S-K 1300 Technical Report Summary on the Cuajone Operations, Moquegua Department, Peru

Prepared for: Southern Copper Corporation
Prepared by: Wood Group USA, Inc.
Geosyntec Consultants International, Inc.
Report Date: December 31, 2024
Project No.: 259222

Date and Signature Page

This report entitled "S-K 1300 Technical Report Summary on the Cuajone Operations, Moquegua Department, Peru" dated December 31, 2024 was prepared by qualified persons employed by the following third-party firms:

Date: 27 February 2025

"*Signed*"

On behalf of Wood Group USA, Inc.

"*Signed*"

On behalf of Geosyntec Consultants International, Inc.

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1.0 SUMMARY

1.1 Introduction

This technical report summary (the Report) was prepared for Southern Copper Corporation (Southern Copper) by qualified persons employed by Wood Group USA, Inc. (Wood) and Geosyntec Consultants International, Inc. (Geosyntec) on the Cuajone Operations, located in the District of Torata, Province of Mariscal Nieto Province within the Moquegua Department, Peru (the Project).

1.2 Terms of Reference

The Report was prepared to be attached as an exhibit to support mineral property disclosure, including mineral resource estimates, for the Cuajone Operations in Southern Copper's Form 10-K for the year ending December 31, 2024.

Mineral resources and mineral reserves are reported for the Cuajone deposit. Mineral resources and mineral reserves are reported using the definitions Subpart 229.1300 – Disclosure by Registrants Engaged in Mining Operations in in Regulation S–K 1300 (S-K 1300).

Unless otherwise indicated, all financial values are reported in United States (US) dollars. Unless otherwise indicated, the metric system is used.

1.3 Property Setting

The Cuajone Operations are located in the Torata District, Mariscal Nieto Province, Moquegua Department, approximately 878 km from the city of Lima and 27 km from the city of Moquegua.

The Cuajone mine is accessible by paved road from Lima or Tacna by the Pan-American Highway. The Quebrada Honda tailings storage facility (TSF) is about 120 km via local roads, south of the Cuajone Operations. Access within the Project area is via developed roads that are routinely maintained.

1.4 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

The Cuajone Operations, Ilo smelter/refinery, port facilities and the Quebrada Honda TSF are owned and operated by Southern Peru Copper Corporation, Sucursal del Perú.

The Project consists of a single mining concession, Acumulación Cuajone, registration code 010000512L, which was granted on 16 July 2021, and covers an area of 14,875.66 ha. There are two approved beneficiation concessions: Concentradora de Botiflaca, which allows for 90,000 t/d processing capacity; and Cuajone solvent extraction (SX) leach plant, permitted for 3,100 t/d. The beneficiation concessions have been amended on a number of occasions.

Southern Copper holds a "right of free use" on the uncultivated lands in the Cuajone mining concession and Quebrada Honda TSF areas. There are granted easements covering the TSF and related facilities, the TSF pipelines, and water pipelines from Lake Suches to the Cuajone Operations. These easements will be maintained as current as long as the mine operates and Southern Copper pays the government annual fees.

Southern Copper has both groundwater and surface water usage licenses in the areas of Cuajone and Toquepala for a total extraction rate of 2,011.37 L/s.

A mining royalty is payable to the Government of Peru, based on operating income margins with graduated rates ranging from 1–12% of operating profits with a minimum royalty payment of 1% NSR of net sales. There is also a Special Mining Tax payable based on operating income with rates that range from 2–8.4%.

1.5 Geology and Mineralization

The Cuajone deposit is considered to be an example of a porphyry copper–molybdenum deposit.

The basal regional geology consists of Precambrian metamorphic rocks that are cut by Paleozoic granite and are unconformably overlain by Upper Triassic to Jurassic marine volcanic and sedimentary lithologies. Overlying these units are late Cretaceous to early Tertiary rhyolites, andesites and agglomerates of the Toquepala Group. These lithologies are intruded by the composite, polyphase Cretaceous to Paleogene Coastal (Andean) Batholith.

Mineralization and alteration at the Cuajone deposit is directly related to a multi-stage latite porphyry that intrudes basaltic andesites and the overlying 370 m of rhyolite porphyries of the Toquepala Group. The Cuajone porphyry deposit exhibits a zoned alteration pattern that includes potassic, phyllic, propylitic, sericitic and intermediate argillic hydrothermal alteration styles.

Hypogene mineralization represents >98% of the remaining mineralization within the Cuajone open pit. The mineralogy is typically simple and consists of pyrite, chalcopyrite, and bornite, with sparse sphalerite, galena, and enargite.

1.6 History

Southern Copper has had an interest in the Project area since 1954. Predecessor companies included Cerro de Pasco Corporation, Newmont and Asarco. Work conducted by Southern Copper and its predecessor companies included geology and photogeology studies, tunneling, churn drill, core and reverse circulation (RC) drill campaigns, metallurgical test work, and engineering studies. The Cuajone mine commenced operations in 1976.

1.7 Exploration, Drilling, and Sampling

Drilling totals 1,685 core, churn and reverse circulation (RC) drill holes (451,109 m). Drilling that supports mineral resource estimation consists of 1,240 core, churn and RC drill holes (388,936 m).

The majority of the drill holes were vertical.

Laboratories used for analysis have primarily been internal company laboratories with independent laboratories being used more recently. Analysis has been completed on total copper (CuT), acid soluble copper (CuS), cyanide soluble copper (CuCN), molybdenum (Mo), iron (Fe), iron oxide (FeOx), zinc (Zn), silver (Ag), arsenic (As) and lead (Pb).

Quality control programs for pre-2017 drill campaigns are not recorded. Check assaying campaigns have been conducted over time using various campaigns. Results are generally good with accuracy and precision to evaluate the quality of the internal Ilo laboratory facility. Reproducibility of some of the samples from before 2016 is poorer than expected, suggesting potential issues with sampling, sample preparation, assaying or database integrity for the samples analyzed at the Cuajone mine laboratory before the implementation of quality assurance/quality control (QA/QC) programs and use of the Ilo laboratory

Quality control programs for exploration core holes and bast holes were implemented in 2017 with insertion of certified reference materials (standards), coarse blanks, fine blanks, twin samples, coarse duplicates, and pulp duplicates. The use of check samples was also adopted.

In 2024, Southern Copper conducted a resampling program on pre-2017 samples representing 7.7% of the pre-2017 samples. Wood analyzed the results and found there to be no material issues.

1.8 Data Verification

Wood’s data verification included site visits, comparisons of the dataset and its available original sources including collar, survey, density, assay certificates and reports, a limited check assay program, and reconciliation and other operational data. Wood is of the opinion that the data verification programs for Project data adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in mineral resource estimation.

1.9 Metallurgical Test Work

Metallurgical test work consisted of Bond ball mill work index, and flotation tests.

The life of mine (LOM) head grade and copper recovery for the oxide facilities are expected at 0.51% (including the ore from the existing oxide stockpile) and 54.8%, respectively.

Within the sulfide plant (including the ore from the existing sulfide stockpile):

- The LOM expected copper recovery is estimated at 85.0%.
- The LOM expected molybdenum recovery is estimated at 62.7%.

The forecast LOM copper concentrate grade is 24.84%, and the LOM molybdenum concentrate grade forecast is 53.33%.

A significant number of samples were selected by rock type/alteration for comminution and flotation testing. Tests were performed on samples that are considered to be representative of the different orebodies/zones and the mineralogy and alteration styles.

The copper and molybdenum concentrates produced at the Cuajone Operations are considered clean concentrates as they do not contain significant amounts of deleterious elements.

Wood’s qualified person (QP) for metallurgy consider the metallurgical data adequate for the purposes of estimating mineral resources, mineral reserves and the economic analysis in this Report.

1.10 Mineral Resource Estimates

The geological model consists of lithology, mineralization and alteration models. Estimation domains for copper were constructed based on lithology and mineralization.

Extreme grades were identified and capped and outlier restriction used during estimation. Wood constrained the mineral resource estimates within conceptual pit shells using a Lerchs-Grossmann algorithm and net smelter return (NSR) cut-off values. The NSR cut-off value used for mineral resource estimation for sulfide material was $8.21/t. Oxide material to be sent to the leach pad was reported at an NSR cut-off value of $9.95/t. Wood considers those blocks within the constraining resource pit shell and above the cut-off applied to have reasonable prospects for economic extraction.

Mineral resources are reported using the mineral resource definitions set out in S-K 1300 and are reported exclusive of those mineral resources converted to mineral reserves. The reference point for the mineral resource estimate is in situ.

The mineral resource estimates for the Cuajone Operations are provided in Table 1-1.

Wood believes there is a reasonable expectation that the majority of Inferred mineral resources could be upgraded to Indicated or Measured mineral resources with continued exploration.

Wood is of the opinion that all issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

1.11 Mineral Reserve Estimates

Measured and Indicated mineral resources were converted to proven and probable mineral reserves, respectively by applying modifying factors within a mining study that meets at least prefeasibility level. Inferred mineral resources were set to waste.

Mineral reserves were constrained within an engineered pit that included consideration of appropriate pit revenue factors, reconciliation data, current topography, geotechnical pit slope recommendations, metallurgical recoveries, operating costs (mining, processing, general and administrative (G&A), smelting, refining and processing costs, solvent extraction/electrowinning (SX/EW) and selling costs), royalties, metal prices, and NSR cut-offs.

The marginal NSR cut-off values for mineral reserves to be treated by concentration ranges from $9.61/t to $9.77/t. The marginal NSR cut-off values for mineral reserves to be treated by the leach facilities ranges from $14.27/t to $14.40/t.

Mineral reserves are reported using the mineral reserve standards and definitions set out in S-K 1300. The selected point of reference for the mineral reserve estimate is at delivery to the process facility. Mineral reserves are summarized in Table 1-2. The concentration and leach type ore currently stockpiled at the site is reported as concentration and leach ore from stockpile.

Table 1-1: Cuajone Mineral Resource Statement

Classification Category	Amount (Mt)	Copper Grades (%)	Molybdenum Grades (%)	Copper Metal Content (Mlb)	Molybdenum Metal Content (Mlb)
Measured					
Sulfides	62.0	0.35	0.014	471.9	18.7
Leach (oxide)	-	-	-	-	-
Total Measured	**62.0**	**0.35**	**-**	**471.9**	**18.7**
Indicated					
Sulfides	444.2	0.33	0.012	3,225.6	116.1
Leach (oxide)	0.0	0.55	-	0.3	-
Total Indicated	**444.2**	**0.33**	**-**	**3,225.9**	**116.1**
Measured + Indicated					
Sulfides	506.2	0.33	0.012	3,697.5	134.8
Leach (oxide)	0.0	0.55	-	0.3	-
Total Measured + Indicated	**506.2**	**0.33**	**-**	**3,697.7**	**134.8**
Inferred					
Sulfides	865.3	0.28	0.008	5,420.8	160.2
Leach (oxide)	0.0	0.64	-	0.2	-
Inferred Total	**865.3**	**0.28**	**-**	**5,421.0**	**160.2**

Note: (1) The point of reference for mineral resources are in place and are current as at December 31, 2024. Mineral resources are reported exclusive of mineral reserves. Wood is responsible for the estimate.

(2) Mineral resources are constrained within an optimized pit shell based on copper and molybdenum revenues only. The following parameters were used in estimation: assumed open-pit mining methods; assumed concentration and heap leaching processes; copper price of $3.80/lb, molybdenum price of $11.50/lb; marginal NSR cut-off values of $8.21/t-processed for concentration material (approximately equivalent to 0.127% Cu), and $9.95/t-processed for leach material (approximately equivalent to 0.326% Cu); variable metallurgical recoveries (average recoveries of 84.0% for copper by concentration, 61.1% for molybdenum by concentration, and 36.8% for copper by leaching); average copper recoveries of 97.1% for smelting and 99.9% for refining; average mining cost of $2.09/t-mined; average process costs of $8.21/t-processed for concentration material, and $9.95/t for leach material; average smelting and refining cost of $0.17/lb Cu; selling costs of $0.001/lb Cu for concentration process, $1.83/lb Mo for concentration process, and $-0.005/lb Cu for leaching process; and 1% NSR royalty applied to Cu and Mo.

(3) No estimates for molybdenum are reported for leach material as this element cannot currently be recovered using the leach process envisaged.

(4) Numbers in the table have been rounded. Totals may not sum due to rounding.

Table 1-2: Cuajone Mineral Reserve Statement

Classification Category and Process Type	Amount (Mt)	Copper Grades (%)	Molybdenum Grades (%)	Copper Metal Content (Mlb)	Molybdenum Metal Content (Mlb)
Proven					
Mill	545.7	0.53	0.020	6,435.2	239.6
Mill from stockpile	42.8	0.35	0.013	329.6	12.7
Leach (oxide)	–	–	–	–	–
Leach from stockpile	19.1	0.50	–	211.6	–
Total Proven	**607.5**	**0.52**	**–**	**6,976.4**	**252.3**
Probable					
Mill	910.4	0.45	0.015	9,012.3	303.6
Mill from stockpile	–	–	–	–	–
Leach (oxide)	0.3	0.72	–	5.5	–
Leach from stockpile	–	–	–	–	–
Total Probable	**910.7**	**0.45**	**–**	**9,017.8**	**303.6**
Proven + Probable					
Mill	1,456.1	0.48	0.017	15,447.4	543.2
Mill from stockpile	42.8	0.35	0.013	329.6	12.7
Leach (oxide)	0.3	0.72	–	5.5	–
Leach from stockpile	19.1	0.50	–	211.6	–
Total Proven + Probable	**1,518.2**	**0.48**	**–**	**15,994.2**	**555.9**

Note: (1) Mineral reserves are current as of December 31, 2024. Wood is responsible for the estimates.

(2) The point of reference is the point at which the mineral reserves are delivered to the processing facility. Mineral reserves are constrained within an engineered pit based on copper and molybdenum revenues only. The following parameters were used in estimation: assumed open-pit mining methods; assumed concentration and heap leaching processes; copper price of \$3.30/lb, molybdenum price of \$10.00/lb; marginal NSR cut-off values of \$9.61–\$9.77/t-processed for concentration material (approximately equivalent to 0.170%–0.173% Cu), and \$14.27–\$14.40/t-processed for leach material (approximately equivalent to 0.539%–0.544% Cu); mining recovery and dilution are accounted for and generally offset each other; additional ore loss was considered on isolated blocks; variable metallurgical recoveries (average LOM recoveries of 85.0% for copper by concentration, 62.7% for molybdenum by concentration, and 43.5% for copper oxide by heap leaching, including concentration ore existing in stockpile); average copper recoveries of 97.1% for smelting and 99.9% for refining; variable mining costs of \$2.58–\$3.78/t-mined; average process costs of \$9.72/t-processed for concentration material, and \$14.32/t for leaching material; average smelting and refining cost of \$0.21/lb Cu; selling costs of \$0.001/lb Cu for concentration process, \$1.83/lb Mo for concentration process, and \$-0.005/lb Cu for leaching process; and 1% NSR royalty applied to Cu and Mo.

(3) The point of reference for the leach from stockpile mineral reserves is in place on the stockpile with marginal NSR cut-off values of \$14.27–\$14.40/t-processed (approximately equivalent to 0.40% Cu) and an average LOM recovery of 54.8%

(4) No estimates for molybdenum are reported for leach material as this element cannot currently be recovered using the leach process envisaged.

(5) Numbers have been rounded. Totals may not sum due to rounding.

1.12 Mining Methods

The Cuajone Operations use conventional truck-and-shovel open pit mining methods.

Geotechnical criteria used in the pit design were based on guidance provided by a third-party consultant.

Seven pit phases remain in the LOM plan, starting with phase 6 and ending with phase 12. The remaining mine life is 50.4 years. Two to three pit phases will be operational at any one time, to ensure that production rates can be met. A maximum mining capacity per phase of 90 Mt/a is assumed, with a maximum vertical advance rate of 11 benches per year. The mine plan assumed a maximum mining capacity of 119 Mt of annual movement and a nominal processing rate of 90 kt/d of sulfide material at the concentrator facility and 3.2 kt/d of oxide material at the leach facility.

The current sulfide crusher is located at elevation 3,295 masl in the northern zone of the pit. Material is supplied either directly by haul trucks or is fed from a sulfide stockpile near the crusher. Crushed sulfide material is transported using a 7 km long conveyor belt to the concentrator plant. The sulfide crusher throughput is a nominal 90 kt/d. A new sulfide crusher located at level 3,390 masl is expected to be fully operational by year 2048 and will replace the current crusher when development of phase 11 reaches level 3,295 masl.

The oxide crusher is located at is located at elevation 3,480 masl, 5.9 km southwest of the pit. Material is supplied either directly by haul trucks or is fed from an oxide stockpile. Crushed oxide material is rehandled by loaders and trucks and deposited on a leach pad approximately 1.0 km northeast of the oxide crusher.

1.13 Recovery Methods

The process designs were based on existing technologies and proven equipment, and the plants constructed using those designs have a 45-year operating history.

The Cuajone heap leach facility was designed to treat oxide ores and produce a copper-rich pregnant leach solution (PLS) that is sent to the Toquepala Operations for solvent SX/EW recovery. Oxide ore is treated in a conventional leaching facility consisting of two stages of crushing, agglomeration and permanent leaching pads.

The Cuajone concentrator treats sulfide material to produce copper and molybdenum concentrates. The majority of the copper concentrate is sent to the Ilo smelter and refinery to produce copper cathodes as the final product. The molybdenum concentrate is sold to third parties. The Cuajone concentrator commenced operations on November 25, 1976 and has been upgraded to a current plant capacity of 90,000 t/d.

The Ilo smelter processes the copper concentrates from the Cuajone and Toquepala concentrators and produces copper anodes for the Ilo refinery. In 2007 a new smelter was commissioned at Ilo, with a nominal capacity of 1.2 Mt/a of copper concentrate.

The Ilo refinery is located in the Pampa de Caliche at 9 km north of the city of Ilo. The plant was acquired by Southern Copper in 1994 and has been modernized and expanded to the current annual capacity of 294,763 t/a of copper cathodes. The Ilo refinery has the capacity to produce 125,000 kg silver, 840 kg gold, and 50,000 kg selenium annually. Although the Ilo refinery has produced these elements historically as by-products, their revenues and process costs are excluded from the mine plan and cash flow analysis since silver, gold, and selenium are not included in the mineral resource or mineral reserve estimates.

Power is sourced from the National Intercontected Electric System (SEIN).

Fresh water for the mine and process facilities is obtained from both ground and surface sources. All sources discharge into the Vina Blanca lagoon from where the fresh water is supplied to the process facilities.

Power is sourced for process needs from the Peruvian grid.

1.14 Infrastructure

All required infrastructure to support the Cuajone Operations is in place. Additional tailings storage will be required to support the LOM plan after approximately the end of 2036.

On-site infrastructure that supports the Cuajone Operations include: an open pit; four WRSFs; one oxide stockpile; one sulfide stockpile; two leach pads; process facilities; warehouses, workshops, and offices; 138 kV and 220 kV power transmission lines; electrical substation and power distribution system; water handling facilities; permanent camp for operations; and a railway and rail yard.

Off-site infrastructure includes: access road; 138 kV and 220 kV power transmission lines; electrical substations and power distribution systems; railway; Quebrada Honda TSF; water supply system; SX/EW plant located at Toquepala; smelter, refinery and sulfuric acid plants at Ilo; and port facilities in Ilo and Tablones.

Railways extend from Ilo to Toquepala, and a spur railway runs from the Toquepala Operations to the Cuajone Operations. Supplies such as sulfuric acid, equipment, fuel, and mining supplies are transported to the operations using the rail network. Concentrates are railed from the mine site to the Ilo smelter/refinery, and cathodes produced at the refinery are railed to the Port of Ilo. The Port of Ilo is a private port, operated by Southern Copper.

The TSF operates as a cross-valley impoundment and is confined by two dams constructed of cyclone tailings sand. The remaining capacity of the existing TSF will support operations until approximately the end of 2036. Wood has assumed co-stack (dry stack) tailings and waste rock facility as the preferred alternative to store the remaining tailings (starting from 2037).

No waters are discharged from the operations as no mining effluents are generated at the mine site. At Quebrada Honda, Southern Copper is authorized to dispose of decanted water from the tailings. Water from the TSF is used in the process plant, following treatment in a neutralization facility.

Collectively, the Toquepala and Cuajone Operations, together with the Ilo smelter/refinery complex, have five accommodations areas, which provide a permanent accommodation capacity of 4,756 persons.

1.15 Market Studies

Southern Copper employs a corporate strategy that is in line with the company's marketing experience, and experience with obtaining long-term contracts with strategic business partners in the Asian and European markets, as well as annual contracts with other active market participants.

Depending on concentrate quality, the concentrates are primarily sold onto Asian or European market. Normally over 60% of the molybdenum concentrate is sold to Chile, with the remainder sold into the Northern Europe, Asia and the US markets. Cathode copper is sold onto the Asian, European, Brazilian and/or North American markets.

Southern Copper provided Wood their internal price forecast covering the period 2024-2028 and provided a long-term forecast for 2028 onward. Forecasts were based on Southern Copper's interpretations of market analysis from Wood Mackenzie, CRU and 21 analysts and banks on copper price, and six analysts and banks on molybdenum price. The long-term forecast for copper and molybdenum pricing used for mine planning and cash flow analysis over the LOM is \$3.30/lb and \$10.00/lb, respectively. Higher metal prices were used for mineral resources to ensure the mineral reserves are a subset of the mineral resources. The long-term price forecasts were increased by 15% to provide the mineral resource estimate copper and molybdenum price of $3.80/lb and $11.50/lb, respectively.

Cuajone Operations concentrates are sent to the Ilo smelter and refinery for processing to produce refined cathodes. When the production from the Cuajone and Toquepala Operations exceeds the smelter's capacity, a portion is sold to third parties. In recent years, these third-party sales of Cuajone and Toquepala Operations concentrates have represented about 20–25% of the annual production. Approximately 95% of the production of refined cathodes is sold under annual contracts with industrial customers (mainly copper rod producers), with whom Southern Copper has had a commercial relationship for many years, and about 5% is sold on the spot market.

The largest in-place contracts other than for product sales cover items such as bulk commodities, operational and technical services, mining and process equipment, and administrative support services. Contracts are negotiated and renewed as needed. Contract terms are typical of similar contracts that Southern Copper has entered into in Peru.

1.16 Environmental, Permitting and Social Considerations

Baseline studies were completed prior to mine start-up. Baseline and supporting studies were completed in support of Project permitting, together with development of management plans to address major impacts. These included environmental impact assessments, environmental management plans, evaluation of flood controls on the Torata River, archaeological surveys, and closure planning.

Environmental impact assessments (EIA) have been submitted over the years with several supporting technical documents for component modification projects for the Cuajone Operations submitted when required.

As per permit requirements, Southern Copper has a number of monitoring programs in place, and monitors surface water and air quality in accordance with commitments made in the environmental management and adjustment plan, environmental impact study, closure plans and updates to those plans and studies.

The Mine Closure Plan for the Cuajone Operations was approved in 2009, and modifications were approved in 2012 and 2019. The closure cost used in the economic analysis considers closure of the Cuajone Operations, Quebrada Honda TSF and Ilo smelter and refinery and is $438.5 million, inclusive of the Peruvian general sales tax.

The Cuajone Operations and the Ilo smelter and refinery have all of the required permits to operate. The operations maintain a permit register and have a control and monitoring system to ensure that the requirements of each permit are monitored to comply with the relevant regulatory conditions imposed.

Additional permits will be required for the new TSF and for WRSFs.

Southern Copper has community programs in place as part of its social management plan. However, the social management plan is not currently formally incorporated into the base EIA or subsequent amendments.

Southern Copper has communication channels and tools in place, based on the company's community development model, which allow the company to identify potential conflicts early, to work with the community to find appropriate solutions to address their concerns, and generate positive social license conditions for the continued operation of Southern Copper's mining projects.

Wood is of the opinion that the current plans to address any issues related to environmental compliance, permitting, and engagement with local individuals or groups are adequate to support mineral resources and mineral reserves.

1.17 Capital Cost Estimates

Capital cost estimates are at a pre-feasibility level of accuracy range of ±25% and includes contingency not exceeding 15%. All capital costs were expressed in third quarter (Q3) 2024 US dollars.

In general, the Cuajone Operations have the necessary facilities to carry out the current operations. Sustaining capital costs were estimated by area and allocated over time to support the proposed mine production schedule at current production throughputs.

The sustaining capital cost estimate totals $5,258.3 million (Table 1-3), exclusive of the Peruvian general sales tax.

Table 1-3: Sustaining Capital Cost Estimate

Area	Sustaining Capital Cost ($M)
Mining equipment	2,457.4
Water and fuel tanks, and fuel station relocation	18.0
Leach pad expansion	62.1
Existing tailings storage facility (Quebrada Honda) raise	73.2
Filtered tailings plant, inc. land acquisition	671.2
Primary crusher relocation	68.8
Process facilities sustaining and maintenance	1,426.1
Other general sustaining and maintenance	342.8
Subtotal Direct + Indirect cost	5,119.7
Contingency	138.6
Total	**5,258.3**

Note: Totals may not sum due to rounding.

1.18 Operating Cost Estimates

Operating cost estimates are at a pre-feasibility level of confidence, having an accuracy range of ±25% and includes a contingency not exceeding 15%.

Operating costs were based on actual costs and data from Southern Copper's operating mines in Peru, Wood's experience and the proposed mine and process plans.

Table 1-4 is a summary of the operating cost estimates, exclusive of value-added taxes. General and administrative costs are included in the corresponding mining and processing costs.

Table 1-4: LOM Operating Cost Estimate

Description	Unit	Cost	Total ($M)
Mining[1]	$/t mined[1]	2.53	9,561.8
Process	$/t processed[2]	10.56	16,031.9
Total			**25,593.7**

Note: Totals may not sum due to rounding.

(1) Including ore rehandling
(2) Including sulfides and oxides

1.19 Economic Analysis

Certain information and statements contained in this section are forward-looking in nature and are subject to known and unknown risks, uncertainties, and other factors, many of which cannot be controlled or predicted and may cause actual results to differ materially from those presented here. Forward-looking statements include, but are not limited to, statements with respect to the economic and study parameters of the Cuajone Operations; mineral reserves; the proposed mine plan and mining strategy; ability of mine designs to withstand seismic events; dilution and extraction recoveries; processing method and rates and production rates; projected metallurgical recovery rates; infrastructure requirements; capital, operating and sustaining cost estimates; concentrates and cathodes marketability and commercial terms; the projected LOM and other expected attributes of the Project; the net present value (NPV); future metal prices and currency exchange rates; government regulations and permitting timelines; estimates of reclamation obligations; requirements for additional capital; environmental and social risks; and general business and economic conditions.

The financial analysis was performed using a discounted cash flow (DCF) method. Net annual cash flows were estimated projecting yearly cash inflows (or revenues) and subtracting projected yearly cash outflows (such as capital and operating costs, royalties, and taxes).

The financial model that supports the mineral reserve declaration was a standalone model that calculated annual cash flows based on: scheduled ore production; assumed processing recoveries; copper and molybdenum metal sale prices; projected operating and capital costs; and estimated taxes.

The financial analysis was based on an after-tax discount rate of 10%. Cash flows were assumed to occur at the end of each year and were be discounted to the beginning of 2025 (Year 1 of the economic analysis).

Costs projected within the cash flows are based on constant Q3 2024 US dollars.

Revenue was calculated from the recoverable copper and molybdenum metal and the long-term forecasts of metal prices and exchange rates. Recoverable copper and non-metal products include those recovered at the Ilo smelter and refinery from the copper concentrate feed from the mine operation, and copper and molybdenum concentrate sales.

The Cuajone Operations are anticipated to generate a pre-tax NPV of $2,945.7 million at a 10% discount rate and an after-tax NPV of $1,790.2 million at a 10% discount rate. As the mine is operating, and initial capital is sunk, considerations of IRR and payback are not relevant.

Before-tax and after-tax financial results are presented in Table 1-5.

The Cuajone Operations are most sensitive to fluctuations in copper price and grade. It is less sensitive to changes in operating and capital costs. The operations are least sensitive to variations in molybdenum price and grade.

Table 1-5: Summary of Economic Results

Description	Unit	Value
Remaining mine life	years	50.4
Copper payable	Mlb	13,088.5
Molybdenum payable	Mlb	348.4
After-Tax Valuation Indicators		
Undiscounted cash flow	$M	8,532.5
NPV @ 10%	$M	1,790.2
Sustaining capital	$M	5,258.3
Closure cost (inc. IGV)	$M	438.5
Mining operating cost	$M	9,561.8
Process operating cost	$M	16,031.9

Note: Numbers have been rounded. IGV = value-added tax (Impuesto General a las Ventas).

1.20 Risks

Factors that may affect the mineral resource and mineral reserve estimates were identified in Section 11.13.2 and Section 12.3.2, respectively.

Risks to the Cuajone Operations include the following.

1.20.1 Mine Plan

- The mineral reserve estimates are sensitive to metal prices. Lower metal prices than forecast in the LOM plan may require revisions to the mine plan, with impacts to the mineral reserve estimates and the economic analysis that supports the mineral reserve estimates.
- Geotechnical and hydrological assumptions used in mine planning are based on historical performance, and to date historical performance has been a reasonable predictor of current conditions. Any changes to the geotechnical, including seismicity, and hydrological assumptions could affect mine planning, affect capital cost estimates if any major rehabilitation is required due to a geotechnical (seismic) or hydrological event,

affect operating costs due to mitigation measures that may need to be imposed, and impact the economic analysis that supports the mineral reserve estimates.

- An increase in the clay content of the deposit could have an effect on the process flow, resulting in treatment capacity reduction and increases in operating costs when pumping tailings material to the TSF.
- The Quebrada Honda TSF does not have sufficient storage capacity for the LOM. The mine plan assumes that a new facility location can be obtained, designs can be completed and approved by the relevant regulatory authorities, and the new facility can be constructed and commissioned prior to approximately the end of 2036. If the new TSF is not available by the time envisaged, this could affect the mineral reserves, capital and operating cost estimates, and the economic analysis.
- The new TSF will be a co-stack (dry-stack) tailings and waste rock facility and estimated capital and operating costs for such a facility have been included in the financial analysis. If the final TSF option uses a different disposal method, this could affect the mineral reserves, capital and operating cost estimates, and the economic analysis.
- Labor cost increases or productivity decreases could also impact the estimated mineral reserves, operating cost estimates and the economic analysis.
- Commodity price increases for key consumables such diesel, electricity, tires and chemicals would negatively impact the stated mineral reserves because of the effect on the forecast operating costs.
- Assumed permitting and project development timelines may be longer than anticipated for the new TSF.
- Legislative changes potentially affecting mining licenses and/or Southern Copper’s ability to operate.

1.20.2 Metallurgical Test Work

- Past metallurgical performance of the ore material has been used to predict future performance. Unrecognized variability in the metallurgical characteristics could change the quality of the concentrate, throughput of the concentrators, recoveries and operating costs.

1.20.3 Geotechnical

- Demonstrating proper tailings management is becoming increasingly important for new and existing mining facilities and meeting the requirements of the Global International

Standard on Tailings Management (GISTM) is an important step towards that process. The aim of this standard is to prevent tailings catastrophes, to restore public confidence and to promote sustainable practices that link technical tailings management with social aspects, transparency and accountability. Southern Copper is currently working to achieve these objectives for the Quebrada Honda TSF. The TSF has a geotechnical instrumentation system installed at critical locations (e.g., topographic control points, satellite control, piezometers, etc.) to monitor key parameters (e.g., displacements or surface movements of the dyke). A report listing the actions to be taken, if needed, to meet the requirements of the GISTM is currently underway by Southern Copper and it is expected to be issued in the next few months. Depending on the changes required to meet GISTM, increases in capital cost and operating cost estimates may be necessary.

1.20.4 Hydrology

- Water supply at the Cuajone Operations is dependent on fresh water sources from the Titijones and Huaitire-Gentilar aquifers and Lake Suches. Increasing pressure from climate change and communities within the watershed could impact the available water resources. Ongoing monitoring and management of the water supply systems are critical in ensuring that the water supply remains viable. An investigation is currently being undertaken by Southern Copper to enhance the understanding of the aquifers and the impact of climate change on the sustainability of the water resource.

1.20.5 Environmental, Permitting and Social

- Assumed permitting and project development timelines may be longer than anticipated for the new TSF.
- Possibility of labor or social issues that could interrupt mine production.

1.21 Opportunities

Opportunities include the following.

1.21.1 Geology

- Improved geology logging of the bornite mineralization will provide the opportunity to better control the higher copper grades.

1.21.2 Mine Plan

- Conversion of some or all of the Indicated mineral resources currently reported exclusive of mineral reserves to mineral reserves, with appropriate supporting studies.
- Upgrade of some or all of the Inferred mineral resources to higher-confidence categories, so that could be used in mineral reserve estimation and potentially reduce the mining costs through reduced waste rock to be mined or extend the mine life.
- Higher metal prices than forecast could present upside sales opportunities and potentially an increase in predicted Project economics.

1.21.3 Hydrology

- The alternative of co-stacked (dry-stack) tailings and waste rock storage at the Cuajone Operations after Quebrada Honda TSF reaches the design capacity in 2036, are expected to reduce the freshwater requirements at site in future.

1.22 Conclusions

Under the assumptions in this Report, the operations evaluated show a positive NPV over the remaining LOM and support the mineral reserves. The mine plan is considered achievable under the set of assumptions and parameters used.

1.23 Recommendations

The recommendations cover the discipline areas of data storage, mineral resource estimates, metallurgical drilling and test work, tailings storage and permitting. The total recommended budget estimate to complete the programs is $5.5–$6.5 million.

2.0 INTRODUCTION

2.1 Registrant

This technical report summary was prepared for Southern Copper by QPs employed by Wood and Geosyntec who are third-party firms comprising mining experts on the Cuajone Operations, located in the District of Torata, Province of Mariscal Nieto within the Moquegua Region, Peru.

The Cuajone Operations contains the Cuajone deposit.

2.2 Terms of Reference

2.2.1 Report Purpose

The Report was prepared to be attached as an exhibit to support mineral property disclosure, including mineral resource and mineral reserve estimates, for the Cuajone Operations in Southern Copper's Form 10-K for the year ending December 31, 2024.

2.2.2 Terms of Reference

Mineral resources and mineral reserves are reported for the Cuajone deposit. Mineral resources and mineral reserves are reported using the definitions in Subpart 229.1300 – Disclosure by Registrants Engaged in Mining Operations in Regulation S–K 1300 (S-K 1300).

Unless otherwise indicated, all financial values are reported in US dollars. The metric system is used in this Report, unless otherwise indicated.

2.3 Qualified Persons

This Report was prepared by appropriate qualified persons (QPs) from Wood and Geosyntec, whose firms are considered third-party firms comprising of mining experts. This Report was prepared by or contributed to by each third-party firm. Table 2-1 lists the sections of the Report prepared by or contributed by each third-party firm.

Table 2-1: Third-Party Firms Who Prepared this Report

Third-Party Firm	Report Sections
Wood	1.1-1.19, 1.20.1, 1.20.2, 1,20.5 1.21.1, 1.21.2, 1.22, 1.23, 2-6, 7.1, 7.2, 8-12, 13.1, 13.4-13.6, 14, 15.1-15.4, 15.7-15.9, 16-21, 22.1-22.16, 22.17.1, 22.17.2, 22.17.5, 22.18.1, 22.18.2, 22.19, 23.1-23.5, 23.8, 23.9, 24, 25
Geosyntec	1.20.3, 1.20.4, 1.21.3, 1.23, 2.3, 2.4, 7.3, 7.4, 13.2, 13.3, 15.5, 15.6, 15.10, 22.17.3, 22.17.4, 22.18.3, 23.6, 23.7, 23.9, 24, 25.4, 25.5

2.4 Site Visits and Scope of Personal Inspection

Wood and Geosyntec QPs visited the Cuajone Operations. The scope of inspection by each discipline area is summarized in Table 2-2.

2.5 Information Sources

The reports and documents listed in Section 24 and Section 25 of this Report were used to support Report preparation. Wood and Geosyntec have relied on Southern Copper (the registrant) for the information specified in Section 25.

2.6 Previous Technical Report Summaries

This Report updates previously filed technical report summaries on the Cuajone Operations titled “Cuajone Operations, Peru, Technical Report Summary”, prepared by Wood which was current as of December 31, 2022.

Table 2-2: Scope of Personal Inspection

Discipline Area	Site Visit Date	Scope of Personal Inspection
Geology/mineral resources	23–25 September 2021	• Presentation on the geology of the area by Southern Copper geologists • Reviewed of QA/QC procedures with Southern Copper personnel • Visited to the core shed; inspection of reject and pulp storage area • Pit inspection, observed blast hole sampling • Inspected the on-site mine laboratory and observed sample preparation and analysis of blast hole samples.
	7–9 February 2024	• Reviewed the database procedures for capturing and storing data, database backup procedures • Reviewed the procedures for transforming local coordinates into UTM coordinates • Inspected supporting drill hole documentation • Reviewed of QC procedures with Southern Copper personnel • Visited the core shed; inspection of the reject and pulp storage area.
	16 April 2024	• Verified database and QC procedures • Discussed with Southern Copper geologists geological controls of the bornite mineralization.
Infrastructure	25–26 September 2021	• Inspected selected surface infrastructure, including workshops, pit, accesses, railway, belt surface conveyor (overland), water tanks, fuel storage • Inspected infrastructure used for supply of fresh water, including canals, pipelines, dams, and storage ponds • Visited the accommodations complex at Villa Cuajone and Villa Botiflaca; sighted hospital, schools, administrative offices, water tanks, sewage treatment plants • Visited Cuajone concentrator, inspected warehouses, workshops, fuel tanks, water, rail, tailings management and reclaim water storage.
	1 October 2021	• Visited Quebrada Honda TSF. Also visited the refinery facilities, Tablones port terminal, Simón railway yard, foundry, offices and camps, dock, warehouses and workshops in the Puerto area.

Discipline Area	Site Visit Date	Scope of Personal Inspection
Infrastructure	30 September and 1 October 2024	• Review water management for the site • Visited the Lake Suches, groundwater extraction wells at the Titijones and Huaitire Gentilar and the Viña Blanca freshwater reservoir.
Mining engineering	6–7 December 2021	• Inspected the open pit; visited the primary sulfide crusher; viewed waste rock storage facilities and potential sites for additional waste rock storage; visited the mine site offices and discussed mine operations with Southern Copper staff and reviewed proposed LOM plans.
	19-21 September 2022	• Discussions with Southern Copper staff on aspects of mining • Visited and inspected the open pit, primary crusher, stockpiles and Cuajone concentrator • Visited the Viña Blanca water reservoir.
	30 September and 1 October 2024	• Inspected the open pit; visited the low-grade sulfide stockpile, the waste rock storage facilities, Quebrada Honda TSF, the tailings filtering pilot plant, Cocotea waste tank and heap leach facility • Reviewed and updated the criteria and economic parameters to be used for mine planning and mineral reserve estimation • Reviewed the logging and stability monitoring practices.
Geotechnical	30 September and 1 October 2024	• Visited to the open pit, heap leach facility, waste rock storage facilities to review and check the state of the facilities and interview personnel directly involved in the operation, maintenance and surveillance of the facilities • Reviewed the geotechnical monitoring system of the structure, as well as visual inspection of the pit slopes.
	2 October 2024	• Visited to the Quebrada Honda TSF to review and check the state of the facility and interviewed personnel directly involved in the operation, maintenance and surveillance of the facility • Reviewed the geotechnical monitoring system of the structure and visited its control center.

Discipline Area	Site Visit Date	Scope of Personal Inspection
Hydrogeological/Water Management	30 September to 1 October 2024	• Visited and reviewed water supply infrastructure (i.e., Titijones aquifer wellfields, Lake Suches, and freshwater reservoir Viña Blanca) • Interviewed personnel regarding water use, distribution and treatment systems at mine and production units • Visited water diversion systems – Torata River diversion and other non-contact water systems.
	2 October 2024	• Visited to the Quebrada Honda TSF to review and check the state of the facility and interviewed personnel directly involved in the operation, maintenance and surveillance of the facility.
Processing	6–8 December 2021	• Inspected the Cuajone concentrator and the heap leach facilities.
	30 September and 1 October 2024	• Inspected the new area of screens and HPGR mill at the Cuajone concentrator • Reviewed concentrator's process flow diagrams and water balance.

3.0 PROPERTY DESCRIPTION

3.1 Property Location

The Property is located in the Torata District, Mariscal Nieto Province, Moquegua Department, approximately 878 km from the city of Lima and 27 km from the city of Moquegua (Figure 3-1).

The Property centroid is at about 17°3'7.80"S latitude; 70°44'29.94"W longitude. The open pit is centered at approximately 17° 2'36.06"S latitude; 70°42'28.86"W longitude. The smelter and refinery are located at about 17°29'55.44"S latitude; 71°21'36.48"W longitude and 17°34'43.68"S latitude; 71°21'11.28"W longitude, respectively. The Quebrada Honda TSF is located at approximately 17°27'43.44"S latitude and 70°47'48.60"W longitude.

3.2 Property and Title in Peru

Wood has not independently verified the following information which is in the public domain and have sourced the data from Elias (2019), Ernst and Young (2017), and KPMG (2016) as well as from official Peruvian Government websites.

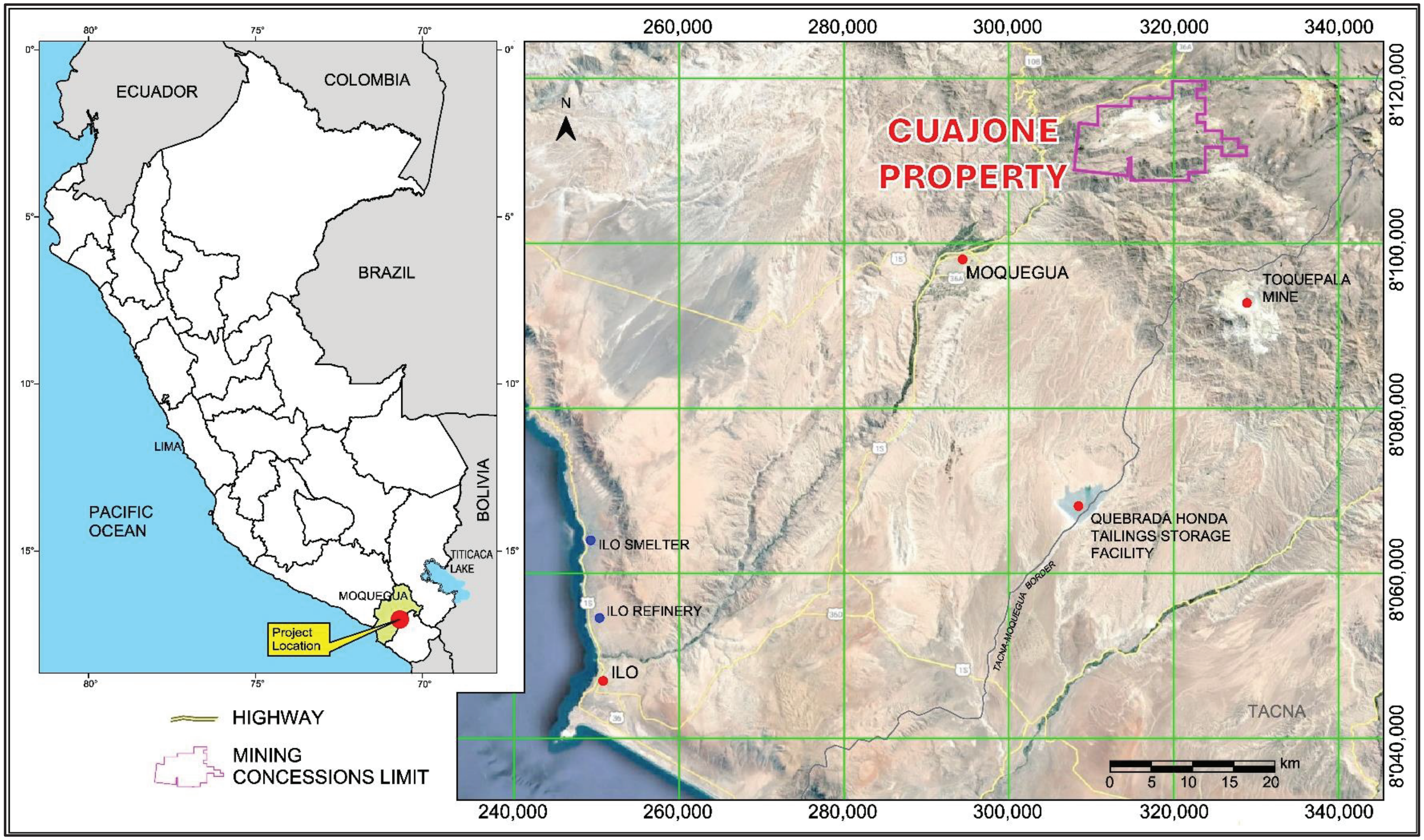
3.2.1 Regulatory Oversight

The right to explore, extract, process and/or produce minerals in Peru is primarily regulated by mining laws and regulations enacted by Peruvian Congress and the executive branch of government, under the 1992 Mining Law. The law regulates nine different mining activities: reconnaissance; prospecting; exploration; exploitation (mining); general labor; beneficiation; commercialization; mineral transport; and mineral storage outside a mining facility.

The Ministry of Energy and Mines (MINEM) is the authority that regulates mining activities. MINEM also grants mining concessions to local or foreign individuals or legal entities, through a specialized body called The Institute of Geology, Mining and Metallurgy (INGEMMET).

Other relevant regulatory authorities include the Ministry of Environment (MINAM), the National Environmental Certification Authority (SENACE), the Supervisory Agency for Investment in Energy and Mining (OSINERGMIN), the Ministry for Agrarian Development and Irrigation (MIDAGRI), and the Ministry for Culture. The Environmental Evaluation and Oversight Agency (OEFA) monitors environmental compliance.

Figure 3-1: Property Location Plan



Source: Wood, 2024

3.2.2 Mineral Tenure

Mining concessions can be granted separately for metallic and non-metallic minerals. Concessions can range in size from a minimum of 100 ha to a maximum of 1,000 ha.

A granted mining concession will remain valid providing the concession owner:

- Pays annual concession taxes or validity fees (derecho de vigencia), currently \$3.00/ha, by June each year. Failure to pay the applicable license fees for two consecutive years will result in the cancellation of the mining concession.
- Meets minimum expenditure commitments or production levels. The minima are divided into two classes:
  - Achieve “Minimum Annual Production” by the first semester of Year 11 counted from the year after the concession was granted, or pay a penalty for non-production on a sliding scale, as defined by Legislative Decree N° 1320 which became effective on January 1, 2019. “Minimum Annual Production” is defined as one tax unit (UIT) per hectare per year, which is which is S/5,150 in 2024 (about \$1,355).
  - Alternatively, no penalty is payable if a “Minimum Annual Investment” is made of at least 10 times the amount of the penalty.

The penalty structure sets out that if a concession holder cannot reach the minimum annual production on the first semester of the 11th year from the year in which the concessions were granted, the concession holder will be required to pay a penalty equivalent to 2% of the applicable minimum production per year per hectare until the 15th year. If the concession holder cannot reach the minimum annual production on the first semester of the 16th year from the year in which the concessions were granted, the concession holder will be required to pay a penalty equivalent to 5% of the applicable minimum production per year per hectare until the 20th year. If the holder cannot reach the minimum annual production on the first semester of the 20th year from the year in which the concessions were granted, the holder will be required to pay a penalty equivalent to 10% of the applicable minimum production per year per hectare until the 30th year. Finally, if the holder cannot reach the minimum annual production during this period, the mining concessions will be automatically expired.

Title-holders of mining concessions that were granted before December 2008 were obliged to pay the penalty from 2019 if the title-holder did not reach either the Minimum Annual Production or make the Minimum Annual Investment in 2018.

Mining concessions will lapse automatically if any of the following events take place:

- The annual fee (derecho de vigencia) is not paid for two consecutive years.
- The applicable penalty is not paid for two consecutive years.
- The Minimum Annual Production Target or Minimum Annual Investment is not met within 30 years following the year after the concession was granted.

Beneficiation concessions follow the same rules as for mining concessions. A fee must be paid that reflects the nominal capacity of the processing plant or level of production. Failure to pay such processing fees or fines for two consecutive years would result in the loss of the beneficiation concession.

3.2.3 Surface Rights

Mining companies must negotiate agreements with surface landholders or establish easements. Where surface rights are held by communities, such easements must be approved by a qualified majority of at least two thirds of registered community members. In the case of surface lands owned by communities included in the indigenous community database maintained by the Ministry of Culture, it is necessary to go through a prior consultation process before administrative acts, such as the granting of environmental permits, are finalized. For the purchase of surface lands owned by the government, an acquisition process with the Peruvian state must be followed through the Superintendence of National Properties (SBN).

Expropriation procedures have been considered for cases in which landowners are reluctant to allow mining companies to have access to a mineral deposit and the government has determined that the project is in the national interest. Once a decision has been made by the Government, the administrative decision can only be judicially appealed by the original landowner as to the amount of compensation to be paid.

3.2.4 Water Rights

Water rights are governed by Law 29338, the Law on Water Resources, and are administered by the National Water Authority (ANA) which is part of the MIDAGRI. There are three main types of water use rights:

- *License* – this right is granted in order to use the water for a specific purpose in a specific place. The license is valid until the activity for which it was granted terminates, for example, a beneficiary concession.

- *Permission* – this temporary right is granted during periods of surplus water availability and for water return surface, such as agrarian drainage, resulting seepage of the exercise of rights of holders of licenses of use of water.
- *Authorization* – this right is granted for a specified quantity of water and for a specific purpose: works (i.e. construction), studies and soil washing. The grant period is two years, which can be extended for only two additional years, for example for drilling.

In order to maintain valid water rights valid, the grantee must:

- Make all required annual payments including financial compensation for water use and discharges ("Retribución Económica")
- Abide by the conditions of the water right in that water is only used for the purpose granted.

Water rights cannot be transferred or mortgaged. However, in the case of the change of the title holder of a mining concession or the owner of the surface land who is also the beneficiary of a water right, the new title holder or owner can obtain the corresponding water right prior authorization from the ANA.

3.2.5 Environmental Considerations

MINAM is the environmental authority, although the administrative authority is the Directorate of Environmental Affairs (DGAAM) of MINEM. The environmental regulations for mineral exploration activities were defined by Supreme Decree No. 020-2008-EM of 2008. New regulations for exploration were defined in 2017 by Supreme Decree No. 042-2017-EM.

An Environmental Technical Report (Ficha Técnica Ambiental or FTA) is a study prepared for approval of exploration activities with non-significative environmental impacts and less than 20 drilling platforms. The environmental authority has 10 working days to make observations.

An Environmental Impact Declaration (Declaración de Impacto Ambiental or DIA) must be presented for Category I exploration activities which have a maximum of 40 drilling platforms or disturbance of surface areas of up to 10 ha. The environmental authority has 45 working days to make observations.

A semi-detailed Environmental Impact Study (Estudio de Impacto Ambiental Semi-Detallado or EIAsd) is required for Category II exploration programs which have between 40–700 drilling platforms or a surface disturbance of more than 10 ha. The environmental authority has 96 working days to make observations. The total process including preparation of the study by a registered environmental consulting company can take 6–8 months.

A full detailed Environmental Impact Study (Estudio de Impacto Ambiental Detallado or EIAd) must be presented for mine construction. The preparation and authorization of such a study can take as long as two years.

3.2.6 Permits

In order to conduct exploitation activities, the following main permits are normally required:

- The approval of a detailed EIA (EIAd) by SENACE
- The approval of a detailed closure plan
- The approval of an authorization to build a beneficiation concession by the DGM of MINEM
- The functioning license for the beneficiation concession by the DGM of MINEM
- License for the use of water
- Explosives permits granted by Superintendencia Nacional de Aduanas y de Administracíon Tributaria (SUNAT)
- Controlled substances permit granted by SUNAT.

These main permits are in good standing for the Cuajone operations.

3.2.7 Royalties

In 2011, the Peruvian Congress approved an amendment to the mining royalty charge. The mining royalty charge is based on operating income margins with graduated rates ranging from 1–12% of operating profits; the minimum royalty charge is equivalent to 1% of net sales. If the operating income margin is 10% or less, the royalty charge is 1% and for each 5% increment in the operating income margin, the royalty charge rate increases by 0.75%, to a maximum of 12%.

At the same time the Peruvian Congress enacted a Special Mining Tax that is also based on operating income. Rates range from 2–8.4%. If the operating income margin is 10% or less, the Special Mining Tax is 2%, and for each 5% increment in the operating income margin, the special mining rate increases by 0.4%, to a maximum of 8.4%.

3.2.8 Other Considerations

Producing mining companies must submit, and receive approval for, an environmental impact study that includes a social relations plan, certification that there are no archaeological remains in the area, and a draft mine closure plan. Closure plans must be accompanied by payment of a monetary guarantee.

In April 2012, Peru's Government approved the Consulta Previa Law (prior consultation) and its regulations approved by Supreme Decree Nº 001-2012-MC. This requires prior consultation with any indigenous communities as determined by the Ministry of Culture, before any infrastructure or projects, in particular mining and energy projects, are developed in their areas.

Mining companies also have to separately obtain water rights from the National Water Authority and surface lands rights from individual landowners.

3.2.9 Fraser Institute Survey

Wood used the Investment Attractiveness Index from the 2023 Fraser Institute Annual Survey of Mining Companies report (the Fraser Institute survey) (Mejía and Aliakbari, 2024) as a credible source for the assessment of the overall political risk facing an exploration or mining project in Peru. The Fraser Institute annual survey is an attempt to assess how mineral endowments and public policy factors such as taxation and regulatory uncertainty affect exploration investment.

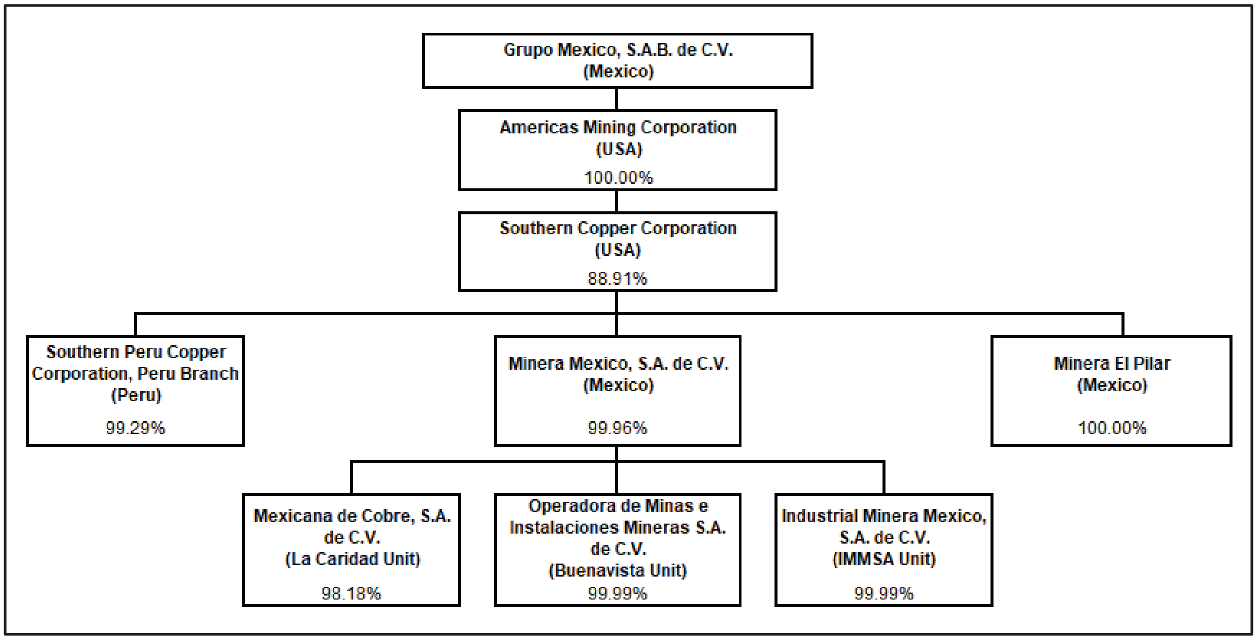
Wood used the Fraser Institute survey because it is globally regarded as an independent report-card style assessment to governments on how attractive their policies are from the point of view of an exploration manager or mining company senior management, and forms a proxy for the assessment by the mining industry of the political risk in Peru.

In 2023, the rankings were from the most attractive (1) to the least attractive (86) jurisdiction, of the 84 jurisdictions included in the survey. Peru ranked 59 out of 86 jurisdictions in the attractiveness index survey in 2023; 61 out of 86 in the policy perception index; and 42 out of 58 in the best practices mineral potential index.

3.3 Ownership

The Project is wholly owned by Southern Copper Corporation, Sucursal del Perú, which is a majority-owned, indirect subsidiary of Grupo Mexico S.A.B de CV. (Grupo Mexico). An ownership organogram is provided in Figure 3-2.

Figure 3-2: Ownership Organogram



Source: Southern Copper, 2024

3.4 Mineral Title

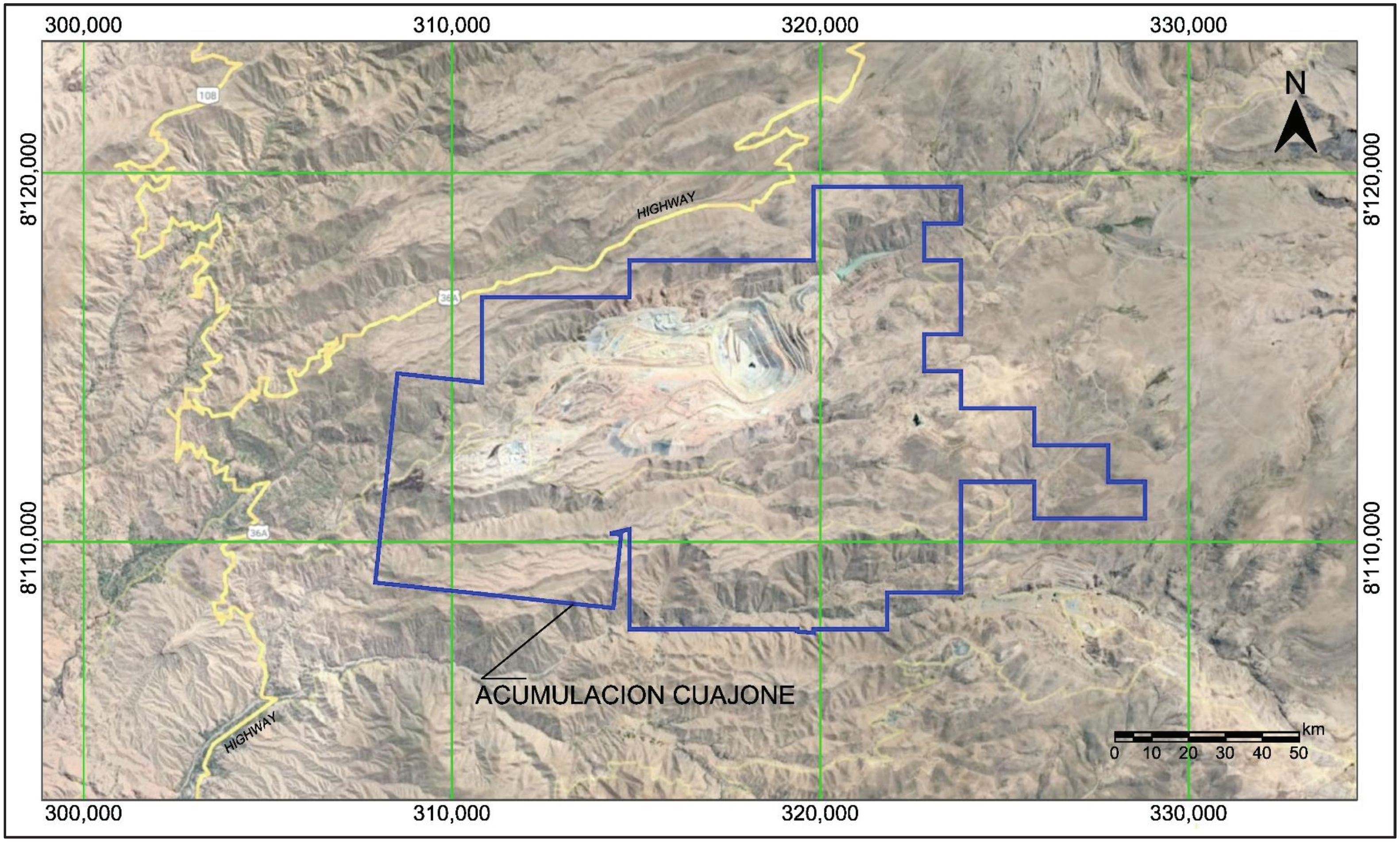
The Cuajone mine is located within the mining concession Acumulación Cuajone, which is registered as the mining concession Acumulación Cuajone, No. 010000512L, and registered in the Mining Rights Book of the Real Estate Property Registry of the Zona No. 11294175 of the Mining Rights Book of the Real Estate Property Registry of Zone XXI, Arequipa. Registry Zone Nº XXI, Arequipa Branch of the National Superintendence of Public Registries (SUNARP). That registration was completed on July 16, 2021.

Acumulación Cuajone incorporates 14,875.66 ha. Figure 3-3 shows the location of Acumulación Cuajone. Table 3-1 provides the locations of the vertices of points on the perimeter of Acumulación Cuajone.

Mining concessions in Peru are laid out using a grid system delimited by INGEMMET.

The annual holding fee is $3.00/ha.

Figure 3-3: Mineral Tenure Location Plan



Source: Wood, 2024

Table 3-1: Acumulación Cuajone Vertex Locations

	Coordinates UTM WGS84 18S			Coordinates UTM WGS84 18S	
Vertex	East (m)	North (m)	Vertex	East (m)	North (m)
1	323,813.74	8,119,623.45	22	323,813.79	8,108,623.51
2	323,813.75	8,118,623.45	23	321,813.81	8,108,623.51
3	323,022.60	8,118,623.45	24	321,813.82	8,107,623.52
4	322,813.76	8,118,623.45	25	319,813.84	8,107,623.52
5	322,813.76	8,118,359.48	26	319,813.84	8,107,520.28
6	322,813.76	8,117,623.46	27	319,366.79	8,107,561.96
7	323,813.75	8,117,623.46	28	319,372.52	8,107,623.52
8	323,813.76	8,115,623.47	29	314,813.89	8,107,623.52
9	322,813.77	8,115,623.47	30	314,813.87	8,110,333.86
10	322,813.78	8,114,623.48	31	314,292.77	8,110,218.81
11	323,813.77	8,114,623.48	32	314,590.77	8,110,187.06
12	323,813.77	8,113,623.48	33	314,378.83	8,108,198.35
13	325,813.75	8,113,623.48	34	307,915.49	8,108,887.17
14	325,813.76	8,112,623.49	35	308,519.52	8,114,555.04
15	327,813.74	8,112,623.49	36	310,813.90	8,114,310.51
16	327,813.74	8,111,623.50	37	310,813.88	8,116,623.47
17	328,813.73	8,111,623.50	38	314,813.85	8,116,623.47
18	328,813.73	8,110,623.50	39	314,813.84	8,117,623.46
19	325813.76	8110623.50	40	319813.79	8117,623.46
20	325813.76	8111623.49	41	319813.78	8119,623.45
21	323813.78	8111623.49	42	323813.74	8119,623.45

There are two approved beneficiation concessions:

- Concentradora de Botiflaca
- Cuajone solvent extraction (SX) leach plant.

The Concentradora Botiflaca beneficiation concession was approved on August 14, 1981, by Resolución Directoral No. 150-81-EM/DCM, modified on July 24, 2014, by Resolution No. 271-2014-MEM-DGM and covered an area of 518 ha. On July 20, 1999, the Director General of Mining authorized the operation of the process plant, at a capacity of 87,000 t/d, under report No. 266-99-EM-DGM/DPDM. An expansion approval to 90,000 t/d was granted on October 7, 2010, under Resolution N° 379-2010-MEM-DGM/V. Later that year, Southern Copper requested that three additional installations be approved, in support of optimization of the crushing process; approval was provided in Directorial Resolution N° 153-2012-MEMDGM-V.

The Cuajone SX leach plant concession (Planta de Lixiviación SX Cuajone) has a 400-ha area and was granted on May 6, 1996 under Directorial Resolution No. 155-96-EM-DGM. The plant capacity approved was 2,100 t/d. An approved plant capacity expansion to 3,100 t/d was approved under Resolution N° 988-2009-MEMDGM/V on December 16, 2009.

3.5 Surface Rights

Southern Copper acquired land from private owners in support of the operations. In other areas, surface rights were granted by the Peruvian State in accordance with the law, either by the granting of old mining concessions or by the granting of surface rights (DUTES) for exclusive use.

Most of the surface rights are those granted by the Peruvian State because the operations are situated on uncultivated land owned by the State. Water easements, power lines, tunnels, industrial railroad line, and the tailings canal are also authorized by the Peruvian State, as they cross uncultivated land owned by the State. These surface rights will remain valid as long as the mining concession remains in force.

Southern Copper holds a "right of free use" for the uncultivated lands within the mining concessions and the Quebrada Honda TSF areas. These surface rights will remain valid as long as the mining concession remains in force.

Easements have been granted for the TSF and related facilities, TSF pipelines, and water pipelines from Lake Suches to the Cuajone Operations (see also discussion in Section 15).

Additional surface rights will be required to allow construction and operation of a co-stack (dry stack) facility, which is expected to be utilized once the Quebrada Honda TSF reaches capacity at around the end of 2036 (refer to Section 18). There is sufficient time for Southern Copper to obtain the required surface rights and negotiate agreements before that date. A provision for these costs has been included in the cash flow analysis in Section 19.

3.6 Water Rights

Southern Copper has both groundwater and surface water usage licenses in the areas of Toquepala and Cuajone, for a total extraction rate of 2,011.37 L/s. The rights are summarized in Table 3-2.

