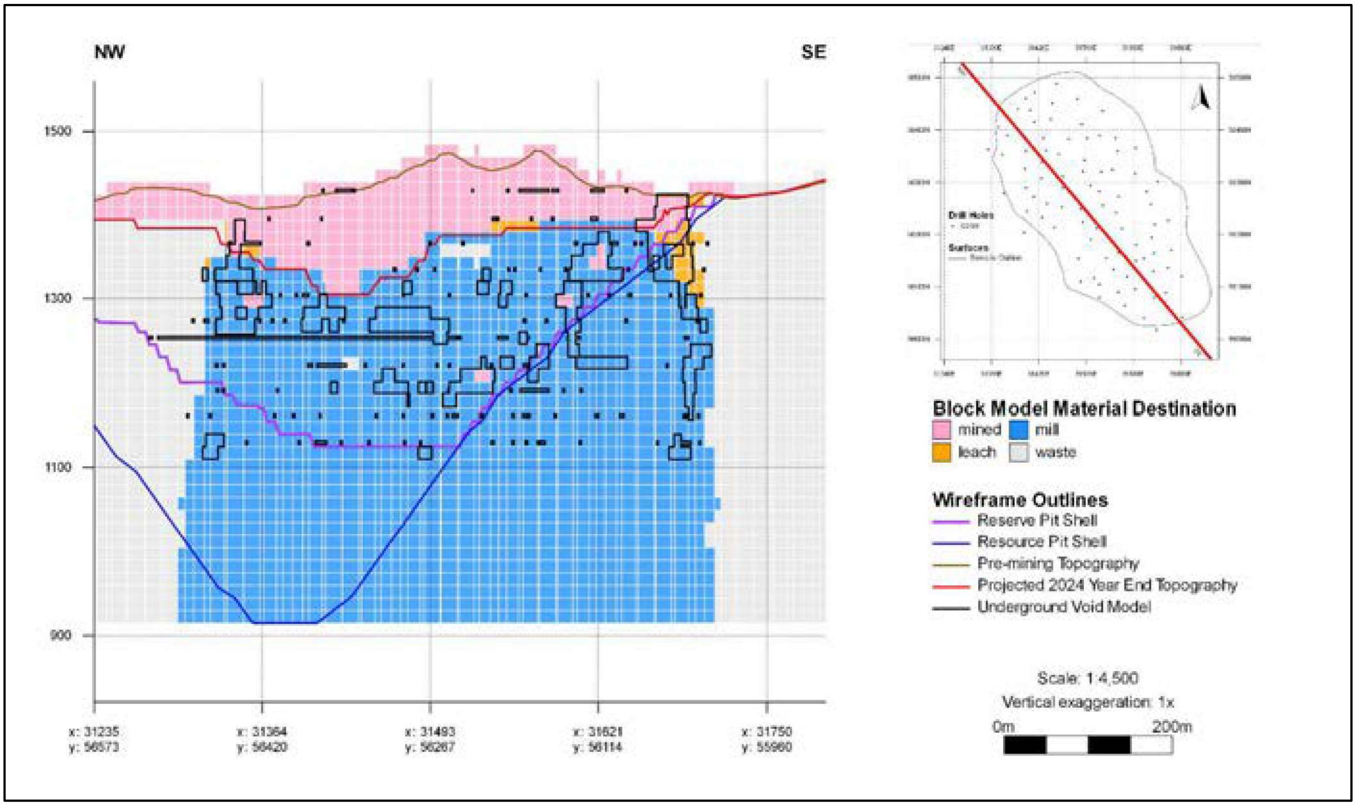


Figure 11.46: NW-SE Cross-Section Through Breccia Showing Leach vs. Mill Material in the Block Model

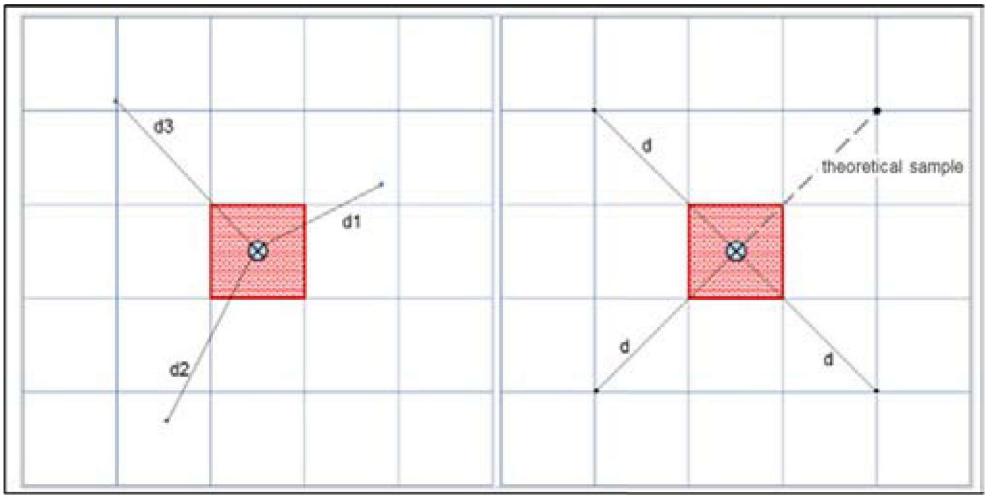
11.4 Mineral Resource Classification

This sub-section contains forward-looking information related to Mineral Resource classification 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 continuity analysis and assumptions.

According to the S-K 1300 regulations, to reflect geological confidence, Mineral Resources are subdivided into the following categories based on increased geological confidence: Inferred, Indicated, and Measured, which are defined under S-K 1300 as:

> "Inferred Mineral Resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project and may not be converted to a mineral reserve.
>
> Indicated Mineral Resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.
>
> Measured Mineral Resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve."

The Mineral Resource Classification for La Caridad and Pilares was applied using an equivalent grid definition method. This method calculates an equivalent (theoretical) grid based on the distance of drill holes from an estimated block, assuming equidistant spacing from the drill holes to the center of the block (see **Error! Reference source not found.**).



$$Equivalent\ Distance = \frac{(d_1 + d_2 + d_3)}{3}$$

$$Equivalent\ Grid = \sqrt{2} \times Equivalent\ Distance$$

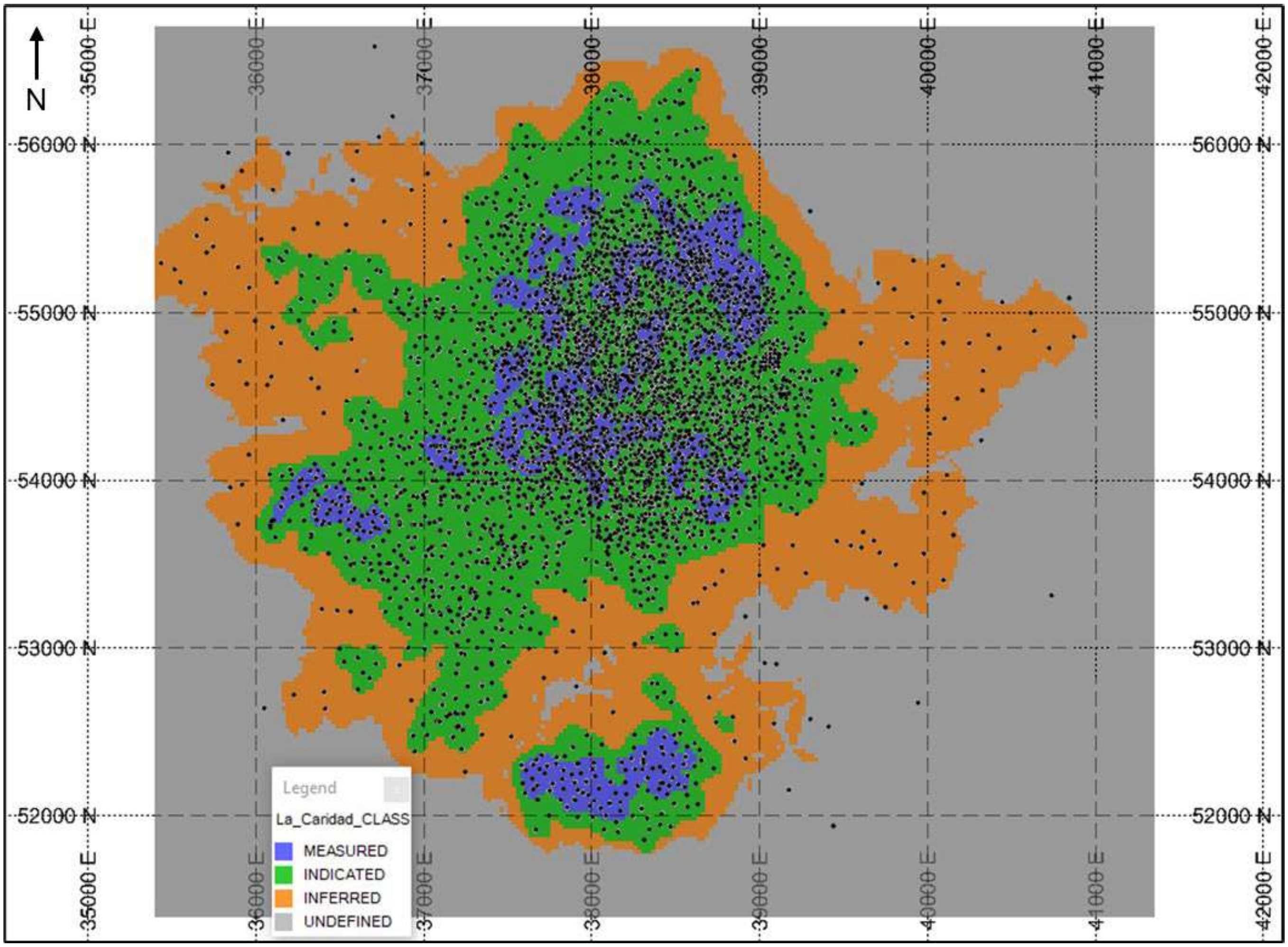
Figure 11.47: Formula for Theoretical Grid Definition

11.4.1 La Caridad

Resource categories were assigned to broad regions of the block model based on the confidence related to drill hole density, geological understanding, continuity of mineralization relative to the style of mineralization, and data confidence. A grid equivalency method was used for drill hole density. Areas where the drill hole grid equivalency is on average less than 120 m, were classified as “Indicated Mineral Resource” and areas where the drill hole grid equivalency is greater than 120 m and less than 250 m were classified as “Inferred Mineral Resource”.

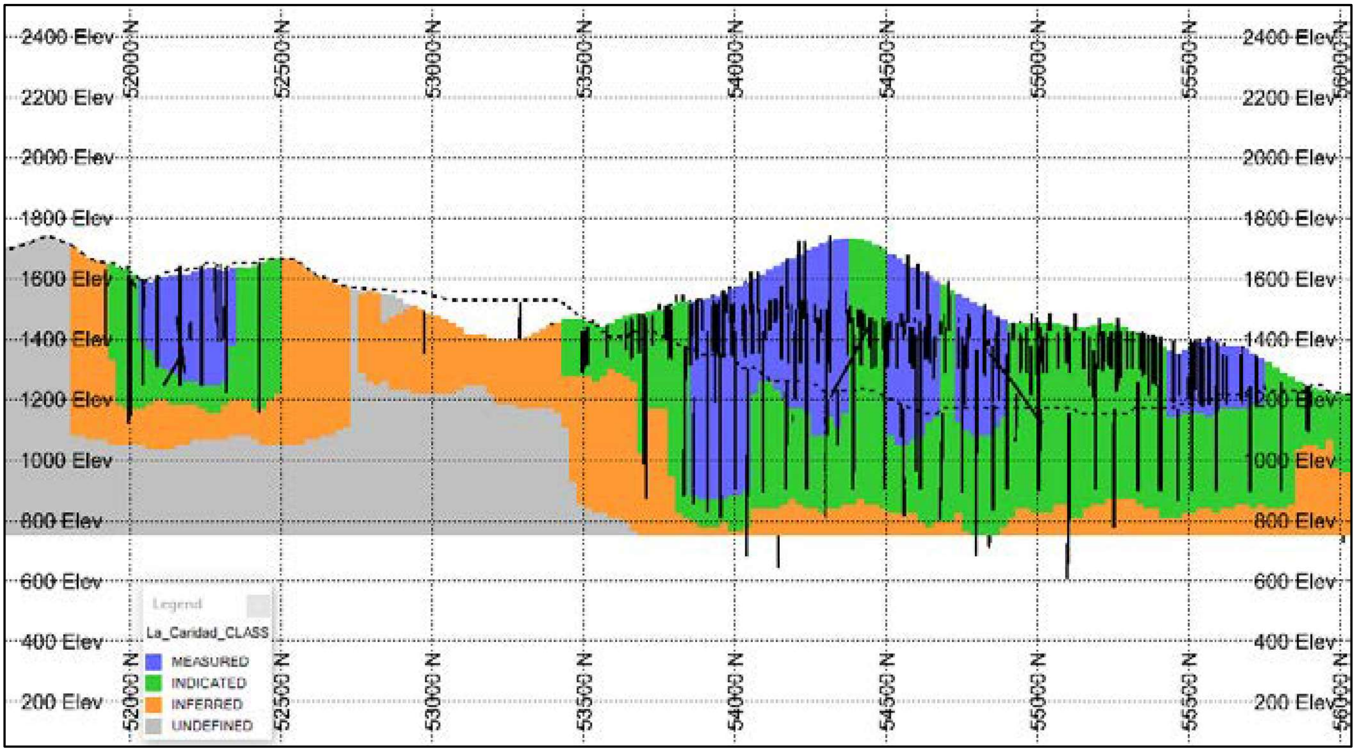
In previous Mineral Resource declarations for La Caridad no “Measured Mineral Resource” was defined, due to lack of industry standard drill hole QA/QC, questions on accuracy of historical downhole survey measurements and lack of mineralization domains. These points have been addressed with a thorough review of historical data, a pulp re-assay program for holes prior to 2020 and the completion of mineralization and lithological interpretations. For these reasons, areas where the drill hole grid equivalency (for holes drilled after 1995) is on average less than 60 m, were classified as “Measured Mineral Resource”.

Figure 11.48 and Figure 11.49 show plan and section views of the Mineral Resource classification for La Caridad.



Note: Drill hole collars are shown as black dots.

Figure 11.48: La Caridad Plan View of Resource Classification Assigned to the Block Model



Note: Drill hole traces are shown as black lines. Projected end of year 2024 topographic surface shown as dashed black line

Figure 11.49: La Caridad South-North Section (38,000 E) of Resource Classification Assigned to the Block Model

11.4.2 Pilares

In previous Mineral Resource declarations for Pilares, only Inferred Mineral Resource was defined, due to drill hole data quality concerns. These points have been addressed with a pulp re-assay program for a selection of drill holes from 2009-2011, as well as the completion of lithological interpretation and update to the mineral zone interpretation.

Based on the review and estimation process outlined in the preceding Sections, the QP concluded that there was insufficient certainty to classify any Resources as Measured for the Pilares Project. This conclusion was reached for the following reasons:

- Uncertainty in collar positions,
- Limited survey information,
- Limited CuCN analyses,
- No QA/QC for any pre-2022 drilling.

Therefore, the Mineral Resource Classification for Pilares is as follows:

- Measured: None.

- Indicated: Blocks estimated using a theoretical grid up to 100 m.
- Inferred: Remaining blocks estimated within the breccia unit.

The Indicated and Inferred Mineral Resources were further constrained by the resource pit shell discussed in Section 11.3. Figure 11.50 illustrates the Mineral Resource Classification for Pilares in section.

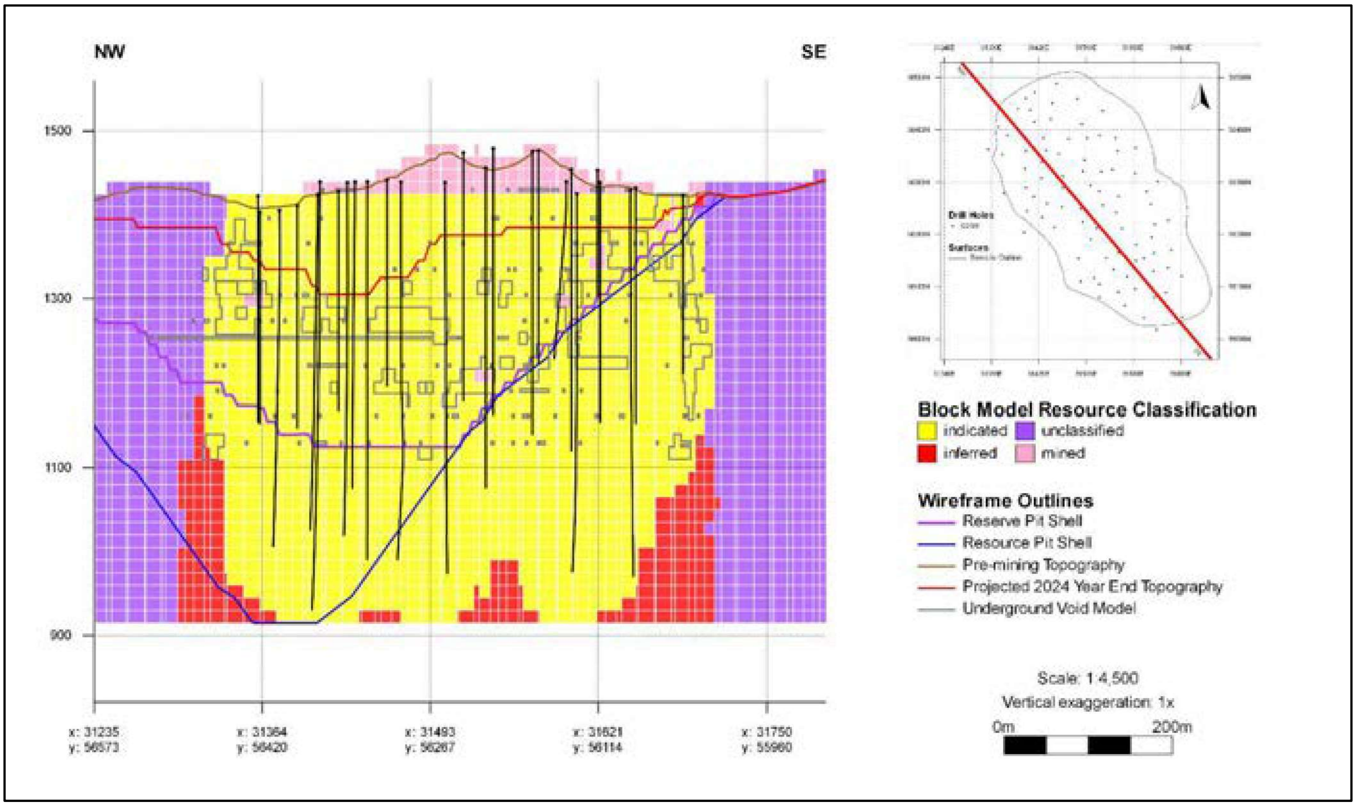


Figure 11.50: Pilares NW-SE Cross-Section Resource Classification Assigned to the Block Model

11.5 Mineral Resource Uncertainty Discussion

Mineral Resources are not Mineral Reserves and do not necessarily demonstrate economic viability. There is no certainty that all or any part of this Mineral Resource will be converted into Mineral Reserve.

Inferred Mineral Resources are too speculative geologically to have economic considerations applied to them to enable them to be categorized as Mineral Reserves.

Mineral Resource estimates may be materially affected by the quality of data, natural geological variability of mineralization and / or metallurgical recovery and the accuracy of the economic assumptions supporting reasonable prospects for economic extraction including metal prices, and mining and processing costs.

La Caridad and Pilares are mines with legacy information, which is suitable to be used in Mineral Resource estimation. Significant effort has been made by the site in the last 2 to 3 years to address issues related to legacy information, such as lack of QA/QC, deviation measurements, and electronically recorded geological information.

At La Caridad, significant addition drilling (119,738 m of samples in 416 drill holes) with widespread coverage across both La Caridad and Bella Union zones has improved classification confidence, including the declaration of Measured Resource. At Pilares, additional infill drilling (11,866 m of samples in 31 drill holes) has improved classification confidence, including the declaration of Indicated Resource.

There are still opportunities to improve confidence further, including additional infill drilling and historical core re-assay and plans for this are under consideration. These plans will be reviewed in the future as Mineral Resources are re-ascertained.

Mineral Resources may also be affected by the estimation methodology and parameters and assumptions used in the grade estimation process including top-cutting (capping) of data or search and estimation strategies although it is the QP's opinion that there is a low likelihood of this having a material impact on the Mineral Resource estimate.

11.6 Assumptions for Multiple Commodity Mineral Resource Estimate

Not applicable to this TRS as no metal/mineral equivalents are being used or reported for either La Caridad or Pilares.

11.7 Qualified Person's Opinion on Factors that are Likely to Influence the Prospect of Economic Extraction

It is the QP's opinion that the Mineral Resource block model is representative of the informing data and that the data is of sufficient quality to support the 2024 Mineral Resource Estimate. The December 31, 2024, Mineral Resource Estimate for the La Caridad and Pilares have been estimated in accordance with the December 26, 2018, SEC S-K 1300 regulations. However, it is the opinion of the QP that a detailed validation of the La Caridad 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. Infill drilling campaigns at Pilares in the last 3 years as well as historical pulp re-assay has increased the confidence in the Mineral Resource to Indicated in some areas.

The 2024 Mineral Resource Estimate may be materially impacted by the 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.

12.0 MINERAL RESERVE ESTIMATES

The La Caridad processing operations now handle mill feed and leach material that is brought in from the newly initiated Pilares Mine operation which is approximately 7 km from the La Caridad Mine operation. This section contains descriptions of both La Caridad and Pilares mines and Mineral Reserves associated with each. Material from the Pilares Mine operation is brought to the mill and leach pads at the La Caridad operations.

12.1 Key Assumptions, Parameters, and Methods

This sub-section contains forward-looking information related to the key assumptions, parameters, and methods for the 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 and mine design parameters.

12.1.1 Geologic Resource Model

12.1.1.1 La Caridad

The dimensions of the block model are shown in Table 12.1 and the principal variables of the block model are shown in Table 12.2.

Table 12.1: La Caridad Block Model Dimensions

Dimensions	Minimum	Maximum	Range (m)	Parent Block Size (m)	Number of Parent Blocks
X	35,150	41,350	6,200	25	248
Y	51,400	56,800	5,400	25	216
Z	750	1,950	1,200	15	80

Table 12.2: Principal Variables of the La Caridad Block Model

Deposit	La Caridad or Bella Union
Material	Rock or Fill Material
MinZone	Mineralization Type (Oxide - Ox, Iron Oxide - FeOx , Primary Sulfide SP, Secondary Sulfide - SS)
Lith	Lithology
Cu	Total copper grade (%)
CuO	Oxide soluble copper grade (%)
CuCN	Cyanide soluble copper grade (%)
Mo	Total molybdenum grade (%)
Fe	Total iron grade (%)
SG	Specific Gravity
Class	Resource classification code (1 - Measured, 2 - Indicated, 3 - Inferred)

The La Caridad model utilized the projected December 31, 2024, topographic surface provided by site. The model was also updated with the fill solid that was provided by site.

12.1.1.2 Pilares

The dimensions of the Pilares block model are shown in Table 12.3 and the principal variables of the block model are shown in Table 12.4. It should be noted the block model uses a 15 m block size that has been regularized from the original 7.5 m block size discussed in Section 11.2.1.7.

Table 12.3: Pilares Block Model Dimensions

Dimensions	Minimum	Maximum	Range (m)	Parent Block Size (m)	Number of Parent Blocks
X	30,795	32,415	1,620	15	108
Y	55,492	57,007	1,515	15	101
Z	915	1,635	720	15	48

Table 12.4: Principal Variables of the Pilares Block Model

Variable	Description
Void	Rock or Void
MinZone	Mineralization Type (Oxide - Ox, Iron Oxide - FeOx , Transition - Trans, Primary Sulfide SP, Secondary Sulfide - SS)
Lith	Lithology
Cu	Total copper grade (%)
CuO	Oxide soluble copper grade (%)
CuCN	Cyanide soluble copper grade (%)
Mo	Total molybdenum grade (%)
Fe	Total iron grade (%)
SG	Specific Gravity
Class	Resource classification code (1 - Measured, 2 - Indicated, 3 - Inferred)

The Pilares model utilized the projected December 31, 2024, topographic surface provided by site. The model was also depleted with the underground void solid as discussed in Section 11.2.1.3.2.

12.1.2 Mine Design Criteria

La Caridad has a long history of mining and has been engaged in large scale open pit mining of the deposit. The mine design criteria were provided by La Caridad and used as a guide to the development of the pit design for this Study. There will be differences between the production plan being followed at site and the mining plan described in this Study. Notable differences between the two are as follows:

- La Caridad assumes no dilution and no mining loss in their long-range mine planning:
  - For this Study, WSP has assumed a 1% dilution and 2% mining loss in the material mined and sent to the mill and leach pads.
- This study incudes an economic cutoff assumption, which may vary slightly from site operational assumptions as discussed in Section 12.2.5.

- As described earlier in this section, the Pilares Mine has recently initiated mining operations in 2024. Mill and leach material from the Pilares Mine is transported to the existing mill and leach facilities at La Caridad for treatment and processing.

12.2 Modifying Factors

This sub-section contains forward-looking information related to the modifying factors for the 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 modifying factors including dilution and mining and recovery factors, beneficiation assumptions, property limits, commodity price, cut-off grades, pit optimization assumptions and the ultimate pit design.

12.2.1 Property Limits

No constraints by property limits were identified for the operational and proposed pit at La Caridad.

A southeast property limit was provided for Pilares so that the pit optimization and design did not encroach upon the historic mine shaft, town area, and historic cemetery identified by site staff.

12.2.2 Project Constraints

A northeast and northwest boundary were established for La Caridad so that the pit optimization and design did not mine into the site infrastructure.

The limiting polygons at Pilares and La Caridad used to restrict the pit optimization are shown in Figure 12.1.

12.2.3 Processing

This study assumed a current capacity of approximately 2.26 billion tonnes (Bt) remaining in the TSF (as of December 31, 2024). This Study generated a schedule with a 58-year life of mine plan that will provide 1.96 Bt of mill feed to the processing facility at approximately 34.5 Mtpa.

12.2.4 Commodity Price Used

The commodity prices used for the pit optimization and economic cut-off analysis were:

- US$3.30/lb copper
- US$10.00/lb molybdenum

Commodity price assumptions were provided by SCC, and it is the QP’s opinion that the prices are reasonable and consistent with the market studies provided by SCC as discussed in Section 16.0.

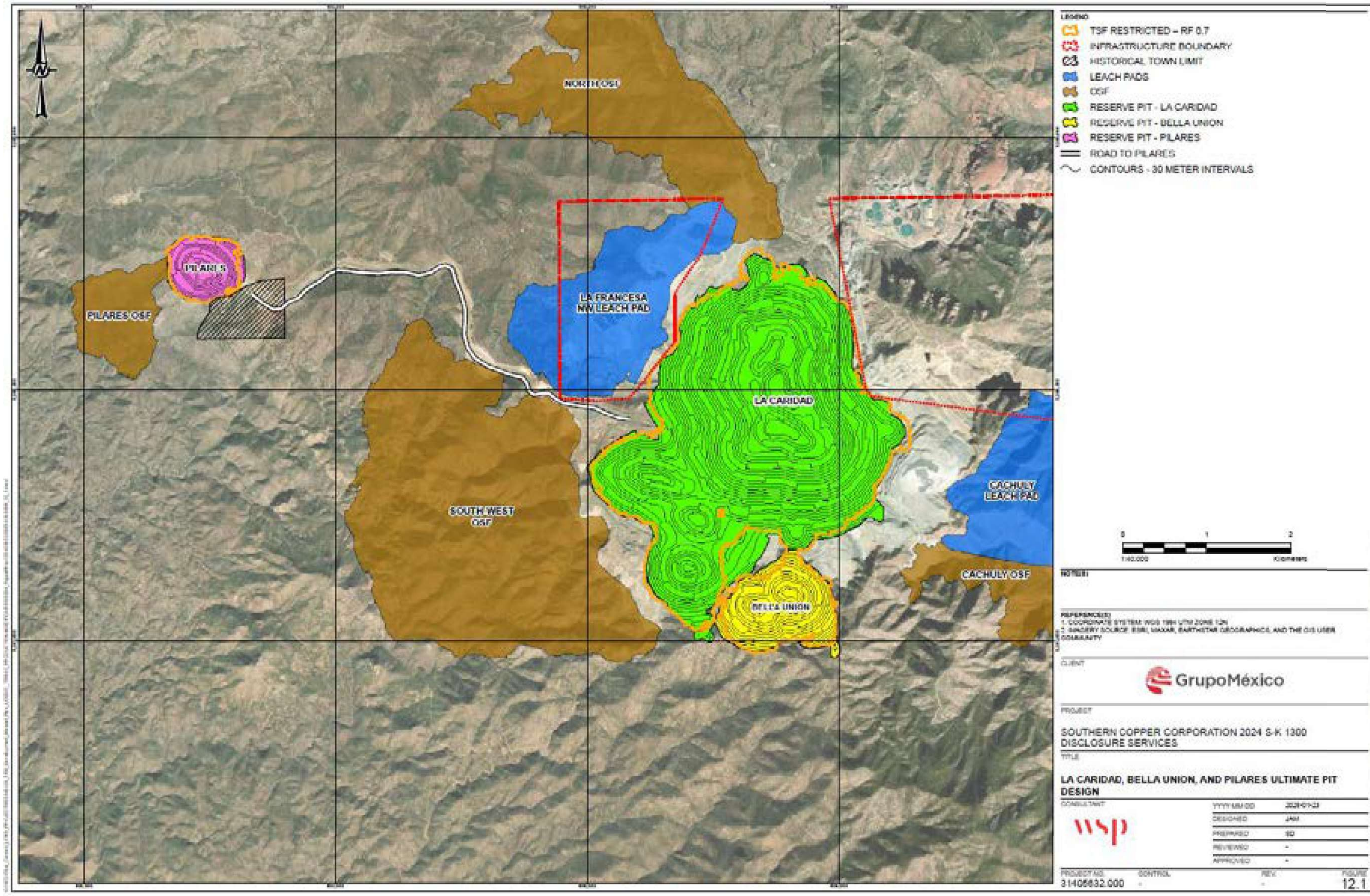


Figure 12.1 La Caridad Ultimate Pit Designs with RF 0.7 Constraint Polygon

12.2.5 Cut-off Grade Estimate

For this study, an economic cut-off grade (COG) was used.

The prices listed in Table 12.5 were used to compute two distinct profit values for each block having a resource classification of Measured or Indicated. The distinct profit values include:

- The block value, if sent to the mill, considers both copper and molybdenum grades and mill recoveries
- The block value, if sent to the leach pad, considers copper grades and leach recoveries

The block value was determined for each destination by the equation shown below:

$$Block\ Value = Block\ Revenue - Mining\ Cost - Processing\ Cost$$

Blocks were routed to the destination with the highest block value with the additional constraint that block values to economic destinations (mill or leach) should pay for their processing cost.

12.2.5.1 Leach

All measured and indicated material that had a solubility index greater 30% was considered leachable. Solubility index was defined as the ratio of the soluble component of total copper (copper oxide and cyanide soluble copper) to the total copper in the block. This included material classified as both oxide and sulfide. The parameters in Table 12.5 are used to calculate the value of sending the material to a leach pad. The current practice at La Caridad and Pilares is to leach ROM ore.

Table 12.5: Leach COG Parameters for La Caridad and Pilares

Variable	Units	Value
Payable Metals		**Cu**
Selling Price - Cu	US$/lb Cu	3.30
Processing Cost	US$/t	0.587
Payability - Cu	%	100
Selling Cost - Cu	US$/lb Cu	0.344

Note: Processing cost includes heap leach, SX-EW, and additional leach mining cost.

The leach copper recovery equation was provided by site. The following equation was used to calculate the copper leach recovery for each block in the model:

$$Copper\ Leach\ Recovery\ \%\ (RCUL) = 89.73\left(\frac{CuO}{Cu}\right) + 57.88\left(\frac{CuCN}{Cu}\right) + 3.13\left(\frac{CuIN}{Cu}\right)$$

$$where\ CuIN\ = Cu - CuO - CuCN$$

For material to be routed as leach in the schedule, the following characteristics had to be met:

- The block was classified as being Measured or Indicated Mineral Resource
- The block was defined as either a sulfide or oxide material (FeOx, Ox, SP, or SS)

- The block had a Solubility Index greater than 30%
- If sulfide material, the value of the block being routed as leach was higher than the value of the block being routed to the mill.
- The Mineral Reserve estimate for leach material includes material with less than 0.1% Cu, but a marginal value greater than routing it to the waste facility.

12.2.5.2 Copper Concentrator

The La Caridad parameters in Table 12.6 are used to calculate the value of sending the material to the mill. The Pilares in Table 12.7 are used to calculate the value of sending the material to the mill.

Table 12.6: Copper Concentrator Cutoff Grade Parameters for La Caridad

Variable	Units	Value	
Payable Metals		**Cu**	**Mo**
Selling Price	US$/lb	3.30	10.00
Processing Cost if Mo ≥ 0.05	US$/t	5.755	0.377
Processing Cost if Mo < 0.05	US$/t	5.722	0.377
Payability	%	100	100
Selling Cost	US$/lb	0.372	1.764
Credits	US$/lb	0.462	0.000

Note: Processing Cost Includes G&A Mexico, molybdenum circuit operating costs, and additional ore mining costs. Selling cost includes concentrate transportation, smelter charges and penalties and refining.

Table 12.7: Copper Concentrator Cutoff Grade Parameters for Pilares

Variable	Units	Value	
Payable Metals		**Cu**	**Mo**
Selling Price	US$/lb	3.30	10.00
Processing Cost	US$/t	5.755	0.000
Payability	%	100	100
Selling Cost	US$/lb	0.372	1.764
Credits	US$/lb	0.462	0.000

Note: Processing Cost Includes G&A Mexico, molybdenum circuit operating costs, and additional ore mining costs. Selling cost includes concentrate transportation, smelter charges and penalties and refining.

The mill copper and mill molybdenum recovery equations were provided by site and reviewed by WSP. The following equations were used to calculate the mill copper and mill molybdenum recovery for each block in the model:

$$Cu\ Mill\ Recovery\ \%\ (RCUF) = [(91.81 + (2.048\ x\ Cu)) + (26.277\ x\ Mo) + \left(-0.0123\ x \frac{Fe}{Cu}\right) + (-0.493\ x\ RELOX)$$

$$where\ RELOX = \frac{CuO}{Cu}$$

$$Mo\ Mill\ Recovery\ \%\ (RECMO) = 77.178 + (71.795xMo) + (0.0999 * RCUF) + (-0.186xRELOX)$$

$$where\ the\ Mo\ Recovery\ is\ capped\ at\ 88\%$$

The copper mill recoveries were adjusted based on the following parameters:

- If Cu grade was greater than 0.547%, the copper mill recovery was assumed to have a minimum recovery of 87% and was capped at 100%
- If the Cu grade was less than 0.281% and the estimated recovery was greater than 80%, the recovery was capped at 80%.
- If the Cu grade was greater than 0.281% but less than 0.547%, and the estimated recovery was greater than 87%, the recovery was capped at 87%.

For material to be routed to the mill in the schedule, the following characteristics had to be met:

- The block was classified as Measured or Indicated Mineral Resource
- The block was defined as primary or secondary sulfide material

12.2.6 Pit Optimization Methodology and Ultimate Pit

A pit optimization analysis using the Lerch-Grossman pit optimization method was carried out using Hexagon MinePlan. The purpose of pit optimization work is to determine the largest possible economic shell that can be mined using open pit methods. A nested pit analysis was performed on the model using price and cost inputs shown previously in Table 12.5, Table 12.6, and Table 12.7. Additional optimization parameters are shown in Table 12.8 for La Caridad and Table 12.9 for Pilares. The pit optimization analysis for La Caridad and Pilares were verified in Whittle 4X software.

Table 12.8: La Caridad Pit Optimization Economic Inputs

Description	Units	Value
Mining Cost - Fill	US$/t	1.088
Mining Cost - Mill	US$/t	1.255
Mining Cost - Leach	US$/t	1.312
Mining Cost - Waste	US$/t	1.326
Haul Down Incremental	US$/t/bench	0.017
Haul Up Incremental	US$/t/bench	0.031
Mining Loss*	%	2
Mining Dilution*	%	1
Dilution Grade*	%	0
Discount Rate	%	10

Note: *Not applied in Pit Optimization, Applied in Scheduling Exercise

Table 12.9: Pilares Pit Optimization Economic Inputs

Description	Units	Value
Mining Cost - Mill	US$/t	2.899
Mining Cost - Leach	US$/t	2.519
Mining Cost - Waste	US$/t	1.253
Haul Down Incremental	US$/t/bench	0.017
Haul Up Incremental	US$/t/bench	0.031
Mining Loss*	%	2
Mining Dilution*	%	1
Dilution Grade*	%	0
Discount Rate	%	10

Note: *Not applied in Pit Optimization, Applied in Scheduling Exercise

For La Caridad, a constraint was applied to limit the pit optimization so that the pit would not encroach on the current processing facilities and other infrastructure areas, as well as the La Francisca Leach Pad.

For Pilares, a constraint was applied to limit the pit optimization so that the pit would not encroach on the historic mine shaft as well as the historic town areas.

Figure 12.1 shows the restricted ultimate pit designs for La Caridad and Pilares, OSFs, leach pads, and the constraint polygon used for the pit optimization and design for La Caridad and Pilares.

Revenue factor (RF) shells were generated in Hexagon MinePlan varying the selling price from 0.2 to 1.0 at increments of 0.1 for La Caridad and increments of 0.05 for Pilares. Each RF shell selects blocks for leach and mill that has sufficient value to mine the waste blocks above. Figure 12.2 and Figure 12.3 show the incremental pit analysis results for La Caridad and Pilares, respectively.

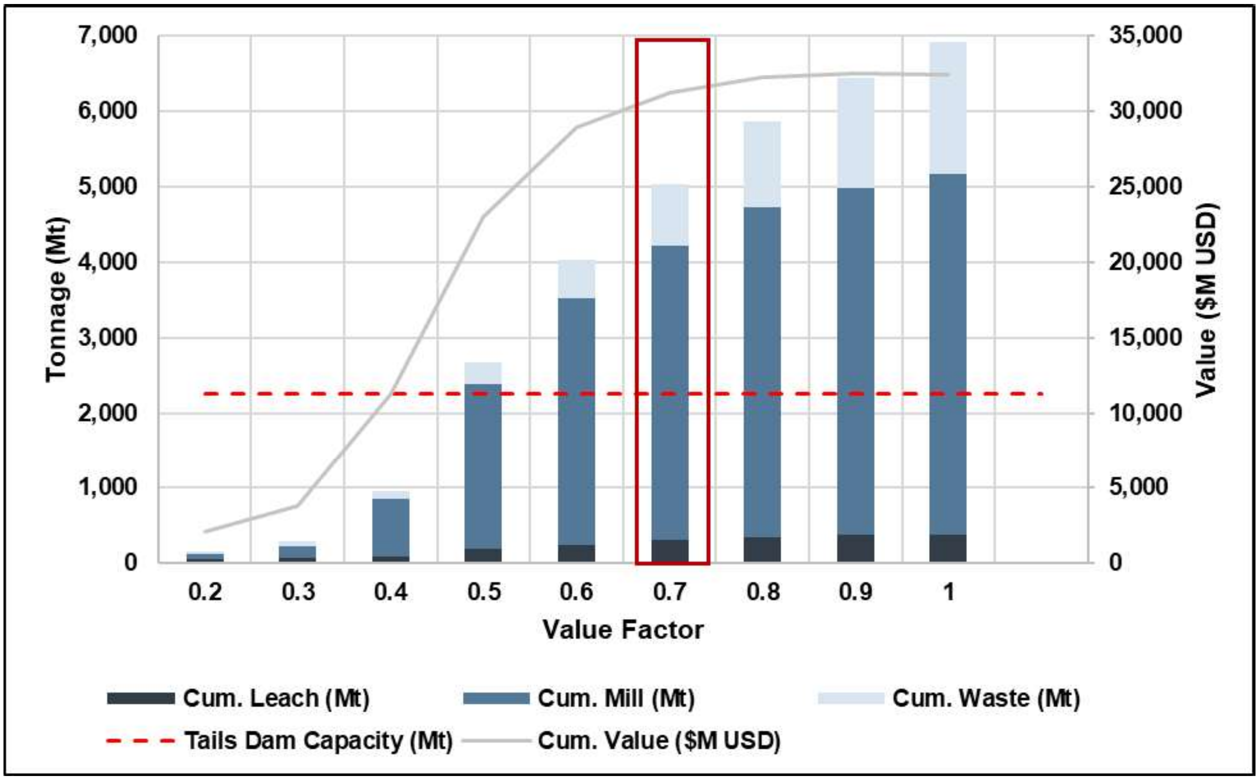


Figure 12.2: Summary of La Caridad Nested Pit Analysis

A RF of 0.7 was selected as the basis of the ultimate pit design for La Caridad. This RF limit for La Caridad was established due to constraints arising from the limited remaining capacity at the existing tailings storage facility, TSF No. 7. This limitation is further described in Section 12.2.7.

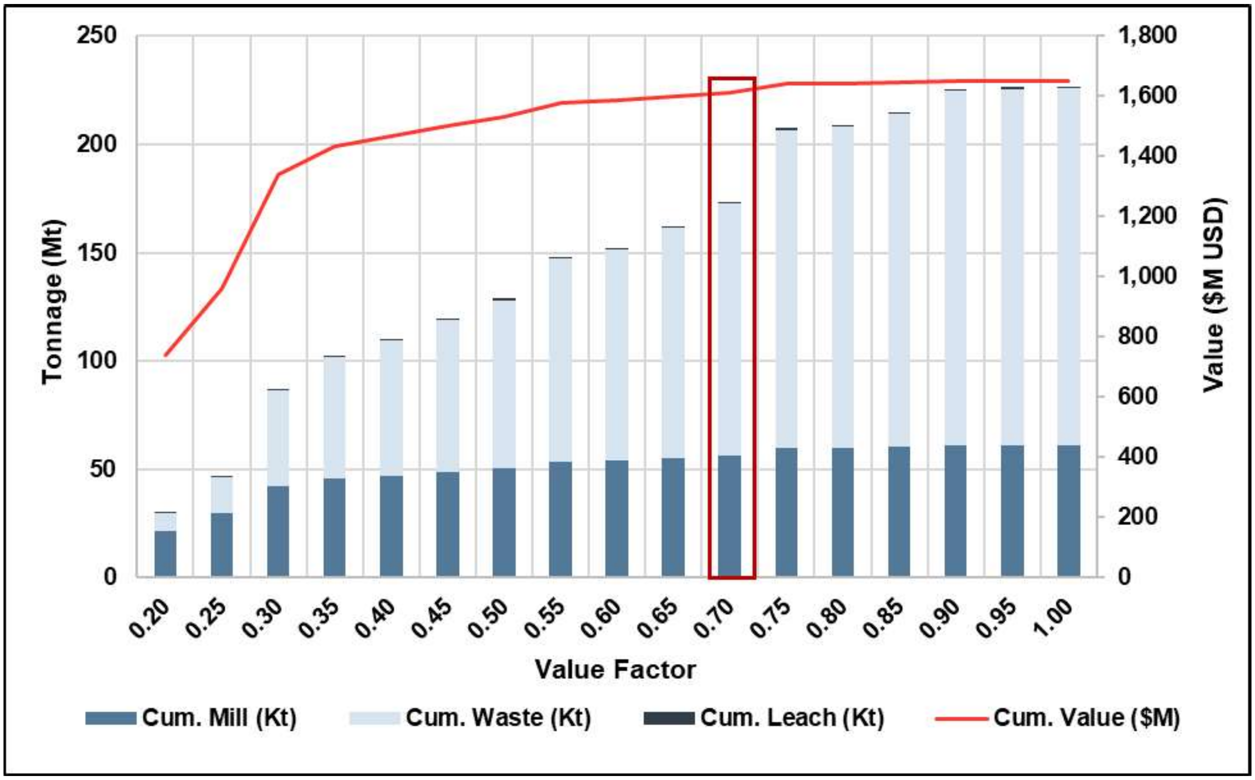


Figure 12.3: Summary of Pilares Nested Pit Analysis

The RF limit for Pilares was selected as RF 0.7 due to the observed declining incremental value in the blocks.

The final pit outlines are shown in Figure 12.4 for La Caridad and Pilares.

12.2.7 TSF Restricted Pit Design

During the preparation of this Study, a TSF study was ongoing. The preliminary TSF Study provided by SCC indicated that there was approximately 2.26 Bt Mill Tonnage capacity that could be processed and contained within the TSF. WSP verified independently the remaining TSF No. 7 volume calculation and estimated it to be 2.1 Bt.

The RF 0.7 pit shells for both La Caridad and Pilares ensure that the material sent to the mill and the resulting tailings could be contained within this capacity. The LOM is 58 years and mines the entirety of the designed phases for La Caridad, Bella Union, and Pilares producing approximately 1.96 Bt of mill material. The pit design was such that the total estimated tailings from the mill through the LOM would be confined to the TSF.

