REPORT

SEC S-K 1300 Technical Report Summary

Southern Copper Corporation: Buenavista del Cobre

Submitted to:

Southern Copper Corporation

7458 N. La Cholla Blvd., Tucson, Arizona USA 85741

Submitted by:

WSP USA Inc.

177 N. Church Avenue Suite 1105, Tucson, AZ 85701

+1 520 319-0725

31405632.000-R-Rev0

February 11, 2025

Table of Contents

TABLES

FIGURES

DATE AND SIGNATURE PAGE

The effective date of the Mineral Resources and Mineral Reserves estimates was December 31, 2024.

Author	Section(s)	Signature
Ronald Turner (WSP)	1.2, 1.3,1.5,1.10, 2.4.1, 5.2, 6.0, 7.1, 7.2, 8.0, 9.1, 11.0, 20.0, 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, 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 18.0, 19.0, 21.0, 22.4, 23.6, 25.0	
Dawn Garcia (Stantec)	1.1, 1.9, 2.1, 2.2, 2.3, 2.4.3, 3.0, 4.0, 7.3,17.0, 22.2, 23.2, 24.0	
Ibrahim Karajeh	2.4.4, 15.0 15.1, 15.2, 15.3, 15.4, 15.5, 15.6	
Jesus Romero (WSP)	2.4.6, 15.7, 23.5	
Michael Pegnam (WSP)	7.4, 9.2.1, 13.2, 23.3, 24.0	
Eugenio Iasillo (Process Engineering LLC)	2.4.5, 10.0, 14.0, 22.3, 23.4	
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 WSP 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 21 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).
- **Jesus Romero:**
  - **Education:**
    - Is a Senior Consultant with a Master of Science (M.Sc.) in Planning from the University of Arizona (USA) and a Bachelor of Science (B.S.) in Civil Engineering from Universidad de Sonora in Mexico.
  - **Years of Experience:**
    - He has 22 years of experience in engineering services and project management in the consulting industry.
  - **Relevant Experience:**
    - His experience in tailings and mine waste projects in North America and, South America include, site geotechnical investigation, tailings dams design and construction, waste dumps design, geotechnical analyses and preparation of construction drawings and specifications.
  - **Professional Registration:**
    - Registered Professional Engineer - Arizona, U.S. (Registration No. 42771).

- **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 over 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 Buenavista del Cobre property is an operating porphyry copper mine located within the Cananea mining district in the north-central part of the State of Sonora, Mexico. The property is located about 222 kilometers (km) northeast of the city of Hermosillo, Sonora and 150 km southeast of the city of Tucson, Arizona. The property covers an area of 89,220.5 hectares (ha) of mining concessions. The Cananea mining district is located at an altitude of between 1,600 and 2,485 meters (m) above mean sea level (amsl). The elevation of the mine is of the order of 1,604 amsl.

Southern Copper Corporation (SCC) is a 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). All the estimated Mineral Resources and Reserves lie within privately owned or possessed land under the name of Buenavista del Cobre SA de CV, or Proyecciones Urbanisticas S de RL de CV. Ownership is not required to explore or mine a concession; however, Southern Copper Corporation generally owns the land related to the Buenavista del Cobre operations. Additionally, Southern Copper Corporation stated that all the processing facilities of the Buenavista del Cobre operations and land on which they are built are owned by Southern Copper Corporation.

1.2 Geology and Mineralization

The Cananea mining district, where the Buenavista del Cobre porphyry copper deposit is located, 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 Precambrian Cananea Granite basement rocks are overlain by several Paleozoic sedimentary units ranging in age from the Cambrian Capote Quartzite through thick limestone sequence of Upper Paleozoic age. Overlying the Paleozoic sediments and Precambrian granite of Cananea are the Henrietta and Elenita formations which are Triassic to late Jurassic in age and are comprised of volcanic rocks of latite to andesite composition. The El Torre Syenite is of roughly the same age. The youngest volcanic units in the district are andesitic tuffs and rhyolites of the Mesa Formation.

The intrusions of diorite, granodiorite and quartz monzonite formed after the emplacement of the Mesa Formation. In the final stage of intrusive activity, diabase dikes intruded faults and fractures with a NW - SE trend. Pipe-like breccias formed as late-stage products of the quartz-monzonite porphyries. During the Cenozoic, alluvial and fluvial sediments were deposited as erosion of the Cananea Mountains occurred. Exhumation of the upper part of the Cananea mining district porphyry system resulted in the formation of a supergene enrichment and an oxidation overburden overlying the porphyry system.

The Buenavista del Cobre deposit in the Cananea mining district is divided into two target zones, namely Buenavista Copper (BVC) and Buenavista Zinc (BVZ). The BVZ deposit conformably underlies the BVC deposit and is located to the northwest of the BVC deposit.

1.3 Status of Exploration

The Cananea mining district has been subject to several historical and recent exploration campaigns targeting copper mineralization at the Project site. These exploration campaigns included channel and bulk sampling, exploration drilling, and geotechnical drilling. To date, 1,296,668 m of exploration drilling has been carried out, distributed in 6,698 drill holes. These exploration campaigns have been carried out by different mining companies since 1926. Since 1991, Buenavista del Cobre has made significant investments in exploration work to quantify the Mineral Resources and Mineral Reserves of the BVC and BVZ deposits.

The main objective of the exploration programs implemented at BVC and BVZ have been to explore for new mineralized bodies as well as the increase confidence on Mineral Resources and Mineral Reserves. The achievement of these objectives has served as a basis to support planning and growth strategies as well as investment programs for the modernization of the mining unit.

1.4 Development and Operations

The Buenavista del Cobre open pit mine has been in operation for more than 50 years. The ore at Buenavista del Cobre 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. Mining operations progress in a three-step process, which includes development, overburden removal, and ore production. In the development phase, drainage and water control are established, and then the required infrastructure consisting of power, pipelines, and roadways is established.

All required fixed and permanent infrastructure of power, pipelines and primary roadways, and Project access are established. Drainage, water controls, and mine access roads and ramps are established for current operations and will be expanded and continued as the pit progresses through its planned life of operations.

Since this is a well-established operation, the deposit, mining, beneficiation, and environmental aspects of the Project are well understood. The knowledge for Buenavista del Cobre is based on the collective experience of personnel from Buenavista del Cobre site operations and technical disciplines gained during years of copper mining and ore beneficiation. This knowledge is supported by years of production data and observations from Buenavista del Cobre personnel.

A life-of-mine (LOM) plan and pit design were developed for 2025 through 2065. LOM plan pit design is based on current geotechnical and hydrology designs, and extraction limits, which are dictated by mining recovery and dilution factors, cut-off grade (COG) estimation, and economic pit optimization analysis. Pit design includes detailed design factors for wall slopes, berm widths, pit bottom, and access ramp grades and widths.

The LOM plan includes annual forecasts of waste removal and transportation and ore extraction and beneficiation. Waste is hauled to one of the 3 ex-pit waste dumps, or overburden storage facilities (OSFs). Overburden material is loaded by 15 electric rope shovels loading 360-t haul trucks. Dozers assist the loading fleet with general clean-up and material removal, as necessary. Dozers are used to push overburden down the sides of the OSFs on an as-needed basis.

Material is mined, transported, and crushed for processing to recover copper concentrate, molybdenum concentrate, and zinc concentrate. Two copper beneficiation plants, Concentrator I and Concentrator II, are in operation at Buenavista del Cobre. Concentrator I has been in operation since 1986 and Concentrator II since 2016. The two concentrators follow a conventional process of crushing, screening, ball milling and sequential flotation to separate copper and molybdenum concentrates. The differences between the two plants are size of the equipment and the number of machines dedicated to each unit operation, because Concentrator II was designed and built with modern equipment 30 years after Concentrator I.

Zinc and copper extracted from the Buenavista del Cobre sulfide ores with higher zinc content will be sent to the Zinc concentrator or one of the Cu concentrators if the average zinc grade can be blended to be less than 0.1%.

The Zinc plant extracts the zinc concentrate from the feed which is then sent to a copper flotation unit (part of the Zinc plant) to extract copper. The resulting copper is a clean copper with zinc grade below 0.1%. During the initial 11 years, the Zinc plant is fed with target head grade material of 1.2% zinc to realize the zinc concentrate. From Year 12, the plant acts as a copper "cleaner" unit with high grade zinc concentrations removed as a zinc concentrate while the plant provides high grade clean copper (with zinc below 0.1%) as the principal output. The copper concentrate slurry is sent to the thickening section of the existing Concentrator I.

Buenavista del Cobre processing facilities also include three leaching, solvent extraction and electrowinning (L-SX-EW) plants. The leachate facilities identified as Quebalix I to IV are located adjacent to leach pads. The leach pad at each Quebalix facility is fed with leachable ore that is crushed, transported, and stacked with belt conveyors. The primary process for Buenavista del Cobre is conventional milling/flotation of ore targeting a head grade of 0.5% total copper, however the mine is in the process of lowering the target grade to 0.4% total copper over the next few years. Low-grade ore COG for leaching is also being re-evaluated and reduced to an economic threshold; however, the current practice is ROM between 0.1% and 0.30% total Cu with a solubility index greater than 0.3 is leached as part of the secondary process. The L-SX-EW process is used to produce pure copper cathode.

The LOM plan life is approximately 41 years, as of December 31, 2024, with Run-of-Mine (ROM) ore tonnages delivered to the copper concentrators ranging from 43 Mtpy to 74 Mtpy, zinc mill at 7.3 Mtpy and at varying quantities to the ROM and crushed leach pads.

The mining equipment fleet planned includes a range of about 5 to 14 electric rope-shovels, about 100 to 160 end-dump haul trucks, and mine support equipment to support the mine plan production requirements.

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 Buenavista del Cobre since 1926. The drilling database used for the modeling was reviewed with the WSP internal software (DataCheck®), which allows the detection of inconsistencies such as: overlapping intervals, excessive path deviation between measurement intervals, duplication of collars, sample depth greater than the depth of the collar, among others. Two different geological models were prepared for Buenavista del Cobre, including a Lithology model and a Mineral Zone model, which were used to define estimation domains for the Resource estimate. 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 economic cut-off value, price, mining costs, infrastructure limitations, and mineral licenses.

Mineral Resource estimates exclusive of Mineral Reserves are summarized in Table 1.1 on a 100% ownership basis. Mineral Resources presented in the table are in accordance with the definitions presented in S-K 1300. The effective date of the Mineral Resource estimate is December 31, 2024.

Table 1.1: In-Situ Mineral Resource Estimate, Exclusive of Mineral Reserves – 100% Ownership Basis

Process	Classification	Tonnes (Mt) (4)	Grade			Contained Metal		
			Total Cu (%) (2)	Mo (%) (2)	Zn (%) (2)	Cu (Kt) (5)	Mo (Kt) (5)	Zn (Kt) (5)
Plant Cu (1)(3)	Measured	-	-	-	-	-	-	-
	Indicated	627	0.38	0.008	0.04	2,378	50	251
	Measured + Indicated	**627**	**0.38**	**0.008**	**0.04**	**2,378**	**50**	**251**
	Inferred	7,848	0.34	0.008	0.04	26,525	628	3,061
Plant Zn (1)(3)	Measured	-	-	-	-	-	-	-
	Indicated	203	0.44	0.004	0.37	901	8	746
	Measured + Indicated	**203**	**0.44**	**0.004**	**0.37**	**901**	**8**	**746**
	Inferred	705	0.37	0.009	0.18	2,635	63	1,296
Leach (1)(3)	Measured	-	-	-	-	-	-	-
	Indicated	53	0.33	-	-	171	-	-
	Measured + Indicated	**53**	**0.33**	**-**	**-**	**171**	**-**	**-**
	Inferred	373	0.18	-	-	661	-	-

Notes:
1. Mineral Resources are reported on a 100% basis and are exclusive of Mineral Reserves.
2. Mineral Resources are reported on a break-even plant and leach profit basis.
3. The estimate was constrained to within the Resource pit based on a Cu price of $US3.795/lb, Mo price of US$11.50/lb and Zn price of US$1.32/lb
4. Mineral recovery was based on historical 3-year averages. The recoveries used were 81% for copper, 70% for Molybdenum, 74% for Zinc. Leach material had similar recoveries as Mineral Reserves.
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. 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
9. The projected December 31, 2024, topographic surface was used for the calculation of the Mineral Resources.

The December 31, 2024, Mineral Resource estimate has been slightly decreased from the December 31, 2022, estimate, due to changes in the geological block model and updates to the Mineral Reserve ultimate pit based on revised cut-off grades as discussed in Section.

SCC has a 99.95% ownership in Buenavista del Cobre through their main subsidiaries with the remainder being held through intermediate holding companies.

1.6 Mineral Reserve Estimate

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

The Mineral Reserve estimate for Buenavista del Cobre is limited by a buffer of 500 m from the nearby town of Cananea, a cemetery near the mine, the remaining capacity of the New Tailings Storage Facility (TSF) and the ultimate pit designed for the LOM plan, which was limited with an economic optimized pit analysis.

The Mineral Reserve estimate includes mining modifying adjustments for mining ore recovery, mining dilution, and process recovery factors. An economic cut-off value has been used to identify ore being routed to the leach pad and to the zinc plant. For the copper concentrators, a declining target head grade from years 1 to 5, and an economic cut-off has been used for the LOM. Section 12.2.4 contains further details on cut-off grades.

For this Mineral Reserve estimate, Indicated Mineral Resources inside the ultimate pit were converted to Probable Mineral Reserve. The Mineral Reserve estimates are shown in Table 1.2 on a 100% ownership basis. The Mineral Reserves are estimated at a constant copper price of US$3.30 per pound, molybdenum price of US$10.00 per pound and zinc price of US$1.15 per pound. The effective date of the Mineral Reserve estimate is December 31, 2024.

Table 1.2: Mineral Reserve Estimate (ROM) – 100% Ownership Basis

Classification	Destination (2)	Tonnes (Mt) (4)(5)	Grades			Contained Metal		
			Total Cu (%)	Mo (%)	Zn (%)	Cu (5) (Kt)	Mo (5) (Kt)	Zn (5) (Kt)
Probable	Sulfide ROM Mill Feed - Cu Plant	2,117	0.41	0.009	-	8,774	181	-
	Sulfide ROM Mill Feed - Zn Plant	296	0.61	-	0.58	1,798	-	1,705
	Total Sulfide ROM Mill Feed	**2,413**	**0.44**	**0.009**	**0.58**	**10,572**	**181**	**1,705**
	Cu Leach Ore	1,077	0.24	-	-	2,543	-	-
	Cu ROM Leach	1,041	0.30	-	-	3,076	-	-
	Total Leach	**2,118**	**0.27**	**-**	**-**	**5,620**	**0**	**0**
	Waste	3,768						
	Total Material	8,299						
	Strip Ratio ((W+L)/M) (3)	2.44						
	Strip Ratio ((W)/(L+M)) (3)	0.83						

Notes:

1. Mineral Reserves are reported effective December 31, 2024. The Qualified Person for the estimate is Mr. Mathew Oommen, Ph.D.
2. The reference point for the estimate is delivery to the mill or leach pads.
3. Mineral Reserves are the economic portion of the Mineral Resources selected for leach and/or concentrator recovery processes and includes considerations for modifying factors such as mining loss (2%) and dilution (1%), described in Section 13.3.1.
4. Strip ratio calculated with W = Waste, L = Leach, M = Mill Feed (units are t/t)
5. Mineral recovery was based on historical 3-year averages. The recoveries used were 81% for copper, 70% for Molybdenum, 74% for Zinc, 45% for copper in crushed leach and 52% for copper in ROM Leach
6. Mineral Reserves are reported above a breakeven economic value based on the long-range schedule (Section 13.4), inclusive of processing costs and transport streams. Details of the economic cut-off are provided in Section 12.2.4
7. Mineral Reserves are based on targeted feed grades of copper and zinc to the copper concentrator and zinc concentrator, respectively. Details of the targeted feed grades which varied over years are given in Section 12.2.4.2 and Section 12.2.4.3
8. Tonnages are reported on a dry basis.
9. Tonnages and contained copper, molybdenum and zinc are reported in metric units. Contained Metal (CM) is calculated as follows: CM = Tonnage (Mt) * Grade (%).
10. Numbers have been rounded to reflect appropriate accuracy and may result in apparent summation difference between tonnes, grade, and contained metal content.
11. Grades and contained metal are not reported if there is no value from the respective processing and transport streams
12. The projected December 31, 2024, topographic surface was used for the calculation of the Mineral Reserves.

The December 31, 2024, Mineral Reserve estimate has increased from the December 31, 2022, estimate, due to the revised geological interpretation and revised cut-off grade parameters as discussed in Section 12.2.4.

SCC has a 99.95% ownership in Buenavista del Cobre through their main subsidiaries.

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 prevailing economic conditions, capital costs, labor and equipment productivity levels, and the adequacy of contingencies to address changes in material factors or assumptions.

LOM plan annual production estimates were used to determine annual estimates of capital and operating costs. All cost estimates were in Q4 2024 US$. Capital costs are estimated to be about US$8.3 billion (B), including new mine equipment, major maintenance and components and one-time special infrastructure projects such as crusher relocations, conveyor system reassemblies, and the construction of a new zinc mill. These costs were derived from a combination of data provided by SCC, 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. These costs include costs for mining, processing (including crushing and conveying, milling, leaching, and SX-EW for copper, zinc and molybdenum minerals), concentrate transport and marketing costs, general administrative expenses and estimates of accretion and closure. Average unit operating costs range from US$5.52 to US$9.45 per tonne of total material mined, with a LOM average of US$6.97 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, 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 are reasonable to use as forecast of future 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$3.4 B. Total revenue is projected at US$77.0 B, with total operating costs of US$57.9 B and total capital expenditures of US$8.3 B.

Sensitivity analysis highlights that the project's NPV is most sensitive to changes in copper prices and operating costs, underscoring 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 zinc and molybdenum prices have limited impact on the 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 Buenavista del Cobre.

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.

The current mine operations are under an environmental license; however, older operations preceded the environmental permitting regulations. Quantities of wastes generated annually are reported to the Mexican environmental authority.

Mexico has established environmental laws and regulations that apply to the development, construction, operation and closure of mining projects. The operations generate mining wastes in the form of tailings, waste rock, spent ore, and a by-product (electrowinning lead anode slimes), which have all been characterized as potentially acid generating (PAG). Geochemistry static testing has also indicated that some of the wastes contain high levels of arsenic, antimony, chromium, and lead that could exceed permissible limits. No kinetic testing has been carried out to determine metals leaching scenarios over time. The historic smelter produced slag, which was classified as non-hazardous waste; however, the historic smelter area contains soils contaminated with arsenic and lead.

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. The operations are not deemed to be within a protected area decreed by state, federal, or municipal agencies.

The operations have established environmental monitoring programs to assess compliance with Mexican regulations. Of particular importance are the air, surface water, and groundwater quality monitoring programs. Most monitoring is carried out every six months or annually, except for groundwater quality, which is monitored quarterly.

Air quality results from 2022 have indicated impacts in the town of Cananea. No more recent air quality results were provided for the QP's review. Surface water quality in the region has been impacted from the historic mining operations and from the town of Cananea. There are no naturally occurring surface water bodies at the mine site and the streams are ephemeral. Recent water quality data as part of the environmental monitoring program indicated that sampling locations upstream and downstream of the mining operation exhibited surface water quality impacted by total suspended solids concentrations that exceed Mexican permissible limits for surface water discharges. Recent groundwater quality data indicated that permissible limits were exceeded for some constituents when compared to surface water discharge standards and additional constituents based on Mexican standards for human consumption; however, Mexico regulates water according to usage or purpose and thus has no federal standard for natural conditions of groundwater. Except for a limited number of exceedances, the groundwater quality complies with water discharge standards.

There are ten active environmental violations, primarily associated with the New TSF. The most common violations cited are that Buenavista del Cobre lacked an authorized permit from the environmental agency in an area where tailings were disposed and installation of equipment that was not part of the environmental permit.

Mexico has not established a specific mine closure regulation. No written closure plan has been developed for the Buenavista del Cobre operations, nor have details of the closure methodologies been developed. A 2023 Asset Retirement Obligation estimated at about US$511 M was developed to close the current operations. No closure cost has been developed for the Life-of-Mine design.

Stakeholders identified in 2023 were local ejidos (that is, communal land under Mexican property laws), neighborhoods, institutions, groups, communication media, formal and informal leaders, and government. The community has a dependence on Buenavista del Cobre for employment. The highest concern identified in stakeholder surveys was related to water. The Company has financed a project that will significantly improve water distribution in the town, and as of October 2024 the project was 90% complete. The Company has also funded music, sports, and education activities. Some of the funding provides training that will increase regional procurement. The Company has an established grievance mechanism. The overall stakeholder perception of the Company has improved.

In 2023, the Company received a certification from the Wildlife Habitat Council for its contribution preventing extinction of the Mexican gray wolf.

1.10 Qualified Person's Conclusions and Recommendations

As the Buenavista del Cobre 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. Some additional work has been identified and is being implemented by the site teams to improve the classification categories of the Mineral Resources. However, as this work is not yet complete, it is deemed not to influence the prospect of economic extraction for the Mineral Resources stated in this TRS.

The 2024 Mineral Resource estimate may be materially impacted by any future changes in the breakeven economic cut-off value, potentially resulting from changes in mining costs, processing recoveries, metal prices or from changes in geological knowledge as a result of new exploration data.

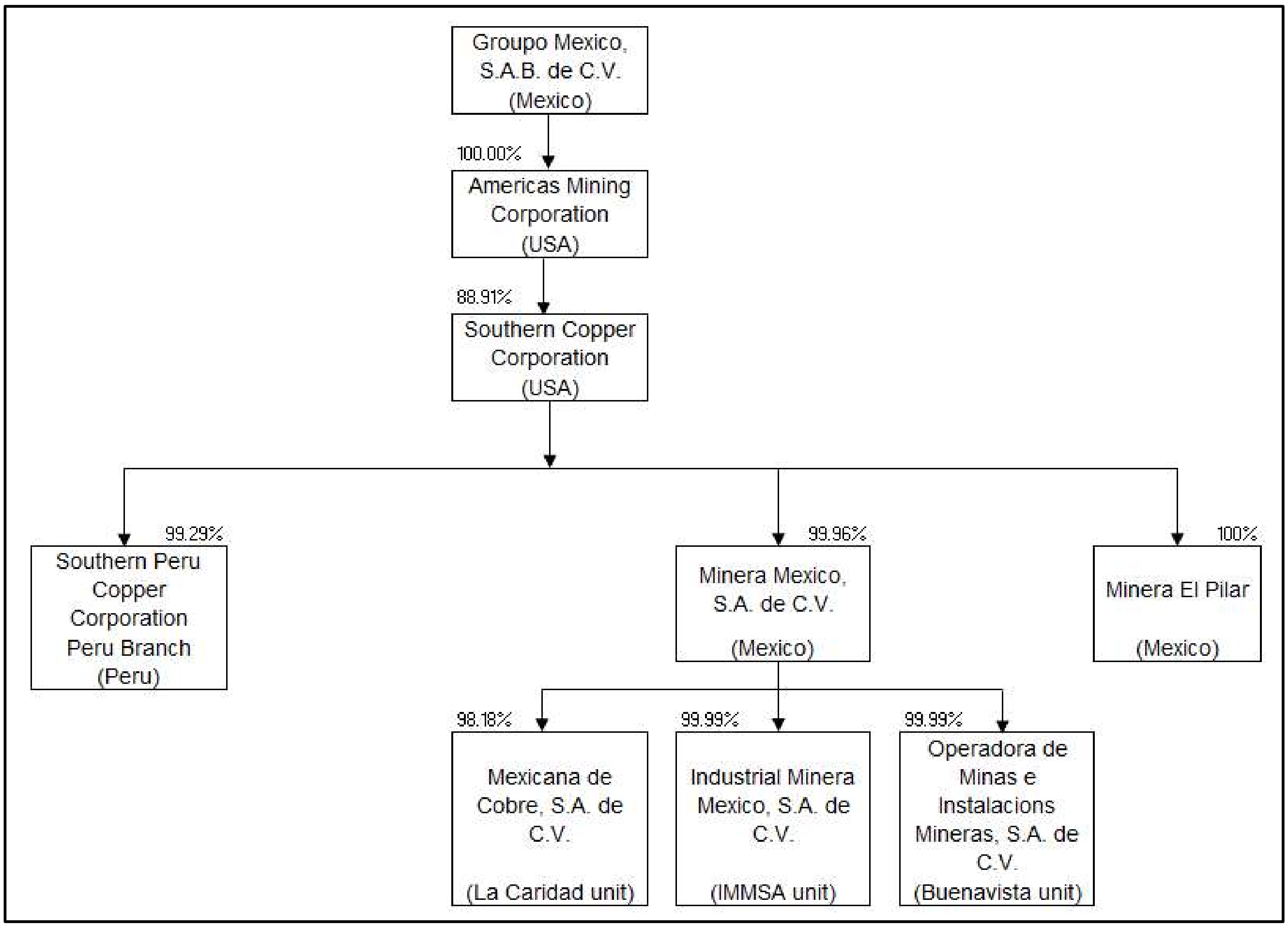
In the QP's opinion, the operational and mine planning data, process recovery testing and modeling, LOM Plan, and estimation are carried out in a manner that both represents the data and operational experience and methodology well and mitigates the likelihood of material risk in the estimate of Mineral 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 99.96% 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, 99.99%), Mexicana de Cobre, S.A de C.V. (the La Caridad unit, 98.18%) and Industrial Minera Mexico, S.A. de C.V. (the IMMSA unit. 99.99%). 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 Buenavista unit includes an open-pit copper mine, two copper concentrators, a zinc concentrator and three Solvent Extraction and Electrowinning (SX-EW) plants.



Source: SCC

Figure 2.1: Southern Copper Corporation Organization Structure

2.1 Registrant Information

This Technical Report Summary (TRS) for the Buenavista del Cobre property located in the north-central 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 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 Persons' 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. Costs are presented in constant US Dollars as of Q4, 2024.

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 Buenavista del Cobre operation.

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

2.3 Sources of Information

Much of the information and data used in the development of this TRS was provided by Buenavista del Cobre 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 June 18, 2024, and June 19, 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
AA	Atomic Absorption
AFC	Antigua Fundación” (historical smelter) of Cananea
Ag	silver
AMC	Americas Mining Corporation
amsl	above mean sea level
As	arsenic
Au	gold
Bi	bismuth
Bm^3	Billion cubic meters
Bt	Billion tonnes
Buenavista del Cobre	Buenavista del Cobre mine
BVC	Buenavista Copper Project
BVZ	Buenavista Zinc Project
Cd	Cadmium
CD	Contingency Dam or Presa de Contingencia
CESCA	Centro de Estudios, Servicios y Consultorias Ambientales
CFE	Comisión Federal de Electricidad, or federal electricity commission
CIQ	China Inspection and Quarantine Services
cm/pixel	centimeter per pixel
CNA	Comisión Nacional del Agua or National Water Commission
CNI	Call & Nicholas, Inc.
COFEPRIS	Comisión Federal para la Protección contra Riesgos Sanitarios or federal sanitary risks protection agency
COG	cut-off grade
CONAGUA	Mexican Water Commission
CRM	certified reference material
Cu	copper
CuCN	soluble copper cyanide
Cug/L or g Cu/L	grams of copper per liter
Cu-Mo	copper-molybdenum
CuO	copper oxide
DDH	diamond drill hole
DGM	Dirección General de Mina or Mexican mining agency
dmtpd	dry metric tonnes per day
dmtph	dry metric tonnes per hour
DSR	Dam Safety Review
DTH	Down-the-Hole
EOR	engineer of record
EU	Estimation Units
F	Fluorine
Fe	iron
FRED	Federal Reserve Economic Data
FOS	Factor of Safety
FS	Feasibility Study
ft	feet

Abbreviation/Acronym	Definition
ft^3	cubic feet
g	gram
GERD	Servicios y Soluciones de Ingenieria y Logistica
GIL	geological information limit
Golder	Golder Associates USA Inc.
GPS	Global Positioning System
Grupo Mexico	Grupo México S.A.B. de C.V.
H2	second half
ha	hectare
Hg	Mercury
HYR	high yield restrictions
ICP-OES	Inductively Coupled Inductively Coupled Plasma-Optical Emission Spectrometry
IMMSA unit	Industrial Minera México, S.A. de C.V.
INEGI	National Institute of Statistics and Geography
ITRB	Independent Tailings Review Board
kg	kilogram
km	kilometers
Kt	kilotonnes
kV	kilovolt
kW/t	kilowatt hour per tonne
$L/h/m^2$	liters per hour per square meter
La Caridad unit	Mexicana de Cobre, S.A de C.V.
liters per minute per hectare	L/m/ha
LME	London Metal Exchange
LO	loaded organic
LOM	life-of-mine
lps	liters per second
L-SX-EW	Leach-Solvent Extraction and Electrowinning
m	meter
M	million
m/d	meters per day
m^2	square meter
m^3	cubic meter
m^3/h	cubic meters per hour
m^3/s	cubic meters per second
Ma	million years ago
masl	meters above sea level
MASP	MASP Mexico SC
Mdmtpy	Million dry metric tonnes per year
MGE	México Generadora de Energía S. de R. L.
Minera Mexico	Minera México, S.A. de C.V.
mm	millimeters
Mm^3	Million cubic meters
Mo or moly	molybdenum
MS	Microsoft
Mt	million tonnes
Mtpa	million tonnes per annum
Mtpa	million tonnes per year
MW	megawatt
MX$	Mexican Peso

Abbreviation/Acronym	Definition
NAG	non acid generating
NE	northeast
NPV	net present value
NW	northwest
NW-SE	northwest-southeast
OBO	WSP’s proprietary software, OBO V11.05®
OK	Ordinary Kriging
OREAS	ORE Research & Exploration Pty Ltd
OSF	overburden storage facility
PAG	potentially acid generating
parts per billion	ppb
Pb	lead
pcf	pounds per cubic foot
PEMEX	Petroleos Mexicanos
PFM	potential failure mode
PLS	pregnant leach solutions
PRI	primary sulfide unit
QA/QC	quality assurance and quality control
QCg	Polymictic Conglomerate
QP	Qualified Person
RC	reverse circulation
RE	rich electrolyte
REPDA	Registro Publico de Derechos de Agua (Public Registry of Water Rights)
RF	revenue factor
ROM	run-of-mine
RQD	rock quality designation
RTK	real-time kinematic
S	sulfur
SAG	semi-autogenous
Sb	antimony
SCC	Southern Copper Corporation
SE	southeast
SE	spent electrolyte
SEMARNAT	Secretaria de Media Ambiente y Recursos Naturales (Mexican environmental agency)
S-K 1300	United States Security and Exchange Commission’s regulation Subpart S K 1300
Sonora Sample	Sonora Sample Preparations, S.A. de C.V.
SX-EW	Solvent Extraction and Electrowinning
t/m^3	tonnes per cubic meter
TARPS	triggering action response plan(s)
TC/RC	Treatment and Refining Charges
TCS	Triaxial Compressive Strength
TEM	Transient Electromagnetic
the Buenavista unit	Operadora de Minas e Instalaciones Mineras, S.A. de C.V.
tpd	tonnes per day
tph	tonnes per hour
tpy	tonnes per year
TRS	Technical Report Summary
TSF	tailings storage facility
UCS	Uniaxial Compressive Strength
US$	United States Dollars

Abbreviation/Acronym	Definition
UTM	1984 Universal Transverse Mercator
WGS	World Geodetic System
WNW	west-northwest
wt.%	weight percent
y/y	year-over-year
Zn	zinc

2.4 Personal Inspection Summary

A site visit and inspection of the Buenavista del Cobre mining operation was completed on June 18 and June 19, 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. Ibrahim Karajeh P.Eng., Mr. Jesus Romero, P.E. 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, ROM and crushed leach pads, process facilities, core shack, dispatch, security gate, administration, historical smelter, and other infrastructure. The site visit also included the tour of the No. 3 TSF and the New 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 Buenavista del Cobre on June 18 and 19, 2024.

During the site visit, Mr. Turner visited and inspected the mining operations, data capture facilities and the current conditions for sample storage. Mr. Turner also conducted discussions with site personnel regarding the geology and mineralization and how such controls are included in the resource model 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. (Registered SME Member). Mr. Oommen visited the Buenavista del Cobre operations on June 18 and 19, 2024.

During the site visit, Mr. Oommen visited and observed the open pit operation, material handling facilities, leach pads, and overburden storage facilities. Mr. Oommen visited various areas of the open pit which were being mined at the time of the visit, the molybdenum plant loadout area and drove around the various key infrastructure facilities. Mr. Oommen also conducted discussions with site personnel responsible for the QBLIX 4 crusher, dispatch, geology, geotech, security, 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 Buenavista del Cobre on June 18 and 19, 2024.

During the site visit, Ms. Garcia met with site personnel and toured a school funded by the Company.

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 Buenavista del Cobre on June 18 and 19, 2024.

During the site visit, Mr. Karajeh visited and observed the following infrastructure areas: Open Pit Mining Operations, Heap Leach Operations, Primary Crushing Stations PR1 and PR2, Crushed Ore Conveying System to Crushed Ore Stockpile, Zinc Concentrator, and Haul Truck Shop.

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 Buenavista del Cobre on June 18 and 19, 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 Jesus Romero

The independent QP, as defined in S-K 1300, responsible for the preparation of the Tailings Section provided in this TRS is Mr. Jesus Romero P.E., MSc. in Planning. Mr. Romero visited the new TSF and TSF No. 3 at Buenavista del Cobre mine on June 18, 2024, and June 19, 2024. During the site visit, Mr. Romero visited and observed areas of the embankments along the crest and toe for both the New TSF and TSF No.3. Mr. Romero also conducted discussions with site personnel during the site visit. Mr. Romero also conducted discussions with the Grupo Mexico tailings team from Mexico City; the team traveled to the Buenavista del Cobre Mine during the site visit.

2.5 Previously Filed Technical Report Summary Reports

This is the third TRS being filed for the Buenavista del Cobre mine site. Previous TRSs were filed for the calendar years ending 2021 and 2022.

3.0 PROPERTY DESCRIPTION

3.1 Property Location

As shown on Figure 3.1, the Buenavista del Cobre property is in the north-central part of the State of Sonora, Mexico, about 222 km northeast of the city of Hermosillo, Sonora, and 150 km southeast of the city of Tucson, Arizona. The property covers an area of 89,220.5 ha of mining concessions.

The geographical location of the Cananea mining district is between latitudes 30° 42' and 31° 16' north and longitude meridians 109° 51’ and 110° 33' west. The Cananea mining district is located at an altitude of between 1,600 and 2,485 meters (m) amsl. The elevation of the city of Cananea is of the order of 1,604 m amsl.

3.2 Mineral Rights

3.2.1 Legal Framework in Mexico of Mineral Mining Rights

Mining and exploration rights in Mexico are controlled by the federal government. The mining concessions are administered by the Dirección General de Mina (DGM), a sub-secretariat of the cabinet-level Secretary of Economy. To maintain concessions in good legal standing, concession holders are obligated to pay semi-annual taxes and to annually file documentation of exploration or development work at the concession.

Prior to 2006, exploration and mining rights were assigned to third parties by the granting of “exploration” and “exploitation” concessions, each with differing validity periods and tax and assessment obligations. Mining law reform in December 2005 simplified the concession regime, and all new concessions are “mining concessions,” which are valid for a 50-year period and are renewable. Upon enactment of the mining law reform, all previously issued “exploration” and “exploitation” concessions automatically converted to “mining concessions” with the effect date of title the same as that of the previously titled “exploration” or “exploitation” concession. In 2023, Mexico introduced significant reforms to its mining laws, collectively referred to as the “Mining Reform”. These reforms were published on May 8, 2023, and brought several key changes to the mining industry Here are some of the main amendments:

- Public Bidding Process: All mining concessions must now be awarded through a public bidding process. Concession holders must secure all necessary environmental, social, and labor permits before receiving the concession.
- Concession Term: The term for mining concessions has been reduced from 50 years to 30 years, with a one-time renewal option for an additional 25 years.
- Scope of Concessions: Concessions are now granted for specific minerals rather than all mineral deposits in a given area.
- Water Availability: The granting of a mining concession is conditioned on the availability of water.
- Social Impact Assessment: A new requirement for a social impact assessment, including prior, free, and informed inquiries with indigenous and Afro-Mexican communities.
- Environmental Regulations: Mining concessions are no longer considered preferential activities, meaning concession holders are not entitled to land access and superficial rights on adjacent properties.

- Transfer and Security Interests: Transfers of mining concessions require prior approval by the Ministry of Economy, and security interests over mining concessions can only be created to guarantee obligations of the concession holders.
- Profit Sharing: Concession holders must pay at least 5% of net profits to adjacent and affected indigenous communities.

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.

Under the Mining Reform, 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.

3.2.2 Mineral Concessions

Under Mexican mining law, titled concessions must have submitted the required Surveying and Assessment Works to define their precise location and rights against any pre-existing mining claim and concession owners have the obligation to submit annual Assessment of Work Reports by the end of May for each concession, or group of concessions, based on minimum investment amounts.

The Buenavista del Cobre operations consist of 43 mining concessions covering in aggregate 89,220.5 Ha. Concessions controlled by Buenavista del Cobre are summarized in Table 3.1 and shown in Figure 3.2. Non-compliance with these requirements is cause for cancellation only after the authority communicates in writing to the concessionaire advising of any such default and granting the concessionaire a specified time frame in which to remedy the default. As of the date of this report, all these concessions are in good legal standing as reported by SCC and valid for a term of 50 years from the date the concessions were granted. The concession can be renewed for an additional 50 years.

Holders of mining concessions must meet bi-annual payment of mining duties. Holding fees for mining concessions vary from US$0.53 to US$11.60 per Ha, depending on the start date of the mining concession. As of the date of this report, SCC has stated that timely payments were made in connection with its concessions and the concessions are in good standing. As reported by SCC, fees paid during 2024, 2023, and 2022 for Buenavista del Cobre were approximately US$2.07 million (M), US$2.04 M, and US$1.84 M, respectively.

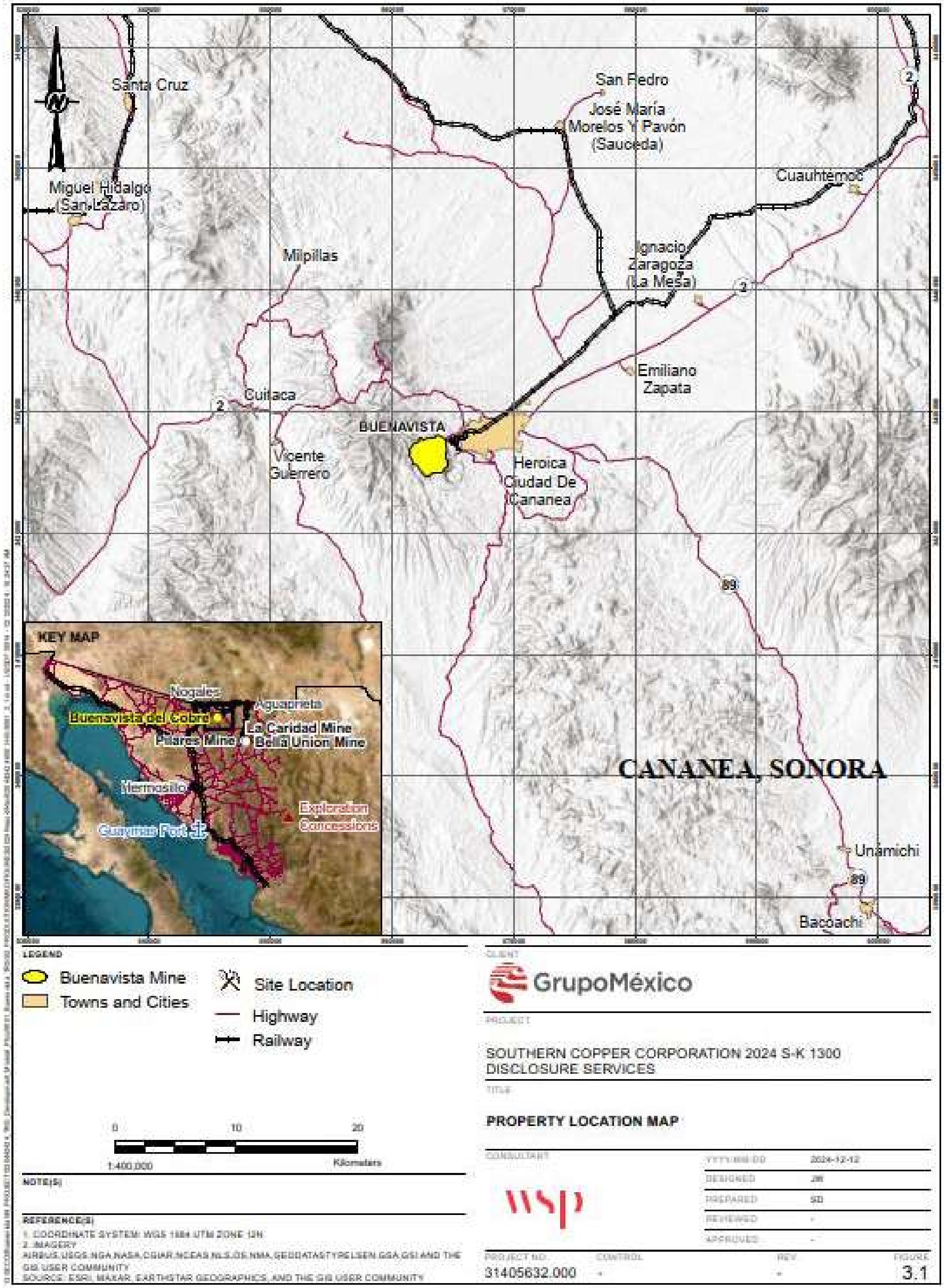


Figure 3.1: Property Location Map

Table 3.1: Mineral Concessions

Concession Number	Concession Name	Municipality	Province	Date Granted	Expiry Date	Area (ha)
184661	CANANEA I	Cananea	Sonora	10/11/1989	09/11/2039	463.1
184662	CANANEA II	Cananea	Sonora	10/11/1989	09/11/2039	302.7
184663	CANANEA III	Cananea	Sonora	10/11/1989	09/11/2039	475.1
184664	CANANEA IV	Cananea	Sonora	10/11/1989	09/11/2039	416.0
184665	CANANEA V	Cananea	Sonora	10/11/1989	09/11/2039	449.4
184666	CANANEA VI	Cananea	Sonora	10/11/1989	09/11/2039	479.0
184667	CANANEA VII	Cananea	Sonora	14/11/1989	13/11/2039	480.0
184668	CANANEA VIII	Cananea	Sonora	10/11/1989	09/11/2039	480.0
184669	CANANEA IX	Cananea	Sonora	14/11/1989	13/11/2039	480.0
184670	CANANEA X	Cananea	Sonora	10/11/1989	09/11/2039	480.0
184671	CANANEA XI	Cananea	Sonora	10/11/1989	09/11/2039	453.0
208534	FRACCION I MARIA 46-1	Cananea	Sonora	24/11/1998	23/11/2048	195.0
208535	FRACCION II MARIA 46-1FRACCION I	Cananea	Sonora	24/11/1998	23/11/2048	354.5
208536	FRACCION II MARIA 46-1FRACCION II	Cananea	Sonora	24/11/1998	23/11/2048	5.5
211244	FRACCION III MARIA 46-1	Cananea	Sonora	18/04/2000	17/04/2050	1,523.4
211526	MARTA	Cananea	Sonora	31/05/2000	30/05/2050	324.4
212913	TROYA 4	Cananea	Sonora	12/02/2001	11/02/2051	28.0
214442	EL SALTO	Cananea	Sonora	05/09/2001	04/09/2051	483.3
216319	EL PREMIO 2 FRACC. I	Cananea	Sonora	06/05/2002	05/05/2052	7.3
217656	TROYA 2	Cananea	Sonora	05/08/2002	04/08/2052	350.0
220488	EL CARACOL FRACC. I	Cananea	Sonora	11/08/2003	10/08/2053	83.9
220489	EL CARACOL FRACC. II	Cananea	Sonora	11/08/2003	10/08/2053	1.6
222923	LA PRESA FRACCION I	Cananea	Sonora	20/09/2004	19/09/2054	479.1
223839	MARIA 49	Cananea	Sonora	23/02/2005	22/02/2055	281.2
225085	LA PRIMAVERA	Cananea	Sonora	11/07/2005	10/07/2055	28.7
225543	LA PRESA FRACCION II	Cananea	Sonora	20/09/2005	19/09/2055	721.3
225544	SANTA ISABEL	Cananea	Sonora	20/09/2005	19/09/2055	250.0
225545	COBRE RICO	Cananea	Sonora	20/09/2005	19/09/2055	12.2
225546	EL PREMIO	Cananea	Sonora	20/09/2005	19/09/2055	36.5
225591	EL PREMIO 2 FRACC. II	Cananea	Sonora	22/09/2005	21/09/2055	1.6
231469	CANANEA	Cananea	Sonora	27/02/2008	26/02/2058	4,729.2
232231	MARIA 54	Cananea	Sonora	08/07/2008	07/07/2058	1.4
232232	MARIA 55	Cananea	Sonora	08/07/2008	07/07/2058	20.0
239316	TROYA 3	Cananea	Sonora	13/12/2011	12/12/2061	112.3
239339	SALSIPUEDES	Cananea	Sonora	13/12/2011	12/12/2061	1,468.1
239357	SALSIPUEDES 2	Cananea	Sonora	13/12/2011	12/12/2061	5,704.4
239729	SALSIPUEDES 3	Cananea	Sonora	15/02/2012	14/02/2062	23,929.3
239884	AZUL 3	Cananea	Sonora	29/02/2012	28/02/2062	16,896.3
240530	AZUL 2	Cananea	Sonora	12/06/2012	11/06/2062	396.4
240555	AZUL	Cananea	Sonora	14/06/2012	13/06/2062	16,667.5
243801	MARIA 47 RED. ALACRAN	Cananea	Sonora	05/12/2014	04/12/2064	2,400.8
243894	MARIA 47 DIV 1 ALACRAN	Cananea	Sonora	09/01/2015	08/01/2065	3,698.3
243895	MARIA 47 DIV 1 F2	Cananea	Sonora	09/01/2015	08/01/2065	3,070.8
Total						**89,220.5**

Source: SCC 2024

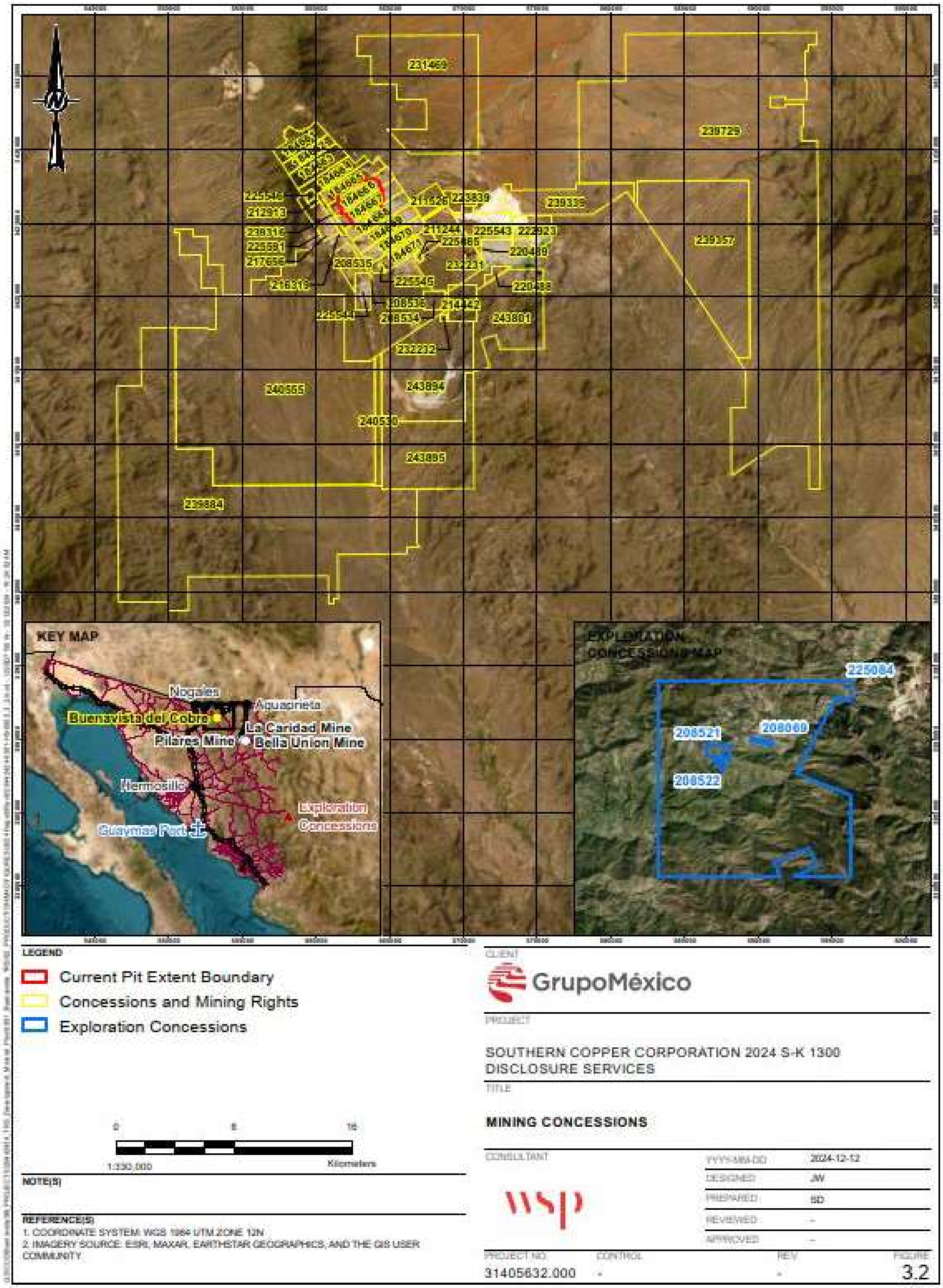


Figure 3.2: Mineral Concessions

3.3 Description of Property Rights

All the estimated Mineral Resources and Reserves lie within privately owned or possessed land under the name of Buenavista del Cobre SA de CV, or Proyecciones Urbanisticas S de RL de CV. The parcels are shown in Figure 3.3 and the parcel identification, owner name and surface area for the 97 parcels that encompass the Buenavista del Cobre mining unit are shown in Table 3.2.

Ownership is not required to explore or mine a concession; however, SCC generally owns the land related to the Buenavista del Cobre operations. Additionally, SCC stated that all the processing facilities of the Buenavista del Cobre operations and land on which they are built are owned by SCC.

3.4 Royalty Payments

As per regulations enacted by the Mexican government, a mining royalty of 7.5% is due to the government on earnings before taxes with an additional royalty charge of 0.5% over gross income from sales of gold, silver and platinum. These charges are effective January 2014 and are deductible for income tax purposes. As per SCC, no other royalty payments are due.

3.5 Potential Encumbrances to the Property

3.5.1 Environmental Liabilities and Other Encumbrances

Environmental permitting in the mining industry in Mexico is mainly administered by the federal environmental authority (SEMARNAT), which is the regulatory agency that establishes the minimum standards for environmental compliance. Applicable environmental permitting requirements are further discussed in Section 17.0.

Historic mining operations pre-date the establishment of the Mexican environmental requirements and a number of older facilities at the mine have not been permitted. Buenavista del Cobre has begun a process to bring the entire mining complex into compliance with Mexico’s Ecology Law, which requires that potential environmental impacts be identified, prevented, and mitigated, plus that compensation measures be made. Buenavista del Cobre is planning to submit a regional Environmental Impact Statement that will include all other mining facilities and activities. The “in progress” and proposed permit submittals are discussed in Section 17.0.

3.5.2 Historical Smelter Remediation

In 1989, Compañía Minera de Cananea declared bankruptcy, suspending its operations for almost three months. The smelter is subject to remediation and permanent closure. Buenavista del Cobre has developed a remediation program for this area, which is referred to as the “Antigua Fundación” (historical smelter) of Cananea (AFC) (Grupo Mexico Minería, 2020, Programa de remediación ambiental de la Antigua Fundación de Cobre); however as of the date of this report, the remediation program was not active. The area consists of 63.65 ha, as per a draft remediation program document that was provided to WSP.

3.6 Other Significant Factors and Risks Affecting Access

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

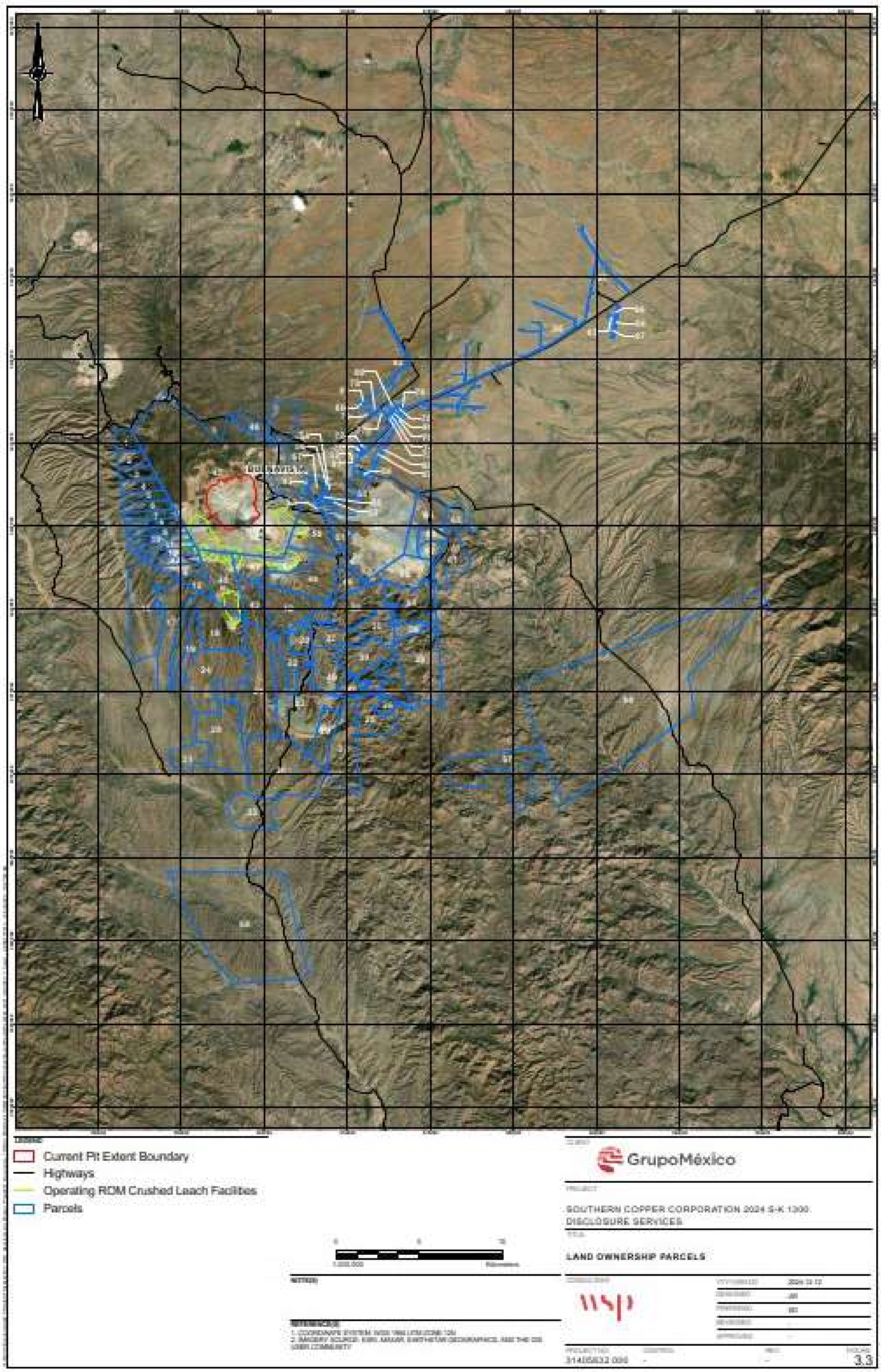


Figure 3.3: Buenavista del Cobre Parcels

Table 3.2: Buenavista del Cobre Parcels

Polygon Number	Parcel Name	Owner/Deed Holder	Area (Ha)
1	PARCELA 21 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
2	PARCELA 22 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
3	PARCELA 23 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
4	PARCELA 24 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
5	PARCELA 25 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
6	PARCELA 26 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
7	PARCELA 27 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
8	PARCELA 28 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
9	PARCELA 29 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
10	PARCELA 30 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
11	PARCELA 31 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
12	PARCELA 32 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
13	PARCELA 33 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
14	PARCELA 34 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
15	PARCELA 35 Z1-P2/2	Buenavista del Cobre S.A de C.V.	169.8
16	PARCELA 1 Z1-P1	Buenavista del Cobre S.A de C.V.	1,131.0
17	PARCELA 2 Z1-P1	Buenavista del Cobre S.A de C.V.	732.7
18	PARCELA 3 Z1-P1	Buenavista del Cobre S.A de C.V.	1,131.0
19	PARCELA 4 Z1-P1	Buenavista del Cobre S.A de C.V.	278.5
20	PARCELA 5 Z1-P1	Buenavista del Cobre S.A de C.V.	302.3
21	PARCELA 6 Z1-P1	Buenavista del Cobre S.A de C.V.	1,241.2
22	PARCELA 7 Z1-P1	Buenavista del Cobre S.A de C.V.	354.5
23	PARCELA 8 Z1-P1	Buenavista del Cobre S.A de C.V.	1,296.5
24	PARCELA 9 Z1-P1	Buenavista del Cobre S.A de C.V.	1,068.4
25	PARCELA 10 Z1-P1	Buenavista del Cobre S.A de C.V.	420.9
26	PARCELA 11 Z1-P1	Buenavista del Cobre S.A de C.V.	115.1
27	PARCELA 12 Z1-P1	Buenavista del Cobre S.A de C.V.	773.5
28	PARCELA 13 Z1-P1	Buenavista del Cobre S.A de C.V.	1,010.3
29	PARCELA 14 Z1-P1	Buenavista del Cobre S.A de C.V.	345.1
30	PARCELA 15 Z1-P1	Buenavista del Cobre S.A de C.V.	1,418.2
31	PARCELA 16 Z1-P1	Buenavista del Cobre S.A de C.V.	319.9
32	PARCELA 18 Z1-P1	Buenavista del Cobre S.A de C.V.	512.9
33	PARCELA 1 Z1-P2	Buenavista del Cobre S.A de C.V.	653.6
34	PARCELA 2 Z1-P2	Buenavista del Cobre S.A de C.V.	621.0
35	PARCELA 3 Z1-P2	Buenavista del Cobre S.A de C.V.	361.4
36	PARCELA 4 Z1-P2	Buenavista del Cobre S.A de C.V.	182.2
37	PARCELA 5 Z1-P2	Buenavista del Cobre S.A de C.V.	342.6
38	PARCELA 6 Z1-P2	Buenavista del Cobre S.A de C.V.	995.9
39	PARCELA 7 Z1-P2	Buenavista del Cobre S.A de C.V.	765.9
40	PARCELA 8 Z1-P2	Buenavista del Cobre S.A de C.V.	700.1
41	PARCELA 9 Z1-P2	Buenavista del Cobre S.A de C.V.	180.3
42	FUSION PREDIO CHAPULTEPEC (EJIDO NIÑOS HÉROES)	Buenavista del Cobre S.A de C.V.	670.8
43	POTRERO LA VIEJITA Ó CAMPO FRIO II Ó HIERBABUENA	Buenavista del Cobre S.A de C.V.	400.0
44	LA YERBABUENA	Buenavista del Cobre S.A de C.V.	660.6
45	LAS PEÑITAS	Buenavista del Cobre S.A de C.V.	6,468.5
46	LAS PEÑITAS FRACCION SUR	Buenavista del Cobre S.A de C.V.	194.6
47	CAMPO FRIO (PUR-014-T)	Mexicana de Cananea S.A. de C.V.	572.7
48	LA MEXICANA	Mexicana de Cananea S.A. de C.V.	842.6
49	LA CUCHILLA Ó EL JARALITO	Mexicana de Cananea S.A. de C.V.	199.6
50	HOTEL APOSENTOS DEL REAL (PUR-015-T)	Buenavista del Cobre S.A de C.V.	639.2
51	PREDIO VARELA 102 HAS.	Proyecciones Urbanisticas S. de R.L. de C.V.	102.0
52	LA MATANZA	Mexicana de Cananea S.A. de C.V.	40.0
53	FRACCION NUM. 5, PREDIO OJO DE AGUA	Mexicana de Cananea S.A. de C.V.	11.9
54	FRACCION NUM. 4, PREDIO OJO DE AGUA	Proyecciones Urbanisticas S. de R.L. de C.V.	38.3

Table 3.2: Buenavista del Cobre Parcels (cont.)

Polygon Number	Parcel Name	Owner/Deed Holder	Area (Ha)
55	CASA DE VISITAS # 2 Y BALDIO FRACCION 1 Y 2 (PUR-05-T)	Buenavista del Cobre S.A de C.V.	8.2
56	RECINTOS DEL COBRE (PUR-002-T)	Buenavista del Cobre S.A de C.V.	8.8
57	COLONIA CAMPESTRE (PUR-009-T)	Buenavista del Cobre S.A de C.V.	97.4
58	FRACCION NUM. 6, PREDIO OJO DE AGUA	Buenavista del Cobre S.A de C.V.	241.7
59	FRACCION DE 1,944 HAS. PRESA DE JALES Ó DEMASIAS OJO DE AGUA DE ARVALLO	Proyecciones Urbanisticas S. de R.L. de C.V.	1,944.4
60	EL MOSCO	Proyecciones Urbanisticas S. de R.L. de C.V.	566.6
61	OJO DE AGUA DE ARVAYO (PUR-013-T)	Buenavista del Cobre S.A de C.V.	431.0
62	EL TIANO	Buenavista del Cobre S.A de C.V.	146.8
63	FRACCION DE 146 HAS. PRESA DE JALES Ó DEMASIAS OJO DE AGUA DE ARVALLO	Proyecciones Urbanisticas S. de R.L. de C.V.	148.8
64	FRACCION DE 478 HAS. PRESA DE JALES Ó DEMASIAS OJO DE AGUA DE ARVALLO	Proyecciones Urbanisticas S. de R.L. de C.V.	478.0
65	FRACCION OJO DE AGUA DE ARVAYO SECCION B Ó PRESA DE JALES, AMPLIACION	Mexicana de Cananea S.A. de C.V.	200.0
66			
67	EL POTRILLO POLIGONO 5	Buenavista del Cobre S.A de C.V.	971.6
68	LA CABELLERA	Proyecciones Urbanisticas S. de R.L. de C.V.	3,987.9
69	INTERMODAL POLIGONO P1	Mexicana de Cananea S.A. de C.V.	51.0
70	INTERMODAL POLIGONO P2	Mexicana de Cananea S.A. de C.V.	19.7
71	RANCHO TRES PUERTAS LOTE 30	Buenavista del Cobre S.A de C.V.	24.5
72	PLAZA COMERCIAL PREDIO 1	Buenavista del Cobre S.A de C.V.	22.5
73	RANCHO TRES PUERTAS LOTE 19	Buenavista del Cobre S.A de C.V.	11.0
74	RANCHO TRES PUERTAS LOTE 18	Buenavista del Cobre S.A de C.V.	10.4
75	RANCHO TRES PUERTAS LOTE 15	Buenavista del Cobre S.A de C.V.	9.9
76	RANCHO TRES PUERTAS LOTE 14	Buenavista del Cobre S.A de C.V.	10.1
77	RANCHO TRES PUERTAS LOTE 05	Buenavista del Cobre S.A de C.V.	20.4
78	LOS ALISOS Y LECHERIA LOTE 03	Buenavista del Cobre S.A de C.V.	19.5
79	LOS ALISOS Y LECHERIA LOTE 02	Buenavista del Cobre S.A de C.V.	19.5
80	EL BARRILITO POLIGONO 03	Buenavista del Cobre S.A de C.V.	4.8
81	EL BARRILITO POLIGONO 02 ELIMINADO (SUB-ESTACION)(DONACION A CFE)	Buenavista del Cobre S.A de C.V.	3.4
82	EL BARRILITO POLIGONO 01	Buenavista del Cobre S.A de C.V.	123.4
83	PARCELA 65, AEROPUERTO	Proyecciones Urbanisticas S. de R.L. de C.V.	13.0
84	PARCELA 63, AEROPUERTO	Buenavista del Cobre S.A de C.V.	27.5
85		Buenavista del Cobre S.A de C.V.	
86	SERVIDUMBRE DE PASO DE SISTEMA DE BOMBEO EN EJIDO EMILIANO ZAPATA (PATOS SUR, PATOS NORTE, AMPLIACION DEL RIO Y LA CIENEGITA)	Buenavista del Cobre S.A de C.V.	73.1
87	SERVIDUMBRE DE PASO DE SISTEMA DE BOMBEO EN EJIDO ZARAGOZA	Buenavista del Cobre S.A de C.V.	49.7
88	POLIGONO FRACCION "M" RANCHO TRES PUERTAS	Buenavista del Cobre S.A de C.V.	35.8
89	POLIGONO LOTE 07 -LOS PATOS	Buenavista del Cobre S.A de C.V.	20.4
90	POLIGONO LOTE 17 -LOS PATOS	Posesion derivada Buenavista del Cobre	10.0
91	LOTE 06, FRACC. BUENAVISTA	Posesion derivada Buenavista del Cobre	1.0
92	LOTE 05, FRACC. BUENAVISTA	Buenavista del Cobre S.A de C.V.	1.0
93	POLIGONO LOTE 02,MZA. 116-A COLONIA ESTADIO	Buenavista del Cobre S.A de C.V.	0.0
94	PREDIO LA CHUREA	Buenavista del Cobre S.A de C.V.	7,461.9
95	FRACCION 2 LOTE 8	Buenavista del Cobre S.A de C.V.	1.9
96	AMPLIACION 1 AERODROMO	Buenavista del Cobre S.A de C.V.	4.9
97	AMPLIACION 2 AERODROMO	Buenavista del Cobre S.A de C.V.	5.6
Total			**47,929.9**

Source: SCC 2024

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Topography and Land Description

The Cananea mining district is in the Sierra Madre Occidental physiographic province and Northern Mountains and Valleys sub-province, which is characterized by parallel mountains that are oriented northwest-southeast (NW-SE), separated by intermountain valleys. This basin and range structure represents geologic blocks displaced by normal faults, causing an alternation of raised and sunken blocks (horst and graben that reflect major tectonic stress events. The principal mountains in the region are the La Elenita, Los Ajos, El Caracola, Azul, El Cipres, and La Mariquita, which are all at elevations above 2,000 m amsl. Depending on the rock type of the mountain, the steepness of the slopes can vary between 15% to 25%.

The Cananea mining district is located at altitudes ranging from 1,600 m to 2,485 m amsl. The city of Cananea has an elevation of approximately 1,604 m amsl. The local terrain has topography of mountains and valleys. The lithology of intrusive rocks and volcanic rocks forms the steepest and most resistant slopes of the Cananea Mountains. The major rock types that outcrop are volcanic rocks of acidic to intermediate composition, of Tertiary age, with a minor percentage of granitic rock of upper Cretaceous age.

The drainage pattern is controlled by joint and fault patterns in the Cananea Mountains and is considered to exhibit dendritic characteristics, with parallel tributaries that in general are first order streams. The streams divide and reconnect downslope as a result of a shallow slope gradient.

Valleys and low hills are located between the mountain ranges. The valley consists of sub-basins filled with clastic sedimentary material, and hill slopes generally less than 5%. These sub-basins are bounded by normal faults.

4.2 Access to the Property

The Buenavista del Cobre mining operation is located on the outskirts of the city of Cananea, Sonora (see Figure 4.1). It is about 40 km south of the Arizona (United States) border with Mexico. The mine access is via paved highways to the border city of Agua Prieta to the northeast, to the town of Nacozari to the southeast and to the town of Ímuris to the west.

From Hermosillo, the capital of Sonora, the main communication route is federal highway No. 15, Hermosillo-Nogales section for 208 km north to Ímuris, then continuing east along federal highway No. 2 Ímuris – Cananea for 81 km. The railroad lines transport copper concentrate and copper anodes from the mine to Nogales, Naco-Agua Prieta and Nacozari, which are all towns in northern Sonora. The railroad has a spur that enters the plant site.

There is a municipal airport located approximately 20 km to the northeast of the mining operation, and an international airport in Hermosillo, Sonora.

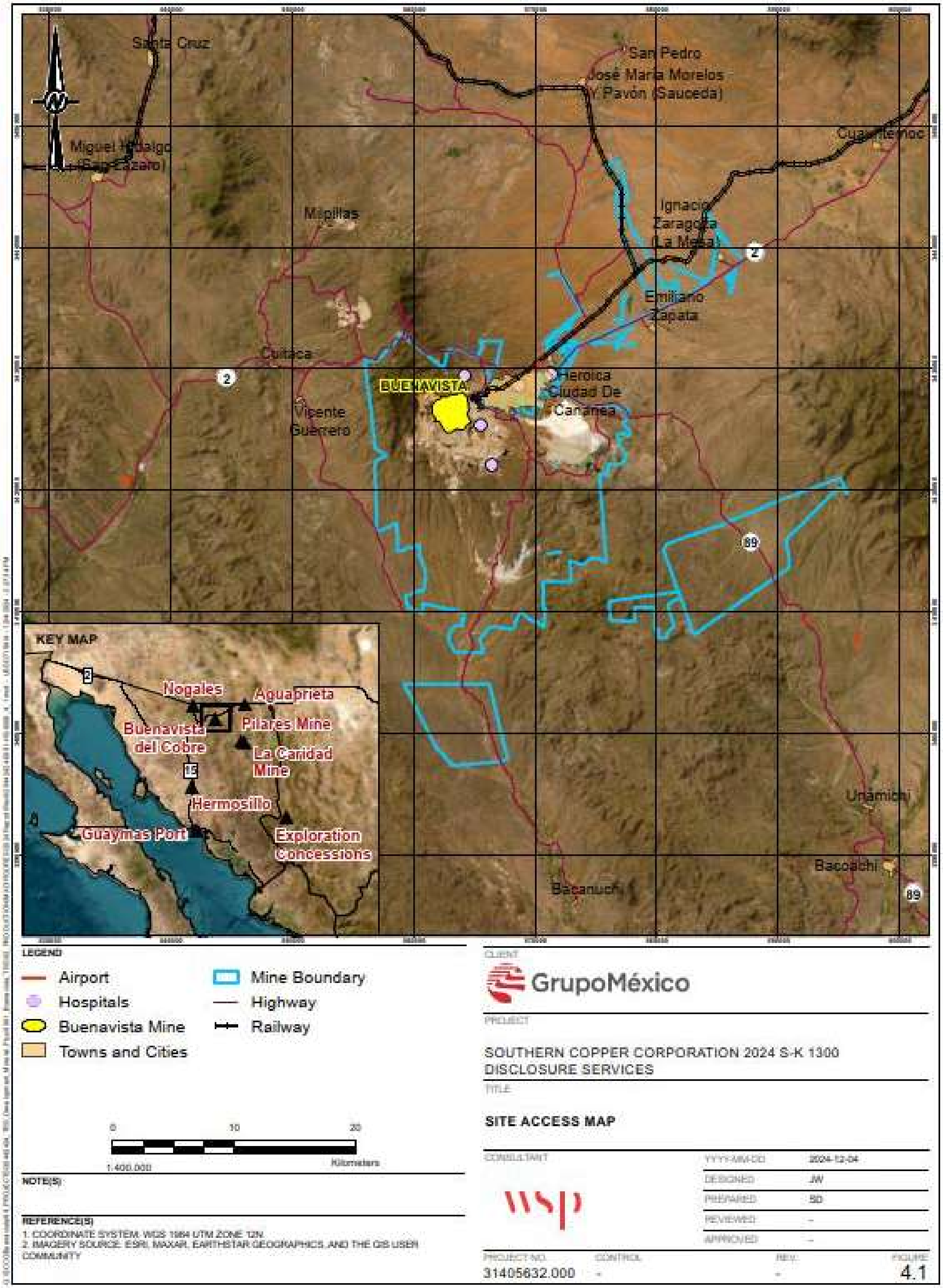


Figure 4.1: Site Access

4.3 Climate Description

Mining operations are year-round. The climate in Cananea ranges from humid and dry subtropical conditions at elevations between 1,600 m and 2,200 m to semi-arid conditions below 1,600 m. Average annual rainfall is 550 mm, much of which falls during the months of July and August. Occasionally, the higher elevations receive some snow and sleet during the winter months. The monthly average temperature is about 24°C in July and about 10°C in December, which indicates that the temperature changes in the area can be extreme. June to August are the hottest and most humid months, and December the coldest month. The Mexican National Meteorological Service operates a weather station in the city of Cananea.

According to the Köppen-Geiger climatic classification system, 92% of the study area, which includes areas reporting to the San Pedro and Sonora Rivers, is temperate, semi-dry climate, while 8% of the study area is a temperate dry climate. The remaining area is subhumid temperate climate. The annual mean temperature of a temperate semi-dry climate is typically 12 to 18°C.

4.4 Vegetation and Land Use

The region features multiple vegetation due to the range of elevations. Vegetation ranges from the Sonora high desert zone of scrub and grasses at lower elevations to a zone of coniferous forests at higher elevations, with a transitional oak and pinion forest zone in between. The mine is primarily located in the Sonora high desert vegetation zone.

Land use in Sonora has traditionally been agricultural activities and cattle ranching. Cattle are typically free-grazing, due to the abundance of grasses. A forest and soil inventory prepared by the Mexican National Forestry Commission reports that about 50% of the region is natural grassland dominated by grass species. Overgrazing of livestock and extraction of non-timber species has led to soil vulnerability and erosion. The inventory indicates that oak forest represents about 33% of the region and that to up to 200 species of oaks are present. The rest of the natural vegetation identified in the inventory was táscate forest, microphyllous desert scrub, mesquite forest, oak pine forest, and desert mesquite. The táscate forest is primarily composed of juniper trees.

4.5 Availability of Required Infrastructure

As per the intercensal survey carried out in 2020 by the Ministry of Economy (www.economia.gob.mx), the registered population of Cananea was reported to be 39,451 inhabitants. Infrastructure services in the city include drinking water, drainage, telephone, and electricity. Most of the roads within the urbanized area are paved. Mining is the main source of income and employment, followed by commerce and livestock.

Electrical power is supplied to the site from the utility grid via 230 kilovolts (kV) overhead transmission lines and is stepped down to 34.5-kV for distribution secondary substations. The bulk of the demand is supplied by Mexico Generadora de Energia S. de R. L. (MGE), a subsidiary of Grupo Mexico, the majority stockholder of Southern Copper. A minor portion of the site demand is supplied by Comisión Federal de Electricidad (CFE), the state's electrical power producer.

The site has a concession from the Comisión Nacional del Agua (the National Water Commission, or the CNA) to pump water from wells drilled around the Cananea area. The wells pump approximately 35 million cubic meters (Mm^3) annually and are connected to a distribution piping network that feeds water to different consumers. The site has plans in place for freshwater conservation by reducing the consumption and recycling for reuse, when possible.

The site uses natural gas for firing boilers and emergency in-situ power generators. The site uses diesel oil to fuel mining and haulage fleets and other mobile equipment and as back up fuel to natural gas. Natural gas is available to the area via a pipeline that extends from Naco (Arizona) to Cananea (Sonora). Diesel oil is available through direct contracts with Petroleos Mexicanos (PEMEX), the state's petroleum producer and other alternative distributors.

The mining 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; shops for truck wash, lube and repair, and workshops for general maintenance; and warehouses for storage of products, consumables, and spare parts.

5.0 HISTORY

5.1 Mining History of the Area

The Cananea mining district has experienced mining activity from the 18th century to approximately the year 1760, when Jesuit missionaries carried out the first exploitation working the “Cobre Grande Mine” from which they extracted minerals rich in gold and silver. These mining activities were sporadic due to the lack of good processing techniques and the lack of transport and communication routes. In 1899, William C. Greene, acquired rights according to the laws of the Mexican Republic and established “The Cananea Consolidated Copper Company”. The 1906 strike in this mining district marked the beginning of the Mexican Revolution. In 1917, The Anaconda Mining Company acquired control of The Cananea Consolidated Copper Company and began a partnership with Cananea that lasted until 1982. In 1926, the high-grade La Colorada deposit was discovered, containing an estimated 7 Mt of ore with an average grade of 6.0% copper, 0.40% molybdenum, and significant amounts of gold and silver.

In 1944, the construction of a new concentrator of 12,000 tonnes per day (tpd) was completed. Underground mining continued in parallel with open pit operation until 1964 when the decision was made to close the underground mines, and since then the open pit mining capacity has gradually increased. In 1950, the concentrator had its capacity increased to 16,000 tpd and the blister copper was sold to the Cobre de México refinery. The exploitation of the Tajo Cananea mine began in 1960. In 1971, the Cananea Consolidated Copper Company was converted to Mexican government holding 51% of the capital stock and changing its name to Compañía Minera de Cananea S.A. In 1973, a program to modernize existing equipment and facilities, as well as production techniques, was initiated. By 1976, the capacity of the concentrator had increased to 30,000 tpd and the smelter capacity was increased to 70,000 tonnes of blister copper. In 1986, a new Concentrator Plant with a capacity of 62,500 tpd began operations. This is the plant currently known as Concentrator I.

Another important aspect of mining at Cananea has been its supergenic copper leaching operation that began in the 1940s with a form of in-situ leaching of old stopes and abandoned underground mines. Significant large-scale landfill leaching began in the early 1950s, using scrap iron to produce copper cement or precipitate. Leaching is today an important and integral part of the mining operation. The leach pads are currently built with crushed and ROM materials extracted from the mine. Cathode copper production started in 1980 when the first SX-EW plant was built with a capacity of 30 tpd. The production of cement copper stopped shortly after the SX-EW plant was commissioned.

A second SX-EW plant with a capacity of 60 tpd was commissioned in 1989, and a further expansion of 60 tpd to this last facility completed in 2001.

A third SX-EW plant with a nominal capacity of 310 tpd was commissioned in 2014.

The three solvent extraction plants currently have a capacity to produce 175,200 tonnes of cathode copper per year (480 tpd).

As a consequence of the economic problems in Mexico at the end of the 1980s, Compañía Minera de Cananea opted for a bankruptcy declaration that became effective on August 20, 1989. This action caused the interruption of the mining operation for approximately three months and was resumed by court order. The Court-appointed administrator managed the mining company until September 30, 1990.

Cananea's re-privatization process culminated when Industrial Minera México (Grupo México) in association with Belgic Acec Union Miniere were selected as winners of the tender. The name of the mining company was changed to Mexicana de Cananea, S.A. de C.V., and on October 1, 1990, the new administration assumed responsibility for the mining operation.

The management of Mexicana de Cananea, after a thorough review of the mining development plan, approved significant capital investments for Cananea with the objectives of increasing copper production and improving efficiency.

In 1994, the first crushing and transport system for leaching material started with Quebalix I, with a capacity of 13.0 Mtpy (2,200 tph). In 1997, the Quebalix II started and was redesigned in 2016 to reach a maximum capacity of 24.75 Mtpy (4,300 tph). In 2013, the Quebalix III with a capacity of 19.2 Mtpy (3,200 tph) was put into operation, and during 2016 Quebalix IV began operations with a design capacity of 70 Mtpy (12,000 tph). The Quebalix I system was decommissioned in 2023. Currently, there are three crushers and leachable ore belts in operation with a crushing capacity of about 114 Mtpy.

There are two ore crushers in operation with an annual capacity of the order of about 73 Mtpy to process ore in the concentrators. The total annual material movement including ore and waste is of the order of about 300 Mtpy.

5.2 Drilling Exploration History

Exploration drilling programs targeting Cu mineralization, and more recently Zn, on the project have been undertaken over many years, from 1926 to 2024. Several different drilling techniques have been implemented, including diamond drill holes (DDH), percussion, reverse circulation (RC), and rotary drilling. From 1926 to 2024, 6,698 drill holes, totaling 1,296,668 m, have been drilled at Buenavista del Cobre. Table 5.1 summarizes the drilling by type and year of drilling.

Additional details on the exploration history can be found in Section 7.0.

Table 5.1: Summary of Exploration Drilling by Type and Year Drilled

Year	DDH		Percussion		RC		Rotary (All Types)		No. of Drill Holes	Total Meterage
	No. of Drill Holes	Total Meterage	No. of Drill Holes	Total Meterage	No. of Drill Holes	Total Meterage	No. of Drill Holes	Total Meterage		
Pre-1990	1,846	307,061	113	28,018					**1,959**	**335,079**
1990	99	20,201							**99**	**20,201**
1991					23	3,851			**23**	**3,851**
1992	99	21,880			89	13,073			**188**	**34,953**
1993					168	29,026			**168**	**29,026**
1994	94	31,906			171	26,788			**265**	**58,694**
1995					225	36,152			**225**	**36,152**
1996					254	46,857			**254**	**46,857**
1997					55	13,670			**55**	**13,670**
1998	99	45,886			57	9,122			**156**	**55,008**
1999	84	33,167			13	2,457			**97**	**35,624**
2000	106	50,043			3	738			**109**	**50,781**
2001					38	2,754			**38**	**2,754**
2002	17	7,204			137	15,588			**154**	**22,792**
2003	32	18,880			55	4,137			**87**	**23,017**
2004	14	2,409							**14**	**2,409**
2005	126	29,837							**126**	**29,837**
2006	45	10,284			25	3,807			**70**	**14,091**
2007	127	43,677			21	3,525			**148**	**47,202**
2011	43	26,030							**43**	**26,030**
2012	83	26,967							**83**	**26,967**
2013	92	27,330							**92**	**27,330**
2014	35	11,700							**35**	**11,700**
2015	103	37,472							**103**	**37,472**
2016	66	25,077							**66**	**25,077**
2017	18	9,990							**18**	**9,990**
2018	13	8,259							**13**	**8,259**
2020	80	50,729							**80**	**50,729**
2021					39	5,296			**39**	**5,296**
2022	38	27,106			45	4,332			**83**	**31,438**
2023	16	12,661			46	5,689			**62**	**18,350**
2024	35	26,599							**35**	**26,599**
No information	872	60,754	224	27,723			615	40,957	**1,711**	**129,434**
Total	**4,282**	**973,109**	**337**	**55,741**	**1,464**	**226,862**	**615**	**40,957**	**6,698**	**1,296,668**

5.3 Historical Production

The last six years of production as published by SCC in its Annual Reports is shown in Table 5.2.

Table 5.2: Production Statistics for Buenavista del Cobre (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)	72,896	74,180	74,234	72,895	70,323	70,464
Copper grade	(%)	0.525	0.528	0.527	0.527	0.554	0.537
Leach material mined	(kt)	121,124	122,630	139,070	128,118	141,096	145,253
Leach material grade	(%)	0.223	0.210	0.196	0.211	0.216	0.242
Stripping ratio	(kt/kt)	0.66	0.72	0.52	0.29	0.37	0.38
Total material mined	(kt)	322,142	337,727	324,860	259,860	288,882	297,718
Concentrator							
Total material milled	(kt)	72,609	74,121	74,302	73,011	70,371	70,328
Copper recovery	(%)	86.36	86.57	87.18	86.72	86.66	86.02
Copper concentrate	(kt)	1,456	1,482	1,465	1,398	1,421	1,371
Copper in concentrate	(kt)	329	339	341	334	338	325
Copper concentrate average grade	(%)	22.60	22.87	23.28	23.88	23.80	23.70
SX-EW Plant							
Estimated leach recovery	(%)	70	67	65	66.00	62.00	60.00
SX-EW cathode production	(kt)	87.60	93.30	81.80	98.20	100.10	89.30
Molybdenum							
Molybdenum grade	(%)	0.011	0.010	0.010	0.011	0.013	0.012
Molybdenum recovery	(%)	70.84	70.46	68.97	67.26	65.63	58.44
Molybdenum concentrate	(kt)	10.49	10.48	10.21	10.44	11.80	9.62
Molybdenum concentrate average grade	(%)	51.57	51.24	51.22	52.39	51.83	51.13
Molybdenum in concentrate	(kt)	5.41	5.31	5.23	5.47	6.12	4.92

Source: SCC
Notes:
- kt = thousand tonnes
- kt/kt = Stripping ratio obtained dividing waste by leachable material plus ore mined
- The copper and molybdenum grade are total grade.

6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

The Cananea mining district, where the Buenavista del Cobre porphyry Cu deposit is located, 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 Cu deposits. The porphyry Cu systems of México, as well as associated skarn and hydrothermal breccia pipe deposits, occur within the Laramide Belt, a NW-SE oriented region situated along the western side of the country (Valencia Moreno et al, 2007), as shown in Figure 6.1.

The Cananea mining district constitutes the most important mining district of México and is recognized as one of the principal porphyry Cu districts in the world (Bushnell, 1988). It is in northern Sonora state, approximately 250 km to the northeast of Hermosillo and ~160 km south of Tucson, Arizona, USA. (Figure 6.1).

The immediate basement underlying the Cananea mining district comprises an approximately 1,000-m thick sequence of Precambrian to Carboniferous quartzite and carbonate rocks. This sequence includes the Bolsa, Abrigo, Escabrosa, and Martin formations, which are underlain by a Proterozoic granite (Anderson and Silver, 1977). These units are unconformably overlain by a thick sequence of felsic to intermediate tuffs and flows of Triassic through Jurassic age, known as the Elenita and Henrietta formations (Valentine, 1936).

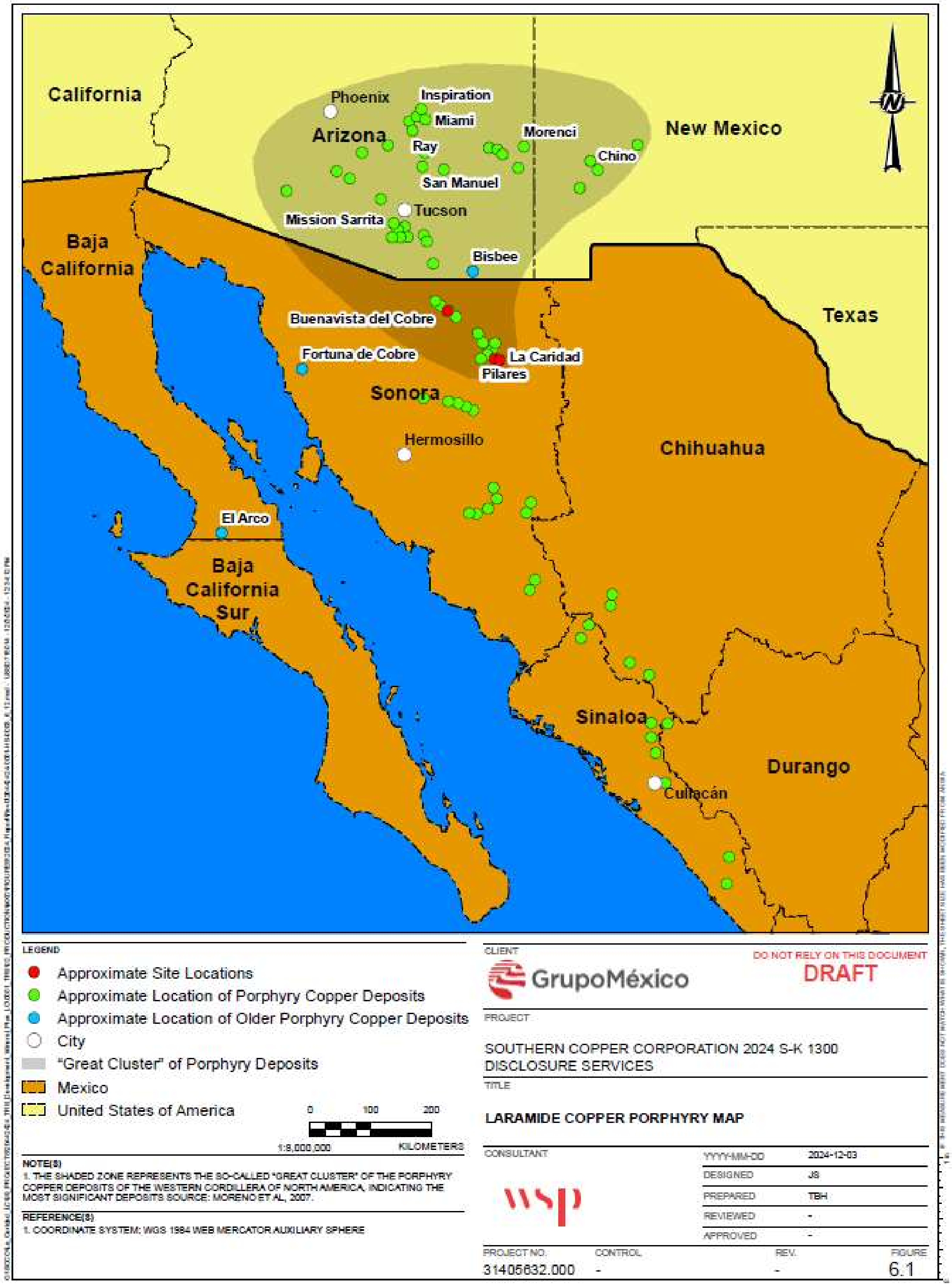
This magmatic period concluded at the end of the Jurassic, when the accretion of an andesitic arc in what is now Baja California, resulted in regional structural adjustments and a change in the style of subduction (Gastil et al., 1978). In the Cananea mining district there was a significant period of deformation following the emplacement of the El Torre Syenite and the Elenita and Henrietta volcanic formations. High-angle structures, including the Elisa, Capote Pass and Tinaja Creek faults (strike N 60° W to N 80° W), cut the above units, but do not affect the overlying Cretaceous rocks.

During the early Cretaceous, subduction of northwestern Mexico is represented by eastward episodes of volcanism and plutonism (Silver et al., 1975; Clark et al., 1978; Gastil et al., 1978), beginning 180 million years ago (Ma) in present-day Baja, California and progressing eastward into Sonora by 60 Ma. These volcanic rocks consisted primarily of andesitic tuffs and flows intruded by large equigranular syngenetic plutons of diorite to quartz monzonite. These plutons are abundant in the state of Sonora (Anderson and Silver, 1974) and in numerous localities are associated with contact metamorphism and Cu- or tungsten-bearing skarns.

In the Cananea mining district, Cretaceous volcanism is represented by the Mesa Formation, which consists of andesitic tuffs, lahars, flows and agglomerates, which discordantly overlies the Jurassic units. The Laramide volcanism was accompanied by a series of contemporary intrusive pulses that include the Tinaja diorite, the Cuitaca granodiorite, and the Chivato Monzodiorite. The final intrusive stage is represented by a series of basic dikes and the Diabasa Mariquita Formation along two dominant structural zones; one trending N 40° E and the other N 60° - 80° W.

Within the Capote Basin is the most complete section of the Paleozoic marine platform sedimentary sequence. This sequence was associated with similar formations in southeastern Arizona by various authors (Mulchay and Velasco 1954, Meinert 1982). The sequence in the Capote Basin is important as they are the host rocks for skarn mineralization.

Some skarn-type deposits dominated by bornite and chalcopyrite were mined in Puertecitos, northwest of the Buenavista del Cobre mine.



Note: The shaded zone represents the so-called "great cluster" of the porphyry Cu deposits of the western cordillera of North America, indicating the most significant deposits. Source: Moreno et al, 2007.

Figure 6.1: Map of the Laramide Porphyry Cu Belt of Northwestern México

6.2 Local and Property Geology

The Precambrian basement in the Cananea mining district is the Cananea Granite. The Cananea Granite comprises several porphyritic-textured granitic phases and pegmatitic phases. The Precambrian basement in the Cananea mining district is equivalent to the basement rocks found in southern Arizona and other parts of northern Sonora.

Unconformably overlying the Cananea Granite is the Cambrian-aged Capote Quartzite (Valentine, 1936). The Capote Quartzite has a mean thickness of 150 m (Mulchay and Velasco, 1954). Overlying the Capote Quartzite is the Esperanza Limestone (Emmons, 1910). This formation has thinly stratified clayey siltstones interbedded with carbonate rocks (Mulchay and Velasco, 1954). It is 80 m thick in the district. On top of the Cambrian Esperanza Limestone, the lower Crystalline Zone extends discordantly (Mulchay and Velasco, 1954). It has a thickness of 60 to 75 m with a thick crystalline lithology. The upper Mississippian Crystalline Zone is approximately 15 m to 30 m thick (Mulchay and Velasco, 1954). Above the upper Crystalline Zone is the 15 m to 30 m thick Chivatera Zone. Both the upper Crystalline Zone and the Chivatera Zone have poorly preserved Mississippian fossils and may be equivalent in part to the Escabrosa Formation in Arizona. The thickest sedimentary unit in the Cananea mining district is Puertecitos limestone (Emmons, 1910). It measures approximately 610 m thick and is Pennsylvanian in age.

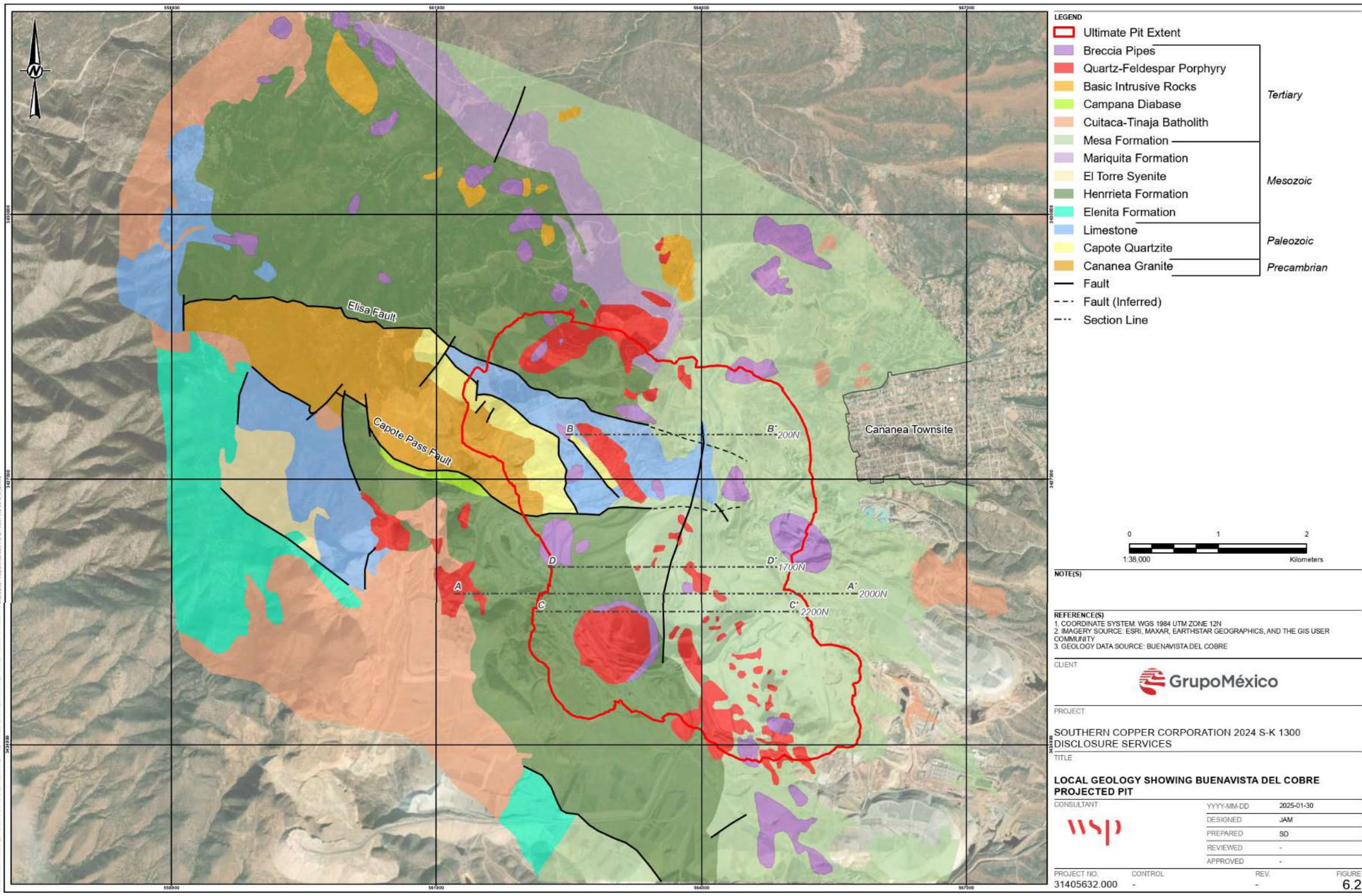
Overlying the Paleozoic sediments and Precambrian granite of Cananea are the Henrietta and Elenita formations which are Triassic to late Jurassic in age (Mulchay and Velasco, 1954). Their composition ranges from latite to andesite. The El Torre Syenite at the Cananea mining district is also of similar age. The youngest volcanic units in the district are andesitic tuffs and rhyolites of the Mesa Formation.

The intrusions of diorite, granodiorite, and quartz monzonite formed after the emplacement of the Mesa Formation. In the final stage of intrusive activity, diabase dikes intruded faults and fractures with a NW - SE trend. Pipe-like breccias formed as late-stage products of the quartz-monzonite porphyries.

During the Cenozoic, alluvial and fluvial sediments were deposited as erosion of the Cananea Mountains occurred. Exhumation of the upper part of the Cananea Mining District porphyry system resulted in the formation of a supergene enrichment and an oxidation overburden overlying the porphyry system.

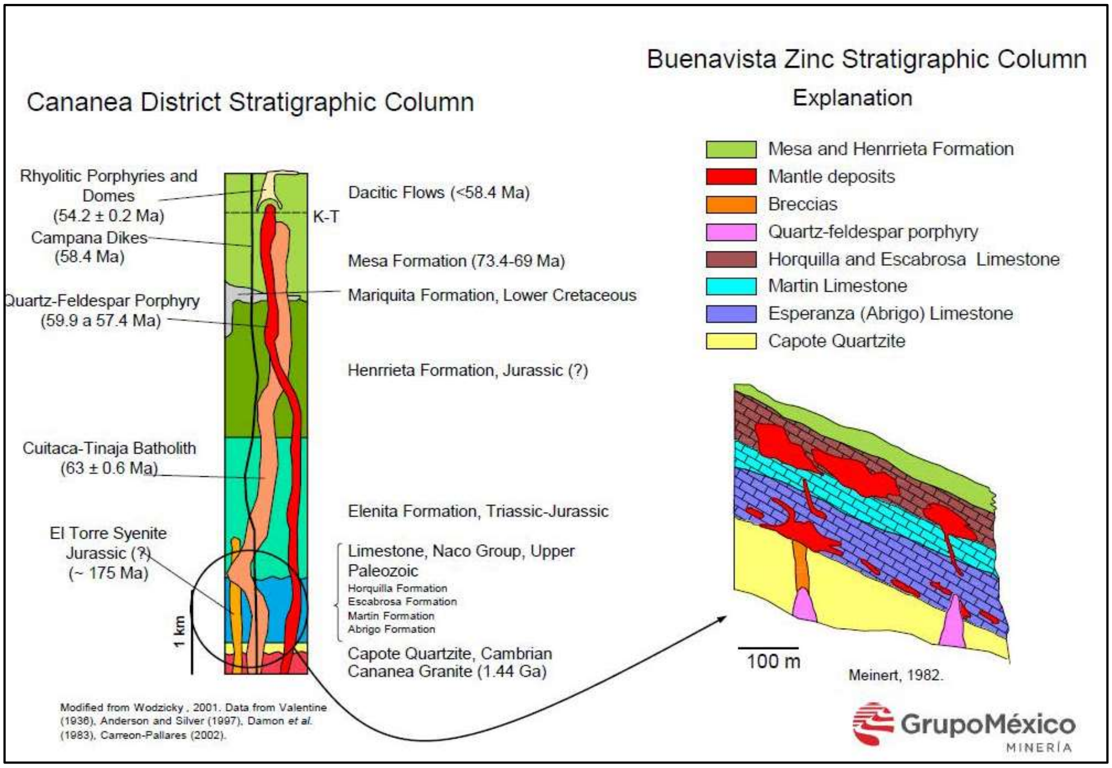
The Buenavista del Cobre deposit in the Cananea mining district is divided into two target zones, namely Buenavista Copper (BVC) and Buenavista Zinc (BVZ). The BVZ deposit conformably underlies the BVC deposit and is located to the northwest of the BVC deposit (Figure 6.2). Figure 6.3 illustrates the stratigraphic column at BVC and includes BVC on the left and BVZ on the right.