Table 3-2: Water Rights

Area	Document Number	Water Right	Date
Surface water	R.S. N° 534-72-AG	License in process of adaptation of 150 L/s of the waters of the Ticalaya and Quebrada Honda. Only for Toquepala	June 15, 1972
	R.M. N° 00405-77-AG/DGA	License in the process of adapting the use of 60 L/s of the waters of the Cinto-Quebrada Honda river. Only for Toquepala	April 12, 1977
	R.D. N° 053-88-AG-DGA	Modification of the R.S. N° 535-72-AG reducing the flow to 300 L/s of Lake Suches	April 10, 1988
	R.D. N° 271-2010-ANA/AAA I C-O	Regime of the License for the use of surface water, based on volumes and flows of the R.M. N° 405-77-AG/DGA. Only for Toquepala	December 31, 2010
	R.D. N° 2521 and 2768-2017-ANA/AAA I C-O	License to use water from the Cuajone mine pit for 463,806 m^3/a	September 4 and 21, 2017
	R.D. N° 030 and 087-ANA-AAA CO	Modification of the License for the use of water of the Cuajone mining pit, increasing to 1,936,500.00 m^3/a (61.37 L/s)	January 17 and 25, 2024
Groundwater	R.M. 00899-79-AA-AGAS	License to use a mass of 15,736,464 m^3 of groundwater through tubular wells drilled in the “Vizcachas” and “Titijones” hydrographic basins	July 9, 1979
	R.D. N° 0062-83-AG-DGASI	License to use an annual mass of up to 13,268,966 m^3 of groundwater extracted through four tube wells from the “Huaitire” basin	June 15, 1983
	R.A. N° 169-95-DISRAGT-ATDRLIS	License to use groundwater in the Vizcachas basin of up to 360 L/s	July 12, 1995
	R.A. N° 002-94-DISRAG/ATDRL-S	License for the use of an annual mass of 5,991,840 m^3 of groundwater captured from tubular wells TP-11 and TP-12 drilled in the “Huaitire-Gentilar” hydrographic basin	1994
	R.A. N° 020-2003-ATDR.M/DRA.MDO	Adequacy of the water use license granted to in the R.M. N° 00899-79-AA/DGAS and R.A. N° 002-94-DISRAG/ATDRL-S up to 9,744,624 m^3	April 1, 2003
	R.A. N° 034-2005-DRA.T/GR.TAC-ATDRL/S	Groundwater use license with a flow of 162.2 L/s equivalent to an annual mass of 5,115,139 m^3 captured by two tubular wells TP14 and TP-15 located in the Huaitire-Gentilar basin	January 28, 2005

3.7 Royalties

Apart from the mining royalties (see Section 3.2.7) there are no other royalty agreements pertinent to the Project.

3.8 Encumbrances

There are currently no encumbrances such as liens, streaming agreements or otherwise that could affect the LOM plan.

3.9 Permitting

Permitting and permitting conditions are discussed in Section 17.

3.10 Violations and Fines

There are no significant material violations or fines, that apply to the Cuajone Operations.

3.11 Significant Factors and Risks That May Affect Access, Title or Work Programs

To the extent known to Wood, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the Project that are not discussed in this Report.

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Physiography

The Property ranges in elevation from 2,700–3,800 meters above sea level (masl) with the mine situated in an area of very steep terrain. Mine facilities and the pit rim are at about 3,500 masl.

The general direction of water runoff from the area is from the northeast to the southwest. Streams have a dendritic drainage pattern and are typically ephemeral.

Vegetation types vary, depending on terrain elevation and proximity to watercourses. Vegetation commonly consists of scrub and grasslands. Dryer areas are characterized by cacti species. In desert areas if there is vegetation it consists of thorny plants and shrubs.

Crops are cultivated along the banks of the watercourses and on flatter land. Hill slopes are used extensively for grazing of goats.

Using classifications developed by the Peruvian-Japanese Center for Seismic Research and Disaster Mitigation (Cismid), the Project area straddles two seismic zones (JCI, 2020):

- *Destructive (VIII intensity)* – slight damage to specialized structures; considerable damage to well-built ordinary structures, with possible collapse; heavy damage to poorly-built structures; seriously damaged or destroyed masonry, and furniture completely moved out of place.
- *Very destructive (IX intensity)* – considerable damage to specialized structures, walls out of plumb; extensive damage to major buildings, with partial building collapse; and buildings displaced off foundations.

4.2 Accessibility

The Cuajone mine is accessible by paved road from Lima or Tacna by the Pan-American Highway as follows:

- Lima to Moquegua .... 1,140 km
- Moquegua to Cuajone .... 42 km
- Tacna to Moquegua ....152 km

Access within the Project area is via developed roads that are routinely maintained.

Puerto de Ilo, the port site and location of the smelter and refinery, is 135 km from the Cuajone mine via paved road.

The Quebrada Honda TSF is about 120 km via local roads, south of the Property. It is accessed via the departmental roads TA-100 and MO-107 from the town of Camiara, or via departmental roads MO-105 and MO-107 from Moquegua city.

Tacna, Moquegua, and Ilo have regularly scheduled air services from Lima.

4.3 Climate

Climate conditions vary with altitude, from moderately temperate at lower elevations to intensely cold at high elevations. Monthly temperature averages range from 9–11°C. Wind speeds range on average from 1.54–2.06 m/s.

Average monthly precipitation varies from 0.05–85 mm; however, significantly more rain can fall when the El Niño phenomenon is in force. The dry season typically occurs from June–November, and the wet season generally is confined to the months of December–May.

Mining operations are conducted year-round. Exploration activities are conducted year-round but may be temporarily curtailed by rare heavy rainfall events.

4.4 Infrastructure

Infrastructure that supports the current operations is in place (see also discussions in Section 13, Section 14, and Section 15). These Report sections also discuss water sources, electricity, personnel, and supplies for the LOM plan.

Southern Copper has water rights or licenses for as much as 2,011.37 L/s from well fields at the Huaitire, Vizcachas and Titijones aquifers and surface water rights from Lake Suches and two small water sources, Quebrada Honda and Quebrada Tacalaya, and from Cuajone mine pit. Four desalination plants in Ilo produce water for industrial use and domestic consumption.

There is a power purchase agreement in place with the state company Electroperu S.A. (Electroperú) for 120 MW, which has a 20-year term starting in 2017. A second agreement is in place with a private power generator Kallpa Generacion S.A. (Kallpa), which has a 10-year duration, beginning in 2017. Southern Copper has 9 MW of power generation capacity from two small hydro-generating installations at site.

Personnel live in mine accommodation villages adjacent the operations.

Tacna is the main source of supplies and fuel.

5.0 HISTORY

The exploration and development history are outlined in Table 5-1.

Table 5-1: Exploration and Development History

Operator	Date	Comment
-	19th century	• Brief references in the geographic literature about the existence of copper deposits located in the southwest of Peru and sporadic exploration of copper on the southern slope of the Torata ravine, where thin layers of copper oxides and sulfides were exploited.
-	1929	• After the border conflict between Peru and Chile was resolved, interest in the area renewed and the Cuajone area was claimed by Julio E Gianella.
Cerro de Pasco Corporation (Cerro de Pasco)	1937	• The Cuajone prospect was considered to be a potential porphyry copper deposit.
Cerro de Pasco	1942–1945	• Optioned claims. Drilled 39 holes (12,166.6 m) • One core hole (199 m) as part of pit delineation investigation.
Newmont/ American Smelting and Refining Company (Asarco)	1951–1954	• SP and resistivity surveys completed; geochemical surveys completed • Drilled 88 holes (30,115.6 m), 70 were churn drill holes and 18 were core holes.
Southern Copper	1954	• Feasibility study completed; Southern Peru Copper Corporation formed by Asarco, Marmon Group Inc., Phelps Dodge Overseas Capital Corporation, and Newmont Mining Corporation. Southern Copper owned 88.5% of Cuajone and Billiton BV owned 11.5%.
	1956	• Preliminary geochemical surveys were completed over the volcanic rocks that covered the deposit.
	1965–1970	• 121 holes drilled (27,067.07 m) for pit delineation • One core hole (448.36 m) to confirm pit delineation.
	1969–1970	• After 18 months of negotiations, a bilateral agreement was signed with the revolutionary government of the Peruvian armed forces to construct the Cuajone Project.
	1970–1976 1976	• Construction of mine and ancillary facilities • Copper production began

Operator	Date	Comment
Southern Copper	1980	• Core drilling to verify 1950s churn drill data and to establish the contact between mineralized and post-mineralized cover to the south and southeast of the operations. Completed 26 holes (3,191.89 m). • Molybdenum plant operational, producing molybdenum concentrates.
Billiton B.V.	1981	• Sells its interest to Southern Copper
Southern Copper	1982–1988	• 127 core holes (36,086 m) for exploration and geotechnical investigations (3 holes) • One core hole (44.5 m) for project purposes.
	1991–1992	• 12 core holes (2,277 m) for geotechnical investigation
	1993	• Regional lithogeochemistry survey (267 points, 255 were in situ rock). Assayed for Cu, Mo, Ag, and Au. Two small anomalies were identified.
	1993	• Induced polarization (IP) study over 1,600 ha
	1994	• Two geophysical anomalies on the north slope of the Torata River were core drilled to test the anomalies.
	1994–1997	• 243 cores and 43 RC holes (126,673 m) drilled for exploration, geotechnical, and hydrogeological purposes • 16 core holes (2,562 m) for Torata River, projects and geotechnical investigations.
Newmont	1995	• Sells its shares to Southern Copper
Southern Copper	1998–1999	• 93 holes (10,240 m) drilled for various purposes of which 48 were reverse circulation (RC) (5,815 m) for metallurgical tests, inclinometers and evaluation of the tuff crystal. • Seven core holes (942 m) drilled Torata River investigation of which one was reverse circulation (RC) (199 m).
	1998	• Cuajone concentrator was expanded to 87,100 t/d.
Grupo Mexico	1999	• Acquired the Asarco interest to become the major shareholder
Southern Copper	2000–2001	• 90 core holes (36,146 m) to support the mine plan with some geotechnical and condemnation holes • 24 core holes (4,756.38 m) for investigating Ichupampa sector and other purposes.
	2002–2010	• 232 core holes (28,580 m) drilled for infill, metallurgist test, geotechnical and piezometers • Four core holes (992.07 m) near Torata river and Cuellar target.
	2007	• Incorporated a new mill at the concentrator

Operator	Date	Comment
Southern Copper	2011–2013	• 80 core holes drilled (17,861 m) part to support 15-year plan; principally infill and geotechnical drilling • 152 core holes (43,903 m) to support 15-year plan, infill and geotechnical instrumentation, IPCC and Cuellar target • 74 core holes (9,553 m) principally geotechnical instrumentation and Cocotea target investigation • 30 core holes (14,034 m) for geotechnical and Hopper, Work Index.
	2013	• Installation of high-pressure grind rolls (HPGR) in the concentrator
	2014	• Integrated the mining division into Americas Mining Corporation for management purposes
	2014–2016	• 46 core holes (12,813 m) for infill and geotechnical purposes • Four core holes (470.5 m) for geotechnical purposes and condemnation.
	2017–2018	• 66 core holes (23,666 m) for infill and geotechnical purposes. Four core holes (114.7 m) localized Ichupampa sector • Drilled 72 RC holes (3,850 m) to evaluate oxides.
	2018	• Crusher upgrade at the mine and overland conveyor installed
	2019	• 28 core holes (10,134.05 m) for infill and geotechnical instrumentation installation
	2020	• 19 core holes (5,300 m) for infill and geotechnical instrumentation installation • Three core holes (463.7 m) near dump leach facility.
	2021	• 34 core holes (11,485 m) for infill and geotechnical • Three core holes (1,200 m) for metallurgical testing.

6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Deposit Type and Mineralization

The Cuajone deposit is considered to be an example of a porphyry copper–molybdenum deposit.

Porphyry deposits range in age from Archean to Recent, although most are Jurassic or younger, and form in a variety of tectonic settings. Most copper–molybdenum deposits are associated with low-silica, relatively primitive dioritic to granodioritic plutons that fall on the more oxidized, magnetite-series spectrum.

Deposits commonly form irregular, oval, solid or "hollow" cylindrical and inverted cup shapes. Orebodies can occur separately, overlap each other, or be stacked on top of each other. They are characteristically zoned, with barren cores and crudely concentric metal zones that are surrounded by barren pyritic halos with/without peripheral veins, skarns, replacement manto zones and epithermal precious-metal deposits. At the scale of ore deposits, associated structures can result in a variety of mineralization styles, including veins, vein sets, stockworks, fractures, 'crackled zones' and breccia pipes.

Pyrite is typically the dominant sulfide mineral, in association with chalcopyrite, bornite, chalcocite, tennantite, enargite, other copper sulfides and sulfosalts, molybdenite and electrum.

6.2 Regional Geology

The Cuajone deposit is part of the Eocene porphyry copper belt of the main arc of the Peruvian Andes. The regional geology consists of the Upper Cretaceous/Lower Tertiary Toquepala Group, a sequence of basal volcanic flows and volcano–sedimentary rocks overlain by Miocene to Recent volcanic and volcano sedimentary rocks (Figure 6-1). Toquepala Group rocks are intruded by the late Cretaceous Yarabamba Super Unit of the Coastal batholith, characterized by northwest–southeast elongated granodiorite to monzogranite bodies. The final stage of this magmatic event is defined by hypabyssal intrusions that host the lower Tertiary porphyry copper–molybdenum systems in southeastern Peru.

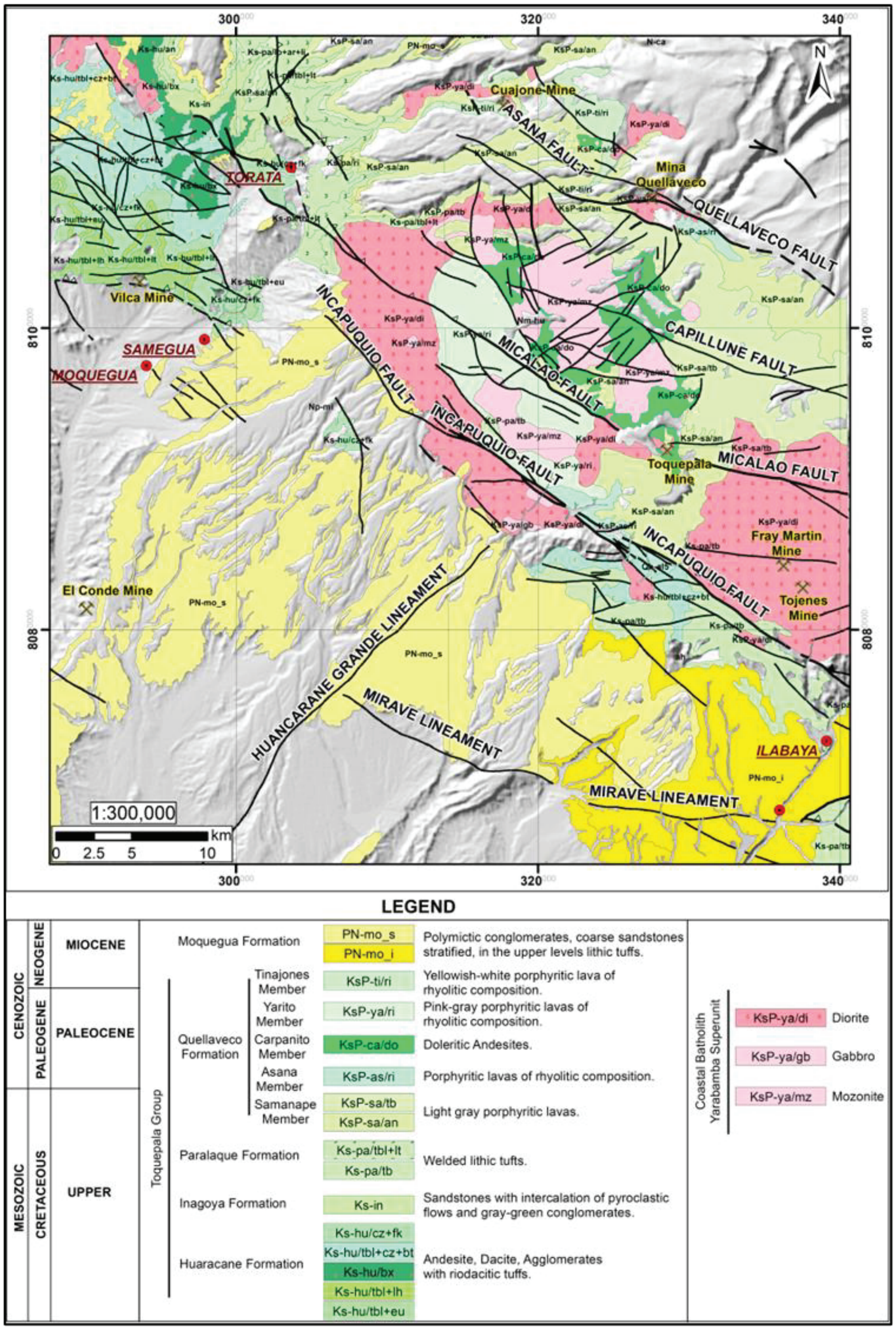
The top of the Toquepala Group is marked by an erosional unconformity. Above that unconformity are numerous post-mineral volcanic and sedimentary formations. Those formations form a cover above the deposit and are not altered or mineralized. Figure 6-2 shows geology in the general vicinity of the Property.

Figure 6-1: Regional Geology Map

Source: Southern Copper, 2024.

Note: Grid shown is South latitude and West longitude lines.

Figure 6-2: Regional and Project Geology



Source: Southern Copper, 2024

6.3 Local Geology

6.3.1 Lithologies and Stratigraphy

The major sedimentary and intrusive rock types in the general Project area are summarized in Table 6-1 and Table 6-2, respectively. A summary of the breccia types in the deposit area is provided in Table 6-3. A stratigraphic column is provided in Figure 6-3.

Table 6-1: Sedimentary and Volcanic Lithology Table

Unit	Age	Comment
-	Quaternary	Alluvial deposits in river beds and colluvial deposits on hill slopes. Moraines.
Chuntacala Formation	Mid-Late Miocene	Pyroclastic flows and welded tuffs with volcanoclastic flow deposits and lahars. Pink to brown tuffs and agglomerates.
Huaylillas Formation	Early Miocene	Post-mineral volcaniclastic succession with interspersed pyroclastic intervals. White, grey, and pink dacitic and rhyolitic tuffs.
Moquegua Formation	Late Oligocene to early Miocene	Unconformably overlies the Toquepala Group. In mine area, consists of sandy to conglomeratic, continental sedimentary rocks; and also rhyolitic conglomerate-doleritic conglomerate.
Toquepala Group	Cretaceous to lower Tertiary	Toquepala, Inogoya, Paralaque and Quellaveco Formations. Volcanic sequence of andesite, rhyolite and dacite flows.

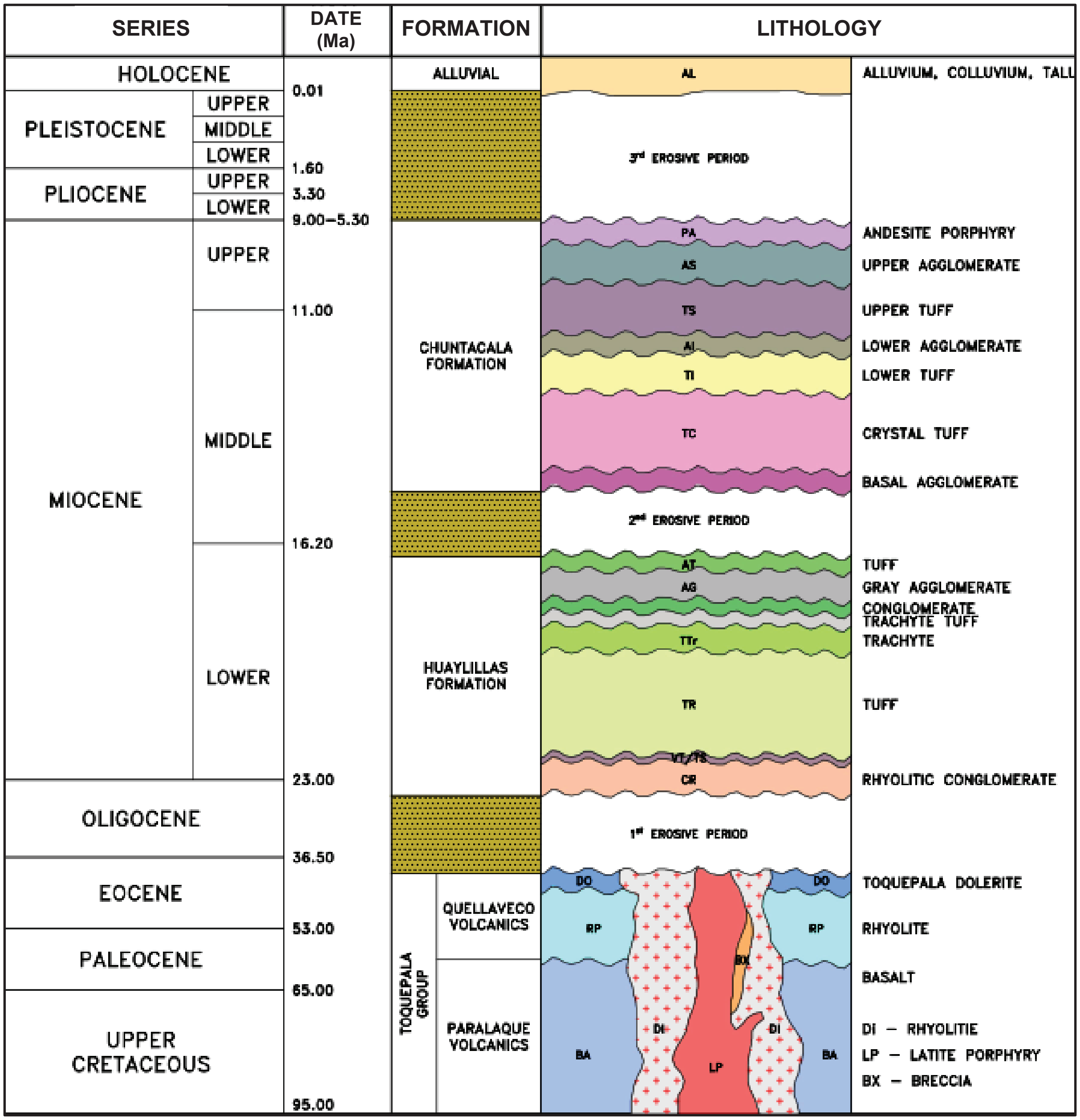
Table 6-2: Intrusive Lithology Table and Mineralization Description

Unit	Age (Ma)	Comment
Latite Porphyry 3	53	Monzogranite to granodiorite stock and dykes with bipyramidal quartz phenocrystals without Cu-Mo mineralization. It is weakly altered with a predominance of sericite and to a lesser extent, clays; weakly disseminated pyrite and sporadic veinlets.
Latite Porphyry 2	56	Coarse-grained with hornblende phenocrysts and/or plagioclase to 1 cm and very low density of granular quartz veins. It is considered to be an intra-mineral intrusion. Weak to moderate argillic alteration and sericitization superimposed on earlier potassic alteration characterized by granular silica veins with K-feldspar halos.
Latite Porphyry 1	55–51	The stock is elongate northwest to southeast. Cu and Mo mineralization are related spatially and temporally to this stock. It is characterized by a medium to coarse grain porphyritic texture, phenocrysts of plagioclase, hornblende, biotite, and quartz, with moderate to high density of granular quartz veins. Sulfides are mainly disseminated and in quartz veins. The ratio pyrite to chalcopyrite varies depending on the location within the system.
Granodiorite	65–58	This pluton extends to the west and northwest of the porphyritic stocks, cutting lava sequences of andesite and rhyolite (Toquepala Group) and is partially covered by pyroclastic deposits of the Huaylillas Formation. Hydrothermal granodiorite breccias developed in the Cuellar sector are weakly mineralized in intra-clastic cavities, showing weak to no rotation of clasts.
Diorite	66	Crops out in an elongate north–south trend east of the current pit. Cuts most of the units of the Toquepala Group.

Table 6-3: Breccia Type Table

Breccia Type	Comment and Mineralization Description
Rupture breccia	Synonymous with “stockwork”, “shatter breccia”, “fracture breccia” and "crackle breccia" and is characterized by a multitude of randomly crisscrossing cracks, the same ones that when crossing and joining each other, divide the original rock into angular fragments caused by hydraulic fracturing. The most distinctive characteristic of the rupture breccia is that its individual fragments do not detach, displace, slide or rotate among themselves.
Hydrothermal breccia	Predominantly angular clasts, arranged chaotically in a matrix of strongly altered porphyritic latite and mineral sulfides.
Magmatic–hydrothermal breccias	Ore breccia, siliceous ore breccia, siliceous breccia, blind breccia in LP2 and cubes breccia. Form elongated sub-vertical chimneys with diameters that vary from 58 to 244 m. They are characterized by the rotation and/or transport of their angular to sub-rounded clasts in a matrix of granular quartz and sulfides. The breccia is typically inter-mineral and Cu-Mo mineralization is most common within the breccia itself. A molybdenite-bearing breccia is characterized by the fact that the upper part of the chimney has tabular fragments of latite porphyry 2, aligned parallel to the cupola, defining a "shingle breccia" with quartz-molybdenite cement. Its formation is attributed to exfoliation of the wall rock and its fall towards the interior of the magmatic chamber. Intra-clastic cavities contain calcite and ankerite druse due to the circulation of fluids with high calcium content and contain high-grade copper mineralization due to its intrinsic permeability.
Intrusive breccias	Associated with emplacement of quartz-feldspathic intrusive rocks (not hydrothermal). These are characterized by incorporated clasts of wall rocks as xenoliths. Clasts are angular to subrounded in a crystalline igneous matrix. These are not genetically related to a mineralizing process; however, they may be mineralized.
Phreatic breccias	Non-mineralized breccias, commonly <3 m wide.

Figure 6-3: Stratigraphic Column



Source: Southern Copper, 2024

6.3.2 Structure

The regional-scale Incapuquio fault system influenced the location of the Late Cretaceous-Early Paleogene magmatism of the Toquepala Group. The "Cuajone Alignment" (Manrique and Plazolles, 1975) follows the structural pattern defined by the Incapuquio fault system. The geometry of the porphyritic stocks, the magmatic-hydrothermal breccias, as well as the dykes are oriented and controlled by pre- and inter-mineral faults that were later sealed by magmatic and hydrothermal activity with a preferential orientation of N40–50°W. Post-mineral reactivations follow the same structural model with components orthogonal to the northeast and east–west, with generally steep dips.

6.3.3 Alteration

Alteration is primarily recognized in association with the Cuajone deposit and is described in Section 6.4.4.

6.4 Property Geology

6.4.1 Deposit Dimensions

The deposit is approximately 2,300 m long, 900 m wide, and averages 1,000 m in thickness. Mineralization has been drill tested to a depth of 2,255 m. The deposit remains open at depth.

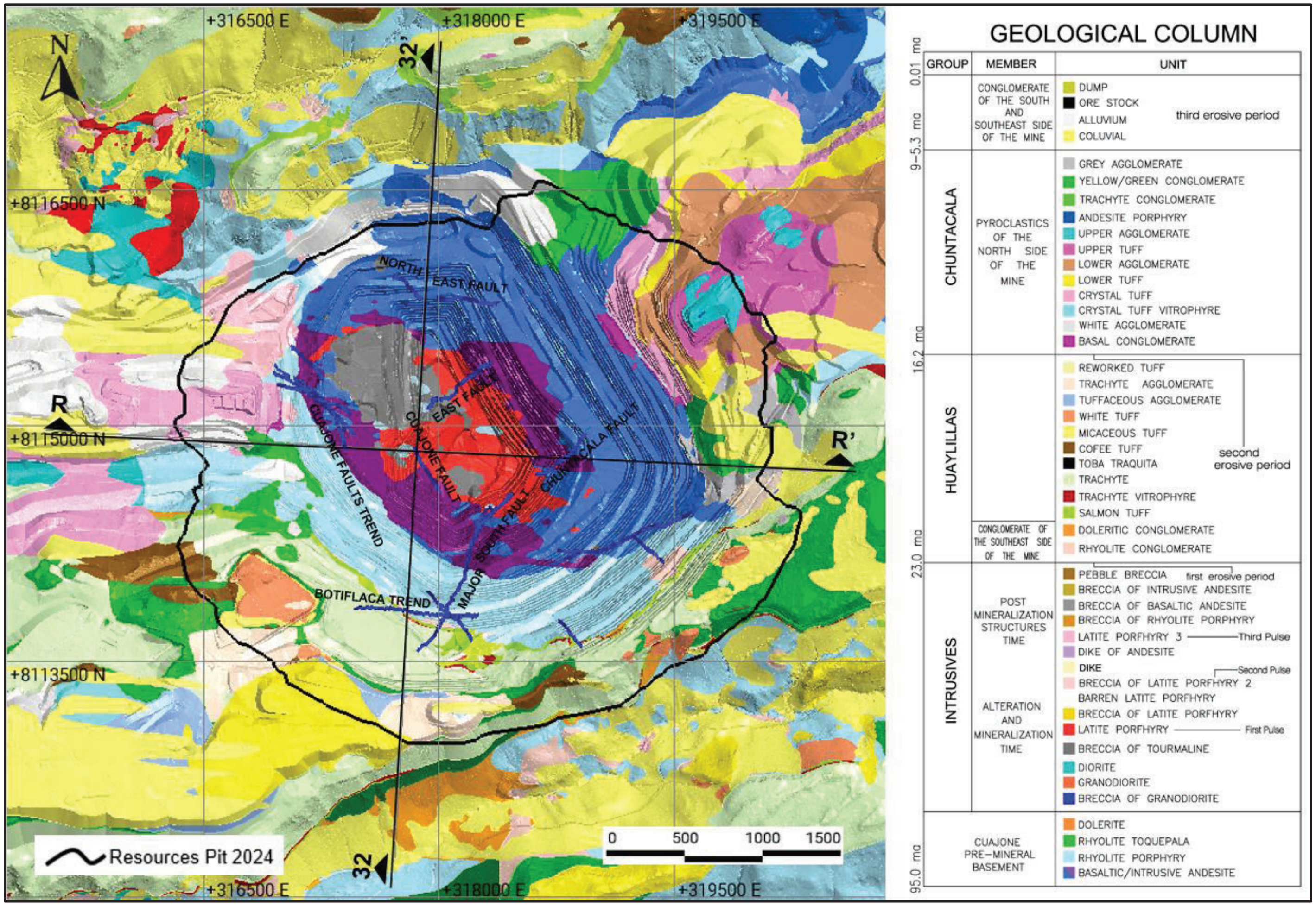
6.4.2 Lithologies

A geology map is provided as Figure 6-4. Example lithological cross-sections through the deposit are included as Figure 6-5 and Figure 6-6.

The geology summary that follows is sourced from Internal Geology Report (Herrera, 2021).

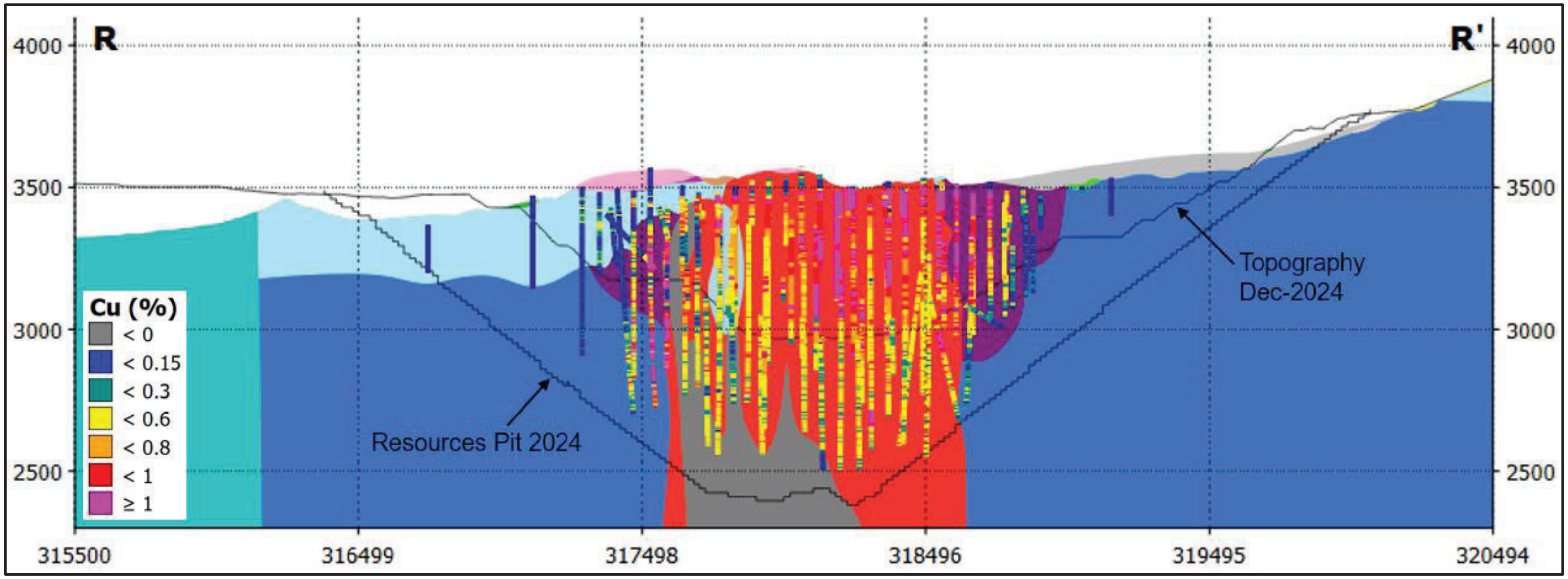
Mineralization and alteration at the Cuajone deposit is directly related to a multi-stage latite porphyry that intrudes basaltic andesites and the overlying 370 m of rhyolite porphyries of the Toquepala Group.

Figure 6-4: Geology Map



Source: Wood, 2024

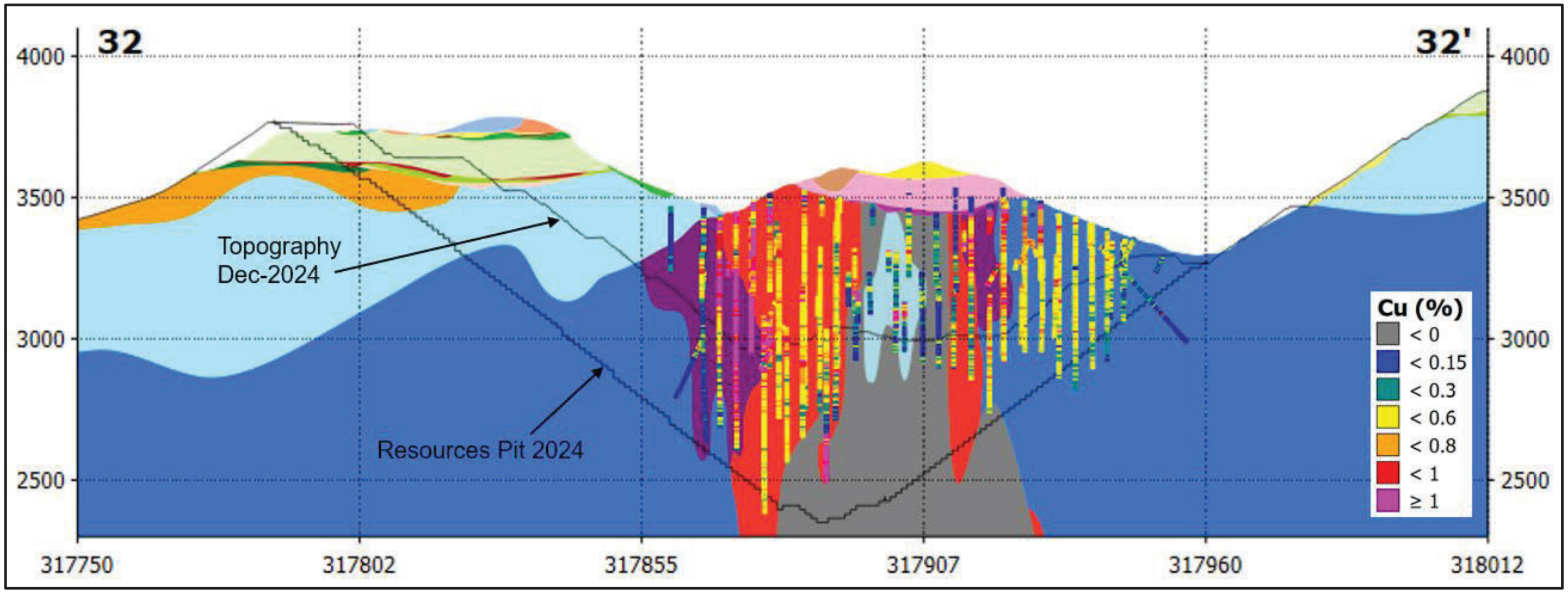
Figure 6-5: Lithology Cross-section (R–R′)



Source: Wood, 2024

Note: West–east section R, looking north. Legend key provided in Figure 6-4

Figure 6-6: Lithology Cross-section (32–32′)



Source: Wood, 2024

Note: Southwest–northeast section 32, looking west. Legend key provided in Figure 6-4

The first, pre-mineral intrusive in the mine area, situated approximately 1–2 km to the west of the deposit, was a north–south-elongated, 0.7 x 0.35 km, grey to grey-green holocrystalline to equigranular, medium grained, porphyritic diorite stock. This was followed by emplacement of three latite porphyry stages, producing a 2.5 x 0.7 km, northwest–southeast-elongated intrusive body. The latite multiphase intrusion hosts the mineralization.

The first magmatic pulse of the latite porphyry was concentrated in the southeastern part of the multiple intrusive mass and was responsible for the introduction of the bulk of the hypogene copper and molybdenite mineralization in the Cuajone orebody and the associated intense alteration of both the latite and surrounding Toquepala Group andesites and rhyolites. The intrusion is a porphyry with phenocrysts of quartz to 4 mm in diameter and laths of feldspar in a cryptocrystalline matrix. Alteration takes the form of a potassic core, characterized by biotite-magnetite-K feldspar-silica, grading upwards and outwards to biotite-magnetite-silica, which passes laterally into an extensive outer envelope of chlorite-epidote-calcite-pyrite propylitic alteration which has a radial extent of 4 km from the center of the deposit. The intensity of this alteration has masked the boundary between the latite porphyry and the surrounding Toquepala Group lithologies.

The second intrusive phase formed two bodies, a larger, ovoid 850 x 550 m mass immediately to the northwest of the first pulse, while a smaller 300 x 200 m plug occurs within the outcrop of the first pulse. Both exposures have only weak associated alteration and very minor, low-level copper and molybdenum mineralization. Breccia bodies were developed along the intrusive contacts with the other latite pulses and country rocks. These breccias comprise heterolithic clasts that range from well-rounded to angular within a matrix of latite porphyry.

The third magmatic pulse covers a surface area of around 800 m in diameter immediately to the northwest of the main primary latite porphyry outcrop and has only weak associated alteration and no copper or molybdenum mineralization. It is porphyritic with quartz grains up to 2 cm across in a microcrystalline to cryptocrystalline matrix.

At a late stage in the emplacement of the latite porphyry complex, and during an initial erosive period, the interaction of downward-percolating meteoric waters with the rising hypogene hydrothermal fluids produced an intense phyllic silica–sericite–pyrite zone that was superimposed on the upper parts of the mineralized system associated with the first latite porphyry pulse to develop a higher grade zone of copper–molybdenum ore with grades of >0.4% Cu as chalcopyrite and molybdenite. This alteration and mineralization style is principally developed within the latite porphyry and the Toquepala Group rhyolites, and only to a minor degree in the underlying andesites.

The Huaylillas Formation was deposited after the mineralizing event ended. It consists of conglomerate, tuff, vitrophyre, and trachyte, and is as thick as 230 m.

6.4.3 Structure

The regional structural trend is northwest–southeast. Faults are shown in Figure 6-4.

6.4.4 Alteration

The Cuajone porphyry deposit exhibits a zoned alteration pattern that includes potassic, phyllic, propylitic, sericitic and intermediate argillic hydrothermal alteration styles. The alteration halo extends for about 3-4 km in diameter. An alteration map is provided in Figure 6-7. Example cross-sections showing the alteration are included as Figure 6-8 and Figure 6-9. The major alteration types are summarized in Table 6-4.

6.4.5 Mineralization

A mineralization map is provided as Figure 6-10. Example mineralization cross-sections are included as Figure 6-11 and Figure 6-12.

6.4.5.1 Supergene Mineralization

The 900 m wide hypogene ore zone was overlain by a secondary enrichment blanket that was about 20 m thick and averaged more than 0.75% Cu (Herrera, 2021).

The main chalcocite layer was overlain by 15–40 m of partially-oxidized upper zone averaging 0.60% Cu, where remnant chalcocite was apparent, but malachite and chrysocolla dominated. These were in turn overlain by a partially-preserved (maximum of 120 m thick) hematite-bearing leached cap that graded 0.01–0.12% Cu. Argillic alteration associated with the supergene ores included kaolinite, montmorillonite, illite and dickite.

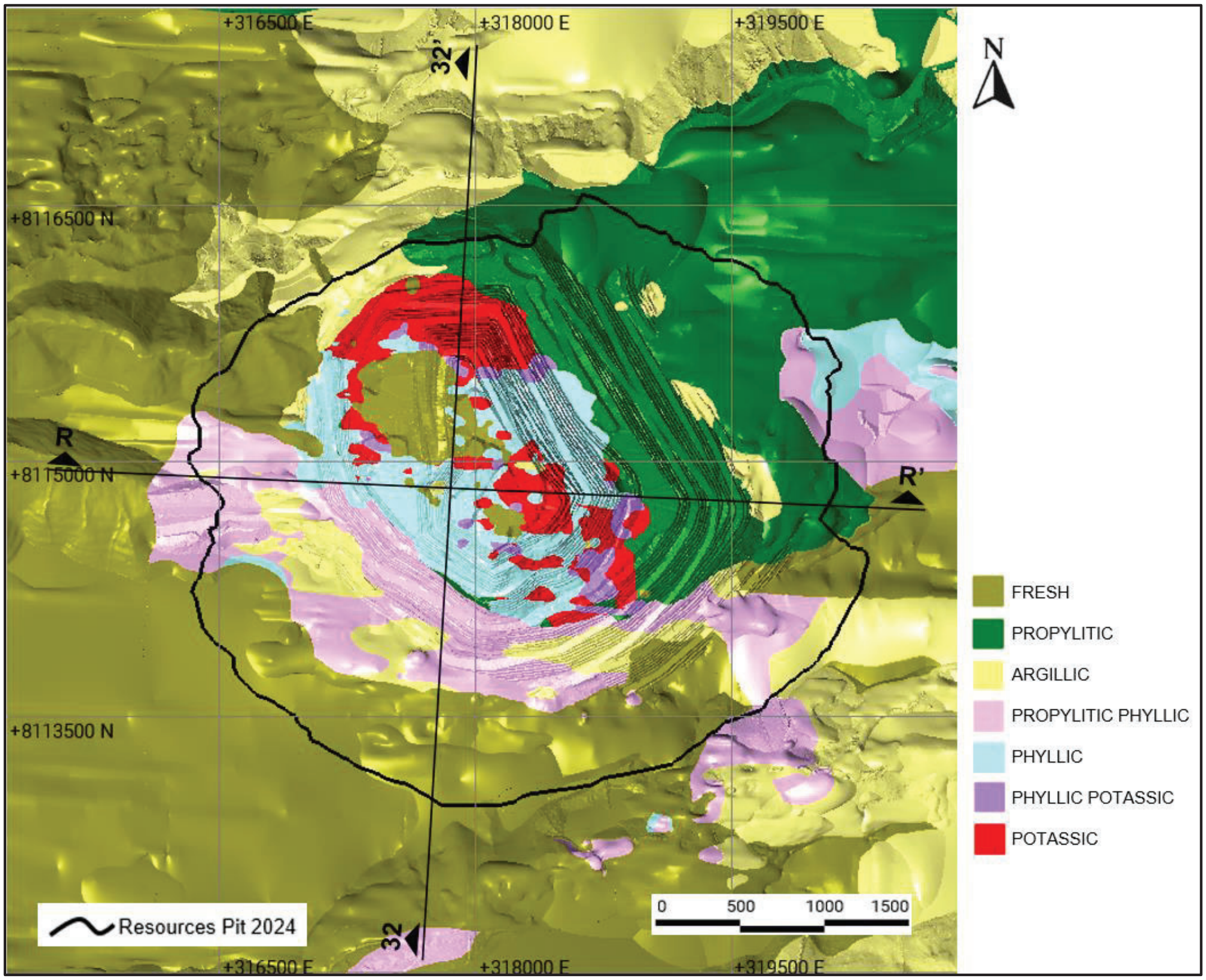
6.4.5.2 Hypogene Mineralization

Hypogene mineralization is distributed as follows:

- Basaltic andesite 51%
- Latite porphyry 47%
- Toquepala Group rhyolite.........................1%
- Mineralized breccias....................................1%

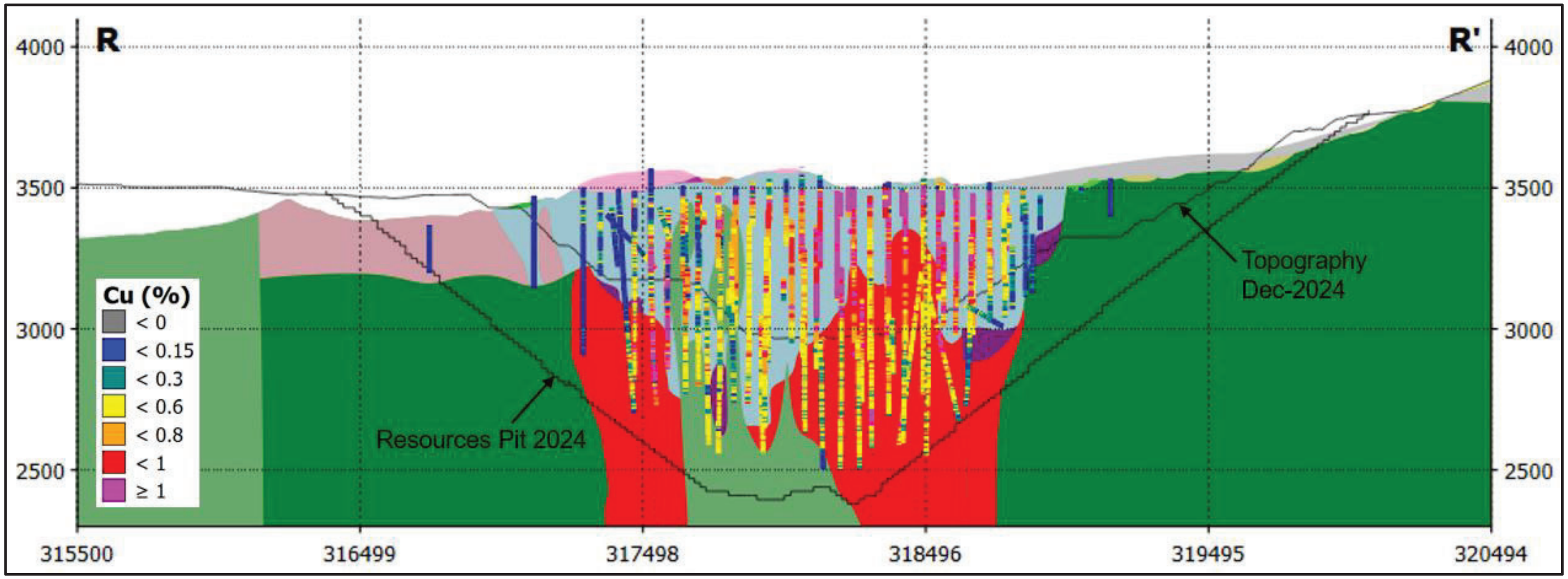
The mineralogy is typically simple and consists of pyrite, chalcopyrite, and bornite, with sparse sphalerite, galena, and enargite. Hypogene mineralization represents >98% of the remaining mineralization within the Cuajone open pit.

Figure 6-7: Alteration Map



Source: Wood, 2024

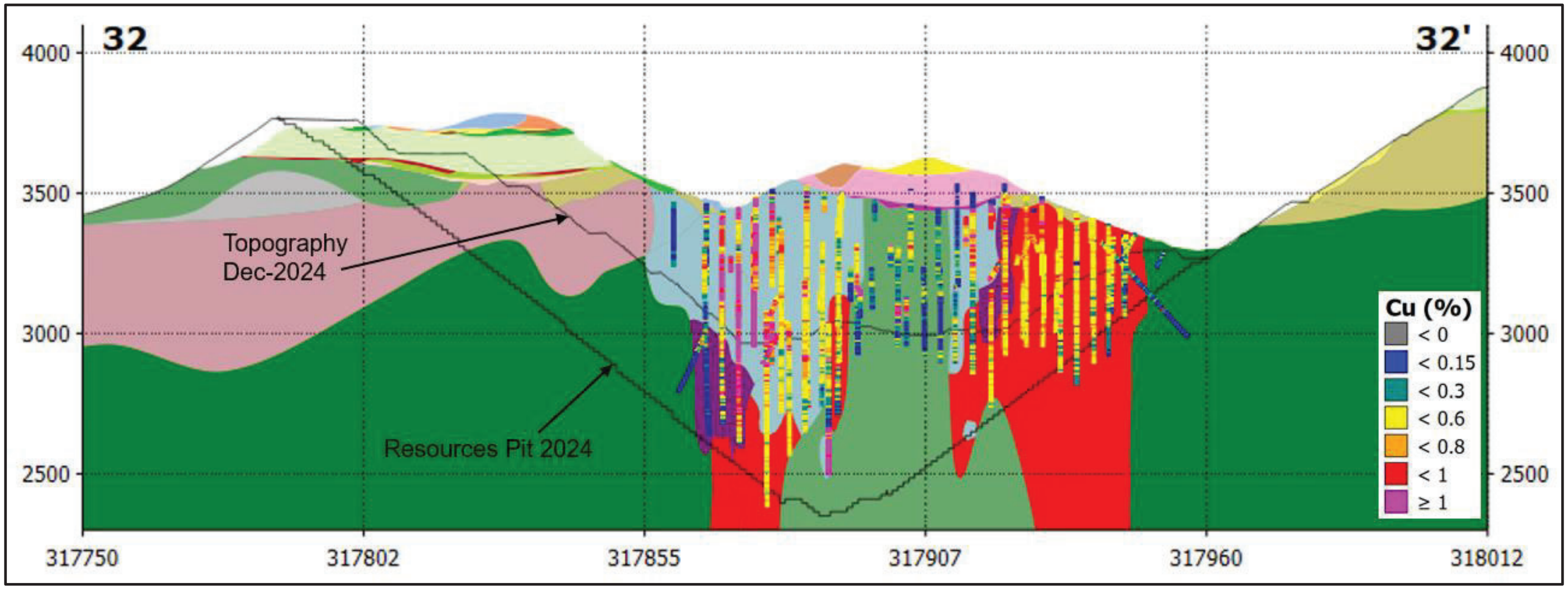
Figure 6-8: Alteration Section (R–R')



Source: Wood, 2024

Note: West–east section R, looking north. Legend key provided in Figure 6-7

Figure 6-9: Alteration Section (32–32′)



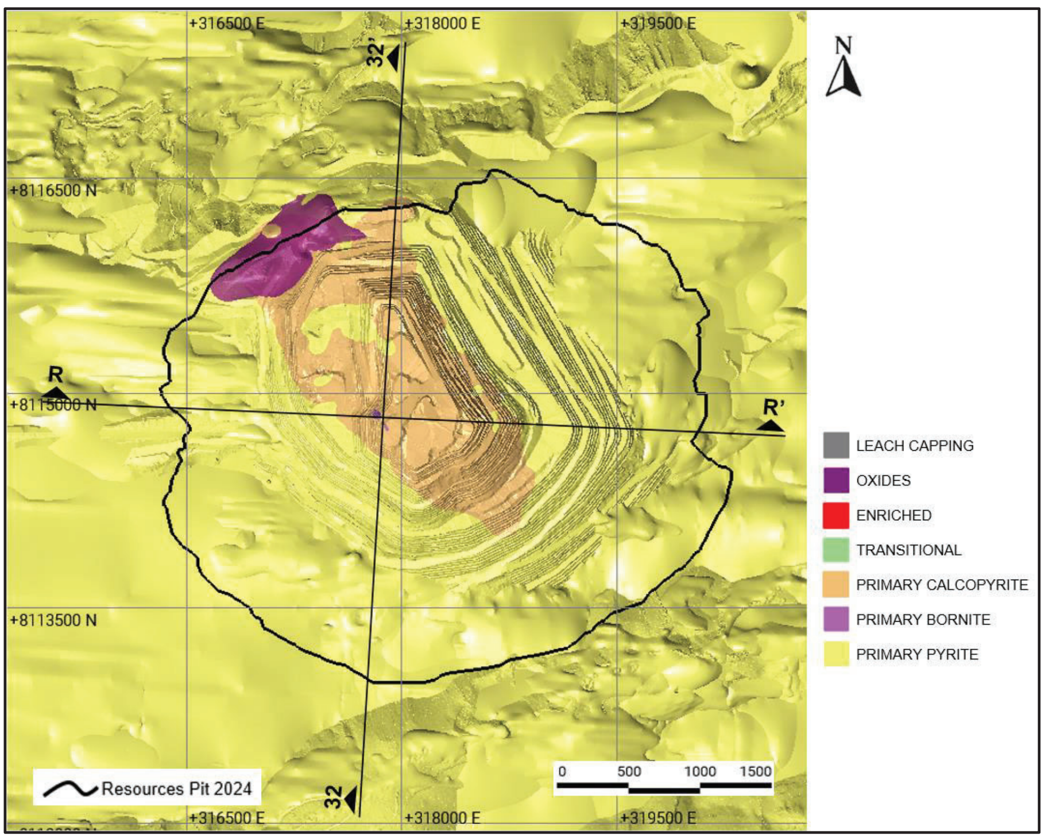
Source: Wood, 2024

Note: Southwest–northeast section 32, looking west. Legend key provided in Figure 6-7

Table 6-4: Alteration Assemblages

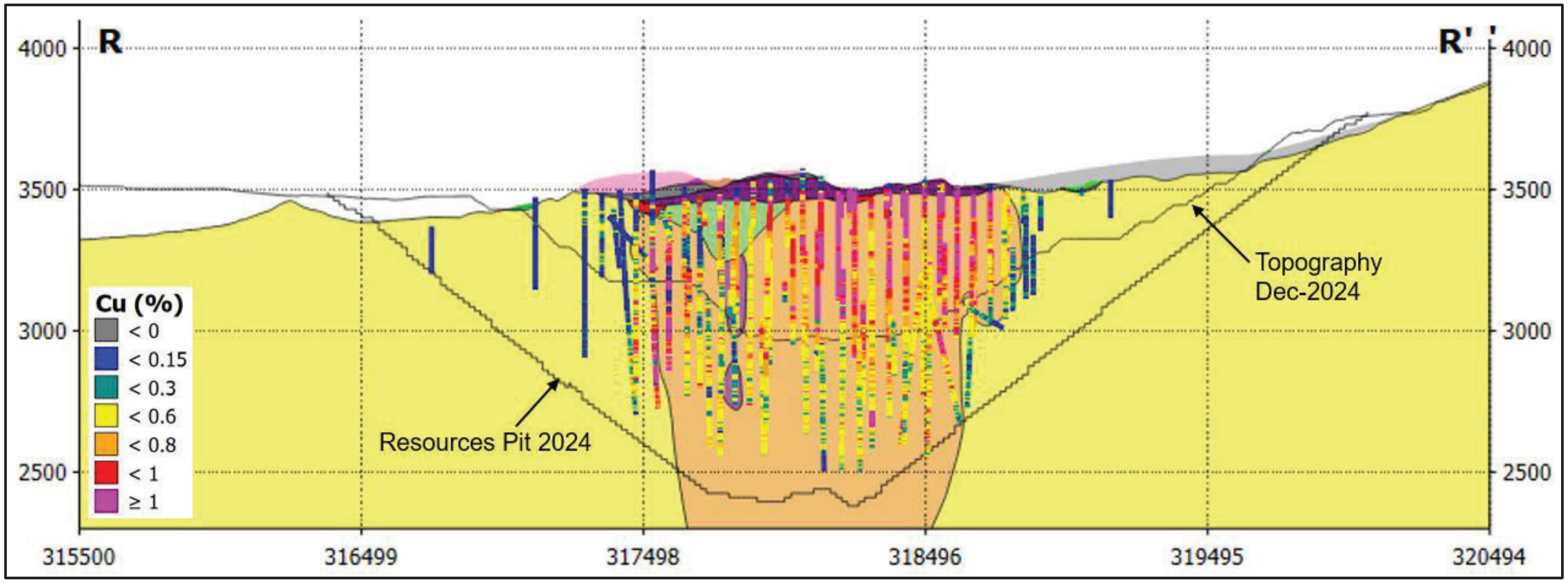
Alteration Type	Description
Potassic	An alteration assemblage of secondary biotite, magnetite, chlorite and some anhydrite. Primarily associated with the basaltic andesite and latite porphyry units.
Phyllic	Largely a retrograde alteration consisting of quartz, white mica (sericite), and pyrite. Chlorite, illite and secondary biotite occur more rarely. Best developed in the latite porphyry stock.
Argillic	Alteration assemblage of kaolinite, montmorillonite, dickite, and illite. Argillic alteration is almost exclusive to the basaltic andesite and seems to be of both hypogene and supergene origin.
Propylitic	Occurs mostly on the margins of the mineralized body and covers a halo of approximately 4 km. The mineral assemblage epidote, calcite, pyrite, and chlorite.
Silicic	Intense silicification is found within the non-leached rhyolite in the south of the ore zone, silica alteration has almost totally obliterated the original texture/mineralogy. The central breccia zone is also highly silicified, as are certain areas within the latite porphyry. In addition to matrix silicification, multiple quartz-veining stages are found in this alteration type.

Figure 6-10: Mineralization Map



Source: Wood, 2024

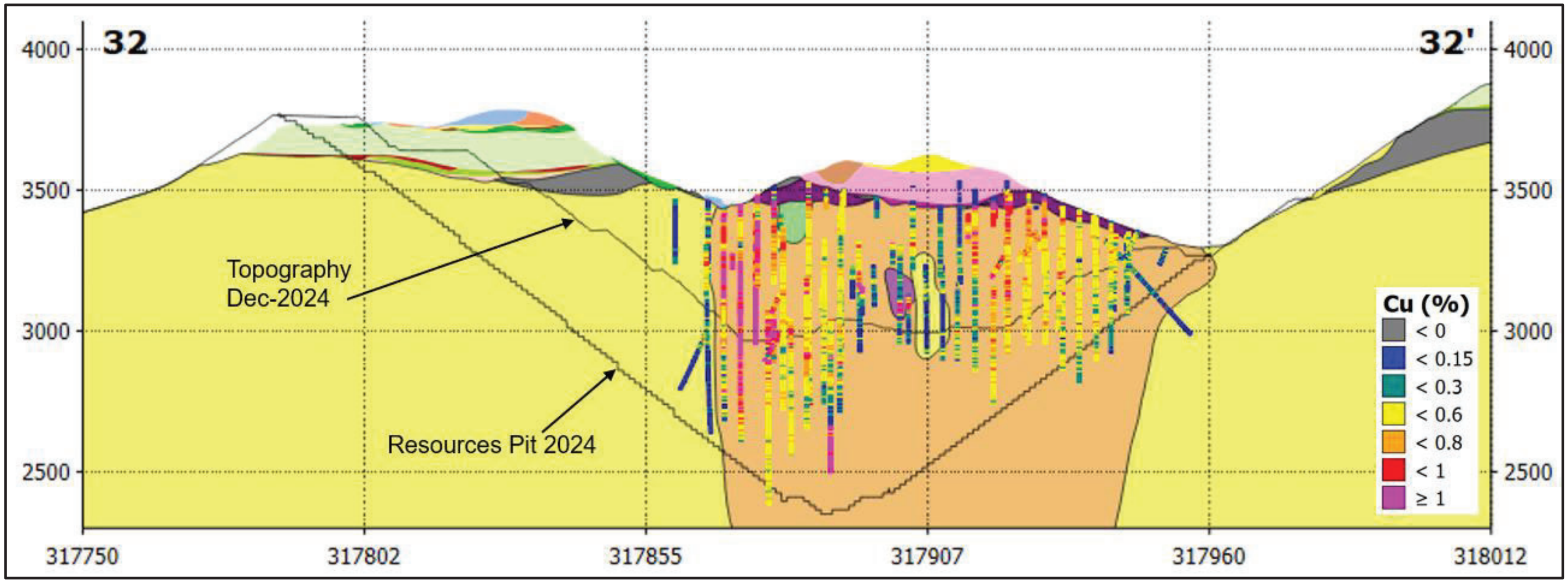
Figure 6-11: Cross-section Showing Mineralization (R–R')



Source: Wood, 2024

Note: West–east section R, looking north. Legend key provided in Figure 6-10

Figure 6-12: Cross-section Showing Mineralization (32–32′)



Source: Wood, 2024

Note: Southwest–northeast section 32, looking west. Legend key provided in Figure 6-10

7.0 EXPLORATION

7.1 Exploration

7.1.1 Grids and Surveys

The topographic survey used for the current mineral resource estimate includes field surveys completed as of December 1, 2024 with a projection of mining advance to the end of December 2024.

Initially, the collar surveys were in the local Cuajone mine grid system; however, these collar surveys have been converted to UTM coordinates with Trimble GPS equipment currently being used for collar surveys. The current block model is based on UTM coordinates.

The conversion from the mine grid to UTM was conducted in four phases and completed in December 2021. A cartographic LiDAR survey was completed using Leica ALS 70 HA equipment. In addition, coordinate transformation software was developed. The final conversion has a rotation and translation of coordinates in the X and Y directions and an increase from 0 to 2 m in the Z direction due to the geoid model update.

Topographic survey data used to delimit topographic surfaces for mineral resource and mineral reserve estimates were acquired by the mine survey department using a differential GPS Trimble R8 Series 3 instrument.

7.1.2 Geological Mapping

A 1:100,000 scale geological map of the deposit area was prepared in 1968.

Pit mapping is conducted at 1:5,000 scale. Maps are used for ore control, geotechnical purposes, and updating the short-term mine models.

7.1.3 Geochemistry

A total of 267 rock chip samples were taken in 1993 and assayed for copper, molybdenum, silver, and gold. The results obtained indicated prospective anomalies in the northwest sector of the current open pit.

7.1.4 Geophysics

Between 1951 and 1952, self-potential and resistivity surveys were completed (Figure 7-1). The anomalous responses outside the pit area were drill-tested by Asarco and Newmont.

An induced polarization (IP) geophysical survey was completed in 1993 with the purpose of complementing existing information and delimiting mineralization in the northwest sector of the Cuajone pit (Figure 7-2).

The more intense anomalies coincided with the mineralized body that was explored by a 1987–1988 drilling campaign. Northwest of the Torata River, two small IP anomalies were drilled in 1994, but yielded very low copper values.

7.1.5 Interpretation of the Exploration Information

The mine has been operating since 1976, and all exploration data generated prior to mine start-up is long superseded by mining and drill data.

7.1.6 Exploration Potential

The deepest drill hole testing the Cuajone deposit at 2,255 m and encountered low-grade copper mineralization. The deposit remains open at depth.

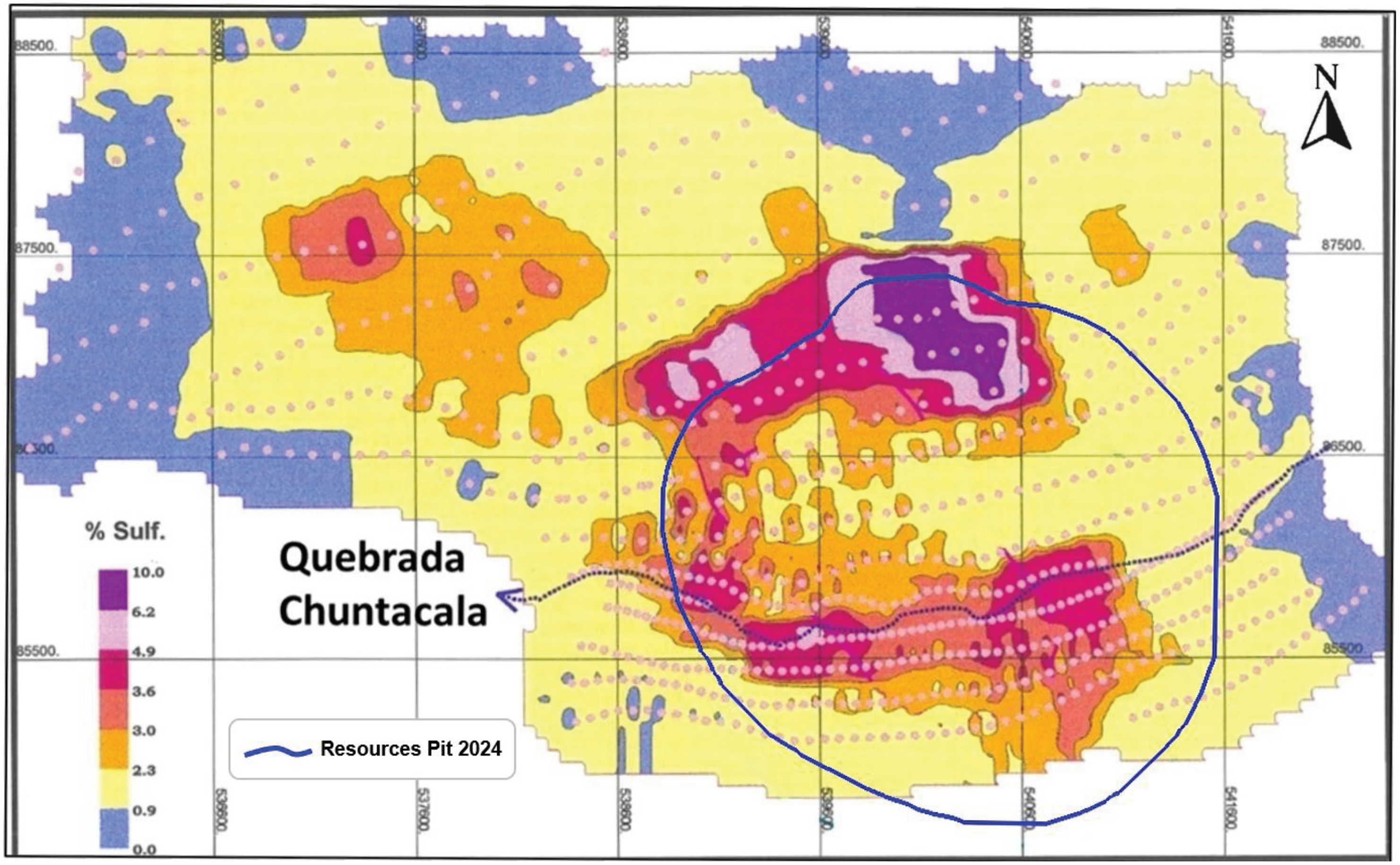
7.2 Drilling

7.2.1 Overview

Drilling totals 1,685 core, churn and reverse circulation (RC) drill holes (451,109 m) and is summarized in Table 7-1. Drilling that supports mineral resource estimation consists of 1,141 core, churn and RC drill holes, (354,541 m) and is summarized in Table 7-2. Drill collar locations are shown on an operator basis in Figure 7-3 and the collars of those drill holes used in mineral resource estimation are shown in Figure 7-4.