The pit design utilized a ramp width of 40 m to accommodate the largest truck in the fleet, a Caterpillar 797F, 360-tonne haul truck. This width allows for 3.5 times the width of the truck, as well as a berm and ditch. The current widths of the ramps in production at site are also 40 m wide. A maximum grade of 8% was designed for the ultimate pit. The design aimed to have multiple exits to allow for access to all mining phases, as well as to create the shortest haul distances from the pit to the OSFs, leach pads, and the mill.

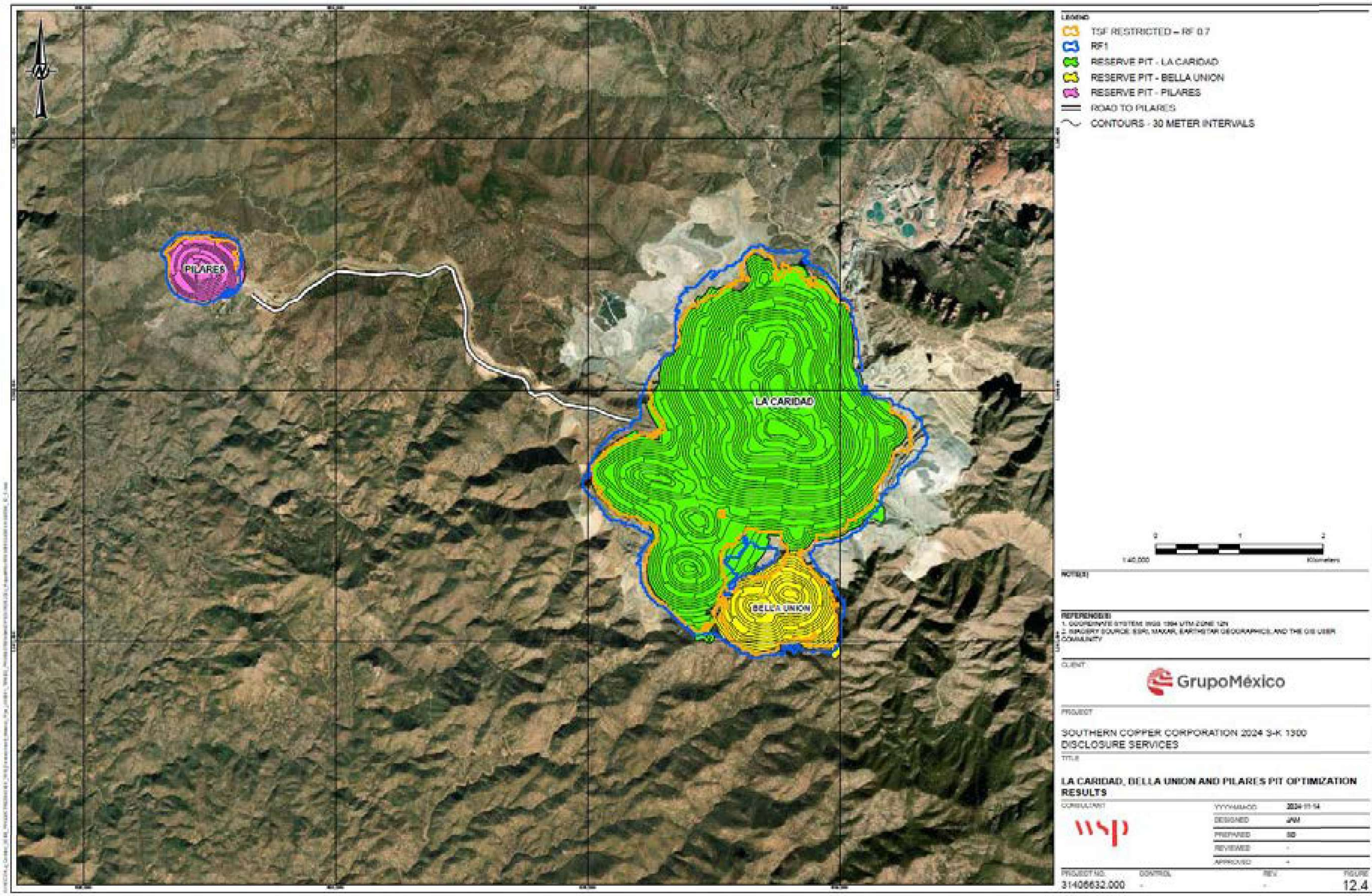


Figure 12.4: Pit Optimization Results for La Caridad and Pilares: RF1 and RF0.7

12.3 Mineral Reserve Classification

For estimating the Mineral Reserves for La Caridad (including Pilares), the following definition as set forth in the S-K 1300 Definition Standards adopted December 26, 2018, was applied.

Under S-K 1300, a Mineral Reserve is defined as:

> "… an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted."

Mineral Reserves are subdivided into classes of Proven Mineral Reserves and Probable Mineral Reserves, which correspond to Measured and Indicated Mineral Resources, respectively, with the level of confidence reducing with each class. Mineral Reserves are always reported as the economically mineable portion of a Measured and/or Indicated Mineral Resource, and take into consideration the mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social, and governmental factors (the "Modifying Factors") that may be applicable to the deposit.

12.4 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 infrastructure constraints at La Caridad and the historical town boundary at Pilares, as well as the modifying factors (1% Dilution, 2% Mining Loss) discussed above, the recovery factors discussed in Section 12.2.5 and the economics discussed in 12.2.6, the La Caridad and Pilares mines contain the economically mineable Mineral Reserves listed in Table 12.10 on a 100% ownership basis. The effective date of the Mineral Reserve estimate is December 31, 2024.

The projected end of year 2024 surface was provided by site. This was used in the mineral reserve estimate. The surface was observed to have some visual effects that indicated slight anomalies; however, the surface was used as it was the deemed as the best estimate of the end of year surface.

This is the first instance of Mineral Reserves being reported at Pilares which has been stated with Mineral Reserves reported for La Caridad in Table 12.10. Mining at Pilares was initiated in 2024 and the mining operations are treated as one with all ore from Pilares being sent to the mill and leach facilities at La Caridad.

The Mineral Reserves include approximately 1.96 Bt of mill feed with a Cu grade of 0.22% total Cu for 4,411 Kt of contained Cu with the point of reference being the mill. An additional 384 Mt of Mineral Reserves is estimated as leachable ROM material with a Cu grade of 0.17% total Cu for 663 Kt of contained Cu with the point of reference being delivery to the leach pads. Additionally, 721 Kt of Mo is generated over the life of mine. Total material in the pits is 5.1 Bt, resulting in a strip ratio (calculated as ratio of waste to ore -mill + leach material) of 1.18.

For this Mineral Reserve estimate, Measured Mineral Resources inside the ultimate pit were converted to Proven Mineral Reserves and 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 per pound and a molybdenum price of US$10 per pound.

Table 12.10: Estimated Mineral Reserves – 100% Ownership Basis

Area	Classification	Destination (2)	Tonnes (Mt) (4)(5)	Grade		Contained Metal	
				Total Cu (%)	Mo (%)	Cu (5) (Kt)	Mo (5) (Kt)
La Caridad	Proven	Mill	272	0.28	0.042	770	114
		Leach	66	0.23	-	155	-
	Probable	Mill	1,671	0.21	0.036	3,460	606
		Leach	315	0.16	-	500	-
	Waste		2,661				
	Total Material		4,985				
	Strip Ratio ((W+L)/M) (3)		1.57				
	Strip Ratio ((W)/(L+M)) (3)		1.14				
Pilares	Proven	Mill	-	-	-	-	-
		Leach	-	-	-	-	-
	Probable	Mill	22.6	0.80	0.006	181	1
		Leach	2.2	0.35		8	
	Waste		119				
	Total Material		144				
	Strip Ratio ((W+L)/M) (3)		5.36				
	Strip Ratio ((W)/(L+M)) (3)		4.80				
Total	Proven	Mill	272	0.28	0.042	770	114
		Leach	66	0.23	-	155	-
	Probable	Mill	1,693	0.22	0.036	3,641	607
		Leach	318	0.16	-	508	-
	Waste		2,780				
	Total Material		5,128				
	Strip Ratio ((W+L)/M) (3)		1.61				
	Strip Ratio ((W)/(L+M)) (3)		1.18				

Notes:

1. Mineral Reserves are reported effective December 31, 2024. The Qualified Person for the estimate is Mr. Mathew Oommen, Ph.D.
2. Mineral Reserves are the economic portion of the Mineral Resources; the reference point is the leach pad or concentrator and includes considerations for operational modifying factors such as loss (2%) and dilution (1%), described in Section 13.3.1.
3. Strip ratio calculated with W = Waste, L = Leach, M = Mill Feed (units are t/t)
4. Mineral recovery was based on historical 3-year averages. The recoveries used were 83% for copper, 88% for Molybdenum, 46% for copper in leach.
5. Mineral Reserves are reported for ore with an economic value greater than the marginal cost, inclusive of processing costs and transport streams. These are based on the long-range production schedule. Full discussion of cut-off is in Section 12.2.5 and the long range schedule in Section 13.5.
6. Mineral Reserves are based on targeted feed grades of copper and molybdenum to the copper concentrator. Details of the targeted grades are in Section 13.5
7. Tonnages and contained copper and molybdenum are reported in metric units. Contained Metal (CM) is calculated as follows: CM = Tonnage (Mt) * Grade (%).
8. Numbers have been rounded to reflect appropriate accuracy and may result in apparent summation differences between tonnes, grade, and contained metal content.

9. Grades and contained metal are not reported if there is no value from the respective processing and transport streams
10. The projected December 31, 2024, topographic surface was used for the calculation of the Mineral Reserves.
11. The Mineral Reserve estimate was limited to stay within the TSF capacity.

As compared to the December 31, 2022, Mineral Reserve Estimate, there are differences worth noting. The primary reasons are twofold.

- Firstly, a new geological model generated was created as part of this study incorporating recent drilling. This increased the confidence in the material by delineating oxides and sulfides which were not determined in the 2022 Mineral Reserve Estimate. This ensured that primary sulfides which were not suitable for leaching were not sent to leach destinations. Leach recoveries were better modeled during this study due to the better estimation of copper oxide and cyanide soluble copper in the model.
- Secondly, the 2022 Mineral Reserve estimate used a breakeven cutoff grade while the 2024 Mineral Reserve Estimate uses a cut-off grade optimization strategy. This allowed the mine to raise its cutoff to target 0.3% copper grade to the mill for the first 10 years as well as exposing the ore sooner. This allows for higher values to be realized sooner. Low grade copper material which was previously routed to mill during the 2022 Mineral Reserve Estimate are now being routed to leach or waste. The cutoff grade optimization produced a schedule that allowed a more efficient use of the limited TSF capacity as well as following the practice at the mine site.

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

12.5 Qualified Person's Opinion on Risk Factors that could Materially Affect the Mineral Reserve Estimates

The QP is unaware of any mining, metallurgical, infrastructure, or other factors that might materially affect the Mineral Reserve, aside from those mentioned in this Section.

13.0 MINING METHODS

13.1 Production Tasks

La Caridad is an established operation that currently mines at a rate of about 95 Mt per year of total material. The operation currently runs 8 electric shovels. La Caridad directed WSP to use 36 trucks available at site at the beginning of the schedule. This fleet comprises CAT 797s, Komatsu 860s, and CAT 793Ds, however, only CAT 793Ds are used at Pilares. After the eighth year in the schedule only CAT 793Ds were used in the schedule as requested by La Caridad. 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.

In this report, Pilares was included and scheduled alongside La Caridad. This was due to the extensive drilling that was done which significantly enhanced the confidence in geological data and provided a more detailed understanding of the deposit. As a result, material from Pilares has now been classified as Probable Mineral Reserves and included in the overall LOM. The La Caridad processing operations now contain mill feed and leach material that is brought in from the newly initiated Pilares Mine

Mining at La Caridad and Pilares is conducted using conventional open-pit truck and shovel methods due to the proximity of the ore to the surface and the physical characteristics of the deposit. The current operation is expanding into the Bella Union area located south of the existing La Caridad pit. Material 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 OSFs located to the west of the pit.

13.1.1 Drill and Blast

The mining operation begins with the drilling process; drill samples are sent to an assay laboratory for analysis. The assay results are used to delineate zones of ore, leach, and waste rock, which are mined separately. Currently, the site uses 9 electric drills and 3 diesel blasthole drill to meet production requirements. Based on the LOM plan, this study assumes that the current standard for drill patterns and blasting regulations would continue.

Drilling in Pilares is preceded by an exploratory drill campaign to delineate the void areas created by the pre-existing underground mine operations. This is done by punch drilling on a bench and using a cavity monitoring system to map out the void areas. Blasthole drilling on the benches and positioning of shovels are informed by the spatial coordinates of the void areas as exclusion zones.

13.1.2 Waste Removal and Storage

After the blasting is completed, ore, leach, and waste are mined by excavators loading onto trucks. The fleet consists of 6 electric shovels, 2 hydraulic shovel, and 36 mining trucks. Waste is hauled to one of the four OSFs listed below:

- North OSF
- Southwest OSF
- Cachuly (Southeast) OSF
- Pilares OSF

The OSF designs were based on a 37° angle of repose and a 1.9 t/m^3 loose density. The North OSF has a capacity of 900 Mt, the Southwest OSF has a capacity of 2.7 Bt, the Cachuly OSF (Southeast) has a capacity of 1.3 Bt, and the Pilares OSF has a capacity of 180 Mt for a total OSF storage capacity of about 5.1 Bt. The location of the OSFs relative to the ultimate pit is shown in Figure 12.1.

13.1.3 Ore Removal and Transport

Trucks transport mill material the crushers located at the 1410 elevation or to one of the two leach pads located outside the final pit. The mill material from the mine is broken by two gyratory crushers near the plant on the East side of the pit. The product of the primary crushing is transported via a 1.98 km long conveyor to the coarse mill stockpile. Details of the crushing, screening and processing circuits can be found in Section 14.0.

Leach ore is taken to one of two run-of-mine (ROM) leach pads: La Francisca to the northwest of the pit or Guadalupe/Cachuly to the southeast of the pit. The La Francisca leach pad has 690 Mt of capacity, and the Guadalupe leach pad has 1.6 Bt of capacity. The designs of the leach pads in relation to the ultimate pit are shown in Figure 12.1.

13.2 Parameters Relative to the Mine Design and Plans

This sub-section contains forward-looking information related to mine design 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.

13.2.1 Geotechnical Characterization

The pit slope design for La Caridad was originally presented in a report prepared by Call and Nicholas, Inc. (CNI) in 2019. The slope design recommendations provided by CNI for the La Caridad and Bella Union pits (Figure 13.1) are a generally reasonable basis for pre-feasibility-level for the geotechnical units represented by the corresponding design sectors.

The level of geotechnical investigation and testing are appropriate to support feasibility-level slope designs. Detailed discussion of the investigation and testing is included in Sections 7.1.4 and 7.2.4.

The pit slope design for Pilares was presented in a report prepared by SRK Consulting in 2021. The slope design recommendations provided by SRK Consulting for Pilares (Figure) are aggressive, likely leaving little opportunity for optimization based on additional geotechnical characterization; however, they are generally reasonable for pre-feasibility-level development for the geotechnical units (andesite and latite) represented by the corresponding design sectors.

The risks associated with the slope design recommendations, particularly geological risks that result from the geological complexity and uncertainty of certain elements of the site conditions, are appropriately identified, and suitable methods for mitigating these risks are recommended.

13.2.1.1 Pit Slope Stability Analysis

13.2.1.1.1 La Caridad

CNI pit slope designs are reported to be based on:

- 80% reliability of maintaining minimum catch bench widths

- A calculated minimum Factor of Safety (FOS) of 1.2 against large-scale overall rock mass slope failure.

Current practices in mine slope design have recently been documented in Guidelines for Open Pit Slope Design, 2009, edited by John Read and Peter Stacey, published by CSIRO Publishing. These values are generally within the range of acceptance criteria typically used in the mining industry as presented in these Guidelines. The Minimum factors of safety for overall stability is at the low end of the usually acceptable range, consistent with relatively low consequences of failure.

CNI evaluate structural stability of benches by analyzing structural data on orientation, length, spacing, and shear strength of fractures using a proprietary software package, and 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 checked in detail, the results are reasonable based on the data presented and our experience.

CNI develop 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 pit. Failure volume in these ranges is generally considerable to be routine for pit operations, where material is removed as pit development progresses.

Factors of safety estimated at seven critical cross sections (5 located in La Caridad and 2 located in Bella Union) exceeded 1.3 in all cases. CNI concludes that overall slope rotational shear instability is unlikely to occur due to low rock mass strength conditions.

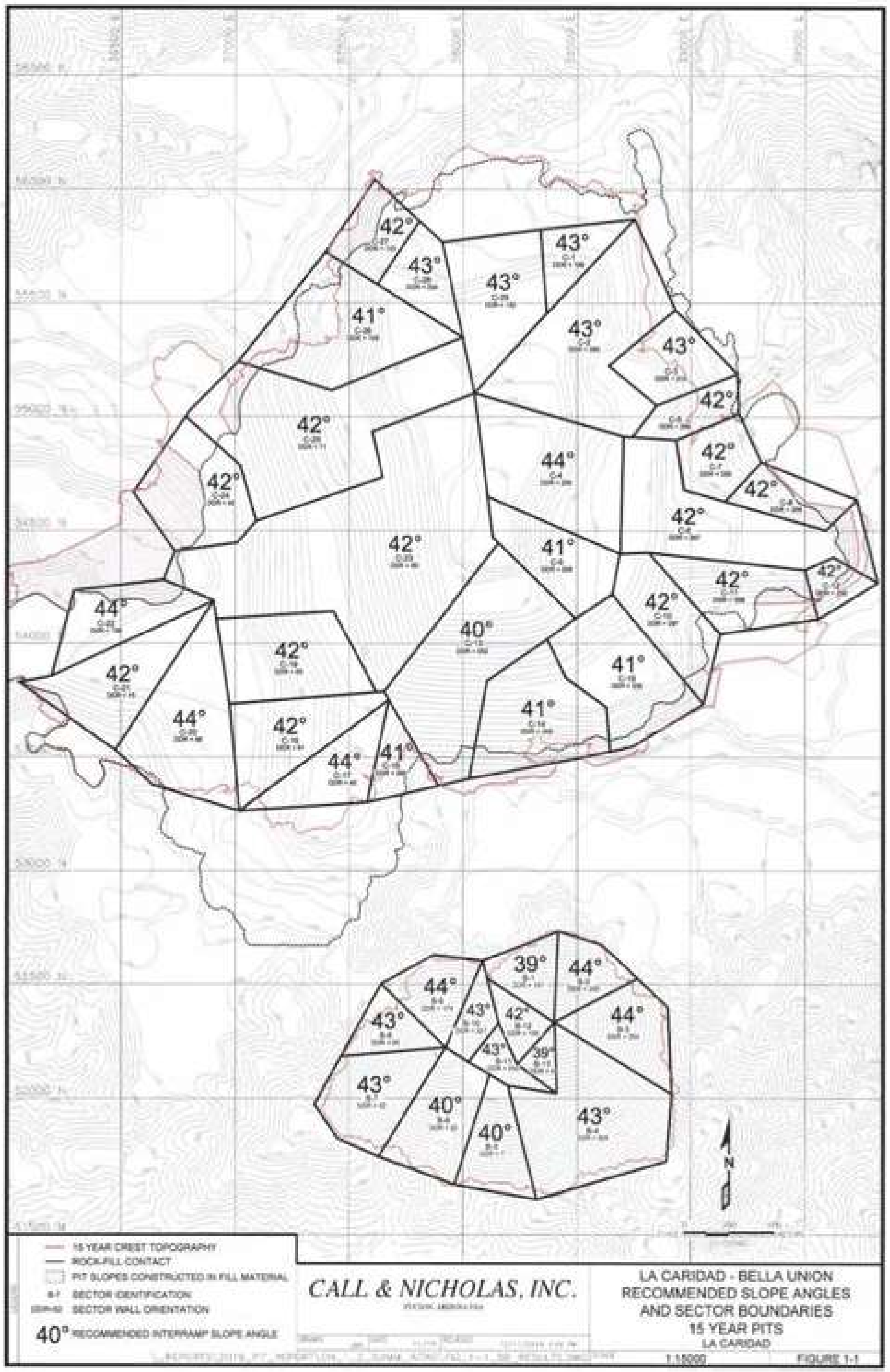
13.2.1.1.2 Pilares

SRK evaluated stability at the inter-ramp and overall scale using the 2D limit equilibrium method that was completed with the software package SLOPE2 Modeler maintained and distributed by Rocscience, Inc. Probabilistic sampling of rock mass shear strength parameters was incorporated to account for natural variability in the shear strength. Each cross section was evaluated separately using the finite element shear strength reduction method with the software package RS2, which is also maintained by Rocscience, Inc. Overall slope stability was checked for two cross sections: Cross Section C-1, where the overall slope is established in latite and Cross Section C-3, where the slope includes inter-ramp slopes in both latite and andesite. Both cross sections were evaluated with a water table established at a moderate level internally with drawdown to a point at the toe of the slope. A restricted slope case was also evaluated where the lower inter-bench slope is established within the breccia. The computed factors of safety ranged from 1.3 to 2.3 for inter-ramp angles ranging from 47° to 55°. The corresponding probability of failure ranged from 1% for factors of safety of 2.2 to 2.3 to 17% for a factor of safety of 1.3. These values are within the range of typically acceptable values (Read and Stacey 2009).

Bench scale stability was based on the evaluated of planar failure modes based on the statistical distribution of discontinuities determined from the oriented core data. The statistical parameters for the planar mode included dip, dip direction, spacing, and persistence. A limitation of this method is that the oriented core data is directionally biased so that that pole concentrations shown on the stereonet plots tend to over-represent structure that is perpendicular to the corehole axis. Accordingly, other failure modes, such as structures forming wedges in kinematically viable failure modes are not included in the analysis. However, the computed theoretical bench face angles have been adjusted to account for inter-action with the inter-ramp angle and this should also account for reduction in bench-face angles that occurs due to blast disturbance.t

13.2.1.2 Pit Slope Design Recommendations

The slope design for La Caridad is provided for 29 design sectors. The geotechnical units and slope design recommendations for each sector are summarized in Table 13.1. The slope design recommendations for Bella Union are provided in Table 13.2 for 13 design sectors.



Source: CNI 2019

Figure 13.1:CNI Design Sectors for La Caridad and Bella Union Pits

Table 13.1: CNI Slope Design Recommendations for La Caridad

Design Sector	Structural Domain	Wall DDR	Recommended Slope Configuration (15 m Single Bench)		
			Inter-ramp Slope Angle (°)	Bench Face Angle (°)	Design Catch Bench Width (°)
C01	4	175	43	80	13.4
C02	4	236	43	80	13.4
C03	4	273	43	80	14
C04	1	209	44	77	12.1
C05	3	262	42	80	14
C06	3	320	42	83	14.8
C07	3	2	42	82	14.6
C08	3	22	42	84	15.1
C09	1	188	41	77	13.8
C10	3	265	42	81	14.3
C11	3	215	42	81	14.3
C12	3	295	42	81	14.3
C13	1	290	40	75	13.9
C14	2	267	41	82	15.1
C15	2	250	41	82	15.1
C16	1	209	41	76	13.5
C17	1	258	44	74	11.2
C18	1	297	42	75	12.6
C19	1	358	42	75	12.6
C20	1	330	44	75	11.5
C21	1	2	42	75	12.6
C22	1	359	44	75	11.5
C23	1	330	42	77	13.2
C24	1	290	42	74	12.4
C25	1	40	42	75	12.6
C26	1	91	41	75	13.2
C27	1	65	42	75	12.6
C28	1	68	43	80	13.4
C29	1	15	43	75	12.1

Source: CNI 2019

Table 13.2: CNI Slope Design Recommendations for Bella Union

Design Sector	Structural Domain	Wall DDR	Recommended Slope Configuration (15 m Single Bench)		
			Inter-ramp Slope Angle (°)	Bench Face Angle (°)	Design Catch Bench Width (°)
B01	2	157	39	84	16.9
B02	2	205	44	79	12.6
B03	2	254	44	78	12.3
B04	2	325	43	83	14.2
B05	2	7	40	82	15.8
B06	2	22	40	81	15.5
B07	2	52	43	83	14.2
B08	2	95	43	86	15
B09	2	174	44	78	12.3
B10	2	227	43	79	13.2
B11	2	230	43	79	13.2
B12	2	100	42	84	15.1
B13	2	8	39	82	16.4

Source: CNI 2019

The slope design recommendations for Pilares are shown on Figure 13.2 for the restricted case and the non-restricted case. The slope design recommendations for Pilares are provided in Table 13.3.

As shown in the Figure 13.3 , there are areas in which the ultimate pit design extends past the currently defined limits of the geotechnical domains. WSP recommends including these areas in future geotechnical investigation programs that advance the confidence in the geology, RQD, and alteration models prior to expanding the pit, as described in Section 13.2.1.3.

Table 13.3: SRK Slope Design Recommendations for Pilares

Design Sector	Recommended Slope Configuration (15 m Single Bench)	
	Inter-ramp Slope Angle (°)	Bench Face Angle (°)
NW	52	75
SW	55	75
SE (Latite)	50	75
SE (Breccia)	47	70
NE	55	75

Source: SRK 2011

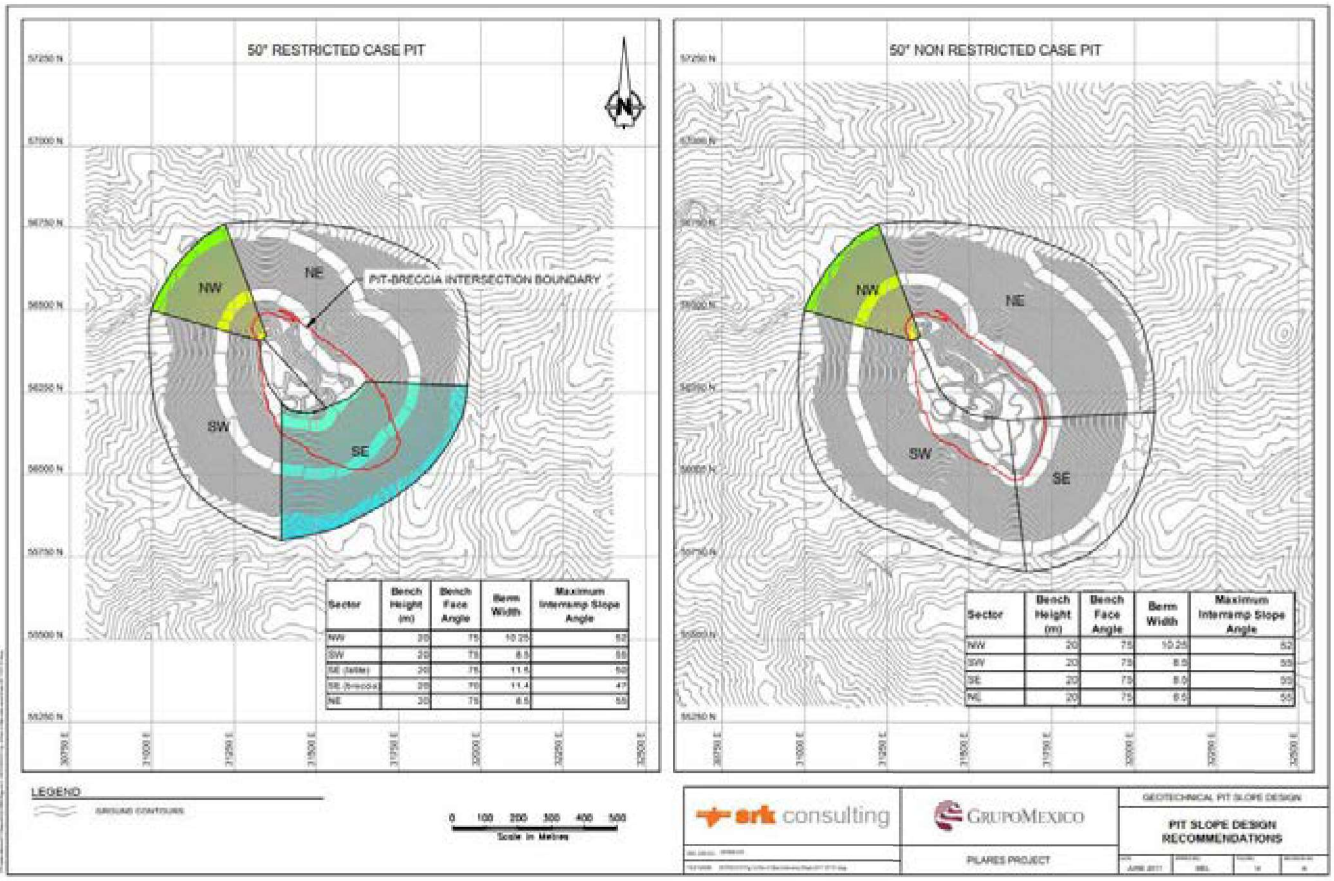


Figure 13.2: SRK Design Sectors for Pilares

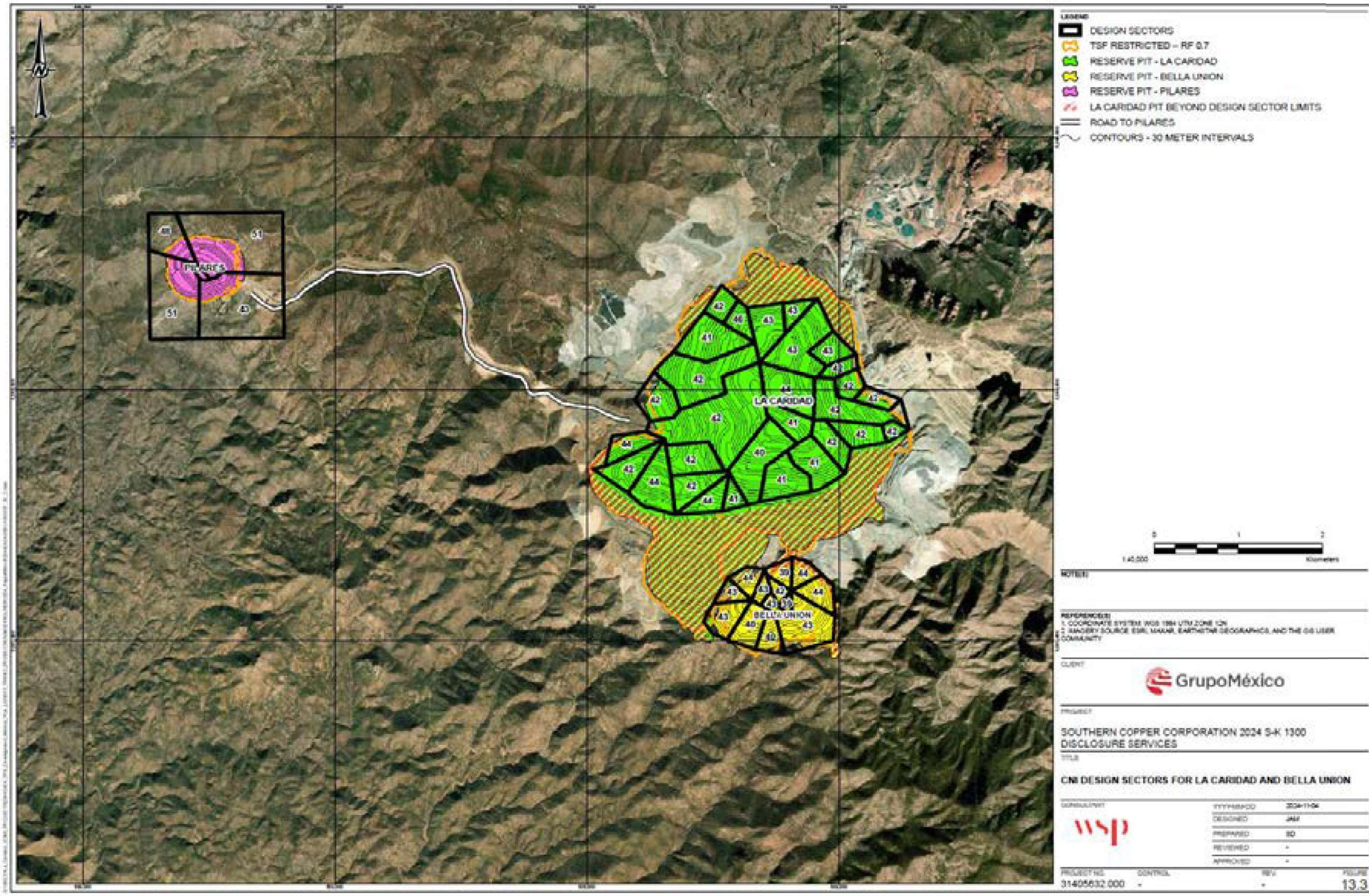


Figure 13.3: Geotechnical Limitations on Ultimate Pit Design

13.2.1.3 Recommendations for Additional Geotechnical Work

Use of the CNI slope designs is recommended at the pre-feasibility level as well as following their recommendations in terms of the additional geotechnical work that should be performed during final design and mine operations to optimize slope designs. A summary of recommendations for additional work that would develop pit slope design to the feasibility level is provided below:

- Targeted geotechnical drilling and sampling of pit walls to improve confidence in RQD measurements and rock mass rating assessments. CNI has noted that the limits of high confidence geotechnical data (e.g., RQD data) is concentrated in the central regions of La Caridad and the Bella Union pits. Inclined geotechnical drillholes should be oriented such that they intercept pit highwalls in the lower one-third of the wall and extend behind the wall until the depth reaches the ultimate pit floor elevation.
- Updates to the pit geology and RQD models based on the data collected during targeted geotechnical drilling and surface mapping programs.
- 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 of the proposed 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

In the opinion of the QP, the geotechnical model for Pilares is not adequately characterized. Additional geotechnical programs will be necessary to further define the 3D geological model and to map the location of major structure as well as the mined-out voids and backfill areas. Oriented core data was not available for review. New geotechnical drill holes should be used to collect oriented core data to complete structural characterization, define structural domains, and to improve the geomechanical database with additional laboratory testing. Additional assessment of the interaction between the open pit and underground workings should be completed following updates to the geotechnical model.

13.3 Mining Design Factors

This sub-section contains forward-looking information related to mine design and production plans 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 mining strategy and production rates, expected mine life and mining unit dimensions.

Mine planning at La Caridad and Pilares follows the typical standards for open pit mining. The processes include:

- Application of dilution and recovery factors
- Development of a value for each of the blocks in the model
- Perform pit optimization and select optimal pit shell to be used for the basis of the ultimate pit design

- Ultimate pit design
- Develop phase designs
- Develop mine planning targets and constraints

The restricted pit shell selected from the pit optimization process was used as a guide to develop a more detailed design. The resulting pit design was referred to as the operational pit. The operational pit was also limited by the following constraints:

- La Caridad:
  - Eastern constraint to avoid current infrastructure
  - Western constraint to avoid the La Francisca Leach Pad
- Pilares
  - Southeastern constraint to avoid a pre-existing mine shaft as well as historic dwellings and a cemetery.
- Mining restrictions, including legal and environmental impacts
- Overall slope angle
- Operational design characteristics, including ramp locations and grades, OSF locations, mining width and height, and other practical mining considerations given the mine geometry.

The mine design criteria are listed below:

- Surface mining approach
- Minimum operating width of 45 m
- Haul road design width of 40 m
- Bench height of 15 m
- Maximum road grade of 8%
- Bench face angle and catch berms vary based on geotechnical sector
- Typical blasting grid ranging from 7x7 m, 8x8 m, 8x10 m, 9x11 m
- Final wall pre-split control drill pattern of 5x5 m
- Blasthole diameter of 12 ¼”
- Specific Gravity average of 2.5

13.3.1 Dilution, Loss, and Mine Recovery

Dilution in mining can be defined as the addition of waste material to the ore during the mining process and are due to a lack of selectivity, or in some cases, due to inadequate operational configuration. The process considers the neighborhood relationship between an ore block with the adjacent blocks, weighting the grades by a predetermined distance, and by the density of the blocks. The dilution effects result in a reduction of the ore grade for the mining model as well as a reduction in mass recovery. The factors that cause dilution are diverse and include:

- Nature of ore contacts and boundaries
- Pit boundary zones
- Block size and position
- Sample density
- Geological complexity
- Selectivity of mining, equipment size
- Mining method and type of crushing, etc.

Dilution can be internal (caused by intrinsic deposit factors) or external (caused by operational errors). Dilution cannot be fully eliminated as it is impossible to have the exact accuracy of the mining limits; however, it can be estimated and considered, thus minimizing the differences between the mine plan and the actual operations.

A dilution factor of 1% and a mining loss of 2% was applied to the schedule and Mineral Reserve estimate. It is the opinion of the QP of Mineral Reserves that with the current practices at La Caridad and Pilares there will be some ore loss and mining dilution attributed to bulk mining.

13.3.2 Mining Strategy and Production Rates

The mine plan targets a ROM mill feed rate of approximately 34.5 Mtpa with the LOM schedule averaging an annual total production of 95 Mt total material. This production rate for the mill feed results in approximately 94,500 t per day through the concentrator.

13.3.3 Expected Mine Life

Due to current tailings storage capacity limitations (see Section 12.2.6) the scheduled La Caridad Mine life is 58 years. During this period, the mine has an average ROM mill ore production rate of approximately 34.5 Mtpa (dry) resulting in an average annual copper production of 76 Kt per year from the mill (contained), an annual average molybdenum production of about 12 Kt per year (contained), and an annual copper production average of 11Kt from leach (contained).

13.4 Design Phases

As discussed in Section 12.2.7, the ultimate pit was selected based on TSF capacity and reasonable economics. The provided interim phases were revised, when necessary, to ensure appropriate mining widths were maintained as well as to extend the ultimate pit to Reserve RF 0.7 pit optimizations shell that was selected for both LC and PL.

La Caridad has 13 phases generally consistent with the designs being adopted by site operations. The initial two phases provided by site were retained since mining is currently underway in those phases. This approach allows operations at site the opportunity to align their current mining strategy to the schedule provided. Bella Union has two phases that were provided by site, reviewed by WSP and utilized in the mine schedule.

Pilares has two phases that were designed by WSP.

Figure 13.4 shows the current topography and the topographic intersections of the phases.

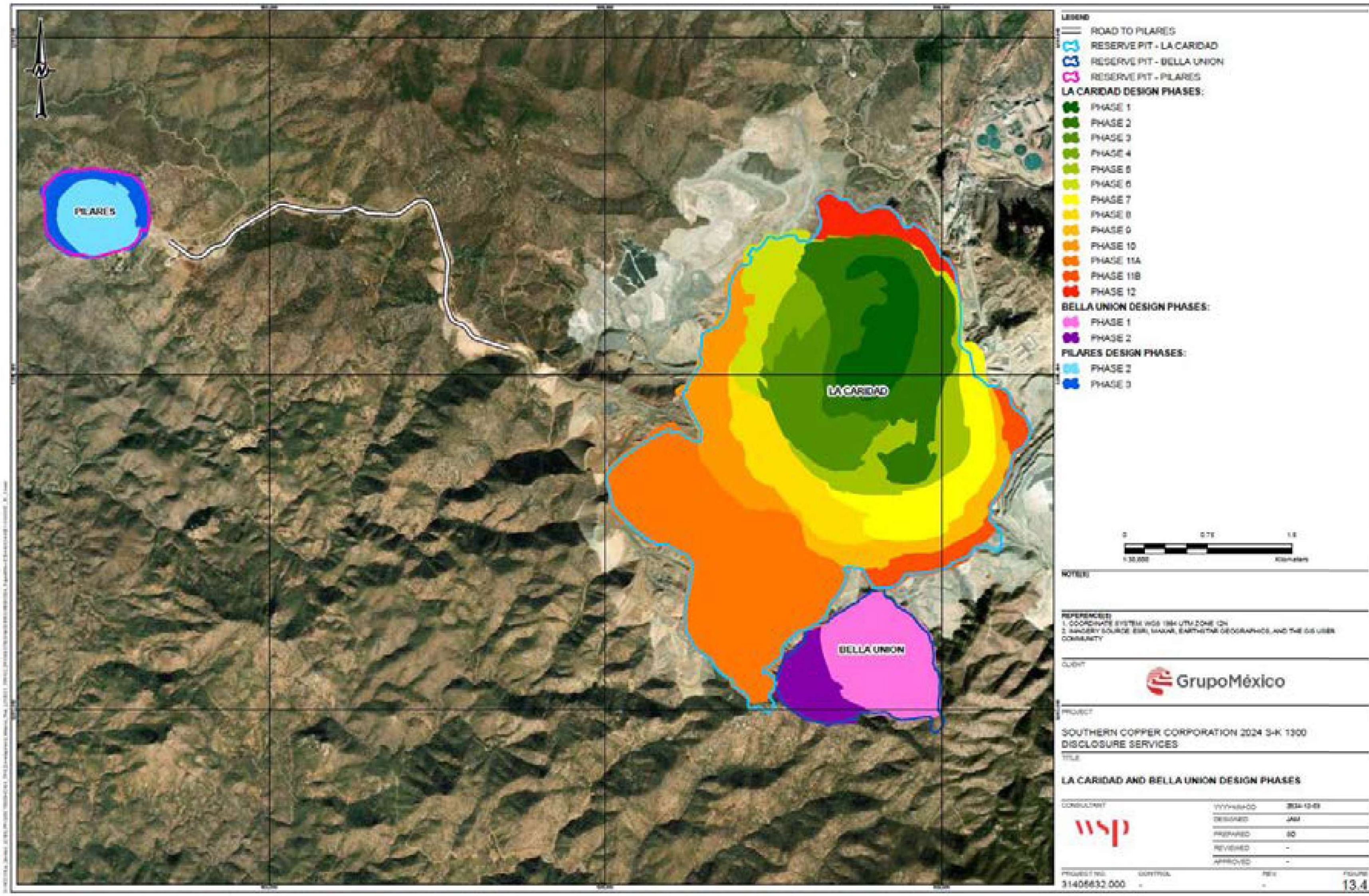


Figure 13.4: La Caridad and Bella Union Design Phases

13.5 Production Schedule

The production was a blended schedule of mining La Caridad (both La Caridad and Bella Union areas) as well as Pilares with the strategy of sending higher grade copper feed to the copper concentrator while maintaining the molybdenum grades within a specified range. The mine targeted between 34.0 Mtpa to 34.5 Mtpa of mill feed with a copper feed grade of 0.3% for first 10 years with gradual declines for the following years. The constraints used in the production schedule were based on the operational targets used in the mine. They include:

- 34.0 Mtpa to 34.5 Mtpa Mill Feed
- 0.3% Cu Grade (in-situ) for the first 10 years as best possible
- 0.028% to 0.032% Mo Grade (in-situ) for the LOM, as best possible
- Maximum of 23 Mt of material sent as leach per year
- 95-100 Mtpa total material mined
- 16% or less of the total mill feed to be sent from Pilares
- 8 to 10 vertical bench advances per phase, per year
- Maximum of three open benches in La Caridad at any given time
- Maximum of two open benches in Pilares at any given time
- 2.26 Bt capacity of TSF No. 7

Haulage profiles were generated for each phase and integrated with the surface haul roads to each destination. Haul profiles were also traced on each destination block within the destination. Speed bin curves for loaded and empty trucks were used to calculate the cycle times from each dig block to every possible dump block. A maximum speed of 23 kph was imposed on material routed from Pilares. A rolling resistance of 2% was used for all the haul roads. Additional times for loading, spot, dump and queue were added to the cycle times.

These cycle times were used in conjunction with the truck payload, operating efficiencies and mechanical availabilities to calculate the truck hours and truck unit requirements for every period. This coupled with the operating cost of the truck per hour is used to calculate the net haulage cost for each scheduled period.

A summary of the LOM Plan production statistics, including ore tonnes, waste tonnes, copper production, and grade is shown in Table 13.4 with waste and ore tonnage shown graphically in Figure 13.5 .