Example cross-sections for BVC and BVZ are shown in Figure 6.4 and Figure 6.5, respectively, with locations of the cross-sections on Figure 6.2.



Source: Buenavista del Cobre

Figure 6.2: Local Geolog4y Map with the Buenavista del Cobre Projected Pit



Source: Buenavista del Cobre internal geology document, May 2021

Figure 6.3: Cananea Mining District Regional Stratigraphic Column

Several types and styles of mineralization are present in the Buenavista del Cobre deposit, including magmatic-hydrothermal breccias (Cu-molybdenum [Mo]), skarn (Cu-zinc [Zn]), and disseminated sulfides (Cu-Mo).

The Buenavista del Cobre deposit is underlain by the volcanic units of the Henrietta and Mesa Formations. The Henrietta Formation is widely distributed towards the western portion of the operational areas, while the volcanic sequences of the Mesa Formation extend to the east of the mining operation. These volcanic units are intruded by a series of porphyritic dikes that are located in the central and deep portion of the mining phases.

The predominant alteration in the main lithologies is phyllic alteration, characterized by the development of sericite, quartz, and pyrite. The Capote Quartzite only exhibits sericite between the quartz grains that constitute the rock. The alteration in the rocks of the Henrietta Formation is characterized by the presence of silica, sericite, pyrite, and chlorite as an alteration product of the ferromagnesian minerals. The volcanic rocks of the Mesa Formation have a higher proportion of sericite. The coarse-grained quartz-feldspar porphyry in the west slope expansion shows strong silicification. Volcanic rocks in the southeastern portion of the operation show moderate concentrations of sericite.

Diabase dikes with strikes N60°W to 80°W and N40°E, cut the volcanic and porphyry units in the area of the mine workings. Mineralized breccias in the BVC pit (Breccia 301), on the east slope of the Phase 8 development are the remnants of the La Colorada Breccia. All these breccia structures occur near the porphyry intrusion. Contact zones between porphyry and volcanic rocks throughout the district contain economic supergene and hypogene mineralization.

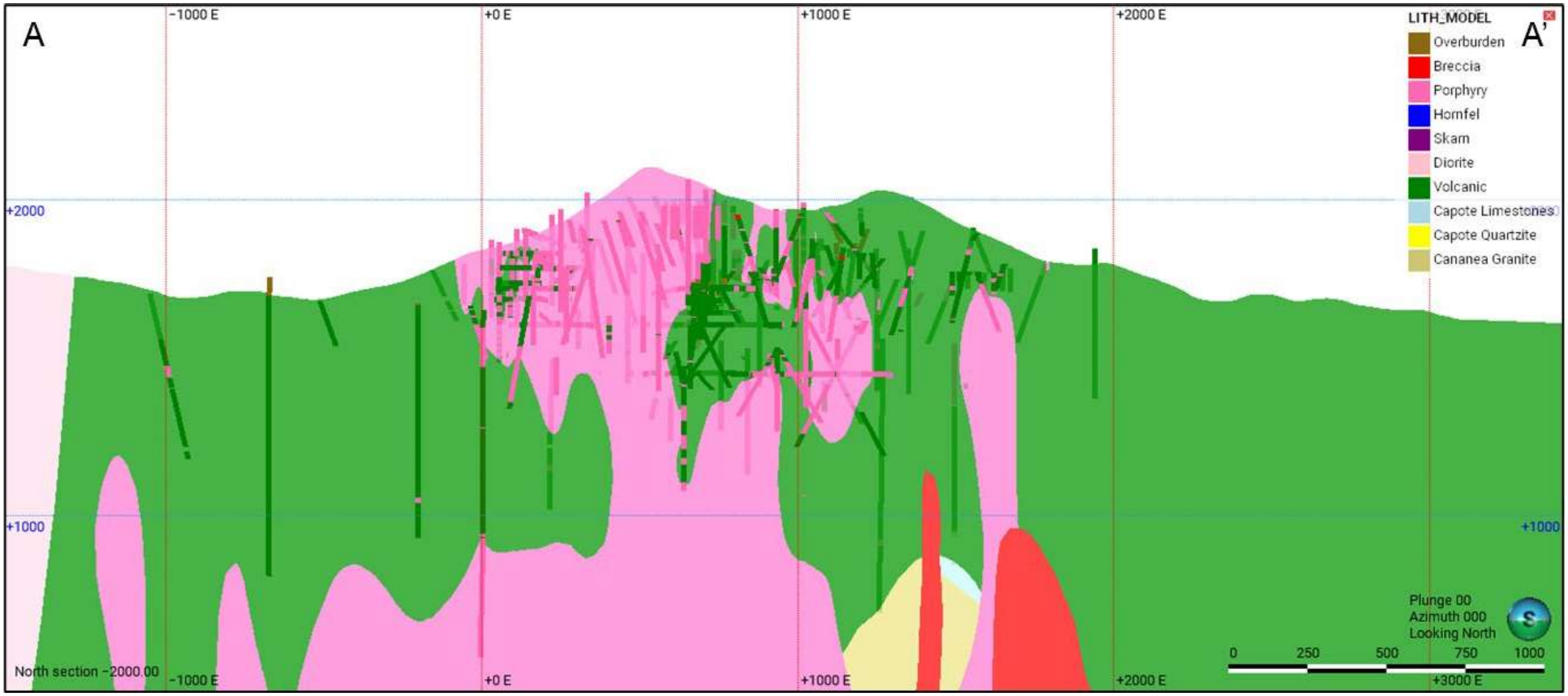


Figure 6.4: BVC Cross Section – Section Line 2000

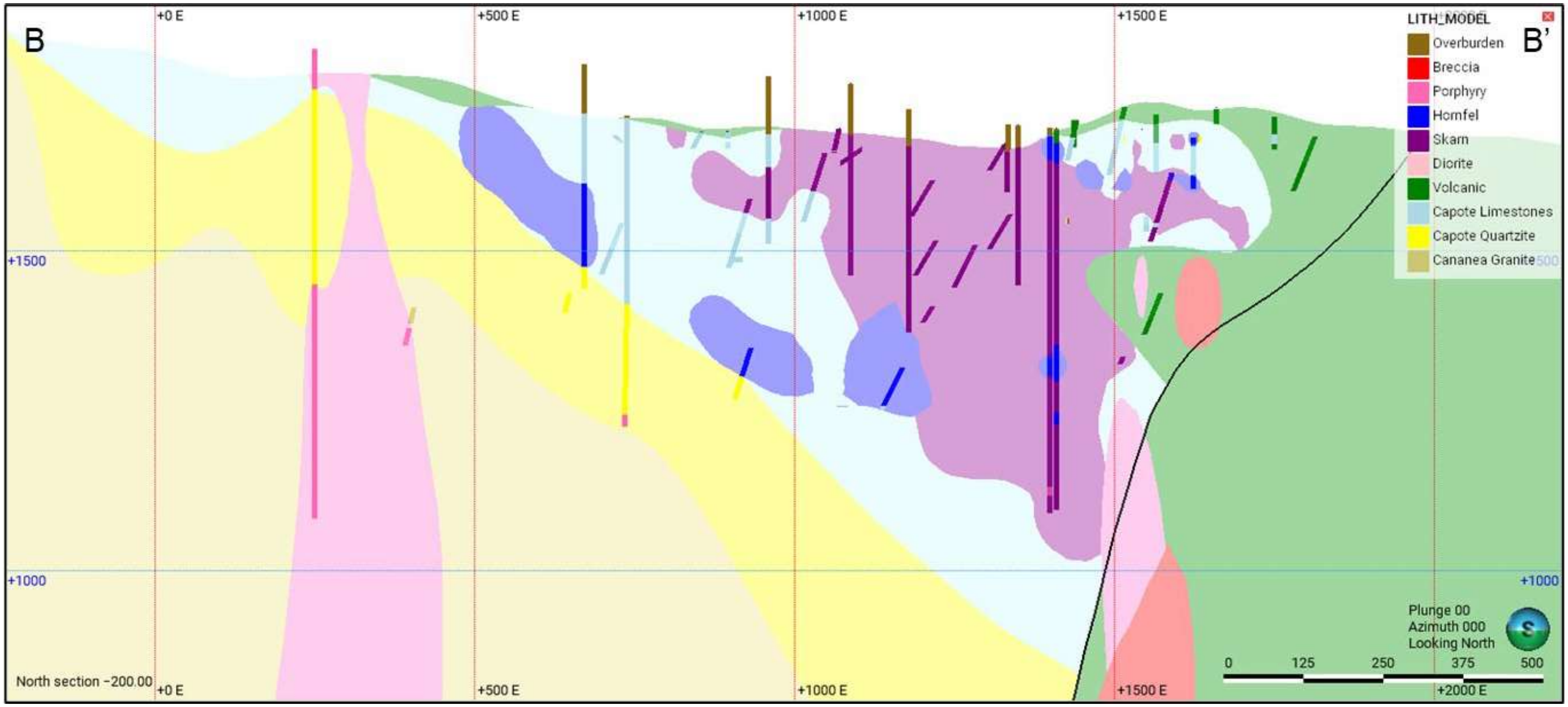


Figure 6.5: BVZ Cross Section – Section Line 200

The BVZ deposit is found within the Paleozoic sequence, comprising skarn-type mineralization hosted mainly in the Horquilla and Escabrosa formations.

The skarn zone is delimited to the north by the Elisa Fault, with a west-northwest (WNW) orientation, and to the south by the Capote Pass Fault (Meinert, 1982), forming a monocline with a NW-SE direction and a dip of 40 to 60 to the NE. The skarn zone is also present in the Esperanza Formation (Figure 6.5).

6.3 Alteration and Mineralization

6.3.1 Alteration

As described previously, the predominant alteration type observed in the Cananea mining district is phyllic alteration, in which significant deposits of supergene and hypogene mineralization are hosted. Pervasive hypogene alteration of quartz-sericite in the porphyritic and volcanic cap rocks is widely evident along the NW - SE axis of the district which extends for approximately 10 km. Towards the Capote Basin, prograde and retrograde alteration occurs, which is related to metamorphic and metasomatic events in the sedimentary formations. Propylitic alteration surrounds the areas of phyllic alteration in the district, where the main alteration products are chlorite and epidote. The effects of potassic alteration at surface in the Cananea mining district are scarce, although the incipient presence of potassic alteration minerals can be observed at depth, related to the emplacement in areas of important mineralized structures (e.g., La Colorada breccia). Quartz-sericite alteration, associated with incipient potassic alteration, has been found at a depth of more than 1,000 m (Ayala, 2007). The quartz porphyry of La Colorada, exhibit prominent fresh potassic feldspars and biotite of secondary origin. Argillic alteration occurs in the upper levels of the ore bodies, generally related to supergene enrichment zones in contact zone structures, breccias and faults. Kaolinite, halloysite, and alunite constitute most of the argillic alteration, as well as replacements of sericite by kaolin and minor pyrophyllite.

6.3.2 Mineralization

Much of the Cu mineralization in the Cananea mining district is found in disseminated form and in veinlets in stockwork zones in the volcanic and intrusive rocks. Higher Cu grades are hosted in breccia structures, contact zones and some replacement bodies. Supergene enrichment constitutes important zones of Cu mineralization, formed by chalcocite - covellite - digenite, generally replacing pre-existing primary minerals (pyrite - chalcopyrite). The distribution of mineralization in this zone is in disseminated form associated with volcanic rocks and porphyries of quartz-monzonite composition; in the replacement zone the occurrence of mineralization is in disseminated, nodular (patchy) form by cavity filling and replacement along the bedding planes. Underlying the supergene enrichment is a primary mineralization composed predominantly of chalcopyrite, with a minor amount of bornite. The distribution of mineralization is predominantly in veinlets, in disseminated form occurring in very fine grains with abundant occurrence of chalcopyrite-based copper minerals.

A layer of hematite - goethite - jarosite oxides is found above the supergene enrichment between elevations 2,200 m to 1,800 m. The presence of native limonite suggests early enrichment cycles. The chalcocite-based supergene enrichment zone lies between elevations 1,800 m to 1,650 m amsl. The zone of supergene chalcocite and hypogene chalcopyrite mixed sulfides is between elevations 1,650 m to 1,400 m amsl. The occurrence of mineralization in the mixed zone is in two forms: disseminated and veinlets. At greater depths, disseminated mineralization diminishes while veinlet mineralization becomes more prevalent. In this zone, chalcocite and chalcopyrite coexist.

Hypogenic primary chalcopyrite mineralization occurs below elevation 1,400 m and is known up to an elevation of 400 m amsl. Iron oxides and supergene minerals are often found in fault 8-125 at depths over 300 meters.

The Capote basin hosts most of the important skarn mineralization (Meinert, 1980). Additional skarn mineralization is found in the Elisa and Puertecitos mining areas. Both prograde and retrograde skarns are present, but only retrograde skarns contain economic quantities of Cu and Zn minerals.

6.4 Deposit Types

The Buenavista del Cobre mine is Mexico's largest porphyry Cu deposit. Cu mineralization in the Cananea mining district centers around quartz monzonite intrusions and breccia chimneys. Main production focuses on high-grade brecciated bodies, such as La Colorada Breccia, which hosts significant Cu, Au, and Ag mineralization. Other important breccias include El Capote, Oversight Cananea-Duluth, La Demócrata, El Kirk, Henrietta, América Bonanza, and Veta 5. These structures are related to vertical, circular or oval intrusive trunk domes extending hundreds of meters deep, with angular or semi-rounded rock fragments in a matrix of massive sulfides and quartz.

Northwest of the BVC deposit is the BVZ deposit, a skarn type poly-metallic deposit containing Zn, Cu, and Ag. Carbonate rocks of the Capote Basin and Puertecitos show alteration and mineralization from multiple events of intrusion of granites and quartz monzonitic porphyries. The skarn deposits at Puertecitos and the Elisa mine are related to favorable replacements in mantles. In contrast, the Capote Basin ore bodies occur in zones with pyrite and silica associated with brecciated chimneys. The predominant mineralization at Puertecitos and Elisa consists of bornite and chalcopyrite with minor sphalerite. Secondary Cu enrichment occurred locally. In the Capote Basin, mineralization is associated with silicified zones with pyrite and calcite. The hypogene ore sulfides are chalcopyrite, sphalerite, and locally, chalcocite.

7.0 EXPLORATION

7.1 Exploration Work

As presented in Section 5.2 of this TRS, the Project area has been subject to several historical and recent exploration campaigns targeting Cu and Zn mineralization at the Project site. These exploration campaigns included channel and bulk sampling, exploration drilling, and geotechnical drilling. To date, 1,296,668 m of exploration drilling has been carried out, distributed in 6,698 drill holes. These exploration campaigns have been carried out by different mining companies since 1926, and there is no document that describes how the historical information was collected. Since 1991, Buenavista del Cobre has made significant investments in exploration work to quantify the Mineral Resources and Mineral Reserves of the Buenavista del Cobre deposit.

The main objective of the exploration programs implemented at Buenavista del Cobre have been to explore for new ore bodies as well as the increase confidence on Mineral Resources and Mineral Reserves. The achievement of these objectives has served as a basis to support planning and growth strategies as well as investment programs for the modernization of the mining unit.

7.1.1 Surface Exploration

Limited non-drilling surface exploration work has been conducted at Buenavista del Cobre, which comprised channel and bulk sampling. A summary of the surface exploration work completed at Buenavista del Cobre is presented in Table 7.1. Channel and bulk samples were completed between 1920 and 1960 and were not used for Mineral Resource definition. No geophysical surveys have been completed.

Table 7.1: Summary of Surface Exploration

Exploration Sample Type	Number of Samples	Total Meterage
Channel Sample	1,695	83,881
Bulk Sample	82	14,985
Total	**1,777**	**98,866**

7.1.2 Topographic Survey

At Buenavista del Cobre, photogrammetric flights are used to update the topography and infrastructure of the deposit. Prior to 2008, this practice was carried out every five years, with a flight performed by Cooper Aerial Survey based in Tucson, Arizona. Starting in 2011, periodic drone flights of specific areas of the mine were performed depending on the work requirements in that area. In October and November 2020, photogrammetric compilation work was carried out with Ebee Plus Drone equipment, Sensefly Geobase GNNS L1/L2 and GLONASS. For the horizontal and vertical control, a real-time kinematic (RTK) link was used for positioning and photogrammetric restitution. Each flight covered an 80-ha polygon at a flight altitude of 120 m, with a mean resolution of 3.0 centimeters per pixel (cm/pixel).

Daily topographic surveys are undertaken for the shovel movements and location of blast and exploration holes. Measurements are taken with a Trimble S7 5" DR PLUS total station and a Trimble Global Positioning System (GPS) system, GNSS Base R7 with TDL450H radio, located in the control tower. The mobile systems are GNSS Trimble R8 and R10 with Trimble TSC3 controllers. Prior to the GPS system, theodolites (Pentax pts-v5) and prism-supported distance meters were used for topographic surveys of the mine.

Daily topographic surveys of the mine are carried out in local coordinates and photogrammetric flights are handled in local and UTM coordinates.

7.2 Geological Exploration Drilling

7.2.1 Exploration Drilling Methods and Results

Exploration drilling programs targeting Cu and Zn mineralization on the project have been undertaken over many years, spanning from 1926 to 2024. Several different drilling techniques have been implemented, including diamond drilling (DDH), percussion, reverse circulation (RC), and rotary drilling. From 1926 to 2024,6,698 drill holes, totaling 1,296,668 m, have been drilled at Buenavista del Cobre. Table 7.2 summarizes the total number of drill holes and meters drilled by drilling type for all years, and Table 7.3 summarizes the drilling for the 2020 to 2024 campaigns. Figure 7.1 illustrates the drilling completed at Buenavista del Cobre from 1926 to 2024 and specifically highlights the 2020 through 2024 drilling. Figure 7.2 illustrates an example cross section through the deposit, the location of the section (C-C') is shown on Figure 6.2.

The 2020 to 2024 exploration projects were aimed at increasing the reliability of the Mineral Resources and Mineral Reserves. Future exploration programs will focus on defining the mineralization in, around and at depth of the LOM design, as well as other targets within the Buenavista del Cobre properties and the potential within the district.

Table 7.2: Summary of Exploration Drilling by Type of Drill Hole to 2024

Drill Hole Type	No. of Drill Holes	Total Meterage
DDH	3,460	919,928
DDH (Mine Level)	822	53,181
Percussion	337	55,741
RC	1,464	226,862
Rotary (Exploration)	21	885
Rotary (Machine T4)	512	29,852
Rotary (15 m samples)	82	10,220
Total	**6,698**	**1,296,668**

Table 7.3: Summary of Exploration Drilling from 2020 to 2024

Year	DDH		RC		No. of Drill Holes	Total Meterage
	No. of Drill Holes	Total Meterage	No. of Drill Holes	Total Meterage		
2020	80	50,729			**80**	**50,729**
2021			39	5,296	**39**	**5,296**
2022	38	27,106	45	4,332	**83**	**31,438**
2023	16	12,661	46	5,689	**62**	**18,350**
2024	35	26,599			**35**	**26,599**
Total	**169**	**117,095**	**130**	**15,317**	**299**	**132,412**

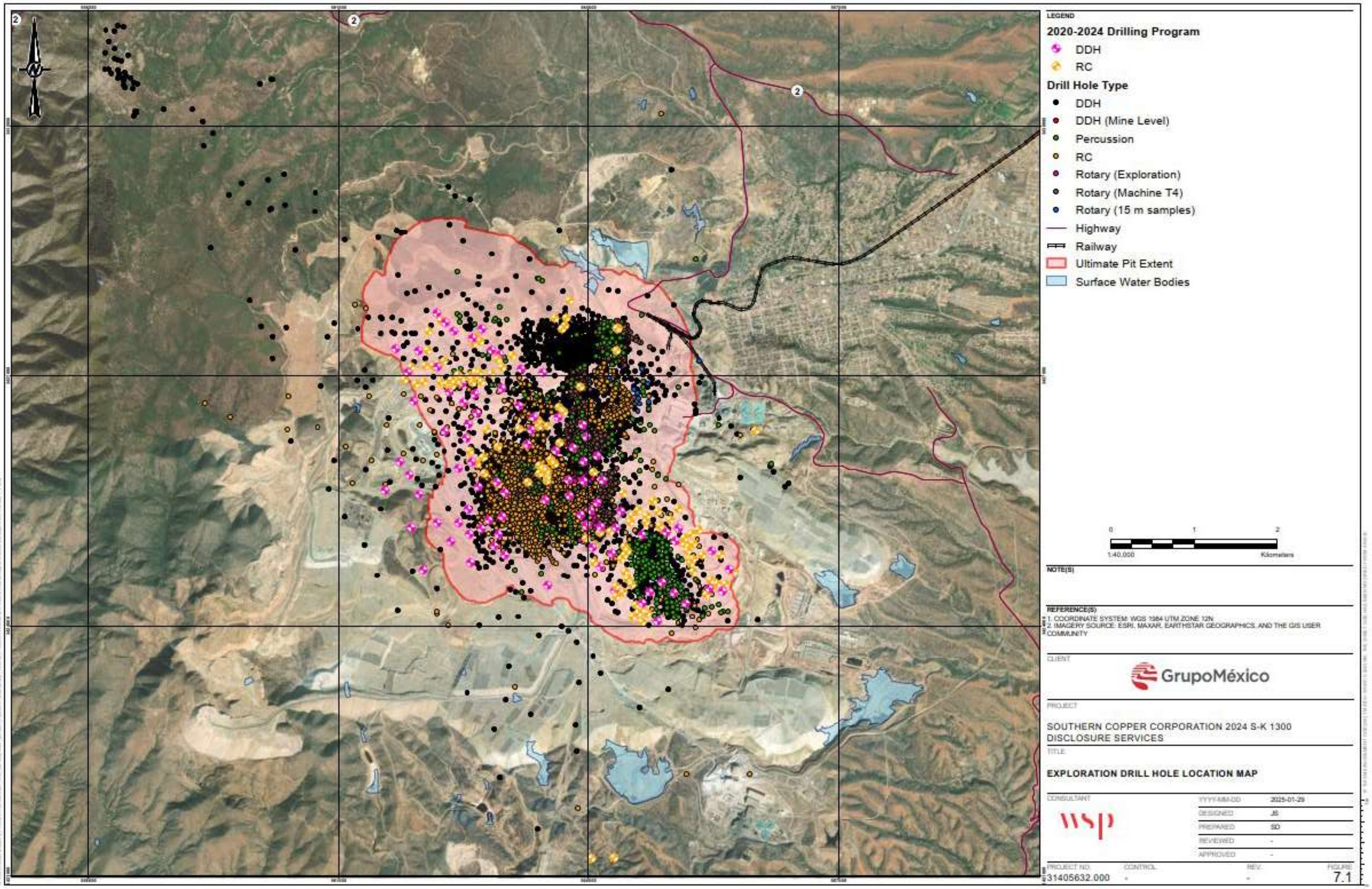


Figure 7.1: Exploration Drill Hole Location Map

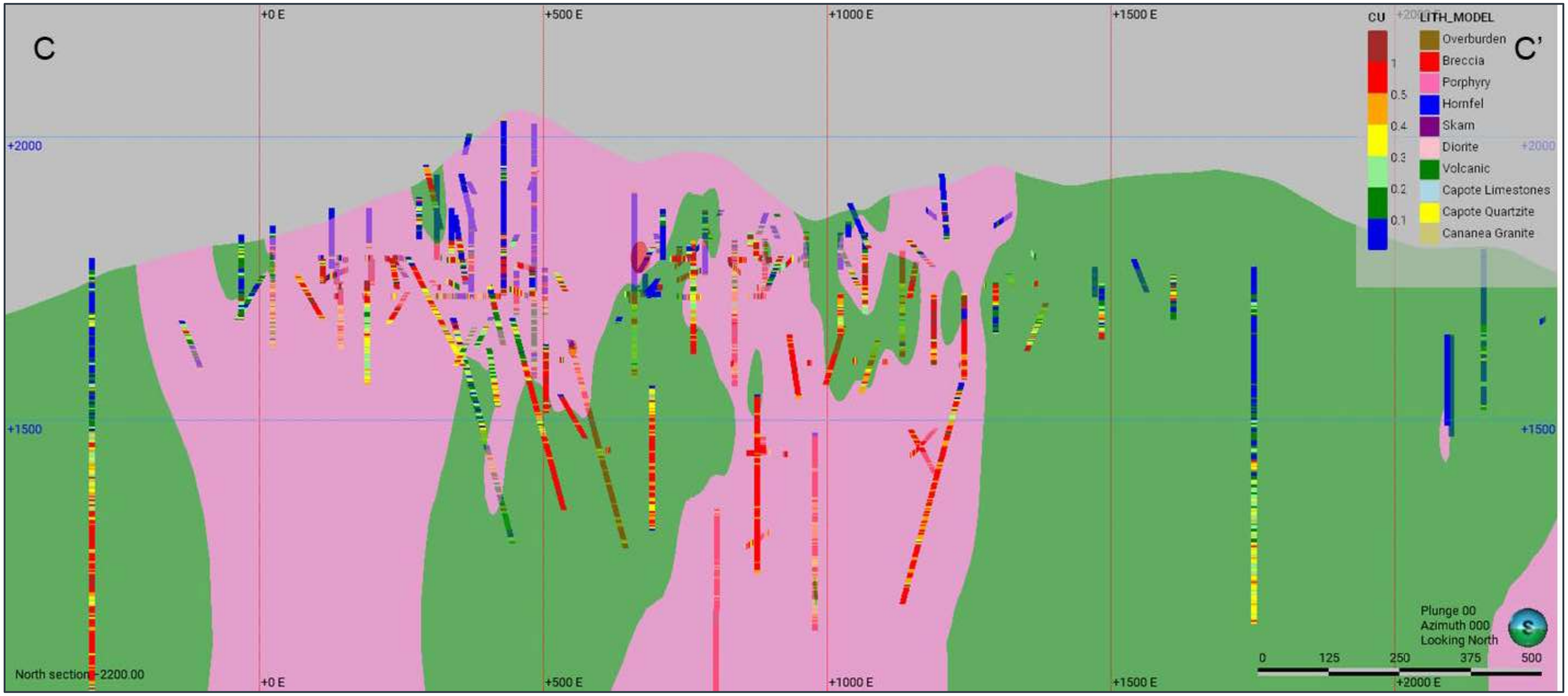


Figure 7.2: Example Cross Section – Line - 2200, Looking North

7.2.2 Exploration Drill Sample Recovery

Core recovery has been calculated for all DDH holes completed to date. The core recovery is determined by calculating the ratio of length of material returned in the core tube versus the total length drilled for the run and is expressed as a percentage. WSP was provided with the complete drill hole database from Buenavista del Cobre, which included core recovery for the pre-1990 and 1990 to 2024 core drilling. Mean core recovery for the pre-1990 drilling is between 68% and 76%, which is considered to be low, but correspond to historical information mainly drilled in the mined-out area and this issue is also considered as part of the decision to not include Measured Resources for Buenavista del Cobre. Mean core recovery for the 1990 to 2024 drilling is in the 95%-100% range, which is considered by the QP to be very good. Table 7.4 presents a summary of mean core recovery by year.

Table 7.4: Summary of Mean Core Recovery by Year

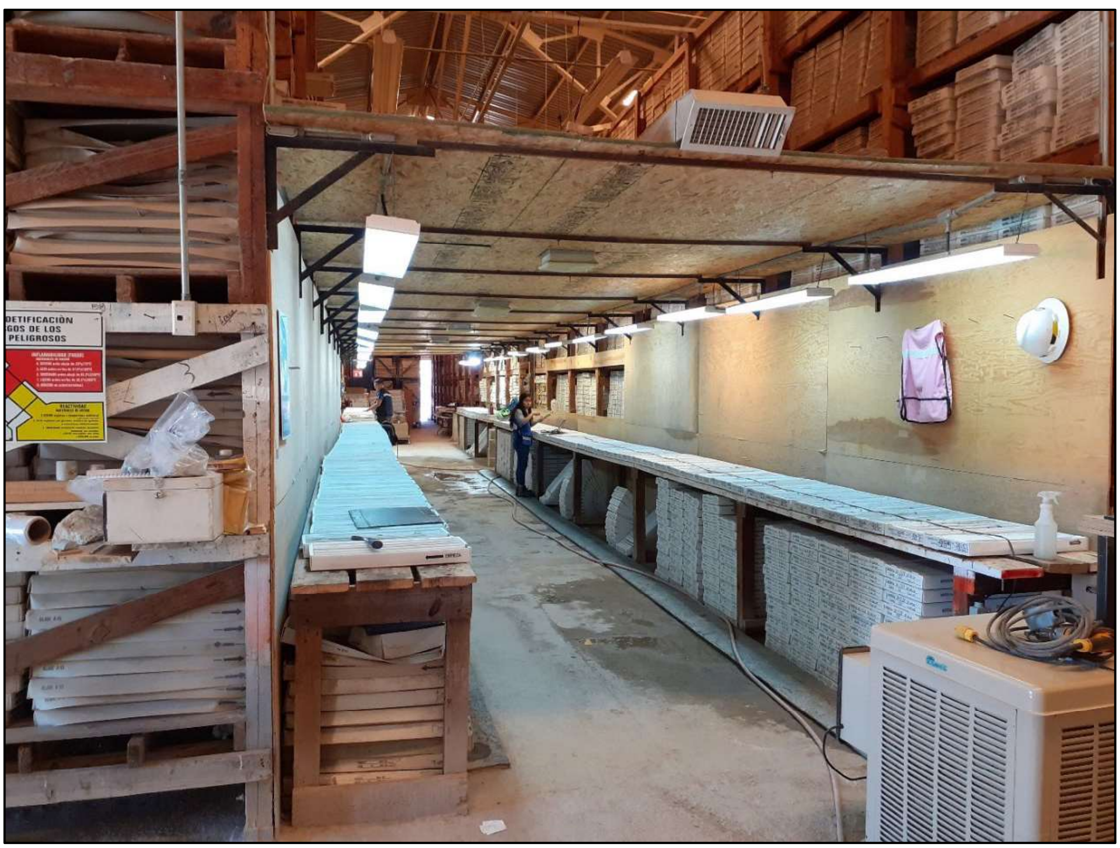
Year	Mean Core Recovery (%)
No Information	68.1
Pre-1990	75.8
1990	95.9
1991	100.0
1992	100.0
1993	99.9
1994	99.0
1995	99.8
1996	98.3
1997	99.4
1998	97.5
1999	98.1
2000	98.9
2001	99.9
2002	99.4
2003	99.6
2004	100.0
2005	96.6
2006	99.7
2007	97.5
2011	99.3
2012	97.0
2013	99.1
2014	99.2
2015	98.5
2016	98.2
2017	94.4
2018	100.0
2020	94.1
2021	100.0
2022	95.8
2023	97.6
2024	96.1
Total	**89.3**

7.2.3 Exploration Drill Hole Logging

For all the post-1990 drilling, drill hole logging was conducted by core logging geologists at the Buenavista del Cobre core logging and storage facility (Figure 7.3 and Figure 7.4) and supervised by senior 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 and description of the main mineralized sulfides, including Cu, iron (Fe), Mo, Zn, arsenic (As), etc. The logging also included the identification and description of the different Cu and Fe oxides, carbonates, and the hydrothermal, supergene and replacement alteration minerals. Finally, the descriptions also included the distribution of the mineralization, the estimation of the percentages of the minerals observed, as well as the identification and description of geological structures.

Historically, 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 they were handed over to the planning department for further review and validation. For the post-2020 drilling, Buenavista del Cobre migrated to digital logging using GV Mapper and kept capturing the same information.

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 7.3: Buenavista del Cobre Core Logging Area

Source: WSP 2021

Figure 7.4: Buenavista del Cobre Core Storage Facility

7.2.4 Exploration Drill Hole Location of Data Points

Drill hole collar locations were determined by the senior Buenavista del Cobre 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. All drill holes were surveyed by the mine planning division of Buenavista del Cobre, in mine grid coordinates, using a GPSR8 recorder.

7.2.5 Exploration Drill Hole Data Spacing and Distribution

Drilling at Buenavista del Cobre has not been completed on a regularized grid system; however, drill holes are situated at approximately 50-m to 60-m spacing.

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

7.2.6 Qualified Person's Statement on Exploration Drilling

The QP is not aware of any drilling, sampling, or recovery factors that could materially affect the accuracy and reliability of the results of the historical or recent exploration drilling. 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 internal data verification reviews, as described in Section 9.0 of this TRS.

7.3 Hydrological Drilling and Sampling

The Mexican Water Commission (CONAGUA) has identified three aquifers within the Buenavista del Cobre mining complex: San Pedro River, Bacanuchi River and Bacoachi River aquifers. 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. CONAGUA prepared aquifer availability analyses for the San Pedro River, Bacanuchi River and Bacoachi River aquifers in 2024 (Comisión Nacional del Agua, 2024a, 2024b and 2024c). The San Pedro River and Bacanuchi River aquifers were determined to have no availability for new water concessions, however the Bacoachi River aquifer was determined to have availability for new water concessions.

An additional study on the groundwater storage in the Bacoachi River and Bacanuchi River aquifers was conducted by a consortium of Mexican government agencies in 2024 to assess the water availability in the zone of influence of Buenavista del Cobre (SEMARNAT and IMTA, 2024). The study disagreed with the CONAGUA assessment that the Bacanuchi River aquifer had sufficient availability for new water concessions. The study included a review of the CONAGUA calculation, analysis of satellite data from the Gravity Recovery and Climate Experiment (GRACE) project and field monitoring of groundwater levels. The study showed a general decrease in water levels in the Bacoachi and Bacanuchi aquifers, especially in the area of Buenavista del Cobre operations. The report concluded that the Bacoachi River should be classified as no availability and recommended that the practices implemented by the Company to mitigate environmental impacts be reviewed.

Water concessions held by Buenavista del Cobre are administered based on the CONAGUA aquifers. The Buenavista del Cobre mining complex is located mostly in the Bacoachi River aquifer. The water supply wellfields are located north of the town of Cananea and south of the new TSF.

The regional hydrogeologic setting was described by CONAGUA as an unconfined regional aquifer with areas of semi-confined conditions where clayey sediments are present. The upper portion of the aquifer is composed of unconsolidated alluvial deposits and consolidated conglomerate of Cenozoic to Quaternary age, whereas the lower portion is fractured marine sedimentary and volcanic rocks of Cretaceous and Tertiary age. The unconsolidated alluvial materials and semi-consolidated conglomerate in the upper portion have medium to high permeability, although portions of the conglomerate that are cemented have low permeability (CONAGUA, 2009; CONAGUA, 2015). The fractured rock of the lower portion is generally of low permeability. Drill hole information, geology and geophysics surveys suggest a variable thickness of the fractured medium that can be of the order of 500 m. Geological, geophysical, and hydrogeological information suggests a mean depth of the aquifer system of between 350 m and 450 m below ground surface.

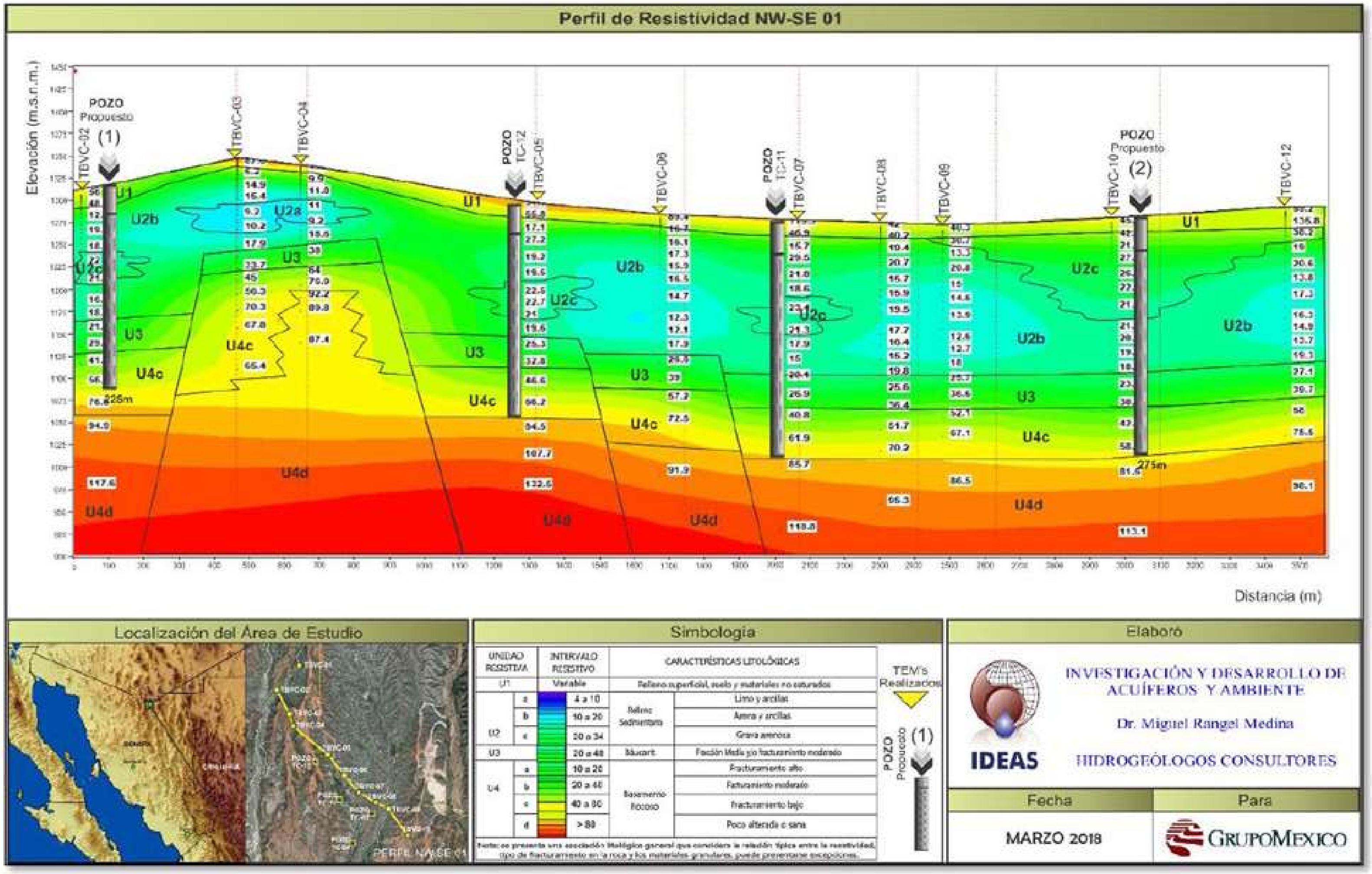
A groundwater flow model prepared by Buro Hidrologico Consultoria (2014) considered a flow model that incorporated parts of the San Pedro River, Bacanuchi River and Bacoachi River aquifers. The Buro Hidrologico Consultoria flow model was constructed using Visual ModFlow version 2009.1 Pro licensed through Schlumberger Water Services. The model report listed the hydraulic parameter values used in the model. Besides the groundwater pumping information utilized for the model construction and based on data from Buenavista del Cobre, Buro Hidrologico Consultoria gave no reference as to the source of additional parameters used in the model. The groundwater flow model results indicated no groundwater barriers between the three aquifers described by CONAGUA, implying that the aquifers have hydraulic connections. The three aquifers have similar lithologies and geological evolutions, which support the construction of a flow model across the administrative areas designated for the aquifers by CONAGUA.

Local hydrogeologic characterization was carried out within the Buenavista del Cobre mining complex starting in 2013 (IDEAS 2013) primarily using Transient Electromagnetic (TEM) geophysical surveys. The study areas included the open pit expansion V, the New TSF and areas for new water supply wells. An integrated interpretation that incorporates the entire Buena Vista del Cobre mining operations has not been prepared.

The pre-mining water level is not known. The historical underground mine workings were dry in Levels 5 and 8 (1750 meters amsl and 1606 amsl, respectively); however, Levels 12 and 13 (1450 amsl and 1400 amsl, respectively) were flooded based on a study prepared in 2005 (Buro Hidrologico Consultoria, 2013).

The geophysics study for the New TSF area identified four hydrogeologic units as shown in Figure 7.5 (IDEAS 2018). Unit U1 is composed by soil and sediments of very varied granulometry, generally not consolidated or saturated. Unit U2 is unconsolidated sedimentary fill such as silts, clays, and sandy gravels. This unit corresponds to the unconfined aquifer of the area. Unit U3 represents the Báucarit Formation, which is formed mainly by sand and conglomerates. Unit U4 is associated with the basin basement rocks that are a Mesozoic and Cenozoic volcano-sedimentary sequence. The fracturing of the Unit U4 varies widely, and has been subdivided into 4 subunits, with U4a exhibiting the highest fracturing.

Hydraulic conductivity values estimated for the regional aquifer ranged between 0.11 and 5.1 meters per day (m/day) in the area between the towns of Buenavista del Cobre and Naco, Sonora (CONAGUA, 2009; CONAGUA, 2015). The hydraulic conductivity values estimated for the area of the New TSF were 0.02 to 6.1 m/day (IDEAS, 2018). This information is consistent with CONAGUA publications for the Rio Bacanuchi and Rio Bacoachi aquifers (CONAGUA, 2020a; CONAGUA, 2020b; CONAGUA, 2010a; CONAGUA, 2010b). These values indicate that the area of the New TSF includes rocks that exhibit low to high permeabilities. No information was provided on aquifer testing programs (such as packer testing, Lugeon testing, airlift testing, or other hydraulic tests typically associated with a drilling program), and it appears that aquifer hydraulic testing has not been carried out at the Buenavista del Cobre mining operations.



Source: IDEAS, 2018

Figure 7.5: Hydrogeologic Units in the Area of New TSF

7.3.1 Inflow to the Open Pit

A geophysical survey was performed in 2013 with the purpose of identifying the location of Level 12 of the historical underground mine so that the mine workings could be sealed and thus prevent groundwater flow into the open pit (IDEAS, 2013). It was noted that groundwater occurred within a few meters below ground surface in the area and that there were seeps at ground surface. The study identified zones beneath the open pit that were saturated and contained high levels of fracturing, including at least one highly fractured area that appeared in communication with the regional aquifer. This connectivity could potentially lead to flooding of the future open pit (IDEAS, 2013, Figure 2.6). The geophysical survey determined that groundwater in the area of the open pit Expansion V flows from the northwest to southeast and from the northeast to southwest. The study recommended target areas for dewatering wells. The study did not include any drilling or aquifer testing; however, the geologic setting was considered in the interpretation of the survey results. The criteria for a pit dewatering program were not established.

Groundwater flows throughout the mining operations would be influenced by the active extraction wells (118 extraction wells in 2024). The mining unit does not prepare groundwater contour maps as part of their groundwater monitoring program, so analysis of groundwater flow directions and gradients was not possible. Due to the age, lack of measured hydraulic parameters, and limited scopes of the 2013 study by IDEAS and 2014 study by Buro Hidrologico Consultaria, it is the opinion of the QP that future inflow to the open pit has not been predicted quantitatively. Qualitatively, the studies show that there is groundwater that occurs in the area of the pit and that inflows are expected.

No site-wide water balance exists, nor a water balance that includes the interaction between surface water, the vadose zone and the aquifer at either a local, or regional level.

7.3.2 Water Quality Sampling Methods

Current water quality programs at Buenavista del Cobre considers the water quality within the mine district, nearby streams, and adjacent aquifers. A certified laboratory was used to collect, handle, transport and analyze the water samples. The certification is through Entidad Mexicana de Acreditación, which is a professional organization in Mexico. The organization does not include the methodology to collect a water sample; it certifies the laboratory procedures for appropriate management after the collection of the sample.

Buenavista del Cobre does not have written sampling plans or procedures for the sample collection and relies of the discretion of the laboratory technicians. Based on conversations with site personnel, surface water samples are simple grab samples. The surface water grab samples may be appropriately collected but there is no documentation to verify the sampling program. The groundwater sampling method may be via a bailer, or via a spigot in the case of a pumping well. The bailer method may involve bailing out an unmeasured quantity of water prior to collecting the sample. For a pumping well, it is not documented whether the well has been continuously pumping prior to the sample collection, or whether field parameters are measured until stabilized readings to demonstrate representative groundwater. Groundwater elevation data are not collected as part of the sampling event.

It was noted that the typical monitor well construction design indicated that the groundwater level is above the slotted screen, which would leave stagnant water in the upper portion of the water column within the monitor well (that is, non-representative of the aquifer). In other monitor well schematics it was noted that the filter pack was placed in the annular space around only the lower portion of the slotted screen, and it is not clear how the upper portion of the annual space was completed.

The collection methods and well designs do not demonstrate that a representative groundwater sample is collected during the sampling events. No Quality Assurance/Quality Control (QA/QC) samples were collected, and no internal laboratory QA/QC data was provided in the laboratory reports. No data validation is carried out on the laboratory reports and sampling events.

7.3.3 Qualified Person's Statement on Hydrogeological Drilling and Sampling

The QP considers the hydrogeologic characterization and water quality monitoring to be inadequate and additional work is required. It is recommended that each sampling event be documented with a data report that includes interpretation of the results and an updated groundwater contour map.

The lack of adequate hydrogeologic characterization and water balance poses a potential risk to the operations.

7.4 Geotechnical Drilling

Geotechnical drilling and sampling were completed by Call & Nicholas, Inc. (CNI) in two programs. Drilling and sampling within the Buenavista del Cobre area was completed in 2003. A second program within the BVZ area was completed between September 2011 and January 2012.

Additional geotechnical drilling and sampling was completed by Buenavista del Cobre geologists in 2021. As part of this investigation program, SRK Consulting (U.S.), Inc. (SRK) examined 5,867 m of geotechnical data collected from the core in the BVC area and assisted Buenavista del Cobre geologists with upgrading the existing rock mass model with respect to geologic units and their associated rock mass strengths. Figure 7.8 illustrates the location of the CNI and SRK geotechnical drill holes.

The results of these exploration programs are summarized in Sections 7.4.1 through 7.4.4.

7.4.1 Geotechnical Surface Mapping

Major structural features (e.g., faults, shear zones and persistent discontinuities) were mapped in 2004 by Cananea personnel during mapping of existing pit benches, from which major fault structure data was extracted. The 2004 data indicated three prominent fault sets, one less prominent fault set, and three poorly developed fault sets. CNI noted that the major named faults (Elisa, Capote, and Tinaja) probably correspond to the prominent fault set trending northeast and dipping 50 to 90 degrees west, or to the less prominent fault set trending northeast and dipping 60 to 90 degrees north. Surface geological mapping was not collected during the 2012 investigation, but CNI incorporated major structure data from a geologic map from Meinhert (1980) and from underground and surface maps provided by the mine geologists.

SRK extended this work through the interpretation of a high-resolution wall scanning (Lidar) conducted by SRK and identified 19 major faults in the BVC pit area. SRK assigned a fault reliability level based on the confidence level of each fault. The confidence level was defined as follows:

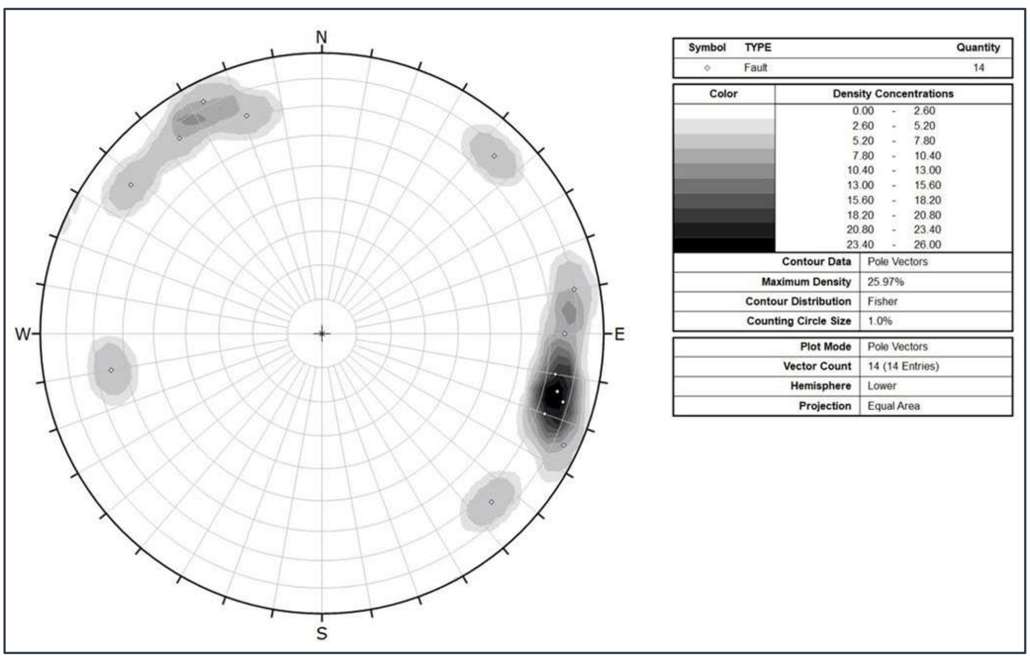
- High: The major fault is observed in the field through either surface mapping and/or high-resolution scanning (Lidar).
- Medium: The major fault is observed in a drillhole only, with orientation defined through oriented core measurement and/or a televiewer.
- Low: Major fault delineations are approximately defined through topographic and/or outcrop features.

Table 7.5 provides a list of the 19 identified major faults and an equal area stereographic projection of the high reliability data is shown on Figure 7.6.

Table 7.5: Major Faults within the BVC Pit Area

Fault ID	Fault Name	Dip (°)	Dip Direction (°)	Reliability
1	F001	75	128	High
2	F002	-	-	Low
3	F003	82	153	High
4	F004	-	-	Low
5	F005	-	-	Low
6	F006	-	-	Low
7	F007	71	161	High
8	F008	65	80	High
9	F009	77	224	High
10	F010	78	286	High
11	F011	75	270	High
12	F012	74	315	High
13	F013	-	-	Low
14	F014	73	280	High
15	F015	80	260	High
16	F016	73	290	High
17	F017	75	284	High
18	F018	75	144	High
19	F019	84	295	High

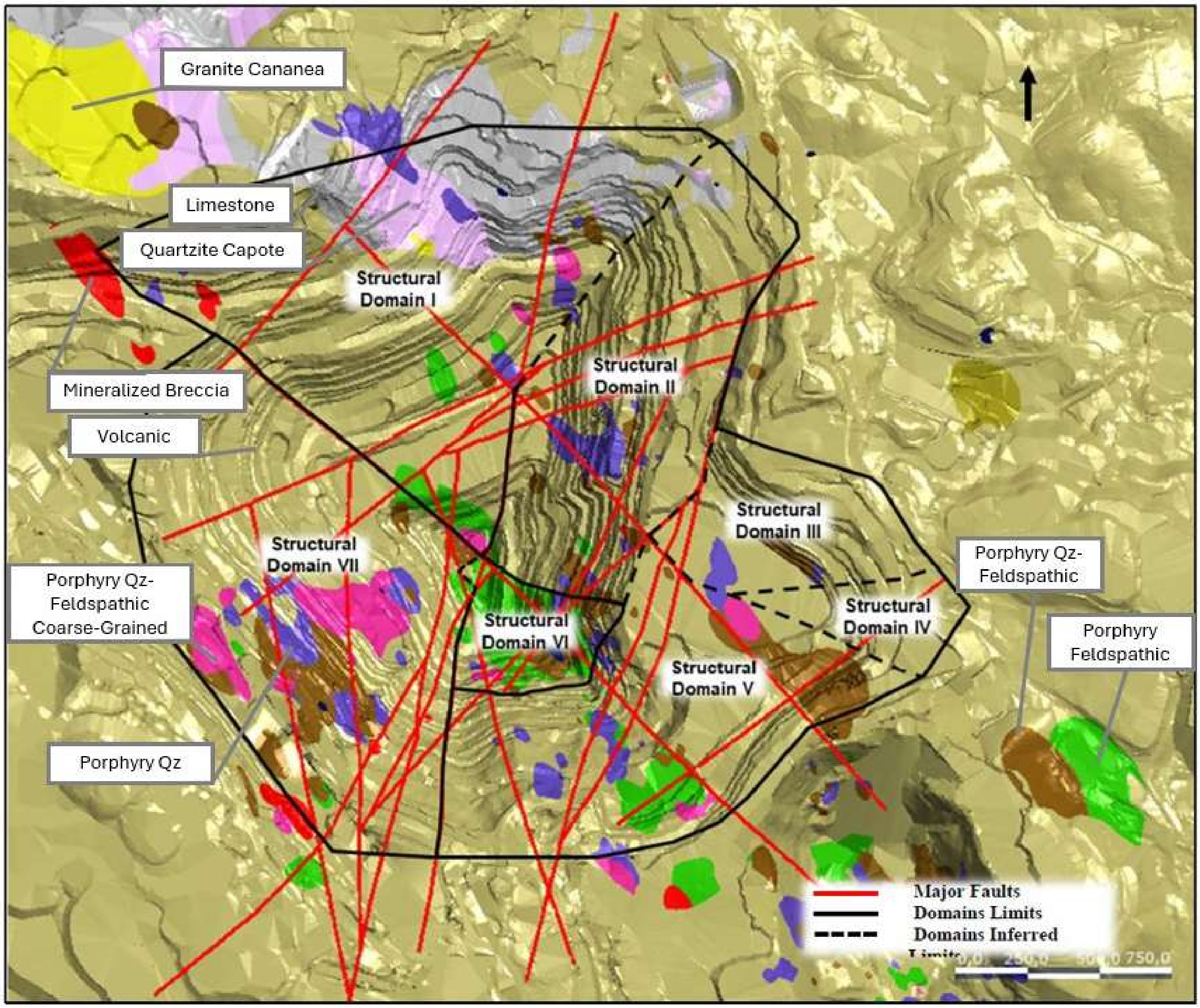
Source: SRK 2022



Source: SRK 2022

Figure 7.6: Stereonet of Major Faults – High Reliability

Rock fabric data is described by SRK as including a database of 89,586 discontinuities. Similar rock fabric data is described by CNI (2004), which was collected through a program of cell mapping. The rock fabric database appears to be well-established and was used by SRK to define seven structural domains as shown on Figure 7.7. The structural domains are a refinement of CNI (2004) which defined three structural domains: east, west, and north structural domains. The CNI east domain includes SRK domains 2, 3, 4, 5, and 6 and the CNI west domain includes SRK domains 1 and 7. The CNI north domain included only limestone and is also incorporated into SRK structural domain 1.



Source: SRK 2022

Figure 7.7: Structural Domain Limits

7.4.2 Geotechnical Core Drilling Program

7.4.2.1 CNI Programs

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 October through November 2003 at the BVC project. Geotechnical data was also collected from eight (8) drill holes drilled between September 2011 and January 2012 for the BVZ project.

Core drilling utilized HQ3 (61.1-mm core diameter) triple tube coring methods for the drill holes completed in the BVZ area. The drilling method was not specified for BVC, but the core size tested in the laboratory was NQ3 (45-mm core diameter). Accordingly, it appears that in both programs, triple tube drilling was used to collect samples, which is the system that imparts the least disturbance on the core while it is drilled.

The nine (9) geotechnical drill holes drilled in the BVC area totaled 2,931.5 m and the eight (8) drill holes drilled in the BVZ area totaled 2,078 m. Table 7.6 provides a summary of the geotechnical drill hole locations and orientations and Figure 7.8 illustrates their locations relative to the exploration drilling at Buenavista del Cobre. The geotechnical drillholes are shown separately in Figure 7.9.

Table 7.6: Summary of Geotechnical Drill Holes

Drill Hole ID	Easting (m)	Northing (m)	Azimuth (°)	Inclination (°)	Elevation (m)	Total Depth (m)	Area
BD 3783	563,088	3,425,512	240	60	1,682	395	BVC
BD 3784	563,224	3,425,337	165	65	1,648	333	
BD 3785	563,220	3,426,307	330	67	1,859	368	
BD 3786	562,963	3,426,023	295	63	1,844	462	
BD 3787	563,957	3,425,881	90	65	1,725	267	
BD 3788	563,099	3,425,365	205	60	1,693	383	
BD 3789	563,908	3,425,607	85	65	1,650	222	
BD 3790	564,023	3,426,460	50	60	1,650	200	
BD 3791	563,016	3,426,833	5	60	1,934	301	
BD-4543	563,561	3,427,374	273	-68	273	260	BVZ
BD-4545	563,668	3,427,127	231	-74	231	240	
BD-4548	563,780	3,427,362	273	-75	273	345	
BD-4550	563,900	3,427,076	195	195	-75	220	
BD-4551	564,050	3,427,193	135	-75	135	318	
BD-4553	564,061	3,427,730	39	-72	39	225	
BD-4557	564,175	3,427,399	78	-65	78	215	
BD-4558	563,731	3,427,614	298	-74	298	255	

Source: CNI 2004 and CNI 2012

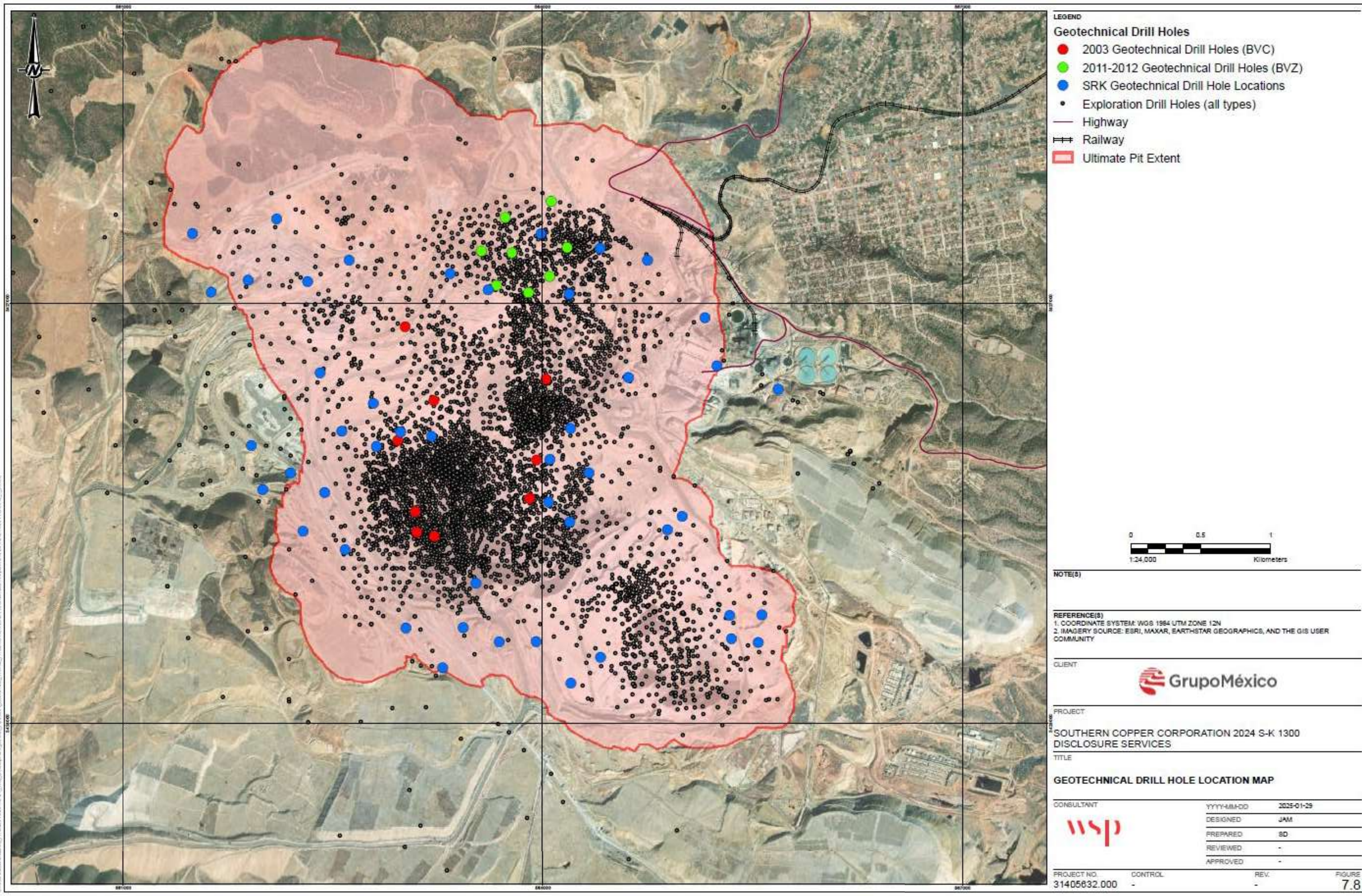


Figure 7.8: Geotechnical Drill Hole Location Map

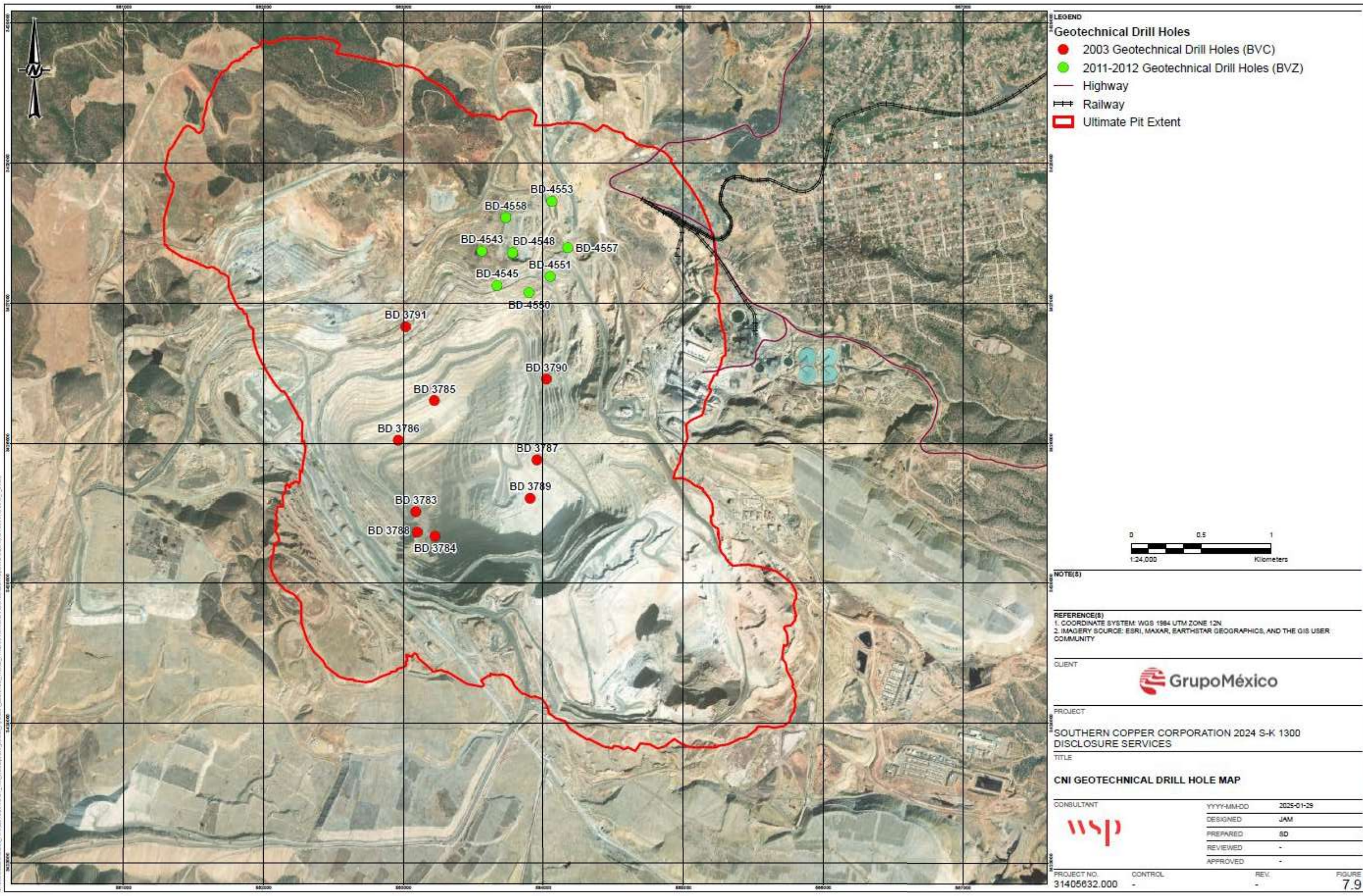


Figure 7.9: CNI Geotechnical Drill Hole Map

Geomechanical data was recorded for each geotechnical drill hole. Mean percent RQD statistics were calculated and downhole histograms of each of the drill holes were generated. These histograms contain data on the following properties:

- Interval length
- Percent recovery
- Percent RQD
- Fracture frequency
- Hardness
- Number of whole core pieces per run
- Average length longest piece
- Length of broken zone
- Average percent of run with hardness < 2

The following data was collected for the fracture orientations in each of the drill holes:

- Fill type
- Fill thickness
- Presence of slickensides
- Classification of natural and mechanical breaks
- Dip angle of natural fractures with respect to core axis
- Circumferential angle between top of core and the apparent “dip direction” of the discontinuity (β; measured clockwise from the top of core to the point on the fracture surface furthest downhole)

The oriented core data collected by the latter two measurements was used to supplement the rock fabric database collected at the surface by cell mapping.

Samples were collected by CNI personnel for geotechnical laboratory testing. Intact lengths of core, fractures, and bagged samples of granular material were sampled for intact and fracture strength testing. Samples were collected with the intent of representing the variability of rock and alteration types.

7.4.2.2 SRK Program

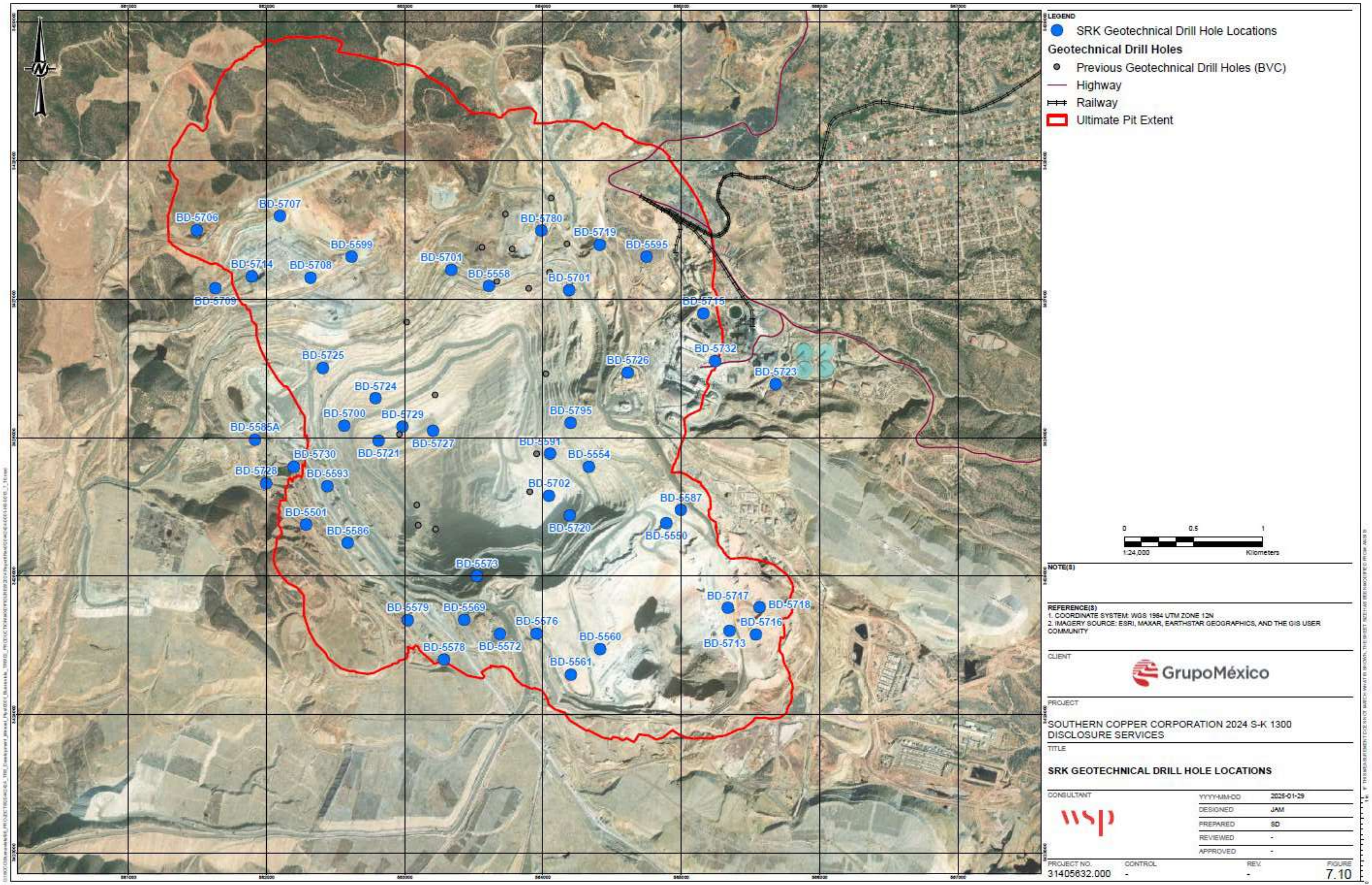
Geomechanical properties, including rock quality designation (RQD) index, fracture frequency and discontinuity spacing were obtained from 69 drill holes and were statistically analyzed by SRK to develop rock mass quality estimates for each rock mass unit.

Core drilling utilized HQ (63.5-mm core diameter) and NQ (47.6-mm core diameter) wireline coring. The drilling method was not specified in the SRK report, but the core size tested in the laboratory includes both HQ and NQ core samples.

The 69 geotechnical drill holes total approximately 44,000 m of core with an average drilled length of 638 m. Table 7.7 provides a summary of the SRK geotechnical drill hole locations and orientations and Figure 7.10 illustrates their locations relative to the exploration drilling at Buenavista del Cobre.

Geomechanical data was recorded for each geotechnical drill hole and cumulative histograms were generated by SRK from these data for each rock type. These histograms contain summary data on the following properties for each rock type:

- Rock Mass Rating (RMR)
- Percent RQD
- Field Estimated Rock Strength Index
- Discontinuity Spacing (mm)
- Joint Condition Rating



Source: SRK 2022

Figure 7.10: SRK Geotechnical Drill Hole Locations

Table 7.7: Summary of 2021 Geotechnical Drill Holes

Drill Hole ID	Easting (m)	Northing (m)	Collar Elevation (m)	Total Drilled Depth (m)
BD-5560	1,759.44	-3,209.06	1,752.72	705
BD-5561	1,550.34	-3,399.92	1,756.71	592
BD-5563	1,849.61	-3,499.85	1,775.04	530
BD-5564	2,048.52	-3,698.15	1,704.96	450.65
BD-5567	2,450.21	-3,694.07	1,678.62	220.05
BD-5568	773.47	-2,999.71	1,769.03	780.35
BD-5569	460.17	492.51	1,791.40	537
BD-5570	-368.1	296.49	1,788.39	619.15
BD-5571	617.56	702.7	1,773.81	412
BD-5572	1,033.40	-3,099.08	1,752.26	771.95
BD-5573	847.96	-2,696.08	1,675.64	768.6
BD-5574	-180.59	912.94	1,901.23	367
BD-5575	241.61	315.03	1,766.29	596
BD-5576	1,299.78	-3,099.00	1,736.95	789.8
BD-5577	-337.64	1,107.29	1,954.91	367
BD-5578	630.51	-3,284.06	1,785.00	743.65
BD-5579	360	-3,000.55	1,781.68	725.4
BD-5580	166.28	759.21	1,844.44	409
BD-5581	-355.97	-2,297.96	1,790.68	748.4
BD-5582	642.67	299.18	1,753.76	732
BD-5583	545.52	87.02	1,774.47	549
BD-5584	1,020.98	307.98	1,721.61	533.5
BD-5585A	-745.36	-1,706.36	1,693.98	768.6
BD-5586	-52.24	-2,410.63	1,716.20	731.3
BD-5587	2,354.96	-2,214.90	1,727.88	582.35
BD-5588	1,333.16	-208.11	1,697.16	781.6
BD-5589	1,048.05	102.06	1,725.26	684.65
BD-5590	2,245.61	-2,307.19	1,726.79	652.7
BD-5591	1,393.40	-1,806.66	1,650.71	799.9
BD-5592	2,992.62	-3,648.98	1,622.76	451.4
BD-5593	-203.43	-2,022.47	1,669.83	740.55
BD-5594	1,679.26	-1,904.29	1,652.64	820.45
BD-5595	2,098.11	-394.27	1,691.24	312.35
BD-5596	3,354.76	-3,635.16	1,627.80	329.4
BD-5597	35.26	111.89	1,743.85	749.55
BD-5598	950.77	-603.48	1,652.24	423.95
BD-5599	-43.29	-398.22	1,871.10	806.8
BD-5700	-90.87	-1,596.90	1,538.57	723.35
BD-5701	1,541.74	-638.46	1,680.23	759.45
BD-5702	1,396.34	-2,109.43	1,634.33	841.55
BD-5703	-955.59	509.46	1,950.06	518.5
BD-5704	677.71	-495.44	1,652.06	573.4
BD-5705	1,545.11	-1,590.65	1,651.74	750.3
BD-5706	-1,162.07	-198.82	1,902.67	613.05
BD-5707	-562.71	-100.59	1,874.93	652.7

Table 7.7: Summary of 2021 Geotechnical Drill Holes(cont).

Drill Hole ID	Easting (m)	Northing (m)	Collar Elevation (m)	Total Drilled Depth (m)
BD-5710	2,683.49	-2,911.75	1,784.96	705
BD-5711	2,342.31	146.69	1,656.12	149.45
BD-5712	2,030.58	261.48	1,690.22	164.7
BD-5713	2,701.36	-3,088.36	1,784.68	710.65
BD-5714	-763.16	-533.62	1,874.59	521.55
BD-5715	2,503.41	-807.09	1,700.88	1,009.55
BD-5716	2,888.39	-3,115.49	1,773.62	680
BD-5717	4.83	401.2	1,786.59	650
BD-5718	2,915.76	-2,908.33	1,755.43	600.85
BD-5719	1,758.34	-312.61	1,710.58	881.45
BD-5720	1,540.72	-2,250.15	1,618.65	774.3
BD-5721	164.46	-1,698.40	1,470.03	615.05
BD-5722	-586.05	357.74	1,828.32	667.95
BD-5723	3,030.27	-1,306.24	1,631.62	366
BD-5724	131.14	-1,406.20	1,470.94	627.95
BD-5725	-255.48	-1,191.38	1,680.93	851.6
BD-5726	1,957.56	-1,225.06	1,769.43	894.6
BD-5727	555.29	-1,629.14	1,380.75	755.15
BD-5728	-672.04	-2,018.93	1,755.72	950
BD-5729	338.54	-1,595.83	1,380.56	750.3
BD-5730	-467.7	-1,900.69	1,683.29	800
BD-5731	2,605.80	-1,151.37	1,664.18	561.2

Source: SRK 2022

7.4.3 Laboratory Testing

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

7.4.3.1 Intact Rock Strength

The BVC project included compilation of a laboratory test database developed from the following tests:

- A 1969 database presented as a summary table of average uniaxial compressive strength, average tensile strength, and intact rock shear strength (triaxial testing).
- CNI’s and SRK’s project specific laboratory test results database including test totals of:
- 44 Uniaxial Compressive Strength (UCS) tests plus rock density (pounds per cubic foot [pcf])
- 21 Triaxial Compressive Strength (TCS) tests
- 42 Brazilian Indirect Tensile Strength tests
- 89 rock density tests
- 24 direct shear tests

The BVZ project included compilation of a laboratory test database developed from the following tests:

- 17 UCS tests plus rock density
- 31 Triaxial Compressive Strength (TCS) tests
- 36 Brazilian Indirect Tensile Strength tests
- 84 rock density tests measured on the samples tested for uniaxial compression, triaxial compression and disk tension

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. Our review of the laboratory testing data sheets found that the data reported, and derivation of the test results generally follows the ASTM standards for Uniaxial Compressive Strength Tests (ASTM D7012 Method C) and Brazilian Indirect Tensile Strength Tests (ASTM D3967).

CNI uses a method of estimating rock mass strength that is bracketed by the intact rock strength and the fracture shear strength, which they developed (Call et al, 2000), (Read and Stacey 2009). The technique is developed from a rational basis and has commonly produced comparable results to more conventional techniques for developing rock mass strength estimates when we have had the data available to compare results. A summary of the derived intact rock strengths is provided in Table 7.8 and Table 7.9 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. The favorably altered limestone is skarn, which results in a relatively high rock density and correspondingly high intact shear strength parameters compared to the other rock types.

Table 7.8: Estimated Intact Shear Strength and Young's Modulus – BVC

Rock Type	Average Uniaxial Compression	Disk Tension (psi)	Estimated Intact Shear		Estimated Young's Modulus	Rock Density (pcf)
			φ (degrees)	Cohesion (psi)		
Mesa Volcanic	10,029	1,144	44.8	1,346	5,300	161.0
Henrieta Volcanic	8,490	1,255	40.7	1,342	4,700	163.0
Porphyry	11,762	1,515	42.9	1,705	5,950	162.0
Porphyry Breccia	9,895	895	48.0	1,144	5,150	152.6
Mesa Volcanic Breccia	6,678	764	44.7	898	3,900	167.9
Chloritized Limestone	3,267	692	34.5	644	1,800	163.4

Source: CNI 2004

Notes: psi = pounds per square inch; pcf = pounds per cubic foot

Table 7.9: Estimated Intact Shear Strength for Paleozoic Limestone – BVZ

Rock Type	Average Uniaxial Compression (psi)	Disk Tension (psi)	Estimated Intact Shear		Rock Density (pcf)
			φ (degrees)	Cohesion (psi)	
Paleozoic Limestone – Unfavorably Altered	6,425	1,074	48.6	1,075	177.3
Paleozoic Limestone – Favorably Altered	14,106	1,841	55.5	2,565	196.5

Source: CNI 2012

Notes: psi = pounds per square inch; pcf = pounds per cubic foot

The laboratory testing conducted by SRK included density (Table 7.10), Uniaxial Compressive Strength (Table 7.11), and Brazilian Indirect Tensile Strength (Table 7.12).

Table 7.10: Dry Density Statistics by Rock Type at BVC

Lithology Number	Lithology Code	Average Dry density (kN/m^3)	St. Dev. Density (kN/m^3)	CoV (%)	No. of Valid Samples
	Andesite	25.4	1.8	7%	16
10	Porphyry Coarse-grain[1, 2]	21.8	-	-	1
11	Quartz-Feldspar	26.7	0.8	3%	5
12	Porphyry Quartz-Feldspar	25.1	2.06	8%	10
13	Porphyry Feldspar	24.9	1.2	5%	10
	Feldspar Porphyry Breccia[1, 2]	20.9	-	-	1
16	Granite	25.9	0.76	3%	6
22	Volcanic Henrietta	26.1	0.45	2%	4
21	Mesa Volcanic	26.6	0.42	2%	4
31	Mesa Breccia[1, 2]	26.9	-	-	1
50	Limestone Chloritized	27.3	3.5	13%	7
				Total Valid Samples	**65**

Source: SRK, 2022

Notes: St.Dev = Standard Deviation; CoV = Coefficient of Variability; [1] Insufficient sample for statistics; [2] Specific Weight based on one sample

Table 7.11: Uniaxial Compressive Strength Statistics by Rock Type at BVC

Lithology Number	Lithology Code	Average Dry density (kN/m^3)	St. Dev. Density (kN/m^3)	CoV (%)	No. of Valid Samples
	Andesite	25	8	32%	4
10	Porphyry Coarse-grain[1]	13	-	-	1
11	Quartz-Feldspar	-	-	-	-
12	Porphyry Quartz-Feldspar	80	2	3%	7
13	Porphyry Feldspar	55	5	9%	8
	Feldspar Porphyry Breccia[1]	-	-	-	-
16	Granite[1]	56	34	61%	3
22	Volcanic Henrietta	60	16	27%	8
21	Mesa Volcanic[1]	86	24	28%	7
31	Mesa Breccia[1]	-	-	-	-
50	Limestone Chloritized[1]	64	14	22%	6
				Total Valid Samples	**44**

Source: SRK, 2022

Notes: St.Dev = Standard Deviation; CoV = Coefficient of variability; [1] Insufficient sample for statistics

Table 7.12: Brazilian Indirect Tensile Strength Statistics by Rock Type at BVC

Lithology Number	Lithology Code	Average Dry density (kN/m^3)	St. Dev. Density (kN/m^3)	CoV (%)	No. of Valid Samples
	Andesite	13	5	38%	7
10	Porphyry Coarse-grain[1]	-	-	-	-
11	Quartz-Feldspar	16	1.7	11%	3
12	Porphyry Quartz-Feldspar	7	4.6	66%	7
13	Porphyry Feldspar	4	1.9	48%	4
	Feldspar Porphyry Breccia[1]	-	-	-	-
16	Granite[1]	9	3.6	40%	3
22	Volcanic Henrietta	9	1.4	16%	4
21	Mesa Volcanic[1]	8	1	13%	4
31	Mesa Breccia[1]	-	-	-	-
50	Limestone Chloritized[1]	6	-	-	1
				Total Valid Samples	**33**

Source: SRK, 2022

Notes: St.Dev = Standard Deviation; CoV = Coefficient of variability; [1] Insufficient sample for statistics

SRK used the results of the laboratory tests on intact samples to estimate the Hoek-Brown shear strength criterion parameters for each rock type. SRK used the software package RSData, V.1.00 by Rocscience, Inc. to make the estimations. The curvature parameter “mi” was assigned a value based on published data for similar rock types where the laboratory data was insufficient to make a reliable estimate. Table 7.13 provides a summary of the intact rock shear strength parameters estimated by SRK.

Table 7.13: Summary of Hoek-Brown Shear Strength Criterion Parameters at BVC

Lithology Code	Lithology Code	mi	σ_{ci} (Mpa)	UCS (MPa)
	Andesite	12	20	25
10	Porphyry Coarse-grain[1]	15	13	13
11	Quartz-Feldspar	11	-	-
12	Porphyry Quartz-Feldspar	13	79	80
13	Porphyry Feldspar	11	52	55
	Feldspar Porphyry Breccia[1]	15	-	-
16	Granite[1]	30	33	56
22	Volcanic Henrietta[1]	20	49	60
21	Mesa Volcanic[1]	20	70	86
31	Mesa Breccia[1]		-	-
50	Limestone Chloritized[1]	15	55	64

Source: SRK, 2022

Notes: mi = Curvature parameter; σ_{ci} = Intact rock compressive strength; UCS = Average Uniaxial compressive strength; [1] mi value estimated from published data

7.4.3.2 Strength of Structural Defects

Shear strength of structural defects was measured by CNI in 2004 for BVC from 14 direct shear tests completed on 6 rock types and 3 direct shear tests on fault gouge samples. Results of the direct shear testing for BVC are summarized in Table 7.14.

CNI performed an additional 26 direct shear tests in 2012 on six alteration types from the Paleozoic Limestone group and the intrusive rock. Descriptions of these alteration types are provided in Table 7.15. Results of the direct shear testing for BVZ are summarized in Table 7.16.

Table 7.14: Summary of Direct Shear Testing - BVC

Sample ID	Drill Hole	Sample Depth (m)	Rock Type	Power	Regression	Linear Cohesion		Regression	
				K	M	(psi)	(KPa)	B (Tan φ)	φ (Degrees)
3784168	BD 3784	168.36	Henrieta Volcanic	1.1937	0.8493	5.82	40.10	0.5288	27.87
3788343	BD 3788	343.77		1.0389	0.8483	4.62	31.90	0.4623	24.81
3784240	BD 3784	240.30		0.4411	1.0159	0.66	4.60	0.4706	25.20
			Combined:	0.8389	0.9001	3.70	25.50	0.4873	25.98
378738	BD 3787	38.80	Mesa Volcanic	0.8480	0.8905	3.08	21.20	0.4772	25.51
3789100	BD 3789	100.67		1.0547	0.8545	5.17	35.70	0.4823	25.75
3791165	BD 3791	165.50		0.7938	0.9023	3.13	21.60	0.4714	25.24
			Combined:	0.8945	0.8820	3.79	26.10	0.4770	25.50
3791228	BD 3791	228.59	Chloritized Limestone	0.9512	0.8641	4.34	29.90	0.4610	24.75
3791297	BD 3791	297.77		1.7047	0.6641	8.75	60.30	0.2655	14.87
			Combined:	1.1899	0.7822	6.54	45.10	0.3632	19.96
3787137	BD 3787	137.25	Feldspar Porphyry	1.2677	0.8106	6.78	46.80	0.4564	24.53
3789497	BD 3789	49.74		0.7963	0.9667	0.75	5.20	0.6755	34.04
			Combined:	0.9629	0.8998	3.76	25.90	0.5660	29.51
3788202	BD 3788	202.82	Quartz-Feldspar Porphyry	0.3949	0.9984	0.26	1.80	0.3893	21.27
3788272	BD 3788	272.68		0.8539	0.9201	3.00	20.70	0.5580	29.16
			Combined:	0.6141	0.9517	1.63	11.20	0.4736	25.34
3783324	BD 3783	324.17	Qz-Feldspar Porphyry Breccia	0.6464	0.9405	1.78	12.30	0.4708	25.21
3787253	BD 3787	253.94		1.0405	0.8572	5.08	35.00	0.4830	25.78
			Combined:	0.8269	0.8973	3.43	23.70	0.4768	25.49
3788219	BD 3787	219.00	Fault Gouge	0.3395	0.9584	1.81	12.50	0.2618	14.67
3788332	BD 3788	332.00		5.5330	0.4841	20.97	144.60	0.2877	16.05
3791237	BD 3791	237.00		2.9051	0.6129	15.19	104.80	0.3159	17.53
			Combined:	2.2636	0.6394	12.65	87.20	0.2884	16.09

Source: CNI 2004

Table 7.15: Summary of BVZ Discontinuity Alteration Types

Rock Type	Rock Code	Description
Limestone	LMS	Relatively fresh/unaltered limestone
	LMS1	Fe oxidized, argillized and clay rich limestone
	LMS2	Silicified and/or propylitically altered limestone with varying amounts of sulfide bearing phases
	LMS3	Limestone with abundant authigenic calcite
Skarn	SKN1	Argillized and/or heavily retrograded, chlorite and actinolite rich skarn and skarnoid
	SKN2	Relatively non retrograded skarn that may display propylitic and/or silicic alterations
Intrusives	INT	Intrusive rock with one or more alteration styles including, but not limited too, propylitic, silicic, argillic, and/or phyllic alterations

Source: CNI 2012

Table 7.16: Summary of Direct Shear Testing - BVZ

Sample ID	Drill Hole	Sample Depth (m)	Rock Type	Peak/Resid	Friction Angle (deg)	Linear Cohesion		Shifted Power K for X in		Shifted Power M
						(psi)	(KPa)	(psi)	(KPa)	
477-BD-4543-0114	BD-4543	114.00	LMS	Resid	13.0	5.1	35.3	0.799	1.211	0.785
477-BD-4543-0156	BD-4543	156.00	LMS	Resid	28.3	2.2	15.1	0.700	0.766	0.954
477-BD-4543-0159	BD-4543	159.00	LMS	Resid	34.8	8.9	61.4	1.616	2.163	0.849
477-BD-4543-0198	BD-4543	198.00	LMS1	Resid	16.9	4.4	30.2	0.756	1.035	0.837
477-BD-4545-0131	BD-4545	131.00	LMS1	Resid	24.5	3.8	26.5	0.785	0.946	0.903
477-BD-4545-0184-REDO	BD-4545	184.00	LMS2	Resid	27.3	9.0	61.9	1.547	2.262	0.803
477-BD-4545-0184	BD-4545	184.00	LMS2	Resid	31.3	17.5	121.0	3.193	5.659	0.704
477-BD-4548-0198	BD-4548	198.00	SKN1	Resid	28.1	14.2	98.2	2.333	3.853	0.740
477-BD-4548-0198	BD-4548	198.00	SKN1	Peak	27.1	37.8	260.9	9.629	25.560	0.494
477-BD-4548-0229	BD-4548	229.00	SKN2	Resid	34.6	11.4	78.7	1.937	2.764	0.816
477-BD-4548-0257	BD-4548	257.00	LMS3	Resid	20.9	3.8	26.4	0.764	0.971	0.876
477-BD-4548-0257	BD-4548	257.00	LMS3	Peak	24.9	11.7	80.4	1.865	3.001	0.754
477-BD-4548-0331	BD-4548	331.00	LMS3	Resid	25.4	3.0	20.5	0.761	0.896	0.915
477-BD-4548-0343	BD-4548	343.00	LMS	Resid	38.0	9.8	1.1	1.752	2.310	0.857
477-BD-4550-0194	BD-4550	194.00	INT	Resid	29.9	5.1	35.3	1.054	1.300	0.891
477-BD-4551-0116	BD-4551	116.00	SKN1	Resid	16.1	7.7	53.2	1.319	2.218	0.731
477-BD-4551-0120	BD-4551	120.00	SKN1	Resid	18.8	8.4	58.2	1.328	2.106	0.761
477-BD-4551-0120	BD-4551	120.00	SKN1	Peak	18.9	20.5	141.0	4.809	11.711	0.539
477-BD-4553-0146	BD-4553	146.00	INT	Resid	25.5	4.9	33.5	0.949	1.205	0.877
477-BD-4553-0199	BD-4553	199.00	INT	Resid	34.1	2.6	18.1	0.964	1.093	0.935
477-BD-4553-0199	BD-4553	199.00	INT	Peak	29.9	49.1	338.2	13.381	37.846	0.461
477-BD-4557-0096	BD-4557	96.00	SKN2	Resid	36.4	17.2	118.7	2.875	4.583	0.759
477-BD-4557-0155	BD-4557	155.00	SKN2	Resid	32.4	3.6	25.1	0.974	1.130	0.923
477-BD-4557-0215	BD-4557	215.00	SKN2	Resid	33.8	6.9	47.4	1.531	2.083	0.841
477-BD-4558-0227	BD-4558	227.00	LMS2	Resid	29.2	5.3	36.5	1.059	1.321	0.886
477-BD-4558-0230	BD-4558	230.00	SKN2	Resid	28.3	14.1	97.2	2.379	3.959	0.736

Source: CNI 2012

Shear strength of structural defects was measured by SRK from 24 direct shear tests completed on eight rock types. SRK used these data to fit a non-linear shear strength criterion to each of the tested rock types. The non-linear shear strength criterion is based on this equation where τ is the shear strength, σ_n is the corresponding normal stress, and A and B are fitting parameters:

$$\tau = A \cdot \sigma_n^B$$

The estimated fitting coefficients A and B are shown in Table 7.17 for the tested rock types.

Table 7.17: Summary of Direct Shear Testing at BVC

Lithology Code	Lithology Code	Non-Linear Shear Strength Envelope			
		Minimum (kPa)		Maximum (kPa)	
		A	B	A	B
	Andesite	2.93	0.8771	2.93	0.8771
10	Porphyry Coarse-grain	-	-	-	-
11	Quartz-Feldspar	-	-	-	-
12	Porphyry Quartz-Feldspar	0.39	0.9984	0.85	0.9201
13	Porphyry Feldspar	0.79	0.9667	1.27	0.8106
	Feldspar Porphyry Breccia	0.65	0.9405	1.04	0.8572
16	Granite	1.78	1.0100	1.78	1.0100
22	Volcanic Henrietta	0.44	1.0169	1.12	0.8488
21	Mesa Volcanic	0.82	0.8964	1.05	0.8545
31	Mesa Breccia	-	-	-	-
50	Limestone Chloritized	0.95	0.8641	1.70	0.6641

Source: SRK 2022

7.4.4 Qualified Person's Opinion

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

8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Site Sample Preparation Methods and Security

8.1.1 Sampling Techniques and Preparation

Geologists from Buenavista del Cobre 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 on the Project since 1998. The nature and quality of the sampling from the various sampling programs is summarized in the following sections.

8.1.1.1 RC Drilling

The RC drilling was focused on collecting lithological and grade data from within the mining polygons for tepetate (local term for waste), leachable and short-term ore. RC Drilling was carried out with a 5 ½-inch diameter hammer bit. Samples were retrieved from the drill mounted cyclone and were collected at continuous intervals over 3 m of borehole. The original sample was then divided into three parts using a splitting device, resulting in a representative sample of approximately 5 kilograms (kg). is the sample was then placed in a labeled and sealed rice bag prior to transfer to the mechanical preparation facility. An example of an RC drill rig is shown in Figure 8.1.

Source: Buenavista del Cobre

Figure 8.1: RC Drilling Rig

8.1.1.2 Core Drilling

Drill cores were carefully handled from the time they were obtained from the drill site. The cores were packed sequentially in plastic or wooden core boxes as they were retrieved. For each core run, a tag, or label, was placed where the driller notes the depth of the hole indicating the interval drilled. The geologist or their assistant measured the actual length of the core recovered in the run to calculate the core recovery.

Post-2010, core samples were collected from HQ (63.5- mm core diameter) size drill core for the first 150 m, then a switch was made to NQ (47.6-mm core diameter) drill core for the remainder of the drill hole. Prior to 2010, BQ (36.5-mm core diameter) was used for all the DDH samples. The geologist responsible for core logging and description typically varied the sample length according to the mineralogy or other geological features observed.

To prepare the core sample for submittal to the assay laboratory, it was first split in half using a manual core cutter. One half of the core was carefully retained in the core box and kept for future reference or for metallurgical or column leaching tests. The other half was placed in a plastic bag, labeled, and sealed for shipment to the laboratory. The weight of the samples varied between 8 and 15 kg depending on the diameter of the drill hole.

8.1.1.3 Sample Preparation

From 2011 to 2017, the mechanical sample preparation was carried out by Sonora Sample Preparations, S.A. de C.V. (Sonora Sample). Since 2018, the mechanical sample preparation has been completed by MASP Mexico SC (MASP). MASP is international certified to ISO 9001:2008; however, the QP could not verify the certification for Sonora Sample. The mechanical sample preparation generates one (1) set of three (3) pulps per sample weighing approximately 100 g. Each pulp is identified with the sample number and are used as follows:

- 1 pulp to be sent to the Geochemical Laboratory.
- 2 pulps returned to the facilities of the Superintendent of Geology for storage.

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.
- Drying at 60°C.
- Primary crushing to -10 mesh (150 microns).
- Separation with a Jones Splitter or Rotatory machine to produce a 250-g – 300-g sample.
- Pulverization of 90-95% to -200 mesh (75 microns) until the sample weighs 125 grams (g) - 150 g to obtain three (3) samples.
- One sample was taken at random every five samples for quality control at -200 mesh.

The remaining sample material, including both coarse and pulp rejects, were organized and temporarily stored for future reference, or assay verification.

8.1.2 Sample Results

To date there has been a total of 544,259 samples collected at Buenavista del Cobre, including both BVC and BVZ. The sampling comprises 421,252 core samples and 123,007 samples that are either percussion, RC, or rotary. A summary of the sampling by drilling type is presented in Table 8.1 and by year in Table 8.2. These tables include all available assay data, including drill holes and samples that were excluded in the 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 Total Cu (wt. %)
DDH	388,340	2.29	0.341
DDH (Mine Level)	32,912	1.61	0.808
Percussion	28,137	1.90	0.445
RC	73,671	3.05	0.292
Rotary (Exploration)	295	3.00	0.303
Rotary (Machine T4)	19,042	1.56	0.341
Rotary (15 m samples)	1,862	5.27	0.293
Total	**544,259**	**2.32**	**0.356**

Table 8.2: Summary of Assay Samples by Year Drilled

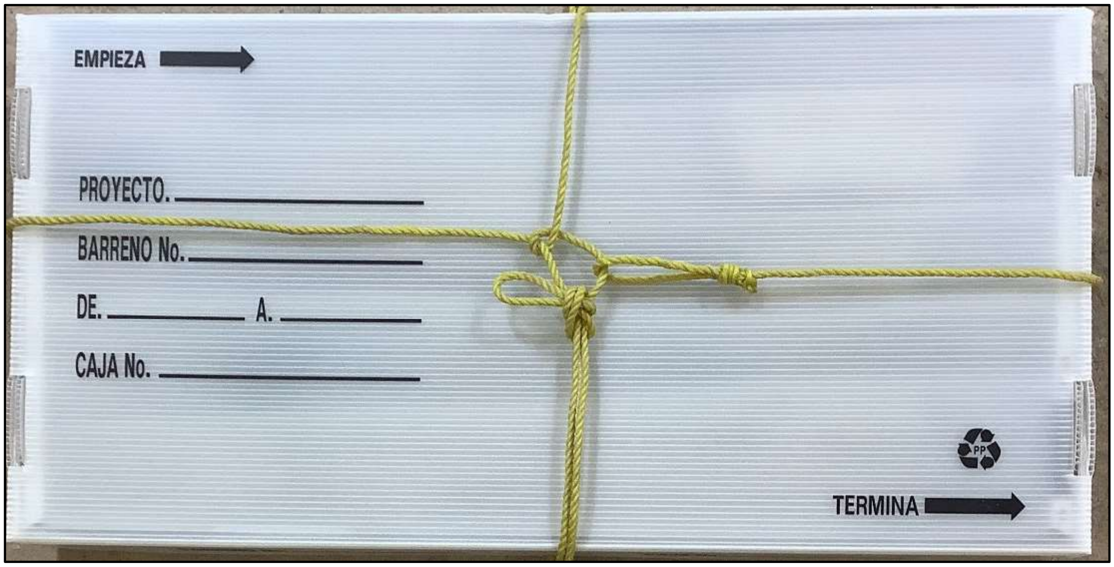
Year	No. of Samples	Mean Thickness (m)	Mean Total Cu (wt. %)
Pre-1990	190,013	1.72	0.435
1990-2018	238,904	2.88	0.296
2020	16,442	3.05	0.220
2021	1,765	3.00	0.334
2022	10,288	3.06	0.358
2023	6,144	2.99	0.330
2024	8,578	3.00	0.236
No Information	72,125	1.77	0.563
Total	**544,259**	**2.32**	**0.356**

8.1.3 Verification of Sampling and Assaying

Periodically, assay verification campaigns were carried out by cross-checking samples between laboratories, using both coarse and pulp reject material. In general, the absolute differences in Cu assays have been insignificant; however, there have been some differences in the minor element determinations which does not in the QP's opinion impact the overall reliability of the assays. It is the opinion of the QP that these minor differences do not have a material impact on the grade modelling or the Mineral Resource estimate.

8.1.4 Sample Security

Core was collected at the drill rig by Buenavista del Cobre employees and transported to the core shed, a locked and fenced facility. The core boxes were accompanied by a form with information on the interval drilled, drilling number and project name. Subsequently, the box was secured and tied up (Figure 8.2) to prevent any manipulation or alteration of the core recovered during transport. At the end of each shift, a report was generated with the total meters drilled per shift. The receipt of core from the drill rig included a review of the start and end interval, which corresponds with the marked physical evidence and the reported drilling progress by Buenavista del Cobre personnel.



Source: WSP 2021

Figure 8.2: Secured Core Box

The core was then logged, photographed and sample intervals were labeled with a water-resistant tag, split, and put in sample bags and sealed (Figure 8.3 and Figure 8.4). The Superintendent of Geology then contacted the contractor company in charge of mechanical sampling by email and the core was collected for preparation.