RC holes were used for infill drilling within the pit.

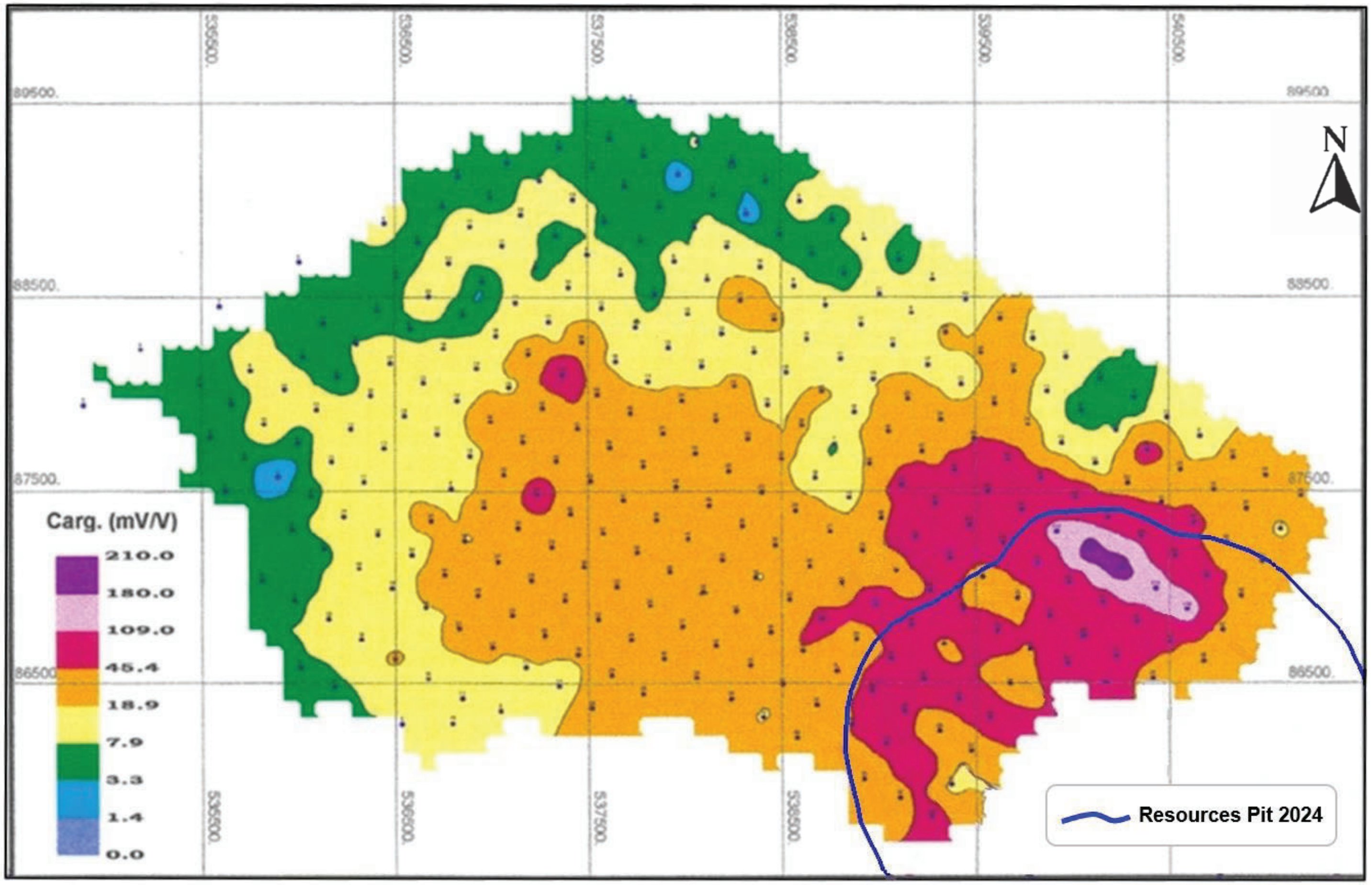
Figure 7-1: Self Potential and Resistivity Summary Map (% sulfide)



Source: Southern Copper, 2021/Wood, 2024

Note: Grid square is 1000 m.

Figure 7-2: Induced Polarization – Chargeability



Source: Southern Copper, 2021/Wood, 2024
Note: Grid square is 1,000 m.

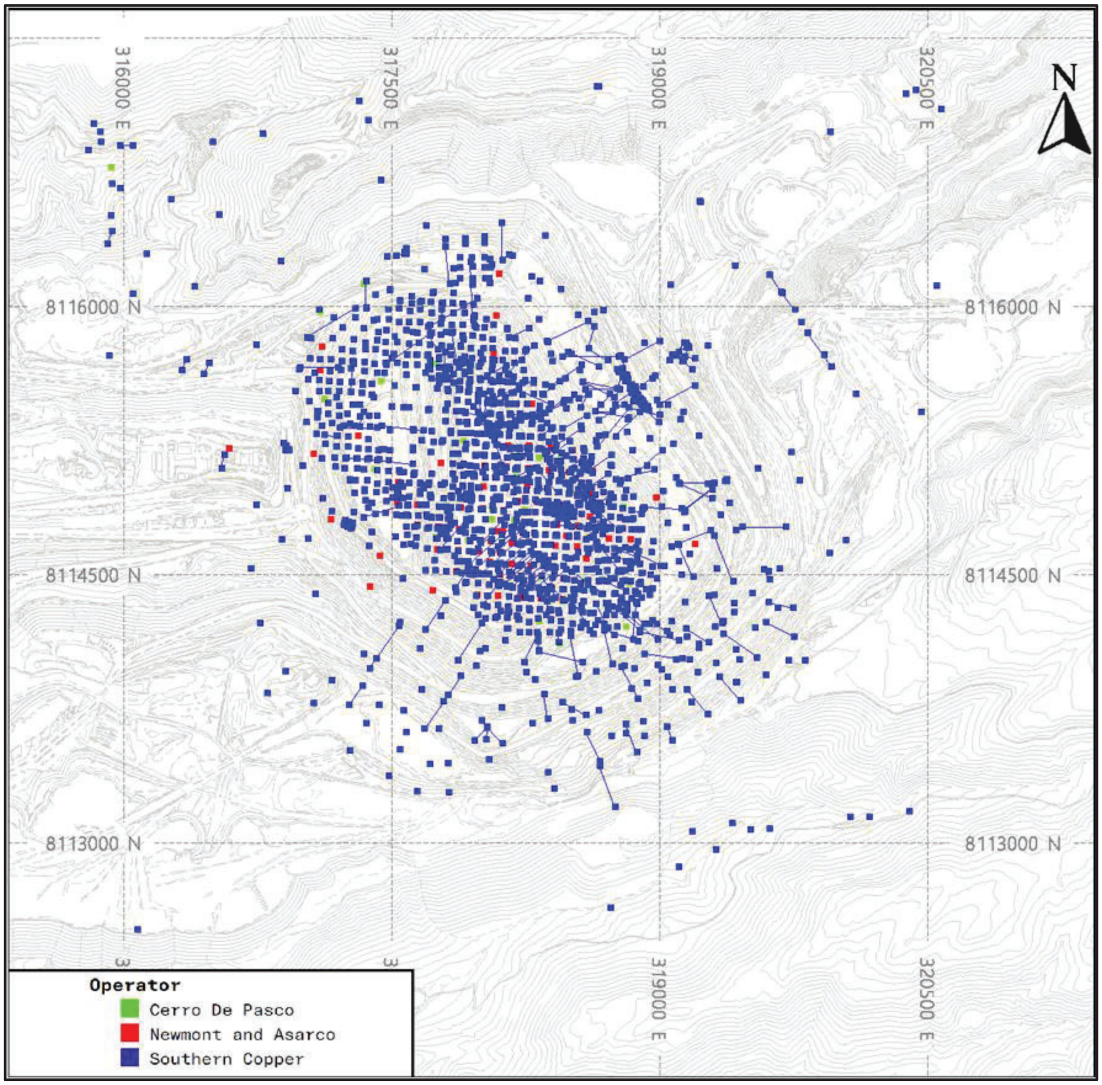
Table 7-1: Drill Summary Table

Year	Operator	No. of Drill Holes			Drilled Length (m)			Total	Total Drilled Length
		Churn	Core	RC	Churn	Core	RC	Drill Holes	(m)
1942	Cerro De Pasco	—	39	—	—	12,167	—	39	12,167
1952	Newmont and Asarco	70	18	—	26,545	3,570	—	88	30,115
1965	Southern Copper	—	121	—	—	27,067	—	121	27,067
1980		—	26	—	—	3,192	—	26	3,192
1982		—	127	—	—	36,086	—	127	36,086
1991		—	12	—	—	2,277	—	12	2,277
1994		—	243	43	—	115,745	10,928	286	126,673
1998		—	45	48	—	4,425	5,815	93	10,240
2000		—	90	—	—	36,146	—	90	36,146
2002		—	7	—	—	1,561	—	7	1,561
2003		—	14	—	—	1,365	—	14	1,365
2004		—	29	—	—	2,089	—	29	2,089
2005		—	25	—	—	3,336	—	25	3,336
2006		—	46	—	—	4,673	—	46	4,673
2007		—	33	—	—	4,239	—	33	4,239
2008		—	19	—	—	3,043	—	19	3,043
2009		—	22	—	—	3,769	—	22	3,769
2010		—	37	—	—	4,506	—	37	4,506
2011		—	80	—	—	17,861	—	80	17,861
2012		—	152	—	—	43,903	—	152	43,903
2013		—	74	—	—	9,553	—	74	9,553
2014		—	21	—	—	5,825	—	21	5,825
2015		—	11	—	—	3,581	—	11	3,581
2016		—	14	—	—	3,407	—	14	3,407
2017		—	14	—	—	4,538	—	14	4,538
2018		—	52	72	—	19,128	3,850	124	22,978
2019		—	28	—	—	10,134	—	28	10,134
2020		—	19	—	—	5,300	—	19	5,300
2021		—	34	—	—	11,485	—	34	11,485
Total		**70**	**1,452**	**163**	**26,545**	**403,971**	**20,593**	**1,685**	**451,109**

Table 7-2: Drilling Supporting Mineral Resource Estimation

Year	Operator	No. of Drill Holes			Drilled Length (m)			Total Drill Holes	Total Drilled Length (m)
		Churn	Core	RC	Churn	Core	RC		
1942	Cerro de Pasco	—	1	—	—	280	—	1	280
1952	Newmont and Asarco	9	18	—	4,037	3,570	—	27	7,607
1965	Southern Copper	—	121	—	—	27,067	—	121	27,067
1982		—	120	—	—	34,840	—	120	34,840
1991		—	10	—	—	1757	—	10	1,757
1994		—	225	40	—	112,530	10,378	265	122,908
1998		—	26	10	—	3,090	1560	36	4,650
2000		—	85	—	—	35,284	—	85	35,284
2002		—	1	—	—	250	—	1	250
2003		—	1	—	—	79	—	1	79
2004		—	20	—	—	1,644	—	20	1,644
2005		—	17	—	—	2,086	—	17	2,086
2006		—	39	—	—	3,704	—	39	3,704
2007		—	25	—	—	3,210	—	25	3,210
2008		—	5	—	—	671	—	5	671
2009		—	17	—	—	2,339	—	17	2,339
2010		—	31	—	—	3,739	—	31	3,739
2011		—	56	—	—	13,957	—	56	13,957
2012		—	98	—	—	28,302	—	98	28,302
2013		—	23	—	—	6,950	—	23	6,950
2014		—	20	—	—	5,425	—	20	5,425
2015		—	11	—	—	3,581	—	11	3,581
2016		—	12	—	—	2,996	—	12	2,996
2017		—	12	—	—	3,945	—	12	3,945
2018		—	31	—	—	14,755	—	31	14,755
2019		—	18	—	—	7,600	—	18	7,600
2020		—	16	—	—	4,500	—	16	4,500
2021		—	23	—	—	10,415	—	23	10,415
Total		**9**	**1,082**	**50**	**4,037**	**338,446**	**11,938**	**1,141**	**354,541**

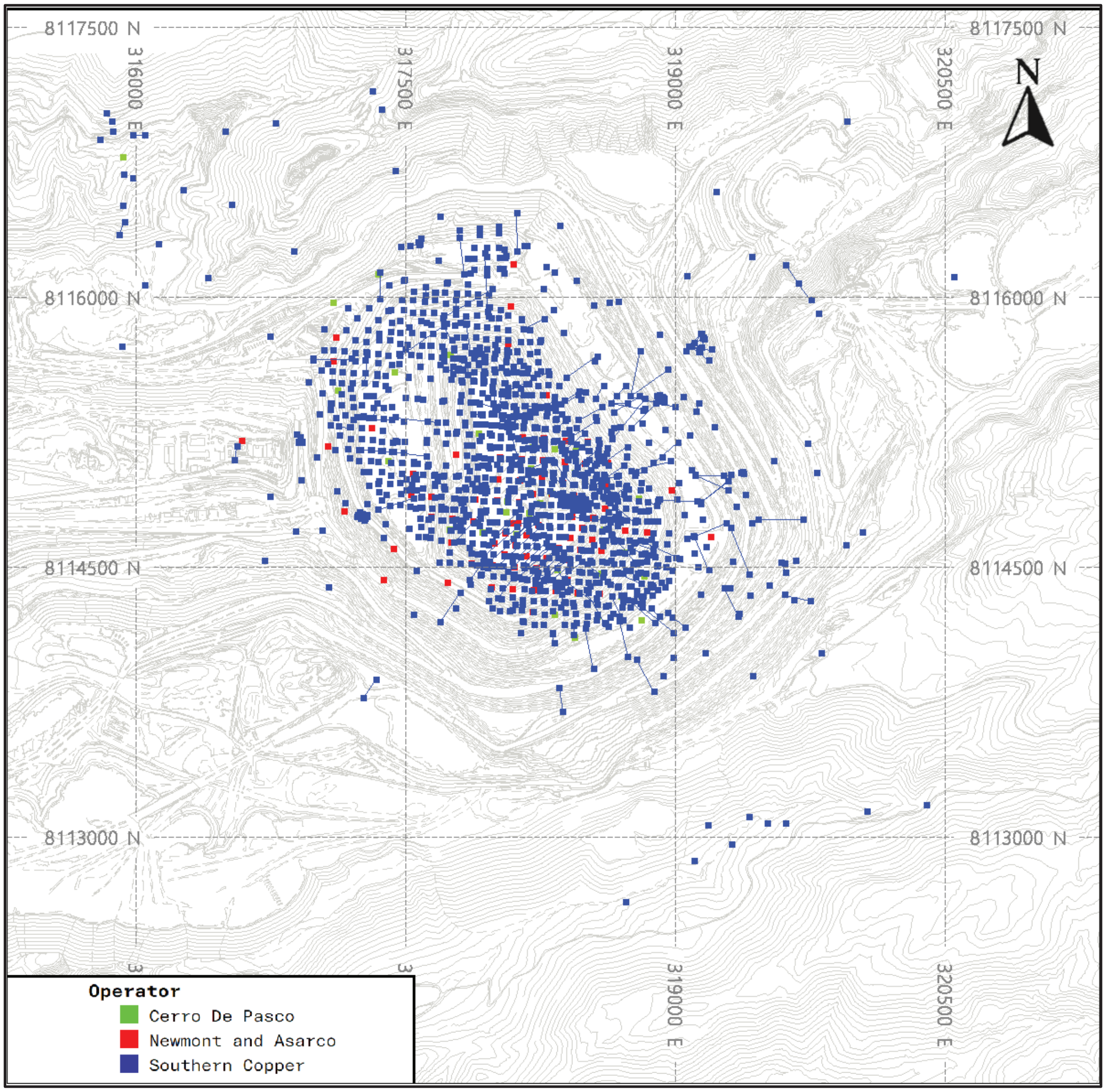
Figure 7-3: Drill Collar Location Plan



Source: Southern Copper, 2024

Note: Blue lines between drill holes represent the drill hole trajectory. Grid square is 1,500 m.

Figure 7-4: Drill Collar Location Plan for Drilling Supporting Mineral Resource Estimates



Source: Southern Copper, 2024

Note: Blue lines between drill holes represent the drill hole trajectory. Grid square is 1,500 m.

7.2.2 Drill Methods

Core drilling was the dominant form of drilling for all exploration. Where known, drill contractors included Boyles Brothers, Boart Longyear, Geotec Asociados, Britton Hermanos Perforaciones del Perú, Geodrill, and rigs operated by Southern Copper staff. The only rig type recorded is a Longyear 44 drill rig. Core diameters included HQ (63.5 mm), NQ (47.6 mm), HQ3 (61.1 mm), and NQ3 (45.1 mm).

Some RC drilling was completed. Drilling contractors and bit diameters are not recorded. Limited churn drilling was completed from 1952–1954. Those data are used to support mineral resource estimation because they were verified by core drilling.

Blasthole sampling, while used to validate the resource estimation through reconciliation, is not used in the estimation of grades for the resource model.

Holes are generally drilled vertically and collared on section lines spaced 50 m apart. A program with inclined core holes was completed in 1982. Holes were inclined at 45°–60°. The azimuth of these holes was on a 50° azimuth. Those drill holes were drilled to define the orientation and extents of various intrusive lithologies within the Cuajone deposit.

7.2.3 Logging

Geological logs at a minimum record logger name, date, coordinates of the hole, name of the hole, start-date of logging, azimuth, dip, logging interval equivalent to 3 m, core diameter, rock type, intensity of alteration minerals, rock quality designation (RQD), recovery, mineralization, and other information deemed important by the geologist responsible for the log. Log formats varied with time; but the basic information was always recorded:

- From 1942–1988, the same format was used with depth, assays, geology, mineralization, type of casing and recovery being recorded.
- From 1991–1999, the logging format changed to provide more detail to the alteration minerals, type of structure, RQD and types of limonite.
- In 2001 and continuing to 2017, the logging format eliminated the option of types of limonite, added detail for mineral occurrence, grade estimate, rock hardness, and a log summary. More detail for alteration was required and structure was minimized.

Geological logging was done on paper until 2017 when it changed to digital logging using GVMapper.

7.2.4 Recovery

Core recovery in most lithological units is >80%, the average of core recovery is 94%. Alluvium, upper tuff, basal conglomerate, rhyolitic conglomerate, and white agglomerate have recoveries <80%, but lithologies are on the edges of the mineralization and the poor recovery does not affect mineral resource estimation.

7.2.5 Collar Surveys

Collar surveys for the 2015–2021 drilling were performed by mine surveyors using Trimble R12 GPS instruments. No formal survey certificates were produced so the survey data in the database cannot be verified against an original hard-copy document.

The collar survey method for the earlier campaigns is based on a Trimble R8 Series 3 differential GPS and there are original hard copy data to verify the collar locations in the database. Southern Copper has whenever possible picked up historical collar locations with modern equipment. Such surveys have largely confirmed the drill hole collar locations.

7.2.6 Downhole Surveys

The majority of the drill holes were vertical.

Downhole surveys were not systematically performed during the pre-2011 drill campaigns, with exception of some drill holes completed during the 2000 drill campaign.

Where information is available in the database, it is summarized below:

- From 1942–1980, downhole surveys were performed using Sperry Sun single- and multi-shot instruments. Survey intervals were typically spaced at about 50 m intervals.
- From 1982–1996, the Sperry Sun single-shot instruments were used for downhole surveys. Survey intervals were typically about 100 m.
- Records suggest that from 1996–2001, Eastman, CBC Welany, Christensen, Sperry Sun and WhipStock GmbH single-shot instruments were used.
- From 2011 to 2013, Flexit and Peewee instruments were used.
- Since 2013, downhole surveys were performed with Flexit instruments (3 m intervals; to about 2012), Devishot (50 m intervals; to about 2017) and Stockholm Precision Tools – GyroLogic™ which is a gyroscopic tool (10 m intervals; to present).

- There is no record of declination corrections that must be applied to determine true north from magnetic instruments. In 1942, declination was about 5.33°E and it is now 6.45°W so the adjustment is not trivial. Wood cannot verify that declination was applied properly. This introduces a risk that the azimuth of angled drill holes is not accurate and thus samples are not accurately located which will cause estimated grades to be misplaced.

Gyroscopic downhole surveys were performed for 25% of the drill holes remaining (below current topography) in the mineral resource database. Of the drill holes below the end-of-year topography, 55% have directional surveys.

7.2.7 Comment on Material Results and Interpretation

The term "true thickness" is not generally applicable to porphyry-style deposits as the entire rock mass is potentially mineralized and there is often no preferred orientation to the mineralization so there is no "true thickness" in the sense of layered deposits. Thickness of mineralization in drill holes accurately reflects the "thickness" of the mineralization at the location of the hole.

Drilling and surveying were conducted in accordance with industry standard practices at the time the drill data were collected and provide suitable coverage of the mineralization. The collar and downhole survey methods used provide reliable sample locations; however, there are a number of holes without downhole surveys and it is not clear from the record if declination corrections were properly applied. The lack of downhole surveys for some older drill holes and uncertainty about declination are potential sources of error in the location of deeper drill hole intersections. The majority of drill holes are vertical so the lack of surveys is not considered to be a significant issue for the initial 100–200 m drilled depth.

The interpretation of the drilling results is summarized in representative drill sections illustrated in Figure 6-5, Figure 6-6, Figure 6-8, Figure 6-9, Figure 6-11, Figure 6-12, Figure 11-3, and Figure 11-4.

In Wood's opinion, while there are uncertainties about downhole surveys for some holes, there are a sufficient number of properly surveyed holes to provide confidence that the quantity and quality of existing drilling data are sufficient to support mineral resource estimation. Wood recommends that all holes have well documented, proper collar and downhole surveys.

Geological and geotechnical logging procedures provide consistency in descriptions.

7.3 Hydrogeology

A conceptual hydrogeological model was constructed for the Cuajone pit by SRK (2015) based on numerous data collection phases and studies. The conceptual model was used to develop a calibrated two-dimensional hydrogeological numerical model with the objective of estimating pore pressure in the slopes of the Cuajone pit corresponding to a geotechnically significant section(s). The results of this modeling provided the necessary input for stability analyses that serves as input for the geotechnical model in the pit. The hydrogeological conceptualization included the following aspects:

- Acquisition and analysis of meteorological data
- Estimation of the recharge and discharge to the system
- Assessment of changes and/or trends in groundwater levels
- Analysis of permeability data correlated to lithology
- Definition of hydrogeological units
- Evaluation of groundwater movement and flow mechanisms.

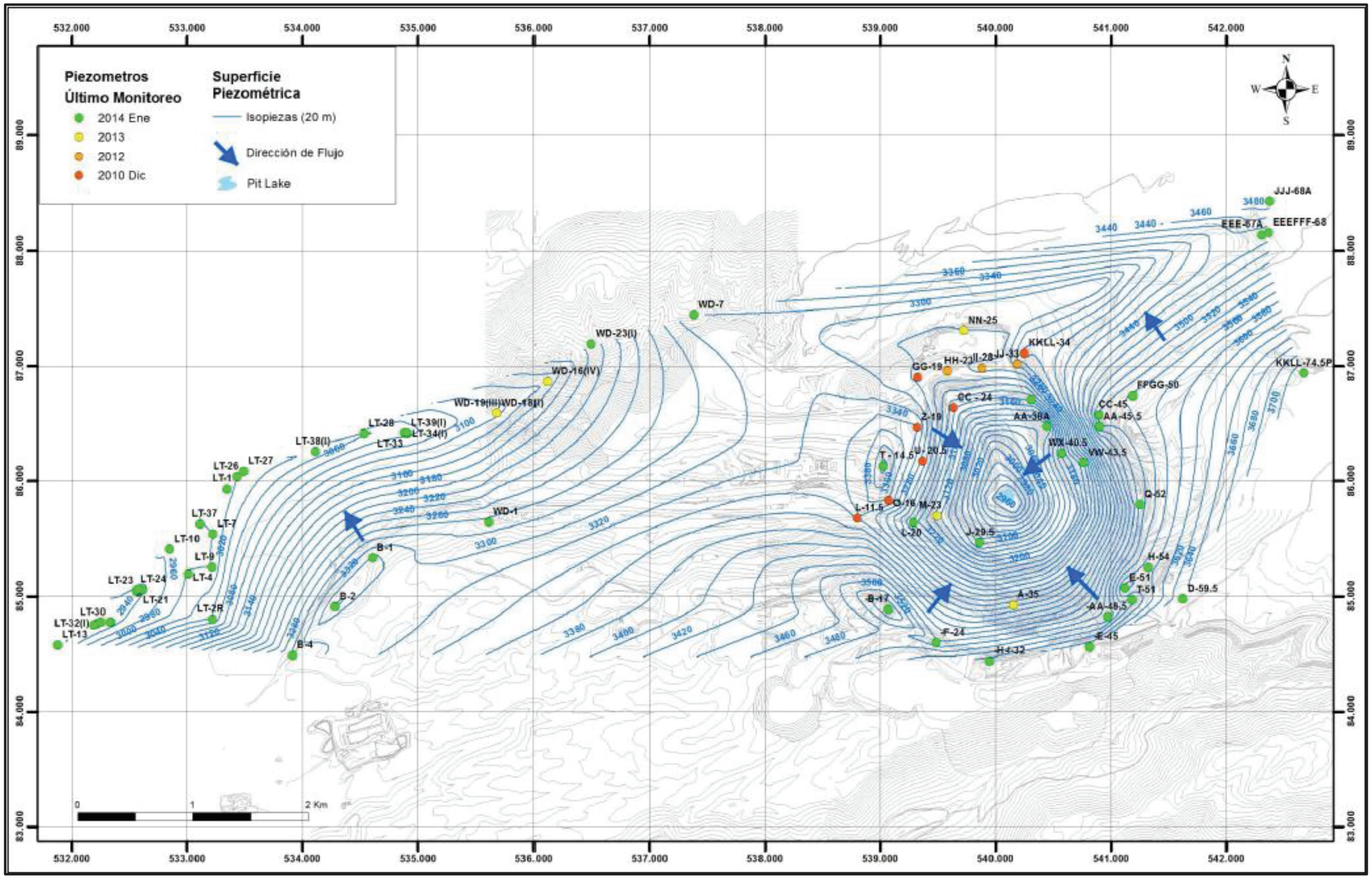
7.3.1 Sampling Methods and Laboratory Determinations

In 2013 SRK undertook a drilling and testing campaign to establish an understanding of the hydraulic properties of various hydrogeological units within the mining pit area. Data that was used in the interpretation included:

- Meteorological data from the Cuajone Mine and Apacheta Titijones stations
- Flow records of seepage zones: Surtidor #4, East Slope, Southeast Slope, and Torata Intermediate River, and mine pit pumping
- Historical piezometric level monitoring database of the mine pit.

The hydraulic testing conducted by Southern Copper collected data obtained from 187 Lugeon tests and 10 Lefranc tests performed in 22 of the geotechnical drill holes. SRK reviewed the data and recalculated the tests for quality control. During the field supervision of the Lugeon tests, improvements to the test execution procedure were recommended at regular intervals, and test results and procedures were continuously reviewed. As additional work, attempts were made to conduct Slug Test-type hydraulic tests, without success, due to the construction of the piezometers. Areas where piezometric data was lacking at the time of the study (part of the network has been removed due to mining), was supplemented with historical data, and an environmental monitoring network with 37 piezometers located outside the pit, located downstream in the Torata River (Figure 7-5). The Cuajone Mine maintains a monitoring network with piezometric level measurements recorded from 1997.

Figure 7-5: Location of Drill Holes with Piezometers



Source: SRK, 2015

7.3.2 Groundwater Models

The data from the 2012-2013 geotechnical exploration campaign was used to conceptualize the hydrogeology of the Cuajone mining pit area. Seven hydrogeological units were identified:

- *UH-1: Fill or Overburden* – Includes unconsolidated deposits like alluvial deposits and waste dumps, considered to be highly permeable with hydraulic conductivities between 10-2 and 10-3 cm/s.
- *UH-2: Chuntacala Formation* – Consists of volcanic and sedimentary rocks from the Middle to Upper Miocene. The unit is subdivided in three subunits:
  - *UH-2a*: Unsaturated sequence above White Agglomerate, with a permeability of 8.6 x 10^{-5} cm/s
  - *UH-2b*: Very permeable White Agglomerate, 1 x 10^{-4} cm/s
  - *UH-2c*: Less permeable Basal Conglomerate, 2.3 x 10^{-5} cm/s.
- *UH-3: Huaylillas Formation* – Volcanic and sedimentary rocks from the Lower Miocene, divided into three subunits:
  - *UH-3a*: Bedrock above Salmon Tuff, generally not saturated, has degree of fracturing, 1.0 x 10^{-4} cm/s
  - *UH-3b*: Low permeability Salmon Tuff, that acts as a hydraulic barrier or perched aquifer, 4.9 x 10^{-6} cm/s
  - *UH-3c*: Bedrock below Salmon Tuff, with moderate permeability, 1.6 x 10^{-5} cm/s.
- *UH-4: Porphyritic Rhyolite* – Porphyritic rocks with high permeability due to intense fracturing that can cause localized higher permeability than the average, 7 x 10^{-5} cm/s.
- *UH-5: Basaltic Andesite* – Thick volcanic flows, moderately to strongly altered, with higher permeability in weathered zones. Where this rock outcrops at the surface, there is a weathered zone of approximately 50 m, with higher permeability than the deeper rocks. An average hydraulic conductivity of about 7.3 x 10^{-6} cm/s is estimated for areas not affected by fracturing.
- *UH-6: Intrusive Andesite* – Includes dolerites and diorites, slightly less permeable than Basaltic Andesites. Where the weathered zone is not present, an average hydraulic conductivity of about 2.9 x 10^{-6} cm/s is estimated.
- *UH-7: Mineralized Intrusive* – Associated with the mineralized zone, includes latites and breccias, with generally low permeability 1.0 x 10^{-6} cm/s.

From a regional perspective, groundwater is recharged in the higher elevation areas at the headwaters of the Torata River watershed and flows predominantly from east to west following the terrain, discharging in lower elevation areas. Most of the groundwater flows through the more permeable materials, such as alluvial deposits at the bottom of ravines or vesicular or intensely fractured volcanic rocks, while in the less permeable basement rocks, water flows very slowly through small fractures.

A two-dimensional hydrogeological numerical model was constructed and calibrated by SRK with the objective of estimating pore pressure in the slopes of the Cuajone pit corresponding to a geotechnically significant section. The results of this modeling provided the necessary input for stability analyses. The model was generated in the FEFLOW software. The calibration of the numerical model in transient state adequately reproduced the trends of the observed levels and gradients generated over time in the piezometers near the section; and, therefore, the dynamics of the hydrogeological system and its pore pressure distribution.

The predictive simulations use the 15-year mining plans developed by Southern Copper, corresponding to the years 2014, 2015, 2020, 2025, 2028, and 2068. The boundary conditions and hydraulic properties were set to the last calibration period (2013); and the properties associated with the blasting zones varied according to the pit's progress.

The modeling results indicated that as the pit progressed in depth, the 0 isobaric line is closer to the ground surface, which is expected, as there are no additional drainage measures to help depressurize the system. In the Southwest wall, from the year 2025, the 0 isobaric line approaches one of the slope walls, increasing the pressure on the surface; on the other hand, in the Northeast wall, the system remains pressurized in the area where observed outcrops exist, whose conditions remain throughout the prediction period. Finally, concerning the pit bottom of the section, it is observed that in all prediction periods, the 0 isobaric line is in contact with the pit bottom, with the pit's progress acting as the drainage surface of the underground system.

7.3.3 Water Balance

Currently, the Torata River is diverted by a flood control system consisting of a dam located approximately 4 km upstream of the mine, and a combination tunnel and canal designed to divert water around mining operations and return it to the natural course of the Torata River downstream of the mine. Therefore, the Torata River watershed can be subdivided into three sub-watersheds: Upper Torata (294.5 km^2); Cuajone Mine (23.1 km^2); and Lower Torata (106.5 km^2). For the Cuajone Mine sub-basin, the water balance can be simplified according to the following mass balance equation:

Precipitation = evaporation + infiltration + surface runoff + mine drainage

The average annual rainfall is 137 mm/a, while evaporation reaches 2,055 mm/a. The average annual potential infiltration is about 14.1 mm/a, which is equivalent to an annual average potential infiltration flow, for the 23.1 km^2 area of the Cuajone Operations sub-basin, of the order of 10.4 L/s. Not all of the potential infiltration actually infiltrates. The actual infiltration is practically negligible considering that much of the surface runoff (Surtidor #4) and groundwater that outcrops in the pit (horizontal drains and bottom pumping) is captured by the mine drainage system, with a total average of about 7.8 L/s, according to records since 2011.

The Cuajone Mine drainage system mainly consists of natural channel control, construction of horizontal drains, and pumping from the pit bottom. The waters flowing through the Chuntacala ravine are captured at Surtidor #4, which is drained by a pipe. Water outcrops on the East and Southeast slopes of the pit, which are partially controlled by the installation of horizontal drain systems that manage part of the flow. Seepage through the alluvial deposits of the Torata River (Toratan), is also captured by the mine. All contact water is used for dust-suppression within the mining area.

7.3.4 Comment on Results

The 2013 hydrogeological investigations and subsequent modeling are consistent with generally-accepted industry standard practice. The outcomes of the calibrated 2D modeling support the current observed volumes and piezometric observations as a result of the mine drainage system(s). Predictive scenarios assumed LOM was up to 2028, therefore any mine design plans post-2028 will require an update and reassessment of model results.

7.4 Geotechnical

Open pit slope geotechnical analysis and design is supported by data gathered from 2001–2013 geotechnical drilling, laboratory testing, and bench-scale structural conducted by SRK (2016).

In the most recent geotechnical review and analysis of the 15-year pit (to 2028) that was used to support the production plan and final pit configuration, Southern Copper generated an updated geotechnical block model. That block model was based on historical geological and geotechnical information and updated geological/geotechnical, structural, and hydrogeological data derived from drilling and bench mapping. Various basic geotechnical units were also updated.

The updated structural model resulted in improved structural domains, and a conceptual hydrogeological model was produced based on those data.

7.4.1 Sampling Methods and Laboratory Determinations

Geological logging was used to develop rock mass rating (RMR) criteria (Bieniawski, 1989).

A program of laboratory testing of the samples obtained during geotechnical drilling was initiated in support of stability analysis of the bench level, inter-ramp and global mining designs. Testing work included unconfined compressive strength, point load, and direct shear tests. The laboratory used for the work was not included in the report.

The testing results were used to generate the rock material parameters subsequently used for derivation of strength parameters in rock mass characterization and slope stability analyses.

A three-dimensional 3DEC model of the 15-year pit was compiled to verify the generation of potential macro-blocks or macro-wedges.

7.4.2 Comment on Results

Lithological and geomechanical logging protocols, laboratory test equipment used, and quality assurance/quality control (QA/QC) checks on the logging and laboratory tests were not available for review by Geosyntec. Based on the SRK (2016) report:

- There is no information available as to any quality assurance or QA/QC procedures that may have been in place during data collection.
- No procedures and protocols for mine design are currently in place.
- No geotechnical risk register or seismic management plan is mentioned.

Geosyntec's review of summaries of the field investigation and laboratory testing data presented in SRK (2016) indicate that the information used to support the SRK (2016) design of the open pit slopes appears to be consistent with generally-accepted industry standard practice for the level of geotechnical effort required to support at least, pre-feasibility level open pit designs (Read & Stacey, 2010).

7.4.3 Facilities

7.4.3.1 Heap Leach Geotechnical

Heap leach facility SX (SX facility – in closure) and heap leach facility Phase IV (Phase IV facility – in operation) belonging to the Cuajone mining unit were inspected during Geosyntec's site visit. In general terms, both facilities are in good condition with no critical issues observed. The slopes of the SX facility have already been adjusted to the closure slopes. Below, is a summary of the important milestones of these structures:

SX Facility

- The detailed engineering of this leach pad was completed in 1992 by COSAPI S.A.
- In 2001, GMI S.A. Ingenieros Consultores completed the detailed engineering to increase copper leachate production from 13.6 to 18 t/d.
- Between 2015 and 2017, Anddes Asociados SAC (Anddes) developed studies to assess and validate the stability of the leach pad, including measures to stabilize the pad in its current state and at closure.
- This leach pad is currently in its closure phase.

Phase IV Facility

- The detailed engineering of this leach pad was completed in 2014 by GreEngField-Anddes.
- In 2015, Anddes developed the geotechnical assessment to update the final design (up to its maximum capacity) and build a buttress for the closure phase.
- In 2022, Anddes developed the detailed engineering for the stabilizing buttress.

Geotechnical studies were carried out on both leach pads, which support the parameters used in the stability analyses. Geosyntec's review of the geotechnical studies prepared indicate that the physical stability of SX facility and Phase IV facility is acceptable for both 2024 operation and closure, and the closure geometry has an acceptable factor of safety (FoS) meeting the minimum engineering requirements.

SX facility currently has 34 monitoring prisms, five piezometers and one inclinometer installed on the north, west and south slopes, and on the pad platform. Monitoring reports indicate that the measurements are within normal values according to the alert levels indicated in the operations manual.

Phase IV facility currently has two piezometers and two inclinometers installed on the containment dykes and adjacent gorges. The values reported in the instrumentation reports presented are within the normal values according to the alert levels indicated in the operations manual.

7.4.3.2 Waste Rock Storage Facilities

Waste rock will be deposited in west of the pit in the Torata gorge (Torata Oeste and Este), next to the Chuntacala gorge (Cuajone waste rock facility) and on the southwest of the pit (Cocotea waste rock facility and facilities 1 and 5).

In 2012, Geoconsult conducted a complementary geotechnical field investigation campaign to assess the physical and hydraulic properties of the waste material. In this campaign, eight test pits were carried out in the different areas.

In 2023 Anddes carried out 50 test pits in the WRSFs, 16 particle size distribution tests, 10 geomechanical stations, 10 seismic refraction profiles (874 m in total), 16 multichannel analysis of surface waves (MASW) tests, 16 microtremor array measurement (MAM) tests and performed a laboratory test program that including granulometry, Atterberg limits, water content, triaxial consolidated undrained CU tests, shear tests, physical properties and unconfined compressive strength (UCS) of the foundation rocks.

The stability assessment was carried out in 13 critical sections identified in each of the facilities (four in Cocotea WRSF, one in Torata West WRSF, one in Torata East WRSF, two in Cuajone WRSF and five in WRSF 1 and 5). The stability results reported by Anddes show that the calculated FoS meets the acceptability criteria for the temporary configuration (current state, minimum static FoS = 1.3). The slopes will be modified for closure to achieve a FoS of 1.5, as required by Peruvian regulations and stablished in the closure plan.

All installations are equipped with a geotechnical monitoring system using extensometers.

8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Sampling Methods

Core was sampled on 3 m intervals. A geologist put a "cut line" on the core to guide core cutting. Core was cut with a diamond saw.

RC samples were sampled on 3 m intervals and split to 300–400 g. The splits were sent to the sample preparation laboratory.

Blasthole samples are sampled by cutting four channels on opposite sides of the cuttings pile. Samples are scraped from the walls of the channels and placed in a bag.

8.2 Sample Security Methods

Sample security from drill point to laboratory relied upon the fact that samples were either always attended to or stored in a secure area prior to shipment to the external laboratory. Chain-of-custody procedures consisted of completing sample submittal forms to be sent to the laboratory with sample shipments to ensure that all samples were received by the laboratory.

8.3 Density Determinations

Density samples were 10–15 cm in length. There are a total of 24,174 measurements available in the database, obtained using the water displacement method.

A density quality control report included results for 210 control samples tested by the Certimin laboratory from drill samples completed in 2017–2019. Wood evaluated the results using a reduced major axis (RMA) plot and a reasonable correlation between the Southern Copper data and Certimin results was observed. Certimin results were 3.4% higher than the Southern Copper data.

8.4 Analytical and Test Laboratories

Table 8-1 summarizes, to the extent known, the sample preparation and analytical laboratories used.

Table 8-1: Summary of Preparation and Analysis Laboratories

		Sample Preparation			Sample Analysis		
Date	**Operator**	**Laboratory**	**Accreditations**	**Independent**	**Laboratory**	**Accreditations**	**Independent**
1942–1945	Cerro De Pasco	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
1952–1954	Asarco	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
1965–1970	Southern Copper	Cuajone Mine Laboratory	none	no	Ilo Southern Copper Central Laboratory	none	no
1982-1988	Southern Copper	Cuajone Mine Laboratory	none	no	Ilo Southern Copper Central Laboratory	none	no
1991-1996	Southern Copper	Cuajone Mine Laboratory	none	no	Ilo Southern Copper Central Laboratory	none	no
1997-2002	Southern Copper	Cuajone Mine Laboratory	none	no	Ilo Southern Copper Central Laboratory	none	no
2004-2015	Southern Copper	Cuajone Mine Laboratory	none	no	Ilo Southern Copper Central Laboratory	none	no
2013	Southern Copper	Cuajone Mine Laboratory	ISO 14001; ISO9001	yes	ALS Global	ISO 14001; ISO9001	yes
2016-2019	Southern Copper	Certimin	ISO 14001; ISO9001; ISO 17026	yes	Certimin	ISO 14001; ISO9001; ISO 17026	yes
2016-2019	Southern Copper	Certimin	ISO 14001; ISO9001; ISO 17026	yes	Inspectorate Services Perú, S.A.C.	ISO 14001; ISO9001; ISO 17026	yes
2017-2019	Southern Copper	Certimin	ISO 14001; ISO9001; ISO 17026	yes	Ilo Southern Copper Central Laboratory	none	no
2019	Southern Copper	Certimin	ISO 14001; ISO9001; ISO 17026	yes	Bureau Veritas	ISO 14001; ISO9001; ISO 17025	yes
2020-2021	Southern Copper	Certimin	ISO 14001; ISO9001; ISO 17026	yes	Ilo Southern Copper Central Laboratory	none	no
2020-2021	Southern Copper	Certimin	ISO 14001; ISO9001; ISO 17026	yes	Certimin	ISO 14001; ISO9001; ISO 17026	yes
2020-2021	Southern Copper	Certimin	ISO 14001; ISO9001; ISO 17026	yes	Inspectorate Services Perú, S.A.C.	ISO 14001; ISO9001; ISO 17026	yes

8.5 Sample Preparation

Sample preparation procedures at laboratories other than the Cuajone mine laboratory prior to 2017 are not known.

Sample preparation in the Cuajone mine laboratory consisted of drying the sample, crushing, splitting in a riffle splitter to 100–150 g, and pulverization to 95% passing 105 µm (140 mesh).

Sample preparation at Certimin from 2017–2021 consisted of crushing to 90% passing 6 mm, crushing to 90% passing 2 mm (10 mesh), splitting to 200 g, and pulverization to 95% passing 105 µm (140 mesh).

8.6 Analysis

The Cuajone mine laboratory (1965–2021) performed a multi-element determination with an aqua regia digestion and atomic absorption spectrometry (AAS) finish on submitted exploration and blast hole samples. Components analyzed were total copper (CuT), acid soluble copper (CuS), cyanide soluble copper (CuCN), molybdenum, iron, iron oxide (FeOx), zinc, silver, and lead.

The Ilo Southern Copper Central laboratory (Ilo laboratory) (1965–2021) also performed multielement determinations for CuT, CuS, CuCN, molybdenum (Mo), silver (Ag), iron (Fe), iron oxide (FeOx), and zinc, using the same procedures as the Cuajone mine laboratory.

In 2013, ALS used a four-acid digestion with an inductively-coupled plasma (ICP) optical emission spectroscopy (OES finish) (method ME-ICP61) for total copper, iron, molybdenum, lead, zinc, arsenic and silver.

Certimin (2017–2019, 2020-2021) performed multi-element determinations with a four-acid digestion and ICP-OES/ICP mass spectrometry (MS) finishes, and AAS. Elements such as CuT, CuS, CuCN, and FeOx were finished by AAS. All other elements except CO_3 and chlorine were finished by ICP. Carbonate was analyzed by LECO and chlorine was assayed with an ultraviolet absorption method.

8.7 Quality Assurance and Quality Control

Quality control programs for pre-2017 drill campaigns are not recorded. Southern Copper selected 160 samples (80 one-half core samples; 80 pulp samples) from 69 holes drilled in 1980, 1994, 2000, 2006, and 2011–2015 and sent them to Certimin for check-assaying. Wood determined the accuracy to be generally acceptable, with bias for copper in core samples at

-6.3% which is just outside the ±5% limits generally accepted by the industry. This result is acceptable considering the age of some of the drill core.

Quality control programs for exploration core holes and blastholes were implemented in 2017 with insertion of certified reference materials (standards), coarse blanks, fine blanks, twin samples, coarse duplicates, and pulp duplicates. The use of check samples was also adopted.

Sampling precision, sub-sampling precision and analytical precision were evaluated using twin samples, coarse duplicates, and fine duplicates, respectively. Southern Copper used the hyperbolic method for assessing sampling, sub-sampling and analytical precision. Max–min plots were constructed for copper and molybdenum. Precision is considered to be acceptable.

The standards used by Southern Copper were prepared by Target Rocks Perú S.A.C. using material from the Cuajone deposit. Standard certificates were provided by Smee & Associates Consulting Ltd. Some outlier samples were observed; however, the standards showed acceptable bias.

Bureau Veritas Perú (Bureau Veritas) was sent a total of 268 pulp samples to evaluate the quality of the internal Ilo laboratory facility. These samples were obtained from 48 drill holes completed in 1982, 2009, 2011, 2012, 2017, and 2018. Results were processed by Wood using RMA plots, comparing the Ilo laboratory data against the Bureau Veritas results. Biases of the Ilo data relative to Bureau Veritas were acceptable for copper (-1.6%) and questionable for molybdenum (-6.3%).

Southern Copper personnel collected 40 samples per month during the months of December 2020 to March 2021 to send to Certimin to evaluate the quality of the primary Ilo laboratory. Results indicate acceptable comparisons between the two laboratories.

Coarse blanks and fine blanks analytical results do not indicate any significant contamination for copper and molybdenum in the period from 2017–2019.

Selected blasthole pulps from late 2020 and early 2021 that were analyzed at the internal Ilo laboratory were submitted to the Inspectorate laboratory in Lima (Inspectorate) for check assay. The results of the blasthole check assays are good. Means of the original and check assay results are close and the reproducibility of the original assays from the Ilo laboratory with the check assays from the external laboratory is good.

Selected drill hole sample pulps and archived core intervals from resource drill programs from the late 1990s to 2021, which were analyzed at the Cuajone mine laboratory until 2016 and at the Ilo laboratory from 2016 to 2020, were submitted to Inspectorate for check assay. Reproducibility of the samples from before 2016 is poorer than expected, suggesting potential issues with sampling, sample preparation, assaying or database integrity for the samples analyzed at the Cuajone mine laboratory before the implementation of QA/QC programs and use of the Ilo laboratory.

In 2024, Southern Copper carried out a resampling program on pre-2017 samples below the topography as of December 2022. Samples were obtained from half of the drill core and included 3,572 samples representing 7.7% of the pre-2017 samples. Wood processed the results in order to verify the quality of the analyses of the pre-2017 samples and concludes the following:

- the percentage of control sample insertion considered during this campaign is adequate and corresponds with industry best practices.
- the precision of sampling, sub-sampling and analytical processes for copper and molybdenum is acceptable.
- the analytical accuracy for copper and molybdenum is generally acceptable.
- no evident signs of contamination were observed.

8.8 Database

Data are currently managed using an acQuire database. User profiles and passwords are used to limit editorial access to the database. All data entry is validated using data masks that impose reasonable limits on the data. Data outside the limits are not allowed in the database and must be corrected.

8.9 Opinion on Sample Preparation, Security, and Analytical Procedures

In the Wood QP's opinion, the sample preparation, security, and analytical procedures, and QA/QC protocols for the samples are acceptable to support mineral resource estimation and are acceptable for the other purposes used in the Report.

9.0 DATA VERIFICATION

9.1 Data Verification

9.1.1 Site Visit

QP representatives from Wood and Geosyntec visited the Cuajone Operations as outlined in Section 2.4. Observations from the visit were incorporated into Wood and Geosyntec's conclusions as appropriate to the discipline areas in this Report or incorporated into the recommendations in Section 23.

9.1.2 Database Audit

Using pit topography surface as of January 2023, Wood identified a 963 drill holes that were either completely or partially within the designed pit.

To assess data integrity, Wood compared the Cuajone dataset with available original data sources including collar, survey, density, assay certificates and reports. A summary of the comparison is as follows:

- Collar location records for 114 drill holes were compared. No significant discrepancies were observed. Collar certificates for 76 drill holes were not available for review. In general, collar log certificates to not record the equipment used, signature of the person in charge, date, and drill hole depth.
- Downhole survey records for 112 drill holes were compared. Downhole survey certificates for 31 drill holes were not available for review. Discrepancies were observed in five drill holes, which represent 6% of drill holes reviewed.
- Total of 4,309 assay records from 33 drill holes were compared against their respective assay certificates for copper and molybdenum representing 4% of total records included in the database. No significant discrepancies were observed.
- A small number of discrepancies were noted in recovery and RQD data. Those were resolved and were not considered to have any impact on the mineral resource estimate.
- Total of 1,692 logging records from 106 drill holes were compared. Discrepancies for three records were observed, which represent an error rate of 0.2%.
- Total of 2,182 density records from 50 drill holes were compared. Three discrepancies were observed, which represent an error rate of 0.14%. Of the 108 drill holes selected for review, 58 do not have density data in the database (54%).

9.1.3 Peer Review

Wood requested that information, conclusions, and recommendations presented in the body of this Report be peer reviewed by Wood's subject matter experts or experts retained by Wood in each discipline area as a further level of data verification.

Peer reviewers reviewed the information in the areas of their expertise as presented in this Report. This could include checks of numerical data, consistency of presentation of information between the different Report sections, consistency of interpretation of the data between different discipline areas, checks for data omissions, verification that errors identified during Wood's gap analyses were appropriately addressed or mitigated, and review of the appropriateness of the QP's opinions, interpretations, recommendations, and conclusions as summarized by Wood.

9.2 Opinion on Data Adequacy

Wood's QP considers that a reasonable level of verification has been completed, and that no material issues would have been left unidentified from the programs undertaken.

Wood is of the opinion that the data verification programs for Project data adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in mineral resource estimation, mineral reserve estimates, and the mine plans.

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 Test Laboratories

Historical test work on which the plant designs were originally based are not available.

Two different laboratories were used to perform metallurgical test work. The Southern Copper-operated Cuajone concentrator was used from 2007–2012 and is not independent. Inmet Chapi in Arequipa (Inmet) was used in 2008 and is an independent laboratory. There is no international standard of accreditation provided for metallurgical testing laboratories or metallurgical testing techniques.

Leach Inc., a metallurgical consultancy located in Tucson, Arizona, USA, was retained to provide advice to the Southern Copper metallurgical team.

10.2 Metallurgical Test Work

A total of 222 samples from the different mineralized zones were tested for Bond ball mill work index values (BWi), 201 at the Cuajone concentrator, and 21 at Inmet. Values ranged from 13.10–21.37 kWh/t.

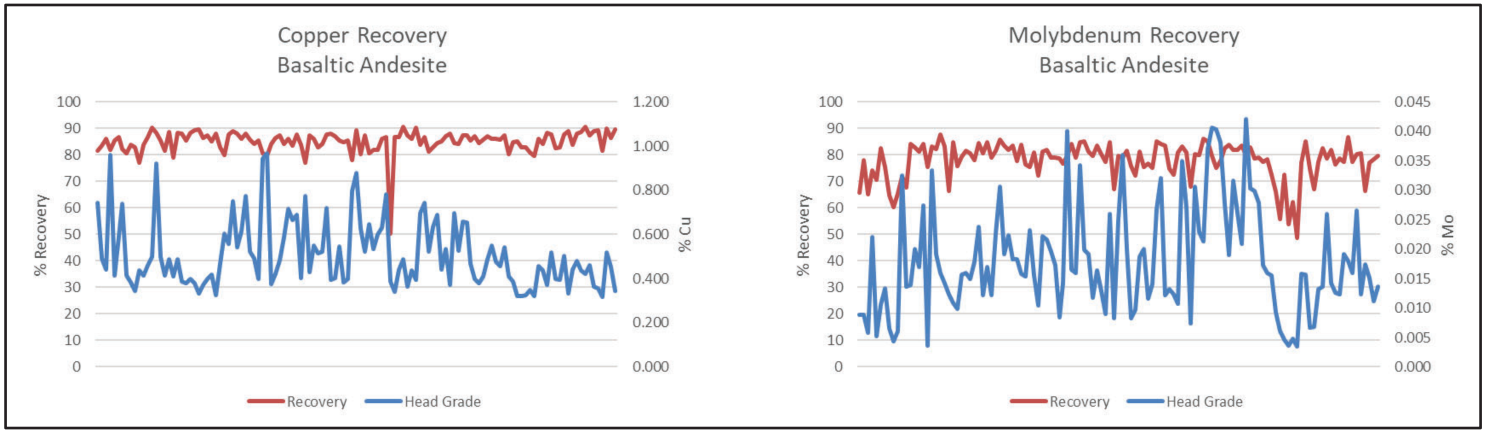
A total of 300 samples from different mineralized zones were subjected to copper and molybdenum flotation testing by the Cuajone concentrator, using standard plant conditions, aimed to replicate plant operations. The results of this testing campaign were used to develop a recovery model for copper and molybdenum. Recovery results versus grade by lithology for copper and molybdenum are shown in Figure 10-1 to Figure 10-5. The variability in copper recovery is less than the variability of molybdenum for all major lithologies.

10.3 Oxide Recovery Estimates

10.3.1 Copper Recovery Equation

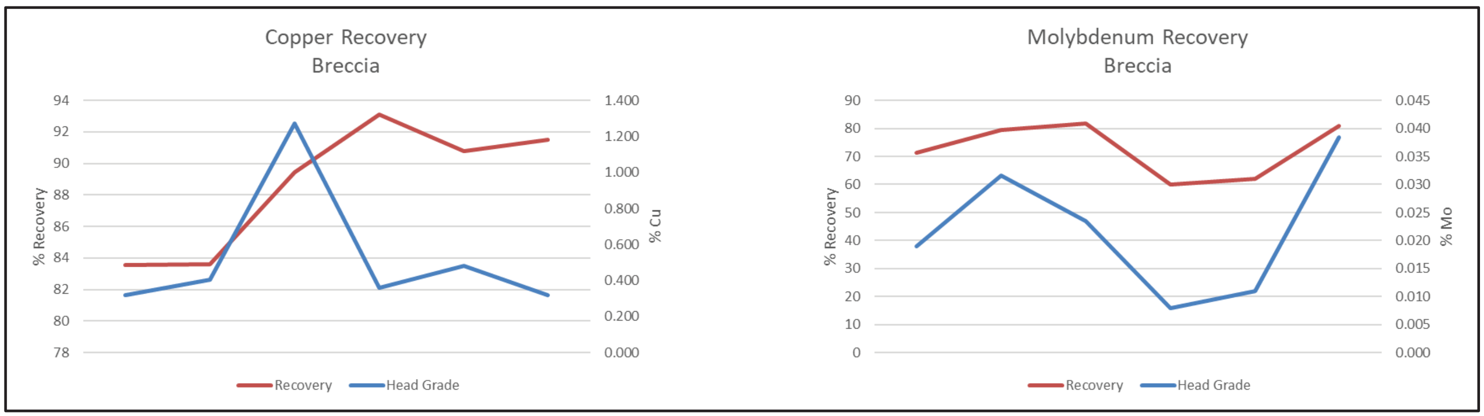
Predicting the copper production of the leach plant is based on an estimate of the grade of the ore to be processed, a test work-obtained correlation between the three copper phases (acid soluble (CuS), cyanide soluble (CuCN) and insoluble (InsolCu)), and the length of time the ore is leached. Corrections to the estimated recovery are made for the percentage minus 100 mesh and the percent carbonate ($CO_3^{=}$) in the ore.

Figure 10-1: Cu and Mo Recovery – Basaltic Andesite



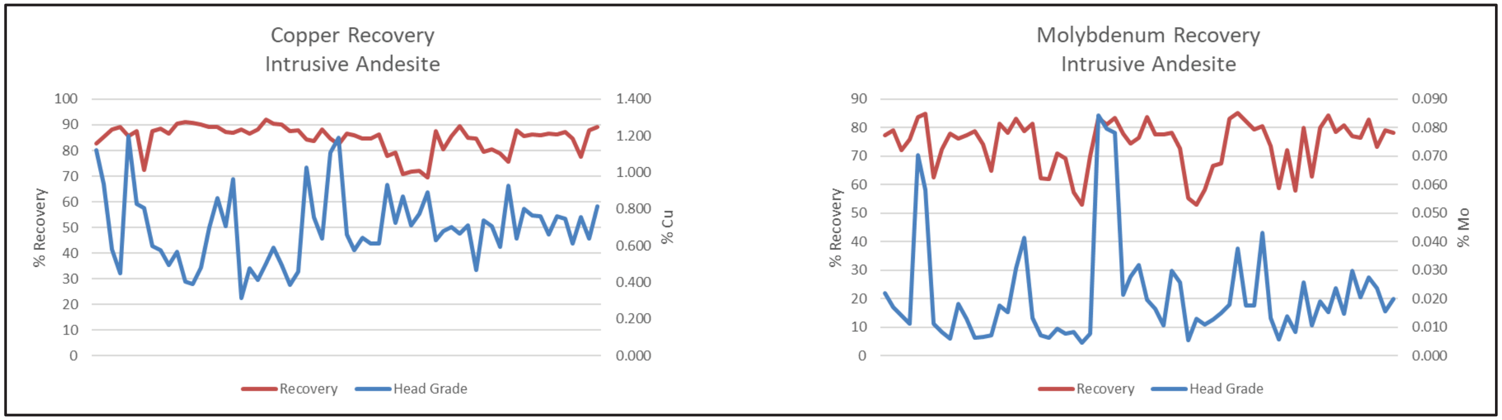
Source: Southern Copper, 2021

Figure 10-2: Cu and Mo Recovery – Breccia



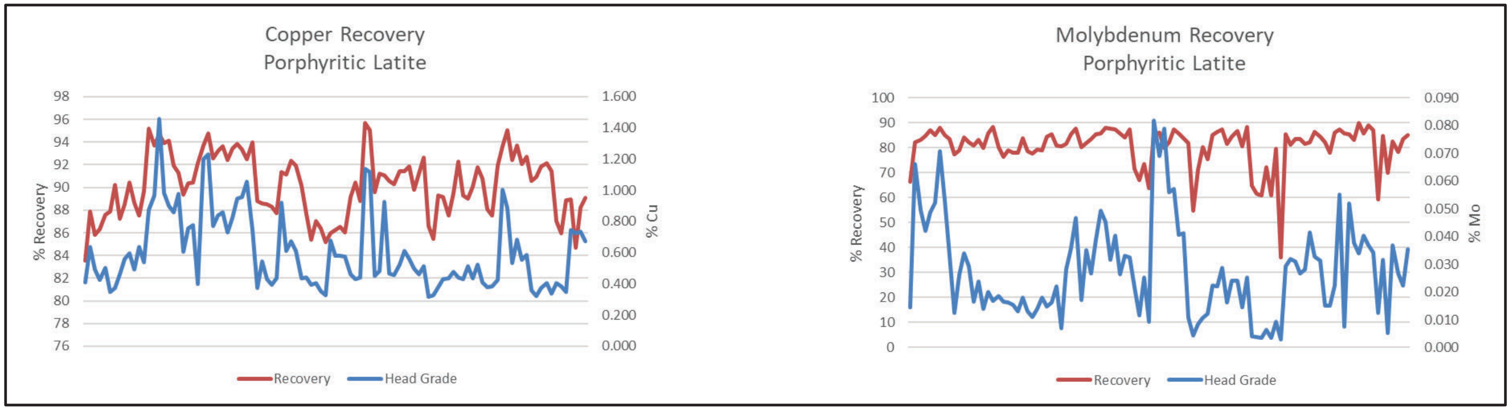
Source: Southern Copper, 2021

Figure 10-3: Cu and Mo Recovery – Intrusive Andesite



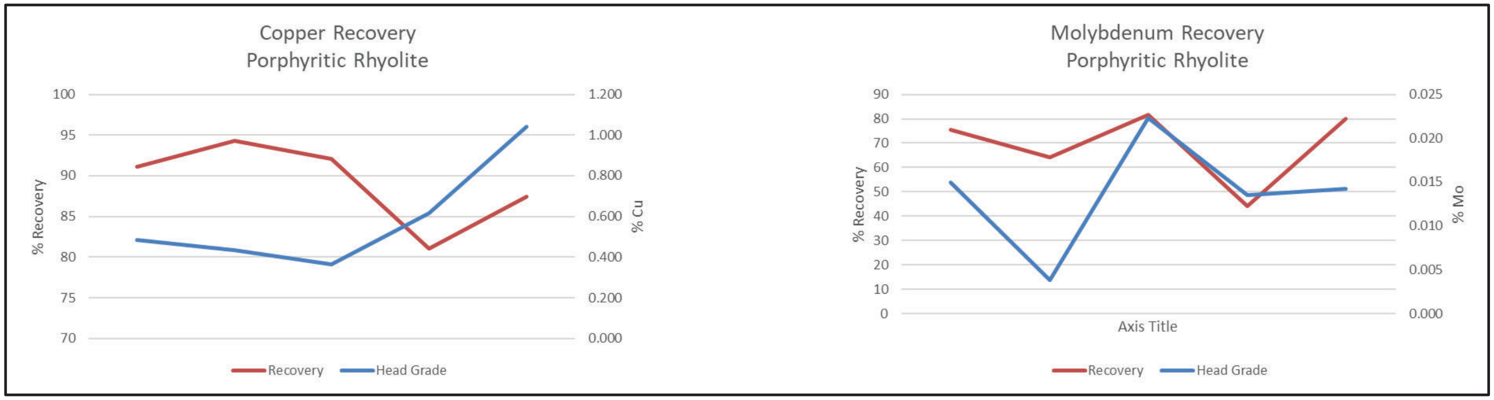
Source: Southern Copper, 2021

Figure 10-4: Cu and Mo Recovery – Porphyritic Latite



Source: Southern Copper, 2021

Figure 10-5: Cu and Mo Recovery – Porphyritic Rhyolite



Source: Southern Copper, 2021

The estimated copper recovery was based on 2001 column test work, and the sum of the recovery of each of the three copper phases. The equation for the base recovery, with *t* as leach time is:

$$\%\,Recovered\ Cu = \frac{t}{1.00t + 8.12}CuS + \frac{t}{1.06t + 16.16}CNCu + \frac{t}{6.12t + 220.15}InsolCu$$

Oxide ore is leached for a period of 60 to 66 days. Table 10-1 lists the copper recovery for each of the three copper phases for 60, 66 and 70 days.

The derived equation is for a typical ore; however, and the recovery calculated by the above equation must be corrected for fines and carbonate concentrations.

The LOM head grade and copper recovery are expected at 0.51% Cu (including the ore from the existing stockpile) and 54.8%, respectively.

Table 10-1: Copper Recovery by Phase

Time (d)	Cu Recovery (%)		
	CuS	CuCN	InsolCu
60	88.1	54.8	10.8
66	89.0	59.7	11.3
70	89.6	63.0	11.6

Note: CuS = soluble copper; CuCN = cyanide-soluble copper; InsolCu = copper that is not soluble in copper or acid.

10.3.2 Fines Adjustment

The basic copper recovery equation assumes that the crushed ore contains 13% minus 100 mesh. Copper recovery from ores containing more or less than this amount will have copper recoveries greater or less than that predicted by the equation. If the ore contains less than 13% minus 100 mesh, then the following equation is used to calculate an adjustment to the calculated recovery:

$$Adjustment\ factor = 35.075(\%_{-100\,mesh})^3 + 3.527(\%_{-100\,mesh})^2 - 0.0726\ (\%_{-100\,mesh}) - 0.1315$$

If the percentage of minus 100 mesh is greater than 13%, then the following equation is used to calculate an adjustment to the base recovery:

$$Adjustment\ factor = -\,0.3297(\%_{-100\,mesh})^2 - 0.3442\ (\%_{-100\,mesh}) - 0.0075$$

The adjustment factors given by the two equations require an understanding of the percentage of minus 100 mesh in the crushed ore that will be leached in the future.

An average obtained from historical data is used to estimate recoveries for short- and long-term production planning. Fines are about 21% minus 100 mesh historically.

The correlation coefficients for each of the two equations relating the percentage of minus 100 mesh to recovery exceed 0.99.

10.3.3 Carbonate Adjustment

The basic copper recovery equation is adjusted for the percentage of carbonate in the ore in addition to the amount of minus 100 mesh in the crushed ore. This adjustment is necessary only if the $CO_3^{=}$ content is >2.7%. If the ore contains >2.7% $CO_3^{=}$ then the following equation is used to calculate reduction applied to the calculated recovery:

$$Recovery\ factor = -498.83(CO_3^{=})^3 + 25.728(CO_3^{=})^2 + 8.7246(CO_3^{=})^2\text{-}0.2438$$

Unlike the percentage of minus 100 mesh in the crushed ore, the carbonate content is a characteristic of the ore that can be included in the geological model, and therefore can be used in a model for estimating the copper recovery that can be expected from heap leaching.

10.4 Sulfide Recovery Estimates

10.4.1 Throughput Models

A mathematical model for throughput prediction was developed based on the bond work index and grind size as defined by the weight percentage retained on a 65-mesh screen. This model, together with a copper and molybdenum flotation model for grade forecasting, was used to predict daily copper and molybdenum production.

A total of 167 measurements were made on the product of the two grinding circuits. The larger circuit comprises two large diameter mills with a combined capacity of about 29,750 dmt/d. The smaller circuit consists of small diameter mills which have a total capacity of about 57,500 dmt/d. Information recorded included the plant work index, percent operating time, and percent plus 65 mesh in the mill product for both the large and the small mills.

Mill production was then defined as:

Large circuit:

$$Production\frac{dmt}{d} = \left(40{,}627.6 - 1{,}117.05 \times WorkIndex_{LargeMills}\right) + 358.817 \times \%(+65mesh)_{LargMills}$$

Small circuit:

$$Production\frac{dmt}{d} = (86{,}655.3 - 3{,}028.41 \times WorkIndex_{General}) + 835.838\ \%(+65mesh)_{General}$$

The adjusted correlation coefficients for these equations were 0.7284 and 0.7803 for the small and large mills, respectively.