Table 13.4: LOM Plan Ore and Waste Quantities

Mining Period	Mill			Leach		Waste	Total		
	Tonnes (Mt)	Cu (%)	Mo (%)	Tonnes (Mt)	Cu (%)	Tonnes (Mt)	Contained Mill Cu (Kt)	Contained Mill Mo (Kt)	Contained Leach Cu (Kt)
2025	34	0.297	0.029	12.4	0.171	48	101	10	21
2026	34	0.297	0.032	11.1	0.217	50	101	11	24
2027	34	0.297	0.032	17.8	0.220	43	101	11	39
2028	34	0.297	0.032	10.7	0.198	50	101	11	21
2029	34	0.297	0.032	17.2	0.210	44	101	11	36
2030	34	0.292	0.045	6.1	0.156	59	100	15	9
2031	34	0.287	0.032	6.8	0.155	58	98	11	11
2032	34	0.297	0.032	11.8	0.203	49	101	11	24
2033	34	0.272	0.032	8.3	0.198	53	93	11	16
2034	34	0.238	0.032	6.5	0.203	55	81	11	13
2035	34	0.259	0.032	4.2	0.232	59	88	11	10
2036	34	0.297	0.040	2.6	0.368	58	101	14	10
2037	34	0.297	0.101	0.9	0.325	55	101	35	3
2038	34	0.297	0.040	4.1	0.302	52	101	14	12
2039	34	0.297	0.032	15.6	0.247	45	101	11	39
2040	34	0.277	0.032	13.0	0.171	48	95	11	22
2041	34	0.246	0.032	11.1	0.145	50	84	11	16
2042	34	0.220	0.032	3.8	0.132	57	75	11	5
2043	34	0.200	0.032	4.7	0.134	56	68	11	6
2044	34	0.198	0.030	1.3	0.090	60	68	10	1
2045	34	0.202	0.032	1.7	0.107	59	69	11	2
2046	34	0.201	0.032	3.4	0.143	58	69	11	5
2047	34	0.223	0.032	11.6	0.163	49	76	11	19
2048	34	0.204	0.032	3.7	0.188	58	70	11	7
2049	34	0.242	0.032	8.8	0.183	52	83	11	16
2050	34	0.210	0.032	2.1	0.146	59	72	11	3
2051	34	0.198	0.032	22.8	0.113	38	68	11	26
2052	34	0.210	0.032	16.1	0.136	45	72	11	22
2053	34	0.198	0.032	12.7	0.142	48	68	11	18
2054	34	0.217	0.032	6.6	0.112	54	74	11	7
2055	34	0.198	0.032	3.5	0.138	52	68	11	5
2056	34	0.199	0.032	3.1	0.148	53	68	11	5
2057	34	0.216	0.032	8.0	0.097	55	74	11	8
2058	34	0.214	0.032	17.5	0.119	44	73	11	21
2059	34	0.198	0.032	7.1	0.155	54	68	11	11
2060	34	0.214	0.032	16.6	0.158	44	73	11	26
2061	34	0.198	0.032	12.6	0.179	48	68	11	23
2062	34	0.205	0.044	18.6	0.168	42	70	15	31
2063	34	0.211	0.032	7.7	0.218	53	72	11	17
2064	34	0.200	0.040	6.2	0.215	55	68	14	13
2065	34	0.198	0.042	0.7	0.350	55	67	14	3
2066	34	0.198	0.032	1.1	0.107	55	67	11	1
2067	34	0.204	0.032	2.1	0.132	54	70	11	3
2068	34	0.202	0.032	5.6	0.149	50	69	11	8
2069	34	0.163	0.045	1.3	0.155	55	56	15	2
2070	34	0.175	0.040	2.8	0.154	53	60	14	4
2071	34	0.152	0.040	0.2	0.145	56	52	14	0
2072	34	0.204	0.032	3.3	0.151	53	70	11	5
2073	34	0.297	0.032	3.7	0.247	52	101	11	9
2074	34	0.238	0.032	1.0	0.217	40	81	11	2
2075	34	0.171	0.032	0.8	0.115	40	58	11	1
2076	34	0.171	0.032	0.2	0.096	26	58	11	0
2077	34	0.153	0.032	0.1	0.119	27	52	11	0
2078	34	0.180	0.032	0.0	0.111	26	61	11	0
2079	34	0.149	0.075	0.1	0.086	20	51	26	0
2080	34	0.215	0.043	0.0	0.000	20	73	15	0
2081	34	0.154	0.084	0.2	0.071	18	53	29	0
2082	19	0.133	0.083	0.0	0.000	8	25	16	0
TOTAL	**1,965**	**0.224**	**0.037**	**384**	**0.173**	**2,780**	**4,411**	**721**	**663**

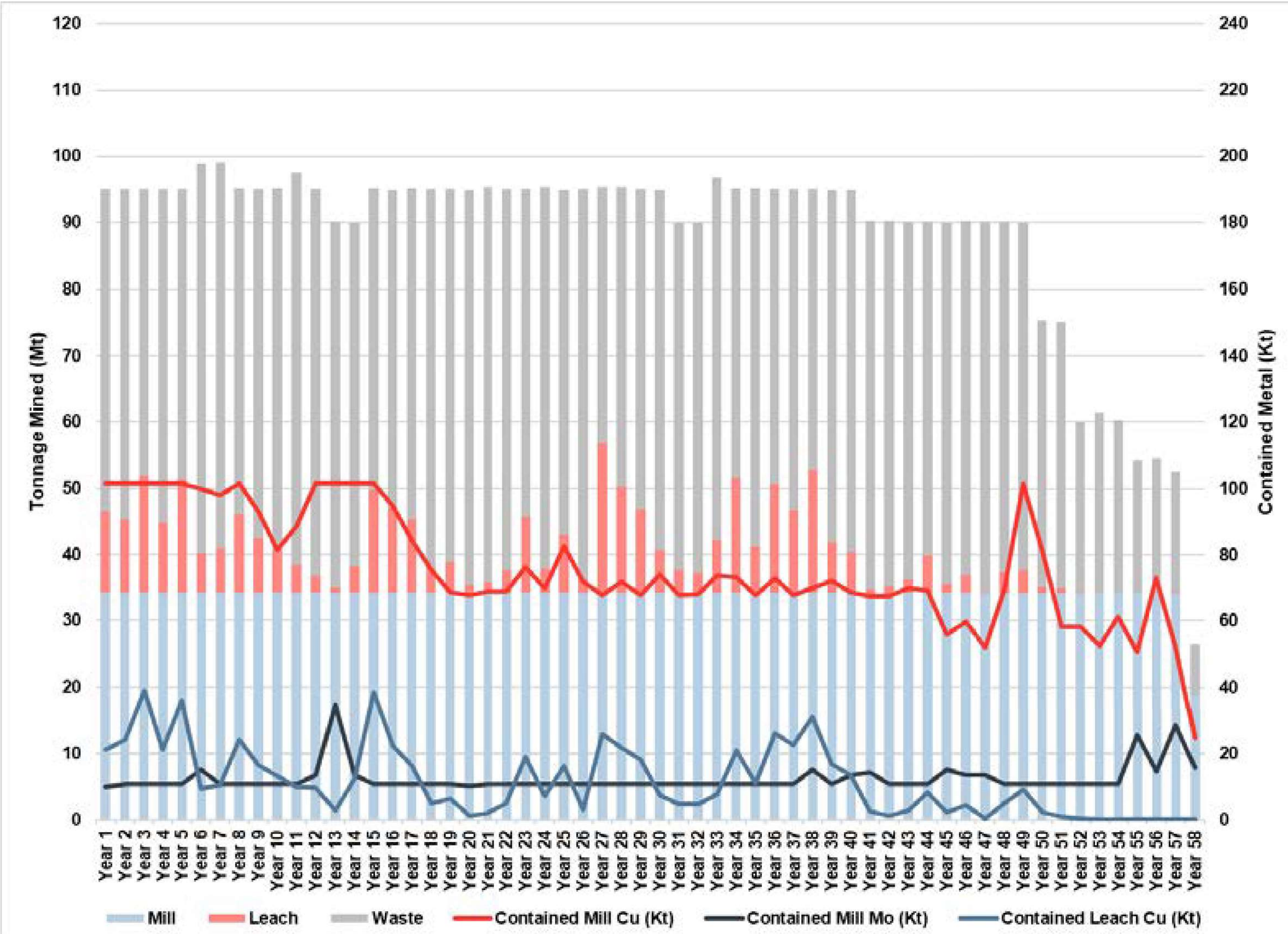


Figure 13.5: LOM Plan Production Statistics

13.6 Mining Fleet, Machinery, and Personnel Requirements

This sub-section contains forward-looking information related to equipment selection 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 labor and equipment availability and productivity.

13.6.1 Equipment

The mine uses a combination of CAT, Komatsu, P&H, and Bucyrus equipment for material extraction and transportation. Currently, the largest haul truck on site is the CAT 797F with a capacity of 360 tonnes; additional trucks include the Komatsu 960E (327 tonnes) and the CAT 793D (220 tonnes). The shovels used at the site are mainly 40-cubic yard (yd^3) electric rope shovels from P&H and Bucyrus, along with 1 CAT 6060 FS Hydraulic Shovel with a 44.5-yd^3 capacity, 1 Komatsu PC7000 with a 44 yd^3 capacity, and 2 CAT 7495 with a 59 yd^3 capacity.

The mining schedule is assumed to be 24 hours per day, 365 days per year. The mining fleet used for the scheduling exercise consists of:

- Loading Equipment:
  - 2 P&H 2800 XPA
  - 2 P&H 2800 XPB
  - 2 Bucyrus 395BIII
  - 1 Caterpillar 6060 FS
  - 1 Komatsu PC7000
- Truck Fleets:
  - Mix Fleet
    - 2 Komatsu 960E 327 tonne
    - 6 CAT 797F 360 tonne
  - CAT 793s
    - CAT 793Ds 220 tonne

Details of the assumptions used for the LOM costs and equipment are presented in Section 18.0.

13.6.2 Personnel

La Caridad and Pilares currently employs 1,400 people. Of that, 1,308 are union labor.

14.0 PROCESSING AND RECOVERY METHODS

This sub-section contains forward-looking information related to the process plant throughput and design, equipment characteristics, and specifications 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, historical and current test work results, and beneficiation recovery factors.

The current mineral processing facility is comprised of crushing and milling circuits to achieve liberation of copper mineralization. Copper contained in primary and secondary copper minerals is recovered via flotation into a copper concentrate. The concentrate is shipped to their own smelter located approximately 20 km from the beneficiation plant. The processing methodology selected is considered conventional and is widely used in the mining industry worldwide.

14.1 Copper Concentrator

14.1.1 Summary and Facilities Site Layout

The current plant started operations in 1979. The original plant design capacity for crushing, grinding and flotation circuits was 72,000 tpd and the expected copper recovery was 85.0%. Over the last 10 years of operation, the plant has processed an average of 34 Mtpy, or 94.4 thousand tonnes per day (ktpd), with an average of 85.88% copper recovery. Over the last five years, the averages are 95.3 ktpd and 86.6% copper recovery.

At the original design throughput, the LOM for the project was originally (1972) estimated at 30 years. Continuing exploration has periodically increased the Mineral Reserves and extended the LOM with the current plant capacity to 2085. Plant capacity improvements are shown in Table 14.1.

Table 14.1: Capacity Improvements and Additions

Year	Description	Installation/Capacity Increase
1982	Molybdenum Plant	Complete flotations and S/L separation
1988	Capacity Upgrade	72,000 to 90,000 MTPD
1999	Wemco flotation cells	Installation 40 (1,000 ft^3) cells
2009	Secondary crushers replaced	Metso MP800 six units installed
2013	Cyclones and pumps	90,000 to 94,000 MTPD
2018	Expert system	94,862 MTPD capacity

A brief description of the process circuits included in the design is provided in the following paragraphs. The overall process facilities are divided in two main process circuits, namely the Dry Circuit that includes the Crushing and Screening Plants and the Wet Circuit that includes Grinding and Flotation (Concentrator).

The layout of the concentrator process facilities is presented in Figure 14.1.

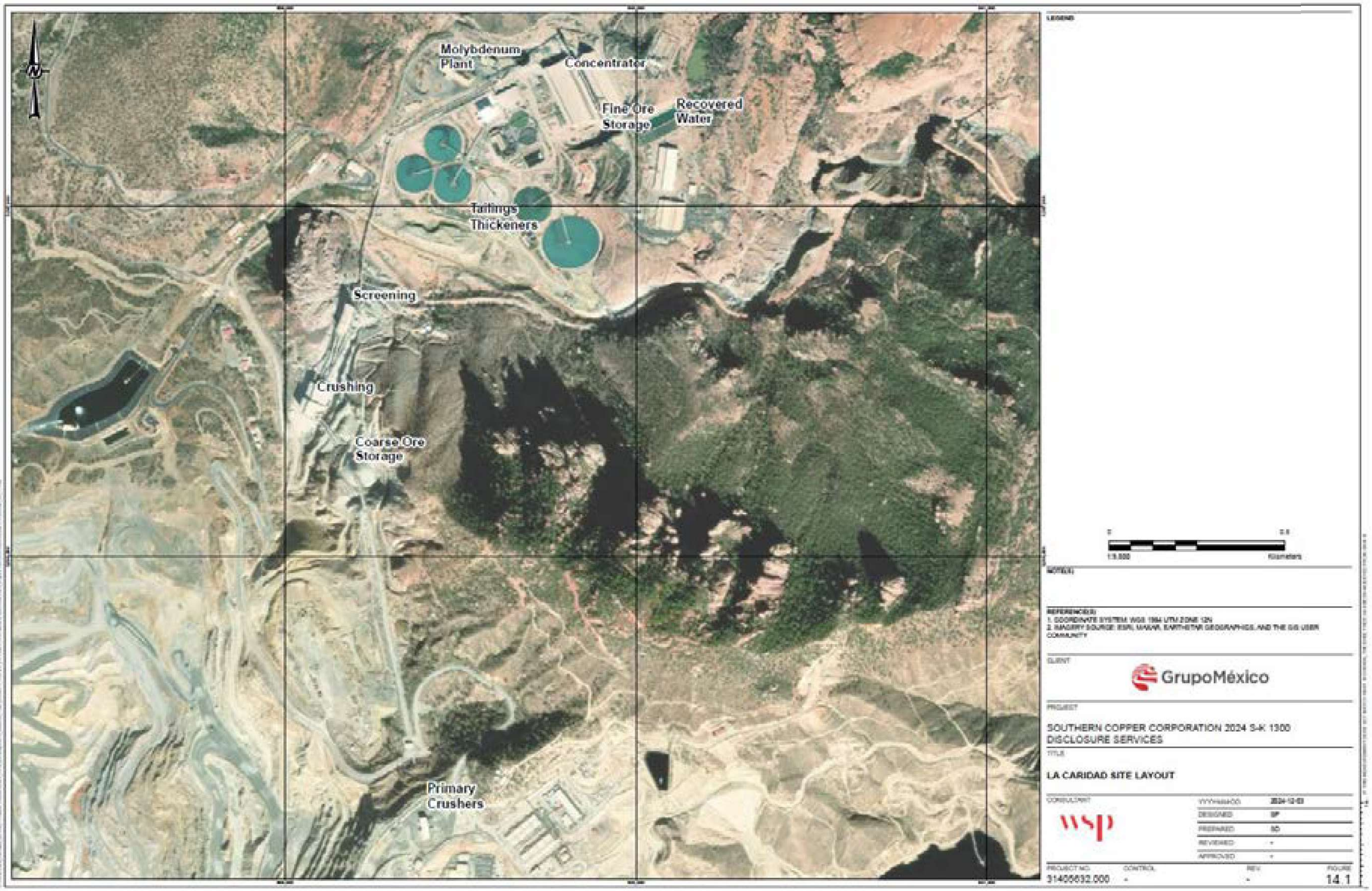


Figure 14.1: La Caridad Site Layout

14.1.2 Crushing and Screening Plant Equipment

The Crushing and Screening Plant includes the following equipment and processes:

- Equipment (three stage – closed circuit):
  - Primary Crushing (Two 60-inch x 89-inch gyratory crushers)
  - Ore conveyor to Coarse ore stockpile (72 inch by 970 m)
  - Coarse ore storage yard (240,000 metric tonnes capacity; 165,000 dry tonnes live capacity).
  - Secondary Screens (Six double deck 6 ft by 16 ft)
  - Secondary Crushing (Six MP-800)
  - Tertiary Screens (Twenty double deck 8 ft by 20 ft)
  - Tertiary Crushing (Twelve Allis Chalmers 3 inch by 84 inch)

The flow diagram of the Crushing and Screening Plant is shown in Figure 14.2.

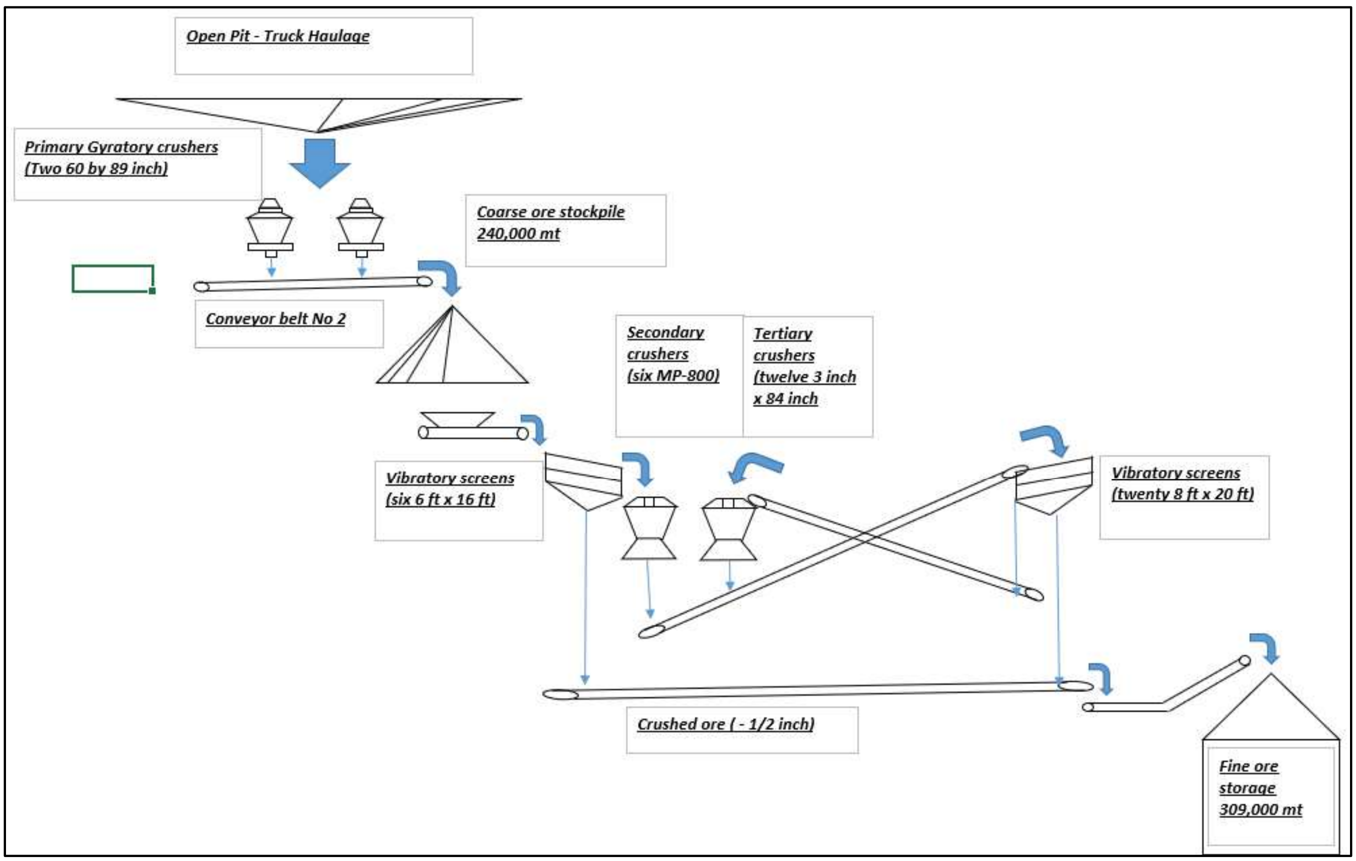


Figure 14.2: La Caridad – Crushing and Screening Plant

The primary crushing circuit includes two 60-inch by 89-inch gyratory crushers The primary crushers are located near the final pit limit. The run-of mine material is transported to the primary crusher with haul trucks. The haul trucks discharge directly into the crushers. The crushing circuit was designed to process 72,000 dry tpd (75% availability) with 8-inch closed size setting (P_{80} minus 8 inch) in 18 hours of operation.

The ROM oversize material is broken with a hydraulic breaker.

The primary crushed material is conveyed to a coarse ore stockpile area. When full, the coarse ore stockpile provides almost two days of surge capacity to protect the downstream circuits from any eventualities in the primary crushers or the mine.

The primary crushed ore is reclaimed with feeders and transported to two subsequent stages of screening and crushing in closed circuit to further reduce the material to minus ½ inch. Conveyor belts are used to transport the intermediate and fine crushed materials throughout the entire crushing and screening circuit.

The crushing circuit design includes weigh scales, a crushed ore sampling system, and magnetic separators to protect the cone crushers from iron debris coming from mining operations. The crushed product is transported to a fine ore storage building with 309,000 tonnes live capacity. When full, the fine ore storage provides almost three days of surge capacity to protect the beneficiation circuits from any eventualities in the crushing and screening plant.

14.1.3 Concentrator Grinding and Flotation

The Concentrator includes the following equipment and processes:

- Fine ore storage (309,000 wet tonnes capacity).
- Primary grinding mills (Twelve 16.5-ft diameter by 24 ft long).
- Rougher Flotation (100 cells – 1,350 cubic feet [ft^3] per cell; 40 cells – 1,000 ft^3 per cell).
- Regrind mills (Four 10.5-ft diameter by 23 ft long)
- Scavenger flotation (48 cells – 500 ft^3 per cell)
- First cleaner flotation (32 cells – 500 ft^3 per cell)
- Second cleaner flotation (16 cells – 500 ft^3 per cell)
- Molybdenum plant
- Rougher flotation (12 cells – 300 ft^3 per cell)
- Eight cleaner cells
- Scavenger cleaner flotation
- Molybdenum concentrate sedimentation and filtration
- Molybdenum concentrate storage and shipping
- Final copper concentrate sedimentation and filtration.
- Final copper concentrate storage and shipping.

- Tailing sedimentation and water recovery.
- Reclaimed and freshwater systems.
- TSF and water recovery.

The flow diagram of the Beneficiation (Grinding and Flotation) Plant is shown in Figure 14.3.

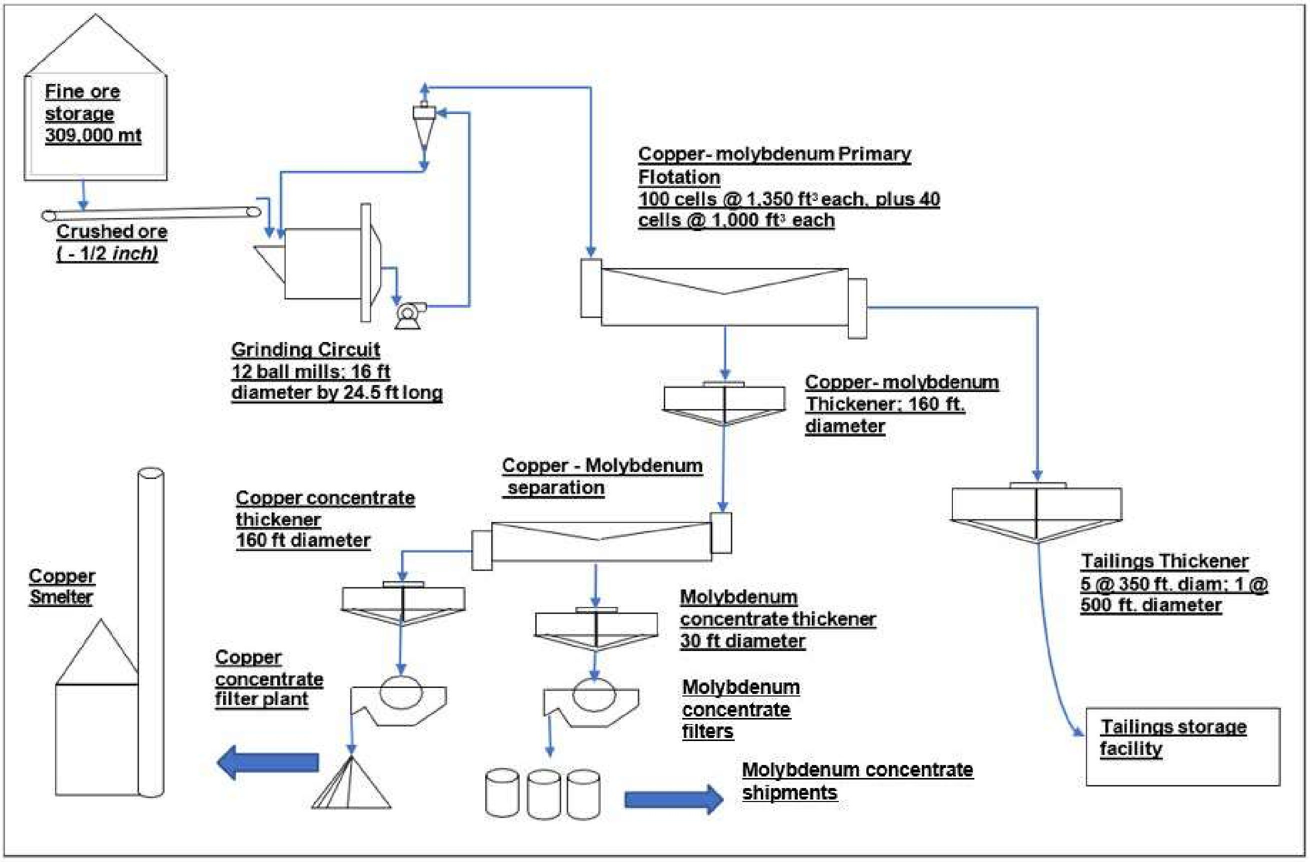


Figure 14.3: La Caridad – Grinding and Flotation Plant

The Beneficiation Plant operates continuously 365 days per annum. The beneficiation plant availability was designed to be 92 percent, or approximately 336 days per year. Table 14.4 shows that from 2011 to 2021 the plant has achieved availability of over 363 days per year. The bulk density of the ROM material is 2.67 t/m^3 with an average moisture content of 3.5%. The beneficiation plant final products are copper and molybdenum concentrates.

Variable speed belt feeders transport the crushed material from the fine ore stockpile to the milling section.

The grinding circuit design consists of a single stage of grinding in primary ball mills. The main materials at La Caridad have been classified as (medium – hard) with an average Bond Work Index (Wi) of 11.81-kilowatt hour per metric tonne (kWh/t).

The milling section consists of twelve primary grinding mills. The material is ground to 66% minus 200 mesh (75 microns) in closed circuit with a battery of size classification cyclones. Flotation reagents are added into the grinding mill to allow for conditioning.

The mill discharge slurry is pumped to banks of cyclones for size classification. Finely ground slurry (cyclone overflow) at approximately 32% solids is sent to a conditioning tank where flotation reagents are added for conditioning prior to the flotation process. Cyclone underflow is returned to the mills for further grinding.

The flotation circuit consists of banks of rougher cells followed by scavenger cells to achieve maximum copper recovery. The rougher and scavenger concentrates are sent to a regrind circuit to achieve optimum liberation of copper mineralization. The cyclone overflow from the regrind circuit feeds a two-stage cleaning circuit to achieve the highest possible copper grade in the final concentrate. The first cleaner tailing product is returned to the head of copper rougher flotation.

The cleaner concentrate reports to the copper-molybdenum (Cu-Mo) concentrate thickener.

Flotation tails slurry at about 32% solids is sent to a tailings thickener area. The original plant had four, 350-ft diameter thickeners. A fifth similar 350-ft thickener and then a sixth, 500-ft diameter thickener were added for the plant expansions from 72,000 metric tonnes per day (mtpd) to 90,000 mtpd, as noted in Table 14.1 in Section 14.1.1.

A conventional tailings system is used at La Caridad. The higher density tailings thickener underflow slurry produced at approximately 50% solids is sent by gravity via a natural creek to the tailings storage facility. Thickener overflow water is pumped to the reclaimed water reservoir. The solids sediment in the tailings dam water is then recovered and is pumped to a reservoir next to the thickener water reservoir.

The molybdenum plant circuit consists of the following flotation and solid-liquid separation processing stages:

- Rougher flotation
- Eight cleaners
- Scavenger cleaner flotation
- Molybdenum concentrate sedimentation and filtration

After molybdenite recovery, the copper concentrate is pumped to the copper concentrate thickener. The final copper concentrate is filtered, and the filter cake, with moisture ranging from 15% to 20%, is stored and air dried in a warehouse prior to shipment by truck to the smelter.

Each copper concentrate shipment is sampled and analyzed for copper and moisture contents. Impurities present in the concentrate are quantified and evaluated prior to shipment.

The molybdenum concentrate is loaded in 2,000-kg bulk bags for shipment to market.

14.1.4 Beneficiation Plant Process Reagents

The reagents utilized in copper and molybdenum sulfide mineralization flotation at La Caridad are outlined in Table 14.2.

Table 14.2: Main Reagents and Dosage

Reagent	Dosage (g/tonne)
Solvay 5160 Collector Copper	7 to 9
Solvay MX 2148	30 to 35
FROTHER Teuton M-91	20
Surfactant Teuton 609	11
Lime (CaO) - Pyrite depression	2,700 to 3,200

14.1.5 Energy and Water Requirements

This sub-section contains forward-looking information related to the projected requirements for energy, water, process materials and personnel 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 requirements that yield different results from the historical operations.

Power for the operation comes from two combined-cycle, natural gas fired power plants with a total capacity of 500 MW. The power plants belong to a subsidiary of Grupo Mexico and are located north of the smelter/refinery complex, which is 20 km north of the concentrator plant, near the town of Esqueda, Sonora. The power plants are connected to the national power grid to reach the Southern Copper Corporation operations. Most of the power (340 MW) goes to Buenavista del Cobre and the rest, about 90 MW, to the La Caridad facilities and the Smelter/Refinery complex.

The incoming power at 230 kV is transformed to 34.5 kV and distributed over medium tension lines with substations to service the following processing areas in separate circuits:

- Crushing plant
- Grinding – flotation – sedimentation
- Ancillaries
- Mine
- L-SX-EW

The unit power consumption over the last ten years is approximately 23 KWH per dry metric tonne. The water system for La Caridad is comprised of two separate systems:

- Freshwater
- Reclaimed Water

Freshwater is pumped from La Angostura dam, located 24.3 km from the plant. The 10-year average freshwater make-up requirement for grinding/flotation is 0.45 cubic meters of freshwater per tonne of ore processed. Historical water consumption is shown on Table 14.3.

Table 14.3: Fresh Water Consumption, Unit Consumption in Cubic Meters per Dry Metric Tonne Milled

Type	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024*
Fresh Water (Mm^3/y)	14.57	15.85	16.12	16.41	17.46	16.66	14.23	14.74	12.99	15.23	11.07
Total water, m^3/dmt	2.25	2.24	2.22	2.28	2.32	2.40	2.47	2.44	2.36	2.32	2.29
Reclaimed water, m^3/dmt	1.83	1.78	1.76	1.81	1.81	1.92	2.06	2.02	1.98	1.89	1.74
Fresh water, m^3/dmt	0.42	0.46	0.47	0.48	0.51	0.48	0.41	0.42	0.38	0.43	0.55

Note: *To July 2024

Water from the La Angostura dam is pumped to a freshwater reservoir. From there, it is distributed without further treatment to the following process areas:

- Make-up to reclaimed water
- Process make-up water
- Fire water system
- Potable water
- Pump's gland water seals
- Reagent mixing
- Mine and Plant Water trucks (dust abatement)

Historically, 19% of the total water usage is fresh water with the remaining 81% being reclaimed water.

Reclaimed water is returned from the Tailings Thickeners and Tailings Dam. Water reclaimed from the plant thickeners and from the tailings dam is pumped to a reclaimed water reservoir. The reclaimed water reservoir distributes water by means of pumps to maintain proper pressure throughout the following processing circuits:

- Grinding
- Classification (dilution water)
- Flotation (launder water)

Reagent selection and dosage optimization studies have allowed for improvement of metal recoveries and subsequent reduction of costs associated with flotation and sedimentation of tailing and concentrate products.

14.1.6 Production, Metallurgical Recovery, and Product Quality

Table 14.4 shows the key production parameters. The plant is operating at full capacity, and the recovery of copper is slightly higher than the original estimate.

Considering that all the concentrate is sent to a smelter that belongs to SCC, the quality of the copper concentrate is less relevant than if the concentrate were sold in the open market. With the type of minerals present at La Caridad, production of a concentrate with good grade must be balanced with the need to achieve the best possible recovery. Normally, the higher the grade the lower the recovery and vice versa. In this case, a concentrate grade between 20% and 25% seems acceptable to avoid causing excessive operating cost at the smelter.

Table 14.4: Production Statistics

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average
Ore Milled (Mt)	34.4	34.5	34.5	34.5	34.5	34.6	34.6	35.8	34.1	35.1	34.7
Ore Grade, %Cu	0.34	0.35	0.36	0.36	0.35	0.36	0.36	0.35	0.30	0.30	0.34
Ore Grade, %Mo	0.038	0.036	0.035	0.035	0.034	0.036	0.036	0.036	0.034	0.039	0.036
Cu Concentrate (kt)	459.0	455.0	447.0	443.0	446.0	446.0	473.0	456.8	385.3	387.2	439.8
Cu Concentrate Grade (%)	22.0	22.8	23.5	24.0	23.8	24.0	23.2	22.5	23.0	22.7	23.1
Concentrate Cu Content (kt)	101.1	102.9	104.9	106.3	106.1	107.2	109.7	102.7	88.49	87.8	101.7
Cu Recovery (%)	85.5	85.8	85.7	85.5	87.1	86.8	87.1	86.4	85.7	84.5	86.0
Mo Concentrate (kt)	20.2	18.7	18.7	18.3	18.0	18.8	19.3	18.9	17.8	11.4	18.0
Mo Concentrate Grade (%)	54.0	53.6	53.8	53.7	54.3	54.6	54.3	53.9	53.6	54.2	54.0
Mo Recovery (%)	81.5	81.6	82.4	82.5	83.3	82.2	82.8	82.4	81.7	82.7	82.3

14.1.7 Production and Cost of Copper Concentrator

Table 14.5 shows the summary of production with information summarized from the MdC general report of production and costs that includes the Mine Department and L-SX-EW. The tonnes of ore milled have been consistently near budget, which is the design capacity of the plant. In the last three years, the data provided indicates that the unit costs per tonne milled and per pound of Cu produced have been over budget.

Table 14.5: Historical Copper Concentrator Production and Costs

Item	2020			2021			2022			2023		
	Actual	Budget	% Diff.	Actual	Budget	% Diff.	Actual	Budget	% Diff.	Actual	Budget	% Diff.
Ore Milled, (1,000 dmt)	34,858	34,523	1	34,929	34,530	1.2	34,114	34,530	-1.2	35,128	34,747	1.1
Cu Production (1,000 lbs)	241,783	234,371	3.2	226,398	218,088	3.8	195,091	214,718	-9.1	77,422	76,581	1.1
Unit Cost, US$/t Milled	3.92	4.12	-4.9	4.70	4.10	13.9	5.39	4.77	13.0	5.78	5.19	11.4
Unit Cost, US₵/lb	56.5	60.7	-6.9	72.1	61.6	17	94.2	76.7	22.8	105	84.1	24.9

14.1.8 Metallurgical Reporting and Mass Balances

For operation control purposes, the plant has in-line samplers. The laboratory maintains international standards and is certified to ISO-9001. For reporting purposes, at the end of the month the plant issues a report called a “manifestation” that is essentially a mass balance that starts with the inventory in the coarse ore pile and ends in the molybdenum and copper concentrates storages. The manifestations from each operating department are reviewed every month and at the end of the year by the company’s comptroller office to ensure that the reports of each department coincide with one another and finally become the official report for taxation purposes and to report to financial institutions.

A comparison of plan versus real production for 2023 presented in Table 14.6.

Table 14.6: Comparison of Plan versus Actual 2023 Production

Item	Plan	Actual	Diff.	% of Budget
Ore Milled (Mt), dry	34.75	35.13	0.381	101.10
Cu Grade (%)	0.337	0.296	-0.041	87.86
Mo Grade (%)	0.030	0.039	0.009	128.85
Prod. Copper Concentrate (t)	432,622	387,220	-45,402	89.51
Cu Concentrate Grade (%)	22.5	22.7	0.18	100.79
Contained Copper (t)	97,340	87,814	-9,526	90.21
Cu Recovery (%)	83.15	84.45	1.30	101.56
Prod. Molybdenum Concentrate (t)	16,065	20,991	4,926	130.66
Mo Concentrate Grade (%)	53.25	54.15	0.901	101.69
Contained Molybdenum (t)	8,555	11,367	2,812	132.87
Mo Recovery (%)	81.08	82.71	1.63	102.00

14.2 Solvent Extraction Electrowinning Plant

The L-SX-EW operation of Mexicana de Cobre. S.A. de C.V. (MdC) is located within the complex La Caridad, that includes the open pit and concentrator. La Caridad is approximately 120 km south by road from the USA-Mexico border. The detailed location is described in the general site location description in this report. The L-SX-EW plant location is shown in Figure 14.4.

La Caridad began mining in 1974. The ore was mainly secondary sulfide. The orebody has gradually transitioned into the primary sulfides zone of chalcopyrite. The main process is a conventional milling/flotation of ore above a cut-off grade (COG) normally around 0.30% TCu. The concentration plant started in 1979. Before the Concentrator Plant start-up and over the years, ROM low-grade ore below the concentrator COG and above a COG of 0.15% TCu was stockpiled in dumps located SE of the pit to wait for an opportunity to economically process that low-grade material. Those original dumps were built by end dump trucks, like waste dumps, without height control, nor care for compaction or other factors that could affect leaching.

The commercial SX-EW plant started operation in 1995. The nominal capacity is 64.26 tpd copper cathode, or 23,455 tpy (365 days per year), with a “catch-up” capacity at 95% availability of 67.64 t/d (347 days per year).

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.

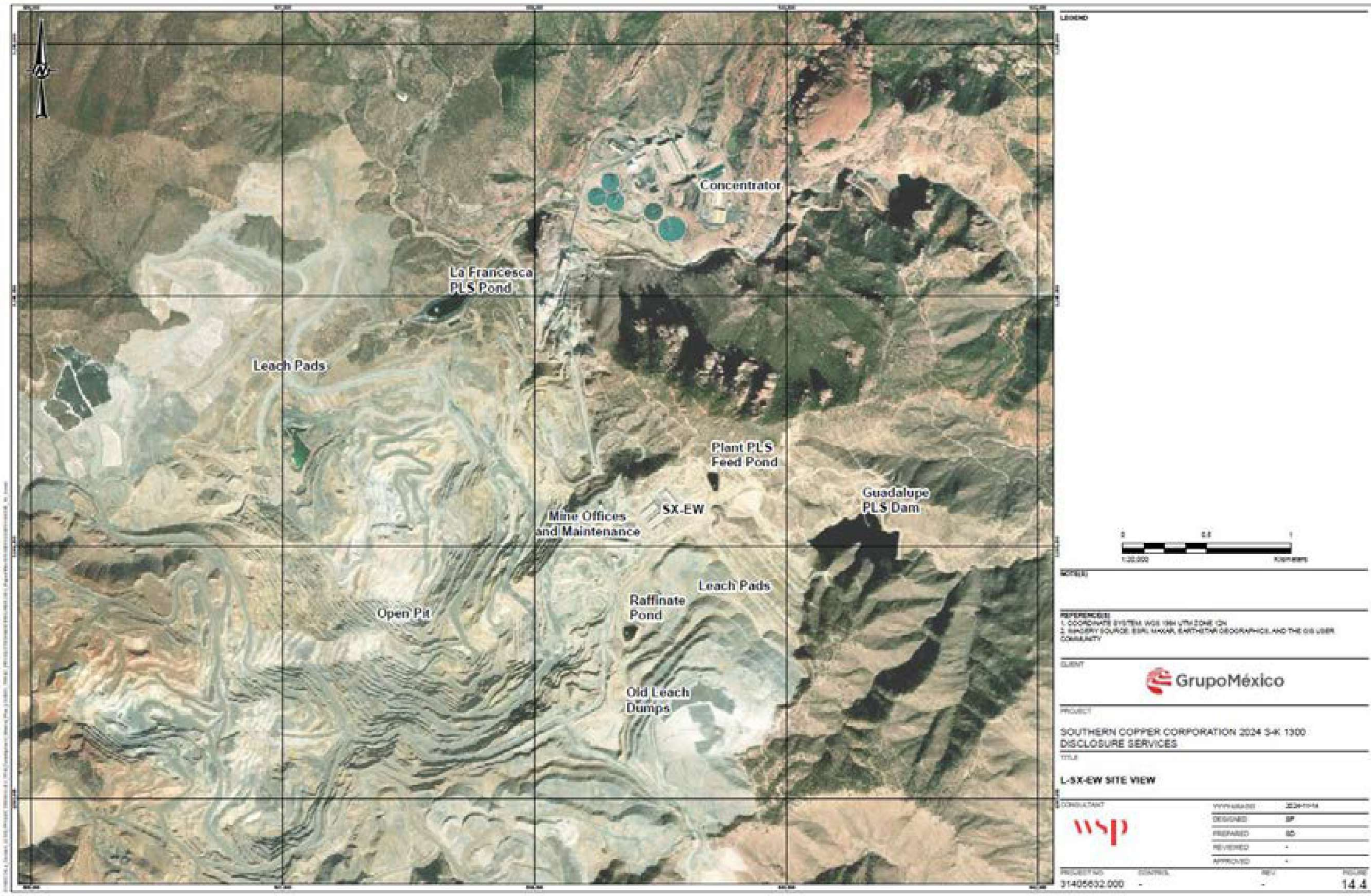


Figure 14.4: L-SX-EW Site View

14.2.1 Leaching Process Description

This sub-section is based on production data and other information provided by Mexicana de Cobre, the FS developed for the SX-EW project, and from descriptions included in the operations manual for the plant. The L-SX-EW Project was based on leaching new ore to be mined in a 10-year mine plan, that included 153.2 Mt of ore at 0.23% TCu, or 353,892 t contained Cu and the existing low-grade ROM ore stockpiles of 152.7 Mt of ore at 0.23% TCu. The plan also considered 348,156 tonnes of contained copper that were placed in the Guadalupe Canyon area since mining started in 1974 to reach the 21,900 tpy plant capacity used in the FS. The expected extraction in leaching was 57% of TCu. As a precaution, the SX-EW plant layout contemplated a possible expansion of the SX section, depending on the actual results from leaching. Eventually, the SX-EW plant was designed to produce 23,455 t of copper cathode per year.

The plant was built at an elevation of 1,400 meters above sea level (masl). The old pads were built by end-dump trucks, at elevations from 1,545 masl to 1,380 masl, for convenient haulage while the open pit was being developed. When the project started, the Guadalupe PLS dam was built at an elevation approximately 200 m lower than the plant elevation. The new ROM ore lifts started at the tail end of the Pregnant Leach Solution (PLS) dam, to be built by trucks in 30 m lifts. Due to the restricted area at the bottom of the canyon, the toe-end of the first lift was about 60 meters high.

A second leach area called La Francisca, to the north of the pit and northwest of the plant, started in 1997.

The MdC ore is mainly chalcocite. Leaching is conventional ferric-bacterial pad leaching

In 2014, La Caridad installed a 300-m^3 reactor to produce biomass that is added to the leach system to improve copper extraction by inoculation of thio-bacillus ferrooxidans into the leach solution. That process is not in operation, reportedly because it was not cost-effective.

The leach ore is placed in approximately 30 m high lifts by mine trucks. After a lift is completed, the surface is ripped by tractor at about 1.5 m depth. The leach solution is irrigated by sprinklers or wobblers, in a triangular 10-m by 10-m pattern, installed in 4-inch pipes separated 10 m. The main headers are 18-inch, high-density polyethylene (HDPE) pipes that are reduced to 10 inches and finish in 4 inches.

The leach solution application rate is 1,800 to 2,200 liters per minute per hectare (L/min/ha) (10.8 – 13.2 liters per minute per square meter [L/h/m^2]).

The Francisca PLS dam has a floating pump station. Three vertical (500 HP) pumps direct the PLS to a stationary pump station on the dam shore. Three (500-horsepower [HP]) pumps in parallel pump to a booster station that sends the PLS to the plant feed pond.

The Guadalupe PLS dam has a similar pumping system to transfer the PLS to the plant feed pond.

From the plant feed pond the PLS flows by gravity to the SX plant. In 2019, bypasses were installed from the PLS pipes feeding the pond to allow feeding the SX plant directly in case of failure or maintenance of the feed pond.

Once copper is recovered in SX, the raffinate is sent by gravity to a pond. Five 500 HP pumps send the leach solution to the leach fields or to a booster station with three 900 HP pumps in parallel to irrigate the areas at higher elevations. The leach solution ponds and dams were built according to the regulations in place at the time of construction.

There is no emergency pond. The PLS and raffinate ponds are located within the Guadalupe catchment area. The ultimate emergency catchment is the concentrator tailings dam, downstream of both the Francisca and Guadalupe PLS dams.

The discharge pipes in the floating pump stations are HDPE. In the stationary pump stations, the suction and discharge headers are stainless steel, the pipes are HDPE of different calibers, except in zones of high pressure like the first sections from La Francisca and Guadalupe, where stainless steel pipes are necessary.

The leach systems have rainwater diversion ditches to reduce the intake of meteoric water to the leach circuit. The addition of water to the leach circuit is only by rain over the leach pads. The rainwater is diverted downstream of the Francisca and Guadalupe PLS dams to report to the concentrator tailings dam.

There are four zones considered to place future leach ore to increase the leaching area or replace areas that are no longer under production. A new area called Sinaloa to the north-east of La Francisca area will add 0.9 km^2 of leach area is in progress. Eventually, over 1,455 masl elevation, Sinaloa will join La Francisca. Another new leach area called Cachuly will add 3.7 km^2 and is in development to the east of the Guadalupe leach pad.