The preparation laboratories would send their own transportation to pick up the sample batches, with each batch comprising all the samples from one drill hole. Sample submission forms with the details of each batch and assays required were signed by the laboratory personnel upon receiving the samples. The samples were identified by sample number. The remaining core is stored in the core warehouse in order of hole number and box number. Other than initial splitting of the core, Buenavista del Cobre personnel were not involved with sample preparation, or analysis.

Source: WSP 2021

Figure 8.3: Example Core Box (BD-5730)

Source: WSP 2021

Figure 8.4: Example of Split Core Samples

8.2 Laboratory Sample Preparation Methods and Analytical Procedures

Until the early nineties, all samples were analyzed only for total Cu at the mine's internal laboratory and assay verification was carried out systematically in-house. Occasionally, when the presence of other minerals of interest such as sphalerite (Zn-bearing), molybdenite (Mo-bearing), etc. were identified visually, analyses for these elements were also undertaken. Also, when a special evaluation of the deposit was carried out, specific chemical analysis campaigns were conducted, as in the case of Mo and As.

Since 1996, in accordance with the objectives of the Buenavista del Cobre Development Plan, the decision was made to routinely analyze samples for 10 elements, which include total Cu, oxide copper (CuO), soluble copper cyanide (CuCN), Fe, Zn, lead (Pb), Mo, As, bismuth (Bi), and antimony (Sb). To carry out these analyses, an internal laboratory, Laboratorio Geoquímico Industrial Minera México, S.A. de C.V. Dirección Técnica y Control Metalúrgic, located in San Luis Potosi, Sonora, Mexico was used from 2011 to 2020. For the 2023 drilling program, the samples were being analyzed by Actlabs Mexico S.A. de C.V. located in Zacatecas, Mexico and in Ancaster, Ontario. In 2024, samples were also sent to Laboratorio Tecnológico de Metalurgia (LTM) in Hermosillo, Sonora. Actlabs and LTM laboratories are internationally certified under the ISO 9001:2015 standard and independent from Buenavista del Cobre. A summary of the laboratories used for preparation and analysis is shown in Table 8.3.

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
SCC Internal	Cananea, Sonora, Mexico	1926-1996	Primary sample preparation and analysis	Unknown	No
Jacobs Assay Office	Tucson, AZ, USA	1997-1999	Primary sample preparation and analysis	Unknown	Yes
Laboratorio Geoquímico Direccion Tecnica y Control Metalurgico	San Luis Potosi, Sonora, Mexico	1996-2022	Primary sample preparation (to 2011) and analysis (to 2022)	ISO 9001:2015	No
Sonora Sample Preparation Lab	Hermosillo, Sonora, Mexico	2011-2017	Primary sample preparation	Unknown	Yes
MASP Mexico SC	Cananea, Sonora, Mexico	2018-2024	Primary sample preparation	ISO 9001:2008	Yes
Activation Labratories (Actlabs)	Guadalupe, Mexico Ancaster, ON, Canada	2023-2024	Primary analysis; Check assay (2021-2022)	ISO/IEC 17025:2017 ISO 9001:2015	Yes
Laboratorio Tecnológico de Metalurgia	Hermosillo, Sonora, Mexico	2024	Primary analysis	ISO/IEC 17025:2017 ISO 9001:2015	Yes

Table 8.4: Summary of Analytical Methods by Laboratory

Laboratory Name	Duration Used	Sample Size	Analyte	Method
SCC Internal	pre-1996	-	Cu, (occasional Zn, Mo, As)	Unknown
Laboratorio Geoquímico Direccion Tecnica y Control Metalurgico	1996-2022	-	Cu, Zn, Pb, Mo, As, Bi, and Sb	4-acid digestion useing a combination of nitric (HNO_3), perchloric ($HClO_4$), hydrofluoric (HF), and hydrochloric (HCl) acids. The samples were then analyzed by ICP-OES and 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	CuO, 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
Actlabs	2023-2024	-	CuO, Zn & CuCN	Sequential Copper Leach (8-Cu-Zn 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-OES.
		0.25 g	Ag, As, Bi, Cd, Co, Cu, Fe, Mn, Mo, Pb, Sb, Zn	Peroxide Fusion ICP-OES (8-Peroxide Fusion): Samples are fused with Na2O2 in Zirconium crucibles. The fused sample is dissolved in purified water and acidified with concentrated HNO3, HCl acids. The solution is then measured by an ICP-OES.
		30 g	Au	Fire assay fusion with AA finish (1A2)
LTM	2024	-	Ag, As, Bi, Cd, Co, Cu, Fe, Mn, Mo, Pb, Sb, Zn	Multi-acid digestion of sample. Elemental determination by ICP-OES. (SERVICIO ICP-OES)
		-	CuO	Sequential Cu. Partial dissolution in H_2SO_4. Elemental determination by AA (VHC_13)
		-	CuCN	Sequential Cu. Partial dissolution in NaCN. Elemental determination by AA (VHC_12)
		30 g	Au	Fire assay fusion with AA finish (AMP-1)

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 were implemented at Buenavista del Cobre. As of 2021, Buenavista del Cobre 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.

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	7%	Evaluate laboratory analytical accuracy against a certified value
		Oreas 501D		
	Mid Grade	Oreas 503D		
		Oreas 503E		
	High Grade	Oreas 502C		
		Oreas 502D		
Blanks	Fine (pulp)	Oreas 20a	5%	Evaluate contamination at the sample analytical stage
	Coarse	Barren Rhyolite		Evaluate contamination at the sample preparation stage
Duplicates	Fine	Pulp	8%	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

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	2023-2024 (Exploration)	2023-2024 (Mine)
Total Samples per Campaign		**5,641**	**5,119**	**5,093**
QA/QC Sample Type				
CRMs	Oreas151A	91		
	Oreas 501D		107	79
	Oreas 503D	98		
	Oreas 503E		100	77
	Oreas 502C	85		
	Oreas 502D		104	69
Blanks	Oreas 20a	107	116	103
	Coarse	107	118	105
Duplicates	Fine	120	123	107
	Coarse	102	123	98
	Field	104	107	99
Total QA/QC Samples		**814**	**898**	**737**
Percent QA/QC Samples		14.4%	17.5%	14.5%

The review of the QA/QC results was carried out by the Buenavista del Cobre 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 CRMs

Several types of commercially prepared copper-porphyry CRMs were obtained directly from OREAS 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 Buenavista del Cobre, 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 501D	Cu-Au-Mo Porphyry	0.272	0.232	95
Mid Grade	Oreas 503D*	Cu-Au-Mo Porphyry	0.524	0.666	348
	Oreas 503E	Cu-Au-Mo Porphyry	0.531	0.709	343
High Grade	Oreas 502C*	Cu-Au-Mo Porphyry	0.783	0.488	226
	Oreas 502D	Cu-Au-Mo Porphyry	0.776	0.499	249

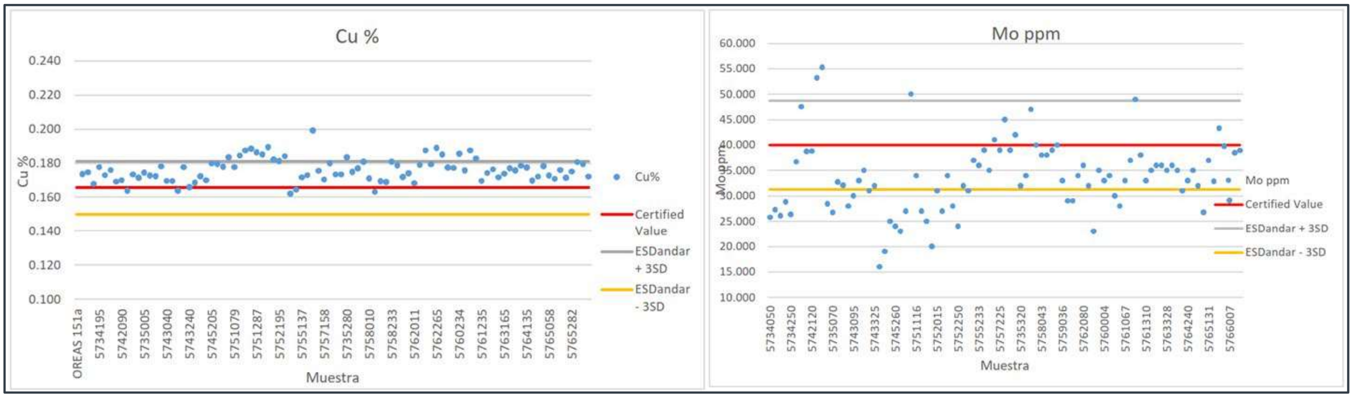
Note: * CRMs were used for the 2021-2022 program only.

Table 8.8 summarizes the failure rates for each CRM for both Cu and Mo. The CRMs chosen for the 2023 to 2024 programs performed very well, with minor failures for each CRM for both Cu and Mo. The CRMs for 2021-2022 were less consistent and showed poor performance particularly for Mo and the low-grade Cu CRM, OREAS 151A. It was determined that the internal SCC laboratory systematically under reported Mo for the 2021-2022 assays. Buenavista del Cobre replaced each of the low, mid and high grade CRMS for the subsequent programs, and sent the samples to external laboratories for analysis in 2023-2024 which has improved the reliability of the Mo assays.

Table 8.8: CRM Failure Rates

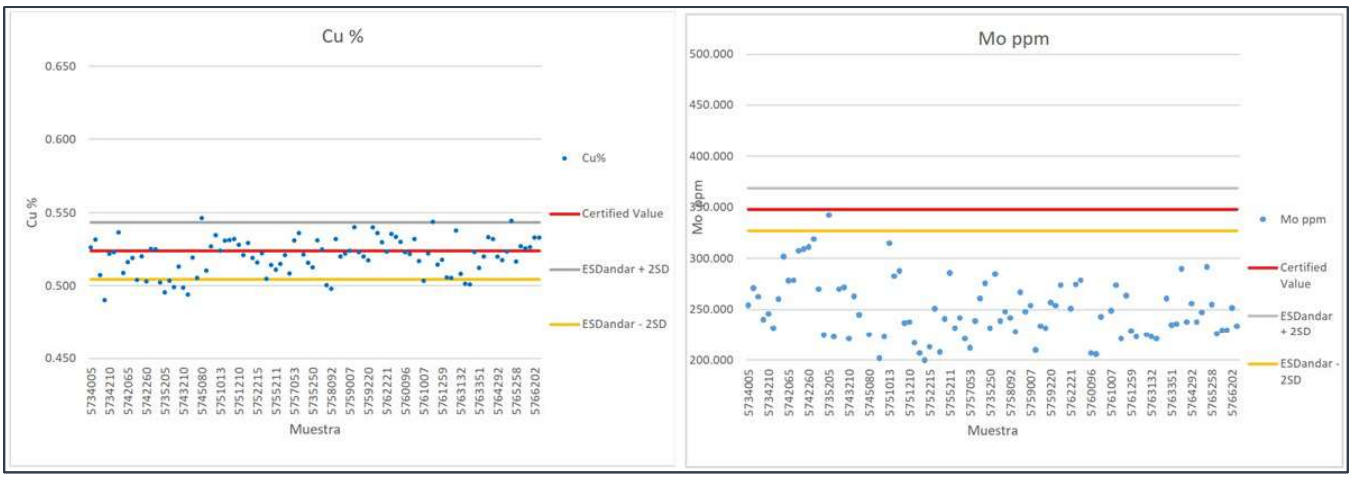
Drilling Campaign	2021-2022			2023-2024 (Exploration)			2023-2024 (Mine)		
CRM	Total Samples	Failure % Cu	Failure % Mo	Total Samples	Failure % Cu	Failure % Mo	Total Samples	Failure % Cu	Failure % Mo
Oreas 151A	91	20%	40%						
Oreas 501D				107	0%	1%	79	4%	1%
Oreas 503D	98	1%	97%						
Oreas 503E				100	0%	4%	77	4%	4%
Oreas 502C	85	0%	89%						
Oreas 502D				104	0%	1%	69	7%	1%

Control charts for each of the CRMs used during the drilling campaigns for Cu and Mo are presented in Figure 8.5 to Figure 8.13.



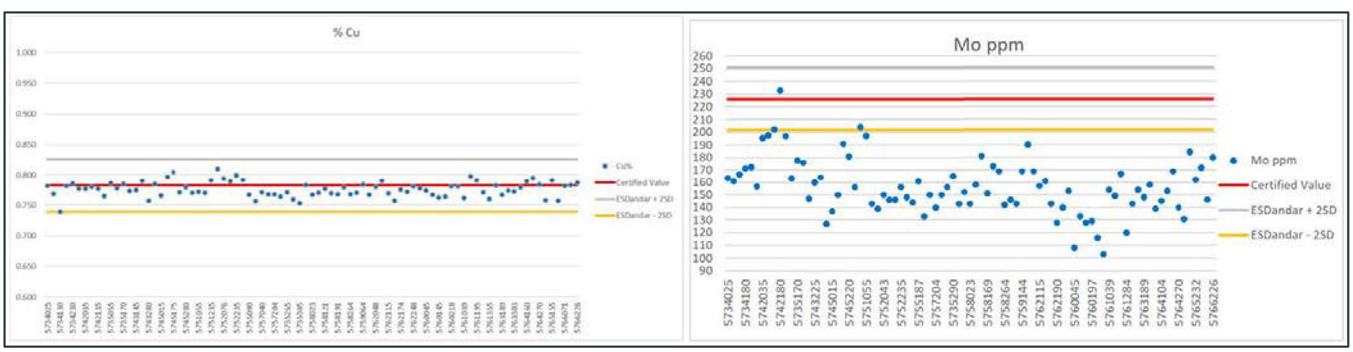
Source: Buenavista del Cobre 2022

Figure 8.5: OREAS 151A - Cu (left) and Mo (right) for 2021-2022



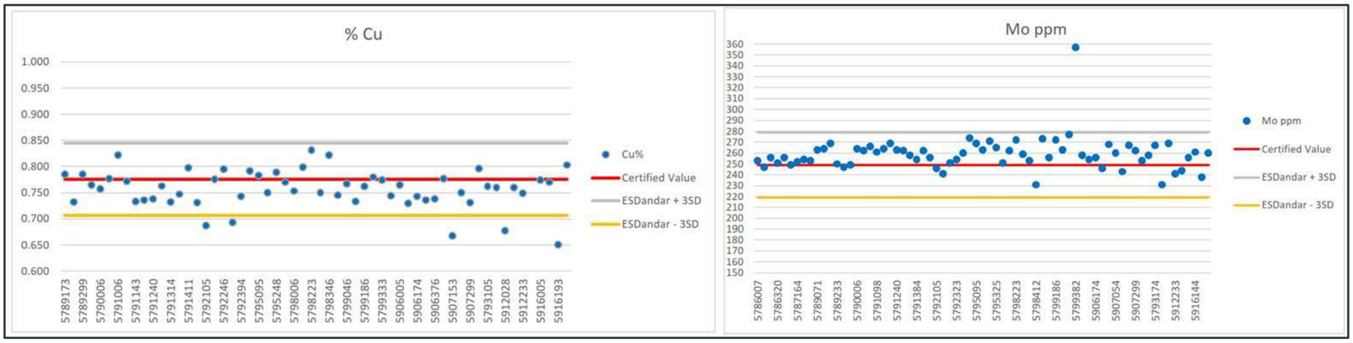
Source: Buenavista del Cobre 2022

Figure 8.6: OREAS 503D - Cu (left) and Mo (right) for 2021-2022



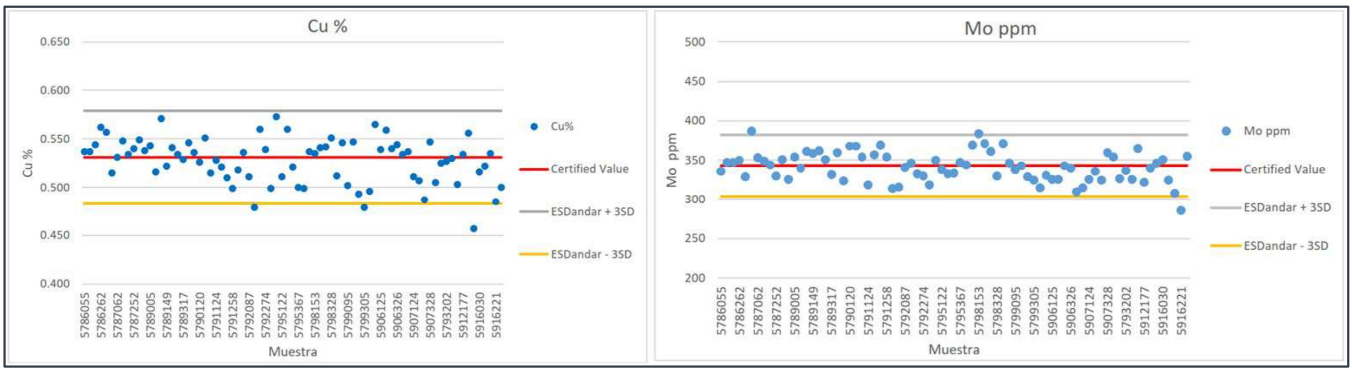
Source: Buenavista del Cobre 2022

Figure 8.7: OREAS 502C - Cu (left) and Mo (right) for 2021-2022



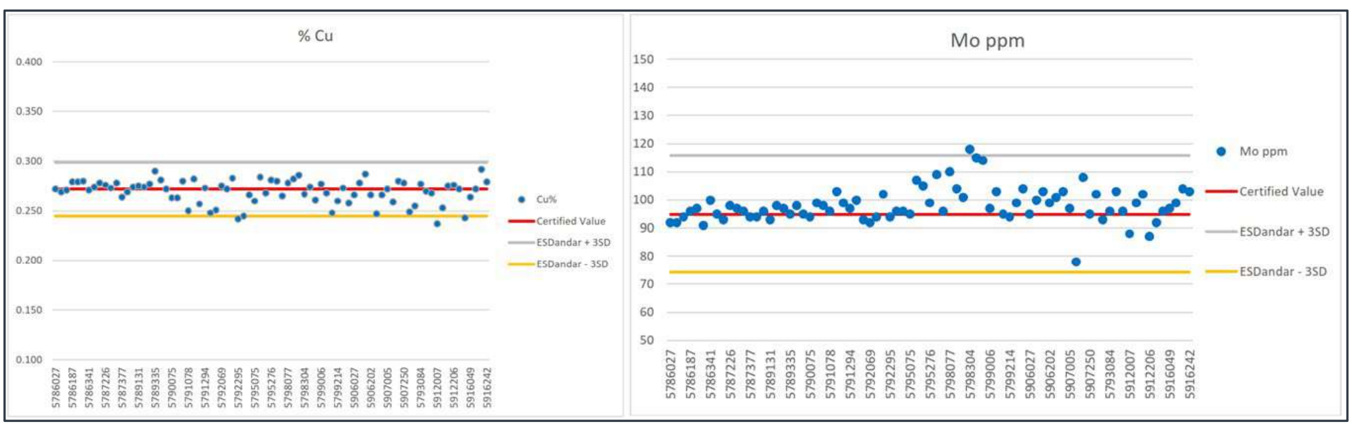
Source: Buenavista del Cobre 2024

Figure 8.8: OREAS 502D – Cu (left) and Mo (right) for 2023-2024 Mine



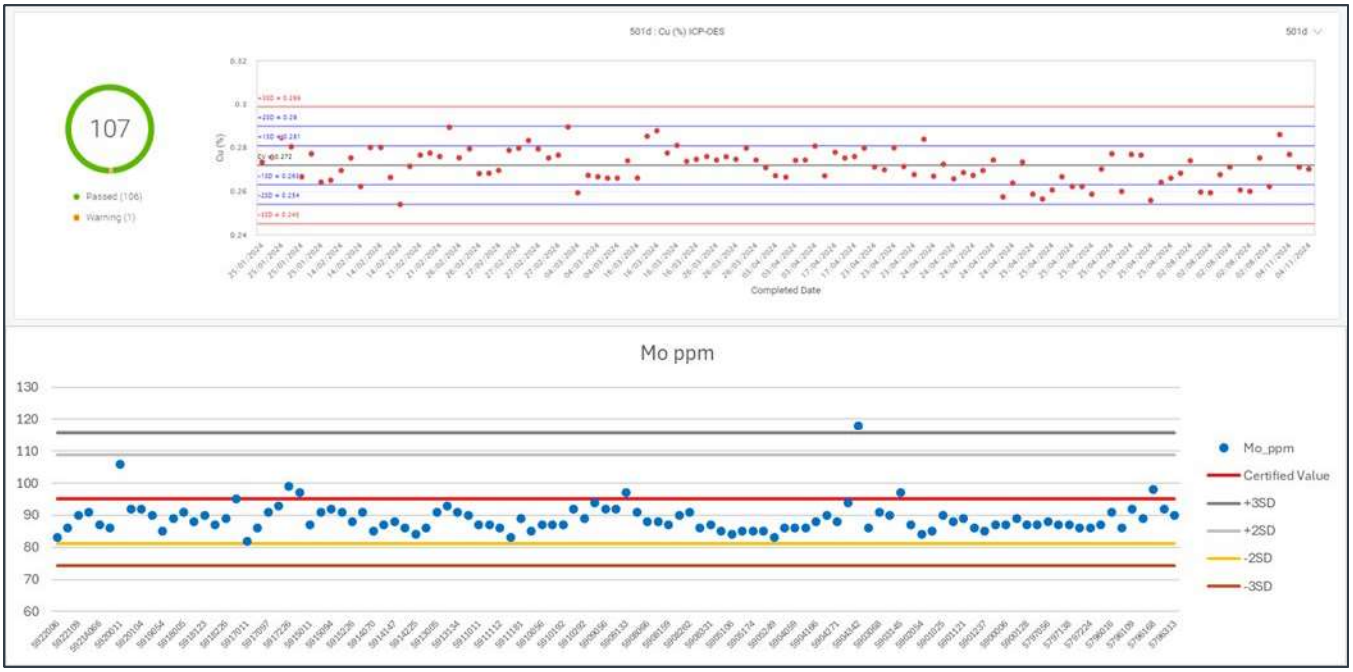
Source: Buenavista del Cobre 2024

Figure 8.9: OREAS 503E – Cu (left) and Mo (right) for 2023-2024 Mine



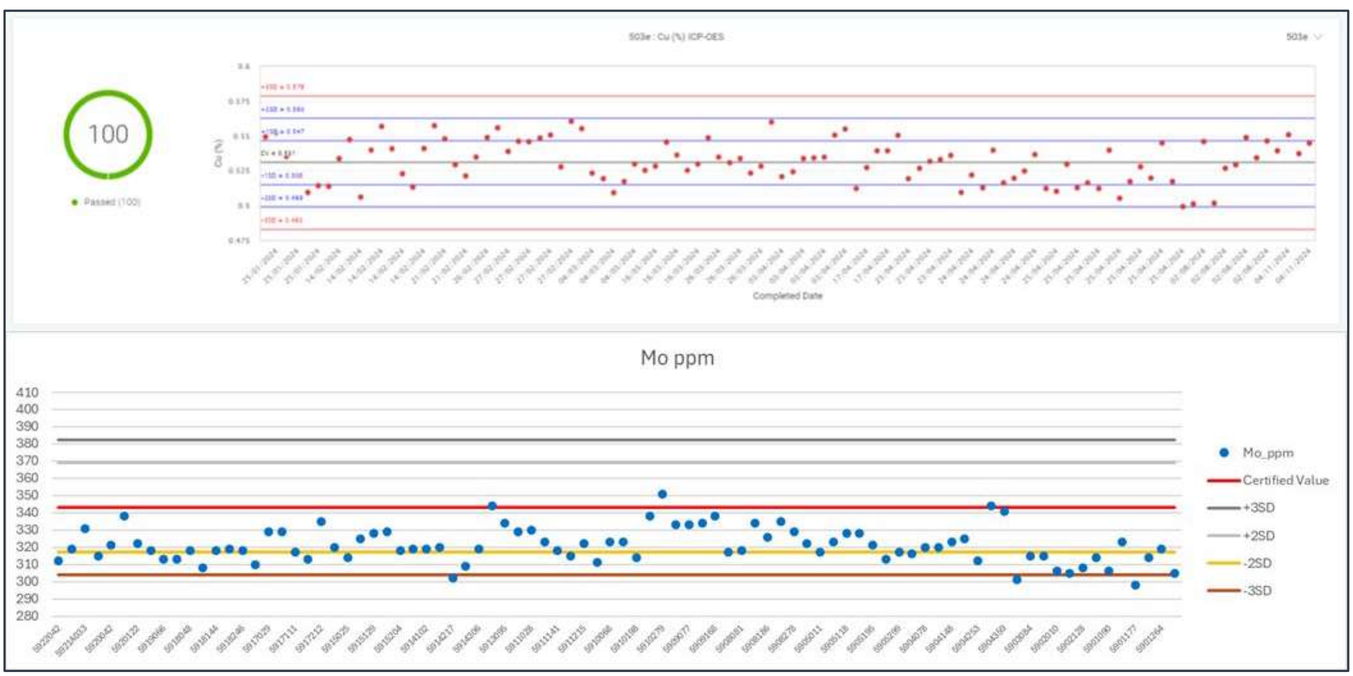
Source: Buenavista del Cobre 2024

Figure 8.10: OREAS 501D – Cu (left) and Mo (right) for 2023-2024 Mine



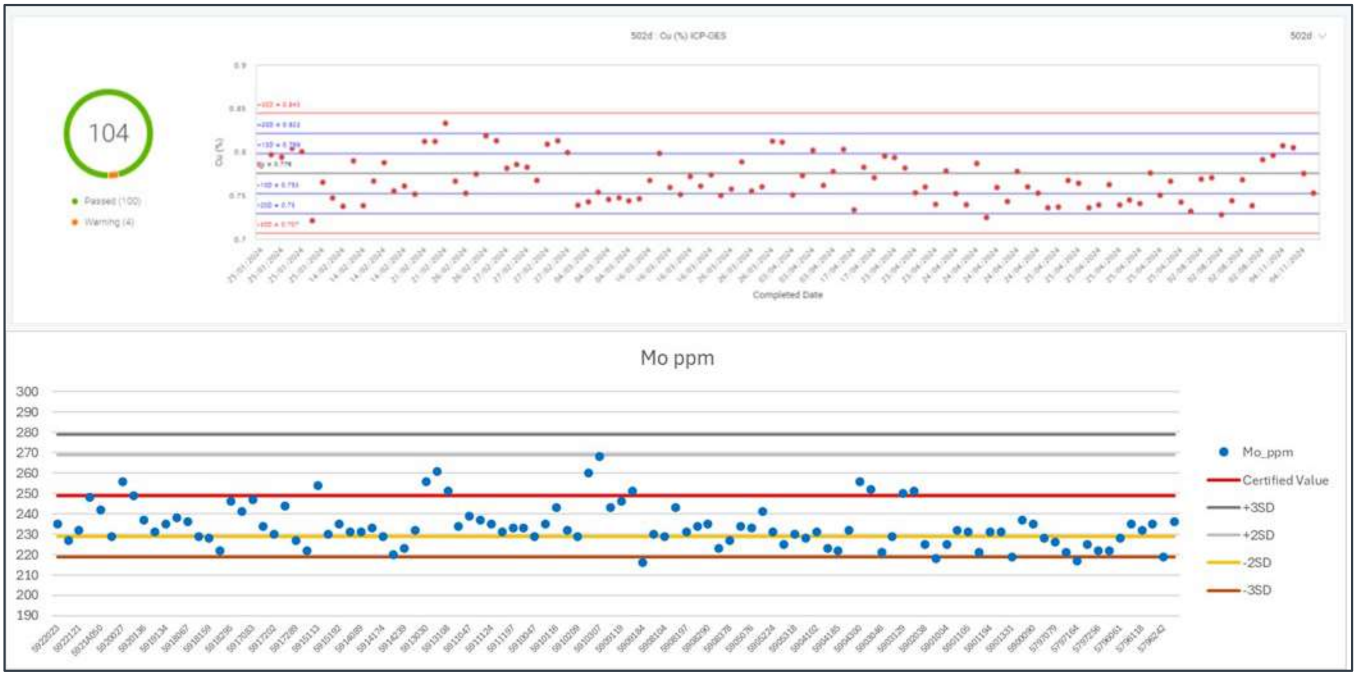
Source: Buenavista del Cobre 2024

Figure 8.11: OREAS 501D - Cu (top) and Mo (bottom) for 2023-2024 Exploration



Source: Buenavista del Cobre 2024

Figure 8.12: OREAS 503E - Cu (top) and Mo (bottom) for 2023-2024 Exploration



Source: Buenavista del Cobre 2024

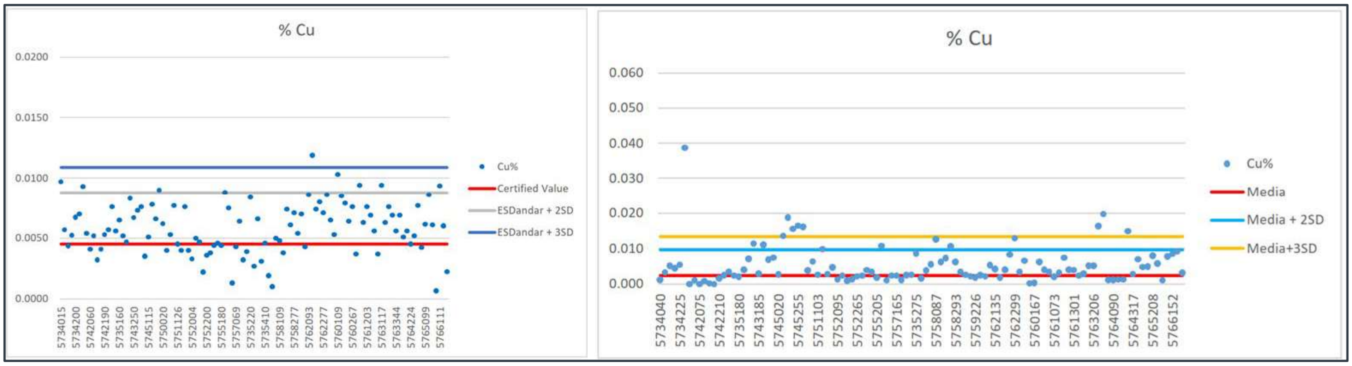
Figure 8.13: OREAS 502D - Cu (top) and Mo (bottom) for 2023-2024 Exploration

8.3.2 Blanks

Blank samples are used to assess contamination at both the preparation (coarse blank) and analytical (pulp blank stage) stage. Buenavista del Cobre 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 8.9 summarizes the failure rates for each type of blank by drilling campaign. Overall, both the pulp and coarse blanks performed well, with only minor failures. This indicates that there is minimal contamination at the both the preparation and analysis stage. Figure 8.14 through Figure 8.16 illustrate the pulp and coarse blanks results for Cu for each of the three drilling campaigns.

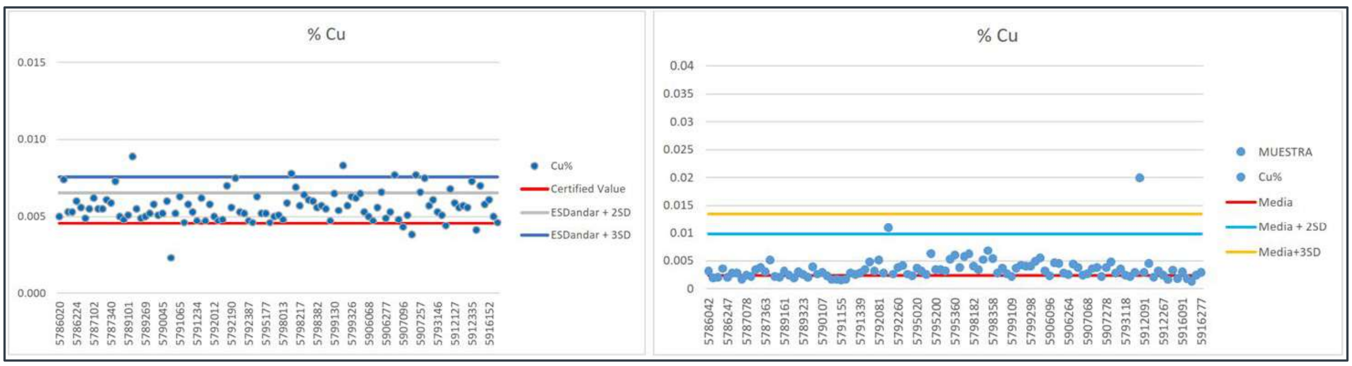
Table 8.9: Blank Failure Rates

Drilling Campaign	2021-2022		2023-2024 (Exploration)		2023-2024 (Mine)	
Blank	Total Samples	Failure % Cu	Total Samples	Failure % Cu	Total Samples	Failure % Cu
Pulp (Oreas 20a)	107	1%	116	1%	103	5%
Coarse	107	8%	118	2%	105	1%



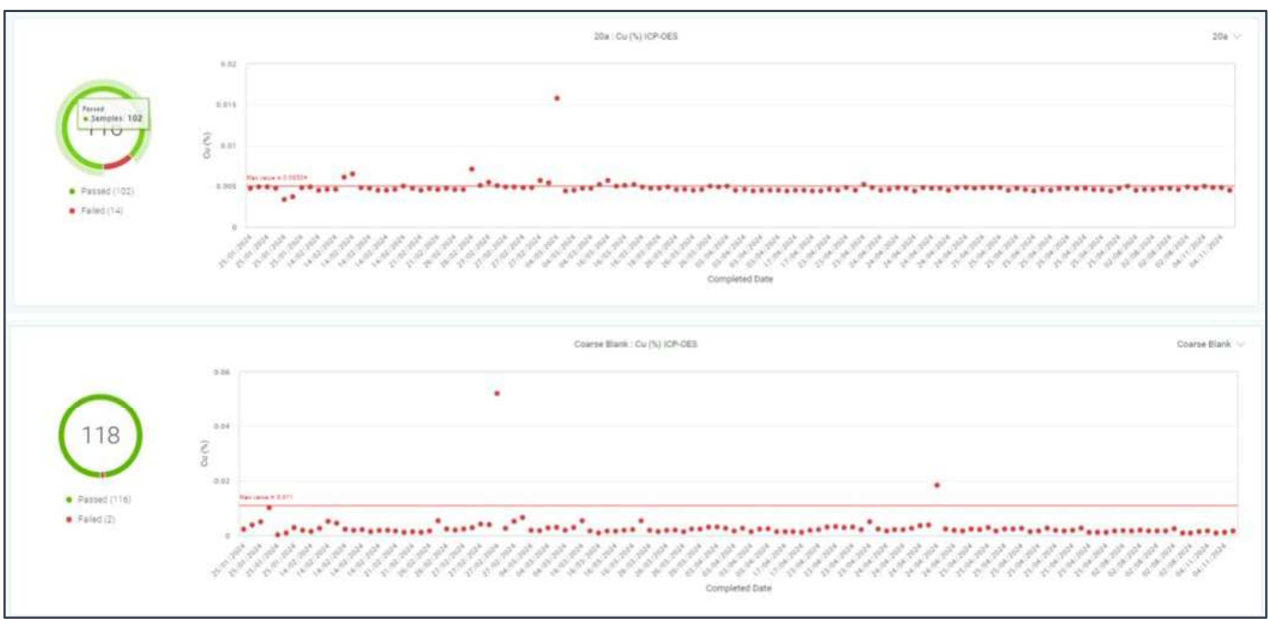
Source: Buenavista del Cobre 2024

Figure 8.14: Pulp Blank OREAS 20a (left) and Coarse Blank (right) for Cu – 2021-2022



Source: Buenavista del Cobre 2024

Figure 8.15: Pulp Blank OREAS 20a (left) and Coarse Blank (right) for Cu – 2023-2024 Mine



Source: Buenavista del Cobre 2024

Figure 8.16: Pulp Blank OREAS 20a (top) and Coarse Blank (bottom) for Cu – 2023-2024 Exploration

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

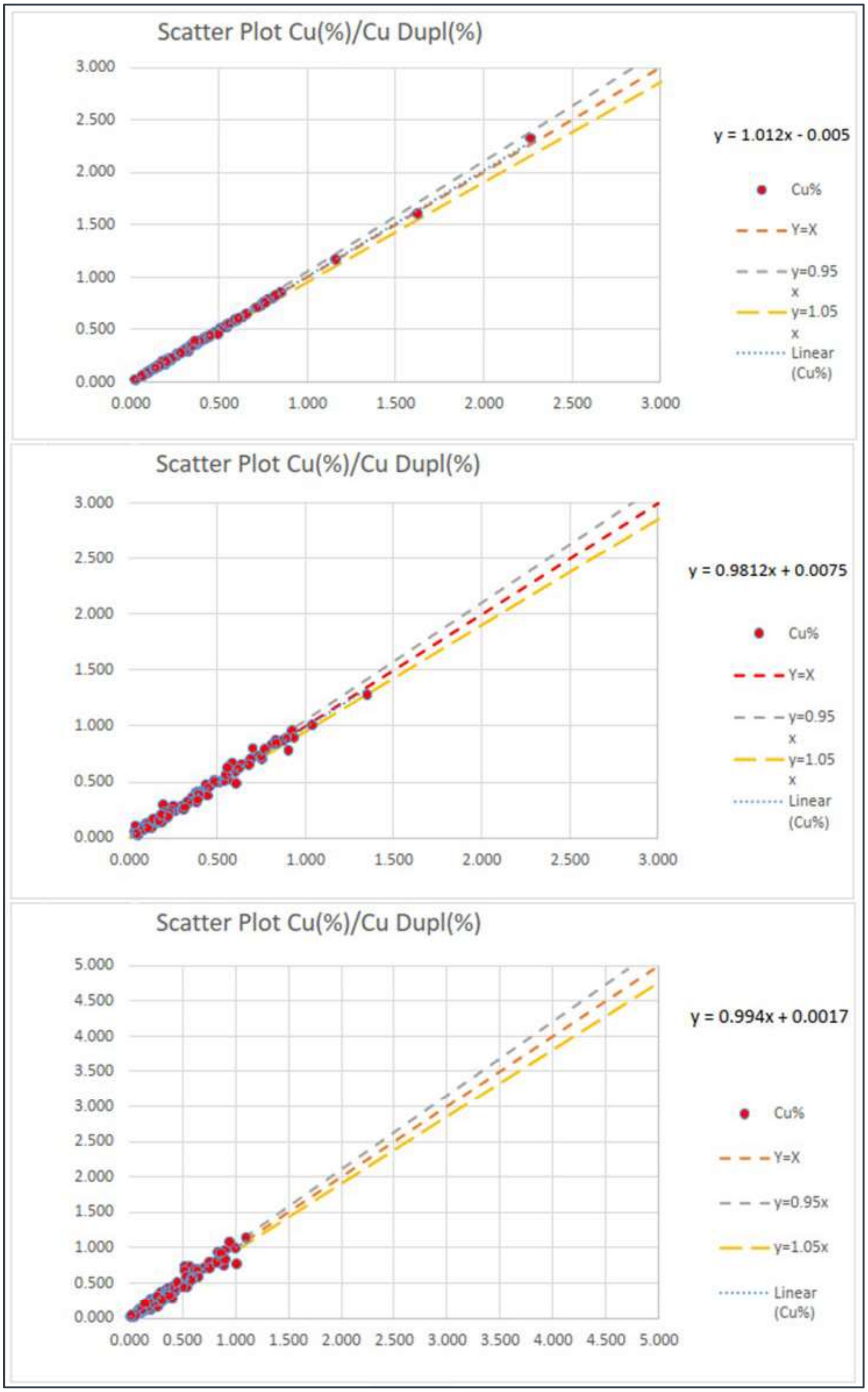
Table 8.10 summarizes the failure rates for each type of Duplicate for Cu. Samples are considered to have failed if they are outside the <10% difference.

Table 8.10: Duplicates Failure Rates

Drilling Campaign	2021-2022		2023-2024 (Exploration)		2023-2024 (Mine)	
Duplicate	Total Samples	Failure % Cu	Total Samples	Failure % Cu	Total Samples	Failure % Cu
Fine	120	0%	123	18%	107	10%
Coarse	102	0%	123	2%	98	6%
Field	104	24%	107	5%	99	0%

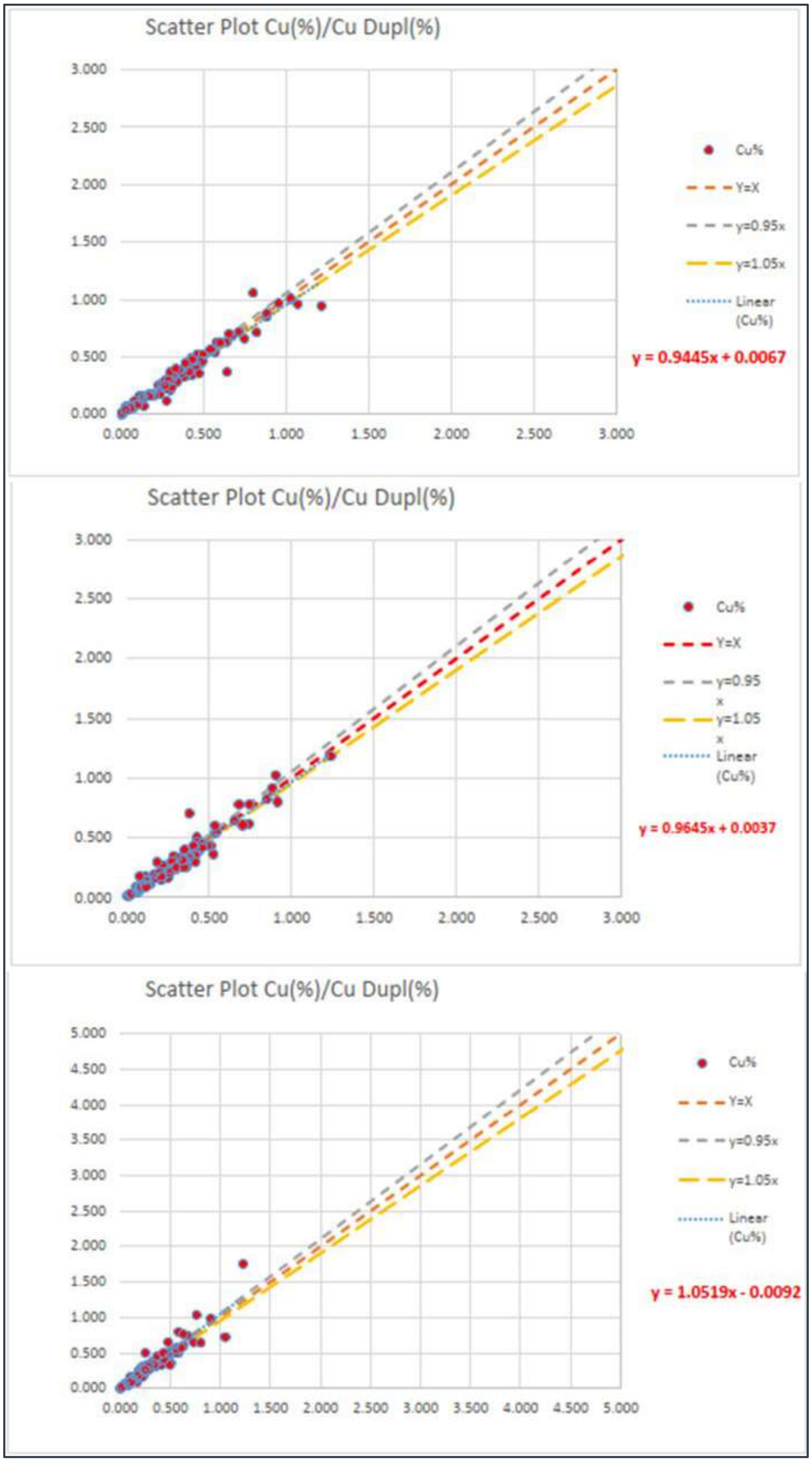
Figure 8.17 to Figure 8.19 illustrate the performance of the pulp, coarse, and field duplicates for each drilling campaign relative to the tolerance window for each.

Most of the duplicates performed well, with two out of three having minimal failures. However, for the 2021-2022 program the field duplicates had several samples outside of the HARD tolerances. Indicating variability within the mineralization in the core. For the 2023-2024 programs, the pulp duplicates had several failures which indicate that improvements may be needed at the sample analysis stage by the laboratory and QA/QC results should be continually reviewed.



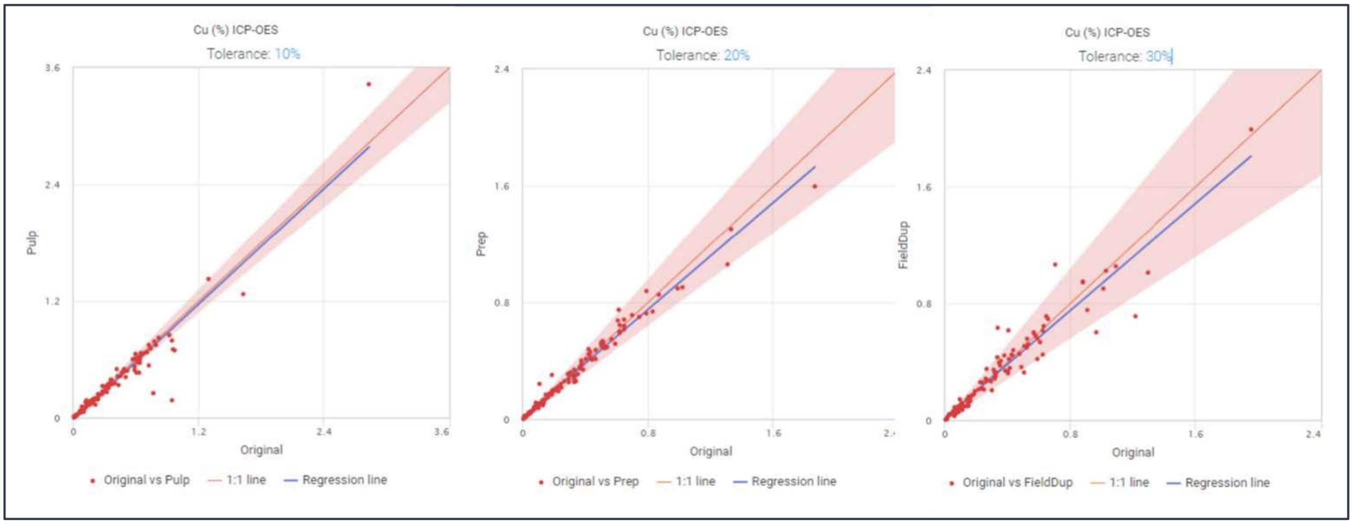
Source: Buenavista del Cobre 2024

Figure 8.17: Pulp (top), Coarse (middle) and Field (bottom) Duplicates for Cu - 2021-2022



Source: Buenavista del Cobre 2024

Figure 8.18: Pulp (top), Coarse (middle) and Field (bottom) Duplicates for Cu – 2023-2024 Mine



Source: Buenavista del Cobre 2024

Figure 8.19: Pulp (left), Coarse (middle) and Field (right) Duplicates for Cu – 2023-2024 Exploration

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

It is the QP's opinion that much of the historical information used in the construction of the geological model, including the sample preparation, sample security and analytical procedures applied by Buenavista del Cobre are not well documented or understood. However, the QP considers the historical information to be adequate for the purpose of establishing an analytical database for use in the grade modeling and preparation of Mineral Resource estimates, as summarized in this TRS.

Since 2022, Buenavista del Cobre 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 reviewed the current core and sampling techniques during a site visit in August 2021 and August 2024. The QP found that the current sampling techniques were appropriate for collecting data for the purpose of preparing geological models and Mineral Resource estimates.

9.0 DATA VERIFICATION

9.1 Exploration and Mineral Resource Data Verification

9.1.1 Exploration Data Validation

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

Drill hole data for Buenavista del Cobre includes 6,698 drill holes totaling 1,296,668 m of drilling and with 544,259 analytical samples totaling 1,260,320 m. Compiled supporting documentation for the Buenavista del Cobre drilling data included descriptive logs, with collar survey, core photos, and assay information. There were also 1,777 surface samples included in the database.

All drill hole logs were recorded by Buenavista del Cobre logging geologists on formatted paper sheets, then transcribed into Excel. Data and observations recorded into the digital logging files were reviewed for transcription or keying errors or omissions by senior BVC geologists. The new data since 2020 provided by Buenavista del Cobre was evaluated for errors and omissions as part of the data validation procedures performed by WSP.

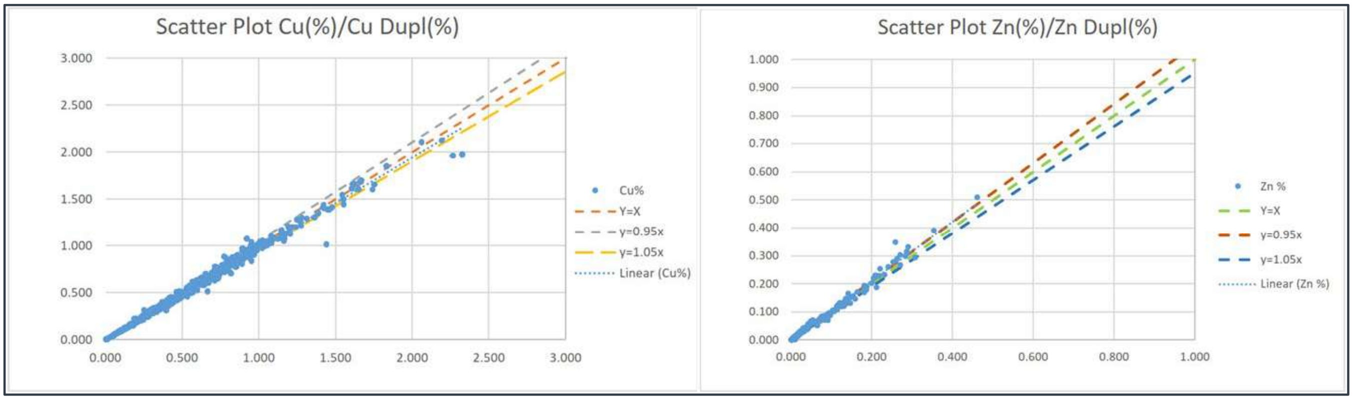
The review of the database used for the modeling was performed with WSP internal software (DataCheck®), which allows the detection of inconsistencies such as: overlapping intervals, excessive path deviation between measurement intervals, duplication of collars, sample depth greater than the depth of the collar, among others. No major inconsistencies were detected in the databases submitted.

The QP reviewed a percentage of the drill hole information added to the 2024 model against the original logging sheets. For the review, the QP requested Buenavista del Cobre information from 20 drill holes, information included collar, survey, and assay files. Of these 20 drill holes reviewed, between 10% and 20% of the total length of each drill hole was checked. No major deviations were found.

The review verified the collar, survey, lithology, mineralization, and grade data for Cu, Mo, Fe, Ag, and Zn in scanned log documents against the database used for Mineral Resource estimation. No major inconsistencies were found. The QP completed a site visit during the June 18-19, 2024. 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 Buenavista del Cobre. 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.

9.1.2 Assay Verification

Buenavista del Cobre conducted a third-party verification pulp re-assay program on approximately 10% of the 2021-2022 assay samples which had been assayed at the internal SCC laboratory. A total 591 sample pulps, including 91 QA/QC samples, were sent to Actlabs for analysis of Cu and Zn. Overall, there was a very strong correlation between the original and duplicate pulp samples. Figure 9.1 illustrate the comparison



Source: Buenavista del Cobre 2024

Figure 9.1: Results of the Assay Verification Program

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 while in progress during the 2024 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 Validation

The QP has validated the data disclosed, including collar survey, down hole geological data, sampling, analytical, 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 were deemed 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 Mineral Resource estimates.

9.2 Mining and Mineral Reserves

The QP reviewed the historical data provided by Buenavista del Cobre 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 estimate Mineral Reserves are deemed to be 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

Pit slope designs for the Buenavista del Cobre mine are presented in three separate reports: two prepared by CNI and one prepared by SRK. The first report for the BVC pit area was issued by CNI in June 2004, while the second report for BVZ area was prepared by CNI in December 2012. In broad terms, the pit slope designs presented for BVZ may be considered an extension of the BVC designs as the rock types associated with the BVZ designs lie stratigraphically below the rock units associated with the BVC Project. The report prepared by SRK for the BVC Project was issued in March 2022.

CNI evaluated structural stability of open pit 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 WSP's experience with similar rock types and geotechnical models.

CNI developed design bench face angles and inter-ramp slope angles in 1° intervals based on application of their proprietary methods. 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. However, ultimately the recommendations are based on the complete data set available and are therefore supported by the available data.

SRK evaluated structural stability of benches by analyzing structural data on orientation, length, spacing, and shear strength of fractures using the proprietary software package SBlock, which is based on block theory.

SRK evaluated the inter-ramp and overall slope stability using the 2D limit equilibrium software package Slide2 Modeler developed by Rocscience, Inc. Overall and inter-ramp stability was evaluated at nine cross section locations. A minimum factor of safety of 1.3 was used as the design criterion, which is within the range of acceptance typically used in the mining industry (Read and Stacey, 2009). The probability of failure is also presented for each analysis; however, the material parameters and/or material boundaries that were varied to perform the Monte Carlo simulations is not well described and could not be independently checked.

The slope stability models incorporated rock mass shear strength using the Hoek-Brown shear strength criterion adjusted by average computed Geological Strength Index (GSI) values obtained from statistical evaluation of the core data, a lower quartile estimate of compressive strength, and damage factor (D) that was adjusted based on normal stress range between 0.7 and 0, which assumes good quality blasting practices. Anisotropic shear strength functions, (used with non-circular failure surface searches in Slide2), were developed to account for the influence of rock fabric where structural domains indicated that discontinuities would reduce rock mass strength preferentially in the direction perpendicular to the pit wall. Groundwater pressure was modeled using a water table, which may be unconservative considering the indications of compartmentalization of the water table that appears to occur at fault boundaries. However, the assumption of water table is adequate for pre-feasibility level analysis where a detailed 2D groundwater models are not available. Pseudostatic analyses were completed to evaluate the effect of seismic loading on the pit walls for earthquake return periods of 50 years, 100 years, and 475 years.

WSP reviewed the geotechnical inputs to the bench scale stability analysis and the inter-ramp/overall slope stability analysis. While the proprietary methods used for the former analysis cannot be independently checked in detail, the inputs and results appear to be reasonable based on the data presented and our experience.

9.2.2 Mining Methods

The proximity of the mineralized ore to the surface results in the use of bulk surface mining methods to extract the material. The shape of the mineralized zone further defined the surface mining design as an open pit mine using trucks and shovels as the primary mining equipment.

The material containing higher grade copper is hauled to primary crushers and conveyed to one of two concentrators (mill ore); material containing lower grade copper or below cut-off grade (COG) which is deemed below economic viability is hauled to in-pit crushers and conveyed to crushed-ore leach pads; hauled by trucks to the ROM leach pads; or to the ex-pit OSFs. The material containing higher grade of zinc will be hauled to the primary crusher and conveyed to the zinc concentrator which can produce both zinc and copper concentrates.

9.2.3 Cut-off Grade and Modifying Factors

The COG is the grade that distinguishes ore from waste. This study used an economic COG. For material to be treated as ore for the Buenavista del Cobre Mineral Reserve estimate, it must be classified as a Measured or Indicated Resource and meet both the technical and economic criteria. Separate value cut-off was only used for each of the leach processes. If more than one process was profitable the one with the highest value was selected. Values were calculated based on copper and molybdenum for copper concentrator, copper and zinc for the zinc concentrator, copper for the ROM and crushed ore leach.

The cut-off value for all streams includes downstream costs such as historical average transport, SX-EW, general and administration. The current practise at Buenavista del Cobre is to use targeted head grades rather than cut off grades to prepare its life-of-mine plans and was the approach which used by WSP to conduct the mine planning. The Qualified Person for Mineral Reserves is of the opinion that Buenavista del Cobre needs to further assess leach recovery assumption that are used for operational planning which would also affect the COGs.

The recovered material is inclusive of mining dilution, mining loss. Buenavista del Cobre operations currently reconciles the material that is processed or leached to both the material that is trucked, or conveyed, to the modelled estimate (historical resource model). WSP noted certain weaknesses in the way in which the data was being collected, e.g., using truck counts and assuming an average tonnage per load. Without being able to rely on historical reconciliation data and knowing that operations is mining from the center of the massive deposit outwards, it is 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 Buenavista del Cobre. WSP recommends the reconciliation process continue with the updated block model and these assumptions may need to be revisited.

9.2.4 Pit Optimization

The WSP QP reviewed the pit optimization inputs and assumptions provided by Buenavista del Cobre and conducted an independent pit optimization exercise on the independently developed geological model using similar cost and revenue drivers, topography projection to December 31, 2024, and constraining permit and township boundaries. The pit optimization was completed using Hexagon MinePlan software, which assigns a value to each block considering the mining, processing, and selling costs, recoveries, selling price, and geotechnical slope parameters. Pit shells are generated in MinePlan based on revenue factors (RF). 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).

9.2.5 Mine Design

The ultimate pit design that forms the basis of the Buenavista del Cobre Mineral Reserve estimate was based on the RF 1.0 selected from the nested pit analysis described in Section 12.2.5. The ultimate pit design considers geotechnical factors that are described in Section 12.2.6. A map comparing the RF 1.0 shell topographic intercept with the ultimate pit design is provided in Figure 12.2,which includes the buffer polygon used to ensure the pit optimization and design are offset from the town of Cananea by 500 m.

This LOM pit design was redesigned in collaboration with the Buenavista del Cobre mine planners. The pushbacks were designed such that the zinc areas could be delineated and material from the zinc areas could be sent to the zinc plant. This also allowed blending of the material from the zinc areas and other phases (especially the western and northern phases) such that the average zinc to the copper concentrators could be blended to keep it below 0.1%.

9.2.6 Production Schedule

Production scheduled tonnages are reconciled every year with crushed ore and mill feed ore, along with truck counts for waste and ROM leach haulage. This reconciliation gives operations an indication of how close the modelled tonnes and scheduled material movements correlate. As noted above, the WSP QP recommends this practice continue.

9.2.7 Manpower and Equipment

The mine uses a combination of CAT, Komatsu, P&H and Bucyrus equipment for material extraction and transportation as observed during the site visit and confirmed in discussion with technical personnel. Currently, the largest haul truck on site is the CAT 797F and Komatsu 980-E with a capacity of 360 t; additional trucks include the Komatsu 830E (210 t), the Komatsu 930E (275 t), and the Komatsu 960E (327 t). The shovels used at the site are mainly electric rope shovels, ranging from the P&H 2800 XPA with a 28 m^3 capacity up to the P&H 4100 XPC with a 57 m^3 capacity. The mining fleet is expected to remain largely the same for the proposed life of the mine. Additional details on equipment may be found in Section 13.6.1.

The total workforce as of December 2024 was reported to be about 2,660 with 1,120 personnel in operations, 970 in maintenance and 570 in administrative roles. Additional details on personnel may be found in Section 13.6.2.

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 reviewed 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 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 section including actual plant feed characteristics that are different from the historical operations or from samples tested to date, equipment and operational performance that yield different results from the historical operations and historical and current test work results.

10.1 BVC Metallurgical Testing and Analytical Procedures

10.1.1 BVC Copper Concentrators

Two copper beneficiation plants, Concentrator I and Concentrator II, are currently in operation at BVC. Concentrator I has been in operation since 1988 and Concentrator II since 2016. Some factors for the original design parameters have been updated to reflect the last three years of operation, as some of the original design parameters are no longer valid or relevant, especially for Concentrator I, because the ore characteristics have changed in the 36 years that the plant has been in operation.

10.1.1.1 BVC Concentrator Metallurgical Testing

For the design of Concentrator I ore samples were analyzed internally and were also sent to international laboratories to establish the metallurgical parameters of a conventional ball-mill grinding and flotation process. Large ore samples were sent to the Colorado School of Mines Research Institute to be tested in a pilot plant that included the full circuit of crushing, grinding, flotation and solid/liquid separation. Besides investigating the metallurgical parameters, an important part of this pilot program was to determine the main factors for equipment sizing, which were in a scale larger than the equipment in the old concentrator that was in operation from 1943 through 1989. The engineering and construction of the plant was completed by the Parsons International Company, who validated the test results required to produce the project design criteria.

M3, the international company that designed and constructed the Concentrator II plant in 2016, issued the following statement regarding Design Criteria: “Data from an existing operating plant has been used to determine concentrator unit operations and to set design criteria for the unit operations. M3 has reviewed the data supplied by Buenavista del Cobre and has relied on it to develop the process design criteria used for the design of the process facilities. Supplemental metallurgical testing has followed industry accepted practices and is believed to be technically sound and representative for the deposit, although there can be no guarantee that all mineralogical assemblages have been tested. In addition, results obtained by testing ore samples may not always be representative of results obtained from production scale processing of the whole ore deposit. These preliminary design criteria may change as more computer simulation, laboratory, or plant performance testing becomes available.” The results of operation combined for the two copper concentrators from 2021 to 2023 shown in Table 10.1 confirm the validity of the design criteria.

10.1.1.2 BVC Concentrator Process Design Basis

The design of Concentrator I was based on the characteristics of the ore being mined and the mine plan developed 36 years ago. The original plant had 5 grinding and flotation sections with 16.5-ft diameter by 27-ft long ball mills estimated to process 62,500 tpd of ore. The plant was modified over the years to compensate for the changes in ore characteristics and increase flotation capacity. Today, Concentrator I has an estimated capacity of 84,000 tpd, (30.24 Mtpy).

For Concentrator II, the design basis was 100,000 tpd, or 36 Mtpy with six ball mill circuits, with 24-ft diameter by 42.5-ft long mills. Metallurgical data from Concentrator I was used to determine concentrator unit operations and to set design criteria for the unit operations.

From 2021 to 2023, the two plants combined have achieved the average production shown in Table 10.1.

Table 10.1: BVC Average Production Results (2021 – 2023)*

Description	Real	Design
Tonnes per year (1,000 t/y)	73,677	66,240
Ore grade (Cu %)	0.527	0.580
Ore grade (Mo %)	0.0104	0.012
Copper Recovery (%)	86.65	82.00
Copper Concentrate (Cu %)	22.91	26.00
Molybdenum Recovery (%)	70.10	66.00
Molybdenum Concentrate (Mo%)	51.37	n/a

Source: Buenavista del Cobre
Note: *(Combined Concentrators I and II)

10.1.1.3 BVC Concentrator Current Practice and Operating Performance

The two plants continue to operate with the basic process flow schemes of the original designs. The changes that have occurred have been to adapt the circuits to changing ore characteristics or to improve capacity and recovery.

BVC takes samples from the exploration drill holes that are used to update the resource estimation and the longterm mine plan. Those samples are analyzed in the company's laboratories to detect anomalies in the concentrator ore or in the leach ore. When deemed necessary, flotation tests or column leach tests are performed internally by BVC.

Both the concentrator laboratory and the hydrometallurgy laboratory have ISO 9000 certification for process related work.

10.1.1.4 BVC Concentrator Process Description

The two concentrators follow a conventional process of crushing, screening, ball milling and sequential flotation to separate copper and molybdenum concentrates. The following items summarize the process operations required to extract copper and molybdenum (moly or Mo) from the BVC sulfide ore:

- Size reduction of the ore by a primary gyratory crusher to reduce the ore size from ROM to minus 200 mm.
- Stockpiling primary crushed ore and then reclaiming by feeders and conveyor belts.
- Size reduction of the ore by secondary and tertiary crushing to reduce the ore size from 200 millimeters to 80 percent minus 8-9 mm.
- Crushed ore conveyed to the fine ore stockpile building.
- Fine crushed ore reclaimed and conveyed to the grinding circuit.

- Grinding ore in a conventional ball mill circuit prior to processing in a flotation circuit. The ball mills will operate in closed circuit with hydro-cyclones to deliver an ore size of 80 percent passing 105 microns to the flotation circuit.
- The flotation plant consists of copper-moly flotation, copper-moly separation, moly and copper cleaner flotation circuits. The flotation circuits each consists of rougher flotation and cleaner flotation. The copper flotation circuit includes regrind in a ball mill.
- Final molybdenite concentrate is thickened, filtered, dried, and packaged into bulk-bags for shipment to market.
- Final tails from moly separation circuit are the copper concentrate. This is sent to a thickener, then a filter, and is then stockpiled to be loaded in truck/railroad for shipment to a subsidiary smelter, or to port for export to market.
- Flotation tailings are thickened and deposited in a tailings impoundment area at the mine site.
- Water from tailings and concentrate dewatering is reclaimed for reuse in the process plant. Water stream types include process water, reclaim water, freshwater, and potable water.
- Reagents include lime, sodium isopropyl xanthate, methyl isobutyl carbinol, fuel oil, blend of phosphorodithioate salt. dithiocarbamate (promoter), alcohol aliphatic (frother), antiscalant, flocculant, sodium hydrosulfide, sulfuric acid, and sodium cyanide.

10.1.1.5 BVC Representativeness of Metallurgical Testing

The metallurgical test work followed mining industry accepted practice. The composite samples used in the metallurgical evaluation were deemed representative for the deposit as sampled for process development. The operation results validate the original estimations.

10.1.1.6 BVC Metallurgical Testing Laboratory

The BVC analytical laboratory in each plant is certified by ISO-9000. The laboratory procures and assays samples from process streams, including samples from the mine, for overall metallurgical balance purposes and to report production results to the fiscal authorities. The laboratory is certified by the regulatory authorities for such purposes. Normally, a sample of the products is sent to these authorities, and a witness sample is kept for reference.

10.1.2 BVC Copper Leaching, Solvent Extraction and Electrowinning (L-SX-EW)

10.1.2.1 BVC L-SX-EW Metallurgical Testing

Traditionally the tonnage of low-grade ore for leaching was a consequence of the mine plan developed to supply the tonnage required by the concentrators, with the best possible grade. Mining of low-grade leachable ore was restricted to what had to be mined to achieve the concentrator goal. Consequently, most of the metallurgical testing and research in BVC's predecessors was focused on improving the recovery of copper, not on determining what ore to mine for leaching. The development of test programs was historically performed internally by the company's planning department with the collaboration of the departments of engineering and operations.

One important line of investigation was to determine the effect of height of the leach heaps on overall recovery and total time for leaching. This involved sampling by drilling and trenching old dumps. All sampling and assaying were done internally. The first project proved that stripping 10 m from the surface of the old, exhausted Garaje dump would be economical. Years later the same approach was applied to the República leach dump.

In 1979-80, BVC (then Compañia Minera de Cananea) built their first SX-EW plant, the fourth copper SX-EW plant on this continent and the fifth in the world. Before the project was approved, the company ran a SX-EW pilot plant for over one year to investigate the process parameters of what was then a new technology. The pilot plant feed was a small stream of pregnant leach solutions (PLS) taken from the feed to the precipitation plant, which was a mixture of all the leach areas in operation at the time. All personnel involved in the project were internal. Holmes and Narver, the company that was selected to perform the engineering and construction of the plant accepted the BVC leaching and pilot plant information as the basis for design.

SX-EW technology was chosen to replace the precipitation/cementation of copper with scrap iron because it was a better process to recover copper from low concentration solutions resulting from leaching low-grade ore to produce a final pure copper cathode, avoiding the smelting and refining costs for the cement copper.

10.1.2.2 BVC L-SX-EW Process Design Basis

For the SX-EW I plant, built in 1980, the nominal capacity was 40 tpd copper cathode with PLS of 2.0 grams of copper per liter (gCu/L). The plant capacity was downgraded to 32 tpd Cu cathode when it became clear that it would be difficult to maintain the PLS concentration used for the design, and after several maintenance and operation problems that affected plant availability were detected.

The design of the SX-EW II plant built in 1989 was based on conventional factors and PLS data from BVC. The nominal capacity is 60 tpd nominal and 75 tpd design, to produce 21,900 tonnes per year (tpy) copper cathode from PLS containing 2.15 gCu/L minimum nominal and 2.7 gCu/L for design provided by BVC. The capacity of the plant was doubled in 2004 by adding three additional tarins of SX and duplicating the number of EW cells.

The SX-EW III plant built in 2014 has a nominal capacity of 113,280 tpy cathode (310 tpd nominal) and 124,558 tpy design (341 tpd design) from PLS containing 1.8 gCu/L, as provided by BVC.

Additional details on performance and recoveries are provided in Section 14.1.2.4.

10.1.2.3 BVC L-SX-EW Process Description

The L-SX-EW process encompasses leaching, solvent extraction, and electrowinning to produce pure copper cathode. Copper is recovered as a solution of copper sulfate from low-grade ore by irrigating the ore with acidic leach solutions returning from the SX plants.

The leach solutions are loaded with copper as they percolate through the ore heaps and become pregnant leach solutions (PLS) that are fed to the SX-EW plants. The PLS from all the areas is pumped to two central PLS surge ponds, from where the PLS is fed to the solvent extraction (SX) plants.

In the SX plants the PLS is mixed with an organic solution, a mixture of a reagent diluted with kerosene, that extracts the copper from the PLS and releases acid. The organic solution loaded with copper (LO) then passes to the stripping section where it is mixed with a highly acidic solution, called spent or lean electrolyte (SE). The high acid content of the SE causes the LO to release copper to the SE and pick-up acid, regenerating the reagent molecules and the SE becomes Rich Electrolyte (RE) to feed the Electrowinning plant (EW).

In EW, the RE from SX is recirculated through electrowinning cells with multiple stainless-steel cathodes and lead anodes. A direct electrical current is applied to the cells that causes the copper in the RE to be deposited in the cathodes and the RE becomes SE that returns to SX to strip more copper from the LO.

The EW reaction produces acid that returns to SX in the SE to close the process loops where copper travels from Leaching to EW and acid travels from EW to Leaching. A general flow diagram of the L-SX-EW process is shown in Figure 10.1, while Section 14.1.2 discusses the process in greater detail.

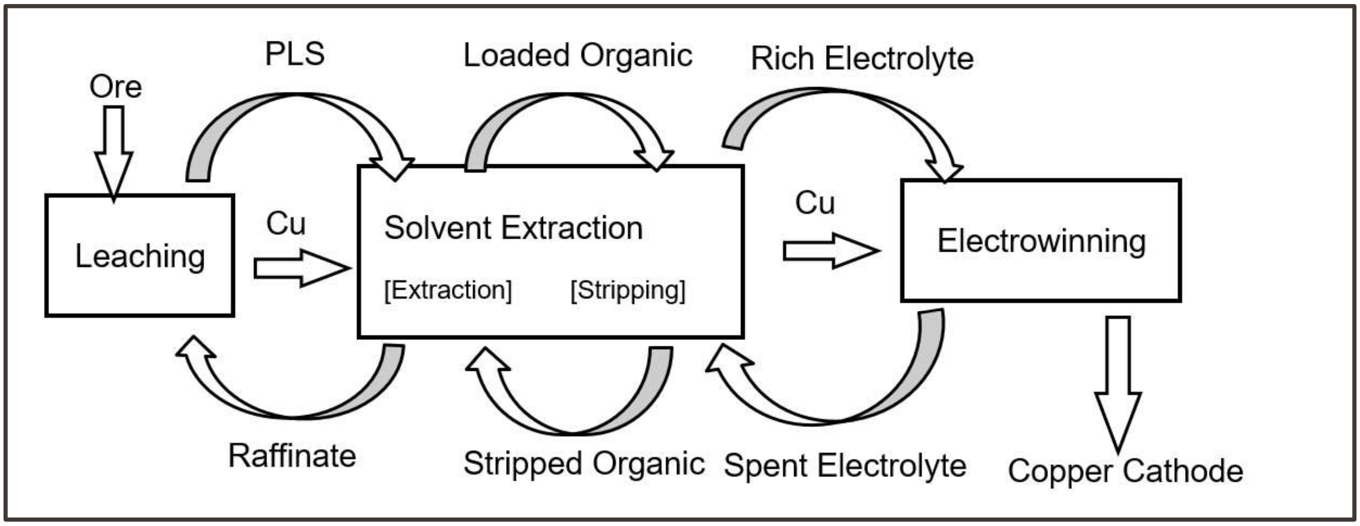


Figure 10.1: L-SX-EW Diagram

10.1.2.4 Representativeness of BVC L-SX-EW Metallurgical Testing

As explained before, mining of ore for leaching is a consequence of the mine plan developed to feed the concentrators and leaching is a secondary process. The tests for leaching were done for specific projects internal to the Hydrometallurgy Department and samples and assays were limited to the scope of those projects. For the development of the SX-EW projects by independent engineering companies BVC used real operation data as the basis for design and data obtained in BVC's pilot plants. The metallurgical test work followed mining industry accepted practice, and the independent companies validated and accepted the data.

For the continuing operation, the laboratory gets and analyzes samples from the mine plan, as directed by the BVC Geology Department. The main purpose of these tests is to try and detect any potential problems with the ore to be mined, deleterious materials, solubility, etc.

10.1.2.5 BVC L-SX-EW Metallurgical Testing Laboratory

The Hydrometallurgy analytical laboratory in Plant SX-EW III is certified by ISO-4000. The laboratory procures and assays samples, including samples from the Mine and from Leaching, for overall metallurgical balance purposes and to report production results from the three plants to the fiscal authorities. The laboratory is certified by the authorities for such purposes. Normally, a sample of the products is sent to the authorities, and a witness sample is kept for reference.

10.1.2.6 BVC Test Work and Program History

The project was based on the tonnage of leach ore predicted by the mine plan and the expected tonnage of copper to be extracted in leaching. The new plant, SX-EW III, was designed for a project in Peru which was ultimately suspended and instead was used for BVC. To adjust to BVC, the design was modified to include an additional SX train.

10.1.3 BVC Recovery Estimates

It was estimated that BVC's Concentrator II could achieves 82.0% copper recovery with a concentrate grade of 26.0% copper and 66.0% molybdenum recovery with a concentrate grade of 52.0% molybdenum from feed grades between 0.54% and 0.58% copper. As shown in Table 10.1 provided in Section 10.1.1.2.

10.1.4 Qualified Person's Opinion – BVC Processing and Testing

BVC uses actual production results from the last three years of operation as basic parameters for the estimation of Mineral Reserves. This approach completes the circle of sample analysis estimation results and ensures that the actual results do not deviate significantly from the estimations.

10.2 BVZ Metallurgical Testing and Analytical Procedures

The BVZ deposit contains copper-zinc sulfides that are incompatible for economic recovery using beneficiation techniques in the two copper beneficiation plants that are in operation at BVC that are designed to recover copper and molybdenum. A new beneficiation facility has been built for recovery of zinc concentrate product and copper concentrate as by-product.

The design of the processing plant takes advantage of existing infrastructure for copper processing. The zinc concentrate produced requires new infrastructure and support facilities to allow shipment of concentrates.

The project consists of the following:

- Beneficiation plant
- Infrastructure
- Support facilities

Process end recovery methodologies are described in Section 14.0 in this Report.

The metallurgical studies conducted for the BVZ deposit were performed at the Center for Metallurgical Research of Industrial Minera Mexico S.A. de C.V. (IMMSA), a subsidiary of Southern Copper Corporation/Grupo Mexico.

Samples from 15 core holes drilled in 2015 were used to develop the metallurgical data, explained in Section 14.2.4. The main objective for the metallurgical study was the development of flotation process that will allow production of saleable Zinc and Copper concentrates.

The metallurgical research strategy utilized was based on the concept of geometallurgy, which is reflected in the study phases. The study was comprised of three main phases:

- Evaluation of the global composite from the BVZ deposit
- Evaluation of the metallurgical behavior by rock type (geological domains) – 17 Composites
- Variability study of copper zinc grade in the flotation process.

The following findings are considered important for beneficiation of zinc mineralization present at BVZ:

- The metallurgical data developed indicate that differential flotation for Zn and Cu-Ag mineralization is adequate for processing the BVZ ore.
- Copper showed a good response with respect to concentrate grade and recovery.
- A potential problem exists with the strong association of chalcopyrite with sphalerite. The chalcopyrite-sphalerite association may increase copper in the zinc concentrate.
- Zinc mineralization provided a positive response with respect to concentrate grade and recovery.
- Most of the silver reports to the copper concentrate.
- Regrind size control in the copper flotation circuit may be necessary to minimize concentrate contamination.
- The presence of clays may prevent production of acceptable grades for copper and zinc concentrates.
- The presence of clay requires additional water in the flotation process.

The process design developed for the BVZ Project is considered conventional technology for differential flotation of copper and zinc mineralization. It should be noted that the process flowsheet and mass balance calculations as well as the level of recovery for the metals of interest were developed by Grupo Mexico.

Several metallurgical test programs were completed by Grupo Mexico at their own metallurgical laboratory. Other commercial laboratories (Mountain States Research and Development, SGS Canada Inc.) conducted corroborative flotation testing. A list of the metallurgical studies is provided below. The list of metallurgical studies conducted on BVZ composite samples is provided in chronological order:

- Metallurgical Research Center, Industrial Minera México, SA. de C.V Grupo México, September 2016 ‘Metallurgical Evaluation of the Buenavista del Zinc project’.
- Metallurgical Research Center, Industrial Minera México, SA. de C.V. January 02, 2017, Metallurgical Evaluation of the Buenavista del Zinc project. Silver-Copper and Zinc Recovery by Flotation - BVZ CIM-0112-16.
- Mountain States R&D International, Inc., Vail Arizona, April 25, 2017 “Final report on MSRDI and CIM Test Programs on New Composite Samples for Buenavista del Zinc Project” – MSRDI Project # 6321.
- Memorandum dated June 28, 2017, from Dr. Juan Luis Reyes Bahena of Metallurgical Research Center Hildago del Parral. Including Flotation Circuit Flow Diagram and Metallurgical Balance of Buenavista del Zinc.
- SGS Canada Inc., Toronto Canada, January 10, 2018, “A Conceptual Flotation Plant Design for Buena Vista del Zinc Project Based on Laboratory Test Work” prepared for Grupo Mexico Project 15660-001.

Process development of unit operations included in the design criteria was conducted by Grupo México. M3 Engineering reviewed the data supplied by Grupo México and relied on it to develop the process design criteria.

The metallurgical test work followed mining industry accepted practice. The composite samples were deemed representative for the deposit as sampled for process development.

The metallurgical data provided by Grupo México indicated that the following life-of-mine metal extractions and concentrate grades could be achieved:

- Copper recovery of 79.4% at a concentrate grade of 23.5%
- Zinc recovery of 82.2% at a concentrate grade of 53.5%

The data outlined above was used for processing plant design purposes.

10.2.1 BVZ Process Design Basis

A beneficiation process utilizing a primary crushing step followed by conventional semi-autogenous (SAG) milling and differential flotation circuits for copper and zinc was selected for recovery of copper and zinc concentrates from the mineralization present at BVZ. Copper is recovered into a flotation concentrate that is pumped to a concentrate thickener at the nearby BVC copper Concentrator I then shipped approximately 185 km by truck or rail to a subsidiary smelter. The zinc concentrate product is shipped to a smelter or a subsidiary electrolytic zinc refinery. Precious metals contained in the concentrates are recovered at the smelter/refinery processing facilities.

The design basis for the sulfide ore processing facility is 20,000 dry metric tonnes per day (dmtpd). This is equivalent to 7 million dry metric tonnes per year (Mdmtpy).

The ore grade to the concentrator is estimated to average 0.49% copper and 1.83% zinc. The process plant design allows for sustained metal recovery of commercial copper and zinc concentrates.

10.2.2 BVZ Process Description

A summary of the process required to recover copper and zinc concentrates from the BVZ sulfide ore is outlined in the following paragraphs.

Size reduction of the ROM ore is achieved in an existing primary gyratory crusher to 80 percent passing minus 121 millimeters. The primary crushed ore is stored in a covered coarse ore stockpile and then reclaimed by apron feeders and a conveyor belt.

Ore comminution follows in a semi-autogenous (SAG) mill to reduce the ore size from approximately 80 percent passing 121 millimeters to a size of approximately 80 percent passing 1.9 millimeters prior to pumping to a ball mill for grinding. The SAG mill operates in closed circuit with a vibrating screen and pebble crusher.

Ore grinding is achieved in a conventional ball mill operating in closed circuit with hydrocyclones to deliver a product size of 80 percent passing 119 microns to the flotation circuit.

The copper flotation circuit consists of two stages of rougher flotation, rougher scavenger flotation and two stages of cleaner flotation. Rougher scavenger concentrate is reground and returned to the second stage of copper rougher flotation. The zinc flotation circuit consists of two stages of rougher flotation, rougher scavenger flotation and three stages of cleaner flotation.

The copper rougher scavenger flotation concentrate regrind circuit consists of a vertical grinding mill operated in open circuit with hydrocyclones, to deliver a scavenger concentrate size of 80 percent passing 25 microns to the copper rougher flotation second stage.

Final copper concentrate will be directed to an existing copper concentrate thickener at BVC's Concentrator I.

The final zinc concentrate product is dewatered and filtered prior to loading in trucks for shipment. Water from the dewatering operation will be directed to a dedicated process water tank for reuse at the zinc concentrator.

The zinc rougher scavenger flotation tails (final tailings) flows by gravity to a zinc tailings thickener. Thickener underflow is discharged by gravity to the existing copper Concentrator I TSF for final disposal.

Thickener overflows from tailing and concentrate sedimentation will be pumped to the process reclaimed water tank for reuse in the process.

Plant water streams include process water, freshwater, pump seal water and domestic water. Freshwater from the south pond at Concentrator I is used for plant services, reagent mixing and as gland seal water.

Reagents include milk of lime, complex ZZ, A-3739 collector, zinc sulfate, copper sulfate, A-3473 collector, Teuton 100-35 frother, DP-6, flocculant, and antiscalant.

10.2.3 Representativity of BVZ Samples

The metallurgical test work followed mining industry accepted practice. The composite samples used in the metallurgical evaluation were deemed representative for the deposit as sampled for process development.

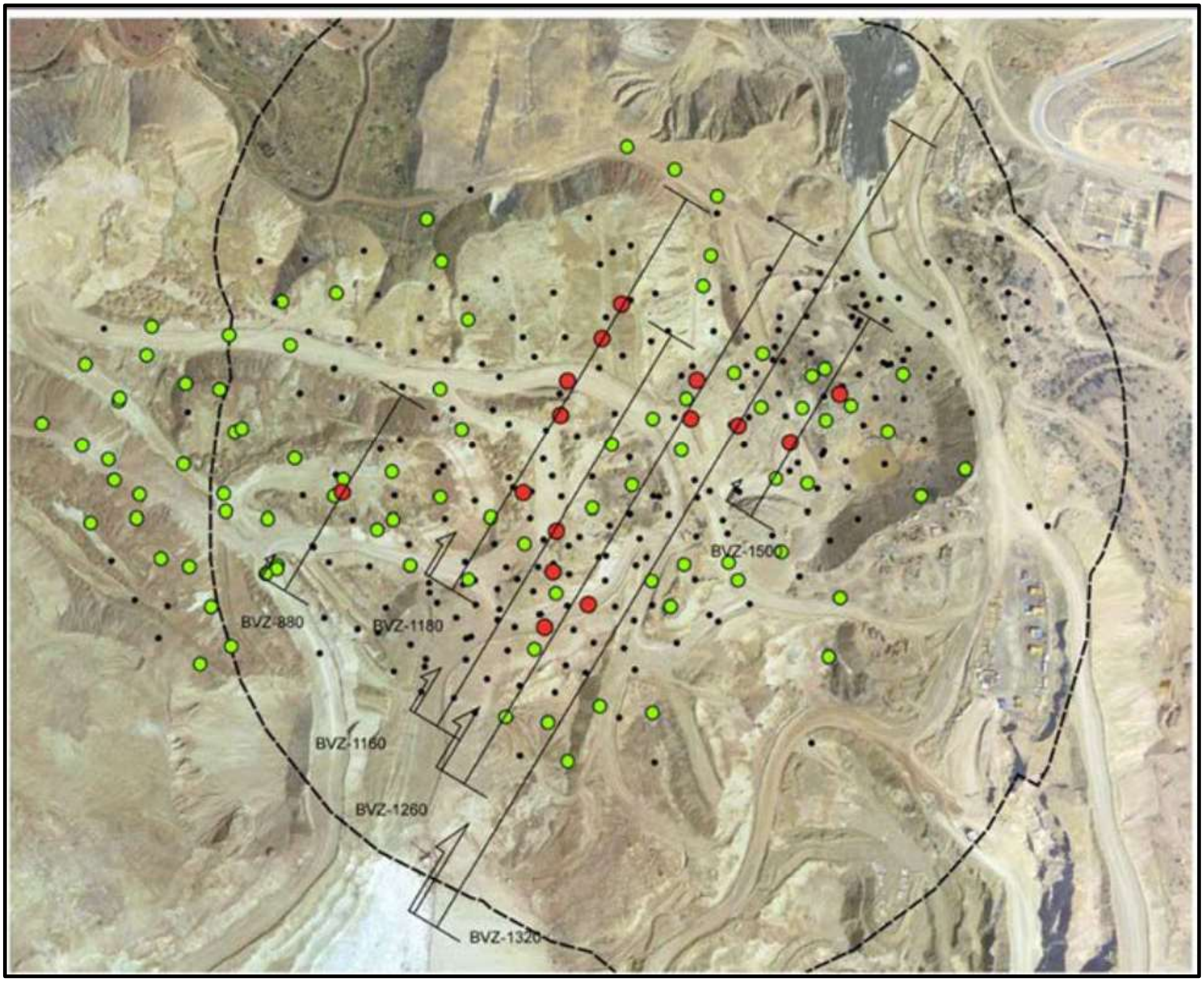
10.2.3.1 Laboratory

The IMMSA Metallurgical Research Center (Centro de Investigaciones Metalurgicas, CIM) has provided services to IMMSA, Mexicana de Cobre and Buenavista del Cobre for many years. CIM has two main facilities, one in Parral, Chihuahua and the other in San Luis Potosi. Both facilities are qualified, fully staffed and equipped to perform crushing, grinding, flotation and other tests. The tests for BVZ were done in the Parral center. To check the reliability of the tests CIM engaged two independent laboratories:

- SGS Canada. Flotation circuit design based on rock type.
- Mountain States Research and Development Int. (MSRDI) AZ. Validation of the flotation scheme based on the four composites by variability of grades.

10.2.3.2 Representativeness of BVZ Metallurgical Testing

In 2015, BVC decided to continue the BVZ metallurgical studies to confirm previous results and to expand the basis of information. The Geology and Exploration Department of BVC selected and supervised the drilling of 15 new holes to collect samples for metallurgical testing. Figure 10.2 shows the drill holes within the pit limits, as defined by Mintec at the time of the study.



Source: Metallurgical Research Center, Industrial Minera México, SA. de C.V. January 02, 2017, Metallurgical Evaluation of the Buenavista del Zinc project.

Figure 10.2: BVZ Metallurgical Drill-holes 2015

As shown in Figure 10.2, the location of the 15 new holes, marked as red dots, was based on examination of data from existing holes marked as green dots. The existing drill-holes marked as black dots were not examined. 10,060 kg of ore, approximately half of the core, was sent to the IMMSA Center for Metallurgical Research in Parral, CHI., MEX. In total there were 1,715 individual samples. Following the criteria of the Geology and Exploration Department, three composites were formed:

- General composite. Used drill hole intervals totaling 2,847 m. Minimum 0.69 % Zn. Total composite tested 0.42% Cu and 1.53% Zn.
- Composite by rock types (Lithology). Six types of rock were defined. Each rock type was distributed on three depths of the deposit: Superior, Middle and Inferior.

- Composites for variability studies. Formed four composites corresponding to: (a) High Cu/low Zn; (b) High Cu/high Zn; (c) Low Cu/ high Zn and (d) Low Cu/low Zn.

10.2.4 Qualified Person's Opinion – BVZ Processing and Testing

In the QP's opinion, the metallurgical test work followed mining industry accepted practice, and the composite samples used in the metallurgical evaluation are representative for the deposit as sampled for process development.

11.0 MINERAL RESOURCE ESTIMATES

11.1 Key Assumptions, Parameters, and Methods

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

11.1.1 Introduction

The Buenavista del Cobre estimate contains both the Buenavista Cobre (BVC) and Buenavista Zinc (BVZ) deposit zones.

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.

11.1.2 Geological Database

The 2024 Buenavista del Cobre Resource model included the estimate of: Cu, CuCN, CuO, Mo, Fe, Ag, Au, and Zn.

The drill hole database used in the 2024 Buenavista del Cobre Resource model estimate has 8,503 drill holes including the compilation of the historical databases. Analytical values under the detection limit were adjusted to half the detection limit.

Several drill holes and surface samples were discarded from the final estimation database following these criteria:

- Duplicate drill holes (1).
- Drill hole lying outside the geological information limit GIL (157), the geological information limit is a triangulation built from the available data with a 250-m distance from each drill hole to restrict the interpolation; drill holes outside this triangulation were discarded.
- Channel samples (1,695).
- Bulk samples (81).
- Difference between topography and collar coordinates greater than 15 m (220).

Table 11.1 summarizes the quantity of drill holes, number of samples used in the model and the total sample length by element.

Table 11.1: Summary of Drill Holes Used for the 2024 Model

Variable	No. of Drill Holes	Total No. of Samples	Total Sample Length (m)
Cu (%)	6,282	495,292	1,144,770
CuO (%)	1,456	151,977	443,426
CuCN (%)	2,027	176,621	491,921
Mo (ppm)	3,017	227,152	655,954
Fe (%)	1,957	204,349	565,677
Ag (ppm)	779	101,285	268,404
Au (ppb)	444	69,753	196,704
Zn (%)	1,871	193,002	536,476

11.1.3 Geological Domains and Modeling

The geological model includes modelling two variables, Lithology and Mineral Zone. The geological model was built in Seequent™ Leapfrog Geo (Leapfrog) version 2023.2.3 software, based on the drill hole information, vertical sections interpreted by Grupo México geologists and the previous 2021 geological model.

Files used for lithological and mineral zone models included:

- Drill hole database with collar, survey, lithology, mineral zone and alteration (.csv format).
- Original topography surface from 1906 (format. dwg).
- Chronology for the lithology units (.xls format).
- Description of rock codes (.pdf format).

The alteration model was not considered in this work because the drill hole database did not contain the logging information to support and properly reflect the geology of the deposit.

The geological model was built using the implicit modeling methodology for all units. The final solids for each unit were generated by adjusting anisotropy parameters and adding points and polylines to preserve the geological coherence and continuity, and structural trends.

The final model preserves the contact relations between the mineral zone and lithology units by using Boolean operations based on the geological events' temporal relations, preventing over-positioning and gaps in the final solids.

11.1.3.1 Lithology Model

The lithologic model uses lithologic units described in Table 11.2, grouped into 14 lithological modeling units. The sequence defined for the lithology model is also in Table 11.2. Units with low database representation were excluded from the model.

Table 11.2: Summary of Lithological Codes within the Database

Lithological Code	Total Meterage *	Percentage of Model Units	Description	Model Unit	Model Sequence
80	11,749	1%	Cover	RELL	
31	26,819	2%	Mineralized Breccia	Breccia	7
48	45,487	4%	Skarn	Skarn	8
49	25,186	2%	Hornfels	Hornfel	9
10	19,446	2%	Qz-Feld Porphyry (coarse)	Porphyry	6
12	78,345	7%	Qz-Feld Porphyry (normal)	Porphyry	
11	79,904	7%	Qz Porphyry	Porphyry	
13	61,835	5%	Feld Porphyry	Porphyry	
30	44,929	4%	Contact Zone		
14	5,104	0%	Diorite	Diorite	5
20	9,144	1%	Undifferentiated Volcanic	Volcanic	
21	286,724	24%	Mesa Volcanic	Volcanic	4
22	96,430	8%	Henrietta Volcanic	Volcanic	
50	45,279	4%	Undifferentiated Limestones	Cap_CZA	
51	12,136	1%	Limestones Buenavista	Cap_CZA	
52	5,134	0%	Chivatera Limestones	Cap_CZA	3
53	8,382	1%	Limestones	Cap_CZA	
54	10,395	1%	Esperanza Limestones	Cap_CZA	
55	14,783	1%	Capote Cuarcite	Cap_QTZ	2
16	24,291	2%	Cananea Granite	Cananea Granite	1
15	341	0%	Porphyry Dioritic		
32	747	0%	Fault Zone		
40	10,113	1%	Basic Dyke		
41	164	0%	Clastic Dyke		
99	264,699	22%	No Geology		
Total	**1,187,565**	**100%**			

Notes: Includes DDH and rotary drill holes.

The lithology units were constructed from the youngest to oldest units, according to the information received from Buenavista del Cobre geologists.

Example cross-sections of the lithology model at the Buenavista del Cobre is shown in Figure 11.2 and Figure 11.3, with the location of the cross-sections shown on Figure 6.2.

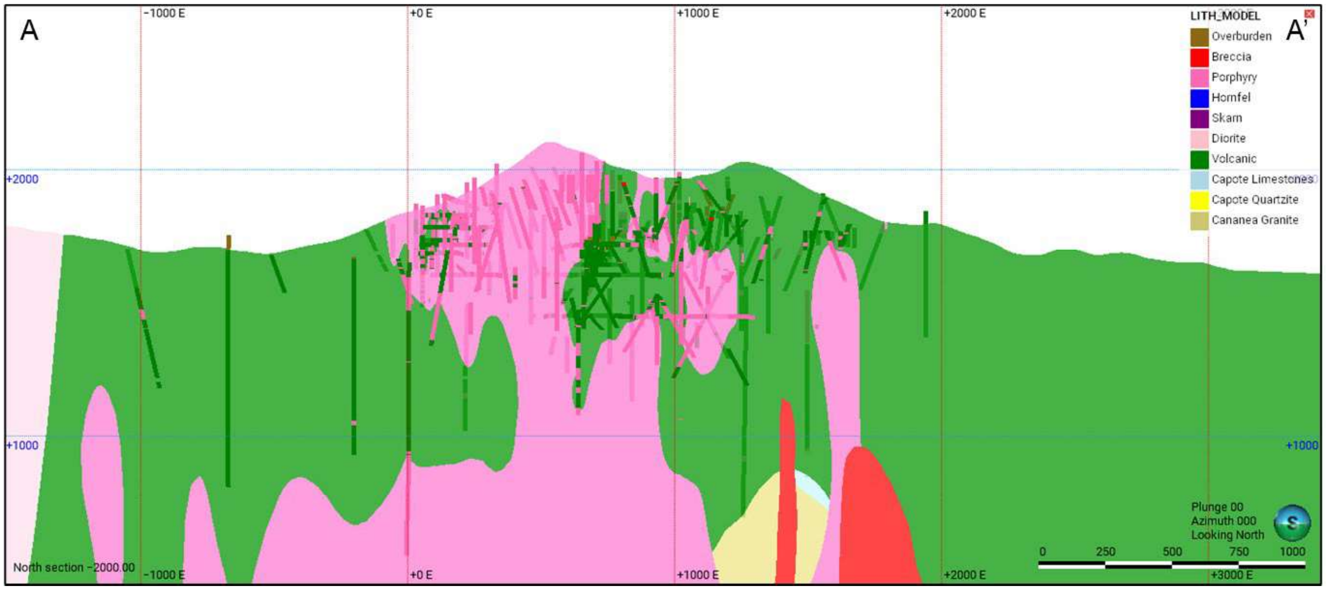


Figure 11.1: Section N-2000, Lithology Model, BVC

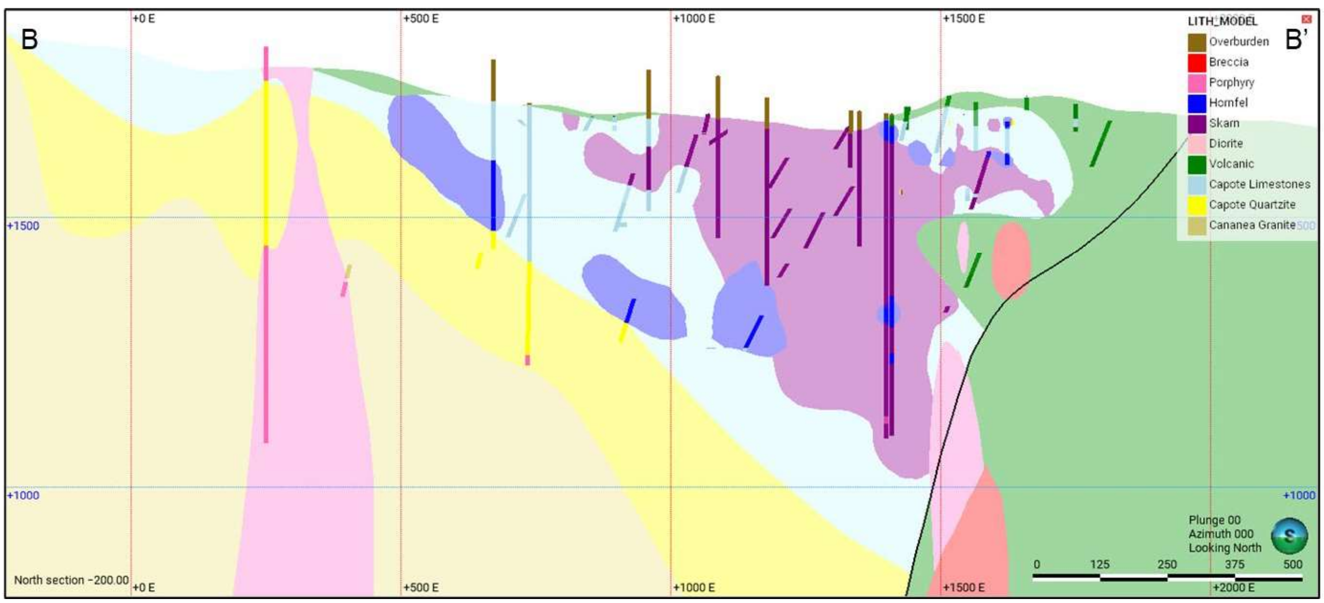


Figure 11.2: Section N-200, Lithology Model, BVZ

11.1.3.2 Mineral Zone

Five (5) units were built in the mineral zone model. Table 11.3 summarizes these units, total meterage, and percentage in the model. The mineral zone units were constructed from top to bottom. Table 11.3 also includes the sequence defined for the mineral zone model. Units with low database representation were excluded.

Table 11.3: Summary of Mineral Zone Codes Available in the Database

Mineral Zone Code	Total Meterage*	Percentage of Model Units	Description	Model Unit	Model Code	Model Sequence
5	4,428	0%	Cover		RELL	
4	170,170	17%	Iron Oxide	OX	OX	4
1	371,907	36%	Secondary Sulphide	SECC	SECC	3
3	131,590	13%	Mixed Sulphide (Primary and Secondary)	MXS	MXS	2
2	147,672	14%	Pnmary Sulphide	SPRI	SPRI	1
0	195,121	19%	No Information		NODATA	
7	31	0%	Carbo nate-Silicate		CACO	
Total	**1,020,919**					

Notes: *Includes DDH and rotary drill holes

A vertical cross-section of the mineral zone model is shown in Figure 11.3, the location of the section (D-D') is shown on Figure 6.2.