Leach reproduced the equations, with the following defined:

Large circuit:

$$Production\frac{dmt}{d} = \left(40{,}638.77 - 1{,}117.22 \times WorkIndex_{LargeMills}\right) + 358.464 \times \%(+65mesh)_{LargMills}$$

Small circuit:

$$Production\frac{dmt}{d} = (= 86{,}675.48 - 3{,}025.24 \times WorkIndex_{General}) + 833.253\ \%(+65mesh)_{General}$$

The adjusted correlation coefficients for these equations were 0.7280 and 0.7795 for the small and large mills, respectively. Differences between Leach Inc. and Southern Copper equations were attributed to a combination of different statistical packages used to derive the equations, and rounding. The equations indicate that actual production will be within about 6% of the predicted production 95% of the time.

Additional analytical work by Southern Copper on the throughput model concluded that at 23.5% of +65 mesh, the liberation of the copper species is adequate and good copper recoveries can be achieved. It was concluded that that the percentage of +65 mesh in the equation can be replaced by a constant value of 23.5%.

The equations developed by Leach Inc were adjusted as follows:

Large circuit:

$$Production\ \frac{dmt}{d} = \left(49\,062.67 - 1117.22 \times WorkIndex_{LargeMills}\right)$$

Small circuit:

$$Production\ \frac{dmt}{d} = (106{,}256.93\ -\ 3{,}025.24\ \times WorkIndex_{SmallMills})$$

However, as the equations proposed by Leach Inc. are valid for a plant availability close to 100%, they were revised to adjust by an availability factor in accordance with the operational results, thus the resulting equations are as follows:

Large circuit:

$$Production\ \frac{dmt}{d} = (49062.67 - 1117.22 \times WorkIndex) \times \left(\%Availability_{LargeMills}\right)$$

Small circuit:

$$Production\ \frac{dmt}{d} = (106256.93 - 3025.24 \times WorkIndex) \times (\%Availability_{SmallMills})$$

The initial equations included an additional increase in throughput of 4% because of the start-up of the high-pressure grinding rolls (HPGR) in the grinding circuit. The operational results showed that the plant throughput increased by an average of 5.7%, therefore the throughput prediction equations were adjusted to correct for this factor.

as: The equations for the plant throughput predictions up to 2023 are shown below:

Large circuit:

$$Production\ \frac{dmt}{d} = (49062.67 - 1117.22 \times WorkIndex) \times \left(\%Availability_{LargeMills} \times \frac{1.057}{1.04}\right)$$

Small circuit:

$$Production\ \frac{dmt}{d} = (106256.93 - 3025.24 \times WorkIndex) \times \left(\%Availability_{SmallMills} \times \frac{1.057}{1.04}\right)$$

In November 2023, screens were implemented as part of the quaternary grinding circuit, and the HPGR optimization project was commissioned into operation. In February 2024, the HPGR was upgraded to an HPGR PRO unit.

The plant data collected from February to May 2024 were evaluated to determine the actual gain. Screen cut sizes on the scalper screens and secondary and tertiary screens were adjusted. The increased throughput to the HGPR PRO beyond what was predicted in the initial simulations, resulted in a further modification of the throughput prediction.

A second factor was included in the modified equation to adjust for the additional throughput which consisted of two terms.

To determine the gain in throughput due to the P80 increase above 245 microns, data was normalized by Southern Copper using the bond equation to predict the tonnage that should be ground to achieve the target P_{80} (245 micron) at different work indices. The result showed an additional gain of 6.2% subject to the quaternary circuit availability, which is used as the first term of the second factor equation.

The last term of the second factor equation indicates the increase in tonnage resulting from applying more energy when blasting the ore in the deposit (Mine Plant project). The objective of the project was to reduce the feed size and increase the percentage of fine ore (less than 1 inch) that arrives at the concentrator plant. The Mine Plant project has resulted in an increase in fine ore from 13% to 25%. Southern Copper applied the bond equation for the calculation of the specific energy with a reduction ratio determined for various ranges of work indices and normalized the grinding to the target P_{80} (245 micron). Based on data before and after the blasting practice changes, the increase was calculated to 2.5% of the tonnage milled.

The above results in the second term defined as = (0.062 x Availability (quaternary circuit) + 1.025)

The updated throughput formula is as follow:

$$Production\ \frac{dmt}{d} = (Large\ Circuit\ Production + Small\ Circuit\ Production) * \left(0.062 \times \%Availability_{QuaternaryCiruit} + 1.025\right)$$

Or written in full:

$$
\begin{aligned}
&Throughput\ dmt/d \\
&\quad = \left[\left((49062.67 - 1117.22 \times WorkIndex) \times \left(\%Availability_{LargeMills} \times \frac{1.057}{1.04}\right)\right)\right. \\
&\quad + \left((106256.93 - 3025.24 \times WorkIndex)\right. \\
&\quad \left.\left. \times \left(\%Availability_{SmallMills} \times \frac{1.057}{1.04}\right)\right)\right] \\
&\quad \times \left[\left(0.062 \times \%Availability_{QuaternaryCiruit}\right) + 1.025\right]
\end{aligned}
$$

Figure 10-1 to Figure 10-5 show the variability of the copper and molybdenum recovery in relation to the percentage of copper and molybdenum content of the head grade by lithology for the 300 samples tested from different zones of the pit. The variation of the copper recovery was observed to be less significant than the molybdenum recovery for the major lithologies.

10.4.2 Copper Recovery Model

A 300-sample flotation test program was undertaken by Southern Copper to develop a mathematical relationship between the chemical composition of the ore and the rougher flotation recovery of copper and molybdenum. A standard flotation test protocol was used. Each test sample was assayed for total copper (CuT), soluble copper, molybdenum, iron, zinc, and acid-soluble iron (ASFe).

An empirical equation was selected and tested using multivariate regression analysis to determine which combination of the six independent variables generated the model equation which best fitted the laboratory-measured rougher copper recovery. Models for the three ore types, basaltic andesite, intrusive andesite and latite porphyry, were separately developed.

Both Southern Copper and Leach Inc. personnel developed recovery equations as follows:

- Basaltic andesite:
  - Southern Copper:

$$
\begin{aligned}
&Cu\ Recovery\ (\%) = 84.41 + 2.39\ CuT - 189.8\ CuS + 58.04\ Mo \\
&-0.2420Fe + 34.23\ Zn + 3.854\ ASFe
\end{aligned}
$$

where ASFe refers to iron soluble in acid.

  - Leach Inc.:

$$
\begin{aligned}
&Cu\ Recovery\ (\%) = 83.85 + 2.06CuT - 188.7\ CuS + 65.76\ Mo \\
&+31.60\ Zn + 3.471ASFe
\end{aligned}
$$

- Intrusive andesite:
  - Southern Copper:

$$Cu\ Recovery\ (\%) = 96.12 - 9.67\ CuT - 77.21\ CuS + 0.2067\ Fe - 63.89\ Zn - 4.82\ ASFe$$

  - Leach Inc.:

$$Cu\ Recovery\ (\%) = 97.30 - 9.66\ CuT - 93.63\ CuS - 64.37\ Zn - 4.11\ ASFe$$

- Latite porphyry
  - Southern Copper:

$$Cu\ Recovery\ (\%) = 90.12 + 6.51\ CuT - 88.80\ CuS - 60.35\ Mo + 0.4788\ Fe - 82.31\ Zn - 0.6148\ ASFe$$

  - Leach Inc.:

$$Cu\ Recovery\ (\%) = 90.06 + 6.39\ CuT - 98.15\ CuS - 60.19\ Mo - 79.07\ Zn + 0.4344\ Fe$$

- All ore types:
  - Southern Copper:

$$Cu\ Recovery\ (\%) = 88.9 + 4 + 7.20\ CuT - 189.3\ CuS - 0.9374\ Fe + 13.69\ CuCN + 1.745\ ASFe$$

  - Leach Inc.:

$$Cu\ Recovery\ (\%) = 88.92 + 7.20\ CuT - 189.2\ CuS - 0.9374\ Fe + 13.69\ CuCN + 1.745\ ASFe$$

A scale up factor of -3.2 was added to the all-ore-type equation to better reflect the plant metallurgical performance.

The LOM expected copper recovery is estimated at 85.0% (including the ore from the existing stockpile). The forecast LOM copper concentrate grade is 24.84%.

10.4.3 Molybdenum Recovery Model

The molybdenum recovery was assumed to be a function of the flotation feed grade for molybdenum only; no other ore constituents were included in the model. Flotation test samples were divided into five groups based on the molybdenum grade of the sample, and an average molybdenum recovery was calculated for each of the five groups. In addition, 1,871 daily measurements were made of the plant recovery together with the daily molybdenum feed grade. The average molybdenum recovery in the laboratory test for feed samples containing more than 0.02% Mo in the plant data was 82.8% and had a standard deviation of 3.7%.

Further model development work that was completed by Southern Copper established two scale-up factors based on operational experience to better predict molybdenum recovery:

- Regrind factor = 0.96
- Molybdenum plant factor = 0.92

The predicted plant recovery was estimated as follows:

$$Mo\ Plant\ Recovery\ (\%) = \%\ Mo\ Rougher\ Recovery\ \times Regrind\ Factor\ \times Mo\ Plant\ Factor$$

Further development work based on plant data for the period March 2014 to January 2021 determined that an additional scale up factor should be issued to improve the prediction of the molybdenum recovery from the laboratory data (Table 10-2).

The model recovery is very close to the actual plant recovery for the period indicated, which supports the use of this model in production plan forecasts.

The LOM expected molybdenum recovery is estimated at 62.7% (including ore from the existing stockpile). The LOM molybdenum concentrate grade forecast is 53.33%.

Table 10-2: Molybdenum Recoveries, Test vs. Plant Actual

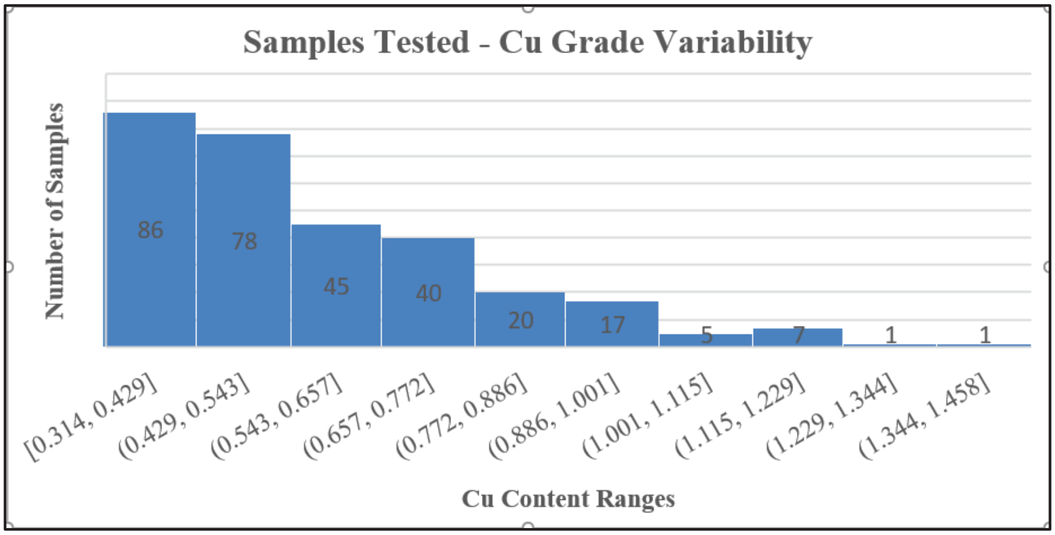
Head Grade Range (% Mo)	Scale Up Factor	Mo Recovery (%)	
		Model	Plant
<0.007	0.96	54.84	54.87
0.008 to 0.012	0.90	59.74	60.06
0.013 to 0.016	0.89	62.96	62.91
0.017 to 0.020	0.90	65.03	64.83
>0.021	0.87	63.76	63.85

10.5 Metallurgical Variability

A significant number of samples were selected by rock type/alteration for comminution and flotation testing (Figure 10-6 and Figure 10-7) based on the Development Plan executed between 2011 and 2012.

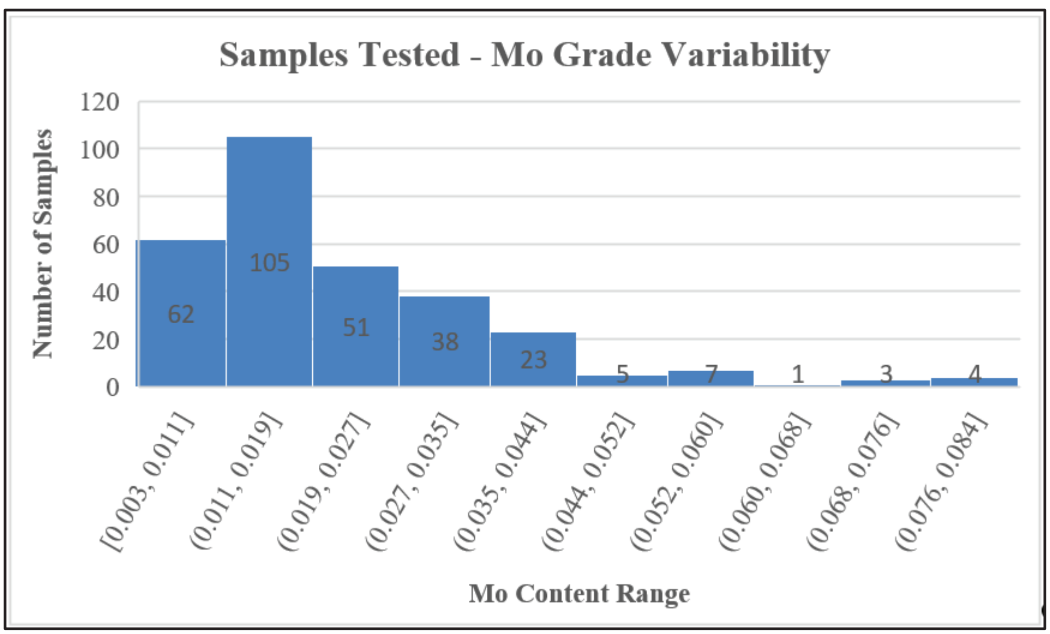
Tests were performed on samples that are considered to be representative of the different orebodies/zones and the mineralogy and alteration styles.

Figure 10-6: Copper Grade Variability Tests



Source: Southern Copper, 2021

Figure 10-7: Molybdenum Grade Variability Tests



Source: Southern Copper, 2021

10.6 Deleterious Elements

The copper and molybdenum concentrates are considered clean concentrates as they do not contain significant amounts of deleterious elements.

Average chemical and mineralogical compositions of the copper and molybdenum monthly concentrate composites for the period 2020 to 2022 are provided in Table 10-3, Table 10-4, Table 10-5, and Table 10-6, respectively.

Table 10-3: Copper Concentrate Average Grades, 2020–2022

	Composites							
Item	**%Cu**	**%Ins**	**%Fe**	**%Mo**	**%CuS**	**%CuCN**	**%Ca**	**%Zn**
Minimum	24.160	9.180	24.490	0.058	0.251	1.540	0.220	0.535
Maximum	26.600	14.24	28.670	0.202	0.557	6.220	0.786	1.692
Average	25.400	11.786	26.860	0.098	0.371	3.545	0.325	0.945
	Composites							
	%S	**% SiO_2**	**% Al_2O_3**	**%ASFe**	**%Pb**	**%K**	**%Ni**	**%Co**
Minimum	26.190	6.936	0.960	0.280	0.098	0.009	0.001	0.003
Maximum	34.950	11.080	4.720	0.790	0.301	0.040	0.009	0.010
Average	30.590	8.840	2.851	0.575	0.167	0.021	0.003	0.007
	Composites							
	%Mn	**%Mg**	**%As**	**%Na**	**Oz Ag**	**% $CO_3^{=}$**	**ppm Cl-**	
Minimum	0.006	0.092	0.040	0.012	2.510	0.520	0.444	
Maximum	0.033	0.218	0.228	0.025	4.400	1.580	6.245	
Average	0.017	0.144	0.096	0.017	3.427	1.205	3.396	

Note: Ins = insoluble

Table 10-4: Copper Concentrate Average Mineralogical Composition, 2020–2022

	Composites					
Item	**%Sulfides**	**%Chalcocite**	**%Chalcopyrite**	**% Pyrite**	**Py/Cpy Ratio**	**%Molybdenite**
Minimum	23.90	1.93	55.99	8.08	0.12	0.10
Maximum	26.04	7.79	66.83	22.21	0.38	0.34
Average	25.03	4.44	62.05	15.90	0.26	0.16

Note: Py/Cpy = pyrite/chalcopyrite

Table 10-5: Molybdenum Concentrate Average Grades, 2020–2022

	Composites							
Item	**%Cu**	**%Ins**	**%Fe**	**%Mo**	**%CuS**	**%CuCN**	**%Ca**	**%Zn**
Minimum	0.412	1.860	1.620	52.043	0.005	0.084	0.118	0.021
Maximum	0.854	4.600	4.500	55.699	0.021	0.268	0.483	0.051
Average	0.686	2.919	2.584	54.111	0.010	0.181	0.183	0.034
	Composites							
	%S	**% SiO_2**	**% Al_2O_3**	**%ASFe**	**%Pb**	**%K**	**%Ni**	**%Co**
Minimum	26.560	1.190	0.378	0.010	0.036	0.002	0.001	0.001
Maximum	42.770	3.800	2.490	0.080	0.060	0.018	0.004	0.009
Average	38.76	2.136	0.788	0.038	0.049	0.005	0.002	0.005
	Composites							
	%Mn	**%Mg**	**%As**	**%Na**	**Oz Ag**	**% $CO_3^{=}$**	**ppm Cl^-**	
Minimum	0.003	0.036	0.005	0.009	0.500	0.140	0.657	
Maximum	0.021	0.100	0.032	0.029	1.190	0.880	5.259	
Average	0.007	0.061	0.012	0.018	0.756	0.404	2.386	

Note: Ins = insoluble

Table 10-6: Molybdenum Concentrate Average Mineralogical Composition, 2020–2022

	Composites					
Item	**%Sulfides**	**%Chalcocite**	**%Chalcopyrite**	**% Pyrite**	**Py/Cpy Ratio**	**%Molybdenite**
Minimum	0.40	0.11	0.72	2.25	1.26	86.83
Maximum	0.83	0.34	1.79	8.75	11.96	92.93
Average	0.68	0.23	1.43	4.54	3.48	90.28

Note: Py/Cpy = pyrite/chalcopyrite

10.7 Opinion on Data Adequacy

A significant amount of test work has been performed on the sulfide and oxide ore that has allowed the development of a plant throughput, and copper and molybdenum recovery models for the sulfide ore, and a copper recovery model for the oxide ore. Furthermore, the developed models have been improved and updated with time to take into account actual plant performance.

Test work on the sulfide ore was performed on selected samples representing the main five rock types. The testing program included comminution and flotation testing for the sulfide ore.

Sulfide samples prepared for flotation testing cover a wide range of copper and molybdenum content. Test work on the oxide ore included column leach testing.

Wood's QP considers the available metallurgical test work information to be of an acceptable quality to at least the equivalent of a pre-feasibility level of study and is considered adequate to support the metallurgical inputs to the mineral resources, mineral reserves, and the economic analysis. However, Wood does recommend dedicated metallurgical drilling and test work to confirm these assumptions.

The copper concentrate produced is considered to be a clean concentrate and no penalties are expected as the concentrate does not contain any significant amounts of deleterious elements.

11.0 MINERAL RESOURCE ESTIMATES

11.1 Introduction

The mineral resource estimate was prepared by Southern Copper and endorsed by Wood in accordance with definitions under S-K 1300. An ordinary kriging (OK) approach was used to estimate total copper (CuT), soluble copper (CuS), cyanide soluble copper (CuCN), molybdenum (Mo), iron (Fe), acid soluble iron (FeS), and carbonate (CO_3) grades. Iron, acid soluble iron and carbonate are not economic contributors but are used in mine planning.

11.2 Geological Models

Three dimensional (3D) models of lithology, alteration, and mineralization type were constructed in commercial software Leapfrog Geo® from logged intervals.

The lithology was divided into the following categories:

- Cover (overburden)
- Post-mineralization
- Syn-mineralized
- Pre-mineralization

Southern Copper interpreted seven mineralization zones, comprising:

- Leached capping (LC)
- Oxides (Oxi)
- Enriched (Enr)
- Transitional (Tra)
- Primary bornite (Pri/Bn)
- Primary chalcopyrite (Pri/Cp)
- Primary pyrite (Pri/Py)

Seven alteration domains were also interpreted:

- Argillic
- Phyllic/potassic
- Potassic
- Phyllic
- Propylitic/phyllic

- Propylitic
- Unaltered.

11.3 Exploratory Data Analysis

Exploratory data analysis (EDA) on raw assay and composite data was completed to validate the domain definition strategies used in the estimate. Histograms, probability plots, and box plots were used to evaluate assay and composite data distribution for copper, molybdenum, iron and carbonate by lithology and mineralized zone.

11.3.1 Raw Assays

Boxplot by mineralization domain show the distribution of copper is well controlled, which corresponds to typical copper porphyry deposit. The highest copper values are found in the oxide zone followed by the transitional mineralization zone, and then the enriched zone.

Boxplot by lithology domain show that latite porphyries (LP) and basaltic andesite (BA) represent around 58% of the deposit and their average copper grade is 0.6% and 0.4%, respectively.

11.3.2 Acid and Cyanide Soluble Copper

Acid soluble copper (CuS) and cyanide soluble copper (CuCN) were determined on some, but not all samples. Four cases were identified:

- CuS assay only
- CuCN assay only
- CuS and CuCN assays
- No CuS or CuCN assays.

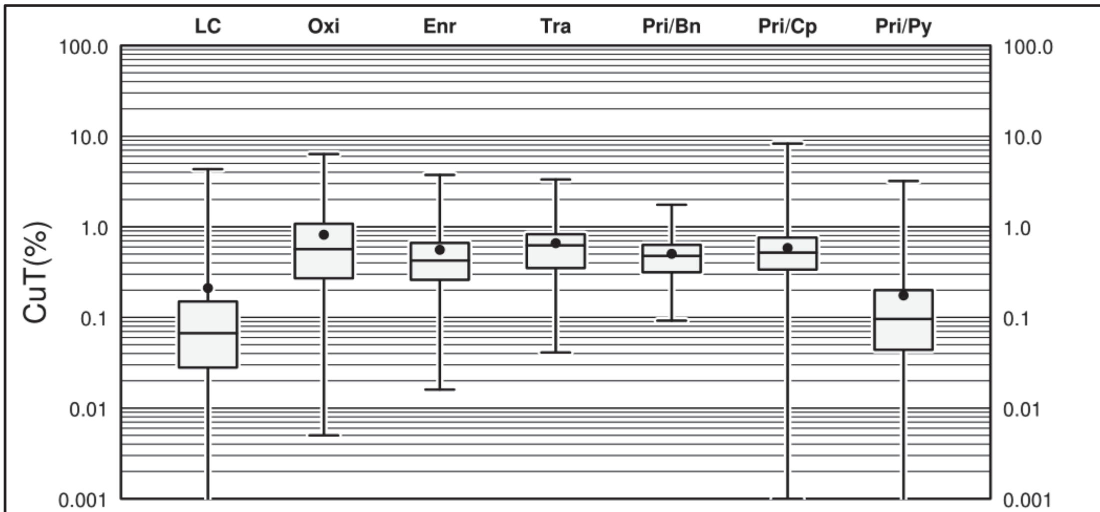
CuS and CuCN were normalized to CuT (total copper) when CuS + CuCN > CuT in the oxide and transition zones. The solubility indices of CuS and CuCN were calculated as was the residual copper.

11.4 Composites

Around 56% of the intervals of the drill holes have 3 m length. A composite length of 7.5 m fixed length along the drill hole following its orientation is used. This length represents half of the vertical length of the 15 m block height. The composite length was split by lithology type.

Histograms and cumulative probability plots were prepared for composited data. Boxplots of copper (Figure 11-1) and molybdenum (Figure 11-2) grade by lithology and mineralization domain show that the copper distribution follows the relationships between lithologies, and mineralization zones observed in the raw assay data.

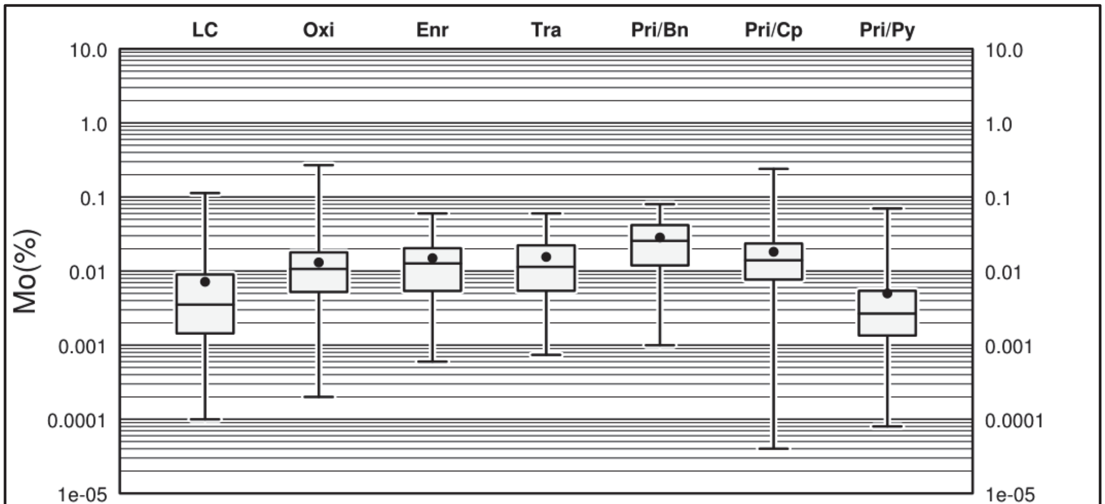
Figure 11-1: Boxplot of Total Copper over the Mineralized Zones



	LC	Oxi	Enr	Tra	Pri/Bn	Pri/Cp	Pri/Py	
No. of data	895	1288	227	573	342	34899	10452	No. of data
Mean	0.211	0.818	0.558	0.660	0.504	0.584	0.175	Mean
Maximum	4.330	6.335	3.737	3.327	1.750	8.281	3.199	Maximum
U.Quartile	0.150	1.080	0.664	0.827	0.632	0.760	0.200	U.Quartile
Median	0.067	0.567	0.424	0.624	0.477	0.519	0.096	Median
L.Quartile	0.028	0.270	0.260	0.350	0.315	0.337	0.044	L.Quartile
Minimum	0.000	0.005	0.016	0.041	0.092	0.001	0.000	Minimum
Variance	0.217	0.647	0.263	0.208	0.069	0.139	0.051	Variance
CV	2.212	0.983	0.919	0.690	0.519	0.637	1.289	CV
Skewness	4.622	2.083	2.832	2.112	1.200	2.420	2.924	Skewness

Source: Wood, 2024

Figure 11-2: Boxplot of Mo over the Mineralized Zones



	LC	Oxi	Enr	Tra	Pri/Bn	Pri/Cp	Pri/Py	
No. of data	616	802	189	461	343	31118	9267	No. of data
Mean	0.00718	0.01310	0.01497	0.01555	0.02844	0.01823	0.00500	Mean
Maximum	0.11298	0.26917	0.06000	0.06000	0.08000	0.24000	0.07000	Maximum
U.Quartile	0.00900	0.01789	0.02037	0.02226	0.04180	0.02359	0.00542	U.Quartile
Median	0.00352	0.01070	0.01268	0.01140	0.02556	0.01400	0.00267	Median
L.Quartile	0.00144	0.00522	0.00540	0.00542	0.01192	0.00769	0.00135	L.Quartile
Minimum	0.00010	0.00020	0.00060	0.00074	0.00100	0.00004	0.00008	Minimum
Variance	0.00010	0.00017	0.00015	0.00017	0.00041	0.00029	0.00005	Variance
CV	1.38409	1.00674	0.83101	0.84752	0.71157	0.93219	1.40142	CV
Skewness	3.85372	9.68050	1.51118	1.21377	0.62350	3.73726	3.76554	Skewness

Source: Wood, 2024

11.5 Estimation Domains

The estimation domains were defined by combining the lithological domains and the mineralized zones. Lithologies domains were determined by grouping the lithologies considering the similarity in grade distribution and the spatial location of the composites. Table 11-1 summarizes the criteria for defining estimation domains and basic statistics by domain for total copper.

All material below the current pit topography is predominantly primary sulfide and lesser extent oxides mineralization. The leached, enriched and transitional zones have almost been mined out or do not impact the current model.

Table 11-1: Estimation Domains for Total Copper

Domain Code	Mineral Zone	Lithology	No. of Comp.	Min (%)	Max (%)	Mean (%)	Std. Dev.	CV
All	-	-	49,237	0.0001	8.2807	0.49	0.41	0.83
1	LC	Pre-mineralization / Syn-mineralization	898	0.0001	4.3300	0.21	0.47	2.20
2	LC	Post-mineralization	322	0.0007	1.1000	0.04	0.08	2.31
3	LC	Post-mineralization	234	0.0050	4.8600	0.20	0.39	1.95
4	Enr and Tra	Pre-mineralization / Syn-mineralized	799	0.0160	3.7367	0.63	0.47	0.75
5	Oxi	Pre-mineralization / Syn-mineralized	1,290	0.0052	6.3353	0.82	0.80	0.98
6	Pri/Cp	Syn-mineralized	14,553	0.0123	8.2807	0.66	0.38	0.58
7	Pri/Cp	Syn-mineralized	4,224	0.0020	2.5813	0.25	0.20	0.81
8	Pri/Cp	Syn-mineralized	190	0.0012	0.9106	0.09	0.17	1.82
9	Pri/Cp	Pre-mineralization	285	0.0144	7.1700	0.47	0.39	0.83
10	Pri/Cp	Pre-mineralization	9,354	0.0030	4.4267	0.51	0.27	0.52
11	Pri/Cp	Pre-mineralization	6,294	0.0113	6.7569	0.76	0.39	0.52
12	Pri/Bn	Pre-mineralization	342	0.0924	1.7504	0.50	0.26	0.52
13	Pri/Py	Syn-mineralized	325	0.0530	0.9685	0.38	0.21	0.55
14	Pri/Py	Pre-mineralization / Syn-mineralized	3,758	0.0001	3.1994	0.10	0.12	1.26
15	Pri/Py	Pre-mineralization	3,383	0.0002	1.8958	0.18	0.24	1.33
16	Pri/Py	Pre-mineralization	2,986	0.0100	2.3257	0.25	0.27	1.09

11.6 Density Assignment

Density domains were defined by lithology domains that were grouped based on the amount of data, descriptive statistics, and spatial distribution.

Density was estimated by inverse distance squared (IDW2) in three passes. Blocks that are not estimated by IDW2 were assigned an average density value corresponding to their lithology.

11.7 Grade Capping/Outlier Restrictions

Southern Copper complete a capping study and used outlier restriction to control grade estimation. Wood checked the high-grade capping on composites using the cumulative probability curves analysis by estimation domains for CuT, CuS, CuCN, Mo, Fe, FeS and CO_3. Thresholds for each element in each domain were selected as the value where a break in the grade continuity is observed. The results of the capping and outlier restriction study for total copper are summarized in Table 11-2.

Table 11-2: Capping and Outlier Restriction for Total Copper

Domain Code	No. of Comps	Max (%)	Capping Value (%)	Outlier Restriction Value (%)	No. of Comps Capped	Affected Records (%)	Mean Comps (%)	Mean Capped Comps (%)	Metal Loss (%)
1	898	4.33	3.20	-	5	0.60	0.21	0.21	-0.76
2	322	1.10	0.40	-	3	0.90	0.04	0.04	-2.11
3	234	4.86	1.30	-	6	2.60	0.20	0.19	-5.08
4	799	3.74	-	2.75	-	-	0.63	0.63	-
5	1,290	6.34	-	5.00	-	-	0.82	0.82	-
6	14553	8.28	3.30	-	10	0.10	0.66	0.66	-0.17
7	4,224	2.58	-	2.00	-	-	0.25	0.25	-
8	190	0.91	-	-	-	-	0.09	0.09	-
9	285	7.17	1.50	-	8	2.80	0.47	0.46	-1.41
10	9,354	4.43	-	2.60	-	-	0.51	0.51	-
11	6,294	6.76	4.00	-	7	0.10	0.76	0.76	-0.04
12	342	1.75	-	1.30	-	-	0.50	0.50	-
13	325	0.97	-	0.90	-	-	0.38	0.38	-
14	3,758	3.20	0.90	-	2	0.10	0.10	0.10	-1.31
15	3,383	1.90	-	1.70	-	-	0.18	0.18	-
16	2,986	2.33	-	1.80	-	-	0.25	0.25	-

11.8 Variography

Variograms were prepared for the total copper, molybdenum, iron and carbonate for each estimation domain.

Directional variograms were modeled with two spherical structures. To obtain the nugget effect, down-the-hole variograms were created. Domains with a small number of samples have been grouped based on their spatial location.

11.9 Estimation Methods

The dimensions of the block in the 3D model are 20 x 20 x 15 m without rotation. The block model covers an area of 4.8 km by 4.8 km in plan view, and 1.74 km vertically.

Variables estimated include CuT, CuS, CuCN, Mo, Fe, FeS and CO_3 using ordinary kriging (OK). Estimation was conducted with three passes using an anisotropic ellipsoidal search with ranges increasing 1.5 times and two times the ranges of pass one for subsequent passes. The estimation plan strategy included a minimum of eight composites and a maximum of 16 composites, using a maximum of two composites per drill hole. High-yield restriction on high-grade samples were applied to limit the smearing of higher grades. Blocks that were not estimated were assigned a mean grade according to their corresponding estimation domain.

To complement the global statistical reviews for validation, a nearest neighbor (NN) model was constructed.

11.10 Validation

Wood completed visual inspection for CuT, CuS, CuCN, Mo, Fe, FeS and CO_3 and density models. Validation included review of global bias (comparison of OK and NN models), local trends in grade profiles (swath plots using NN assignment) and change of support for the mains estimation domain by applying the Hermitian Correction (HERCO) validation. Reconciliation was also used as a validation tool.

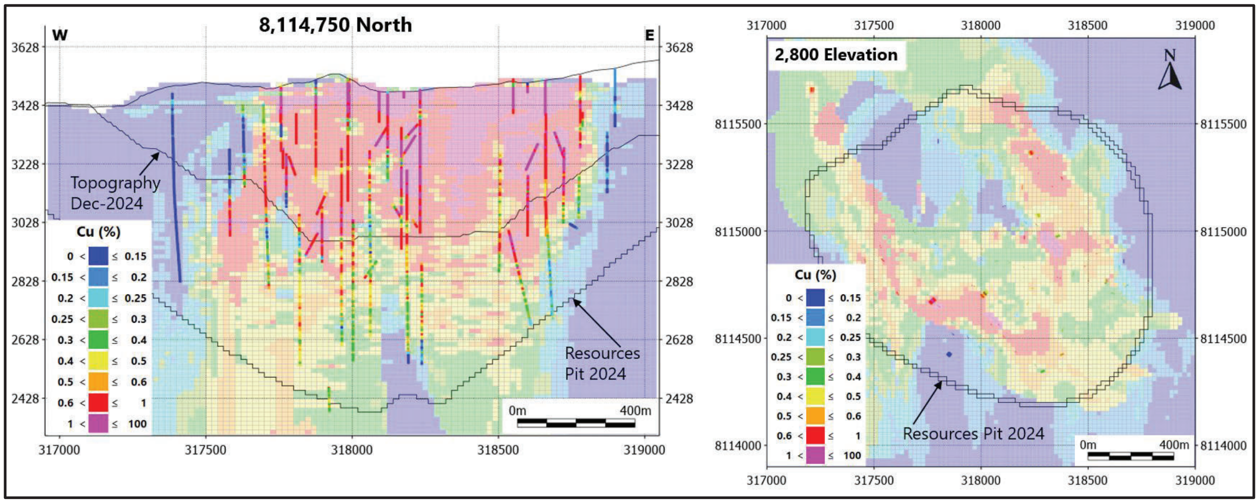
Visual validation compares estimated block grades to composite grades on vertical and plan views, covering the extent of the deposit. The estimated blocks of copper, molybdenum, iron and carbonate by estimation domain compare reasonably with composite data. Figure 11-3 and Figure 11-4 show the composites and estimated blocks for copper and molybdenum respectively.

Global bias was evaluated by comparing the OK estimate to the NN assignment. A global bias of <5% is considered to be acceptable by industry in the context of a porphyry deposit. Results show the differences were less than 5% in all estimation domains and for all estimated elements, indicating global bias has been appropriately controlled.

Local bias was evaluated using swath plots prepared in the north-south and east-west directions, and elevation. In general, local bias is acceptable with swath plots showing estimated block grades corresponding well with the NN model across the deposit, indicating local bias has been well controlled.

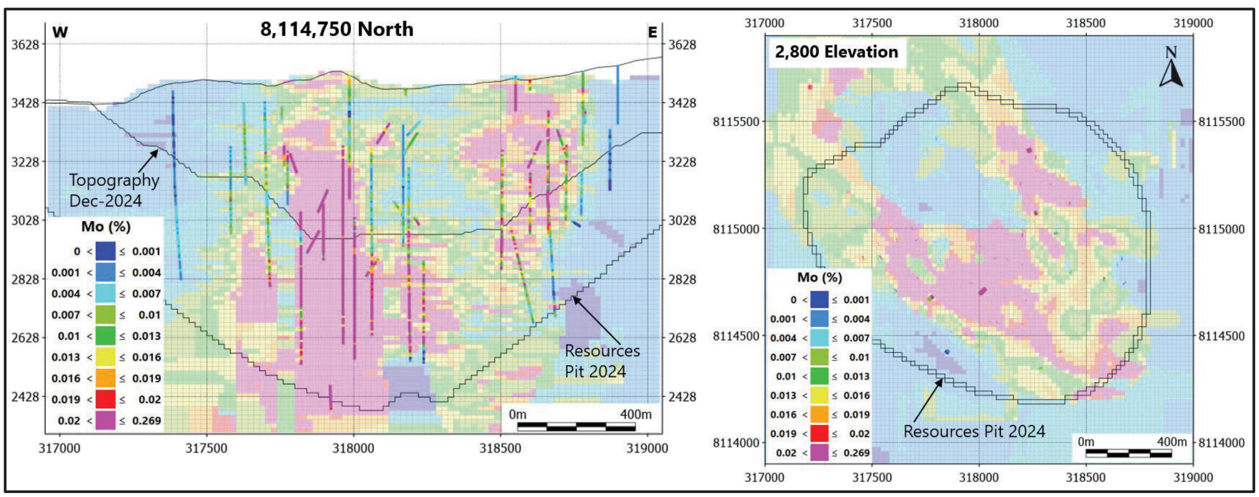
Change of support was analyzed for total copper in the main copper domains. Grade-tonnage curves at various cut-offs showed limited smoothing in the estimate which Wood found acceptable.

Figure 11-3: Visual Validation for Copper – Views to North and Plan



Source: Wood, 2024

Figure 11-4: Visual Validation for Molybdenum – Views to North and Plan



Source: Wood, 2024

11.11 Confidence Classification of Mineral Resource Estimate

11.11.1 Mineral Resource Confidence Classification

Mineral resource classification was based on three main aspects, data density, geological and grade continuity, and the quality of the information used in estimate.

Density data evaluation was performed by analyzing the drill hole spacing of the current pattern, which determines an optimal drill hole grid that ensures a production scenario within an acceptable confidence interval. This exercise was conducted on the main estimation domains for copper only as it is the relevant element in Cuajone.

The following criteria were used for classifying mineral resources:

- *Measured* – blocks within 85 m to the nearest composite estimated from a minimum of three drill holes without extrapolation
- *Indicated* – blocks within 100 m to the nearest composite estimated with a minimum of two drill holes
- *Inferred* – blocks within 150 m to the nearest composite with a minimum of one drill hole.

Once blocks were flagged and classified as mineral resources with the above parameters, a smoothing exercise were performed to eliminate isolated blocks or blocks within a different classification. These blocks were assimilated by the majority category, ensuring the coherence and continuity of the results.

11.11.2 Uncertainties Considered During Confidence Classification

Wood considers the deposit to have sufficient drilling information to support Measured, Indicated and Inferred mineral resources. However, following the drill hole spacing analysis that classified the mineral resource estimates into the confidence categories, uncertainties regarding data collection including missing drill hole documentation, lack of downhole surveying and quality control for historical drilling (pre-2016) were incorporated into the classifications assigned. An indicator was created to evaluate the proportion of these uncertainties used in the grade estimate. Block estimates using more than 80% of validated data maintained its original confidence category while block estimates using less than 80% of validated data were downgraded in confidence to the indicated or inferred category. The good reconciliation results where grade control aligns closely with the grades predicted by historical drilling allows for this confidence classification.

11.12 Reasonable Prospects of Economic Extraction

11.12.1 Input Assumptions

Wood constrained the mineral resource estimate within a conceptual pit shell using a Lerchs-Grossmann algorithm and the parameters summarized in Table 11-3.

Table 11-3: Input Parameters Mineral Resource Pit Shell

Parameter	Unit	Value
Price		
Copper	$/lb	3.80
Molybdenum	$/lb	11.50
Mining		
Reference mining cost (rock)[1]	$/t	2.09
Reference mining cost (fill)[1]	$/t	1.61
Incremental haulage cost up	$/t	-
Incremental haulage cost down	$/t	-
Processing		
Concentration and tailings process cost[1]	$/t	8.21
Leaching and SX/EW process cost[1]	$/t	9.95
Selling[1]		
Concentrate Cu net payable price[2]	$/lb	3.49
Concentrate Mo net payable price[3]	$/lb	9.29
Leach Cu net payable price[4]	$/lb	3.65
Minimum Modified Mining Royalty[5]	% NSR	1
Average Recoveries		
Concentrate Cu	%	84.0
Concentrate Mo	%	61.1
Leaching Cu	%	36.8
Cut-offs[6]		
Sulfide NSR cut-off value	$/t	8.21
Leach NSR cut-off value	$/t	9.95
Pit slopes		
Variable overall slope angles	degree	30–42

Note: Numbers have been rounded.

(1) Excluding sustaining capital costs.

(2) Concentrate Cu net payable price per pound produced includes the following: smelting and refining recoveries (97.1% and 99.9%, respectively), treatment costs of $0.17/lb Cu (excluding sustaining costs), copper selling cost of $0.001/lb Cu, and 1% NSR royalty.

(3) Concentrate Mo net payable price per pound produced includes a molybdenum selling cost of $1.83/lb Mo, and 1% NSR royalty.

(4) Leach Cu net payable price per pound produced includes a copper selling cost of $-0.005/lb Cu, and 1% NSR royalty. The copper selling cost is a negative because cathode copper attracts a premium.

(5) As per current Peruvian mining taxation regime.

(6) Marginal cut-offs (excluding mining costs).

11.12.2 Commodity Prices and Market

Southern Copper provided Wood with Southern Copper's internal long-term metal price forecast and a presentation on their market outlook. The long-term commodity price forecast was applied over the 50.4-year expected mine life. Forecasts were based on Southern Copper's interpretations of market analysis from Wood Mackenzie, CRU and 21 analysts and banks on copper price.

Wood reviewed the Southern Copper long-term mineral reserve forecast price for copper of $3.30/lb and for molybdenum of $10.00/lb over the life of mine and concluded that the copper and molybdenum prices selected by Southern Copper are reasonable in comparison to the prices being used by Southern Copper's industry peers.

Industry-accepted practice is to use a higher metal price for the mineral resource estimates than the pricing used for mineral reserves. This is to ensure that the mineral reserves are a subset of the mineral resources. The long-term copper price forecast of $3.30/lb for mineral reserves was increased by 15% to provide the mineral resource estimate copper price estimate of $3.80/lb. Similarly, the long-term molybdenum price forecast of $10.00/lb for mineral reserves was increased by 15% to provide the mineral resource estimate molybdenum price estimate of $11.50/lb.

The assumed exchange rate was US$1.00 = PENS/3.80. This exchange rate was provided by Southern Copper.

Southern Copper is engaged with selling mine production into the copper and molybdenum markets and has a reasonable basis for their assumptions. The market for the mine production is discussed in Section 16.

11.12.3 Cut-offs

The cut-off NSR for mineral resources was determined to be $8.21/t for sulfide mineralization to be treated by concentration. The cut-off NSR for mineral resources to be treated by the leach facilities was $9.95/t. The inputs to the cut-off grades are shown in Table 11-3. Operating costs were based on actual costs and data from Southern Copper's operating mines in Peru, Wood's experience and the proposed mine and process plans. Wood used slightly more optimistic assumptions on costs for mineral resources than those used for mineral reserves over the 50.4-year assumed mine life.

Wood consider those blocks within the constraining resource pit shell and above the NSR cut-off values applied have reasonable prospects for economic extraction.

11.13 Mineral Resource Estimate

11.13.1 Mineral Resource Statement

Mineral resources are reported using the mineral resource standards and definitions set out in S-K 1300 and are reported exclusive of those mineral resources converted to mineral reserves. The selected point of reference for the mineral resource estimate is in place (before mining). Mineral resources are summarized in Table 11-4.

Table 11-4: Cuajone Mineral Resource Statement

Classification Category	Amount (Mt)	Copper Grades (%)	Molybdenum Grades (%)	Copper Metal Content (Mlb)	Molybdenum Metal Content (Mlb)
Measured					
Sulfides	62.0	0.35	0.014	471.9	18.7
Leach (oxide)	-	-	-	-	-
Total Measured	**62.0**	**0.35**	**-**	**471.9**	**18.7**
Indicated					
Sulfides	444.2	0.33	0.012	3,225.6	116.1
Leach (oxide)	0.0	0.55	-	0.3	-
Total Indicated	**444.2**	**0.33**	**-**	**3,225.9**	**116.1**
Measured + Indicated					
Sulfides	506.2	0.33	0.012	3,697.5	134.8
Leach (oxide)	0.0	0.55	-	0.3	-
Total Measured + Indicated	**506.2**	**0.33**	**-**	**3,697.7**	**134.8**
Inferred					
Sulfides	865.3	0.28	0.008	5,420.8	160.2
Leach (oxide)	0.0	0.64	-	0.2	-
Inferred Total	**865.3**	**0.28**	**-**	**5,421.0**	**160.2**

Note: (1) The point of reference for mineral resources are in place and are current as at December 31, 2024. Mineral resources are reported exclusive of mineral reserves. Wood is responsible for the estimate.

(2) Mineral resources are constrained within an optimized pit shell based on copper and molybdenum revenues only. The following parameters were used in estimation: assumed open-pit mining methods; assumed concentration and heap leaching processes; copper price of $3.80/lb, molybdenum price of $11.50/lb; marginal NSR cut-off values of $8.21/t-processed for concentration material (approximately equivalent to 0.127% Cu), and $9.95/t-processed for leach material (approximately equivalent to 0.326% Cu); variable metallurgical recoveries (average recoveries of 84.0% for copper by concentration, 61.1% for molybdenum by concentration, and 36.8% for copper by leaching); average copper recoveries of 97.1% for smelting and 99.9% for refining; average mining cost of $2.09/t-mined; average process costs of $8.21/t-processed for concentration material, and $9.95/t for leach material; average smelting and refining cost of $0.17/lb Cu; selling costs of $0.001/lb Cu for concentration process, $1.83/lb Mo for concentration process, and $-0.005/lb Cu for leaching process; and 1% NSR royalty applied to Cu and Mo.

(3) No estimates for molybdenum are reported for leach material as this element cannot currently be recovered using the leach process envisaged.

(4) Numbers in the table have been rounded. Totals may not sum due to rounding.

Wood believes there is a reasonable expectation that the majority of Inferred mineral resources could be upgraded to Indicated or Measured mineral resources with continued exploration.

11.13.2 Uncertainties (Factors) That May Affect the Mineral Resource Estimate

Additional to what are described elsewhere in this Report, sources of uncertainty that may affect the mineral resource estimates include:

- Unrecognized complexities and other changes to the interpretation of the geological model such as presence of unrecognized mineralization off-shoots; faults, dykes, and other structures; and continuity of mineralized zones
- Uncertainties regarding interpreted geological and grade shape, and geological and grade continuity assumptions
- Unrecognized variability in the metallurgical recovery
- Uncertainties in the technical and economic input assumptions used to derive the open pit shell that is used to constrain the estimates and determine the cut-offs
- Unrecognized variations in the geotechnical (including seismicity), hydrogeological and mining assumptions
- Unrecognized issues with environmental, permitting and social license.

Wood identified several factors that may result in poor validation results and other risks in the model:

- Issues with geological modeling especially the shapes and volumes of high-grade breccia units and lower grade dykes potentially having an impact on grade and tonnage above cut-off in the resource model used for long-range planning
- Variability in assumed geological and alteration modeling
- Over-projection (blowouts) of higher-grade mineralization in areas of sparse drilling around the edges of the main mineralized zone, narrower zones and especially at depth in blocks flagged as Inferred mineral resources
- Predominantly vertical drilling is not ideal for defining vertical lithological contacts, ore-waste boundaries, and gradients in grade.

11.13.3 Opinion Statement

Wood's QP is of the opinion that any issues that arise in relation to relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work. Porphyry-copper style deposits are a well-known and studied deposit type, and Southern Copper has more than 45 years of experience with mining the Cuajone deposit and has managed the uncertainties that have occurred to date during mining.

12.0 MINERAL RESERVE ESTIMATES

12.1 Introduction

Measured and Indicated mineral resources were converted to proven and probable mineral reserves, respectively by applying the modifying factors within a prefeasibility level mining study of the current and planned Cuajone mining operations. The LOM plan for the Cuajone mining operations is considered by Wood to be technically achievable and economically viable and is a reasonable basis for determining the mineral reserves. Inferred mineral resources were set to waste.

12.2 Development of Mining Case

12.2.1 Pit Optimization

Pit optimization was performed using the Lerchs-Grossmann (LG) algorithm in GEOVIA Whittle software. A summary of the economic and technical parameters used for the pit optimization of the Cuajone deposit is presented in Table 12-1.

Nested pit shells were run from revenue factors (RF) ranging from 0.4 to 1.2 (Figure 12-1, Figure 12-2, and Figure 12-3). The revenue factor is a multiplier applied to the base metal price and is subsequently used in the pit optimization. For example, a RF of 1.0 corresponds to a copper base price of $3.30/lb. A revenue factor of 0.5 multiplies the base metal price by 0.5 to determine the price used in the optimization and pit shells.

For final pit selection, Southern Copper's corporate guidelines dictate that LOM production and metal content be maximized. As such, the revenue factor 1.0 pit shell was selected as the guide for the final pit design.

12.2.2 Adjustment Factors

Mining dilution was not applied as the reconciliation results for tonnage and grade is good (around 1% difference). However, isolated ore/waste block smoothing was applied to the mineable blocks to avoid quantifying block volumes that would not be operationally extractable, and the impact on mineral content is <1%.

A 100% mining recovery was used because of good reconciliation.

Table 12-1: Input Parameters Mineral Reserve Pit Shell

Parameter	Unit	Value
Price		
Copper	$/lb	3.30
Molybdenum	$/lb	10.00
Mining		
Reference mining cost (rock)[1]	$/t	2.58
Reference mining cost (fill)[1]	$/t	2.10
Incremental haulage cost up	$/t	0.012
Incremental haulage cost down	$/t	0.020
Processing		
Concentration and tailings process cost[1]	$/t	9.71
Leaching and SX/EW process cost[1]	$/t	14.32
Selling[1]		
Concentrate Cu net payable price[2]	$/lb	2.97
Concentrate Mo net payable price[3]	$/lb	7.85
Leach Cu net payable price[4]	$/lb	3.17
Minimum Modified Mining Royalty[5]	% NSR	1
Average LOM Recoveries[6]		
Concentrate Cu	%	86.6
Concentrate Mo	%	62.7
Leaching Cu	%	36.7
Cut-offs[7]		
Concentration NSR cut-off value	$/t	9.61–9.77
Leaching NSR cut-off value	$/t	14.27–14.40
Pit slopes		
Variable overall slope angles	degree	30–42

Note: Numbers have been rounded. All costs and metal prices assumptions are fixed over the 50.4-year LOM.

(1) Including sustaining capital costs.

(2) Concentrate Cu net payable price per pound produced includes the following: smelting and refining recoveries (97.1% and 99.9%, respectively), treatment costs of $0.21/lb Cu (including sustaining costs), copper selling cost of $0.001/lb Cu, and 1% NSR royalty.

(3) Concentrate Mo net payable price per pound produced includes a molybdenum selling cost of $1.83/lb Mo, and 1% NSR royalty.

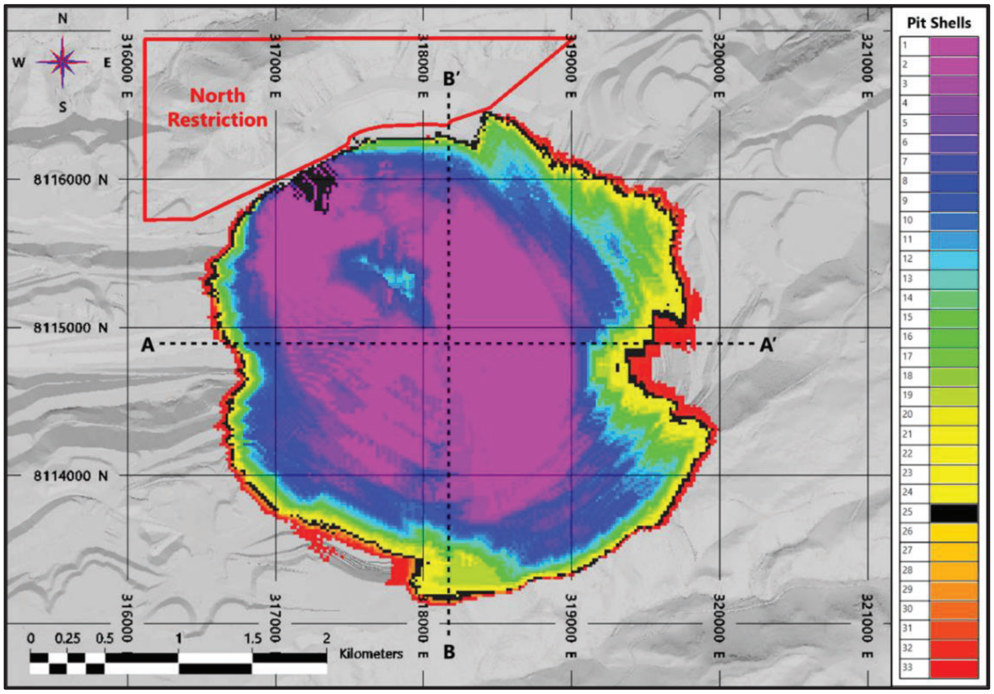
(4) Leach Cu net payable price per pound produced includes a copper selling cost of $-0.005/lb Cu, and 1% NSR royalty. The copper selling cost is a negative because cathode copper attracts a premium.

(5) As per current Peruvian mining taxation regime.

(6) Average metallurgical recovery within the open pit, excluding ore currently stockpiled at the site.

(7) Variable marginal cut-offs (discounting mining costs).

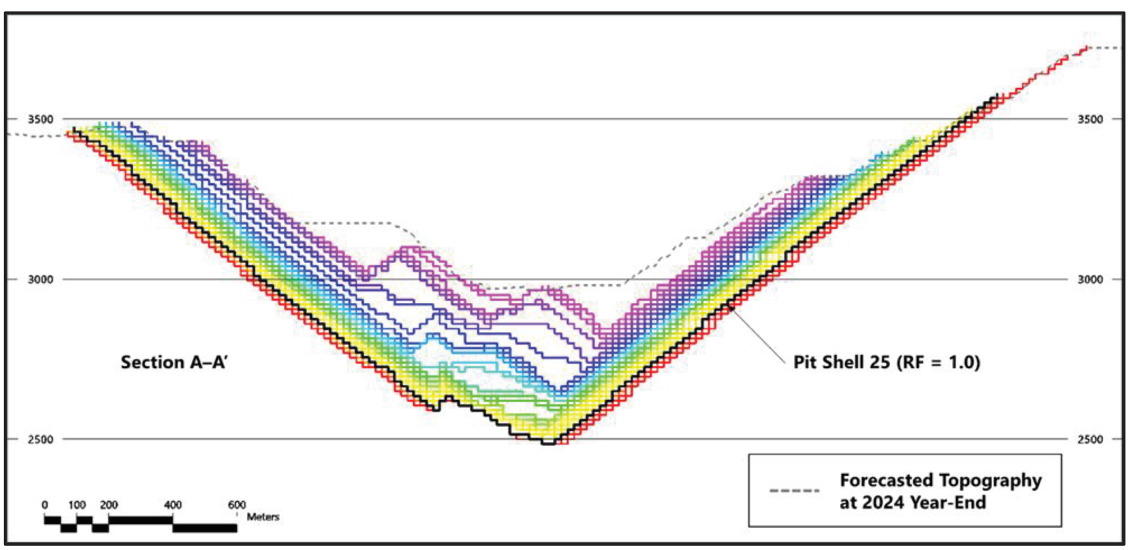
Figure 12-1: Nested Pit Shells from Pit Optimization (Plan View)



Source: Wood, 2024

Note: Pit shell 25 = RF 1.0. North restriction area was used to protect a tunnel that serves to channel water from the Torata River from pit expansion.

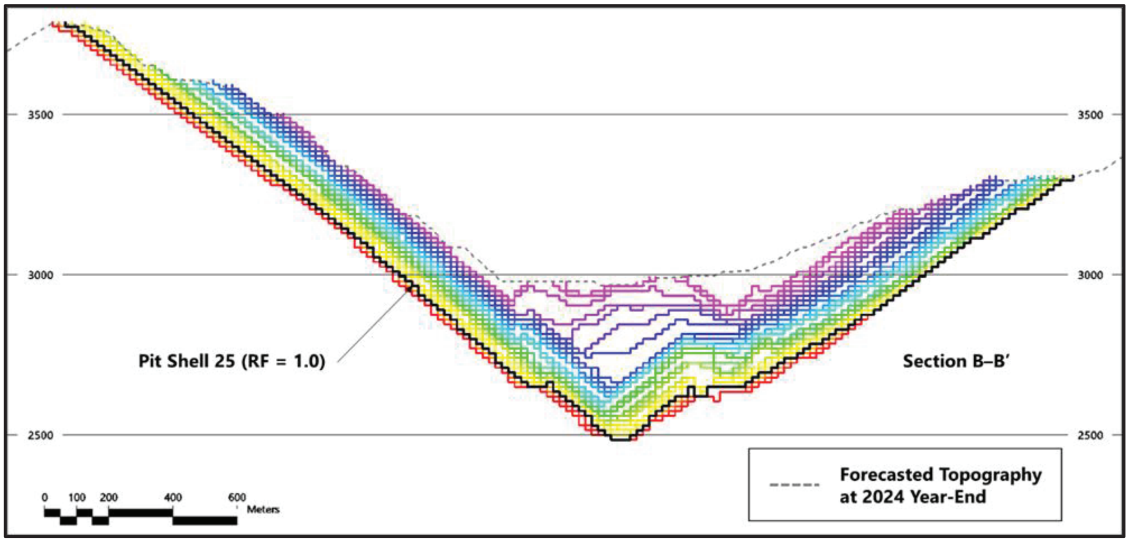
Figure 12-2: Nested Pit Shells from Pit Optimization (Section View A–A′)



Source: Wood, 2024

Note: Section Figure 12-1 for legend.

Figure 12-3: Nested Pit Shells from Pit Optimization (Section View B–B')



Source: Wood, 2024

Note: Section Figure 12-1 for legend.

12.2.3 Topography

Surface topography was provided by Southern Copper and corresponds to the forecasted topography to the end of 2024. The topography surface was used to determine the proportion of blocks below the surface.

12.2.4 Slope Angles

Geotechnical zones used for pit optimization were based on guidance provided by SRK (2016).

An overall slope angle (OSA) was assigned to the different geotechnical zones. The OSAs were estimated based on Southern Copper's 2024 preliminary reserve pit design (Table 12-2).

Table 12-2: Overall Slope Angle by Geotechnical Zones

Zone	OSA[1] (degree)
NW	42
N	35
E1	36
E2	36
SE1	36
SE2	36
W1	39
W2	37
Pit Bottom E	38
Pit Bottom W	41
Fill[2]	30
Undefined[3]	30

Note: (1) OSA calculated based on Cuajone preliminary reserve pit design 2024
(2) Fill zone calculated based on Cuajone fill solids 2024
(3) Fill zone parameters used for undefined zone

12.2.5 Metallurgical Recoveries

Copper metallurgical recoveries were included in the block model for concentration and leaching processes using formulas and definitions provided by Southern Copper. Molybdenum metallurgical recoveries were included in the block model for concentration.

The fixed metallurgical recoveries of copper by smelting (97.1%), refining (99.9%), and SX/EW (99.9%) were considered.

12.2.6 Mining Costs

The reference mining cost used was $2.58/t mined, which includes a base mining cost of $2.09/t mined and a mining sustaining cost of $0.49/t mined. The base mining cost was estimated using a long-term average mining cost from previous reserve estimates and adjusted with operating cost data from the last three years. The mining sustaining cost was estimated based on capital costs escalated to 2024, which include capital for mine equipment, mine maintenance, and waste disposal (land acquisition).

For pit optimization, three reference levels were established depending on the type of material extracted from the pit:

- *Concentration sulfide reference level* – Elevation 3,295 masl was considered as the pit exit level for material that goes to the sulfide crusher.
- *Leaching oxide reference level* – Elevation 3,430 masl was considered as the pit exit level for material that goes to the oxide crusher.
- *Waste reference level* – Elevation 3,370 masl was considered as the pit exit level for material that goes to the WRSFs.

In addition to the reference mining cost, an incremental haulage cost was applied depending on the type of material extracted from the pit and the established reference levels. An incremental cost of $0.012/t mined was applied for each bench above the established reference level, and $0.020/t mined was applied for each bench below the established reference level.

Finally, a mining cost reduction of $0.48/t mined was applied only to fill material, since drilling and blasting costs have already been incurred for this material type.

12.2.7 Processing Costs

Two main process flows have been established:

- *Concentration process flow* – Corresponds to the concentration, smelting, and refining processes material directed to the sulfide crusher.
- *Leaching process flow* – Corresponds to the leaching, and SX/EW processes material directed to the oxide crusher.

For the concentration process flow, the following processing costs have been considered.

The concentration and tailings cost used was $9.71/t processed, which includes a concentration and tailings operating cost of $8.21/t processed and a concentration and tailings sustaining capital cost of $1.51/t processed. The concentration operating cost was estimated using a combination of actual cost averages from previous years, adjusted to account for the long-term based on expected variations of key commodities costs such as energy, consumables, and services. Operating costs associated with tailings disposal at the existing Quebrada Honda TSF are included as part of concentration costs.

An additional tailings operating cost was considered for the alternate tailings processing and storage option required to process the remaining LOM ore once the existing Quebrada Honda TSF reaches the ultimate storage capacity at approximately the end of 2036. Wood assumed co-stack (dry-stack) tailings and waste rock as the preferred alternative to process and store the remaining tailings (starting from 2037). Costs from a 2020 internal study of another Southern

Copper project that considered disposal of tailings by comingling waste rock and filtered tailings materials were used to develop the operating cost estimate, complemented with engineering judgement on costs derived from projects of similar applications, and escalation to Q3 2024 using normalization factors.

The concentration and tailings sustaining capital cost was estimated based on a combination of previous capital cost estimates escalated to 2024 and on unit costs derived from the 2024–2028 sustaining and maintenance cost schedule developed by Southern Copper. These include capital for utilities relocation, primary crusher relocation, concentrator ongoing sustaining, concentrator maintenance, other ongoing sustaining and maintenance, Quebrada Honda TSF expansion, and new tailings thickening and filtering plant.

The smelting and refining cost used was $0.21/lb Cu produced, which includes a smelting and refining operating cost of $0.17/lb Cu produced and a smelting and refining sustaining capital cost of $0.04/lb Cu produced. The smelting and refining operating cost was estimated using a combination of actual cost averages from previous years, adjusted to account for the long-term based on expected variations of key commodities costs such as energy, consumables, and services. The smelting and refining sustaining capital cost was estimated based on unit costs derived from the 2024–2028 sustaining and maintenance cost schedule developed by Southern Copper, which includes sustaining and maintenance costs for the Ilo smelter and refinery.

For the leaching process flow, the following processing costs have been considered.

The leaching and SX/EW cost used was $14.32/t processed, which includes a leaching and SX/EW operating cost of $9.95/t processed and a leaching and SX/EW sustaining cost of $4.37/t processed. The leaching and SX/EW operating cost was estimated using a projection of the leaching and SX/EW costs provided by Southern Copper based on a long-term leach and cathodes production schedule, operational parameters, and main consumable costs based on data from their operations. The leaching and SX/EW sustaining capital cost was estimated based on unit costs derived from the 2024–2028 sustaining and maintenance cost schedule developed by Southern Copper, which includes capital for leaching and SX/EW ongoing sustaining and maintenance, and leach pad expansion.

The general and administrative (G&A) cost is included into the processing costs.

12.2.8 Treatment Charges

For the concentration process, a copper treatment charge of $0.001/lb Cu produced was used, which includes a metal deduction, a refining charge, an ocean freight cost, and a cathode premium. The cathode premium reduces the treatment charge, producing a slightly positive final value. In addition, a molybdenum treatment charge of $1.83/lb Mo concentrated was used, which includes a roasting charge and an ocean freight cost.

For the leaching process, a copper treatment charge of $-0.005/lb Cu produced was used, which includes an ocean freight cost and a cathode premium. The cathode premium reduces the treatment charge, producing a negative final value.

12.2.9 Royalties

A 1% NSR royalty was applied to copper and molybdenum for the pit optimization, which corresponds to the minimum modified mining royalty (refer to discussion in Section 3.2.7).

12.2.10 Commodity Prices and Market

Southern Copper is currently engaged in and has established a market for selling products from the Cuajone mine. A summary of the market is discussed in Section 16. Long-term metal prices of $3.30/lb Cu and $10.00/lb Mo were used to estimate mineral reserves over the 50.4-year LOM and were provided by Southern Copper. Supporting information related to these prices can be found in Section 16.4.

12.2.11 Cut-offs

The marginal NSR cut-off values for mineral reserves to be treated by concentration ranges from $9.61/t to $9.77/t. The marginal NSR cut-off values for mineral reserves to be treated by the leach facilities ranges from $14.27/t to $14.40/t.

The inputs to the cut-off values are shown in Table 12-1. Operating costs were based on actual costs and data from Southern Copper's operating mines in Peru, Wood's experience and the proposed mine and process plans.