The other parts of the development program are to place fresh ore over 1.7 square kilometers (km^2) of the existing Guadalupe leach pad and in an area of 1.8 km^2 over the southwest part of La Francisca pads.

The new areas are described in a comprehensive stability analysis by CNI developed in 2019.

14.2.2 Energy Requirements and Water Balance

Electrical power is supplied to the plant substation by a 34.5 kV dedicated powerline connected to the company's main substation, which receives power from plants owned by a subsidiary of Grupo Mexico through the national grid. The plant substation reduces the power tension to 13.8 kV for the EW transformer/rectifiers and other lower voltages for pumps and general services.

The electrical power required by EW represents approximately 80% of the total plant energy consumption, excluding power for the pumps in the leaching circuits.

Theoretically, the energy requirement to produce one kilogram of copper is 843.3 Amp-hrs if the current efficiency is 100%. Under actual operating conditions, however, the current efficiency is always somewhat less. The overall tank house design efficiency is 90%, but an actual operating efficiency of 95% is achieved.

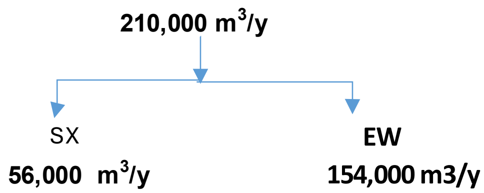
The amperage supplied to the cells is used to control the copper production rate. The EW plant has been designed to operate at about 236 amperes per square meter (A/m^2) nominal. At maximum rectifier output of 35,000 amperes (A), the electrical power required by the EW operation is approximately 4,800 kWh.

Potable water is pumped from the company's central water treatment plant and is used mainly for SX-EW plant services, such as cathode washing, drinking fountains, make-up of electrolyte bleed, housekeeping water, emergency showers, etc.

The leaching system does not require a regular water make-up, and normally no fresh water is added to leaching. New leach areas incorporated into the system are saturated with plant raffinate. Only the rain falling directly over the leach pads is captured in the system. To reduce the rainwater intake to the leaching system, there are rainwater diversion trenches around the leaching areas. Those trenches discharge to the Tailings Storage Facility. The water necessary to compensate evaporation losses and to make-up the inventory of leach solutions is from the direct rain mentioned before, from the process water discharges from SX-EW, plus refinery bleed, weak acid from the smelter and weak acid from a foreign source.

Figure 14.5 shows a simplified water and leach solution inventory.

Fresh water from main company reservoir
(Approximate values, for illustration only)



Additions to Leaching System, 2024

Month	Refinery bleed			Smelter weak acid			Other weak acid		
	Tonnes	Cu, g/L	Cu, t	Tonnes	Cu, g/L	Cu, t	Tonnes	Cu, g/L	Cu, t
Jan	8,335	18.91	142.5	41,874	3.97	156.2	5,310	5.07	22.5
Feb	9,010	21.49	170.1	36,244	1.89	64.3	4,671	4.57	17.4
March	7,674	14.82	103.7	43,105	1.51	61.8	4,464	5.55	20.3
April	6,473	15.89	94.4	38,072	2.15	76.9	5,461	8.37	37.4
Total	31,492	17.96	510.8	159,295	2.39	359.4	19,906	5.96	97.5

Leach solution inventory, April 2024

Area	Quantities		
	Volume, m^3	Cu, g/L	Cu, kg
La Francisca area			
PLS pond	26,408	1.11	29,208
Leach pads	6,100	0.505	3,373
Guadalupe area			
PLS dam	846,795	0.76	643,564
Leach pads	197,854	0.454	75,184
Plant PLS feed pond	27,555	0.92	25,254
Raffinate pond	24,434	0.066	1,608
TOTAL	**1,129,146**		**778,191**

Figure 14.5: L-SX-EW Plant Solution Inventory April 2024

14.2.3 Solvent Extraction (SX) Process Description

The SX-EW process and the corresponding facilities descriptions in the following sub-sections are based on the project feasibility study and the manual of operation of the plant plus communications from MdC personnel regarding changes made over the years.

The original flow capacity of the SX plant was 1,500 cubic meters per hour (m^3/h), 500 m^3/h per train, with a PLS concentration of 2.1 gCu/L and 85% extraction in the plant. Because the PLS fell below the planned concentration, the plant was modified in 1997 to a Series-Parallel configuration to be able to process higher PLS flows and maintain the EW capacity.

The SX plant concentrates Cu from a dilute impure PLS at about 1.0 g Cu/L and produces a clean electrolyte solution at 45 to 55 g Cu/L suitable for the EW process. The main impurities deleterious to EW to be rejected in SX are manganese and iron. This is accomplished by selectively extracting Cu from the aqueous PLS into an organic solution, which consists of a Cu extractant reagent diluted in purified kerosene.

The reagent is extremely selective to extract Cu from low-acid solutions instead of other metal ions. The transfer of Cu into and out of the organic solution or phase is a reversible reaction, which is controlled by the sulfuric acid concentration of the aqueous solutions. The transfer of impurities to the organic and then to the electrolyte is mainly by entrainment of PLS into the organic.

In the Extraction stages, the aqueous phase PLS is mixed with the organic solution to transfer the copper from the aqueous phase to the organic phase and then allowed to separate by density difference in the SX settlers. The aqueous solution depleted of copper (raffinate) returns to leaching, to extract more copper and the organic solution advances to the Stripping section.

In the Stripping stages the organic phase loaded with copper is mixed with an aqueous phase (electrolyte) containing high acid. After separation of the phases in the settlers, the organic solution depleted of copper returns to extraction to load more copper and the electrolyte advances to EW to deposit copper as cathode in the EW cells.

In the extraction section, the relatively low acid content of the PLS allows the copper ions to be extracted from the aqueous phase PLS into the organic phase, to the right in the equation. The solutions depleted of copper (raffinate) are returned to leaching. In the Stripping section, the reaction is reversed when the organic phase is contacted with high-acid electrolyte and the copper ions are stripped from the organic phase into the electrolyte (aqueous), to the left in the equation.

14.2.4 Electrowinning (EW) Process Description

In the EW section, a direct electrical current is applied to the Cu electrolyte aqueous solution to deposit metallic Cu onto stainless steel cathode blanks. The electrolyte depleted of copper and with the acid generated by electrowinning returns to the Stripping section to recover more copper.

Figure 14.6 represents the overall SX-EW process.

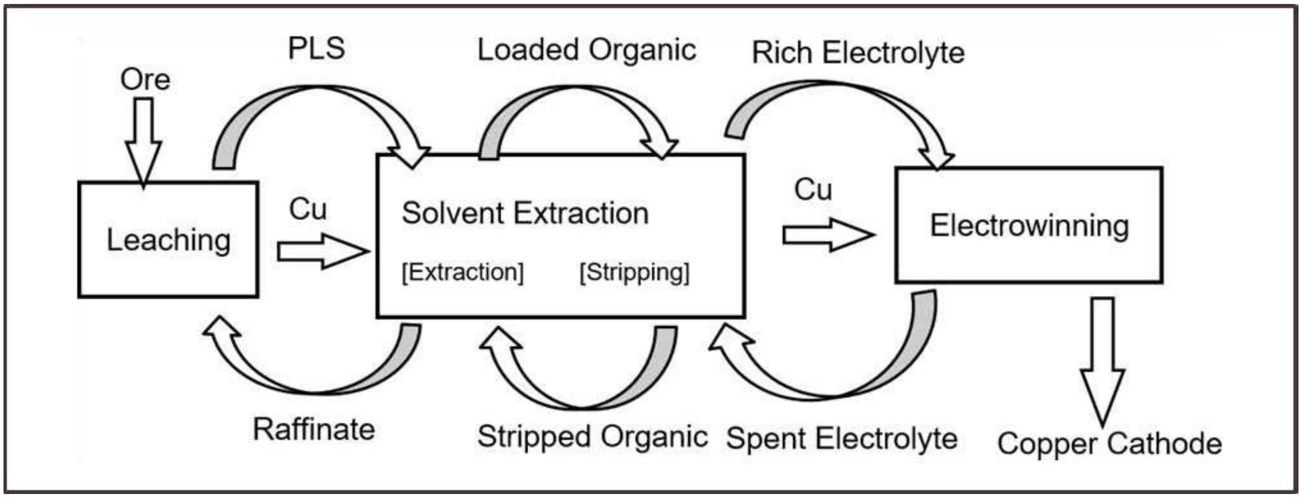


Figure 14.6: Overall SX-EW Process

For optimum mixing efficiency, a ratio close to 1:1 Organic to Aqueous (O/A) ratio in the mixers has to be maintained.

The overall control of the SX plant is maintained by controlling the three feed flows: PLS, loaded organic, and spent electrolyte, as well as the aqueous recycle in the stripping stages. As the copper concentration in the various streams changes, the flow rates are also changed to try to maintain a "chemical steady-state" condition.

14.2.5 Facilities Description

The SX/EW plant facilities shown in Figure 14.7 include the following major areas:

- PLS pond
- SX plant
- Tank farm (TF) area
- Raffinate pond
- EW tank house
- Utilities and services
- Electrical distribution

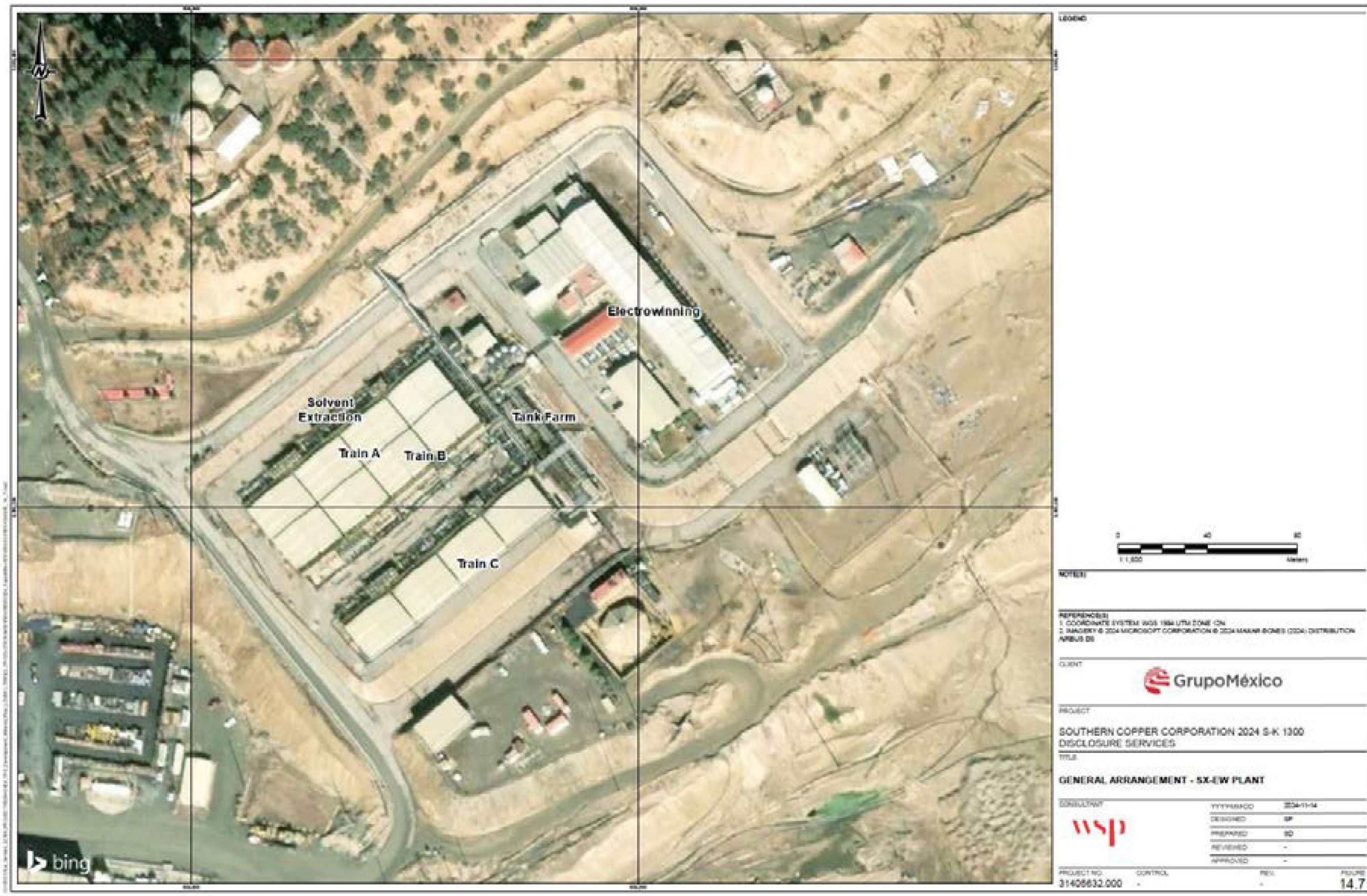


Figure 14.7: General Arrangement – SX- EW Plant

14.2.5.1 PLS Pond

The PLS pond receives the solutions rich in copper from the PLS dams located downstream of the leaching areas. The plant PLS feed pond was built at a higher elevation than the process plant to allow solution flow by gravity to the SX plant. The working volume of the PLS pond is approximately 24,000 m^3, enough to provide 16 hours of retention time for a nominal plant flow of 25,000 L/min (1,500 m^3/h), (6,605 gallons per minute [gpm]). The PLS pond was excavated mostly in rock and is double lined with HDPE membranes to comply with the national environmental regulations.

In 2019, the PLS piping system was modified to allow pumping directly from the PLS ponds in the leaching areas to the primary mixers in the SX plant during PLS pond maintenance.

14.2.5.2 SX Plant

One extraction stage consists of a primary mixer chamber and a secondary mixer chamber to mix the aqueous solutions with the organic solution, and a settler chamber where the organic and aqueous phases are separated. The stripping stages have only one primary mixer.

The mixers and mixing tanks are fabricated with stainless steel. The settlers are concrete lined with stainless steel plates. Originally, the SX plant consisted of three process trains with two stages of extraction (E-1, E-2) in series and two stages of stripping also in series per train (S-1, S-2), a 2E – 2S Series configuration, shown in Figure 14.8.

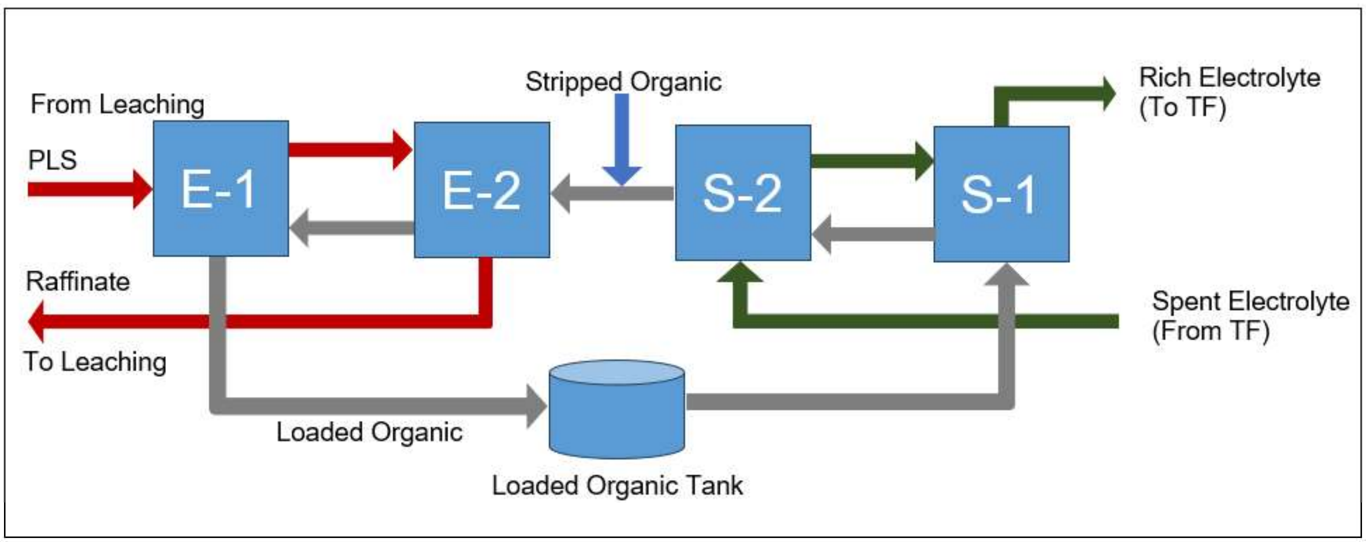


Figure 14.8: Original Series SX Configuration

In 1997, one stage of stripping in each train was converted to extraction to increase the flow of PLS to the plant into a Series-Parallel configuration, 2E-1EP-1S, where the PLS feed to each train is split into two primary mixers, or extraction stages. The modified configuration is shown in Figure 14.9.

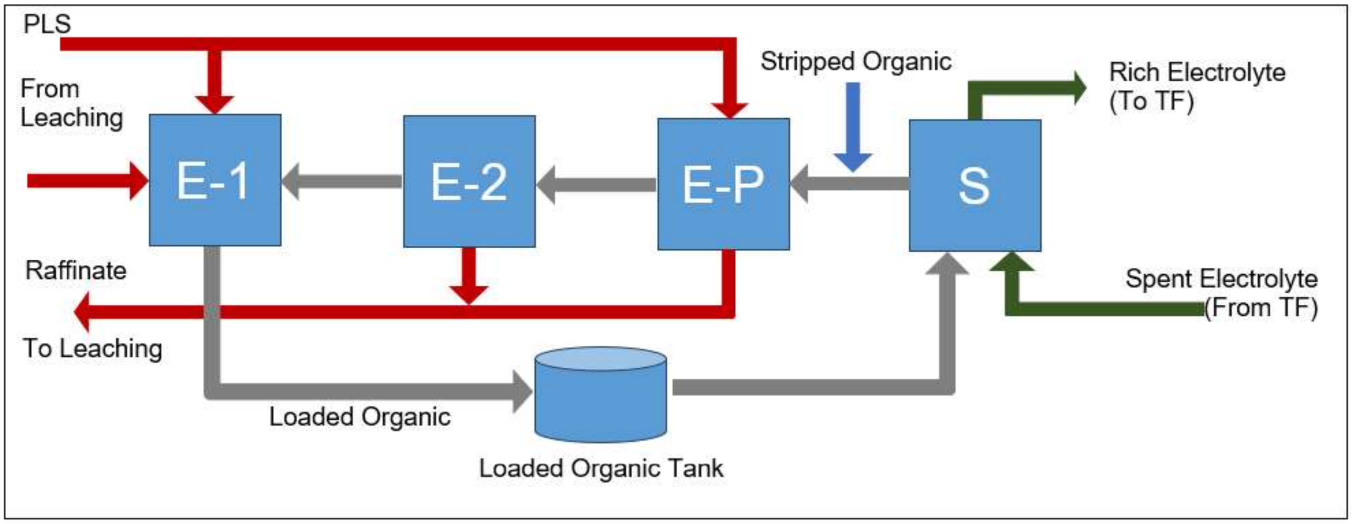


Figure 14.9: Current Series-Parallel SX Configuration

In the original configuration, the total PLS flow of 1,500 m^3/h was split evenly to the three trains, 500 m^3/h per train. With the modified configuration the flow of PLS can be increased to practically double the original flow capacity and can be split as necessary, depending on the conditions of the plant, PLS copper content, etc.

The following description is for the existing Series-Parallel SX configuration.

Starting from the west, the mixer/setter units are: First stage of extraction (E-1), the second stage of extraction (E-2), the stage of extraction in parallel (-EP), and the stage of stripping (S).

These units have the following functions:

- The first stage of extraction (E-1) receives the PLS and partially loaded organic from the second stage of extraction (E-2) and produces a loaded organic and a partially depleted leach solution.
- The second stage of extraction (E-2) receives the partially depleted leach solution and partially loaded organic and produces a partially loaded organic and raffinate (or barren aqueous solution).
- The stage of extraction in parallel (E-P) receives PLS and stripped organic and produces partially loaded organic and raffinate.
- The stage of stripping (S) receives loaded organic and spent (or poor) electrolyte and produces rich electrolyte and stripped organic.

Each stage of extraction or stripping is a combination mixer/settler unit with a nominal throughput of 528 m^3/hr of aqueous feed. Two mixing tanks are used in extraction but only one in striping. In the first mixing tank, the agitator is a double-shrouded, turbine-type impeller that creates a pumping action to help draw the solution from the preceding mixer/settler into the mixing tank. The solution from the first mixing tank overflows through a downcomer to the second mixing tank to increase the mixing time.

The mixed phase discharge from the mixer(s) overflows a weir and flows down a launder which runs the entire length down a side of the associated settler. The feed flow direction is then diverted 90 degrees through a set of turning vanes in the launder and runs perpendicularly across the back of the settler to redirect the solutions in the direction back toward the head of the settler, where it is discharged to the next stage of process.

In the settler compartment, the organic phase rises and the aqueous phase sinks due to the differences in specific gravity. When the separated suspension reaches the discharge launders at the head of the settler, the organic flows over a weir and into the organic discharge launder. The aqueous phase flows under the organic launder into the aqueous discharge pipe. The organic weir height is fixed. However, the height of the interface {or depth of the organic layer) can be controlled by adjusting the aqueous weir position in the associated aqueous level control column. When the adjustable weir in this column is lowered, the corresponding aqueous level in the settler is lowered; and because the top of the organic level is fixed by its overflow weir, the depth of the organic will increase.

The mixer/settlers for stripping are identical to the extraction mixer/settlers except only one mixing chamber (identical to the first extraction mixing chamber) is utilized for stripping.

The piping between the various extraction and stripping mixer/settlers is arranged so that the aqueous and organic phases flow countercurrent to one another. The PLS is pumped to the first stage of extraction, is moved to the second stage by the pump/mixer, and then flows by gravity to a sump and then to the raffinate pond. The loaded organic is pumped to the stripping stage and moved by the pump/mixers through all the mixer/settlers and returns to the loaded organic tank by gravity. The spent electrolyte is pumped from the recirculation tank in the EW plant through plate heat exchangers to the stripping stage and flows by gravity to the rich electrolyte tank in the TF.

Each mixer/settler has the capability to recycle aqueous solution from the aqueous discharge back to the mixing chamber for the purpose of adjusting the ratio of organic to aqueous in the mixing chamber. In extraction, the volume of aqueous solution recycled, if any, will be small in comparison to the total aqueous volume. However, in the stripping stages the aqueous recycle is the major aqueous flow. The aqueous advance is kept small in order to increase the copper concentration in the electrolyte. For optimum mixing it is required to maintain a 1:1 Organic to Aqueous (O/A) ratio in the mixer, and the recycle flow in Stripping must be large.

14.2.5.3 Tank Farm Area

The TF area is located between the SX area, and the EW building, and it was built at a lower elevation than the other two areas to allow flow by gravity of the main process flows: raffinate, loaded organic, rich electrolyte, poor electrolyte. Most of the tanks and pumps are contained within the TF. The main equipment in the TF area is arranged, as shown in Figure 14.10, and described below. The tanks are HDPE-lined concrete, with a common wall, to save space and cost. For simplicity, secondary equipment, such as the crud treatment system, is not shown and is not described.

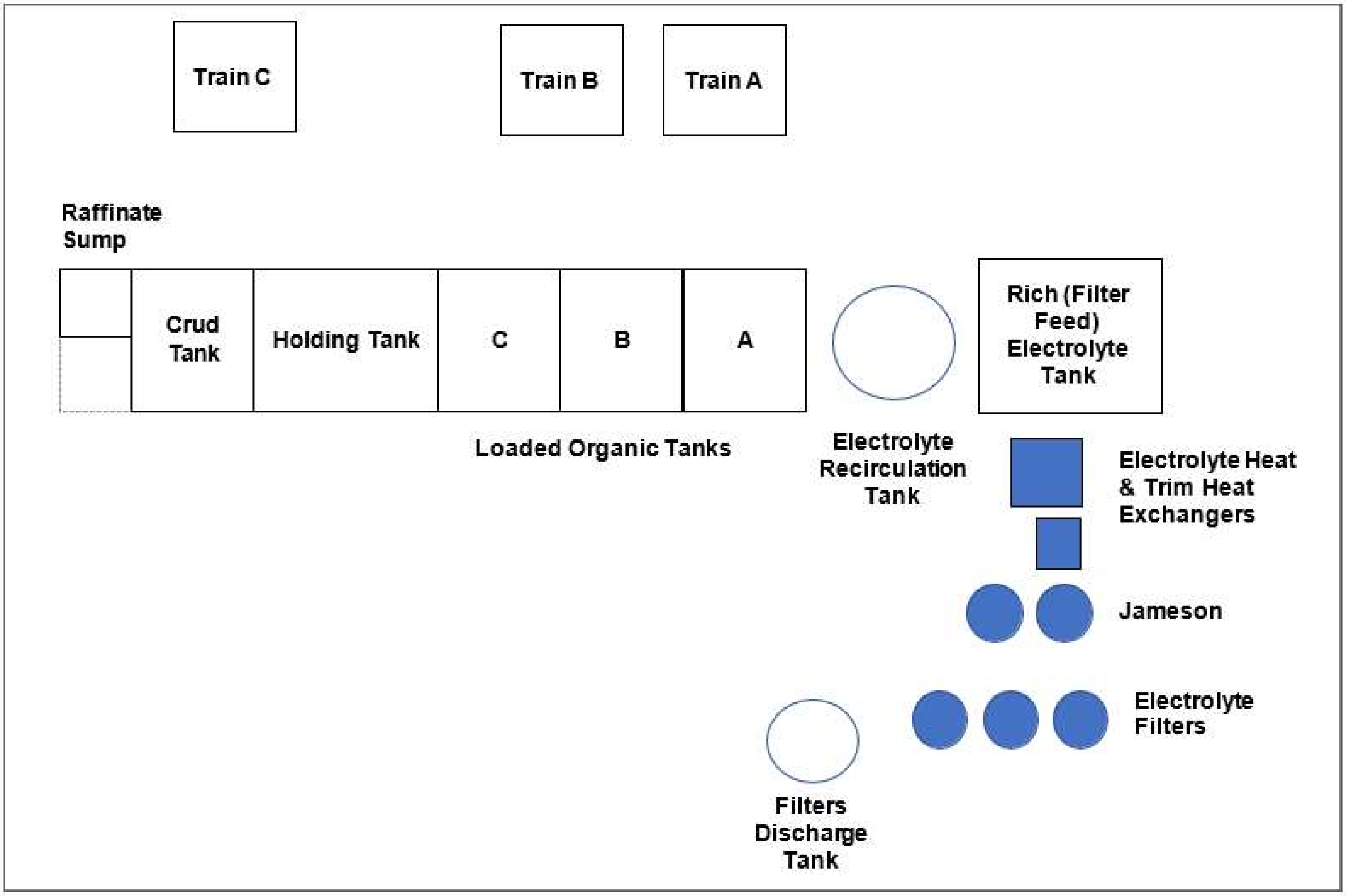


Figure 14.10: Tank Farm Layout

The TF area includes the following facilities:

- Loaded Organic Tanks (3): There are three loaded organic tanks, one for each of the three SX trains. Each tank is fed by gravity from the corresponding E-1 extraction settler. Loaded organic is directed to the bottom of a vertical aqueous coalescer packed column, which is located inside the tank. These columns aid in removing aqueous entrainment from the loaded organic. Each tank was designed with a retention time of 30 minutes of organic flow.
- Holding Tank: The holding tank is an HDPE-lined, concrete tank located between the crud tank and the loaded organic decant tank. This tank is normally empty and provides storage capacity to hold any one train's total contained organic (four mixer/settlers). The holding tank overflows to the three loaded organic tanks.
- Jameson Cells: The Jameson cells are flotation cells, which are located above the two electrolyte heat exchangers. The two cells operate in series. The feed to the first cell is combined strong electrolyte from all three S stripping sections. The operating concept is to remove entrained organic as a foam from the electrolyte by aspirating air into the solution. The rich electrolyte flows to the Strong Electrolyte Filter Feed Tank.
- Strong (Rich) Electrolyte Tank (or filter feed tank): The strong electrolyte tank is located just to the north (on the right side facing the tanks from the pump bay) of the recirculation tank. It is a vertical, rectangular,

concrete tank lined with HDPE. The feed to the tank is clean, strong electrolyte from the second Jameson cell. From this tank the electrolyte is pumped to the electrolyte filters.

- Electrolyte Filters (3): The electrolyte filters were installed in 2020 to improve the removal of organic entrainment from the electrolyte feeding the EW tank house. They are installed in front of the Filter Feed Tank (formerly the Strong Electrolyte Tank). The filters are made of stainless steel, packed with media of sand, garnet, and activated carbon, designed to retain fine solids and organic that are carried over from SX. The filter operation cycle is automatic. When one filter is in the backwash step, the other two filters sustain the electrolyte flow. The filters discharge to the electrolyte filters discharge tank.
- Electrolyte Filters Discharge Tank: The electrolyte filter discharge tank is located next to the filters and is fabricated in stainless steel. The feed to the tank is clean, strong electrolyte from the filters. From this tank the electrolyte is pumped through the electrolyte heat exchanger and trim heater to the scavenger cells in EW, which discharges the electrolyte to the recirculation tank.
- Electrolyte Interchanger and Trim Heater: The electrolyte interchanger is a plate-type heat exchanger, which transfers heat from the spent electrolyte to the strong electrolyte. The trim heater is also a plate-type heat exchanger, but it uses steam to boost the strong electrolyte temperature to the temperature required at the electrowinning plant (approximately 43°C). These exchangers are located just to the east of the filter feed tank.
- Electrolyte Recirculation Tank: The electrolyte recirculation tank is made of stainless steel, thermally insulated, and fitted with a single underflow internal baffle that creates two asymmetric chambers. The primary feed to the tank is strong, preheated electrolyte from SX, via the discharge from the scavenger cells to the smaller chamber, and on the opposite side of the baffle, the spent commercial cell electrolyte. The purpose of the baffle is to limit back-mixing of the spent electrolyte discharged from the commercial cells with the strong incoming feed electrolyte, pump the highest possible copper concentration to the commercial cells, and still provide for system surges and small flow variations in a single tank. Rich electrolyte mixed with spent electrolyte is recirculated to the EW cells. Spent electrolyte is pumped to Stripping in SX. This tank has a residence time of 30 minutes of strong electrolyte flow.
- Raffinate Collection Sump: The raffinate collection sump receives raffinate from all three E-2 and three EP extraction settlers by gravity. It can also receive iron bleed from the electrowinning sump in the tank house. Normally, however, this bleed will be directed to the SX feed pond (PLS pond).
- Crud Tank and Crud/Organic Treatment: Crud is an emulsion of aqueous, organic, and air caused by impurities in the leach solutions that tends to collect in the interphase of the organic and aqueous solutions in the SX settlers. Since crud carries impurities deleterious to the process, it is removed periodically to prevent the impurities from traveling from one settler to the next and eventually to the EW plant. The crud tank receives dirty solutions (crud) extracted from the mixer/settlers by the portable crud pump. It also receives plant spillage collected in the various sumps located throughout the plant, organic recovered from the raffinate pond, organic foam recovered from the Jameson cells, electrolyte filters, and electrolyte clean-up scavenger cells. From this tank, the crud is fed to the crud treatment system.
- The crud treatment system is a series of tanks, centrifuge, and filters where organic trapped in the crud is recovered, to be returned to the plant. This system can also treat organic by mixing it with clay to restore the properties of the organic. All crud operations are batch and intermittent on an as-required basis.

- Service Tanks: In addition to the process tanks in the SX/TF area, several services tanks are located to the north and west of the SX-EW area, as described below:
  - Plant Water Tank: The plant water tank is a dedicated tank for the plant water system. The feed to the tank is from the company's freshwater supply system. Feed to the SX-EW plant is by gravity.
  - Fire Water Tanks: Two vertical steel tanks are available for fire water. They are dedicated exclusively to the fire water protection system and are always kept full.
  - Potable Water Tank: The potable water tank is a vertical, cylindrical steel tank dedicated to several uses:
    - Safety shower and eyewash station
    - Drinking fountains
    - Cathode washing and handling.
    - Boiler feed water purification system (make-up)
  - Diesel Tank: A storage tank for diesel fuel is to be used by the boiler and the diesel-driven emergency generator.
  - Boiler Fuel Tank (Diesel Oil Day Tank). This tank provides sufficient fuel for daily operations.
  - Extractant (Reagent) Tank: The extractant tank receives the extractant from trucks by gravity. The extractant is fed to the circuit using a metering pump to the three loaded organic tanks.
  - Diluent Tank: This tank is for storage of diluent to be used in the SX plant. Diluent is fed by gravity to the three loaded organic tanks on a batch make-up basis.
  - Sulfuric Acid Tank: Storage of concentrated sulfuric acid supplied from the company's smelter by trucks. It is added to the aqueous discharges of interstage electrolyte from the three S settlers. Flow into and out of the acid tank is by gravity.

14.2.5.4 Raffinate Pond

The raffinate pond receives the solutions depleted of copper from the raffinate sump located in the TF area. The raffinate pond was built at a lower elevation than the process plant to allow raffinate flow by gravity from the SX plant. The working volume of the PLS pond is approximately 28,000 m^3, enough to provide 19 hours of retention time for a nominal plant flow of 25,000 L/min (1,500 m^3/h), (6,605 gpm). The raffinate pond was excavated mostly on rock and is double lined with HDPE membranes to comply with the national environmental regulations. From this pond, the raffinate solutions are pumped to all the different leach areas.

14.2.5.5 Emergency Pond

There is no emergency pond in the SX-EW area. Any emergency overflow of the PLS pond or the raffinate pond would be collected in the PLS Dam in the Guadalupe Canyon, downstream from the plant.

14.2.6 Electrowinning Plant

14.2.6.1.1 Process Description

The purpose of the EW plant is to produce London Metal Exchange (LME) electrolytic grade A copper cathodes for sale. The EW plant produces metallic copper from an electrolyte containing copper sulfate and sulfuric acid. In the EW tank house cells, the electrolysis process deposits copper on stainless-steel cathodes and breaks down a portion of the water to hydrogen and oxygen. When a direct electric current from an insoluble lead anode passes through the electrolyte to a stainless-steel cathode mother blank, copper is deposited on the surface of the cathode and oxygen is liberated on the surface of the lead anode. The hydrogen remains in the aqueous solution in an ionic state and increases the acidity of the electrolyte. The oxygen gas bubbles out of the cell. The sulfate ion is not involved in the reaction.

The cathodes are harvested or pulled from the cells by an overhead bridge crane on a 7-day cycle and taken to the stripping machine and automatically washed, flexed, and stripped of copper. The cathode copper plates are collected in stacks or bundles and are then weighed, sampled, and banded for shipment to market. The cathode blanks are returned to the cells.

14.2.6.1.2 Copper in Spent Electrolyte

To produce a good quality cathode deposit, it is recommended to maintain a copper concentration of 35 g Cu/L in the spent electrolyte exiting the EW cells. If the current is held constant, the spent electrolyte assay varies in copper concentration in direct proportion to the strong electrolyte assay, which for La Caridad was recommended as 50 g Cu/L, to reduce the risk of copper sulfate crystallization, especially in winter conditions. If the amount of copper arriving at the plant increases, more copper will leave the plant in the spent solution and vice-versa. The tank house will maintain a constant rate of removal (design is for a decrease of 15 g Cu/L) unless the current is changed.

In the event the spent electrolyte copper concentration drops below the 35 g Cu/L, the rectifiers are turned down gradually. If the copper concentration rises above the specified limit, the rectifiers are turned up to maintain the overall balance.

14.2.6.1.3 Acid Level in Spent Electrolyte

Although acid (hydrogen ions) is generated by the electrowinning reaction, it is depleted in the SX plant by the stripping reaction. Because of inefficiencies and the iron bleed, a small amount of acid must be added into the overall circuit to maintain sufficient acid strength at the level required for stripping (180 to 190 g/l).

14.2.6.1.4 Voltage Drop

The voltage drop across a cell is due to the sum of several resistances. The copper busbar and the electrolyte have relatively low electrical resistances (normally less than 0.2 volts per cell). The theoretical voltage required to deposit copper and evolve oxygen is 0.91 volts. The total of all the voltage drops involved is generally in the range of 1.8 to 2.0 volts. The design cell voltage is 2.13 volts/cell.

14.2.6.1.5 Electrolyte Temperature

The electrical power in excess of the theoretical power required will produce heat in the cells which will be absorbed by the electrolyte. To utilize some of this energy, the spent electrolyte which leaves the tank house passes through a heat exchanger, where heat is transferred from the spent electrolyte to the strong electrolyte which is entering the tank house. Normally, the heat produced in the tank house and transferred to the electrolyte feed is sufficient to maintain a steady temperature around 43˚C in the cells. If insufficient heat is available from the spent electrolyte, additional heat will be provided by steam in the trim heater, which will generally be required in winter conditions.

14.2.6.1.6 Reagents Addition

Cobalt sulfate is added to produce a hard adherent oxide layer on the surfaces of the anodes that extends anode life, minimizes flaking, and prevents cathode lead contamination. The cobalt concentration in the electrolyte is usually maintained at 160 ppm.

Guartec is added to the cell electrolyte to improve the quality of the cathode deposit. The Guartec helps to produce smooth, dense copper deposits with a minimum of entrapped impurities.

14.2.6.1.7 Electrolyte Bleed

Manganese (Mn) is currently the main impurity or contaminant in the EW electrolyte. If it oxidizes, Mn can accelerate the degradation of the organic in SX and corrode the lead anodes in EW. Mn is transferred from the PLS into the organic and then to the strip circuit by minute droplets (entrainment) of leach solution. Iron is a minor contaminant, that, in effect, helps prevent the oxidation of Mn.

Under normal conditions, a small amount of spent electrolyte must be bled from the tank house to control the build-up of Mn. The spent electrolyte bleed is high in copper (approximately 35 g/L) and acid (approximately 180 g/L) and is recycled to the SX feed pond. Currently, the electrolyte bleed is approximately 100 L/min. The bleed rate is controlled to maintain a maximum concentration of 3.0 g/L of Mn in the electrolyte.

14.2.6.1.8 Make-up Water to Electrolyte

If the electrolyte volume drops below normal, a low level in the recirculation tank will result. Plant water must continuously be added to the recirculation tank since water is constantly removed from the electrolyte by the reaction in Eq. 6, by the electrolyte bleed and by evaporation.

14.2.6.2 Plant Description

The nominal capacity is 64.26 t/d copper cathode, or 23,455 tpy (365 days per year) with a current density of 236 A/m^2 applied to the cells, with a “catch-up” capacity of 67.64 t/d (347 days per year) with 244 A/m^2 applied to the cells. The design plating capacity is 84 t/d (29,148 tpy @ 347 days per year)

The EW facility is contained within the tank house building. The tank house cells are made of acid-resistant polymer concrete. Cell fittings, platforms, stair treads, piping handrails, and electrode insulators are made of plastic-based, non-conducting materials, such as Fiber Reinforced Plastic (FRP).

The tank house design is a “total production stripping” operation using permanent cathodes. The use of stainless-steel blanks is part of the ISA Process technology package purchased from MIM of Australia. It includes a semi-automated cathode stripping machine.

The main components of the electrowinning facility are:

- EW rectifiers
- Electrowinning cells
- Tank house crane
- Cathode stripping machine
- Lead anodes
- Stainless-steel cathodes
- Ventilation system,
- Electrolyte recirculation tank

The operating platform around the cells is fiberglass. The building structural steel is protected with one coat of vinyl-ester primer and two coats of vinyl-ester top-coat epoxy.

14.2.6.2.1 Rectifier

There are two rectifiers connected in parallel, each with half of the current load. The rectifiers convert an alternating current input to a direct current output to the cells for the electrowinning process. The rectifiers are designed for operation outdoors and are located to the south of the tank house building. Each rectifier is rated for 13.8 kV input and output of 17,500 A, 200 V DC. An emergency rectifier is also provided to supply power to the tank house in the event of a power failure. This rectifier is energized by a diesel generator.

The nominal capacity of the plant requires a current density of 236 A/m^2 to be applied to the EW cells. The design capacity of the rectifiers is 304 A/m^2 and for the busbar system and EW cells it is 344 A/m^2.

14.2.6.2.2 Electrowinning Cells

There are a total of 94 cells, 16 of which are called “scavenger cells.” The cells are arranged in two lines or rows. The scavenger cells process the warm, strong electrolyte before it enters the main tank house circuit and serve as a final back-up protection against organic contamination in the electrolyte. Here, the fine anodic oxygen bubbles produced by electrowinning scour any remaining organic entrainment from the strong electrolyte. Following a major organic slippage from malfunction or SX plant upset, the scavenger cells can save the bulk of the tank house “commercial cells” from organic contamination. Contamination leads to "organic burn" on the cathodes and subsequent rejection of product.

The cells are precast monolithic boxes constructed of FRP reinforced polymer concrete. Each cell contains 54 stainless-steel cathode mother blanks and 55 rolled lead-calcium-tin anodes. The anode suspension bar is of solid copper with 4 to 6 mm of 6% antimonial lead cast over the bar for welded attachment to the blade. The cathodes are of symmetrical design with 316 L stainless steel blades that are welded into bottom-slotted copper bars.

The center-to-center spacing between anodes (or between cathodes) is 4 in. (102 mm). The anodes and cathodes are connected electrically in parallel within a cell and in series between cells so that ideally each anode/cathode pair receives the same current flow.

The electrolyte is fed from a distributor manifold which passes down the length of the cell on both sides. The electrolyte overflows the cell at the top of the opposite end through a V-shaped weir and enters a common discharge header, which returns it to the electrolyte recirculation tank. The cell flow electrolyte control is achieved by manually adjusting the individual cell valves. The flow is gauged by visually observing discharge over the V-notched outlet weir.

14.2.6.2.3 Tank House Crane

The tank house crane is used to transport cathodes from the cells to the stripping machine and cathode blanks back to the cells. It is also used for maintenance and other duties within the EW building. The crane may be operated by radio control or by using the pendant control. The double girder, top running, electric overhead travelling bridge crane is equipped with a cross-travel trolley carrying twin hoists to provide two hook falls, with eight-tonne total capacity, to a crane bale cathode lifting frame that can pull one third of the cathodes in a cell at a time. The crane also has an auxiliary one-tonne hoist.

14.2.6.2.4 Cathode Washing and Stripping Machine

The permanent cathode washing and stripping machine performs several related functions. The cathodes are loaded by the tank house crane into the receiving conveyor and moved through a spray washing chamber installed over the conveyor for a three-stage wash where the first two stages use counter-current recirculating hot water, and the final wash stage is a rinse with clean hot water.

After washing, the cathodes are transferred by a cross-conveyor to a flexing station and then to the automated knife-stripping station. The cathode copper plates fall onto a pair of scissor tables and are then passed onto a roller conveyor. This conveyor passes them through a weighing station to a lifting pillar stand for manual banding into stacks or bundles. The stacks are removed by forklift. Stripped permanent cathode blanks are accumulated on a discharge conveyor for automatic removal and set at the correct spacing for replacement in the cells. The speed of the conveyors and the stripping station are sufficient to harvest or collect in one shift of operation all the cathodes necessary to maintain a 7-day cycle.

14.2.6.2.5 Ventilation System

The tank house ventilation system consists of variable speed, induced-draft, exhaust fans on the east side of the building and louvers on the windward side of the building. Both are positioned at the cell operating (top) level. The intention of the ventilation system is to maintain a strong flow of air across the top of the cells below the head height of the operators. In so doing, mist-laden air is swept out of the building before it can rise.

14.2.6.2.6 Electrolyte Recirculation Tank

The strong electrolyte is pumped to a group of scavenger cells where oxygen generated by the electrolytic reaction at the anodes provides a final scour of the organic entrainment. The strong electrolyte, almost completely free of organic after passing through the scavenger cells, flows into one side of a divided recirculation tank fabricated from 316L stainless steel. There, it enriches some of the electrolyte returning from the commercial cells, which passes under the weir to the other side of the recirculation tank. The mixture is then pumped to the commercial cells. After some of the copper is deposited on the stainless-steel cathodes, the partially depleted solution, enriched in acid, leaves the cells to return to the recirculation tank by gravity flow. Details of the electrolyte recirculation tank are covered in the TF description.

14.2.6.2.7 Stray Current Corrosion Reduction

The tank house circulation equipment is arranged such that all metallic components are connected electrically and are not separated by sections of non-conducting materials. All metallic components are insulated electrically from the ground. Pumps are insulated from their motors.

14.2.6.2.8 Acid Mist Suppression

Two layers of polyolefin balls provide acid mist suppression in the EW cells. The polyolefin balls are used on all the commercial cells. No polyolefin balls are used in the scavenger cells.

14.2.7 Production and Cost of L-SX-EW Operation

Table 14.7 is a summary of the 10-year, year-by-year, information provided by MdC and shows that from 2014 to 2021 the mine supplied enough soluble copper to surpass the nominal capacity of 23,455 tpy of the SX-EW plant. The lower-than-expected cathode production in 2023 was the result of the lower tonnage of ore delivered in the year. For planning purposes MdC uses a 95.0% recovery factor from soluble copper to cathode. Due to the time delay between ore placement in the leach pads and actual cathode production that recovery factor does not apply to each row in the table, but over the ten-year period it calculates at 91.6%.