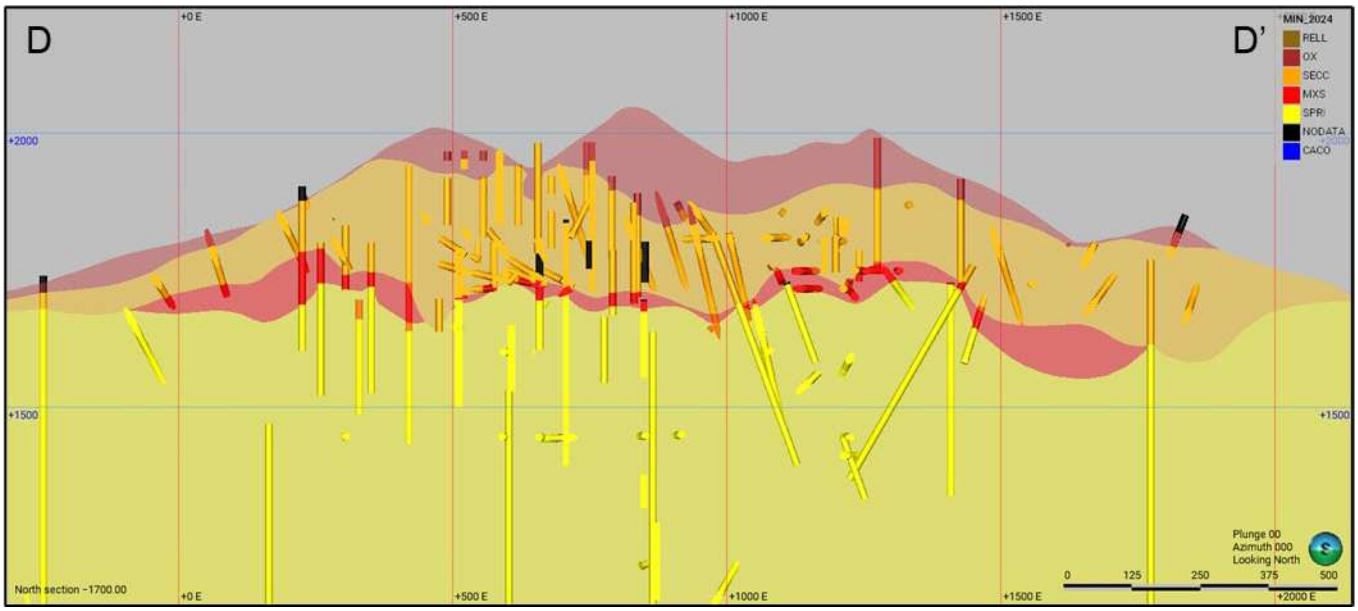


Figure 11.3: Section N-1700, Mineral Zone Model

11.1.4 Exploratory Data Analysis

The purpose of the exploratory data analysis was to identify similarities and differences among grade populations and to determine potential groupings or separations based on geological attributes. The exploratory data analysis also helps to detect the presence of drifts that could affect the estimation results, from theses analysis the main conclusions are the following:

- There are three main lithology groups: porphyry rocks, metamorphic rocks, and volcanic rocks. These groups are crucial in defining the Estimation Domains (EDs).
- In the mineral zone, iron oxide has the lowest grades. While there's no clear separation of mixed, secondary, and primary sulfide for Cu, such separation exists for CuCN.

EDs have been defined based on the Lithology and Mineral Zones and is summarized as shown in Table 11.4 through Table 11.6.

Figure 11.4 through Figure 11.6 show the probability distributions and the mean grade versus standard deviation graphs for each variable. It is observed that for each of the EDs there is an adequate degree of differentiation in terms of mean and standard deviation. Each ED has enough samples, spatial coverage, and geological continuity to allow for estimation.

Table 11.4: ED Definition – Cu

ED_CU	Lithology	Mineral Zone	Count	Min. (%)	Max. (%)	Mean (%)	Median (%)	CV
1	DIO	All	433	0.001	1.86	0.13	0.04	1.45
2	BXM	ALL	1,788	0.001	7.86	0.38	0.25	1.32
3	GRA/QZC	OXI	84	0.000	0.30	0.02	0.01	1.93
4	GRA/QZC	SEC	306	0.002	1.60	0.28	0.20	1.02
5	GRA/QZC	PRI	2,685	0.000	3.97	0.21	0.13	1.44
6	SKN/CAL/HNF	OXI	201	0.001	0.93	0.05	0.01	2.46
7	SKN/CAL/HNF	SEC	1,592	0.006	8.44	0.30	0.15	1.58
8	SKN/CAL/HNF	PRI	8,597	0.000	14.90	0.35	0.19	1.56
9	VOL	OXI	2,839	0.000	2.50	0.06	0.01	2.83
10	VOL	SEC	17,118	0.001	5.22	0.42	0.31	0.97
11	VOL	MIX	4,281	0.010	8.97	0.48	0.36	0.97
12	VOL	PRI	15,859	0.000	29.44	0.39	0.34	1.23
13	PQF	OXI	951	0.002	2.40	0.06	0.01	2.52
14	PQF	SEC	9,363	0.000	6.92	0.37	0.27	1.07
15	PQF	MIX	1,549	0.004	4.50	0.57	0.44	0.89
16	PQF	PRI	9,383	0.001	13.28	0.47	0.46	0.81

Notes: Min. = minimum, Max. = maximum, CV = coefficient of variation

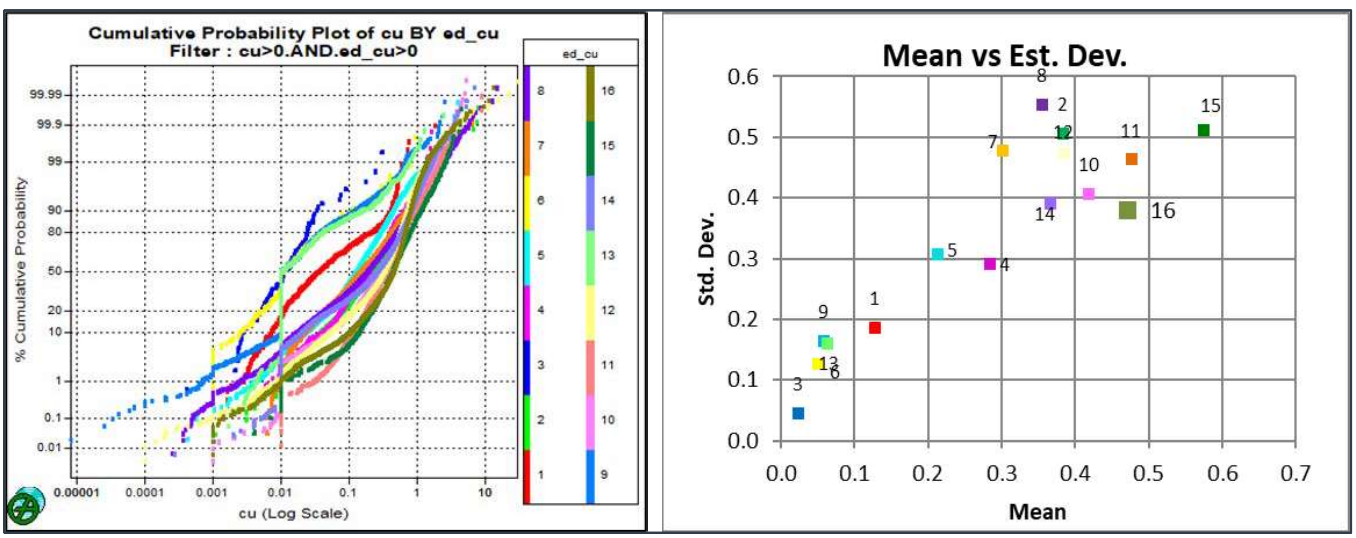


Figure 11.4: Cumulative Probability Plot and Mean Grade versus Standard Deviation Graph for Cu by ED

Table 11.5: ED Definition – Mo

ED_MO	Lithology	Mineral Zone	Count	Min. (ppm)	Max. (ppm)	Mean (ppm)	Median (ppm)	CV
1	DIO	All	532	0.000	0.047	0.002	0.000	2.379
2	BXM	ALL	1,232	0.000	0.248	0.004	0.001	3.549
3	GRA/QZC	OXI	73	0.000	0.011	0.002	0.001	1.405
4	GRA/QZC	SEC	279	0.000	0.022	0.002	0.001	1.238
5	GRA/QZC	PRI	2,286	0.000	0.171	0.004	0.001	2.105
6	SKN/CAL/HNF	OXI	142	0.000	0.017	0.001	0.000	2.253
7	SKN/CAL/HNF	SEC	1,282	0.000	0.028	0.001	0.001	1.781
8	SKN/CAL/HNF	PRI	6,490	0.000	0.155	0.003	0.001	2.482
9	VOL	OXI	1,637	0.000	0.101	0.003	0.002	1.879
10	VOL	SEC	7,714	0.000	0.597	0.005	0.003	2.030
11	VOL	MIX	1,779	0.000	0.085	0.006	0.004	1.242
12	VOL	PRI	11,307	0.000	0.310	0.008	0.005	1.381
13	PQF	OXI	608	0.000	0.091	0.005	0.002	1.553
14	PQF	SEC	5,369	0.000	0.137	0.005	0.004	1.165
15	PQF	MIX	613	0.000	0.092	0.008	0.006	0.930
16	PQF	PRI	6,415	0.000	0.807	0.013	0.008	1.582

Notes: Min. = minimum, Max. = maximum, CV = coefficient of variation

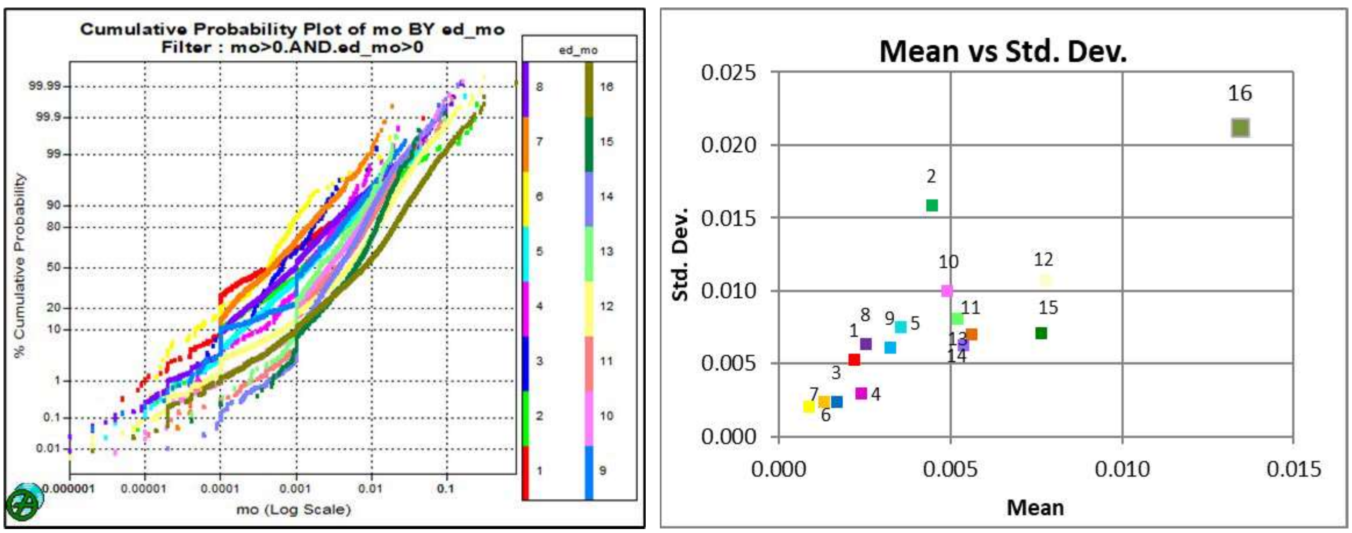
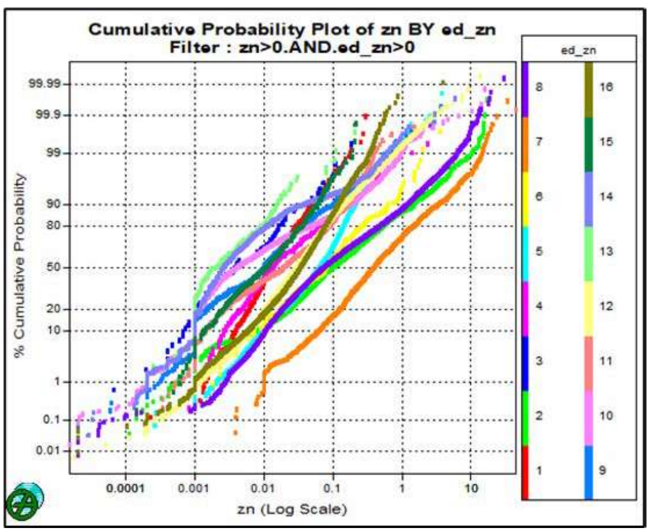


Figure 11.5: Cumulative Probability Plot and Mean Grade versus Standard Deviation Graph for Mo by ED

Table 11.6:ED Definition – Zn

ED_Zn	Lithology	Mineral Zone	Count	Min. (%)	Max. (%)	Mean (%)	Median (%)	CV
1	DIO	All	415	0.0002	0.293	0.025	0.013	1.394
2	BXM	ALL	1,439	0.0001	17.204	0.641	0.1	2.75
3	GRA/QZC	OXI	81	0.0001	0.181	0.014	0.004	1.92
4	GRA/QZC	SEC	243	0.0008	2.61	0.08	0.013	3.248
5	GRA/QZC	PRI	2,357	0	3.75	0.102	0.065	1.718
6	SKN/CAL/HNF	OXI	171	0.0015	3.577	0.236	0.08	1.895
7	SKN/CAL/HNF	SEC	1,340	0.0038	34.168	1.358	0.399	2.066
8	SKN/CAL/HNF	PRI	7,894	0	30	0.48	0.076	2.651
9	VOL	OXI	868	0	3.617	0.049	0.01	3.804
10	VOL	SEC	3,248	0	15.793	0.081	0.004	5.859
11	VOL	MIX	699	0.0002	44.435	0.12	0.019	13.988
12	VOL	PRI	9,613	0	13.8	0.077	0.03	3.533
13	PQF	OXI	164	0.0001	0.207	0.008	0.002	2.648
14	PQF	SEC	1,589	0	5.933	0.037	0.003	5.662
15	PQF	MIX	274	0.0001	0.212	0.023	0.011	1.452
16	PQF	PRI	5,725	0	3.995	0.054	0.034	1.539

Notes: Min. = minimum, Max. = maximum, CV = coefficient of variation



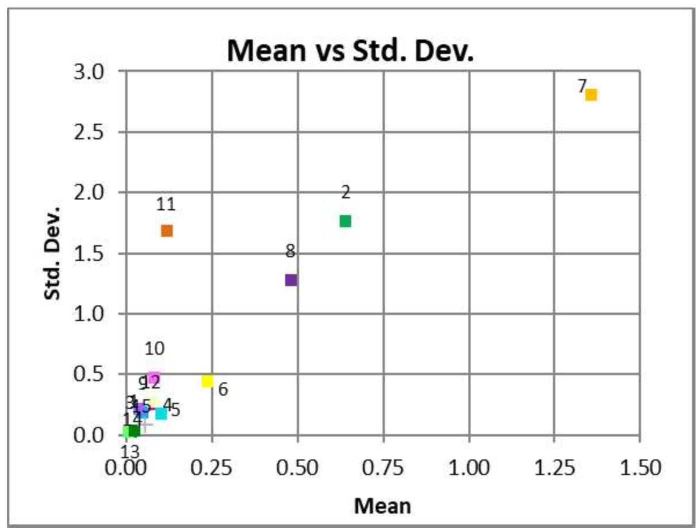


Figure 11.6: Cumulative Probability Plot and Mean Grade versus Standard Deviation Graph for Zn by ED

The suitability of the EDs has been reviewed using statistical and geostatistical tools. Analyses included basic statistics, scatter graphs of standard deviations versus mean grades, and cumulative probability graphs.

Figure 11.4 through Figure 11.6, indicate the following:

- The definition of Cu, CuCN and CuO EDs combined primary lithology and secondary mineral zone. This aimed to isolate the low grade lithologies (Cover, Diorite, Capote Quartzite and Cananea Granite) from the main mineralized units. The three main mineralized groups are:
  - Volcanic rocks

  - Metamorphic rocks (Skarns, Hornfels and Limestones)
  - Porphyry rocks
- Further separation for the mineralized zone was based on number of samples and continuity. The three variables (Cu, CuCN, and CuO) used the same ED to maintain the same number of composites for each domain, preserving the solubility ratios and avoiding errors, or inconsistencies.
- For Zn, the main controls were the metamorphic rocks, with a group made by Hornfels and Skarn and the other formed by limestone. Further separation using the mineralized zones was used.

Since only about 20% of the samples included CuCN and CuO analyses, Buenavista del Cobre geologists used regression formulas to estimate these values for the remaining samples. After updating the geological model, was applied a correlation based on mineral zone and lithology provided better correlation results.

Table 11.7 shows the regression formulas used. Figure 11.7 shows scatter plots used to derive the regression formulas by mineral zone. These regression formulas were applied to the sample database before compositing. In the primary sulfide unit (PRI), the regressions are less accurate compared to other units, largely due the high sulfide content and low CuCN in this material.

Table 11.7: Regression Formulas for CuCN and CuO.

Mineral Zone	CuCN	CuO
SEC	0.626 x CU + 0.01	0.083 x CUCN + 0.021
PRI	0.144 x CU + 0.028	0.109 x CUCN + 0.012
MIX	0.526 x CU - 0.021	0.079 x CUCN + 0.011
OXFE	0.531 x CU - 0.004	0.117 x CUCN + 0.004

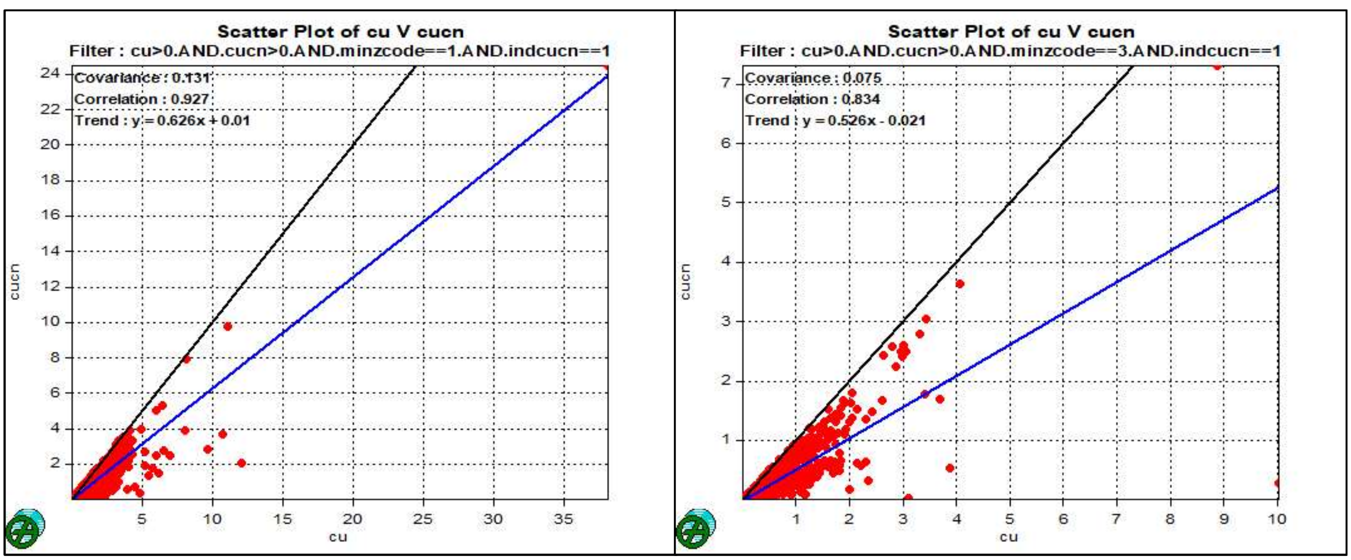


Figure 11.7: Regression Formulas for CuCN for Secondary Mineralization (left) and Mixed Sulfide (right)

11.1.5 Assay Compositing

The drill hole database contains various sample lengths, most commonly 1.5 m and 3.0 m (Figure 11.8). The database was composited at 15 m (block height), regardless of the drill hole inclination. This methodology used breaks in the compositing process when there is a change in the underlying estimation domain (ED); ensuring, only samples from the same ED are composited together, while any remaining samples lengths merged into the last composite.

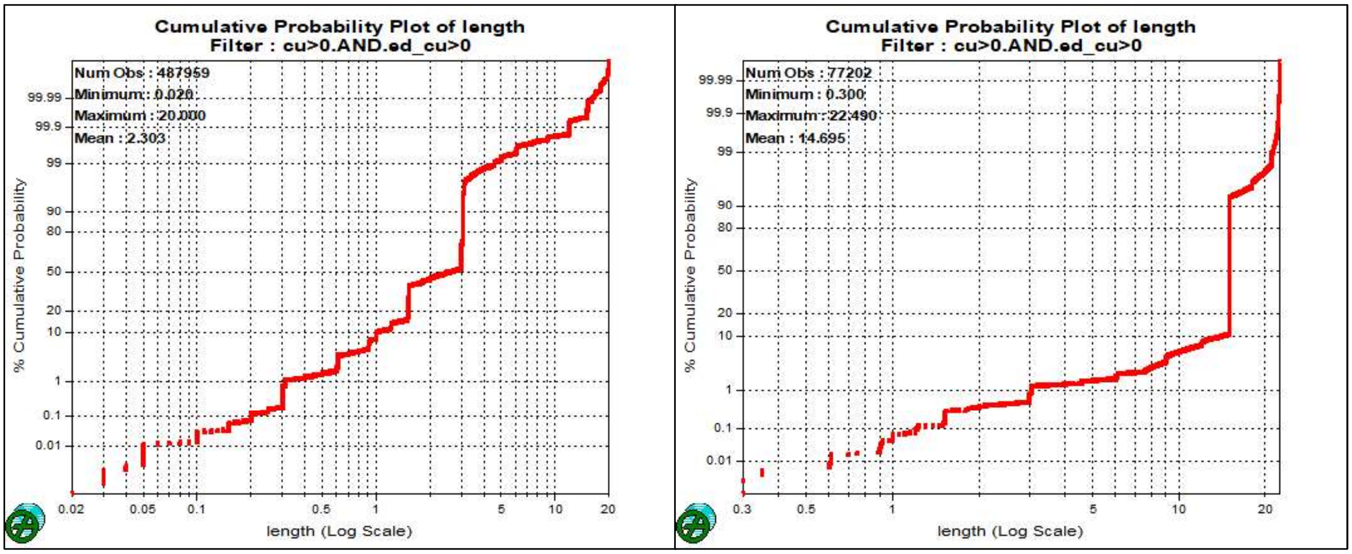


Figure 11.8: Cumulative Probability Plot of Sample Length and Composite Length.

11.1.6 Evaluation of Outlier Grades, Cut-offs, and Grade Capping

Definition and control of outliers is a common industry practice useful to prevent potential overestimation of volumes and grades. Values identified as outliers are controlled in the estimation using high yield restrictions (HYR) within a block distance (12.5 m x 12.5 m x 7.5 m). HYR consists of using the composite with its real value, but within a restricted radius that is smaller than the estimation's search.

Outliers were defined according to probability distribution curves, depending on population, or continuity breaks, and reconciliation with the short-term block model (blast holes). Table 11.8 shows the selected values by the ED.

Table 11.8: Outliers Treatment by ED and Variable

ED	Cu (%)	Mo (%)	Zn (%)
1	0.80	-	0.20
2	2.50	0.060	10.00
3	-	-	-
4		-	-
5	2.50	0.050	1.20
6		-	2.00
7	4.00	0.012	15.00
8	4.00	0.040	10.00
9	1.50	0.025	0.80
10	2.50	0.035	1.20
11	3.00	0.035	0.50
12	2.00	0.050	4.00
13	1.50	0.020	-
14	2.50	0.040	2.00
15	3.50	0.040	-
16	2.00	0.100	1.00

11.1.7 Variography

Down-the-Hole (DTH), directional (3D), and omnidirectional variograms were calculated and modeled to define the spatial continuity. The calculation and modeling were performed using WSP's proprietary software, OBO V11.05™ (OBO). Variograms were calculated for each variable using the 15 m composite database.

WSP conducted the variography using the following procedure:

- Calculation of variogram maps using OBO
- Modelling of experimental variograms using OBO
- Derivation of nugget effect in DTH variograms
- Adjustment of variogram models to the main continuity directions

Variograms for each variable correspond to normalized absolute variograms. The nugget effect ranges between 20% and 40% of the total sill, which is considered appropriate for the variability of these types of deposits. Some EDs had too few composites to model a robust variogram, so the same variogram was used for Cu, CuCN and CuO to maintain the same parameters in the estimation process. Table 11.9 summarize the global variograms modeled for each variable, and Figure 11.12 illustrates them. Specific domains with high number of composites were independently modeled.

Table 11.9: Variogram Model Parameters

Variable	Nugget	Sill 1	Range 1			Sill 2	Range 2		
			Major	Semi	Minor		Major	Semi	Minor
Cu	0.2	0.5	60	60	60	0.3	130	130	130
Mo	0.2	0.1	20	20	20	0.7	800	800	800
Zn	0.2	0.4	70	70	70	0.4	90	90	90

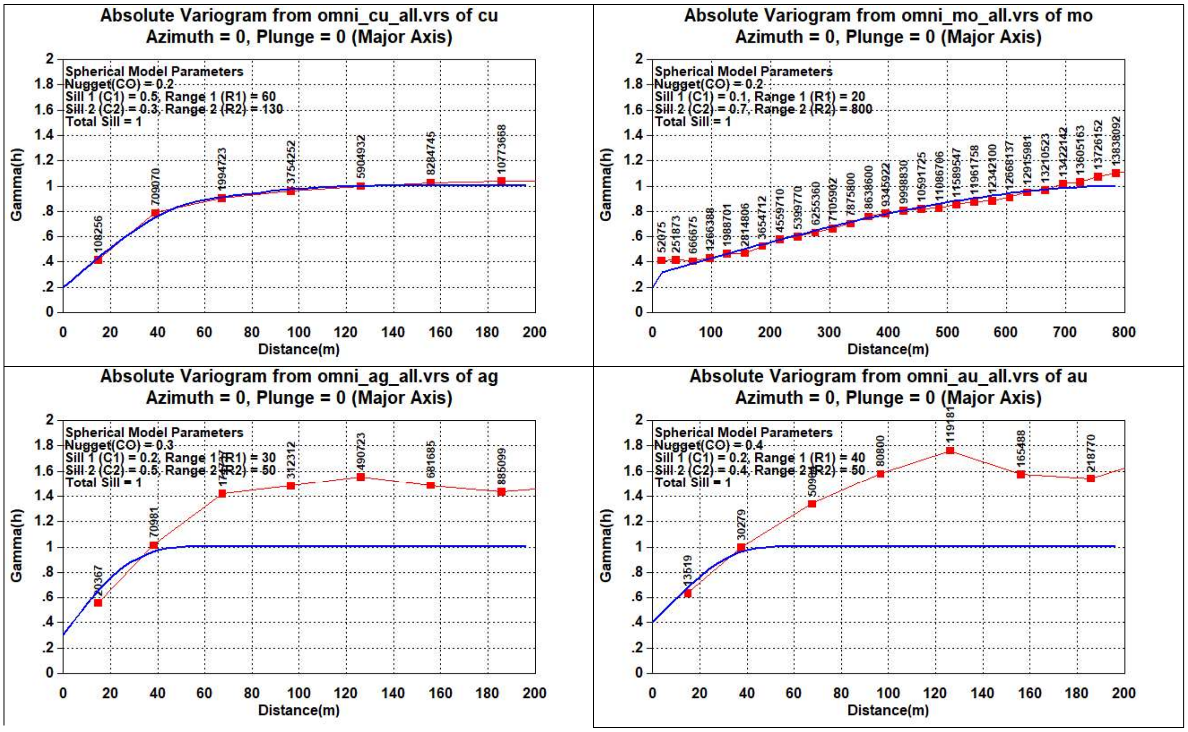


Figure 11.9: Global Variograms for Each Variable

11.1.8 Block Model Parameters, Specific Gravity, and Grade Estimation

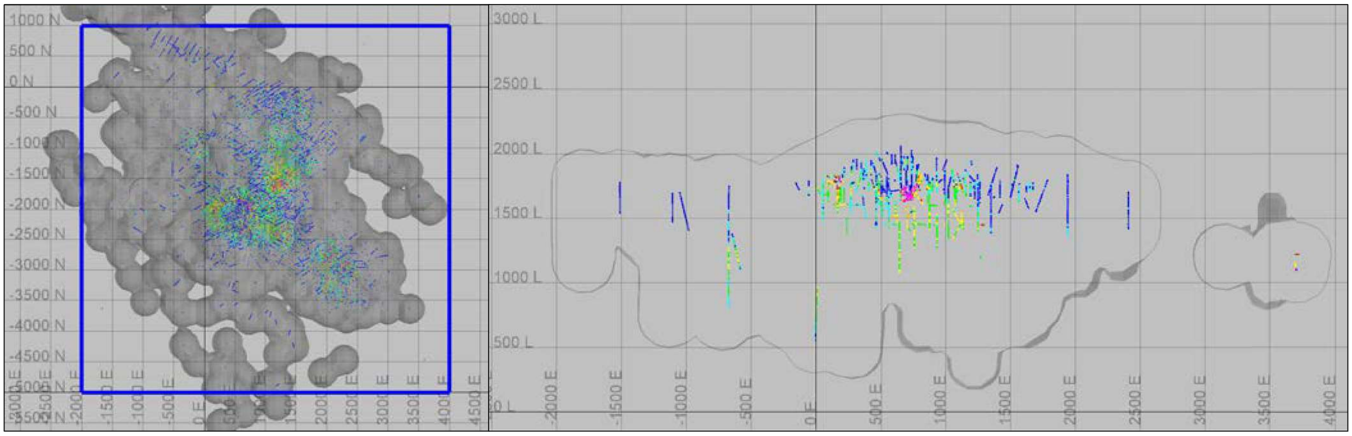
11.1.8.1 Block Model Parameters and Domaining

Table 11.10 shows the definition for the block model constructed in Maptek™ Vulcan (Vulcan) using the local coordinate system.

Table 11.10: Block Model Dimensions

Orientation	Bearing	Dip	Plunge
Origin	-2,000	-5,000	450
Parent Block Size (m)	25	25	15
No. of Blocks	240	240	110
Range (m)	6,000	6,000	1,650

A geological information limit (GIL) was created to constrain the estimation volume, using available drill hole data and by extrapolating 250 m in Leapfrog. Figure 11.10 shows a plan view and cross section of the GIL with drill holes used in the estimation.



Note: Block model limits (blue) and GIL wireframe (black)

Figure 11.10: Plan View (left) and Cross Section -2000N (right) of the Drill Hole Database

11.1.8.2 Interpolation and Extrapolation Parameters

To determine the type of contact (soft or hard) between different EDs, a contact analysis was conducted. Contact analysis is a mathematical method used to define the behavior of grades among samples from different EDs as they approach a contact. The type of contact is crucial during the process of grade estimation.

The results indicate abrupt changes in the grade at the contact between EDs. In instances where the grade change is gradual, the distance is minimal, therefore it was decided to use hard contacts between all ED and variables. Figure 11.11 to Figure 11.14 shows the contact analyses for some EDs for Cu and Zn.

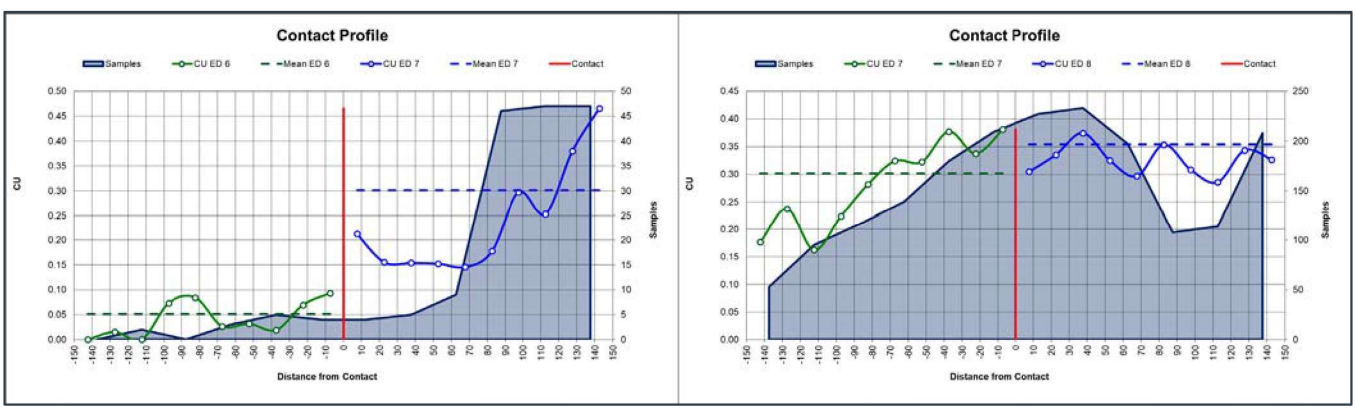


Figure 11.11: Contact Analysis for Cu between ED 6 and 7 (left) and ED 7 and 8 (right)

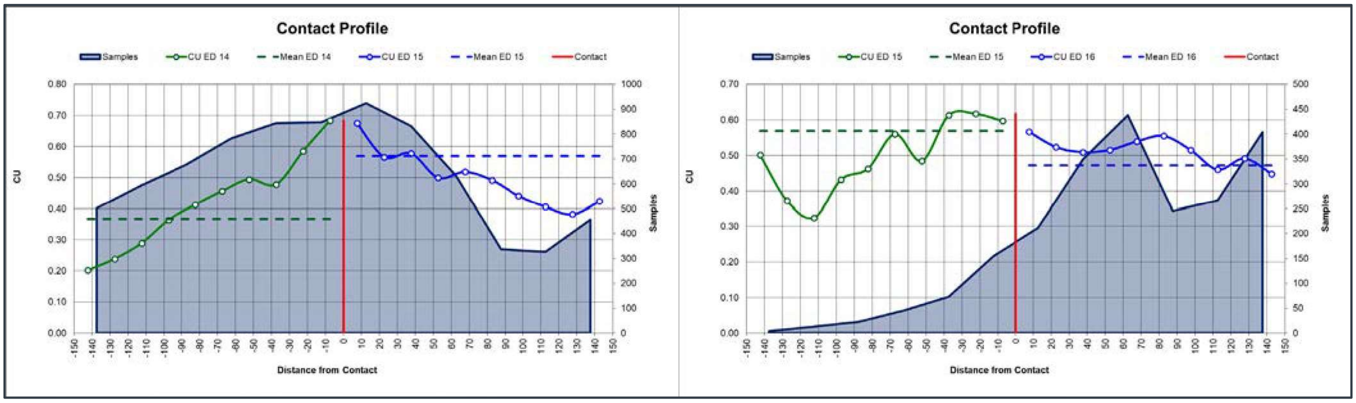


Figure 11.12: Contact Analysis for Cu between ED 14 and 15 (left) and ED 15 and 16 (right)

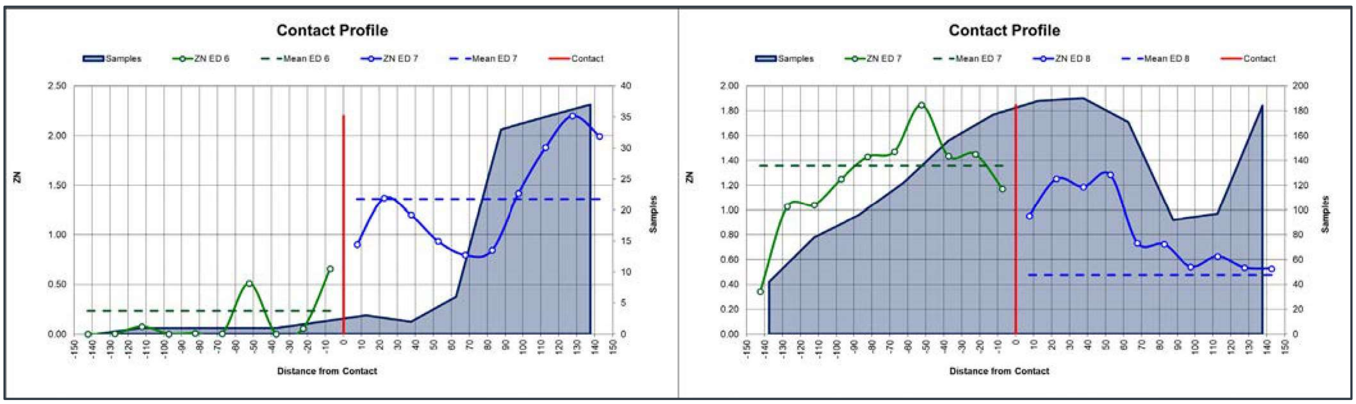


Figure 11.13: Contact Analysis for Zn between ED 6 and 7 (left) and ED 7 and 8 (right)

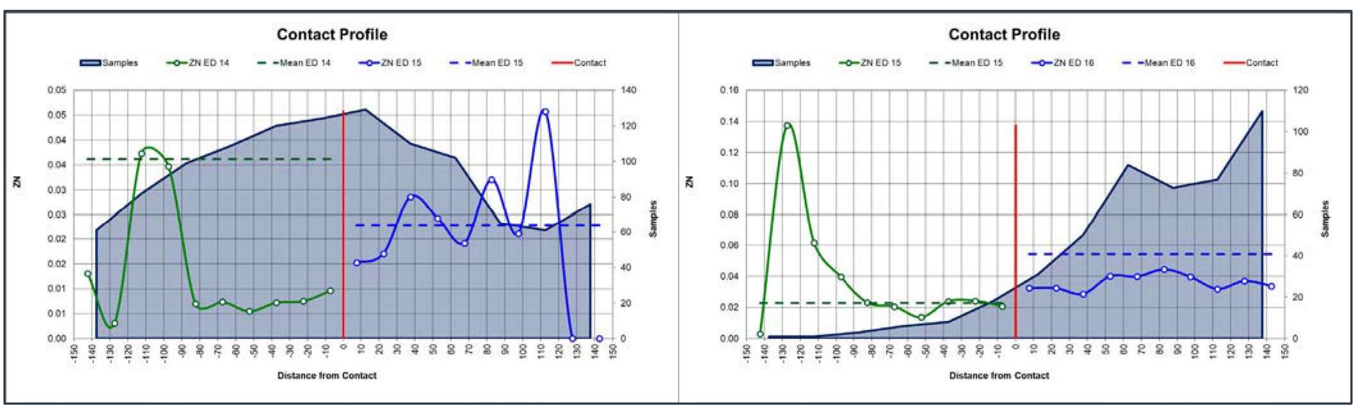


Figure 11.14: Contact Analysis for Zn between ED 14 and 15 (left) and ED 15 and 16 (right

The estimation of all variables for Buenavista del Cobre was done using Ordinary Kriging (OK) with three nested passes for each ED. The sample search and selection strategy significantly impact the quality and smoothing of the estimation. This ensures reasonable ranges of smoothing. Different schemes with varying search radii, sample selection strategies, octant usage, outlier control and contact analysis were implemented and analyzed to define an appropriate estimate plan.

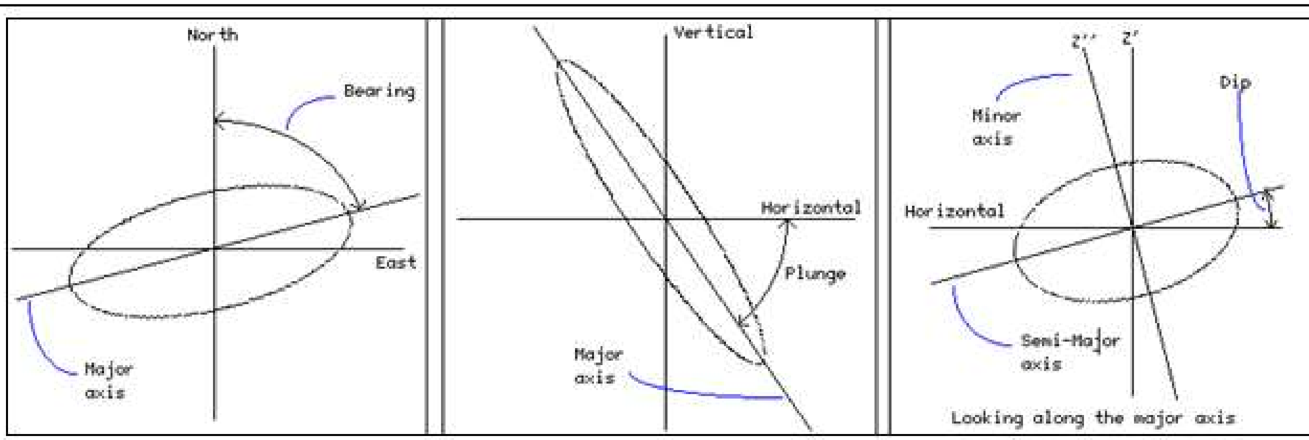
The OK plan included the following criteria and restrictions:

- 4 x 4 x 2 discretization.
- For outlier control, restriction of high grades using high yield restriction for all passes (see Section 11.1.6).
- Hard contacts have been implemented in all estimation passes.
- No octant restrictions have been used for any ED.

Search radii was defined based on data distribution and the variogram model. Table **11.11** summarizes the orientation, radii of searches implemented and the samples selection scheme by estimation pass for each ED Cu, following Vulcan convention (see Figure 11.15).

Table 11.11: Sample Selection for Cu by ED

ED	Pass	Rotation			Search Radii			Samples			
		Bearing	Plunge	Dip	Major	Semi	Minor	Min	Max	Max per DH	Max per Oct.
3,4,6,7,9,10, 11,13,14,15	1	140	0	0	80	80	30	13	20	4	-
	2	140	0	0	120	120	60	9	20	4	-
	3	140	0	0	240	240	120	5	20	4	-
1,2,5,12,16	1	140	0	90	80	80	30	13	20	4	-
	2	140	0	90	120	120	60	9	20	4	-
	3	140	0	90	240	240	120	5	20	4	-
8	1	140	0	40	80	80	30	13	20	4	-
	2	140	0	40	120	120	60	9	20	4	-
	3	140	0	40	240	240	120	5	20	4	-



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 11.15: Angle and Axis Convention in Vulcan

The estimation was completed using OK in three nested passes. The estimation strategy aims to balance volumes and mean grades per pass while avoiding potential grade extrapolation and/or overestimation.

Figure 11.16 summarize the estimated block percentage, mean grade, and distance per estimation pass for each ED for Cu. Observations from the graph include:

- A clear decrease in mean grades per pass for Cu, indicating the search ellipsoid adequately separates the zones with a high-information (high grade) from those with less.
- The first pass is a local track, evidenced in the representation in terms of estimated volume, with a mean estimated distance of approximately 40 m. The second pass estimated a mean distance closer to 60 m.

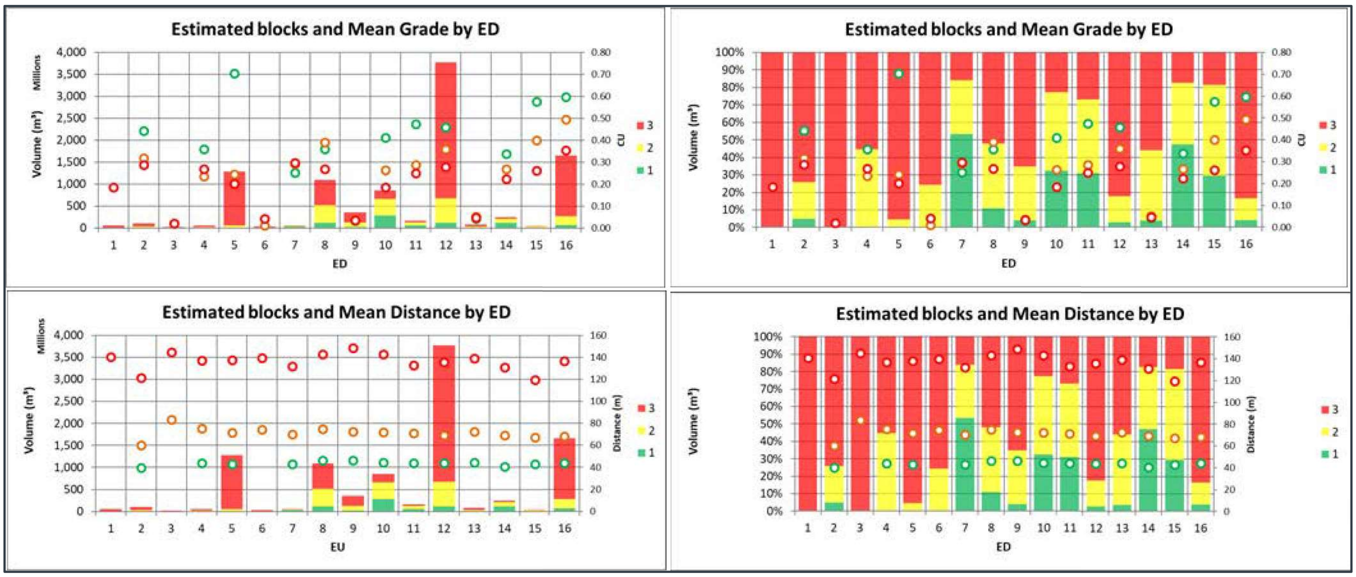


Figure 11.16: Percentage of Estimated Blocks and Mean Grades per Pass by ED for Cu

To evaluate the selected samples selection scheme, a complete analysis was conducted on the block model pass, number of samples and drill holes used for estimation. The objective was to assess the implementation of the OK estimation plan; specifically, how it accounted for the number of samples and number of drill holes in each estimation pass. This analysis also enabled the evaluation of the spatial coverage of every block by determining whether the estimation was performed through interpolation or extrapolation.

In general, all EDs included a sufficient number of samples and drill holes for grade interpolation. As an example, Figure 11.17 show the number of samples and drill holes by estimation pass for Cu for ED 9 and 10. In both cases, more than three drill holes were used in the first estimation pass and only in the third pass the kriging plan was allowed to estimate with two drill holes. This sample selection strategy ensures adequate grade interpolation with accurate three-dimensional spatial coverage.

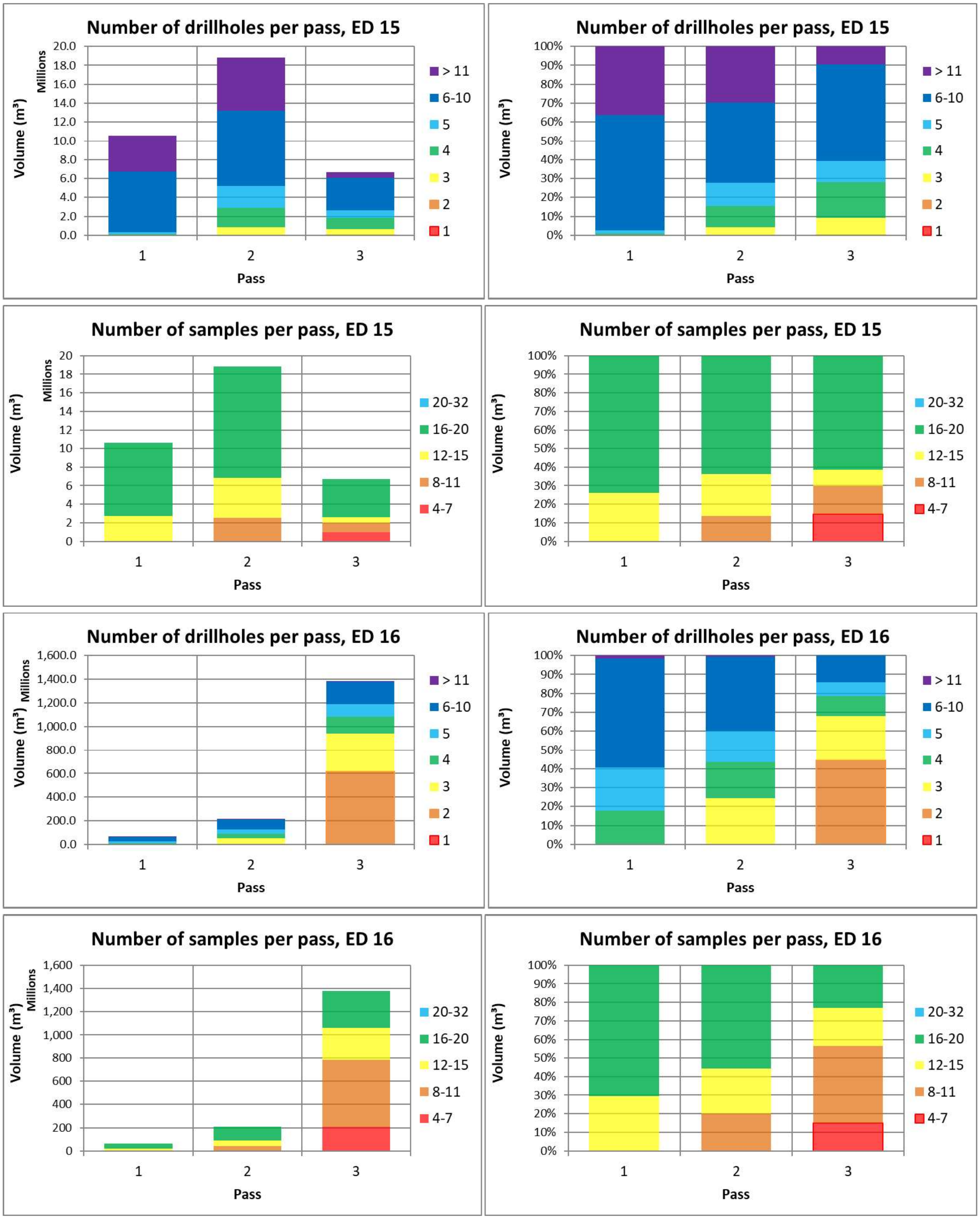


Figure 11.17: Number of Samples and Drill Holes per Estimation Pass, ED Cu 15 and 16

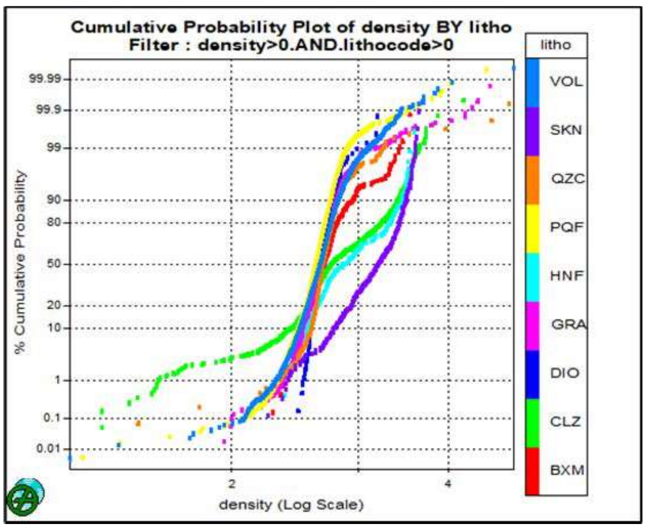
11.1.8.3 Specific Gravity

The estimation domains for density were defined based on the Lithology and is summarized in Table 11.12 shows the probability distributions and the mean grade versus standard deviation graphs for each variable. Figure 11.18 show the probability distribution and the mean grade versus standard deviation graph for density.

Table 11.12: ED Definition – Density

ED_DEN	Lithology	Mineral Zone	Count	Min.	Max.	Mean	Median	CV
31	BXM	All	359	2.28	3.54	2.72	2.70	0.07
50	CLZ	All	985	1.32	4.20	2.84	2.76	0.14
14	DIO	All	309	2.48	3.19	2.66	2.64	0.03
16	GRA	All	2,778	1.95	4.57	2.68	2.68	0.06
49	HNF	All	123	2.37	3.59	2.94	2.89	0.11
10	PQF	All	9,816	1.24	4.52	2.62	2.62	0.05
55	QZC	All	752	1.48	4.87	2.70	2.68	0.07
48	SKN	All	423	2.25	3.64	3.16	3.19	0.09
20	VOL	All	11,072	1.19	4.93	2.66	2.66	0.06

Notes: Min. = minimum, Max. = maximum, CV = coefficient of variation



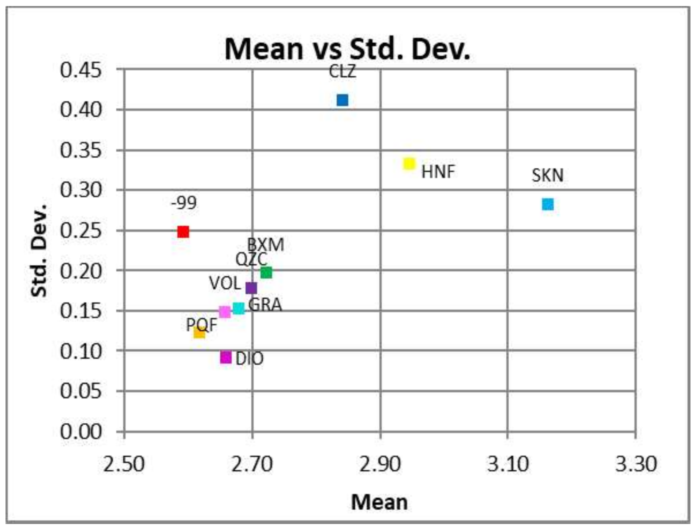


Figure 11.18: Cumulative Probability Plot and Mean Grade versus Standard Deviation Graph for Density by ED

An inverse distance interpolator was used in three passes. The results show a slight increase in specific gravity values compared to the 2.6 default value used in previous models, especially in Buenavista Zinc where the related lithologies (CLZ, HNF and SKN) show values in the 2.9-3.2 range.

In QP´s opinion this interpolation of specific gravity represents an improvement to the previous assignment of a default value for the entire model, the interpolation allows a better characterization of each lithology and represents the local variability in a better way.

11.1.9 Model Validation

To validates the Buenavista del Cobre Resource model, the block model was assessed for OK performance and the conformity of input values. The validation was carried out on estimated blocks within the GIL and up to the third pass, with composites used in the estimates.

11.1.9.1 Visual and Statistical

WSP validated estimated blocks against declustered composite grades. Mean grades for composites can vary by several factors, such as sample density, grouping, and, to a greater extent, the presence of high grades that have been restricted in the estimation plan. Consequently, global statistics of declustered composites were calculated using the nearest-neighbor (NN) method with search ranges like the one used in the estimation. A summary of this comparison is shown in Table 11.13 through Table 11.17 for Cu, CuCN, CuO, Mo, Fe, Ag, Au, and Zn, respectively, where the negative values indicate a negative difference between block mean grades in relation to composite mean grades, and vice-versa. In general, differences under 5% are satisfactory, and differences above 10% require attention. The result of the estimate shows that relative differences for the main ED are found within acceptable limits. Only EDs with less samples and poor geological continuity shows results above the expected threshold.

Table 11.13: Statistics Comparison for Cu by ED, Pass 3

ED	Count		Minimum (%)		Maximum (%)		Mean (%)			Std. Dev.	
(Cu)	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN	%Diff	Blocks	NN
1	5,848	5,848	0.005	0.002	0.568	0.750	0.185	0.183	**1.4%**	0.20	0.20
2	11,011	11,011	0.005	0.003	3.158	6.641	0.302	0.313	**-3.5%**	0.19	0.29
3	2,590	2,590	0.005	0.002	0.234	0.348	0.020	0.019	**7.3%**	0.02	0.04
4	5,372	5,372	0.037	0.004	0.958	1.597	0.253	0.250	**1.3%**	0.13	0.25
5	136,817	136,817	0.005	0.000	2.396	3.969	0.204	0.199	**2.6%**	0.18	0.23
6	3,691	3,691	0.002	0.001	0.872	1.477	0.034	0.033	**4.1%**	0.05	0.09
7	5,653	5,653	0.010	0.006	1.884	6.446	0.272	0.278	**-2.2%**	0.20	0.33
8	116,041	116,041	0.003	0.001	6.836	14.140	0.324	0.319	**1.5%**	0.29	0.47
9	38,013	38,013	0.001	0.000	1.262	2.080	0.036	0.036	**0.9%**	0.05	0.09
10	90,717	90,717	0.020	0.001	2.772	5.028	0.293	0.287	**2.1%**	0.20	0.29
11	17,829	17,829	0.045	0.010	4.280	8.966	0.334	0.330	**1.3%**	0.21	0.30
12	402,250	402,250	0.001	0.000	2.915	6.592	0.295	0.296	**-0.1%**	0.21	0.25
13	8,422	8,422	0.002	0.002	0.482	1.014	0.048	0.045	**5.9%**	0.06	0.11
14	26,569	26,569	0.002	0.004	2.038	3.603	0.293	0.287	**2.2%**	0.21	0.29
15	3,851	3,851	0.083	0.010	2.299	4.234	0.425	0.412	**3.2%**	0.25	0.36
16	176,593	176,593	0.004	0.001	6.981	15.328	0.380	0.382	**-0.4%**	0.22	0.26

Table 11.14: Statistics Comparison for CuCN by ED, Pass 3

ED	Count		Minimum (%)		Maximum (%)		Mean (%)			Std. Dev.	
(CuCN)	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN	%Diff	Blocks	NN
1	5,848	5,848	0.003	0.002	0.221	0.470	0.051	0.050	**3.0%**	0.04	0.05
2	11,011	11,011	0.005	0.001	0.805	1.558	0.090	0.086	**4.1%**	0.07	0.10
3	2,590	2,590	0.002	0.001	0.121	0.181	0.007	0.006	**17.4%**	0.01	0.01
4	5,372	5,372	0.021	0.002	0.784	1.295	0.159	0.156	**2.4%**	0.08	0.16
5	136,817	136,817	0.003	0.001	1.008	1.539	0.081	0.083	**-2.1%**	0.05	0.09
6	3,691	3,691	0.001	0.001	0.459	0.780	0.013	0.012	**9.9%**	0.02	0.04
7	5,653	5,653	0.010	0.009	1.144	4.045	0.164	0.166	**-1.7%**	0.12	0.21
8	116,041	116,041	0.003	0.001	0.854	2.471	0.077	0.078	**-1.5%**	0.06	0.10
9	38,010	38,010	0.000	0.000	0.666	1.100	0.016	0.016	**0.3%**	0.03	0.05
10	90,717	90,717	0.016	0.001	1.745	3.158	0.194	0.190	**2.0%**	0.13	0.19
11	17,829	17,829	0.013	0.000	2.230	4.695	0.155	0.153	**1.3%**	0.11	0.16
12	402,250	402,250	0.001	0.000	0.659	1.694	0.063	0.064	**-1.0%**	0.04	0.06
13	8,414	8,414	0.000	0.000	0.292	0.535	0.023	0.022	**4.9%**	0.03	0.06
14	26,574	26,574	0.002	0.001	1.285	2.266	0.193	0.189	**2.2%**	0.13	0.19
15	3,851	3,851	0.028	0.005	1.270	2.267	0.204	0.196	**4.0%**	0.14	0.20
16	176,593	176,593	0.001	0.001	1.399	6.626	0.080	0.081	**-1.3%**	0.06	0.12

Table 11.15: Statistics Comparison for CuO by ED, Pass 3

ED	Count		Minimum (%)		Maximum (%)		Mean (%)			Std. Dev.	
(CuO)	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN	%Diff	Blocks	NN
1	5,848	5,848	0.003	0.001	0.130	0.205	0.021	0.020	**8.3%**	0.02	0.03
2	11,011	11,011	0.002	0.001	0.315	0.621	0.029	0.027	**6.7%**	0.02	0.03
3	2,590	2,590	0.002	0.001	0.024	0.050	0.005	0.006	**-13.1%**	0.00	0.01
4	5,372	5,372	0.002	0.001	0.346	0.522	0.049	0.050	**-1.1%**	0.03	0.06
5	136,817	136,817	0.002	0.001	0.205	0.409	0.018	0.019	**-1.7%**	0.01	0.02
6	3,691	3,691	0.001	0.004	0.119	0.111	0.008	0.008	**-0.3%**	0.01	0.01
7	5,655	5,655	0.010	0.003	0.274	0.720	0.051	0.051	**-1.0%**	0.03	0.06
8	116,041	116,041	0.002	0.001	0.329	0.909	0.029	0.030	**-1.2%**	0.02	0.04
9	38,013	38,013	0.000	0.001	0.147	0.339	0.006	0.007	**-11.8%**	0.01	0.01
10	90,715	90,715	0.004	0.000	0.329	4.731	0.037	0.038	**-0.9%**	0.01	0.05
11	17,829	17,829	0.003	0.001	0.206	0.479	0.024	0.024	**0.8%**	0.01	0.02
12	402,246	402,246	0.000	0.000	0.226	1.463	0.020	0.020	**-2.2%**	0.01	0.02
13	8,423	8,423	0.000	0.000	0.103	0.729	0.007	0.008	**-15.3%**	0.01	0.03
14	26,575	26,575	0.002	0.001	0.264	0.447	0.036	0.035	**1.2%**	0.01	0.02
15	3,851	3,851	0.004	0.001	0.123	0.292	0.028	0.027	**2.2%**	0.01	0.02
16	176,593	176,593	0.000	0.001	0.146	0.500	0.018	0.019	**-3.5%**	0.01	0.02

Table 11.16: Statistics Comparison for Mo by ED, Pass 3

ED	Count		Minimum (%)		Maximum (%)		Mean (%)			Std. Dev.	
(Mo)	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN	%Diff	Blocks	NN
1	5,815	5,815	0.000	0.000	0.028	0.045	0.006	0.006	**0.2%**	0.01	0.01
2	10,171	10,171	0.000	0.000	0.031	0.053	0.005	0.005	**-4.3%**	0.01	0.01
3	2,262	2,262	0.000	0.000	0.003	0.005	0.001	0.001	**-4.9%**	0.00	0.00
4	5,370	5,370	0.000	0.000	0.013	0.029	0.002	0.002	**7.3%**	0.00	0.00
5	126,352	126,352	0.000	0.000	0.032	0.046	0.003	0.003	**-2.7%**	0.00	0.01
6	3,436	3,436	0.000	0.000	0.010	0.017	0.001	0.001	**-2.5%**	0.00	0.00
7	5,643	5,643	0.000	0.000	0.007	0.022	0.001	0.001	**-5.3%**	0.00	0.00
8	114,645	114,645	0.000	0.000	0.052	0.118	0.003	0.003	**-3.3%**	0.00	0.00
9	26,500	26,500	0.000	0.000	0.040	0.064	0.002	0.002	**1.6%**	0.00	0.00
10	84,336	84,336	0.000	0.000	0.033	0.073	0.003	0.003	**0.5%**	0.00	0.00
11	15,364	15,364	0.001	0.000	0.052	0.078	0.005	0.005	**0.0%**	0.00	0.01
12	366,515	366,515	0.000	0.000	0.296	0.597	0.007	0.007	**-1.9%**	0.01	0.01
13	5,583	5,583	0.000	0.000	0.072	0.091	0.003	0.003	**-1.5%**	0.00	0.00
14	24,143	24,143	0.000	0.000	0.051	0.137	0.004	0.004	**1.5%**	0.00	0.00
15	2,974	2,974	0.001	0.000	0.018	0.042	0.007	0.007	**-0.6%**	0.00	0.01
16	165,974	165,974	0.000	0.000	0.103	0.807	0.013	0.013	**-1.3%**	0.01	0.02

Table 11.17: Statistics Comparison for Zn by ED, Pass 3

ED	Count		Minimum (%)		Maximum (%)		Mean (%)			Std. Dev.	
(Zn)	Blocks	NN	Blocks	NN	Blocks	NN	Blocks	NN	%Diff	Blocks	NN
1	5,791	5,791	0.003	0.001	0.107	0.181	0.024	0.025	**-5.9%**	0.015	0.028
2	9,775	9,775	0.001	0.001	8.690	17.204	0.185	0.183	**0.9%**	0.364	0.580
3	2,650	2,650	0.000	0.000	0.066	0.188	0.006	0.006	**-5.4%**	0.005	0.010
4	5,371	5,371	0.002	0.001	1.111	2.610	0.058	0.052	**12.5%**	0.095	0.185
5	123,583	123,583	0.002	0.000	0.645	1.135	0.095	0.094	**1.3%**	0.053	0.097
6	3,504	3,504	0.005	0.002	0.982	1.700	0.124	0.128	**-3.7%**	0.111	0.235
7	5,654	5,654	0.020	0.004	7.744	16.773	0.798	0.751	**6.2%**	0.909	1.627
8	115,605	115,605	0.002	0.000	7.981	19.337	0.263	0.262	**0.3%**	0.420	0.728
9	24,420	24,420	0.000	0.000	1.718	2.710	0.028	0.027	**4.6%**	0.040	0.059
10	75,997	75,997	0.000	0.000	5.960	14.037	0.044	0.042	**4.8%**	0.096	0.141
11	13,384	13,384	0.001	0.001	36.407	55.777	0.055	0.055	**-0.7%**	0.321	0.488
12	362,888	362,888	0.000	0.000	3.197	5.951	0.065	0.065	**0.2%**	0.098	0.147
13	2,866	2,866	0.001	0.001	0.022	0.031	0.005	0.006	**-17.1%**	0.003	0.006
14	22,107	22,107	0.000	0.000	1.893	3.000	0.021	0.026	**-19.7%**	0.061	0.097
15	2,134	2,134	0.001	0.001	0.175	0.208	0.026	0.025	**3.0%**	0.023	0.034
16	163,600	163,600	0.001	0.000	1.863	3.995	0.055	0.055	**0.1%**	0.044	0.065

To evaluates the robustness of block grades are in relation to data, a semi-local comparison using swath plots was completed. Swath plots average blocks and samples separately in regular 20 m (east) x 50 m (north) x 30 m (elevation) panels, then compare the mean grade in each sample and block panel through each axis.
Figure 11.19 to Figure 11.22 summarize swath plots for each variable for the most representative ED. The validation was completed considering the block estimation up to the third pass. Results show that estimates reasonably follow trends found in the deposit’s grades at a local and global scale without observing an excessive smoothing.

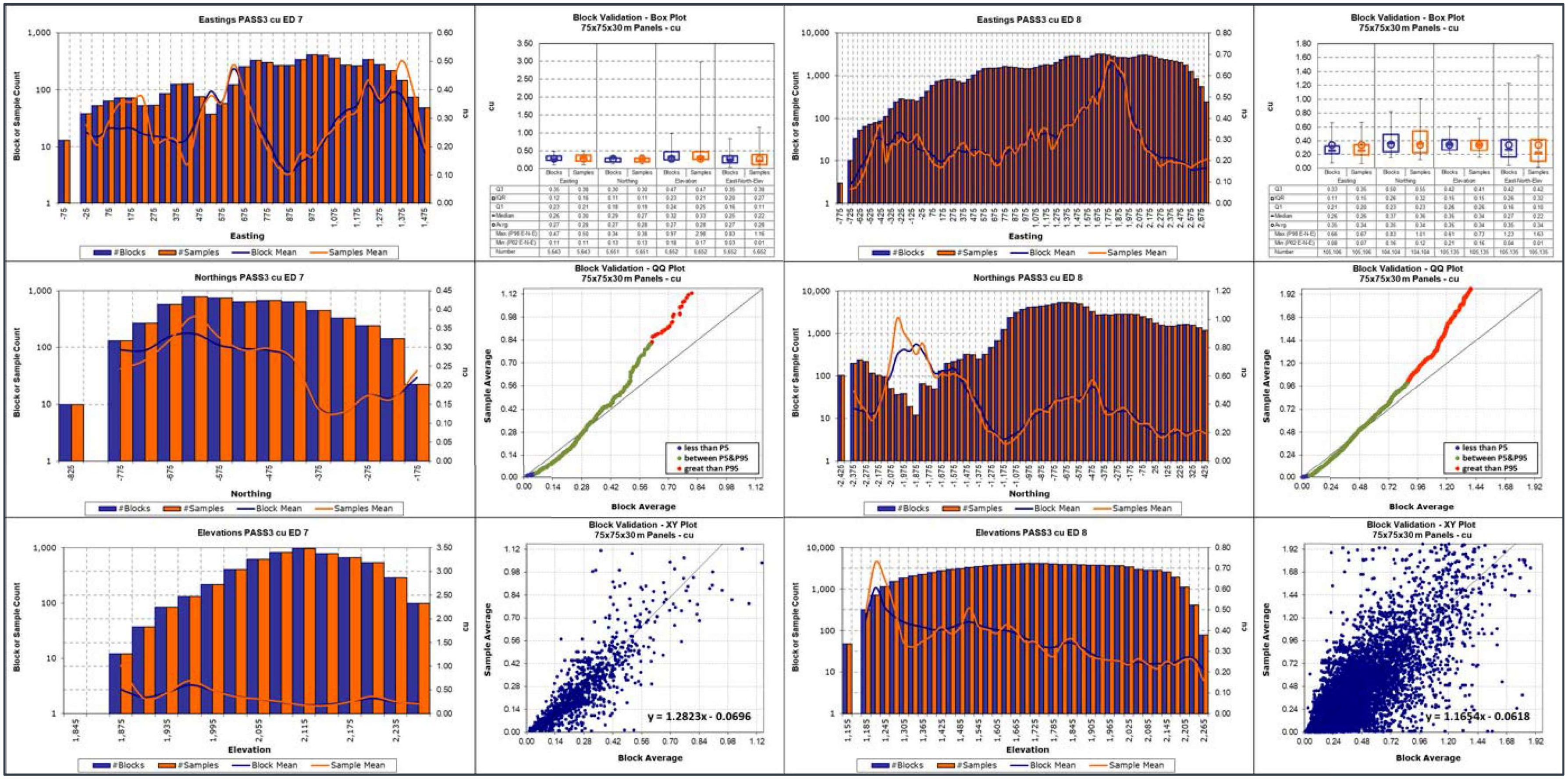


Figure 11.19: Swath Plots for Cu for ED 7 and 8

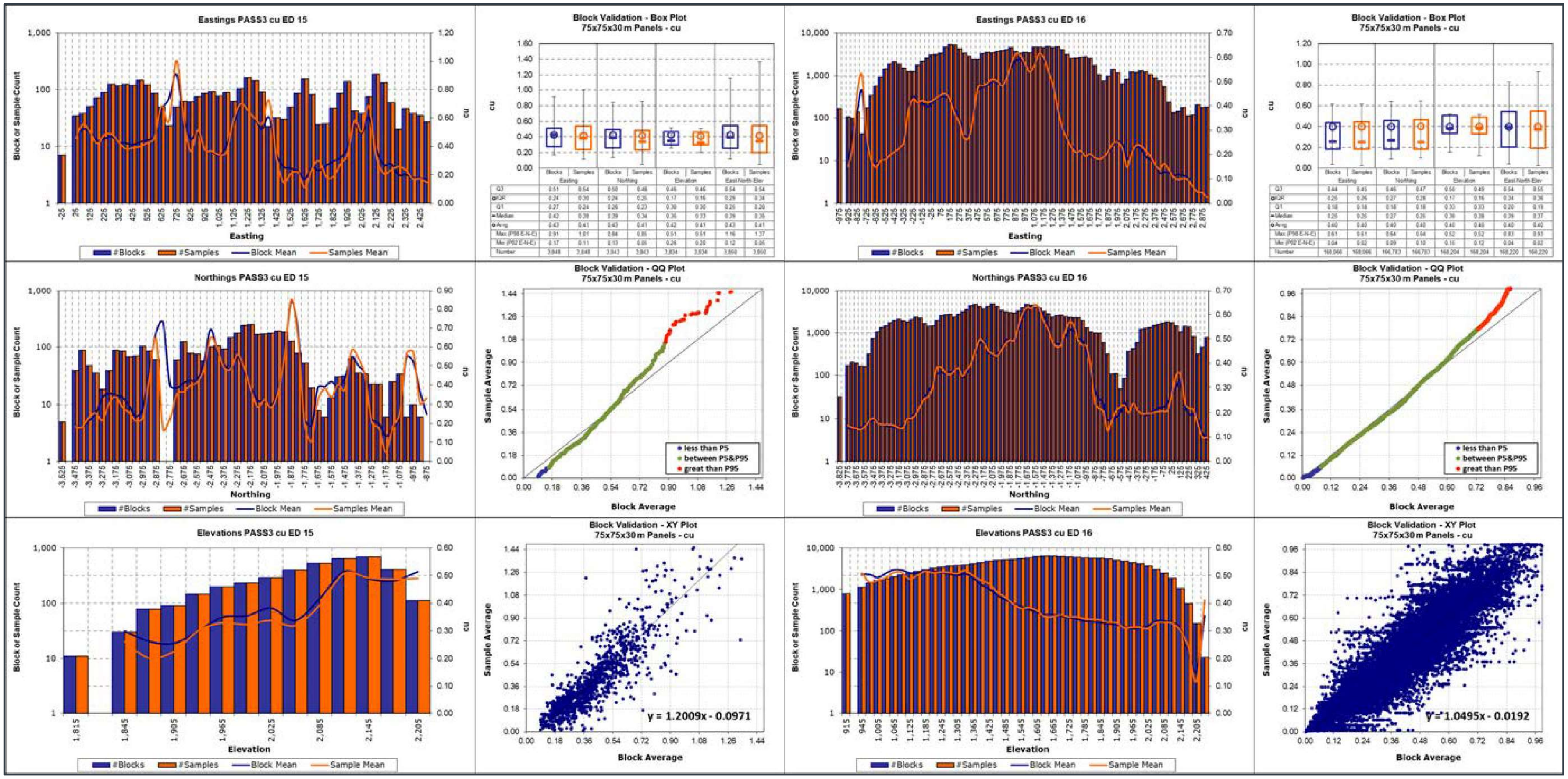


Figure 11.20: Swath Plots for Cu for ED 15 and 16

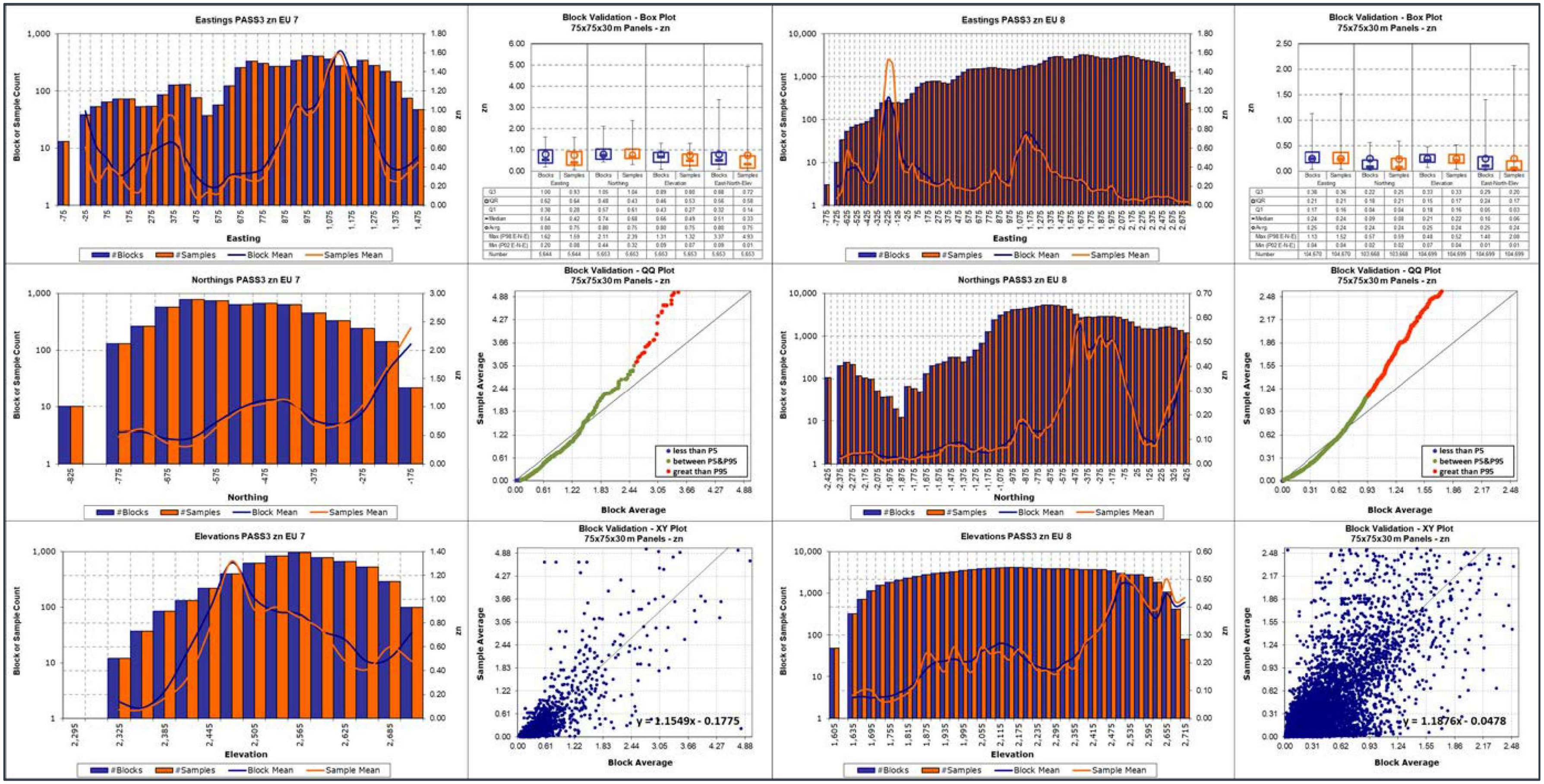


Figure 11.21: Swath Plots for Zn for ED 7 and 8

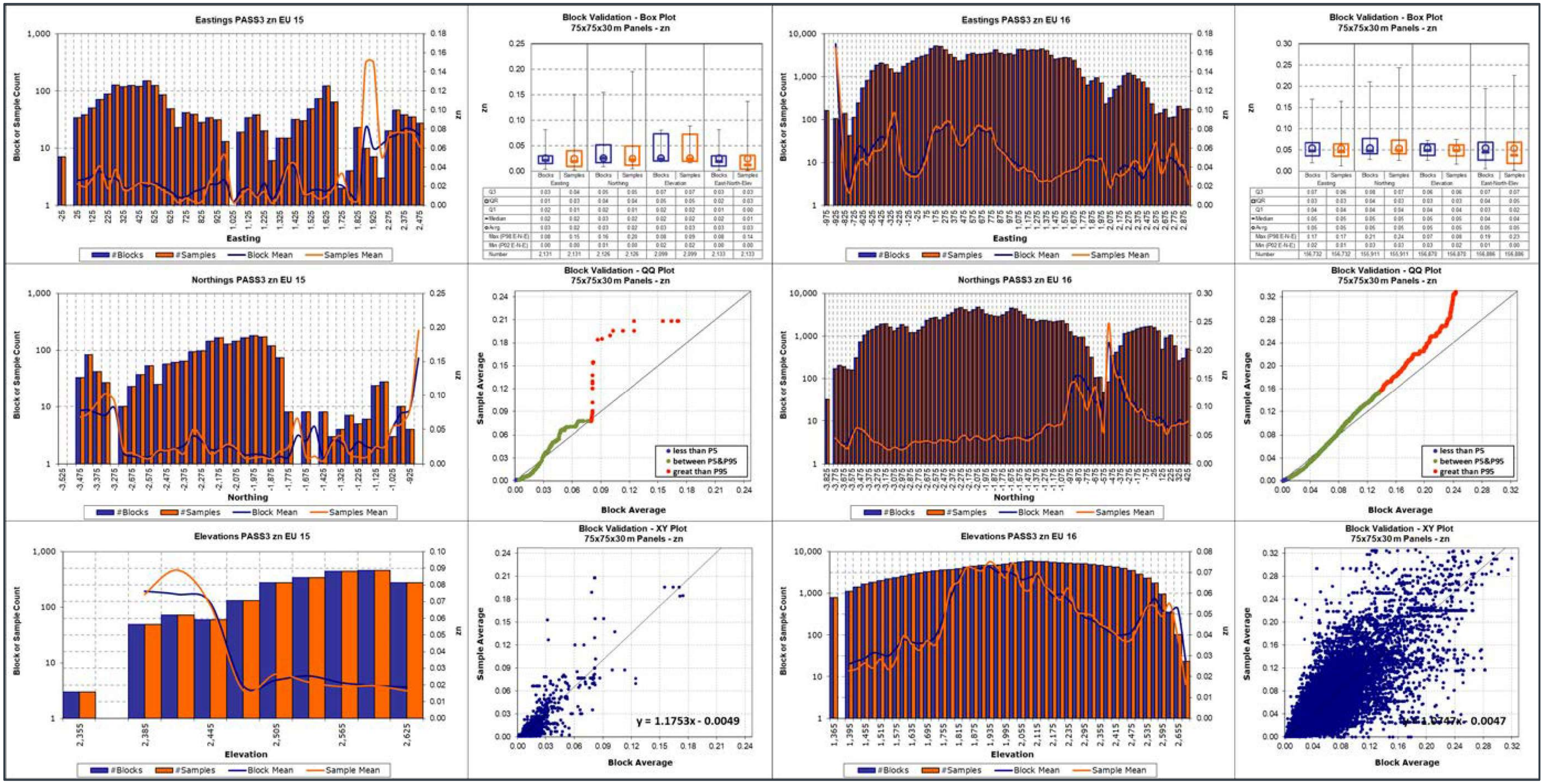


Figure 11.22: Swath Plots for Zn for ED 15 and 16

To visually validate the Cu estimation, the QP reviewed a set of cross sectional and plan views. The validation shows a suitable representation of samples in blocks. In general, there is an adequate match between composite data and block model data for Cu grades. High grade areas are well represented, and high-grade samples show appropriate control, validating the outliers' treatment used. Smoothing increases in boundary and deep areas of the deposit, due to the fewer number of available composites.

Figure 11.23 through Figure 11.25 present a series of horizontal plan views and vertical sections with the estimate model and the resource pit wireframe (black triangulation) for each variable.

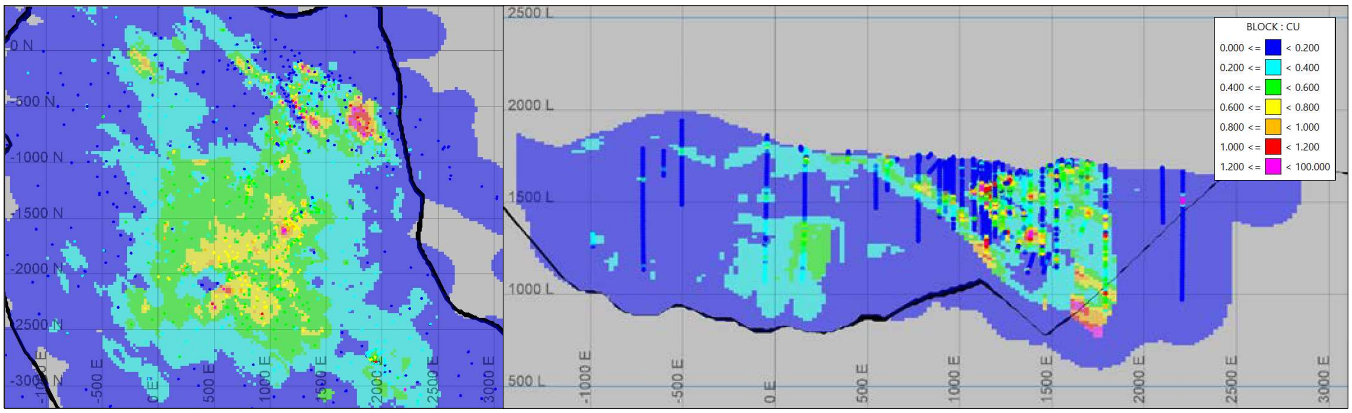


Figure 11.23: Visual Validation of Cu Estimation, Plan View - 1,400 m and Section - 400 N

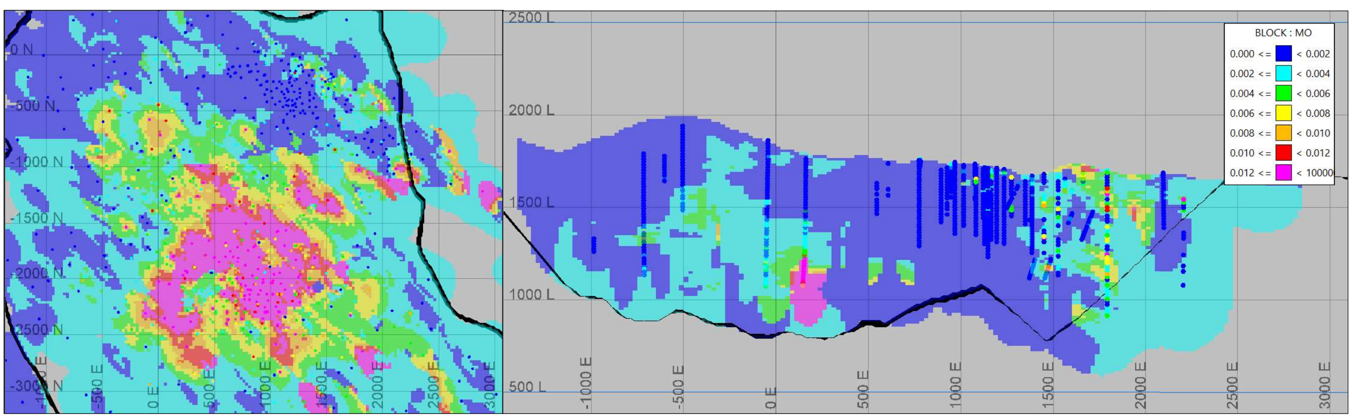


Figure 11.24: Visual Validation of Mo Estimation, Plan View - 1,400 m and Section - 395 N

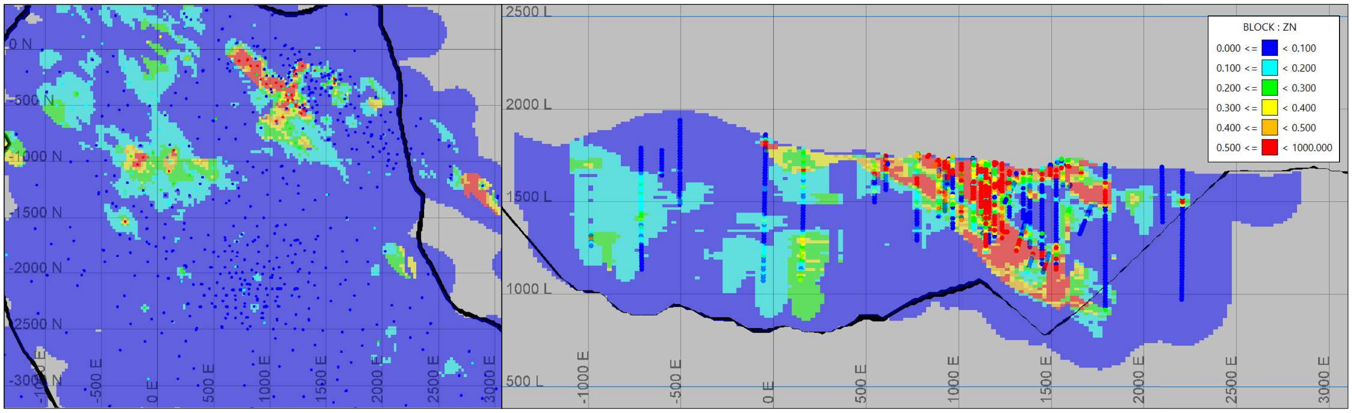


Figure 11.25: Visual Validation of Zn Estimation, Plan View - 1,400 m and Section - 400 N

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 Buenavista del Cobre, 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 reported exclusive of Mineral Reserves are summarized in Table 11.18 on a 100% ownership basis. Mineral Resources presented in the table are in accordance with the definitions presented in S-K 1300. The effective date of the Mineral Resource estimate is December 31, 2024.

SCC has a 99.95% ownership in Buenavista del Cobre through their main subsidiaries with the remainder being held through intermediate holding companies.

Table 11.18: In-Situ Mineral Resource Estimate, Exclusive of Mineral Reserves – 100% Ownership Basis

Process	Classification	Tonnes (Mt) (4)	Grade			Contained Metal		
			Total Cu (%) (2)	Mo (%) (2)	Zn (%) (2)	Cu (Kt) (5)	Mo (Kt) (5)	Zn (Kt) (5)
Plant Cu (1)(3)	Measured	-	-	-	-	-	-	-
	Indicated	627	0.38	0.008	0.04	2,378	50	251
	Measured + Indicated	**627**	**0.38**	**0.008**	**0.04**	**2,378**	**50**	**251**
	Inferred	7,848	0.34	0.008	0.04	26,525	628	3,061
Plant Zn (1)(3)	Measured	-	-	-	-	-	-	-
	Indicated	203	0.44	0.004	0.37	901	8	746
	Measured + Indicated	**203**	**0.44**	**0.004**	**0.37**	**901**	**8**	**746**
	Inferred	705	0.37	0.009	0.18	2,635	63	1,296
Leach (1)(3)	Measured	-	-	-	-	-	-	-
	Indicated	53	0.33	-	-	171	-	-
	Measured + Indicated	**53**	**0.33**	**-**	**-**	**171**	**-**	**-**
	Inferred	373	0.18	-	-	661	-	-

Notes:
1. Mineral Resources are reported on a 100% basis and are exclusive of Mineral Reserves.
2. Mineral Resources are reported on a break-even plant and leach profit basis.
3. The estimate was constrained to within the Resource pit based on a Cu price of $US3.795/lb, Mo price of US$11.50/lb and Zn price of US$1.32/lb
4. Mineral recovery was based on historical 3-year averages. The recoveries used were 81% for copper, 70% for Molybdenum, 74% for Zinc. Leach material had similar recoveries as Mineral Reserves.
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. 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
9. The projected December 31, 2024, topographic surface was used for the calculation of the Mineral Resources.

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.

Heap leach recoveries for Buenavista del Cobre was variable and depended on the solubility index of the material. Mill recoveries for Buenavista del Cobre was variable and depended on the feed copper grade to the concentrator. Blocks with zinc grade greater than 0.1% were restricted from going to the copper concentrator

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 0.3 would not be sent to the concentrators and instead would be sent to the leach pad. While Buenavista del Cobre currently assigns mill feed with material at a Total Cu grade greater than 0.1% and a leach COG greater than 0.075%, for estimating the Mineral Resources, and Mineral Reserve estimates, an economic breakeven COG was applied (see Section 12.2.5). No primary sulfide material was sent to the leach pads.

The Mineral Resource estimate was reported from within a constrained pit shell developed using the information from Table 11.19 through Table 11.22 to establish reasonable prospects for economic extraction.

Table 11.19: Resource Pit Optimization Inputs – Leach

Variable	Units	Value	
Payable Metals		**Cu - Crushed Leach**	**Cu - ROM Leach**
Selling Price	US$/lb	3.795	3.795
Processing Cost	US$/t	0.751	0.445
Payability	%	100	
Selling Cost	US$/lb	0.744	0.744
Credits	US$/lb	0	

Table 11.20: Resource Pit Optimization Inputs – Cu Plant

Variable	Units	Value	
Payable Metals		**Cu**	**Mo**
Selling Price	US$/lb	3.795	11.500
Processing Cost	US$/t	7.220	7.220
Payability	%	96.7	100
Selling Cost	US$/lb	0.54	1.84
Credits	US$/lb	0.138	

Table 11.21: Resource Pit Optimization Inputs – Zn Plant

Variable	Units	Value	
Payable Metals		**Cu**	**Zn**
Selling Price	US$/lb	3.795	1.320
Processing Cost	US$/t	10.920	10.920
Payability	%	96.7	85
Selling Cost	US$/lb	0.54	0.4
Credits	US$/lb	0.138	0

Table 11.22: Resource Pit Optimization Inputs – Mining Costs

Variable	Units	Value
Mill Mining Cost	US$/t	0.830
Leach Mining Cost	US$/t	0.830
Waste Mining Cost	US$/t	1.500
Fill Mining Cost	US$/t	1.220
Haulage Cost	US$/t	Variable

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. Mining and selling costs were provided by Buenavista del Cobre based on historical operational data from Buenavista del Cobre and were deemed to be reasonable based on general experience with other operations. The selling cost includes estimates for the SX-EW, cathode transport, general administration, and royalty costs.

Mineral Resource Pit Optimization takes into account an approximate 500 m offset from the surrounding town. Additional details on the pit limits and pit optimization are in Section 12.2.5.

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 in this disclosure is based on thresholds for maximum estimation errors in quarterly and annual periods of production. The expected estimation error was calculated through the indicator method, and the errors were linked to the quantity of information needed to meet the expectation by the calculation of drilling grids.

A volume indicator and a fine indicator are defined to model the geological continuity error and to characterize the spatial variability. To define the indicators a Cu COG is used.

The estimation error is calculated using the following formula (It is assumed that the errors have a normal distribution):

$$error \; = \frac{\sqrt{Krig.Var.(volprod)} \; \times Z}{Mean \times No.of \; Extraction \; Points}$$

The error associated to the estimated indicators is defined by the following formula (Mining Geostatistics. A.G. Journel & Ch. J. Huijbregts):

$$e_{AB}{}^{2} = e_{A}{}^{2} + e_{B}{}^{2} + (2 \times \rho_{AB} \times e_{A} \times e_{B})$$

Where:

- e_{AB} = Error in the product of the block estimation.
- e_{A} = Error in the block estimation (variable A).
- e_{B} = Error in the block estimation (variable B).
- ρ_{AB} = Correlation coefficient between the two variables.

The COG for establishing error thresholds was 0.3% Cu, with a maximum expected error threshold of 15% for resource classification.

To model geological continuity error the spatial variability of samples was analyzed, considering indicators defined from the 0.3% Cu cut-off. Variogram models are shown in Figure 11.26.

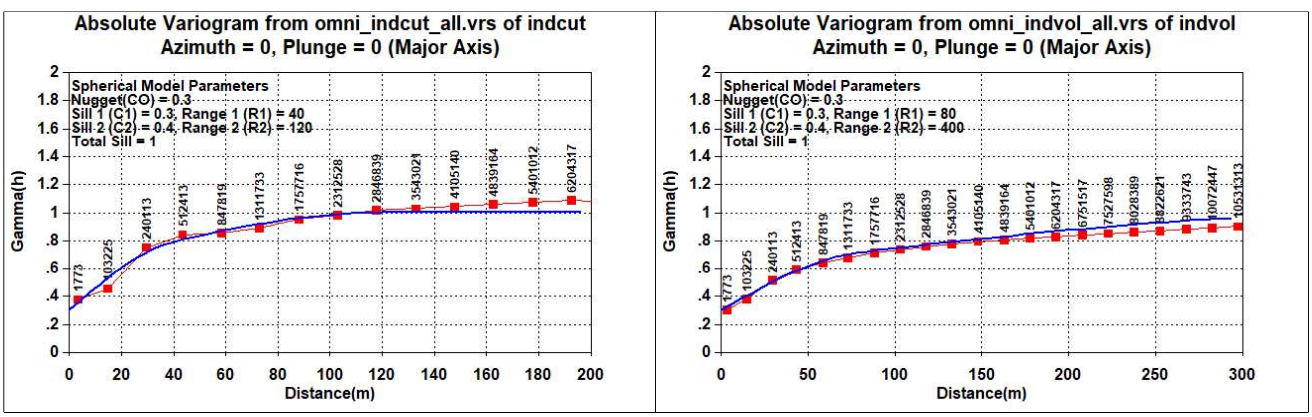


Figure 11.26: Volume and Metal Indicator Variography

The methodology considered the creation of an estimation database from the block model based on four theoretical drilling grids. The grids selected were from 50 m to 150 m. Figure 11.27 illustrates an outline of the designed drill grids.

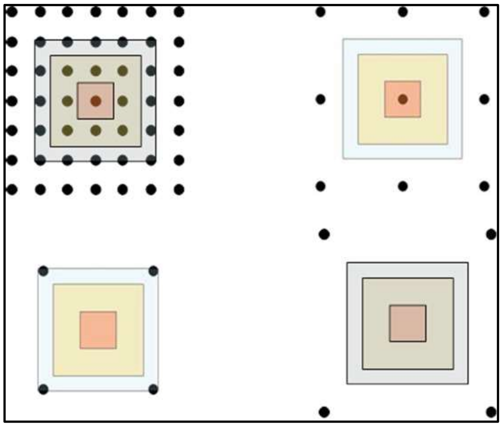


Figure 11.27: Drilling Grids Used

The OK variance was calculated from the results of each of the estimates.

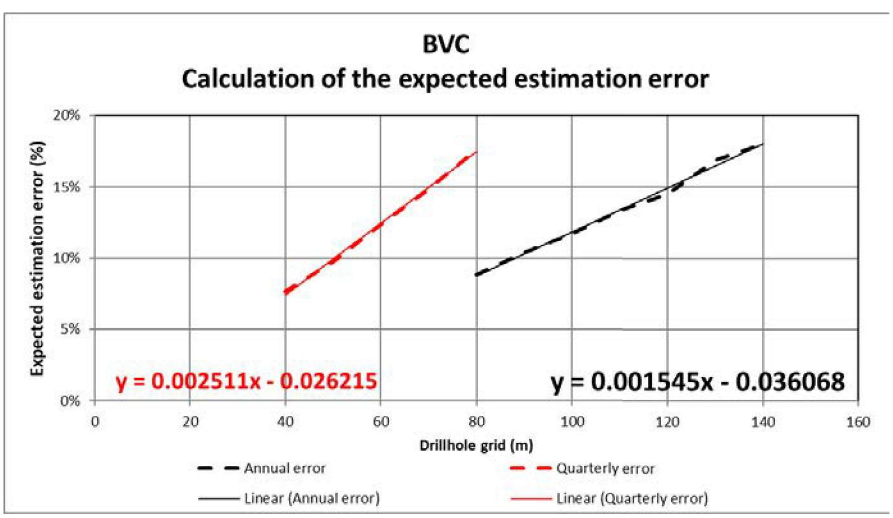
- The OK variance was obtained from the theoretical drill hole grids for one year and three months of production.
- Variance was obtained for the grade and metal indicators.

Using the OK variance and the defined parameters the estimate error is calculated using the formula:

$$error = \frac{\sqrt{Krig.Var.(volprod)} \times Z}{Mean \times No.of\ Extraction\ Points}$$

Based on the estimation errors calculated for annual and quarterly production volumes, the curves that define the error for a selected theoretical drilling meshes were plotted.

Figure 11.28 shows the relationship between the defined estimate error thresholds and the error obtained for each theoretical drill hole grids

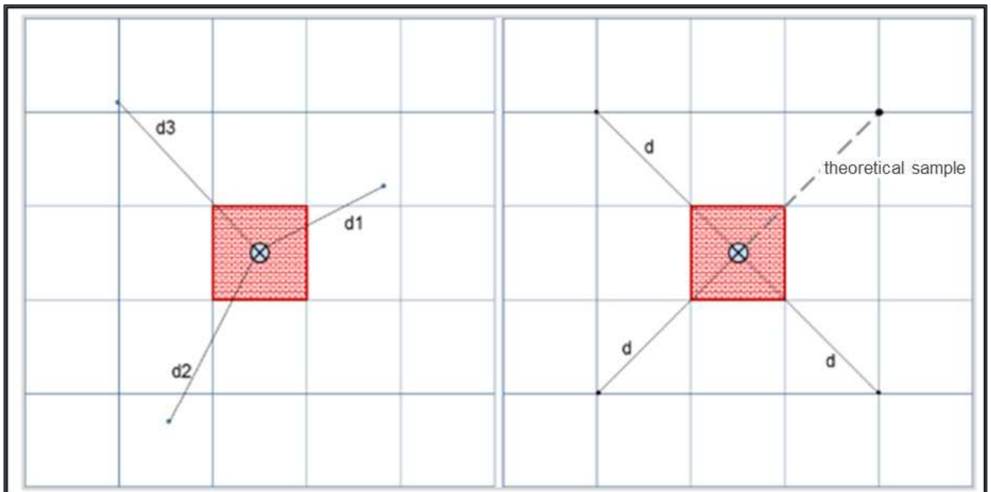


Note: Black line yearly error. Red line quarterly error.

Figure 11.28: Estimation of the Estimation Error

Finally, by intersecting the defined error thresholds and error curves, the theoretical drilling grid size values are obtained and used to define the Mineral Resource categorization of 110 m -130 m for Indicated.

The defined Measured and Indicated drill hole grids were 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 Figure 11.29). Figure 11.30 shows the theoretical grid and Mineral Resource Classification in plan and section view.



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

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

Figure 11.29: Formula for Theoretical Grid Definition

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 Buenavista del Cobre 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-2020 drilling.

Therefore, the Mineral Resource Classification for Buenavista del Cobre is as follows:

- Measured: None.
- Indicated: Blocks estimated using a theoretical grid up to 130 m.
- Inferred: Remaining blocks estimated within the GIL.