The formulas used to calculate the concentration and leaching marginal NSR cut-off values were:

$$COVC = (MCC - MCW) + CTC$$

$$COVL = (MCL - MCW) + LXC$$

where:

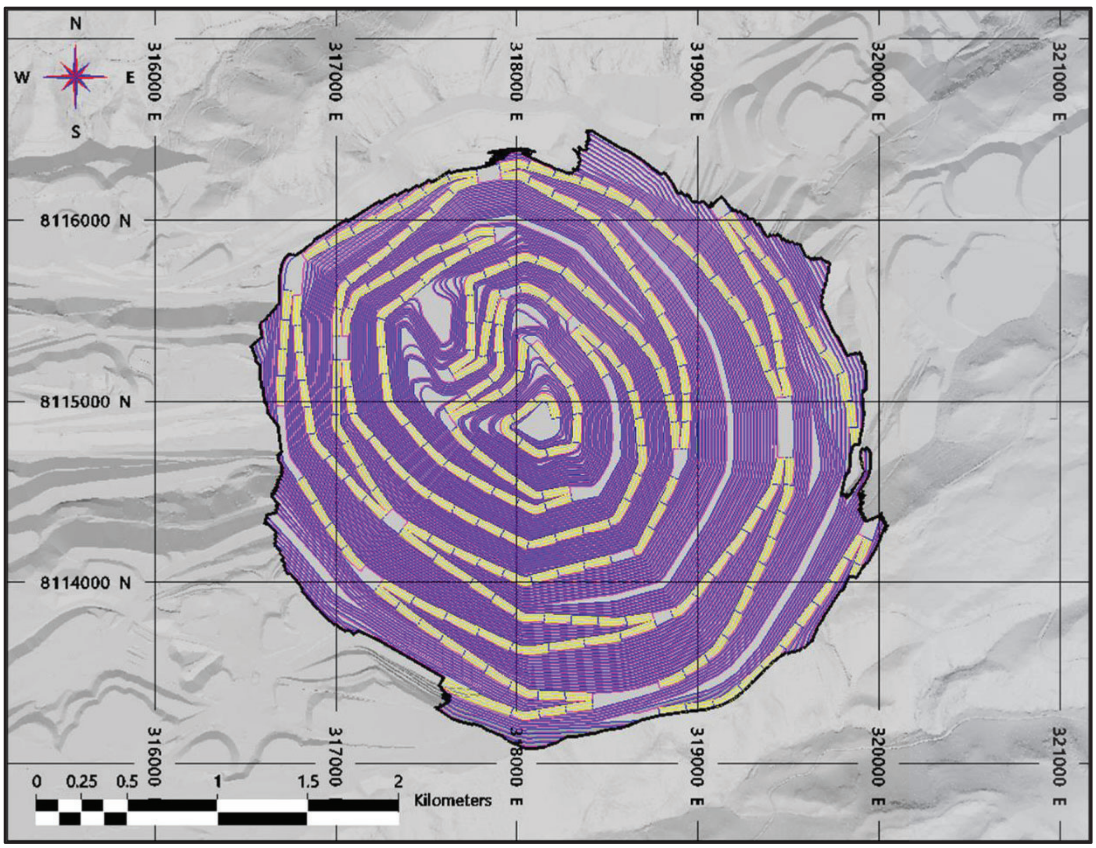
COVC= Concentration NSR cut-off value ($/t-processed for concentration material)
COVL = Leaching NSR cut-off value ($/t-processed for leaching material)

MCC = Concentration mining cost ($/t-mined for concentration material)
MCL = Leaching mining cost ($/t-mined for leaching material)
MCW = Waste mining cost ($/t-mined for waste material)
CTC = Concentration and tailings cost ($/t-processed for concentration material)
LXC = Leaching and SX/EW cost ($/t-processed for leaching material)

12.2.12 Pit Design

Figure 12-4 shows a plan view of the final pit design. This final pit is the result of the extraction of seven mining phases, which are described in more detail in Section 13.

Figure 12-4: Final Pit Design (Plan View)



Source: Wood, 2024

12.2.13 Ore Versus Waste Determinations

The criteria for the determination of ore and waste included the following:

- Measured and Indicated mineral resources that correspond to sulfide material were evaluated for being amenable to concentration processing. The sulfide material above the concentration NSR cut-off value was defined as concentration/sulfide material.
- Measured and Indicated mineral resources that correspond to oxide material were evaluated for amenability to the leaching process. The oxide material above the leaching NSR cut-off value was defined as leaching/leach material.
- All remaining material was defined as waste material.

The formulas used to calculate the NSR for the concentration and leaching materials were:

$$NSRC = (CU \times RCUC \times RCUS \times RCUR \times (PCU - SCUC - SRC) \times (1 - ROY) \times CF) \\ + (MO \times RMOC \times (PMO - SMOC) \times (1 - ROY) \times CF)$$

$$NSRL = CU \times RCUL \times RCUX \times (PCU - SCUL) \times (1 - ROY) \times CF$$

where:

NSRC = Concentration NSR ($/t-processed for concentration material)
NSRL = Leaching NSR ($/t-processed for leaching material)
CU = Copper grade (%)
MO = Molybdenum grade (%)
RCUC = Copper recovery by concentration (%)
RCUS = Copper recovery by smelting (%)
RCUR = Copper recovery by refining (%)
RMOC = Molybdenum recovery by concentration (%)
RCUL = Copper recovery by leaching (%)
RCUX = Copper recovery by SX/EW (%)
PCU = Copper price ($3.30/lb)
PMO = Molybdenum price ($10.00/lb)
SCUC = Copper selling cost for concentration process ($/lb Cu produced)
SMOC = Molybdenum selling cost for concentration process ($/lb Mo concentrated)
SCUL = Copper selling cost for leaching process ($/lb Cu produced)
SRC = Smelting and refining cost ($/lb Cu produced)
ROY = NSR royalty (modified mining royalty) (1%)
CF = Conversion factor between units (2,204.62 lb/t)

All costs and metal prices used in the mineral reserve determination were fixed over the LOM of 50.4 years.

12.3 Mineral Reserve Estimate

12.3.1 Mineral Reserve Statement

Mineral reserves are reported using the mineral reserve standards and definitions set out in S-K 1300. The selected point of reference for the mineral reserve estimate is at delivery to the process facility. Mineral reserves are summarized in Table 12-3.

The concentration and leach type ore currently stockpiled at the site is reported as concentration and leach ore from stockpile.

12.3.2 Uncertainties (Factors) That May Affect the Mineral Reserve Estimate

Additional to what are described elsewhere in this Report, sources of uncertainty that may affect the mineral reserve estimates include:

- Uncertainties in the long-term metal price and exchange rate assumptions
- Unrecognized variability in the metallurgical recovery
- Uncertainties regarding interpreted geological model supporting the mineral resource estimates
- Uncertainties in the input assumptions used to derive the mineable shapes applicable to the open pit mining methods used to constrain the estimates
- Unrecognized variations to inputs to the NSR cut-off values applied to the estimates
- Unrecognized variations in geotechnical (including seismicity), hydrogeological and mining method assumptions
- Unrecognized issues with environmental, permitting, and social license assumptions.

To assess the impact of a number of these uncertainties on the mineral reserves, a pit optimization sensitivity analysis was performed for the sulfide and oxide mineralization by varying the metal price, mining cost, processing cost, and metallurgical recovery.

Variations in the metal price and metallurgical recovery generate the greatest impact on the mineral reserve estimates. A variation in mining and processing costs generates a moderate impact on the mineral reserve estimates.

Table 12-3: Cuajone Mineral Reserve Statement

Classification Category and Process Type	Amount (Mt)	Copper Grades (%)	Molybdenum Grades (%)	Copper Metal Content (Mlb)	Molybdenum Metal Content (Mlb)
Proven					
Mill	545.7	0.53	0.020	6,435.2	239.6
Mill from stockpile	42.8	0.35	0.013	329.6	12.7
Leach (oxide)	–	–	–	–	–
Leach from stockpile	19.1	0.50	–	211.6	–
Total Proven	**607.5**	**0.52**	**–**	**6,976.4**	**252.3**
Probable					
Mill	910.4	0.45	0.015	9,012.3	303.6
Mill from stockpile	–	–	–	–	–
Leach (oxide)	0.3	0.72	–	5.5	–
Leach from stockpile	–	–	–	–	–
Total Probable	**910.7**	**0.45**	**–**	**9,017.8**	**303.6**
Proven + Probable					
Mill	1,456.1	0.48	0.017	15,447.4	543.2
Mill from stockpile	42.8	0.35	0.013	329.6	12.7
Leach (oxide)	0.3	0.72	–	5.5	–
Leach from stockpile	19.1	0.50	–	211.6	–
Total Proven + Probable	**1,518.2**	**0.48**	**–**	**15,994.2**	**555.9**

Note: (1) Mineral reserves are current as of December 31, 2024. Wood is responsible for the estimates.

(2) The point of reference is the point at which the mineral reserves are delivered to the processing facility. Mineral reserves are constrained within an engineered pit based on copper and molybdenum revenues only. The following parameters were used in estimation: assumed open-pit mining methods; assumed concentration and heap leaching processes; copper price of $3.30/lb, molybdenum price of $10.00/lb; marginal NSR cut-off values of $9.61–$9.77/t-processed for concentration material (approximately equivalent to 0.170%–0.173% Cu), and $14.27–$14.40/t-processed for leach material (approximately equivalent to 0.539%–0.544% Cu); mining recovery and dilution are accounted for and generally offset each other; additional ore loss was considered on isolated blocks; variable metallurgical recoveries (average LOM recoveries of 85.0% for copper by concentration, 62.7% for molybdenum by concentration, and 43.5% for copper oxide by heap leaching, including concentration ore existing in stockpile); average copper recoveries of 97.1% for smelting and 99.9% for refining; variable mining costs of $2.58–$3.78/t-mined; average process costs of $9.72/t-processed for concentration material, and $14.32/t for leaching material; average smelting and refining cost of $0.21/lb Cu; selling costs of $0.001/lb Cu for concentration process, $1.83/lb Mo for concentration process, and $-0.005/lb Cu for leaching process; and 1% NSR royalty applied to Cu and Mo.

(3) The point of reference for the leach from stockpile mineral reserves is in place on the stockpile with marginal NSR cut-off values of $14.27–$14.40/t-processed (approximately equivalent to 0.40% Cu) and an average LOM recovery of 54.8%

(4) No estimates for molybdenum are reported for leach material as this element cannot currently be recovered using the leach process envisaged.

(5) Numbers have been rounded. Totals may not sum due to rounding.

13.0 MINING METHODS

13.1 Introduction

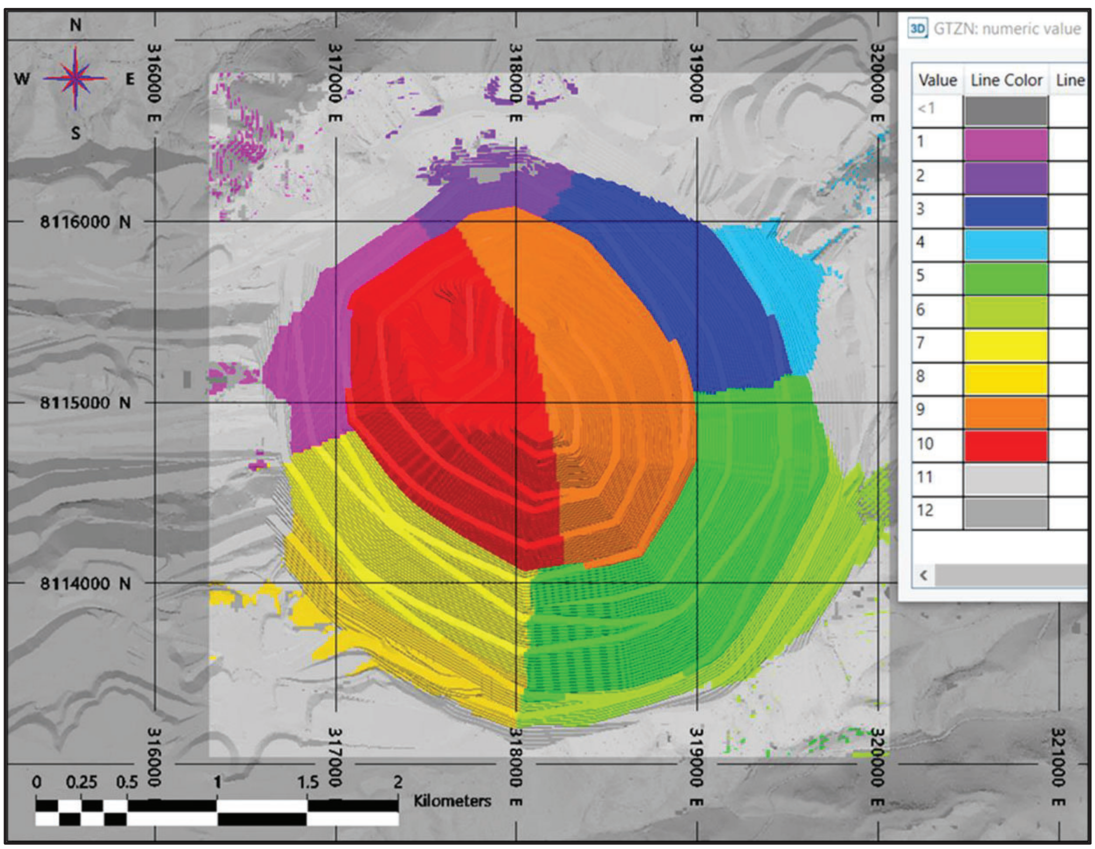
The Cuajone Operations use conventional truck-and-shovel open pit mining methods.

13.2 Geotechnical Considerations

Geotechnical criteria used in the pit design were based on guidance provided by SRK (2016). The geotechnical zones in relation to the pit outline are shown in Figure 13-1, and the pit slopes used in mine design are included in Table 13-1.

The fill material parameters were used by default for all undefined blocks.

Figure 13-1: Geotechnical Zones Projected to Final Pit Design Surface



Source: Wood, 2024

Note: GTZN = geotechnical zone

Table 13-1: Pit Slope Design Criteria by Geotechnical Zone

Zone	GTZN Code	Bench Height (m)	Bench Face Angle (degree)	Inter-Ramp Angle (degree)	Catch Berm Width (m)	Maximum Inter-Ramp Height (m)
NW	1	15	70	49	7.6	180
N	2	15	60	42	8.0	180
E1	3	15	60	42	8.0	150
E2	4	15	70	44	10.1	150
SE1	5	15	60	40	9.2	150
SE2	6	15	70	44	10.1	150
W1	7	15	60	45	6.3	180
W2	8	15	70	44	10.1	180
Pit bottom E	9	15	65	47	7.0	180
Pit bottom W	10	15	65	50	5.6	180
Fill	11	15	38	32	4.8	90
Undefined	12	15	38	32	4.8	90

Note: GTZN = geotechnical zone

13.3 Hydrogeological Considerations

The Cuajone mine maintains a monitoring network with piezometric level measurements recorded from 1997 to the present. The historical piezometric data clearly indicate a systematic decline in water levels in most piezometers, towards the pit excavation. This decline in water levels is a direct consequence of the dewatering associated with the excavation, altering the pre-existing natural groundwater flow regime. Currently, in the immediate vicinity of the pit, the hydraulic gradients converge towards the center of the pit, where the water eventually surfaces in the pit bottom lagoon. The dewatering effect diminishes both upstream and downstream of the pit, where the flow directions tend to align with the topography, ultimately discharging into the Torata River downgradient of the mine.

The Cuajone mine drainage system mainly consists of natural channel control, construction of horizontal drains, and pumping from the pit bottom. The waters flowing through the Chuntacala ravine are captured at Surtidor #4, which is drained by a pipe. Water outcrops on the east and southeast slopes of the pit, which are partially controlled by the installation of horizontal drain systems that manage part of the flow. Seepage through the alluvial deposits of the Torata River (Toratan), is also captured by the mine. Water that accumulates in the base of the pit is pumped out of the pit; the pumping system can extract 44 L/s. All contact water is used for dust-suppression within the mining area.

13.4 Operations

13.4.1 Pit Phases

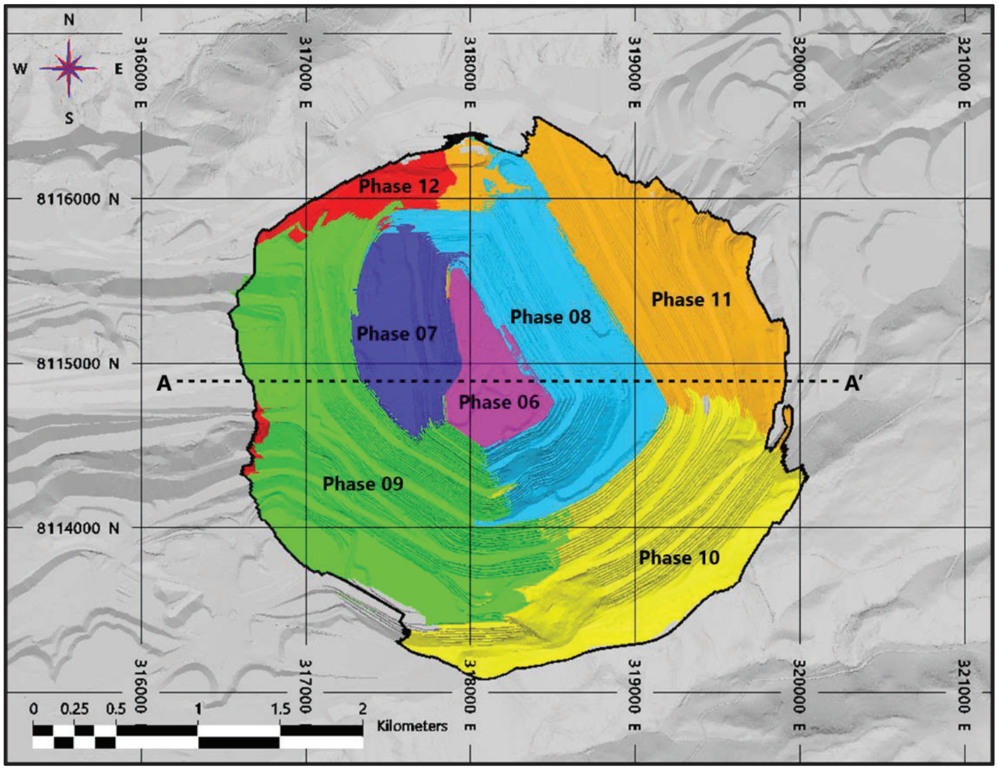
The open pit mine has a circular conical shape with a diameter of approximately 3 km. The 2024 year-end forecasted topography shows the highest elevation of the pit walls located on the southeast wall at 3,865 masl, and the bottom of the pit is at 2,965 masl. The maximum depth of the final pit will be at 2,530 masl.

Seven pit phases remain in the LOM plan, starting with phase 6 and ending with phase 12. The remaining mine life is 50.4 years. The parameters used in the phase designs are summarized in Table 13-2. The final pit is shown by phase in Figure 13-2 and in cross-section view in Figure 13-3.

Table 13-2: Pit Design Criteria Summary

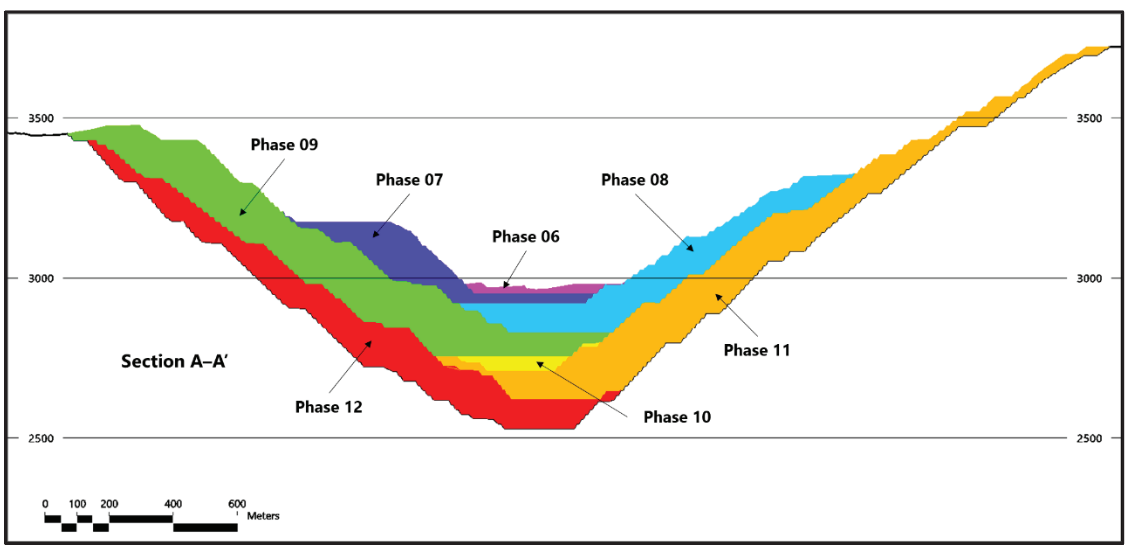
Design Criteria	Unit	Value
Bench height	m	15
Minimum mining width	m	80
Ramp width	m	40
Ramp gradient	%	10
Geotechnical berm width	m	40
Bench face angle	degree	See Table 13-1
Inter-ramp angle	degree	See Table 13-1
Catch berm width	m	See Table 13-1
Inter-ramp height	m	See Table 13-1

Figure 13-2: LOM Pit Phases (Plan View)



Source: Wood, 2024

Figure 13-3: LOM Pit Phases (Section View)



Source: Wood, 2024

13.4.1 Throughput

The mine plan assumes a maximum mining capacity of 119 Mt of annual movement and a nominal processing rate of 90 kt/d of sulfide material at the concentrator facility and 3.2 kt/d of oxide material at the leach facility.

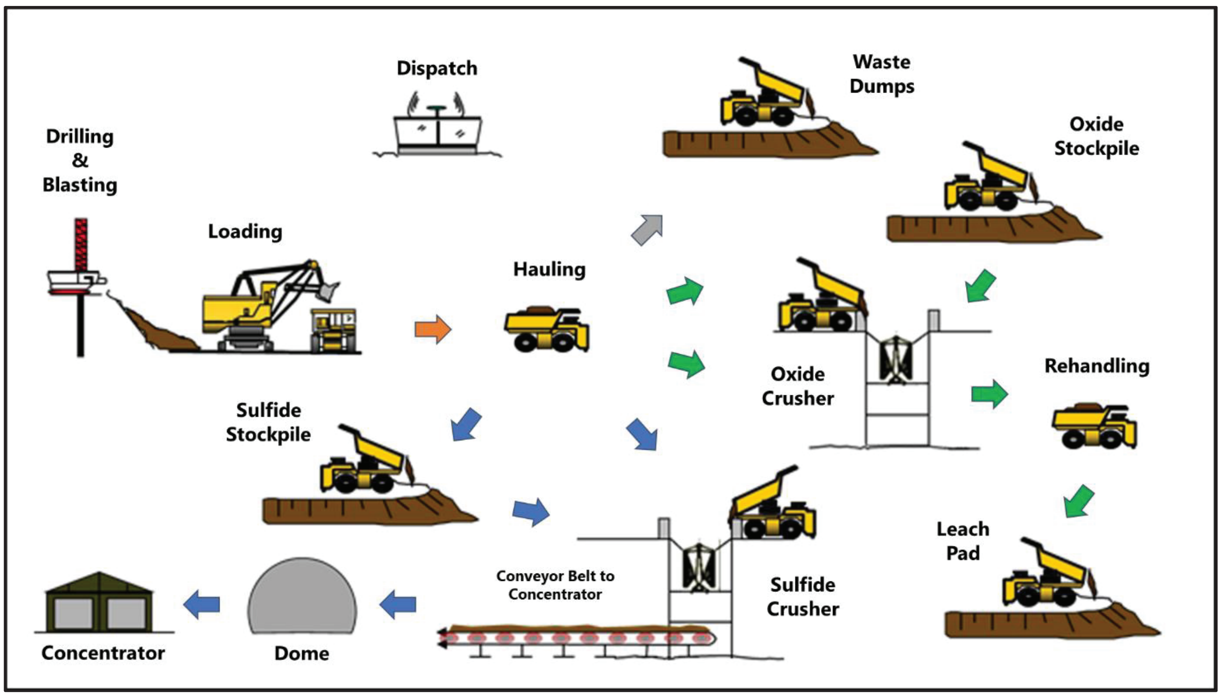
13.4.2 Operations

The mining operations are shown in the flow diagram in Figure 13-4.

Mining is conducted using two 12-h shifts. The mining operations can be summarized as:

- Initial drilling and blasting
- Loading, using shovels, of the blasted material into haul trucks
- Transport of ore and waste, depending on destination to WRSFs, oxide and sulfide stockpiles, oxide crusher, and sulfide crusher.

Figure 13-4: Mine Operation Flow Diagram



Source: Wood, 2024

The current sulfide crusher is located at elevation 3,295 masl in the northern zone of the pit. Material is supplied either directly by haul trucks or is fed from a sulfide stockpile near the crusher. Crushed sulfide material is transported using a 7 km long conveyor belt to the concentrator plant. The sulfide crusher throughput has a nominal capacity of 90 kt/d. A new sulfide crusher located at level 3,390 masl will replace the current crusher and is expected to be fully operational by year 2048. This relocation corresponds to when development of phase 11 reaches level 3,295 masl.

The oxide crusher is located at elevation 3,480 masl, 5.9 km southwest of the pit. Material is supplied either directly by haul trucks from the mine or is fed from an oxide stockpile. Crushed oxide material is rehandled by loaders and trucks and deposited on a leach pad approximately 1.0 km northeast of the oxide crusher.

13.4.3 Production Plan

The LOM plan assumes that all material that will be processed by concentration goes to the sulfide crusher. All material that will be processed by heap leaching goes to the oxide crusher. The point of transfer from mining to processing is at the point of the conveyor or delivery to the oxide crusher.

Two to three pit phases will be operational at any one time, to ensure that production rates can be met. A maximum mining capacity per phase of 90 Mt/a is assumed, with a maximum vertical advance rate of 11 benches per year. The mine plan assumes:

- 2025: phases 6, 7, and 8 are in the production stage.
- 2027: phase 9 will commence stripping, and phases 7 and 8 will be in production.
- 2031: phase 10 will commence stripping, and phases 7, 8, and 9 will be in production.
- 2036: phase 11 will commence stripping, phase 10 will continue stripping, and phases 8 and 9 will be in production.
- 2044: phase 12 will commence stripping, phase 11 will continue stripping, and phases 9 and 10 will be in production.
- 2051: phase 11 and 12 will be in production.

Five WRSFs will be used:

- The Torata East WRSF will be used from 2025 to 2049 and will receive material mainly from phases 9, and 11.
- The Cuajone WRSF will be used from 2033 to 2049 and will receive material from phases 10 and 11.

- The Cocotea East WRSF will be used from 2040 to 2052 and will receive material from phase 10.
- The Cocotea West WRSF will be used from 2028 to 2074 and will receive material from phases 9 and 12.
- The Torata West WRSF will be used from 2025 to 2072 and will receive material mainly from phases 8, 9, and 11.

The material movement envisaged in the LOM plan is provided in Figure 13-5.

Mill availability can vary, and Southern Copper has a formula that is used to predict the amount of material that can be fed to the plant based on a combination of the material work index and mill availability. This was used to estimate the amount of time needed to process each block, and the mine plan was optimized to fill the process plants based on the available time.

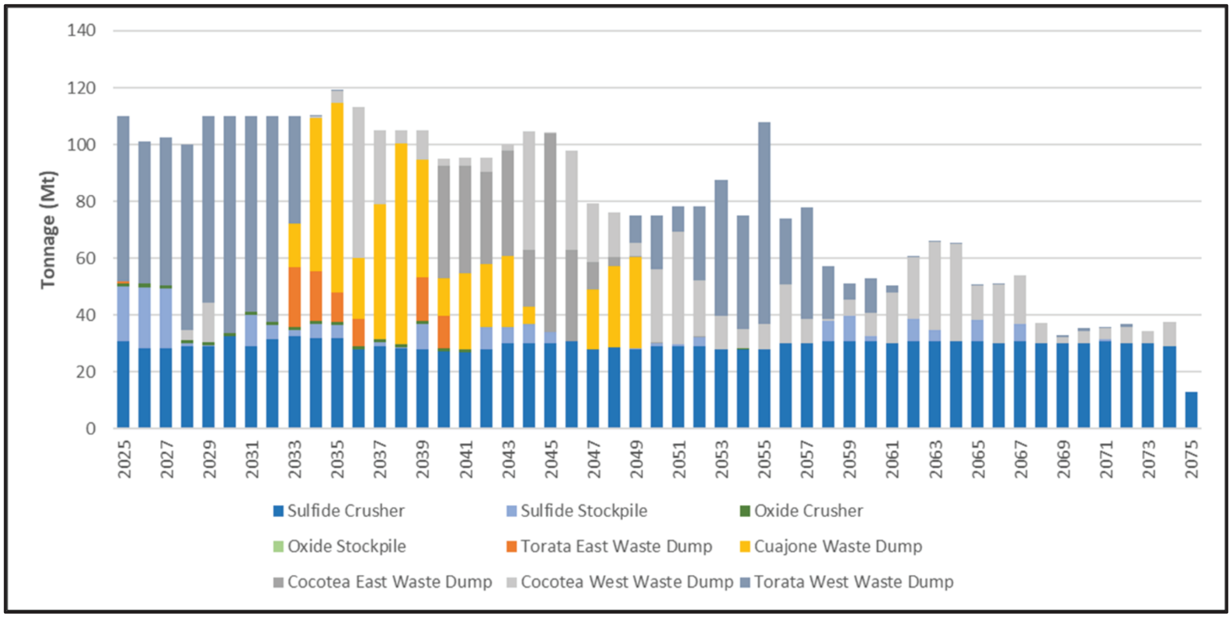
Figure 13-6 shows that the mine plan is expected to obtain a variable feed to the sulfide crusher ranging from approximately 27–33 Mt/a, for most of the LOM. The average copper grades are expected vary from 0.3–0.6%.

The oxide crusher will operate at a maximum effective capacity of 1.1 Mt/a (Figure 13-7). The feed will mainly consist of material from the existing oxide stockpile, except in the years where material from the mine will also be included in the feed.

Table 13-3, Table 13-4, and Table 13-5 show the material movement on an annualized basis.

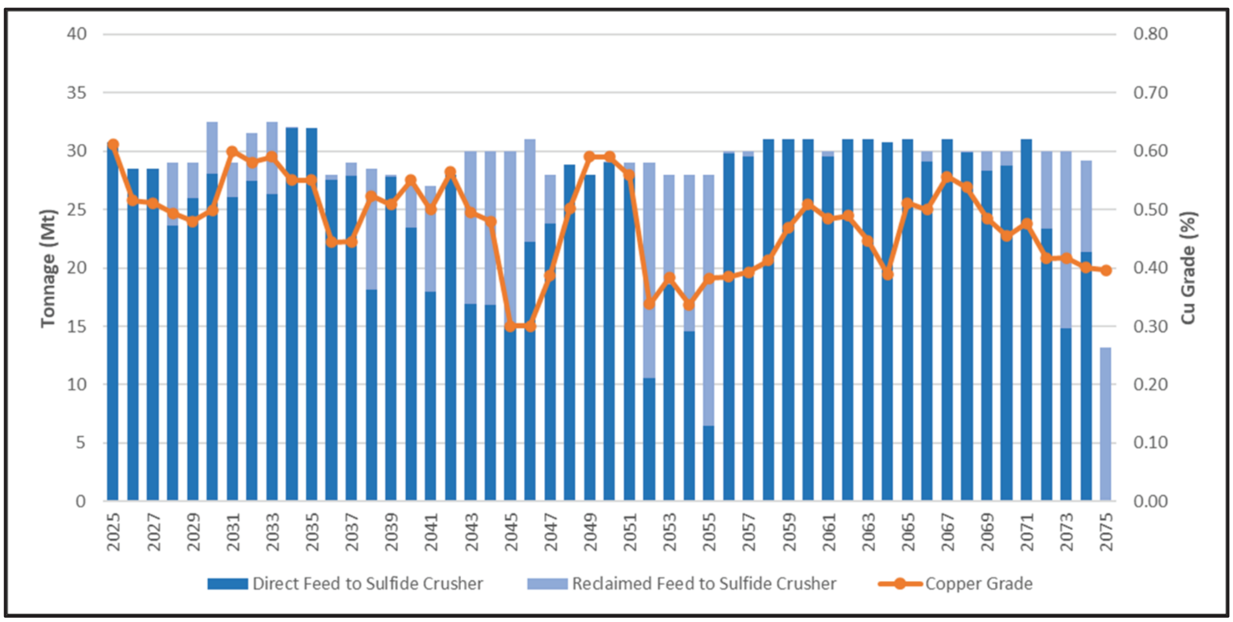
The final LOM pit layout plan is provided in Figure 13-8.

Figure 13-5: LOM Material Movement by Destinations



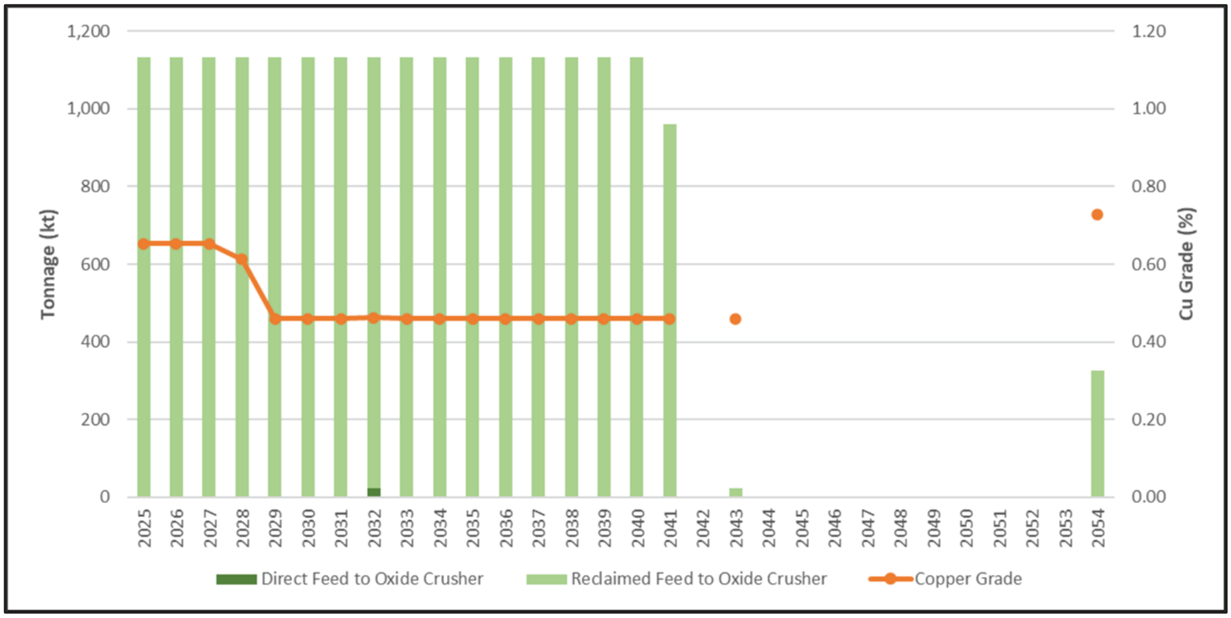
Source: Wood, 2024

Figure 13-6: LOM Feed to Sulfide Crusher



Source: Wood, 2024

Figure 13-7: LOM Feed to Oxide Crusher



Source: Wood, 2024

Table 13-3: LOM Material Movement Plan (Sulfide Material)

	Sulfide Material											
	Direct Feed to Sulfide Crusher						Reclaimed Feed to Sulfide Crusher					
			Grade		Recovery				Grade		Recovery	
Year	Tonnage (Mt)	Work Index (kWh/st)	Cu (%)	Mo (%)	Cu (%)	Mo (%)	Tonnage (Mt)	Work Index (kWh/st)	Cu (%)	Mo (%)	Cu (%)	Mo (%)
2025	30.8	18.5	0.61	0.020	85.6	63.1	-	-	-	-	-	-
2026	28.5	19.6	0.52	0.015	84.4	62.1	-	-	-	-	-	-
2027	28.5	19.3	0.51	0.018	84.8	62.9	-	-	-	-	-	-
2028	23.6	18.7	0.53	0.014	84.5	62.0	5.4	19.7	0.33	0.013	83.3	61.5
2029	26.0	19.1	0.46	0.020	84.5	62.9	3.0	19.3	0.69	0.019	84.8	63.1
2030	28.0	18.5	0.54	0.018	85.0	62.8	4.5	19.7	0.26	0.010	83.1	60.4
2031	26.0	16.5	0.64	0.021	86.6	63.4	3.0	19.3	0.26	0.013	83.5	61.7
2032	27.5	18.5	0.57	0.019	86.6	63.2	4.0	17.3	0.64	0.016	88.7	63.0
2033	26.3	16.4	0.67	0.019	87.7	63.1	6.2	18.6	0.24	0.007	82.5	55.8
2034	32.0	17.3	0.55	0.019	86.7	63.1	0.0	15.8	0.80	0.015	87.6	62.7
2035	32.0	17.4	0.55	0.020	86.5	63.3	-	-	-	-	-	-
2036	27.5	19.7	0.45	0.013	83.0	62.2	0.5	20.5	0.33	0.008	81.7	58.1
2037	27.9	20.3	0.45	0.010	82.2	60.8	1.1	19.5	0.35	0.009	83.0	59.8
2038	18.1	20.4	0.50	0.012	83.0	61.2	10.4	19.6	0.56	0.014	84.7	62.4
2039	27.7	20.5	0.51	0.015	84.0	62.2	0.3	21.3	0.37	0.011	83.4	59.7
2040	23.4	19.7	0.55	0.021	85.3	63.2	3.7	20.0	0.55	0.016	88.1	62.1

	Sulfide Material											
	Direct Feed to Sulfide Crusher						Reclaimed Feed to Sulfide Crusher					
			Grade		Recovery				Grade		Recovery	
Year	Tonnage (Mt)	Work Index (kWh/st)	Cu (%)	Mo (%)	Cu (%)	Mo (%)	Tonnage (Mt)	Work Index (kWh/st)	Cu (%)	Mo (%)	Cu (%)	Mo (%)
2041	18.0	18.4	0.56	0.022	87.6	63.4	9.0	19.2	0.38	0.011	84.3	59.0
2042	28.0	17.5	0.56	0.026	85.8	63.4	-	-	-	-	-	-
2043	17.0	17.3	0.48	0.026	86.1	63.5	13.0	18.4	0.51	0.020	86.1	62.9
2044	16.8	16.2	0.44	0.029	86.2	63.8	13.2	17.8	0.53	0.019	84.7	63.0
2045	15.0	20.3	0.30	0.011	82.8	60.7	15.0	18.8	0.30	0.016	84.3	62.4
2046	22.2	21.1	0.31	0.007	81.9	58.2	8.8	20.6	0.28	0.009	83.5	59.8
2047	23.8	20.8	0.39	0.009	82.9	59.6	4.2	20.0	0.39	0.008	82.9	58.5
2048	28.8	20.3	0.50	0.012	83.8	61.3	-	-	-	-	-	-
2049	28.0	19.5	0.59	0.015	84.4	62.5	-	-	-	-	-	-
2050	29.0	17.4	0.59	0.017	85.2	63.0	0.0	20.7	0.18	0.009	83.8	59.7
2051	28.0	17.0	0.55	0.019	86.4	63.5	1.0	20.0	0.75	0.027	84.7	63.8
2052	10.6	17.1	0.35	0.023	86.0	63.5	18.4	20.2	0.33	0.012	83.5	61.2
2053	18.6	22.2	0.42	0.013	82.9	61.8	9.4	20.8	0.31	0.010	81.1	60.6
2054	14.6	22.2	0.39	0.015	83.9	62.7	13.4	19.7	0.28	0.009	82.5	60.3
2055	6.4	22.0	0.32	0.010	83.3	60.5	21.6	19.0	0.40	0.016	82.5	62.9
2056	29.8	21.5	0.39	0.013	83.8	61.6	0.2	19.0	0.40	0.016	82.5	62.9
2057	29.5	20.3	0.39	0.011	83.8	60.9	0.5	19.0	0.40	0.016	82.5	62.9
2058	31.0	20.2	0.41	0.011	84.1	61.0	-	-	-	-	-	-
2059	31.0	20.1	0.47	0.012	84.6	61.6	-	-	-	-	-	-
2060	31.0	18.7	0.51	0.015	85.1	62.6	-	-	-	-	-	-

	Sulfide Material											
	Direct Feed to Sulfide Crusher						Reclaimed Feed to Sulfide Crusher					
			Grade		Recovery				Grade		Recovery	
Year	Tonnage (Mt)	Work Index (kWh/st)	Cu (%)	Mo (%)	Cu (%)	Mo (%)	Tonnage (Mt)	Work Index (kWh/st)	Cu (%)	Mo (%)	Cu (%)	Mo (%)
2061	29.5	17.6	0.49	0.016	85.7	62.7	0.5	22.0	0.39	0.011	83.7	60.7
2062	31.0	18.4	0.49	0.015	85.7	62.5	-	-	-	-	-	-
2063	31.0	19.0	0.45	0.014	84.4	62.3	-	-	-	-	-	-
2064	30.7	21.0	0.39	0.013	83.2	61.9	-	-	-	-	-	-
2065	31.0	19.5	0.51	0.017	84.4	62.8	-	-	-	-	-	-
2066	29.1	20.6	0.51	0.017	85.0	62.8	0.9	20.8	0.30	0.010	84.1	60.3
2067	31.0	20.0	0.56	0.020	85.2	63.3	-	-	-	-	-	-
2068	29.9	18.5	0.54	0.021	85.6	63.3	0.1	20.8	0.48	0.029	83.8	63.9
2069	28.3	17.4	0.49	0.022	86.0	63.4	1.7	20.0	0.32	0.010	83.7	60.6
2070	28.8	17.1	0.45	0.023	86.1	63.5	1.2	20.3	0.52	0.018	84.6	62.9
2071	31.0	16.9	0.48	0.028	86.7	63.6	-	-	-	-	-	-
2072	23.4	16.7	0.42	0.027	86.4	63.7	6.6	20.2	0.41	0.016	83.4	62.4
2073	14.8	17.4	0.42	0.023	86.2	63.3	15.2	19.1	0.42	0.015	84.6	62.4
2074	21.3	16.7	0.39	0.024	85.6	63.6	7.9	20.0	0.42	0.011	84.2	61.0
2075	-	-	-	-	-	-	13.1	20.1	0.40	0.014	83.2	62.0
Total/Average	**1,281.7**	**18.9**	**0.49**	**0.017**	**85.6**	**63.6**	**217.2**	**19.4**	**0.40**	**0.014**	**84.1**	**61.9**

Table 13-4: LOM Material Movement Plan (Sulfide and Oxide Material)

	Sulfide Material				Oxide Material								
	Feed to Sulfide Stockpile				Direct Feed to Oxide Crusher			Reclaimed Feed to Oxide Crusher			Feed to Oxide Stockpile		
			Grade										
Year	Tonnage (Mt)	Work Index (kWh/st)	Cu (%)	Mo (%)	Tonnage (Mt)	Cu Grade (%)	Cu Recovery (%)	Tonnage (Mt)	Cu Grade (%)	Cu Recovery (%)	Tonnage (Mt)	Work Index (kWh/st)	Cu Grade (%)
2025	19.3	20.0	0.27	0.008	-	-	-	1.1	0.65	51.4	-	-	-
2026	21.4	19.9	0.36	0.012	-	-	-	1.1	0.65	51.4	-	-	-
2027	20.8	19.7	0.34	0.014	-	-	-	1.1	0.65	51.4	-	-	-
2028	1.1	19.3	0.70	0.016	-	-	-	1.1	0.61	53.7	-	-	-
2029	0.5	20.1	0.17	0.008	-	-	-	1.1	0.46	65.7	-	-	-
2030	0.2	16.7	0.34	0.007	-	-	-	1.1	0.46	65.7	-	-	-
2031	11.0	17.3	0.53	0.016	0.001	0.69	43.0	1.1	0.46	65.7	-	-	-
2032	5.0	18.9	0.55	0.012	0.023	0.58	48.9	1.1	0.46	65.7	-	-	-
2033	2.3	16.8	0.80	0.018	-	-	-	1.1	0.46	65.7	-	-	-
2034	5.0	20.1	0.58	0.014	-	-	-	1.1	0.46	65.7	-	-	-
2035	4.4	20.1	0.41	0.012	-	-	-	1.1	0.46	65.7	-	-	-
2036	-	-	-	-	-		-	1.1	0.46	65.7	-	-	-
2037	1.5	19.4	0.54	0.011	-	-	-	1.1	0.46	65.7	-	-	-
2038	0.3	21.3	0.37	0.011	-	-	-	1.1	0.46	65.7	-	-	-
2039	9.0	20.2	0.63	0.017	-	-	-	1.1	0.46	65.7	-	-	-
2040	-	-	-	-	-	-	-	1.1	0.46	65.7	-	-	-
2041	-	-	-	-	-	-	-	1.0	0.46	65.7	-	-	-
2042	8.0	17.7	0.46	0.023	-	-	-	-	-	-	-	-	-
2043	5.7	17.6	0.40	0.021	-	-	-	0.02	0.46	65.7	-	-	-
2044	6.8	18.7	0.25	0.015	-	-	-	-	-	-	-	-	-
2045	4.1	21.6	0.20	0.006	-	-	-	-	-	-	-	-	-
2046	-	-	-	-	-	-	-	-	-	-	-	-	-
2047	-	-	-	-	-	-	-	-	-	-	-	-	-
2048	-	-	-	-	-	-	-	-	-	-	-	-	-
2049	0.4	20.4	0.44	0.010	-	-	-	-	-	-	-	-	-
2050	1.3	19.6	0.79	0.029	-	-	-	-	-	-	-	-	-

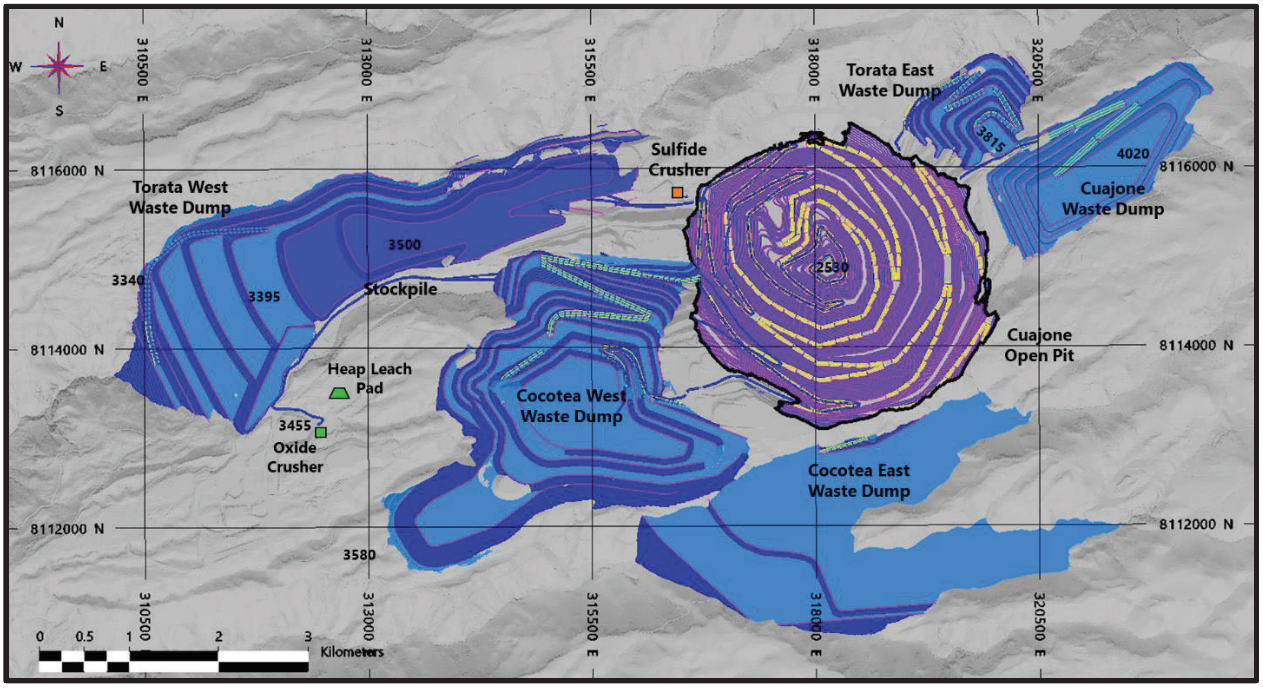
Year	Sulfide Material – Feed to Sulfide Stockpile				Oxide Material – Direct Feed to Oxide Crusher			Oxide Material – Reclaimed Feed to Oxide Crusher			Oxide Material – Feed to Oxide Stockpile		
	Tonnage (Mt)	Work Index (kWh/st)	Grade Cu (%)	Grade Mo (%)	Tonnage (Mt)	Cu Grade (%)	Cu Recovery (%)	Tonnage (Mt)	Cu Grade (%)	Cu Recovery (%)	Tonnage (Mt)	Work Index (kWh/st)	Cu Grade (%)
2051	0.8	22.4	0.26	0.007	-	-	-	-	-	-	0.1	14.2	0.36
2052	3.3	22.1	0.38	0.009	-	-	-	-	-	-	0.1	14.7	0.80
2053	-	-	-	-	-	-	-	-	-	-	0.1	18.6	0.87
2054	-	-	-	-	-	-	-	0.3	0.73	36.0	-	-	-
2055	-	-	-	-	-	-	-	-	-	-	-	-	-
2056	-	-	-	-	-	-	-	-	-	-	-	-	-
2057	-	-	-	-	-	-	-	-	-	-	-	-	-
2058	6.9	21.3	0.40	0.012	-	-	-	-	-	-	-	-	-
2059	8.8	20.3	0.41	0.011	-	-	-	-	-	-	-	-	-
2060	1.6	18.5	0.32	0.009	-	-	-	-	-	-	-	-	-
2061	-	-	-	-	-	-	-	-	-	-	-	-	-
2062	7.6	19.8	0.42	0.015	-	-	-	-	-	-	-	-	-
2063	3.9	16.6	0.53	0.017	-	-	-	-	-	-	-	-	-
2064	-	-	-	-	-	-	-	-	-	-	-	-	-
2065	7.2	20.5	0.33	0.013	-	-	-	-	-	-	-	-	-
2066	-	-	-	-	-	-	-	-	-	-	-	-	-
2067	5.8	20.2	0.45	0.017	-	-	-	-	-	-	-	-	-
2068	-	-	-	-	-	-	-	-	-	-	-	-	-
2069	-	-	-	-	-	-	-	-	-	-	-	-	-
2070	-	-	-	-	-	-	-	-	-	-	-	-	-
2071	0.6	18.0	0.26	0.017	-	-	-	-	-	-	-	-	-
2072	-	-	-	-	-	-	-	-	-	-	-	-	-
2073	-	-	-	-	-	-	-	-	-	-	-	-	-
2074	-	-	-	-	-	-	-	-	-	-	-	-	-
2075	-	-	-	-	-	-	-	-	-	-	-	-	-
Total/Average	**174.4**	**19.6**	**0.41**	**0.014**	**0.02**	**0.58**	**48.5**	**19.4**	**0.51**	**60.9**	**0.3**	**16.2**	**0.73**

Table 13-5: LOM Material Movement Plan (Waste and LOM Total)

Year	Waste Material by WRSF					All Materials Grand Total Tonnage (Mt)
	Torata East Tonnage (Mt)	Cuajone Tonnage (Mt)	Cocotea East Tonnage (Mt)	Cocotea West Tonnage (Mt)	Torata West Tonnage (Mt)	
2025	0.8	-	-	-	58.1	110.0
2026	-	-	-	-	50.1	101.1
2027	-	-	-	-	52.1	102.5
2028	-	-	-	3.5	65.3	100.0
2029	-	-	-	13.8	65.6	110.0
2030	-	-	-	-	76.1	110.0
2031	-	-	-	-	68.9	110.0
2032	-	-	-	-	72.4	110.0
2033	20.9	15.2	-	0.1	37.8	110.0
2034	17.3	53.7	-	0.8	-	110.0
2035	10.4	66.8	-	4.2	-	118.9
2036	9.7	21.4	-	53.2	-	113.3
2037	-	47.5	-	25.9	-	105.0
2038	-	70.6	-	4.5	-	105.0
2039	15.0	41.5	-	10.3	-	105.0
2040	11.6	13.2	39.6	2.3	-	95.0
2041	0.01	26.8	37.8	3.0	-	95.6
2042	-	22.0	32.5	4.7	-	95.2
2043	-	25.0	37.2	2.0	-	100.0
2044	-	6.3	19.9	41.7	-	104.7
2045	-	-	70.0	0.2	-	104.3
2046	-	-	32.1	35.0	-	98.0
2047	-	21.1	9.6	20.5	-	79.2
2048	-	28.4	3.4	15.7	-	76.3
2049	-	32.1	0.3	4.6	9.6	75.0
2050	-	-	0.3	25.6	18.8	75.0

Year	Waste Material by WRSF					All Materials
	Torata East Tonnage (Mt)	Cuajone Tonnage (Mt)	Cocotea East Tonnage (Mt)	Cocotea West Tonnage (Mt)	Torata West Tonnage (Mt)	Grand Total Tonnage (Mt)
2051	-	-	0.02	39.3	9.3	78.4
2052	-	-	0.4	19.4	26.3	78.4
2053	-	-	-	11.7	47.6	87.4
2054	-	-	-	7.0	39.7	75.0
2055	-	-	-	8.8	71.2	108.0
2056	-	-	-	20.8	23.1	73.9
2057	-	-	-	8.8	39.0	77.8
2058	-	-	-	0.6	18.6	57.1
2059	-	-	-	5.6	5.5	51.0
2060	-	-	-	8.2	12.2	53.0
2061	-	-	-	18.1	2.4	50.5
2062	-	-	-	22.0	0.4	60.9
2063	-	-	-	31.0	0.1	65.9
2064	-	-	-	34.4	0.3	65.4
2065	-	-	-	12.1	0.2	50.5
2066	-	-	-	20.8	0.1	50.9
2067	-	-	-	17.2	-	54.0
2068	-	-	-	7.3	-	37.3
2069	-	-	-	2.3	0.8	33.1
2070	-	-	-	4.3	1.2	35.5
2071	-	-	-	3.7	0.6	35.9
2072	-	-	-	5.8	1.1	36.9
2073	-	-	-	4.6	-	34.6
2074	-	-	-	8.5	-	37.7
2075	-	-	-	-	-	13.1
Total	**85.7**	**491.7**	**282.9**	**593.8**	**874.4**	**4,021.4**

Figure 13-8: LOM Layout Plan



Source: Wood, 2024

Note: The figure shows the location of new sulfide crusher that will replace the current sulfide crusher in 2048.

13.5 Equipment

Production drilling (27–31 cm diameter) is carried out using electrical equipment for production drilling, and pre-split drilling (12.7 cm diameter) uses diesel equipment.

For blasting, Quantex explosive and electronic detonators are used in all blasts.

Electric shovels (bucket capacities from 43–57 m^3) and front-end loaders are used to load haul trucks. The shovels are primarily used for the mining of final slopes, production, and ramps. The front-end loaders are generally used in narrower zones.

Haul trucks vary in capacity, from 218–363 tonnes, and are used to transport material to the different end destinations, such as WRSFs, oxide and sulfide stockpiles, oxide crusher, and sulfide crusher.

Track (crawler) dozers are used for ramp construction and pioneer phases, provide support to front-end loaders, and are used for WRSF maintenance. Wheel dozers are used primarily for road maintenance, in conjunction with motor graders. Water trucks are used for dust control. An excavator fleet is employed in slope profiling, mining of crests and narrow areas, pioneering phases, and reconfiguration of the WRSFs.

Peak requirements by machinery type are summarized in Table 13-6.

Table 13-6: LOM Peak Equipment Requirements

Area	Equipment Type	Peak
Drilling	BUC 49RIII – electric drill	1
	BUC 49HR – electric drill	1
	P&H 320XPC – electric drill	2
	CAT MD6640 – electric drill	6
Loading	BUC 495BII – electric shovel	1
	P&H 4100A – electric shovel	3
	P&H 4100XPC – electric shovel	2
	LTU 2350 – front-end loader	1
Hauling	CAT 793D – truck	2
	CAT 797F – truck	18
	CAT 798AC – electric truck	2
	KOM 930E-4 – electric truck	8
	KOM 930E-4SE – electric truck	2
	KOM 980E-4 – electric truck	6
	KOM 980E-5 – electric truck	69
Support	CAT 966G – wheel loader	2
	CAT 988H – wheel loader	1
	CAT D10R – crawler dozer	1
	CAT D10T – crawler dozer	4
	CAT D11T – crawler dozer	5
	CAT 824H – wheel dozer	2
	CAT 824K – wheel dozer	1
	CAT 834H – wheel dozer	3
	CAT 834K – wheel dozer	3
	CAT 16M – motor grader	1
	CAT 24M – motor grader	3
	CAT 24 – motor grader	1
	CAT 785C – water truck	2
	CAT 785D – water truck	1
	CAT 793C – water truck	1
	CAT 793C – lowboy truck	2

13.6 Personnel

Peak personnel numbers are estimated at 450 employees including technical, management, operational, and maintenance personnel.

14.0 PROCESSING RECOVERY METHODS

14.1 Process Method Selection

The process designs were based on existing technologies and proven equipment. The plant is installed and has an operating history of over 45 years.

The Cuajone heap leach facility was designed to treat oxide ores and produce a copper-rich pregnant leach solution (PLS) that is sent to the Toquepala Operations for solvent extraction/electrowinning (SX/EW) recovery.

The Cuajone concentrator treats sulfide material to produce copper and molybdenum concentrates. Copper concentrates are sent to the Ilo smelter and refinery to produce copper anodes and cathodes as the final product. Typically, only about 4.50% of the copper anodes produced at the Ilo smelter are sold to third parties and most of the anodes, 95.50%, are sent to the Ilo refinery for cathode production. Molybdenum concentrates are bagged and sold as the final product.

The Cuajone heap leach concentrator plant, Ilo smelter and refinery designs were based on a combination of metallurgical test work, previous study designs, and previous operating experience. The designs are conventional and have no novel parameters.

14.2 Flowsheets

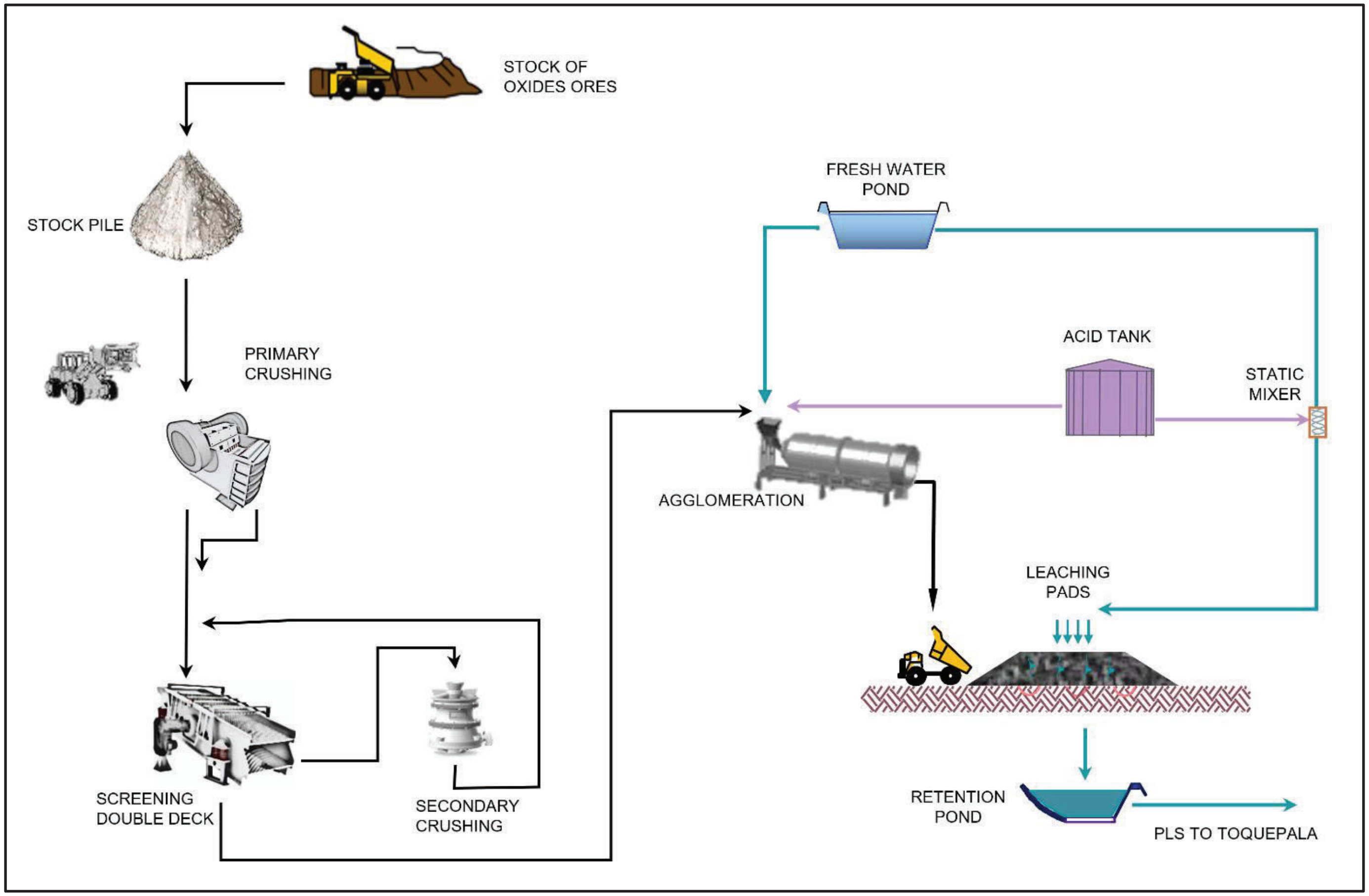
Summary flowsheets for the heap leach operation and concentrator are provided in Figure 14-1 and Figure 14-2, respectively.

14.3 Oxide Heap Leaching Facilities

14.3.1 Overview

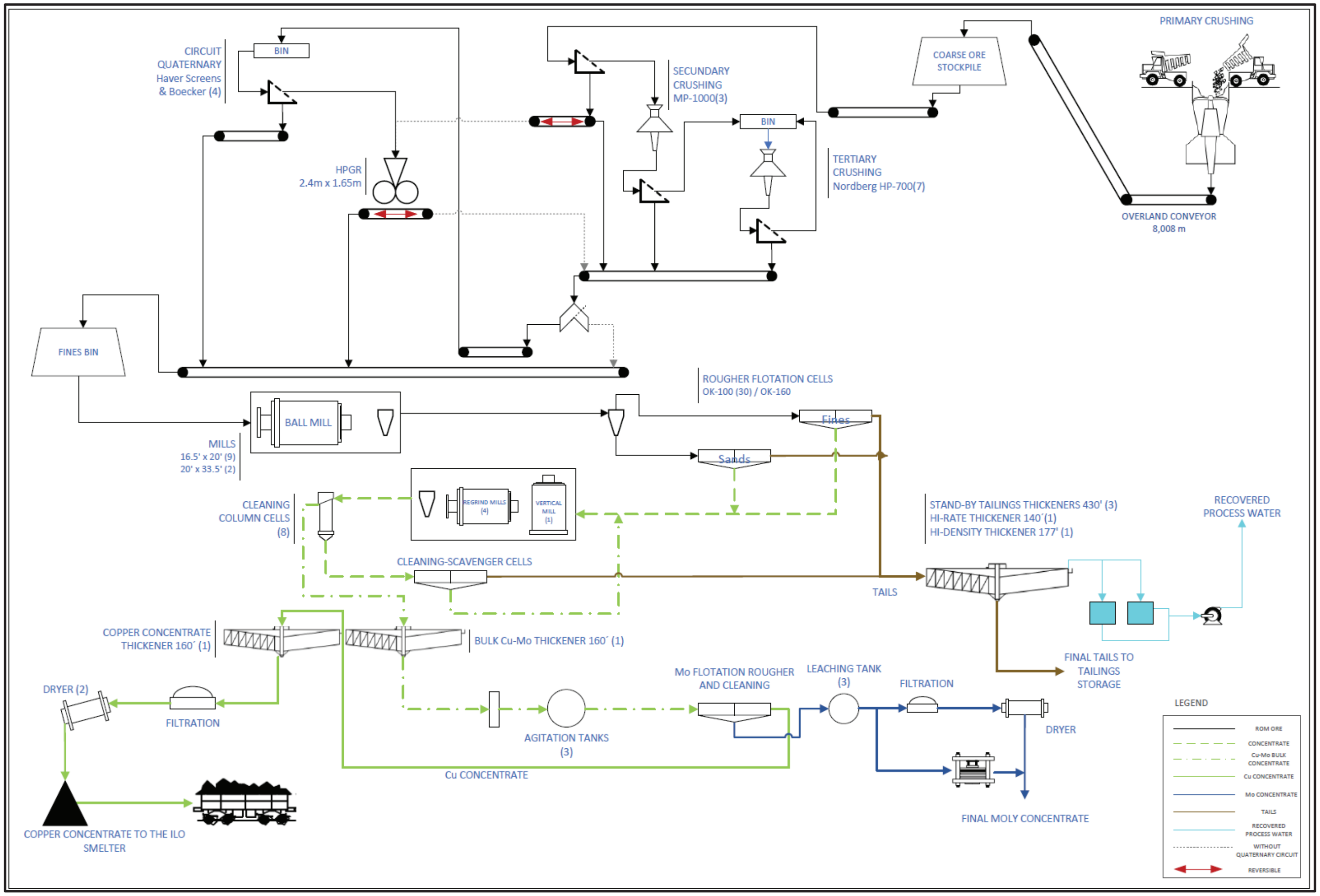
Oxide ore is treated in a conventional leaching process consisting of two stages of crushing, agglomeration and permanent leaching pads. The leach plant is located to the east of the Cuajone concentrator at an elevation of 3,475 masl. Two heap leach facilities, referred to as heap leach facility SX and heap leach facility Phase IV, are used.

Figure 14-1: Simplified Process Flowsheet, Heap Leach Plant



Source: Southern Copper, 2021

Figure 14-2: Simplified Process Flowsheet, Sulfide Concentrator



Source: Southern Copper, 2024

The SX facility consists of a double-lined pad with high-density polyethylene (HDPE) geomembranes in a valley bottom, extending 10 m up the valley walls, which acts as a leak detection system and a single-lined system in the remainder of the area. The liners were placed over a 30-cm-thick compacted soil line. The solution collection system consists of 100 mm diameter perforated HDPE pipe that feeds into larger, 300 mm solid HDPE pipes that in turn flow to the PLS pond. The SX facility has been inactive since 2018.