Table 14.7: Annual Leach Ore and Cathode Production

Year	Tonnes (Kt)	Cu (%)	S.I. (%)	Soluble Copper (t)	Cathode (t)
2014	31,164	0.239	36.77	25,976	**25,212**
2015	32,758	0.244	44.71	33,903	**27,163**
2016	41,342	0.228	36.06	32,244	**28,307**
2017	36,540	0.230	41.43	33,130	**28,388**
2018	30,764	0.221	36.25	23,384	**26,414**
2019	28,457	0.224	46.52	28,226	**25,927**
2020	29,561	0.220	41.42	25,555	**25,846**
2021	35,230	0.212	44.97	31,935	**25,375**
2022	30,113	0.201	44.39	25,523	**23,337**
2023	15,098	0.250	63.71	22,845	**22,993**
Total	**311,027**	**0.226**	**42.38**	**282,721**	**258,962**
Mean	**31,103**			**28,272**	**25,896**

Note: Data taken directly from tables provided by MdC without formulas.

Over eight of the last ten years, the SX-EW plant has been able to surpass the nominal capacity of 23,455 tpy, as shown in Table 14.9 and Figure 14.11. Apparently, the 2.0% below nominal capacity in 2023 was caused by the lower supply of soluble copper from the mine was below the plant capacity that year. Overall, the 10-year average cathode production is 25,896 tpy, 10% above the nominal capacity.

The production of leachable ore from the new deposits of Pilares and Bella Union has been lower than expected and the new leach area Cachuly, intended for Bella Union ore, is still not in operation.

Table 14.8 shows the production results for January through April of 2024. Production trends through April 2024 indicate that the production of cathode in 2024 will be similar or below the production obtained in 2022 and 2023.

Table 14.8: Leach Ore and Cathode Production (To April 2024)

Year	Tonnes (Kt)	Cu (%)	S.I. (%)	Soluble Copper (t)	Cathode (t)
January	1,274	0.199	59.55	1,511.20	2,007
February	1,579	0.233	70.27	2,588.00	1,811
March	1,380	0.226	73.86	2,302.60	2,021
April	1,344	0.218	59.77	1,748.30	1,934
Total	**5,577**	**0.220**	**66.46**	**8,150**	**7,773**
Average	1,394			2,038	1,943

Table 14.9 shows the operating costs for the last five years and 2024 through April. No major issues were reported.

Table 14.9: Production and Operating Cost

Year	Cu Cathode Production (t)	Op. Cost, ¢/lb		
		Leaching	SX-EW	Total
2019	25,927		30.7	
2020	25,846		32.0	
2021	25,375	13.5	24.3	37.9
2022	23,337	25.5	36.9	62.4
2023	22,993	23.0	38.3	61.3
2024*	9,577	16.4	38.7	55.2
Total	**133,055**			

Note: *through April 2024

Figure 14.11 shows the production results shown in Table 14.7, compared against the nominal and design capacities of the SX-EW plant.

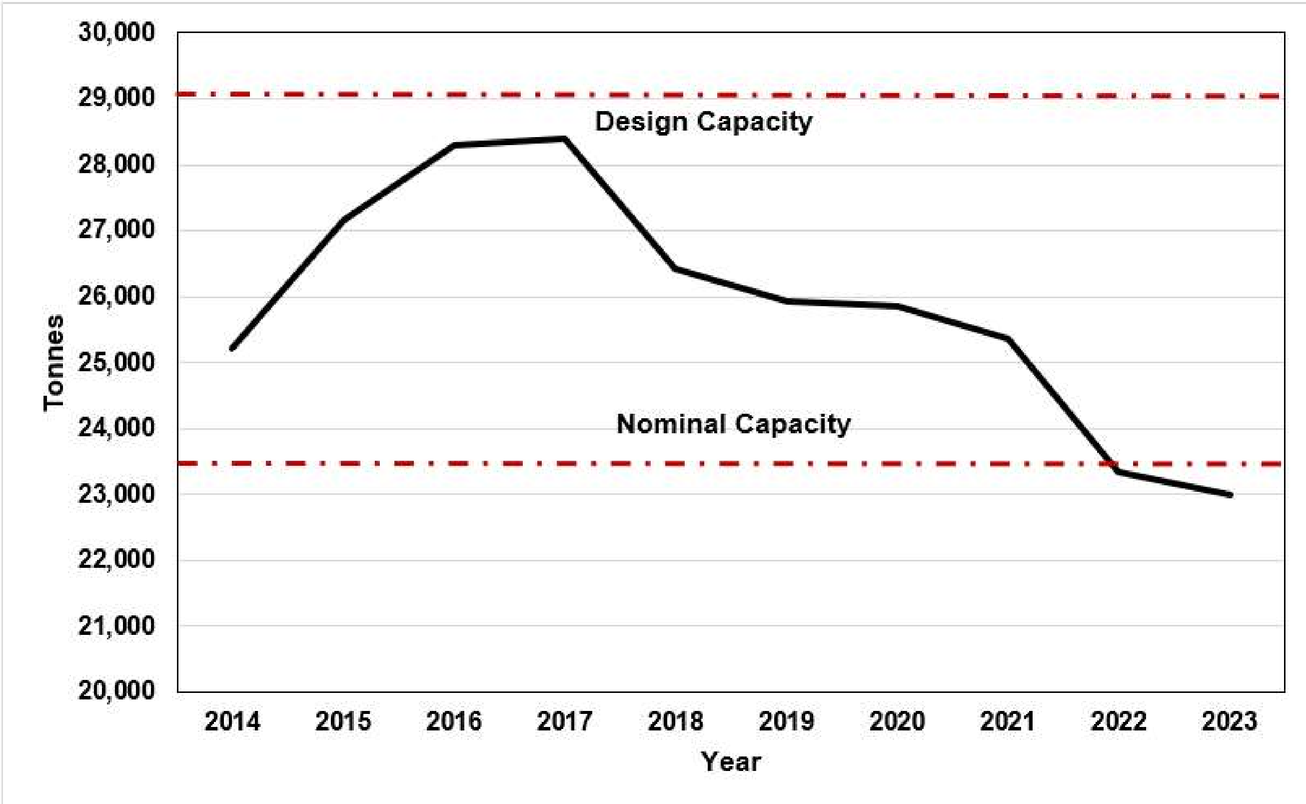


Figure 14.11: Cathode Production (t)

For the second time in the last ten years, cathode production was slightly below the plant nominal capacity of 23,455 tpy and Table 14.8, shows that the production of cathode in the first four months of 2024 was in line with the production of the previous two years.

14.3 Personnel Requirements

La Caridad employs 1,104 people, including 787 union labor. The nearby town of Nacozari has an approximate population of 12,000 and is 22 km from the company mine site. The town of Nacozari has a long tradition of mining and provides a large part of the personnel. The requirement of technical and labor personnel is the normal turnover for this size of operation. La Caridad operates with an outsourcing company that provides most of the labor requirements. La Caridad has a Human Resources department that recruits throughout Mexico and includes a training department to compensate the turnover of people and the need for constant improvement of labor skills.

15.0 INFRASTRUCTURE

This section contains forward-looking information related to locations and designs of facilities comprising infrastructure 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 Project development plan and schedule, available routes and facilities sites with the characteristics described, facilities design criteria, access and approvals timing.

15.1 General

The La Caridad complex includes the open-pit mine, concentrator, smelter, copper refinery, precious metals refinery, rod plant, SX-EW plant, lime plant, and two sulfuric acid plants.

La Caridad mine and mill are located about 23 km southeast of the town of Nacozari in northeastern Sonora at an altitude of 2,000 meters above sea level. Nacozari is about 264 km northeast of the Sonora state capital of Hermosillo and 121 km south of the U.S.-Mexico border. 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 away 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.

Figure 15.1 shows a general footprint of the mine and shows key facilities such as the concentrator, SX-EW plant, waste storage facilities, leach pads and ponds, central workshops, and warehouse as well as the administrative office area. Additional details regarding the waste dumps, leach pads, concentrator, and SX-EW plant can be found in Section 13.0 and Section 14.0. The primary Tailings Storage Facility No. 7 is described in detail later in this Section.

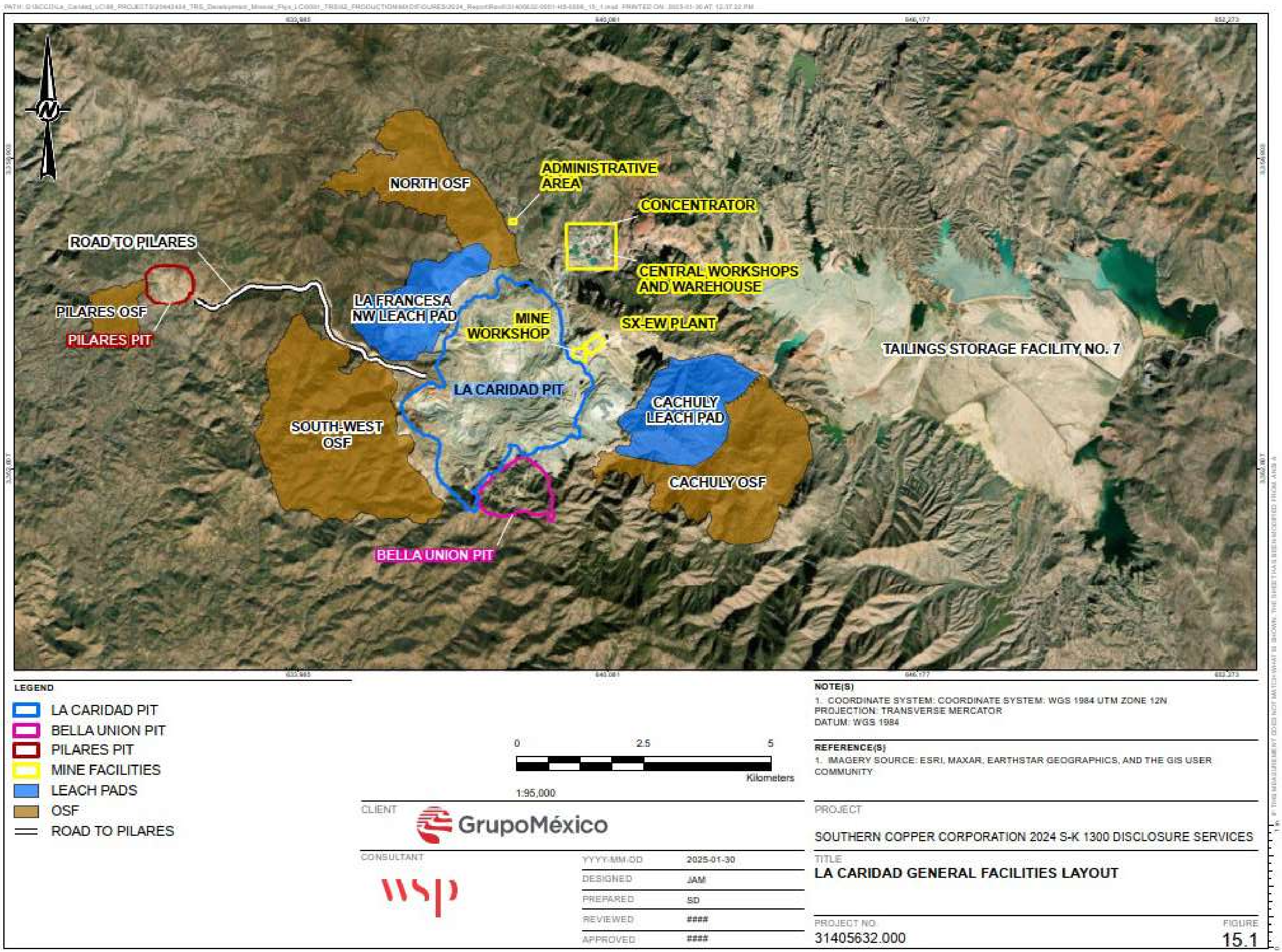


Figure 15.1: La Caridad General Facilities Layout

15.2 Fuel

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

Natural gas is the primary fuel source for all the metallurgical processes and electric generators while diesel fuel is a backup method. Diesel fuel is primarily used to power mining equipment.

15.3 Electrical Power

The electrical power is supplied to site from the utility grid via 230 kV overhead transmission lines. A minor portion of the site demand is supplied by CFE, the state’s electrical power producer. 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 two 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.

Power is fed at the 230 kV tension to primary substations and stepped down to 34.5 kV for distribution secondary substations. The main La Caridad Substation has three bays of transformers (50/66/83 megavolt-ampere [MVA]) two of them operating and one stand-by. The installed and contracted capacity is to supply 100 MW. Power is distributed through 14 branch circuits in 34.5 KV corresponding to the Mine, Concentrators, SX-EW Plant, Molybdenum Plant and the various grinding and pumping circuits.

15.4 Water Supply

The primary fresh water source is the La Angostura Dam located approximately 29 km to the northeast of the La Caridad Mine. Fresh water is pumped using a 24.3-km long pipeline utilizing three pumping stations with some storage in the Los Alisos Dam. Average annual freshwater consumption has been about 20 Mm^3 for the past five years.

15.5 Ancillary Facilities

The site is equipped with all necessary facilities required to sustain its operation. This includes buildings for office space, laboratories, training rooms, canteens, security, and first aid stations, shops for truck wash, lube and repair and workshops for general maintenance, and warehouses for storage of products, consumables, and spare parts.

15.6 Tailings Storage Facility

Mexico is divided into four seismic zones to include A, B, C, and D, where Zone A indicates low seismic activity. Zones B and C indicates intermediate seismic activity, and Zone D indicates high seismic activity. The La Caridad site is in an intermediate seismic region of Mexico (Zone C). The Peak Ground Acceleration (PGA) at bedrock associated with 2,475-year return period was reported to be 0.40 gravity acceleration (g), and PGA for 10,000-year return period was reported to be 0.83 g (Prodisis, 2015).

According to the Mexican Guideline “Manual de Diseno de Obras Civiles” (CFE, 2015), the TSF No. 7 in use for the La Caridad operation is classified as Type A1 based on risk consequence classification. For an equivalent risk consequence classification, the Canadian Dam Association guideline (CDA, 2014), recommends a design earthquake between 2,475-year and 10,000-year, or maximum credible earthquake (MCE).

TSF No. 7 was designed in 1980 by a local Mexican entity (no name was provided) and construction started in 1981. The detailed engineering design for the dam raise from crest elevation 885 m to 905 m was developed by CIEPS (a Mexican entity) in 2017 (CIEPS, 2018). A general description of TSF No. 7 is provided below, and it is based on the documents reviewed and site visit performed by WSP personnel.

15.6.1 Description of TSF No. 7

The TSF No. 7 embankment was constructed using the downstream construction method, using a zoned embankment type. The embankment was built in three (3) construction stages using pervious and impervious fill materials. For Stage 1 construction, the core (impervious material) was placed approximately at the center and is flanked by zoned shells (pervious materials). The core is supported and protected by the shells.

An inclination of the core located in the upstream portion of the embankment was constructed during Stages 2 and 3. Fill materials upstream to downstream include rockfill, core, filter, transition, and rockfill. The embankment is considered impervious since the core provides low permeability that reduces the seepage. A plan view and a typical cross-section are shown in Figure 15.2 and Figure 15.3, and crest details are shown in Figure 15.4.

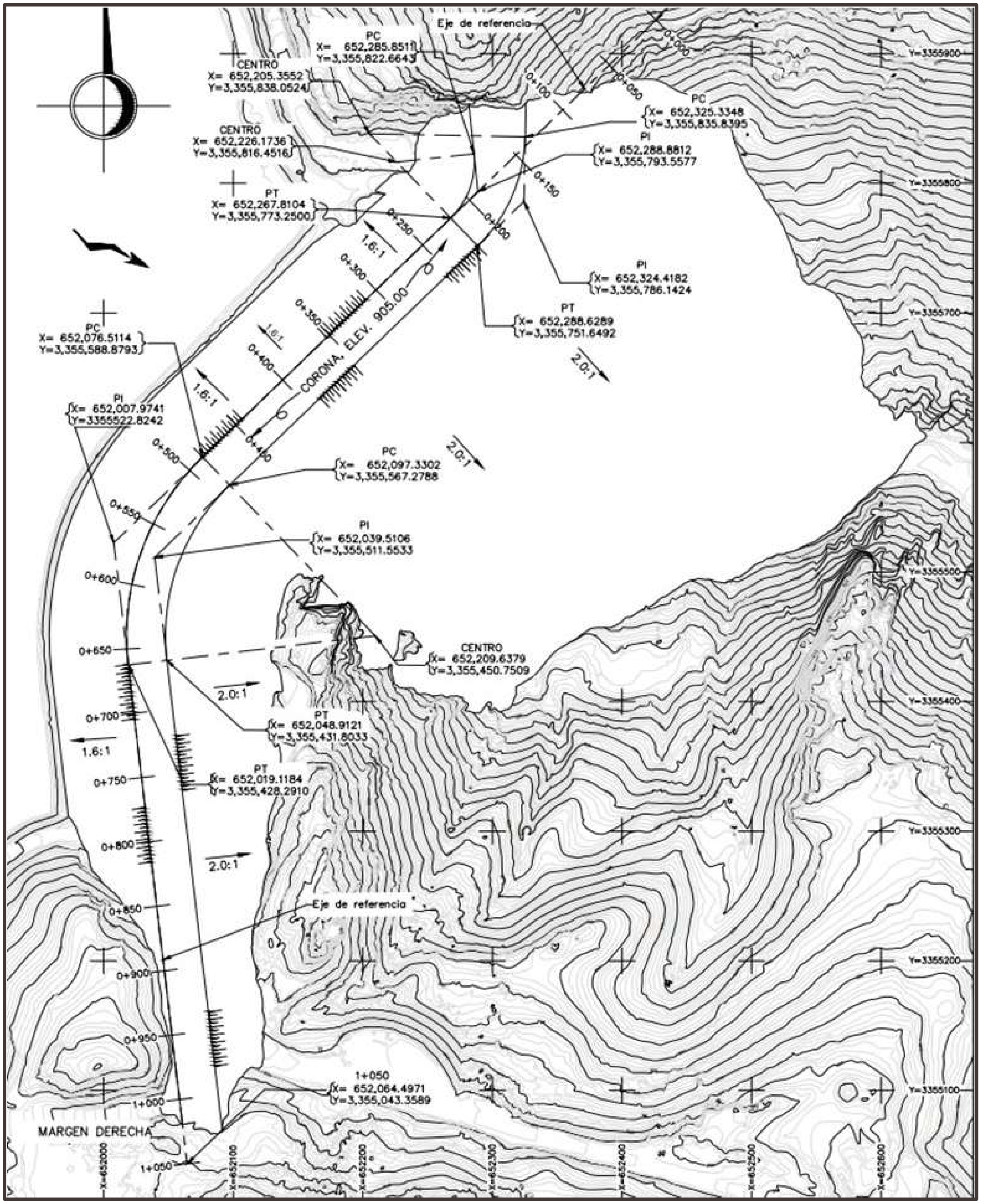
The current configuration of the embankment Stage 3 was built to crest elevation 905 masl. The embankment was constructed to crest elevations 871 m and 885 m in previous Stages 1 and 2, respectively. The total current embankment height is 189 m measured from the crest elevation Stage 3 (El. 905 m) to the approved foundation elevation at the toe (El. 716 m). The total crest width is 30 m, and upstream and downstream slopes are 1.6H:1V and 2H:1V, respectively. The embankment alignment length is approximately 630 m.

Grupo México Mining Water Resources Division (Direccion de Recursos Hídricos de la Division Minería Grupo Mexico) verified recently that the current embankment crest is 910 masl (Grupo Mexico Mineria, 2024a), which is different from the 905 masl that was reported in the design and as-built documents. The TSF was designed and constructed without an impoundment liner system (i.e., geomembrane placed on a low permeability fill material or other impermeabilization systems).

Currently, thickened slurry tailings (tailings with 50% solid content by weight (Grupo Mexico, 2021)) are being discharged from the Process Plant by gravity directly into the existing natural valley without a pipeline or a tailings channel for tailings transport. The discharge takes the slurry tailings approximately 4 km to 5 km until the valley meets the impoundment from the east side. The impoundment is filled upstream, resulting in water impounded directly against the dam and within the periphery of drainages.

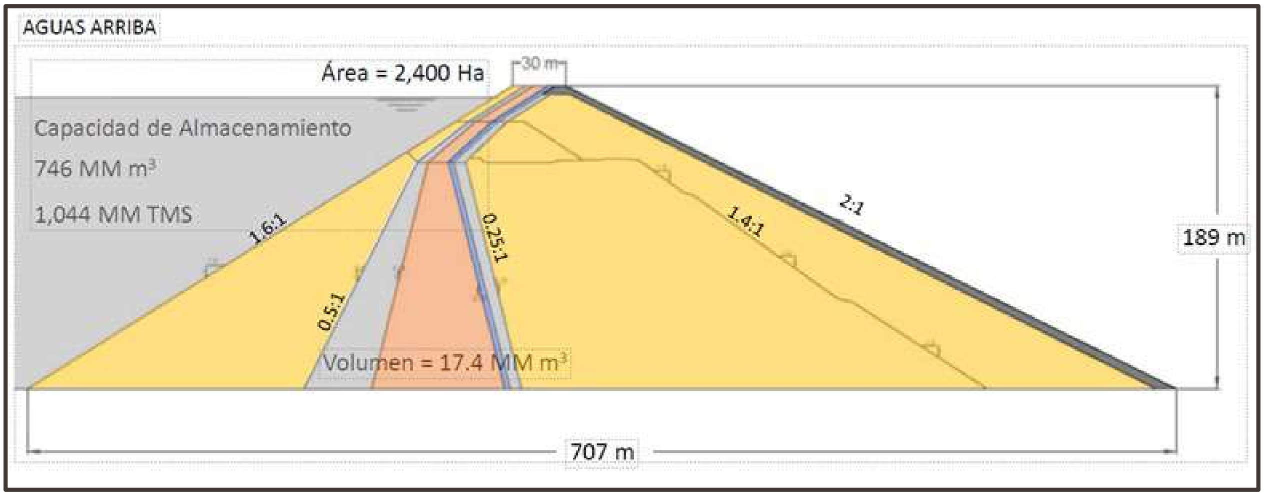
A runoff water dam (non-contact water) was constructed at the north side of the TSF. There are no water dams or diversion channels to the south side of the TSF, thus allowing the runoff to enter into the impoundment.

Currently, a spillway was constructed at the left (north) abutment of the TSF and designed to pass a 10,000-year design storm (Buro Hidrológico, 2015). However, there was no available TSF water balance or survey information provided to verify the freeboard during the life of the TSF.



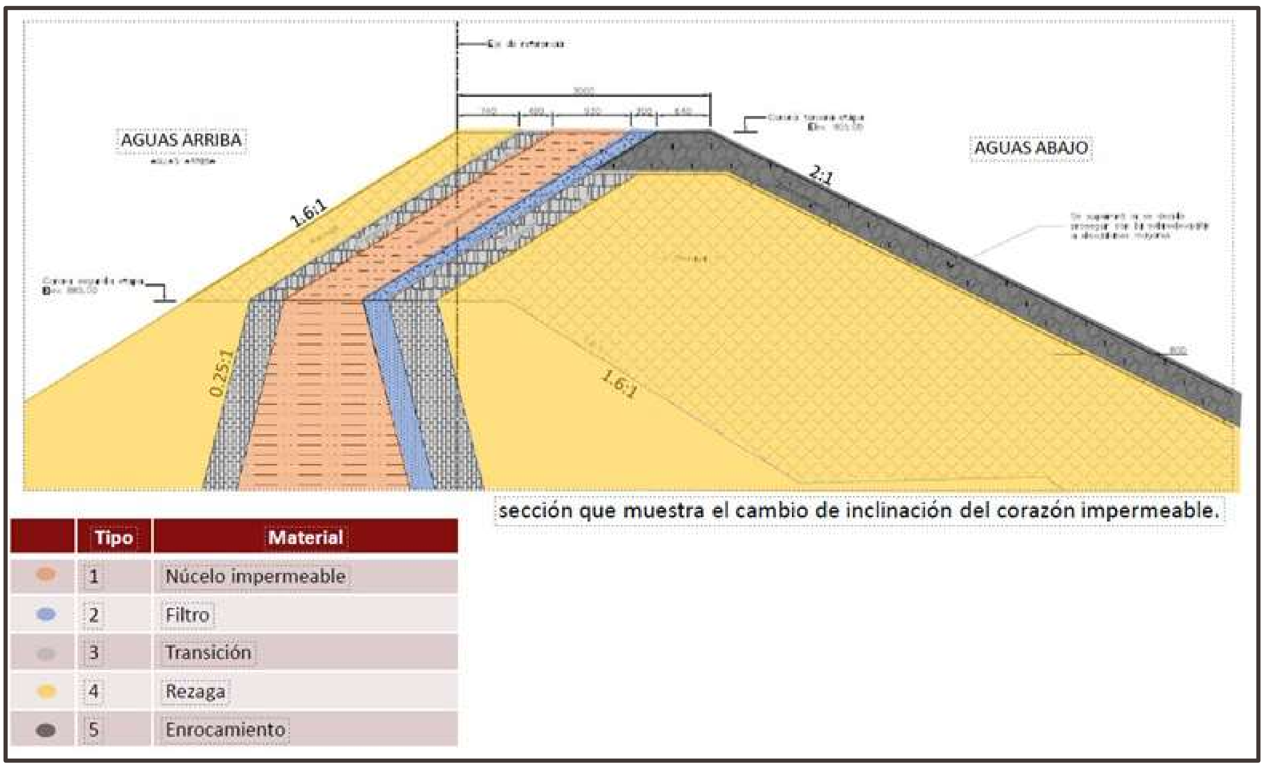
Source: Arriaga A., 2019.

Figure 15.2: TSF No. 7 Plan View



Source: Arriaga A., 2019.

Figure 15.3: Typical La Caridad TSF No. 7 Embankment Cross Section



Source: Arriaga A., 2019

Figure 15.4: La Caridad TF No. 7 Embankment Crest Details

15.6.2 Operational Data and TSF Capacity

Selected key mine operational data include:

- Process Plant:
  - Annual mill throughput: 34.5 Mt (Minera Caridad, 2021)
  - Tailings generation:
    - Percent tailings to surface disposal: 100% (Minera Caridad, 2021)
    - Tailings daily production (tonnes/day): 95,000 (Grupo Mexico Mineria, 2024a)
    - Tailings annual production: 34.68 Mt (assuming 365 days of the Process Plant operation)
    - Tailings average dry density (tonnes per cubic meter [t/m^3]): 1.4 t/m^3 (Grupo Mexico Mineria, 2024b)
    - Tailings annual production (million cubic meters [Mm^3]): 24.77
- The TSF No. 7 remaining capacity at embankment crest elevation 910 m.
  - Grupo Mexico Minería carried out the remaining capacity of the TSF No. 7 using tailing surface topography measured on July 1, 2024 (Grupo Mexico Mineria, 2024a)
  - Tailings surface slope: 0.3%
  - TSF remaining capacity: 658.49 Mm^3 (Grupo Mexico Mineria, 2024a)
  - TSF remaining capacity: 921.89 Mt (26.5 years from July 2024 ~ 2051)
  - WSP verified independently the remaining TSF volume calculation carried out by Grupo Mexico Mineria
- Grupo Mexico plans to raise the embankment from crest elevation 910 m to 950 m with a total tailings storage capacity of 837.29 Mm^3 or 1,172.21 Mt (Grupo Mexico Mineria, 2024c). This calculation considered the tailings slope of 0%. This embankment raise could increase the capacity for approximately a total of 34 years (1,172.21 Mt/34.68 Mt per year). This designates an end of life for TSF No. 7 approximately in 2085.
  - TSF No. 7 crest elevation 910 m remaining capacity: 921.89 Mt (26.5 years from July 1, 2024 ~ 2051)
  - TSF No. 7 crest elevation from 910 m to 950 m additional capacity: 1,172.21 Mt (34 years)
  - Total TSF No. 7 capacity: 2,094.10 Mt (1,495.78 Mm^3) equivalent capacity of 60 years approximately to Year 2085 (from July 2024)
  - WSP verified independently the remaining TSF No. 7 volume calculation carried out by Grupo Mexico Mineria.

For any future updates for the TSF No. 7 capacity, the key items to consider include:

- TSF tailings consolidation model and tailings deposition plan considering in-place tailings slope.
- Update the tailings production over the mine life.
- Updated TSF water balance results.

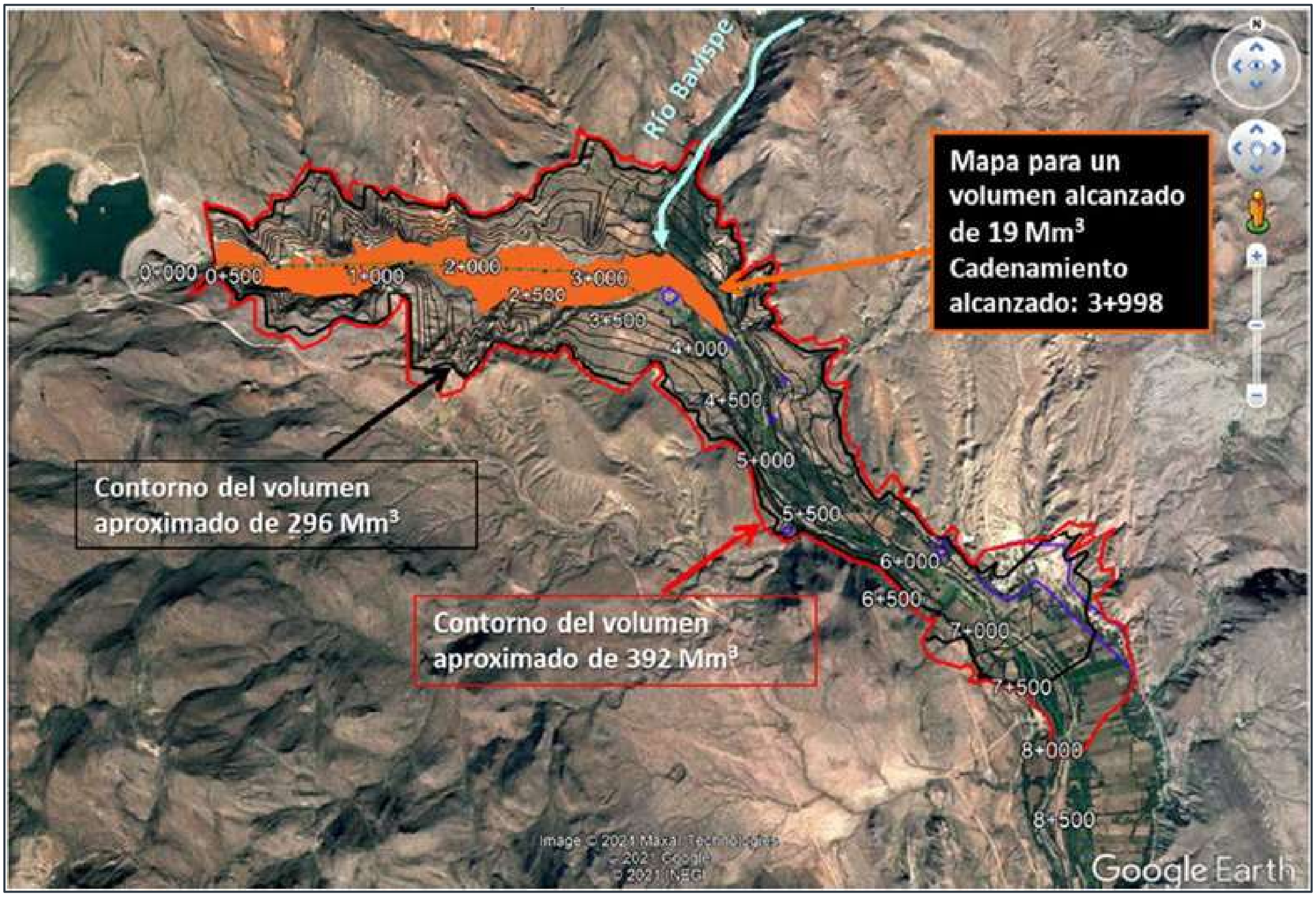
- Freeboard calculation considering climate change impacts.

15.6.3 TSF No. 7 Consequence Classification

Grupo Mexico requested that GERD (Servicios y Soluciones de Ingenieria y Logistica) carry out a preliminary (screening level) dam break analysis (DBA) for the TSF No. 7 (GERD, 2021). The DBA was performed considering a fourth embankment raise with a crest elevation at 921 m and total tailings storage of 1,650 Mm^3. GERD considered a simplified methodology for the dam breach analysis (Lucia et al. 1981), defining the inundation maps using a constant runout tailings gradient (1.5%) and 20% of the total tailings to be discharged. For the ultimate embankment configuration, the total volume of the tailings runout is 330 Mm^3, extending approximately 7.7 km downstream from the TSF No. 7. Figure 15.5 shows the tailings runout inundation extents.

The Bavispe River is located 3.4 km downstream from TSF No. 7, the San Juan del Rio town is approximately 6 km downstream from TSF No. 7 and agriculture areas are extended along the Bavispe River. The tailings discharge could impact the Bavispe River, small ranches along the river, and the San Juan del Rio town with an estimated loss of human lives greater than ten but lower than 100 people. Based on the CDA (2014) dam consequence criteria, GERD classified TSF No. 7 as Very High risk.

The dam break analysis carried out by GERD appears to be non-conservative. If the dam fails, it will release the impounded water, which is impounded against the upstream face. The tailings impounded upstream of the dam have been segregated and are composed of fine tailing due to the current tailings disposal strategy; the coarse tailing is impounded well upstream. Rapid drawdown and seepage forces will result in large strain deformation, and the fine tailings will likely go to a residual undrained strength. As a result, the actual tailings runout distance may be more extensive than predicted by the GERD, and the runout tailings slope could be flatter than the 1.5% assumed by GERD.



Source: Dam breach analyses (GERD, 2021)

Figure 15.5: TSF No. 7 Inundation Tailing Runout Map

15.6.4 TSF No. 7 Key Components

TSF No. 7 should comply with the Mexican tailings management standard (Norma Oficial Mexicana NOM-141-SEMARNAT- 2003). Grupo Mexico mentioned its intention to meet the international guidelines on tailings management (CDA, 2014; MAC, 2021; GISTM, 2020); however, specifically for the GISTM, there is currently no commitment to implement it. Grupo Mexico's corporate standards on tailings management were not provided.

15.6.4.1 TSF Embankment

The embankment design concept (i.e., impervious embankment) current configuration and the new projection for a crest elevation at 950 m (Grupo Mexico Mineria, 2024c), in general appears to be aligned to TSF standards (Norma Mexicana NOM-141-SEMARNAT-2003; CDA, 2014; GISTM, 2020). Guidelines require minimizing seepage from the tailings facilities, such as the use of liners, water-retaining dams, or underdrains during the operations and closure phases to minimize the tailings water seepage downstream of the facility and potential impacts to groundwater.

The embankment design included an impermeable core (see Figure 15.3 and Figure 15.4) keyed into the bedrock foundation.

The embankment foundation is bedrock comprising a sequence of andesites and andesites tuff. Outcrops were observed during the WSP site visit, along the abutments, and downstream of the facility. Andesite tuff material (a welded pyroclastic flow material) should be verified as a boundary condition and will not become progressively weaker with exposure to saturation.

Bedrock permeabilities range from 2x10-3 cm/s to 1x10-6 cm/s in the upper 30 m at right and left abutments. Most of the permeability data are between 10-3 to 10-4 cm/s, indicating a relatively permeable rock at the abutments (Geovisa, 2016; GeoMecanica, 2016). There were no bedrock permeability data for the Stage 1 embankment foundation (at the bottom of the valley). Relatively high permeability in the upper 30 m of the bedrock could be a concern for seepage and water quality downstream of the facility.

A filter was placed to protect the core zone and comprises sand and gravel with a maximum fines content of 5% and maximum particle size of 3 inches (CIEPS, 2017). No filter compatibility calculations were provided for the core zone and filter zone interface or the filter and shell interface.

In the current TSF operations, the tailings pond is deposited on the east side of the impoundment. The reclaim pond is located permanently against the upstream slope of the embankment. This condition increases the potential risk and creates three failure modes for consideration namely, slope stability, internal erosion, and overtopping.

Borrow materials were obtained by nearby areas (core and drained fills) away from the mine mineralized zone. There is no visual evidence of oxidation or potential acid generation. However, no laboratory testing for environmental impacts has been conducted.

During the August 2021 site visit, WSP personnel was informed that no piezometers were installed within the embankment (Grupo Mexico, 2021b); only monument surveys were installed for displacement monitoring. One monitoring well was observed approximately 100 m downstream from the embankment toe. A shallow phreatic surface (~ 2 m) was indicated by La Caridad personnel. WSP personnel were informed during the recent site visit in June 2024 that additional remote control instrumentation has been installed including piezometers, inclinometers, extensometers, seismographs, GNSS antennas, and total weather stations.
No evidence of seepage at the embankment toe was observed during the June 2024 site visit. The bottom of the valley immediately at the toe embankment was covered with granular material that might be covering any potential seepage. However, near the existing well (100 m downstream), water accumulation was observed that could be related to embankment/foundation seepage or rainfall accumulation.

Static and dynamic Flac 3D stability analyses were performed for the TSF No. 7 embankment at crest El. 905 m (UNAM, 2018). The conclusions of this study include: 1) The level of stress and deformation under the MCE design earthquake is acceptable and; 2) Core fill could present cracks. However, the physical stability is not compromised, but the impermeability of the core could be compromised. It is important to note that developing a slope stability model fundamentally depends on establishing the internal stress conditions within the embankment. The lack of instrumentation prevents establishing pore pressure and stress conditions within the embankment, preventing calibration, and potentially invalidating the model results.

15.6.4.2 Tailings Transport, Tailings Disposal, and Water Reclaim System

Slurry tailings are being discharged from the process plant by gravity directly into the existing natural stream. Slurry tailings are diluted with existing streamflow and go along the narrow valley for approximately 4 to 5 km until discharged into the impoundment from the west side. This deposition method results in the preferential classification of the tailing, with the coarse tailing being deposited upstream and the finer tailing being impounded near the containing embankment.

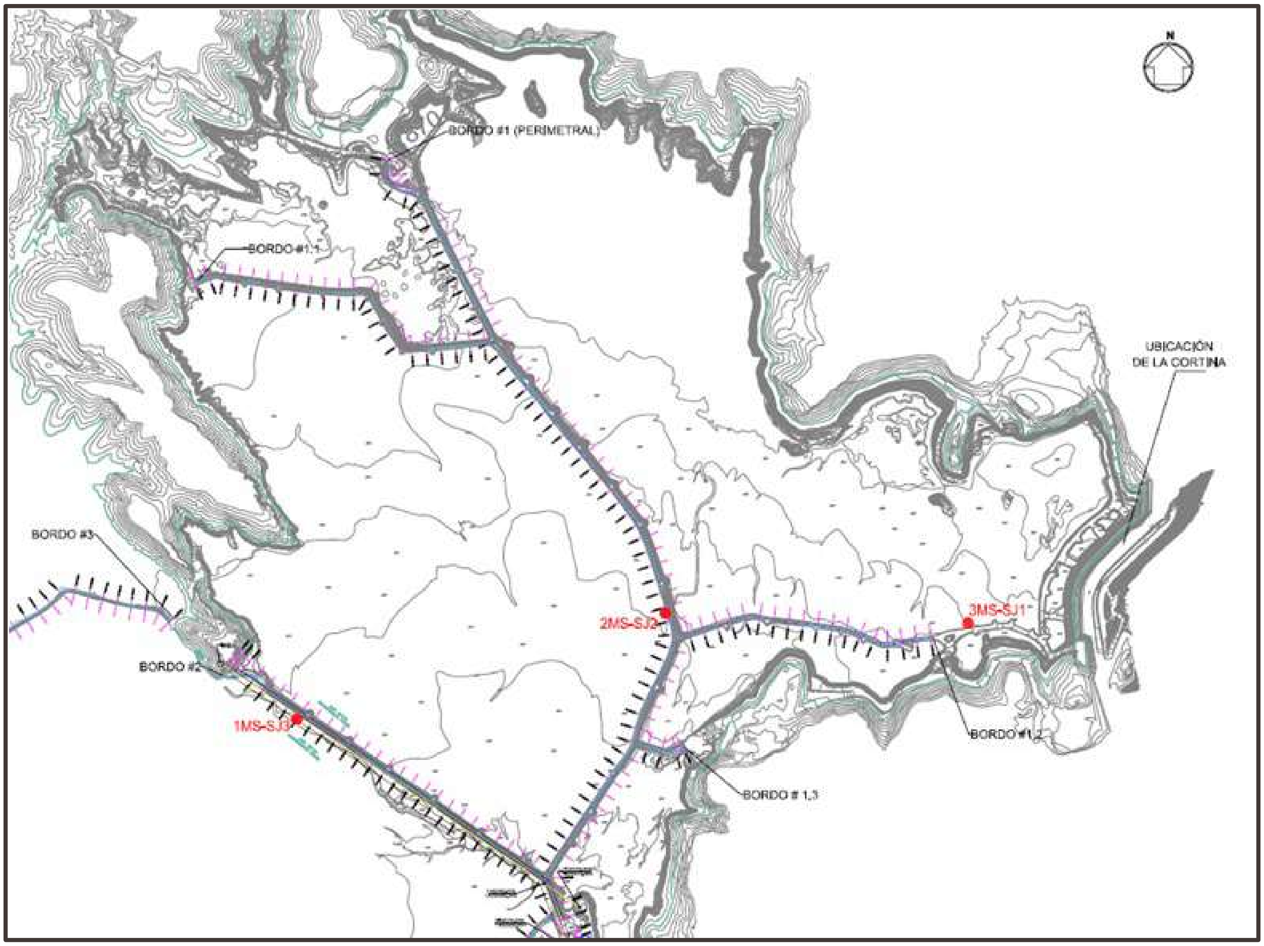
The tailings impoundment is relatively large, approximately 10 km long from west to east direction. As indicated above, the tailings slurry enters the impoundment from the west side as a single point of tailings. The slurry travels the entire 10 km length, pushing the main pond to the east side against the upstream slope of the embankment to the northeast. Other areas of water accumulation were observed due to the single point tailings discharge and topography configuration (see Figure 15.5).

The overall tailing beach slope is 0.3% (Minera Caridad, 2021), indicating relatively fine-grained tailings. No tailings index test results were available.

La Caridad implemented the construction of internal dikes (8 m to 12 m high), constructed with borrow material on top of existing tailings, to form cells (approximately 4 to 5 cells in the entire impoundment) (see Figure 15.6). The purpose of the cells is to direct the tailings water into the specific points on the northern and eastern sides of the impoundment, where a battery of pumps is installed as part of the current water reclaim system. The pumping system is implemented on the northern side of the TSF. It includes three stations (stations 5, 6, and 7) with an average total pumping rate of 70,000 m^3/day conveying reclaimed water to the process plant, via an HDPE 36-inch pipeline.

A significant portion of the tailings water is lost mainly to evaporation and infiltration within the existing tailings (recharge), during the long travel route (approximately 15 km) through the cells, and exposure in several ponds along the impoundment.

The main tailings pond located against the embankment could risk embankment instability. State-of practice on tailings management includes the tailings discharge from the crest to develop a tailings beach again the upstream slope and keep the pond away from the embankment.



Source: (Geovisa, 2016)

Figure 15.6: Internal Dikes Constructed with Borrow Material

15.6.4.3 Water Management

The water management process is described below:

- Runoff water diversion (non-contact water) around the TSF is not maximized. Small dams capture only a portion of the runoff, and most of the runoff goes into the tailings impoundment:
  - Small water retention dams constructed along the north side of the TSF partially collect the runoff, which is pumped to the process plant
  - There are no diversion channels at the north and south sides of the TSF
- Runoff contact water from the mining area (from the catchment area located upstream of the TSF) appears to go directly into the impoundment
- Storm flow volume management:
  - The spillway was constructed at the right abutment
  - The TSF has a relatively large catchment area that could generate a large storm flow volume

  - No updated hydrology and hydraulic calculations were available to verify the spillway hydraulic capacity to maintain the minimum freeboard under the design storm. Buro Hidrologico (2015) performed the hydraulic calculation to discharge the design storm (10,000-year return period) and the spillway design. Buro Hidrologico (2017) verified that the freeboard was sufficient in 2017 to manage the volume of the maximum annual precipitation (17 Mm^3) when the embankment crest was at 885 m and tailings surface was at El. 875 m. There were no spillway design drawings nor as-built spillway documentation available to verify the design storm volume management and spillway hydraulic capacity

- TSF water balance:
  - No TSF water balance calculation was available to verify the minimum freeboard required (Grupo Mexico, 2021b)
  - There is a potential for embankment failure by overtopping. No TSF water balance calculation was available to verify the minimum freeboard

15.6.4.4 Geochemical Stability

Comments on the tailings geochemical characterization and long-term geochemical stability are discussed in Section 17.0 of this TRS. Based on WSP's preliminary findings of the very limited geochemical testing, the tailings exhibit the potential to generate acid. The tailings mobility test results did not have any results that exceeded Mexican NOM-157 permissible limits. Only static testing has been conducted on a sample that may not be representative of the current and/or future tailings, and the long-term water quality has not been assessed via kinetic testing.