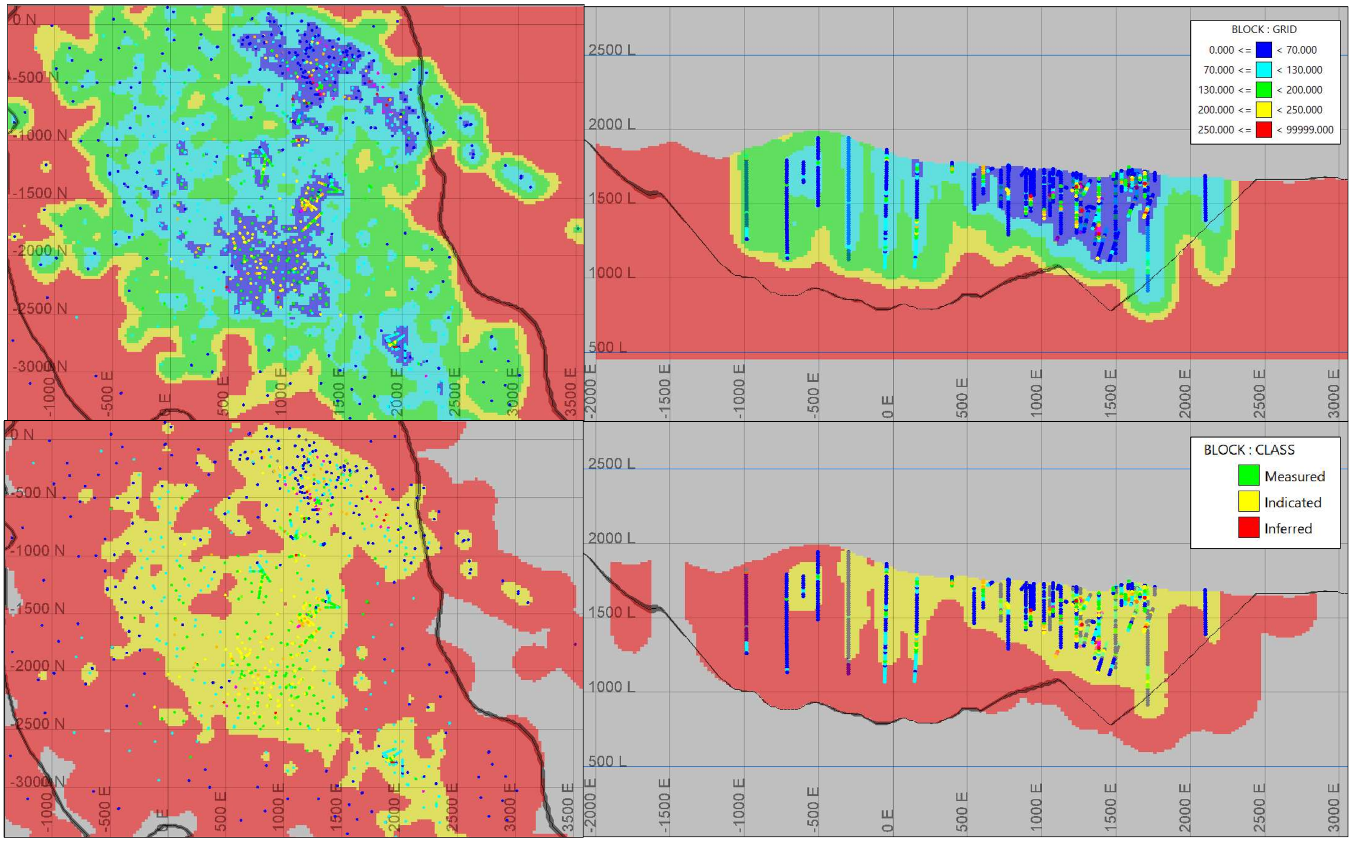


Figure 11.30: Theoretical Grid and Resource Classification in the Buenavista del Cobre Block Model, Plan View - 1,400 m and Section -1,100N

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.

Buenavista del Cobre mine legacy information is suitable for Mineral Resource estimation, but lack of QA/QC, deviation measurement, in the QP's opinion, prevent the classification of Measured Mineral Resources. A 130-m drill spacing defines Indicated Mineral Resources, with remaining blocks estimated within the GIL classified as Inferred.

Further infill drilling might potentially confirm mineralization continuity and upgrade the Mineral Resource categories and quantities. Action plans are in place to address current concerns and will be reviewed as Mineral Resources are reassessed.

Mineral Resources could also be influenced by the estimation methodology, parameters and assumptions used in the grade estimation process such as outlier control or search and estimation strategies. However, the QP's believes that these factors are unlikely to significatively 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.

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

As the Buenavista del Cobre 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. Additional work has been identified, and is being implemented by the site teams, to improve the classification categories of the mineral resources, however, this is not expected to affect the prospect of economic extraction for the Mineral Resources stated in this TRS.

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.

12.0 MINERAL RESERVE ESTIMATES

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

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: Dimensions of the Block Model

Dimension	Minimum	Maximum	Block Size (m)	No. of Blocks
X	-2,500	4,000	25	260
Y	-5,000	1,500	25	260
Z	420	2,100	15	112

Table 12.2: Principal Variables of the Block Model

Variable	Description
Topo%	Topography below projected 31 Dec 2024
Min	Mineralization Zone: 1: Secondary Sulfide, 2: Primary Sulfide, 3: Mixed, 4: Oxide, 5: Soil
Litho	Lithology
Cu	Total copper grade (%)
CuO	Oxide copper grade (%)
CuCN	Soluble copper grade in (%)
Mo	Total molybdenum grade in (%)
Zn	Zinc grade (%)
Fe	Total iron grade (%)
Dens	Density (t/m^3)
Class	Resource classification 2: Indicated, 3: Inferred

12.1.2 Mine Design Criteria

Buenavista del Cobre has a long history of both underground and open pit mining. The current operation has mined through much of the historical underground workings and is now focused on large scale bulk mining. The mine design criteria used was provided by Buenavista del Cobre. Given Buenavista del Cobre’s active operations, no modifications were made to initial three phases that are currently being mined. The rest of phases were redesigned to fit within the economic mining envelope developed for this Study. The final phased designs were then used to produce a production schedule used to support the Mineral Reserves estimate. The production schedule produced may not reflect the actual site LOM plan. Some notable differences from assumptions used in this Study compared to the way operations are currently planning material movements are:

- Buenavista del Cobre assumes no dilution and no mining loss in their long-range mine planning; however, based on historical reconciliation records there appeared to be an approximate 10% difference between the production results to modelled
  - WSP has included dilution and mining loss in this Study and is described in Section 13.3.1.
- This study includes an economic COG assumption, which may vary slightly from site, as described in 12.2.4
- Gold and silver credits were excluded from the Mineral Reserve calculations since the QP for Resources deemed that there was low confidence in the historical data included in the drill hole database to model gold and silver grades.

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

The pit and all mining activities were confined within the Buenavista del Cobre concessions. A 500-m offset was applied to the town limits. The town of Cananea is very close to the property limits and a 500-m offset was applied as a buffer between the mine and the town. Buenavista del Cobre provided the offset which is currently being used by mine planning on site. Additional limits were imposed to prevent encroachment on a cemetery near the mine.

12.2.2 Processing

Processing recoveries are summarized in Section 12.2.4 and Section 14.0. This study assumed a current capacity of approximately 2.46 billion tonnes (Bt), remaining in the New TSF and existing TSF No. 3 (as of December 31, 2024), which provides an estimated capacity of 41 years remaining. The LOM plan assumed an annual production of 74 Mt per year from the Cu concentrators during the initial 11 years till the area around Concentrator I is mined. 43 Mt is mined out annually from that point in time till end of mine life. The LOM plan also assumed 7.3 Mtpy of ore being sent from the Zn plant.

12.2.3 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
- US$1.15/lb zinc

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.

12.2.4 Cut-off Grade Estimate

The COG is the grade that distinguishes ore from waste. This study used an economic COG. For material to be considered as Mineral Reserves, it must be classified as a Measured or Indicated Resource and meet both the technical and economic criteria. Separate value cut-off was only used for each of the leach processes ROM or crushed). If more than one process was profitable, the one with the highest value was selected. The prices listed in the tables below were used to compute distinct profit profiles for each block to each of the possible destinations. Values were calculated based on copper and molybdenum for copper concentrator, copper and zinc for the zinc concentrator, copper for the ROM and crushed leach. Block values were determined by calculating the revenue, processing and mining costs with the final block value given by the following equation.

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

Blocks were routed to the destination with the highest block value with the constraint that block values of economic destinations (mill and leach) should pay for their processing cost. This process assumed that the marginal blocks that could pay for the leach processing cost, but not their mining cost, were routed to leach if the cost of sending the blocks to waste was higher. This was because waste mining cost was higher than the leach mining cost mostly due to higher haulage cost associated with hauling the waste to farther waste dumps.

The four main processes are described below.

12.2.4.1 Leach

Buenavista del Cobre had two leach processes – crushed leach and ROM Leach. Material was considered leachable if it had a solubility index greater than 0.3. In addition, material was considered suitable for crushed leach and ROM Leach if the total copper was greater than 0.075% and 0.1% respectively. Solubility index was defined as the portion of copper which was leachable and calculated as the ratio of sum of CuO and CuCN to the total Cu. The recovery of the material to the different leach destinations was variable and depended on the solubility index of the material. The parameters in Table 12.3 are used to estimate the value of sending the material to a leach pad.

Table 12.3:Leach COG Parameters

Variable	Units	Crushed Leach	ROM Leach
Payable Metals		**Cu**	**Cu**
Selling Price - Cu	US$/lb Cu	3.30	3.30
Processing Cost	US$/t	0.751	0.445
Payability - Cu	%	100.0	100.0
Selling Cost - Cu	US$/lb Cu	0.744	0.744

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

The formula for estimating leach value is shown below.

$$Value_{leach} = Cu\% * Recovery_{Cu} * Payability_{Cu} * \frac{2204.6\ lb}{1\ t} * (\ SellingPrice_{Cu} - SellingCost_{Cu}) - ProcessingCost$$

This value estimation process was incorporated in the resource and reserve modeling to determine destination routing. The operational COG for crushed leach and ROM Leach are 0.075% and 0.1%, respectively.

12.2.4.2 Copper Concentrator

The copper concentrator includes both Concentrator I and Concentrator II. The economic parameters as well as the recoveries were identical, so no differential was needed for economic cut-off. Silver and gold credits were not applied to the economic cut-off for reasons described in 12.1.2.

Material was considered for processing through the copper concentrator if it had a mineral identification group of primary sulfides, secondary sulfides or mixed. The parameters in Table 12.4 are used to calculate the value of sending the material to a copper concentrator. The recovery of copper in the copper concentrate was variable and depended on the feed copper grade to the concentrator. Additionally, blocks with zinc grade greater than 0.1% were restricted from going to the copper concentrator. These were instead routed to the zinc concentrator that allowed removal of zinc from the concentrate followed by a clean copper concentrate removal. The reserves were calculated by modeling the material flow such that the blended zinc value to the copper concentrators were less than 0.1% for each period during the life of mine.

Table 12.4: Copper Concentrator COG Parameters

Variable	Units	Value	
Payable Metals		**Cu**	**Mo**
Selling Price	US$/lb	3.30	10.00
Processing Cost	US$/t	7.22	7.22
Payability	%	96.7	100.0
Selling Cost	US$/lb	0.54	1.84
Credits	US$/lb	0.138	0

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 value formula for the Cu Concentrator is shown below:

$$Value_{CuPlant} = Cu\% * Recovery_{Cu} * Payability_{Cu} * \frac{2204.6\ lb}{1\ t} * (SellingPrice_{Cu} - SellingCost_{Cu}) + Mo\% * Recovery_{Mo} * Payability_{Mo} * \frac{2204.6\ lb}{1\ t} * (SellingPrice_{Mo} - SellingCost_{Mo}) - ProcessingCost$$

To reflect the current Buenavista del Cobre LOM planning directives, WSP raised the cut-off for the mine plan to target a head grade of 0.5% total copper at the start of the plan. This cut-off was gradually lowered to target 0.4% total copper by 2028 and maintained through life of mine as shown in Table 12.5.

Table 12.5: Copper Concentrator Targeted Head Grades by Year

Year	Cu (%)
2025	0.50
2026	0.48
2027	0.43
2028+	0.40

12.2.4.3 Zinc Concentrator

Material was considered for processing through the zinc (Zn) concentrator if it had a mineral identification group of primary sulfides, secondary sulfides or mixed. The parameters in Table 12.6 are used to estimate the value of sending the material to a Zn concentrator which was determined from both zinc and copper streams. Resource blocks with mineral classification Measured or Indicated, having a value greater than zero can be considered for processing. The zinc concentrator was able to process high zinc copper sulfides by removing a zinc concentrate and then using the tails from the zinc concentrate for producing the copper concentrate. To reflect the current Buenavista del Cobre LOM planning directives, WSP raised the cut-off for the mine plan to target a head grade of 1.2% zinc for the first 11 years of the plan.

Table 12.6: Zinc Concentrator COG Parameters

Variable	Units	Value	
Payable Metals		**Cu**	**Zn**
Selling Price	US$/lb	3.30	1.15
Processing Cost	US$/t	10.92	10.92
Payability	%	96.7	85.0
Selling Cost	US$/lb	0.54	0.40
Credits	US$/lb	0.138	0

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

The value formula for the Zn concentrator is shown below.

$$Value_{ZnPlant} = Cu\% * Recovery_{Cu} * Payability_{Cu} * \frac{2204.6\ lb}{1\ t} * (SellingPrice_{Cu} - SellingCost_{Cu}) + Zn\% * Recovery_{Zn} * Payability_{Zn} * \frac{2204.6\ lb}{1\ t} * (SellingPrice_{Zn} - SellingCost_{Zn}) - ProcessingCost$$

12.2.5 Pit Optimization Methodology and Ultimate Pit Selection

A pit optimization analysis using the Lerch-Grossman pit optimization method was carried out using Hexagon Mine Plan software. 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 costs inputs shown previously in Table 12.3 through Table 12.6. Additional optimization parameters are shown in Table 12.7. Mining cost shown in the table represents the load, drill and blast cost. Additional incremental haulage costs were added based on the bench in the block model. Mining loss and mining dilution was not used in the pit optimization process. but was included in the post mine scheduling process.

Property constraints of the town and cemetery was applied to the pit optimization process. Additionally, value based soft constraints for the infrastructure were also added to check if the pit optimization would mine out the infrastructure where required. A hard constraint was imposed to prevent mining out the area under PR2.

Table 12.7: Buenavista del Cobre Pit Optimization Economic Inputs

Variable	Units	Value
Mining Cost	US$/t	0.83
Waste Mining Cost	US$/t	1.50
Fill Mining Cost	US$/t	1.22
Mining Loss	%	2.00
Mining Dilution	%	1.00
Dilution Grade	% Cu	0.00
Discount Rate	%	10.00

Revenue factor (RF) shells were generated in Hexagon MinePlan Economic Planner varying the selling price by increments of 0.05 from 0.1 to 1.0. Each RF shell selects blocks for leach and concentrators that has sufficient value to mine the waste blocks above.

A RF shell of 1.0 was selected as the basis of the ultimate pit design described in Section 12.2.6. This pit shell was similar in size to the existing pit designs and maximizes the tonnage to be mined. The results of the nested pit analysis are shown in Figure 12.1 and the undiscounted cashflows represent that the marginal value over the 0.75 RF pit shell is low. However, the pit optimization was run based on the assumption that no blocks with zinc grade greater than 0.1% can be sent to the copper concentrators. In practice, zinc grade to the copper concentrators is blended to keep it below 0.1% which would allow some higher-grade zinc material to be routed to the copper concentrator. The QP for mineral reserves choose to use the RF 1.0 pit optimization shell and decided to raise the cut-off to send higher grade copper feed to the mill while sending the lower grade materials to leach or waste.

The dashed line, in Figure 12.1 represents the current TSF storage capacity. The facility has an estimated remaining capacity for an additional 42 years of operation (refer to Section 15.7 for details). With this TSF constraint, the LOM production schedule and corresponding Mineral Reserve estimate is limited to approximately 2.4 Bt. The schedule developed as part of this study has a mine life of 41 years with a small spare capacity left in TSF.

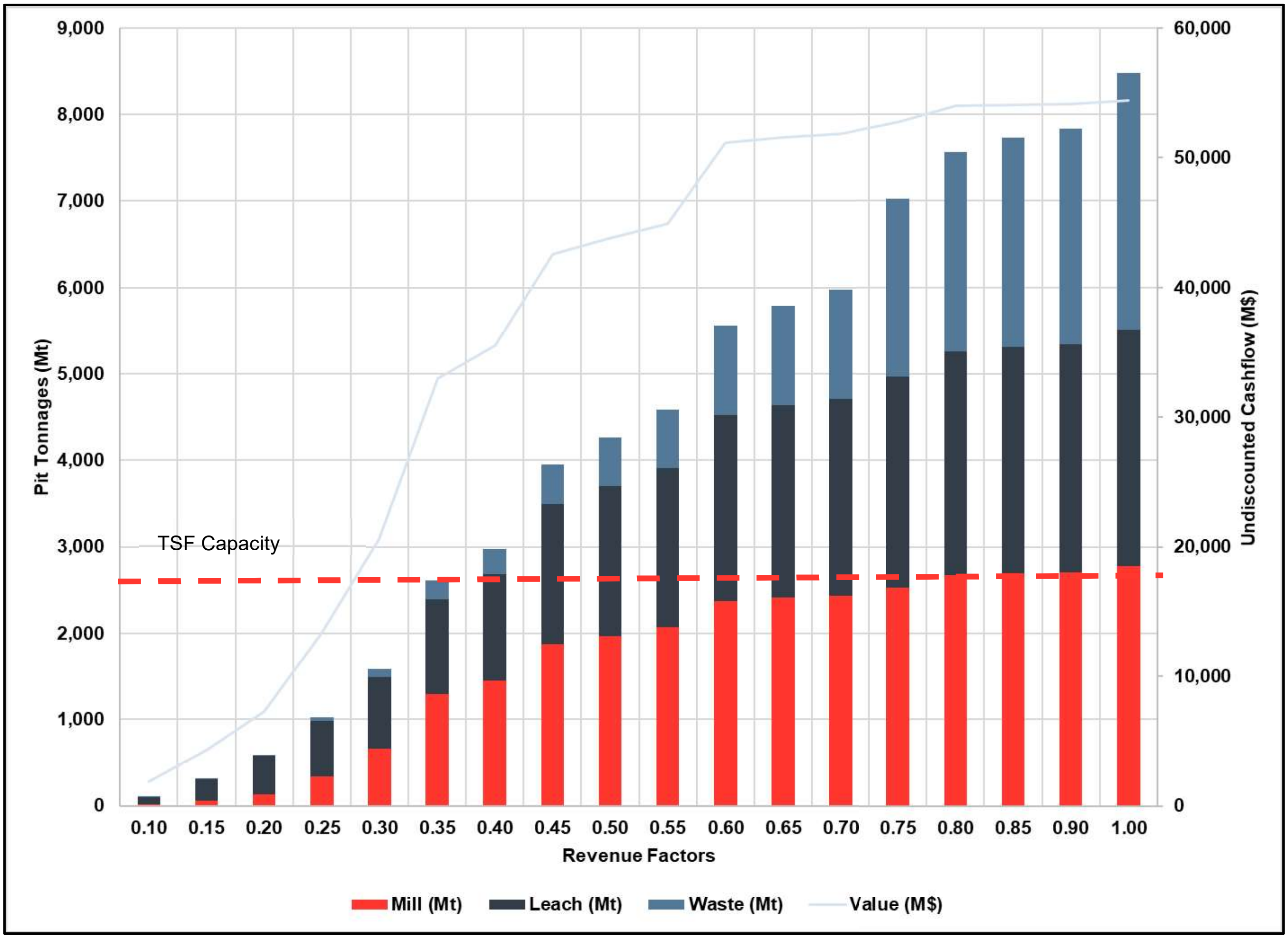


Figure 12.1: Summary of Buenavista del Cobre Nested Pit Analysis

12.2.6 Ultimate Pit Design

The ultimate pit design that forms the basis of the Buenavista del Cobre Mineral Reserve estimate was based on the RF 1.0 selected from the nested pit analysis described in Section 12.2.5. The ultimate pit design considers geotechnical factors that are described in Section 13.2.1. The LOM pit design and extents is shown in Figure 12.2. The figure includes the buffer polygon used to ensure the pit optimization and design are offset from the town of Cananea by 500 m.

The reserve pit design and waste dumps are shown in Figure 12.3. This LOM pit design was redesigned in collaboration with the Buenavista del Cobre mine planners. The pushbacks were designed such that the zinc areas could be delineated and material from the zinc areas could sent to the zinc plant. This also allowed blending of the material from the zinc areas and other phases (especially the western and northern phases) such that the average zinc content to the copper concentrators could be blended to keep it below 0.1%.

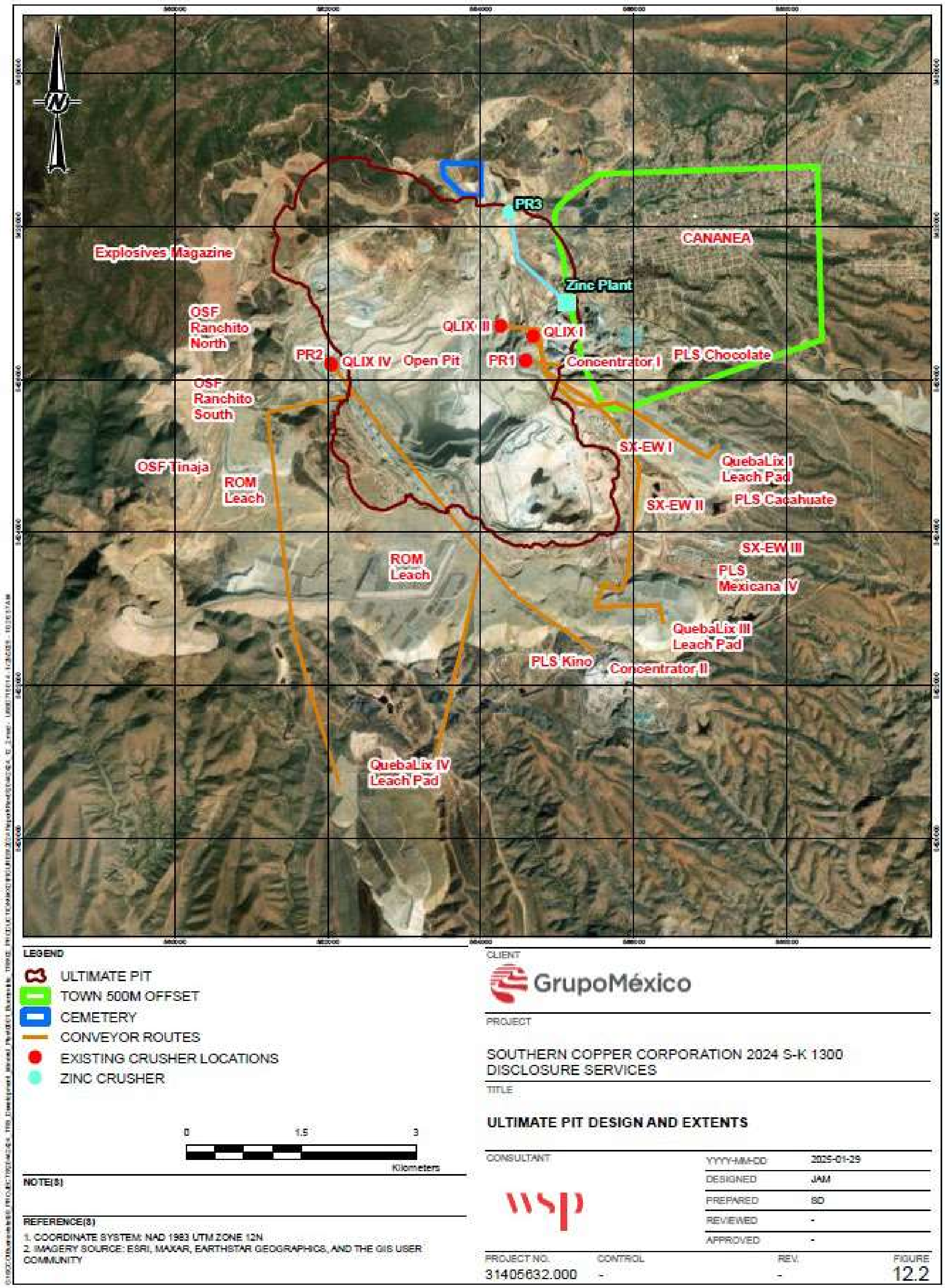


Figure 12.2: Ultimate Pit Design and Extents

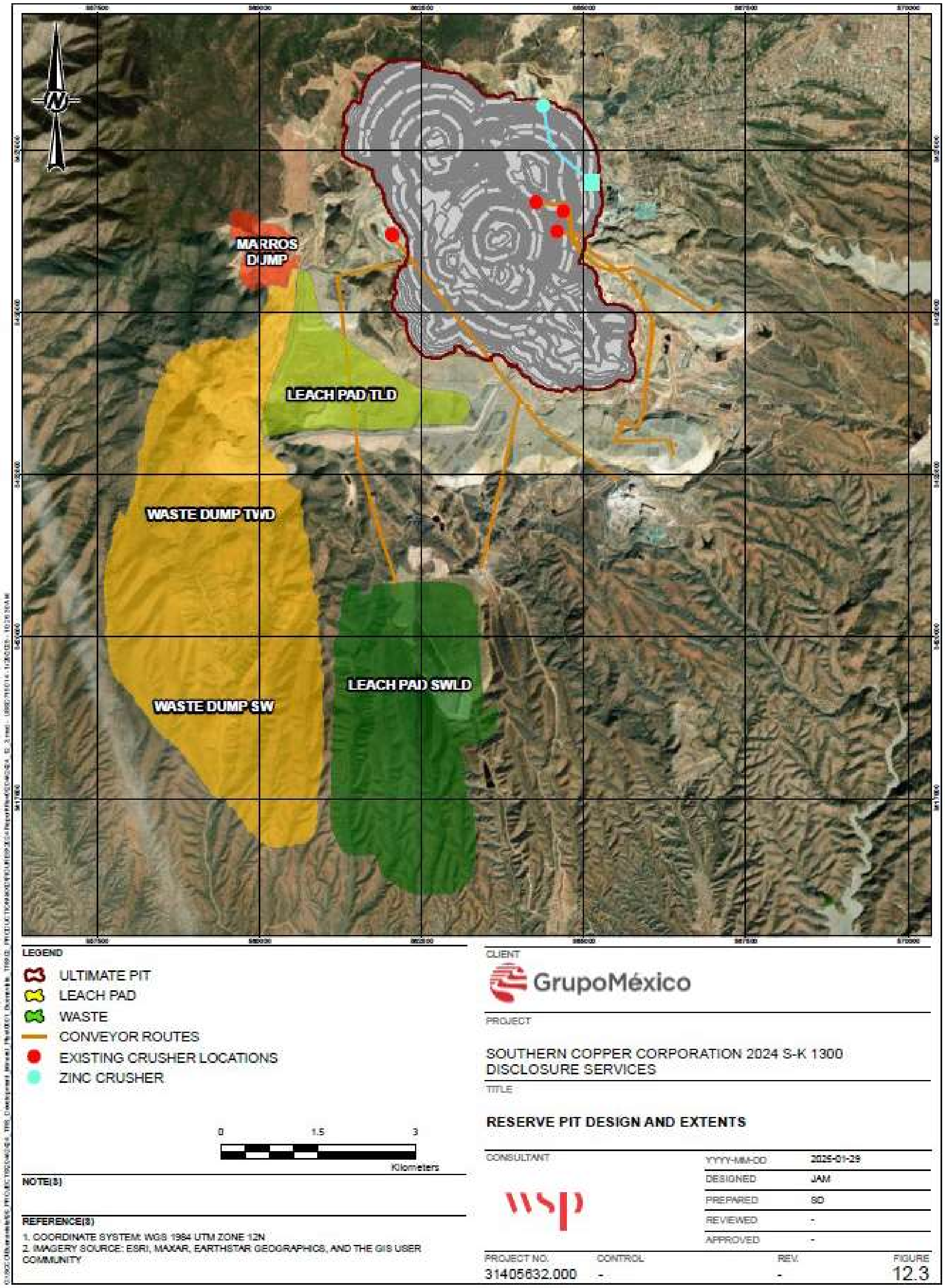


Figure 12.3: Reserve Pit Design and Extents

12.3 Mineral Reserve Classification

This sub-section contains forward-looking information related to the Mineral Reserve 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 Mineral Resource model tonnes, grade, and classification.

For estimating the Mineral Reserves for Buenavista del Cobre 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 property limits and modifying factors discussed above, the recovery factors discussed in Section 12.2.4 and the Economic Assessment discussed in 12.2.5 the Buenavista del Cobre mine contains the economically mineable Mineral Reserves listed in Table 12.8 on a 100% ownership basis. The effective date of the Mineral Reserve estimate is December 31, 2024.

The Mineral Reserves include approximately 2.41 Bt of sulfide ROM ore with a Cu grade of 0.44% total Cu for 10,572 Kt of contained Cu with the point of reference being the concentrators and the zinc plant. An additional 2.1 Bt of Mineral Reserves is estimated as Leachable ROM Ore with the point of reference being delivery to the leach pads. Total material in the designed pit is 8.3 Bt, resulting in a strip ratio of 0.83 (calculated as ratio of waste to ore -mill + leach material).

For this Mineral Reserve estimate, Indicated Mineral Resources inside the ultimate pit were converted to Probable Mineral Reserve. The Mineral Reserves are estimated at a constant copper price of US$3.30 per pound, molybdenum price of US$10.00 per pound and zinc price of US$1.15 per pound. Mineral Reserves are reported effective December 31, 2024.

Table 12.8: Mineral Reserve Estimate (ROM) – 100% Ownership Basis

Classification	Destination (2)	Tonnes (Mt) (4)(5)	Grades			Contained Metal		
			Total Cu (%)	Mo (%)	Zn (%)	Cu (5) (Kt)	Mo (5) (Kt)	Zn (5) (Kt)
Probable	Sulfide ROM Mill Feed - Cu Plant	2,117	0.41	0.009	-	8,774	181	-
	Sulfide ROM Mill Feed - Zn Plant	296	0.61	-	0.58	1,798	-	1,705
	Total Sulfide ROM Mill Feed	**2,413**	**0.44**	**0.009**	**0.58**	**10,572**	**181**	**1,705**
	Cu Leach Ore	1,077	0.24	-	-	2,543	-	-
	Cu ROM Leach	1,041	0.30	-	-	3,076	-	-
	Total Leach	**2,118**	**0.27**	**-**	**-**	**5,620**	**0**	**0**
	Waste	3,768						
	Total Material	8,299						
	Strip Ratio ((W+L)/M) (3)	2.44						
	Strip Ratio ((W)/(L+M)) (3)	0.83						

Notes:
1. Mineral Reserves are reported effective December 31, 2024. The Qualified Person for the estimate is Mr. Mathew Oommen.
2. The reference point for the estimate is delivery to the mill or leach pads.
3. Mineral Reserves are the economic portion of the Mineral Resources selected for leach and/or concentrator recovery processes and includes considerations for modifying factors such as mining loss (2%) and dilution (1%), described in Section 13.3.1.
4. Strip ratio calculated with W = Waste, L = Leach, M = Mill Feed (units are t/t)
5. Mineral recovery was based on historical 3-year averages. The recoveries used were 81% for copper, 70% for Molybdenum, 74% for Zinc, 45% for copper in crushed leach and 52% for copper in ROM Leach
6. Mineral Reserves are reported above a breakeven economic value based on the long-range schedule (Section 13.4), inclusive of processing costs and transport streams. Details of the economic cut-off are provided in Section 12.2.4.
7. Mineral Reserves are based on targeted feed grades of copper and zinc to the copper concentrator and zinc concentrator, respectively. Details of the targeted feed grades which varied over years are given in Section 12.2.4.2 and Section 12.2.4.3
8. Tonnes are reported on a dry basis.
9. Tonnages and contained copper, molybdenum and zinc are reported in metric units. Contained Metal (CM) is calculated as follows: CM = Tonnage (Mt) * Grade (%).
10. Numbers have been rounded to reflect appropriate accuracy and may result in apparent summation difference between tonnes, grade, and contained metal content.
11. Grades and contained metal are not reported if there is no value from the respective processing and transport streams
12. A projected December 31, 2024, topographic surface was used for the estimation of the Mineral Reserves.

The December 31, 2024, Mineral Reserve estimate has increased from the December 31, 2023, estimate due to revised geological interpretation and the modified block model and the revised cut-off grade parameters as discussed in Section 12.2.4.

SCC has a 99.95% ownership in Buenavista del Cobre 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

A major change in strategy for this TRS as compared to previous TRSs is that Concentrator I is being decommissioned in year 2036 and only Concentrator II remains for the remainder of the life of the mine. While preliminary trade-off studies have been completed by SCCO, it is necessary to conduct additional detailed studies to establish more accurate timelines and schedules for all necessary precursor activities required with detailed costs.

As with all mining projects, inflation and currency exchange rates should be evaluated at all times to determine continued risks and impacts to the Project.

The QP is unaware of any mining, metallurgical, 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

The Buenavista del Cobre mine has been in operation for over 50 years. Since this is an established operation, the deposit, mining, metallurgy and processing, and environmental aspects of the mine are very well understood. The geological knowledge for Buenavista del Cobre is based on the collective experience of personnel from 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 from Buenavista del Cobre.

The ore at Buenavista del Cobre is recovered using open-pit conventional truck and shovel bulk mining methods with in-pit crusher conveyor systems due to the proximity of the ore to the surface and the physical characteristics of the deposit. Mining operations mine the deposit in phases to minimize strip ratio in any given year and to maximize the amount of ore being fed to the concentrators. The majority of the ore is hauled to one of the in-pit crushers and conveyed to either Concentrator I or II, or to the leach pads. Likewise, most of the waste is currently hauled to overburden storage facilities (OSF). There are plans when haulage increases to crush and convey more waste to reduce haulage costs. However, crushing and conveying of waste has not been considered as part of this study.

The mining phases are shown in Figure 13.1 while a general layout of the mine and the primary infrastructure is shown in Figure 13.2.

13.1.1 Drill and Blast

Buenavista del Cobre uses a fleet of 14 production drills; all of the drills are large diameter capable of drilling 12 ¼" blast holes. The drills are a combination of CAT 6380 and PIT VIPER 351 drills. Blasting at Buenavista del Cobre is conducted with ANFO and emulsion depending on the condition of the patterns. For instance, overburden blasts are typically conducted with ANFO while patterns in areas of the pit effected by water are completed with emulsion.

13.1.2 Waste Removal and Storage

Waste is hauled to one of the three ex-pit OSFs, located mainly to the west of the mine and outside the crushed leach facilities on the west side of the mine. The waste OSFs are Tinaja Dump, Southwest Dump and Marros Dump. Overburden material is primarily loaded by 16 electric rope shovels loading 360-t haul trucks. The existing truck fleet is a mix of units capable of hauling 210-t to 360-t of various manufacturers, and vintage. Buenavista del Cobre plans to replace units with high operating hours with 360-t units so eventually there will be a common fleet. Dozers assist the loading fleet with general clean-up and material removal, as necessary. Overburden material is hauled to one of the ex-pit OSFs and dozers are used to push overburden down the sides of the OSFs on an as-needed basis. Eventually, the OSFs in the west will extend to the south and plans are to utilize existing crusher QLIX IV to be able to transport both crushed waste and crushed leach ore.

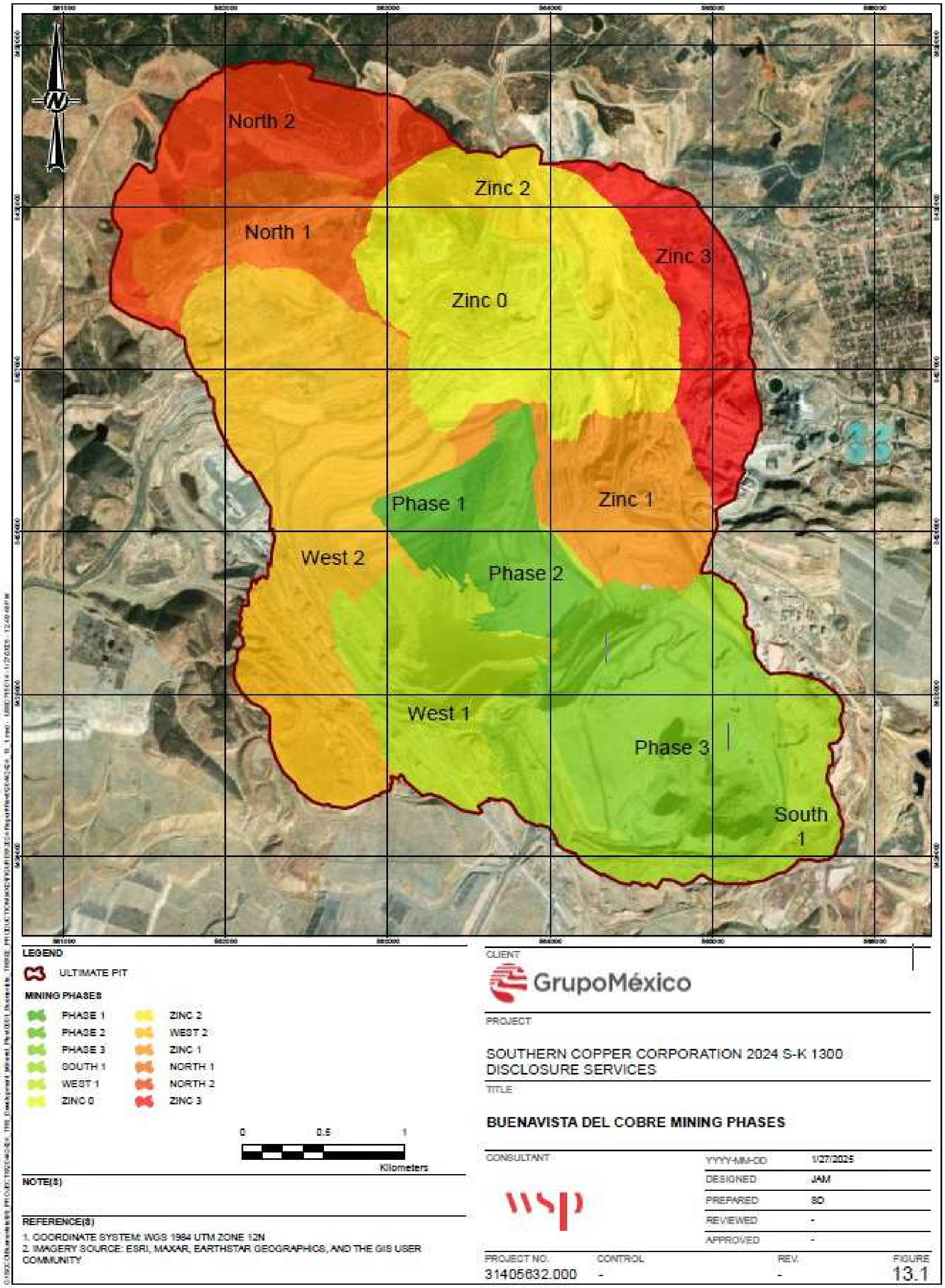


Figure 13.1: Buenavista del Cobre Mining Phases

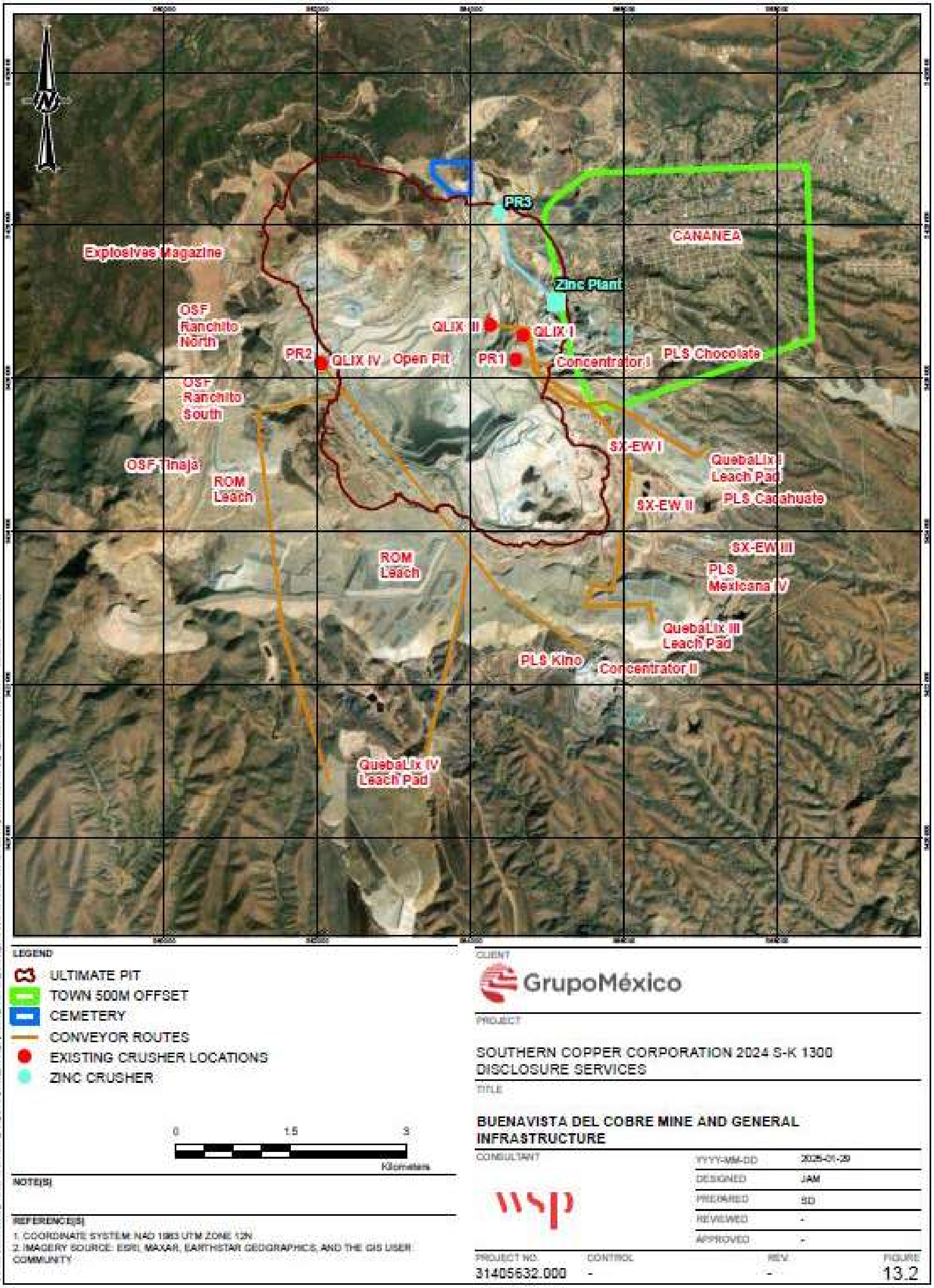


Figure 13.2: Buenavista del Cobre Mine and General Infrastructure

13.1.3 Ore Removal and Transport

Ore for the mill is transported to one of two primary crushers (PR1 and PR2) while ore meant for the crushed ore leach pads is transported to leach ore crusher QLIX IV. ROM leach ore is transported by truck to ROM leach pads (see Figure 13.1). Additional details on the crushers and leach pads can be found in Section 14.0. Ore from a zinc-rich area within the mine limit will be crushed in PR3 and then conveyed to zinc plant. PR1 and PR3 are expected to be mined out in Year 12 following which PR1 will be decommissioned. A new primary crusher PR5 will be constructed at the northeast part of the deposit to receive zinc ore.

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

Pit slope designs for Buenavista del Cobre are presented in a report prepared by SRK:

- SRK Consulting (U.S.), Inc., 2022. Geotechnical Assessment Report Buenavista del Cobre. Report prepared for Grupo México S.A.B. de C.V, Buenavista del Cobre, S.A. de C.V.

The report references a previous pit slope design prepared by Call and Nicholas, Inc. (CNI). However, the SRK pit slope design supersedes the earlier CNI design, which is described in the following reports:

- Call and Nicholas, Inc., 2004. Geotechnical Evaluation for the Cananea 15-Year Pit Slope Design. Report prepared for Mexicana De Cananea, S.A. De C.V., dated June 2004.
- Call and Nicholas, Inc., 2012. Pit Slope Design Study for the Buenavista Zinc Project. Report prepared for Minera México dated 19 December 2012.

The pit slope design is based on a 15 m bench height. The design bench width is based on a combination of catchment criteria, including containment of the maximum estimated bench failure volume plus a 20% to 30% safety factor and 2.5 m of backbreak, presumably to account for operational practices such as crest scaling.

SRK prepared two tables detailing design acceptance criteria for inter-ramp and overall slope stability as Figure 13.3 for intermediate stage pit walls, and Figure 13.4 for final pit walls. The tables are identical except that the factor of safety for low reliability geotechnical models is increased from 1.3 for intermediate pit walls to 1.35 for final pit walls. The practical application of these tables is limited, however, since it is unlikely that factors of safety for overall stability can be estimated to the level of precision required to detect such a small increase in factor of safety. In addition, the reliability of geotechnical models is typically higher by the time operations have developed toward final pit wall configurations.

In general, the slope design recommendations provided by SRK for the Buenavista Copper pit are a reasonable basis for the PFS-level pit design for the geotechnical units represented within the corresponding design sectors.

The level of site geotechnical investigation and laboratory testing are appropriate to support feasibility-level slope designs. Detailed discussion of the investigation and laboratory testing is included in Section 7.4.

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. A well-documented program should be implemented to increase the confidence in the geotechnical model to an appropriate level of reliability such that the model is available to support pit wall development at the operational phase of the project.

Consequences		Reliability: Low	Reliability: Medium	Reliability: High
Consequences	High	FoS >1.3 PoF <5%	FoS >1.25 PoF <10%	FoS > 1.20 PoF <10%
	Medium	FoS >1.3 PoF 5% - 10%	FoS >1.25 PoF 10%- 20%	FoS > 1.20 PoF 10%- 15%
	Low	FoS >1.3 PoF 10%- 20%	FoS >1.25 PoF 15%- 20%	FoS > 1.20 PoF 15%- 20%

Source: SRK, 2022

Figure 13.3: Design Acceptance Criteria, Intermediate Pit Walls

Consequences				
	High	FoS >1.35 PoF <5%	FoS >1.25 PoF <10%	FoS > 1.20 PoF <10%
	Medium	FoS >1.35 PoF 5%-10%	FoS >1.25 PoF 10%-15%	FoS > 1.20 PoF 10%-15%
	Low	FoS >1.35 PoF 10%-15%	FoS >1.25 PoF 15%-20%	FoS > 1.20 PoF 15%-20%
		Low	Medium	High
		Reliability		

Source: SRK, 2022

Figure 13.4: Design Acceptance Criteria, Final Pit Walls

13.2.1.1 Pit Slope Stability Analysis

SRK evaluated structural stability of benches by analyzing structural data on orientation, length, spacing, and shear strength of fractures using the proprietary software package SBlock, which is based on block theory. While these proprietary methods can not be independently checked in detail, the results are reasonable based on the data presented and our experience.

SRK evaluated the inter-ramp and overall slope stability for Buenavista Copper using the 2D limit equilibrium software package Slide2 Modeler developed by Rocscience, Inc. Overall and inter-ramp stability was evaluated at nine cross section locations. A minimum factor of safety of 1.3 was used as the design criterion, which is within the range of acceptance typically used in the mining industry (Read and Stacey 2009). The probability of failure is also presented for each analysis; however, the material parameters and/or material boundaries that were varied to perform the Monte Carlo simulations is not well described and could not be independently checked.

The slope stability models incorporated rock mass shear strength using the Hoek-Brown shear strength criterion adjusted by average computed Geological Strength Index (GSI) values obtained from statistical evaluation of the core data, a lower quartile estimate of compressive strength, and damage factor (D) that was adjusted based on normal stress range between 0.7 and 0, which assumes good quality blasting practices. Anisotropic shear strength functions, (used with non-circular failure surface searches in Slide2), were developed to account for the influence of rock fabric where structural domains indicated that discontinuities would reduce rock mass strength preferentially in the direction perpendicular to the pit wall. Groundwater pressure was modeled using a water table, which may be unconservative considering the indications of compartmentalization of the water table that appears to occur at fault boundaries. However, the assumption of water table is adequate for pre-feasibility level analysis where a detailed 2D groundwater models are not available. Pseudostatic analyses were completed to evaluate the effect of seismic loading on the pit walls for earthquake return periods of 50 years, 100 years, and 475 years.

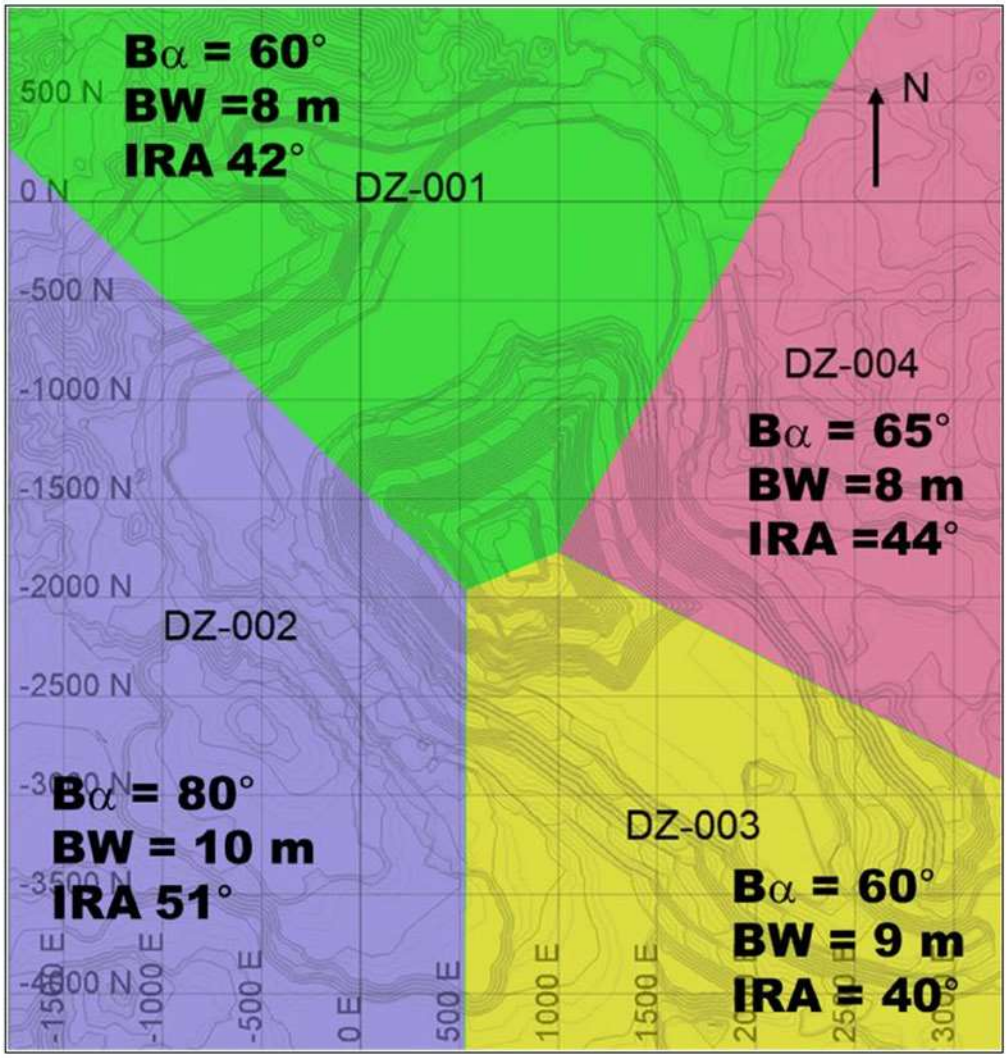
All cross sections exceeded the design criteria for factor of safety for overall stability. Inter-ramp slope stability design was adjusted in Cross Sections BVC-007, BVC-008, and BVC-009 to achieve the design criteria for these failure modes.

13.2.1.2 Pit Slope Design Recommendations

The slope design for Buenavista Copper is provided for four design zones. The slope design recommendations for each zone are summarized in Table 13.1 and are shown in plan on Figure 13.5.

Table 13.1: SRK Slope Design Recommendations for Buenavista Copper

Design Zone	Bench Face Angle (°)	Bench Width (m)	Bench Height (m)	Inter-Ramp Angle (°)
DZ-001	60	8	15	42
DZ-002	80	10	15	50
DZ-003	60	9	15	40
DZ-004	65	8	15	45



Source: SRK, 2022

Figure 13.5: Inter-ramp Slope Angle Distributions

13.2.1.3 Recommendations for Additional Geotechnical Work

Use of SRK inter-ramp and overall slope angles is recommended for highwalls located within the limits of shown on Figure 13.5.

Additional geotechnical characterization will be required for the pit slopes prior to the development of the final pit walls. Read & Stacey (2009) describe the geotechnical model as a composition of geological, structural, geomechanical and hydrogeological component sub-models. The recommended level of development for each sub-model is described in Table 13.2.

Table 13.2: Levels of Geotechnical Effort for Sub-Models at Prefeasibility Stage

Geotechnical Sub-Model		Pre-feasibility Stage Status
Geological		Mine scale outcrop mapping and core logging, geological database established, initial 3D geological model
Structural	Major Features	Mine scale outcrop mapping, targeted oriented drilling, initial structural model
	Fabric	Mine scale outcrop mapping, targeted oriented drilling, databased established, initial stereographic assessment, initial structural domains established
Geomechanical	Intact Rock	Index and laboratory testing on samples selected from targeted mine scale drilling, database established, initial assessment of lithological domains
	Structural Defects	Laboratory direct shear tests of saw cut and defect samples selected from target mine scale drillholes and outcrops, database established, assessment of defect strength within initial structural domains.
Hydrogeological		Mine scale airlift, pumping and packer testing to establish initial hydrogeological parameters, initial hydrogeological database and model established.
Geotechnical Characterization		Assessment and compilation of initial mine scale geotechnical data, preparation of initial geotechnical database and 3D model.

A summary of recommendations for additional work that would develop pit slope design to the feasibility level is provided below:

- Continue development of major structural model though mapping of existing pit slopes, particularly identifying orientations that have adversely impacted stability. Structural data should also be collected through analysis of LiDAR scan data in areas that cannot be readily mapped. Oriented core drilling in targeted geotechnical drill holes to improve confidence in rock fabric data behind the ultimate pit wall limits.
- Targeted airlift and recovery testing and packer testing in primary lithological units in the geological model, installation of piezometers in select areas of the proposed pit.
- Targeted geotechnical drilling and sampling of pit walls to improve confidence in RQD measurements and to provide geotechnical laboratory test data that will improve confidence in rock mass rating assessments.
- Preparation of regular reports from radar monitoring of existing slopes.

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 Buenavista del Cobre follows the typical standards for open pit mining. The processes include:

1) Application of dilution and recovery factors
2) Development of a value for each of the blocks in the model
3) Perform pit optimization and select optimal pit shell to be used for the basis of the ultimate pit design
4) Ultimate pit design
5) Develop phase designs
6) Develop mine planning targets and constraints

The unconstrained theoretical ultimate pit shell derived from the pit optimization process was modified to incorporate more detailed design specifications to transform the pit shell into a practical open pit mine design. The resulting pit design was referred to as the operational pit. The operational pit was also limited by the following constraints:

1) Mining restrictions, including legal, TSF capacity, and environmental impacts.
2) Overall slope angle.
3) Operational design characteristics, including ramp locations and grades, dump locations, mining width and height, and other practical mining considerations, given the mine geometry.

The mine design criteria are listed below:

- Bulk open pit truck and shovel mining with in-pit crushing conveying
- Minimum operating bench width of 65 m
- Haul road design width of 65 m (assumes blasted ramp, running surface width 30 m – 40 m)
- Bench height of 15 m (double benching, 30 m total bench height)
- Maximum road grade of 8%
- Bench face angle of 65°
- Typical blasting bench height 15 m
- Average specific gravity of 2.6
- Berm width and slope angle varies based on geotechnical sector

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.

For this Study, a dilution factor of 1% and a 2% mining loss was assumed to account for some bulk mining and well-defined ore waste contacts. Dilution was assumed to have a 0% grade for all metals. WSP recommends a reconciliation process with the updated block model and these assumptions may need to be revisited.

13.3.2 Mining Strategy and Production Rates

The mine plan targets 74 Mtpa of combined ore to Concentrator I and II. PR1 and Concentrator I are decommissioned in 2036 due to start of mining at Zinc1 phase thus reducing the capacity to 43 Mtpa thereafter. In addition, the zinc concentrator will receive 7.3 Mtpa for the life of mine. The zinc plant acts as a primary zinc plant till 2035. Post 2035, the zinc plant acts as a copper cleaner plant allowing the material with high zinc to be processed in the zinc plant. This allows the copper concentrator circuit to process copper with a blended zinc grade less than 0.1% reducing the possible penalties of selling a zinc rich copper concentrate to the smelter. The mining strategy differed from the previous TRS due to the usage of cut-off grade optimization and grade blending in the scheduling process as well as the decommissioning of Concentrator I in 2036. This allowed for higher grades to be sent to the crushers during the initial periods and exposing ore for the later periods. Additionally, some phases were started later to allow blending with a different phase. This allowed blending of material for copper concentrators as well as a balance in truck usage.

Material that is not sent to the concentrators is sent to either the leach pads (if material is leachable and economically viable) or to the waste dump. The total annual tonnage of material mined is limited to 340 Mtpa.

13.3.3 Expected Mine Life

The LOM is limited to 41 years based on the schedule which is within the remaining capacity of the existing TSF No. 3 and the New TSF.

13.4 Design Phases

Phase design was done by the WSP in collaboration with the SCC site team. The strategy for the phase design was to be able to blend the materials such that a blended copper concentrate with zinc grade less than 0.1% can be sent to the copper concentrators. Also, the phases delineated the zinc rich phases such that the very high grade material from the zinc phases which could not be blended could be transported to the primary crushers for processing at the zinc plant.

This above strategy led to the development of one south phase, two phases on the western side, two phases on the norther side and four zinc phases on the eastern side. These phases were mined at various rates with the goal of blending the material as well as achieving higher grades to the copper concentrators.

Figure 13.1 shows the location of the various phases in the Buenavista del Cobre deposit.

13.5 Production Schedule

The production schedule was a blended schedule that with the strategy of maximizing the ore to the copper and zinc concentrators while performing cut off grade optimization by raising the mill feed grade The goal was to also simultaneously send a copper blend with average zinc grade below 0.1% to the copper concentrator. The targets were 74 MT of total ore to the two concentrators till Concentrator I was mined out in Year 12. This reduced the overall copper ore feed to 43 Mt (Concentrator II) for the rest of the mine life. The Zinc Concentrator could process 7.3 Mt for the life of mine.

The strategy also included sending a higher grade of 0.5% Cu to the copper mills with a declining grade profile till 0.4% for the first 5 years. The overall grade was targeted at 0.4% to the copper concentrators for the life of mine. Similarly, a zinc grade of 1.2% was targeted for the zinc plant for the first 11 years following which the zinc plant was transformed into a copper cleaner plant which could float out the higher zinc grades as a zinc concentrate allowing for a cleaner copper concentrate. Mining was limited to 8-10 vertical benches per year with a maximum of 2 open benches per phase. The total material movement that the mine could move was 365 Mt per year.

BVC production schedule is contingent on the following major infrastructure moves which allow access to the different phases at different times in the mine schedule. These include:

1. Demolition of PR1 and PR3: PR1 and PR3 are demolished in Year 12 to allow access to the Zinc 1 phase.

2. Installation of PR5: PR5 is installed at the north-east part of the pit to replace PR3. Post decommissioning of PR3, PR5 supplies ore with high grade zinc to the Zinc plant. PR5 needs to be commissioned before the start of Year 12. This would allow for a continuous feed to the Zinc plant.

3. Moving the west belt: The west belt is moved towards west by Year 14. This allows access to the West 2 phase underneath.

4. Demolition of Concentrator 1 and Zinc Plant: The Concentrator 1 and Zinc Plant are demolished by Year 18 to allow access to the Zinc 3 phase.

5. Installation of new Zinc Plant: A new zinc plant is established close to the PR5 primary crusher by Year 18 that takes in the ore with higher grade zinc. This installation needs to be matched up with the decommissioning of the old zinc plant to allow for continuous processing of the zinc ore.

The production schedule presumes that all requisite environmental and other ancillary permits related to the aforementioned infrastructure relocations, demolitions and installations will be secured and ready for execution.

Haulage profiles were generated for each phase and integrated with the surface haul roads to each destination. Haul profiles were evaluated for each block to the specific destinations of mill, ROM leach, crushed leach, or OSF. Speed curves for loaded and empty trucks were used to estimate the cycle times from each mined block to every possible destination block. 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.

The LOM plan production statistics, including ore tonnes, waste tonnes, copper production, and ore quality, is shown in Table 13.3 with waste and ore tonnage shown graphically in Figure 13.6.

Table 13.3: LOM Plan Production Statistics (Ore and Grade)

Year	Concentrator				Zn Mill			ROM Leach		Crushed Leach		Waste	Total	Contained Metal		
	Tonnes (Mt)	Cu (%)	Mo (%)	Zn (%)	Tonnes (Mt)	Cu (%)	Zn (%)	Tonnes (Mt)	Cu (%)	Tonnes (Mt)	Cu (%)	Tonnes (Mt)	Tonnes (Mt)	Copper (Kt)	Mo (Kt)	Zn (Kt)
2025	74	0.50	0.012	0.10	7	0.34	1.47	87	0.30	8	0.18	128	305	665	9	106
2026	74	0.49	0.012	0.06	7	0.37	1.20	83	0.26	4	0.14	133	302	612	9	87
2027	74	0.43	0.005	0.10	7	0.27	1.24	108	0.23	46	0.16	73	308	662	4	89
2028	74	0.41	0.005	0.10	7	0.53	1.29	103	0.26	47	0.18	117	347	690	4	93
2029	74	0.40	0.006	0.10	7	0.36	1.09	108	0.19	11	0.15	147	347	539	4	79
2030	74	0.49	0.008	0.05	7	0.47	1.09	93	0.22	5	0.23	130	309	620	6	78
2031	74	0.41	0.009	0.07	7	0.52	1.19	57	0.28	19	0.24	123	280	547	6	86
2032	74	0.41	0.009	0.10	7	0.75	1.29	94	0.37	0	0.15	82	258	707	7	93
2033	74	0.41	0.010	0.10	7	0.73	1.29	48	0.41	1	0.43	92	223	557	8	93
2034	74	0.41	0.010	0.10	7	0.88	1.19	68	0.45	0	0.00	67	217	672	8	86
2035	74	0.41	0.009	0.10	7	0.75	1.19	79	0.42	0	0.51	49	210	690	7	86
2036	43	0.41	0.016	0.08	7	0.44	0.38	18	0.36	36	0.18	117	221	338	7	26
2037	43	0.41	0.018	0.05	7	0.41	0.32	9	0.16	0	0.00	123	183	221	8	23
2038	43	0.40	0.008	0.07	7	0.26	0.12	25	0.24	54	0.17	83	212	342	3	9
2039	43	0.41	0.009	0.04	7	0.54	0.08	35	0.25	3	0.12	103	192	309	4	6
2040	43	0.40	0.008	0.08	7	0.24	0.08	4	0.35	53	0.17	123	230	290	3	6
2041	43	0.41	0.010	0.10	7	0.69	0.04	8	0.28	1	0.18	110	169	249	4	3
2042	43	0.41	0.010	0.10	7	0.78	0.04	8	0.32	15	0.19	119	192	286	4	3
2043	43	0.41	0.009	0.10	7	0.81	0.06	4	0.56	50	0.21	127	232	362	4	5
2044	43	0.41	0.010	0.10	7	0.84	0.05			54	0.25	100	205	372	4	4
2045	43	0.41	0.010	0.06	7	0.81	0.06			54	0.24	93	198	363	4	5
2046	43	0.41	0.009	0.06	7	0.86	0.05			54	0.24	80	185	370	4	3
2047	43	0.41	0.010	0.07	7	0.80	0.08			54	0.24	76	181	363	4	5
2048	43	0.40	0.010	0.10	7	0.23	0.39			14	0.18	104	168	214	4	28
2049	43	0.40	0.005	0.10	7	0.15	0.12			8	0.14	99	157	193	2	9
2050	43	0.41	0.007	0.06	7	0.75	0.21			25	0.20	95	171	280	3	15
2051	43	0.41	0.011	0.10	7	0.31	0.86			54	0.21	103	208	312	5	62
2052	43	0.40	0.006	0.10	7	0.22	0.78			13	0.18	92	156	213	3	56
2053	43	0.41	0.010	0.10	7	0.29	0.48			48	0.20	93	192	292	4	35
2054	43	0.40	0.007	0.10	7	0.21	0.46			22	0.18	94	167	230	3	33
2055	43	0.41	0.003	0.10	7	0.71	0.96			42	0.31	56	148	357	1	70
2056	43	0.41	0.006	0.10	7	0.92	0.56			33	0.43	46	130	386	2	40
2057	43	0.41	0.003	0.10	7	1.28	0.45			34	0.42	45	130	414	1	33
2058	43	0.41	0.004	0.10	7	1.34	0.69			26	0.29	57	133	347	2	50
2059	43	0.41	0.004	0.10	7	1.19	0.72			21	0.28	71	142	321	2	52
2060	43	0.41	0.007	0.10	7	0.88	0.24			26	0.31	77	153	318	3	17
2061	43	0.41	0.007	0.09	7	0.82	0.03			21	0.42	63	134	325	3	2
2062	43	0.41	0.009	0.07	7	0.56	0.30			53	0.27	83	186	359	4	22
2063	43	0.41	0.008	0.06	7	0.56	0.53			34	0.25	80	165	302	4	38
2064	43	0.41	0.010	0.05	7	0.61	0.28			22	0.22	60	133	268	4	20
2065	43	0.41	0.010	0.06	7	0.45	0.66			15	0.18	56	122	235	4	48
Total	**2,117**	**0.41**	**0.009**	**0.08**	**296**	**0.61**	**0.58**	**1,041**	**0.30**	**1,077**	**0.24**	**3,768**	**8,299**	**16,192**	**181**	**1,705**

Note: Grades are not reported if there is no value from the respective processing and transport streams.

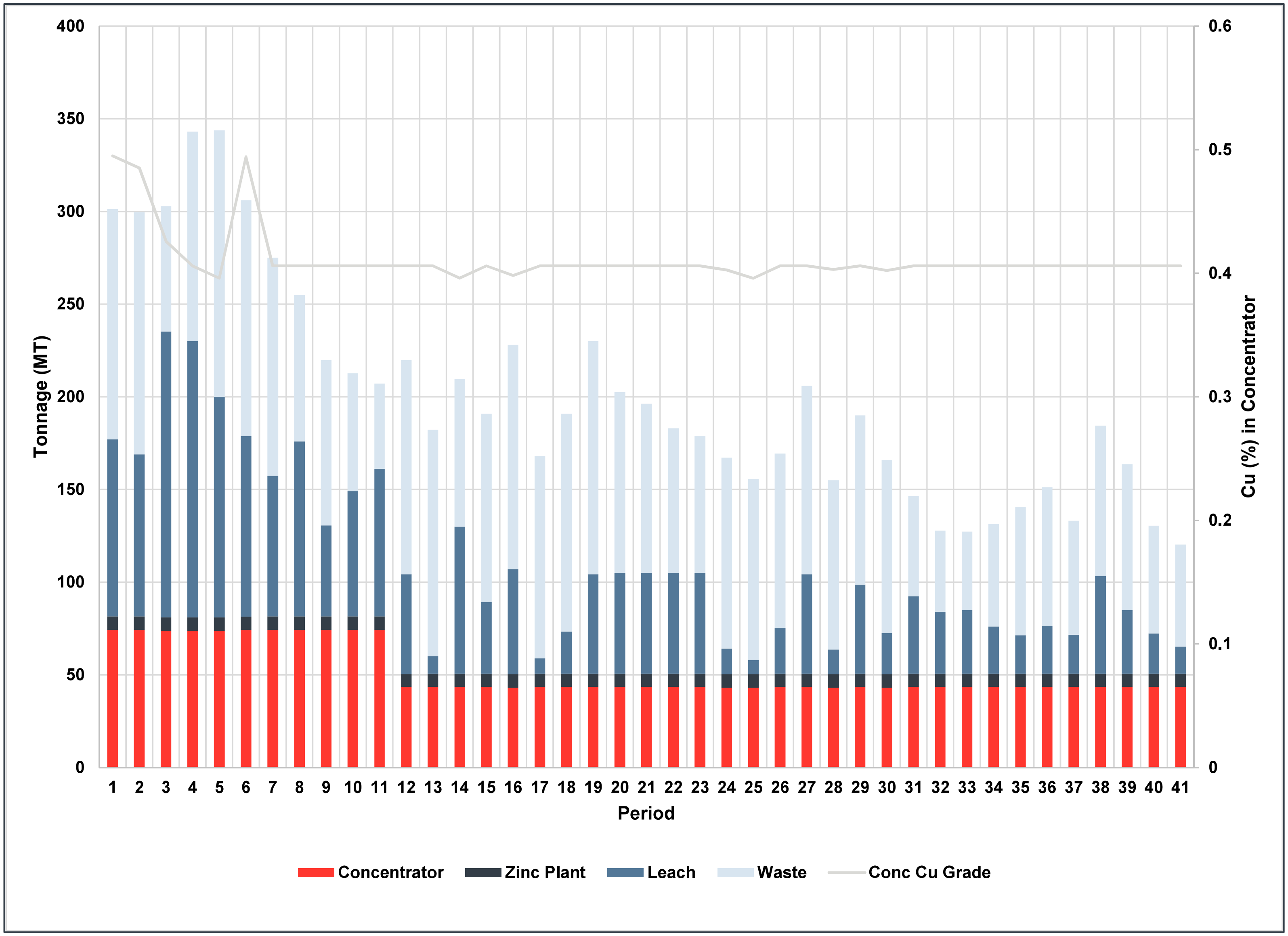


Figure 13.6: LOM Plan Ore and Waste Quantities

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 and Komatsu 980-E with a capacity of 360 t; additional trucks include the Komatsu 830E (210 t), the Komatsu 930E (275 t), and the Komatsu 960E (327 t). The shovels used at the site are mainly electric rope shovels, ranging from the P&H 2800 XPA with a 28 m^3 capacity up to the P&H 4100 XPC with a 57 m^3 capacity.

The excavator fleet size averages 10 units during the LOM decreasing along with the tonnage mined. About 15 equivalent shovels are required in Year 1 decreasing to 8 in 2045 and onward. During the early years, old electric rope shovels P&H 2800 and Bucyrus-Erie 495 BI will be decommissioned and substituted by P&H 4100. Figure 13.7 shows the truck units used by year. The haul truck fleet size averages 143 units over the LOM. The support equipment fleet includes front end loaders, production drills, track and wheel dozers, motor graders, cable trucks, and water trucks.

Historical loading times and delays by equipment fleets are tracked and used to estimate loading productivity. The maximum hourly equipment productivity is estimated by dividing the truck capacity by the cycle time. The capacity is multiplied by the utilization factor and the availability factor to get an effective hourly productivity to yield the minimum required fleet size.

The mining schedule is assumed to be 24-hours-per-day, 365-days-peryear. The current fleet consists of:

- 16 Shovels – P&H (2800 XPA, 2800 XPB, 4100 XPA, 4100 XPC) and Bucyrus 495
- 9 Front End Loaders – Komatsu (WA-1200, WA-900, WA-450) and CAT 924-G
- 115 Trucks – Komatsu (830-E, 930-E, 960-E, 980-E), CAT 797-F, Unit Rig MT-4400
- 14 Electric Drills – BE 49R III, BE 49 HR, Pit Viper 351 and CAT MD6380
- Auxiliary support equipment includes:
  - Track Dozers
  - Motor graders
  - Wheel dozers
  - Cable reels
  - Water Trucks

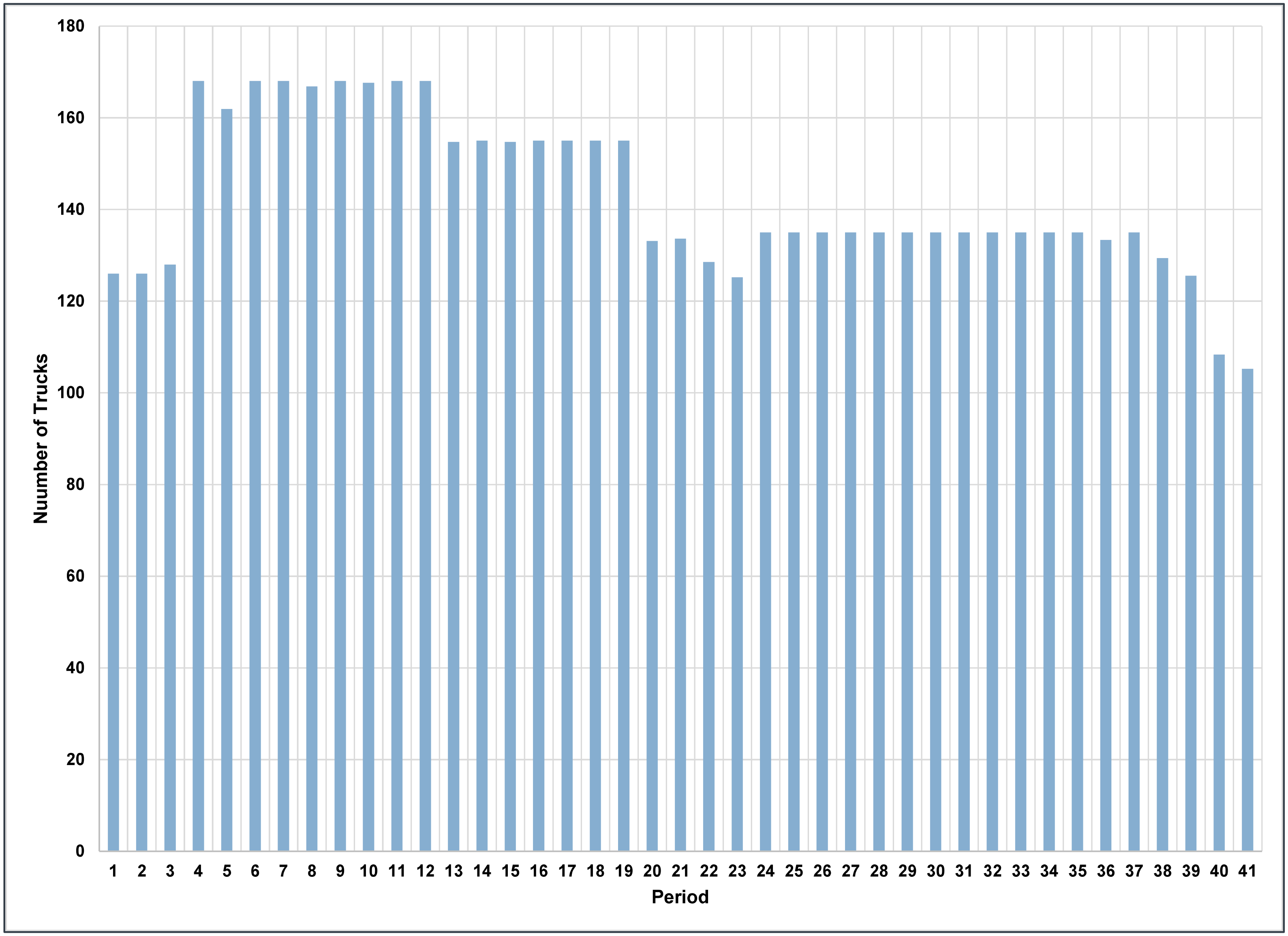


Figure 13.7: Truck Units by Year

13.6.2 Personnel

The mining department includes geology, dispatch, engineering, drilling and blasting, and general mining operations. It consists of approximately 620 employees conducting various mining unit operations and 450 mining maintenance employees including mechanics and electricians.

The Concentrator I and Concentrator II departments include divisions for wet processing and dry processing and also include unit operations such as pumping, molybdenum processing, flotation, filtering, and inventory. The department employs approximately 275 operators and 345 maintenance employees.

Additional departments include SX-EW, hydrometallurgy, and traffic. The general administrative structure includes a superintendent for each department, a department head, and multiple front-line supervisors. The total of 2,660 employees in 2024 is shown in Table 13.4.

Table 13.4: Total Employees by Department (2024)

Total Work Force 2024	
Operations	
Mining Operations	620
SXEW	130
Hydrometallurgy	80
Concentrator 1	135
Concentrator 2	140
Traffic	15
Subtotal	**1,120**
Maintenance	
Mine Maintenance	450
Concentrator 1	170
Concentrator 2	175
SXEW	100
Hydrometallurgy	75
Subtotal	**970**
Administrative	
Operations	
Maintenance	570
G&A	
TOTAL	**2,660**

14.0 PROCESSING AND RECOVERY METHODS

14.1 Buenavista Copper

This sub-section contains forward-looking information related to the copper and zinc concentrators, leaching and solvent extraction throughputs and designs, 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 ore 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 metallurgical recovery factors.

14.1.1 BVC Copper Concentrators

14.1.1.1 BVC General Process Description and Flow Diagrams

Figure 14.1 shows an overall view of the BVC processing facilities locations. The BVC facilities include:

- One open pit
- Two beneficiation plants: Concentrators I and II.
- Three Solvent Extraction and Electrowinning plants (SX-EW – I to III).
- Leaching: Three ROM leach areas and four crushed ore leach areas (Quebalix I to IV). The Quebalix I leach area has been deactivated and the crusher is operating to feed ore to the Zinc Concentrator.

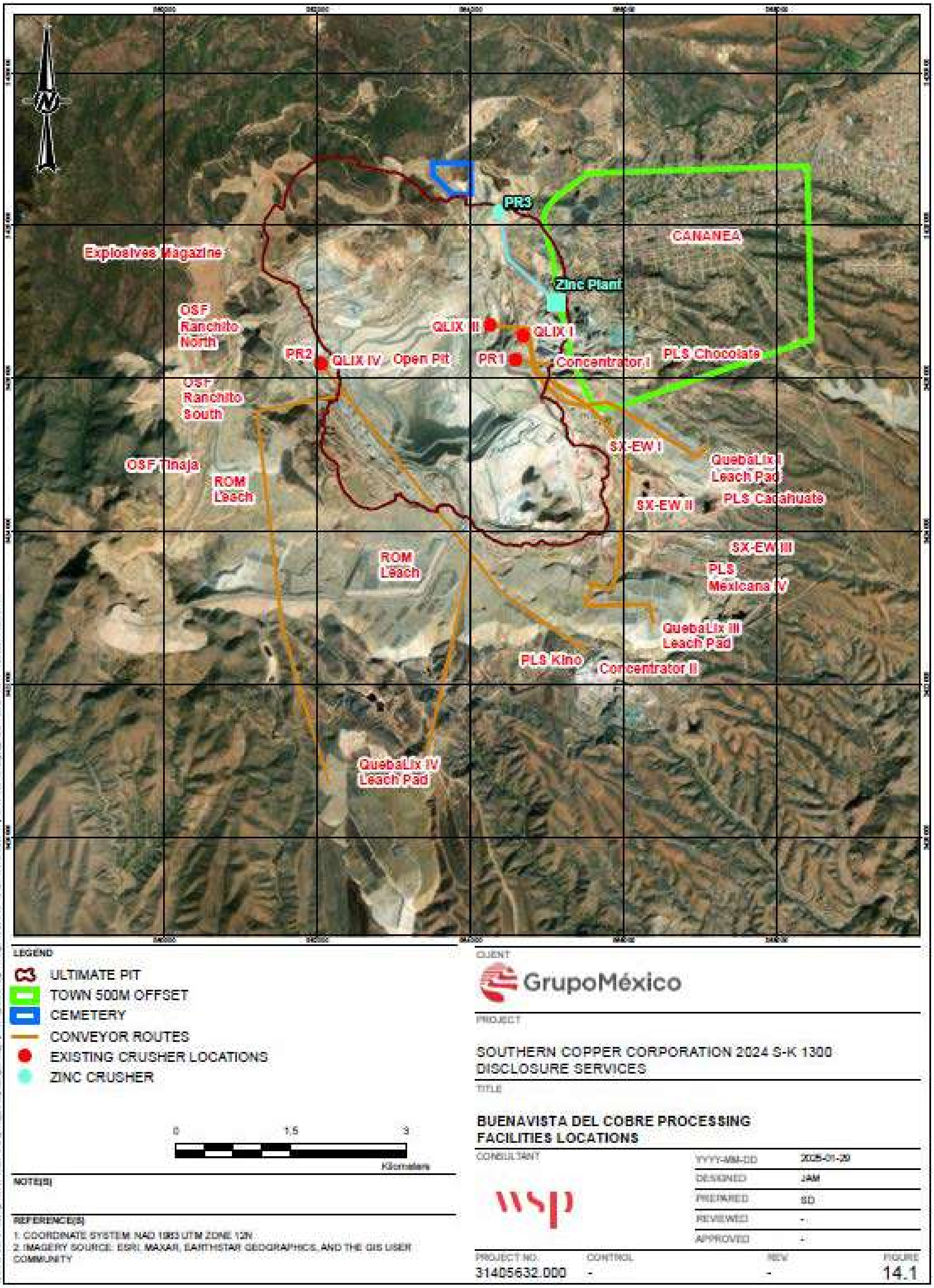
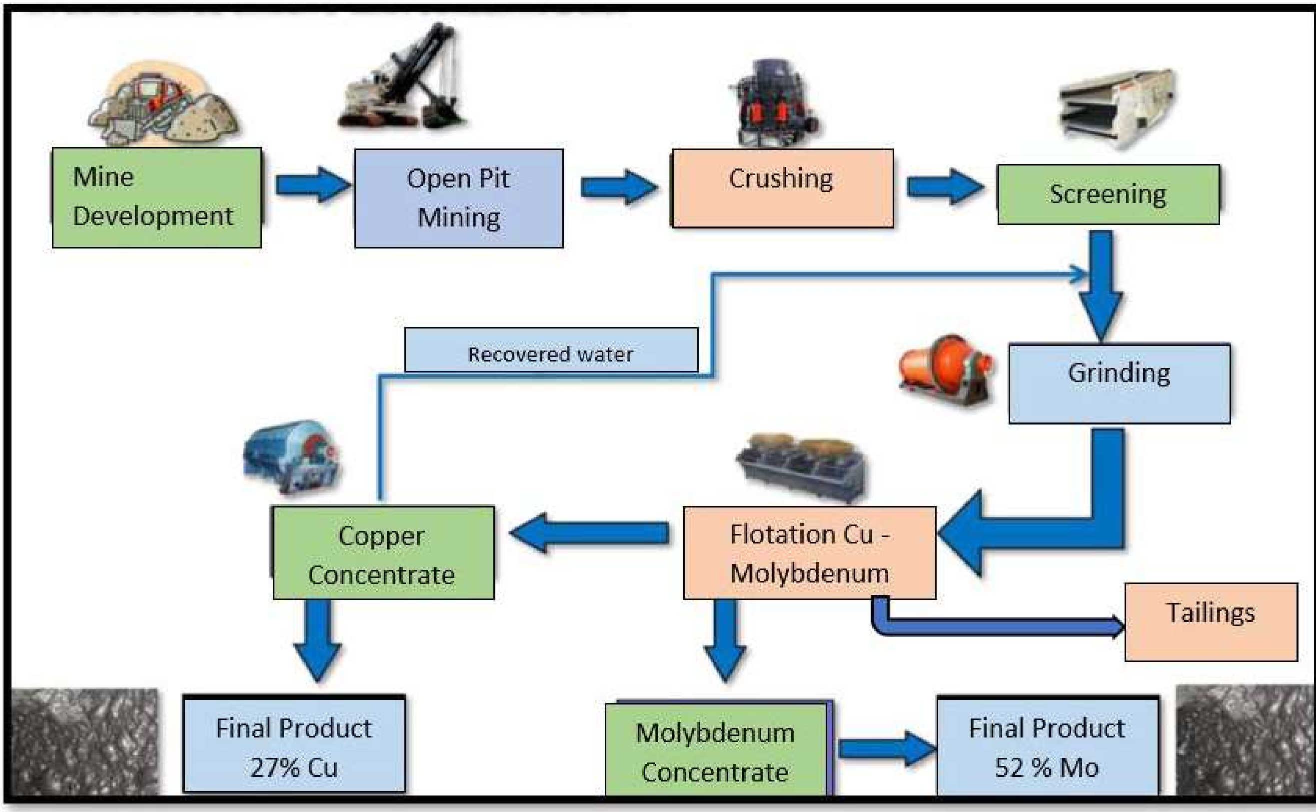


Figure 14.1: Buenavista del Cobre Processing Facilities Locations

The following items summarize the process operations required to extract copper and molybdenum concentrates from the BVC sulfide ores. The two concentrators follow a conventional process of crushing, screening, ball milling, and sequential flotation to separate copper and molybdenum concentrates. The differences between the two plants are size of the equipment and the number of machines dedicated to each unit operation, because Concentrator II was designed and built with modern equipment 30 years after Concentrator I. The typical schematic process is shown in Figure 14.2.



Source: SCC

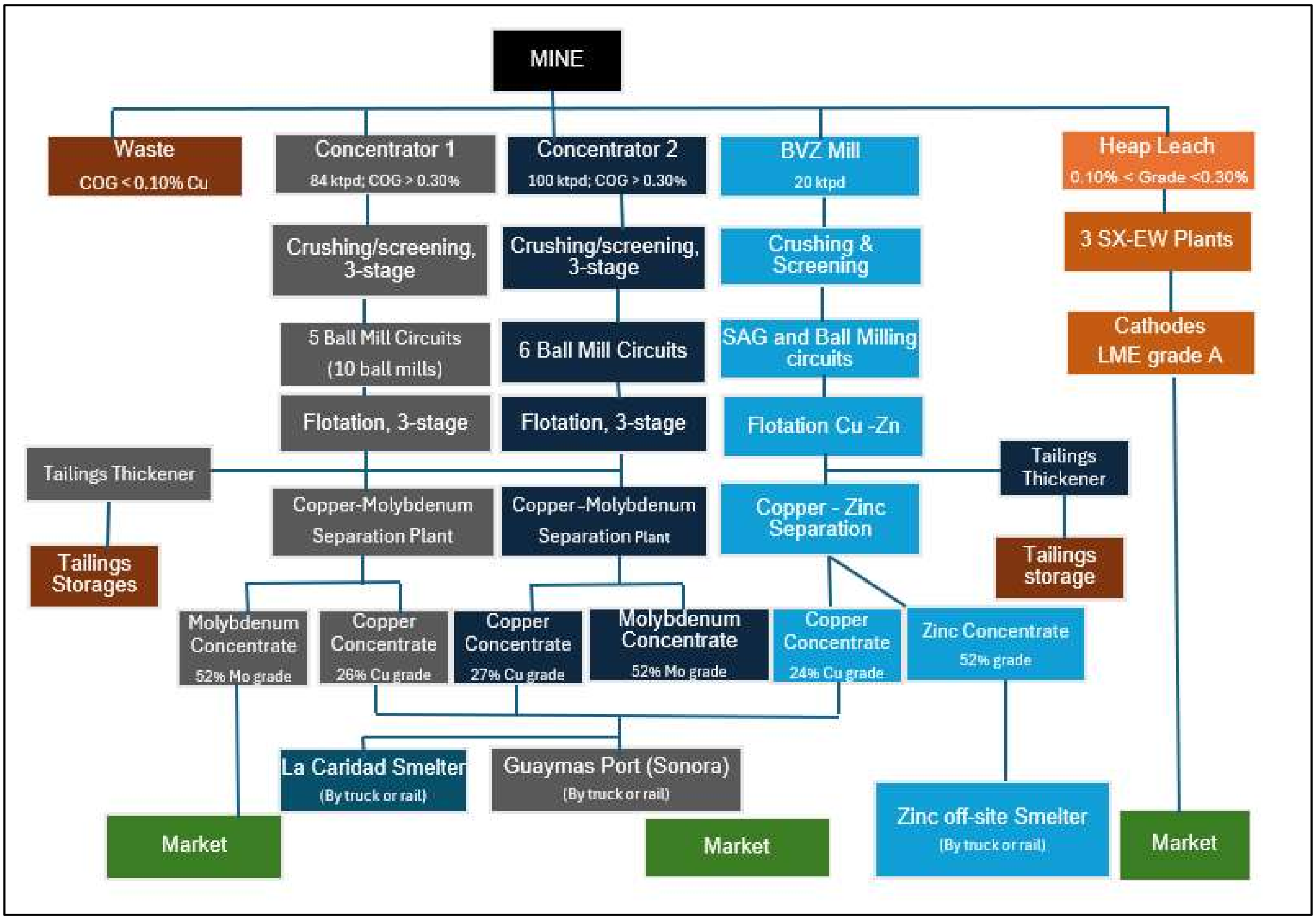
Figure 14.2: BVC Concentrator Process

A brief description of the process diagram follows:

- Size reduction of the ore by primary gyratory crushers followed by secondary and tertiary crushers and screens to reduce the ore size from ROM to -12 mm (96% - ½").
- Grinding ore in conventional ball mill circuits prior to processing in flotation circuits.
- The flotation plant consists of copper-moly flotation, copper-moly separation, moly, and Cu cleaner flotation circuits.
- Final molybdenite concentrate is thickened, filtered, dried, and packaged into bulk-bags for shipment to market.
- The copper concentrate is sent to a thickener, then a filter and stockpile to be loaded in truck/railroad for shipment to a subsidiary smelter, or to port for export to market.

- Flotation tailings are thickened and deposited in a tailings impoundment area at the mine site.
- Water from tailings and concentrate dewatering is reclaimed for reuse in the process plant.

A conceptual block diagram of the BVC process flow is presented in Figure 14.3. For additional details on COGs for various destinations, please refer to Section 12.2.4.



Source: SCC

Figure 14.3: BVC Copper Process Diagram

The diagram above was simplified. In reality, the tailings from the copper concentrators report to separate thickener facilities and tailings storages and the tailings from the Zinc Concentrator report to the Concentrator I tailings storage.

14.1.1.2 BVC Design Basis

The design basis for Concentrator I and Concentrator II are outlined below:

- Concentrator I (1986):
  - Original design Crushing/screening: 72,000 tpd
  - Grinding/flotation: 62,500 tpd
  - Plants modified and upgraded over the years. Presently rated by BVC at 84,000 tpd
- Concentrator II (2016):
  - Principal sulfide minerals in sulfide ore: Chalcopyrite; chalcocite, molybdenite
  - ROM characteristics:
    - Maximum size: 1.4 m
    - Specific gravity (in-situ): 2.83
    - ROM bulk density: 1.6 t/m^3
    - Ore bulk density, primary crushed: 1.7 t/m^3
    - Crushing work index Bond (Wi): 15.7 kWh/t
    - Ball mill work index Bond (Wi): 15.5 kWh/t
    - Ore abrasion index, Bond (Ai): 0.2
  - Ore mineralization:
    - Chalcopyrite: 1.7%
    - Pyrite: 5.0%
    - Molybdenite: 0.02%
    - Gangue: 93.3%
  - Production Schedule:
    - Ore Crushing and Milling average rate: 36 million dmtpy , or 100,000 dmtpd
    - Forecast production schedule:
      - Mine head grade 0.58% Cu; 0.012% Mo
      - Recovery to concentrate: 82.0%; 66.0% Mo
      - Metal production, average: 500 tpd Cu; 7.2 tpd Mo
  - Crushing production schedule:
    - Days per year: 360

  - Hours per day: 24
  - Availability: 75%
  - Ore crushing rate, design: 5,560 dmtph
- Grinding, flotation and concentrate handling production schedule:
  - Days per year: 360
  - Hours per day: 24
  - Availability: 95%
  - Milling rate, design: 4,390 dmtph

The ore feed to both concentrators is common. There is no distinction between the ore that is mined with respect to which primary crushers the ore is sent to. Reportedly, BVC tries to maintain Concentrator II primary crushers to be always loaded.

Stockpiles of crushed ore are maintained for surge purposes, to protect the systems against eventualities in the line of process, not for blending ore or any other purpose.

For clarity, the overall process facilities are here divided in the two main process circuits:

- Crushing and Screening (Dry Process)
- Grinding and Flotation circuits (Wet Process) (Concentrator)

14.1.1.3 BVC Dry Process Crushing and Screening, Flow Diagram, and Process Description

The simplified process flowsheets for the crushing and screening plants are presented in Figure 14.4 and Figure 14.5, respectively, for Concentrator I and Concentrator II, where the size of the main equipment and number of units are shown. A brief discussion of the process is provided below:

- The run-of mine material is transported to the primary crushers with haul trucks. The haul trucks discharge directly into the crushers.
- Size reduction of the ROM ore is accomplished by two primary 60 x 89 gyratory crusher to 80% passing minus 200 mm (85% - 6”). The primary crushed ore is stored in a covered coarse ore stockpile and then reclaimed by apron feeders and a conveyor belt.
- The primary crushers for Concentrator I are located on the east side of the existing pit limit, near the concentrator. These crushers process 4,670 dtph, 84,000 dry tpd (75% availability, 18 hours of operation) with 6-inch closed size setting (P80 minus 152 mm). The primary crushed material is conveyed to a covered coarse ore stockpile.
- The primary crushers for Concentrator II are located on the north-west side of the pit and the ore is transported 5.4 km by conveyor belts to the coarse ore stockpile near Concentrator II. These crushers

process 5,560 dtph, 100,000 dry tpd (75% availability, 18 hours of operation) with 6-inch closed size setting (P80 -152 mm).

- The coarse ore stockpiles provide one day of surge capacity to protect the downstream circuits from any eventualities in the primary crushers, or the mine.
- The crushing circuit design includes weigh scales, crushed ore sampling system and magnetic separators to protect the equipment from iron debris coming from the mine.
- Size reduction of the ore is by secondary and tertiary crushing and screening. The secondary and tertiary crushers operate in closed circuit with tertiary screens to reduce the ore size from 200 mm to 80% -8-12 mm (96% - ½”).
- Crushed ore is conveyed to the fine ore stockpile buildings.
- When full, the fine ore storage provides one day of surge capacity to protect the beneficiation circuits from any eventualities in the crushing/screening circuit.
- Fine crushed ore is reclaimed and conveyed to the grinding circuits.

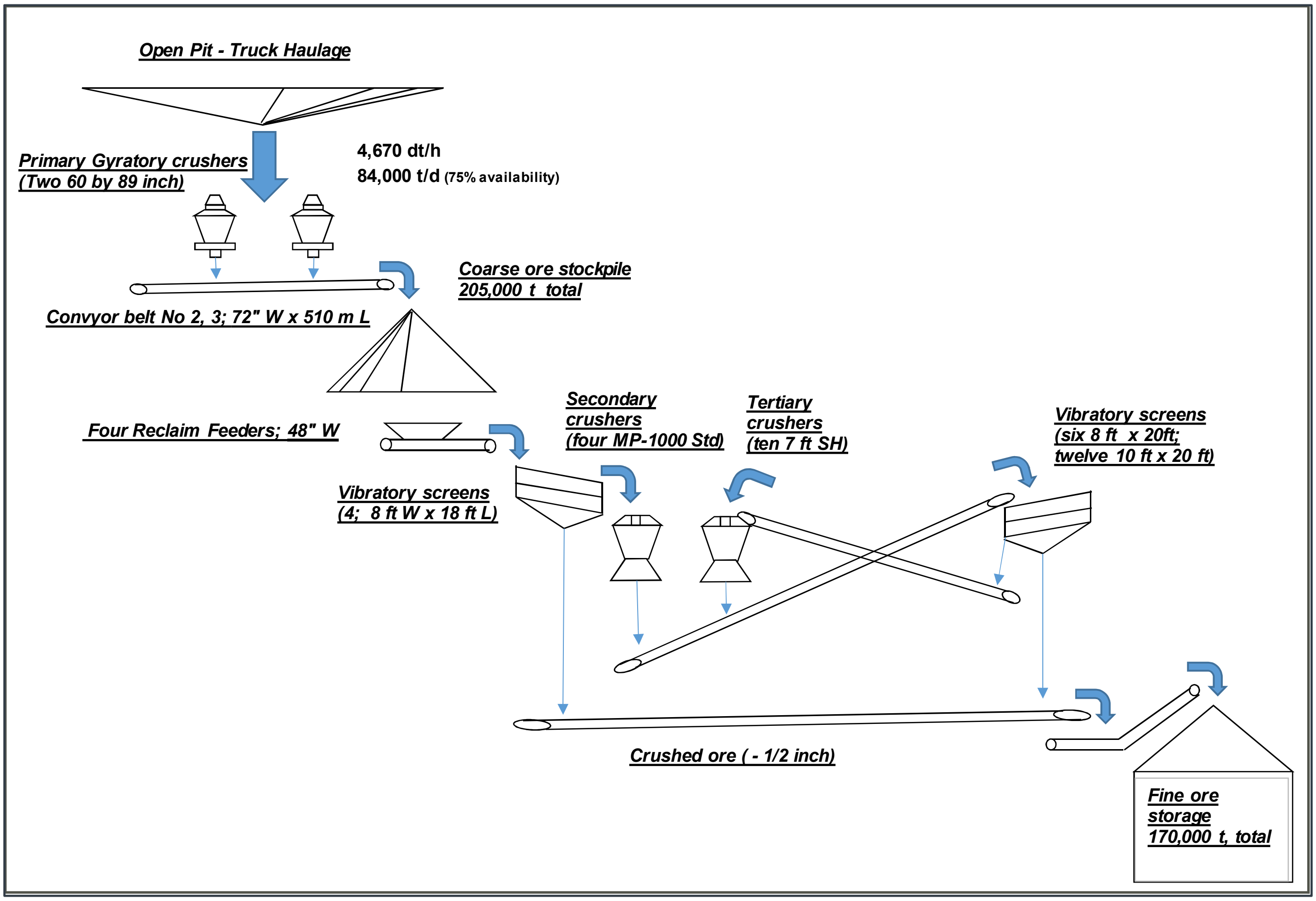


Figure 14.4: BVC Concentrator I - Crushing and Screening

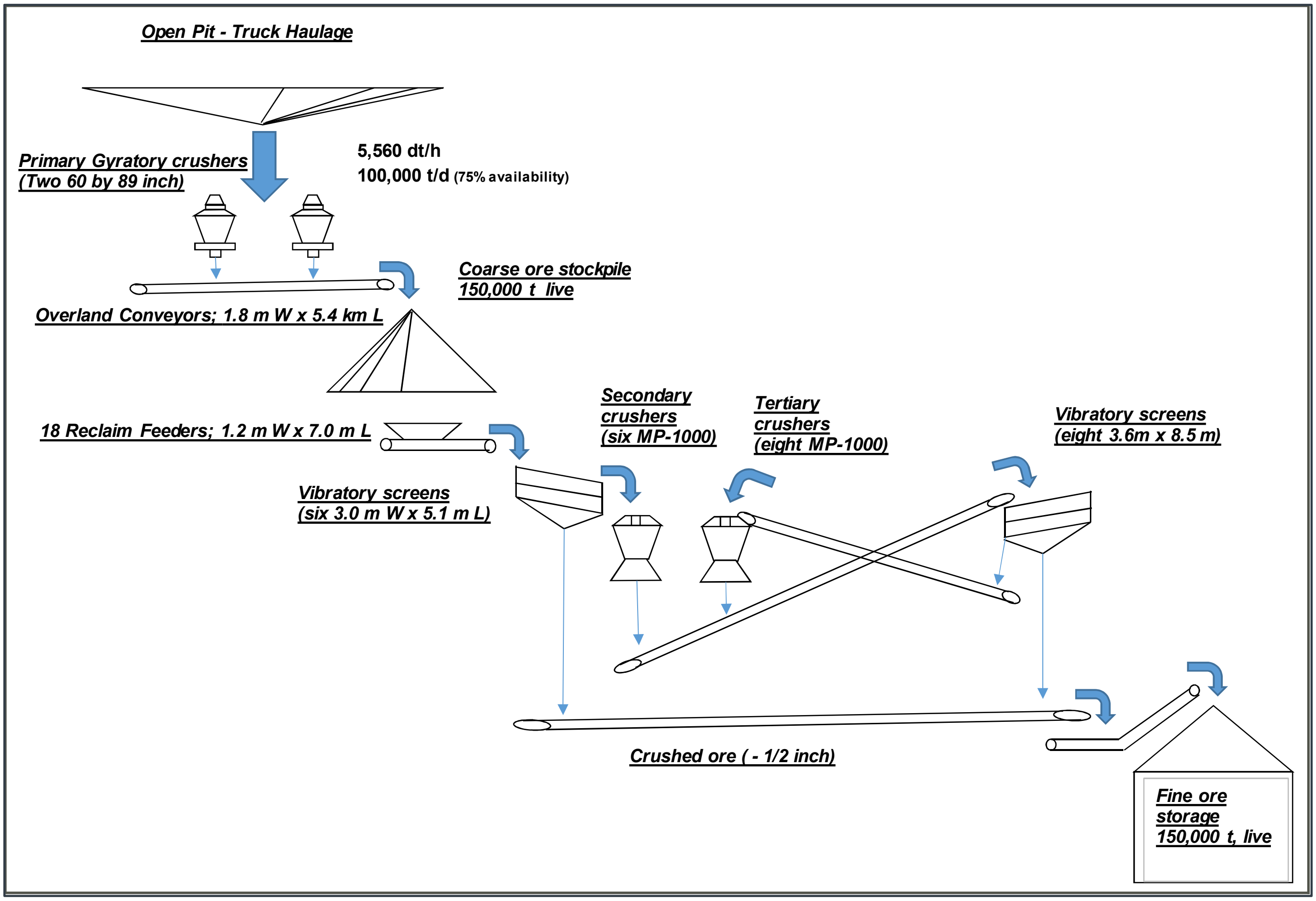


Figure 14.5: BVC Concentrator II - Crushing and Screening

14.1.1.4 BVC Wet Process Beneficiation Plant Grinding and Flotation Circuits, Equipment, and Process Description

The simplified process flowsheets for the grinding and flotation plants are presented in Figure 14.6 and Figure 14.7 for Concentrators I and II respectively, where the size of the main equipment and number of units are shown. A brief description of the Wet Process is provided below:

- The beneficiation plant will operate at an estimated 90.0% availability.
- Ore grinding is achieved in conventional ball mill circuits operating in parallel prior to processing in flotation circuits. Concentrator I has 5 grinding circuits with two 16.5-ft diameter by 27-ft long ball mills per section. Concentrator II has six grinding circuits, with a single 24-ft diameter by 42.5-ft long ball mill. The ball mills operate in closed circuit with hydro-cyclones to deliver an ore size of 80% passing 105 µ to the flotation circuit.
- The flotation circuit design provides for selective recovery of copper and molybdenum mineralization. The flotation plants consist of copper-moly bulk flotation, copper-moly separation, moly and copper cleaner flotation circuits. In Concentrator I, the bulk flotation circuit consists of 90 flotation cells, with each cell having a capacity of 1,000 cubic feet (ft^3). In Concentrator II, the bulk flotation circuit consists of four rows of rougher flotation and four rows of first cleaner/scavenger cells and one row of second cleaner flotation. Each rougher

row consists of seven 300 m^3 tank type flotation cells. The copper flotation circuit includes regrind in a ball mill.