The Phase IV facility is a separate facility with a different lining system to that of the SX and is currently active. The liner system for the Phase IV facility comprises a linear low density polyethylene (LLDPE) geomembrane liner over a layer of compacted soil liner or geosynthetic clay liner. The solution collection piping system consists of 100 mm diameter perforated pipes, 200 mm and 300 mm double-walled perforated HDPE pipes, along with 50 mm diameter single walled perforated pipes. The Phase IV facility has its own pond system including a PLS pond and an overflow pond.

14.3.2 Oxide Ore and Crushing

The oxide ore is carried by trucks from the mine and transferred to an 80,000 t capacity oxide stockpile. From the stockpile, a front-end loader discharges the ore into a jaw crusher feed bin where the ore is classified via a static grizzly with an aperture of 500 mm. Oversize rocks are size-reduced by a mobile rock breaker. Undersize ore discharges onto the crusher feed bin.

The first crushing stage is carried out in a 30 x 42 inch jaw crusher with a closed side setting of 100 mm. Ore from the feed bin is sorted in a vibrating grizzly feeder with an aperture of 75 mm. Oversize ore from the feeder is discharged onto the jaw crusher.

Product from the jaw crusher joins the vibrating grizzly undersize material and is conveyed to an 8 x 20 ft double-deck vibrating screen with apertures of 25 and 17 mm.

Oversize ore from the screen is fed to a 1,500 mm secondary cone crusher thought a 24 t surge bin. The cone crusher produces a product of 80% passing 12 mm with a working closed side setting of 19–22 mm. Product from the cone crusher returns to the vibrating screen that works in closed circuit with the cone crusher.

The average LOM head grade and copper recovery is 0.51% (including ore in stockpile) and 54.8% respectively.

14.3.3 Agglomeration and Heap Leach Loading

Undersize product from the screening stage is then fed to an agglomeration drum. The ore feeding the drum is weighed on the conveyor to calculate the quantities of water and sulfuric acid used in the agglomeration process. The ratio of sulfuric acid added to the drum ranges from 20–25 kg of acid per tonne of ore and the resulting moisture in the agglomerate is 7%. The agglomerate is loaded onto 240 t trucks and transported to the leaching pad.

14.3.4 Leaching

At the leach pad, the agglomerate is deposited and spread, forming layers of 2.5 m height. A curing time of six days is allowed before the heap is irrigated. The leach pad is a permanent heap that is irrigated using sprinklers distributed on the surface of the heap, forming a rhomboid net of 5.5 x 5.5 m. The irrigation solution typically contains a sulfuric acid concentration of 6–15 g/L of water with a total flow of 115–145 m^3/h. After an irrigation cycle of 60 days is completed, an upper heap is prepared on top of the leached layer. An impermeable plastic layer isolates the heap layers and a system of corrugated perforated pipes is placed on top of the plastic layer to allow the collection of the PLS.

The PLS is collected from the heap leach pad, through a network of collecting pipes, into the collection pond.

The sulfuric acid consumed in the leaching process is delivered to site by rail from an acid plant located in Ilo. From the train car vessel, the acid is discharged into a 227 m^3 storage tank and then sent to two daily usage tanks before it is mixed with water in a static mixer.

14.3.5 Solution Management

The PLS is collected in a 3,200 m^3 capacity PLS collection pond located downstream of the Phase IV leach pad. This capacity covers the solution generated under normal operations, including a volume occupied by sediments.

An 8,000 m^3 capacity overflow pond, located downstream from the Phase IV PLS collection pond, complements the collection pond, by serving as a flood control pond especially during high rainfall events.

The copper-loaded PLS from the leach pad is piped to the SX/EW plant by a combination of pumping and gravity flow.

During 2024, the Phase IV facility reported a PLS flow of 135 m^3/h to the SX/EW plant, with approximately 3,670 t total contained copper, representing about 15% of the total produced copper at the Toquepala facility.

The total LOM production is estimated at 53,920 t of copper with a PLS flow to the SX/EW plant at Toquepala of 140 m^3/h.

14.3.6 Solvent Extraction and Electrowinning Facility (Toquepala)

At the Toquepala SX/EW facility, the PLS is purified and concentrated to produce a rich electrolyte. The SX process involves counter-current extraction of copper from the PLS into an organic solution, which is then transferred to an electrolyte solution for electrowinning. The rich electrolyte is further purified to remove fine solids and trapped organic reagents before sent to the EW.

The Toquepala SX circuit consists of nine conventional mixer-settler tanks divided into three parallel trains (A, B, and C). Each train follows two extraction stages (2E) followed by one stripping tank (1S). PLS is mixed with a copper-free organic solution, which selectively captures copper ions in the extraction stages, leaving impurities in the aqueous solution (raffinate). The aqueous solution, or raffinate, has a very low copper concentration and is then acidified and returned to the Toquepala leach pads.

The copper-loaded organic solution then moves to the stripping stage, where it is mixed with spent electrolyte from the EW circuit. The high acid concentration in the spent electrolyte strips load copper from the organic solution into the electrolyte, to form a rich electrolyte that advances to the EW circuit.

In the EW circuit, copper from the rich electrolyte solution is plated onto stainless steel cathode blanks using direct current. The resulting copper cathodes, with a purity of 99.999%, are stripped from the blanks and sold as the final product. The spent electrolyte is recycled to the SX strip circuit in a continuous loop.

The Toquepala EW operations include two tank houses. The North tank house has 122 polymer concrete cells each containing 62 cathodes and 63 anodes. The South tank house, which has been on care and maintenance since 2005, hosts 40 cells with 64 anodes and 63 cathodes each. The electrolyte enters each cell from the bottom through a perforated PVC pipe, distributing it evenly. Direct current plates the copper onto the stainless-steel cathodes, and the electrolyte overflows with a lower copper concentration, returning to the SX circuit as spent electrolyte.

Copper cathodes are removed from the cells using an overhead crane and sent to a cathode stripping machine, where the copper is delaminated from the stainless-steel sheets. The copper sheets are then corrugated, bundled, and secured for shipment. The stainless-steel sheets return to the cells for the next electrowinning cycle. The copper bundles are transported to the Port of Ilo for domestic or international shipment.

14.3.7 Equipment Sizing

The Phase IV facility key equipment list is provided in Table 14-1.

Table 14-1: Key Equipment Required for the Phase IV Facility

Description	Quantity	Function
Jaw crusher, Kueken 30 "x 42", 56 kW (75 HP)	1	Primary crushing
Cone crusher, Nordberg HP 500 60", 355 kW (500 HP)	1	Secondary crushing
Double deck screen, Tycan W.S. 8' x 20', 30 kW (40 HP)	1	Fines classification
Agglomeration drum, Fima Drum, 259 t/h	1	Agglomeration of fine ore

14.3.8 Power and Consumables

The leach plant uses power supplied from the Botiflaca substation.

Crushing represents around 57% of the plant consumed power with the remain being consumed by the heap irrigation pumping system. Power is also used for the pump booster system that transfers the PLS from the Phase IV facility to the SX/EW plant. The power consumption in the leach plant for 2024 was 2,309 MWh with a unit rate of 2,038 kWh/t. There is sufficient power capacity available to support the LOM plan.

Section 15 discusses the sources of fresh water for leaching. All sources discharge into the Vina Blanca lagoon from where the fresh water is supplied to the leaching plant. At the plant, fresh water is required for the irrigation solution preparation and agglomeration. Water consumption during 2024 was 1.22 m^3/t, which is equivalent to a total annual consumption of 1,379,600 m^3. Water supplies are expected to be sufficient for the purposes of the LOM plan.

Sulfuric acid is used as the leaching reagent in the dissolution of copper oxides. During 2024, a total of 49,484 t of acid was required. The LOM plan envisages that the same consumables will be used for the duration of the LOM plan.

14.3.9 Personnel

There are 16 personnel employed at the Phase IV facility and numbers are expected to remain the same for the LOM.

14.4 Sulfide Process Plant

14.4.1 Overview

The Cuajone concentrator commenced operations on November 25, 1976, and was initially designed to process 40,823 t/d. Following upgrades and plant modifications, the current plant capacity is 90,000 t/d.

Ore is treated in a conventional concentration circuit consisting of crushing, grinding and flotation of copper and molybdenum ores. Copper concentrate is transported by rail to the Ilo smelter/refinery for further treatment, whereas the molybdenum concentrate is sold to third parties as a final product.

14.4.2 Primary Crushing

Run-of-mine (ROM) material is received from the mine by truck and unloaded onto a 64 x 114 inch primary gyratory crusher located north of the pit. Crushed material is collected in a discharge box at the bottom of the crusher. An arrangement of three conveyors transports the crushed material for a distance of approximately 8,000 m to a temporary coarse stockpile that has a live capacity of 60,000 t.

14.4.3 Secondary, Tertiary and Quaternary Crushing

Three apron feeders reclaim ore from beneath the coarse ore stockpile and deliver it to three 6 x 16 ft double deck vibrating screens. The undersize (approximately -20 mm) are fed into conveyor belt No. 5, which, along with the fine flows from the classification screens of the secondary and tertiary crushing stages, serves as the feed for the quaternary crushing circuit.

The screened approximately +20 mm oversize material gravity feeds to three 746 kW MP-1000 secondary crushers and the product discharges onto three 10 x 21 ft (37 HP) secondary crushing banana screens. Subsequently, this ore is combined with the fine material from the double-deck screens' classification and direct ed to the quaternary circuit.

The oversize stream (+12 mm) from the secondary crushing screens is fed to seven 522 kW HP700 tertiary crushers through a tertiary hopper. The tertiary crushers work in closed circuit with seven 2.4 x 6.4 m 22 kW tertiary crushing banana screens. The coarse product from the secondary and tertiary screens returns to the tertiary hopper. The fine product is combined with the undersize from double-deck screens' classification and directed to the quaternary circuit.

The quaternary circuit consists of four classification screens. The coarse or oversize particles are fed into the HPGR (high pressure grinding rolls) PRO (2.4 m x 1.7 m with an installed power of 5.1 MW), while the HPGR product and the fine particles from the quaternary classification are combined to form the fine ore pile, which serves as feed for the milling plant.

A new screening and transferring system was installed to enhance material classification before the HPGR crusher and has been operational since November 2023. The goal of the enhancement was to improve the copper recovery in subsequent processing stages, particularly flotation.

14.4.4 Grinding

The grinding stage is carried out in a single stage. Material from the fines hopper is fed to a total of 11 ball mills, eight 5 x 6 m (16.5 x 20 ft) mills rated at 2,240 kW, two 6 x 10.2 m (20 x 33.5 ft) mills rated at 6,711 kW, and a 5 x 6.35 m (16.5 x 20.8 ft) mill rated at 2,240 kW. A total of 30 feeders equipped with scales discharge the fine material to the feeders of each mill. All ball mills operate in closed circuit with a cluster of hydrocyclones per mill. Oversized underflow material returns to the ball mills for further grinding, and the finer overflow material is sent to the flotation circuit. Flotation feed is 80% passing 240 µm, and is monitored by particle size analyzers.

14.4.5 Rougher Flotation

Overflow slurry from the grinding circuit is fed to four cyclone banks, consisting of ten 0.5 m (20 inch) cyclones each, to separate sands and slimes (fines) streams before rougher flotation. After cycloning, the underflow stream or sands that represents around 56% of the cyclone feed, is water diluted to 40% w/w solids and fed to the sands section of the rougher flotation. This consists of 16 tank cells distributed in three lines. Two lines consist of six 100 m^3 (3,500 ft^3) cells each, and a third line has four 160 m^3 (5,600 ft^3) cells. The overflow portion, or slimes, is diluted to 20% w/w solids and is fed to the slimes rougher flotation, consisting of three lines of six 100 m^3 (3,500 ft^3) tank cells. Both rougher concentrates are collected in a regrind distribution box. Tails from both rougher circuits are sent to a tailings distribution box.

14.4.6 Cleaner–Scavenger Flotation

Rougher flotation concentrates from the regrind distribution box are fed to two parallel regrinding circuits (north and south) consisting of two (3.2 x 5.2 m) 10.5 x 17 ft 447 kW ball mills, each operating in parallel with a cluster of twelve 250 mm (10-inch) cyclones. Rougher concentrate is re-ground to 80% passing 44 µm, and cyclone overflow is transferred to a cleaner distribution box in each circuit.

The cleaner distribution box feeds the material to four 3 x 13.4 m, 93 m^3 (10 x 44 ft, 3,300 ft^3) column cells in each circuit or eight cells total. Tailings from the cleaner cells are pumped to the scavenger feed box where the slurry is split between the north and south scavenger circuits. Ten 60 m^3 cells (separate in two banks of 5 cells each) and six 38.2 m^3 cells comprise the north and south circuits, respectively. Both scavenger concentrates are then re-ground in a 600 kW vertical mill operating in closed circuit with a cluster of six 0.5 m (20 inch) cyclones. Overflow scavenger concentrate is then returned to the north cleaner distribution box. Tails from both scavenger circuits are sent to a tailing's distribution box, joining the sands and slimes rougher tailings to form the final mill tailings.

The copper–molybdenum bulk concentrate from the cleaner column cells is then gravity fed to a 49 m diameter copper–molybdenum thickener, where it is thickened to 40% solids and pumped to the molybdenum plant.

14.4.7 Molybdenum Plant

The molybdenum plant processes the copper–molybdenum bulk concentrate in a rougher circuit and 10 cleaner stages. The bulk concentrate is fed to a rougher circuit that consists of six 8.5 m^3 (300 ft^3) cells. Tails from the rougher stage are sent to the 49 m diameter copper concentrate thickener. Rougher concentrate is pumped to the 1st cleaner stage, eight 2.8 m^3 (100 ft^3 cells) and the concentrate from the 1st cleaner is fed to the 2nd cleaner stage, sixteen 1.5 m^3 (50 ft^3 cells). Tails from the 1st cleaner return to the bulk rougher stage.

Concentrate from the 2nd cleaner together with the 4th cleaner stage tails are fed to the 3rd cleaner stage, which consists of four 100 ft^3 cells. Concentrate from the 3rd cleaner is then pumped to the 4th cleaner stage together with tails from the column cell. The fourth cleaner concentrate overflows to the 5th cleaner stage producing a concentrate that is then pumped to the 6th cleaner stage. The fourth cleaner tails are return to the 3rd cleaner stage. The 4th and 5th cleaner stages consist of six 0.7 m^3 (25 ft^3) cells in each stage.

The 6th, 7th, 8th, 9th, and 10th cleaner stages consist of twelve 0.7 m^3 (25 ft^3) cells in total distributed in 4, 2, 2, 2, and 2 cells, respectively. Concentrate from the 6th cleaner stage feeds the next cleaner stage and subsequently until a 10th cleaner concentrate is obtained. Tailings from the 6th cleaner stage are pumped to the column cell 6 m^3 (214 ft^3). Tails from the column cell are returned as a feed to the 4th cleaner stage. The concentrate from the 10th cleaner stage together with the column cell concentrate are the final molybdenum concentrate that feeds a 9.1 m (30 ft, 7,070 ft^3, 3 HP) molybdenum thickener.

The underflow concentrate from the molybdenum thickener is then leached in three tanks working in parallel 38.5 m^3 (1,357 ft^3 each), filtered, dried and bagged.

The LOM expected molybdenum recovery is estimated at 62.7% (including the ore from the stockpile) based on an average molybdenum concentrate grade of 53.33%.

14.4.8 Filtration and Drying Plant

The copper concentrate (copper–molybdenum rougher tailings) is thickened in the copper concentrate thickener to 60% solids and fed to the copper concentrate storage tank. The concentrate is then pumped to four 3.6 x 5.5 m (12 x 18 ft (3 HP)) drum filters to produce an intermediate concentrate cake with 14% moisture that is further reduced to 7–8% moisture by using two 3 x 18.3m (10 x 60 ft (200 HP)) rotary dryers. Alternatively, the filtration plant has a vertical Larox filter (100 HP) and a horizontal AFP IV 1500 filter press. Both filters produce concentrate cakes with 9% moisture and are used when required.

Final copper concentrate is transported by rail to the Ilo smelter and refinery for further processing.

The LOM expected copper recovery is estimated at 85.0% (including the ore from the stockpile) based on an average copper concentrate grade of 24.84%.

14.4.9 Tailings Thickening

All tailings generated in the flotation circuit are discharged to a tailings distribution box. Around 70% of the tails is thickened in a 54 m diameter hi-density thickener and the remaining 30% is thickened in a 42.6 m (140 ft) diameter Hi-rate thickener. The overflow water is recovered in a process water pond and recycled to the grinding and flotation circuits.

14.4.10 Tailings Transport and Disposal

The final thickened tailings contain 57–58%w/w solids and are sent to the Quebrada Honda TSF. The tailings are transported using a concrete tunnel that extends for 27 km from the Cuajone concentrator to Quebrada Cimarrona, where the tailings from the Cuajone concentrator join the tailings from the Toquepala concentrators. From that point on the tailings travel through the natural existing ravine to the Quebrada Honda TSF.

14.4.11 Equipment Sizing

A summary table that shows the sizing of the key equipment is provided in Table 14-2.

Table 14-2: Key Equipment, Sulfide Concentrator

Description	Quantity	Function
Gyratory crusher, 64" x 114"	1	Primary crushing
Cone crushers, MP-1000, 746 kW each	3	Secondary crushing
HPGR, 2.4 m x 1.7 m, 5.1 MW	1	Tertiary crushing
Cone Crushers, HP-700, 522 kW each	7	Tertiary crushing
Quaternary screens 14' x 28'	4	Quaternary crushing
Ball mills, 16.5' D x 20' L, 2,240 KW	8	Grinding
Ball mills, 20' D x 33.5' L, 6,711 kW	2	
Ball mill, 16.5' D x 20.8' L, 2,240 kW	1	
Ball mills, 10.5' D x 17' L, 447 kW	4	Rougher concentrate regrind
OK-100 tank cells, 3,500 ft^3	30	Rougher flotation
OK-160 tank cells, 5,600 ft^3	4	
Column cells, 10' x 44', 3,300 ft^3	8	Cleaner flotation
Wemco cells, 60 m^3	5	Cleaner–scavenger flotation
Dorr-Oliver cells, 38.2 m^3 (1,350 ft^3)	6	
Svedala vertical mill VTM 800, 600 kW	1	Scavenger concentrate regrind
OK-8 cells, 8 m^3 (300 ft^3)	6	Mo rougher
Denver cells DR-100, 2.8m^3 (100 ft^3)	8	Mo 1st cleaner
Gallagher cells, 1.42 m^3 (40 ft^3)	16	Mo 2nd cleaner
Denver cells DR-100, 2.8 m^3 (100 ft^3)	4	Mo 3rd cleaner
Denver cells DR-18SP, 0.71 m^3 (25 ft^3)	12	Mo 4th & 5th cleaner
Denver cells DR-18SP, 0.71 m^3 (25 ft^3)	12	Mo 6th to 10th cleaner
Column cell 34" x 30', 6 m^3 (214 ft^3)	1	Mo column cleaning
Hi-density thickener, 54 m, 75 kW	1	Tailings thickening
Hi-density thickener, 42.6 m, 20 kW	1	

14.4.12 Power and Consumables

The concentrator uses power for crushing, ore conveying, grinding and flotation cells. The total ore processed in 2024 was 30,850,490 t with a power consumption rate of 20.23 kWh/t. Grinding and classification represented around 52.64% of the total consumed power.

Make-up water is required to replace that trapped in concentrates, tailings sent to the TSF, and evaporation. The operation uses surface and underground water from a variety of sources.

Surface water was collected from Lake Suches, and groundwater was collected from the Titijones and Huaitire wells.

Other major consumables include flotation reagents such as: collector, frother, flocculant, sodium hydrosulfide (NaSH), diesel and lime. Steel grinding media are consumed in the ball mills. Most reagents are delivered to site in bulk containers and stored in large tanks that support the operation for several days.

Utilities and consumables consumption rates are expected to be similar until the end of year 2036. An increase in utilities and consumables is expected from 2037 to the end of the LOM plan when a filtered tailings plant is expected to be incorporated for tailings management, once the existing Quebrada Honda TSF reaches its maximum capacity.

14.4.13 Personnel

The concentrator employs 120 personnel. Personnel numbers are expected to remain the same until the end of year 2036 with a potential increase from 2037 to the end of the LOM plan when a filtered tailings plant is expected to come online.

14.5 Ilo Smelter

14.5.1 Overview

The Ilo smelter commenced operations in 1960 to support the Toquepala Operations and was expanded in 1976 to accommodate the Cuajone Operations. In 1995 a Teniente converter and the first acid and oxygen plants were implemented. At that time the Ilo smelter operated with two reverberatory furnaces and one Teniente converter as smelting units, seven Peirce Smith converters, two blister casting plants, and one acid and oxygen plant.

In 2007 a new smelter was commissioned with a nominal capacity of 1,200,000 t/a of copper concentrate. The new smelter consists of one single Isasmelt smelting unit associated with two rotary holding furnaces, four Peirce Smith converters, two anode furnaces associated with twin anode casting wheels, two acid plants, two oxygen plants, and auxiliary services plants.

The Ilo smelter processes the copper concentrates from the Cuajone and Toquepala concentrators and produces copper anodes for the Ilo refinery.

14.5.2 Flowsheet

The flowsheet for the Ilo smelter is provided in Figure 14-3.

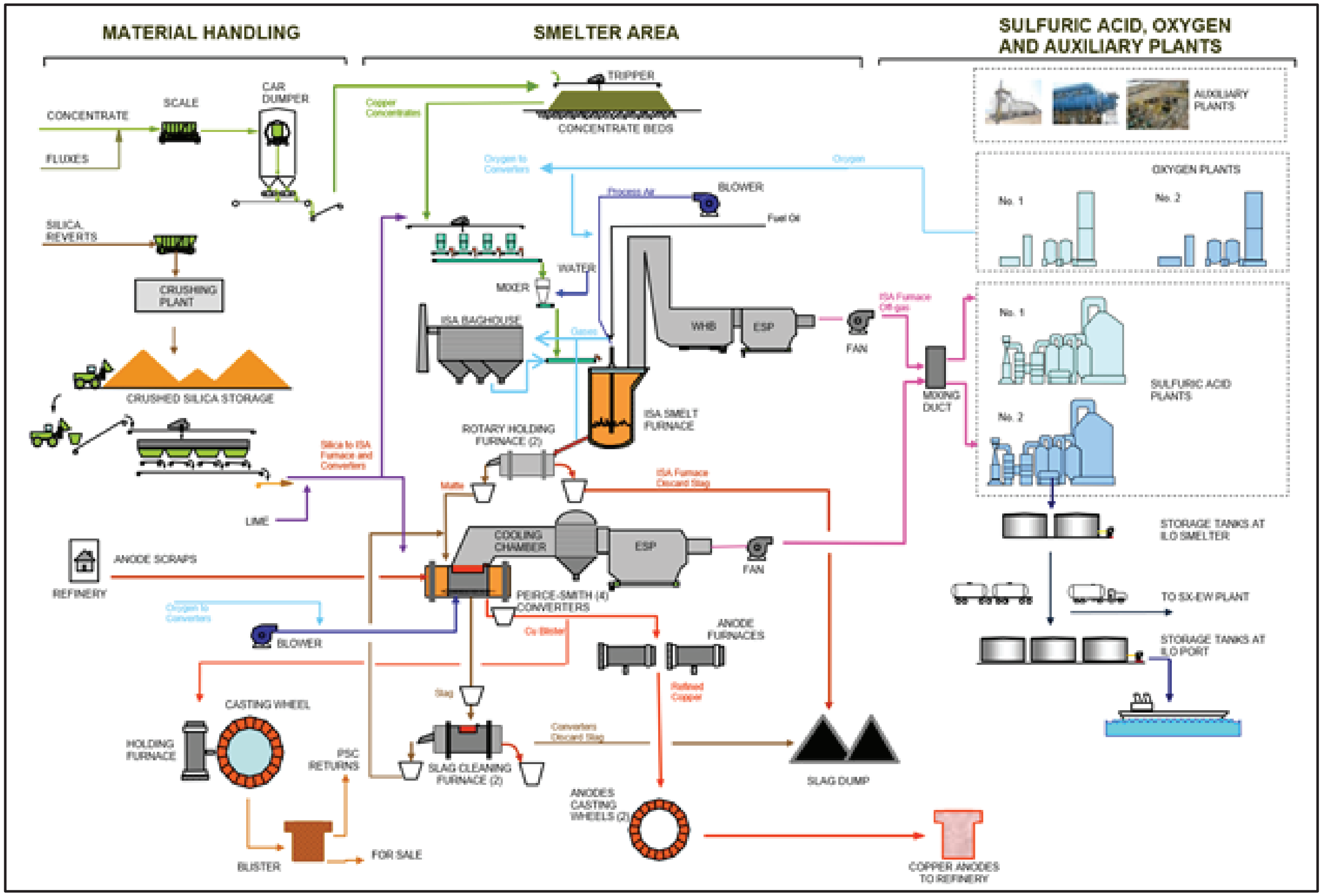
14.5.3 Concentrate Smelting

At the smelter, the copper concentrate is mixed with silica flux before being fed to the smelting furnace. The primary smelting unit is an Isasmelt furnace which uses bath-smelting process technology. The furnace is a vertical refractory-lined vessel in which a specially-designed submerged-combustion lance is inserted into a bath of molten material. The furnace is continuously fed, through the lance, with copper concentrates and an oxygen-enriched air stream that creates vigorous agitation of the bath and rapid reaction rate.

The bath principally consists of molten iron–silicate slag and molten copper matte. Due to the turbulent state of the bath, the matte and slag are tapped out together periodically through a single tap hole to either of two rotary holding furnaces via water-cooled copper launders. At the rotary holding furnaces the molten products are allowed to separate in a clean slag and matte molten phases that are poured separately. The rotary holding furnaces also provide surge capacity between the continuous operation of the Isasmelt furnace and the batch Peirce Smith converter cycles. Slag from the rotary holding furnaces is sent directly to the slag dump area.

The off-gas from the Isasmelt furnace, at approximately 1,050°C, is vented into a waste heat boiler where it is cooled to 350°C. Gases are then passed through a five-field electrostatic precipitator, where they are cleaned of entrained dust. Lastly, gases pass through a mixing duct and are combined with Peirce Smith converter off-gas streams before being treated in the sulfuric acid plants.

Figure 14-3: Summary Flowsheet Ilo Smelter



Source: Southern Copper, 2021

14.5.4 Matte Conversion

A 63% Cu copper matte molten phase from the rotary holding furnace vessels is treated in four Peirce Smith converters. Three Peirce Smith converters are hot while the fourth is on stand-by mode or under maintenance. At any time, a maximum of two converters are being blown. In the converters the copper matte is oxidized in two sequential steps:

- Iron sulfides in the matte are oxidized with oxygen-enriched air and added silica, producing slag that is sent to the two slag cleaning rotary furnaces, where pig iron is used as the reducing agent.
- Copper sulfides contained in the matte are then oxidized with oxygen-enriched air to produce blister copper, containing approximately 99.3% Cu.

The off-gases are diluted and collected by water cooled hoods and conducted by the gas handling system to the acid plant. The gas handling system consists of evaporative cooling chambers, a manifold, two electrostatic precipitators, fans and ductwork connecting to the mixing duct.

14.5.5 Anode Refining and Casting

The blister copper is refined in two anode furnaces by oxidation to remove sulfur with compressed air injected into the bath. Finally, the oxygen content of the molten copper is adjusted by reduction with the injection of liquefied petroleum gas with steam into the bath. Copper anodes containing approximately 99.78% Cu are cast in two casting wheels and transported by railroad to the Ilo refinery located around 10 km southeast of the smelter. The smelter can also produce blister copper bars when the anode furnaces are under brick repair.

The generated gases are oxidized in an oxidation/dilution chamber, cooled, and then cleaned in a baghouse.

The typical composition of copper anode produced at the Ilo smelter is provided in Table 14-3.

Table 14-3: Average Chemical Composition of Anodes Produced

Cu (%)	As (ppm)	Bi (ppm)	Sb (ppm)	O_2 (ppm)	S (ppm)	Pb (ppm)	Zn (ppm)
99.78	350	84	29	798	31	87	8

14.5.6 Acid Plants

The off-gases from the smelter are treated in two acid plants (No. 1 and No. 2) to recover over 92% of the incoming sulfur, producing sulfuric acid at a concentration of 98.5%. The gas stream from the smelter with a concentration of 11.3% SO_2 is split between the two plants, both being double absorption and double contact. Approximately 16% of the acid produced is used at the Cuajone and Toquepala facilities with the balance sold to third parties.

In 2010, the Ilo smelter marine trestle started operations. This facility allows the direct loading of sulfuric acid onto ships, avoiding hauling cargo through the city of Ilo. The 500-m-long marine trestle was the last part of the Ilo smelter modernization project. Currently all overseas shipments of sulfuric acid are made using the marine trestle.

14.5.7 Oxygen Plant and Ancillary Systems

The oxygen required within the smelter processes is generated by two oxygen plants. Oxygen plant No. 1 has a capacity of 272 st/d and Plant No. 2 has a capacity of 1,045 st/d.

Concentrates from the Cuajone and Toquepala Operations are relatively clean so all the metallurgical dust generated is recycled to the Isasmelt furnace. Arsenic trioxide is added to the copper to meet the required quality of the anode which will allow the co-precipitation of antimony and bismuth together with arsenic during the electrorefining process at the Ilo refinery.

The smelter includes a seawater intake system, two desalination plants to provide water for the process, and an electric substation.

14.5.8 Equipment Sizing

A list of the major mechanical equipment in the Ilo smelter is presented in Table 14-4.

14.5.9 Power and Consumables

Consumptions of utilities and other consumables are expected to be similar for the LOM as seen in recent operations.

Table 14-4: Ilo Smelter, Major Mechanical Equipment and Operational Parameters

Function	Description	Unit	Value
Isasmelt furnace	Dimensions (height x ID)	m x m	17 x 5.5
	Capacity	t/a	1,2000,000
	Availability	%	86.5
	Target matte grade	%	63
	Oxygen enrichment	% O_2	65-70
Rotary holding furnaces	Units	number	2
	Dimensions (diameter x length)	m x m	4.7 x 15.3
	Reducing agent	—	Pig iron
	Discard slag target (Cu)	%	0.9
Peirce Smith converters	Units	number	4
	Dimensions (diameter x length)	m x m	3.96 x 10.7
	Tuyeres (number and diameter)	No. / inches	48 / 2
	Enriched air flow	Nm^3/h	46,800
	O_2 enrichment – slag blow	% O_2	24
	O_2 enrichment – copper blow	% O_2	22
Anode fire refining furnace	Units	number	2
	Dimensions (diameter x length)	m x m	4.6 x 10.7
	Capacity (each)	t	400
	Casting wheels	model	Twin M18
	Capacity	t/h	Outokumpu 100
Converter slag treatment furnace	Units	number	2
	Dimensions (diameter x length)	m x m	3.96 x 10.97
	Reducing agent, consumption	—	Pig iron
	Discard slag target	% Cu	1.0
	Sulfuric acid plant No. 1: off-gas treatment, SO_2	Nm^3/h, (%)	112,568 (12.8)
	Sulfuric acid plant No. 2: off-gas treatment, SO_2	Nm^3/h, (%)	304,580 (11.7)
	Oxygen plant No. 1 capacity	t/d	272
	Oxygen plant No. 2 capacity	t/d	1,045
	Oxygen produced, purity	% O_2	95

14.5.9.1 Power

The Ilo smelter currently uses power sourced from the state company Electroperu S.A, (Electroperu), a private power generator, Kallpa Generation S.A., (Kallpa) and a small portion is hydro-generated at the Cuajone facilities. Power is distributed over a 224-km closed loop transmission circuit, which is interconnected with the Peruvian electrical network.

The 2024 annual power consumption of the Ilo smelter was 356,040 MWh. The oxygen and acid plants accounted for around 63% of the total consumption. There is sufficient power capacity available to support the LOM plan.

14.5.9.2 Water

Fresh water is required at the smelter cooling system, smelter boiler, and acid plant process. The water is supplied from seawater desalination plants.

Water supplies are expected to be sufficient for the purposes of the LOM plan.

14.5.9.3 Consumables

Consumables used in the smelter include fuel, refractory bricks, silica flux, and arsenic trioxide.

The LOM plan envisages that the same consumables will be used for the duration of the LOM plan.

14.5.10 Personnel

Personnel numbers at the Ilo smelter total 355 persons for operations and 390 persons for maintenance. Maintenance personnel provide service for both the smelter and the Ilo refinery.

14.6 Ilo Refinery

14.6.1 Overview

The Ilo refinery is located in the Pampa de Caliche, 9 km north of the city of Ilo. The original plant design was built in 1975 by Minero Perú with a treatment capacity of 150,000 t/a of 99.95% pure electrolytic copper cathodes. The plant was acquired by Southern Copper in 1994 and modernized to produce 246,000 t/a of copper cathodes. It was subsequently expanded to the current annual capacity of 294,763 t/a of copper cathodes. The Ilo refinery has the capacity to produce 128,000 kg Ag, 840 kg Au, and 50,000 kg Se annually. Although selenium, silver, gold, platinum and palladium have been historically produced as a by-product of the refinery, these metals have not been included in the mineral resource or mineral reserve estimates, and any revenues from these metals have not been recognized in the Cuajone Operations.

14.6.2 Flowsheet

The current flowsheet is included as Figure 14-4.

14.6.3 Electrolytic Plant

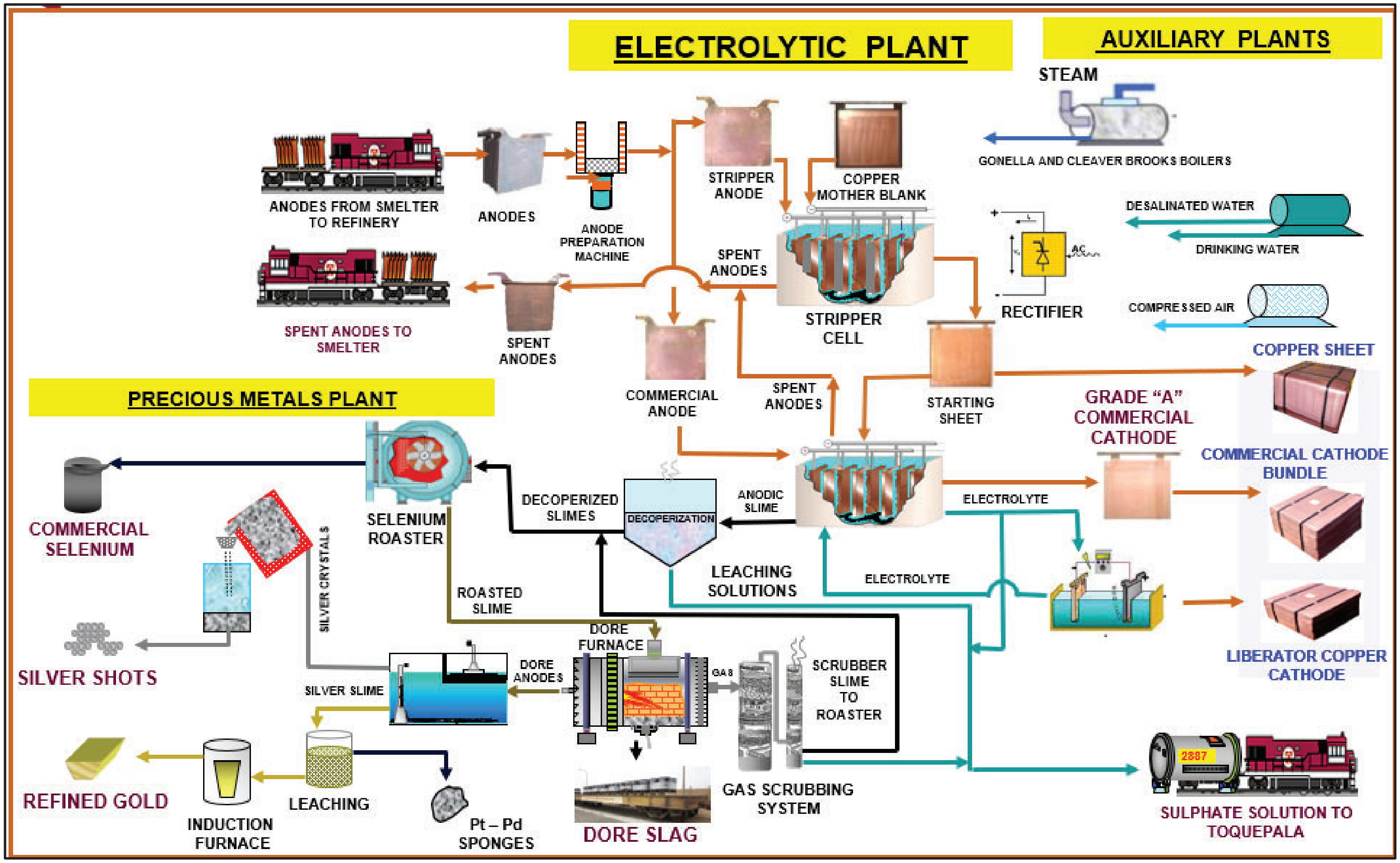
The anodes produced at the Ilo smelter are transported by rail to the Ilo refinery. After unloading they are pressed to improve their shape before being loaded to the electrolytic cells. The anodes are immersed in a cell contain copper sulfate and sulfuric acid in solution which serves as the electrolyte. By the action of electrical current the copper anode dissolves in the electrolyte and deposits on a cathode surface. This process produces cathodes with a 99.99% Cu content. Impurities such as arsenic, bismuth, antimony and sulfur are not deposited on the cathode and are eliminated in the electrolyte. Other valuable impurities such as gold, silver, platinum and selenium are recovered from the anode sludge in the precious metals plant.

The copper cathodes are produced in 996 commercial electrowinning cells including 52 starter cells in which starter cathode sheets are produced. Each commercial cell is loaded with 52 anodes of 435 kg and 53 starter cathodes of 7 kg. At the end of the electrorefining cycle, the cathodes are removed from the cells and rinsed in three stages: agitated hot water, high pressure hot water, and vapor rinse to eliminate sulfates from the surface of the cathodes.

Corroded anodes are rinsed at the end of the refining cycle using condensed hot water. Around 14% in weight of the total copper in anodes arriving at the refinery is returned to the smelter for recycling as corroded anodes.

In order to control the concentration of dissolved copper, a portion of the electrolyte is treated in the electrolytic liberator cells where insoluble anodes are used to produce cathodes of 99.99 % Cu.

Figure 14-4: Summary Flowsheet Ilo Refinery



Source: Southern Copper, 2024

The anodic sludge produced in the electrolytic cells is received in settling tanks to separate it from the electrolyte and then leached in oxidation tanks for 24 hours at 80°C with an aerated diluted acid solution to dissolve entrapped copper in the sludge. Copper-free sludge is then washed and centrifuged to obtain commercial anodic sludge with a moisture content of<14% and copper content of <2%. The commercial sludge is then sent to the precious metals plant for the recovery of silver, gold, selenium and small amounts of platinum and palladium. Although these metals have been historically produced from the Ilo sludge, because they have not been included in the mineral resource or mineral reserve estimates, they are not included in the Cuajone mine production or revenues.

To maintain the balance of impurities in the electrolyte, the resulting leach solution from the anodic sludge leaching is sent by rail to the Toquepala leaching plant.

The copper cathode production for 2024 was 287,904 t, and the average chemical composition is indicated in Table 14-5. The LOM cathode composition is expected to be similar to that shown.

Table 14-5: Average Cathode Chemical Composition

Cu (%)	Ag (ppm)	Se (ppm)	Ni (ppm)	Pb (ppm)	Fe (ppm)	S (ppm)	Bi (ppm)	Sb (ppm)	As (ppm)	Te (ppb)	Zn (ppm)
99.998	10	0.01	0.01	0.01	0.01	5	0.01	0.01	0.01	0.01	0.01

14.6.4 Precious Metals Plant

The commercial anodic slime is processed at the precious metals plant, with oxygen and sulfur dioxide, in an electric roaster oven to produce commercial selenium with a purity of 99.5%. Selenium-free slime is then melted in a Dore furnace to produce doré anodes.

The doré anodes are placed on Thum cells for electro-refining, producing silver crystals and slimes. Produced silver crystals, with a purity of 99.99%, are melted in an induction furnace to generate commercial silver shot as a final product. The silver slime undergoes an acid digestion process to obtain gold dust that is then smelted to produce 99.99% pure gold bullion.

14.6.5 Equipment Sizing

The major mechanical equipment in the Ilo refinery is summarized in Table 14-6.

Table 14-6: Ilo Refinery Major Mechanical Equipment and Design Parameters

Area	Description	Unit	Value
Anodes	Commercial anode weight (per unit)	kg	435
	Commercial anode area (avg.)	m^2	0.855
	Stripper anode weight (per unit)	kg	445
	Dissolved anodes	t/d	810
	Composition – copper	%	>99.6
	Composition – oxygen	ppm	500–1,300
	Composition – sulfur	ppm	<45
	Composition – arsenic	ppm	280–550
Electrowinning cells – commercial and starter sheets	Number of cells	units	996
	Anodes per cell	units	52
	Cathodes per cell	units	53
	Cathode starting weight	kg	7
	Electrolyte flow per cell	L/min	25
	Electrolyte total flow	m^3/h	1494
	Current intensity	A	29,500
	Current density	A/m^2	278
	Current efficiency	%	97.8
Liberator electrowinning cells	Number of cells	units	24
	Electrolyte flow per cell	L/min	25
	Electrolyte total flow	m^3/h	60
	Current intensity	A	15,000
	Current density	A/m^2	138
	Current efficiency	%	95
Electrolyte composition	Copper	g/L	41–45
	Sulfuric acid	g/L	167–173
	Arsenic	g/L	7.5–10.5
	Antimony	g/L	≤0.45
	Bismuth	g/L	≤0.4
Cathode production and composition	Copper cathodes	t/a	294,763
	Cathode weight per unit	kg	180 ± 30
	Cathode length x width	m x m	1.02 x 1.02
	Copper	%	>99.99
	Silver	ppm	<20
	Sulfur	ppm	<10

Area	Description	Unit	Value
Precious metals plant	Slime treated	t/a	460
	Slime composition – copper	%	<2.5
	Slime composition – moisture	%	≤14.5
	Selenium electric oven – capacity	t/h	2.6
	Dore furnace – capacity	dry t/batch	10.5
	Silver refining cells	units	28
	Silver refining cells current	A	150
IDE Aquaport desalination plant	Desalination plant	m^3/d	1,000
Steam system	Gonella	t/h	20
	Cleaver & Brooks	t/h	20
Rectifier commercial cells	ABB (450 VDC)	KA	2 x 15
	Friem (460 VDC)	KA	2 x 20
Rectifier liberator cells	Friem (120 VDC)	KA	1 x 25

14.6.6 Power and Consumables

14.6.6.1 Power

The Ilo refinery uses the same power sources and network as outlined the Ilo Smelter (see Section 14.5.9.1). LOM requirements are estimated at an average 95 MW/a. The majority of the power requirement is from the electrolytic plant.

For 2024, the annual power consumption in the Ilo refinery was 95,276 MWh, and the electrolytic plant accounted for around 89% of the total consumption.

There is sufficient power capacity available to support the LOM plan.

14.6.6.2 Water

All water consumed in the Ilo refinery is desalinated seawater. For this purpose, the refinery has a desalination plant with a nominal capacity of 1,000 m^3 of treated water per day.

Water supplies are expected to be sufficient for the purposes of the LOM plan. Water consumption is expected to be in line with previous operating experience.

14.6.6.3 Consumables

Consumables used in the refinery include animal glue, thiourea, hydrochloric acid, and sulfuric acid. The precious metals plant uses diesel, sodium carbonate, sodium nitrate, borax, calcium carbonate, anthracite, nitric acid, hydrochloric acid, sulfur dioxide, and oxygen.

The LOM plan envisages that the same consumables will be used for the duration of the LOM plan.

14.6.7 Personnel

The personnel count for the Ilo refinery totals 218 persons for operations and 385 persons for maintenance. Maintenance personnel provide service for both the refinery and the Ilo smelter. Personnel numbers are expected to remain the same for the LOM.

15.0 INFRASTRUCTURE

15.1 Introduction

On-site infrastructure that supports the Cuajone Operations include:

- One open pit
- Four WRSFs
- One oxide stockpile
- One sulfide stockpile
- Two leach pads
- Process facilities including concentrator and conveyor system
- Warehouses, workshops, and offices
- 138 kV and 220 kV power transmission lines
- Electrical substation and power distribution system
- Water management facilities including a water treatment plant
- Permanent camp for operations
- Hospital
- Railway and rail yard.

Off-site infrastructure includes:

- Access road
- 138 kV and 220 kV power transmission lines
- Electrical substations and power distribution systems
- Railway
- Quebrada Honda TSF
- Water supply system
- SX/EW at Toquepala
- Smelter, refinery and sulfuric acid plants in Ilo
- Port facilities in Ilo including dock and storage areas, rail yard, and wagon repair shop
- Desalination plants at Ilo smelter
- Port facilities in Tablones, where hydrocarbons and sulfuric acid are unloaded and transported to the mine site
- Simón railway yard, which has assembly and dispatch areas, as well as workshops and offices.

Additional key infrastructure required in the LOM plan to support operations includes a new TSF once the current TSF has reached capacity.

A site layout is shown in Figure 15-1. Figure 15-2 shows the layout of the key processing facilities. The Ilo smelter and refinery are shown in Figure 3-1.

15.2 Roads and Logistics

The Toquepala and Cuajone Operations, together with the Ilo smelter and refinery, are connected by a network of public roads and a private railway that is operated by Southern Copper.

15.2.1 Road

The Cuajone Operations are accessed from the city of Moquegua via the PE-36 South Interoceanic Highway, then along the Cuajone Road until the intersection with the mine access route at the mine gate. From Arequipa, the Pan-American Highway and the 34C highway are followed to Moquegua, and then via the same route from Moquegua to the mine site.

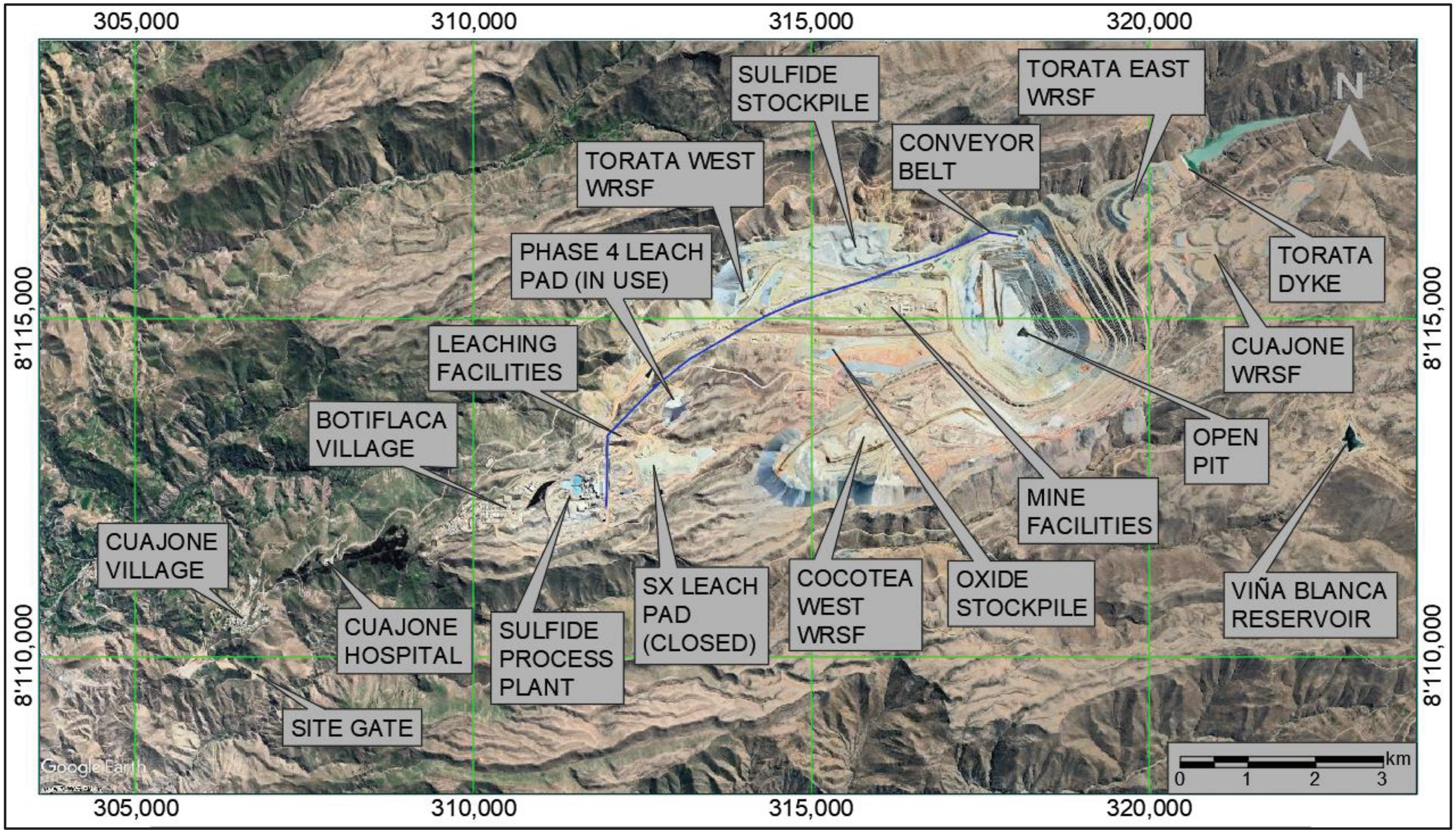
The Quebrada Honda TSF is about 120 km via local roads, south of the Cuajone Operations. It is accessed via the departmental road MO-107 from the town of Camiara, or via departmental roads MO-105 and MO-107. The Quebrada Honda TSF is approximately 47 km due south of the Cuajone Operations.

Personnel are transported to the mine site via the Cuajone road from the Villa Cuajone and Villa Botiflaca.

15.2.2 Rail

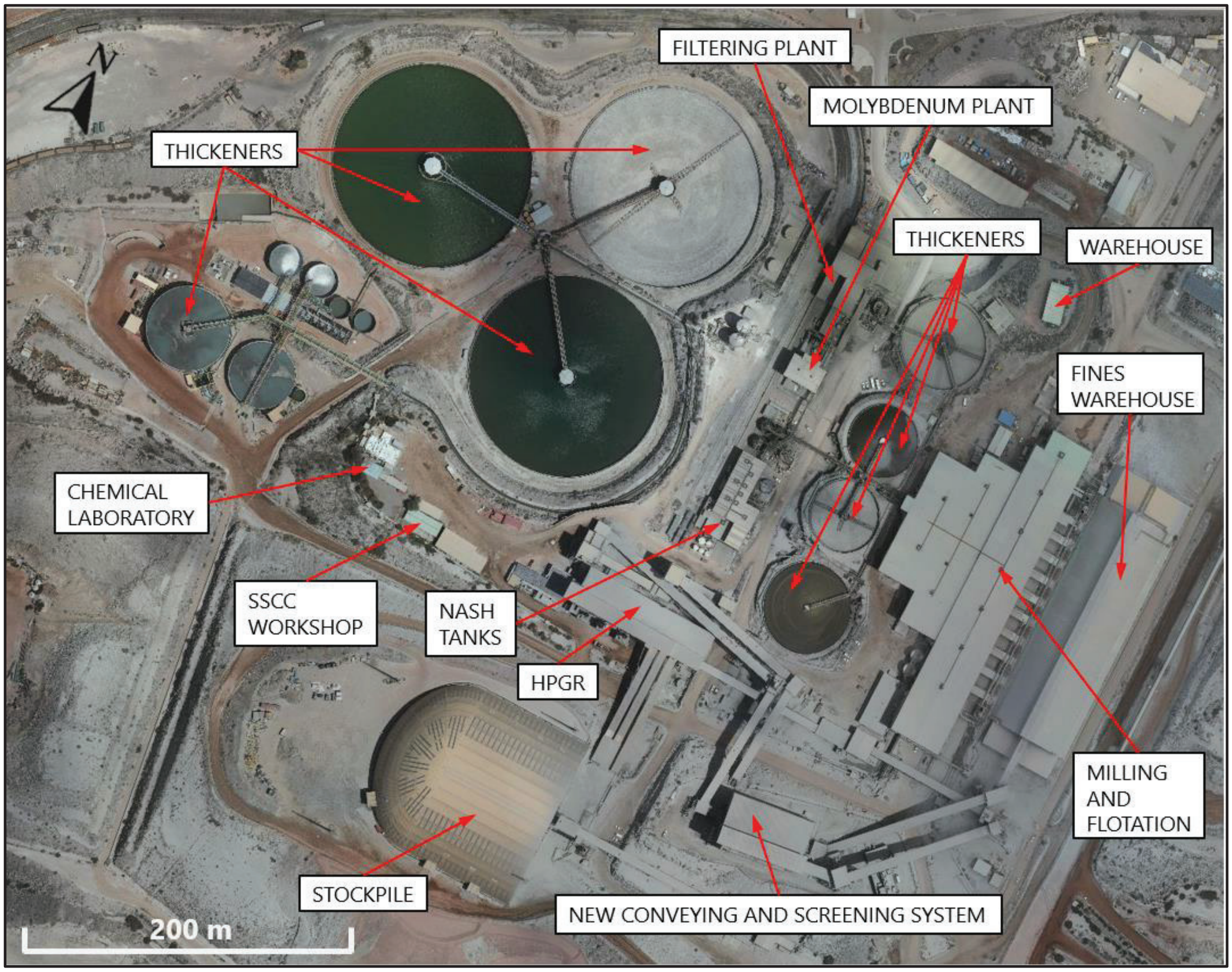
Railways extend from Ilo to Southern Copper's Toquepala Operations, and a spur railway runs from the Toquepala Operations to the Cuajone Operations. Supplies such as sulfuric acid, equipment, fuel, and mining supplies are transported to the operations using the rail network. Concentrates are railed from Cuajone and Toquepala mine sites to the Ilo smelter/refinery, and cathodes produced at the refinery are railed to the Port of Ilo.

Figure 15-1: Site Layout



Source: Wood, 2025

Figure 15-2: Process Plant Site Infrastructure



Source: Southern Copper, 2024

15.2.3 Port

The Port of Ilo is privately owned and operated by Southern Copper. It has two berths and can take vessels to 40,000 tonnes deadweight. The port is the export point for copper cathodes, copper concentrate, sulfuric acid and molybdenum; and the import location for general containerized and loose cargo to support operations. Supporting the port is a 182 m-long pier, breakwater, offices storage terminals, warehouses and laydown areas, storage tanks and pipelines, spill containment infrastructure, enclosure fencing, and an operations control center.

The Tablones port terminal is located 15 km north of the Port of Ilo, and consists of two facilities:

- Marine trestle facility used to load sulfuric acid. The facility can accommodate a ship mooring capacity of up to 37,000 tonnes deadweight and is 11 m deep and 180 m long.
- Multiple buoy facility used to unload hydrocarbons. The facility can accommodate a tanker mooring capacity of up to 70,000 tonnes deadweight and is 13 m deep and has a submarine pipeline that is 600 m long.

Supporting the port is an access road, enclosure fencing, a marine rock wall, an electrical power system that supplies 13.8 kV, spill containment infrastructure, hoses, pipes and cranes for product loading, mechanical equipment including plant and instrumentation air, and an operations center.

15.3 Stockpiles

ROM oxide ore is stored in a stockpile located between the open pit and the leaching plant for further processing in the crushing/leaching plant.

Low-grade sulfide ore is stored in a stockpile for processing later in the LOM.

15.4 Waste Rock Storage Facilities

The Cuajone Operations actively use four WRSFs with one currently inactive (Table 15-1).

The WRSF capacities are sufficient to support the LOM plan.

Table 15-1: Waste Rock Storage Facilities

Facility	Description
Torata West	Located west and downgradient of the Cuajone pit. Construction commenced in 1999. Remaining capacity is 1,147,370,000 m^3.
Torata East	Located between the Torata river basin, upgradient of the Cuajone pit and downstream side of the Torata river dam. Construction commenced in 1976. Remaining capacity is 43,930,000 m^3.
Cuajone	Located upgradient of the Cuajone pit on the downstream side of the Cuajone Creek basin and the Chuntacala dam. Construction commenced in 1976. Remaining capacity is 252,150,000 m^3.
Cocotea	Located upgradient of the Cuajone pit on the ridge between the Torata river basin and the Cocotea Creek basin. Construction commenced in 1976. Remaining capacity is 2,807,940,000 m^3.
1–5	Located downgradient of the Cuajone pit, and is currently inactive.

Southern Copper is reviewing the potential to co-stack (dry-stack) tailings and waste rock, whereby filtered tailings would be co-disposed with waste rock at on-site facilities in order to provide additional tailings storage capacity once the existing Quebrada Honda TSF reaches its ultimate storage capacity at the end of 2036. Under this scenario, additional areas would be required to allow WRSF expansions outside Southern Copper's current surface rights area. Southern Copper is of the opinion that the company will have sufficient time to acquire the necessary surface rights, as well as the respective permits and/or assignment of the mining concessions to support WRSF expansions. Costs have been included as part of the capital and operating cost estimates as provisions for this additional infrastructure and land acquisition in Section 18.

15.5 Tailings Storage Facilities

The Quebrada Honda TSF is the repository for tailings from the Toquepala and Cuajone Operations. It is situated southwest of the Toquepala Operations and south of the Cuajone Operations. Tailings deposition commenced in December 1996. When built, the facility is designed to have a total ultimate capacity of 2,347 Mt. The remaining capacity is about 850 Mt, which is sufficient to support approximately 12 years of production, from 2025–2036, based on the current production rates at the Toquepala and Cuajone Operations.

The TSF operates as a cross-valley impoundment and is confined by two dams constructed of compacted cyclone tailings sand. Among them, the main dam, located southwest of the impoundment, is being raised with the downstream construction method; and the lateral dam, located southeast of the impoundment is being raised with the center-line construction method. Tailings are discharged into the impoundment via steel and HDPE pipelines, and placed over the cell using graders. The tailings are further flattened using vibratory smooth rollers to achieve compacted tailings zones. The tailings supernatant pool is located at the north end of the impoundment away from the two dams where water is reclaimed and transported back to the process plant.

Currently, Southern Copper is operating a filtered tailings pilot plant at Quebrada Honda with an estimated production capacity of 8,000 t/d. Filtered tailings are deposited in a temporary filtered tailings disposal area located less than 1 km from the plant to the west of the Quebrada Honda TSF, and to the southwest of the area known as Pampa Purgatorio.

Additional tailings storage capacity will be required beyond 2036, see discussion in Section 18.

The former Ite tailings disposal area was located on a narrow coastal plain in southern Peru, approximately 50 km southwest of the port of Ilo. Tailings from Toquepala and Cuajone process plants were discharged into Ite Bay from 1959–1996. The Plan for Environmental Management and Adjustment (PAMA in the Spanish acronym) was completed in 1997 and covers rehabilitation.

15.6 Water Management Structures

The Cuajone mine is located in the middle sector of the Torata River watershed. The Torata River is diverted by a flood control system consisting of a dam, located approximately 4 km upstream of the mine, and a combination of tunnel and canal to divert water around the mining operations and return it to the natural course of the Torata River downstream of the mine. The diversion system is monitored for flow and water quality to ensure a reliable water resource for downstream users.

The Cuajone mine sub-watershed is bounded, in addition to the Torata Dam, by WRSFs that have been deposited in the canyon axis, cutting off the flow of the Torata River upstream and downstream of the mine, and interrupting the natural flow of the river. This sub-watershed also includes the Chuntacala ravine, which flowed through the current mine area towards the Torata River.

The Cuajone mine is in a dry area with minor rainfall and surface runoff during the months of January to March. The surface drainage system, consisting of channels, ditches, retention ponds, evaporation ponds, and storage ponds is used to divert rainwater away from the open pit and WRSFs.

The non-contact water is diverted away from site along three main perimeter channel systems:

- Torata East WRSF diversion channel
- Torata West WRSF diversion channel
- Viña Blanca diversion channel.

The non-contact water is discharged to either Ichupampa Creek or Cocotea Creek, with some collected in the WRSF Cocotea West retention and evaporation pond.

Mine contact water is collected in a tank system and then used for dust suppression on the haul roads within the mining pit. Contact water is collected from five sources around the mine site and diverted to water tanks or a storage and evaporation pond.

No water is discharged from the operations as no mining effluents are generated at the mine site.

At Quebrada Honda, Southern Copper is authorized to dispose of decanted water from the tailings. Water from the TSF is used in the process plant, following treatment in a neutralization facility.

15.7 Built Infrastructure

In general, the Cuajone mine has the necessary facilities to carry out its current operations. Costs have been included as part of the capital and operating cost estimates to account for the additional infrastructure that will be required later in the LOM to support the proposed mine production schedule at current production throughputs including the following:

- Leach pad expansion
- WRSF development
- Existing TSF raise
- Filtering tailings plant and land acquisition for waste and tailings management
- Primary crusher relocation.

15.8 Camps and Accommodation

Collectively, the Toquepala and Cuajone Operations, together with the Ilo smelter/refinery complex, have five accommodation areas that provide a permanent accommodation capacity of 4,756 persons. Temporary modular accommodation has the capacity to house an additional 946 personnel.

The Cuajone Operations have two accommodation/village areas, Villa Cuajone and Villa Botiflaca, located to the west of the concentrator. These provide residential requirements and have a hospital, schools, churches, markets, and a police presence.

15.9 Power and Electrical

The energy supply for the Cuajone Operations comes from the National Interconnected Electric System (SEIN), primarily from natural gas-fired thermal power plants located in the Chilca–Lima district of Peru, and Puerto Bravo in Mollendo and from the Antunez de Mayolo and Cerro del Aguila hydroelectric power plants.

Power is transmitted to the Southern Copper facilities in transmission networks of 500, 220 and 138 kV, using two Southern Copper-owned transmission lines of 138 kV (225 km long) and 220 kV (240 km long). The 138 kV line from Ilo is the primary source of power for the Cuajone Operations. Power is stepped down using a series of substations and distributed to the areas and equipment requiring electricity.

The Ilo facilities are supported by 564 MW of power supplied by SEIN, and 564 MW of gas reserve power from the southern Peru gas pipeline.

Southern Copper has an energy supply contract with the companies Kallpa and Electroperú and a maintenance contract for the transmission lines owned by Southern Copper and the main substations that are reported to Peru's *power* grid coordinator, Comité de Operación Económica del Sistema Interconectado Nacional (COES).

15.10 Water Supply

Southern Copper is authorized to abstract 2,011.37 L/s from fresh water sources for the Cuajone and Toquepala operations. Water management practices implemented at site has reduced the annual freshwater intake at site to approximately 1,600 L/s per year for recent years, 2023 and 2024. Freshwater for the mine and process facilities is obtained from the following groundwater and surface sources located approximately 50 km from the mining operations:

- Titijones and Huaitire-Gentilar aquifers
- Lake Suches

Monitoring systems are in place to record volume abstracted, groundwater level drawdown, surface water abstraction, and lake levels. The Titijones aquifer is managed using surface water runoff capture basins and infiltration galleries. These systems collect and direct excess runoff during rainfall events into the ground, recharging the aquifer.

Water is transported by a network of pipelines from Lake Suches to the operations where it is stored in the Viña Blanca reservoir, located 14 km from the Cuajone open pit. The reservoir has a storage capacity of 6 Mm^3, sufficient for a week of operations, in the event of an interruption in the upstream pipeline system. Pipelines from the reservoir can discharge 951 L/s on average for use by the concentrator and other facilities.

Hydro 1, a hydroelectric power plant, is powered by water from Titijones and discharges to Viña Blanca reservoir that also serves as a gravity flow compensation tank for the No. 2 hydroelectric plant. Water is sent to the hydroelectric plant via an approximate 14 km long pipeline. From the potable water treatment plant at site, water is distributed via a system of pipelines and storage tanks to on-site facilities and the accommodation camps. Potable water supply makes up approximately 25 to 30 L/s, of the total of 800 L/s supplied from the well fields at the aquifers and Lake Suches. The major portion of the freshwater supply is utilized in production, at rates of approximately 720 L/s; and for tailings production, at rates of approximately 45 to 50 L/s. On-site treatment (i.e., Ichupampa filtration and pumping system) allows for recycling of process water to minimize freshwater intake.

16.0 MARKET STUDIES

16.1 Markets

16.1.1 Copper

Copper futures are exchange-traded contracts on all of the world's major commodity exchanges. Copper is the world's third most widely used metal after iron and aluminum and is primarily consumed in industries such as construction and industrial machinery manufacturing.

The Cuajone Operations produce copper concentrates and copper anodes and cathodes.

16.1.2 Molybdenum

Molybdenum is mainly used as an alloying agent in stainless steel, and also in the manufacture of aircraft parts and industrial motors. The biggest producers of the metal are China, United States, Chile, Peru and Mexico. Molybdenum futures are available for trading in The London Metal Exchange (LME). Prices are generally determined by principal-to-principal negotiations between producers, trading houses, and end users.

The Cuajone Operations produce molybdenum concentrates.

16.1.3 Gold and Silver

Gold and silver are contained in the copper concentrate produced at the mine. Silver shots and gold-bearing doré are produced at the Ilo smelter. No recognition of revenues from gold and silver are made in the mine plan or the economic analysis in this Report as these metals have not been included in the mineral resource and mineral reserve estimates.

16.2 Market Strategy

Southern Copper employs a corporate strategy that is in line with the company's marketing experience, and experience with obtaining long-term contracts with strategic business partners in the Asian and European markets, as well as annual contracts with other active market participants.

Typically, over 60% of the molybdenum concentrate is sold to Chile, with the remainder sold into the Northern Europe, Asia and the US markets.

Typically, around 4.50% of the copper anodes produced are sold to third parties (i.e., Asia). The remaining anodes are used to produce cathodes at the Ilo refinery.

Cathode copper is sold onto the Asian, European, Brazilian and/or North American markets.

16.3 Product Marketability

16.3.1 Cuajone Operations

The principal product specifications require copper concentrates to be free from radioactivity. Deleterious impurities harmful to smelting and/or refining processes are based on the China Inspection and Quarantine Services limit specifications for the import of copper concentrates into China as follows:

- Pb.. ≤6.0%
- As .... ≤0.5%
- F.. ≤0.1%
- Cd... ≤0.05%
- Hg .... ≤0.01%

The principal payable commodities within the concentrates from the Cuajone Operations are copper and molybdenum. Although gold and silver exist as a by-product in the concentrate, no recognition of revenue from gold and silver is made in this Report because these metals have not been included in the mineral resource or mineral reserve estimates.