Tailings oxidation was observed during the WSP personnel site visit. Based on WSP's review and observations, seepage from the TSF (potentially containing leached metals related to tailings) through the relatively permeable bedrock foundation could be a concern for downstream surface water and groundwater quality.

15.6.5 Identification of the Embankment Potential Failure Modes and Other Concerns

WSP performed a preliminary identification of Potential Failure Mode (PFM) candidates for the TSF No. 7 at the La Caridad mine. This work only identifies the possible causes. The consequences identification, risk estimation (probability of occurrence or likelihood), and severity of consequences are not included. The identified PFMs are discussed below. This list of PFMs is preliminary, based on WSP's current knowledge and information reviewed.

- Embankment overtopping: No TSF water balance and updated hydrology and hydraulic calculation were available to verify freeboard and spillway hydraulic capacity.
- Internal erosion: Pond permanently located against the embankment and no filter compatibility analysis between the core fill and filter fill were available.
- Potential slip surfaces within the foundation and the embankment: Grupo Mexico should demonstrate that they have a suitable foundation (verify that tuff materials will not became progressively weaker with exposure to saturation), pore pressure conditions within the embankment are low (install geotechnical instrumentation to monitor pore pressure and stresses), and embankment materials to have high shear strength properties (by field and laboratory testing program and interpretation).

Seepage from the TSF (potentially containing metals leached from the tailings) through the relatively permeable bedrock foundation could be a concern to downstream surface water and groundwater quality.

15.6.6 Qualified Person's Opinion

The embankment design concept (i.e., impervious embankment) and materials used for the embankment construction (core zone keyed into the bedrock, filter zone, transition fill, and rockfill) in general appears to be aligned to TSF standards (Norma Mexicana NOM-141-SEMARNAT-2003; CDA, 2014; GISTM, 2020). However, based on WSP's current knowledge and information reviewed, WSP has identified potential embankment credible failure modes (overtopping, internal erosion, potential slip surfaces within the foundation and embankment) and does not have sufficient information to confirm or refute these potential failure modes. Therefore, a detailed DSR is warranted and should be completed by a qualified and experienced professional engineer and organization that is suitably experienced in tailings storage facilities' design, operation, and closure.

Many other recommendations have been made and described in Section 23.5 a key recommendation being that Grupo Mexico commits to implementing the GISTM requirements to achieve the goal of "zero harm to people and the environment." One of the critical principles from GISTM and other international guidelines is the tailings management and governance that Grupo Mexico would plan to implement for all Grupo Mexico TSFs. Governance of tailings management comprises organizational structures, processes, procedures, and communication channels established to maximize effective management, oversight, and accountability for tailings.

16.0 MARKET STUDIES

This section contains forward-looking information related to commodity demand and prices 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, commodity demand and prices are as forecasted over the LOM period.

16.1 Copper Market Outlook

Copper Outlook Reports published by Wood Mackenzie are the source of the copper market information provided in this section.

Copper concentrate stocks-balances will rise steadily as the rate of smelter capacity additions begins to slow. Although 2024 has been atypical with spot TC/RCs below zero, future Copper Concentrate TC/RCs are also expected to steadily rise.

In the meantime, there will be a steady increase in smelter utilization to a level of 88%. Given that smelting capacity is enough to satisfy market requirements long term, the level required to incentivize new smelter construction is not necessarily a reliable guide to long-term TC/RCs.

16.1.1 Copper Market Studies

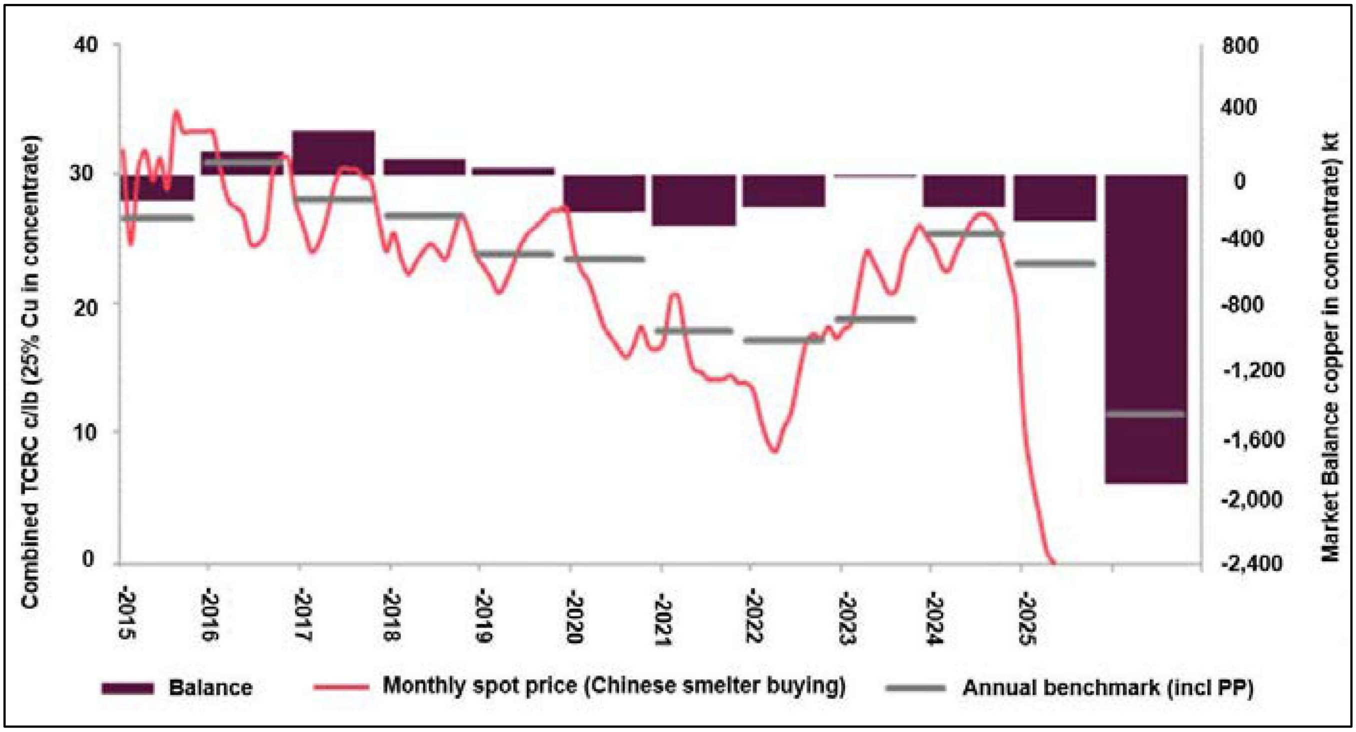
In a long-term analysis, it was assumed that low-acid prices mean that smelters will continue to receive less significant sulfur byproduct credits in the future, than they have in the past. So, TC/RCs will continue to have to make up a larger share of their revenue stream. Furthermore, the Copper Outlook Reports maintain that it is in the interests of mining companies involved in the annual benchmark negotiations to keep TC/RCs at a level at which smelters outside China can stay in business, so that they do not become too dependent on that single market as a customer for their concentrate production. Not only do smelters have to “survive,” they also need to invest in maintenance, new technology, or even relocation to areas of new demand that requires a sufficient TC/RC to achieve an acceptable return on capital.

The Copper Outlook Reports consider concentrate availability relative to that required for smelter production in the “custom traded” sector only.

Over the last 10 to 15 years, the deficit of copper in concentrate relative to 88% of primary smelting capacity has been greater in the custom traded market than the global average. This reflects the slow pace of construction of new mining production capability at a time when several new smelters intended to treat imported custom concentrate were being built in China. This differential narrowed to some extent in 2015 and 2016, as new mine capacity became available.

In 2019, there was a small shift to slightly greater availability in the custom market due to smelter disruption.

In 2022, there was a significant impact of the shift towards lower availability in the custom market due to supply disruption at South American mines. Likewise, in 2024, the increase in fusion capacity and the closure of Cobre Panama generated a greater deficit which took the spot market to historical lows. Overall, concentrate availability is still forecast to remain at all-time lows both on a global basis and in the custom traded market, as shown on Figure 16.1.



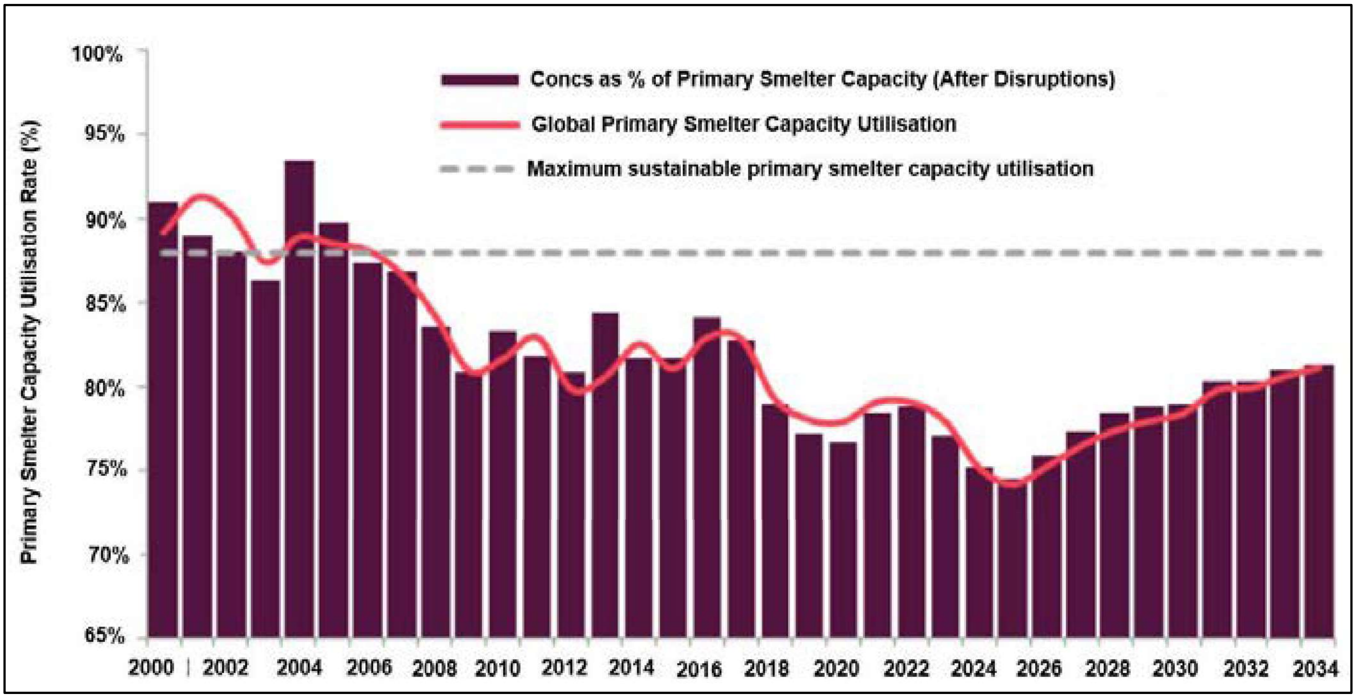
Source: Wood and Mackenzie

Figure 16.1: Copper Concentrate Market Balance versus TC/RCs

16.1.2 Supply and Demand Forecasts

Based on the forecast of future concentrate availability, there is sufficient global smelter capacity, both in our current base case and probable projects, to meet market requirements until 2027/2028 (see Figure 16.2). However, for various political, strategic, or environmental reasons, several projects are being proposed that could provide further concentrate availability over the long term.

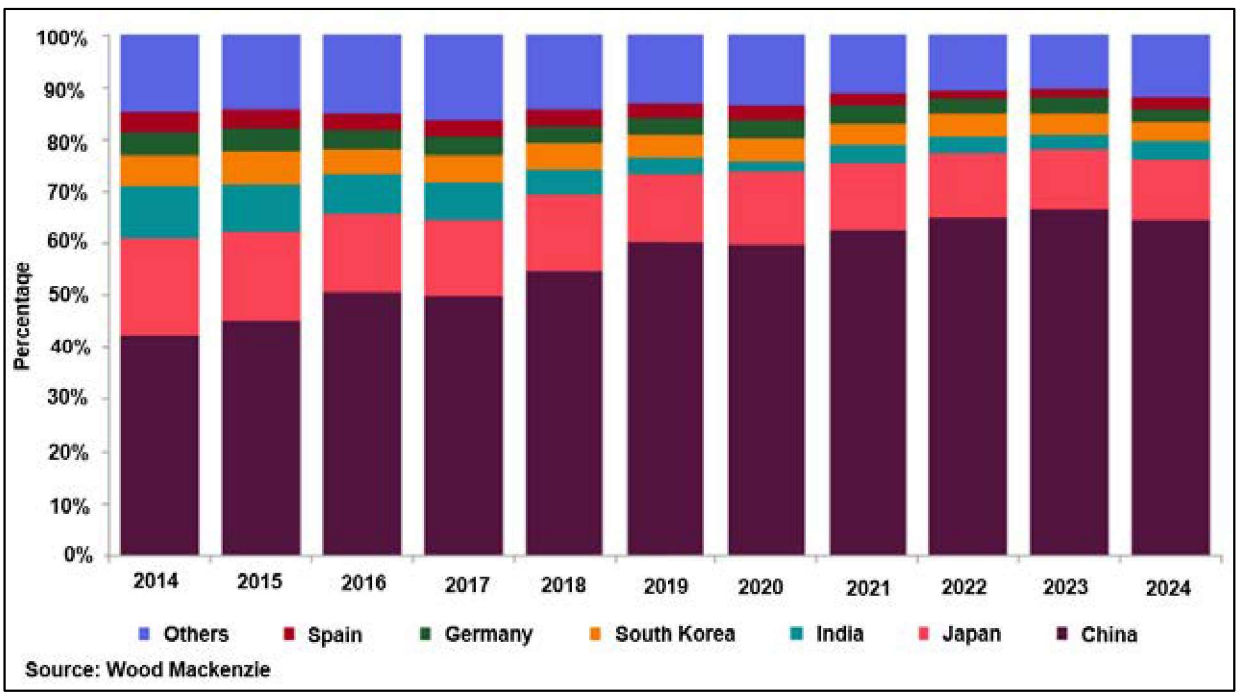
In total, 22 possible projects were identified that combined would have an annual production capability of 4.83 Mtpa of copper (primary and secondary). This includes potential capacity in China (1.0 Mtpa), India (1.05 Mtpa, including the Tuticorin restart), with the remainder in DR Congo, Iran, Indonesia, Mongolia, Mexico, Peru, Russia, Saudi Arabia, and Zambia.



Source: SCC

Figure 16.2: Maximum Sustainable Primary Smelter Capacity Utilization

The main regions of global copper consumption are shown in Figure 16.3.



Source: Wood and Mackenzie

Figure 16.3: Main Regions of Copper Consumption

16.1.3 Copper Commodity Price Projections

The principal commodities that will be produced will be Cu, Ag, and Au.

Historical copper prices for 2014 through 2024 are provided in Table 16.1.

Table 16.1: Historical Copper Prices

Data Set	Unit	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
LME Cash	USD/t	6,862	5,498	4,862	6,166	6,523	6,000	6,181	10,494	8,796	8,488	9,303
LME Cash	USD/lb	3.11	2.49	2.21	2.80	2.96	2.72	2.80	4.76	3.99	3.85	4.22

Source: Wood and Mackenzie

Forecast copper prices are summarized in Table 16.2.

Table 16.2: Copper Price Projections

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Base Case - Global											
Copper Stock Days	476	132	-15	-283	173	158	172	118	206	176	78
Nominal $/t	8,100	8,525	9,169	9,952	10,029	9,980	9,925	9,864	9,929	9,992	10,192
Real $/t	7,902	8,154	8,598	9,149	9,039	8,818	8,598	8,378	8,267	8,157	8,157
Low Price Scenario- Global											
Copper Stock Days	77	83	240	169	234	131	187	264	237	-100	-15
Nominal $/t	9,222	9,600	9,488	9,405	9,354	9,249	9,186	9,117	9,041	9,617	10,078
Real $/t	9,222	9,412	9,119	8,863	9,642	9,378	9,157	7,937	7,716	8,047	8,267
High Price Scenario - Global											
Copper Stock Days	-390	259	272	213	181	157	157	154	141	159	170
Nominal $/t	9,250	9,225	9,188	9,302	9,441	9,532	9,673	9,816	9,935	10,002	10,068
Real $/t	9,250	9,062	8,839	8,774	8,730	8,642	8,598	8,554	8,488	8,378	8,267

Source: Wood and Mackenzie

16.1.4 Market Contracts

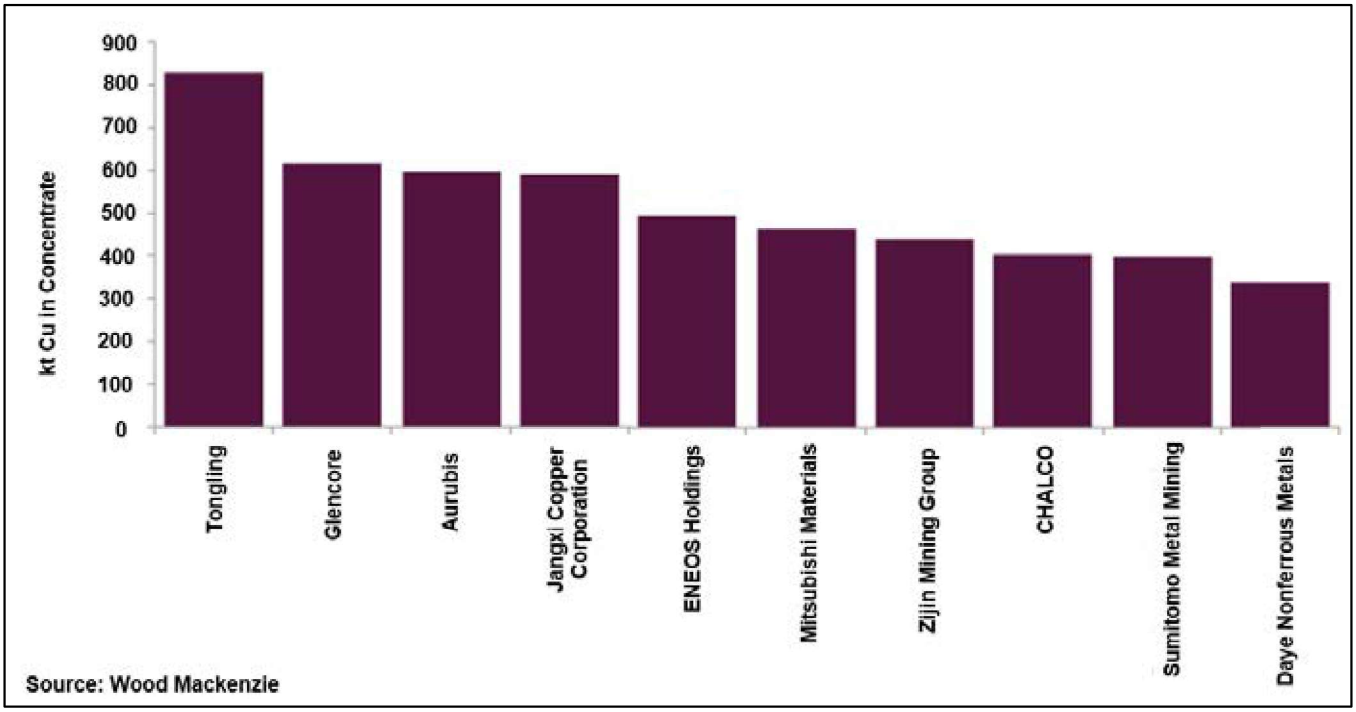
AMC, a sister company of SCC under Grupo Mexico, has a corporate strategy that allows for a presence in the markets for several years due to long-term contracts with strategic business partners in the Asian and European markets, as well as annual contracts with other active market participants.

16.1.5 Product Specifications Requirements

The principal product specifications required consist in Cu concentrate free from radioactivity and deleterious impurities harmful to smelting and/or refining processes, considering the China Inspection and Quarantine Services (CIQ) limit specifications for the import of the Cu Concentrates as per follows:

Lead (Pb) ≤6.0%, Arsenic (As) ≤0.5%, Fluorine (F) ≤0.1%, Cadmium (Cd) ≤0.05%, and Mercury (Hg) ≤0.01% in contents

The principal corporate buyers for copper concentrate materials in 2023 are shown on Figure 16.4.



Source: Wood and Mackenzie

Figure 16.4: 2023 Principal Copper Concentrate Buyers

Depending on the main products:

- If the production were of concentrates with high or low grade of Cu, the main placement would be in the Asian or European market or right with smelters or other market participants depending on their quality.
- If the main production were of copper cathodes, the placement of this material would be in the European, Brazilian and / or North American markets.

16.2 Molybdenum Market Outlook

The surprising rally in molybdenum prices in late 2022 and early 2023, driven by a supply shortfall relative to demand, pushed prices to levels not seen since 2005–2008. Following this spike, prices have declined and stabilized within the range of **US$ 18–22 per pound**. This stabilization is due to a decrease in demand and an increase in Chinese primary-mine production.

Although demand has slowed, copper by-product production—primarily in the Americas—has fallen short of targets due to changes in mine plans and lower ore grades, leading to market tightness.

The molybdenum market is expected to remain in deficit in 2024 but should gradually balance out as supply grows in 2025, with a potential surplus emerging in 2026. While by-product production is anticipated to recover in 2025, stronger demand projections may keep the market tight. Primary production requires favorable market conditions and rising production costs have sustained the need for higher prices in recent years.

Consumers are now more cautious with restocking, given the sensitivity of prices, but low inventory levels make the market more vulnerable to supply disruptions.

Further clarity on production guidance from key operations is expected in the coming weeks. However, SCCO's initial analysis suggests that mine supply growth will be insufficient to keep pace with demand in 2025.

Negotiations for long-term contracts for the upcoming year are currently underway, reflecting expectations of continued market tightness—albeit to a lesser degree than in previous years.

In 2025, production from key producers is expected to decline due to lower ore grades, severe weather conditions, and labor shortages. Additionally, there are indications that the Chinese government will maintain energy restrictions and environmental regulations, which will further support the market deficit.

Table 16.3 summarizes molybdenum global market production and pricing for 2023 Q3 through 2024 Q4.

Table 16.3: Molybdenum Global Market Summary

Description	Units	2023 Q3	2023 Q4	2024 Q1	2024 Q2	2024 Q3	2024 Q4	Y/Y %
Supply / Demand								
Production[1]	Mlbs	158.8	161.9	154.5	153.3	154.3	159.1	-1.7
Consumption	Mlbs	155.4	159.3	155.4	160.7	157.3	164.8	3.5
Balance	Mlbs	3.4	2.6	-0.9	-7.3	-3.0	-5.8	
Stocks								
Total Stocks	Mlbs	142.9	145.5	144.6	137.3	134.3	128.6	-11.7
Total Stocks Consumption Ratio	Months	2.8	2.7	2.8	2.6	2.6	2.3	-14.6
Prices								
Europe Oxide Delivered Consumers' Works Merchant Price	$/lb	22.74	20.01	20.11	20.18	22.56		

Notes: 1. Useable molybdenum units net of yield loss and disruption allowances. Includes molybdenum units recovered from reprocessing of catalysts.

Source: CRU Molybdenum Monitor, 10-3-2024.

16.2.1 Molybdenum Demand

The primary drivers of molybdenum demand are the production of stainless steel and special steel alloys. As shown in Figure 16.5, these two industries together account for 35% of global molybdenum demand (25% from stainless steel, 7% from alloyed tool steel/high-speed steel (ATS/HSS), and 3% from superalloys). Construction steel keeps its dominance of 38% overall.

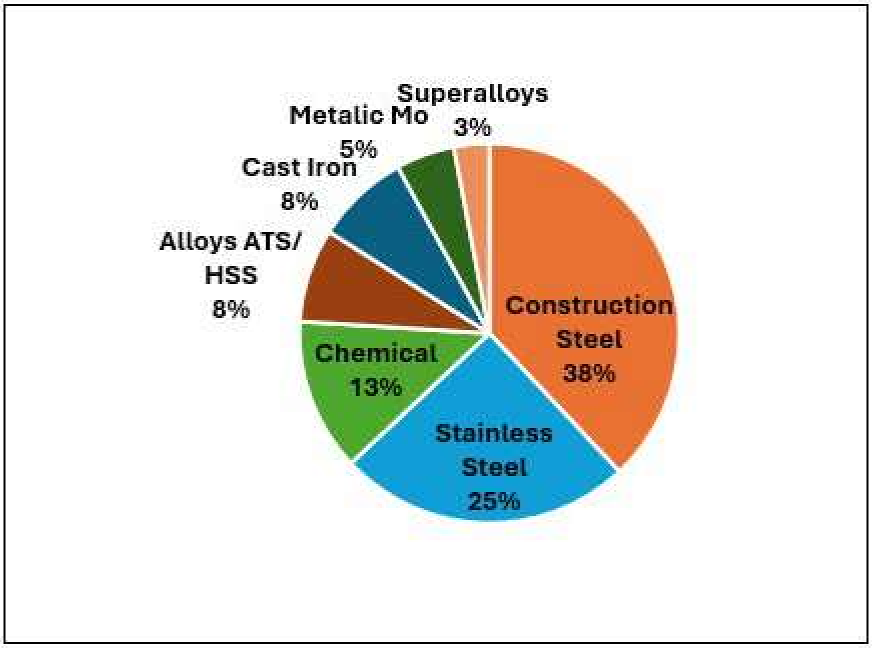
It is also important to highlight other key sectors influencing demand, such as chemical and petrochemical, oil and gas, automotive, and mechanical engineering, which together represent 53% of total demand.

These industries have remained relatively stable since last year, with only minor adjustments. However, the demand for superalloys (containing nickel) has increased by 13% year-over-year, driven primarily by growth in the aerospace and defense sectors.

As illustrated in Figure 16.6, the oil and gas sector accounts for approximately 14% of global consumption. However, due to a slowdown in the sector, some investments have been postponed, resulting in decreased demand for molybdenum from this segment

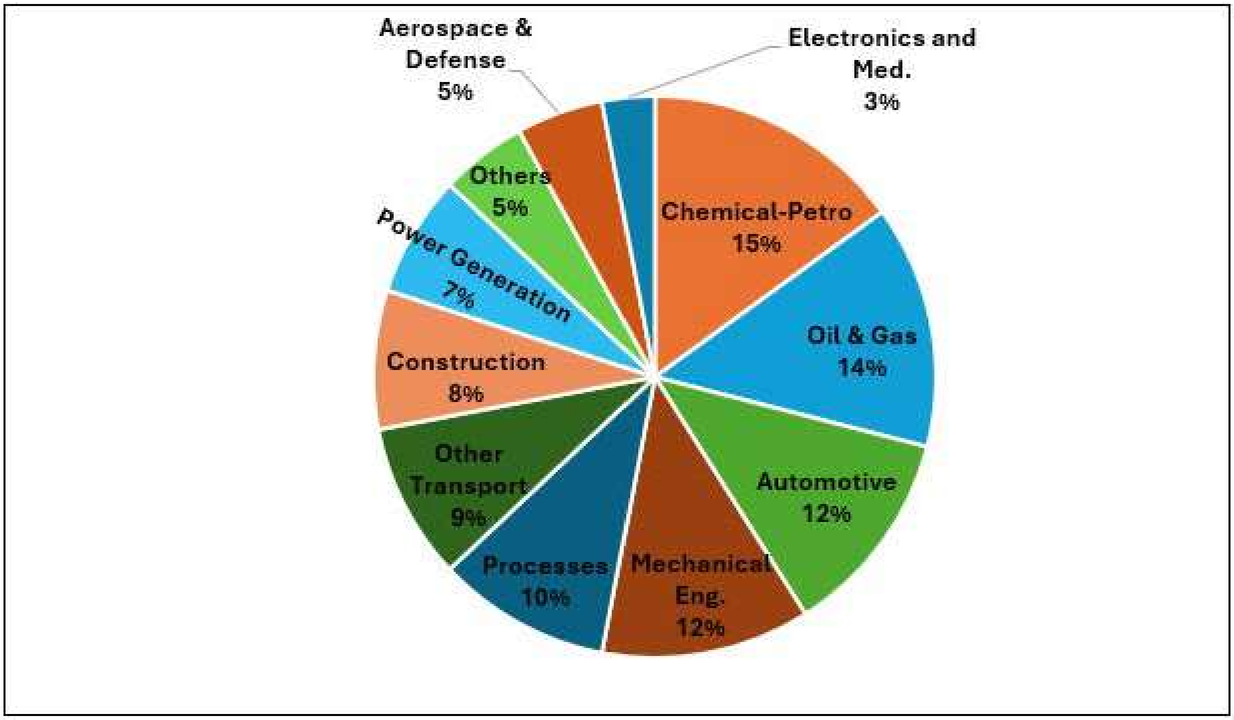
Emerging industries are also expected to indirectly support the molybdenum market. One key example is the hydrogen industry: 316L stainless steel, which contains molybdenum, plays a crucial role in the production, storage, and utilization of hydrogen. This sector is projected to grow significantly as hydrogen becomes a viable solution for decarbonization and a potential substitute for fossil fuels.

Given the anticipated growth in demand across several sectors, global molybdenum demand is forecasted to increase by 3.5% in 2025, contributing to a more balanced market outlook.



Source: SCC

Figure 16.5: Molybdenum Demand – First Use



Source: SCC

Figure 16.6: Molybdenum Demand by Industry

16.2.2 Molybdenum Supply

Global mine supply in 2024, accounting for net yield losses and disruption allowances, is expected to increase by 2.2% year-over-year, driven by a 4.92% recovery in by-product mine production and a 3% rise in primary mine output, particularly in China. Production is also projected to grow in 2025, with a 4.1% year-over-year increase.

Looking further ahead, there is an estimated 140 million pounds (Mlbs) of additional supply expected by 2030, supported by copper projects that aim to close the projected supply-demand gap.

Molybdenum prices will need to remain high to ensure the viability of these projects.

16.2.3 Molybdenum Price

FeMo prices in Europe have risen slightly, on the back of improved demand in the market. Prices were assessed at US$50.95-51.45 /kg, Delivery Duty Paid (DDP), up from the previous assessment of US$50.65-51.15 /kg, DDP.

Molybdenum sellers reported an increase in enquiries, allowing them to negotiate at higher prices. The FeMo price recovery indicates an overall healthier European Moly market, following the long drought in sales that preceded it.

Price increases in Europe this week also mirror recent price increases in China, where offers continue to increase due to higher demand.

Chinese FeMo tender volumes have exceeded 15,000 t as of October 1st, in a fourth successive month of growth, reaching the new highest monthly tender volume year to date, and the highest of all time on an annualized basis.

Most of the restocking activity by steel mills in September was conducted prior to the Mid-Autumn Festival, as tender volumes reached 8,700 t in the first half of the month, prior to a cooling of demand in the second half.

Rising restocking demand and an increase in upstream concentrate supply has resulted in an improvement in profit margins for domestic FeMo smelters, based on feedback from market participants. In September, domestic FeMo production increased by 16% m/m to 18,415 t.

16.3 Commodity Price Used

The following commodity prices were used in this study for estimating Mineral Reserves and for the economic analysis:

- US$3.30/lb copper
- US$1.15/lb zinc
- US$10.00/lb molybdenum

Mineral Resource estimates were conducted at commodity prices 15% higher than those listed above as per instructions from SCC. It is the QP’s opinion that the prices are reasonable and consistent with the market studies and price forecasts provided by SCC in this Section 16.0.

17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

17.1 Environmental Studies

Mining operations began prior to the establishment of environmental study requirements in Mexico so no baseline environmental information was gathered. However, environmental studies have been carried out for more recent permitting efforts for the Regional Environmental Impact Assessment authorization (SOJGA and SEGA, 2017). Although there are no government-designated conservation or protected areas within the operations, Los Pilares de Nacozari is a small community with relevant cultural aspects, such as historical buildings and graveyards. The area is not considered to have a high grade of biodiversity.

The mining operations are located within a rural area except for the community of Nacozari de Garcia. The principal land uses are agriculture and livestock pasture. The Bavispe River, which is located east of the Tailings Storage Facility (TSF), is an important water source for the area, and for commercial livestock operations. The Bavispe River is the main tributary of the Yaqui River, the most important river in Sonora.

The environmental setting summarized below is based primarily on the environmental permitting baseline studies (SOJGA and SEGA, 2017), a draft closure plan (JDS Minera Mexico, 2014) and more recent data provided by SCC personnel regarding environmental permitting, social programs and agreements, with most of the information dated 2022 and 2023. SCC personnel also provided a tour of the SCC-funded community center in Nacozari de Garcia, the nearby communities, and the mining operations.

SCC personnel have stated that no material changes have occurred on matters related to environmental studies, permitting, and plans, negotiations, or agreements with local individuals or groups since the issue of the last TRS report. Due to lack of monitoring data, the QP was not able to verify the statement regarding environmental compliance.

17.1.1 Topography, Climate, and Soils

The mine and La Caridad processing facilities are in a rural area within the northern portion of the Sierra Madre Occidental physiographic province in the Basin and Range sub-province, which is characterized by northwest trending mountain ranges with wide parallel valleys. The nearest town is Nacozari de Garcia.

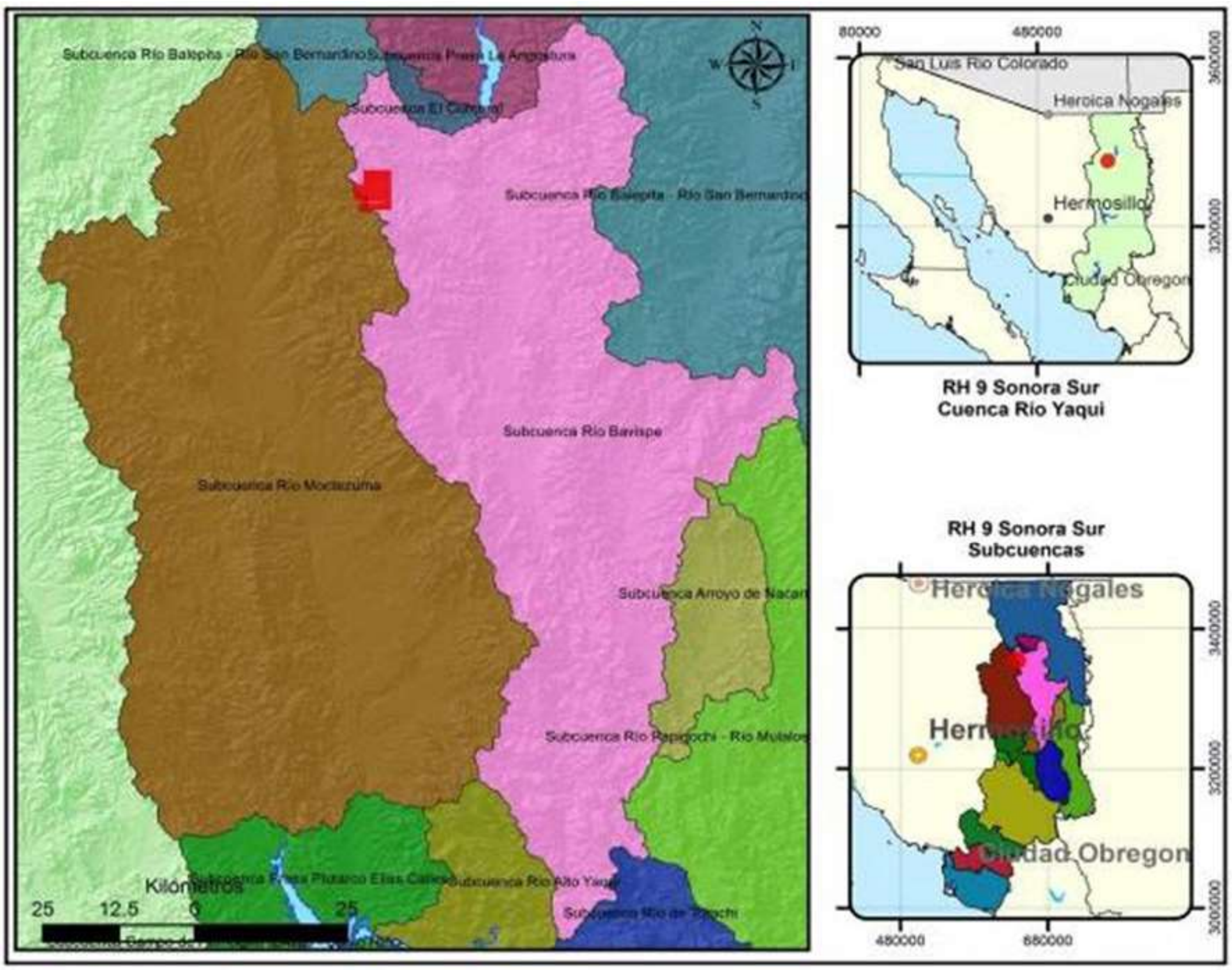
The climate is a semi-dry steppe, characterized with semi-warm summers and cool winters. Rain is scarce all year round. The La Caridad property exhibits variations due to the differences in elevation between the mine camp and the operational areas. Air quality impacts from the mining operations were reported to be widespread, primarily due to equipment emissions and suspended particles from blasting.

The types of soils in the region include Regosol, Lithosol, Phaeozem, Vertisol and Xerosol, which are classifications used by the Food and Agriculture Organization of the United Nations. Most of these regional soils occur as rocks, stones, and gravels. The Phaeozem soils, which form in grasslands and forests, contain organic materials.

Soil salvage depth is variable throughout the Project area as much of the mine site occurs in steep topography with bedrock at the surface, leaving little opportunity for soil salvage for reclamation purposes.

17.1.2 Surface Water Hydrology

La Caridad 's mining operations are in Hydrological Region 9 “Sonora Sur.” The mine and its operations are located in the Río Yaqui hydrological subbasin in Region 9B (Figure 17.1), which is one of the most important river basins in northwestern Mexico. There are no naturally occurring surface water bodies within the mining operations. Surface water managed within the mining operations is a mixture of stormwater, process water and mine water (that is, water recovered from the open pit). The Tailings Storage Facility (TSF No. 7) is about 4 km upstream of the Bavispe River, which is a tributary of the Yaqui River. There is an unnamed stream located in the Ejido Santo Domingo that is used for domestic purposes by the community and was reported to be flowing at 0.2 liters per second (lps).



Source: JDS Minera Mexico, 2014.

Figure 17.1: Rio Yaqui Hydrologic Subbasins

17.1.3 Surface Water Quality

Historic surface water sampling conducted 2003 through 2015 has indicated concentrations of metals that exceeded permissible limits for surface water in samples collected from Arroyo La Francisca and Arroyo

Guadalupe (JDS Minera Mexico, 2014). It is not clear whether these samples were collected in a diversion channel or within the channel that conveys impacted water to the TSF No. 7.

Three water quality samples were included in the geochemical characterization developed by TAAF (2018). These samples were analyzed for major cations and anions and were collected in the Arroyo Bavispe. The samples exhibited high concentrations of salts and total suspended solids, with some results exceeding surface water quality standards.

Two surface water locations (upstream of the Francisca Heap Leach Facility and downstream of TSF No. 7) are sampled twice annually and results are reported to SEMARNAT. The most recent sample results from August 2024 exhibited exceedances of surface water permissible limits in the upstream location of the Francisco Heap Leach Facility, specifically exceedances for total suspended solids, chemical oxygen demand, and acute toxicity. The QP notes that the company does not prepare an internal biannual monitoring report that documents the sampling event, discusses the analytical results, or presents corrective action plans for any issues. Such a report is not required by SEMARNAT.

Surface water runoff from the Santo Domingo and Cachuly waste rock facilities is not sampled because the Company interprets the Mexican regulation (NOM-157) only requires monitoring if the waste facilities are upstream of vulnerable water bodies. In the QP's opinion, the surface water runoff should be sampled routinely to characterize water quality. There is a risk of potential impacts to soils, surface water, and groundwater. The QP also notes that sediments accumulated in sedimentation ponds should also be characterized routinely so that they are managed appropriately.

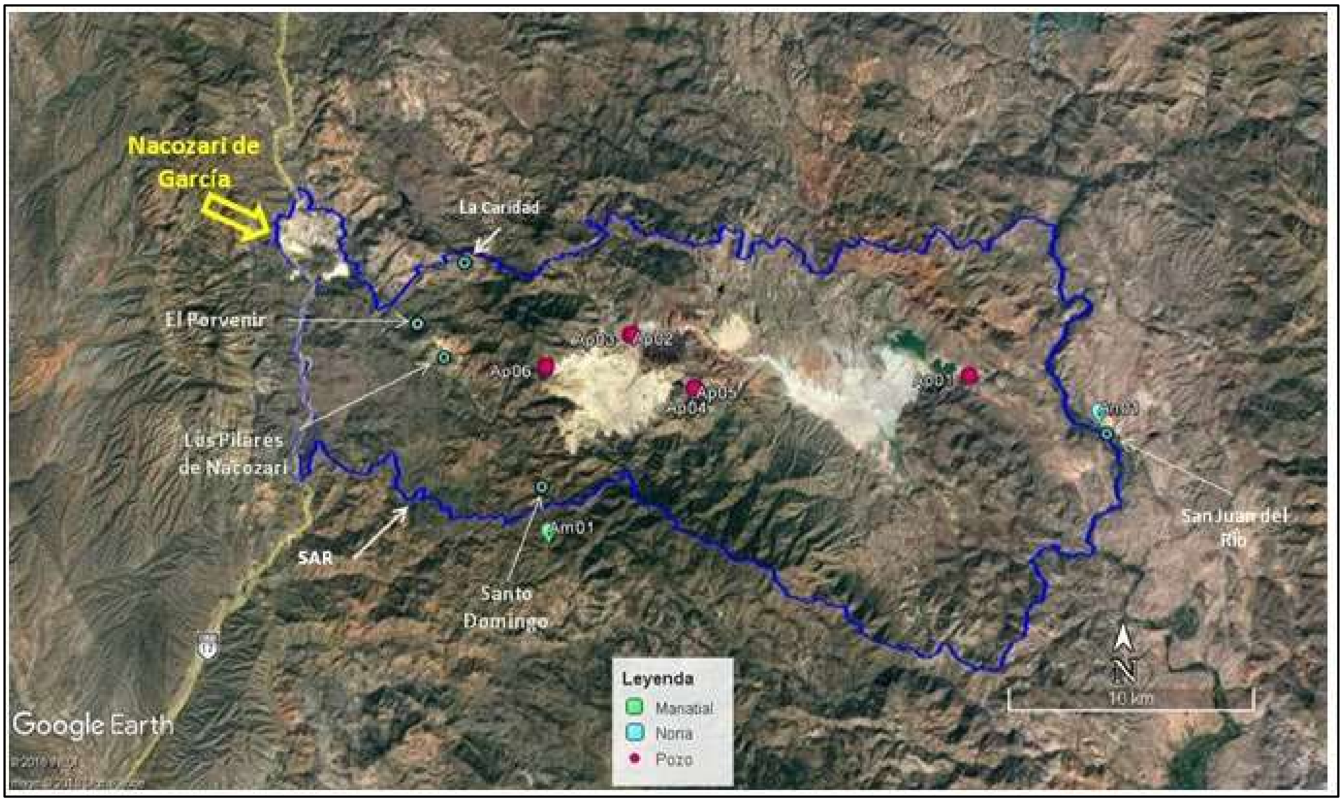
17.1.4 Groundwater Quality

Several groundwater studies have been performed in addition to routine groundwater monitoring conducted at two monitoring wells for compliance reporting to the Mexican Environmental Agency. The hydrogeologic setting is described in Section 7.0.

Monitor wells within the operations include two monitor wells, located downstream of the La Francisca PLS pond, two monitor wells located downstream of the La Guadalupe PLS pond, and one monitor well located downstream of the TSF No. 7. The monitoring wells were indicated to be about 30 m deep.

It is not documented whether the monitoring wells were screened in the deeper volcanic aquifer. The San Juan Well is believed to be about 20-m deep and constructed within the upper alluvial aquifer. The static water levels were reported to be between 3 m to 7 m (Note: no measuring point was provided; this may mean 3 to 7 m bgs or below the well casing. Well locations are shown on Figure 17.2. The groundwater characterization for major cations and anions within the La Caridad complex was carried out by TAAF 2018, via the sampling of five wells, which included four monitor wells within the complex and a well located at the town of San Juan (downstream of the arroyo where the TSF No. 7 is located. The study concluded that, the well downstream of the TSF No. 7 and the well at the Concentrator exhibited contamination; the well at La Francisca PLS Pond was slightly contaminated; the well downstream of the La Guadalupe PLS Pond was highly contaminated and the San Juan Well was not contaminated. Contaminants detected at elevated concentrations included sulfate, pH, and total dissolved solids. There was no information provided to the QP regarding the results of the laboratory analyses for metals.