- Final tails from moly separation circuit are the copper concentrate. This is sent to a thickener, then a filter and stockpile to be loaded in truck/railroad for shipment to a subsidiary smelter or to port for export to market.
- Final molybdenite concentrate is thickened, filtered, dried, and packaged into bulk-bags for shipment to market.
- Rougher flotation tailings are thickened and deposited in TSF areas near the mine site, 5 km to the east from Concentrator I and 8 km to south for Concentrator II.
- Water from tailings and concentrate thickening and dewatering at the plant site and water decanted at the TSF is reclaimed for reuse in the process plant. Water stream types include process water, reclaim water, freshwater, and potable water.

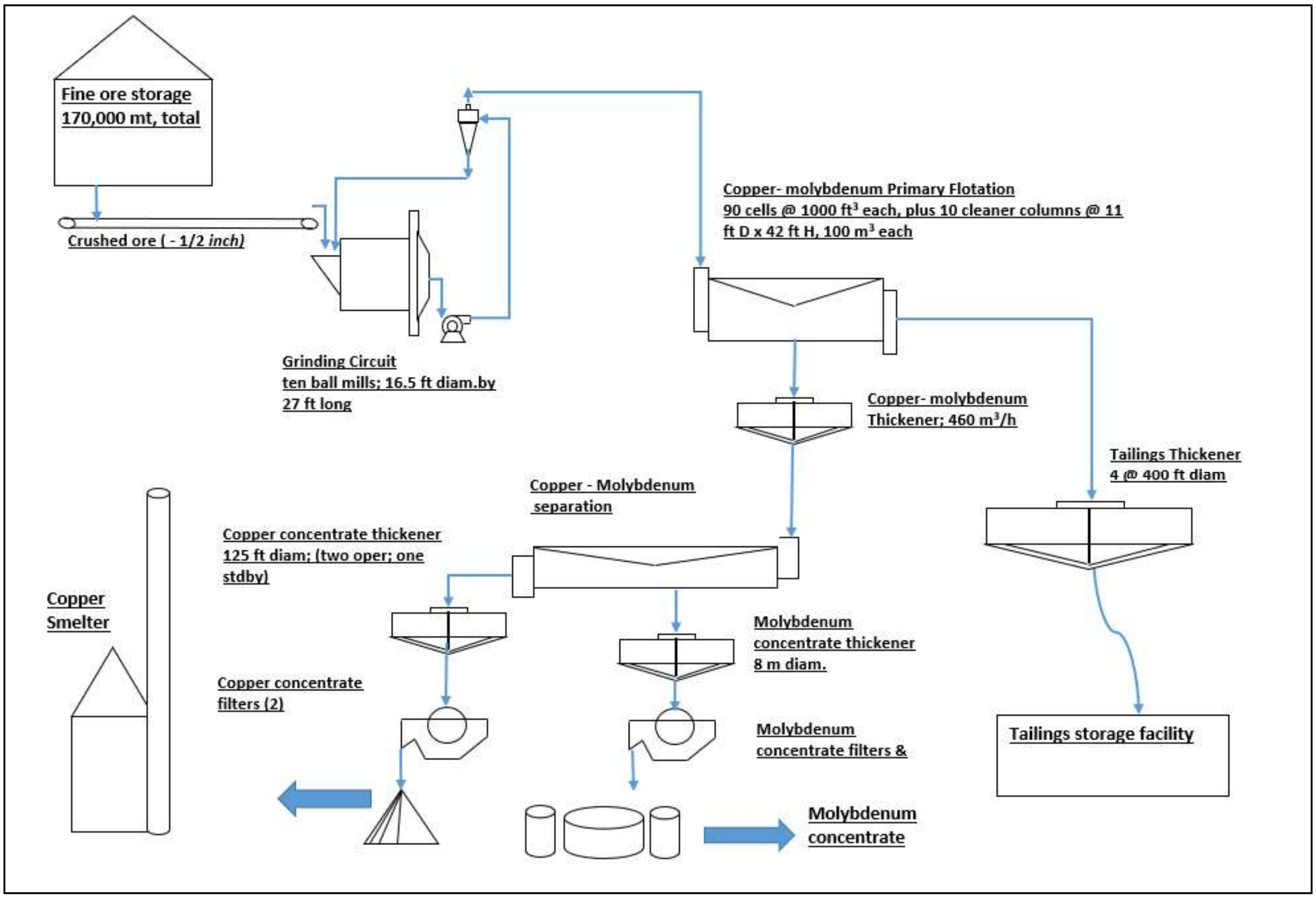


Figure 14.6: BVC Concentrator I – Grinding and Flotation

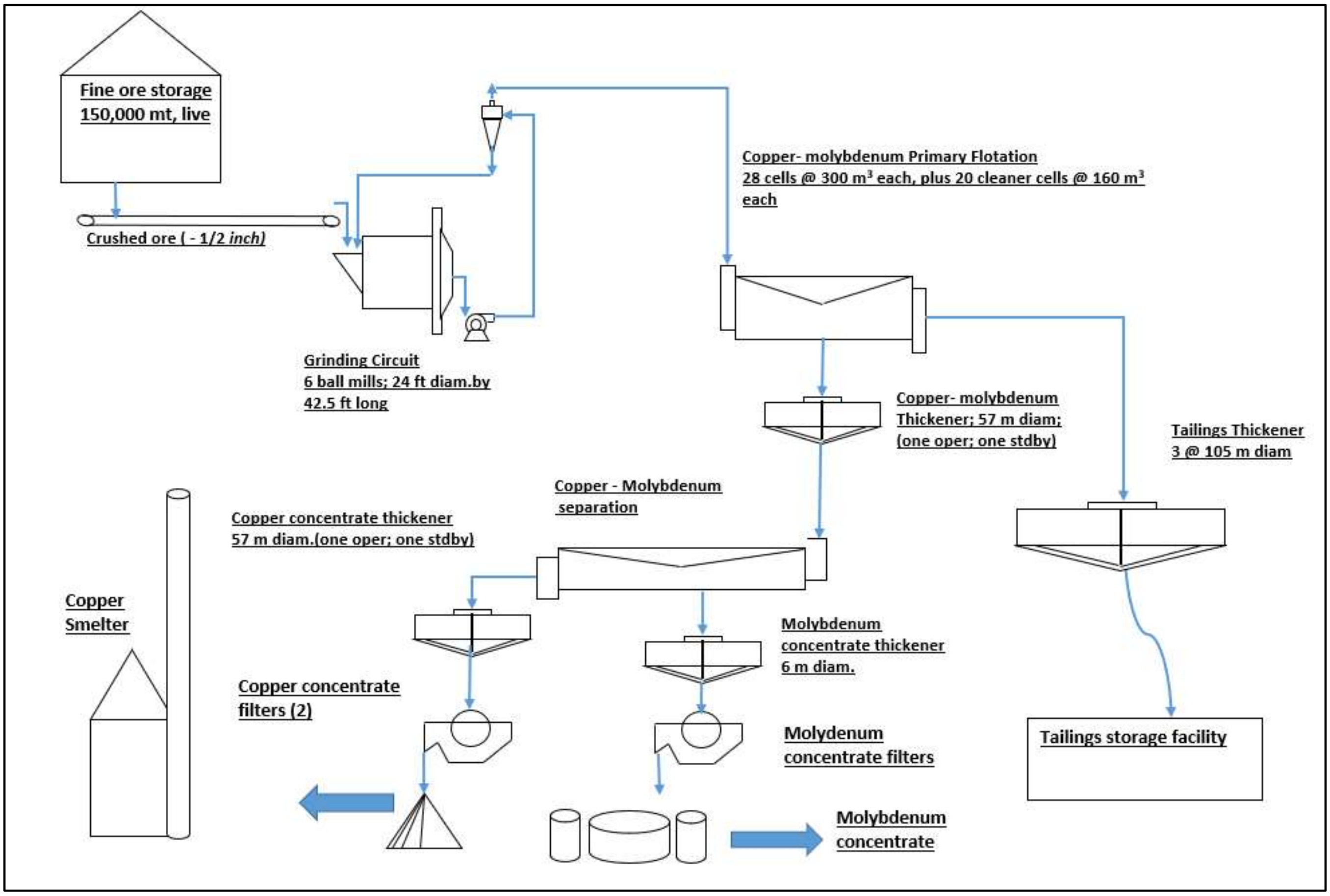


Figure 14.7: BVC Concentrator II – Grinding and Flotation

14.1.1.5 BVC Beneficiation Plant Process Reagents

Reagents utilized in flotation of copper and molybdenum sulfide mineralization present at BVC are procured in bulk and are prepared on Site for use. The reagents used in the Beneficiation Plant process are described below:

- Pebble Lime (CaO, pH modifier)
- Sodium Isopropyl Xanthate (SIPX, collector)
- Methyl Isobutyl Carbinol (MIBC, frother)
- Diesel No 2 (molybdenite collector)
- T 1018 Fuel Oil (molybdenite collector)
- SPRI 156 (promoter)
- T 100 50 (frother)
- T 720 (Antiscalant)
- Flocculant

- Sodium Hydrosulfide (NaHS, copper mineral depressant)
- Sulfuric Acid
- NaCN (copper depressant)

14.1.1.6 BVC Production, Metallurgical Recovery, and Product Quality

Part of the copper concentrate is sent to a smelter (Complejo Metalurgico) that belongs to SCC, near La Caridad (Mexicana de Cobre). The rest of the concentrate is transported by railroad to the port of Guaymas or to the border crossing at Nogales for export to market. Production of good grade concentrates must be balanced with the need to achieve the best possible flotation recovery. Normally, the higher the concentrate grade the lower the recovery and vice versa. A low-grade concentrate will result in a higher cost per pound of contained copper.

Table 14.1 to Table 14.7 are based on the operation reports provided by BVC, in Spanish. The information was arranged to follow the format of this report. For Concentrator I the main source documents were “Información de producción de Concentradora I. Años 2023-Acum. 2024” and for year 2024 the monthly balances, “Balance Mensual Cobre-Molibdeno”. For Concentrator II the main document was “Informes operacionales 2022 – 2024” and “Manejo de agua”.

Table 14.1 shows the combined production results of the two concentrators for last three full years of operation, 2021 to 2023. The milled tonnage of the two plants has exceeded the reported nominal capacity of the plants, while the production process parameters are very close to the design values used for plant design, presented in Table 10.1 of Section 10.1.1.2. The last three-year average production results in Table 14.1 are used to guide the yearly update of the mine and production plans.

Table 14.1: Combined Concentrators I & II Production

Item	Units	Summary Production Results				BDP(3)
		2021	2022	2023	Avg.(1)	
Ore Milled	dmt ('000)	74,302	74,121	72,609	73,677	66,240(2)
Ore Copper Grade	% Cu	0.527	0.528	0.525	0.527	0.580
Copper Concentrate Produced	dmt ('000)	1,464,883	1,482,336	1,455,553	1,467,591	
Copper Concentrate Grade	%	23.29	22.84	22.60	22.91	
Copper Produced	dmt ('000)	341,202	338,633	328,953	336,263	332,288
Copper Recovery	%	87.14	86.5	86.32	86.66	86.49
Ore Molybdenum Grade	%	0.0102	0.0105	0.0105	0.0104	
Molybdenum Concentrate	dmt ('000)	10,207	10,476	10,495	10,393	
Molybdenum Concentrate Grade	%	51.21	51.30	51.60	51.37	
Molybdenum Recovery	%	68.91	70.53	70.86	70.10	66.00

Notes: 1Grades and recovery averages are arithmetic, not prorated; 2Capacity = [84 ktpd + 100 ktpd] x 360 days = 66,240 ktpy; 3BDP = Basic Design Parameters

Table 14.2 to Table 14.7 show the production results for the two copper concentrators, including unit operations costs. The tables show that Concentrator I consistently achieves the Basic Design Parameter (BDP) of 84,000 mtpd of ore milled and that Concentrator II operates above the 100,000 mtpd BDP.

Table 14.2: Copper Production and Operating Costs – Concentrator I

Item	Copper Production and Operating Cost - Concentrator I											
	2020			2021			2022			2023		
	Actual	Budget	% Diff.	Actual	Budget	% Diff.	Actual	Budget	% Diff.	Actual	Budget	% Diff.
Ore Milled (1,000 dmt)	30,823	30,564	0.8	31,259	30,480	2.6	31,045	31,231	-0.6	30,384	31,154	-2.5
Copper Production (1,000 lbs)	310,064	310,456	0.0	315,068	300,550	4.8	310,686	312,110	-0.5	301,543	311,030	-3.1
Unit Cost (US$/t milled)	3.802	3.951	-3.8	4.391	3.941	11.4	5.090	4.502	13.1	5.828	4.909	18.7
Unit Cost (US¢/lb Cu)	37.728	38.900	-3.0	43.562	39.968	9.0	50.861	45.046	12.9	58.723	49.172	19.4

The following comments are offered regarding the performance of Concentrator I during the last four years of operation. Please refer to Table 14.2 above

- Approximately 31 Mtpy have been milled in Concentrator I
- The milled tonnage has been within 3% of the budget over the last four years
- Copper production was met or exceeded in 2020-2021 and slightly down in 2022 (3% down) in 2023
- Unit costs (US$/tonne) have an upward trend and were above budget over the last three years
- The production cost per pound of copper has an upward trend. This cost increased from 37.73 cents per pound to 58.72 cents per pound over the last four years.
- In the last three years the unit costs per tonne milled and per pound of Cu produced have been over budget.
- Table 14.3 and Table 14.4 show that the recent production results were consistent with the historical results.

Table 14.3: Concentrator I Production Results Year 2023

Month	Concentrator I								Molybdenum Plant				
	Ore Milled	Ore Grade		Cu Concentrate	Cu in Concentrate		Cu Recovery	Cost	Mo Concentrate	Mo in Concentrate		Mo Recovery	Cost
	(dmt)	Cu (%)	Mo (%)	(dmt)	(dmt)	(%)	(%)	(US$/lb Cu)	(dmt)	(dmt)	(%)	(%)	US($/lb Mo)
January	2,561,256	0.528	0.0113	50,910	11,723	23.03	86.62	0.56	392.36	201.16	51.27	69.43	1.75
February	2,336,649	0.523	0.0101	45,007	10,292	22.87	84.23	0.53	313.33	160.40	51.19	67.64	1.75
March	2,620,562	0.523	0.0110	52,491	11,797	22.47	86.00	0.57	399.44	202.87	50.79	70.26	1.84
April	2,417,842	0.521	0.0119	47,767	10,697	22.39	84.91	0.68	397.53	208.63	52.48	72.45	1.59
May	2,562,636	0.524	0.0096	49,540	11,506	23.23	85.73	0.73	334.49	169.70	50.74	68.83	2.96
June	2,638,069	0.522	0.0088	50,925	11,837	23.24	86.02	0.54	309.49	161.34	52.13	69.20	2.78
July	2,631,040	0.525	0.0108	53,491	11,888	22.22	86.01	0.52	392.31	202.42	51.60	71.48	2.52
August	2,724,252	0.519	0.0119	56,201	12,161	21.64	86.01	0.52	455.29	242.76	53.32	75.07	1.60
September	2,486,082	0.528	0.0100	51,944	11,290	21.73	85.99	0.55	342.12	174.80	51.09	70.16	2.58
October	2,504,817	0.525	0.0121	52,898	11,298	21.36	85.96	0.60	407.26	216.51	53.16	71.54	1.99
November	2,415,025	0.528	0.0103	51,871	10,999	21.21	86.18	0.63	338.44	170.50	50.38	68.74	2.52
December	2,485,806	0.527	0.0102	52,401	11,289	21.54	86.22	0.63	343.74	177.03	51.50	70.11	2.51
Total	**30,384,034**	**0.524**	**0.0107**	**615,445**	**136,778**	**22.22**	**85.84**	**0.59**	**4,426**	**2288.14**	**51.70**	**70.57**	**2.16**

Table 14.4: Concentrator I Production Results Year 2024

Month	Concentrator I								Molybdenum Plant				
	Ore Milled	Ore Grade		Cu Concentrate	Cu in Concentrate		Cu Recovery	Cost	Mo Concentrate	Mo in Concentrate		Mo Recovery	Cost
	(dmt)	Cu (%)	Mo (%)	(dmt)	(dmt)	(%)	(%)	(US$/lb Cu)	(dmt)	(dmt)	(%)	(%)	(US$/lb Mo)
January	2,686,006	0.519	0.0107	54,419	12,108	22.25	86.84		394.18	204.86	51.97	71.08	1.74
February	2,475,832	0.539	0.0091	52,225	11,613	22.24	87.10		311.52	156.31	50.18	69.36	2.30
March	2,647,844	0.521	0.0114	53,376	12,071	22.61	87.51		425.78	219.66	51.59	73.07	1.51
April	2,582,458	0.525	0.0119	52,744	11,837	22.44	87.35		427.16	222.38	52.06	72.64	1.59
Total	**10,392,141**	**0.526**	**0.0108**	**212,764**	**47,629**	**22.39**	**87.20**		**1,558.64**	**803.20**	**51.53**	**71.69**	**1.76**

Table 14.5: Copper Production and Operating Costs – Concentrator II

Item	Copper Production and Operating Cost - Concentrator II											
	2020			2021			2022			2023		
	Actual	Budget	% Diff.	Actual	Budget	% Diff.	Actual	Budget	% Diff.	Actual	Budget	% Diff.
Ore Milled (1,000 dmt)	42,188	43,913	0.7	43,042	41,801	3.0	43,075	42,588	1.1	42,225	43,680	-3.3
Copper Production (1,000 lbs)	424,794	427,067	-0.5	437,157	412,100	6.1	435,871	425,052	2.5	423,673	436,078	-2.8
Unit Cost, US$/t milled	3.98	4.350	-8.5	4.41	4.120	7.0	5.340	4.43	20.5	5.380	4.79	12.3
Unit Cost, US cents/lb Cu	39.5	42.600	-7.3	43.4	41.800	3.8	52.800	44.3	19.3	53.600	48	11.7

The following comments are offered regarding the performance of Concentrator II during the last four years of operation. Please refer to Table 14.5.

- The ore milled was in a 42 to 43 Mtpy range for Concentrator II
- The milled tonnage has been within 4% of the budget over the last four years
- Copper production was exceeded in 2021-2022 and slightly down (2.8% down) in 2023
- Unit costs (US$/tonne) have an upward trend and were above budget over the last three years
- The production cost per pound of copper has an upward trend. This cost increased from 39.50 cents per pound to 53.60 cents per pound over the last four years.

Table 14.6: Concentrator II Production Results Year 2023

Month	Concentrator II								Molybdenum Plant				
	Ore Milled	Ore Grade		Cu Concentrate	Cu in Concentrate		Cu Recovery	Cost	Mo Concentrate	Mo in Concentrate		Mo Recovery	Cost
	(dmt)	Cu (%)	Mo (%)	(dmt)	(dmt)	(%)	(%)	(US$/lb Cu)	(dmt)	(dmt)	(%)	(%)	(US$/lb Mo)
January	3,530,658	0.534	0.0106	71,493	16,418	22.96	87.02	0.53	498.37	261.58	52.49	70.19	1.85
February	3,438,948	0.525	0.0105	68,369	15,693	22.95	87.00	0.46	486.36	255.22	52.47	70.65	1.49
March	3,830,601	0.526	0.0104	75,307	17,403	23.11	86.38	0.54	548.37	280.39	51.13	70.58	2.10
April	3,611,237	0.523	0.0115	72,902	16,397	22.49	86.82	0.57	585.47	303.82	51.89	73.04	1.81
May	3,603,248	0.525	0.0099	71,268	16,400	23.01	86.75	0.67	495.45	247.71	50.00	69.47	2.66
June	3,601,642	0.526	0.0089	71,418	16,496	23.10	87.02	0.53	434.04	221.98	51.14	69.39	2.09
July	3,736,201	0.529	0.0105	73,287	17,263	23.55	87.27	0.47	552.22	284.19	51.46	72.18	1.80
August	3,720,006	0.519	0.0101	73,884	16,802	22.74	87.01	0.49	513.80	264.12	51.40	70.59	1.29
September	3,178,581	0.525	0.0097	61,367	14,290	23.29	85.59	0.54	421.48	215.71	51.18	69.98	1.98
October	3,206,204	0.528	0.0122	65,270	14,640	22.43	86.42	0.54	556.22	288.21	51.82	73.84	1.38
November	3,292,465	0.518	0.0110	65,469	14,677	22.42	86.02	0.56	510.77	259.56	50.82	71.74	1.74
December	3,475,532	0.522	0.0100	70,073	15,696	22.40	86.48	0.55	466.04	243.74	52.30	70.22	1.82
Total	**42,225,321**	**0.525**	**0.0104**	**840,108**	**192,175**	**22.88**	**86.67**	**0.54**	**6,068.57**	**3126.23**	**51.52**	**71.07**	**1.82**

Table 14.7: Concentrator II Production Results Year 2024

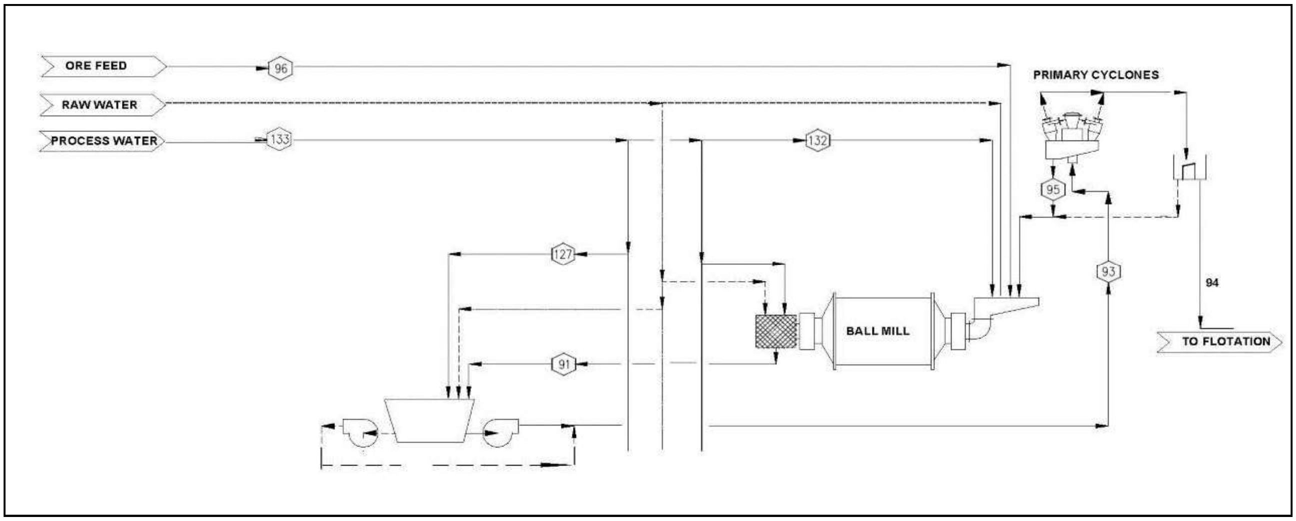
Month	Concentrator II								Molybdenum Plant				
	Ore Milled	Ore Grade		Cu Concentrate	Cu in Concentrate		Cu Recovery	Cost	Mo Concentrate	Mo in Concentrate		Mo Recovery	Cost
	(dmt)	Cu (%)	Mo (%)	(dmt)	(dmt)	(%)	(%)	(US$/lb Cu)	(dmt)	(dmt)	(%)	(%)	(US$/lb Mo)
January	3,730,534	0.511	0.0107	75,812	16,601	21.90	87.04	0.55	563.72	289.87	51.42	72.45	1.38
February	3,491,083	0.520	0.0098	68,674	15,706	22.87	86.50	0.61	476.53	238.71	50.09	70.10	1.53
March	3,737,189	0.512	0.0106	72,008	16,520	22.94	86.37	0.57	550.81	288.15	52.31	72.42	1.52
April	3,619,065	0.518	0.0113	71,564	16,186	22.62	86.26	0.58	572.23	298.21	52.11	72.79	1.45
May	3,609,983	0.516	0.0106	72,026	16,255	22.57	87.24	0.60	530.79	273.52	51.53	71.48	1.53
June	3,532,838	0.522	0.0113	69,705	16,047	23.02	87.05	0.41	562.12	288.11	51.25	71.95	1.29
July	3,787,669	0.514	0.0112	74,565	16,949	22.73	86.99	0.48	605.09	310.39	51.30	72.91	1.52
Total	**25,508,361**	**0.516**	**0.0108**	**504,355**	**114,265**	**22.66**	**86.78**	**0.54**	**3,861.30**	**1986.95**	**51.46**	**72.07**	**1.45**

14.1.1.7 BVC Metallurgical Mass Balance

M3, the company in charge of EPCM for the Concentrator II project, used the METSIM™ process simulation system to perform the mass balance for the crushing, grinding and flotation plant. As an example, Figure 14.8 shows the balance developed for one grinding section.

The daily production reports from each plant include the main process streams and each plant issues a monthly report. At the end of the month the Director of Operations issues a general report that is the basis for the metallurgical balance for BVC. The official metallurgical balance is the responsibility of the Comptroller Office. With all the reports the company comptroller's office coordinates the metallurgical balance that reconciles all the information and issues the official final metallurgical balance that is used for internal purposes and to report production results to the fiscal authorities. All the responsible managers validate and sign the report.

BVC follows a rigorous monthly metallurgical balance that requires review, acceptance and signature from all parties involved, from the mine department, concentrator metallurgical and operation staff, and finally the comptroller office.



Stream No.	91	93	94	95	96	127	132	133
MTPH Solids	2,924	2,924	731	2,193	731			
MTPH Water	1,253	2,602	1,663	940	32	1,340	281	4,862
MTPH Total	4,177	5,526	2,394	3,133	763	1,340	281	4,862
% Solids	70.00	52.90	30.50	70.00	95.70			
Cu, %	0.07	0.07	0.07	0.07	0.07			
Mo, %	0.015	0.015	0.015	0.015	0.015			
Solid Density	2.86	2.86	2.86	2.86	2.86			
Slurry Density	1.84	1.52	1.25	1.84	2.65	1.00	1.00	1.00
m^3/hr Slurry	2,276	3,627	1,920	1,707	288	1,342	281	4,868
gpm, Slurry	10,020	15,969	8,454	7,515	1,267	5,907	1,238	21,435

Figure 14.8: Typical Grinding Section and Mass Balance - Concentrator II

14.1.2 BVC Hydrometallurgy: Leaching, Solvent Extraction and Electrowinning

This sub-section is based on production data and other information provided by BVC, the design criteria of the Solvent Extraction and Electrowinning plants and observations made during the site visit by WSP, June 18-19, 2024.

The three L-SX-EW plants of BVC are located within the BVC mining-processing complex that includes the open pit and two concentrator plants. The process facilities are shown in Figure 14.1 in Section 14.1.1.1. The leachate facilities identified as Quebalix I to IV are located adjacent to leach pads. The leach pad at each facility is fed with leachable ore that is crushed, transported and stacked with belt conveyors.

The main process route for BVC is conventional milling/flotation of ore above a “concentrator ore grade” (COG) normally around 0.30%Cu, described in Section 14.1. Low-grade ore, between 0.10% and 0.30% total Cu that result from mining concentrator-grade ore is sent to Leaching, the secondary process route. These COG are being re-evaluated each year from an economic perspective to maximize economic recovery in the mills.

Originally, the marginal grade ore was leached ROM in dumps built like waste dumps. What is considered the modern era of leaching in BVC started in 1967, with the construction of ROM leach pads deposited in finger-type shape to promote aeration and trying to control the height of the pads. Those dumps are now covered with crushed ore in areas Quebalix II and III.

Before 1980, the copper in leach solutions was precipitated with scrap iron in a cementation plant. The cement copper, or precipitate, was sent to an on-site smelter to be mixed with the flotation concentrate.

In the late 1970s, a SX-EW pilot plant was run for over one year to investigate what was then a new technology. In 1979-80, BVC (then Compañia Minera de Cananea) built their first SX-EW plant, one of the first five copper SX-EW plants in the world.

The first SX-EW plant started operation in 1980. The nominal capacity was 40 tpd copper cathode. After several maintenance and operation problems were detected the plant capacity was downgraded to 32 tpd Cu cathode.

SX-EW technology was chosen to replace the precipitation/cementation process with scrap iron because it was a technically better and more economic process to recover copper from low concentration solutions resulting from leaching low-grade ore and produce a final pure copper cathode. As the capacity of the concentrators was increased, the mine was expanded to supply the necessary ore and produced an increase of low-grade ore tonnage for leaching.

The second SX-EW plant was built in 1989, after the construction of a new concentrator plant in 1985. The third SX-EW plant was built in 2014, before a new concentrator plant built in 2016.

14.1.2.1 BVC Leaching Process Description

The L-SX-EW process encompasses leaching, solvent extraction, and electrowinning to produce pure copper cathode. In the BVC Leaching System copper is recovered as a solution of copper sulfate from low-grade ore by irrigating the ore with acidic leach solutions returning from the SX plants. The leach solutions are loaded with copper, as copper sulfate, as they percolate through the ore heaps and become pregnant leach solutions (PLS) that are fed to the three SX-EW plants. The leach process involves ferric-bacterial action, where the copper is leached with ferric iron. The BVC ore is mainly chalcocite. The use of acidic raffinate from the SX plants as leach solutions provide the conditions for bacterial growth.

Chalcopyrite is much more difficult to leach than chalcocite. BVC has started research to optimize bacterial population and to leach chalcopyrite.

The leach solution, acidic raffinate from the SX plants, is irrigated by sprinklers or wobblers. The leach solution application rate is 1,800 liters per minute per hectare (L/min/ha) in crushed ore to 3,600 L/min/ha in ROM heaps (10.8 – 21.6 liters per hour per square meter ([$L/h/m^2$]). The application rate in each leach area is modulated according to the stage in the leach cycle and the PLS concentration that is generated.

After a new area is ready to be leached, raffinate is applied to increase the humidity of the ore from the natural of approximately 4.5 % to the run-off point, about 7.5 % and the ore is left to “rest,” or “cure,” for about 2-to-4 weeks. This creates the moisture and acidity conditions for the bacteria to increase its activity. The leach cycle starts after the “cure” period. The leach cycle normally starts with 30 to 60 days of leaching followed by a rest period. The periods of irrigation and rest are varied according to the time a specific area has been under leaching and the concentration of copper in the PLS. For ROM heaps, as an area gets older the irrigation periods get shorter and the rest periods get longer, to allow copper to diffuse from inside to the surface of the rocks. For crushed ore this procedure is less significant because the diffusion effect is less in the smaller rock sizes.

14.1.2.2 BVC Leaching System Description and Summary Results

The ROM leach pads are built by end-dump mine trucks. Usually, the site and initial elevation is selected at the convenience of the mine department to optimize haulage distance. Since the late 1980's BVC's predecessor determined that it was economical to crush and convey the ore, to increase copper extraction and reduce haulage costs and the heap leach sites were selected as convenient for leaching.

The general layout of the Leaching-Solvent Extraction and Electrowinning facilities shown in Figure 14.1 in Section 14.1.1 includes 4 heaps built with primary crushed ore transported from the open pit with belt conveyors, named Quebalix I to IV and three dumps built with ROM with mine dump trucks. The first crushing and conveying system (Quebalix I) was decommissioned in 2023 and the primary crusher was used to feed the BVZ plant. The PLS from all the leach areas is pumped to two central PLS surge ponds, from where the PLS is fed to the SX plants. The block diagram is presented in Figure 14.9.

In the first three crushing/conveying systems, Quebalix I to III, the ore is placed by a stacker at the end of the conveyors system in approximately 30-m high lifts, in an "advance fashion." When a lift is completed, the movable conveyors and stacker are moved back to the beginning of the heap and the conveyors and stacker start building a new lift from the new elevation down to the previous lift, advancing to the toe end of the heap.

Because the surface of the heaps is so large, some areas are made available to leach before a lift is completed. When an area is available, the surface is ripped by tractor to about 1.5 m depth and is put under leaching. Once a lift is completed, the conveyors and stacker return to an initial point to start a new lift.

In Quebalix IV, the discharge of ore is top-down, where the ore is discharged at a high point and rolls down the toe of the heap to the bottom of the slope. This is like the construction of a conventional dump. The stacker advances filling the area at the same initial elevation, resulting in heap heights of about 100 meters. When an area is available, the surface is ripped by tractor to about 1.5 m depth and leaching starts.

Figure 14.9 shows the areas of the leaching system and the leach solution inventory at the end of July 2024. The inventories shown in Figure 14.9 were taken from the monthly water balances provided by BVC (Balance de agua Febrero – Julio 2024).

Table 14.8 was copied and translated from the BVC report "Mineral entregado 2023 – 2024" and shows the ore delivered by the mine to the leaching areas in 2023 and 2024.

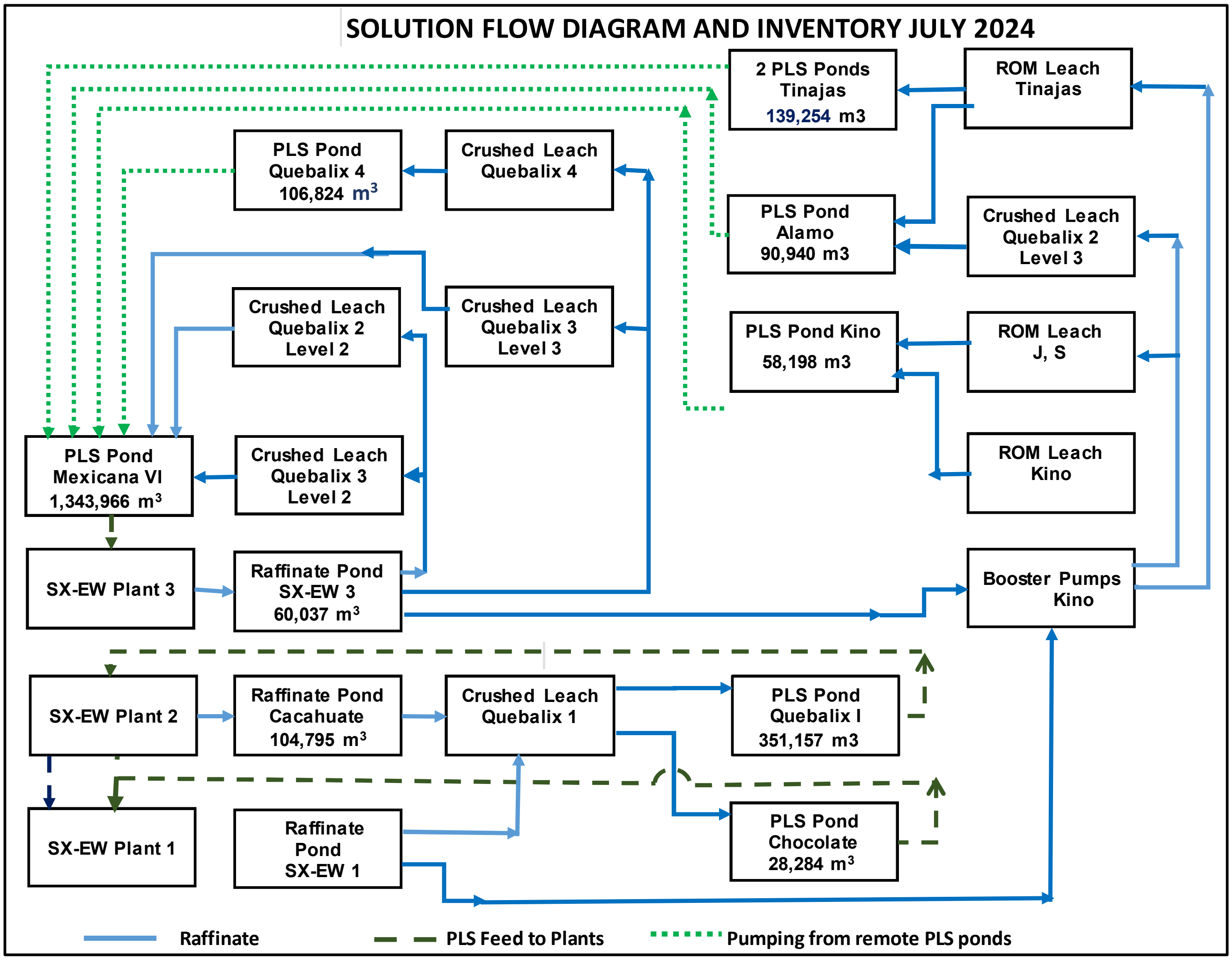


Figure 14.9: Typical Leaching Diagram and Solution Inventory July 2024

Table 14.8: Leach Ore Delivered

Year	Leachable Ore Delivered				Calculated Leachable Cu (t)
	Tonnes (000s t)	Grade Cu (%)	Solubility Index (%)	Area Under Leaching (Ha)	
2023	105,969	0.22	54.02	131.87	125,938
2024[1]	56,708	0.24	51.08	60.20	69,519
Total	**162,677**	**0.23**	**52.94**		

Notes: [1] to May 2024

The total copper in the ore (TCu) is the sum of three types of copper: acid soluble (oxides), cyanide soluble (secondary sulfides) and insoluble (primary sulfides). BVC can leach only the first two types. The solubility index (acid soluble plus cyanide soluble copper) shown in Table 14.8, indicates that approximately half of the total copper delivered to Leaching is not soluble by conventional methods.

In addition to the problem of low solubility of the copper in the ore, in the last few years, water make-up has not been sufficient to compensate for losses in the leaching system. The main loss is evaporation in the leach pads. The inventory of leach solutions in all the areas shown in Figure 14.9 is monitored daily, as are the additions of water. For BVC, the top priority is to supply the water required for the concentrators, discussed in Section 14.1.2.6. Water for leaching is a second priority.

As examples of the monitoring of water and leach solutions, Table 14.9 shows the water balance for six months of 2024 and Table 14.10 shows the additions of water to Leaching from different sources in the month of July 2024. Some of the sources are not constant, depending on the condition of the aquifers and some sources are ponds for sporadic catchment of surface runoff. Reportedly, a total of 5,000,000 m^3 of water per year is required, or an average of 416,000 m^3 per month.

Table 14.9: Water Balance – 6-month period of 2024

Water Balance 2024				
Month	Total Input (m^3)	Leaching (m^3)	Bleeds (m^3)	PLS to Process (m^3)
February	527,294	343,889	24,313	9,857,917
March	394,688	361,340	14,594	10,303,198
April	318,472	354,607	8,503	10,330,164
May	667,713	347,196	8,400	9,814,814
June	577,296	336,273	9,900	9,515,288
July	641,769	379,738	10,878	11,232,905

Table 14.10: Water Balance, July 2024 (Adapted from Balance de agua Febrero a Julio provided by BVC)

Water Balance, July 2024			
Inputs	**m^3**	**Outputs**	**m^3**
San Pedro River (Wells)	0	Irrigation new areas	25,187
Well 31	69,285	Irrigation areas under leaching	345,395
Raw Water (Concentrator well system)	20,527	Total Irrigation	379,738
NDJ	0	Bleed Lix	8,493
Residual Water	19478	Electrolyte to Concentrators	1,698
Pond 3B	40,655	PLS to Concentrator I	687
Alamito	9,681	PLS to Process	11,232,905
Increment Alamo	286,404		
Contingencies 1 & 2	79,130		
Pond 4B	98,874		
Demócrata	17,735		
Total Volume Received	641,769		

Table 14.11 and Table 14.12 are based on the document “Tabla resumen de Lixiviacion 2023-2024 provided by BVC and show the performance of the leaching system, including operating costs for the years 2023 and up to July 2024.

For planning purposes, BVC assumes to leach 95.0% of the acid-soluble copper and 65.0% of cyanide-soluble copper. Soluble copper is defined as acid soluble copper species (oxides) and cyanide soluble copper (secondary sulfides). In 2023, 87.8% of the objective was achieved. By July 2024, 105.4% of the objective had been achieved.

Table 14.11: Leaching System Performance 2023

Month	Volume Pumped (1000 m^3)			Extraction (Cu t)			Unit Cost (US$/$m^3$)			Unit Cost Extracted (US$/t Cu)		
	Plan	Real	Diff.	Plan	Real	Diff.	Plan	Real	Diff.	Plan	Real	Diff.
January	39,703	40,493	790	8,482	8,424	-58	0.094	0.098	0.005	438	472	34
February	35,861	36,116	255	7,882	7,528	-354	0.093	0.095	0.001	425	454	30
March	39,548	41,420	1,872	7,838	7,986	148	0.113	0.100	-0.013	569	519	-50
April	38,280	40,381	2,101	7,912	7,202	-709	0.117	0.101	-0.016	566	567	1
May	37,139	40,529	3,390	7,951	7,381	-570	0.117	0.109	-0.007	545	600	55
June	37,139	39,322	2,183	8,050	7,130	-920	0.122	0.088	-0.033	561	488	-73
July	38,377	39,671	1,294	8,061	7,689	-372	0.092	0.082	-0.011	440	421	-19
August	38,377	39,392	1,015	8,227	8,160	-68	0.089	0.094	0.005	414	452	39
September	38,422	37,608	-814	8,318	6,773	-1,545	0.089	0.085	-0.004	410	470	60
October	39,703	37,203	-2,500	8,414	6,999	-1,416	0.092	0.093	0.002	434	497	63
November	38,422	32,273	-6,149	8,329	5,561	-2,768	0.088	0.097	0.008	408	563	155
December	39,696	28,182	-11,513	8,448	5,128	-3,320	0.087	0.108	0.020	411	593	182
Total	**460,666**	**452,591**	**-8,075**	**97,912**	**85,961**	**-11,951**	**0.099**	**0.096**	**-0.004**	**467**	**504**	**36**

Table 14.12: Leaching System Performance 2024YTD

Month	Volume Pumped (1000 m^3)			Extraction (Cu t)			Unit Cost (US$/$m^3$)			Unit Cost Extracted (US$/t Cu)		
	Plan	Real	Diff.	Plan	Real	Diff.	Plan	Real	Diff.	Plan	Real	Diff.
January	40,920	30,070	-10,850	5,349	5,528	179	0.0920	0.131	0.039	704	711	7.3
February	38,280	33,096	-5,184	5,295	5,998	703	0.0933	0.111	0.018	675	615	-59.5
March	40,920	35,294	-5,626	6,197	6,339	143	0.0963	0.096	0.000	636	535	-101.0
April	39,600	34,528	-5,072	5,489	6,298	809	0.0973	0.071	-0.026	702	389	-313.1
May	39,600	33,602	-5,998	5,867	6,218	350	0.0988	0.080	-0.019	666	433	-233.7
June	39,600	32,107	-7,493	5,803	5,759	-44	0.1033	0.090	-0.013	705	504	-201.0
July	40,920	39,187	-1,733	8,583	8,753	170	0.0999	0.077	-0.023	476	343	-133.5
Total	**279,840**	**237,883**	**-41,957**	**42,583**	**44,893**	**2,310**	**0.0973**	**0.096**	**-0.001**	**652**	**504**	**-148**

14.1.2.3 BVC Leaching Facilities

The BVC leaching system shown in Figure 14.1 and includes three leach dumps built with ROM ore and four leach heaps built with primary-crushed ore transported and stacked with belt conveyors, locally called Quebalix systems.

14.1.2.3.1 Quebalix I (QL-I)

The system has been decommissioned and this description is included for illustration and historical reference. The first crushing/conveyor system was built in 1994, using a stationary 54” primary crusher and 48” stationary conveyors (relocated) that were available after the old concentrator was shut down in 1989. Based on the 15-year mine plan at the time, the system was expected to handle 30 ktpd, or 10 Mtpy. The primary crusher was used to feed the zinc plant.

The heap was built in an area not previously used for leaching. The first stage of the project was a test project to prove the concept of crushing and belt-conveying for leaching. The ore was transported to the heap area, where it was re-handled by loaders and trucks to build the first 25-30 m high lift. Later, additional movable conveyors and a stacker conveyor were added to the system to extend the heap and to stop using trucks over the heap. The distance from the crusher to the toe of the heap is approximately 3.4 km.

14.1.2.3.2 Quebalix II (QL-II)

The second crushing and conveying system was built in 1997 to crush 17.5 Mtpy with one 60” x 89” primary crusher and a 48” conveyor. It was in the west side of what was then called Kino pit. For this system, BVC used a concept, called “easily relocatable crusher,” to be able to change the location in one, or two, months. The last location of the crusher is on the south side of the pit. The crushed-ore heap covered some old ROM pads.

14.1.2.3.3 Quebalix III (QL- III)

The third system was installed in 2012, also for 17.5 Mtpy with one 60” x 89” primary crusher and a 48” conveyor. The crusher was located on the east side of the pit limit. However, mining progress may require relocation of the QL-II and QL-III crushers. To avoid interference of the conveyors with the operation of the pit a tunnel was dug through the pit wall for the first conveyor to install the rest of the conveyors outside the pit. The heap was built over the old Mexicana ROM pads.

14.1.2.3.4 Quebalix IV (QL-IV)

The last system was installed in 2016, to crush approximately 36 Mtpy with two 60” x 89” primary crushers and 72” conveyors. The crushers are in the north-east side of the pit, next to the primary crushers for Concentrator II. The advance of the pit could make necessary to relocate these crushers. The heap is being built in a new area south of the mine site because it is expected to use this system for a large tonnage of leach ore, as contemplated in the current long-term mine plan.

14.1.2.4 BVC Solvent Extraction and Electrowinning Process Description

The purpose of the SX plant is to concentrate Cu from a dilute impure pregnant leach solution (PLS) and produce a clean electrolyte at 45 to 55 g Cu/L suitable for the EW process. The main impurities deleterious to EW to be rejected in SX are iron and manganese. 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 SX plants have extraction sections and stripping sections that together form a “train”. A plant can have multiple trains and multiple stages in a section. Sometimes an organic washing stage is included. A stage consists of mixing tanks and a settler area to separate the solutions.

In the extraction section, the PLS is mixed with an organic solution, a mixture of a reagent diluted with kerosene, that extracts (loads) the copper from solution and releases acid. The mixture passes from the mixers to the settler where is separated into an aqueous solution and the loaded organic (LO) solution. 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 section, the LO is mixed with a highly acidic solution, called spent or lean electrolyte (SE). The high acid content of the SE causes the LO to release copper to the SE and pick-up acid, regenerating the reagent molecules and the SE becomes Rich Electrolyte (RE) to feed the EW plant. After separation of the phases in the settlers, the organic solution (SO) 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 EW, the RE from SX is recirculated through electrowinning cells with multiple stainless-steel cathodes and lead anodes. A direct electrical current is applied to the cells that causes the copper in the RE to be deposited in the cathodes and the RE becomes SE that returns to SX to extract more copper. The EW reaction produces acid that returns to SX in the SE to close the process loops where copper travels from Leaching to EW and acid travels from EW to Leaching, shown in Figure 14.10.

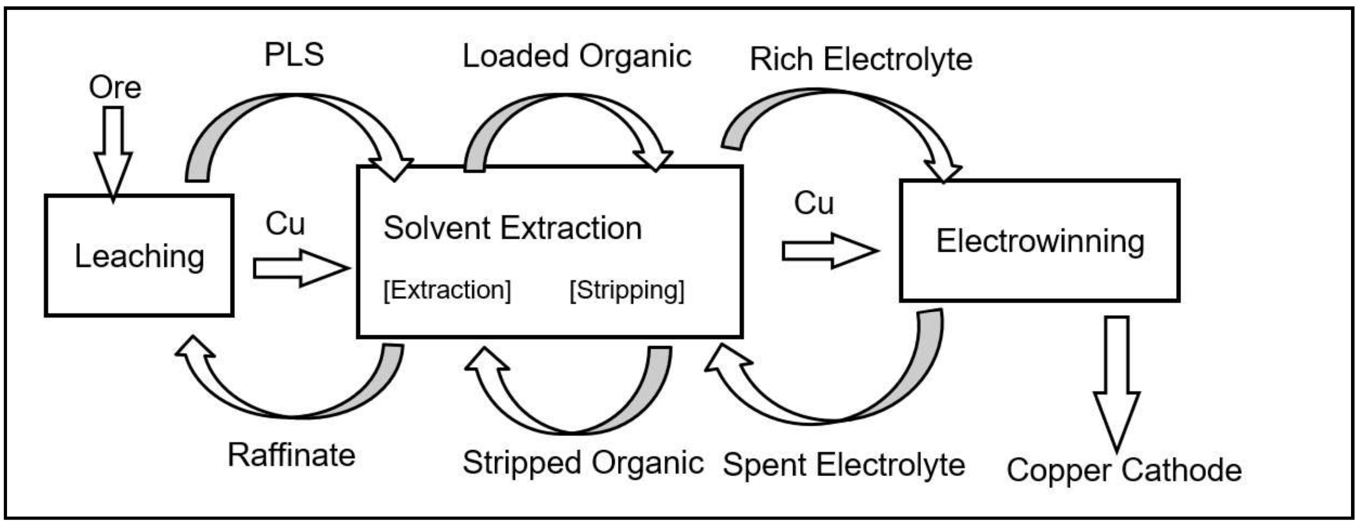


Figure 14.10: Leaching-Solvent Extraction -Electrowinning Diagram

14.1.2.4.1 SX-EW I

For the first SX-EW plant commissioned in 1980, the nominal capacity was 40 tpd copper cathode with PLS feed of 900 cubic meters per hour (m^3/h) at of 2.0 gCu/L. The plant capacity was downgraded to 32 tpd Cu cathode when it became clear that it would be difficult to maintain the PLS concentration used for the design, and after detecting several maintenance and operation problems that affected plant availability. The SX plant had two stages of extraction and two stages of stripping in series. Later one of the stripping stages was converted to extraction in parallel with the original extraction stages, to increase the PLS capacity of the plant. The EW started with 46 "commercial" cells to produce final cathode and 6 "starter" cells to produce starter cathode sheets. The starter cells became commercial in 1989 when the plant was converted to permanent cathode process with stainless steel cathode blanks. The typical flow diagram used for the original SX and for the second plant is presented in Figure 14.11. The modification to the Series-Parallel circuit is presented in Figure 14.12.

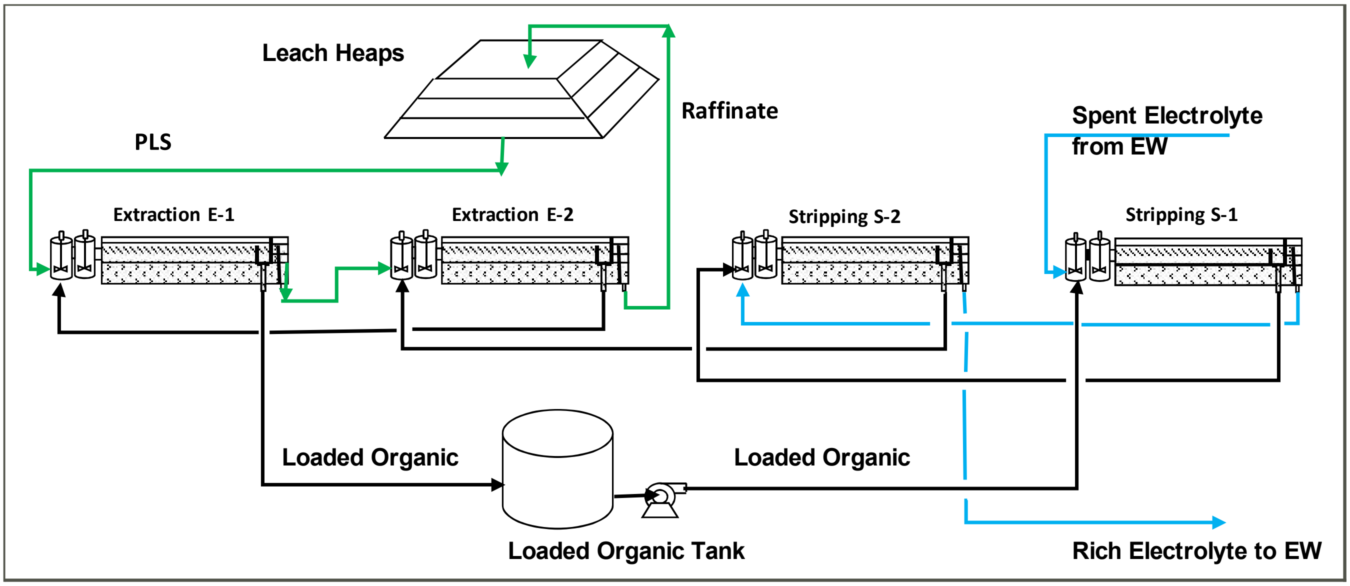


Figure 14.11: Series (2Ex2S) SX Circuit

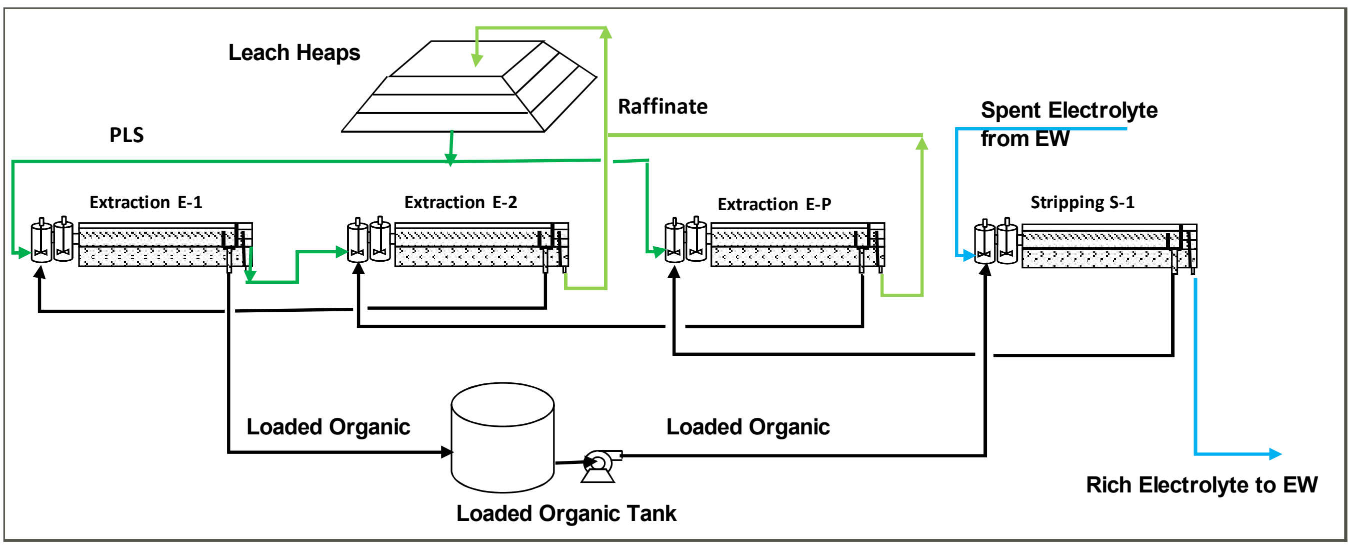


Figure 14.12: Modified Series-Parallel SX Circuit

14.1.2.4.2 SX-EW II

The design of the second SX-EW plant built in 1989 was based on conventional factors and PLS data from BVC. The nominal capacity is 60 tpd nominal and 75 tpd design, to produce 21,900 tpy copper cathode from PLS containing 2.15 gCu/L minimum nominal and 2.7 gCu/L for design, specified by BVC.

The original plant had three trains of SX with two stages of extraction and two stages of stripping in series per train. Later one of the stripping stages was converted to extraction in parallel with the original extraction stages, to increase the PLS capacity of the plant. The EW plant started with 60 cells with permanent stainless-steel cathodes for total production stripping of cathodes. The plant was expanded in 2004 with two additional trains of SX, and the EW plant was doubled with an additional tank house, with the cathode stripping section servicing both sections of EW.

14.1.2.4.3 SX-EW III

The third SX-EW plant built in 2014 has a nominal capacity of 113,280 tpy cathode (310 tpd nominal) and 124,558 tpy design (341 tpd design) from PLS containing 1.8 gCu/L.

The plant has three trains of SX with two stages of extraction in series, one stage of extraction in parallel, two stages of stripping, one organic wash stage and one organic post-decanter stage per train.

The EW plant has 270 cells with 81 stainless steel cathodes and 82 lead anodes per cell.

14.1.2.5 BVC Summary Production Results

Reportedly the three crushing and conveying systems have a combined capacity of 81 Mtpy and the Mine has additional ore and haulage capacity to continue sending ore to the ROM leach dumps. The three SX-EW plants have a nominal combined capacity of 146,700 tpy of cathode. Table 14.6 shows the results for the last three years of operation.

Table 14.13: Summary Performance of SX-EW Plants 2023

Plant	PLS Flow (L/min)	PLS Grade (gCu/L)	Extraction Efficiency (%)	EW Current Efficiency (%)	Production (t/Cu)	Operation Cost (US$/lb Cu)
SX-EW 1	14,807	0.75	82.1			
SX-EW 2	64,959	0.75	82.8	51.0	20,805	0.29
SX-EW 3	182,146	0.75	90.2	70.0	66,750	0.81
Total	**261,912**	**0.75**	**87.8**	**65.5**	**87,555**	**0.69**

Table 14.14 and Table 14.15 show operational details for the years 2023 and 2024.

Table 14.14: Performance of SX-EW Plants Year 2023

SX-EW I	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total SX-EW I
Flow (L/min)	18,857	19,372	19,619	20,276	19,682	20,107	19,688	18,863	19,452	19,450	12,929	10,400	18,225
PLS (gr Cu/L)	0.84	0.79	0.79	0.71	0.73	0.67	0.67	0.67	0.72	0.74	0.73	0.64	0.73
Extraction Efficiency (%)	77.1	81.75	82.79	84.81	81.05	84.04	83.63	84.22	77.34	78.42	82.91	86.74	82.07
Current Efficiency (%)	0	0	0	0	0	0	0	0	0	0	0	0	0
Production (t Cu)	0	0	0	0	0	0	0	0	0	0	0	0	0
Cost (US ¢/Lb Cu)	0	0	0	0	0	0	0	0	0	0	0	0	0
SX-EW II	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total SX-EW II**
Flow (L/min)	79,180	77,263	81,048	78,915	76,178	67,036	62,640	62,632	75,825	53,866	32,075	32,844	64,959
PLS (gr Cu/L)	0.80	0.77	0.78	0.75	0.76	0.74	0.78	0.76	0.75	0.72	0.68	0.65	0.75
Extraction Efficiency (%)	81.18	82.81	81.03	81.19	79.81	82.60	84.15	82.92	75.40	83.71	91.90	87.07	82.81
Current Efficiency (%)	57.02	56.08	51.37	51.08	52.52	46.45	44.77	45.09	46.31	51.21	56.18	59.72	51.01
Production (t Cu)	2,199	1,968	2,152	1,998	2,015	1,775	1,671	1,834	1,813	1,711	1,166	502	20,805
Cost (US ¢/Lb Cu)	28.72	23.83	27.4	22.51	31.75	25.18	27.77	27.23	25.11	26.58	36.79	45.16	29.00
SX-EW III	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total SX-EW III**
Flow (L/min)	184,058	184,281	188,423	190,015	182,316	186,664	180,350	186,138	185,529	186,183	180,203	151,596	182,146
PLS (gr Cu/L)	0.80	0.75	0.78	0.76	0.77	0.75	0.81	0.78	0.75	0.73	0.66	0.68	0.75
Extraction Efficiency (%)	90.24	91.34	91.83	90.85	90.02	89.74	87.82	89.45	90.59	90.28	90.34	89.47	90.16
Current Efficiency (%)	75.27	72.64	72.43	72.62	69.84	66.64	67.6	69.49	71.06	68.68	64.25	66.32	69.97
Production (t Cu)	6,334	5,375	6,126	5,879	5,771	5,743	5,417	6,279	5,285	5,716	4,344	4,480	66,750
Cost (US ¢/Lb Cu)	79.26	79.85	80.9	82.4	93.7	75.49	77.27	70.05	77.12	74.68	93.12	90.12	81.16
Total SX-EW	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total SX-EW**
Flow (L/min)	282,095	280,916	289,090	289,207	278,176	273,807	262,678	267,633	280,807	259,499	225,208	194,839	265,330
PLS (gr Cu/L)	0.80	0.76	0.78	0.75	0.76	0.74	0.79	0.77	0.75	0.73	0.67	0.67	0.75
Extraction Efficiency (%)	86.82	88.33	88.19	87.79	86.59	87.57	86.63	87.55	85.57	88.03	90.13	88.92	87.68
Current Efficiency (%)	70.57	68.20	66.96	67.16	65.36	61.87	62.22	63.97	64.74	64.65	62.54	65.65	65.46
Production (t Cu)	8,533	7,343	8,278	7,877	7,786	7,518	7,088	8,113	7,099	7,428	5,510	4,982	87,554
Cost (US ¢/Lb Cu)	66.24	64.84	66.99	67.21	77.67	63.61	65.60	60.37	63.83	63.60	81.20	85.59	68.90

Table 14.15: Performance of SX-EW Plants through May 2024

SX-EW I	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total SX-EW I
Flow (L/min)	7,878	0	0	0	0								7,878
PLS (gr Cu/L)	0.76	0	0	0	0								0.76
Extraction Efficiency (%)	76.45	0	0	0	0								76.45
Current Efficiency (%)	0	0	0	0	0								0
Production (t Cu)	0	0	0	0	0								0
Cost (US ¢/Lb Cu)	0	0	0	0	0								0
SX-EW II	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total SX-EW II**
Flow (L/min)	24,090	49,599	60,959	60,451	52,192								49,458
PLS (gr Cu/L)	0.78	0.74	0.71	0.71	0.68								0.72
Extraction Efficiency (%)	88.03	78.27	74.49	74.51	82.69								79.60
Current Efficiency (%)	0.00	72.54	74.33	70.64	66.91								56.88
Production (t Cu)	20	760	1,153	1,192	1,365								4,490
Cost (US ¢/Lb Cu)	872.36	0.00	26.04	23.89	25.76								24.81
SX-EW III	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total SX-EW III**
Flow (L/min)	167,193	186,887	186,104	188,992	182,212								182,278
PLS (gr Cu/L)	0.78	0.73	0.70	0.71	0.67								0.72
Extraction Efficiency (%)	88.04	89.44	90.56	90.01	89.89								89.59
Current Efficiency (%)	68.18	71.03	72.36	71.28	68.97								70.36
Production (t Cu)	5,278	5,101	5,203	5,019	4,843								25,444
Cost (US ¢/Lb Cu)	81.84	86.23	74.09	67.27	74.32								76.83
Total SX-EW	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total SX-EW**
Flow (L/min)	199,161	236,486	247,063	249,443	234,404								233,311
PLS (gr Cu/L)	0.78	0.73	0.70	0.71	0.67								0.72
Extraction Efficiency (%)	87.58	87.10	86.59	86.25	88.29								87.16
Current Efficiency (%)	67.92	71.23	72.72	71.16	68.52								70.31
Production (t Cu)	5,298	5,861	6,356	6,211	6,207								29,934
Cost (US ¢/Lb Cu)	84.88	75.06	65.37	58.94	63.64								69.03

The production results of the BVC Hydrometallurgy Department for the last three years have been below the nominal capacity of the plants. The main reasons appear to be an ore grade lower than planned and lower solubility index of the ore, which resulted in lower-than-expected copper concentration in PLS, at 0.75 gCu/L, below the design of 2.15 gCu/L for SX-EW II and 1.80 gCu/L for SX-EW III.

Due to that situation BVC suspended the operation of the electrowinning area of SX-EW I and uses the solvent extraction area to produce electrolyte that is sent to EW-II or EW-III to be electrowon. SX-EW II operates at half of its electrowinning capacity.

Adding the cost of Leaching from Table 14.6, at US$504/tCu, or US$0.23/lb, results in an operating cost of US$0.92/lb Cu for year 2023.

14.1.2.6 BVC Energy and Water Requirements

Power for the operation comes from two combined-cycle, natural gas fired power plants with a total capacity of 500 megawatts (MW). Reportedly 340 MW of that capacity is dedicated to BVC, the rest goes to La Caridad process facilities. The power plants belong to a subsidiary of Grupo Mexico and are located north of the smelter/refinery complex of Mexicana de Cobre (La Caridad), near Esqueda, Sonora. The power plants are connected to the national power grid to reach the La Caridad and Buenavista del Cobre complex.

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

The main power consumption is by the ball mills. Each of the 10 mills in Concentrator I is rated at 2,984 kW, while for each of the 6 mills in Concentrator II the required power is 13,026 kW. The estimated unit power consumption is 15.5 kWh per dry short ton (17.05-kilowatt hour per tonne [kWh/t]). Apparently, BVC has enough power available for the existing installations including the Buenavista zinc plant.

The water system for BVC is comprised of two separate systems:

- Freshwater
- Reclaimed Water

Freshwater is supplied from a 48-well field located approximately 10 km north-east of the mine, over two separate aquifers. Pumping from the wells is rotated, to maintain a proper level in the aquifers.

Table 14.16: Water for Concentrators 2023, 2024

Item	Concentrator I		Concentrator II	
	2023	2024*	2023	2024*
Recovered Water (000s m^3)	43,521	29,664	62,380	40,165
Freshwater (000s m^3)	14,445	6,700	17,425	9,769
Ore Milled (000s dmt)	30,384	18,306	42,225	25,377
Unit Recovered Water (m^3/dmt)	1.43	1.62	1.48	1.58
Unit Freshwater (m^3/dmt)	0.48	0.37	0.41	0.38
Total Water Usage (m^3/dmt)	1.91	1.99	1.89	1.97

Note: * through July

In 2023, the freshwater make-up requirement for Concentrator II was 1,994 m^3/h equivalent to approximately 0.4 tonnes of freshwater per tonne of ore processed. The process water (reclaimed) is estimated at 7,140 m^3/h, of which 2,250 m^3/h are recovered from the New Tailings Storage Facility (TSF No. 3).

In 2023, Concentrator I received 1,650 m^3/h of freshwater and 4,980 m^3/h from TSF No. 2.

Freshwater is pumped to a regulating reservoir, then to the south pond at Concentrator I from where it distributed to the process areas, including the potable water and the fire water systems.

Reclaimed water is returned from the Tailings Thickeners, concentrate thickeners, and Tailings Dams.

Water reclaimed from the plant thickeners is discharged to a process water pond, then it is pumped to the process water head pond. Water from the tailings dam is also pumped to the process water head pond. The process water head pond distributes water by means of pumps to maintain proper pressure throughout the following processing circuits:

- Grinding
- Classification (dilution water)
- Flotation (launder water).
- Lime plant.

Reportedly, the leaching operations have suffered a shortage of water, due to lower-than-normal rains. BVC is acquiring new water rights and is working on expanding the raw water supply.

14.1.3 BVC Personnel Requirements

BVC is a mature operation. The nearby town of Cananea, with a population of over 35,000 has a mining history of more than a hundred years. The only labor and technical personnel requirements are generated by the normal turnover of personnel, or occasionally by expansions. Reportedly BVC did not have any problems to find personnel for the recent start-up (2016) of Concentrator II. BVC manages most of its labor force with an outsourcing contract that allows the company to access human resources in other Southern Copper operations and all over Mexico. BVC has a Human Resources department, that includes a training department to compensate the turnover of people and the need for constant improvement of labor skills.

14.1.4 Qualified Person's Opinion – BVC Processing and Recovery Methods

BVC uses actual production results from the last three years of operation as basic parameters for the estimation of mineral reserves and production schedules. Over the last 3 years of operation the two concentrator plants have achieved the production targets, equal to the design parameters. The leaching SX-EW plants have not achieved their design parameters.

14.2 Buenavista Zinc

This sub-section contains forward-looking information related to the zinc plant throughputs and designs, 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 ore 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 metallurgical recovery factors.

14.2.1 BVZ Zinc Concentrator General Process Description and Flow Diagrams

Figure 14.1 provided in Section 14.1.1 shows an overall view of the BVC processing facilities locations and the generalized location of the Zn deposit area within the pit. BVC will continue to operate the open pit as a single operation, not developing a separate pit and fleet of equipment to mine the zinc deposit. The BVZ process flow is shown on Figure 14.13.

The process operations required to extract zinc and copper from the BVZ sulfide ores are summarized below.

- The concentrator follows a conventional process of crushing, screening, semi-autogenous grinding (SAG), ball milling, and sequential flotation to separate zinc and copper concentrates.
- Size reduction of the ROM ore is crushed in an existing primary gyratory crusher to 80% passing -121 mm. The primary crushed ore is stored in a covered coarse ore stockpile and then reclaimed by apron feeders and a conveyor belt.
- Ore comminution follows in a SAG mill to reduce the ore size from approximately 80% passing -121 mm to a size of approximately 80% passing 1.9 mm prior to pumping to a ball mill for grinding. The SAG mill operates in closed circuit with a vibrating screen and pebble crusher.

- Ore grinding is achieved in a conventional ball mill operating in closed circuit with hydro-cyclones, to deliver a product size of 80 percent passing 119 microns to the flotation circuit.
- The copper flotation circuit consists of two stages of rougher flotation, rougher scavenger flotation and two stages of cleaner flotation. Rougher scavenger concentrate is reground and returned to the second stage of copper rougher flotation. The zinc flotation circuit consists of two stages of rougher flotation, rougher scavenger flotation and three stages of cleaner flotation.
- The copper rougher scavenger flotation concentrate regrind circuit consists of a vertical grinding mill operated in open circuit with hydro-cyclones, to deliver a scavenger concentrate size of 80 percent passing 25 microns to the copper rougher flotation second stage.
- Final copper concentrate is directed to an existing copper concentrate thickener at BVC's Concentrator I.
- The final zinc concentrate product is dewatered and filtered prior to loading in trucks for shipment. Water from the dewatering operation will be directed to a dedicated process water tank for reuse at the zinc concentrator.
- The zinc rougher scavenger flotation tails (final tailings) flows by gravity to a zinc tailings thickener. Thickener underflow is discharged by gravity to the existing Copper Concentrator I TSF for final disposal.
- Thickener overflows from tailing and concentrate sedimentation will be pumped to the process reclaimed water tank for reuse in the process.
- Plant water streams include process water, freshwater, pump seal water and domestic water. Freshwater from the south pond at Concentrator I is used for plant services, reagent mixing, and as gland seal water.
- Storing, preparing, and distributing reagents used in the process. Reagents include milk of lime, complex ZZ, A-3739 collector, zinc sulfate, copper sulfate, A-3473 collector, Teuton 100-35 frother, DP-6, flocculant and antiscalant.

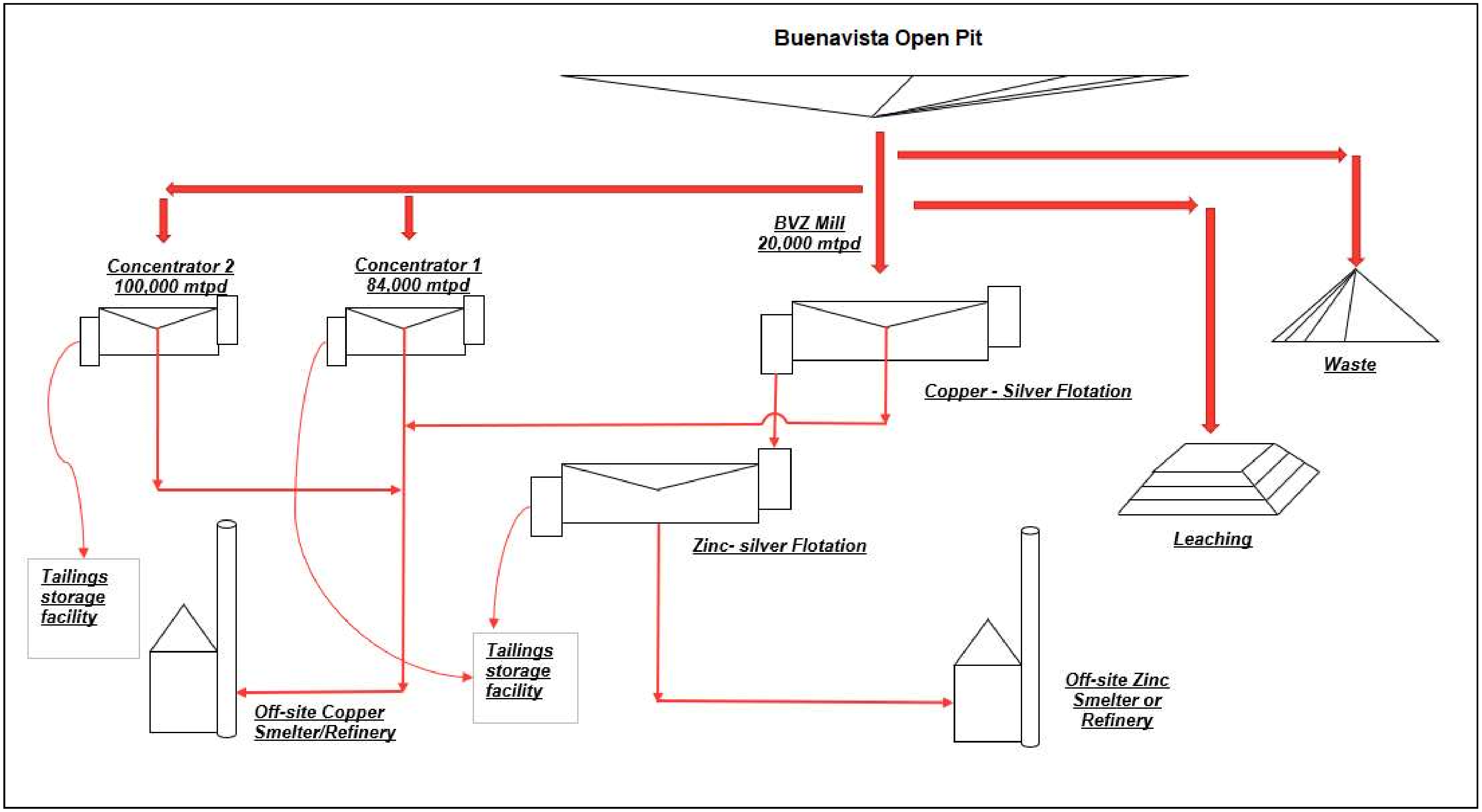
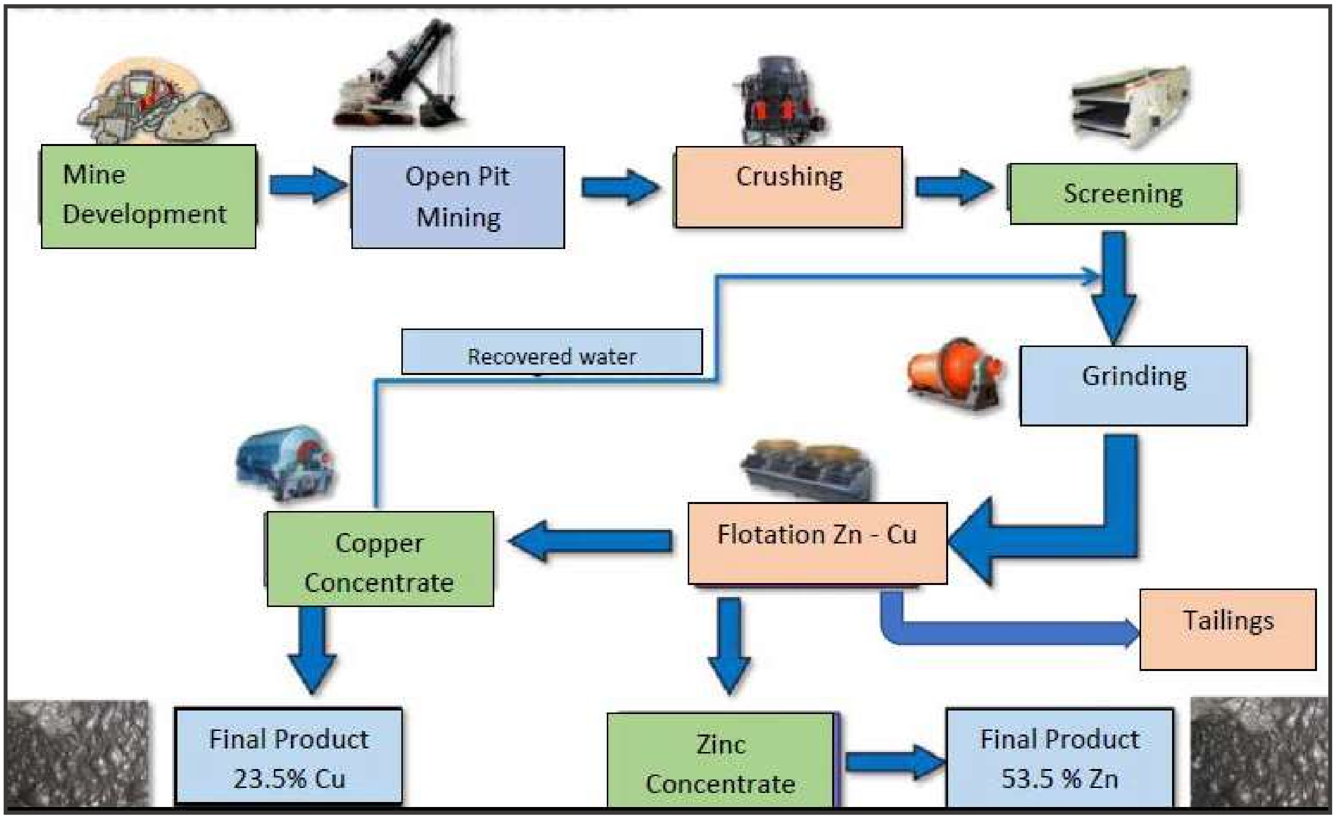


Figure 14.13: Buenavista Zinc Processing Flow Diagram

The typical schematic process for the BVZ Concentrator I is shown in Figure 14.14.



Source: SCC

Figure 14.14: BVZ Concentrator Process Flow

14.2.2 BVZ Design Basis

The design basis for the Zinc Concentrator is outlined below.

- Primary Crushing 20,000 dmtpd
  - 80% passing minus 121 mm
  - Crushing production schedule:
    - Days per year: 365
    - Hours per day: 18
    - Availability: 75%
    - Ore crushing rate, design: 1,110 dmtph
- Zinc Concentrator:
  - Grinding, flotation, and concentrate handling production schedule:
    - Days per year: 360

- Hours per day: 24
- Availability: 95%
- Principal sulfide minerals in sulfide ore: Chalcopyrite; chalcocite, sphalerite
- SAG product: 80% passing 1.9 mm
- Ball mill product: 80% passing 191 microns.
- Estimated plant availability: 90.0%

- Forecast Production Schedule:
  - Ore Crushing and Milling average rate: 20,000 dtpd, or 6.85 Mtpy
  - Copper Concentrate Production:
    - 331 dmtpd
    - 79.4% Cu Recovery
    - Copper concentrate assays:
      - 23.5% Cu
      - 9.4% Zn
      - 19.0% Fe
      - 626 g/t Ag
  - Zinc Concentrate Production:
    - 562 dmtpd
    - 82.2 % Zn Recovery
    - Zinc concentrate assays:
      - 53.5% Zn
      - 1.6% Cu
      - 4.2% Fe
      - 67 g/t Ag

The flotation circuit design parameters, assays, and recoveries are based on information from the June 28, 2017, Grupo Mexico metallurgical test report.

14.2.3 BVZ Process Facilities and Process Description

14.2.3.1 BVZ Primary Crushing & Grinding. Equipment, Flow Diagram and Process Description

A brief description of the crushing and grinding circuits included in the design is provided below:

- Crushing (single stage circuit):
  - Primary Crushing. Existing 54” x 69” gyratory crusher.
  - Ore conveyor to Coarse ore stockpile
  - Coarse ore storage yard. 80,000 tonnes total capacity; 20,000 dry tonnes live capacity.
  - Reclaim Apron Feeders & Conveyors. Six sets.
- Grinding:
  - SAG mill [30 ft x 15.5 ft (9.14 m x 4.85 m) operated in closed circuit with vibrating screen and pebble crusher]
  - Pebble crusher – Open circuit (Short head cone – Metso HP4)
  - Ball Mill operating in closed circuit with hydro-cyclones. [23 ft x 37 ft (7 m x 11 m)]

The simplified flow diagram of the crushing and grinding plants is shown in Figure 14.15.

The crushing and grinding circuits are described in Sections 14.1.1 and 14.1.2.

14.2.3.2 BVZ Beneficiation Plant Flotation Circuits, Equipment and Process Description

A brief description of the Flotation Process is provided below:

- Copper Flotation:
  - Copper Rougher (Primary) Flotation (4 cells – 50 cubic meters (m^3) per cell; 2 cells – 100 m^3 per cell).
  - Copper Scavenger flotation (4 cells – 100 m^3 per cell)
  - Copper circuit regrind vertical mill (10.5 ft diameter by 23 ft long). (High Intensity Grind (HIG 140/500F) – Product size P_{80} 25 micron
  - First cleaner flotation (6 cells – 5 m^3 per cell)
  - Second cleaner flotation (3 cells – 5 m^3 per cell)

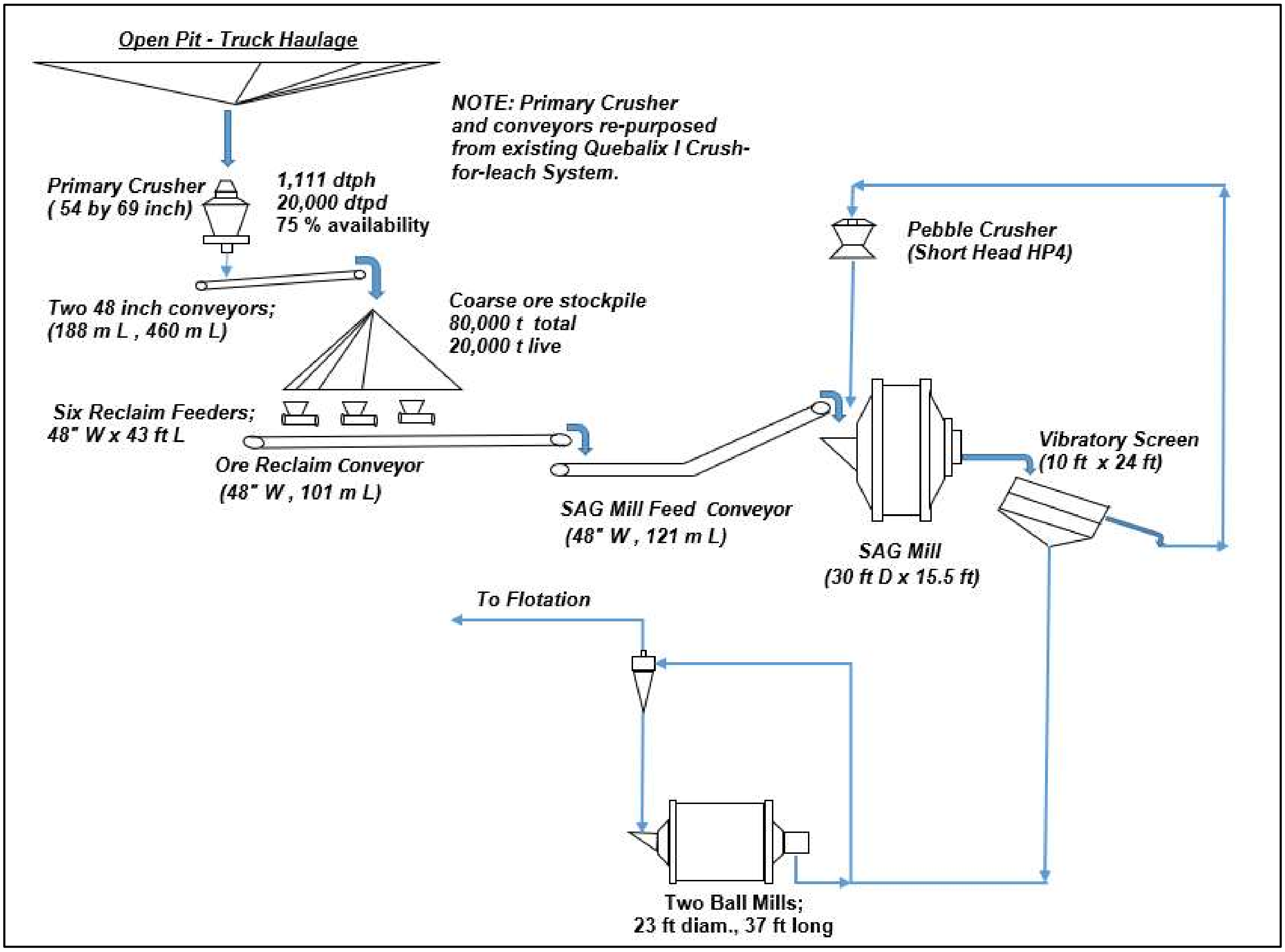


Figure 14.15: BVZ Concentrator Crushing and Grinding Circuits

- Zinc Flotation:
  - Zinc Rougher (Primary) Flotation (2 cells – 100 m^3 per cell; 2 cells – 100 m^3 per cell).
  - Zinc scavenger flotation (6 cells – 100 m^3 per cell)
  - Zinc circuit regrind vertical mill (future)
  - First cleaner flotation (6 cells – 10 m^3 per cell)
  - Second cleaner flotation (6 cells – 10 m^3 per cell)
  - Third cleaner flotation (2 cells – 10 m^3 per cell)
  - Zinc concentrate sedimentation, filtration, and water recovery:
    - Thickener (High – rate; 12-m diameter).

    - Filters (Vertical pressure filters, 3 units, two operating, one standby; 31.5 square meters [m^2] each).
    - Overflow water pumped to process water tank.
  - Final zinc concentrates storage and shipping.
  - Zinc tailing sedimentation and water recovery:
    - Thickener (60-m diameter)
    - Overflow water pumped to process water tank
- Reclaimed and freshwater systems:
  - TSF and water recovery.
  - The simplified flow diagram of the flotation plant is shown in Figure 14.16.

14.2.4 BVZ Beneficiation Plant Process Reagents

The reagents utilized in flotation of copper and zinc sulfide mineralization present at Buenavista del Zinc deposit are common in the industry.

14.2.4.1 BVZ Production, Metallurgical Recovery, and Product Quality

Considering that most likely the Zinc concentrate will be sent to a smelter or an electrolytic refinery that belong to SCC, the quality of the Zinc concentrate is less relevant than if the concentrate were sold in the open market. The same observation applies to the copper concentrate that will be sent to a smelter that belongs to Southern Copper mixed with concentrate from Concentrator I. Production of good grade concentrates must be balanced with the need to achieve the best possible flotation recovery. Normally, the higher the concentrate grade the lower the recovery and vice versa. As noted in Section 14.2.2, the plant is expected to produce 331 dmtpd of copper concentrate and 562 dmtpd of zinc concentrate.

The zinc concentrator started operating in late 2023, early 2024. At this writing, the concentrator plant has been in operation for approximately 8 months. The production data outlined herein relate to the first five months of operation. It should be noted that due to start up conditions of operation, the forecast production is considered conservative. The milling tonnage has increased from 8,000 to 16,000 dmt during the first eight months of production. The following milestones have been achieved during the first five months of production.

- Zinc concentrate production is currently at 10,000 dmt per month
- Zinc recovery is at 80% to 85% range
- Concentrate Zn concentration is equal or greater than 50%
- Current production exceeds the plan by approximately 1,000 dmt per month

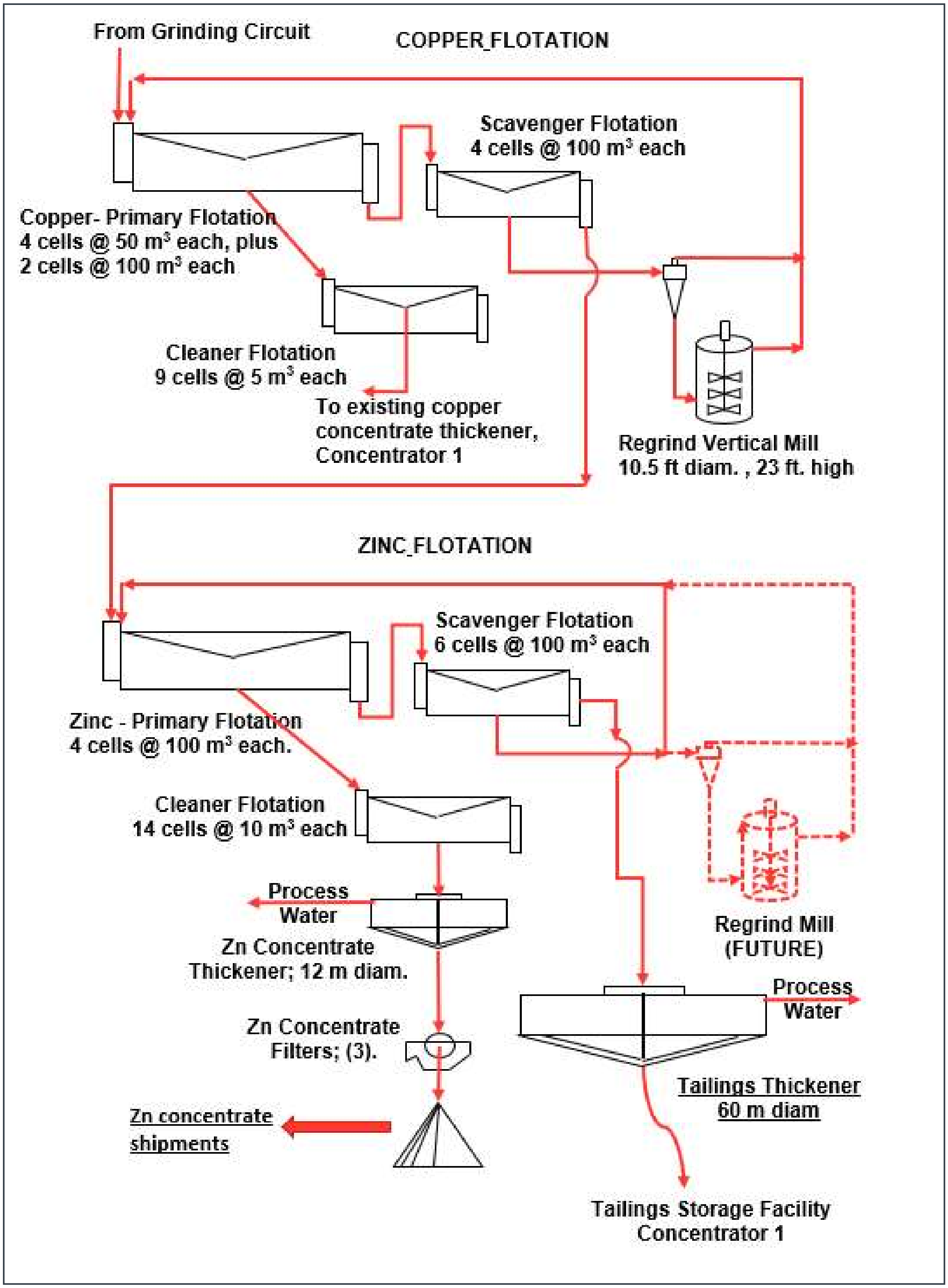


Figure 14.16: BVZ Concentrator Beneficiation - Flotation Circuits

Zinc concentrate production is expected to increase from 4,000 to 6,000 dmt per month in Q3. The increase in zinc production is attributed to ore grades that are above 2% Zn. The average zinc grade projected for the project was 1.2% Zn.

The concentrator is producing copper concentrates as well. The ore copper grade is averaging 0.5% Cu. The average projected copper grade was in a 0.3% Cu range

Mill Availability has improved throughout the operation (May 2024) from 83% to nearly 100%.

The zinc concentrate produced (2,160 dmt) through May 2024 is slightly above the planned production.

Table 14.17 show the actual production results for the first 5 months of operation.

Table 14.17: Summary Production Results Zinc Concentrator through May 2024

Month	Zinc Concentrator											
	Ore Milled (000s dmt)	Ore Grade		Zn Concentrate (dmt)	Zn in Concentrate		Zn Recovery (%)	Cost Milled (US$/dmt)	Cu Concentrate (dmt)	Cu in Concentrate		Cu Recovery (%)
		Zn (%)	Cu (%)		(dmt)	(%)				(dmt)	(%)	
January	247	1.386	0.344	4,367	1,743	39.92	50.95	15.32	905	166	18.30	19.50
February	390	2.080	0.534	6,661	3,289	49.37	67.24	12.86	2,788	583	20.92	70.61
March	542	2.264	0.547	9,349	4,663	49.88	80.40	7.31	6,514	1,410	21.64	90.05
April	497	2.341	0.438	9,059	4,504	49.72	80.34	8.42	5,527	1,112	20.13	82.96
May	484	2.545	0.548	10,373	5,366	51.73	84.75	9.31	5,434	1,160	21.36	89.89
Total	**2,160**	**2.211**	**0.497**	**39,809**	**19,565**	**49.15**	**72.74**	**54.36**	**21,168**	**4,431**	**20.93**	**41.30**

14.2.4.2 BVZ Metallurgical Mass Balance

For plant design purposes, M3 Engineering conducted a steady state mass balance for the entire beneficiation plan. It should be noted that the parameters used for mass balance purposes were defined by Grupo Mexico.

The mass balance reflects the design basis included in Section 14.2.1 and the production parameters in Table 14.18. The deportment of metals in the products is shown in Table 14.19.

Table 14.18: BVZ Metal Production Schedule

Basic Design Parameter	Cu	Zn	Ag	Pb	Fe
Mine Head Grades (%) (Ag g/t)	0.49	1.83	18.00	0.10	10.82
Recovery to Copper Concentrate, %	79.4	8.5	58.0	62.1	2.9
Copper Concentrate Assay (%) (Ag g/t)	23.5	9.4	626.0	3.8	19.0
Recovery to Copper Concentrate, %	9.1	82.2	10.5	5.8	1.1
Zinc Concentrate Assay (%) (Ag g/t)	1.6	53.5	67.0	0.2	4.2
Cu Concentrate Daily Production (dmt/d, Ag Oz/d)	77.9	n/a	6,673.0	12.6	n/a
Zn Concentrate Daily Production (dmt/d, Ag Oz/d)	n/a	300.7	1,211.0	1.1	n/a

Table 14.19: BVZ Metal Balance

Product	Assays					Recovery				
	Ag (g/t)	Pb (%)	Cu (%)	Zn (%)	Fe (%)	Ag (g/t)	Pb (%)	Cu (%)	Zn (%)	Fe (%)
Mine Head	18.0	0.10	0.49	1.83	10.80	n/a	n/a	n/a	n/a	n/a
Copper Concentrate	626.0	3.80	23.50	9.40	19.00	58.0	62.1	79.4	8.5	2.9
Zinc Concentrate	67.0	0.20	1.60	53.50	4.20	10.5	5.8	9.1	82.2	1.1
Final Tails	6.0	0.00	0.00	0.20	10.90	31.5	32.1	12.0	9.6	96.0

The metallurgical data developed indicate that differential flotation for Ag-Cu and Zn mineralization is adequate for processing the Buenavista del Zinc ore. Copper showed a good response with respect to concentrate grade and recovery. Most of the silver reports to the copper concentrate. Zinc mineralization provided a positive response with respect to concentrate grade and recovery. The variability shown by the different lithologies present in the BVZ deposit regarding metal recovery and ore grades indicate that the estimated levels of metal recovery may vary during plant operations.

The main factors impacting the copper and zinc recoveries and concentrate grades are outlined below:

- A potential challenge exists with the strong association of chalcopyrite with sphalerite:
  - The chalcopyrite-sphalerite association may increase copper in the zinc concentrate.
  - Regrind size control in the copper flotation circuit may be necessary to minimize concentrate contamination.
- The presence of clays:
  - May prevent production of acceptable grades for copper and zinc concentrates.
  - Presence of clay requires additional water in the flotation process.

14.2.5 BVZ 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. The incoming power source is the same as for the Buenavista mining complex as described earlier in Section 14.1.2.6
- The capital cost estimate for the BVZ Project included a new substation to service the new plant. The estimated summary power consumption is presented in Table 14.20. The total power in the table does not include the existing primary crusher and two existing conveyors that will be used in the BVZ Project.

Table 14.20: BVZ Estimated Power Consumption

Process Area	Installed Power	
	(hp)	(kW)
Grinding	29,379	21,908
Flotation	9,494	7,080
Concentrate Thickening	2,338	1,743
Ancillary	2,353	1,755
Total	**43,564**	**32,486**

The main power consumption is by the SAG and ball mills.

The estimated unit power consumption is 23.5 kWh per dry metric tonne. Reportedly, BVC has enough power available for the BVZ plant in the near term.