16.3.2 Ilo Smelter

The cathodes, anodes, and by-products produced at the Ilo smelter and refinery are readily marketable. The principal payable commodities are copper, silver, and gold.

16.4 Commodity Pricing

Southern Copper provided Wood with Southern Copper's internal metal price forecast and a presentation on their market outlook. The commodity price forecast was applied over the 50.4-year expected mine life. Forecasts were based on Southern Copper's interpretations of market analysis from Wood Mackenzie, CRU and 21 analysts and banks on copper price, and six analysts and banks on molybdenum price.

Wood reviewed the Southern Copper long-term forecast price for copper of $3.30/lb over the life of mine, and concluded that the copper price selected by Southern Copper is reasonable in comparison to the prices being used by Southern Copper's industry peers.

It is industry-accepted practice to use higher metal prices for the mineral resource estimates than the pricing used for mineral reserves. The higher metal prices used for mineral resources helps ensure that the mineral reserves are a subset of the mineral resources. The long-term copper price forecast of $3.30/lb for mineral reserves was increased by 15% to provide the mineral resource estimate copper price of $3.80/lb which was fixed over the 50.4-year life of mine.

Wood reviewed the Southern Copper long term forecast price for molybdenum of $10.00/lb over the life of mine, and concluded that the molybdenum price selected by Southern Copper is reasonable compared to what others have recently been using in the industry. The Southern Copper molybdenum price forecast of $10.00/lb was increased by 15% to $11.50/lb to provide the input to the mineral resource constraining pit shell and NSR cut-off and fixed over the 50.4-year life of mine.

Cashflows use the same metal price assumptions as were used for the mineral reserves and are fixed over the life of mine.

The assumed exchange rate for cashflow analysis purposes was US$1.00 = PENS/3.80. This exchange rate was provided by Southern Copper.

16.5 Contracts

Cuajone Operations copper concentrates are sent to the Ilo smelter and refinery for processing to produce refined cathodes. When the production from the Cuajone and Toquepala Operations exceeds the smelter's capacity, a portion of the concentrates is sold to third parties. In recent years, these third-party sales have represented about 20–25% of the annual production. Approximately 95% of the production of refined cathodes is sold under annual contracts with industrial customers (mainly copper rod producers), with whom Southern Copper has had a commercial relationship for many years. The remaining 5% is sold on the spot market.

The largest in-place contracts other than for product sales cover items such as bulk commodities, operational and technical services, mining and process equipment, and administrative support services. Contracts are negotiated and renewed as needed.

Contract terms are typical of similar contracts that Southern Copper has entered into in Peru.

17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

17.1 Introduction

The Cuajone Operations began before the enactment of formal environmental laws in Peru. Today, Southern Copper's operations are subject to applicable Peruvian environmental laws and regulations. The Peruvian government, through MINAM, conducts annual audits of mining and metallurgical operations. These audits review environmental obligations, compliance with legal requirements, atmospheric emissions, effluent monitoring, and waste management. Southern Copper has informed Wood that it is in material compliance with applicable Peruvian environmental laws and regulations.

Peruvian law mandates that mining companies provide assurances for future mine closure and remediation. In compliance with this requirement, Southern Copper's closure plans have been approved by MINEM.

On August 4, 1995, the combined Cuajone and Toquepala Operations submitted an EIA for the Cuajone–Toquepala Integrated Leaching Project, which was approved by Report N° 354-95-EM-DGM/DPDM. The Environmental Adequacy and Management Program for the Toquepala and Cuajone mining units and the Ilo processing plan was approved in 1997.

In 1998, two EIAs were submitted: one for expansion of the Toquepala deposit and another for flood control in the Torata River. The initial Cuajone Mine Closure Plan was submitted in 2008 with the first update approved in 2012 and second update approved in 2019.

Supporting technical documents for component modification projects for the Cuajone Operations were submitted in 2016, 2019, 2021, 2023 and 2024.

Requirements and plans are described in Section 15 for waste disposal in Section 15 and 18 for tailings disposal and in Sections 13 and 15 for water management.

17.2 Baseline and Supporting Studies

Baseline studies were completed prior to the mine start-up, including assessments of air quality, noise, vibrations, water and sediment quality, flora and fauna surveys, and the human environment.

Baseline and supporting studies were also completed to support Project permitting, together with the development of management plans to address significant impacts. These studies included EIAs, environmental management plans, the evaluation of flood control measures on the Torata River, archaeological surveys, and closure planning.

The EIAs incorporated an environmental management plan designed to mitigate potential impacts on water quality, biological resources, and socioeconomic conditions. The EIAs were further supported by supplementary technical reports that identified updated technologies and modifications to enhance and complement actions outlined in the original environmental management plan.

Southern Copper has not been issued Certificates of Non-existence of Archaeological Remains for the Cuajone operations, as there were no regulations requiring such certification at the time the operations were permitted. The first regulation addressing archaeological investigations was introduced in January 2000 under Supreme Resolution N° 004-2000-ED, which was issued after the approval of the Cuajone mining permits.

17.3 Environmental Considerations/Monitoring Programs

In compliance with permit requirements, Southern Copper has implemented several monitoring programs to track surface water and air quality. These programs align with the commitments made in the environmental management and adjustment plan, environmental impact study, closure plans, and their subsequent updates.

17.4 Closure and Reclamation Considerations

The mine closure plan for the Cuajone Operations was approved in 2009, with modifications subsequently approved in 2012 and 2019.

Closure plans address temporary, progressive and final closure stages, as well as post-closure maintenance and monitoring. The primary objective is to ensure that the final configuration of the facilities at closure remains physically, chemically and hydrologically stable over the long term.

Closure costs are included in the mine site financial model as cash costs on an annual basis. The current closure cost estimates for the Cuajone Operations is $375.2 million, expressed in Q2 2024 terms, including general sales tax.

For this assessment, the Quebrada Honda TSF closure costs and the Ilo smelter and refinery closure costs were allocated to the Cuajone and Toquepala Operations proportionally to nominal mill feed throughputs of each and the total LOM concentrate fed by each mine, respectively. The Ilo smelter and refinery closure cost estimate, completed in September 2024, is $86.0 million. A provision of $10.0 million, including general sales tax, was included to account for the closure cost of the filtered tailings plant. The total closure cost estimate assumed in the economic analysis for the Cuajone Operations is $438.5 million, inclusive of the Peruvian general sales tax.

The closure costs include:

- Progressive closure (over 8 years): $13.9 million
- Final closure (over 2 years): $357.6 million
- Post closure (over 5 years): $3.6 million
- Proportional costs Quebrada Honda TSF: $15.4 million
- Filtered tailings plant: $10.0 million
- Proportional costs Ilo smelter and refinery: $37.9 million.

17.5 Permitting

The Cuajone Operations and the Ilo smelter and refinery have all of the necessary permits required for operation (Table 17-1 and Table 17-2).

Additional permits will be needed to enable the construction and operation of the co-stack (dry-stack) tailings and waste rock facility, which is assumed to come into use once the Quebrada Honda TSF reaches its capacity expected by the end of 2036. Southern Copper believes that there will be sufficient time to secure the necessary permits and authorizations before this date.

The operations maintain a permit register, that records all legal permits obtained, the approval authority, permit validity period and expiration dates, current status (e.g., active, canceled or replaced), and whether renewal is required. Additionally, the operations have a control and monitoring system in place to ensure compliance that the requirements of each permit are monitored to comply with the relevant regulatory conditions imposed.

Table 17-1: Cuajone Operations Permits

Permit Number	Permit	Date Issued	Permit Authority
Environmental			
Report N° 354-95-EM-DGM/DPDM	Environmental Impact Assessment Cuajone–Toquepala Integrated Leaching Project	August 4, 1995	Ministry of Energy and Mines
R.D. N° 042-97-EM/DGM	Program for the Adaptation and Environmental Management of the Toquepala, Cuajone and Ilo production units	January 31, 1997	Ministry of Energy and Mines
Report N° 660-98-EM-DGM/DPDM	Environmental Impact Assessment of the SX/EW Toquepala Leaching Plant Tank House Expansion Project	November 10, 1998	Ministry of Energy and Mines
Report N° 661-98-EM-DGM/DPDM	Environmental Impact Assessment of the Torata River Flood Control Project	November 10, 1998	Ministry of Energy and Mines
R.D. N° 444-2012-MEM-AAM	Update of the Mine Closure Plan of the Cuajone Mining Unit	December 27, 2012	Ministry of Energy and Mines
R.D. N° 148-2016-MEM-DGAAM	Supporting Technical Report for the environmental technological improvement of the Cuajone Mining Unit and related works	May 6, 2016	Ministry of Energy and Mines
R.D. N° 047-2019-SENACE-PE/DEAR	First Supporting Technical Report of the Cuajone–Toquepala Integrated Leaching Project	March 05, 2019	National Environmental Certification Service for Sustainable Investments (Senace)
M-CLS-NT-00078-2019 CARTA N° 137-2019-SENACE-PE/DEAR	Modification of the Environmental Impact Assessment of the Cuajone-Toquepala Integrated Leaching Project (Anticipated Classification ToR)	April 17, 2019 May 3, 2019	National Environmental Certification Service for Sustainable Investments (Senace)
R.D. N° 171-2019/MINEM-DGAAM	Second Update of the Mine Closure Plan of the Cuajone Mining Unit	October 10, 2019	Ministry of Energy and Mines
R.D. N° 019-2021-SENACE-PE/DEAR	Supporting Technical Report for the Optimization of the Environmental Monitoring Program of the Cuajone Mining Unit (Second ITS Cuajone)	April 14, 2021	National Environmental Certification Service for

Permit Number	Permit	Date Issued	Permit Authority
			Sustainable Investments (Senace)
R.D. N° 72-2021-SENACE PE/DEAR		May 14, 2021	
R.D. N° 00084-2021-SENACE PE/DEAR		June 3, 2021	
R.D. Nº 00150-2021-SENACE-PE/DEAR	Fourth Supporting Technical Report of the Cuajone Mining Unit	November 24, 2021	National Environmental Certification Service for Sustainable Investments (Senace)
R.D. N° 00069-2023-SENACE PE/DEAR	Fifth Supporting Technical Report of the Cuajone Mining Unit	May 29 2023	National Environmental Certification Service for Sustainable Investments (Senace)
R.D. N° 00119-2024-SENACE-PE/DEAR	Sixth Supporting Technical Report of the Cuajone Mining Unit	September 17, 2024	National Environmental Certification Service for Sustainable Investments (Senace)
Water			
R.S. N° 534-72-AG	License in process of adaptation of 150 L/s of the waters of the Ticalaya and Quebrada Honda	June 15, 1972	Ministry of Agriculture
R.M. N° 00405-77-AG/DGA	License in the process of adapting the use of 60 L/sed of the waters of the Cinto-Quebrada Honda river	April 12, 1977	Ministry of Agriculture
R.M. 00899-79-AA-AGAS	License to annually extract 15,736,464 m^3 of groundwater through tubular wells drilled in the “Vizcachas” and “Titijones” hydrographic basins	July 09, 1979	Ministry of Agriculture

Permit Number	Permit	Date Issued	Permit Authority
R.D. N° 0062-83-AG-DGASI	License to annually extract up to 13,268,966 m^3 of groundwater extracted through four tube wells from the "Huaitire" basin	June 15, 1983	Ministry of Agriculture
R.D. N° 053-88-AG-DGA	Modification of the R.S. N° 535-72-AG reducing the flow to 300 L/s	April 10, 1988	Ministry of Agriculture
R.A. N° 002-94-DISRAG/ATDRL-S	License to annually extract 5,991,840 m^3 of groundwater captured from tubular wells TP-11 and TP-12 drilled in the "Huaitire-Gentilar" hydrographic basin	1994	Ministry of Agriculture
R.A. N°169-95-DISRAGT-ATDRLIS	License to use groundwater in the Vizcachas basin of up to 360 L/s	July 12, 1995	Ministry of Agriculture
R.A. N° 020-2003-ATDR.M/DRA.MDO	Adaptation of the water use license granted by R.M. N ° 00899-79-AA/DGAS and R.A. N ° 002-94-DISRAG/ATDRL-S for water usage of 9,744,624 m^3	April 1, 2003	Ministry of Agriculture
R.A. N° 034-2005-DRA.T/GR.TAC-ATDRL/S	Groundwater Use License with a flow of 162.2 L/s, equivalent to an annual extraction of 5,115,139 m^3 captured by two tubular wells TP-14 and TP-15 located in the Huaitire-Gentilar basin	January 28, 2005	Ministry of Agriculture
R.D. N° 271-2010-ANA/AAA I C-O	Regularization of the License for the Use of Surface Water, reallocating volumes of the R.M. N ° 405-77-AG/DGA	December 31, 2010	National Water Authority
Construction and Operation			
R.D. N° 150-81-EM/DCM	Approval of the Processing Concession for the Botiflaca Concentrator in 56 ha	August 14, 1981	Ministry of Energy and Mines
Report N° 266-99-EM-DGM/DPDM	Operation authorization of the Botiflaca Concentrator Processing Plant with a capacity of 87,000 t/d	July 20, 1999	Ministry of Energy and Mines
R.D. N° 155-96-EM/DGM	Approval of the title of the Processing Concession "SX Cuajone Leaching Plant" with an area of 400 ha, and authorization of definitive operation of 2,100 t/d	May 06, 1996	Ministry of Energy and Mines
Resolution N° 090-2009-MEM-DGM/V	Modification of the Processing Concession "SX Cuajone Leaching Plant" for expansion from 2,100 to 3,100 t/d	February 16, 2009	Ministry of Energy and Mines

Permit Number	Permit	Date Issued	Permit Authority
Resolution N° 988-2009-MEM-DGM/V	Authorization for the operation of the Processing Concession "SX Cuajone Leaching Plant" at 3,100 t/d	December 16, 2009	Ministry of Energy and Mines
Resolution N° 379-2010-MEM-DGM/V	Modification of the Botiflaca Concentrator Processing Concession to increase installed capacity from 87,000 to 90,000 t/d	October 7, 2010	Ministry of Energy and Mines
R.D. N° 153-2012-MEM-DGM-V	Approval and authorization of inclusion of 3 facilities to the Expansion Project to 90,000 t/d	May 12, 2012	Ministry of Energy and Mines
Resolution N° 0173-2014-MEM-DGM/V	Authorization for the operation of the new facilities of the Botiflaca Concentrator Processing Concession" to 90,000 t/d	May 8, 2014	Ministry of Energy and Mines
Resolution N° 0439-2016-MEM-DGM/V	Approval for the expansion of the area of the "Botiflaca Concentrator" Processing Concession and additional facilities	July 22, 2016	Ministry of Energy and Mines
R.D. N° 0190-2016-MEM/DGM	Mining Technical Report for the authorization of construction and operation of an in-pit primary crusher, conveyor belts and energy supply area with area expansion and without modifying the installed capacity of 90,000 t/d in the Botiflaca Concentrator	July 22, 2016	Ministry of Energy and Mines

Note: R.D. = Directorial Resolution; R.A. = Administrative Resolution; R.M. = Ministerial Resolution; R.S. = Supreme Resolution

Table 17-2: Ilo Smelter/Refinery Permits

Permit Number	Permit	Date Issued	Permit Authority
R.D. N° 078-69-EM/DGM	Definitive Operating Authorization for the Ilo smelter, with a production of 400 st/d of blister copper	August 21, 1969	Ministry of Energy and Mines
Report N° 056-94-EM-DGM/DRDM	Operation Authorization of the Ilo copper refinery with a capacity of 533 t/d for the treatment of blister copper	May 27, 1994	Ministry of Energy and Mines
R.D. No. 042-97-EM-DGM	Adaptation and Environmental Management Program (PAMA) for the U.P. Toquepala, U.P. Cuajone, U.P. Ilo and the Ilo Smelter	January 31, 1997	
R.D. No. 024-98-EM/DGE	Adaptation and Environmental Management Program (PAMA) for the Ilo Power Plant	June 18, 1998	
Report N° 506-97-EM-DGM/DPDM	Authorization of the Ilo Smelter, with an expanded capacity of 658 t/d	September 2, 1998	Ministry of Energy and Mines
R.D. No. 273-98-EM/DGM	Environmental Impact Assessment for the Mining Activity of Non-metallic Minerals of the “Cantera Chuza” Production Unit	September 24, 1998	
Report N° 204-2000-EM-DGM-DPDM	Operation authorization of the “La Fundición” Processing Concession with a capacity of 3,100 t/d of copper concentrate	June 20, 2000	Ministry of Energy and Mines
R.D. No. 023-2002-EM-DGAA	Modification of the PAMA for the Smelter and Power Plant	January 23, 2002	
Report N° 080-2002-EM-DGM/DPDM	Authorization for the operation of the Ilo smelter, with a capacity of 800 t/d	March 14, 2002	Ministry of Energy and Mines
R.D. No. 366-2003-EM-DGAA	Modification of the PAMA for the Ilo Smelter, referring to the Smelter Modernization Project	September 1, 2003	

Permit Number	Permit	Date Issued	Permit Authority
R.D. No. 365-2006-MEM-AAM	Environmental Impact Assessment for the Maritime Terminal Project for Sulfuric Acid Shipment - Bahía de Tablones, to be carried out in Bahía Tablones, Pacocha District, Ilo Province	November 5, 2007	
R.D. No. 457-2013-MEM-AAM	Supporting Technical Report for the Technological Improvement of the Concentrate Handling System at the Southern Peru Copper Corporation Industrial Port - Ilo Port Yard	December 2, 2007	
R.D. No. 065-2009-MEM-AAM	Shutdown Plan for the Process/Installation related to the IsaSmelt Furnace Building Hygiene Chimney, part of the Copper Smelter, located in Pacocha District, Ilo Province, Moquegua Department	March 23, 2009	
R.D. No. 312-2009-MEM-AAM	Closure Plan of the Ilo Production Unit	October 12, 2009	
R.D. No. 404-2009-MEM-AAM	Closure Plan of the Maritime Terminal for Sulfuric Acid Shipment at Bahía Tablones	December 10, 2009	
Resource N° 1961695	Operation authorization to capacity of 3,770 t/d	February 4, 2010	Ministry of Energy and Mines
Resolution N° 520-2010-MEM-DGM/V	Modification of the Ilo Copper Refinery Processing Concession without modification of installed capacity	December 30, 2010	Ministry of Energy and Mines
R.D. No. 318-2011-MEM-AAE	Environmental Impact Statement (DIA) of the Project “New Ilo 3 Electrical Substation”	October 27, 2011	
R.D. No. 053-2013-MEM-AAM	Update of the Mine Closure Plan for the Ilo Mining Unit and the Maritime Terminal for Sulfuric Acid Shipment at Bahía Tablones	February 20, 2013	
Oficio 2477-2013-MEM/AAE	Technical Report on the Installation of an Auxiliary Steam Boiler	September 4, 2013	

Permit Number	Permit	Date Issued	Permit Authority
R.D. No. 341-2013 MEM/AAE	Environmental Management Plan for the Adaptation to the Discharge and Reuse Program for Treated Wastewater from the Ilo1 Thermal Power Plant	November 20, 2013	
R.D. No. 349-2013 MEM/AAE	Environmental Management Plan for Adaptation to the Water Environmental Quality Standards for the Ilo1 Thermal Power Plant	November 22, 2013	
R.D. No. 457-2013-MEM-AAM	Supporting Technical Report for the Technological Improvement of the Concentrate Handling System at the Southern Peru Copper Corporation Industrial Port - Ilo Port Yard	December 2, 2013	
R.D. No. 006-2015/DREMM-GRM	Environmental Impact Assessment of the Project "220 kV Transmission Line S.E. Ilo 3 – T46 (from the 220 kV Moquegua – Tía María Transmission Line)	February 13, 2015	
R.D. No. 154-2016-MEM-DGAAM	Supporting Technical Report - Environmental Technological Improvement of the Ilo Mining Unit and Related Works	May 19, 2016	
R.D. No. 010-2019/MEM-DGAAM	Second Update of the Mine Closure Plan for the Ilo Mining Unit	January 24, 2019	
R.D. No. 111-2019-SENACEPE/DEAR R.D. N° 118-2019-SENACE-PE/DEAR	Second Supporting Technical Report for the Ilo Mining Unit	July 11, 2019 July 23, 2019	National Environmental Certification Service for Sustainable Investments (Senace)
R.D. N° 105-2020-SENACE-PE/DEAR	Third Supporting Technical Report for the Ilo Mining Unit	September 9, 2020	National Environmental Certification Service for Sustainable Investments (Senace)

Permit Number	Permit	Date Issued	Permit Authority
R.D. N° 00161-2022-SENACE-PE/DEAR	Modification of the Environmental Impact Assessment of the Ilo Mining Unit (Plan de Participación Ciudadana)	November 7, 2022	National Environmental Certification Service for Sustainable Investments (Senace)
R.D. N° 00126-2023-SENACE-PE/DEAR	Fourth Supporting Technical Report for the Ilo Mining Unit	September 20, 2023	National Environmental Certification Service for Sustainable Investments (Senace)
R.D. N° 00107-2024-SENACE-PE/DEAR, and INFORME N° 00714-2024-SENACE-PE/DEAR	Fifth Supporting Technical Report for the Ilo Mining Unit	August 16, 2024	National Environmental Certification Service for Sustainable Investments (Senace)
-	Third Update of the Mine Closure Plan for the Ilo Mining Unit	Under review	Ministry of Energy and Mines

Note: R.D. = Directorial Resolution

17.6 Social Considerations, Plans, Negotiations and Agreements

The Project's Area of Direct Social Influence was identified as the Torata district. The Area of Indirect Social Influence includes the districts of Samegua, Moquegua, Carumas, Cuchumbaya and San Cristóbal de Calacoa in Mariscal Nieto province, as well as Omate, Puquina, Lloque, La Capilla, Matalaque, Ichuña, Yunga, Chojata, Coalaque and Ubinas in Sanchez Cerro province.

Southern Copper has established community programs in place as part of the company's social management plan focusing on several key objectives including:

- Maintaining a positive co-existence with local communities based on a good neighbor approach
- Promoting local economic development
- Enhancing the capabilities of individual community members.

Currently, the social management plan is not formally incorporated into the base EIA or its subsequent amendments. The programs under the social management plan include:

- Corporate linkage program
- Communication and information program
- Institutional linkage program
- Operational and administrative materials program
- Equipment, service and maintenance program
- Education program
- Sports program
- Health and safety program
- Volunteering
- Human and social capital development program.

Reasonable mechanisms are being implemented to maintain positive relationships with surrounding communities and, to mitigate any perceived social conflicts associated with the Project.

Southern Copper has also established communication channels and tools in place based on the company's community development model. These mechanisms enable the company to recognize potential conflicts early, collaborate with the community to find appropriate solutions to address their concerns, and foster positive social license conditions for the continued operation of its mining projects.

17.7 Opinion on Adequacy of Current Plans to Address Issues

After reviewing the information provided, Wood's QP is of the opinion that Southern Copper has appropriately implemented a system to identify and mitigate social issues arising during operations. Wood considers that Southern Copper has a clear understanding of the social risks associated with the Project, and that they are reasonably manageable for the Cuajone Operations. Additionally, Wood considers that Southern Copper's current plans are adequate to address any issues related to environmental compliance, permitting, and engagement with local individuals or groups.

18.0 CAPITAL AND OPERATING COSTS

18.1 Introduction

Capital and operating cost estimates are at a minimum at a pre-feasibility level of confidence, with an accuracy range of ±25%, and an overall contingency of no more than 15%.

18.2 Capital Cost Estimates

18.2.1 Basis of Estimate

In general, the Cuajone Operations have the necessary facilities to carry out its current operations. Sustaining capital costs were estimated by area and allocated over time to support the proposed mine production schedule at current production throughputs, and include the following:

- Mine equipment fleet increase and replacement, and maintenance
- Water and fuel tanks, and fuel station relocation
- Leach pad expansion
- Existing tailings storage facility (Quebrada Honda) raise
- Filtered tailings plant and land acquisition for waste and tailings management
- Primary crusher relocation
- Process facilities sustaining and maintenance
- Other general sustaining and maintenance.

All capital costs were expressed in Q3 2024 US dollars unless otherwise stated. Where costs used in the estimate were provided in currencies other than US dollars, the following exchange rate as provided by Southern Copper, was used:

- 2022: US$1.00 = PENS/3.80

No allowances were made for fluctuations in exchange rates.

18.2.1.1 Mining

Mine equipment requirements were estimated by operating area (drilling, loading, hauling, support, etc.) based on the proposed LOM plan and equipment replacement ratios provided by Southern Copper. Capital costs for the major mine mobile equipment were based on recent pricing provided by Southern Copper and support mine mobile equipment were based on purchases made by Southern Copper in recent years. Support mine mobile equipment costs account for approximately 10% of the total mine mobile equipment cost. No contingency was applied to mining equipment costs. Mine equipment maintenance costs were accounted for based on unit costs derived from the 2025–2029 sustaining and maintenance cost schedule developed by Southern Copper resulting in an overall unit cost of $0.16/t mined.

18.2.1.2 Relocation of Utilities

To allow pit development, existing water and fuel tanks, and a fuel station will need to be relocated. The relocation of these facilities is expected to be executed between 2025-2026. The associated cost was estimated by Southern Copper based on quotes and cost allowances based on similar previous works executed by Southern Copper, and escalated to Q3 2024 using a combination of escalation factors and recent rates. Indirect costs were applied based on benchmark factors. A contingency of 20% of the direct and indirect costs was included.

18.2.1.3 Leach Pad Expansion

Leach pad expansion costs were estimated based on a unit cost of $3.20/t of oxide ore, derived from a leach pad expansion executed by Southern Copper, accounting for cost escalation, and the feed tonnages as per the proposed production plan. This unit cost is inclusive of direct and indirect costs. It includes a contingency of approximately 10% of the direct and indirect costs.

18.2.1.4 Quebrada Honda Tailings Storage Facility Expansion

The costs associated with the raise of the existing Quebrada Honda TSF accounts for the works to expand the TSF to its maximum design storage capacity until approximately the end of 2036, which include:

- Main and lateral dyke drainage systems
- Relocation of the catchment pond of the lateral dyke
- Relocation of cyclone station 2101
- Relocation of offices, workshops, control room and tanks
- Supporting equipment, barges and lime plan sustaining costs.

These costs were estimated by Southern Copper in 2021 based on a combination of overall costs incurred in similar previous works executed, quantities derived from conceptual designs and unit costs from similar previous works executed, and costs allowances, and were escalated to Q3 2024 using a combination of escalation factors and recent rates. Costs are inclusive of direct and indirect costs and a contingency of 20% of the direct and indirect costs. These costs were distributed between the Cuajone and Toquepala Operations proportionally to nominal mill feed throughputs of each.

18.2.1.5 Filtered Tailings Plant

Additional tailings storage capacity is required to accommodate tailings from processing of the remaining LOM ore once the existing Quebrada Honda TSF reaches the ultimate storage capacity at approximately the end of 2036. Wood assumed co-stack (dry-stack) tailings and waste rock as the preferred alternative to process and store the remaining tailings (starting from 2037). Costs from a 2020 internal study of another Southern Copper project that considered disposing tailings by comingling waste rock and filtered tailings materials were used and adjusted to account for difference in throughput and escalation to Q3 2024 using a combination of escalation factors and recent rates to develop the capital cost estimate at a conceptual level, complemented with engineering judgement and costs derived from projects of similar applications. It is assumed that the Cuajone Operations will use a similar disposal method at on-site facilities, to be located within the Cuajone Operations area, in which waste rock will be used as a buttress material for the filtered tailings where feasible to improve stability.

Capital cost estimates include costs for the procurement and development of required facilities for the thickening/drying/filtering process infrastructure for the tailings materials and subsequent disposal and compaction in the co-disposal facility. Indirect costs were applied based on benchmark factors. A contingency of 20% of the direct and indirect cost was included.

Land acquisition costs as provision for waste and tailings management space were also included in the estimate. Land acquisition costs were provided by Southern Copper based on ongoing negotiations with landowners and market surveys.

In addition, sustaining costs at $0.6 million each year and $13.0 million every three years were included for relocating conveyors for continued operation, equipment replacement, associated with the conveyor systems, and additional cost related to changing/updating filtering equipment.

18.2.1.6 Crusher Relocation

To allow the pit development later in the LOM, it is estimated that the sulfide primary crusher will need to be relocated between 2051–2052. For operational purposes, it was assumed that a new primary crusher will be acquired and installed. The associated cost was estimated by Southern Copper at a conceptual level based on previous quotes for similar equipment from 2014 and cost allowances based on similar previous works executed by Southern Copper, and escalated to Q3 2024 using a combination of escalation factors and recent rates. The estimate includes the costs for the procurement and development of the required facilities. Indirect costs were applied based on benchmark factors. A contingency of 15% of the direct cost was included.

18.2.1.7 Process and Other Sustaining and Maintenance Costs

Process facilities sustaining and maintenance, and other general sustaining and maintenance costs were accounted for based on the following unit costs derived from the 2025–2029 sustaining and maintenance cost schedule developed by Southern Copper:

- Processing facilities sustaining and maintenance:
  - Concentrator: $0.55/t processed for sustaining and maintenance
  - LESDE area: $594.20/t of cathode produced
  - Ilo smelter and refinery: $25.53/t of concentrate treated
- Other sustaining and maintenance: $0.23/t processed (concentration and leaching).

The build up for these costs are well understood and no contingency is required.

18.2.2 Capital Cost Estimate Summary

The sustaining capital cost estimate totals $5,258.3 million (Table 18-1) and includes an overall contingency of no more than 15%. Costs are inclusive of indirect costs.

Capital costs were applied in the financial model excluding value-added tax.

Table 18-1: Sustaining Capital Cost Estimate

Area	Sustaining Capital Cost (US$M)
Mining equipment	2,457.4
Water and fuel tanks, and fuel station relocation	18.0
Leach pad expansion	62.1
Existing tailings storage facility (Quebrada Honda) raise	73.2
Filtered tailings plant, inc. land acquisition	671.2
Primary crusher relocation	68.8
Process facilities sustaining and maintenance	1,426.1
Other general sustaining and maintenance	342.8
Subtotal Direct + Indirect cost	5,119.7
Contingency	138.6
Total	**5,258.3**

Note: Totals may not sum due to rounding.

18.3 Operating Cost Estimates

18.3.1 Basis of Estimate

Operating costs were based on actual costs and data from Southern Copper's operating mines in Peru, Wood's experience and the proposed mine and process plans.

18.3.2 Mining Costs

Operating costs incorporated operational life, average availabilities, and efficiencies for the major mine equipment fleet. The equipment operating time inputs were adjusted by Southern Copper to reflect operating considerations.

Inputs on drill productivity and blasting accessory costs were provided by Southern Copper. Explosives costs were estimated by consumption ratios provided by Southern Copper, based on data from their operations.

The inputs and main consumable costs and operational parameters were provided by Southern Copper, according to actual data from the Cuajone Operations.

Vehicle speeds and diesel consumption were based on grouping roads with similar inclinations into segments.

The mine equipment power consumption rate was provided by Southern Copper. The estimated fuel price for the LOM was $3.30/gal and the energy price was $0.081/kWh.

The maintenance and repair cost includes the costs to repair and replace parts including rebuild labor. The replacement cost for truck tires is $51,319/tire with a life of 5,196 hours.

The technical manpower required was estimated based on the actual organizational structure.

Salaries were provided by Southern Copper.

The total material mined is estimated at 3,784 Mt. Mine operating costs are forecast to average $2.43/t mined over the LOM. The mine cost increases gradually starting at $2.04/t mined in year 1 (2025) to a cost of $2.99/t mined in year 50 (2074), due to the increase in ex-pit hauling distance (waste dump facilities) and the deepening of the pit.

A cost of $1.58/t reclaimed was applied to account for reclamation costs from the sulfide and oxide stockpiles, which includes ore loading, hauling and feeding to the leach pad or concentrator.

18.3.3 Process Costs

Process operating costs were based on a combination of actual costs averages over the period 2020-2024 adjusted to account for the LOM based on expected variations of key commodity costs such as energy, consumables and services; and a projection of the leaching and SX/EW costs provided by Southern Copper based on the leach and cathodes production schedule and operational parameters and main consumable costs based on data from their operations. Processing costs include concentration costs, leaching and SX/EW cathode recovery, and smelting and refining at Ilo, which are inclusive of:

- Labor costs
- Power and fuel costs for usage by equipment, vehicles, and infrastructure
- Materials costs for the concentrator included consumables such as grinding media, crushing, and grinding liners, and reagents. The leaching and SX/EW plant included costs of piping supplies and reagents such as sulfuric acid, cobalt sulfate, and extractants. For the smelter this cost element included the cost of silica, refractory and steel consumables, piping and electrical supplies, and liquified petroleum gas. For the refinery, this cost element included electrical supplies, reagents, piping and valves, and laboratory supplies
- The “services and other” cost element includes the cost of water, contractor work costs (operation and maintenance), laboratory services, and other indirect costs.

Operating costs associated with tailings disposal at the existing Quebrada Honda TSF are included as part of concentrator costs.

Although the SX/EW plant is located at the Toquepala Operations, cathode recovery costs were allocated to the Cuajone and Toquepala Operations in proportion to cathodes recovered from their copper content feeds.

Silver shots and gold-bearing doré bars are normally produced in the Ilo refinery; however, as neither revenue from the silver shots and gold-bearing doré bars nor the production costs of the silver shots and gold-bearing doré bars were considered in the economic analysis, the cost estimate reported for the Ilo refinery excludes the precious metals plant operating cost.

Operating costs estimates for the concentrator are presented in Table 18-2, for the Toquepala concentrator facility in Table 18-3, for the Ilo smelter in Table 18-4, and for the Ilo refinery in Table 18-5.

In addition to the estimates described above, an alternate tailings processing and storage option is required to process the remaining LOM ore once the existing Quebrada Honda TSF reaches the ultimate storage capacity at approximately the end of 2036. Wood assumed co-stack (dry-stack) tailings and waste rock as the preferred alternative to process and store the remaining tailings (starting from 2036). Costs from a 2020 internal study of another Southern Copper project that considered disposal of tailings by comingling waste rock and filtered tailings materials were used to develop the operating cost estimate, complemented with engineering judgement on costs derived from projects of similar applications, and escalation to Q3 2024 using escalation factors. It is assumed that the Cuajone Operations will use a similar disposal method at on-site facilities in which waste rock will be used as a buttress material for the filtered tailings where feasible to improve stability. A cost of $1.97/t was estimated, which includes filtering and thickening, tailing conveying and spreading and compaction of the tailing material.

A cost of $9.6 M/a was included for the operation of the filtered tailings pilot plant based on the cost provided by Southern Copper. This cost was applied from 2025 to 2036 (the year before the main thickening/drying/filtering process infrastructure is assumed to start operations) distributed between the Cuajone and Toquepala Operations proportionally to nominal mill feed throughputs of each.

Table 18-2: Cuajone Concentrator Operating Costs

Area	**Adjusted Average 2020–2024 ($/t processed)**
Labor	0.83
Fuels	0.08
Power	1.63
Materials	3.22
Services and others	1.05
Total Cost	**6.81**

Note: Numbers have been rounded. Totals may not sum due to rounding.

Table 18-3: Cuajone Leaching and SX/EW Operating Costs

Area	LOM Costs Range ($/lb Cu recovered)
Labor	0.12 – 0.58
Fuels	0.10 – 0.47
Power	0.03 – 0.04
Materials	0.01 – 0.88
Services and Others	0.45 – 2.10
Total Cost	**0.80 – 3.20**

Note: Numbers have been rounded. Totals may not sum due to rounding.

Table 18-4: Ilo Smelter Operating Costs

Area	Adjusted Average 2020–2024 ($/t of concentrate processed)
Labor	32.53
Fuels	9.73
Power	21.90
Materials	36.92
Services and Others	21.70
Total Cost	**122.77**

Note: Numbers have been rounded. Totals may not sum due to rounding.

Table 18-5: Ilo Refinery Operating Costs

Area	Adjusted Average 2020–2024 ($/lb Cu produced)
Labor	0.0232
Fuels	0.0004
Power	0.0086
Materials	0.0091
Services and Others	0.0197
Total Cost	**0.0610**

Note: Numbers have been rounded. Totals may not sum due to rounding.

18.3.4 General and Administrative Costs

General and administrative costs are included in the corresponding mining and processing costs.

18.3.5 Operating Cost Estimate Summary

Table 18-6 is a summary of the operating cost estimates with an accuracy range of ±25%, an overall contingency of no more than 15% is included, and exclusive of value-added taxes.

Table 18-6: Cuajone LOM Operating Cost Estimate

Description	Unit	Cost	Total ($M)
Mining*	$/t mined[1]	2.53	9,561.8
Process	$/t processed[2]	10.56	16,031.9
Total			**25,593.7**

Note: Totals may not sum due to rounding.
(1) Including ore rehandling.
(2) Including sulfides and oxides.

19.0 ECONOMIC ANALYSIS

19.1 Forward-looking Information Caution

Certain information and statements contained in this section are forward-looking in nature and are subject to known and unknown risks, uncertainties, and other factors, many of which cannot be controlled or predicted and may cause actual results to differ materially from those presented here. Forward-looking statements include, but are not limited to, statements with respect to the economic and study parameters of the Cuajone Operations; mineral reserves; the proposed mine plan and mining strategy; ability of mine designs to withstand seismic events; dilution and extraction recoveries; processing method and rates and production rates; projected metallurgical recovery rates; infrastructure requirements; capital, operating and sustaining cost estimates; concentrates and cathodes marketability and commercial terms; the projected LOM and other expected attributes of the Project; the NPV; future metal prices and currency exchange rates; government regulations and permitting timelines; estimates of reclamation obligations; requirements for additional capital; environmental and social risks; and general business and economic conditions.

19.2 Methodology

The financial analysis was performed using a discounted cash flow (DCF) method. Net annual cash flows were estimated projecting yearly cash inflows (or revenues) and subtracting projected yearly cash outflows (such as capital and operating costs, royalties, and taxes).

The financial model that supports the mineral reserve declaration was a standalone model that calculated annual cash flows based on: scheduled ore production; assumed processing recoveries; metal and concentrate sale prices; projected operating and capital costs; and estimated taxes.

The financial analysis was based on an after-tax discount rate of 10%. Cash flows were assumed to occur at the end of each year and were discounted to the beginning of 2025 (Year 1 of the economic analysis).

Costs projected within the cash flows are based on constant Q3 2024 US dollars.

Revenue was calculated from the recoverable copper and molybdenum metal and the long-term forecasts of metal prices and exchange rates. Recoverable copper metal and non-metal products include those recovered at the Ilo smelter and refinery from the copper concentrate feed from the mine operation and copper and molybdenum concentrate sales.

19.3 Input Parameters

19.3.1 Mineral Reserves and Mine Life

The mineral reserves estimate was summarized in Section 12.3. The projected production schedule and mine life was provided in Section 13.4.

19.3.2 Metallurgical Recoveries

The metallurgical recoveries forecast was provided in Section 10.4.

19.3.3 Smelting and Refining Terms

The following long-term commercial terms and charges were used in the cash flow model. These were based on current contract terms. Transport costs were based on average costs incurred from 2022 to mid-2024 using escalated values to Q3 2024.

19.3.3.1 Copper Concentrate

Based on Southern Copper's preliminary forecast, the cash flow assumes that on average, in those years when the total annual copper concentrate production from Cuajone and Toquepala operations is equal or less than the Ilo smelter nominal capacity (1.2 Mt/a of Cu concentrate), all the copper concentrate from the Cuajone and Toquepala operations will be treated at the Ilo smelter. In those years when the total annual copper concentrate production from Cuajone and Toquepala operations is higher than the Ilo smelter nominal capacity, 10% minimum or surplus production will be sold to third parties.

A concentrate transport loss of 0.2% was included, based on benchmarks. A concentrate moisture of 9.01%, which was the average value from 2023 to June 2024, was considered for the copper concentrate.

The following commercial terms were applied to the portion of the copper concentrate that is assumed to be sold to third parties:

- Payability factors:
  - Payable copper of 96.5%, subject to a minimum deduction of 1.0 unit
- Treatment and refining charges:
  - Treatment charge = $80.00/dmt
  - Copper refining charge = $0.08/lb Cu payable.

Ocean freight costs were estimated at $47.88/wmt of copper concentrate from the port of Ilo. These costs were based on average costs from 2022 to mid-2024 using escalated values to Q3 2024. Land transport (by rail) and port costs were included in the operating costs.

19.3.3.2 Molybdenum Concentrate

Typically, over 60% of the molybdenum concentrate is sold to Chile, with the remainder sold into the Northern Europe, Asia and the US markets. The following commercial terms were assumed:

- Payability factors:
  - Payable molybdenum of 100%
- Treatment and refining charges:
  - Roasting charge of $1.70/lb Mo payable. This cost was based on the average cost from 2022 to mid-2024 using escalated values to Q3 2024.
- No price participation or penalties were applicable
- No transport losses were considered.

A concentrate moisture of 10.02% was used for the molybdenum concentrate, which was the average value from 2023 to June 2024.

Ocean freight costs were estimated at $286.83/t Mo contained in concentrate from the port of Ilo. This cost was based on the average from 2022 to mid-2024 using escalated values to Q3 2024. Land transport (by rail) and port costs were included in the operating costs.

19.3.3.3 Copper Cathodes

The copper cathodes produced are typically sold to different markets located in the Americas, Europe, and Asia. The following commercial terms were assumed:

- Payable copper of 100%, subject to a premium of $105.64/t. This cost was based on the average premium from 2022 to mid-2024 using escalated values to Q3 2024.
- No price participation was applicable.

Ocean freight costs were estimated at $94.91/t Cu from the port of Ilo. This cost was based on the average cost from 2022 to mid-2024 using escalated values to Q3 2024. Land transport (by rail) and port costs were included in the operating costs.

19.3.3.4 Ilo Smelter and Refinery

Copper Blister/Anodes

Typically, only about 4.5% of the copper anodes produced are sold to third parties, which are primarily located in Asia. Most of the anodes, 95.5%, are sent to the Ilo refinery for cathode production. The anode copper content is assumed at 99.7%. The remaining 0.3% of the anode content includes silver, gold, sulfur, oxygen, and other elements, none of which are assumed payable in the economic analysis as they have not been estimated in the mineral resources and mineral reserves. The following commercial terms were assumed:

- Payability factors:
  - Payable copper of 100%, subject to a deduction of 0.3%
- No price participation was applicable
- Treatment and refining charges:
  - Treatment charge: zero
  - Refining charge: $167.93/t of anode. This cost was based on the average cost from 2022 to mid-2024 using escalated values to Q3 2024.

Ocean freight costs were estimated at $74.18/t Cu from the port of Ilo. This cost was based on the average cost from 2022 to mid-2024 using escalated values to Q3 2024. Land transport (by rail) and port costs were included in the operating costs.

Copper Cathodes

Cathode assumptions are the same as those detailed under Section 19.3.3.3.

Silver Shots

Silver shots have been produced and are typically sold to the US, Brazil, Peru, Chile, Argentina, and Colombia. Because silver was not estimated in the mineral resources or mineral reserves, silver shot revenue is not included in the production schedule or economic analysis, nor were silver shot production costs considered.

Gold Doré Bars

Gold-bearing doré bars have been produced in the past and were sold locally in Peru. Because gold was not estimated in the mineral resources or mineral reserves, gold-bearing doré bars revenue is not included in the production schedule or economic analysis, nor were the gold-bearing doré bars production costs considered.

Sulfuric Acid

Currently, approximately 88% of the sulfuric acid produced is sold within South America, with 60% of that acid production figure going to Chile, and 40% to Peru. The remaining 12% is used in the Cuajone and Toquepala Operations.

19.3.4 Commodity Price and Exchange Rate Assumptions

Revenue was calculated from the recoverable copper and molybdenum metal and the long-term forecast of metal prices and exchange rates. Revenue from the sale of a copper concentrate is included, based on the contained metal, accountability factors and the long-term forecast for metals prices and exchange rates. Recoverable copper metal include those recovered at the Ilo smelter and refinery from the copper concentrate feed from the mine operation.

Commodity price and exchange rate forecasts were provided in Section 16.4.

19.3.5 Capital Costs

The capital cost estimate was summarized in Section 18.2.

19.3.6 Operating Costs

The operating cost estimate was summarized in Section 18.3.

19.3.7 Royalties

Special mining taxes and the modified mining royalty are discussed in Section 3.2.7. There are no other royalties payable on the Cuajone Operations.

19.3.8 Working Capital

Working capital provisions in the cashflow analysis included:

- 60 days in accounts receivable, including revenue

- 30 days in accounts payable, including concentrates, anodes and cathodes selling costs, operating costs, special mining tax and modified mining royalty.

19.3.9 Closure and Reclamation Costs

Closure costs were provided in Section 17.4. Closure costs were allocated in the relevant cash flow years based on the progressive, final and post closure schedule. It was assumed that closure cost accruals are not required, and closure obligations will be satisfied by either escrow with other Southern Copper assets as collateral, a bond or a bank letter of credit.

The salvage value was assumed to be zero.

19.3.10 Financing

All expenditures were assumed to be financed with 100% equity; i.e., no debt was considered.

19.3.11 Inflation

No escalation or inflation was applied. All amounts were constant (real) Q3 2024 terms.

19.3.12 Taxation Considerations

The taxation modeled within the financial analysis is based on the taxation scheme that was provided and validated by Southern Copper.

The assumptions include:

- All expenses excluded the value-added tax (Impuesto General a las Ventas (IGV)), except for closure costs which do include IGV
- Modified mining royalty (Law N° 29788)
- Special mining tax (Law N° 29789)
- Employee profit sharing of 8% of taxable income
- Corporate income tax rate of 29.5%
- Complementary mining pension fund applied at 0.5% of taxable income after employee profit sharing
- Tax loss carried forward not applicable.

Tax depreciation is straight line and is divided into the following categories:

- Non-depreciable: land acquisition
- 10 years (10% annual): mining and process equipment (including sustaining and maintenance items)
- 20 years (5% annual): filtered tailings plant and supporting infrastructure (including pilot plant), primary crusher relocation, additional screening system implemented in concentrator, and Ilo smelter and refinery ongoing sustaining and maintenance items
- 30 years (3.3% annual): leach pad expansion, expansion of existing TSF, and other ongoing sustaining and maintenance items (not included in schedules above).

The same rates are used for financial depreciation.

Depreciation from previous expenditures and existing assets, including those from the Ilo smelter and refinery, in the amount of $438.5 million, as provided by Southern Copper, was accounted for in the financial model for both tax and financial depreciation.

19.4 Results of Economic Analysis

The Cuajone Operations are anticipated to generate a pre-tax NPV of $2,945.7 million at a 10% discount rate and an after-tax NPV of $1,790.2 million at a 10% discount rate.

As the mine is operating, and initial capital is already sunk, considerations of IRR and payback are not relevant.

A cash flow summary is provided in Table 19-1, and the LOM cash flow forecast on an annualized basis in Table 19-2 to Table 19-7.

Table 19-1: Summary of Economic Results

Description	Unit	Value
Remaining mine life	years	50.4
Copper payable	Mlb	13,088.5
Molybdenum payable	Mlb	348.4
After-Tax Valuation Indicators		
Undiscounted cash flow	$M	8,532.5
NPV @ 10%	$M	1,790.2
Sustaining capital	$M	5,258.3
Closure cost (inc. IGV)	$M	438.5
Mining operating cost	$M	9,561.8
Process operating cost	$M	16,031.9

Note: Numbers have been rounded. IGV = value-added tax (Impuesto General a las Ventas).

Table 19-2: Cash Flow Forecast on an Annual Basis (2025–2033)

Area	Unit	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033
MINE PRODUCTION											
Waste mined	Mt	**2,328.5**	58.9	50.1	52.1	68.8	79.4	76.1	68.9	72.4	74.0
Total ore mined	Mt	**1,456.4**	50.0	49.9	49.3	24.7	26.5	28.3	37.0	32.4	28.6
Sulfide Ore Mined (concentration)											
Sulfides ore mined	Mt	**1,456.1**	50.0	49.9	49.3	24.7	26.5	28.3	37.0	32.4	28.6
Cu head grade	%	**0.48**	0.48	0.45	0.44	0.54	0.45	0.53	0.61	0.57	0.68
Mo head grade	%	**0.017**	0.015	0.013	0.017	0.014	0.020	0.018	0.020	0.018	0.019
Oxide/Sulfide Ore Mined (leaching)											
Oxide ore mined	Mt	**0.3**	-	-	-	-	-	-	-	-	-
Cu head grade	%	**0.72**	-	-	-	-	-	-	-	-	-
PROCESS PRODUCTION											
Feed to Mill (sulfides)											
Sulfide ore feed	Mt	**1,498.8**	30.8	28.5	28.5	29.0	29.0	32.5	29.0	31.5	32.5
Cu feed grade	%	**0.48**	0.61	0.52	0.51	0.49	0.48	0.50	0.60	0.58	0.59
Mo feed grade	%	**0.017**	0.020	0.015	0.018	0.014	0.020	0.017	0.020	0.019	0.017
Feed to Leach (sulfide/oxide)											
Sulfide/oxide ore feed	Mt	**19.4**	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Cu feed grade	%	**0.51**	0.65	0.65	0.65	0.61	0.46	0.46	0.46	0.46	0.46
METAL RECOVERY											
Concentration											
Cu recovered	Mlb	**13,408.2**	354.3	273.5	272.2	265.9	259.5	303.4	331.5	350.2	368.9
Mo recovered	Mlb	**348.4**	8.5	5.7	7.2	5.4	8.2	7.5	8.1	8.3	7.7
Leaching											
Cu recovered	Mlb	**118.9**	7.7	7.3	7.3	7.2	6.8	6.8	6.8	6.8	6.8

Area	Unit	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033
PAYABLE METALS											
Cu payable	Mlb	**13,088.5**	349.6	272.1	270.8	264.2	257.3	300.5	327.7	345.1	362.8
Mo payable	Mlb	**348.4**	8.5	5.7	7.2	5.4	8.2	7.5	8.1	8.3	7.7
METAL VALUE											
Cu payable value	$M	**43,750.4**	1,165.3	910.3	906.1	882.0	858.1	1,005.4	1,096.4	1,151.9	1,209.5
Mo payable value	$M	**3,483.5**	84.9	57.1	72.2	54.1	82.0	74.8	80.9	82.8	76.9
Total Metal Value	**$M**	**47,234.0**	**1,250.2**	**967.4**	**978.2**	**936.1**	**940.1**	**1,080.2**	**1,177.2**	**1,234.7**	**1,286.4**
TREATMENT AND REFINING CHARGES (TC&RCS)											
Cu concentrate TC&RCs	$M	**(207.9)**	(23.2)	-	-	(10.0)	(14.8)	-	-	(14.2)	(22.9)
Cu (Ilo) anodes TC&RCs	$M	**(41.6)**	(0.8)	(0.9)	(0.9)	(0.7)	(0.6)	(1.0)	(1.1)	(1.0)	(0.9)
Mo concentrate TC&RCs	$M	**(590.8)**	(14.4)	(9.7)	(12.2)	(9.2)	(13.9)	(12.7)	(13.7)	(14.0)	(13.0)
Total TC&RCs	**$M**	**(840.3)**	**(38.4)**	**(10.6)**	**(13.1)**	**(19.9)**	**(29.3)**	**(13.7)**	**(14.8)**	**(29.2)**	**(36.8)**
TRANSPORT COSTS											
SX/EW cathodes transport	$M	**(5.1)**	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)
Cu concentrate transport	$M	**(89.8)**	(10.0)	-	-	(4.3)	(6.4)	-	-	(6.1)	(9.9)
Ilo anodes transport	$M	**(18.4)**	(0.4)	(0.4)	(0.4)	(0.3)	(0.3)	(0.4)	(0.5)	(0.4)	(0.4)
Ilo cathodes transport	$M	**(496.4)**	(10.0)	(10.9)	(10.8)	(8.8)	(7.7)	(12.1)	(13.2)	(11.4)	(10.6)
Mo concentrate transport	$M	**(45.3)**	(1.1)	(0.7)	(0.9)	(0.7)	(1.1)	(1.0)	(1.1)	(1.1)	(1.0)
Total Transport Costs	**$M**	**(655.1)**	**(21.8)**	**(12.3)**	**(12.5)**	**(14.5)**	**(15.7)**	**(13.8)**	**(15.0)**	**(19.3)**	**(22.2)**
NET SMELTER RETURN	**$M**	**45,738.6**	**1,190.0**	**944.5**	**952.6**	**901.7**	**895.0**	**1,052.7**	**1,147.4**	**1,186.2**	**1,227.4**
PRODUCTION COSTS											
Mining	$M	**(9,561.8)**	(224.4)	(207.6)	(214.9)	(216.5)	(229.2)	(231.1)	(223.2)	(220.5)	(232.4)
Process	$M	**(16,031.9)**	(296.0)	(285.3)	(283.5)	(271.6)	(263.1)	(317.3)	(301.0)	(305.0)	(306.0)
G&A	$M	**-**	-	-	-	-	-	-	-	-	-
Total Production Costs	**$M**	**(25,593.7)**	**(520.4)**	**(492.9)**	**(498.5)**	**(488.1)**	**(492.3)**	**(548.4)**	**(524.2)**	**(525.5)**	**(538.4)**

Area	Unit	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033
MMR AND SMT											
Modified Mining Royalty	$M	**(533.4)**	(19.2)	(9.6)	(9.7)	(9.2)	(9.1)	(10.7)	(16.4)	(18.0)	(18.8)
Special Mining Tax	$M	**(440.6)**	(18.5)	(9.8)	(9.6)	(8.4)	(8.0)	(11.3)	(16.2)	(17.5)	(18.3)
MMR and SMT	**$M**	**(974.0)**	**(37.7)**	**(19.4)**	**(19.2)**	**(17.5)**	**(17.1)**	**(22.0)**	**(32.5)**	**(35.5)**	**(37.2)**
NET OPERATING EARNINGS	**$M**	**19,170.9**	**631.8**	**432.2**	**434.9**	**396.1**	**385.7**	**482.3**	**590.6**	**625.1**	**651.9**
TAXES											
Employee profit share	$M	**(1,114.7)**	(41.8)	(25.7)	(25.3)	(22.7)	(21.8)	(29.3)	(37.9)	(40.4)	(42.1)
Complementary mining pension fund	$M	**(64.1)**	(2.4)	(1.5)	(1.5)	(1.3)	(1.3)	(1.7)	(2.2)	(2.3)	(2.4)
Income tax	$M	**(3,762.8)**	(141.2)	(86.8)	(85.5)	(76.6)	(73.7)	(98.8)	(127.9)	(136.5)	(142.2)
Total Taxes	**$M**	**(4,941.6)**	**(185.4)**	**(114.0)**	**(112.3)**	**(100.6)**	**(96.8)**	**(129.7)**	**(167.9)**	**(179.3)**	**(186.7)**
CAPITAL COSTS											
Sustaining capital	$M	**(5,258.3)**	(161.8)	(216.1)	(92.3)	(131.3)	(101.9)	(126.5)	(77.6)	(67.0)	(135.7)
Total Capital Costs	**$M**	**(5,258.3)**	**(161.8)**	**(216.1)**	**(92.3)**	**(131.3)**	**(101.9)**	**(126.5)**	**(77.6)**	**(67.0)**	**(135.7)**
CLOSURE COST											
Closure cost	$M	**(438.5)**	-	-	-	-	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)
WORKING CAPITAL											
Change in Working Capital	$M	**0.0**	(154.7)	39.7	(1.1)	6.7	0.5	(19.5)	(16.9)	(7.6)	(6.4)
NET CASH FLOW											
Before tax	$M	**13,474.1**	315.4	255.7	341.5	271.4	282.3	334.3	494.1	548.6	507.8
After tax	$M	**8,532.5**	130.0	141.7	229.2	170.8	185.5	204.5	326.2	369.3	321.0

Note: Totals may not sum due to rounding. MMR = modified mining royalty. SMT = special mining tax.

Table 19-3: Cash Flow Forecast on an Annual Basis (2034–2043)

Area	Unit	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
MINE PRODUCTION											
Waste mined	Mt	71.9	81.4	84.2	73.3	75.1	66.9	66.7	67.6	59.2	64.3
Total ore mined	Mt	37.0	36.4	27.5	29.4	18.3	36.7	23.4	18.0	36.0	22.7
Sulfide Ore Mined (concentration)											
Sulfides ore mined	Mt	37.0	36.4	27.5	29.4	18.3	36.7	23.4	18.0	36.0	22.7
Cu head grade	%	0.55	0.53	0.45	0.45	0.50	0.54	0.55	0.56	0.54	0.46
Mo head grade	%	0.019	0.019	0.013	0.010	0.012	0.016	0.021	0.022	0.025	0.025
Oxide/Sulfide Ore Mined (leaching)											
Oxide ore mined	Mt	-	-	-	-	-	-	-	-	-	-
Cu head grade	%	-	-	-	-	-	-	-	-	-	-
PROCESS PRODUCTION											
Feed to Mill (sulfides)											
Sulfide ore feed	Mt	32.0	32.0	28.0	29.0	28.5	28.0	27.2	27.0	28.0	30.0
Cu feed grade	%	0.55	0.55	0.44	0.44	0.52	0.51	0.55	0.50	0.56	0.50
Mo feed grade	%	0.019	0.020	0.013	0.010	0.013	0.015	0.021	0.018	0.026	0.023
Feed to Leach (sulfide/oxide)											
Sulfide/oxide ore feed	Mt	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	-	-
Cu feed grade	%	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	-	0.46
METAL RECOVERY											
Concentration											
Cu recovered	Mlb	336.4	335.6	227.6	233.8	274.9	263.7	282.3	258.3	299.0	282.2
Mo recovered	Mlb	8.6	8.7	5.1	4.0	5.0	5.9	7.8	6.8	10.3	9.7
Leaching											
Cu recovered	Mlb	6.8	6.8	6.8	6.8	6.8	6.8	6.8	5.8	-	0.1

Area	Unit	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
PAYABLE METALS											
Cu payable	Mlb	332.0	331.6	227.2	232.9	272.5	261.8	279.5	255.5	289.4	273.3
Mo payable	Mlb	8.6	8.7	5.1	4.0	5.0	5.9	7.8	6.8	10.3	9.7
METAL VALUE											
Cu payable value	$M	1,108.8	1,109.6	760.1	778.1	910.3	874.7	933.0	853.8	968.4	914.5
Mo payable value	$M	85.7	87.1	50.8	40.4	49.7	59.3	78.3	68.1	103.1	96.6
Total Metal Value	**$M**	**1,194.5**	**1,196.7**	**811.0**	**818.5**	**960.0**	**934.0**	**1,011.3**	**921.9**	**1,071.4**	**1,011.1**
TREATMENT AND REFINING CHARGES (TC&RCS)											
Cu concentrate TC&RCs	$M	(10.1)	-	-	(5.2)	(7.9)	(5.9)	(11.6)	(5.7)	-	-
Cu (Ilo) anodes TC&RCs	$M	(1.0)	(1.1)	(0.8)	(0.7)	(0.8)	(0.8)	(0.8)	(0.8)	(1.0)	(0.9)
Mo concentrate TC&RCs	$M	(14.5)	(14.8)	(8.6)	(6.9)	(8.4)	(10.1)	(13.3)	(11.6)	(17.5)	(16.4)
Total TC&RCs	**$M**	**(25.6)**	**(15.9)**	**(9.4)**	**(12.8)**	**(17.1)**	**(16.7)**	**(25.7)**	**(18.1)**	**(18.5)**	**(17.3)**
TRANSPORT COSTS											
SX/EW cathodes transport	$M	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.2)	-	(0.0)
Cu concentrate transport	$M	(4.4)	-	-	(2.2)	(3.4)	(2.5)	(5.0)	(2.5)	-	-
Ilo anodes transport	$M	(0.4)	(0.5)	(0.3)	(0.3)	(0.4)	(0.3)	(0.3)	(0.3)	(0.4)	(0.4)
Ilo cathodes transport	$M	(11.6)	(13.4)	(9.1)	(8.4)	(9.5)	(9.4)	(9.2)	(9.3)	(11.9)	(11.2)
Mo concentrate transport	$M	(1.1)	(1.1)	(0.7)	(0.5)	(0.6)	(0.8)	(1.0)	(0.9)	(1.3)	(1.3)
Total Transport Costs	**$M**	**(17.8)**	**(15.3)**	**(10.4)**	**(11.7)**	**(14.2)**	**(13.4)**	**(15.8)**	**(13.2)**	**(13.7)**	**(12.9)**
NET SMELTER RETURN	**$M**	**1,151.2**	**1,165.6**	**791.2**	**794.0**	**928.6**	**903.9**	**969.8**	**890.6**	**1,039.3**	**980.8**
PRODUCTION COSTS											
Mining	$M	(235.4)	(255.2)	(258.4)	(228.8)	(230.0)	(229.5)	(198.5)	(207.1)	(211.6)	(234.6)
Process	$M	(304.7)	(315.1)	(259.4)	(315.0)	(318.5)	(313.4)	(304.4)	(303.4)	(329.0)	(342.0)
G&A	$M	-	-	-	-	-	-	-	-	-	-
Total Production Costs	**$M**	**(540.1)**	**(570.2)**	**(517.8)**	**(543.8)**	**(548.6)**	**(543.0)**	**(502.8)**	**(510.5)**	**(540.6)**	**(576.6)**

Area	Unit	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
MMR AND SMT											
Modified Mining Royalty	$M	(14.6)	(13.2)	(8.0)	(8.1)	(9.4)	(9.2)	(9.9)	(9.0)	(10.5)	(9.9)
Special Mining Tax	$M	(14.9)	(13.8)	(2.8)	(2.3)	(6.3)	(5.9)	(10.0)	(6.8)	(10.6)	(7.1)
MMR and SMT	**$M**	**(29.5)**	**(27.0)**	**(10.8)**	**(10.4)**	**(15.7)**	**(15.0)**	**(19.8)**	**(15.8)**	**(21.1)**	**(17.0)**
NET OPERATING EARNINGS	**$M**	**581.6**	**568.4**	**262.5**	**239.8**	**364.4**	**345.9**	**447.1**	**364.4**	**477.5**	**387.2**
TAXES											
Employee profit share	$M	(36.0)	(34.4)	(9.5)	(7.9)	(18.5)	(17.5)	(26.2)	(19.4)	(27.9)	(20.6)
Complementary mining pension fund	$M	(2.1)	(2.0)	(0.5)	(0.5)	(1.1)	(1.0)	(1.5)	(1.1)	(1.6)	(1.2)
Income tax	$M	(121.6)	(116.3)	(31.9)	(26.8)	(62.5)	(59.2)	(88.5)	(65.4)	(94.2)	(69.4)
Total Taxes	**$M**	**(159.7)**	**(152.7)**	**(42.0)**	**(35.2)**	**(82.1)**	**(77.7)**	**(116.2)**	**(85.9)**	**(123.7)**	**(91.1)**
CAPITAL COSTS											
Sustaining capital	$M	(230.6)	(261.5)	(411.2)	(88.9)	(69.6)	(63.7)	(73.0)	(89.9)	(129.4)	(156.1)
Total Capital Costs	**$M**	**(230.6)**	**(261.5)**	**(411.2)**	**(88.9)**	**(69.6)**	**(63.7)**	**(73.0)**	**(89.9)**	**(129.4)**	**(156.1)**
CLOSURE COST											
Closure cost	$M	(2.0)	(2.1)	-	-	-	-	-	-	-	-
WORKING CAPITAL											
Change in Working Capital	$M	13.3	0.9	56.8	1.2	(21.9)	3.7	(14.7)	14.1	(21.6)	12.4
NET CASH FLOW											
Before tax	$M	362.3	305.6	(91.8)	152.2	272.9	285.9	359.5	288.6	326.5	243.5
After tax	$M	202.6	152.9	(133.8)	117.0	190.8	208.1	243.2	202.7	202.8	152.4

Note: Totals may not sum due to rounding. MMR = modified mining royalty. SMT = special mining tax.