Groundwater samples are collected twice a year at two wells for compliance reporting. These wells are the "upstream" well for the La Francisca HLF and the "downstream" well of the TSF No. 7. No groundwater contour map has been provided to the QP to indicate groundwater flow directions and to demonstrate that seepage and infiltration from the mining facilities would be detected by the Company's groundwater monitoring system. The QP notes that the Mexican regulation NOM-141 requires an upstream and a downstream well; however, the direction of groundwater flow is three-dimensional and cannot be established with only two points.



Source: TAAF 2018 Note: La Caridad shown on the figure refers to "Colonia Caridad", which is a housing area for the mine workers and their families.

Figure 17.2: Locations of Monitoring Wells

The groundwater sample results did not exceed Mexican surface water permissible limits. The QP notes that Mexican regulations have not established permissible limits for groundwater; it is not uncommon for Mexican mining companies to compare groundwater results to surface water discharge standards (NOM-001) rather than potable drinking water standards (NOM-127). Site personnel indicated that groundwater samples are collected using a bailer without procedures to ensure a representative groundwater sample. Samples were collect by, sent to, and analyzed by a certified laboratory. The QP notes that the laboratory certification is related to sample handling and not sample collection methods. No information was provided regarding a QA/QC program.

17.1.5 Vegetation

The area has multiple vegetation zones due to the diversity of elevations: desert scrub; induced grassland; natural pastureland; live oak (evergreen oak) forest and live oak-pine forest. Desert scrub is present in about 50% of the environmental study area described for the regional permit. None of the species of vegetation identified are protected or endemic.

17.1.6 Fauna

The area is in a transition zone with influences from the Chihuahuan and Sonoran deserts as well as the Sierra Madre Occidental. It is near mountains known as “Sky Islands,” such as Sierras de San Luis, Sierra de Ajo-Buenos Aires-La Purica, Sierra El Tigre, and Sierra La Madera with elevations ranging from 800 masl to 2,200 masl, that are recognized as biological corridors that connect flora and wildlife species between regions. The predominate ecosystems are temperate and dry forests. The most common hunting species are white-tailed (Coues) deer and wild turkey. There are proposed conservation areas along the Bavispe River.

Species present in the area that are in some category of risk are boa constrictor, common black hawk, and rufous-breasted sparrowhawk.

17.1.7 Socio-Economic Conditions

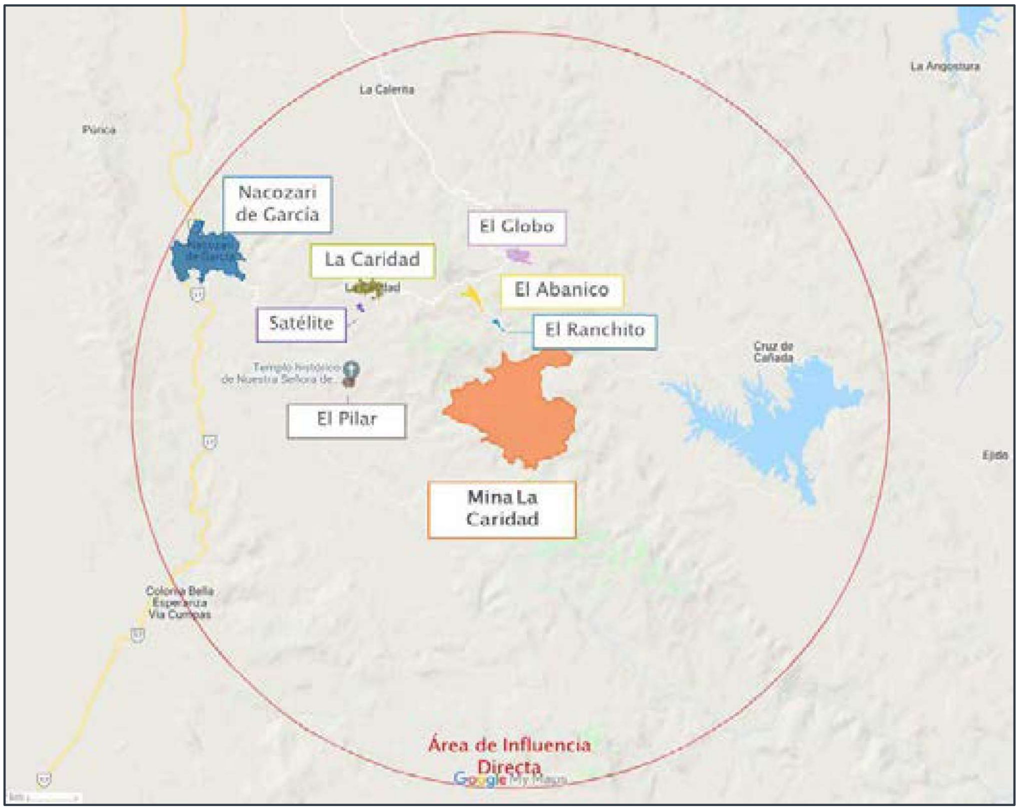
The area of influence of La Caridad covers three municipalities: Nacozari de Garcia, Cumpas and Villa Hidalgo. Based on data available from 2022, these municipalities include 80 rural towns or ranches, including inactive ranches with no inhabitants. Nacozari de Garcia is the municipality capital and has the largest concentration of mine workers and subcontractors. The main economic activities in the area are mining and agriculture/livestock. The municipality of Nacozari has a relatively young population with the average age being about 26 years old, based on federal government statistical data (INEGI 2020 data). Educational institutions range from preschool to colleges (but not university), so students are often sent to other cities for academic reasons. The closest university is the Universidad de la Sierra in the town of Moctezuma. There is a government medical clinic (IMSS) for the region in Nacozari. Based on human development, education, economics, and health, Nacozari is ranked higher than the state and national averages.

The ejidos (agrarian communities that have a legal status) near the mine include Pilares de Nacozari, Nacozari de Garcia, Nacozari Viejo, Bella Esperanza, Santo Domingo, Cruz de Cañada, Juriquipa, San Juan del Rio and Villa Hidalgo.

The communities identified in the area of influence of La Caridad are Nacozari de Garcia (population about 14,359), Colonia Globo, San Juan, Villa Hidalgo, Colonia La Caridad, Ejido Pilares, Colonia Satélite, Colonia Abanico and Rancho El Porvenir. The communities of Nacozari de Garcia, Colonia Globo, and San Juan are the most impacted by the mining operations. Caridad, Satélite, Abanico and El Globo are within the property of La Caridad and provide housing for mine employees and their families. El Rancho El Porvenir was identified in opposition to the mine, and two communities (Villa Hidalgo and San Juan) are in favor. The other communities are either neutral or supportive with conditions. The communities within the area of direct influence are shown in Figure 17.3.

Stakeholders from the neighborhoods of Colonia Centro, Presidentes, Puesta del Sol, Henros, Colosio, La Pilareña, Solidaridad, Lomas Nuevas and El Asilo (higher level of influence), and La Cantera, Gomez Morin and Lomas de Nacozari (lower levels of influence), are located within the environmental area of influence of Mexicana de Cobre. Colonia Centro and Presidentes are the neighborhoods that are most impacted by the mining operations. No opposition to the mine was identified by any of the neighborhoods.

Institutions identified as stakeholders include Ayuntamiento de Nacozari, Protección Civil, OOMAPAS, Cruz Roja, Primaria Jesus Garcia #2, Club de Leones, Sindicato 298, Instituciones educativas, George Papanicolaou (a cancer support association), Centro de Salud, DIF, Bombero, IMSS, and Asociación de Ejidatarios. The Ayuntamiento de Nacozari (town council) was identified as being the most impacted, having the highest level of influence and being in favor of the mine. DIF Bomberos and IMSS were identified as being in opposition to the mine in 2022. Even though these entities were identified as opposed to the mine in 2022, relationships improved in 2023, and the Company indicates that none of the institutions would be considered in opposition at the time of this report.



Source: Grupo Mexico Mineria, January 2022, Diagnostico Social Participativo

Figure 17.3: Area of Direct Influence

As of November 2023, La Caridad had 1,292 direct employees. This number of direct employees was planned to remain the same with the expansion of Bella Union and Los Pilares.

The corporate office of Grupo Mexico has a well-structured procedure for conducting a social diagnosis.

There is a procedure established for grievances. There is an audit process associated with the social programs; and the social plan is organized as an excel workbook that presents the annual budget for the activities under seven specific programs (training for professions, education training, formative workshops, events, sports, direct interactions with interest groups, and reforestation.

The community perceives that there are environmental (in particular water supply), social, economic, health and safety issues in the community. A risk assessment prepared in 2016 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. Of highest importance are issues related to violence, use of the Fondo Minero by federal government agencies rather than going directly to the communities, and social segregation. La Caridad has identified health, environment, unrealistic expectations of the community and anti-mining groups as the largest challenges in their social program.

17.2 Requirements and Plans for Waste and Tailings Disposal

This sub-section contains forward-looking information related to waste and tailings disposal, site monitoring and water management 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 waste disposal volumes increase from historical values and predicted values, that regulatory framework is unchanged during the Study period, and no unforeseen environmental, social or community events disrupt timely approvals.

17.2.1 Hazardous, Regulated, and Special Wastes

Caridad mining operations generate various waste materials, such as waste oil, capacitors, grease, hydrocarbon-contaminated solids, empty containers, spent batteries, and waste solvents. These materials are managed under strict regulations, including the Ley General para la Prevención y Gestión Integral de los Residuos and relevant Normas Mexicanas, such as landfill requirements (NOM-083-SEMARNAT-2003) and waste classifications (NOM-052-SEMARNAT-2005, NOM-053-SEMARNAT-1995, and NOM-054-SEMARNAT-1995).

The mining unit's waste management plan is based on key principles: regulatory compliance, waste minimization, reuse, treatment, and safe disposal. Reuse and recycling are prioritized, ensuring that materials like waste oil and solvents are treated and recovered where possible to reduce environmental impact. For materials that cannot be reused, safe disposal is conducted in authorized facilities, either on-site or through licensed subcontractors. While certain non-hazardous materials (special handling waste) are authorized for disposal in designated waste rock storage facilities, Caridad disposes of these materials off-site through authorized providers for transport and disposal who comply with applicable current regulations. The waste management plan is updated regularly, as seen in the recent October 24, 2024, revision, to incorporate technological advancements and regulatory changes (Grupo México, 2023).

17.2.2 Mining Wastes

The operations generate mining wastes in the form of tailings, waste rock and spent ore. The Mexican environmental agency (SEMARNAT) has published official guidelines for mining project design criteria that apply to the entire mining life cycle and mining wastes generated during the mine life cycle. There are three Mexican environmental regulations that include requirements related to tailings, spent ore and waste rock, as summarized below:

- NOM-141-SEMARNAT-2004. Establishes procedures to characterize tailings, as well as specifications and criteria for tailings dam siting, design, construction, operation, and closure.
- NOM-157-SEMARNAT-2009. Requires characterization of mining wastes and development of a waste management plan.
- NOM-159-SEMARNAT-2011. Establishes criteria for management of barren mineral solutions for copper, defined as wastes from a mineral treated under a leachate process, including a toxicity elimination phase.

Mining wastes include waste rock generated from the La Caridad Pit, Bella Union Pit, Pilares (waste rock existing from historical operations, although the legal responsibility to manage the historical wastes is not clear), and

Santo Domingo WRF; spent ore in the heap leach facilities (La Francisca HLF and Guadalupe HLF); and tailings (the historical TSF and TSF No. 7). La Caridad also produces electrowinning lead anode sludge and degraded organic material as part of the beneficiation process:

- Waste Rock Characterization: The waste rock has been classified as acid-generating. None of the metals results exceeded the NOM-157 permissible limits.
- Spent Ore Characterization: The mineral had been characterized in 2014 as acid-generating and none of the metal concentrations exceeded NOM-157 permissible limits. The heap leach has 1 "upstream" monitor well and 1 "downstream" monitor well. SEMARNAT requested that La Caridad characterize the heap leach facilities in the waste management plan per the criteria of NOM-157-SEMARNAT-2009 (SEMARNAT, 2017). However, La Caridad replied that the mining unit does not consider the leached mineral to be a waste because it is in an active heap leach with 25 years of planned life (La Caridad, 2017).
- Tailings Characterization: The tailings have been classified as acid-generating and none of the metal concentrations exceeded the NOM-157 permissible limits. Tailings characterization and management is discussed further in Section 15.6.
- Other Beneficiation Process Wastes: The electrolytic anode sludge (lead oxide) and degraded organic material has been characterized as corrosive and toxic. It was previously managed as a hazardous waste but has been reclassified as a mining waste. It is including in the mining waste management plan.

17.3 Environmental Monitoring

Mexican laws require mandatory monitoring programs that are implemented under SEMARNAT. La Caridad has developed a detailed monitoring program in response to a requirement in the regional permit granted in 2018. An annual compliance report is required to be submitted to SEMARNAT, and the first report was submitted in July 2020. The environmental monitoring program includes environmental monitoring; environmental education and regulation; flora rescue and relocation; wildlife rescue and relocation; soil conservation and restoration; water quality monitoring; reforestation, restoration and compensation of soils; seismic monitoring of explosions; integrated management of wastes; raptor monitoring; air quality monitoring and a mine closure plan.

17.4 Water Management Plan

Although there are no published surface water or groundwater management plans, reviewed information indicates water for La Caridad is sourced only from surface water and there are no permitted groundwater sources for the mine.

17.4.1 Water Concessions

Most mining regulations in Mexico are issued at the federal level, however several permits are subject to state and local jurisdiction. Environmental permitting in the mining industry in Mexico is mainly administered by the federal government body the SEMARNAT. SEMARNAT is the federal regulatory agency that establishes the minimum standards for environmental compliance. One of SEMARNAT's sub-departments is National Water Commission (CONAGUA), which is responsible for water supply and assessing fees related to wastewater discharges.

Per CONAGUA's concession title 02SON101417/09IBGR06, Mexicana del Cobre S.A. de C.V. can utilize 28,382,400.00 cubic meters of surface water each year for La Caridad activities (at a 900.00 liters per second rate). Surface water uses are divided between industrial uses and public urban uses. The surface water source associated to this concession is La Angostura Dam, which belongs to the Rio Yaqui Basin and the Region Hidrológica (Hydrologic Region) Sonora Sur. Under the same concession title, it is also stated that Mexicana del Cobra S.A. de C.V. has a wastewater discharge permit for a volume 499,685.00 cubic meters per year. The surface water concession and the wastewater discharge permit were granted for 30 years, starting April 29, 1996 (CONAGUA 2006).

17.4.2 Water Supply

The mining operation is supplied with raw water from the La Angostura dam, via 3 pumping stations, fitted with 3 sets of equipment each. In the Mine, water is used for cleaning and sanitation services, cleaning of light and heavy units, fire suppression and as a means of controlling emissions and dust suppression, as it is used for the irrigation of roads, where heavy trucks and light vehicles' travel.

According to concession title 02SON101417/09IBGR06, Mexicana del Cobre S.A. de C.V., does not have groundwater extraction permits (groundwater concessions). Industrial water demands, and public urban water demands for La Caridad are fulfilled through surface water volumes from La Angostura water reservoir.

17.4.3 Water Treatment

In the hydrometallurgy plant there are three wastewater drainage systems (service, rainwater and industrial); however, these are not discharged to national assets, municipal drainage, or other natural water bodies, since, due to the nature of the process, these are fully reintegrated into the processes as a closed circuit.

The discharge of wastewater from the toilets and bathhouses in the workshop area is currently incorporated into the leaching dumps. Wastewater generated from the concentrator plant and the molybdenum plant is diverted to the tailings dam where it is later recovered. Additionally, service wastewaters and other wastewaters of the La Caridad operation are managed through waterproofed septic tanks (biodigestors) whose cleaning product is also diverted to the tailings dam. Therefore, there is no discharge to national receiving bodies and no discharge permits are required (SOJGA 2017).

17.5 Mine Closure

This sub-section contains forward-looking information related to mine closure 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 prevailing economic conditions continue such that unit costs are as estimated in US$ terms, projected labor and equipment productivity levels are appropriate at time of closure and estimated infrastructure and mining facilities are appropriate at the time of closure.

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 SEMARNAT in 2019 (Grupo Mexico Minera Mexico, 2019). The authorization from SEMARNAT included the following closure activities:

- A fence will be installed around the open pit to prevent access, and a berm will be constructed to prevent surface water from entering the pit. The need for pit lake management will be evaluated in a future water quality prediction.

- The HLFs will be closed by removing the irrigation lines as much as practical, and then rinsing. The slopes will be reconfigured to a 3H:1V slope and waste rock used as fill. A cover of soil will be placed at about 1 m thickness and revegetated. A rock armor of 0.3 m will be placed on the slopes.
- The PLS from the HLFs will continue to be collected until no longer economically viable. The remaining solution in the HLF will be recirculated for 3 years to increase evaporation, then the PLS ponds will be drained and filled. The feasibility of passive evaporation of the remaining PLS will need additional evaluation.
- The waste rock slopes will be reconfigured to 5H:1V, covered with 0.2 m of growth media and then revegetated. The configuration will include surface water controls.
- The TSF has a design slope of 3H:1V for closure. The TSF will be reconfigured with surface water controls. If the tailings geochemistry allows, then no cover except growth media will be placed. The tailings solution will be allowed to drain and/or evaporate passively. The feasibility of this closure method requires more evaluation.
- The process facilities will be dismantled. The activities will include decontamination of equipment, removal of hazardous materials, dismantling and disposition of infrastructure, removal of up to 2 m of soil, reconfiguration of the area for drainage, placement of 0.3 m of soil with growth media and installation of surface water controls. The waste ponds will be closed in place by placing a low permeability cover, soil cover and growth media, and then revegetation. Foundations will be left in place and soil with growth media placed over the foundations.
- Services will be dismantled. Piping will be drained, closed and buried or removed. Electrical lines will be removed. The electrical substation will be removed
- Transportation corridors used for concentration will be evaluated for soil contamination. Asphalt will be removed from roads and the road base will be scarified and revegetated. It is assumed that only roads between the plant and other key facilities will be removed.

The closure cost was estimated at about US$103 million with a contingency of +/- 35%, which does not include post-closure care and maintenance. This closure cost is based on the asset retirement obligation (that is, closure of existing operations and disturbances) and does not consider the LOM closure cost obligations associated with the current mine plan.

A separate reclamation project for TSF No. 1, which is a Moctezuma Company historical tailings impoundment in Nacozari and is not part of the current La Caridad operations, was about 90% complete as of mid-2024.

17.6 Permitting

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.

17.6.1 Permitting Requirements in Mexico

Most mining regulations in Mexico are promulgated at the federal level, though several permits are subject to state and local jurisdiction. Guidance for the federal environmental requirements, including conservation of soils, water quality, flora and fauna, noise emissions, air quality, and hazardous waste management, derives primarily from the Ley General del Equilibrio Ecológico y la Protección al Ambiente (General Law of Ecological Balance and Environmental Protection) ("LGEEPA"), the Ley General para la Prevención y Gestión Integral de los Residuos and the Ley de Aguas Nacionales (General Law for the Prevention and Comprehensive Management of Waste and the National Water Law) ("LAN"). Article 28 of the LGEEPA specifies that SEMARNAT must issue prior approval to parties intending to develop a mine and mineral processing plant.

On June 7, 2013, the Federal Law of Environmental Liability (Ley Federal de Responsabilidad Ambiental) was enacted. According to this law, any person or entity that by its action or omission, directly or indirectly, causes damage to the environment will be liable and obliged to repair the damage, or to pay compensation if the repair is not possible. This liability is in addition to penalties imposed under any other judicial, administrative, or criminal proceeding.

On May 8, 2023, the Mexican Government enacted a decree amending several provisions of the Mining Law, the Law on National Waters, the Law on Ecological Equilibrium and Environmental Protection and the General Law for the Prevention and Integral Management of Waste, which became effective on May 9, 2023 (the "Decree"). This Decree amends the Mexican mining and water laws, including: (i) the duration of the mining concession titles, (ii) the process to obtain new mining concessions (through a public tender), (iii) imposing conditions on water use and availability for the mining concessions, (iv) the elimination of "free land and first applicant" scheme; (v) new social and environmental requirements in order to obtain and keep mining concessions, (vi) the authorization by the Mexican Ministry of Economy of any mining concession's transfer, (vii) new penalties and cancellation of mining concessions grounds due to non-compliance with the applicable laws, (vii) the automatic dismissal of any application for new concessions, and (viii) new financial instruments or collateral that should be provided to guarantee the preventive, mitigation and compensation plans resulting from the social impact assessments, among other amendments.

Over 500 constitutional challenges, known as "amparos", have been filed against the new law. The challenges include arguments that the reforms violate due process and impose burdensome requirements on mining companies, and there was a lack of debate and transparency in the Senate during the passage of the reforms. Additional implementing regulations associated with the mining law reforms were expected to be issued within 180 days (that is, early November 2023); however, none have been issued as of October 2024. The long-term impact and potential adjustments from the mining law reforms are not known.

Environmental permitting in the mining industry in Mexico is mainly administered by the federal government body SEMARNAT, the federal regulatory agency that establishes the minimum standards for environmental compliance. SEMARNAT has four sub-departments:

- National Institute of Ecology (INE), which is responsible for planning, research, and development; conservation of national protection areas; and promulgation of environmental standards and regulations.
- Federal Prosecutor for the Protection of the Environment (PROFEPA), which is responsible for enforcement, public participation, and environmental education.

- National Water Commission (CONAGUA), which is responsible for water supply and assessing fees related to wastewater discharges.
- Federal delegation and state agencies of SEMARNAT.

SEMARANT has set regulatory standards for air emissions, discharges, biodiversity, noise, mining wastes, tailings, hazardous wastes, and soils. The regulatory standards apply to construction and operation activities. There is no separate regulation for mine closure, but there are aspects of closure and post-closure requirements in some of the regulations.

There are three main SEMARNAT permits required prior to construction and development of a mining project. An Environmental Impact Statement (the Manifestación de Impacto Ambiental, or “MIA,” for its initials in Spanish) is the document that must be filed with SEMARNAT for its evaluation and, if applicable, further approval by SEMARNAT through the issuance of an Environmental Impact Authorization. In addition, the Ley General de Desarrollo Forestal Sustentable indicates that authorizations must be granted by SEMARNAT to use land for industrial purposes. An application for change in land use (or Cambio de Uso de Suelo Forestal) must be accompanied by a technical study that supports the environmental permit application (Estudio Técnico Justificativo, or ETJ). In cases requiring a change in forestry land use, a Land Use Environmental Impact Assessment is also required. Mining projects also need to include a risk analysis for the use of regulated substances (Análisis de Riesgo) and an accident prevention program, which are reviewed and authorized by an inter-ministerial governmental body.

Once the MIA is submitted for review, the government publishes an announcement to allow for public review of the proposed project. If the government receives requests, a formal public hearing will be conducted. The government also requires that the mining company publish announcements in the local papers to provide an opportunity for public comment. Government review, comment and approval of the environmental permit documents are estimated to be completed in three to six months; however, it should be noted that permitting can be delayed with requests for additional information or for political reasons, such as strong local opposition to the project.

After the main project approval and receipt of the Change of Land Use authorization, there are several permits that need to be acquired from various federal agencies. The LAN provides authority to the Comisión Nacional del Agua (CONAGUA), an agency within SEMARNAT, to issue water extraction and discharge concessions, and specifies certain requirements to be met by applicants. Key required permits include an archaeological release letter from the National Institute of Anthropology and History (INAH); an explosives permit from the Ministry of Defense (SEDENA) before construction begins; and a water discharge and usage permit must be granted by the CONAGUA.

A project-specific environmental license (LAU), which states the operational conditions and requirements to be met, is issued by SEMARNAT when the agency has approved the project operations. A construction permit is required from the local municipality. Other local permits regarding special wastes and urban solids handling, as well as municipal safety and operating authorizations may also be required. The permitting process requires that the mining company has acquired the necessary surface titles, rights, and agreements for the land to be used for the project.

17.6.2 Status of Environmental Permits

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. This authorization is valid for 60 years from the date of issuance, September 10th, 2018.

The regional permit requires that La Caridad exhibit a financial guarantee to comply with the conditions of the permit for the current phase of the project. La Caridad prepared an estimate for the costs of the measures and programs to be carried out during the first year of project implementation, which was the continued operation and expansion, and eventual closure of the current operations. The project considers the open pits of La Caridad, Bella Union and Pilares, the waste rock facilities Santo Domingo, Cachuly and Poniente, the HLFs La Francisca and Guadalupe, and the TSF No. 7. The total estimated cost was about MX$66,000,000 (about US$3M), which was paid in 2019 via a finance policy with Chubb Fianzas Monterrey.

No additional permits are planned or needed at the effective date of this report.

17.7 Plans, Negotiations, or Agreements with Local Individuals, or Groups

This sub-section contains forward-looking information related to plans, negotiations or agreements with local individuals or groups 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 that regulatory framework is unchanged for Study period; no unforeseen environmental, social or community events disrupt timely approvals.

Grupo Mexico has established a “Casa Grande” community center in Nacozari. Grupo Mexico has established social programs (for example, cultural events, sports activities, materials, health programs, safety, and education). In 2019, for example, there were 97 activities carried out related to health, safety, education, culture, sports and environment; and 16 concerts performed. The budget for the cultural projects in 2023 and 2024 was about US$175,000.

Planned projects for 2024 were for the treatment and reuse of Nacozari wastewater. The treated water would be used for La Caridad and for irrigation of parks. There is a plan to support water issues in the municipality of Nacozari with a budget of about US$1.9M.

There is a signed agreement that established the community committee, which has eleven members (2 from Grupo Mexico and seven from the community). The responsibility of the committee is to review and approve projects proposed for the benefit of the community.

17.8 Descriptions of Any Commitments to Ensure Local Procurement and Hiring

Grupo Mexico presents data regarded distributed economic value in its annual sustainability report, however the data is not broken into geographical or operations areas. The 2023 sustainability report indicated that 45.4% of the workforce is local, and that about 66% of the high-level management are local residents. In addition, 9% of the workforce is female.

Locally, Forjando Futuro (Grupo Mexico’s social development program) has held workshops focusing on providing financial education to small, local businesses and adult education classes. Workshops held at the Casa Grande community center have included practical skills for crafts, cooking, weaving, and trade techniques.

17.9 Qualified Person's Opinion

17.9.1 Baseline Studies

The historic surface water sample results and the results from the Santo Domingo Pond and infiltration indicate that within the mining operations there is impacted surface water, and it is not clear what volume of infiltration reaches groundwater. The QP notes that there is a lack of a site-wide water balance.

The occurrence and extent of groundwater at the site is not well understood. Even though the operations rely on a surface water source for the freshwater source, additional characterization of the groundwater system is needed. Additional monitor wells are needed to characterize water quality throughout the site, and the site would benefit from the installation of vibrating wire piezometers to monitor groundwater levels and flow directions.

The groundwater sampling technique does not meet generally accepted industry standards and there is a lack of a QA/QC program. Groundwater samples are being analyzed for total metals and not dissolved metals, and that results are compared to surface water discharge standards, and not the drinking water standard, which is more comparable to groundwater standards established by other countries. Total metals analysis determines the sum of the dissolved and suspended concentrations. Industry standard is to determine dissolved metals in groundwater, ideally as part of a dual analysis for total and dissolved constituents. Mexico has not established groundwater standards, and it is not unusual for groundwater results to be compared to surface water discharge standards; however, the generally accepted industry standard would be to analyze for dissolved metals and to compare the results to the more stringent drinking water standards.

The groundwater results from the TAAF study indicate that infiltration of poor-quality water from mining facilities, such as the unlined heap leach facilities and TSF No. 7, may have occurred, even though the 2020 analytical results for the two monitor wells used for compliance reporting had no exceedances of surface water permissible limits. There may also be problems with the construction of some wells, such as the TSF No. 7 well, because fecal coliform has been detected, which indicates a lack of wellhead protection (that is, migration of contaminants from the surface to groundwater via the well).

17.9.2 Mining Wastes

The waste rock analytical results did not identify the lithology or lithologies associated with the waste rock samples. The study is not representative of the waste rock generated currently, nor of waste rock that will be generated as part of the mine plan and must be updated to meet generally accepted industry standards.

The QP notes that the intent of the NOM-157-SEMARNAT-2009 (and industry standards) was to classify the leached ore, whether the heap is still operating or not. From a processing perspective, the leach process continues indefinitely, and that was not the intention of the NOM-157-SEMARNAT-2009, which was to understand potential environmental conditions/impacts.

The QP notes that kinetic testing of either the mineral or leached ore is needed to support the closure planning and closure costs. In addition, "upstream" and "downstream" groundwater flows cannot be determined with only two monitor wells, because a minimum of three points are needed to determine three-dimensional groundwater flow (direction and gradient).

The QP notes that only one sample was analyzed, and this would not be considered to be a representative sampling based on industry standard, nor is the analysis considered to be sufficient, because of the lack of kinetic testing.

The QP considers that the environmental monitoring plan is generally complete but lacking in some respects. It is lacking the demonstration that the surface water sampling and groundwater sampling is based on representative samples and sufficient sampling. The discussion of hazardous wastes considers the spent ore but does not include the waste rock and tailings, which were also classified as hazardous. There is no demonstration of how these hazardous wastes are managed to prevent environmental impacts.

17.9.3 Mine Closure

A detailed LOM closure plan and associated costs should be prepared.

17.9.4 Environmental Permitting

There is a potential risk related to the permit approval because the current political administration in Mexico has made anti-mining statements and is not following the permitting timeframes.

18.0 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 unit costs are as estimated in US$ terms, projected labor and equipment productivity levels and that contingency is sufficient to account for changes in material factors or assumptions.

18.1 Capital Costs

Capital cost estimates were assembled based primarily on information provided by LC and also sourced from WSP's own equipment database. All capital costs are expressed in Q4 2024 U.S. dollars.

The capital cost estimate consists of costs for LC's open pit processing facilities, mining equipment, capitalized maintenance and components, and infrastructure. The mine equipment capital also includes requirements for the Pilares mining operations. The reporting of capital expenses for the Project is grouped in the following manner:

- New mine equipment
- Maintenance and Projects

Major repairs, maintenance, and re-builds were factored into the annual maintenance and component cost estimates provided by SCC. SCC advised WSP that the maintenance and component costs are estimated for board approval every year. WSP calculated an escalated trailing tree-year average of the last three full years of operations, removing outliers and one-time expenditures and the same estimate is used as a forecast for future years. WSP utilized the annual estimated maintenance and component costs provided by SCC for 2021, 2022, 2023, escalated it to Q4 2024 U.S. dollars, and projected it as being generally representative for the life-of-mine being considered in this Study, since SCC had indicated that they use it for their 10-year internal budget forecasts.

It is of the opinion of the QP the capital expenditures have been estimated to a PFS level and its attendant accuracy and contingency levels. A summary of the capital costs can be seen in Table 18.1. The Effective date of the Mineral Reserve estimate is December 31, 2024.

Table 18.1: Total LOM Capital Costs

Parameters	Units	Total LOM
New Mine Equipment	US$ M	1,803
Maintenance & Projects	US$ M	2,678
Total Capital Expenses	**US$ M**	**4,480**

Note: Totals may not add due to rounding.

SCC provided WSP with the basis of rates of depreciation for the different Project capital items at LC. A straight-line depreciation rate was used in all cases. A depreciation life of twelve years was used for the new mining equipment, components, and maintenance capital.

18.1.1 New Mine Equipment Capital Cost Estimate

Costs for primary mining equipment were provided by SCC. This included mining equipment, such as Komatsu P&H 2800-XPB, CAT 793D, Komatsu WA1200, Epiroc Pit Viper 351, CAT 24M, Komatsu 475A, and Komatsu WD600-3. Prices for support equipment such as service trucks and mobile cranes were sourced from WSP's internal equipment pricing database.

In this Study, primary mining equipment is considered to be electric rope-shovels, front end loaders, trucks, and drills. Support equipment is considered to be all the remaining mine equipment, including, but not limited to track dozers, wheel dozers, motor graders, water trucks, field service truck, tire service truck, fuel and lube truck, light pickup trucks, rough terrain crane, and light plants. All mining equipment is assumed to be purchased, and no leasing is considered. A summary of the new mine equipment capital costs is provided below as Table 18.2.

Table 18.2: Total New Equipment Capital Costs

Parameters	Units	Total LOM
Primary Mine Equipment	US$ M	1,280
Support Mine Equipment	US$ M	523
Total New Mine Equipment	**US$ M**	**1,803**

Note: Totals may not add due to rounding.

Capital expenses for replacement of primary mine equipment were estimated based on a specific replacement schedule for each type of primary mine equipment. The replacement schedule was calculated based on the expected productivity of each equipment, the produced volumes required by the Life of Mine Plan (LOMP), the expected operated hours and the expected maximum life hours of each equipment. With this schedule WSP calculated the cost of new equipment purchases and replacement of existing equipment.

To manage periods of high capital expenditure, WSP staggered the replacement schedule for major equipment. For example, during years where the replacement schedule requires a significant number of haul trucks to be replaced, the purchases are distributed over a two-to-three-year -year period. For example, WSP spread the purchases of haul trucks a two-to-three-year period, to ensure that no more than approximately 15 trucks are acquired in a single year. This strategy smooths expenditures and ensures feasibility for equipment manufacturers such as Komatsu and Caterpillar to meet delivery schedules. This approach was discussed and clarified with SCC.

The site replaces support equipment as needed. WSP used the reported historical utilization and replacement rate of support equipment to determine the long-term replacement schedule of this equipment, together with the ratio of the support equipment to primary equipment based on a standard open pit operation of similar size.

18.1.2 Maintenance and Projects Capital Cost Estimate

WSP utilized the estimated component capital estimates based on the escalated trailing tree-year average of the previous three full years of operations (2021-2023) removing outliers and one-time expenditures. This estimate was projected to future years as being generally representative for the life of mine and agreed to with SCC.

The maintenance and projects capital costs provided by SCC is categorized as follows:

- Mine components include all major components used in the rebuild of mine equipment, such as motor wheels, diesel motors, shovel tracks, engines, among others
- SX-EW Plant
- Processing facilities for Concentrator
- Other

A summary of the maintenance capital costs is provided below as Table 18.3.

Table 18.3: Total Maintenance Capital Costs

Parameters	Units	Total LOM
Mine	US$ M	1,435
SXEW Plant	US$ M	183
Concentrator	US$ M	912
Other	US$ M	148
Total Maintenance & Projects	**US$ M**	**2,678**

Note: Totals may not add due to rounding.

18.2 Operating Costs

SCC provided WSP with detailed historical unit operating costs for 2021, 2022, and 2023. These costs included details on various aggregated cost centers such as mining, concentrators, molybdenum plant, leaching and SX-EW, transport and smelting and refining. Each aggregated cost center had numerous subitems. For example, the aggregated mining cost center included average three-year historical estimates for:

- Individual costs for ore, leach and waste mining excluding haul
- Individual haulage costs for ore, leach, and waste

Each component item in turn was tied to detailed three-year cost items listed in component tabs of a detailed spreadsheet that was provided by SCC. Each aggregate costs center and its component items were reviewed by WSP as part of the data verification and as a basis for establishing unit costs to be used in the discounted cashflow model.

Subsequent to the review, the historical unit costs were escalated to Q4 2024 US$ values using the Consumer Price Index (Índice Nacional de Precios al Consumidor. Economic Date from Mexico Institue of Statistics – INEGI) as shown in Table 18.4.

Table 18.4: Consumer Price Index INEGI

Parameters	2021	2022	2023	2024
Consumer Price Index	117.3	126.5	132.4	136.3

Source: Índice Nacional de Precios al Consumidor data from Mexico Institue of Statistics (INEGI) .

At the time of developing the report only data until November 2024 was available; data until December 2024 was extrapolated following the trend for the previous 11 months of the year to the month of December.

WSP used inflation data from INEGI instead of Federal Reserve Economic Data (FRED) for this report since FRED stopped updating its Mexico Consumer Price Index in mid-2024. The inflation data from INEGI is similar to that that previously provided by FRED, with differences being the source and the baseline year each index uses. The incremental ratios appear to remain unchanged, ensuring consistency in the escalation methodology compared to previous studies

All costs reported are on a dry metric tonne basis unless otherwise stated.

18.2.1 Mining

Examples of select operating costs escalated to 2024 dollars can be seen in Table 18.5. Actual values listed for 2021, 2022, and 2023 designate the historical unit operating costs received from SCC. The average escalated costs were estimated by averaging the estimated escalated costs for each year. An example of the estimate of the escalated drilling and blasting cost is shown below:

*D&B = ($0.16/t x (136.3 / 117.3) + $0.25/t x (136.3 / 126.5) + $0.29/t x (136.3 / 132.4)) / 3 = US**$0.23/t***

Table 18.5: Mining Unit Costs

Cost Parameters	Units	Actual 2021	Actual 2022	Actual 2023	Average Escalated Q4 2024
Drilling and Blasting	$/t-mined	$0.16	$0.25	$0.29	$0.23
Loading	$/t-mined	$0.14	$0.21	$0.20	$0.18
Support	$/t-mined	$0.08	$0.11	$0.11	$0.10
General Operating Expenses	$/t-mined	$0.09	$0.11	$0.15	$0.11
Indirect Costs	$/t-mined	$0.16	$0.19	$0.21	$0.19
Total Unit Mining Costs (excl. haulage)	**$/t-mined**	**$0.63**	**$0.87**	**$0.96**	**$0.81**

Note: Totals may not add due to rounding.

US$0.81/t-mined represents base mining cost to which haulage costs are added as described below.

Haulage cost calculation was based on the haulage plan from the LOMP calculated using HxGN Dynamic Haulage module to obtain the truck hours per period and material type, and the average cost per hour of operating the trucks in the fleet.

Haulage profiles were generated for each phase and integrated with the surface haul roads to each destination. Haul profiles were also traced on each destination block within the destination. Speed bin curves for loaded and empty trucks were used to calculate the cycle times from each dig block to every possible dump block. A maximum speed of 23 kph was imposed on material routed from Pilares. A rolling resistance of 2% was used for all the haul roads. Additional times for loading, spot, dump and queue were added to the cycle times.

These cycle times were used in conjunction with the truck payload, operating efficiencies and mechanical availabilities to calculate the truck hours and truck unit requirements for every period. This coupled with the operating cost of the truck per hour is used to calculate the net haulage cost for each scheduled period.

Haul trucks are assumed to have a 90% mechanical availability throughout their operational life, WSP notes this assumption has been coupled with a high truck maintenance cost.

The resulting mining costs inclusive of haulage for the first three years are shown in Table 18.6.

Table 18.6: Estimated Mining Unit Cost Inclusive of Haulage

Cost Parameters	Units	2025	2026	2027	LOM Average
La Caridad:					
Ore	$/t-mined	$1.26	$1.24	$1.29	$1.43
ROM Leach Ore	$/t-mined	$1.37	$1.45	$1.55	$1.47
Waste Fresh Rock	$/t-mined	$1.25	$1.28	$1.35	$1.50
Waste Fill Material	$/t-mined	$1.02	N/A*	N/A*	$1.24
Average Unit Mining Cost La Caridad	**$/t-mined**	**$1.27**	**$1.28**	**$1.37**	**$1.46**
Pilares:					
Ore	$/t-mined	$2.10	$2.16	$2.20	$2.28
ROM Leach Ore	$/t-mined	$1.87	$1.94	$1.99	$1.94
Waste Fresh Rock	$/t-mined	$1.21	$1.21	$1.09	$1.21
Average Unit Mining Cost Pilares	**$/t-mined**	**$1.34**	**$1.35**	**$1.29**	**$1.39**
Average Unit Mining Cost	**$/t-mined**	**$1.29**	**$1.30**	**$1.36**	**$1.46**

Note: * No waste fill material is being mined in years 2026 and 2027.

18.2.2 Processing

The methodology for escalating the mining costs described above was applied to escalate the processing costs. Table 18.7 shows the unit costs for year 2021, 2022, and 2023 with the associated average escalated costs. Table 18.7 also shows costs associated with the concentrator, leach, SX-EW, and molybdenum plant.

Table 18.7: Processing Unit Cost

Cost Parameters	Units	Actual 2021	Actual 2022	Actual 2023	Average Escalated Q4 2024
Copper Processing Plant	$/t-milled	$4.34	$4.98	$5.39	**$4.88**
Moly Stream (Copper Plant)	$/t-milled	$0.34	$0.40	$0.39	**$0.38**
Leach Processing	$/t-leached	$0.23	$0.43	$0.69	**$0.44**
SX-EW Processing	$/lb Cu	$0.25	$0.37	$0.39	**$0.33**

18.3 Other Costs

18.3.1 General and Administrative

A corporate General and Administrative overhead assessment of US$0.57/t-milled was utilized based on information provided by SCC. The General and Administrative cost was escalated based on the past 3-year average.

18.3.2 Concentrate Transport Costs

The concentrate is shipped to La Caridad's smelter located approximately 20 km from the beneficiation plant at a cost of about US$4.33 per tonne of concentrate.

18.3.3 Closure Cost

SCC provided their current estimate of ARO accruals and remaining balance for La Caridad which is estimated to be about US$295 million and US$108 million, respectively, as of December 31, 2024. SCC indicated that it sets aside an annual accretion amount of US$7 million annual to account for the remaining liability as well as for concurrent activities such as:

- Demolition
- Dismantling
- Soil Remediation
- Reforestation and Restoration

The total accretion amount over the 58-year mine life is estimated to be about US$417 million. WSP has assumed that these accretion costs will be applied to funding the remaining ARO balance as well as expended on concurrent closure activities as listed above.

A final closure cost of US$178 M was used in the final year of the mine life based on prior estimates provided by SCC and applied to earlier TRSs. This represents about US$0.034/t of material mined. WSP acknowledges that there will likely be continued closure and remediation activities for many years past the life of the mine that are currently unknown and have not been included as part of the discounted cash flow developed for this Study. It should be noted there is no specific mine closure regulation established in Mexico, and there are no requirements to create a closure accrual fund.

18.4 Risks Associated with Estimation Methods

All operating and capital costs were either provided by SCC based on actual past performance and customary internal SCC budget review and approvals process or sources from WSP's database. Therefore, it is the QP's opinion that as an operating mine with well-established internal budgeting approvals processes, the capital expenses and operating costs utilized are at a PFS level with its attendant accuracy and contingency levels.

Maintenance and projects costs are adjusted annually and based on operational experience and not deemed to be a significant risk. Global supply chain dynamics could have some impact to the costs of the various components but is deemed to be low risk at this time. As described above, WSP used an average of the escalated values of 2021, 2022 and 2023. Data provided for 2024 was not used because the year was not completed at the time of developing this study. Inflation of the past few years has resulted in certain costs to increase during the three-year trailing average period where operating costs have been estimated.

As with all mining projects, inflation and currency exchange rates should be evaluated at all times to determine continued risks and impacts to the La Caridad Project.

19.0 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.

WSP utilized operating costs and capital expense estimates provided by LC. LC is a well-established operation with a long history and the staff well experienced in the planning and cost estimation for all aspects of the operation. Therefore, since estimates are based on actual operating experience, it is WSP's opinion that the costs provided and considered for this study meets the requirements of accuracy and contingency required of a pre-feasibility level study for the economics required to support Mineral Reserve estimates.

All costs, prices, and monetary values are in Q4 2024 US$.

19.1 Principal Assumptions

- Sales price: The commodities prices considered are as shown below:
  - Copper: US$3.30/lb
  - Moly: US$10.00/lb

Commodity price assumptions were provided by SCC, and it is the QP's opinion that the prices are reasonable and consistent with the market studies provided by SCC as discussed in Section 16.0.

- Production: The schedule for LC with 58 years of mine life entails about:
  - 1,965 Mt of copper mill ore
  - 384 Mt of copper leached ore
  - 2,780 Mt of waste
  - 5,128 Mt of total material mined
- FX Rate: all historical costs were provided by SCC on a US$ basis. The discounted cashflow basis is on a US$ basis.
- Inflation: consumer price index estimates were applied to historical costs provided for 2021 through 2023 to estimate operating costs on a Q4 2024 basis
- Discount Rate: A discount rate of 10% was used to account for cost of capital and project risk.

19.2 Discounted Cash Flow

The cashflow for production from the La Caridad Mine is shown in Table 19.1.