The water system for BVZ is comprised of two separate systems:

- Freshwater
- Reclaimed Water

The freshwater make-up requirement for grinding/flotation is estimated at 10,338 m^3 per day equivalent to approximately 0.5 tonnes of freshwater per tonne of ore processed. The process water (reclaimed) is estimated at 72,857 m^3 per day.

Freshwater from the south pond at Concentrator I is pumped to a freshwater reservoir and distributed without further treatment to the following process areas:

- Make-up to reclaimed water
- Process make-up water
- Potable water
- Pump's gland water seals
- Reagent mixing

Reclaimed water is returned from the Zinc Concentrate Thickener and the Tailings Thickener.

Water reclaimed from the plant thickeners 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)

Currently, freshwater for the BVC existing operations is supplied from a 48-well field located approximately 10 km north-east of the mine, over two separate aquifers. Pumping from the wells is rotated to maintain a proper level in the aquifers. Reportedly, BVC is acquiring new water permits and developing new freshwater sources. The capital cost estimate for the BVZ project includes US$3.7 M for a freshwater aqueduct and distribution system.

14.2.6 BVZ Personnel Requirements

The BVZ Concentrator will require a total of 45 supervisory and operation staff. No problems are anticipated to fulfill that requirement given the long history of BVC's mining operations at Cananea.

14.2.7 Qualified Person's Opinion – BVZ Processing and Recovery Methods

The metallurgical data developed indicate that differential flotation for Ag-Cu and Zn mineralization is adequate for processing the BVZ ore.

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.

The Buenavista del Cobre operation consist of two ROM receiving units, two copper concentrators, one zinc concentrator and three SX-EW plants supported by crushers conveyors and spreaders for the leachable ore. The ROM receiving units consist of crushers, conveyors and storage domes. Buenavista del Cobre is located northwest of La Caridad and 40 km south of the Arizona, U.S. - Mexican border and lies on the outskirts of the historical city of Cananea. Buenavista is connected by paved highways to the towns of Agua Prieta (northeast), Nacozari (southeast) and to Imuris to the west. Rail corridors also connect Buenavista to Agua Prieta and Nogales. A small municipal airport is located about 20 km northeast of Buenavista.

15.1 Primary Mining Infrastructure

Primary mining infrastructure at Buenavista del Cobre is composed of two primary crushers PR01 and PR02, rated at a capacity of 85,000 tpd and 115,000 tpd for a total of about 200,000 tpd. The two crushers together provided about 75 Mt of ore to the two concentrators at site (Concentrator I and Concentrator II), annually.

The mining operation is also supported by four crushing, conveying and spreader systems for handling and transporting crushed leachable ore. These four crushers are named QLIX I (40,000 tpd), QLIX II (73,000 tpd), QLIX III (57,000 tpd) and QLIX IV (200,000 tpd) with a combined capacity of 370,000 tpd. The four QLIXs deliver approximately 54.5 Mtpy to the various leach pads located through the site.

Shovels and trucks move approximately 73 Mtpy of waste to the waste storage facilities; and about 40 Mtpy of ROM leach ore to the leach pads. Combined, the current mining infrastructure described is capable of moving approximately 280 Mtpy of total material.

A new zinc plant was commissioned on January 13, 2024, and has reached nameplate capacity of 20,000 TPD (dry). About 7.3 Mtpy of ore is expected to be mined from an area within the Buenavista del Cobre operations and routed to the new zinc plant. QLIX I is expected to be converted for exclusive use for crushing and transporting this zinc-rich ore to the zinc plant. Sufficient spare capacity exists in the QLIX systems to allow QLIX I to be dedicated to the zinc plant. Additional spare capacity from the QLIX system is being planned for use to transport waste as haul distances get longer.

Three SX-EW plants on site provide a combined nominal capacity of about 174,470 tpy of cathode.

Other significant infrastructure features include an older tailings storage facility (TSF No. 3) commissioned almost 80 years ago and is nearly at capacity. TSF No. 3 is in the process of being expanded to increase its capacity.

Figure 15.1 shows the above primary infrastructure while Figure 15.2 shows a close-up view of the infrastructure in the mine.

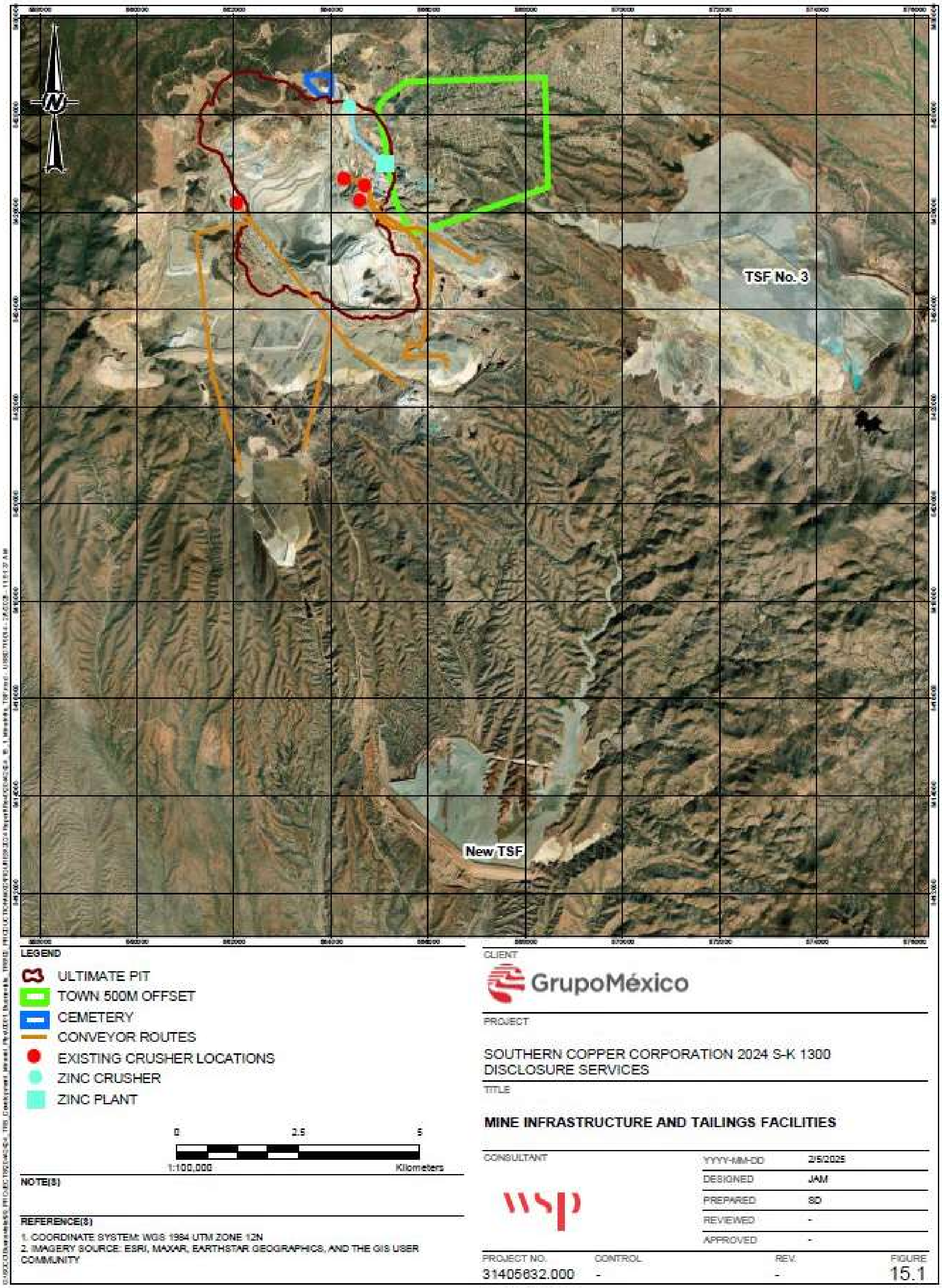


Figure 15.1: Buenavista del Cobre Mine Infrastructure and Tailings Facilities

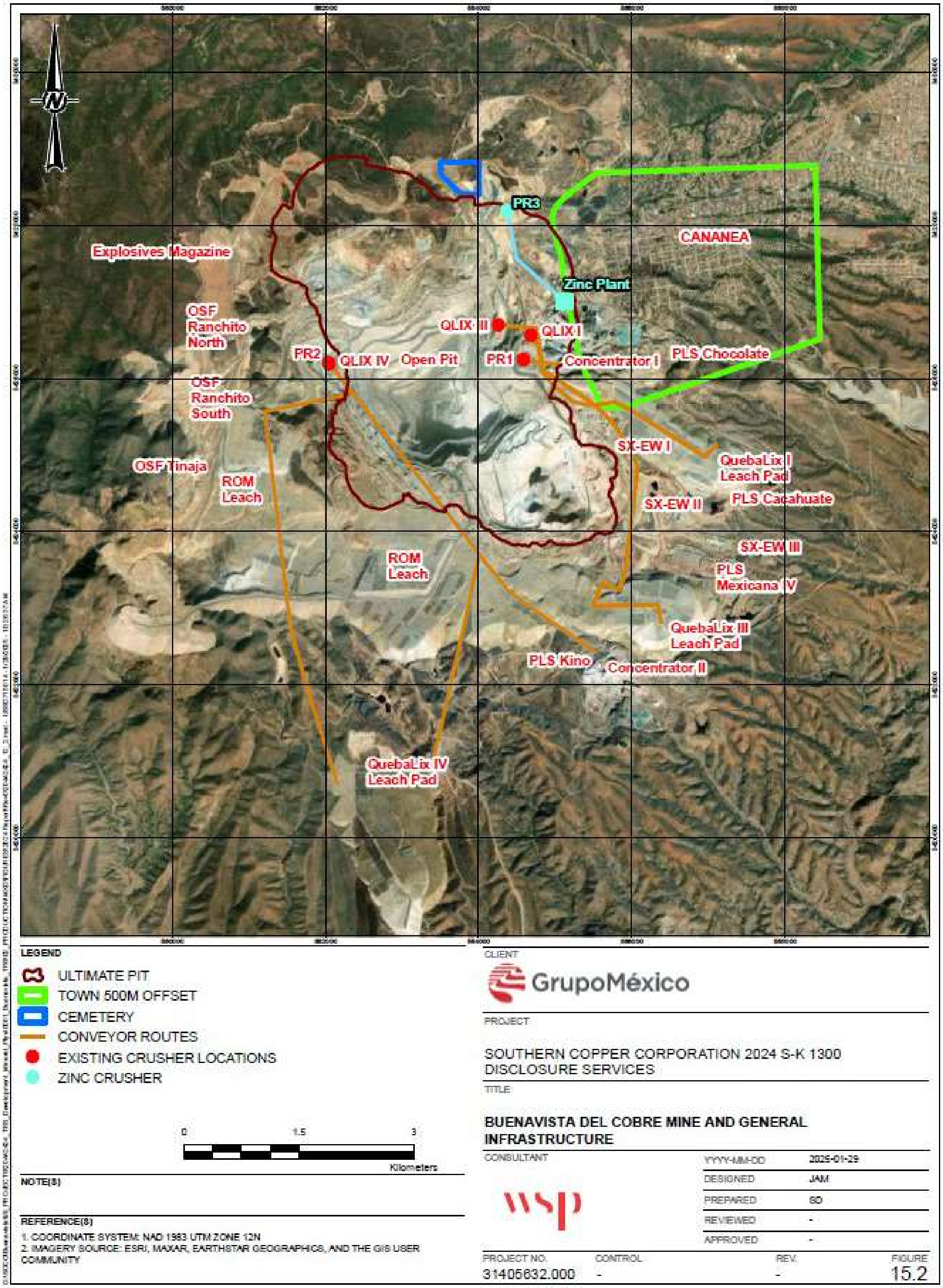


Figure 15.2: Buenavista del Cobre General Infrastructure

15.2 Fuel

The site uses natural gas for firing boilers and emergency in-situ power generators. The site uses diesel oil to fuel mining and haulage fleets and other mobile equipment and also as back up fuel to natural gas. Natural gas is available to the area via a pipeline that extends from Arizona to Cananea.

Diesel oil is available through direct contracts with PEMEX, the state's petroleum producer and other alternative distributors. Diesel oil is used to power mining equipment at the operations.

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 Comisión Federal de Electricidad (CFE), the state's electrical power producer. The bulk of the demand is supplied by MGE, a subsidiary of Grupo Mexico, the majority stockholder of Southern Copper. MGE owns and operates a power generation plant consisting of two trains. Each train is a gas-fired combined-cycle generation unit with a 258 MW capacity. The first train was commissioned in 2013 and the second was commissioned in 2014. The MGE power plant supplies a small portion of its power to third party consumers with the majority being- supplied 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 to secondary substations.

15.4 Water Supply

The site has a concession from the Comisión Nacional del Agua (the National Water Commission or the "CNA") to pump water from wells drilled around the Cananea area against a fee. The wells pump approximately 35 Mm^3 annually and are connected to a distribution piping network that feeds water to different consumers The site has plans in place for freshwater conservation by reducing the consumption and recycling for reuse when possible. About 78% of the site's demand for water was reportedly covered by recycled water in 2023 and 2024, respectively.

15.5 Ancillary Facilities

The site is equipped with all necessary facilities required to sustain its operation. Site facilities include buildings for office space, laboratories, training rooms, canteens, security, and first aid; shops for truck wash, lube and repair and workshops for general maintenance; and warehouses for storage of products, consumables, and spare parts.

15.6 Site Utilities

The site utilities include electrical rooms and motor control centers; compressor houses; boiler rooms; electrical power emergency generators, water treatment units, and control rooms with distributed control systems.

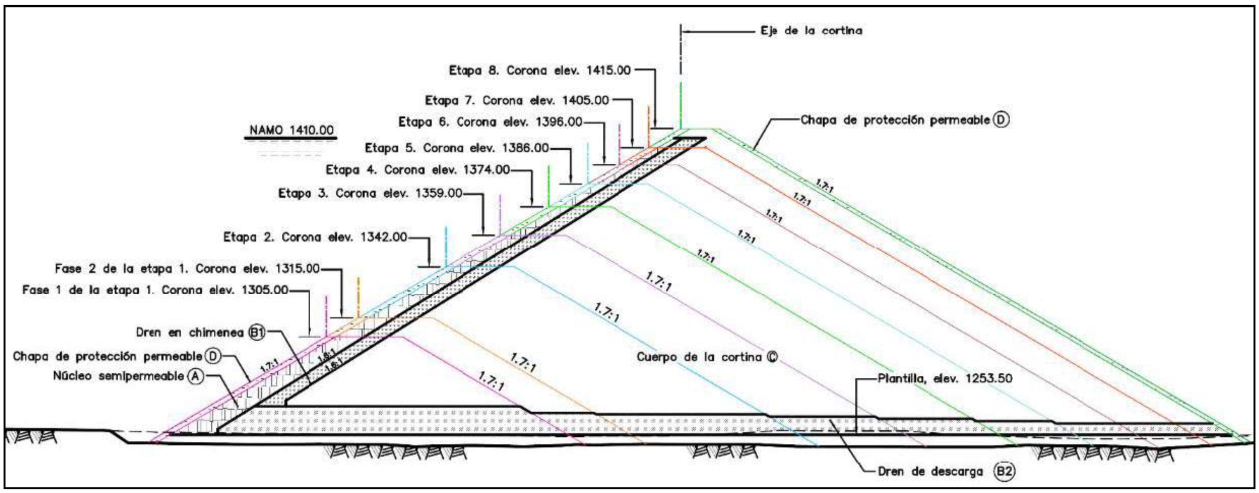
15.7 Tailings Storage Facilities

The following section describes the conditions of the existing tailings storage facilities. The bulk of the technical reports related to the New TSF were received when WSP personnel visited Grupo Mexico's office in Mexico City on October 14, 2021, and October 15, 2021.

15.7.1 New Tailings Storage Facility (New TSF)

Grupo Mexico developed the New TSF design concept, and the detailed engineering design for construction was developed by CIEPS (a Mexican entity) in 2014.

The New TSF embankment was constructed using the downstream construction method, considering a zoned type of embankment. The design project considers an embankment to be constructed in eight (8) stages. As of June 2024, Stage 3 is being constructed with an anticipated crest elevation of 1,359 m (masl). Stage 3 construction will be completed in 2026. The final configuration at Stage 8 (El. 1,415 m) includes a crest width of 20 m, both upstream and downstream slopes at 1.7H:1V, and total embankment length of approximately 7 km. The final embankment height in the maximum section will be 165 m measured from the crest elevation Stage 8 to the downstream embankment toe. The typical embankment cross section is shown in Figure 15.3, and the plan view is shown in Figure 15.4.



Source: CIEP, 2018

Figure 15.3: Typical Cross Section - Buenavista New TSF

The design intent was to have an embankment that operates in manner that would allow water from the impoundment to seep into the drain system at a high rate of seepage (~average seepage 1.77 cubic meters per second (m^3/s), and then be collected downstream of the facility and pumped back to Concentrator II. The semi-permeable core (Fill A) is intended to work as a filter between the tailings and chimney drain (Fill B1).

The permeability requirements for each fill material were specified with the intention to allow the greatest seepage possible. The specification focused on the permeability of the materials; however, no filter design was available to verify the filter compatibility between the tailings and the semi-permeable core fill.

The New TSF was designed and constructed without an impoundment liner system (i.e., geomembrane placed on a low permeability fill material, or other impermeabilization systems), which allows water to seep through the highly permeable upper foundation into the native ground.

The New TSF water management, according to the Project design concept, is summarized in Figure 15.5 and comprises:

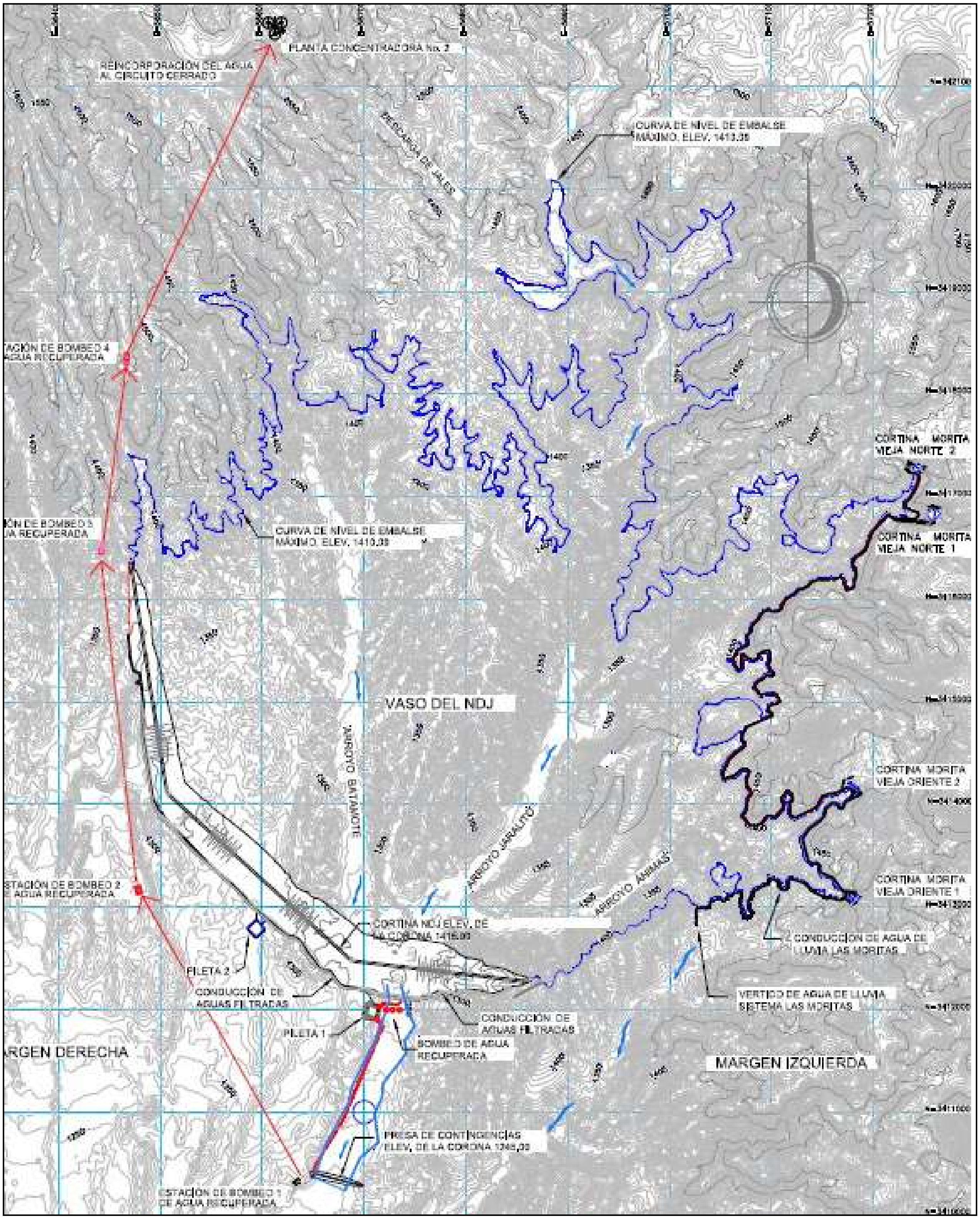
- Seepage through the embankment drain system is collected by a ditch (located at the embankment toe for each stage and conducted to the unlined Seeped Water Pond (SWP - Poza de Agua Filtrada). Water is conducted by gravity into a pipe from the SWP to a pump station located approximately 2.0 km downstream from the SWP and then pumped back to Concentrator II. Figure 15.4 shows the pipeline route for the water recovery system from the SWP to Concentrator II (red lines).
- Seepage from the impoundment to the foundation, which comprises mainly permeable alluvial deposit and sandstone & conglomerate unit, is contained downstream (approximately 2 km from the New TSF embankment) by a Contingency Dam (CD – Presa de Contingencia) (see Figure 15.5). The CD includes an impermeable barrier that conceptually is extended to bedrock.
- Monitoring wells are installed downstream of the CD to monitor the water quality.

Currently, slurry tailings (conventional tailings with 56% solid content by weight) are being discharged from Concentrator II by gravity directly into the existing natural valley – a set of two approximately 3.5 km pipes lead to the top of the wash from where tailings flow from the north to the south until it merges into the impoundment from the north side. A runoff water diversion channel (non-contact water) was constructed at the east side of the New TSF. There are no diversion channels to the north and west sides of the New TSF.

Nine operational spillways were designed for each embankment stage (2 spillways for Stage 1, Phase 1, and Phase 2) to be located at the left abutment. The 10,000-year design storm is considered to be stored into the impoundment; however, as a contingency, the spillways were designed to manage a 10,000-year design storm. Therefore, no spillway was constructed for the current Stage 2.

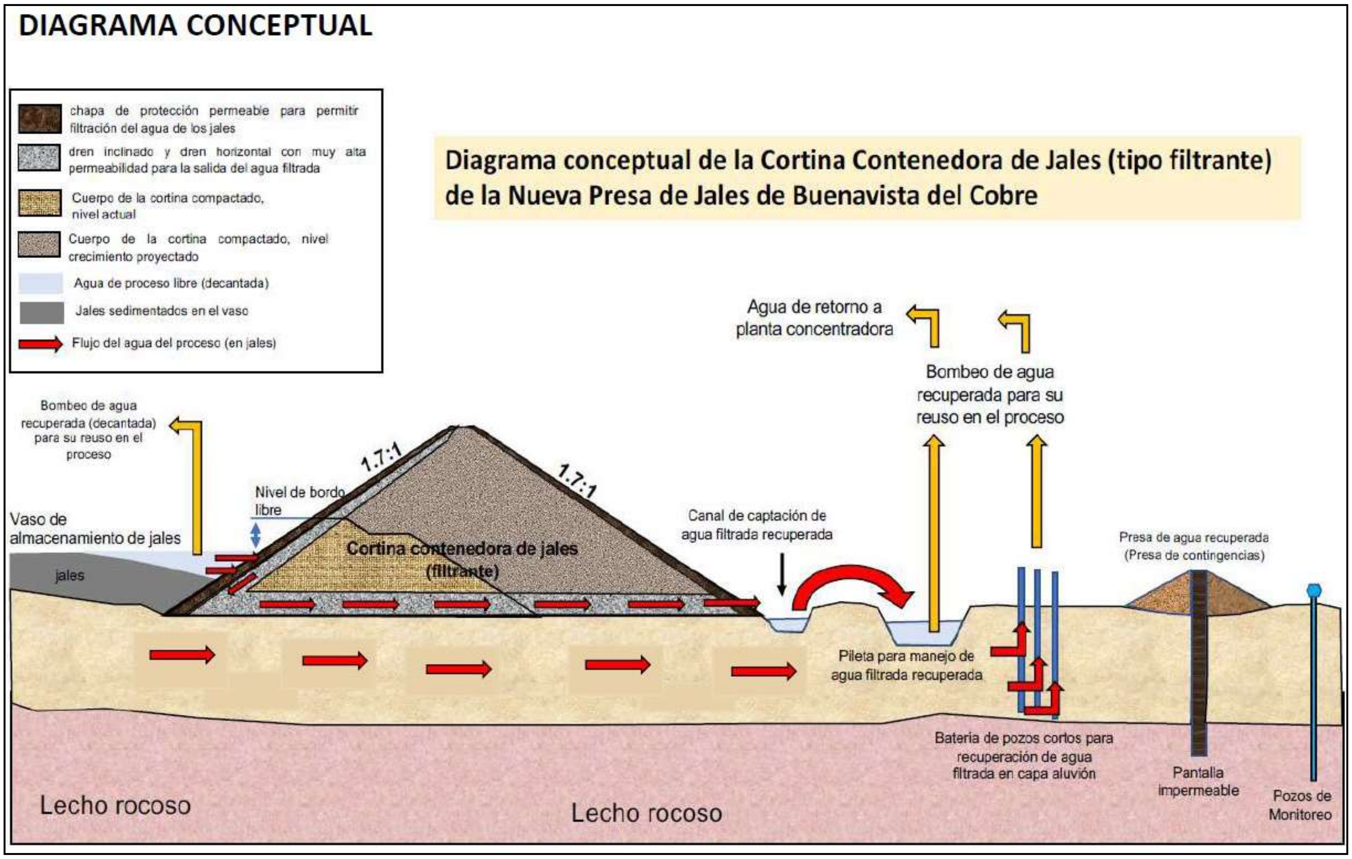
The CD is intended to restrict the seepage from the New TSF and pump back to Concentrator II. Limited technical documents were received for this structure. Based on a typical section provided in the design, the dam was constructed as a water retention dam considering a zoned type of embankment and built using pervious and impervious fill materials. The core (impervious material) was placed approximately at the center and is flanked by rockfill shells (previous materials). The dam height is 17 m measured from the crest elevation to the downstream toe. The total crest width is 8 m, and upstream and downstream slopes are 1.5H:1V. The design includes an impermeable barrier extended approximately 10 m into the foundation. No material specification was provided for the impermeable barrier.

The New TSF is required to comply with the Mexican tailings management standard (Norma Oficial Mexicana NOM-141-SEMARNAT- 2003). Grupo Mexico indicated its intention to meet the international guidelines on tailings management (CDA, 2014; GISTM, 2020); however, no information was provided regarding tailings governance and governance structure. Grupo Mexico's corporate standards on tailings management were not made available to WSP.



Source: CIEPS, Plano conjunto sistema NDJ y Moritas final - no date

Figure 15.4: New TSF General Layout



Source: Arriaga., 2019

Figure 15.5: Conceptual Seepage Management from the New TSF at Buenavista del Cobre

15.7.1.1 Operational Data and New TSF Capacity

The New TSF capacity is estimated by SCC to have a design capacity of 1.92 billion m^3 (Bm^3) or approximately 2. billion tonnes (Bt) at an assumed tailings density of 1.4 t/m^3. The New TSF began receiving tailings in 2016 from Concentrator II at approximately 41.3 Mt annually. The capacity as of end of year 2024 is estimated by WSP to have a remaining capacity of 1.7 billion m^3 (Bm^3) or approximately 2.4 billion tonnes (Bt).

Apart from Concentrator II, Concentrator I has begun tailings deposition into the new TSF at an approximate annual rate of 30.6 Mt. The zinc plant has also begun to deposit tailings at approximately 7 Mt annually. Based on the current schedule, Concentrator I is expected to send tailings for the next 11 years while Concentrator II and Zinc plant would be sending tailings till end of mine life.

- At these estimated deposition rates, the New TSF is expected to have enough capacity to last for an additional 42 years. The present expected mine life is approximately 41 years.

The New TSF capacity was provided by SCC considering a flat tailings disposal configuration. For any future update of the New TSF capacity, key items to consider include:

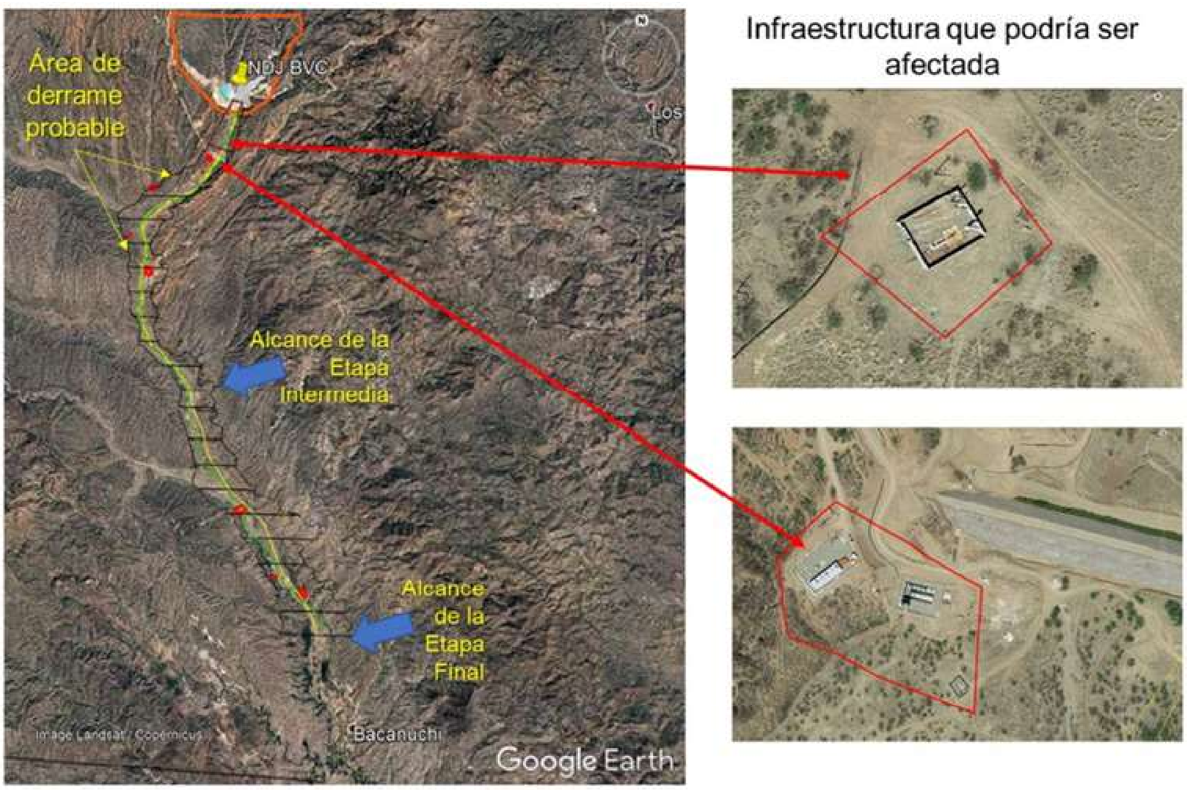
- TSF tailings consolidation model and tailings deposition plan considering the in-place tailings slope deposition
- Update the tailings production to be consistent with concentrator performance

- Updated TSF water balance results

15.7.1.2 New TSF Consequence Classification

Grupo Mexico requested that GERD (Servicios y Soluciones de Ingenieria y Logistica) carry out a preliminary dam break analysis for the New TSF. 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 40% of the total tailings to be discharged. For the ultimate embankment configuration, the total volume of the tailings runout is 690 Mm^3, extending approximately 26 km downstream from the New TSF. Figure 15.6 shows the tailings runout inundation map.

The Bacanuchi River is located 7 km downstream from the New TSF, and the Bacanuchi town and agriculture areas are located approximately 27 km downstream from the New TSF. According to the dam breach analysis performed by GERD, the tailings runout will not impact the Bacanuchi town and the agricultural areas. The tailings discharge could impact the Bacanuchi River, small ranches, and mine electrical infrastructures with an estimated loss of people's lives greater than ten but lower than 100 people. Based on the CDA (2014) dam consequence criteria, GERD classified the New TSF as Very High risk.



Source: GERD, 2020

Figure 15.6: Tailings Runout Inundation Map

15.7.1.3 New TSF Embankment and Contingency Dam

15.7.1.3.1 Foundation of Geotechnical Conditions and Hydrogeology

Based on the information provided on the geology and geotechnical assessment as well as a preliminary assessment of groundwater impact from tailings water seepage (Geovisa, 2013), WSP identified the following potential concerns:

- Seepage from the unlined TSF is expected through the upper foundation (alluvial deposit and upper sandstone & conglomerate unit are relatively high permeable). Groundwater might be impacted since the phreatic surface was identified to be shallow (17 m to 24 m depth).
- If the impermeable barrier constructed at the CD was not extended to a lower permeability layer (at a depth greater than 40 m to 60 m), there is a concern that seepage from the TSF could impact the Bacanuchi aquifer. No as-built construction reports were available to verify if the impermeable barrier was extended to a lower permeability foundation layer.
- Loose to medium relative density alluvial deposits with thickness ranging from 11 m to 20 m are present along the streams. Project technical construction specifications indicate to excavate the foundation to an average 7 m depth before placing the embankment fills. There would be a concern for potential seismic or static liquefaction for the alluvial deposits if they were left in place, considering the foundation is saturated (due to the large seepage from the impoundment). No construction as-built reports were available to verify if all loose relative density alluvial deposits were removed.

15.7.1.3.2 Seepage through the Embankment and Foundation

- Previous TSF design concept with a high rate of seepage through the embankment and allowing seepage into the relatively high permeable upper foundation due to the unlined New TSF are not aligned to TSF guidelines (Norma Mexicana NOM-141-SEMARNAT-2003; CDA, 2014; GISTM, 2020). Guidelines indicate the need for controls to minimize 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.
- Allowing excessive seepage from the New TSF involves two main concerns:
  - Structural stability of the embankment and the possible release, if a failure occurred, of a large volume of water and semi-fluid tailings. Potential failure modes (PFMs) for the New TSF embankment were identified and described below.
    - Internal erosion (piping): Current seepage through the drain system does not indicate a visual presence of tailings sediments. However, subsequent embankment raises and/or large volumes of water entering the impoundment from large storm events could increase the hydraulic gradient. Tailings and material Type A (semi-permeable core fill) do not appear to meet the filter compatibility criteria (fine tailings against a gravelly Type A material with permeability in the order of 10^{-3} cm/s). High hydraulic gradients and materials that do not meet filter compatibility criteria increase the concern of internal embankment erosion failure.
    - Foundation failure: There were no as-built construction reports available that indicated all the alluvial material was removed (loose to medium relative density alluvial material along the streams). Sandy alluvial thickness ranges from 11 m to 20 m along the streams, and construction specification

indicated to remove an average of 7 m before placing fill materials. Saturated quaternary loose sandy and gravelly alluvial deposit and tertiary low consolidated conglomerate might be susceptible to static and seismic liquefaction.

- Embankment downstream slope failure: Downstream slope 1.7H:1V is too steep when using Type C fill material placed in the central and downstream portions of the embankment to meet the minimum Factor of Safety (FOS).
- Embankment drains (drain Type B2) are constructed too high above the approved foundation. The location of the drains and the expected high flow along the drains might saturate the lower portion of the embankment (beneath the drains). In conjunction with a steep downstream slope (1.7H:1V) and saturated foundation, these conditions increase the concern of the downstream slope failure.

– Potential environmental impact during the TSF operation. Polluted effluent might escape through or around the tailings embankment and enter the streams or groundwater of the area. Tailings and waste rock (used as embankment material construction) have acid generating potential (see the Geochemical Stability Section for additional details).

15.7.1.3.3 Contingency Dam

During the WSP personnel site visit in June of 2024 the Contingency Dam (CD) was not visited.

The CD was constructed with the intention to restrict the seepage from TSF and pump back to Concentrator II. However, no as-built construction reports were available to verify if the impermeable barrier was extended to the low permeability foundation layer.

Conceptually, the CD was constructed to capture the seepage from the Jaramillo stream; however, there is no similar water containment structure at the El Ritto stream to capture the seepage from the El Ritto stream. No design drawings and support documentation were available for seepage control at the El Ritto stream area.

15.7.1.4 Tailings Transport, Tailings Disposal, and Water Reclaim System

- Slurry tailings are being discharged from Concentrator II by gravity directly into the existing natural valley. Slurry tailings traverse the valley until it merges into the impoundment from the north side.
- The tailings impoundment is relatively large, approximately 5 km long from north to southwest. The tailings slurry enters the impoundment from the north as a single point of tailings discharge and pushes the main pond to the southwest side. Other areas of water accumulation were observed due to the single-point tailings discharge and topography configuration.
- Since the pond is not located against the upstream slope of the embankment, Buenavista del Cobre implemented the construction of internal channels to direct the tailings water to the upstream slope of the embankment along the west side The pumping system is implemented at the west side of the impoundment to collect the water from the main pond and send it to Concentrator II.
- Seepage through the embankment and foundation is collected, as described in the section for the general description of the New TSF and pumped back to Concentrator II.

- The tailings disposal strategy currently implemented is operationally complicated, considering only one tailings discharge point. This strategy could be simplified using a tailings transport by pipelines with several points of tailings discharge (i.e., spigots) to control the tailings beaches development and pond location.
- A significant portion of the tailings water is lost mainly through evaporation, infiltration (into the foundation), and recharging the existing tailings during the long travel (approximately 14 km). Several ponds along the impoundment increase the loss by evaporation.

15.7.1.5 Water Management

- Runoff water diversion channel (non-contact water) was constructed at the east side of the New TSF. There are no diversion channels to the north and west sides of the TSF.
- Three water retention dams were constructed within the New TSF area (internal dams), two located at Batamonte stream and one at the west area of the TSF. The design intentions of those internal dams were to retain the runoff from the upstream catchment areas and to keep the tailings within the tailings permit area (basically storing tailings). As explained by Buenavista del Cobre personnel and observed during the site visit, no water retention was observed on the upstream zone of the dams because the upper foundation is highly permeable to allow ponding. Internal dams design and construction QA/QC documentation was not available.
- Storm flow volume management and New TSF water balance:
  - The New TSF has a relatively large catchment area to generate a large storm flow volume.
  - Nine operational spillways were designed for each embankment stage to be located at the left abutment.
  - The 10,000-year design storm is considered to be stored into the impoundment. However, as a contingency, the spillways were designed to manage a 10,000-year design storm.
  - No spillway was constructed for current Stage 2. There is a spillway constructed at the left abutment; however the spillway invert elevation is higher than the Stage 2 embankment crest elevation.
  - No TSF water balance calculation was available to verify the minimum freeboard required.
  - There is a potential for embankment failure by overtopping.

15.7.1.6 Geochemical Stability

- Based on WSP's preliminary findings, the tailings and waste rock have acid generating potential and potential for metals leaching. Only static testing has been conducted and the long-term water quality has not been assessed via kinetic testing.
- Buenavista del Cobre personnel indicated that waste rock materials were used for the embankment construction during Stage 2 construction. The waste rock was placed in the upstream portion of the embankment. During the WSP personnel site visit, it was observed that the waste rock used for the embankment construction contained sulfide minerals and showed signs of oxidation.

High seepage from the TSF through the foundation and embankment drainage system could impact the Bacanuchi aquifer if an effective impermeabilization barrier is not implemented downstream of the TSF.

15.7.1.7 Identification of the Embankment Potential Failure Modes and Other Concerns

WSP performed a preliminary identification of PFMs candidates for the New TSF at the Buenavista del Cobre mine. This work only identifies the possible causes. The consequences identification, risk estimation (probability of occurrence, or likelihood), and severity of its consequences are not included. The identified PFMs are presented in Table 15.1. This list of PFMs is preliminary, based on the WSP knowledge and information reviewed.

Table 15.1: Identification of PFMs for the New TSF Embankment

Failure Mode ID	Loading Condition	Initiating Event	Failure Mechanism	Description
FM 1	Hydrologic Operational	Extreme storm/flood event Dam raises/increase of hydraulic gradient	Internal erosion / piping	There were no available filter design calculations between the tailings and Type A fill (semi-permeable core fill). Tailings and Type A fill appear that they don't meet the filter compatability criteria (fine tailings against gravelly Type A fill with permeability in the order of 10^3 cm/s) A quick check on the grain size distributions for Type A material for a couple of months during 2019 (OSA, 2019) indicates that most of the Type A material does not meet the internal stability criteria (D15 Filter (Type A) is greater than the maximum value allowed.) There is a potential for slope failure in combination with foundation failure (see FM 2)
FM 2	Construction loading Seismic	Sliding along plane of weakness (loose alluvial) Static liquefaction Earthquake /dynamic liquefaction	Foundation failure	There were no as-built construction reports available that indicated all the alluvial was removed (loose alluvium material along the streams. Sandy alluvial thickness ranges from 11 m to 20 m along the streams, and construction specification indicated to remove in average 7 m before placing fill materials Saturated loose sandy and gravelly alluvial deposits might be susceptible to static and seismic liquefaction.
FM 3	Static Seismic	Elevated pore pressures /raised phreatic surface	Embankment downstream slope failure	The TSF embankment downstream slope is too steep (1.7H : 1V) for materials placed at the downstream portion (Material Type C, classified as SC, SM, GC) to meet minimum FOS. Embankment drains Type B2 have been constructed too high above the approved foundation. The location of the drains and the expected high flow along the drains might saturate the lower portion of the embankment (beneath the drains). In conjunction with steep downstream slope and saturated foundation, the saturation of the lower portion of the embankment increase the concern for slope failure.
FM 4	Hydrologic	Extreme storm/flood event Spillway not effective (or not installed)	Overtopping	No TSF water balance calculation was available to verify the minimum freeboard required. No spillway was constructed for Stage 2.

The following further concerns were identified:

- High seepage from the TSF (potentially polluted by tailings and waste rock that has acid generating potential) through the foundation and embankment drainage system could impact the Bacanuchi aquifer. The impact on the Bacanuchi aquifer could occur if an effective impermeabilization barrier is not implemented (at both west and east valleys, downstream from the TSF).
- There is a potential physical instability of internal retention dams constructed within the TSF area. Even when these internal dams are located inside the TSF, they pose the risk of loss of life as they are used as tailings retention dams (to allow the tailings to be within the permit area) and as access roads. Internal dams design and construction QA/QC documentation was not available.

15.7.2 Tailings Storage Facility No. 3 (TSF No. 3)

A general description of the TSF No. 3 is provided below, and it is based on the documents reviewed and site visit performed by WSP personnel.

TSF No. 3 was constructed using the downstream construction method. The embankment was constructed in stages over the last 80 years. The distribution of the materials used for embankment construction was erratic, resulting in a nonhomogeneous and anisotropic embankment due to the differing internal geometry, material properties, and degree of compaction effort applied to the fill. The impermeable core, constructed of clayey material, tries to prevent seepage into the local aquifer.

TSF No. 1 was built for the concentrator that operated from 1944 to 1989. A new wall was built downstream of TSF No. 1, abutting the old wall at the north end, forming TSF No. 2. TSF No. 3 was started as an extension of TSF No. 2 to the north, to provide additional capacity for addressing tailing storage shortfalls due to the construction of a new concentrator in 1989, the current Concentrator I. This facility was supposed to be constructed as an embankment about 6 km long. In 1990, the Mine was acquired by Grupo Mexico, and TSF No. 3 was once again expanded increasing the height of the wall.

The current height of the embankment is 60 meters on average and has a length of 6.6 km with an estimated storage capacity of 690 Mm^3 (Geovisa, 2020). TSF No. 3 is around 80 years old, and as a result, only expansions after 2003 are required to comply with the Mexican tailings management standard (Norma Oficial Mexicana NOM-141-SEMARNAT- 2003). The embankment height has been increased by 20 meters to accommodate the deposition of tailings and increase the capacity of the facility.

Grupo Mexico has 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 complying with the guidance. Grupo Mexico's corporate standards on tailings management were not provided.

TSF No. 3 was recently expanded to increase its capacity, and buttresses were constructed to increase the factor of safety. During the site visit in June of 2024 the WSP team observed the construction activities regarding the buttresses. Buenavista del Cobre personnel indicated to WSP that a TSF capacity of about 205 million m^3 remains at TSF No. 3 which at 1.4 t/m^3 represents about 287 million tonnes of remaining capacity. WSP was unable to independently verify this remaining capacity at TSF No. 3.

15.7.2.1 Operational Data and TSF No. 3 Capacity

Key operational data:

- Tailings from Concentrator I
- Embankment length 6,600 m (Buenavista del Cobre 2021)
- The average embankment height 80 m
- Maximum embankment height 126 m
- Total tailings disposed to date: July 2021 (Mm^3): 690 (Buenavista del Cobre 2021)

WSP was unable to independently verify the TSF No. 3 total capacity. SCC provided a technical memorandum where the current remaining capacity is listed at 240.5 Mm^3 or about 337 Mt.

15.7.2.2 TSF No. 3 Consequence Classification

No data was available based on the CDA (2014) dam consequence criteria for the classification of TSF No. 3.

15.7.2.3 Technical Aspects of TSF No. 3

15.7.2.3.1 Foundation of Geotechnical Conditions and Hydrogeology

The embankment is essentially sitting in three geological units:

- The foundation beneath about 80% of the embankment and roughly from the left margin to the central portion of the dam consists of a Polymictic Conglomerate (QCg) unit. This unit is formed by an alternation of conglomerates and reddish shale horizons. A predominance of fragments of an average size of 2 cm to 8 cm in the horizons of conglomerates was observed in the unit. Silt horizons are poorly consolidated and were noted to be moderately erodible and crumbly.
- The foundation beneath the entire right bank consists of a quartz-monzonitic porphyry unit (TP-qm). This unit is composed of an intrusive with a monzonitic quartz composition, has a reddish color, and is made up of feldspars and quartz phenocrysts, with sizes of around 2 mm, embedded in a cryptocrystalline matrix of acid composition. This unit presents silicification and argilitization.
- A small portion of the remaining embankment at the southern end of the right bank (about 200 m) consists of a rhyolite-riodacite unit (TR-Rd). This unit comprises volcanic effusions of light gray rhyolitic to riodacitic composition. They present a texture between aphanitic and slightly porphyritic since orthoclase, quartz, and biotite crystals are distinguished in an aphanitic matrix; the size of the crystals is 2 mm. It is observed slightly altered, consistent, and from little to moderately fractured.

15.7.2.3.2 Tailings Transport, Tailings Disposal, and Water Reclaim System

Slurry tailings are being discharged from Concentrator I by gravity directly into the existing natural valley. No pipelines or tailings channels were considered for tailings transport. Slurry tailings flow along the natural drainage until it merges into the impoundment from the west side of the impoundment.

The tailings slurry enters the impoundment from the west as a single tailings discharge point and pushes the main pond to the northeast side. Other areas of water accumulation were observed due to the single-point tailings discharge and topography configuration.

The tailings disposal strategy could be simplified using tailings transport by pipelines with several points of tailings discharge (i.e., spigots) to control the tailings beach development and pond location.

A significant portion of the tailings water is lost mainly to evaporation, infiltration (into the foundation), and recharging the existing tailings. Several ponds along the impoundment increase the loss by evaporation.

15.7.2.3.3 Water Management

No runoff water diversion channels were constructed around TSF No. 3, and surface water collected in the tributary basin reports to the impoundment. There are also no diversion channels to the north and west sides of the TSF.

- Relevant features of the stormwater flow volume management and TSF water balance include:
  - No spillway was constructed.
  - No TSF water balance calculation was provided to verify the minimum freeboard required.
  - There is a potential for embankment failure by overtopping. Therefore, overtopping is considered a credible failure mode.
- Freeboard and design storm information (Buenavista del Cobre 2021):
  - Design event with a probability of return of 10,000 years.
  - Duration of the precipitation is 130 minutes.
  - Precipitation depth is 214 mm.
  - Without vegetation cover in the tailings deposit: Q max = 721 m^3/s Vol.= 8.26 Mm^3.
  - With vegetation cover in the tailings deposit: Q max = 603 m^3/s Vol.= 6.90 Mm^3.

15.7.2.3.4 Geochemical Stability

WSP has provided comments on the tailings and waste rock geochemical characterization and long-term geochemical stability covered under the environment section of the PFS (Golder, 2021). WSP's preliminary findings show that the tailings and waste rock have acid-generating potential for metals leaching. Minimal acid-base accounting has been completed, and only static testing has been conducted. The long-term water quality has not been assessed via kinetic testing.

15.7.2.4 Identification of the Embankment Potential Failure Modes and Other Concerns

WSP performed a preliminary identification of PFMs candidates for the TSF No. 3 at the Buenavista del Cobre mine. This work identifies potential failure modes and does not address the likelihood or the consequences. Therefore, the consequences identification, risk estimation (probability of occurrence or likelihood), and severity of its consequences are not included. The identified PFMs are presented in Table 15.2. This list of PFMs is preliminary, based on the WSP knowledge and information reviewed.

Table 15.2: Identification of PFMs for the TSF No. 3 Embankment

Failure Mode ID	Loading Condition	Initiating Event	Failure Mechanism	Description
FM 2	Construction loading Seismic	Sliding along plane of weakness (loose alluvial) Earthquake /dynamic liquefaction	Foundation failure	There were no as-built construction reports available that indicated all the alluvial was removed (loose alluvium material along the streams. Saturated loose sandy and gravelly alluvial deposits might be susceptible to static and seismic liquefaction.
FM 3	Static Seismic	Elevated pore pressures /raised phreatic surface	Embankment downstream slope failure	The TSF embankment downstream slope is too steep for materials placed at the downstream portion to meet minimum FOS.
FM 1	Hydrologic	Extreme storm/flood event Spillway not effective (or not installed)	Internal erosion / piping	No TSF water balance calculation was available to verify the minimum freeboard required. No spillway was constructed.

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 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

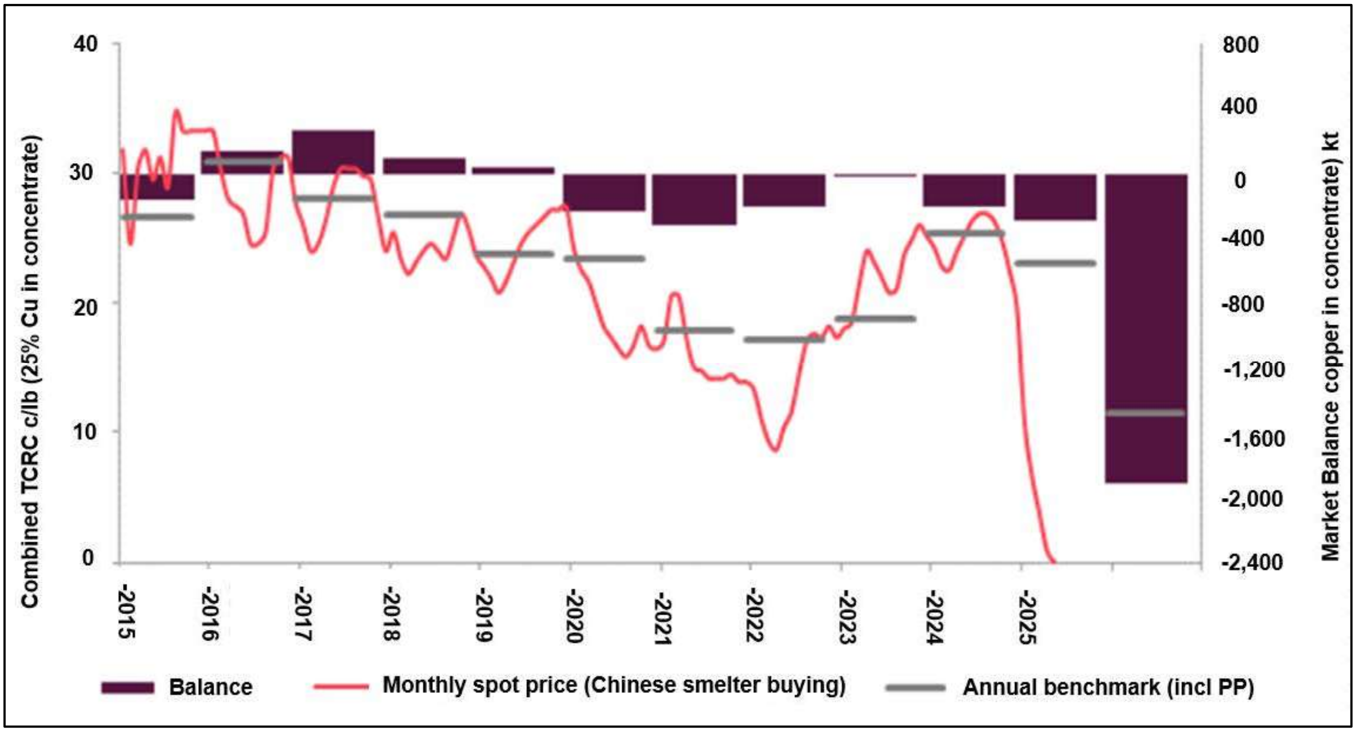
In a long-term analysis, it was assumed that low-acid prices mean that smelters will continue to receive less significant sulfur byproduct credits in the future, than they have in the past. So, TC/RCs will continue to have to make up a larger share of their revenue stream. Furthermore, the Copper Outlook 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.



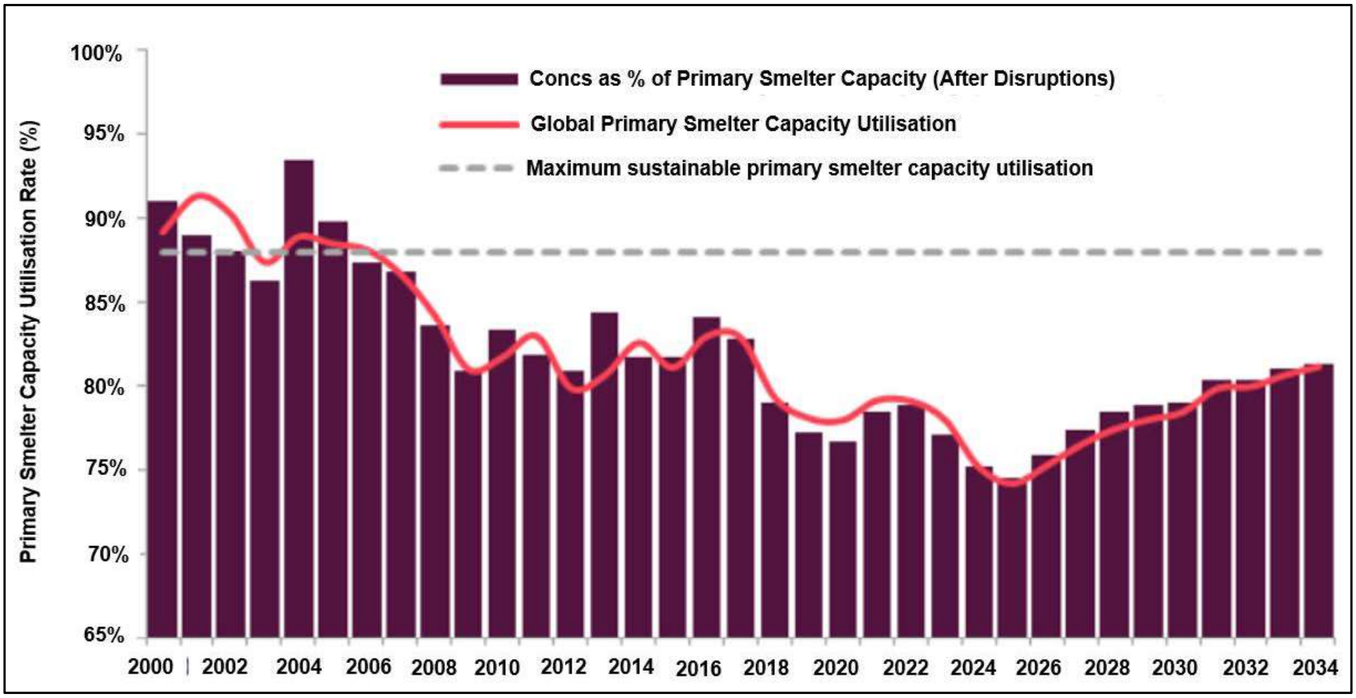
Source: Wood and Mackenzie.

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.

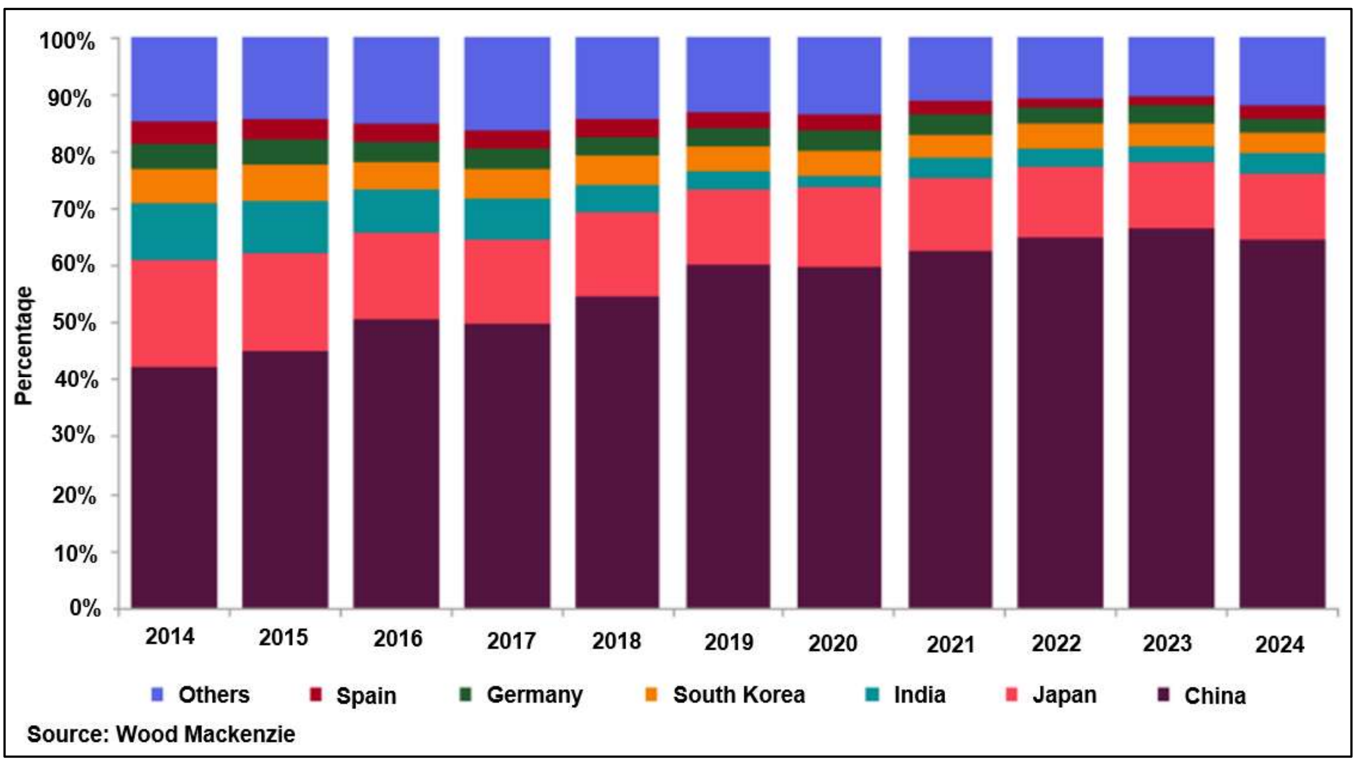


Figure 16.3: Main Regions of Copper Consumption

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.

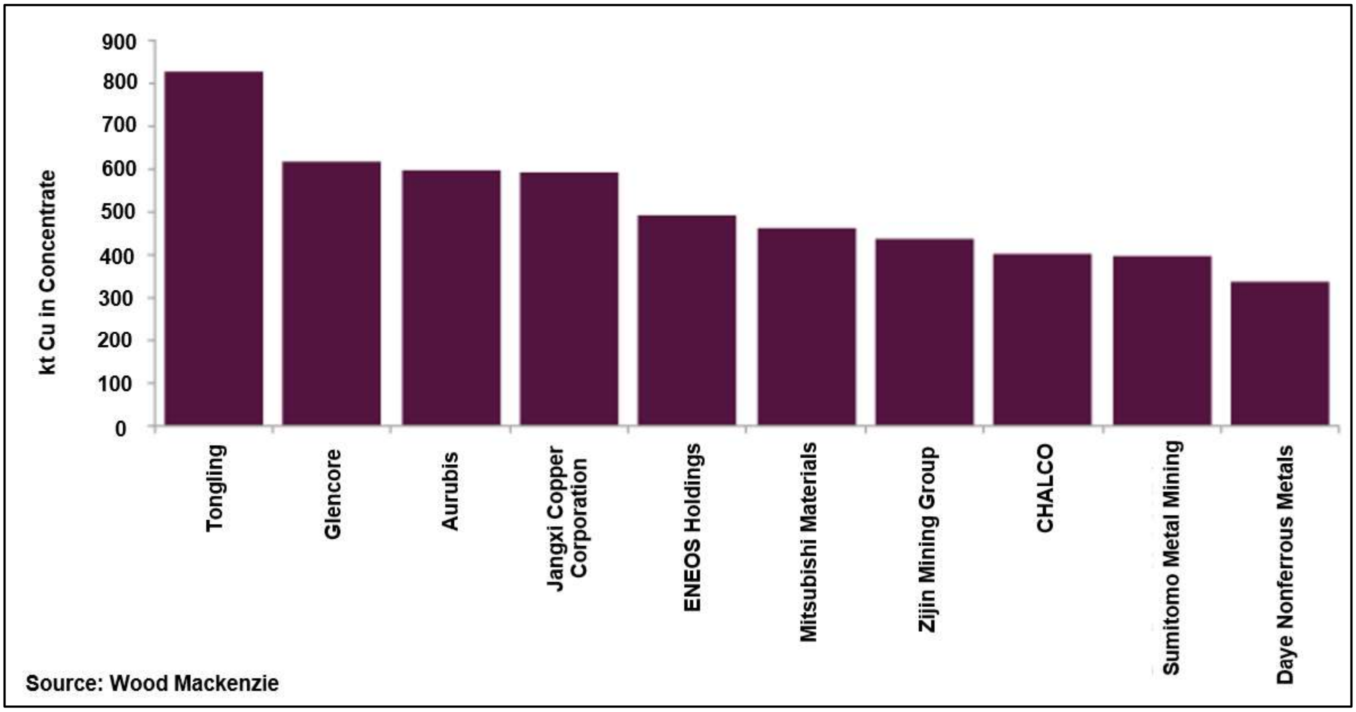


Figure 16.4: 2023 Principal Copper Concentrate Buyers

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 Zinc Market Outlook

Approximately 30 kt of Zinc concentrates to be produced by Buenavista de Zinc, will be allocated to the IMMSA zinc refinery in San Luis Potosí, México. Remaining tonnage will be sold on the open market, with Guaymas, Sonora being the principal port of shipment.

Mine output is expected to fall by 2.5% y/y in 2024. This is despite the start of production at large mines – including Kipushi, Huoshaoyun and Ozernoye – taking place this year. The decreased output can be largely attributed to five mines idled since 2023, while Antamina has almost halved its mined zinc output in 2024.

New mines ramping up, combined with restarts, will result in y/y growth in 2025 and 2026. However, mined zinc output is expected to fall over 2027–2029 as several large mines close.

Global zinc demand growth to average 2.1% p.a. from 2024 to 2029. Government stimulus has been piecemeal so far, and China's real state sector remains the biggest drag, as well, still-high rates are taking a toll in Europe and US

Investor interest in zinc has waned on the back of concerns over the outlook for global growth. A return to modest global market surpluses in 2025 and 2026 will constrain zinc's price in the near term. A return to deficit in 2027 will herald the start of a significant price rally, which will be needed to incentivize new supply into the market.

Table 16.3: Annual Zinc Balances (000s tonnes)

Description	Actual		Forecast					
	2022	2023	2024	2025	2026	2027	2028	2029
World Position								
Mine Production	12,484	12,260	11,956	12,590	12,983	12,902	12,998	12,734
Concentrates Available	12,524	12,300	11,996	12,630	13,023	12,942	13,038	12,774
Concentrate Requirement	12,021	12,418	12,133	12,599	12,943	13,142	13,149	13,134
Concentrate Balance	**504**	**-118**	**-137**	**31**	**80**	**-200**	**-111**	**-360**
Refined Production	13,351	13,833	13,640	14,191	14,585	14,841	14,908	14,945
Metal Consumption	13,387	13,424	13,604	14,044	14,418	14,705	14,992	15,199
Metal Balance	**-36**	**409**	**36**	**147**	**167**	**136**	**-84**	**-254**

16.2.1 Zinc Demand

The all-important construction sector is facing headwinds in all the major zinc-consuming regions and is unlikely to recover until 2025 Q2 at the earliest. Looking ahead, zinc's reliance on traditional demand sectors suggests growth will remain modest.

Modest global GDP growth forecast suggests modest zinc demand growth over the next five years. China will remain among the most significant contributors to growth in tonnage terms despite relatively modest percentage growth rates going forward. Asia ex. China is forecast to be the fastest growing region in percentage terms, driven by increases in India and Turkey, among others.

Global zinc demand growth to average 2.1% per annum and to reach 15.2 Mt by 2029.

16.2.2 Zinc Supply

Despite several large mines including Ozernoye, Huoshaoyun and Kipushi starting production in 2024, global mine output is forecast to fall by 2.5% y/y. However, in 2025 global mine production will rise by 5.3% as the new mines ramp up and several return from care and maintenance. From 2026–2029, global mine supply will be limited by large mine closures and output decreases ex. China.

Global mine output forecast to rise by 778,000 t over 2024–2029 of which China will account for 407,000 t of the increase, primarily due to the ramping up of the Huoshaoyun mine in Xinjiang. While there are also several large new mines, expansions, and restarts expected to take place ex. China, mine closures and output declines mean that the region's mine production will rise by only 370,000 t. As a result, China's share of global mine production is forecast to rise marginally from 33.8% in 2024 to 35.0% in 2029.

The forecast compound annual growth rate is 1.3% p.a. for the period 2024-2029.

The spot TC for standard grade, clean zinc concentrate averaged a record low of US$45/t in August, considerably lower than the 2024 benchmark of US$165 /t. Although it is expected spot TCs to increase in the coming months due to the recent start of production at Ozernoye and constraints on refined output, they will remain relatively low.

CRU anticipates the benchmark will only fall marginally to US$150 /t in 2025. Going forward, given that zinc's price is forecast to rise to average US$4,050 /t in 2029, benchmark TCs are still expected to increase to US$275 /t in 2029.

The recent cuts in China, combined with disruption elsewhere (including Nordenham and Budel being offline earlier this year) result in global refined output falling by 1.4% y/y in 2024. A rise in smelter capacity in China and ex. China will contribute to higher output in 2025. Meanwhile, production growth thereafter will be limited by only a small rise in capacity and concentrate tightness.

The expansion at Odda and the new Verkhny Ufalei smelter are the only capacity increases expected to take place in ex. China for the period 2024-2029. Meanwhile, China is expected to add 1.5 Mtpy of smelter capacity over the same period. Annual growth rate for the period 2024-2029 is 1.8%.

16.2.3 Zinc Price

Zinc's price has retreated in recent months on the back of investor caution and an easing of concentrate market tightness. In the near term, it is expected a return to modest market surpluses in 2025 and 2026 to weigh on zinc's price.

From 2027 onwards, the ongoing ramp-up at new, large mines will not be enough to offset losses as other mines close. At the same time, demand growth will begin to outpace smelter production and market deficits will reemerge, and the need for more supply will boost zinc's price

Table 16.4: Forecast Zinc Concentrate Terms

Item	Actual		Forecast					
	2022	2023	2024	2025	2026	2027	2028	2029
Basis Price (US$/tonne)	3,800	3,000	3,800	2,700	2,600	2,900	3,500	4,000
Negotiated TC (US$/tonne)	230	274	165	150	220	240	270	275

Data: CRU

Actual and projected zinc prices are shown in Table 16.5.

Table 16.5: Annual Zinc Prices

Year	Price	
	$/tonne	$/lb
2019	2,546	116.0
2020	2,267	103.0
2021	3,007	136.0
2022	3,478	158.0
2023	2,647	120.0
2024	2,712	123.0
2025	2,644	120.0
2026	2,518	114.0
2027	2,910	132.0
2028	3,590	163.0
2029	4,110	186.0

Data Source: LME, CRU

16.3 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, SCC'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 16.6 summarizes molybdenum global market production and pricing for 2023 Q3 through 2024 Q4.

Table 16.6: 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		

Note:

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.*

16.3.1 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.

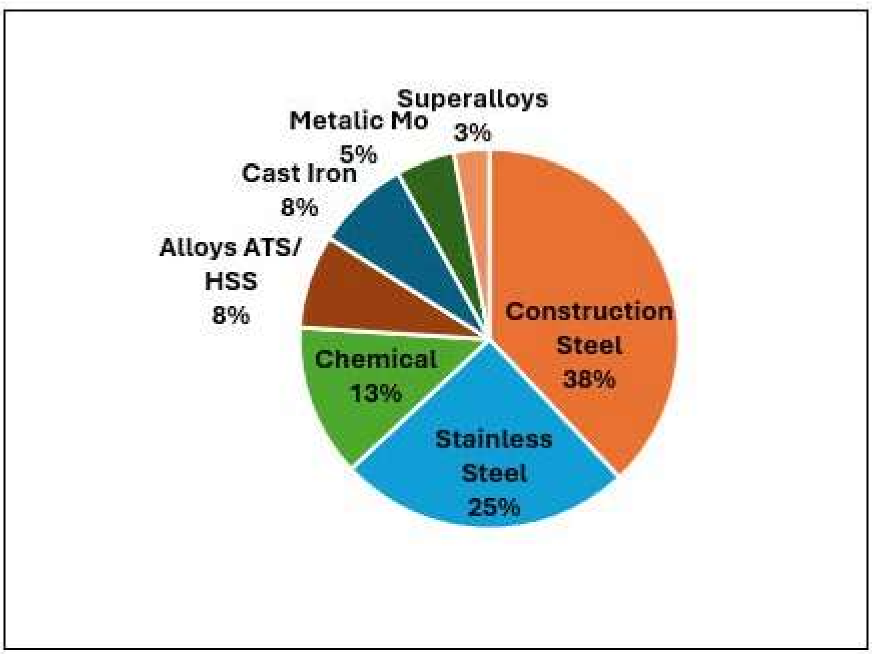
It is also important to highlight other key sectors influencing demand, such as chemical and petrochemical, oil and gas, automotive, and mechanical engineering, which together represent 53% of total demand.

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

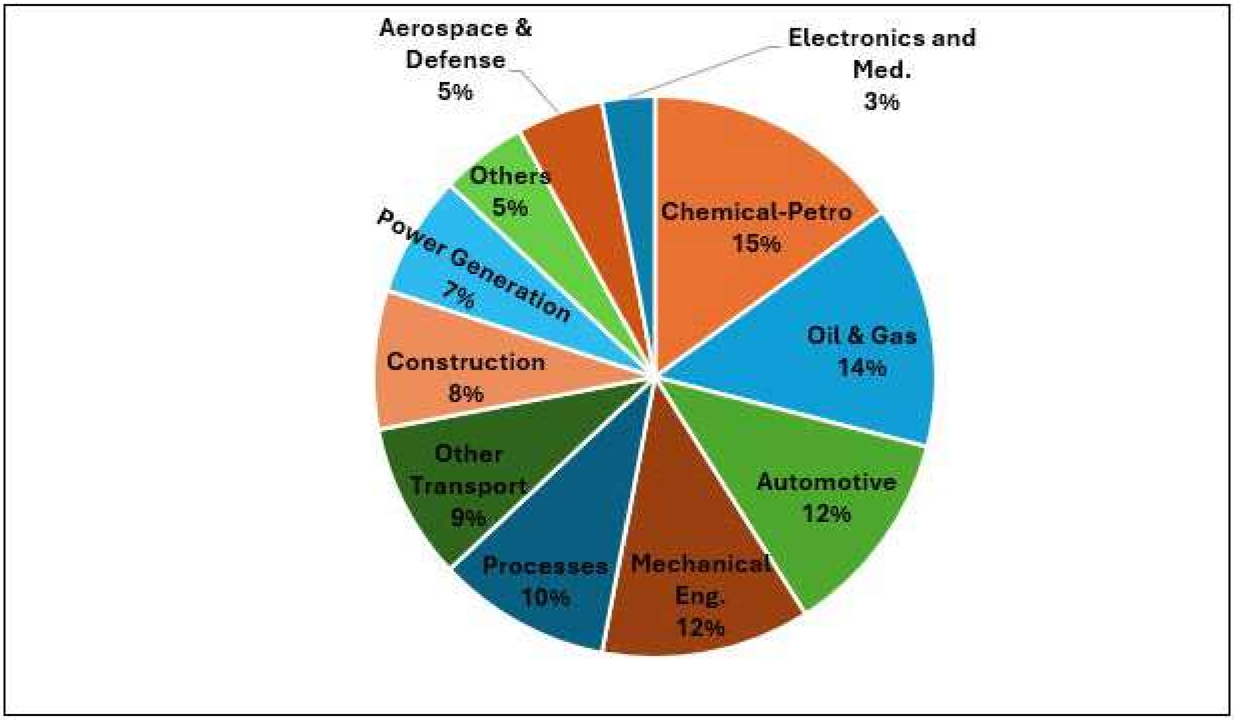
Emerging industries are also expected to indirectly support the molybdenum market. One key example is the hydrogen industry: 316L stainless steel, which contains molybdenum, plays a crucial role in the production, storage, and utilization of hydrogen. This sector is projected to grow significantly as 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

16.3.2 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.

16.3.3 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.

16.4 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$10.00/lb molybdenum
- US$1.15/lb zinc

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

Due to the age of the historical operations, no environmental studies were completed prior to the start of operations by previous owners nor by the Company prior to acquisition of the 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 Medio Ambiente y Recursos Naturales or SEMARNAT) as part of the environmental permitting process for more recent changes in operations. The main environmental baseline studies were presented in the environmental impact studies prepared by Centro de Estudios, Servicios y Consultorias Ambientales (CESCA) in 2015 for the expansion of the BVC facilities (CESCA 2015) and by Hydrosistemas ERMO, S.A. de C.V. (2012) for the Quebalix III heap leach construction project.

The environmental settings were described in CESCA 2015 and Hydrosistemas ERMO 2012. The environmental impact assessment (CESCA 2015) considered the following environmental conditions: topography, climate, geology, surface water hydrology, hydrologic basins, hydrogeology, communities, soils, vegetation, and land use. The MIA (CESCA 2015) included a mining area, roads and platforms, mineral processing areas [Concentratoa II and Leach Pads, workshops, waste rock deposits, surface water management structures, structures for the protection of the primary crushing facilities (Concentrator II and Quebalix IV) and a new powerhouse]. The entire permit surface area was 842.13 ha. The mining operations cover a significant portion of the permitted area, plus historical operations lie within additional, non-permitted areas.

The town of Cananea is immediately adjacent to the mining property on the northeast side of the property. The land usage around the mining operations includes residential, grazing and agriculture. The mining operations are situated in a mountainous area (Sierra Cananea, which is part of the Sierra Madre Occidental) with adjacent valleys (see Figure 17.1). The Maria Mine (Empresa Frisco) is visible to the northwest of BVC. The San Pedro River Valley is to the northeast of the town of Cananea, and the Sonora River Valley is to the south.

The BVC property is not within a protected area decreed by state, federal, or municipal agencies. The closest protected area is the Sierra Los Ajos-Buenos Aires-La Púrica (Priority Land Region 42), which is about 12 km southeast of the BVC property limit. This area has been designated as a protected area since 1939 and is important as the source of headwaters for the Sonora, Santa Rosa and Bavispe rivers as well for its flora and fauna biodiversity.

There is a proposed project to designate a new protected area that includes Sierra Mariquita and Elenita, two mountains located 2.5 km to 3 km northwest of Cananea. These mountains attract large colonies of ladybugs, and the name of one of the mountains (Mariquita) means ladybug in Spanish.

Within the area of the mining operations, there are no cultivated areas or livestock areas, although local livestock often trespass, especially in the TSF No. 3 area. Vegetation, where present, is oak forest with secondary vegetation. The water supply wellfield north of the town of Cananea is in the San Pedro River Valley, which is a cultivated area. The landscape was determined to be of medium quality based on the analysis carried out for the environmental permit. The BVC mine and plant physical risks associated with climate change have been identified as increased maximum high temperatures, droughts, and extreme rainfall, whereas the Buenavista Zinc project has the same risks plus flooding.

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.

17.1.1 Surface Water Characterization

There are multiple hydrological basins in the vicinity of the mining operations, as shown on Figure 17.2, including a transboundary (Mexico-United States) basin. @The Cananea Vieja – Agua de Enmedio sub-basin is made up of several smaller micro-basins, namely the Cananea Vieja, Agua de Enmedio, Bordos Concentrator and Buenavista. The Nogales hydrological sub-basin contains the El Aserradero sub-basins and its micro-basins, Los Alisos, La Tinaja – El Encanto and El Álamo. This last part of the El Álamo-Jaralito micro-basin, all located in the Rio Bacanuchi hydrological sub-basin and the La Matanza, La Mexicana and La Bombita micro-basins, which are in the hydrological sub-basin Rio Sonora – Arispe. As shown in Figure 17.2, there are many small drainages that start within the BVC property boundaries. Ephemeral flows in these drainages converge with larger streams that flow to perennial rivers, namely the Sonora, Bacoahi, Bacanuchi and San Pedro Rivers. There are no naturally occurring surface water bodies at the mine site.

Surface water quality in the region has been impacted from the historical mining operations and from the town of Cananea. Currently, about 70% of the town’s wastewater is discharged into the TSF No. 3. Nonpoint source contamination to the rivers includes agricultural and livestock production activities. Contaminants related to the mining operations that have been detected in surface water downstream from the TSF No. 3 (Sonora River basin) during the baseline studies are sulfate, arsenic and copper (Hydrological Buro Consultoría 2013a and 2013b). Other studies for the San Pedro River basin included sources of contamination in the sub-basin included mining activity, especially the historical tailings associated with historical smelter, as well as domestic and industrial discharges from the city of Cananea, and to a lesser extent agricultural and livestock activities. More information regarding the historical smelter is provided in Section 17.6.3.

In 2024, the Company is monitoring 2 surface water locations (Arroyo Mexicana and Arroyo Chivas) plus 9 groundwater wells. The Company considers these locations to be applicable to the mining waste management plan. Figure 17.3 presents the locations of the monitoring points in the monitoring network.

Source: GoogleEarth, dated 2018

Figure 17.1: Aerial Photograph of the Buenavista del Cobre Mining Area

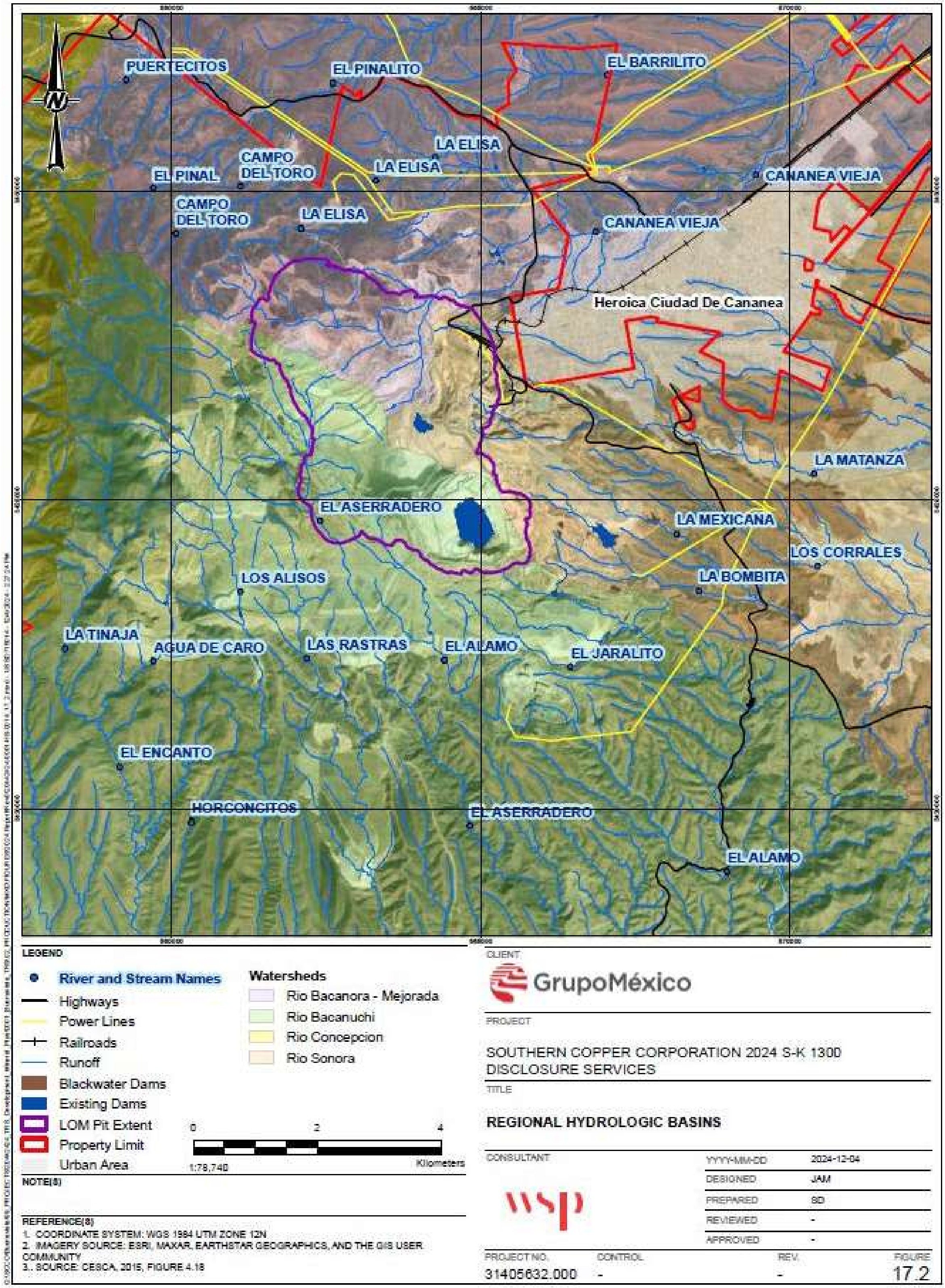
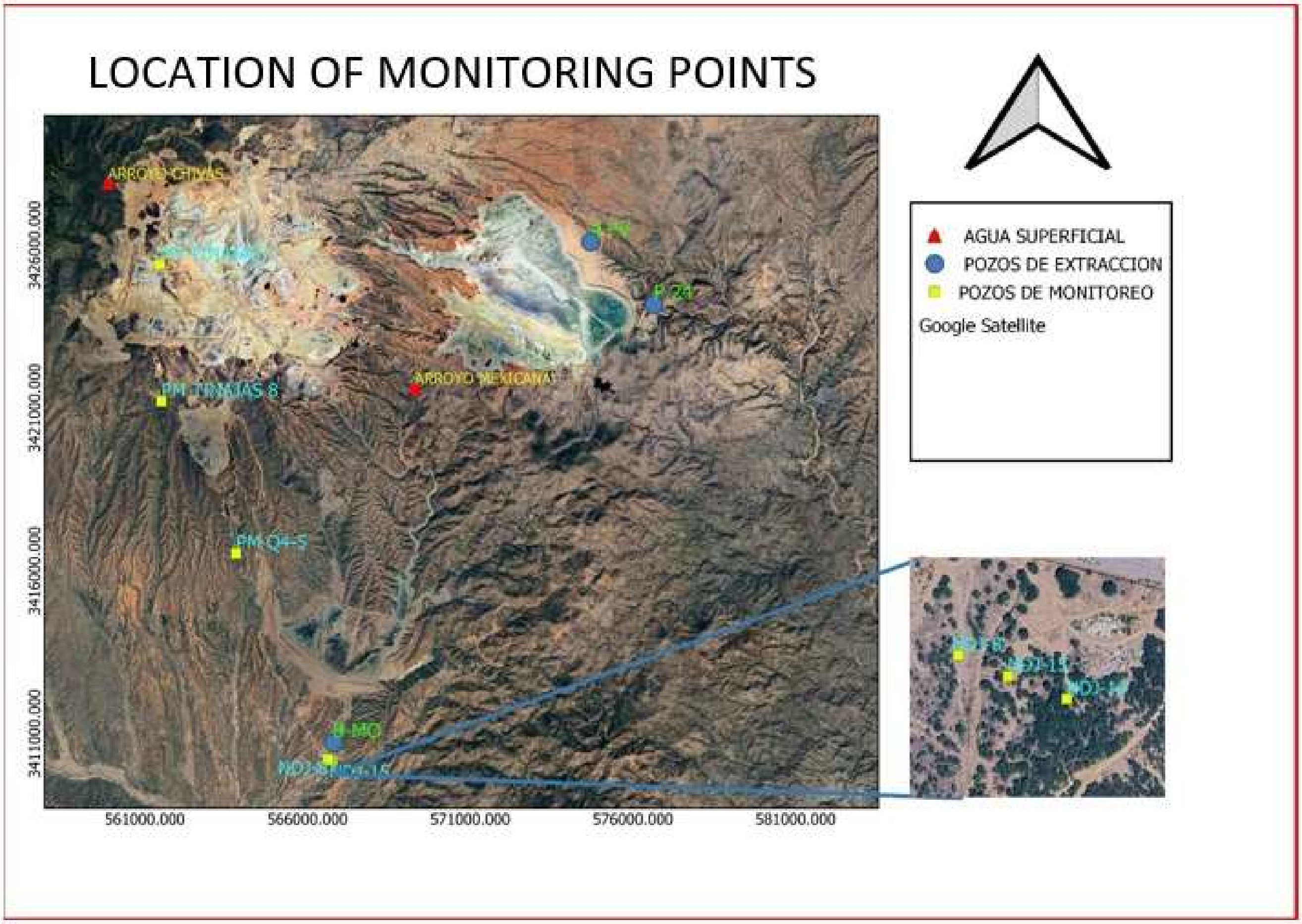


Figure 17.2: Regional Hydrologic Basins



Source: Grupo Mexico, Minera Mexico, Buenavista del Cobre S.A. de C.V., electronic correspondence from Manuel Contreras, 21 October 2024.

Figure 17.3: Locations of Monitoring Points for Surface Water and Groundwater

Assuming that Arroyo Chivas is upstream of the mining operations and Arroyo Mexicana is downstream of the mining operations, water in both arroyos is impacted by total suspended solids.

17.1.2 Sonora River Basin Spill, 2014

On August 6, 2014, a spill of 40,000 m^3 (about 10.6 M gallons) of copper sulfate from a leaching pond spilled into in the Arroyo Tinajas at Buenavista del Cobre. The spill affected up to 272 km of the Sonora River and its northern tributaries (the Arroyo La Tinajas and the River Bacanuchi). On August 19, 2014, PROFEPA (a division of SEMARNAT) announced the filing of a criminal complaint against BVC to determine responsibility for environmental damages, and in 2018 the criminal complaint was successfully appealed by the Company.

In 2014, Buenavista del Cobre carried out a remediation of impacted sediments and received a resolution from the Mexican environmental agency approving the remediation measures. The Mexican federal attorney for environmental protection fined Grupo Mexico about 22.9 million pesos (about US$1.5 M) based on the exchange rate at the time. In 2014, SEMARNAT ordered the company to create a US$150 M trust to remediate the environmental, health and economic impacts from the spill. The Rio Sonora Trust operated through a technical committee that included designated members from the Mexican environmental department and third parties.

Under terms of an agreement between the Mexican government agency Comisión Federal para la Protección contra Riesgos Sanitarios (COFEPRIS) and BVC dated January 19, 2017, Buenavista del Cobre agreed to monitor 381 medical cases identified as part of the potentially exposed population over a period of 5 years following the spill. A new facility of the Unidad de Vigilancia Epidemiologica Ambiental de Sonora (UVEAS) was established in the town of Ures, Sonora, in March 2015, as part of the agreement. The towns identified as having the highest probability of exposure from the spill were Arizpe, Banamichi, Aconchi, and Ures, which are all towns located along the Sonora River.

Various studies were carried out to assess the human health risk and impacts to the Bacanuchi and Sonora rivers. In 2017, SEMARNAT determined that the remediation, repair and / or compensation of damages to the environment and human health was satisfactory and closed the Rio Sonora Trust.

Multiple lawsuits related to the spill were filed starting in 2015. These include collective action, civil action, and constitutional lawsuits. As of December 31, 2023, three collective action lawsuits are still pending: two were filed by Acciones Colectivas de Sinaloa, A.C. and one, by Defensa Colectiva, A.C.; requesting precautionary measures about construction of facilities for monitoring public health services and prohibiting the closure of the Rio Sonora Trust. As of December 31, 2023, 45 cases of civil action lawsuits are still pending resolution; and two constitutional lawsuits are pending resolution. Because this incident was internationally reported and was very high-profile, there continues to be interest in the status of the community perspective. There are non-profit organizations, such as Rio Sonora Watershed Committee (PODER), Fundar and Border Network of Health and Environment, that have continuing environmental and human health concerns regarding the spill impacts. The Company believes that the lawsuit proceedings will not have a material effect on its financial position or results of operations (Southern Copper Corporation, Form 10-K, Fiscal Year Ended December 31, 2023).

17.1.3 Groundwater Quality Characterization

The hydrogeologic setting and sample collection methodology are described in Section 7.3. The use of groundwater for mining operations is industrial, as established in the CONAGUA water concessions.

Groundwater quality exhibited elevated total dissolved solids, the presence of oil and grease, and elevated sulfate concentrations. The Company compares the groundwater sampling results to NOM-001-SEMARNAT-2021 standards for arroyos (instantaneous value). Mexico regulates water according to usage or purpose, and thus has no established standard for natural conditions of groundwater. Even though the samples exceeded NOM-001-SEMARNAT-2021 standard for total suspended solids only in limited occasions between April 2021 and May 2024, detection of compounds such as oil and grease and elevated total dissolved and suspended solids concentrations indicate that either well construction or sampling methods may be incorrect, and the presence of elevated sulfate concentrations should be assessed against historic trends and background conditions, because sulfate is an indicator parameter of water impacted by acid mine drainage. Elevated sulfate levels can affect aquatic life and water usability for drinking and irrigation.

The QP notes that Mexico has not established water quality standards specifically for groundwater; standards are for discharge to surface waters and potable water. It is common practice for Mexican mining operations to compare groundwater sample results to discharge standards. Except for a limited number of exceedances, the groundwater samples are in compliance with NOM-001-SEMARNAT-2021.

17.1.4 Vegetation, Ecosystem and Biodiversity

The mine site is in a mountainous area with a dry and temperate climate. The region is a transition zone that has multiple macro and micro-habitats due to the variety of complex topography, geology, and climates.

Oak forest with secondary shrub vegetation is the dominant vegetation where vegetation occurs. A portion of the area is without any vegetation (that is, the mining facilities and roads). No endangered or protected flora species listed in the Mexican standard (NOM-059-SEMARNAT-2010) have been identified at the mine site. There are species of biological interest such as sotol, yucca and grasses. Overgrazing has impacted the region, and it is not known if traditional uses of vegetation (for example, for firewood, construction and food) are common.

The sky islands of the Sierra Madre Occidental refer to the set of mountain ranges that create an important corridor for bird conservation. The presence of birds within the mining operations is relatively low and wildlife surveys conducted for the environmental permit did not detect any protected bird species, although within the region there are important areas for birds.

Wildlife such as coyotes, javelina, gray fox, deer and rattlesnakes are seen at the mine site. Protected species per the Mexican regulation, NOM-059-SEMARNAT-2010, identified within the at the mine site or within the area of environmental influence include rattlesnakes, two types of birds and black bears. There are also endemic species within the mine site and environmental system (CESCA 2015). According to the Company's supplement to the 2013 Sustainable Development Report, there were 1,489 flora individuals rescued, and 264 fauna individuals rescued [1].

In 2023, the Company received certification from the Wildlife Habitat Council for its contribution preventing extinction of the Mexican gray wolf. The Company operates a Wildlife Conservation Center in Cananea which cares for species in captivity, and breeds and releases species into the wild. The species include jaguar, Mexican gray wolf, and American black bear.

17.1.5 Socio-economic Conditions

The region has a strong mining history, and the economics of the area are tied to mining. The town of Cananea (population of about 39,451 inhabitants in 2024) is immediately adjacent to the mining property on the northeast side of the property and is an important mining center for the region. There are seven ejidos in the vicinity: Emiliano Zapata, Ignacio Zaragoza, 16 de septiembre, Vicente Guerrero, Cuauhtémoc, Jose Maria Morelos and Cuitaca. The Company protocol is to prepare and update a social diagnostic which would define the areas of influence, stakeholder engagement program, stakeholder mapping, social baseline, capacity building for the local community and social management strategies.

The Cananea population has an average of about 10 years of education. There are public and private schools ranging from preschool to university level. Cananea has a museum, two public libraries, a movie cinema, cultural center, and a nearby observatory. The major sources of employment are mining (primary), agriculture, livestock (cattle), commerce and services. The community has a dependence on BVC for employment, with about 30% of the working population of Cananea associated with BVC. In addition to BVC, the Maria Mine (owner Empresa Frisco) is nearby, and there are manufacturing facilities, such as Standex Electronic, Stewart Connectors System, and Cables. Agricultural products include corn, potatoes, beans, sorghum, wheat, alfalfa, barley, and apples.

[1] https://www.responsibilityreports.com/HostedData/ResponsibilityReports/PDF/NASDAQ_SCCO_2023.pdf

Stakeholders identified in 2023 were local ejidos, neighborhoods, institutions, groups, communication media, formal and informal leaders, and government. A social diagnostic for Cananea was prepared through interviews and workshops to identify stakeholder concerns related to the environment, social issues, economy, and health. Stakeholder concerns related to the environment were: impacts from dust and odors, conservation of protected natural areas and poor management of urban waste. Concerns related to social issues were water supply and lack of public services (such as roadways and drain systems). Concerns related to the local economy were lack of employment for local residents and lack of education choices. Concerns related to health were alcoholism and drug addiction, insufficient health services, and lack of trained health workers. The overall highest level of concern was water.

There is an established grievance mechanism with multiple options to submit a request or complaint. There were four complaints, ten requests, and two information requests received in the first half of 2024; all were resolved.

There is no significant indigenous population in the vicinity of Cananea (estimated at less than 1%).

Buenavista del Cobre is governed by Grupo Mexico's nine social management policies: Human Rights; Sustainable Development; Environment; Community Development; Indigenous Communities; Health and Safety at Work; Diversity and Inclusion and No Discrimination; Tailings Management; and Mine Closure. There are procedures to plan and execute social projects. There is an established procedure for the execution of programs as well as another to monitor and evaluate performance. Projects in 2023-2024 included music, sports, and education classes and activities.

Projects financed by the Company during the period of 2020-2023 included youth programs in documentary cinematography, orchestra and choir, baseball academy, bicycling, swimming, seed money for social projects, and support of the bilingual school "Instituto Minerva".

Although financial data regarding projects specifically in 2024 were not available, the Company invested MX$670,000,000 (about US$35 M per the October 2024 currency conversion rate) for improvements in the water distribution system for Cananea during the period of 2022-2024, with the project about 90% completed by mid-2024. This project should be a significant improvement in water distribution for the town because the existing system was assessed to be losing up to 49% from leaks (Southern Copper Corporation, 2023 Sustainable Development Report). The project included activities such as upgrading 11 extraction wells, installing 3 pumps at the main pumping station, sectioning the water system, repairing leaks, and changing out pipes and instrumentation.

The parent company, Grupo Mexico, publishes an annual sustainability report, with the most recent 2023 report based on Global Reporting Initiative standards.[2] The report also used Sustainability Accounting Standard Board accounting practices and recommendations for financial disclosure per the Task Force on Climate-related Financial Disclosures (TCFD). Information in the report is compiled for multiple mining units, with almost no specific information for the BVC mining unit available for review.

17.2 Requirements and Plans for Waste and Tailings Disposal

This sub-section contains forward-looking information related to waste and tailings disposal 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

[2] Grupo Mexico 2023, report available at https://www.gmexico.com/GMDocs/InformeSustentable/Folletos/ENG/Supplement_SCC_SDR23.pdf

the material factors or assumptions that were set forth in this sub-section. This includes increases in waste disposal volumes from historical values and predicted values; changes in regulations; and unforeseen environmental, social or community events that disrupt timely approvals from environmental authorities.

17.2.1 Hazardous, Regulated and Special Wastes

The Buenavista del Cobre operations generate a wide range of hazardous waste, such as waste oil, capacitors, grease, solids containing hydrocarbons, empty containers, spent batteries, and waste solvent. The management of the wastes is highly regulated by the Mexican waste management law (Ley General para la Prevencion y Gestion Integral de los Residuos). The mining unit has a detailed waste management plan for reuse, recycling, treatment and disposal inside the mining unit, or disposal by special subcontractors.

Sewage waste from offices and buildings is treated at wastewater treatment plant (one in Concentrator II, another in New Mine Workshops and a small one in the New Waste Warehouse). Wastewater from the treatment plants is managed as a closed circuit, incorporating it back into the metallurgical processes.

17.2.2 Mining Wastes

The operations generate mining wastes in the form of tailings, spent ore, waste rock, and the lead slimes from the EW plant. In addition, the historical smelter produced slag.

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. The testing associated with the regulations focuses on potential acid generation (PAG) metals concentrations and metals leaching characteristics of the waste material.

- **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.

The QP notes that the Company characterized the lead slimes per the requirements of the NOM-147-SEMARNAT-2009, however the lead slimes resulting from the degradation of the anodes in the EW plant are considered a by-product. The slimes are removed from the cells every few months and sold to an outside company that recovers the lead for recycling. The slimes are transported from Buenavista del Cobre to the buy by an independent company permitted to transport hazardous materials.

A characterization study of mining wastes was carried out by Instituto de Geologia de la Universidad Nacional Autonoma de Mexico (UNAM) (2019a, 2019b and 2020). Samples of tailings, waste rock and spent ore were analyzed by ALS Indequim Environmental System de CV, which is a certified laboratory. Duplicate samples were collected by UNAM personnel and analyzed using university facilities. UNAM carried out the analysis of slag samples.

The Company submitted its mining waste management plan in 2022.[3] The plan was developed per the requirements of NOM-157-SEMARNAT-2009.

The mining waste classification is based on static testing results. Kinetic testing is not a required component of Mexican regulations. The mining waste characterization results are described in this section.

17.2.2.1 Tailings Characterization

The tailings were characterized using the criteria of NOM-141-SEMARNAT-2003 [Instituto de Geologia de la Universidad Nacional Autonoma de Mexico (UNAM) 2019b]. Three different types of tailings at BVC were sampled and characterized:

- Tailings deposited in the TSF No. 3, which on the surface have a reddish-yellow-brown-green color, which is evidence of different degrees of oxidation; the surficial tailings represent the tailings that were generated in the recent past.
- Fresh tailings from the daily discharge, which are gray in color because the metallic sulfides have not been oxidized; the gray color is representative of fresh tailings.
- Tailings obtained from the metallurgical testing of core samples from exploration holes used in the calculation of the Buenavista del Cobre Mineral Reserves; these samples represent the mine life tailings. These tailings could be interpreted to be representative of the New TSF tailings.