Table 19-4: Cash Flow Forecast on an Annual Basis (2044–2053)

Item	Unit	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
MINE PRODUCTION											
Waste mined	Mt	67.9	70.2	67.0	51.2	47.4	46.6	44.7	48.6	46.0	59.3
Total ore mined	Mt	23.6	19.1	22.2	23.8	28.8	28.4	30.3	28.8	14.0	18.7
Sulfide Ore Mined (concentration)											
Sulfides ore mined	Mt	23.6	19.1	22.2	23.8	28.8	28.4	30.3	28.7	13.8	18.6
Cu head grade	%	0.39	0.28	0.31	0.39	0.50	0.59	0.60	0.54	0.35	0.42
Mo head grade	%	0.025	0.010	0.007	0.009	0.012	0.015	0.018	0.019	0.019	0.013
Oxide/Sulfide Ore Mined (leaching)											
Oxide ore mined	Mt	-	-	-	-	-	-	-	0.1	0.1	0.1
Cu head grade	%	-	-	-	-	-	-	-	0.36	0.80	0.87
PROCESS PRODUCTION											
Feed to Mill (sulfides)											
Sulfide ore feed	Mt	30.0	30.0	31.0	28.0	28.8	28.0	29.0	29.0	29.0	28.0
Cu feed grade	%	0.48	0.30	0.30	0.39	0.50	0.59	0.59	0.56	0.34	0.38
Mo feed grade	%	0.024	0.013	0.008	0.009	0.012	0.015	0.017	0.020	0.016	0.012
Feed to Leach (sulfide/oxide)											
Sulfide/oxide ore feed	Mt	-	-	-	-	-	-	-	-	-	-
Cu feed grade	%	-	-	-	-	-	-	-	-	-	-
METAL RECOVERY											
Concentration											
Cu recovered	Mlb	271.4	165.8	168.8	198.3	267.2	307.5	321.6	308.4	182.4	195.0
Mo recovered	Mlb	10.2	5.4	3.1	3.1	4.5	5.8	6.9	8.0	6.2	4.6
Leaching											
Cu recovered	Mlb	-	-	-	-	-	-	-	-	-	-

Item	Unit	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
PAYABLE METALS											
Cu payable	Mlb	262.4	160.3	163.2	191.9	258.6	297.6	311.3	298.5	176.6	188.8
Mo payable	Mlb	10.2	5.4	3.1	3.1	4.5	5.8	6.9	8.0	6.2	4.6
METAL VALUE											
Cu payable value	$M	876.4	535.1	545.3	642.1	865.2	995.8	1,041.4	998.7	590.8	631.6
Mo payable value	$M	101.8	54.5	31.0	31.3	45.1	58.4	68.7	79.8	62.5	45.7
Total Metal Value	**$M**	**978.2**	**589.6**	**576.3**	**673.4**	**910.3**	**1,054.2**	**1,110.1**	**1,078.5**	**653.3**	**677.3**
TREATMENT AND REFINING CHARGES (TC&RCS)											
Cu concentrate TC&RCs	$M	(7.2)	(5.3)	(3.8)	-	-	-	-	-	-	-
Cu (Ilo) anodes TC&RCs	$M	(0.8)	(0.5)	(0.5)	(0.7)	(0.9)	(1.0)	(1.1)	(1.0)	(0.6)	(0.6)
Mo concentrate TC&RCs	$M	(17.3)	(9.2)	(5.3)	(5.3)	(7.6)	(9.9)	(11.6)	(13.5)	(10.6)	(7.8)
Total TC&RCs	**$M**	**(25.2)**	**(15.0)**	**(9.5)**	**(6.0)**	**(8.5)**	**(10.9)**	**(12.7)**	**(14.6)**	**(11.2)**	**(8.4)**
TRANSPORT COSTS											
SX/EW cathodes transport	$M	-	-	-	-	-	-	-	-	-	-
Cu concentrate transport	$M	(3.1)	(2.3)	(1.6)	-	-	-	-	-	-	-
Ilo anodes transport	$M	(0.4)	(0.2)	(0.2)	(0.3)	(0.4)	(0.5)	(0.5)	(0.5)	(0.3)	(0.3)
Ilo cathodes transport	$M	(9.5)	(5.6)	(6.0)	(7.9)	(10.6)	(12.2)	(12.8)	(12.3)	(7.3)	(7.8)
Mo concentrate transport	$M	(1.3)	(0.7)	(0.4)	(0.4)	(0.6)	(0.8)	(0.9)	(1.0)	(0.8)	(0.6)
Total Transport Costs	**$M**	**(14.3)**	**(8.9)**	**(8.3)**	**(8.6)**	**(11.6)**	**(13.4)**	**(14.2)**	**(13.8)**	**(8.3)**	**(8.6)**
NET SMELTER RETURN	**$M**	**938.7**	**565.7**	**558.5**	**658.8**	**890.2**	**1,029.8**	**1,083.2**	**1,050.2**	**633.7**	**660.3**
PRODUCTION COSTS											
Mining	$M	(241.7)	(241.0)	(213.2)	(174.5)	(164.3)	(174.4)	(186.6)	(191.5)	(223.6)	(246.7)
Process	$M	(326.2)	(300.7)	(312.0)	(297.4)	(321.8)	(325.7)	(338.7)	(335.0)	(301.5)	(297.1)
G&A	$M	-	-	-	-	-	-	-	-	-	-
Total Production Costs	**$M**	**(567.8)**	**(541.7)**	**(525.2)**	**(471.8)**	**(486.1)**	**(500.1)**	**(525.2)**	**(526.6)**	**(525.1)**	**(543.8)**

Item	Unit	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
MMR AND SMT											
Modified Mining Royalty	$M	(9.5)	(5.7)	(5.7)	(6.7)	(9.0)	(11.4)	(12.2)	(10.6)	(6.4)	(6.7)
Special Mining Tax	$M	(6.0)	-	-	(1.3)	(7.4)	(11.9)	(12.7)	(11.0)	-	-
MMR and SMT	**$M**	**(15.5)**	**(5.7)**	**(5.7)**	**(7.9)**	**(16.4)**	**(23.3)**	**(24.9)**	**(21.6)**	**(6.4)**	**(6.7)**
NET OPERATING EARNINGS	**$M**	**355.3**	**18.2**	**27.6**	**179.0**	**387.6**	**506.4**	**533.1**	**502.0**	**102.2**	**109.8**
Taxes											
Employee profit share	$M	(17.9)	-	-	(4.4)	(20.7)	(30.0)	(31.9)	(28.7)	-	-
Complementary mining pension fund	$M	(1.0)	-	-	(0.3)	(1.2)	(1.7)	(1.8)	(1.7)	-	-
Income tax	$M	(60.5)	-	-	(14.8)	(70.0)	(101.4)	(107.5)	(96.9)	-	-
Total Taxes	**$M**	**(79.4)**	**-**	**-**	**(19.5)**	**(91.9)**	**(133.2)**	**(141.2)**	**(127.2)**	**-**	**-**
Capital Costs											
Sustaining capital	$M	(97.2)	(101.5)	(114.3)	(83.7)	(103.7)	(77.0)	(97.5)	(172.9)	(148.7)	(130.0)
Total Capital Costs	**$M**	**(97.2)**	**(101.5)**	**(114.3)**	**(83.7)**	**(103.7)**	**(77.0)**	**(97.5)**	**(172.9)**	**(148.7)**	**(130.0)**
Closure Cost											
Closure cost	$M	-	-	(0.1)	(0.1)	(0.7)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)
Working Capital											
Change in Working Capital	$M	5.3	59.6	0.3	(20.4)	(36.6)	(21.6)	(6.8)	5.2	67.8	(2.6)
Net Cash Flow											
Before tax	$M	263.4	(23.6)	(86.5)	74.8	246.5	405.7	426.8	332.2	19.2	(24.9)
After tax	$M	184.0	(23.6)	(86.5)	55.3	154.6	272.6	285.5	205.0	19.2	(24.9)

Note: Totals may not sum due to rounding. MMR = modified mining royalty. SMT = special mining tax.

Table 19-5: Cash Flow Forecast on an Annual Basis (2054–2063)

Item	Unit	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063
MINE PRODUCTION											
Waste mined	Mt	46.6	80.0	43.9	47.8	19.1	11.2	20.4	20.5	22.4	31.0
Total ore mined	Mt	14.6	6.4	29.8	29.5	37.9	39.8	32.6	29.5	38.6	34.9
Sulfide Ore Mined (concentration)											
Sulfides ore mined	Mt	14.6	6.4	29.8	29.5	37.9	39.8	32.6	29.5	38.6	34.9
Cu head grade	%	0.39	0.32	0.39	0.39	0.41	0.46	0.50	0.49	0.48	0.46
Mo head grade	%	0.015	0.010	0.013	0.011	0.011	0.012	0.015	0.016	0.015	0.015
Oxide/Sulfide Ore Mined (leaching)											
Oxide ore mined	Mt	-	-	-	-	-	-	-	-	-	-
Cu head grade	%	-	-	-	-	-	-	-	-	-	-
PROCESS PRODUCTION											
Feed to Mill (sulfides)											
Sulfide ore feed	Mt	28.0	28.0	30.0	30.0	31.0	31.0	31.0	30.0	31.0	31.0
Cu feed grade	%	0.34	0.38	0.39	0.39	0.41	0.47	0.51	0.48	0.49	0.45
Mo feed grade	%	0.012	0.015	0.013	0.011	0.011	0.012	0.015	0.016	0.015	0.014
Feed to Leach (sulfide/oxide)											
Sulfide/oxide ore feed	Mt	0.3	-	-	-	-	-	-	-	-	-
Cu feed grade	%	0.73	-	-	-	-	-	-	-	-	-
METAL RECOVERY											
Concentration											
Cu recovered	Mlb	173.5	194.9	213.5	217.5	237.0	270.8	296.5	274.4	286.6	257.6
Mo recovered	Mlb	4.6	5.7	5.1	4.4	4.6	5.1	6.6	6.5	6.4	6.1
Leaching											
Cu recovered	Mlb	1.6	-	-	-	-	-	-	-	-	-

Item	Unit	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063
PAYABLE METALS											
Cu payable	Mlb	169.6	188.6	206.7	210.3	229.1	261.7	286.4	265.2	277.1	249.1
Mo payable	Mlb	4.6	5.7	5.1	4.4	4.6	5.1	6.6	6.5	6.4	6.1
METAL VALUE											
Cu payable value	$M	567.4	631.1	691.5	702.6	765.5	873.6	956.0	885.4	925.8	832.4
Mo payable value	$M	46.3	57.1	51.1	43.5	45.9	50.9	65.6	64.9	63.7	61.4
Total Metal Value	**$M**	**613.7**	**688.2**	**742.6**	**746.1**	**811.4**	**924.5**	**1,021.7**	**950.3**	**989.5**	**893.8**
TREATMENT AND REFINING CHARGES (TC&RCS)											
Cu concentrate TC&RCs	$M	-	-	-	(4.8)	(5.5)	(10.0)	(11.9)	(9.2)	(6.4)	(5.7)
Cu (Ilo) anodes TC&RCs	$M	(0.6)	(0.6)	(0.7)	(0.7)	(0.7)	(0.8)	(0.8)	(0.8)	(0.9)	(0.8)
Mo concentrate TC&RCs	$M	(7.8)	(9.7)	(8.7)	(7.4)	(7.8)	(8.6)	(11.1)	(11.0)	(10.8)	(10.4)
Total TC&RCs	**$M**	**(8.4)**	**(10.3)**	**(9.4)**	**(12.9)**	**(14.0)**	**(19.4)**	**(23.8)**	**(21.0)**	**(18.0)**	**(16.9)**
TRANSPORT COSTS											
SX/EW cathodes transport	$M	(0.1)	-	-	-	-	-	-	-	-	-
Cu concentrate transport	$M	-	-	-	(2.1)	(2.4)	(4.3)	(5.1)	(4.0)	(2.8)	(2.5)
Ilo anodes transport	$M	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.4)	(0.3)	(0.4)	(0.3)
Ilo cathodes transport	$M	(6.9)	(7.8)	(8.5)	(7.8)	(8.4)	(9.0)	(9.7)	(9.3)	(10.3)	(9.2)
Mo concentrate transport	$M	(0.6)	(0.7)	(0.7)	(0.6)	(0.6)	(0.7)	(0.9)	(0.8)	(0.8)	(0.8)
Total Transport Costs	**$M**	**(7.8)**	**(8.8)**	**(9.5)**	**(10.7)**	**(11.7)**	**(14.3)**	**(16.0)**	**(14.4)**	**(14.2)**	**(12.8)**
NET SMELTER RETURN	**$M**	**597.4**	**669.1**	**723.7**	**722.5**	**785.6**	**890.7**	**981.9**	**914.8**	**957.2**	**864.1**
PRODUCTION COSTS											
Mining	$M	(226.8)	(276.9)	(218.5)	(224.2)	(197.7)	(132.6)	(146.9)	(130.3)	(155.4)	(167.4)
Process	$M	(299.9)	(300.6)	(323.4)	(318.4)	(331.8)	(335.6)	(340.5)	(328.8)	(344.7)	(337.4)
G&A	$M	-	-	-	-	-	-	-	-	-	-
Total Production Costs	**$M**	**(526.7)**	**(577.5)**	**(542.0)**	**(542.6)**	**(529.5)**	**(468.3)**	**(487.4)**	**(459.1)**	**(500.1)**	**(504.7)**

Item	Unit	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063
MMR AND SMT											
Modified Mining Royalty	$M	(6.1)	(6.8)	(7.3)	(7.3)	(8.0)	(9.1)	(11.5)	(10.5)	(10.7)	(8.8)
Special Mining Tax	$M	-	-	(1.6)	(1.6)	(3.6)	(9.2)	(11.9)	(10.9)	(11.2)	(7.9)
MMR and SMT	**$M**	**(6.1)**	**(6.8)**	**(8.9)**	**(8.9)**	**(11.6)**	**(18.2)**	**(23.4)**	**(21.4)**	**(21.8)**	**(16.6)**
NET OPERATING EARNINGS	**$M**	**64.7**	**84.8**	**172.8**	**171.0**	**244.5**	**404.2**	**471.1**	**434.3**	**435.3**	**342.7**
TAXES											
Employee profit share	$M	-	-	(5.6)	(5.5)	(11.7)	(24.1)	(29.5)	(27.2)	(28.1)	(21.4)
Complementary mining pension fund	$M	-	-	(0.3)	(0.3)	(0.7)	(1.4)	(1.7)	(1.6)	(1.6)	(1.2)
Income tax	$M	-	-	(19.1)	(18.7)	(39.5)	(81.5)	(99.7)	(92.0)	(94.8)	(72.3)
Total Taxes	**$M**	**-**	**-**	**(25.0)**	**(24.6)**	**(51.9)**	**(107.0)**	**(131.0)**	**(120.8)**	**(124.5)**	**(94.9)**
CAPITAL COSTS											
Sustaining capital	$M	(44.4)	(71.2)	(52.9)	(47.8)	(78.9)	(106.7)	(95.6)	(101.1)	(47.2)	(49.9)
Total Capital Costs	**$M**	**(44.4)**	**(71.2)**	**(52.9)**	**(47.8)**	**(78.9)**	**(106.7)**	**(95.6)**	**(101.1)**	**(47.2)**	**(49.9)**
CLOSURE COST											
Closure cost	$M	-	-	-	-	-	-	-	-	-	-
WORKING CAPITAL											
Change in Working Capital	$M	8.9	(7.8)	(11.7)	(0.1)	(11.4)	(22.4)	(13.5)	8.9	(3.3)	15.5
NET CASH FLOW											
Before tax	$M	29.2	5.8	108.2	123.0	154.1	275.0	362.0	342.1	384.8	308.2
After tax	$M	29.2	5.8	83.2	98.4	102.2	168.0	231.0	221.3	260.3	213.3

Note: Totals may not sum due to rounding. MMR = modified mining royalty. SMT = special mining tax.

Table 19-6: Cash Flow Forecast on an Annual Basis (2064–2073)

Item	Unit	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073
MINE PRODUCTION											
Waste mined	Mt	34.7	12.3	20.9	17.2	7.3	3.1	5.5	4.3	6.9	4.6
Total ore mined	Mt	30.7	38.2	29.1	36.8	29.9	28.3	28.8	31.6	23.4	14.8
Sulfide Ore Mined (concentration)											
Sulfides ore mined	Mt	30.7	38.2	29.1	36.8	29.9	28.3	28.8	31.6	23.4	14.8
Cu head grade	%	0.39	0.48	0.51	0.54	0.54	0.49	0.45	0.47	0.42	0.42
Mo head grade	%	0.013	0.016	0.017	0.019	0.021	0.022	0.023	0.028	0.027	0.023
Oxide/Sulfide Ore Mined (leaching)											
Oxide ore mined	Mt	-	-	-	-	-	-	-	-	-	-
Cu head grade	%	-	-	-	-	-	-	-	-	-	-
PROCESS PRODUCTION											
Feed to Mill (sulfides)											
Sulfide ore feed	Mt	30.7	31.0	30.0	31.0	30.0	30.0	30.0	31.0	30.0	30.0
Cu feed grade	%	0.39	0.51	0.50	0.56	0.54	0.48	0.45	0.48	0.42	0.42
Mo feed grade	%	0.013	0.017	0.017	0.020	0.021	0.021	0.023	0.028	0.025	0.019
Feed to Leach (sulfide/oxide)											
Sulfide/oxide ore feed	Mt	-	-	-	-	-	-	-	-	-	-
Cu feed grade	%	-	-	-	-	-	-	-	-	-	-
METAL RECOVERY											
Concentration											
Cu recovered	Mlb	219.5	294.6	281.0	323.8	304.4	275.4	258.2	282.2	235.7	235.7
Mo recovered	Mlb	5.7	7.2	6.9	8.4	8.7	8.9	9.7	12.2	10.5	7.9
Leaching											
Cu recovered	Mlb	-	-	-	-	-	-	-	-	-	-

Item	Unit	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073
PAYABLE METALS											
Cu payable	Mlb	212.5	284.8	272.0	313.4	294.7	266.6	249.9	273.1	228.2	228.2
Mo payable	Mlb	5.7	7.2	6.9	8.4	8.7	8.9	9.7	12.2	10.5	7.9
METAL VALUE											
Cu payable value	$M	711.0	951.7	910.0	1,048.5	985.8	891.9	836.3	913.8	763.4	763.5
Mo payable value	$M	56.5	72.0	69.3	84.5	87.3	88.8	97.1	122.2	104.7	78.8
Total Metal Value	**$M**	**767.5**	**1,023.7**	**979.4**	**1,133.0**	**1,073.1**	**980.8**	**933.4**	**1,036.0**	**868.1**	**842.2**
TREATMENT AND REFINING CHARGES (TC&RCS)											
Cu concentrate TC&RCs	$M	-	(6.6)	-	-	-	-	-	-	-	-
Cu (Ilo) anodes TC&RCs	$M	(0.7)	(0.9)	(0.9)	(1.1)	(1.0)	(0.9)	(0.9)	(0.9)	(0.8)	(0.8)
Mo concentrate TC&RCs	$M	(9.6)	(12.2)	(11.8)	(14.3)	(14.8)	(15.1)	(16.5)	(20.7)	(17.8)	(13.4)
Total TC&RCs	**$M**	**(10.3)**	**(19.6)**	**(12.7)**	**(15.4)**	**(15.8)**	**(16.0)**	**(17.3)**	**(21.7)**	**(18.5)**	**(14.1)**
TRANSPORT COSTS											
SX/EW cathodes transport	$M	-	-	-	-	-	-	-	-	-	-
Cu concentrate transport	$M	-	(2.8)	-	-	-	-	-	-	-	-
Ilo anodes transport	$M	(0.3)	(0.4)	(0.4)	(0.5)	(0.4)	(0.4)	(0.4)	(0.4)	(0.3)	(0.3)
Ilo cathodes transport	$M	(8.7)	(10.6)	(11.2)	(12.9)	(12.1)	(11.0)	(10.3)	(11.2)	(9.4)	(9.4)
Mo concentrate transport	$M	(0.7)	(0.9)	(0.9)	(1.1)	(1.1)	(1.2)	(1.3)	(1.6)	(1.4)	(1.0)
Total Transport Costs	**$M**	**(9.8)**	**(14.7)**	**(12.5)**	**(14.5)**	**(13.7)**	**(12.5)**	**(11.9)**	**(13.2)**	**(11.1)**	**(10.8)**
NET SMELTER RETURN	**$M**	**747.4**	**989.4**	**954.2**	**1,103.2**	**1,043.6**	**952.3**	**904.2**	**1,001.1**	**838.5**	**817.3**
PRODUCTION COSTS											
Mining	$M	(171.4)	(134.5)	(137.5)	(148.8)	(103.7)	(92.7)	(101.4)	(103.2)	(108.2)	(102.1)
Process	$M	(331.6)	(346.7)	(342.4)	(363.1)	(348.9)	(340.8)	(336.0)	(351.5)	(329.7)	(329.7)
G&A	$M	-	-	-	-	-	-	-	-	-	-
Total Production Costs	**$M**	**(503.0)**	**(481.2)**	**(479.8)**	**(511.9)**	**(452.7)**	**(433.5)**	**(437.4)**	**(454.7)**	**(437.9)**	**(431.8)**

Item	Unit	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073
MMR AND SMT											
Modified Mining Royalty	$M	(7.6)	(13.7)	(11.8)	(16.6)	(17.8)	(14.8)	(12.5)	(16.6)	(9.6)	(9.0)
Special Mining Tax	$M	(4.0)	(13.6)	(12.0)	(16.2)	(16.9)	(14.3)	(12.4)	(15.8)	(10.0)	(9.4)
MMR and SMT	**$M**	**(11.6)**	**(27.3)**	**(23.8)**	**(32.9)**	**(34.7)**	**(29.1)**	**(24.8)**	**(32.4)**	**(19.6)**	**(18.5)**
NET OPERATING EARNINGS	**$M**	**232.9**	**480.8**	**450.6**	**558.4**	**556.3**	**489.6**	**441.9**	**514.0**	**381.0**	**367.1**
TAXES											
Employee profit share	$M	(12.5)	(32.2)	(29.4)	(37.4)	(37.5)	(32.8)	(29.3)	(35.5)	(24.9)	(23.8)
Complementary mining pension fund	$M	(0.7)	(1.9)	(1.7)	(2.2)	(2.2)	(1.9)	(1.7)	(2.0)	(1.4)	(1.4)
Income tax	$M	(42.2)	(108.8)	(99.2)	(126.4)	(126.6)	(110.6)	(99.1)	(119.8)	(84.2)	(80.5)
Total Taxes	**$M**	**(55.4)**	**(142.9)**	**(130.3)**	**(166.0)**	**(166.2)**	**(145.2)**	**(130.1)**	**(157.4)**	**(110.5)**	**(105.7)**
CAPITAL COSTS											
Sustaining capital	$M	(65.8)	(81.9)	(133.1)	(149.2)	(44.3)	(42.2)	(54.9)	(43.8)	(41.0)	(53.7)
Total Capital Costs	**$M**	**(65.8)**	**(81.9)**	**(133.1)**	**(149.2)**	**(44.3)**	**(42.2)**	**(54.9)**	**(43.8)**	**(41.0)**	**(53.7)**
CLOSURE COST											
Closure cost	$M	(0.8)	(0.1)	(0.1)	(0.1)	-	(0.1)	-	-	-	(0.1)
WORKING CAPITAL											
Change in Working Capital	$M	19.4	(41.4)	6.1	(21.5)	5.1	13.1	7.8	(14.4)	24.7	3.3
NET CASH FLOW											
Before tax	$M	185.6	357.4	323.6	387.6	517.1	460.4	394.9	455.8	364.7	316.6
After tax	$M	130.2	214.5	193.3	221.6	350.9	315.2	264.8	298.5	254.1	211.0

Note: Totals may not sum due to rounding. MMR = modified mining royalty. SMT = special mining tax.

Table 19-7: Cash Flow Forecast on an Annual Basis (2074–2082)

Item	Unit	2074	2075	2076	2077	2078	2079	2080	2081	2082
MINE PRODUCTION										
Waste mined	Mt	8.5	-	-	-	-	-	-	-	-
Total ore mined	Mt	21.3	-	-	-	-	-	-	-	-
Sulfide Ore Mined (concentration)										
Sulfides ore mined	Mt	21.3	-	-	-	-	-	-	-	-
Cu head grade	%	0.40	-	-	-	-	-	-	-	-
Mo head grade	%	0.024	-	-	-	-	-	-	-	-
Oxide/Sulfide Ore Mined (leaching)										
Oxide ore mined	Mt	-	-	-	-	-	-	-	-	-
Cu head grade	%	-	-	-	-	-	-	-	-	-
PROCESS PRODUCTION										
Feed to Mill (sulfides)										
Sulfide ore feed	Mt	29.2	13.1	-	-	-	-	-	-	-
Cu feed grade	%	0.40	0.40	-	-	-	-	-	-	-
Mo feed grade	%	0.021	0.014	-	-	-	-	-	-	-
Feed to Leach (sulfide/oxide)										
Sulfide/oxide ore feed	Mt	-	-	-	-	-	-	-	-	-
Cu feed grade	%	-	-	-	-	-	-	-	-	-
METAL RECOVERY										
Concentration										
Cu recovered	Mlb	220.8	95.5	-	-	-	-	-	-	-
Mo recovered	Mlb	8.4	2.4	-	-	-	-	-	-	
Leaching										
Cu recovered	Mlb	-	-	-	-	-	-	-	-	-

Item	Unit	2074	2075	2076	2077	2078	2079	2080	2081	2082
PAYABLE METALS										
Cu payable	Mlb	213.7	92.5	-	-	-	-	-	-	-
Mo payable	Mlb	8.4	2.4	-	-	-	-	-	-	-
METAL VALUE										
Cu payable value	$M	715.1	309.4	-	-	-	-	-	-	-
Mo payable value	$M	84.0	24.4	-	-	-	-	-	-	-
Total Metal Value	**$M**	**799.1**	**333.7**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
TREATMENT AND REFINING CHARGES (TC&RCS)										
Cu concentrate TC&RCs	$M	-	-	-	-	-	-	-	-	-
Cu (Ilo) anodes TC&RCs	$M	(0.7)	(0.3)	-	-	-	-	-	-	-
Mo concentrate TC&RCs	$M	(14.2)	(4.1)	-	-	-	-	-	-	-
Total TC&RCs	**$M**	**(15.0)**	**(4.5)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
TRANSPORT COSTS										
SX/EW cathodes transport	$M	-	-	-	-	-	-	-	-	-
Cu concentrate transport	$M	-	-	-	-	-	-	-	-	-
Ilo anodes transport	$M	(0.3)	(0.1)	-	-	-	-	-	-	-
Ilo cathodes transport	$M	(8.8)	(3.8)	-	-	-	-	-	-	-
Mo concentrate transport	$M	(1.1)	(0.3)	-	-	-	-	-	-	-
Total Transport Costs	**$M**	**(10.2)**	**(4.3)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
NET SMELTER RETURN	**$M**	**773.9**	**325.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
PRODUCTION COSTS										
Mining	$M	(114.2)	(20.8)	-	-	-	-	-	-	-
Process	$M	(318.5)	(142.1)	-	-	-	-	-	-	-
G&A	$M	-	-	-	-	-	-	-	-	-
Total Production Costs	**$M**	**(432.7)**	**(162.9)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Item	Unit	2074	2075	2076	2077	2078	2079	2080	2081	2082
MMR AND SMT										
Modified Mining Royalty	$M	(7.8)	(3.3)	-	-	-	-	-	-	-
Special Mining Tax	$M	(7.8)	(2.2)	-	-	-	-	-	-	-
MMR and SMT	**$M**	**(15.6)**	**(5.5)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
NET OPERATING EARNINGS	**$M**	**325.6**	**156.6**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
TAXES										
Employee profit share	$M	(20.6)	(6.6)	-	-	-	-	-	-	-
Complementary mining pension fund	$M	(1.2)	(0.4)	-	-	-	-	-	-	-
Income tax	$M	(69.5)	(22.2)	-	-	-	-	-	-	-
Total Taxes	**$M**	**(91.3)**	**(29.2)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
CAPITAL COSTS										
Sustaining capital	$M	(39.9)	(2.2)	-	-	-	-	-	-	-
Total Capital Costs	**$M**	**(39.9)**	**(2.2)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Closure Cost										
Closure cost	$M	(0.3)	(13.7)	(59.8)	(334.1)	(0.9)	(0.9)	(0.7)	(0.7)	(0.7)
Working Capital										
Change in Working Capital	$M	7.0	52.1	40.3	-	-	-	-	-	-
Net Cash Flow										
Before tax	$M	292.4	192.9	(19.5)	(334.1)	(0.9)	(0.9)	(0.7)	(0.7)	(0.7)
After tax	$M	201.1	163.7	(19.5)	(334.1)	(0.9)	(0.9)	(0.7)	(0.7)	(0.7)

Note: Totals may not sum due to rounding. MMR = modified mining royalty. SMT = special mining tax.

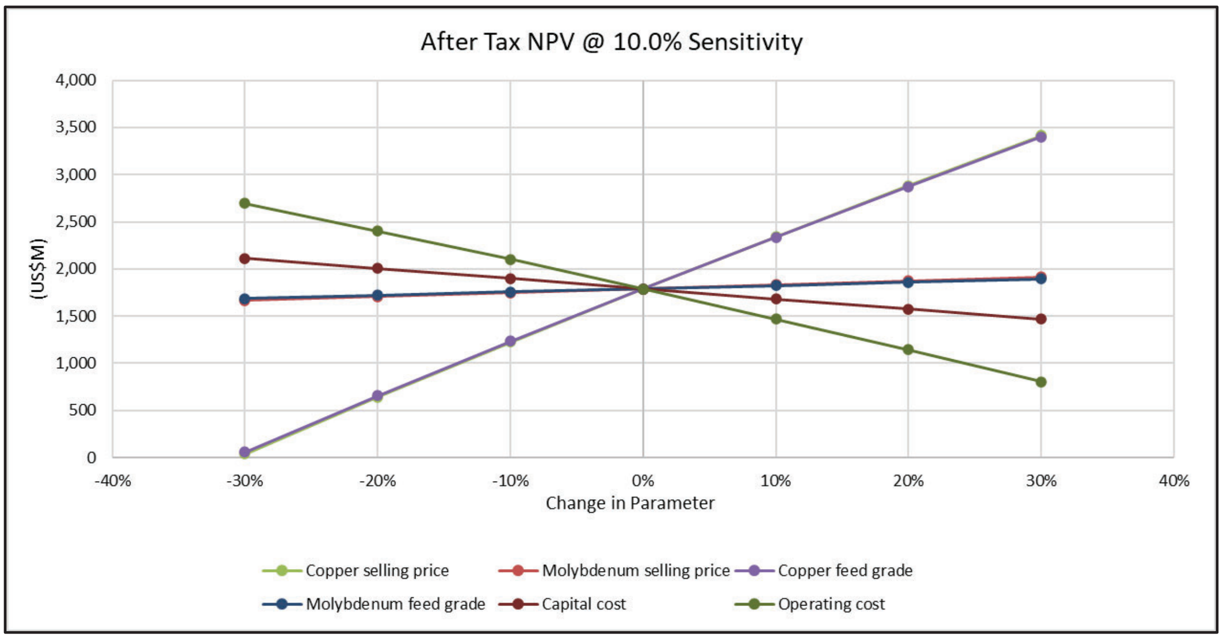
19.5 Sensitivity Analysis

A sensitivity analysis was performed to identify potential impacts on the after-tax NPV of variations in metal prices, grades, sustaining capital costs and operating costs. The results of this analysis are presented in Figure 19-1. For the purpose of the sensitivity to metal grades, it was assumed that the capacity of the processing facilities is not a constraint.

The Cuajone Operations are most sensitive to fluctuations in copper price and grade. It is less sensitive to changes in operating and capital costs. The operations are least sensitive to variations in molybdenum price and grade.

Table 19-8 presents the after-tax NPV at a range of discount rates from 8–12% with the base case highlighted.

Figure 19-1: After-Tax NPV Sensitivity (10% discount rate)



Source: Wood, 2024

Table 19-8: After-Tax NPV Sensitivity to Discount Rates (base case is bolded and highlighted)

Discount Rate	After-Tax NPV ($M)
NPV @ 8%	2,172.9
NPV @ 9%	1,963.7
NPV @ 10%	**1,790.2**
NPV @ 11%	1,644.0
NPV @ 12%	1,519.2

20.0 ADJACENT PROPERTIES

This Chapter is not relevant to this Report.

21.0 OTHER RELEVANT DATA AND INFORMATION

There is no additional information or explanation necessary to provide a complete and balanced presentation of the value of the Property to Southern Copper.

22.0 INTERPRETATIONS AND CONCLUSIONS

22.1 Introduction

The QPs of the third-party firms note the following interpretations and conclusions, based on their analysis of the data available for this Report.

22.2 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

The Cuajone Operations and the Ilo smelter/refinery are owned and operated by Southern Peru Copper Corporation, Sucursal del Perú.

Southern Copper have been operating the Cuajone Operations for decades and have a well-established understanding of what is required to operate the mine.

22.3 Geology and Mineralization

The Cuajone deposit is considered to be an example of a porphyry copper–molybdenum deposit.

The geological understanding of the settings, lithologies, and structural and alteration controls on mineralization is sufficient to support estimation of mineral resources.

22.4 Exploration, Drilling, and Sampling

The mine has been operating since 1976, and all exploration data generated prior to mine start-up is long superseded by mining and drill data.

No material factors were identified with the data collection from the drill programs that could significantly affect mineral resource estimation. Wood notes the lack of downhole surveys for some older drill holes and that not all survey certificates were available; hence, some survey data in the database could not be verified against original documentation.

The term “true thickness” is not generally applicable to porphyry-style deposits as the entire rock mass is potentially mineralized and there is often no preferred orientation to the mineralization. In areas that display porphyry-style mineralization, in general, most drill holes intersect mineralized zones at an angle, and the drill hole intercept widths reported for those drill holes are typically greater than the true widths of the mineralization at the drill intercept point.

Sampling methods, sample preparation, analysis and security were acceptable for mineral resource estimation. The collected sample data adequately reflect deposit dimensions and the style of the deposits. Sampling is representative of the copper and molybdenum grades.

Quality control programs for pre-2017 drill campaigns are not recorded. Quality control programs for exploration core holes and bast holes were implemented in 2017. Wood reviewed the available data and found no material issues.

Southern Copper carried out a resampling and reanalysis campaign applied to samples corresponding to historical drillings (pre-2017) which do not have quality control data support. Wood found the precision of sampling, subsampling and analytical processes for copper and molybdenum to be acceptable and the analytical accuracy for copper and molybdenum to be generally acceptable with no evident signs of contamination observed.

22.5 Data Verification

The Wood QP is of the opinion that the data verification programs for project data adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in mineral resource and mineral reserve estimation.

22.6 Metallurgical Test Work

Significant test work has been performed to allow for the development of recovery models for the sulfide and oxide ore and have been updated over time to account for actual plant performance.

Wood considers the available metallurgical test work information to be of an acceptable quality to at least the equivalent of a pre-feasibility level of study and is considered adequate to support the metallurgical inputs to the mineral resources, mineral reserves, and the economic analysis. However, assumptions regarding the metallurgical characteristics of ore to be mined over the next 10 to 15 years should be confirmed with dedicated drilling, sampling and metallurgical test work.

The copper and molybdenum concentrates produced are considered clean concentrates as they do not contain significant amounts of any deleterious elements.

22.7 Mineral Resource Estimates

The mineral resource estimate for the project conform to industry-accepted practices and is reported using the standards and definitions set out in S-K 1300.

Sources of uncertainty that may affect the mineral resource estimates include: unrecognized complexities and other changes to the interpretation of the geological model such as presence of unrecognized mineralization off-shoots; faults, dykes and other structures; and continuity of mineralized zones; uncertainties regarding interpreted geological and grade shape, and geological and grade continuity assumptions; unrecognized variability in the metallurgical recovery ; uncertainties in the technical and economic input assumptions used to derive the conceptual open pit shell that is used to constrain the estimates and determine the cut-off; unrecognized variations in the geotechnical (including seismicity), hydrogeological and mining method assumptions; and unrecognized issues with environmental, permitting and social license assumptions.

22.8 Mineral Reserve Estimates

The mineral reserve estimate for the Project conforms to industry-accepted practices and is reported using the definitions set out in S-K1300. Mineral reserves were converted from Measured and Indicated mineral resources, assuming conventional open pit mining methods and use of conventional equipment. Mineral resources were converted to mineral reserves by using a detailed mine plan, engineering analysis, and consideration of appropriate modifying factors within a mining study that is at least at a prefeasibility level.

Sources of uncertainty that may affect the mineral resource estimates include: uncertainties in the long-term metal price and exchange rate assumptions; unrecognized variability in the metallurgical recovery; uncertainties regarding interpreted geological model supporting the mineral resource estimates; uncertainties in the input assumptions used to derive the mineable shapes applicable to the open pit mining methods used to constrain them mineral reserve estimates; unrecognized variations to inputs to the NSR cut-off values applied to the estimates; unrecognized variations in geotechnical (including seismicity), hydrogeological and mining method assumptions; unrecognized issues with environmental, permitting, and social license assumptions.

22.9 Mining Methods

Open pit operations are conducted using conventional methods and a conventional truck and shovel fleet. Open pit mining operations are conducted year-round.

The mine plans are based on the current knowledge of geotechnical, hydrological, mining and processing information.

Seven pit phases remain in the LOM plan, starting with phase 6 and ending with phase 12. Three pit phases will be operational at any one time, to ensure that production rates can be met. A maximum mining capacity per phase of 90 Mt/a is assumed, with a maximum vertical advance rate of 11 benches per year. The mine plan assumed a maximum mining capacity of 119 Mt of annual movement and a nominal processing rate of 90 kt/d of sulfide ore at the concentration facility.

22.10 Recovery Methods

The processing methods are conventional to the industry. The comminution and recovery processes are widely used with no significant elements of technological innovation.

The process plant flowsheet designs were based on test work results, previous study designs and industry-standard practices.

The two Cuajone heap leach facilities were designed to treat oxide ores and produce a copper-rich PLS that is sent to the Toquepala Operations for SX/EW recovery. The Cuajone concentrator treats sulfide material to produce copper and molybdenum concentrates that are sent to the Ilo smelter and refinery to produce copper cathodes as the final product.

The process plants will produce variations in recovery due to the day-to-day changes in ore type or combinations of ore type being processed. These variations are expected to trend to the forecast recovery value for monthly or longer reporting periods.

The Ilo smelter processes the copper concentrates from the Cuajone and Toquepala concentrators and produces copper anodes for the Ilo refinery.

22.11 Infrastructure

Infrastructure required to support open pit mining operations is in place.

The remaining capacity in the Quebrada Honda TSF will support operations until approximately the end of 2036. Southern Copper is currently evaluating alternatives of TSF expansions or new disposal methods to accommodate additional tailings after the Quebrada Honda TSF reaches its ultimate capacity.

For this assessment, Southern Copper has determined that co-stack (dry-stack) tailings and waste rock, whereby filtered tailings would be co-disposed with waste rock at on-site facilities, was assumed once the existing Quebrada Honda TSF reaches its ultimate storage capacity. Costs have been included as part of the capital and operating cost estimates to account for additional infrastructure and land acquisition required, and Wood considers there to be adequate time to finalize designs, permit construction, and commission the additional waste management facility before it is needed.

22.12 Market Studies

Southern Copper is actively engaged in the market and sales their mine product into the market and understands it well. The marketing approach is consistent with what is publicly available on industry norms, and the information can be used in mine planning and financial analyses for the products from the Cuajone Operations in the context of this Report.

The principal payable commodities within the concentrates from the Cuajone Operations are copper and molybdenum. The copper cathodes and anodes produced at the Ilo smelter and refinery are considered by Southern Copper to be readily marketable. Copper concentrates are readily marketable due to the grade and absence of deleterious elements.

The long-term forecast copper price of $3.30/lb and molybdenum price of $10.00/lb used for mine planning and cash flow analysis were fixed over the LOM and are based on Southern Copper's interpretations of market analysis from Wood Mackenzie, CRU and 21 analysts and banks on copper price, and six analysts and banks on molybdenum price. The long-term price forecasts were increased by 15% to provide the mineral resource estimate copper and molybdenum price of $3.80/lb and $11.50/lb, respectively.

The largest in-place contracts other than for product sales cover items such as bulk commodities, operational and technical services, mining and process equipment, and administrative support services. Contracts are negotiated and renewed as needed. Contract terms are typical of similar contracts that Southern Copper has entered into in Peru.

22.13 Environmental, Permitting and Social Considerations

Baseline and supporting studies were support current and proposed mine designs, operations, and permitting.

As per permit requirements, Southern Copper has a number of monitoring programs in place.

Mine closure measures were developed and approved under Directorial Resolution R.D. N° 079-2016-MEM-DGAAM. An updated mine closure plan is under evaluation and expected to approved in 2025. Closure costs have been adequately accounted for in the financial model.

The Cuajone Operations and the Ilo Smelter and Refinery have all of the required permits to operate. The operations maintain a permit register.

Southern Copper has communication channels and tools in place, based on the company's community development model, which allow the company to recognize potential conflicts early, to work with the community to find appropriate solutions to address their concerns, and generate and maintain positive social license conditions for the continued operation of Southern Copper's mining projects. Wood considers that social risks to the Project are well understood by Southern Copper and have processes in place to reasonably manage those risks.

22.14 Capital Cost Estimates

Capital cost estimates are at a minimum at a pre-feasibility level of confidence, having an accuracy range of ±25% and a contingency amount not exceeding 15%.

The sustaining capital cost estimate for the LOM is $5,258.3 million, excluding value-added tax.

22.15 Operating Cost Estimates

Operating cost estimates are at a minimum at a pre-feasibility level of confidence, having an accuracy range of ±25% and a contingency amount not exceeding 15%.

The operating cost estimate for the LOM is $25,593.7 million, excluding value-added tax.

22.16 Economic Analysis

The financial analysis was performed using a DCF method. Net annual cash flows were estimated projecting yearly cash inflows (or revenues) and subtracting projected yearly cash outflows (such as capital and operating costs, and taxes).

Cash flows were assumed to occur at the end of each year and were be discounted to the beginning of 2025 (Year 1 of the economic analysis). Costs projected within the cash flows are based on constant Q3 2024 US dollars. Revenue was calculated from the recoverable metal and the long-term forecasts of metal prices and exchange rates. Recoverable copper metal and non-metal products include those recovered at the Ilo smelter and refinery from the copper concentrate feed from the mine operation, and copper and molybdenum concentrate sales.

The Cuajone Operations are anticipated to generate a pre-tax NPV of $2,945.7 million at a 10% discount rate and an after-tax NPV of $1,790.2 million at a 10% discount rate. As the mine is operating, and initial capital is already sunk, considerations of IRR and payback are not relevant.

The Cuajone Operations are most sensitive to fluctuations in copper price and grade. It is less sensitive to changes in operating and capital costs. The operations are least sensitive to variations in molybdenum price and grade.

22.17 Risks

Factors that may affect the mineral resource and mineral reserve estimates were identified in Section 11.13.2 and Section 12.3.2, respectively.

Risks to the Cuajone Operations include the following.

22.17.1 Mine Plan

- The mineral reserve estimates are sensitive to metal prices. Lower metal prices than forecast in the LOM plan may require revisions to the mine plan, with impacts to the mineral reserve estimates and the economic analysis that supports the mineral reserve estimates.
- Geotechnical and hydrological assumptions used in mine planning are based on historical performance, and to date historical performance has been a reasonable predictor of current conditions. Any changes to the geotechnical, including seismicity, and hydrological assumptions could affect mine planning, affect capital cost estimates if any major rehabilitation is required due to a geotechnical (seismic) or hydrological event, affect operating costs due to mitigation measures that may need to be imposed, and impact the economic analysis that supports the mineral reserve estimates.
- An increase in the clay content of the deposit could have an effect on the process flow, resulting in treatment capacity reduction and increases in operating costs when pumping tailings material to the TSF.
- Reduction in planned mining rates could delay the removal of waste and affect the ability to maintain constant feed to the plant.
- The Quebrada Honda TSF does not have sufficient storage capacity for the LOM. The mine plan and capital cost estimate assume that a new facility location can be obtained,

designs can be completed and approved by the relevant regulatory authorities, and the new facility can be constructed and commissioned prior to approximately the end of 2036. If the TSF is not available by the time envisaged, this could affect the mineral reserves, capital and operating cost estimates, and the economic analysis.

- The new TSF will be a co-stack (dry-stack) tailings and waste rock facility and estimated capital and operating costs for such a facility have been included in the financial analysis. If the final TSF option uses a different disposal method, this could affect the mineral reserves, capital and operating cost estimates, and the economic analysis.
- The new Global Industry Standard on Tailings Management (GISTM) provides a set of industry standards to guide design and management of TSFs. Members and non-members of International Council on Mining and Metals (ICMM) are required to be in compliance with the GISTM over the next several years. The TSF design needs to be revisited and be revised as needed to be in full compliance with the recently-published global tailings standard (GISTM, 2020). This may result in changes to the design criteria. Such changes may result in increases to the capital cost estimates, and changes to the operating cost estimates, which could affect the mineral reserve estimates.
- Labor cost increases or productivity decreases could impact the estimated mineral reserves, operating cost estimates and the economic analysis.
- Commodity price increases for key consumables such diesel, electricity, tires, and chemicals would negatively impact the stated mineral reserves because of the effect on the forecast operating costs.
- Assumed permitting and project development timelines may be longer than anticipated for the new TSF.
- Legislative changes potentially affecting mining licenses and/or Southern Copper's ability to operate.

22.17.2 Metallurgical Test Work

- Past metallurgical performance of the ore material has been used to predict future performance. Unrecognized variability in the metallurgical characteristics could change the quality of the concentrate, throughput of the concentrators, recoveries and operating costs.

22.17.3 Geotechnical

- Demonstrating proper tailings management is becoming increasingly important for new and existing mining facilities and meeting the requirements of the Global International Standard on Tailings Management (GISTM) is an important step towards that process. The aim of this standard is to prevent tailings catastrophes, to restore public confidence and to promote sustainable practices that link technical tailings management with social aspects, transparency and accountability. Southern Copper is currently working to achieve these objectives for the Quebrada Honda TSF. The TSF has a geotechnical instrumentation system installed at critical locations (e.g., topographic control points, satellite control, piezometers, etc.) to monitor key parameters (e.g., displacements or surface movements of the dyke). A report listing the actions to be taken, if needed, to meet the requirements of the GISTM is currently underway by Southern Copper and it is expected to be issued in the next few months. Depending on the changes required to meet GISTM, increases in capital cost and operating cost estimates may be necessary.

22.17.4 Hydrology

- Water supply at the Cuajone Mining complex is dependent on fresh water sources from the Titijones and Huaitire-Gentilar aquifers and Lake Suches. Increasing pressure from climate change and communities within the watershed could impact the available water resources. Ongoing monitoring and management of the water supply systems are critical in ensuring that the water supply remains viable. An investigation is currently being undertaken by Southern Copper to enhance the understanding of the aquifers and the impact of climate change on the sustainability of the water resource.

22.17.5 Environmental, Permitting and Social

- Assumed permitting and project development timelines may be longer than anticipated for the new TSF.
- Possibility of labor or social issues that could interrupt mine production.

22.18 Opportunities

Opportunities include the following.

22.18.1 Geology

- Improved geology logging of the bornite mineralization will provide the opportunity to better control the higher copper grades.

22.18.2 Mine Plan

- Conversion of some or all of the Indicated mineral resources currently reported exclusive of mineral reserves to mineral reserves, with appropriate supporting studies.
- Upgrade of some or all of the Inferred mineral resources to higher-confidence categories, such that it could be included in the mine plan and converted to mineral reserves, which could reduce mining costs by reducing the waste stripping and extend the mine life.
- Higher metal prices than forecast could result in higher sales revenue and potentially an increase in predicted Project economics.

22.18.3 Hydrology

- The alternative of co-stack (dry stack) tailings and waste rock storage at the Cuajone Operations after Quebrada Honda TSF reaches the design capacity in 2036 are expected to reduce the freshwater requirements at site in future.

22.19 Conclusions

Under the assumptions presented in this Report, the Cuajone Operations have a positive net present value from the forecast cash flows and support the mineral reserve estimates.

23.0 RECOMMENDATIONS

23.1 Introduction

The recommended work programs total $5.5–$6.5 million.

23.2 Internal Controls

Wood recommends that Southern Copper establish a controlled document database where documentation is stored.

This work is estimated at $0.1–$0.2 million.

23.3 Database

Drill hole documentation was not readily available for a significant number of drill holes. Systematic storage of supporting documentation is not part of the current procedures. Wood recommends that a document storage system be implemented for all supporting documentation be properly stored.

This work is estimated at $0.1–$0.2 million.

23.4 Mineral Resources

Drilling campaigns prior to 2017 without QA/QC support affect resource classification. Wood recommends that Southern Copper drill 40 twin drill holes totaling 12,000 m for the logging and QA/QC of historical drill holes.

This work is estimated at $2.5–$3.0 million.

23.5 Metallurgical Test Work

Dedicated metallurgical drilling and test work is recommended for material that is expected to be mined over the next 10 to 15 years to confirm the assumed metallurgical characteristics of the ore.

Total estimated cost is $1.8 million and considers 10 drill holes averaging 250 m at a drilling cost of $300/m.

23.6 Tailings Storage Facility

The new GISTM provides a set of industry standards to guide design and management of TSFs. Members and non-members of International Council on Mining and Metals (ICMM) are required to follow the GISTM over the next several years. The TSF design should be revisited and revised where needed to be in full compliance with the recently published global tailings standard (GISTM, 2020).

This work of engineering evaluation is estimated at $0.1–$0.2 million.

23.7 Tailings and Waste Management

The Quebrada Honda TSF design capacity is estimated to be reached in 2036. For the purposes of this Report, Geosyntec assumed that tailings and waste rock from the Cuajone Operations would be commingled and stored in a facility to be constructed in the operations area.

Southern Copper should review the most appropriate storage mechanisms for the waste rock and tailings materials for the LOM after 2036, based on LOM storage requirements and site conditions. Initial designs will be conceptual and based on existing geotechnical investigation and tailings characterization data, but conceptual designs should be sufficient to support assessment of potential permitting and surface rights requirements at this stage.

The engineering design work required to advance to a prefeasibility level study is estimated at $0.8–$1 million.

23.8 Permitting

Southern Copper should:

- identify the surface rights required to support the preferred tailings and waste rock storage plan and the path needed to secure these rights and obtain the necessary agreements with current surface rights holders.
- determine the permitting path, quantity and types of permits and authorizations required to construct and operate the selected tailings facility.
- confirm if any additional baseline studies will be required in support of permit applications for the preferred tailings facility and WRSF.

The permitting determination work is estimated at $0.05–$0.1 million.

23.9 Summary of Costs

The costs for the recommended work are summarized in Table 23-1.

Table 23-1: Costs for Recommended Work Programs

Item	Cost ($M)
Internal Controls	0.1-0.2
Database	0.1-0.2
Mineral Resources	2.5-3.0
Metallurgical Test Work	1.8
Tailings Storage Facility	0.1-0.2
Tailings and Waste Management	0.8-1.0
Permitting	0.1
Total	**5.5-6.5**

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Yunis, J. and Aliakbari, E. 2022, Fraser Institute Annual Survey of Mining Companies 2021, April 2022

24.2 Abbreviations and Symbols

Abbreviation/Symbol	Term
3D	three-dimensional
AAS	atomic absorption spectrometry
CuT	total copper
CuS	soluble copper
CuCN	cyanide-soluble copper
CUSAC	acid-soluble copper
ROX	solubility index for soluble copper
RSUL	solubility index for cyanide-soluble copper
CUSCN	cyanide-soluble copper
FESAC	soluble iron
EIA	Environmental Impact Assessment
G&A	general and administrative
GPS	global positioning system
HP	horse power
HPGR	high pressure grinding rolls
ICP-MS	inductively coupled plasma–mass spectrometry
ICP-OES	inductively coupled plasma-optical emission spectroscopy
klb	thousand pounds
kW	kilowatt
kWh	kilowatt hour
kWh/t	kilowatt hour per tonne
LOM	life-of-mine
NSR	net smelter return
PLS	pregnant leach solution
OK	ordinary kriging
QA/QC	quality assurance and quality control
QP	Qualified Person
PEN	Peruvian currency, nuevo sol
RC	reverse circulation
RMA	reduced major axis
ROM	run-of-mine
RQD	rock quality designation
TCRC	treatment charge/refining charge
TSF	tailing storage facility
US	United States
US$	United States dollars
WRSF	Waste rock storage facility

24.3 Glossary of Terms

Term	Definition
alluvium	Unconsolidated terrestrial sediment composed of sorted or unsorted sand, gravel, and clay that has been deposited by water.
aquifer	A geologic formation capable of transmitting significant quantities of groundwater under normal hydraulic gradients
argillic alteration	Introduces any one of a wide variety of clay minerals, including kaolinite, smectite and illite. Argillic alteration is generally a low temperature event, and some may occur in atmospheric conditions.
ball mill	A piece of milling equipment used to grind ore into small particles. It is a cylindrical shaped steel container filled with steel balls into which crushed ore is fed. The ball mill is rotated causing the balls themselves to cascade, which in turn grinds the ore.
beneficiation	Physical treatment of crude ore to improve its quality for some specific purpose. Also called mineral processing.
bullion	Unrefined gold and/or silver mixtures that have been melted and cast into a bar or ingot.
churn drill	Portable drilling equipment, usually mounted on four wheels and driven by steam-, diesel-, electric-, or gasoline-powered engines or motors
comminution/crushing/grinding	Crushing and/or grinding of ore by impact and abrasion. Usually, the word "crushing" is used for dry methods and "grinding" for wet methods. Also, "crushing" usually denotes reducing the size of coarse rock while "grinding" usually refers to the reduction of the fine sizes.
concentrate	The concentrate is the valuable product from mineral processing, as opposed to the tailing, which contains the waste minerals. The concentrate represents a smaller volume than the original ore.
cut-off grade	A grade level between two alternative courses of action. Material above the cut-off is dealt with in one way, while material with a grade below the cut-off is dealt with in another way. For example: the cut-off grade between material being directed to the mill or to the leach dump; or the grade level between material being directed to the stockpile or the waste dump.
data verification	The process of confirming that data has been generated with proper procedures, has been accurately transcribed from the original source and is suitable to be used for mineral resource and mineral reserve estimation.
density	The mass per unit volume of a substance, commonly expressed in grams/ cubic centimeter.

Term	Definition
dilution	Waste or low-grade rock which is unavoidably removed along with the ore in the mining process.
direct shear test	Method used to determine the shear strength of a material. Shear strength is defined as the maximum resistance that a material can withstand when subjected to shearing.
easement	Areas of land owned by the property owner, but in which other parties, such as utility companies, may have limited rights granted for a specific purpose.
electrowinning	The removal of precious metals from solution by the passage of current through an electrowinning cell. A direct current supply is connected to the anode and cathode. As current passes through the cell, metal is deposited on the cathode. When sufficient metal has been deposited on the cathode, it is removed from the cell and the sludge rinsed off the plate and dried for further treatment.
feasibility study	• A feasibility study is a comprehensive technical and economic study of the selected development option for a mineral project, which includes detailed assessments of all applicable modifying factors, as defined by this section, together with any other relevant operational factors, and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is economically viable. The results of the study may serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. • A feasibility study is more comprehensive, and with a higher degree of accuracy, than a pre-feasibility study. It must contain mining, infrastructure, and process designs completed with sufficient rigor to serve as the basis for an investment decision or to support project financing.
flotation	Separation of minerals based on the interfacial chemistry of the mineral particles in solution. Reagents are added to the ore slurry to render the surface of selected minerals hydrophobic. Air bubbles are introduced to which the hydrophobic minerals attach. The selected minerals are levitated to the top of the flotation machine by their attachment to the bubbles and into a froth product, called the "flotation concentrate." If this froth carries more than one mineral as a designated main constituent, it is called a "bulk float". If it is selective to one constituent of the ore, where more than one will be floated, it is a "differential" float.
flowsheet	The sequence of operations, step by step, by which ore is treated in a milling, concentration, or smelting process.

Term	Definition
frother	A type of flotation reagent which, when dissolved in water, imparts to it the ability to form a stable froth.
hanging wall	The wall or rock on the upper or top side of a vein or ore deposit.
heap leaching	A process whereby valuable metals, usually gold and silver, are leached from a heap or pad of crushed ore by leaching solutions percolating down through the heap and collected from a sloping, impermeable liner below the pad.
high pressure grinding rolls (HPGR)	A type of crushing machine consisting of two large studded rolls that rotate inwards and apply a high pressure compressive force to break rocks.
hydrometallurgy	A type of extractive metallurgy utilizing aqueous solutions/solvents to extract the metal value from an ore or concentrate. Leaching is the predominant type of hydrometallurgy.
Indicated mineral resource	An 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 term adequate geological evidence means evidence that is sufficient to establish geological and grade or quality continuity with reasonable certainty. 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.
induced polarization (IP)	Geophysical method used to directly detect scattered primary sulfide mineralization. Most metal sulfides produce IP effects, e.g., chalcopyrite, bornite, chalcocite, pyrite, pyrrhotite.
Inferred mineral resource	• An Inferred mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The term limited geological evidence means evidence that is only sufficient to establish that geological and grade or quality continuity is more likely than not. 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. • A qualified person must have a reasonable expectation that the majority of Inferred mineral resources could be upgraded to Indicated or Measured mineral resources with continued exploration; and should be able to defend the basis of this expectation before his or her peers.

Term	Definition
internal rate of return (IRR)	The rate of return at which the net present value of a project is zero; the rate at which the present value of cash inflows is equal to the present value of the cash outflows.
initial assessment	An initial assessment is a preliminary technical and economic study of the economic potential of all or parts of mineralization to support the disclosure of mineral resources. The initial assessment must be prepared by a qualified person and must include appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. An initial assessment is required for disclosure of mineral resources but cannot be used as the basis for disclosure of mineral reserves.
Lerchs–Grossmann	An algorithm used to design the contour of an open pit so as to maximize the difference between the total mine value of ore extracted and the total extraction cost of ore and waste.
liberation	Freeing, by comminution, of particles of specific mineral from their interlock with other constituents of the ore
life of mine (LOM)	Number of years that the operation is planning to mine and treat ore, and is taken from the current mine plan based on the current evaluation of ore reserves.
lithogeochemistry	The chemistry of rocks within the lithosphere, such as rock, lake, stream, and soil sediments.
Measured mineral resource	A 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 term conclusive geological evidence means evidence that is sufficient to test and confirm geological and grade or quality continuity. 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.
mill	Includes any ore mill, sampling works, concentration, and any crushing, grinding, or screening plant used at, and in connection with, an excavation or mine

Term	Definition
mineral reserve	• A mineral reserve is 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. • The determination that part of a Measured or Indicated mineral resource is economically mineable must be based on a preliminary feasibility (pre-feasibility) or feasibility study, as defined by this section, conducted by a qualified person applying the modifying factors to Indicated or Measured mineral resources. Such study must demonstrate that, at the time of reporting, extraction of the mineral reserve is economically viable under reasonable investment and market assumptions. The study must establish a life of mine plan that is technically achievable and economically viable, which will be the basis of determining the mineral reserve. • The term economically viable means that the qualified person has determined, using a discounted cash flow analysis, or has otherwise analytically determined, that extraction of the mineral reserve is economically viable under reasonable investment and market assumptions. • The term investment and market assumptions includes all assumptions made about the prices, exchange rates, interest and discount rates, sales volumes, and costs that are necessary to determine the economic viability of the mineral reserves. The qualified person must use a price for each commodity that provides a reasonable basis for establishing that the project is economically viable.

Term	Definition
mineral resource	• A mineral resource 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. • The term material of economic interest includes mineralization, including dumps and tailings, mineral brines, and other resources extracted on or within the earth's crust. It does not include oil and gas resources, gases (e.g., helium and carbon dioxide), geothermal fields, and water. • When determining the existence of a mineral resource, a qualified person, as defined by this section, must be able to estimate or interpret the location, quantity, grade or quality continuity, and other geological characteristics of the mineral resource from specific geological evidence and knowledge, including sampling; and conclude that there are reasonable prospects for economic extraction of the mineral resource based on an initial assessment, as defined in this section, that he or she conducts by qualitatively applying relevant technical and economic factors likely to influence the prospect of economic extraction.
net smelter return royalty (NSR)	A defined percentage of the gross revenue from a resource extraction operation, less a proportionate share of transportation, insurance, and processing costs.
open pit	A mine that is entirely on the surface. Also referred to as open-cut or open-cast mine.
ounce (oz) (troy)	Used in imperial statistics. A kilogram is equal to 32.1507 ounces. A troy ounce is equal to 31.1035 grams.
overburden	Material of any nature, consolidated or unconsolidated, that overlies a deposit of ore that is to be mined.
phyllic alteration	Minerals include quartz-sericite-pyrite
plant	A group of buildings, and especially to their contained equipment, in which a process or function is carried out; on a mine it will include warehouses, hoisting equipment, compressors, repair shops, offices, mill or concentrator.
point load test	A test that aims at characterizing rock materials in terms of strength.
potassic alteration	A relatively high temperature type of alteration which results from potassium enrichment. Characterized by biotite, K-feldspar, adularia

Term	Definition
preliminary feasibility study, pre-feasibility study	• A preliminary feasibility study (prefeasibility study) is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a qualified person has determined (in the case of underground mining) a preferred mining method, or (in the case of surface mining) a pit configuration, and in all cases has determined an effective method of mineral processing and an effective plan to sell the product. • A pre-feasibility study includes a financial analysis based on reasonable assumptions, based on appropriate testing, about the modifying factors and the evaluation of any other relevant factors that are sufficient for a qualified person to determine if all or part of the Indicated and Measured mineral resources may be converted to mineral reserves at the time of reporting. The financial analysis must have the level of detail necessary to demonstrate, at the time of reporting, that extraction is economically viable,
probable mineral reserve	A probable mineral reserve is the economically mineable part of an Indicated and, in some cases, a Measured mineral resource. For a probable mineral reserve, the qualified person's confidence in the results obtained from the application of the modifying factors and in the estimates of tonnage and grade or quality is lower than what is sufficient for a classification as a proven mineral reserve, but is still sufficient to demonstrate that, at the time of reporting, extraction of the mineral reserve is economically viable under reasonable investment and market assumptions. The lower level of confidence is due to higher geologic uncertainty when the qualified person converts an Indicated mineral resource to a probable reserve or higher risk in the results of the application of modifying factors at the time when the qualified person converts a Measured mineral resource to a probable mineral reserve. A qualified person must classify a Measured mineral resource as a probable mineral reserve when his or her confidence in the results obtained from the application of the modifying factors to the Measured mineral resource is lower than what is sufficient for a proven mineral reserve.
propylitic	Characteristic greenish color. Minerals include chlorite, actinolite and epidote. Typically contains the assemblage quartz-chlorite-carbonate.

Term	Definition
probable mineral reserve	A probable mineral reserve is the economically mineable part of an Indicated and, in some cases, a Measured mineral resource. For a probable mineral reserve, the qualified person's confidence in the results obtained from the application of the modifying factors and in the estimates of tonnage and grade or quality is lower than what is sufficient for a classification as a proven mineral reserve, but is still sufficient to demonstrate that, at the time of reporting, extraction of the mineral reserve is economically viable under reasonable investment and market assumptions. The lower level of confidence is due to higher geologic uncertainty when the qualified person converts an Indicated mineral resource to a probable reserve or higher risk in the results of the application of modifying factors at the time when the qualified person converts a Measured mineral resource to a probable mineral reserve. A qualified person must classify a Measured mineral resource as a probable mineral reserve when his or her confidence in the results obtained from the application of the modifying factors to the Measured mineral resource is lower than what is sufficient for a proven mineral reserve.
reclamation	The restoration of a site after mining or exploration activity is completed.
refining	A high temperature process in which impure metal is reacted with flux to reduce the impurities. The metal is collected in a molten layer and the impurities in a slag layer. Refining results in the production of a marketable material.
refractory	Gold mineralization normally requiring more sophisticated processing technology for extraction, such as roasting or autoclaving under pressure.
roasting	A high temperature oxidation process for refractory ores or concentrates. The material is reacted with air (possibly enriched with oxygen) to convert sulfur in sulfides to sulfur dioxide. Other constituents in ore (e.g. C, Fe) are also oxidized. The resulting calcine can then be leached with cyanide, resulting in economic gold recoveries.
rock quality designation (RQD)	A measure of the competency of a rock, determined by the number of fractures in a given length of drill core. For example, a friable ore will have many fractures and a low RQD.
royalty	An amount of money paid at regular intervals by the lessee or operator of an exploration or mining property to the owner of the ground. Generally based on a specific amount per tonne or a percentage of the total production or profits. Also, the fee paid for the right to use a patented process.

Term	Definition
run-of-mine (ROM)	Rehandle where the raw mine ore material is fed into the processing plant's system, usually the crusher. This is where material that is not direct feed from the mine is stockpiled for later feeding. Run-of-mine relates to the rehandle being for any mine material, regardless of source, before entry into the processing plant's system.
qualified person (QP)	A qualified person is an individual who is a mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and an eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared. For an organization to be a recognized professional organization, it must: • Be either: – An organization recognized within the mining industry as a reputable professional association, or – board authorized by U.S. federal, state or foreign statute to regulate professionals in the mining, geoscience or related field • Admit eligible members primarily on the basis of their academic qualifications and experience • Establish and require compliance with professional standards of competence and ethics • Require or encourage continuing professional development • Have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides • Provide a public list of members in good standing.
solvent extraction-electrowinning (SX/EW)	A metallurgical technique primarily applied to copper ores, in which metal is dissolved from the rock by organic solvents and recovered from solution by electrolysis.
specific gravity	The weight of a substance compared with the weight of an equal volume of pure water at 4°C.
supergene	Mineral enrichment produced by the chemical remobilization of metals in an oxidized or transitional environment.
tailings	Material rejected from a mill after the recoverable valuable minerals have been extracted.
triaxial compressive strength	A test for the compressive strength in all directions of a rock or soil sample.

Term	Definition
uniaxial compressive strength	A measure of the strength of a rock, which can be determined through laboratory testing, and used both for predicting ground stability underground, and the relative difficulty of crushing.

25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

25.1 Introduction

The Wood and Geosyntec QPs consider it is reasonable to rely on Southern Copper for the following aspects of modifying factors because Southern Copper has considerable experience in developing and operating mines in Peru similar to the Cuajone Operations, and elsewhere in the Americas and employs subject matter experts in the matters identified below.

25.2 Macroeconomic Trends

Wood QPs fully relied on the registrant for information relating to discount rates, foreign exchange rates, and taxes.

This information is used in the economic analysis in Section 19. It supports the mineral resource estimate in Section 11, and the mineral reserve estimate in Section 12.

25.3 Marketing Information

Wood QPs fully relied on the registrant for information relating to:

- Information relating to market studies/markets for the mine products, marketing and sales contracts, product valuation and metal prices, product specifications, refining and treatment charges, transportation costs, agency relationships, material contracts (e.g., mining, concentrating, smelting, refining, transportation, handling, and forward sales contracts), and contract status (in place, renewals).

This information is used when discussing the market, metal prices and contract information in Section 16, and in the economic analysis in Section 19. It supports the mineral resource estimate in Section 11, and the mineral reserve estimate in Section 12.

25.4 Legal Matters

Wood and Geosyntec QPs fully relied on the registrant for information relating to:

- Information relating to the corporate ownership interest, the mineral tenure (concessions, payments to retain, obligation to meet expenditure/reporting of work conducted), surface rights, water rights (water take allowances), royalties, encumbrances, easements and rights-of-way, violations and fines, permitting requirements, ability to maintain and renew permits, monitoring requirements and monitoring frequency, and bonding requirements.

This information is used in support of the property ownership information in Section 3, the permitting, closure and surface rights discussions in Section 15, Section 17 and Section 23, and the economic analysis in Section 19. It supports the mineral resource estimate in Section 11, and the mineral reserve estimate in Section 12.

25.5 Environmental Matters

Wood and Geosyntec QPs fully relied on the registrant for information relating to:

- Information relating to baseline and supporting studies for environmental permitting, environmental permitting and monitoring requirements, ability to maintain and renew permits, emissions controls, closure planning, closure and reclamation bonding and bonding requirements, sustainability accommodations, and monitoring for and compliance with requirements relating to protected areas and protected species.

This information is used when discussing environmental and permitting information in Section 3, Section 17, and closure costs and reclamation bonding information in Section 17 and Section 19. It supports the mineral resource estimate in Section 11, and the mineral reserve estimate in Section 12.

25.6 Stakeholder Accommodations

Wood QPs fully relied on the registrant for information relating to:

- Information relating to social and stakeholder baseline and supporting studies, hiring and training policies for workforce from local communities, partnerships with stakeholders (including national, regional, and state mining associations; trade organizations; fishing organizations; state and local chambers of commerce; economic development organizations; non-government organizations; and state and federal governments), and the community relations plan.

This information is used in the social and community discussions in Section 17, and the economic analysis in Section 19. It supports the mineral resource estimate in Section 11, and the mineral reserve estimate in Section 12.

25.7 Governmental Factors

Wood QPs fully relied on the registrant for information relating to:

- Information relating to taxation and government royalty considerations at the Project level.

This information is used in the economic analysis in Section 19. It supports the mineral resource estimate in Section 11, and the mineral reserve estimate in Section 12.