Table 19.1: Discounted Cash Flow

DESCRIPTION	Units	Total / Avg	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
MATERIAL MOVEMENT														
Copper Mill Ore	Tonnes M	**1,965**	34	34	34	34	34	34	34	34	34	34	34	34
Leach	Tonnes M	**384**	12	11	18	11	17	6	7	12	8	6	4	3
Waste	Tonnes M	**2,780**	48	50	43	50	44	59	58	49	53	55	59	58
Total Mined	Tonnes M	**5,128**	95	95	95	95	95	99	99	95	95	95	98	95
REVENUE														
Copper	US$ M	**$ 27,062**	$ 649	$ 677	$ 738	$ 664	$ 712	$ 602	$ 605	$ 666	$ 575	$ 490	$ 538	$ 629
Molybdenum	US$ M	**$ 13,938**	$ 193	$ 209	$ 209	$ 209	$ 209	$ 295	$ 209	$ 209	$ 209	$ 209	$ 209	$ 262
TOTAL REVENUE	**US$ M**	**$ 41,001**	**$ 842**	**$ 886**	**$ 947**	**$ 873**	**$ 921**	**$ 897**	**$ 814**	**$ 875**	**$ 784**	**$ 699**	**$ 747**	**$ 890**
COSTS														
Mining	US$ M	**$ 7,487**	$ 122	$ 124	$ 129	$ 129	$ 136	$ 138	$ 138	$ 136	$ 135	$ 135	$ 136	$ 135
Concentrator and Plants	US$ M	**$ 10,323**	$ 179	$ 179	$ 178	$ 179	$ 179	$ 180	$ 178	$ 178	$ 179	$ 180	$ 180	$ 180
Smelting/TCRC, Freight and Sales	US$ M	**$ 5,470**	$ 108	$ 113	$ 122	$ 111	$ 119	$ 118	$ 103	$ 112	$ 101	$ 91	$ 95	$ 113
G&A and Home Office Cost	US$ M	**$ 1,117**	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19
On-going and final accretion	US$ M	**$ 417**	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7
Total Operating Cost	**US$ M**	**$ 24,814**	**$ 435**	**$ 442**	**$ 456**	**$ 446**	**$ 460**	**$ 462**	**$ 446**	**$ 452**	**$ 441**	**$ 432**	**$ 438**	**$ 455**
EBITDA	**US$ M**	**$ 16,186**	**$ 407**	**$ 445**	**$ 491**	**$ 427**	**$ 461**	**$ 435**	**$ 368**	**$ 423**	**$ 343**	**$ 266**	**$ 309**	**$ 436**
Depreciation	US$ M	**$ 4,189**	$ 6	$ 11	$ 18	$ 22	$ 31	$ 35	$ 40	$ 44	$ 55	$ 59	$ 67	$ 71
Royalty (Derechos de Mineria)	US$ M	**$ 1,214**	$ 31	$ 33	$ 37	$ 32	$ 35	$ 33	$ 28	$ 32	$ 26	$ 20	$ 23	$ 33
PTU Employee Sharing	US$ M	**$ 1,078**	37	40	44	37	40	37	30	35	26	19	22	33
Pre Tax Gross Income	US$ M	**$ 9,705**	$ 333	$ 360	$ 392	$ 336	$ 356	$ 330	$ 270	$ 312	$ 236	$ 168	$ 197	$ 299
Minimum tax	US$ M	**$ 364**	9	10	11	10	10	10	8	10	8	6	7	10
Income tax	US$ M	**$ 2,912**	100	108	118	101	107	99	81	94	71	51	59	90
Total Taxes	US$ M	**$ 2,547**	$ 91	$ 98	$ 107	$ 91	$ 96	$ 89	$ 73	$ 84	$ 63	$ 45	$ 52	$ 80
Operating Income	US$ M	**$ 7,158**	$ 242	$ 262	$ 286	$ 245	$ 259	$ 241	$ 197	$ 228	$ 173	$ 124	$ 145	$ 219
Add back Depreciation	US$ M	**$ 4,189**	$ 6	$ 11	$ 18	$ 22	$ 31	$ 35	$ 40	$ 44	$ 55	$ 59	$ 67	$ 71
Add back Accretion	US$ M	**$ 417**	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7
NET INCOME AFTER TAXES	US$ M	**$ 11,763**	$ 256	$ 280	$ 311	$ 274	$ 297	$ 284	$ 245	$ 280	$ 235	$ 190	$ 219	$ 297
Total Capex	US$ M	**$ 4,480**	$ 71	$ 61	$ 84	$ 52	$ 100	$ 56	$ 56	$ 52	$ 123	$ 56	$ 94	$ 52
Closure	US$ M	**$ 178**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Working Capital	US$ M	**$ (16)**	$ (1)	$ 3	$ 4	$ (5)	$ 3	$ (2)	$ (5)	$ 4	$ (6)	$ (6)	$ 3	$ 10
Pre Tax Cash Flow	US$ M	**$ 11,544**	$ 337	$ 380	$ 403	$ 381	$ 358	$ 381	$ 317	$ 367	$ 226	$ 217	$ 212	$ 374
After Tax Cash Flow	**US$ M**	**$ 7,120**	**$ 186**	**$ 216**	**$ 224**	**$ 227**	**$ 194**	**$ 230**	**$ 194**	**$ 223**	**$ 118**	**$ 141**	**$ 122**	**$ 235**
Pre-Tax NPV	US$ M	**$ 3,378**												
After-Tax NPV	US$ M	**$ 1,992**												
Discount Rate	10%													

DESCRIPTION	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046 - 2050	2051 - 2055	2056 - 2060	2061 - 2065	2066 - 2070	2071 - 2075	2076 - 2082
MATERIAL MOVEMENT																
Copper Mill Ore	34	34	34	34	34	34	34	34	34	171	171	171	171	171	171	224
Leach	1	4	16	13	11	4	5	1	2	30	62	52	46	13	9	1
Waste	55	52	45	48	50	57	56	60	59	275	239	249	254	267	241	145
Total Mined	90	90	95	95	95	95	95	95	95	476	471	472	471	451	421	369
REVENUE																
Copper	$ 635	$ 635	$ 703	$ 598	$ 515	$ 442	$ 399	$ 384	$ 395	$ 2,220	$ 2,122	$ 2,194	$ 2,144	$ 1,858	$ 2,159	$ 2,115
Molybdenum	$ 670	$ 262	$ 209	$ 209	$ 209	$ 209	$ 209	$ 199	$ 209	$ 1,045	$ 1,045	$ 1,045	$ 1,249	$ 1,183	$ 1,098	$ 2,260
TOTAL REVENUE	**$ 1,305**	**$ 896**	**$ 912**	**$ 807**	**$ 723**	**$ 651**	**$ 608**	**$ 583**	**$ 604**	**$ 3,265**	**$ 3,167**	**$ 3,239**	**$ 3,393**	**$ 3,041**	**$ 3,256**	**$ 4,374**
COSTS																
Mining	$ 133	$ 133	$ 135	$ 135	$ 137	$ 137	$ 137	$ 137	$ 136	$ 668	$ 677	$ 679	$ 679	$ 656	$ 637	$ 676
Concentrator and Plants	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 898	$ 898	$ 898	$ 897	$ 897	$ 898	$ 1,176
Smelting/TCRC, Freight and Sales	$ 185	$ 115	$ 118	$ 105	$ 96	$ 85	$ 81	$ 76	$ 79	$ 431	$ 434	$ 438	$ 466	$ 410	$ 424	$ 621
G&A and Home Office Cost	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 19	$ 97	$ 97	$ 97	$ 97	$ 97	$ 97	$ 127
On-going and final accretion	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 36	$ 36	$ 36	$ 36	$ 36	$ 36	$ 50
Total Operating Cost	**$ 525**	**$ 453**	**$ 459**	**$ 447**	**$ 439**	**$ 428**	**$ 424**	**$ 419**	**$ 422**	**$ 2,130**	**$ 2,142**	**$ 2,147**	**$ 2,175**	**$ 2,096**	**$ 2,092**	**$ 2,650**
EBITDA	**$ 780**	**$ 443**	**$ 453**	**$ 360**	**$ 284**	**$ 223**	**$ 184**	**$ 164**	**$ 183**	**$ 1,136**	**$ 1,025**	**$ 1,092**	**$ 1,218**	**$ 945**	**$ 1,165**	**$ 1,724**
Depreciation	$ 70	$ 70	$ 67	$ 67	$ 70	$ 70	$ 70	$ 75	$ 76	$ 437	$ 480	$ 418	$ 360	$ 426	$ 458	$ 514
Royalty (Derechos de Mineria)	$ 59	$ 33	$ 34	$ 27	$ 21	$ 17	$ 14	$ 12	$ 14	$ 85	$ 77	$ 82	$ 91	$ 71	$ 87	$ 129
PTU Employee Sharing	65	34	35	27	19	14	10	8	9	61	47	59	77	45	62	108
Pre Tax Gross Income	$ 586	$ 306	$ 317	$ 239	$ 173	$ 123	$ 90	$ 69	$ 83	$ 552	$ 421	$ 533	$ 690	$ 404	$ 557	$ 973
Minimum tax	18	10	10	8	6	5	4	4	4	26	23	25	27	21	26	39
Income tax	176	92	95	72	52	37	27	21	25	166	126	160	207	121	167	292
Total Taxes	$ 158	$ 82	$ 85	$ 64	$ 46	$ 32	$ 23	$ 17	$ 21	$ 140	$ 103	$ 135	$ 179	$ 100	$ 141	$ 253
Operating Income	$ 428	$ 224	$ 232	$ 175	$ 128	$ 91	$ 67	$ 52	$ 62	$ 412	$ 318	$ 398	$ 510	$ 304	$ 416	$ 720
Add back Depreciation	$ 70	$ 70	$ 67	$ 67	$ 70	$ 70	$ 70	$ 75	$ 76	$ 437	$ 480	$ 418	$ 360	$ 426	$ 458	$ 514
Add back Accretion	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7	$ 36	$ 36	$ 36	$ 36	$ 36	$ 36	$ 50
NET INCOME AFTER TAXES	$ 505	$ 301	$ 306	$ 250	$ 205	$ 168	$ 144	$ 134	$ 146	$ 885	$ 834	$ 851	$ 906	$ 766	$ 910	$ 1,284
Total Capex	$ 56	$ 56	$ 56	$ 52	$ 134	$ 56	$ 56	$ 112	$ 140	$ 521	$ 392	$ 342	$ 419	$ 520	$ 356	$ 357
Closure	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 178
Working Capital	$ 27	$ (27)	$ 1	$ (8)	$ (6)	$ (5)	$ (3)	$ (2)	$ 2	$ 1	$ (1)	$ 5	$ (1)	$ (4)	$ (3)	$ 7
Pre Tax Cash Flow	$ 697	$ 414	$ 397	$ 316	$ 156	$ 172	$ 131	$ 53	$ 42	$ 613	$ 634	$ 745	$ 799	$ 430	$ 812	$ 1,182
After Tax Cash Flow	**$ 422**	**$ 272**	**$ 250**	**$ 206**	**$ 77**	**$ 117**	**$ 91**	**$ 24**	**$ 5**	**$ 362**	**$ 442**	**$ 504**	**$ 488**	**$ 250**	**$ 558**	**$ 741**

Note: Costs are rounded to the nearest million US$. Rounding may result in apparent summation differences.

As shown in Table 19.1 the following parameters were estimated:

- Total Revenue: The total sales revenue of US$41.0 B includes Copper and Molybdenum sales.
- Total Operating Cost: Total operating cost is estimated to be US$24.8 B.
- Accretion: An annual ARO accretion expense of about US$7 M was provided by SCC.
- EBITDA: The EBITDA is estimated to be US$16.2 B
- A royalty of 7.5% was applied (Derechos de Mineria)
- An employee profit sharing tax (PTU) was estimated at 10% of EBITDA less depreciation and royalty
- Tax rate of 30% on pre-tax gross income less 30% of the royalty
- Reclamation and Closure: Estimated to be about US$178 M. The current life is limited due to constrained TSF capacity.
- Capital Expenditures: The total LOM capital expenditures are estimated to be about US$4.5 B.
- Net Change in Working Capital: The working capital is calculated by using total annual days, accounts receivable (30 days), accounts payable (45 days), and inventory (10 days). It is assumed that the remaining working capital is recovered in the final year which makes the sum of all calculated working capital equal to zero.
- A discount rate of 10% was utilized for the to determine NPV. The QP deems this to be a reasonable discount rate to apply for this Study.
- After-tax Cash Flow: The cashflow is calculated by subtracting all operating, taxes, capital costs, and ARO outlays from the total revenue
- Net Present Value: The after tax NPV is US$2.0 B at a discount rate of 10%.

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.

19.3 Sensitivity Analysis

The sensitivity analysis was carried out by independently varying the commodity prices, operating cost, and capital cost. The results of this analysis are illustrated in Figure 19.1, with detailed numerical outputs presented in the sensitivity matrix in Table 19.2.

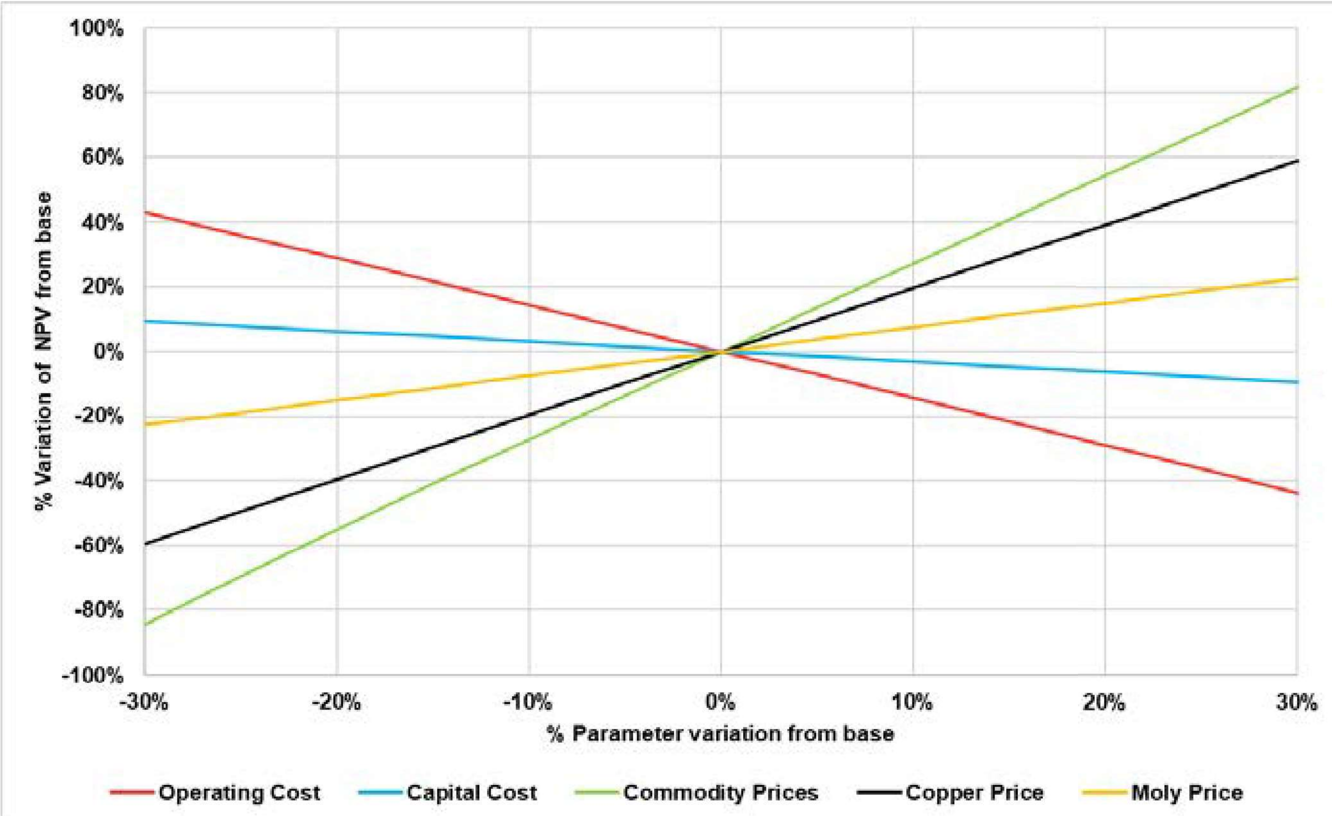


Figure 19.1: Sensitivity Analysis Graph

Table 19.2: Sensitivity Analysis

After Tax NPV Sensitivity	-30%	-25%	-20%	-15%	-10%	-5%	0%	5%	10%	15%	20%	25%	30%
Operating Cost	2,851	2,708	2,564	2,421	2,278	2,135	**1,992**	1,848	1,705	1,562	1,418	1,272	1,120
Capital Cost	2,178	2,147	2,116	2,085	2,054	2,023	**1,992**	1,960	1,929	1,898	1,867	1,836	1,805
Commodity Prices*	313	608	896	1,178	1,450	1,721	**1,992**	2,262	2,533	2,804	3,075	3,346	3,617
Copper Price	807	1,011	1,209	1,405	1,600	1,796	**1,992**	2,187	2,383	2,578	2,774	2,970	3,165
Molybdenum Price	1,540	1,615	1,690	1,766	1,841	1,916	**1,992**	2,067	2,142	2,217	2,293	2,368	2,443

Note: * Commodity prices includes the variation of the prices for copper and molybdenum simultaneously.

Figure 19.1 highlights that the project’s NPV is most sensitive to operating costs and commodity prices, particularly copper. A 30% increase in the copper price, from the base assumption of US$3.30/lb, which reflects the 1-year moving average copper price of US$4.29/lb, results in a 59% increase in NPV to US$3.2 B. Conversely, a 30% increase in operating costs reduces the NPV to approximately US$1.1 B. These results emphasize the significant influence of copper pricing and, to a lesser extent, operational efficiency on the project’s economics.

The molybdenum price exhibits limited impact on the NPV. As shown in both Figure 19.1 and Table 19.2, variations in these parameters produce minimal fluctuations, underscoring their comparatively smaller contribution to revenue in the context of the overall project economics.

The sensitivity to capital cost is notably less pronounced, which aligns with expectations for a mature project where a large portion of the necessary infrastructure is already in place.

In summary, the sensitivity analysis confirms that copper price remains the dominant factor affecting project economics. WSP believes that the commodity price assumptions used in this study include a reasonable margin of safety compared to market prices observed over the past few years.

20.0 ADJACENT PROPERTIES

There is no information used in this TRS that has been sourced from adjacent properties. The mineralization models for these deposits are limited to the La Caridad and Pilares mining permits.

21.0 OTHER RELEVANT DATA AND INFORMATION

It is the opinion of the QPs that all material information has been stated in the above sections of this TRS.

22.0 INTERPRETATION AND CONCLUSIONS

This section contains forward-looking information related to Mineral Resources and Mineral Reserves. 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 forth in this sub-section including: geological and grade interpretations and controls and assumptions and forecasts associated with establishing the prospects for economic extraction; grade continuity analysis and assumptions; Mineral Resource model tonnes and grade and mine design parameters; 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; mining strategy and production rates; expected mine life and mining unit dimensions; prevailing economic conditions, commodity markets and prices over the LOM period; regulatory framework is unchanged during the Study period and no unforeseen environmental, social or community events disrupt timely approvals; estimated capital and operating costs; and project schedule and approvals timing with availability of funding.

22.1 Mineral Resources

The La Caridad geology team understands how lithology and mineral zones interact to control copper mineralization. This knowledge guides their exploration, modeling, and estimation processes effectively.

Exploration data collection methods and results were well documented for recent exploration campaigns, but not for all the historical campaigns. The exploration data collection methods followed industry standard practices that were in place at the time of the various exploration campaigns.

The geological interpretation and modeling methodology is appropriate for the style of mineralization and data available for La Caridad. The modeling methodology followed current industry standard practices, and the lithology and mineral zone and interpolation of the grade parameters was guided by sound geological interpretation and detailed geological, statistical, and geostatistical analysis and interpretation of the validated geological data.

The classification of Mineral Resources into confidence classes Measured, Indicated and Inferred was based on the confidence related to drill hole density, geological understanding, continuity of mineralization relative to the style of mineralization, and data quality. A combination of drill hole density and the estimation pass used to estimate the grade of the block was used as a guide for outlining classification regions.

The impact of geological uncertainty and risk has been evaluated across various key stages of the data collection, modeling and estimation process. A high-level summary of the assessment of geological uncertainty is as follows:

Measured Mineral Resources are considered to have a low geological uncertainty across the main elements evaluated. The extensive infill drilling completed since the previous model, as well as the reanalysis of historical drill holes, and the improvements in the new geological model, have improved the reliability of the supporting drilling information and the geological model.

Indicated Mineral Resources are considered to have a medium geological uncertainty across most items. As discussed, there is a lack of historical QA/QC program, as well as some uncertainty of collar positions, and little information on survey and deviation data for the historical drilling. This is not seen as a risk to the global estimate of Mineral Resources for La Caridad but could have local short-range impact on future mining operations if not addressed via infill/production drilling and so forth.

Inferred Mineral Resources are considered to have a mix of low to moderate degree of geological uncertainty across all elements evaluated. As with the low-moderate risks identified in the Indicated Mineral Resource category above. Geological uncertainty in the Inferred Mineral Resource category can likely be reduced via future infill and production drilling.

As La Caridad is an operation with almost 100 years of operational experience and data, the QP does not see any issues that require further work relating to relevant technical and economic factors that are likely to influence the prospect of economic extraction.

22.2 Environmental, Permitting and Social

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 that is valid for 60 years. A land use permit was authorized in 2022 for the Pilares Project, which includes restricted historic cultural conservation areas within the Eljido Pilares. No additional permits are planned or needed at the effective date of this report.

The operations generate mining wastes in the form of tailings, waste rock, spent ore, electrolytic anode sludge, and degraded organic material 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. The mining wastes characterization of tailings, waste rock, electrolytic anode sludge and degraded organic material was carried out per the Mexican environmental regulations, which do not consider characterization based on long-term environmental impacts. The Company did not characterize the spent ore per the current Mexican environmental regulation for mining waste because the leached mineral was not considered a waste by the Company.

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. These baseline studies were presented to the Mexican environmental agency (Secretaria de Media 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.

The current mining waste management information provided to the QP does not demonstrate that long-term environmental impacts are prevented. Specific environmental concerns include the following

- Historical surface water sampling has indicated concentrations of metals that exceeded permissible limits for surface water quality in samples collected from Arroyo La Francisca, Arroyo Bavispe and Arroyo Guadalupe, and surface water at the Santo Domingo waste rock facility. The surface water sampling program does not consider all drainages nor potential runoff and seepage from mining waste facilities.
- Several groundwater studies have been carried out; plus, routine groundwater monitoring is conducted at two monitoring wells for compliance reporting to the Mexican environmental agency. A groundwater study indicated that the well downstream of the TSF No. 7 and the well at the Concentrator exhibited contamination; the well at La Francisca PLS pond was slightly contaminated; the well downstream of the La Guadalupe PLS pond was highly contaminated and the San Juan well (village along the Bavispe River) was not contaminated. Recent groundwater samples were collected at two wells for compliance reporting (the “upstream” well for La

Francisca HLF and the “downstream” well of the TSF No. 7) reported exceedances of Mexican surface water permissible limits in the upstream well.

- There is an assumption that the unlined waste facilities are constructed over impermeable geologic formations and that no infiltration from the facilities reaches groundwater. Impacted water is conveyed to the TSF No. 7 in open channels that are not lined. Insufficient information was provided to the QP to demonstrate that the assumption has been proven.
- At the Pilares open pit, sedimentation ponds were under construction, thus runoff from the waste rock facilities may not have been captured, and infiltration from the waste rock facilities was not shown to be monitored or managed.
- The two wells designated as “upstream” and “downstream” refer to surface water drainage upstream and downstream locations, as opposed to upgradient and downgradient groundwater flow directions. Two wells are inadequate to calculate the 3-dimensional gradient of groundwater flow, plus the groundwater flow direction may change throughout a large area of complex geology. The number of wells used for characterization of the groundwater conditions is inadequate.
- The hydrogeologic setting has not been adequately characterized. There is inadequate understanding of groundwater flow and gradient, and the monitoring well network is insufficient to characterize groundwater conditions throughout the site. The groundwater monitoring program does not include monitoring of groundwater occurrence and preparation of groundwater contour maps.
- The groundwater monitoring program does not include quality assurance/quality control samples.
- Long-term environmental impacts from the operations have not been assessed. Geochemical studies of the mining wastes have not been based on kinetic testing of representative samples and no predictive models have been developed to understand long-term water quality.
- Social license has been historically challenging for the operations, but Company personnel have reported that the perception of the stakeholders regarding the Company has improved. The highest priority concern of the community has been related to water.
- 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. No information was provided to the QP regarding studies that support the closure methodologies, and no conceptual engineering designs were provided. The current closure cost estimate does not meet the SK-1300 requirement for a closure plan and cost estimate.

22.3 Mineral Processing

22.3.1 Concentrator

The main challenge to sustain the production of copper is the diminishing grade of the ore from the open pit. As planned by Mexicana de Cobre, the grade may be improved by including higher grade ore from the Pilares mine.

22.3.2 Leaching-Solvent Extraction and Electrowinning

The main challenge to maintain the current level of production is the low solubility index (S.I.) of the leach ore that reportedly will be approximately 22.8%. The addition of ore from the Bella Union and Pilares satellite mines in the future with a high S.I. may help.

As indicated by the low S.I., La Caridad pit is well into the primary sulfides zone. Reportedly, La Caridad has improved the ferric-bacterial leaching process by growing their own bacteria strains to improve copper extraction. It is recommended that La Caridad review the experiences of large copper mining operations in Arizona that have developed and commercially applied techniques to enhance copper recovery in ROM dump leaching.

22.4 Mineral Reserves

The TSF Study provided indicated that there was approximately 2.26 Bt Mill Tonnage of capacity which gives approximately 65 years assuming an annual production of 35 mtpy of mill feed. A RF 0.7 pit shell was selected for the combined mine plan for La Caridad and Pilares, to limit the estimated tailings from the mill to the currently estimated TSF capacity. The LOM schedule is 58 years (1.96 Bt Mill Tonnage, targeting 34.5 mtpy ROM mill feed) and allowed for the designed pit at Pilares and La Caridad to be mined entirely. Any reduction to the TSF capacity will result in a reduction of Mineral Reserves.

WSP used a projected December 31, 2024, topography provided by La Caridad for this Study.

Mineral Reserves are reported effective December 31, 2024. The Qualified Person for the estimate is Mr. Mathew Oommen, Ph.D, MAusIMM. Mineral Reserves are reported as the 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%). Inferred Mineral Resources within the pit design were considered waste for the Mineral Reserve estimate. For this Mineral Reserve estimate, Measured Mineral Resources inside the ultimate pit were converted to Proven Mineral Reserves and Indicated Mineral Resources inside the ultimate pit were converted to Probable Mineral Reserve.

The Mineral Reserves include approximately 1.96 Mt of mill feed with a Cu grade of 0.224% total Cu for 4,411 Kt of contained Cu with the point of reference being the mill. An additional 384 Mt of Mineral Reserves is estimated as Leachable ROM Ore with the point of reference being delivery to the leach pads with a Cu grade of 0.173%. Total material mined is estimated to be 5.1 Bt, resulting in a waste to ore (mill ore + leach material) ratio of 1.18 (tonnes/tonnes).

The La Caridad mine economic analysis showed the Project has a $NPV_{10\%}$ of US$2.0 B. The sensitivity analysis shows the Project is most sensitive to copper selling price.

23.0 RECOMMENDATIONS

23.1 Mineral Resources

WSP provides the following recommendations:

- Lithological, alteration and mineralization information available in the paper copies of the drill hole logs should be revisited and all pertinent geological data be recorded electronically in a secure database.
- Maintain original and/or digitized records of collar surveys, geological, and geochemical data in a secure acQuire database.
- Maintain a drill core photo library for all drilling campaigns going forward.
- Construct updated procedures that describe in sufficient detail the activities of capture, administration, and backup of the data.
- Analysis and testing of samples should be completed by a reputable, and preferably ISO-accredited laboratory, qualified for the particular element or material to be analyzed or tested. All analytical or other test results should be supported by duly signed certificates or reports issued by the laboratory or testing facility and should be accompanied by a statement of the methods used.
- Where assay values for Zn, Fe, or other elements of interest are reported as above detection limit by the analytical lab, they must be re-assayed with another method with a higher detection limit.
- Continue with the samples (pulps) re-analysis campaign with an appropriate QA/QC program to improve the confidence on historical drilling campaigns.
- Continue with the infill drilling campaigns to improve the Mineral Resource categorization, focusing on areas lacking CuCN samples.
- Core recovery and RQD data should continue to be recorded for all drill holes and recorded in the geological database.
- Complete a review of the topography surface to verify the soundness of the existing data and establish a baseline surface for reconciliation and drill hole collar coordinate elevation.
- Mined out surfaces must represent the lowest elevation of mining activity and must not include backfill or dumped material for accurate reconciliation.
- If possible, conduct a review of historic drill hole collar coordinates to verify correct position where discrepancies between datasets exist.
- If possible, complete a survey of drill hole collars to verify inconsistencies with respect to topography.

23.2 Environmental, Permitting and Social

- The historical surface water sample results and the results from the Santo Domingo Pond and infiltration indicate that within the mining operations, there is impacted surface water, and it is not clear what volume of infiltration reaches groundwater. The source of impacted water should be assessed, and a corrective action plan developed.
- A detailed site-wide water balance should be developed.

- The geochemistry study of the mining wastes is incomplete and does not meet industry standards. A comprehensive geochemistry study should be carried out and results used as part of an assessment of whether environmental impacts have been managed. The leached material on the heap leach or from column testing should be characterized as mining waste, even if the heap leach is active.
- The operations must demonstrate that the TSF, waste rock facilities, and heap leach facilities designs manage possible long-term environmental impacts. The demonstration should include an expanded sampling program, kinetic testing results, infiltration models, hydrogeologic flow modeling and geochemical transport modeling. The geochemistry study should be based on industry-accepted guidance, such as the GARD Guide (Global Acid Rock Drainage Guide) developed by the International Network for Acid Prevention (INAP).
- The hydrogeologic setting has not been adequately characterized and monitored to assess potential environmental impacts. The groundwater monitoring program needs to be expanded to assess groundwater occurrence and quality throughout the mining operations. Additional wells are needed, and aquifer characterization is needed. Groundwater level contour maps should be generated after each sampling round. The groundwater sampling technique does not meet generally accepted industry standards and there is a lack of a QA/QC program. The groundwater quality program needs to improve with a comprehensive written plan and procedures to document that the plan is followed.
- The social program is well managed, and the stakeholder perception of the Company has improved. The social program should continue to update its social diagnostic frequently and include aspects of the mine life cycle in the discussions with stakeholder.
- A detailed LOM closure plan and cost obligation should be prepared, using generally accepted industry standards. It is recommended that the Company develop an internal closure guidance that refers to international guidance.
- It is recommended that the Company consider including hiring or subcontracting experienced hydrogeologists, geochemists, and closure specialists.

23.3 Geotechnical

Geotechnical characterization for pit slope design should progress such that the geotechnical model is developed to a sufficiently high degree of confidence that it remains predictive of slope performance experience at the site. The geotechnical model is composed of four component models: geological, geomechanical (intact rock strength and discontinuity shear strength), structural (major structure and rock fabric), and hydrogeological. Target levels of data confidence for each component model should range from 50% to 75% by the feasibility level and should approach 75% to 80% during operations. Based on review of available data, the geomechanical model (particularly with respect to the RQD/RMR model), the structural model, and the hydrogeological model requires additional work to improve data confidence levels. A summary of recommendations for additional geotechnical characterization is provided below:

- Additional geotechnical drilling is required in the expanded areas of the Mineral Reserve ultimate pit shell which are beyond the design sector limits.
- Targeted geotechnical drilling to investigate the low-RQD zones indicated by CNI (2019) and to improve the limits of high confidence geotechnical data. CNI has noted that the limits of high confidence geotechnical data (e.g., RQD data) is concentrated in the central regions of La Caridad and the Bella Union pits. Inclined

geotechnical drillholes should be oriented such that they intercept pit highwalls in the lower one-third of the wall and extend behind the wall until the depth reaches the ultimate pit floor elevation. These data can also be collected from exploration core holes that are logged for geotechnical data.

- The geology and alteration models should be updated as new data become available from exploration/development drilling campaigns and mapping of new exposures.
- A continuous effort should be made to collect, interpret, and analyze geotechnical data as benches are developed in the La Caridad and Bella Union pits. Cell mapping and geologic mapping should be performed along new pit benches. Pit mapping will improve confidence in the structural model by:
  - Updating projections of faults, contacts, and areas of low rock-mass strength for analysis of slope stability.
  - Confirm fracture characteristics.
  - Detect any potential stability problems in a timely manner.
- Periodic bench face angle surveys should be conducted along benches to evaluate the success in achieving the bench geometries and inter-ramp angle recommendations.
- Targeted airlift and recovery testing and packer testing in primary lithological units in the geological model, installation of piezometers along the final pit wall to define the groundwater table and its fluctuations.
- 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.

In WSP's opinion, the geotechnical model is not adequately characterized for Pilares. Additional geotechnical programs will be necessary to further define the 3D geological model and map the location of major structure as well as the mined-out voids and backfill areas.

- New geotechnical drill holes should be used to collect oriented core data to complete structural characterization, define structural domains, and to improve the geomechanical database with additional laboratory testing. These drill holes should be oriented such that they intercept pit highwalls in the lower one-third of the wall and extend behind the wall until the depth reaches the ultimate pit floor elevation
- Additional assessment of the interaction between the open pit and underground workings should be completed following updates to the geotechnical model.
- Targeted airlift and recovery testing and packer testing in primary lithological units in the geological model, installation of piezometers along the final pit wall to define the groundwater table and its fluctuations.

23.4 Mineral Processing

- Investigate production levels at Pilares to optimize overall recovery
- Investigate metallurgical response of Pilares ore:
  - Copper recovery via flotation
  - Leach feed solubility

  - Copper extraction via dump leaching
- Investigate improvements to the ferric-bacterial leaching process.
- Research improvements for ROM dump leaching techniques
- Investigate metallurgical response of Bella Union ore.

23.5 Tailings Storage Facility

General recommendations include:

- In WSP's opinion, the CIEPS 2022 Study does not fully address certain technical requirements necessary to improve confidence in the design capacity estimates for TSF No. 7. Therefore, these items should be addressed in future studies.
- Implement the governance of tailings management for all Grupo Mexico TSFs. Governance of tailings management comprises organizational structures, processes, procedures, and communication channels established to maximize effective management, oversight, and accountability for tailings.
- Prepare and regularly update an emergency action plan (EAP) that meets the current standard of care and practice.
- Prepare an update the triggering action response plan(s) (TARPs), which apply Key Performance Indicators (KPIs) that are quantifiable, measurable, and actionable.
- Plan to commit to implementing the GISTM requirements to achieve the goal of "zero harm to people and the environment."
- Establish an engineer of record (EoR), including clearly defining responsibility and succession planning. Grupo Mexico Mineria indicated that an independent consultant is reviewing the TSF to become the facility's EoR.
- Establish a responsible tailings facility engineer (RTFE), including clearly defining responsibility and succession planning. Grupo Mexico Mineria indicated that a RTFE has already been designated, and a document describing their role and responsibilities has been prepared.
- Perform a Dam Safety Review (DSR). WSP has identified potential credible failure modes and does not have sufficient information to confirm or refute these potential failure modes. A detailed and robust investigation is warranted and should be completed by a qualified and experienced professional engineer and organization that is suitably experienced in tailings storage facilities' design, operation, and closure. Grupo Mexico Mineria indicated that the DSR is currently being performed by an independent consultant.
- Identify and implement an Independent Tailings Review Board (ITRB) or an individual reviewer to assess the different aspects of the TSF safety: governance, design, construction, operation, closure, and post-closure.

Site specific recommendations are as follows:

- Develop a comprehensive tailings management plan for the life of mine
- Update the dam break analyses, considering the ponded water and associated fine tailing release

- Prepare an updated seismic hazard study with a site-specific PSHA and DSHA. Current MCE seismic parameters appear to be low compared with regional probabilistic seismic hazard analyses.
- Update the TSF No. 7 embankment slope stability analyses using the updated seismic hazard study parameters and updated materials properties. Stability numerical models should include the model calibration based on field geotechnical instrumentation data, laboratory tests results and available technical literature parameters for specific materials.
- Install proper geotechnical instrumentation within the embankment and abutments
- Verify filter compatibility between the different fill zones
- Maximize the reuse of water that has been used in the process and reduce the loss of water during the transport and disposal of tailings into the impoundment (i.e., via evaporation and infiltration).
- Freshwater has limited availability for mining use. Its availability could be related to the climate conditions in the area (high evaporation and low precipitation concentrated in a few rainfall events) and the hydrogeological site conditions. Freshwater is also relatively expensive (~1 US$/$m^3$, as indicated by Grupo Mexico personnel). Some recommendations to optimize the tailings water recovery are indicated below:
  - WSP recommends performing a trade-off study to compare tailings dewatering technology options, including thickened, paste, and filtered tailings. Filtered tailings appear to be an attractive option due to the site conditions.
  - Minimize the construction of internal dikes to manage the tailings beaches development. Instead, replace the current tailings transport system (where tailings have been discharged by gravity directly into the existing natural valley and travel approximately 4 km to 5 km until discharged into the impoundment) using pipelines for tailings transport with several points of tailings discharge (i.e., spigots). Tailings transport by pipelines and tailings disposal by spigots will better control the tailings beaches development and pond location (away from the embankment) and reduce the loss of tailings water by evaporation and infiltration. Should the fresh tailings be an environmental concern due to acid generation or metals leaching, then controlled transport in pipelines will also reduce contact between the process plant and the final disposition area.
- Implement the concept of separation of contact water (water impacted by the mining operation) and non-contact water (runoff/freshwater) and minimize the entering of non-contact water into the tailings impoundment.
  - Build additional small water retention dikes at the north side of the impoundment to capture non-contact runoff. Upgrade current pumping water reclaim system located on the north side.
  - Build diversion channels at the south side of the TSF where there appears to be a significant runoff contribution of non-contact water.
- Develop a detailed TSF water balance (no TSF water balance was available for review). Flow inputs and outputs should be carefully identified, quantified, and supported by specific studies (i.e., hydrogeology, seepage). The detailed TSF water balance should be part of a site-wide detailed water balance.

- Conduct a detailed geochemistry study that assesses long-term environmental impacts based on static and kinetic testing of the embankment and current/future tailings materials, and possibly geochemical modeling, depending on the testing results.

23.6 Mineral Reserves

- Continue to improve the geological model and the confidence in the Mineral Resource categories. The areas in the immediate vicinity of current mining should be prioritized and expanded outward as per the current LOM schedule.
- Preparation and review of regular reports from radar monitoring of existing slopes. Review any requirements to modify pit geotechnical designs.
- The mine should do a trade-off study on using larger shovel and truck combinations to increase the productivity rate of the mine (La Caridad area).
- Perform leach column tests to find the leach recovery curves (metal extraction curves) for the leach pads.
- Continuously monitor for any changes to the TSF design and capacity to assess impacts to the Mineral Reserves.

24.0 REFERENCES

Comisión Nacional del Agua (CONAGUA), 2006, Título de Concesión Numero 02SON101417/09IBGR06, 30 Agosto, 8 p.

GM Consultoria y Proyectos de Ingenieria Ambiental, 2020, Informe anual de cumplimiento a la condicionante 2 en materia de impacto ambiental modalidad regional, No. De oficio: SGPA/DGIRA/DG/06654, Mexicana de Cobre, S.A. de C.V., Nacozari de Garcia, Sonora, July 16.

Grupo Mexico Minera Mexico, 2019, Mina “La Caridad,” Mexicana de Cobre, Nacozari de Garcia, Sonora, Plan de Cierre, April, 664 p.

Grupo Mexico, Mexicana de Cobre, 2023, Modificación del Plan de Manejo de Residuos Peligrosos, July, 273 p.

JDS Minera Mexico, SA de CV, 2014, Mexicana de Cobre, Mina La Caridad, Sonora, Mexico, Plan de Cierre Conceptual: Draft report prepared for Grupo Mexico, Mexicana de Cobre, August, 113 pages plus appendices.

Soluciones Jurídicas para la Gestión Ambiental (SOJGA) and Sistemas Estratégicos para la Gestión Ambiental SEGA (SEGA), 2017, Manifestación de impacto ambiental modalidad regional, La Caridad: unpublished report prepared for Grupo Mexico, 8 chapters and 4 appendices.

TAAF Consultoria Integral, 2018, Estudio hidrogeológico para el complejo minero La Caridad en Nacozari, 75 p.

Arriaga A., (2019). Powerpoint presentation entitle “V Seminario sobre Depositos de Jales – Aspectos de Construccion – Grupo Mexico” technical seminar organized by the Mining Chamber of Mexico in Guanajuato held on September 2019 (public information available at Presentación de PowerPoint (camimex.org.mx)).

Buro Hidrológico (2015). Estudio hidrológico para el diseño del vertedor del Deposito de Jales La Caridad. Nacozari de Garcia.

Buro Hidrologico (2017). Calculo hidráulico para verificar la capacidad de la presa de jales No 7, no tenga problemas de desbordamiento.

Canadian Dam Association (2014). Application of Dam Safety Guidelines to Mining Dams. Technical bulletin.

CFE (2015). Manual de Diseño de Obras Civiles. Capitulo C.1.3 Diseno por sismo. Mexico 2015.

CIEPS (2017). Especificaciones particulares de construcción. Sobreelevación de la cortina de la presa de jales No. 7 del complejo minero metalúrgico La Caridad.

CIEPS (2018), Informe de visita de inspección. Revisión inicial de presas y depósitos de jales. Unidad Minera La Caridad. Presa de Jales No 7.

CIEPS (2022), Estudio de prefactibilidad de la sobreelevación de la Presa de Jales No 7 del complejo minero de la Caridad del Cobre en Nacozari, Son.

Geomecánica (2016). Estudio geológico-estructural de la margen izquierda para la sobreelevación de la presa de jales No. 7 de la mina La Caridad, Nacozari de Garcia, Sonora.

Geovisa (2016). Estudio geotécnico para el proyecto de sobreelevación de la presa de jales No. 7 del complejo metalúrgico La Caridad; en Nacozari de Garcia, Son.

GERD (2021). Análisis de rompimiento de la presa (dam break analysis), etapa preliminar, del depósito de jales 7.

GISTM (2020). Global Industry Standard on Tailings Management. August 2020. GlobalTailingsReview.org.

Golder (2021). Preliminary Feasibility Study (PFS) prepared by Golder (in progress). See environmental section.

Grupo Mexico (2021a). Rodrigo Chavez (Grupo Mexico Corporate Tailings Dam Manager) provided operational data during the Golder personnel visit to the Grupo Mexico office in Mexico City. October 14-15, 2021.

Grupo Mexico (2021b), Rodrigo Chavez (Grupo Mexico Corporate Tailings Dam Manager)'s comments related to the status of Golder request for information. This document (including Grupo Mexico's comments) was provided to Golder, during the Golder personnel visit to the Grupo Mexico office in Mexico City. October 14-15, 2021.

Lucia, P.; Duncan, J. and Seed, H. (1981). Summary of research on case histories of flow failures of mine tailings impoundments. Technology transfer workshop on mine waste disposal techniques, US Bureau of Mines, Denver, CO, pp 46-53.

Norma Mexicana NOM-141-SEMARNAT-2003 (2013). The Mexican standard establishes the procedure for tailings characterization, specifications, and criteria for preparation and characterization of the site, project, construction, operation, and post-operation of tailings storage facilities.

Minera Caridad (2021). Operational data was provided by Minera Caridad personnel during the Golder personnel mine site visit on August 27.

Prodisis (2015). Programa de diseño sísmico, versión v4.1. Free software developed by Instituto de Investigaciones Eléctricas (IIE) and Comision Federal de Electricidad (CFE) Mexico. It includes the new seismic recommendation update) in the Manual de diseno de obras civiles 2015.

UNAM (2018). Análisis de estabilidad de depósitos de jales 7, en la unidad minera La Caridad, Nacorazi, Son.

Gómez, Juan, R, G. (2014). Caracterización geológica, estructural, geoquímica y metalogenética de la Brecha Pilares, Sonora, México. [Tesis de Máster]. Universidad de Sonora.

Grupo Mexico Mineria, 2024a. Determinacion de la Curva Elevacion - Capacidad - Tiempo del Almacenamiento en el Deposito de Jales PRESA 7 LC. Nota Tecnica. September 24, 2024

Grupo Mexico Mineria, 2024b. Email communication with Grupo Mexico Minera. November 8, 2024

Grupo Mexico Mineria, 2024c. Three (3) drawings of the TSF No. 8 conceptual design. December 2, 2024

25.0 RELIANCE ON INFORMATION PROVIDED BY REGISTRANT

The Qualified Persons for Mineral Resources and Mineral Reserves have relied upon the registrant to supply information that was used in the following Sections:

- Section 3.0 – Description of mineral and property rights
- Sections 11.1.3 and 11.2.3– Resource pit shell costs and pricing for Mineral Resources
- Section 12.2.5 – COG costs and pricing for Mineral Reserves
- Section 12.2.6 – Pit Optimization costs and pricing for Mineral Reserves
- Section 14.0 – Processing and Recovery Methods
- Section 15.0 – Infrastructure
- Section 16.0 – Market Studies
- Section 17.0 – Environmental Studies, Permitting and Plans, Negotiations, Or Agreements with Local Individuals Or Groups
- Section 18.0 – Capital and Operating Costs
- Section 19.0 – Economic Analysis

For the information relating to mineral and property rights in Section 3.0, WSP relied on La Caridad's permitting and environmental team. WSP has not researched property or mineral rights for La Caridad as we consider it to be reasonable to rely on La Caridad's permitting and environmental team who is responsible for maintaining this information.

WSP has also relied on La Caridad's finance team for details regarding applicable taxes, royalties, exchange rates, product pricing, and market studies as noted in the COG and pit optimization for Mineral Resources and Mineral Reserves, Market Studies, and the Economic Analysis. It is WSP's opinion that it is reasonable to rely on La Caridad for this information as La Caridad has been operating the mine for a very long time and is keenly aware of its operations and associated costs.