The ALS Indequim laboratory results for TSF No. 3, fresh tailings and core samples indicate that maximum permissible limits of soluble concentrations of metals were not exceeded; however, the tailings are potentially acid generating. The results of the Environmental Geochemistry Laboratory of the National Laboratory of Geochemistry and Mineralogy of the UNAM corroborated the results obtained by ALS Indequim.

Detailed discussions of the TSF No. 3 and New TSF engineering designs are provided in Section 15.0.

The 2022 mining waste management plan used the results of the testing described above to classify the tailings. No kinetic testing was carried out.

The tailings were classified as hazardous due to the potential to generate acid.

17.2.2.2 Waste Rock

Waste rock characterization used core obtained during the diamond drillhole exploration drilling to represent future waste rock associated with the LOM plan. The sampling program used and homogenized 515 core samples to create 15 composite samples. Another 15 composite samples were prepared from the four development areas in the open pit. Samples were analyzed by ALS Indequim, which is a laboratory accredited by EMA.

The results of the analyses indicated that in 3 of the 15 samples, lead exceeded the permissible limit for total concentration and in 1 sample antimony exceeded the permissible limit for total concentration. None of the metal concentrations exceeded the leachate test. All the samples were shown to be PAG due to the lack of calcium carbonate and presence of sulfates. The waste rock was classified as hazardous based on its PAG characteristics.

[3] Plan de Manejo de Residuos Mineros de Conformidad con la NOM-157-SEMARNAT-2009, November 2022

The mining waste management plan notes that waste rock facilities Rincon del Burro, Polvorin Viejo and Las Antenas were operating prior to the enactment of NOM-157. Additionally, the plan stated that no groundwater monitoring has been carried out because no vulnerable aquifer was encountered in the area.

17.2.2.3 Spent Ore[4]

Fresh ore was sampled from exploration boreholes and 457 samples were collected and leached in the Company hydrometallurgy laboratory to create spent ore. The spent ore was used to create 15 composite samples and were analyzed by Laboratorios ABC Química, Investigación y Análisis. The Company also collected 500 ore samples from the development areas in the open pit, which were composited into 15 samples that were leached and analyzed in the same manner as the exploration samples.

The laboratory analyses of the fresh ore from boreholes indicated that the concentrations of total lead and antimony exceeded permissible limits in 15 and 7 samples, respectively. The results of the development area samples indicated that total arsenic concentrations exceeded permissible limits in 6 samples, total lead concentrations exceeded permissible limits in 12 samples, and antimony exceeded permissible limits in all of the 15 samples. None of the samples exceeded permissible limits based on the leachate testing. Laboratory testing for acid-base accounting, however, indicated that all spent ore is PAG, and is classified as hazardous.

The mining waste management plan notes that the leach facilities Quebalix I, Quebalix II, ROM Chivatera, ROM Republica, ROM Mexicana, ROM Cananea, ROM Kino, ROM Kino Junior, ROM Alamos, and ROM Democrata were in place before the NOM-157 and NOM-159 regulations were promulgated (Buenavista del Cobre, 2022, Plan de Manejo de Residuos Mineros de Conformidad con la NOM-157-SEMARNAT-2009, November, 147 p.). The Company has not applied regulatory requirements to those facilities, except for the closure criteria in NOM-159.

17.2.2.4 Electrowinning Lead Anode Slimes

In 2021, the Company contracted with a certified laboratory to sample anode slimes from the SW-EW II, which were stored in 200-liter drums. Ten of the 31 drums were sampled to make one composite sample. Intertek Testing Services carried out the sampling and analysis.

The analytical results indicated that the total concentrations of chromium, arsenic, antimony, and lead exceeded permissible limits. The leachate test results indicated that none of the regulated elements exceeded permissible limits, and, therefore, the waste was classified as nonhazardous based on metals toxicity. The acid generation potential testing result was a pH of 1.73, and therefore the waste was classified as hazardous due to the acid generation potential.

The QP notes that the NOM-157 test method for a process waste is based on pH and is not the same acid-base accounting method used for waste rock and tailings. The slimes themselves are not acid generating but are soaked in acidic EW electrolyte. As described earlier in Section 17.2.2, currently the anode slimes are a by-product that is sold for lead recycling.

17.2.2.5 Slag

There are two areas where slag was deposited historically over a surface of about 27.909 ha. The slag was classified as non-hazardous waste (UNAM, 2020).

[4] Universidad Nacional Autonoma de Mexico, 2019, Plan de Muestreo, April 29, 13 p.

17.3 Site Monitoring and Water Management

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

17.3.1 Environmental Monitoring

Mexican laws require mandatory monitoring programs that are implemented under the Mexican environmental agency (SEMARNAT). The environmental management system and environmental and social management plans were developed in accordance with the appropriate Mexican regulations. The following monitoring programs have been established at the mine: groundwater quality, surface water quality, air quality, perimeter noise, fauna registry, flora species rescue record, nursery plant production, impacts to soils, and cleared surface restored/reforested registry. Most monitoring is carried out every six months or annually except for groundwater quality, which is monitored quarterly.

Written descriptions of these programs were not provided with the exception of air and noise monitoring. The air quality and noise monitoring results for 2020, 2021, and 2022 indicated that air quality exceedances were detected numerous times, in particular exceedances of particulates in air at two of the monitoring stations. No information was provided about determining the source of the exceedances or corrective actions. No recent air and noise monitoring data were provided to the QP.

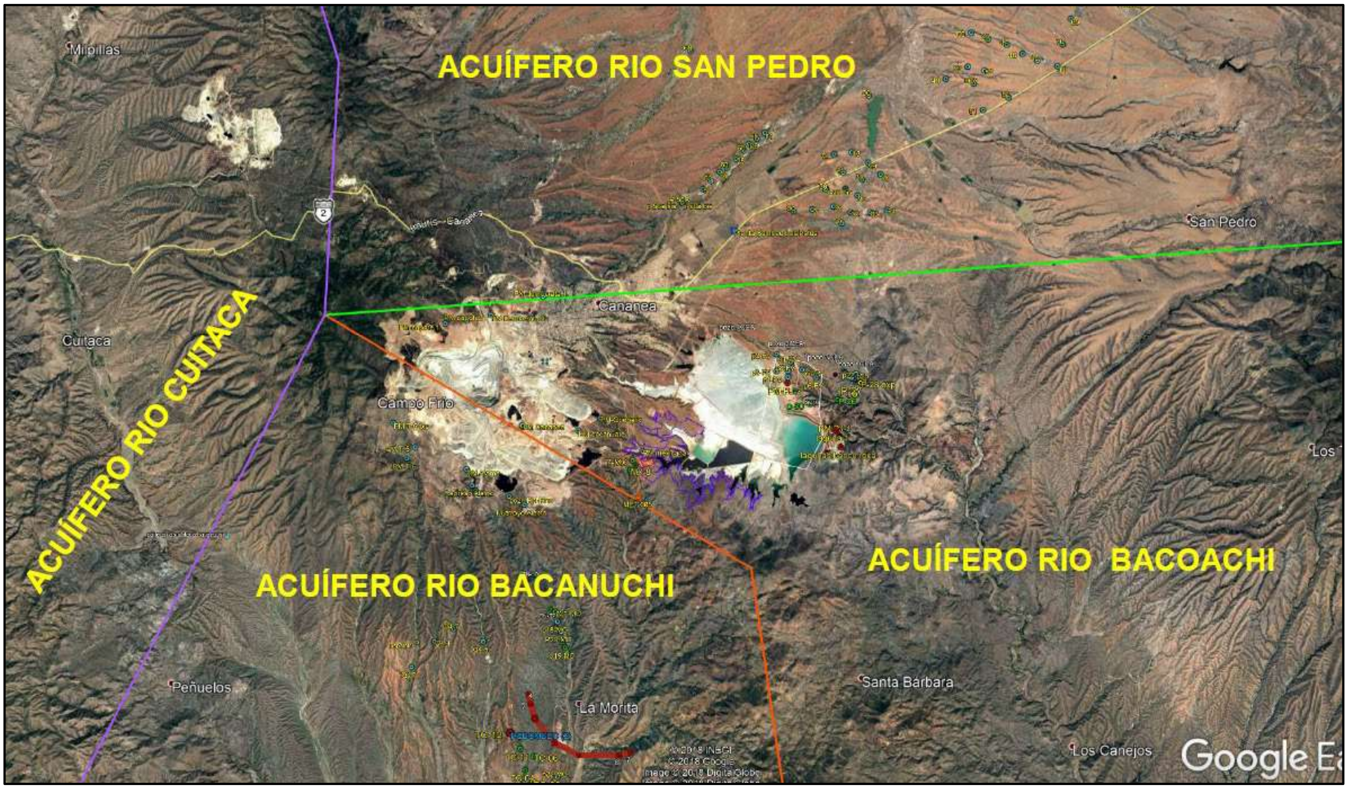
17.3.2 Water Management Plan

Although there is no published water management plan for Buenavista del Cobre, information regarding freshwater and recovered water indicates that freshwater is being pumped from the Rio San Pedro, Rio Bacanuchi, and Rio Bacoachi aquifers to be used in the mining operation. Pumped groundwater is stored at the freshwater ponds of Concentrators I and II. The freshwater is then used for operation at the Concentrators I and II plants. Tailings from the plants are transported to the thickeners (Concentrators I and II) and subsequently sent to the tailings storage facilities. Stormwater that would run-on to the Quebalix area is captured in stormwater ponds and used in mining operations. Reclaimed water from the tailings facilities (TSFs I and II) is then used for mining activities, such as Concentrators and SX-EW plants, Quebalix facilities mine, and services. The water management plan recovers and reuses freshwater utilized in mining processes, while wastewater from restrooms and dining areas is treated and used in metallurgic processes.

The water management system is designed to be a closed circuit with no discharges to the environment.

17.3.2.1 Water Supply and Concessions

Freshwater for the mining operation is currently extracted from three different aquifers, the Rio San Pedro, Rio Bacoahi, and Rio Bacanuchi (see Figure 17.4). According to the concession permits granted by CONAGUA, Buenavista del Cobre can extract a total amount of about 44 m^3 per year through 118 authorized wells, 46 in the Rio San Pedro Aquifer, 44 in the Rio Bacoachi Aquifer, and 28 in the Rio Bacanuchi Aquifer.



Source: Grupo Mexico, 2021c

Figure 17.4: Rio San Pedro, Rio Bacoachi, and Rio Bacanuchi Aquifers

Groundwater concession titles and authorized wells granted to Buenavista del Cobre (Grupo Mexico) by the CONAGUA can be found in Table 17.1.

Table 17.1: BVC Water Concessions

Aquifer	Concession Title	Volume per Title (m^3/year)	Use	Number of Authorized Wells	Concession Period (yrs)	Start Date	End Date
Rio San Pedro	02SON100277	19,492,040	Industrial	46	10	07-Oct-19	07-Oct-29
		7,960	Livestock				
Rio Bacoachi	SON150676	16,710,713	Industrial	44	30	20-Jun-12	20-Jun-42
		50,000	Livestock				
Rio Bacanuchi	SON151058	7,426,520	Industrial	28	10	16-Jul-20	03-Aug-30
Total		**43,687,233**		**118**	**50**		

Source: Grupo Mexico, 2021a.

The Company has requested a groundwater concession issuance of an additional volume of 199,620 m^3 from the Rio San Pedro and 42,913 m^3 from the Rio Bacoachi aquifers and the application is currently under review by CONAGUA (Grupo Mexico, 2021a).

17.3.2.2 Water Use

According to the freshwater production and distribution diagrams from Grupo Mexico freshwater consumption in 2023 was about 35 Mm^3. This is a similar volume to the past usage reported for 2021. Grupo Mexico recovers water from the tailings dams, and the thickeners and treats wastewater from restrooms and dining areas to be used in metallurgic processes. Recovered water volumes were about 115 Mm^3 in 2019 and 2020 (Grupo Mexico, 2021e). The recovered water volume for 2023 was reported as about 105 Mm^3. The volumes of water extracted under each concession are presented in Table 17.2.

Table 17.2: Fresh Water Extractions and Water Recovery, 2023

2023 Month	Fresh Water Extraction (m^3)			Fresh Water	Recovered Water (m3)
	Aquifer	Aquifer	Aquifer		TOTALS: Thickeners at Concentrators I and II , Pumping Systems from TSFs
	SAN PEDRO	BACOACHI	BACANUCHI	Total by Month	
	WELLS LOS PATOS	WELLS OJO DE AGUA Y FV	WELLS MO-TC-TS		
January	1,261,467	926,576	447,228	2,635,271	9,883,476
February	1,334,470	784,660	425,730	2,544,860	8,814,935
March	1,575,458	864,046	428,097	2,867,601	9,860,150
April	1,865,515	819,037	379,007	3,063,559	8,457,805
May	2,318,203	952,132	449,631	3,719,966	8,054,211
June	2,634,393	864,963	394,044	3,893,400	8,036,093
July	1,741,628	846,042	301,114	2,888,784	9,148,248
August	1,578,862	709,542	398,541	2,686,945	9,394,596
September	1,803,163	750,861	418,865	2,972,889	8,066,556
October	1,168,154	863,226	439,882	2,471,262	8,155,481
November	1,095,792	863,732	409,413	2,368,937	8,173,416
December	1,021,640	924,408	440,305	2,386,353	8,923,723
Totals	**19,398,745**	**10,169,225**	**4,931,857**	**34,499,827**	**104,968,690**
CONAGUA Concession Volume	19,500,000	16,760,713	7,426,519	**43,687,232**	
Annual Water Balance (m^3)	*101,255*	*6,591,488*	*2,494,662*	**9,187,405**	

Source: Grupo Mexico, electronic correspondence from Manuel Contreras, 21 October 2024

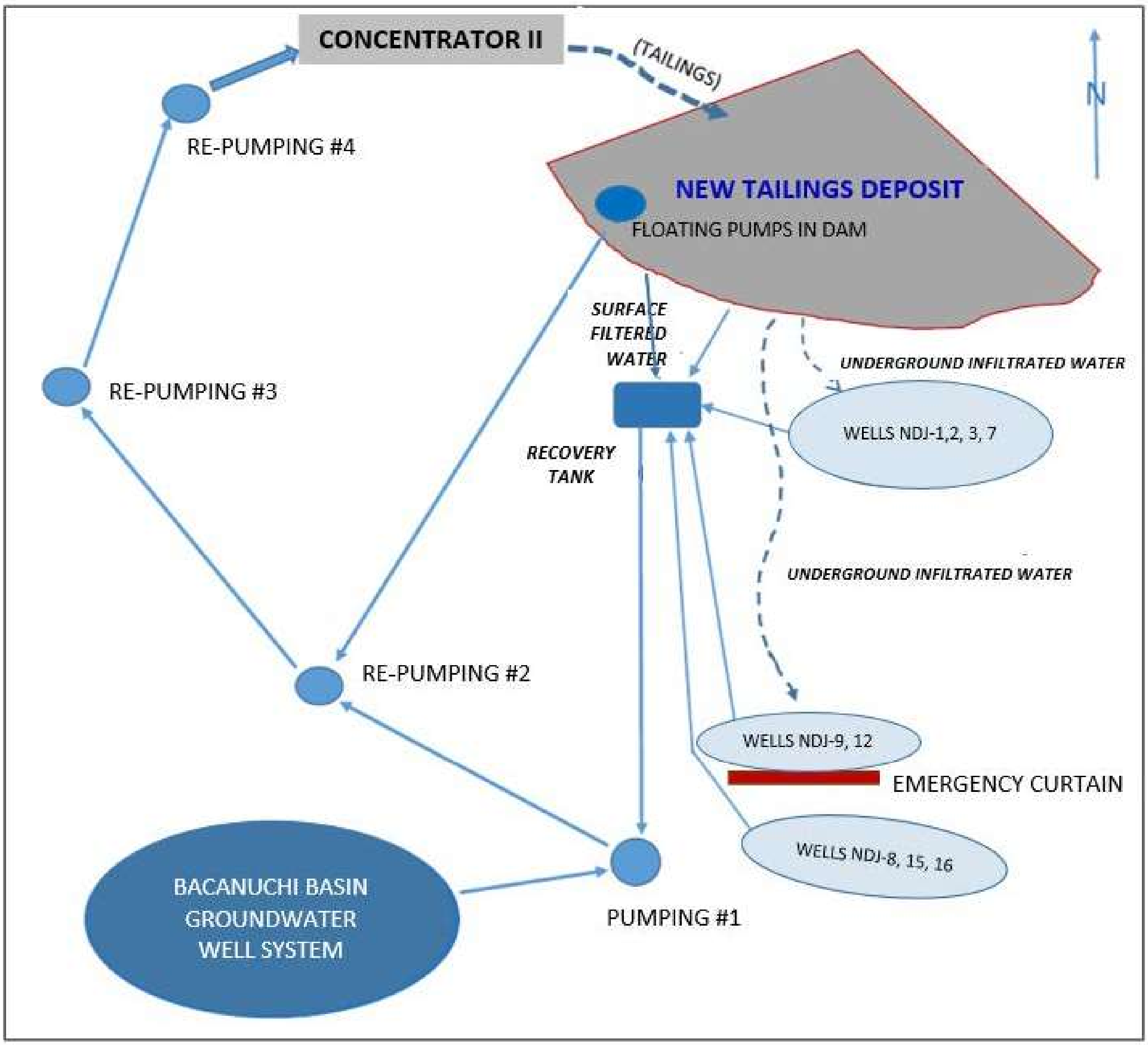
17.3.2.3 Seepage and Interception Systems

The new tailings dam in Concentrator II includes a water filtration system and a recovery pond for the filtrated water. There are nine wells (NDJ wells) that recover the infiltration water from the dam. All the water from the pond is sent to BOMBEO I along with the water collected from the Bacanuchi basin wells. The water is sent to Concentrator II, where it is used for the mineral grinding that generates the tailings and completes a closed water circuit (Figure 17.5). Water quality from the NDJ wells at the New TSF is monitored monthly by a certified laboratory.

17.3.2.4 Water Treatment

There are three wastewater treatment plants in Buenavista del Cobre which include one in Concentrator II, one in Nuevo Talleres de Mina (new mine workshops), and one in the Nuevo Almacén de Residuos (new waste storage). Concentrator II has a capacity of 2 liters per second (lps) for the treatment of wastewater from the restrooms and the eating quarters. The effluent is used in the metallurgic process of the plant for a closed circuit. The plant in Nuevos Talleres de Mina has a capacity of 2 lps and treats the wastewater generated in the restrooms and dining area. The Almacen de Residuos Plant has a capacity of 0.5 lps and treats waste from restrooms and dining areas. All the effluent is incorporated to the metallurgic processes. The construction of an additional wastewater treatment plant is in process. This plant will be in the Unidad de Manejo Ambiental of

Buenavista del Cobre. In other areas, wastewater from offices and restrooms is sent to septic tanks and bio-digestors and it is collected via tank cars and discharged in the Concentrator I plant, to be later incorporated to the production process. Buenavista del Cobre does not discharge wastewater to the national streams and does not require CONAGUA´s authorization for that, since everything is treated in a closed circuit and utilized in metallurgic processes (Grupo México, 2021b).

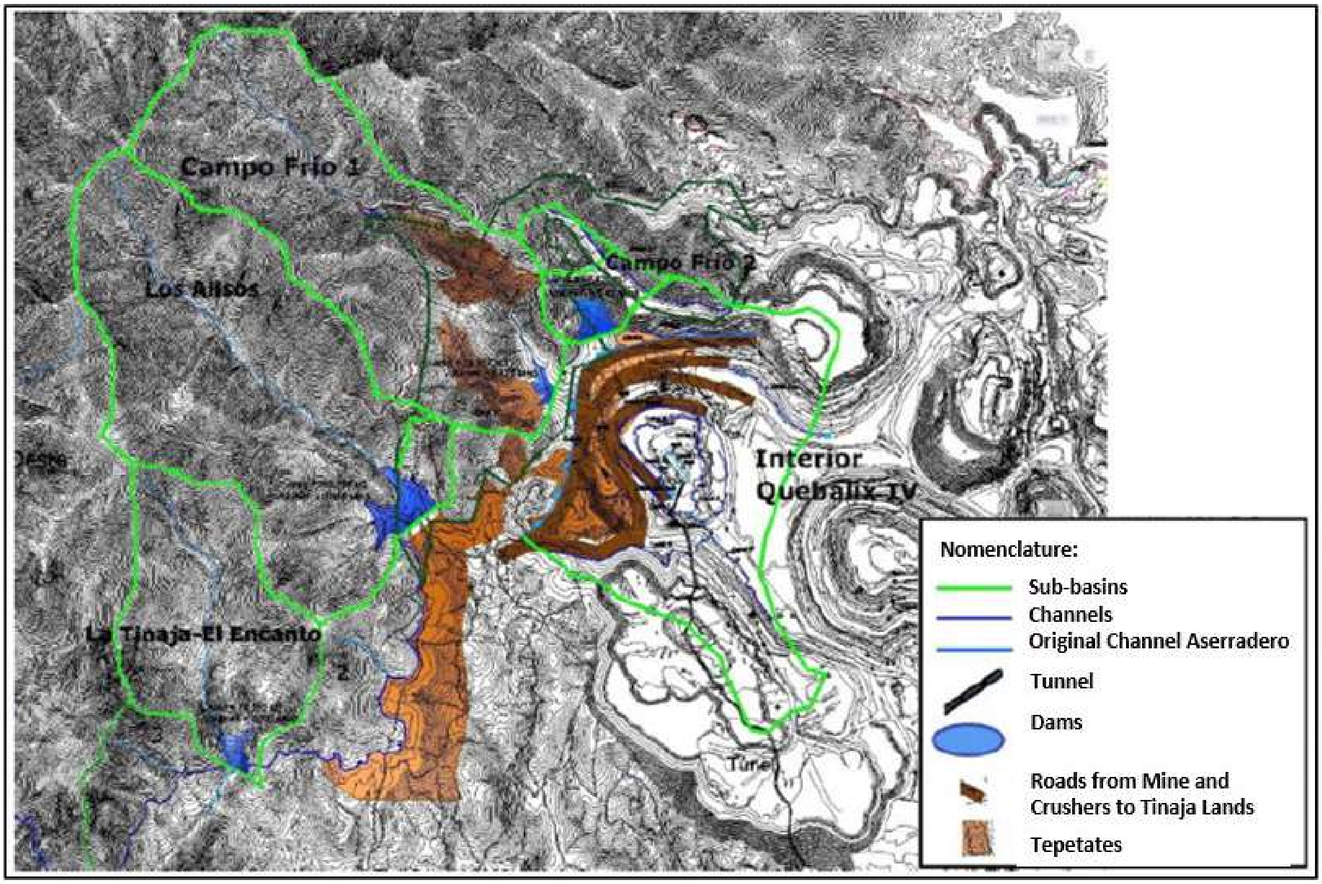


Source: Grupo México, 2021f

Figure 17.5: Concentrator II Tailings Dam Water Recovery System

17.3.2.5 Surface Water Run-On Controls

Designs for stormwater impoundments have been developed to prevent stormwater from reaching site facilities in the Quebalix Area. The purpose of the impoundments is to temporarily store water for use in mining operations. The locations of the basins and stormwater impoundments are shown in Figure 17.6 while the stormwater impoundment design criteria are summarized in Table 17.3.



Source: BHC, 2013

Figure 17.6: Hydrologic Basins for Surface Water Impoundments

Table 17.3: Storm Water Impoundment Design Criteria

Basin	Dam Height (m)	Storage Capacity (Mm^3)	Reports to
Campo Frio 1/El Aserradero	25	0.175	Stormwater Dam
Campo Frio 2	53	0.850	Stormwater Dam
Los Alisos	36	0.938	Stormwater Dam
Interior – Quebalix IV	n/a	0.576	Interior Pond

A surface water run-on diversion channel, Canal Poniente, is proposed west of the Buenavista mine to divert stormwater away from Tinajas and Quebalix IV areas of the mine site. The channel starts at the El Aserradero dam, flows south to Los Alisos, and continues to La Tinaja-El Encanto watershed before discharging to Arroyo Agua Escondido, a tributary of the Bacanuchi River. Several design configurations for Canal Poniente have been considered by Grupo Mexico, but the final configuration and conveyance capacity are uncertain.

17.3.2.6 Water Supply Permitting

17.3.2.6.1 Groundwater

According to the water management policies provided by Grupo Mexico, the management, use and extraction of groundwater, is regulated by the provisions of the Law of the Nation's Waters (Ley de Aguas Nacionales or LAN) and the Federal Law on Water Rights (Grupo Mexico, 2021d). The LAN was signed in 1992 and established the role of the National Water Commission (CONAGUA) as the federal agency in charge of Mexico´s surface and groundwater management. Article 20 of the LAN establishes that the exploitation, use, or non-consumptive use of the nation's water resources should be carried out through a concession, or "asignación," granted by the Federal Executive Branch or Basin Councils (DOF, 2004).

CONAGUA can grant either groundwater or surface water concessions which are managed separately. Concessions can be compared to a water right and can be granted to private users, such as Grupo Mexico. Concessions can last up to 30 years, and users can ask for an extension, if needed (OECD, 2013). Information regarding concession volumes can be found in the Public Registry of Water Rights (Registro Publico de Derechos de Agua, or REPDA) and is managed by CONAGUA. According to the REPDA, Grupo Mexico/Buenavista del Cobre can extract about 43.7 million m^3 of groundwater from the Rio San Pedro, Rio Bacoachi and Rio Bacanuchi aquifers (groundwater concessions). There are no registries of surface water concessions for Grupo Mexico / Buenavista del Cobre under the REPDA.

17.3.2.6.2 Federal Streams

CONAGUA regulates federal streams within Mexico in accordance with the National Water Law. Federal streams must be protected from industrial activities. Federal streams are defined as streams with both:

- 10-year flood width greater than 2 meters
- 10-year flood depth greater than 0.75 meters

Two streams in the San Pedro River Basin upstream of Buenavista and eight streams in the Sonora River Basin downstream of Buenavista were studied to determine if they meet federal requirements. The results of these studies are summarized in Table 17.4 . Hydrologic and hydraulic analyses of the streams were completed to determine federal status. Based on failing to meet the minimum depth parameters, none of these streams are considered Federal channels.

Table 17.4: Federal Stream Assessment

Basin	Arroyo	10-Year Flow Depth (m)	Federal Stream (Y/N)
San Pedro River	El Pinalito	0.09	N
	Cananea Vieja	0.09	N
Sonora River	La Tinaja-El Encanto	0.11	N
	Puerta El Encanto	0.10	N
	Los Alisos	0.18	N
	Los Rastros	0.18	N
	El Aserradero	0.15	N
	El Alamo-Jaralito	0.04	N

Source: BHC, 2010

17.4 Environmental Violations

As of October 2024, there are ten active violations that resulted from inspections carried out by the Mexican authority. The most common violations cited are that Buenavista del Cobre lacked an authorized permit from the environmental agency in an area where tailings were disposed and installation of equipment that was not part of the environmental permit. The violations and proposed compliance activities are listed below in Table 17.5.

Table 17.5: Active PROFEPA Violations

Inspection No.	Inspection Process	Violation Requirement	Action Plan
PFPA/3.2/2C.27.5/00062-23-OI-SON	New Tailings Impoundment	Requirement to prepare an environmental monitoring plan to meet mitigation and prevention methods for the new tailings facility	Company is preparing a revised monitoring plan
PFPA/3.2/2C.27.5/00062-23-OI-SON	New Tailings Impoundment	Use of 1.88 ha that were not part of the environmental authorization	Company is removing tailings. Two dams are being designed to access part of the area
PFPA/3.2/2C.27.5/00062-23-OI-SON	New Tailings Impoundment	Requirement to submit an environmental report regarding the area impacted by the unauthorized tailings disposal	Company is carrying out surveys of flora in the zone to quantify the affected flora
PFPA/3.2/2C.27.5/00062-23-OI-SON	New Tailings Impoundment	Requirement to submit a reclamation plan and/or environmental damage compensation for the impacted zone	Company is assessing zones to do reforestation to compensate the affected flora
PFPA/3.2/2C.27.5/00137-23-OI-SON	SX-EW III	Process equipment is not the same configuration that was permitted, specifically there is a stage for post-decantation for organics at the solvent extraction plant	Company provided authority's response letter (oficio) indicating: (1) Authorization by the Authority to the request for modification to the previous project, indicating that 3 thickener tanks are for the loaded organic, which is part of a process is described in the operation stage. Likewise, flow diagrams of the loaded organic post-decanter sub-stages as well as the parallel extraction were provided to the agency.
PFPA/3.2/2C.27.5/00137-23-OI-SON	SX-EW III	Process equipment is not the same configuration that was permitted, specifically a parallel extraction stage in the solvent extraction plant, which was not included in the environmental impact statement	Company provided the information above, plus the Company indicated that the environmental license had been updated. The environmental license is an authorization based on the operation and functioning of fixed air emission sources
PFPA/3.2/2C.27.5/00137-23-OI-SON	SX-EW III	Inspection noted that there were two more cells in the electrolite supply than the 268 declared and authorized in the environmental impact statement	None provided to the QP
PFPA/3.2/2C.27.5/00137-23-OI-SON	SX-EW III	Inspection noted that the Company had constructed a concrete wall in the La Bombita stream bed and that runoff from the historic waste "Terreros Viejos" had generated discoloration in the stream bed and that the stream bed had not been protected from environmental impacts	Company has developed a work plan to dredge and clean the "La Bombita" sump and to apply polymeric concrete with epoxy resin. The QP notes that it is not clear how future impacts from the historic waste runoff is to be managed to prevent impacts to the stream bed
PFPA/3.2/2C.27.5/00137-23-OI-SON	Leaching Pad Quebalix III	Only two leaching pads were authorized in the permit and three pads were observed during the site tour	Company is carrying out stabilization of Quebalix III slopes and then pausing deposition of material
PFPA/3.2/2C.27.5/00061-23-OI-SON	Leaching Pad Quebalix III	Ponds are missing perimeter fencing	Pond Mexicana VI will have a fence installed

Source: BVC, 2024, filename: Inspecciones PROFEPA.xlsx

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 constant (or real) dollar 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.

There is no specific mine closure regulation established in Mexico, and there are no requirements to post a closure cost mechanism. During the environmental permitting process, an environmental compensation cost is calculated and paid to SEMARNAT; however, that compensation cost is not held to cover closure costs. Several of the environmental regulations include aspects of closure, but only in general terms of requirements to reclaim areas and to provide for physical stability of remaining facilities and that any discharges meet environmental permissible limits.

No written conceptual closure plan has been developed for the Buenavista del Cobre operations, although there is a corporate policy on closure related to community relations. Closure planning for the operations has included the following:

- A general description of closure activities was presented in the environmental impact assessment prepared by CESCA (2015). The mine closure activities planned include the stabilization of the slopes, including progressive closure activities. Equipment and machinery in good condition will be dismantled to be transferred to another company project as necessary. The closure period is planned for 10 years, starting with dismantling until the reclamation activities. The closure method for the heap leach facilities will consist of rinsing the spent ore to extract and recover the dissolved contaminants; neutralization to mitigate acidity; and installation of a designed cover to control water infiltration and limit oxygen, thus reducing acid drainage generation and mobility of contaminated elements. The facilities would then be reclaimed and revegetated. The heap leach facilities would be left at the angle of repose.
- The closure activities described for the New TSF consist of cleaning and dismantling in the area of borrow materials for the construction of the first stage of the tailings embankment; cleaning and dismantling equipment at the end of the New TSF operations; reclamation and reforestation; and post-closure monitoring. The operation of the New TSF is planned for a period of 40 years, followed by 5 years of closure activities.
- Due to the age of the TSF 3, it was not part of the environmental impact assessment prepared by CESCA (2015), and no information was provided about its closure.
- The waste management plan indicated that the tailings impoundment would be covered with an impermeable cover to control water infiltration and avoid chemical reactions. The cover would have surface water channels, and the slope would be appropriate for the type of soil used in the cover. The cover would be topped with an organic layer and revegetated.

The Company has recognized an estimated Asset Retirement Obligation for its mining properties in Mexico as part of its environmental commitment. The Company considers dismantling concentrators, smelter and refinery plants, shops, and other facilities as costs to be estimated for closure of operations (Southern Copper Corporation, Form 10-K, Fiscal Year ended December 31, 2023).

2023 Asset Retirement Obligations (AROs) were developed by SCC for two separate administrative areas, which were each subdivided into facilities (BVC filename: MF03 2023 Costo estimado de cierre para Cálculo de ARO + Prov.xlsx, provided 2024). The AROs were estimated to be about US$384 M for BVC and US$127 M for BVC Minera Mexico; the explanation for how the AROs were separated was not provided to the QP. The AROs are based on 2023 site conditions. For each ARO facility closure cost, an area or volume was measured, and a unit cost applied for closure activities. The closure activities of demolition, dismantling, remediation, and restoration activities were used to estimate the closure costs. No closure designs or engineering drawings were provided to the QP.

No closure costs were developed for Life-of-Mine conditions. The Zinc Concentrator, control structures to capture acid mine drainage from El Encanto waste rock area and borrow sites were not included in the cost estimate. No mine closure plan has been prepared for current or future mining operations.

17.6 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.

17.6.1 Environmental Permitting Requirements in Mexico

Most mining regulations in Mexico are promulgated at the federal level; however, 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; (iv) new social and environmental requirements in order to obtain and keep mining concessions, (v) the authorization by the Mexican Ministry of Economy of any mining concession's transfer, (vi) 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 the effective date of this report.

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.

The remediation program for the historical smelter (Grupo Mexico Minería, 2020), described characterization activities and proposed remedial activities without costs.

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," for its initials in Spanish). 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 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," for its initials in Spanish); an explosives permit from the Ministry of Defense ("SEDENA," for its initials in Spanish) before construction begins; and a water discharge and usage permit must be granted by the CONAGUA.

A project-specific environmental license (Licencia Ambiental Única or "LAU," for its initials in Spanish), 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 non-hazardous waste handling and 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.

Hazardous wastes from the mining industry are highly regulated and specific handling requirements must be met once they are generated, such as hazardous waste generator documentation, logbooks, and handling manifests. Hazardous waste storage areas must comply with Federal requirements.

17.6.2 Environmental Permit Status

Due to the age of the historical operations, no environmental studies were done prior to the start of operations; however, any project, work or activity since 2011 has been developed based on an approved environmental impact assessment. The first authorization is dated August 2011 and the most recent is dated 2021. In addition, modifications to an approved permit have required an assessment of environmental impacts and an additional permit modification authorization from SEMARNAT.

Buenavista del Cobre currently has over 20 environmental impact authorizations issued by SEMARNAT for projects presented in separate Environmental Impact Statement submittals and/or Preventive Report submittals. The most recent mine operations are under an environmental license (LAU) issued in 2017 by SEMARNAT per the official document DS-SG-UGA-0752/2017, which supplemented the initial LAU issued in 2013 and a modification in 2015. The 2017 LAU update approved the addition of a new process associated with the copper and molybdenum plant and Concentrators I and II, and the hydrometallurgical process installations (Quebalix I, Quebalix II, Quebalix III, Quebalix IV, SX-EW Plant I, SX-EW Plant II, and SX-EW Plant III). The permit is valid for 50 years and expires on June 5, 2165.

Buenavista del Cobre received authorization in 2021 for a new surface water channel, stormwater retention ponds and expansion of the waste rock storage facility "Los Marros", electrical transmission lines and electrical system, plus ancillary support structures. The water channel will convey stormwater from multiple drainages on the west side of the mining unit to a final discharge in the Rio Sonora. The environmental impact of the surface disturbance was determined to be minor, and the social-economic impact was determined to be positive.

The historical mining operations pre-date the establishment of the Mexican environmental requirements; however, BVC is voluntarily planning to submit a regional Environmental Impact Statement that will include all other historical mining facilities and activities that were not included in the LAU. The regional Environmental Impact Statement will include the following facilities: open pit, Concentrator I, SX-EW I, SX-EW II, TSF 3, crushers for Quebalix I and II, leaching facilities (Quebalix I, Quebalix II, Democrata Norte, Democrata Sur, Republica, and Mexicana), ponds (Puerta 2, Chocolate, Cachuate, Mexicana 6, Kino, and Oeste), waste rock facilities (Oeste, Democrata, Este, and Polvorin), and other ancillary facilities. This list includes some facilities that have been authorized in the LAU but were not previously assessed for environmental impacts. To bring the entire complex into compliance the potential environmental impacts should be identified, prevented, and mitigated, and compensation measures implemented. The timing of the submittal of the regional environmental impact statement was not provided; however, the QP notes that there is no due date established because this is a voluntary effort, and not required by SEMARNAT.

17.6.3 Proposed Remediation Program for Historic Smelter

The historical smelter, which was not subject to environmental permitting previously due to its age, is part of the Company's voluntary process to bring the entire mining complex into compliance with the Mexican Ecology Law, which requires that potential environmental impacts be identified, prevented, and mitigated, and that compensation measures are established. The historical smelter area, which was abandoned in 1989 when Compañía Minera de Cananea declared bankruptcy and the Mexican government carried out a military-supported eviction of the facilities, was permanently damaged during the abrupt show down. The smelter has not been reopened but has not been subject to remediation and permanent closure. BVC has developed a draft program for soil remediation for the historical smelter area (Grupo Mexico Minería, 2020, Programa de remediación ambiental de la Antigua Fundación de Cobre).

The facilities and areas within the historical smelter include slag deposits, energy plant, smelter, diesel storage tanks, waste storage area for temporary storage of hazardous and regulated wastes, support facilities, offices and parking, plant engineering buildings, a reclaimed area and scale. The impacted area encompasses 63.65 ha.

Buenavista del Cobre's remediation program was developed to comply with the Mexican regulation for soil characterization and remediation (NOM-147-SEMARNAT/SSA1-2004). NOM-147 methodology is based on an initial phase of site characterization, identification of exposure route, development of a conceptual model, analysis of transport and destination of contaminants and identification of exposure to a human population. The second phase is establishment of the different procedures to determine total concentration or soluble concentration objectives. The use of procedures using total concentrations objectives would be when there is an exposed human population, whereas soluble concentrations objectives are related to potential groundwater impacts. Depending on the scenario, remediation actions are developed. The studies already completed indicate that the neighborhoods of Cananea and Cananea Vieja are considered to have a potentially exposed human population of about 2,333 inhabitants. Additional work is currently on hold pending input from the environmental agency.

The slag was characterized and classified as non-hazardous per the criteria of the Mexican mining waste regulation (NOM-157-SEMARNAT-2009). A soil characterization study in the area of the historical smelter indicated that that total concentrations of arsenic and lead were above the permissible limits for an industrial use area, and about 40% of the samples had pH values of less than 4, which can lead to higher probability of metals leaching. The remediation strategy proposed was to incorporate soils contaminated with soluble metals and high copper concentrations into the mineral processing activities to take advantage of the commercial value of the minerals left in the soils. The study did not include any field work outside of the BVC property to assess impact to the community, such as soil sampling within the adjacent neighborhoods.

During 2023, the Company did some demolition work and removed noncontaminated materials. The Company decided to put the project on hold pending a response from the environmental authority regarding the project. In 2024 the Company contracted with a provider to prepare a new remediation plan, which is scheduled to be presented to the Company as a draft by the end of 2024.

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.

Buenavista del Cobre has a memorandum of understanding dated 2020 with the Instituto Tecnológico Superior de Cananea, state of Sonora and the Instituto de Capacitación para el Trabajo del Estado de Sonora under a program called “Forjando Futuro” (“Forging the Future”). Buenavista del Cobre is responsible for supplying financial, material, and intellectual support for the program.

Buenavista del Cobre has an agreement from 2019 with the town of Cananea that established the Cananea Community Committee. The committee objective is to review, approve and oversee the community projects supported by Buenavista del Cobre.

17.8 Descriptions of Any Commitments to Ensure Local Procurement and Hiring

One of the objectives of the Company’s “Forjando Futuro” program is to provide training to individuals and small businesses to increase the vendor participation in the regional supply chain. In 2023, 63 participants were certified in welding, instrumentation, and heavy equipment, and 75% of the certification program graduates were employed. Another 31 persons graduated from the adult education program. In addition, in 2023 there were 64 companies that received training as local small business providers in collaboration with the Sonora Mining Cluster. In collaboration with the Sonora Mining Cluster and the Cananea Higher Technology Institute, there are currently 8 companies which have been certified in business entrepreneurship, 33 companies are in the certification process, and another 20 business are waiting to start certification.

17.9 Qualified Person’s Opinion

17.9.1 Groundwater Quality

The sampling technique used for a non-pumping well is to collect the sample by lowering the bailer 1 meter below the phreatic surface. This method is not adequate to demonstrate that a water sample representative of the aquifer is obtained. The method does not follow industry standards for groundwater sampling. The QP considers the groundwater quality sampling program to need improvement in the sampling procedures, to lack interpretation of the data, to lack corrective actions when non-compliant results are detected, and to lack a quality assurance/quality control program.

The groundwater monitoring program does not demonstrate how potential infiltration from the mining operations would be captured by the monitoring system, nor is there a site-wide water balance in place to identify potential infiltration based on the water balance.

17.9.2 Air Quality

The QP notes that air quality is problematic and that the concentrations of particulates in air have been non-compliant frequently. No corrective action plan has been provided for the QP’s review.

17.9.3 Mining Wastes Characterization

The QP notes that Mexican regulatory requirements for mining waste characterization are known to be below industry standards because the regulations do not test for long-term environmental impacts. Mexico requires a limited geochemical characterization based on static testing results and numeric interpretation of the results that are used to classify material as hazardous/non-hazardous or potentially acid generating (PAG)/non-acid generating (NAG). Kinetic testing is not a required or expected component of geochemical characterization, nor is an assessment of potential environmental impacts.

Industry best practice uses a more detailed characterization program and application of results to understand the potential environmental impacts from mining waste. The Mexico regulations are sufficient for identifying PAG and NAG materials and, in that regard, are aligned with industry standards; however, the simple classification of materials is insufficient to understand the potential environmental impacts from mining waste. Industry best practice requires a more comprehensive approach to understand the potential environmental impacts from mining wastes, based on the potential to produce acidic conditions and/or metals leaching during static and kinetic conditions (that is, current conditions and predicted future conditions). There is a risk associated with the lack of kinetic testing and prediction for future acid generation and/or metals leaching. Additional notes for each mining waste type are below.

17.9.3.1 Tailings Characterization

The studies completed to date lack kinetic testing. TSF designs do not demonstrate how possible impacts to surface/groundwater from the PAG materials, especially potential future impacts may be managed. This study did not meet generally accepted mining industry standards.

17.9.3.2 Waste Rock

The testing is not sufficient to meet generally accepted mining industry standards, because the ABA test specified in the Mexican regulation (NOM-157) is based only on carbonate neutralization and no kinetic testing was carried out to determine leaching of metals over time and changes in the geochemistry, even though the material is PAG. None of the facilities are lined and no demonstration has been made that runoff and infiltration from the unlined facilities is captured. This represents a potential risk for the operations.

17.9.3.3 Spent Ore Characterization

The waste characterization results indicate that infiltration from the unlined heap leach facilities could be problematic during operations and for closure. Detailed information regarding the complete capture of infiltration and seepage was not available. The QP's opinion is that even though historic leaching areas were not required to be permitted, there is no evidence that historic facilities will not result in infiltration that mingles with infiltration from permitted facilities, and therefore the Company should include historic as well as the permitted facilities in their waste management strategy.

Additionally, there is no detailed water balance for the heap leach (operational or closure). Therefore, additional work is required.

17.9.4 Historical Smelter Area Remediation

The regional environmental permit will incorporate areas that have been identified as contaminated, and it is unknown what remedial costs will be associated with those areas. The current studies for the historical smelter area concluded that the risks for groundwater contamination are minimal; however, the studies did not include any in-situ hydrogeologic characterization, such as the hydraulic characterization of the underlying hydrogeologic formations. In addition, the studies were based only on the soil characterization within the Buenavista del Cobre property, and no characterization was made in the surrounding neighborhoods. No air dispersion modeling was carried out and the analysis of wind-blown contaminants was based on a limited period of six years. No studies have been submitted to the environmental agency.

The QP's opinion is that the characterization studies are incomplete, and additional work is required to address environmental risks and costs associated with the historical operations.

17.9.5 Mine Closure

Generally accepted industry standards require a closure plan that describes the closure methods for all disturbed areas and determine an associated closure cost estimate. The closure methods should take into consideration the geochemical characterization of each material, including the prediction of long-term water quality. The closure methods provided in the waste management plan did not consider geochemical characterization and there was no technical data provided to justify whether the closure methods were appropriate. Additional work is required to address the management of the wastes that are left at the time of closure.

The closure costs were not provided with sufficient information to determine whether the cost estimate meets industry standard closure costing practices, such as using third-party unit rates, including all components of closure (such as detailed engineering designs and additional technical studies required to support the engineering work), and indirect costs. The potential impacts of unknown environmental conditions and the costs associated with remediation and closure represent a risk to the operation. A detailed closure plan with at a minimum conceptual engineering closure designs must be developed to address these impacts and associated costs.

Sustainability goals such as concurrent reclamation and beneficial end use of the closed areas should also be incorporated into the closure planning.

17.9.6 Permitting

The enforcement branch of the environmental agency has issued violations based on site inspections. As of October 2024, there are ten active violations, and the company has compliance actions planned to address the majority of the active violations.

There is a risk that current operations that are included in the planned regional permit will be impacted if the environmental agency does not authorize the regional permit; however, the regional permit is a voluntary effort by the Company and the 2024 inspection by the environmental agency did not refer to the regional permit.

There is a risk that additional permit violations may be incurred due to the lack of complete characterization of the mining wastes, should environmental impacts be found by the environmental agency during the life of the mine. Interpretation of the revised Mining Law could result in amendments to the environmental regulations.

17.9.7 Social

Buenavista del Cobre has a very well-structured procedure to carry a social diagnosis, and an organized social program. The grievance procedure is well structured. The communication channels are well established and within the reach of the majority of stakeholders.

Based on stakeholder data from 2023, the perception of the Cananea community about Buenavista del Cobre has improved from negative to a smaller number of stakeholders having a negative opinion. Health, local employment, and water aspects are of highest concern. The implementation of the water system improvements in the town of Cananea will have a significant positive impact. There were a low number of grievances received in 2023, which indicates that the Company's social investment has made a positive impact.

There are still lawsuits pending associated with the Rio Sonora spill, and the Company has stated that the lawsuits are not considered to be a risk. Due to the age of the incident and Company's statement, it is the QP's opinion that the lawsuits will not be a material risk to the operations.

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 constant (or real) dollar 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 Buenavista del Cobre, 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 the open pit processing facilities, mining equipment, capitalized maintenance and components, and infrastructure. The reporting of capital expenses for the Project is grouped in the following manner:

- New mine equipment
- Maintenance & Projects
- Major Infrastructure

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 projects costs are estimated for budgetary approval every year. WSP calculated an escalated trailing tree-year average of the las 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, and 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 indicated that they used it for their 10-year internal budget forecasts.

It is the QP's opinion that the capital expenditures have been estimated to at least 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 estimate is December 31, 2024.

Table 18.1: Total LOM Capital Costs

Parameters	Units	Total LOM
New Mine Equipment	US$ M	2,421
Maintenance & Projects	US$ M	5,211
Infrastructure Moves	US$ M	684
Total Capital Expenses	**US$ M**	**8,317**

Note: Totals may not add due to rounding.

SCC provided WSP with general depreciation categories and lives for the different capital items being considered for this Study. A straight-line depreciation rate was used in all cases. A depreciation life of twelve years was used for the new mining equipment, maintenance and components capital. For the major infrastructure projects' capital, the depreciation life used was twenty-one years.

18.1.1 New Mine Equipment Capital Cost Estimate

Costs for primary mining equipment were provided by SCC and sourced from WSP's database of comparably sized equipment from recent projects. This included mining equipment, such as Komatsu P&H 4100-XPC electric shovel, Komatsu 980E haul trucks, Epiroc Pit Viper 351 rotary drills, and CAT 995 front-end loaders, Komatsu 475-A track dozers, Komatsu WD600-E wheel dozers. 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 include electric rope-shovels, front end loaders, haul 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 in Table 18.2.

Table 18.2: Total Estimated New Equipment Capital Costs

Parameters	Units	Total LOM
Primary Mine Equipment	US$ M	1,974
Support Mine Equipment	US$ M	447
Total New Mine Equipment	**US$ M**	**2,421**

Note: Totals may not add due to rounding.

Capital expenses for replacement of primary mine equipment were calculated 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 estimated 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 historical utilization rate of support equipment to determine the long-term replacement schedule of support equipment and a 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 are categorized as follows:

- Mine components includes all major components used in the rebuild of mine equipment, such as motor wheels, diesel motors, shovel tracks, engines, etc.
- Processing facilities for Concentrator I and Concentrator II
- Hydrometallurgy includes leach pads, pregnant leach solution (PLS) irrigation systems, collection ponds, etc.
- SX-EW Plant
- TSF includes ampliation and maintenance of the tailings dam
- Other includes office buildings, water pumping station, acquisition of adjacent properties to the operation, etc.

- Major repairs, maintenance, and rebuilds were factored into the annual maintenance and component cost estimates provided by SCC, ensuring that these recurring costs are accounted for throughout the life of mine.
- A summary of the components capital costs is provided below as Table 18.3.

Table 18.3: Total Estimated Maintenance Capital Costs

Parameters	Units	Total LOM
Mine	US$ M	370
Concentrator	US$ M	2,003
Hydrometallurgy	US$ M	659
SXEW Plant	US$ M	104
TSF	US$ M	1,804
Other	US$ M	271
Total Maintenance & Projects	**US$ M**	**5,211**

Note: Totals may not add due to rounding.

18.1.3 Major Infrastructure Capital Cost Estimate

Special projects consist of one-time capital expenditures in infrastructure projects and have been categorized as follows:

- Crusher projects
- Belt relocations
- New zinc mill

The budgetary quotes from the major infrastructure projects' costs were provided by SCC.

WSP used the infrastructure projects schedule and aligned the capital expenditure schedule to the production plan and mine schedule developed for this Study to determine the timing of crusher moves and installations.

There are two main crusher projects. The first is the dismantling and demolishing of Primary Crusher 1 (PR1) and Primary Crusher 3 (PR3) in year 12 of the LOMP. Until this juncture, PR1 provides mill feed to Concentrator I and PR3 provides mill feed to the Zinc Mill. When PR1 is demolished Concentrator I will no longer be used. PR1 and PR3 need to be dismantled in order to provide access to Zinc Phase 1. The second main crusher project is the construction and installation of Primary Crusher 5 (PR5) and the conveyor belt that will feed the Zinc Mill and will be commissioned by year 12.

The belt relocation infrastructure project consists of dismantling and reassembling the conveyors in the west of the project area. This is one belt that is fed by Primary Crusher 2 (PR2) to convey mill ore to Concentrator II and a second belt that feeds crushed leach ore from Quebalix IV to the Quebalix IV leach pad to the south.

The final major infrastructure project consists of dismantling the existing Zinc Mill and constructing a new Zinc Mill next to PR5. This infrastructure project will provide access to Zinc Phase 3 and will be commissioned in the new location by year 17. The current Zinc Mill will be dismantled after the New Zinc Mill is commissioned in order to have continuous zinc ore processing capacity.

The dismantling and demolishing of the infrastructure described above has been treated as an operating expense and has not been capitalized.

There are no other major infrastructure projects anticipated at this time. A summary of the special projects' capital costs is provided in Table 18.4.

Table 18.4: Total Estimated Special Projects Capital Costs

Parameters	Units	Total LOM
PR5 Installation	US$ M	101
West Belt Relocation	US$ M	103
New Zinc Mill	US$ M	480
Total Infrastructure Moves	**US$ M**	**684**

Note: Totals may not add due to rounding.

18.2 Operating Costs

Buenavista del Cobre 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 haulage
- Individual haulage costs for ore, leach and waste
- Crushing and conveying

Each component item in turn was tied to detailed three-year cost items listed in component tabs of a spreadsheet that was provided by Buenavista del Cobre. Each aggregate cost 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 Institute of Statistics – INEGI) as shown in Table 18.5.

Table 18.5: 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 this 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 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 are shown in Table 18.6. Actual values listed for 2021, 2022 and 2023 designate the historical unit operating costs received from BV. The escalated costs were determined 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 = ($0.20/t x (136.3 / 117.3) + $0.30/t x (136.3 / 126.5) + $0.35/t x (136.3 / 132.4)) / 3 = ***US$0.30/t***

Table 18.6: Mining Unit Costs

Cost Parameters	Units	Actual 2021	Actual 2022	Actual 2023	Average Escalated Q4 2024
Drilling and Blasting	$/t-mined	$0.20	$0.30	$0.35	$0.30
Loading	$/t-mined	$0.10	$0.10	$0.12	$0.12
Support	$/t-mined	$0.12	$0.13	$0.15	$0.15
General Operating Expenses	$/t-mined	$0.06	$0.06	$0.06	$0.06
Quebalix I, II, III, and IV	$/t-mined	$0.12	$0.13	$0.11	$0.13
Variable Indirect Costs	$/t-mined	$0.12	$0.12	$0.16	$0.14
Total Unit Mining Costs (excl. haulage)	**$/t-mined**	**$0.71**	**$0.85**	**$0.95**	**$0.91**

Note: Totals may not add due to rounding.

US$0.91/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 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 18.7.

Table 18.7: Estimated Mining Unit Costs Inclusive of Haulage

Cost Parameters	Units	2025	2026	2027	LOM Average
Copper Ore	$/t-mined	$1.79	$1.91	$1.83	$2.41
Crushed Leach Ore	$/t-mined	$2.15	$2.06	$1.79	$2.21
ROM Leach Ore	$/t-mined	$1.85	$1.86	$2.06	$2.34
Zinc Ore	$/t-mined	$1.54	$1.57	$1.70	$2.13
Waste Fresh Rock	$/t-mined	$2.18	$2.13	$2.22	$3.22
Waste Fill Material	$/t-mined	$1.88	$1.82	N/A*	$2.68
Average Unit Mining Cost	**$/t-mined**	**$1.93**	**$1.98**	**$1.99**	**$2.71**

Note: * No waste fill material is being mined in year 2027.

18.2.2 Processing

The methodology for escalating the mining costs described above was applied to escalate the processing costs. Table 18.8 shows the unit costs for year 2021, 2022, and 2023 with the associated 3-year average escalated costs. The table below shows costs associated with the copper concentrator, leach, SX-EW, and molybdenum plant.

Table 18.8: Processing Unit Costs

Cost Parameters	Units	Actual 2021	Actual 2022	Actual 2023	Average Escalated Q4 2024
Copper Processing Plant	$/t-milled	$4.40	$5.24	$5.57	**$5.50**
Moly Stream (Copper Plant)	$/t-milled	$0.24	$0.34	$0.32	**$0.33**
Leach Crushing	$/t-crushed	$0.63	$0.71	$0.97	**$0.84**
Leach Processing	$/t-leached	$0.29	$0.46	$0.36	**$0.40**
SX-EW Processing	$/lb Cu	$0.35	$0.47	$0.46	**$0.46**

Zinc plant processing costs were provided by SCC and are shown in Table 18.9. Since this is a new plant that has recently been commissioned, WSP relied upon the costs provided by SCC for determining the zinc plant related costs in the discounted cashflow model.

Table 18.9: Zinc Plant Unit Costs

Cost Parameters	Units	Values
Zinc Processing Plant	$/t-milled	$10.63
Zinc Treatment Charges	$/t-dmt	$250.00
Zinc Penalty	$/t-dmt	$3.88
Zinc Concentrate Freight	$/t-wmt	$154.62

18.3 Other Costs

18.3.1 General and Administrative

A corporate General and Administrative overhead assessment of US$0.76/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

About 35% of copper concentrate from Buenavista is shipped domestically to the La Caridad smelter at Nacozari. The remaining 65% is transported to the Guaymas port for export to its overseas customers. In both instances, concentrate is transported by both rail and truck. SCC provided current costs for road and rail transport from Buenavista del Cobre to La Caridad and Guaymas as well as the apportionment of quantities by mode of transport. WSP utilized these transport costs to establish a weight-average cost of concentrate transport from Buenavista del Cobre at approximately US$48.81/wmt.

About 40% of zinc concentrate from BV is expected to be shipped to SCC’s own zinc refinery in San Luis Potosi and the remaining shipped to Guaymas for export. SCC provided the costs estimated for transport of the zinc concentrate to the above destinations, WSP verified the data and the basis for establishing the unit cost. Zinc concentrates transport cost is US$154.62/wmt.

18.3.3 Closure Cost

SCC provided their current estimate of ARO accruals and remaining balance for Buenavista del Cobre which is estimated to be about US$620 million and US$270 million, respectively, as of December 31, 2024. SCC indicated that it sets aside an annual accretion amount ofUS$34 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 41-year mine life is estimated to be about US$1.4 billion. 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$544 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$0.067/t of material mined. WSP acknowledges that there will 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 cashflow 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.

As part of the planned mine development, the decommissioning of Concentrator I, Primary Crusher 1, and Primary Crusher 3 will be required to access the underlying ore phases. This decommissioning of Concentrator I and Zinc Mill is scheduled to take place between 2036 and 2040. To account for these additional closure-related expenditures, WSP estimated a cost of US$25 million for the demolition and decommissioning of this infrastructure incurred during the 5-year period in addition to the accretion costs of about US$170 million assigned for this period. It is assumed that the annual accretion allocation amounts will also be applied to the required environmental and other regulatory permits required for this process which have to be procured in advance of the initiation of the demolition and dismantling tasks.

18.4 Risks Associated with Estimation Methods

All operating and capital costs were 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 and 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 Buenavista del Cobre Project.

19.0 ECONOMIC ANLAYSIS

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 SCC. Buenavista del Cobre 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 values shown in this section are in Q4 2024 US$.

19.1 Principal Assumptions

- Sales price: The commodities prices considered are as shown below:
  - Copper: US$3.30/lb
  - Molybdenum: US$10.00/lb
  - Zinc: US$1.15/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 Buenavista del Cobre for 41 years of mine life entails approximately:
  - 2.1 Bt of copper ore
  - 1.1 Bt of crushed leached ore
  - 1.0 Bt of ROM leached ore
  - 296 Mt of zinc ore
  - 3.8 Bt of waste
  - 8.3 Bt of total material mined
- FX Rate: all historical costs were provided by SCC and Buenavista del Cobre on a US$ basis. The discounted cashflow basis is on a US$ basis.
- Inflation: CPI 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 Buenavista del Cobre 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
MATERIAL MOVEMENT												
Copper Mill Ore	Tonnes M	**2,117**	74	74	74	74	74	74	74	74	74	74
Crushed Leach	Tonnes M	**1,077**	8	4	46	47	11	5	19	0	1	-
ROM Leach	Tonnes M	**1,041**	87	83	108	103	108	93	57	94	48	68
Zinc Mill Ore	Tonnes M	**296**	7	7	7	7	7	7	7	7	7	7
Waste	Tonnes M	**3,768**	128	133	73	117	147	130	123	82	92	67
Total Material	Tonnes M	**8,299**	305	302	308	347	347	309	280	258	223	217
REVENUE												
Copper	US$ M	**71,439**	2,917	2,872	2,552	2,539	2,475	2,975	2,591	2,660	2,522	2,634
Molybdenum	US$ M	**2,794**	134	136	62	57	68	91	98	104	118	119
Zinc	US$ M	**2,719**	169	139	143	148	125	124	137	148	148	137
TOTAL REVENUE	**US$ M**	**76,952**	**3,220**	**3,146**	**2,756**	**2,744**	**2,668**	**3,190**	**2,826**	**2,912**	**2,788**	**2,889**
COSTS												
Mining	US$ M	**22,335**	585	593	605	744	726	708	679	660	629	621
Concentrator and Plants	US$ M	**15,475**	509	509	506	506	506	508	509	509	509	509
Smelting/TCRC, Freight and Sales	US$ M	**16,825**	698	672	644	636	586	682	605	616	581	600
G&A and Home Office Cost	US$ M	**1,827**	62	62	61	61	61	62	62	62	62	62
Plant Decommissioning	US$ M	**25**	-	-	-	-	-	-	-	-	-	-
On-going and final accretion	US$ M	**1,403**	34	34	34	34	34	34	34	34	34	34
Total Operating Cost	**US$ M**	**57,890**	**1,888**	**1,870**	**1,851**	**1,981**	**1,913**	**1,994**	**1,889**	**1,881**	**1,815**	**1,826**
EBITDA	**US$ M**	**19,062**	**1,332**	**1,276**	**905**	**762**	**754**	**1,196**	**937**	**1,031**	**973**	**1,063**
Pre Tax Gross Income	US$ M	**8,949**	1,096	1,039	712	567	546	903	676	734	664	716
Total Taxes	US$ M	**2,415**	299	283	193	153	147	244	182	197	177	191
Operating Income	US$ M	**6,534**	797	756	519	414	399	659	495	537	487	525
NET INCOME AFTER TAXES	US$ M	**15,477**	**845**	**816**	**599**	**524**	**525**	**796**	**644**	**709**	**683**	**747**
Total Capex	US$ M	**8,317**	168	138	245	357	187	138	147	271	294	325
Closure	US$ M	**544**	-	-	-	-	-	-	-	-	-	-
Working Capital	US$ M	**(22)**	54	(4)	(30)	(14)	0	35	(20)	8	(4)	7
Pre Tax Cash Flow	US$ M	**10,223**	1,110	1,142	691	419	567	1,023	810	752	683	730
After Tax Cash Flow	US$ M	**6,639**	623	682	384	180	337	623	517	430	393	414
Pre-Tax NPV	US$ M	**5,826**										
After-Tax NPV	US$ M	**3,405**										
Discount Rate	10%											

DESCRIPTION	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046 - 2050	2051 - 2055	2056 - 2060	2061 - 2065
MATERIAL MOVEMENT															
Copper Mill Ore	74	43	43	43	43	43	43	43	43	43	43	216	216	217	217
Crushed Leach	0	36	-	54	3	53	1	15	50	54	54	155	179	139	144
ROM Leach	79	18	9	25	35	4	8	8	4	-	-	-	-	-	-
Zinc Mill Ore	7	7	7	7	7	7	7	7	7	7	7	36	36	36	36
Waste	49	117	123	83	103	123	110	119	127	100	93	454	439	295	342
Total Material	210	221	183	212	192	230	169	192	232	205	198	861	871	688	739
REVENUE															
Copper	2,648	1,576	1,181	1,352	1,409	1,415	1,313	1,418	1,610	1,606	1,578	6,689	6,471	7,647	6,792
Molybdenum	104	105	123	52	60	51	64	64	63	66	66	274	249	164	304
Zinc	137	42	37	14	10	9	4	5	7	6	7	98	409	306	208
TOTAL REVENUE	**2,889**	**1,723**	**1,341**	**1,418**	**1,478**	**1,475**	**1,382**	**1,486**	**1,680**	**1,678**	**1,651**	**7,060**	**7,129**	**8,118**	**7,304**
COSTS															
Mining	618	624	556	571	557	598	547	569	605	526	520	2,454	2,507	2,331	2,206
Concentrator and Plants	509	327	330	330	330	328	330	330	330	330	330	1,645	1,645	1,650	1,650
Smelting/TCRC, Freight and Sales	604	377	281	344	306	340	277	307	369	372	368	1,554	1,657	1,738	1,609
G&A and Home Office Cost	62	38	38	38	38	38	38	38	38	38	38	191	191	192	192
Plant Decommissioning	-	5	5	5	5	5	-	-	-	-	-	-	-	-	-
On-going and final accretion	34	34	34	34	34	34	34	34	34	34	34	171	171	171	171
Total Operating Cost	**1,827**	**1,405**	**1,244**	**1,322**	**1,271**	**1,343**	**1,227**	**1,278**	**1,377**	**1,300**	**1,290**	**6,015**	**6,171**	**6,081**	**5,828**
EBITDA	**1,061**	**318**	**97**	**96**	**207**	**132**	**155**	**208**	**304**	**379**	**361**	**1,045**	**958**	**2,036**	**1,476**
Pre Tax Gross Income	687	54	(148)	(152)	(62)	(128)	(102)	(55)	29	102	99	(114)	(154)	763	475
Total Taxes	182	9	-	-	-	-	-	-	-	-	-	1	-	48	109
Operating Income	505	45	(148)	(152)	(62)	(128)	(102)	(55)	29	102	99	(115)	(154)	715	366
NET INCOME AFTER TAXES	**757**	**314**	**124**	**123**	**226**	**156**	**177**	**227**	**312**	**373**	**357**	**1,107**	**1,040**	**1,922**	**1,375**
Total Capex	401	215	218	197	498	386	151	154	160	138	136	960	912	851	670
Closure	-	-	-	-	-	-	-	-	-	-	-	-	-	-	544
Working Capital	(0)	(55)	(16)	(1)	10	(7)	4	4	7	7	(1)	(10)	12	(5)	(2)
Pre Tax Cash Flow	660	159	(106)	(99)	(301)	(247)	0	50	137	234	226	95	34	1,190	264
After Tax Cash Flow	356	154	(79)	(72)	(282)	(223)	23	69	145	228	222	156	117	1,077	163

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$77.0 B including Copper, Molybdenum, and Zinc sales
- Total Operating Cost: Total operating cost is estimated to be US$57.9 B
- Accretion: An annual ARO accretion expense of about US$34 M was provided by SCC
- EBITDA: The EBITDA is estimated to be US$19.1 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$544 M
- Capital Expenditures: The total LOM capital expenditures are estimated to be about US$8.3 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$3.4 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 Buenavista del Cobre.

WSP observes a four-year period of negative cash flows from 2037 to 2040. Several factors contribute to this outcome:

- Decommissioning of Concentrator I: Concentrator I is taken offline at the end of 2035 due to the need to mine the phase in which the concentrator is located, resulting in a 40% reduction in copper ore processed.
- High capital expenditure period (2034-2041): This period includes significant infrastructure activities, with a total capital expenditure of US$685 M, including:
  - Dismantling of Concentrator I and Primary Crusher I.
  - Replacement of Primary Crusher 3 with Primary Crusher 5.
  - Relocation of the belts from QLIX IV and PR2 in the west.
  - Construction and commissioning of New Zinc Mill, which is operational by 2041.

- The new mining zones being developed during this period have higher strip ratios and lower-grade material.
- These combined factors, reduced ore processing capacity, high capital expenditures, and increased mining of lower-grade zones with higher waste volumes, contribute to the negative cash flows observed during the 2037-2040 period.

WSP has indicated to SCC that it is appropriate to conduct additional trade-off studies to review and optimize the major infrastructure timings and outlays for the New Zinc plant as well as the belt moves on the west side for QLIX IV and PR2. Additionally, trade-off studies should be conducted to determine the impact on the Project NPV of leaving Concentrator I in place and not mining out that specific area of the pit. This will reduce the available total Mineral Reserves and shorten the mine life but may improve the Project NPV.

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.

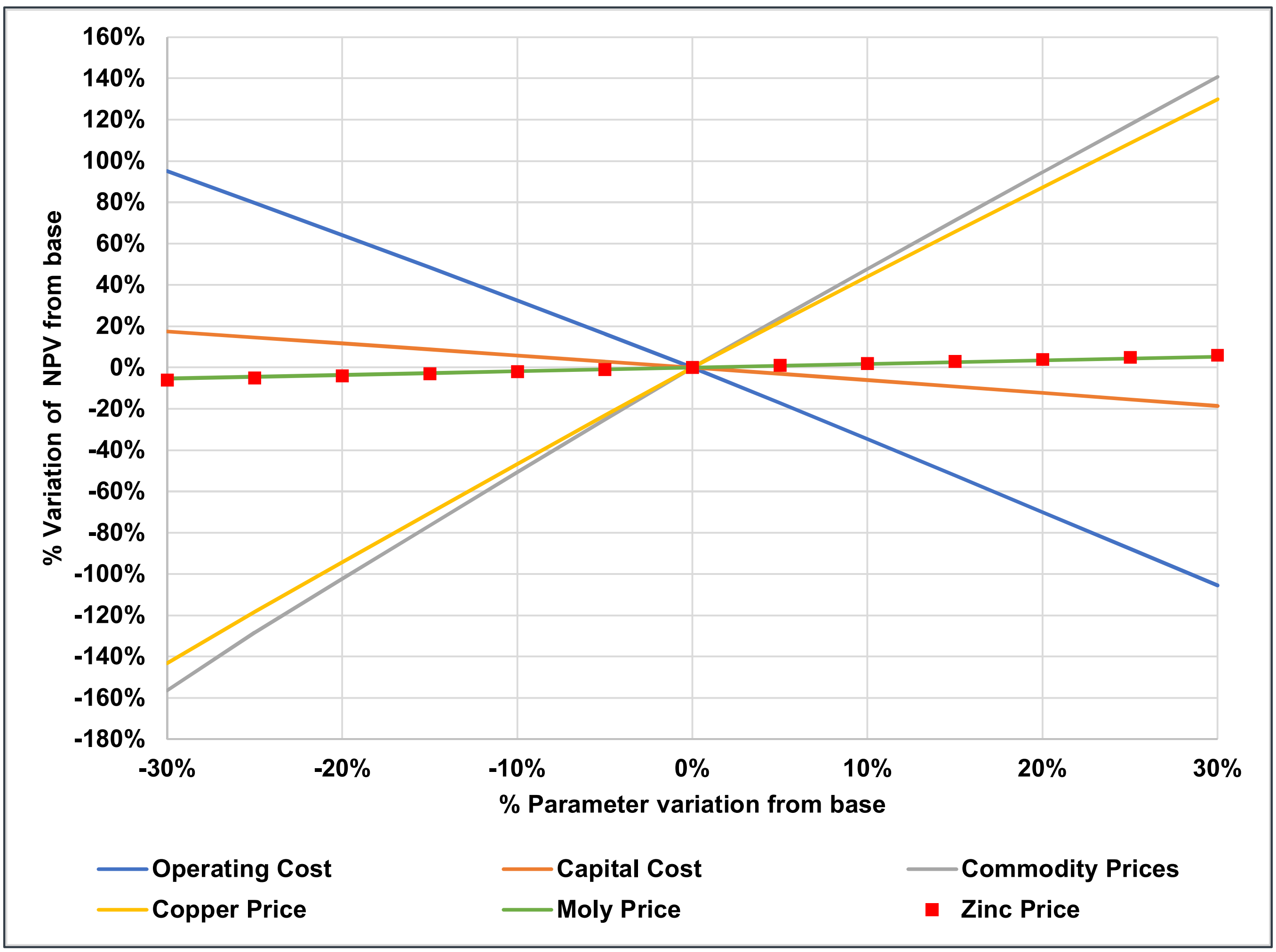


Figure 19.1: Sensitivity Analysis Graph

Table 19.2: Sensitivity Analysis (US$ millions)

After Tax NPV Sensitivity	-30%	-25%	-20%	-15%	-10%	-5%	0%	5%	10%	15%	20%	25%	30%
Operating Cost	6,653	6,123	5,592	5,059	4,514	3,960	**3,405**	2,820	2,222	1,621	1,017	412	(194)
Capital Cost	4,003	3,903	3,804	3,706	3,605	3,504	**3,405**	3,302	3,197	3,091	2,983	2,876	2,768
Commodity Prices*	(1,928)	(972)	(83)	797	1,675	2,547	**3,405**	4,221	5,036	5,838	6,629	7,420	8,209
Copper Price	(1,483)	(627)	187	999	1,809	2,614	**3,405**	4,158	4,909	5,651	6,381	7,111	7,838
Molybdenum Price	3,221	3,252	3,283	3,313	3,344	3,375	**3,405**	3,436	3,465	3,494	3,523	3,553	3,584
Zinc Price	3,200	3,235	3,269	3,303	3,337	3,371	**3,405**	3,439	3,473	3,507	3,541	3,575	3,609

Note: * Commodity prices includes the variation of the prices for copper, molybdenum and zinc 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 130% increase in NPV to US$7.8 B. Conversely, a 30% increase in operating costs reduces the NPV to approximately zero. These results emphasize the significant influence of copper pricing and operational efficiency on the project’s economics.

The zinc and molybdenum prices exhibit 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 model for this deposit is limited to the complex, which is fully enclosed within the Buenavista del Cobre mining permits. Material changes to the Mineral Resource and Mineral Reserve estimates are not likely if adjacent property information is included in future estimates.

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 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 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 Buenavista del Cobre geology team effectively uses their understanding of lithology and mineral zones to guide copper exploration, modeling, and estimation.
- 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.
- Data that did not meet reliability standards was either fully excluded from the modeling database or only used in limited ways (for instance, for lithology modeling but not for grade interpolation).
- The validated geological database is deemed reliable and representative. In the QP's opinion, it is suitable for developing a geological model, preparing Mineral Resource estimates.
- The geological interpretation and modeling for Buenavista del Cobre align with both the mineralization style and available data, following current industry standards.
- Modeling of 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 mature nature of the operation and a solid understanding of the confidence of continuity of the geological domains of interest has supported the establishment of Reasonable Prospects for Economic Extraction for the Buenavista del Cobre Mineral Resources reported in this TRS.
- The classification of Mineral Resources into Indicated and Inferred confidence classes considered spatial coverage of data, variability of geology and grades as well as geological confidence and uncertainty in the various methods and results used to develop the estimate.
- 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:

- Indicated Mineral Resources are generally considered to have low geological uncertainty. However, there are some concerns mainly related to the historical drilling campaigns, including the absence of a QA/QC, insufficient density samples, uncertainty in collar positions, limited survey data, and few analyses of soluble copper. While this is not regarded as a material risk to the overall estimate of Mineral Resources for Buenavista del Cobre, it could potentially affect local short-range mining operations if not addressed through infill or production drilling and other corrective measures
- Inferred Mineral Resources are considered to have a mix of low to moderate degree of geological uncertainty across all elements evaluated. Geological uncertainty in the Inferred Mineral Resource category can likely be reduced via future infill and production drilling.

- As Buenavista del Cobre 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

The current waste management designs do not clearly demonstrate that they prevent environmental impacts. The recent environmental agency inspections, however, have primarily noted that areas not included within the environmental permit boundaries were disturbed during construction of the new TSF. Most of the environmental violations that were active in 2024 had proposals to carry out compliance items. Specific environmental and permitting concerns include the following:

- No air dispersion modeling has been carried out. No air quality data were provided for 2023 or 2024. Visual observations during the site visits indicated that dust is problematic.
- The historic smelter area contains contaminated soils; however, no soil characterization has been made outside of the Buenavista del Cobre property.
- None of the mining waste facilities are lined, and there is no demonstration that runoff and infiltration from the unlined facilities are captured without causing environmental impacts. The groundwater system in the area is complicated and there is no ongoing interpretation of the groundwater occurrence, flow patterns and adequacy of the monitoring network that demonstrates that any impacted water is retained within the facility or recovered. In addition, a site-wide, detailed water balance is missing.
- The current groundwater monitoring program is not based on sampling methods that meet general industry standards, particularly in the collection of groundwater samples from non-pumping wells. The groundwater quality results may not be representative of the aquifer(s). The results are not subject to interpretation and corrective actions when exceedances are detected, and there is no quality assurance/quality control program.
- The locations and number of monitoring points has not been shown to be adequate to sufficiently monitor the operations. In particular, the infiltration and runoff from the waste rock and leaching facilities should be monitored as part of the environmental impact monitoring. The monitor well network should monitor water quality in all directions of groundwater flow, and the monitor wells should be designed to evaluate water quality in specific depth intervals of the aquifers.
- Long-term environmental impacts from the operations have not been assessed. Geochemical studies of the mining wastes have not been based on kinetic testing and no predictive models have been developed to understand long-term water quality.

- There is no specific mine closure regulation in Mexico and the site does not have a written closure plan or LOM closure cost estimate. There is a closure cost based on the present closure liability; however, the details of the closure methods, and studies that support the selection of closure methods, have not been developed.
- Buenavista del Cobre environmental personnel have reported that a regional permit that will include historic and current operations will be prepared; however, there was no indication that this effort has been approved and funded by Company management. The circumstances and timeline for the permit were not provided for the QP's review.
- Social license has been historically challenging for the operations, but the perception of the stakeholders regarding the Company has improved. The highest priority concern of the community has been related to water, and the Company has carried out improvements on the water distribution and infrastructure system for the town of Cananea. The adjacent town of Cananea is very dependent on the mining operations as an economic driver, and the Company has a program to increase regional procurement.
- Although the number of stakeholders having a negative perception of the Buenavista del Cobre operations has decreased, stakeholders with a high level of influence and negative perception exist.

22.3 Mineral Processing

22.3.1 Concentrators

The main challenge to sustain the production of copper appears to be control of the quality of the ore. Reportedly, Buenavista del Cobre has tried to include the solubility index (S.I.) as a parameter in determining the cut-off grade for the concentrators. Reportedly, the sequential analysis of the ore is consistently performed. If acid soluble copper (copper oxide mineralization) is quantified, it could be excluded from the feed to the concentrator, independent of the copper grade. Copper oxide mineralization will not be recovered by flotation and increase the cost of operation because it requires more neutralizing agent (lime) than sulfides. As a potential benefit, excluding copper oxide mineralization from the concentrators would benefit leaching with a lower cost of production.

The average combined ore milled by the two concentrator plants in the period 2021 to 2023 was 73.7 Mtpy. This level of production is well above the combined nominal capacity 66.2 Mtpy. However, the actual ore grade was 0.527% Cu, below the design parameter of 0.58% Cu. This disadvantage was offset by a copper recovery at 86.6%, higher than the design 82.0%. In terms of copper produced, the three-year average was 336,263 tonnes of copper per year, 1.2% above the BDP of 332,268 tonnes copper per year.

From start up and production ramp up from January to May 2024, the plant has been operated for zinc and copper production. Due to lack of sufficient zinc ore, the zinc ore is stockpiled and campaigned through the concentrator based on zinc ore availability. The copper production from the BVZ concentrator is consistent with the production parameters observed at Concentrators I andII2. The copper concentrate produced at BVZ concentrator is sent to Concentrator I for solid-liquid separation purposes. In May 2024 the zinc content in concentrate exceeds the plan monthly production and is ramping up to 4,000 dry metric tons (dmt) from 2,000 dmt per month. The zinc recovery (80-85 %) and zinc grade (50%) in the concentrate exceed the BVZ concentrator design parameters.

22.3.2 Leaching-Solvent Extraction and Electrowinning

The combined production of copper cathode by the three SX-EW plants in year 2023 was 87,554 tpy. This level of production is well below the combined nominal capacity of SX-EW at 146,700 tpy. One challenge to maintain production at that level is the low S.I. of the ore. The S.I. is a combination of acid soluble copper (oxides) and cyanide soluble copper (secondary sulfides). Reportedly, the S.I. for year 2023 was 54%. The balance consists of primary sulfides, such as chalcopyrite which is predominant at BVC. Primary sulfide copper minerals are more refractory and provide lower levels of extraction under the leach conditions used at BVC.

It is recommended that BVC investigates the experiences of large copper mining operations in Arizona that have developed and commercially applied techniques to alleviate similar problems.

Another challenge appears to be percolation of leach solutions in the leach heaps. The reported historical extraction of recoverable copper, not total copper, from ROM leach dumps is 67.2%, and from crushed ore extraction is 60.3%, which is unusual. In year 2023 the actual production of copper cathodes was 69.5% of the leachable copper calculated in Table 14.8

The concentration of copper in Pregnant Leach Solutions (PLS) sent to the plants in 2023 was 0.75 gCu/L, compared with the design 1.8 gCu/L for SX-EW III and 2.1 gCu/L for SX-EW II. A higher copper tenor PLS may be achieved by recirculating leach solutions in the heaps, a technique that BVC tried and may require further evaluation.

22.4 Mineral Reserves

The Mineral Reserve estimate assumed a total storage capacity of 2.7 Bt remaining in the TSF. This allows for approximately 42 years of tailings storage capacity, assuming an annual average mill feed averaging about 74 Mt for the first eleven years after which it averages about 43 Mt annually for the remainder for the remaining life of the mine. It also assumes a 7.3 Mt of feed from the zinc concentrator.

The forecasted December 31, 2024, topographic surface was provided by Buenavista del Cobre for this Study. WSP used the topographic surface for the design and production schedule.

Mineral Reserves are reported effective December 31, 2024. The Qualified Person for the estimate is Mr. Mathew Oommen, Ph.D. 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%). Mineral reserves are reported using an economic breakeven value based on the targeted head grade as practised at the mine. Inferred Mineral Resources within the pit design were considered waste for the Mineral Reserve estimate. For this Mineral Reserve estimate, Indicated Mineral Resources inside the ultimate pit were converted to Probable Mineral Reserve. The Mineral Reserves are estimated at a constant copper price of $3.30 per pound.

The Mineral Reserves include approximately 2.41 Bt of sulfide ROM ore with a Cu grade of 0.44% total Cu for 10,572 kt of contained Cu with the point of reference being the concentrators and the zinc plant. An additional 2.1 Bt of Mineral Reserves is estimated as Leachable ROM Ore with the point of reference being delivery to the leach pads. Total material in the designed pit is 8.3 Bt, resulting in a strip ratio of 0.81 (calculated as ratio of waste to ore-mill + leach material).

The Study shows the Project has a NPV_{10} $3.4 B. As expected, the NPV_{10} is most susceptible to Copper Prices.

23.0 RECOMMENDATIONS

23.1 Mineral Resources

The recommendations listed below are focused on improving the Resource Model and Mineral Resource classification. They are not seen as having an impact on the prospect of economic extraction.

- Construct updated procedures that describe in sufficient detail the activities of capture, administration, and backup of the data.
- Continue with the density sampling campaign to ensure reliable and sufficient density data to improve the estimation result.
- Considering that the QA/QC program at Buenavista del Cobre has only been in place since 2020, it is suggested to design and implement a reanalysis campaign of samples from historical drilling campaigns that lack a QA/QC program. Based on the results obtained, review the current Mineral Resource Classification criteria and consider the feasibility of including Measured Resources.
- Continue with the infill drilling campaigns to improve the Mineral Resource categorization.
- Implement a program to characterize the copper recovery for primary material with high solubility ratios, to assess whether to send this material to heap leaching.
- Study and identify the geological controls of the high solubility ratio areas located in the deeper zones of the deposit as well as their integration in the geological modeling.

23.2 Environmental, Permitting, and Social

The following recommendations are made regarding the environmental aspects of Buenavista del Cobre:

- Further investigation of the source(s) of the air quality impacts is needed and corrective actions should be implemented based on the investigation's findings. Engineering controls are recommended to reduce the dust emissions observed during the site visit.
- Authority to implement new monitoring techniques for air quality, such as opacity monitoring, is recommended to be given to the environmental department.
- The historic smelter area assessment should include in-situ hydrogeologic characterization, possibly groundwater flow and geochemical transport modeling and characterization of soil contamination in the surrounding neighborhoods. An air dispersion model should be developed as part of the assessment of off-site impacts, with a focus on the areas of contaminated soils at the historic smelter and areas of the site where air quality issues have been observed, such as the conveyer system.
- A detailed site-wide water balance is needed.
- The hydrogeologic setting has not been adequately characterized and monitored to assess potential environmental impacts. The groundwater quality program is deficient due to the lack of interpretation of the data, lack of corrective actions when non-compliant results are detected, and lack of a quality assurance/quality control program. The program needs to be improved with a comprehensive written plan based on industry standards for sample collection, interpretation, quality assurance/quality control protocol, and procedures to document that the plan is followed. The groundwater monitoring network should include

sufficient infrastructure to assess potential environmental impacts throughout the mining operations and a groundwater flow model should be developed to show that the monitoring network will be sufficient. A report that documents the results, presents a groundwater contour map on at least an annual basis, includes a data validation summary, provides interpretation of the results, discusses data trends, and presents corrective actions as appropriate should be prepared after each sampling event. The laboratory should provide electronic data deliverables, and Buenavista del Cobre should maintain the data in a relational database.

- The mining wastes need to be characterized for long-term impacts using kinetic testing methods. A comprehensive geochemistry study should be carried out and results used as part of an assessment of whether environmental impacts have been adequately managed.
- Routine environmental monitoring should include runoff and seepage from the waste rock, tailings and leaching facilities.
- The operations must demonstrate that the TSF, waste rock facility and heap leach facility designs manage possible environmental impacts to surface/groundwater over time. The demonstration should include the kinetic characterization results, infiltration models, hydrogeologic flow modeling and geochemical transport modeling. The models should be periodically calibrated with site data.
- A mine closure plan and costs should be developed using generally accepted industry standards. It is recommended that the Company develop an internal closure guidance that refers to specific international guidance. It is recommended that international technical guidance on geochemistry evaluations be used, such as the GARD Guide (Global Acid Rock Drainage Guide) developed by the International Network for Acid Prevention (INAP).
- It may be desired to develop ARO and LOM closure scenarios however at least the LOM closure cost estimate is needed for the purpose of the SK-1300 reporting. The closure cost estimate should be based at a minimum on conceptual closure methods and engineering designs.
- It is recommended that the Company consider including hiring or subcontracting experienced hydrogeologists, geochemists and closure specialists in their hiring plans.
- 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 stakeholders.
- Stakeholders identified as having high influence and negative perceptions of the Company should be monitored closely and mitigation measures implemented.

23.3 Geotechnical

The requirements for addressing uncertainties in the geotechnical model, including factual data on engineering properties, and assessment of hydrogeological conditions increase from scoping to pre-feasibility-level; and from pre-feasibility to feasibility-level. In the process, the geotechnical model should progress to a level of refinement such that feasibility-level designs are achievable with a sufficiently high degree of confidence. 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 stage. Since Reserve pit slopes extend beyond the limits of the previous 15-year plan, factual rock mass data, rock fabric data, and hydrogeological data will be required to correlate current slope performance experience to the expanded pit slope design limits. A summary of recommendations for additional geotechnical characterization is provided below:

- Targeted geotechnical drilling and sampling of pit walls with the following objectives: extend the limits of the geological model beyond the Reserve pit limits, improve confidence in and extend limits of RQD measurements, and improve confidence in rock mass rating assessments of geotechnical domains that will control final pit wall stability. Corehole locations should be selected based on engineering geological features that may be critical (i.e., fault intersections, dip of bedding in limestone units, etc.) with respect to the orientation of final pit high walls.
- Targeted airlift and recovery testing and packer testing in primary lithological units in the geological model, installation of piezometers in select areas of the final pit limits based on groundwater conditions obtained from mine scale hydrogeological modeling
- Continue development of major and minor fabric structural model though mapping of and analysis of LiDAR scan data of existing pit slopes and from core orientation during the targeted geotechnical drilling program.
- Estimate Hoek-Brown shear strength criterion for major geotechnical units as a check on the CNI method for assessing the shear strength of materials for global stability analysis
- Preparation of regular reports from radar monitoring of existing slopes
- Periodic bench face angle surveys should be conducted along benches to evaluate the success in achieving the bench geometries and inter-ramp angle recommendations.

23.4 Mineral Processing

Leach operations design criteria should be developed at Buenavista del Cobre to enhance the following:

- Heap method of construction: change method of construction of leach pads to lifts built up from the bottom
- Heap aeration
- Permeability
- Contact of lixiviant with the ore under leach

Other recommendations include:

- Exclude ore with high S.I. from concentrator feed
- Send high S.I. ore to Leaching, even if total Cu grade is above concentrator cut-off
- Send low-grade, low S.I. ore to ROM leaching
- Establish a solution stacking system to improve PLS grade
- Investigate processes to improve leaching of low S.I. ore

23.5 Tailings Storage Facilities

23.5.1 New TSF Recommendations

- Time is a critical factor when it comes to implementing the recommendations provided in the report from the TRS dated February 2022. Delays in implementation can result in missed opportunities, reduced effectiveness, and increased costs. As time passes, conditions may change as well as the urgency of the situation. Furthermore, as time goes by, the information and data used to make the recommendations may become outdated, leading to inaccuracies in decision making.
- It is therefore imperative to act quickly and efficiently when it comes to implementing time-sensitive recommendations. Delays in acting could have dam safety consequences, and it is essential to prioritize the recommendations and allocate the necessary resources to ensure their successful implementation.
- The passage of time can pose significant challenges when it comes to implementing these recommendations, and it is crucial to resolve the uncertainties and take appropriate action to mitigate them. By being proactive and taking a structured approach, it could provide an opportunity to ensure that the time-sensitive recommendations are successfully implemented, maximizing the chances of success and achieving their desired outcomes.
- Plan to commit to implementing the GISTM requirements to achieve the goal of "zero harm to people and the environment."
- Implement the governance of tailings management for all Grupo Mexico TSFs. Governance of tailings management comprises organizational structures, processes, procedures, and communication channels that a company puts in place to ensure effective management, oversight, and accountability for tailings.
- Design a program for reviewing the TSF safety:
  - 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.
  - Perform a Dam Safety Review (DSR).
- 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., evaporation and infiltration).
- 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.
  - Replace current tailings transport system (where tailings have been discharged by gravity directly into the existing natural valley and travel approximately 9 km until it merges 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 and reduce the loss of tailings water by evaporation and infiltration.

  - Divert the contact water (i.e., seepage from the open pits, heap leach pads, waste rock facilities, and other mining flows) and use in Concentrator I. Some of this contact water currently is allowed to enter into the TSF

- 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.

  - Update the TSF embankment physical stability analysis, including as-built embankment information up to Stage 2 (foundation excavation, actual limits of the materials placed), updated geotechnical parameters and updated seismic loading.

- Perform a filter design/verification between the tailings and semipermeable core fill (Type A).

- Conduct geochemistry study that assesses long-term environmental impacts based on kinetic testing of embankment and tailings materials, and geochemical modeling, depending on the testing results.

23.5.2 TSF No. 3 Recommendations

- Plan to commit to implementing the GISTM requirements to achieve the goal of "zero harm to people and the environment."

- Implement the governance of tailings management for all Grupo Mexico TSFs. Governance of tailings management comprises organizational structures, processes, procedures, and communication channels that a company puts in place to ensure 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 and regularly update a Triggering Action Response Plan(s) (TARPs), which apply Key Performance Indicators (KPIs) that are quantifiable, measurable, and actionable.

- Implement established governance such as that presented in the GISTM:

  - Establish an engineer of record (EOR), including clearly defining responsibility and succession planning.

  - Establish an RTFE, including clearly defining responsibility and succession planning.

- 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. Specific concerns identified by WSP are presented below.

- Identify and implement an ITRB, or an individual reviewer to assess the different aspects of the TSF safety: governance, design, construction, operation, closure, and post-closure.

- Perform a filter design/verification between the tailings and impermeable core and other zones within the dam. A cursory review of available data suggests that filter criteria may not be met in some of the dam zones. It is not possible to draw a definitive conclusion and therefore a detailed review of the design basis, material properties as specified and as constructed, and the as-built condition are recommended to resolve this potential failure mode.

- Review tailing management and deposition practices. The current operational design is not favorable to impounding water on the upstream face of the tailings dam. Managed tailing deposition designed to aggrade a tailing beach is preferred and consistent with industry practice.
- 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., evaporation and infiltration).
- Divert the contact water (i.e., seepage from the open pits, heap leach pads, waste rock facilities, and other mining flows) and use it in Concentrator II. Some of the contact water is currently allowed to enter into the TSF No. 3
- Develop a detailed TSF water balance (no TSF water balance was available for review). Flow 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.
- Update the TSF embankment physical stability analysis, updated geotechnical parameters (based on laboratory testing results on the actual fills placed), updated seismic loading (UNAM generated low seismic parameters when compared to Prodisis [Prodisis, 2015]). These are required to address the TSF No. 3 closure program.
- Conduct a geochemistry study that assesses long-term environmental impacts based on kinetic testing of embankment and tailings materials and geochemical modeling, depending on the testing results.

23.6 Mineral Reserves

- Further assess leach recovery assumptions that are used for operational planning which would also affect the cut off grades.
- Assessment of the phase designs in particular potential access issues between phases and the area of the Zn plant.
- Continue assessment of the cut-off grades used for short-range mine planning on site.
- Continue with the reconciliation assessments comparing production data to modelled.
- Assess the potential to utilize the in-pit-crusher conveyor system to minimize haulage requirements in the later years when the distance to the waste storage facilities increase.
- Assessment of haulage and fleet requirements.
- Assessment of the process and leach recovery assumptions.
- Continue development of major structural model though mapping of existing pit slopes, particularly identifying orientations that have adversely impacted stability. Structural data should also be collected through analysis of LiDAR scan data in areas that cannot be readily mapped. Oriented core drilling in targeted geotechnical drill holes to improve confidence in rock fabric data behind the ultimate pit wall limits.

- Assess the impact of relocating Primary Crusher 1 that feeds to the copper Concentrator I after Year 11 to continue feeding Concentrator I till the phase underneath Concentrator I is mined.
- Assess the potential for constructing a replacement for Copper Concentrator I prior to mining the phase underneath the concentrator. This would enable the mine to continue delivering a higher copper throughput till life of mine.
- Assess the impact of not relocating the Copper Concentrator 1 and Zinc mill by adding a hard infrastructure constraint to the area beneath the mills. The resulting trade-off which would have a reduced reserves with a low-CAPEX option can be compered to the other trade-off studies.

24.0 REFERENCES

Call and Nicholas, Inc., 2004. Geotechnical Evaluation for the Cananea 15-Year Pit Slope Design. Report prepared for Mexicana De Cananea, S.A. De C.V. dated June 2004.

Call and Nicholas, Inc., 2012. Pit Slope Design Study for the Buenavista Zinc Project. Report prepared for Minera México dated 19 December 2012.

Buró Hidrológico Consultoría (BHC). 2010. Estudio Hidrológico de 2 Arroyos de la Cuenca del Río San Pedro y 8 Arroyos de la Cuenca del Río Sonora Mexicana de Cananea, Cananea, Son. Buró Hidrológico Consultoría, Junio 2010.

Buró Hidrológico Consultoría (BHC). 2013. Estudio Hidrológico para el Desalojo de Aguas Pluviales en el Area de Quebalix IV. BVC, Cananea, Son. Abril 2013.

DOF. 2004. Decreto por el que se reforman, adicionan y derogan diversas disposiciones de la Ley de Aguas Nacionales. 2004.

Grupo México. 2021a. Distribución de agua fresca y recuperada 2019-2020, Subdirección de Administración del Agua, Departamento de Geohidrología de Buenavista del Cobre. 2021.

Grupo México, 2021b, Manejo general de aguas residuales de Buenavista del Cobre, Departamento de Geohidrología de Buenavista del Cobre. 2021.

Grupo México. 2021c. Monitoreo de Agua Subterránea y Superficial. 2021.

Grupo México. 2021d. Políticas de manejo de agua y regulaciones federales en Buenavista del Cobre. 2021.

Grupo México. 2021e. Producción y distribución de agua fresca y recuperada en BVC (2019-2020). Departamento de Geohidrología. Administración del agua. Buenavista del Cobre S.A. de C.V. 2021.

Grupo México. 2021f. Resumen del sistema de pozos (NDJ) para la recuperación de agua infiltrada y sistema para el agua filtrada en el nuevo depósito de jales, Departamento de Geohidrología. Administración del agua. Buenavista del Cobre S.A. de C.V. 2021.

OECD. 2013. Making Water Reform Happen in Mexico. 2013: OECD Studies on Water, OECD Publishing.

Buró Hidrológico Consultoría. 2013a. Informe del Estudio Hidrológico para la Captación de los Arroyos Cananea Vieja-Buenavista-Agua de Enmedio y Pinalito-Los Alisos de la Cuenca del Río San Pedro BVC, Cananea, Sonora.

Buró Hidrológico Consultoría. 2013. Evaluación Hidrogeológica del Área Minera de BVC, en Cananea, Sonora.

Buró Hidrológico Consultoría. 2013b. Estudio Hidrológico del Arroyo El Barrilito Frente a SE Buenavista, BVC, Cananea, Son.

BVC, 2021, filename: 0.1.2020 ARO (Asset Retirement Obligation).pdf.

Centro de Estudios, Servicios y Consultorías Ambientales (CESCA), 2015, Manifestación de Impacto Ambiental, Modalidad Particular para el Proyecto “Instalaciones de apoyo para la ampliación y el desarrollo de Buenavista del Cobre,” Cananea, Sonora.

Grupo Mexico Minería, 2020, Programa de remediación ambiental de la antigua fundicion de cobre, Cananea, Sonora, June, 156 p.

Hydrosistemas ERMO, S.A. de C.V., 2012, Proyecto “Quebalix III,” Cananea, Sonora, Manifestación de Impacto Ambiental, Modalidad Particular.

Instituto de Geología de la Universidad Nacional Autónoma de Mexico (UNAM), 2019a, Informe Final, Proyecto: Evaluacion de la peligrosidad de los residuos mineros denominados “Tepetate” y “Mineral gastado,” en cumplimiento con las normas oficiales mexicanas, NOM-157-SEMARNAT-2009 y NOM-159-SEMARNAT-2011, de la empresa Buenavista del Cobre (BVC), Cananea – Sonora, May, 160 p.

Instituto de Geología de la Universidad Nacional Autónoma de Mexico (UNAM), 2019b, Informe Final, Proyecto: Evaluacion de la peligrosidad de los jales de la empresa Buenavista del Cobre (BVC), Cananea – Sonora, June, 132 p.

Instituto de Geología de la Universidad Nacional Autónoma de Mexico (UNAM), 2020, Informe Final, Determinación de la peligrosidad de las escorias vítreas, que están depositadas en los terrenos que ocupo la antigua fundición de Cananea, Sonora, February, 21 p.

SRK Consulting (U.S.), Inc., 2022. Geotechnical Assessment Report Buenavista del Cobre. Report prepared for Grupo México S.A.B. de C.V, Buenavista del Cobre, S.A. de C.V.

Grupo Mexico, 2021, Informe Desarrollo Sustentable 2021 (Sustainable Development Report), 375 p.

CESCA, undated, Manifestación de Impacto Ambiental – Modalidad Particular para el Proyecto denominado “Canal Poniente y ampliación de Instalaciones de apoyo para el desarrollo de Buenavista del Cobre” a ubicarse en el municipio de Cananea, estado de Sonora”, prepared for Buenavista del Cobre, 8 chapters.

Comisión Nacional Del Agua, 2024a, Actualización de la Disponibilidad Media Anual de Agua en el Acuífero Rio San Pedro (2616), Estado de Sonora, 43 p.

Comisión Nacional Del Agua, 2024b, Actualización de la Disponibilidad Media Anual de Agua en el Acuífero Rio Bacanuchi (2628), Estado de Sonora, 29 p.

Comisión Nacional Del Agua, 2024c, Actualización de la Disponibilidad Media Anual de Agua en el Acuífero Rio Bacoachi (2627), Estado de Sonora, 42 p.

SEMARNAT and Instituto Mexicano de Tecnología del Agua, 2024, Estado del Almacenamiento del Agua Subterránea en Los Acuíferos Rio Bacoachi y Rio Bacnuchi, 36 p.

SRK Consulting (U.S.), Inc. 2022. Geotechnical Assessment Report Buenavista del Cobre, report prepared for Grupo México S.A.B. de C.V. Buenavista del Cobre, S.A. de C.V., dated March 1, 2022.

Read J, Stacey P. Eds. 2009. Guidelines for Open Pit Slope Design. CSIRO Publishing, Australia

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 most sections including the following:

- Section 3.0 – Description of mineral and property rights
- Section 11.3 – Resource pit shell costs and pricing for Mineral Resources
- Section 12.2.4 – COG costs and pricing for Mineral Reserves
- Section 12.2.5 – 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 Buenavista del Cobre's permitting and environmental team. WSP has not researched property or mineral rights for Buenavista del Cobre as we consider it to be reasonable to rely on Buenavista del Cobre's permitting and environmental team who is responsible for maintaining this information.

WSP has also relied on SCC and Buenavista del Cobre's finance team for details regarding historical operating costs, proposed capital expenditures, applicable taxes, royalties, exchange rates, product pricing, and market studies as noted in the pit optimization for Mineral Resources and Mineral Reserves, Market Studies, Capital and Operating costs and the Economic Analysis. It is WSP's opinion that it is reasonable to rely on Buenavista del Cobre for this information as Buenavista del Cobre has been operating the mine for a very long time and is keenly aware of its operations and associated costs.

wsp.com